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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth.....$10 00

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Bound half-turkey	2 50
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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Issue of September 7, 1886.

Patents	403—	No. 348,541 to No. 348,943, inclusive.
Designs	9—	No. 16,887 to No. 16,895, inclusive.
Trade-Marks	14—	No. 13,639 to No. 13,652, inclusive.
Labels	2—	No. 4,957 to No. 4,958, inclusive.
Reissue	1—	No. 10,702.
Total issue	429	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Nebraska	.....	.....
Arizona Territory	1	.....	Nevada	.....	.....
Arkansas	3	.....	New Hampshire	6	.....
California	8	.....	New Jersey	22	.....
Colorado	.....	.....	New Mexico Territ'y	.....	.....
Connecticut	24	.....	New York	66	2
Dakota Territory	1	.....	North Carolina	.....	.....
Delaware	1	.....	Ohio	32	.....
District of Columbia	2	.....	Oregon	2	.....
Florida	.....	.....	Pennsylvania	44	2
Georgia	3	.....	Rhode Island	2	.....
Idaho Territory	.....	.....	South Carolina	1	.....
Illinois	43	2	Tennessee	2	.....
Indiana	12	.....	Texas	2	.....
Indian Territory	.....	.....	Utah Territory	.....	.....
Iowa	11	1	Vermont	1	.....
Kansas	5	.....	Virginia	2	.....
Kentucky	7	.....	Washington Territ'y	.....	.....
Louisiana	2	.....	West Virginia	.....	.....
Maine	1	1	Wisconsin	7	1
Maryland	5	2	Wyoming Territory	.....	.....
Massachusetts	41	.....	United States Army	.....	.....
Michigan	13	.....	United States Navy	.....	.....
Minnesota	3	1			
Mississippi	2	.....	Total to citizens of the United States	393	13
Missouri	14	.....			
Montana Territory	1	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	6	1
Austria-Hungary	3	.....	Ireland	.....	.....
Barbadoes	.....	.....	Holland	.....	.....
Belgium	.....	.....	Mexico	.....	.....
Brazil	.....	.....	Netherlands	.....	.....
British Columbia	.....	.....	Norway	.....	.....
Canada	3	.....	Russia	.....	.....
Central America	.....	.....	Scotland	1	.....
Colombia, U. S. of	.....	.....	Spain	.....	.....
Cuba	.....	.....	Switzerland	1	.....
Denmark	.....	.....	Victoria	.....	.....
Ecuador	.....	.....			
England	4	2	Total to citizens of foreign countries	19	3
France	1	.....			

DESIGNS.

16,887.—ROSETTE.—*Abigail Rebecca Fuller*, Chicago, Ill. Application filed July 3, 1886. Serial No. 207,134. Term of patent 3½ years.

16,888.—FURNITURE-GIMP.—*Charles William Jackson*, Chicago, Ill. Application filed April 29, 1886. Serial No. 200,629. Term of patent 14 years.

16,889.—WING CULTIVATOR-SHOVEL.—*Peter G. Johnson*, Riley Centre, Kans. Application filed August 11, 1886. Serial No. 210,648. Term of patent 14 years.

16,890.—RUG.—*Emma J. Lawrence*, Philadelphia, Pa., assignor to *The Hartley Carpet and Rug Company*, same place. Application filed July 8, 1886. Serial No. 207,519. Term of patent 3½ years.

16,891.—RUG.—*Emma J. Lawrence*, Philadelphia, Pa., assignor to *The Hartley Carpet and Rug Company*, same place. Application filed July 8, 1886. Serial No. 207,521. Term of patent 3½ years.

16,892.—ORNAMENTATION OF BUILDERS' HARDWARE.—*John Lochner*, New York, N. Y., assignor to *The Norwalk Lock Company*, South Norwalk, Conn. Application filed June 14, 1886. Serial No. 205,145. Term of patent 7 years.

16,893.—COFFIN-HANDLE ARM.—*Oliver McCarthy*, Meriden, Conn., assignor to *The Meriden Britannia Company*, same place. Application filed July 26, 1886. Serial No. 209,181. Term of patent 7 years.

16,894.—GROUP OF STATUARY.—*John Rogers*, New Canaan, Conn. Application filed August 16, 1886. Serial No. 211,073. Term of patent 14 years.

16,895.—KITE-COVER.—*James H. Sprague*, Norwalk, Ohio. Application filed April 2, 1886. Serial No. 197,540. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,639.—LOTION OR LINIMENT.—*Archibald S. Cowan*, Chicago, Ill. Application filed August 10, 1886. Used since May 25, 1886.
"The name 'ST. GENEVIEVE'S OIL.'"

13,640.—COFFEE.—*A. F. Damon & Co.*, Philadelphia, Pa. Application filed August 10, 1886. Used since January, 1869.
"The letters 'A. F. D.'"

13,641.—TONIC OR BITTERS.—*James D. Eastman*, Deer Lodge, Mont. Ter. Application filed August 10, 1886. Used since June 1, 1886.
"The portrait of 'JAMES D. EASTMAN,' accompanied by the words 'EASTMAN'S OREGON GRAPE ROOT TONIC.'"

13,642.—MEDICINAL PREPARATIONS FROM CARICA PAPAIA, (MELON TREE.)—*Dr. Finkler & Co.*, Godramstein, Germany. Application filed July 28, 1886. Used since October, 1884.
"The word 'PAPOID.'"

13,643.—BUTTER.—*The Fox River Butter Company*, Aurora and Oswego, Ill. Application filed August 9, 1886. Used since November 1, 1885.
"The words 'HIGH ROCK' and the representation of a cow."

13,644.—CORN-REMOVER.—*Leonard & Co.*, Minneapolis, Minn. Application filed June 25, 1886. Used since August 19, 1881.
"The words 'LEONARD'S HAMBURG.'"

13,645.—DRESS FABRICS OF SILK, WOOL, OR COTTON.—*Megroz, Portier, Grose & Co.*, New York, N. Y. Application filed July 12, 1886. Used since July 1, 1886.
"The word 'WINDERMERE.'"

13,646.—OYSTERS, RAW, COVE, AND PICKLED, PUT UP IN PLAIN TIN-PLATE CANS.—*Platt & Co.*, Baltimore, Md. Application filed June 17, 1886. Used since May 25, 1886.
"The word-symbol 'GOLD CAP,' applied on metal cans of the usual tin-plate color."

13,647.—CRACKERS.—*James W. Smither*, Burlington, Iowa. Application filed August 10, 1886. Used since June 12, 1882.
"The picture of a hawk holding in its beak a ribbon, suspended from which is a square cracker bearing the letters 'J W S.'"

13,648.—LAGER-BEER.—*Joseph Wassmer*, New York, N. Y. Application filed August 11, 1886. Used since July 1, 1884.
"The picture of a double bow-knot of blue ribbon, occupying the central field of a triangle."

13,649.—PICKLES.—*Crosse & Blackwell*, Soho Square, county of Middlesex, England. Application filed July 21, 1886. Used since May 22, 1866.
"The word 'MIDGETS' and the royal arms of England."

13,650.—SMOKING AND CHEWING TOBACCO.—*G. W. Gail & Ax*, Baltimore, Md. Application filed August 11, 1886. Used since July 13, 1886.
"The word-symbol 'ENSIGN' and a flag bearing the trade coat of arms of the Gail family of Germany."

13,651.—COLOGNE-WATER AND OTHER PERFUMERY.—*F. Hoyt & Co.*, Philadelphia, Pa. Application filed June 4, 1886. Used since May 7, 1886.
"The fac-simile signature of 'F. HOYT & CO.'"

13,652.—INKS.—*Frank B. Lawton*, Albion, Wis. Application filed June 10, 1886. Used since February 1, 1878.
"The letters 'I-X-L.'"

LABELS.

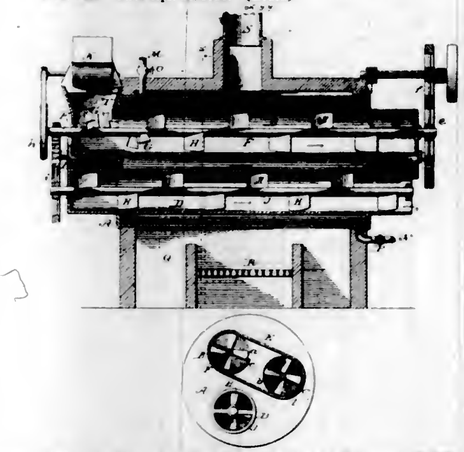
4,957.—Title: "BEECHAM'S PATENT PILLS."—*Thomas Beecham*, St. Helen's, county of Lancaster, England. Application filed August 14, 1886.

4,958.—Title: "DR. H. B. KNOWLES' COUGH SYRUP."—*William J. Fowler* and *Judson S. Clark*, Calais, Me. Application filed July 27, 1886.

PATENTS

GRANTED SEPT. 7, 1886.

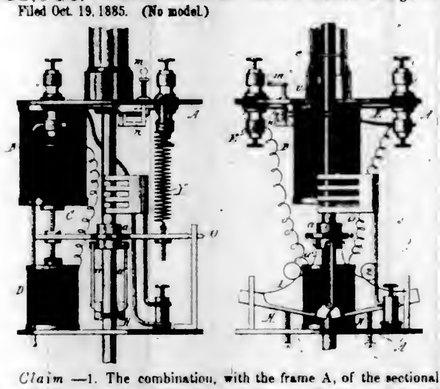
348,541. DRYING APPARATUS. VALERIUS D. ANDERSON, Cleveland, Ohio. Filed Apr. 21, 1885. (Model.)



Claim.—1. In combination with cylindrical shell A, pipes B C D, connected at their ends by caps E, the pipes B and C being severally provided with opening *a* and raised edge *c* at the lower side of the opening, substantially as and for the purpose explained.

2. In combination with boiler or shell A, having steam inlet and outlet openings M N, pipes B C D, heads E, and conveyer-shafts F I J, chamber Q, containing fire-grate R and provided with stack or chimney S, whereby the apparatus is adapted to be operated with steam from an outside source, or to generate its own steam, substantially as set forth.

348,542. ELECTRIC-ARC LAMP. LEWIS G. BROWSON, Chicago, Ill. Filed Oct. 19, 1885. (No model.)



Claim.—1. The combination, with the frame A, of the sectional clamp H, through which the carbon-holder passes, the ring *a*, the rods *a'*, pivotally connecting the ends of the sections composing the clamp with the ring *a*, set-screws working in the frame and supporting the outer ends of the sections, and springs 1 2, secured to the ring *a* and bearing on the upper sides of the sections to hold them in place upon the set-screws, as set forth.

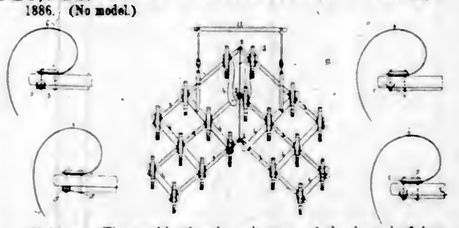
2. The combination, with the lift and shunt magnets and the armature arranged between them, of the ring *a*, the cross-lever pivoted thereto and connected with the armature, the spring Y, connecting the free end of the cross-lever with the frame, the hinged sectional clamp H, connected with the ring *a* by rods *a'*, and the springs 1 2, bearing against the clamp, as set forth.

348,543. WASHING-MACHINE. WILLIAM V. BURGESS, Sterling, Kans. Filed Apr. 29, 1886. (No model.)



Claim.—In a boiler washing-machine, the revolving cylinder for containing the clothes, provided with a grated opening and agitator bars or blades, in combination with a false bottom consisting of two independent and unattached removable sections having at their inner ends inwardly and downwardly inclined flanges to form a V-shaped chamber, and at their outer ends provided with fountain-tubes, having removable perforated sections held thereon by suitable fastenings, substantially as and for the purpose set forth.

348,544. HARROW. J. MORRIS CHILDS, Utica, N. Y. Filed May 1, 1886. (No model.)



Claim.—1. The combination, in a harrow, of the iron draft-bars having vertical parallel walls and a wearing-surface on the under side, grooved cross-beams resting on and engaging the top of the vertical walls of the draft-bars, and spring-curved teeth mounted on the frame, with means for holding the draft-bars, the cross-beams, and the curved spring-teeth in fixed relation, substantially as set forth.

2. The combination, in a harrow, of the metallic draft-bars having vertical parallel walls and a wearing-surface, cross-beams resting on the upper surface of the vertical walls of the draft-bars, spring-curved teeth mounted on the frame, and means for holding the draft-bars, cross-beams, and curved spring-teeth in fixed relation, substantially as set forth.

3. In a harrow-frame, the combination, with the cross-beams resting on the upper surface, of metallic draft-bars having vertical parallel walls and a wearing-surface forming projecting metallic wearing-surfaces

below the cross-beams, and curved spring-teeth, with means for holding the draft-bars, cross-beams, and spring-curved teeth in fixed relation, substantially as set forth.

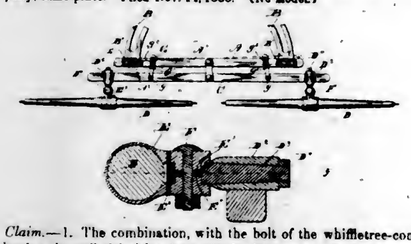
4. The combination, in a harrow having cross-beams with grooves on the under side, the metallic angle draft-bars having vertical parallel walls and a wearing-surface projecting below the cross-beams, with means for retaining the two in fixed relation, substantially as set forth.

5. The combination, in a harrow, of the grooved cross-beam and the metallic draft-bars having parallel walls and a projecting wearing-surface below the cross-beams, and the curved spring-tooth mounted on the cross-beams, with means for holding the three in fixed relation at the intersection of the draft-bars and cross-beams, substantially as set forth.

6. The combination, in a harrow, of the cross-beams, the metallic draft-bars having parallel walls, and a projecting wearing-surface below the cross-beams, the curved spring-tooth mounted on the cross-beams, a fastening-clip with projecting perforated ears and lugs for engaging opposite surfaces of the tooth, and means for holding the clip, tooth, cross-beams, and draft-bars in fixed relation to each other, substantially as set forth.

7. The combination of the angle draft-bars with walls 5 5, the cross-beams resting on the upper sides of the same, and the curved spring-tooth and means for rigidly holding the same in contact

348,545. DRAFT ATTACHMENT FOR VEHICLES. JOHN CLEMENTS, Rochester, N. Y., assignor to the James Cunningham, Son & Company, same place. Filed Nov. 14, 1885. (No model.)

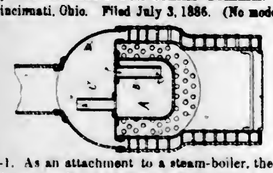


Claim.—1. The combination, with the bolt of the whiffletree-coupling having the cylindrical head provided with recesses in its opposite sides and the recess in its end, of the clip-iron and securing-bolt constructed and applied as described, and the pin for co-operating with the walls or shoulders of the recess in the end of the whiffletree-bolt, substantially as described.

2. The combination, with the splinter-bar and evener, of the pivoted rigid bars or slides applied to the evener and splinter-bar on opposite sides of the pivot of the former and alternately put under compression and tension as the evener is turned to its extremes of movement, substantially as described.

3. The combination, with the splinter-bar and evener, of the slotted bars or guides pivoted to the evener and bolts passed through the slots of said bars or slides and into the splinter-bar or the iron secured thereto, substantially as described.

348,546. ATTACHMENT FOR STEAM-BOILERS. CORNELIUS G. COMEGYS, Cincinnati, Ohio. Filed July 3, 1886. (No model.)

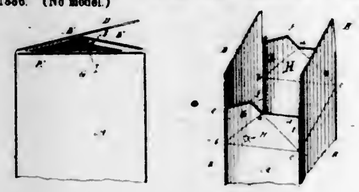


Claim.—1. As an attachment to a steam-boiler, the tank A, provided with the inlet-pipe B, which lies wholly within the tank, and the exit-pipe C, substantially as and for the purposes set forth.

2. As an attachment to a steam-boiler, the tank A, provided with the inlet-pipe B, which lies wholly within the tank, and the exit-pipe C, having forward extension C', as and for the purposes specified.

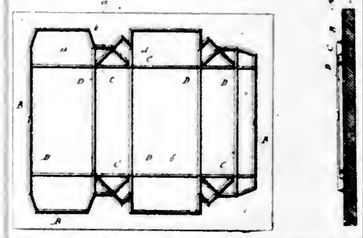
3. As an attachment to a steam-boiler, the tank A, provided with the inlet-pipe B, which lies wholly within the tank, as and for the purposes set forth.

348,547. PAPER BOX. SAMUEL CRUMP, Montclair, N. J. Filed Mar. 20, 1886. (No model.)



Claim.—The box A, formed with the flaps D E and the sides G H I, constructed as described, and of the form shown, the flap E, when the box is folded, fitting in between the flap D and sides G, and the sides G partially fitting in between the flap E and sides I, substantially as set forth.

348,548. DIE FOR CUTTING PAPER, &c. SAMUEL CRUMP, Montclair, N. J. Filed Mar. 20, 1886. (No model.)



Claim.—1. A die for cutting paper or other material, constructed of cutting-wires arranged in proper relative positions, having their base-edges embedded in a plastic substance hardened to form a solid anchorage for the wires, substantially as set forth.

2. A die for cutting paper and other material, constructed of a base-plate, scoring and cutting wires arranged in suitable relative positions, and a coating or anchorage attaching itself to the base-plate and embedding the base-edges of the wires and securing them in position, substantially as described.

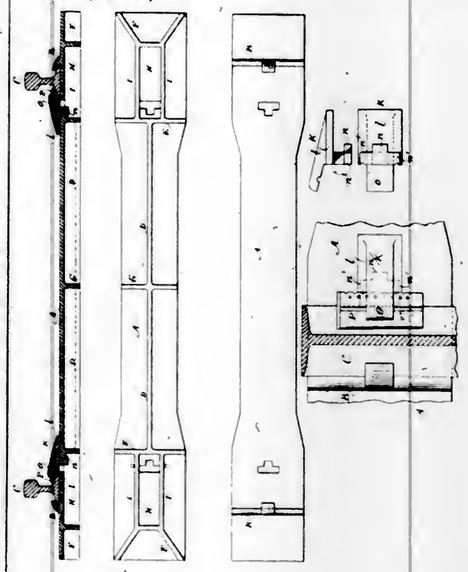
348,549. METHOD OF FORMING DIES. SAMUEL CRUMP, Montclair, N. J. Filed Mar. 20, 1886. (No model.)



Claim.—1. The method hereinbefore described of forming dies for cutting paper or card-board, which consists, essentially, in forming a templet with suitable grooves, placing the cutting and scoring wires therein, and applying a coating or layer of suitable substance over the templet for holding the wires in position.

2. The method hereinbefore described of forming dies for cutting blanks for paper boxes, which consists, essentially, in forming a templet with suitably-arranged grooves, arranging the cutting and scoring wires therein, applying a coating or layer of suitable material to said templet for grasping and retaining said wires, placing on said coating a plate, and finally subjecting the whole to heat and pressure.

348,550. METALLIC RAILWAY-TIE AND FASTENING FOR RAILS. HENRY L. DE ZENG, Geneva, assignor to himself, and Albert G. Lucas, Utica, and William D. Borrall, Waterloo, N. Y. Filed Jan. 18, 1886. (No model.)



Claim.—1. The metallic railway cross-tie having a top plate, a central flange, D, cross-flanges E, and diverging end flanges, F, on the under side, substantially as set forth.

2. The metallic cross-tie for railways, having a top plate that is broad at the end portions and narrower in the middle portions, a central flange, D, upon its under side, with cross-flanges E, and flanges forming bottomless boxes around the openings in which the clips are secured, substantially as set forth.

3. The combination, with the rails and metallic cross-ties having mortises through them, of movable clip-pieces having hooking ends that pass down through mortises in the ties and overhanging hooks O, and the wedge-shaped keys notched on one edge for the reception of pins or bolts, substantially as set forth

4. The combination, with the rails, of movable clip-pieces having hooks upon their under sides, and metallic cross-ties having mortises into which such hooks are passed, and flanges on the under sides of such cross-ties surrounding the mortises and forming bottomless boxes, substantially as set forth.

5. The combination, with the tie-plate, of clip-plates to hook over the flange of the rail, and a wedge-plate to be driven in between the flange and the clip, there being notches in the wedge for the insertion of a holding pin or bolt, substantially as set forth.

6. The clip-plate having a hook upon the under side and lateral projections, in combination with the tie-plate, into which the hook and lateral projections engage, substantially as set forth.

7. The combination, with a rail, of a clip having a hoop to pass over the rail, and lateral projections, and a tie-plate having hooks beneath which the lateral projections pass, substantially as set forth.

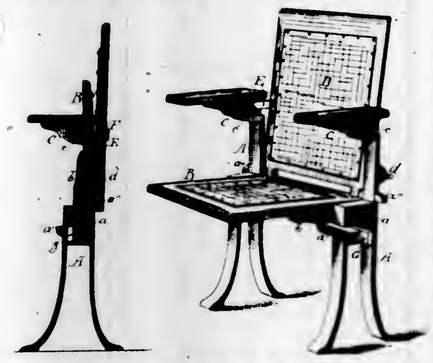
348,551. SHEET-METAL CAN. WHITMAN S. DYER, Boston, Mass. Filed Apr. 20, 1885. (No model.)



Claim.—1. The can consisting of the inner vessel composed of the upper and lower sections A and B, lapping each other at E, and the outer casing composed of the upper and lower sections K and L, lapping each other opposite to the joint of the inner vessel, whereby an extra thickness of metal is formed at said joints, and a space left between the vessel and casing above and below said joints, substantially as described.

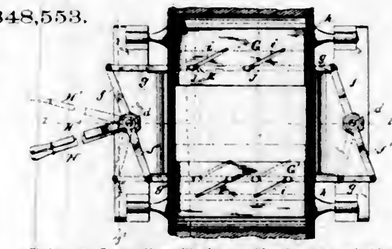
2. The combination, with the vessel composed of the sections A and B, lapped at E, and a flange, F, to the section A, of a casing composed of sections K and L, lapped opposite to the joint E, the section K having its upper edge next to flange F, and the spout J, fitting over flange F and resting on the upper portion of section K, next to said flange F, to make a joint, as shown, at that point, substantially as described.

348,552. OPERA-CHAIR. DANIEL W. GARINGER, Cleveland, Ohio. Filed Feb. 25, 1886. (No model.)



Claim.—The combination, with the supports A, provided with pivotal pins *a d*, stops or projections *a' a''*, and the bifurcated arms C, having slots *c c*, of a seat, B, turning on said pins *a*, and a back, D, pivoted on pins *d* and provided with supporting-bars E, having pins *e* playing in said slots *c c*, constructed and operating substantially as described.

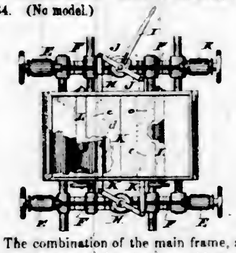
348,553. ROLLER-MILL. HENRY J. GILBERT, Dayton, Ohio, assignor to Stout, Mills & Temple, same place. Filed Nov. 3, 1884. (No model.)



Claim.—1. In a roller-mill, the combination of a suitable supporting-frame and grinding-rolls, swinging arms supporting one roll of each pair of the grinding-rolls, as described, rods F F', spring connections securing said rods to said arms, horizontal eccentrics connected to the inner ends of said rods, upright shafts *d*, arms extending from said shafts, and rods *g g'*, connected thereto, horizontally-sliding hopper-gates above said rods *g g'* and connected thereto, and hand-levers H H', for operating the rods F F' *g g'* simultaneously, as set forth.

2. The combination, with the hopper and the reciprocating rod extending under the hopper, of the hopper-gate provided with diagonal slots, bolts passing through said slots and adjustably engaging said rod, as set forth.

348,554. ROLLER-MILL. HENRY J. GILBERT, Dayton, Ohio. Filed Nov. 24, 1884. (No model.)



Claim.—1. The combination of the main frame, a series of pairs of grinding-rolls arranged above each other, movable journal-arms for one roll of each pair, vertical shafts mounted in upper and lower bearings, connections between said shafts and arms, and means for rotating said shafts to effect the simultaneous movement of all the journal-arms, substantially as set forth.

2. The combination of the main frame, a series of hoppers and pairs of grinding-rolls arranged above each other, movable journal-arms for one roll of each pair, gates for said hoppers, vertical shafts suitably journaled, rods connecting said journal-arms and shafts, devices connecting the shafts and hopper-gates, and appliances whereby the rotation of the shafts effects the simultaneous movement of all the journal-arms and gates, substantially as set forth.

3. The combination of the main frame, a series of pairs of grinding-rolls in sets one above the other, movable journal-arms for one of the rolls of each pair, a sectional vertical rock-shaft on each side of the machine, with mechanism for connecting or disconnecting any of said sections at will, and mechanism uniting each of said sections to its opposing journal-arms, whereby any one or more of said sections may be operated to effect the adjustment of its connected rolls without affecting the others substantially as described.

4. The combination of the main frame, a series of pairs of grinding-rolls in sets one above the other, movable journal-arms for one of the rolls of each pair, a hopper-gate for each pair of rolls, a sectional vertical rock-shaft on each side of the machine, with mechanism for connecting or disconnecting any of said sections at will, and mechanism for uniting each of said sections to its opposing journal-arms and to its hopper-gates, whereby any one or more of said sections may be operated to effect the simultaneous adjustment of its connected hopper-gates and rolls without affecting the others, substantially as described.

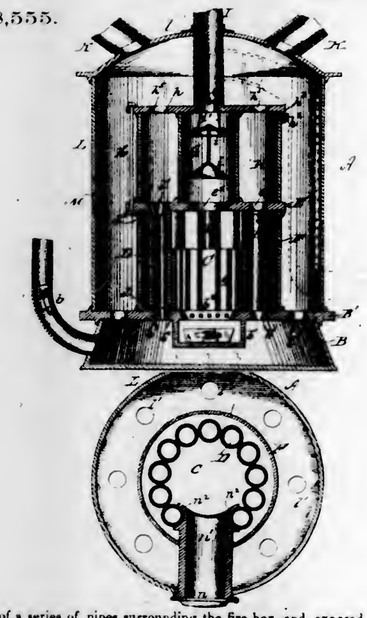
348,555. HEATER. GEORGE F. GOODLEY, Philadelphia, Pa. Filed Feb. 10, 1886. (No model.)

Claim.—1. The combination, with a heater or furnace, of a drum, H, having inner or central smoke-flue and bottom plate, E, and a fire-box composed of an annularly-arranged series of pipes loosely held in place by said bottom plate, and having their upper halves or portions reduced in diameter, as and for the purpose set forth.

2. The combination, with a heater, of an ash-box, cold-air flues, a fire box or cylinder, C, drum H, and a series of pipes surrounding said cylinder, communicating with said drum and cold-air flues, and a separate or independent hot-air flue or chamber surrounding said fire-box pipes and drum, substantially as and for the purpose set forth.

3. The combination, with a heating-furnace of a fire box or cylin-

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der, C, of a series of pipes surrounding the fire-box and exposed to its flames, and having contracted upper ends, a hot-air drum having inner or central smoke-pipe, and a separate hot-air flue or chamber surrounding said fire-box pipes and drum, substantially as shown and described.

4. The combination, with a heater, of a cold-air box, a fire-box composed of a series of tubes communicating with the cold-air box and contacting with each other for a portion of their length, and separated from each other for the remaining portion of their length, a hot-air drum located above said tubes and communicating between said pipes and drum, a smoke-pipe passing through said drum, and a separate hot-air flue or chamber surrounding said fire-box pipes and drum, substantially as shown and described.

5. The combination, with a heater, of a cold-air chamber, a fire-box, a hot-air drum, a smoke-drum inclosed in the hot-air drum, a series of pipes surrounding the fire-box and exposed to its heat and flames and communicating with the cold-air chamber and hot-air drum, a jacket, F surrounding said tubes, and a hot-air chamber outside of or surrounding said jacket and drum, as and for the purpose set forth.

6. The combination, with a heater, of cold-air chamber B, having top plate, B', provided with openings b^3, drum H, having inner or central smoke-pipe and bottom plate, E, pipes D, loosely held in position between plates B' and E, and jacket F, surrounding said pipes, substantially as shown and described.

7. The combination, with a heater, of cold-air chamber B, fire-box C, pipes D, surrounding said fire-box, jacket F, outside hot-air chamber, M, having communicating channels or openings l' with chamber B, and an annular damper or register, m, for said openings, as and for the purpose set forth.

8. The combination, with a heating-furnace, of a cold-air box or supply, a fire-box composed of a series of tubes communicating with the cold-air supply or box and serving as hot-air pipes, a smoke-pipe for the fire-box, and a hot-air chamber outside of or surrounding the fire-box pipes, substantially as and for the purpose set forth.

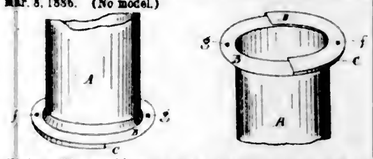
9. A heater or furnace having a fire-box composed of top and bottom plates and a series of pipes or tubes loosely held in position so as to be removable by said top and bottom plates, a contracted opening in said top plate, a smoke-flue for said opening, and a jacket, F, surrounding the fire-box tubes, as and for the purpose set forth.

10. The combination, with a heater, of a fire-box, C, pipes D, surrounding the fire-box, a drum, H, located above and communicating with pipes D, and having a smoke-drum, G, terminating in a smoke or outlet pipe, I, a jacket, F, surrounding pipes D, and a jacket or casing surrounding jacket F and drum H, and having outlet-pipes K, substantially as set forth.

11. A heater or furnace having a fire-box composed of a series of tubes or pipes, forming hot-air flues, and a second hot-air chamber separate from and surrounding said flues, as and for the purpose set forth.

12. A heater having pipes D surrounding the fire-box, and a fuel chute or box for the latter, having side flanges to lock or connect with said pipes and hold the chute in position, substantially as set forth.

348,556. PIPE-JOINT. EDWD GRUENINGER, Cincinnati, Ohio. Filed Mar. 8, 1886. (No model.)



Claim.—The combination of the pipes A, each provided with flange B, flange D, connecting-web C, holes f and g, and bolt G, substantially as and for the purposes specified.

348,557. BUTTER-SHIPPER. HENRY HAAK, Prescott, Pa. Filed June 26, 1886. (No model.)



Claim.—1. A butter-shipper comprising an outer casing and a metallic inner jacket or lining suspended therein, and forming therewith a water-space, which extends entirely around the lining or jacket, and a series of independent removable butter-trays mounted within the jacket or lining and forming therewith cold-air spaces, and an ice-tray mounted on the upper butter-tray and communicating with the water-space, substantially as specified.

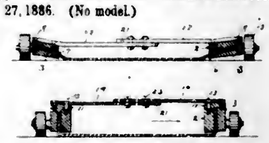
2. A butter-shipper comprising an outer casing having a suspended inner jacket or lining provided with a supporting-flange and with a drip-cup communicating with a complete annular water-space, a series of butter-trays, and an ice-tray mounted upon said butter-trays, and provided with a drip-pipe emptying into said drip-cup, substantially as specified.

3. In a butter-shipper, the combination of an inclosing-case provided with an inner suspended lining, forming a complete annular water-space, with a butter-tray having four contact-points with said lining and forming intermediate air-spaces, substantially as specified.

4. The tray D, bent to form inwardly-extending supporting-flanges or handles D', in combination with the lining B and casing A, substantially as specified.

5. The combination of the inclosing casing A, interior lining, B, suspended therein, with the butter-trays D, having flanges D', the space-blocks B^2, and with the ice-tray F, having drip-pipe F' and cup F^2, substantially as specified.

348,558. ROOFING-MACHINE. JULIUS HENNING, Minneapolis, Minn. Filed Feb. 27, 1886. (No model.)



Claim.—1. In a machine of the class described, a metal turning-bar having therein a groove, 7, that is substantially horizontal at its forward end and gradually changes to a perpendicular position at its rear end, as described, and for the purpose set forth.

2. The combination of the oppositely-placed bars having in their inner sides the turning-grooves 7, the wheels 15, and the adjustable cross-bars 17 19, all substantially as described.

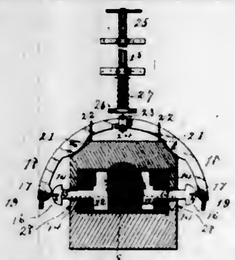
3. In a machine of the class described, the turning-bar consisting of the independent parts 2 and 3, having the described groove or space 7 between them, and means for holding said parts together, as and for the purpose set forth.

4. The combination, with the side bars having the grooves 7 and the projections 25, the handle-bar 27, passing through openings in said projections, collars 29, having set-screws 31, the handle 33, secured to said bar 27, and the adjustable cross-bars 17 19, all substantially as described.

348,559. CAR-COUPLING. PRESTON O'NEAL HIPP, Moro Bay, assignor of one-half to William R. Watson, Bradley County, Ark. Filed June 19, 1886. (No model.)

Claim.—1. In a car-coupler as above described, the combination of

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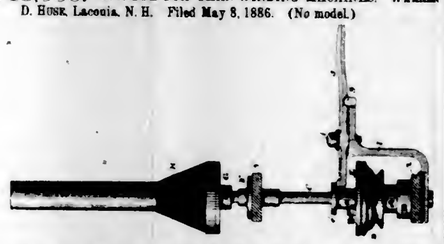
the lower part, 1, having in its rear end the dovetail opening 2, and in its front end the spring-lip 10, with the upper part, 3, having the dovetail point 4, fitting in said opening 2, and bolts 5, securing said parts together.

2. In a car-coupler as above described, the combination, with the lower parts, 1, and the upper part, 3, the lock-jaws 12, working in the grooves 11, the spiral spring 14, operating said jaws, levers 18, fulcrumed in the openings 20 of the upper part, 3, by means of the bolts 21, their lower ends linked to the said lock-jaws 12, and their upper ends lapped, as described, and loosely bonnd together by the band 23, and pin 24, adapted to be operated by the rod 25, having the head 26, or by other equivalent means.

3. In a car-coupler as above described, the upper part, 3, having the dovetail end 4, and the guides 22, set in the upper face of the said part and on either side of the levers 18.

4. In a car-coupler as above described, the curved levers 18, their lower ends terminating in the hand-holds 19.

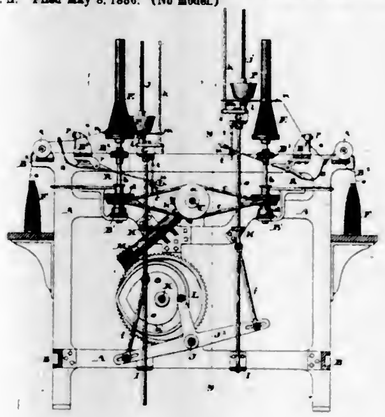
348,560. SPINDLE FOR YARN-WINDING MACHINES. WARREN D. HUSE, Laconia, N. H. Filed May 8, 1886. (No model.)



Claim.—1. The combination of the spindle C, the disk E, firmly secured to said spindle and provided with the hub e and collar e', the loose pulley D, a fixed bearing for said pulley, the bracket I, provided with the ears g and g' and the nib i, the lever J, and the inclined fulcrum-pin f, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

2. In combination with the vertically-movable spindle C, the disk E, provided with the collar e', and the lever J, for raising the same, the bracket I, provided with the ears g g' and the nib i, the fulcrum-bolt f, the spring h, interposed between said lever and the head of said bolt, and the pulley D, all constructed, arranged, and operating substantially as and for the purposes described.

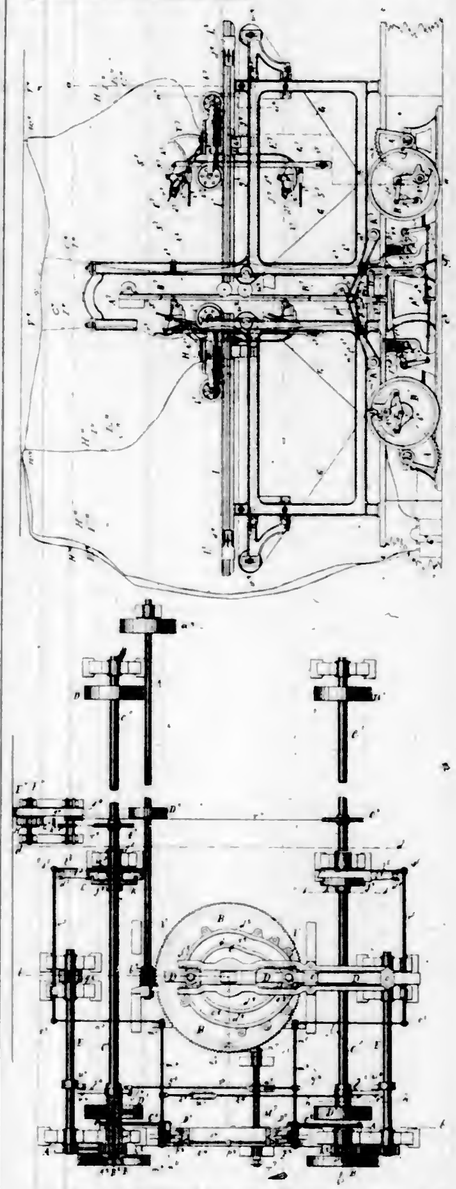
348,561. YARN-WINDING MACHINE. WARREN D. HUSE, Laconia, N. H. Filed May 8, 1886. (No model.)



Claim.—In combination with the revolving bobbin-carrying spindle b, the yarn-guide n, the pulley q, and the stripper p, the vertically-movable bar G, the pendent rod l, secured to said bar, mechanism, as set forth, for moving said bar and rod vertically, the collar l', secured upon said rod l, the pivoted take-up lever R, and mechanism, as set forth, for adjusting the yarn-guide n upward as the yarn is built up upon the bobbin, substantially as described.

348,562. EMBROIDERING-MACHINE. JOSEPH IRISH, New York, N. Y., assignor to James McVickar, same place. Filed Feb. 7, 1884. Renewed Nov. 23, 1885. (No model.)

Brief.—A system of clutch and brake mechanisms, in connection with gear-reversing devices, are operated by electric conductors, armatures, &c., upon the tightening and straining of the threads as the carriages recede from the tambour-frame.



Claim.—1. The combination, with a tambour-frame and needle-carrying carriages, of the horizontal cam C, bars D, and mechanism,

substantially as described, for transmitting the alternating movement of the said bars to the said carriages, all substantially as and for the purpose herein set forth.

2. The combination, with the tambour-frame and needle-carrying carriages, of the cam C, the bars D, pinions g^3, rock-shafts E, and mechanism, substantially as herein described, for transmitting alternating movements from said rock-shafts to the needle-carrying carriages, all substantially as and for the purpose herein set forth.

3. The combination, with the tambour-frame and needle-carrying carriages, of the cam C, bars D, pinions g^3, rock-shafts E, rock-shafts C', mechanism, substantially as described, connecting the rock-shafts E with the rock-shafts C', the pulley-faced disks D', pulleys w^3, and straps G', arranged to transmit motion from the said disks to the carriages, all substantially as and for the purpose herein set forth.

4. The combination, with the tambour-frame and the needle-carrying carriages, of the pulleys w^3, the straps G', pulley-faced disks D', and mechanism, substantially as described, for actuating said disks to move the carriages alternately to and from the tambour-frame, all substantially as and for the purpose herein set forth.

5. The combination, with the tambour-frame and the needle-carrying carriages, of the pulleys w^3, the straps G', pulley-faced disks D', rock-shafts C' and E, pinions g^3, bars D, gearing to connect the rock-shafts C' E, and mechanism for operating, substantially as described, the bars D alternately to give movement to the rock-shafts E, all substantially as and for the purpose herein set forth.

6. The combination, with the tambour-frame and needle-carrying carriages, of the cam C, bars D, pinions g^3, rock-shafts E and C', toothed sectors A', and pinions h^2, connecting said rock-shafts and pulley-disks D', devices for connecting the pinions h^2 with the pulley-disks D', straps G', and pulleys w^3, all substantially as and for the purpose herein set forth.

7. The combination, with a tambour-frame, a needle-carrying carriage, and a shaft from which motion is communicated to said carriage, of a clutch mechanism arranged to engage and disengage said shaft from its connection with said carriage, an electric circuit-breaker, and an electric wire or connection, whereby the clutch mechanism may be operated synchronously with the movement of the carriage to and from the tambour-frame, substantially as and for the purpose herein set forth.

8. The combination, with a tambour-frame, a needle-carrying carriage, and a shaft from which motion is communicated to said carriage, of an electric wire, a clutch mechanism constructed and arranged to engage and disengage said shaft from its connection with said carriage, and mechanism, substantially as described, for transmitting motion from the strain and stress of the threads to the said clutch mechanism, to disengage the carriage from the latter, all substantially as and for the purpose herein set forth.

9. The combination, with a tambour-frame, a needle-carrying carriage provided with a tension-bar, S^7, arranged to rest in contact with the threads, and a shaft from which motion is transmitted to said carriage, of an electric wire, a clutch mechanism arranged to engage and disengage the said shaft from its connection with said carriage, an electric circuit-breaker, and mechanism, substantially as described, for actuating the circuit-breaker by the movement of the said tension-bar, whereby the clutch mechanism is caused to disengage the shaft when the requisite limit of outward movement of the carriage is reached, all substantially as and for the purpose herein set forth.

10. The combination, with a tambour-frame and a needle-carrying carriage provided with a tension-bar, S^7, of the sector T^7, constructed with an insulated part, k^2, arranged to be actuated by the said tension-bar, the conducting springs or devices V^7 V^7, an electric wire, and a clutch mechanism arranged to engage and disengage the carriage from its driving mechanism, all substantially as and for the purpose herein set forth.

11. The combination, with the tambour-frame, a needle-carrying carriage provided with a tension-bar arranged to rest in contact with the threads in the needles, and the shaft from which motion is transmitted to said carriage, of a clutch arranged to detach said shaft from its connection with said carriage, a battery or equivalent source of electricity, a system of circuit-wires, a sector, T^7, constructed with the insulated surface or part k^2, and the springs or devices V^7 V^7, said sector and springs or devices being arranged to act to break or close, as the case may be, the current through the circuit-wires, all substantially as and for the purpose herein set forth.

12. The combination, with the tambour-frame and a needle-carrying carriage provided with a tension-bar arranged to rest upon the threads in the needles, of the yoke B^9, fast upon the pivotal shaft of the tension-bar, the pivoted fork r^2, and the fixed stud or pin S^6, all substantially as and for the purpose herein set forth.

13. The combination, with the tambour-frame, a needle-carrying carriage, and the shaft from which motion is communicated to said carriage, of a clutch arranged to detach said shaft from connection with the carriage, an electric circuit, means for closing said circuit to actuate said clutch as the carriage approaches its limit of desired movement from the tambour-frame, and means for breaking said circuit as the carriage approaches the tambour-frame, all substantially as and for the purpose herein set forth.

14. The combination, with the tambour-frame, a needle-carrying carriage, and the shaft from which motion is transmitted to said carriage, of an electric circuit, the conducting strips or springs A^8, attached to the carriage, and the insulated bar or surface D^8, all substantially as and for the purpose herein set forth.

15. The combination, with the tambour-frame, a needle-carrying carriage, and the shaft from which motion is transmitted to said carriage, of the clutch comprising the block A^3, sector E', face l^2, tooth l^3, sleeve l^5, toggle-joint F', sliding bolt B^3, sleeve s^2, and pin or key u^2, and mechanism actuating said clutch synchronously with the movements of the carriage to connect and disconnect the latter from the actuating-shaft at the desired limit of its outward movement, all substantially as and for the purpose herein set forth.

16. The combination, with the tambour-frame, the needle-carrying carriage, mechanism for actuating said carriage to and fro with reference to the tambour-frame, a clutch mechanism for disconnecting said actuating mechanism from the driving or motive power, of the electro-magnet D^6, armature C^6, pawl B^6, block A^6, and metallic contact-pieces b^5 F^2, and mechanical devices for transmitting motion from the block A^6 to the clutch, all substantially as and for the purpose herein set forth.

17. The combination, with the tambour-frame, a needle-carrying carriage, and mechanism for moving the latter to and fro with reference to the tambour-frame, of the electro-magnet D^6, armature C^6, pawl B^6, block A^6, contact-pieces b^5 F^2, spring d^5, arranged to press the pawl toward the block A^6, a clutch arranged to disconnect the carriage-moving mechanism from its driving or motive power, and mechanism for transmitting motion between the said block A^6 and the said clutch, all substantially as and for the purpose herein set forth.

18. The combination, with the tambour-frame, needle-carrying carriage, and mechanism for moving the latter to and fro with reference to the tambour-frame, of the electro-magnet D^6, armature C^6, pawl B^6, block A^6, contact-pieces b^5 F^2, spring d^5, arranged to press the pawl toward the block A^6, a clutch arranged to disconnect the carriage-moving mechanism from its driving or motive power, lever-arms n^4 on the shaft m^4 of the block A^6, rods o^4, springs S^4, guides or bearings p^4, fixed to the frame, all substantially as and for the purpose herein set forth.

19. The combination, with the tambour-frame, needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, and a clutch mechanism for disconnecting said actuating mechanism from its driving or motive power, of a rock-shaft, C^2, connecting with the said clutch mechanism to actuate the same, the pawl H^2, carried by said shaft, the arm I^2 on the shaft m^4, and mechanism, substantially as described, for actuating said shaft in unison with the movement of the needle-carrying carriage, all substantially as and for the purpose herein set forth.

20. The combination, with the tambour-frame, a needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, and a clutch mechanism for disconnecting said actuating mechanism from its driving or motive power, of a rock-shaft, C^2, connected with the said clutch mechanism to actuate the same, the socket-arm h^2, attached to said rock-shaft, the pawl H^2, pivoted to said socket-arm, a spring, k^4, the arm I^2 on the shaft m^4, and mechanism, substantially as described, for actuating said shaft in unison with the movement of the needle-carrying carriage, all substantially as and for the purpose herein set forth.

21. The combination, with the tambour-frame, needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, and a clutch mechanism for disconnecting said actuating mechanism from its driving or motive power, of a rock-shaft, C^2, connected with the said clutch mechanism to actuate the same, the pawl H^2, carried by said shaft C^2, the arm I^2 on shaft m^4, an electro-magnet, D^6, armature C^6, pawl B^6, block A^6, contact-pieces b^5 F^2, and mechanism for connecting the shaft m^4 with the arm I^2, all substantially as and for the purpose herein set forth.

22. The combination, with the tambour-frame, a needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, and a clutch mechanism for disconnecting said actuating mechanism from its driving or motive power, of a rock-shaft, C^2, connected with the said clutch mechanism to actuate the same, the pawl H^2, carried by said shaft C^2, the arm I^2 on shaft m^4, an electro-magnet, D^6, armature C^6, pawl B^6, block A^6, contact-pieces b^5 F^2, arm n^4, rod o^4, and spring s^4, all substantially as and for the purpose herein set forth.

23. The combination, with the tambour-frame, needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, and a clutch mechanism for disconnecting said actuating mechanism from its driving or motive power, of a rock-shaft, C^2, connected with the said clutch mechanism to actuate the same, the pawl H^2, carried by said shaft C^2, the arm I^2 on shaft m^4, an electro-magnet, D^6, armature C^6, pawl B^6, block A^6, contact-pieces b^5 F^2, arm n^4, and spring s^4, rod o^4, lever y^4, rod k^4, having loop n', elbow-lever j^4, crank-arm m^5 on rock-shaft E, all substantially as and for the purpose herein set forth.

24. The combination, with the tambour-frame and a needle-carrying carriage, of mechanism for moving the latter to and fro with reference to the tambour-frame, a clutch mechanism for disconnecting said actuating mechanism from its driving or motive power, a brake mechanism for retarding the momentum of the carriage, and mechanism, substantially as herein set forth, for operating said brake mechanism synchronously with the clutch mechanism, all substantially as and for the purpose herein set forth.

25. The combination, with the tambour-frame and a needle-carrying carriage, of mechanism for moving the latter to and fro with reference to the tambour-frame, a clutch mechanism for disconnecting said actuating mechanism from its driving or motive power, and a brake mechanism, a jar-relieving mechanism, and mechanism, substantially as herein set forth, for operating the brake mechanism synchronously with the clutch mechanism, all substantially as and for the purpose herein set forth.

26. The combination, with a tambour-frame, a needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, and mechanism for releasing the carriage from its actuating mechanism at the end of the outward movement of the said carriage, of a brake mechanism for stopping the momentum for such outward movement of the carriage when thus released; and mechanism, substantially as described, for insuring to the brake a yielding movement, all substantially as and for the purpose herein set forth.

27. The combination, with a tambour-frame and a needle-carrying carriage, of mechanism for moving the latter to and fro with reference to the tambour-frame, and mechanism for releasing the carriage from its actuating mechanism at the end of the outward movement of the said carriage, the shell L', slotted collar M', pawls I*, having notches o^3, pivots s^3, and studs l^3, the springs r^3, plate K', having flange a^3, and shaft C', connected with the carriage mechanism, all substantially as and for the purpose herein set forth.

28. The combination, with the tambour-frame and a needle-carrying carriage, of mechanism for moving the latter to and fro with reference to the tambour-frame, and mechanism for releasing the carriage from its actuating mechanism at the end of the outward movement of the said carriage, the shell L', having arm b^3, screw or bolt d^3, spring v^3, and socket c^3, slotted collar M', pawls I*, having notches o^3, pivots s^3, and studs l^3, the springs r^3, plate K', having flange a^3, and shaft C', connected with the carriage mechanism, all substantially as and for the purpose herein set forth.

29. The combination, with a tambour-frame, needle-carrying carriage, and mechanism for moving the latter to and fro with reference to the tambour-frame, of the hollow sleeve N^3, buffer-rods 1^m, and frame or fixed resisting device for the buffer-rod to operate against, and springs f^9, arranged to act upon the said carriage during the latter portion of its inward movement, all substantially as and for the purpose herein set forth.

30. In combination with a tambour-frame, a needle-carrying carriage, mechanism for moving the said carriage outward from the tambour-frame, a counter-weight and connection for giving an initial inward movement to the said carriage toward the tambour-frame, and the mechanism for imparting the principal or concluding movement of said carriage toward the tambour-frame, all substantially as and for the purpose herein set forth.

31. In combination with a tambour-frame, a needle-carrying carriage, mechanism for moving the said carriage outward from the tambour-frame, a clutch mechanism for releasing the said carriage from its motive power at the end of its said outward movement, a counter-weight for imparting an initial inward movement of the said carriage toward the tambour-frame, and mechanism for imparting the principal or concluding inward movement of said carriage toward the tambour-frame, all substantially as and for the purpose herein set forth.

32. In combination with a tambour-frame, a needle-carrying carriage, and mechanism for moving the said carriage outward from the tambour-frame, a clutch mechanism for releasing the said carriage from its motive power at the conclusion of said outward movement, a brake mechanism for retarding the momentum of the said carriage when thus released by the clutch, a counter-weight, and connections for giving an initial inward movement to the carriage toward the tambour-frame, and mechanism for giving the principal or concluding inward movement to said carriage, all substantially as and for the purpose herein set forth.

33. The combination, with the tambour-frame, a needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, and a clutch mechanism constructed and arranged to release the carriage from its motive power at the end of the outward movement of said carriage, of the pulley o^* on the shaft C' of the clutch mechanism, strap r^*, counter-weight T*, vertical racks i^*, pulleys, substantially as described, for guiding the strap r^* and for suspending the counter-weight from said strap, and pinion G*, connected by a pawl and ratchet with the shaft P*, in its turn connected by suitable means with the driving-shafts A, all substantially as and for the purpose herein set forth.

34. The combination, with the tambour-frame, a needle-carrying carriage, mechanism for moving the latter to and fro with reference to the tambour-frame, a clutch mechanism constructed and arranged to release the carriage from its motive power at the end of the outward movement of said carriage, and an electric circuit apparatus, of the adjustable metallic spring K^8, attached to the carriage, the stationary metallic spring J^8, and means for throwing the two springs out of contact with each other, all substantially as and for the purpose herein set forth.

35. The combination, with a tambour-frame, a needle-carrying carriage, the straps G', pulley-faced disks D', and mechanism for operating said disks alternately in opposite directions to move the carriage, of the threaded bolts i^9, provided with socket-heads j^9, keys l^9, and nuts k^9, all substantially as and for the purpose herein set forth.

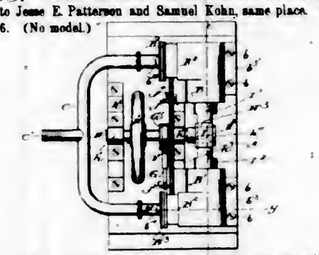
36. The combination, with a tambour-frame and a needle-carrying carriage, the straps G', pulley-faced disks D', and mechanism for operating said disks alternately in opposite directions to move the carriage, of the longitudinal keys m^2 and set-screws n^2, all substantially as and for the purpose herein set forth.

37. In combination with a tambour-frame, a needle-carrying carriage, the straps G', pulley-faced disks D', having openings s^2, bolts h^4, having slots r^2, and set-screws i^2, all substantially as and for the purpose herein set forth.

38. The combination, with a tambour-frame and a needle-carrying carriage, of a brake mechanism and electric apparatus for actuating the said brake mechanism, and means for actuating the carriage with reference to the tambour-frame, all substantially as and for the purpose herein set forth.

39. The combination, with the tambour-frame and duplicate needle-carrying carriages, of a brake mechanism, an electric apparatus for actuating the same, and means for actuating the said carriages, all substantially as and for the purpose herein set forth.

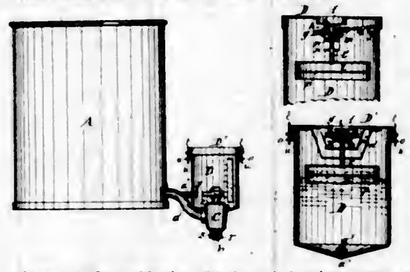
348,563. STEAM-ENGINE. CHARLES A. JACOBS, Toledo, Ohio, assignor to Jesse E. Patterson and Samuel Kohn, same place. Filed Feb. 18, 1886. (No model.)



Claim.—1. In a high-speed engine, cylinders B B', having one open end, said cylinders mounted in the same plane upon opposite ends of a bed, A, and provided upon one side with steam-chests having ports and inverted-U-shaped valves connected together by a two-part link-rod, in combination with said link-rod, a clamp that secures the parts thereof together, a crank-pin that projects from said rod, an eccentric-rod, G', connected at one end to said crank-pin and at its other to an eccentric, G', upon the shaft H, and fly-wheel H', substantially as described.

2. In a high-speed engine, a two-part valve-rod, F, secured together by a clamp, f^3, having a set-screw, f^4, and pin f^5, projecting outwardly from said rod F, in combination with an eccentric-rod, G, connected at one end to said pin f^5, and provided at its opposite end with a strap to encircle an eccentric, G', eccentric G', mounted upon a shaft, H, fly-wheel H', crank-arm H^2, and cross-head I of the piston-rod, substantially as described.

348,564. MEASURING-CAN. ALFRED D. LEWIS and CHARLES S. IRISH, Jordan, N. Y. Filed Mar. 1, 1886. (No model.)



Claim.—1. In combination with the tank A and measuring-can D, the two-way cock C, having branches *a a'*, extending from two sides thereof and at right angles to each other, and connected, respectively, with said tank and can, and the spigot *b*, provided with the horizontal groove *c*, extending part way around the side thereof, to communicate at opposite ends with the branches *a a'*, the vertical channel *d*, extending through the lower end of the spigot, and having its upper end ter-

minating at the side of the spigot diametrically opposite to the groove c, and enlarged thereat, lugs e e on the lower end of the spigot, the ring r, having in its inner side notches n n, extending vertically through the ring, and notches n' n', extending only part way through the ring, and the spring s, interposed between said ring and bottom of the cock, substantially as described and shown.

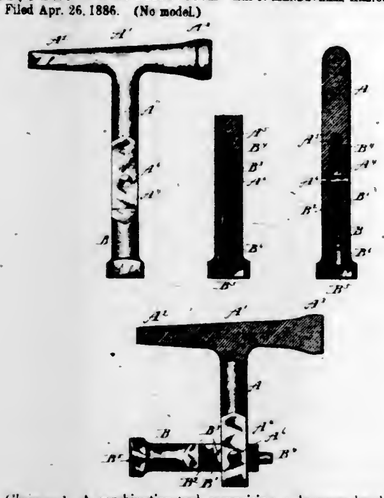
2. The combination of the measuring-can D, provided at the top with the vent-opening f, the valve g, provided with the port h, the supplemental valve i, arranged over said port to open upward therefrom, and the float l, carrying the valve m under the port h, substantially as described and shown.

3. The combination of the measuring-can D, provided at the top with the vent-opening f, the valve g, arranged under said opening and held normally in a closed position, and provided with the port h, the supplemental valve i, seated upon the valve g, the hangers n'', extended across the can, the float l, having the post l', extending movably through said hangers, and the valve m, attached to the post l', above the hangers, substantially as described and shown.

4. The combination, with the can D, of the cover D', removably connected therewith, and provided with the vent-opening f and the valve g, and hangers n'', connected with the said cover and detached from the body of the can, the float l, carrying the valve m, and the valve i, seated upon the valve g, substantially as described and shown.

5. The combination, with the tank A and cock C, of the pipe a, deflected downward from the tank and formed with the horizontal extension a'', the piston-rod F, extended longitudinally through the pipe-extension a'' and adjacent portion of the pipe a, and the valve I, attached to the inner end of said rod, substantially as described and shown, for the purpose set forth.

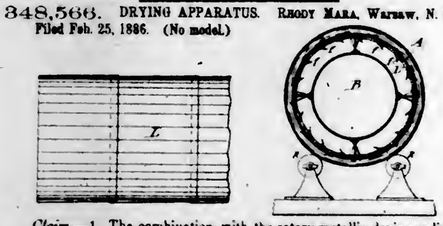
348,565. COMBINATION-TOOL. IRA J. MANDEVILLE, Hazleton, Pa. Filed Apr. 26, 1886. (No model.)



Claim.—1. A combination-tool comprising a hammer-head and a screw-driver at one end and a socket-wrench at the other end, and a connecting-handle formed of two sections pivoted to each other, whereby the handle may be disposed so as to present the socket-wrench at various angles to the handle, substantially as specified.

2. The combination-tool consisting of the hammer-head A^3, screw-driver A^2, and fixed bifurcated handle-section A, and a movable handle-section, B, having the socket-wrench B^5, slot B^3, and lug B^4, whereby the socket-wrench may be secured in line with the fixed section of the handle, substantially as specified.

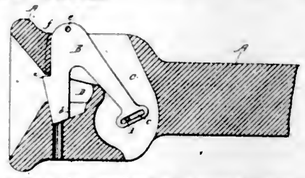
348,566. DRYING APPARATUS. RHODY MARA, Warsaw, N. Y. Filed Feb. 25, 1886. (No model.)



Claim.—1. The combination, with the rotary metallic drying-cylinder A, of the lining L, composed of cylindrical sections of wood, paper, or analogous material secured to the inner side of said cylinder and arranged successively endwise, one back of the other, with the lower end of each section lapping onto the inner side of the upper end of the adjacent section, substantially as described and shown.

2. The combination, with the rotary metallic drying-cylinder A, of the lining L, composed of cylindrical sections of wood, paper, or analogous material applied to the inner side of said cylinder and arranged successively endwise, one back of the other, and shelves f f, secured longitudinally to the inner surface of said lining to stay the latter, substantially as set forth and shown.

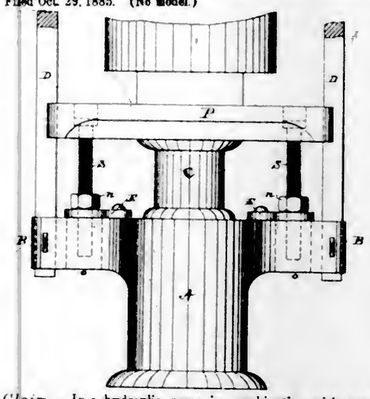
348,567. CAR-COUPLING. JAMES MCCREE, Lansing, Mich. Filed May 28, 1886. (No model.)



Claim.—1. A gravity coupling-hook supported within a vertical slot and resting on an angular slot in the back or lower end of the coupling-hook, the toe or front end resting on an inclined plane and presenting a vertical face to draw-head, as herein set forth.

2. A gravity coupling-hook provided on its front face with a notch or lip, a, thereby locking itself without lateral strain by sliding downward and forward upon inclined slot and toe-rest, substantially as herein specified.

348,568. HYDRAULIC PRESS. JOHN H. MCGOWAN, Cincinnati, Ohio. Filed Oct. 29, 1885. (No model.)



Claim.—In a hydraulic press, in combination with a vertically-moving platen provided with depending standards having holding-nuts threaded thereon, a base-bar perforated with apertures of sufficient size to permit the free passage of the standards and their nuts without engagement, and removable holding-plates adapted to be inserted beneath said nuts to hold the same against the base-bar and uphold the platen, substantially as set forth.

348,569. NUT-LOCK. JAMES W. MCHUGH, Du Bois, Pa. Filed May 5, 1886. (No model.)



Claim.—1. The herein-described nut-lock, consisting of a split ring spirally formed and having one end expanded, curved rapidly to one side, and bifurcated, substantially as and for the purpose set forth.

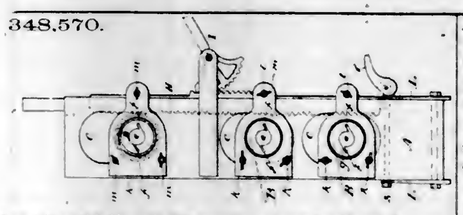
2. The herein-described nut-lock, consisting of a split ring spirally formed, one end being chisel-shaped on its upper outer corner and provided with a lug depending from the opposite inner lower corner, substantially as described.

3. As an improved article of manufacture, a nut-lock consisting of a split ring spirally bent, one end terminating in a hook-shaped head, and the other end in a claw-shaped tail rapidly curved to one side of the plane of the ring, substantially as shown and described.

348,570. FENCE-MACHINE. CHARLES E. MILLER, Indianapolis, Ind. Filed June 21, 1886. (No model.)

Claim.—1. In a fence-machine, the combination of the main frame having a series of vertical slots, the series of twisting-disks, each adapted

348,570.

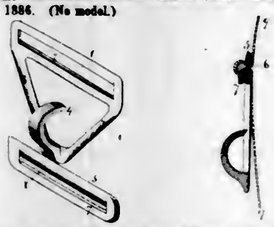


to receive and hold a pair of fence-wires on opposite sides of the center of said disk, and arranged within said slots, the bearing-plates for the disks adjustably secured to the sides of the frame, and intermediate mechanism connecting the disks, whereby they are turned simultaneously, all substantially as specified.

2. In a fence-machine, the twisting-disk B, provided with cog-teeth on its periphery and having the holes e f f, and slots g g, flanges d d, plates h h, having flanges j j, and clamping-bolts k k and l, frame A, and rack-bar H, all combined and arranged to co-operate as specified.

3. In a fence-machine, frame A, braces L L, having slot r, bolt s, and cam-lever l, all combined and arranged to co-operate as specified.

348,571. BACK-BAND HOOK. JESSE B. MOORE, Eldorado, Ark. Filed May 28, 1886. (No model.)



Claim.—1. In a buckle or back-band hook, the combination of the plate 1, having the elongated slot 2 and the arms 3, with pin 5, having the V-shaped flange 6, loop 7, and slot 8, said flange fitting loosely in the said slot 2 and provided with a suitable hook, substantially as shown, and for the purposes set forth.

2. In a buckle or back-band hook, the combination of the plate 1, having the elongated slot 2 and arms 3, with the pin 5, having the V-shaped flange 6 and the inturned arms 10, said flange fitting loosely in the said slot 2 and provided with a suitable hook, all substantially as and for the purposes set forth.

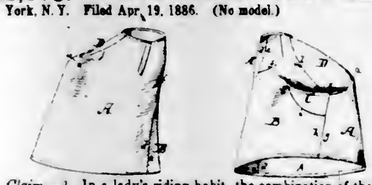
348,572. TESTING-STATION FOR CONDUIT SYSTEMS. JAMES F. MUNSIE, Chicago, Ill., assignor of five-twelfths to Horatio N. May, same place. Filed Mar. 22, 1886. (No model.)



Claim.—1. In a conduit system of electric wires, a station or series of stations, B, provided with a series of binding-post boards, C, unfixedly located within the interior thereof and securing the wires contained within said conduit, said binding-post boards being provided each with an insulating-shield, C', all arranged substantially as and for the purpose described.

2. A binding-post board, C, for electric wires, provided with slots or holes c^2, binding posts or screws c', and an insulating-shield, C', substantially as described.

348,573. LADY'S RIDING-HABIT. AUGUSTUS F. MÜLLER, New York, N. Y. Filed Apr. 19, 1886. (No model.)



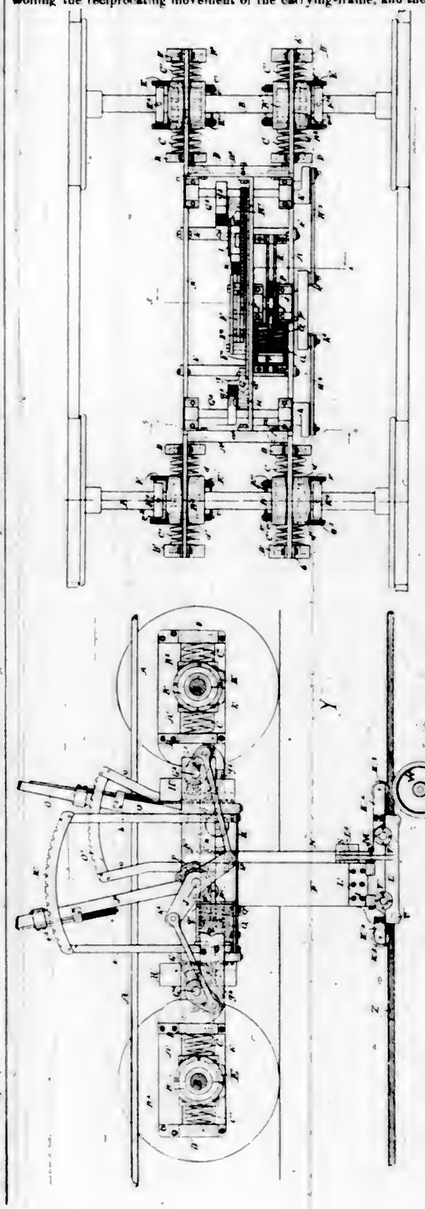
Claim.—1. In a lady's riding-habit, the combination of the piece of fabric A, having the concave line j, with the triangular insertion or piece D, having protuberance k, for producing the bulged portion a for the raised knee of the wearer, substantially as described.

2. The combination, in a lady's riding-habit, of the piece of fabric A, having ogee line d, with the piece of fabric B, having concave line e and incision f, for producing the drawn-in portion b at the back of the rider, substantially as described.

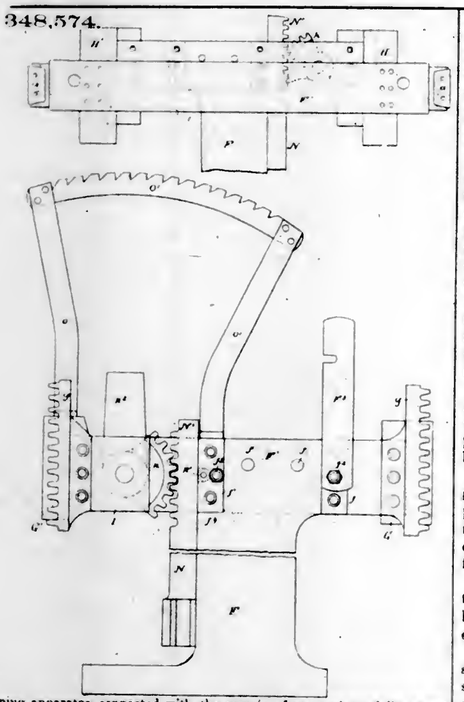
3. The combination of the piece of fabric A, having the ogee edge d, the concave edge g, and the peculiarly-shaped edge j, with the triangular-shaped piece D, having projecting bulge k and convex edge l, with the tapering insertion C, and with the main back portion, B, having incision f, all arranged to produce a garment having knee-bulge a in front and drawn-in part b at the back, substantially as herein shown and described.

348,574. ENDLESS-CABLE CAR-PROPELLING MECHANISM. EDWARD NOBLE, Jr., St. Louis, Mo., and GEORGE F. BRANHAM, Indianapolis, Ind. Filed Mar. 1, 1886. (No model.)

Claim.—1. The combination of the axles, their boxes, the endwise-reciprocating carrying-frame, the housings at the ends of the carrying-frame having guideway-connection with the boxes, the springs for controlling the reciprocating movement of the carrying-frame, and the grip-



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ping apparatus connected with the carrying-frame, substantially as and for the purpose set forth.

2. The combination of the axles, the boxes sliding on the axles, the carrying-frame, the housings connecting it with the boxes, and the gripping apparatus connected with the carrying-frame, substantially as and for the purpose set forth.

3. The combination of the axles, the boxes sliding thereon, the reciprocating carrying-frame, its housings having guideway-connection with the boxes, and the springs C C', supported at their ends in sockets D d D' d' of the housings and boxes, substantially as and for the purpose set forth.

4. The sliding boxes B', having the guideway-grooves *b* widening from their middles toward their ends, substantially as and for the purpose set forth.

5. The boxes B', provided with the spring-securing sockets *d d'* at their opposite ends, substantially as and for the purpose set forth.

6. The boxes B', having the oil-reservoirs B^3 on opposite sides of their grooved central portion, substantially as and for the purpose set forth.

7. The combination of the axles, the sliding boxes having the outer and inner flanges, E E', the carrying-frame having the box-housings, the stop-collars E^2, secured to the axles, and the inner and outer dust-guard collars secured to the box-flanges, substantially as and for the purpose set forth.

8. The combination of the carrying-frame, the vertically-adjustable cross-head having guideway-connection with the carrying-frame, the gripper-shank connected with the cross-head, the hinged clamp-jaws carried by the gripper-shank, the clamp-arms, and the clamp-actuating mechanism carried by the cross-head, substantially as and for the purpose set forth.

9. The combination of the carrying-frame, the vertically-adjustable cross-head having guideway-connection with the carrying-frame and provided with the receiving-block, the gripper-shank having dowel-pin connection with the cross-head and receiving-block, and the pivoted latch, substantially as and for the purpose set forth.

10. The combination of the carrying-frame, the vertically-adjustable cross-head having guideway-connection with the carrying-frame, the gripper-shank connected with the cross-head, the gear-racks at the opposite ends of the cross-head, the segment-gears engaging the gear-racks, the rock-shafts to which the segment-gears are fastened, the actuating rock-shaft, its cranks connected with cranks of the segment-gear rock-shafts, the controlling-lever secured to the actuating rock-shaft, and the detent devices for this lever, substantially as and for the purpose set forth.

11. The combination of the carrying-frame, the cross-head having guideway-connection with the carrying-frame, the mechanism for vertically adjusting the cross-head, the gripper-shank connected with the cross-head, the hinged clamp-jaws carried by the gripper-shank, the clamp-arms, the clamp-actuating bar vertically adjustable with the gripper-shank and having connection with the clamp-arms, and the mechanism carried by the cross-head for vertically adjusting the clamp-actuating bar independently of the gripper-shank, and its adjusting mechanism to open and close the clamp-jaws, substantially as set forth.

12. The combination of the carrying-frame, the vertically-adjustable cross-head having guideway-connection with the carrying-frame, the gripper-shank connected with the cross-head, the hinged clamp-jaws carried by the gripper-shank, the clamp-arms, the vertically-reciprocating clamp-actuating bar connected with the clamp-arms, its gear-rack, the segment-gear engaging this gear-rack and carried by the cross-head, the segment-actuating lever, and its detent devices, substantially as and for the purpose set forth.

13. The combination of the gripper-shank, the hinged clamp-jaws, the clamp-arms, their anti-friction rollers with projecting shafts, the vertically-adjustable clamp-actuating bar and the wedge-block carried thereby, and having the inclined ways for the anti-friction rollers and their shafts, substantially as and for the purpose set forth.

14. The combination of the carrying-frame, the vertically-adjustable gripping apparatus having guideway-connection with the carrying-frame, the controlling-lever, by connection with which the gripping apparatus is adjusted, and the counterbalancing-spring, with which the lever is connected, substantially as and for the purpose set forth.

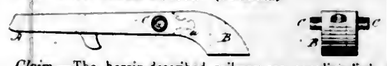
15. The combination of the carrying-frame, the vertically-adjustable gripping apparatus, the controlling-lever for adjusting the gripping apparatus, the chain secured at one end to the boss of the lever, the piston-rod, to which the opposite end of the chain is connected, the piston, the coiled spring, and the cylinder, substantially as and for the purpose set forth.

16. The combination of a clamp-jaw having the longitudinally-extending lining-recess with the socket midway thereof, and the lining having the lug *t* entering the socket and detachably pinned therein, substantially as and for the purpose set forth.

17. The combination of the clamp-jaws provided with the roller-sockets in their interior surfaces, the non-yielding ball-rollers rotating in said sockets, and the removably-secured linings, by which the rollers are retained against accidental displacement, as and for the purpose set forth.

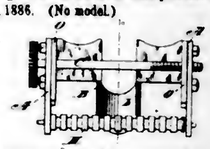
18. The combination of the clamp-jaws provided with the roller-sockets in their exterior surfaces, the ball-rollers rotating in said sockets, and the retaining-rings for the rollers, as and for the purpose set forth.

348,575. CAR-COUPLING LINK. FRANCIS W. PARSONS, Philadelphia, Pa., assignor to Winslow Warren, Dedham, Mass. Filed May 21, 1885. Renewed June 21, 1886. (No model.)



Claim.—The herein-described railway-car coupling-link, the anterior end A of which consists of cast or forged steel or iron, and the opposite end or counter-balance, B, consisting of ordinary cast-iron, the two metals being united in the manner substantially as herein described, and for the purpose specified.

348,576. SHAVING APPARATUS. ANDREW PARTRIDGE, Springfield, Mass., assignor to the Diamond Safety Razor Company, same place. Filed June 12, 1886. (No model.)



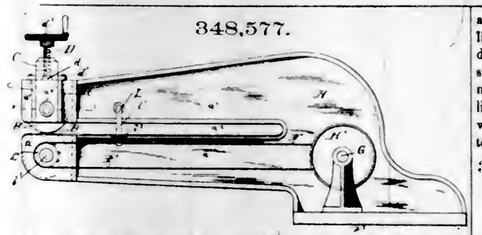
Claim.—The within-described improvement in shaving apparatus, consisting of a pair of jaws, A A, framed together to inclose between them a blade, D, and guard therefor, in combination with auxiliary jaw-pieces O O, provided with means, as *o o*, for rigidly holding the ends of a blade between them, and adapted, substantially as shown, to move over and be adjustable upon said jaws to carry the blade with them, for the purpose set forth.

348,577. POWER SHEET-METAL-GROOVING [illegible]INE. CHARLES R. PEASLEE, Louisville, Ky. Filed Apr. 12, 1[illegible] model.)

Claim.—1. A sheet-metal grooving m[illegible]onsisting in the combination, with a goose-neck frame, of a pa[illegible] grooving-rollers mounted on the outer ends of the limbs of said goose-neck, sprocket-wheels E and *g*, chain F, pulley-shaft G, oppositely-driven pulleys H and H', having clutch-faces *h*, and double clutch *h'*, substantially as specified.

2. The combination, with goose-neck frame A, having limbs *a a'*, and slot a^2, of rollers B and B', said roller B having groove *b*, and said roller B' being journaled in an adjustable slide, C, sprocket-wheels E and *g*, chain F, pulley-shaft G, oppositely-driven pulleys H and H', having clutch-faces *h*, and double clutch *h'*, substantially as specified.

348,577.

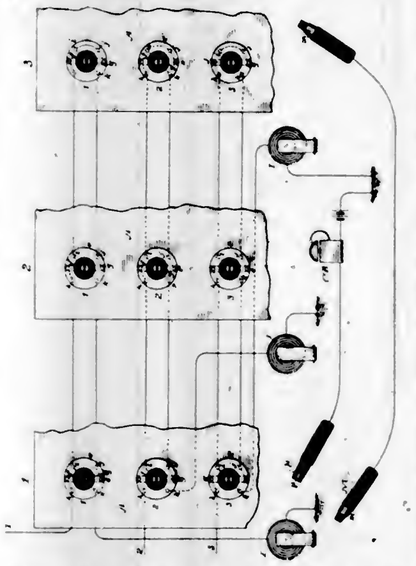


E and *g*, chain F, pulley-shaft G, oppositely-driven pulleys H and H', having clutch-faces *h*, and double clutch *h'*, substantially as specified.

3. A sheet-metal-grooving machine consisting in the combination, with a goose-neck frame, of a pair of grooving-rollers mounted on the outer ends of the limbs of said goose-neck, sprocket-wheels E and *g*, chain F, pulley-shaft G, oppositely-driven pulleys H and H', having clutch-faces *h* and double clutch *h'*, and a gage or guide, L, for the outer edge of the sheet as it is fed between said rollers, substantially as specified.

4. The combination, with goose-neck frame A, having limbs *a* and *a'*, with slot a^2 between said limbs, of roller B, having groove *b*, and roller B', adjustable slide C, and screw D, sprocket-wheels E and *g*, chain F, pulley-shaft G, pulleys H and H', having clutch-faces *h*, double clutch *h'*, and lever K, substantially as specified.

348,578. MULTIPLE SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, N. Y., assignor to Charles P. Huntington, Greenville, Miss. Filed Oct. 6, 1885. (No model.)



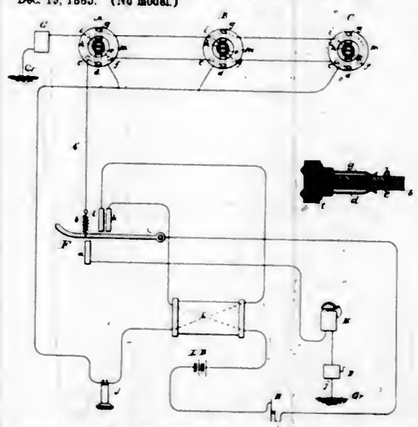
Claim.—1. The combination of the several sections of a multiple switch-board, the main lines, the terminal devices for each main line on each section of the board, said devices consisting of the upper and lower insulated spindle sections or contacts and the upper and lower insulated contact-spring which bear, respectively, on the spindle-sections and the circuit-connections.

2. The combination of the several sections of a multiple switch-board, the main lines, the terminal devices for each line on each section of the board, consisting of the upper and lower spindle sections or contacts, and the spring-fingers, circuit-connections, substantially such as described, and the test-plug with its bell or indicator and battery.

3. The main-line terminal devices, consisting of the combination of the plug of insulating material, the insulated spindle sections or contacts separated by insulating material, and the insulated spring contact-fingers mounted on the plug and bearing on the spindle-sections.

4. The combination, substantially as set forth, of the several sections of a multiple switch-board, a main line, a terminal device or compound spring-jack for said line on each board, said spring-jack having two pairs of insulated contacts, through which the line-circuit normally passes, a circuit-connecting plug which, when inserted in said spring-jack, separates said pairs of contacts, thus disconnecting the earth and annunciator of the subscriber from the spring-jack, and connecting the line with the circuit-connecting cord, and a test-plug and test-indicating devices electrically connected therewith, said test-plug being constructed, substantially as set forth, so as to separate only the pair of contacts nearest the subscriber's annunciator, at the same time connecting the line-contact *g* of said pair with the test devices, and leaving the contact with which the annunciator is connected disconnected from the line and test devices, all for the purpose set forth.

348,579. MULTIPLE SWITCH-BOARD. THOMAS J. PERRIN, Brooklyn, N. Y., assignor to Charles P. Huntington, Greenville, Miss. Filed Dec. 19, 1885. (No model.)



Claim.—1. The combination of the several sections of a multiple switch-board, a subscriber's station with its apparatus and local circuit, a terminal on each of said sections of board for said subscriber's station, the signaling-line, and the talking-line, said terminals consisting, substantially as set forth, of the upper and lower insulated spindle sections or contacts and the upper and lower insulated spring fingers or contacts.

2. The combination of the several sections of a multiple switch-board, a subscriber's station with its apparatus and local circuit, the signaling-line, the talking-line, the terminal devices for said subscriber's station on each section of the switch-board, which devices consist of the upper and lower spindle sections or contacts and the spring fingers or contacts, plugging apparatus, substantially such as described, and a clearing-out annunciator interposed between the connecting-plugs and the circuit-connections, substantially as described.

3. The combination, substantially as set forth, of the upper and lower spindle-sections, the upper and lower spring-fingers, the signaling-line in which said sections and fingers are included, the face-plates, the talking-line electrically connected with said face-plates, the plugging devices, and circuit-connections.

4. In a two-wire system of telephonic intercommunication, the combination of the multiple switch-board, the line-terminals thereon, the normally-closed signaling-circuit, the normally-open talking-circuit, and plugging devices which are normally removed from the terminals, but which when inserted in the terminals open the signaling-circuit and close the talking-circuit.

348,580. TONGUE-SUPPORT. ORLANDO B. PICKETT, Danbury, Conn. Filed June 23, 1886. (No model.)

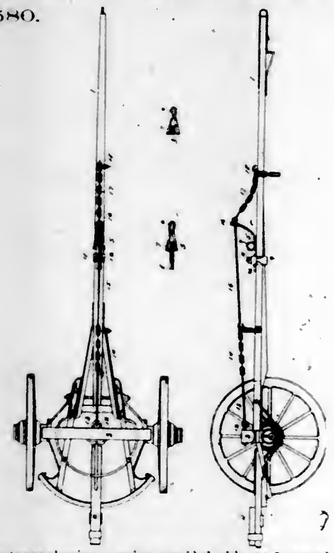
Claim.—1. The combination, with a wagon-tongue, and a spring consisting of two coils, 7, and an upwardly-projecting eye or loop, 6, of a clip and cross-piece, whereby said spring is secured to the tongue, and a rigid adjustable connection extending from the eye or loop to some solid portion of the running-gear—for example, the bolster.

2. In a wagon-tongue support, a double-coiled spring having an upwardly-projecting eye, 6, at its center, said coils extending inward, and the two ends 8 lying parallel, in combination with a wagon-tongue, a clip and cross-piece, whereby said spring is held in place, and a connection extending from said eye to the bolster of the wagon, as and for the purpose set forth.

3. The tongue, a double-coil spring having an upwardly-projecting eye, 6, and the bolster, in combination with a hook engaging said bolster, another hook connected to said eye, and a section, 14, of chain between said hooks, whereby the height of the tongue may be adjusted.

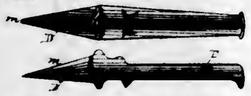
4. The tongue and a double-coil spring having an upwardly-projecting eye, 6, in combination with a connection having an eye, 16, which extends from eye 6 to the bolster, and a chain extending loosely from eye 16 to a hook in the tongue forward of the spring, whereby the upward and downward vibration of the tongue may be adjusted and controlled.

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5. The tongue having a spring provided with eye 6 secured thereto, and a hook, 18, forward of said spring, in combination with hook 15, having an eye, 16, which engages eye 6, a chain, 17, connecting eye 16 with the hook in the tongue, and another section of chain or its equivalent connecting hook 15 with the bolster of the wagon, as and for the purpose set forth.

348,581. SAP-SPOUT. CHARLES C. POST, Burlington, Vt. Filed Nov. 20, 1885. (No model.)

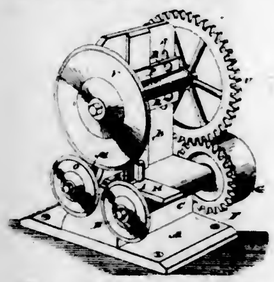


Claim.—1. A sap-spout provided with a rear extension designed to enter the tap-hole and penetrate the tree at the end of the hole, and an ice-anchor consisting of a transverse projection on its lower side and midway of such extension, substantially as described, and for the purpose set forth.

2. A sap-spout provided with a flange, B, and an extension, *m*, at its inner end, with the transverse ice-anchor D placed midway between the end of the extension and the flange B, substantially as described.

3. A sap-spout having the side projections, E E, on its outer extremity and the transverse projection D on the under side of its inner end, substantially as described, and for the purpose set forth.

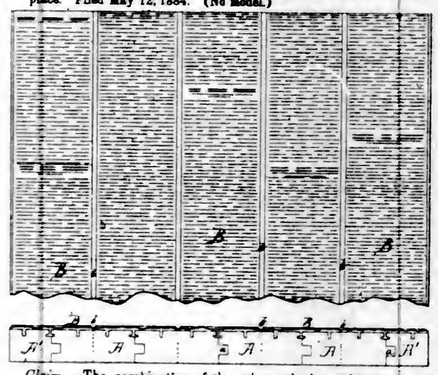
348,582. HOOP-CUTTING MACHINE. EDWIN POWELL, Williamsport, Pa. Filed May 15, 1886. (No model.)



Claim.—1. The combination, in a hoop-cutting machine, of the cutting-disks E and O, located in a line with each other and at different vertical planes, and the cutting-disk V in a line with the said cutting-disks O and E, the lower edge of the disk V being lower than the top edge of the disk O and higher than the top edge of the disk E, for the purpose set forth, substantially as described.

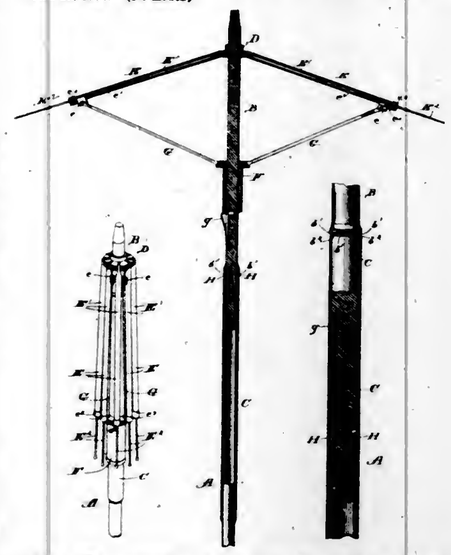
2. The combination, in a hoop-cutting machine, of the standard, the box C, secured at the lower side of the same, the shaft D, journaled in the said box, and having the cutting-disk E at one end and the pinion F at the opposite end, the vertically-adjustable bearing-box P near the upper end of the standard B, the shaft T, journaled in the said box and having the cutter V at one end and the spur-wheel U at the opposite end meshing with the pinion F, the vertically-adjustable bearing-box M on the rear side of the standard B, and having the shaft N, provided at one end with the cutting-disk O, the said cutting-disks V, O, and E projecting from one side of the machine-frame, substantially as described.

348,583. STEREOTYPE PLATE AND BLOCK. EDWIN E. PRATT, Chicago, Ill., assignor to the A. N. Kellogg Newspaper Company, same place. Filed May 12, 1884. (No model.)



Claim.—The combination of the columned plate with the backing composed of separate blocks, the column-lines and the divisions between the blocks alternating with each other, substantially as specified.

348,584. UMBRELLA. MITCHELL M. RAY, Bellefonte, Pa. Filed Jan. 22, 1886. (No model.)



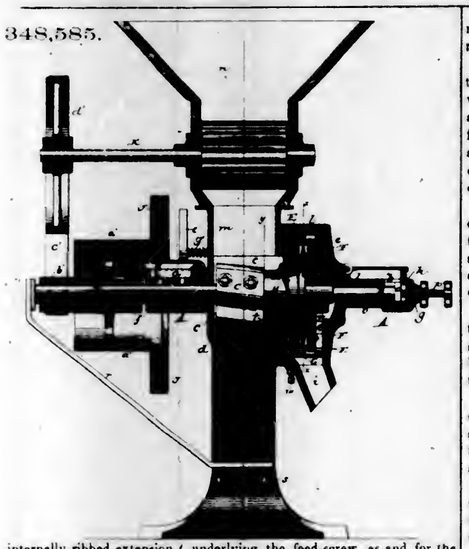
Claim.—The combination of the solid staff-section B, the spring-catches H, carried thereby at its lower end, and a tubular staff-section, C, adapted to telescope over the staff-section B, and having the isolated horizontal slots *b'* at its upper end, and into which the catches H are adapted to spring when the umbrella is unfolded, substantially as described.

348,585. GRINDING-MILL. GEORGE RAYMOND and ALBERT RAYMOND, Chicago, Ill. Filed Mar. 24, 1885. (No model.)

Claim.—1. The main frame having the cutting and grinding chambers therein and the shaft-bearings *a b*, in combination with the main shaft having the cotter-head, the feed-screw, and the grinding-disk thereon, the stationary grinding-disk, the plates *k* and *l*, and the central section, *m*, as described and shown.

2. In combination with the rotary grinding-disk and feed-screw, the stationary plate G, provided with the grinding-disk, and having the

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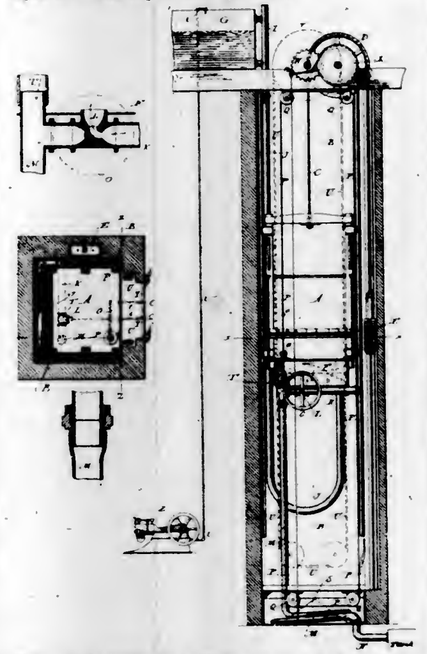
internally-ribbed extension *l*, underlying the feed-screw, as and for the purpose described.

3. The body provided with a cutting-chamber having the fixed plate D and the bottom ribs, *d*, in combination with the rotary cutting-head C, having peripheral plates, the feed-screw, the rotary grinding-disk, the stationary grinding-disk, and the disk-supporting plate G, having the tubular toothed extension *t*, encircling the feed-screw, as shown.

4. The main frame having the grinding-chamber therein and the shaft-bearing *b* thereon, in combination with the casting *l*, adapted, as shown and described, to confine the shaft and cover the grinding-disks.

5. In combination with the shaft provided with a grinding-disk, the spring-arm *r* and the two adjusting-screws *s*, acting upon said arm, substantially as described.

348,586. PASSENGER-ELEVATOR. CHARLES H. READ, Jr., Washington, D. C. Filed Aug. 24, 1885. (No model.)



Claim.—1. In combination with the elevator-car and the wedge to lift the same, the fluid chamber or tank fixed to the car, the elevated fluid reservoir or accumulator, the movable conductor extending from the reservoir to the tank, and a valve for controlling the delivery to the latter.

2. In combination with the elevator-car, the counter-weight to lift the same, the tank or fluid-chamber fixed to the car, the elevated reservoir, the flexible supply-pipe having one end connected to the reservoir and the other connected to the tank, a valve to control the delivery of fluid through said pipe, and valve-operating devices, substantially as shown, passing vertically through or adjacent to the car, whereby the delivery of water into the tank on the car may be controlled by its occupant.

3. The elevator-car and the counter-weight to lift the same, in combination with the tank and the reservoir or fluid-chamber fixed to the car, the elevated reservoir, the movable supply-pipe connecting with said tank, the separate outlet-pipe, the valve to control the inflow and outflow of the fluid, and the valve-operating devices, substantially as described, extending vertically through or adjacent to the car.

4. In combination with the elevator-car, its counter-weight, and the tank or chamber attached to the car, the elevated reservoir, the flexible supply-pipe, the flexible discharge-pipe, and the three-way valve, whereby the water may be admitted to, confined within, or discharged from the tank at will.

5. In combination with the elevator-car, its counter-weight, the elevated reservoir, and the fluid chamber or tank fixed to the car, the supply-pipe for delivering water thereto, the discharge-pipe to permit the escape of water therefrom, the valve to retain the fluid in the tank, and the overflow connecting with the discharge-pipe.

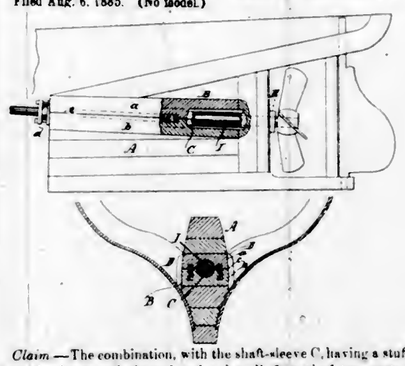
6. In combination with an elevator-car and a counter-weight to lift the same, the tank or fluid-chamber attached to the car, an elevated reservoir or accumulator, a valved pipe connecting said reservoir with the tank of the car, and a pump or equivalent means for supplying the reservoir with water.

7. In combination with the car and its tank or fluid-chamber, the supply-pipe, the elevated reservoir, the discharge-pipe, the controlling-valve L, the valve-controlling cord P, extending vertically above and below the car around suitable guide-pulleys.

8. In combination with the tank or fluid-chamber attached to the car, the pipe K, having the elevated overflow-mouth, the three-way cock L, the supply-pipe J, and the delivery-pipe M.

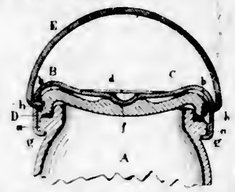
9. In combination with the rising and falling tank and the flexible pipe M, attached thereto, a conical surface, S, whereby the automatic coiling of the pipe is effected as the car descends.

348,587. MARINE VESSEL. ROBERT A. REED, Brooklyn, N. Y. Filed Aug. 6, 1885. (No model.)



Claim.—The combination, with the shaft-sleeve C, having a stuffing-box on the inner end thereof, and a log, B, formed of two parts, *a b*, grooved longitudinally, of the strips or stops *e*, inserted in the grooves of the parts *a b*, substantially as herein described.

348,588. COVER FOR JARS. P. KENNEDY REEVES, Bridgeton, N. J. Filed Apr. 7, 1886. (No model.)



Claim.—1. The combination of a lid on which is pivoted a clamp or yoke and a bail having ends *e e*, bent inwardly through perforations in the clamp or yoke, said ends hooking under the edge of the lid to secure the clamp or yoke thereto, substantially as set forth.

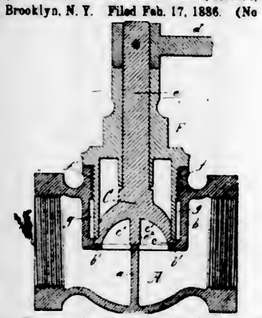
2. The combination, with a jar or can having inclines on its neck, of a clamp or yoke having perforated downturned ends bent inwardly so as to bear under said inclines, a lid on which is pivoted said clamp or yoke, and a bail having ends bent inwardly through perforations in the clamp or yoke, said bail ends hooking under the overhanging edge of the lid to secure the clamp or yoke thereto, all substantially as set forth.

348,589. WIRE NAIL. THOMAS J. SLOAN, St. Mandé, France. Filed Mar. 19, 1886. (No model.) Patented in France July 13, 1880, No. 137,788, and July 13, 1881, No. 143,931.



Claim.—As a new article of manufacture, the herein-described wire nail, having a roughened shank, a chisel-point, *a*, and a head, *b*, provided with a transverse mark on its outer surface arranged in definite relation with the edge of the chisel-point, to indicate by its own transverse position the transverse position of the said chisel-point, all substantially as and for the purpose herein set forth.

348,590. VALVE. FREDERICK E. SMALL, Revere, Mass., and FRANK E. SMALL, Brooklyn, N. Y. Filed Feb. 17, 1886. (No model.)



Claim.—1. The combination, with the fitting or shell A, provided with a bridge, and a socket, *b*, having at its lower end an opening, and a flanged annular valve-seat, *b'*, of a valve provided at its under surface with cavities or ports and with a dividing-wall, the said valve having an annular lip to fit the valve-seat of the said socket, as and for the purpose set forth.

2. The fitting or shelf provided with a socket, *b*, having an opening and an annular flange or valve-seat, *b'*, combined with a sleeve fitting within the valve-case, and with a valve having an annular lip fitting between the said valve-seat *b'* and the bottom of the said sleeve, as and for the purpose specified.

3. A fitting provided with a screw-thread and a socket, *b*, having a steam-opening in its bottom and an annular flange or valve-seat, *b'*, as specified, combined with a screw-threaded sleeve fitting into the said socket and shaped to leave an annular space between it and the said socket, the said sleeve being provided with a valve having an annular lip projecting between the said seat *b'* and the bottom of the depending portion of said sleeve, to provide a double joint, substantially as set forth.

4. A fitting or shell provided with a bridge and with a socket, *b*, having a steam-opening in its bottom, and a flanged valve-seat, *b'*, encircling said opening, as specified, combined with a sleeve fitting into the said socket, and with a valve provided with the steam-cavities and the central wall, as specified, and further provided with the annular lip projecting between the said valve-seat and the bottom of the said sleeve, substantially as set forth.

348,591. LUMBER-STACKER. WILLIAM T. SMITH, Bozeman, Ala. Filed Mar. 15, 1886. (No model.)

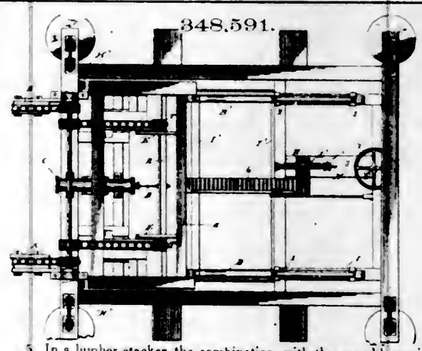
Claim.—1. In a lumber-stacker, the combination, with a movable carriage, of the bars constructed to receive and lay the spacing-strips, and the depositing-levers to deposit the boards on the strips.

2. In a lumber-stacker, the combination, with the movable carriage provided with partially-hollow rods or bars and depositing-levers, of chains or belts mounted to feed the lumber to the depositing-levers.

3. In a lumber-stacker, the combination, with a movable carriage, of partially-hollow rods, sliding blocks within the said rods, and springs to keep said blocks normally pressed against the spacing-strips.

4. In a lumber-stacker, the combination, with a movable carriage provided on its rear cross-piece with springs, of the hollow rods having sliding blocks therein, and springs to keep said blocks normally pressed against the spacing-strips.

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5. In a lumber-stacker, the combination, with the movable carriage provided on its rear cross-piece with springs, of the hollow rods having sliding blocks therein, and the springs to keep said blocks normally pressed against the spacing-strips.

6. In a lumber-stacker, the combination, with the extensible elevator-frame, the shafts provided with sprocket-wheels mounted therein, and the sprocket chains passing over said wheels, of the movable carriage provided with sprocket-wheels and chains, and constructed to receive the lumber from the elevator-frame and deposit it in layers.

7. In a lumber-stacker, the combination, with the traveling frame, of the elevator-frame having one end resting on the traveling frame, the shafts, provided with sprocket-wheels mounted therein and the sprocket-chains passing over said wheels, said elevator-frame being capable of extension longitudinally, so that as the traveling frame rises the elevator-frame accommodates itself to the height of the frame.

8. In a lumber-stacker, the combination, with the movable carriage provided with rods constructed to receive and lay the spacing-strips and to deposit the boards thereon, and means to actuate it, of the extensible elevator-frame having endless chains to conduct the boards to the movable carriage.

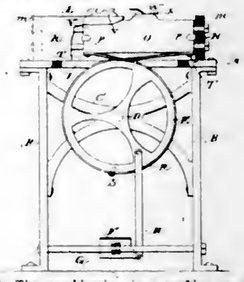
9. In a lumber-stacker, the combination, with the movable carriage provided with shafts having sprocket-wheels, and the chains passing over said wheels, of the guides having one end loosely mounted upon said shafts and extending under said chains, so as to prevent them from sagging when heavy lumber is being carried.

10. In a lumber-stacker, the combination, with the movable carriage provided with rods constructed to receive and lay the spacing-strips, and means to actuate the carriage, of the traveling frame provided at one end with bumpers against which said carriage impinges, and its central cross-piece provided with slots to conduct and guide the spacing-strips after they leave the rods.

11. The combination, with a movable carriage provided with a rack-bar, of a brake-wheel having a pinion on its shaft which engages with said rack, a band encircling the wheel, and a lever by which the band is brought in contact with the wheel.

12. In a lumber-stacker, the combination, with the main frame thereof, of the traveling frame provided with shafts having intergearing pinions and adapted to move vertically in the main frame, and the counterbalancing-weights and chains attached to said latter frame, of the shaft provided with a hand-wheel and a miter-pinion, the latter engaging with a miter-wheel on one of the elevating-shafts, whereby the machine may be gradually lowered by the turning of the hand-wheel.

348,592. GRAFTING-MACHINE. DARIUS B. SPEER, Blue Grass, Iowa. Filed Feb. 5, 1886. (Model.)



Claim.—1. The combination, in a grafting-machine, of the table or stand, the frame provided with the rests or supports, the reciprocally-movable cutter-head, the knives attached thereto, the wheel, and means connecting the said wheel with the cutter-head, to actuate the latter when the wheel is operated, substantially as described.

2. The combination, in a grafting-machine, of the table or stand, the frame provided with the rests or supports and the guide-rods, the reciprocally-movable cutter-head on the guide-rods, the knives attached thereto, the wheel, and the strap on the said wheel, having its ends crossed and secured to the ends of the cutter-head, substantially as described.

3. The combination, in a grafting-machine, of the table or stand, the frame K, provided with rests or supports and the guide-rods, and the reciprocally-movable cutter-head on the guide-rods, and the knives, substantially as described.

4. The combination, in a grafting-machine, of the table or stand, the frame K, having the body part L, provided with the rests V, and the reciprocating cutter-head, having the knives that work over the upper edge of the body part, substantially as described.

5. In a grafting-machine, the reciprocating head having the knives X and W projecting from one side, the knife X being horizontal and the knife W being arranged at an angle thereto, in combination with means for reciprocating the head, substantially as described.

348,593. VENEERING. CHARLES W. SPURR, Boston, Mass. Filed Feb. 11, 1886. (No model.)



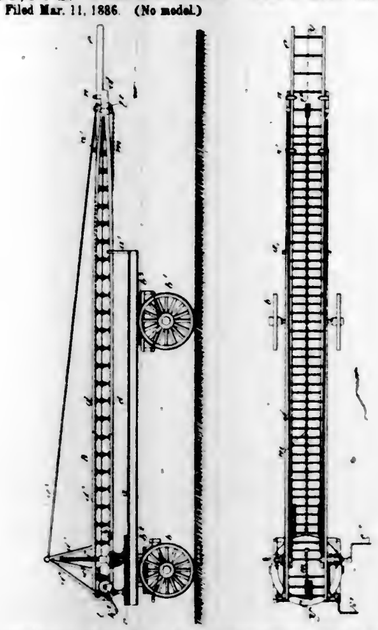
Claim.—1. As a new or improved manufacture, veneering, substantially as described, consisting of thin veneers of wood arranged in pack and connected by vulcanized cement or india-rubber arranged between them, essentially as set forth.

2. Veneering consisting of thin veneers of wood and a backing of other material arranged in pack and connected by vulcanized cement or india-rubber extending between their next contiguous surfaces, as set forth.

3. Veneering, substantially as described, molded or embossed, as specified, and consisting of thin veneers of wood, or such, and a backing of the same or of other material arranged in pack and connected by vulcanized cement or india-rubber extending between their next contiguous surfaces, as set forth.

4. Veneering, substantially as described, molded as specified, and consisting not only of thin veneers of wood, or such, and a backing arranged in pack and connected by vulcanized cement or rubber extending between their next contiguous surfaces, but of an auxiliary backing or fillings, essentially as described, inserted in the cavities or interstices of the primary backing, essentially as explained.

348,594. EXTENSION-LADDER. ERNST F. STECK, Chicago, Ill. Filed Mar. 11, 1886. (No model.)



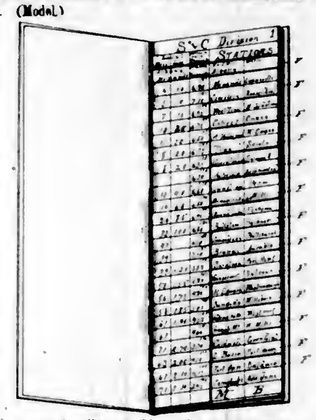
Claim.—1. The ladder or ladder-section having each side composed of two bars converging toward one end of the ladder and combined with the rounds and supports therefor which connect said side bars together in pairs, substantially as described.

2. The ladder-section D, having each side composed of two bars converging toward the ends of the ladder, and combined with and connected together by screws, that are arranged in pairs, with their outer ends engaging in sockets on the bars, and their inner ends screwed into a coupling, said couplings being provided with sockets in which the ends of the rounds are received, substantially as described.

3. The ladder-section having each side composed of two bars converging toward one end of the ladder-section, and secured together by connections that also provide supports for the rounds, combined with the plates *d'*, secured to the separated end portions of said bars as a means for strengthening the ladder-section, substantially as described.

4. As an improvement in means for raising an extension-ladder with a direct lift, the combination, with the swinging, raising, and lowering screws fulcrumed upon the turn-table, and means, substantially as described, for operating said screws, of the pivoted ladder provided with swiveled nuts located thereon at points which, when the ladder is in a horizontal position are, with relation to the fulcral support of the screws, within a radius therefrom, which brings the screws into an upright position, and at right angles to the plane of the ladder, substantially as and for the purpose specified.

348,595. RAILWAY PASSENGER-TARIFF AND DISTANCE GUIDE-BOOK. SAMUEL F. STEVENS, North Adams, Mass. Filed Oct. 3, 1885. (Model.)



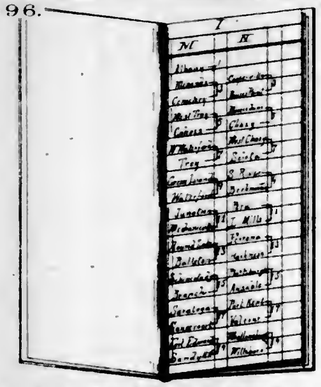
Claim.—1. A railway guide-book with index-leaves having the names of two stations in their order upon each underlapping index-fly thereof, column of figures opposite the station-names indicating upon each left-hand page the fare or distances between the lower one of the two station-names upon the underlapping fly of each page of the book where open and each succeeding station upon the fly-indices below, and columns of figures on the inner edge of each of the right-hand pages opposite the station-names upon the fly-indices below where the book is open indicating fares or distances between the upper one of the two index stations and the stations upon the fly-indices below, as shown and described.

2. A railway guide-book having index-leaves containing where they underlap each other two main-line-station names in their order, and above the latter, upon each page in column, the names of the main-line stations which precede those upon the underlapping fly in their order, a column of branch-road stations also arranged upon the index-leaves alongside of the main-line stations, there being two of such branch stations upon each underlapping fly, one above the other in their order, with other branch-road stations upon each page in column above those upon the underlapping fly, columns of figures upon each page of the book where open, which, where transversely opposite the stations in the main-line column, give the fares or distances between each of the two index stations of the page where open and the main-line stations, and columns of figures which, where transversely opposite, give the fares or distances between each of the index stations of the branch-road column and the branch-road stations that are in the same column above the branch-road-index stations, as shown and described.

348,596. RAILWAY PASSENGER-TARIFF AND DISTANCE GUIDE-BOOK. SAMUEL F. STEVENS, North Adams, Mass. Filed Oct. 28, 1885. (Model.)

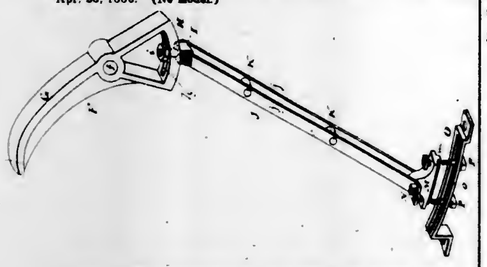
Claim.—A railway passenger-tariff and distance guide-book having an index-page arranged therein and containing a column of main-line-station names and a column of branch-road-station names side by side, with all station-names of both columns but the first station-name of the main-line column grouped into consecutive series of four stations

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each, each group being composed of two main-line and two branch-line stations, which, where in couples, are transversely opposite, with the number of the reference-page which gives the distances and fares between these index stations and other stations printed opposite each group, and said reference-pages to which the index-numbers refer, each having a column of main-line and a column of branch-line stations printed thereon side by side, and columns of figures, which, where transversely opposite, give the fares and distances between each of the said index branch-road stations and other branch-road stations and main-line stations upon each page, and columns of figures which give the fares and distances between each of said main-line index-stations and other main-line stations, as shown and described.

348,597. ELEVATOR. WILLIAM STEVENS, Philadelphia, Pa. Filed Apr. 28, 1886. (No model.)



Claim.—1. The combination of the pivoted lever having two rigid arms, one of which is acted upon by the descending cage and the other of which is adapted to operate the hatch-door, a hinged hatch-door, links connecting said second arm of the lever with the door, and an adjustable connection between the link and lever, substantially as and for the purpose specified.

2. The combination of the pivoted lever having two rigid arms, one of which is acted upon by the descending cage and the other of which is adapted to operate the hatch-door, a hinged hatch-door, links connecting the lever with the door, and an adjustable connection between the link and hatch-door, substantially as and for the purpose specified.

3. The combination of the pivoted lever having two rigid arms, one of which is acted upon by the descending cage and the other of which is adapted to operate the hatch-door, a hinged hatch-door, links connecting the lever with the door, and an adjustable connection between the link and lever and the link and hatch-door, substantially as and for the purpose specified.

4. The combination of the pivoted lever having two rigid arms, one of which is acted upon by the descending cage and the other of which is slotted, a hatch-door, a link hinged to the hatch-door, and an adjustable connection between the link and slotted part of the lever, substantially as and for the purpose specified.

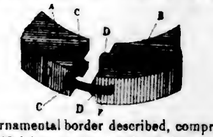
5. The combination of the pivoted lever having two rigid arms, one of which is acted upon by the descending cage and the other of which is slotted and made curved from the fulcrum-point as a center, a hatch-door, a link hinged to the hatch, and an adjustable connection between the link and slotted part of the lever, whereby it may be adjusted upon said lever without changing the distance of its connection with the fulcrum or other throw of the lever, substantially as and for the purpose specified.

6. The combination of the pivoted lever having two rigid arms, one of which is adapted to be acted upon by the descending cage and the other of which is connected to a link, the hatch-door, a curved metal piece upon said door having its curvature made with the link when the door is closed, and an adjustable shoe connected to said curved piece and hinged to the link, whereby the link may be adjusted without raising the door or changing the position of the lever, substantially as and for the purpose specified.

7. A hatch-door-operating device consisting of the lever F, having the arm G and slotted arm H, united by the links J to the hatch-door by means of the adjustable hinge M, with T-shaped bottom and slotted metal piece O, secured to the door, substantially as and for the purpose specified.

8. A hatch-door-operating device consisting of the lever F, having the arm G and slotted arm H, united by the links J to the hatch-door by means of the adjustable hinge M, with T-shaped bottom and slotted curved metal piece O, secured to the door, whose curve is an arc of a circle having the links J as a radius, substantially as and for the purpose specified.

348,598. ORNAMENTAL BORDER FOR FLOWER-BEDS, &c. GEO. W. STRICKLAND, San Francisco, Cal. Filed Oct. 16, 1885. (No model.)

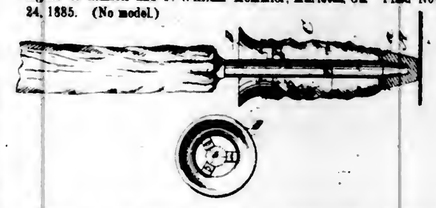


Claim.—The ornamental border described, comprising two semicircular sections of artificial stone having in their ends the vertical and horizontal grooves C and tenons D, in combination with the metallic clamps having inturned ends, which are imbedded in the sections, as set forth.

348,599. PROCESS OF RULING SLATES. CHAUNCEY R. STUNTZ, Terrace Park, Ohio. Filed Jan. 27, 1886. (Specimens.)

Claim.—The process of lettering, ruling, and otherwise marking and ornamenting argillaceous slate by producing in its surface an insoluble compound fluoride of aluminium of a distinctly different color to that of the body of the slate, substantially as herein set forth.

348,600. UMBRELLA DRIP-CUP. DAVID F. TABER, Atlanta, assignor to himself and F. William Memmler, Marietta, Ga. Filed Nov. 24, 1885. (No model.)



Claim.—1. In an umbrella drip-cup, the combination of a cup, A, adapted to receive the tip of the umbrella-stick, the flexible bag C, attached to the cup A, the funnel D, secured to open end of the bag C, and a fastening device for retaining the funnel D upon the umbrella-stick, as herein specified.

2. The combination, in an umbrella drip-cup, of an elastic circumferentially-grooved cup, A, a flexible bag, C, attached thereto, a rigid funnel, D, secured in the open end of the bag C, and means for holding the funnel D upon the umbrella-stick, substantially as herein shown and described.

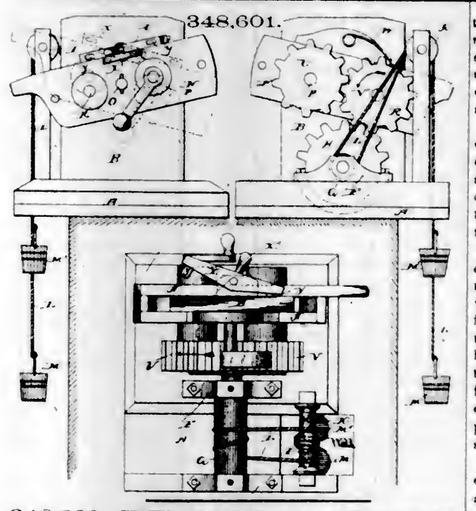
3. In an umbrella drip-cup, the combination of the elastic cup A, the flexible bag C, secured thereto, rigid funnel D, secured to the top of the bag, and the inwardly-projecting flexible fingers *b*, substantially as herein specified.

348,601. WATER-ELEVATOR. WILLIAM W. THAXTON, Jackson, Ga. Filed June 30, 1886. (No model.)

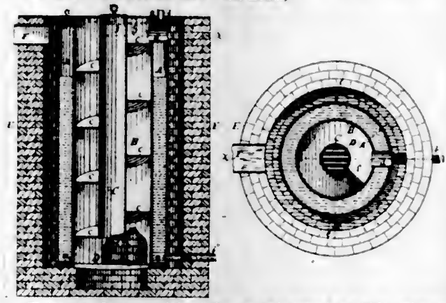
Claim.—1. The combination of the platform having the standard B, provided with the openings D and E, the rocking frame fulcrumed to the said standard and having the geared pinions U and V, and the detent adapted to engage either of the openings D and E, the pawl engaging one of the pinions to prevent retrograde movement thereof, and the windlass having the wheel H, with which one of the pinions is adapted to engage when the rocking frame is tilted in either direction, substantially as described.

2. The combination, in a windlass water-elevator, of the standard B, having the openings D and E, the rocking frame fulcrumed to the said standard, and having the geared pinions U and V and the pivoted pawl W, to engage either of the said pinions, the detent X, pivoted to the rocking frame and having the projections Y, adapted to engage the openings D and E, and the windlass having the wheel H, adapted to engage one of the geared pinions when the rocking frame is tilted in either direction, substantially as described.

348,601.



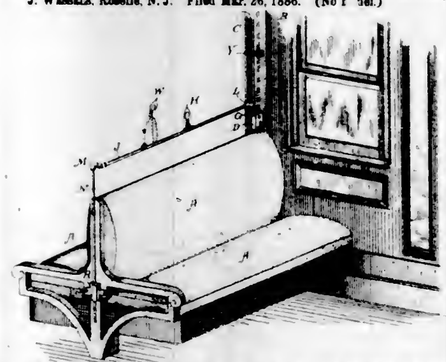
348,602. HEATING APPARATUS. EDWARD F. WARD, Grand Rapids, Mich. Filed Feb. 10, 1886. (No model.)



Claim.—1. In an upright boiler, a fuel-magazine within a large flue, having an annular space between said magazine and said flue, in combination with a spiral diaphragm within said space to direct the circulation of the products of combustion and strengthen said flue.

2. An upright boiler, A, having an annular flue, B, and connecting-pipe *d*, in combination with an outer casing, E, and partitions *e e*, arranged to cause the products of combustion to pass over the outside of said boiler before reaching the chimney F, substantially as described.

348,603. ELECTRIC RAILWAY-CAR ILLUMINATION. EDWARD J. WESSELS, Roselle, N. J. Filed Mar. 26, 1886. (No model.)



Claim.—1. In a railway-car, the combination, with the seats therein, of adjustable incandescent electric lamps located above said seats and in equitable electric circuits, the said lamp being supported upon a frame which has a detachable connection with said seats and a permanent and hinged connection with the side panels of said car.

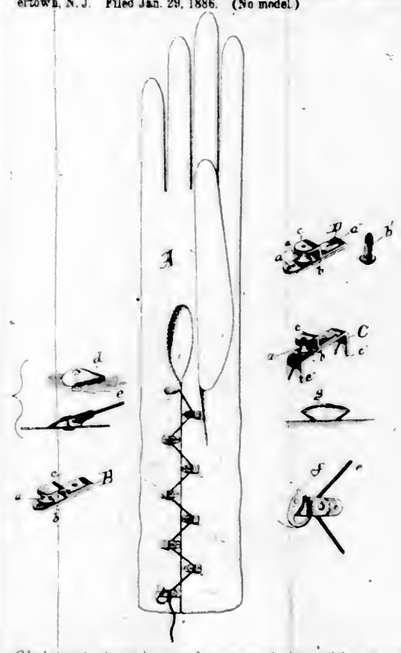
2. In a railway-car, the combination, with the seats and side panels therein, of an incandescent electric lamp adjustable in one or more directions above said seats, a hinged support to said lamp, and a box or other suitable receiver for said support and lamp, located upon the said side panels, electric-circuit wires passing from the side panels of said car through said hinged support and to the leading-in wires of said lamp, as and for the purpose described.

3. In a railway-car, in combination with a seat therein, of an incandescent electric lamp adjustably supported upon an adjustable and detachable frame, one end of which is supported upon one end of the seat and the other hinged upon a receiving-box secured to the side panels of said car, electric-circuit wires passing from the side panels of said car through said frame and to the leading-in wires of said lamp, as and for the purpose described.

4. In a railway-car, the combination of a seat, a side panel, a receiving-box upon said panel, a socket upon said box, containing the terminals of an electric circuit, a tube, also containing terminals of a circuit which includes one or more incandescent electric lamps, a spring-catch for pressing the said terminals together and located upon said socket, a tube supporting said lamps and provided with a slot and wires, the lamp being in circuit with said wires and adapted to move in said slot, and two hinged joints at each end of said rod, one joint being fixed to said first-mentioned tube and the other to a rod detachably fixed to that end of the seat opposite said panel, each joint being of insulating substance provided with metallic portions, which are continually in circuit with said lamps.

5. In combination with the seats of a railway-train, incandescent electric lamps adjustably supported upon a frame secured to said seats and included in an electric circuit which passes through said frame.

348,604. FASTENER FOR GLOVES, &c. EDWARD A. WILSON, Deckertown, N. J. Filed Jan. 29, 1886. (No model.)



Claim.—1. As an improved means for lacing articles of wearing-apparel, a number of sheaves placed upon the garment at suitable intervals, through which and upon the pulleys in said sheaves the lacing-cord passes, and the cam-shaped clamping-hook, as specified, for securing the ends of the lacing-cord.

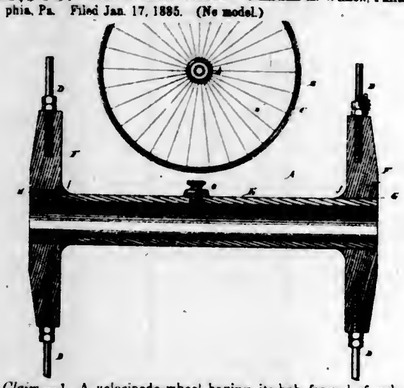
2. A lace fastening composed of a cone-shaped socket in which the knotted end of the lacing-cord is secured, a number of sheaves placed at suitable intervals upon the garment, through which and upon the pulley pivoted in said sheaves the lacing-cord passes, and a cam-shaped clamping-hook, as specified.

3. A fastening device for garments, composed of suitable means for attaching the lacing-cord to the garment, sheaves attached to the garment at suitable intervals, through which the lacing-cord passes, and the cam-shaped clamping-hook, as specified, pivoted on the final sheave, through which the cord passes for securing the cord when the garment is laced.

4. A lace fastening composed of socket *d*, cord *e*, sheaves B, and the pivoted cam-shaped clamping-hook *f*.

5. A lace fastening composed of socket *d*, cord *e*, sheaves B, having top plate, *c*, offset and attached to bottom plate, *b*, having bent angular notched and pointed ends *c'*, by means of which the sheave is attached to the garment and pulley *a* between top and bottom plates of said sheave, and the cam-shaped hook *f*, as and for the purpose specified.

348,605. VELOCIPEDE-WHEEL. NEEDHAM M. WILSON, Philadelphia, Pa. Filed Jan. 17, 1885. (No model.)



Claim.—1. A velocipede-wheel having its hub formed of vulcanized fiber, and consisting of the tubular section E and end disks, F F, secured together to form a spool, substantially as and for the purpose specified.

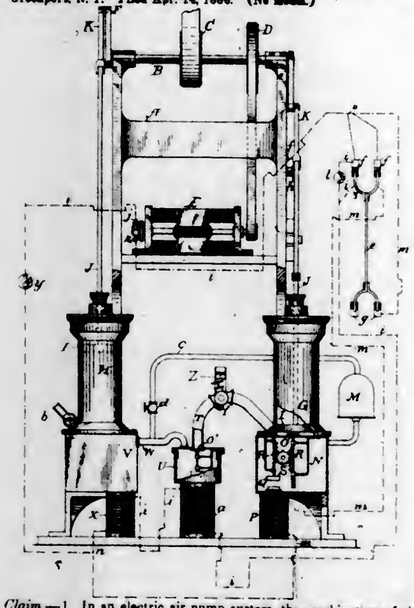
2. A velocipede-wheel having its tire formed of two or more sections of vulcanized fiber, substantially as and for the purpose specified.

3. A velocipede-wheel having its tire formed of two or more sections of vulcanized fiber, in which the ends are lapped and secured together by bolts which pass through the felly of the wheel, substantially as and for the purpose specified.

4. In a velocipede-wheel, the combination of the hub formed of vulcanized fiber, the metal spokes and felly, and tire formed of vulcanized fiber and in sections, substantially as and for the purpose specified.

5. The vulcanized-fiber hub formed of tubular section E and end disks, F F, rigidly secured thereto, the grain or plane of greatest strength in the parts E and F being at right angles to each other, substantially as and for the purpose specified.

348,606. ELECTRIC AIR-PUMP SYSTEM. ALBERT B. WORTH, Greenport, N. Y. Filed Apr. 14, 1886. (No model.)



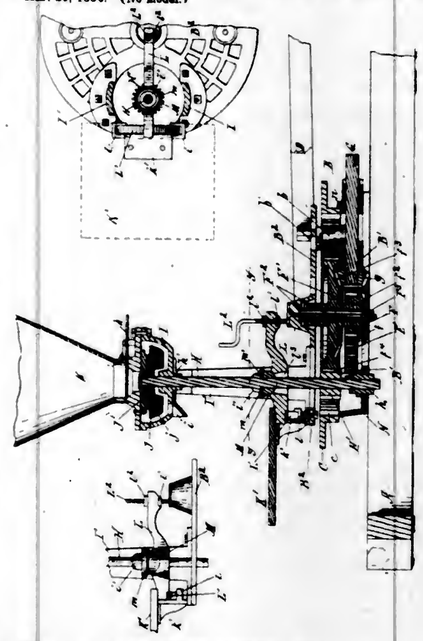
Claim.—1. In an electric air-pump system, the combination of air-pumps and electro-magnetic valves for each pump, an intermediate chamber communicating through an electro-magnetic valve with each pump, and an automatic operating electric connection between all of said valves and any one of the pistons of said pumps, substantially as and for the purpose set forth.

2. In an electric air-pump system, the combination of air-pumps having an air-chamber under each, an external air-chamber communicating with the cylinder of one pump and with the air-chamber located under the cylinder of the other pump, and suitable automatic operating electric valves in circuit with a circuit-controlling device having an operating connection with one of the movable parts of said pump.

3. In an electric air-pump system, the combination of air-pumps having an air-chamber under each, an external air-chamber communicating with the cylinder of one pump and with the air-chamber located under the cylinder of the other pump, suitable valves between the various chambers and cylinders, and mechanism for operating said valves.

4. In an electric air-pump system, the combination of a main shaft, a dynamo having a belt-connection therewith, two pistons having crank-connections with said shaft, a switch having operating connections with one of said pistons and in circuit with electro-magnetic valves located within said pump system and with said dynamo, an electric alarm depending for its action upon the density of the air within that space being exhausted, and suitable air-passages and valves between the pumps of said system, substantially as set forth.

348,607. GRINDING-MILL. HENRY A. ADAMS, Sandwich, Ill. Filed Mar. 29, 1886. (No model.)



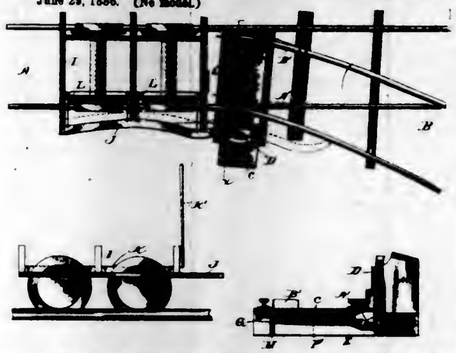
Claim.—1. In a grinding-mill, a revoluble, open, or armless master-wheel, in combination with a grinding-disk shaft arranged within the said wheel between its center and inner circumference, and suitable gearing for transmitting motion from the master-wheel to the grinding-disk shaft, substantially as and for the purposes specified.

2. In a grinding-mill, a revoluble, open, internally-geared master-wheel, a central gear-wheel, and a suitable train or trains of gears connecting the said central gear-wheel and master-wheel, in combination with a grinding-disk shaft arranged within the master-wheel between its center and inner circumference and provided with a pinion to mesh with the central gear-wheel, substantially as and for the purposes specified.

3. In a grinding-mill, a longitudinally-movable grinding-disk shaft, in combination with the supporting-lever L, which carries the said shaft, the bowed or arched spring L', upon which one end of the lever rests to form a fulcrum therefor, and the adjusting-screw L^3, substantially as and for the purposes specified.

4. The combination, with the grinding-disk shaft H, having collar *i'*, of the lever L, through which the said shaft passes, and the sleeve N, arranged between the collar and lever and provided with a cylindrical under surface, the lever having a correspondingly-shaped seat to receive the said cylindrical under surface, substantially as and for the purposes specified.

348,608. RAILROAD-SWITCH. JOHN W. ADAMS, Kelat, Ky. Filed June 29, 1886. (No model.)



Claim.—1. The combination of the movable plate extended at right angles across the road-bed, the switch carried thereby, the lever pivoted between its ends at one edge of the road-bed and pivotally connected at its lower end directly with the switch-plate, a bracket located at the opposite edge of the road-bed, a bar having an enlargement, pivoted at one end to the lower end of the lever and having its opposite end passed loosely through the bracket, and the coil-spring mounted on the bar between the bracket and enlargement, substantially as and for the purpose described.

2. The combination of the movable plate extended across and covering a pit under the road-bed, the switch carried thereby, a lever vertically pivoted between its ends at one side of the road-bed and pivotally connected at its lower end directly with the plate, a bracket located in the pit at one end opposite to that in which the end of the lever extends, a bar having one end passed loosely through the bracket and its other end pivotally connected with the lower end of the lever, and a coil-spring surrounding the bar and located between the bracket and an enlargement or stop formed thereon, substantially as and for the purpose described.

3. The combination, with a car body or truck, of the herein-described means for mechanically operating a switch, consisting of a trip-bar extended longitudinal of the truck, a crank-shaft journaled parallel therewith and provided with a series of cranks and rods connecting the cranks with the trip-bar, whereby a rotation of the crank-shaft will project and retract the trip-bar, substantially as and for the purpose described.

348,609. MOP WASHING AND WRINGING MACHINE. ERASTUS W. ALLEN, Auburn, N. Y. Filed Mar. 13, 1886. (No model.)



Claim.—1. The combination of a pail, and secured thereto the blocks B, having slots *b* and b^2, with the rollers C and D, and the wedges E, substantially as and for the purpose described.

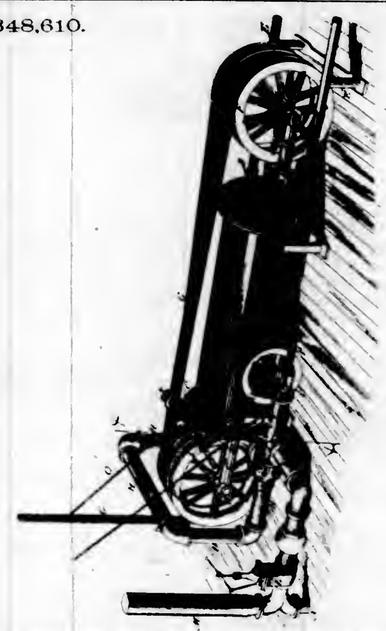
2. The combination of a pail, the blocks B, secured thereto and having vertical slots b^2, with wedges passing through said slots, and the wedges protecting boards G, substantially as and for the purpose described.

3. The combination of a pail, the blocks B, having slots *b* and b^2, the rollers C and D, and the bearings *f*, for the latter, with wedges E, their connecting-handle E^2, and cords e^2, substantially as and for the purpose described.

348,610. AUTOMATIC REGULATING-VALVE FOR HYDRAULIC ELEVATORS. NORMAN C. BASSETT, Chicago, Ill., assignor to the Crane Brothers Manufacturing Company, same place. Filed June 16, 1884. (No model.)

Claim.—1. The combination of the hoisting-cylinder A, main pipe H, inflow and outflow pipes, a main valve for cutting off the supply,

348,610.



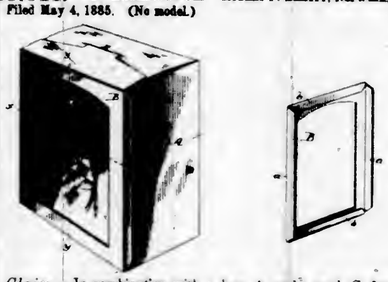
and a supplemental valve, *o*, of less diameter than the pipe, operated by a governor for regulating without cutting off the supply, substantially as described.

2. The combination of the hoisting-cables G, the wheel *a*, in frictional contact therewith, the rotating shaft *b*, the governor turning with said shaft, and a turning disk or valve, *o*, arranged in the fluid inlet and outlet pipe to the hoisting-cylinder, and connected with the governor for controlling the position of the valve by the speed of the hoisting-cables, substantially as described.

3. The combination of the hoisting-cables G, the wheel *a*, in frictional contact therewith, the rotating shaft *b*, carrying said wheel, a governor turning with the shaft, a pivoted lever, *k*, connected with the governor, and a turning valve or disk, *o*, arranged in the fluid-supply pipe to the hoisting-cylinder and connected with said pivoted lever for controlling the position of the said valve or disk by the speed of the hoisting-cables, substantially as described.

4. The combination of the hoisting-cables G, the wheel *a*, in frictional contact therewith, the rotating shaft *b*, carrying the friction-wheel, the governor turning with said shaft, the pivoted lever *k*, connected with the governor, the turning valve or disk *o*, arranged in the fluid-supply pipe to the hoisting-cylinder, the crank *m*, rigidly secured to the shaft of the valve or disk, and the link *l*, connecting the crank with the pivoted lever for controlling the position of the valve or disk by the speed of the hoisting-cylinder, substantially as described.

348,611. ADVERTISING-BOX. ROBERT P. BEATTY, Norwalk, Conn. Filed May 4, 1885. (No model.)

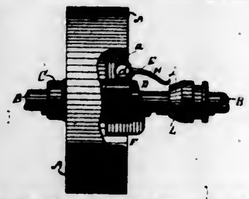


Claim.—In combination with a box, A, and a card, C, frame B, provided with wings *a* and *b*, the former attached to the box and the latter folded over the edges of the card.

348,612. FRICTION-CLUTCH. FRANCIS M. BLAKE, Worcester, Mass., assignor of one-half to Charles H. Blake, same place. Filed July 8, 1885. (No model.)

Claim.—In a friction-clutch, the combination of an elastic strap in-

348,612.

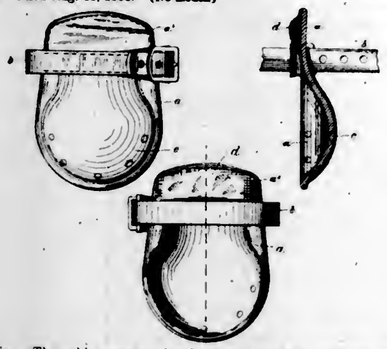


closing the hub of the pulley and having lugs, a rotating spindle passing through said lugs, and carrying disks turning with said spindle and placed outside said lugs, and pins placed between the opposing surfaces of one or both of said disks and its corresponding lug on the elastic ring, said pins being placed obliquely to the axis of the rotating spindle, so its rotation will lessen their obliquity and effect the compression of the elastic ring, whose tension also serves to reverse the rotation of the spindle, as described, and for the purpose set forth.

348,613. MANUFACTURE OF YELLOW COLORING-MATTER OR DYE-STUFF FROM GALLIC ACID. RENÉ BOHN, Ludwigshafen-on-the-Rhine, Bavaria, assignor to the Badische Anilin and Soda Fabrik, Mannheim, Germany. Filed June 17, 1886. (Specimens.)

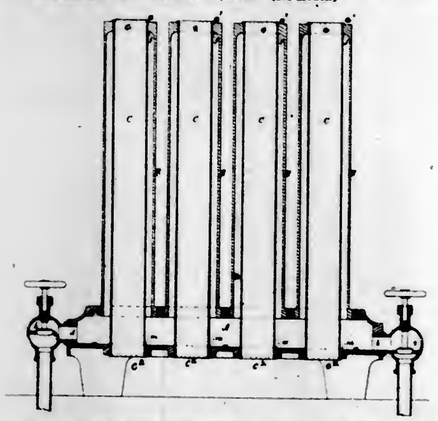
Claim.—The yellow dye-stuff or coloring-matter hereinbefore described and having the characteristics above set forth.

348,614. ANKLE-BOOT FOR HORSES. HENRY H. BROWN, Madison, Wis. Filed Aug. 15, 1885. (No model.)



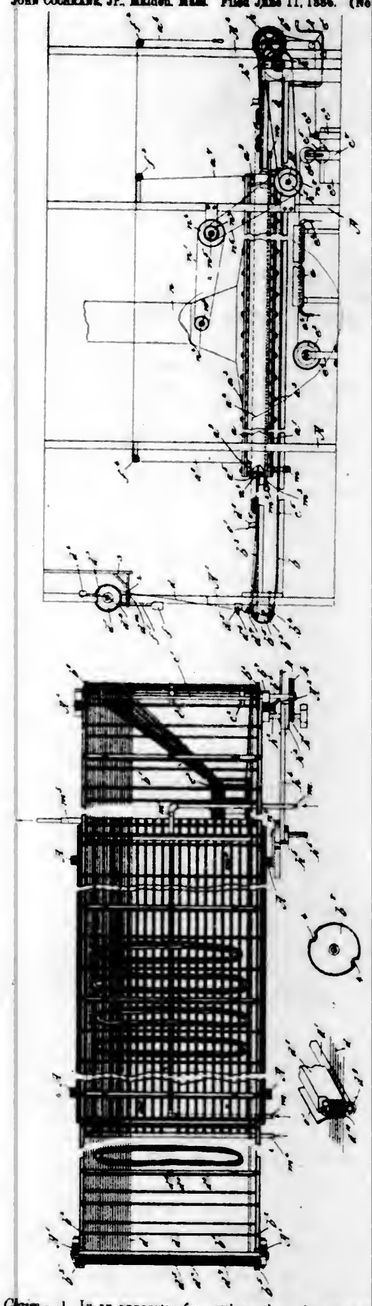
Claim.—The ankle-protector hereinbefore described, composed of the non-metallic pad having an upper extension, a metallic backing secured to the pad, a cushion secured on the inner side of the upper extension, and a retaining-strap secured to the back of the upper extension, substantially as set forth.

348,615. STEAM-HEATING RADIATOR. WILLIAM W. CARMAN, Portsmouth, N. H. Filed Oct. 14, 1885. (No model.)



Claim.—The combination of the hollow base A, the pipes B, screwed into said base, and the pipes C, passing through said base and the pipes B, as described, the said pipes C having at their upper ends the turned-over ends *c* at *c'*, whereby said pipes B can be adjusted, on the pipes C so as to insure a steam-tight joint, as set forth.

348,616. APPARATUS FOR STEAMING FABRICS OR YARNS. JOHN COCHRANE, Jr., Malden, Mass. Filed June 11, 1886. (No model.)



Claim.—1. In an apparatus for setting colors, the steaming-chamber, a movable endless carrier, and a bed resting thereon and movable therewith, and upon which the printed wet yarn rests, substantially as described.

2. In an apparatus for setting colors, the steaming-chamber, a movable endless carrier, and a bed resting thereon and movable therewith, combined with means, substantially as described, to move the said carrier and its bed through the said steaming-chamber, for the purpose specified.

3. In an apparatus for setting colors, the steaming-chamber, an endless carrier composed of sides *b* and bars *b'*, uniting said sides, and a bed resting thereon, combined with means to move the said carrier and its bed through said steaming-chamber, substantially as described.

4. In an apparatus for setting colors, the steaming-chamber, an endless carrier composed of sides *b* and bar *b'*, uniting said sides, a bed composed of threads *d* resting upon the bars *b'*, and clamping-bars d^s, to secure said bed to the carrier, combined with means, substantially as described, to move said endless carrier and its attached bed, for the purpose set forth.

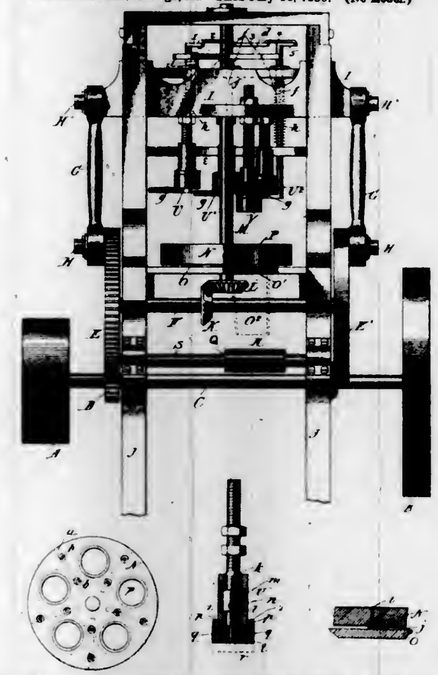
5. In an apparatus for setting colors, a steaming-chamber provided at its ends with doors, means to open said doors, an endless carrier, and a bed resting thereon, combined with means to move said endless carrier and its bed, substantially as set forth.

6. In an apparatus for setting colors, a steaming-chamber, an endless carrier, a bed composed of threads *d*, and devices to clamp said threads to the endless carrier, combined with means to move said endless carrier and its attached bed, substantially as set forth.

7. In an apparatus for setting colors, a steaming-chamber, an endless carrier, a bed composed of threads *d*, and devices to clamp said threads to the endless carrier, combined with means for moving said endless carrier and its attached bed, and with means, substantially as described, to cleanse and dry said threads, as and for the purpose set forth.

8. In an apparatus for setting colors, the steaming-chamber, an endless carrier composed of sides *b* and bars *b'*, uniting said sides, a bed resting thereon, and means, as described, to move the said carrier and bed through the steaming-chamber, combined with the bar d^s and flap *o'*, to check the escape of steam from the said steaming-chamber, substantially as described.

348,617. MACHINE FOR MANUFACTURING PLUG-TOBACCO. JOHN L. COLHAPP, Chicago, Ill. Filed July 16, 1885. (No model.)



Claim.—1. In a machine for manufacturing plug-tobacco, the combination of a series of reciprocating pressure-plungers of different lengths with a forming-cylinder provided with pressure-chambers to receive the plungers, a pressure-table against which the forming-cylinder rotates, and mechanism adapted to reciprocate the plungers and rotate the cylinder, so that each pressure-chamber will successively receive each pressure-plunger.

2. A plunger composed of a central stem provided with a pin, a slotted sleeve surrounding the stem having apertures which open at its lower interior extremity and at a line somewhat back on the same, and a perforated pressing-head attached to the sleeve, as and for the purpose set forth.

3. A compound pressure-plunger provided with a central cavity in its pressure-surface, air-ports leading therefrom, and a central stem which closes the cavity and air-holes or apertures at the moment the heavy pressure begins to be applied.

4. In a machine for making plug-tobacco, a forming-cylinder provided with pressure-chambers and vertical oil-holes and radial oiler-slots, as shown.

5. In a machine for making tobacco plugs, the combination of reciprocating pressure-plungers with parallel shafts, each provided at its lower end with an oiling-shoe, and all connected at their upper ends, and a star-wheel which rotates as the plungers reciprocate, so as to operate the vertical shafts and cause the shoes to oil the pressure-surfaces of the plungers.

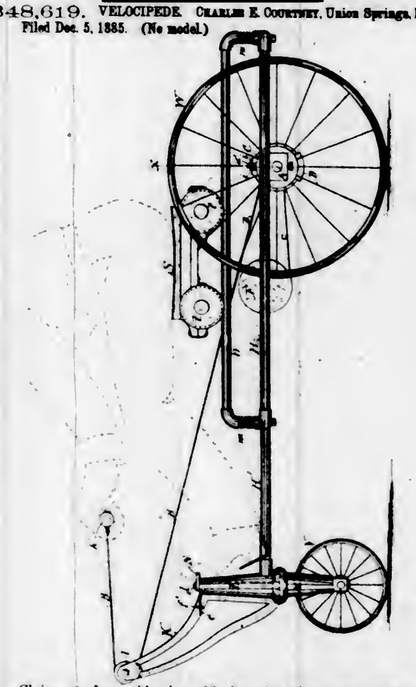
6. In a machine for making tobacco plugs, the combination of pressure-plungers, a forming-cylinder, oiling-shoes to oil the pressure-surfaces of the plungers, oilers on the bottom of the cylinder, and a pressure-table having one aperture.

348,618. OVERSLEEVE. HENRY W. CONVERSE, Chicago, Ill. Filed Oct. 19, 1885. (No model.)



Claim.—The oversleeve adapted to protect the elbow as well as the forearm, having its upper portion curved to conform with the curve of the arm at the elbow, and cut away at an angle on its inner side, in combination with the elastic band joining the sides of the cut, substantially as and for the purpose specified.

348,619. VELOCIPEDE. CHARLES E. COURTNEY, Union Springs, N. Y. Filed Dec. 5, 1885. (No model.)



Claim.—1. In combination with the axle and traction-wheels journaled thereon, the sleeve *s*, loosely embracing the axle, the pulley P, and collars C C, both rigidly attached to the sleeve, the arms D D, hung loosely on the sleeve and weighted underneath said sleeve, the pawls *a a*, pivoted on said arms and having the shanks *a' a'*, engaged with the collars C C, the ratchets *r r*, attached to the traction-wheels, and the belt B, wound on the pulley, substantially as described and shown.

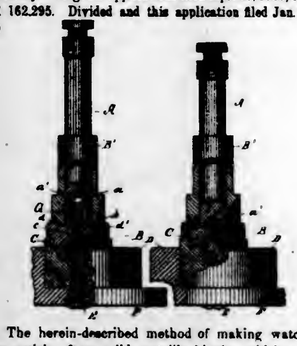
2. In combination with the axle, traction-wheels, and frame, the loose sleeve *s*, pulley P, rigidly attached to the sleeve, the belt B, wound on the pulley, and the pawl and ratchet arranged to transmit motion from the sleeve to the traction-wheels, the counter-shaft E, pulley F,

spiral spring *b*, attached at one end to the frame and at the opposite end to the pulley F, and the belt *c*, wound at one end on the said pulley and at the opposite end on the sleeve *s*, in opposite direction from the winding of the belt B, substantially as described and shown, for the purpose set forth.

3. In combination with the frame, its vertical journal-box L, pedestal M, wheel V, journaled on said pedestal, spindle *d*, projecting from the pedestal through the box L, and the steering-lever N, attached to said spindle, the plate *e*, projecting laterally from the journal-box and provided with a series of holes, *f f*, and guard-pins *f' f'*, inserted removably in said holes, substantially as described and shown, for the purpose set forth.

4. The combination, with the frame H, of the skids O O, elastically connected to the said frame, and the seat mounted movably on said skids, substantially as set forth.

348,620. **MANUFACTURE OF WATCH-CROWNS.** ALLAN C. DALZELL, Newport, Ky. Original applications filed Apr. 15, 1885, Serial Nos. 162,294 and 162,295. Divided and this application filed Jan. 20, 1886. (No model.)



Claim.—1. The herein-described method of making watch-crown cores and similar articles from solid metallic blanks, which consists in subjecting said blank to pressure endwise (in a former) to thereby upset the metal blank at one end to form a head, preferably spheroidal in shape, forming a stem integral with said head, and indenting portions of the metal of the head radially upon its under side to form grooves or corrugates extending from a point flush with the circumferential line of the stem to a point nearly central between the base and apex, substantially as and for the purpose described.

2. The herein-described method of making watch-crown cores, which method consists in upsetting a metallic blank by pressure endwise to form a head at one end, a stem integral with said head, indenting portions of the head to form corrugates, and at the same operation upsetting the metal of the stem spirally in the direction of its length to form screw-threads thereon, substantially as described.

3. The herein-described method of making watch-crown cores, which consists in subjecting a solid metallic blank to pressure endwise, to upset the metal at one end to form a head preferably spheroidal in shape, forming a stem integral with said head, forming a teat or projection at the apex of the core-head, indenting portions of the metal radially at the under face of the head from a point flush with the stem to a point central, or substantially so, between the base and apex of the head, and at the same operation forming a conical indentation in the lower face of the stem, substantially as and for the purpose described.

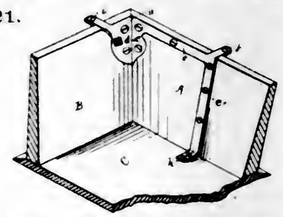
4. The herein-described method of making watch-crown cores from metallic blanks, which consists, first, in subjecting said blank to pressure endwise in a suitable former to form thereby a core having a head preferably spheroidal in shape, corrugated on its under side radially from the base to a point central, or nearly so, between the base and apex of said head, a teat or projection at the apex of the head, a central indentation in the end of the stem; and, second, to extend the corrugates of the head past the center and over the upper face of the head by stripping the metal from between the ridges of the corrugates at their terminus to a depth equal to the depth of grooves on the under side of the head to a point approximately close to the apex of the head, thereby continuing said grooves and ridges and forming a corrugated upper face to the core-head, substantially as described.

5. As a new article of manufacture, a watch-crown core upset from a solid metallic blank, and having a head with compressed portions forming radial indentations or corrugates, having a teat or projection at the apex of the head, a stem or core-washer integral with said head, and a central indentation in the lower face of the stem, substantially as described.

348,621. **CORNER-IRON FOR CARRIAGE-SEATS.** JOHN M. DAVIDSON, Columbus, Ohio, assignor to the Globe Seat Company, same place. Filed Mar. 18, 1886. (No model.)

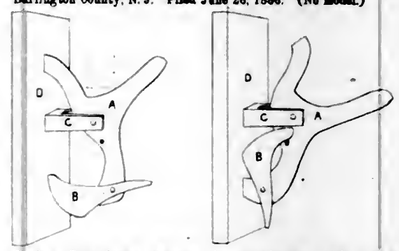
Claim.—A corner-iron for carriage-seats, consisting of a short angular piece, D, longitudinal arm *e*, and vertical arm *e'*, having a flanged

348,621.



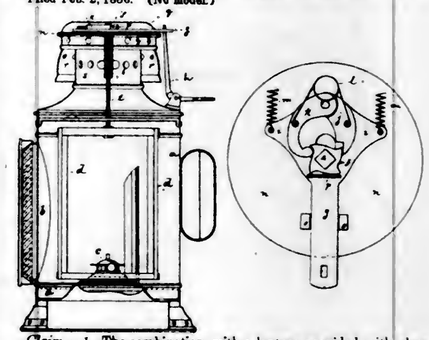
bottom, and rail-supporting lugs *i f*, projecting, respectively, from the wing *d* and arm *e*, the whole secured to the seat parts, substantially as and for the purpose specified.

348,622. **SHUTTER-FASTENER.** JOHN B. DAVE, Westhampton, Burlington County, N. J. Filed June 26, 1886. (No model.)



Claim.—In a shutter-fastener, the combination, with a Y-shaped catch, A, having a brace or lobe, B, attached to the lower portion or stem thereof, of screw-threaded extension-pin C, to which said catch is pivoted, and the plate D, to which said pin is attached, substantially as described.

348,623. **SIGNAL-LANTERN.** GEORGE C. DRESSEL, New York, N. Y. Filed Feb. 2, 1886. (No model.)



Claim.—1. The combination, with a lantern provided with plate *n*, of frame *d* and rod *e*, with star-wheel *f*, and with sliding bar *g*, carrying pawls *j k*, adapted to engage said star-wheel, substantially as specified.

2. The combination, with a lantern provided with plate *n*, of frame *d*, rod *e*, star-wheel *f*, slotted bar *g*, lever *h*, pawls *j k*, and springs *l m*, substantially as specified.

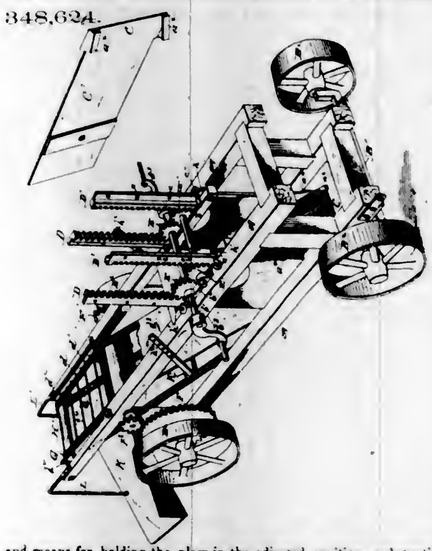
3. The combination, with a lantern provided with plate *n*, of frame *d*, rod *e*, bar *g*, pawls *j k*, star-wheel *f*, springs *l m*, and stop *p*, substantially as specified.

348,624. **DITCHING-MACHINE.** WILLIAM EMSLIE, Montezuma, Iowa. Filed Feb. 9, 1886. (No model.)

Claim.—1. The devices for the vertical adjustment of the excavating-plow, consisting of the toothed bars D D', two of which are attached to each side plate, C², of the plow, and are arranged to slide in suitable guides, in combination with the pinions E E', mounted upon the shafts *b' b²*, journaled in position to cause the pinions at each side of the excavator to engage with each other and with the toothed bars, and means for holding the plow in the adjusted positions, substantially as and for the purposes described.

2. The combination, with a vertically-adjustable excavating-plow, of the toothed bars D D', two of which are attached to each side plate, C², of the plow, and are arranged to slide in suitable guides, the plates *h*, and friction-wheels *h'*, arranged to form bearings for the outer edges of the bars and plates, the pinions E E', journaled in position to engage with each other and with the toothed bars at each side of the excavator,

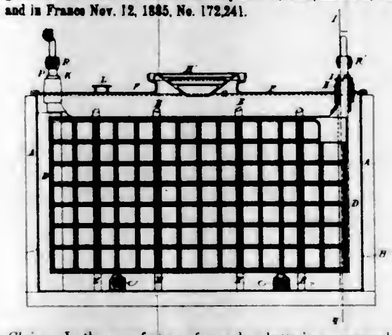
348,624.



and means for holding the plow in the adjusted positions, substantially as and for the purposes described.

3. The devices for conveying the excavated earth to the inclined chute or other device adapted to discharge the earth from the machine, consisting of the gear-wheels F F, mounted on the inner portions of the hubs of the rear carrying-wheels of the machine, the pinions F' F', mounted on the shaft *c²* in position to gear with the wheels F, the endless-chain roller H on a shaft fastened to the sides of the plow under the rear portion of the inclined share-plate, the roller H', mounted on a shaft having adjustable bearings at the rear end of the machine, the endless chains G, carrying the endless apron and arranged to run over the rollers, and the sprocket-wheels attached to the revolving shaft *c²* in position to drive the endless chains, all constructed and combined substantially as and for the purposes described.

348,625. **MANUFACTURE OF SECONDARY BATTERIES OR ACCUMULATORS.** STEPHAN FARBAKY and STEFAN SCHENEK, Schemnitz, Austria-Hungary. Filed June 7, 1886. (No model.) Patented in Belgium Nov. 9, 1885, No. 70,789; in Italy Nov. 9, 1885, XXXVII, No. 458 and in France Nov. 12, 1885, No. 172,241.



Claim.—In the manufacture of secondary batteries or accumulators, the method of fixing the active material in the interstices of the lead plates by simply beating it, instead of pressing it in, by means of a powerful press, as heretofore generally used, and the subsequent treatment with diluted sulphuric acid, all substantially as above set forth.

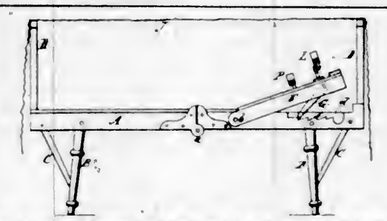
348,626. **CORPSE-SUPPORTING TABLE.** BENJAMIN F. GLEASON, Brockport, N. Y. Filed July 5, 1884. (No model.)

Claim.—1. In a cooling-board, the head-rest consisting of the two shafts movable vertically, the head-rest pivoted to the upper ends of the two shafts, and the detents for holding the two shafts at any elevation, whereby the head-rest may be adjusted in a level position or to an incline on either side, as set forth.

2. In a cooling-board, the combination, with the swinging section, of a head-rest in the center of the board near the head of the same and two arm-rests, one on each side, as set forth.

3. In a cooling-board, the arm-rest made in crank form, whereby

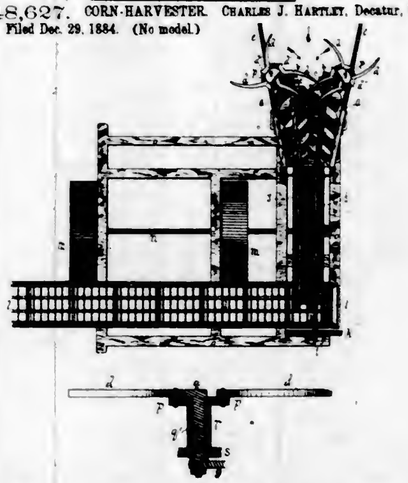
348,626.



it can be adjusted forward and back and in and out, as and for the purpose specified.

4. The arm-rest consisting of the tube *h*, the cranked arm *i*, provided with ratchet-teeth on its vertical length, which rests in the tube, the spring or other device *m*, for engaging with the ratchet-teeth, and the rest *k*, pivoted to the upper end of the arm, as shown and described, and for the purpose specified.

348,627. **CORN-HARVESTER.** CHARLES J. HARTLEY, Decatur, Ill. Filed Dec. 29, 1884. (No model.)



Claim.—1. In corn-harvesters, the combination of a pair of husking-rollers and a pair of coacting worm-rollers secured to the ends of the husking-rollers by universal-joint couplings, the shafts of said worm-rollers diverging from the husking-rollers, and the peripheries of the worm-rollers increasing in diameter from the husking-rollers to a degree approximating the divergence of the shafts.

2. In corn-harvesters, the combination of a pair of husking-rollers, a pair of coacting worm-rollers secured to the ends of the husking-rollers by universal-joint couplings, the shafts of said worm-rollers diverging from the husking-rollers, and the peripheries of the worm-rollers increasing in diameter from the husking-rollers to a degree approximating the divergence of the shafts, and a set of reel-arms located at the enlarged end of each worm-roller, said sets of arms having opposite rotation on an approximately-horizontal plane.

3. In corn-harvesters, the combination of a pair of husking-rollers, a pair of coacting worm-rollers secured to the ends of the husking-rollers by universal-joint couplings, the shafts of said worm-rollers diverging from the husking-rollers, and the peripheries of the worm-rollers increasing in diameter from the husking-rollers to a degree approximating the divergence of the shafts, a set of reel-arms located at the enlarged end of each worm-roller, said sets of arms having opposite rotation on an approximately-horizontal plane, and a pair of downwardly and outwardly inclined guide-arms projected in front of the worm-rollers and reel-arms.

4. In corn-harvesters, the combination of a pair of husking-rollers, a pair of co-operating worm-rollers secured to ends of the husking-rollers by universal-joint couplings, the shafts of said worm-rollers diverging from the husking-rollers, and the peripheries of the worm-rollers increasing in diameter from the husking-rollers to a degree approximating the divergence of the shafts, a set of reel-arms located at the enlarged end of each worm-roller, said sets of arms having opposite rotation on an approximately-horizontal plane, a pair of downwardly and outwardly inclined guide-arms projected in front of the worm-rollers and reel-arms, and racks and pinions for elevating and depressing the reel-arms, the guide-arms, and the outer or forward ends of the worm-rollers.

5. In corn-harvesters, the combination of a pair of husking-rollers

a pair of co-operating worm-rollers secured to ends of the husking-rollers by universal-joint couplings, the shafts of said worm-rollers diverging from the husking-rollers, and the peripheries of the worm-rollers increasing in diameter from the husking-rollers to a degree approximating the divergence of the shafts, a set of reel-arms located at the enlarged end of each worm-roller, said sets of arms having opposite rotation on an approximately-horizontal plane, a pair of downwardly and outwardly inclined guide-arms projected in front of the worm-rollers and reel-arms, means whereby the reel-arms, guide-arms, and the outer or forward ends of the worm-rollers may be elevated or depressed, and a knife under the worm-rollers with its edge presented toward the large ends of the same.

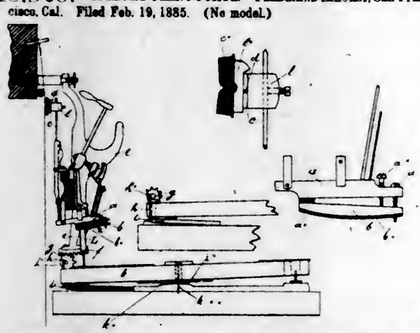
6. The combination, in corn-harvesters, of reel-arms *d*, provided with heel formations *d'*, tubular shaft *r*, worm-gear wheel *s*, and suitable means of imparting motion thereto, rigid shaft *q'*, cam *q*, and suitable guide-arms to carry the stalks in reach of the reel-arms.

348,628. DENTAL MATRIX. AUSTIN C. HEWETT, Chicago, Ill. Filed Feb. 20, 1886. (No model.)



Claim.—A dental matrix made substantially as described, in combination with a clamping device made separate from the matrix and having its ends adapted to engage with shoulders upon the ends of the matrix, substantially as and for the purpose specified.

348,629. UPRIGHT PIANO-FORTE. FERDINAND IMHORST, San Francisco, Cal. Filed Feb. 19, 1885. (No model.)



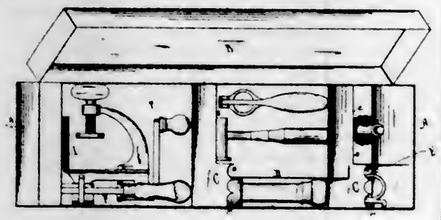
Claim.—1. The combination, with the key, of the back rail, the sector-cogs, pin connecting the sector-cogs with the said rail, the shaft carrying the sector-cogs, and the lever on the said rod, all arranged to operate with the moving upper section of an upright-piano action, substantially as specified.

2. The combination, with the hangers having the segment at lower ends, of the sector-cogs, shaft supporting the same, the lever *n*, the prop, cross-lever, and segment *b*, all adapted to operate in an upright piano, substantially as specified.

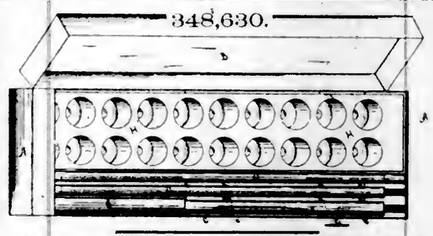
3. The combination, with the movable upper section of an upright-piano action, of the key-bar, the horizontal shaft and sector-cogs thereon, and the hangers provided with lower segment-racks, substantially as specified.

348,630. GUN-CASE. LOUIS KELLER, New York, N. Y. Filed May 22, 1886. (No model.)

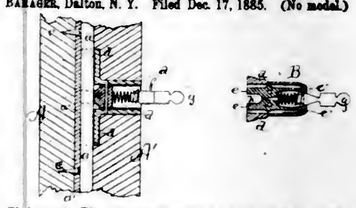
Claim.—A box or case adapted to receive and hold a set of gun implements, having dividing-partitions of different heights, of which the low ones serve as supports for the cartridge-loading block and the high ones to confine the said cartridge-loading block against lateral movement, all substantially as described, whereby the said block will serve as a cover for the compartments below it, substantially as and for the purposes set forth.



348,630.



348,631. SASH-FASTENER. ANDREW L. LONG and WINFIELD S. BARAGER, Dalton, N. Y. Filed Dec. 17, 1885. (No model.)

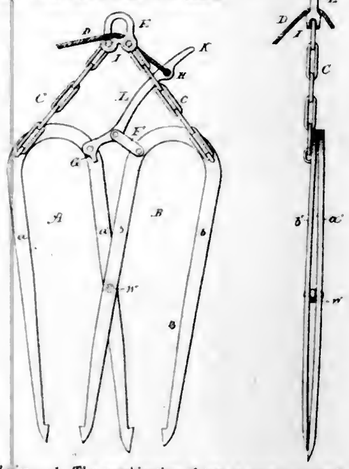


Claim.—1. The combined window stop and fastener B, constructed as described, set in the window-sash A', and in combination with the track *a a'*, set in the casing A, all substantially as specified.

2. The combination of a window-sash, A', having the square-cut slot *j*, and rounded groove *j'*, the casing A, rail *a a'*, and the combined stop and fastener B, all arranged and operating substantially as specified.

3. The casing A, with the track *a a'* set therein, and having the series of slots *i i* cut in said track, in combination with the sash A' and the combined stop and fastener B, all constructed, arranged, and operating substantially as specified.

348,632. HAY-ELEVATING FORK. WILLIAM LOUDEN, Fairfield, Iowa. Filed Feb. 4, 1886. (No model.)



Claim.—1. The combination of two or more penetrating bars or tines pivoted together so as to have a shear-blade movement on each other, and a lever for operating them, the lever being pivoted to one of the bars or tines, and having an elbow or angular part formed on its pivoted end, so as to strike against and to form a stop for the other, substantially as shown and described.

2. The combination of two or more penetrating bars or tines pivoted together so as to have a shear-blade movement on each other, and a lever for operating them, the lever being pivoted to one of the bars or tines, and having a projection formed at a suitable point on its free end, so as to strike against and rest upon the opposite bar or tine, substantially as described.

3. The combination of two or more pivoted bars or tines, a lever for operating them, and an eye or ring connected to the tines by chains or other flexible fastenings, and through which a cord is passed to operate the lever, the free end of the lever being extended sufficiently beyond the attachment of the cord to prevent it from being drawn through the eye or ring by a pull on the cord, substantially as set forth.

4. The combination of two or more pivoted bars or tines and two or more chains connected to them and to an eye or hook having an eye, so as to sustain the fork when elevated and to guide the tripping-cord from the tripping device, the lower part of the eye being forked to receive the chains, substantially as and for the purpose set forth.

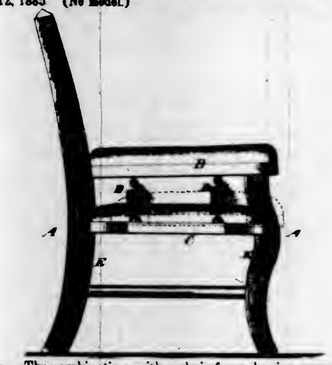
5. The combination of two or more penetrating bars or tines pivoted together so as to have a shear-blade movement on each other, a lever for operating them, and a washer placed between them, substantially as specified.

6. In a hay-elevating fork having two or more parts pivoted together for grasping and holding the hay, the combination of the lever L, being provided with the stops G and H, substantially as and for the purpose set forth.

7. In a hay-elevating fork having two or more parts pivoted together for grasping and holding the hay, the combination of the lever L, having the stops G and H, and the extended end K, substantially as specified.

8. The combination of the parts A and B, the washer W, the lever L, the chains C C, and the eye E, substantially as shown and described.

348,633. CHAIR. THOMAS A. MCFARLAND, Meadville, Pa. Filed Aug. 12, 1885. (No model.)



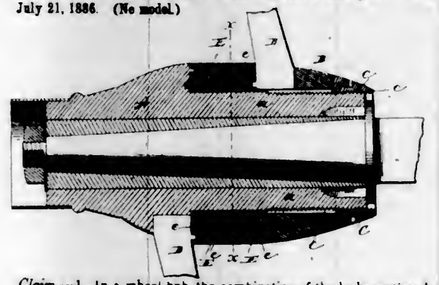
Claim.—The combination, with a chair-frame having arms and legs substantially as described, of the seat C and springs D, said seat being cut away at the corners and suspended by the springs from the arms to swing clear of the legs, substantially as shown and described.

348,634. UPHOLSTERING-ROLL. GEORGE W. MOORE and DAVID A. MOORE, Jr., Guthrieville, Pa. Filed Jan. 23, 1886. (No model.)



Claim.—An upholstering-roll provided with a fastening strip or flange, substantially as and for the purpose set forth.

348,635. HUB. ROBERT NOLEN, Colorado, Tex., assignor of two-thirds to O. F. Rodgers and A. P. Brush, Jr., both of same place. Filed July 21, 1886. (No model.)



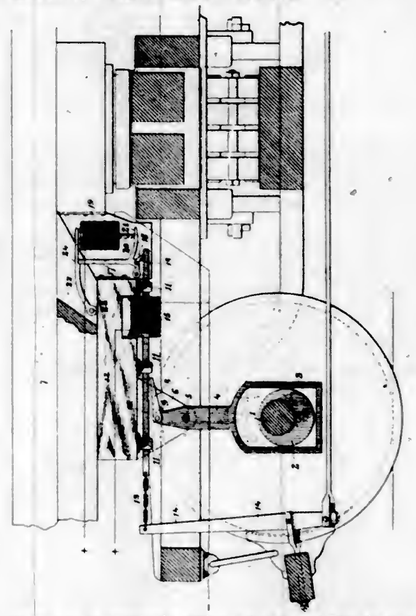
Claim.—1. In a wheel-hub, the combination of the body-section A, having the threaded neck *a*, and fitted to carry one half of the spokes, the body-section B, seated on the neck *a*, and fitted to carry the other half of the spokes, the nut C, and the removable washers interposed between the body-sections A and B.

2. In combination with the transversely-divided hub, the intermediate divided washers.

3. In combination with the hub-body divided transversely, the intermediate washers provided with interlocking flanges and grooves, as described.

4. In combination with the hub-body consisting of the parts A and B and the adjusting-nut, the spokes jointed to the body-sections, as described.

348,636. ELECTRO-MAGNETIC CAR-BRAKE. HARVEY S. PARK, Henderson, Ky. Filed Nov. 14, 1885. (No model.)



Claim.—1. In combination with a rack connected with the brake-chain, a pawl carried by a lever actuated by the car-wheel axle and normally out of clutch with said rack, and an electro-magnet and circuit so arranged that when the circuit through said magnet is completed the rack and pawl are brought into engagement, substantially as and for the purpose set forth.

2. In combination with a pawl of magnetic metal actuated by the motion of the car-wheel axle, a rack-bar, also of magnetic metal, connected with the brake-lever, an electric circuit and an electro-magnet or solenoid therein in proximity to said rack-bar, substantially as and for the purpose set forth.

3. In combination with a brake-bar connected with the brake-lever and having means of operation, substantially as described, a locking-pawl adapted to engage with said bar, a lever carrying said pawl, and an electro-magnet and core for operating said lever, substantially as set forth.

4. In combination with a bar connected with the brake-lever and having means of operation, substantially as described, a pawl engaging with said bar, a lever carrying said pawl, a latch arranged to lock said lever, an electric circuit, a solenoid or magnet therein, and a removable core for said solenoid or magnet arranged to operate said latch and lever, substantially as and for the purpose set forth.

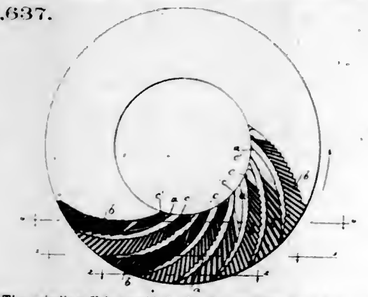
5. In combination with a reciprocating rack-bar connected with the brake-lever, a locking-pawl adapted to engage with said rack-bar, a lever carrying said pawl, and having suitable means of operation, and a fixed stud or projection arranged under said pawl and adapted to support it when lifted out of engagement with said rack-bar, substantially as set forth.

348,637. GRINDING-DISK FOR MILLS. GEORGE RAYMOND and ALBERT RAYMOND, Chicago, Ill. Filed Aug. 3, 1885. Renewed July 24, 1886. (No model.)

Claim.—1. The grinding-disk constructed with the feeding-furrows *a*, which vanish at or near the periphery, and with the transverse grinding-teeth *b*, and the ribs *c'* the latter between the alternate furrows being reduced below the general surface at their inner ends, as described.

2. The grinding-disk having the feed-furrows *a* deepest at the forward side, and the substantially radial grinding-teeth crossing said furrows from the base to the crest, whereby the rear ends of said teeth are exposed to act on the material passing over them.

348,637.

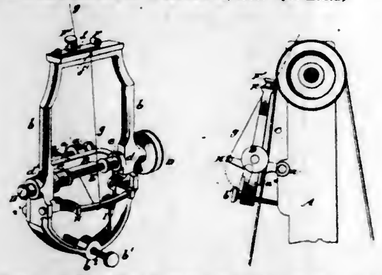


3. The grinding-disk provided with the vanishing feed-furrows having transverse teeth therein, and with the intermediate ribs, *c*, provided with transverse grinding-teeth, the ribs having their crests level or substantially level with the periphery of the disk from their inner to their outer ends.

4. The grinding-disk provided with the vanishing feed-furrows and the transverse grinding-teeth therein, and also with the peripheral series of teeth having inclined faces on the forward side, whereby the material is first subjected to a cutting and subsequently to a crushing action.

5. The grinding-disk provided with the feed-furrows vanishing at the periphery, the furrows being alternately provided with cutting and with crushing teeth extending transversely thereof.

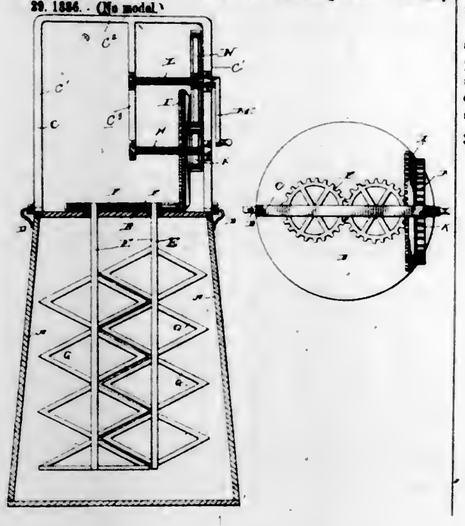
348,638. BOBBIN-WINDER FOR SEWING-MACHINES. WILLIE H. REYNOLDS, Antioch, Ill. Filed Jan. 18, 1886. (No model.)



Claim —1. The frame *b*, having the top slot, *f'*, the superposed plate F, having slot *f*, and the tension-screw F', in combination with the sewing-machine arm A, having thereon a thread-spool, G, the thread-guide H, and the bobbin-spindle E, all arranged substantially as shown and described.

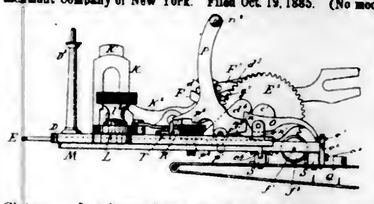
2. The bracket B, having ears and pivot-screw, in combination with the frame *b*, having screw and nut b' b^3, as and for the purpose specified.

348,639. CHURN. JOSEPH B. RILEY, Pittsburg, Kans. Filed May 29, 1886. (No model.)



Claim.—The combination, with the churn-body, of the cover B, the frame C, attached to the cover and comprising the vertical standards C', the horizontal top bar, C^2, and the depending vertical arm C^3, the horizontal shafts H and L, journaled in one of the standards and in the arm C^3, the said shaft L, having the gear-wheel N and the crank-handle M, and the said shaft H, having the pinion K meshing with the wheel N and the gear-wheel I, the shafts E, having their upper ends journaled in the cover, the intermeshing gear-wheels F, attached to the upper ends of the shafts E, one of the said wheels meshing with whee I, and the diamond-shaped open dashers G, attached to the shafts E and adapted to intermesh as the said shafts rotate, substantially as described.

348,640. BUTTON-HOLE ATTACHMENT FOR SEWING-MACHINES. WILLIAM SCHOTT, New York, N. Y., assignor to the Schott Button Hole Attachment Company of New York. Filed Oct. 19, 1885. (No model.)



Claim.—1. In a button-hole attachment to a sewing-machine, the combination, with the mechanism for transmitting the motion of the needle-bar to the button-hole form-plate, and with the form-plate, of the spring-actuated trigger O, spring-actuated three armed lever P, spring-actuated dog T, pawl R, spring-actuated stop R', and tripping device o^2, all arranged and operated substantially as herein shown and described.

2. In a button-hole attachment to a sewing-machine, the combination, with the lever P, the form-plate, and mechanism for operating the same, of a spring-actuated trigger having extension *o'*, and a tripping device, o^2, adjustably fixed on the form-plate, substantially as and for the purposes herein set forth.

3. In a button-hole attachment to a sewing-machine provided with a reciprocating foot and barring-plate adjustable thereon, substantially as herein shown and described, the combination therewith of a lever, P, pivoted to the said foot, and having its heel extended down through and engaging the barring-plate, as shown, whereby the said plate can be moved by said lever.

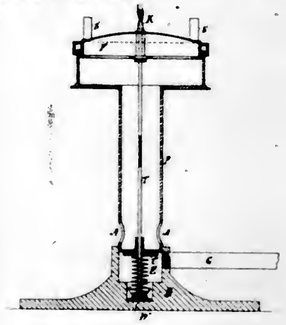
4. In a button-hole attachment to a sewing-machine of the character substantially as herein described, the combination, with the lever P and tripping device, of a spring-actuated trigger, O, arranged in relation to said trippping device o^2 and lever P, as described, and means whereby said trigger is moved by the former to release the latter, as set forth.

5. In a button-hole attachment to a sewing-machine of the character substantially as herein specified, the combination, with the form-plate and lever P, of a spring-actuated stop, R', adapted and arranged to check the rearward movement of said lever, as and for the purposes set forth.

6. In a button-hole attachment to a sewing-machine of the character substantially as herein set forth, the combination, with the form-plate, stop R', and lever P, of the pawl R, pivoted on the oscillating lever L, and adapted and arranged to move said stop to permit the full rearward movement of said lever, as set forth.

7. In a button-hole attachment to a sewing-machine of the character substantially as herein specified, the combination, with the form-plate oscillating lever L, the lever P, stop R', and pawl R, of a spring-actuated dog, T, arranged and adapted to hold said pawl at times from contact with said stop, and to permit the engagement of said pawl with said stop at times, as and for the purposes set forth.

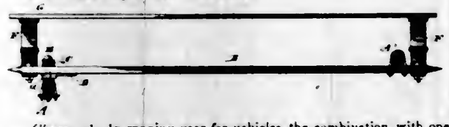
348,641. GAS-HEATER. ISIDORE SPIELMANN, London, County of Middlesex, England. Filed Jan. 23, 1886. (No model.) Patented in England Feb. 3, 1885, No. 1,509.



Claim.—1. The combination, in a burner, of a gas-supply pipe or conduit therefor, a valve for controlling the passage of gas, a movable support for a utensil to be heated connected with such valve, a perforated covering for such support, through which gas passes to be ignited, and a projection or projections on said support extending above said covering, and upon which the utensil to be heated rests, substantially as specified.

2. The combination, with a main burner, a gas-supply pipe or conduit therefor, and a valve for controlling the passage of gas, of a movable support for a utensil to be heated connected with such valve, a supplemental burner, and an independent gas-supply pipe or conduit for the latter, substantially as specified.

348,642. VEHICLE RUNNING-GEAR. DANIEL A. SPRAGUE, Poland, N. Y. Filed May 6, 1886. (No model.)

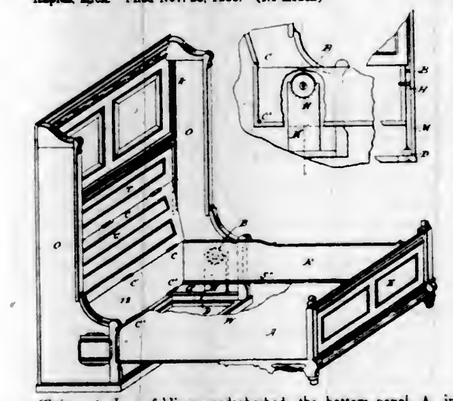


Claim.—1. In running-gear for vehicles, the combination, with one or more reach-bars secured below the rear axle and above the front axle, of body-supporting springs secured to the reach bar or bars in front of the front axle and in the rear of the rear axle, respectively, substantially as set forth.

2. In running-gear for vehicles, the combination, with one or more straight reach-bars, of a pair of body-supporting springs secured to the under side of the reach bar or bars, one in front of the front axle and the other to the rear of the rear axle, substantially as set forth.

3. In running-gear for vehicles, the straight reach-bar projecting to the front and rear of the front and rear axles, the cross-head and fifth-wheel section attached thereto, and the springs secured to the under sides of the projecting ends of the reach, the whole constructed and arranged substantially as set forth.

348,643. WARDROBE FOLDING BED. JOHN T. STRAHAN, Grand Rapids, Mich. Filed Nov. 25, 1885. (No model.)



Claim.—1. In a folding wardrobe-bed, the bottom panel, A, in combination with a head-board and a foot-board hinged thereto, and detachable side rails, substantially as described.

2. In a folding wardrobe-bed, the combination of a panel, as A, a head-board and a foot-board, each hinged thereto and detachable therefrom, and detachable side rails, substantially as described.

3. In a folding wardrobe-bed, the combination of a bottom panel, as A, a foot-board and a head-board hinged thereto, detachable side rails, as R, having bearings, as H, secured thereto, and the vertical supports, M M, secured to the side pieces of the upright case, substantially as described.

4. In a folding wardrobe-bed, a bed-box having circular journals on the sides thereof near the head end, in combination with the detachable side pieces of the upright knockdown case, having vertical supports secured thereto, and provided with journal-bearings in the upper end thereof, substantially as described.

5. In a folding wardrobe-bed, an upright case composed of the side pieces, O O, having base cross-bars, base W, panel Y, separably attached, and means for connecting the base and cross-bars together, in combination with a bed-box adapted to fold within the space between said side pieces, substantially as described.

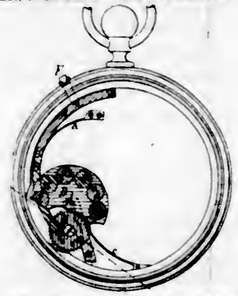
6. In a folding wardrobe-bed, the upright case composed of the side pieces, O O, connecting-panel Y, base W, all separably connected, in combination with the bed-box provided with a bottom panel, with a head-board and foot-board hinged thereto, and separably-connected side rails, said box adapted to fold within said upright case, substantially as described.

7. In a folding wardrobe-bed, the combination of an upright case consisting of side pieces, O O, having supports M M secured thereto, base W, on which said side pieces rest, connecting-panel Y, sliding panels T and U, all of which parts are separable, with a bed-box composed of a panel, A, having foot-board E and head-board 13 hinged thereto, and detachable side rails, as R, said bed-box being adapted to fold between the side pieces of the upright case, substantially as described.

348,644. MORTAR OR COMPOSITION FOR COATING WALLS. MARSHALL TURLEY, Council Bluffs, Iowa. Filed May 24, 1886. (No specimens.)

Claim.—Mortar or a composition for coating walls, consisting of flour, glue, sand, and water, combined in the proportions substantially as set forth.

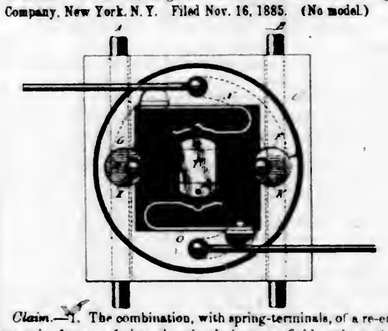
348,645. GAME ATTACHMENT FOR WATCHES. JUSTIN WALSER, Chaux-de-Fonds, Switzerland. Filed Feb. 12, 1886. (No model.)



Claim.—1. The combination, with the push-pin F and the case through which the same passes, of the lever A and its spring *a*, the gear-wheel E, with interrupted teeth, the link B, connected at its respective ends to the wheel E and lever A, the pinion *d*, the numbered disk D, and the dial having an opening through which one number of the disk is visible, substantially as set forth.

2. The combination, with the push-pin F, lever A, and spring *a*, of the link B, gear-wheel E, with interrupted teeth, the pin *e''*, pawl C, spring *c*, pinion *d*, and numbered disk D, substantially as set forth.

348,646. SAFETY-STRIP FOR ELECTRIC CIRCUITS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Nov. 16, 1885. (No model.)



Claim.—1. The combination, with spring-terminals, of a re-enforced safety-strip for completing the circuit between said springs, the strip being inserted between the springs, so as to force them apart, and held in position by them, as set forth.

2. The combination, with spring-terminals, of a re-enforced safety-strip having contacts provided at its opposite ends, and adapted to complete the circuit between the springs, the strip being inserted between the springs and held in position by them, as set forth.

3. The combination, with spring-terminals, of a safety-strip and rigid holder therefor adapted for insertion between the springs, and provided with contacts, whereby the circuit is completed between the springs through the safety-strip, as set forth.

4. The combination, with a box or case containing spring-terminals, of a cap carrying a fusible safety-strip and forming a rigid holder therefor, the said cap being formed with contacts in electrical connection with the ends of the strip, and adapted for insertion between the springs, as set forth.

5. The combination, with a box or case containing spring-terminals, of a cap having contacts, a safety-strip secured to the cap with its

ends in electrical connection with the contacts, and means for holding the cap in position, so that the circuit between the springs is completed by the safety-strip, as set forth.

348,647. HOLDER FOR INCANDESCENT LAMPS. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Jan. 18, 1886. (No model.)

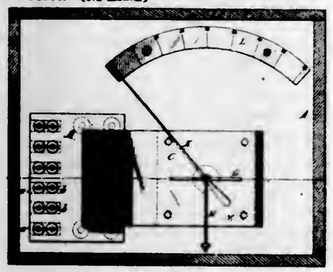


Claim.—1. The combination, with an incandescent lamp and a socket or holder of different form or make, and thereby unsuited for direct connection, of an intermediate device or coupler constructed to fit both the lamp and the socket, whereby they may be operatively connected, as herein set forth.

2. The combination, with an incandescent lamp and a socket or holder of different form or make, and thereby unsuited for direct connection, of a coupler containing conductors and contacts and constructed to fit both the lamp and the socket, and thereby connect the same mechanically and complete the electric circuit from the lamp to the holder, as herein set forth.

3. The combination, with an incandescent lamp and a socket or holder of different form or make, and thereby unsuited for direct connection, of an intermediate device or coupler separable from both the holder and the lamp and constructed to fit both lamp and holder, whereby they may be operatively connected and disconnected, as herein set forth.

348,648. AMPERE-METER. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Feb. 1, 1886. (No model.)



Claim.—1. In a current-indicator, the combination, with a conductor, of an indicating magnetized needle or bar mounted in a position parallel to said conductor, and one or more pieces of soft iron placed in proximity to the conductor and needle, these parts being so arranged that the bar or needle is deflected by the combined action of a current passing in the conductor and the magnetism induced in the iron by such current, substantially as set forth.

2. The combination, with a conductor turned or bent back upon itself, an indicating magnetic bar or needle mounted between the turns or convolutions of the conductor and parallel therewith, and one or more soft-iron pieces or plates in proximity to the conductor and the needle, these parts being so arranged that the bar or needle is deflected by the combined action of a current passing in the conductor and the magnetism induced in the iron by such current, substantially as set forth.

3. The combination, with a metal band or strip bent back upon itself, of a magnetic bar or needle mounted between the ends or sides of the band, and parallel therewith, an index-arm attached to or moved by the needle, and iron plates secured to the band on opposite sides of the needle, as and for the purpose set forth.

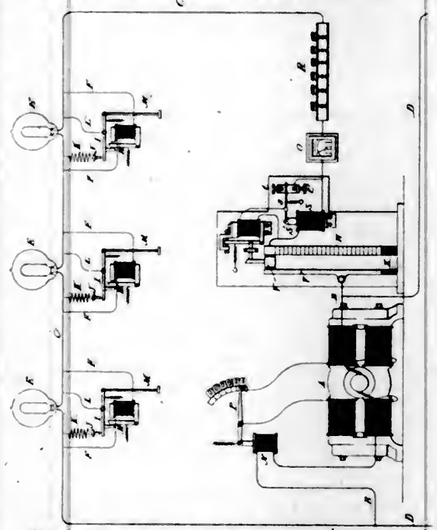
4. The combination, with a metal band or strip bent back upon itself, of a magnetic bar or needle mounted between the ends or sides of the band, a weighted arm or pendulum for maintaining the needle in a normally-horizontal position and parallel with the band, an index-arm attached to or moved by the needle, and iron plates secured to the band on opposite sides of the needle, as and for the purpose set forth.

5. The combination, with a U-shaped conducting band or strip, of a balanced magnetic bar or needle between the ends or sides of the same, and carrying a pointer adapted to sweep over a scale, the said needle being held in a position normally parallel to the conducting-band, and iron plates secured to the band on opposite sides of the needle, as and for the purpose set forth.

6. The combination, with a band or strip of copper with its ends bent back upon themselves and secured to terminal blocks or plates, of a magnetic bar or needle mounted between the ends of the band, a counter-balance for maintaining the needle in a horizontal position parallel with the band, a pointer carried by the needle, and soft-iron plates secured to the bands on opposite sides of the needle, as herein set forth.

7. In a current-indicator, the combination of a conductor and a magnetized bar or needle arranged to be deflected by currents passing in said conductor, and one or more magnets placed in such position relatively to the bar or needle as to co-operate with the current in deflecting the said bar, as set forth.

348,649. ELECTRIC-LIGHTING SYSTEM. EDWARD WESTON, Newark, N. J., assignor to the United States Electric Lighting Company, New York, N. Y. Filed Mar. 13, 1886. (No model.)

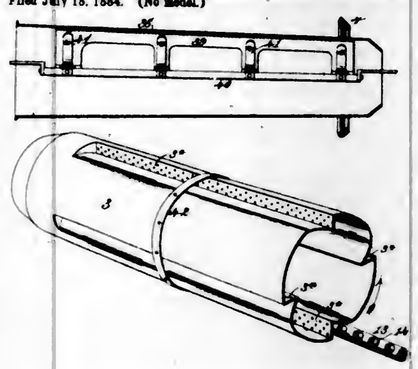


Claim.—1. In an electrical distributing system in which the translating devices are included in series in cross or multiple circuits from the mains, the combination, with each cross-circuit, of means for adjusting its resistance and a device for automatically and gradually interrupting said circuit upon a given increase or decrease of the current passing therein, as set forth.

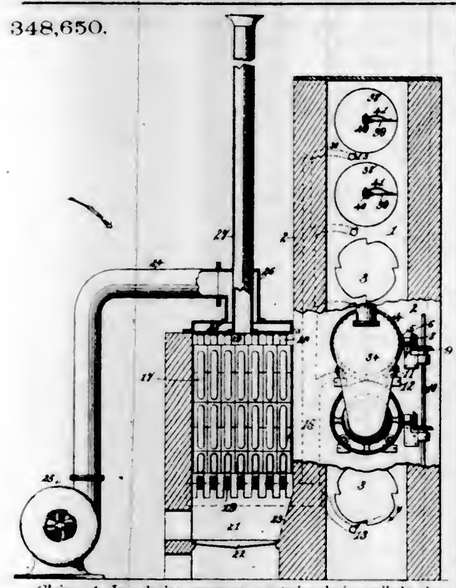
2. In an electric-lighting system in which the lamps are included in series in cross or multiple circuits from the mains, the combination, with each lamp, of an automatic cut-out adapted to close a circuit of low resistance around a lamp when the lamp is extinguished, an adjustable or variable resistance included in each cross or branch circuit, and a device operating to automatically and gradually interrupt the branch circuit upon a given increase or decrease of the current passing therein, as set forth.

3. In an electric-lighting system having branch or multiple circuits, the combination, in each branch, of two or more lamps in series and cut-outs therefor, a current-indicator, a rheostat or adjustable resistance, and an automatic circuit-breaker constructed and arranged in substantially the manner set forth to gradually interrupt the branch circuit upon a given increase or decrease in the current strength, as set forth.

348,650. GRAIN-DRIER. ROBERT WIEBERICK, New York, N. Y. Filed July 18, 1884. (No model.)



348,650.



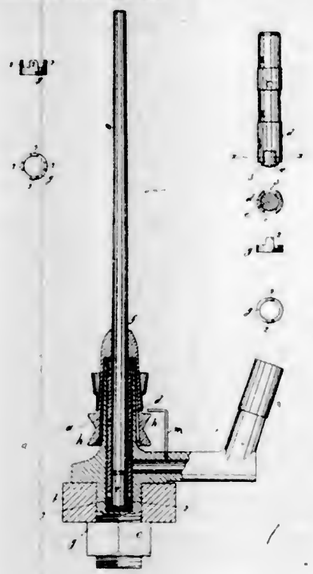
Claim.—1. In a drying apparatus, a rotating drying-cylinder having longitudinal grooves or inward deflections, each containing a perforated plate for admitting hot air, and also stirring or agitating the material, substantially as described.

2. The combination, in a drying apparatus, of a drying-cylinder having longitudinal grooves or inward deflections, each containing a perforated plate, and a hot-air pipe for introducing hot air into the cylinder through the perforated plates, substantially as described.

3. In a drying apparatus, the combination, with a series of rotating cylinders contained within a closed casing, of a series of air-blast pipes arranged close to each cylinder, and having discharge-openings upon the side adjacent thereto, and feeding-pipes connected with said blast-pipes at or about their middle point, substantially as described.

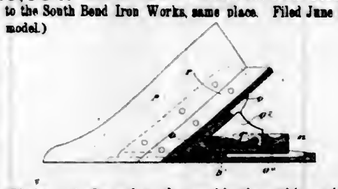
348,651. SPINDLE-BEARING. GEORGE H. ALLEN, Ayer, assignor to Georgs Draper & Sons, Hopedale, Mass. Filed Aug. 22, 1882. (No model.)

Brief.—An improvement on the device covered by United States Letters Patent No. 262,268, dated August 8, 1882, the object being to restrain the rotation of the bolster-tube.



Claim.—The supporting-tube, and bolster-tube holding-plate located therein, provided with one or more prongs combined with the bolster-tube, placed loosely in the said supporting-tube and notched to engage the said prongs, to operate substantially as and for the purposes described.

348,652. PLOW. CHARLES ANDERSON, South Bend, Ind., assignor to the South Bend Iron Works, same place. Filed June 11, 1886. (No model.)

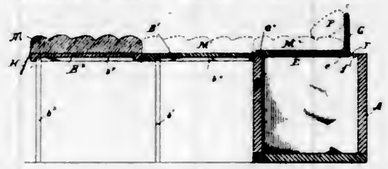


Claim.—1. In a plow, the combination, with a plow beam and standard, of a casting adapted to form a seat for the several wearing parts of a plow, the said casting having a web located between and integral with the sides of the casting, and a landside-rib forming a seat for the lower end of the standard.

2. In a plow, the combination, with a casting adapted to form a seat for the several wearing parts of the plow, and having a web integral with the sides thereof, and a rib integral with one side thereof, of a plow-standard having a channeled face adapted to be engaged by the rib, and a forwardly-projecting end section adapted to engage the web, substantially as set forth.

3. In a plow, the combination, with the plow beam and blade, of a horizontal bar having perforations and provided with rearwardly-extending jaws for securing it to the beam, the said bar being braced at the furrow end by a rigid brace extending from it to the jaw, and a clevis consisting of an upright perforated bar provided with a pair of jaws adapted to rest against the opposite faces of the horizontal bar and be secured to the transverse bar in the desired lateral adjustment, substantially as set forth.

348,653. COMBINED WINDOW-SEAT AND BEDSTEAD. MARTIN BRETHERTON, St. Louis, Mo. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a combined window-seat and couch, the combination, with a box, of a sectional frame hinged to one edge, and a separate section connected to the box upon or near the opposite side by pins or studs, which have a sliding and a pivotal connection upon the ends of the box, whereby the section may be raised and slid forward to form part of the extended bed and retracted and dropped into the box when folded, substantially as specified.

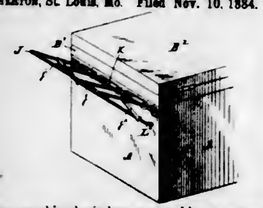
2. In a combined window-seat and lounge, the combination, with a box, of a sectional bed-frame hinged to one edge, a separate section connected with the ends of the box near the opposite side by pins which slide and turn upon said ends, and a head-piece hinged to said section, substantially as specified.

3. In a combined window-seat and lounge, the combination, with a box, of a frame composed of sections and hinged to each other and to one edge of the box, legs pivoted upon said sections and supported by pivoted braces folding upon the parts of the frame, a separate section connected to the ends of the box near the side opposite that to which the sectional frame is hinged, studs or pins projecting from the ends of said section and moving and turning in guideways in the ends of the box, and a head-piece hinged upon said section, the latter having a width less than the width of the box, substantially as specified.

4. The combination, with a box, of a couch-frame composed of sections hinged together and to one side of the box at its top, and a separate section having one edge rabbeted, and provided with studs projecting from its ends near the other edge, said studs being received by grooves formed in the ends of the box near the side opposite that to which the hinged frame is attached, substantially as specified.

5. The combination, with an open box having grooves formed in its end edges near one side, and provided with pockets or notches at each end of said grooves, of a single couch-section having pins projecting from each end near one of its longer endges, an end piece hinged upon said section, and couch-sections hinged together and to the opposite side of the box, one of said sections having a cushioned or upholstered surface, serving as a cover for the box-seat when folded and as part of the mattress of the couch when extended, substantially as specified.

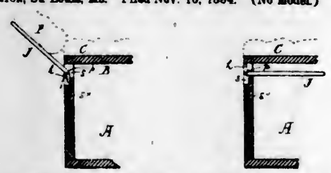
348,654. COMBINED WINDOW-SEAT, BEDSTEAD, AND COUCH. MARTIN BRETHERTON, St. Louis, Mo. Filed Nov. 10, 1884. (No model.)



Claim.—1. In a combined window-seat and lounge, the combination, with a box adapted to contain the necessary pillows and bedding, of a head-rest frame sliding in a keeper-bar attached at its ends to one end of said box, and having braces pivoted upon it and adapted to engage with a support beneath said keeper-bar, substantially as specified.

2. The combination, with a convertible window-seat and lounge, of a keeper-bar attached by its ends to one end of said box and having loops at intervals, a frame having bars which lie in said loops, a handle-bar attached to the box below said keeper, and braces pivoted upon the said frame and having notched ends which engage with said handle-bar, substantially as specified.

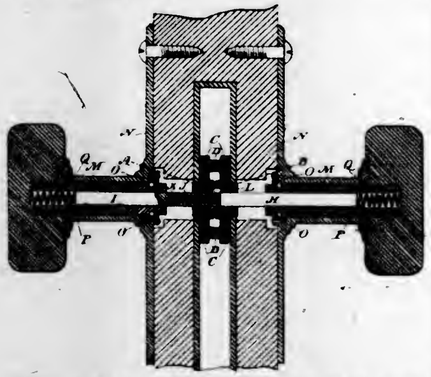
348,655. COMPOUND WINDOW SEAT AND COUCH. MARTIN BRETHERTON, St. Louis, Mo. Filed Nov. 10, 1884. (No model.)



Claim.—1. The combination, with a box having vertical slots in one end, of a head-rest frame pivotally mounted upon said end and supports attached to the interior of said box and holding the frame when extended, the bar of the frame registering with the slots in the box end, whereby the head-rest may be turned within the box, substantially as specified.

2. The combination, with a box having a hinged cover and provided with vertical slots cut in one end, of a head-rest frame having the curved ends of its bars pivoted in said slots, whereby the frame may be turned within said box when not in use or extended and supported by a projection rising above the lower ends of said slots, substantially as specified.

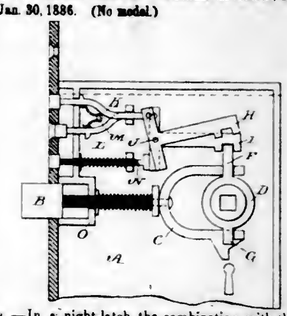
348,656. LATCH. WARREN R. BRIGGS, Bridgeport, Conn. Filed Jan. 27, 1886. (No model.)



Claim.—1. In a door-latch, the two sections of the hub arranged one on either side of the latch-yoke and adapted to operate the same, in combination with the latch-spindles, the ring adapted to limit the inward movement of the spindles, and the knob-shanks retained by the escutcheon, substantially as and for the purpose set forth.

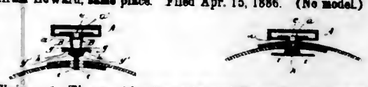
2. The combination of the latch-yoke having T-heads extending across its ends, the sectioned hubs arranged one on each side of the yoke, and having circular recesses in their inner faces, spindles provided one with a pintle and the other with a socket at the inner ends, and perforated washer interposed between the hub-sections and within said recesses, and adapted to limit the inward movement of the spindles, substantially as set forth.

348,657. NIGHT-LATCH. WARREN R. BRIGGS, Bridgeport, Conn. Filed Jan. 30, 1886. (No model.)



Claim.—In a night-latch, the combination, with the independent latch-hubs adapted to be operated by any convenient knobs, and having upwardly-projecting wings, of a pair of T-shaped pivoted and notched locking-tumblers, push-bars controlling the same and extending through the face-plate and pivoted to said tumblers, and a throw-off bar whose forward extremity engages with the downwardly-extending arms of the locking-tumblers, and is adapted to raise the latter out of engagement with the hub-wings, substantially as specified.

348,658. BUTTON. FRANK E. CHILD, Providence, R. I., assignor to Hiram Howard, same place. Filed Apr. 15, 1886. (No model.)

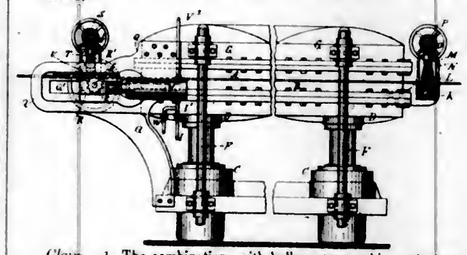


Claim.—1. The combination, substantially as described, with a post or shank having a base-plate integral therewith and bent substantially at right angles thereto, of a head or body having a back plate provided with a slot of greater width than the thickness of that part of said post inserted in said slot, for the purpose set forth.

2. The combination, substantially as described, with a button-body provided with a pair of spring-arms, each having a pivot-bar, of a pair of angle-levers, each having an eye at one side of the bend, and provided with a bent or curved bearing-plate having a tongue riveted in the eye, said plate embracing one of the pivot-bars of the spring-arms, as and for the purpose set forth.

3. The combination, substantially as described, with a body provided with a pair of arms, of a pair of angle-levers, each provided with a bent or curved bearing-plate fastened thereto and extending from one arm of the angle-lever to the other at the bend thereof, as specified, and retaining in the socket or opening thus formed a portion of one of the spring-arms to provide a hinge-joint.

348,659. APPARATUS FOR MANUFACTURING VULCANIZED RUBBER BELTING. MAURICE C. CLARK, Derby, assignor to the Birmingham Iron Foundry, Birmingham, Conn. Filed Dec. 21, 1885. (No model.)



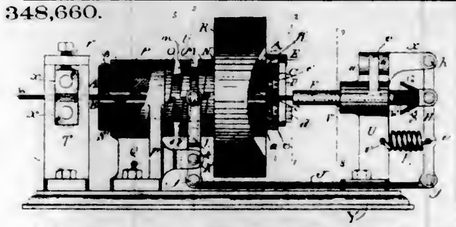
Claim.—1. The combination, with hollow steam tables and platen for clamping and vulcanizing rubber belts, of the clamps for holding the rubber belts at one end of the vulcanizing-table, and clamps at the other end for holding such belts and hydraulic cylinders, and rams for giving motions to the clamps and stretching the belts, substantially as set forth.

2. The frame Q, having slots Q', in combination with the clamping-bed R, the eccentric clamp, the hydraulic cylinders V, connected together by the pipe V^2, the rams to act upon the clamping-bed, and the pinions and racks for moving the clamps toward the vulcanizing-table, substantially as set forth.

348,660. WIRE STRAIGHTENER AND CUTTER. OLMSTEAD COLLINS, Chicago, Ill., assignor of one-half to Almon P. Dodge, same place. Filed June 19, 1886. (No model.)

Claim.—1. A rotating sleeve, A, carrying a spiral, B, for receiving and straightening wire, substantially as specified.

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2. The sleeve A and spiral B, in combination with the disk C and cutter D, for straightening and cutting wire, substantially as specified.

3. The sleeve A, spiral B, and cutters C D, in combination with the receiving-tube F and a connection between the receiving-tube and a clutch mechanism on the sleeve for automatically stopping and starting the rotation of the sleeve in straightening and cutting wire, substantially as specified.

4. The sleeve A, spiral B, and cutter C D, in combination with the receiving-tube F, stop *g*, bell-mouth G, lever H, spring I, connecting-rod J, fork L, and clutch M N O, for automatically straightening and cutting wire, substantially as specified.

5. The combination, with a rotating sleeve, A, carrying a spiral, B, of grooved wheels operating to clamp the wire and prevent a too rapid feed, substantially as and for the purpose specified.

348,661. FOUNTAIN-PEN. AMBON K. CROSS, Boston, Mass. Filed Mar. 27, 1886. (No model.)



Claim.—1. The combination, with the pen-section and the ink-passage, of an adjustable spring-valve and a wire loop attached thereto for connecting a pen with said valve, substantially in the manner and for the purpose set forth.

2. The combination, with the pen-section, the ink-passage, and a feed-wire inserted therein, of an adjustable spring-valve connecting with the said feed-wire and a wire loop attached thereto for connecting a pen with said valve, substantially in the manner and for the purpose set forth.

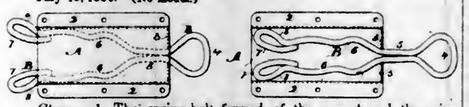
3. In a fountain-pen, the combination of a pen-section having a central ink-passage and connecting-orifices on opposite sides thereof, an adjustable spring-valve provided with a wire loop for connecting with a pen, and a suitable plug adapted to close the orifice opposite to said spring-valve, all arranged and operating substantially as and for the purpose specified.

4. The combination, with the pen-section, of an adjustable spring-valve provided with a wire loop for connecting with a pen, a removable sleeve closely fitted to said pen-section, and a pen-point protector fitting upon lower end of said sleeve and bored tapering at or near its closed end, for the purpose of forcing a pen hard upon said spring-valve and more effectively sealing the ink-passage, as set forth.

5. The combination, with the ink-reservoir, of an air-tube enlarged at its upper end and threaded to said reservoir, provided near said threaded portion with a packing-ring, and an enlarged air-chamber forming part of said air-tube, all constructed substantially as and for the purpose shown and described.

6. The combination, with the ink-reservoir, of an air-tube enlarged at its upper end and threaded to said ink-reservoir, provided near said thread with a suitable packing-ring, a conic valve at its lower end for closing the ink-passage, and an enlarged air-chamber forming part of said air-tube and located near said valve, as and for the purpose set forth.

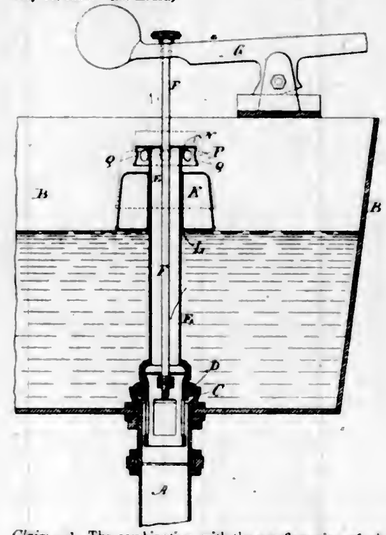
348,662. SPRING-BOLT. GEORGE CROOCH, New York, N. Y. Filed July 19, 1886. (No model.)



Claim.—1. The spring-bolt, formed of the case A and the wire bolt B within the same, having diverging spring-legs, and the loop 4, connecting the two legs, substantially as set forth.

2. A spring-bolt formed of wire having two divergent legs connected by a loop, and the ends of the wire folded back to form the bolts, in combination with a case having a notched end flange, through which the wire of the legs passes, substantially as set forth.

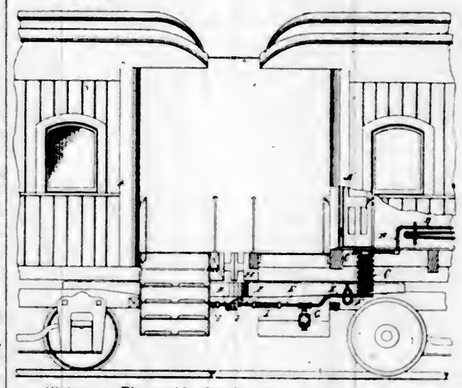
348,663. CISTERN-OVERFLOW VALVE. JOHN DEMAREST, New York, N. Y., assignor to the J. L. Mott Iron Works, same place. Filed July 19, 1886. (No model.)



Claim.—1. The combination, with the overflow-pipe, of a bell-float surrounding and sliding upon the upper end of said pipe and a cap resting upon the top of the overflow-pipe, and having a perforated rim, against which the float acts in lifting the cap, substantially as set forth.

2. The combination, with the overflow-pipe, the valve at the lower end thereof, and the valve-seat, of a bell-float around the upper end of the overflow-pipe and sliding thereon, a separate cap having a downward rim and openings and resting upon the upper end of the overflow-pipe, and a lifting-rod passing through the cap and acting to lift the overflow-pipe and valve, substantially as set forth.

348,664. STEAM-PIPE CONNECTION BETWEEN RAILWAY-CARS. JULIUS R. DROPSEWSKI, Erie, Pa., assignor of two-thirds to Henry C. Shannon and John M. Ormsbe, both of same place. Filed July 6, 1886. (No model.)



Claim.—1. The combination, in a steam-pipe connection between railway-cars, of a coupling-joint with a flexible coil of pipe, one end of which communicates with a pipe extending to the coupling-joint and the other with the steam-pipes of the car, substantially as and for the purpose set forth.

2. In a steam-pipe connection between railway-cars, the combination, with a flexible coil of pipe, one end of which coil communicates with the heating-pipes of the car and the other with a pipe extending to the coupling-joint, of a steam-trap and a telescopic joint in the pipe between the coil and the coupling-joint, substantially as and for the purpose set forth.

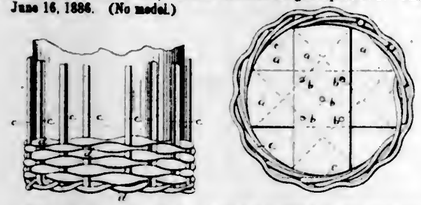
3. In a steam-pipe connection between railway-cars, the combination of a flexible coil of pipe, one end of which connects with a pipe for conveying steam to the heating-pipes of the car and the other to a pipe extending to the coupling-joint between the cars, with a steam-trap, and

a telescopic joint in the pipe between the coil and the coupling-joint, and an automatic valve in each section of the coupling-joint, substantially as and for the purpose set forth.

4. In a steam-pipe connection between railway-cars, the combination of the flexible coil of pipe C and the pipe E with a steam-trap, G, a telescopic joint, I, and a coupling, J, substantially as and for the purpose set forth.

5. In a steam-pipe connection between railway-cars, the combination of a flexible coil of pipe C and the connecting-pipe E with the guard F, substantially as and for the purpose set forth.

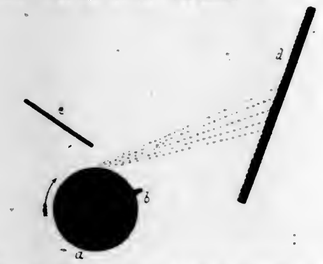
348,665. DEMIJOHN. ALBERT EHELER, Poughkeepsie, N. Y. Filed June 16, 1886. (No model.)



Claim.—1. The combination of splints *a*, made in one piece with ribs *c* at each of its ends, the ribs *c* being set back from the edges of the splints, with the weft *d* interwoven with said ribs, substantially as specified.

2. The combination of splints *a*, made in one piece with ribs *c* at each of its ends, with the weft *d* interwoven with said ribs, and forming flange *e*, which overlaps the edges of splints *a*, substantially as specified.

348,666. SAND AND GRAVEL SEPARATOR. SAMUEL FRIEND, Decatur, Ill. Filed Apr. 26, 1886. (No model.)

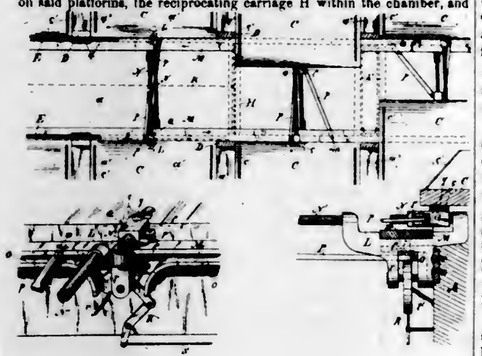


Claim.—A separator for sand and gravel, consisting in a longitudinally-ribbed cylinder adapted to rotate rapidly on a horizontal axis, means for conveying the sand and gravel to the upper surface of the cylinder, and a separating-screen having its face opposed to the centrifugal discharge of the cylinder, as and for the purpose set forth.

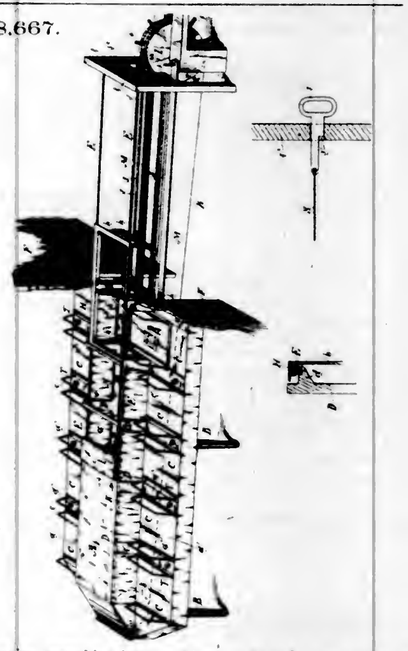
348,667. DINING-TABLE. CHARLES A. GRILLWITZER, San Francisco, Cal., assignor to the Automatic Dining Table Company, same place. Filed Nov. 7, 1885. (No model.)

Claim.—1. In a dining-table having a longitudinal way or chamber, a reciprocating carriage within said chamber, in combination with service-trays and a mechanism comprising levers and bars within said chamber, constructed so as to force the trays sidewise from the carriage and to draw them upon it again, substantially as described.

2. In a dining-table, the table A, having a longitudinal chamber and side platforms, *a'*, in combination with the service-trays C, guided on said platforms, the reciprocating carriage H within the chamber, and



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mechanism comprising levers and bars constructed so as to draw the trays from the platforms to and upon the carriage and to force them out again, substantially as herein described.

3. In a dining-table, the table A, having a longitudinal chamber and guest-spaces on each side, in combination with a carriage in the chamber, service-trays in the guest-spaces, mechanism operated from an adjoining apartment for reciprocating the carriage and drawing and withdrawing the trays upon and from said carriage, substantially as and for the purpose herein described.

4. In a dining-table, the table A, having an elevated longitudinal center forming a chamber, *a*, and side platforms, *a'*, and the ways or tracks E in the sides of said chamber, in combination with the reciprocating tray-bearing carriage H, having top bearings, *h*, suspending it from the ways or tracks, and bottom cleats or guides, *h'*, for the trays, substantially as herein described.

5. In a dining-table, the table A, formed with chamber *a* and sides *a'*, in combination with the movable service-trays C, guided upon said sides, and the reciprocating carriage H, mounted within the chamber, and having bottom guides, *h'*, on a level with the guides of the sides *a'*, for the reception of the trays, substantially as herein described.

6. In a dining-table, the movable service-trays C, in combination with the mechanism for moving them, consisting of the laterally-traveling sleeves Q, engaging the trays, the levers P, pivoted to the sleeves, and the longitudinally-moving bars M, engaging the lever, substantially as herein described.

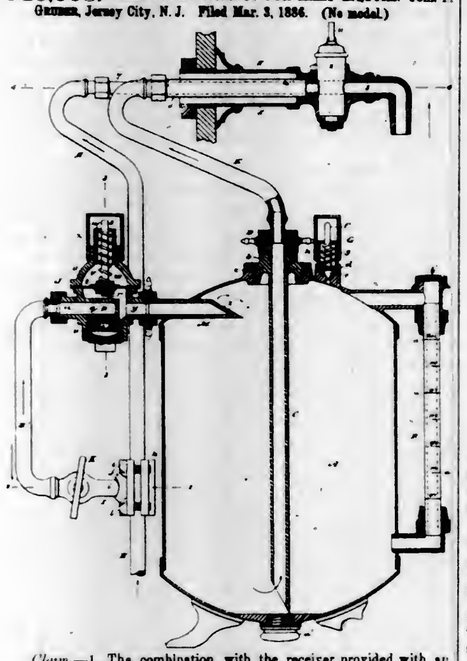
7. In a dining-table, the movable service-trays C, in combination with the mechanism for engaging, moving, and disengaging them, consisting of the laterally-traveling sleeves Q, having studs *q*, engaging an open-ended groove, *c*, on the tray, the levers P, pivoted to the sleeves and having studs *p'*, the longitudinally-moving bars M, having boles *m*, for engaging the studs of the levers, the pivoted bell-crank levers R, by which the levers P are thrown up to or dropped from their engagement, and the wires S and keys *s*, for operating the bell-crank levers, substantially as herein described.

8. In a dining-table, the table A, formed with a chamber, *a*, and sides *a'*, and the reciprocating carriage H within said chamber, in combination with the movable service-trays C and the mechanism for moving them from the sides to the carriage, and vice versa, consisting of the laterally-traveling sleeves Q, having studs *q*, engaging an open-ended groove, *c*, on the tray, the levers P, pivoted to the sleeves and having studs *p'*, the longitudinally-moving bars M, having boles *m*, for engaging the studs of the levers, the pivoted bell-crank levers R, by which the levers P are thrown up to or dropped from their engagement, and the wires S and keys *s*, for operating the bell-crank levers, substantially as herein described.

9. In a dining-table, the table A, formed with a chamber, *a*, and sides *a'*, and the reciprocating carriage H within said chamber, in combination with the movable service-trays C on the sides, the brackets L

in the sides of the chamber, the longitudinally-moving bars M, seated in the brackets and having holes *m*, the guide-rods N N', mounted in said brackets, and the sliding sleeves Q on said rods, having studs *q*, engaging open-ended grooves *c* on the trays, the guide-bars O, having openings, the bell-crank levers R, and the wires S and keys *s*, for operating them, and the levers P, pivoted to the sleeves Q, resting on the bell-cranks R, guided by the bars O, and having studs *p'*, for engaging the bars M, substantially as described.

348,668. SERVICE APPARATUS FOR MALT LIQUORS. JOHN P. GRUBER, Jersey City, N. J. Filed Mar. 3, 1886. (No model.)



Claim.—1. The combination, with the receiver provided with an outlet and an inlet and with a pressure-regulator arranged between the inlet and the cask from which the beer is drawn, of a two-way faucet, a pipe leading to said faucet from the outlet of the receiver, and a branched pipe from the beer-cask, one branch of which leads to said two-way faucet and the other to the receiver through said pressure-regulator, substantially as set forth.

2. The combination, with a two-way faucet, substantially as described, having two tubes, 6 and 7, whereby it is coupled to the pipes E and H, respectively, of the said pipes, the former connecting the faucet with the receiver and the latter connecting the faucet with the liquid source direct, the receiver A, provided with an inlet, M, the pipe H', which connects the inlet of the receiver with the liquid source, and the pressure-regulator J in the pipe which supplies the liquid to the receiver, whereby the attendant is enabled to draw at will liquid from the receiver or the liquid source direct through the same faucet.

348,669. STORE-SERVICE MEASURING APPARATUS FOR OILS AND SIMILAR FLUIDS. JOHN P. GRUBER, Jersey City, N. J. Filed Mar. 16, 1886. (No model.)

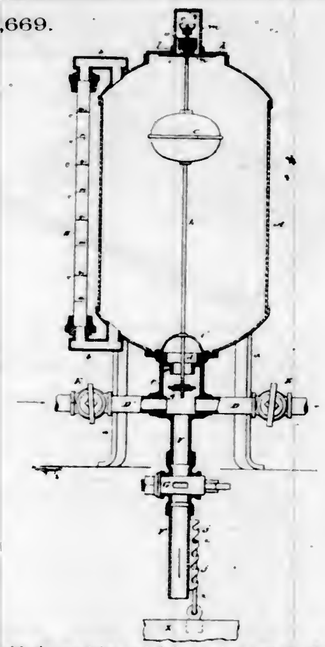
Claim.—1. The combination, with the receiver provided with a graduated gage to show the level of the liquid therein and a cock-controlled aperture for the ingress of the liquid at its bottom, of the valve for closing said aperture, its stem and float, and a cock-controlled outlet-tube for the liquid, substantially as set forth.

2. The combination, with the receiver provided with a graduated gage, to show the level of the liquid therein, and an aperture, *d*, and valve-seat *e* at its bottom, of the valve-chamber *f*, secured to the receiver, the inlet-pipe D and its cock, the outlet-tube F and its cock, arranged substantially as shown, the valve *g*, arranged in the chamber *f*, its stem *h*, mounted to play in guides in the receiver, and the float C attached to the valve-stem, substantially as and for the purposes set forth.

3. The outlet or service tube F, provided with a series of hooks, *j j*, substantially as and for the purposes set forth.

4. The receiver A, provided with a single aperture in its bottom for the ingress and egress of the fluid, in combination with a valve-chamber, *f*, mounted on the receiver and inclosing said inlet, and connected with the receiving and delivery pipes, and the float-controlled valve arranged in said valve-chamber and operating as shown, whereby the said valve is normally submerged in the liquid, as set forth.

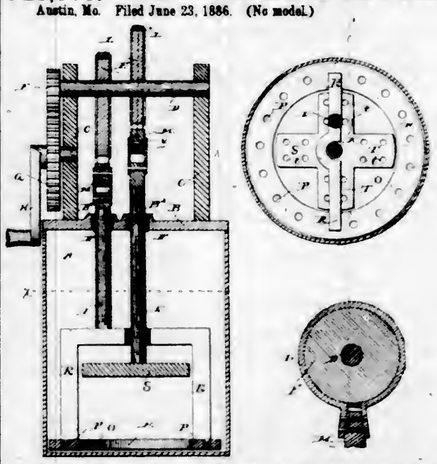
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5. The combination, with the receiver A, provided at its bottom with a single aperture, *d*, for both the ingress and egress of the liquid, and with a valve-chamber, *f*, housing this aperture, of the two independent cock-controlled inlet-pipes D and D', entering said valve-chamber, the single cock-controlled outlet-pipe F from said valve-chamber, and the means, substantially as described, for closing the aperture *d* automatically, whereby two different kinds or grades of liquids may be measured by the same apparatus, substantially as set forth.

6. The combination, with the receiver provided with an aperture, *d*, for the ingress of the liquids at its bottom, and with an aperture, *q*, for the escape of the air at its upper part, of the valve-stem *h*, carrying the valves *g* and *r*, for closing, respectively, the apertures *d* and *q*, and the float C, for operating said valves, substantially as set forth.

348,670. CHURN. JOHN P. HACHENBERG and ELIAS F. RADCLIFF, Austin, Mo. Filed June 23, 1886. (No model.)



Claim.—In a churn, the circular dasher N, having the large central opening and the perforations P, the vertical yoke R on its upper side, and the dasher-rod I, attached to the said yoke, in combination with the dasher S, adapted to pass through the central opening in the

dasher N, and having the radial blades T, provided with the perforations *t*, and the rod K, attached to the center of the said dasher, and means to reciprocate the dashers simultaneously in opposite directions, substantially as described.

348,671. **CANDY-BOX.** LOUIS F. HAMMERLE, Chicago, Ill. Filed Nov. 19, 1885. (No model.)

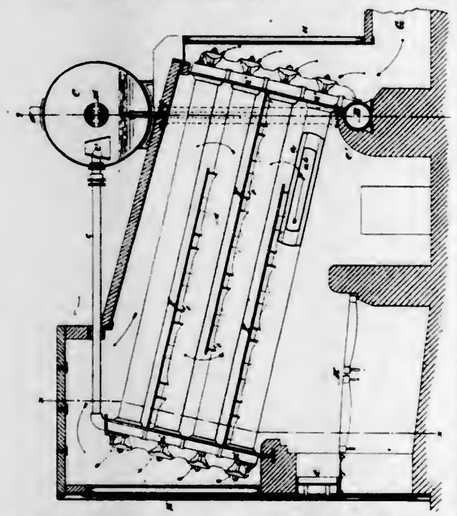


Claim.—1. As an article of manufacture, a packing-box for small articles, provided with points projecting through the sides of top or bottom into the interior of the box, whereon the articles to be packed may be impaled, substantially as described.

2. The combination of the box or tray A, inwardly-protruding tacks B, and a layer of fibrous material, C, for holding the tacks in place.

3. As a mounting for pieces of candy and similar articles, a sheet of metal, paper, or other appropriate material having points stamped therefrom, substantially as described and shown.

348,672. **STEAM-GENERATOR.** GEORGE G. M. HARDINGHAM, London, County of Middlesex, England. Filed Mar. 20, 1886. (No model.) Patented in England Jan. 3, 1884, No. 565.



Claim.—1. The sectional steam-generator having upwardly-inclined water-tubes *a*, traversed by downwardly-inclined fire-tubes a^2, the intervening water-ways being in communication with a water-drum, B, below and with a steam-receiver, C, above, these being connected by a down pipe or pipes, such as D, the said generator being provided with self-contained means for the elimination of impurities from the feed-water before the latter arrives in the contracted water-ways, and being so arranged that the gases, after leaving the furnace E, bathe the water-tubes *a*, and subsequently pass to the flue G in a downward direction through the fire-tubes a^2, the whole constructed and operating substantially as described.

2. In a sectional steam-generator of the compound water and fire tube type, the combination, with the upwardly-inclined water-tube *a*, of the downwardly-inclined fire-tube a^2, traversing the water-tube and its terminal chambers and serving to conduct the gases in their course to the flue in the direction of gravity and in the opposite direction to that pursued by the water in course of circulation, substantially as and for the purposes set forth.

3. In a sectional steam-generator having narrow water-ways, as herein described, the self-contained means for eliminating impurities from the feed-water before the latter passes into circulation, such means consisting of the feed-water-heating coil M, exposed to the live steam in the receiver C, and having an outlet to a subsiding chamber, D', the purified water flowing thence through the receiver C and pipe D to the water-drum B, whence the several sections of the generator are supplied, combined and operating substantially as described.

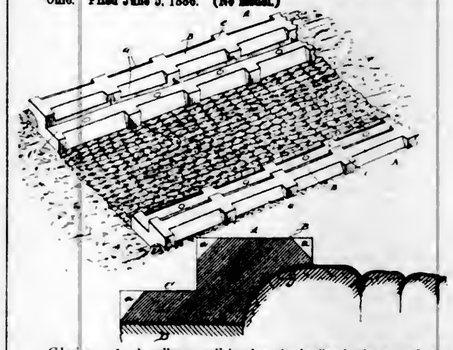
4. In a sectional steam-generator of the compound water and fire tube type, the combination, with the feed-water-heating coil M, mounted in the steam-receiver C, of the receiver C, the water-drum divided by a diaphragm, *b*, into two compartments, B B', pipes D D', connecting the respective compartments with the upper drum, C, one compartment serving, in conjunction with the pipe D', for the reception of impurities precipitated from the feed-water, while the other compartment, in conjunction with the pipe D, conducts the purified water to the generative portion of the boiler, operating substantially as and for the purposes set forth.

5. In a sectional steam-generator of the compound water and fire tube type, the improved means for connecting each section with the sections next above and below, such means consisting of two hollow connecting-pieces communicating with the section and also with the adjacent sections, respectively, each of such connecting-pieces being independently movable without disturbing the inner tubes or their packings, as set forth.

6. In a sectional steam-generator of the compound water and fire tube type, the provisions for differential expansion between the outer and inner tubes, substantially as described, the same consisting in mounting the inner tube in packed stuffing-boxes formed in the head *a*, in which the tube is free to slide longitudinally, such motion being limited by a stop or stops formed by the glands of the stuffing-box, as set forth.

7. For use in steam-generators of the water-tube type, the improved construction of baffle-plate, substantially as described, the same being furnished as to its under side with two or more oblique ribs, which, with a minimum reduction of flue-area, serve to support the plate at such a distance from the heating-tubes as to permit access of the gases to the upper sides of the latter.

348,673. **RAILWAY-RAIL.** JONATHAN S. HARSHMAN, Harshman, Ohio. Filed June 5, 1886. (No model.)



Claim.—1. A railway-rail having the inclined planes and square lugs or shoulders on the tread and flange, arranged substantially as described.

2. The railway-rail scored at *g* so as to rest upon the paved road-stones outside of the sleepers, in combination with the longitudinal edges of said rail provided with one or more lugs and inclined planes, substantially as described.

3. A rail having the inclined planes and square lugs, in combination with the scored overhanging portion of the tread, substantially as described.

348,674. **COMBINED PANEL-GAGE, MEASURING-ROD, AND TRAMMEL.** FRANK A. HUMPHREY, Worcester, Mass. Filed Apr. 29, 1886. (No model.)

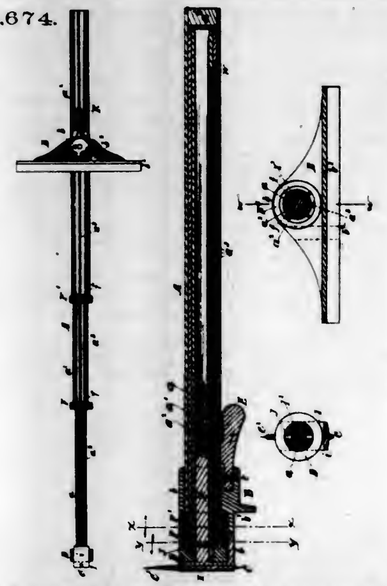
Claim.—1. A panel-gage having a bar which is composed of a series of metal tubes adapted for telescoping one within another, and provided with means for retaining them severally at positions of longitudinal adjustment, and means for preventing rotation of said tubes one within another, combined with an adjustable guard or head block and a marking-tooth, substantially as and for the purpose set forth.

2. A panel-gage having a telescoping sectional bar, an adjustable guard or head, and a marking-tooth supported in a micro-adjustable carrier, substantially as hereinbefore set forth.

3. The combination of the telescoping tubular sections screw-threaded and slitted at their ends, the internally-tapered thumb-nuts fitted to said screw-threaded ends, and the head or guard block B, adjustably mounted on the outer one of said sections, means for retaining said head at positions thereon, and a marking-tooth supported by the inner one of said sections, substantially as and for the purposes set forth.

4. The combination, substantially as described, of the extensible bar composed of telescoping sections, the clamping-nuts F F' on the overlying ends of said sections, the marking-tooth carrier I, adjustably connected to the end of said bar, the marking-tooth fitted in said carrier, the carrier adjusting-nut D, confining said carrier and screw-threaded to the bar, the adjustable head having the guard-lip *b*, mounted on the outer section of said bar, and the lever E, pivoted on said head and adapted for cramping against the bar, for the purposes set forth.

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5. A panel-gage having a bar composed of telescoping sections provided with clamping devices F F', at the ends thereof and carrying a point, C', in combination with an adjustable guard-head having a hole, B^2, formed therethrough, adapted for supporting a pencil, substantially as and for the purpose set forth.

6. The combination of the tubular bar having a slotted screw-threaded end, the guard-head adjustable on said bar, and means, substantially as described, for securing the parts at positions of adjustment, the marking-tooth, and a marking-tooth carrier having a spindle or shank extended within said bar, and the rotatable nut fitting onto the screw-threaded end of the bar and confined to said carrier for effecting longitudinal adjustment thereof in relation to said bar, substantially as set forth.

7. In a gage having an extensible bar and an adjustable head, the marking-tooth C, and the marking-tooth carrier I, having the lip *i* and shank I', the rotatable nut D, combined with the threaded and slotted end of said bar, substantially as and for the purpose set forth.

8. The bar A, formed of a series of telescoping sections, provided with clamping-nuts F F', combined with an adjustable end piece, I, carrying a marking-tooth, and having a shank, I', telescoping with the end of said bar, and a rotatable nut for effecting micro-adjustment thereof longitudinally in relation to said bar, and a removable head or guard, as set forth.

348,675. **BURGLAR-ALARM.** ANTHONY ISER and ALBERT ISER, Lancaster, Pa., assignors of one-half to Philip C. Snyder and Charles S. Snyder, same place. Filed July 3, 1886. (No model.)

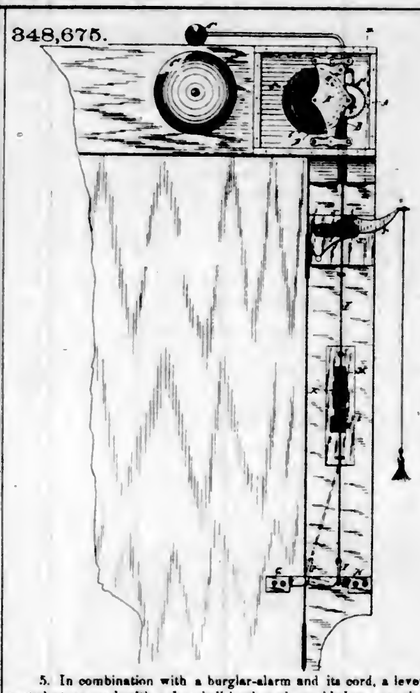
Claim.—1. A clock-work alarm, in combination with a pulley which turns the arbor of the mainspring, a cord attached to said pulley for the purpose of winding and releasing said spring, and tripping devices for releasing said cord when a door or window is opened, substantially as set forth.

2. The plates G H, and the hook F, which is held thereby while the door is closed and released by opening it, in combination with the cord E, the winding-pulley D, and the clock-work alarm B, substantially as set forth.

3. In combination with an alarm and a winding-cord and pulley therefor, a pair of jaws which receive said cord between them, one of said jaws being provided with a handle, and both of said jaws being movable together, after closing on said cord, to pull it in a direction away from the alarm, but under other circumstances leaving said cord free to move between said jaws, substantially as set forth.

4. The combination of pivoted jaw I and jaw I', pivoted thereto at one side, as described, with spring J, which returns said jaws to their normal position, stud J', which limits the motion of jaw J away from the tripping devices, the said tripping devices, cord E, pulley D, and the clock-work-alarm mechanism, arranged and operating substantially as set forth.

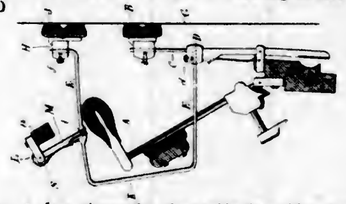
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5. In combination with a burglar-alarm and its cord, a lever connected at one end with a door-bell knob and provided on opposite sides of its centrally-arranged pivot with pulleys, the said cord passing over one of said pulleys and under the other, in order that a pull on said lever may be transmitted to said cord, so as to actuate the alarm mechanism for one or more strokes without disturbing the tripping devices.

6. A burglar-alarm provided with clock-work, a cord and pulley for winding the same, an attachment on the door or window which holds said cord stretched, a pair of jaws between which said cord passes, and a lever provided with pulleys, which are arranged, respectively, on opposite sides of said cord, the jaws and pulleys ordinarily allowing free endwise motion of the cord, but serving, as described, to make the alarm available as a door-bell and call-bell also, substantially as set forth.

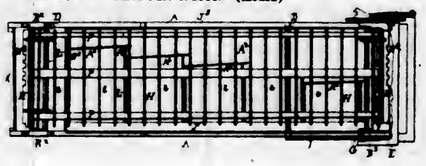
348,676. **PIANO-DAMPER.** EMANUEL KELLER, CONSTANTINE KELLER, and GUSTAV E. BAUHAHN, New York, N. Y. Filed Aug. 14, 1885. (No model.)



Claim.—1. In a piano-action, the combination, with a secondary or auxiliary damper, of rod E, the swinging bar M, acting on said rod, and spring S, acting on said bar M, substantially as and for the purpose herein described.

2. The combination, with hammer A and primary damper B, of the auxiliary damper J, the bent rod E, connecting said auxiliary damper to the primary damper, the swinging bar M, connected to said rod to act thereon, and the spring S, acting on said bar, substantially as and for the purpose described.

348,677. **BROOM-CORN-SIZING MACHINE.** JESSE S. LAKE, Pleasantville, N. J. Filed July 6, 1885. (Model.)



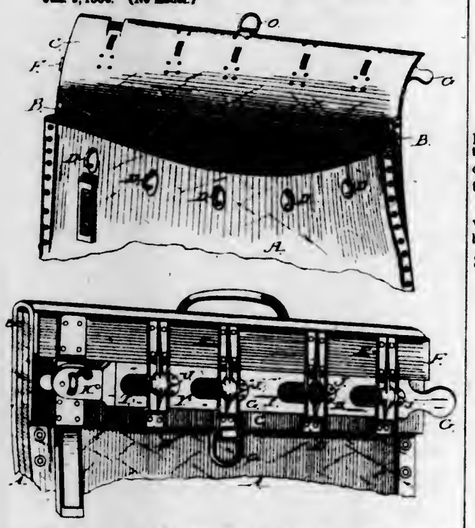
Claim.—1. A broom-corn-sizing table provided with distributing-apertures of different widths, each of which gradually narrows toward its rear end, the raised stripe A^2 at the inner edges of said apertures, and the guide-strip A^3, for keeping the cut ends of the corn even as it passes over the distributing-apertures, substantially as described and shown.

2. In a broom-corn-sizing machine, a rotary cutter having projecting or radial blades, in combination with a stationary knife or cutter, and a stationary plate, between which latter and the stationary knife the radial blades pass, and are thus prevented from springing out of line of action as the corn is being cut, said stationary knife having its lower spring extending onto the circular or unbroken portion of the rotating cutter, whereby contact with the radial blades is avoided, substantially as described and shown.

3. The knives E and G, in combination with the standard F, plate F', and cylinder D', substantially as described, and for the purpose set forth.

4. In combination, the endless apron C, the notched slats H, and raised metallic stripe A^4, whereby the cut corn is held a little above the top of the table A^2, and is thus more surely carried over the distributing-apertures without being ridden over by said cross-slats H, substantially as shown.

348,678. MAIL-POUCH. LEVI B. LATHROP, Hollister, Cal. Filed Jan. 9, 1886. (No model.)



Claim.—1. A mail-pouch constructed as shown and having the gored pieces fitted into the upper edges of the sides, in combination with a flap or extension from one side of the top folding over the upper front edge, and the portion thus thickened, and having an automatic locking device, whereby a tight joint is made at the fold and edge, substantially as herein described.

2. In a mail-pouch, a flap or extension from one side of the top which folds over the other side and has secured to it plates or bars with sockets formed in them, in combination with staples secured to the front of the bag so as to stand rigidly erect and having their lower edges or surfaces beveled or inclined, so as to engage corresponding inclines in the sockets, substantially as herein described.

3. The caps secured to the flap, having sockets formed centrally in them, holes passing transversely through the caps and the lower parts of the sockets, in combination with a slotted strap moving beneath the caps and having secured to it pins or bolts, the ends of which enter the holes and pass through the sockets and the staples or eyes secured to the front side of the bag, substantially as herein described.

4. The caps having centrally-formed sockets which fit over and inclose the staples secured to the front side of the bag when the flap is closed, and pins or bolts secured to the sliding strap so as to be passed through the staples or be withdrawn therefrom, said strap being slotted so as to slide beneath the caps and form a stop, whereby the ends of the bolts are prevented from being entirely withdrawn from the holes in the caps.

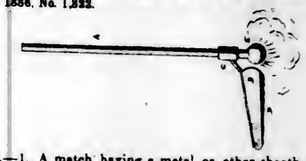
5. The folding flap having the socketed caps secured to it, the sliding strap and bolts to engage staples which project into the sockets from the front of the bag when the flap is closed, in combination with a socketed lock secured to the end of the strap so that the last staple at one side of the flap will enter the socket when the strap has been moved, so as to lock the remaining portion, and a sliding bolt which enters the loop, passing across the socket, substantially as herein described.

6. The sliding strap provided with bolts which pass through sockets in the caps, beneath which the strap slides, and through staples which project into said sockets from the front of the bag when the flap is closed, a lock secured to the end of the strap, and having a socket, which also fits a staple projecting from the front of the bag through the flap, a spring-bolt to engage this staple, and an arm or stop which holds the bolt back and is released by the action of the staple entering the socket, substantially as herein described.

7. In a mail-pouch, and in combination with a folding flap, sliding bolt-strap, lock and staple, as shown, a tag or direction-label case secured below and in line with the lock of the staple, so that its upper end is covered and secured by the flap and staple when the bag is closed and locked, substantially as herein described.

8. A mail-pouch closing device consisting of a sliding strap with securing bolts and staples, substantially as set forth, and an automatic lock fixed to the end of the strap so as to move with it, substantially as herein described.

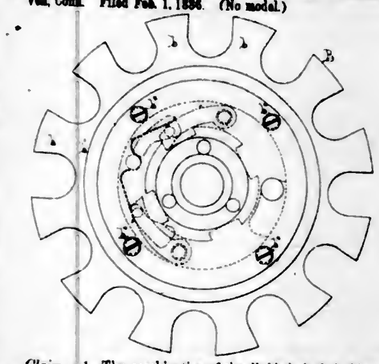
348,679. MATCH. CARL T. MACKLEY, Innspruck, Tyrol, Austria-Hungary. Filed Mar. 11, 1886. (Specimens.) Patented in England Feb. 8, 1886, No. 1,822.



Claim.—1. A match having a metal or other sheath or stand applied to the same in proximity to the igniting or inflammable portion of the match, the said sheath or stand carrying sealing-wax, rubber cement, or like cementing material to be melted by igniting the match, substantially as described.

2. A metal base or holder, B, adapted to hold a portion of sealing-wax or other like cement, and provided with means C for attaching such base or holder to a match-stem, substantially as described.

348,680. CLUTCH FOR TRICYCLES. JOHN M. HARLIN, New Haven, Conn. Filed Feb. 1, 1886. (No model.)



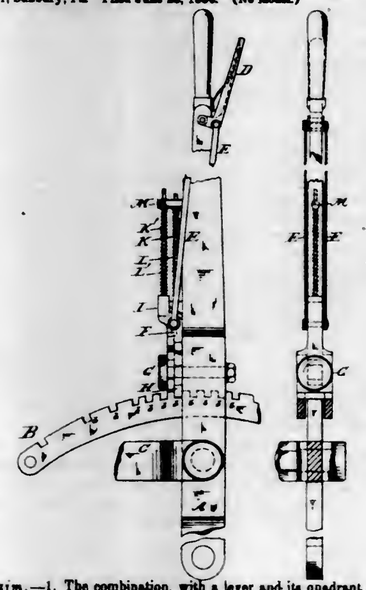
Claim.—1. The combination of the divided shaft A A', one or more disks, *c*, attached thereto, each provided with pawl-teeth fitted to hold against the pawls in opposite directions, a single pawl-carrier disk, *d*, provided on one or both its faces with corresponding oppositely-inclined pawls, d' d', and a driving-pulley part, B, connected to said disk *d* by a coupling, permitting a limited independent movement of the same back and forth, and provided with lifting devices adapted to alternately raise and drop said pawls into their pawl-teeth as the said pulley is revolved in one direction or the other, substantially as described.

2. The combination of divided shaft A A', pulley B, formed of ring b', and side disks, b^2 b^2, inclosing the other parts, one or more disks, *c*, attached to said shaft within said pulley, and each provided with pawl-teeth fitted to hold against the pawls in opposite directions, a pawl-carrying disk, *d*, within said pulley, provided with corresponding oppositely-inclined pawls, d' d', on one or both sides of it, and connected to said pulley B by a coupling, permitting a limited independent movement of the latter back and forth, and lifting devices attached to the latter internally, and adapted to alternately raise and drop said pawls into their pawl-teeth as said pulley is revolved in one direction or the other, substantially as described.

3. The combination of divided shaft A A', one or more disks, *c*, provided with pawl-teeth fitted to hold against the pawls in opposite directions, a single pawl-carrying disk, *d*, provided with notch d^4, and with corresponding oppositely-inclined pawls d' d' on one or both sides of it, having pins d^2 d^2, and with one or more springs, d^3, and the driving-pulley B, provided with pin b^7, and cam-slots b^5 b^6 in one or both of its disks b^2, substantially as described.

4. The combination of divided shaft A A', disks *c c*, provided with pawl-teeth fitted to hold against the pawls in opposite directions, a single disk, *d*, provided with notch d^4, and with corresponding oppositely-inclined pawls, d' d', on both sides of it, having pins d^2 d^2, and with springs d^3, and the driving-pulley B, provided with pin b^7, and cam-slots b^5 b^6 in the faces of its disks b^2, substantially as described.

348,681. LOCK FOR REVERSE AND THROTTLE LEVERS. CHAS. MAY, Sunbury, Pa. Filed June 23, 1886. (No model.)



Claim.—1. The combination, with a lever and its quadrant, of a main locking mechanism and an auxiliary locking mechanism operated by the same handle that controls the main locking mechanism, substantially as and for the purpose described.

2. The combination, with a lever and its notched quadrant, of a latch to lock the lever in a position corresponding to any one of said notches, and an auxiliary locking device to lock the lever in intermediate positions, said auxiliary locking device being operated by the same handle that controls the latch, substantially as and for the purpose set forth.

3. The combination, with a lever and its notched quadrant, of a main latch and one or more auxiliary latches, all operated by the same handle, substantially as and for the purpose described.

4. The combination, with a lever and its notched quadrant, of two or more latches, all operated by the same handle, the notches and latches being so arranged that only one latch is in engagement with the quadrant at the same time, substantially as and for the purpose set forth.

5. The combination, with lever A and quadrant B, having notches *b b*, of handle D, links E E, pin F, and latches H I, having slots *a g*, said slots being equal in length to the depth of a notch plus the diameter of pin F, substantially as and for the purpose set forth.

6. The combination of lever A, quadrant B, having notches *b b*, handle D, links E E, pin F, bolt G, main latch H, having slots *a h* and lug *e*, and auxiliary latch I, having lugs *f f* and slots *c*, *d*, and *g*, substantially as and for the purpose set forth.

7. The combination of lever A, having lug M, quadrant B, having notches *b b*, handle D, links E E, pin F, bolt G, latches H and I, rods K K', and springs L L', substantially as and for the purpose set forth.

348,682. FLUSHING DEVICE. JOHN W. MCARDELL, Brooklyn, N.Y. Filed Mar. 11, 1886. (No model.)

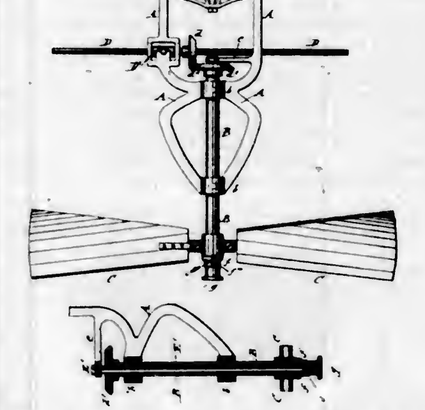
Claim.—1. In a water-closet, the hinged seat *a*, lever *n*, valve-chamber *i*, valve-stem *m*, provided with two valves arranged to open and close the supply-pipe and sewer-pipe alternately, pipes *h'* and *v*, inclosed one with the other, sewer-pipe *p*, and service-tank *e*, all combined and arranged as set forth.

2. In a water-closet, the hinged seat *a*, lever *n*, valve-chamber *i*, valve-stems *m* and *r'*, valves *l* and *r*, springs *l'* and r^3, nipple *o*, pipe o^2, sewer-pipe *p*, tank *e*, and supply-pipe *h'*, inclosed in the flushing-pipe *v*, all combined to operate as set forth.

3. The combination, in a flushing apparatus, of a supply-pipe and flushing-pipe arranged one within the other, the inner pipe extending to the top of the tank and forming a guide for an overflow-pipe having a weighted valve formed on its lower end, fitting a valve-seat formed on the upper end of the outer or flushing pipe, as set forth.

4. The bracket *k*, provided with a slotted opening, 1, projecting arm 2, and body portion 3, provided with threaded recesses for the supply-pipe and ball-valve, whereby the several connections may be made without cutting or fitting, as set forth.

348,683. ROTARY FAN. PETER MURRAY, Jr., Newark, N. J., assignor to the Beckus Manufacturing Company, same place. Filed May 12, 1886. (No model.)



Claim.—1. The combination, with the hanger-frame suspended from the ceiling, of a driving-shaft and a tubular bearing pivoted to one of the legs of the hanger-frame, the said leg being provided with bearings for the pivots of the above-mentioned tubular bearing, substantially as set forth.

2. The combination of a supporting hanger-frame, a tubular fan-shaft supported in bearings of said hanger-frame, a fan attached to the lower end of said fan-shaft, a fixed center rod passing through said tubular fan-shaft, a driving-shaft, a friction-gear for transmitting the motion of the driving-shaft to the fan-shaft, and means whereby the tubular fan-shaft is raised or lowered on the fixed center rod, so as to throw the friction-gear in or out of mesh and rotate or stop the fan, substantially as set forth.

3. The combination of a supporting hanger-frame having a horizontal bracket-arm, a tubular fan-shaft supported in bearings of said frame, a fan attached to the lower end of said fan-shaft, a fixed center rod passing through said tubular fan-shaft and attached to the bracket-arm of the hanger-frame, a driving-shaft, a friction-gear for transmitting motion from the driving-shaft to the fan-shaft, a sleeve guided at the lower end of the fixed rod, and a screw-button at the lower end of the fixed rod, said screw-button being adapted to raise or lower the sleeve

and fan-shaft and throw the latter in or out of gear, substantially as set forth.

348,684. DIFFERENTIAL HOISTING-GEAR. PETER MURRAY, Jr., Newark, N. J., assignor to the Backus Manufacturing Company, same place. Filed May 12, 1886. (No model.)

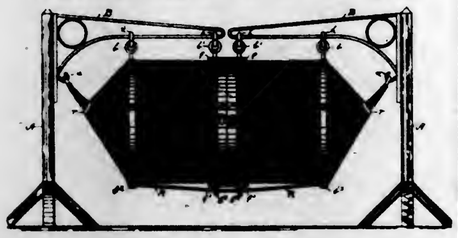


Claim.—1. In a differential hoisting-gear, the combination of a power-pulley, a spindle having two eccentrics of different diameters, a fixed internally-toothed wheel attached to the frame of the hoisting-gear, a load-pulley having an internally-toothed rim, two intermediate externally-toothed wheels placed loosely on said eccentrics and meshing, respectively, with the fixed gear-wheel of the pulley-block and the rim of the load-pulley, and a locking device that is adapted to interlock and travel with said intermediate gear-wheels, and to change the quick motion of the power-pulley into a slow motion of the load-pulley, substantially as set forth.

2. In a differential hoisting-gear, the combination of a power-pulley, a spindle having two eccentrics of different diameter, a fixed internally-toothed wheel attached to the frame of the pulley-block, a load-pulley having an internally-toothed rim, intermediate externally-toothed gear-wheels placed on the eccentrics of the spindle and meshing, respectively, with the fixed internally-toothed rim of the pulley-block and the rim of the load-pulley, and a locking-ring interposed between the two intermediate gear-wheels and provided with radial lugs, said lugs engaging guide-lugs or projections of the gear-wheels, so as to change the quick motion of the power-pulley to a slow motion of the load-pulley, substantially as set forth.

3. In differential hoisting-gear, the combination of the supporting-frame having a fixed sleeve, a spindle passing through said sleeve and turning in bearings of the frame, a power-pulley keyed to said spindle, two eccentrics of different diameters located on said spindle, a fixed internally-toothed wheel attached to the supporting-frame, a load-pulley having an internally-toothed rim, two intermediate externally-toothed wheels placed loosely on the eccentrics and meshing, respectively, with the fixed wheel of the frame and the rim of the load-pulley, and a locking-ring interposed between the intermediate gear-wheels and provided with radial lugs, said lugs engaging guide-lugs on the adjoining faces of the gear-wheels, the lugs of one gear-wheel being located at right angles to the lugs of the other gear-wheel, substantially as set forth.

348,685. MOSQUITO-SCREEN ATTACHMENT FOR HAMMOCKS. PHILIP N. NELSON, Taunton, Mass. Filed May 1, 1886. (No model.)

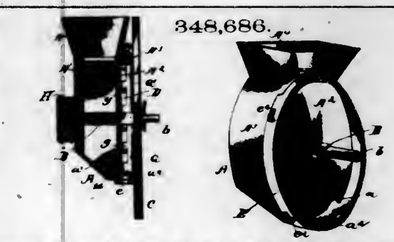


Claim.—1. The combination, with a hammock, of a mosquito-screen entirely surrounding the same, having frames, as C C', and hinged top and bottom, substantially as and for the purpose set forth.

2. In a hammock provided with a mosquito-screen attachment entirely surrounding the same, consisting of frames, as C C, eyebolts, as b b b' b' b^2 b^2, a guide-rope, as R, passing through rings, as r r, and clamps, as b^2 b^2, fastened to the under side of the frames C C, the combination of frames, as C' C', each made in two parts joined by and swinging upon hinges, as f f f f', and provided with clasps, as G G, attached to handles, as K K, substantially as described, and for the purposes set forth.

348,686. GUANO-DISTRIBUTER. CHARLES W. NICHOLSON, Accomack, Va. Filed July 2, 1886. (No model.)

Claim.—1. The combination, with the hopper having an axle-arm extending from the side thereof and a projecting rim, of a drive or supporting wheel mounted on the axle and forming a compartment between it and the side of the hopper, which compartment is in communication with the said hopper and has openings formed in the lower part, and



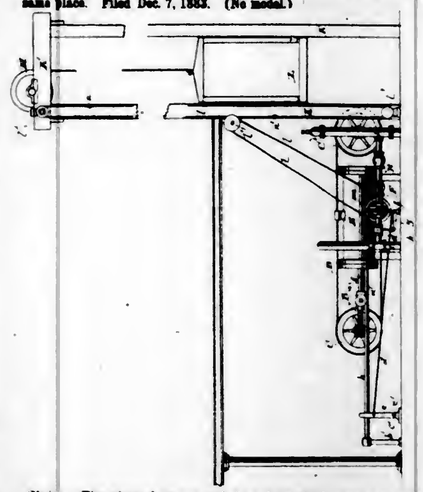
projections extending from the side of the wheel and working in the compartment, substantially as and for the purpose described.

2. The combination of the hopper, an axle and rim projecting from a side thereof, a drive-wheel mounted on the axle and forming a compartment which is in communication with the hopper and has openings in the lower portion, a rim secured to the inner face of the wheel and notched at its edge, forming projections, substantially as and for the purposes described.

3. The combination of the hopper, a circular rim and axle extending from a side thereof, a drive-wheel mounted on the axle and forming a compartment which is in communication with the hopper and has openings in the lower portion, projections extending from the side of the wheel, and a band surrounding the circular rim and provided with openings corresponding with those in the compartment, said band being rotatable upon the rim, substantially as and for the purpose described.

4. The herein shown and described attachment for the purpose set forth, consisting of the sides A' A^2, the rim A^2, projecting beyond the side A^2, and having openings in its lower portion, the axle, the drive-wheel, the notched rim G, the lower portion of the side A^2 being cut away and the portion a' of the side A' opposite said opening being inclined, and a band surrounding the projecting portion of the rim A^2, and provided with openings corresponding with the openings therein, and rotatable, substantially as and for the purpose described.

348,687. AUTOMATIC STOP FOR ELEVATORS. OTTO PUPIKOFER, Chicago, Ill., assignor to the Crane Brothers Manufacturing Company, same place. Filed Dec. 7, 1883. (No model.)



Claim.—The pivoted arm c, rod d, rock-shaft f, arms e g, connection h, and lever i, connected to the valve-stem k and pivoted at one end to the pivoted arm j, in combination with the cross-head B, carrying pulleys a, traveling on suitable ways, and the spindle a', engaging with the pivoted arm c for automatically closing the valve, substantially as shown and described.

348,688. HOLDER FOR MATCHES. EDWIN PUTNAM, Newark, N. J., and JOHN KIRCHBAUM, Waterbury, assignors to the Novelty Manufacturing Company, Waterbury, Conn. Filed May 7, 1886. (No model.)

Claim.—1. The sheet-metal holder formed of the two halves A B, with holes 2, hooks 3, and lace 4, and riveted together at 6, and the sheet-metal heel and sole plate and tip-piece, substantially as set forth.

2. The sheet-metal heel-piece D, having a lip at its forward upper edge, in combination with the sole-plate E, having a rim, 9, and being united to the heel-plate D, and the two halves A and B of the holder, secured to the heel and sole plate, substantially as set forth.

3. The tip-piece H, having tongues 10, in combination with the

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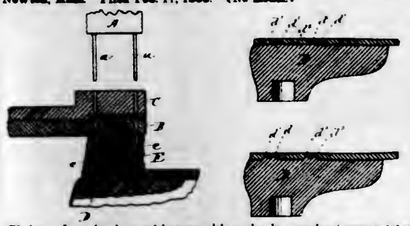


sole-plate E, having a rim around its edge, and mortises through which the tongues 10 pass and are clinched, substantially as set forth.

4. The sole-plate E, having a rim around its edge, and the heel-plate D, riveted to the sole-plate, and the tip-piece H, having tongues passing through mortises in the sole-plate, in combination with the two halves A B of the holder, and the wires 11, for attaching the parts together, substantially as set forth.

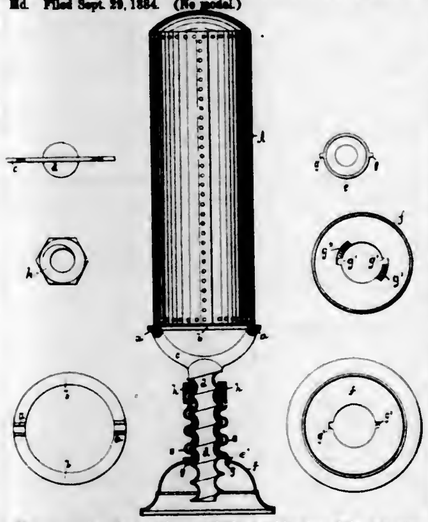
5. The combination, with the two halves A B, of sheet metal, forming the holder, of the plate a, within the heel portion of the holder, having tongues that pass through the sheet metal and are clinched, substantially as set forth.

348,689. HEEL-NAILING MACHINE. FREMONT F. RAYMOND, 2d, Newton, Mass. Filed Feb. 17, 1885. (No model.)



Claim.—In a heel-attaching machine, the last or heel-support having a plane-surface and the projections or rims d', raised above said surface to form clinching-dies, substantially as set forth.

348,690. BATH-BOILER STAND. ROBERT A. REBSTER, Baltimore, Md. Filed Sept. 29, 1884. (No model.)



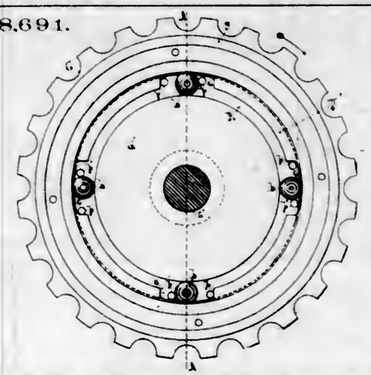
Claim.—1. In a bath-boiler stand, the combination of the top plate, b, arranged to support a boiler and cut away at its central portion to permit pipe-connections with the bottom of such boiler, the base-plate f, and the screws d and e, one secured to the top plate and the other to the base, for the purpose set forth.

2. In a bath-boiler stand, the combination of the base f, the screws d and e, the yoke c, and the cylindrical ring b, through which pipe-connections can be had with the bottom of a boiler, as herein specified.

348,691. CLUTCH FOR TRICYCLES. DAVID H. REE, Brookline, Mass. Filed Feb. 22, 1886. (No model.)

Claim.—1. The combination of the divided shaft s s', provided with suitable clutch-bearing surfaces, the independent sets of balls b b,

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arranged opposite to and around each portion of the shaft, and the common ring g, surrounding both shafts and provided with oppositely-inclined cam-shaped surfaces adapted to engage with said balls and drive said divided shaft in either direction, substantially as described.

2. The combination of the divided shaft s s', provided with suitable clutch-bearing surfaces, the independent sets of balls b b, arranged opposite to and around each portion of the shaft, the governor-ring R provided with two or more pins or projections, p p', and the driving-ring g, provided with two or more cam-shaped surfaces corresponding with said pins—that is to say, the cam-shaped surfaces corresponding to pins p being inclined in one direction and the cam shaped surfaces corresponding to pins p' being inclined in the opposite direction—substantially as described.

3. The combination of the divided shaft s s', provided with suitable clutch-bearing surfaces, the independent sets of balls b b, arranged opposite to and around each portion of the divided shaft, the governor-ring R, provided with two or more pins or projections, p p', and the driving-ring g, provided with with one or more double cam-shaped slots c, corresponding to and receiving said balls and pins, substantially as described.

4. The combination of divided shaft s s', driving-ring g, an automatic friction-clutch mechanism between said shaft and ring adapted to clutch the latter to one or both portions of said divided shaft when revolved either way, and an automatic governor mechanism operating upon said clutch and adapted to allow the division or divisions of said shaft operated on by it to race ahead of said driving-ring and in the same direction of revolution, substantially as described.

5. The combination of shaft s', provided with a clutch-bearing surface, one or more balls, b, arranged around and upon said surface, the automatic governor-ring R, provided with two or more pins or projections, p p', adapted to be alternately brought against said ball or balls to control its movements with said shaft-bearing surface, and the driving-ring g, provided with one or more double cam-shaped slots, c, within which said balls are located, substantially as described.

6. The combination of shaft s', provided with a clutch-bearing surface, balls b b, arranged around and upon said surface, the automatic governor-ring R, provided with pins or projections p p', and the driving-ring g, provided with two or more cam-shaped surfaces corresponding to said pins—that is to say, each cam-shaped surface corresponding to a pin p being inclined in one direction and each corresponding to a pin p' being inclined in the opposite direction—substantially as described.

7. The combination of divided shaft s s', each division being provided with an enlargement, d d', the balls b b, the automatic governor-ring R, provided with pins p p', governing the movements of said balls, and the driving-ring g, provided with cam-shaped slots c c, adapted to bear upon said balls and clutch said ring and members of the divided shaft together, substantially as described.

8. The combination of shaft-section s, provided with a clutch-bearing surface, driving-ring g, provided with one or more inclined surfaces forming wedge-shaped spaces with relation to such shaft-surface, one or more balls, b, between said shaft-surface and said ring, adapted to fall into said wedge-shaped space or spaces and clutch said shaft and ring g together, and automatic governor-ring R, provided with one or more pins projecting into said wedge-shaped space or spaces and adapted to move from and toward the widest end thereof and permit or prevent the ball or balls from falling into the same, substantially as described.

9. The combination of the divided shaft s s', a single driving-ring g, surrounding the same, and two independent friction-clutch mechanisms, respectively connecting the shaft-sections s s' separately to said driving-ring, substantially as described.

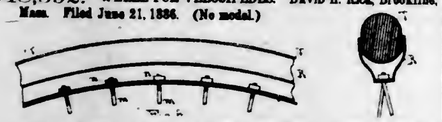
10. The combination of divided shaft s s', provided with clutch-bearing surfaces, two or more balls, b b, and the outer single driving-ring, g, having one or more slots, c c, formed in separate segments or

collars V V', of hardened metal, constituting a unitary structure with ring *g* when secured in operative position therewith, substantially as described.

11. The combination of shaft-section *s'*, disk *d'*, automatic governor-ring R, provided with two or more pins, *p p'*, driving-ring *g*, provided with one or more slots, *c*, and one or more balls, *b*, located in said slot or slots and between said pins, substantially as described.

12. The combination of two shaft-sections, *s s'*, provided with disks *d d'*, governor-ring R, provided with two or more pins, *p p'*, projecting transversely on each side of it, driving-ring *g*, provided with one or more slots, *c*, outside of each shaft-section, and two or more balls, *b b* located in said slots and between said pins, substantially as described.

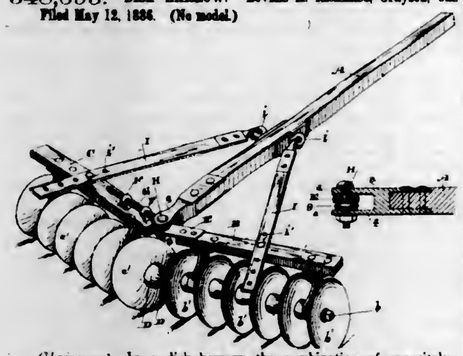
348,692. **WHEEL FOR VELOCIPEDES.** DAVID H. RICE, Brookline, Mass. Filed June 21, 1886. (No model.)



Claim.—1. The combination of the wheel-rim provided with inwardly-projecting lips *r r*, the tire provided with the slots *t t*, and the metallic strips *s s*, embracing the surface of the tire and projecting into its slots, and interlocking under the lips *r r*, substantially as described.

2. In combination with the hollow rim formed from a tube by rolling, and provided with a series of holes on one side to receive the spokes, the metallic ribbon *n'*, having attached thereto the series of nuts *n n*, placed at such intervals thereon as to register with said holes in the rim, and introduced into the same at one end, substantially as described.

348,693. **DISK-HARROW.** LOVELL A. REHARDS, Grayson, Cal. Filed May 12, 1886. (No model.)



Claim.—1. In a disk-harrow, the combination of oppositely-arranged disk-gangs having their inner ends abutting, one of said gangs being connected with the frame by a fixed pivot and the other having a sliding or extensible pivot-connection with the frame, substantially as described.

2. In a disk-harrow, the tongue A, in combination with a disk-gang connected with its rear end by a fixed pivot, and an opposing disk-gang having a sliding or extensible pivot-connection with the rear end of the tongue, substantially as described.

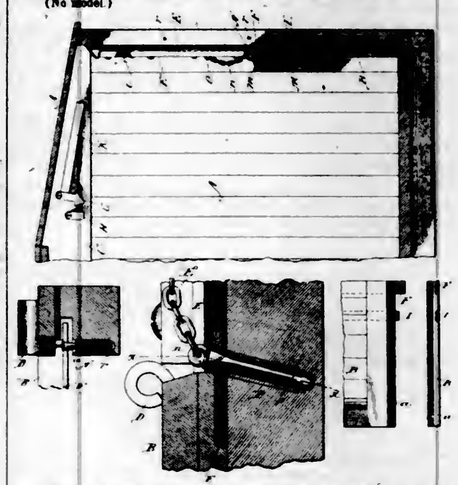
3. In a disk-harrow, the tongue A, in combination with the beam B, having the shaft *b* and the disks *b'* thereon, said beam being connected with the rear end of the tongue by a fixed vertical pivot, and the beam C, having the shaft *c* and disks *c'* thereon, said beam having a sliding or extensible pivot-connection with the rear end of the tongue, substantially as described.

4. In a disk-harrow, the tongue A, having a forked clip, *a*, on its rear end, in combination with the beam B of one disk-gang, said beam having a plate or tongue, E, on its inner end, fitted in the forked clip of the tongue A, the beam C of the other disk-gang having the sockets F on its inner end, the bar G, fitted loosely in said sockets, and having an eye, *g*, on its inner end fitted in the forked clip of the tongue A, and the vertical pin or bolt H, pivoting the plate E and the bar G in said forked clip, substantially as described.

5. In a disk-harrow, the tongue A, having the forked clip *a* on its rear end, in combination with the beam B, having the tongue or plate E on its inner end fitted in the forked clip of the tongue A, the shaft *b*, suspended under the beam, and the disks *b'* on the shaft, the beam C, having the sockets F on its inner end, and the shaft *c*, with the disks *c'*, the bar G, fitted loosely in the sockets F, and having an eye, *g*, on its inner end, fitted in the forked clip of the tongue A, the vertical pin or bolt H, pivoting the plate E and the bar G in the forked clip *a*, and the abutting bumpers D on the inner ends of the disk-shafts, substantially as described

6. In a disk-harrow, the tongue A, having a forked clip, *a*, on its rear end, in combination with the beam B of one of the disk-gangs, said beam having a plate or tongue, E, on its inner end fitted in the forked clip *a*, the beam C of the other disk-gang having the sockets F on its inner end, the bar G, loosely fitted in the sockets and having an eye, *g*, fitted in the forked clip *a*, the vertical pin or bolt H, pivoting the bar G and the plate E in the clip, and the brace-bars I, hinged at their forward ends to the tongue A, and adjustably secured at their rear ends to the beams, substantially as and for the purpose described.

348,694. **CAR-DOOR.** NATHANIEL P. ROGERS, Michigan City, Ind., assignor to the Excelsior Grain Door Company. Filed Mar. 4, 1886. (No model.)



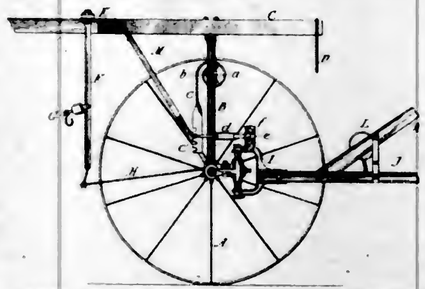
Claim.—1. The combination, with a vertically sliding and swinging door provided with a flat pivot rod or bar, of a notched guide-strip provided with an inward extension forming a shoulder and an auxiliary bar secured to the door, as set forth.

2. The combination, with door B, provided with cross-bars F and I, having protruding ends, of guide-bars E, having pivot-loops, notches *i*, and shoulders at the lower edges of said notches, as and for the purpose set forth.

3. The combination, with door B and cross-bars F and I, of guide-strips D E, the latter provided with notches *i*, and shoulders at the lower edges of said notches, as and for the purpose set forth.

4. The combination, with a vertically-moving car-door, of inclined sockets in the door-posts, of openings rectangular to and communicating with such sockets, and of pins adapted to be inserted into such sockets for locking the door in its down position, substantially as and for the purpose set forth.

348,695. **CULTIVATOR.** MARSHALL SATTLEY, Taylorville, Ill., assignor of two-thirds to himself and one-third to Archibald Sattley, same place. Filed Feb. 12, 1886. (No model.)



Claim.—1. The combination, with the frame and laterally-movable beam, of the spring *c*, hinged or pivoted at its upper end and having its lower end turned or twisted, and provided with a series of notches, *c'*, and a vertically-adjustable link, *d*, connected at one end with the beam and at its other end adapted to engage any one of the said notches, substantially as described.

2. The combination of the frame and the laterally-movable beam provided with the clevis *e*, having a series of adjusting-notches, *e'*, with the spring *c*, pivoted or hinged at its upper end, so that its lower end will freely travel sidewise when the beam is moved laterally, and the link *d*, connecting the notched part of the clevis with the lower part of the spring, substantially as and for the purposes described.

3. The combination of the frame and the laterally-movable beam provided with the upright flange *f*, having a series of adjusting-notches, with the clevis *e*, having a series of notches, *e'*, and adjustable on the flange, the spring *c*, hinged or pivoted at its upper end to a supporting-arm, so that its lower end will freely travel sidewise when the beam is moved laterally, and the vertically-adjustable link *d*, connecting the spring with the clevis, substantially as and for the purposes described.

4. The combination, with the beam, of the vertical bolt *g*, the draft-plate *h*, directly connected at one end with the axle and having the half-box *h''* and a through-opening, and the half-box *m*, arranged in said opening opposite the other half-box, said plate being vertically adjustable on the bolt, substantially as described.

5. The combination, with the beam I and axle B', of the vertical bolt *g*, the draft-plate *h*, adjustable thereon and directly connected at one end with the axle, and the steadying-plate *k*, connected to the axle at opposite sides of the draft-plate, said draft-plate being adjustably connected to the steadying-plate, substantially as described.

6. The combination of the beam having the upright flange *f*, provided with a series of notches, the clevis *e*, engaging the flange and having a series of notches, *e'*, the spring *c*, and the laterally and vertically adjustable links *d*, connecting the spring with the notched part of the clevis, substantially as described.

348,696. **SASH-LOCK.** PHILIPP SEILER, Chicago, Ill., assignor of one-half to James Kohlmat, same place. Filed June 29, 1886. (No model.)



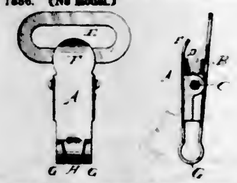
Claim.—1. The combination, with hook *a*, of swinging latch E, having a hook to its end and being provided with a spring, N, and lever L, for self-locking and for clamping the sash, substantially as and for the purpose set forth.

2. The combination, with hook *a*, of latch E, with spring N and lever L, adapted to engage with the shoulder of ridge *d*, substantially as and for the purpose set forth.

3. The combination, with plate A and hook *a*, of hook-latch E, pivoted upon stem *b* of plate B, of spring N, and lever L, having cam projections *l*, substantially as described, to operate as specified.

4. The combination, with plate A and hook *a*, of latch E, having nose *h* and pivoted upon stem *b* of plate B, having lug *c*, and of spring N, and lever L, with cam projections *l*, all substantially as described, to operate as specified.

348,697. **SUSPENDER-CLASP.** HARRY L. SHENFIELD and CHARLES GELLMAN, New York, N. Y., assignors to Abraham Shenfield, same place. Filed May 21, 1886. (No model.)



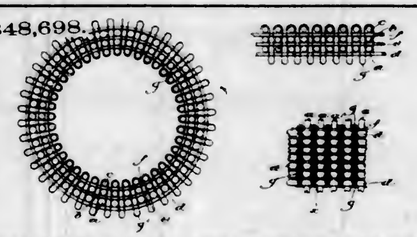
Claim.—The snap-hook or clasp for suspenders, &c., having the jaws A and B, formed with side flanges and pivoted together by a pin passed through said flanges, the jaw A having a hook at the end, and the jaw B having two hooks between which the single hook is adapted to pass, and a spring to press the hooks toward each other, substantially as set forth.

348,698. **KNITTED FABRIC.** EDWIN E. SIBLEY, Chelsea, Mass., assignor to the American Fire Hose Manufacturing Company, same place. Filed Mar. 27, 1886. (No specimens.)

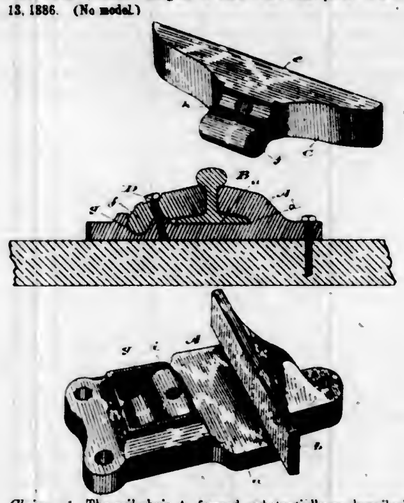
Brief.—The fabric may be made either in flat or tubular form.

Claim.—A knitted fabric having two or more layers or sets of warp-threads running through the fabric from end to end and separated each layer or set of warp from the other by a layer of weft-thread, there being a layer of weft-thread for each layer of warp-thread, the said layers of warp-thread and of weft-thread being united or bound together, substantially as described, by a knitting-thread, which, partially surrounding the individual warp-threads at one side of the fabric, is passed through between the warp-threads in the direction of the thickness of the fabric, crossing the layers of weft-thread, the said knitting-thread at the face of the fabric being enchained about and to bold the outermost layers of weft-thread, substantially as described.

348,698.



348,699. **RAILWAY-RAIL CHAIR.** HORACE H. C. SMYTHMON, Toronto, Ontario, Canada, assignor to John Lamb, same place. Filed Jan. 13, 1886. (No model.)



Claim.—1. The rail-chair A, formed, substantially as described, to receive the rail B, in combination with the movable clutch C, designed to abut against the body of the rail B, and provided with a tail, *f*, to fit into the recess *g*, substantially as and for the purpose specified.

2. A rail-chair, A, formed, substantially as described, to receive the rail B, and having a recess, *g*, and a rounded shoulder, *i*, formed in its base, in combination with a movable clutch, C, provided with a tail, *f*, to fit into the recess *g*, and a shoulder, *h*, to abut against the shoulder *i*, substantially as and for the purpose specified.

3. A rail-chair, A, formed, substantially as described, to receive the rail B, and having a recess, *g*, and a rounded shoulder, *i*, formed in its base, in combination with the movable clutch C, provided with a tail, *f*, to fit into the recess *g*, and a shoulder, *h*, to abut against the shoulder *i*, the bolt D, inserted through the clutch C and chair A, substantially as and for the purpose specified.

348,700. **APPARATUS FOR BURNING PETROLEUM.** ANDREW J. STEVENS, Sacramento, Cal. Filed Oct. 15, 1885. (No model.)



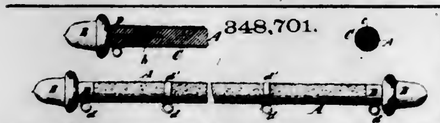
Claim.—1. The exterior oil-conveying pipe fixed in the rear end of the nozzle, which serves to close it, in combination with the interior steam or air conveying pipe having an annular series of holes or openings made through it just behind and in close proximity to the nozzle, and the nozzle having an enlarged chamber at the rear and a narrow slit or discharge-opening at the front, substantially as herein described.

2. The exterior oil-conveying pipe closed at the front, and the interior steam or air conveying pipe having openings near the front, through which oil may be admitted into it from the exterior pipe, said steam-pipe being contracted at the point just behind these openings, in combination with a nozzle having an enlarged chamber, into which the interior pipe discharges, and a narrow slit or opening at the front, substantially as herein described.

348,701. **CURTAIN-POLE AND BANNER-ROD.** WILLIAM A. STEVENSON, Brooklyn, N. Y. Filed Apr. 21, 1886. (No model.)

Claim.—1. The combination, with a curtain-pole or banner-rod, A, and a covering, C, of fabric applied thereto, of caps D, fitting loosely

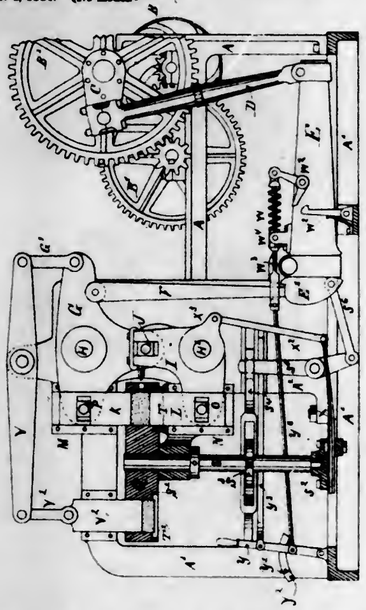
348,701.



over the ends of the covered pole or rod and provided with eyes *d*, for the attachment of a curtain or banner, whereby the curtain or banner will be held extended, and rings *b'*, loosely surrounding the pole or rod between the caps, and also provided with eyes *d*, for the attachment of the curtain or banner, substantially as herein described.

2. The combination, with a curtain-pole or banner-rod provided at the ends with terminal ornaments B, of a covering of fabric, C, surrounding the pole or rod, the caps D, loosely held in place between the ends of the pole or rod and the ornaments, so that the pole or rod may be turned within them, and lapping over the end portions of the fabric and eyes *e d* at opposite sides of the caps, the former serving for the attachment of the suspension device and the latter for the attachment of the opposite corners of a curtain or banner, whereby the curtain or banner will be held extended, substantially as herein described.

348,702. MACHINE FOR MAKING BRICK FROM DRY MATERIAL. JOHN A. SWANSON and AUGUST W. LINTON, Fargo, Dak. Filed Mar. 4, 1886. (No model.)



Claim.—1. The combination, with the frame A A' A^2 A^3, pulley B, double gearing B', and crank C, of pitman D, its upper end pivoted on the arm of crank C, its lower end pivoted to the long arm of the balance E, balance E, fulcrumed on the lower part of said frame, thrust-bar F, its lower end working on the short arm E' of the balance E, its upper end pivoted to the outer arm of the reciprocator G, reciprocators G and I, pivoted to the said frame by journals H and H', and pivoted together by sliding block J, dies K and L, pivoted to the inner arms of the said reciprocators by means of sliding blocks O and P, and working up and down in the guides M and N, substantially as shown and described.

2. In a brick-machine, as above described, the combination, with the balance E, of the bar S^9, one end pivoted to the short end E' of the said balance, and the other end pivoted to the lower end of knee-lever S^2, knee-lever S^2, pivoted to the frame of said machine, ratchet-bar S^4, one end having a mortise in which the upper end of said knee-lever works, dog Y^1, pivoted in said bar and working in the ratchets of ratchet-wheel S^5, ratchet-wheel S^5, keyed on shaft S, shaft S, journaled in the bearing S' and step S^6, and molding-table Q, rigidly mounted on the upper end of said shaft, said table revolving on the upper face of a stationary segment, T, substantially as shown and described, and for the purposes set forth.

3. In a brick-machine, as above described, the combination of the double gearing B', having the crank C, pitman D, its upper end pivoted to the arm of said crank and its lower end to the long arm of balance E, balance E, fulcrumed on the lower part of the frame of said machine, spring-hook W', pivoted to the lower part of said frame, angle-lever W^2, pivoted to the side of balance E, one end adapted to catch in the spring-hook W', its other end having pivoted thereto rod W^3, spiral spring W, sliding block W^4, pivoted in a seat bolted to the upper edge of balance E, rod W^3, working through said spiral spring W, and sliding block W^4, one end pivoted to angle-lever W^2 and the other grasping in its mortise the lower end of thrust-bar F, substantially as shown and described, and for the purposes set forth.

4. In a brick-machine, as above described, the combination of the lever Y, rod Y^2, one end attached to said lever and the other to the rod W^3, rod W^3, grasping in its mortise the lower end of thrust-bar F, bar Y^3, block Y^4, attached to bar Y^3 and adapted to strike against the tail part of the dog Y^1, thereby disengaging it from contact with the ratchet-wheel S^5, said lever Y having its lower end pivoted to the frame of said machine and its middle part adapted to catch over the knob Y^5 on segment Y^3, substantially as shown and described, and for the purposes set forth.

5. In a brick-machine, as above described, the combination of the spring X, its butt-end bolted to the frame of said machine, rod X^2, its lower end pivoted to the spring end of said spring and its upper end to the arm X^3 of the reciprocator I, reciprocator I, journaled to said frame and pivoted to the reciprocator G by means of sliding block J, reciprocator G, journaled to said frame, pitman-rod G', pivoted to said reciprocator G and walking-beam V, walking-beam V, fulcrumed on said frame, pitman V', pivoted to said walking-beam and to the plunger V^3, plunger V^3, working up and down in its guides, substantially as shown and described.

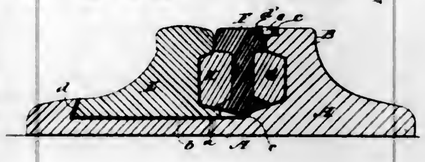
6. The combination of the frame A A' A^2 A^3, pulley B, double gearing B', crank C, pitman D, balance E, thrust-bar F, reciprocator G, having die K attached to its inner arm, reciprocator I, having die L attached to its inner arm, pitman G', walking-beam V, pitman V', and plunger V^3, working up and down in the guides, bar S^9, attached to the balance E, knee-lever S^2, bar S^4, dog Y^1, ratchet-wheel S^5, shaft S, molding-table Q, segment T, and carriers U and U', substantially as shown and described, and for the purposes set forth.

348,703. ANIMAL-TRAP. ARVOR A. TAUSSENEK, Marshall, Ill. Filed May 7, 1886. (No model.)

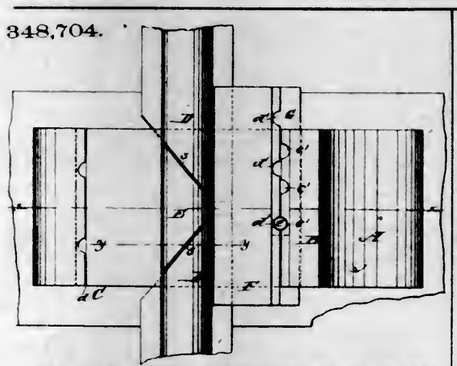
Claim.—1. In an animal-trap, the combination, with a frame and spring-jaws pivoted thereto, of a bell-crank lever pivoted to the frame outside of one of the jaws when opened, and a pivoted trigger having its outer end engaging the lower end of the bell-crank lever, substantially as herein shown and described.

2. In an animal-trap, the combination, with the frame B, the pivoted jaws A, and the spring C, of the bell-crank lever F, having the lower end of one of its arms notched, as at F^3, and the trigger D, having its outer end engaging the notch of the bell-crank lever, substantially as herein shown and described.

348,704. RAIL-JOINT. EDWARD A. TEMPLE, Charlton, Iowa. Filed Mar. 11, 1886. (No model.)



348,704.



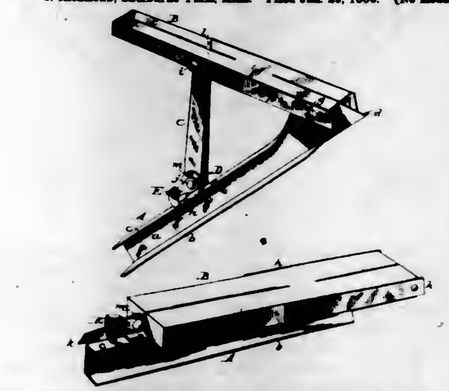
Claim.—1. In a rail-joint, the combination, with a chair, of a block resting in a seat of the chair and constructed to fit against the ends of the rails, a wedge on the opposite side of the rails between the said rails and a flange of the chair, and means for locking the said wedge in place, substantially as herein shown and described.

2. In a rail-joint, the combination, with a flanged chair and rails having beveled ends, of a V-shaped bridge fitting in the V-opening between the rails, and a wedge on the opposite side of the rails between the said rails and the flange of the chair, substantially as herein shown and described.

3. The combination, with rails formed with beveled ends, of a chair formed with a flange, B, a V-shaped bridge, and a locking device consisting of a core and wedge-shaped wooden blocks G and H, substantially as described.

4. The combination, with rails formed with beveled ends, of a chair formed with a flange, B, and shoulders *c* and *d*, a V-shaped bridge, E, formed to abut against the shoulder *d*, a core, F, wedge-shaped blocks G and H, and a pin, *e*, substantially as described.

348,705. SHINGLING-BRACKET. GEORGE H. WARREN and EDMUND C. RICHMOND, Shelburne Falls, Mass. Filed Jan. 29, 1886. (No model.)



Claim.—1. In a shingling-bracket, the combination of an arm, A, to rest upon the roof, an arm, B, pivoted to arm A and supporting the platform, and an arm, C, pivoted to arm B and adjustable upon arm A, the arm C extending up above the face of arm B, as and for the purpose set forth.

2. In a shingling-bracket, the combination of arm A to rest upon the roof, arm B, pivoted thereto, arm C, pivoted to arm B, and extending above the latter to form a point, *l*.

3. In a shingling-bracket, the combination of arm A, arm B, pivoted thereto, and arm C, pointed at both ends, as shown.

4. In combination with arms A, B, and C, pivoted together, as shown, runner D and pivoted dog E.

5. In combination with arms A B C, pivoted together, substantially as herein described, pointed plates *h*, secured to the end of arm B and adapted to clamp the shingles upon the arm A.

6. In a shingling-bracket, the combination of arm A, having flange *c*, arm B, pivoted to arm A, arm C, pivoted to arm B, and slide or runner D, pivoted to arm C, resting upon and clasping flange *c*, and provided with pivoted dog E.

7. In combination with arm A, having flanges *b c* and plate *d*, arm B, pivoted to arm A, pivoted brace C, slide D, and dog E.

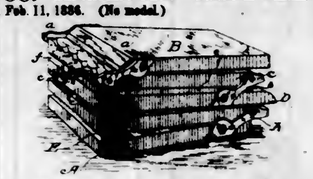
8. In combination with arm A, having upright web *a* at its forward end, arm B, pivoted thereto and provided with a longitudinal slit, and arm C, pivoted within the slit to facilitate folding and transportation of the bracket.

9. In combination with arm A, having a series of perforations, *s*, pivoted arms B and C, slide D, and dog E, arranged substantially as shown.

10. In combination with arm A, having lateral plate *d* at its forward end, arm B, pivoted to arm A, and provided with plates *h*, and an arm, C, all arranged substantially as shown, whereby the shingles may be firmly clamped between arms A and B.

11. In a shingling-bracket, the combination, with arms A, B, and C, pivoted together, as shown, of runner D, connecting the arms A C, substantially as shown and described.

348,706. REPORTER'S DESK. ISIDORE H. WEBBER, Houston, Tex. Filed Feb. 11, 1886. (No model.)

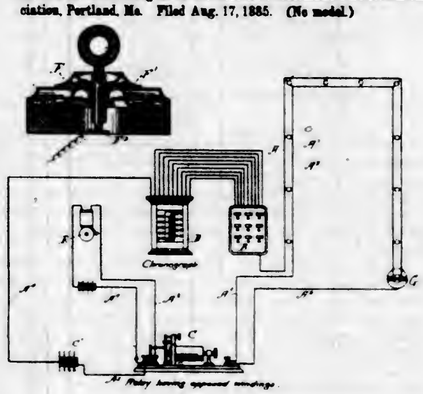




Claim.—1. A portable folding desk comprising the following elements in combination: a top and base arranged at a distance apart the one above the other, an intermediate connection inclining from a vertical line, having a portion of the front side, near the upper end, in contact with the rear edge of the top, forming a rest or stop for said top, and a portion of the rear side, near the opposite end, in contact with the front edge of the base, which latter forms a rest or stop for the lower end of the section, and brackets, as *a* and *h*, connecting the top and base with the upper and lower portions of said intermediate connection, respectively, by a hinge-joint, forming a self-sustaining structure when the device is unfolded, substantially as shown and described.

2. As an improved article of manufacture, the herein shown and described portable folding desk, consisting of the base A, sections D and E, hinged together, hook F and pin G, for rigidly bracing the hinged joint between them, braces *h*, pivotally connecting the lower end of section E with the base, and having its side abutting against the end of the base to form a stop, section C, having its side abutting against the end of section D, brackets *b*, pivotally connecting the meeting ends of the sections C and D, top B, having its end resting against the side of the section C, and brackets *b*, pivotally connecting the sections B and C, the parts being disposed whereby the top and sections may be folded close upon the base, and when unfolded will mutually brace each other and form a self-sustaining structure, substantially as shown.

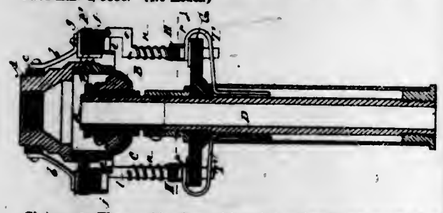
348,707. AUTOMATIC FIRE-ALARM SYSTEM. ALDEN D. WHEELER, Boston, Mass., assignor to the American Automatic Fire Alarm Association, Portland, Me. Filed Aug. 17, 1885. (No model.)



Claim.—1. The combination of an electric chronograph clock operated by any one of several compound circuits to record the closure of said circuit, and an annunciator, a relay double wound interposed in all of said compound circuits and so connected that its armature will be neutral when both branches of any one or more of said compound circuits are closed, a local circuit including an alarm controlled by said relay, and a circuit-closer in each compound circuit, whereby when said circuit-closer is operated the relay will be inactive unless the integrity of the line-circuit is impaired.

2. The combination of a central electrical chronograph clock operated by any one of several compound circuits to record closures of said circuits, a relay double wound interposed in all of said compound circuits and so connected that its armature will be neutral when both branches of any one or more of said compound circuits are closed, a local circuit including an alarm controlled by said relay, and a circuit-closer in each compound circuit, whereby when said circuit-closer is operated the relay will be inactive unless the integrity of the line-circuit is impaired.

348,708. **ELECTRIC CONNECTION FOR CHANDELIERS.** JOHN P. WILLETS, Jersey City, N. J., and EDWIN R. CHOLDE, New York, N. Y. Filed Mar. 4, 1886. (No model.)



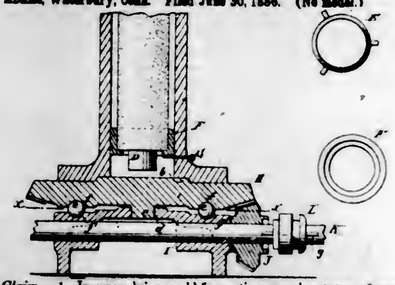
Claim.—1. The combination, with a ring of insulating material, of metallic rings or hoops carried thereby, and yielding contacts held against said hoops, substantially as described.

2. The combination, with the fixed and movable portions of a ball-and-socket joint, of two rings carried by the stationary portion of said joint and insulated therefrom and from each other, and yielding contacts carried by the movable portion of said joint, substantially as shown and described.

3. The combination, with the fixed and movable portions of a ball-and-socket joint, of an insulating-ring carried by the stationary portion of said joint, metallic hoops carried by said ring, and yielding contacts arranged in connection with said hoops and carried by a plate that is fixed to the movable portion of the ball-and-socket joint, substantially as shown and described.

4. The combination, with a ring, F, carrying automatic cut-outs, substantially as described, connecting-plates *g g'*, and hoops *e f*, of a plate, G, bars *l* and *o*, and springs *n n*, the parts being arranged in connection with a ball-and-socket joint substantially as described.

348,709. **REVOLVING MOLD FOR CASTING TUBES.** GEORGE ADAMS, Waterbury, Conn. Filed June 30, 1886. (No model.)

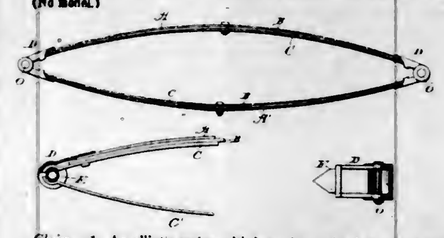


Claim.—1. In a revolving mold for casting seamless tubes of copper, &c., the combination, with the mold A, of the rotating horizontal wheel H, centering and carrying said mold and provided with a lower center stud, *c*, the base or stand I, having a sleeve-bearing, *d*, for said stud, and the circular series of balls or rollers *e*, interposed between said wheel H and stand I, and fitted to freely run within tracks therein, substantially as specified.

2. The combination of the detachable upright mold A and its bowl B, the horizontal mold centering and carrying gear H, provided with a center stud, *c*, and grooved circular track *f* on its under side or face, the base or stand I, having a central aperture or sleeve bearing, *d*, for the stud and a grooved circular track, *f'*, in its upper face, the circular series of balls or rollers *e*, the driving-shaft K, and the driving wheel or pinion J, fitted to engage and disengage with said shaft, essentially as shown and described, and for the purposes herein set forth.

3. In a revolving mold for casting tubes, the combination, with a stand having a central aperture and an annular groove, of a gear fitted upon one side for carrying a mold and having upon its opposite side a central stud fitting the aperture of the stand and an annular groove coincident with the groove in the stand, and a series of balls adapted to the grooves in the stand and gear, substantially as shown and described.

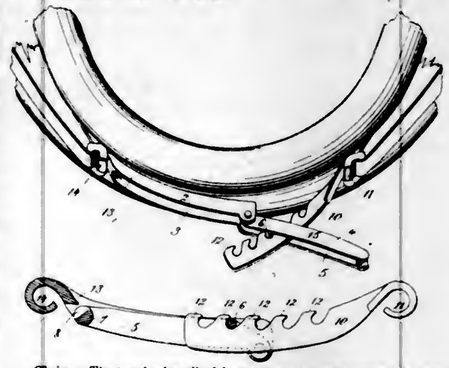
348,710. **ELLIPTIC SPRING.** JAMES O. ALTICK, Dayton, Ohio, assignor of one-half to Daniel Weaver, same place. Filed Nov. 18, 1885. (No model.)



Claim.—1. An elliptic spring with inner leaves having curved ends to embrace thimbles, the joint-clamps with ears for a bolt, concavity for the bent end of said inner leaves and bar integral thereof across the back end, to unite the halves of said spring by embracing the intermediate wooden and external steel leaves, substantially as set forth.

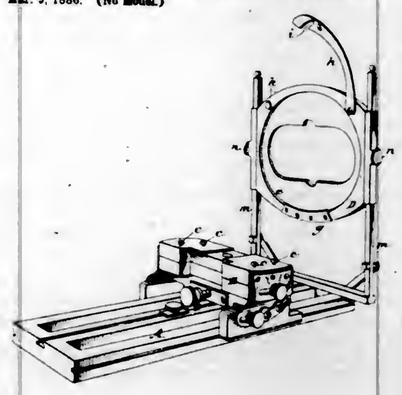
2. The joint-clamp D, having ears for the joining-bolt, concavity for curved ends of steel leaves and bar integral thereof across the back and to embrace the leaves composing a spring, combined with a thimble-bearing for the inner leaves, substantially as set forth.

348,711. **HAME-FASTENER.** DANIEL B. BAKER, Rising Sun, Ohio. Filed June 28, 1886. (No model.)



Claim.—The herein-described hame fastener, consisting of the strap 10, provided with the hook 11, and teeth 12, the strap 13, provided with the arms 2 and 3, and hook 14, and the lever 15, pivoted between the arms of the strap 13, and provided with the arms 4 and 5, and pin 6, the said lever receiving the strap 10 between its arms, as set forth.

348,712. **PHOTOGRAPHIC CAMERA.** ERASTUS B. BARKER, New York, N. Y., assignor to E. & H. T. Anthony & Co., same place. Filed Mar. 9, 1886. (No model.)



Claim.—1. In a photographic camera, the combination, with the running-gear, of the body of the camera and its bellows, made readily detachable from each other and said body from the running-gear, whereby a different-sized camera-body may be substituted, substantially as specified.

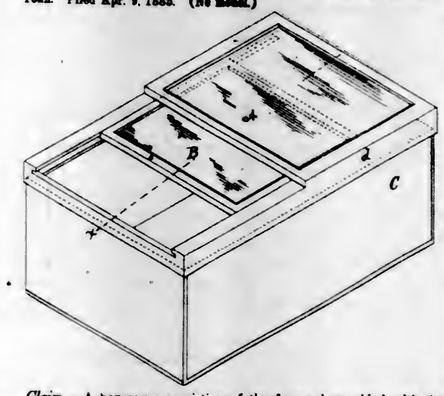
2. In a photographic camera, the combination, with the running-gear and with the lens-holder support, of the camera-body and its bellows, made readily detachable from the running-gear and from the front of the instrument or lens-holder support, whereby another body and bellows of different size may be substituted, essentially as herein set forth.

3. In a photographic camera in which the body is made readily detachable from the running-gear of the instrument, the bellows of the camera, provided with a frame at its rear end, in combination with fastenings adapted to engage and disengage said frame with and from the camera-body, essentially as specified, whereby the same bellows may be readily applied to camera-bodies of different sizes.

4. In a photographic camera, the combination, with the lens-holder support or frame and the body of the camera, of detachable bellows and an opening and closing engaging device arranged on the lens-frame for quickly releasing the bellows therefrom or locking the bellows to said frame, whereby camera-bodies of different sizes may be readily substituted one for the other upon the same running-gear, as set forth.

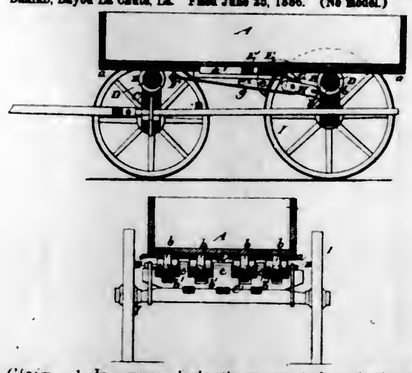
5. The combination, with the lens-holder or frame D, of the camera-bellows E, constructed to form a revolving joint with said frame, the fixed ring-section *g*, and opening and closing fastening *h*, adapted to engage on opposite sides of the axis of the bellows with the front end of the bellows, the detachable camera-box C, to which the rear end of the bellows is attached, and the running-gear of a camera, essentially as shown and described.

348,713. **SHOW-BOX COVER.** HENDRIK W. BAUMANN, Memphis, Tenn. Filed Apr. 9, 1885. (No model.)



Claim.—A box-cover consisting of the frame *d*, provided with the stationary glass A, in combination with the sliding glass B, substantially as shown.

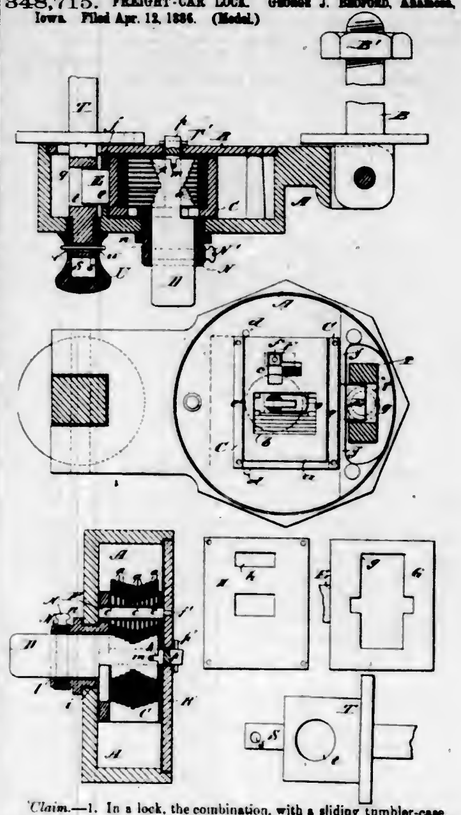
348,714. **WAGON-BRAKE.** JAMES WILLIAM A. BEAIRD and MARION BEAIRD, Bayou La Chute, La. Filed June 25, 1886. (No model.)



Claim.—1. In a wagon-brake, the wagon-body A, having the longitudinal parallel strips *a*, in combination with bolster-rolls whose ribs *b* rotate between said strips, while their sides *b' b'* rotate on them, as shown and described.

2. In a wagon-brake, the combination of bolsters having upward projections *c*, the rollers B, journaled between them, and the long rods D, passing through the projections *c* as well as the rollers B and the bolsters, as well as the rods being end-stapled to the axles, substantially as shown and described.

348,715. **FREIGHT-CAR LOCK.** GEORGE J. BEDFORD, Adamson, Iowa. Filed Apr. 12, 1886. (Model.)



Claim.—1. In a lock, the combination, with a sliding tumbler-case, and a locking-bolt carried thereby, of a slotted key-spindle formed with a toe *o*, substantially as described.

2. The combination, with a lock-case and its supporting-bolt to which the case is hinged, of a sliding tumbler-case and its tumblers, a key-spindle formed with a central slot or opening, *l*, and provided with a pin, *m*, and a toe, *o*, and a rigid post, F, adapted to extend through apertures formed in the outer and inner plates of the lock-case and through T-shaped openings formed in the tumblers, substantially as described.

3. The combination, with a lock-case, of a tumbler-case provided with a locking-bolt and held to slide in said lock-case, tumblers in said tumbler-case, and a longitudinally apertured key-spindle journaled in the lock-case and adapted to engage the tumbler-case, substantially as described.

4. The combination, with a lock-case, of a tumbler-case provided with a locking-bolt, tumblers in said tumbler-case provided each with a key-aperture and a guide-slot, a guide-post held in the lock-case and passing through the tumbler-case and the guide-slots of the tumblers, and a longitudinally-apertured key-spindle journaled in the lock-case, passing through the key-apertures of the tumbler, and provided with an engaging-toe for the tumbler-case, substantially as described.

5. The combination, with a lock-case provided with a partition, *f*, and lugs *d*, of a tumbler-case provided with a locking-bolt, tumblers in said tumbler-case provided with key-apertures and T-shaped guide-slots, a post held in the lock-casing and passing through the T-shaped slots of the tumblers, and a longitudinally-apertured key-spindle journaled in the lock-case, passing through the key-apertures of the tumblers, and provided with a toe, *o*, substantially as described.

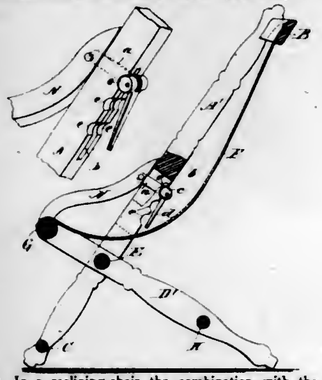
6. The combination, with a lock-case and its supporting-bolt, of a locking mechanism and an eyebolt with which the locking mechanism engages, a cap, U, connected to the lock-case, and an extension formed on the eyebolt and entering the cap on the lock-case, the extension and the cap being formed with registering openings, substantially as described.

7. The key-spindle N, apertured at *l*, and provided with shank *p*, collar *n*, toe *o*, and pin *m*, substantially as described

8. The combination, with the key-spindle N, of the slotted plug N', substantially as described.

9. The combination, with a key-spindle apertured longitudinally at *l*, provided with a slotted shank, *p*, and with a toe, *o*, and having a pin, *m*, crossing the slot in the shank, of a key, D, fitted to the aperture of the spindle and provided with a recess, *k*, substantially as described.

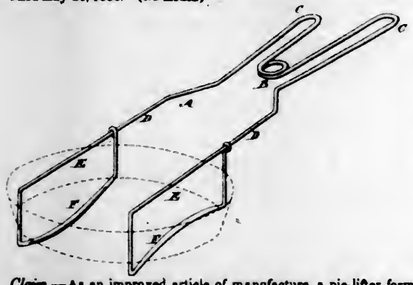
348,716. RECLINING-CHAIR. JOHN W. ROGGS and DANIEL M. MCLAUGHLAN, Albina, Oreg. Filed Jan. 23, 1886. (No model.)



Claim.—1. In a reclining-chair, the combination, with the posts A A', pivotally connected to the legs D D', of a seat, F, and arms N, provided with links *a* and locking-cam *c*, substantially as described.

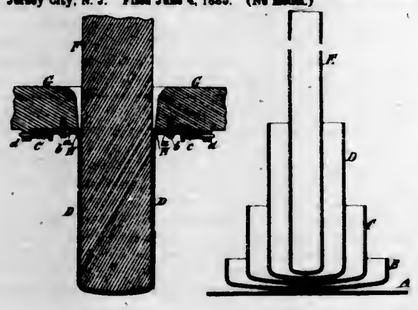
2. In a reclining-chair, the combination of the following elements: posts A A', formed with slots *b b* and recesses *e e*, legs D D', pivotally connected to the posts A A', seat F, arms N, provided with links *a*, and eccentrically-mounted locking-cams *c*, that are provided with arms or handles *d*, substantially as described.

348,717. PIE-LIFTER. EDWARD T. BRADBURY, Mahanoy City, Pa. Filed May 21, 1886. (No model.)

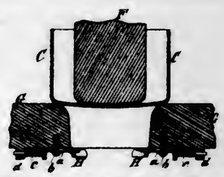


Claim.—As an improved article of manufacture, a pie-lifter formed of a wire bent into a spiral in the middle of its length, with its arms extending approximately parallel and returned approximately parallel with themselves, offset and formed into oblong eyes at their free ends, the wire at the lower part of the eyes being curved inward and flattened, substantially as herein shown and described.

348,718. MANUFACTURE OF COPPER TUBES. WILLIAM HENRY BROWN, New York, N. Y., assignor to Brown's Seamless Metal Company, Jersey City, N. J. Filed June 4, 1885. (No model.)

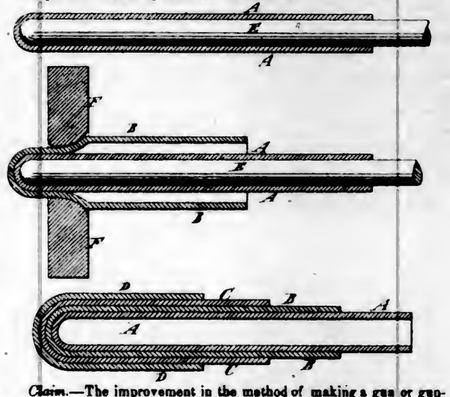


348,718.



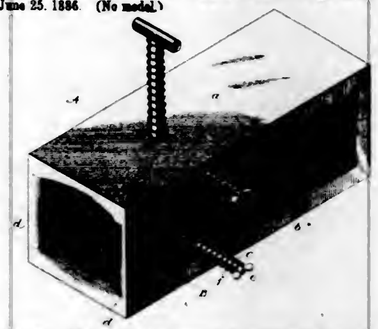
Claim.—The improvement in the art of manufacturing seamless cylinders of copper and its alloys by first subjecting the metal in a hot state to a series of folding operations, whereby its form is changed from the flat to the cylindrical and from that of a shorter cylinder of larger caliber to that of a longer cylinder of smaller caliber, and afterward subjecting it in a cold state to the drawing operations, by which the cylinders are brought to the desired thickness and caliber, condensed, hardened, and finished, substantially as herein set forth.

348,719. METHOD OF MAKING ORDNANCE. WILLIAM H. BROWN, New York, N. Y., assignor to Brown's Seamless Metal Company, Jersey City, N. J. Filed July 15, 1885. (No model.)



Claim.—The improvement in the method of making a gun or gun-barrel, consisting in first producing, by cupping and drawing with mandrels and dies, a series of seamless shells, which are substantially closed at one end, and are of such size as to enter easily one into another, and in then placing the smaller shell upon a mandrel and closing in or contracting the shells one upon another successively by passing through dies, beginning with the next smallest in size and repeating the closing-in or contracting operations until the shells are all combined, substantially as herein described.

348,720. CAR-COUPLING. THOMAS J. BRIDE, Whig Hill, Pa. Filed June 25, 1886. (No model.)

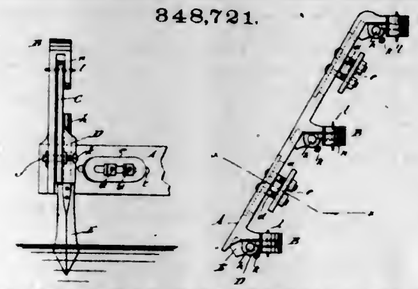


Claim.—The combination, with the draw-head having the open sides, of jaws pivoted in said sides at their forward ends, bars passing through the jaws, springs on the bars outside of the jaws, the thumb-nuts on the outer ends of the bars, the vertically-sliding spring-actuated releasing-bar fitting between the jaws, and the sliding spring-actuated bumper, substantially as set forth.

348,721. CULTIVATOR ATTACHMENT. GEORGE W. CAMPBELL, Alamo, Ind. Filed Feb. 12, 1886. (No model.)

Claim.—1. In a cultivator attachment, the combination, with a leveler, A, countersunk at *b*, and formed with slots *c*, of brackets B B, formed with hoods *n*, holders C, having sockets D, and being pivotally

348,721.

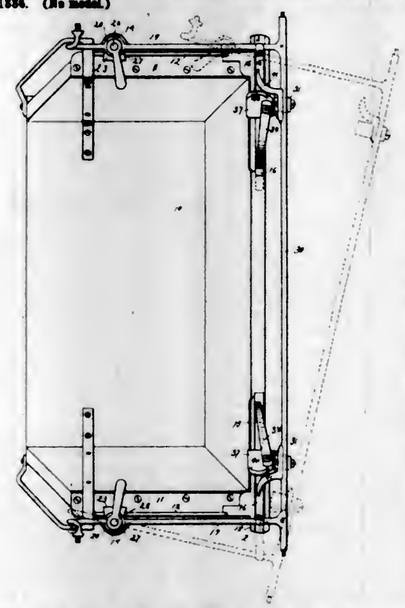


connected to the brackets B, and shovels E, formed with shanks A, and held in place by set-screws *k*, substantially as described.

2. In a cultivator attachment, the combination of the following elements, viz: leveler A, countersunk at *b*, and provided with slots *c*, brackets B, provided with hoods *n*, holders C, pivot-pin *f*, shovel E, formed with shank A, set-screw *k*, and a break-pin, *l*, substantially as described.

3. In a cultivator attachment, the combination of the following elements, viz: leveler A, bracket B, formed with hood *n*, holder C, formed with holes *i i*, and pivotally connected to the bracket, shovel E, formed with shank A, set-screw *k*, and break-pin *l*, substantially as described.

348,722. SUPPORTING-FRAME FOR CARRIAGE-TOPS. EDWARD CARROLL and PATRICK RYAN, Guelph, Ontario, Canada. Filed July 22, 1886. (No model.)



Claim.—1. The combination, with a vehicle-seat, of wear-plates formed with flanges 12, channel-irons 15, secured to the upper rear corners of the seat-box, and a swinging frame supported by sliding irons arranged within the channel-irons, and slides that are arranged to be clamped to the wear-plates 11, substantially as described.

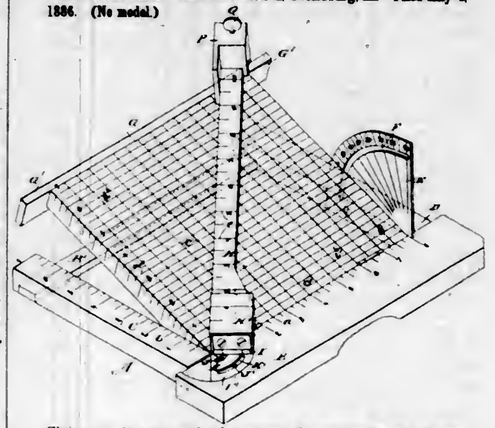
2. The combination, with a vehicle-seat, of channel-irons 15, sliding irons 16, arranged within the grooves 2 of said channel-irons, a sliding frame supported by the sliding irons, clamping-plates 37, springs 38, connecting plates and nuts, and forward pivotal connections, as 14, substantially as described.

3. The forward pivotal connection for swinging vehicle-top frames, consisting of a wear-plate formed with a flange, 12, a slide, 22, formed with arms 23 and 24, and provided with a hollow post or standard, 21, and clamp 25, a plate, 26, and a handled nut, 27, substantially as shown and described.

4. The combination, with a vehicle-seat, to which there are secured flanged wear-plates 11 and channel-irons 15, said irons being provided with lugs or projections 35, of a swinging frame, sliding irons 15, by which the rear portion of the frame is supported, forward pivotal and clamping connections, 14, clamping-plates 37, formed with curved-faced flanges 40 and curved-faced prongs 41, connected to the rear bar of the frame, substantially as described.

5. The combination, with a shifting or swinging frame carrying an adjustable clamp, 31, of channel-irons 15, formed with projections 35, sliding irons 16, between the jaws of which the arm of the frame is held, clamping-plates 37, formed with flanges 40, springs 38, and curved-faced prongs 41, substantially as described.

348,723. INSTRUMENT FOR OBTAINING LENGTHS AND BEVELS OF RAFTERS. HARRISON COWLES, Petersburg, Ill. Filed May 4, 1886. (No model.)



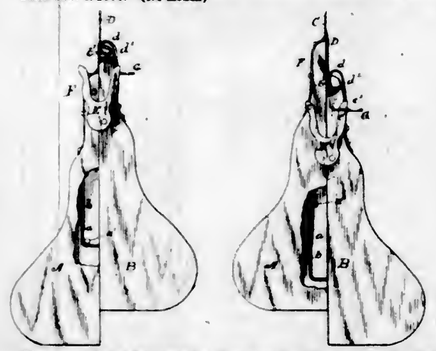
Claim.—1. In a measuring-instrument, the combination of a frame, A, having the graduations *a* and *b*, with the hinged board G, having lines *c* and *d*, and the protractor E, on which the board G can be held at any desired angle, substantially as shown and described.

2. In a measuring-instrument, the combination of a frame, A, having the graduations *a* and *b*, with the hinged board G, having the lines *c* and *d*, the protractor E, on which the board G can be held at any desired angle, and the hinged straight-edge H, having the graduation *e*, substantially as shown and described.

3. In a measuring-instrument, the combination of the frame A, having the graduations *a* and *b*, and the hinged board G, having the lines *c* and *d*, with the straight-edge H, having the graduation *e*, the hinge I, having the concentric grooves K and K', and the screws or bolts J and J', substantially as shown and described.

4. In a measuring-instrument, the combination of the frame A, having the graduations *a* and *b*, and the hinged board G, having the lines *c* and *d*, with the straight-edge H, having the graduations *e*, the hinge I, having the concentric grooves K and K', the screws or bolts J and J', and the adjustable miter-block P, substantially as shown and described.

348,724. FABRIC-TURFING IMPLEMENT. NATHAN W. CRANDALL, Meriden, Conn., assignor of two-thirds to George W. Jepson, same place. Filed Feb. 4, 1886. (No model.)



Claim.—1. In a fabric-turfing implement, the combination, with the sliding parts and a loop-holder secured to one of said sliding parts, of a needle secured to the other sliding part, composed of a single piece of metal having an offset and a single fold formed therein, substantially as described, and for the purposes specified.

2. In a fabric-turfing implement, the combination, with the sliding

parts and a loop-holder secured to one of said parts, of a needle secured to the other part, composed of a single piece of metal having formed therein a double loop, substantially as shown, and for the purpose set forth.

3. The combination of the sliding parts, means by which their approximate edges are kept in the same plane, a loop-holder fixedly secured to the one part, and a spring-needle secured at one and to the other part, the said needle having its free end normally sprung away from the loop-holder, said needle and loop-holder projecting beyond the ends of the parts, and a stop which engages by sliding contact with the needle during the reciprocating movements of the parts and draws the free end of such needle toward the loop-holder, substantially as described.

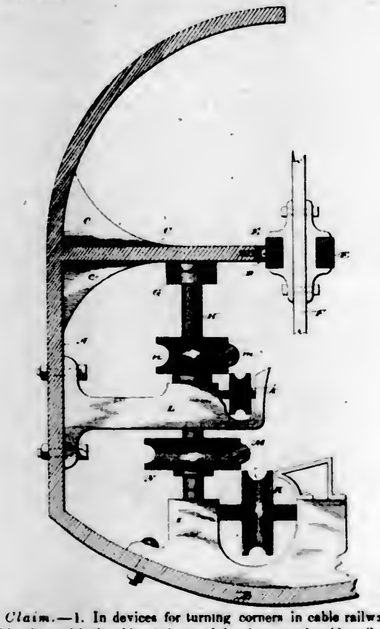
4. The combination, with the sliding parts, provided, respectively, with a loop-holder and a spring-needle, the latter normally sprung away from said loop-holder, of a stop to draw the needle toward the loop-holder, and a set-screw to adjust the outward movement of the needle when released from said stop, as and for the purposes described.

5. The combination of the sliding parts, a loop-holder secured to the one sliding part and projecting beyond its end in line with the meeting edges of the parts, a spring-needle secured to the outer edge of the other part, and having an offset or bend therein to extend over the end of the part, and a fold extending within the offset, substantially as shown, and for the purpose set forth.

6. The combination, with the sliding parts, of a loop-holder secured to the one and a laterally-vibrating spring-needle secured to the outer edge of the other, and having a fold therein to work in a groove or mortise cut in the end of its supporting part, substantially as described.

7. The combination of the sliding parts, a loop-holder secured to the one, a spring-needle secured to the other, a plate pivoted to one of the parts and having diverging arms, one of which is bent and engages the spring-needle, a pin on the other part to engage the free arm and draw the needle to the loop-holder, and a set-screw to limit the outward movement of the spring-needle, substantially as described, and for the purposes specified.

348,725. DEVICE FOR TURNING CURVES IN CABLE RAILWAYS. EDWARD D. DOUGHERTY, Philadelphia, Pa. Filed Mar. 30, 1886. (No model.)



Claim.—1. In devices for turning corners in cable railways, the combination, with the side of the conduit, of a curved guide-rail secured thereto and provided with diagonal braces, substantially as set forth.

2. The combination, with the curved guide-rail braced firmly in its position, of a removable wearing-plate secured to its face and adapted to engage the grip, substantially as set forth.

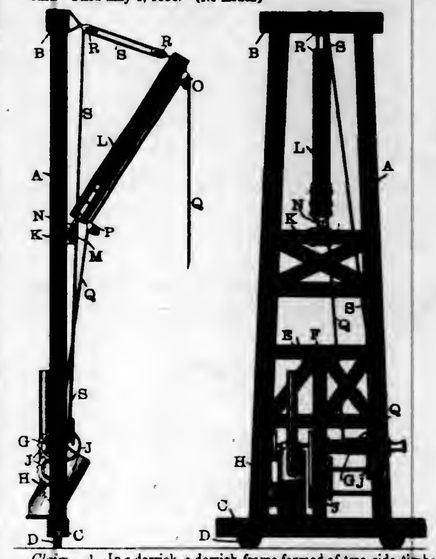
3. The combination, with the curved guide-rail provided with a bearing on its under side, of the guide-pulley shaft having its upper end secured in said bearing, substantially as set forth.

4. The combination, with the curved guide-rail and foot-bracket, of a guide-pulley shaft secured at its lower end in the foot-bracket, at its upper end in a bearing on the guide-rail, and carrying two cable-guide pulleys, substantially as set forth.

5. The combination, with the curved guide-rail, the foot-bracket, and a middle bracket, of a guide-pulley shaft secured in the foot-bracket, middle bracket, and guide-rail, guide-pulleys mounted on the shaft, and cable-support pulleys mounted in the foot and middle bracket, substantially as set forth.

6. In devices for turning curves in cable railways, a curved guide-rail cast integral with the side of the conduit and braced substantially as shown, the said rail having a shaft-bearing on its lower side for the purpose, substantially as set forth.

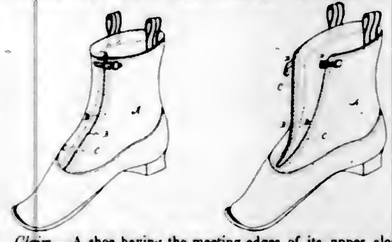
348,726. DERRICK. GEORGE DRIVER and FRANK DRIVER, Toledo, Ohio. Filed May 5, 1886. (No model.)



Claim.—1. In a derrick, a derrick-frame formed of two side timbers, a cap, and a sill, foot-wheels journaled in the sill with their axes at right angles to the general plane of the derrick-frame, a gaff-bridge reaching from side timber to side timber of the frame, a gaff with its foot supported by the gaff-bridge and articulated thereto by a vertical and horizontal pivot, a block at the top of the derrick-frame, a gaff-supporting rope leading from the head of the gaff through said block and thence to the foot of the derrick, a block at the head of the gaff, a block at the foot of the gaff, a winding-reel at the base of the derrick-frame, and a winding-rope engaging said two last-mentioned blocks and said reel, combined substantially as and for the purpose set forth.

2. A hoisting mechanism comprising a derrick-frame formed of two side timbers, a cap, and a sill, cross-framing between the side timbers above the sill, a vertical timber disposed between the side timbers and reaching from the sill to said cross-framing, a winding-reel journaled in the derrick-frame, an engine and boiler disposed upon the sill of the derrick-frame between one of the side timbers and the said vertical timber, mechanism adapted for the transmission of motion from the engine to the winding-reel, a block supported at the upper part of the derrick, and a hoisting-rope engaging said block and said winding-reel, substantially as and for the purpose set forth.

348,727. SHOE-FASTENING. JOHN EVERDOM and ALEXANDER V. OLDERWEL, Newark, N. J. Filed Feb. 1, 1886. (No model.)



Claim.—A shoe having the meeting edges of its upper along the top of the foot, and provided with a fastening device, D, and along said edges with the flexible spring metallic stays C C, which conform in their length to the shape of the top of the foot, and are held in their flat position at their lower ends, said stays being applied so as to be, when normal, substantially parallel to each other, with said edges of the shoe closed, and to return to their normal position by their torsional action after that portion of them above their lower ends has been opened to admit the foot by being twisted and pressed apart in opposite directions from each other, substantially as set forth.

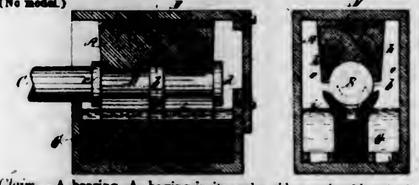
348,728. CAR-AXLE LUBRICATOR. HIRAM G. FARR, Boston, assignor of one-half to Theophilus King, Quincy, Mass. Filed Feb. 5, 1886. (No model.)



Claim.—1. The block of felt *b*, in combination with and located under a car-axle journal, B, and a bearing having grooves for the reception of strips of felt located thereover, for the purpose stated.

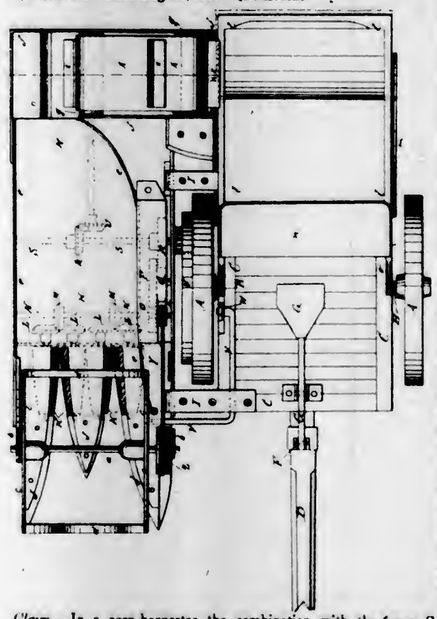
2. The supports A A, in combination with and located on the opposite sides of the felt block *d* when in an upright position, as described.

348,729. CAR-AXLE LUBRICATOR. HIRAM G. FARR, Boston, assignor of one-half to Theophilus King, Quincy, Mass. Filed Feb. 5, 1886. (No model.)



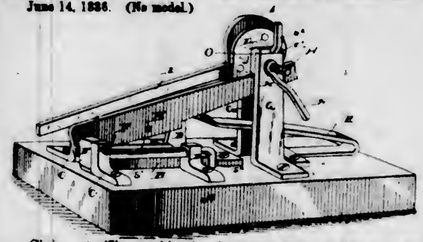
Claim.—A bearing, A, having in its under side a pair of longitudinal grooves, *e e*, and a transverse groove, *a*, located intermediate of its ends, in combination with and for the reception of strips, *h h*, of felt, &c., and a journal, B, having an annular shoulder, *b*, as and for the purpose specified.

348,730. CORN-HARVESTER. SYLVESTER E. PERGUSON, Eureka Springs, Ark. Filed Aug. 11, 1885. (No model.)



Claim.—In a corn-harvester, the combination, with the frame C and the platform H, of the elevator *f g h i* and its driving mechanism, and the receiving-box *l*, hinged at its rear bottom edge and provided with handles at its top forward corners, and having the driver's seat mounted upon its top forward side, substantially as herein shown and described.

348,731. BAR-CUTTER. ARON GARDNAVE, Yorkville, Ill. Filed June 14, 1886. (No model.)



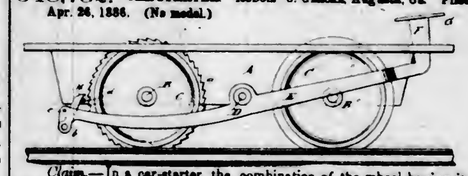
Claim.—1. The combination, in a bar-cutter, of the movable jaw and the laterally-movable lever having the eccentric cams of different sizes, whereby either of the said cams may be caused to bear upon and operate the movable jaw, substantially as described.

2. The combination, with a bar-cutter, of the rocking guard S, substantially as described.

3. The combination, in a bar-cutter, of the movable spring-actuated jaw, the laterally-movable lever having the cam of different sizes, and means for securing the said lever at any desired lateral adjustment, substantially as described.

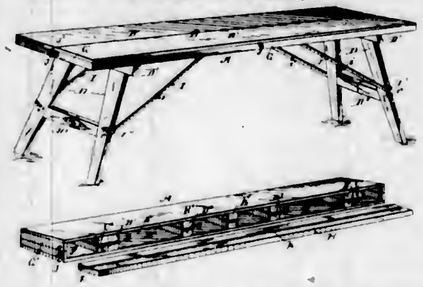
4. The combination, in a bar-cutter, of the movable spring-actuated jaw, the laterally-movable lever having the cams of different sizes, and the block O, adapted to bear on either side of the said lever, to secure it at either lateral adjustment, substantially as described.

348,732. CAR-STARTER. RUDOLF O. GERICKE, Augusta, Ga. Filed Apr. 26, 1886. (No model.)



Claim.—In a car-starter, the combination of the wheel having its flange toothed to form a ratchet with the lever E, pivoted between its ends, provided with the pedal G at one end, and the pawl H, pivoted to the opposite end, and pins at opposite sides of the pawl for holding it in proper position, substantially as set forth.

348,733. FOLDING TABLE. ALFRED GIBBEN and JOHN TYLER, South Chicago, Ill. Filed Mar. 31, 1886. (No model.)

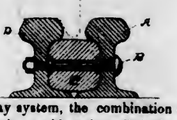


Claim.—1. In a folding table, the combination of a top comprising the longitudinal folding sections provided with depending cleats G and G' on one of its sides and both end edges, the folding battens secured to the top, the legs hinged to and carried by the battens, and a panel, H, fitted against the open end of the compartments F, formed by folding the top sections and legs upon each other, and detachably secured to the table to permit free access of the compartments without unfolding or elevating one of the top sections, substantially as described.

2. In a folding table, the combination of the top comprising the longitudinal hinged sections B, having the depending cleats G and G', arranged as described, the hinged battens secured to the top sections and folding therewith, the legs hinged to and carried by the battens, the fastening devices *j*, carried by the cleats to hold the top sections in line when the table is unfolded, and the removable panel H, fitted against the open side of the compartments F, formed by folding the top sections and battens upon each other, and having a longitudinal groove, A, into which the butt-ends of the hinges are fitted, the panel being secured detachably to the table by the fastening devices *j*, so that free access to the compartments F can be had without unfolding the table-top, substantially as described, for the purpose set forth.

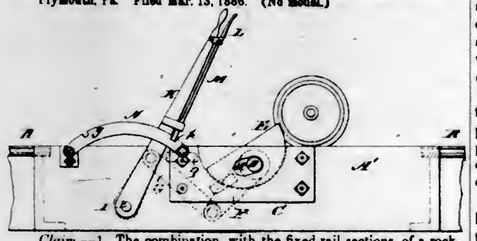
3. The combination of the top, the foldable legs carried thereby, the bracket I', carried by the legs and having a rigid stop-shoulder, i', and the jointed foldable brace pivoted at one end to the top and at its other end within the bracket I', and abutting against the shoulders i' of the latter when unfolded, substantially as described.

348,734. SAFETY GUARD-RAIL. HUGH GILLEAS, Waterloo, Iowa. Filed May 15, 1886. (No model.)



Claim.—In a railway system, the combination of the main rail, a guard-rail directly secured to said main rail, both rails provided with corresponding perforations, substantially as shown, bolts provided with washers on the inner sides of said rails, and a filling between the rails, provided with perforations for bolts, and recesses at either end of such perforations for the reception of the said washers, substantially as set forth.

348,735. STOP-BLOCK. JOHN P. GOODMAN and JOSEPH GOODMAN, Plymouth, Pa. Filed Mar. 13, 1886. (No model.)



Claim.—1. The combination, with the fixed rail-sections, of a rock-shaft journaled transversely thereto, and stop-blocks at opposite ends of the shaft adjacent to and forming, when turned down, parts of the treads of the rail-sections, substantially as set forth.

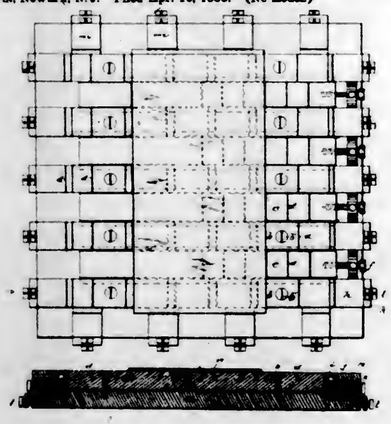
2. The combination, with the plates A A', having recesses *a a*, of the stop-blocks E E within said recesses, forming, when turned down, sections of the treads of the plates or rails, a rock-shaft, D, and means for operating the said shaft, substantially as set forth.

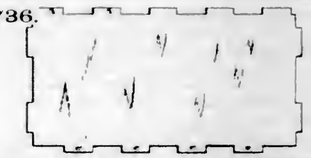
3. The combination, with the plates A A', having recesses *a a*, the plates C C, secured to the outer sides of the plates A A', and closing the outer sides of the recesses, the blocks E E in the recesses, the rock-shaft D, and the operating mechanism therefor, substantially as set forth.

4. The combination, with a supporting-frame, of a rock-shaft carrying stop-blocks provided with stops *p*, stops *q*, carried by the frame, and an operating-lever, arranged substantially as described.

5. The combination, with plates A A', formed with recesses *a a*, of plates C, formed with curved slots *d*, a rock-shaft, D, mounted in said slots, and carrying-blocks E, arranged within the recesses *a*, and provided with stops, an arm, F, carried by the shaft D, a shaft, I, having an arm, H, and a lever, K, the arms H and F being connected by a link, G, substantially as described.

348,736. BED FOR ZINCOGRAPHIC PRESSES. HANNIBAL GOODWIN, Newark, N. J. Filed Apr. 16, 1885. (No model.)





Claim.—1. A bed for zincographic presses, consisting, essentially, of a bed, *a*, provided with two alternating series of sections changeable in their relations to one another, one series being adapted to clamp the sheet at one edge and the other series at the other edge, substantially as set forth.

2. In combination, a bed provided at the face thereof with fixed sections and movable sections alternately, which sections are provided at intervals throughout their lengths with transverse slits adapted to receive and clamp the edges of the plate, and said plate, substantially as and for the purposes set forth.

3. A bed provided at the face thereof with alternating series of movable and fixed sections, which are longitudinally and transversely slitted, in combination with clamping-jaws arranged to co-operate with said longitudinal slits, substantially as and for the purposes set forth.

4. In combination, a bed provided with alternating series of movable and fixed sections, each section of which is provided with a series of transverse slits adapted to receive the edges of the printing-plates, and means, substantially as described, for adjusting the movable sections, whereby the said plates are stretched or extended to produce an even surface.

5. The combination, with a bed having movable sections on the face thereof, the latter having slits to receive tongues of the printing-plate, of said printing-plate provided with series of tongues on the opposite edges thereof adapted to be inserted in said slits, the tongues of one edge lying opposite the spaces between the tongues of the opposite edge, substantially as set forth.

6. The printing-plate for zincographic presses, consisting of a plate having tongues at the opposite edges thereof bent down to enter slits in the beds of said presses, the tongues of one edge lying opposite the spaces between the tongues of the opposite edge, substantially as shown and described.

7. In combination, the bed *a*, sections *b c*, having transverse and longitudinal slits, the adjusting-screws *f*, working in bearings *g*, the clamping-jaws *i j*, and screws *l*, all said parts being arranged and operating substantially as set forth.

8. In combination, in a zincographic press, the bed and adjustable clamps or catches formed in or arranged upon a bed and adapted to clamp or catch the opposite edges of a printing-plate and to allow the said plate to be moved while clamped over the face of said bed to an exact position for printing, substantially as set forth.

9. The combination, with a bed having an adjustable part and having inclined slits, of a plate having under-bent edges to engage the said slits, substantially as set forth.

10. The combination, with a bed having an adjustable part and a fixed part, each of which is provided with an inclined slit which extends in a direction opposed to that of the one in the co-operating part, of a plate having under-bent opposite edges to engage said slits, substantially as set forth.

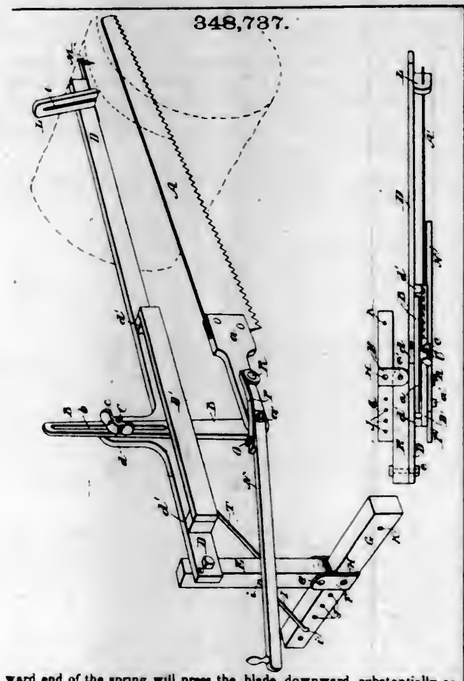
348,737. DRAG-SAW. EDWARD H. GRISWOLD, Marthasville, Mo. Filed Feb. 27, 1886. (No model.)

Claim.—1. The combination, in a drag-saw, of the saw A *a*, pendulum-bar B, having a slot, *b*, bolt C, frame-bars D D', post-bar E, base-bar G, having holes J K, a yoke, F, held adjustably to bar G, and to which yoke the bar E is pivoted, a brace, I, connected to bar E and adjustable in any one of the series holes J, a handle, N, held to saw A *a*, and a spring, P, fixed to handle and adapted to bear on the saw-stock or a stud thereon, substantially as herein set forth.

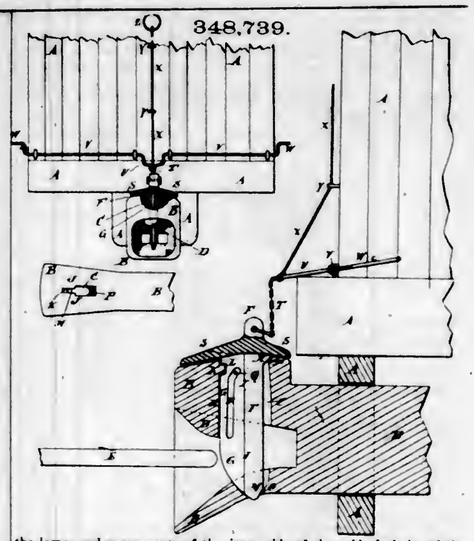
2. In a drag-saw, the combination, with the main saw-frame and the longitudinal reciprocating saw, of the vertical post-bar E, secured to the rear end of the frame at right angles thereto, the yoke F, pivoted to the lower end of the bar E, the base-bar G, extending through the yoke at right angles to the bar E and the main frame and having the series of transverse holes J and the hole K at its forward end, the removable pin H, and the brace-bar I, whereby when the yoke is adjusted to the hole K and the bar E swung down upon the base-bar G the saw may be used to cut in a horizontal plane, and when the yoke is adjusted to one of the holes K and held by the brace-rod I, the saw may cut in a vertical plane or an acute angle, substantially as set forth.

3. The combination, with the longitudinal reciprocating drag-saw blade A, having a stock, *a*, at its rear end, of the handle N, pivoted to the rear end of the stock and extending in the longitudinal plane of the saw, a pin or roller-stud, R, on the stock in front of the handle-pivot, and the flat spring P, secured to the handle and bearing at its forward end upon the pin or stud R, whereby when the handle is raised the forward end of the spring will press the blade downward, substantially as set forth.

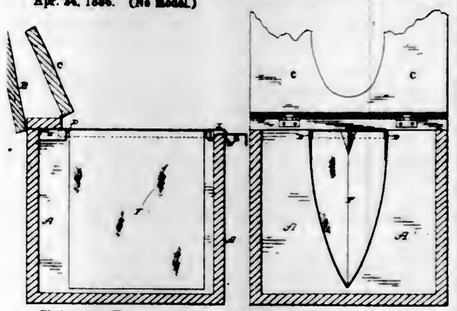
348,737.



348,739.



348,738. COMMODE. JACOB A. HACKENBERG, Kimberton, Pa. Filed Apr. 24, 1886. (No model.)



Claim.—1. The combination of the frame A, the two springs connected together at one end, the push-rod, and the bag which is applied to the springs, substantially as shown.

2. In a commode, the combination of the two springs, a push-rod connected to both of the springs at one end, a recessed support for the free ends of the springs, a catch to hold the springs in an expanded position, and the bag connected to the springs, substantially as set forth.

348,739. CAR-COUPLING. JOSEPH T. HARRICK, Rhinebeck, N. Y. Filed July 6, 1886. (No model.)

Claim.—1. In a car-coupling, the draw-head B, formed, substantially as herein shown and described, with a groove, H, at the outer side of the pin-hole C, a projection, K, in the upper part of the said groove, and inclines O P at the lower and upper parts of the inner side of the said pin-hole, to adapt the said pin-hole to receive a correspondingly-shaped coupling-pin, as set forth.

2. In a car-coupling, the coupling-pin F, formed, substantially as herein shown and described, with a longitudinal flange, G, on its outer side, a recess in the upper part of the said flange, an incline on the inner side of the lower end, and an inclined shoulder at the inner side of the upper end of the said pin to adapt the said pin to engage with a correspondingly-shaped hole in the draw-head, as set forth.

3. In a car-coupling, the combination, with the draw-head B, having pin-hole C, a groove, H, at the outer side of the said pin-hole, a projection, K, in the upper part of the said groove, and inclines O P at the lower and upper parts of the inner side of the said pin-hole, of the coupling-pin F, having a longitudinal flange, G, with a rounded lower end on its outer side, a recess, L, in the upper part of the said flange, and an incline, M, on the lower end, and an inclined shoulder, N, on the upper end, of the inner side of said pin, substantially as herein shown and described, whereby the said pin will be moved forward and locked as it nears the end of its downward movement and will be pushed inward and raised by the impact of the entering link, as set forth.

4. In a car-coupling, the combination, with the draw-head B, having pin-hole C and groove H at the outer side of the said pin-hole, and the coupling-pin F, having longitudinal flange on its outer side, and slot K, with inwardly-inclined upper end in the said flange, of the pin Q, attached to the said draw-head and passing through the said slot, substantially as herein shown and described, whereby the said coupling-pin is kept from being raised out of the said draw-head, as set forth.

5. In a car-coupling, the combination, with the coupling-pin F, provided with a flange, G, having rounded lower end, of the draw-head B, having a pin-hole, C, a groove, H, at the outer side of the said pin-hole, and a rib, D, upon the inner surface of its upper part at the outer side of the said groove, substantially as herein shown and described, whereby the end of an entering link is guided into position to raise the said pin, as set forth.

6. In a car-coupling, the combination, with the draw-head B, having pin-hole C, and groove H at the outer side of the said pin-hole, of the coupling-pin F, having flange G on its outer side and a cap-flange, S, on its upper end, substantially as herein shown and described, whereby the pin-hole of the draw-head is protected from snow, rain, and ice, as set forth.

348,740. DRAG-SCRAPER. FRED W. HUBBARD, Columbus, Ohio, assignor to the Kilbourne & Jacobs Manufacturing Company, same place. Filed Oct. 31, 1885. (No model.)



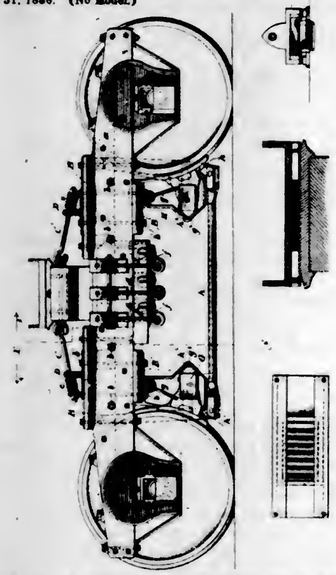
Claim.—1. A drag-scraper having an end-gate hinged to the sides of the bowl by one or more arms, adapting it to be dropped in front of the bowl while the latter is resting on the ground, as herein shown and described.

2. A drag-scraper having an end-gate hinged to the bowl by an arm or arms independently of the draft-hounds and handles, said end-gate closing the front of the bowl, and automatically removed therefrom in dumping, as explained.

3. A drag-scraper having a reversible end-gate hinged to the bowl by one or more arms and occupying an effective position at either the front or back of the bowl, as explained.

4. A drag-scraper having an end-gate, preventing the escape of dirt from the bowl while the latter is in filling or carrying position, and serving as a shoe for the bail to rest and run on when inverted, as explained.

348,741. CAR-TRUCK. MOSES G. HUBBARD, Norristown, Pa. Filed Mar. 31, 1886. (No model.)



Claim.—1. In a car-truck, the longitudinal sills or wheel-pieces plated on both sides, in combination with cross-sills attached to the upper and under sides thereof, whereby the mortising or mutilation of the plates is avoided, substantially as and for the purpose described.

2. In a car-truck, the bolster suspended on pendent links, in combination with the horizontal draft-links and coil-springs, by which the bolster is controlled in its movements both longitudinally and transversely of the truck, for the purpose substantially as specified.

3. The wheel-pieces and interposed butting-sills, in combination with the upper and lower cross-sills and the cross-tie rods, substantially as and for the purpose described.

4. The combination, in a car-truck, of the double-plated wheel-pieces, the cross-sills attached to the upper and under sides thereof, and the truck-springs located at or near the center of the truck longitudinally, substantially as and for the purpose described.

5. In a car-truck, the brakes, in combination with the angle-irons, or their equivalent, and their springs, constructed and arranged substantially as and for the purpose described.

6. The long tubular rod connecting the two brake-beams, in combination with the brakes located between the wheels, substantially as specified.

7. The circumferential springs provided with the vertical recurvature to diminish the space which they require in the truck, substantially as described.

8. The combination of the long recurved circumferential springs, the short crank-arms, and the pendent links with a fixed stop or limit to the downward movement, for the purpose substantially as specified.

9. In a car-truck, the combination, with the bolster, of an anti-friction outer bolster-bearing having a series of cylindrical rollers arranged and operating substantially as and for the purpose set forth.

10. In a car-truck, the anti-friction outer bolster-bearing composed of a series of rollers, in combination with a sliding frame, which moves with and guides said rollers, substantially as specified.

11. In a car-truck, the anti-friction outer bolster-bearing composed of a series of rollers and a moving frame for keeping them together, in combination with the stationary frame or case, in which they roll and for attaching them to the truck or body bolster, substantially as described and shown.

12. The combination of an anti-friction outer bolster-bearing with the extended bolster, substantially as set forth.

13. The combination of an anti-friction outer bolster-bearing with the elastic draft attachment, substantially as described.

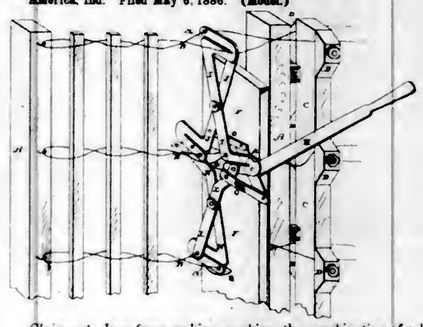
14. The combination of the elastic draft attachment with the extended bolster and anti-friction outer bolster-bearing, substantially as and for the purpose specified.

15. In a car-truck, an outer bolster-bearing constructed and arranged substantially as described, in combination with a raised shoe or track for it to roll on, as set forth.

16. In a car-truck, an anti-friction outer bolster-bearing having a series of rollers confined in a moving frame, which slides upon the raised shoe or track to keep it clean, substantially as described.

17. In a car-truck, the combination of the upper cross-sills, the butting-sills, the safety-sills, and the lower cross-sills, all bolted together substantially as and for the purposes described.

348,742. FENCE-MAKING MACHINE. JOHN W. HUBLER, Young America, Ind. Filed May 6, 1886. (Model.)

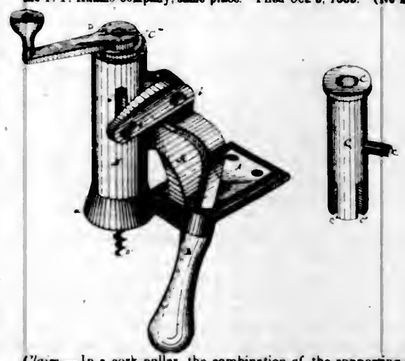


Claim.—1. In a fence-making machine, the combination of a base having suitable openings for the passage of the wires, and two pairs of levers pivoted to the base and connected together at their inner ends, and provided with perforations and transverse slots, as shown, with the operating-lever pivoted upon the base and connected to both pairs of levers, substantially as described.

2. The combination of a base having suitable openings for the passage of the wires, the lever I, provided with a perforation and a transverse recess at each end, the lever J, provided with a perforation at each end and a transverse recess at its inner end, the lever L, connected to one of the upper levers at its upper end and having a perforation through its lower end for a wire to pass through, the lever N, pivoted at its upper end to one of the upper levers and provided with a perforation and a transverse recess at its lower end, with the operating-lever and connecting-rods, the parts being arranged to operate substantially as shown.

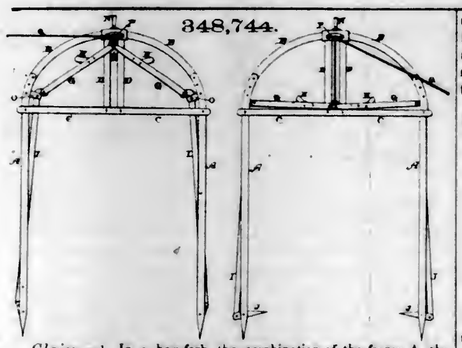
3. The combination of the four levers I J L N, pivoted together in pairs, connected together at their inner ends, and provided with perforations for the passage of the wires, and transverse recesses, as shown and described, with the operating-lever connected to both pairs of levers, the base upon which all of the levers are pivoted, and which is provided with openings for the wires, and the tension devices for the wires, substantially as specified.

348,743. CORK-PULLER. JOHN A. HURLEY, Erie, Pa., assignor to the F. F. Adams Company, same place. Filed Oct. 5, 1885. (No model.)



Claim.—In a cork-puller, the combination of the supporting-frame A A', the part A' having the flaring mouth *a*, the inwardly-projecting pins a^2, and the slot *a'*, the hollow plunger C within the part A' of the frame, and having the grooves *c'*, the pin *c*, extending through slot *a'* in the part A', the actuating-lever B, pivoted to the frame, and having the slot *b'* engaging with the pin *c*, and the crank-shaft D D', with cork-screw D^2 thereon, journaled and longitudinally movable within and with said plunger C.

348,744. HAY-FORK. MONROE R. JENKINS, Red Creek, N. Y. Filed May 6, 1886. (No model.)

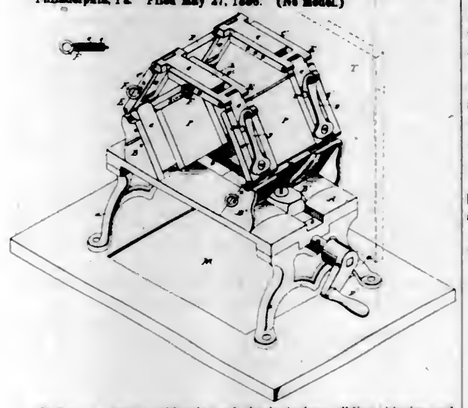


348,744.

Claim.—1. In a hay-fork, the combination of the frame A, the guides D, the slide E, the connecting-rods G, pivoted supports O, the rods I, the tines J, and the trip-rope, substantially as described.

2. In a hay-fork, the combination of the frame A, the guides D, the slide E, the rods G, connected to slide and provided with the foot-pieces H, supports O, rods I, the tines J, and the trip-rope, substantially as set forth.

348,745. CIGAR-BUNDLING MACHINE. FEODOR THEO. KARSCH, Philadelphia, Pa. Filed May 27, 1886. (No model.)



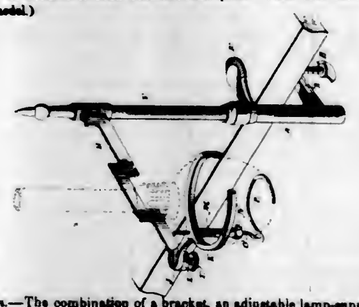
Claim.—1. The combination of the bed-plate, sliding blocks, and feed-screw with adjustable hinged sections E.

2. The combination of a bed-plate and sliding blocks B B' with adjustable hinged sections, each consisting of legs *e* and bifurcated legs *e'*, adjustably adapted to each other, substantially as described.

3. The combination of the bed-plate and sliding blocks B B' with hinged sections, each consisting of a leg, *e*, a bifurcated leg, *e'*, and a retaining-pin, and holes in the legs, whereby they may be secured to each other.

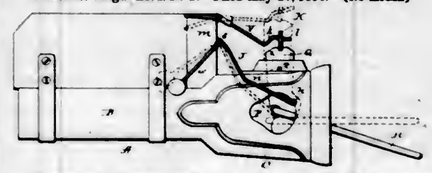
4. The combination of the bed-plate and sliding blocks B B' with adjustable hinged sections and a spring-hook and catch-connection between the end sections, substantially as set forth.

348,746. LAMP-SUPPORT. HARRISON T. KEITH, Princeton, Ind., assignor of one-half to John Schaible, same place. Filed Mar. 15, 1886. (No model.)



Claim.—The combination of a bracket, an adjustable lamp-supporting frame having a tube projecting perpendicularly from its under side, a set-screw in the tube near one end thereof, and a supplemental reversible supporting-frame formed of one piece of wire with one end bent into a partial ring and the other bent at right angles to the plane of the ring, said supplemental frame adapted to fit adjustably in said tube, substantially as and for the purpose shown and described.

348,747. CAR-COUPLING. SYLVESTER A. KILMER and E. JAMES CRANDELL, Binghamton, N. Y. Filed May 27, 1886. (No model.)



Claim.—1. A draw-head for coupling-links, having a transverse throat, and in rear thereof an opening having a rearwardly and upwardly curved guide-floor, and a slot in its upper wall, in combination with a laterally-flattened claw-shaped key resting on said guide-floor and adapted to rise on said guide-floor when pushed by the entering link, substantially as specified.

2. The combination, with a draw-head having a narrow key-slot formed with an offset in its lower front portion, as at *a*, of the laterally-flattened key having the taper wall *f*, the shoulder *b*, and the lower rounded claw recessed in rear, substantially as specified.

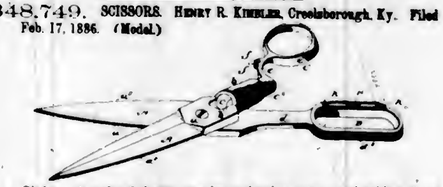
3. The combination, with the draw-head having a key-slot and the key having a shoulder in rear of a top lug formed with an eye opening from front to rear, of a hand-lever having an oblique or stop bend adapted, when raised, to engage said shoulder, substantially as specified.

4. The combination, with the draw-head having a key-slot, a narrow mouth, D, and a transverse opening, P, in rear of said mouth, of the lever J, having the weighted arm W, and the front arm, *n*, formed with the inwardly-directed finger A, substantially as specified.

348,748. COMPOSITION FOR MEDICATING BED-QUILTS. CLARA M. KIMBALL, Milwaukee, Wis. Filed Nov. 17, 1885. (No specimens.)

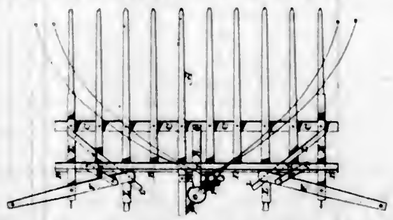
Claim.—A composition of matter for interposition between the layers of a quilt, consisting of cotton batting impregnated with carbolic acid, ammonia, gum camphor, and thymol, substantially as set forth.

348,749. SCISSORS. HENRY R. KIMBLER, Crooksborough, Ky. Filed Feb. 17, 1886. (Model.)



Claim.—A pair of shears or scissors having a lug or shoulder, *f*, on one edge of one of the handles thereof, a flaring thread-opening, f^2, in the lug, a needle-opening, f^3, at an angle to the thread-opening, and a binding-arm arranged to clamp the needle in the needle-opening f^3, substantially as described.

348,750. HORSE HAY-RAKE. OBED H. KING and WILLIAM T. KING, Houghton, Iowa. Filed Dec. 16, 1885. (No model.)

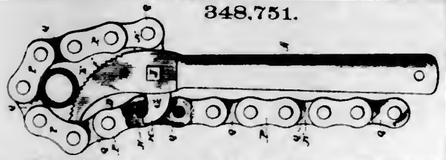


Claim.—1. The combination of the two extended teeth of the rake, one of which is provided with a notch or catch, the stringer D, which extends across the teeth, and the lever Q, pivoted upon one of the extended teeth in the rear of the stringer and which is adapted to catch in the notch in the other extended tooth, substantially as shown.

2. The combination of the hay-rake, the lever-supports placed upon the rear corners thereof, the levers pivoted upon the rear ends of the supports, the batten which moves upon the top of the rake, and the stops for the ends of the levers F to strike against, substantially as specified.

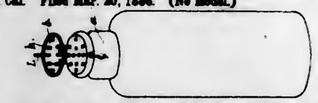
348,751. PIPE-WRENCH. JOHN LEIB, Sandy Run, Pa. Filed July 22, 1886. (No model.)

348,751.



Claim.—The combination, with the slotted lever having the convex serrated or toothed point, of the sprocket-chain provided with the slotted pointed dog at one end secured in the slotted lever by a bolt, substantially as specified.

348,752. SPICE AND DREDGING BOX. LEON LEMON, San Francisco, Cal. Filed Mar. 20, 1886. (No model.)

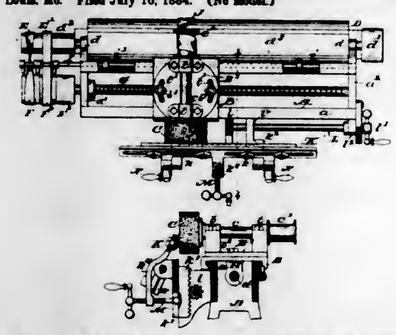


Claim.—1. In a condiment or dredging box having a perforated cap or cover, the hinged supplemental cover provided with projecting pins and adapted to shut over the perforated cap and cause the pins to enter the holes thereof, in the manner and for the purpose specified.

2. In a condiment or dredging box having a perforated cap or cover and a hinged supplemental cover provided with pins and adapted to shut over the perforated cap and cause the pins to enter the holes therein, the means for operating the said supplemental cover, consisting of the resilient spring, as described.

3. In a condiment or dredging box having a perforated cap and supplemental cover, with projecting pins adapted to shut over the perforated cap and cause the pins to enter the holes therein, the spring-arm and catch for holding the supplemental cover in position, as described.

348,753. AUTOMATIC KNIFE-GRINDER. CHARLES J. LE ROY, St. Louis, Mo. Filed July 10, 1884. (No model.)



Claim.—1. The combination, in a knife-grinder, of the grinding-wheel C, the pivoted slide and support B', operated as described, and the knife-holder K, said grinding-wheel being adjustable to enable its outer side to be arranged parallel with or to be inclined to the knife, substantially as and for the purpose described.

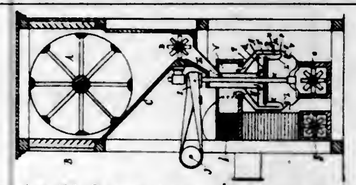
2. The combination of the frame A, having the bed-plate *a*, the slide B, the pivoted upper portion, B', having concentric slots *b'*, the bolts and nuts b^2, the feed-shaft G, the projections *i i'*, the grinding-wheel C, and the knife-holder K, substantially as described.

3. The combination of the frame A, the main shaft D, the elongated drum d^2, the belt J, the pulley *c'*, the shaft *c*, the grinding-wheel C, the slide B, having the pivoted upper portion, B', provided with concentric slots *b'*, the bolts and nuts b^2, and the knife-holder K, journaled at *k*, and vertically adjustable and movable toward and from the grinding-wheel, substantially as described.

4. In a knife-grinding machine, the knife-holder K, made vertically adjustable, and also adjustable toward and from the side of the grinding-wheel, in combination with the grinding-wheel C, the pivoted and adjustable slide B, and the shaft G, substantially as described.

5. The combination of a frame, A, the slide B, the shaft *c*, the pulley *c'*, the grinding-wheel C, the knife-holder K, the pulleys *d' d²*, the pulleys F F' F², the belts E E' J, the elongated drum d^2, the screw-shaft G, and the belt-shifter I, substantially as described.

348,754. MIDDLINGS-PURIFIER. WILLIAM H. LEEDS, Jackson, assignor of one-half to Allen W. Atterbury, Detroit, Mich. Filed Jan. 29, 1886. (No model.)



Claim.—1. In a middlings-purifier, the combination of the feed-spout E, conveyer D at the entrance of said spout, the cylindrical case R, the rotary disk G, arranged to spread the material by centrifugal force, the cylindrical partition F, forming annular passages M U, said passage M arranged to receive and carry the material, the lateral discharge-spout P, and means for producing an upward air-current through passage U, all arranged and operating substantially as described.

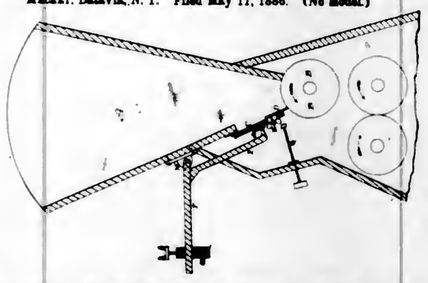
2. In a middlings-purifier, the combination of the horizontal revolving disk G, the cylindrical case R, the cylindrical partition F_1 placed concentrically to the case and disk and forming therewith and the wall K the passages N U O, the central feed-spout, E, connecting with said passage N, the cylindrical wall K, having outwardly-deflecting flange L, and forming the passage M and the annular discharge-opening P, and means for producing an upward air-current, all arranged and operating to spread the material, substantially as described.

3. In a middlings-purifier, the combination, with the disk G, partition F, wall K, and the concentric inclosed case R, all arranged, as described, to form the passage N U O, of the inwardly-inclined flange S at the lower end of said case, the hopper Z below said flange, having an annular opening, Y, between the same, and means for producing an upward air-current, substantially as and for the purpose specified.

4. In a middlings-purifier, the combination, with the rotary disk G, cylindrical wall K, partition F, and case R, constructed and arranged to form the passages N U O, as described, of the trunk V, communicating with the passage U, outwardly-deflecting flange L at the lower end of the wall K, inwardly-inclined flange S at the lower end of the case R, the hopper Z below said flange S, having an annular opening, Y, between said flange and hopper, and means for producing an air-current through passage U and trunk V, substantially as and for the purpose specified.

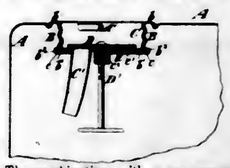
5. The combination with the flue *b* and the trunk-flues V, connected with said flues, of valves *d* at the points of connection of said flues, separator-trunks *e*, each provided with a hinged valve, *f*, and the conveyer *g*, all combined, arranged, and operating substantially as and for the purposes specified.

348,755. FEED-REGULATOR FOR ROLLER-MILLS. DAVID S. MACKEY, Batavia, N. Y. Filed May 11, 1886. (No model.)



Claim.—The combination of the hopper A, roller B, and hinged slotted board C with the adjustable plate D, lever F, weight G, and the set-screw Q, which is passed through the side of the hopper to regulate the distance the board C shall move backward, substantially as described.

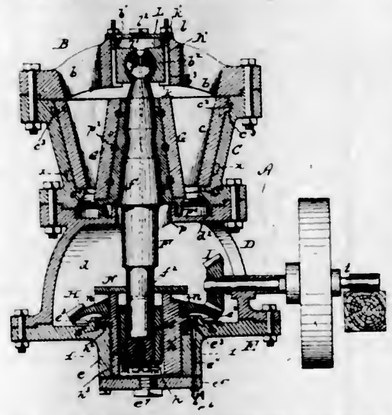
348,756. FAUCET FOR SHIPPING-CANS, &c. JOHN MARSHALL, Brooklyn, N. Y. Filed May 4, 1886. (No model.)



Claim.—1. The combination, with a can provided with a screw-threaded socket which extends thereinto, and the outer end of which is approximately flush with the exterior of the can, of the reversible bung C, closed at one end and provided at that end with a pouring-spout, a valve contained within the bung and closing on the closed end of the bung over the pouring-spout, and a screw-rod working through the closed end of the bung for operating the valve, substantially as herein described.

2. The combination, with a can provided with the screw-threaded socket B, extending within it, and at the inner end of which is an inwardly-turned flange, *b'*, for supporting a packing, *c*, and an annular groove, b^2, larger in diameter than the screw-thread, for retaining the packing, of the reversible bung C, closed at the end and provided with a pouring-spout, C', the valve D, within the bung, for closing the pouring-spout, and a screw-rod working through the closed end of the bung, for operating the valve, substantially as herein described.

348,757. CRUSHING-MACHINE. ROBERT MCCULLY, Philadelphia, Pa. Filed Aug. 4, 1885. (No model.)



Claim.—1. In a crushing-mill, an eccentrically-gyrating shaft, in combination with devices for wholly and freely suspending the shaft and for adjusting it from the top of the machine, substantially as shown and described.

2. In a crushing-machine, the combination of a crushing-chamber, an eccentrically-gyrating shaft and crusher-head, suitable boxes for the fulcrum of the shaft, and devices for supporting said boxes and moving them up and down to adjust the shaft and the crusher-head, as and for the purpose set forth.

3. In a crushing-machine, the eccentrically-gyrating shaft F, in combination with boxes b^2, cap L, and supporting and adjusting devices K, substantially as shown and described.

4. The combination of frame A, having crushing-chamber C and top section, B, provided with central opening, *b'*, eccentrically-gyrating shaft F, having crusher-head G, boxes b^2, cap L, and supporting and adjusting bolts K, substantially as shown and described.

5. In a crushing-machine, the combination of annular crushing-chamber C, having at its lower edge an inwardly-projecting annular shoulder, *c'*, and at its upper edge annular recesses or grooves c^2, annular crushing-faces *c*, the bottom edges of which rest upon shoulder *c'* and have outside flanges, c^3, fitting in grooves c^2, and top plate, B, substantially as shown and described.

6. In a crushing-machine, the combination of a crushing-chamber, an outlet-chamber having chuteways and an upwardly-projecting flange, *p*, an eccentrically-gyrating shaft having sleeve P, provided with shoulder P^1, and depending flange *p'*, surrounding flange *p*, and the crusher-head G, secured to said sleeve, substantially as shown and described.

7. In a crushing-machine, the combination of tubular shaft F, having lateral ducts f^1, driving-gear H, having hub h^1, provided with an eccentric bore, *h*, an outside annular flange, h^2, and vertical groove or recess h^3, extending downwardly from flange h^2, bottom section E, having bearing *e*, gutter e^2, plate e^3, and a valved outlet-duct, e^4, leading from gutter e^2, substantially as shown and described

8. In a crushing-machine, the combination of tubular shaft F, having lateral openings f^1, cap or cover L, having oil-supply opening l', driving-gear H, eccentric hub h' for said shaft, having outside flange, h^2, and vertical groove h^3, bottom section, E, having bearing *e*, gutter e^2, valved duct e^4, and plate e^3, provided with drain-outlet e^7, substantially as shown and described.

9. In a crushing-machine, the combination, with its gyratory shaft F, of driving-wheel H, having projections *n*, and a plate or collar, N, loose on shaft F and resting upon the upper edge of the hub of wheel H, as and for the purpose set forth.

10. In a crushing-machine, the combination of a suitable crushing-chamber, chamber D, having two oppositely-located chutes, *d d*, the upper or meeting edges of which form a diametrical ridge across the top of said chamber, and a central opening having upwardly-projecting flange *p* in said ridge, and a gyratory crusher-head, G, having bottom flange *p'*, surrounding flange *p*, substantially as shown and described.

11. In a crushing-machine, the combination of a suitable crushing-chamber, shaft F, having crusher-head G, driving-wheel H, having eccentrically-arranged bore, and sleeve M, tapering on its outside in opposite directions from its middle to its ends, as and for the purpose set forth.

12. In a crushing-machine, the combination of shaft F, having ball-fulcrum *f*, boxes b^2, supporting and adjusting mechanism for said boxes, driving-gear H, having eccentric bore *h*, sleeve M, loosely secured to the lower end of shaft F, and washer and screw device *m m'*, substantially as shown and described.

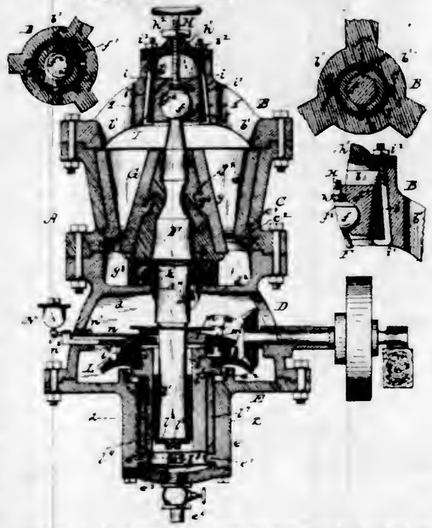
13. In a crushing-machine, the combination of a suitable crushing-chamber, top plate, B, tubular gyrating shaft having ball-fulcrum *f* and crusher-head G, boxes b^2, bolts K, for supporting and adjusting said shaft and crusher-head, and plate L, having removable plug l^3, substantially as shown and described.

14. In a crushing-machine having a tubular gyrating shaft with lateral ducts f^1, in combination with driving-wheel H, having vertical recess h^3, and plate E, having bearing *e*, gutter e^2, and outlet e^4 from the latter, substantially as shown and described.

15. In a crushing-machine, the shaft E, having a sleeve, P, cast directly thereon, and crushing-faces G', affixed to said sleeve by lead or like metal keys p^1, substantially as shown and described.

16. In a crushing-machine, a suitable crushing-chamber and crusher-head having crushing and pulverizing faces combined with a gyratory shaft for said crusher-head, having a ball-fulcrum, boxes for said fulcrum, and supporting and adjusting screws K for said boxes, substantially as shown and described.

348,758. CRUSHING-MACHINE. ROBERT MCCULLY, Philadelphia, Pa. Filed Aug. 4, 1885. (No model.)



Claim.—1. In a crushing-machine, an eccentrically-gyrating shaft having a ball-fulcrum, sliding boxes for the fulcrum, a supporting and adjusting-screw for said shaft and boxes, and means, substantially as described, for taking up the wear of said fulcrum and boxes, and for sustaining the weight and pressure of the crusher-head and its shaft.

2. In a crushing-machine, the combination of shaft F, having ball-fulcrum *f*, the boxes f^*, having screw H, cap *h'*, ring-sections I, wedge-shaped in cross-section, and bolts *i*, substantially as shown and described.

3. In a crushing-machine, the shaft F, having crusher-head G, composed of sleeve G' and facing *g*, united by lugs g^* on said facing, entering L-shaped slots formed in said sleeve, substantially as shown and described.

4. In a crushing-machine, the combination of annular crushing-chamber C, having inside shoulder, *c'*, running into or forming part of an annular groove, c^2, correspondingly-shaped facings *c*, having outside ribs or flanges, c^3, fitted into said groove, and the top plate, B, substantially as shown and described.

5. In a crushing-machine, the combination of gyrating shaft F, crushing-chamber C, chamber D, provided with upwardly-projecting flange, opening d^{12}, having bead d^{11}, and gasket or washer *k'*, having its greatest vertical thickness at its middle, and washer *k*, substantially as shown and described.

6. The combination, in a crushing-machine having a gyrating shaft and suitable crushing-chamber, of chamber D, provided with shaft-opening, flange d^{12}, having bead d^{11}, and flexible gasket or washer k', of unequal width in cross-section, substantially as shown and described.

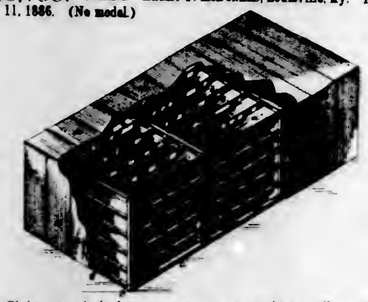
7. In a crushing-machine, the combination of a suitable crushing-chamber, a gyratory shaft, F, having a crusher-head, eccentric driving-gear L, having gutter l^6, washer m, loose on said shaft, and having depending flange m', extension n^3, oil-pipe n, and cup N, substantially as shown and described.

8. In combination with shaft F, sleeve l', wheel L, having eccentric bore l and shoulder l^5, the sleeve l^7, having notches l^8, and bearing e, having lugs e', adapted to said notches, substantially as shown and described.

9. In combination with shaft F, sleeve l', wheel L, having eccentric bore l and shoulder l^5, the sleeve l^7, having notches l^8, adapted to lugs e' in bearing e, and vertical grooves formed in said bearing, sleeves, and hub of wheel L, substantially as shown and described.

10. In a crushing-machine, the chamber D, having oppositely-located chutes d' d, connected by an outside spout, d^3, substantially as shown and described.

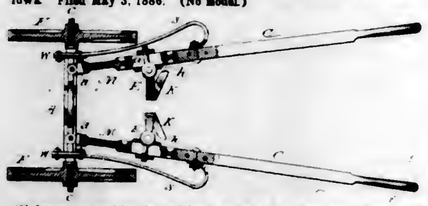
348,759. DRIER. HARRY P. MCDONALD, Louisville, Ky. Filed Feb. 11, 1886. (No model.)



Claim.—1. A drying room or structure whose walls or inclosing sides and roof are composed of the outer and inner layers of canvas and the series of partitions which divide the intervening space into compartments, as and for the purpose specified.

2. The combination of the outer covering, a, and inner covering, a', both made of canvas, and the interposed partitions b, and a frame, c, c', which affords the requisite support to form an improved drying room or inclosure, as specified.

348,760. WHEEL-CULTIVATOR. JAMES MCGEE, Scott County, Iowa. Filed May 3, 1886. (No model.)



Claim.—In combination with a two-wheeled hand-cultivator having an arched axle, two rear laterally-moving beams with shovels or knives and handles for propelling or guiding connected therewith, the curved springs S S, each attached at one end to the axle between the wheel and beam and at the opposite end to the handle, so as to exert a force to move the beam outwardly toward the wheel and act as a brace between the axle and rear laterally-moving beam, substantially as described.

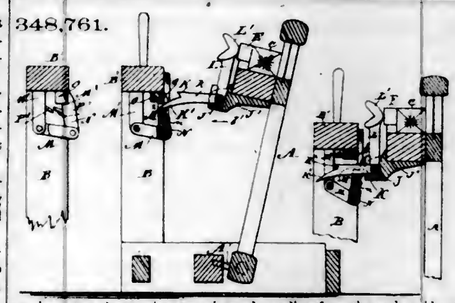
348,761. STOP-MOTION FOR LOOMS. JOHN MISSON, Adams, Mass. Filed Apr. 14, 1885. (No model.)

Claim.—1. The combination, with the breast-beam, the usual bunter thereon, the lay, and shipper-lever, of a supplementary bunter on the breast-beam, a forked dagger on the lay, and means for raising and lowering the dagger to cause its prongs to strike one or the other of the bunters to operate the shipper-lever to stop the loom when the shuttle is out of the box or should it fail to enter the same at the proper time, substantially as herein shown and described.

2. The combination, with the breast-beam, the usual bunter thereon, the lay, and shipper-lever, of a supplementary bunter on the breast-beam, a shaft journaled on the lay, a forked dagger on the shaft, levers on the ends of the shaft, and levers on the lay and engaging the levers on the shaft, substantially as herein shown and described.

3. The combination, with the breast-beam, lay, and shipper-lever, of an ordinary bunter pivoted to the under side of the breast-beam, a

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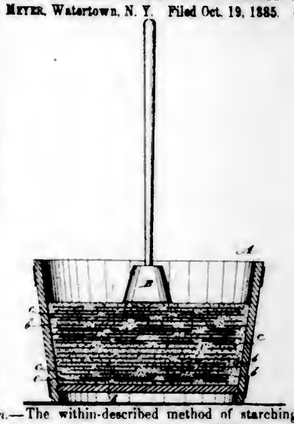
supplementary bunter hung on jaws depending from the under side of the breast-beam and having its upper end resting against the ordinary bunter, a shaft journaled on the lay, a dagger at the center of the shaft, upwardly-projecting levers on the ends of the shaft, and levers pivoted to the lay and engaging the levers on the shaft, substantially as herein shown and described.

4. The combination, with a breast-beam and a lay, of a shaft, a dagger, the levers E L, the bunter O on the breast-beam, the hangers M', the forked piece M, the supplementary bunter N, the spring P, the lever S, connected with the said forked piece M, the sliding frame R, the belt-shifting lever Q, and a projection on the sliding frame R for acting on the said belt-shifting rod or lever Q, substantially as herein shown and described.

5. The combination, with a breast-beam and a lay, of a shaft, a dagger thereon, the levers E L, the bunter O on the breast-beam, the hangers M', the forked piece M, the supplementary bunter N, the spring P, the lever S, the slide R, connected with the same and having the button R', the slotted guide-arm Q^2, having a notch, Q^3, and the belt-shifting lever Q, substantially as herein shown and described.

6. The combination, with the breast-beam and lay, of jaws M', projecting down from the breast-beam, the forked piece M, pivoted to the same, the bunter O, the supplementary bunter N, pivoted to the forked piece M, and the pins P' and P^2 on the jaws M' and the supplementary bunter N, substantially as herein shown and described.

348,762. METHOD OF STARCHING WASHED GOODS. ERNEST A. E. MEYER, Watertown, N. Y. Filed Oct. 19, 1885. (No model.)



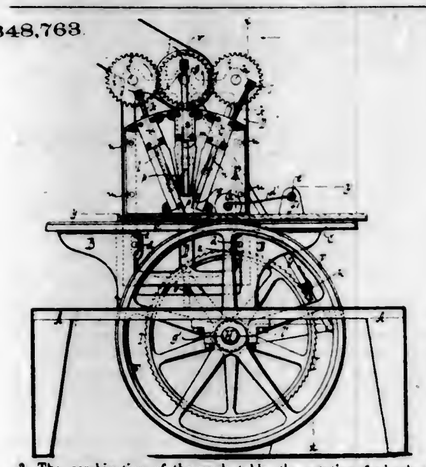
Claim.—The within-described method of starching collars, cuffs, and other washed goods, which consists in building up within a suitable stationary receptacle alternate layers of hot starch and the goods to be starched, and then driving or beating the starch into the goods by mechanically pounding the whole mass within the receptacle, substantially as specified.

348,763. MACHINE FOR CUTTING FELT AND OTHER MATERIALS. JOHN W. MILLET, Dolgeville, assignor to Alfred Dolge, New York, N. Y. Filed June 10, 1886. (No model.)

Claim.—1. The combination of the work-table and feed mechanism with a cutting mechanism consisting of two knives movable in planes at oblique angles toward the table, means for operating the knives, the frame supporting the cutting mechanism, and means for adjusting the supporting-frame in a vertical plane for increasing and decreasing the cutting depth of knives, substantially as described.

2. The combination of the work-table, the rotating feed-wheel, means for imparting a step-by-step movement to the feed-wheel, the two knives movable in planes at oblique angles toward the table, and mechanism for operating the knives, substantially as described.

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3. The combination of the work-table, the rotating feed-wheel, means for imparting a step-by-step movement to the feed-wheel, a cutting mechanism comprising two knives movable in planes at oblique angles toward the table, mechanism for operating the knives, a frame supporting the cutting mechanism, and devices for adjusting the frame in a vertical plane to increase and decrease the cutting depth of the knives, substantially as described.

4. The combination, with the table C and a feed mechanism, substantially as described, of two knives moving in planes at oblique angles toward the table, a knife moving in a plane at right angles to the table, and mechanism for operating the knives, substantially as described.

5. The combination, with the table C and a feed mechanism, substantially as described, of a cutting mechanism consisting of two knives moving in planes at oblique angles toward the table, a knife moving in a plane at right angles to the table, and mechanism for operating the knives, the frame D, supporting said cutting mechanism, and means for adjusting said frame in a vertical direction, substantially as described.

6. The combination, with the table C, of two knives moving in planes at oblique angles toward the table, a knife moving in a plane at right angles toward the table, and mechanism for operating said knives, substantially as described.

7. The combination of the work-table, a frame, D, above the table, a series of geared wheels, i, having eccentric pins j, and journaled on the frame, pitmen k, connected with the said pins, knives connected with the pitmen and moving in planes at oblique angles toward the table, and mechanism for rotating the geared wheels, substantially as described.

8. The combination of the work-table, a frame, D, above the table, a series of geared wheels, i, having eccentric pins j, and journaled on the frame, pitmen k, connected with said pins, knives connected with the pitmen and movable in planes at oblique angles toward the table, means for rotating the geared wheels, and a feed mechanism operating through the work-table, substantially as described.

9. The combination, with the table C and a cutting mechanism consisting of two knives, o q, moving in planes at oblique angles toward the table, and of an intermediate knife, p, moving in a plane at right angles toward the table, of the feed-wheel F, mechanism for imparting to said feed-wheel a step-by-step motion, and the presser-wheel G, substantially as described.

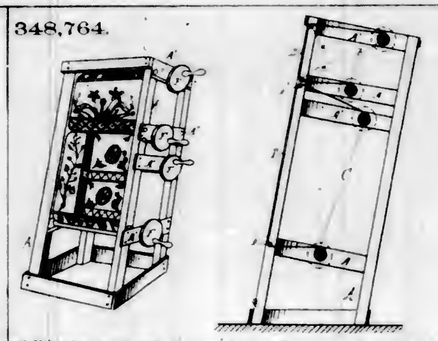
10. The combination, with the table C, the groove c' in said table, the cutting mechanism consisting of two knives, o q, moving in planes at an oblique angle toward the table, and of an intermediate knife, p, moving in a plane at right angles toward the table, of the feed-wheel F, mechanism for imparting to said feed-wheel a step-by-step motion, and the presser-wheel G, substantially as described.

11. The combination, with the table C and the cutting mechanism consisting of two knives, o q, moving in planes at oblique angles toward the table, and of an intermediate knife, p, moving in a plane at right angles to the table, of the feed-wheel F, the ratchet-wheel I, the shaft H, carrying both the feed-wheel and the ratchet-wheel, the pawl h', the rod l', the disk k', carrying the pin j', and means for rotating said disk, substantially as described.

348,764. WALL-PAPER-EXHIBITING DEVICE. CHARLES J. MITCHELL, St. Clair, Mich. Filed Dec. 10, 1884. (No model.)

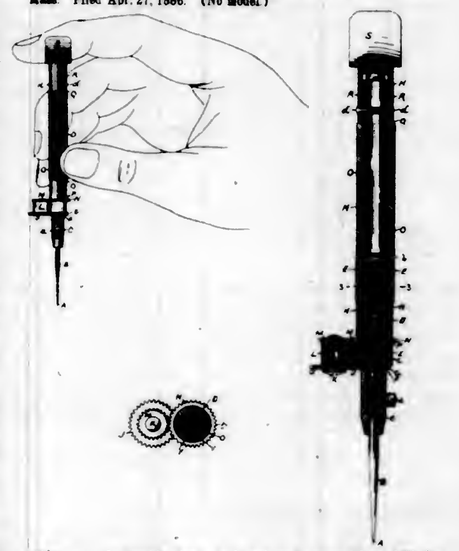
Claim.—The improved wall-paper-exhibiting device herein described, consisting of the skeleton frame A, rails A', bracing the same and forming bearing for the shafts B C, said shafts B C, the four guide-rolls a a' b b', all arranged in line in the front of the frame and the rolls

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a' b' in close proximity, the long apron F, passing over said shafts C and guide-rolls b b', the short apron D, passing around the shafts B and over rolls a a', and the crank-wheels E, secured to said shafts, all combined for joint operation as and for the purposes specified.

348,765. SCREW AND DRILL TOOL. OLIVER L. NEAL, Waltham, Mass. Filed Apr. 27, 1886. (No model.)



Claim.—1. In combination, a tool, such as a screw-driver, drill, &c., carried by a spindle, D, incased and turning in a barrel, H, a handle, O, turning upon said barrel, and a train of meshing wheels connecting the tool and said handle, substantially as described, for the purpose specified.

2. In combination, a tool, such as a screw-driver, drill, &c., carried by a spindle, D, incased and turning in a barrel, H, a handle, O, turning upon, and a finger-rest, S, attached to, said barrel, and a train of meshing wheels connecting the tool and handle, substantially as described, for the purpose specified.

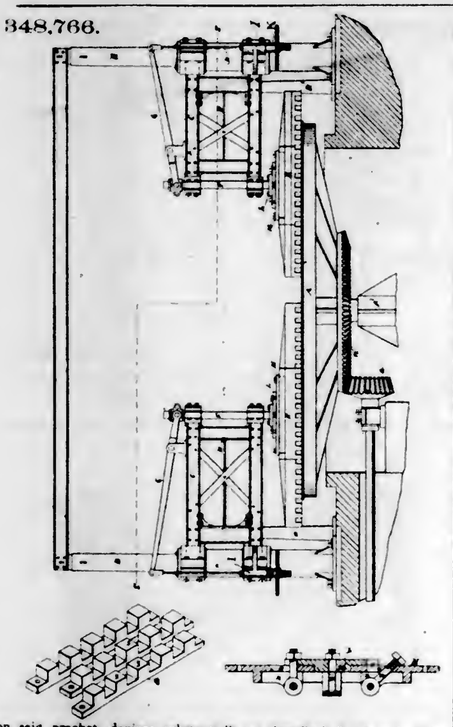
3. In combination, a tool, such as a screw-driver, drill, &c., carried by a spindle, D, a sleeve, E, in which said spindle turns, a barrel, H, fitting said sleeve friction-tight, a handle, O, turning on said barrel H and a train of meshing gears connecting the tool and handle, substantially as described, for the purpose specified.

348,766. MACHINE FOR GRINDING AND SMOOTHING PLATE GLASS. GEORGE F. NEALE and MATTHEW P. ELLIOTT, Crystal City, Mo. Filed Nov. 9, 1885. (No model.)

Claim.—1. In a machine for grinding and smoothing plate-glass, the combination of a revolving table to receive the plates of glass, one or more grinding or smoothing runners loosely journaled, a hinged bracket in which the runner is journaled, a lifting-lever mounted on the hinged bracket and pivoted to the shaft of the runner, a lifting-rod pivoted to the end of the lever and threaded at its lower end, and a threaded nut engaging with the lifting-rod and the bracket, so as to raise and lower the runner as is desired, substantially as and for the purpose described.

2. In a machine for grinding and smoothing plate-glass, the combination of the revolving table, one or more grinding or smoothing runners journaled in a hinged bracket, a raising or lowering lever fulcrumed

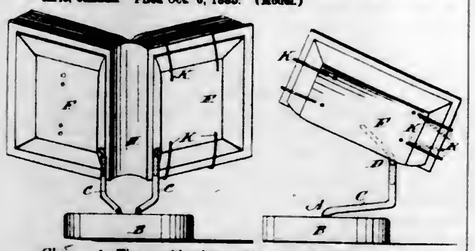
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on said bracket, devices, substantially as described, for operating the lever, and a tie-rod hinged to said bracket and detachably secured to a stationary standard, substantially as and for the purpose described.

3. In a machine for grinding or smoothing plate-glass, a runner composed of an upper frame or plate, L, having a central projection and slots, substantially as described, a lower plate or frame, M, having a central opening, m', to receive the projection of the plate L, slots O, and bolts m, with their nuts hinged in sockets n, the whole combined and operating substantially as described, and for the purpose specified.

348,767. BOOK-HOLDER. JOSEPH H. PARADIS, Amherstburg, Ontario, Canada. Filed Oct. 6, 1885. (Model.)

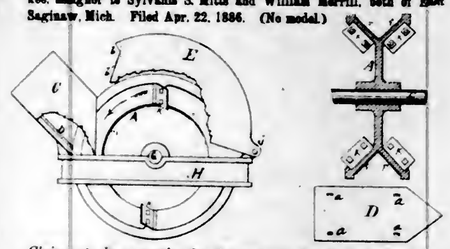


Claim.—1. The combination, with a base, of bent wires mounted to turn in the same, bent tubes held on the upper ends of the said wires, bent wires passed into the upper ends of the said tubes, and of two covers, into holes in the backs of which the upper bent ends of the upper wires are passed, substantially as herein shown and described.

2. The combination, with the base B, of the bent wires A, mounted to turn in the same, the bent tubes C, held on the upper ends of the wires A, the bent wires D, passed into the upper ends of the tubes C, and of the covers F, having inclined holes in the back edges, into which holes the upper ends of the wires D are passed, substantially as herein shown and described.

3. The combination, with the base B, of the bent wires A, mounted to turn in the same, the bent tubes C, mounted to turn with the upper ends of the wires A, the bent wires D in the upper ends of the tubes C, the covers F, having holes in their back edges, into which holes the upper ends of the wires D are passed, a book, &c., between the covers F, and of devices for holding the book-covers on the covers F, substantially as herein shown and described.

348,768. WOOD-CUTTING MACHINE. EDWARD G. PAKE, Zilwaukee, assignor to Sylvania S. Mitts and William Merrill, both of East Saginaw, Mich. Filed Apr. 22, 1886. (No model.)

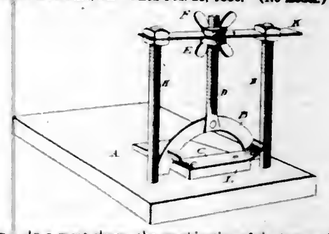


Claim.—1. In a machine for the purpose described, the combination of the knife-bearing wheel having a V-shaped periphery, an inclined feed-spout, and an endwise-adjustable throat-plate adapted to the periphery and knives of the said wheel, substantially as described.

2. In a machine for the purpose described, the combination of the hinged hood E, the inclined feed-spout provided with an adjustable throat-plate and arranged to receive the free end b b' of said hood, and the cutter-bearing wheel, substantially as described.

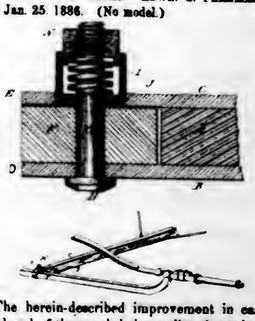
3. In a machine for the purpose described, the combination of a revolving wheel having knives projecting through its rims at an angle to each other and tangent to the axis of the said wheel, a frame having rigidly secured to it a feed-spout provided with an adjustable throat-plate and partly embracing the sides of the wheel, and a hood adapted to cover this wheel and to abut when down against the end of the said spout, substantially as described.

348,769. MEAT-CLAMP. WILLIAM PARKS, Sr., and WILLIAM LEVI PARKS, Jr., Meadville, Pa. Filed Feb. 25, 1886. (No model.)



Claim.—In a meat-clamp, the combination of the bottom board, A, the wedge-shaped board L, secured thereto and provided with the jaw C, the uprights H, apertured cross-piece K, screw-bolt D, semicircular jaw B, and nuts E F, substantially as described.

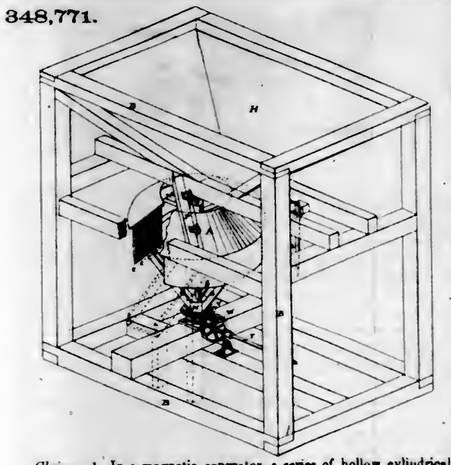
348,770. CARRIAGE-GEAR. EDWIN S. PARMELEE, Wallingford, Conn. Filed Jan. 25, 1886. (No model.)



Claim.—The herein-described improvement in carriage-gear, in which the forward end of the perch is hung directly to the forward axle, the combination of the perch and axle, the perch constructed with an ear upon its upper and its lower sides, the said ears extending forward and adapted to embrace the forward axle, with a king-bolt extending through said ears and axle, with a head upon one side to bear upon one of said ears, a cup-shaped collar around the bolt upon the side of the axle opposite the head of the bolt, the said collar extending through a concentric opening in the ear on that side, a spring in said cup-shaped collar around the bolt, and a nut on said bolt adapted to bear upon said spring, substantially as described, and whereby the said axle is grasped between the ear on one side of the perch and the said cup-shaped collar upon the opposite side.

348,771. MAGNETIC-ORE SEPARATOR. CLARENCE Q. PAYNE, Stamford, Conn. Filed Apr. 8, 1886. (No model.)

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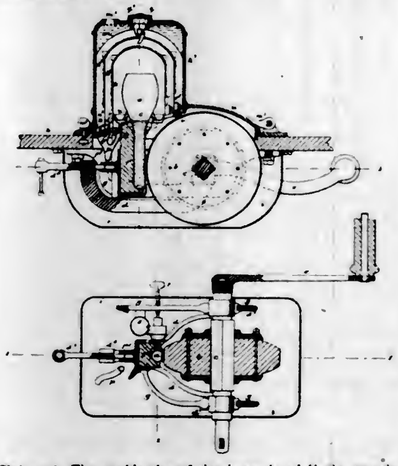
Claim.—1. In a magnetic separator, a series of hollow cylindrical magnets placed one within the other and mounted upon a vertical shaft, constructed to revolve, substantially as described.

2. In a magnetic separator, a number of magnets the poles of which form an annular or conical surface, said magnets being mounted upon a shaft, so as to revolve about the axis of the annulus or cone, substantially as described.

3. In a magnetic separator, a series of hollow concentric iron cylinders mounted upon a vertical shaft, so as to revolve about their common axis, the upper ends or poles of which cylinders form part of annular or conical surface, in combination with wires or electrical conductors wound between said cylinders, substantially as described.

4. The method of separating magnetic from non-magnetic particles, consisting in subjecting the mixed particles to magnetic attraction acting on the former and centrifugal force upon the latter, the two forces acting in opposite directions—that is, in directions forming with each other an angle greater than a right angle—substantially as described.

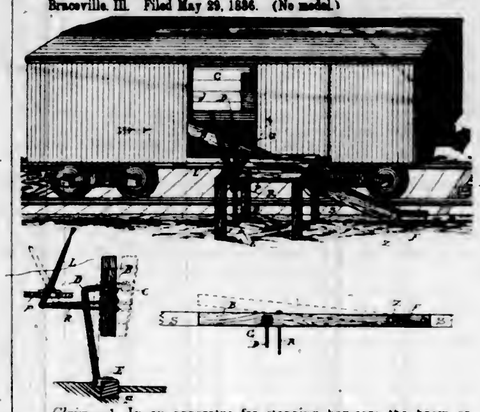
348,772. MEANS FOR VAPORIZING AND DISTILLING LIQUIDS. LIONEL H. PEARCE, Coalbourne Brook, Stourbridge, County of Worcester, England. Filed Nov. 23, 1885. (No model.) Patented in England Mar. 20, 1885, No. 3,597; in France Oct. 14, 1885, No. 159,034, and in Germany Oct. 14, 1885, No. 12,039.



Claim.—1. The combination of the domes k and k', the troughs n and n', the troughs r and r', the distilling-vessel a, and the rubber for producing heat by friction in the liquid in the vessel a, substantially as set forth.

2. The combination of the inclosing-chamber k^2, the water-tank m, the domes k and k', the several channels for carrying off the distilled water, the vessel a, arranged within dome k, and the adjustable rotary rubber b, arranged to rotate in contact with the vessel a, substantially as described.

348,773. APPARATUS FOR STOPPING CARS. RICHARD RAMSAY, Bracoville, Ill. Filed May 29, 1886. (No model.)



Claim.—1. In an apparatus for stopping box-cars, the beam or buffer B, arranged substantially as set forth and pivotally secured to a fixed sill or anchor at its lower end, and adapted to have its free extending end swung to one side, for the purpose specified.

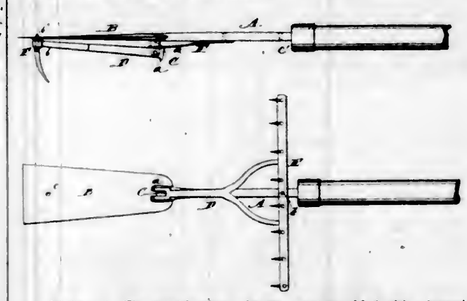
2. In the apparatus described, the combination, with the beam or buffer B, of the supporting-arm D and means, substantially as set forth, for operating said beam or buffer, as and for the purpose specified.

3. In the apparatus described, the combination of beam or buffer B and means for supporting its free extending end with the lever L and connecting-rod R, substantially as and for the purpose set forth.

4. In an apparatus for stopping box-cars, the combination of the swinging beam or buffer B, arm D, lever L, and connecting-rod R, constructed and arranged to operate substantially as set forth.

5. The combination of beam or buffer B, having its lower end pivotally secured to sill S by means of bolt Z, re-enforcing block F, supporting-arm D, lever L, and connecting-rod R, arranged to operate to give lateral movement to the free extending end of said beam or buffer, substantially as and for the purpose set forth.

348,774. GARDEN IMPLEMENT. WILLIAM J. RANKINS, Augusta, Ky. Filed July 8, 1886. (No model.)



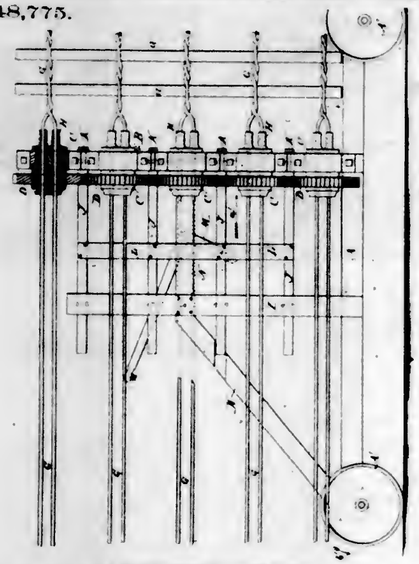
Claim.—1. The combination, with the spud provided with a lateral ear, of a rake-head provided with the shank pivoted to the ear of the spud, and a spring for holding the rake in an open or folded position, substantially as shown and described.

2. As an improved article of manufacture, the spud B, having the aperture c, and provided with the apertured shank A and lateral ear C, the rake E, provided with dowels b b', having the shank D and shoulders a, and the spring F, secured to the shank A of the spud, and arranged to hold the rake in an open or closed position, substantially as shown and described.

348,775. WIRE-FENCE MACHINE. WILLIAM J. RAYMOND, Cherry Vale, Kans. Filed May 1, 1886. (No model.)

Claim.—The combination, with the truck, of the vertical standards B and I on the same, a vertical series of wire-twisters in the standard B, the sliding bars J, mounted to move lengthwise on the standards B I, and having bester-arms K, bent over in front of the standard B between the wire-twisters, the bar L, rigidly connecting the sliding bars J, and the angle-lever M, pivotally connected to the connecting-bar L, and pivoted to swing vertically on the upright frame N on the truck, substantially as specified.

348,775.

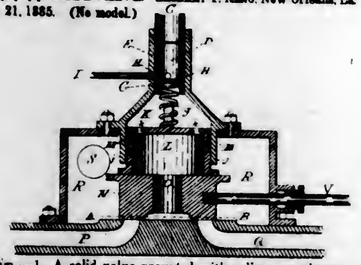


348,776. WASHING-MACHINE. WILLIAM B. REAVES, Friar's Point Miss., assignor of one-half to J. W. Crowley, same place. Filed Feb. 24, 1886. (No model.)



Claim.—In a washing-machine, the combination, with the cylinder and the skirt surrounding and projecting below the lower end thereof, of the plunger-rod and the plunger provided with upper and lower sections, and having a securing-screw whereby to connect it with the plunger-rod, the lower section of said plunger being provided with a depending tubular extension surrounding the fastening-screw and serving to protect the clothing from the contact of said screw, and preventing the plunger from being forced out of the lower end of the cylinder, substantially as set forth.

348,777. SLIDE-VALVE. ZACHARY T. RENO, New Orleans, La. Filed Dec. 21, 1885. (No model.)



Claim.—1. A solid valve provided with a direct continuous steam-passage through it from top to bottom face, in combination with a piston and cylinder over the valve, the piston resting on the top face of valve, substantially as described.

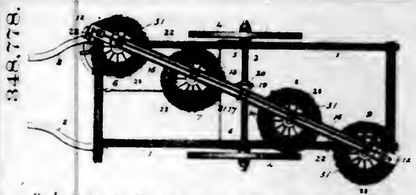
2. A solid slide-valve having a direct continuous central steam-passage through it, in combination with steam-ports in valve-seat provided with straight and curved edges to each port for the purpose of obtaining a free and rapid exhaust, substantially as described.

3. The herein-described slide-valve N, in combination with the piston L, the cylinder *j*, the spring J, and the piston D, provided with the holes H to allow the water of condensation to pass out of steam-pipe through drip-pipe I, substantially as described.

348,778. STREET-SWEEPER. ANDREW J. REYNOLDS, Chicago, Ill. Filed Feb. 27, 1885. (No model.)

Claim.—1. In a street-sweeper, the combination, with the ground-wheels and axle and a suitable frame, of an inclined spindle, a circular frame, and downwardly-projecting splints secured thereto, said splints being inclined to the axis of the broom and projecting radially beyond the said frame, substantially as set forth.

348,778.



2. In a street-sweeper, the combination, with the ground-wheels and axle and a suitable frame, of a series of inclined spindles arranged diagonally across the frame, a circular frame or wheel carried by each of said spindles, and inclined downwardly-projecting splints arranged in annular series upon said circular frames and projecting radially beyond them, substantially in the manner and for the purpose set forth.

3. In a street-sweeper, the combination, with the ground-wheels and axle, a spindle, and a circular frame or ring supported thereby, of an annular series of splints projecting downwardly and radially therefrom and inclined to the axis of the broom, and a second concentric ring surrounding said annular series of splints for holding or pressing them down, as set forth.

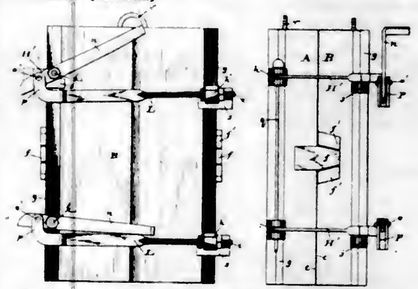
4. In a broom, the combination, with a frame and splints secured thereto, of the spokes passing between said splints between their points of attachment and their free extremities, so as to prevent their displacement, as set forth.

5. In a broom, the combination, with the ring 27, the bunches of splints 26, and the clips 28, securing said bunches of splints to said ring, of the radial spokes 31, passing between and bracing said bunches of splints below the plane of the clips 28, and the ring 29, supported by said spokes and surrounding said splints, substantially as set forth.

6. In a street-sweeper, the combination, with the ground-wheels and axle and a suitable frame, of an inclined spindle, a ring or rim supported thereby, and having an inclined outer surface, and the splints secured to said surface so as to project in a direction inclined to the axis of the broom, as set forth.

7. In a broom, the combination of the inner rim, 27, having the inclined outer face, the splints 26, the clips 28, securing said splints to said rim 27, and the rim 29, surrounding said splints, as set forth.

348,779. INGOT-MOLD. JOHN SABOLD, Little Oley, Pa. Filed June 17, 1886. (No model.)



Claim.—1. An open-topped mold for ingots, made in two sections, A and B, separable at the two narrowest opposite sides, with interior parallel broad sides, *d*, and interior narrow sides, *s*, which are concaved at the center separable edges, *c*, and the outside clamp consisting of the binding-bars H H', tightening-rod L, and clamp-lever *n*, as shown and described.

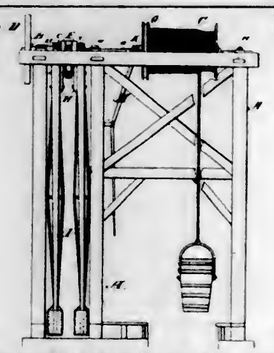
2. The combination, in an open-topped mold for ingots, of two mold-sections, A and B, separable at the center of two opposite sides, and said sections having outer beveled corners, *g*, a binding-bar extending across the separable part of the two sections, having one end pivoted to one section and provided near the other end with an inclined shoulder, *g'*, to come in contact with one of said beveled corners, a tightening-rod, L, having one end turned up and the other end connected with one binding-bar, and a clamp-lever, *n*, pivoted to the other binding-bar, and also pivoted to the turned-up end of the rod, as set forth.

348,780. PENDULUM-HOIST. JOHN SATTER, Butte City, Mont. Filed Apr. 14, 1886. (No model.)

Claim.—1. In a pendulum-hoist, the combination, with a shaft carrying a fixed collar formed with two sets of ratchet-teeth, of pendulums carrying stops engaging with said ratchet-teeth, substantially as described.

2. In a pendulum-hoist, the combination, with a shaft, of a collar keyed thereto and formed with two sets of ratchet-teeth, and two pendulums supported by disks and swinging upon said shaft as an axis, the said disks being provided with stops or pawls, substantially as described.

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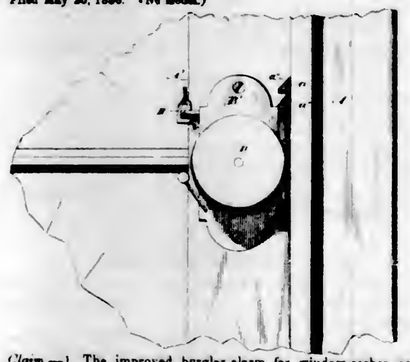


3. In a pendulum-hoist, the combination, with a shaft carrying a fixed collar that is provided with two sets of ratchet-teeth, of pendulums supported by disks carrying stops or pawls and formed with toothed segments, and a pinion mounted between and engaging with said segments, substantially as described.

4. In a pendulum-hoist, the combination, with a shaft, B, carrying a collar, E, formed with ratchet-teeth *b*, of pendulums I, carried by disks F, that are provided with pawls *d* and formed with segmental racks G, and a pinion, J, mounted to engage with each of the segments G, substantially as described.

5. In a pendulum-hoist, the combination, with a shaft carrying a fixed collar formed with two sets of ratchet-teeth, of pendulums I, supporting-disks F, provided with pawls *d*, sleeves L, segmental racks G, carried by the disks F, a clutch, K, and a drum, C, substantially as described.

348,781. BURGLAR-ALARM. HERMAN D. SAUL, Thomaston, Conn. Filed May 20, 1886. (No model.)



Claim.—1. The improved burglar-alarm for window-sashes, consisting of a casing which is adapted to be attached to the sliding sash, said casing inclosing a spring and train of gearing, a bell-hammer adapted to be vibrated by the same, one of the wheels of the train having a projecting pin, the spring-bar E, provided with a perforation, *e*, adapted to engage with the projecting pin, and an angular end, E', in combination with a sliding bolt with a projecting pin, *h*, which engages with the end E' of the spring-bar, so as to elevate the same, substantially as shown, and for the purpose set forth.

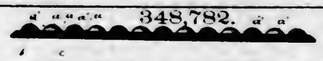
2. The combination, in a burglar-alarm, of a casing inclosing a spring-operated mechanism for vibrating a bell-hammer, spring-bar for releasing the train of gearing, and a bell, D, attached to the winding-shaft of the spring, substantially as shown, and for the purpose set forth.

3. The combination, in a burglar-alarm, of a spring-actuated train of gearing for vibrating a bell-hammer, a spring-bolt, G, having a projecting pin, *h*, and a locking-plate, H, secured thereto, and a spring-bar, E, having an angular portion, E', adapted to engage with a pin, *h*, of the sliding bolt, so as to elevate the said spring-bar, said spring-bar having a perforation, *e*, which engages with a projecting pin attached to the main wheel of the gearing, substantially as shown, and for the purpose set forth.

348,782. RUBBER STEP OR CARPET. FRANCIS A. SAWYER, Boston, Mass. Filed Jan. 2, 1886. (No model.)



348,782.



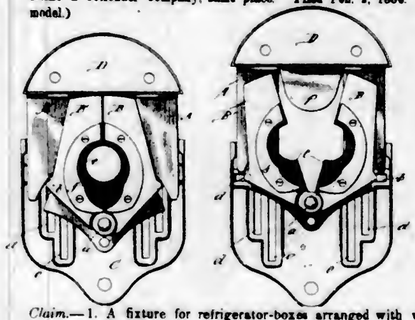
Claim.—1. In rubber steps, carpets, and other like rubber goods, the combination of a surfacing of resilient stock arranged in the form of a thin film or body and projections, as described, an intermediate fibrous section from which said projections extend, and covered between the projections by the thin film or surfacing of rubber, and the lower or base section of rubber or fibrous rubber stock, all substantially as described.

2. As an improved article of manufacture, the rubber step or step material, carpeting, or other like rubber goods, comprising the surfacing of resilient rubber stock arranged in the form of projections, the intermediate fibrous section from which the projections extend, and covered between the projections with a thin film or surfacing of rubber, and the base or lower section of vulcanizable fibrous stock, all united by vulcanization and pressure, substantially as described.

3. The combination, in a step, step material, or carpeting, of surfacing of resilient rubber stock arranged in the form of projections, the fibrous central or intermediate section, and a lower section of vulcanizable fibrous stock having panels in its under surface, all substantially as described.

4. The step or step material having a resilient upper surface and a downward-projecting narrow V-shaped rib upon the under surface, near the outer edge thereof, substantially as described.

348,783. FAUCET-INCLOSING FIXTURE FOR REFRIGERATOR-BOXES. CHARLES SCHEEF, Chicago, Ill., assignor to the Brunswick, Balke & Collender Company, same place. Filed Feb. 9, 1886. (No model.)



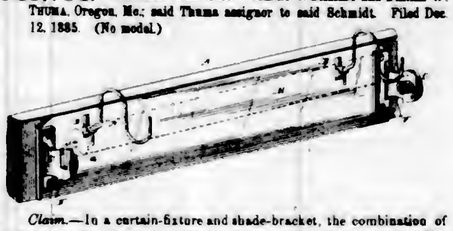
Claim.—1. A fixture for refrigerator-boxes arranged with wing-plates embracing the faucet, and with a plate sliding upon the refrigerator-box for operating such wing-plates and for entirely closing the faucet-openings of such boxes, substantially as and for the purpose set forth.

2. In a fixture for refrigerator-boxes, the combination, with the crown-plate secured to the door thereof, of a stationary plate secured to the box and over the faucet-opening thereof, of wing-plates pivoted to such stationary plate and adapted to embrace the shank of the barrel-faucet, and of a sliding plate arranged to operate the wing-plates and adapted to shut the faucet-opening, all substantially as described, to operate as specified.

3. In a fixture for refrigerator-boxes, the combination of stationary plate A, wing-plates B B', pivoted thereto and having studs *b*, and vertically-sliding plate C, having L-shaped grooves, all substantially as described, to operate as specified.

4. In a fixture for refrigerator-boxes, the combination, with stationary plate A, having screw-studs with springs *l* and nuts *m*, of wing-plates B B', pivotally secured to plate A and having studs *b*, of plate C, having slots *o* and L-shaped grooves *d*, and of crown-plate D, the whole being constructed and arranged to operate substantially as described, for the purpose specified.

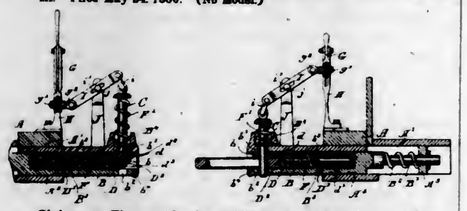
348,784. CURTAIN-FIXTURE. HENRY C. SCHMIDT and DANIEL W. THUMA, Oregon, Mo.; said Thuma assignor to said Schmidt. Filed Dec. 12, 1885. (No model.)



Claim.—In a curtain-fixture and shade-bracket, the combination of screws upon the lintel of a window-frame having sockets in their flat heads, a bar having shade-brackets and formed with slots for the recep-

tion of the heads of the screws, and hooks having straight inner ends fitting in the sockets and having outwardly-projecting hooks for supporting a curtain-rod, as and for the purpose shown and set forth.

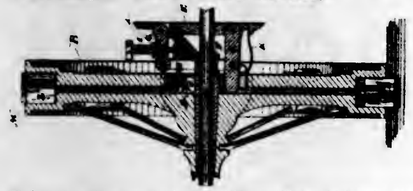
348,785. CAR-COUPLING. OTTO SHAFER and JOHN STRAHN, Chicago, Ill. Filed May 24, 1886. (No model.)



Claim.—1. The combination, with a recessed draw-head, of a vertically-sliding pin, a sliding spring-block within the recess of the draw-head, provided with a forwardly-projecting lip or flange constructed to sustain the pin, and to engage the top surface of the end of a link, and a spiral spring, F', surrounding the said pin, and connected at its upper end with the top of the pin and at its lower end with the draw-head, whereby said spring will tend to draw the pin downwardly when said pin is lifted, substantially as described.

2. The combination, with a recessed draw-head provided with a transverse plate or partition, B^3, having in it a guide-aperture, b^3, of a vertically-sliding pin passing through suitable guide-apertures in the said draw-head, a sliding block, D, provided with a forwardly-projecting lip or flange, *d*, and with a stem, D^3, passing through the said guide-aperture b^3, a spiral spring, F, placed between said block D and the plate or partition B^3, and a pin, *d'*, inserted through the stem D' at the rear of the said partition B^3, substantially as described.

348,786. TRACTION-WHEEL. HENRY M. SHEER and FREDRICK DILLENUTH, Quincy, Ill. Filed May 4, 1886. (No model.)



Claim.—1. In a traction-wheel for self-propelling vehicles, the combination of a series of movable spades for preventing the slip of the wheel, a movable cam for projecting said spades, and a stationary cam for causing their retraction, substantially as described.

2. In a traction-wheel for self-propelling vehicles, the combination, with a series of movable spades for preventing the slip of the wheel, of a cam for projecting said spades moved positively outward and retracted by means of a spring, substantially as described.

3. In a traction-wheel for self-propelling vehicles, the combination, with a series of movable spades for preventing the slip of the wheel, of a stationary cam for retracting said spades and a movable cam for projecting them, said movable cam being connected through mechanism whereby the thrust of the spades is supported by the axle, substantially as described.

4. In a mechanism for operating the movable spades of a traction-wheel, the combination of a base-plate and two arms hinged to said base-plate and linked together at their outer ends, the lower one of said arms carrying a movable cam and the upper one carrying the screw for adjusting said cam, substantially as described

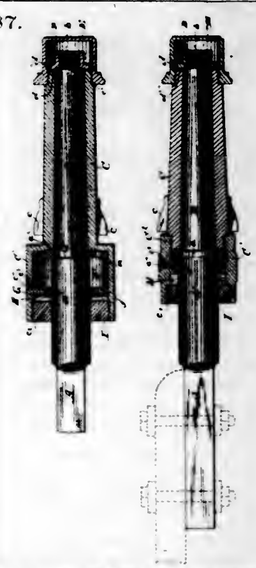
5. In a traction-wheel for self-propelling vehicles, a series of radial sockets in the periphery thereof, and a series of movable spades sliding in said sockets and having a bearing therein to prevent their retraction beyond a certain point, in combination with cams for causing their projection and retraction, whereby the thrust on the spades when retracted will be received by the wheel, but that when projected the thrust will be received by the projecting mechanism, substantially as described.

348,787. AXLE-LUBRICATOR. JULES SIMON and CLAUDE CONTANT, Fort Wayne, Ind. Filed Apr. 19, 1886. (No model.)

Claim.—1. The axle A, provided with the spindle B and annular collar *a*, in combination with the axle-box C, having the oil-grooves a^2 and the extended portion C', forming an oil-reservoir and provided with the flange *f*, and the washer H, and nut I, all arranged and operating substantially as shown and described.

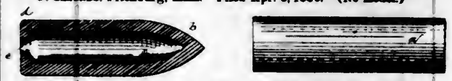
2. The combination of the axle A, having the rounded portion *a'*, collar *a*, and spindle B, having the screw-threaded outer end, *b*, the axle-box C, having the oil-grooves a^2, the extended portion C', forming an oil-reservoir and provided with the annular flange *f*, washer H, and nut

348,787.



I, and the nut D, having the flange *d* and oil-grooves *d'*, and cap-piece E, all arranged and operating substantially as shown and described.

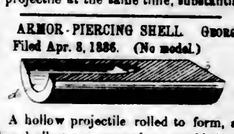
348,788. SHELL AND METHOD OF MAKING THE SAME. GEORGE F. SIMONDS, Fitchburg, Mass. Filed Apr. 8, 1886. (No model.)



Claim.—1. A hollow projectile rolled to form and the metal condensed and hardened all at one operation, substantially as set forth.

2. The method of making a hollow projectile or similar structure, consisting in rolling a tubular blank, thereby drawing one end together to form the forward end of the projectile and thickening and condensing the walls of the projectile at the same time, substantially as described.

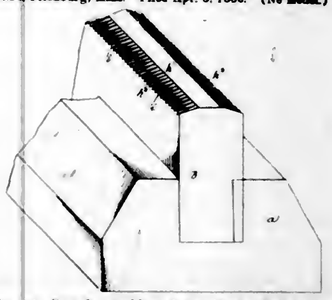
348,789. ARMOR-PIERCING SHELL. GEORGE F. SIMONDS, Fitchburg, Mass. Filed Apr. 8, 1886. (No model.)



Claim.—1. A hollow projectile rolled to form, and the metal condensed and hardened all at one operation, provided with the solid penetrating portion *e*, as set forth.

2. The method of making hollow projectiles herein described, consisting, essentially, in preparing a cylindrical ingot hollow a portion of its length, and then rolling said ingot so as to form the solid portion into the forward end of the projectile while the hollow portion is formed to properly hold a bursting-charge, as specified.

348,790. DIE FOR MAKING ROLLED FORGINGS. GEORGE F. SIMONDS, Fitchburg, Mass. Filed Apr. 8, 1886. (No model.)

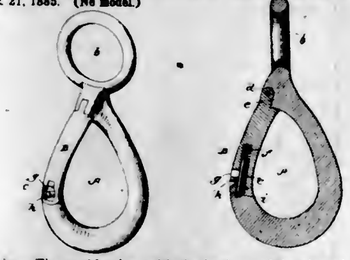


Claim.—1. Dies for machines for making rolled forgings having a central parallelogrammic face arranged between two parallelogrammic faces falling away from the central face, as set forth.

2. Dies for machines for making rolled forgings having cross-

grooves deepening from a central longitudinal line in each direction toward the outer lines of the dies, substantially as described.

348,791. SAFETY-HOOK. EDWARD H. SMITH, Rutherford, Cal. Filed Dec. 21, 1885. (No model.)



Claim.—The combination, with the hook A, of the pivoted portion B, having the straight vertical passage, a bolt in said passage, a spring in said passage bearing against the upper end of the bolt, a finger-piece projecting from the bolt, the portion B, having an enlarged opening in which the finger-piece works, said opening being beveled at one end, and the end of the finger-piece being located below the face of the portion B.

348,792. ELECTRIC TRAMWAY SYSTEM. MICHAEL H. SMITH, Halifax, County of York, England. Filed Dec. 17, 1885. (No model.) Patented in England June 19, 1884, No. 9,163; in France Dec. 21, 1885, No. 173,058, and in Belgium Dec. 21, 1885, No. 71,313.



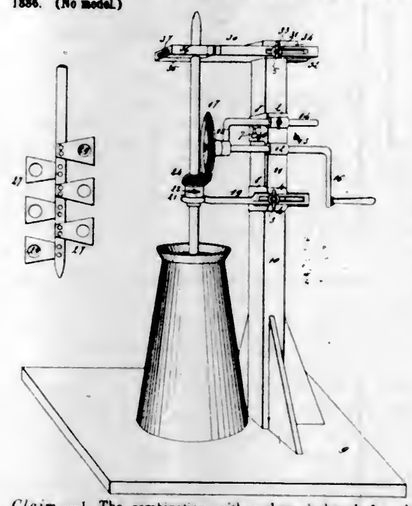
Claim.—1. In an electric tramway, the combination, with the sides of the way, of a series of grooved insulators, clamping pins or wedges fitting said grooves and securing said insulators, and a continuous conductor supported upon the said insulators, substantially as described.

2. In electrical tramway or railway systems, the combination of insulated studs, conductors supported by said studs, and wedges interposed between said studs and conductors, substantially as described.

3. In electrical tramway or railway systems, the combination, with the conductors G, of taper-wedge connections S, substantially as and for the purposes set forth.

4. In electrical tramway or railway systems, the combination of chairs *d*, removable side pieces, U, carrying the insulators A, and conductors G, substantially as and for the purposes set forth.

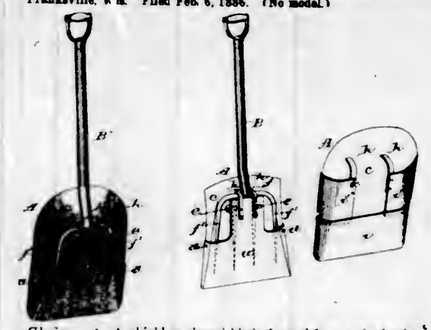
348,793. CHURN. WILLIAM S. SMITH, Salem, Oreg. Filed June 2, 1886. (No model.)



Claim.—1. The combination, with a churn dasher shaft and its dasher-blades, of a socket, 21, carrying a pinion, 24, a gear, 17, carried by a shaft, 13, that is provided with a crank-arm, 16, the pinion 24 and the gear 17 meshing, a plate, 11, formed with bearings for the shaft 13, and a guiding-arm, 14, supported by the plate and engaging with the shaft 13, substantially as described.

2. The combination, with a standard, 10, of a plate, 11, shaft 13, guiding-arms 14 and 19, carried by said plate, a gear, 17, carried by the shaft 13, and a pinion, 24, engaged by said gear and made integral with a socket, 21, that is adjustably secured to the dasher-shaft, which dasher-shaft is guided and held by the arms 19 and 30, substantially as described.

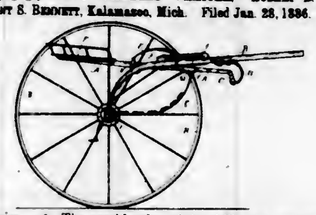
348,794. DETACHABLE SHOVEL-BLADE. ZWINGLE H. SMITH, Franksville, Wis. Filed Feb. 6, 1886. (No model.)



Claim.—1. A shield or shovel-blade formed from a single piece of sheet metal, having part thereof bent around to form a back, and welded to the front portion at the point, and suitable springs secured to said back portion, as set forth.

2. The combination, with a fork having a handle, B, of the shield or shovel-blade A, constructed to engage the fork and provided with springs *h h*, adapted to retain said parts in operative position, as set forth.

348,795. TWO-WHEELED VEHICLE. HOBART B. SORTOR and GRANT S. BENNETT, Kalamazoo, Mich. Filed Jan. 28, 1886. (No model.)



Claim.—1. The combination of the thills, the seat-bars, link-supported at their forward end, adapting them to move forward and back, and the bowed rearwardly-extending springs secured at their forward end to the thill cross-bar, and connecting at their rear end with the seat-bars beneath them, substantially as set forth.

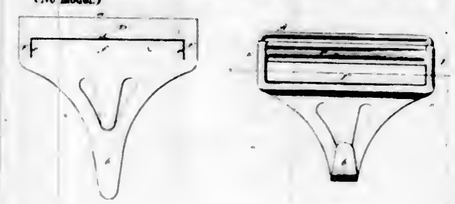
2. The combination of the thills, brackets depending therefrom, seat-bars link-connected at their forward end with said brackets, and bowed rearwardly-extending springs forming a link-connection at their rear end with the seat-bars, substantially as set forth.

3. The combination of the thills, brackets depending therefrom, seat-bars link-connected at their forward end with said brackets, the bowed rearwardly-extending springs secured at their forward end to the thill cross-bar and link-connected at their rear end with the seat-bars, and bars across the angle of the thills, and cross-bars supporting said springs, substantially as set forth.

4. The combination of the seat-bars link-connected at their forward end with the thills, bowed rearwardly-extending springs, their rear ends connecting with and supporting the seat-bars above the axle, and a foot-rest hinged to the forward portion of the seat-bars at one end and hinged to the vehicle at the other end, substantially as set forth.

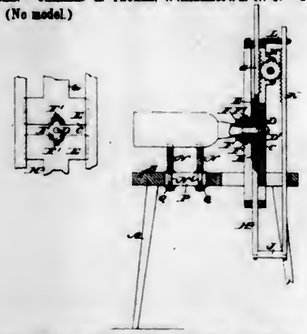
5. In a two-wheeled vehicle, the foot-rest hinged at its forward end to the seat-bars and hinged at the rear end to the vehicle-axle, substantially as set forth.

348,796. BUCKLE. JAMES SPRUCE, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Feb 8, 1886. (No model.)



Claim.—The herein-described buckle, consisting of the wire frame A B C C, combined with the tongue, cut from sheet metal, in length substantially that of the frame, having a flap, *f*, cut from its body and bent around one side of the frame to form a hinge, the said flap leaving an opening, F, through the tongue, the tongue-bar D, corrugated longitudinally, and the two ends E E, struck into concavo-convex shape corresponding to the surface of the ends of the frame, whereby the tongue-bar is brought within the plane of the frame, and the tongue extended below the flap or hinge to form an attaching device, substantially as described.

348,797. **MACHINE FOR FINISHING THE MOUTHS OF GLASS BOTTLES.** CHARLES E. THOMAS, Williamstown, N. J. Filed Oct. 24, 1885. (No model.)



Claim.—1. In a machine for finishing the mouth of a bottle, the frame A and table B, in combination with the upright C, the jaws E, one of which has the rack-bar G connected thereto, the other jaw having the bar H depending therefrom and connected by the horizontal piece J to the vertical rack K, the said racks G and K meshing with a pinion, M, having its axle journaled in the upright C, substantially as and for the purpose set forth.

2. A machine for finishing the mouth of a bottle, having mold-carrying jaws, rack-bars connected therewith, and a pinion engaging with said bars for simultaneously closing and opening said jaws, substantially as described.

3. In a machine for finishing the mouths of bottles, the upright C, having a pinion, M, the axle of which has connected thereto a weighted bar, M', the one end of said bar being adjustably connected to a treadle pivoted to the frame A of the machine, and rack-bars connected to the jaws E and meshing with the said pinion M, and adapted to move said jaws in opposite directions, all of said parts being arranged, combined, and operating substantially as described.

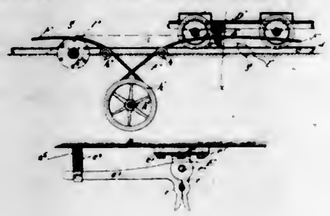
4. In a machine for finishing the mouths of bottles, the upright C, having the adjustable plug D, in combination with the jaws E, adjustable mold F, rack-bar G, connected to one of said jaws, and vertical rack-bar K, connected by the piece J and bar H to the other jaw E, pinion M, meshing with said rack-bars, and means, substantially as described, for operating said pinion, substantially as and for the purpose set forth.

5. The opening and closing jaws E, in combination with detachable molds F, and the bolts F', rack-bar G, attached to one of the said jaws E, and rack-bar K, attached by means of cross-piece J and rod H to the other jaw E, pinion M, having its journal-bearing in the upright C, and adjustable supports N, substantially as described.

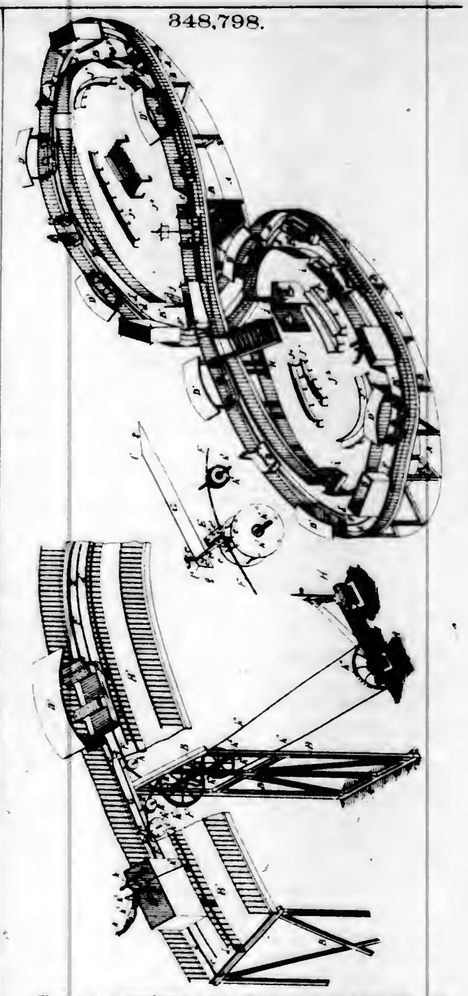
6. The table B, having slots S, in combination with laterally-adjustable frame C, the opening and closing jaws E, rack-bars G and K, connected to said jaws, the pinion M, adapted to operate said jaws in opposite directions, bar M', arm M^2, and treadle M^3, substantially as described.

7. A device for finishing the mouths of bottles, having adjustable holders, and a laterally-adjustable frame carrying opening and closing jaws with adjustable molds, and an adjustable plug adapted for insertion in the mouths of the bottles, all substantially as described.

348,798. **PLEASURE CABLE RAILWAY.** LA MARCUS A. THOMPSON, Philadelphia, Pa. Filed Mar. 13, 1886. (No model.)



348,798.



Claim.—1. A continuous cable railway constructed of trestle-work in the form of the figure 8, in combination with cars and coaches provided with automatic grip mechanism, and a cable for propelling said cars and coaches, actuated by motive power, substantially as described.

2. The combination, with a continuous cable railway constructed in the form of the figure 8, of cars and coaches thereon, automatic-operating gripping devices secured thereto, a cable, and means, as described, for actuating said cable, substantially as and for the purposes set forth.

3. The combination, with a cable railway constructed of trestle-work in the form of the figure 8, of stringers thereon and rails secured thereto, cars and coaches traveling upon said rails, an automatic gripping device secured to the under side of each car and coach, a cable, and a steam-engine, substantially as and for the purposes set forth.

4. The combination, with a continuous pleasure cable railway constructed in the form of the figure 8, of cars and coaches thereon, an automatic gripping device secured to each car and coach, an inclined plane, a cable, and means, as described, for actuating said cable, substantially as and for the purposes set forth.

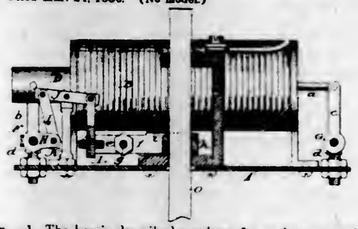
5. The combination, in a pleasure cable railway constructed in the form of the figure 8 with undulations, of cars and coaches traveling over rails thereon, and a cable for actuating said cars and coaches, substantially as and for the purposes set forth.

6. The combination, with a continuous cable railway constructed in the form of the figure 8, of stringers and rails thereon, cars and coaches traveling over said rails, automatic gripping devices secured to the cars and coaches, a cable, and a steam-engine, substantially as and for the purposes set forth

7. A continuous pleasure cable railway constructed of trestle-work in the form of the figure 8 and provided with cars and coaches traveling over rails thereon, in combination with an automatic gripping device consisting of jaws e and e', fulcrum-lever e^2, pocket e^4, and spring e^5, of a cable, F, steam-engine H, and an incline plane, G, substantially as and for the purposes set forth.

8. In a pleasure cable railway constructed in the form of the figure 8, having a series of descending and ascending planes, the combination, with stringers and rails secured thereon, of cars and coaches and automatically-operating grip mechanism secured thereto, a cable, steam-engine, and incline plane, substantially as and for the purposes set forth.

348,799. **ELECTRIC-ARC LIGHT.** FRANK THOMP, Fort Wayne, Ind. Filed Mar. 24, 1886. (No model.)



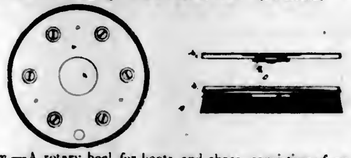
Claim.—1. The herein-described regulator for arc-lamps, consisting of coils B C, respectively included in the main and derived circuits, and wound with coarse and fine wire, cores D and E, movable within said coils, rock-shafts F G, arms *b b*, and links *c c*, connecting the cores and rock-shafts, radial arm H, link I, rocking lever J, stem L, lifting device N, carried by stem L, and rod O, passing through said lifting device.

2. In an electric-lamp regulator, a clutch consisting of side bars, *f f*, plate *e*, and blocks *h i*, journaled in said side bars, and lifting-stem L, threaded and passing through a correspondingly-threaded hole in plate *e*.

3. In an electric-lamp regulator, a clutch consisting of a frame, a block, *h*, journaled therein and provided with a hole through which the carbon-carrier rod may freely pass, and a block, *i*, pivoted in said frame above the block *h*, and having its pivots nearer the end removed from the rod, whereby the block *i* is caused to cramp upon the rod when the frame is tilted, but to release the same when the frame assumes a horizontal position.

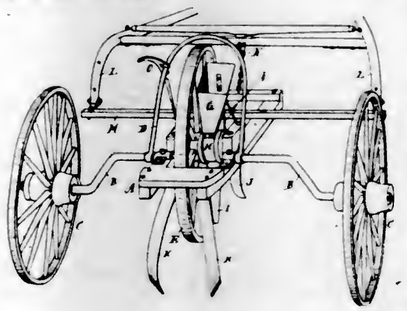
4. In combination with coils B C, cores D E, and lifter N, rock-shafts F G, and intermediate connections between said rock-shafts and the cores and lifter, and adjustable supports for the rock-shafts, all substantially as described and shown.

348,800. **ROTARY CAP FOR BOOT-HEELS.** GEORG N. THURZO, Vienna, Austria-Hungary. Filed June 9, 1886. (No model.)



Claim.—A rotary heel for boots and shoes, consisting of an upper part or steel disk, *s'*, rigidly fixed to the boot or shoe, and an under part or steel plate, *s*, which is carried and rotates in the former, both parts being suitably connected with each other by a knob, *k*, and forked locking-plate *g*, substantially as described, and represented in the accompanying drawings.

348,801. **PLANTER.** LEVERETT B. WALKER, St. Johns, Mich. Filed July 1, 1886. (No model.)

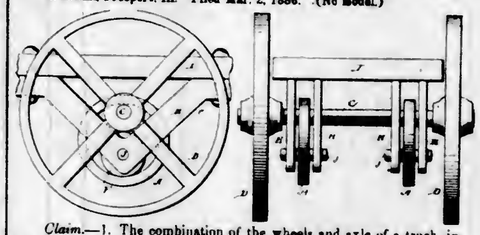


Claim.—1. In a planter, the combination of a frame mounted upon a crank-axle carrying traction-wheels with a centrally-situated wheel within the frame and operating a feeding-cylinder, substantially as set forth.

2. In combination, the frame A, axles B, wheels C, bail D, central wheel, E, and feed-cylinder F with the hopper G and spout I, substantially as and for the purposes described.

3. In combination, the frame A, axles B, wheels C, bail D, central wheel, E, and feed-cylinder F with the hopper G, spout I, and cultivator-teeth J and K, constructed, arranged, and operating substantially in the manner and for the purposes set forth.

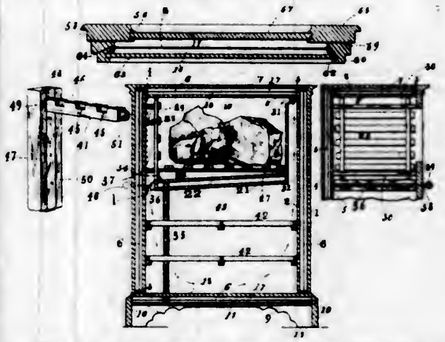
348,802. **ANTI-FRICTION ROLLER AND WHEEL.** G. WILBER WARNER, Freeport, Ill. Filed Mar. 2, 1886. (No model.)



Claim.—1. The combination of the wheels and axle of a truck, internally-grooved rings encircling and hanging from said axle, and disks formed with central peripheral ribs journaled in bearings hanging from the wagon-bottom, said disks being adapted to roll in the lower portion of said rings, substantially as described and set forth.

2. In an anti-friction device, the combination of a ring of circular shape and having a groove in its inner side, a pair of rollers or wheels for traveling upon the support secured upon both ends of an axle bearing against the inner side of the upper portion of the ring and having the inner ends of their hubs bearing against the sides of the ring, and a disk having a rib upon its periphery fitting in the groove of the ring and traveling within the lower portion of the ring, having the article or object to be moved supported to the ends of its shaft, as and for the purpose shown and set forth.

348,803. **REFRIGERATOR.** JACOB WEITZ and HENRY KLASSERT, Buffalo, N. Y. Filed Mar. 22, 1886. (No model.)



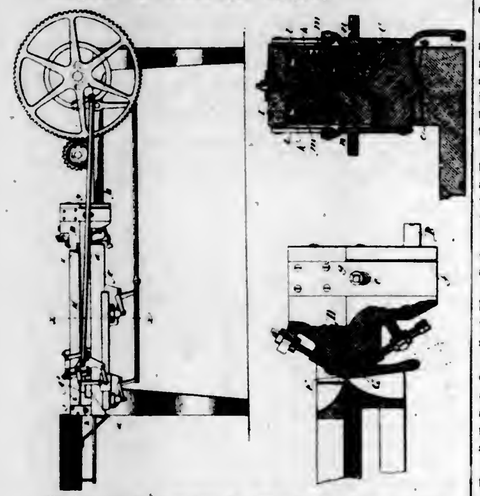
Claim.—1. In a refrigerator, a rack-holding bar adapted to be secured in the provision-chamber, substantially as specified, and provided with a longitudinal groove, 44, transverse grooves 45, and a strip of wood, 46, for filling the longitudinal grooves, as and for the purposes described.

2. A refrigerator-box provided with an ice-floor, 20 21, having its front side projecting into horizontal grooves 23 24, and its rear side secured to the back wall and to the strip 26, substantially as and for the purposes described.

3. In a refrigerator, a refrigerator-door consisting of the outside frame, 55, having the surrounding rabbet 58, adapted to fit the rabbet in the door opening, and having the inside surrounding groove, 56, adapted to receive the panel 57, in combination with the inside frame, 59, having the surrounding outside rabbet, 60, adapted to fit a corresponding rabbet in the door-opening, and an inside rabbet, 64, having secured thereto a sheet of water-proof material, and the inside surrounding groove, 62, adapted to receive the panel 63, substantially as and for the purposes described.

4. The combination of the inside floor, 13, tongued and grooved to a front cross-strip, 15, a sheet of water-proof material, and a lower floor, 9, secured below the water-proof material and resting on the parts 11 and 12, as described.

348,804. **MACHINE FOR SHAVING PRINTERS' LEADS.** HENRY F. WELLMAN, Englewood, assignor to the Schneidewend & Lee Company, Chicago, Ill. Filed Mar. 23, 1886. (No model.)



Claim.—1. In a machine for shaving printers' leads, a yielding guideway for said lead between the feed and the shaving-knives thereof, substantially as described.

2. In a machine for shaving printers' leads, the upper and lower blocks and a recess or guideway between and formed by said blocks, in combination with a yielding connection between said blocks, substantially as described.

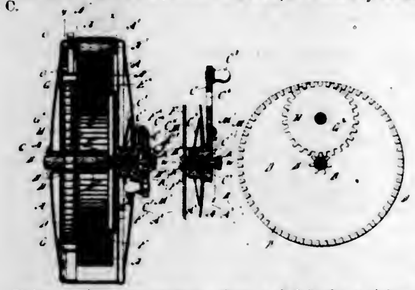
3. In a machine for shaving printers' leads, the upper and lower blocks, A and H, having a guideway therebetween formed by their juxtaposition, in combination with a screw working freely through said upper block, the shank thereof engaging the lower block, and an elastic cushion between said screw and the upper block, substantially as described.

4. In a machine for shaving printers' leads, the lower block carrying the under cutter or knife and the head-block mounted thereon, carrying the upper knife or cutter, in combination with the upper block mounted on said lower block forward of and disconnected from the said head-block, substantially as described.

5. In a machine for shaving printers' leads, the lower block carrying the under cutter or knife and the head-block mounted thereon, carrying the upper knife or cutter, in combination with the upper block mounted on said lower block forward of and disconnected from the said head-block, and a yielding connection between said upper and lower block, substantially as described.

348,805. **TAPE-MEASURE.** EDWARD H. WHEELER, Waterbury, Conn. Filed Dec. 30, 1885. (No model.)

Brief.—When the blade K is lifted out of engagement with the slotted hub F^2 and the handle C folded, as shown in Figure 2, the shaft B is locked against rotation and the tape is self-winding. When the blade K is pushed into engagement with slotted hub F^2 and the handle unfolded, the spring E is inoperative and the tape is wound by the handle C.



Claim.—1. In a tape-measure, a drum, a shaft having a pinion, an internal gear-wheel having a sleeve journaled on said shaft, and an intermediate wheel whose stud moves with the drum, and which meshes with the pinion and internal gear-wheel, in combination with a coil-spring, one end of which is attached to the sleeve, the other to the drum, and a folding crank upon said shaft, the handle of which engages the case to hold the shank from rotation.

2. In a tape-measure, the drum, wheel D, sleeve, and spring, in combination with the shaft, pinion, and intermediate wheel.

3. In a tape-measure, the drum, in combination with a shaft having a pinion, an internal gear-wheel having a sleeve journaled on said shaft, an intermediate gear-wheel whose stud moves with the drum, and a spring attached to both sleeve and drum, the relation of the gearing being such that when the shaft is allowed to rotate the sleeve and drum rotate together, but when the shaft is held the sleeve gains slightly upon the drum to wind the spring.

4. In a tape-measure, the internal gear-wheel having a sleeve, and the shaft having a pinion, in combination with the drum and spring, and a case, G, attached to the drum, which incloses the gears, and is provided with a stud carrying an intermediate wheel, which meshes both with the pinion and internal gear-wheel, substantially as described.

5. In a tape-measure, the shaft, sleeve, tape, drum, and spring, in combination with the gearing, case G, and spring-dog O, which bears against case G to prevent backward movement of the drum.

6. In a tape-measure, the drum, sleeve, shaft, and gearing, in combination with the crank, and a sliding blade adapted to engage the drum, whereby the shaft and drum are locked together, as and for the purpose set forth.

7. In a tape-measure, the case, the shaft having slot B^1, and the drum journaled therein and having slotted hub F^2, in combination with a hub, C', journaled in the case, in which one end of the shaft rests, and a spring-actuated blade which engages the slot in the shaft, and may engage a slot in hub F^2, or may rest upon said hub, substantially as described.

8. In a tape-measure, the slotted shaft and the drum journaled therein, in combination with hub C', having recess C^3, the spring-actuated blade, and a thumb-nut which turns on the blade-rod, and whose base is adapted to engage recess C^3 or to rest upon said hub, as and for the purposes set forth.

9. In a tape-measure, the case having opening A^2, the shaft, and hub C', in combination with the blade-rod K', thumb-nut M, and the crank hinged to the hub, and having an opening to receive the thumb-nut, and a handle which engages recess A^2, to lock the shaft against rotation.

10. In a tape-measure, the shaft-hub C', plate C^2, and case A, both having openings A^3, in combination with the drum having slotted hub F^2, the blade-rod, thumb-nut, and hinged crank having handle C^7, and opening C^6.

11. In a tape-measure, the slotted shaft, the drum having a slotted hub, and crank-hub C', having holes C^4 and recess C^5, in combination with the blade having rod K', pins K^2, and springs K^3, and the thumb-nut, arranged as described, and for the purpose set forth.

348,806. **GLOVE.** EDWIN V. WHITAKER, Gloversville, N. Y. Filed Mar. 22, 1886. (No model.)



Claim.—The combination, with a glove having the back of the hand and two fingers cut away, of a piece of fabric shaped to provide a strip for the back of the hand, which strip terminates in two strips of unequal length for the back of the two fingers and joins the wristband near one end thereof, but at a less distance from said end than from the other.

348,807. **GLOVE.** EDWIN V. WHITAKER, Gloversville, N. Y. Filed Apr. 26, 1886. (No model.)

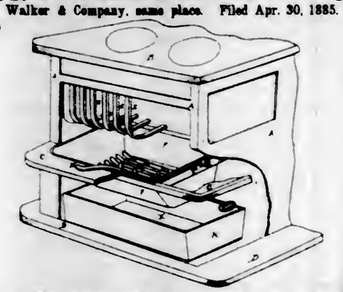


Claim.—1. The glove provided with a wristband and having strips of textile material inserted in the back of said glove, strips of leather alternating with said strips of textile material, said strips of leather extending from the wristband to the bases of each two adjacent fingers and secured thereto, as and for the purpose shown and set forth.

2. The combination of a glove having longitudinal slots in the backs of the fingers, strips of textile material having the edges stitched under the edges of the slots and extending to the wristband of the glove, and strips of leather having their edges stitched over the edges of the textile strips, and having rhomboid enlargements at their upper ends, formed with triangular notches in the upper corners, as and for the purpose shown and set forth.

3. The combination of a glove having longitudinal slots in the backs of the fingers, strips of textile material having the edges stitched under the edges of the slots and extending to the wristband of the glove, strips of leather having their edges stitched over the edges of the textile strips and having nearly rhomboid enlargements at their upper ends, formed with triangular notches in the upper corners, and a strip stitched transversely across the lower ends of the strips and over the upper edge of the wristband, as and for the purpose shown and set forth.

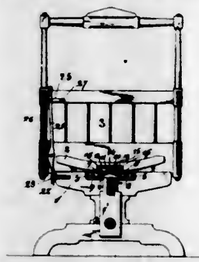
348,808. **STOVE.** CHARLES P. WHITE, Taunton, Mass., assignor to White, Walker & Company, same place. Filed Apr. 30, 1885. (No model.)



Claim.—1. The combination, with a stove having notched supporting-flanges l^2, extending from front to rear across the ash-pit, and flanges on the front and rear walls of said ash-pit below the flanges l^2, of a sifting-pan having a slotted bottom and lugs l on its ends for engaging the notches of the flanges l^2, and an agitator-frame having fingers i i, supported on the flanges below the pan, the distance between the top of the flanges l^2 and the top of the agitator-frame being equal to the depth of the pan, substantially as and for the purpose described.

2. The combination, with a stove having a sifting-pan below the grate, provided with a slotted bottom and short flanges on the walls of the ash-pit below the pan, of an agitator-frame having fingers which engage the slots of the pan, and provided with lugs resting on the flanges of the ash-pit, substantially as and for the purpose described.

348,809. **ROCKING FURNITURE.** ALBERT G. WICKER, Cincinnati, Ohio. Filed July 23, 1886. (No model.)



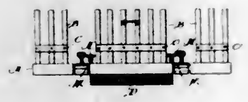
Claim.—1. The combination, with the platform 1 and rocking member 2, of the brackets 4 15 and the pivoted bars 6 7 10 11, substantially as and for the purpose set forth.

2. The combination of stationary and rocking members 1 2, brackets 4 15, pivoted bars 6 7 10 11, and the spring 20.

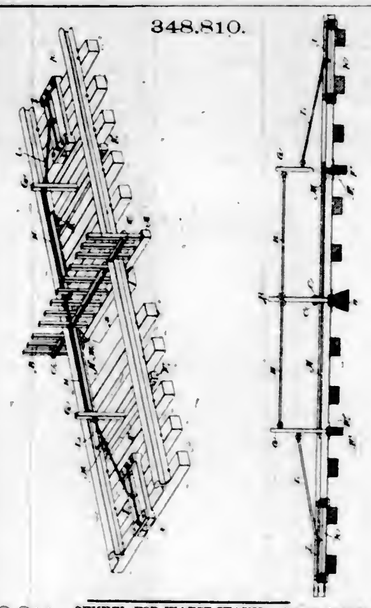
3. The combination of catch 21, spring-bolt 23, and doubly-notched bracket 25, for the purpose designated.

348,810. **RAILROAD-GATE.** ELKANAH G. WILLIAMS, Pitt, Ohio. Filed Mar. 23, 1886. (No model.)

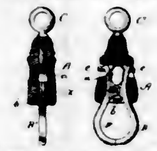
Claim.—The combination, with the horizontally-pivoted gate extending across a railway-track, of the guide-bars I, located in the track, the rock-shaft carrying arms G, connected to the gate, the weights suspended from the gate and from the rock-shafts, for the purpose set forth, the pressure-rail N, arranged along one of the track-rails and connected to the rock-shafts and to the gate, and the rods L, connecting the arms to the guide-bars, substantially as described.



348,810.

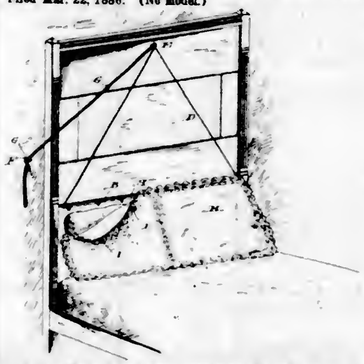


348,811. **SWIVEL FOR WATCH-CHAINS.** ABRAM ABRAHAMS, East St. Louis, Ill. Filed June 21, 1886. (No model.)



Claim.—The combination, with the casing A, having a swivel-ring, C, at its upper end, of the hooks B B', pivoted together at x, and having lugs or projections e, the bow-spring a, by which the hooks are held normally, and the bar b, whereby the hooks are held in the casing, substantially as specified.

348,812. **PILLOW-SHAM HOLDER.** WARREN W. AMES, De Ruyter, N. Y. Filed Mar. 22, 1886. (No model.)



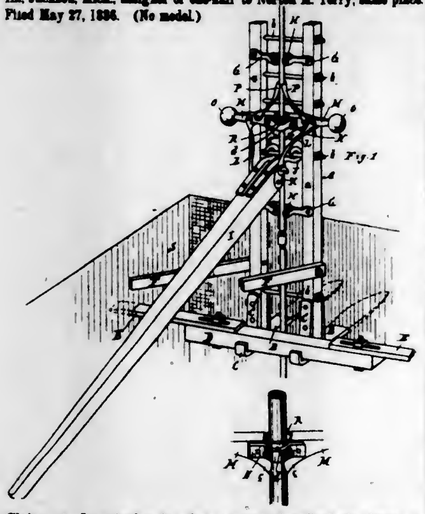
Claim.—1. A pillow-sham holder consisting of a rod provided with hooks upon one side, a doubled cord having its ends attached to the ends of the rod and having a knot upon its doubled portion, and an eye and a nail or hook for passing the cord through and for holding the cord, as and for the purpose shown and set forth.

2. In combination with pillow-shams having loops upon the inner sides of their upper edges, a holder composed of a rod having hooks secured by tacks through the eyes for the reception of the loops, an eye secured to the wall above the rod, a cord secured at its ends to the rod and passed with its doubled end through the eye, having a knot upon its doubled portion, and a nail or hook for securing the knotted cord upon, as and for the purpose shown and set forth.

3. In a pillow-sham holder, the combination of a rod, hooks secured by tacks through their eyes to the side of the rod, an eye, a cord secured at its ends to the ends of the rod, and having a knot upon its doubled portion and passing through the eye, and a nail or similar stop for the knotted portion of the cord, as and for the purpose shown and set forth.

348,813. DEVICE FOR DRIVING TUBE-WELLS.

ALONZO D. AUSTIN, Jackson, Mich., assignor of one-half to Norton M. Terry, same place. Filed May 27, 1886. (No model.)



Claim.—1. In a device for the purposes described, the frame A, carrying the operating mechanism and provided with the anchor-plates B, substantially as described.

2. In a device for the purposes described, the frame A, provided with the anchors B and adjustable anchors E, substantially as set forth.

3. In combination with the frame A, the anchors B, brackets C, and adjustable anchors E, as described.

4. In combination with the frame A, the anchors B, brackets C, adjustable anchors E, and braces F, constructed, arranged, and operating in the manner and for the purposes described.

5. In a device for the purpose described, the frame A and lever I, in combination with the grip-levers M and connecting-rods L, substantially as described.

6. In a device for the purpose described, the combination of the frame A, lever I, connecting-rods L, levers M, and plates N, as set forth.

7. In a device for the purpose described, the combination of the frame A, lever I, connecting-rods L, levers M, connected by the plates N, springs P, and guide-rollers H, the parts being constructed, arranged, and operating in the manner and for the purposes set forth.

348,814. CIGAR.

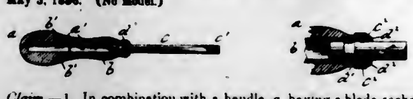
GOTTLIEB BAER, Springfield, Mass. Filed Mar. 9, 1885. (No model.)



Claim.—As a new article of manufacture, a cigar having a molded filling, a compressible or yielding combustible straw tube located in said molded filling, as described, and projecting therefrom at one end, and a wrapper snugly incasing said filling upon the said tube and secured to the projecting portion thereof by gumming or otherwise, substantially as set forth.

348,815. SCREW-DRIVER.

LEONARD BAILEY, Hartford, Conn. Filed May 3, 1886. (No model.)



Claim.—1. In combination with a handle, *a*, having a blade-socket, *a'*, a tubular socket-piece, *b*, fixed against rotation in the handle, and having a projecting threaded end with mortises b^2, a reversible blade, *c*, bearing locking-lugs c^2, and a clamp device, *d*, whereby the blade is secured to the socket-piece, within which it fits closely, all substantially as described.

2. In combination with a handle, *a*, having a blade-socket, *a'*, a socket-piece, *b*, with fastening-spurs *b'*, turned outward into the substance of the handle, and the projecting end, having a screw-thread and mortises b^2, and a reversible blade, *c*, having a point, *c'*, and locking-lugs c^2, and the nut d', with flange d^2, overhanging the locking-lugs, and thereby holding the blade against removal from the socket-piece, all substantially as described.

3. In combination with a handle, *a*, made of non-metallic material, as wood, a socket-piece, *b*, secured within the handle, and a blade, *c*, fitting closely within the socket-piece and held against removal therefrom by a clamp device, *d*, all substantially as described.

348,816. RESORCIN-BLUE COMPOUND.

HAYDN M. BAKER, Brooklyn, N. Y. Filed Aug. 31, 1885. (Specimens.)

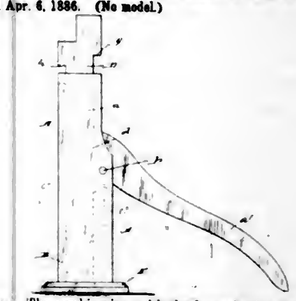
Claim.—1. The process hereinbefore set forth for the manufacture of a resorcin-blue, said process first consisting in making a solution of resorcin in an excess of ammonia-water, agitating the resulting solution by the alternate or intermittent immersions therein of a copper plate or plates, adding dilute acid in excess, boiling, and filtering, substantially as specified.

2. The process hereinbefore set forth for the manufacture of a resorcin-blue, said process consisting in first making a solution of resorcin in solution of caustic ammonia, adding thereto a solution of ammonio-carbonate of copper or other ammoniacal salt of copper, agitating the mixture by a copper plate dipping or moving therein, immersing a strip of metallic zinc therein to precipitate the copper, filtering, treating the filtrate with dilute sulphuric acid, boiling, filtering, and drying, substantially as described.

3. The composition of matter hereinbefore set forth, the same consisting of a resorcin-blue having an empyric chemical formula of $C_{20}H_{14}N_2O_4$, and exhibiting the reactions and deportment hereinbefore set forth, to wit: practical insolubility in water and dilute aqueous acid solutions, the formation, with concentrated sulphuric and muriatic acids, of a green and a purple solution, respectively, the former becoming blue by dilution and the latter green and then blue, successively, and finally precipitating in both the formation of blue solutions with alkalies, and the property of combining with bases to form lakes, substantially as specified.

348,817. LIFTING-JACK.

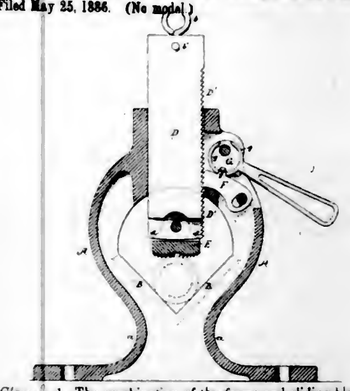
JOHN BAKER, Sweet Valley, Pa., assignor of two-thirds to Grant G. Baker and Thomas A. Long, both of same place. Filed Apr. 6, 1886. (No model.)



Claim.—The combination, with the frame having the narrow strips, one shorter than the other, of the slide provided with shoulders for resting on said strips, and the lever *a'*, said slide extending downwardly in said frame nearly the entire depth thereof, and being operated by the lever entering a recess therein, substantially as shown and described.

348,818. PIPE AND ROD VISE.

JOSEPH G. BAKER, Fernwood, Pa. Filed May 25, 1886. (No model.)



Claim.—1. The combination of the frame and sliding block having ratchet-teeth with a cam pivoted to the frame and a pawl, also pivoted to the frame, but at a point further away from the block than is the cam, substantially as specified.

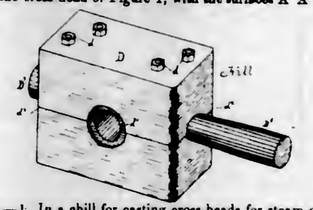
2. The combination of the frame and sliding block having ratchet-teeth with a pawl loosely pivoted to the frame, and a cam to act on the pawl, as set forth.

3. The combination of the frame and sliding block provided with a pivoted gripping-jaw having curved faces and stops *d d* on the block, substantially as and for the purpose set forth.

348,819. CHILL FOR USE IN CASTING CROSS-HEADS.

JAMES BARCLAY, Erie, Pa. Filed Nov. 30, 1885. (No model.)

Brief.—The pattern is molded in a two-part flask and then withdrawn and the chill put in place in the mold, thus filling part of the mold-cavity made by the pattern. Finally the metal is poured, thus producing the cross-head of Figure 1, with the surfaces A' A^2 A^3 chilled.

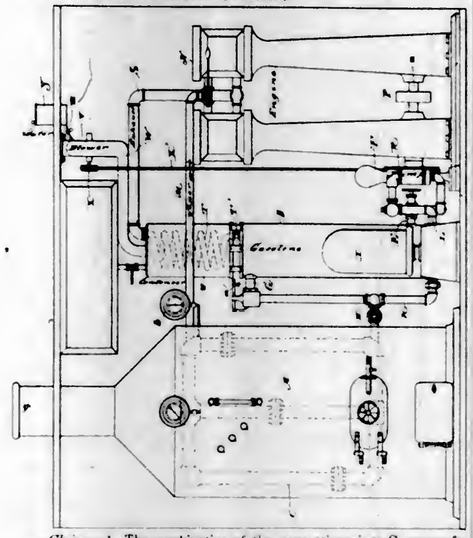


Claim.—1. In a chill for casting cross-heads for steam or other engines, the combination, substantially as set forth, of the body D, parted on a central horizontal plane and having openings D' and d^2, as set forth, and the tapering mandrel D^3, inserted in said opening d^2.

2. In a chill for casting cross-heads for steam and other engines, the combination, substantially as set forth, of the body D, parted on a central horizontal plane and having openings D' and d^2, the countersinks d' at the edges of the opening D', and a projecting support, D^2, and the tapering mandrel D^3, inserted in said opening d^2.

348,820. VAPOR-GENERATOR.

JOHN A. BEARDSLEY, Minneapolis, Minn. Filed June 1, 1886. (No model.)



Claim.—1. The combination of the generating-pipes C, means for heating the same to the desired temperature, and the pressure-dome communicating with the said pipes, for the purpose set forth, substantially as described.

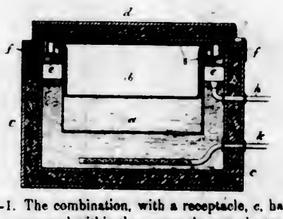
2. The combination of the pipe C, the pressure-dome, and means for maintaining the pressure in the dome, substantially as described.

3. The combination of the supply-tank D, the pressure-dome, the generating-pipes C, the pipe K, connecting the pressure-dome with the generating-pipes, the pipe G, extending from the pipe K to the tank or reservoir, and having the pressure-valve *a*, and the pump or means for supplying the gasoline or other fluid from the reservoir D to the pressure-dome, for the purpose set forth, substantially as described.

4. The combination, with the generating-pipes C, of the engine deriving its supply from the said pipe, the tank or reservoir D, the pressure-dome, the pump for forcing the gasoline or fluid from the tank D to the pressure-dome, the pipe K, connecting the pressure-dome with the generating-pipe C, and the condenser communicating with the exhaust of the engine and with the tank D, for the purpose set forth, substantially as described.

348,821. COOKING APPARATUS.

CARL BROKER, Berlin, Germany. Filed June 1, 1885. (No model.) Patented in Spain Mar. 6, 1885, No. 6,627.



Claim.—1. The combination, with a receptacle, *c*, having a cover, *d*, of a gutter, *e*, arranged within the receptacle near the top edge thereof, adapted to contain water, cooking-vessel *a*, suspended on the gutter, and the baking and roasting pan *b*, suspended on the gutter within the cooking-vessel, substantially as described.

2. The combination, with a receptacle, *c*, having a cover, *d*, of the gutter *e*, secured within the receptacle near the top edge thereof, the vessels *a* and *b*, suspended from the gutter, and the cover *g*, dipping into the gutter, substantially as described.

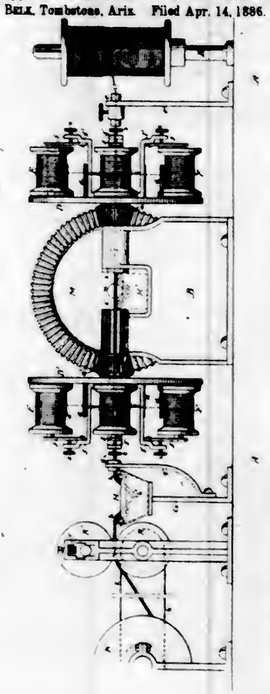
3. The combination, with a receptacle, *c*, having a cover, *d*, of a gutter, *e*, arranged within the receptacle near the top edge thereof, adapted to contain water, cooking-vessel *a*, suspended on the gutter, baking and roasting pan *b*, suspended on the gutter within the cooking-vessel, and a rim, *f*, secured to the cover and dipping into the gutter, substantially as described.

4. The combination, with a receptacle, *c*, having a cover, *d*, of the gutter *e*, secured within the receptacle near the top edge thereof, the vessels *a* and *b*, suspended from the gutter, the cover *g*, dipping into the gutter, and a rim, *f*, secured to the cover of the receptacle and dipping into the gutter, substantially as described.

5. The combination of the receptacle *c* for containing water, having a cover, *d*, steam-pipe *k*, overflow-pipe *h*, and gutter *e*, cooking-vessel *a*, roasting-vessel *b*, inner cover, *g*, and rim *f*, the inner cover and rim dipping into the gutter, substantially as set forth.

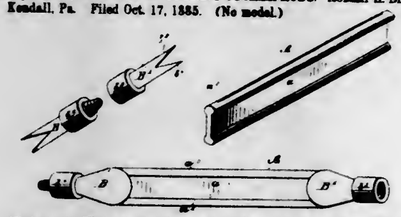
348,822. MACHINE FOR COVERING WIRE AND OTHER CORES.

JOHN C. BELL, Tombstone, Ariz. Filed Apr. 14, 1886. (No model.)



Claim.—In a wrapping-machine, the combination of two disks, D and D', carrying spools on their outer faces, and having pinions *a a'* on their inner or adjacent faces, with a driving-wheel, M, between the two disks and gearing with both pinions, substantially as set forth.

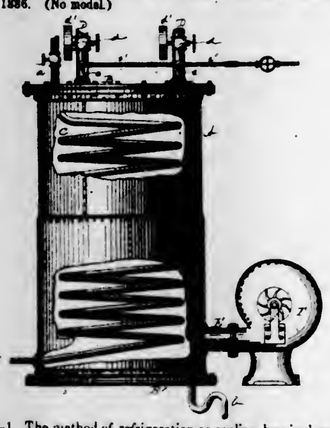
348,823. **PROCESS OF UNITING SUCKER-RODS.** ROBERT H. BLACK, Kendall, Pa. Filed Oct. 17, 1885. (No model.)



Claim.—1. The process above set torth of making sucker-rods, consisting in preparing a section of metallic rod with thickened edges, and securing on the respective ends of said rod a male and female joint by placing one end of said rod in the fork of its joint and the other end in the fork of its joint, and then securing the ends of the forks upon the body of the rod by welding, all substantially as described.

2. A process for uniting sucker-rods, which consists in splitting the one end of the stad-joint or coupling, and then inserting therein the web of the rod and welding the joint to the sides of the bar, and afterward welding the ribs on the side of the bar to the stad-joint, substantially as and for the purpose herein set forth and described.

348,824. **METHOD OF AND MEANS FOR REFRIGERATION.** ANDREW J. CHASE, Boston, and CHARLES F. SMITH, Fitchburg, Mass. Filed Mar. 18, 1886. (No model.)



Claim.—1. The method of refrigeration or cooling herein described, consisting, essentially, in exposing the material to be cooled within a casing, in which is maintained a partial vacuum, to a current of air which is highly charged with moisture when it enters the casing, as set forth.

2. The casing A and interior coil or equivalent device, in combination with inlet air-pipes D D' D'', provided with valves and spraying devices, and pipe E, with its exhaust-fan F, substantially as and for the purpose described.

3. In a refrigerating apparatus, substantially as described, the combination of an air-inlet pipe, a rotating valve, and stem provided with pulley *d'*, for the purpose specified.

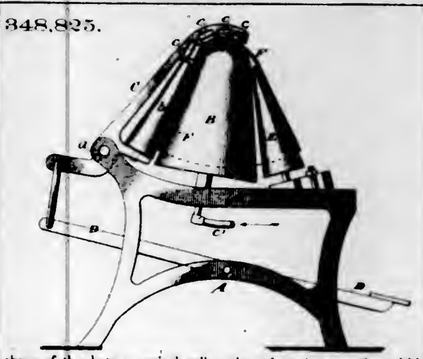
348,825. **MACHINERY FOR FELTING, PLANKING, SIZING, &c., HATS.** ABRAHAM T. CLASON, Danbury, Conn. Filed Mar. 22, 1886. (No model.)

Claim.—1. In a machine for felting, planking, sizing, and pinning out hats, the combination of a main cone adapted to be heated and conforming to the shape of the hats, an adjustable conical roller, also to revolve within the hat, and a series of workers, *b c c*, the said workers *c* being made to curve over the spherical end of the main cone, substantially as set forth.

2. In a machine for felting, planking, sizing, and pinning out hats, the combination of a cone adapted to be heated and conforming to the shape of the hats, a series of workers, *b c*, mounted upon an arm or lever, the said workers *c* being made to curve over the spherical end of the cone, and with the workers *b* adapted to be lifted therefrom as a series, substantially as set forth.

3. In a machine for felting, planking, sizing, and pinning out hats, the combination of a cone adapted to be heated and conforming to the

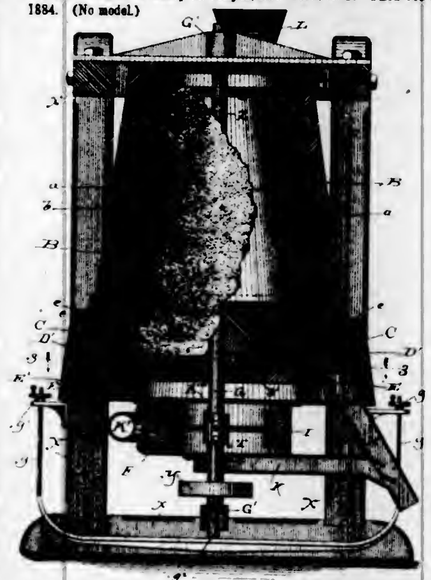
348,825.



shape of the hats, a conical roller, also adapted to revolve within the hat, a series of workers, *b c*, mounted in an arm or lever, whereby they may be lifted from the main cone, the said workers *c* being made to curve over the spherical end of the cone, substantially as set forth.

4. In a hat-felting machine, a main cone conforming to the shape of the hats, combined with a perforated steam-pipe outside the cone and adapted to discharge steam between said cone and the hat, substantially as set forth.

348,826. **GRAIN CLEANING AND SCOURING MACHINE.** MIDDLETON CRAWFORD, Chicago, Ill., assignor, by direct and mesne assignments, of one-half to Henry M. Collyer, New York, N. Y. Filed Oct. 28, 1884. (No model.)



Claim.—1. In a grain-cleaner, the combination of a revolving cone having an exterior grinding-surface, as of emery, with a concave jacket concentric to and equidistant from said cone, having a continuous approximately smooth soft elastic lining, as of rubber, and means for feeding grain to the top center of said cone, whereby the same will be delivered in a thin sheet and continued between the concentric equidistant surfaces in a downward direction, the said surfaces being so adjusted relative to each other that the ends of each berry in its downward path are successively presented to the action of the conical and concave surfaces.

2. In a grain scouring and cleaning machine of the class described, the combination of a revolving cone having an emery surface with a jacket having a lining of rubber which presents a smooth elastic inner surface continuously concentric to the cone, and arranged to allow the grain to be forced through the space between the cone and the lining, and to receive the effect of the combined elasticity and concavity of the lining and the grinding effect of the emery as the cone is revolved, as set forth.

3. In a grain-cleaning machine, substantially as described, the combination of the jacket having a rubber lining and openings, as D, covered by wire screens, as D', with the revolving cone having an emery surface to correspond with the lining and brushes, as C, to correspond with the screens, as set forth.

4. The jacket B, having a scouring-surface above and screens D' below, and having a casing, E, to form a dust-chamber exterior to said screens, combined with a revolving cone having a grinding-surface above and a brush-surface which lies opposite the screens, and a fan-chamber connected with said dust-chamber, the latter being provided with means, as *e*, for admitting air thereto, and valves *e'*, for controlling and adjusting said air-inlets at will, as set forth.

5. The jacket having grain-chute H and screens D', combined with the cone, the dust-chamber having controlled air-inlet, the fan, the chute K, and fan-discharge chute K', arranged and operating as and for the purposes specified.

6. In a grain-cleaner, the combination of a cone having a cutting-surface in the upper portion thereof and a brushing-surface below, a surrounding jacket having an inner elastic surface corresponding to the grinding or cutting part of the cone, and perforations in the lower part corresponding to the brushing portion of the cone, a secondary jacket forming with the first-named jacket an air-chamber, a delivery-spout for the grain, and an air-fan hung on the same vertical shaft as the cone and connected with said air-chamber, as and for the purposes set forth.

7. In a grain-cleaner, the combination, with a revolving cone having a cutting or grinding surface in the upper part thereof and a brushing-surface below, a surrounding jacket having an elastic rubber lining opposite the grinding-surface of the cone and perforations opposite the brushing-surface thereof, a secondary jacket having adjustably-covered holes therein surrounding holes in the first-named jacket and forming an air-chamber, and the fan and chamber, as described, and for the purpose set forth.

8. In a grain-cleaner, the combination, with the cone having grinding and polishing surfaces, and with the jacket having elastic lining and perforations arranged, as described, of a feed spout or hopper placed above and near the center of said cone, a fan placed beneath said cone, a fan-chamber, a secondary jacket forming an air-chamber connected with the fan-chamber and having controlled air-ducts therein, a delivery-spout for the grain, and conduits connecting the said delivery-spout, air-chamber, and fan, substantially as and for the purposes specified.

9. In a grain-cleaner, the combination of cone A, jacket B, brush C, wire-netting D', jacket E, fan F, shaft G, delivery-spout H, jacket I, spout K, conduit K', and spout L, all substantially as described, and for the purposes set forth.

348,827. **VISE.** MIDDLETON CRAWFORD, Brooklyn, assignor to William R. Baird, New York, N. Y. Filed Jan. 16, 1886. (No model.)



Claim.—1. In a vise, the combination, with a stationary jaw and racks supported in stationary bearings, of a movable jaw carrying a movable rack, a guard-bar for throwing the racks out of engagement, and an operating-lever working in a plane corresponding to that of the traverse of the movable jaw, and leaving a cam operating directly on such jaw, as set forth.

2. In a vise, the combination, with the movable jaw and rack D, and with the stationary jaw and rack C, of the operating-lever working in a plane corresponding to that of the traverse of the movable jaw, and having a cam, as g^3, the pivot *g'*, connecting the lever with the rack D, and a guard-bar connected to the lever by a pivot eccentric to the pivot *g'*, and arranged to throw the racks out of engagement when the cam is out of operation, as set forth.

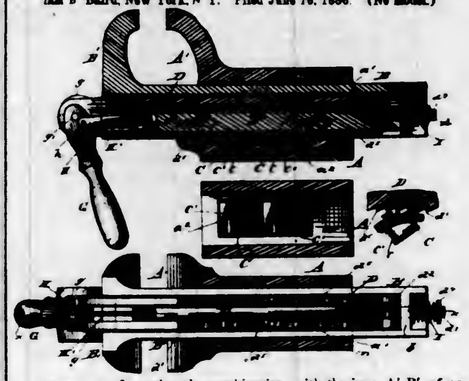
3. In a vise, substantially as described, the combination, with the two jaws and their respective racks, of an operating-lever pivoted and centered upon the movable rack, a guard-bar, as F, pivoted eccentrically to the said lever, a concentric bearing, g^4, between the lever and movable jaw, corresponding to the throw of the guard-bar, and a cam, g^3, arranged to move the movable jaw and its rack independently when said rack is uncovered by the guard-bar, as set forth.

4. The combination, with the movable jaw and the racks C, of the rack D, having slot *d* and chamber d^2, the guard F, supported loosely in said rack by pins *f*, the lever G, working in a plane corresponding to that of the traverse of the movable jaw, and having cam-surface g^3 and concentric surface g^4, the pivots *g' h*, arranged upon different centers, and the spring I, as specified.

5. The rack D, having slot *d*, the guard bar F, and lever G, as described, combined with the shank B, having perforated diaphragm *b*, the pin *d*, and spring I, and with the rack C, as and for the purpose set forth.

6. The combination, with the swiveled stationary jaw A A', having recesses a' a^3, and with the movable jaw B and its shank B', having perforated diaphragm *b*, of the rack D, having slot d^3 and cross-arm d^5 the spring I, guard-bar F, the links H', and the lever G, having bearings d^3 d^4, arm H, and pivots *g' h*, as and for the purposes set forth.

348,828. **VISE.** MIDDLETON CRAWFORD, Brooklyn, assignor to William R Baird, New York, N. Y. Filed June 16, 1886. (No model.)



Claim.—1. In a vise, the combination, with the jaws A' B', of an operating-lever having oppositely-arranged cams *g g'*, the said cams being constructed to bear, one against the jaw B' and the other upon the jaw A' through intermediate connections, substantially as described, whereby the jaw B' is moved its maximum distance with a single stroke of the lever, as set forth.

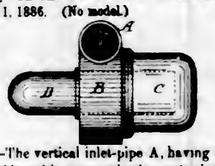
2. The combination, with a stationary jaw, and with a rack-bar arranged to be locked thereto at will, and having a cam-seat, as d^2, of a movable jaw and an operating-lever having oppositely-arranged cams, one cam serving against the outer face of the movable jaw and the other cam serving simultaneously against the said cam-seat on the rack-bar to force the jaws together, as set forth.

3. In a vise, substantially as described, the combination of the stationary parts A A', having a toothed pawl, a rack-bar arranged to engage said pawl at will, a movable jaw, and a double cam operating between the movable jaw and the rack-bar, as set forth.

4. In a vise, substantially as described, the combination, with the stationary jaw and rack-bar, and with the movable jaw and double cam-lever, of two guard-bars arranged one upon each side of the rack-bar, and having pin-and-slot connection with the cam-lever, and a pawl, *a'* as and for the purpose set forth.

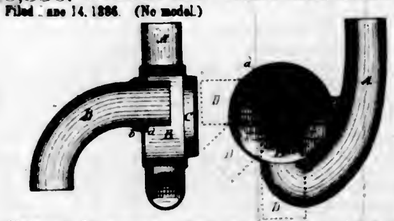
5. The combination of the movable parts B B', having dovetail recess i, and of the rack-bar, guard-bars, and cam-lever, with the cross-bar I, having the projection i', as set forth.

348,829. **SEWER-GAS TRAP.** FRANK E. CUDELL, Cleveland, Ohio Filed Mar. 1, 1886. (No model.)



Claim.—The vertical inlet-pipe A, having vertical chamber B, attached on one side, with communication at its bottom with said pipe A, and having side chamber, C, having the outlet-pipe D, extending inwardly to communicate with said side chamber and leading out through the opposite side wall of chamber B, as shown and described.

348,830. **SEWER-GAS TRAP.** FRANK E. CUDELL, Cleveland, Ohio Filed June 14, 1886. (No model.)

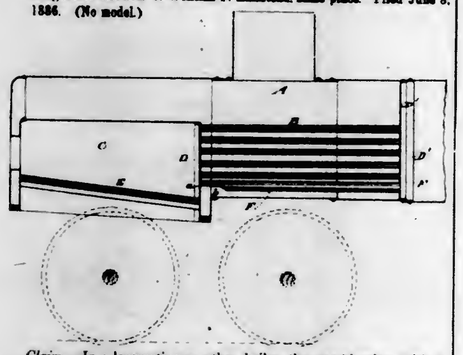


Claim.—1. In a sewer-gas trap, the combination, with the inlet-pipe A, having chamber B secured thereto, of outlet-pipe D, with inward projection, and attached in manner described, whereby said outlet-

pipe may be adjusted to make either a full S, half S, three-quarter S, or a running trap, substantially as specified.

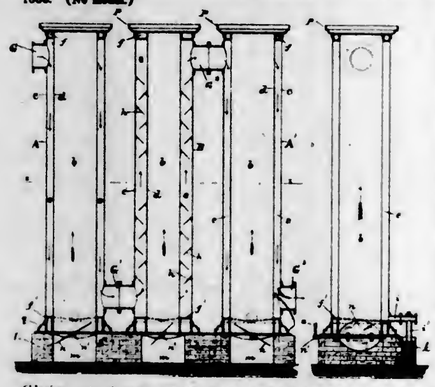
2. The combination, with the inlet A and chamber B of a sewer-gas trap, of the outlet-pipe D, having a shoulder or flange, *d*, said pipe being inserted through opening C into hole in chamber-wall, and secured therein by flange on the inside and the solder on the outside of the wall, substantially as described.

348,831. LOCOMOTIVE-BOILER. WALTER DAWSON, Scranton, Pa., assignor of one-half to William F. Halbstead, same place. Filed June 8, 1886. (No model.)



Claim.—In a locomotive or other boiler, the combination, with a shell, furnace-grate, and tube-sheets D D', of a tube, (or series of tubes,) F, arranged throughout the greater part of its length in close proximity to the shell, and of reduced diameter or size where it connects with the tube-sheet D, substantially as set forth.

348,832. APPARATUS FOR THE PURIFICATION OF GAS. ALEXANDER DELANEY and WILLIAM SIMPTIN, Richmond, Va. Filed Nov. 27 1885. (No model.)



Claim.—1. A gas-condenser composed of an outer and an inner cylinder, having an annular gas-space, *e*, between the two, and an open center air-chamber, *b*, through the inner one, and provided in the annular gas-space with friction-plates *h*, narrower than the said space and attached alternately to the walls of both cylinders, for the purpose specified.

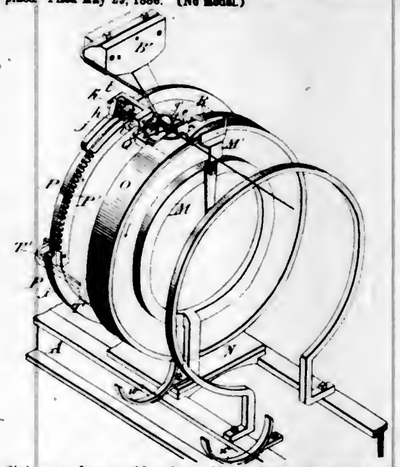
2. A gas-condenser composed of an outer and an inner cylinder, having an annular gas-space, *e*, between the two, and an open center air-chamber, *b*, through the inner one, and provided in the annular gas-space with ring-shaped friction-plates placed and supported as and for the purpose specified.

3. A gas-condenser composed of an outer and an inner cylinder having an annular gas-space, *e*, between the two, and an open center air-chamber, *b*, through the inner one, and provided in the annular gas-space with friction-plates *h*, narrower than said space, extending horizontally and from the walls to which they are attached inclining down to form a drip-edge, for the purpose specified.

4. In a gas-condenser, the combination of a column, A, having a plain annular gas-space, *e*, and an open center air-chamber, *b*, and provided at or near the top with an inlet-nozzle, G, leading to the said annular gas-space, a second column, B, having an annular gas-space and an open center air-chamber and provided in the annular gas-space with friction-plates *h*, attached alternately to both of the walls which form the said space, and a connection, G', at the bottom between the annular space of the first and second column, for the purpose specified.

5. In a gas-condenser, the combination of a column having an annular gas-space and an open center air-chamber with a bottom ring, *f*, filling the annular gas-space and sloping or inclining to one side, and a tar-pipe, *i*, connected with the said annular space at the lowermost part of the sloping bottom ring, for the purpose specified.

348,833. MACHINE FOR MAKING BALE-TIES. DAVID I. ECKERSON, Worcester, N. Y., assignor to himself and Abram Diefendorf, same place. Filed May 29, 1886. (No model.)



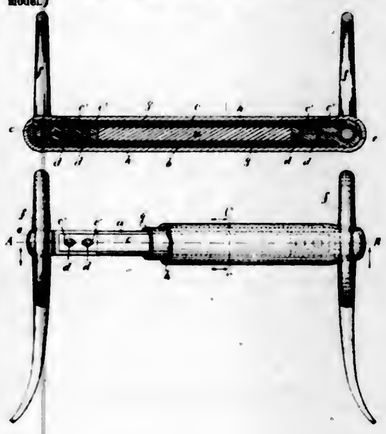
Claim.—1. In a machine for making bale-ties, the combination of the wire-supplying devices, consisting of the reel-support, the reel, a series of wire-conducting sheaves so placed as to give the wire a series of lateral bends as it passes between them, a wire-straightening device, G', and the mechanism for stretching, cutting, forming the loops, and twisting the same, all constructed and arranged for joint operation, substantially as shown and described.

2. In a bale-tie machine, the combination, with the straightening and cutting mechanism, of the cam-plate M, the clamp *e*, and the wire-support M', arranged to receive the wire as it drops from the stretching and cutting apparatus and support the same clear from the periphery of the carrying-wheel O until it is caught by the clamp *e*, substantially as shown and described.

3. In a bale-tie machine, the twisting-shaft *f*, carrying the pinion A and triangular block A', said pinion and block being made adjustable upon the shaft by means of set-screws *i* and *i'* passing through the hubs of the same and bearing against the shaft, for the purpose of adjusting the position of the shaft to the length of twist given the wire, as set forth.

4. In a bale-tie machine, the combination of the wheels O, carrying the springs R, with the pressure-rollers T, mounted upon spring-arms T', for the purpose of compressing the spring and throwing off the finished tie, as set forth.

348,834. BRIDLE-BIT. JOHN A. FAIRBANKS, Cambridgeport, assignor to Eugene C. Upton, Boston, Mass. Filed Jan. 9, 1886. (No model.)

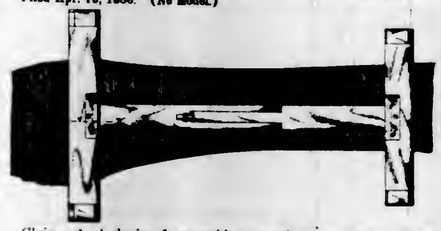


Claim.—1. In a bridle-bit, the central yielding cushion, *a*, inclosed between the spring-metal plates *b c*, one of which is firmly riveted to the split pins *e e* by means of rivets *d d*, and the other provided with slot-holes *c' c'*, as and for the purpose set forth.

2. In a bridle-bit, a metal strip, *b*, firmly riveted to the split pins *e e* by means of rivets *d d*, the yielding longitudinal cushion *a*, having its ends abutting against the inner ends of said split pins *e e*, and held in place by means of a secondary metal plate or strip, *c*, provided with slotted perforations *c' c'* for the rivets *d d* to pass loosely through, in a manner and for the purpose as set forth.

3. In a bridle-bit, the central yielding cushion, *a*, the metal strip *b*, and split pins *e e*, riveted together, as described, the movable metal strip *c*, the rubber inclosing-tube *g*, and leather covering *h*, all arranged and combined as and for the purpose set forth.

348,835. TROUSERS-STRETCHER. DAVID B. FALK, Charleston, S. C. Filed Apr. 15, 1886. (No model.)

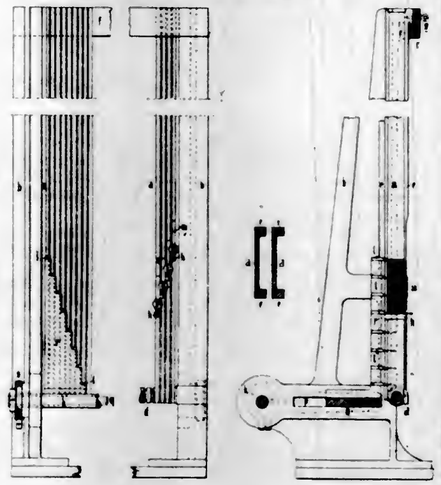


Claim.—1. A device for stretching pantaloons, consisting of end clamp-plates, A A', having each of their inner faces oppositely inclined, in combination with holding-clamps *a'*, attached to the ends of the plate A, and means for retaining said clamps extended, as and for the purpose intended, substantially as described.

2. A device for stretching pantaloons, consisting of pairs of clamp-plates, each pair adapted to clamp the garment horizontally, said plates having their inner surfaces inclined respectively in opposite directions, the upper of each pair of said plates being provided with an opening, a^2, covered upon one side with plate a^2, in combination with a two-part pivotally-connected toggle-lever, B, having an extending tongue, *b'*, on the inner end, said lever provided with locking device, as b^4, substantially as described.

3. A device for stretching pantaloons, consisting of two pairs of aligning end plates adapted to clamp the garment horizontally, each pair having their inner surfaces inclined in opposite directions, the upper plates having a cut-away part forming an opening, a^2, said opening having plate a^2, in combination with a two-part pivotally-connected toggle-lever, B, having an extending tongue, *b'*, on one part thereof, and an opening upon the opposite member for the reception of said tongue, and provided with fastener, as b^4, and hanger C, as and for the purpose intended and set forth, substantially as described.

348,836. APPARATUS FOR SETTING TYPE. CARL G. FISCHER, Schloss Holte Brackwede, near Bielefeld, Westphalia, Germany. Filed July 10, 1885. (No model.) Patented in Germany Sept. 14, 1884, No. 31,992, and in France Jan. 24, 1885, No. 166,630.



Claim.—1. In an apparatus for facilitating the setting of types by hand, the combination, with a plurality of stationary channel-like type cases arranged in a row having the bottom pieces, *h*, of the type-ejectors *l*, fixed in oblique rows to a reciprocating piece of machinery and adapted to simultaneously push forward the lowest types of all the type-columns which rest on the bottom pieces, *h*, arranged just below the path of the respective ejectors *l*, substantially as and for the purpose described.

2. In an apparatus comprising a row of stationary channel-like type-cases and a number of reciprocating type-ejectors operated as described, the type-cases consisting of bars *a*, having projecting flanges *e*, each case being closed on one side by the back of the neighboring bar *a*, substantially as specified.

3. The combination, with the bars *a*, having projecting flanges *e* and a recessed foot, of the bar *d*, having grooves into which the bars *a* are inserted with their recessed foot, and means, substantially as described, for fastening the bars *a* at the top, substantially as and for the purpose set forth.

348,837. PNEUMATIC HAMMER. CHRISTIAN FREDERICK and CHARLES N. TRUMP, Wilmington, Del. Filed Dec. 10, 1885. (No model.)



Claim.—1. In a pneumatic hammer, a cylinder of uniform diameter with transmission and exhaust ports, a hammer-piston fitted to the cylinder and adapted to control the valves, with extension-rod D passing through cylinder-head, serving to reduce the effective area of driving end of piston, in combination with anvil-headed tool-holder or tool carried in case formed in cylinder-head next hammer end of piston or attached thereto, substantially as described.

2. In a pneumatic hammer or percussion-tool, the combination, with chamber or chambers provided with transmission and exhaust ports and piston fitting thereto, of an auxiliary valve-chamber, and communicating ports *o p*, piston-valve *a*, tube-valve *b*, connected thereto, relief-port *i*, and recess or slots in surface of piston forming connecting passages between *p* and H when reverse movement of piston is completed, substantially as described.

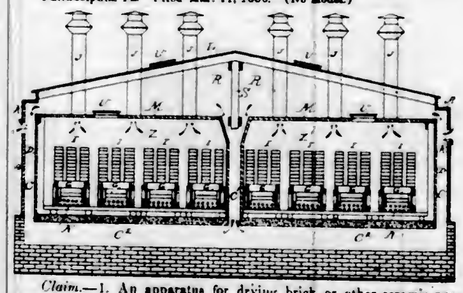
3. In a pneumatic hammer, an anvil-headed tool-holder and case in which it reciprocates, a port connecting the case with the main hammer-cylinder to admit compressed air below the anvil-head on the reverse movement of the hammer, so as to assist in retracting the anvil into position for receiving blows from the hammer, substantially as described.

4. In a pneumatic hammer, the combination of tool-holder provided with wide longitudinal keyway, a narrow key, and a spiral-edged cam-adjusting ring engaging the ends of the key, whereby the force of the blow may be regulated, substantially as described.

5. In a pneumatic hammer, a series of exhaust-ports covered by a slide or slides or opening into a tube, provided with an inner tube movable therein and having openings corresponding with each of the exhaust-ports, so that when the slide or tube is set exhaust may occur through either of the ports, as may be desired, substantially as described.

6. In a pneumatic hammer, the combination of the cylinder, transmission-port, and two-way cock adapted to admit the driving agent to the hammer end of cylinder, so as to complete the reverse movement of the piston before air is admitted to the driving end, substantially as described.

348,838. APPARATUS FOR DRYING BRICK. WILLIAM L. GREGG, Philadelphia, Pa. Filed Mar. 11, 1886. (No model.)



Claim.—1. An apparatus for drying brick or other ceramic products, consisting of an outer building, A, and an inner structure, D, said inner structure divided into two or more independent drying-compartments, Z Z', and provided with a floor, walls, and ceilings impervious to moisture, an air-chamber, R, above said compartments, openings K

through the outer building for the ingress of air, vertical flues C between the outer and inner structures, communicating with said openings and air-chamber, transverse flues C^2, lined with cement or concrete at the bottom of said inner compartment connected with flues C C', a separate independent partition, S, between the compartments Z Z', the flues C', on the opposite sides of said partition and connecting the air-chamber with the lower flue, C^2, and pipes or chimneys for carrying off the heat and moisture from the compartments, secured in an air-tight manner in the ceilings of the same and passing through the said chamber and roof of the outer building, substantially as and for the purpose described.

2. In a structure for drying brick or other ceramic products, two or more independent drying-compartments, Z Z', in combination with the partition S between said compartments, air-flues C on the opposite sides of said partition, an air-chamber, R, above said compartments, transverse cement-lined flues C^2 below said compartments, said chamber and flues connected by side and central flues, C C', pipes or chimneys leading from said compartments through the said air-chamber and its roof for conducting away the heated air and moistore from the compartments, and pipes for supplying heat to the bottom of each compartment, substantially as and for the purpose described.

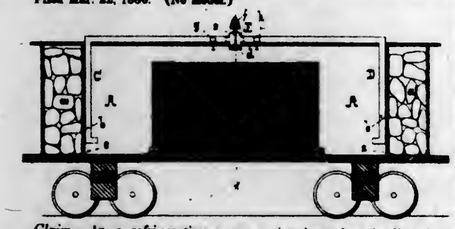
3. In a structure for drying brick or other ceramic products, a compartment provided with a floor, walls, and ceilings provided with an impervious lining, such as cement or concrete, tracks or cars for holding the products to be dried, in combination with steam-pipes running between the tracks and beneath the cars and connecting with transverse steam-supply pipes, cold-air flues lined with cement or concrete running transversely across the compartment below the tracks and the said steam-pipes, and pipes or chimneys for carrying away the heat and moisture from the compartment, said chimneys secured to the ceiling of each compartment in an air-tight manner and in a line directly above the material to be dried, whereby all the cold air is conducted to and heated below the car-tracks, arises between them, envelops the bricks to be dried, passes out directly above them, and all the heat is utilized in drying the said products, substantially as described.

348,839. PIE-PLATE. MARTIN J. GROSS, Emporia, Kans. Filed Mar. 9, 1886. (No model.)



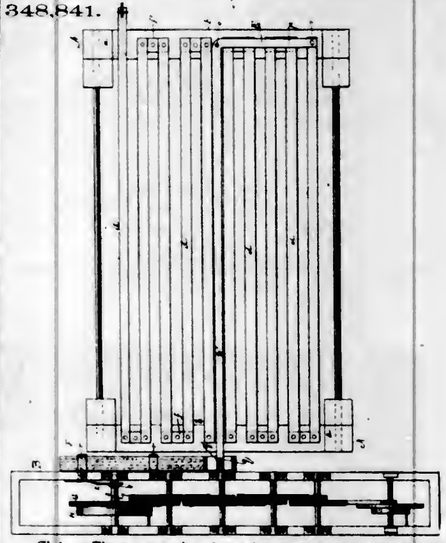
Claim.—In a pie-plate, the combination of a plate having a number of equidistant and diametrically opposite slots in its rim, with a partition having a slot at its middle extending from the upper edge to below the middle of the strip, and having lips at its ends for fitting in the slots of the rim, a partition having similar lips and having slots at its center extending from both edges to near the middle of the strip, and a partition having lips at its ends, and having a slot extending from the center of the lower edge to slightly above the middle, as and for the purpose shown and set forth.

348,840. REFRIGERATOR-CAR. CHARLES HAFFNER, Baltimore, Md. Filed Mar. 22, 1886. (No model.)



Claim.—In a refrigerating room or chamber, pipes leading from the lower to the upper part thereof having therein an air-circulating turbine, substantially as and for the purpose specified.

348,841. APPARATUS FOR UTILIZING THE EXPANSIVE AND CONTRACTIVE POWER OF METALS. FRANKLIN E. HADLEY, Martinsville, Ill., assignor of one-fourth to William G. Delashmutt, same place. Filed Feb. 18, 1886. (No model.)



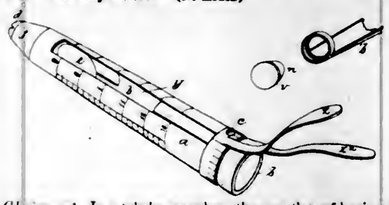
Claim.—The upper series of metal bars and lower series of metal bars, arranged in a frame, and each series coupled together by pivoted levers *f f'*, in combination with the vertical connecting-lever D, bifurcated lever E, pin *g'*, sliding double rack-bar F, cogs *t t'*, ratchet-pinions *t'' t'''*, pawls 2 3, shaft *s*, spring H, and train of gear, all constructed, arranged, and operated as for the purpose set forth.

348,842. BRUSH. EPHRAIM HAMBURG, Detroit, Mich., assignor to Bernard G. Morris and Mark G. Morris, both of same place. Filed May 10, 1886. (No model.)



Claim.—In a brush, the combination of the head A, plate B, having flanges C, handle D, socket E, and dauber F, constructed, arranged, and operating substantially in the manner and for the purposes described.

348,843. RECTAL SPECULUM. HENRY W. HAMILTON, Springfield, Mass. Filed July 13, 1885. (No model.)



Claim.—1. In a tubular speculum, the case thereof having a slot in its side, a rotatable internal gate of tubular form having a slot-like opening in its side, a nut of cone shape located in the end of said gate, and means, substantially as described, for securing said gate in the case, all combined and operating substantially as set forth.

2. In combination with the case having the slot in its side, the rotatable tubular gate fitting in said case and having a slot-like opening in its side of varying width, the nut *e*, fitting in the end of the gate and having an inclined side, and the screw *d*, passing through the end of the case and engaging with said nut, substantially as set forth.

3. A tubular speculum having on the surface of its case a series of graduation-marks between its ends and a second series thereof around its rear end in a line transverse to said first-named series, substantially as set forth.

348,844. ROOFING. DAVID HARGER, Des Moines, Iowa. Filed Mar. 8, 1886. (No model.)

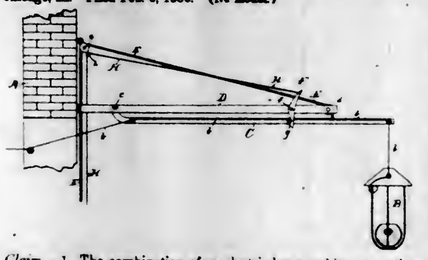
Claim.—1. A roofing material composed of two or more layers of felt, paper, or similar material, and a thickness of cotton or muslin united to the outer face of one of the layers of felt in the manner set forth.

348,844.



2. The combination, with the overlapping edges of two adjacent pieces or parts of roofing material having a coat of paint or analogous material applied between the overlapping parts, of a narrow strip of tin or other metal laid upon the top lap back a short distance from its edge and fastened to both laps by nails, as described, and a coat of paint or analogous material laid upon the tin and lap to prevent the edge of the lap from drawing out from under the strip, as set forth.

348,845. HANGER FOR ELECTRIC LAMPS. CLARK C. HASKINS, Chicago, Ill. Filed Feb. 6, 1886. (No model.)



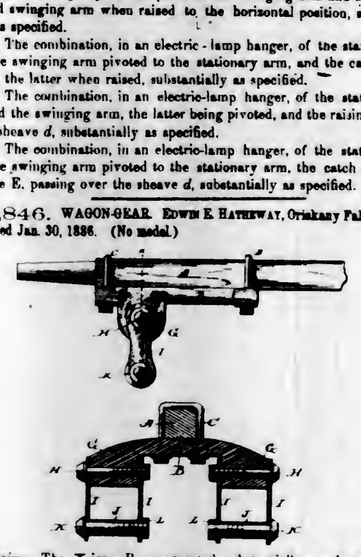
Claim.—1. The combination of an electric lamp and its connecting-wires with a hanger consisting of an arm pivoted so as to swing downward from the horizontal position, and a stationary arm attached to the building, extending beyond the pivot of the swinging arm and supporting said swinging arm when raised to the horizontal position, substantially as specified.

2. The combination, in an electric-lamp hanger, of the stationary arm, the swinging arm pivoted to the stationary arm, and the catch for holding the latter when raised, substantially as specified.

3. The combination, in an electric-lamp hanger, of the stationary arm and the swinging arm, the latter being pivoted, and the raising-rope E and sheave *d*, substantially as specified.

4. The combination, in an electric-lamp hanger, of the stationary arm, the swinging arm pivoted to the stationary arm, the catch F, and the rope E, passing over the sheave *d*, substantially as specified.

348,846. WAGON-GEAR. EDWIN E. HATHEWAY, Oriskany Falls, N. Y. Filed Jan. 30, 1886. (No model.)



Claim.—The T-iron B, constructed substantially as shown, and provided with the lateral extensions having the perforations to receive the clips C and D, which embrace the axle and are secured by nuts, the integral cone-shaped extensions G G, separated on their under side by a recess, as shown, and having the axial bores, the parallel and perforated links I, secured at their upper ends to the opposite ends of the said conical arms by the bolts H H, and the tubes J J, secured to the opposite ends of the links by the bolts K K, the whole adapted to serve with an axle, substantially as specified.

348,847. HEEL FOR BOOTS OR SHOES. EDWARD S. HAY, Lynn, Mass. Filed July 30, 1885. (No model.)

Claim.—1. In a boot and shoe heel, the chambered body provided with the lift at its bottom, in combination with the elastic metallic shank-

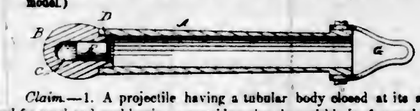


stiffener provided with a countersunk hole and a screw whose head fits into the countersunk hole, and which screw extends from said plate down to and into the lift at the bottom of the heel, substantially as described.

2. In a boot and shoe heel, the chambered body having the lift at its bottom, which lift extends over the entire bottom surface of the chambered body, in combination with the countersunk perforated plate and the screw whose head fits into the countersunk plate, and which screw extends down and screws into the lift, said screw extending only part way through the lift, leaving the bottom of the lift smooth and unbroken substantially as described.

3. In a boot and shoe heel, the combination of the chambered body having the lift which fits the bottom of the heel-body, a screw whose threaded portion extends into the bottom lift and projects into the lift only part way through it, leaving the bottom smooth and unbroken, and having a secondary filling-piece above it, with an elastic metallic countersunk shank-stiffener which extends over the heel portion of the inside of the shoe and thence forward to the shank of the shoe, substantially as described.

348,848. PROJECTILE FOR THROWING LIFE-LINES. SIMON INGERSOLL, Stamford, Conn., assignor to Nathan C. Pond, Marshall O. West, and Ernest Simons, all of Port Chester, N. Y. Filed July 1, 1886. (No model.)



Claim.—1. A projectile having a tubular body closed at its sides and forward end, and having a cartridge-chamber within its forward end terminating rearward at a shoulder within the projectile adapted to seat the flange of a cartridge, and the main portion of the body of said projectile extending rearward from the said shoulder within it, substantially as shown and described, whereby a gas-chamber is formed in the projectile to the rear of the cartridge-chamber, as and for the purpose specified.

2. The combination, in a projectile, of a tubular body and a cap removably secured to one end thereof, the said cap being provided with a cartridge-chamber and a shoulder fitted to seat the flanged head of the cartridge, substantially as shown and described.

3. The combination of a tubular body and a cap removably secured to one end thereof, the said cap being provided with a shouldered cartridge-chamber, and a conical mouth surrounding the said shoulder, substantially as shown and described.

348,849. GUN AND PROJECTILE FOR THROWING LIFE-LINES. SIMON INGERSOLL, Stamford, Conn., assignor to Nathan C. Pond, Marshall O. West, and Ernest Simons, all of Port Chester, N. Y. Filed July 12 1886. (No model.)

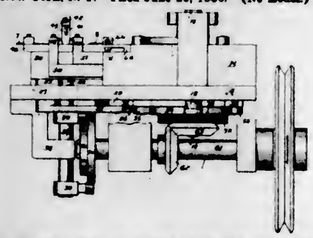


Claim.—1. The combination of a cylindrical tubular projectile closed at its sides and forward end, forming an elongated air-chamber, and provided with a bail at its rear end, and a gun having a barrel ex-

ternally cylindrical and fitted to the interior of the said projectile, and adapted to fire ammunition within the rear end of the said barrel, substantially as shown and described, whereby the said projectile is adapted to be thrown by the action of the air within the projectile resisting the expansion of gas within the gun-barrel at the time of firing.

2. The combination of a tubular projectile internally straight throughout its length and closed at its sides and forward end, forming an elongated air-chamber and provided with a bail at its rear end, and a gun having a barrel externally straight fitted to the interior of the projectile and adapted to fire ammunition within the rear end of the said gun-barrel, substantially as shown and described.

348,850. **MACHINE FOR MAKING ORNAMENTAL CHAINS.** JULIUS KINDER, Brooklyn, assignor to the Solid Link Chain Manufacturing Company, New York, N. Y. Filed June 29, 1886. (No model.)



Claim.—1. In a machine for making chain, the combination, with a link-feeder, as 8, of the oscillating chain-holding block, substantially as described.

2. In a machine for making chain, the combination, with the punch or bending-tool 43, of the oscillating chain-holding block, substantially as described.

3. In a machine for making chain, the combination, with the punch or bending-tool 43 and needle-pointed tools 1, of the oscillating chain-holding block, substantially as described.

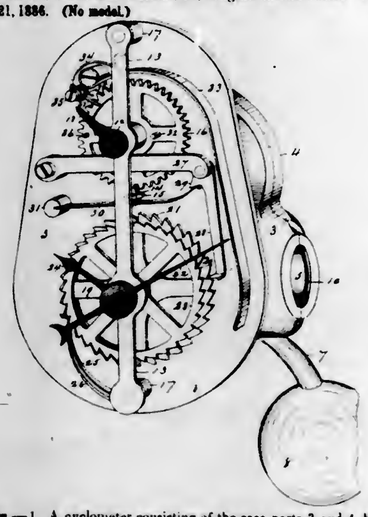
4. In a machine for making chain, the combination, with a link-feeder, as 8, and the bending-jaws 48 49, of the oscillating chain-holding block, substantially as described.

5. In a machine for making chain, the combination, with a link-feeder, as 8, and the horizontal straightening-needle 7, of the oscillating chain-holding block, substantially as described.

6. The combination, with the table 36, provided with an opening for the passage of the chain, of a chain-holding block, as 10, mounted so as to oscillate therein, substantially as described.

7. The combination, with the table 36, provided with an opening for the passage of the chain, and having a conical-nosed shoe, 11, of the chain-holding block 10, mounted so as to oscillate thereon, substantially as described.

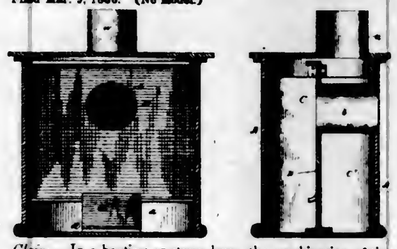
348,851. **CYCLOMETER.** JAMES A. LAKIN and CYRUS J. EMERSON, Jr., Westfield, Mass.; said Emerson, Jr., assignor to said Lakin. Filed May 21, 1886. (No model.)



Claim.—1. A cyclometer consisting of the case parts 3 and 4, having a chamber therebetween to receive a worm-sleeve, a worm-sleeve divided longitudinally into two parts and secured together by suitable screws, whereby it is clamped onto the axle of a vehicle, a shaft extending through one of said case parts, having on one end a worm-gear engaging with said worm-sleeve, and on the other end a pinion, a mile-wheel engaging with the latter, a lever pivoted at right angles to the axis of said mile-wheel and engaged by the latter once in each revolution thereof to vibrate said lever, a pawl pivoted to the free end of the latter, a spring engaging with an arm on said pawl, whereby the latter is swung on its pivot and said lever is swung toward the axis of said mile-wheel, combined with the ratchet-wheels 21 and 23, with which said pawl engages, substantially as set forth.

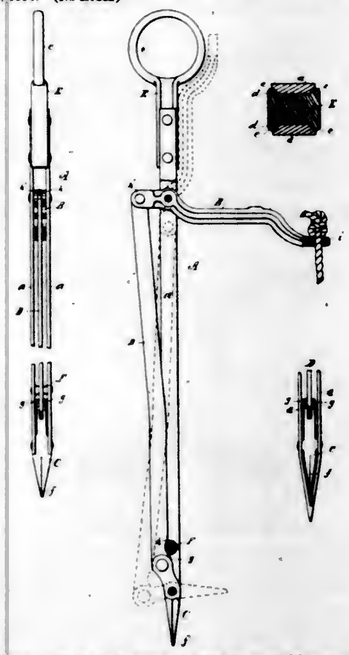
2. In combination, the ratchet-wheel 21, the vibratory lever 27, the pawl 28, pivoted to the latter and having the arm 29, the spring 30, engaging with the latter to swing said pawl against said ratchet-wheel and said lever from the latter, and the mile-wheel 16, having an engagement with said lever once in every revolution, substantially as set forth.

348,852. **HEATING-DRUM.** WILLIAM C. LINDSEY, New London, Mo. Filed Mar. 9, 1886. (No model.)



Claim.—In a heating or stove drum, the combination of the casing or drum, the elevated vertical partition, the inlet-pipe opening through the casing and partition, the outlet-pipe, and the plate extending from the partition down to the bottom of the drum and leaving openings at its ends, substantially as shown and described.

348,853. **HORSE HAY-FORK.** EDWARD MCCHRISTIAN, Springfield, Ohio, assignor to the Superior Drill Company, same place. Filed May 17, 1886. (No model.)



Claim.—1. A single-harpoon hay-fork comprising the following elements: a sheath having a handle secured to its upper end, a hay-lifting prong or barb pivoted at its lower end, a hand-lever pivoted near its upper end, a curved connecting-bar pivoted at its lower end to one end of the prong and at its upper end to one end of the hand-lever, and a spool or pin secured to the sheath, against which the connecting-bar strikes, substantially as and for the purpose described.

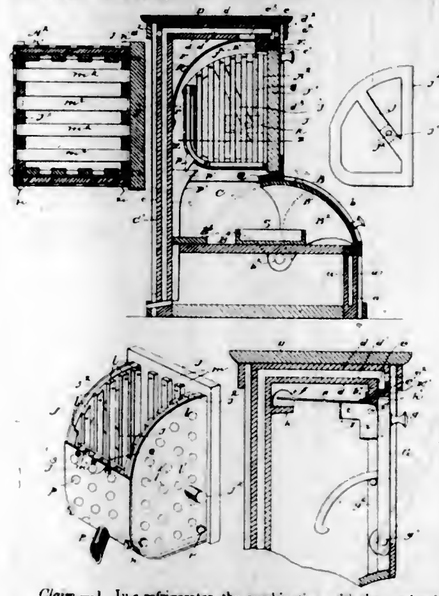
2. The combination, in a horse hay-fork, of a sheath comprised of the two flat bars *a*, separated and arranged parallel to one another, a handle secured to the upper end thereof and having flanges to overlap the edges of said bars *a*, a hand-lever pivoted between said bars, the forward end of which lies in plane central with relation to the sheath, said lever being bowed outward to permit it to lie in close proximity to the handle when in an upright position, as shown, a curved hay-lifting prong pivoted to the lower end of the sheath, a curved connecting-bar pivoted to and connecting said hand-lever and prong, and a spool to contact with said connecting-bar during its descent to assist in throwing it off its centers, all substantially as shown and described.

3. In a hay-fork, the combination, with the sheath A, hand-lever, and pivoted hay-lifting prong, of the inwardly-curved connecting-bar having the offset or inclined portion formed thereon, and the spool or pin adapted to strike said inclined portion and assist in throwing the connecting-bar forward, substantially as described.

348,854. **REMEDY FOR KIDNEY DISEASES.** NATHAN C. MCCUTCHEON and ALEXANDER T. MCCUTCHEON, Springfield, Ohio. Filed Jan. 12, 1886. (No specimens.)

Claim.—The herein-described composition of matter to be used for the treatment of diseases of the kidneys in general, consisting of Scotch ale, scoparius, taraxacum, and celery, in the proportions specified.

348,855. **REFRIGERATOR.** MARTIN S. MILLARD, Kansas City, Mo., assignor of one-half to William H. H. Tainter, same place. Filed July 24, 1885. (No model.)



Claim.—1. In a refrigerator, the combination, with the condensing-chamber, of an ice receptacle pivotally suspended in said chamber, and having a series of slats on which the refrigerant is adapted to rest, substantially as and for the purpose described.

2. In a refrigerator, the combination, with a condensing-chamber, of an ice-receptacle pivotally suspended in said chamber, and having skeleton side walls, perforated rear wall, and side plates, and a series of slats bolted together and adapted to receive the refrigerant and maintain a free circulation of air around the same, substantially as and for the purpose described.

3. In a refrigerator, a pivoted ice-receptacle having slats on which the refrigerant is placed, and a perforated metallic sheath arranged exteriorly to the slats, substantially as described.

4. In a refrigerator, a suspended pivoted ice-receptacle having a series of spaced-apart slats bolted together, and a perforated sheath arranged exteriorly to the slats and secured thereto, substantially as described.

5. In a refrigerator, an ice-receptacle comprising open side walls, a series of vertical spaced-apart slats at its sides, bottom, and rear walls thereof, and bolted together, and a perforated metallic sheath secured to the slats on the outer faces thereof, substantially as described.

6. In a refrigerator, the combination, with a condensing-chamber, the lower provision-chamber having an escape-pipe, *p'*, and an ice-receptacle pivoted to the condensing-chamber, and having a nozzle adapted to register and conduct waste-water from the ice-receptacle to the escape-pipe when the receptacle is in its closed position, substantially as described.

7. In a refrigerator, the combination of a condensing-chamber, one or more provision-chambers in communication therewith, an ice-receptacle having a perforated sheath arranged in the condensing-chamber, and a deflecting-shield arranged between the ice-receptacle and port between the condensing and provision chamber or chambers, substantially as described.

8. In a refrigerator, the combination of a condensing or cooling chamber, an ice-receptacle pivotally suspended therein, one or more provision-chambers divided from condensing-chamber by a vertical partition or partitions, F, having ports *f*, to establish communication between the said provision and condensing chambers, a valve pivoted at one end and having a seat at its opposite end, and a pivoted lever adapted to be operated by the door of the provision-chamber to open and close the valve, substantially as described

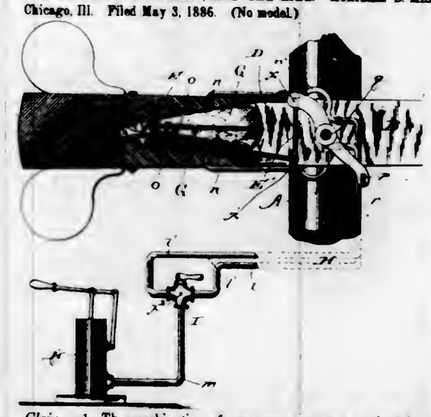
9. In a refrigerator having the condensing and provision chambers in communication with each other, the combination of a removable ice-receptacle having the spaced-apart slats and perforated sheath, said receptacle being pivoted in the condensing-chamber and adapted to be turned to a horizontal position for cleansing or putting the refrigerator therein, substantially as described.

10. In a refrigerator, the combination of a condensing or cooling chamber, a provision-chamber divided from the condensing-chamber by a partition having a port, *f*, a seat, *h*, arranged below the said port transversely within the provision-chamber, a gravitating valve, H, pivoted at one end near the door of the provision-chamber and normally resting at its free end on the seat *h*, and thereby cutting off communication between the provision and condensing chambers, and a pivoted lever adapted to be actuated by the door of the provision-chamber to move the valve, as set forth.

11. In a refrigerator, the combination of a condensing or cooling chamber, one or more provision-chambers arranged in the plane of and isolated from the said condensing-chamber by vertical partition or partitions, each having a port, *f*, in communication at all times with the condensing-chamber, a seat, *h*, arranged beneath the port of each chamber transversely across the latter, a valve, H, pivoted at its outer end near the door of the provision-chamber, and arranged in a horizontal plane in the upper part of said chamber, and a right-angled pivoted lever, I, arranged to act upon the pivoted end of the valve to hold the latter elevated out of contact with its seat when the door of the provision-chamber is closed, and when the door is opened to allow the valve to close by gravity and rest on its seat, substantially as described.

12. A refrigerator provided with the double walls, having an intermediate non-conducting air-space provided with ports, a hollow cap, D, having an air-space, and an opening, e^2, which opens communication between said air-space and the condensing-chamber of the refrigerator, said cap having an outlet, e^3, at one end, and a valve arranged to close the opening e^2 between the air-space of the cap and the condensing-chamber, substantially as described.

348,856. **MECHANICAL MOVEMENT FOR OPERATING GATE BARS, SWITCHES, SIGNALS, AND THE LIKE.** MORTIMER B. MILLS, Chicago, Ill. Filed May 3, 1886. (No model.)



Claim.—1. The combination of a stationary support, a pivotal arm, a lever fulcrumed toward one end to the pivotal arm and pivotally connected toward its opposite end to the stationary support, and a collapsible fluid-receiver confined between the said lever and pivotal arm and communicating with a suitable fluid-pump, the whole forming a new mechanical movement, substantially as described.

2. The combination of a stationary support, a bar rigidly secured thereon, a pivotal arm, a lever fulcrumed toward one end to the pivotal arm and pivotally connected toward its opposite end with the said bar.

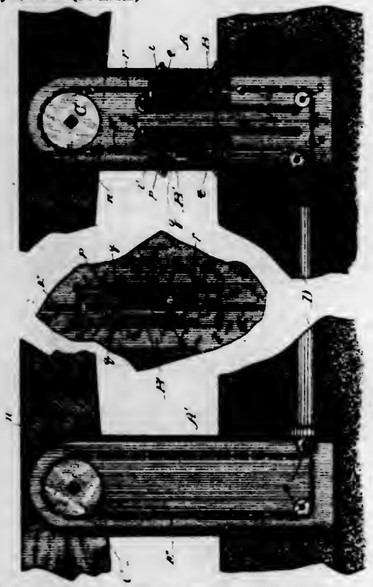
and a collapsible fluid-receiver confined between the said lever and pivotal arm and communicating with a suitable fluid-pump, the whole forming a new mechanical movement, substantially as described.

3. The combination of a stationary support, a bar rigidly secured thereon, a link connected toward one end with the bar, a pivotal arm, a lever fulcrumed toward one end to the pivotal arm and pivotally connected with the said link toward its opposite end, and a collapsible fluid-receiver confined between the said lever and pivotal arm and communicating with a suitable fluid-pump, the whole forming a new mechanical movement, substantially as described.

4. The combination of a stationary support, A, a bar, C, rigidly secured toward one end to the support A and extending obliquely across the same, a link, E', connected toward one end with the free end of the bar C, an arm, B, supported to swing upon the support A by a bearing, *g*, which passes through the bar C toward its center, a chamber, D, in the arm B, a lever, E, fulcrumed toward one end to the said arm and lying within the said chamber and pivotally connected with the link E' toward its opposite end, and a collapsible fluid-receiver, G, confined between the lever E and adjacent surface of the chamber D and communicating with a suitable fluid-pump, substantially as and for the purpose set forth.

5. The combination of a stationary support, A, a bar, C, rigidly secured toward one end to the support A and extending obliquely across the same, a link, E', connected toward one end with the free end of the bar C, an arm, B, supported to swing upon the support A by a bearing, *g*, which passes through the bar C toward its center, a chamber, D, in the arm B, a lever, E, fulcrumed toward one end to the arm at one side of the bearing *g* and lying within the said chamber, and pivotally connected with the link E' toward its opposite end, and collapsable fluid-receivers G, confined one on each side of the lever C within the chamber D, and controllably communicating with a suitable fluid-pump, H, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

348,857. GATE FOR RAILWAY-CROSSINGS. MORTIMER B. MILLS, Chicago, Ill., assignor to the Pneumatic Gate Company, same place. Filed May 6, 1886. (No model.)



Claim.—1. A gate comprising, upon opposite posts, swinging bars connected together to cause the rise or descent of one bar to raise or lower with it the other, air-pressure cylinders, each having its piston connected with the swinging bar on a post at one side of the axis, as described, and air-pressure mechanism to actuate the piston of one cylinder at a time in one direction, whereby that of the other cylinder is simultaneously actuated in the opposite direction, substantially as and for the purpose set forth.

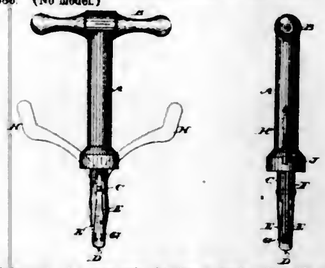
2. A gate comprising, upon opposite posts, swinging bars connected together to cause the rise or descent of one bar to raise or lower with it the other, air-pressure cylinders, each having its piston connected with the swinging bar on a post at a side of the axis, as described, and air-pressure mechanism controlled by a suitable valve to actuate the piston of one cylinder at a time in one direction, whereby that of the other cylinder is simultaneously actuated in the opposite direction, substantially as described.

3. A gate comprising, upon opposite posts, swinging bars connected together to cause the rise or descent of one bar to raise or lower with it the other, air-pressure cylinders, each having its piston connected with the swinging bar on a post at one side of the axis, as described, air-pressure mechanism to actuate the piston of one cylinder at a time in one direction, whereby that of the other cylinder is simultaneously actuated in the opposite direction, and a three-way cock for controlling the air-pressure mechanism, and comprising a shell, G, provided with holes *f*, and a valve, G', provided with openings *x*, *x'*, and x^2, and with a recess, H, substantially as described.

4. A gate comprising bars supported upon opposite posts, to which the bars are pivotally connected toward their rear ends to swing in a vertical plane, an endless connecting device adjusted upon the axis of each bar to cause the rise or descent of one bar to raise or lower with it the other, and air-pressure cylinders within one post on opposite sides of the axis of the swinging bar, each having its piston forming a connecting-link in the endless connecting device, in combination with an air-pressure pump communicating with the cylinders, and a valve within the connecting-passage constructed to afford communication simultaneously of the pump with one cylinder and of the other cylinder with the external atmosphere, as and for the purpose set forth.

5. A gate comprising vertically-swinging bars supported upon and moving with axes passing through them toward their rear ends and through posts A and A', and pulleys C, within the posts, in combination with cylinders B and B', supported vertically within the post A, on opposite sides of the axis therein, having pistons *t*, carrying piston-rods *s*, connected each with the lower cross-heads of a frame, *r*, moving in suitable guides, an endless connecting device passing over and secured upon the pulleys C and over pulleys *o*, suitably located within the posts A and A', and containing the frames *r* as connecting-links, an air-pressure pump, F, communicating with the cylinders B and B', above the pistons *t* therein, through pipes *l*, *i*, and *i'*, and a three-way cock within the pipe *l'*, comprising a shell, G, provided with holes *f*, and a valve, G', provided with openings *x*, *x'*, and x^2, and with a recess, H, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

348,858. ICE-CARRIER. OTTO T. MOOCK and GEORGE H. REGAR, Philadelphia, Pa.; said Moock assignor to said Regar. Filed Apr. 2, 1886. (No model.)



Claim.—1. An ice-carrier having a stock with side slots, a shank adapted to slide in said stock, and prongs pivoted in said shank, and having upper arms extending through the side slots of said stock, all combined substantially as and for the purpose set forth.

2. An ice-carrier having a stock with side slots, a slotted shank with prongs pivoted in said shank, said prongs having upper arms extending through the slots of said stock, and lower arms adapted to project laterally from opposite sides of the shank, all combined substantially as described.

3. An ice-carrier having a stock with sliding shank, said shank having a point, D, and its sides formed of cutting-edges, all combined substantially as and for the purpose set forth.

4. An ice-carrier having a tubular stock with sliding slotted shank, said shank having a point, D, and cutters E, the prongs G, pivoted within the slot of said shank, and having upper arms, H, extending through the side slots of said stock, and lower arms adapted to project laterally from opposite sides of said shank, all combined and arranged substantially as described.

348,859. DRESS-SKIRT FACING. SCHANU M. MOSCHCOWITZ and HERMAN MOSCHCOWITZ, New York, N. Y. Filed Dec. 2, 1885. (No model.)

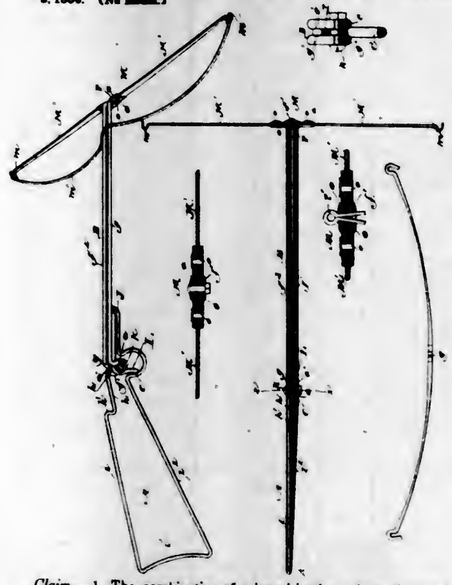


Claim.—1. A skirt-facing consisting of an upper soft or limp fabric, A, and a lower portion composed of a sheet, *a*, of water-proof fabric having one surface cemented throughout to the surface of a stiffening-sheet, *b*, said sheets embracing and united to the lower edge of the upper soft or limp fabric, substantially as described.

2. In a skirt-facing, the combination of an upper soft portion, a water-proof material, and a stiffening fabric united throughout and secured to the lower edge of said upper portion, and a strip of braid or binding secured to the waterproofed portion of said facing and projecting beyond its lower edge, substantially as described.

3. The combination, with a skirt, of a facing composed of an upper soft portion, a lower waterproofed and stiffened portion, and a braid or binding turned over upon the lower edge of the skirt and secured thereto and having one edge between the stiffening and waterproof portion of the facing, substantially as described.

348,860. TOY GUN. JAMES G. NEWBURY, Albany, N. Y. Filed Mar. 3, 1886. (No model.)



Claim.—1. The combination of a barrel having a loop, the parallel clamping-plates removably secured to the loop, and the sectional cross-bow having the inner ends detachably secured in opposite ends of the plates, substantially as described.

2. The combination of a gun having an angular loop, *f'*, the clamping-plates O, having a socket in which the loop is fitted and bolted, and a cross-bow having its sections M' secured between the opposite ends of the clamping-plates, substantially as described.

3. As a new article of manufacture, a toy gun made of a single piece of wire, and having its barrel formed of the parallel wires *f f'*, provided at the rear ends thereof with detents *e' g*, by turning or bending down the wires that form the barrel, and a cross-bow secured to the front end of the barrel, below the plane thereof, substantially as described, for the purpose set forth.

4. As a new article of manufacture, a toy gun made of a single piece of wire, and having the rear end of the barrel thereof provided with the detents *e' g*, a trigger pivoted on the gun, and having its free end arranged below the plane of the said detents, and a cross-bow secured to the front end of the barrel, substantially as described, for the purpose set forth.

5. As a new article of manufacture, a toy gun formed of a single piece of wire, and having the detents *e' g* arranged parallel with each other and at the rear end of the barrel of said gun, a transverse pin or bolt arranged below the plane of the detents, the trigger pivoted at one end upon the gun, and having its free end supported by the bolt or pin and arranged below the detents of the barrel, and a cross-bow secured to the front end of the barrel, substantially as described, for the purpose set forth.

6. A toy gun having the depending loop at the front end and below the plane of the barrel thereof, in combination with the clamping-plates arranged parallel with each other and on opposite sides of the said depending loop, a cross-bow secured in the plates, and a pin for securing the clamping-plates to the barrel, substantially as described.

7. A toy gun having the depending loop at the front end of the barrel thereof, in combination with the rigid and straight clamping-plates arranged parallel with each other and on opposite sides of the loop, a single pin or bolt passing through the plates and loop, to detachably secure the former to the latter, and a cross-bow carried by the clamping-plates, substantially as described.

8. As a new article of manufacture, a toy gun having its stock, barrel, and guard bent from a single piece of wire and forming a rigid skeleton frame, and an inflexible trigger formed from a single piece of wire separate from the gun, and pivoted on the gun-frame so as to move on its pivot without moving or affecting the rigidity of the wires that form the gun-frame, as set forth.

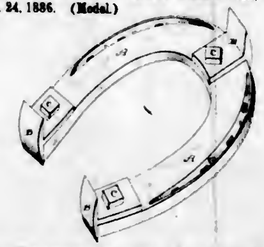
9. As a new article of manufacture, a toy gun formed of a single piece of wire, and having a loop, *e'*, at the rear end of the barrel, one end of the wire being bent to form a loop, J, which connects with the barrel, and the other end of the wire forming the loop *e*, that aligns with the loop *e'*, a transverse pin or rivet passing through the aligned loops, and a trigger arranged parallel with the barrel, and having one end pivoted on the loop J and its free end supported by the transverse pin or rivet, substantially as described.

10. As a new article of manufacture, a toy gun having its stock and barrel formed of a single piece of wire, the rear end of the barrel having the parallel detents and the loops located below the detents, a pin or rivet passing through the loops, and a washer interposed between the loops and supported by the pin or rivet, substantially as described.

11. As a new article of manufacture, a toy gun having its barrel made of a single piece of wire and comprising the parallel rods *f f'*, and having the detents at its rear end, and the loops located below the detents, a stock formed from the same piece of wire, and comprising the inclined rods $i\,i^2$, and the rod i^3 connecting the free ends of the said rods, and a curved guard, *k*, arranged beneath the loops of the barrel, substantially as described.

12. In a toy gun, the combination of a barrel having the depending loop arranged at the front end and below the plane thereof, the parallel clamping-plates having the socket in which the loop of the barrel is fitted, a spring-pin passing through the plates and loop, to detachably connect the former to the latter, and a cross-bow having the inner ends of its sections held in opposite ends of the clamping-plates, substantially as described.

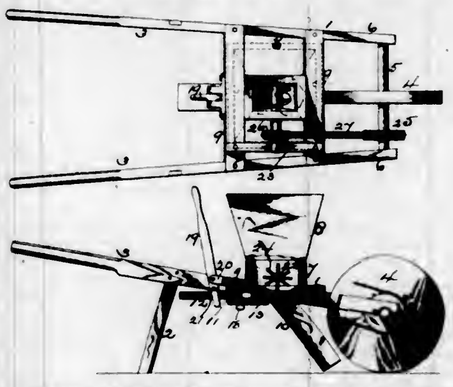
348,861. HORSESHOE. THOMAS PENHORWOOD, Millwood, Ohio. Filed Apr. 24, 1886. (Model.)



Claim.—1. The combination, with a horseshoe, of double-pointed reversible calks and suitable fastening-bolts, substantially as shown.

2. A reversible double-pointed calk for horseshoes, consisting of a perforated body, and the two points which extend at right angles to the body and in opposite directions from each other, substantially as set forth.

348,862. FERTILIZER-DISTRIBUTER. ROBERT A. PENNAL, Bigby Fork, Miss. Filed June 1, 1886. (No model.)



Claim.—1. A fertilizer-distributer having a supply-regulating slide provided with slots of unequal length and devices for interchangeably engaging said slots and for reciprocating the slide.

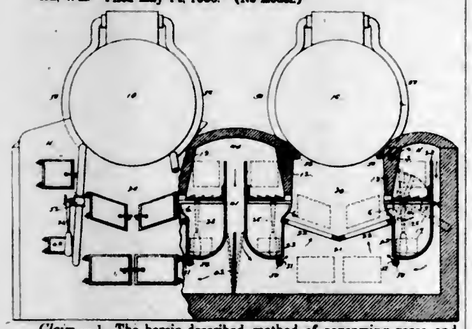
2. A fertilizer-distributer having a supply-box having a slotted rear-

ward extension, a feed-regulating slide having longitudinal slots therein of unequal length, and a covering-strip attached to said rearward extension of the supply-box to form therewith a guide for the slide, and having holes therein registering with the slots in the slide, and a screw or analogous device for interchangeably engaging said slots, as and for the purpose set forth.

3. A fertilizer-distributer having a supply-box and a discharge-spout connecting with the bottom thereof, a feed-slide having a rearwardly-extending portion and longitudinal slots of unequal length therein, a plate covering the under face of said slide, and having holes therein registering with the slots in the slide, and means for interchangeably connecting the respective holes and slots, as and for the purpose set forth.

4. A fertilizer-distributer having a suitable frame, a wheel-axle journaled between the front ends of the side beams, a traction-wheel keyed thereon, a feed-box, a stirrer-shaft journaled within said frame and feed-box, respectively, and having suitable stirrer-arms, pulleys or wheels mounted upon the wheel-axle and the stirrer-shaft, a belt or chain connecting said pulleys or wheels, a delivery-spout extending downward a sufficient distance to enter nearly to the bottom of the furrow, a feed-slide having slots of unequal length formed therein, means for interchangeably engaging with said slots for the purpose of regulating the extent of reciprocation of said slide, and means for actuating said slide, all substantially as set forth.

348,863. SMOKE-CONSUMING FURNACE. JOHN L. PERLIN, Appleton, Wis. Filed May 14, 1886. (No model.)



Claim.—1. The herein-described method of consuming gases and smoke, which consists in generating said gases and smoke in a coking-chamber by means of an auxiliary fire, causing the gases and smoke so generated to pass by way of a flue to a pit beneath the fire of the main combustion-chamber, and thence through the fire and into the combustion-chamber, substantially as described.

2. The herein-described method of burning coal, which consists in placing the coal in a coking-chamber, generating the gases and smoke contained therein and causing the gases so generated to pass through the main fire and into the main combustion-chamber, and in finally dumping the coke formed in the coking-chamber into the main combustion-chamber, substantially as described.

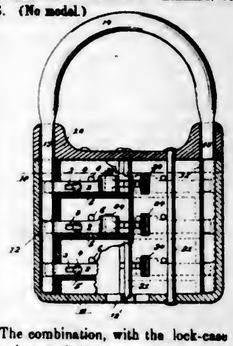
3. The herein-described method of burning coal, which consists in starting combustion in a main and an auxiliary chamber, carrying the products of combustion of the auxiliary chamber through the body of the fire in the main combustion-chamber, continuing the operation until the fuel in the auxiliary chamber is partially coked, in then dumping the greater portion of the fuel from the auxiliary chamber into the main chamber, leaving only a few glowing coals, in then adding fresh fuel to the auxiliary chamber, again driving off the gases and again dumping the greater portion of the mass, substantially as described.

4. In a furnace, the combination, with a main combustion-chamber, of a coking-chamber, a flue leading from the coking-chamber to a point beneath the grate of the main chamber, and a dumping mechanism arranged in connection with the grate of the coking-chamber, substantially as described.

5. In a furnace, the combination, with a main combustion-chamber, of a coking-chamber and its grate formed with a downwardly-extending flange, a partition arranged between the main combustion-chamber and the coking-chamber, ash pits or chambers arranged in connection with the main combustion-chamber and the coking-chamber and separated from each other, and a flue leading from the coking-chamber to a poin beneath the grate-bars of the main combustion-chamber, and a dumping mechanism arranged in connection with the grate of the coking-chamber, substantially as described.

6. The combination, with a combustion-chamber, of two coking-chambers, flues leading from the coking-chambers to points beneath the grate of the main combustion-chamber, and mechanisms arranged in connection with the grates of the coking-chambers, whereby such grates may be dumped and their load delivered to the main combustion-chamber, substantially as described.

348,864. PADLOCK. WILLIAM J. RICHARDS, Coaldale, Pa. Filed Apr. 20, 1886. (No model.)

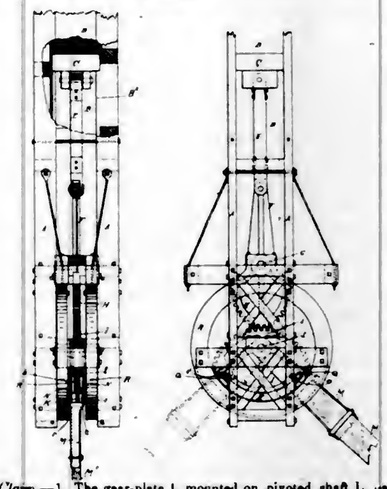


Claim.—1. The combination, with the lock-case and hasp, of two plates, 15, overlapping at their inner ends, slotted at 34 in said overlapped portions, and provided with the end flanges, 16 17, bearing against the case, of bolts mounted on the inner sides of the plates 15 and having their rear ends adjacent to the apertures 34, substantially as set forth.

2. In a lock, the combination, with a case and its shackle or bow, the said bow being formed with apertures 35, of bolts carried by plates 15, and formed with hooks 7, springs 8, key-spindle 31, and a key formed with oppositely-arranged bits, substantially as described.

3. A padlock consisting of the case 10, having opposite vertical end ridges, 18 19, forming ways 12, the plates 15, slotted at their inner overlapped ends, as shown at 34, and formed with end flanges, 16 17, bearing against the case, the flanges 17 resting also against the ridges 18 and apertured for the bolts, the plates 5 below the plates 15, and their flanges, the bolts 2 resting on plates 5, secured to plates 15, and having their rear ends hooked, as at 7, and the hasp 14, having arms 13, apertured at 35 to engage the bolts, substantially as set forth.

348,865. BALING-PRESS. ALBERT S. ROBBINS, Albany, N. Y. Filed Nov. 13, 1885. (No model.)



Claim.—1. The gear-plate I, mounted on pivoted shaft L, having the eccentric gear-section J of the former and provided with catching-holes *a a'*, in combination with the lever pivoted to said shaft and independent of said shaft, having key O, and a spring to lock said gear-plate and lever, and stationary dogs adapted to release the same, all substantially as and for the purposes and operation set forth.

2. The gear-plate I, mounted on shaft L, having the gear-section J, provided with the elastic cushion *d d'*, in combination with the lever pivoted on said shaft, and provided with cheeks *t t*, substantially as and for the purposes and operations set forth.

3. The gear-plate I, mounted on shaft L, having the gear-section J of said plate, and provided with catching-holes *a a'*, cushions *d d'*, in combination with the lever pivoted on said shaft L and carrying elastic key O, and cheeks *t t*, substantially as and for the purposes and operations set forth.

4. The combination, with the gear-plate I, mounted on shaft L, and having the eccentric gear-section, of the lever M, independently mounted on said shaft L, the means, substantially as described, for engaging and disengaging the said lever with said plate, and the lever F, provided with the elliptical gear-section H, substantially as and for the purposes set forth.

5. The combination of platen C, pitman E, and lever F, provided with elliptical gear-section H, as above described, with the gear-plate I, having gear-section J, mounted on shaft L eccentric to said gear-section, catching-holes *a a'*, cushions *d d'*, elastic key O, lever M, having cheek-block T, and stationary dogs Q, substantially as and for the purposes and operations set forth.

6. The combination of the key O, having the beveled lug *o*, with the stationary lifting-dog Q, for disengaging the key from the catching-holes in the gear-plate, substantially as and for the purpose set forth.

7. The combination of the gear-plate I, provided with catching-holes *a a'*, with the lever-arm N, provided with perforation *c*, a key provided with beveled arm *o*, a spring, P, and stationary dog Q, substantially as and for the purpose set forth.

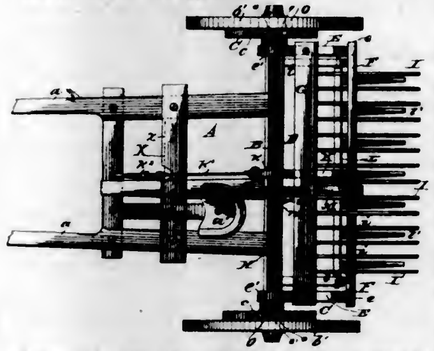
8. The pivoted gear-plate I, provided with cushions *d d'*, held in recesses at the termination of the gear-teeth on said plates, in combination with the lever M, provided with the cheek-block T, securely fixed thereto, both the lever and gear-plate being pivoted to the shaft L, substantially as and for the purpose set forth.

9. The combination of the lever M, pivoted to shaft L, and provided with rollers *s*, sliding on track *r*, with the stationary dog Q, and the key O, substantially as and for the purpose set forth.

10. In a baling-press, the combination, with the platen connected by a pitman to lever F, having a section of elliptical gear as a part thereof, and sweep-lever M, pivoted to shaft L, of gear-plate I, above described, and pivoted to said shaft and provided with catching-holes *a a'*, key O, for engaging said gear-plate with lever M, for operation and purposes set forth.

11. In a baling-press, the combination, with the platen connected by a pitman to lever F, having a section of elliptical gear as a part thereof, and sweep-lever M, pivoted to shaft L, of gear-plate I, above described, and pivoted to said shaft, which will be automatically moved in either direction by the reactive force of the compressed material to a point of engagement with key O, and intermittently moved by the continuous movement of lever M to its full rearward thrust, substantially as and for operations and purposes set forth.

348,866. HORSE HAY-RAKE. GEORGE E. ROBBINS, Moravia, N. Y. Filed Nov. 15, 1884. (No model.)



Claim.—1. In a horse hay-rake, the combination, with the axle B, wheels *b'*, main frame A, frame D, and bar L, carrying the cleaning-teeth, of the lever k^2, link-rod *k*, plate K, and eccentric sleeves *b*, substantially as specified.

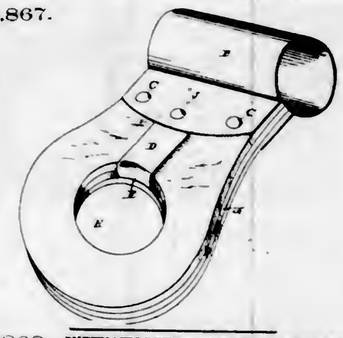
2. In a horse hay-rake, the combination, with the main frame, frame D, carrying the rake, and bar L, carrying the cleaning-teeth, of the plate K, link-rod *k'*, lever k^2, and spring-bar X, substantially as specified.

348,867. NECK-YOKE CENTER. WILLIAM N. STERNER and WILLIAM L. HAWES, Cincinnati, Ohio, assignors, by direct and mesne assignments, to the Cincinnati Neck Yoke Company, same place. Filed Jan. 4, 1886. (No model.)

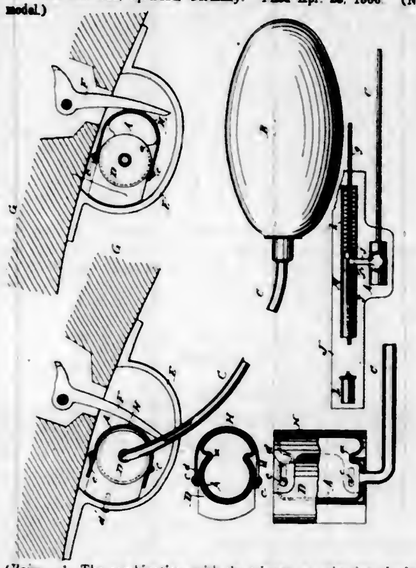
Claim.—1. In combination with the pole-ring A, formed of leather blanks, and having the opening H, the slip D, one limb inserted between said blanks and the other overlapping the upper blank, and the clip B, and rivets C and J, all substantially as and for the purposes set forth.

2. In a neck-yoke constructed as described, the slip D, having its looped end E convexed, substantially as and for the purposes set forth.

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348,868. PNEUMATIC DEVICE FOR DISCHARGING FIRE-ARMS, &c. OTTO STRAUBE, Spandau, Germany. Filed Apr. 23, 1886. (No model.)



Claim.—1. The combination, with the trigger or releasing device of the firing mechanism or apparatus for discharging explosive compounds in fire-arms or cartridges, of an expansible pneumatic receiver to trip said trigger or releasing device as the receiver is expanded, substantially as and for the purpose set forth.

2. The combination, with a casing applied to the trigger-guard of a fire-arm and open on one side, and a shield having a sliding connection with said casing and held over said opening, of an elastic receiver, and means for expanding said receiver, substantially as set forth.

3. The combination, with the trigger F and trigger-guard of a fire arm and receiver A, of the air-forcing bulb B, and tube C, connecting the bulb with the receiver, substantially as and for the purposes set forth.

4. The combination, with the trigger and trigger-guard of a fire-arm, of casing D, open at one side and containing the receiver A, and the sliding plate or shield H, arranged to be moved by the expansion of the receiver, substantially as and for the purposes described.

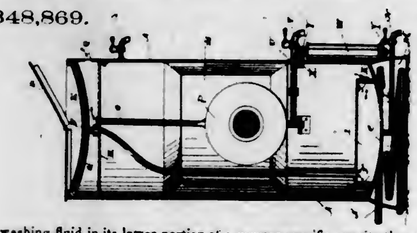
5. The combination, with the trigger and trigger-guard of a fire-arm, of the receiver A, held in the casing D, adapted to be held in the guard E, the tube C, air-forcing device B, and sliding shield H, arranged to be moved by the expansion of the receiver A, substantially as and for the purposes set forth.

348,869. FILTER. PATRICK J. TRACY, Racine, Wis., assignor of one half to W. T. Lewis, same place. Filed Mar. 29, 1886. (No model.)

Claim.—1. The combination of a casing having a washing-fluid at its lower portion, a receiving-vessel having a pipe extending to the bottom of the casing through the washing-fluid, and a filtering-reservoir having connection with the outside air at its upper end, and having a pipe for drawing its contents off at the lower end, and having filtering-apertures for the entrance of the fluid, as and for the purpose shown and set forth.

2. In a filtering apparatus, the combination of a casing containing

348,869.



a washing-fluid in its lower portion of a greater specific gravity than the fluid to be filtered, a receiving-vessel or funnel having a pipe extending to the bottom of the casing, and having the lower end provided with a distributing-vessel having apertures covered by strainers, and a filtering-reservoir having connection at its upper end with the outside air, and having a pipe for drawing off its contents at its lower side and provided with filtering-apertures, as and for the purpose shown and set forth.

3. In a filtering apparatus, the combination of a casing having a contracted central portion, and having a concavo-convex bottom provided with a pipe and cock, and having a hinged lid and a concavo-convex top and a flat partition below the top, a strainer above the concavo-convex top, a pipe passing from the top to the lower end of the casing, a distributing-vessel upon the bottom of the casing, having the pipe entering it, and having apertures in its sides covered by strainers, a filtering-reservoir having sleeves provided with filtering-disks in its heads, and having an air-pipe passing up to the flat partition of the casing, and having a pipe at its lower end passing out through the side of the casing provided with a cock, a draw-off cock at the upper end of the casing, a gage-glass at the lower portion of the casing, and a heating-coil in the base of the casing, as and for the purpose shown and set forth.

4. In combination with a surrounding casing, a filtering-reservoir cylindrical in shape, and having an air-inlet pipe and a draw-off pipe at its upper and lower sides, and having sleeves at the centers of its heads, filtering-disks in the ends of the sleeves, and caps secured removably upon the ends of the sleeves, securing the disks, as and for the purpose shown and set forth.

348,870. PNEUMATIC HAMMER. EDWARD N. TRUMP, Syracuse, N. Y. Filed Dec. 10, 1885. (No model.)



Claim.—In a pneumatic hammer, two communicating chambers of unequal diameters provided with inlet, transmission, exhaust, and air ports, and hammer-piston fitted to the chambers and adapted to control the ports and free to move longitudinally therein, said hammer-piston adapted to receive the motive fluid in full force on its smaller or driving end, and expansively on the larger or reversing end, in combination with anvil-headed tool-holder adapted to receive blows from said hammer, and traversing a case formed in head of larger chamber or attached thereto, substantially as shown and described.

348,871. CONNECTION FOR BELTS, BANDS, &c. SIDNEY WALES, Cambridge, Mass., assignor to Harriet H. Wales, same place. Filed Mar. 27, 1886. (No model.)



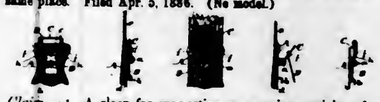
Claim.—1. A connection for belts, bands, &c., consisting of a metal plate provided with a downwardly-projecting hook or finger, in combination with a strap or band of webbing or other flat material secured at one end to said plate, and provided with a loop extending transversely across the other end of said strap or band, the opening through said loop being parallel to the flat side of said band and adapted to engage with said hook or finger.

2. A connection for belts, bands, &c., consisting of a metal plate provided with one or more perforations for connecting thereto one end of a strap or band, and also provided with a hook or finger constructed and arranged to receive a loop formed in and extending transversely across the other end of said strap or band, and provided with an inwardly-projecting spur or tooth near the middle of its inner edge to engage with and to prevent the accidental detachment of said loop.

3. A connection for belts, bands, &c., consisting of a metal plate provided with the slot *a*, and the hook or arm *d*, having formed upon its inner edge the projections *e* and *i*, substantially as described.

4. A connection for belts, bands, &c., consisting of a metal plate having formed therein the slots *a* and *h*, and provided with the hook or arm *d*, having formed upon its inner edge the spur or tooth *s*, substantially as described.

348,872. CLASP FOR SUPPORTING ARTICLES. SIDNEY WALES, Cambridge, Mass., assignor, by mesne assignments, to Harriet H. Wales, same place. Filed Apr. 5, 1886. (No model.)



Claim.—1. A clasp for supporting or securing articles of wearing-apparel and for other purposes, composed of a base-plate, a lever pivoted to said plate by one end, a stirrup or bail pivoted to said lever at a point removed from the pivotal axis of said lever, and a hook having its point or open side turned from the pivotal axis of said lever, and arranged to engage with the cross-bar of said stirrup when the lever is moved about its pivotal axis to a position parallel, or nearly so, to the base-plate, and upon the side of said pivotal axis opposite to said hook.

2. A clasp composed of a base-plate, a lever pivoted by one end to said plate, a stirrup or bail pivoted to said lever by the ends of its two arms at points removed from the axis of motion of said lever, and having a width between its two arms at a point near the axis of said lever, when the clasp is closed, somewhat less than the extreme width of said lever at a point near the pivotal axis of said lever, and a hook having its point or open side turned from the axis of said lever, all constructed, arranged, and combined substantially as described.

3. The combination of the base-plate A, provided with the slot *c*, the hook *b*, the lever C, pivoted to said plate between the hook *b* and the slot *c*, the stirrup *g*, pivoted to the lever C outside of its pivotal axis, and the webbing *e*, all constructed, arranged, and adapted to operate substantially as described.

348,873. GARMENT-SUPPORTER. SIDNEY WALES, Cambridge, Mass., assignor to Harriet H. Wales, same place. Filed June 12, 1886. (No model.)

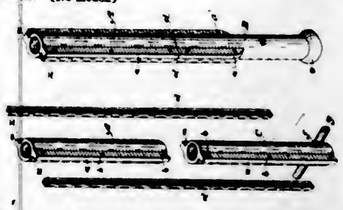


Claim.—1. A garment-supporting clasp composed of a loop-like frame, the side bars of which are nearly parallel to each other for a portion of their length at their lower ends and diverge from each other in curved lines above said nearly-parallel portions, and a pair of tubular jaws hinged together at one end and fitted to and movable in unison upon the side bars of said frame, whereby said jaws are adapted to be moved outward about their hinged connection to permit the insertion of the material to be supported as they are moved upward on said side bars, and to close upon and clamp said material between them as they are moved downward on said bars, substantially as described.

2. The combination of the loop-like frame *a*, the tubular or sleeve-like jaws *b b*, pivoted together at one end and fitted to and movable in unison upon the side bars of the frame *a*, and the webbing A, all constructed, arranged, and operating substantially as and for the purposes described.

3. The combination of a loop-like frame of varying width and a pair of tubular or sleeve-like jaws having toothed or roughened inner surfaces, and pivoted together at one end and fitted to and movable in unison upon the side bars of said frame, substantially as described.

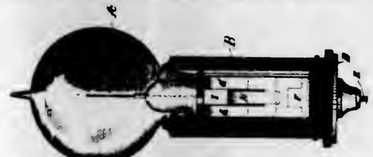
348,874. FENCE-POST. JACOB M. WALK, Osnaburg, and CALEB R. FOSTER, Cleveland, Ohio; said Foster assignor to said Walk. Filed May 17, 1886. (No model.)



Claim.—1. A terra-cotta fence-post composed of a lower or ground section, B, provided with a projected annular flange, *o*, on its lower end and projecting longitudinal wings *a'* on the upper end, as described, and an upper section having longitudinal wings *a* projected from each side, and the strips *d*, as shown and described, and for the purpose set forth.

2. A fence-post consisting of a series of terra-cotta sections, each having wings *a a'*, and the wooden strips secured to said wings, substantially as set forth.

348,875. SWITCH-SOCKET FOR INCANDESCENT LAMPS. MERLE J. WIGHTMAN and HERMANN LEMP, Hartford, Conn., assignors to the Schuyler Electric Light Company. Filed Apr. 15, 1886. (No model.)



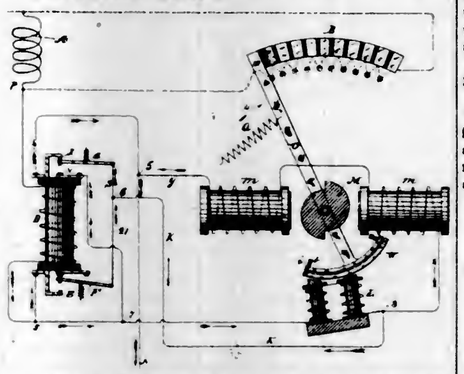
Claim.—1. The combination, in an incandescent lamp-socket, of an electric switch whose two portions or electrodes are connected with the supply-conductors and normally tend to make contact with one another, means for forcing said electrodes apart in the act of inserting the lamp into its socket, and contact-surfaces also connected to the two conductors, and adapted to make connection with one another when the lamp is withdrawn from its socket before the lamp-terminals pass out of contact with the switch-electrodes.

2. The combination, in a socket for an incandescent lamp, of a plug-switch whose plug consists of the two lamp-electrodes, and which is provided with contacts establishing the circuit between the two switch-electrodes before disconnection of the plug-electrodes, as and for the purpose described.

3. The combination, with an incandescent lamp and its socket, of an electric switch operated by the lamp in the act of withdrawal and insertion, and continuity-preserving contacts or surfaces for establishing the circuit between the two outside conductors before connection with the lamp is broken in the act of withdrawing the lamp from its socket, as and for the purpose described.

4. The combination, with an incandescent lamp, of two elongated flat plates, I I, projecting from the neck of the lamp in an axial line therewith, and provided with the swelling or enlargement, as described, the interposed thin sheet of mica, and the springs G G, having broad flat surfaces adapted to press against the plates I I, and provided also with depressions with which the swellings or enlargements on the plates I I may engage.

348,876. ELECTRIC-CURRENT REGULATOR. MERLE J. WIGHTMAN, Hartford, Conn., assignor to the Schuyler Electric Light Company. Filed June 3, 1886. (No model.)



Claim.—1. The combination, with a lever, O, of a clamping-magnet, a motor-magnet, a circuit-controlling lever and contact therefor, controlling-circuits, by means of which one of said magnets is thrown out of action, and front contacts for the same controlling-circuits, by which the other magnet is thrown out of action.

2. The combination, with an operating-lever, O, or its equivalent, as described, of a motor-magnet and a clamping-magnet, a circuit-controlling lever for throwing the clamping-magnet into action and having its retractor adjusted so that the lever may operate when the current reaches normal, and a second circuit-controlling lever having contacts by which the motor-magnet may be thrown into action, and provided with a retractor, adjusted, as described, to permit the lever to act when the current passes beyond the strength at which the first-named lever will act.

3. The combination, with a movable lever, O, of a clamping-magnet, L, and an armature for said magnet mounted on the lever and movable on the same, so that it may be withdrawn from the magnet when the lever is at rest.

4. The combination, with the lever O, of a clamping-magnet, L, a curved armature adapted to be drawn into contact with the magnet-poles and mounted on the lever O, and suitable springs for withdrawing the armature when the magnet ceases to act.

5. The combination, with the movable lever O, of a motor-magnet, and a clamping-magnet, and armature for said magnet carried by the lever.

6. The combination, in an electric-current regulator, of a motor-magnet, a clamping magnet, circuit-controllers governing the circuits of said magnets, and a relay provided with two armatures for operating said circuit-controllers, one of said magnets being adjusted to respond to a strength of current less than that required for operating the other.

7. The combination, in an electric-current regulator, of a regulating arm or lever, O, a movable segmental armature carried thereby, an electro-magnet, L, for operating on the same, and a circuit-controller governed by a relay responsive to changes in the current.

8. The combination, with an operating-arm, O, of a clamping-magnet, L, and two sets of circuit-controlling contacts governing the operation of the same, one set being adjusted to throw the magnet into action when the current is at or below normal and the other to throw the magnet out of action when the current rises to a predetermined degree above normal.

9. The combination, in a current-regulating device, of a motor-magnet, a clamping-magnet, and two sets of circuit-controlling contacts, one for throwing the clamping-magnet out of action and the other controlling the circuits of the motor-magnet and serving to throw the same into action at the same time that the clamping-magnet is thrown out.

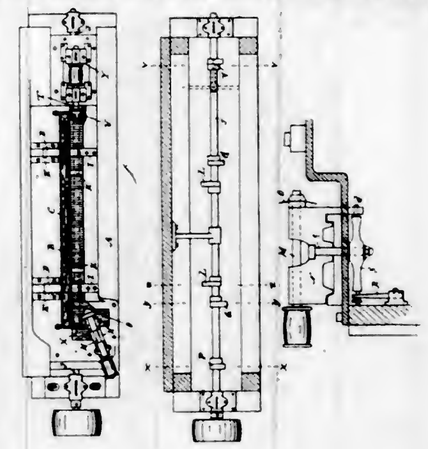
348,877. CONSTRUCTION OF RAILWAY-TRACKS AND THE CONSTITUENT PARTS THEREOF. HENRY P. ADAMS, Albany, N. Y., assignor of five-eighths to James N. Brady and Robert C. Blackall, both of same place. Filed Feb. 1, 1886. (No model.)



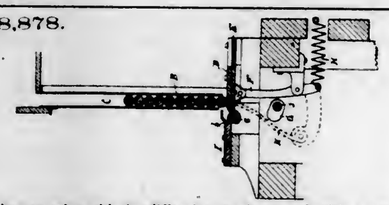
Claim.—In a railway-track, the combination, with the track-rails, of metallic ties each composed of a chair-plate provided with a hooked lip or lips adapted to engage with one edge of the bottom flange of the rail, the said chair-plates being fixed in the reverse position on the alternating ties, so as to bring the hooked lips at opposite edges of the bottom flange of the track-rail, and screw tie-bolts whereby said tracks are spaced and secured, as herein specified.

348,878. MACHINE FOR FINISHING BROOM-HANDLES. HARRY C. ALBER, Detroit, Mich. Filed Apr. 22, 1886. (No model.)

Claim.—1. A machine for the purpose described and having the following characteristics: a feed-rack from which the sticks are fed seriatum by gravity, sliding bars under the feed-rack provided with depressed rests, onto which the lowest stick is dropped, stationary bars arranged adjacent to and beneath the discharge end of said rack and constructed



348,878.



to act in connection with the sliding bars to clamp each stick, a saw or boring-tool at one end of the machine and constructed to be thrown into and out of contact with each stick, a sliding mandrel at the opposite end of the machine and provided with a cutter-head for rounding the head of each stick, and an extractor device for removing each stick after it is operated on, all arranged to operate substantially in the manner described.

2. In a machine for the purpose described, the combination of the following elements: the rack B, the sliding bars D under said feed-rack, and having rests *a*, the stationary plates I, arranged adjacent to and beneath said rack, and having rests *b*, and actuating mechanism for the bars D, such as the cams G, levers F, and springs H, all arranged to operate substantially as described.

3. In a machine for the purpose described, the combination of the racks B, the sliding bars D, having rests *a*, the stationary bars I, having rests *b*, and actuating devices for the sliding bars D, consisting of the shaft J, cams G, levers F, and springs H, the latter being arranged to act with their tension in clamping the sticks, substantially as described.

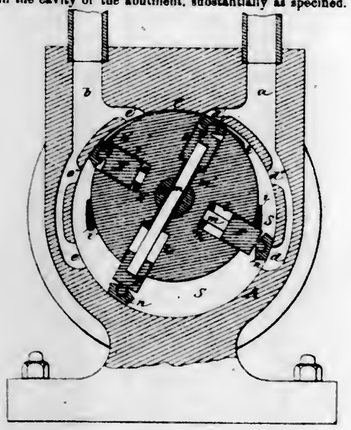
4. In a machine for the purposes described, the combination, with the sliding bars D and stationary bars I, arranged to clamp a stick, as described, of a device for forming a place in the butt-end of the stick to secure the broom-wire, said device being carried by a frame arranged to move toward and from the clamped stick, and of the mandrel T, having a cutter-head, U, and carried in a sliding frame, Y, arranged to move toward and from the head of the clamped stick, all substantially as described.

5. In a machine for the purpose described, in combination with the shaft J, carrying the cams P, G, L, and V, a kerfing or boring tool actuated by the cam P, a rounding-off cutter-head actuated by the cam V, a feeding device having sliding bars D, actuated by the cams G, and an extractor device having knockers K, actuated by the cams L, all the parts being constructed and arranged to operate substantially as described.

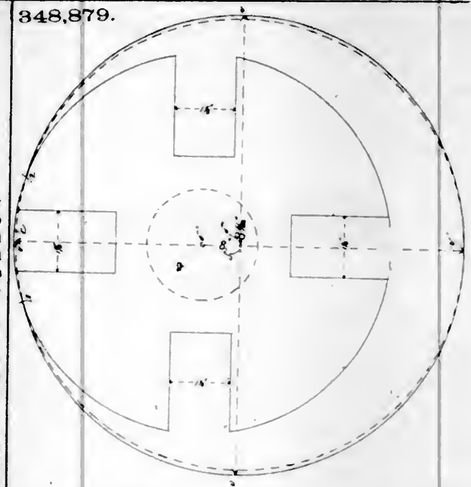
348,879. ROTARY STEAM-ENGINE. WILLIAM K. AUSTIN, Brooklyn, N. Y. Filed Dec. 27, 1884. (No model.)

Claim.—1. In a rotary steam-engine, a cylinder having a bore formed of the arcs of three circles, two of which, forming the steam-cylinder proper, have the same radius, but are struck from different centers, so as to intersect and form an oval cavity, and the third, forming the abutment, is of less radius than the other two and is concentric with the spider or hub and pistons, substantially as specified.

2. A cylinder having the bore formed of the arcs of the three circles, two of which, forming the steam-cylinder proper, have the same radius, but are struck from different centers, so as to intersect and form an oval cavity, and the third, forming the abutment, is of less radius than the other two and is concentric with the spider or hub and the pistons, in combination with a cylindrical spider or hub carrying the pistons hung eccentrically in the cylinder, with a segment of its periphery set in the cavity of the abutment, substantially as specified.



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3. The combination of the cylinder provided with the ports *d d' d''*, arranged as described, and suitable exhaust-ports, the abutment C, formed of the segment of a cylinder of the same radius as the spider, the spider hung eccentrically in the cylinder with a segment of its periphery set in the segmental cavity of the abutment, and the pistons connected with the spider, substantially as specified.

4. The combination of the oval cylinder, the abutment formed on the arc of a circle of the same radius as the spider, the intersecting point of the steam-cylinder and abutment on the exhaust side, the spider, the pistons held in radial slots in the spider and coupled together through the same, said pistons having less depth than the slots, so that a steam-space is left under the pistons when retired within the slots, and the steam and exhaust ports in the heads of the cylinder communicating at intervals with the space under the pistons, substantially as specified.

5. The combination of the oval cylinder, the spider having radial slots, the pistons placed in the slots and having less depth than the slots, so that a steam-space is left under the pistons, which communicates with steam-ports at intervals and from which the steam cannot escape when the pistons are on the steam side of the cylinder and the rocking face-plates on the end of the pistons, substantially as specified.

6. The combination of the cylinder, the spider provided with radial slots, the pistons placed in the said lots and having less depth than the slots, and steam induction and eduction ports *h h'*, so arranged that when steam is let into the space under one of the pistons it is exhausted from the space under the opposite piston, substantially as specified.

7. The combination of the oval cylinder, the spider, the coupled pistons placed in slots in the spider and having less depth than the slots, so that a steam-space is left under them when retired, rocking face-plates on the cylinder ends of the piston, steam-induction ports communicating with the space under the pistons for a portion of their movement, and the oval cylinder provided with steam-ports, opening directly into the space behind the pistons, substantially as specified.

8. In combination with the cylinder provided with induction-ports opening directly into the steam-space of the cylinder, the spider carrying the pistons in radial slots, and the heads of the cylinder provided with steam-ports which communicate with each other and with the steam-space of the cylinder and the slots in the spider under the pistons, substantially as specified.

9. The combination of the cylinder provided with steam induction and exhaust ports opening directly into the cylinder, the spider hung eccentrically in the cylinder, pistons placed in slots in the spider and coupled together through the spider, said pistons being of less depth than the slots in which they are held, so that when retired a space is left between the pistons and the bottoms of the slots, and induction and exhaust ports communicating with the said space under the pistons and with the steam-space of the cylinder, substantially as specified.

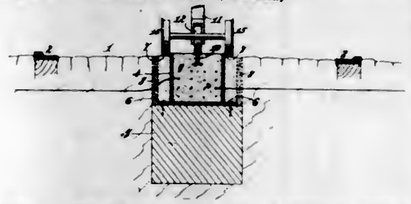
10. The combination of the steam-cylinder having induction-ports *d d' d''* and suitable exhaust-ports, the heads of the cylinder provided with steam-ports *i k h*, communicating with the steam-space of the cylinder, and suitable exhaust-ports, the spider E, provided with the longitudinal radial slots *l*, which communicate alternately with the steam-port *h* and the exhaust-port *h'*, and pistons placed in the said slots and connected together in couples, said pistons having less depth than the slots *l*, whereby, when they are retired, a space is left between the pistons and the bottom of the slots for the entrance of steam when the pistons

are on the steam side, and from which the steam is exhausted when the pistons reach the exhaust side, substantially as specified.

11. In combination with the spider provided with the annular groove around the main shaft and the heads of the cylinder, an annular packing composed of the rings *q q' q''*, spiral springs *p*, and studs *p'*, substantially as specified.

12. In a rotary engine wherein the cylinder is connected with the bed-plate, the adjustable heads or ends, in combination with the hub or spider and shaft, substantially as and for the purpose specified.

348,880. INSULATING-CONDUIT. WILLIAM W. AVERELL, Washington, D. C. Filed June 26, 1885. (No model.)



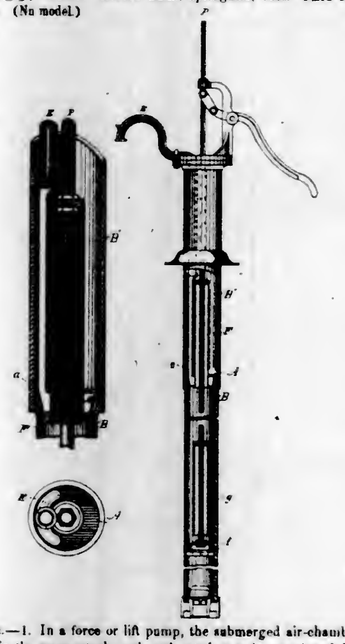
Claim.—1. The combination, with a body of cement, of a conducting-rail insulated thereby and wholly embedded therein, save as to its upper surface, which is exposed, substantially as described.

2. An electric conductor for motors for railway-cars, consisting of a conducting-rail, a non-conducting body of asphaltic concrete in which said rail is buried, and an insulated metallic box containing said concrete and serving for the return-circuit, substantially as described.

3. An electric conductor for motors for railway-cars, consisting of a rail embedded in a non-conducting body of asphaltic cement, an insulated iron box containing said concrete, a wheel mounted on the car and running on the conducting-rail, and wheels also carried by the car and running on the flanged edges of the insulated box, said wheels being connected with the motor to take up the energy from the rail and return it through the box, substantially as described.

4. The combination, with a body of asphaltic cement, of a conducting-rail embedded therein save as to its upper surface, and a conducting wheel or brush moving upon said exposed surface, substantially as described.

348,881. PUMP. ROSCOE BEAN, Springfield, Ohio. Filed Feb. 24, 1885. (No model.)



Claim.—1. In a force or lift pump, the submerged air-chamber located within the pump-stock, and so located as to be enveloped by the water in the water-passage to the outlet.

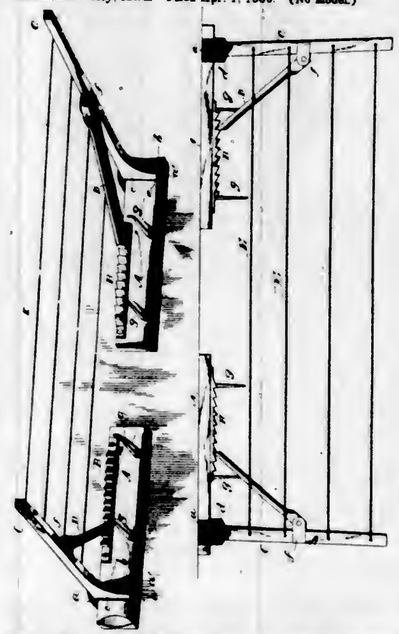
2. In a force or lift pump, the movable submerged air-chamber connected with and operated by the plunger-rod.

3. In a force-pump, the combination, with the plunger-rod and the submerged air-chamber supported thereby, of the movable air-chamber and the removable head through which said latter chamber works.

4. In a pump, the combination, with the plunger-rod and the two air-chambers secured thereto, one of which also acts to displace water in the lower part of the stock and the other of which is located so as to be submerged or enveloped by the water in its passage to the outlet, of the removable head and the internally-located discharge-pipe secured thereto.

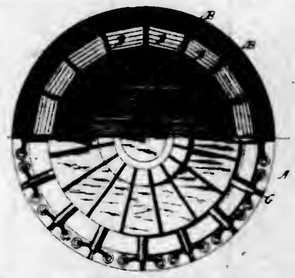
5. In a pump, the combination, with the removable head having an opening therein and the discharge-pipe secured thereto by an enlarged and segmental connection partially encircling said opening, of the movable air-chamber adapted to work in said opening, the form of the connection admitting of the movement of the chamber.

348,882. CLOTHES-DRIER. HENRY F. BOLTON and THEODORE DRAKE, Dow City, Iowa. Filed Apr. 1, 1886. (No model.)



Claim.—In a clothes-drier, the plates A A, having rack-bars B B and brackets *a a'* attached thereto, in combination, with the pivoted removable bars C and bars D D, carried thereby, so as to engage with the rack-bar, and lines E, attached to each of the arms C, substantially as shown, and for the purpose set forth.

348,883. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. AUGUST BOSSARD, New York, N. Y. Filed May 20, 1886. (No model.)



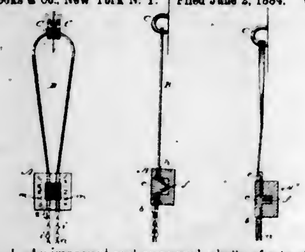
Claim.—1. An armature for dynamo-electric machines, comprising a series of separate and independent sections fitted between disks or heads, each section composed of a soft-iron trough or box containing a number of short soft-iron wires forming divisions of the core, the sides of said troughs or boxes projecting radially to or near the periphery of the armature, so as to bring the core fully within the magnetic field, substantially as and for the purpose described.

2. In an armature for dynamo-electric machines, a core composed of short lengths of soft-iron wire, in combination with the surrounding

spools or bobbins, and with troughs, boxes, or frames whose side flanges lie between the bobbins and terminate at or near the periphery of the armature, substantially as described.

3. In an armature for dynamo-electric machines, the combination, with the heads or disks having radial parts, the armature-core, and the spools or bobbins, of plates or flanges separating and embracing said bobbins or spools, said plates or flanges having their ends recessed, bent, or indented, so as to form sockets for the reception of bolts or screws by which they are fastened to the armature-heads.

348,884. SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York N. Y. Filed June 2, 1884. (No model.)

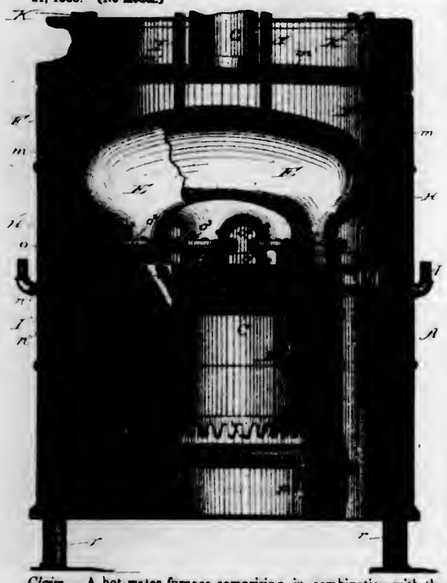


Claim.—1. An improved seal composed wholly of a hard and rigid seal-disk and a flexible shackle of hard wire, the former molded or cast with permanent distinguishing-marks and having a face which is unbroken save by a central fastening-cavity, and provided with contracted threading-holes adapted to receive the respective shackle ends and to locate them across the front of said cavity side by side, while said shackle ends are adapted to be so threaded and to receive and retain fastening-bends, as herein specified.

2. The combination of a seal-disk of hard and rigid material, having a central fastening-cavity in its face and a pair of contracted threading-holes side by side, and a shackle of wire having one end provided with a stop-bend which engages with the lower edge of said seal-disk, after the threading end of the wire is passed through one hole of the latter, for uniting the parts preliminary to applying the seal, substantially as herein specified.

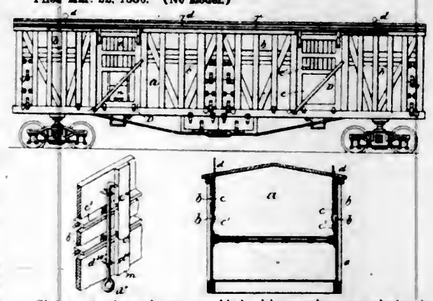
3. In combination with a seal-disk of hard and rigid material, having contracted threading-holes, a central sealing-cavity, and permanent distinguishing-marks, a shackle of wire adapted to have its ends secured by fastening-bends within said cavity, and provided with detector indentations or enlargements which indicate the original extremities of the wire, substantially as herein specified.

348,885. FURNACE. ROYAL F. BROWN, Chicago, Ill. Filed Sept 21, 1885. (No model.)



Claim.—A hot-water furnace comprising, in combination with the shell A, grate *q*, ash-pit *p*, and fire-chamber B, an annular reservoir, C, provided with pockets C', a dome, E, conduits *o*, supporting the dome and communicating with the latter, and the pockets C' at opposite ends, a radiator, F, surrounding the dome E, within the shell A, and affording an air-chamber, H, provided with openings K, a water-pipe, I, leading from the dome E and returning to the heater C, and a smoke-flue, G, leading from the radiator F through the shell A, the whole being constructed and arranged to operate substantially as described.

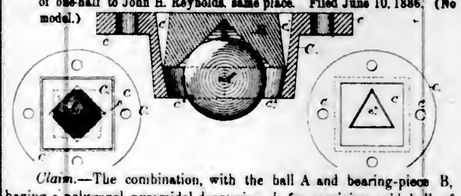
348,886. STOCK-CAR. GEORGE D. BURTON, New Ipswich, N. H. Filed Mar. 22, 1886. (No model.)



Claim.—1. A stock-car provided with openings to admit air, in combination with movable covers pivoted within the openings and provided with a rod for operating the covers, substantially as described.

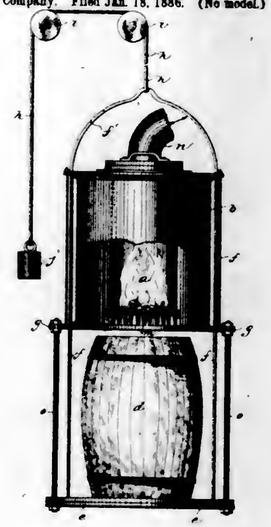
2. A stock-car provided with openings to admit air, in combination with covers pivoted within the openings and provided with a rod for operating the covers, said rod sliding in guides, and having a stop which engages with the guide, substantially as and for the purposes specified.

348,887. BALL CASTER. ELLSWORTH CARR, Troy, N. Y., assignor of one-half to John H. Reynolds, same place. Filed June 10, 1886. (No model.)



Claim.—The combination, with the ball A and bearing-piece B, having a polygonal pyramidal depression, *b*, for receiving said ball, of the retaining-plate C, provided with a recess, *c'*, for holding the bearing-piece B, and having a polygonal opening, *c²*, which flares upwardly into the recess *c'* in such manner that the ball A, while being perfectly free to rotate in said opening, will be retained in place thereby, as herein specified.

348,888. APPARATUS FOR HEATING AND DRYING BARRELS. JAMES M. CHAMBERS, St. Louis, Mo., assignor of one-half to the St. Louis Cooperage Company. Filed Jan. 18, 1886. (No model.)

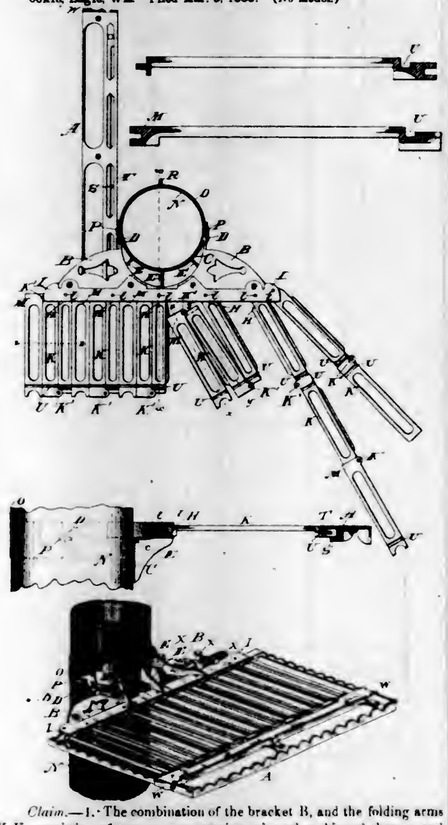


Claim.—1. In apparatus for heating and drying barrels, the combination of the heater *a*, chamber *b*, and a lift, *e*, situate below the chamber *b*, and arranged to raise the barrel or cask to a position within the chamber, substantially as and for the purpose specified.

2. The combination of the lift for carrying the barrel or cask *d*, rods *f f*, rope or chain *h*, pulleys *i*, counterbalance-weight *j*, and the heater *a*, substantially as and for the purpose specified.

3. In apparatus for heating and drying barrels or casks, the combination and arrangement of the heater *a* and outer cylinder or drum, *b*, forming an annular space, *c*, with the platform *e*, for carrying the barrel or cask *d*, rods *f f'*, rope or chain *h*, pulleys *i*, and counterbalance-weight *j*, substantially as shown, and for the purpose set forth.

348,889. COMBINATION STOVE-RACK AND SHELF. ALBERT J. COATS, Eagle, Wis. Filed Mar. 5, 1885. (No model.)



Claim.—1. The combination of the bracket B, and the folding arms K K, consisting of two or more sections pivoted or hinged thereto and folding laterally, substantially as and for the purposes mentioned.

2. The combination of the bracket B, the folding arms K K, consisting of two or more sections pivoted or hinged thereto folding laterally, and the locking frame or bar A, applied to the outer edge of the shelf by the means and in the manner above set forth, as and for the purposes herein mentioned.

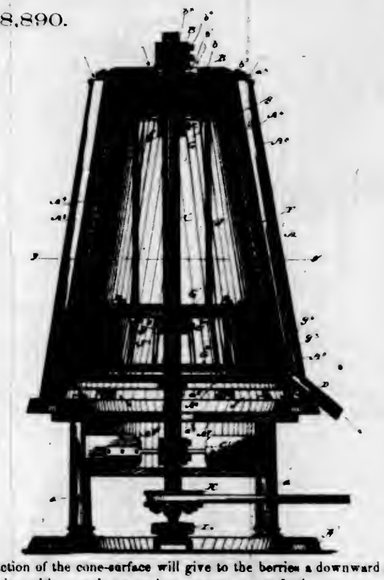
348,890. GRAIN-CLEANING MACHINE. MIDDLETON CRAWFORD, Brooklyn, N. Y. Filed Feb. 23, 1886. (No model.)

Claim.—1. The combination of a concave or casing having an annular dust-chamber and an inner lining of wire-gauze with a revolving cone having an emery surface arranged at a sufficient distance from the lining to allow the individual berries to bound from one to the other with an end-over-end movement, and having also a brushing-surface extending nearly to the lining, as set forth.

2. The combination, with a revolving cone having an upper emery surface and a lower brush-surface, of a casing having an annular dust-chamber coextensive with both emery and brushing surface, and having its inner wall formed of wire-cloth, as and for the purposes set forth.

3. The combination of a revolving cone having a grinding or cutting surface, as *f*, with a casing of conical interior having its inner wall formed of wire-gauze and arranged at a distance from the cone, whereby

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the action of the cone-surface will give to the berries a downward spiral direction with an end-over-end movement, as set forth.

4. The combination, with a revolving cone having a grinding-surface above and a brushing-surface below, of a casing or concave having an annular dust-chamber extending both above and below the cone, with its wall made of open-work wire-cloth, a fan for creating a partial vacuum within said dust-chamber, air-inlets opening into the chamber direct, and air-inlets opening within the concave and connecting with the chamber through the interstices in the wire-work lining, as set forth.

5. In a grain-cleaner having a central feed and a revolving cone with grinding and brushing surfaces, as described, the combination, with such parts, of a casing or concave, A, having an annular dust-chamber formed between an outer shell and an inner wire-gauze lining, air-inlets opening directly into said chamber, air-inlets opening into the interior of the gauze lining adjacent to the feed of grain, and means, as C' A^4, for creating a partial vacuum within the dust-chamber, as set forth.

6. The combination, with the cone, shaft C, and concave A A^2 A^4, of the spider B, having journal B' b^2 b^4, feed-aperture b', and air-inlets b, said spider being rigid with the concave and adapted to serve as set forth.

7. In a grain-cleaner, a cone made in sections matched and secured together, the same consisting of upper, middle, and lower plates, grinding-sections held between said upper and middle plates, and brush-sections held between said middle and lower plates, the plates being circular, and bolts J J', for securing the middle plate to each of the others, as set forth.

8. The combination, with the cap G, having groove *g*, of the plate G', having groove *g'*, the sections H, having emery faces *f*, the bolts *h'*, and securing-bolts J, as set forth.

9. The combination of the plates G G', sections H, and bolts *h'*, having their heads countersunk in groove *g'*, with brush-sections I, having their upper ends located in said groove *g'*, the plate G^2, and bolts J', as and for the purposes set forth.

10. The combination of the plate G^2 and the grooved block g^2, dovetailed therein, and of the intermediate plate, G', having groove *g'*, and the cap-plate G, having groove *g*, with the emery-sections H *h*, the brush-sections I *i*, and the bolts J J', as and for the purposes set forth.

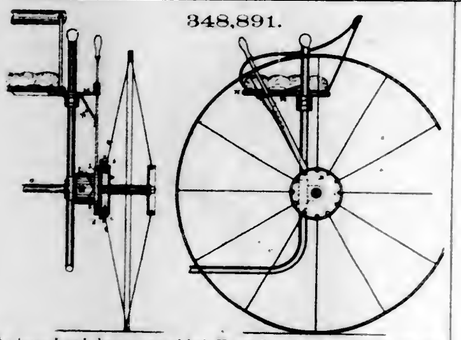
11. The combination of an emery and brush cone, and of a fan-chamber and fan arranged beneath said cone, with a concave or casing having a dust-chamber extending its vertical length and formed by a casing, A, and a wire-gauze lining, A^4, a horizontal dust-chamber arranged between the closed bottom A^5 of the casing and the open-centered bottom A^7 of the shell, and connecting the fan-chamber with the dust-chamber, and means for admitting air at the top of the dust-chamber and through the area of the open-work lining, as set forth.

348,891. BRAKE FOR TRICYCLES. HENRY J. CURTIS, Hartford, Conn. Filed Feb. 4, 1886. (No model.)

Claim.—1. The corrugated collar K on the end of lever I, in combination with the corresponding corrugated collar, L', on the axle O, working laterally with the wheel of the vehicle, as herein set forth and described.

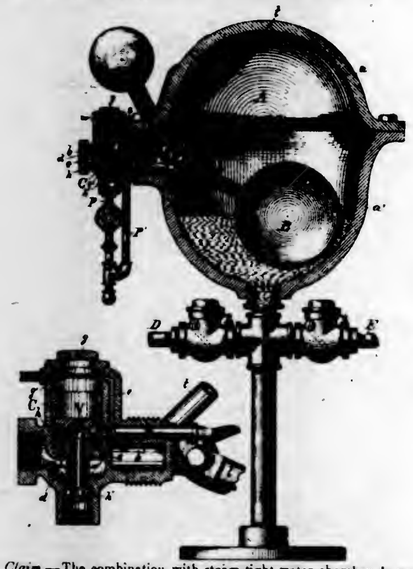
2. The friction-plate A, attached to hub B, in combination with

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the lever I and the corrugated hub K and L, as herein set forth and described.

348,892. BOILER-FEEDER. NELSON CURTIS, Boston, Mass. Filed May 13, 1886. (No model.)



Claim.—The combination, with steam-tight water-chamber A, provided with float B, of inlet and outlet passage-ways D and E, the valve-casing C, containing a main and a branch steam passage-way, with main valve V and auxiliary valve v therein, and an outlet steam passage-way with valve A' therein, and a lever-connection between said auxiliary valve v and said float, substantially as described.

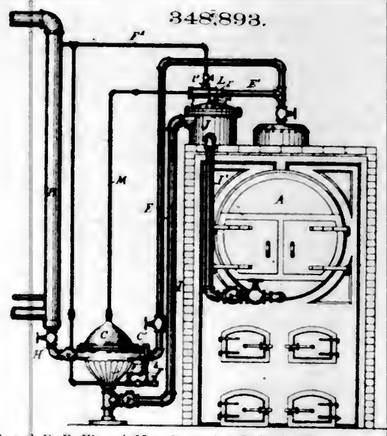
348,893. BOILER-FEEDER. NELSON CURTIS, Boston, Mass. Filed May 13, 1886. (No model.)

Claim.—1. The combination, with a boiler and a source of water-supply and pipe-connections, of a trap consisting, essentially, of two connecting chambers, one of which is below the water-level of the boiler as well as below the source of water-supply, while the other is above the water-level of the boiler, each chamber being provided with a valve system of its own to control the ingress and egress of steam, and a single valve-shifting mechanism for both valves, adapted to be automatically controlled by the amount of water in the lower chamber, substantially as described, for the purpose specified.

2. The combination, with a boiler and a source of water-supply and pipe-connections, of a trap consisting, essentially, of two connecting chambers, one of which is provided with a float and is below the water-level of the boiler as well as below the source of water-supply, while the other is above the water-level of the boiler, each chamber being provided with a valve system of its own to control the ingress and egress of steam, but both valve systems being under the control of the said float, substantially as described, for the purpose specified.

3. The combination, with boiler A and condensing-surface or water-supply B, of chambers C and J, the former provided with float D, pipes

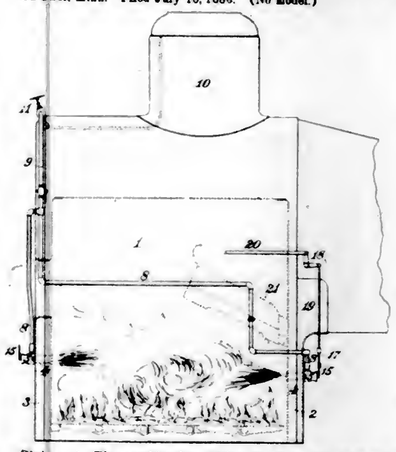
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H, I, and I', E, E', and M, valve-casing L, having a passage opening into said chamber J, and provided with differential valve L', controlling said passage, and a valve mechanism for said chamber C, controlled by said float D, substantially as described, for the purpose specified.

4. The combination, with chamber C, provided with float D, and a valve mechanism controlled by said float, of the valve-casing L, communicating with said chamber and with the boiler, and provided with differential valve L', arranged to be operated in one direction by steam from said chamber and in the other by steam directly from the boiler, substantially as described.

348,894. AIR-FEEDER FOR FIRE-BOXES. GEORGE W. CUSHING, St. Paul, Minn. Filed July 10, 1886. (No model.)



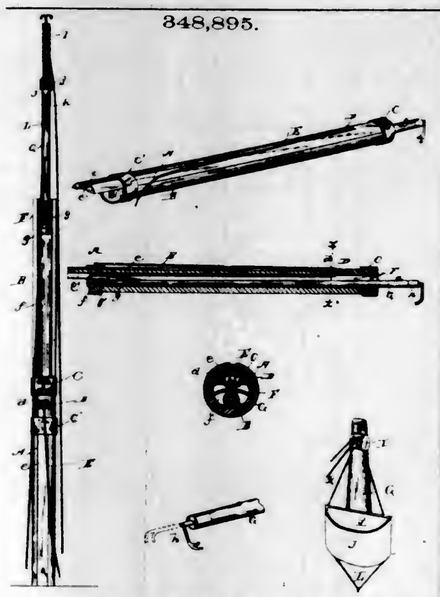
Claim.—1. The combination, with a fire-box, of a series of supply-tubes opening thereinto, a series of air and steam feeding chambers or nozzles communicating with said tubes, a series of valves, each governing the admission of air to one of said chambers, and a lever-and-link system, whereby said valves are coupled for simultaneous operation, substantially as set forth.

2. The combination of a chamber or casing having a steam-jet pipe discharging centrally at or near one of its ends, a series of peripheral air-admission openings in its shell or body adjacent to its opposite end, and an air-valve fitting in said chamber and controlling the air-admission openings thereof, substantially as set forth.

3. The combination of a chamber or casing open at one end, which is flanged or otherwise adapted to be secured to the shell of a fire-box, and provided with air-admission openings adjacent to its opposite end, a steam-jet pipe leading laterally into the chamber, and having its discharge end projecting centrally from the open end thereof, and a tubular closed ended cylindrical valve fitting and working freely in the opposite end of the chamber, and having openings adapted to register with the air-admission openings thereof, substantially as set forth.

348,895. FIRE-ESCAPE. FRANK E. DAVIS, Charlestown, N. H., assignor of one-half to William Wallace Harris, same place. Filed Apr. 17, 1886. (No model.)

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Claim.—1. The combination of the section A, having the sheave or roller, the sliding section B, having the longitudinal groove or channel and the keepers, the cord or rope connected to the section B and passing over the sheave, and the extensible standard carrying the car, and the spring latch or catch adapted to engage with the keepers, substantially as described.

2. In a fire-escape apparatus, the combination of the section A, having the pulley or sheave and the grooves *e e'*, the section B, having the channel *f* and the keepers, the rope connected to the section B and passing over the sheave of the section A, the guide-straps carried by the sections, the extensible standard having the spring latch or catch, the claw or hook, and the pulley I, the car having the guy-ropes, and the elevating-ropes connected to the car and passing over the pulley I, substantially as described, for the purpose set forth.

3. In a fire-escape, the combination of a section, A, having a longitudinal groove on its inner face and a roller or sheave near its upper end, a sliding section, B, bearing against the fellow section, the bands secured to opposite ends of both sections for keeping them together, the elevating-rope secured to the lower end of the section B and passing between the sections through the longitudinal groove of the section A and over the sheave or roller thereof, a car, and ropes for moving it vertically, substantially as described, for the purpose set forth.

4. In a fire-escape, the combination of a section, A, a sliding section, and a rope for elevating the sliding section, an extensible standard, and a catch for locking the said standard to the sliding section when it is extended beyond the same, substantially as described.

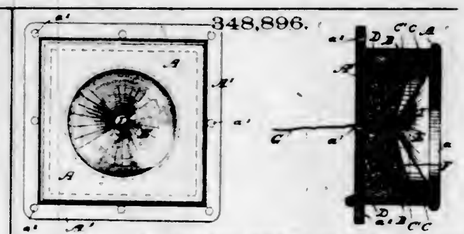
5. In a fire-escape, the combination, with a section, A, a sliding section, and a rope for elevating the sliding section, of the keepers secured to the sliding section, an extensible standard fitted in the keepers and carrying a spring-catch at its lower end to engage the keepers and lock the standard against vertical displacement, a car, and elevating-ropes therefor, substantially as described.

6. In a fire-escape, the combination of a section, A, a sliding section, B, having the longitudinal groove or recess on its inner face, a rope for elevating the sliding section at its upper end, an extensible standard fitted in the groove of the sliding section and the keeper, a spring-catch carried by the standard to engage the keepers, a car, and an elevating-rope therefor, substantially as described.

7. In a fire-escape, the combination of a section, A, having a roller or sheave, a sliding section, B, an elevating-rope connected to the lower end of the sliding section and passing over the sheave or roller of the section A, the bands inclosing the sections, an extensible standard adapted to be inclosed within or withdrawn from the sections, a catch for holding the standard from retrograde movement when extended beyond the sections, a swinging claw carried by the standard, a car, and a rope therefor, substantially as described, for the purpose set forth.

348,896. MECHANICAL TELEPHONE. WILLIAM H. EASTMAN, Concord, N. H., assignor, by mesne assignments, to the Popular Telephone Company, same place. Filed Nov. 24, 1885. (No model.)

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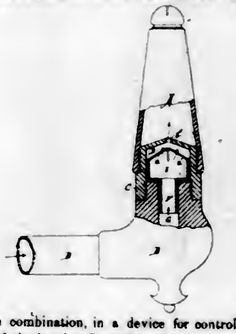
Claim.—1. In a mechanical telephone, the construction herein shown, comprising two sounding boards, a wire screen, a suitable packing behind said screen, a diaphragm, and suitable springs adapted to maintain a uniform strain on said diaphragm inwardly, all arranged within a suitable case, substantially as and for the purpose specified.

2. In a mechanical telephone, the construction herein shown, comprising two sounding-boards, a supporting-frame interposed between said sounding-boards and the back board, a wire screen, a packing between said back board and screen, a diaphragm, and suitable springs connecting with the said supporting-frame and adapted to maintain a uniform strain on said diaphragm inwardly, all arranged and operating substantially as and for the purpose set forth.

3. In a mechanical telephone, the combination, with the conical diaphragm, of a packing of suitable material arranged behind the former and a wire screen, substantially as shown, interposed between the packing and diaphragm, and so as to permit the packing to touch the center or apex of the diaphragm only, as set forth.

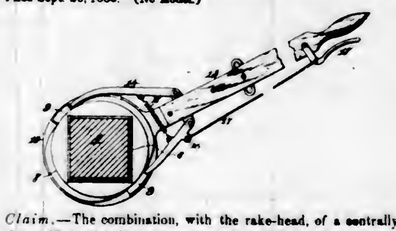
4. In a mechanical telephone, the combination, with a diaphragm, of suitable excelsior or other packing behind the same and a wire screen interposed between the two and touching said diaphragm at its center, as shown, and means, substantially as described, whereby a uniform tension is maintained upon said diaphragm independent of the line-wire, all operating as and for the purpose set forth.

348,897. REGULATING-VALVE FOR GAS-BURNERS. MILLARD F. ELLIOTT, Philadelphia, Pa. Filed June 12, 1886. (No model.)



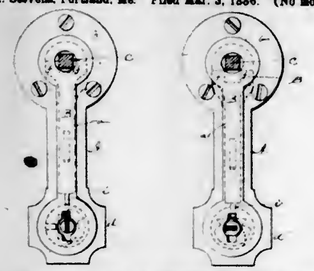
Claim.—The combination, in a device for controlling the flow of gas to a burner, of the bracket B, with vertical gas-passage G, thimble C, with opening *b*, valve E, with conical top and slots *a*, valve-stem F, thimble C, with chamber D and opening *b*, and burner A, all substantially as set forth.

348,898. HORSE HAY-RAKE. LEANDER W. FREEMAN, Liberty, Ind. Filed Sept. 26, 1885. (No model.)



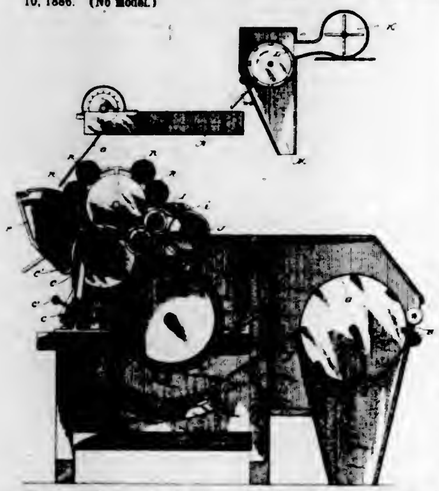
Claim.—The combination, with the rake-head, of a centrally-attached metallic boxing having an attached radially-projecting toothed ring or wheel provided at each side with an annular bearing, so that the ring or wheel serves as a supporting-runner for the rake-head to traverse the ground, the two collars loosely mounted, respectively, on the annular bearings, and each provided with a rearward extension, a handle clamped in place between the extensions, the two pawls pivoted to said extensions, and a lever connected with the lower pawl, substantially as described.

348,899. ROSETTE-LOCK. ZACHARY T. FURBISH, Augusta, assignor to W. H. Stevens, Portland, Me. Filed Mar. 3, 1886. (No model.)



Claim.—In a rosette-lock, the combination, with a casing having an escutcheon at one end to receive the latch or knob spindle, and provided at the opposite end with a slotted receptacle for a lock, said casing having a longitudinal groove or recess, of a bolt sliding in said recess and bifurcated at one end to embrace the said spindle, a tongue or tang formed on the opposite end of said bolt to enter the slot of the receptacle, and slotted tumblers arranged to register with the slot of the receptacle, and to receive the tang of the bolt, substantially as and for the purposes set forth.

348,900. COTTON-GIN. JEFFERSON M. GARDNER, Nashville, Tenn., assignor of two-thirds to Stewart & Brackner, same place. Filed June 10, 1886. (No model.)



Claim.—1. In a cotton-gin, the combination of a series of saws and a grooved and flanged roller placed contiguous thereto, the flanges being higher than the general surface of the roller and the grooves, substantially as described.

2. A cotton-gin comprising a pivoted frame, a series of saws, a grooved and flanged roller mounted contiguous thereto, and a series of ribs interposed between the saws and mounted upon the frame which is pivoted at a point coincident with the face of the roller.

3. A cotton-gin comprising a pivoted frame, a series of saws, a grooved and flanged roller mounted contiguous thereto, a series of ribs interposed between the saws and mounted upon said frame, which is pivoted at points coincident with the surface of the roller, set-screws passing through the frame, and the stationary blocks, substantially as described.

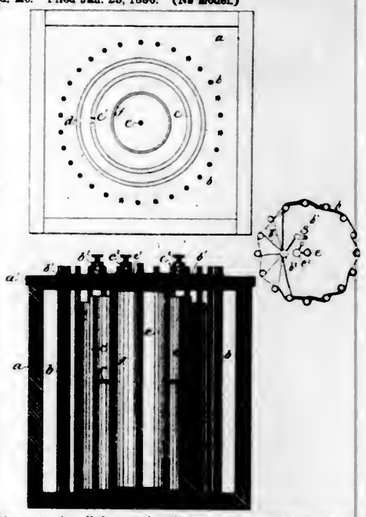
4. A cotton-gin comprising a pivoted frame, a series of saws, a flanged and grooved roller mounted contiguous thereto, a series of ribs mounted upon the said frame, which is pivoted at points coincident with the surface of the roller, the ends of the ribs being forked and straddling the flanges of the roller, substantially as described.

5. A cotton-gin comprising a series of saws, a flanged and grooved roller mounted contiguous thereto, a roller mounted above the flanged and grooved roller, and a series of ribs interposed between the saws, substantially as described.

6. A cotton-gin comprising a series of saws, a grooved roller mounted contiguous thereto, a series of ribs interposed between the saws, a frame therefor pivoted coincident with the surface of the roller, a corrugated roller mounted contiguous to the saws, and movable bearings therefor, the said bearings being in contact with the frame carrying the ribs, substantially as described.

7. In combination with a feed box or hopper of a cotton-gin, a feeder and cleaner consisting of the fan, a wire reel upon which the fan discharges, the casing having the dust-discharge opening and an exit-opening for the passage of the cotton, and an endless belt for conveying the cotton from the discharge-opening to the gin, substantially as described.

348,901. GALVANIC BATTERY. WILLIAM C. GOLDNER, Boston, Mass., assignor to the Chemical Electric Light and Power Company, Portland, Me. Filed Jan. 25, 1886. (No model.)

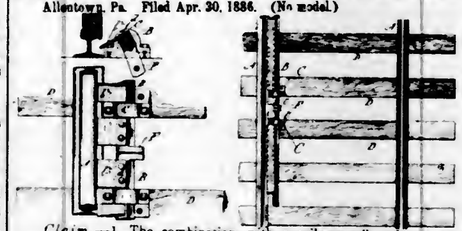


Claim.—1. A cell for a galvanic battery, comprising an outer vessel or receptacle, *a*, a porous cup, *d*, therein, and a second porous cup, *f*, of smaller diameter inside the first-mentioned porous cup, combined with an electrode, *b*, composed of a number of pieces of carbon arranged around the outside of the larger porous cup, *d*, a zinc electrode, *c*, inside of the outer and outside of the inner porous cups, and a carbon electrode, *e*, inside the inner porous cup, substantially as described.

2. In a cell for a galvanic battery, an outer vessel, *a*, and concentric porous cups, *d f*, of different diameter therein, combined with a removable cover for the outer receptacle and an annular series of carbon rods, *b*, supported therein in position to extend down around the outside of the larger porous cup, and a carbon electrode, *e*, also supported in said cover in position to extend into the inner porous cup, and a zinc electrode between the outer surface of the inner porous cup and inner surface of the outer porous cup, substantially as described.

3. In a cell for a galvanic battery, an outer vessel and concentric porous cups of different diameter therein, combined with a zinc electrode between the said porous cups, a removable cover for the outer receptacle, and an annular series of carbon rods supported in the said cover around the outside of the larger porous cup, a carbon electrode supported in said cover inside the inner porous cup, and a switch on said cover for connecting or disconnecting the said carbon electrodes, substantially as described.

348,902. SAFETY-BAR FOR RAILWAYS. FREDERICK S. GUERBER, Allentown, Pa. Filed Apr. 30, 1886. (No model.)

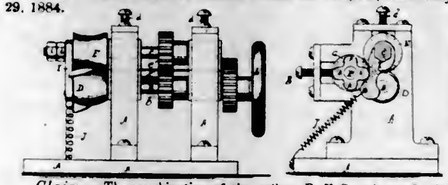


Claim.—1. The combination, with a railway rail and supports therefor, of a safety-bar carried in bearings, whereby it may be tilted or rocked on its longitudinal axis, said bar having a flange-plate secured directly to or formed integral with it and having an arm or means for a connection, and said bearings being secured directly to the rail-supports, substantially as shown and described.

2. A safety-bar for railways, consisting of a bar or shaft supported in bearings, whereby it can be rocked or tilted on its longitudinal axis, said bar having a flange-plate secured directly to or formed integral with it, and having an arm or means for a connection, substantially as shown and described.

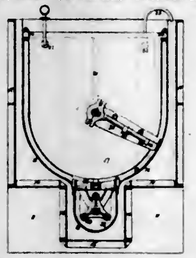
348,903. MACHINE FOR SHAPING COUNTER-STIFFENERS FOR BOOTS OR SHOES. JAMES C. HEARAN, Brooklyn, N. Y., assignor of one-half to John M. Cavanagh, same place. Filed May 1, 1886. (No model.)

Brief.—Improvement on Letters Patent No. 302,656, dated July 29, 1884.



Claim.—The combination of the rollers D E G and arm I with spring J and cams *k*, when constructed and operating substantially in the manner and for the purposes set forth.

348,904. APPARATUS FOR COOLING OIL TO EXTRACT PARAFFINE, &c. NORMAN MCF. HENDERSON, Broxburn, County of Linlithgow, Scotland. Filed Apr. 20, 1886. (No model.) Patented in England June 30, 1884, No. 9,557.



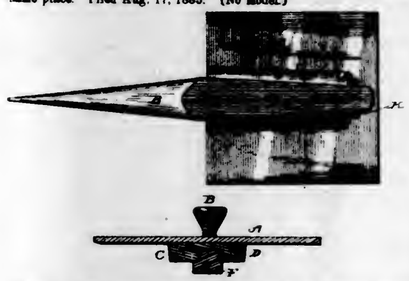
Claim.—1. In apparatus for cooling liquids and congealing ingredients therein, the combination consisting of a vat, a jacket-space inclosing the vat, a number of transverse disk-casings in the vat, a horizontal shaft passing through the disk-casings and fitted with scrapers, a lower shaft fitted with agitating-blades, and means for circulating cooling-fluid through the disk-casings and jacket-space, substantially as and for the purposes herein set forth.

2. The combination and arrangement consisting of a series of transverse disk-casings with means for circulating cooling-fluid within them, and with a shaft passing through them, and moving scrapers over their outer surfaces, substantially as herein set forth.

3. The construction of the disk-casings, each consisting of two disks riveted upon a frame and having a bar extending from rings for the shaft to pass through, and riveted at the center up to the top bar of the frame, for regulating the circulation of the cooling-fluid within them, substantially as herein set forth.

4. The construction of the spring-scrapers, each consisting of an arm having jointed to it two scraper-blades pressed apart by springs so as to operate on the surfaces of the two disk-casings between which each scraper is placed, substantially as herein set forth.

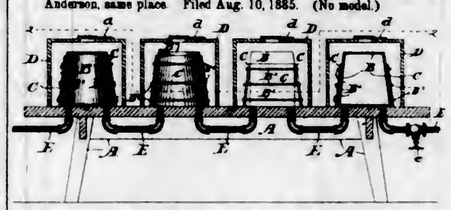
348,905. FINGER-BAR FOR REAPERS AND MOWERS. JOHN L. RIGHBARGER, Sharpsburg, Md., assignor of one-half to Henry C. Mumma, same place. Filed Aug. 17, 1885. (No model.)



Claim.—1. The combination, with the tapering dovetail bearing-slot in the cleat on the under side of the finger-bar, of the tapering finger-shank dovetail in cross-section in its upper portion, and having lateral flanges in its lower portion overlapping the slot in the cleat, substantially as specified.

2. The combination, with the finger-bar and its cleat having the tapering dovetail bearing-slot, of the finger having the tapering dovetail shank to fit the slot in the cleat, and flanged along its lower portion to overlap the slot, and projecting in rear of the cleat to receive a removable key, substantially as specified.

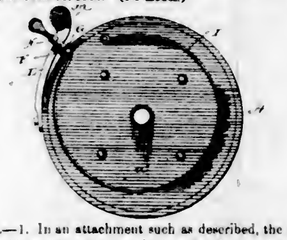
348,906. APPARATUS FOR FORMING AND DRYING BARRELS. ISRAEL HOGELAND, Indianapolis, Ind., assignor of one-half to George P. Anderson, same place. Filed Aug. 10, 1885. (No model.)



Claim.—1. In an apparatus for drying and forming blanks for use in the manufacture of wooden receptacles, the combination of a hollow form, a casing inclosing said hollow form, hoops for securing the blanks to the hollow form, and pipes communicating with the interior of said form, substantially as set forth.

2. An apparatus for drying and forming blanks used in the manufacture of wooden receptacles, consisting, essentially, of hollow forms or molds of substantially the general shape of the receptacle to be produced, means of securing the blanks to said molds, a wall inclosing said molds, and pipes communicating with the interior of said molds, substantially as and for the purposes set forth.

348,907. TUBE-CLAMP FOR OIL-WELLS. JOHN HOLLY, Rouseville, Pa. Filed June 18, 1886. (No model.)



Claim.—1. In an attachment such as described, the combination of a collar provided with cams upon its inner surface, and clutches adapted to be moved back and forth against the tubing and held from lateral movement, substantially as set forth.

2. In an attachment such as described, the combination of a collar provided with inclined cams upon its inner surface, and clutches adapted to be moved back and forth against the tubing and held from lateral movement, said clutches being provided with rounded ends, bearing against the collar, substantially as set forth.

3. In an attachment such as described, the combination of a collar provided on its inner surface with inclined cams, clutches adapted to be moved back and forth against the tubing and held from lateral movement, the said clutches being provided with rounded ends, substantially as shown, and a spring placed under said clutches and holding said clutches up in the position shown, substantially as set forth.

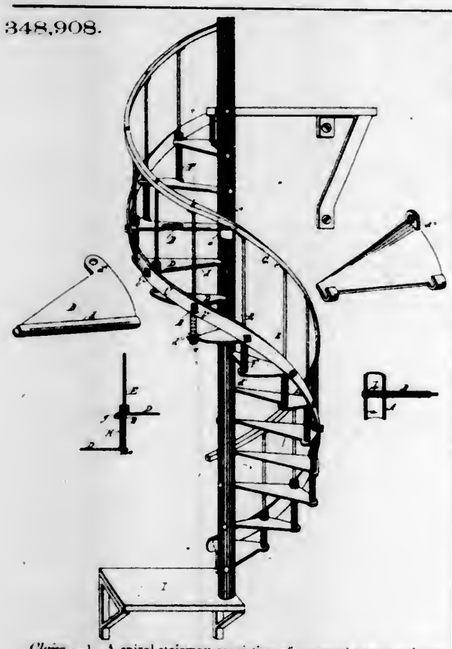
4. In an attachment such as described, the combination of a collar provided with cams upon its inner surface, clutches adapted to be moved back and forth against the tubing and held from lateral movement, and cases placed between each two of said clutches and forming slots or ways for them to operate in, substantially as set forth.

5. In an attachment such as described, the combination of clutches adapted to be moved back and forth against the tubing and held from lateral movement, a collar encompassing said clutches and provided on its inner surface with cams and on its outer surface with a pin, substantially as shown, and a spring secured to a stationary point and to said pin, substantially as set forth.

6. In an attachment such as described, the combination of clutches adapted to be moved back and forth against the tubing and held from lateral movement, a collar encompassing said clutches and provided on its inner surface with cams and on its outer surface with two pins, substantially as shown, a spring secured to a stationary part and to one of said pins, and a spring-pawl fastened to a stationary part and engaging the other of the said pins, substantially as set forth.

348,908. SPIRAL STAIRWAY. WILLIAM BORROCKS, Philadelphia, Pa. Filed Apr. 20, 1886. (No model.)

348,908.



Claim.—1. A spiral stairway consisting of a central post or column, spirally-arranged radial rounds B B, fastened to said post, a spiral strip, C, securing the outer ends of said rounds and forming a support therefor, and treads supported on said rounds, substantially as shown and described.

2. The treads herein described for stairs, consisting of metallic plates having their front edges bent over or turned over, forming curved flanges or hooks, in combination with rounds B B, substantially as shown and described.

3. The combination, in a spiral stairway, of central post, A, spirally-arranged radial rounds B B, spiral strips C, treads D, and baluster-rods E, having encircling sleeves or tubes F between each of the treads, substantially as shown and described.

4. The combination of central post or column, A, spirally-arranged rounds B, spiral strip C, connecting said rounds, tread-plates D, baluster-rods E, and hand-rail G, substantially as shown and described.

5. The combination, with rounds B and tread-plates D, of balusters or rods E, passing through said plates and holding the latter in position on the rounds, and sleeves F, encircling said rods E, substantially as shown and described.

348,909. GATE-LATCH. GEORGE B. HOWLAND, Chicago, Ill. Filed Sept. 14, 1885. (No model.)

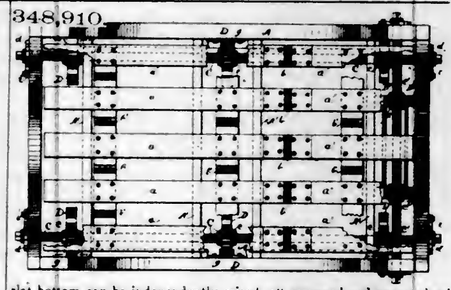
Claim.—1. The combination, with plate B and plate c, pins C C, connecting said plates, and latch D, having a hook, *d d*, at each end, and having circular recesses *g g* in the lower edge, into which said pins C C pass, of the lug *a*, as set forth.

2. In a gate-latch, the combination, with a latch having a hook at each end, the points of which project below the body of said latch, having circular or oblong openings therein contiguous to the angles of the inner surfaces of said hooks, the width of the opening into which from the exterior corresponds to the diameter of the fulcrumal pins, and said fulcrumal pins, of a lug projecting from a gate, as described.

348,910. INVALID-BEDSTEAD. CHARLES H. HORNER, Xenia, Ohio. Filed Dec. 2, 1885. (No model.)

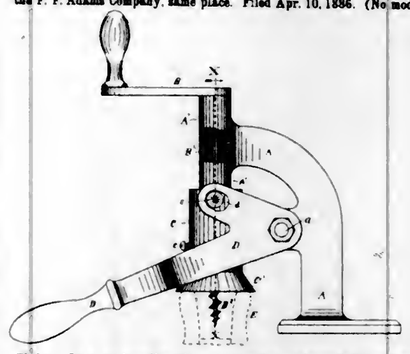
Claim.—In an invalid-bedstead, a bottom composed of longitudinal and cross slats made in sections hinged together, the pivoted curved segments D, D', and D^2, the shafts C and C', the pinion-wheels c, the ratchet-wheel *d*, and the pawl *i*, whereby either side or one end of the

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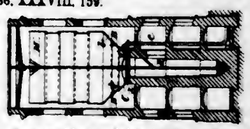
slat bottom can be independently raised, all arranged and operated substantially as shown.

348,911. CORK-PULLER. JOHN A. HURLEY, Erie, Pa., assignor to the F. F. Adams Company, same place. Filed Apr. 10, 1886. (No model.)



Claim.—In a cork-puller, the combination, substantially as herein set forth, of the bracket A, vertical hollow guide-post A', sppported by said bracket, the cork-puller B B' B^2, journaled in said guide-post and vertically movable therein, the sleeve C, with mouth C' on its lower end, guided on said post A', and the lever D, for moving said sleeve vertically on the said guide-post.

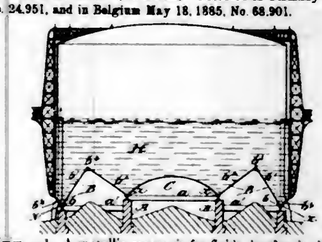
348,912. FLUID-RESERVOIR. OTTO INTER, Aachen, Prussia, Germany. Filed June 13, 1885. (No model.) Patented in Germany Feb 4, 1883, No. 23,187; in Belgium May 18, 1885, No. 68,900, and in Italy Jan. 16, 1886, XXXVIII, 159.



Claim.—1. A reservoir for fluids having a bottom comprising the conical bottom B and the counter-bottom C, together forming a seat, *x*, in combination with a support or bearing for said seat *x*, substantially as and for the purpose specified.

2. In gas-holders, the combination, with the bell of the holder and its supports, of a fluid reservoir or tank having a bottom comprising the conical bottom B and the counter-bottom C, together forming a seat, *x*, and a support or bearing for said seat *x*, to support the tank above the surface of the ground, substantially as and for the purpose specified.

348,913. GASOMETER. OTTO INTER, Aachen, Prussia, Germany. Filed June 13, 1885. (No model.) Patented in Germany Mar. 31, 1883, No. 24,951, and in Belgium May 18, 1885, No. 68,901.



Claim.—1. A metallic reservoir for fluids, having its inclosing-wall and bottom connected and constructed to form salient and re-entering

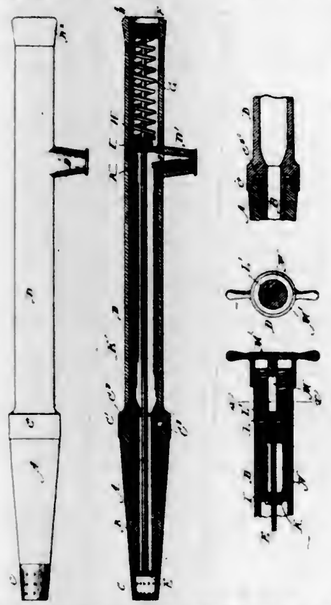
angles, one or more of said salient angles constituting the seat or seats for said reservoir, in combination with a bearing for said seat or seats, substantially as and for the purpose specified.

2. A metallic water-tank for gas-holders having the inclosing-wall and bottom connected and constructed to form salient and re-entering angles, said salient angles constituting the bearings or seats for the reservoir, in combination with independent foundation walls or supports upon which the angular bearings of the reservoir are seated, substantially as and for the purpose specified.

3. In fluid-reservoirs, the combination of the inner hemispherical or convex bottom, C, and the outer conical bottom, B, with the intermediate conical bottom, B', as and for the purpose set forth.

4. In fluid-reservoirs, the combination of the hemispherical or convex counter-bottom C, the conical bottom B, and the intermediate conical or angular bottom, B', with the seat-rings *a* and *a'*, as and for the purpose specified.

348,914. FAUCET. WILLIAM W. JACKSON, Chicago, Ill. Filed Mar. 3, 1886. (No model.)



Claim.—1. A faucet provided with the hollow conical plug A, having a straight cylindric bore and fitted upon the straight tubular stem or bushing, combined with the annular wedge-shaped socket which is formed around one end portion of said stem and into which the butt-end of the conical plug is fitted to an extent to normally provide a space back of the butt-end of the conical plug, substantially as described.

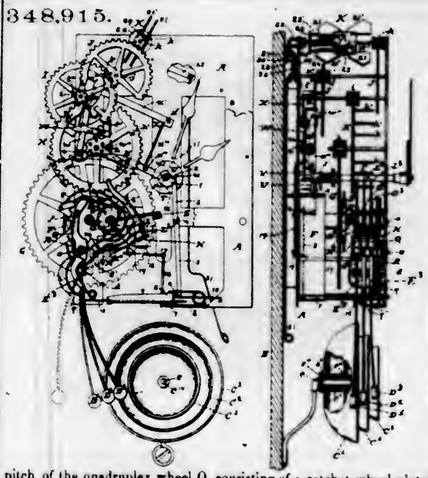
2. The hollow faucet provided at one end with a straight tubular stem, B, and an annular wedge-shaped socket formed around said stem at the junction of the latter with the faucet-body, combined with the hollow conical plug A, that is provided with a straight cylindric bore and fitted upon the tubular stem to normally enter the said socket to an extent to leave a space back of its butt-end, substantially as described.

348,915. STRIKING MECHANISM FOR CLOCKS. FREDERICK KLINKERMANN, Dillsborough, Ind. Filed Jan. 13, 1886. (Model.)

Claim.—1. The striking attachment to a clock or time-piece, for distinctively announcing the hours by chimes, consisting of the combination of the following elements, to wit: a spring or weight actuated wheel-train, a detaining and releasing device for the same under the control of the time-piece, three rigidly-attached and diversely-indented rotatable plates, to which motion is imparted from the time-piece, three hinged bars which have teeth capable of engaging, respectively, with said plates, and which carry, pivoted to their free ends, levers which engage with and are actuated by a tappet or tappets on a wheel of the aforesaid train, and three hammers which are successively retracted by said levers, and on being released are caused by their protracting springs to successively strike three bells of different pitch.

2. In a chime-striking clock, the combination, with the three hinged bars M' M^2 M^3 and their attached bell-cranks L' L^2 L^3, whose arms *l* engage with tappets *h'* on the train-wheel H, and whose other arms, *l'*, actuate the hammers D' D^2 D^3, of the three bells C' C^2 C^3, of different

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pitch, of the quadruplex wheel O, consisting of a ratchet-wheel plate, O^4, engaging with a pawl actuated from the timer mechanism, and of the three diversely-indented plates O' O^2 O^3, capable of engaging, respectively, with the teeth *m'* of the bars M', M^2, and M^3, the three latter plates being indented, substantially as described, and being rigidly secured, together with the ratchet-wheel plate O^4, on a sleeve, O^5, which fits on a pivot, *o*, and is held in place by frictional spring-detent S.

3. The detaining and releasing device for a chime-striking clock-train, consisting of notched disk U, secured to the minute-hand shaft and carrying tappets *u*, lifting-bar V, hinged and gravitating combined stop and pawl W, lever X, carrying-rack *x*, stop x^*, and heel-tooth x^{**}, and the train-wheel I, carrying stop-pins *i'* and *i''*, and gathering or lifting pin *i'''*, all in the described combination.

4. In combination with a time-piece hour-striking attachment in which three differently-pitched bells, C' C^2 C^3, are successively struck by corresponding hammers, D' D^2 D^3, which are protracted by springs E' E^2 E^3, and are retracted by mechanism whose action is controlled by a quadruplex wheel, O, so that a rotary shift of the latter changes the succession of striking of the three bells, the device for striking one or other of said bells at each quarter, and for shifting the wheel O, consisting of the following parts in the described combination: the snail 1, which is fastened on the minute-hand shaft, and whose cam action on the tooth 2 of a lever, 3, is transmitted by said lever to one arm of a bell-crank, 6, whose other arm carries a slide, 12, which by such cam action is caused to be directed to the rod of one or other of the hammers D' D^2 D^3, or to the arm *q* of the lever Q, which carries a pawl, P, that engages with a ratchet-wheel plate of the wheel O, and a rock-shaft, 17, having an arm, 16, which engages in said slide, and another arm, 18, which is connected to a lifting-bar, V, hinged at one end and engaging at its free end with four equidistant tappets, *u*, on a plate, U, attached rigidly to the minute-hand shaft.

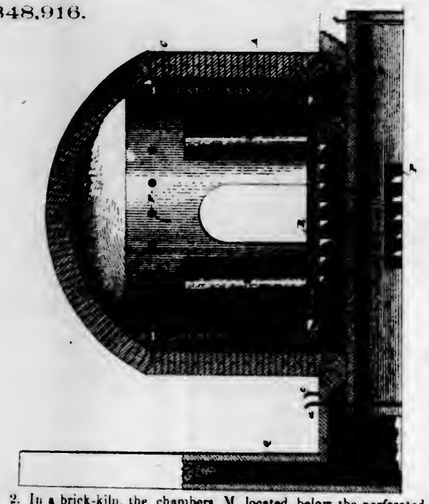
5. In combination with the striking-train of a time-piece, the governor K for the same, in which a frame, 20, rigidly attached to a shaft of said train, carries pivoted pieces 21 21', which, when said shaft rotates, by their centrifugal motion push rods 23 23' projecting from a spring-retracted disk, 22, and occupying orifices in the frame 20, and thereby press said disk against a friction-plate, 26.

6. The combination, in a governor for the striking-train of a time-piece, of the frame 20, fastened to a train-shaft, the pieces 21 21', pivoted to said frame, the slidable disk 22, having projecting rods 23 23', which pass through corresponding orifices in the frame 20, and bear against the pieces 21 21', which, when the frame is rotated, by their centrifugal motion push said rods so as to protract the disk 22, the spring 24, which tends to retract said disk, the friction-plate spring 26, against which said disk presses when protracted, the lever 28, carrying abutting plate 27, inclined to the plane of vibration of said lever and engaging with a similarly-inclined portion of the spring-plate 26, and the manipulating-wire 31, attached to said lever.

348,916. BRICK AND TILE KILN. JOHN I. KNAPP, JOSEPH C. MCKENZIE, and WILLIAM HUMPHREY, Adrian, Mich. (No model.) Filed Jan. 18, 1886.

Claim.—1. A kiln for burning brick, tiles, &c., of the character described, having the separate chambers L and M, located below the perforated floor of the kiln, said chambers being connected to a common flue or arch, and each independently controlled by suitable dampers or valves, as set forth.

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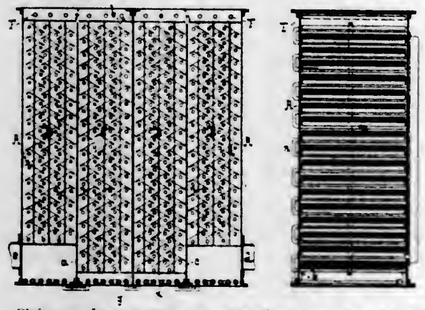
2. In a brick-kiln, the chambers M, located below the perforated floor and at the sides of the kiln, said chambers being connected to the main draft-flue by suitable ports or flues which are controlled by suitable dampers, as set forth.

3. In kilns for burning brick, tiles, &c., the furnaces located in the outer walls and communicating with the interior of the kiln by means of the fire-bags H, in combination with the air-space C, communicating with the interior of the kilns by means of the ports F, whereby the gases from the furnace are supplied with hot air to complete combustion, as set forth.

4. In a brick or tile kiln, the fire-bags H, provided with the offset K, forming a contracted throat at the rear of the furnace, as and for the purpose set forth.

5. In a brick or tile kiln of the character described, the flue E, joining the hot-air spaces C of two adjacent kilns, whereby the heat of one kiln is transferred to the other, as set forth.

348,917. CARBURETOR TO BE USED IN THE MANUFACTURE OF WATER-GAS. FREDERICK C. KNIESR, Baltimore, Md. Filed Apr. 8, 1886. (No model.)



Claim.—1. In an apparatus for carbureting generator-gas, a series of shelves with lips, as described, combined with steam-pipes to heat the said shelves and pipes to conduct the hydrocarbon to the shelves, substantially as specified.

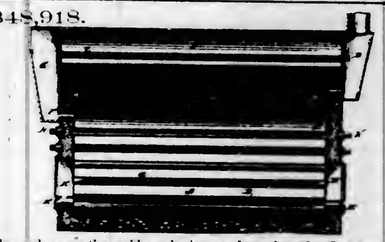
2. In an apparatus for carbureting generator-gas, a series of shelves connected to form vertical zigzag partitions, combined with steam-pipes arranged parallel with the said shelves and situated directly under the points of intersection or angles, and pipes to conduct the hydrocarbon to the said shelves, substantially as specified.

3. In an apparatus for carbureting generator-gas, a series of shelves connected to form zigzag partitions having extensions or lips leading from the angles where the shelves connect, combined with steam-pipes placed under the said lips and pipes to conduct the hydrocarbon to the said shelves, substantially as and for the purpose specified.

348,918. BOILER. FRANK J. KORTE, Zanesville, Ohio. Filed Jan. 25, 1886. (No model.)

Claim.—1. The combination, with a boiler having a smoke-box at one end and an uptake at the other end and flues extending through the

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boiler and connecting said smoke-box and uptake, of a fire-box extending nearly the entire length of the boiler, said fire-box having a neck, F, through which it communicates with the smoke-box, and being provided with water-pipes that communicate with the boiler, substantially as described.

2. The combination, with a boiler having a smoke-box and uptake at opposite ends connected by flues, of a fire-box extending the entire length of the boiler and communicating with the smoke-box, said fire-box having doors and draft-openings at both ends and being provided with water-pipes that communicate with the boiler, substantially as described.

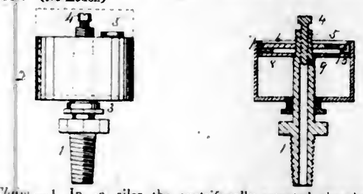
3. The combination, with the boiler provided with flues, of the fire-box A, consisting of a shell, A', located in the water-space of the boiler and surrounded by the water, the said shell being provided with doors E E', neck F, and water-pipes *a*, and the boiler-jacket being provided with removable plugs H, arranged opposite the ends of the water-pipes *a*, substantially as described, and for the purpose specified.

4. The combination, with a boiler rounded at top and bottom, of a fire-box rounded at the base and top, said boiler provided with flues and said fire-box with water-pipes, the construction being such that the products of combustion may pass around the water-pipes and return to the uptake through said flues, substantially as described.

5. The combination, with a boiler extended over the combustion-chamber to constitute a water-jacket, of a fire-box, said fire-box provided with water-pipes communicating with said water-jacket, substantially as described.

6. The combination, with a fire-box, of a boiler extended over the combustion-chamber of the fire-box to form a water-jacket, said fire-box extended the whole length of the boiler between the legs of the jacket and provided with water-tubes communicating with said jacket, substantially as described.

348,919. OILER FOR LOOSE PULLEYS. EDGAR A. KUHNS, Dayton, Ohio, assignor of one-half to Albert C. East, same place. Filed Jan. 12, 1886. (No model.)

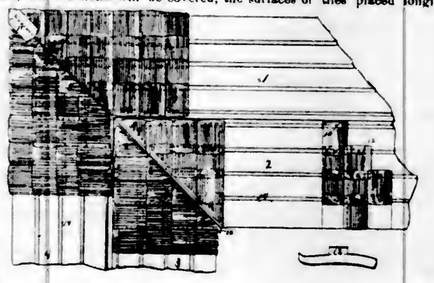


Claim.—1. In an oiler, the centrifugally-actuated chamber in its relation to the supporting-stem with piston on the end thereof, and central duct to convey the oil, substantially as set forth.

2. In an oiler, the centrifugally-actuated chamber in its relation to the supporting-stem with piston on the end and regulating-screw in the end thereof, and central duct to convey the oil, substantially as set forth.

348,920. TILE ROOF. JOHN C. LITZELLE, Rockford, Ill. Filed Jan. 6, 1886. (No model.)

Claim.—1. A tile having the heel, nail-hole, curved body, and oppositely-curved edge, all as described, whereby, in a roof made of such tiles, the nail-holes will be covered, the surfaces of tiles placed longi-



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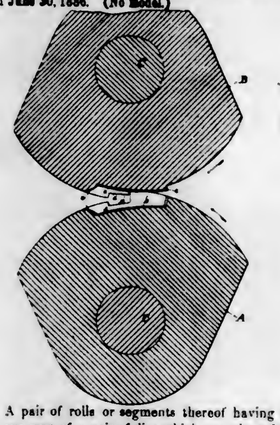


tudinally rest closely one upon another, and the tiles laterally placed form a close joint by contact in a single line of surfaces not parallel with the general surface of the roof, substantially as set forth.

2. The combination of the approximately triangular-shaped tile having the projection and perforation with a similar tile, roof-laths, and a trough at the valley of a roof, substantially as described.

3. The combination of tiles having projections and perforations, as set forth, with approximately triangular perforated tiles, roof-laths, and a cover, whereby the hip is formed, as set forth.

348,921. DIES FOR MAKING AX-POLLS. HENRY M. LOOMER, East Douglas, assignor to the Douglas Axe Manufacturing Company, Boston, Mass. Filed June 30, 1886. (No model.)



Claim.—1. A pair of rolls or segments thereof having in each of their peripheries one part of a pair of dies which are adapted to operate together for rolling ax-polls and similar tools, and which have the matrix produced thereby formed as follows: that portion which shapes the head and eye part of the tool contained equally in each die; that portion which shapes the remainder of the tool contained wholly in one die, and a projection or die-punch to operate in connection with this latter portion of the matrix contained upon the other die, the respective opposed operating-faces of the two dies being substantially cylindrical surfaces having equal radii, and so located in relation to each other that the matrix-space embraced between them will be divided through its medium line by a cylindrical surface having the same axis and the same radius as the periphery of either roll at the head end of the dies.

2. A pair of ax-dies having the surfaces of their opposed operating-faces formed in curves which are substantially the arcs of circles having the same radii, and with one-half of that portion of the matrix which forms the head of the ax in each die, and the entire matrix which forms the remainder of the ax in one die, and an opposed projecting die-punch on the other, substantially as described.

3. A pair of dies for rolling axes and similar tools, formed in the periphery of a pair of rolls or segments thereof, and having cylindrically-curved opposed operating-faces, and the walls of the dies at the head ends thereof cut away, in the manner and for the purpose substantially as described.

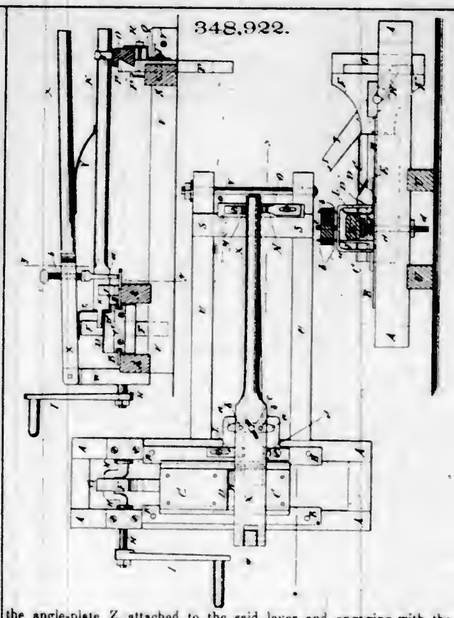
348,922. SPOKE-FITTING MACHINE. JOSEPH H. MUELLER and JOSEPH MARX, Cross Plains, Wis. Filed Apr. 12, 1886. (No model.)

Claim.—1. In a spoke-fitting machine, the combination, with a supporting-frame and a reciprocating plane mounted thereon, of the bracket J and the adjustable spring L, for holding the inner end of the spoke, and an adjustable clamping device for supporting and holding the outer end of the said spoke, substantially as herein shown and described.

2. The combination, with the frame A, carrying the plane, and the parallel bars U, attached to the said frame, of the cross-bar S, secured to the said parallel bars U by a bolt, V, the slotted vertical bar P, having a dovetail groove in the outer side of its upper end, and its fastening-bolt T, the horizontal bar O, having a dovetail groove in its inner side, and its fastening angle-plate Q and bolt R, and the bracket M and spring N, attached to the said bar, substantially as herein shown and described, whereby the outer end of the spoke can be securely supported, whatever be the length, width, thickness, or inclination of the said spoke, as set forth.

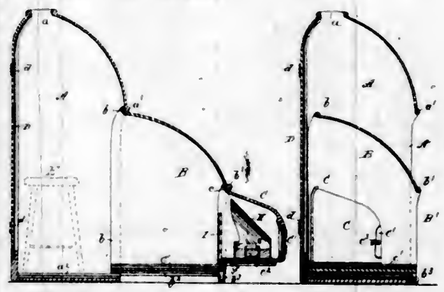
3. The combination, with the frame A, carrying the plane, of the standard W, the lever X, hinged to the said standard, the spring Y, and

348,922.



the angle-plate Z, attached to the said lever and engaging with the spoke, the stop-bar *a*, the guide-rods *b*, attached to the said stop-bar and passing through the said lever, and the hand-screw *c*, passing through the said lever and swiveled to the said stop-bar, and the screw-rod *d*, having cross-head, and the spring *e*, supporting the said screw-rod, substantially as herein shown and described, whereby the spoke will be held down upon the plane, and will be supported out of contact with the said plane when free from a downward pressure, as set forth.

348,923. VAPOR-BATH. CARRIE A. MUNRO, Olive Branch, Ohio. Filed June 17, 1886. (No model.)



Claim.—1. A vapor-bath formed of a series of tubular telescopic sections, the intermediate section being open at both ends and the outer sections being open at their ends adjacent to the intermediate sections and forming close joints therewith when extended, substantially as set forth.

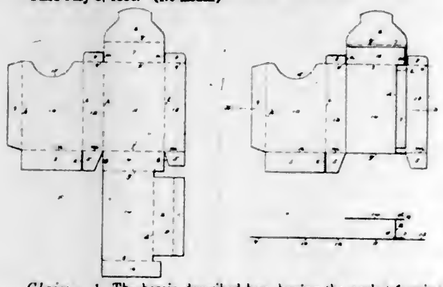
2. A vapor-bath comprising the tubular sections A, having a door, D, in its front end, the opening *a* in its top and the opening A' in its rear end, the tubular section B, open at both ends, fitting within section A, and having its top inclined downward and rearward, as shown, the forward end of the said section being of greater diameter than the opening A', the tubular section C, open at its forward end and inclined, as shown, to readily pass through the opening B' of section B, the open end of section C being of greater diameter than the opening B', and a vapor-generator within the section C, substantially as set forth.

3. A vapor-bath comprising the tubular telescopic sections A B C, the guard I, formed of a series of bars extending across the open end of section C, the water-vessel F in the section C, the cup G within the vessel F, and surrounded by a water-space, and the hood H, inclining toward the guard-bars I, to direct the vapor between them into the sections A B, substantially as shown and described.

4. A vapor-bath made in telescoping sections A B C, the section A having a door for entrance of the patient and an opening to receive

the patient's neck, and a rear opening, A', the section B having a lip, *b*, fitting at said opening A', and a rear opening, B', and the section C having a lip, *c*, fitting at said opening B', and provided with a door, C', substantially as described, for the purposes set forth.

348,924. PAPER BOX. HARVEY S. MUNSON, New Haven, Conn. Filed July 3, 1886. (No model.)

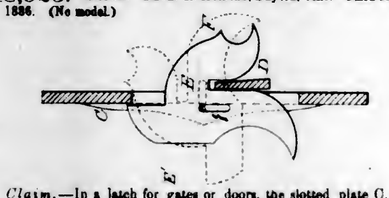


Claim.—1. The herein-described box, having the pocket-forming portion 14 extending from the end portion, 4, and the flaps 3 5 extending from the body-forming portions and arranged to fold over and be secured to the portion 4, substantially as described.

2. The herein-described box, having the pocket-forming portion 14 extending from the end portion, 4, the flap 16 extending from the end of the pocket-forming portion 14, and the flaps 3 5 7 8 extending from the body-forming portions and arranged to fold inward to close the ends of the box, substantially as described.

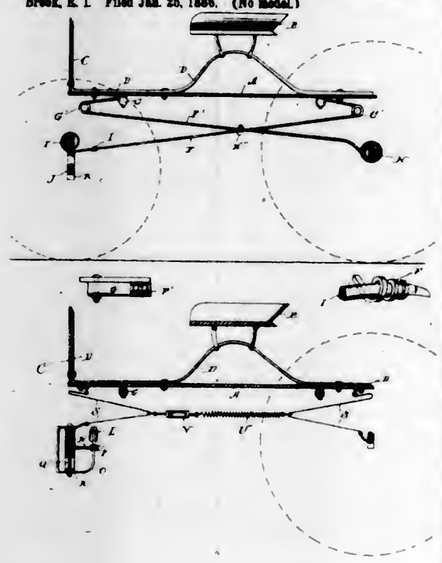
3. The herein-described box, having the pocket-forming portion 14 extending from the end portion, 4, and the partition 2 extending from the side of said pocket-forming portion, substantially as described.

348,925. LATCH. DAVID M. MURRAY, Dayton, Ohio. Filed Aug. 2, 1886. (No model.)



Claim.—In a latch for gates or doors, the slotted plate C, with bosses to support a pivot, and the gravity-catch E, having three projections, a central slot, *g*, to embrace the said pivot, the engaging-slot A, with the closing projection contiguous to said slot, substantially as and for the purposes described.

348,926. SIDE-SPRING VEHICLE. JAMES R. NORTHRUP, Rocky Brook, R. I. Filed Jan. 25, 1886. (No model.)



Claim.—1. The combination of the body A, seat B, and dasher C, in combination with the continuous rail D, secured marginally to the body and raised to support the seat and dasher, substantially as set forth.

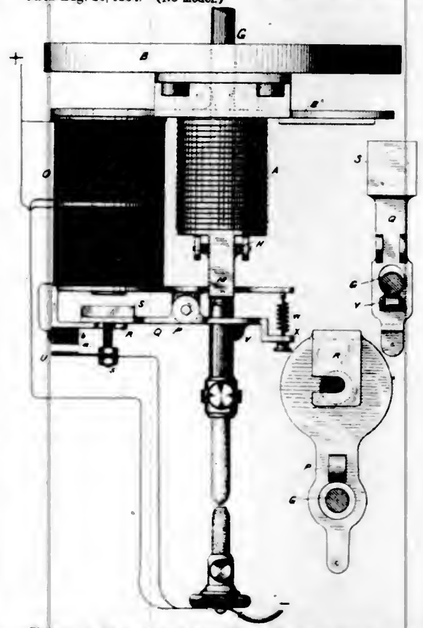
2. The body A, seat B, and dasher C, in combination with the continuous rail D, secured marginally to the body and raised to support the seat and dasher, substantially as set forth.

3. The oblique springs F, connected transversely by the tie-rod L, in combination with the slotted segment N, shouldered bar O P, and the king-bolt Q, substantially as set forth.

4. The axle J, supporting-bar R, king-bolt Q, and segment N, in combination with the bent bar O, provided with shoulders P, to engage with said segment and with the tie-rod L, supporting said bent bar, substantially as set forth.

5. The V-shaped spring S, arranged beneath the front and rear ends of the body in the plane of its longitudinal center, in combination with the spiral spring U and turn-buckle V, adjustably connecting the springs S, substantially as set forth.

348,927. ELECTRIC-ARC LAMP. GUSTAV PFANNKUCHE, Hartford, Conn., assignor to the Schuyler Electric Light Company, same place. Filed Aug. 26, 1884. (No model.)



Claim.—1. In an electric lamp, the combination of an electro-magnet, a carbon-holder, a clutch for first lifting and releasing its hold on the carbon-holder at the end of its upward movement, and an independent clutch for supporting the carbon-holder, both of said clutches being operated by said electro-magnet, substantially as described.

2. In an electric lamp, the combination of an electro-magnet, a carbon-holder, a clutch for lifting and releasing the carbon-holder, and an independent clutch for supporting the carbon-holder, both of said clutches being operated by said electro-magnet, and a second electro-magnet and feeding-clutch, substantially as described.

3. In an electric lamp, the combination of an arc branch electro-magnet, two clutches—one to establish the arc and then release its hold and the other to support the carbon-holder upon the release of the lifting-clutch—both of said clutches being controlled by said electro-magnets, and a shunt branch electro-magnet, and a clutch controlled thereby to feed said carbon-holder, substantially as described.

4. In an electric lamp, the combination of a carbon-holder, an electro-magnet, a clutch-armature whose ends are successively attracted to lift said carbon-holder and unlock the lifting-clutch, and a second armature and clutch controlled by the same electro-magnet for supporting the carbon-holder against the action of gravity upon the unlocking of the lifting-clutch.

5. The combination of carbon-holder G, arc branch, electro-magnet, lifting-armature H, and armature-bar D, controlled by the same electro-magnet for supporting the carbon-holder against the action of gravity, substantially as described.

348,928. CIGAR-BOX. DANL. E. POWERS, New York, N. Y., assignor to the Patent Paper Cigar Box Company, same place. Filed Feb. 16, 1886. (Model.)



Claim.—1. The combination, in a cigar-box, of a main blank comprising a rectangular bottom section and side sections integral therewith, each constituting a layer of one side of the box, and two corresponding blanks each comprising a side section, a single end section at one end constituting one layer of one end of the box, and two folded end sections at the opposite ends constituting a double end layer of the opposite end of the box, substantially as described.

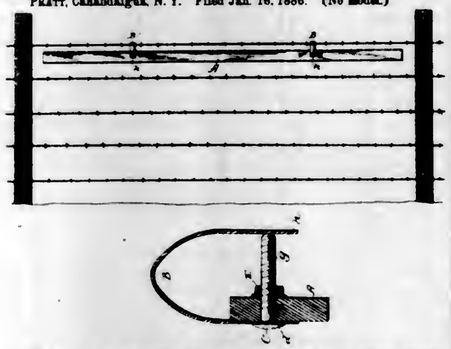
2. The combination, in a cigar-box, of a main blank comprising a rectangular bottom section and side sections integral therewith, each constituting a layer of one side of the box, and two corresponding blanks each comprising a side section, a single end section at one end constituting one layer of one end of the box, and two folded end sections at the opposite ends constituting a double end layer of the opposite end of the box, said corresponding blanks being recessed along the side sections a distance equal to the thickness of the cover, and a cover which shuts into said recessed portions of the sides flush with the upper edge of the box, substantially as described.

3. The combination, in a cigar-box, of a main blank comprising a rectangular bottom section and side sections integral therewith, each constituting a layer of one side of the box, and two corresponding blanks each comprising a side section, a single end section at one end constituting one layer of one end of the box, and two folded end sections at the opposite ends constituting a double end layer of the opposite end of the box, the single end layer of one blank being cemented to the double end layer of the other blank, and the side layers of the corresponding blanks being cemented to the side layers of the main blank, substantially as described.

4. The combination, in a cigar-box, of a main blank comprising a rectangular bottom section and side sections integral therewith, each constituting an outer layer of one side of the box, and two corresponding blanks each comprising side section constituting the inner layer of one of the sides, a single end section at one end constituting the outer layer of one end of the box, and two folded end sections at the opposite ends constituting the inner and intermediate end layers of the opposite end of the box, substantially as described.

5. The combination, in a cigar-box, of a main blank comprising a rectangular bottom section and side sections integral therewith, each constituting an outer layer of one side of the box, the unsevered web between said bottom and side sections being upset, whereby square corners are formed, two corresponding blanks each comprising a side section, a single end section at one end constituting one layer of one end of the box, and two folded end sections at the opposite ends constituting a double end layer of the opposite end of the box, substantially as described.

348,929. WARNING-STRIP FOR BARBED FENCES. HENRY C. PRATT, Canandaigua, N. Y. Filed Jan. 16, 1886. (No model.)



Claim.—1. A suspension sight-strip for barbed-wire fences having self-closing hooks secured thereto, and protections, as *g*, serving as bearings to hold the free ends of the hooks off from the strip, substantially as specified.

2. A suspension sight-strip for barbed-wire fences having self-closing hooks, the free ends of which project below the projecting bearings *g*, which hold them off from the strip, substantially as specified.

3. The combination, with the sight-strip, of an elastic hook and a securing-bolt projecting through said strip and from the same sufficiently to form a bearing to hold the free end of the hook off from said strip, substantially as specified.

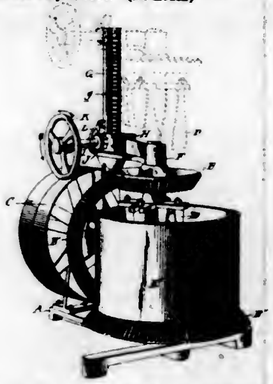
348,930. PIGEON-HOLE CASE. HARRY D. PURSELL, Washington Court House, Ohio. Filed May 12, 1886. (No model.)



Claim.—1. The combination, with a case having a series of pigeon-holes and sliding doors resting one upon the other, of the walls 5, 6, and 7, constituting the closed dust-tight compartment *a* above the doors at the front of the case, and the door *g* and rear wall, 8, composing the closed compartment *e* at the rear thereof, substantially as described.

2. In combination with a case having a series of pigeon-holes, and sliding doors resting one on another, the compartment *a*, formed above the doors at the front of the case, and the compartment *e* in rear thereof, substantially as described.

348,931. PAINT-MIXING MACHINE. CHARLES ROSS, Jr., Brooklyn, N. Y. Filed July 7, 1886. (No model.)



Claim.—1. The combination, in a mixing-machine, and with the arm F and standard C thereof, of a hoisting device mounted in one of said parts and acting on the other, substantially as described.

2. The combination, in a mixing-machine, and with the arm F and standard G thereof, of a pinion working in a rack formed in or attached to said standard, and means, as the shaft I and hand-wheel K, for operating said pinion, substantially as described.

3. The combination, in a mixing-machine, of the standard G, having rack *g*, and the arm F, provided with bearings for the shaft I, with said shaft I, a pinion operating by it and meshing in said rack, a ratchet-wheel connected with the pinion, and a pawl, L, catching into said ratchet-wheel, substantially as described.

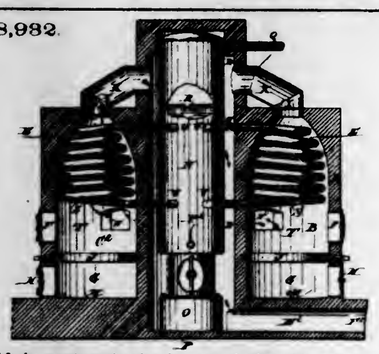
348,932. STEAM-HEATING APPARATUS. CHARLES W. ROGG, Cambridge, Mass. Filed Sept. 30, 1885. (No model.)

Claim.—1. In combination, a pair of combustion-chambers, such as A A^2, communicating with each other, and a coil or coils, S, of water-pipe, a compartment, D, having a drum, N, with water and steam connections, and connected to said coil or coils, separate passages X, each having a damper, Y, and connecting said combustion-chambers with said compartment D, substantially as described, for the purpose specified.

2. In combination, a pair of combustion-chambers, such as A A^2, communicating with each other, and each of dome shape in its upper portion, a coil or coils, S, of water-pipe arranged in the dome of said chambers, a compartment, D, having a drum, N, with water and steam connections and connected to said coil or coils, and separate passages X, each having a damper, Y, and connecting said combustion-chambers with said compartment D, substantially as described, for the purpose specified.

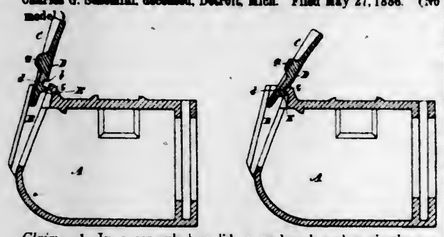
3. In combination, a series of pairs of combustion-chambers, such

348,932.



as A A', the members of each pair communicating with each other and provided with a coil or coils, S, of water-pipe, a compartment, D, having a drum, N, with water and steam connections and connected to said coil or coils, and separate passages X, each having a damper, Y, and connecting said combustion-chambers with said compartment D, substantially as described, for the purpose specified.

348,933. CAR-AXLE-BOX. FRANCIS G. SUSEMIHL, administrator of Charles G. Susemihl, deceased, Detroit, Mich. Filed May 27, 1886. (No model.)



Claim.—1. In a car-axle-box lid, a wedge-shaped projection on the rear face of the lid of a width substantially the width of the opening in the box, and forming with its lower end a shoulder or rest for the lid in its raised position, substantially as described.

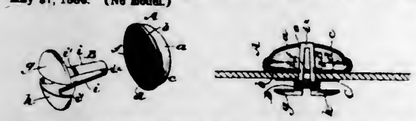
2. In a car-axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, a wedge-shaped projection on the rear face of the lid substantially the width of the opening in the box, and forming a guide for the rear face of the lid in rising, and a shoulder upon its lower end for the lid to rest on its raised position, substantially as described.

3. In a car-axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, the solid wedge D upon the rear face of the lid to permit the falling back of the lid in raising it, substantially as described.

4. In a car-axle-box lid having wedge-shaped guides engaging into corresponding guide-grooves in the box, the wedge D upon the rear face of the lid, extending nearly across the same, and having a pitch, as described, to permit the gradual falling back of the lid in rising, and provided with the shoulders *b*, in combination with the stop-rib E, substantially as described.

5. In a car-axle-box lid of the kind described, the combination, with the raised front edge, *c*, of the roof of the box, of the wedge D, extending nearly across the rear face of the lid and forming the shoulder *b*, and the rib E, forming a stop for the lid, and the recess *d*, between it and the lower end of the wedge, substantially as described.

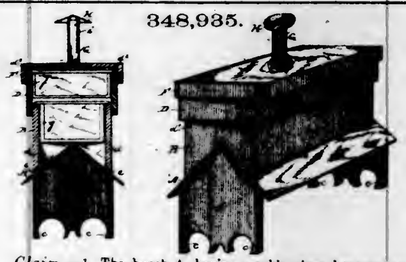
348,934. BUTTON. STEPHEN J. SWAYZE, Sag Harbor, N. Y. Filed May 27, 1886. (No model.)



Claim.—1. The button herein shown and described, consisting of the double-faced head A, having orifices *e f*, in combination with the spring-shank B, provided with plates *g h*, and formed with shoulders or notches *i*, substantially as and for the purposes set forth.

2. The combination, with the head A and detachable spring-shank B, of the spring D and washer C, placed upon the shank, substantially as described.

348,935. BEE-HIVE. WILLIAM SYMSTER, Ashersville, Ind. Filed June 12, 1886. (No model.)



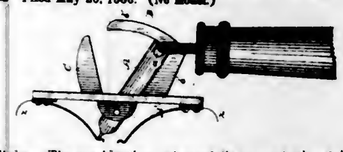
Claim.—1. The bench A, having a gable-shaped top or roof, in combination with the central portion of the hive, B, resting upon the bench, the ends of which part are cut or notched so as to rest and fit closely upon the gable-top bench, having its sides *d* beveled at their lower edges and cut out so as to form recesses *e* on both sides of the roof of the bench, substantially as and for the purposes described.

2. In combination with the parts A and B, the separable upper part, D, adapted to slide and project over the part B, so that comb-frames may depend from the top edges thereof, the said part D being provided with ledges *d'*, from which upper comb-frames depend, substantially as described.

3. The combination, with the gabled-roof bench A, of the part B, adapted to fit and rest upon said roof, the upper part, D, resting on and projecting over part B, the cover F, fitting closely down over the part D and extending over parts B and D, whereby lodgment of rain and snow upon any of the parts below the cover is prevented, substantially as described.

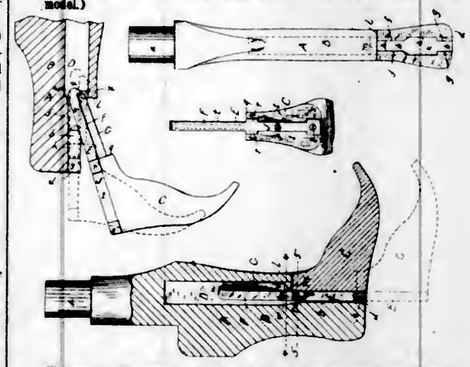
4. The combination, with the bench A, of the part B, fitting on the roof of said bench, having cut-out and beveled edges *d*, to form recesses *e*, the upper part, D, and the cover F, provided with the chimney G, having an adjustable and removable damper, H, whereby a free circulation of air may be maintained and regulated throughout the hive, substantially as described.

348,936. TELEPHONE-SWITCH. WILLIAM C. TURNBULL, Baltimore, Md. Filed May 20, 1886. (No model.)



Claim.—The combination, substantially as set forth, of the pivoted switch-arm or circuit-changer having a notch in its outer end for the reception of the eye or hook on the telephone, and a guard, within which the circuit-changer works with both prongs which form is notched and moving entirely within and in proximity to the inner face of the guard, whereby the eye of the telephone is normally prevented from leaving said notch, said guard being formed with an opening with which the notch in the circuit-changer coincides when the telephone is removed and replaced.

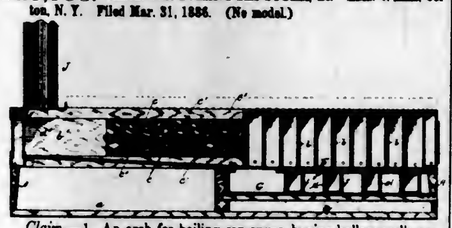
348,937. BOOT OR SHOE TREE. ABEL D. TYLER, Jr., Brockton, Mass., assignor to Oliver A. Miller, same place. Filed Feb. 12, 1884. (No model.)



Claim.—1. The combination, with the body or central portion of a boot-tree having a groove, *b*, and dovetail or securing portions *f g*, and enlargement of the groove between said portions *f g*, of the foot-piece C, having a bar, E, attached thereto, having dovetail or securing portions *r s*, adapted to interlock with the said portions *f g*, for the purpose specified.

2. The combination, with the body or central portion of a boot-tree having a groove, *b*, and dovetail or securing portions *f g*, an enlargement of the groove between said portions *f g*, a shoulder or abutment, *m*, and slot *n*, of a foot-piece having a bar, E, attached thereto, having dovetail or securing portions *r s*, adapted to interlock with said portions *f g*, a rib, G, and projection *u*, substantially as and for the purpose specified.

348,938. ARCH FOR BOILING SAP-SUGAR, &c. ERIN WILLIS, Colton, N. Y. Filed Mar. 31, 1886. (No model.)



Claim.—1. An arch for boiling sap-sugar, having hollow walls provided with metallic lining, having corrugations or guards inclined in the direction of the draft.

2. An arch for boiling sap-sugar, having hollow walls and an opening or openings at or near the front end, and a draft-opening in the pipe or chimney, the inner lining of said walls being provided with corrugations or guards inclined in the direction of the draft.

3. An arch for boiling sap-sugar, having metallic sides provided with turned flanges, as described, and a brick lining or filling, substantially as set forth.

4. An arch for boiling sap-sugar, having metallic lining provided with corrugations or guards inclined in the direction of the draft, as set forth.

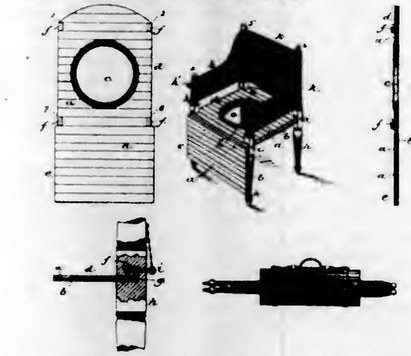
5. An arch for boiling sap-sugar, having grate-sections extending entirely across it and receiving draft from both ends, as set forth.

6. An arch for boiling sap-sugar, having grate-sections provided with boxes or imperforate sides narrower than the sections, so as to leave an air-space between each pair, as set forth.

7. An arch for boiling sap-sugar, having grate-sections with the boxes or sides described, in combination with ash-pans inserted in said sections and serving also as draft-regulators.

8. An arch for boiling sap-sugar, having an imperforate shelf or support for the grate-sections and boxes in combination with said sections, as set forth.

348,939. NURSERY FOLDING CHAIR. FLOYD B. WILSON, New York, N. Y. Filed Mar. 27, 1884. (No model.)



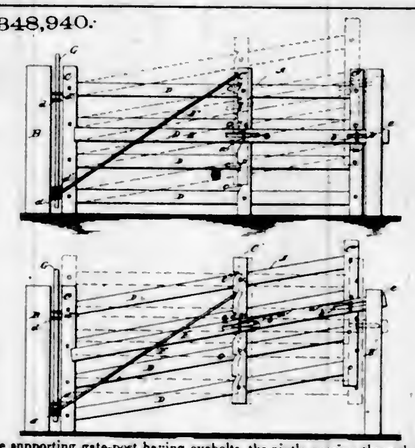
Claim.—1. In a nursery folding chair, the combination of the seat *d*, having projecting lugs *f* and leg and foot-guard *e* integral therewith, and both formed of stripe *a*, fastened to a sheet of flexible material, with legs having grooves into which said lugs *f* fit, and fastening devices, as and for the purposes set forth.

2. In a nursery folding chair, the legs *h*, provided with grooves *g*, locking-pins *i*, carpeting *k*, forming the back and arm-rests, in combination with a folding seat provided with lugs corresponding with the groove *g*, to which they are locked, substantially as shown and described.

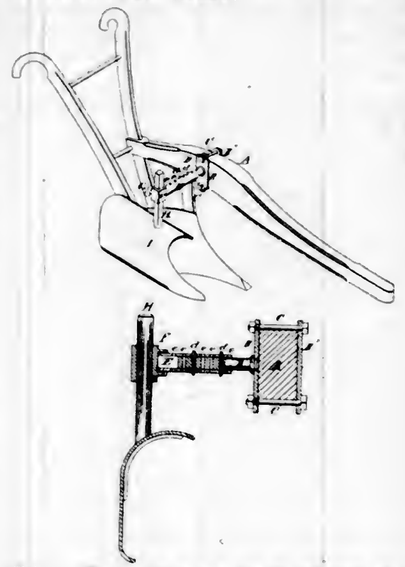
348,940. GATE. WILLIAM J. WILSON, Wabash, Ind. Filed Dec. 22, 1885. (No model.)

Claim.—The gate herein described, consisting of uprights and planking pivoted together at their crossing points, one of the uprights being notched and the rear one having eyebolts, in combination with the supporting gate-post having eyebolts, the pintle passing through the eyebolts of gate and post, and the inclined brace pivoted on the pintle and resting on the lower eyebolt of the post, its upper end engaging the notches of the notched upright of the gate, as set forth.

348,940.



348,941. PLANT-SHIELD FOR PLOWS. JOSEPH H. WITT, Bobring, Mo. Filed Jan. 27, 1886. (No model.)



Claim.—1. The combination of a plow and plant-shield, the connecting parts D E telescoped together and bored through to receive wooden pin *d*, substantially as and for the purpose set forth.

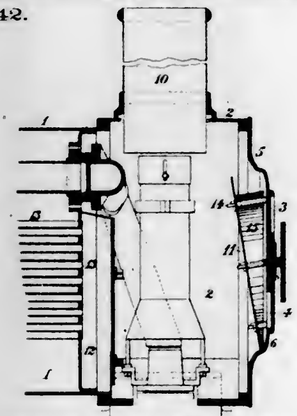
2. The combination of a plow-beam, the telescoped arm D E, with holes *e*, and break-pin *d*, a socket, F, and an adjustable shield-shank passing through the socket, as shown and described.

348,942. LOCOMOTIVE-BOILER. JOHN E. WOOTTEN, Philadelphia, Pa., assignor to the Wharton Railroad Switch Company, same place. Filed July 21, 1886. (No model.)

Claim.—1. The combination, in a locomotive-boiler, of a register or damper controlling one or more air-admission openings in the forward end of the smoke-box, and a baffle-plate or deflector located in the smoke-box adjacent to said openings in position to direct currents of air entering through the same directly to the stack, substantially as set forth.

2. The combination, in a locomotive-boiler, of a register or damper controlling one or more air-admission openings in the front of the smoke-box, a baffle-plate or deflector located in the smoke-box adjacent to said openings, and a rim or casing surrounding the lower and side portions of the baffle-plate between the same and the front end of the smoke-box, substantially as set forth.

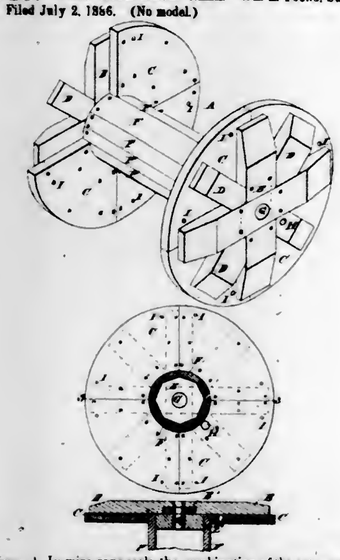
348,942.



3. The combination, in a locomotive-boiler, of a smoke-box, a door hinged thereto and provided with one or more air-admission openings, a damper or register governing said openings, and a baffle-plate or deflector secured to the inner side of the smoke-box door, substantially as set forth.

4. The combination, in a locomotive-boiler, of a smoke-box, a door hinged thereto and provided with one or more air-admission openings, a damper or register governing said openings, a baffle-plate or deflector secured to the inner side of said door, and a rim or casing extending from the baffle-plate to the door and forming a chamber between the same which communicates with the smoke-box by an upper discharge-opening, substantially as set forth.

348,943. WIRE-ROPE DRUM-REEL. WM. L. YOUNG, St. Charles, Mo. Filed July 2, 1886. (No model.)



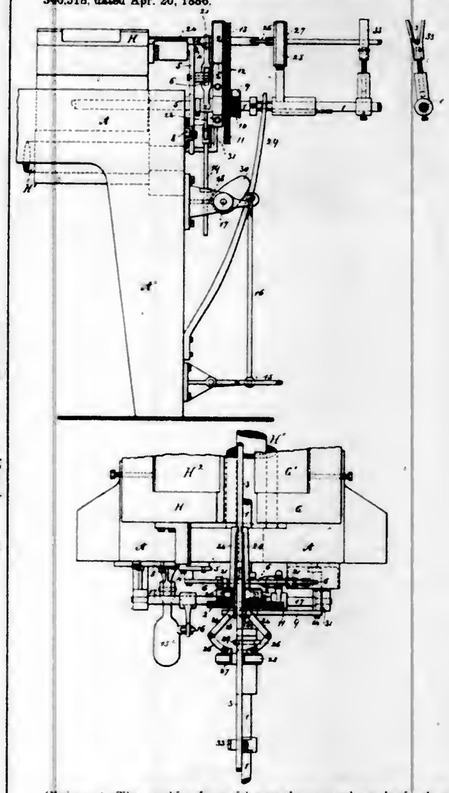
Claim.—1. In wire-rope reels, the combination of the octagonal drum-disks E, the covering drum-strips F, curved on the outside, the spider-bracket frame B, and end disks, C, arranged to present a smooth drum-surface for reeling the wire rope, all substantially as described, and for the purpose set forth.

2. In wire-rope reels, the drum-shaft arranged to connect the reel-heads and present a smooth curved drum-surface for reeling the wire rope, in combination with the spider-bracket frame with re-enforcing battens B, all substantially as described, and for the purpose set forth.

3. In wire-rope reels, the winding-drum with its octagonal drum-head disks and laterally-curved strips F, in combination with the re-enforced reel-heads, the perforations H, for the initial attachment of the wire rope, and holes I, for the passage of tie-wires, all arranged to re-enforce the reel and present a smooth curved drum-surface for reeling substantially as described, and for the purpose set forth.

REISSUES.

10,762. BOLT-MACHINE. GEORGE J. MURDOCK, New York, N. Y., assignor to Charles Hall, same place. Filed July 10, 1886. Original No. 340,518, dated Apr. 20, 1886.



Claim.—1. The combination, with a stationary and a swinging head-block and dies in a bolt-making machine, of a rack-bar, a rack-wheel, and motor-wheel acted on by such rack-bar and the movement of the head-block, and mechanism, substantially as specified, for giving motion to the bolt-rod and turning the same progressively as the forging of the head progresses, as set forth.

2. The combination, with the motor-wheel 11, of a notched carrier-wheel and pinchers pivoted to the notched carrier-wheel and grasping and progressively rotating the bolt-rod, substantially as set forth.

3. The combination, with the motor-wheel 11, of a notched carrier-wheel, pinchers pivoted to the carrier-wheel, links, and a link-ring, a yoke supporting the link-ring, and means for moving the yoke and acting on the pinchers, substantially as set forth.

4. The combination, with the swinging frame and motor-wheel, of the notched bar 6 and pin 7, and the mechanism, substantially as set forth, for grasping and rotating the bolt-rod, and the treadle and lifter for raising the notched bar and stopping the movements of the parts, substantially as set forth.

5. The combination, with the motor-wheel and carrier-wheel and the devices for turning the bolt-rod, of the swinging frame, the notched bar, the treadle and lifter, and the lever 21 and pin 20 on the carrier-wheel, for automatically raising the notched bar and stopping the rotating mechanism, substantially as set forth.

6. The combination, with the swinging frame and the pinions 12, of the motor-wheel 11, the rack-wheel and rack to give motion to the motor-wheel, the stationary head-block and die, and the moving head-block and die, by which the motor-wheel receives its movement, and mechanism, substantially as set forth, for grasping and progressively rotating the bolt-rod, substantially as set forth.

7. The combination, with the dies for grasping the bolt-rod and forging the head, of pinchers for grasping the rod and automatic mechanism for turning the pinchers, and thereby revolving the bolt-rod progressively, substantially as specified.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BAKER.

Decided February 10, 1886.

The purpose of the amendment of November 16 last to Rule 140 of the Rules of Practice was to secure a uniformity of practice in regard to interlocutory matters, as well as to induce a presentation of the precise point or question intended for review.

INTERLOCUTORY APPEAL.

Application of John C. Baker filed June 18, 1885.

Mr. Paul. A. Staley for the applicant.

MONTGOMERY, *Commissioner:*

On the 16th of November last the Rules of Practice of the Patent Office were revised somewhat and some amendments made. Among the rules so amended was Rule 140, which was intended to do away with what had formerly been termed "interlocutory appeals." About the same time the present Commissioner addressed to the patrons of this Office a circular, in which "An ordinary example of a petition," such as contemplated by Rule 140, as amended, was suggested. The purpose of this amendment was to secure, if possible, not only a uniformity of practice in regard to matters of this character which were sought to be brought before the Commissioner, but also to induce a presentation before the Commissioner for review of the precise point, or the precise question, as near as might be. "*Appeals*," properly so called, from the examiners lie not to the Commissioner, but to the examiners-in-chief. *Petitions and motions* asking for orders, directions, &c., should be presented to the Commissioner in the manner pointed out by such rule and by such circular. The situation of the present case, I think, completely illustrates the propriety of the amendment to this rule and the adoption of this practice. It is exceedingly difficult for me to determine what precise point or points, or what question or questions, are sought to be brought up for review by the Commissioner. It is equally as difficult to understand just what ruling or order is desired by applicant. I have determined, therefore, to dismiss the present so-called appeal and let the case go back to the primary examiner.

Let applicant be notified of this order.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Eastern District of Wisconsin.

CALKINS *et al* v. OSHKOSH CARRIAGE COMPANY *et al.*

Decided April, 1886.

1. WANT OF NOVELTY.

Letters Patent No. 261,829, of August 1, 1882, to Alton J. Calkins, for an improvement in carriage-bodies, are void for want of novelty.

2. The patent was for a carriage-body having rounded corner-posts, with grooves to receive the side and end panels, and tenons to receive side and end rails, and corner-irons to hold the rails rigidly to the posts, the whole forming a carriage-body ingeniously adjusted and held together without the aid of screws, but all the elements of the claim were old, and, in view of the prior state of the art, *held* that it did not require invention to bring them together.

3. MECHANICAL SKILL.

Although the adjustment of the different parts of patentee's combination was novel, and the combination, as an entirety, useful, *held* that it exhibited only the expected skill of the mechanic's calling, and not the creative work of the inventor.

Messrs. Erwin & Benedict for the complainants.

Messrs. Colzhausen, Sylvester, Scheiber & Sloan for the defendants.

DYER, *J.:*

This is a suit to restrain the infringement of Letters Patent No. 261,829, issued to the complainant Calkins, August 1, 1882, upon an application filed May 18, 1882, for an improvement in carriage-bodies, and to recover profits and damages. In the specification of the patent the patentee describes his invention as follows:

My invention relates to improvements in carriage-bodies, and pertains to the peculiar construction of the corner-posts, the side frames, and the manner of attaching the panels to the frames and corner-pieces.

My invention is further explained by reference to the accompanying drawings.

. . . . . .

A is the corner-post. B represents one of the standards which are inserted at short intervals between the respective corners. C is the upper rail. D is the lower rail. E are the panels.

The corner-posts A are provided with grooves F F upon their respective edges for the reception of the ends of the panels E, and recesses G G for the reception of the ends of the rails C C. The rails C C and the upper ends of the corner-posts A are provided with a narrow flange or elevation, H, which projects above the body of the rail and serves to retain the seat upon the edge of the box. The thickness of the posts A is such that they form a neat ornamental finish to the corner upon the outside, while they are flush with the inner surface of the upper rails upon the inside.

The ends of the posts B are tenoned into the lower and upper rails in the ordinary manner. Both the upper and lower rails, C and D, are provided with grooves I I, for the reception of the respective upper and lower edges of the panels, whereby the panels are retained without screws at both their sides and ends, as shown. The upper and lower rails are connected together by the standards B, thus forming a rigid substantial frame for the body. It is obvious that by thus securing the edges of the panels in grooves much stronger and more durable joints are formed than heretofore, and the tendency to become separated by action of the atmosphere is thus avoided.

J J are corner-irons, by which the corner-posts and the top and bottom rails are rigidly retained in contact. The corner-posts may be made of cast-iron instead of wood, if desired.

The patent contains a single claim, which is for—

The corner-posts A, provided with recesses G G and grooves F F, in combination with rails C and D, panels E, and irons J J, substantially as and for the purpose specified.

The patentee perfected his alleged invention some time in September, 1881. Various questions arise upon the issues made by the pleadings. The defendants deny infringement. They also deny that Calkins was the original inventor of the alleged improvement, and allege that his patent was anticipated by other earlier patents, and that in the state of the art pertaining to carriage-bodies his construction, as shown in the draw-

lngs and the models in evidence, is devoid of such originality and novelty as entitled him to a patent.

The court finds it necessary to consider but one of these questions, namely: Is the complainants' combination a patentable invention? Confessedly, all the several parts constituting the combination are old. Stating concisely the invention here claimed, it consists of a corner-post made of a single piece of wood, the outer surface of which is oval or semicircular, so as to give to the carriage-body rounded corners. Running the whole length of the corner-post on each edge is a groove for the reception of the ends of panels, which constitute the sides and ends of the body. At the top of the post and extending down some distance parallel with the grooves, but cut into the post deeper than the grooves, are recesses, into which the ends of the rails are fitted. These rails and the upper ends of the corner-posts are constructed with a narrow elevation projecting above the body of the rail, so as to furnish means for retaining the seat on the edge of the box. Grooves extend along the entire length of both the upper and lower rails, into which the upper and lower edge of the panels are fitted, and, as thus constructed, the rails externally overlap the panels at both top and bottom. Standards or ordinary posts are inserted at intervals between the different four corners, being tenoned into the lower and upper rails in the ordinary way. Then corner irons or straps, such as have always been used for a similar purpose, extend around the top and bottom of each corner-post, reaching over to the rails to which they are fastened, so as to hold the rails rigidly in contact with the post. The arrangement of the different parts is ingenious; but I do not think, considering the state of the art, that it discloses anything more than the mechanical skill which we constantly see in the workmanship of the shops, and which cannot be called invention without regarding almost every new thing that may be novel and may possess increased utility as patentable.

As I have said, each of the parts, considered separately, is old. It is equally true that parts of the combination, as the patentee has described them and as they appear in the model, are old. It is common knowledge that corner-irons as here applied and the fitting of panels in grooves to avoid the use of nails and screws are as old as the workmanship of the village carpenter and blacksmith as it came from their hands before the days of modern machinery. The covering of the top and bottom of the panel with what are called "rails" in the complainants' patent has been long seen in all varieties of furniture and wood-work. Rounded corners of wagon-bodies were not new when the complainant Calkins obtained his patent, and all that I can see in his improvement is quite an ingenious adjustment of these parts, such as the mechanical skill of one engaged in such work might well suggest.

In *Atlantic Works* v. *Brady* (107 U. S., 192, 200; S. C., 2 Sup. Ct. Rep., 225) it was said that it is not the object of the patent laws to grant a monopoly for every trifling device which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures; and in *Thompson* v. *Boisselier* (114 U. S., 11; S. C., 5 Sup. Ct. Rep., 1042) it was further said:

> It is not enough that a thing shall be new in the sense that in the shape or form in which it is produced it shall not have been before known, and that it shall be useful, but it must, under the Constitution and the statute, amount to an invention or discovery.

Instructive language on this subject is found in the opinion of Mr. Justice Matthews in *Hollister* v. *Benedict & Burnham Manufacturing Company*, (113 U. S., 59; S. C., 5 Sup. Ct. Rep., 717,) where it is said that novelty and increased utility in an improvement upon previous devices do not necessarily make it an invention, and that a device which displays only the expected skill of the maker's calling, and involves only the exercise of ordinary faculties of reasoning upon materials supplied by special knowledge and facility of manipulation resulting from habitual intelligent practice, is in no sense a creative work of inventive faculty, such as the Constitution and the patent laws aim to encourage and reward. Such, in my opinion, is the character of the improvement made by the patentee Calkins, and though in some respects the adjustment of the different parts of his combination may be novel, and the combination as an entirety may be, and undoubtedly is, useful, it exhibits only the expected skill of the mechanic's calling, and not the creative work of the inventor.

For these reasons the bill must be dismissed.

U. S. Circuit Court--Northern District of Illinois.

LORILLARD *et al. v.* PRIDE.

Decided July 26, 1886.

1. TRADE-MARKS AS AFFECTED BY COMMON RIGHTS.

Tin being one of the common metals in use by the public for a very large variety of purposes, and being easily stamped or impressed with letters, figures, or characters, or cut into various shapes, and taking readily different colors or shades besides its natural metallic luster, and, like paper, becoming readily the vehicle or material for receiving whatever impression or color may be stamped upon it, *held* that the attempt of complainants to appropriate tin to their exclusive use in marking plug-tobacco, without regard to its color, shape, or the characters or letters it bears, is not within the scope and purpose of the law of trade-marks.

2. TRADE-MARKS NOT AVAILABLE TO PERPETUATE RIGHTS SECURED BY PATENTS.

Complainants having attempted to secure to themselves by means of a patent the exclusive use of tin as a badge for their plug-tobacco, and their goods having acquired the name of "Tin-Tag" goods while they were acting under their patent, *held* that when the patent was declared void the right to so indicate or mark such goods became public, and complainants cannot perpetuate or continue this right by claiming it as a trade-mark.

3. AN ARBITRARY TERM DISTINGUISHED FROM THE THING SIGNIFIED THEREBY.

The use of arbitrary terms—such as "Tin Tag" or "Wood Tag"—by a manufacturer to indicate goods produced or sold by him might be allowed if the person so using the name or words branded them upon his goods, or in any way gave the goods the name; but that would give no right to the exclusive use of the tin or wood as a material to designate the goods.

Messrs. Banning & Banning, Messrs. Tillotson & Kent, and *Mr. R. Cox* for the complainants.

Mr. H. S. Oakley, Messrs. S. A. & R. H. Duncan, and *Mr. B. F. Thurston* for the defendant.

BLODGETT, *J.:*

The bill in this case avers that complainants are the most extensive manufacturers of tobacco in the United States; that they have been engaged in said business for many years; that their goods are sold throughout the United States and in foreign countries; that during the year 1874 they adopted as a trade-mark for their plug-tobacco a tag or piece of tin, and called their tobacco "Tin Tag Tobacco;" and that they have been successful in establishing the tin tag as a badge of identification or mark for their goods, and the term "Tin Tag Tobacco" as a designation by which their goods bearing that mark are bought and sold; that the adoption of the tin tag as a trade-mark for their goods was original with them; that prior to such adoption it had never been used as a mark for plug-tobacco; that they have now, and have had since the year 1874, the right to its exclusive use as a trade-mark for their plug-tobacco; that the same is now, and has been since 1874, known to the public as their trade-mark, and whenever and wherever a piece of tin is seen affixed to a plug of tobacco it means the tobacco of complainants; that the use of their said trade-mark—to wit, a piece or tag of tin—has been continuous from the date of its adoption as aforesaid. Complainants aver that they have the exclusive right to employ a tin tag, whatever its appearance, color, or shape, and state that they bring this bill for the purpose of establishing and maintaining their exclusive right to the use of the piece of tin of any shape as a trade-mark for plug-tobacco, and to prevent the use upon plug-tobacco not made by them of pieces of tin which would cause said tobacco to be sold in the market as "Tin Tag Tobacco" or "Tin Tag Plug."

The bill further charges that the defendant, in fraud of complainants' rights, has, since the adoption of complainants' said trade-mark, sold large numbers of plugs or pieces of chewing-tobacco not made by complainants, to which have been affixed pieces of tin of various shapes—such as star-shaped or circular and rectangular pieces of tin—and that by so placing on the market and selling plug-tobacco with pieces of tin affixed thereto defendant has fraudulently violated and infringed upon complainants' trade-mark, intending by so marking such plug-tobacco with a piece of tin to make the public believe that the tobacco so sold by him was the manufacture of complainants. The bill prays an accounting by the defendant of the profits made by him upon the sale of tobacco marked with pieces of tin or tin tags, and that the defendant be forever enjoined and restrained from in any manner using the tin tags in connection with the sale of plug-tobacco or anything that would cause any plug-tobacco not made by complainants to be sold as and for "Tin Tag Tobacco."

The answer of the defendant in substance admits that complainants in 1874, and from that time to the commencement of the suit, had practiced the marking of their plug-tobacco by tin tags affixed in some manner to a plug of tobacco, but avers that said tags carried also letters or marks impressed or embossed upon the same—such as "Lorillard," "P. Lorillard & Co.," "Climax," "Bullion," &c.—and that it is by means of these names that complainants' tobacco is known and sold in the market, and not by the exclusive and single designation of "Tin Tag Tobacco," and that the piece of tin alone does not constitute complainants' trade-mark or designate their goods.

The answer further denies that complainants have, or ever had, the exclusive right to the use of a piece of tin irrespective of its appearance, color, or shape as a trade-mark or badge of identification upon their tobacco, and charges that long prior to the adoption by complainants of their tin tags Newdecker Bros., of Richmond, Virginia, had adopted a piece of tin carrying the words "Patent Process" as a mark to distinguish it as a peculiar kind of plug-tobacco manufactured by them.

Defendant further charges that the tobacco sold by him was manufactured by the firm of Liggett & Myers, of St. Louis, Missouri, and bore upon its tin tags evidence that it was so manufactured by Liggett & Myers, and that it in no way deceived, or tended to deceive, the public as to the origin or manufacture of said tobacco, but that, on the contrary, the purchasers and the public well knew that said firm was in the habit of stamping or marking their tobacco with tin tags of peculiar shape, indicating that they were the manufacturers thereof.

It appears from the proof that sometime in the year 1874 Mr. Charles Siedler, one of the complainants' firm, invented a mode of marking or distinguishing plug-tobacco by embedding into the surface of the plug a metal tag or label, and that he obtained a patent for said process on or about January 22, 1875; that this patent became the exclusive property of the complainants, and for several years the complainants insisted upon the validity of this patent, and asserted their exclusive right by virtue of this patent to mark their tobacco with tin tags, and thereby indicate its origin, and that the use of the tin tag and the designation of complainants' goods by the words "Tin Tag" originated from the attempt of complainants to enforce their exclusive right to the use of a metal tag under this patent, and not to the adoption of tin or the words "Tin Tag" as a trade-mark.

It further appears that in June, 1876, complainants registered in the Office of the Commissioner of Patents a trade-mark consisting of a bright metallic tag, preferably of a circular form, firmly affixed to one of the sides or faces of plugs of tobacco, and that in September, 1876, the firm of Liggett & Myers, of St. Louis, whose tobacco is sold by the defendant, also registered in the Patent Office of the United States a trade-mark for plug-tobacco, consisting of a bright metallic tag or label of circular outline, having a lustrous or metallic appearance, and provided at its center with a circular aperture; and that they also at the same time registered as a trade mark for plug-tobacco a bright metallic tag or label in the form of a five-pointed star, with a circular aperture at its center; that said Liggett & Myers also, in November, 1876, registered in the Patent Office, as a trade-mark for plug-tobacco, a bright metallic tag with rectangular outline and a rectangular opening at its center, and also that in December, 1876, complainants registered as trade-marks for plug-tobacco the fanciful or arbitrary words "Tin Tag Plug," and also the words "Tin Tag Tobacco."

It also appears that from the time complainants began to mark their tobacco plugs with tin tags under and in pursuance of the Siedler patent various other manufacturers, including Liggett & Myers, commenced the marking or labeling of their plug-tobacco with tin tags of various forms, and that there is now, and has been for many years, upon the market brands of tobacco made by different manufacturers marked or indicated by tin tags of very many different forms and colors, each of these colors or forms usually indicating the name of the manufacturer.

It will thus be seen that complainants' claim to the exclusive right of using tin as a mark or indicia of their goods has not been acquiesced in by the public, but

that other manufacturers have used tin in some form for the purpose of indicating tobacco of their manufacture.

The bill asserts broadly the complainants' exclusive right to employ a tin tag, whatever its appearance, color, or shape, as a trade-mark for their tobacco, and insists that no other person has a right to use tin for the purpose of marking their tobacco, and the case has been argued by complainants' counsel and the proofs taken solely for the purpose of asserting before the court this right so put forward in the bill.

I think there can be no doubt from the proof that the complainants were the first to attempt the use of tin as a special mark to indicate and designate their manufactured goods; and I think there can be no doubt that from the time they began to mark their goods with tin tags in pursuance of the Siedler patent their goods began to be known, and finally became to be widely known, as "Tin Tag Tobacco;" and did the case turn upon the right of the complainants to the use of the arbitrary words "Tin Tag" or "Tin Tag Tobacco," as required in some of their registered trade-marks, there would be but little difficulty perhaps in the case, because the popular designation which their tobacco obtained by reason of its bearing a tin tag put upon it in pursuance of the patent was this short and expressive description "Tin Tag."

But the frame of this bill is that no person other than complainants has a right to use upon plug-tobacco a piece of tin of any shape or color, or with any legend or mark or sign upon it, as a manufacturer's or dealer's mark or designation of the origin of the goods.

Tin is one of the common metals in use by the public for a very large variety of purposes; it is easily stamped or impressed with letters, figures, or characters, or cut into various shapes, and takes readily different colors or shades besides its natural metallic luster, and, like paper, becomes the vehicle or material for receiving whatever impression or color may be stamped upon it. It seems to me it would be as reasonable to assume that the complainants could have adopted paper, or wood, or a piece of cloth or leather, as a badge or indicia of their goods, as that they could have taken a piece of tin. That they had a right to appropriate to their exclusive use a piece of tin without regard to its color, shape, or the characters or letters it bears does not seem to me to be within the scope and purpose of the law of trade-marks.

It also appears that complainants' first effort was to secure to themselves the exclusive right of tin as a badge of their goods by means of the Siedler patent, and that their goods acquired the name of "Tin-Tag" goods while they were acting under their patent, and that it was not until after their patent had been held void that they fell back upon their right to use tin as a trade-mark. Having adopted this use of tin and given to their goods the name of "Tin Tag Tobacco" while they were claiming the rights given them by the patent, it seems to me they have no right now to perpetuate a monopoly which the courts decided they could not have, by falling back upon the popular name given their goods marked in pursuance of the patent. If their goods properly became known and designated in the market as "Tin-Tag" goods by virtue of their marking them or tagging them in pursuance of their patent, the right to so indicate or mark the goods became public when the patent expired or was declared void, and they cannot perpetuate or continue this right by claiming it as a trade-mark.

I have no doubt from the proof in this case that the designation of plug-tobacco as "Tin Tag" or "Tin Tag Tobacco" was first applied to tobacco manufactured by complainants; but complainants did not brand or mark their goods with the words "Tin Tag," but the term or name of "Tin Tag" was popularly applied to the goods by dealers and buyers by reason of the tin tag put on them under the claims of the patent. If complainants had from the outset marked their goods with this fanciful or arbitrary designation of "Tin Tag Plug" or "Tin Tag Tobacco" as a trade-mark, their exclusive right to its use might be sustained; but complainants did not brand or mark these words upon their goods. The public gave the name of "Tin Tag" to the goods because the plugs had tin tags affixed to them.

It also appears from the proofs that the firm of Liggett & Myers, whose agent defendant is, have never marked their goods with the words "Tin Tag." Liggett & Myers and other manufacturers have also, from the time complainants' goods first began to be known to the trade by the name "Tin Tag," denied and resisted complainants' exclusive right to the use of a piece of tin without regard to its color, shape, or devices as a trade-mark, and have persistently marked their own goods with pieces of tin of various shapes, colors, and letterings; and, naturally enough, all goods so marked with tin labels or tags are designated in the trade by the term "Tin-Tag" goods. I think it may be taken as established by the proof that the words "Tin Tag" do not now designate complainants' goods or goods manufactured by the complainants upon the market or to the trade, and that plug-tobacco made by other manufacturers is now designated and sold by the name of "Tin-Tag" tobacco, although not labeled or branded with such name, because they bear a tin label or tag of some form. But if the public has been imposed upon, or the goods of others have been sold as the goods of complainants to the damage of complainants, it is because complainants were unfortunate in the selection of a designation for their goods, and made their claim to the use of tin as their trade-mark more broadly than the law will permit, and if goods of other manufacturers are now known and sold by the name of "Tin Tag," it is not because they are so branded, named, or designated, but as a short and popular mode of describing all goods marked with tin tags. If other dealers have the right to use tin as a material from which to make a tag or label they cannot be held to violate complainants' rights because the public designate all goods marked with a tin label as "Tin-Tag" goods.

If complainants had put upon the market goods with paper, wood, or leather tags, and such goods had come to be popularly known and designated in the trade as "Paper Tag," "Wood Tag," or "Leather Tag," complainants could not by such use acquire the right to prevent all other persons from putting a paper, wooden, or leather tag upon similar goods, because the use of such materials is a right common to all and cannot be exclusively appropriated by any one.

The use of arbitrary terms—such as "Tin Tag" or "Wood Tag"—by a manufacturer to indicate goods produced or sold by him might be allowed if the person so using the name or words branded them upon his goods, or in any way gave the goods the name; but that would give no right to the exclusive use of the tin or wood as a material to designate the goods. A person may appropriate any word, figure, or emblem as a trade-mark; but that does not give an exclusive right to the use of the well-known material substances upon which the word, figure, or emblem may be impressed or engraved.

I am, therefore, of opinion that this bill should be dismissed for want of equity; but this disposition of the case is made without prejudice to the complainants' right to sue upon any of its specific trade-marks depending upon the coloring, design, shape, or lettering on the tin label.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 36—No. 11. TUESDAY, SEPTEMBER 14, 1886. PRICE---$5 per year.

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Order No. 361.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 1, 1886.

Class No. 181, Acoustics, is hereby established in Division XXIII, and it will include the following sub-classes: Audiphones, Ear-Trumpets, Phonographs, Miscellaneous.

Sub-class 61, Mechanical Telephones, is transferred from Class 179, Telephony, Division XVI, to Class 181, Acoustics, Divison XXIII.

R. B. VANCE,
Acting Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
Washington, September 3, 1886.

SIR: I am directed by the Secretary to inform you that the order of the Department dated October 29, 1879, disbarring John P. Slemmons, of Richmond, Ohio, from practice before this Department and its bureaus, has this day been rescinded.

Very respectfully,

GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

36 O G—11—1

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth.....$10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pp.—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Issue of September 14, 1886.

Patents	350—No. 348,944 to No. 349,293, inclusive.	
Designs	7—No. 16,896 to No. 16,902, inclusive.	
Trade-Marks	18—No. 13,653 to No. 13,670, inclusive.	
Labels	8—No. 4,959 to No. 4,966, inclusive.	
Total issue	383	

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	1	
Austria-Hungary			Holland		
Belgium	1		Mexico		
Bermuda			New Zealand		
British Guiana			Norway		
Canada	9		Russia	1	
Central America			Scotland		
Colombia, U. S. of			Sweden		
Cuba			Switzerland		
Denmark					
Egypt			Total to citizens of foreign countries	29	1
England	10				
France	7	1			

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Montana Territory	.....	.....
Arizona Territory	.....	.....	Nebraska	3	.....
Arkansas	.....	.....	Nevada	1	.....
California	13	1	New Hampshire	3	.....
Colorado	.....	.....	New Jersey	12	1
Connecticut	16	.....	New Mexico Territ'y	.....	.....
Dakota Territory	2	.....	New York	62	8
Delaware	2	.....	North Carolina	1	.....
District of Columbia	3	.....	Ohio	34	2
Florida	.....	.....	Oregon	.....	.....
Georgia	1	.....	Pennsylvania	29	7
Idaho Territory	.....	.....	Rhode Island	.....	.....
Illinois	23	3	South Carolina	.....	.....
Indian Territory	.....	.....	Tennessee	5	.....
Indiana	11	.....	Texas	8	.....
Iowa	9	.....	Utah Territory	.....	.....
Kansas	8	.....	Vermont	3	.....
Kentucky	1	.....	Virginia	4	.....
Louisiana	1	.....	Washington Territ'y	2	.....
Maine	1	.....	West Virginia	.....	.....
Maryland	4	.....	Wisconsin	7	1
Massachusetts	28	1	United States Army	.....	.....
Michigan	12	.....	United States Navy	.....	.....
Minnesota	6	1			
Mississippi	.....	.....	Total to citizens of the United States	328	25
Missouri	11	.....			

DESIGNS.

16,896.—BOOK-MARK.—*James P. Ball*, Philadelphia, Pa., assignor to *The Keystone Safety Nut Lock Company*. Application filed June 10, 1886. Serial No. 204,808. Term of patent 14 years.

16,897.—COFFIN-TRIMMINGS.—*Oliver McCarthy*, Meriden, Conn., assignor to *The Meriden Britannia Company*, same place. Application filed July 26, 1886. Serial No. 209,182. Term of patent 7 years.

16,898.—SHIRT.—*Samuel S. Carson*, Chicago, Ill. Application filed July 30, 1886. Serial No. 209,588. Term of patent 3½ years.

16,899.—CLOCK-CASE.—*Louis O. Hiller*, Meriden, Conn. Application filed August 4, 1886. Serial No. 210,022. Term of patent 7 years.

16,900 and 16,901.—CLOCK-CASE.—*Luther E. Jerome*, New Haven, Conn., assignor to *The New Haven Clock Company*, same place. Applications filed July 3, 1886. Serial Nos. 207,146 and 207,147. Term of patents 7 years.

16,902.—GIMP.—*Charles Weinberg*, New York, N. Y., assignor to *O. Weinberg & Co.*, same place. Application filed June 14, 1886. Serial No. 205,151. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,653.—BASKETS.—*The Badger Basket Manufacturing Company*, Weyauwega, Wis. Application filed May 26, 1886. Used since April, 1886.

"The word 'BADGER.'"

13,654.—BUTTERNUT TAFFY AND NUT CANDY.—*Joseph Benjamin*, Elmira, N. Y. Application filed January 2, 1885. Used since November, 1881.

"The picture of an old lady and the words 'OLD AUNT SUSAN'S.'"

13,655.—ASPHALTUM CAKES OR BLOCKS.—*William Henry Delano*, Paris, France. Application filed April 29, 1886. Used since December 28, 1872.

"The representation of a Maltese cross and the word 'SEYSSEL.'"

13,656.—HERB MEDICINE.—*Emmet Densmore* and *Helen Densmore*, New York, N. Y. Application filed August 16, 1886. Used since August, 1885.

"The arbitrary words 'GARFIELD TEA.'"

13,657.—LEAD-PENCILS AND PEN-HOLDERS.—*Eagle Pencil Company*, New York, N. Y. Application filed August 20, 1886. Used since 1870.

"The word 'CASH.'"

13,658.—CANNED FRUITS, VEGETABLES, FISH, &c.—*Eckman & Peterson*, Philadelphia, Pa. Application filed August 16, 1886. Used since August 1, 1886.

"The word 'PRIMROSE.'"

13,659.—VINOUS ESSENCE CONSISTING OF MEDICINAL HERBS AND FLOWERS EXTRACTED AND REFINED WITH WINE AND ALCOHOL.—*W. B. Fayen*, New York, N. Y. Application filed August 4, 1886. Used since June, 1883.

"The word 'NIRWANA.'"

13,660.—BRONCHIAL COUGH-SYRUP.—*N. P. Fetterman*, Pittsburg, Pa. Application filed May 15, 1886. Used since 1885.

"The picture of two widely-separated mountain springs, the water of which is brought through pipes to a trough in the foreground, where trees, rocks, and plants also appear, and in the background are several mountains, behind which the sun has partially disappeared."

13,661.—GENTLEMEN'S WHITE AND FIGURED SHIRTS.—*Glass, Hoafmyre & Co.*, New York, N. Y. Application filed July 7, 1886. Used since May 22, 1886.

"A picture of the Bartholdi statue, and the word 'BARTHOLDI.'"

13,662.—COFFEE.—*Warren Granger*, St. Paul, Minn. Application filed July 1, 1886. Used since January 1, 1881.

"The rectangular black background marked into checks by red lines crossing it at right angles, on which appear the words 'GRANGER'S OLD RELIABLE' and the letters 'O R.'"

13,663.—TONIC AND STIMULANT.—*Keasbey & Mattison*, Philadelphia, Pa. Application filed August 9, 1886. Used since April 1, 1886.

"The word 'COCAFFEINE.'"

13,664.—TOILET-SOAP.—*James S. Kirk & Co.*, Chicago, Ill. Application filed August 16, 1886. Used since October 26, 1885.

"The word 'PIMLICO.'"

13,665.—CANNED CORN.—*McConnell, Clancey & Co.*, Chillicothe, Ohio. Application filed August 14, 1886. Used since January 1, 1885.

"The word 'CREAM,' and the picture of a cow hitched to a cart."

13,666.—MEDICINE OR CURE FOR CORNS, BUNIONS, WARTS, MOLES, CALLOUSNESS, &c.—*Gerhard Mennen*, Newark, N. J. Application filed June 28, 1886. Used since November, 1878.

"The representation of two feet placed side by side, one of which is represented as with the other without corns, the first having near it the word 'BEFORE,' and the second the word 'AFTER' in the same relation."

13,667.—ORANGES AND LEMONS.—*Antonio Minaldi*, New York, N. Y. Application filed August 3, 1886. Used since November, 1885.

"The figure of a clown, and the words 'OPEN FOR AN ENGAGEMENT.'"

13,668.—REFINED PETROLEUM.—*Henry W. Peabody & Co.*, Boston, Mass. Application filed August 9, 1886. Used since July 28, 1886.

"The words 'LIME LIGHT.'"

13,669.—WHISKY.—*John J. Weideman, John H. Holmes*, and *Valentine Fries*, Cleveland, Ohio. Application filed June 28, 1886. Used since November, 1883.

"The monogram of the letters and character 'W H & Co.,' associated with the words 'CEDAR VALLEY RYE WHISKEY.'"

13,670.—MANUFACTURED LICORICE.—*Young & Smylie*, Brooklyn, N. Y. Application filed August 3, 1886. Used since July 1, 1886.

"The word 'PURITY.'"

LABELS.

4,959.—Title: "JERSEY DOLL." (FOR STUFFED DOLLS MADE OF JERSEY CLOTH.)—*Constant A. Andrews*, New York, N. Y. Application filed August 19, 1886.

4,960.—Title: "WESTERN LEAD WORKS STRICTLY PURE WHITE LEAD."—*Cary, Ogden & Parker*, Chicago, Ill. Application filed August 9, 1886.

4,961.—Title: "DEMING'S CHARCOAL," (NOT WILLOW, VERY MUCH BETTER.)—*Arthur B. Deming*, Chicago, Ill. Application filed August 20, 1886.

4,962.—Title: "BLOOD PURIFIER FOR THE HORSE."—*Peter Harvy Flynn*, Fresno, Cal. Application filed August 4, 1886.

4,963.—Title: "BROMO COCAFFEINE." (FOR A MEDICINE.)—*Keasbey & Mattison*, Philadelphia, Pa. Application filed August 9, 1886.

4,964.—Title: "SULPHO-CHROMIC SALT."—*Partz Electric Battery Company*, Philadelphia, Pa. Application filed August 12, 1886.

4,965.—Title: "ROSE SODA." (FOR BEVERAGES AND BEVERAGE EXTRACTS.)—*S. Twitchell & Bro.*, Philadelphia, Pa. Application filed April 29, 1886.

4,966.—Title: "AROMATIC ALE."—*S. Twitchell & Bro.*, Philadelphia, Pa. Application filed April 29, 1886.

PATENTS

GRANTED SEPT. 14, 1886.

348,944. SUCKER-ROD. GEORGE ALLEN, Franklin, Pa., assignor of one-half to Joseph C. Sibley, same place. Filed Apr. 22, 1886. (No model.)



Claim.—1. The combination, with two coupling-sections adapted to be locked against longitudinal displacement by a lateral movement of one or both of the parts, the said coupling-sections having sockets for the rods, of the rods and wedges for locking the rods to the coupling-sections, substantially as set forth.

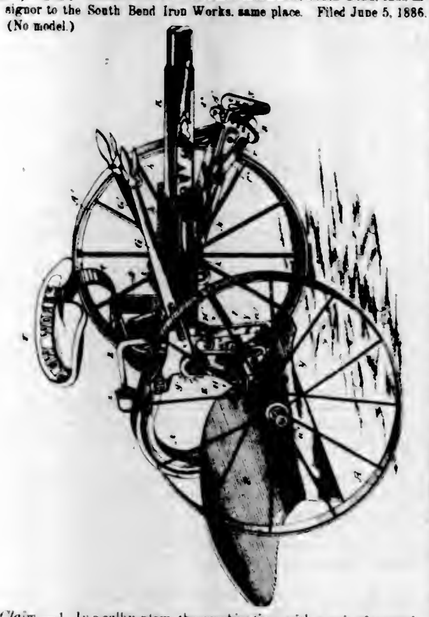
2. The combination, with the jointed piston-rod, of guiding lugs or ribs secured to the piston-rod, for the purpose substantially as set forth.

3. The combination, with the jointed piston-rod, of a pair of coupling-sections provided with guiding lugs or ribs and means for rigidly securing the said couplings to the piston-rod, substantially as set forth.

4. In a sucker-rod, the combination, with a coupling-section provided with a taper bore and having slots in its sides and with lugs or projections for guiding the rod, of a piston-rod section adapted to enter the said bore, and a wedge or pin adapted to engage the piston-rod section through the slots, for the purpose substantially as set forth.

5. In a sucker-rod, the coupling-section provided with laterally-extending lugs and with slots in its sides, for the purpose substantially as set forth.

348,945. SULKY-PLOW. CHARLES ANDERSON, South Bend, Ind., assignor to the South Bend Iron Works, same place. Filed June 5, 1886. (No model.)



Claim.—1. In a sulky-plow, the combination, with a pair of ground-wheels, an arch-axle section, and two stub-axles, of a pair of crank-arms pivotally secured to the arch-axle section, a plow-supporting hanger loosely secured between the free ends of the crank-arms and a plow secured to said hanger, substantially as set forth.

2. In a sulky-plow, a plow-supporting hanger provided with depending jaws or branches, one of the said jaws or branches being provided with a jointer-bearing, substantially as set forth.

3. In a sulky-plow, the combination, with an arch-axle section, a plow-hanger, and a plow suspended from said hanger, of a stub-axle on one end of the arch-axle section provided with the plow-lifting wheel Y, and a lever pivoted to the plow-hanger and having a rearwardly-projecting end adapted to be engaged by the lifting-wheel.

4. In a sulky-plow, the combination, with an arch-axle, a plow-hanger pivoted thereto, and a stub-axle provided with a plow-lifting wheel, of a weighted lever pivoted to the plow-hanger and adapted to be engaged by the plow-lifting wheel, substantially as set forth.

5. In a sulky-plow, the combination, with a plow suspended from the free end of a crank secured in swinging adjustment to the side of an arch-axle section, of an operating-lever secured in rocking adjustment to the side of the arch and provided with a rigid extension integral with the lever adapted to engage the free end of the crank, substantially as set forth.

6. In a sulky-plow, the combination, with a plow suspended from the free end of a crank, of an operating-lever mounted concentric with or having the same axis of rotation as the crank, and provided with a rigid extension engaging the free end of the crank for elevating the latter, substantially as set forth.

7. In a sulky-plow, the combination, with a plow-supporting crank-arm provided with a sleeve projection attached to its free end and extending parallel with its axis of rotation, of an operating-lever having the same axis of rotation as the crank-arm and adapted to embrace a bolt or rod, substantially as described, projecting through the said sleeve projection, substantially as set forth.

8. In a sulky-plow, the combination, with a plow-supporting crank suspended from a bolt or its equivalent set in the side of the arch-axle section, of a sector-bar rigidly secured in rotary adjustment on the bolt, and an operating-lever loosely secured on the bolt, the lever being recessed to conform to the periphery of the sector-bar, substantially as set forth.

9. In a sulky-plow, an operating-lever recessed at its foot to conform to the curve of a sector-bar, and provided with a channel across which are formed bearings for a sliding dog, and in which the dog-operating rod is housed, substantially as set forth.

10. In a sulky-plow, the combination, with a lever pivotally secured to the axle and adapted to support a plow from one of its ends, of an operating dog or lever pivotally secured to its opposite end and adapted to engage a lifting device operated by the ground-wheel, substantially as set forth.

11. In a sulky-plow, the combination, with a lever pivotally secured to the axle, and a plow suspended from one end of the lever, of an operating dog or lever hinged to the opposite end of the lever and adapted to engage a rotary lift secured to an axle, substantially as set forth

12. In a sulky-plow, the combination, with a plow-supporting lever pivotally secured to one side of an arch-axle section, and an operating-lever secured in rocking adjustment on the same axis, and connected with the plow-supporting end of the first-mentioned lever, of a lifting-dog secured to the opposite end of the plow-supporting lever, and a disk provided with one or more retaining-teeth adapted to engage a dog attached to the said operating-lever as the latter is rocked by the lift, substantially as set forth.

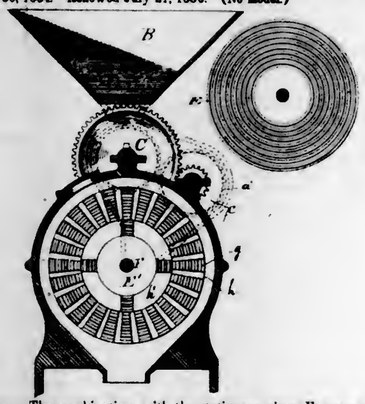
13. The combination, with the stationary disk adapted to lock the operating-lever in a position to suspend the plow, of the sector-bar adapted to be moved along the periphery of the disk, and adjusted to suit the convenience of the operator, for the purpose substantially as set forth.

14. The combination, with the land-wheel, the crank on which it is mounted, its operating-lever, and the sector-bar for determining its

adjustment, of the single bolt adapted to extend longitudinally through the spindle and lock the several above-mentioned parts to the axle, substantially as set forth.

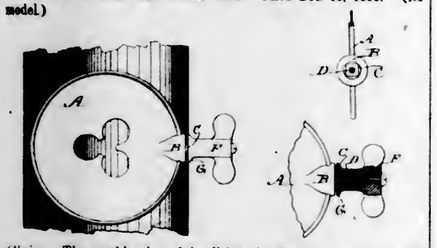
15. In a sulky-plow attachment adapted to replace the furrow-wheel axle and hanger, the combination, with the channel-faced stub-axle, and the spindle hinged to its end, of the sector-bar standard, the operating-lever, the arm connecting the operating-lever and hinged spindle, and the dog attached to the operating-lever adapted to engage the sector-bar and thereby lock the wheel in tilted adjustment, substantially as set forth.

348,946. BONE-REDUCER. FRANZ W. ANDRÉE, Chicago, Ill. Filed Jan. 30, 1884. Renewed July 21, 1886. (No model.)



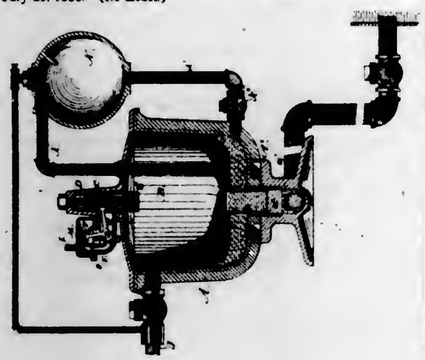
Claim.—The combination, with the stationary plate E, open at its center and provided with breaking or cutting teeth, as described, of the revolving plate E', provided with broken parallel rows of cutting-teeth *g*, arranged on the face of the plate from about the center outwardly to its periphery, substantially as described.

348,947. DAMPER FOR STOVE-PIPES AND HOT-AIR FLUES. AUGUSTUS C. BARLER, Des Moines, Iowa. Filed Dec. 19, 1885. (No model.)



Claim.—The combination of the disk A, having the enlargement B, journal C, angular shank and screw-seat D, the tubular handle F, having an enlarged end, G, and a pipe, substantially as shown and described, for the purposes stated.

348,948. STEAM-TRAP. JAMES H. BLESSING, Albany, N. Y. Filed July 29, 1886. (No model.)

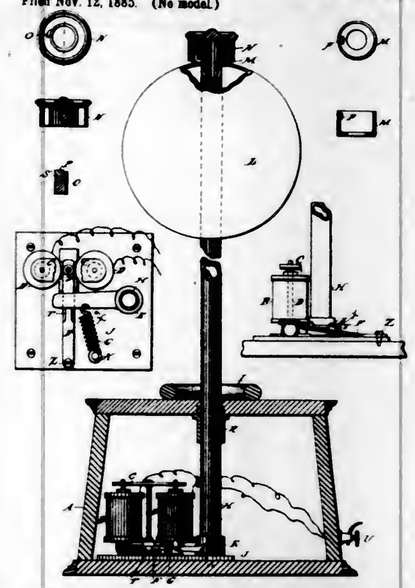


Claim.—1. An automatic steam-trap consisting of a close vessel containing a rising and falling bucket having an open top and adapted to discharge its water through the bottom of said bucket, and a single valve actuated by said bucket to reciprocally open and close the steam and exhaust openings, through which the steam is admitted into and exhausted from the interior of said trap, as herein specified.

2. An automatic steam-trap consisting of a close vessel containing an open-top bucket adapted to rise and fall in the closed containing-vessel, the said bucket being provided with a discharge-opening in its bottom, through which the water is discharged directly downward, and a valve mechanism actuated by said bucket, whereby the steam is reciprocally admitted into and exhausted from the closed vessel, as herein specified.

3. In an automatic steam-trap, the combination, with a close containing-vessel provided with a vertical discharge-opening in its pedestal, of a rising and falling open-top bucket provided at its bottom with a pendent hollow stem, which is fitted to slide in the discharge-opening of the containing-vessel, and a valve mechanism actuated by the rising and falling of the bucket and adapted to control the admission of steam into and the exhaustion of steam from the interior of the trap, as herein specified.

348,949. ELECTRIC TIME-BALL. JOHN BÖHLING, Washington, D. C. Filed Nov. 12, 1885. (No model.)



Claim.—1. In an electric time-ball, the combination of a rod with a ball suspended thereon, with means, substantially as described, for rotating the rod and releasing the ball.

2. The combination of a rod with a ball, said rod having a cap with a stop-rest, and said ball being provided with an attachment and stop-rest with upper inclined surface and abutment, substantially as and for the purpose specified.

3. With an electric time-ball, the combination of a rod provided with a lever, a spring operating said lever, and a spring with a stop-catch for restraining the lever and keeping the operating-spring in a state of tension, substantially as described.

4. The combination of a rod and lever, an operating-spring and stop-catch, an armature provided with an arm for freeing the restraining-spring, and an electro-magnet for moving the armature, substantially as described.

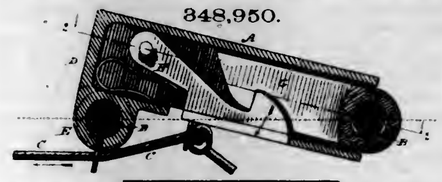
5. In an electric time-ball, the combination of a rod capable of being rotated by mechanism, substantially as described, with a ball suspended thereupon, as set forth.

6. In an electric time-ball, the combination of a ball, D, rod H, arm E, stop-pin X, spring G, spring F, with catch T, electro-magnet B, with armature C and arm D, substantially as described.

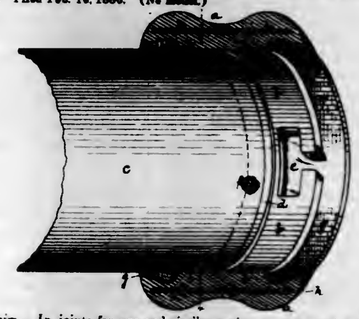
348,950. HAY-SLING. ALLEN P. BOYER, Jones, Mich. Filed Mar. 20, 1886. (No model.)

Claim.—The combination of the hollow casting D, provided with a rope-holder at one end, as shown, the spring-latch F, and the sliding latch-bolt G, with its cylindrical rope-holder, substantially as set forth.

348,950.

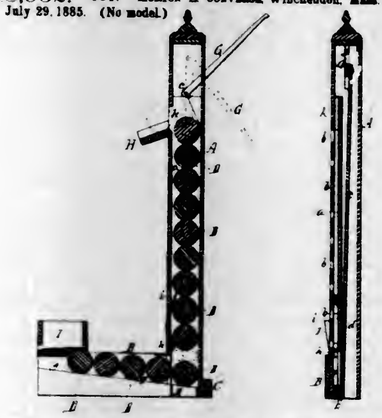


348,951. JOINT FOR GAS-MAINS. EDMUND C. CONVERSE, Pittsburg, Pa. Filed Feb. 16, 1886. (No model.)



Claim.—In joints for gas and similar mains, a cast-metal coupling sleeve or collar provided with suitable means for engaging with the tube-sections, and having inclosed within the metal of the same a wrought-metal shell, substantially as and for the purposes set forth.

348,952. TOY. MORTON E. CONVERSE, Winchendon, Mass. Filed July 29, 1885. (No model.)



Claim.—1. In a toy, the combination of a lifting passage or way provided with means, as retaining springs or catches, for holding the disks or balls at the height to which they are lifted, a set of disks or balls adapted to be raised in the said passage or way, a reciprocating lifter having an inclined top, an inwardly-inclined way for carrying the disks or balls upon the lifter, a discharge-spout, and a receiving-hopper, substantially as and for the purpose herein specified.

2. In a toy, the combination of the lifting passage or way provided with retaining springs or catches, *h i*, the feeding trough or way *g*, lifter E, provided with a handle, spout or discharge-way, a catch hopper or receiver, and a set of disks or balls, substantially as and for the purpose herein set forth.

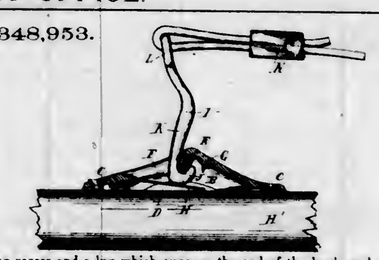
3. In a toy, the combination of the standard having the lifting passage or way *a*, and side perforations, *b b*, a set of disks or balls provided, respectively, with letters of the alphabet or other devices, and a reciprocating lifter, E, substantially as and for the purpose herein specified.

348,953. HOLDBACK. PERRY T. CONVER, Frankfort, Ind. Filed Feb. 11, 1886. (No model.)

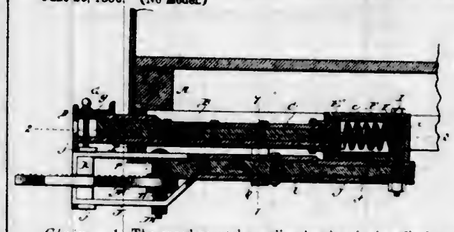
Claim.—1. A holdback consisting of a body having an aperture in one side and an inner covered recess above the aperture, and a hook adapted to enter the aperture and engage the recess, so that the hook proper and recess, when in use, are entirely covered, and thus free from the action of water, snow, and the like.

2. In a holdback, a body provided with an inner covered hook-receiving recess and a lug which engages the end of the hook and keeps the same from sliding forward out of place.

348,953.



348,954. CAR-COUPLING. PETER V. CORNILS, Chicago, Ill. Filed June 26, 1886. (No model.)

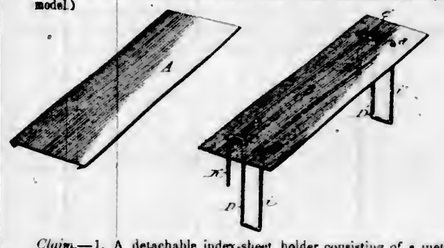


Claim.—1. The supplemental coupling-bar herein described, and consisting of frame J, with segmental bars *j* and brace-bar I, and pivotal hook M, said bar J being pivotally secured by bolt I, to afford lateral movement, and being yieldingly held on a straight line by springs R, all substantially as set forth, to operate as specified.

2. The supplemental coupling-bar herein described, consisting of frame J with bars *j*, brace-bar I, pivotal hook M, pins *o*, bolt I, supports Q and *p*, and springs R, all substantially as set forth, to operate as specified.

3. The supplemental coupling-bar herein described, consisting of frame J, with bars *j*, brace-bar I, pivotal hook M, pins *o*, bolt I, supports Q and *p*, springs R, and lever S, with chain *s*, all substantially as set forth, to operate as specified.

348,955. CASE OR CABINET FOR FILING LETTERS, INVOICES, &c. CHARLES E. DAVIS, Fort Wayne, Ind. Filed Feb. 15, 1886. (No model.)



Claim.—1. A detachable index-sheet holder consisting of a metal top with two perforations at each end and two S-shaped wire attachments held in place by the wires *e* and *e'*, soldered to the top B, and the cover A, all substantially as described and set forth.

2. The combination of a metal top, B, the S-shaped wire attachments D and D', placed in the perforations C and C', held in place by the wires *e* and *e'*, both sets of wires being soldered to the top B, and the metal plate A, having the edges on its long sides turned down or flanged, so as to make a sliding cover to fit the top B, all substantially as described and set forth.

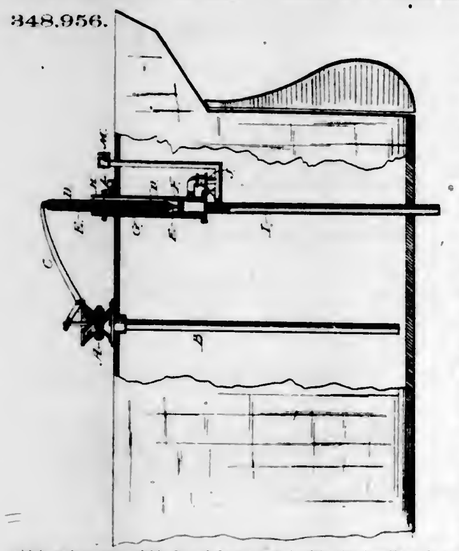
3. The combination of the detachable index-sheet holder consisting of a metal top, B, with perforations C, C', *d*, and *d'*, the S-shaped wire attachments, the wires *e* and *e'*, and the back of a letter-case or the front of a filing-cabinet drawer, all substantially as described and set forth.

348,956. AUTOMATIC ATTACHMENT FOR WORKING SHIPS' PUMPS. EDWARD EVERDING, Eureka, Cal. Filed Jan. 9, 1886. (No model.)

Claim.—1. A cylinder fixed upon a floating vessel or buoy having a piston and piston-rod connected with the operating-lever of a pump, in combination with a pipe extending into the water from the lower end of the cylinder, so that the piston may be operated by atmospheric pressure caused by the rise and fall of the water within the pipe, substantially as herein described.

2. The cylinder having its upper end open, provided with a piston

348,956.

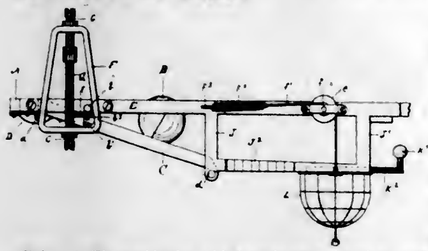


which reciprocates within it and is connected with the handle or lever of a pump, as shown, and a pipe extending from the bottom of the cylinder downward below the surface of the water, with a relief-pipe connecting the cylinder with the pipe, and having a valve, K, within it, substantially as herein described.

3. The cylinder, with its piston connected with the pump handle or lever, and the pipe extending downward into the water, in combination with the relief-valves K and L at the lower and upper ends of the cylinder, respectively, substantially as herein described.

4. The cylinder having the reciprocating piston connected with the ship's pump or lever, and a pipe extending downwardly from the bottom of the cylinder into the water, so that its lower end will be submerged, in combination with the pipe connecting with the water-pipe below the cylinder, and having the relief-valve for the admission of air into its upper end, substantially as herein described.

348,957. AUTOMATIC CASH-CARRIER. J. W. FLAGG, Worcester, Mass. Filed Jan. 4, 1886. (No model.)



Claim.—1. The combination, with the main outward track of a cash-carrying system, of a hinged section upon which the rolling carriers are conducted from the main track, the rails of said section being hinged at their ends to the rails of the main track, so as to form a continuous track, and said section having connected means for returning it in alignment with the main track after the passage of a carrier, as described, and for the purpose set forth.

2. The combination, with the main outward way of a cash-carrying system, of a hinged section of the main track, upon which the rolling carriers are conducted from the main track, the rails of said section being hinged at their ends to the rails of the main track, so as to form a continuous way, and springs applied to the hinged section so as to raise it in alignment with the main track, as described, and for the purpose set forth.

3. The combination, with a main outward track of a cash-carrying system having a section of its rails hinged at one end, so their free ends may fall down and allow the carriers to pass from the main track, and latching mechanism by which said hinged section is held in alignment with the main track, of a vertical rotating post and a horizontal arm extending from said post over the track, so as to be moved by the passing carriers, and connected mechanism for securing the simultaneous action of the rotating post and that of the latching mechanism in releasing the hinged section of rails, as described, and for the purpose set forth.

4. The combination, with the way of a cash-carrying system adapted to conduct rolling cash-carriers from the cashier's desk to the several salesmen in a store, of a section of the rails hinged at one end so the free ends of said hinged rails may be borne downward by the weight of the carriers, springs applied to said hinged rails to return them in alignment with the main track, a latching device for holding said hinged rails in alignment with the main track, and mechanism adapted to be actuated by the carrier by which it is unlatched, as described, and for the purpose set forth.

5. The combination, with the main way of a cash-carrying system, having a hinged section by which the carriers are allowed to pass from the track, of an inclosing-frame, E E, attached to the main track and inclosing said hinged section, a supporting-frame attached to said inclosing-frame E E, and carrying a vertical rotating post, a horizontal arm attached to said post and extending over the track, so as to be moved by certain of the passing carriers, an arm attached to said rotating post, actuating the latching mechanism, and a latching mechanism consisting of a bolt sliding in the inclosing-frame E E, and a spring applied to said bolt to carry it forward to engage the hinged section of the track, as described, and for the purpose set forth.

6. The combination, with the hinged section of the main track, as described, of a sliding bolt, *b*, engaging one of the rails of the hinged section, a spring, *b'*, and connected operating mechanism adapted to be moved by the passing carriers, substantially as described, and for the purpose set forth.

7. The combination, with the main track of a cash-carrying system and an intermediate track placed below said main track, and a hinged section of said main track opening downward, upon which carriers are conducted to said intermediate track, of a stop placed below the intermediate track to receive and sustain the free ends of the hinged rails as the carriers pass to the intermediate track, as described, and for the purpose set forth.

8. The combination, with the main track of a cash-carrying system, having a hinged section whose rails open downwasd to allow the carriers to pass from the main track, and having connected means for returning said track in alignment with the main track, of elastic cushions applied between the free ends of said hinged rails and the main track, as described, and for the purpose set forth.

9. The combination, with the main outward track of a cash-carrying system and a movable delivery-basket below said track, to receive the carriers therefrom, of a differential winding-pulley with a fixed bearing on or above said track, cords attached to said basket and winding upon the larger step of said pulley, and a spring whose tension is applied to the smaller step of said pulley, by which the delivery-basket is drawn up, substantially as described, and for the purpose set forth.

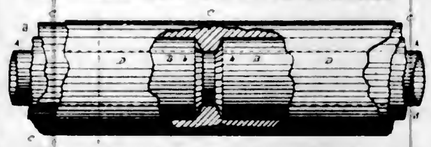
10. The combination, with a movable delivery-basket arranged below the main track of a cash-carrying system, and adapted to receive carriers therefrom, of a differential winding-pulley with a fixed bearing on or above said track, a cord attached to the delivery-basket and winding on the larger step of said pulley, and a cord winding on the smaller step of said pulley, with a spiral spring attached thereto, whose tension resists the downward motion of the delivery-basket.

11. The combination, with a movable delivery-basket below the main track of a cash-carrying system, and adapted to receive carriers therefrom, of a pulley with fixed bearings on or above said track, a cord attached to the delivery-basket and wound upon said pulley, and a spiral spring with a cord attached thereto and wound upon said pulley, said cords being wound upon said pulleys in opposite directions, so the tension of the spiral spring shall resist the downward motion of the delivery-basket.

348,958. COVERING FOR STEAM-PIPES. MARTIN FLEGLE, Minneapolis, Minn. Filed Mar. 8, 1886. (No specimens.)

Claim.—The herein-described composition of matter, consisting of wood pulp, paper-pulp, water having copperas in solution, flour-paste, lime-putty, and salt-water, substantially as hereinbefore set forth.

348,959. COVERING FOR STEAM PIPES, BOILERS, &c. MARTIN FLEGLE, Minneapolis, Minn. Filed Mar. 15, 1886. (No model.)

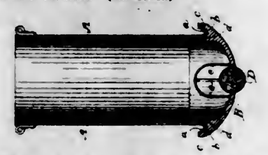


Claim.—1. A covering for steam pipes, boilers, &c., comprising disconnected air-spacing tubes surrounding the surface to be covered, and a non-conducting compound incasing such air-spacing tubes and sealing the ends thereof, substantially as set forth.

2. A covering for steam pipes, boilers, &c., comprising separated air-spacing tubes having inwardly-bent ends fitting around the surface to be covered, and a non-conducting compound covering said tubes and sealing the ends thereof, substantially as and for the purpose set forth.

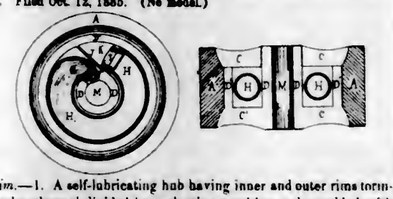
3. The combination, with a steam-pipe or other surface to be covered, of the tubes B, having slit inwardly-bent ends *b*, and the non-conducting composition C, substantially as and for the purpose set forth.

348,960. WELL-BUCKET BOTTOM. CHARLES H. FOSTER, Omaha, Nebr. Filed Mar. 18, 1886. (No model.)



Claim.—The combination, with the sheet-metal body having its lower edge provided with the annular upturned flange, of the cast metal bottom having the annular channel to receive the said flanged edge of the body, the outer wall of the channel being higher than that of the body flange, and the whole united by solder, substantially as specified.

348,961. SELF-LUBRICATING HUB. PETER J. FOULON, New York, N. Y. Filed Oct. 12, 1885. (No model.)



Claim.—1. A self-lubricating hub having inner and outer rims forming a circular channel divided by a slanting partition and provided with a hole to the axle, holding an oil-tube and wick communicating with said axle, all substantially as described, and for the purpose specified.

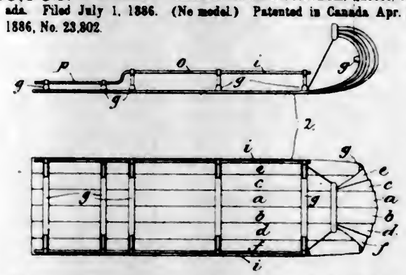
2. A circular oil tube and wick inclosed in a hub and in contact with the axle, substantially as described, and for the purposes specified.

3. A hollow hub with removable casings inclosing an oil tube and wick, and holding the tire, substantially as described, for the purpose specified.

4. In combination with the hollow hub and contained oil-tube, and as an article of manufacture for use in such combination, an annular tire with its inside edges gouged, as described, to fit and be held by the casings, in the manner and for the purpose substantially as specified.

5. The self-lubricating hollow hub having inner and outer rims, D' and D', partition J, hole E, oil-tube H, wick G, inclosed by casings C and C', holding tire A, all in combination, substantially as described, and for the purpose specified.

348,962. TOBOGGAN. CAMILLE GENTHER, Montreal, Quebec, Canada. Filed July 1, 1886. (No model.) Patented in Canada Apr. 14, 1886, No. 23,802.



Claim.—1. The combination, with a toboggan, of a hood of double-curved configuration—that is to say, a hood having the configuration of a portion of the periphery of a spheroid, substantially as described.

2. The combination, with a toboggan, of rails *i*, having two heights, substantially as described.

3. The combination, with a toboggan, of a double-curved hood, rails *i*, of two heights, and grooves *k*, the whole substantially as described.

348,963. COFFIN. FRANCIS C. GOFF, Englewood, Ill. Filed Dec. 17, 1885. (No model.)

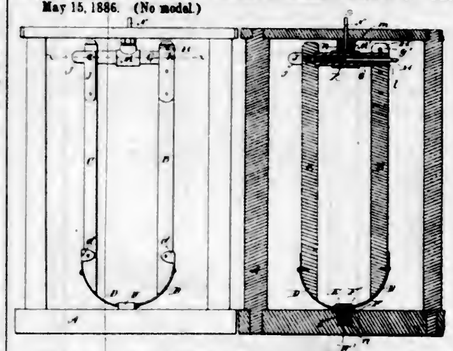


Claim.—1. The herein-described coffin-lining constructed of an impermeable flexible fabric provided with elastic sections, substantially as and for the purposes specified.

2. The combination, with the coffin or casket body and lid, of the body-lining, the lid-lining, and the rubber strips D and F, the former provided with a recess and the latter with a bead to fit within the recess, substantially as and for the purposes specified.

3. The combination, with the lining C, of the strips L and K, for securing the furnishings in the inside of the coffin without piercing the lining, substantially as and for the purposes specified.

348,964. STANCHION. ALBERT C. GREENE, Willett, N. Y. Filed May 15, 1886. (No model.)



Claim.—1. In a stanchion, the combination of the uprights, the carrying springs for the uprights, the socket-piece connecting the springs, the connecting-piece for the free ends of the uprights, and a locking device carried by one of the uprights, substantially as described.

2. The combination of the uprights or posts, the carrying-springs secured at one end to the posts, the socket-piece in which the free ends of the springs are fitted, the binding-screw carried by the socket-piece for clamping the springs therein, and the connecting-piece for the free ends of the uprights, substantially as described.

3. The combination of the uprights or posts, the curved carrying-springs secured at one end to the posts, the socket-piece common to both springs and having the free ends of the springs adjustably and detachably fitted therein, and the binding-screw carried by the socket-piece and bearing against one of the springs, the free ends of the springs being lapped in the socket-piece, substantially as described.

4. The combination, with the upright B, carrying a connecting-piece, G, of a sleeve, M, fitted on the connecting-piece, a binding-screw, M', provided with a socket, *n*, a shaft fitted in said socket, which holds said parts from lateral movement, the spring-actuated post C, movable laterally of the post B, and a locking device carried by the post C, and adapted to engage the connecting-piece, substantially as described.

5. The combination of the upright B, held from lateral movement, the laterally-movable upright C, the carrying-springs for the said uprights, a socket-piece in which the carrying-springs are secured, a connecting-piece carried by one of the uprights, and a locking device carried by the other upright, substantially as described.

6. The combination of the uprights or posts, the carrying-springs therefor, the socket-piece in which the springs are secured, a tubular connecting-piece carried by one of the uprights, and a rod carried by the other upright, and having the yielding arms, substantially as described.

7. The combination of the uprights, a tubular connecting-piece carried by one of the uprights, a rod having the spring-arms provided with nibs and normally inclosed within the tubular piece, one end of the tubular piece having a flange, against which the nibs of the spring-arms are adapted to take when the uprights are separated, substantially as described.

8. The combination of the uprights, the carrying-springs therefor, a socket-piece having an extension forming a journal, and a binding-screw for clamping the carrying-springs, the connecting-piece, and a sleeve fitted on the connecting-piece, and provided with a binding-screw, M', substantially as described.

9. The combination of the uprights, the carrying-springs therefor, the socket-piece adjustably secured to the free ends of the springs and arranged between the uprights, the connecting-piece for the opposite ends of the uprights, and a sleeve adjustable longitudinally on the connecting-piece and arranged intermediate of the uprights, substantially as described.

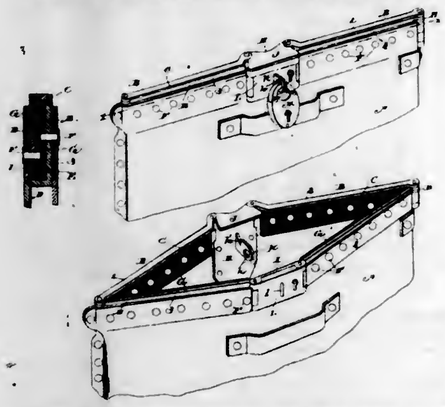
10. The combination of the uprights, the carrying-spring connected to one end thereof, a socket-piece having an extension forming a journal

intermediate of the uprights in which the free ends of the springs are adjustably connected, the tubular connecting-piece adjustably secured in and carried by one of the uprights, a rod carried by the other upright and having the yielding arms, and a sleeve adjustably secured on the connecting-piece and having a lug, *m*, substantially as described.

11. The combination of the uprights, one of which is provided with the clamping-jaws, the connecting-piece intermediate of the uprights and fitted at one end between the jaws, an adjusting-screw for binding the jaws upon the connecting-piece, and a locking device for securing the uprights together, substantially as described.

12. The combination of the upright B, having the recessed and split end to form the clamping-jaws, the tubular connecting-piece fitted at one end in the recess of the upright, the plates secured to the jaws, one having a threaded opening, a binding-screw passing through the jaws and plates and working in the threaded opening of one of the latter, the upright C, and arm *k*, substantially as described.

348,965. **MAIL-BAG.** JOHN C. GUNN, Knoxville, Tenn., assignor of one-half to Thomas Egan, same place. Filed May 24, 1886. (No model.)

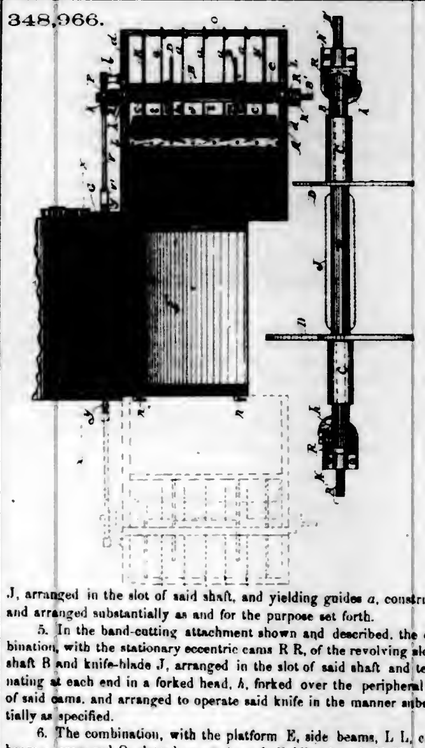


Claim.—1. The combination, with a mail bag or pouch, of the pivoted or hinged plates 1 and 2, provided with the inwardly-extended flanges C at their upper edges, and the plates 3 and 4, arranged opposite the plates 1 and 2, and provided at their lower edges with the inwardly-projecting flanges D, said flanges C D fitting over and beneath the free edges of the pivoted or hinged plates, to form a closed space or chamber intermediate of the plates, substantially as described.

2. The combination, with a mail bag or pouch, of the hinged plates provided with the extended flanges C D, arranged, as described, to fit over and beneath the free edges of the plates, and the packing secured to the plates, within the flanges thereof, to completely fill the space or chamber formed by the plates, substantially as described.

3. The combination of the plates or sections B, flexibly connected together and having the flanges, the plates H and I, to which the said sections are hinged, the plate H, having a notched staple or lug and an inwardly-extended flange or ledge, and the plate I, carrying a lock and having a slot through which the staple is passed to receive an additional or auxiliary lock, all arranged and combined substantially as described, for the purpose specified.

348,966. **BAND-CUTTING ATTACHMENT FOR THRASHERS.** SETH HARROP, Cabery, Ill. Filed Mar. 16, 1886. (No model.)



Claim.—1. In the band-cutting attachment hereinbefore described, the combination, with the slotted shaft B, of the stationary oppositely-arranged cams R R and knife J, having the forked heads *h*, said cams being arranged eccentrically to said shaft to reciprocate and at the same time project and retract said knife, in the manner substantially as specified.

2. The combination of a revolving longitudinally-slotted shaft, a pair of oppositely-arranged stationary cams eccentric to said shaft, a double-edged knife in said slot, having at each end a forked head engaging one of said cams, a pair of carrying-arms secured at each side on said slotted shaft to hold the bundles, a series of yielding bundle supports and guides, and a delivering-platform, substantially as described.

3. In the band-cutting attachment hereinbefore described, the combination, with the depending slotted apron A and cross-rod O, of the yielding guide *a*, arranged to hold the bundles against the knife J, substantially as and for the purpose set forth.

4. In a band-cutting attachment for thrashing-machines, the combination, with the platform E, of the rotary slotted shaft B, the arms D D, secured to said shaft, cams R R, having the shaft-boxes N N, knife J, arranged in the slot of said shaft, and yielding guides *a*, constructed and arranged substantially as and for the purpose set forth.

5. In the band-cutting attachment shown and described, the combination, with the stationary eccentric cams R R, of the revolving slotted shaft B and knife-blade J, arranged in the slot of said shaft and terminating at each end in a forked head, *h*, forked over the peripheral face of said cams, and arranged to operate said knife in the manner substantially as specified.

6. The combination, with the platform E, side beams, L L, cross-beam *e*, cross-rod O, slotted apron A, and dividing-boards H H, of the slotted rotating shaft B, knife J, cams R R, carrying-arms D D, guards M M, and yielding guides *a*, constructed and arranged substantially as and for the purpose set forth.

7. In the band-cutting attachment described, the combination, with the slotted shaft B, cams R R, reciprocating double-edged knife J, having the tangs terminating in the forked heads *h h*, and carrying-arms D D, of the sleeves *c c* on said shaft, substantially as and for the purpose set forth.

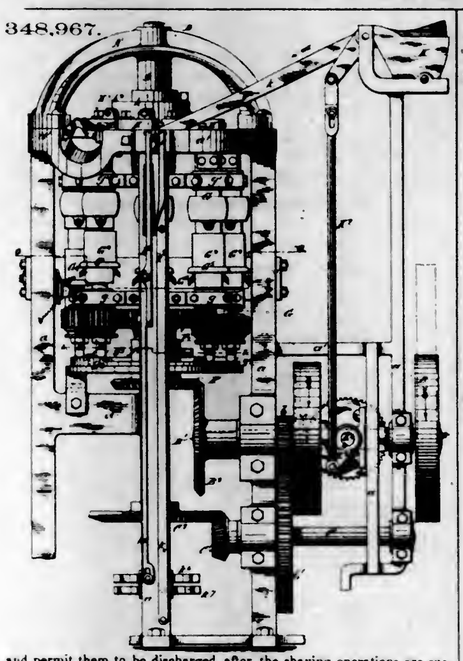
348,967. **MULTIPLE SCREW-SHAVING MACHINE.** HAYWARD A. HARVEY, Orange, N. J., and CHARLES S. CLARK, Providence, R. I., assignors, by mesne assignments, to the American Screw Company, Providence, R. I. Filed Mar. 12, 1884. (No model.)

Claim.—1. In a multiple screw-shaving machine, a rotating carrying-wheel adapted to receive and carry a series of screw-blanks sidewise in a circular path, a series of shaving-tools secured in holders pivoted to the said carrying-wheel, and a stationary cam for governing the feeding motions of the shaving-tools, in combination with a series of spindles partaking of the motion of the carrying-wheel and provided with jaws for grasping the shanks of the blanks sustained in the carrying-wheel, and the means, substantially such as described, for rotating the spindles upon their longitudinal axes, and thereby rotating the blanks during the performance of the shaving operation.

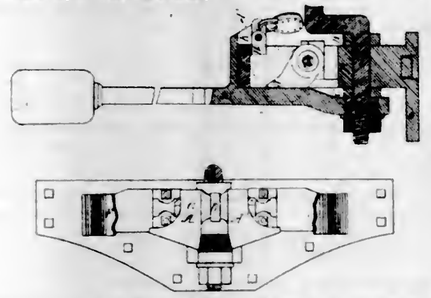
2. A carrying-wheel adapted to carry a series of blanks sidewise in a circular path and a system of spindles rotating upon their longitudinal axes, and also partaking of the rotatory movement of the carrying-wheel, in combination with a series of shaving-tools supported upon the carrying-wheel and means for feeding the tools against the heads of the blanks, and a cam for controlling the positions of the spindles relatively to the carrying-wheel during the successive feeding and shaving operations.

3. The combination of a rotating carrying-wheel for carrying a series of screw-blanks sidewise in a circular path, a series of shaving-tools mounted upon the carrying-wheel, a cam for governing the feeding motions of the shaving-tools, and a system of spindles rotating upon axes parallel with the axis of the carrying-wheel, each spindle provided with jaws for gripping the shanks of the blanks carried by the carrying-wheel, and a cam for imparting appropriate endwise movements to the spindles, and thereby causing the jaws of the spindles to successively close upon the shanks of the blanks and remain closed upon them during that part of the sidewise motions of the blanks in the course of which they are being subjected to the shaving operation, and to unclose from the blanks and permit them to be discharged after the shaving operations are successively completed.

348,967.



348,968. **SWITCH-STAND.** HOWARD V. HINCKLEY, Topeka, Kans. Filed May 21, 1886. (No model.)



Claim.—1. In a railroad-switch stand having a vertical semicular rim, F, the automatic lug or lugs A, constructed and operated beneath said rim and upon the pivot-pin G, substantially as described, for stopping and holding the tumble-lever.

2. In a railroad-switch stand, the pivot-pin G, in combination with the rim F, the switch-lever E, the lug or lugs A, either with or without the collar B, and made and operating substantially as herein shown and described.

3. In a railroad-switch stand, the bifurcated flange K, projecting and depending over the semicircular rim F, which stands in a vertical arc, for guiding the lever and holding the device that receives the padlock, substantially as shown.

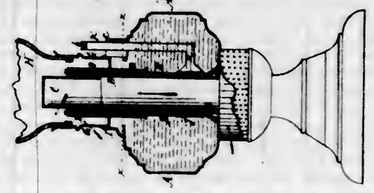
4. In a railroad-switch stand, the automatic lug H, for receiving the hasp of the padlock, in combination with the bifurcated and depending flange K, the rim F, and the lever E, constructed substantially as shown and described.

5. A railroad-switch stand having a vertical semicircular rim provided with the slot T, whose center is in the vertical plane that passes through the center line of the shaft S at L, parallel with the main track, and also provided with the slots T', whose centers are in a horizontal plane passing through the center line of the shaft S at L, said slots acting with the locking-lug H in securing the switch in its different positions, as described.

6. The combination, in a railroad-switch stand, of the slot T, the slots T', the perforated locking-lug H, the projecting and depending flange K of the lever E, and the rim F.

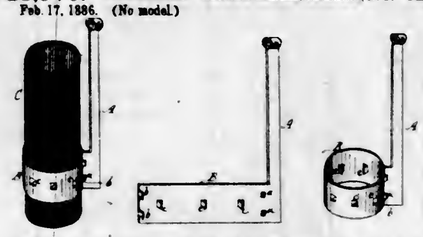
7. In a railroad-switch stand, the combination of the locking-lug H, the slot T and slots T', the projecting, depending, and bifurcated flange K, the pivot-pin G, the lug or lugs A, and the collar B, with the rim F, lever E, and shaft S.

348,969. **LAMP.** LEONARD HEMKLE, Rochester, N. Y. Filed May 11, 1885. (No model.) Patented in England Aug. 15, 1885, No. 9,708.



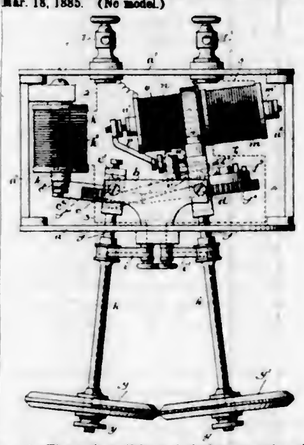
Claim.—In an Argand lamp, the combination of a circular wick holder or hoop surrounding the wick, having an offset handle, and the lamp-body having a slitted or notched guide-opening at its inner edge into the central opening or neck of the said lamp-body, for the purpose herein specified.

348,970. **WICK-RAISER.** LEONARD HEMKLE, Rochester, N. Y. Filed Feb. 17, 1886. (No model.)



Claim.—The wick-raiser herein described, consisting of a handle and a flexible band, the band provided with one or more sockets at one end and one or more catches at the other, whereby the band can be wrapped around the wick and the ends be detachably connected, as set forth.

348,971. **ELECTRIC LAMP.** EDWARD HEYMANN and FRANK W. HEYMANN, Boston, Mass., assignors of one-half to John I. Clapp, same place. Filed Mar. 18, 1885. (No model.)



Claim.—1. The carbon disks and shafts supporting them having a rotary movement and an angular movement, combined with connecting mechanism by which angular movement of one imparts a corresponding angular movement to the other, and an electro-magnet and connecting mechanism for producing an angular movement in one of the said shafts, and an independent electro-magnetic device and connecting mechanism which produces a rotary movement of the said shafts, substantially as described.

2. The rotary shafts and carbon disks supported thereon, combined with frames having bearings for said shafts, pivoted to rock on an axis at right angles to that of said shafts, a link connecting the said frames at opposite sides of their pivots, and an electro-magnet and armature therefor connected with the said frames, substantially as described.

3. The carbon disks and shafts therefor provided with gears meshing together, combined with a frame having bearings for one of the said shafts and itself pivoted to turn on an axis at right angles to the shaft and in the plane of rotation of the gear, whereby the said shaft may have an angular movement without disengaging the gears on the two shafts, substantially as described.

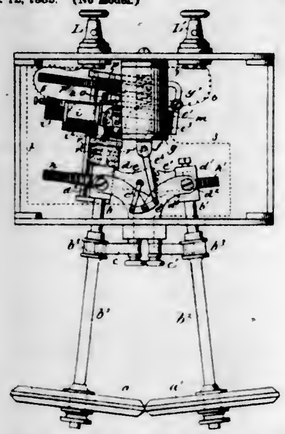
4. The carbon-carrying shafts provided with gears meshing together and connected pivoted frames having bearings for the said shafts, combined with a stationary magnet and armature therefor connected with the said frames for producing a pivotal movement thereof, and an electro-magnetic device supported on one of the said frames and movable therewith, and connecting mechanism whereby it produces a rotary movement of the said shafts, substantially as described.

5. A carbon-carrying shaft having a rotary movement, combined with electro-magnets, one in circuit with the arc and the other in a shunt around the same, and connected armatures operated by the varying opposing forces of the said magnets, and connecting mechanism between the said armatures and shaft, whereby the latter is rotated, substantially as described.

6. An electric lamp in which the arc is maintained between the edges of disks, the said lamp comprising a case or frame-work and carbon-carrying shafts extending out from the said frame-work and provided at their extremities with carbon disks or plates, the planes of which are at right angles to the corresponding shafts, and actuating mechanism within the said case or frame-work for producing an angular and rotary movement of the said shafts, substantially as described.

7. The pivotally and angularly movable carbon shafts and carbon disks supported thereon at right angles to the said shafts, combined with the sleeves surrounding the said shafts and insulated therefrom, and the contact-springs bearing against the said sleeves, substantially as described.

348,972. ELECTRIC LAMP. EDWARD HEYMANN and FRANK W. HEYMANN, Boston, Mass., assignors of one-half to John I. Clapp, same place. Filed Oct. 12, 1885. (No model.)



Claim.—1. The carbon disks and shafts therefor provided with gears meshing together, and a bearing-frame for one of the said shafts pivoted on an axis substantially at right angles to said shaft and in the plane of rotation of the gear, combined with an electromotor having a revolving armature and connecting mechanism between said armature and the carbon shaft, whereby the latter is rotated, and, through the gearing described, also rotates the other carbon shaft, substantially as set forth.

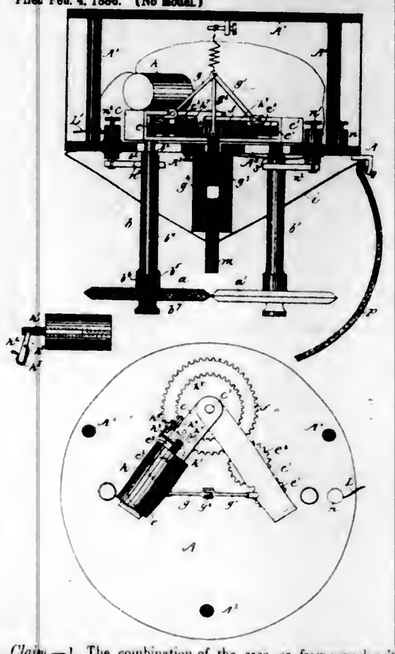
2. In an electric lamp, a carbon disk and supporting shaft therefor, combined with a co-operating electrode, and a frame having bearings for the said shaft movable to vary the position of the disk relative to the co-operating electrode, and an electromotor having a revolving armature supported on the said frame and movable therewith, and connecting mechanism between the said armature and carbon shaft, substantially as described.

3. The carbon disks, and shafts therefor, and pivoted bearing-frames for the said shafts, combined with segmental gears connected with said bearing frames and meshing together, and an electro-magnet or solenoid and its armature or core connected with the said frames, substantially as described.

4. In an electric lamp, a carbon disk, and supporting-shaft therefor, and a co-operating electrode, combined with an electromotor having a revolving armature, and connecting mechanism between said armature and the shaft of the carbon disk, and a speed-governing device connected with the said revolving armature, substantially as described.

5. In an electric lamp, a carbon disk and shaft therefor, and a pivoted bearing-frame for said shaft turning on an axis substantially at right angles thereto, and a co-operating electrode, combined with an electro-magnet, and its armature connected with said bearing-frame, and an electromotor having a revolving armature connected with the said shaft, the said motor being in a shunt around the arc, substantially as described.

348,973. ELECTRIC LAMP. EDWARD HEYMANN and FRANK W. HEYMANN, Boston, Mass., assignors of one-half to John I. Clapp, same place. Filed Feb. 4, 1886. (No model.)



Claim.—1. The combination of the case or frame-work with the pivoted frames therein, turning on an axis in a plane substantially parallel with the main plate or base of the frame-work, the carbon-carrying shafts provided with carbon-disks and having bearings in the said pivoted frames, and extending through openings to the outside of the case or frame-work inclosing the said frames, and actuating mechanism within the case for moving the said frames on their pivot and for rotating the carbon-carrying shafts, substantially as described.

2. In an electric-arc lamp, the combination of the case or frame-work and movable frames thereon with carbon disks and supporting-shafts therefor, having their bearings in said frames, actuating mechanism to move said frames and to rotate the carbon-carrying shafts, and a magnet supported on the main frame, with its pole over the point at which the arc is maintained between the rotating disks for the purpose of increasing the extent of the arc, substantially as described.

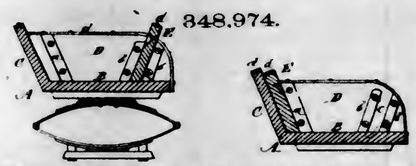
3. The combination of the main case or frame-work and movable frames supported therenn, and disk carbons and carbon-carrying shafts having bearings in said movable frames, and actuating mechanism for moving the said frames and rotating the carbon-carrying shafts, and a reflector, substantially conical in shape, with its apex over the arc, the said reflector being interposed between the carbon disks and their actuating mechanism, and provided with openings through which the carbon-carrying shafts extend, substantially as described.

4. The combination of the carbon-shafts and movable bearing frames therefor with a toggle-lever connected with said frames, and an electro-magnet and its armature and retractor connected with the said toggle-lever, for the purpose of actuating the same and controlling the position of the frames, substantially as described.

5. The combination of the rotating shafts and carbon disks supported thereon with the worm-gear and connecting mechanism between it and the said shafts, a worm meshing the said gear, and a ratchet and pawl, and actuating electro-magnet for said pawl, substantially as described.

348,974. COMBINED WAGON-SEAT AND FEED-TROUGH. LEMON JOHNSON, Vincennes, Ind. Filed Nov. 25, 1885. (No model.)

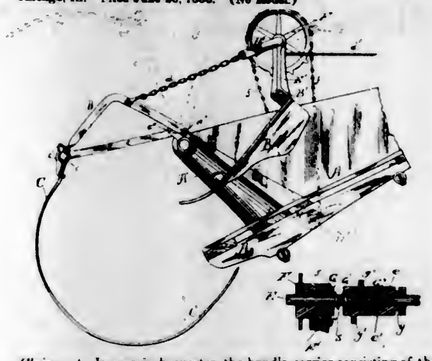
Claim.—The combination, with the seat A, provided with the cleats



348,974.

a b, of the board E, adapted to be held by the cleats, substantially as herein specified.

348,975. SHEAF-CARRIER FOR HARVESTERS. MAURICE KANE, Chicago, Ill. Filed June 30, 1885. (No model.)

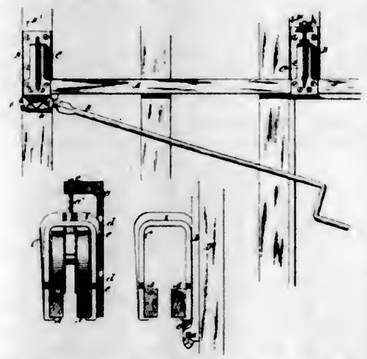


Claim.—1. In a grain-harvester, the bundle-carrier consisting of the bar *c*, having depending fingers rigidly secured thereto, and pivoted or hinged to the binder-standard, in combination with mechanism for operating the same to release the bundles, substantially as specified.

2. In a grain-harvester wherein the bundle-carrier is hinged to the binder-standard, the stop c^2, rigidly secured to the said standard to arrest the carrier in its downward movement, substantially as specified.

3. In a grain-harvester, the sheaf or bundle carrier hinged to the binder-standard and mechanism for automatically tripping said carrier to discharge the bundles, consisting of the shaft E, sleeve G^3, mounted thereon and provided with a cam, g', the pin or roller d''', to engage said cam, the arm d^3, sprocket-wheel F, operated from the packer-shaft, the arm D', and chain *d* or other connection, arranged and operating substantially as specified.

348,976. DOOR-HANGER. WILLIAM O. KASSON, Cedar Rapids, Iowa. Filed Feb. 23, 1886. (No model.)



Claim.—1. In a track for sliding doors, the combination of a vertically-adjustable track, screws adapted to be adjusted from a point horizontal or diagonal to the track, and an arm or lever engaging with said screw and extending from the end of the track to the side of the doorway, whereby the end of the track may be vertically adjusted from the doorway, substantially as specified.

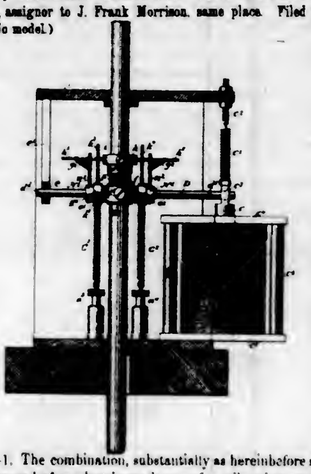
2. In a track for sliding doors, the combination of the track, the hanger C, having a beveled foot, and the wall-plate B, having lug *b*, provided with adjusting-screw *a*, substantially as and for the purpose set forth.

3. The combination of the wall-plate having the adjusting-screw and vertical slots, the bracket or hanger having studs adapted to engage with said slots and retain the bracket in position while allowing a limited vertical movement thereof, and the track secured to the bracket, substantially as and for the purpose set forth.

4. The wall-plate having vertical slots *d d*, lugs *b b*, and screw *a*, in combination with the rail-supporting bracket or hanger C, having studs *e e*, adapted to engage with the slots in the wall-plate, and having the limb adjacent to the wall-plate beveled opposite the screw, whereby the hanger is capable of vertical adjustment by turning the screw, substantially as specified.

5. In combination with the terminal hanger described, the intermediate hanger composed of a wall-plate with an outwardly-extending arm provided with a screw, and a vertically-movable bracket or yoke connecting with said wall-plate and adjustable by means of said screw, both of said hangers being connected with the track of a sliding door, substantially as and for the purpose specified.

348,977. ARC-LIGHT REGULATOR. PIERRE O. KEILHOLTZ, Baltimore, Md., assignor to J. Frank Morrison, same place. Filed Nov. 23, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with the carrier-rod of an electric-arc lamp, of a coil-spring surrounding the same, a vertically-movable lever, carrying one end of said spring, and a rotary support for moving the other end of said spring circumferentially, and thereby causing it to grasp and to release said rod, as required.

2. The combination, substantially as hereinbefore set forth, with the carrier-rod of an electric-arc light, of a frictional clutch for the same, consisting of a coil-spring surrounding the rod, a vertically-movable lever carrying one end of said spring, and means for moving the other end of said spring circumferentially with reference to the first-named end, whereby the diameter of the spring is varied.

3. The combination, substantially as hereinbefore set forth, with the carrier-rod of an electric-arc lamp, of a clutch consisting of a coil-spring surrounding the rod, means for moving one end of said coil-spring circumferentially with reference to the other and thereby increasing or decreasing the diameter of the same, and means for moving the same in the direction of its length, substantially as described.

4. The combination, substantially as hereinbefore set forth, of a carrier-rod, a coil-spring surrounding the same, means for holding one end of the wire of said coil-spring in a given radial position, equilibrium-springs applied to the other end of the wire of said coil-spring, and means, substantially such as described, for disturbing the equilibrium between the last-named springs and turning the other end of said coil-spring circumferentially.

5. The combination, substantially as hereinbefore set forth, in an electric-arc lamp, of a carbon-holding rod, a frictional clutch consisting of a coil-spring surrounding the same, a lever supporting said coil-spring, a solenoid included in a shunt-circuit around the arc of the lamp, a core extending within said solenoid and connected with said lever, an adjustable spring tending to withdraw said core from said solenoid, and means for winding and unwinding said coil-spring by the longitudinal movement of said core, and thereby modifying its grasp.

6. The combination, substantially as hereinbefore set forth, in an electric lamp, of a carrier-rod, a coil-spring surrounding the same, means for retaining one end of said spring in a given position relative to said rod, a collar surrounding said rod, to which the other end of said spring is attached, two arms extending from said collar, two arms connected with the support for the first-named end of said spring, springs connecting the last-named arms with the first-named, respectively, and springs acting counter to the last-named springs, substantially as described.

7. The combination, substantially as hereinbefore set forth, in an electric-arc lamp, of a carrier-rod, an electro-magnet having a movable

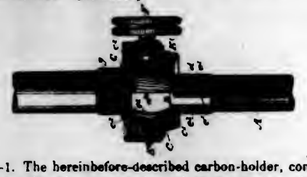
core, a lever having one end connected with said core, a coil-spring surrounding said rod and supported from said lever, a sleeve, also surrounding said rod, to which the remaining end of said spring is attached, one or more springs tending to turn said sleeve axially, one or more counteracting-springs, and means for modifying the relative values of said spring.

8. The combination, substantially as hereinbefore set forth, in an arc-lamp, of a spring surrounding the upper-carbon rod, a movable lever, a gimbaled collar supported in said lever and surrounding said rod, a spring attached to said collar, a second collar surrounding said rod, to which the remaining end of said spring is attached, and mechanical devices, substantially such as described, for turning the last-named collar upon said rod.

9. The combination, substantially as hereinbefore set forth, of a carrier-rod, a lever having an annular opening, through which said rod extends, a collar surrounding said rod, trunnions supporting said collar within said opening, a support for one end of said lever, through which it extends loosely, a solenoid-magnet, through the core of which the other end of said lever extends loosely, a coil-spring attached to said collar, and means for moving said lever, substantially as described.

10. The combination, substantially as hereinbefore set forth, of the rod B, the lever D, having the annular opening through which the rod extends, the spring F, connected with said lever, the collar f^3, the ring h, coupled with said collar, the arms h' and h^2, extending from said collar, the arms h^3 and h^4, turning upon said lever as a center, the springs G' and G^2, tending to turn the last-named arms in opposite directions and to press them against the arms h' and h^2, respectively, the springs g' and g^2, and the arms m' and m^2.

348,978. CARBON-HOLDER FOR ELECTRIC-ARC LAMPS. PIERRE O. KELHOLTZ, Baltimore, Md., assignor to J. Frank Morrison, same place. Filed Dec. 19, 1885. (No model.)



Claim.—1. The hereinbefore-described carbon-holder, consisting of a clamp having resilient jaws, a spherical enlargement at its end, a spherical socket for receiving the same, and means for simultaneously compressing said socket and clamp.

2. The combination, substantially as hereinbefore set forth, of a carbon-clamp, a support, a yielding ball-and-socket joint uniting the two, and a set-screw compressing the same.

3. The combination, substantially as hereinbefore set forth, of the resilient jaw, the compressible enlargement integral therewith, the socket for receiving the same, the set-screw for compressing said enlargement and jaws, and means for securing said socket to the carrier-rod of an arc lamp.

4. The combination, substantially as hereinbefore set forth, of a resilient carbon-holding tube, an enlarged resilient extension of the same, movable blocks fitting loosely around said extension, a socket for receiving said extension and blocks, and means for compressing said blocks upon said enlargement.

5. A carbon-holder consisting of the clamp D, having alternating longitudinal slits e' and e^2, the blocks E' and E^2, and means, substantially such as described, for supporting and binding the same.

6. In a carbon-holder, the combination, substantially as hereinbefore set forth, of a resilient clamp having an enlarged end, concaved blocks for receiving the enlarged end, a socket in which said blocks are placed, and a set-screw for pressing one of said blocks toward the other, and thereby compressing said clamp and binding it in position.

7. In a carbon-holder for electric-arc lamps, a compressible clamp having a spherical extension, concave blocks surrounding the same, in one of which blocks there is formed an indentation, a set-screw entering said indentation, and a support for the several parts.

348,979. SASH-CORD-PULLEY FRAME. OCTAVE LACOURSE, Putnam, Conn. Filed Mar. 2, 1886. (No model.)



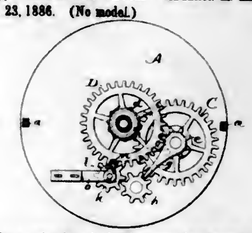
Claim.—As a new manufacture, a sash-cord guide consisting of a tubular casing adapted to receive a cord in the usual manner, and provided with an external tapering screw-thread, the diameter of said casing being greatest at its outer end, and tapering inward evenly from that point to the inner end of the screw-thread, as and for the purpose set forth.

348,980. ESCAPEMENT-LEVER FOR TIME-PIECES. ALBERON M. LANE, Meriden, Conn. Filed Feb. 6, 1886. (No model.)



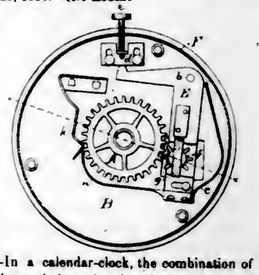
Claim.—The herein-described escapement-lever, having the guard-pin c, whose body is offset from the slot of the fork, said fork, guard-pin, and body of the lever all being formed of one piece of sheet metal the thickness of which is substantially represented in the finished lever, substantially as described, and for the purpose specified.

348,981. CALENDAR-CLOCK. ALBERON M. LANE, Meriden, Conn. Filed Feb. 23, 1886. (No model.)



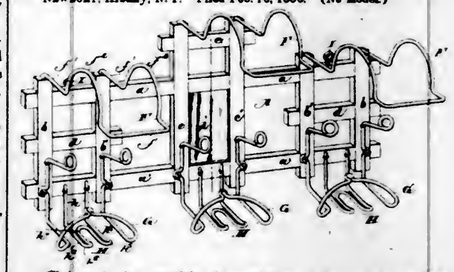
Claim.—In a calendar-clock, the combination of the minute-wheel and attached pinion C e, carrying trip pin or spur g, the intermittently-rotating pinion k, operatively connected with the pointer or spur g, and having the trip pin or point n attached and rotating with said pinion k, and the day-of-the-month wheel E, the teeth of which are acted upon by the pin n, substantially as described, and for the purpose specified.

348,982. CALENDAR-CLOCK. ALBERON M. LANE, Meriden, Conn. Filed Feb. 23, 1886. (No model.)



Claim.—In a calendar-clock, the combination of the day-of-the-month wheel, the angle-lever bearing the spring-hook for engaging the teeth of said wheel when the angle-lever is moved, and the wheel which drives the day-of-the-month wheel mounted upon said angle-lever in proper position to engage said day-of-the-month wheel when said lever is at rest, substantially as described, and for the purpose specified.

348,983. HAT AND COAT RACK. JOHAN D. MACK and JAMES G. NEWBURY, Albany, N.Y. Filed Feb. 16, 1886. (No model.)

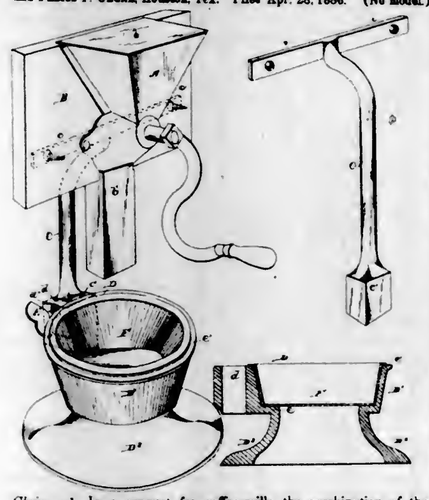


Claim.—1. As an article of manufacture, a hat-rack comprising a frame adapted to be suspended from a wall and an outwardly-extending holder, F, having the connected side bars provided with the upwardly curved or inclined sections f^3 intermediate of their ends, substantially as described.

2. A hat-holder, F, formed of a single piece of wire and comprising the parallel side arms, f', having the upwardly-curved loops or portions f^3 intermediate of its ends, the angular prongs f^3 at one end of the side arms, and the transverse arm f, connecting the outer ends of the side arms, substantially as described.

3. The combination, with a rack, of an umbrella-support formed of a single piece of wire and comprising the parallel vertical arms h, having the prongs at their upper ends, the horizontal parallel arms h^2, extending outwardly at right angles from the vertical arms, and a curved intermediate arm, h^4, lying in the plane of and connecting the free outer ends of the arms h^2, substantially as described.

348,984. SUPPORT FOR COFFEE-MILLS. BENJAMIN W. MCCARTY and FABIUS P. GAGNE, Houston, Tex. Filed Apr. 28, 1886. (No model.)

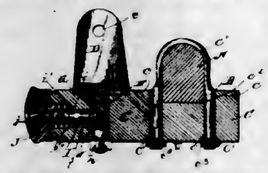


Claim.—1. In a support for coffee-mills, the combination of the base having the socket and the projecting bracket-lug provided with the binding-screw, and the standard adapted to carry the mill and removably fitted in the bracket-lug and held therein by the screw, substantially as described.

2. In a support for coffee-mills, the combination of the base having an open socket, the bracket-lug, and binding-screw, a vertically-disposed standard fitted in the bracket-lug and clamped therein by the binding-screw, and a back plate adapted to carry the mill and detachably secured to the standard, substantially as described.

3 In a support for coffee-mills, the combination of the base formed in a single piece and having an open socket provided with the annular flanges, and the lateral bracket-lug having the binding-screw, the standard having the enlarged lower end and the lateral arms at its upper end, and the back plate removably secured to the arms of the standard and adapted to carry the mill, substantially as described.

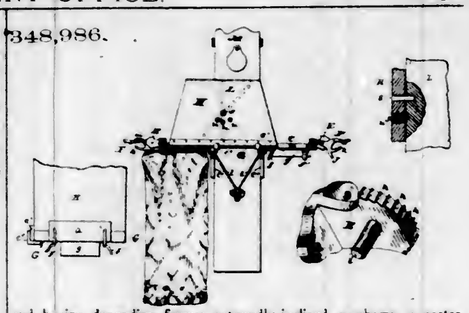
348,985. THILL-COUPLING. FRANK MCKINSTER, Adrian, Mich., assignor, by direct and mesne assignments, to Timothy P. Randall and Richard D. Calbath, both of same place. Filed Apr. 16, 1886. (No model.)



Claim.—1. In a thill-coupling, the combination of the clip-plate having the vertical opening, the journal-plates having the shank fitted in the opening and provided with the flanges at its side edges bearing against the clip-plate, the draw-iron journaled in the upper free end of the journal-plates, and a sliding bolt for securing the shank to the clip-plate, substantially as described.

2. In a thill-coupling, the combination of the clip-plate having the integral lugs and the vertical opening d, the journal-plates having the integral shank fitted in the opening and provided with the recess d', a nut fitted on the lower end of the shank, a sliding bolt normally in engagement with the recess of the shank, a spring for normally impelling the bolt inwardly and in engagement with the shank, and the draw-iron pivoted in the upper free end of the journal-plates, which are provided with the depending flanges at their side edges, substantially as described.

348,986. BAG-HOLDER. JACOB MILLER, Canton, Ohio. Filed Dec. 5, 1885. (No model.)



Claim.—1. The combination of a support, a frame secured thereto and having depending fingers outwardly inclined, as shown, a sector having teeth on the periphery thereof, a hand-lever having a finger adapted to engage the hem of the bag, and a pawl journaled on the lever and engaging the teeth of the sector, substantially as set forth.

2. The combination, with a support, a frame secured thereto and having depending fingers f f, and guard-boards g, of the sector secured to the frame and provided with teeth, a hand-lever journaled to sector and having a finger adapted to engage the hem of the bag, and a pawl pivoted to the lever and engaging the teeth of the sector.

3. The combination, with a table, the sectors secured thereto and having teeth on the peripheries thereof, hand-levers pivoted to the sectors, each hand-lever having a finger adapted to engage the hem of the bag, and the pawls journaled on the levers and engaging the teeth of the sectors, of a movable hopper having a pivoted partition, substantially as set forth.

348,987. HAME-TUG. JOHN G. MILLER, Champaign, Ill. Filed Apr. 27, 1886. (No model.)



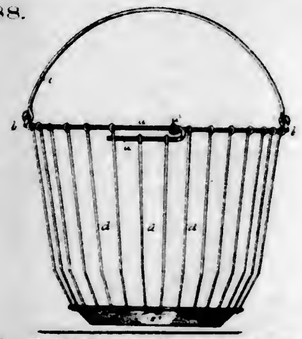
Claim.—A hame-tug consisting of the section A, provided with the clip or eye D, and formed with a rigid loop, b, having cross-bar c, to which is connected the strap C, a loop, F, attached to said strap, and the loop G, formed with cross-bar h and tongue i, and extending over the loop F, and the draft-tug strap B, passing through the several loops, substantially as and for the purpose set forth.

348,988. WIRE BASKET FOR COOKING UTENSILS. PHILIP MILLER, Sharpsburg, Pa. Filed July 31, 1885. (No model.)

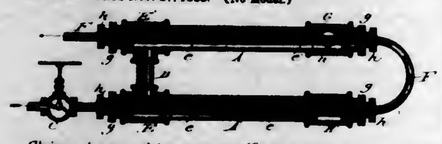
Claim.—1. A wire basket for cooking purposes, having a top ring, staple-wire sides, and a dish-shaped bottom, substantially as and for the purpose specified.

2. A wire basket for cooking purposes, having a top ring, the ends of which are bent over each other and adjustably secured, in combination with vertical wire sides and a flat bottom, substantially as and for the purposes described.

348,988.

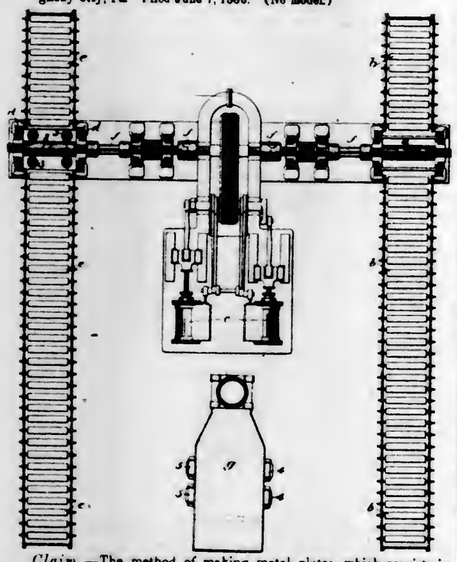


348,989. WATER-HEATER. FREDERICK W. MOMBURG, Sauk Rapids, Minn. Filed Nov. 27, 1885. (No model.)



Claim.—A new article of manufacture for heating water, consisting of the U-shaped pipe A and A′ and D, as a jacket, and the U-shaped pipe F, within the pipe A A′ and D, the said pipe F being provided with holes *e e e* along its entire length within the pipes A A′, the whole arranged and operating so that a current of steam is admitted into the pipe F and issues through the perforations *e e* against the column of water in the outer pipe, substantially as and for the purpose set forth and described.

348,990. METHOD OF MAKING PLATES. DAVID B. OLIVER, Allegheny City, Pa. Filed June 7, 1886. (No model.)

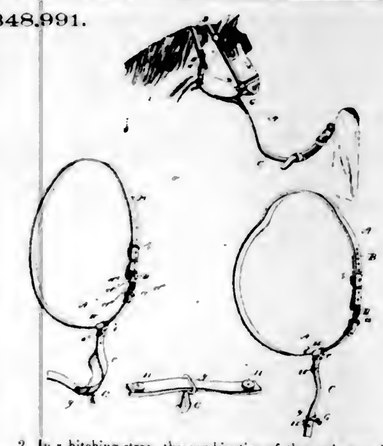


Claim.—The method of making metal plates, which consists in rolling a pile or ingot of less width than the finished plate crosswise between plain rolls until it attains about the width of the finished plate, and then rolling it lengthwise between top and bottom and side rolls to the desired thickness, width, and length, whereby a smooth unbroken rolled surface is imparted to the sides and edges of the plate, substantially as and for the purposes described.

348,991. HITCHING-STRAP. GEORGE W. PAINE, Odessa, N. Y. Filed May 8, 1886. (No model.)

Claim.—1. In a hitching-strap, the combination, with a neck-strap, of a tie-strap connected thereto, a sliding hook loosely fitted on the tie-strap, and stops for limiting the movement of the hook on the said strap, substantially as described, for the purpose set forth.

348,991.



2. In a hitching-strap, the combination of the neck-strap having a snap-hook at one end and a loop, D, at the other end, having a frame and a curved bar, to the latter of which the snap-hook is adapted to be connected, a loop, E, also secured to the neck-strap, the tie-strap connected at one end to the loop D, the sliding hook G, loosely fitted on the tie-strap, and the limiting-strap having its ends secured to the tie-strap, and the sliding hook confined between the said ends thereof, substantially as described.

3. The combination of a neck-strap, a loop, G, secured to one end of said strap, a buckle, I, fitted over the doubled end of the strap and adapted to be connected with the loop D, a tie-strap, C, connected with the neck-strap, a sliding hook fitted on the tie-strap, and means, substantially as described, for limiting the play of the sliding hook on the tie-strap, substantially as described.

4. The combination of a neck-strap having a loop or eye at one end and a snap-hook at the other end, a wear-plate, *e*², secured on the neck-strap, a tie-strap provided with a loop, E, which bears on the wear-plate, and has one bar thereof passed through aligned openings in the wear-plate and neck-strap, and means, substantially as described, for limiting the play of the hook, as specified.

348,992. NOSE-PIECE FOR EYEGLASSES. CHAUNCEY C. PARKER, Brooklyn, N. Y. Filed Mar. 26, 1886. (No model.)



Claim.—In eyeglasses, the combination, with a rigid bridge, B, having apertures *c* in its curved ends, of spring nose-clamps secured at their lower ends to the lens-frames, and bent, as at *e f*, to form S-shaped nose-pieces, the free ends being hooked into the apertures *c*, as set forth.

348,993. RENDERING ANIMAL AND VEGETABLE FIBER WATER-PROOF, &c. TRUMAN J. PEARCE and MELVIN W. BEARDSLEY, Oakland, assignors to the Paraffine Paint Company, San Francisco, Cal. Filed Mar. 21, 1885. (Specimens.)

Claim.—As new articles of manufacture, all kinds of cloths, knit goods, felts, matting, ropes, cordage, and all kinds of textures and fabrics other than paper, when made of either vegetable fiber or wool or hair or silk and treated with a compound of bisulphide of carbon and maltha, substantially as herein described and set forth.

348,994. INSULATING WIRE AND CONDUCTOR FOR ELECTRICAL PURPOSES. TRUMAN J. PEARCE and MELVIN W. BEARDSLEY, Oakland, assignors to the Paraffine Paint Company, San Francisco, Cal. Filed Mar. 21, 1885. (Specimens.)

Claim.—1. A wire or conductor for electrical purposes having its surface covered or coated by or enveloped in a compound formed by the mixture of bisulphide of carbon and maltha, substantially as and for the purposes herein set forth.

2. The combination, with a wire or conductor for electrical purposes, of an insulating protecting covering formed of bisulphide of carbon and maltha in mixture, and either with or without a wrapping or covering of fiber, applied substantially as herein set forth

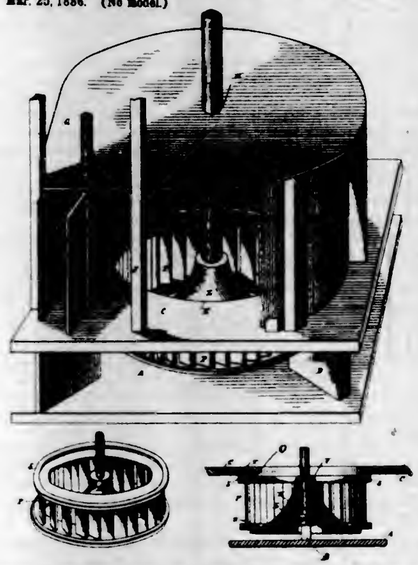
348,995. PAPER AND PRODUCTS AND MANUFACTURE THEREOF. TRUMAN J. PEARCE and MELVIN W. BEARDSLEY, Oakland, assignors to the Paraffine Paint Company, San Francisco, Cal. Filed Mar. 21, 1885. (Specimens.)

Claim.—As a new article of manufacture and commerce, paper painted or asturated with a compound of bisulphide of carbon and maltha, substantially as herein set forth.

348,996. ROOFING FABRIC. TRUMAN J. PEARCE and MELVIN W. BEARDSLEY, Oakland, assignors to the Paraffine Paint Company, San Francisco, Cal. Filed Feb. 19, 1886. (No specimens.)

Claim.—The improved roofing fabric herein described, composed of maltha and a basis or foundation of fibrous or textile fabric, with or without a backing of paper, as set forth.

348,997. WATER-WHEEL. JOHN L. PERLEY, Enosburg, Vt. Filed Mar. 25, 1886. (No model.)



Claim.—The combination, in a water-wheel, of a casing the bottom or floor of which is provided with a central aperture, a flume entering said casing, a gate in said flume, an overlapping flange around within said aperture, projecting below the bottom of said casing, an open-topped wheel below said casing, having a series of vertical blades around its outer edge, said blades being secured together at their tops by means of a rim, a flange of leather or pliable material around said rim and projecting above the top of the wheel and bearing with its upper edge against the floor of said casing, and means, substantially as described, for supporting said wheel and said casing above said wheel.

348,998. GAS-ENGINE. JAMES F. PLACE, New York, N. Y. Filed Feb. 3, 1886. (No model.)

Claim.—1. In a compound gas-engine, the combination of the single-acting high-pressure cylinder, low-pressure cylinder, one side of which operates as an air-compressor, suitable ports, 33, 34, and 35, and slide-valve 29, all substantially as and for the purpose specified.

2. In a compound gas-engine wherein one end of the low-pressure cylinder is used as a compressor, the hollow piston-rod, hollow piston, and inlet-valves 26, through which the fluid to be compressed may be admitted to the end of said low-pressure cylinder used as a compressor, substantially as described.

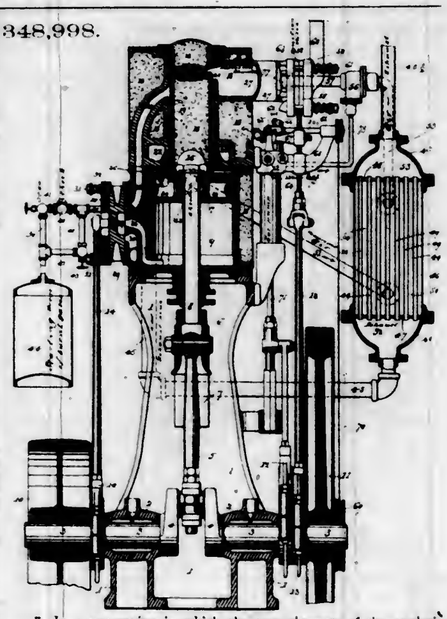
3. In a compound gas-engine constructed as described above, the port 38, opening to the port 33, and the pipe 39, leading to the storage-tank or receiver 44, with the intervening check-valve 40, for the admission of the compressed air or products of combustion from the cylinder 18 to the tank 44, substantially as specified.

4. In a compound gas-engine, in combination with the ports 38 and 33, pipe 39, receiver 44, check-valve 40, the by-pass pipe 42, and valve 43, substantially as and for the purpose specified.

5. In a compound gas-engine constructed as described above, the combination, with the single-acting high-pressure cylinder 18 and low-pressure cylinder 9, one end of which acts as an air-compressor, of the gas-pump 64, substantially as described.

6. In a gas-engine in which the two elements of the explosive charges are compressed in separate pumps, and in which the air-pump displaces a uniform volume of unmixed air at each stroke, a gas-pump, the supply of gas to which is shut off at varying points of its outstroke, according to the variations of the speed of the engine, substantially as and for the purpose set forth.

348,998.



7. In a gas-engine in which the two elements of the explosive charges are compressed in separate pumps, and in which the air-pump displaces a uniform volume of unmixed air at each stroke, a speed-governor controlling a gas-supply valve to the gas-pump in such a manner as to close said valve at varying points of the outstroke of said pump, substantially as and for the purpose specified.

8. In a gas-engine in which the two elements of the explosive charges are compressed in separate pumps, and in which the air-pump displaces a uniform volume of unmixed air at each stroke, the combination, with a gas-pump provided with suitable automatic inlet and outlet valves, and a separate gas-supply valve on the gas-supply, of a speed-governor operating said valve and causing it to close at varying points of the stroke of said pump, according to the fluctuations in the speed of the engine, substantially as described.

9. In a gas-engine, in combination, the gas-pump 64, governor 66, bearing 105, shaft 106, with head 104, futing 102 103, link 100, arm 107, valve 111 on the gas-supply to the pump, and tappet 67, with steps I II III IV V, all being operated and connected substantially as and for the purpose specified.

10. In a gas-engine, the T-shaped combined air and gas admission fitting 56, provided with air-valve 119, gas-valve 120, and sleeve of wire-gauze 121, all substantially as and for the purpose specified.

11. In a gas-engine, a seat for the slide igniting-valve cast off the wall proper of the igniting-chamber by means of lugs or distance-pieces allowing for a circulation of air to cool off said seat, substantially as described.

12. In a gas-engine, the deflecting-plate 78, set at right angles to the entering charge, and held in position by means of the lugs 79, between which the charge is compelled to pass and receives a rotary motion, substantially as described.

13. In a gas-engine, a slide igniting-valve made in two portions, secured with an intervening sheet of wire-gauze, 91, so as to form the three chambers 88, 89, and 90, substantially as described.

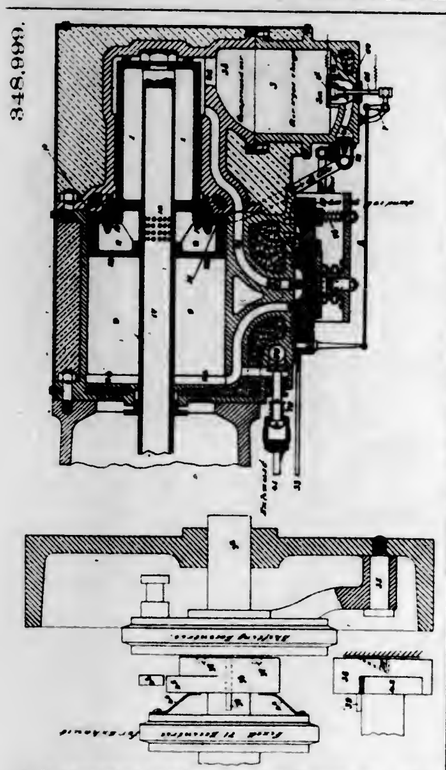
14. In a gas-engine, a slide igniting-valve held to a seat, 97, on which are the igniting-port 80 and the relighting-port 94 to the burner 95, by a spring-pressed backing-plate, 59, on which are the vent-ports 85, the chimney 60, the gas-supply port 86, and the air-supply port 92, said valve being made in two sections, with the intervening gauze 91 forming the chambers 88 with ports 81 and 87, 89 with port 82, and 90 with port 83, all connected and operated substantially as described.

15. In a compound gas-engine constructed as described above, the combination of an economizer, 46, with the exhaust-pipe 45, and the pipe 51, leading from the compressor end of the low-pressure cylinder to the admission-valve 52, substantially as described.

348,999. GAS-ENGINE. JAMES F. PLACE, New York, N. Y. Filed Feb. 17, 1886. (No model.)

Claim.—1. In a gas-engine, in combination with a gas-supply pump, a slide-valve operated from a movable eccentric, which is controlled by a governor so as to cut off the gas-supply to said pump at varying points in the stroke, substantially as described.

348,999.



2. In a gas-engine, in combination with a gas-supply pump, a slide-valve regulating the supply to said pump and operated by an eccentric on the main shaft, the centers of said eccentric and said shaft relatively to each other being dependent upon the position of the weights of a centrifugal governor relatively to their axial center, substantially for the purpose and as herein described.

3. In a gas-engine, in combination with a gas-supply pump, a slide-valve regulating the supply to said pump and operated by a revolving eccentric, which eccentric is movable radially and spirally on its shaft in a plane at right angles to the axis of said shaft, its position in that respect relatively to the center of the shaft depending upon the speed of a centrifugal governor, substantially as and for the purpose herein described.

4. In a compound gas-engine having on one valve-seat ports for connecting the high and low pressure cylinders and for the supply of gas to a gas-supply pump, the combination, with the high and low pressure cylinders and the gas-supply pump, of a slide-valve actuating the above-named ports and operated by an eccentric on a revolving shaft, the positions of centers of said eccentric and said shaft relatively to each other being dependent upon the speed of a centrifugal governor, so as to shut off the connection between the two cylinders and the gas-supply at varying points of the stroke according to the fluctuations of the speed of the engine, substantially as set forth.

5. In a compound gas-engine, in combination with ports to the high and low pressure cylinders and to a gas-supply pump, all opening on the same seat, a slide-valve actuating all said ports, substantially as described.

6. In a gas-engine, a sleeve or thimble having a cam for opening a gas-supply valve arranged to be moved by an eccentric on a revolving shaft (the movement of said eccentric on said shaft being in a plane at a right angle to the axis of the shaft) out of contact with the gas-valve pawl or lever when the engine runs beyond a predetermined speed, thereby closing said valve until the speed lowers, substantially as and for the purpose herein described.

7. In a gas-engine, a sleeve or thimble having a cam for opening a gas-valve, arranged to be moved by an eccentric on a revolving shaft, so the cam will be entirely to one side of the pawl or lever against a spring when the engine runs too fast, said spring so fixed as to move the cam in contact with the pawl again when the speed is reduced, substantially as and for the purpose herein described.

8. In a gas-engine having a movable sleeve or thimble with cam thereon for opening the gas-inlet valve, lugs or projections on said sleeve for forcing said cam out of contact with the gas-valve pawl or lever when the engine runs too fast, substantially as and for the purpose herein described.

9. In a gas-engine having a sliding sleeve or thimble with cam thereon for opening the gas-inlet valve, lugs or projections on a movable eccentric for forcing said cam out of contact with the gas-valve pawl or lever when the engine runs too fast, substantially as and for the purpose herein described.

10. In a gas-engine, a valve and an automatic cut-off governor arranged so as to cut off the gas-supply and cut off the outlet of the explosion-cylinder, both at varying points in the stroke, so that the smaller the gas charge admitted the greater is the compression of the explosive charge before ignition, substantially as and for the purpose herein described.

11. In a compound gas-engine, the automatic cut-off governor with the movable eccentric, the length of the stroke of which is dependent upon the speed of said governor, in combination with a slide-valve operated by said eccentric, which controls admission of the gas charge and the connection between the two cylinders, and the air compressor in one end of the low-pressure cylinder, all substantially as and for the purposes herein described.

12. In a gas-engine, the centrifugal governor with the guard or shield, in combination with the crank-pin and the gas-measuring pump, substantially as and for the purpose herein described.

13. In a gas-engine, an electric igniter consisting of the spring-forked end, and the lugs provided with grooved edges, arranged so that the spring end rubs the said edges when in contact and preserves the points of contact free from soot and carbon, substantially as and for the purpose herein described.

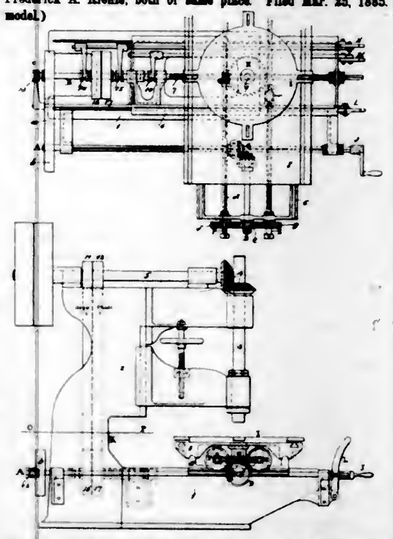
14. In a gas-engine, in combination with a small dynamo, the rod and lever 7, and the spring-pointed igniter, with the lugs to come in contact therewith, substantially as and for the purpose herein described.

15. In a gas-engine, a centrifugal governor and movable eccentric under control of same, in combination with the sliding sleeve and cam, and the gas-inlet valve and a lever operating said valve by said cam, substantially as and for the purpose herein described.

16. In a gas-engine, the movable eccentric on a revolving shaft, controlled in the length of its stroke by a centrifugal governor, in combination with the sliding sleeve, the double-ported slide-valve, and the air-compressor and gas-measuring pump, substantially as and for the purpose herein described.

349,000. MARBLE COUNTERSINKING AND MOLDING MACHINE.

WILLIAM F. POHEK, Philadelphia, Pa., assignor to Henry B. Riehlé and Frederick A. Riehlé, both of same place. Filed Mar. 25, 1885. (No model.)



Claim.—1. In a marble molding or countersinking machine, the table I, provided with the worm-wheel H, combined with the worm G, shaft F, upon which it is free to slide lengthwise and by which it is rotated, the shaft A, driven from the main driving-shaft, and connections between the shafts A and F, substantially as described.

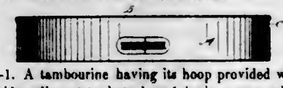
2. In a marble molding or countersinking machine, the combination, with the work-table, of its carriage upon which it is rotarily mounted, a feed-shaft connected to said table to rotate it, a feed-shaft connected to said carriage to move it transversely of the machine, a sub-carriage upon which the carriage is mounted, a feed-shaft to move it longitudinally of the machine, a frame-work to support these parts, gearing connecting said several feed-shafts and connections with a source of power, and independent clutches engaging said feed-shafts and hand-levers to operate them to render said feed-shafts or any of them operative or inoperative at will to control the feed of the table, carriage, and sub-carriage, substantially as described.

3. In a marble molding or countersinking machine, the combination, with the work-table, of its carriage upon which it is mounted, a worm-wheel on said table, and worm-shaft on the carriage to rotate said table, adapted to be rendered operative or inoperative at will, a feed-shaft connected to said carriage for traversing it crosswise of the machine in either direction, a sub-carriage mounted upon the frame-work of the machine, and having a feed-shaft adapted to be connected with or disconnected from the source of motion, a driving-shaft connected with the several feed-shafts, and interposed means for rendering said feed-shafts operative or inoperative at will, substantially as described.

4. The combination of the frame-work, sub-carriage mounted thereon and provided with a feed-screw, carriage mounted on said sub-carriage, and feed-screw for it, a table arranged upon the carriage and provided with a worm-wheel and worm-shaft, and the operating mechanism therefor, consisting of the shafts A and D, gearing C and *e f g*, shaft B belted to shaft A, and driven in either direction from the main shaft 5, the clutch 13 and its lever L, for rendering the shafts A operative or inoperative, the clutch 10, operated by lever M, for rendering the shaft 7 operative or inoperative, and the clutches 14 and 15 and lever N, for reversing the motion of the parts, substantially as described.

349,001. TAMBOURINE.

CHARLES N. POST, Chicago, Ill., assignor to himself, George W. Lyon, Patrick J. Healy, and Robert B. Gregory, all of same place. Filed June 10, 1886. (No model.)



Claim.—1. A tambourine having its hoop provided with an annular rib or shoulder adjacent to that edge of the hoop over which the head is drawn, combined with the head drawn over said rib and secured to the body of the hoop along a line adjacent to the rib, substantially as described.

2. In a tambourine, the hoop provided with an annular seat or groove formed in its outer side adjacent to the edge over which the head is drawn, the said head being drawn over the hoop and secured in said annular seat or groove, substantially as described.

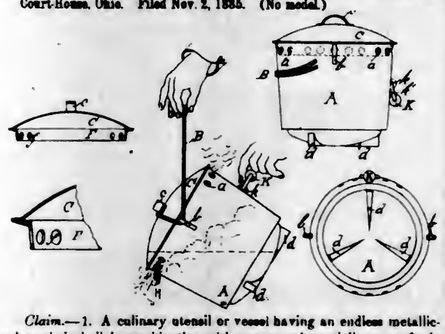
3. In a tambourine, the hoop provided with an annular seat or groove formed in its outer side adjacent to the edge over which the head is drawn, whereby a rib or shoulder is formed between said edge and groove, in combination with the head drawn over said rib and secured along its edge portion, secured within said groove by an annular band, substantially as described.

4. In a tambourine, the combination, with the head and the hoop, of means for securing the head to the hoop, consisting of a band provided with spurs which are forced through the edge portion of the head and pressed into the body of the hoop, substantially as described.

5. In a tambourine, the hoop provided along its outer side with a continuous seat or groove formed adjacent to that edge of the hoop over which the head is drawn, in combination with the head stretched over said edge of the hoop and held within the said groove by a metal band fitted in said groove against the edge portion of the head and provided with spurs, substantially as described, which are forced through the material of the head and pressed into the body of the hoop.

349,002. CULINARY UTENSIL.

EDWIN R. PROUTER, Washington Court-House, Ohio. Filed Nov. 2, 1885. (No model.)



Claim.—1. A culinary utensil or vessel having an endless metallic cord or chain bail, in combination with a cover, substantially as set forth.

2. The combination of a culinary utensil, A, having the ears *b* and bail B, with a cover, C, having a handle, *c*, and flange F, substantially as and for the purpose described.

349,003. SNAP-HOOK.

GEORGE QUACKENBUSH, Bath, N. Y. Filed May 28, 1886. (No model.)



Claim.—In a snap-hook, the body A, provided with the loop B at one end, and the hook D upon its inner side for the strap to catch in, in combination with the spring C, substantially as shown and described.

349,004. FASTENING FOR COUPLING OR JOINT PINS.

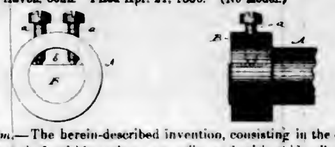
MORRISON RENSHAW and WILLIAM H. HORNER, St. Louis, Mo. Filed June 24, 1886. (No model.)



Claim.—A coupling-pin having a head or stop at one end and a spring secured in a pocketed recess at or near the other end, so as to form a spring-stop, substantially as and for the purpose specified.

349,005. DEVICE FOR ADJUSTING SHAFTS.

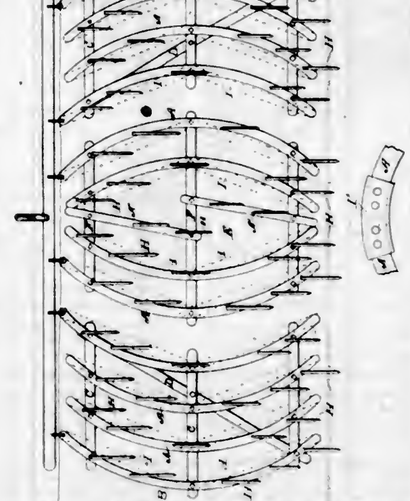
FRANK P. SARGENT, New Haven, Conn. Filed Apr. 21, 1886. (No model.)



Claim.—The herein-described invention, consisting in the combination, with a shaft within a sleeve or collar and with said collar, of two set-screws passing through said sleeve or collar and adapted to impinge upon suitable seats formed in or upon said shaft, so arranged that the pressure of each of said set-screws is exerted upon said shaft in a direction to one side of its center or tangent to a circle concentric therewith, substantially as set forth.

349,006. HARROW.

EDWIN C. SHERWIN, Brandon, Wis. Filed May 17, 1886. (No model.)

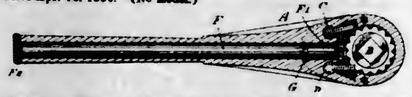


Claim.—1. A harrow composed of a series of curved or inclined tooth-bars arranged with their concave faces toward the center of the harrow, a median and end cross-pieces connecting the series of bars, the short inclined tooth-bars located in the center of the harrow and arranged on opposite sides of the cross-piece, and secured at their inner ends to the median cross-piece and at their outer ends to the end cross-pieces, substantially as shown.

2. A harrow composed of the central section having the curved or inclined tooth-bars arranged with their concave sides toward the center of the harrow and the short inclined tooth-bars, arranged as described.

and the side sections having the curved or inclined parallel tooth-bars, arranged as described, as and for the purpose herein set forth.

349,007. RATCHET-WRENCH. JOHN E. SINCLAIR, Worcester, Mass. Filed Apr. 10, 1886. (No model.)



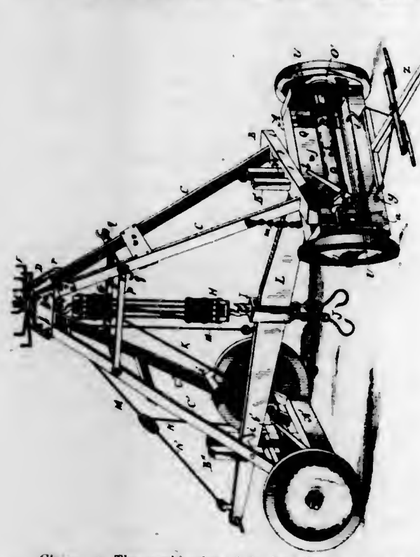
Claim.—1. The shaft F, having an eccentric or crank pin, and the sliding plate E, adapted to be operated by the eccentric or crank pin, in combination with a pair of pawls operating together, substantially as and for the purpose specified.

2. The combination, with the socket-head of a wrench having a ratchet-wheel and a pair of pawls, of a shaft having means of operating the said pawls, the shaft projecting through the frame containing the said socket-head, substantially as and for the purpose specified.

3. The combination, with a pair of pawls, of a shaft provided with a crank-pin and a slotted plate adapted to be operated by the said crank-pin, for the purpose of controlling the said pawls, substantially in the manner and for the purpose specified.

4. The combination, with a pair of pawls, of a shaft provided with a crank-pin and a sliding plate having a slot so adjusted to the travel of the crank-pin that the plate will be locked at each end of its travel by the crank-pin going beyond the center and striking the end of the slot, substantially in the manner and for the purpose specified.

349,008. STUMP-EXTRACTOR. GEORGE Y. SMITH and EDGAR A CHARLES, Cedar Rapids, Iowa. Filed Jan. 11, 1886. (No model.)



Claim.—1. The combination of the base-frame, means for raising and lowering the said frame, a hydraulic lifting-jack carried by the frame and moving therewith, and the lever to be acted on by the jack, substantially as described.

2. The combination of the base-frame, means for raising and lowering said frame, a hydraulic lifting-jack carried by the frame and moving therewith, the lever to be acted on by the jack, the block through which the lever passes, and the grappling-hooks connected with the block, substantially as described.

3. The combination of the hydraulic jack with the lever L, block I, grappling-hooks J, tackle G H, and cable K, substantially as set forth.

4. The combination, with the frame C C', of the cap-plate D, the screw passing through the plate, the rotary nut F, the upper and lower tackle-blocks, G H, the cable K, the block I, suspended from the lower tackle-block, the lever L, passing through the suspended block, and the grappling-hooks connected with the latter, substantially as described.

5. The combination of the lever L with the hydraulic jack X Y, blocks and tackle G H, cable K, block I, and screw E, substantially as set forth.

6. The combination of the adjustable bases A A' with the lever L and hydraulic jack X Y, substantially as specified.

7. The combination of the wheeled axle O', the rotating sleeve O on the axle, the base vertically movable on and guided by the axle, the racks Q on said base, and the pinions P on the sleeve for raising and lowering the base on the axle, substantially as described.

8. The combination of the wheeled axle, the vertically-movable base having notches or racks R, rack-and-pinion mechanism for raising and lowering the base, the detents S, adapted to the said notches or racks, and the rocking rod T, connecting the detents, substantially as described.

9. The combination of the wheeled axle, the vertically-movable base having notches or racks R, rack-and-pinion mechanism for raising and lowering the base, the detents S, adapted to the said notches or racks, the rocking rod T, connecting the detents, and the lever *a*, having the pendent arm e to act on the rod, substantially as described.

10. The combination of the lever *a*, having the pendent portion *e*, with the spring *d*, the rod T, detents S, and notches or racks R, substantially as specified.

11. The combination of the plates U with the base A, forming axle-slots, whereby the base is permitted to rest upon the ground when the device is in operation, to relieve the wheels from all weight or strain, substantially as described.

12. The combination of the pins *l* and eyes *n* with the base A and bolster B, substantially as and for the purpose specified.

13. The combination of the wheeled axle, base A', arranged on the axle and adapted to turn to an approximately horizontal position, the rear frame, C', the folding front frame, C, and the cap D, connecting the upper ends of the two frames, and to which the folding frame is pivoted, substantially as described.

14. The combination, with the rear frame, C', the head-block D, the folding front frame, C, pivoted to the head-block, the screw E, the rotating nut, the tackle-blocks G H, and cable K, substantially as described.

15. The combination of the front and rear frames, C C', the head-block D, connecting the upper ends thereof, the screw E, passing through the head-block, the upper tackle-block, G, suspended from the screw, the lower tackle-block, H, the connecting-cable K, and the grappling-hooks J, substantially as described.

16. The combination of the head-block D, frame C, bolster B, bases A A', and guides B'' with the lever L, having the holes *t*, whereby the lever may be made to operate as a reach and to prevent spreading, substantially as described.

17. The combination of the frame C', folding frame C, provided with the hole *o*, in combination with the sleeve O, having the hole *k*, and the base A, having the hole *j*, with the king-bolt W, substantially as specified.

18. The combination of the frame C' and hinged frame C, having the hooks or projections *r*, with the guide or sway bar V, substantially as specified.

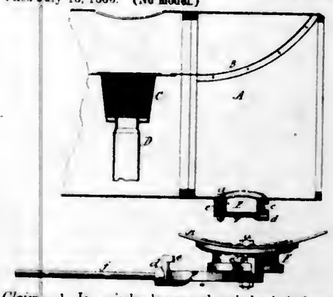
19. The combination of the frame C' and hinged frame C with the pins *h* and hooks *i*, substantially as set forth.

20. The combination of the frames C C', the tackle mechanism suspended from the upper ends of the frame, the lever L, the block I on the lever, connected with the tackle mechanism, and the cables M and N, connected, respectively, with the lever for manipulating the same, substantially as described.

21. The combination, with the wheeled axle, the frame, the tackle-blocks G and H, suspended from the frame, and the cable K, of the lever L and the block I, connected with the lower tackle-block and mounted on the lever, substantially as described.

22. The combination and arrangement of the bases A A', frames C C', head-block D, and screw E with the lever L, movable block I, pulleys G H, rope K, and roller K', whereby horse or other power may be applied to aid in or complete the lifting, substantially as set forth.

349,009. CINDER-HOPPER. GEORGE Y. SMITH, Cedar Rapids, Iowa. Filed July 13, 1886. (No model.)



Claim.—1. In a cinder-hopper, the cinder-hole iron E, having an inclined flange, *e*, opposite the pivot-bolt *a*, in combination with the gate F, having the lug *c*, substantially as and for the purpose set forth.

2. In a cinder-hopper, the cinder-hole iron E, having a semicircular lateral projection at one side, provided with an inclined portion on its upper side, and a reverse cam on the upper side of the flange opposite, in combination with the gate F, having the lateral inwardly-returning lugs *c c'*, all substantially as and for the purpose set forth.

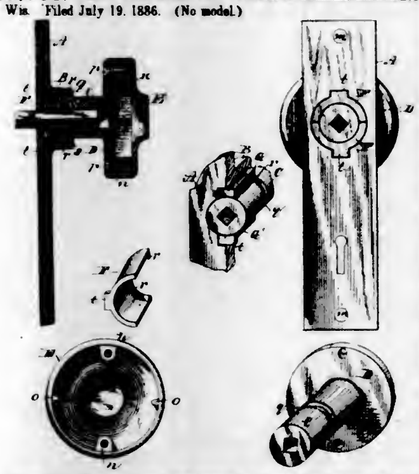
3. In a cinder-hopper, the combination of the cinder-hole iron E, as described, the gate F, having the lugs *c c'* and the socket *d*, and the detachable bar *f*, substantially as specified.

349,010. SANITARY MUFFLE FOR VESSELS. PERCY S. SOWERS, Canton, Ohio. Filed Mar. 5, 1886. (No model.)



Claim.—The combination, with a cover or lid having a downwardly-projecting rim, *o*, of the muffle consisting, essentially, of two flat rubber bands joined at their outer edges, the upper section or ring of said muffle resting on the outer edge of the surface of the lid or cover, and the lower section passing in a straight line from the outer edge of the cover or lid down under the rim *o*, forming a cushion, substantially as set forth.

349,011. KNOB ATTACHMENT. CHARLES E. STELLER, Milwaukee, Wis. Filed July 19, 1886. (No model.)

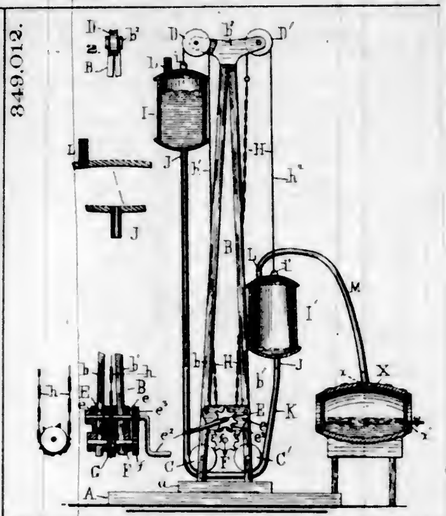


Claim.—1. In door-knob attachments, a knob-shank provided with a groove about it, in combination with an escutcheon provided with a chambered rose having an outer wall or shoulder, *s*, and one or more retaining boxes or keys, each provided with an inwardly-projecting flange, *r*, substantially as described.

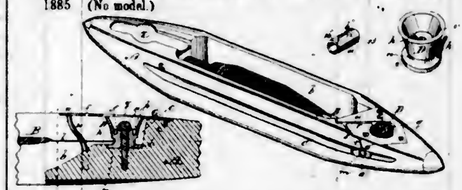
2. In door-knob attachments, a knob-shank, C, provided with a groove, *q*, about it, in combination with a box or key provided with an inwardly-projecting flange, *r*, and an outwardly-projecting lug, *t*, and an escutcheon provided with a chambered rose for the reception of the box or key and a recess for the lug *t*, substantially as described.

349,012. APPARATUS FOR FORCING BEER FROM KEGS. GEO. SURRATT and HARRY HEYMAN, Gainesville, Tex. Filed July 9, 1886. (No model.)

Claim.—The combination of the base-plate A, provided with the block *a*, the standard B, rising therefrom and composed of the legs *b b'* and cross-head *b²*, the pulleys C C' and D D', journaled in the standard, the gear-wheels *e²* and *f*, respectively upon the shafts E and F, the chain-wheel G, the compound belt H, the similar receptacles, I I', and the rubber tubes K and M, all constructed and arranged substantially as and for the purpose specified.



349,013. LOOM-SHUTTLE. AMOS B TAYLOR, Wollaston, and JACOB P. TIRRELL, Chelsea, Mass., assignors to said Taylor. Filed June 27, 1885. (No model.)



Claim.—1. The combination, with a shuttle-body provided with a thread educt or eye, of a swiveled thread-guiding thimble, D, secured in a recess in the shuttle-body, having continuous closed sides diverging upwardly from the base, a tension pin or arm, *k*, and an annular groove formed around its base, whereby the thread is prevented from working upward, substantially as herein described.

2. The combination, with the shuttle-body having a thread educt or eye and a slit or throat, *t*, in the side leading thereto, of a swiveled thread-guiding thimble having continuous upwardly-diverging closed sides, and a tension pin or arm, *k*, and a thread-guiding plate having a projecting tongue, *u*, a circular opening around the top of the thimble, and a narrow slit, *r*, formed between the tongue and main portion of the plate, and extending diagonally from the circular opening to and communicating with the slit or throat in the shuttle-body, substantially as herein described.

3. The combination, with a shuttle-body having an eye or perforation and a slit or throat, *t*, extending therefrom to the bobbin or cop holding chamber, of an eye-piece or bushing, *a'*, provided with a slit, *b'*, having a straight portion, 12, and a slot, 13, extending diagonally to bring its outside entrance to one side of the slit or throat *t*, whereby the escape of the thread from the eye is prevented, substantially as herein described.

4. The combination, with a shuttle-body having an eye or perforation and a slit, *t*, of an eye-piece or bushing, *a'*, provided with a slot, *b'*, having a straight portion, 12, parallel with the longitudinal axis of the eye-piece, and a slot, 13, communicating with and extending diagonally from the portion 12, thereby forming a guard, 16, which lies under the lower end of the slit *t* of the shuttle-body, substantially as herein described.

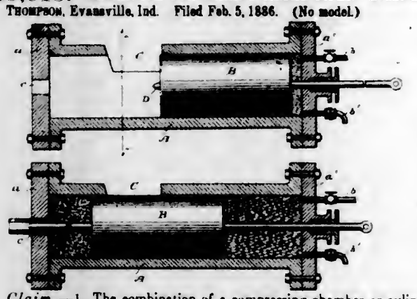
5. The combination, with the conical thimble having continuous closed sides and the pin extending upward from the base of the thimble, of the plate G, having opening *q* and slit *r* formed therein, and the slit *s* between it and the wall of the shuttle-body, the shuttle-body having the slit *t*, and the shuttle eye-piece having the slits 12 13, substantially as herein described.

6. The combination, with the shuttle-body having the recess *c*, the slit *t*, and the eye *m*, of the eye-piece *a'*, having the slits 12 13, the plate G, having the bent arm *w*, and formed with the opening *q* and the slit *r*, and having slit *s* between it and the shuttle-body, the thimble D, having the continuous closed conical sides, the groove *n*, base *i*, holes *h*, arm *k*, and flaring head, and the screw *e*, with its washer *f*, all constructed and arranged to operate substantially as herein described.

349,014. COSMETIC WASH. LEVI K. TEMPLETON, THOMAS B. REED, and WILLIAM H. REED, North Springfield, Mo. Filed Mar. 24, 1885. (No specimens.)

Claim.—A cosmetic lotion consisting of rose-water, fifty-six ounces; borax, one hundred and twenty grains; glycerine, fifty-six ounces; carbolic acid, six drams; water of ammonia, twenty-four ounces; alcoholic extract of wild olive, one ounce, and oil of cloves, one dram, the whole prepared and compounded substantially as and for the purposes specified.

349,015. MECHANISM FOR MAKING METAL PIPES. EVERT M. THOMPSON, Evansville, Ind. Filed Feb. 5, 1886. (No model.)

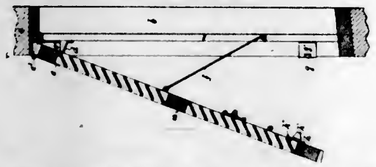


Claim.—1. The combination of a compressing chamber or cylinder, a die formed axially through one of its heads or ends, a plunger moving from the other end, a punch of smaller diameter than the die passing axially through said plunger, and mechanism whereby said plunger is advanced along the compressing-chamber and the punch forced through the metal and into the die to act as a mandrel as the plunger continues its compressing movement.

2. The combination, substantially as hereinbefore set forth, of the compression chamber or cylinder apertured at a point along its length to permit the introduction of a bloom, and bored axially at one end to form a die for the exterior of the tube to be formed, the plunger fitted within said chamber to reciprocate therein, the hydraulic induction-pipe passing through the head or end of the chamber opposite the die, and the punch, of smaller diameter than the die, passing axially through said end and through the plunger, and actuated by suitable mechanism to pierce the bloom introduced within said chamber and enter the die to form a mandrel for the interior of the pipe drawn from said bloom.

3. The combination, substantially as hereinbefore set forth, of the cylinder A, having an aperture along its length for the introduction of a bloom, the head *a*, having a bore axially of said cylinder to provide a die for the exterior of the tube to be formed from the bloom, the head *a'*, the hydraulic induction-pipe, the discharge-pipe and its cut-off cock, the plunger B, and the punch D, of lesser diameter than the die, passing axially through said plunger and through the adjacent head.

349,016. HINGE FOR AWNING-BLINDS. HENRY S. TUCKER, Faulkner, Mass. Filed June 14, 1886. (No model.)



Claim.—1. In a blind awning, the upper fixture consisting of the box *e'*, having vertical sleeve *e''* hinged on the stationary hinge-bracket *d*, and having hinged to its upper and outer end the plate *e*, adapted to be secured to the outside of the blind, as set forth.

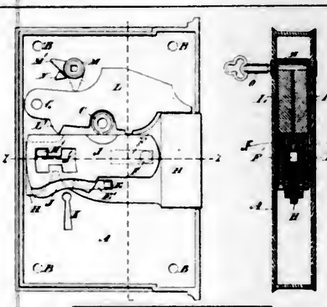
2. In a blind awning, the lower fixture consisting of the two angular plates *g g*, hinged together by means of pin *g''* in their outer ends, the plate *g* being held stationary, and the plate *g'* provided with a slot-hole, g^3, adapted to receive the button *h'* on the plate *h*, attached to the lower portion of the blind, as set forth.

349,017. LOCK. GEORGE B. UNDERWOOD, Toronto, Ontario, Canada. Filed Apr. 12, 1886. (Model.)

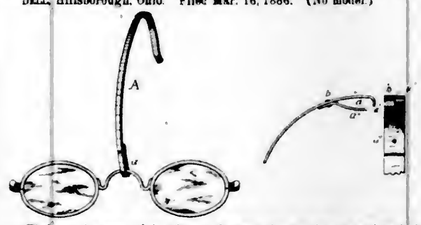
Claim.—1. The gravitating levers L, pivoted to the lock-case, in combination with the tumblers J and bolt H, to give increased resistance to the key, as set forth.

2. The combination, with the lock-case A, having posts E F G, and bolt H, having slots E' F', and stud H', of the tumblers J and gravitating levers L, oppositely pivoted, whereby the pivoted end of the levers will be above the free end of the tumblers and the free end of the levers be above the pivoted end of the tumblers, as set forth.

349,017.

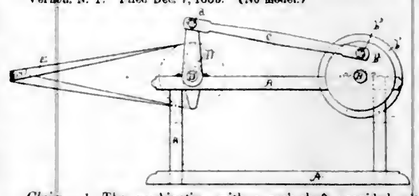


349,018. SPRING-HOLDER FOR SPECTACLES. ROBERT R. WADDELL, Hillsborough, Ohio. Filed Mar. 16, 1886. (No model.)



Claim.—As an article of manufacture, the pendent eyeglass-holder consisting of a spring, A, having a loop, *a*, at one end and parted at *a'*, and each part bent to a curve, substantially as and for the purpose described.

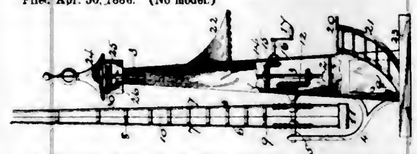
349,019. MOVEMENT-CURE APPARATUS. DAVID WARK, Mount Vernon, N. Y. Filed Dec. 7, 1885. (No model.)



Claim.—1. The combination, with a rock-shaft provided with a radial arm and means for operating said rock-shaft, of a strap of flexible material connected with said radial arm on opposite sides of the rock-shaft, substantially as and for the purpose set forth.

2. The flexible rubbing-band E, the vibrator D', rock-shaft D, connecting-rod C and its attaching-cranks b^2 *d*, and the rotary driving-wheel b^2, combined substantially as described, so as to form a frictional manipulator, as set forth.

349,020. RAILWAY-GATE. SYLVESTER J. WETMORE, Lowville, N. Y. Filed Apr. 30, 1886. (No model.)



Claim.—1. A railway crossing gate consisting of vertical hollow posts or towers at the crossings to be guarded, each having a shaft-bearing extending transversely across the interior thereof, a vertical shaft journaled upon said bearing within said posts and extending upwardly therein, operative gearing connected to one of said vertical shafts, horizontal shafts, each having suitable bearings on said posts and connected to the vertical shafts so as to be operated therewith, gate-beams secured to said horizontal shafts, a pair of toothed wheels mounted upon the upper end of each of said vertical shafts, and longitudinally and transversely extending cables, substantially as described, for connecting the series of toothed wheels on the upper ends of the vertical shafts, whereby the series of vertical shafts and the gate-beams connected thereto may be operated in unison, substantially as set forth.

2. A railway-crossing gate having a series of upright posts located at the intersections of the crossings, each having a shaft-bearing secured within and near the bottom thereof, a vertical shaft journaled in said bearing and within each post, toothed wheels mounted at suitable distances apart upon said shafts and near the lower ends thereof, an operating-crank journaled in the side of one of said posts, and having on its inner end a suitable gear to engage with the upper of said toothed wheels and rotate the same and the shaft to which it is connected, horizontal shafts having bearing in the sides of said posts, and each having a toothed wheel engaging with the lower of said toothed wheels on the vertical shafts, brackets extending outwardly from said posts, within which the outer ends of said horizontal shafts are journaled, barriers fixed upon said horizontal shafts, a pair of toothed wheels mounted upon the upper end of each of said vertical shafts, cables extending parallel with the track and engaging with one of the toothed wheels on the upper ends of and connecting each pair of vertical shafts, and cables extending transversely across the track, and each engaging one of the toothed wheels on and connecting a pair of the vertical shafts, all substantially as and for the purpose set forth.

3. A railway-crossing gate having a series of upright hollow posts or towers located at the intersections of the crossings, vertical rotatory shafts having bearings within said hollow posts, suitable gear secured to the lower portion of said shafts, barriers, horizontal shafts supporting said barriers and engaging the gear on the vertical shafts, a crank engaging said gearing on one of said vertical shafts, a pair of toothed wheels fixed to the upper end of each vertical shaft, one above the other, and independent cables, as described, each engaging two of said lower wheels, and similar independent cables, each engaging two of said upper wheels, substantially as and for the purpose set forth.

349,021. COFFEE-MILL ATTACHMENT. EMIL U. WIESENDANGER, Comanche, Texas. Filed May 3, 1886. (No model.)



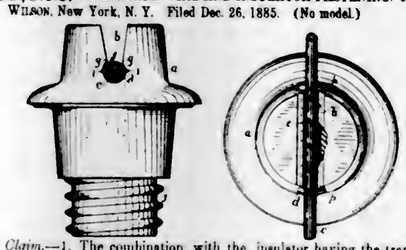
Claim.—1. An attachment for supporting receptacles for coffee-mills, comprising a bracket-plate, a carrying-plate attached thereto, and the laterally-yielding arm secured to the carrying-plate, substantially as described.

2. A receptacle-supporting attachment for coffee-mills, comprising a bracket-plate having an angular flange, a right-angled carrying-plate detachably secured to the flange of the bracket-plate, and the spring-arms for receiving a receptacle and arranged at right angles to the carrying-plate, substantially as described.

3. The combination, with the back plate of a coffee-mill, of a bracket-plate detachably secured thereto, a carrying-plate secured to the bracket-plate, and the laterally-yielding supporting-arms carried by the carrying-plate, substantially as described.

4. The combination, with the back plate or board of a coffee-mill, of a bracket-plate detachably secured thereto, a carrying-plate, the longitudinally-curved arms made in a single piece of metal and secured to the carrying-plate, and a binding-screw passing through the arms for bracing the latter, substantially as described.

349,022. TELEGRAPH-WIRE AND INSULATOR FASTENING. JNO. WILSON, New York, N. Y. Filed Dec. 26, 1885. (No model.)



Claim.—1. The combination, with the insulator having the transverse groove *b*, angular projections *g* of the side walls, and the wider bottom portion, *d*, of said groove, and with the telegraph-wire laid in said groove, of a fastener coiled around the wire in the groove and forming chocks against said projections, substantially as described.

2. The combination, with the insulator having the transverse groove *b*, angular projections of the side walls, and the wider bottom portion of said groove, and with the telegraph-wire laid in said groove, of a fastener coiled around the wire in the groove and forming chocks against said projections, said fastener having stops at the ends against the sides of the insulator, substantially as described.

349,023. UMBRELLA. H. A. W. WOOD, New York, N. Y. Filed Sept. 4, 1885. (No model.)

Claim.—1. A telescopic umbrella-handle composed of two sections, in combination with a traveler, all arranged and constructed so that the upper section slides within the lower section as far as the crown-piece of the upper section when the umbrella is shut up, and said traveler slides off the lower section directly upon the upper section when the umbrella is opened, whereby a minimum length is secured when the umbrella is shut up, substantially as and for the purposes set forth.

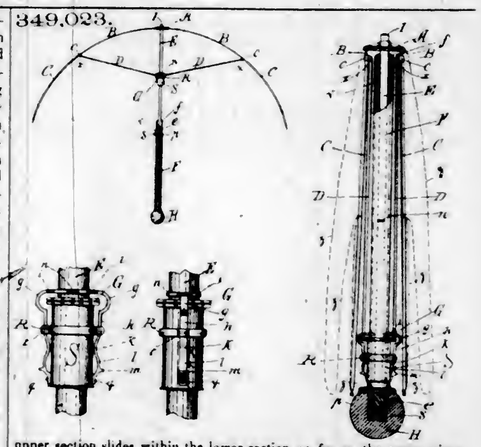
2. In combination with the traveler of an umbrella-frame, a pair of clamping-jaws, as *g g*, and a sliding ring, as R, for closing and releasing said jaws, substantially as and for the purposes set forth.

3. In combination with the traveler of an umbrella-frame, a pair of clamping-jaws, as *g g*, each constructed with a recess, as K, and provided with a sliding ring, as R, substantially as and for the purposes set forth.

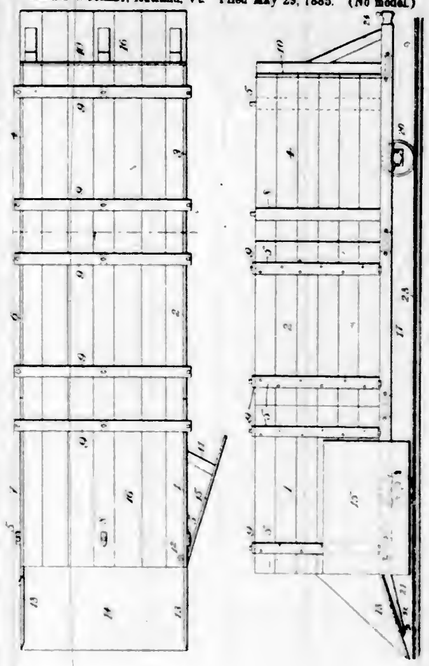
4. In combination with the traveler of an umbrella-frame, a pair of clamping-jaws, as *g g*, a sliding ring, as R, for clamping and releasing said jaws, and a stop or stops, as *m*, for supporting said ring, substantially as and for the purposes set forth.

5. In combination with an umbrella-handle provided with a groove, as *n*, a traveler, as S, provided with compressing or clamping jaws, as *g g*, and a sliding ring, as R, whereby said traveler is clamped to said handle, substantially as and for the purposes set forth.

349,023.



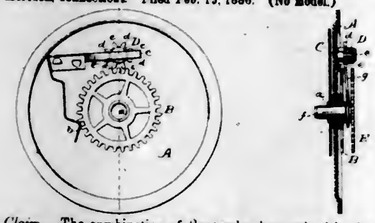
349,024. CAR FOR REMOVING SNOW FROM RAILROADS, &c. JOSEPH WOOLLEY, Rutland, Vt. Filed May 29, 1885. (No model.)



Claim.—1. The combination of a car with hinged sides, as 1 2 3, &c., fastened by means of the straps 9, for the purpose set forth.

2. In combination with the car, the riser 14, with the cutting sides 13 and brace 21, and the set-screw 22, for raising or lowering the riser 14.

349,025. CALENDAR-CLOCK. FRANK M. WRIGHT, Bristol, and WARREN M. WOOD, Cheshire, assignors to the Parker & Whipple Company, Meriden, Connecticut. Filed Feb. 19, 1886. (No model.)



Claim.—The combination of the twelve-hour wheel having an operating-spur, the day-of-the-month wheel, and the pinion D, the latter provided with full teeth and half-teeth, all of which engage the spur or point of the twelve-hour wheel, and only half of which engage the teeth of the day-of-the-month wheel, substantially as described, and for the purpose specified.

349,026. INKING-RIBBON FOR TYPE-WRITING MACHINES. GEO. K. ANDERSON, Memphis, Tenn. Filed Dec. 27, 1884. Renewed Feb. 15 1886. (No model.)



Claim.—1. An ink-charged ribbon having its main body charged with ink of one color and the remaining portion charged with ink of contrasting color, substantially as and for the purpose set forth.

2. A ribbon for type-writing or printing machines, having a small portion near its end or ends charged with ink of one color, and the body of the ribbon each side of said portion charged with ink of a different color.

349,027. MACHINE FOR CUTTING SUGAR. WILHELM BAUR and JOHN V. V. BOORAEM, Brooklyn, N. Y. Filed Jan. 18, 1886. (No model.)

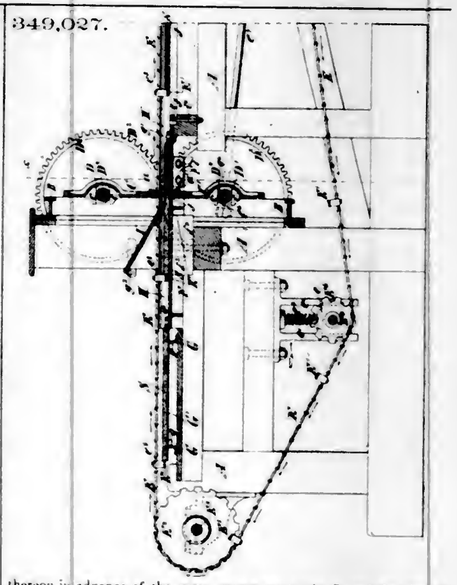
Claim.—1. The combination, with a reciprocating cutter and endless travelers connected by cross-bars which carry the sugar forward to the cutter, of tracks extending transversely to the direction of movement of the travelers and beneath them, whereby provision is afforded for sliding beneath the travelers plates on which the sugar is supported, substantially as herein described.

2. The combination, with a reciprocating cutter and endless travelers connected by cross-bars which carry the sugar forward, of tracks extending transversely to the direction of movement of the travelers and beneath them, the cross-bars being depressed below the line of travel of the travelers so as to occupy the same plane as the sugar introduced beneath the travelers, substantially as herein described.

3. The combination, with a reciprocating cutter and the endless traveler E and their cross-bars E', of the transverse tracks or ways G below the travelers, and the plates G', having snugs or projections *g*, which engage with the tracks and hold the plates in proper position thereon, substantially as herein described.

4. The combination, with a reciprocating cutter and endless travelers connected by cross-bars for carrying the sugar to the cutter, of a stationary bed forward and in rear of the cutter for supporting the sugar during the cutting operation, the transverse tracks G below the travelers, and the plate G', sliding on the tracks and having its upper surface flush with the adjacent end of the stationary bed, substantially as herein described.

5. The combination, with a reciprocating cutter and endless travelers connected by cross-bars for carrying the sugar forward, of the stationary bed for the sugar during cutting, movable weights *g'*, placed



thereon in advance of the sugar, transverse tracks G, and the plate G', sliding thereon, substantially as herein described.

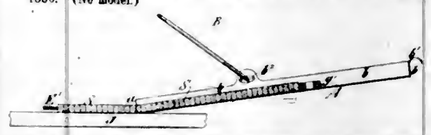
6. The combination, with a reciprocating cutter and endless travelers connected by cross-bars for carrying the sugar forward, of a grating in front of the cutter and over which the cut sugar passes to its point of delivery, and is thereby freed from dust and fine chips, substantially as herein described.

7. The combination, with a reciprocating cutter and endless travelers connected by cross-bars for carrying the sugar forward, of a grating composed of parallel bars extending in the direction of movement of the travelers and over which the cut sugar passes to a point of delivery and is thereby freed from dust and chips, substantially as herein described.

8. The combination, with a reciprocating cutter and a bed for supporting the sugar while being cut, of endless travelers connected by cross-bars, which, by coming behind the sugar, move it forward, and a weight arranged above the bed and under which the sugar passes, and which rests upon the sugar to prevent its lifting and to prevent its being thrown ahead by momentum, substantially as herein described.

9. The combination, with the side guides, H, and the upper and lower cutters, *a a'*, entering between the guides, of the endless travelers and cross-bars connecting them and depressed between them so as to pass between the cutters, the upper cutter being of a length to enable the offsets at the ends of the cross-bars to pass it, substantially as herein described.

349,028. TRAY FOR PICKING UP AND HANDLING CUT SUGAR. WILHELM BAUR and JOHN V. V. BOORAEM, Brooklyn, N. Y. Filed Jan. 18, 1886. (No model.)



Claim.—1. A tray for handling cut sugar, open at the front and having an upwardly-projecting rim at the back and sides, and having a handle at the back and a bail fixed to it between its ends, substantially as herein described.

2. The tray herein described, open at the front and having an upwardly-projecting rim, *b*, at the back and sides, and having a bail, B, fixed to it at a point nearer the front than the back, substantially as herein set forth.

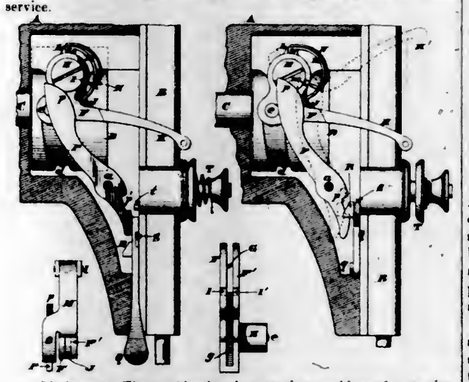
3. The combination, with the tray herein described, open at the front and having an upwardly-projecting rim, *b*, at the back and sides, and also having a bail, B, fixed to it at a point nearer the front than the back, of a weight, *g'*, adapted to fit between the sides of the tray and to be placed in the tray in advance of the sugar therein, substantially as herein set forth.

4. The combination, with the tray herein described, open at the front and having an upwardly-projecting rim at the back and sides, and

a bail, B, fixed to it at a point nearer the front than the back, of the L-shaped weight and evener C, of a length to fit between the sides of the tray and adapted to overlap the top and front of a layer of cut sugar in the tray, substantially as herein set forth.

349,029. SEWING-MACHINE TAKE-UP. IGNACE BIHL, Newport, Ky., and CHARLES PLATT, Cincinnati, Ohio. Filed Feb. 25, 1886. (No model.)

Brief.—The elevation of the presser-bar lifter acts successively to open the "tension," to uncouple the take-up lever from the driving-cam, and, finally, to raise the free end of said take-up lever to its highest point to prevent the thread pulling out of the needle at the next stroke, the take-up lever being maintained in this inoperative position until the presser-bar lifter is again swung down to bring the presser-foot into service.



Claim.—1. The combination, in a sewing-machine, of a tension mechanism, a cam operating a vibrating cam-plate, a take-up lever coupled to said plate, and a device for uncoupling said lever after said tension mechanism has been opened, substantially as herein described.

2. The combination, in a sewing-machine, of a tension mechanism, a cam operating a vibrating cam-plate, a take-up lever coupled to said plate by a spring-connection, and a device for disengaging said spring-connection after said tension mechanism has been opened, substantially as herein described.

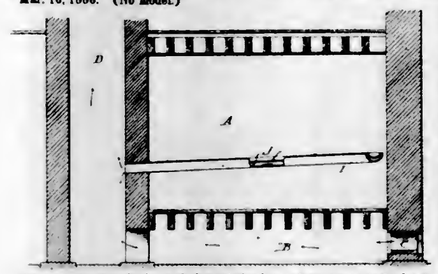
3. The combination, in a sewing-machine, of a tension mechanism, a cam operating a vibrating cam-plate, a take-up lever coupled to said plate by a spring-connection, and a pivoted switch that disengages said spring-connection after said tension mechanism has been opened, substantially as herein described.

4. The combination, in a sewing-machine, of a tension mechanism, a cam operating a vibrating cam-plate, a take-up lever coupled to said plate by a spring-connection, and a pivoted switch that disengages said spring-connection, which switch is actuated by the presser-bar lifter after the latter has opened said tension mechanism, substantially as herein described.

5. The combination, in a sewing-machine, of the notched and mortised cam-plates F *f* I F' *f'* I' G *g*, tenoned and notched take-up lever J *j'* i K, latch M, tooth *m*, spring N, pivoted switch P *p*, presser-bar lifter Q, wedges R S, and tension device T, said cam-plates being operated by the driving-cam, substantially as herein described.

6. In combination with the notched and mortised cam-plates F *f* I F' *f'* I' G *g*, tenoned and notched take-up lever J *j'* i K, latch M, tooth *m*, and spring N, adapted to operate as herein described, the lug L, projecting from the tenon J, and having one end of the latch in contact with it, for the purpose specified.

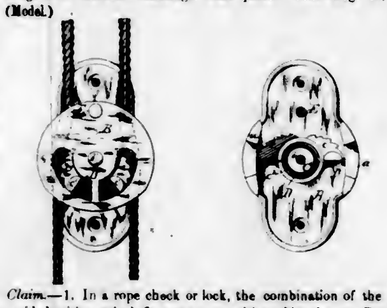
349,030. URINAL. EZEKIEL C. CONDIT, Kansas City, Mo. Filed Mar. 16, 1886. (No model.)



Claim.—1. A urinal consisting of the imperforate trough I and the perforated trough J, the two being arranged in relation to each other substantially as shown and described.

2. In combination with the ventilating-shaft D, the compound or double trough J I, constructed and arranged to operate substantially as and for the purpose set forth.

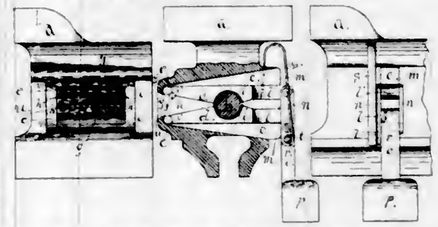
349,031. ROPE CHECK OR LOCK. GEORGE W. COOK, Chicago, Ill., assignor to Merrick Cummings, same place. Filed Aug. 19, 1885. (Model.)



Claim.—1. In a rope check or lock, the combination of the frame A, provided with vertical flanges *a a* on either side, the cap B, resting on said flanges *a a*, the overlapping cam-latches C C, placed between said frame A and cap B, and having in each a groove or recess, *c'*, the bolt or rivet *b'*, securing said frame, cap, and latches together, and the spring D, placed in said groove *c'* around said rivet *b'*, having its ends project against said latches to force them in opposite directions against said flanges *a a*, substantially as specified.

2. In a rope catch or lock, the combination of the frame A, cap B, and latches C C, all secured by the same bolt or rivet, *b'*, with the spring D, said latches being each provided with a corrugated cam-edge, the thickness whereof shall correspond with the space between the face of the frame A and the under face of the cap B, while the remaining portion shall be about one-half that thickness, so that the latches overlap each other, each latch being also provided with a vertically-projecting thumb-piece, *c'*, extending through proper openings in the cap B, whereby a rope or cord of as large diameter as the thickness of the corrugated portions of the latch C may be used, all operating substantially as shown and described.

349,032. VISE. JOHN ERNST, Bay City, Mich., assignor to Henry W. Simms, same place. Filed Dec. 2, 1885. (No model.)



Claim.—1. In a divided nut, the block *a*, having a chamber, *c*, and a screw, *b*, passing through the block and chamber, in combination with the levers *d d*, pivoted by one end within the chamber, and provided with the arms *l* and *l'*, extending beyond the walls of the chamber, the straps *n* and *n'*, pivoted to the arm *l'* by one end, and the lever *o*, pivoted by one end to the lever *l* and to the opposite end of the said straps *n* and *n'*, substantially as and for the purpose set forth.

2. In a divided nut, the combination, with the levers *d*, hinged at one end to the supporting-block *a*, and provided with the extended arms *l* and *l'*, and having in their central portions the threaded recesses *i*, of the lever *o*, pivoted by one end to the arm *l*, and the straps *n* and *n'*, pivoted at one end to the lever *o* and at the other end to the lever *l'*, and operating substantially as and for the purpose set forth.

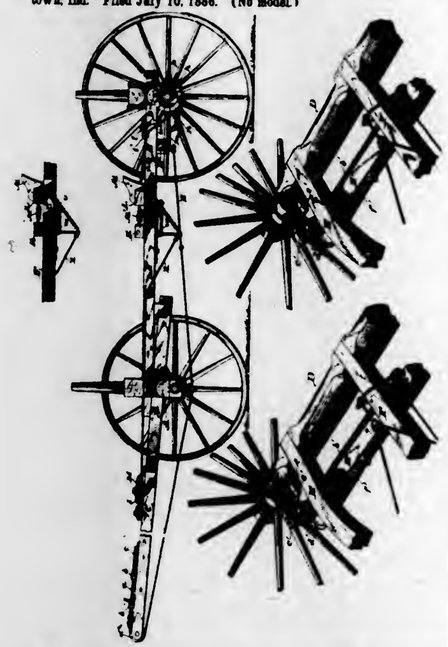
3. In a divided nut, the combination, with the levers *d*, pivoted by one end to a supporting-block, and having on their opposite ends the extended arms *l* and *l'*, and a threaded recess in their central portions, the lever *o*, pivoted by one end to the arm *l*, the straps *n* and *n'*, pivoted to the lever *o* and the arm *l'*, and the portion *t*, extending from the strap *n*, of the spring S, rigidly secured to the said supporting-block, and adapted to bear inward upon the lower end of the extended portion *t*, substantially as and for the purpose set forth.

4. In a divided nut, the supporting-block *a*, the chamber *c* within the block and provided with the side opening, *u*, and side recesses, *v*, and screw *b*, passing through the said block and chamber, in combination with the levers *d*, having the rounded pivots *e* extending from its

side edges, and adapted to engage with the recesses *v*, and with the threaded recesses *i*, adapted to engage with the said screw, and means, substantially as herein described, for opening and closing the free ends of the said levers, substantially as described, and for the purpose set forth.

5. In a divided nut, the supporting-block *a*, the chamber c within the block, and having the side recesses, *v*, and openings *m* and *u*, the screw *b*, passing through the block and chamber, the levers *d* on opposite sides of the screw and within the chamber, and having at one end the pivots *e*, projecting from their edges and engaging with the recesses *v*, and the threaded recesses *i*, adapted to engage with the screw, in combination with the pin *h*, passed through the side walls of the chamber, and adapted to retain the pivots *e* within the recess, substantially as and for the purpose set forth.

349,033. **AUTOMATIC VEHICLE-BRAKE.** HENRY FATIC, Middletown, Ind. Filed July 10, 1886. (No model.)



Claim.—1. The combination of the brake, the clutches connected thereto and adapted to engage the wheels of the vehicle, means connecting the said clutches with the neck-yoke, for the purpose set forth, and the cams and tappet-arms to withdraw the clutches from the vehicle-wheels when the brakes are applied, substantially as described.

2. The combination of the neck-yoke, the bell-crank levers *m*, connected thereto, the clutches connected to the said bell-crank levers and adapted to engage the rear wheels of the vehicle, and the brakes connected to the said clutches, for the purpose set forth, substantially as described.

3. The combination of the sliding clutches connected to the neck-yoke of the vehicle and to the brakes, and adapted to engage the rear wheels of the vehicle, and the cams for withdrawing the said clutches from the said wheels, substantially as described.

349,034. **COLLAR-STUFFING MACHINE.** WASHINGTON FOGLESONG, Dayton, Ohio. Filed Jan. 25, 1886. (No model.)

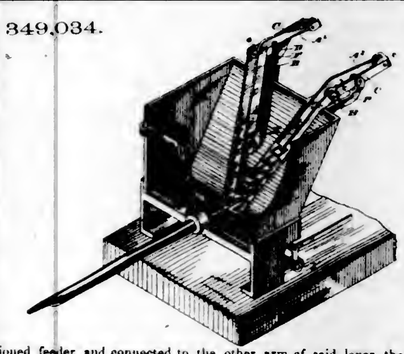
Claim.—1. The combination, substantially as before set forth, of the stuffing-rod and two sets of alternately-feeding feeders, all operating substantially as described.

2. The combination, substantially as before set forth, of the stuffing-rod and two sets of converging alternately-feeding feeders.

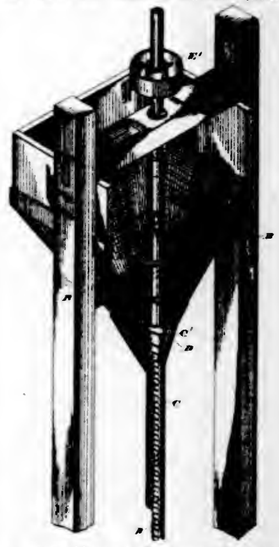
3. The combination, substantially as before set forth, of the rock-shaft, a feeder connected with its lower end or shank to an arm on said rock-shaft, a lever, to one arm of which the upper end of the feeder is connected, a second feeder arranged alongside of the first above-mentioned feeder and connected to the other arm of said lever, and the fixed cam.

4. The combination, substantially as before set forth, of the rock-shaft, a feeder connected with its lower end or shank to an arm on said rock-shaft, a lever, to one arm of which the upper end of the feeder is connected, a second feeder arranged alongside of the first above-mentioned feeder and connected to the other arm of said lever, the fixed cam, and the spring.

349,034.



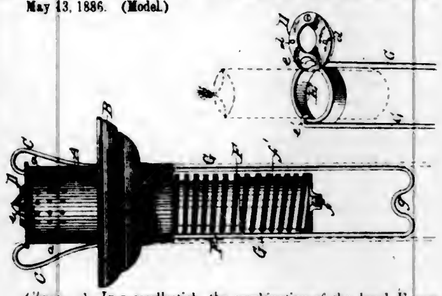
349,035. **HORSE-COLLAR-STUFFING MACHINE.** WASHINGTON FOGLESONG, Dayton, Ohio. Filed Jan. 25, 1886. (No model.)



Claim.—1. A machine for stuffing horse-collars with chopped straw, composed of a hopper, a feed-tube, the feed-screw within the feed-tube and extending to the outer end thereof, and the open spiral agitator secured to the shank of the feed-screw, substantially as before set forth.

2. A machine for stuffing horse-collars with chopped straw, composed of a hopper, a feed-tube cut slantingly at its outer end, the feed-screw within the feed-tube and extending to the outer end thereof, and the open spiral agitator secured to the shank of the feed-screw, substantially as before set forth.

349,036. **CANDLESTICK.** MARY A. GREELEY, Ottumwa, Iowa. Filed May 13, 1886. (Model.)



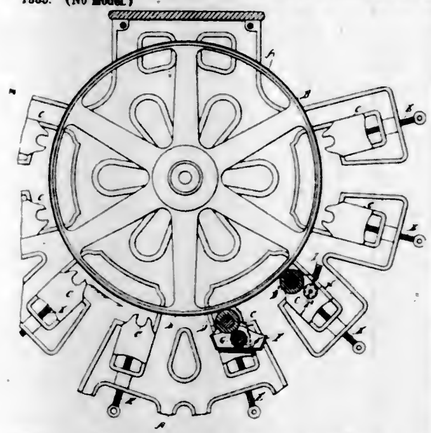
Claim.—1. In a candlestick, the combination of the band E, provided with the hook *e'* and pivot *e*, for securing the cover D in position, the wire G, terminating in a loop, *g*, for receiving the hook *f* of the spring F, and the seat or tube *f''*, upon which the candle rests, as and for the purpose described.

2. In a candlestick, the combination of the band E, provided with the wire G and secured rigidly thereto, one end of which terminates into a pivot, *e*, and the other into a hook, *e'*, for securing the cover D in position, and the spring F, provided with the tube *f''*, for elevating the candle against the said cover, as and for the purpose described.

3. In a candlestick, the combination of the drip-cup and tube A with perforations *a*, the spring-arms C C, the cover D, provided with indentations or holes *d d*, the band E, the spring F, and wire or rod G, as and for the purpose described.

4. In a candlestick, the combination of the drip-cup and tube A, having spring-arms C C, the cover D, provided with indentations or holes *d d*, the band E, the wire or rod G, terminating in a loop, *g*, the spring F, and hook *f*, for engaging said loop, as herein shown and described.

349,037. **CLOTH-PRINTING MACHINE.** HIRAM E GREEN, Lowell, assignor to himself and Henry Edwards, Andover, Mass. Filed Nov. 30, 1885. (No model.)



Claim.—1. The combination of an engraved printing-roll, a color-box, a color-furnishing brush located in said color-box and adapted to be rotated in contact with the engraved surface of said roll and free to move in either direction in the line of its axis, and means, substantially as described, of causing said brush, when rotated about its axis, to have a reciprocating endwise motion, as and for the purpose specified.

2. The combination of the engraved printing-roll, the color-furnishing brush adapted to be rotated in contact with the surface of said printing-roll, and provided with a shaft free to slide in its bearings, a color-box, the bearings of said brush supported upon the ends of said color-box, a stationary bracket provided with a finger, and a cam secured to said brush-shaft and adapted to engage with said finger to cause said brush when rotated to have a reciprocating endwise motion, as and for the purpose specified.

3. The combination of the engraved printing-roll, the color-furnishing brush adapted to be rotated by frictional contact with said roll, and provided with a shaft, the color-box, bearings supported upon the ends of said color-box, in which bearings said shaft is free to turn and to slide endwise, and a cam secured to said shaft, and a stationary bracket provided with a finger adapted to engage said cam and to cause said brush, when said roll is rotated in contact therewith, to have a reciprocating endwise motion, as and for the purpose specified.

349,038. **BUTTON.** SELDEN S. GORDON, Brooklyn, N. Y. Filed Jan. 14, 1886. (No model.)

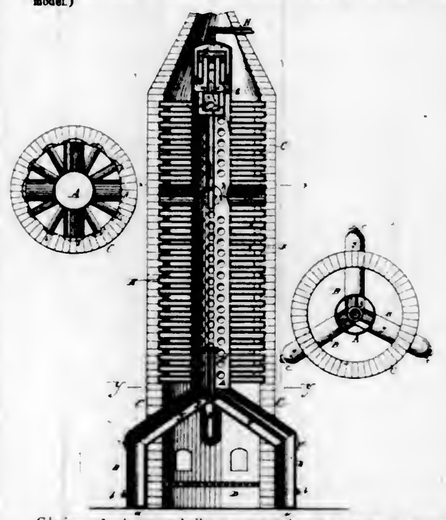


Claim.—1. In a changeable button, an under button, A, provided with eccentric frictional or locking surfaces *b'*, and slots *b''*, combined with a shell, B, having posts *d*, adapted to lock with the said eccentric frictional or locking surfaces, substantially as set forth.

2. In a changeable button, a shell, B, having a lining, *c*, and posts *d*, as described, combined with an under button, A, provided with eccentric frictional or locking surfaces *b'* and slots *b''*, substantially as set forth.

3. In a changeable button, the combination of a shell, B, having a lining, *c*, posts *d*, and lips *d''*, combined with an under button, A, having eccentric frictional or locking surfaces *b'* and slots *b''*, substantially as set forth.

349,039. **STEAM-BOILER.** HENRY C. GOULDING, New York, N. Y., assignor to Milton W. Hazelton, same place. Filed Apr. 10, 1886. (No model.)



Claim.—1. A steam-boiler constructed, substantially as herein shown and described, with a central vertical cylinder provided with radial tubes supported by diverging water-legs, and having a tubular tripod arranged within the water-legs and lower part of the said cylinder, as set forth.

2. A steam-boiler consisting of a vertical central cylinder, A, supported by communicating diverging water-legs B, and provided with series of radial tubes E F, arranged in horizontal planes, the tubes F radiating at the water-line of the boiler being of greater diameter than any of the other tubes, substantially as and for the purposes described.

3. A steam-boiler consisting of a vertical cylinder supported by communicating diverging water-legs, and provided with series of radial tubes, substantially as herein shown and described, the lower ends of the water-legs being arranged outside of the boiler-jacket and adapted to serve as mud-drums, as set forth.

4. The combination, with the vertical central cylinder, A, provided with radial tubes E F, and supported by water-legs B, of a steam-drying device consisting of perforated plate G and pipes *o p q q'*, all arranged and adapted to operate substantially as herein shown and described.

5. The combination, with a boiler constructed with a vertical cylinder provided with radiating tubes, substantially as herein shown and described, of a jacket surrounding said boiler and having pockets for the reception of the free ends of said tubes, as and for the purposes set forth.

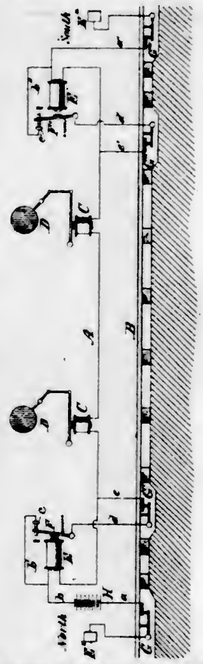
6. The combination of a boiler constructed with a vertical cylinder provided with radiating tubes, and a boiler-jacket provided with tube-pockets, substantially as herein shown and described, said boiler and jacket being arranged relatively to each other so that the free ends of the radiating tubes shall be engaged in the jacket-pockets, as set forth.

349,040. **RAILROAD-SIGNAL.** WILLIAM HADDEN, Brooklyn, N. Y. Filed Apr. 6, 1885. (No model.)

Claim.—1. The combination of the earth-terminals E''' E''', the battery H, and the resistance-coil E, with a line of wire running from one pole of the resistance-coil to the terminal E''', the line of wire running from the terminal E''' to the battery, the wire *b*, connecting the battery with the opposite pole of the resistance-coil to that from which the line to the terminal E''' runs, the wire *b'*, the contact-point *c*, the pivoted spring-controlled armature-lever F, arranged to come into contact with the magnet of the resistance-coil, and thereby break circuit with the contact-point *c*, the wire *d*, the circuit-breaker G', and wire *e*, the electro-magnet C, of low resistance, and the signal D, operated by said magnet, all constructed and arranged substantially as and for the purpose specified.

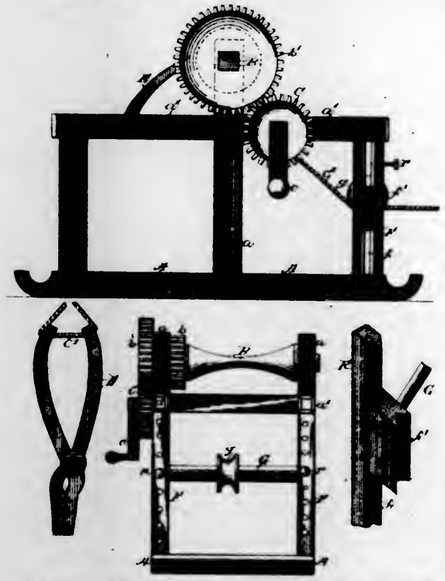
2. The combination of the earth-terminals E''' E''', the battery H, the resistance-coils E E', the electro-magnet C, operating the signal D, the circuit-breakers G G' G'' G''', the line of wire connecting the resistance-coils, the wire connecting the terminals with the circuit-breakers G and G''', the contact-points *c c*, the lines of wire *a b d e* and *a' b' d' e'*,

349,040.



and the pivoted spring-controlled armature-levers F F', arranged to come into contact with the magnets of their respective resistance-coils, and thereby break circuit with the points c c', respectively, all constructed and arranged substantially as and for the purpose specified.

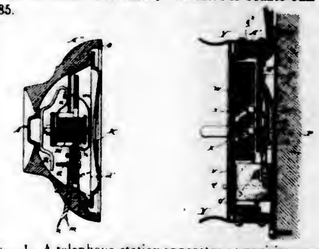
349,041. WIRE-STRETCHER. SAMUEL W. HARMAN, Alicеville, Kans. Filed May 28, 1886. (No model.)



Claim.—1. In a wire-stretching machine, the combination of the runners A A, uprights *a a*, cross-pieces *a'*, axle B, cog-wheels *b'* and C, crank *c*, ratchet-wheel *b*, pawl E, rope *c²*, pinchers or tongs D, uprights F, provided with slots *f*, having A-shaped projections, the slide *f'*, having V-shaped grooves, the axle G, carrying the loose pulley *g*, and the pin or bolt *r*, as and for the purpose described.

2. In a wire-stretching machine, the combination of the runners A A, uprights *a a*, cross-pieces *a'*, pawl E, rope *c²*, pinchers or tongs D, uprights F, provided with slots *f*, having A-shaped projections, the slides *f'*, having V-shaped grooves, and the axle G, carrying the loose pulley *g*, as and for the purpose described.

349,042. TELEPHONE SYSTEM. CORNELIUS HERZ, Paris, France. Filed Feb. 18, 1886. (No model.) Patented in France Jan. 9, 1886, No. 160,785.



Claim.—1. A telephone-station apparatus comprising a microphonic transmitter, a compound receiver and push-button serving as a cover to the transmitter, and a switch actuated by the body of the receiver for establishing the signaling-circuit.

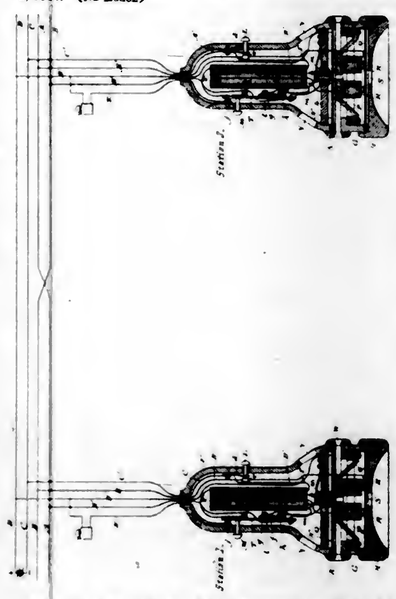
2. A telephone-station apparatus comprising a microphonic transmitter, a cover to the same containing a compound receiver and push-button, and a switch actuated and released by the body of the cover, substantially as described.

3. In a telephone system, a series of station apparatus, each comprising a compound transmitter, receiver, and push-button and a bell, a single-battery main circuit including all stations, and a speaking-line for each station, substantially as described.

4. In a telephone system, a series of station apparatus, each comprising a transmitter, a receiver, push-button and bell, a single battery charging the transmitters and bells through multiple-arc branches, and a switch at each station operated by the body of the receiver to close and to open said branches, substantially as described.

5. In a telephone system, a series of station apparatus, each comprising a transmitter, a receiver, push-button and bell, a single battery charging the transmitters and bells in multiple-arc branches, a number of lines, one for each station and permanently connected with the same, and a hand-switch at each station for connection with any one of the other lines, whereby each station may call to and speak with any other station without disturbing the remaining stations.

349,043. TELEPHONE. CORNELIUS HERZ, Paris, France. Filed Mar. 3, 1886. (No model.)



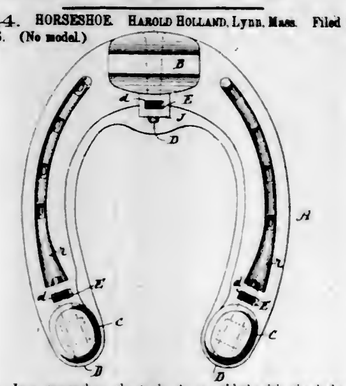
Claim.—1. A portable telephonic apparatus consisting of a magneto-receiver, a microphonic transmitter arranged behind and supported independently of the same, a signaling push-button, and suitable circuit-connections, substantially as described.

2. In a portable telephonic station apparatus, the combination of a microphone with a magneto-receiver covering the same and sound-openings between the receiver and microphone communicating with the latter.

3. A hand-telephone consisting of a sectional case containing a microphone, a receiver in front of and covering the same, a push-button, and switch, in combination with an induction-coil, also located within the case, substantially as described.

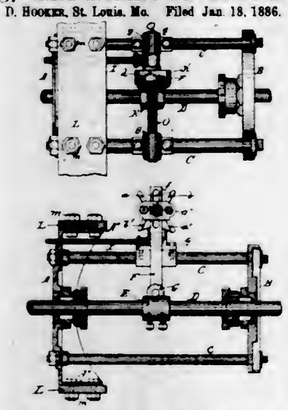
4. In a hand-telephone, the combination of a microphone and magneto-receiver with a push-button for signaling projecting through the side of the handle of the instrument, and another push-button, similarly located, operating a switch within the case for closing and opening the microphone and line-circuit, substantially as described.

349,044. HORSESHOE. HAROLD HOLLAND, Lynn, Mass. Filed May 27, 1886. (No model.)



Claim.—In a horseshoe, the body A, provided with the holes *x f* and socket E, the calk C, provided with the shank *m*, having the hole *z*, the pin D, provided with the groove *t*, and the loop H, combined and arranged to operate substantially as described.

349,045. VALVE-MOVEMENT FOR DIRECT-ACTING ENGINES. WILLIAM D. HOOKER, St. Louis, Mo. Filed Jan. 18, 1886. (No model.)



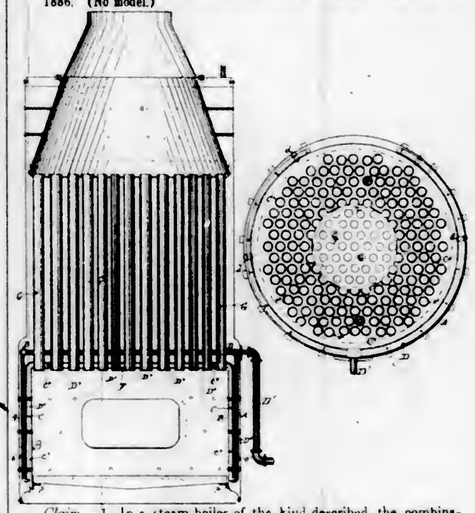
Claim.—1. The combination, with an oscillating plate having angular sides or projections, connected directly to the valve-stem of the auxiliary valve of a direct-acting engine through the rock-shaft, which is rigidly attached to the plate of the main piston of the engine, of means, substantially as described, for operating said plate from said piston, as set forth.

2. The combination, with the plate or part H, constructed substantially as described, and the parts of shaft O, made in two pieces and bolted together, of connections, as described, to piston-rod and valve-rod.

3. A driving-arm fitted to and oscillating on a bearing on the piston-rod and passing loosely through plate H, and adapted to slide on the angular sides of said plate when it is in contact with said sides, in combination with said plate H, substantially as set forth.

4. The combination, with the plate H and rock-shaft to which it is secured, of the driving-arm fitted to and oscillating in bearing on piston-rod of engine and having a slot, as described, and a centering-piece secured in and oscillating in its bearings in the center of the rock-shaft, the slotted arm sliding over said centering-piece, substantially as and for the purpose set forth.

349,046. CIRCULATION OF FEED-WATER IN MULTITUBULAR UPRIGHT BOILERS. WILLIAM D. HOOKER, St. Louis, Mo. Filed Jan. 27, 1886. (No model.)



Claim.—1. In a steam-boiler of the kind described, the combination, with the boiler and fire-box shells and interposed circulation-sheet, of a force-feed for the water arranged above the space between the boiler-shell and circulation-sheet to project the water downward in said space, as set forth.

2. In a steam-boiler, the combination, with the boiler and fire-box shells and interposed circulation-sheet, of an annular force-feed pipe extending partially or entirely around the boiler, and provided with nozzles projecting down into the space between the boiler-shell and circulation-sheet, as set forth.

3. In a steam-boiler, the combination, with the boiler and fire-box shells and interposed circulation-sheet, of the force feed-pipe extending partially or entirely around the boiler, and provided with nozzles projecting down into the space between the boiler-shell and circulation-sheet, and a plug in the shell of the boiler opposite each nozzle, as and for the purpose set forth

4. In a steam-boiler, the combination, with the fire-box and boiler-shell, of the circulation-sheet, extending over the top of the fire-box and provided with the central opening or hole, as described.

5. In a steam-boiler, the combination, with the fire-box, tubes, and boiler-shell, of the circulation-sheet, as described, extending partially over the top of the fire-box, and provided with openings, through which the tubes pass, a little larger in diameter than the tubes, as and for the purpose set forth.

6. In a steam-boiler, the combination, with the fire-box, boiler-shell, and circulation-sheet, of the feed-pipe having nozzles of differing lengths extending down between the boiler-shell and the circulation-sheet, as set forth.

7. In a steam-boiler, the combination, with the fire-box, boiler-shell, and circulation-sheet, as described, of a feed-pipe having nozzles extending down between the boiler-shell and the circulation-sheet, one or more of which nozzles extend below the said sheet and slightly turn up, so as to throw the water around it, as set forth.

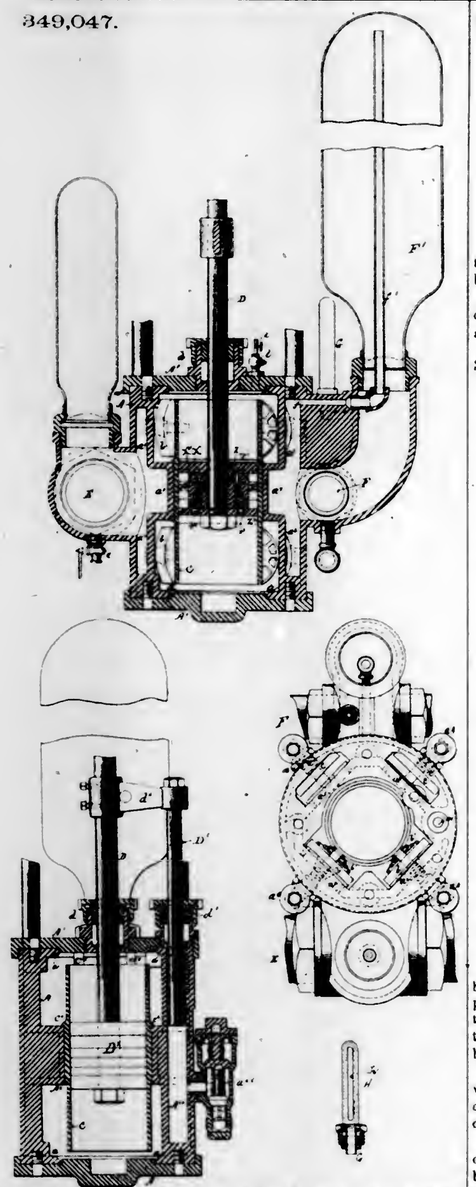
8. In a steam-boiler, the combination, with the fire-box, boiler-shell, and circulation-sheet, of the feed-pipe having nozzles made or bored in the form of a contracted vein, and having a still further contracted discharge-opening.

349,047. DOUBLE-ACTING PUMP. WILLIAM D. HOOKER, St. Louis, Mo. Filed Feb. 6, 1886. (No model.)

Claim.—1. In a double-acting pump, the combination, with the outer and inner shells cast integral and having a central inward projection forming on the interior of the inner shell a support for the pumping-barrel and a division between the upper and lower valves, and upon the exterior of said inner shell enlarged openings, as *a² a²*, for the suction and discharge of the pump, of the pump-barrel, as described, and the pump-heads, one of which holds said barrel in place.

2. In a double-acting cylindrical pump, the combination, with the discharge-chamber common to both actions of the pump, and a discharge-opening at about mid-height of said chamber, of the air-chamber located over the discharge-opening, and an air-passage, as *f f'* connecting the

349,047.

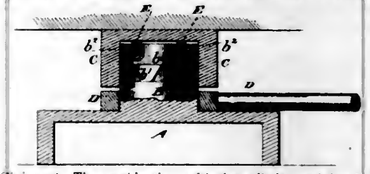


extreme top of the discharge-chamber with the top of the air-chamber, whereby the air in the water will all escape through said passage *f f'* without passing with the water out through the discharge-opening, as set forth.

3. The combination, with the pump-cylinder having the discharge-opening below the top of the discharge-chamber, and the air-chamber, as described, of the tube and opening or passage connecting the top of the discharge-chamber with the top of the air-chamber, and a glass test-tube open at the bottom and closed at the top and sides, and connected with the discharge of the pump at a point below the tube or opening, as and for the purpose set forth.

4. A pump having its ends cast integral with the shell, and also having a barrel for the boiler feed-water pump formed directly in the body of the pump and integral therewith in one of the dividing-partitions, and a valve-chest for said feed-water pump, secured upon the outside of the pump.

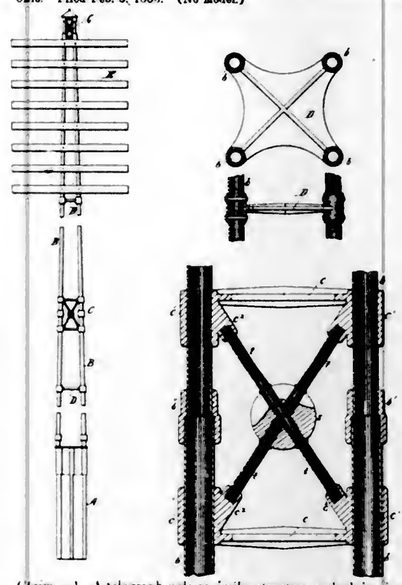
349,048. BALANCED SLIDE-VALVE. LEWIS KNEEDLER, Caledonia, Iowa, assignor to Fernando F. Leathers, and Frederick Offenhauser, Sr., and John N. Lineburg, trustees. Filed June 21, 1886. (No model.)



Claim.—1. The combination, with the cylinder and hood B C, of the elastic steel ring *b'*, arranged in the annular groove *b* and surrounded by packing, substantially as specified.

2. The combination, with a balance-valve, cylinder B, and hood C, of the springs E E, arranged in grooves or cavities in the top of cylinder, as and for the purpose described.

349,049. TELEGRAPH-POLE. JASON E. LIPPINCOTT, Cincinnati, Ohio. Filed Feb. 8, 1886. (No model.)



Claim.—1. A telegraph-pole or similar structure embodying in combination a base, A, to rest in the earth, and a superstructure, B, composed of three or more sets of substantially continuous wrought-iron tubes bound together at section-joints by a system of horizontal and vertical braces, C, and at intermediate points by a system of horizontal braces, D, substantially as set forth.

2. In a telegraph-pole or similar structure composed of a system of vertical tubes, the brace system C, embodying horizontal and vertical diagonal braces, arranged at and covering the meeting-joint between consecutive sections of the structure, substantially as set forth.

3. The combination, in a tubular structure of the character described, of the tubes *b*, abutted together and secured by unions *b'*, the horizontal braces *c*, and the diagonally-arranged tie-rods *t*, centered in a socket-piece, S, substantially as and for the purpose set forth.

4. In a tubular structure of the character described, the split clamps F, tie-rods *h*, screw-caps *g*, and strut-braces F', combined and arranged substantially as and for the purpose set forth.

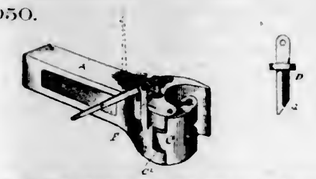
5. In a tubular structure of the character described, the adjustable clamp F, provided with the split lug *f*, with conical threaded outer surfaces for the engagement of the cap *g*, securing also the union tie-rods, and the exterior lugs *i i*, for the engagement of the outer tie-rods, substantially as set forth.

349,050. CAR-COUPLING. JOHN T. MELSON, Laurel, Del. Filed June 25, 1886. (No model.)

Claim.—1. In a car-coupler, a draw-head having a rectangular orifice cut through it, substantially as and for the purpose specified.

2. In the locking mechanism of a car-coupler, the locking-bolt D, the surface of said bolt being beveled from near the lower end to the foot of said locking-bolt.

349,050.



3. In the locking mechanism of a car-coupler, the combination of the locking-bolt D, the surface of said bolt being beveled from near the lower end of the foot of said locking-bolt, and tongue, said tongue being so constructed and arranged as to lift and pass beyond the said bolt D, substantially as and for the purpose described.

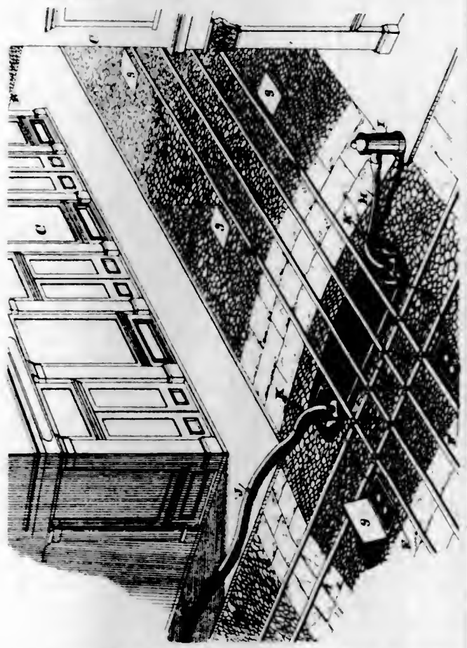
4. In the locking mechanism of a car-coupler, the combination of locking-bolt D and lever E, said lever E being attached to the coupler, substantially as and for the purpose specified.

5. In the locking mechanism of a car-coupler, the combination of a locking-bolt, D, lever-arm *e'*, and lever-arm *e²*, said lever-arm *e'* being at right angles to said lever-arm *e²*, substantially as and for the purpose specified.

6. In the locking device of a car-coupler, the pawl G, attached to the lever-arm *e²*, substantially as and for the purpose specified.

7. In the locking mechanism of a car-coupler, the combination of locking-bolt D, lever-arm *e'*, lever-arm *e²*, and block F, all constructed and acting substantially as and for the purpose specified.

349,051. PREVENTING THE OBSTRUCTION OF STREETS AT FIRES. JULIUS R. MEYERS, San Francisco, Cal. Filed May 21, 1886. (No model.)



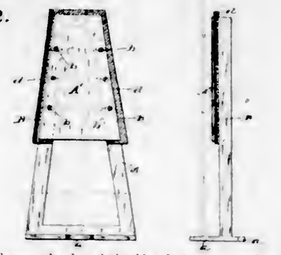
Claim.—The series of permanent pipes F, embedded in the street at suitable intervals, and passing transversely under the railway-bed, said pipes having upturned ends, in combination with the removable goose-necks K, secured to said ends, and adapted to receive the coupling of the hose-sections, substantially as herein described.

349,052. TUMBLER-WASHER. JAMES D. O'DONNELL, Washington, D. C., assignor to Elizabeth Matthews, George Matthews, and John H. Matthews, all of New York, N. Y. Filed July 30, 1885. (No model.)

Claim.—1. In a tumbler washer or cleaner, the combination, with the elastic wings or cleaners having upwardly and inwardly inclined side edges and the clamping-plate, of the standard or support conneting with said wings and plate, and provided at its lower end with lateral projections arranged upon opposite sides thereof, substantially as and for the purpose set forth.

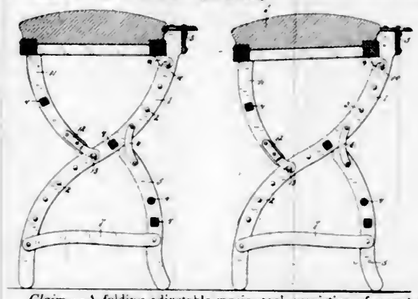
2. In a tumbler-washer, the combination, with the support or frame,

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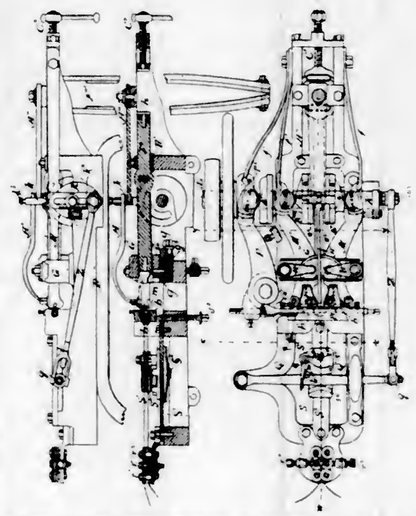
of the elastic cleaners having their side edges conformed to the plane of the inner sides of the tumbler and adjustable laterally upon their support, substantially as and for the purpose set forth.

349,053. FOLDING MUSIC-STOOL. JOHN PURSELL, Sr., Thomaston, Conn. Filed Feb. 23, 1886. (No model.)



Claim.—A folding adjustable music-stool consisting of a seat having slotted plates 9, and having pivoted thereto supports 11, with slotted plates 12, in combination with long legs 1, having pins 2, and short legs 5, connected thereto by links 6, and cross-pieces 7, pivoted to the long and short legs, said parts being combined and arranged so that the seat may be removed and the support folded under, and the legs and cross-pieces folded compactly together, substantially as described.

349,054. DUPLEX WIRE-NAIL MACHINE. GEORGES QURIN, Columbus, Ohio, assignor of one-third to Samuel R. Klotts, same place. Filed June 9, 1886. (No model.)



Claim.—1. In a wire-nail machine, the duplex point-cutting mechanism, comprising the following instrumentalities, to wit: a fulcrum-stock, G, longitudinally adjustable by means of a slide, *g*, and pin *i*, cam-actuated knife-levers M M', working within pivot-sockets *g' g'* of said fulcrum-stock, said knife-levers being provided with adjustable duplex cutting-dies *n n*, adapted to simultaneously cut two blanks, in combination

with a duplex feeding device adapted to simultaneously feed two superposed wires to said cutting mechanism, substantially as described.

2. In a duplex wire-nail machine, a fulcrum-stock radially and longitudinally adjustable by means of a slide and pin, in combination with vertically-adjustable knife-levers provided with suitable studs working within sockets of said fulcrum-stock, springs mounted above said fulcrum-stock, adapted to press the studs of said knife-levers upon suitable screws vertically adjustable, substantially as described.

3. In a wire-nail machine, the rolling apparatus comprising the double series of superposed rolls $r\ r'\ r^2$, the central rolls, $r'\ r'$, being laterally adjustable, in combination with a duplex feeding mechanism comprising the slide S, provided with the superposed bell-crank levers $s'\ s'$, adapted to intermittently engage and simultaneously feed two wires to a duplex head forming and cutting mechanism, substantially as described.

4. The fulcrum-stock G, horizontally and radially adjustable, respectively, by means of the slide g and the pivot i, and the horizontally-reciprocating knife-levers M M', in combination with the hammer F, provided with die f^3, stud f^5, and saddle f^6, adapted to be engaged by the spring F', substantially as described.

5. The vertically-adjustable knife-levers M M', adjustable, in combination, with the fulcrum-stock G, as shown and described, said knife-levers being provided with the duplex cutting-dies $n\ n$, adapted to simultaneously cut two blanks, and with the plates $n^4\ n^4$, screws $c^2\ c^2$, and pins $c'\ c'$, said pins being adapted to be forced upon screws $c\ c$ by means of the set-screws $c^3\ c^3$, substantially as described.

6. The knife-levers M M', provided with the studs $m\ m$, adapted to rest upon set-screws $m^4\ m^4$, the diverging tempered breast-surfaces $m^3\ m^3$, adapted to be engaged by a plunger-hammer, F, adjustable duplex cutting-dies $n\ n$, adapted to simultaneously cut two blanks, in combination with the springs H H, adapted to force the studs $m\ m$ of the knife-levers upon the adjusting-screws $m^4\ m^4$, substantially as described.

7. The combination of the fulcrum-stock G, horizontally and radially adjustable by means of the slide g and pin i, the vertically-adjustable and horizontally-reciprocating knife-levers M M', provided with the tempered diverging breasts $m^3\ m^3$, adapted to be engaged by a hammer, F, by means of which said levers M M' are thrown into an outward position, substantially as and for the purpose set forth.

8. In a wire-nail machine, the fulcrum-stock G, longitudinally and radially adjustable by means of the slide g and pivot i, the horizontally-reciprocating and vertically-adjustable knife-levers M M', and the hammer F, in combination with a detacher comprising the following instrumentalities, to wit: the spring A'', bridge k, and arm A', said arm A' being horizontally adjustable within said bridge, and set by means of a screw, k^2, substantially as and for the purpose set forth.

9. In a duplex wire-nail machine, the vertically-adjustable die-stock B, provided with the duplex pressure-dies $b\ b'$, the knife-levers M M', carried on the adjustable fulcrum-stock G, the pressure-lever P, provided with the link d, and adjusting and set screws $p^4\ p^3$, said link d being pivotally connected to and adapted to operate the duplex pressure-die b', in combination with the springs $f\ f''\ f^3$ and the cams E E' E'', respectively actuating said levers M M' and P, substantially as described.

10. In a wire tack, nail, and spike machine, the combination of the adjustable fulcrum-stock G and the universally-adjustable knife-levers M M', adjustable longitudinally, vertically, and radially, respectively, by means of the slide g and pin i, the screws $m^4\ m^4$, and the pivot-pin i, substantially as described.

11. The fulcrum-stock G, longitudinally and radially adjustable by means of the slide g and pin i, and the vertically-adjustable and horizontally-reciprocating knife-levers M M', in combination with the hammer F, provided with the removable die f^3, said die being provided with two cavities adapted to simultaneously work the heads upon two blanks, substantially as described.

12. In a duplex wire-nail machine, the following instrumentalities, to wit: the fulcrum-stock G, horizontally and radially adjustable, respectively, by means of the slide g, pin i, and screw g^4, vertically-adjustable knife-levers M M', working within said fulcrum-stock, said knife-levers being provided with adjustable duplex cutting-dies $n\ n$, and tempered breast-surfaces $m^3\ m^3$, adapted to guide the hammer F and to separate said levers at their forward ends, in combination with suitable supporting and operating mechanism, substantially as described.

13. The feeding mechanism herein described, comprising the oscillating feed-bar Q, horizontally-guided slide S, provided with the superposed clutching bell-crank levers $s'\ s'$, the adjustable die-stock B, provided with the guide-block a, having duplex guide-holes, and the adjustable duplex pressure-dies $b\ b'$, having the gripping-faces $b^2\ b^2$, adapted to simultaneously clutch two blanks, in combination with suitable supporting and operating mechanism, all being relatively arranged as described, and for the purpose set forth.

14. In a wire-nail machine, the following instrumentalities, to wit: a longitudinally and radially adjustable fulcrum-stock provided with suitable sockets, universally-adjustable knife-levers within said sockets, said knife-levers being provided with adjustable duplex cutting-dies, and diverging tempered breast-surfaces adapted to guide a plunger-hammer in combination with a duplex feeding device adapted to simultaneously feed two superposed wires to said duplex cutting-dies, substantially as and for the purpose set forth.

349,055. JOURNAL-BEARING. MAHLON RANDOLPH, New York, N. Y., assignor to the Randolph Manufacturing Company. Filed Mar. 26, 1886. (No model.)

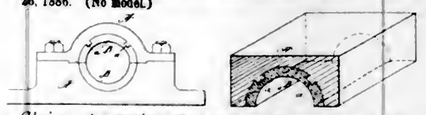


Claim.—1. An improved journal-bearing or machinery-support formed of woody fiber, graphite, and albumen, combined and treated as herein described.

2. In a journal or other machine bearing, a constant and durable lubricant formed of an unctuous carbonaceous matter, such as finely-powdered graphite, held in any prescribed form by an admixture of woody fiber and a cementing material in the form of an albumen, substantially as described.

3. A journal or other machinery bearing, formed of woody fiber in the shape of sawdust or short and small fragments of the wood mixed with finely-powdered graphite, and a cementing albumen, thoroughly incorporated by mixing, then pressed into the required form, and after that thoroughly indurated by drying.

349,056. JOURNAL-BEARING. MAHLON RANDOLPH, New York, N. Y., assignor to the Randolph Manufacturing Company. Filed Mar. 26, 1886. (No model.)



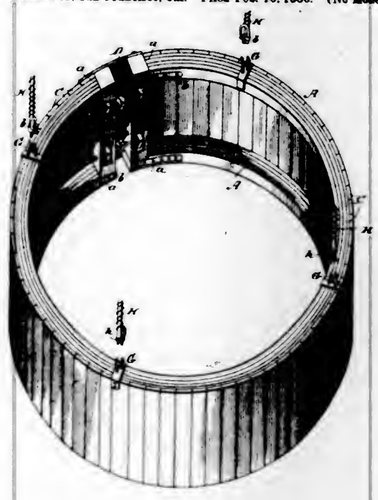
Claim.—A journal or other machinery bearing formed of fibrous pulp mixed with finely-powdered graphite and an adhesive albumen, thoroughly incorporated by mixing, and pressed into a metallic casing provided with one or more dovetailed lugs or recesses for holding the compound bearing material to the metallic casing.

349,057. JOURNAL-BEARING. MAHLON RANDOLPH, New York, N. Y., assignor to the Randolph Manufacturing Company. Filed Mar. 26, 1886. (No model.)



Claim.—An anti-friction journal-bearing compound formed of any suitable fiber mixed with plumbago as a permanent lubricant, and an adhering or cementing material, such as albumen, in combination with powdered sulphur, substantially as described.

349,058. CONCRETE-MOLD FOR WALLING WELLS, &c. ERNEST L. RANSOME, San Francisco, Cal. Filed Feb. 10, 1886. (No model.)



Claim.—1. A concrete-mold consisting of the curved severed bands having a springy or elastic nature and forming the ribs of the mold, the staves C, uniting the bands and forming the mold-surface, the plate D, spanning the space between the severed ends of the mold and continuing the surface of the staves, and the mechanism for increasing and diminishing the circumference of the mold by separating or drawing together the opposing ends of the bands, consisting of the right and left hand screws E E and the nuts F, substantially as herein described.

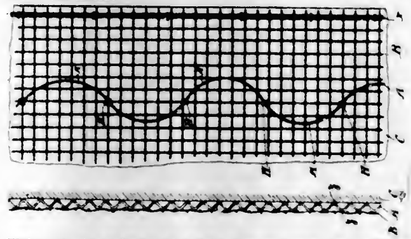
2. In a concrete-mold, the curved severed bands A A, of an elastic or springy nature, each consisting of several pieces or strips of wood secured together, the staves C, uniting said bands, and plate D, as described, in combination with the right and left hand screws E E between the severed ends of the mold, and nuts in said ends seated on the screws, whereby the ends are caused to approach toward or to separate from each other, substantially as herein described.

3. The combination of the curved severed bands A A, consisting of several pieces or strips of wood secured together and having an elastic or springy nature, the standards B B at their ends, the staves C, the overlapping plate D, the right and left handed screws E E, and the nuts F in the standards, substantially as herein described.

4. A concrete-mold consisting of a suitable frame-work for fitting an excavation and forming the inner wall of the concrete lining, in combination with the mechanism for raising said mold, consisting of the hoisting-screws H, having hooked lower ends or clutches, h, a connection between said hooked ends and the mold, supports I, across the mouth of the excavation and through which the screws pass, and crank-nuts K on said screws above the supports, substantially as herein described.

5. The curved severed bands A A, elastic or springy in their nature, the staves C, joining the bands, the plate D, and the expanding-screws E E, and nuts F, all as and for the purpose described, in combination with the hoisting-screws H, passing through supports I above, and having hooked lower ends or clutches, h, the links G, joining said hooked ends with the bands A A, and the crank-nuts K on the screws, all arranged and adapted to operate substantially as herein described.

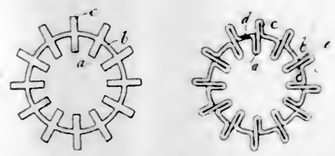
349,059. METALLIC LATHING. BENJAMIN SCARLES, Clinton, Mass., assignor to the Clinton Wire Cloth Company, same place. Filed July 17, 1886. (No model.)



Claim.—1. As an improved article of manufacture, a metallic furring-strip consisting of a piece of wire crimped or corrugated, substantially as described.

2. The furring-strip A, provided with the corrugations g, in combination with the wire-cloth B and means for attaching the lathing and furring to the wall C, substantially as set forth.

349,060. BOILER-TUBE. JEAN P. SERVE, Givors, France. Filed Feb. 6, 1886. (No model.) Patented in France Sept. 20, 1884, No. 164,412.

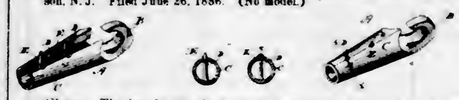


Claim.—1. The tube herein described for boilers and condensers, having solid and massive wings upon its surface or surfaces, as distinguished from a tube having a wavy, corrugated, or undulating profile in transverse section, substantially as herein set forth.

2. The tube herein described for boilers and condensers, having its metal folded closely upon itself to form solid and massive wings upon its surface or surfaces, substantially as herein set forth.

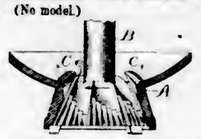
3. The tube herein described for boilers and condensers, having its metal folded upon itself to form wings upon one surface, and having strips or pieces f inserted within such folds and projecting beyond the other surface, whereby are produced solid and massive wings projecting from both surfaces of the tube, substantially as herein described.

349,061. BELL-CORD COUPLING. CHRISTOPHER C. SHELBY, Paterson, N. J. Filed June 26, 1886. (No model.)



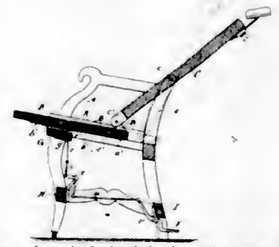
Claim.—The herein-described coupling for cords or ropes, made of malleable metal and formed with the hook, the compressible semi-tubular shank having the pins or prongs and the recesses or notches, said pins being adapted to pass through the recesses or notches on the opposite side of the tubular portion from that to which they are attached and be upset, the device being adapted for connection to a rope or cord, in the manner set forth.

349,062. COFFEE-MILL. AMOS SHEPARD, Plantsville, Conn. Filed May 24, 1886. (No model.)



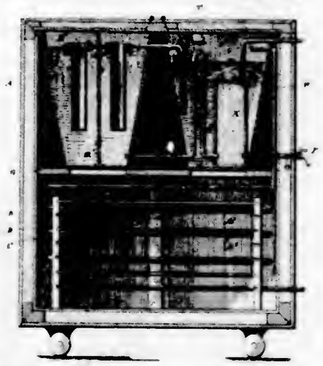
Claim.—The combination of a grinding-nut with the shell A, having the doubly-curved hooked teeth at the upper inner edge of the operative surface of said shell, substantially as described, and for the purpose specified.

349,063. BARBER'S CHAIR. FREDERIC M. SHEPARD, New York, N. Y. Filed Dec. 21, 1885. (No model.)



Claim.—In a barber's chair, the tilting back C, pivoted to the side frames, A A, at the point c, the inclined seat B, sliding in ways A' A' in said side frames, the links D, connecting the back and seat, and locking mechanism consisting of the rack b', located centrally and longitudinally in said seat, dog R, rod r, spring r', and abutment g, for retaining the whole in the required position, all combined and arranged substantially as herein shown and described.

349,064. ICE-MAKING AND REFRIGERATING MACHINE. FRANK A. SMITH, Steelton, Pa. Filed Mar. 27, 1886. (No model.)



Claim.—1. In a refrigerator for domestic uses and other purposes, the combination of two tanks or vessels filled with a solution of nitrate-of-ammonia salt, a pipe connecting said tanks for carrying the overflow from the freezing to the cooling tank or vessel and discharging said solution near the bottom of said cooling-tank, a fresh-water-supply pipe leading from a fresh-water tank located in the cooling-tank to the bottom of the freezing-tank, and a regulating-valve located in the fresh-

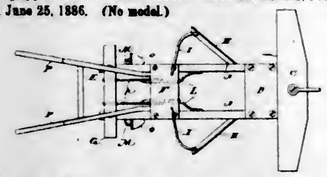
water-supply pipe, to regulate the flow of water into the freezing-tank, whereby the fresh water is cooled before it comes in contact with the freezing-mixture, and the solution is agitated or mixed in the freezing-tank by the force of the incoming water, as set forth.

2. In a refrigerator for domestic and other uses, the guide-rod *a'*, secured in the bottom of the freezing-tank, in combination with the floating disk *b* and cans K, whereby the cans are held in position in the freezing-solution, as set forth.

3. In a refrigerator for domestic and other uses, the combination of the two tanks H and I, placed close together and connected by means of the overflow-pipe V with the fresh-water tank located in the cooling-tank I, and connected to the freezing-tank H by means of the pipe S, and the valve T, for controlling the admission of the fresh water to the freezing-tank, as set forth.

4. In a refrigerator for domestic purposes and other uses, the combination of the devices, substantially such as described, for the continuous production of cold, with the overflow-pipe W and coil A', located in the preserving-chamber of the refrigerator, whereby all the units of cold are utilized, as set forth.

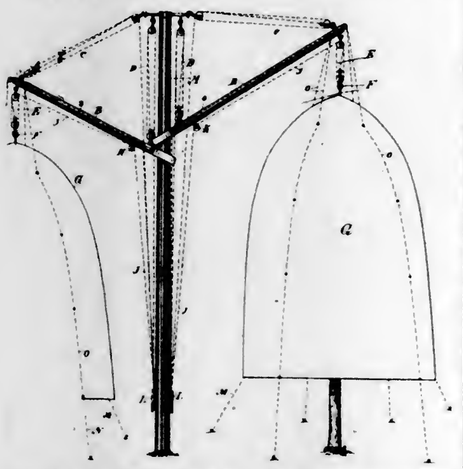
349,065. LISTING-CULTIVATOR. THOMAS SNAVELY, Pontiac, Kans. Filed June 25, 1886. (No model.)



Claim.—1. A listed-corn cultivator provided with the runners A, having the cutters H extending outwardly therefrom and at a proper inclination, the shovels working in rear of the runners, and the fenders on the inner sides of the runners at the rear ends of the same, substantially as described.

2. A listed-corn cultivator comprising the runners A, the leveling-bar C at the front ends of the runners and projecting beyond their outer sides, the inclined outwardly and upwardly extending cutters H, the shovels or cultivators O at the rear ends of the runners, and the fenders on the inner sides of the shovels, for the purpose set forth, substantially as described.

349,066. TREE-COVER. JASPER STAHL, San Francisco, Cal. Filed July 6, 1886. (No model.)



Claim.—1. The tree-cover consisting of the open-bottomed flexible covering, in combination with the spreading arms or frame H, the supporting-hoops I, and suitable ropes for suspending and adjusting said cover, substantially as herein described.

2. The tree-cover consisting of the textile fabric with the interior spreaders and hoops, in combination with the mast having booms extending outward, and the supporting and regulating ropes, substantially as described.

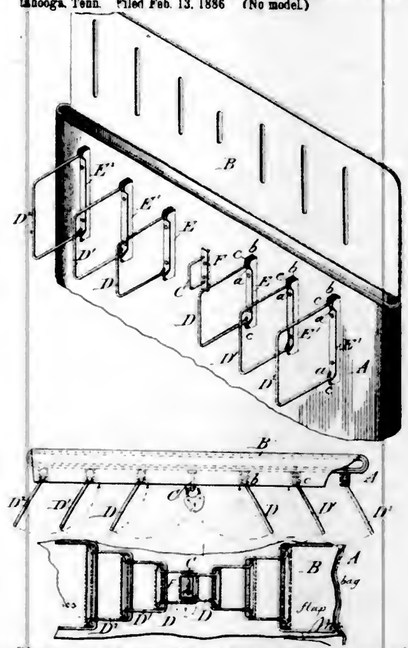
3. The tree-cover consisting of the expansible textile fabric with its supporting-ribs and the suspending hooks and ropes, in combination with the vertical mast having the outwardly-projecting booms, the suspending ropes and pulleys D, by which the inner ends of the booms are adjusted, and the ropes C and pulleys, by which the outer ends are raised, lowered, and adjusted, substantially as described.

4. The tree-cover having the suspending adjustable ropes and the interior hoops and spreaders, as shown, in combination with the ropes M, extending downward within the cover from the upper portion, for the purpose of expanding the bottom of the cover while it is being placed upon the tree, substantially as described.

5. The suspended tree-cover having the interior hoops and spreaders and the expanding-ropes M, in combination with the ropes N, whereby it may be drawn down, substantially as described.

6. The suspended expansible tree-cover having the interior hoops and spreaders and the ropes O, attached to the lower edge, passing up outside through leaders upon the upper part of the cover, thence down the boom and mast, substantially as described.

349,067. MAIL-BAG FASTENING. WILLIAM W. SYLVESTER, Chattanooga, Tenn. Filed Feb. 13, 1886. (No model.)



Claim.—1. A fastening for mail-bags, satchels, and other similar articles, consisting of a series of interlocking staples having each a base and a bent rod pivoted thereto and adapted to inclose the rod of the next staple, substantially as shown and described.

2. In combination with a bag or other analogous article, a series of staples which regularly decrease in width, and each consisting of a base and a bent rod pivoted thereto, said staples adapted to interlock, substantially as shown and described.

3. In a mail-bag fastening, a series of staples, each consisting of the combination of a base, as E, having perforated lugs on each extremity, said lugs having an outer groove, *b*, and an inner beveled face, *a*, and a bent rod, as D^2, having its arms provided with terminal projections which enter the lugs and have their outer ends enlarged, substantially as shown and described.

4. A mail-bag fastening consisting of a middle staple and two series of staples whose members regularly increase from said middle staple to the terminal ones, and are adapted to overlap and be interlocked with each other and be secured by suitable means at the middle staple, substantially as herein specified and shown.

5. The combination of a bag having a series of overlapping and interlocking staples of variable size, and a flap having a corresponding series of slots, likewise of variable size, as shown and set forth.

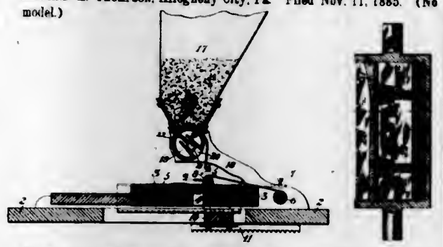
349,068. COMBINED CORSET-COVER AND DRESS-SHIELD. THOS. P. TAYLOR and M. BURDETT HAMMOND, Bridgeport, Conn. Filed Nov. 23, 1885. (No model.)

Claim.—A combined corset-cover and dress-shield consisting of a body, A, and sleeves B, of ordinary textile material, and a layer, D, of water-proof material on the exterior of the body, under the sleeves, and on the exterior of the under portions of the sleeves or the parts thereof covering the armpits, substantially as set forth.

349,068.



349,069. CIGAR-BUNCHING MACHINE. FRANCIS THOMPSON and EDWARD H. THOMPSON, Allegheny City, Pa. Filed Nov. 11, 1885. (No model.)



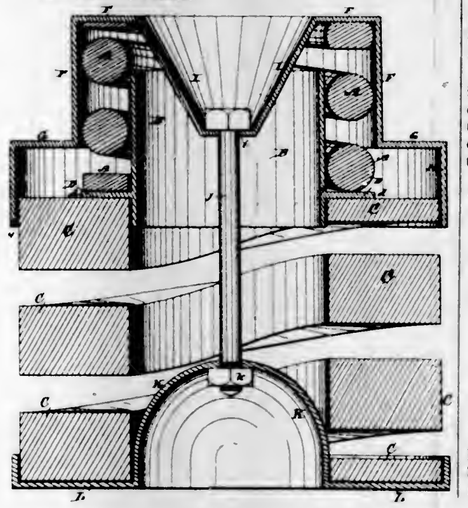
Claim.—1. In a machine for bunching cigars, a feed-pocket which is arranged to receive and discharge the tobacco filler, and which is irregularly shaped to apportion the amount of tobacco received by and discharged from the different parts of the pocket, according to the shape of the desired bunch, substantially as and for the purposes described.

2. In combination with a rotary cylinder, 19, having a longitudinal groove, 20, a plate, 21, forming the base of the groove, and a set-screw traversing the cylinder and engaging the under side of the plate for the purpose of adjusting it vertically, and thereby increasing or diminishing the depth of the groove, substantially as and for the purposes described.

3. In a cigar-machine for forming bunches for irregularly-shaped cigars, the combination of a hopper and a rotating drum having a filler-measuring recess therein of an irregular shape or contour corresponding to that of the bunch to be formed, substantially as and for the purposes described.

4. In a cigar-machine, the combination of a hopper, a rotary cylinder having a groove or pocket for receiving and discharging the filler from the hopper, and a removable plate in said groove or pocket, the surface of said plate being of irregular shape, corresponding to the amounts of filler to be received in and discharged from the parts of the groove or pocket, substantially as and for the purposes set forth

349,070. CAR-SPRING. RICHARD VOSE, New York, N. Y. Filed Nov. 8, 1883. (No model.)



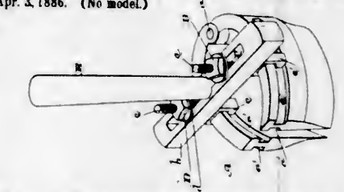
Claim.—1. The combination, with a main or principal coil and an auxiliary coil mounted above the same, of an open cylindrical casting arranged within said coils, and provided with a flange or rim projecting from its periphery and interposed between the upper end of the main or principal coil and the lower end of the auxiliary coil, substantially as described.

2. The combination, with a main or principal coil, an auxiliary coil mounted above the same, and an open cylindrical casting arranged within said coils and provided on its periphery with a flange or rim which is interposed between the upper end of the main or principal coil and the lower end of the auxiliary coil, of a cover resting upon the top of said auxiliary coil and extending down and around the same, and adapted to rest upon the upper end of the main or principal coil when the auxiliary coil is compressed, substantially as described.

3. The combination, with a base-plate, a main or principal coil arranged thereon, an auxiliary coil mounted above the latter, and an open cylindrical casting of a size to substantially fit the interior of said coils arranged within the same and provided on its periphery with a projecting flange or rim, which is interposed between the top of the main or principal coil and the lower end of the auxiliary coil, of a cover resting upon the auxiliary coil and extending down and around the same, so as to take bearing at its lower end upon the top of the main or principal coil when the auxiliary coil has been compressed, substantially as described.

4. The combination, with the main or principal coil C, the auxiliary coil A, and the open cylindrical casting B, provided with the flange or rim D, of the cover E, having the downwardly-extending portion F, lip or rim G, and downward-projecting flange H, as and for the purposes set forth.

349,071. HEEL-DIE. WILLIAM WATSON, Victoria, British Columbia, Canada, assignor of one-half to George M. Irving, same place. Filed Apr. 3, 1886. (No model.)



Claim.—1. The expansible and contractible heel-die A, formed in two parts hinged or jointed together at the rear, in combination with adjustable clamps engaging and holding the die in the position to which it is adjusted, substantially as herein described.

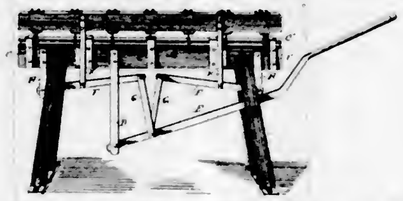
2. The adjustable die A, made in two sections, pivoted together or jointed at their backs, and means comprising clamps engaging grooves in the upper portion of the die, and securing-nuts for fixing the sections in the position to which they are adjusted, substantially as herein described.

3. The combination of the adjustable jointed heel-die A with the handle B, and clamps connecting the handle with the die and fixing the latter in the position to which it is adjusted, substantially as herein described.

4. The combination of the adjustable jointed heel-die A with the handle B, having cross-base *b*, bearing on the die and clamps, connecting the cross-base with the die, and fixing the latter in the position to which it is adjusted, substantially as herein described.

5. The jointed heel-die A, having the grooves or channels *a'* near its upper edge, in combination with the handle B, having the slotted cross-base *b*, the clamps C, passing through the slotted base, and having threaded upper ends and forked lower ends embracing the die, with feet or lugs *c'*, playing in the grooves of the die, and the nuts D on the threaded upper ends of the clamps, substantially as herein described.

349,072. PUNCHING-MACHINE. LA FAYETTE WILDERMUTH, Lancaster, Ohio. Filed Apr. 29, 1886. (No model.)

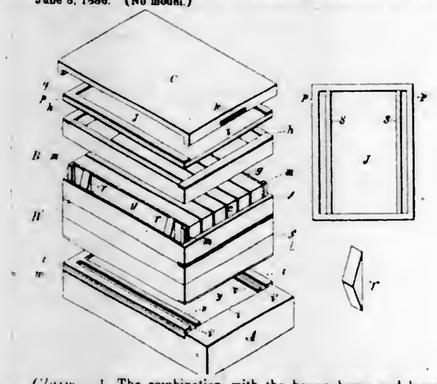


Claim.—1. In a machine for punching or perforating slats, the lever E, pivoted to the bar D and connected to the levers F by means of the links or bars G, in combination with the links or bars K and punch-carrying bar I, as set forth.

2. In a machine for punching or perforating slats, the bar A, mounted on suitable supports, B, and provided with the guide-bar C', in combination with the bar I, having a plurality of punches, and the levers E F, connected to the bar I and with each other, as set forth.

3. In a machine for punching or perforating slats, the bar A, perforated as described, having the plate D', provided with countersunk holes *b*, as described, and the guide-bar C, suspended or secured above the plate D', as set forth.

349,073. BEE-HIVE. ELVIN S. ARMSTRONG, Jerseyville, Ill. Filed June 8, 1886. (No model.)

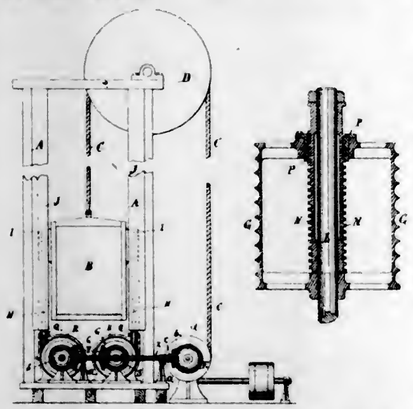


Claim.—1. The combination, with the honey-boxes and brood-frames, of sections B B', each composed of two horizontally-separable parts having inclined inner faces and flanges *h*, wedges *r*, and followers *g*, all constructed and adapted for co-operation substantially as and for the purpose set forth.

2. The combination, with the honey-boxes and brood-frames, sections B B', each composed of two horizontally-separable parts having inclined inner faces and flanges *h*, wedges *r*, and followers *g*, of the honey-board provided with cleats or strips *q*, *p*, and *s*, and adapted for use with the loose bottom *y*, substantially as set forth.

3. The combination, with the honey-boxes and brood-frames, sections B B', each composed of two horizontally-separable parts having inclined inner faces and flanges *h*, wedges *r*, and followers *g*, of the loose bottom provided with cleats or strips *t*, *v*, and *w*, and adapted for use with the honey-board, substantially as set forth.

349,074. ELEVATOR. PHILANDER BAKER, Roxbury, Mass. Filed Feb. 4, 1884. (No model.)



Claim.—1. In combination, the tubular slotted guide-posts, the inclosed safety-ropes, and the friction-drum windlass operated by the hoisting power of the elevator, substantially as and for the purpose set forth.

2. The combination, with the grooved cylinder G, of the screw-threaded collar P, the screw-threaded sleeve N, and shaft L, provided with a feather for turning the cylinder G, as shown and described.

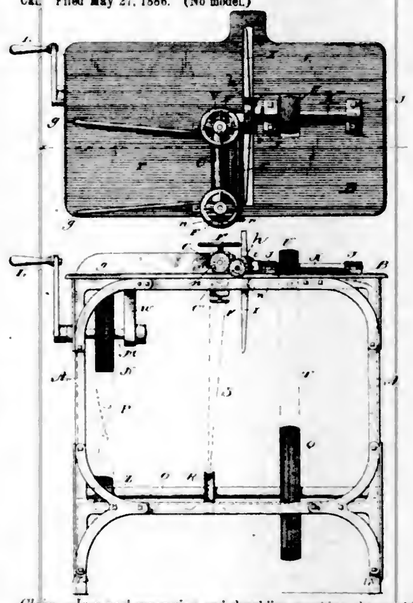
3. The frictional gear consisting of the bevel-gear S, disks T T', the interposed washers U, the washers W W', spring Y, and nuts X X', in combination with the shaft L, cylinder G, and the casing R, as set forth.

4. In an elevator substantially such as described, the combination, with the frame A, and tubular piston I that carries the rope H, of the T-pieces K K, arranged the one above and the other below the said tubular piston, as and for the purpose described.

5. In an elevator, the combination, with the grooved cylinder G, the tubular piston I, and tubular passage-way J, of a rope, *g*, composed of coiled wire and provided with a rope, *h*, extending through said rope *g*, as and for the purpose set forth.

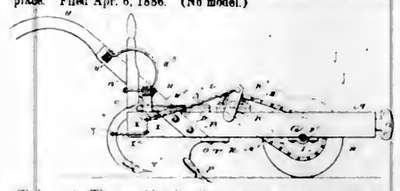
6. In an elevator, the combination of the shaft F, ratchet-wheel and pawl *e f*, bevel-gears *d b*, shaft Z, bevel-gears Y Y, frictional gears S S, and shafts L, substantially as and for the purpose set forth.

349,075. ORANGE-PEEL SEPARATING AND SHREDDING MACHINE. WILLIAM H. BARNARD and CHARLES E. BENEDICT, Los Angeles, Cal. Filed May 27, 1886. (No model.)



Claim.—In a peel separating and shredding machine, the combination of a stand, A, having feeding-rollers mounted thereon, one of which is provided with a pulley, an auxiliary roller, G, gearing intermediate the main feeding-rollers and the auxiliary roller, a separating-knife, *b*, a rotary cutter having its axis at right angles to the axes of said feeding-rollers, and mounted upon an arbor, K, provided with a pulley, U, a lower shaft, O, provided with pulleys Q, R, and Z, crank-shaft M, carrying a pulley, N, and intermediate bands, P, S, and T, all arranged and adapted to operate substantially as described.

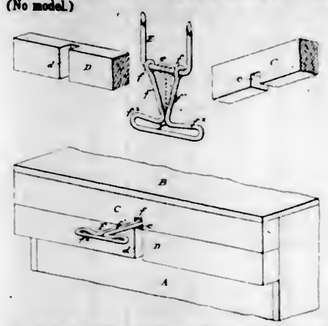
349,076. COMBINED COTTON CHOPPER AND SCRAPER. WESLEY H. BASHAM, Glen Rose, Tex., assignor of one-half to B. R. Milam, same place. Filed Apr. 6, 1886. (No model.)



Claim.—1. The combination, in a cotton-chopper, of the frame A, the arms or standards V, pivoted to the said frame and carrying the chopping hoes or plows, the rock-shafts X, having the arms X^2, connected to the standards or arms V, and the arms X', and the rotating crank-shaft K, connected to the arms X', whereby the standards or arms V will be caused to alternately approach and recede from each other as the machine advances, substantially as described.

2. The combination of the pivoted vibrating arms or standards V, carrying the chopping hoes or plows, the springs for normally pressing the said arms or standards together, and means for moving them apart as the machine advances against the pressure of the springs, and the pivoted lever W, having the wedge-shaped foot or cam adapted to be inserted between the arms or standards V, for the purpose set forth, substantially as described.

349,077. BOX-FASTENER. CHARLES W. BEEHLER, St. Louis, Mo., assignor of one-half to William H. Lonergan, same place. Filed July 26, 1886. (No model.)

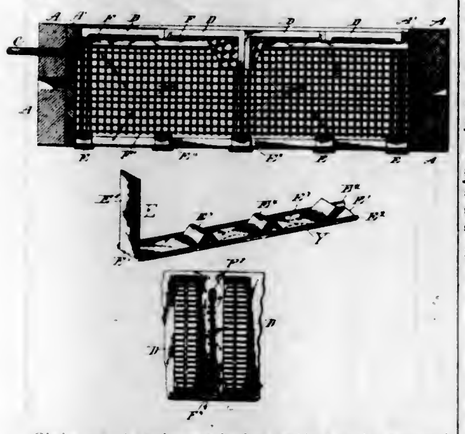


Claim.—1. A box-fastener consisting of a staple, E, secured to the cover-cleat, and an inverted-T or anchor shaped fastener-piece, F, of wire, pivoted thereto, and adapted to engage in a vertical slot in the box-cleat D, and by means of its horizontal member f^2 form a lock, essentially as set forth.

2. A box-fastener consisting of a staple, E, secured to the cover-cleat, and an inverted-T or anchor shaped fastener-piece, F, of wire, pivoted at its upper end to the staple E, in combination with the cover and box cleats C D, provided with vertical coincident slots *c d*, as described, and for the purpose set forth.

3. A box-fastener consisting of a staple, E, of rectangular shape, secured to the cover-cleat, and an inverted- or anchor shaped fastener-piece, F, of wire, pivoted thereto, with its vertical members *f* adapted to spring away from each other, in combination with the box-cleats C and D, provided with narrow slots *c* and *d*, the parts being arranged and adapted to operate in the manner and for the purpose set forth.

349,078. BEE-HIVE. NICHOLAS N. BETSINGER, Marcellus, N. Y. Filed Apr. 16, 1886. (No model.)



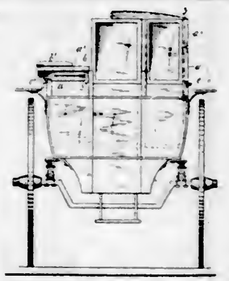
Claim.—1. A section-case having combined section-supporting slats provided with spacing projections, and with separators mounted upon said spacing projections and within the case, each of which separators is formed of wire-cloth of a mesh permitting the passage of worker-bees therethrough, substantially as specified.

2. A comb-section-supporting slat consisting of a flanged strip, E', and a bent strip, E^2, secured within the flanges of the strip E', substantially as specified.

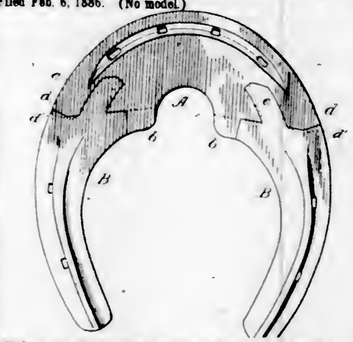
349,079. TOP FOR TWO-WHEELED VEHICLES. FREDERICK BEE and EDMUND F. HEINSCH, Washington, D. C. Filed Dec. 26, 1885. (No model.)

Claim.—In a folding-top vehicle, the combination of the folding sections *a a' b b'*, hinged, as shown, whereby the top of the vehicle is raised or lowered at the sides from front to rear, the section *a*, having the projecting end provided with the slot, and the turn-button adapted to operate in connection therewith, the whole arranged as shown, and for the purpose set forth.

349,079.



349,080. HORSESHOE. JOHN E. BINGHAM, Walla Walla, Wash. Filed Feb. 6, 1886. (No model.)

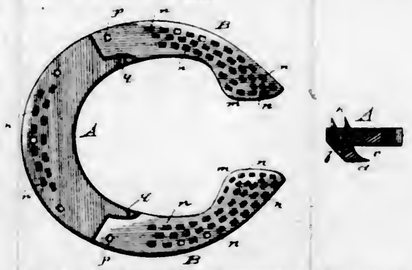


Claim.—1. As an article of manufacture, a horseshoe constructed of a toe-piece and two side pieces, each adapted for attachment to a hoof, and formed at their contiguous ends with corresponding recesses and tongues which follow or tend in a direction parallel with the general contour of the shoe, substantially as and for the purpose described.

2. As an article of manufacture, a horseshoe constructed of a toe-piece and two side pieces, each adapted for attachment to a hoof, and formed at their contiguous ends with corresponding recesses and tongues, which follow the general contour of the shoe, the said pieces being also formed with overlapping projections extending inwardly at the point of juncture thereof, substantially as and for the purpose set forth.

3. The combination, with the toe-piece having nail-holes, and provided with recesses *a*, which tend inwardly toward each other, and projections *b*, mortised as shown, of the side pieces, also having nail-holes, and each provided with a tongue, *c*, corresponding to the recesses *a*, and a projection, *b'*, mortised as at *c'*, substantially as and for the purpose set forth.

349,081. HORSESHOE. JOHN E. BINGHAM, Walla Walla, Wash. Filed Apr. 29, 1886. (No model.)



Claim.—1. As an article of manufacture, a horseshoe provided with a toe-calk having its front edge rounded off and its back or rear edge inclined inwardly or concave, substantially as shown and described.

2. As an article of manufacture, a horseshoe constructed of three pieces, and provided with a toe-calk having its front edge rounded off and its rear edge inclined inwardly, each of said pieces having on the upper or hoof surface a series of raised projections having one side beveled and the other perpendicular to the top of the shoe, substantially as described.

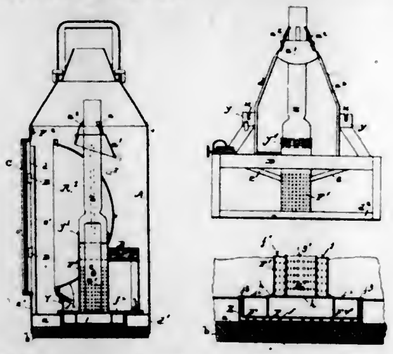
3. As an article of manufacture, a horseshoe provided with a toe-calk, *a*, having its front edge rounded off and its rear edge concave, and provided with a flat bearing or ground surface, *d*, substantially as shown and described.

4. The combination, in a horseshoe, of the toe-piece having calk *a*, and formed with projections *h*, with the side pieces having projections *g*, and hind calks, *k*, the said projections *g* and *h* constituting a calk, which calk as well as the calk *k* have their forward edges straight or vertical and their rear edges inclined or concave, substantially as shown and described.

5. As an article of manufacture, a horseshoe constructed of three pieces, and provided with a toe-calk having its front edge rounded off and its rear edge inclined inwardly, each of said pieces being provided with a series of raised projections having one side beveled and the other perpendicular to the top of the shoe, and the ends of the side pieces being widened inwardly at the bars of the hoof, substantially as described.

6. In a horseshoe, the combination, with the toe-piece, of the two side pieces joined thereto by a mortise or tenon joint constituted by the slotted tongue of the toe-piece fitting in a corresponding recess of the side pieces and registering with a nail-hole therein, each of said pieces being formed on their upper surface with raised projections, while their under surfaces are formed with calk *a*, projections *g* and *h*, and calk *k*, respectively, substantially as shown and described.

349,082. HEAD-LIGHT LAMP. EMILE BOERSE, San Francisco, Cal. Filed Dec. 2, 1882. (No model.)



Claim.—1. A lamp or lantern provided with a front having a circular opening, the fastening-ring *d*, and clamps B, for holding the glass in the circular opening, and the auxiliary fastening *c'* F^2 F^3 on the inside of the front to secure a square glass, when desirable.

2. In a head-light lantern, the double bottom forming an air-space, *a*, and connecting with the outside atmosphere and with the inside of the lantern through apertures *d'*, and having the chamber E, set under the burner to receive the drippings, as set forth.

3. In a burner having a circular wick, an air-supply tube formed of perforated cylinders F' G', open at the bottom, in combination with a means of closing the end when the burner is in position in the case to secure a steady flame.

4. The combination, with the oil-chamber air-vent *m*, of the closed top K, splash-plate *q*, and air-tube I.

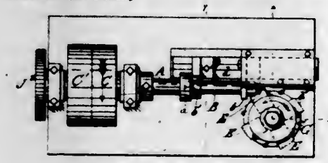
5. In a lamp, the combination, with the chimney-holder *a'*, of the supporting-standards a^3, unconnected with the reflector.

6. The improved chimney holder or clasp consisting of the flaring collar *a'*, and the curved metal springs a^3, secured to the top of the collar, and having their ends bent over toward the center to present the edges of each for contact with the glass, said collar being provided with suitable supporting means, as set forth.

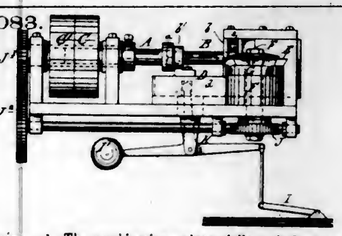
7. The improved chimney-holder consisting of the flaring collar, having its back carried down below the front edge, the metal clasps a^3, and the supporting-rods a^3.

8. The combination, with the lamp-stand and reflector R', provided with the trunnions *z*, of the supports *y y*, to receive the trunnions, and the adjustable fastening Y at the bottom of the reflector, whereby the reflector may be thrown and held at any angle, as set forth.

349,083. SCREW-THREADING MACHINE. ORRIN C. BURDICK, Buffalo, N. Y., assignor to Plumb, Burdick & Barnard, same place. Filed June 15, 1886. (No model.)



349,083.



Claim.—1. The combination, substantially as before set forth, of the mandrel, the turning tool-rest, and the eccentric cutting-tool.

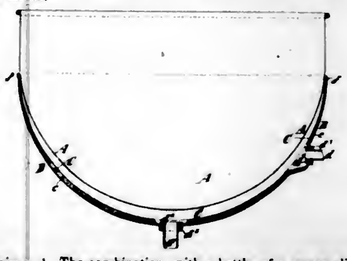
2. The combination, substantially as before set forth, of the mandrel, the blank-holder, the turning tool-rest, and the eccentric cutting-tool.

3. The combination, substantially as before set forth, of the mandrel, the blank-holder, the turning tool-rest, and the gearing whereby the turning tool-rest is turned automatically.

4. The combination, substantially as before set forth, of the mandrel, the blank-holder, the turning tool-rest, and the disengaging-lever.

5. The combination, substantially as before set forth, of the mandrel, the blank-holder, the turning tool-rest, the gearing whereby the tool-rest is turned automatically, the disengaging-lever, and the treadle.

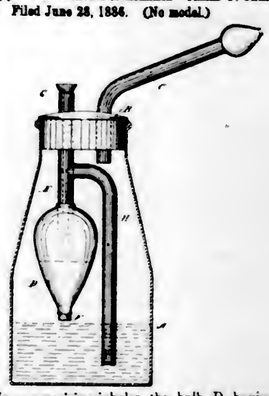
349,084. COOKING-KETTLE FOR CANDY AND OTHER SUBSTANCES. THOMAS BURKHARD, Brooklyn, N. Y. Filed Apr. 3, 1886. (No model.)



Claim.—1. The combination, with a kettle, of a surrounding heating-jacket consisting of an outer shell and a lining united by air-tight joints, whereby there is formed between the outer shell and lining an air-tight space which contains a filling of non-conducting material, substantially as herein described.

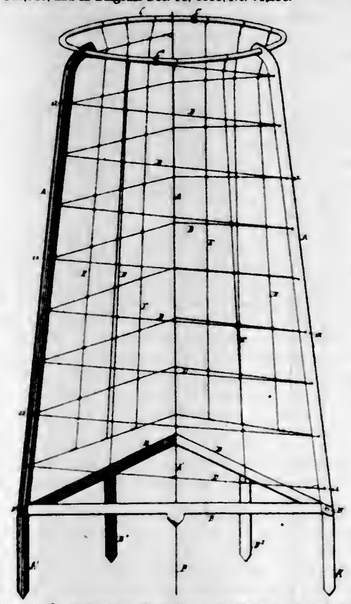
2. The combination, with a kettle, A, of a surrounding heating-jacket consisting of an outer shell, B, of thick metal and a thin and flexible metal lining, C, united by air-tight joints to form between them an air-tight space, and a filling of non-conducting material, *c*, in said space, the thick outer shell of the jacket serving to prevent collapse thereof in case of vacuum in the jacket, and the thin flexible lining being capable of yielding to prevent leakage of joints by reason of their becoming strained by unequal expansion, substantially as herein described.

349,085. VAPORIZING-INHALER. JAMES F. CHESEBRO, Minneapolis, Minn. Filed June 28, 1886. (No model.)



Claim.—In a vaporizing-inhaler, the bulb D, having an opening adapted to receive a stopper, and formed integrally with a tube, E, whose end projects into the interior of the bulb, for the purpose set forth.

349,086. TREE-GUARD. GEORGE S. COLE, The Dean, near Cirencester, County of Gloucester, England. Filed Jan. 13, 1886. (No model.) Patented in England Oct. 9, 1885, No. 11,997; in France Dec. 11, 1885, No. 172,846, and in Belgium Dec. 15, 1885, No. 71,238.



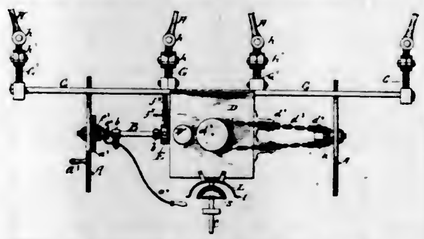
Claim.—1. In a tree-guard, a frame consisting of uprights and frames uniting them at the top and bottom, in combination with a wire spirally coiled from the top frame to the bottom frame and engaging with said uprights, substantially as described.

2. In a tree-guard, a frame consisting of uprights and frames uniting them at the top and bottom, in combination with a wire spirally coiled around and engaging with said uprights, and a series of vertical wires connected to the spirally-coiled wire, substantially as described.

3. In a tree-guard, the combination of a circular frame at the top and a polygonal frame at the bottom, with uprights uniting them, and a wire spirally coiled from the top frame to the bottom frame and connected to said uprights, substantially as described.

4. In a tree-guard, the combination of uprights having their lower end pointed and their upper end perforated, with a hoop passing through the perforated upper ends and a polygonal frame uniting the lower ends of said uprights, substantially as described.

349,087. PLANT AND TREE CULTURE APPARATUS. WILBERT J. DENNE, Augusta, Ga. Filed Jan. 19, 1886. (No model.)



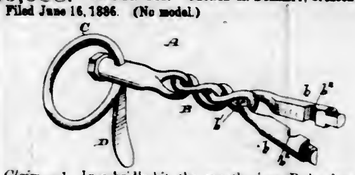
Claim.—1. An apparatus for destroying insects on plants, consisting of two wheels, an upwardly-bent axle connecting them, a tank upon said axle, a horizontally-revolving stirrer in said tank, a rotary pump having three pipes issuing therefrom, and mechanism, substantially as set forth, connected with the hub of each wheel, to operate said stirrer and pump, all combined substantially as described.

2. In an apparatus for destroying insects, the combination of two driving-wheels, an upwardly-bent axle, a tank above said axle, a stirrer therein, a rotary pump having its shaft connected by gearing with the hub of one of the driving-wheels, a pipe leading from the tank into the said pump, and a pipe leading back from said pump into the tank, substantially as and for the purpose described.

3. In an apparatus for destroying insects, the combination of a tank mounted upon the upwardly-bent axle of driving-wheels, a rotary pump having its shaft connected with the hub of one of said wheels and leading back into said tank, and a pipe controlled by a spring-valve at its upper end with a distributing-pipe having nozzles swiveled at two points, substantially as and for the purpose described.

4. In an apparatus for destroying insects, the combination of a tank mounted upon the upwardly-bent axle of driving-wheels, and a rotary pump having a pipe leading back into said tank and controlled by a spring-valve at its upper end, with the driver's seat in front of the tank and the concavo-convex shield for said seat, substantially as and for the purpose described.

349,088. BRIDLE-BIT. GEORGE A. DOHERTY, Crescent Mills, Cal. Filed June 16, 1886. (No model.)

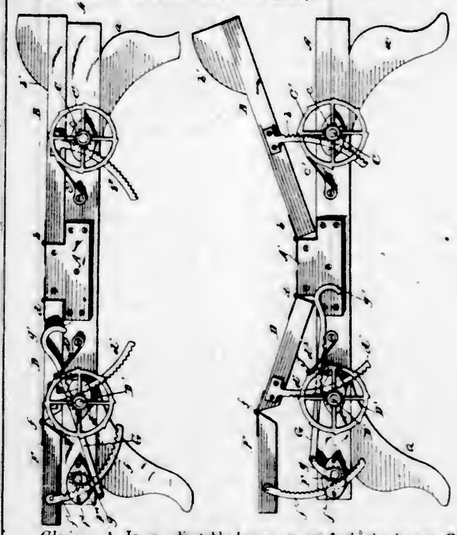


Claim.—1. In a bridle-bit, the mouth-piece B, having one of its ends split into longitudinal sections, hinged together, and provided with a two-part socket, forming, when the sections of the split ends are closed, a complete hole or aperture, and the removable rein-ring fitting in said hole, in combination with the tubular rubber piece or sheath E, fitted on the mouth-piece, substantially as herein described.

2. In a bridle-bit, the mouth-piece B, having its end *b*, consisting of hinged separable sections, which, when fitted together, engage the rein-ring of the bit and when separated allow its removal, in combination with the removable rubber piece or sheath E, fitted upon said mouth-piece and held in position by the ring, and the removable nut b^2, for holding the two sections of the end *b* together and fitting the ring in place, substantially as herein described.

3. In a bridle-bit, the mouth-piece B, having one end, *b*, consisting of two longitudinal sections hinged together at their inner ends and having their outer ends threaded, and the rings C, engaging holes or apertures in the ends of the mouth-piece, one of said rings being removable by the separation of the sections of the end *b*, in combination with the removable rubber piece or sheath E on the mouth-piece and held in position by the rings and the nut b^2 on the end *b*, substantially as herein described.

349,089. INVALID-LOUNGE. JAMES T. GILBERT, Amherst Court-House, Va. Filed Sept. 17, 1885. (No model.)



Claim.—1. In an adjustable lounge, as set forth, the leg-rest F and segment *f*, combined with a crank-shaft and pinion, and with a lever extending forward of the bed, and arranged to rotate the shaft and to break the dead-center of the crank at will, as set forth.

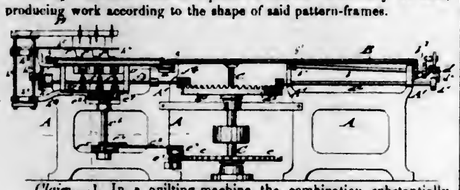
2. The foot or leg support E, pivoted to the adjustable thigh-sup-

port D, and having toothed arms f', combined with the shaft F', having pinions f^2 and crank-arm g, the toothed lever G, having handle end g', and the bracket or frame J, having tooth-engaging part j, fulcrum-bearings j^2 j^3, and open partition j', as set forth.

3. The brackets H, having bearings h', recess h, and projection h^2, combined with the movable parts, the toothed arms, and the shafts and pinions, as set forth.

349,090. QUILTING-MACHINE. JOHN HAPPE, Brooklyn, N. Y. Filed Jan. 19, 1881. (No model.)

Brief.—Pattern frames or plates of various forms may be used, producing work according to the shape of said pattern-frames.



Claim.—1. In a quilting-machine, the combination, substantially as set forth, of a horizontal rotary fabric supporting and feeding device adapted to feed the fabric in a circle or arc of a circle and a horizontally-reciprocating sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device.

2. In a quilting-machine, the combination, substantially as set forth, of a horizontal rotary fabric supporting and feeding device adapted to feed the fabric in a circle or arc of a circle and a horizontally reciprocating and swiveling sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device.

3. In a quilting-machine, the combination, substantially as set forth, of a horizontal rotary fabric-feeding device adapted to feed the fabric in a circle or arc of a circle and provided with a pattern-cam, a horizontally-reciprocating sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device, and means for holding said machine in contact with said cam.

4. In a quilting-machine, the combination, substantially as set forth, of a horizontal rotary fabric supporting and feeding device adapted to feed the fabric in a circle or arc of a circle, organized sewing-machines arranged to converge toward each other within the circle traversed by said fabric supporting and feeding device, and means for imparting an intermittent step-by-step motion to said device.

5. In a quilting-machine, the combination, substantially as set forth, with a horizontal rotary fabric supporting and feeding device consisting of two concentric feed-rings, of a sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device.

6. In a quilting-machine, the combination, substantially as set forth, of radially-arranged supporting-frames having flanged guide-rollers, a horizontal rotary fabric supporting and feeding device supported on said rollers, and a sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device.

7. In a quilting-machine, the combination, substantially as set forth, with an intermittently-moving horizontal rotary fabric supporting and feeding device, of a reciprocating sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device, the carriage of which is adapted to swing around a vertical swiveled shaft, and supported on a flanged circular platform, and spherical anti-friction rollers, whereby it is adapted to be set at an oblique angle to the radius of the feeding device.

8. In a quilting-machine, the combination, substantially as set forth, of an intermittently-moving horizontal rotary fabric supporting and feeding device provided on its periphery with a pattern-cam, a sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device, the carriage of which is actuated by the pattern-cam, and a spring for keeping said carriage in contact with said pattern-cam.

9. In a quilting-machine, the combination, substantially as set forth, of two concentric feed-rings provided with cogs and a radial shaft having pinions of different sizes engaging the cogs of the inner and outer feed-rings, whereby a harmonious feed motion is imparted to said rings.

10. In a quilting-machine, the combination of a horizontal rotary fabric supporting and feeding device, a vertical shaft, a gear-wheel attached to said shaft, a crown-wheel attached to said shaft, a series of radial shafts provided at their inner ends with pinions which mesh with said crown-wheel and at their outer ends with cam-disks, vertically-reciprocating needle-carrying arms actuated by said cam-disks, horizontally-reciprocating sewing-machine carriages, and mechanisms connecting said carriages with said gear-wheel, substantially as set forth.

11. In a quilting-machine, the combination of a horizontal rotary fabric supporting and feeding device, a vertical shaft, a gear-wheel attached to said shaft, a crown-wheel attached to said shaft, a series of radial shafts provided at their inner ends with pinions which mesh with said crown-wheel and at their outer ends with cam-disks, vertically-reciprocating needle-carrying arms actuated by said cam-disks, horizontally-reciprocating sewing-machine carriages, mechanisms connecting said carriages with said gear-wheel, and mechanism connecting said crown-wheel with said horizontal rotary fabric-feeding device for actuating the latter, substantially as set forth.

12. The combination, in a quilting-machine, of a horizontally-rotary fabric-feeding toothed ring, a horizontally-reciprocating sewing-machine arranged to operate within the circle traversed by said feeding-ring, a pinion meshing with said toothed ring, and a ratchet mechanism for actuating the shaft of said pinion intermittently, substantially as described.

13. The combination, in a quilting-machine, of a horizontal rotary fabric-feeding toothed ring, a horizontally-reciprocating sewing-machine arranged to operate within the circle traversed by said feeding-ring, a gear meshing with said feeding-ring, and a ratchet mechanism for actuating the shaft of said gear intermittently, said ratchet mechanism being adjustable, whereby the step-by-step motion of the feeding-ring is regulated, substantially as described.

14. The combination, in a quilting-machine, of a horizontal rotary fabric feeding and supporting device, a horizontally-reciprocating sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device, and mechanism for reciprocating said sewing-machine intermittently, consisting of a cam engaged by a pin of the sewing-machine carriage and ratchet mechanism for intermittently actuating the shaft of said cam, substantially as described.

15. The combination, in a quilting-machine, of a horizontal rotary fabric supporting and feeding device, a horizontally-reciprocating sewing-machine arranged to operate within the circle traversed by said rotary fabric-feeding device, and mechanism for reciprocating said sewing-machine intermittently, consisting of a cam engaged by a pin of the sewing-machine carriage and ratchet mechanism for intermittently actuating the shaft of said cam, said ratchet mechanism being adjustable, whereby the steps of the sewing-machine carriage are regulated, substantially as set forth.

16. In a quilting-machine, the combination of a horizontal rotary fabric supporting and feeding device, a ratchet mechanism for imparting an intermittent motion thereto, a horizontally-reciprocating sewing machine arranged to operate within the circle traversed by said fabric-feeding device, and a ratchet mechanism for intermittently moving said sewing-machine horizontally, substantially as set forth.

17. In a quilting-machine, the combination of a horizontal rotary fabric supporting and feeding device, a ratchet mechanism for imparting an intermittent motion thereto, a horizontally-reciprocating sewing-machine arranged to operate within the circle traversed by said fabric-feeding device, and a ratchet mechanism for intermittently moving said sewing-machine horizontally, said ratchet mechanisms being severally adjustable, whereby the horizontal step-by-step motions of said feeding device and said sewing-machine are regulated, substantially as described.

18. In a quilting-machine, the combination, with a sewing-machine and a fabric-carrier, upon which a fabric may be held extended and rotated between the upper and lower arms of a sewing-machine, of movable supports permitting the bodily movement of one of said parts in a direction transverse to the line of rotation of the carrier, whereby the lines of stitching will be formed in various positions on the extended fabric, substantially as herein described.

19. In a quilting-machine, the combination, with a sewing-machine and a fabric-carrier, upon which a fabric may be held extended and rotated between the upper and lower arms of the sewing-machine, of movable supports for the sewing-machine, permitting its bodily movement in a direction transverse to the line of rotation of the carrier, whereby the lines of stitching will be formed in various positions on the extended fabric, substantially as herein described.

20. In a quilting-machine, the combination, with a sewing-machine, of a rotary fabric-carrier, on which the fabric may be stretched or extended in a plane perpendicular to the needle, and the axis of which is parallel with the needle, and supports for said carrier which permit its rotation between the arms of the sewing-machine, substantially as herein described.

21. In a quilting-machine, the combination, with a sewing-machine, of a rotary fabric-carrier, on which a fabric may be stretched or extended in a plane perpendicular to the needle, and the axis of which is parallel with the needle, and a supporting-track, on which the carrier may turn on its axis and between the arms of the sewing-machine, substantially as herein described.

22. In a quilting-machine, the combination, with a sewing-machine and fabric-supports, of a rotary carriage for one of said parts having its axis parallel with the needle, and supports which permit the rotation of said carriage in a plane perpendicular to the needle, to change the relative position of the needle and fabric, substantially as herein described.

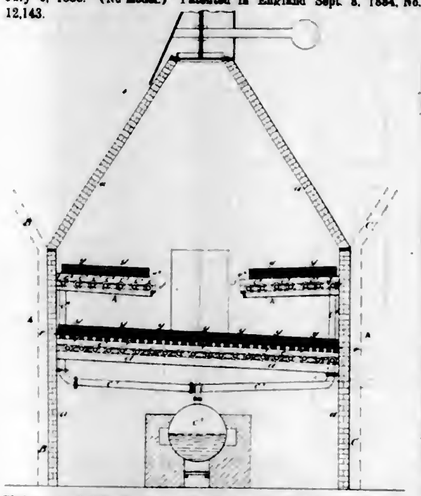
23. In a quilting-machine, the combination, with a sewing-machine and a rotary fabric-carrier, on which a fabric may be stretched or extended in a plane perpendicular to the needle, and the axis of which is parallel with the said needle, of supports for one of said parts movable to vary the distance between the axis of the fabric-carrier and the needle, substantially as herein described.

24. In a quilting-machine, the combination, with a sewing-machine and a rotary fabric-carrier, on which a fabric may be stretched or extended in a plane perpendicular to the needle, and the axis of which is parallel with said needle, of supports for the sewing-machine movable to carry the needle toward and from the axis of the fabric-carrier, substantially as herein described.

25. In a quilting-machine, the combinantion, with a sewing-machine and a rotary fabric-carrier, on which a fabric may be stretched or extended in a plane perpendicular to the needle, and the axis of which is parallel with the said needle, of a carriage for supporting one of said parts, supports on which said carriage may be moved transversely to vary the distance between the axis of the fabric-carrier and needle, and pattern mechanism for controlling the transverse movement of such carriage, substantially as herein described.

26. In a quilting-machine, the combination, with a sewing-machine and a rotary fabric-carrier, on which a fabric may be stretched or extended in a plane perpendicular to the needle, and the axis of which is parallel with said needle, of a carriage for the sewing-machine movable in a transverse direction, to carry the needle toward and from the axis of the fabric-carrier, and pattern mechanism for controlling the movements of the sewing-machine carriage, substantially as herein described.

349,091. KILN FOR DRYING PURPOSES. BENJAMIN P. HARRIS, Southfleet, and ALFRED STAGG, Milton, County of Kent, England. Filed July 6, 1885. (No model.) Patented in England Sept. 8, 1884, No. 12,143.

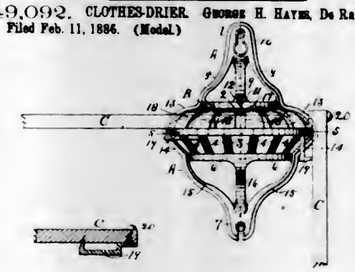


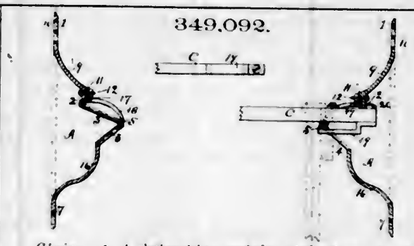
Claim.—1. A kiln for drying hops, malt, wool, or other like materials, having a perforated floor, a series of open-work trays supported upon said floor for holding the material to be dried, and steam-pipes supported below said floor, substantially as shown and described.

2. A kiln for drying hops, malt, wool, or other materials, having a perforated floor, brackets or shelves e, supported above said floor and extending from the walls toward the interior of the kiln, and steam-pipes supported below said floor and brackets, all substantially as shown and described.

3. A kiln for drying hops, malt, wool, or other like materials, having a perforated floor, brackets or shelves e, supported above said floor and extending from the walls toward the interior of the kiln, open-work trays supported upon said floor, and brackets and steam-pipes supported below said floor and brackets, all substantially as shown and described.

349,092. CLOTHES-DRIER. GEORGE H. HAYES, De Ruyter, N. Y. Filed Feb. 11, 1886. (Model.)

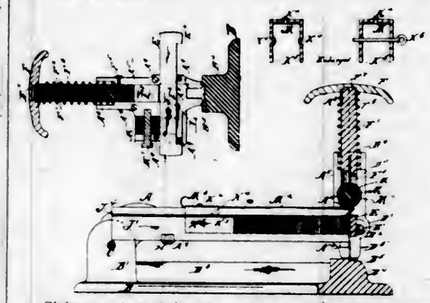




Claim.—1. A clothes-drier consisting of the frame A, provided with intermediate rim 2 and band 6, and bar 5, curving outwardly and connected together by the braces 3, the spacer B, consisting of the body 17, having fingers 18, and secured to the rim 2, and the bars C, fitting between the fingers 18, and mounted upon the bar 5, by the loop-plate 19, constructed and operating together substantially as described.

2. In a clothes-drier, a removable spacer, B, the fingers of which, in combination with the bar 5, form the compartments to receive the bars C, substantially as shown and described.

349,093. MACHINE FOR INSERTING METALLIC STAPLES IN PAPER, &c. ISAAC W. HETSINGER, Philadelphia, Pa. Filed Feb. 25, 1886. (No model.)



Claim.—1. A staple-inserting machine consisting of a plunger-case, A^4 D, plunger or driver F' F^2, and staple-guiding channel A^5, in combination with a laterally-reciprocating carrier, E, moving transversely in the plunger-case A^4 D, and constructed to carry a staple transversely from a point outside the line of descent of the said plunger under the driving-blade thereof, substantially as and for the purposes described.

2. In combination with the plunger-case A^4 D of a staple-inserting machine, provided with a reciprocating plunger, F', staple-guiding channel A^5, and transversely-reciprocating carrier E, the self-feeding staple-bar J, having a series of staples strung thereupon, and constructed to deliver the said staples singly to the carrier E at a point outside the line of descent of the said plunger F', and the said carrier E, constructed to carry the said staples singly under the said plunger F', substantially as described.

3. In combination with the base B, having clincher B^3, the swinging arm A, pivoted at its rear end to said base, and having at its front end a staple-driver consisting of plunger F', working vertically in a case, A^4 D, staple-guiding channel A^5, and retracting-spring F^3, together with the transversely-reciprocating head block or carrier E, and the self-feeding staple-holding bar J, the whole constructed to operate substantially as and for the purposes described.

4. In a staple-driving machine, in combination with the plunger-case A^4 D, the plunger F', and staple-guiding channel A^5, the transversely-reciprocating head-block E, provided with the shallow staple-holding groove E^2, and the self-feeding staple-holding bar J, delivering a series of staples singly from the said bar J against the said head-block E and into the said groove E^2 thereof, substantially as described.

5. In a staple-driving machine having plunger-case A^4 D, plunger F', and staple holding and guiding channel A^5, the reciprocating head block or carrier E, having a staple-holding groove, E^2, formed therein, the said carrier E or the groove E^2 thereof being provided with means to hold steel or iron staples thereto during the reciprocation thereof and until driven by the said plunger, substantially as described.

6. A self-feeding staple-driving machine having plunger-case A^4 D, plunger F', staple-guiding channel A^5, spring M, and spring-follower K, in combination with the detachable self-feeding staple-holding bar J, removably clamped to the machine, and constructed to receive the follower K upon the same in rear of the series of staples with which the said bar J is loaded, and to deliver the said staples singly into the machine for driving the same as the preceding staples are driven, the said detachable bar being removable to open the machine for examination,

and the said bar J being replaceable, when empty, with another and a fully-loaded like staple-holding bar, substantially as described.

7. In combination with a self-feeding staple-driver having a plunger-case, A^4 D, a plunger working vertically therein, and a staple-guiding channel, A^8, a socketed opening, A^{13} A^{14}, to admit the head of a staple-feeding bar, J, into the machine, and having a slope or offset, D^6, together with a staple-feeding bar, having a longitudinal body, J, staple holding and guiding slot J^2, and protecting-flap J^3, said flap J^3 beveled at J^{10}, for engagement against D^6, to hold the said flap in place and prevent closure of the said slot J^2, substantially as described.

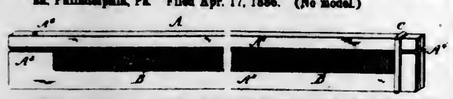
8. In a self-feeding staple-driver, in combination with the transversely-reciprocating carrier E, the retracting-spring C, and suitable staple-inserting mechanism, substantially as described.

9. In combination with the arm A, staple-driver A^4 D F F' A^5, and detachable self-feeding staple-bar J, the clamping and releasing mechanism H A^9 A^7, or its equivalent, attached to said arm A, and constructed to set and detachably secure the said staple-bar J for use in the machine, substantially as described.

10. The combined self-feed and single-feed staple-driving machine, consisting of a clinching-base having pivoted thereto at one end a vibrating driver-arm adapted to be raised in an upright position to receive staples fed into the open end of the delivery-slot of a staple-driver constructed upon the free end of said arm singly, and having in connection with said driver a transversely-reciprocating carrier adapted to take up staples singly from a self-feeding staple-bar outside the line of descent of the said driver and carry them under the said driver by the reciprocation thereof, the whole constructed to be used as a self-feeding machine when the carrier is in use and as a single-feed machine when the carrier is not reciprocated, substantially as described.

11. In a staple-driving machine having a base, B, provided with a clinching-anvil, B^4, and a grooved clincher, B^5, and a staple-driver resting upon said clinching-groove, having a reciprocating plunger, F', and a staple-guiding channel, A^8, and pivoted to the said base B, the said anvil B^4 sloped or beveled off upon its front side and having the driver-case overhanging the said slope, so that papers may be inserted by presenting them against the slope of B^4, and thus raising the driver by their pressure, substantially as described.

349,094. STICK FOR HOLDING STAPLES, &c. ISAAC W. HEYDING, Philadelphia, Pa. Filed Apr. 17, 1886. (No model.)



Claim.—1. As an article of manufacture, a stick for holding metallic staples, &c., consisting of an elongated staple-supporting piece, A^3, a guard-flap, A', extending along above the same, attached thereto at one end and free at the other, and a slot, A^4, open at one end and closed at the other, substantially as described.

2. In combination with the staple-supporting piece A^3, adapted to carry a series of staples, B, the guide-flap A', supported at one end of piece A^3, providing an open slot, A^4, extending forward from the point of attachment thereto, the said flap A' extending along the piece A^3, and forming a longitudinal guide for the staples, substantially as described.

3. The staple holding and guiding stick A, having a longitudinal staple-supporting piece, A^3, adapted to be attached to a staple-inserting machine to deliver the staples thereto, and a rigid guide-flap, A', formed integral with the said stick A, adapted to form a guide for the staples against upward displacement during the operation of delivery of the staples into the machine, substantially as described.

4. The stick for holding staples, &c., consisting of a longitudinal supporting-piece, A^3, flap A', slot A^4, and grooves A^3 A^3, substantially as and for the purposes set forth.

5. As an improved article of manufacture, the staple-holding stick consisting of the support A^3, series of staples B, guard-flap A', and band C, or its equivalent, substantially as and for the purposes described.

349,095. METALLIC SHINGLE. JOHN B. HOAGLAND, Nashville, Tenn., assignor of one-half to Wiley B. Sheffield, same place. Filed Feb. 9, 1886. (No model.)

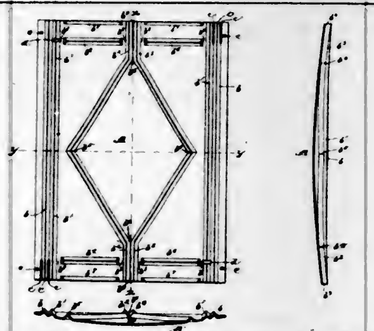
Claim.—1. As a new article of manufacture, a metallic shingle having concavo-convex surfaces provided with a series of corrugations, substantially as described.

2. A metallic shingle having concavo-convex surfaces provided with corrugations, apertures to receive nails, and means, substantially as described, for locking adjacent shingles together, as and for the purpose set forth.

3. A metallic shingle having concavo-convex surfaces provided with corrugations and a locking tongue and slit for locking adjacent shingles together, as set forth.

4. A metallic shingle having concavo-convex surfaces and provided

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with corrugations b b' b^3 b^3, apertures e to receive nails, tongues C, and transverse slits d, substantially as described, for the purpose set forth.

5. A metallic shingle having longitudinal parallel corrugations b b', one of the corrugations having transverse slot d and the other corrugation being slitted at c c to provide a tongue, C, as set forth.

6. A metallic shingle having parallel longitudinal corrugations b b', as set forth.

7. A metallic shingle having the corrugations b^3 b^3, forming an open figure in the center of the shingle, the said corrugations at the ends of the shingle running parallel with each other and providing a water-course, as set forth.

8. A metallic shingle having the longitudinal corrugations b b' and the transverse corrugations b^3, extending to within a short distance of the corrugations b b', leaving a space or water-course, b^3, as set forth.

9. A metallic shingle having the transverse locking corrugations or projections b^3 and the bent portion or lip b^7, to engage the corrugations, as set forth.

10. A metallic shingle having the corrugations b^3 b^3, forming an open figure in the center, and terminating at the ends of the shingle in a water-course, as set forth.

11. A metallic shingle having the longitudinal corrugations b b', locking devices provided on the corrugations, the transverse corrugations b^3, and the bent lip or portion b^7, to engage with the corrugations b^3, as set forth.

12. A metallic shingle having the longitudinal corrugations b b', locking devices provided on the said corrugations, the transverse corrugations b^3, extending to within a short distance of corrugations b b', leaving a water-course, b^3, and the lip or bent portion b^7, engaging with corrugations b^3, as set forth.

349,096. WORK-BOX. JOHN W. HOFFMAN, Creston, Ohio. Filed Mar. 14, 1885. (Model.)



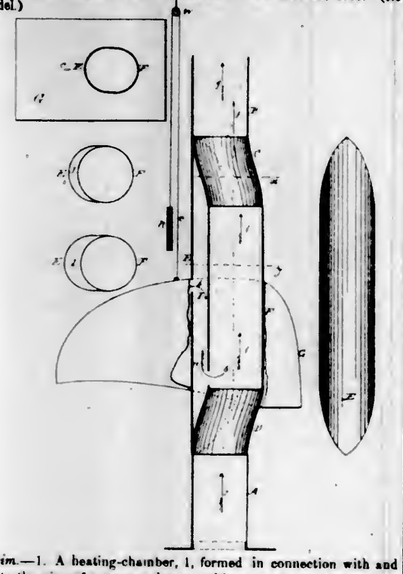
Claim.—1. The combination of the support, a strand of wire secured to the support and bent at intervals, forming a series of double-armed spindles, and connections extended between said spindles, and fastenings securing the connections to the support, said connections being movable through the fastenings, whereby the spindles may expand and contract, substantially as set forth.

2. In a work-box, the combination, with the casing having spool-supports and thread-passages, of a number of thread-cutters, one adjacent each of said passages, and having openings to receive tags, whereby to indicate the quality of thread carried through the adjacent passage, substantially as set forth.

3. The herein-described work-box, comprising the box or casing having thread-passages, spool-supports secured in said box, a tray fitted removably in the box above the spool-supports, and cutters secured to the box, one adjacent each thread-passage, said cutters being provided with tag-openings and having a portion between their cutting-edges and the thread-passages, whereby to bind and secure the thread to and against the box, substantially as set forth.

4. The combination of the support and a strand of wire forming a spool-holder and bent at intervals, forming a series of spindles, and connections extended between said spindles, the said connections being arranged at angles to each other, whereby the spindles will be sustained in upright position, substantially as set forth.

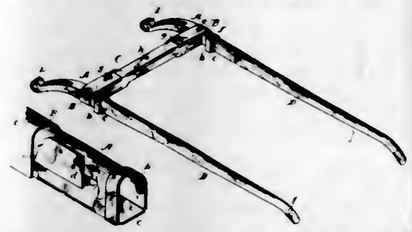
349,097. SMOKE AND STEAM ESCAPE FOR HEATING APPARATUS. BENJAMIN HOLBROOK and CHARLES E. NORCOTT, Chicago, Ill., said Norcott assignor to said Holbrook. Filed Feb. 26, 1886. (No model.)



Claim.—1. A heating-chamber, I, formed in connection with and exterior to the pipe of a stove or heater, with an upper exterior opening, b, leading into it, and an interior opening, a, leading from it to the pipe F, as specified.

2. The heating-chamber I, formed by the pipe F and plate E, in combination with the deflecting-pipes C D, the pipe being provided with an opening, a, and the plate E with an opening, b, above the opening a, as and for the purpose specified.

349,098. SPRING SOCKET IRON FOR VEHICLES. HENRY M. HORNE, Paris, Tex. Filed Jan. 18, 1886. (No model.)



Claim.—1. Spring socket-irons for attachment to the axle of a vehicle adapted to receive and hold a pole or thills, as set forth.

2. Spring socket-irons having a partition-strip within the socket and a sliding sleeve thereon adapted to receive and clamp a pole or thills therein and to be attached to the axle of a vehicle, as set forth.

3. A socket-iron for attachment to the axle of a vehicle, the bottom of the socket forming a spring adapted to clamp against a pole or thills in the socket, and to be held in place by a sliding sleeve secured to the socket-iron and pole or thills by a bolt, as and for the purpose set forth.

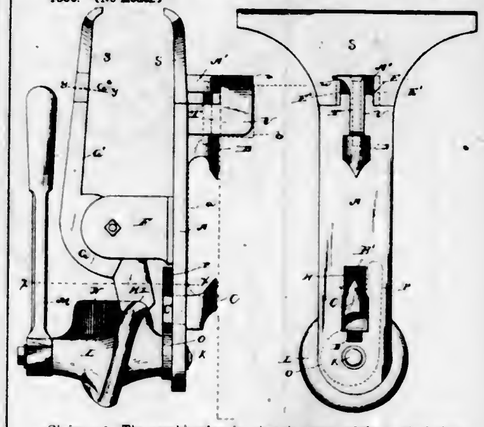
4. A socket-iron for attachment to the axle of vehicles, having a spring-bottom, with a partition in the socket to receive the slit end of a pole or thill, said socket being adapted to clamp and hold the end of a pole or thill by means of a sliding sleeve having a clevis-hook on its upper side adapted to receive and hold a whiffletree, as set forth.

5. Socket-irons for attachment to the axle of vehicles, having spring-bottoms adapted to clamp a pole or thill in its socket by sliding sleeves secured to a cross-bar connecting the socket-irons, said sleeve being held in place by screw-bolts passing through them, the socket-irons, and pole or thills, as and for the purpose set forth.

6. The combination, with a spring socket-iron adapted to clamp and hold a pole or thill in its socket by means of a sliding sleeve thereon, of the beveled eye-piece and ear of the axle-clip adapted to receive and hold spring flanged bushings having recesses on one of their sides, as and for the purpose set forth.

7. In combination with a socket-iron having a spring in its bottom with a thickened or beaded front, the socket adapted to be clamped by a sliding sleeve to abut against the bead of the eye-piece, and ears of the axle-clip holding spring flanged bushings having recesses on one of their sides inserted to register with each other to receive a flanged bolt adapted to be turned and lock the bushings in position, as set forth.

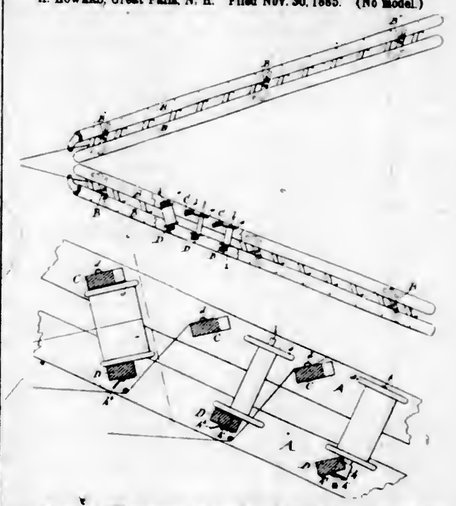
349,099. BENCH-CLAMP. SAMUEL G. HORACK, East Saginaw, assignor of one-half to Adam A. Meuth, Ann Arbor, Mich. Filed June 15, 1886. (No model.)



Claim.—1. The combination, in a bench-clamp, of the vertical plate A, having the dogs C and D on its rear side and the bracket F on its front side, with the screw-cam L, journaled on the outer side of the plate, and having the lever M, and the lever G, fulcrumed to the bracket F, and having the lower extending arm, H, engaging the screw-cam, and the upwardly-extending clamping-arm G', for the purpose set forth, substantially as described.

2. A bench-clamp provided with the vertical slot B, and having the dog D on its rear side, in combination with the vertically-movable dog C, having the headed shank secured in the slot B, and the eccentric cam-bearing under the headed shank, for the purpose set forth, substantially as described.

349,100. CREEL FOR WARPING OR BEAMING MACHINES. CHAS. H. HOWARD, Great Falls, N. H. Filed Nov. 30, 1885. (No model.)

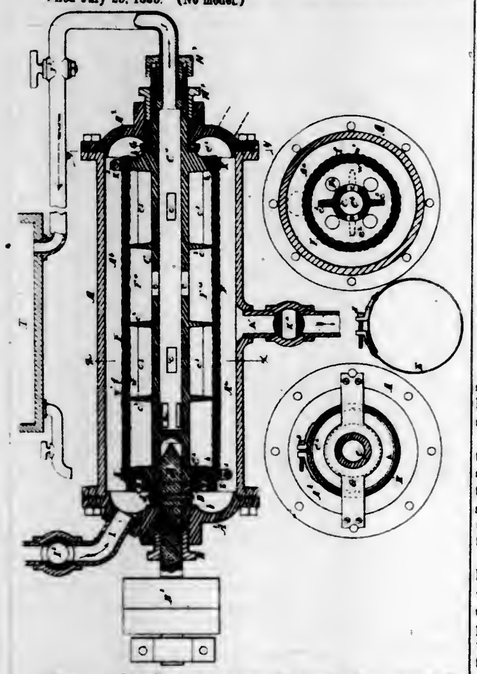


Claim.—1. The bottom and top boards, and the stiles having bearings for the free ends of the spindles or skewers, combined with the

pivoted stiles and their attached spindles or skewers, substantially as described.

2. The stationary or bearing stiles, the bottom and top boards, and the spindles or skewers, combined with the pivoted stiles and the blocks *h*, pivoted in said pivoted stiles and receiving one end of and holding the spindles or skewers, substantially as described.

349,101. FILTERING APPARATUS. JOHN HOWES, Worcester, Mass. Filed July 25, 1885. (No model.)

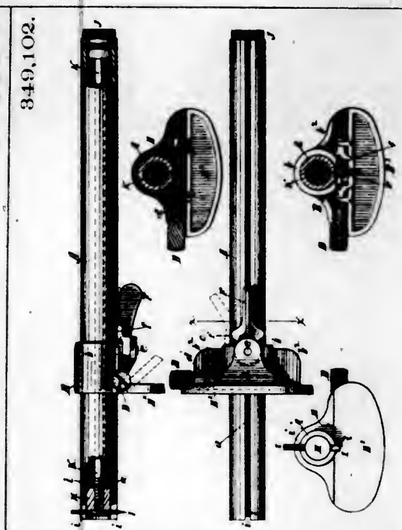


Claim.—1. In a filtering apparatus, the combination, substantially as described, of the hollow revoluble core C, having heads C', annular flanges c^2, radial longitudinal flanges c^3, and openings *c*, the tubular filtering material F, and connecting-bands E, for the purpose set forth.

2. The combination, substantially as hereinbefore described, of the casing-cylinder, the revoluble driving-arbor B, journaled in the head A', and having an inward-projecting end provided with the plate D, keyed thereto, and the filtering-cylinder mounted on the revoluble hollow core-shaft C, one end of which is journaled in the head A^2, the other end thereof being centered and supported by said arbor B, and detachably connected for motion therewith by pins *e*, fixed in the core-head C and entering holes in said plate D, in the manner and for the purpose set forth.

3. The combination, with the casing A, its head A^2, and revoluble filter-cylinder, one end of which is journaled in said head and the other end detachably supported on the arbor B, of the bearing-bar G, for sustaining said filter-cylinder when the head A^2 is removed, substantially as shown and described.

349,102. MARKING-GAGE. FRANK A. HUMPHREY, Worcester, Mass. Filed Apr. 17, 1886. (No model.)



Claim.—1. A marking-gage consisting of a hollow cylindrical tube provided with a marking-tooth at the end thereof, combined with an adjustable head composed of a cylindrical hub having an ellipsoidal guard-plate projecting therefrom, and a clamping-lever pivoted on said head at the back of the guard, and acting against said bar to retain the head at position of adjustment, substantially as set forth.

2. A marking-gage wherein the adjustable head B is provided with a movable guard-lip, B', hinged thereto in the manner described, in combination with a bar and marking-point, and with a nut, D, axially disposed in relation to the hinge, and fitted to the screw-threaded end of the hinge-pin *d*, and adapted for retaining said guard-lip at position of adjustment by clamping the hinge-joint, substantially as hereinbefore set forth.

3. In a marking-gage, the combination, substantially as described, of the bar A, carrying the marking-point, the head B, mounted to slide on said bar, and the laterally-swinging lever F, pivoted to the under side of said head on an axis perpendicular to the axis of the bar, and having on its upper side a cam-surface or incline, as at *f*, for clamping against said bar, for the purposes set forth.

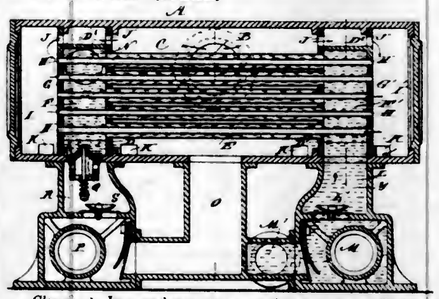
4. A gage having a hollow cylindrical bar provided with a longitudinal groove, as *a*, in its exterior surface, and carrying a marking-tooth, a sliding head provided with a backwardly-swinging lip, means for retaining said lip at positions of adjustment, and a clamp-lever pivoted to said head and having an incline or cam-surface, *f*, for contact therewith, and the pin *e*, extending through the head and into the groove *a*, as and for the purposes set forth.

5. The combination, in a marking-gage, of a hollow tubular bar, a head having a dependent guard-lip adjustable on said bar and provided with a clamping-lever for retaining said head at positions of adjustment, a sliding nut carrying the marking-teeth, and a micrometer adjusting-screw passing through the tube and provided at the opposite end of said bar with an operation head for regulating said tooth, substantially as set forth.

6. The combination, with the tubular bar A, having an adjustable gage-head mounted thereon, of the non-rotatable nut H, carrying the marking-tooth I, fitted within the end of said bar, and the rotatable rod K, extending through said tubular bar and having one end screw-threaded to said nut, as at *l*, and the opposite end provided with a thumb-head, J, rotatable with the rod, but confined against longitudinal movement within the end of said bar, substantially as and for the purpose set forth.

7. The marking-gage having a cylindrical tubular bar, A, slotted, as at *i*, the cylindrical block or nut H, fitting within the tube, and the marking-tooth I, fixed into and projecting from said block through the slots *i*, for preventing rotation thereof, and an adjustable gage-head, substantially as set forth.

349,103. CONDENSER. RICHARD T. ISBESTER, Chattanooga, Tenn. Filed June 8, 1886. (No model.)



Claim.—1. In a condenser, the central compartment, E, the end compartments, I and I', connected with the central compartment by the apertures J and the channels K, and the steam-pipes H, in combination with the water-compartments F and F', and the pipes E, through each of which passes centrally a steam-pipe, H, substantially as shown and described.

2. In a condenser, the central compartment, C, having the inlet-pipe B, the outlet-pipe O, connected with the pump P, the end compartments, I and I', connected with the central compartment, C, by the apertures J and the channels K, in combination with the compartments F and F', the pipes E, connecting the said water-compartments F and F', the chamber L, containing the valve L', and the circulating-pump M, substantially as shown and described.

349,104. CALF-WEANER. HARVEY L. JONES, Coffeyville, Kans., assignor of one-half to Richard Anderson, same place. Filed Mar. 10, 1886. (No model.)



Claim.—1. In a calf-weaner, the combination of the clamps, a key passing through the connected ends thereof, and a front shield having a tubular socket, *e*, provided with a slot, *e'*, loosely fitted on the clamps, and having the ends of the key passed through the slot therein, substantially as described.

2. In a calf-weaner, the combination of the clamps, one having an open angular socket and the other an arm fitted snugly in the socket, a key passing through the socket and arm, and a front shield carried by the clamps, substantially as described.

3. In a calf-weaner, the combination of the clamps having the lugs, the parallel side shields pivotally connected to the lugs at their forward ends, and a spring connecting the side shields at their pivoted ends, substantially as described.

4. The combination, with the detachable clamp, of the front shield having a slotted socket or sleeve loosely journaled on the clamps, and a pin passing through the clamps and the slot of the socket or sleeve, said pin being adapted to impinge against the front side of the shield to prevent it from swinging outwardly, or to be adjusted to bear against the reverse or rear side of the shield, to adapt the shield to be elevated when the animal lowers its head to graze, substantially as described.

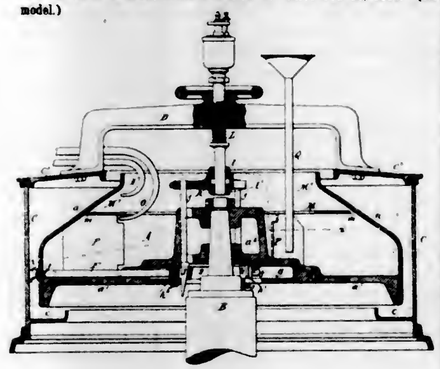
5. The combination, with the clamps carrying a front shield adapted to be attached to an animal's nose, of the side shields pivoted to the clamps and arranged in the rear of the latter and an arched spring connecting the side shields to normally force them toward each other, substantially as described.

349,105. CUTTING APPARATUS FOR MOWERS AND REAPERS. DAVID M. KELLER, Raphine, Va. Filed Nov. 27, 1885. (No model.)



Claim.—In a cutting apparatus for mowing and reaping machines, the combination, with the finger-bar A, provided with a longitudinal groove, and the chambers *a*, and the plate F, provided with the bearings *b'*, of the pinions B, provided with the shaft *c* and pins *e*, the rack E, engaging the said pinion, and the circular knives C, provided with apertures for the reception of the shafts and the pins of the pinions, substantially as herein shown and described.

349,106. CENTRIFUGAL LIQUID-SEPARATOR. CARL W. A. KOELKEBECK, Camden, N. J., assignor to Jonathan Evans, Philadelphia, Pa., and David H. Burrell, Little Falls, N. Y. Filed Oct. 16, 1885. (No model.)



Claim.—1. The combination, with the revolving separating-drum provided with peripheral openings for the discharge of the heavy material, of adjustable valves which control the flow of the heavy material from said openings, an annular plate secured to the drum near one end thereof and forming a chamber which collects and discharges the material of medium gravity automatically, and a pipe through which the light separated material is discharged from the drum automatically, substantially as set forth.

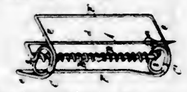
2. The combination, with a revolving separating-drum provided with a tapering outer wall, of discharge-openings and adjustable valves arranged in the periphery of the drum at the large end thereof for the discharge of the heavy material, an annular plate secured to the drum, near the small end of the drum, and forming a chamber which collects and discharges the material of medium gravity from the drum automatically, and a pipe through which the lightest material is removed from the body of the drum automatically, substantially as set forth.

3. The combination, with the drum A, provided with peripheral discharge-openings *e*, and adjustable valves *f*, of the horizontal plate M, provided with openings *m*, and skimming-pipes N and O, substantially as set forth.

4. The combination, with the drum A, provided with openings *e*, of the valves and rods *f* F, wedges and rods J *j*, spider K, and adjusting-screw L, substantially as set forth.

5. The combination, with the drum A, having openings *e*, and provided with a hub, a^3, provided with an annular groove, *g*, of the valves and rods *f* F, provided with slotted heads *h*, wedges J, engaging in said heads, and an adjusting-screw, L, whereby said wedges are raised and lowered, substantially as set forth.

349,107. BOUQUET-HOLDER. RUSSELL F. LAWRENCE, Buffalo, N. Y. Filed June 30, 1886. (No model.)

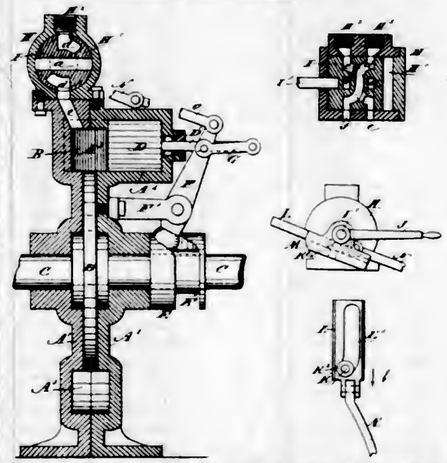


Claim.—1. In a bouquet-holder, the combination, with a supporting bar or stem, of two spring-jaws bent from a single piece of wire and having their inner ends connected by a spiral spring, D, substantially as set forth.

2. In a bouquet-holder, the combination, with the bar or stem B of the clamping-jaws C C', and spiral spring D, bent from a single piece of wire and connected to the bar or stem B, substantially as set forth.

3. In a bouquet-holder, the combination, with the bar or stem B, provided with a pin, A, and hook *a*, of the clamping-jaws C C', connecting-bars F, loops *g*, and spring D, formed of a single piece of wire and secured to the stem B, substantially as set forth.

349,108. ROTARY STEAM-ENGINE. WILLIAM F. LAWRENZ, Duluth, Minn. Filed Feb. 17, 1886. (No model.)



Claim.—1. In a rotary steam-engine, the casing A, having the annular recess A^3, the recess A^4, the ports *e* and *f*, and the valve I, having the ports *a* and *b*, in combination with the disk B, provided with the piston B', the shaft C, and the slide D, substantially as herein shown and described.

2. In a rotary steam-engine, the casing A, having the annular recess A^3, the recess A^4, and the ports *e* and *f*, the disk B, provided with the piston B', the shaft C, and the slide D, in combination with the

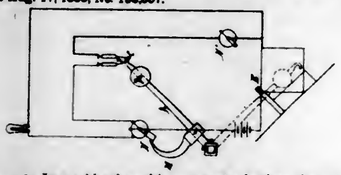
steam-chest H, having the valve-seat H', and the valve I, having the ports *a*, *b*, *c*, and *d*, substantially as herein shown and described.

3. In a rotary steam-engine, the casing A, the disk B, provided with the piston B', the shaft C, the slide D, the slide-rod D', and the valve I, in combination with the cam E, having a groove, E', the lever F, the links G, O, and N, the slide L, having a groove, L', the friction-roller K^3, and the collar K, attached to the valve-rod I', substantially as herein shown and described.

4. In a rotary steam-engine, the casing A, having the ports *e* and *f*, the steam-chest H, having the valve-seat H', and the ports H^2 and H^3, and the valve I, having the straight ports *a* and *b* and the crossed ports *c* and *d*, in combination with the valve-rod I', the collar K, the slide L, having a recess, L', the friction-roller K^3, and the lever J, substantially as herein shown and described.

5. In a rotary steam-engine, the casing A, the disk B, provided with the piston B', the shaft C, the slide D, the slide-rod D', the link G, and the steam-chest H, having a valve-seat, H', in combination with the valve I, having the straight ports *a* and *b* and the crossed ports *c* and *d*, the valve-rod I', the lever J, the collar K, the friction-roller K^3, the slide L, having a groove, L', and operated by means of the links N and O from the lever F, actuated by the cam E, having a groove, E', substantially as herein shown and described.

349,109. MEANS FOR OPERATING THE STOP-COCKS OF GAS-METERS. LÉON LEMARMER, Brussels, Belgium. Filed Oct. 5, 1885. (No model.) Patented in Belgium Feb. 14, 1885, No. 67,888, and in France Aug. 17, 1885, No. 158,057.

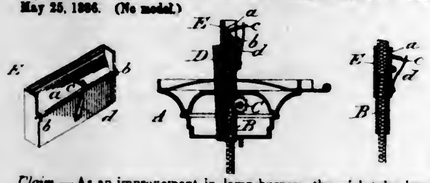


Claim.—1. In combination with a gas-meter having a key weighted and adapted to operate substantially as described, a conductor of fine wire supporting said key, and an electric circuit including said fine-wire conductor, a source of electricity, and keys for opening or closing said circuit, substantially as set forth.

2. In combination with a gas-meter having a key weighted and adapted to operate substantially as described, a conductor of fine wire supporting said key, an electric circuit including said fine-wire conductor, a source of electricity, and keys for opening or closing said circuit, the indicating-circuit including lamps, and a switch operated by the meter-key to close said indicating-circuit on the breaking of the main circuit, substantially as set forth.

3. In combination with a weighted gas-meter key and a switch controlled thereby, a source of electricity and three parallel circuits, two being lamp-circuits controlled by said switch, so that one will be open while the other is closed, and the third circuit being normally open and including a contact-button and fine-wire conductor, normally supporting said weighted key, substantially as and for the purpose set forth.

349,110. LAMP-BURNER. CALVIN H. MANN, Carson, Nev. Filed May 25, 1886. (No model.)

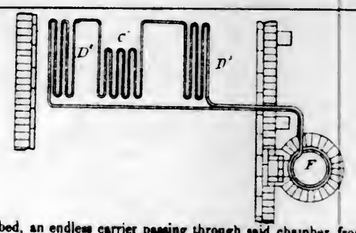


Claim.—As an improvement in lamp-burners, the wick-tube having rounded corners, the wick, and devices for raising and lowering said wick, in combination with an outer case placed permanently upon the wick-tube, extending above to form a continuation of the same, and having a rectangular cross-section and a hinged extinguishing-flap automatically operated by a spring attached to the case, its free end acting upon an arm projecting from the flap; all arranged to give a supply of air to the flame at the corners of the case and to extinguish said flame when the wick is turned down, in the manner substantially as shown and described.

349,111. MATCH-DIPPING APPARATUS. CHARLES MARTIN, Toronto, Ontario, Canada. Filed Nov. 8, 1883. (No model.)

Claim.—1. The improvement in the art of dipping matches which consists in conveying them through a chamber which is practically closed, and from which the operatives are excluded, and dipping and drying the matches while in said chamber by mechanical carriers, whereby the operatives are protected from the fumes of the chemicals, substantially as described.

2. A match-dipping chamber constructed to be practically closed, as described, an endless carrier passing through said chamber from side to side, the ends of said carrier extending from the chamber, troughs for containing chemicals within the chamber, and mechanism, substantially as described, whereby the ends of the matches are brought into the chemicals in the troughs, all in combination, substantially as stated.



3. An endless-chain carrier arranged, as described, to carry trays of match-splints, troughs arranged as described in proximity thereto, and guide-rails having offsets in line with the troughs, whereby the trays descend so as to carry the ends of the matches into the troughs, substantially as described.

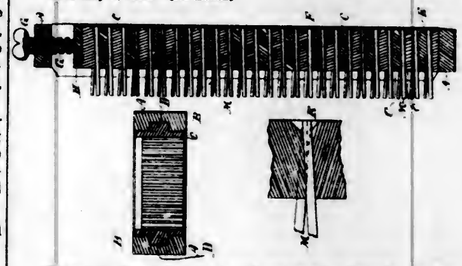
4. The combination, with the walls of a dipping-chamber, of sprocket-wheels arranged outside said chamber, guide-rails which extend across the chamber, an endless chain of tray-carriers passing round said sprocket-wheels and along the guide-rails, offsets in the guide-rails, as described, and dipping-troughs arranged as described with relation to said offsets, all substantially as described and shown.

5. The endless chain of tray-carriers, consisting of links *f* having hangers *g* and tray-seats *g'*, said links being connected together, substantially as set forth.

6. The combination of the links *f*, having hangers *g* and tray-supports *g'*, with the connecting-bars *h*, said bars serving also as axles for trucks *h'*, all substantially as described and shown.

7. The combination, with the tracks, of endless-chain carriers traveling on said tracks, said carriers constructed to carry the match-trays, as described, the tracks being indented, as described, at points over the chemical-vessels, whereby the matches are dropped vertically into the chemicals and lifted therefrom, substantially as described.

349,112. MATCH-TRAY. CHARLES MARTIN, Toronto, Ontario, Canada. Filed May 6, 1886. (No model.)



Claim.—1. A match tray or rack composed, essentially, of strips having grooves starting from a common plane and alternately diverging in different directions.

2. A match tray or rack composed, essentially, of strips having grooves across their proximate faces, the grooves being partially in each slat at the entrance end and alternately increasing or decreasing in depth, substantially as described.

3. A match tray or rack composed of slats having grooves in their faces alternately increasing and decreasing in depth, in combination with an inclosing-frame and mechanism, substantially as described, whereby the slats may be lightened in the frame, as set forth.

4. In combination with the supporting-frame, the slats having beveled edges at the entrance side and grooves alternately diverging in opposite directions, substantially as described.

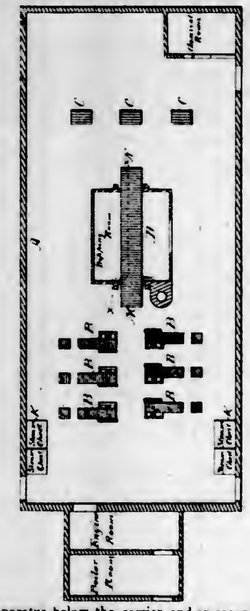
5. The inclosing-frame having grooves in its sides, the slats having tenons to enter said grooves, said slats having recesses in their proximate faces alternately trending in different directions, and a clamp by which all the slats are compacted and pressed on inclosed matches, substantially as described.

349,113. MATCH MAKING AND DIPPING MACHINE. CHARLES MARTIN, Toronto, Ontario, Canada. Filed May 26, 1886. (No model.)

Claim.—1. The combination, with an endless match-dipping carrier, of a series of match-splint machines, each having its delivery end in proximity to said carrier, substantially as described.

2. The combination, with the closed chamber, a trough for chemicals contained therein, and an endless carrier passing over said trough,

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of an air-blast apparatus below the carrier and an escape-flue from the chamber above the carrier, as set forth.

3. The trucks and axle, the links secured to said axle, the frame, and its holding-ties, combined with the match-tray supported in said frame, substantially as described.

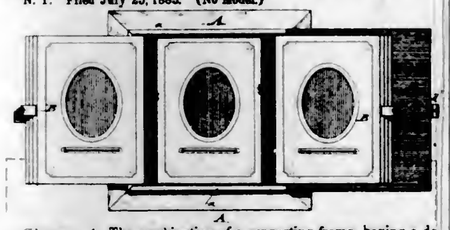
4. The combination, with an endless carrier, of the supporting-frame tied to the links thereof, the side supporting-fingers, and the spring-clasp for sustaining the match-trays, as set forth.

5. The combination, with the endless carrier, the frame having side fingers and hook at one end and a spring-catch at the other end, of a match-tray supported with the matches in pendent position by said catch, substantially as described.

6. The combination, with the endless carrier, constructed, substantially as described, to dip the matches into the chemical-trough, of the trough for chemicals, the heating apparatus for the same, and the air-blast mechanism in proximity to the carrier, as set forth.

7. The combination, with the endless carrier for dipping matches, of the series of match-splint machines with their delivery ends in proximity to the receiving end of the endless carrier and the series of drying or packing frames in proximity to the delivery end of the carrier, all substantially as described.

349,114. PICTURE-EXHIBITOR. FREDERICK W. MARTINI, Brooklyn, N. Y. Filed July 25, 1885. (No model.)



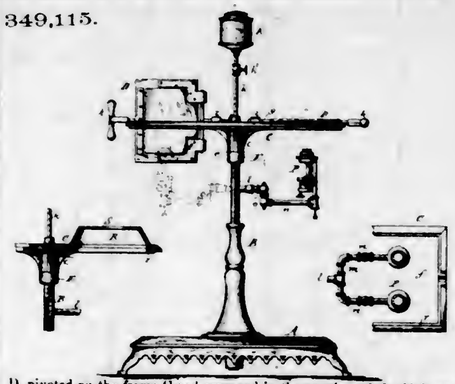
Claim.—1. The combination of a supporting-frame, having a depressed panel and beveled side strips, and a series of leaves hinged by strips of different width to the beveled side strips, substantially as set forth.

2. The combination of a supporting-frame having a depressed panel and beveled side strips, a series of leaves hinged by hinge-strips of different width to said side strips, and a cover hinged to one side of the supporting-frame and retained by a locking device at the other side, so as to inclose the folded leaves, substantially as set forth.

349,115. BAKING-MACHINE. JOSEPH O. MEYER and WALTER STRICKLER, Buffalo, N. Y. Filed Mar. 18, 1886. (No model.)

Claim.—1. The combination, with the standard, of a horizontal frame, C, pivoted on the standard and provided with openings *f*, molds

349,115.

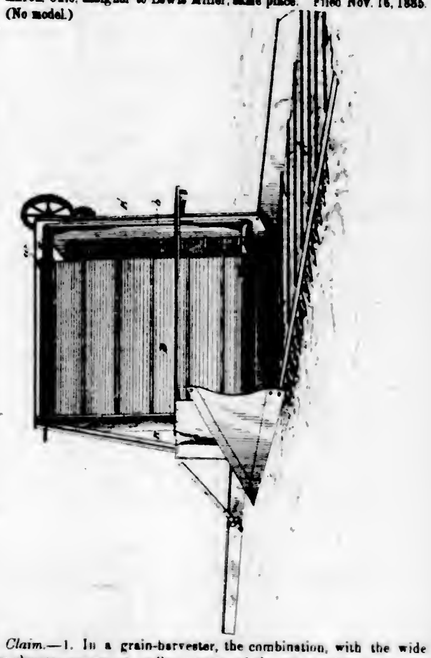


D, pivoted on the frame C and arranged in the openings *f* of said frame, and a burner attached to the standard and arranged underneath the frame C, substantially as set forth.

2. The combination, with the standard B, of the horizontal frame C, supported pivotally on the standard and provided with openings for the reception of the cooking utensils, a burner attached to the standard below said frame, a fluid-reservoir arranged above said frame, and a pipe connecting the fluid-reservoir with the standard and burner, substantially as set forth.

3. The combination, with the hollow standard B, carrying at its upper end a journal, E, of the frame C, supported pivotally on said journal, a burner, P, connected with the standard B below the frame C, a fluid-reservoir, K, arranged above the frame C, and a pipe, *k*, connecting said reservoir with the standard, substantially as set forth.

349,116. ELEVATOR FOR GRAIN-HARVESTERS. LEVI MYERS, Akron, Ohio, assignor to Lewis Miller, same place. Filed Nov. 16, 1885. (No model.)

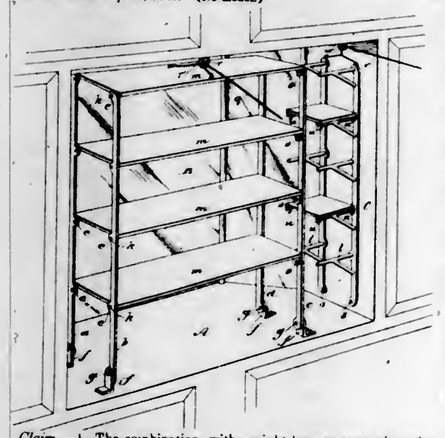


Claim.—1. In a grain-harvester, the combination, with the wide lower elevator canvas or endless apron, of the upper elevator canvas apron, made of less width than the lower apron, and mounted on rollers extending the entire width of the elevator-frame and arranged over the forward part of the latter, whereby it is adapted to assist in elevating the grain without pressing upon or confining the heads thereof, substantially as described.

2. The combination of the lower elevator carrier or apron, the upper canvas or apron, made of less width than the lower apron, and the rollers extending entirely across the elevator-frame and provided with

collars for actuating and guiding said upper apron, arranged and operating substantially as described.

349,117. SHOW-WINDOW SHELVING. WILLIAM OSWELL, Boston, Mass. Filed Sept. 8, 1885. (No model.)



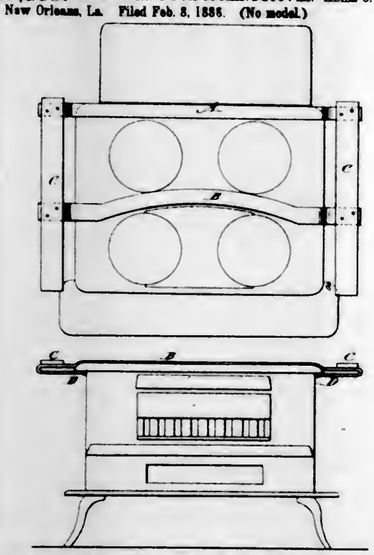
Claim.—1. The combination, with upright bars or posts pivoted at the base, of shelves, said upright bars or posts and shelves having correspondingly-placed lugs thereon connected together by pivots through the lugs, the several points of connection of a shelf with the posts or upright bars being the same distance from the lower ends of the upright bars or posts, substantially as and for the purpose set forth.

2. The combination, with a frame-work consisting of four posts pivotally connected with a bed or base plate, of shelves pivotally connected with the posts, substantially as described.

3. The combination, with four posts, as *a*, *b*, *c*, and *d*, formed with correspondingly-placed lugs *e e* and pivotally connected with brackets *f f*, of shelves *m m*, formed with lugs *o o*, and thereby pivotally connected with the lugs *e e* of the posts named, substantially as described.

4. The combination, with four posts, *a*, *b*, *c*, and *d*, formed with correspondingly-placed lugs *e e* and pivotally connected with brackets *f f*, of shelves formed with lugs *o o* and pivotally connected with the posts named by bolts which pass through lugs *e* and *o*, and a cord, *q*, which passes over a sheave, *r*, carried by a block, *r'*, that is secured above the shelves, substantially as described.

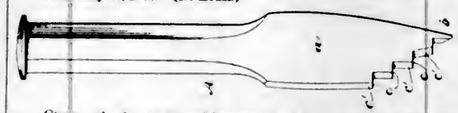
349,118. ATTACHMENT FOR COOKING-STOVES. ADELE C. PHILIPPI, New Orleans, La. Filed Feb. 8, 1886. (No model.)



Claim.—1. An attachment for the top of a cooking-stove, consisting of bars A B, having offsets in their ends, and the cross-bars C, secured on the said offset ends of the bars A B, substantially as herein shown and described.

2. The combination of the longitudinal bars A B, offset at their ends and returned upon themselves to form the clips *d*, and two or more bars, C, secured to the ends of the bars A B, substantially as herein shown and described.

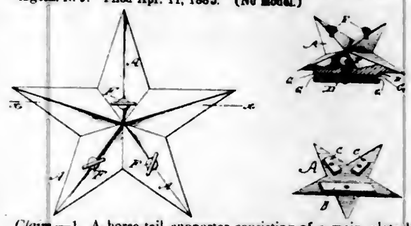
349,119. COLD-CHISEL. CORNELIUS J. PHILLIPS, New York, N. Y. Filed May 29, 1886. (No model.)



Claim.—1. As a new and improved article of manufacture, a cold-chisel formed with a bit and one or more projections or shoulders, *c*, substantially as described.

2. The cold-chisel A, formed with a flattened head, *a*, bit *b*, and one or more shoulders, *c*, substantially as described.

349,120. HORSE-TAIL SUPPORTER. WILLIAM V. RAMSEY, Flemington, N. J. Filed Apr. 11, 1885. (No model.)

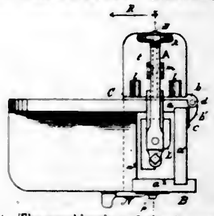


Claim.—1. A horse-tail supporter consisting of a main plate having a movable clamping-plate secured to its under side by a set-screw, F, extending through the plate, and two other set-screws F F passed through the plate below the first-named set-screw, and having the clamping-plates E E on their inner ends, the three plates forming a triangular series of clamps, the upper one being adapted to hold the plate upon the horse's tail and the two lower clamps being adapted to hold the long hairs, when looped substantially as shown and described.

2. In a horse-tail supporter, the combination, with the plate A, provided with the stationary jaws B C C, of the corresponding movable jaws D E E and the hand-screws F, substantially as herein shown and described, whereby the supporter can be readily secured to the horse's tail, and the long hair of the tail secured to the said supporter, as set forth.

3. In a horse-tail supporter, the combination, with the plate A, the stationary jaws B C C, the movable jaws D E E, and the hand-screws F, of the rubber facing-plates G, substantially as herein shown and described, whereby the said jaws are kept from injuring the hairs of the tail, as set forth.

349,121. BUTTER-PRINTING MACHINE. PAUL J. REID, Lancaster, and JOHN H. DUNBAR, Philadelphia, assignors to Clement & Dunbar, Philadelphia, Pa. Filed Mar. 23, 1886. (No model.)



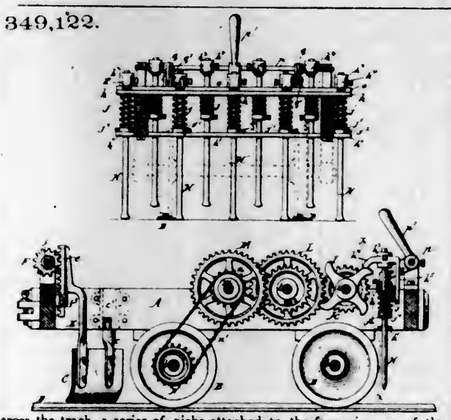
Claim.—1. The combination of the hopper B, plate C, provided with slot *e*, projection *h*, and lugs *l*, said plate being secured to the wall *a* of the hopper, the frame A, provided with lugs *l'*, adjustable screw *g*, and screw-rod D, substantially as herein shown and described.

2. In combination with frame A, having laterally-projecting rest or support L, for the print-block, the sectional hopper B, means for securing said hopper to the frame, the latch N and catch P, for holding the parts of the hopper together when closed, the rod F, plunger-block G, and operating-lever E, substantially as herein shown and described.

349,122. MACHINE FOR CLEANING ICE, &c., FROM STREET-RAILWAYS. JOHN REINERS, Buffalo, N. Y. Filed Dec. 22, 1885. (No model.)

Claim.—1. In a machine for clearing ice, &c., from street-railways, the combination, with a movable frame or truck, of a scraper extending

349,122.



across the track, a series of picks attached to the frame in rear of the scraper, and mechanism, substantially as described, whereby the picks are alternately operated by the movement of the truck, substantially as set forth.

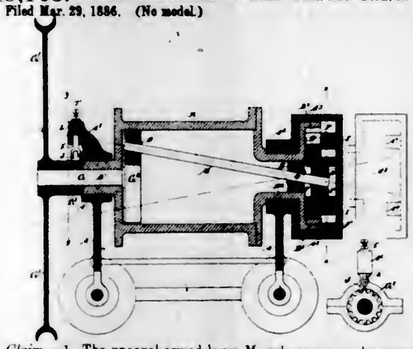
2. In a machine for clearing ice, &c., from street-railways, the combination, with a movable frame, of a scraper extending across the track, a series of vertical picks, H, provided with projections *h*⁴, cams I, engaging under the projections *h*⁴, and secured to a horizontal shaft, *i*, a driving-shaft, *b*, arranged in rear of the scraper and provided with wheels running on the track, and connecting-gears, whereby the cam-shaft *i* is driven from the driving-shaft *b*, substantially as set forth.

3. The combination, with the frame A, provided with a cross-piece, *h*, of the rods or picks H, arranged in openings formed in the cross-piece *h*, and provided at their upper ends with collars *h*³, having downwardly projecting arms *h*³, substantially as set forth.

4. The combination, with the frame A, provided with the cross-piece *h*, of the rods or picks H, arranged in openings formed in the cross-piece *h*, collars *h*³, secured to the picks H, and provided with a projection, *h*⁴, and a downwardly-projecting arm, *h*³, and cams I, secured to a shaft, *i*, and adapted to engage with the projections *h*⁴, substantially as set forth.

5. In a machine for cleaning ice, &c., from street-railways, the combination, with the movable frame or truck provided with a movable scraper, C, of a series of picks, H, arranged in rear of the scraper and provided with projections *h*⁴, cams I, secured to a shaft, *i*, and engaging with the projections *h*⁴, pinion *k*, shafts *l m*, provided with gear-wheels L M, and pinion *m*², sprocket-wheel N, mounted on one of the axles of the truck and connected with the shafts *l m*, whereby motion is imparted to the cams I from the axle of the truck, substantially as set forth.

349,123. HOISTING-MACHINE. WILLIAM ROTH, New York, N. Y. Filed Mar. 29, 1886. (No model.)



Claim.—1. The unequal-armed lever M and means, as the operating-shaft G and wheel G², for gyrating the longer end, in combination with the wheel D, operated by the shorter end and with the internally-geared wheel B², and the windlass B, and chain C, arranged for joint operation, substantially as herein specified.

2. The gyrating spur-wheel D, having the projections D' and means for operating it, in combination with the casing A², internal projections, A⁴, yoke F, rollers I, and the internal gear, B², and mechanism, as B C, operated thereby, arranged for joint operation, as herein specified.

3. The unequal-armed lever M, shaft G, and wheel G², for gyrating the longer end and the cylindrical bearings of said shaft, balls O and inclosing-boxes P, in combination with the wheel D, operated by the shorter end, and with the internally-geared wheel B², windlass B, and chain C, all arranged for joint operation, as herein specified.

4. The lever M and universal joints therefor, the gyrating wheel D, internal gear, B², and connected mechanism, as B C, in combination with the shifting-pawl J, slide K, spring L, and housing or supporting-frame A⁵, and with the wheel G² on the operating-shaft G, and wheels G' G², all arranged for joint operation, substantially as herein specified.

349,124. COMBINED HOPPLE AND TAIL-HOLDER. RUSSELL T. STOKES, Garnett, Kans. Filed June 24, 1886. (No model.)



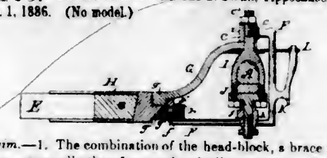
Claim.—1. A combined hopple and tail-holder formed of an inflexible bar, perforated and slotted keeper B, perforated and slotted cap-pieces H, and a cord, rope, or strap, substantially as and for the purpose described.

2. The combination, in a combined hopple and tail-holder, of the bar A, the cap-pieces H, having the perforations *b* and hooks or slots *a*, with the keeper B, having the slot *d* and perforations *c*, and a suitable cord, rope, or strap, substantially as described.

3. A combined hopple and tail-holder, consisting of the inflexible bar A, the malleable-iron recessed cap-pieces H, having the hooks or slots *a* and perforations *b*, the keeper B, rigidly secured to said bar, having the inclined upper surface, *h*, diagonal slot *d*, guide-point *e*, and perforation *c*, and a suitable cord, rope, or strap, C, all as and for the purpose set forth.

4. In a combined hopple and tail-holder, the combination of an inflexible bar having slotted and perforated cap-pieces, a keeper having slots and perforations, and a strap or cord, whereby the tail of an animal may be secured against its leg and the bending of the latter prevented, as set forth.

349,125. BUGGY-GEAR. SAMUEL B. SWAN, Tippecanoe, Ohio. Filed Feb. 1, 1886. (No model.)

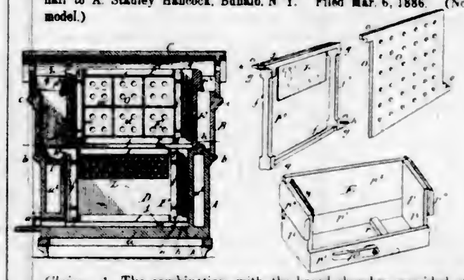


Claim.—1. The combination of the head-block, a brace and bracket projecting rearwardly therefrom and swivelly connected with the perch, and the axle located between the head-block and rear extension of the bracket and supported thereby to swing horizontally, substantially as and for the purpose set forth.

2. The combination, with the head-block and the rearwardly-extending brace and bracket, of the axle, a clip king-bolt having its shank projected through the head-block, a yoke uniting the lower ends of the clip, and having a rod depending therefrom in axial line with the king-bolt shank and passing through the rear extension of the bracket, to support the axle and form the axis about which it swings horizontally, and a sleeve on the rod depending from the yoke having reduced ends, the enlarged portion being interposed between the yoke and the rear extension of the bracket, substantially as set forth.

3. The combination of the head-block, a rearwardly-extended bracket secured at one end to the head-block, the axle pivotally mounted between said head-block and rear extension of the bracket, a fifth-wheel having its upper part fixed to the head-block and its lower part secured to the axle, and an arm branching forward from the bracket to support the front portion of the upper part of the fifth-wheel, substantially as shown and described.

349,126. BEE-HIVE. JAMES W. TEFFT, Collamer, assignor of one-half to A. Stanley Hancock, Buffalo, N. Y. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination, with the brood-chamber provided at its upper end with a transverse ledge, *i*, and at the bottom with a trans-

verse strip, *j*, of reversible frames F, resting upon the strip *j*, and provided at two diagonally-opposite corners with projecting lips *h*, the lips at the upper corners of the frames resting upon the ledge *i*, substantially as set forth.

2. The combination, with the surplus-chamber consisting of a rectangular frame open at top and bottom and provided at its upper end with a transverse ledge, *q*, and at the bottom with a transverse strip, *r*, of reversible frames F, provided at two diagonally-opposite corners with projecting lips *h*, and supported by the ledge *q* and strip *r*, substantially as set forth.

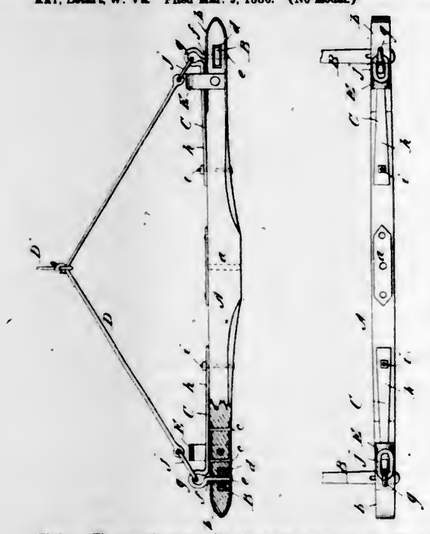
3. The combination, with the brood-chamber provided with a transverse top ledge, *i*, and a transverse bottom strip, *j*, of a surplus-chamber resting upon the brood-chamber, and provided with a transverse top ledge, *q*, and transverse bottom strip, *r*, and reversible frames F, provided at two diagonally-opposite corners with projecting lips *h*, substantially as set forth.

4. The surplus-chamber consisting of a rectangular frame open at top and bottom and provided with removable side pieces, p^2, locking-buttons p^3, top ledge, *q*, and bottom strip, *r*, substantially as set forth.

5. The combination, with the brood-chamber, of a raised bottom strip, *j*, arranged in front of the rear wall of the brood-chamber, with an intervening feeding-space, *k*, and frames F, resting upon the strip *j* and extending rearwardly beyond the same, and having openings formed between the frames in rear of the strip *j*, through which the bees reach the feed-chamber *k*, substantially as set forth.

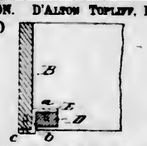
6. The combination, with a brood-chamber, of a raised bottom strip, *j*, arranged in front of the rear wall of the brood-chamber, with an intervening feeding-space, *k*, and frames F, resting upon the strip *j*, and provided with horizontal projecting lips *h*, resting against the rear wall of the brood-chamber and having openings *n*, through which the bees reach the feeding-chamber *k*, substantially as set forth.

349,127. HORSE-DETACHER. FRANKLIN THOMAS and GEORGE M. KAY, Letart, W. Va. Filed Mar. 9, 1886. (No model.)



Claim.—The combination, with the single-tree A, having the trace-apertures *d* in its ends, of the spring C, looped to form the eyes *g*, and then bent down to form the points *e*, the keepers E, the links *j*, secured in the eyes *g*, and the cords or rods D, secured to the links, substantially as herein shown and described.

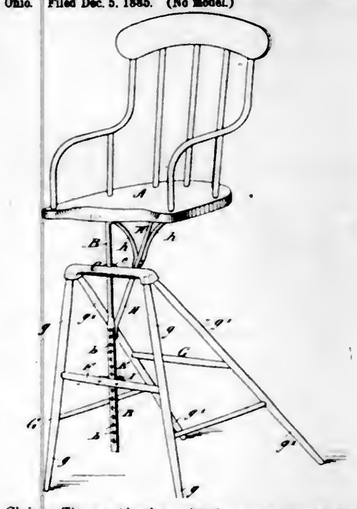
349,128. BUGGY-IRON. D'ALTON TOPLIFF, Franklin, Ill. Filed Feb. 15, 1886. (No model.)



Claim.—1. The combination, with the buggy-body B, having the transverse sills D within it at opposite ends, of the double-angled irons E, having their vertical arms *b* extended up between the ends of the buggy-body and the sills, the upper horizontal parts resting on top of the sills, and the lower parts resting against the lower edges of the body ends, as shown and described.

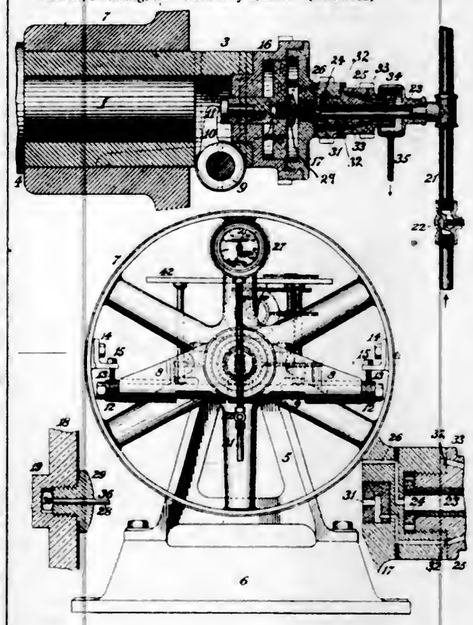
2. The combination, with a sill, D, and panel B of a buggy-body, of an iron formed of a plate, E, bent twice approximately at right angles, or offset, and adapted to rest on the sill of the body and to support the lower edge of the panel, substantially as herein shown and described.

349,129. ADJUSTABLE CHAIR. ALSERAUS C. WATSON, London, Ohio. Filed Dec. 5, 1885. (No model.)



Claim.—The combination, with the seat A, having the depending rod secured to its under side near its forward edge, made angular at its lower end, and having apertures extending through said angular end, the brace-rod H, connected at its lower end to the rod B and at its upper end to the seat, and the shorter rods, *h*, connecting the rod H between its ends to the seat, of the leg-frame having the vertical front side, a cross-piece, F, having a hole, *f*, in its inner face, the guide E on the cross-piece, and having an aperture in alignment with the hole *f*, and the pin I, passed through the apertured guide and the rod B into the hole *f*, substantially as set forth.

349,130. DYNAMOMETER. GEORGE WESTINGHOUSE, Jr., and FRANK MOORE, Pittsburg, Pa. Filed May 3, 1886. (No model.)



Claim.—1. The combination, in a dynamometer, of a shaft, a loose pulley mounted thereon, and a pressure-transmitting device journaled on and rotating with the shaft, and bearing in opposite directions, respectively, circumferentially on the loose pulley, and in the direction of the axial line of the shaft thereof on a movable abutment subject to fluid-pressure, substantially as set forth.

2. The combination, in a dynamometer, of a main shaft, a driving-pulley fixed thereon for the reception of power to be measured, a measuring-pulley mounted freely thereon, a fluid-pressure cylinder located in line axially with the shaft, a fluid-supply pipe communicating with said cylinder and with a pressure-gage, a piston fitting said cylinder and provided with a valve controlling the discharge of fluid therefrom, and a bell-crank shaft journaled transversely to the main shaft in bearings fixed thereto, and having an arm adapted to abut against the piston and an arm adapted to transmit pressure to a bearing on the rim of the measuring-pulley, substantially as set forth.

3. The combination, in a dynamometer, of a fluid-pressure cylinder, a supply-pipe controlled by a regulating-valve and communicating with said cylinder, a pressure-gage communicating with the supply-pipe and cylinder, a piston fitting the cylinder and carrying a valve controlling a discharge-passage leading therefrom, and an arm journaled on a shaft and transmitting the pressure exerted by power applied in the rotation thereof to the piston in opposite direction to the fluid-pressure in the cylinder, substantially as set forth.

4. The combination, in a dynamometer, of a main shaft, a fast and a loose pulley mounted thereon, a pressure-transmitting device journaled on and rotating with the main shaft, and bearing in opposite directions on the loose pulley and on a movable abutment subject to fluid-pressure, and a speed-indicating mechanism actuated by gearing driven from the main shaft, substantially as set forth.

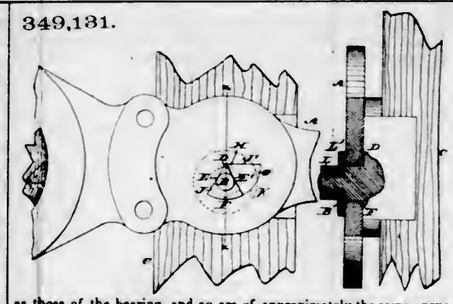
5. The combination of a main shaft mounted in bearings on a supporting base or bed plate, a driving-pulley fixed thereon for the reception of power to be measured, a sleeve or cylindrical extension fixed upon one end of the main shaft and provided with lateral bearings exterior to the axial line thereof and at right angles thereto, a measuring-pulley fitting freely on said sleeve, a bell-crank shaft journaled in the bearings of the sleeve, and having an arm on one or both of its ends in position to transmit pressure to a bearing connected to the rim of the measuring-pulley, and a central arm provided with a bearing in or about in line axially with the main shaft, a fluid-pressure cylinder concentric with and adjoining the outer end of the sleeve fixed on the main shaft, a supply-pipe communicating with said cylinder and with a pressure-gage, a piston fitting said cylinder and having a stem projecting into the sleeve in position to abut against the central arm of the bell-crank shaft, and a valve connected to the piston and controlling a discharge port or passage leading out of the cylinder, substantially as set forth.

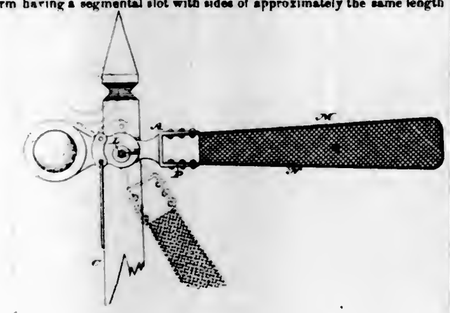
6. The combination, with the main shaft, of a sleeve fitting thereon and having lateral bearings exterior and at right angles to its axis, and a fluid-pressure cylinder secured to the outer end of the sleeve concentrically therewith, substantially as set forth.

7. The combination of a main shaft, a fluid-pressure cylinder connected concentrically to a sleeve on one end thereof, a piston fitting in said cylinder and having its stem abutting against a transmitting device, through which the pressure of power applied in rotating the shaft is exerted against the piston, a head closing the outer end of the cylinder and provided with supply and discharge passages, a trunnion-pipe communicating with a fluid-supply pipe and pressure-gage and with the supply-passage of the cylinder-head, a socket fixed to the head and fitting freely around the trunnion-pipe and against an end collar thereon between the socket and head, and a discharge-valve connected to the piston and controlling the discharge-passage in the cylinder-head, substantially as set forth.

349,131. RAILROAD-SIGNAL. FRANK P. ABBRECHOMIE, Camden, N. J. Filed Apr. 16, 1885. (No model.)

Claim.—1. In a signal, the signal-arm and its bearing, substantially as described, the bearing having a knife-edge segmental portion, and the arm having a segmental slot with sides of approximately the same length as those of the bearing, and an arc of approximately the same curve as that of the bearing, but of increased length, all of said parts being combined and operating substantially as and for the purpose set forth, as stated.

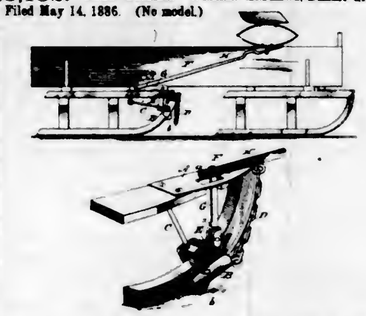




2. In a signal, the signal-arm, its standard, and its bearing, substantially as described, the bearing having a knife-edge segmental portion, and the arm having a segmental slot with sides of approximately the same length as those of the bearing, but of increased length, all of said parts being combined and operating substantially as described.

3. In a signal, the combination of an arm having a segmental slot and a knife-edge bearing secured to a standard, the outer end of the arm being formed of reticulated material secured to a bent frame secured to the flanges of the bridge-iron, substantially as described.

349,132. SLED-BRAKE. WILLIAM ANDREWS, Buffalo Grove, Iowa. Filed May 14, 1886. (No model.)



Claim.—1. In a sled-brake, the combination, with a runner and a brake-shoe movable along the same, of a rod connected with said shoe, whereby to operate the same, and a guide for said rod, the said rod being adapted, when normally arranged, to secure the shoe out of braked position, said parts being independent of the draft devices, whereby the brake may be applied at will, substantially as set forth.

2. The combination, with the runner and the shoe lapped against and movable along the same, of the arm C, pivoted at its upper end to the sled, and having its opposite end bifurcated, forming arms embracing the runner and shoe, said arms being formed with elongated openings or slots, and pins extended from the shoe into said slots, substantially as set forth.

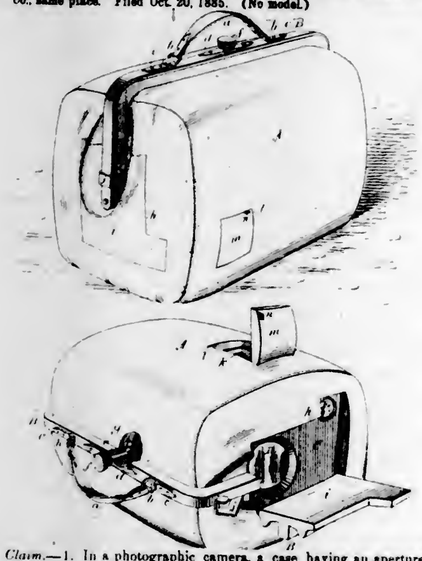
3. The combination, with the sled-runner and a brake-shoe lapped against and movable along the under side of same, of the supports for said shoe, having a portion lapped over the upper side of the runner and movable therealong, substantially as set forth.

4. In combination with a sled having a guide provided with an opening and a brake-shoe, a link connected with the shoe and movable through the guide-opening, and a handle pivoted to such link and movable therewith into or through the guide-opening, and provided with a projection beyond such pivotal connection, substantially as set forth.

5. A sled having a guide, a shoe, and a link connected with such shoe and movable through the guide, combined with a handle pivoted to such link, and having a projection beyond said pivot, and provided with a locking-shoulder, 1, substantially as set forth.

6. In a sled having a movable shoe and a guide-opening, a link connected with the shoe and movable through the opening, and a handle having a section, G, connected with the link and adapted, when normally arranged, to secure the shoe out of braked position, and a second section, H, pivoted to the first handle-section, substantially as set forth.

349,133. PHOTOGRAPHIC CAMERA. RICHARD A. ANTHONY and WILLIAM H. LEWIS, New York, N. Y., assignors to E. & H. T. Anthony & Co., same place. Filed Oct. 20, 1885. (No model.)



Claim.—1. In a photographic camera, a case having an aperture in the end thereof, and provided with a door closing into the aperture flush with the end of the case, and a median rib extending over the top of the case and down its ends, as herein specified.

2. In a photographic camera, a case of hand-bag form having side and end apertures, and doors closing into the apertures flush with the sides of the case, a median rib made in imitation of a hand-bag frame and extending over the top and down the ends of the case, and a handle secured to the median rib at the top of the case, as herein specified.

3. In a photographic camera, the combination, with a case open at the bottom and having a median rib along the top and down the ends, of a fastening device for retaining a camera-box within the case, as herein specified.

4. The combination, with the camera-box, of a case of hand-bag form, open at the bottom, and provided with end and side apertures, with doors fitted thereto, and a fastener for retaining the camera-box in the case, substantially as described.

5. In a photographic camera, the combination, with the inclosing and carrying case provided with a median rib and having an end aperture and a door fitted thereto, of a clasp pivoted to the fixed part of the median rib, and adapted to embrace the movable part of the median rib carried by the door, substantially as described.

6. In a photographic camera, the combination of the case of hand-bag form, provided with end and side apertures, and doors fitted to shut into the said apertures flush with the outer surface of the case, means for retaining the doors closed, a handle attached to the top of case, and a fastener for securing the camera-box in the carrying-case, substantially as described.

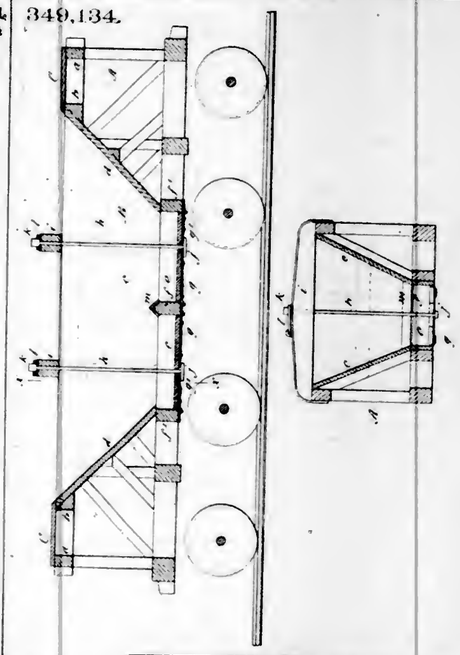
7. In a photographic camera, the combination, with the case of hand-bag form and camera-box fitted thereto, of a screw passing through the case and entering the camera-box for securing the case in the camera-box, as herein specified.

8. The combination, with the case formed of a box, A, open at the bottom, and provided with a median rib, B, of a handle, *a*, attached to the median rib, and a fastening device for retaining a camera-box in the case, as herein specified.

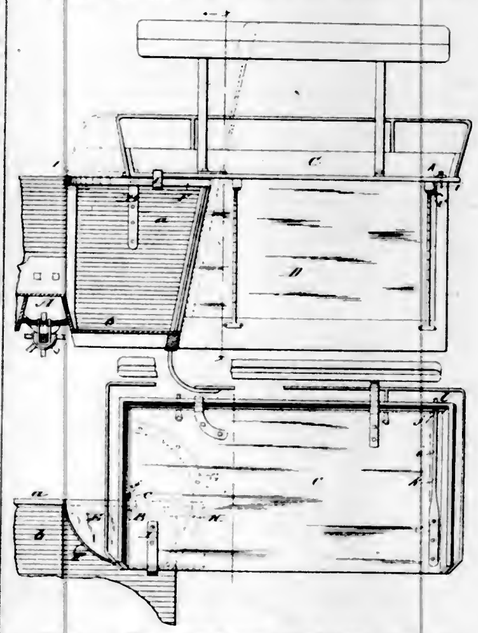
349,134. COAL AND ORE CAR. LESTER J. BARR, Ashland, Wis. Filed Jan. 16, 1886. (No model.)

Claim.—The car having an elongated hopper, said hopper having a central transverse beam with its upper surface arranged about on line with the upper surface of the base-frame of the hopper, and the additional transverse beams arranged parallel with the aforesaid transverse beam, in combination with the bottom doors, two of which are hinged to the additional beams and two of which are hinged to the central transverse beam, and the rods or shafts journaled in upper cross-beams of the hopper or car and reaching down through the hinged bottom doors, said rods having at their lower ends cross-bars or buttons engaging said doors upon their lower sides, substantially as shown and described.

349,134.



349,135. VEHICLE-SEAT. GEORGE E. BARTHOLOMEW, Brooklyn, N. Y., assignor to himself and Edmond Armant, same place. Filed Dec. 26, 1885. (No model.)



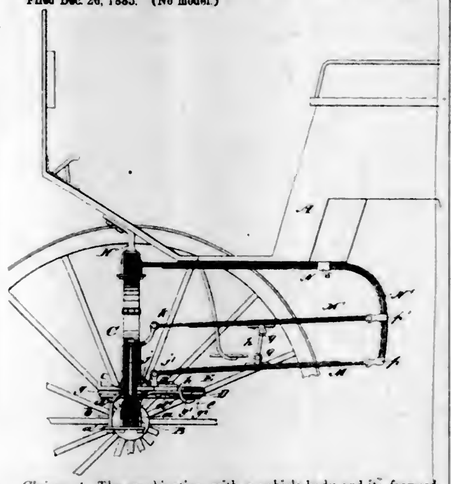
Claim.—1. The combination, with a vehicle-body provided with an angle-iron or bracket, B, and a bracket provided with a curb, F, of a seat pivotally connected to the arm *c* of the iron B, and provided with a hook, I, and a wear-plate, G, substantially as described.

2. The combination, with a vehicle-body provided with a bracket, B, formed with an arm, *c*, of a seat, C, pivotally connected to said arm *c*, and provided with a wear-plate, G, and a hook, I, which are respectively arranged above and below a curb, F, carried by a bracket, E, said bracket being provided with a wear-plate, H, substantially as described.

3. The combination, with a vehicle-body, of a seat pivotally connected thereto and provided with a spring-strip, *k*, carrying a pin, *i*, arranged to engage with a socket formed in the plate *n*, substantially as described.

4. The combination, with a vehicle-body, of a seat pivotally connected thereto and provided with a spring, *k*, carrying a pin, *i*, arranged to engage with a socket formed in the plate *n*, and a lever, N, pivoted to the wagon-body and provided with an arm, *o*, substantially as described.

349,136. VEHICLE RUNNING-GEAR. GEORGE E. BARTHOLOMEW, Brooklyn, N. Y., assignor to himself and Edmond Armant, same place. Filed Dec. 26, 1885. (No model.)



Claim.—1. The combination, with a vehicle-body and its forward running-gear, of a draw-bar centrally fixed to the forward portion of the vehicle-body, and connected by braces to the said forward running-gear, a link, *h'*, being sprung in between the two braces, substantially as described.

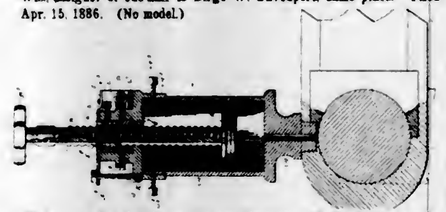
2. The combination, with a vehicle-body and its forward running-gear, of a draw-bar, N, centrally fixed to the forward portion of the vehicle-body and forwardly held by the upper spring-bolt of braces M and M', arranged in the same vertical plane as the draw-bar N, and shackles *j*, *k*, *p*, and *p'*, arranged substantially as described.

3. The combination, with a vehicle-body and its forward running-gear, of a draw-bar, N, and braces M M', the brace M being held by shackles *j'* and *p*, said shackle *j'* being carried by an arm, *j*, arranged as described, and the brace M' being held by shackles *k* and *p'*, the two braces being held under tension by a link, *h'*, substantially as described.

4. In a vehicle, the combination, with the body and its spring G, of the fifth-wheel, in which the section D is provided with the circular bar *g'*, and of an arm, *d'*, formed with a hook, *e*, said arm being socketed at *d* and fixed to the arm *h* of the upper portion of the fifth-wheel, substantially as described.

5. In a vehicle, the combination, with the body and its forward running-gear, of the forward brace, *b*, and the rearwardly-extending brace *d'*, arranged in rear of the axle and fixed to the arm *h* of the upper portion of the fifth-wheel, and encircling the king-bolt above the axle-bed, substantially as described.

349,137. OILER FOR WRIST-PINS. WILLIAM S. BEEMAN, Ashland, Wis., assignor of one-half to Birge W. Davenport, same place. Filed Apr. 15, 1886. (No model.)

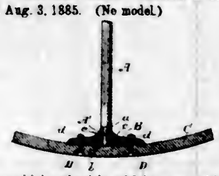


Claim.—1. In a lubricator, the combination, with the driving mechanism and the feeding-piston having a screw-threaded piston-rod provided with a groove running its entire length, of two different-sized worm-wheels meshing with the driving mechanism and secured to the piston-rod, the larger by an internal screw-thread and the smaller by a set-screw and keyed center, substantially as set forth.

2. The combination, with the pitman and the crank, of the lubricator secured upon the pitman by a screw-threaded nozzle, which extends through to the crank, the operating mechanism secured upon the top of the cylinder, consisting of the worm-wheels I and J, and the worm D, having an extended shaft, a ratchet-wheel secured upon the extended portion of the worm-shaft, a sleeve mounted upon the same shaft in juxtaposition to the ratchet-wheel, and having an arm extended past the ratchet-wheel, a pawl pivoted to this arm and held in engagement with the ratchet-wheel by a spring secured to the arm and bearing upon the pawl, and a driving-lever pivotally secured at one end to the end of the arm carrying pawl, and having its other end secured to the crank by a slotted yoke, substantially as specified.

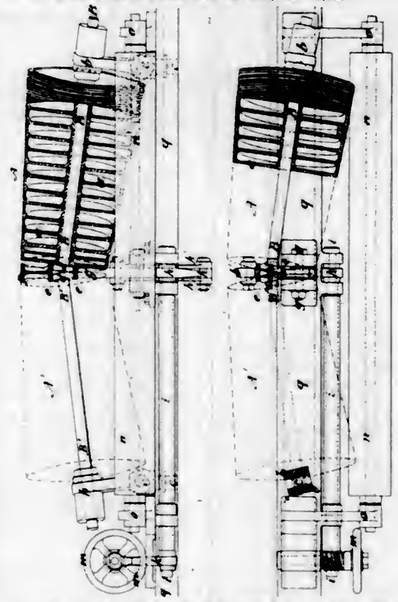
3. The combination, with the cylinder, the feeding-piston, and the driving mechanism comprising a worm-gear shaft and two worm-wheels meshing therewith, of a plate, C, having two posts, C' C', in which the worm-gear is journaled, and a triangular plate, L, resting upon the gear-wheels secured to the top and the posts C' C', and the top having an annular rib, upon which the gear-wheels rest, substantially as described and shown.

349,138. VEHICLE-WHEEL. CHARLES L. O. BELL, Rolling Prairie, Ind. Filed Aug. 3, 1885. (No model.)



Claim.—A vehicle-wheel in which are combined the following elements, viz: a tire, spokes shouldered near their outer ends, and each fitted thereby into a bracket which is perforated at its thickest part and secured to the tire by bolts and nuts, whereby the outer ends of the spokes fit against the tire and a felly is dispensed with, all in the manner and for the purposes described.

349,139. APPARATUS FOR STRETCHING WOVEN FABRICS. WILLIAM BIRCH, Broughton, near Manchester, County of Lancaster, England. Filed Dec. 30, 1885. (No model.) Patented in England Mar. 16, 1885, No. 3,360, and in France Dec. 15, 1885, No. 172,938.



Claim.—1. The herein-described apparatus for stretching cloth, consisting of inclined axes carrying conical rollers in sections, free to turn independently on the said axes, substantially as set forth.

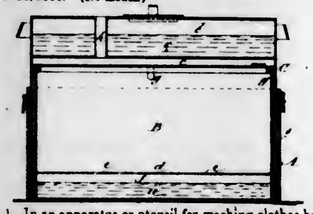
2. The herein-described cloth-stretching apparatus, comprising inclined axes carrying rollers in independent sections, free to turn on the

axes, jointed bearings for the outer ends of the axes, a movable bracket at the inner ends of the latter, and devices, substantially as set forth, for adjusting the bracket, to give different inclinations to the axes, all substantially as set forth.

3. The combination of the inclined axes carrying sectional stretching-rollers, and bearings for the outer ends of the axes, with a centrally-pivoted bracket supporting the inner ends of the axes, a shaft, *i*, carrying an arm, *h*, a link connecting the arm to the bracket, and devices, substantially as set forth, for turning said shaft, all substantially as specified.

4. The combination, substantially as described, of the inclined axes carrying sectional stretching-rollers having heads *d* with intermediate anti-friction rollers, an adjustable bracket for the said heads, and devices, substantially as set forth, for adjusting the bracket.

349,140. STEAM CLOTHES-WASHER. CHARLES BOAK, Utica, Ill. Filed Nov. 14, 1885. (No model.)

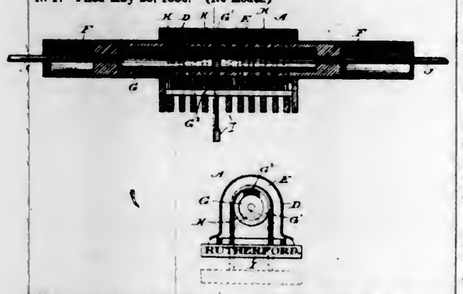


Claim.—1. In an apparatus or utensil for washing clothes by steam, the combination, with the boiler A and the inner clothes-box, B, having a raised perforated bottom, of the interposed cover or case C, provided with an upper cold-water reservoir, *b*, essentially as and for the purpose herein set forth.

2. In the within-described apparatus or utensil for washing clothes by steam, the cover or case C, having an upper cold-water reservoir or chamber, *b*, provided with a steam outlet or tube, *h*, passing down and through it, substantially as specified.

3. An apparatus or utensil for washing clothes by steam, in which are combined a boiler, A, open at its top, an inner clothes-box, B, having a raised perforated bottom, *d*, and one or more apertures at or near its top for the escape of steam, and an interposed cover or case, C, the sides of which extend between the boiler and clothes-box, and rest upon the bottom of the boiler, said cover or case being provided with an upper cold-water reservoir or chamber, *b*, above the clothes-box, essentially as shown and described.

349,141. STATION-INDICATOR. CHARLES E. A. BRANDES, Brooklyn, N. Y. Filed May 25, 1886. (No model.)



Claim.—1. In a station-indicator, the combination of a cylinder having a transverse slot, with bent rods hung on the said cylinder, and each carrying a sign, substantially as shown and described.

2. In a station-indicator, the combination of a cylinder having a slot, with bent rods hung on the said cylinder, means for moving the said cylinder forward and backward and turning the same, and a sign attached to the ends of each bent rod, substantially as shown and described.

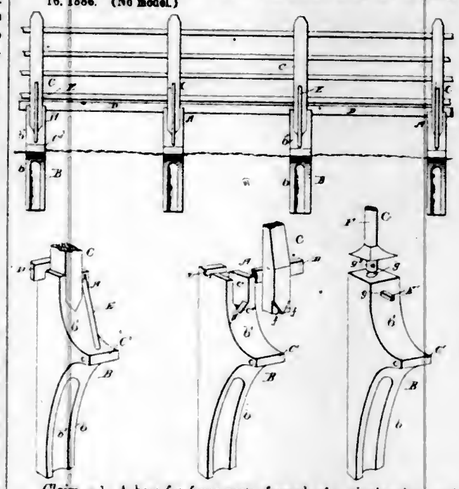
3. In a station-indicator, the combination of a box and partitions in the said box with a cylinder having a slot, bent rods hung on the said cylinder and carrying signs on their ends, and means for moving the said cylinder forward and backward and turning the same, substantially as shown and described.

4. In a station-indicator, the box D, the tubes F, attached to the ends of the said box, the partitions E, placed in the said box D, in combination with the cylinder G, having the slot G' and the rounded part G^2, the rods H, hung on the said cylinder G, and the signs I, attached to the said rods H, substantially as shown and described.

5. In a station-indicator, the box D, the end tubes, F, and the partitions E, in combination with the cylinder G, having the slot G' and the rounded part G^2, the rods H, having the signs I, and the rods J, having the handles K, substantially as shown and described.

6. In a station-indicator, the box D, the end tubes, F, and the partitions E, in combination with the cylinder G, having the slot G' and the rounded part G^2, the rods H, carrying the signs I, the rods J, the handles K on the said rods, and the indicating-lines J', substantially as shown and described.

349,142. FENCE-POST. JOSEPH BURNS, Montezuma, Ind. Filed Apr. 16, 1886. (No model.)



Claim.—1. A base for fence-posts, formed of a single piece and having a socket at its upper end for the post, the inclined faces *b b'*, arranged at an angle to and intersecting each other, and an extended foot arranged at the intersection of the inclined faces *b b'*, to prevent the vertical displacement of the base and the post fitted therein, substantially as described.

2. The combination of a base having a socket and a groove in its upper face, arranged at one side of the socket, into which it opens, a post fitted in the socket, and a tie-bar secured directly to the post and fitted in the groove of the base, substantially as described, for the purpose set forth.

3. The combination of a base having a socket-opening through the base at the upper end and side thereof, and provided with the diverging seats *c''* at the open side, and a post fitted in the socket and provided with the shoulder at one side, which bears firmly on the said seats, substantially as described.

4. The combination of a base provided with a transverse recess, *e*, at its upper end, and an open socket having the diverging seats *c''* lying above the bottom of the socket, a post fitted in the socket and having the shoulders at one side bearing on and against the seats *c''*, and a rail or bar fitted in the recess of the base and secured to the post, substantially as described.

5. As a new article of manufacture, a base for fence-posts, made of vitrified clay and having a socket for the reception of a post, the inclined faces *b b'*, the projected foot on one side of the base, and a recess arranged longitudinally of the inclined lower face, *b'*, substantially as described, for the purpose set forth.

349,143. SAW. GEORGE N. CLEMSON, Middletown, N. Y. Filed May 29, 1886. (No model.)

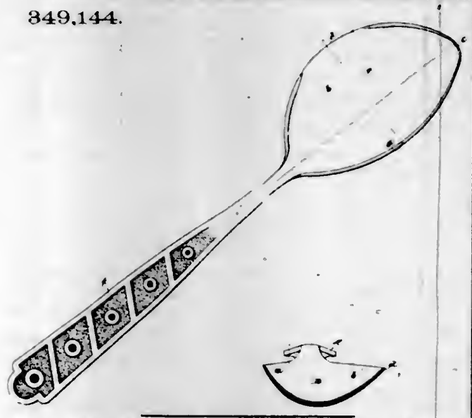


Claim.—A saw provided with alternate pairs of long and short teeth, the teeth of each pair being set in opposite directions, substantially as herein shown and described.

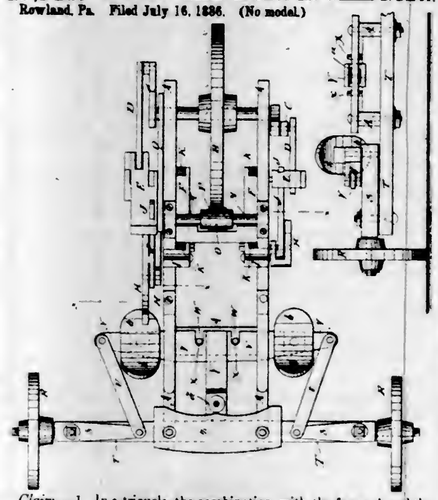
349,144. SPOON. FRANK W. COMMERSKY, Brooklyn, N. Y. Filed Apr. 27, 1886. (No model.)

Claim.—The herein-described table-spoon, having a bowl, B, which is of oval form, and has the handle A connected to one of its ends, and has the usual point, *c*, opposite or in line with the handle, and having one of its sides, *b*, extended and shallowed to form the overflow-point *d*, substantially as described.

349,144.



349,145. TRICYCLE. MARTIN M. DEPUY and WILLIAM B. DEPUY, Rowland, Pa. Filed July 16, 1886. (No model.)



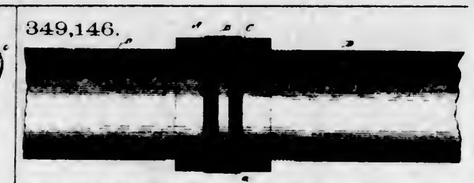
Claim.—1. In a tricycle, the combination, with the frame A and the drive-wheel B, of the crank-arms C, attached to the journals of the said drive-wheel, the jointed levers E, fulcrumed at their lower ends to hangers attached to the frame A, the bars D, connecting the said lever E with the crank-arms C of the drive-wheel, the hand-levers H and the bars G J, connecting the said jointed levers with the said hand-levers H above and below their fulcrum-points, substantially as herein shown and described, whereby the tricycle can be driven at great speed, as set forth.

2. In a tricycle, the combination, with the frame A and the drive-wheel B, of the recessed arm O, provided with a roller, P, the shaft N, journaled to the frame A, and carrying the arm O, and the hand-lever Q, attached to the said shaft, substantially as herein shown and described, whereby the movement of the drive-wheel can be readily checked or stopped, as set forth.

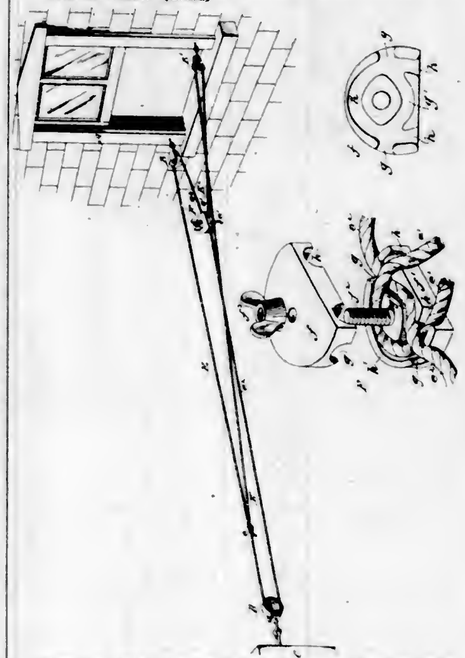
3. In a tricycle, the combination, with the frame A, the axle-tree T, and the guide-wheels R, of the axle-arms S, pivoted to the said axle-tree, the bars U, pivoted to the said axle-arms, and the foot-lever V, provided with foot-rests *b*, having two slots, W, in its rear edge to receive the two fulcrum-pins X, attached to a cross-bar of the frame A, and provided with a rigid forwardly-projecting arm, Y, slotted at its forward end to receive the roller *a*, and the recessed rear edge of the guide-board Z, substantially as herein shown and described, whereby the tricycle can be readily turned and accurately guided, as set forth.

349,146. PIPE-COUPLING. JOHN L. DUFF, Sago, Ohio. Filed Feb. 18, 1886. (No model.)

Claim.—The combination, with the coupling A, having formed integral therewith the interior annular flange or collar, B, having its sides beveled inwardly to form a dovetail, as shown, and interiorly threaded from the opposite sides of said collar outwardly, the threads upon opposite sides of said collar being right and left, of the soft-metal rings C, externally threaded to engage the internal thread of said coupling, and each provided with a beveled side to fit the beveled sides of said collar, substantially as and for the purpose specified.



349,147. CLOTHES-LINE. THOMAS P. DURAND, New York, N. Y. Filed Oct. 7, 1885. (Model.)



Claim.—1. The single pulley-blocks B B' and the pulley-block D, in combination with the line E, passed over the pulleys and joined to form two angles, E' E^2, a single part of the line running over each pulley, substantially as described.

2. The pulley-blocks B B' D and line E, joined to form two angles, E' E^2, in combination with a clamp, F, for joining one end, *e'*, of the line with a straight main portion, e^2, substantially as described.

3. The clamp F, composed of the plate *f*, recessed on opposite sides at *g g*, and again at *h h*, at right angles to the side recesses, *g g*, and grooved at *g' h'*, the grooves joining at the side openings, *g g*, and the plate f', recessed at its sides at *g g*, and also at *h h*, and grooved at *g' h'*, to correspond with the grooves and recesses in plate *f*, in combination with the bolt f^2 and nut f^3, substantially as described.

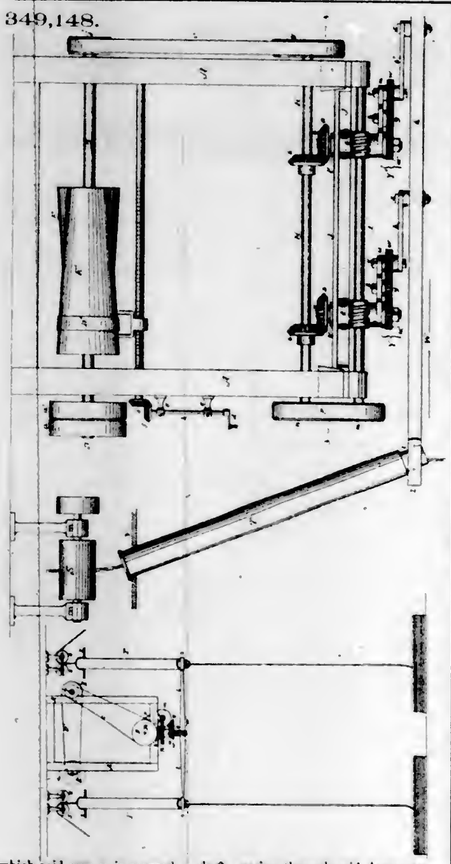
349,148. MACHINE FOR COILING WARPS. JAMES EGGLER, Philadelphia, Pa. Filed Nov. 11, 1884. (No model.)

Claim.—1. The combination of feed-rolls adapted to fixed bearings, with a coiling-frame having beneath said rolls a guide-eye, through which the warp delivered by the rolls can freely pass, and with mechanism, substantially as described, whereby the coiling-frame is caused to traverse in a circular path, all substantially as specified.

2. The combination of feed-rolls adapted to fixed bearings, a coiling-frame having beneath said rolls a guide-eye, through which the warp delivered by the rolls can freely pass, an arm carrying said coiling-frame, a second arm carrying the center pin of the first, and mechanism, substantially as described, for rotating both arms, whereby the guide-eye is caused to traverse in a circular path, the axis of which is constantly advancing in an annular course, all substantially as specified.

3. The combination of a coiling-frame, an arm, *b*, carrying the same, a pivot-pin for said arm, an arm, *u*, carrying said pin, a sleeve to

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which said arm *u* is secured, a shaft passing through said sleeve, gearing whereby the shaft is connected to the arm *b*, and mechanism for rotating the sleeve and shaft, all substantially as specified.

4. The combination of a coiling-frame, a pair of arms, *b*, carrying the same, pivot-pins for said arms, a pair of arms, *u*, carrying said pins, sleeves to which the arms *u* are secured, shafts passing through said sleeves, gearing whereby each of said shafts is connected to one of the arms *b*, gearing for connecting the two sleeves, gearing for connecting the two shafts, and mechanism for rotating the sleeves and shafts, all substantially as specified.

5. The combination of the coiling-frame, an arm, *b*, carrying the same, a pivot-pin, *v*, for said arm, an arm, *u*, carrying said pin, a sleeve to which said arm *u* is secured, a shaft passing through said sleeve, means for rotating the shaft and sleeve, spur-wheels *w*, *w'*, and *y*, whereby the shaft is geared to the arm *b*, and means for adjusting the pivot-pin *v* and the spur-wheel *y*, all substantially as specified.

6. The combination of the feed-rolls adapted to fixed bearings, the coiling-frame having a guide-eye beneath said rolls, mechanism, substantially as described, for causing said coiling-frame to traverse in a circular path, a guide-tube having at the lower end a bearing in the guide-eye of the coiling-frame, and a fixed eye forming a bearing for the upper end of said guide-tube, all substantially as specified.

349,149. DRESS-SHIELD. HENRIETTE EINSTEIN, Philadelphia, Pa. Filed Nov. 23, 1885. (No model.)

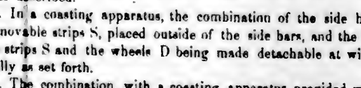


Claim.—1. A garment-shield formed of absorbent and non-absorbent pads which are connected by a detachable fastening consisting of loops and lacing, substantially as described.

2. A garment-shield having an upper absorbent pad and an under non-absorbent pad, the pads being connected by a lacing passing through loops on both pads, substantially as described.

3. A garment-shield having an upper absorbent pad and an under non-absorbent pad, the absorbent pad being of less diameter or size than the other, and connected to the same by a lacing passing through loops on the surface of both pads, substantially as described.

349,150. BOX-STRAP. IRA S. ELKINS, New York, N. Y. Filed June 17, 1886. (No model.)

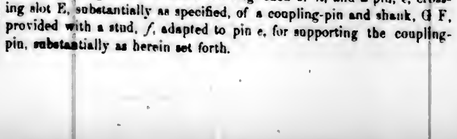


Claim.—1. A box band or strap having at intervals throughout its length depressions, essentially as shown and described.

2. A box band or strap having in combination depressions B and turned-down edges C, essentially as shown and described.

3. A box band or strap having bosses E at intervals of its length, each boss having a central depression, essentially as shown and described.

349,151. DRUM-SNARE STRAINER. AUGUSTUS L. FAYAUX, Philadelphia, Pa. Filed Jan. 30, 1886. (No model.)



Claim.—1. A fastener for a drum-snare, consisting of a recessed plate with a post around which the snare is freely passed, substantially as described.

2. A drum-snare fastener consisting of recessed plates with posts, a hinged arm or lever to which one of the plates is attached, and a screw fitted to said arm and bearing against the drum, substantially as described.

3. A snare-strainer having the fastener E, composed of a recessed plate having posts or rollers G and side openings, J, whereby a continuous snare may be secured thereto, all substantially as described.

4. A snare-strainer having the fastener F, composed of a recessed plate with posts or rollers K, arm L, attached to said plate and pivoted to the plate N, the plate N, and screw M, adapted to work in said arm L and against said plate N, all substantially as described.

5. A snare-strainer composed of the following parts: a recessed plate with posts or rollers in said recess and having side openings, said posts and openings being adapted to secure a continuous snare to said plate, a second recessed plate with posts therein, and having an arm pivoted to a third plate adapted to rest against the body of the drum, and a screw working in said arm and bearing against the last-mentioned plate, all substantially as described.

349,152. COASTING APPARATUS. JAMES F. FERGUSON, Burlington, Vt. Filed Feb. 16, 1886. (No model.)



Claim.—1. A coasting apparatus having its bottom portion made of thin metal and provided with the corrugations *a*, substantially as shown.

2. A coasting apparatus having its bottom made of light corrugated metal, in combination with cross-pieces C and the side bars, B, substantially as described.

3. In a coasting apparatus, the combination of the side bars, B, the removable strips S, placed outside of the side bars, and the wheels D, the strips S and the wheels D being made detachable at will, substantially as set forth.

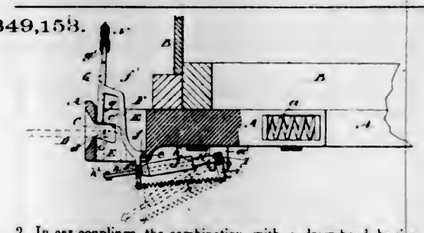
4. The combination, with a coasting apparatus provided with the removable side strips, S, of the levers F, which are pivoted to the strips, and the stops *n*, substantially as specified.

5. The combination, with a coasting apparatus provided with handles *e*, of a strap and a hook, substantially as shown.

349,153. CAR-COUPLING. JAMES B. FORCE, Portville, N. Y. Filed Feb. 4, 1886. (No model.)

Claim.—1. In car-couplings, the combination, with a draw-head having a horizontally-ranging link-socket, C, and a vertically-ranging slot, E, crossing socket C and extending back of it, and a pin, *e*, crossing slot E, substantially as specified, of a coupling-pin and shank, G F, provided with a stud, *f*, adapted to pin *e*, for supporting the coupling-pin, substantially as herein set forth.

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2. In car-couplings, the combination, with a draw-head having a link-socket, C, and a vertical slot, E, provided with a pin, *e*, of a coupling-pin and shank, G F, provided with a stud, *f*, adapted to pin *e*, a shaft, I, journaled to the draw-head and adapted for operation from the sides of the car, and an arm, H, fixed to shaft I and connected loosely to the coupling-pin shank, substantially as and for the purposes set forth.

3. In car-couplings, the combination, with the draw-head socketed at C and slotted at E, a pin, *e*, crossing slot E, and the coupling-pin G, having a shank, F, provided with a stud, *f*, adapted to pin *e*, of a shaft, I, journaled to the draw-head, an arm, H, fixed to shaft I and connected loosely to shank F, and a spring, K, drawing the pin-shank backward, substantially as herein set forth.

4. In car-couplings, the combination, with the draw-head socketed at C and slotted at E, a pin, *e*, crossing slot E, and the coupling-pin G, having a shank, F, provided with a stud, *f*, adapted to pin *e*, of a shaft, I, journaled to the draw-head, an arm, H, fixed to said shaft and connected loosely to shank F, a weight, J, placed loosely on arm H behind the shank, and a spring, K, drawing the shank backward, substantially as and for the purposes herein set forth.

5. In car-couplings, the combination, with a draw-head, A, socketed at C and slotted at E, of a coupling-pin, G, having a shank, F, connected to it above its lower end, as at *f'*, and said slot E, extended behind the inner wall or shoulders, *c'*, of socket C, substantially as shown and described, whereby the pin and its shank, whether raised or lowered, cannot be damaged by an entering link nor by the back-thrust of a link held by the pin, as set forth.

6. In car-couplings, the combination, with a draw-head, A, provided with a horizontally-ranging link-socket, C, having a downwardly and backwardly inclined floor, *c*, and a vertically-ranging slot, E, crossing said socket and extending back of it, substantially as specified, of a coupling-pin, G, a shank, F, connected therewith by a stem, *f'*, providing a space at *g* between the pin and shank, and means for vertically adjusting the lowered pin and shank, substantially as shown and described, whereby the outer end of the link may be adjusted higher or lower to enter an opposing draw-head, as set forth.

349,154. REIN-HOLDER. HAROLD GOOCH, Bonham, Tex., assignor of one-half to Albert B. Scarborough and Mortimer A. Bridges, both of same place. Filed July 8, 1886. (No model.)



Claim.—The improved rein-holder formed of the bifurcated standard A, having clamp-screws *a*, the stationary cylinder B, and the movable cylinder C, pivoted eccentrically and at a point above the stationary cylinder, as shown and described.

349,155. SCREW-CONVEYER FOR GRAIN. JAMES A. GOWANS, Stratford, Ontario, Canada, assignor of two-thirds to Henry L. Gates, same place, and John M. Duncan, Boston, Mass. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination, with a conveyer-shaft, of a flight provided with a loop or open frame which surrounds the shaft loosely with sufficient play to permit the loop or open frame to be inclined toward the axis of the shaft in one or the other direction, and a fastening whereby said loop or frame is adjustably secured to the shaft, substantially as set forth.

2. The combination, with the conveyer-shaft, of a flight provided with a loop, C, which surrounds the shaft loosely, and can be inclined toward the axis of the shaft in one or the other direction, and a set-screw, *d*, and teat *e*, whereby the flight is adjustably secured to the shaft, substantially as set forth.

3. The combination, with the conveyer-shaft, of a flight provided with a loop, C, having V-shaped bearing-surfaces *g g'* on its inner sides, substantially as set forth.

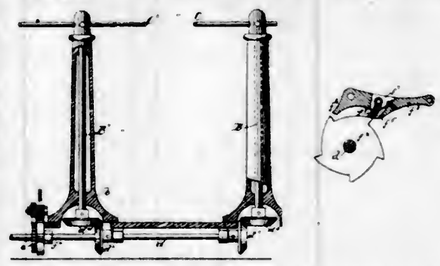
4. The combination, with the conveyer-shaft, of adjustable flights provided with loops which embrace the shaft loosely, and a rod whereby the flights are connected and adjusted simultaneously, substantially as set forth.

5. The combination, with the conveyer-shaft, of adjustable flights provided with loops which embrace the shaft loosely, a rod whereby the flights are connected and adjusted simultaneously, and a clamp which is secured to the shaft, and in which said rod is secured, substantially as set forth.

6. The combination, with the conveyer-shaft, of adjustable flights provided with loops which surround the shaft loosely, a rod whereby the flights are connected, and a fastening whereby the flights are adjustably secured in place, substantially as set forth.

7. The combination, with the conveyer-shaft, of adjustable flights provided with loops C, a rod, H, connecting the flights, and a clamp, I, secured to the shaft and provided with jaws J, in which the rod is guided, substantially as set forth.

349,156. TURNSTILE. JOSEPH H. GREENLEAF, New Haven, Conn., assignor to Edward A. Bradford, Brooklyn, N. Y. Filed Nov. 12, 1885. (No model.)



Claim.—1. In a turnstile device, the combination of two vertical revoluble posts, one on each side of a passage-way, carrying each an equal number of radial arms adapted to extend successively in pairs, oppositely endwise, across and bar the passage, a shaft geared to and connecting said posts and limited to rotation in one direction only, a ratchet-pinion on said shaft having teeth equal in number to the said pairs of arms, and an operating-lever provided with dogs engaging said pinion, as described, whereby the rotation of the shaft is controlled, as and for the purpose specified.

2. In combination with a turnstile device composed of radial arms arranged to bar a passage-way successively in pairs extending oppositely endwise from revoluble upright posts, and mechanism intermediate the posts whereby the same have a simultaneous and concurrent rotation, the clutch device composed of the ratchet-pinion *e* and pawl *e'*, and the ratchet-pinion f^5, lever f^6, carrying dogs f^7 and f^8, and spring-pawl f^9, constructed and arranged to operate as and for the purpose set forth.

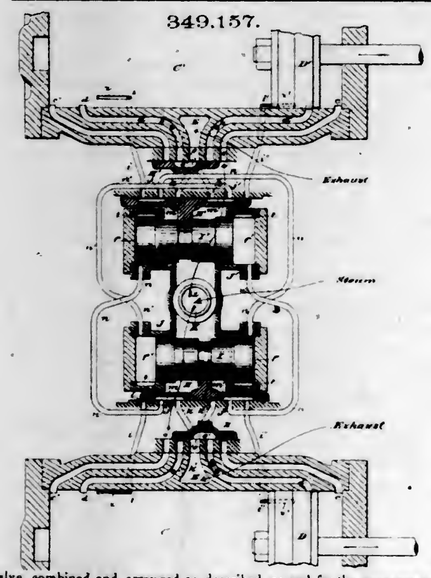
3. A clutch device for turnstile-shafts and other purposes, composed of the ratchet and pawl *e e'*, the ratchet-pinion f^5, having stud *f*, engaging slot f^4, and the lever f^6, fulcrumed at f^4 and carrying dogs f^7 and f^8, and slotted at f^4 to receive spring-pawl f^9, together with an operating-lever, substantially as described, all constructed to operate as and for the purpose specified.

349,157. DUPLEX STEAM-ENGINE. MILAN W. HALL, Plainfield, N. J., assignor to the Hall Steam Pump Company, same place. Filed June 25, 1886. (No model.) Patented in France July 1, 1884, No. 163,084; in Germany July 2, 1884, No. 29,996; in England July 12, 1884, No. 10,097; in Belgium Aug. 13, 1884, No. 66,018, and in Canada July 17, 1885, No. 22,049.

Claim.—1. A duplex steam-engine wherein the two engines reciprocally control each other by means of steam-actuated valves constructed with steam-passages and exhaust-passages extending from opposite sides of the valve-operating piston or plunger of each engine, and communicating with the cylinder of the other engine in such manner, as described, that the back-pressure in the cylinder shall be conducted equally, or nearly so, to opposite sides of the valve-operating piston or plunger, and consequently will be substantially balanced and impotent to move the piston or plunger prematurely, substantially as set forth.

2. In a direct-acting duplex steam-engine having its valves operated by direct steam-pressure, exhaust-passages leading from the opposite ends of the valve piston or plunger chambers into the end portions of the main cylinders, as described, each passage-way controlled by a

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valve, combined and arranged as described, as and for the purposes set forth.

3. In a direct-acting duplex steam-engine having its valves operated by direct steam-pressure, exhaust-passages leading from the ends of the valve-plunger chambers and communicating with the exhaust-ports leading from the ends of the main cylinders to the main valves, each of said passages controlled by a valve, combined and arranged as described, as and for the purposes set forth.

4. A duplex steam-engine wherein the two engines reciprocally control each other by steam-actuated valves constructed with steam-passages and exhaust-passages leading from opposite sides of the valve-operating piston or plunger of each engine, and communicating with the cylinder of the other engine in such manner, as described, that the back-pressure from the cylinder shall be conducted equally, or nearly so, to the opposite sides of the valve piston or plunger, and the valves operated by said pistons or plungers constructed to be loaded by a pressure of steam forcing them against their seats, whereby sufficient friction is generated to resist the accidental shifting of the valves by any inequality of back-pressure transmitted through said passages, whereby said valves can be shifted only by the direct steam-pressure against their operating pistons or plungers, substantially as set forth.

5. The improved construction of duplex engines having steam-actuated valves, which consists of the combination of the main cylinders, the valve-chests, and an intervening plate, G, with the several steam and exhaust ports crossing between each engine and the valve-chest of the other, formed by means of grooves in the joints between said plate and the cylinders below and valve-chests above, substantially as set forth.

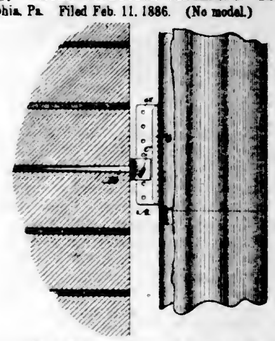
6. The improved construction of duplex engines having steam-actuated valves, which consists in the combination, with the main cylinders and valve-chests, of a port-plate, G, having grooves in its upper and lower faces, forming the passages crossing between each engine and the valve-chest of the other, substantially as set forth.

7. In a duplex engine, the combination of the two main cylinders, the valve-chests, the port-plate G between said cylinders and valve-chests, having grooves forming the passages crossing between the cylinder of each engine and the valve-chest of the other, and ports formed through it, and the steam-actuated slide-valves in said valve-chests, arranged to slide over said plate and to open and close the said ports therein, substantially as set forth.

8. In a duplex engine having steam-actuated valves, the combination, with the valves and their actuating pistons or plungers, of the valve-chests constructed with chambers *f f'* for said plungers, with ports *n n* entering the same near their ends, leaving a cushioning-space in the end of each chamber beyond the port *n*, and the cushioning-grooves *t t* in the said chambers, substantially as set forth, whereby when the plunger nears the end of its stroke and cuts off the exhaust through *n* it opens *t* and admits live steam in front of it to cushion against.

9. In a duplex engine having steam-actuated valves, the combination, with the main cylinders and pistons, of ports *i i'*, leading from the cylinder of each engine through the valve thereof to the valve-chest of the other engine, and grooves *z z'*, formed in the cylinders, extending from said ports toward the ends of the cylinders a distance equal to the effective length of the pistons, substantially as and for the purpose set forth.

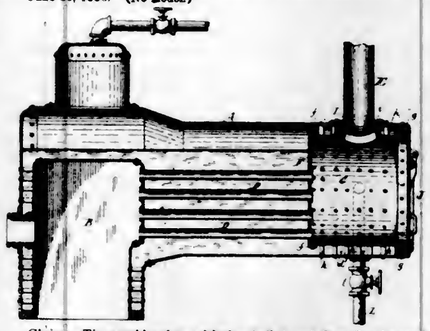
349,158. WATER-CONDUCTOR FASTENING. ZACHARY T. HALL, Philadelphia, Pa. Filed Feb. 11, 1886. (No model.)



Claim.—1. In a water-conductor fastening, a plate having the stem and branch, the stem having a vertical series of openings, and the branches attachable to a conductor, in combination with a spike having a bifurcated head with transverse openings therein, and a pin adapted to secure said spike and plate by passing through said openings in the head and plate, substantially as described.

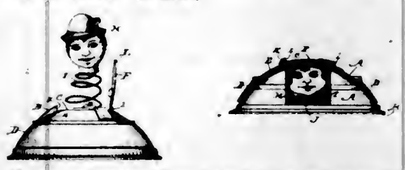
2. In a water-conductor, a sheet-metal plate bent so as to form a stem of double thickness, and side branches, the stem having vertical openings, in combination with a spike, B, having a bifurcated head with openings, and the pin C, all substantially as described.

349,159. STEAM-BOILER. GUSTAVE HILBERT, Buffalo, N. Y. Filed June 30, 1886. (No model.)



Claim.—The combination, with the shell A and fines D, of a smoke-box, C, arranged within the shell and separated therefrom by an annular space, *d'*, a smoke-stack, E, communicating with the top of the smoke-box, and a feed-water pipe communicating with the annular space *d'*, substantially as set forth.

349,160. FLYING TARGET. JOSEPH H. JACOBS, Atchison, Kans. Filed Feb. 26, 1886. (No model.)



Claim.—1. A pigeon or flying target having a body provided with a receptacle adapted to contain an image, and provided with a gate or cover arranged to close the open or outer end of said receptacle, whereby to secure an image therein, and with latch devices, substantially as set forth.

2. A flying target having a concavo-convex form and provided with a receptacle fitted to contain an image, and opening out of its convex face, and with retaining mechanism whereby to secure an image in said receptacle, substantially as set forth.

3. A flying pigeon or target formed of sheet metal, and comprising a body portion having a central opening, a spring-supported image movable into and out of said opening, a gate, a latch for said gate, and springs arranged to bear at their inner ends under said gate, substantially as set forth.

4. A flying pigeon or target having a central opening, and provided with an image movable into and out of said opening, and with a gate whereby to retain said image in the target, substantially as set forth.

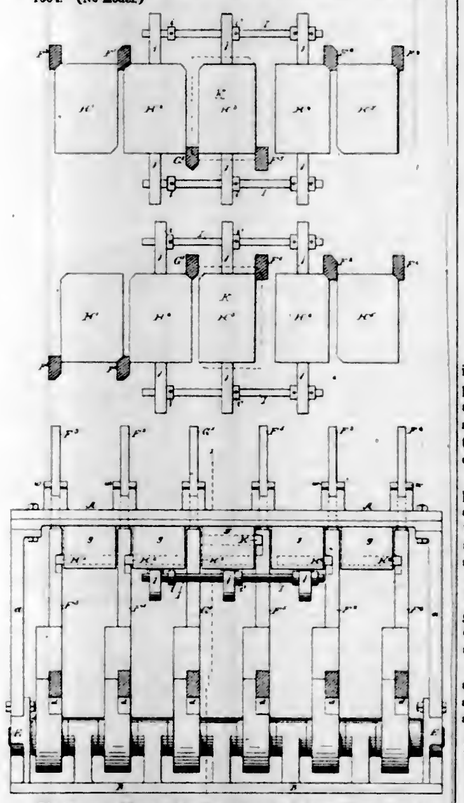
5. A flying pigeon or target having an opening of less diameter than the body of the target, and provided with a tubular well of equal diameter with, and arranged with its open end or mouth in register with said opening in the target, said well being adapted to contain an image pressed through the opening and accurately guide the same out thereof.

6. The combination, with a target, of an image, a spring connected at one end with the image and at its opposite end with the target, and means whereby to detachably secure said image in close contact with the target, substantially as set forth.

7. The improved target herein described, consisting of the sheet-metal body having a balance-ring at its outer edge and a skirt extended inwardly from said edge, and provided at its center with an opening, and a well surrounding and leading from said opening, a spring secured at one end in said well, an image supported on the other end of said spring, the gate, and the latch, substantially as set forth.

8. A pigeon or target having a receptacle and a gate or cover therefor which retains an image within said receptacle, and means for holding said cover normally closed, but releasing the image when the target is struck, substantially as set forth.

349,161. INTERLOCKING SWITCH AND SIGNAL MECHANISM FOR RAILWAYS. EDWARD H. JOHNSTON, Philadelphia, Pa., assignor to the Wharton Railroad Switch Company, same place. Filed May 15, 1884. (No model.)



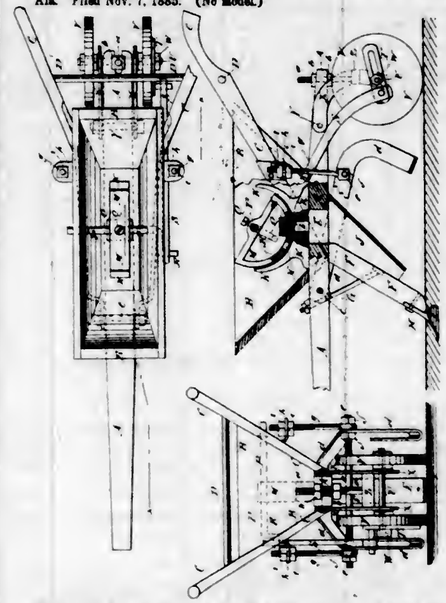
Claim.—1. The combination of a switch-lever, G', and a signal-lever, F', with a locking-plate, H', guided and free to slide laterally between said levers, the parts being beveled, as described, whereby each plate is caused to act directly upon and to be acted upon directly by both levers, all substantially as specified.

2. The combination of two adjacent plates, H' H², adapted to and free to slide laterally in guides in a frame, with a lever hung so as to swing longitudinally between said plates, said parts being beveled, as described, whereby the lever is caused to act directly upon and to be acted upon directly by both of the said plates, all substantially as specified.

3. The combination of a series of plates, H' H², &c., adapted to guides in a frame with switch-levers and signal-levers for operating and being operated by the said plates, and with connections, substantially as described, whereby the movement of one plate is imparted to a distant plate, as specified.

4. The combination of a system of plates, H' H², &c., adapted to guides in a frame, and switch-levers and signal-levers constructed to operate on and to be operated by the plates, with a supplementary plate or plates, K, situated above a plate or plates of the series marked H' H², &c., substantially as specified.

349,162. CORN-PLANTER. ROBERT W. JORDAN, Mount Sterling, Ala. Filed Nov. 7, 1885. (No model.)



Claim.—1. In a corn-planter, the combination, with a beam having an aperture therein, a hopper on the same having a concave seat provided with an aperture registering with the aperture in the beam, and drive-wheels at the rear end of the beam, of a semi-cylindrical feeder secured to a crank-shaft journaled in the hopper, an adjustable crank on the axle of the drive-wheels, and a pitman connected to said crank-arms, close substantially as herein shown and described.

2. In a corn-planter, the combination, with the beam A, the hopper B, and the wheels V, secured to the rear end of the beam, of the crank-shaft P, journaled in the hopper, the semi-cylindrical part M, attached to the shaft P, the slotted crank-arm T on the axle of wheels V, and the pitman S, connected to crank of the shaft P and to the crank T, substantially as herein shown and described.

3. In a corn-planter, the combination, with the hopper B, the beam A, and the plow-beams *d*, of the screw-rod *e* and its nuts, the eye-screws *g* and their nuts, and the brackets *h*, substantially as herein shown and described, whereby the covering-plows can be readily adjusted laterally and vertically, as set forth.

4. In a corn-planter, the channel-opening plows H, formed with a solid V-shaped base or foot, I, substantially as herein shown and described, whereby a V-shaped channel will be opened to receive the seed, as set forth.

349,163. SKATE-ROLLER. EDWARD F. KEYES, Boston, Mass. Filed Jan. 9, 1886. (No model.)

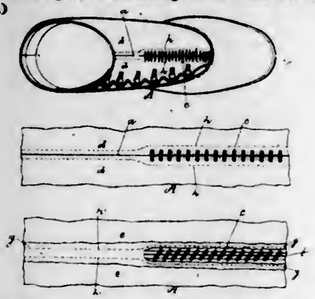


Claim.—1. A roller or wheel consisting of a body chambered in its interior and two separate and independent plates secured one to each side of the roller or wheel to form bearings for the shaft or axle, one of said plates being provided with a cylindrical offset to receive a lubricant, and the other plate being provided with an offset formed as a plug to close the open end of said cylindrical offset, as set forth.

2. The combination, with the chambered body *a*, of the plate *c*, having the chambered offset *f*, screw-threaded on the interior of its inner end, and the plate *d*, provided with the offset *h*, formed as a plug and screw-threaded on its exterior to be screwed into the inner end of the offset *f*, as set forth.

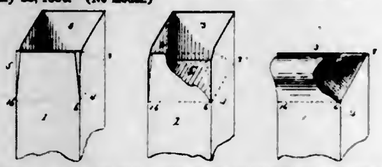
3. The combination, with the body *a*, of the plate *c*, provided with the flange *e* and the cylindrical chambered offset *f*, screw-threaded on the interior of its inner end, and the plate *d*, provided with the flange *g* and the offset *h*, formed as a plug and screw-threaded on its exterior, to be screwed into the inner end of the offset *f*, said flanges *g* and *e* being countersunk in the sides of the body, as set forth.

849,164. SHOE OR GAITER-BOOT. GEORGE A. LANGMAID, Portsmouth, N. H., assignor, by mesne assignments, to George A. Langmaid and Charles E. Langmaid, Middleborough, Mass. Filed Jan. 13, 1886. (No model.)



Claim.—A shoe or gaiter having for a portion of its front seam a lacing in addition to the ordinary stitching, such lacing extending through the material of the shoe, which has a lining inside extending the length of the lacing, as set forth.

849,165. PAPER BOX. ALBERT C. LOHMANN, Akron, Ohio. Filed July 23, 1886. (No model.)



Claim.—A packing-case consisting of a single sheet of material divided by fold-lines into five parallel panels, and having transverse fold-lines the width of the second panel from their ends, the first and second and fourth and fifth panels cut apart outside of the transverse, with the ends of the first panel tapered, and the outer corners of the ends of the panels 2 and 5 nearest the first and fifth panels cut off, the first panel being placed upon and united with the fifth between the transverse lines, the ends of the fifth bent inward, the ends of the third bent inward, the ends of second and fourth folded inward on diagonal lines from the corners nearest the third, and the ends of the first inserted between the third and the upper folds of the second and fourth, substantially as shown, and for the purpose specified.

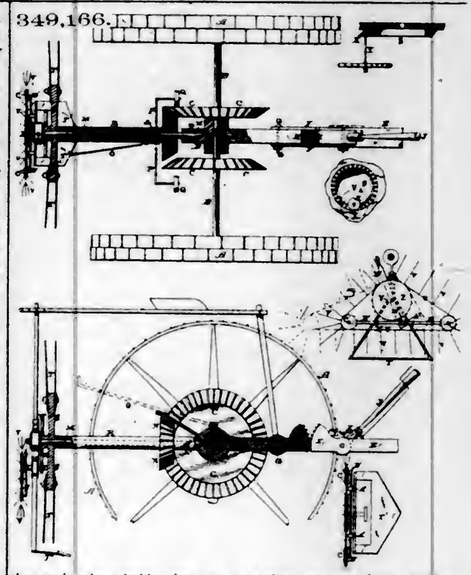
349,166. POTATO-DIGGER. JOHN C. MATTICE, Cobocton, N. Y. Filed Feb. 19, 1886. (No model.)

Claim.—1. In a potato-digger, the combination of the driving-wheels, the axle, and the two beveled gears secured to the axle, with a casting or frame which is laterally adjustable upon the axle, and which has the operating mechanism connected to it, so as to be moved with it, substantially as shown.

2. In a potato-digger, the combination of the driving-wheels, the axle, and the beveled gears secured to the axle, with the casting which is placed upon the axle, and which has the tongue connected to its front end and the operating mechanism to its rear end, and which casting is made adjustable back and forth between the two wheels C, substantially as described.

3. The casting D, made laterally adjustable upon the axle, and having its front end provided with teeth, in combination with the tongue having teeth secured to its rear end, and connected to the front end of

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the casting by suitable plates, an operating-lever, pawl, and ratchet, substantially as set forth.

4. The combination of the casting D, having the tongue connected to its front end, in combination with the stationary rod M, which is secured to its rear end, the pinion and the sleeve, and the reel and the foot, which are placed upon the stationary rod, substantially as specified.

5. The combination of the wheels A, axle B, gears C, casting D, having the tongue loosely connected to its front end, and carrying the operating mechanism at its rear end, and the operating-lever O, provided with the friction-rollers Q, for bearing against the sides of the gears C, substantially as shown.

6. The combination of the reel, the shaft Y, having a pinion, X, upon its inner end and the wheel Z upon its rear one, with the endless chain provided with forks, and the sprocket-wheel C', substantially as set forth.

7. The combination of the standard of the foot or shovel, the end-wise-moving rod B', carrying the wheels C', the endless chain U, provided with forks, the wheel Z, and a lever for shifting the rod B' through its bearing, substantially as specified.

8. In a potato-digger, the combination of the reel, the shovel or foot, and an endless chain or belt carrying teeth, and which is placed in the rear of the standard of the foot, for moving the potatoes to one side of the row, substantially as shown.

9. In a potato-digger, the combination of the reel S, the shovel or foot T', and an endless chain or belt carrying teeth for moving the potatoes to one side of the row, the said belt or chain being made movable from side to side, substantially as described.

10. In a potato-digger, the combination of the casting placed upon the axle, the stationary rod M, which is secured thereto, the pinion N, having the tenon *a* formed upon it, and the sleeve R, which is adjustable back and forth upon the rod M, and which has a socket in its front end to receive the tenon on the pinion N, substantially as set forth.

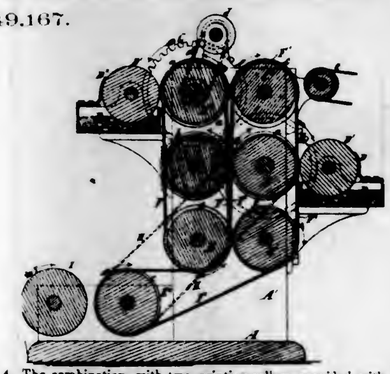
349,167. PAPER-RULING MACHINE. JOHN MCADAMS, Boston, Mass. Filed Aug. 15, 1883. (No model.)

Claim.—1. The combination, with a printing-roller provided with disks for line-printing, of an oppositely-arranged impression-roller provided with grooves opposite said disks, whereby a flooded line may be printed without danger of inking the impression-roller, substantially as and for the purpose described.

2. The combination, with a printing-roller provided with disks for line-printing, of an inking-roller torning in contact with the peripheries of the disks, and an impression-roller arranged opposite the printing-roller and provided with grooves opposite the disks, whereby a flooded line may be printed without danger of inking the impression-roller, substantially as herein described.

3. The combination, with a printing-roller provided with disks for line-printing and with grooves for carrying tapes or strings between the disks, of an oppositely-arranged impression-roller provided with grooves opposite said disks, and with other grooves opposite the grooves in the printing-roller for tapes or strings, substantially as and for the purpose described.

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4. The combination, with two printing-rollers provided with disks for line-printing, arranged to print or rule on opposite sides of the paper, of impression-rollers arranged opposite the two printing-rollers and provided with grooves opposite the disks of said printing-rollers, substantially as and for the purpose described.

349,168. COMBINATION-LOCK. JOHN H. MORRIS and THOMAS D. MORRIS, Seward, Nebr. Filed Apr. 15, 1886. (No model.)



Claim.—In a combination-lock, the body or main plate B, provided with the arms *b* and elongated hollow tubs C C, cast integral therewith, in combination with the spindles *a a*, locking-plates D D, and dials E' E', all constructed to operate substantially as and for the purpose set forth.

349,169. SNAP-HOOK. THOS. T. MORROW, Caro, Mich. Filed Mar. 31, 1886. (No model.)



Claim.—1. In a snap-hook, the combination of a hook proper and a tongue pivoted to the shank of said hook and movable rearwardly past said hook, and having a portion adapted to engage the shank of the hook and stop the parts in closed position, whereby strain on the point of the hook is obviated, substantially as set forth.

2. The combination of the tongue A, having the beveled end *c*, with the hook B, having the beveled recess *e*, said hook and tongue being pivoted together, substantially as described.

349,170. SNAP-HOOK. THOS. T. MORROW, Caro, Mich. Filed July 9, 1886. (No model.)



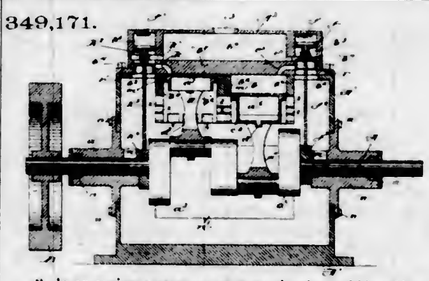
Claim.—1. The combination, with the tongue *b* and tip *c*, connected together and provided with a strap-connection, of the hook B, pivoted between the tongue and lip so as to swing laterally, and having its apex normally adjacent to the tongue, substantially as and for the purpose described.

2. A strap-connection having a tongue, *b*, in connection with a hook pivoted to said tongue to swing laterally, and having its apex arranged to pass onto or off of the tongue, as described.

349,171. STEAM-ENGINE. FREDERIC C. MORTON, Chelsea, Mass. Filed Dec. 26, 1885. (No model.)

Claim.—1. In an engine, a case, one or more chambers within said case, a vibrating or oscillating piston in each of said chambers, a main or crank shaft, and a connecting-rod attached to said shaft for each piston, said connecting-rod being joined to its vibrating piston at or near the end opposite to the center of oscillation of said piston, combined with a piston-valve reciprocating in a valve-chest, one for each chamber, said valve or valves controlling the operation of the vibrating piston or pistons, the combination being and operating substantially as described.

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2. In an engine, a case, one or more chambers within said case, a vibrating or oscillating piston within each of said chambers, said chambers being provided with an inlet port or ports, and with exhaust-ports independent of the inlet-ports, said exhaust-ports being controlled by the vibrating piston within said chamber, combined with a valve or valves, one for each of said chambers, to control the admission of steam thereto, the combination being and operating substantially as described.

3. The case, one or more chambers within said case, and a vibrating or oscillating piston within each chamber, combined with a valve for each of said chambers, and with an independent arc-piece provided with exhaust-ports for each chamber, substantially as described.

4. The case A', provided with vibrating-piston chambers, each having an independent arc-piece and a vibrating piston in each chamber, combined with the shaft A and journal-bearings *a*, cut away, as at *n*, said bearings being supported by said case, substantially as described

5. The case A', provided with vibrating-piston chambers having arc-pieces, and vibrating pistons in said chambers, combined with the bearings *a*, cut away, as at *n*, and supported by said case, and with the box A^2, supported by the case A', and provided with the slot at its under side to receive the packing m^2 for the vibrating piston, substantially as described.

6. The case A', vibrating-piston chambers contained therein, vibrating pistons in said chambers, each of said pistons being provided with the safety-hook *d*, combined with a connecting-rod for each piston, said connecting-rod having an eye through which the hook *d* is passed, as and for the purpose specified.

7. In an engine, a case provided with independent vibrating-piston chambers and a vibrating piston in each of said chambers, combined with the shaft A, provided with cranks, one for each of said pistons and located within the case, and set substantially as described, as and for the purpose set forth.

8. The case A', provided with vibrating-piston chambers and vibrating pistons therein, combined with the shaft A, provided with cranks set substantially opposite, and with journal-bearings *a* for said shaft, said journal-bearings being cut away, as at *n*, to expose said shaft, as and for the purpose specified.

9. The case A', vibrating-piston chambers contained therein, vibrating pistons within said chambers, said pistons being composed of a top plate, longitudinal trusses, and a cross truss or trusses, said longitudinal trusses being connected at their ends by grooved thickened portions c^2 c^2, said portion c^2 having a safety-hook, *d*, combined with a connecting-rod for each of said pistons, said connecting-rod having an eye through which the hook *d* is passed, as and for the purpose specified.

10. In an engine, the case A', and a chamber therein having side walls provided with exhaust-ports, combined with a vibrating piston, and with a crank and shaft operated thereby, substantially as described.

349,172. COMPOSITION FOR PRESERVING AND WATERPROOFING. REUBEN E. NICHOLS, Philadelphia, Pa. Filed Feb. 18, 1886. (Specimens.)

Claim.—1. The composition of matter for preserving and waterproofing purposes, consisting of creosote, paraffine-wax, paraffine-oil, benzole, and naphthaline, to which is added a hydrocarbon fluid, substantially as set forth.

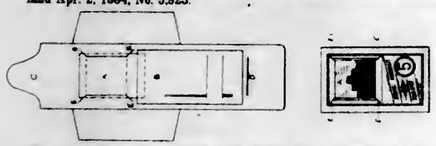
2. A preserving and waterproofing compound consisting of creosote, paraffine-wax, paraffine-oil, benzole, and naphthaline, with naphtha, benzine, or other hydrocarbon, as described.

349,173. DOOR-HANGER. DAVID NIKEL, Morris, Ill. Filed June 29, 1886. (No model.)



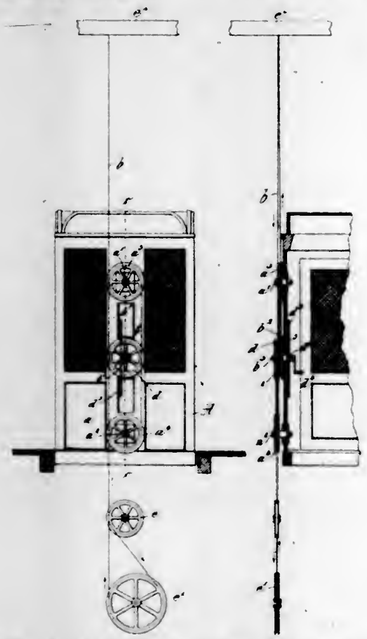
Claim.—In a door-hanger, the combination of a rider-bar provided with shoulders or lugs on its side and depending portions fitted and fastened between such shoulders or lugs, substantially as described.

349,174. CASE FOR NEEDLES. FRANK H. PEACE, Sheffield, County of York, England. Filed Dec. 30, 1885. (No model.) Patented in England Apr. 2, 1884, No. 5,823.



Claim.—A case or wrapper for needles or other small articles having an opening with oblique slits, which is protected or covered by a sheet of transparent or diaphanous material, held in place by said slits, and by an internal flap cemented thereto and to the body of the case or wrapper at one edge, and to which the articles to be displayed are attached, substantially as herein set forth.

349,175. ELEVATOR. FRANCIS B. PERKINS, Boston, Mass. Filed Apr. 12, 1886. (No model.)



Claim.—1. In an elevator, the car, sheaves a^3 a^4, mounted on stationary studs on the outside of said car, a double sheave intermediate of said sheaves, a carriage to support said double sheave and movable between the studs a^3 a^4, and means, substantially as described, to move said carriage, combined with a rope effectively connected to the power-controlling valve, substantially as described, and passed about said sheaves to form loops between the double sheave and the sheaves a^3 a^4, whereby change of position of the double sheave with relation to the sheaves a^3 a^4 changes the length of the said loops, as and for the purpose set forth.

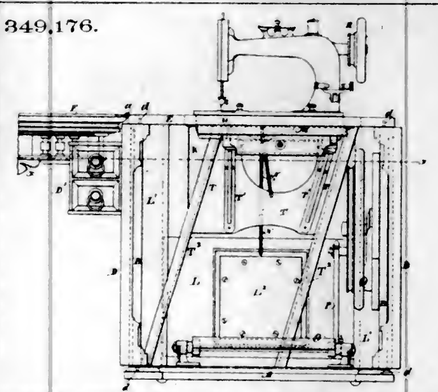
2. The car, sheaves a^3 a^4, mounted on stationary studs on the outside of said car, the carriage b^3, the shaft supported by said carriage and provided with a double sheave, a pinion and crank on said shaft, and rack-bar to be engaged by said pinion, combined with a rope effectively connected to the power-controlling valve, substantially as described, and passed about said sheaves to form loops between the double sheave and the sheaves a^3 a^4, whereby movement of the crank to change the position of the pinion on the rack-bar causes the length of the loops between the sheaves to be changed, as and for the purpose set forth.

349,176. CABINET FOR SEWING-MACHINES. GUSTAV RANGE, New York, N. Y., assignor to Sophie Range, same place. Filed Sept. 15, 1885. (No model.)

Claim.—1. The combination, in a case or cabinet, of a back having an opening through the same and a sliding panel to cover said opening, substantially as set forth.

2. The combination, in a case or cabinet for a sewing or other machine, of a movable platform supporting such machine, a movable panel for covering an opening in the back of the case, and a pulley and cord

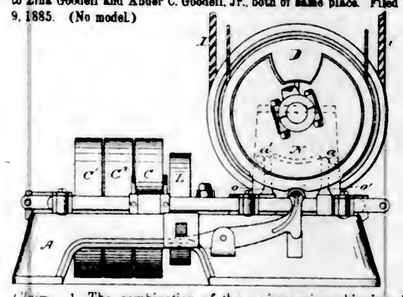
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or chain for connecting the panel with the platform of the machine, substantially as set forth.

3. The combination, with the case adapted to receive a sewing or other machine, and the top of said case having an opening therein, of a movable platform for the machine, adapted to fill the opening in the top, a swinging table or desk hinged to the case, a support for the same, and a movable board or plate passing into the table or desk between the upper and lower thicknesses of the same, substantially as set forth.

349,177. ELEVATOR. COLUMBUS K. ROGERS, Salem, Mass., assignor to Zina Goodell and Abner C. Goodell, Jr., both of same place. Filed Nov. 9, 1885. (No model.)



Claim.—1. The combination of the reciprocating shipping-slides E' E² with each other by the pair of geared levers G G', substantially as described.

2. The combination of the shipping-slides E E' with the shipping-wheel D by means of the plain standards e e', erected on and fixed to the slides E E, and the plain lag N and pins a a', projecting from the face of the shipping-wheel, substantially as described.

3. In combination with the shipping-rope of an elevator, arranged within the elevator-shaft, but outside of the elevator-car, a single lever pivoted to the wall of said elevator-shaft, fastened to said elevator-rope and having its power end projecting through the wall of the elevator-shaft to serve as the handle of a shipper-arm, whereby the driving-belt may be shifted and the motion of the elevator controlled at the landings by a single lever-handle, substantially as described.

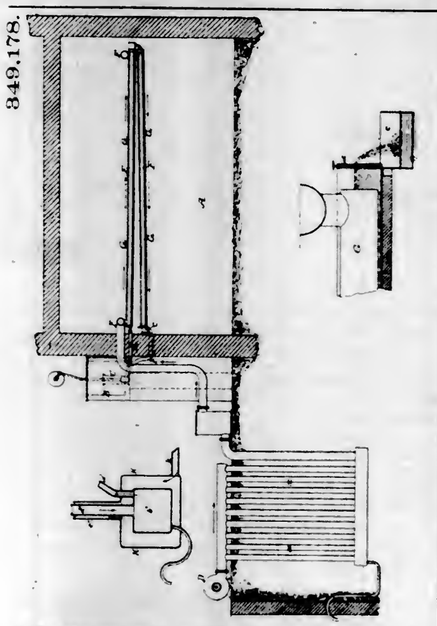
349,178. COOLING AIR AND APPARATUS THEREFOR. STANISLAS H. ROUART, Paris, France. Filed Dec. 26, 1884. (No model.) Patented in France Sept. 21, 1882, No. 151,199; in Belgium Oct. 28, 1882, No. 59,403; in England Nov. 1, 1882, No. 5,219; in Germany Nov. 7, 1882, No. 23,601, and in Austria-Hungary Feb. 3, 1883, No. 37,332.

Claim.—1. The combination of a cooling-chamber with a series of open troughs for the circulation of a cooling-liquid, with pipes partially immersed in the liquid in said troughs, and having slots or other openings along their under sides, substantially as described.

2. The combination of a cooling-chamber with a series of open troughs, a pump for causing a circulation of the cooling-liquid therethrough, a refrigerator for the cooling-liquid, and a series of pipes partially immersed in the liquid in the troughs, and having slots or other openings along their under sides, substantially as and for the purpose set forth.

3. The combination of the cooling-chamber containing open troughs for the circulation of the cooling-liquid and pipes partially immersed in the liquid, having openings along their under sides, with a pump to produce the circulation of the liquid, and a refrigerating apparatus for the latter, and an air pump or fan to supply air under pressure to the pipes, all substantially as set forth.

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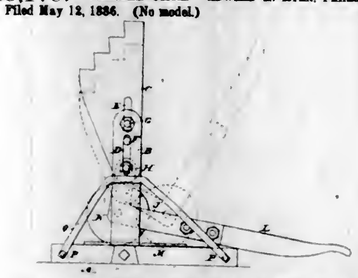


4. The combination of a cooling-chamber containing an air-refrigerating apparatus with an air-supply and a preliminary or cooling device between the said supply and the refrigerator, all substantially as specified.

5. The combination of the open troughs for the circulation of the cooling-liquid with air-pipes to be partially immersed in the liquid therein and adjusting supporting-rods *n*, as and for the purpose described.

6. The combination of the open troughs of a refrigerating-chamber for the circulation of the cooling-liquid with air-pipes F, having slots along their under sides, and adjusting-bands *l*, as and for the purpose specified.

349,179. VEHICLE-JACK. EDWARD H. RYAN, Philadelphia, Pa. Filed May 12, 1886. (No model.)



Claim.—1. A jack having standards, a lifting-bar, a strap with handles, and a roller, said strap being supported on said roller, and said bar and standards having slots and pins for vertically guiding said bar, all combined and arranged substantially as described.

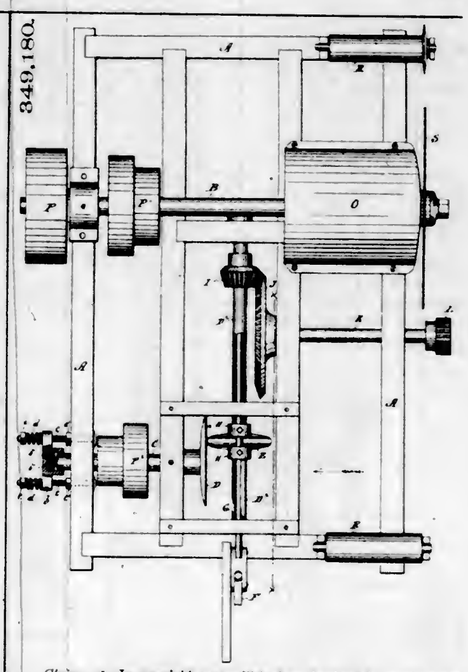
2. In a vehicle-jack, a strap supported on a roller, and secured pivotally to a lifting-bar, in combination with a lifting-bar and standards, the said bar and standards having slots and pins for guiding said bar, all substantially as described.

3. In a vehicle-jack, a strap pivotally secured to a lifting-bar and supported on a roller, in combination with a base having braces adapted to serve as guideways for said roller, all substantially as described.

4. A vehicle-jack formed of a base with braces forming a guideway, an angular strap having a handle and supported on a roller, the latter adapted to work within said guideway formed by braces M, a lifting-bar pivotally attached to said angular strap, and side standards connected to the base, said standards and lifting-bar having, respectively, slots and pins, all of said parts being combined and arranged substantially as and for the purpose set forth.

349,180. FEED-WORK FOR SAW-MILLS. BENJAMIN E. SERGEANT, Greensborough, N. C. Filed Apr. 9, 1886. (No model.)

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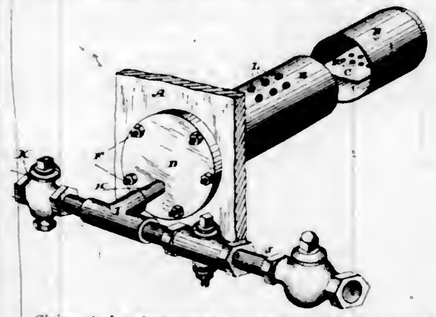


Claim.—1. In a variable saw-mill feed mechanism, the combination of the main shaft B, bearing the saw and driving-pulley P', the counter-shaft C, arranged parallel to B, and provided with driven pulley P², and having a friction-disk, D, on one end thereof and a spring-seated bearing at the other, a friction-wheel, E, arranged in a plane at right angles to the friction-disk, means for adjusting the same laterally, and gears for connecting the same to the carriage-pinion, substantially as shown and described.

2. The combination of the saw-mandrel, the yielding counter-shaft arranged parallel thereto and connected to the mandrel by a belt, the friction-wheel arranged at right angles to the friction-disk, bracket-arms carrying the friction-wheel, a horizontal rod attached to said arms, and a vertical lever connected to the rod, a feathered shaft bearing the friction-wheel, and gears connecting it to the carriage shaft and pinion, as shown and described.

3. The combination, with the saw-frame and its mandrel bearing a circular saw, S, of an arched or inclined hood arranged over the mandrel next to the saw, as and for the purpose described.

349,181. FEED-WATER HEATER AND PURIFIER. WILLIAM J. SMITH, San Francisco, Cal. Filed Mar. 13, 1886. (No model.)



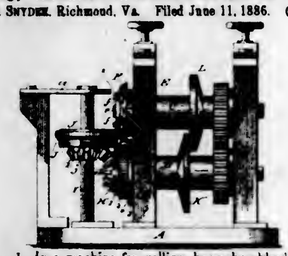
Claim.—1. In a feed-water heater, the horizontal tubular chamber extending into the boiler having its inner end hermetically closed and having perforations in the top near the entering end, in combination with a horizontal diaphragm fixed within the tubular chamber and having perforations through the inner end, together with a closed head fitting the outer end of the tubular chamber, a passage through said head by which water is admitted into the lower compartment, substantially as herein described.

2. A horizontal tubular chamber extending into the boiler having the inner end closed, the outer end fixed in the boiler head or sheet, a horizontal diaphragm extending through the tubular chamber, perforations being made at the inner end of the diaphragm and near the entering end of the upper part of the tube, in combination with a head fitting the entering end of the tube and having a slot into which the edge of the diaphragm fits, substantially as herein described.

3. A horizontal tubular chamber extending into the boiler having its upper part perforated near the entering end, the horizontal diaphragm fitting in said tube and having perforations through its inner end, in combination with a head fitting the entering end of the tube and slotted to receive the edge of the diaphragm, a flange and bolts by which said head is secured in place, and a soft-metal packing-ring secured to the flange, so as to be compressed by the plate through which the tube passes to make a joint, substantially as herein described.

349,182. MACHINE FOR ROLLING HORSESHOE-BLANK BARS.

JOHN H. SNYDER, Richmond, Va. Filed June 11, 1886. (No model.)



Claim.—1. In a machine for rolling horseshoe-blanks, the combination, with the shaft C, provided with a roll, the shaft D, having a roll arranged to receive the side pressure in upsetting the blank, and the side roll, of the disks K and L, secured one on each of the shafts C and D, whereby the relation of the rolls on said shafts may be preserved, substantially as set forth.

2. In a machine for rolling horseshoe-blanks, having upper and lower rolls supported on horizontal shafts, the side roll, J, having a beveled face or flange, J', and provided with dies for upsetting the blanks, substantially as set forth.

3. In a machine substantially as described, the combination, with the upper roll, F, a collar, G, arranged laterally to the said roll F, and the side roll, of the lower roll having faces 1 and 2 and a side or bearing edge, 4, all constructed and arranged substantially as set forth.

349,183. BOILER-COVERING.

ROBERT STEWART, London, County of Middlesex, England. Filed Apr. 27, 1886. (No model.)



Claim.—1. The combination of silicate, cotton, or slag-wool *b*, held between a sheet of metal, *a*, on its outer side, and a sheet of wire-netting, *c*, on its inner side, so as to form an independent compound material, substantially as set forth and shown.

2. The combination, with the silicate, cotton, or slag-wool *b*, the metal sheet *a*, and wire-netting *c*, or two sheets of wire-netting, *c*, the double-ended bent wires *g*, substantially as and for the purpose set forth and shown.

349,184. CORSET-LACING.

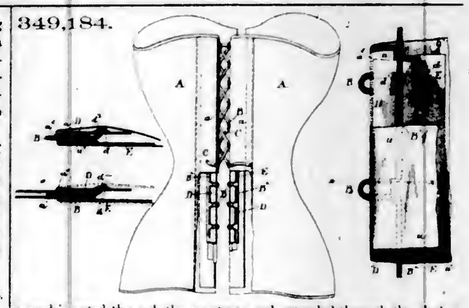
JAMES STONE, Aurora, Ill., assignor of two-thirds to Alice M. Ball, same place, and Elizabeth Florsheim, Chicago, Ill. Filed Oct. 26, 1885. (No model.)

Claim.—1. The combination, with a corset and a marginal stiffening-strip thereof, of eyes formed by a cord secured to said stiffening-strip, substantially as described.

2. The combination, with a marginal stiffening-strip of a corset provided with a series of apertures, of lacing-eyes formed by a cord inserted through the apertures of the strip to form a series of loops, substantially as described.

3. The combination, with a marginal stiffening-strip of a corset provided with a series of apertures having marginal tongues, of a series of loops formed by a cord inserted through the apertures and clamped by the tongues, substantially as described.

4. The combination, with the cloth comprising a corset and a stiffening-strip held in the fold of the cloth at the margin of the corset and provided with a series of apertures, of a series of lacing-eyes formed by



a cord inserted through the apertures and extended through the cloth at the edge of the corset, substantially as described.

5. The combination, with the cloth of the corset and a stiffening-strip, D, provided with a series of apertures, of a series of lacing-eyes formed by a cord inserted through the apertures and the cloth at the edge of the corset and a second flat strip, E, placed over the strip D, substantially as described.

6. The combination, with the cloth layers *a a'* of a corset and an apertured stiffening-strip, D, of a cord inserted at intervals through the apertures to form a series of loops, said layers of cloth being stitched together upon a line with the edge of the strip, with the loops extending outwardly between them, substantially as described.

349,185. KNOCKDOWN OR FOLDING TABLE.

LEVI T. STRADER, HENRY F. GRAY, and IRA J. BURGESS, Columbus, Ohio, assignors to said Levi T. Strader. Filed Apr. 24, 1886. (No model.)



Claim.—1. The combination, with a table-bed, of a pair of legs hinged to said table-bed and adapted to have a sliding movement at right angles, or nearly so, to the longitudinal axis of the legs, a set of

inclines, and a set of securing lugs or shoulders, one of the sets secured to the legs and one to the table-bed, adapted to lock the legs to the table-bed by the sliding movement of the legs, substantially as set forth.

2. The combination, with a table-bed, of a pair of legs hinged to said table-bed and adapted to have a sliding movement at right angles, or nearly so, to the longitudinal axis of the legs, and provided with a set of inclines adapted to engage a set of securing lugs or projections attached to the table-bed by the sliding movement of the legs, substantially as set forth.

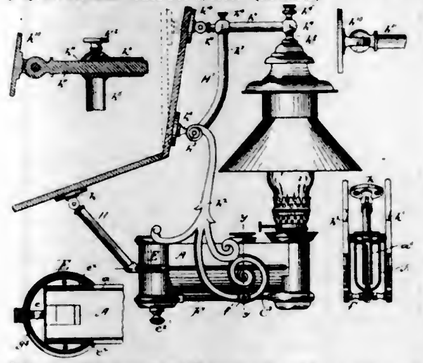
3. The combination, with a table-bed provided with a double set of securing lugs or pins at each end, of two pairs of laterally-sliding legs, each pair being provided with a double set of inclines adapted to engage the securing lugs or pins, and further provided with a set of hinge-pintles, substantially as set forth.

4. The combination, with a table-bed provided with a pair of cleats secured to the under side of the bed near each end and a pair of pins set transversely in each cleat, of a pair of inclined-faced hooks secured to each leg, adapted to draw the legs into snug contact with the lower face of the cleat by their sliding engagement with the ends of the pins, substantially as set forth.

5. The combination, with a table-bed provided with a set of cleats secured transversely to the bed near each end, and a pair of securing-pins set in each cleat, of two pairs of legs provided with inclined-faced securing-hooks attached thereto, and with hinge-pintles adapted to work in sockets formed by securing small cleats to the table-bed, substantially as set forth.

349,186. LAMP-HOLDER FOR CAR AND OTHER LAMPS.

FREEMAN A. TABER, Newton, assignor to the Star Brass Manufacturing Company, Boston, Mass. Filed Dec. 2, 1885. (No model.)



Claim.—1. The lamp-holder E, having the cavity *e*, entrance *e'* and the spring-latch E', in combination with the lamp-body A, having the latch-receiving socket or recess C, all substantially as and for the purposes described.

2. The combination of the lamp-holder E, having the cavity *e*, entrance *e'*, a latching device, E', and the spring G, with the lamp-body A, all substantially as and for the purposes described.

3. The combination of the lamp-holder E, having a cavity, *e*, entrance *e'*, the spring G', and the lamp-body A, and a latch, E', all substantially as described.

4. The combination of the holder E, having a cavity, *e*, entrance *e'*, for receiving and holding the end of the lamp-body, said holder being provided with a supporting attachment or bracket, devices for latching or locking the lamp-body to the said holder E, and the cross-bar *f'*, and supports for said cross-bar, as described, for sustaining or holding the forward part of said body, substantially as set forth.

5. The combination of the lamp-holder E, having the cavity *e*, entrance *e'*, for receiving and holding the end of the lamp-body A, the said lamp-body A, a supporting attachment or bracket for said holder E, the support *f'*, a bracket, as described, carrying the same, and the stay-rod C', engaging support *f'*, substantially as set forth.

6. The combination of the lamp holder or casing E, having the cavity *e*, entrance *e'*, for receiving and holding the end of the lamp-body A, the said lamp-body A, a supporting attachment or bracket for said holder E, the cross-bar *f'*, its supporting-bracket, and an arm or rod, F, connecting the cross-bar with the holder E, substantially as described.

7. The combination of a lamp-holder, E, having a cavity, *e*, entrance *e'*, for receiving and holding the end of the lamp-body, a supporting attachment or bracket for said holder E, and also having the perforated support *f'*, its supporting-bracket, with the lamp-body A, having the stay-rod C', arranged to enter the perforation or hole in the support *f'*, substantially as described.

8. The combination of the casing *a* of the lamp-body, having a hole formed therein for the reception of the latching device, the metal piece *c*, having the socket C and flange *c'*, by which it is fastened to the inner surface of the casing *a*, with the lamp-holder provided with a spring-latching device, the latch of which is adapted to enter said socket in fastening the lamp-body to the lamp-holder, substantially as described.

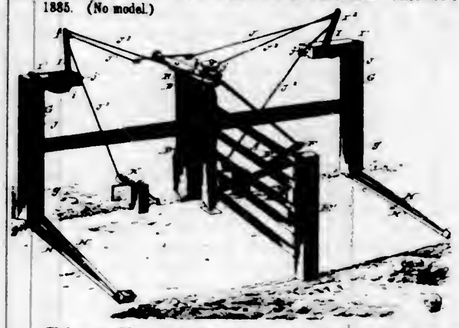
9. The lamp support or bracket, comprising a holder, E, the stay-rod H, the fastening-plate *h*, the brackets *h' h²*, the fastening-plate *h⁴*, the cross-bar *f''*, supported by the brackets *h' h²*, the shade-support *h⁵ h⁶*, the adjustable rod *h¹⁰*, and plate *h¹³*, all substantially as described.

10. In a lamp support or bracket, the combination of the lamp-holder, supporting arms or brackets, with a pivoted shade-supporting arm or bracket, *h⁵ h⁶*, the adjustable rod *h¹⁰*, pivoted to the fastening-plate *h¹³*, and devices for locking the arm or bracket to the adjustable rod, substantially as and for the purposes described.

11. The combination of a lamp-holder with a supporting-bracket, H, brackets *h' h²*, cross-bar *f''*, a rigid connection between the lamp-holder and cross-bar, and a lamp-body supported by said holder and cross-bar, substantially as described.

349,187. GATE

PHYLANDER S. TIPTON, Anson, Tex. Filed Oct. 5, 1885. (No model.)



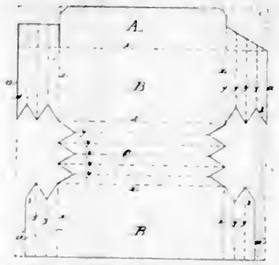
Claim.—1. The combination of the gate, the sill-beams H', grooved, as described, the trip-bars secured in said grooves and pivotally supported at one end, and connections between the opposite ends of the trip-bars and the gate, substantially as and for the purposes specified.

2. The combination, with the gate and the posts G, having mortises *g*, of the grooved sill-beams H', the trip-bars pivoted at one end in the grooves of beams H', and having their opposite ends movable vertically in mortises *g*, and connections between said trips and the gate, substantially as set forth.

3. In a gate, the combination of the gate proper, the lever B, the latch K, the trips, the levers I, connected with the trips, and the cords connecting the levers I with the lever B and with latches K, substantially as set forth.

349,188. DOCUMENT-ENVELOPE.

EMANUEL J. TRUM, Brooklyn, N. Y. Filed May 23, 1884. (Model.)

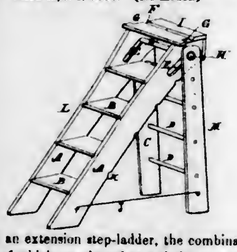


Claim.—1. An expansible envelope made with its sides and bottom continuous, the ends in two parts, which are continuous with their respective sides, the said parts being pasted together and the ends and bottom connected together by separate pieces, substantially as specified.

2. In an expansible envelope or file, the combination of the sides B B' and bottom C, formed of one continuous piece, the ends D, composed of two parts which project from the sides B B', and are pasted together, the said two parts being of unequal width, and pieces connecting the bottom and ends and closing the openings between the same, substantially as specified.

3. A blank for expansible envelopes, files, &c., consisting of the sides B B', having, respectively, extensions or projections *a a a' a'*, to form the ends D D, the part C, connecting the sides B B', and the V-shaped projections on the contiguous edges of the parts C *a a a' a'*, for the purpose substantially as specified.

349,189. EXTENSION STEP-LADDER. THOMAS L. VANDERSLICE, Philadelphia, Pa. Filed Apr. 1, 1886. (No model.)



Claim.—1. In an extension step-ladder, the combination of main part L, the sides A A of which are pierced near their upper ends by openings or slots E E, and brace part M, the upper round, D', of which is loose and removable, and adapted to pierce the sides A A through openings or slots E E, thus forming a pivotal pin, and also permitting the parts L and M to be detached from each other, substantially as and for the purpose described.

2. In an extension step-ladder, the combination of the main part L, the sides A A of which are pierced near their upper ends by openings E E, brace part M, the upper round, D', of which pierces the sides A A through said openings E E, thus forming a pivotal pin and shoulder G, to form a stop to stay the extended section or part M, substantially as and for the purpose described.

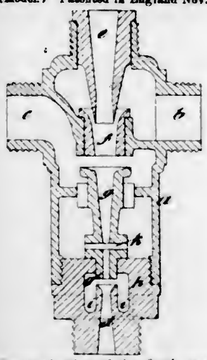
3. In an extension step-ladder, the combination of the main part L, the sides A A of which are pierced near their upper ends by openings or slots E E, and the upper step or platform, I, of which is provided with a groove, F, to receive the round D'' of the part M, to stay the ladder when extended, and brace part M, the upper pivotal pin, D', of which pierces the sides A A through the said openings E E, substantially as and for the purpose described.

349,190. WHEEL-HUB. JOHN W. WEBBER, Chicago, Ill. Filed Dec. 18, 1885. (No model.)



Claim.—The combination, with the wooden hub A, provided with mortises *a* for the spoke-tenons, of metal collars B B', forming an annular metal band encircling the hub, one of said collars being provided with projections *b*, having ribs or flanges b^2 adjacent to the wooden hub A, whereby are formed a series of spoke-sockets, *b'*, adapted to receive the inner ends of the spokes, and adapted to fit the spoke-tenons at their inner portions, substantially as described.

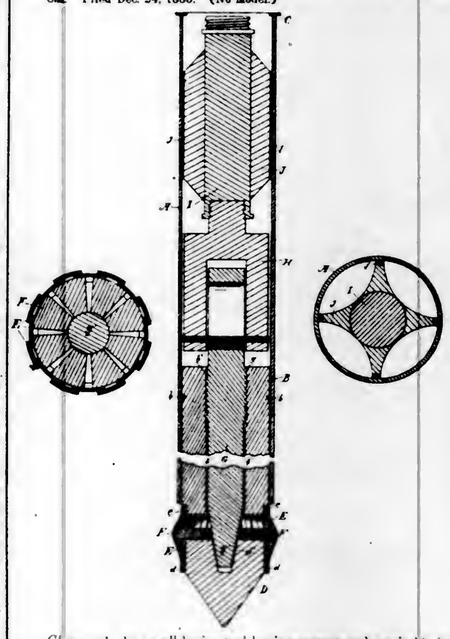
349,191. INJECTOR. THOMAS H. WHITE, Salford, Manchester, County of Lancaster, assignor to John Holroyd, Manchester, England. Filed Mar. 9, 1886. (Model.) Patented in England Nov. 14, 1884, No. 15,015.



Claim.—1. The combination of the fixed receiving-cone and surrounding chamber, the combining-cone, steam-nozzle, and water-supply of an injector with a sliding delivery-tube between the combining-cone and receiving-cone, substantially as set forth.

2. The combination of the combining-cone and receiving-cone of an injector with a sliding delivery-tube between the two, a chamber, *i*, around the receiving-cone, and a branch water-inlet, *l*, leading into the said chamber, substantially as and for the purpose set forth.

349,192. WELL-BORING TOOL. JOHN A. WOODHOUSE, Santa Ana, Cal. Filed Dec. 24, 1885. (No model.)



Claim.—1. In a well-boring tool having a stock and a suitable boring or inserting point, an expanding guard or shield around the tool adapted to increase its diameter when relieved from the pipe, substantially as and for the purpose herein described.

2. In a well-boring tool having a stock and a suitable boring or inserting point, an annular series of spring-plates around the tool adapted to expand to a greater diameter when relieved from the pipe, substantially as and for the purpose described.

3. In a well-boring tool, the combination of the stock B, the point D, and the annular series of spring-plates E, uniting the stock and point, substantially as herein described.

4. In a well-boring tool, the combination of the stock B, the point D, and the spring-plates E, uniting the stock and point, said plates being arranged in an annular series of two layers, the outer layer breaking joints with the inner layer, substantially as described.

5. In a well-boring tool, the combination of the stock B, the point D, the annular series of spring-plates E, uniting the stock and point, and the means by which the plates are secured, consisting of the screw-ring *e*, to which their upper ends are attached, and the detachable ring or band *d*, to which their lower ends are attached, substantially as herein described.

6. In a well-boring tool, the stock B and point D, in combination with the annular series of spring-plates E, uniting the stock and point, and a means for expanding said plates and holding them positively to a greater diameter after being relieved from the pipe, substantially as described.

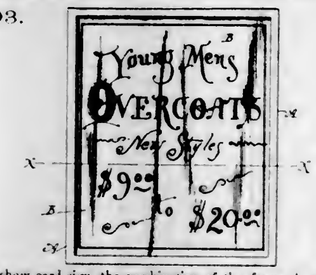
7. In a well-boring tool, the stock B, having a central passage, *b'*, the point D, having a central inverted conical socket, *d'*, and the annular series of spring-plates E, uniting the stock and point, in combination with the sectors F on the point, bearing against the spring-plates, and the rod G, threaded in the passage of the stock, and having a conical point, *g'*, seated in the socket of point D and bearing against the sectors, substantially as and for the purpose herein described.

8. The stock B, the point D, and the spring-plates E, uniting stock and point, the expanding sectors F, and the conical-pointed screw-rod G, for operating the sectors, in combination with the jars H, coupled to the head of the rod G, the sinker-bar I, coupled to the jars, and the guide-wings J of said rod, substantially as described.

349,193. SHOW-CARD SIGN. ROBERT W. YOUNG, Chicago, Ill., assignor of one-half to James A. Fleming, same place. Filed Dec. 14, 1885. (No model.)

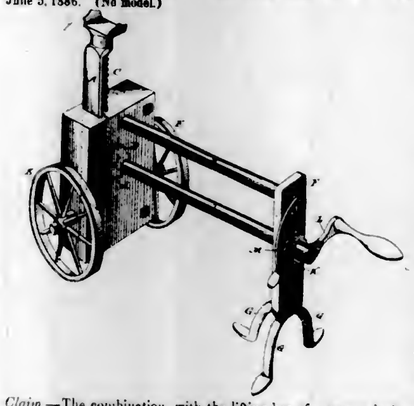
Claim.—1. A show-card sign consisting of a frame, a glass therein upon which the letters are written in a solvent material, and an independent removable background over which said letters may be distinctly seen, substantially in the manner and for the purposes specified.

349,193.



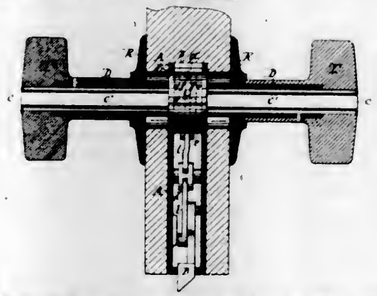
2. In a show-card sign, the combination of the frame A, glass B, having the sign written thereon in a solvent material, and the independent removable background C, placed in the rear of and separated from said glass, substantially as and for the purposes specified.

349,194. WAGON-JACK. J. ADAM ZAHN, New York, N. Y. Filed June 5, 1886. (No model.)



Claim.—The combination, with the lifting-bar of a wagon-jack, of the wheels E E, outer standard, F, connecting-bar H, crank-shaft J, and pinion *d*, secured to said shaft and engaging a rack on the lifting-bar, all substantially in the manner and for the purpose herein set forth.

349,195. COMBINED LATCH AND LOCK. WILLETT H. ACKER, Syracuse, N. Y. Filed Jan. 23, 1886. (Model.)



Claim.—1. In combination with the bolt B and its case A, the supplemental case C, adapted to rotate in the case A, and adapted to operate the bolt B, and provided with a slot, *a*, the bolt *b*, arranged in the case C and projecting through the slot *a*, and adapted to engage the case A, and the spindle D, attached to the case C, and having the key-hole *c*, extending longitudinally through it and into the case C, substantially as described and shown.

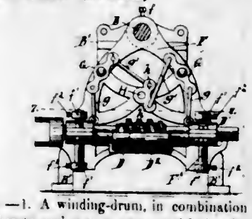
2. In combination with the bolt B, the case A, provided with the slot *s*, the supplemental case C, adapted to rotate in the case A, and adapted to operate the bolt B, and provided with the slot *a*, the bolt *b*, having the yoke *b'* with cam-faces *v v*, arranged in the center of the case C, tumblers *e e* at opposite sides of the bolt *b*, and the spindle D, attached to the case C, and having the key-hole *c* extending longitudinally through it and into the case C, substantially as described and shown.

3. In combination with the case A and spindle D, the case C, adapted to rotate in the case A and attached to the spindle, the bolt B, two-armed lever *d*, and the links *l l*, connecting opposite ends of said lever, respectively, with the bolt and spindle, substantially as described and shown.

4. The combination, with the case A and bolt B, of the ring *r*, pivoted in the case, and connected with the bolt, and provided with the slots *n n*, the cylindrical case C, arranged inside of the ring *r* and provided with lugs *o o*, and the spindle D, attached to the case C, substantially as described and shown.

5. The combination of the cylindrical case C, provided with the slot *a*, the bolt *b*, projecting through said slot and formed with the yoke *b'* at right angles to the axis of the case, and having cam-faces *v v* on said yoke, the spring *u*, the tumblers *e e*, consisting of circular disks with mutilated peripheries and enlarged central key-holes, and the spindle D, attached to the case C, and provided with the longitudinal key-hole *c*, substantially as described and shown.

349,196. WINDING-DRUM. WALTER G. ADAMS, Sandwich, Ill. Filed Mar. 22, 1886. (No model.)



Claim.—1. A winding-drum, in combination with a worm-gear connected thereto and a worm mounted in bearings which are adjustable about the center of motion of said gear, substantially as and for the purposes specified.

2. The winding-drum, in combination with a worm-gear connected thereto and a worm adjustable bodily to and from the said worm-gear in a direction radial to the point of contact therewith, substantially as and for the purposes specified.

3. The winding-drum, in combination with the worm-gear, the worm mounted to slide on suitable ways, and the levers suitably connected to the said worm and to an operating-lever, substantially as and for the purposes specified.

4. The winding-drum and worm-gear, in combination with the worm mounted to slide on suitable ways, the links *g*, the levers G, connecting rods *g'* and shaft H with operating-lever H', substantially as and for the purposes specified.

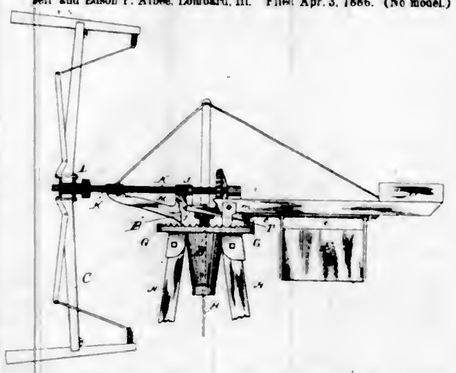
5. In a winding-drum, the combination, with the drum proper, A, having collar *a* with recesses *a'*, of the gear C, provided with projecting hub *c* and radial ribs C', substantially as and for the purposes specified.

6. In a winding-drum, the combination, with the fixed shaft B and a drum and worm-gear loosely mounted thereon, of the yoke or bracket F, which carries the worm D, the said yoke being adjustably mounted on the fixed shaft, substantially as and for the purposes specified.

7. The combination with the yoke F, provided with lugs *f'*, of the bars F', secured in said lugs by means of set-screws f^2, and the worm D, having boxes D', mounted to slide on said bars, substantially as and for the purposes specified.

8. The combination, with the worm D, having boxes D', of the trough or receptacle D^2, connecting said boxes, substantially as and for the purposes specified.

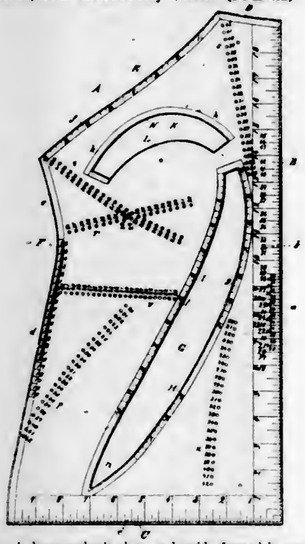
349,197. WINDMILL. TRUMAN C. ALBEE, Chicago, assignor to himself and Edson P. Albee, Lombard, Ill. Filed Apr. 3, 1886. (No model.)



Claim.—The combination, with the bell-crank lever J, connected at one end to the sails of the mill and at the other end to a rod reach-

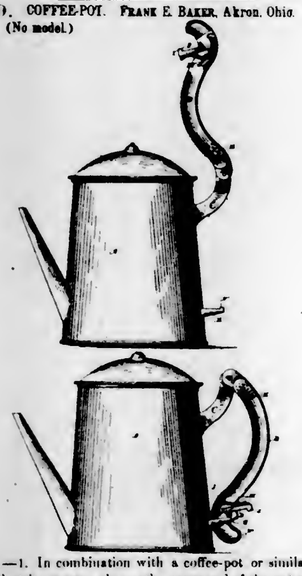
ing down toward the ground, of the lever M, operated by said first-named lever and the loose pawl P and its actuating-vane F, whereby the same operation which throws the sails out of the wind will simultaneously unlatch the pawl and leave the mill free to swing on the tower, substantially as specified.

349,198. DRESS-MAKER'S CHART. ELVIRA BAKER, Mitchell, Ind. Filed Feb. 11, 1884. Renewed July 1, 1886. (No model.)



Claim.—A dress-maker's chart and guide formed in one piece, and having the external straight edges B C, the upper curved edge, D, the oblique-curved edge E, the vertically-curved edge F, the upper transversely-curved slotted portion K, and the vertically-slotted portion G, having edge scale-marks, and the whole provided with scales for the various curved and straight edges, substantially as specified.

349,199. COFFEE-POT. FRANK E. BAKER, Akron, Ohio. Filed Apr. 6, 1886. (No model.)



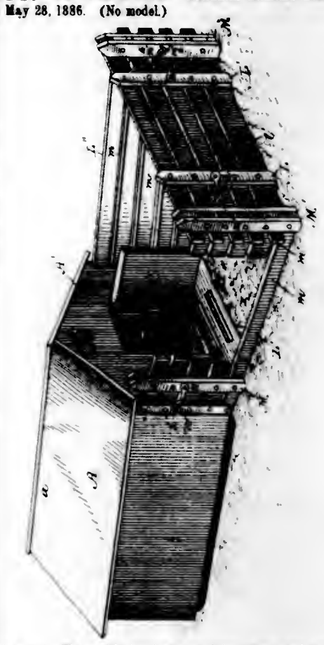
Claim.—1. In combination with a coffee-pot or similar vessel, a handle hinged at its upper end near the upper end of the pot and having a catch at its lower end for engaging the pot as and for the purpose shown and set forth.

2. In combination with a coffee-pot or similar vessel, a tubular handle hinged at its upper end near the upper end of the pot and having a catch at its lower end for securing it to the pot, as and for the purpose shown and set forth.

3. In a coffee-pot or similar vessel, the combination of a handle pivoted at its upper end to the upper end of the pot and having a perforation at its lower end, a lug projecting from the pot and having a notch in its upper side entering the perforation, and a catch pivoted near its lower end in a recess in the handle engaging the notch of the lug and having an outwardly-bent upper end formed with a weighted head, as and for the purpose shown and set forth.

4. In a coffee-pot or similar vessel, the combination of a handle pivoted at its upper end to the upper end of the pot and having a perforation in its lower end, a lug projecting from the pot and having a notch in its upper side entering the perforation, and a catch pivoted near its lower end in a recess in the handle engaging the notch of the lug with the lower end and having a spring bearing against its upper end forcing it out of the recess, as and for the purpose shown and set forth.

349,200. PEN FOR SWINE. ABRAHAM BALMER, Bluffton, Ohio. Filed May 28, 1886. (No model.)



Claim.—1. The stable having cross-joists, front and rear bails secured therein, longitudinal beams rounded at both ends to form runners, and the loosely-hinged inclined bridge, whereby the stable may be moved from place to place without removing the bridge, all as hereinbefore set forth.

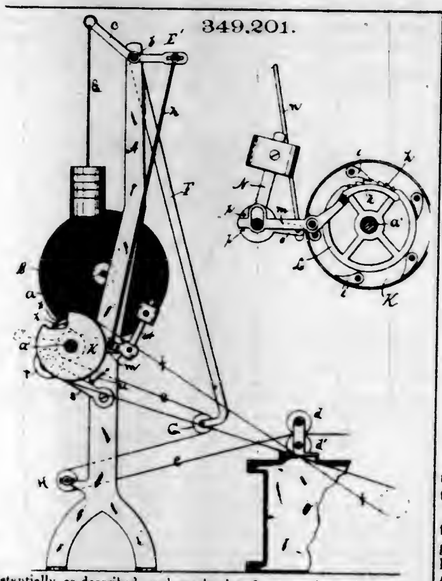
2. A portable stable having side and end walls, the side walls having grooves, a guard-rod which fits therein, the rear wall provided with a socket near each side above the level of the rear guard-rod, uprights against the front wall, provided with notches, the two side guard-rods fitting into the sockets at their rear ends over the rear guard-rod, and having their front ends dropped into the notches in the uprights, and pins for holding them therein, in combination with the loosely-inclined bridge, cross-bars, and bails, substantially as set forth.

349,201. LAP-FEEDING MECHANISM FOR CARDING-MACHINES. MOSES BARBER and STEPHEN P. WEEKS, South Coventry, Conn. Filed May 20, 1886. (No model.)

Brief.—By the mechanism set forth in the claim a uniform tension is kept upon the lap as it passes to the feed-rolls of the card, and at the same time the lap itself is made to control the speed with which it is unrolled from the beam

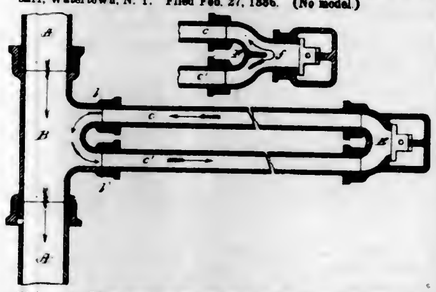
Claim.—In combination with a beam-supporting frame having a central diagonal section adapted to receive and support the bearings of the beam, a rock-shaft pivoted in said frame, having depending arms carrying in their free ends a roller, and being provided, also, with the weighted arm c and arm E', as described, a roller located below and adapted to support the beam, carrying a ratchet-wheel, as described, a flanged disk loosely fitted on the shaft which carries said ratchet-wheel adjacent to said ratchet-wheel, and provided with a series of pawls, as described, a fixed shield adjacent to said ratchet-wheel, having its upper portion cut away, as described, an auxiliary shield, *k*, located and pivoted

349,201.



substantially as described, and mechanism for operating said auxiliary shield, consisting of the weighted arm N and a connecting-rod extending from said arm to the arm E', all of said elements being formed and connected in substantially the manner and for the object specified.

349,202. SYSTEM OF WATER-DISTRIBUTION. GEORGE B. BASSETT, Watertown, N. Y. Filed Feb. 27, 1886. (No model.)



Claim.—1. The combination, with the main, of the two lateral or branch pipes communicating at their inner ends and connected with the main in close proximity to each other, the diameter of the main between the two pipes being enlarged, substantially as described.

2. The combination, with the water-main, of the casting having two openings on the same side, the diameter of the casting between the openings being greater than that of the main, substantially as described.

3. The combination of the main, the casting forming part thereof and having two separate lateral openings on the same side and in close proximity, and the two branch pipes leading from said openings, respectively, and communicating at their inner ends, so as to form a continuous passage or channel, substantially as described.

4. The combination of the hydrant and two lateral or branch pipes leading thereto and connected with the main in close proximity to one another, so that the attrition of the water in the main will cause a constant flow through the branches, substantially as described.

5. The combination of the main, the casting having two lateral openings and being of enlarged diameter between the openings, the two branch pipes connected to said openings, respectively, and the hydrant, substantially as described.

6. The combination of the water-main, the two lateral branches connected therewith, the Y with which the inner ends of the branches are connected, and the hydrant, substantially as described.

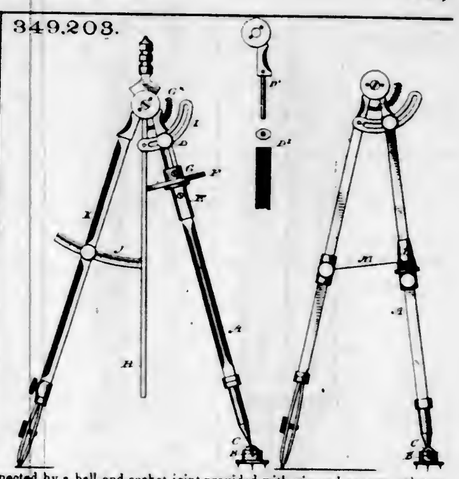
349,203. DRAFTSMAN'S COMPASSES. JAMES F. BENNETT and BENJAMIN B SMITH, Sheffield, County of York, England. Filed May 11, 1885. (No model.)

Claim.—1. In mathematical compasses for describing curvilinear geometrical figures other than circles, a non-rotating foot and leg connected by a ball-and-socket joint provided with pin and groove, substantially as herein described, for the purpose set forth.

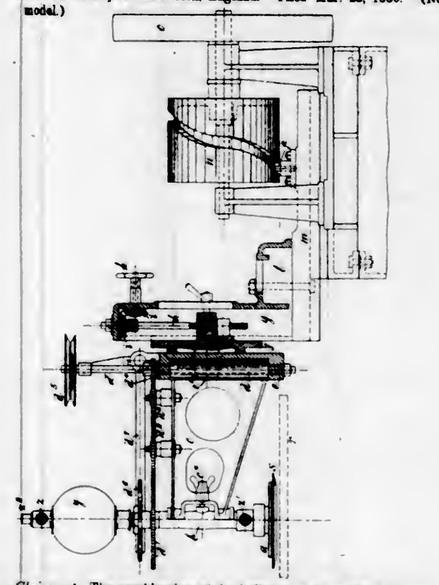
2. In mathematical compasses, the combination of a non-rotating foot and leg connected by a ball-and-socket joint, provided with pin and groove, a templet carried by said leg, and a revolving pen or pencil leg controlled as to its path by such templet, substantially as herein specified.

3. The within-described compasses for describing ellipses and like figures, comprising a non-rotating foot and leg, a templet carried by the latter, a guide-bar held in contact with the perimeter of said templet by a spring, and a revolving leg adjustably connected with said guide-bar, substantially as herein shown and described, for the purpose set forth.

349,203.



349,204. DEVICE FOR HOLDING GLASS WHILE BEING GROUND OR POLISHED. HYPPOLITE BESSON and ERNEST N. KENT, Bethnal Green, London, County of Middlesex, England. Filed Mar. 23, 1886. (No model.)



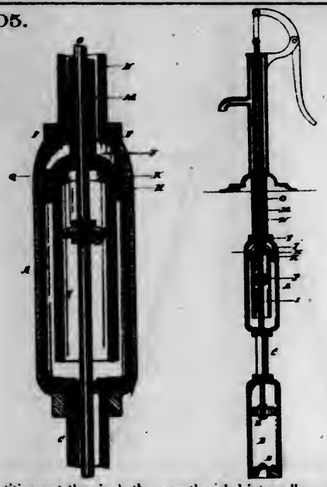
Claim.—1. The combination of the hollow spindle *x*, chuck *t*, joint *v*, vacuum-chamber *y*, and cocks *z* and *z'*, all arranged and operating substantially as and for the purposes described, and shown in the drawings.

2. In a glass-grinding machine, the combination of spindle *x* with chuck *t*, joint *v*, vacuum-chamber *y*, cocks *z* and *z'*, former d^8, sleeve *b*, and screw and nut C', substantially as set forth.

349,205. PUMP. DANIEL R. CAHOW, Akron, Ohio. Filed Mar. 14, 1885. (No model.)

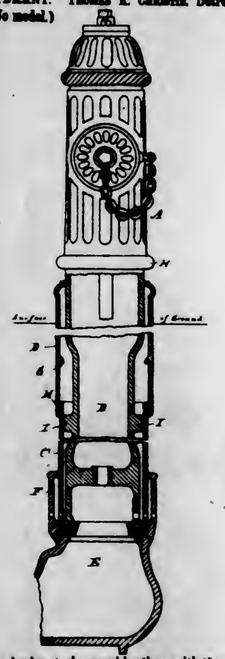
Claim.—In a pump of the species described, the solid cast head F,

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with the partition cast therein, both screw-threaded internally, as shown, to receive the concentric pipes M N, and said partition having an annular base projecting therefrom screw-threaded on the inside and outside to receive the concentric cylinders A and I, respectively, the contour of the cast head and cylinder A, when joined, being continuous and without projections, whereby a maximum diameter of pump is obtained for insertion into drilled wells, substantially as specified.

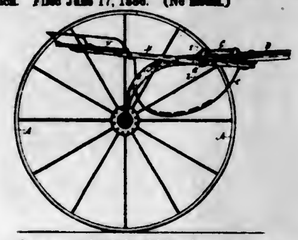
349,206. HYDRANT. THOMAS K. CHESTER, Detroit, Mich. Filed Feb. 4, 1886. (No model.)



Claim.—1. In a hydrant, the combination, with the elbow provided with cylindrical extension F, of the lower section, C, of the frost-case, resting on said elbow and loosely fitted within said extension, and the outer section, D, loosely fitted over the section C, and provided with a shoulder to engage the top edge of the section C, substantially as and for the purpose specified.

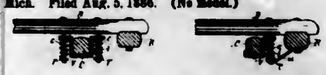
2. The combination, with the lower sections, B, of the hydrant, provided with shoulder H and lugs I, of the elbow E, provided with cylindrical extension F, the lower section, C, of the frost-case, resting upon said elbow within said extension, and the upper outer section, D, of the frost-case, loosely fitted over the section C, and having formed integral therewith the shoulder G, to engage the top edge of said section C to prevent the section D from falling too far, substantially as described.

349,207. TWO-WHEELED VEHICLE. JAMES H. CLOYES, Kalamazoo, Mich. Filed June 17, 1886. (No model.)



Claim.—In a two-wheeled vehicle, the combination, with the thills and seat-bars, of substantially U form seat-bar supports having spiral spring sides, substantially as set forth.

349,208. TWO-WHEELED VEHICLE. JAMES H. CLOYES, Kalamazoo, Mich. Filed Aug. 5, 1886. (No model.)

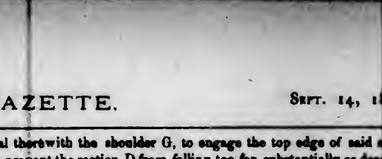


Claim.—1. The combination of the thills, bolts depending from the cross-bar, spiral springs on said bolts, a brace attached to the thills and lower end of bolts, L-stirrups having the upper turned end, and seat-bars fulcrumed by said stirrups, substantially as set forth.

2. In a fulcrum-support for the seat-bars, the combination of a bolt, a spiral spring thereon, a stirrup having the upper washer end with projection fitting in the ring of the spiral spring, and a washer beneath the lower end of the spring having a like projection, substantially as set forth.

3. The combination of the thills, bolts depending from the cross-bar, spiral springs on said bolts, stirrups having the upper turned ends, and seat-bars fulcrumed by said stirrups, substantially as set forth.

349,209. GAS-STOVE. GEO. W. COLEMAN, Cincinnati, Ohio. Filed May 27, 1885. (No model.)



Claim.—1. The combination, in a gas-stove, of a base having an annular opening in its top, a chimney forming a combustion-chamber above and supported upon said base, and a tubular jet-burner located beneath the annular opening and admitting air upon both sides of each jet, whereby a thorough mingling of the air and gas is effected as they enter the combustion-chamber, substantially as described.

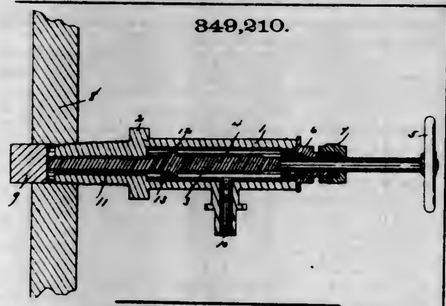
2. The combination, in a gas-stove, of a base having an annular contracted opening in its top, a chimney or flue supported upon said base and constituting a combustion-chamber, and a jet-burner located within the base beneath the opening, and having air-passages between the walls of the base and the burner and between the jets, whereby a thorough mingling of the air and gas is effected substantially at the initial point of combustion, substantially as described.

3. A gas-stove composed of the base A, having the annular plates I and K, separated at their adjacent edges to form a contracted opening, the chimney B, and the tubular gas-burner having jets *d* arranged beneath and in line with the opening between the plates, substantially as described.

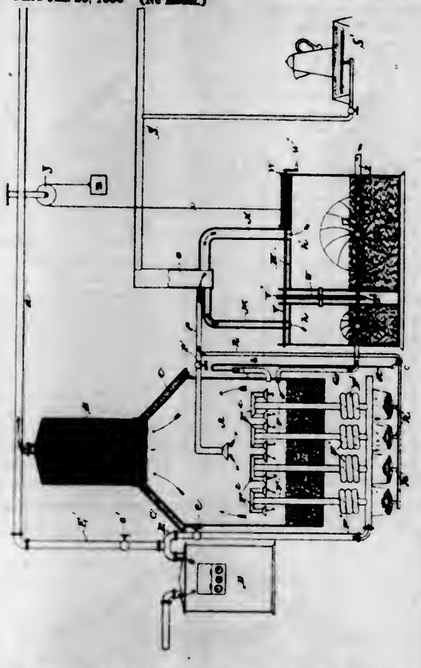
349,210. DEVICE FOR TAPPING BEER-CASKS, &c. JOHN W. L. COE and JOHN R. MCNAMARA, Norwich, Conn. Filed Nov. 12, 1885. (No model.)

Claim.—The combination, with the body portion having one end threaded exteriorly to enter the barrel, said exteriorly-threaded portion being provided with an interior-threaded passage having longitudinal grooves, said body portion being enlarged, as at 3, to form a valve-seat, of a rod having a threaded end engaging the interiorly-threaded part of the body portion, a valve on said rod, said valve being located in rear of the threaded portion of the rod and within the enlarged portion 3, and adapted to close the threaded passage in the body portion, the end of said rod extending beyond the body portion when the valve is on its seat, as set forth.

349,210.



349,211. METHOD OF AND APPARATUS FOR CARBURETING AND MIXING GAS AND AIR. GEORGE R. COTTRELL, New York, N. Y. Filed Jan. 25, 1886. (No model.)



Claim.—1. The method of producing carbureted gas of uniform candle-power, consisting, first, in heating the gas; second, conveying it to the carbureting-chamber, and thereby enriching the gas; third, introducing a mixture of oxyhydrocarbon gas and atmospheric air into the carbureting-chamber with the heated and enriched gas; fourth, condensing the mixture of enriched carbureted gas and oxyhydrocarbon gas and air; and, fifth, purifying the same for illuminating purposes, substantially as described.

2. The carbureting-chamber having the water-jacket and the purifying-chamber communicating with the carbureting-chamber, substantially as described.

3. The carbureting-chamber having the inclined upper sides and the water-jacket surrounding them, and the purifying-chamber communicating with said carbureting-chamber, substantially as described.

4. The combination of the carbureting-chamber, the heating-coils for supplying heated gas thereto, means for heating the coils, means for mixing gas and air, and the pipe for supplying the mixture of oxyhydrocarbon gas and air to the carbureting-chamber, substantially as described.

5. The combination of the carbureting-chamber, the pipes F, for supplying heated gas thereto, the mixing-chamber O, communicating with the carbureting-chamber, and the means for supplying oxyhydrocarbon gas and atmospheric air to the mixing-chamber in suitable proportions, substantially as described.

6. The combination of the carbureting-chamber, the mixing-machine communicating therewith and having the pumps K and L, and the mixing-chamber communicating with the mixing-machine, and also communicating with the carbureting-chamber for supplying a mixture of gas and air to the latter, substantially as described.

7. The combination of the carbureting-chamber having the gas-gage and the heating-coils with the pipe R, having the burners under the heating-coils, and the stop-cock connected to and controlled by the gas-gage, for the purpose set forth, substantially as described.

8. The method of producing carbureted gas of the desired candle-power for illuminating or heating purposes, which consists in heating the gas, then carbureting it, withdrawing such gas from the carburetor and mixing with it a suitable proportion of atmospheric air and conducting it to the place of use, substantially as described.

9. The method of producing carbureted gas of the desired candle-power for illuminating or heating purposes, which consists in heating the gas, then carbureting it by conducting it in a warm or heated state in contact with volatile hydrocarbon, withdrawing from the carburetor a portion of such gas and mixing with it a definite and measured proportion of atmospheric air to adapt it for use, substantially as described.

10. The method of producing carbureted gas of the desired candle-power for heating or illuminating purposes, which consists in heating or warming the carbureting-chamber, supplying heated gas thereto and carbureting it with hydrocarbon vapors, withdrawing such carbureted gas and mixing it with a suitable measured proportion of atmospheric air to adapt it for use, substantially as described.

11. The method of producing carbureted gas of the desired candle-power for illuminating or heating purposes, which consists in heating the gas and mingling therewith hydrocarbon vapors, withdrawing from the carburetor a portion of such gas and mixing with it a suitable proportion of atmospheric air, conducting such mixtures into the carbureting-chamber, and mingling therewith heated enriched gas to adapt it for use, substantially as described.

12. The method of producing carbureted gas of the desired candle-power for illuminating or heating purposes, which consists in heating gas and enriching it with hydrocarbon vapor, then mingling with such enriched gas a mixture of gas and air, united in definite and measured proportions to adapt it for use, substantially as described.

13. The method of preparing a carbureted mixture of gas and air of the desired candle-power for illuminating or heating purposes, which consists in enriching gas with hydrocarbon vapor, forming a mixture of gas and air by uniting them in definite and measured proportions, and then mixing the enriched gas with the mixture of gas and air to form a gas of the desired quality, substantially as described.

14. The method of preparing a carbureted mixture of air and gas of the desired candle-power for illuminating or heating purposes, which consists in vaporizing solid or crystalline hydrocarbons by heat and enriching gas with such vapors, then uniting with such enriched gas a measured proportion of atmospheric air to adapt it for use, substantially as described.

15. The combination, with a carbureting-chamber, of means for heating air and supplying it to such chamber in contact with carbureting material near its bottom, and means, as described, arranged at the top of the carburetor for condensing and removing heavy hydrocarbon particles from the gas, for the purpose described.

16. A carburetor provided with supply-pipes having heating-coils, means for heating such coils and the base of the carburetor, in combination with means for cooling the gas and removing impurities from it, placed at the top of the carburetor, substantially as described.

17. A carbureting-chamber having means for heating it at the base, and having a water-jacket cooling-surface applied to the top for the purpose set forth, substantially as described.

18. A carbureting-chamber having means for heating and vaporizing the carbureting material, and having inclined water-jacket top for condensing and removing an excess of hydrocarbon particles from the gas, substantially as described.

19. In combination with a carburetor, a gas-meter, a connecting supply-pipe leading from the meter to the carburetor, drums or pumps for delivering gas and air in measured proportions, and pipes connecting such measuring-drums with the carburetor, whereby carbureted gas and air may be mixed in suitable proportions to form illuminating or heating gas, substantially as described.

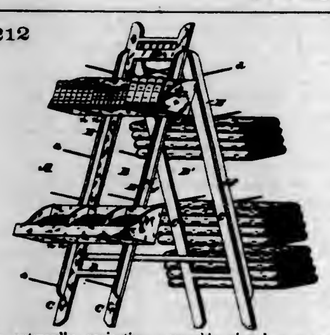
349,212. GOODS-RACK. JOHN DANNER, Canton, Ohio. Filed Jan. 23, 1886. (No model.)

Claim.—1. A goods-rack consisting, essentially, of two rectangular frames hinged together at their upper ends, each of said frames having strips hinged to the front face thereof, and devices projecting from said strips for supporting the articles, substantially as set forth.

2. The combination, with two rectangular frames hinged together at their upper ends, each of said frames being provided with the strips E, the latter being hinged to the frames and provided with projecting devices for supporting the goods or shelves, of hooks or equivalent fastening devices for locking the frames in open adjustment, substantially as set forth.

3. In a goods-rack, the frames B and B', hinged together, as described, having side bars, C, provided with the perforated strips E, hinged

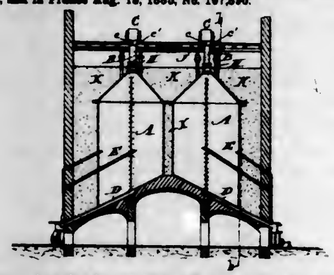
349,212



thereto, the outwardly-projecting removable pins *d* as a support for shelves, show-cases, bolts of goods, and other merchandise, substantially as shown and described.

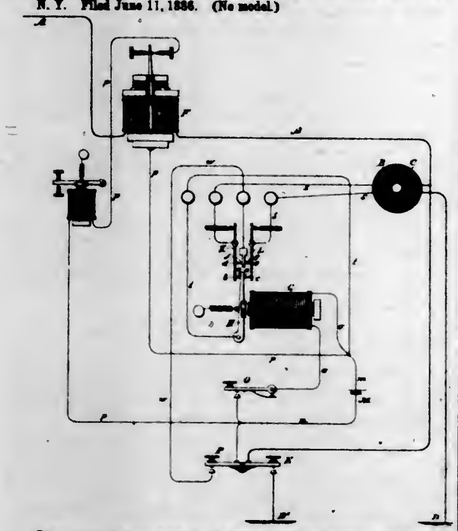
4. In a goods-rack, as herein described, having projecting pins *d*, that may be removed or folded down, as described, the shelf M, provided on its bottom side with rings or staples *n*, adapted to embrace the said pins for the purpose of securing the shelf thereto, substantially as shown and described, and for the purpose set forth.

349,213. GRAIN-SILO. CELESTIN EDGRAND, Marseilles, France. Filed Sept. 17, 1885. (No model.) Patented in Italy May 12, 1885, XIX, 18,225, and in France Aug. 18, 1885, No. 167,890.



Claim.—A grain-silo comprising the compartments provided at their upper ends with necks having hoppers, and with inclined outlet-pipes connected to their bottoms, the series of pneumatic pipes connecting with the compartments, a pipe connecting with all of said pneumatic pipes, and a layer of non-conducting material surrounding each compartment, substantially as and for the purpose set forth.

349,214. TELEGRAPH SYSTEM. MOSES G. FARMER, New York, N. Y. Filed June 11, 1886. (No model.)



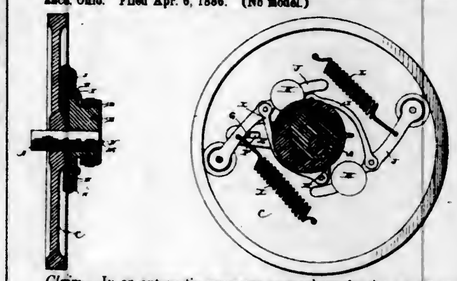
Claim.—1. In a system for telegraphing by induction, the combination, with an induction-coil, of a circuit-closing key and an electro-magnetic reverser operated by the key for reversing the circuit through the primary of the induction-coil, as herein set forth.

2. In a system for telegraphing by induction, the combination, with an induction-coil, of an electro-magnetic reverser and a circuit-closing key arranged in branches of the same circuit, in the manner set forth.

3. In a system for telegraphing by induction, the combination, with an induction-coil, of an electro-magnetic circuit-reverser, a circuit-closing key, a polarized relay, and receiving-instrument, the primary of the induction-coil, the circuit-reverser, key, and receiver being included in branches of one circuit, as and for the purpose set forth.

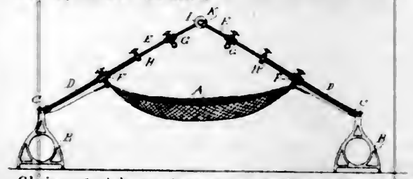
4. In a system for telegraphing by induction, the combination, with a main line including a polarized relay and branched, whereby it is adapted to be grounded either through or around the secondary of an induction-coil, of a local circuit divided into three branches, one branch including the electro-magnet of a circuit-reverser and a circuit-closing key, another branch including the primary of the induction-coil and the circuit-reversing devices, and the third branch the receiving-instrument and the controlling or circuit-closing portions of the relay, all as set forth.

349,215. AUTOMATIC SHAFT-GOVERNOR. EZRA FAWCETT, Alliance, Ohio. Filed Apr. 6, 1886. (No model.)



Claim.—In an automatic governor or regulator for the cut-off and lead of steam-engines, the combination of a shaft having a fly-wheel secured upon it, an eccentric turning upon the shaft and having two diametrically-opposite arms at its inner side, an eccentric disk turning upon the inner eccentric disk and having a laterally-projecting arm sliding with a longitudinal slot upon the face of the fly-wheel, arms pivoted with their ends upon the face of the wheel, near the rim of the same, and having weights secured adjustably to their outer ends, springs secured to the arms and to the wheel, drawing the arms inward, and arms pivoted to the weighted arms and to the arms of the eccentric, as and for the purpose shown and set forth.

349,216. HAMMOCK-SUPPORTER. JOSEPH GLENNON, Chicago, Ill. Filed July 19, 1886. (No model.)



Claim.—1. A hammock-supporter comprising end supports with transverse sockets in their apex to receive movable cross-bars, two extensible rods, each rigidly secured at one end to a cross-bar provided at its ends with bearings to fit into said sockets, said rods being provided with adjustable collars with eyebolts to support the hammock, and an adjustable clutch to hold said rods together at any desired angle, substantially as described, and for the purpose specified.

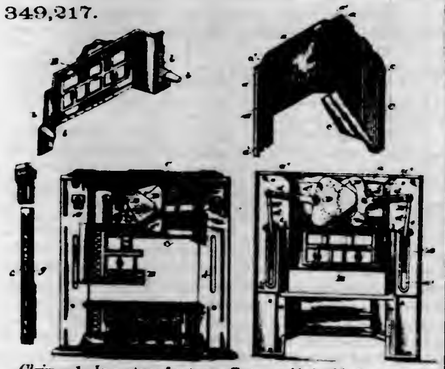
2. A hammock-supporter comprising end supports B, in combination with extensible rods consisting of the parts D and E, attached to the cross-bars *c*, the movable collar F, and the clutch I, substantially as shown and described, and for the purpose specified.

3. A hammock-supporter comprising end supports B, in combination with extensible rods consisting of the parts D and E, attached to the cross-bars C, the movable collars F, the binding-screw H, and the clutch I, substantially as shown, and for the purpose specified.

4. A hammock-supporter comprising end supports B, in combination with extensible rods consisting of the parts D and E, attached to the cross-bars C, the movable collars F and G, the binding-screw H, and the clutch I, substantially as shown and described, and for the purpose specified.

349,217. BALANCE-BLOWER FOR STOVES AND GRATES. JOSEPH L. GOSSELIN and WILHELM WICKE, Cleveland, Ohio, assignors to Tarsiegle, Gohmann & Co., Albany, Ind. Filed Feb. 1, 1886. (No model.)

349,217.



Claim.—1. In a stove-front, an offset provided with bosses on its inner side and a back plate having corresponding bosses, in combination with balance-weights having interlocking geared segments, lugs to pivot them in the aforesaid bosses, and arms extending to the sides of the stove-front, the blower, and the connecting-links, substantially as set forth.

2. A stove provided with a front plate having an outwardly-projecting offset at its top and a back plate provided with projections to bear against the front plate, thus forming a chamber between the faces of said plates and openings between them at the sides, in combination with balance-weights pivoted in said chamber on the respective plates and having arms extending through the openings between said plates, a vertically-movable blower, and links connecting the weights and blower, substantially as set forth.

3. A stove having a chamber formed in its top portion by an offset face-plate and a back plate provided with a flange at its lower edge projecting along the base of said offset to inclose the chamber at the bottom and exclude the fire, said back plate having side projections bearing against the face-plate, in combination with balance-weights pivoted on bosses in the sides of said chamber, a blower, and links attached to lugs on the blower and weights, substantially as set forth.

4. In a stove, a front plate having oblong slots on its sides and an offset in its top portion, a blower provided with lugs extending through said slots, and a back plate behind the offset in the front plate and having projections bearing against the same, in combination with armed balance-weights pivoted between the front and back plates and a single link on each side connecting the blower and balance-weights, substantially as set forth.

349,218. CHURN-HEAD. FREDERIK H. HAHAN, Wapakoneta, Ohio. Filed June 19, 1886. (No model.)



Claim.—1. The combination, with the churn-body having the annular ring provided with the shouldered arms extending from its face and the churn-lid provided at its edge with the annular ring having guide-staples on its face, of the arms pivoted to the spider and projecting through the guide-staples, the bifurcated and threaded shaft in the threaded casting, and the cam-lever fulcrumed in the bifurcation of said shaft and provided with the hook-arm near its outer end, substantially as specified.

2. The combination, with the churn-cover having the threaded central casting and the annular flanged ring with staples on its upper face, of the bifurcated threaded shaft, the spider and the pivoted arms, the guide-staples, and the cam-lever fulcrumed in the bifurcated threaded arms and provided with the hook-arm near its outer end, substantially as specified.

349,219. LANTERN-GLOBE. CHARLES J. HOGUE, Hallowell, Me. Filed May 20, 1886. (No model.)



Claim.—1. As a new article of manufacture, a glass globe having a flattened or concaved side or surface formed with a shoulder bot partially around it, substantially as described.

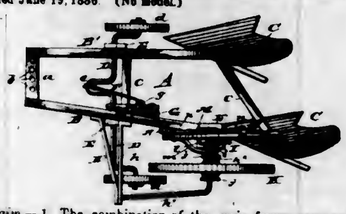
2. As a new article of manufacture, a glass globe having a flat side or surface formed with a shoulder at its junction with the main body, said shoulder extending around the lower portion of the flattened surface and gradually tapering off upon each side at the top, to thereby leave the junction of the top of the flattened surface with the main body of the globe without a shoulder or other sharp bend or angle, substantially as described.

3. A globe or chimney having a flattened or concaved side and surrounded partially by a flange, the upper part of the flattened surface meeting the main body of the globe without a flange or abrupt shoulder, combined with a reflector attached to the said projection, substantially as described.

4. A globe or chimney having a flattened side, *b*, and shoulder *f*, of various depths, joining the side *b* with the main body of the globe, combined with a reflecting disk or surface and a flange of varying depth for connecting the said reflecting-disk with the globe, whereby the said disk is retained at an angle with relation to the said flattened side *b* of the globe or chimney, substantially as described.

5. A globe or chimney having a flattened side, *b*, and shoulder of varying depth, combined with a reflector having a flange to embrace the said projecting portion *b* of the globe or chimney, the edge of the said projecting flange being turned outward to form a lip to permit cementitious material to be inserted between the said lip and the shoulder *f*, to which it is attached, substantially as described.

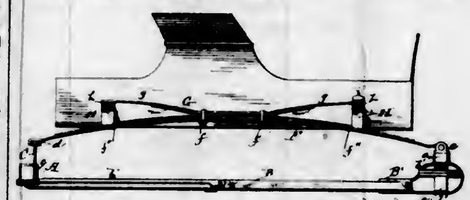
349,220. PLOW. EDWARD HOUTS and ARCHIE BROWN, Blunt, Dak. Filed June 19, 1886. (No model.)



Claim.—1. The combination of the main frame composed of the plow-beams and connecting-strips, and supported upon an axle and wheels, the plowshares on the rear ends of said beams, the frame attached to the outer side of the beam B, composed of the bracket A and bar h', and supporting the driver's seat J, the wheel K, turning on the arm h^2 of the bar h', the standard I, rising from said arm and having the rim *i*, the guide-bracket L and segmental rack N, secured to the beam B, the lever-arm M, pivoted to the beam B and having the extension *m*, and the spring-controlled rod *n*, attached to said arm and engaging the rack N, substantially as specified.

2. The combination of the main frame composed of the plow-beams and connecting-strips, the plowshares, the crank-axle, link-rod, lever-handle F, spring-controlled rod *g*, and segmental rack G, with the frame H, attached to the side of the main frame, wheel K, standard I, having the pin *i*, guide-bracket L, segmental rack N, lever-arm M, having the extension *m*, and spring-controlled rod *n*, substantially as specified.

349,221. SPRING FOR VEHICLES. JOHNL JACKSON, Fort Atkinson, Wis. Filed July 8, 1886. (No model.)



Claim.—1. In combination with a side spring for vehicles, having leaves which diverge from each other, a detachable stiffening-bar, I, adapted to be placed between the springs at or near their diverging points, substantially as shown, and for the purpose set forth.

2. As a new article of manufacture, a stiffening-bar, I, having the end portions bent outwardly and downwardly, substantially as shown.

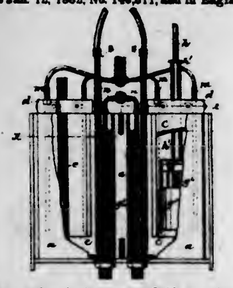
3. In combination with the side spring, F, consisting of a series of leaves which are secured to each other, spring G, secured above the same, and a stiffener-bar, I, adapted to be inserted between said springs and maintained in position by downwardly-projecting portions i'', which embrace the edges of the lower spring, substantially as shown.

4. In a side-spring vehicle, a spring having diverging sections, as shown, which are attached centrally to each other, the ends of the lower section being attached to bent bars secured to the rear axle, and the front ends to the bolster *a*, the ends of the upper sections being attached to straps H H, substantially as shown, and for the purpose set forth.

5. In a vehicle, the combination of the longitudinal springs attached at their forward ends to the bolster and at their rear ends to bent bars which project above the plane of the rear axle and an upper diverging section attached to the longitudinal springs and to straps which are secured to the body, substantially as shown, and for the purpose set forth.

6. In a vehicle having running-gear of ordinary construction, the upwardly and inwardly projecting bars C, attached to the rear axle so that their ends will be on a line with the bolster which is secured to the forward axle, side springs attached to the bolster and said bent bars, and means for connecting the same to the wagon-body, substantially as shown, and for the purpose set forth.

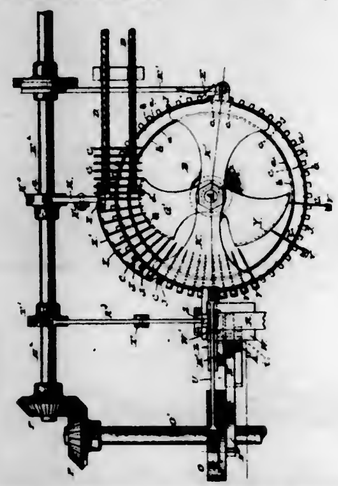
349,222. GALVANIC BATTERY. BENOIT JABLOCHKOFF, Paris, France, assignor, by mesne assignments, to the Chemical Electric Light and Power Company, Portland, Me. Filed May 6, 1886. (No model.) Patented in France Jan. 12, 1882, No. 146,811, and in England Apr. 25, 1882, No. 1,956.



Claim.—1. In a galvanic battery, a fluid one element of which is bichromate of soda, substantially as described.

2. The combination, in a galvanic battery, of positive and negative elements or electrodes and a mixture of bichromate of soda, sulphuric acid, and water, substantially as described.

349,223. SAFETY-PIN MACHINE. JOEL JENKINS, Montclair, N. J. Filed Feb. 20, 1886. (No model.)



Claim.—1. The combination, with the mechanism, substantially as described, for bending the end of a wire blank in a safety-pin machine, of a carrying-wheel, B, rotating intermittently upon a vertical spindle, and a plate having a confining-flange with an edge parallel with the face of the wheel in position to engage the wire blanks placed radially on the horizontal rim of the wheel, substantially in the manner and for the purpose herein set forth.

2. The combination of a carrying-wheel, B, rotating intermittently upon a vertical spindle, and having radial seats formed upon the upper face of its horizontal rim to receive wire blanks for safety-pins, with conveying-shafts for delivering the blanks to the radial seats on the wheel, and with mechanism, substantially as described, for placing and clamping a head upon the bent end of each of said blanks, substantially in the manner and for the purpose herein set forth.

3. The combination, with a carrying-wheel, B, rotating intermittently upon a vertical spindle, and having radial seats formed upon the upper face of its horizontal rim to receive wire blanks for safety-pins, ratchet-teeth formed upon its periphery, a reciprocating rod, a motor actuating said rod, a pawl pivoted to the rod to engage the ratchet-teeth, and mechanism, substantially as described, for placing and clamping successively a head upon the bent end of each blank placed upon the wheel, of an elastic confining-plate mounted centrally upon the axial spindle of the wheel to extend over and bear upon the face of the wheel opposite said heading mechanism, and an arm extending radially from said plate and hinged to the reciprocating pawl-lever, whereby the bearing end of the plate is made to move forward in unison with the wheel and move back over its face when the wheel is at rest, substantially in the manner and for the purpose herein set forth.

4. The combination, with a carrying-wheel, B, rotating intermittently upon a vertical spindle, and having radial seats formed upon its horizontal rim to receive wire blanks for safety-pins, of a series of lugs, J J, projecting from the rim of the wheel, each in line with one of the radial seats and in position to support the projecting bent end of the blank resting therein, substantially in the manner and for the purpose herein set forth.

5. The combination, with a carrying-wheel, B, rotating intermittently upon a vertical spindle, and having radial seats formed upon its horizontal rim to receive wire blanks for safety-pins, and with mechanism, substantially as described, for bending the outer end of each blank, and lugs projecting from the rim of the wheel to support the bent ends of the blanks, of a horizontal plate over which said bent ends projecting beyond the rim of the wheel are carried in its movement, said plate having an eccentric flange on the outer edge of said plate to gradually force the bent ends inward against the supporting-lugs, substantially in the manner and for the purpose herein set forth.

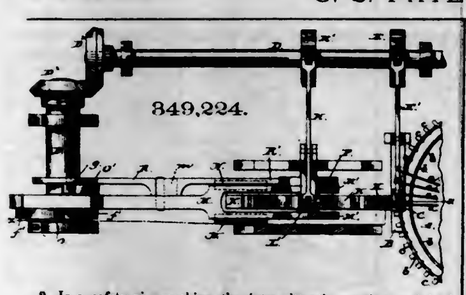
6. The combination, with a carrying-wheel, B, rotating intermittently upon a vertical spindle, and having radial seats formed upon its horizontal rim to receive wire blanks for safety-pins, and lugs projecting radially from its rim in line with said seats to support the bent ends of said blanks, of a fixed anvil post or block, over which said legs are made to rest in succession in the movement of the wheel, a vibrating and reciprocating lever recessed at its outer end to receive a detached pin-head, and made to swing toward and move longitudinally over upon each lug in succession when the lug is brought to rest over the anvil, and thereby fit thereon the detached head, mechanism, substantially as described, for moving said lever, and a punch or plunger reciprocating to and from the anvil to clamp and compress the head carried by the lever upon the lug over the anvil, substantially in the manner and for the purpose herein set forth.

7. The combination, in a safety-pin machine, of the mechanism, substantially as described, for bending the end of a wire pin-blank, an anvil post or block, a horizontal intermittently-rotating wheel for conveying the blank from the end-bending mechanism to the anvil, a compressing punch or plunger reciprocating vertically to and from the anvil, and an oscillating and longitudinally-reciprocating lever carrying a detached head to the anvil under the punch or plunger, and placing it upon the bent end of the blank brought thereto by the wheel, all substantially in the manner and for the purpose herein set forth.

8. The combination, in a safety-pin machine, of an anvil post or block, a horizontal intermittently-rotating wheel for conveying a pin-blank to the anvil, an oscillating and longitudinally-reciprocating lever, and mechanism, substantially as described, for operating the wheel and lever, whereby a detached head is carried to the anvil and placed upon the end of the blank brought thereto by the wheel, all substantially in the manner and for the purpose herein set forth.

349,224. SAFETY-PIN MACHINE. JOEL JENKINS, Montclair, N. J. Filed Mar. 6, 1886. (No model.)

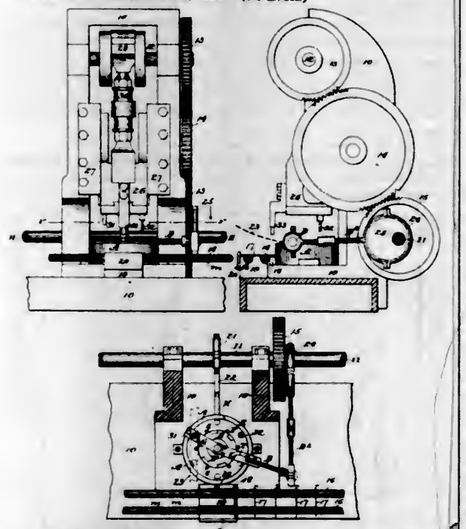
Claim.—1. The combination, with an anvil, a carrying device substantially as described, whereby the end of a wire pin-blank is brought over the anvil, and a punch or plunger reciprocating to and from the anvil at a right angle with the wire blank, of a forked bar reciprocating longitudinally in a horizontal plane to and from the anvil in a direction coincident with the length of the wire blank, mechanism, substantially as described, for producing an intermittent reciprocating movement of the bar, a series of radial arms rotating upon an axle journaled in the forked end of the reciprocating bar in the same longitudinal plane with the wire blank, and clamping-jaws at the end of said arms brought in the rotation of the arms intermittently in line horizontally with its axis, and which are carried by its longitudinal movement over the anvil to embrace the end of the wire blank under the punch or plunger, all substantially in the manner and for the purpose herein set forth.



2. In a safety-pin machine, the intermittently-rotating and horizontally-reciprocating hub, the arms radiating therefrom recessed at their outer ends to receive and carry blank heads or shields for safety-pins, an anvil over which their outer ends are successively brought to a rest and withdrawn, mechanism, substantially as described, for delivering the heads into the terminal recesses of the arms, mechanism, substantially as described, for carrying wire pin-blanks into line over the anvil to receive the heads, and a compressing punch or plunger moving over the anvil to compress and fix the heads upon the blanks when fitted thereon, all substantially in the manner and for the purpose herein set forth.

3. In a safety-pin machine, the intermittently-rotating and horizontally-reciprocating hub, the arms radiating therefrom and recessed at their outer ends to receive and carry blank heads or shields for safety-pins, an anvil over which their outer ends are successively brought to a rest and withdrawn, mechanism, substantially as described, for delivering the heads into the terminal recesses of the arms, and mechanism, substantially as described, for carrying wire pin-blanks into line over the anvil to receive the heads, all substantially in the manner and for the purpose herein set forth.

349,225. SAFETY-PIN-HEADING MACHINE. JOEL JENKINS, Montclair, N. J. Filed June 12, 1886. (No model.)

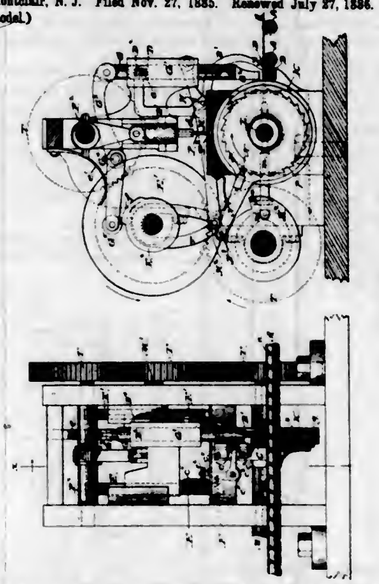


Claim.—1. The combination, in a machine for heading pins, of a single vertically-reciprocating block, a cutting and a drawing punch, both carried by said block, a centrally-pivoted carrier-head rotating intermittently beneath the block, an annular carrying-plate secured to the head to move under said punches, and which is provided with a series of recesses in its upper face, one of which is brought when the plate is at rest under each punch, a cutting-die interposed between the cutting-punch and the recessed plate, a drawing-die placed under said plate in register with the drawing-punch, and with one of the series of receptive recesses formed in the carrier-head and brought by its movement under the die, and a device, substantially as described, for transferring and fitting upon a pin-blank on the anvil the head delivered from the drawing-die, substantially in the manner and for the purpose herein set forth.

2. In a pin-heading machine, the rotating carrier-head provided with diametric slots on its under face, mechanism, substantially as described, for producing an intermittent movement of the head, a recessed bed-plate within which said head rotates, a plunger fitted in each radial slot to move longitudinally therein, a reciprocating bar moving in a diametric slot cut in the under side of the bed-plate to intersect the annular groove and to communicate with the radial slots in the head when brought into register therewith, a lug upon each plunger fitting and moving as the head revolves in an annular groove in the bed-plate under the head and into a transverse groove on the upper face of the bar in register with said annular groove, and mechanism, substantially as described, for actuating said bar, all substantially in the manner and for the purpose herein set forth.

3. The combination, in a pin-heading machine, of an anvil, 18, mechanism, substantially as described, for carrying a pin-blank, 17, over the anvil, a recessed bed-plate, A, mounted in front of said anvil, a carrier-head, B, rotating intermittently in said bed-plate A upon a fixed stud, A', at a right angle with the anvil, plungers C C, fitted to play longitudinally in radial recesses in said head B and through an opening in the rim of the bed-plate opposite the anvil on a level with the top thereof, a longitudinally-reciprocating bar, H, playing diametrically in a recess in the bed-plate under the plungers C C and in line with the pivotal axis of the head B and the center of the anvil, a lug, *g*, projecting from each plunger to engage a transverse groove, *a'*, in the bar H when brought into register therewith, and mechanism, substantially as described, for delivering a pin head or shield in front of each plunger C before it attains its position in front of the anvil 18 and over the bar H', and for producing an intermittent rotation of the head B and an intermittent reciprocating movement of the bar H', all substantially in the manner and for the purpose herein set forth.

349,226. MACHINE FOR MAKING SAFETY-PINS. JOEL JENKINS, Montclair, N. J. Filed Nov. 27, 1885. Renewed July 27, 1886. (No model.)



Claim.—1. A spirally-grooved rotating conveying-shaft, A, formed with a transverse circumferential detaining-groove, G, completely encircling the same to arrest and detain a blank fed forward by means of the spiral conveying-groove, in combination with a lifting device, substantially as described, for lifting and forwarding the blanks from said detaining-groove to the conveying-groove, substantially in the manner and for the purpose herein set forth.

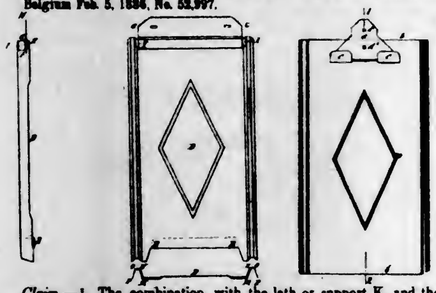
2. The combination, in a safety-pin machine, of two spirally-grooved rotating conveying-shafts having a corresponding portion of the length of the groove in each diverted at a right angle to the length of the shafts, an anvil placed opposite the transverse portion of said grooves, a reciprocating retaining-finger adapted, as described, to drop upon a wire pin-blank brought over the anvil by the conveying-shafts at the moment said blank enters the transverse length of the grooves in said shafts, an intermittently-rotating wheel whose axis is at a right angle to the conveying-shafts and in the same horizontal plane as the top of the anvil, and whose periphery is in close proximity to the latter, a series of cap-carrying plates fitted to move radially in openings in the periphery of said wheel, a horizontal reciprocating rod moving substantially as described, and operating to force out each radial plate when it is brought to rest opposite the anvil, a spring to retract each plate when the pressure of the rod is removed, a feeding device whereby caps are supplied,

in manner set forth, to the cap-carrying plates in the wheel, a reciprocating punch mounted over the anvil to descend upon the cap upon the end of the wire blank and close and clamp the same thereon, and mechanism, substantially as described, for actuating in succession and intermittently the retaining-finger, feed-wheel, reciprocating rod, and punch, all substantially in the manner and for the purpose herein set forth.

3. The combination, in a safety-pin machine, with its spirally-grooved conveying-shafts A A, having a corresponding portion, *a'*, of the length of the groove in each diverted at a right angle to the length of the shafts, an anvil, B, opposite said grooves, a retaining-finger, C, reciprocating intermittently to and from the outer edge of the anvil in line with the transverse grooves *a' a'*, a feed-wheel, K, rotating intermittently at a right angle to the length of the shafts A A upon an axis in line with the face of the anvil and in a vertical plane passing through the transverse grooves *a' a'*, radial cap-carrying plates *g*, moving in and out of openings in the rim of the wheel K, having recesses in their outer ends adapted to hold caps W, made to fit upon the end of the safety-pin, a feeding device, P, for forming and delivering the caps W W successively to the plates *g*, a reciprocating punch, G, mounted over the anvil in line with the transverse grooves *a' a'* in the conveying-shafts and with the radial cap-carrying plates in the feed-wheel, a reciprocating bar, G', actuated substantially as described, carrying said punch, a mandrel, D, adapted, as set forth, to swing within the bent end of a wire safety-pin blank brought to rest under the punch G over the anvil, an arm, D', carrying said mandrel and pivoted to the punch-bar G, and a pin projecting into an oblique slot in said arm from a pivoted lever, H', made to oscillate, in manner as described, at right angles to the length of the arm, whereby the bent end of the wire and the cap W fitted thereon receive support at the moment the punch G, carried by the bar G', descends to close and clamp the cap upon the wire, all substantially in the manner and for the purpose herein set forth.

4. The combination, in a capping-machine for safety-pins, of an anvil, B, punch G, a series of radial cap-carrying plates mounted in the rim of an intermittently-rotating feed-wheel, K, a reciprocating rod, M, for forcing out the radial cap-carrying plates over the anvil at each stop of the wheel K, a feeding device, substantially as described, for supplying the caps to the cap-carrying plates, and mechanism, substantially as described, for moving successively the feed-wheel K, the reciprocating rod M, the punch G, and the feeding device, all substantially in the manner and for the purpose herein set forth.

349,227. STAMPED ROOFING-TILE. EDMOND LAMAL and SOSTHÈNE DUPRAT, Paris, France. Filed Mar. 5, 1886. (No model.) Patented in Belgium Feb. 5, 1886, No. 53,997.



Claim.—1. The combination, with the lath or support K, and the tile having the hook *b*, and a slotted tongue, of the band or projection *x*, encircling said lath or support, and engaging at its respective ends with said hook and the slot of said tongue, substantially as set forth.

2. A roofing-tile having fingers or tongues projecting from the edge thereof, said fingers or tongues having slots forming additional shorter fingers or tongues *h*, &c., substantially as and for the purpose set forth.

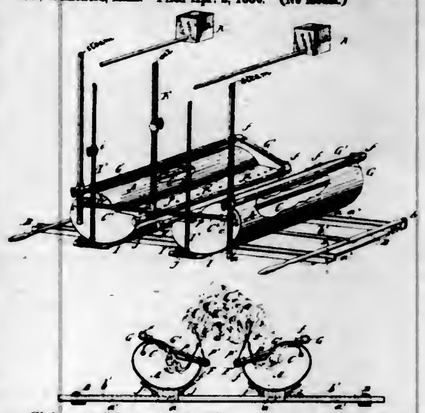
3. A metallic roofing-tile having fingers or tongues projecting therefrom and slots formed in said fingers or tongues, substantially as set forth.

4. The combination, with the bent tongues *f' f²* and *h h'* of the corresponding bands or projections *x x*, to constitute means of hooking the tile on an iron frame-work, the latter being completely or partially surrounded by the said tongues and projections, as described and shown.

5. The combination, with a metallic roofing-tile having a hook, substantially as described, of a separate attaching-piece, *x*, having a complementary hook and means for securing it to the lath or other support, substantially as set forth.

6. A roofing-tile having at its edges grooves or embossments of substantially inverted-U shape, a return-bend at one end, and the tongue I, formed integrally with the turned-over portion, and the adjacent side of said groove or embossment, against which latter it is bent, substantially as set forth.

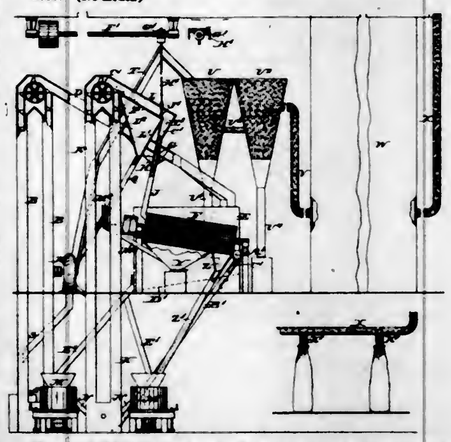
349,228. APPARATUS FOR MAKING AND BURNING GASEOUS FUEL. JOSEPH LOCKE, Glenwood, (Medford,) and SOLON O. RICHARDSON, Jr., Wakefield, Mass. Filed Apr. 2, 1886. (No model.)



Claim.—1. The combination, in an apparatus for making and burning gaseous fuel, of an externally-heated chamber or retort having a series of burners or orifices, a smaller pipe connected with a hydrocarbon supply and extending into said chamber or retort, and provided with a series of orifices to discharge the hydrocarbon in jets against the inner surface of said retort, a steam-supply pipe arranged external to said chamber or retort and having a series of orifices coinciding with those of the retort, the arrangement being such that the hydrocarbon becomes vaporized in said retort and ignites at the jets or orifices thereof, so that the heat of the retort is maintained and the steam superheated and mingled with the retort-flames, substantially as set forth.

2. In an apparatus for making and burning gaseous fuel, the combination of two retorts located side by side, each having a series of burner-orifices, and means for delivering oil in jets against its inner surface, two steam-pipes, one for each retort, said pipes having orifices arranged to deliver decomposed steam to the jets of flame from the retorts, and means for varying the distance between each retort, with the steam-pipe accompanying it, and the other retort and steam-pipe, as set forth.

349,229. MECHANISM FOR PREPARING ROCK, &c., FOR FERTILIZERS AND CEMENTS. VICTOR LORD, Odessa, Del. Filed Jan. 19, 1886. (No model.)



Claim.—1. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising mill A, elevator B, the inclined spout D, having sieve G in the under side thereof, spout H, pipe J, bolt F, chest E, having inclined bottom, pipe E', and mill M, substantially as and for the purpose set forth.

2. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising the mill A, elevator B, chute D, having sieve G in under side thereof, spout H under said sieve G, pipe J, leading from said spout H to the bolt F, the bolt F having screens of different-sized meshes, spouts Y and Z, the latter having pipe Z' leading to the mill M, and mill M, substantially as and for the purpose set forth.

3. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising the mills M, elevator K, separator L, having compartments L^2 and L^3, said compartment L^2 having pipe Q, the fan or blower R, the pipe S, leading into elevator B, the elevator B, the chute D, with sieve G, spout H, pipe J, and bolt F, substantially as described.

4. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising elevator K, separator L, having compartments L^2 and L^3, the compartment L^3 having outlet-pipe Q, the fan R, pipe T, bags U U^3, and the pipe U^3, said bags and pipe being composed of burlap and having outlet-pipes U' U^4, substantially as and for the purpose set forth.

5. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising the elevator K, the separator L, composed of two compartments and provided with sieve P, the rising and falling arm H', adapted to vibrate the sieve P, and means, substantially as described, to operate said arm, substantially as and for the purpose set forth.

6. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising the elevator K, the separator L, with compartments L^2 L^3, and sieve P, the pipe Q, the fan R, the pipe T, the pipe J, and the bolt F, operating substantially as described

7. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising the separator L, having compartment L^3, the pipe Q, fan R, and case E, said pipe Q leading from said separator to said fan, a cut-off, M', in the said pipe, and a chute M^3, leading from the said pipe Q to the said case E, substantially as described.

8. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising the grinding-mill, an elevator connected therewith, an inclined chute connected to said elevator and having a sieve on its under side, a box located at the end of said chute and provided with an inclined bottom, a second grinding-mill, a pipe leading from said box to said second grinding-mill, a second elevator, a separator having two compartments connected to the last-mentioned elevator, a fan, one of said compartments having an outlet leading to said fan, and a connection from said fan leading to the first-named elevator, substantially as and for the purpose set forth.

9. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising a grinding-mill, an elevator in connection therewith, a chute connected to said elevator and having a sieve on its under side, a spout under said sieve, a rotary bolt, a pipe leading from said spout to said bolt, a second mill and a second elevator and pipes leading thereto from said bolt, a separator connected with the second elevator and having compartments, a pipe leading from one of said compartments to a fan, a fan having a pipe leading therefrom, and a series of connected bags of burlap, all of said parts being arranged and operated substantially as described.

10. Mechanism for preparing rocks, &c., for fertilizers and cements, comprising a grinding-mill, an elevator leading therefrom, an inclined chute connected to said elevator, a box located at the end of said chute, having an inclined bottom, a pipe leading from said box, a second grinding-mill, a second elevator, a separator and a pipe leading to a bolt, and a bolt, all arranged and operating substantially as and for the purpose set forth.

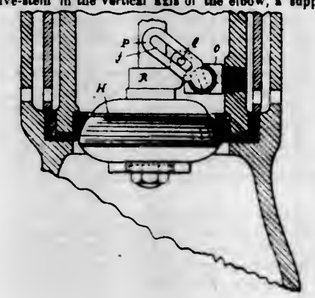
349,230. HYDRANT. JOHN MEAD, Detroit, Mich. Filed Feb. 23, 1886. (No model.)

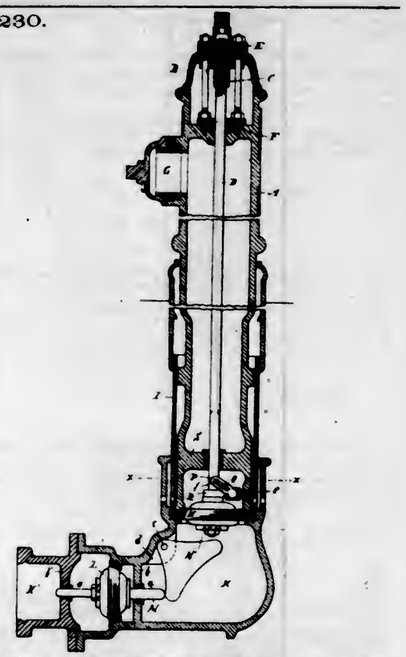
Claim.—1. In a fire-hydrant having a main valve and a supplemental valve, a supplemental valve located in the horizontal arm of the elbow, independent of the main valve and at right angles thereto, substantially as described.

2. In a fire-hydrant having a main valve and a supplemental valve, a supplemental valve supported and operating horizontally in the horizontal arm of the elbow at right angles to the main valve, substantially as described.

3. In a fire-hydrant, the combination of a main valve operating in the vertical axis of the elbow, a supplemental valve operating in the horizontal axis of the elbow, and a bell crank or lever in the angle of the elbow, all arranged to operate as described.

4. In a fire-hydrant, the combination of a main valve operating on a vertical valve-stem in the vertical axis of the elbow, a supplemental

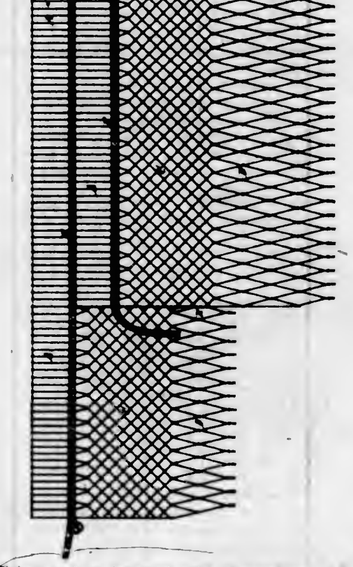




valve operating on a horizontal valve-stem in the horizontal axis of the elbow, and a bell-crank in the angle of the elbow and provided with the lost motion described, all substantially as specified.

5. In a hydrant, the combination, with the main-valve stem provided with collar R, carrying pin *g*, of the waste-cock O, working in an aperture in the lower end of the hydrant, and the handle P to said cock provided with slot *f*, substantially as and for the purpose specified.

349,231. FLY-NET. ISAAC METER, St. Louis, Mo. Filed Mar. 1, 1886. (No model.)



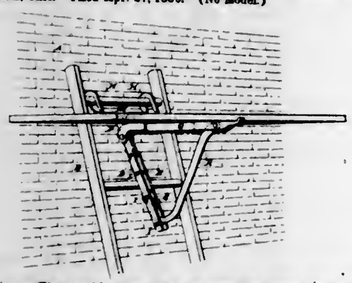
Claim.—1. As an improved article of manufacture, a fly-net having its central part formed of transverse strings, and its outer parts formed of meshes, substantially as and for the purpose set forth.

2. A fly-net having its central or middle part formed of transverse

strings and its outer parts formed of meshes of different sizes, as set forth.

3. A fly-net having its central part formed of transverse strings and connected by strips, and its outer part formed of meshes, the meshes at the front end of the net extending higher than the meshes at the other end, as set forth.

349,232. SCAFFOLD-BRACKET FOR LADDERS. JEHU MITCHELL, Newark, Ohio. Filed Apr. 27, 1886. (No model.)



Claim.—The combination, with the parallel arms separated and held by the shouldered bolts and provided at their upper ends with diverging branches having hooks thereon, of the arm pivoted thereto and provided with the pivoted hook-arm, substantially as specified.

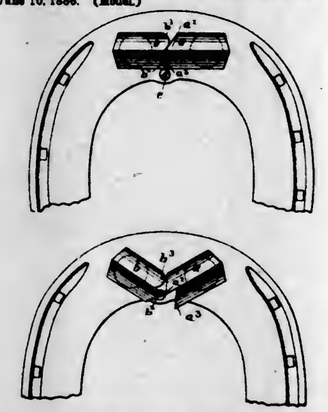
349,233. GRAIN-CONVEYER. JAMES NELSON, Titusville, Pa. Filed May 25, 1886. (No model.)



Claim.—1. The combination of the central rotating shaft and the sections D, secured thereto and to each other, the said sections being each provided with oppositely-extending arms beveled on opposite sides, and forming blades which incline in opposite directions, substantially as described.

2. The combination of the shaft and the sections D, secured thereto, the said sections having the recesses or openings H on one side and the dowel-pins I, projecting from the opposite side, to enter the recesses of the adjacent sections, for the purpose set forth, substantially as described.

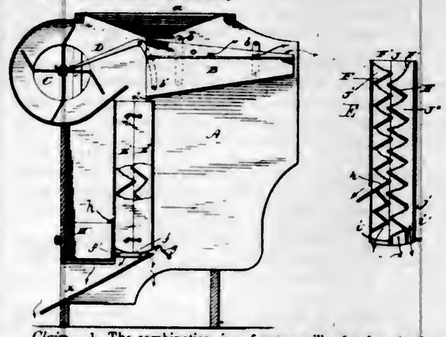
349,234. HORSESHOE. MARCUS H. PETERSEN, Hamburg, Germany. Filed June 10, 1886. (Model.)



Claim.—1. The combination, with a horseshoe, of a calk formed of two parts and provided with reversely screw-threaded shanks, the interlocking faces a^3 and b^3, the angular corner a^3, and the rounded corner b^3, and a locking device which prevents the parts of the calk from turning backward when interlocked.

2. As an article of manufacture, a horseshoe-calk formed of two parts and provided with the reversely screw-threaded shanks, the interlocking faces a^3 and b^3, the angular corner a^3, and the rounded corner b^3.

349,235. FANNING-MILL. EDWARD F. REYNOLDS, Bruce, Dak. Filed Nov. 19, 1885. (No model.)



Claim.—1. The combination, in a fanning-mill, of a fan, the horizontal vibrating separator, and a vertical separator having a serpentine passage-way consisting of inclined boards and inclined sieves, substantially as shown, and for the purpose set forth.

2. The combination, in a fanning-mill, of a supply-hopper, a blast-fan, the horizontal vibrating separator, a vertical separator provided with a series of inclined boards and sieves forming a serpentine passage-way, and devices for connecting the horizontal and vertical separators, whereby the movement of the former is imparted to the latter, substantially as described.

3. In a fanning-mill, the combination of the main frame, the fan C, fan-casing, horizontal separator B, connecting-arms D, and fan-shaft for vibrating the same with the vertical separator pivotally supported on the main frame and means for connecting it at its upper end to the horizontal separator, substantially as shown, and for the purpose set forth.

349,236. BAGASSE-FURNACE. LEMAN P. RIDER, Pittsburg, Pa. Filed Oct. 12, 1883. Renewed Mar. 6, 1886. (No model.) Patented in Cuba Mar. 15, 1882.



Claim.—1. The process of burning bagasse, tan-bark, or other fuel, which consists in first heating a furnace, then charging it with fuel in conical piles successively into different parts of one and the same fire-chamber, so that one fresh charge shall not fall next to or in the line of draft of another fresh charge, substantially as described.

2. The process of burning green bagasse or wet tan-bark, which consists in depositing it in a fire-chamber alternately through diagonally-opposite openings in the crown of the furnace in conical piles, conducting air through the bases of said piles, and subjecting their surfaces to the reverberatory action of the heated walls of the furnace, substantially as set forth.

3. The process of burning green bagasse or wet tan-bark, which consists in heating a furnace to glowing heat, then charging the fuel into the fire-chamber alternately through diagonally-opposite openings in the crown of the furnace in conical piles with their bases resting upon a bed of hot fuel, substantially as described.

4. A furnace having a series of charging-holes in the crown, arranged in parallel rows over one and the same fire-chamber, substantially as described.

5. A furnace having a shaking-grate or movable grate-bars and a series of charging-holes in the crown, arranged in parallel rows over one and the same fire-chamber, substantially as described.

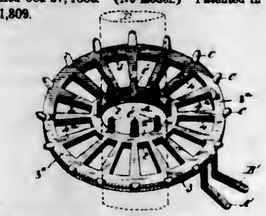
6. A furnace provided with a suitable grate, a series of charging-holes in the crown, arranged in parallel rows over one and the same fire-chamber, and tightly-closed walls and crown, whereby all the air for combustion is supplied through the ash-pit, substantially as described.

7. A furnace provided with a suitable grate, a series of charging-holes in the crown, arranged in parallel rows, in combination with a receptacle for containing fuel and supplying it directly to said charging-holes, substantially as described.

8. A furnace provided with a suitable grate, a series of charging-holes in the crown, arranged in parallel rows, in combination with a receptacle placed on top of the furnace between the charging-holes, and having discharge-openings opposite to the respective charging-holes, substantially as described.

9. A furnace having a suitable grate, and a series of charging-holes in the crown arranged in parallel rows over one and the same fire-chamber, in combination with a combustion-chamber between the fire-chamber and the point where the heat is applied, substantially as described.

349,237. STOVE-GRATE. HORACE C. SNOW, Winnipeg, Manitoba, Canada. Filed Oct. 27, 1885. (No model.) Patented in Canada June 5, 1885, No. 21,809.



Claim.—The combination of the upper grate-section having inner and outer annular rims provided with prongs connected by radial bars and provided with a handle, and a lower grate-section having rims and bars coinciding with the rims and bars of the upper section and provided with a handle relatively placed, whereby the handles will coincide when the grate-bars relatively intervene, as set forth, for the purpose described.

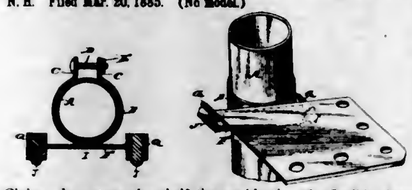
349,238. DECORATED FABRIC. WILLIAM SCHIEFFEY, New York, N. Y. Filed May 27, 1886. (Specimens.)

Claim.—1. As an improved article of manufacture, a decorated fabric composed of a stiffened material, such as leather or muslin, embossed and decorated with embroidery, substantially as described.

2. As an improved article of manufacture, a decorated fabric composed of an embossed and stiffened material, such as muslin or leather, and decorated with embroidery and painting, substantially as described.

3. As an improved article of manufacture, a decorated fabric composed of an embossed material, such as stiffened muslin or leather, decorated with embroidery and the representation of human or animal faces, substantially as described.

349,239. STOVE-PIPE SHELF. CHARLES W. TAYLOR, Portsmouth, N. H. Filed Mar. 20, 1885. (No model.)

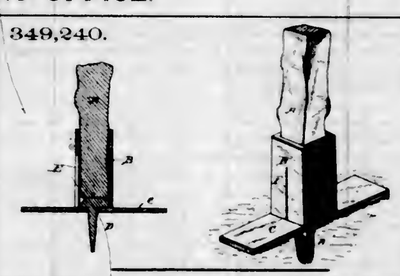


Claim.—In a stove-pipe shelf, the combination of a flexible clamping-band, a horizontal bracket secured thereto, the ends of which are provided with horizontal sockets, and a shelf, the bottom of which near its rear edge is provided with downwardly and rearwardly extending lugs fitting in said sockets.

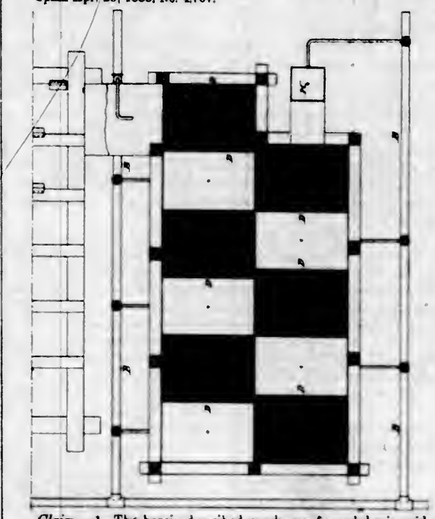
349,240. POST-HOLDER. WILLIAM B. THOMAS, Green Camp, Ohio. Filed June 8, 1886. (No model.)

Claim.—The herein-described post-holder, comprising the long plate C, and the socket B, of the same width as said plate, located at the middle thereof, and provided with the longitudinal slots E, in combination with the removable spike D, having a flat beveled head, substantially as described.

349,240.



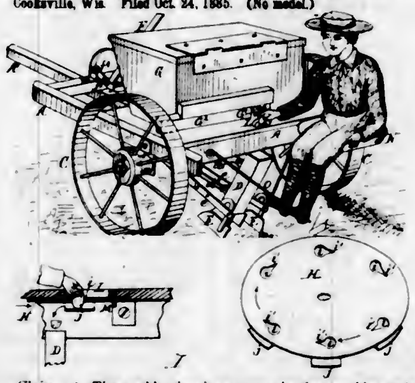
349,241. APPARATUS FOR MAKING SULPHURIC ACID. JEAN J. THYSS, Bakon, Caucasus, Russia. Filed Oct. 13, 1884. (No model.) Patented in Austria-Hungary Apr. 7, 1884, No. 2,034; in Belgium June 19, 1884, No. 65,531; in England June 23, 1884, No. 9,317; in Germany June 26, 1884, No. 30,211; in France Oct. 8, 1884, No. 162,828, and in Spain Apr. 25, 1885, No. 4,707.



Claim.—1. The herein-described condenser for sulphuric-acid gas, said condenser consisting of a series of adjoining vertical leaden flues communicating with each other at the top and bottom alternately, and each alternate flue containing a column of perforated leaden sheets separated from each other, substantially as set forth.

2. The herein-described condenser for sulphuric-acid gas, said condenser consisting of a series of leaden flues, each alternate flue containing a column of separated perforated leaden sheets and steam-pipes opening into one or more of the flues, as and for the purpose described.

349,242. POTATO-PLANTING MACHINE. JOHN P. VAN VLECK, Cookville, Wis. Filed Oct. 24, 1885. (No model.)



Claim.—1. The combination, in a potato-planting machine embracing the frame A and hopper G G', and suitable furrow opening and clos-

ing devices and planting-tube, of the circular cutter-plate having openings *i* and stops *j*, revolving horizontally beneath the hopper by connection with the axle of the machine, and a fixed stop, M, as and for the purposes described and shown.

2. In a potato-planting machine, the horizontally-revolving cutter formed of a circular plate or disk having openings through the same near its outer edge, and stops beneath said openings, and a fixed co-operating stop, as and for the purposes described and shown.

3. In a potato-planting machine, the hopper G, having an opening, G', and sliding door G^2 in the rear side, combined with the platform of the machine, having an opening therein and a horizontally-revolving cutter placed beneath the said platform, as described and shown.

4. The combination, with the hopper G G', platform of the machine, having a feeding-opening, L, therein, and horizontally-revolving cutter H, having openings and a stop for each opening, of the planting-tube D D', for conducting the severed cuts of the potato to the furrow, as described and shown.

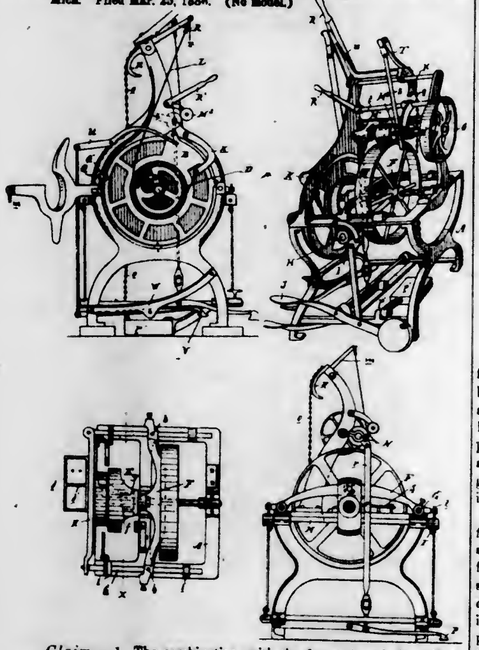
5. In a potato-planter, the platform of the machine having the seat N and foot-rest O for the feeder, and opening L for feeding the potatoes to the cutter, combined with a hopper having an opening at its bottom rear portion adjacent to the opening in the platform, and a revolving cutting-wheel, as described and shown.

6. In a potato-planter, the platform having an opening, L, therein, combined with a wheel or disk having holes through the same, whose edges are formed to cut a section from the potato, and provided with stops *j* upon its under side opposite its holes for retaining the potato in position to be acted upon by the cutter-disk, as shown and described.

7. The combination, in a potato-planter, of a supply-hopper and a platform having a feeding-opening, L, with a cutting-wheel having a series of openings, *i*, formed in a circle, and a stop-plate *j*, for each opening, and a stop, M, fixed in the frame in a plane between the cutting-plate and its stop-plates, substantially as described, for the purpose specified.

8. In a potato-cutting device consisting of the revolving circular plate H, having the openings *i*, and an open stop-plate, *j*, for each opening on the under side of said plate, a co-operating fixed stop, M, arranged in the frame in a horizontal plane between the revolving plate and its open subjacent stop-plates, and a platform having a feeding-opening, L, substantially as described, for the purpose specified.

349,243. HOOP-COILING MACHINE. ALEXANDER F. WARD, Detroit, Mich. Filed Mar. 25, 1886. (No model.)



Claim.—1. The combination, with the frame A and the coiling-head, of the curved rail W, secured to said frame beneath the coiling-head, the foot-lever V, pivoted to said curved rail, the curved lever U, pivoted to the frame and terminating in a finger, and a rod connecting said lever V directly with the lever U, substantially as shown and described.

2. In a hoop-coiling machine, in combination with the tension-strap and the face-plate B, the guide-flange Q, secured near the outer edge of said face-plate, and having the overhanging flange Q', all arranged to keep the tension-strap from being displaced in removing the coil, substantially as described.

3. In a hoop-coiling machine, the combination, with the ram E, of a cross-bar, F, secured to its rear side transversely the frame and carrying said ram, and of the sliding bolts G, adjustably secured in bearings to the end of said cross-bar and having bearings *i* upon opposite sides of said cross-bar, and a gate, K, hinged at one end to one of said bolts, substantially as described.

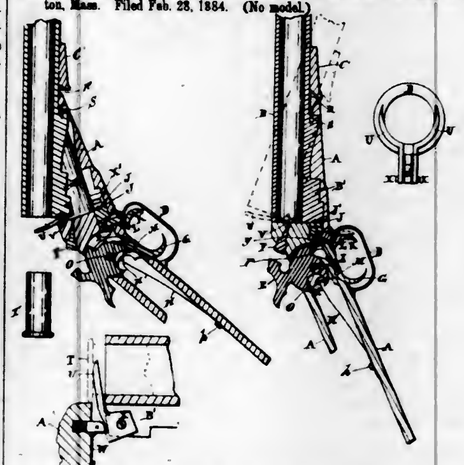
4. In a hoop-coiling machine, the combination, with the main shaft C, of the sliding bolts G, having bearings *i*, the cross-bar F, the ram E, carried by said cross-bar, and the hub *g*, carried by the ram and having an enlarged opening, through which the main shaft passes, and a beveled edge, *f*, substantially as and for the purpose described.

5. In a hoop-coiling machine, the combination, with the friction-wheel M and the coiling mechanism operated thereby, of the friction-pinion M' and its swinging frame, the adjustable tension-spring *s*, to normally keep the swinging frame in its adjusted position, the rock-arm T, and the strap S, carried thereby, substantially as described.

6. In a hoop-coiling machine, the combination, with the coiling mechanism and the tension-strap L, of the curved cam K, pivoted to the frame and connected at one end with said tension-strap, and intermediate connections, substantially as described, for producing a decrease of tension on said strap as the coiling progresses, as set forth.

7. In a hoop-coiling machine, the combination, with the tension-strap L, of a power device such as formed by the combination of the friction-wheels M'' M''', carried by the shafts N *t*, respectively, strap S, the free end of which hangs between said friction-wheels, and lever R', secured on said shaft and constructed to release the tension of the tension-strap, substantially as described.

349,244. BREECH-LOADING FIRE-ARM. ISAAC L. WATERS, Sutton, Mass. Filed Feb. 28, 1884. (No model.)



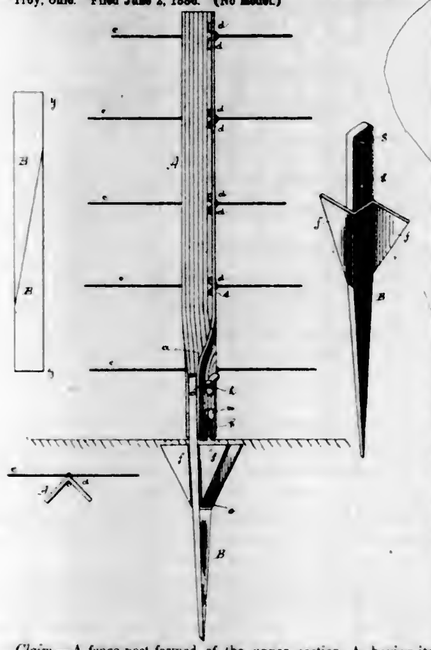
Claim.—1. In a breech-loading fire-arm, the combination, with the frame A and the barrel B, having a lug, B', on the under side of its breech end, of the extractor U, consisting of approximately half-circles adapted to fit in corresponding grooves formed in the breech end of the barrel, said extractor being provided with a shank and thin foot-piece pivoted to the sides of the lug B', a sliding bolt, V, located in the frame, and a spring, W, connected with said bolt, whereby said bolt will engage the edge of the foot-piece and actuate the extractor when the barrel is swung up, substantially as described.

2. In a breech-loading fire-arm, the combination of the notched frame A, the barrel B, having notched lug B', and the fore-stock C', said barrel being pivoted to the frame back of the forward end of the frame and lug, and said frame and fore-stock being provided with correspondingly-beveled extensions, thereby forming a close-fitting fore-stock drop-joint in which the space R, between the lug B' and fore-stock C', is covered by said beveled extensions when the barrel is latched, and permitting the barrel to be disconnected from the frame without moving the fore-stock, substantially as described.

3. In a breech-loading fire-arm, the combination of the grooved frame A, the barrel B, provided on its inner side with a lug, B', having a notched rear end, the sliding latch-bolt J, located in the grooved frame, and provided on its upper side with a notch, Y, and on its lower side with a mortise, the forward end of said bolt being notched to fit the rear end of the barrel-lug B', a spring, P, for holding said latch-bolt in engagement with the notched rear end of said lug, the hammer E, adapted to engage the notch Y in the upper side of the latch-bolt, and the lever K, pivoted within the trigger-guard in front of the trigger, and having its upper end engaged in the mortise in said latch-bolt, substantially as described.

4. In a breech-loading fire-arm, the combination of the frame A, the pivoted barrel B, having a notched lug, B', adapted to engage with corresponding notches in said frame, the notched and mortised latch-bolt J, located in a groove in the frame, and adapted to engage the rear end of said lug B', the spring P, the hammer E, adapted to engage said latch-bolt, the trigger G, spring I, mainspring H, and a lever, K, pivoted within the trigger-guard in front of the trigger and engaging the mortised latch-bolt, substantially as described.

349,245. FENCE-POST. WILLIAM H. H. YOUNT and SOLOMON YOUNT, Troy, Ohio. Filed June 2, 1886. (No model.)



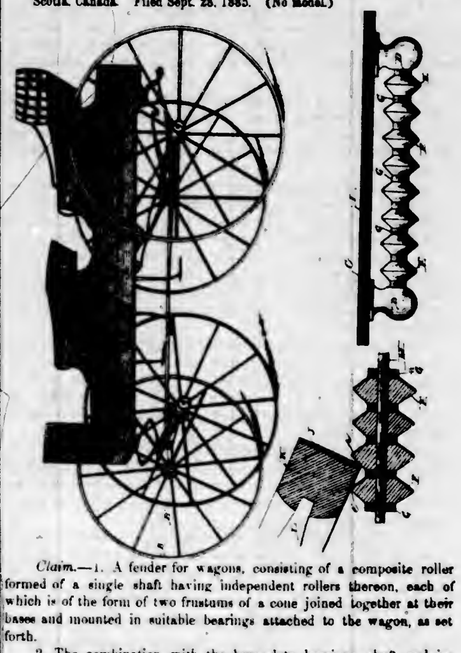
Claim.—A fence-post formed of the upper section, A, having its sides apertured at *c*, and slots *b*, leading upward from the lower edges of its sides, the ground-section B, having an anchor, *f*, a permanent bolt, *m*, to enter the slots *b*, and an aperture, *g*, above the said bolt, the removable bolt *k*, passing through the said aperture *g* and the apertures *c*, and the nut on the said bolt, substantially as set forth.

349,246. BRIDLE-BIT. OREN AUSTIN, Painted Post, N. Y., assignor of one-half to Henry Greek, same place. Filed Dec. 31, 1885. (No model.)



Claim.—In a bridle-bit, a ring comprising the following parts: an open lower part having a curved slot or inlet, a transverse cross-bar having shoulders adapted to hold the bit in place, a hook forming an integral part of the ring parallel to and below the said cross-bar, a shoulder or enlargement above the transverse cross-bar on one side of the ring, and a loop in the upper part of the ring for the attachment of the check-straps, the whole constructed and combined substantially as and for the purpose shown and set forth.

349,247. CARRIAGE-FENDER. JAMES W. BLACK, Berwick, Nova Scotia, Canada. Filed Sept. 23, 1885. (No model.)

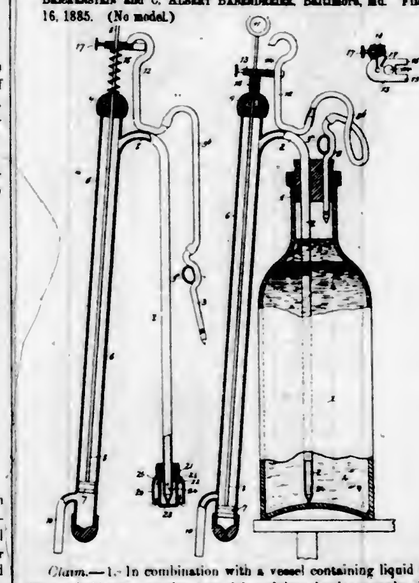


Claim.—1. A fender for wagons, consisting of a composite roller formed of a single shaft having independent rollers thereon, each of which is of the form of two frustums of a cone joined together at their bases and mounted in suitable bearings attached to the wagon, as set forth.

2. The combination, with the base-plate, bearings, shaft, and independent rollers, of the rubber cushion interposed between the base-plate and the wagon-body, for the purpose set forth.

3. The combination of the bearing-posts secured to the wagon, the shaft H, the independent rollers E E, each of which is substantially in the form of two frustums of a cone joined together at their bases, and the interposed washers, for the purpose set forth.

349,248. DEVICE FOR DECANTING LIQUIDS. LAURENCE C. BRICKENSTEIN and C. ALBERT BARENDRIKER, Baltimore, Md. Filed Dec. 16, 1885. (No model.)



Claim.—1. In combination with a vessel containing liquid covered with a suitable preservative material, a siphon having supply-pipe pro-

jecting into said vessel below the protecting material, a guard for preventing the flow of a certain proportion of the liquid contained in the vessel, and a discharge-pipe of greater length than said supply-pipe, substantially as set forth.

2. In a siphon, in combination with supply and exit tubes, a discharge tube or cylinder connecting the same and projecting at each end beyond its connections with said supply and exit tubes and a piston and operating rod working in said discharge tube or cylinder, substantially as set forth.

3. In a siphon, in combination with supply and discharge tubes and a piston and rod operating in said discharge-tube, an air-inlet pipe secured to said piston-rod, and a spring for moving said rod, piston, and valve simultaneously, and a valve or stopper for said pipe, substantially as set forth.

4. In a siphon, in combination with supply and discharge tubes and a piston and rod operating in said discharge-tube, an air-inlet pipe fixed to the supply-tube and a stopper or valve for said air-inlet tube, adapted to be fixed to the piston-rod to operate substantially as set forth.

5. In combination with a siphon, an air-inlet tube fixed thereto having a rigid portion at one extremity for insertion into the neck of the bottle, a rigid portion at the other extremity for closure by a suitable stopper, and a flexible connecting-tube between these two portions, substantially as set forth.

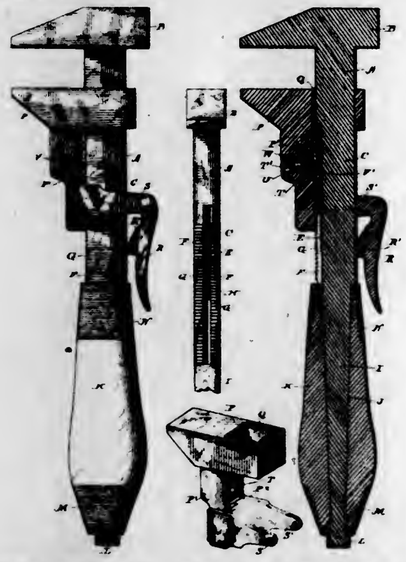
6. In combination with a siphon having supply and discharge tubes and a piston and rod operating in said discharge-tube, an air-inlet pipe having downwardly-turned upper end, as shown, a stopper or valve, jaws and set-screw on said stopper for clamping it to said piston-rod, and a spring bearing upwardly on said stopper, substantially as and for the purpose set forth.

7. In combination with a siphon having supply and discharge tubes, as shown, a guard surrounding the inlet-aperture of the supply-tube of said siphon, and consisting of an inner upright and an outer reversed cup, the inner cup having suitable passages at top to permit the flow of liquid, substantially as set forth.

8. A guard for preventing the flow of a certain proportion of liquid in a containing-vessel, consisting of an outer and an inner cup arranged in reversed positions, having a passage to permit the flow of liquid between the sides of the cups, and the inner cup having passages through its sides, substantially as set forth.

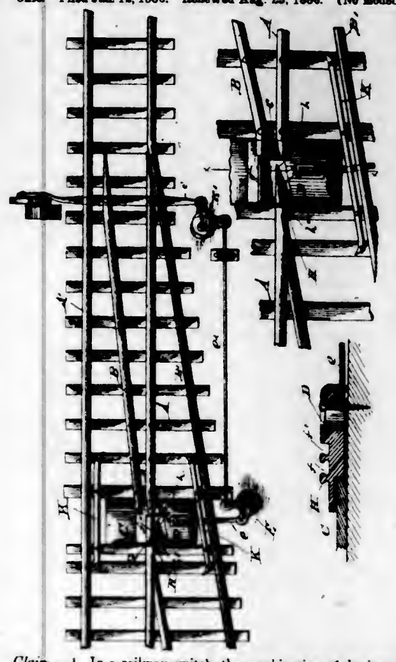
9. A guard for preventing the flow of a certain proportion of liquid in a containing-vessel, consisting of an outer and an inner cup turned in reversed directions, having passage for permitting the flow of liquid between them, passages through the sides of the inner cup to permit the liquid to enter the latter, and air-inlet passages through the top of the outer cup, substantially as set forth.

349,249. WRENCH. ALFRED H. CRILEY, Fort Scott, Kans. Filed June 30, 1886. (No model.)



Claim.—The combination, with the spanner having the fixed jaw and the serrated and longitudinal grooved edge, of the sliding jaw provided with the spring-pressed pin seated therein and entering the longitudinal groove in the spanner, and the cam-lever journaled between the arms on the sliding jaw and adapted to engage the plain edge of the spanner, substantially as specified.

349,250. RAILROAD-SWITCH. CHARLES M. CROSBY, Hillsborough Ohio. Filed Jan. 12, 1886. Renewed Aug. 23, 1886. (No model.)



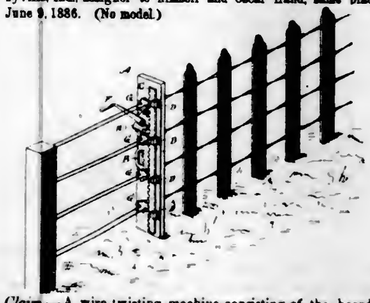
Claim.—1. In a railway-switch, the combination of the inner lines of rails of the main track and siding cut away at their point of intersection, so as to form a space of desirable length, a bed-plate arranged to slide within said space, and provided with a straight transverse projection corresponding to a section of rail, and a triangular transverse projection having one side parallel to the siding, and mechanism, substantially as specified, to actuate the said bed-plate.

2. The combination of the main track, the siding, the movable rails A B, the bed-plate arranged to slide in the space C, and provided with the projections G and H, and switch mechanism, substantially as described, whereby the rails A B are simultaneously moved with the bed-plate, so as to open or close either the main track or siding, substantially as specified.

3. The combination of the main track, composed of the rails A A', the siding, composed of the rails B B', the bed-plate D, arranged to slide in the space C of the rails A B, and provided with the transverse projections G and H, and the switch mechanism, substantially as described.

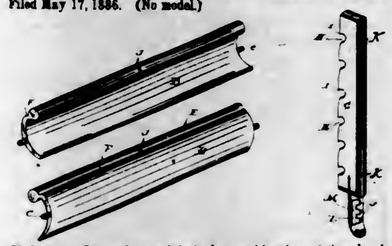
4. The combination of the main track, the siding, the bed-plate D, having the grooves *f f'*, and the switch mechanism, constructed and arranged substantially as and for the purpose specified.

349,251. WIRE-TWISTING MACHINE. BERTRAM FULFORD, Shelbyville, Ind., assignor to himself and Oscar Hand, same place. Filed June 9, 1886. (No model.)



Claim.—A wire-twisting machine consisting of the board A, provided with the apertures A', the handles B B', the guides D, and slots J, the rack C, held on the board by the guides D, the pinions G, having hubs G', projecting into the apertures of the board and secured therein, and provided with the slots I, and the segmental gear E, pivoted to the board between two of the said pinions, and provided with the crank-handle F, substantially as described.

349,252. WINDOW-BLIND. JOHN J. GULDHANG, Stoughton, Wis. Filed May 17, 1886. (No model.)



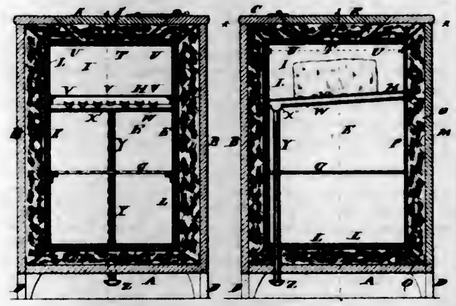
Claim.—1. In a window-blind, the combination of slats having cylindrical beads upon their upper edges, with an adjusting-rod having circular notches in its edge fitting upon the beaded edges of the slats, as and for the purpose shown and set forth.

2. In a window-blind, the combination of slats having cylindrical beads upon their upper edges forming grooves upon their outer sides near the said edges, with an adjusting-rod having notches in its edge comprising slightly more than a semicircle and formed with pointed shoulders at the upper sides engaging the grooves in the slats, as and for the purpose shown and set forth.

3. In a window-blind, the combination of a series of slats having cylindrical beads upon their upper edges forming grooves upon the outer sides near the said edges, and having notches or kerfs in the middles of the beads of the upper and lower slat, an adjusting-rod having notches comprising slightly more than a semicircle in its edge and formed with pointed shoulders at the upper sides of the notches engaging the grooves in the slats, and pins inserted through the ends of the adjusting-rod, entering the notches in the ends and the kerfs in the end slats, as and for the purpose shown and set forth.

4. In a window-blind, the combination of a series of slats having their upper edges formed into cylindrical beads, an adjusting-rod having circular notches in its edge engaging the beads, a longitudinally-slotted plate at the end of the rod having notches in one edge and the engaging-pin in the blind-frame, as and for the purpose shown and set forth.

349,253. REFRIGERATOR. JOHN M. HARNEY, Florisant, Mo. Filed July 11, 1884. (No model.)



Claim.—1. A refrigerator consisting of an outer case, A B C, having side door, M, and lid R, inner case, E, supported off the bottom of the case, and having side door, P, and lid T, feather cushions occupying the chambers between the inner and outer case, and non-conducting lining I, enveloping the inner case, substantially as set forth.

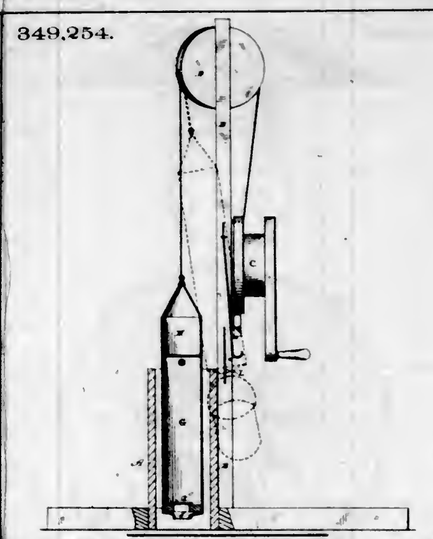
2. In a refrigerator, the combination, with the outer case, of an inner case, an inclined floor, H, having slots V, the inclined troughs W, in line with and beneath the slots, a trough, X, at the lower end of the inclined troughs, transverse of the latter, and a pipe, Y, having a trap, Z, substantially as set forth.

349,254. WATER-ELEVATOR. JOSHUA HOULGATE, Fairfield, Nebr. Filed July 9, 1886. (No model.)

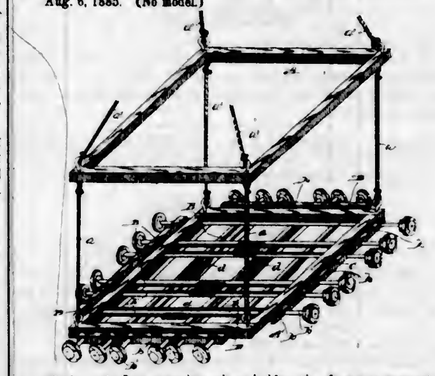
Claim.—1. A well-bucket provided with an air-chamber in its top to prevent the bucket from sinking.

2. A well-bucket provided with an air-chamber, and which chamber forms a covering for the top of the bucket, substantially as described.

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349,255. SHOW-RACK. AMOS H. JACKSON, Fremont, Ohio. Filed Aug. 6, 1885. (No model.)



Claim.—1. In a sample rack or holder, the frame or support having a number of spring-acted-upon clamp-bars connected by rods passing through the frame, in combination with the knobbed guide-rods and the eye-rods, said eye-rods being secured on said knobbed rods, substantially as and for the purpose set forth.

2. In a sample holder or rack, the combination, with a frame or support, of the clamp-bars, the connecting-rods, the springs connected to the inner ends of said connecting-rods, and the knobbed guide-rods passing through the frame, said clamp-bars being connected to and guided by said knobbed guide-rods, substantially as shown and described.

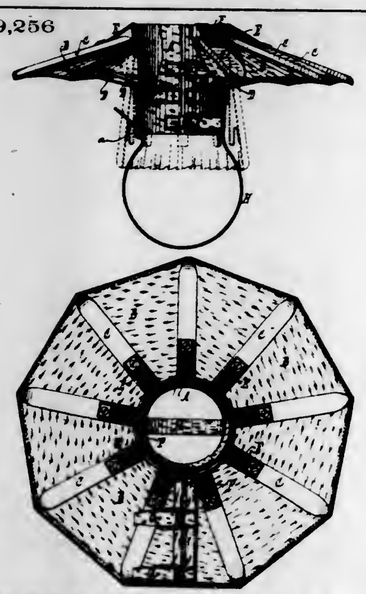
3. In a sample rack or holder, the combination, with the frame or support, the sectional rods, the springs connecting the sections of said rods at their inner ends, knobbed guide-rods, and clamp-bars arranged thereon, of the eye-rods, through the eyes of which pass the said guide-rods, said clamp-bars being connected to said sectional rods and acted upon by the springs, substantially as and for the purpose set forth.

349,256. SWIMMING-LEGGIN. JOHN LUNDGREN, New York, N. Y. Filed May 20, 1886. (No model.)

Claim.—1. The combination of the leggin A, for encircling the ankle, the web B, secured to and surrounding the leggin, the radial ribs C, attached to the web for stiffening and keeping it extended, the flexible stays D, secured at one of their ends to the leggin and at their other ends to the web directly under the ribs, and elastic stays E, secured to the upper end of the leggin and to the radial ribs, substantially as and for the purpose described.

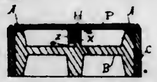
2. The combination of the leggin A, for encircling the ankle, the web B, secured to and surrounding the leggin, the radial ribs C, attached to the web for stiffening and keeping it extended, the flexible stays D, secured at one of their ends to the leggin and at their other ends to the web directly under the ribs, the elastic stays E, attached at one end to

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the leggin and at the other end to the ribs, the strap H, attached at one end to the lower part of one side of the leggin, for passing under the foot and connecting with the opposite side of the leggin, and the straps F and G, for securing the leggin and web around the ankle, substantially as described.

349,257. STEREOTYPE PLATE AND BASE WITH LOCKING DEVICE. NATHAN R. LYMAN and ALBERT MORLEY, Chicago, Ill. Filed Sept. 26, 1885. (No model.)



Claim.—1. A base-block and a stereotype-plate, the two parts having each an overlapping rib and meeting on both the plane of the top of the base-block and the plane of the contiguous sides of the overlapping ribs, in combination with a rod, which rests in connecting grooves in the contiguous sides of the ribs.

2. The combination of a stereotype-base, a plate supported thereon, two contiguous overlapping ribs forming, respectively, parts of the plate and base and extending along the middle thereof, and a rod which rests in grooves in the contiguous sides of the ribs, and while securing the plate against upward pull permits it to move freely sidewise.

349,258. BRAKE FOR DUMB-WAITERS. EDWARD W. MOON, St. Louis, Mo. Filed Feb. 10, 1886. (No model.)



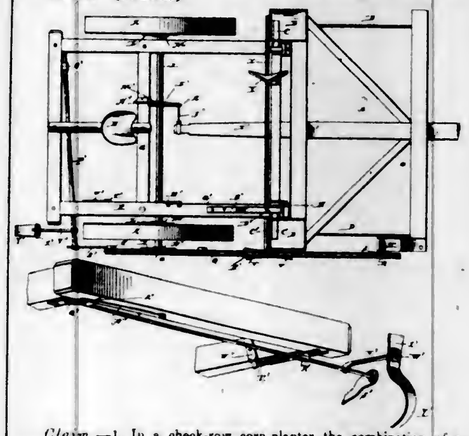
Claim.—1. The rocking frame having a shoe with channel containing a movable ball and inclined to the periphery of a pulley on which the hoisting-rope has bearing, a spring to press the shoe toward the pulley, and an arm and cord to draw the shoe away from the pulley, substantially as and for the purpose set forth.

2. The combination, with the hoisting-rope of a hoisting-machine or dumb-waiter, of a pulley, around which pulley the rope passes, a movable shoe having a channel inclined to the periphery of the pulley, a movable ball in said channel, and a projection at the lower end of the channel to prevent the escape of the ball.

3. The combination of a hoisting-rope, pulley, and a rock-frame having an arm carrying a friction-brake and an arm projecting in the opposite direction having a channel on the side toward the periphery of the pulley inclined relatively to the periphery and containing a movable ball, for the purpose set forth.

4. The combination, with the hoisting-rope, pulley, and the standard having a projection thereon, of a rocking frame pivoted in the standard and having an arm, a channel in the arm, a movable ball in the channel, and suitable means for pressing the arm against the pulley-rim, substantially as and for the purpose set forth.

349,259. CHECK-ROW CORN-PLANTER. HANON MORRISON, Xenia, Kans., assignor of one-half to John R. Anderson, same place. Filed May 18, 1886. (No model.)



Claim.—1. In a check-row corn-planter, the combination of a chain-wheel upon the drive-shaft, a chain-wheel at the forward end of the front frame, a slide-operating shaft having a disk provided with radiating forks, an endless chain passing over the wheels and having equidistant buttons, a rock-shaft journaled parallel with the operating-shaft, and having a rearwardly-projecting arm with an outwardly-bent end below the upper half of the chain, and an upwardly-projecting arm, and a lever having a connecting-rod pivoted to the upwardly-projecting arm, as and for the purpose shown and set forth.

2. In a check-row corn-planter, the combination of an operating-shaft having a disk at one end provided with radiating forks, and having a cam-disk upon it formed with registering and corresponding bulges or waves in its periphery, and a disk or block having registering and corresponding flat faces, a seed-slide having two upwardly-projecting studs provided with rollers clamping the edge of the cam-disk, a flat spring bearing with its free end against the flat faces of the block or disk, and an endless chain driven by the drive-axle and having equidistant buttons engaging the forks, as and for the purpose shown and set forth.

3. In a check-row corn-planter, the combination of a chain-wheel having equidistant inwardly-projecting lugs upon its inner side and revolving with the drive-shaft, a chain-wheel journaled upon the forward end of the front frame of the machine, an operating-shaft having radiating forks, a chain having equidistant buttons and passing over the wheels, and a transverse shaft having a forwardly-projecting arm engaging the lugs and having a rearwardly-projecting arm provided with a downwardly-projecting marker-blade, as and for the purpose shown and set forth.

4. In a check-row corn-planter, the combination of a chain-wheel upon the drive-axle, having inwardly-projecting equidistant lugs upon its inner face, and having a chain provided with buttons revolving an operating-shaft, a rigid bearing at one side of the frame, and a sliding bearing at the other side, near the wheel, provided with a bail, a transverse shaft journaled in the bearings and having a forwardly-projecting arm and a rearwardly-projecting screw-threaded arm, a lever fulcrumed upon the frame and engaging the bail of the sliding bearing with its lower end, and a marker-blade secured with its longitudinally-slotted upper end upon the screw-threaded arm of the shaft clamped by means of nuts and washers, as and for the purpose shown and set forth.

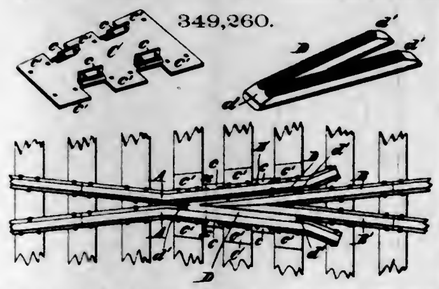
5. In a check-row corn-planter, the combination of a drive-shaft having three ratchet-wheels upon it, a spring-pawl upon each of the two drive-wheels, each pawl engaging with one of said ratchet-wheels, and a spring-pawl secured upon the frame of the planter and engaging the third ratchet-wheel, as and for the purpose shown and set forth.

6. In a check-row corn-planter, the combination, with a disk upon an operating-shaft having radiating forks, of an endless chain passing over suitable wheels having means for revolving them, and having buttons at equal distances, and provided with laterally-projecting lugs, as and for the purpose shown and set forth.

349,260. RAILWAY-FROG. PATRICK NOLAN, Birmingham, Ala. Filed Feb. 23, 1886. (No model.)

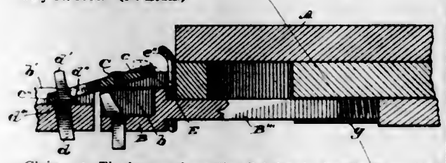
Claim.—In a railway-frog, the combination, with the wing and point rails and component parts thereof, of a supporting-base or bed-plate com-

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posed of a single flat sheet of metal of the same form as the outline of the frog, and having its side edges slit or cut into transversely up to the line of the outer edges or flanges of the wing-rails, and alternate parts thereof turned up and shaped to conform to and fit closely against the outer faces of the wing-rails beneath the heads thereof, said upturned parts forming bracing-pillars to prevent lateral spreading of the frog, and being perforated to receive the customary through binding-bolts, and the flat portions or wings c' c' of said bed-plate, being perforated, are adapted to lie upon the ties and receive the spikes for securing the frog in place, substantially as herein set forth.

349,261. CAR-COUPLING. RICHARD PYLE, Plymouth, Pa. Filed July 10, 1886. (No model.)



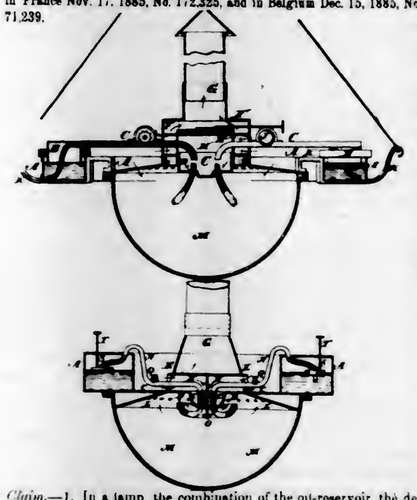
Claim.—1. The improved coupling-link herein described, provided with an open end, c', a solid end, c'', and trunnions c, as and for the purpose set forth.

2. The draw-head B, hollowed out as described, in combination with the centrally-pivoted link C, having solid end c'', open end c', and trunnions c, as set forth.

3. In combination, the car A, having hollowed-out draw-head B, with bar E, having handles E', and central projection e'', and the pivoted link C, having a solid end, c'', open end c', and trunnions c, as set forth.

4. In combination, the cars A A', having hollowed-out draw-heads B B', the pivoted link C in draw-head B, the pin D in draw-head B', and the pivoted, weighted, and handled bar E, for operating said link, as and for the purpose set forth.

349,262. OIL-LAMP. JAMES ROOTS, London, England. Filed Apr. 5, 1886. (No model.) Patented in England Mar. 16, 1885, No. 3,394; in France Nov. 17, 1885, No. 172,325, and in Belgium Dec. 15, 1885, No. 71,239.



Claim.—1. In a lamp, the combination of the oil-reservoir, the depending burner, the wick-tube, the globe, the annular reflector surrounding the burner, the heating-chamber H, and the chimney, substantially as described.

2. In a lamp, the combination, with an oil-reservoir, a globe, a chimney, and an annular reflector, of a downwardly-turned wick-tube and a depending burner, said burner being surrounded by the globe and annular reflector, whereby the flame is projected downward and a shadow avoided, substantially as described.

3. In a lamp, the combination, with an oil-reservoir, a globe, a chimney, and an annular reflector, of a wick-tube, a depending burner, and a deflector located beneath said burner, whereby the flame is projected downward and laterally, substantially as described.

4. In a lamp, the combination of an oil-reservoir, a wick-tube, a burner depending beneath the level of the oil-reservoir, a globe, an annular reflector perforated for the passage of air, a central heating-chamber, an air-inlet chamber, and a chimney, substantially as described.

5. In a lamp, the combination of an oil-reservoir, a downwardly-turned wick-tube, a circular depending burner, a globe, an annular reflector surrounding the burner, and a chimney, substantially as described.

6. In an oil-lamp, the combination of an oil-reservoir, a wick-tube, a depending burner, an annular air-inlet chamber, and a central heating-chamber located above the burner, an annular reflector surrounding the burner, a globe, and a chimney, substantially as described.

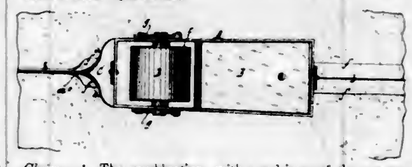
7. In a lamp, the combination of an oil-reservoir, a depending burner, a globe, and an annular reflector surrounding said burner, a wick-tube through which the oil ascends from the reservoir and descends to the burner, and means for regulating the oil-supply, substantially as described.

8. In a lamp, the combination of an oil-reservoir, a downwardly-turned wick-tube, a depending burner, an annular reflector surrounding said burner, a globe, a chimney, an air-inlet chamber, and a central valved heating-chamber located above the burner, substantially as described.

9. In a lamp, the combination of an annular oil-reservoir, a wick-tube, a depending burner, the cap D, central heating-chamber, H, air-inlet chamber E, an annular reflector perforated for the passage of air, a globe, and a chimney, substantially as described.

10. In a lamp, the combination, with the oil-reservoir, burner, wick-tube, and wick, of a float attached to said wick and provided with means for raising it above the level of the oil in the reservoir, substantially as described.

349,263. SAD-IRON. MARTHA S. STIEGLITZ, New York, N. Y. Filed Dec. 17, 1885. (No model.)



Claim.—1. The combination, with a sad-iron, of the seam-opener C, having spreading ogee-shaped sides *a a*, that incline inward from the bottom, substantially as described.

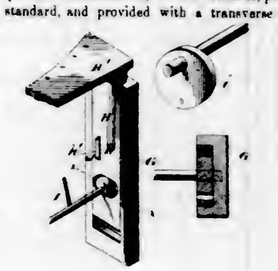
2. The combination, with a sad-iron, of the seam-opener C, having spreading ogee-shaped sides *a a*, that incline inward from the bottom, and provided with an oblique dividing-edge, *a**, substantially as described.

3. The combination, with a sad-iron, of the seam-opener C, having spreading ogee-shaped sides *a a*, that incline inward from the bottom, and a pressing-roller, D, substantially as described.

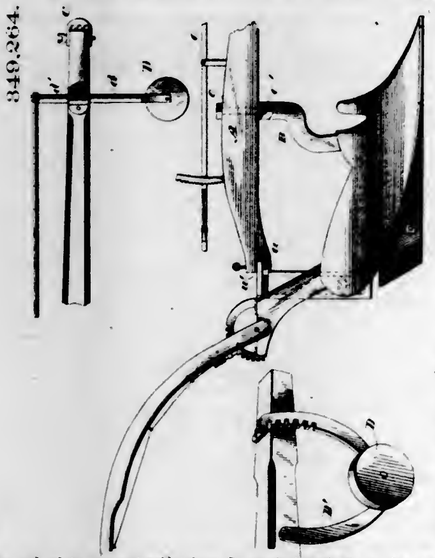
349,264. ATTACHMENT FOR PLOWS. WINFIELD S. THURLOW, Norwood, Mass. Filed July 1, 1886. (No model.)

Claim.—1. In a plow having a beam pivotally attached to the forward standard thereof, said beam having its rear portion recessed, as shown, a vertically-adjustable plate, H', secured to the rear standard of the plow, the beam being adapted to adjust laterally thereon, substantially as shown, and for the purpose set forth.

2. In a plow, the combination, with the beam A, pivotally attached to the front standard, and provided with a transverse recess, *a*, at its

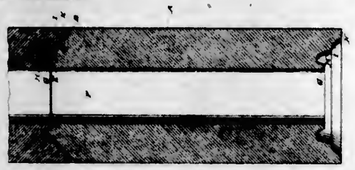


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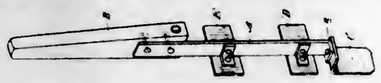
rear end, of the recessed guide-plates G, attached vertically to the rear standards of the plow, a plate, H', having the front portion curved, said portion being adapted to lie within the recesses in the plow-beam, depending plates H, with transverse recesses, and cams for adjusting the same, substantially as shown, and for the purpose set forth.

349,265. JOINT FOR THE BRICKS OF LADLE-RODS. MORGAN WILLIAMS and SAMUEL W. VAUGHEN, Johnstown, Pa. Filed July 19, 1886. (No model.)



Claim.—A sleeve or brick section for ladle-rods, said sleeve being provided on one end with the male portion of a joint, comprising the shoulder B, the convex bead C, the ring or bead D, and the shoulder E, and provided on the other end with the female portion of the joint, comprising the shoulder G, the groove H, the concave portion I, and the plain portion K, substantially as specified.

349,266. FENCE-POST. DANIEL B. AYRES, Brooklyn, Mich. Filed Mar. 25, 1886. (No model.)



Claim.—The fence-post described, consisting of the wrought-iron bar A, having its lower end bent at right angles, as at *a*, the plate C, secured to said part *a*, the plates D E, secured to said bar by angle-irons, as shown, and the wooden top portion, B, secured to said bar above the plate E, substantially as herein shown and described.

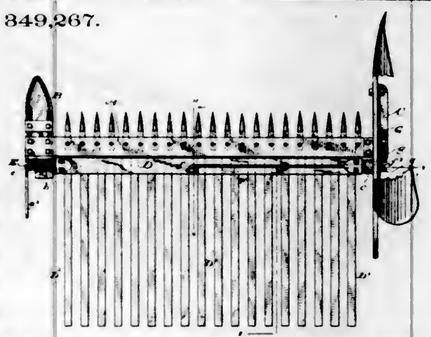
349,267. HARVESTER-DROPPER. WILLIAM R. BAKER, Chicago, Ill., assignor to the McCormick Harvesting Machine Company, same place. Filed Mar. 12, 1885. (No model.)

Claim.—1. The combination, substantially as hereinbefore set forth, with a finger-bar and dropper pivoted on an axis behind and parallel with said finger-bar, of a torsion-spring confined at one end to the outside shoe and at the other end about centrally of the dropper-head, and operating to counteract the torsion on the dropper-head.

2. The combination, substantially as hereinbefore set forth, of a finger-bar, a dropper-head on an axis behind and parallel with said finger-bar, a torsion-spring which lifts or tends to lift said dropper, and arranged to counteract the torsional strain on the dropper-head, and means whereby the stress of said torsion-spring may be increased.

3. The combination, substantially as hereinbefore set forth, of the

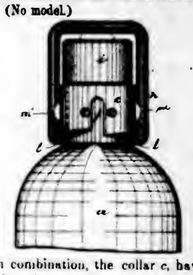
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finger-bar, the dropper-head oscillating in journals behind said finger-bar and on an axis parallel therewith, the torsion-rod lying along the top of said dropper-head and confined thereto by means of a rearwardly-bent end, the tubular journal through which said torsion-rod passes, and the series of pins between which the outer cranked end of the rod is adjustably secured.

4. The combination, substantially as hereinbefore set forth, of the finger-bar, the dropper-head oscillating in journals behind said finger-bar and grooved along its top, the torsion-rod lying in said groove and secured to the head by means of the rearwardly-bent end and a suitable strap, the tubular journal at the divider end of the dropper-head, through which the torsion-rod passes, the vertical flange on the outer shoe, and the series of pins from said flange, between which pins the rearwardly-bent end of the torsion-rod is adjustably secured.

349,268. BOTTLE-STOPPER. ADOLPH BECKER, Newark, N. J. Filed Dec. 26, 1885. (No model.)



Claim.—1. In combination, the collar *c*, having inclines *e* and recesses *f*, a clamp, *h*, and a cap carried by said clamp having a cork, block, or disk therein to close the exit of the bottle, substantially as set forth.

2. In combination, the collar having inclines *e*, recesses *f*, lugs *g*, and a suitable fastening, *d*, a clamp having bent ends to engage said inclines, and having recesses *m'* and a cap pivotally secured to said clamp, and having blocks or layers of rubber and cork, substantially as and for the purposes set forth.

3. In combination with the bottle having the inclines *e e* and recesses *f f* at the neck thereof, and a cap provided with a pivoted clamp to work on said inclines and in said recesses, substantially as and for the purposes set forth.

4. In combination with a bottle having inclines, and a stopper having a clamp with turned ends *l l* to engage said inclines, the stopper pivotally attached to the clamp so that the clamp may be turned without turning the stopper, and so that the stopper may be suspended from the clamp without detachment, substantially as herein described.

5. In combination with the neck of a bottle, the scalloped or indented inclines arranged and adapted to operate in connection with a clamp, substantially as and for the purposes set forth.

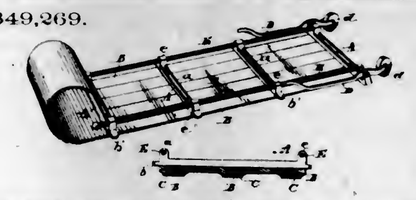
6. In combination, the bottle provided at the neck thereof with inclines *e e*, recesses *f f*, having bearings at the heads thereof, and lugs *g g*, a stopper pivoted on a clamp, *h*, and said clamp having bent ends, the said clamp being adapted to engage said lugs and bearing and be by them held so that the stopper will be free from the bottle, substantially as shown and described.

349,269. TOBOGGAN. JOHN P. BURKHARD, St. Paul, Minn. Filed Mar. 22, 1886. (No model.)

Claim.—1. In a toboggan, the combination, with a bottom, substantially as described, of two or more flat metal strips secured directly to the lower face of said bottom, substantially as set forth.

2. In a toboggan, the combination, with a bottom composed of a series of strips of wood secured together, of two or more flat metal

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strips secured directly to the lower faces of two or more of said wooden strips, substantially as set forth.

3. In a toboggan, the combination, with the bottom formed of strips of wood, each alternate strip being beveled and projecting below its adjacent strip, of metallic strips secured to the bearing-faces of the said projecting strips, substantially as set forth.

4. In a toboggan, the combination, with the bottom and cross-bars extending across the upper side of same, the said cross-bars having grooved upper surfaces, of nuts located within the grooves, and bolts passing through the bottom and engaging the nuts, substantially as set forth.

5. In a toboggan, the combination, with the bottom composed of strips of wood, of H-shaped cross-bars adapted to serve as a lock for the nut when adjusted to the bolt, and also to serve as guards, substantially as set forth.

6. A toboggan having an adjustable curved front end, substantially as set forth.

7. In a toboggan, the combination, with a bottom, of the cross-bars having grooved upper surfaces, and eyes at their opposite ends, nuts located within said grooves, bolts passing through the bottom and engaging the nuts and side rails passing through the eyes, substantially as set forth.

8. In a toboggan, the combination, with the bolt and its nut for securing the bottom to the cross-bar, of an elastic cushion located between the nut and the head of the bolt, for the purpose substantially as set forth.

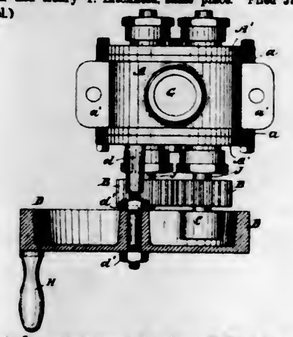
9. The combination, with a toboggan, of a steering-lever pivoted to the toboggan and projecting behind the same, and an elastic cushion secured to the rear end of said lever.

10. In a toboggan, a steering-lever provided with an elastic roller journaled in its end, substantially as set forth.

11. In a toboggan, a pair of steering-levers pivotally secured to the ends of the rear cross-bar and provided with rollers journaled in their ground ends, substantially as set forth.

12. In a toboggan, the combination, with the cross-bars and bottom, of buffers located on the ends of the cross-bars, for the purpose substantially as set forth.

349,270. ROTARY PUMP. JOHN O. CHESEVER, Boston, Mass., assignor to himself and Henry T. Litchfield, same place. Filed Jan. 27, 1886. (No model.)



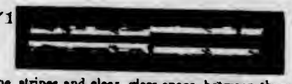
Claim.—1. In a rotary pump, the pistons E E, each provided with projections *e e* and apertures *e' e'*, so arranged that each projection will be thicker on one side than the other, and the thinnest side being separated from the piston, so that it will act as a spring, in combination with recesses *g g*, substantially as shown, and for the purposes described.

2. In a rotary pump, the pistons E E, provided with semicircular spring projections *e'*, in combination with corresponding cavities, *g*, substantially as shown, and for the purposes described.

349,271. GLASS TUBE FOR WATER-GAGES. LOUIS J. CROSSLEY and RICHARD HANSON, Halifax, County of York, and JAMES J. HICKS, Hatton Garden, County of Middlesex, England. Filed Nov. 23, 1885. (No model.)

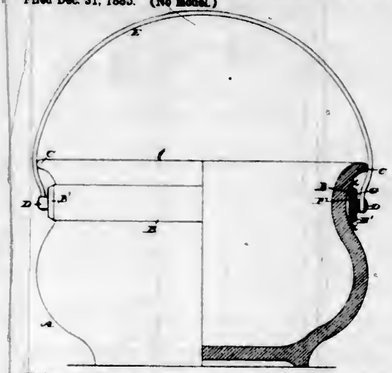
Claim.—A water-gage glass tube provided with a backing formed of stripes of white or colored enamel having a clear glass space between them, the stripes being located at the same distance from the axis of the

349,271



bore, and the stripes and clear glass space between them being of less width than the tube, substantially as set forth.

349,272. CROCKERY OR EARTHENWARE. JAMES S. DONOHUE, Philadelphia, Pa., assignor of one-half to William O. Kline, same place. Filed Dec. 31, 1885. (No model.)



Claim.—1. An earthenware vessel provided with an encircling band having openings therein and provided on its outer side with caps having central openings, the journals D, having flanges F, and bail E, all of said parts being combined substantially as and for the purpose set forth.

2. An earthenware vessel having below the top flange thereof an encircling band, flanged journals, and caps on the outer faces of the bands having central openings receiving the bodies of the journals, all combined substantially as described.

349,273. VAPORIZER. ALEXANDER FULTON, Philadelphia, Pa. Filed June 24, 1886. (No model.)



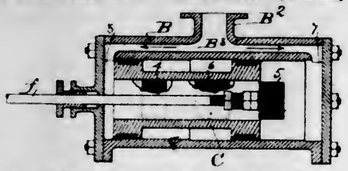
Claim.—A vaporizer or device of the character described, consisting of a cylindrical vessel, A, divided by a perforated diaphragm into two cells, a nozzle, F, and a cup, E, both nozzle and cup being connected to the cover of the said device, the cup being of conical shape and having a rounded flaring rim with a plug within the same, all of said parts being combined and arranged substantially as described.

349,274. COAT. EDWARD GRASER, Elmira, N. Y., assignor to Rosetta A. Graser, same place. Filed Feb. 1, 1886. (No model.)



Claim.—The within-described coat, having the breast and shoulders in front of the armhole provided with a flexible lining-pad of rubber or rubber cloth, whereby the coat is prevented from sagging or becoming permanently wrinkled, all substantially as specified.

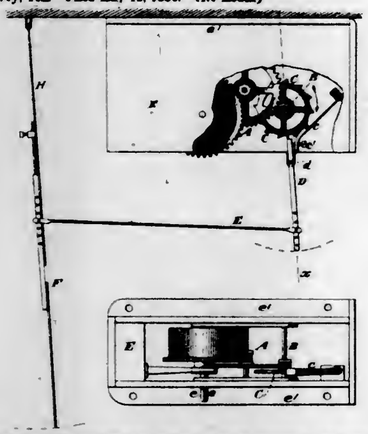
349,275. STEAM-ENGINE. REMARD G. HARER, Boonsborough, Iowa, assignor of two-thirds to William Fisher, same place, and Loran W. Reynolds, Boone, Iowa. Filed Jan. 25, 1886. (No model.)



Claim.—1. The combination, in a steam-engine, of the valve-chamber provided with the removable heads, and with a steam-passage extending to the heads and terminating in the induction-ports, substantially as described.

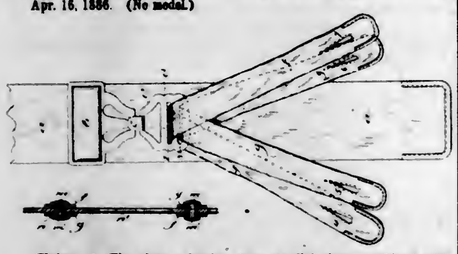
2. An open-ended tubular and cylindrical valve, in combination with a chamber provided with the removable heads, and with the steam-passages leading to said heads and terminating in induction-ports, and the exhaust-port in the middle, and eduction-ports on the opposite sides of the exhaust-port, substantially as described.

349,276. MOTOR. GEORGE W. HOUSTON and ELIJAH F. MULKEY, Savoy, Tex. Filed May 13, 1886. (No model.)



Claim.—The combination, with the spring-actuated mechanism A, of the ratchet-wheel C, the spring-detent c, and the lever D, to operate a rod, E, in the manner and for the purpose specified.

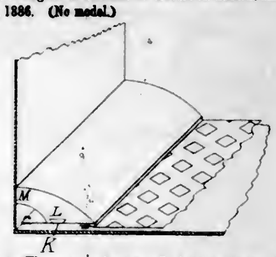
349,277. SUSPENDER-END. JAMES H. HUFF, Boston, Mass. Filed Apr. 15, 1886. (No model.)



Claim.—1. The plate e, having two parallel slots, combined with two independent straps passed through and moving freely in said slots, the opposite ends of each strap being provided with button-hole slits or openings, all substantially as described.

2. The plate e, having two slots, combined with two independent straps passed through and moving freely in said slots, those ends of the straps leading from one side of the plate being provided with button-hole slits or openings to be attached to the outside of the waist-band, and those ends leading from the other side of the plate being perforated to be attached to the inside of the waistband, all substantially as described.

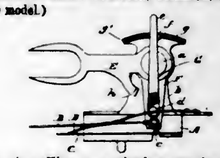
349,278. CARPET-FASTENER. MELVIN L. JOHNSON, West Mansfield, Ohio, assignor of one-half to Robert H. Brown, same place. Filed July 24, 1886. (No model.)



Claim.—1. The carpet-fastener D, having hooks H to hold the carpet, and hinged at its rear side to the floor at a point as low as or lower than the hooks for holding the carpet, as and for the purpose set forth.

2. The carpet-fastener D, hinged to the floor at E, having the hooks H on its under side and the tongue K on its upper side, on which the molding or ornament M slides, as and for the purpose set forth.

349,279. RUFFLING AND GATHERING ATTACHMENT FOR SEWING-MACHINES. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Apr. 17, 1884. (No model.)

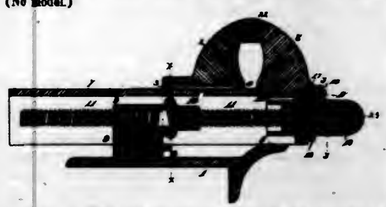


Claim.—1. A ruffling or gathering attachment composed of the following elements in combination, to wit: the ruffler-frame, the movable ruffling device or blade, the lever having a fork with one member over or above the other in the outer end for engaging the needle-screw of the sewing-machine, the lever connected with the ruffler-blade and receiving positive motion in both directions from the former lever, both said levers being arranged on the same side of the needle-hole as the said ruffler-blade, and supported on said ruffler-frame so as to turn in the same direction, and the stroke-regulating means for varying the amount of lost motion between the levers, said means comprising an elastic arm or spring and a ratchet or serrated surface, which said arm or spring engages, substantially as described.

2. In a ruffling or gathering attachment, and in combination with the ruffling device or blade and the two levers, one provided with a fork in the end to engage the needle-screw of the sewing-machine, and both arranged on the same side of the needle-hole as the said ruffling device or blade, the stroke-regulating means comprising a spring-arm fastened to one of said levers at the bottom, in proximity to the ruffling device or blade, and engaging with the ratchet or serrated surface on the opposite side of the fulcrum of said lever, substantially as described.

3. In a ruffling or gathering attachment, the combination, with the ruffler-frame and the ruffling-blade, of operating mechanism for imparting positive motion in both directions to said ruffling-blade from the needle-bar of the sewing-machine, said mechanism comprising two levers supported on said ruffler-frame in front of the needle-hole by a common screw, and stroke-regulating means carried by said levers, said means comprising an elastic arm or spring and a ratchet or serrated surface with which said arm or spring engages, substantially as described.

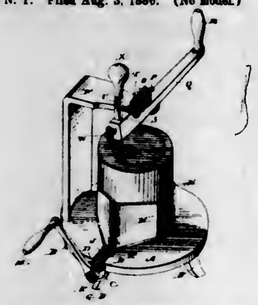
349,280. VISE. JACOB O. JOYCE, Dayton, Ohio. Filed June 25, 1886. (No model.)



Claim.—1. The combination, in a vise, of the stationary jaw 2, having the rigidly-attached nut 9, the movable jaw 8, having its arm 7 provided with the rigidly-attached nut 10, the cylinder 13, having an angular socket and journaled to rotate in the outer end of the movable jaw, and loosely engaging the same to move therewith, and the right-and-left-hand screw-rods engaging the nuts, and having an angular head, 12, which slides in the cylinder as the movable jaw is adjusted, substantially as described.

2. The combination of the stationary and movable jaws, the nuts, the cylinder journaled to rotate in the outer end of the movable jaw and movable therewith, and provided with an angular socket, and the right-and-left-hand screw-rod having an angular head, 12, which slides longitudinally in the socket of the cylinder as the movable jaw is adjusted, substantially as described.

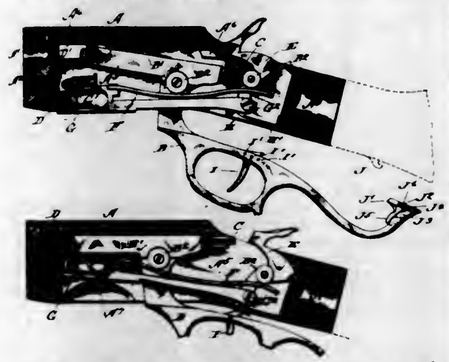
349,281. CAN-OPENER. GEORGE W. LYONS and JOHN SHELDON, Watertown, N. Y. Filed Aug. 3, 1886. (No model.)



Claim.—1. In a can-opener, the combination of a base-plate having means for clamping a can, and having an upright having its upper end bent inward over the center of the base-plate, and having an upwardly-projecting pivotal pin or bolt, with a lever having a series of perforations or bearings for fitting upon the pin, and provided with a handle at one end, and with a downwardly-projecting cutter at the other end, as and for the purpose shown and set forth.

2. In a can-opener, the combination of a base-plate formed with a diametrical recess having grooved sides and a groove in its bottom, a right-and-left-hand screw rigidly journaled with its smooth middle at the middle of the groove of the recess and having a handle or crank at one end, and clamping-blocks having angular inner faces and reduced portions fitting and sliding in the recess, and formed with screw-threaded perforations for the right-and-left-hand screw, as and for the purpose shown and set forth.

349,282. MAGAZINE FIRE-ARM. JOHN W. MULLINS, London, Ky. Filed June 11, 1886. (No model.)



Claim.—1. In a gun of the class described, a breech recessed, as at A^1, for the reception of the movable parts constituting the loading and firing mechanism, in combination with a guard arranged in said recess and provided with a firing-pin bar, a firing-pin arranged therein, a hammer pivoted within the recess, a loading-block extended rearwardly and pivoted within the recess, and a spring connected with the carrier and bearing against the hammer to operate the same, substantially as specified.

2. In a gun of the class described, a carrier pivoted in the breech for movement from the magazine to the firing-barrel, and provided with a spring extended over and beyond the pivot of the hammer, and having a bearing against the hammer to operate the same, substantially as specified.

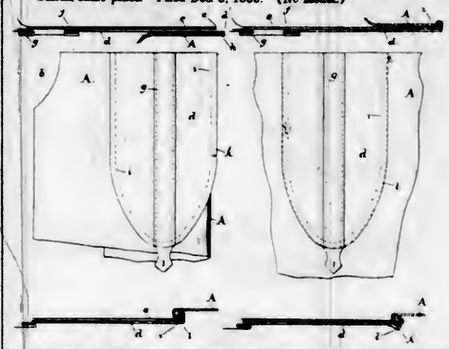
3. In a gun of the class described, the combination of a hammer, a mainspring extending above and back of its pivot and having a bearing upon said hammer, a carrier directly connected with the spring and pivoted for vertical movement, and a guard constructed and arranged to cause the carrier to perform its function, substantially as specified.

4. In a gun of the class described, the combination, with the breech A, recessed as at A^1, and provided with the slotted abutment A^2, of the guard B, provided with the firing-pin bar B', having thereon a shell-extractor and having arranged therein a firing-pin and a carrier, G, rearwardly extended and pivoted at G^2, and a spring, F, secured to the carrier in front of its pivot and extending over and back of its pivot, and having a bearing on the hammer to operate the same, substantially as specified.

5. The combination, with the guard B, the latch J', slotted for longitudinal movement, as at J^3, and mounted upon a pin, J^2, arranged in the slot J^3, formed in the guard, and having a spring, J^4, for outward pressure upon the latch, of a holder secured to the stock, substantially as specified.

6. The combination of the guard B, having the aperture I', and the trigger I, adapted to be pivoted at either of the apertures for the purpose of varying its leverage upon the dog or pawl H, substantially as specified.

349,283. METHOD OF SECURING BOSOMS TO SHIRT-BODIES. WILLIAM E. PAUL, Baltimore, Md., assignor of one-half to Walter D. Smith, same place. Filed Dec. 3, 1885. (No model.)



Claim.—1. The method of securing a bosom to a shirt-body, which consists in first laying the shirt-body A over and upon the linen front, stitching (h) the shirt-body around the edge c' of the bosom-opening c to the edge d' of the outer linen front, d; second, turning the shirt-body from the position it had during the first operation and laying it upon the bosom-backing e, and folding the edge d' of the outer linen front around the edges e' of the said bosom-backing, and passing a row of stitches, i, through the shirt-body, the bosom-backing, and the outer linen front, as set forth.

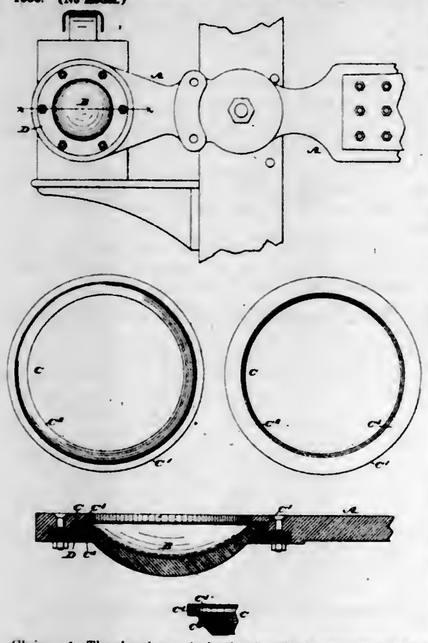
2. The method of securing a bosom to a shirt-body, which consists in first laying the shirt-body A over and upon the linen front, stitching (h) the shirt-body around the edge c' of the bosom-opening c to the edge d' of the outer linen front, d; second, turning the shirt-body from the position it had during the first operation and laying it upon the bosom-backing e, and folding the edge d' of the outer linen front around the edges e' of the said bosom-backing, and passing a row of stitches, i, through the shirt-body, the bosom-backing, and the outer linen front; and, third, turning the shirt-body from the position it had during the second operation and spreading it away from the bosom to its normal or finished position, and passing a row of stitches, l, through the outermost bosom edge, k, and the shirt-body, as set forth.

349,284. LOOM-SHUTTLE. CHARLES G. PETROLD, Lawrence, Mass., assignor of one-half to William D. Hartshorne, same place. Filed Feb 8, 1886. (No model.)



Claim.—The shuttle-body and pins d d' therein, the spring-held spindle-receiver pivoted in said shuttle-body between its said pins and having the notch 5 on its lower side, combined with the headed spindle having the notches e and 7, and an aligning surface, substantially as shown and described.

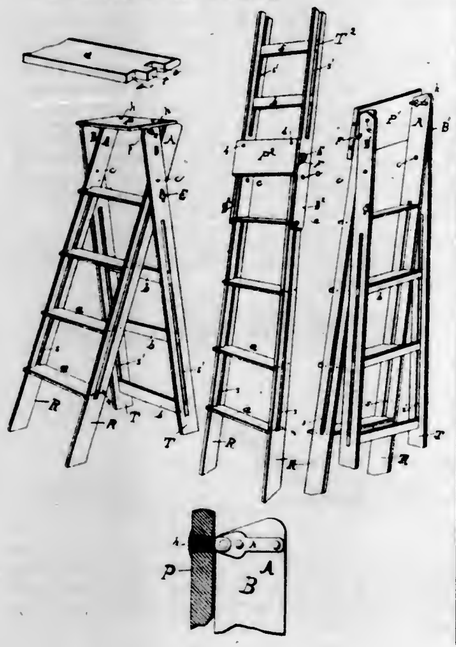
349,285. RAILROAD OR OTHER SIGNAL. HENRY S. PYRE, Philadelphia, Pa., assignor to Richard M. Popham, same place. Filed Oct. 8, 1885. (No model.)



Claim.—1. The signal-arm A, having lens B, in combination with pliable packing C, formed of the peripheral band C' and side flanges, C^2 C^3, and the annulus D, substantially as and for the purpose set forth.

2. Packing for the lens of a signal, formed of corrugated material of pliable nature, substantially as described.

349,286. EXTENSION STEP-LADDER. HIRAM B. SWARTZ, Wooster, Ohio. Filed Sept. 21, 1885. (No model.)

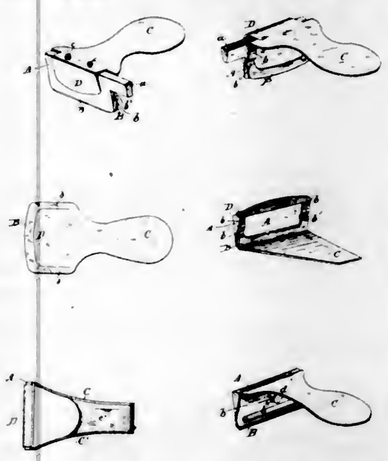


Claim.—1. In a folding ladder the standards of whose sections are pivoted together in the form of an X, the combination, with the extended upper ends of said sections, of a folding platform hinged above the pivots of the sections upon the summit of one section, so as to rest upon the summit of the other section when used as a step-ladder, substantially as shown and described.

2. In a folding ladder the standards of whose sections are pivoted together in the form of an X, the combination, with a folding platform hinged above the pivots of the sections upon the summit of one section, and adapted to rest upon the summit of the other section, as shown, of the fastening-book F and pin *e*, fitted to coact with each other, substantially as set forth, and for the purpose specified.

3. In a folding ladder the standards of whose sections are pivoted together below their summit, the combination, with said sections, of a folding platform hinged above the pivots of the sections upon the summit of the front section and extended at each end to form a rest or stop for the rear section when extended, fastening-book F, and stop E, substantially as set forth.

349,287. RAZOR-GUARD. JOSEPH R. TORREY, Worcester, Mass., assignor to J. R. Torrey Razor Company, same place. Filed May 3, 1886. (No model.)

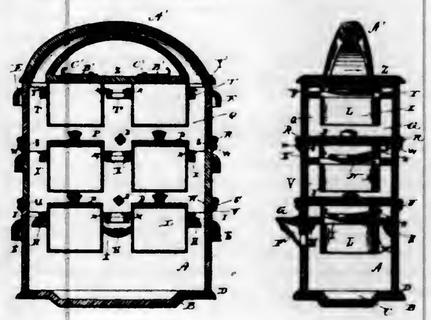


Claim.—1. The combination, with a razor-blade, of a guard having a handle adapted to be grasped by the user in shaving, and a spring-lip overlapping the top of the said blade and serving to hold the latter in place, said guard, handle, and spring-lip being all formed from one piece of sheet metal, substantially as set forth.

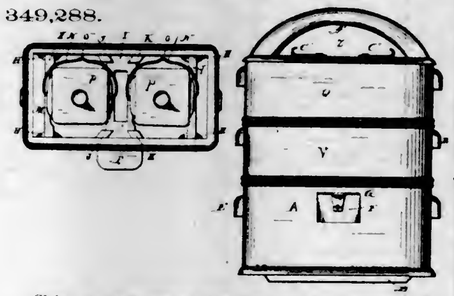
2. A razor-guard having an integral handle adapted to be grasped by the user in shaving, said handle extending from the top of said guard, substantially as set forth.

3. The combination, with the razor-blade, the spring-holding-lip, the guard, and the integral handle adapted to be grasped by the user in shaving, of the guard-connections provided with bends for separating the said guard and blade, substantially as set forth.

349,288. COOKING APPARATUS. JOSEPH VERNON, Avalon, Mo. Filed Mar. 22, 1886. (No model.)



349,288.



Claim.—1. In a steam-cooking apparatus, the combination of a steam-generating vessel containing the cooking-vessels and generating the steam, with a cover having a hollow handle, both ends of which open through the cover into said compartment, as and for the purpose shown and set forth.

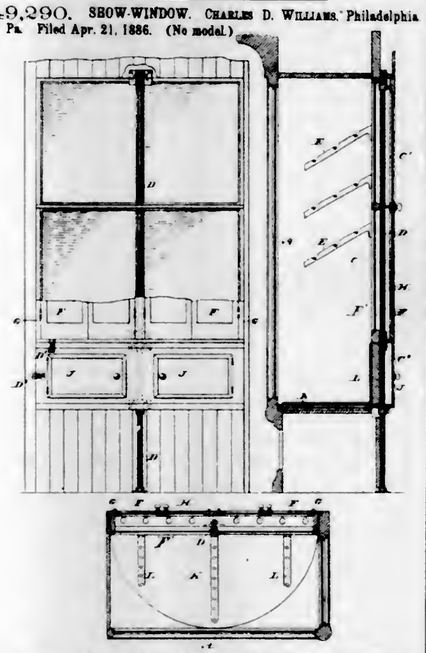
2. In a steam-cooking apparatus, the combination of a steam-generating vessel containing cooking-vessels having their upper edges flush with the upper edges of the compartment, with a cover fitting flat upon the edge of the compartment and upon the edges of the cooking-vessels and provided with apertures above each vessel having suitable covers, as and for the purpose shown and set forth.

3. In a steam-cooking apparatus, the combination of a steam-generating vessel provided with removable cross-pieces near the ends and at the middle, cooking-vessels provided with flanges upon their sides and resting side by side in said compartment, and a cover, substantially as and for the purpose set forth.

349,289. COMBINED FERTILIZER AND INSECTICIDE. PETER VIDSON, Elred, Ind., assignor of one-half to Ebenezer Elliott, same place. Filed Apr. 5, 1886. (Specimens.)

Claim.—The composition of matter herein described, and for the purposes named, the same consisting of the following ingredients, in about the same porportions named, to wit: cattle dung or excrement, horse dung or excrement, sheep dung or excrement, fowl dung or excrement, blue vitriol, saltpeter, slaked lime, leached ashes, Cayenne pepper, black pepper, ginger, mustard-seed, and garlic, prepared and combined substantially in the manner specified.

349,290. SHOW-WINDOW. CHARLES D. WILLIAMS, Philadelphia, Pa. Filed Apr. 21, 1886. (No model.)



Claim.—1. A rotatable show-window divided horizontally into vertical sections which may be rotated independently or as one, substantially as described.

2. A rotatable show-window formed of independent sections divided horizontally, having a common axis and connected by a catch or bolt, whereby they may be rotated as one, substantially as described.

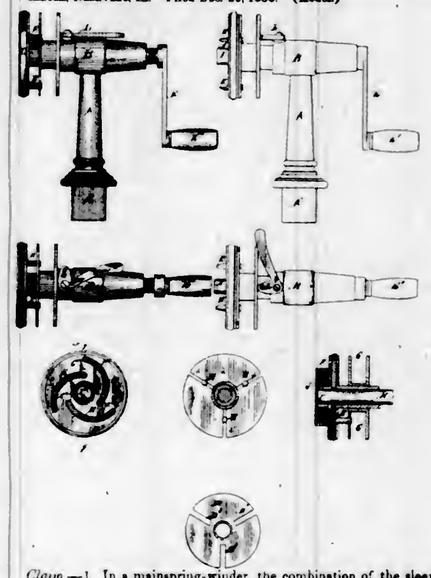
3. A rotatable show-window having a rear chamber, substantially as described.

4. A rotatable show-window formed of independent sections and provided with a catch or bolt for connecting the sections as one, substantially as described.

5. A bulk or other window, in combination with a rotatable show-window formed in sections, a catch or bolt for connecting the sections, and a catch or bolt for locking the show-window to the bulk-window, substantially as described.

6. A rotatable show-window formed of independent sections and a platform connected with one of the sections, substantially as described.

349,291. MAINSPRING-WINDER FOR WATCH-MAKERS. PETER ZIEGEL, Nashville, Ill. Filed Dec. 26, 1885. (Model.)

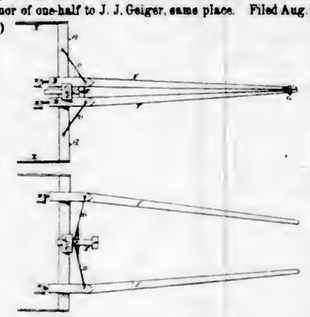


Claim.—1. In a mainspring-winder, the combination of the sleeve B, supported on a pedestal, A, having a foot, A', with vertical sides for the vise-grip, and the volute-head C, with slotted disks C', D, and *d*, and gage-pins E E E, arranged therein to hold the spring to a compass within the diameter of the spring-barrel, all substantially as described, and for the purpose set forth.

2. The combination of the volute cam-head, rotary shaft H, and pin J, with gage-pins E E E, arranged to hold the spring within the compass of that of the spring-barrel, all substantially as described, and for the purpose set forth.

3. The combination, in a mainspring-winder, of the pedestal, sleeve, and rotary crank-shaft with a volete cam-head and gage-pins working in slots in disks and arrranged to hold the spring within the compass of the diameter of the spring-barrel, all substantially as described, and for the purpose set forth.

349,292. COMBINED POLE AND SHAFTS. IRVING T. WOOD, Clyde, Ohio, assignor of one-half to J. J. Geiger, same place. Filed Aug. 5, 1886. (No model.)

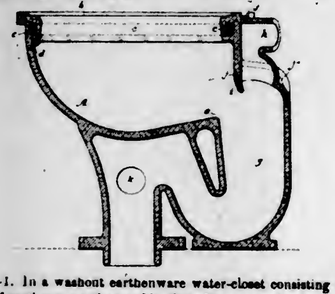


Claim.—1. The combination of the bar A, the shafts secured at their rear ends to the slides B, the set-screws H, the braces D, the casting C, and the slide E, substantially as shown.

2. The combination of the casting C, secured to the bar A at its center, the adjustable slide E, and a clamping-screw for holding it in position, the slide E being adapted to have the inner ends of the braces connected to it, substantially as described.

3. The combination of the bar A, the shafts F, having their rear ends so shaped as to bear against opposite sides of the casting C, the braces D, which are connected at their inner ends to the shafts and to the bar A at their outer ones, and the slide E, the slide E being made adjustable and adapted to have the double-tree connected thereto, substantially as set forth.

349,293. WATER-CLOSET. WILLIAM H. UMPLEBY, Trenton, N. J. Filed Jan. 9, 1886. (No model.)



Claim.—1. In a washout earthenware water-closet consisting of a single piece of earthenware, the combination of a concave bowl or basin, a tubular rim, openings through the rim to discharge the water into the bowl, a front central slot in the rim, a central connection for the supply-pipe over or opposite the discharge-pipe, a dam at back of the bottom of the bowl, and a discharge-pipe at the back of the closet, with curved ventilating pipe or pipes connected with the top or side of the discharge-pipe, each ventilating-pipe having its mouth or opening pointing away from the basin, and a shielding plate or lip projecting downward for a short distance from the back wall of the bowl to catch any water or other matter thrown back from the wall of the discharge-pipe, and to further protect the ventilating-pipes, substantially as and for the purposes set forth.

2. In a washout water-closet, the combination of a concave bowl of any suitable shape or form, a tubular rim, perforations in the rim to discharge the water into the bowl, a front central slot in the rim, a central connection for the supply-pipe over or opposite the discharge-pipe, a dam at the back of the bottom of the bowl, and a discharge-pipe at the back of the closet, with curved ventilating pipe or pipes at the top or side of the discharge-pipe, each ventilating-pipe having its mouth or opening pointing away from the bowl, and a shielding plate or lip projecting downward for a short distance from the back wall of the bowl, to catch any water or other matter thrown back from the wall of the discharge-pipe, and to further protect the ventilating-pipes, substantially as and for the purposes set forth.

3. In a washout water-closet, a ventilating pipe or pipes connected with the upper part of the discharge-pipe, each ventilating-pipe having its mouth turned in a direction away from the bowl of the closet, substantially as and for the purposes set forth.

4. In a washout water-closet, a ventilating pipe or pipes connected with the upper part of the discharge-pipe, each ventilating-pipe having its mouth turned away from the bowl of the closet, in combination with a shielding plate or lip projecting downward for a short distance from the wall of the bowl next to the discharge-pipe, so as to catch any water or other matter thrown back from the wall of the discharge-pipe, and to further protect the ventilating pipe or pipes, substantially as and for the purposes set forth.

5. In a washout water-closet, a protecting plate or lip projecting down from the wall of the bowl next to the discharge-pipe, so as to catch any water or other matter thrown back from the wall of the discharge-pipe, substantially as and for the purposes set forth.

PHOTO-LITH NORRIS PETERS WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE WHITELEY, BAYLEY, AND DYER.

***Decided July* 31, 1886.**

To entitle a party to a reissue of letters patent the following facts must exist and be established:

1. The old patent must be inoperative and invalid.
2. It must be so inoperative and invalid because of defective or insufficient specification or by reason of the patentee having claimed more than he had a right to claim as new.
3. The error which so rendered the old patent inoperative or invalid must have arisen by inadvertence, accident, or mistake.
4. It must have occurred without any fraudulent or deceptive intention on the part of applicant.
5. *All applicants* for patent are required to make oath to the following facts: (1) That applicant, if the inventor, verily believes himself to be the original and first inventor of the thing which he seeks to patent; (2) that he does not know and does not believe that the same was ever before known or used; (3) he shall state of what country he is a citizen and where he resides.
6. Applications for reissue must be accompanied by a statement on oath in which it shall be shown: (1) That applicant verily believes his original patent to be inoperative or invalid; (2) the reason why so inoperative or invalid; (3) where inoperative or invalid by reason of defective or insufficient specification, specify particularly such defect or insufficiency; (4) where the trouble has arisen because applicant has claimed too much he must state distinctly the part or parts so improperly claimed; (5) that the error which renders the old patent inoperative arose from inadvertence, accident, or mistake; (6) specify particularly how such errors arose or occurred; (7) that such errors arose with out any fraudulent or deceptive intention on the part of applicant.

KNOTTING DEVICE FOR GRAIN-BINDERS.

PETITION.

Reissue application filed January 28, 1886.

Mr. R. D. O. Smith for the applicants.

MONTGOMERY, *Commissioner:*

On the 5th of January, 1886, patent issued to these applicants on an "improvement in knotting device for grain-binders." January 28 applicants came to the Office, surrendered their patent, and asked for a reissue.

The reissue application consists of the following papers, all of which are fastened together in the usual way and in the following order:

First, the petition for reissue; *second*, the usual power of attorney; *third*, a "statement," not verified, in which the "insufficiencies, inaccuracies, and defects" in their patent are specified, and it is declared that the—

defects resulted from the patentees claiming as their own invention certain combinations which they afterward found to have been used prior to their application for letters patent, and which were therefore not new, and to other defects and inaccuracies which resulted from a misconception on the part of their attorney of their meaning and intent; [that they] are now aware that the combination of parts described in the fourth claim of their original application was not new, and they therefore omit the same in their amended specification.

fourth, the specification and claims; and, *lastly*, a new "statement on oath," in words and figures as follows:

State of Ohio, county of Clark, ss:

WILLIAM N. WHITELEY, WILLIAM BAYLEY, and SAMUEL DYER, the above-named petitioners, being duly sworn, depose and say that they verily believe that their aforesaid letters patent are inoperative and invalid by reason of a defective and insufficient specification, and in which they claimed as their own invention or discovery more than they had a right to claim as new, and that the error arose by inadvertence and mistake, without any fraudulent or deceptive intent; that they are the sole inventors of said letters patent, and that they verily believe themselves to be the first, original, and joint inventors of the improvements set forth and claimed in this amended specification, and do not believe that the same was ever before known or used.

WILLIAM N. WHITELEY.
WILLIAM BAYLEY.
SAMUEL DYER.

Sworn to and subscribed before me this 18th day of January, 1886.

FRANK B. FURNISS,
Notary Public, Clark County, Ohio.

Each of these papers—the petition, the power of attorney, the "statement," (not verified,) the specification and claims, and the statement on oath—is signed separately by each and all of the applicants, and such "statement on oath" is signed and duly sworn to by all of them.

On the 19th of February applicants were advised, among other things, by Office letter, that the "statement on oath" was insufficient under Rule 86. On the following day applicants filed an argument in which they insisted that such "statement on oath" was quoted literally from form 19 in the "Appendix of Forms" accompanying the Patent Office Rules of Practice, and that in their statement, "the accompanying statement," (the unsworn statement,) they (applicants) had pointed out and alleged specifically all the defects, errors, and insufficiencies, how the same arose, &c., and, in short, had "fully complied with every requirement."

On the 26th of February applicants again were advised by Office letter that their "statement on oath" was insufficient, and that a new one must be furnished.

On the following day applicants filed another argument, and on the 3d of March they were again notified by letter that another "statement on oath" was insisted upon.

March 5th another argument was presented by applicants, and three days thereafter another Office letter was sent them in which the examiner attempted to point out the particulars in which the "statement on oath" was insufficient, and which letter repeated his demand for a new statement on oath. Thereupon and on the 1st of April applicants came to the Commissioner with a petition in which they asked, in substance, to be relieved from such requirement, and that the principal examiner be directed to proceed with the case upon its merits, and without requiring the statement on oath.

The question under consideration is not a difficult one. The statute, section 4916, provides for the reissue of letters patent in certain cases. To entitle a party to such reissue the following facts must exist and be established:

First, the old patent must be inoperative or invalid; *second*, it must be so inoperative or invalid from one of two reasons, the first of which is defective or insufficient specification, and the second of which is by reason of the patentee claiming more than he had a right to claim as new; *third*, the error which so rendered the old patent inoperative or invalid must have arisen by inadvertence, accident, or mistake; *fourth*, it must have occurred without any fraudulent or deceptive intention on the part of the applicant.

When these facts and circumstances all exist and are established by proper presentation, applicant is entitled, on surrendering the old patent and on the payment of the usual fee, to have his reissue patent issued.

Passing to the rules, we find that Rule 45 requires all applicants for patents, whether it be an original or reissue application, to make oath to the following facts:

First, that applicant (if the inventor) verily believes himself to be the original and first inventor of the thing which he seeks to patent; *second*, that he does not know and does not believe that the same was ever before known or used; *third*, he shall state of what country he is a citizen and where he resides. Passing now to Rule 86, it is found that this rule requires applications for reissue to be accompanied by a statement on oath, in which it shall be shown, *fourth*, that applicant verily believes his original patent to be inoperative or invalid; *fifth*, he shall state the reason why it is so inoperative or invalid, (*i. e.*, whether because of a defective or insufficient specification, or because he has claimed as his own invention more than he was entitled to claim;) *sixth*, where the trouble has arisen—that is, where the patent is claimed to be inoperative or invalid by reason of a defective or insufficient specification—applicant must specify particularly such defect or insufficiency; *seventh*, where the trouble has arisen because applicant has claimed too much, he must state distinctly the part or parts so "improperly claimed;" *eighth*, that the error which renders the old patent invalid arose from inadvertence, accident, or mistake; *ninth*, he must specify particularly how such errors arose or occurred; *tenth*, that said errors arose without any fraudulent or deceptive intention on the part of applicant.

Now these rules—45 and 86—require these ten several allegations to be made upon oath. Let us see how many of them have been observed in this case. Referring to the statement on oath above quoted, I find numbers 1, 2, 4, 5, 8, and 10 fairly stated in the oath. The 3d, which should be an allegation as to the residence and citizenship of applicants; the 6th, which should be a particular specification of the defects or insufficiencies which render the patent inoperative or invalid; the 7th, which should be a distinct statement, where too much is claimed, of the part or parts so improperly claimed; and the 9th, which should specifically point out how the errors which render the patent inoperative or invalid arose, are each and all wholly wanting. It follows, therefore, that the new statement on oath must be supplied. The unverified statement, the "accompanying statement," as it is termed, the volunteered statement, which possibly supplies all the missing averments, cannot avail, as it is something unknown to the statute and rules, and is not sworn to.

Now it is but just to applicants to state that the form in the Appendix to which they call attention does exist as they state, with only one exception: In the statement on oath accompanying the application, instead of alleging that applicants are still the owners of the patent, they aver themselves to be the inventors of the patent, which of course is an error. This precedent, which was followed by applicants in this case, seems to have been prepared several years ago, since which time several amendments of the rules have been made without amending the precedent to conform thereto.

The rules which have been discussed are mandatory, while the form is simply *suggested*.

A new affidavit which shall supply the omissions pointed out must be furnished.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

HOE *et al.* v. KNAP *et al.*

Decided March 22, 1886.

1. PRINTING-MACHINES.
   Letters Patent No. 269,159, of December 12, 1882, to Luther C. Crowell, for a sheet-delivering mechanism for printing-machines, construed, sustained as to the sixth claim, and *held* infringed.
2. So far as appeared from the proof in this case, Crowell was the first to superimpose the sheets as they follow each other from a web printing-press, by causing them to travel in different pathways of equal lengths and to stop or retard the advance sheet until the following sheet or sheets is or are brought abreast of it, when they move at a common rate of speed to a point where they come together, and he is therefore entitled to protection against the use of equivalents by others.
3. RICHARD M. HOE PATENT, NO. 211,848, FEBRUARY 4, 1879—FOLDING-MACHINES.
   Infringement was charged of the fifth claim of this patent, which was for "the combination of brake-arms, rest-blocks, and supporting carrying-tapes, substantially as described." *Held*, the true construction of this claim required that the folding blade or rollers described by the patent be read into this claim, and that under this construction the defendants did not infringe.
4. The defendants did not use the stopping or retarding device of the patent for the purpose it described, and they had the same right as patentee to take another element from the older art and use it in combination with the elements he described for another purpose in their machines.
5. VOID REISSUE.
   The first claim of the Hoe & Tucker patent (Reissue No. 8,801, of July 15, 1879) printing-machines is void because an unwarranted enlargement of the original patent, which was granted December 1, 1868, and of the first reissue, which was granted May 30, 1871.
6. The second claim of the original of the Hoe & Tucker reissue sued on, and the corresponding claim of the first reissue, included the flies or piling mechanism described, but the first claim of the reissue sued on does not, and it is therefore void.
7. PATENTABILITY.
   In view of the prior state of the art, the court doubted whether this patent was not void for want of patentable novelty.
8. PRACTICE—INJUNCTION.
   Where the owner of a patent had never made, used, or sold to others to be used, the invention covered by the patent, an injunction in the interlocutory decree against its use by an infringer was refused on his giving bond to secure any damages which might be awarded on final hearing.

9. PATENTEE MUST USE OR ELSE PERMIT OTHERS TO USE.
   A patentee is bound either to use the patent himself or allow others to use it on reasonable and equitable terms.

Messrs. Offield & Towle and *Messrs. Munson & Philipp* for the complainants, (*B. F. Thurston* of counsel.)

Messrs. West & Bond for the defendants.

BLODGETT, *J.*:

Complainants by this bill seek an injunction and accounting for the alleged infringement by defendants of three patents owned by complainants—the first being Patent No. 269,159, granted December 12, 1882, to Luther C. Crowell, for a sheet-delivering mechanism for printing-machines; the second being Patent No. 211,848, granted to Richard M. Hoe, on February 4, 1879, for an improvement in paper-folding machines, and the third being Reissued Patent No. 8,801, granted to complainants, as assignees of Richard M. Hoe and Stephen D. Tucker, July 15, 1879, for an improvement in printing-machines, the original patent having been granted December 1, 1868. All these patents, it is averred in the bill, have been duly assigned to complainants, and no question is made as to the title to either patent.

The Crowell patent is for a device whereby the sheets issuing successively from a web-printing mechanism are brought together so that one may overlie the other. In modern newspaper-printing it is found desirable to make a paper of eight or more pages, and as the sheets of four pages each pass successively from the printing-rollers the problem is to cause one or more of the sheets following the first to overtake and be laid upon the first, so that when they reach the folding mechanism they will be folded together as one product. In the specification it is said:

> The invention consists, broadly, in causing the rear sheet or sheets during some portion of its or their travel through the delivery mechanism to move at a greater speed than the advance sheet, so that the sheets will be caused to overlap each other and eventually be imposed upon one another in proper register.

This inventor was not the first who superposed one sheet upon another before they reached the folder, as prior inventors had accomplished the same result, one device being such an arrangement of tapes and rollers as to cause the first sheet to travel by a longer pathway, while the following sheet took a short pathway and overtook the first at the point where the respective pathways came together. Another device caused the first sheet to be stopped and held upon a cylinder until one or more following sheets had been brought up and placed upon the first, when the cylinder rolled forward and delivered the sheets one upon the top of the other. The distinguishing feature of the Crowell device is that the sheets are conducted by pathways of equal length, and that after the first sheet has passed into its separate pathway it is either held stationary or its motion retarded until the following sheet has got abreast of it in its own pathway, when the holding or retarding device releases the first sheet and they move on together to the point where their pathways unite, when the second sheet is brought on the top of or superposed upon the first sheet, from whence they proceed to the folder, where they are folded together into a paper of eight pages or more, according to the number of sheets brought together. The elements of this device are two or more pathways of equal length formed of tapes and rollers properly arranged for that purpose; a switch located at the entrance to these pathways, automatically operated so as to direct the first sheet in the pathway where it is to be detained or retarded, and the following sheet when but two are to be brought together into the pathway, where it will run without obstruction, and a retarding device which consists of two rollers with portions of their surfaces cut away, so arranged that as the first sheet passes between them it will be held still or its motion slowed until the following sheet in the other pathway arrives abreast of it, when the first sheet is released and the two move at a common speed to a point where the pathways unite.

The patent contains seven claims, but infringement is charged only as to the sixth, which is as follows:

> 6. The combination, with a series of pathways of equal lengths, of means for guiding successive sheets into different pathways, and means for retarding the speed of the advance sheet until the following sheet is abreast thereof, substantially as described.

The defenses as to this patent are (1) that the patent is void for want of novelty; (2) that Crowell is limited by the prior art to the special devices shown in his patent, and the defendants do not use these devices; (3) that defendants do not infringe.

As to the first defense, I think the only conclusion from the proof in the record is that Crowell was the first to superpose the sheets as they follow each other from a web-printing press by causing them to travel in different pathways of equal lengths and stop or retard the advance sheet until the following sheet or sheets is or are brought abreast of it, and they then move at a common rate of speed to a point where they come together. Other machines had carried sheets in pathways of unequal length, whereby the advance sheet, traveling by a longer route, reached the point where the two pathways met at the same time with the following sheet, which took a short road, whereby one was laid upon the other; but none had accomplished the work of superimposition by sending the sheets which were to be laid together on pathways of equal lengths before Crowell's invention. It is true that machines older than Crowell's device, and used for various purposes connected with the work of printing and delivering printed sheets, directed the sheets in different channels or pathways by means of switches, and the record also shows older devices for slowing or stopping the movement of sheets; but none of them shows an organization of parts like Crowell's to do the work of superposing by the same means, and I think there can be no doubt that it required inventive genius to so arrange these parts as to perform the desired work at the time Crowell entered the field. After he had produced his combination of coacting parts it may be very easy to find all these parts or elements separate in the older art, and perhaps doing in some older machines just what each separate element of Crowell's combination does in his machine—that is, switches directing the sheets alternately into different pathways, and brakes or brake-rollers holding back or retarding the movement of a sheet in its pathway, because Crowell did not invent switches nor pathways for sheets formed by rollers and tapes, nor retarding devices, but he brought them together to co-operate in producing a result which had not been produced before by the same elements, and it is no answer to his claim as an inventor to say that the same result had been produced before by some of the elements of his combination acting with others, but in a substantially different way.

The two parts of the second point of defense may well be considered together. Defendants contend that

their machines do not contain two pathways, and hence that they do not infringe. Their machine shows an organization of parts whereby the sheets as they leave the common pathway which brings them from the printing-rollers are directed by the operation of what is called a "dividing-finger" alternately "over and under" a small roller and plate or bar. This roller and bar keep the upper tapes lifted from the lower, and aid the tapes in carrying the sheets over the roller and bar, and as the roller does not quite touch the lower tapes it does not interfere with or retard the sheets passing under it. A rock-shaft is provided with fingers which are made to fit against the bar or plate to hold the rear end of the advance sheets until the following sheet has caught up with it, and at this point to release the detained sheet and allow the two to move on together. This description is given by one of the defendants, Mr. Kahler, of the construction and mode of operation of defendants' machine. What he calls the "dividing-fingers," which are located at the entrance to this pathway, are nothing more nor less than a switch substantially identical in its structure and operation with Crowell's switch 16. Its function is to "direct the advancing sheets over and under the roller and plate or bar." This roller divides Mr. Kahler's pathway into two pathways, the sheets which go over the roller and bar take one pathway and those which go under the roller and bar take the other pathway. It is true the pathways are closer together than those shown in Crowell's arrangement, and are formed with a less number of tapes and rollers; but they are separate ways nevertheless, and are intended to and do enable the following sheet to come alongside of or abreast of the advance sheet, which must be done by one sheet being deflected into a different pathway from that taken by the other. The diameter of the roller and bar measures the distance between those pathways; one sheet goes over and the other under the roller. When the tail or rear end of the advance sheet reaches the bar or plate, it is caught between the fingers of the rock-shaft and the plate and held there until the following sheet has passed under the roller to a point directly underneath the first, when the first sheet is released and the two proceed together, their paths uniting immediately beyond the bar which has separated them. The rock-shaft, with its fingers arranged to be brought down upon the bar or plates so as to catch the advance sheet and hold it until the following sheet overtakes it, is, as appears by the proof, a known equivalent for the cut-away rollers used in the Crowell patent. Indeed, a rock-shaft with fingers is but a roller with all its periphery cut away except the fingers, and there can be no doubt that the defendants' rock-shaft does in the defendants' machine just what is done by the cut-away rollers of the Crowell machine, and no more. So, too, the roller which divides the pathway of the two sheets, and over and under which the switch directs the sheets as they reach it, is an adjunct to and forms a part of the pathway in place of some of the tapes shown in the Crowell machine; but this does not make any substantial difference, because a roller for that purpose only takes the place of other devices shown by Crowell. It therefore seems to me that the defendants' machine embodies the entire elements of the Crowell device—the switch, the two pathways of equal lengths, and the mechanism for detaining the advance sheet until the following sheet in its own separate pathway has been brought alongside or abreast of it—and these respective elements perform the same function, and no other, in the defendants' machine that are performed by the corresponding elements in the Crowell device. It therefore seems to me that the allegation of infringement is fully sustained by the defendants' own description of the structure and mode of operation of their machine; nor do I find, in a large mass of prior patents and devices shown in the record, any device or combination which should limit the Crowell patent to the special devices shown therein—that is, that he must be confined to just such a switch and just such a detaining device as he shows, and is not protected against known equivalents for those parts. On the contrary, I conclude, as I have already said, that he was the first to combine these elements and produce the given result, and is therefore entitled to protection against the use of equivalents by others. This being a combination of old devices for the purpose of producing a given result, we must look from the claim back into the description of the patent as found in the specification and drawings for the elements of the combination which produce the result, and a reference to this description shows clearly the elements for guiding the successive sheets into different pathways and the means for retarding the advance sheets which the inventor intended to employ, and also several variations to produce modified results. In other words, what is covered by the claim is made entirely clear by the specification and drawings, and this claim of the patent is amply sufficient, under the rule laid down in *Silsby* v. *Foote* (14 How., 218) and *Fay* v. *Cordesman*, (109 U. S., 408; S. C. 3 Sup. Ct. Rep., 236.) It is urged, however, that the claim as stated does not cover the result—that is, the superposing of one sheet upon another—as it leaves the sheets to go where they may after the second has been brought alongside of the first. But it seems to me a sufficient answer to this part of the argument to say that both the Crowell and the defendants' machines are organized for the same purpose—to bring the sheets abreast of each other for the purpose of being superposed. If defendants after bringing their sheets together did not superpose them, and did not bring them abreast of each other for that purpose, but for some other purpose, and sent them off in different ways, there might be much more force for the defendants in this branch of the argument; but they do what Crowell does and for the same purpose, and, as I am compelled to find, with his identical means.

The Hoe patent (No. 211,848) is for a folding-machine. The inventor says:

> My invention relates to folding-machines supplied at a high rate of speed with sheets to be folded, and particularly to that class of folding-machines adapted to work in conjunction with a perfected printing-press, which prints from a web of paper, cuts it into sheets of proper size, and delivers them as rapidly as cut and printed. Where these sheets pass directly into a folding-machine they move with such velocity that great difficulty is experienced in arresting them in such relation to the folding mechanism as to be folded accurately upon a given line without buckling.
>
> The object of my invention is to overcome this difficulty; and it consists in sheet-controlling mechanism, by which the movement of the sheet with respect to the folding mechanism is so governed as to secure its position in relation to the folding mechanism at the time when said folding mechanism operates to double it, as will be more fully hereinafter described and claimed.

He then describes a rest-block placed just over the tapes under which the sheet passes, located directly over the folding rollers, and the rock-shaft with brake-arms, and the vibrating fingers attached, arranged so as to be brought to bear against the rest-blocks by a movement of the shaft; and as the sheet is brought rapidly under the tapes it is caught at the rear end by the action of the rock-shaft between the brake-arms and the rest-blocks, and its progress either retarded or wholly stopped, whereby the buckling or wrinkling of the sheet by bringing its forward end at a high rate of speed against the stop is prevented.

The defendants are charged with infringing the fifth claim of this patent, which is as follows:

> 5. The combination of brake-arms, rest-blocks, and supporting carrying-tapes, substantially as described.

Without taking time to analyze and discuss the large amount of testimony, both of experts and as to the prior art, which has been put into the record, I am of opinion that the true construction of this claim requires that the brake-arms, rest-plates, and carrying-tapes are to co-operate with the folding blades or rollers—in other words, that the folding blades and rollers are to be read into the claim; and under this construction the defendants do not infringe, as the only place where they stop or retain their sheets is in the double pathway, for the purpose of superimposition. This stopping or retarding device in this patent is not used by defendants in their machine for the same purpose as used by Hoe in his patent; and as stopping or slowing devices by means of brake-arms and rest-blocks, and by nipping-rollers, was old in the art at the time of the Hoe patent, and he took and used it as one of the elements of his combination, the defendants had the same right to take it from the older art, which had become public property, and use it for any other purpose in their machines. The Hoe and Tucker patent (No. 8,801) is for a device where flat single sheets are fed into a cylinder printing-press from two tables, and after being printed are conducted by means of a switch into different pathways, so that the sheets are delivered alternately from opposite ends of the machine. At the time the original patent was granted, in December, 1868, a difficulty had been encountered by the fast presses then in use in delivering the printed sheets as rapidly as they could be printed, and the purpose of this device was to furnish two flies to the press, so as to divide the work of laying off the printed sheet between the two flies. In order to supply the two flies, two pathways or routes were arranged, with tapes and rollers, and the stream of sheets, as they issued from the printing-rollers, was divided, each alternate sheet going to one and the following going to the other end of the machine, and to the flies at those ends. The patentees describe the device and its purpose in their specifications as follows:

> This invention consists, mainly, in a mechanism whereby sheets are successively carried onward for delivery, with which co-operate automatically-moved switches, that operate to direct alternate sheets conveyed within their range of action into separate conducting-channels. It also embraces the combination, with said vibrating switches, of cylinders constructed of separate pulleys placed on a common shaft.

They then described the construction of parts of the mechanism and the operation of the printing devices, and say:

> In the manner above described the sheets of paper are taken alternately from the feeding-tables by the same feeding-in mechanism, so that the machinery can be carried at the desired velocity to print sheets on both sides as fast as the said sheets can be presented by operatives from the two feeding-tables 20 30.
>
> * * * * *
>
> The sheets of paper will be delivered from such a printing-machine too rapidly to be laid in one pile by the mechanism usually employed for that purpose, and known as the "fly," as such mechanism has been heretofore applied.

They then proceed to describe the means by which the sheets as printed are alternately guided into different channels, so as to deliver to flies located at each end of the mechanism, and say:

> In this way the sheets of paper are taken and alternately delivered in opposite directions, so as to be separated, which sheets may be delivered in two piles alternately on one and then on the other side, either by two separate fly-frames, or, as the equivalent thereof, a double acting fly-frame.

The reissued patent contains five claims, of which only the first is alleged to be infringed, which is as follows:

> 1. The combination, with a sheet-conducting mechanism, whereby sheets are successively carried onward for delivery, of automatically-moved switches that operate to separate alternate sheets and direct them into separate conveying-channels, all substantially as described.

The complainants insist that the device covered by this claim is found in the defendants' machine—that is, that defendants' machine shows the sheet-conducting mechanism by which the sheets are successively carried forward for delivery, and automatic switches that direct the alternate sheets into separate channels.

Several grounds of defense are interposed by the defendants; but from the view which I take of this patent I do not deem it necessary to consider them at all. The first defense is that this claim of the reissued patent is void, because it is not found in the original patent, but is an enlarged and different claim from any found in that patent. It is contended by the complainants that the claim now under consideration is substantially the same as the second claim of the original patent. This old second claim reads as follows:

> 2. Separating the sheets by mechanism, substantially as described, so that they would be delivered in files, substantially as set forth and specified.

This patent was reissued May 30, 1871, as Reissue No. 4,400, and in that reissue the second claim was stated as follows:

> 2. Separating or changing the direction of printed sheets of paper, so that they may be automatically piled in two or more piles, or in more than one pile, by mechanism constructed and operating substantially as described.

The apparent object of this reissue was to correct, so far as this claim was concerned, a clerical error in using the word "files" instead of "piles." It will be seen that in the second claim of both the original and the first reissue the claim is for something more than changing the direction of the printed sheets of paper; but they must be changed so that they may be automatically piled in two or more piles, which provision necessarily required the claim to include the flies or other devices for piling the sheets at the ends of the machine. By the reissue now under consideration, which was made July 15, 1879, the whole idea of piling, or any other purpose in which the flies or any other device is used, is left out, and the claim covers simply a sheet-conducting mechanism in combination with automatically-moving switches that operate to separate alternate sheets and direct them into separate conveying-channels. The proof shows that this patent was applied for in June, 1864, at which time folding devices in connection with fast printing-presses were little used, if known; but the printed sheets were delivered from the flies to be folded by hand. In the progress of the improvements upon printing mechanism these folding devices became an essential attachment to all fast-operating presses, and the evident

purpose of the reissue of 1879 was to make this first claim cover any device by which the sheets were directed by automatic switches into different channels, whether for the purpose of being delivered to flies or to be carried to the folding mechanism. At all events, it seems very clear to me that this reissue is an enlargement of the original claim, and even of the second reissue, because I think there can be no doubt that the second claim of the original and first reissue included the flies or piling mechanism. I am therefore of opinion that this reissue is void under the rules of the Supreme Court in *Miller* v. *Bridgeport Brass Co.*, (104 U. S., 350;) *Mahn* v. *Harwood*, (112 U. S., 354; S. C. 5 Sup. Ct. Rep., 174;) *Wollensak* v. *Reiher*, (22 Fed. Rep., 651.)

It may, also, I think, be well doubted whether this patent is not void for want of novelty. The proof shows, and the claim in question in fact admits, that automatically-moved switches for the purpose of directing sheets into different channels were old at the date of this patent, and that a switch organized and arranged to change the direction of the sheets of paper alternately as they came from the printing-press into different channels could not be made the subject of a patent in combination with those channels, except where some specific result or purpose was obtained thereby. The switch might operate to drop the sheets in different piles as they fell from the press, or throw them into chutes, or even into different channels; but unless it did something more than merely throw them into different channels for the purpose of being conveyed away or delivered at different points it would hardly seem to be a patentable arrangement, in view of the state of the art. I therefore conclude that the defendants infringe the sixth claim of the Crowell patent, as alleged in the bill, and that they do not infringe the Hoe Patent No. 211,848, and that the first claim of the Hoe and Tucker Reissue No. 8,801 is void.

The proof on the application for a preliminary injunction was to the effect that the complainant, the owner of this patent, had never used it, and never constructed a printing-press with the Crowell device. The argument is that the owner of this patent was a very large manufacturer of printing-presses; that they did not manufacture and keep printing-presses in stock, but only make them to order; and that they have received no order as yet to make a press containing the Crowell device. The question therefore arises whether the court will grant an injunction in favor of the owner of a patent who has not, after a reasonable time, put it into use, against another who is using it. I think, under a patent which gives a patentee a monopoly, he is bound either to use the patent himself or allow others to use it on reasonable or equitable terms, and as I refused an injunction on the motion before the hearing, I shall refuse an injunction in the interlocutory decree, and allow the defendants to continue to use the patent on their giving bond as they have heretofore.

A decree may be prepared accordingly.

U. S. Circuit Court—Eastern District of Missouri.

HORNE v. HOYLE.

Decided March 24, 1886.

SALE—ACTION—INFRINGEMENT.

The fact that the purchaser of a patented machine has been sued as an infringer by third parties, and put to expense in making defenses, is no defense to a suit by the vendor on the contract of sale, even where that contract provides that indemnity bonds shall be given the vendee, and none have been furnished.

AT LAW. Suit for damages for breach of contract. Motion to strike out part of answer.

The allegations of the answer as to the guaranty, and contract to give an indemnity bond, referred to in the opinion of the court, are as follows:

Further answering herein, this defendant says that, in and by the terms of said contract sued on in this action, it is provided and stipulated that the plaintiff herein should personally guaranty the validity of the patents under which said machine was made, and that he would furnish to this defendant indemnity bonds to save him harmless in the event of any litigation from the use of said Excelsior Electric Light plant, which plaintiff * * * agreed to furnish to this defendant under the terms of said contract; and this defendant says that plaintiff herein * * has wholly failed * * * to furnish to this defendant any indemnity bond or bonds.

The other material facts are sufficiently stated in the opinion of the court.

Mr. George D. Reynolds for the plaintiff.

Messrs. Dyer, Lee & Ellis for the defendant.

BREWER, *J.* (*orally*):

In the case of *Horne* against *Hoyle* there is a motion to strike out parts of the answer. The petition alleges a contract to place an electric plant in a building in this city, the performance of the contract, non-payment of part of the purchase money, and an assignment of the contract to the plaintiff. The answer in one defense avers that it was a part of the contract that the contractor should furnish an indemnifying bond, guarantying against all infringements, and that that bond was not given. Of course that states a perfect defense. It further alleges that since the putting of the plant in the building two suits have been commenced for infringement, and are pending, and that the defendant has been put to the expense of employing counsel to defend those suits. The motion is to strike out this last defense. Obviously, it should be sustained. If no bond was given, there is a perfect defense. If there was no stipulation for a bond, then it is immaterial whether defendant has been sued or not. If a bond was given, the remedy of the defendant is on that bond. *Non constat*, that neither the contractor nor the plaintiff were parties to that bond or liable on it, and the averment presents simply an immaterial matter for traverse and testimony.

The motion will be sustained.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 36—No. 12. TUESDAY, SEPTEMBER 21, 1886. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

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The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth $10 00

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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Issue of September 21, 1886.

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Trade-Marks	16	No. 13,671 to No. 13,686, inclusive.
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TO CITIZENS OF THE UNITED STATES.

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Alabama	2	....	Nebraska	2	....
Arizona Territory	....	....	Nevada	....	....
Arkansas	2	....	New Hampshire	4	....
California	11	....	New Jersey	11	....
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Delaware	....	....	Ohio	31	....
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Georgia	2	....	Rhode Island	2	....
Idaho Territory	....	....	South Carolina	....	....
Illinois	36	....	Tennessee	2	1
Indiana	21	....	Texas	6	1
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Louisiana	3	....	West Virginia	1	....
Maine	5	....	Wisconsin	10	....
Maryland	3	2	Wyoming Territory	2	....
Massachusetts	34	....	United States Army	....	....
Michigan	5	2	United States Navy	....	....
Minnesota	3	....			
Mississippi	1	....	Total to citizens of the United States	366	19
Missouri	13	4			
Montana Territory	....	....			

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Barbadoes	....	....	Holland	....	....
Belgium	....	....	Mexico	....	....
Brazil	....	....	Netherlands	....	....
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Cuba	....	....	Switzerland	2	....
Denmark	....	....	Victoria	....	....
Ecuador	....	....			
England	8	1	Total to citizens of foreign countries	26	2
France	4	....			

DESIGNS.

16,903. LAMP-SHADE.—*Frederick Watson Bach*, New Bond Street, county of Middlesex, England. Application filed August 12, 1886. Serial No. 210,743. Term of patent 3½ years.

16,904.—RUBBER SOLE.—*William Baum*, New Haven, Conn., assignor to *The New Jersey Car Spring and Rubber Company*, Jersey City, N. J. Application filed August 5, 1886. Serial No. 210,130. Term of patent 7 years.

16,905.—CARD.—*Charles E. Bullard*, Worcester, Mass. Application filed June 14, 1886. Serial No. 205,152. Term of patent 3½ years.

16,906.—HINGE.—*Rodolphe Christesen*, New Britain, Conn., assignor to *The Russell & Erwin Manufacturing Company*, same place. Application filed January 9, 1886. Serial No. 188,148. Term of patent 14 years.

16,907.—FRINGE.—*George F. Hensel*, Philadelphia, Pa. Application filed June 7, 1886. Serial No. 204,429. Term of patent 14 years.

16,908.—ANDIRON.—*F. Robert Seidensticker*, Meriden, Conn., assignor to *The Bradley & Hubbard Manufacturing Company*, same place. Application filed July 19, 1886. Serial No. 208,498. Term of patent 7 years.

16,909 and 16,910.—FENDER.—*F. Robert Seidensticker*, Meriden, Conn., assignor to *The Bradley & Hubbard Manufacturing Company*, same place. Applications filed July 26, 1886. Serial Nos. 209,179 and 209,180. Term of patents 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,671.—TONIC OR BITTERS.—*Robert C. Dansby*, Terrell, Tex. Application filed July 12, 1886. Used since April, 1879.
"The words 'COTTON PATCH.'"

13,672.—ROASTED GROUND AND UNGROUND COFFEE.—*Martin Bros.*, Port Huron, Mich. Application filed August 9, 1886. Used since July 24, 1886.
"The word 'BONANZA.'"

13,673.—ROASTED GROUND AND UNGROUND COFFEE.—*Martin Bros.*, Port Huron, Mich. Application filed August 9, 1886. Used since July 24, 1886.
"The word 'BOUQUET.'"

13,674.—PHOSPHATIC FOOD PRODUCTS, AS DESIGNATED.—*Provident Chemical Works*, St. Louis, Mo. Application filed July 20, 1886. Used since August, 1884.
"A monogram composed of the letters 'P C W' inclosed in a diamond-shaped figure."

13,675.—POWDERED ACID PHOSPHATE OF LIME FOR BAKING-POWDER.—*Provident Chemical Works*, St. Louis, Mo. Application filed August 20, 1886. Used since March 1, 1884.
"The letters 'C. A. P.'"

13,676.—POWDERED ACID PHOSPHATE OF LIME FOR BAKING-POWDER.—*Provident Chemical Works*, St. Louis, Mo. Application filed August 20, 1886. Used since January, 1878.
"The letters 'B. C. T.'"

13,677.—NATURAL APERIENT WATER.—*Andreas Saxlehner*, Buda-Pesth, Austria-Hungary. Application filed August 19, 1886. Used since March 1, 1886.
"The picture of a knight on horseback clad in the national uniform of the ancient Hungarian knights."

13,678.—CHEWING-GUM.—*J. Louis Valentino*, Nashville, Tenn. Application filed April 21, 1886. Used since February, 1873.
"The word 'VALENTINO'S.'"

13,679.—FINGER-RINGS.—*Wheeler, Parsons & Hayes*, New York, N. Y. Application filed August 12, 1886. Used since May 1, 1886.
"The initials 'W. P. H.'"

13,680.—CORDIALS.—*Julius Cohen*, New York, N. Y. Application filed August 27, 1886. Used since August 19, 1886.
"The word-symbol 'METH.'"

13,681.—WINES AND BRANDIES.—*Heatheote, Dexter & Co.*, San Francisco, Cal. Application filed August 24, 1886. Used since April 1, 1886.
"The words 'LA CANTERA' and the representation of a crescent with two stars in the concave thereof."

13,682.—MALT BITTERS.—*The Duffy Malt Whiskey Company*, Baltimore, Md. Application filed August 16, 1886. Used since August 1, 1886.
"The words 'DUFFY'S MALT TONIC BITTERS' inclosed by a diamond-shaped figure."

13,683.—HYDRAULIC CEMENT.—*Union Cement Company*, East Kingston, N. Y. Application filed August 2, 1886. Used since May 14, 1886.
"The representation of the statue of Liberty Enlightening the World."

13,684.—SPECIFIC REMEDIES FOR DISEASES OF THE BLOOD AND SKIN. *Gustave J. Meyer*, St. Louis, Mo. Application filed August 12, 1886. Used since August 5, 1886.
"The words 'HOT SPRINGS SPECIFIC REMEDIES.' in an elliptical band, and the picture of a pool of water with vapors rising therefrom, a man leaning on a crutch on one side of the pool, and a woman standing on the opposite side extending a bottle to the man."

13,685.—COUGH, COLD, CROUP, AND CONSUMPTION CURE, AND A LINIMENT.—*Newton C. Search*, Baltimore, Md. Application filed August 25, 1886. Used since January, 1883.
"The word 'CHAMPION.'"

13,686.—MEDICINAL BEVERAGE FOR CURE OF DRUNKENNESS.—*Fred. Sieber*, Allegheny, Pa. Application filed June 1, 1886. Used since 1881.
"The words 'THE REFORM.'"

LABELS.

4,967.—Title: "BLAKE'S PATTERN BELT STUD."—*Greene, Tweed & Co.*, New York, N. Y. Application filed August 21, 1886.

4,968.—Title: "THE IMPROVED BELT STUD."—*Greene, Tweed & Co.*, New York, N. Y. Application filed August 21, 1886.

4,969.—Title: "BEEF WITH WHISKEY." (FOR A MEDICAL PREPARATION.)—*Robert A. Hance*, Philadelphia, Pa. Application filed August 31, 1886.

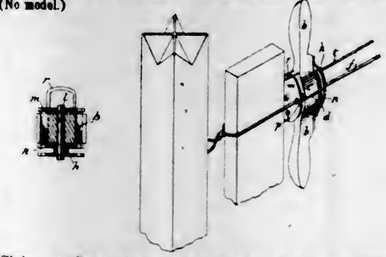
4,970.—*A Print.*—Title: "M. W. CO. SHIP TIME." (FOR WATCH DIALS.)—*Manhattan Watch Company*, New York, N. Y. Application filed June 5, 1886.

4,971.—Title: "SLOCUM'S COLTSFOOT EXPECTORANT."—*P. E. Whitcomb*, New York, N. Y. Application filed August 26, 1886.

PATENTS

GRANTED SEPT. 21, 1886.

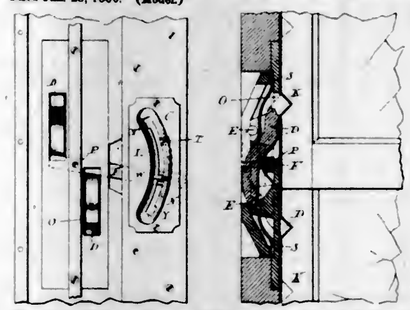
349,294. FENCE-MACHINE. ASA H. ALLISON, near Columbus, Ind., assignor of one-half to Joseph I. Irwin, same place. Filed July 10, 1886. (No model.)



Claim.—1. Bar *b*, plate *h*, shaft *l*, and disks *m* and *n*, all combined and arranged to co-operate with each other, as and for the purpose set forth.

2. Bar *b*, plate *h*, shaft *l*, disks *m* and *n*, and staple *r*, all combined and arranged to co-operate with each other, as and for the purpose set forth.

349,295. SASH-FASTENER. ELISHA H. ALVORD, Seattle, Wash. Filed Jan. 23, 1886. (Model.)



Claim.—1. The combination, with the notched sashes K K, of the plate A, having slots O O, and the plate B, having slots O' O', the bolts D D, springs S S, the lever F, working upon the pin P, and having the thumb-piece W, and the escutcheon-plate C, having the slot L, substantially as described.

2. The combination, with the notched sashes K K, of the slotted plates A and B, bolts D D, springs S S, pin P, and lever F, having the thumb-piece W, and the slotted escutcheon-plate C, provided with slide N, carrying projection T, and the stop-notches Y and Y', substantially as set forth.

3. In sash-fasteners, the bended bolts D D, pivoted on the journals E E, between the plates A and B, and having angular ends which are operated through double slots O O and O' O' in the two plates A B by the lever F, pivoted on P, and the springs S S, acting upon the backs of the bolts, substantially as shown.

4. In combination with the slotted plates A and B, the lever F, pivoted between them and operating simultaneously the bolts D D by wedge movement between the bolts and the face-plate A, as herein substantially described.

5. In combination with the slotted plates A and B, the springs S S, secured between the plates, as shown, and operating the bolts D D, each spring operating its bolt in the notches independently of the other, substantially as set forth.

6. In sash-fasteners, the escutcheon-plate C, having slot L and slide N, carrying the projection T, and the stop-notches Y and Y', connected with the lever-rod G by a thumb-piece, W, which operates the lever F by operating the rod G through the slot L, substantially as indicated and set forth.

7. In sash-fasteners, the escutcheon-plate C, constructed as described, connected with the lever F by the thumb-piece W, which operates the lever through the slot L, substantially as described.

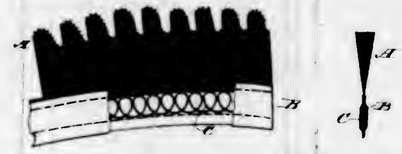
349,296. BRUSH. JOHN AMES, Jr., Toledo, Ohio, assignor of one-half to Joseph C. Bonner, same place. Filed Dec. 16, 1885. (No model.)



Claim.—1. As an improvement in the manufacture of brushes, a brush-block provided with a flat margin, D, and a raised central portion, substantially as and for the purposes set forth.

2. As an improvement in the manufacture of brushes, a brush-block provided with a flat margin, D, and a raised central portion stepped as described, substantially as and for the purposes set forth.

349,297. REVERSIBLE RUCHING FOR LADIES' NECK-WEAR. ALEXANDER BOEHM, New York, N. Y., assignor to Louis Levi and Alexander Mayer, both of same place. Filed Nov. 25, 1884. Renewed Oct. 29, 1885. (No model.)



Claim.—The reversible ruching having concealed within its band B the pliable metal spring C, substantially as herein shown and described.

349,298. CARRIAGE-SPRING. FRANCIS E. BORTREE, Ledge Dale, Pa. Filed Dec. 29, 1884. Renewed Feb. 19, 1886. (No model.)



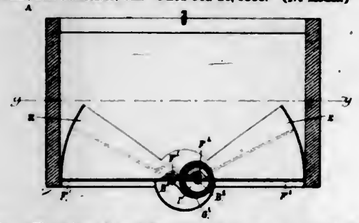
Claim.—1. The combination, with the axles, of longitudinally-disposed springs connecting the same, bow-springs C, springs B, arranged upon the upper sides of the same, and the bar F, as set forth.

2. The combination, with the axles, of longitudinally-disposed springs connecting the same, bow-springs, arranged as shown, springs B on the upper sides thereof, a cross-bar, and rubber cushions on the upper sides of the same, as set forth.

3. The combination, with the axles, of springs connecting the same, blocks interposed between said springs and secured thereto, bow-springs, arranged as shown, springs B on the upper sides of the bow-springs, and a cross-bar having elastic cushions, as set forth.

4. The combination, with the axles, of the springs D E, the springs D being secured to the head-block of the forward axle at one end and to the under side of the rear axle at their other ends, and the springs E to the under side of the forward axle and the upper side of the rear axle at their ends, bow-springs, arranged as shown, springs B on the upper sides thereof, a cross-bar connecting springs B, and elastic cushions on said cross-bar, as set forth.

349,299. SAFETY AIR-CLUTCH FOR ELEVATORS. HENRY W. BRACKEN, San Francisco, Cal. Filed Oct. 26, 1885. (No model.)



Claim.—The wings F′ and F², attached to the pivot-shafts B′ and B², and having the encircling springs C′ and C², attached by means of the coupling-blocks I′ and I², and having the dogs D′ and D², to clutch with the guide G, for the purpose of stopping an elevator-cage, constructed and operated substantially as and for the purposes set forth.

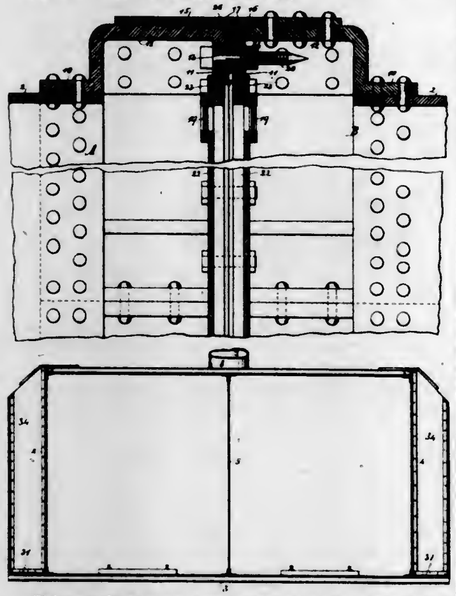
349,300. BAG-TIE. ALFRED H. BROWN, Freeport, Ill. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination of the disks 1 2, having the coacting corrugated faces 11, the screw 5, pressing said disks together, and a suitable nut engaging the threaded end of the screw.

2. The combination of the bag 9, cord 7 8, plate 3, conical plates 1 2, and the screw 5, passing through and rigidly connecting the plates 1 2 and engaging the plate 3, substantially as shown and described, and for the purpose set forth.

349,301. SUBMARINE TUNNEL. CHARLES H. BUCKLEW, Plainfield, N. J. Filed Mar. 16, 1886. (No model.)



Claim.—1. In submarine tunnels, the method herein specified of excluding water and uniting the sections, consisting in preparing the sections with rims extending inwardly and perforating them with holes that correspond in the section ends that are to come together, covering such holes with india-rubber or similar material to exclude the water, placing the sections end to end with the rubber coverings against each other and the holes coinciding, and simultaneously perforating the rubber and connecting the sections by driving bolts through the holes, substantially as set forth.

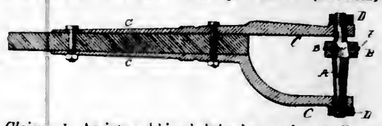
2. The tunnel-sections made of iron plates and ribs, in combination with the inwardly-projecting rims at the ends perforated for the connecting-bolts, the shells or enlargements connecting the rims to the tunnel-sections, the removable bulk-heads attached to the rims, and the lapping-plates attached to one section and resting upon the other section, the packing between the sections, and the pointed attaching-bolts passing through the rims and through the packing, and the nuts for the bolts, substantially as set forth.

3. The tunnel-sections made of iron plates and ribs of the proper size and strength, bottom ribs extending beyond the vertical sides of the tunnel, in combination with the bins and partitions upon the sides of the tunnel for the reception of ballast, substantially as specified.

4. The combination, with the tunnel-sections and the removable bulk-heads, of rims extending inwardly, and to which the removable bulk-heads are connected, and bolts for fastening the sections together, and the packing of lead or other soft metal introduced into a groove at the outer surface of the rim, substantially as set forth.

5. The combination, with the wrought-metal tunnel-sections, of ranges of hollow cast-iron shells bolted together and attached to the tunnel-sections, and having inward rims perforated for the reception of the connecting-bolts, and the removable bulk-heads attached to such rims, substantially as set forth.

349,302. REACH-COUPLING FOR CARRIAGES. SHEPARD W. CATELY, Cortland, N. Y., assignor of one-half to the Hitchcock Manufacturing Company, same place. Filed Apr. 23, 1886. (No model.)



Claim.—1. An integral king-bolt having an intermediate angular bearing, and a coned bearing at the opposite ends of said bolt.

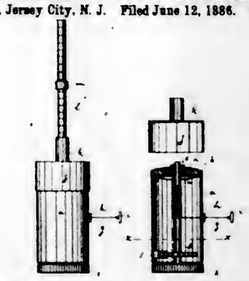
2. A king-bolt having an intermediate angular bearing with converging sides, and a coned bearing at the opposite ends of said bolt.

3. An axle having an angular socket formed therein, a king-bolt having an angular bearing rigidly secured in said socket, and provided also with a coned bearing at its opposite ends, both in combination, as specified.

4. An axle having an angular socket formed therein with converging walls, and a king-bolt having a bearing correspondingly formed, and provided also with a coned bearing at its opposite ends, the two in combination, as set forth.

5. An axle having an angular socket formed therein, a king-bolt having an angular bearing rigidly secured in said socket with a coned bearing at its opposite ends, and a reach having holes fitting over the coned bearings of the king-bolt, all in combination, as set forth.

349,303. APPARATUS FOR PERSPECTIVE DRAWING. ROBERT E. CREASEY, Jersey City, N. J. Filed June 12, 1886. (No model.)



Claim.—1. The combination of drum *a* and spindle *c* with the string *g*, rod *l*, and slide *m*, substantially as specified.

2. The combination of drum *a* with spindle *c*, ratchet-wheel *d*, pawl *f*, hand-wheel *e*, and string *g*, and with the rod *l* and slide *m*, substantially as specified.

3. The combination of drum *a* with spindle *c*, ratchet-wheel *d*, pawl *f*, hand-wheel *e*, string *g*, button *i*, cap *j*, having socket *k*, and with the rod *l* and slide *m*, substantially as specified.

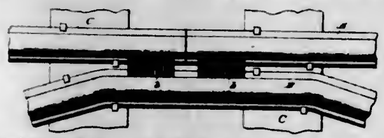
349,304. COMPOSITION FOR STREETS, SIDEWALKS, &c. THOS. EGAN, Pittsburg, Pa. Filed Feb. 12, 1886. (No specimens.)

Claim.—The herein-described composition of matter to be used in covering or paving streets, &c., consisting of pitch, stone, gravel, sand, cement, cinder, sulphur, air-slaked lime, salt, and tar, as specified.

349,305. RAIL-JOINT SUPPORT. ALEXANDER H. EGE, Mechanicsburg, Pa. Filed May 14, 1886. (No model.)



349,305.



Claim.—1. The splice-bar of rail form having its base entire and in one plane, in combination with the rails A A and bolts *c*, substantially as described.

2. The splice-bar of rail form having its base entire and in one plane, in combination with the rails A A, perforated spacing-pieces *b*, and bolts *c*, substantially as described.

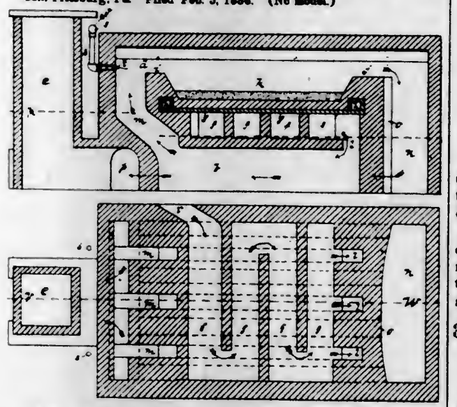
3. The combination of the rails A A, cross-ties, splice-bar of rail form, having its base entire and in one plane, and distance-pieces and bolts, substantially as described.

4. The combination, with the rails A A and ties, of a splice-bar consisting of the crop end of a rail perforated and bolted to the rails A A, and resting with its entire base on the ties, substantially as described.

5. The combination, with the carrying-rails A A, of a splice-bar or support in the form of a rail, the bearing-surface of the latter being arranged to admit of the passage of the false flanges between it and the carrying-rails, and filling-pieces between said support and rails, substantially as described.

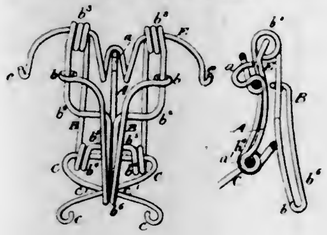
6. The combination, with the carrying-rails and the rail-joint support arranged to allow the passage of the false flanges between them, of filling-pieces provided with roughened or corrugated surfaces adapted to wear away the false flange, substantially as described.

349,306. REGENERATIVE HEATING-FURNACE. HUGH FERGUSON, Pittsburg, Pa. Filed Feb. 5, 1886. (No model.)

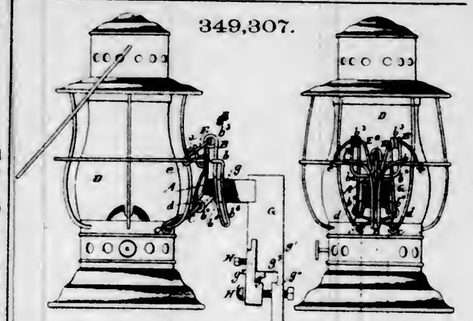


Claim.—In a furnace of the character described, the combination of horizontal parallel flues *a b*, located in the base of the furnace and separated by narrow walls, the transverse flues *f*, communicating with the external air at one end, *v*, and with flues *b* at the opposite end by vertical passages *l*, the superimposed metal plate having open-end boxes at its extremities embedded in the bridge-walls *i j*, the working-chamber *k*, the gas-supply pipe and nozzles, and the combustion-space communicating at one end with the hot-air flues *b* by the passages *m*, and at the opposite end with the flues *a* by the chamber *n*, having an arched front wall, *o*, and the draft-stack *e*, communicating with the flues *a* by the transverse flue *p*, all constructed and arranged substantially in the manner and for the purposes described.

349,307. LANTERN-HOLDER FOR VEHICLES. EMILE C. GERBEUX, Jeanerette, La. Filed July 20, 1886. (No model.)

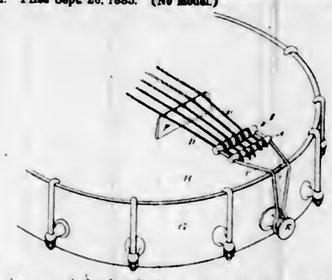


349,307.



Claim.—The combination of the four wires A B C E, bent into the shapes shown and described, to connect a lantern with its holder in the manner specified.

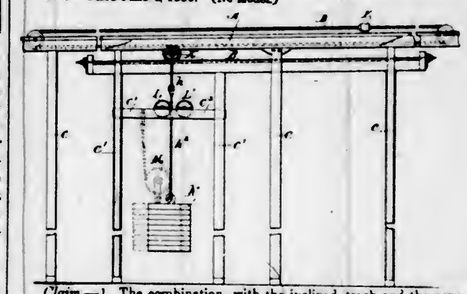
349,308. BANJO TAIL-PIECE. FREDERICK H. HODGES, Newport, R. I. Filed Sept. 26, 1885. (No model.)



Claim.—1. A banjo tail-piece composed of the bar A, having a series of countersunk notches, the bar B, having a series of circumferential grooves, and the frame C, for connecting said bars, substantially as described.

2. The combination of the bridge F, the bar B, having a series of circumferential grooves, the bar A, provided with a series of countersunk notches, the strings D, secured to said bars, the bifurcated frame C, and the nut E, for securing said frame to the head of a banjo, substantially as described.

349,309. COAL-CONVEYING APPARATUS. CHARLES W. HUNT, West New Brighton, assignor to the C. W. Hunt Company, New York, N. Y. Filed June 4, 1886. (No model.)

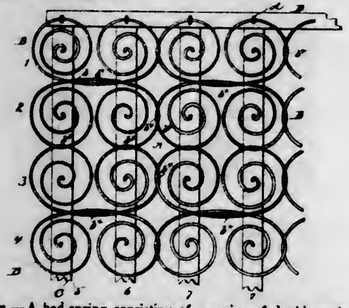


Claim.—1. The combination, with the inclined track and the rope D, of the track-bars B, the truck with which the rope D is connected, the rope h^3, passing down from the truck, the weight suspended by such rope, and the stationary sheaves between which such rope passes, substantially as set forth.

2. The combination, with the inclined track and the rope D, of the track-bars B, a truck formed of two flanged wheels and an intermediate barrel around which the rope D passes, a bridle connected to the shaft of the truck-wheels, and a rope, h^3, and weight suspended from such bridle, substantially as set forth.

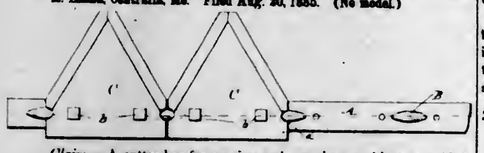
3. The combination, with the inclined track and the rope D, of a truck with which the rope is connected, track-bars for said truck, a rope connected to the truck, two pulleys in fixed positions, between which the rope passes, a weight, and a pulley to such weight, around which the rope passes and is attached at its end to a fixed support, substantially as set forth.

349,310. BED-SPRING. ALVIN F. KREBS, Monticello, Minn. Filed Jan. 5, 1886. (No model.)



Claim.—A bed-spring consisting of a series of double springs, B, each of said springs having oppositely-coiled helical springs formed at the ends of a single piece of wire, said springs B connected or looped together at points b^2 b^3 b^4, and two adjoining parallel slats, substantially as described.

349,311. CUTTER-BAR FOR REAPERS AND MOWERS. GEORGE M. LEASE, Centralia, Mo. Filed Aug. 20, 1885. (No model.)



Claim.—A cutter-bar for reaping and mowing machines, provided with elongated oval projections, as described, in combination with the cutters having their adjacent edges notched and the edges of the notches undercut to partially overlie the projections, and the screws or bolts for securing the cutters to the cutter-bar, substantially as set forth.

349,312. TELEPHONIC CIRCUIT. WILLIAM MARSHALL, New York, N. Y. Filed Oct. 15, 1885. (No model.)



Claim.—1. In a telephonic system with speaking-condensers, an induction-coil at each station, said induction-coil having two secondary wires and a primary wire, the opposite ends of each secondary wire being connected to the opposite poles of the speaking-condenser, for the purpose substantially as described.

2. In a telephonic system, the within-described induction-coil, having two secondary wires and a primary wire, one of the secondary wires being connected with a speaking-condenser and the other with the line-wire and a polarizing-battery, substantially as and for the purpose described.

3. In a telephonic system, the within-described induction-coil having two secondary wires and a primary wire, the primary wire being connected with the microphone M and the battery B, substantially as and for the purpose described.

4. A speaking-condenser the opposite plates of which are loose, except at one end, and formed as intersected electrometers, the electrodes having independent connections, substantially as described and shown.

349,313. WATER-PROOF CLOAK. SARAH A. MENDEL, Chicago, Ill. Filed June 8, 1886. (No model.)

Claim.—1. The combination, with a water-proof cloak and a pocket adapted to receive the lower portion of the dress-skirt, of supports for the inner side of said pocket extending from the top of said inner side downwardly and attached to and sustained by the body of the cloak, substantially as described.

2. The combination, with a water-proof cloak having a pocket adapted to receive the lower portion of the dress-skirt, of supports for the inner side of said pocket, said supports extending from the top of said inner side downwardly and being connected with the body of the cloak and being formed of sufficiently rigid material to retain the pocket in vertical position when the dress-skirt is placed therein, substantially as described.

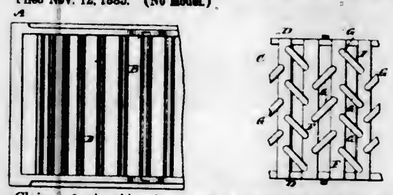
349,313.



3. The combination, with a water-proof cloak having a pocket attached to the lower portion of the cloak and adapted to receive the lower portion of the dress-skirt, of spring-metal supports attached to the body of the cloak for sustaining the inner side of the pocket and clasping the bottom of the skirt, substantially as described.

4. The combination, with a water-proof cloak, of a pocket adapted to receive the bottom of the dress-skirt, said pocket being attached at its bottom to the cloak, and metal supports for the pocket connected to the cloak and extending to the top of the inner side of the pocket, substantially as described.

349,314. WASHING-MACHINE. GEORGE MOWRY, Derry Station, Pa. Filed Nov. 12, 1885. (No model.)



Claim.—1. A rubber for a washing-machine, constructed with two side pieces united at their curved edges by transverse strips, between the edges of which short diagonal pieces are secured, the pieces of each alternate transverse row of said pieces being inclined in opposite directions, substantially as herein shown and described.

2. A rubber for a washing-machine, constructed with two semicircular side pieces united at the curved edges by transverse strips, between the edges of which diagonal pieces are held, the outer faces of the said diagonal pieces projecting from the outer faces of the transverse strips, and the diagonal pieces of the different rows projecting in different directions, in combination with a tub having a semicircular bottom provided with the transverse semicircular strips or ribs, substantially as herein shown and described.

3. A rubber for a washing-machine, constructed of two semicircular side pieces united along the curved edges by transverse strips, between which diagonal pieces are secured, the said pieces having their outer faces rounded and projecting from the faces of the transverse strips, and the ends of the said pieces lapping on the faces of the transverse strips, substantially as herein shown and described.

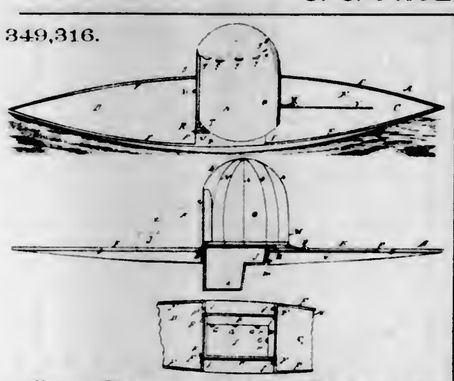
349,315. MANUFACTURE OF RUBBER DECOY-DUCKS. GEORGE H. NYE, Chicago, Ill. Filed Feb. 2, 1886. (No model.)



Claim.—In the manufacture of the heads and necks and bodies of decoy-ducks from rubber, the reverse counterparts A B C, formed in dies having suitable contours, and the shells of rubber so formed filled with cores, respectively, and the rubber shells and cores subjected to pressure in a two-part die having the contour of the duck to be formed, and the two shells cemented together and the cores removed, substantially as specified.

349,316. HUNTING AND FISHING BOAT. GEORGE H. NYE, Chicago, Ill. Filed Feb. 19, 1886. (No model.)

349,316.



Claim.—1. The hunter's seat and foot-stand J K, the seat J being combined in one piece with the foot-stand and located below the deck of the boat, and the foot-stand K projecting below the seat, and the one article hinged to the frame B or cockpit, so as to be brought down into the water for use or carried on deck, as specified.

2. The tent M N O, forming a blind and provided with a roller, W, which runs on a track, V, on the deck of the boat, and with guides T T, attached to the sill M, and combined with and made to run on track-rods U U, to permit the tent to be moved from over the cockpit, with a stationary door, S, affixed to the boat and made to close the opening in the tent when it is over the cockpit, as specified.

349,317. COOKING-VESSEL. AUGUST W. OBERMANN, Pittsburg, Pa. Filed Aug. 17, 1883. Renewed July 29, 1885. (No model.)



Claim.—1. The combination, with a cooking-vessel provided with a spout and the lid thereof, the vessel provided upon its upper edge and upon each side of the spout with a widened portion, of a detachable strainer for the spout of the vessel connected with the widened portions upon each side of the spout, and a hinged flap covering the same, the strainer being provided with a flange for guiding and holding the lid in position, as described and shown.

2. The combination, with a cooking-vessel provided with a spout and the lid thereof, the vessel being provided upon its upper edge and upon each side of the spout with a widened portion, of a detachable strainer for the spout of the vessel connected with the widened portions upon each side of the spout, and a flap covering the same, the strainer being provided with a flange for guiding and holding the lid, and handles pivoted to the vessel and provided with projections for holding the lid in position, as set forth.

3. The combination, with a cooking-vessel and with the lid thereof, of handles pivoted to the vessel, the handle proper or holding portion of such handles being parallel with the sides of the vessel, and each handle being provided with a lug or projection formed at right angles to the holding portion, as and for the purpose set forth.

4. The combination, with a cooking-vessel and with the lid thereof, of handles pivoted to the vessel, the handle proper or holding portion of such handles being parallel with the sides of the vessel, and each handle being provided with a beveled lug or projection formed at right angles to the holding portion, as set forth.

5. The combination, with a cooking-vessel and with the lid thereof, of handles G, pivoted to said vessel and provided with lugs *l* and *k*, as and for the purpose set forth.

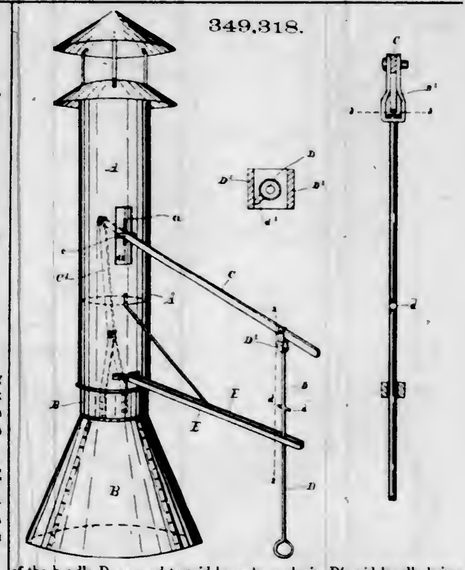
6. The combination, with a cooking-vessel provided with a spout and the lid thereof, the vessel being formed upon each side of the spout with a widened portions, of a detachable strainer mounted upon such widened portions and provided with a flange, whereby the lid may be guided between such flange and the rim of the vessel, and a detachable flap mounted in hooks formed with the strainer, as set forth.

349,318. SMOKE-JACK. ANDREW W. QUACKENBUSH, Peru, Ind. Filed June 12, 1886. (No model.)

Claim.—1. The combination of the smoke-pipe, the smoke-jack, a lever pivoted to said smoke-pipe and connected to said smoke-jack, a handle having projections and capable of being rotated, and a catch-bar provided with a slot through which said handle passes, whereby, when said projections are brought into engagement with said catch-bar, the smoke-jack will be held in elevated position, substantially as set forth.

2. The combination, with the lever for operating the smoke-jack

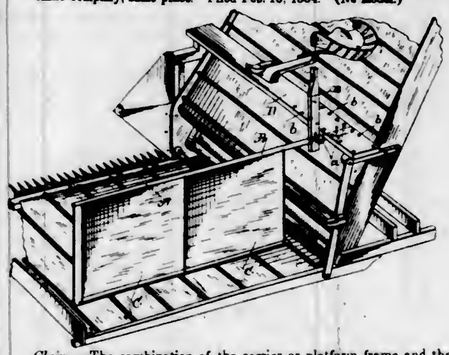
349,318.



of the handle D, secured to said lever by a clevis, D', said handle being provided with the projections *d* and *d'*, and the slotted catch-bar E, through which said handle passes, substantially as set forth.

3. The combination of the smoke-pipe, the smoke-jack, a lever pivoted to said pipe and connected to said jack, a handle having projections or catches thereon, and a catch-bar with which said projections may be brought into engagement, substantially as set forth.

349,319. HARVESTING-MACHINE. JOHN M. ROSEBROOKS, Hoosick Falls, N. Y., assignor to the Walter A. Wood Mowing and Reaping Machine Company, same place. Filed Feb. 18, 1884. (No model.)

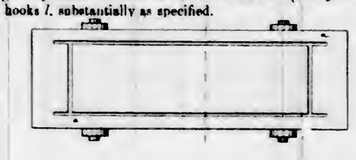


Claim.—The combination of the carrier or platform frame and the elevator-frame of a harvester and its seat-plank, a series of perforations in said plank, and adjustable suspending-hooks secured therein, with a back-board having one end of its shaft suspended by the hooks from said seat-plank and arranged to tilt over said platform, and a lever secured to said shaft, substantially as and for the purpose described.

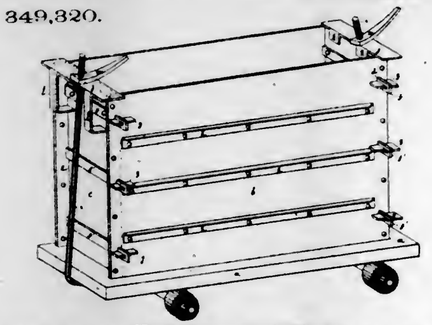
349,320. SOAP-FRAME. SAMUEL ROSENBLATT, New York, N. Y. Filed June 1, 1886. (No model.)

Claim.—1. The combination, in a soap-frame, of a grooved truck, *a*, with side walls, *b*, and end walls, *c*, the transverse bars *f*, riveted to said end walls, *c*, and passing through openings *d d* in the side walls, *b*, and secured by keys *g*, substantially as specified.

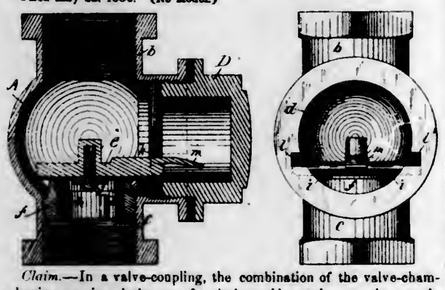
2. The combination of truck *a* with end walls, *c*, side walls, *b*, and locking-bars *f'*, and with the rod *i*, handle *m*, and plate *j*, having lugs *k* and hooks *l*, substantially as specified.



349,320.



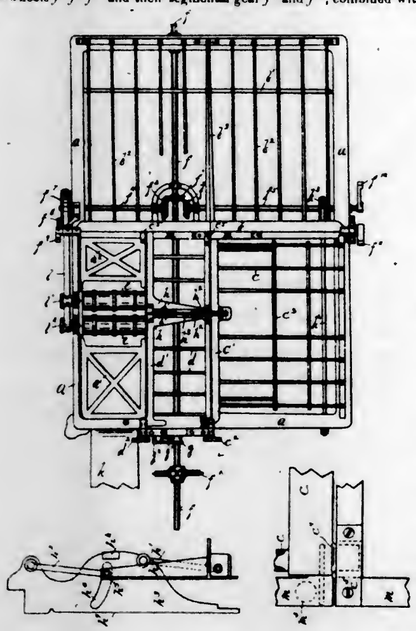
349,321. VALVE-COUPLING. ROSWELL R. ROUSE, Indianapolis, Ind. Filed May 22, 1886. (No model.)



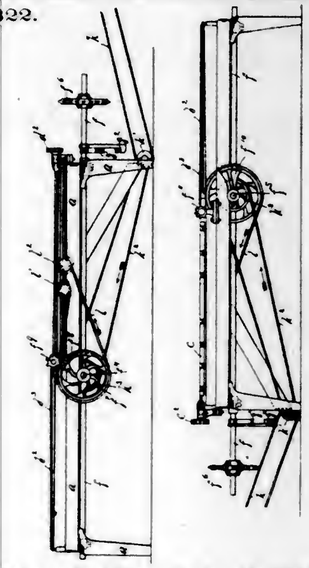
Claim.—In a valve-coupling, the combination of the valve-chamber having opening *d*, the cap for closing said opening, a valve-seat in said chamber, the clack-valve having pivots *i i*, and bearings for said pivots formed in the walls of said opening, said bearings being elongated vertically so as to permit a vertical movement of the pivots therein, substantially as specified.

349,322. PAPER-FOLDING MACHINE. GEORGE W. SHAMP, Buffalo, N. Y., assignor to the Acme Manufacturing Company, same place. Filed Oct. 9, 1885. (No model.)

Claim.—1. In a paper-folding machine, in combination with the large fly, the longitudinal shaft *f* and cross-shafts f^4 f^5, with their bevel gear-wheels f' f^3 f^3 and their segmental gear f^9 and f^{10}, combined with



349,322.



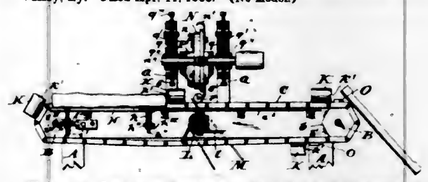
the segmental gears f^9 and f^{11} upon the pivoted bar *b* of the large fly, substantially as shown and described.

2. In a paper-folding machine, in combination with either the intermediate or small fly, or both, the arm rigidly secured to the shaft *f*, provided with the inner and outer segmental gears *g'* and g^2, having their teeth facing each other, in combination with a partial gear, c^3 or d^3, upon the pivoted bars *c'* or *d'* of the flies, substantially as shown and described.

3. In a folding-machine, in combination with the pivoted bar *c'* of the intermediate fly, provided with the lug c^4, the pivoted plate *m*, having the outer extension, m^2, with curved slot m^3, the screw m^4, upon which the slotted extension m^2 m^3 works, the spiral spring m^5, and the plate c^5, under which the lug c^4 passes, substantially as and for the purpose stated.

4. In combination with the fly *d d'*, provided with the arms *h h*, the knife h^2, provided with the curved slot h^4 in engagement with the rod h^5, and the metallic straps *h' h'* and h^3 h^3, by means of which the knife is pivoted to the fly, such knife being adapted, as shown, to fold the sheet between the rollers *e e*, substantially as shown and described.

349,323. STAVE-DRESSING MACHINE. CHARLES SOMMER, Sloan's Valley, Ky. Filed Apr. 11, 1885. (No model.)



Claim.—1. In a stave-dressing machine, the feed mechanism consisting in the combination of two endless chains, C, having solid links recessed at their inner or bearing surface at *c*, for teeth *b'* of driving and guide pulleys B to enter, with adjustable grippers K, toothed at *k*, and arranged in pairs reaching at right angles across from one chain to the other, bent between the chains to the shape of the stave, so as to clear the cutting-knives, and having flanges *k'''*, with slots *k''*, through which set-screw *k'* pass to hold them to the chains.

2. In a stave-dressing machine, the combination of two cutter-heads, vertically above each other, with the endless chains of the feed mechanism, being so placed in relation to the cutter-heads that the grippers thereon carrying the stave pass midway between the cutting-knives, one of said cutter-heads revolving in a direction at right angles to the other one.

3. In a stave-dressing machine, the combination of the feed mechanism, consisting of chains C, grippers K, and guide-pulleys B, with two cutter-heads vertically above each other, and so arranged that one cutter-shaft is below the upper or feeding portion of endless chains C and at right angles thereto, the other being centrally above the level of said chains and parallel with them, one of said cutter-shafts being adjustable

in its bearings *l'*, sliding in slot *a* of frame A, the other vertically yielding, sliding with its bearings *q''* in slots *q'* of standards Q.

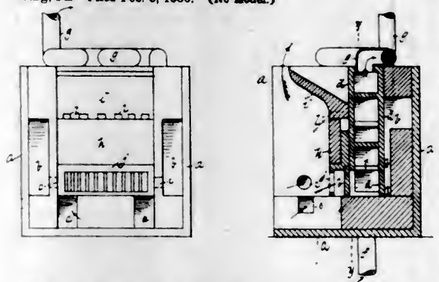
4. In a stave-dressing machine, the combination of the endless feeding-chains C with adjustable forming or pattern blocks O, which raise one of the cutter-heads at the proper time where different thickness of the stave is required, and supports *c''*, for the upper or feeding portion of chains C, which carries the grippers K through between the cutting-knives at the time.

5. In combination with the yielding cutter-head N, the frame P, through which the cutter-shaft *n''* of the former passes at each side of it, said frame encircling the cutter-head, and having downward extensions *p'*, which carry rollers *p*, and rest, ordinarily, on the feeding-chains, being held down by springs *q* in slots *q'* pressing on bearings *q''* of cutter-shaft *n''*, said bearings, with shaft *n''* and frame P, being free to slide up in slots *q'* of standards Q as frame P is lifted up by the forming-blocks O on chains C passing under the rollers *p*.

6. In a stave-dressing machine, the combination of the feed mechanism, consisting of the endless chains C, rollers B, and grippers K, with an adjustable support for the staves or feeding-table H at the feeding end of the machine, which latter rests on spiral springs *h*, guided by pins *h'* and pin *i'*.

7. In a stave-dressing machine, the general construction and combination, substantially as above set forth, of two endless chains, C, carrying adjustable grippers K, and two cutter-heads, one below and one above the grippers, one cutter-head being yielding to the action of pattern-blocks O on feeding-chains C, to produce varied thicknesses, the knives of the cutter-heads being so shaped and adjusted as to produce, in conjunction with all other parts aforementioned, a stave such as illustrated in Figs. 12 and 13.

349,324. HEATER FOR FIRE-PLACES, &c. JOHN TRUNKER, Pittsburg, Pa. Filed Feb. 5, 1886. (No model.)

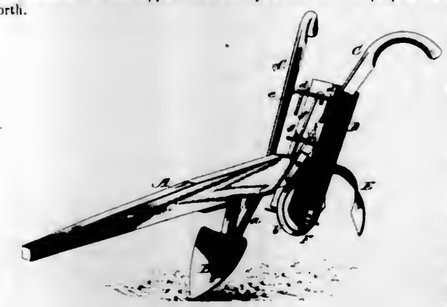


Claim.—1. In a fire-place heater, the combination, with the casing *a*, of the air-flue box *d*, arranged and constructed as described and provided with inlet and exit pipes, the smoke-passages *b*, arranged about this box, the passages *c l j*, communicating with the passages *b* and the tiles *h i* in front of the box and forming the back of the fire-place.

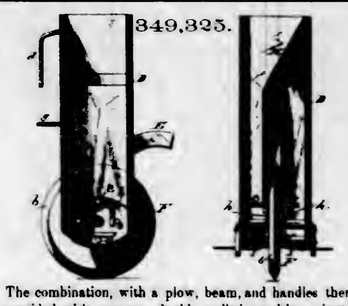
2. In a fire-place heater, the air-heating box *d*, constructed as described and communicating with a coil, *g*, on top of the case *a*, in combination with the smoke-passages *b*, surrounding the sides of this box, the passages *c j*, and the passages *l*, all arranged and adapted to operate as described and shown.

349,325. COTTON-PLANTER AND FERTILIZER-DISTRIBUTER. LOCCUS L. UPSHAW, Jackson's Gap, Ala. Filed Aug. 4, 1886. (No model.)

Claim.—1. In a cotton-planter and fertilizer-distributer, the combination, with plow and plow-beam, of a hopper provided with a double-walled partition having at its upper end a pivoted chute, and a wheel provided with agitators and blocks upon its sides, the periphery thereof extending between the walls of the partition, and suitable coverers secured to the hopper, substantially as and for the purpose set forth.

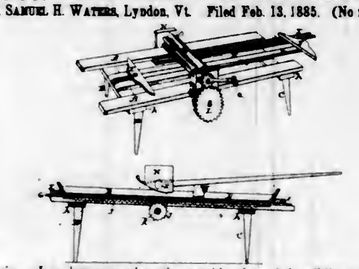


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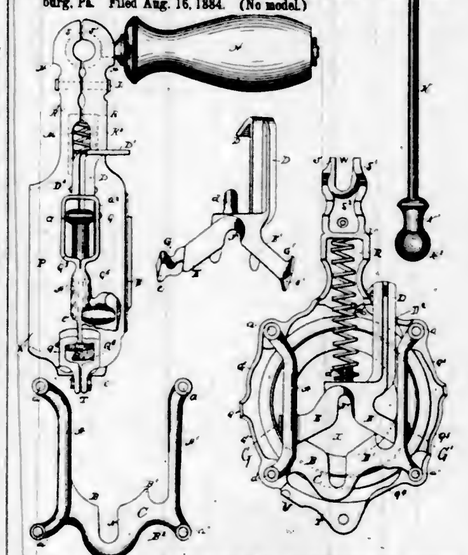
2. The combination, with a plow, beam, and handles thereof, of a hopper provided with coverers, double-walled partition, pivoted chute, and a distributing-wheel, said hopper having hooked rods and an eye-bar for connecting it the plow, beam, and handles, substantially as and for the purpose set forth.

349,326. BUTTER-WORKER. WORDSWORTH F. WATERS, Johnson, and SAMUEL H. WATERS, Lyndon, Vt. Filed Feb. 13, 1885. (No model.)



Claim.—In a butter-worker, the combination of the sliding rack G, placed between and held in position by the guides H, and having the end pieces, E F, secured to it, so as to receive the tray between them, with the guides H, the shaft *k*, pinion J, and a device for working the butter, and gears for connecting said device with shaft *k*, substantially as shown and described.

349,327. HAND CORN-SHELLER. THEOPHILUS WEAVER, Harrisburg, Pa. Filed Aug. 16, 1884. (No model.)



Claim.—1. In a hand corn-sheller, the casing-sections provided with extensions having on their meeting faces corresponding recesses constituting a cut-away spherical socket, and having in the shell of said socket a transverse way, in combination with an operating-handle and a shaft having a ball on its inner end loosely swiveled in said socket, and a shank between said ball and handle adapted to swing in said way for guiding and sustaining said handle, substantially as set forth.

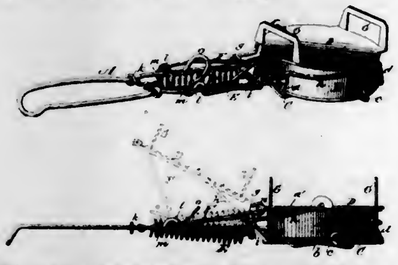
2. In a hand corn-sheller, the combination, with the casing-sections having recessed abutments which form the tubular socket R, of a stationary shelling-jaw having parallel extensions which are supported in bearings at the parting-line of said sections, a movable shelling-jaw having extensions which are guided against and by said parallel extensions, and also having a short stud axially in line with said socket, and a spiral spring with one end inserted in said socket and its opposite end applied to said stud, as and for the purpose set forth.

3. In a corn-sheller, the combination of the casing provided with the recessed or tubular extensions R' R², forming the socket R, and the stationary and movable jaws, the latter having a short stud, *d*, thereon, with a spiral spring, M, having its inner end supported by said stud and its outer end fitted in said socket, the construction and arrangement of the parts being such that said spring can be removed and replaced without removing other parts, substantially as described, and for the purpose set forth.

4. In a hand corn-sheller, a stationary jaw having shelling-lips, in combination with a movable jaw having shelling-lips forming a throat between them for admitting ears of various sizes, said movable jaw having arm D thereon, provided with projection D', the casing-sections, and an operating-handle, H, substantially as set forth.

5. In a hand corn-sheller, the combination of the casing-sections P Q, secured together and formed with socket R, and provided with the operating-handle H, with a stationary jaw provided with parallel guides A A', the movable jaw having parts adapted to ride against said parallel guides, and the removable spring M, having its outer end in socket R and its inner end supported on the movable jaw, substantially as and for the purposes set forth.

349,328. BLACKING-BOX HOLDER. FREDERICK WELLINGTON, Saginaw, Mich. Filed Feb. 19, 1886. (No model.)



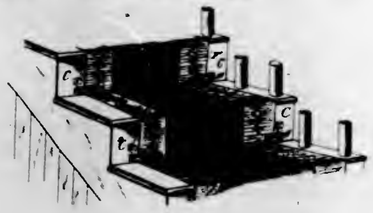
Claim.—1. In a device for holding blacking and similar boxes, a suitable support for the box and means for holding it thereon, and a handle projecting from said support, in combination with a cover, a pivoted bail and lever connected thereto, and a suitable spring attached to the bail and to the handle, substantially as and for the purpose set forth.

2. In a device for holding blacking and similar boxes, a suitable support for the box provided with a handle and means for holding the box on the support, in combination with a cover, a bail pivoted thereto, a spring attached to the bail and to the handle, and a lever hinged to the cover and pivoted at its rear end to the handle or shank thereof, and provided with a thumb-piece for operating it, substantially as and for the purpose specified.

3. In a device for holding blacking and other boxes, a support for the box provided with a handle, and a hinged or pivoted cover provided with upright loops to receive the handle of the blacking-brush when not in use, substantially as and for the purpose described.

4. In a device for holding blacking and similar boxes, a suitable support for the box provided with a handle, a sliding frame having a clamping-jaw for holding the box on the support, in combination with a cover connected to a pivoted bail and a pivoted lever, as described, the opposite end of the bail having a double crank, and a spring attached thereto and to the handle, and the lever provided with a thumb-piece, substantially as and for the purpose set forth.

349,329. STAIR-CARPET FASTENER. RICHARD H. WILLET, Washington, D. C. Filed July 9, 1886. (No model.)

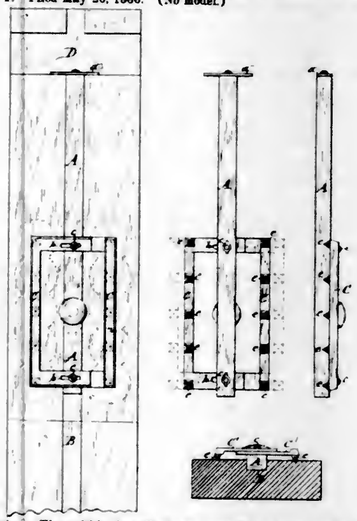




Claim.—1. A stair-carpet fastener consisting of a presser plate or foot having a yielding connection with an arm or a bar adjustably attached to a holder adapted to be fastened to a stairway beyond the lines of the edges of the carpet, whereby the presser plate or foot may be adjusted in position to hold in place the carpet, and in position to release the carpet without detaching the device from the stairway, substantially as and for the purpose described.

2. In a stair-carpet fastener, the combination of the bar A, pivoted on the bearing-stud B, the presser-plate C, having the shank *d* extended through a hole in the bar, and provided with a pull, *f*, and a spring adapted to press the plate upon the carpet, substantially as and for the purposes described.

349,330. MARKING-GAGE. CHARLES E. ZIMMERMANN, Syracuse, N. Y. Filed May 20, 1886. (No model.)



Claim.—The within-described carpenter's gage, consisting of the bar A, provided at one end with the laterally-projecting abutment *a*, the laterally-projecting arms C' C', adjustably connected to the opposite end of the bar A, and the marking bar or bars C C, arranged longitudinally by the side of the bar A and rigidly attached to the arms C' C', substantially as specified and shown.

349,331. PLASTERING-STRIP. GEORGE AHRENS, Crete, assignor of one-half to Henry Scherer, Chicago, Ill. Filed Feb. 9, 1886. (No model.)



Claim.—1. As an article of manufacture, plastering-strips having tongues for holding the plaster, and formed with grooves on their outer face, one to each side of the center of such strip, and said grooves inclined toward each other and toward the center of the strip, as set forth.

2. As an article of manufacture, plastering-strips having square and parallel tongues for holding the plaster, and formed with grooves on their outer faces, as set forth.

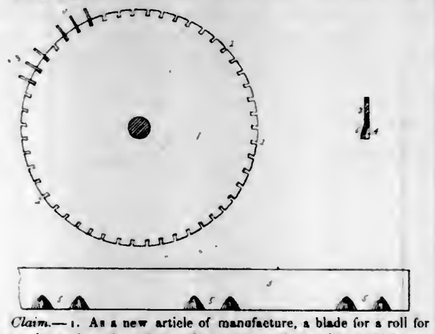
3. As an article of manufacture, plastering-strips having tongues for holding the plastering, and grooves for holding laths that form the backing for the plastering, substantially as and for the purpose set forth.

4. As an article of manufacture, plastering-strips having tongues with parallel sides for holding the plastering, and grooves for holding the laths, and having angular grooves in their faces, all substantially as and for the purpose set forth.

5. As an article of manufacture, the strips A, having tongues *a* with parallel sides, and angular grooves *c*, as and for the purpose set forth.

6. As an article of manufacture, the strips A, having rectangular tongues *a*, grooves *b*, and angular grooves *c*, all substantially as and for the purpose set forth.

349,332. BAR OR BLADE FOR THE ROLLS OF PAPER-PULP ENGINES. CHRISTIAN ANDERSON, Appleton, Wis. Filed June 21, 1886. (No model.)

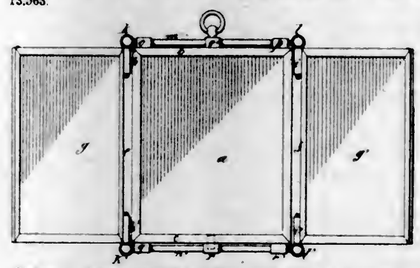


Claim.—1. As a new article of manufacture, a blade for a roll for paper-pulp engines, formed of a flat bar of steel of uniform thickness, said bar having formed upon one of its sides near one edge thereof indentations, they producing upon its opposite side a series of protuberances of uniform size, and adapted to enter and fill the dovetail portion of a groove of uniform width in the roll aforesaid, and to be retained therein by the compression of the sides and bottom of said grooves upon the protuberances, the opposite plain surface and bottom of the blade, substantially as described.

2. As a new article of manufacture, a blade for a roll for paper-pulp engines, formed of a flat bar of steel, uniform in thickness, said bar having formed upon one of its sides near one edge thereof indentations, they producing upon its opposite side a series of protuberances of uniform size, said indentations and protuberances having their surfaces hyperboliform and adapting the blades for entering a longitudinal dovetailed groove in the surface of the roll, and be retained therein by the compression of the sides and bottom of said groove upon the protuberances, the opposite plain surface and bottom of the blade, substantially as set forth.

3. The combination, with a roll for paper-pulp engines, having a series of longitudinal dovetail grooves formed in its surface, of a blade therefor, formed of a flat bar of steel of uniform thickness, said blade having formed upon one of its sides near one edge thereof indentations, these producing upon its opposite side a series of protuberances of uniform size, and adapting the blade to enter the aforesaid groove and be retained therein by the compression of the sides and bottom of said groove upon the protuberances, the opposite plain surface and the bottom of the blade, substantially as set forth.

349,333. TOILET-GLASS. JACQUES BAY, Paris, France. Filed June 1, 1886. (No model.) Patented in France Oct. 16, 1885, No. 171,703; in Belgium Nov. 5, 1885, No. 70,747, and in England Nov. 9, 1885, No. 13,563.



Claim.—1. The combination of the central mirror, *a*, having loops *o*, *o'*, *p*, *q*, *r*, and *r'*, with the side mirrors, *a g g'*, sliding rods *m*, *n*, *m'*, and *n'*, and joints connecting said rods with the side mirrors, all arranged substantially as herein shown and described.

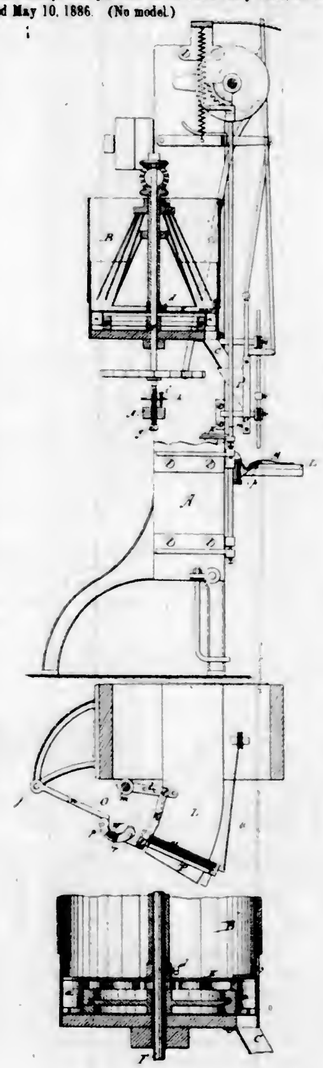
2. The combination of the three glass mirrors *a*, *g*, and *g'* with the sliding rods *n* and *m'*, sliding hollow rods *m* and *n'*, and the joints that connect said rods to the side glasses, substantially as herein shown and described.

349,334. CULTIVATOR-SHOVEL. JOHN O. BEEK, Pleasant Plains, Ill. Filed May 25, 1886. (No model.)



Claim.—The herein-described cultivator-shovel, having its body formed with a mold-board curve and its point, convex at its extremity, and gradually approaching a concave at its upper end, and having cutting-edges *e f*, arranged nearly on horizontal and vertical lines and reversely inclined or turned, the shovel being concave in the direction of its length, the construction being such that the soil is discharged over the short corner, and the lateral or sidewise resistance offered by the mold-board is compensated for by the different resistances of the cutting-edges, substantially as described.

349,335. CIGAR-BUNCHING MACHINE. NICHOLAS H. BORSFELDT and ADOLPH C. SCHUTZ, New York, N. Y., assignors to said Adolph C. Schutz, Adolph Lewyn, Max Martin, and Levy Bros., all of same place. Filed May 10, 1886. (No model.)



Claim.—1. The jointed arm O, composed of pivotally-connected sections, substantially as described, in combination with the sliding frame N, rolling-board L, and with the link *k*, crank *l*, and shaft *m*, for moving said sliding frame, as specified.

2. The jointed arm O, composed of pivotally-connected sections, substantially as described, in combination with the sliding frame N, straight rolling-board L, and guides *s t*, substantially as and for the purpose specified.

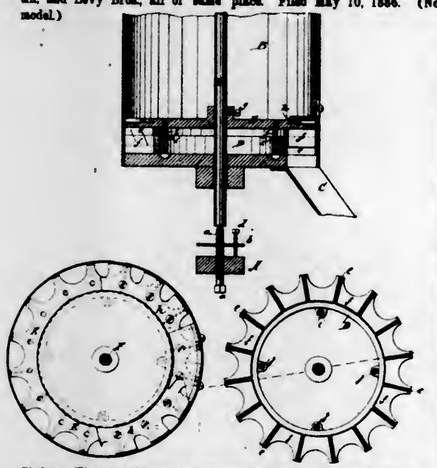
3. The combination of the jointed arm O, sliding frame N, and rolling-board L with the attachment *w*, whereby the parts of the jointed arm O are rigidly united, as and for the purpose specified.

4. The cylinder B, combined with the vertically-movable notched plate E, having downwardly-projecting buckets *a*, and with the notched lower disk, D, into the notches of which said buckets extend, as described.

5. The cylinder B, combined with the vertically-movable shaft F, notched plate E, having downwardly-projecting buckets *a*, said plate being rigidly attached to said shaft, and with the notched lower disk, D, into the notches of which said buckets extend, as described.

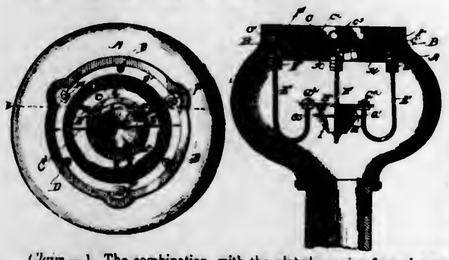
6. The combination of the cylinder B with the lower notched disk, D, upper notched plate, E, having downwardly-extending buckets *a*, vertically-adjustable shaft F, carrying said upper plate, E, and with the supporting-screw *g* beneath said shaft, and locking-screw *i*, substantially as and for the purpose described.

349,336. CIGAR-BUNCHING MACHINE. NICHOLAS H. BORSFELDT, New York, N. Y., assignor to Adolph C. Schutz, Adolph Lewyn, Max Martin, and Levy Bros., all of same place. Filed May 10, 1886. (No model.)



Claim.—The ring D, having outwardly-projecting radial wings *e e*, combined with the plate E, having downwardly-projecting tapering blocks *f*, and with the vertically-adjustable shaft F, which carries said plate E, and with the cylinder B, and means, substantially as described, for adjusting the shaft, substantially as and for the purpose herein shown and described.

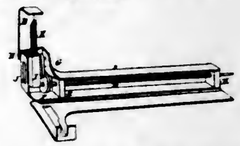
349,337. SPARK-ARRESTER. JEREMIAH M. BUCKLEY, Sioux City, Iowa. Filed June 9, 1886. (No model.)



Claim.—1. The combination, with the globular casing formed near its upper end with the interior annular shoulder, of the wire screen having the strengthening-rim, the deflector formed of the inner cone having the top flange and the outer shell connected thereto by the flange-pieces, and the brace-rods having the screw-threaded upper and lower ends, the collar formed thereon, and the binding-nuts, all constructed and arranged as and for the purpose set forth.

2. The combination of the globular casing formed near its upper end with the interior annular shoulder, the wire screen having the strengthening-rim, and the cross-piece provided with the eye or ring, the deflector formed of the inner cone having the top flange and the eye or ring, and the outer shell connected thereto by the flange-pieces, the brace-rods having the screw-threaded upper and lower ends, the collars formed thereon, and the binding-nuts, and the small casings secured, as described, to the lower side of the annular shoulder immediately below the wire screen, all constructed and arranged to operate in the manner and for the purpose herein set forth.

349,338. DENTAL TOOL. HENRY W. BORCHERDT, Louisville, Ky. Filed July 19, 1886. (No model.)



Claim.—In a dentist's operating device, the combination of the spindle D, disk-crank F, pitman or link G, file-holder H, tube-formed slide I, set-screw J, and file K, combined with the case A, substantially as herein described, and for the purpose set forth.

349,339. TUBE-WELL AND PUMPING MECHANISM FOR THE SAME. MATTHEW T. CHAPMAN, Aurora, Ill. Filed Dec. 8, 1880. (No model.)



Claim.—1. The valve D, having a serrated, conical, or tapering end for insertion in a flexible packing, and provided with an extension, *g*, having a laterally-projecting ring or shoulder, *h*, substantially as described.

2. The valve D, provided with a serrated, conical, or tapering end for insertion in a flexible packing, and with the extension *g*, having a laterally-projecting ring or shoulder, *h*, in combination with the flexible packing for expanding the packing by forcing it into the conical portion, and at the same time, in case of the withdrawal of the valve, forcing the packing from the conical or tapering portion onto the extension in contact with the ring or shoulder, thereby allowing it to contract, substantially as described.

3 The valve-case K, with its ball-valve, in combination with the main tube A, the tube L, of such smaller diameter than tube A as to leave a space between the two tubes, and the packing *l*, secured to tube L, to fill the space between it and tube A and leave a space between the packing and case K, substantially as described.

4. The valve-case K, with its ball-valve, in combination with the main tube A, the tube L, of such smaller diameter than tube A as to leave a space between the two tubes, the packing *l*, secured to tube L, to fill the space between it and tube A and leave a space between the packing and case K, and the tube R, connected with tube L above the packing, substantially as described.

349,340. PROCESS OF PRODUCING DESIGNS, &c., UPON SURFACES. CARYL COLEMAN, New York, N. Y., assignor to the American Endolithic Company, same place. Filed Jan. 11, 1886. (No specimens.)

Claim.—1. The process of producing shades, tints, characters, designs, &c., in color upon surfaces, which consists in heating the substance to be treated, and then, while it remains in the heated condition, applying colors to the surface until the desired degree of penetration is attained, substantially as described.

2. The process of producing shades, tints, characters, designs, &c., in color upon surfaces, which consists in heating the substance to be treated, and then, while it remains in the heated condition, applying hot colors to the surface until the desired degree of penetration is attained, substantially as described.

3. The process of producing characters, designs, &c., in color upon surfaces, which consists in first tracing the outline of the representation upon the surface of the substance treated, then subjecting said substance to the action of heat, and then, while it remains in the heated condition, applying the filling-in colors to the surface until the desired degree of penetration is attained, substantially as described.

4. The process of finishing or retouching shades, tints, characters, designs, &c., in color upon surfaces, either before or after polishing, which consists in reheating the substance treated and applying the finishing colors to the original representation until the desired alteration is effected, substantially as described.

349,341. WHIP-HOLDER. CLARENCE L. DALTON, Cincinnati, Ohio, assignor to Charles H. Albrecht, same place. Filed Dec. 16, 1885. (No model.)



Claim.—1. A wire whip-holder having four upright wires curved to form a double spring, substantially as and for the purposes specified.

2. The combination of the wire whip-socket A and the inclosing-guard, substantially as and for the purposes specified.

3 The combination of the wire whip-socket having wires a^2 and a^4 and clasping-plates having depressions to receive said wires, substantially as and for the purposes specified.

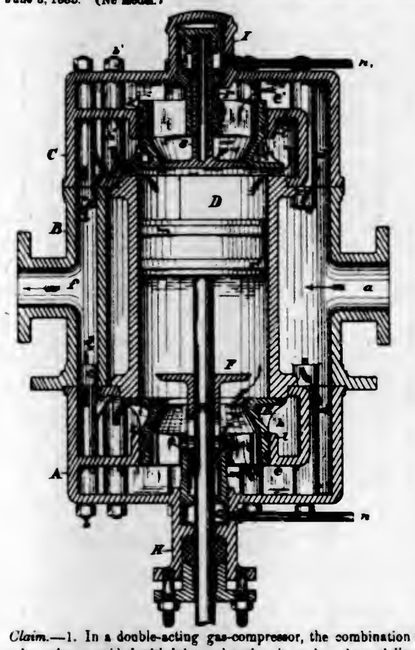
4. The combination of the wire whip-socket having wires a^2 and a^4 and plates E D, having grooves, and the spaces e^2 d^2, substantially as and for the purposes specified.

5. The combination of the wires A and B and the clasping-plates provided with grooves, substantially as and for the purposes specified.

6. The combination of the wires A and B, the clasping-plates provided with grooves, and spaces e^2 d^2, substantially as and for the purposes specified.

7. The combination of the wires A and B, the clasping-plates provided with grooves, and the clasping-brace F, substantially as and for the purposes specified.

349,342. COMPRESSOR. FREDERICK EBELER, Cleveland, Ohio. Filed June 8, 1885. (No model.)



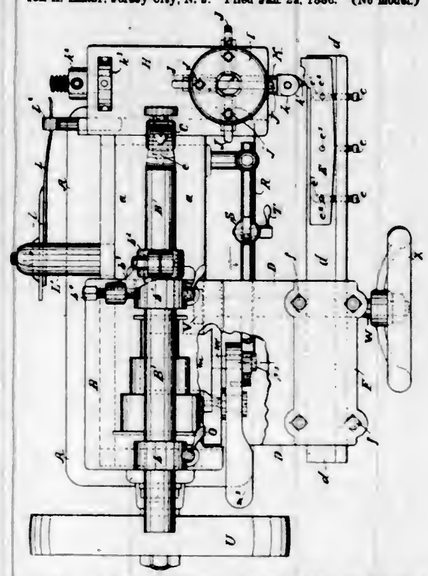
Claim.—1. In a double-acting gas-compressor, the combination of the main casing provided with inlet and outlet channels, substantially as described, suction-valves and discharge-valves located at the ends of the compression-cylinder, the discharge-valve at the upper end seating itself by gravity, and the discharge-valve at the lower end having a cylindrical neck extending into a chamber, and a pipe to supply fluid-pressure in said chamber to keep the valve on its seat, whereby the normal resistance of the discharge-valves is equalized, substantially as described.

2. In a gas-compressor, a cylinder-head having a cylindrical projection, I, open at its inner end and closed at its outer end, in combination with an outlet-valve located in said head, and having a tubular neck enlarged to occupy and close the open end of the cylindrical projection, and an inlet-valve provided with a stem running through the neck of the outlet-valve, and a piston at the end of the stem, with a pipe to supply fluid-pressure below said piston, whereby the inlet-valve is balanced or held on its seat, as set forth.

3. In a gas-compressor, the combination of the outer cylinder and the heads provided with channels and valves, the inner or compression cylinder, and a gas chamber or jacket extending entirely around said inner cylinder and communicating with the main gas-inlet, whereby the inflowing gas is utilized to keep the inner cylinder cool, as set forth.

4. In a gas-compressor provided with detachable heads, each head having an inlet chamber in its outer portion and an outlet-chamber in its inner portion, with a partition between said chambers having a tubular bearing, an outlet-valve having a cylindrical hub resting in said bearing, and an inlet-valve seated in the outlet-valve, in combination with the body of the compressor provided with a working-cylinder, and inlet and outlet channels on opposite sides of the body, which communicate with the working-cylinder through the chambers and valves in the heads, substantially as set forth.

349,343. MACHINE FOR TURNING IRREGULAR FORMS. VICTOR H. ERNST, Jersey City, N. J. Filed Jan. 29, 1886. (No model.)



Claim.—1. The combination, with the sliding head having the usual pulleys and spindle, of a work-supporting arm fitted in bearings thereon, and having on one end a bearing for the rear or tail spindle, substantially as shown and described.

2. The combination, with the head, suitably mounted on a frame and bed, of a work-supporting arm held in bearings on the said head and carrying in a bearing on its downwardly-projecting forward end the tail-spindle and tail-center, substantially as shown and described.

3. The combination, with the frame of the machine, of the head B, the arm B', fitted in bearings *b b'* on the said head, the yoke b^3, having an arm, b^3, and an adjusting-screw, b^4, substantially as shown and described.

4. The combination, with the sliding head and stop or trip mechanism, of a transversely-sliding saddle carrying the tool-holding turret, and a spring-actuated latch-bar for locking the turret from turning, substantially as shown and described.

5. The combination of the head B, mounted to slide on the bed of the machine, and having a projecting arm or bracket carrying the pattern, and a tool-holding turret, substantially as shown and described.

6. The combination, with the sliding head and its outwardly-projecting bracket, of a pattern-carrying bar on the said bracket, a transversely-placed saddle, and a tool-holding turret on said saddle, substantially as shown and described.

7. The combination, with the sliding head, in a bracket of which is carried a longitudinally-adjustable bar carrying an adjustable former-plate or pattern, of a sliding saddle on which is mounted a turret provided with adjustable tool-holders, substantially as shown and described.

8. The combination, with the sliding head having the projecting arm or bracket D, carrying the pattern-holding bar *d*, and the arm B', carrying the rear spindle and center, of the turret I, constructed to receive and carry several tools, J, substantially as shown and described.

9. The combination, with the sliding head having the projecting arm or bracket that carries the pattern-supporting bar, of the saddle having mounted thereon the tool-holding turret I and the tracer-bar K, and the spring L, substantially as herein shown and described.

10. The combination, with the frame A, of the slide G, rhomboidal in cross-section, the saddle H, fitted to work on the said slide, the tool-

holding turret I, mounted to turn on the said saddle, the tracer-bar K, and the spring L, substantially as shown and described.

11. The head and saddle, mounted on rhomboidal slides and steadied thereon by blocks and screws, in combination with mechanism intermediate said head and saddle, substantially as described.

12. The combination, with the saddle H, of the turret I, provided with tools J, the screws j, working downward through the upper surface of the turret against the said tools, and reversely-placed beveled blocks j' j^2, placed under said tools, their contacting surfaces being toothed, the lower blocks, j^2, having downwardly-projecting lugs j^4 on their under surfaces, against which work inwardly the screws j^3, to adjust the said tools J in the turret, substantially as shown and described.

13. The combination, with the head B, bracket D, bar d, and the pattern E, and the saddle H, provided with a tracer-bar, K, of the tool-carrying turret I, mounted on a beveled projection or raised portion of the saddle, the tapering stud h^3, fitting in a corresponding recess in the turret, and the spring L, substantially as shown and described.

14. The combination, with the saddle H, of the turret I, carrying one or more tools, J, the latch-bar H', the cam and lever H^2 I^2, for forcing the projecting end of the bar H' into niches in the bottom edge of the turret, and the stem H^4, having the spring I^3 thereon, said spring abutting against the latch-bar H', and against the projecting shoulder H^3 of the saddle H, substantially as shown and described.

15. The combination, with saddle H, of the turret I, the latch-bar H', and cam and lever H^2 I^2, and a spring, I^3, the spring I^3 being adapted to thrust the latch-bar H' upward into one of several niches in the bottom edge of the turret to lock the latter on its seat on the saddle, and the cam and lever being adapted to withdraw the latch-bar to unlock the turret, substantially as shown and described.

16. The combination, with the head B, having the bracket D, carrying the bar d, of the sliding saddle H, the tracer-bar K, the tool-carrying turret I, the post L', spring L, and the swiveled stud L^2, substantially as shown and described.

17. The combination, with the frame A, of the sliding head B, having the bracket D, carrying the pattern-supporting bar d, the transversely-sliding saddle H, the tracer-bar K therein, and the tracer k, having the point k' on one end, and the lever-nut k^2 on the opposite threaded end, and the check-nut k^3 near the said threaded end, substantially as shown and described.

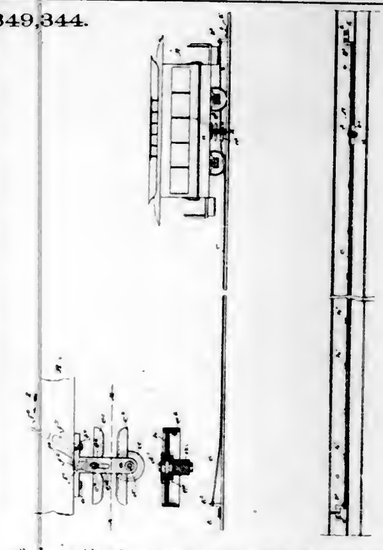
18. The combination, with the sliding head B, provided with the bracket D, carrying the L-shaped pattern-supporting bar d, the vertically-projecting member of said bar d being provided with adjusting-screws to adjust the pattern E, of the turret I on the sliding saddle H, the tracer-bar K, and the spring L, one end taking in the forked swiveled stud L^2 in the saddle, and its other end secured in a post, L', in the frame A, substantially as shown and described.

19. The combination, with the head and its feed-screw, of a split nut, the studs of which work in slots in the apron of the machine, pliers or handles for locking the nut on the feed-screw, and a latch-plate fitted against the projecting ends of its studs, and adapted to be tripped to release the grasp of the split nut by a trip in the line of travel of the said latch-plate, substantially as shown and described.

20. The combination, with the frame A, the sliding head B, having apron O, the feed-screw N, and the hand-wheel X, and rack and pinion V V', of a split nut, M, having its studs m' m' working in vertical slots in the apron O, and passing into projections formed on the ends of a pair of pliers or handles, m^2, and a latch or locking plate, P, substantially as shown and described.

21. The combination, with the sliding head B and feed-screw N, of the nut M, provided with the studs m', projecting through and working in vertical slots m^2, the apron O, the handles m^2, constructed on their outer ends with slotted projections n, through which the studs m' also pass, the latch-plate P, fitting against the said projecting ends of the said studs, and adapted to be tripped by a trip, S, located in its line of travel, and a spring, p', for forcing the latch back to place, to hold the split nut locked when the latter is closed by the handle m^2, substantially as shown and described.

349,344. SAFETY DEVICE FOR CABLE ROADS. LOUIS GODDU, Winchester, Mass., assignor to the Goddu Improvement Company of Maine. Filed Mar. 1, 1886. (No model.)



Claim.—1. In a cable railway, one or more fixed or stationary cables supported above and distributed as desired in the direction of the length of the road-bed, combined with one or more sheaves supported below the car and adapted to pass under said cable, and with a gripping device to clamp the cable, to thereby stop the motion of the car, substantially as described.

2. In a cable railway, one or more fixed or stationary cables supported above and distributed as desired in the direction of the length of the road-bed, combined with one or more sheaves, and with a gripping device adapted to have one member support said sheaves and pass beneath said cable, and have its other member operated from the car to grip the cable between it and the first member, substantially as and for the purpose set forth.

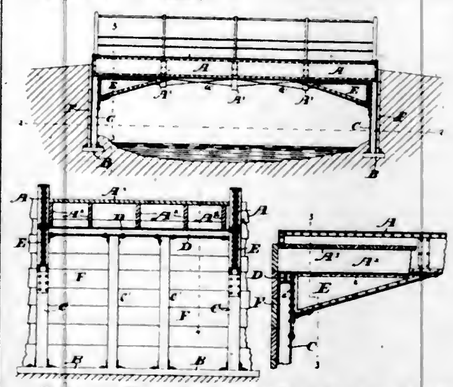
3. In a cable railway, one or more fixed or stationary cables supported above and distributed as desired in the direction of the length of the road-bed, combined with one or more sheaves supported below the car and adapted to pass under said cable, and with a gripping device to clamp the cable to said sheave, to thereby stop the motion of the car, substantially as described.

4. A fixed or stationary cable and means, substantially as described, to support the same above the road-bed, combined with a gripping device supported by and operating from the car, substantially as and for the purpose specified.

5. A fixed or stationary cable and means, substantially as described, to support the same above the road-bed, combined with a gripping device consisting of a lower jaw adapted to pass beneath the said cable, a sheave or roller rotating in a slot or opening in said lower jaw, and an upper jaw adapted to be moved from the car to grip the cable between it and the lower jaw, substantially as described.

6. A fixed or stationary cable and means, substantially as described, to support the same above the road-bed, combined with a gripping device consisting of a lower jaw provided with corrugations or teeth and adapted to pass beneath the said cable, a sheave rotating in a slot or opening in said lower jaw, and an upper jaw provided with corrugations or teeth, and adapted to be moved from the car to grip the cable, as and for the purpose specified.

349,345. BRIDGE. SOLOMON H. GODMAN, Indianapolis, Ind. Filed June 12, 1885. (No model.)

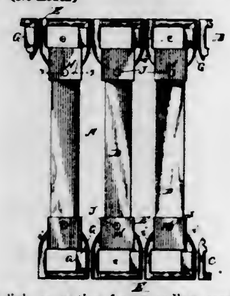


Claim.—1. The combination, in a bridge, of the girders A, posts C, braces E, arranged between said posts and girders, and the wall F, arranged behind said posts, against which the earth fill bears, substantially as set forth.

2. The combination of the sills B, the posts C and C', mounted on said sills, the cross-beam D, secured to the tops of said posts, the girders A, supported on said posts, the braces E, running between said posts C and said girders, and the wall F, behind said posts, substantially as set forth.

3. The combination of the girders of a bridge, posts supporting said girders, braces or arches running from said posts to said girders and secured to each, a wall behind said girders, and a fill between said wall and the bank of the stream, which bears against said wall, whereby the thrust of the brace or arch against the opposite side of said posts is counteracted and a solid structure produced, substantially as set forth.

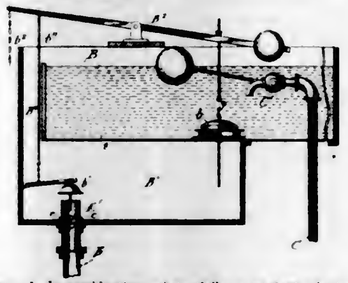
349,346. ENDLESS CARRIER. PETER GRATER, Florida, Ohio. Filed Apr. 16, 1886. (No model.)



Claim.—1. A link or section for an endless carrier, formed of a single piece of metal, and comprising an open frame, E, a hook, G, on one of the sides of the frame, and a socket, square in cross-section, arranged at right angles to the hook and forming one of the sides of the open frame, one end of the said socket being left open, and its other end closed or partially closed by a wall, h, in combination with the transverse slat passed into the open end of the socket and fitting snugly therein, and a pin or rivet passed through the socket and the end of the slat, substantially as described, for the purpose set forth.

2. A link or section for an endless carrier, made or cast in a single piece of metal and comprising an open frame, a hook, a socket having its walls arranged at right angles to each other and located at right angles to the hook, and forming one of the sides of the open frame, said socket having an open end and an end wall, h, and the lateral bracelugs, as set forth.

349,347. WATER-CLOSET. PATRICK HARVEY, Chicago, Ill. Filed Oct. 19, 1885. (No model.)



Claim.—1. In combination, substantially as set forth, the bowl, its siphonic evacuating-pipe and traps, and discharge-pipe to the sewer, the water-ducts, one leading to the bowl and the other to the discharge-pipe beyond the traps, and the air-duct leading from the siphon into the latter water-duct, so as to be exhausted by the water-current through the same.

2. The combination, substantially as set forth, the bowl, its siphonic evacuating and discharge pipe, a water-pipe, an air-pipe from the siphon opening within the water-pipe, and an adjustable mouth-piece for said air-pipe, whereby the water-aperture around said air-pipe may be regulated at will.

3. In combination, substantially as set forth, the bowl, its siphonic evacuating and discharge pipe, the box D, communicating with the bowl and with the siphon, the water-pipe E, leading into said box, the water-pipe F, leading out of said box, the air-duct d, leading from the siphon and terminating near to and concentric with the opening into said pipe F.

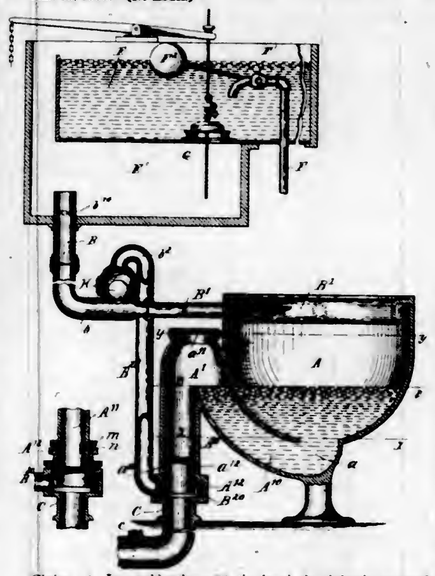
4. In combination, substantially as set forth, the bowl, its siphonic evacuating and discharge pipe, the box D, communicating with the bowl and with the siphon, the water-pipe E, leading into said box, the water-pipe F, leading out of said box, the air-duct d, leading from the siphon and opening within the box D, having its terminal branch in line with the pipe F and its mouth near to the opening into said pipe, and provided with the aperture D^{200} at the surface of the box D, and the interior collar, d^{100}, constituting an adjustable mouth-piece accessible through the opening D^{200}

5. In combination, substantially as set forth, the bowl and its traps and discharge-pipe, the water-pipe, and two water-ways supplied thereby, one leading to the bowl and the other leading to the discharge-pipe beyond the traps of the bowl, and having a trap to prevent return of gas from the sewer into the bowl or service-box.

6. In combination, substantially as set forth, the bowl, its siphonic evacuating-pipe, traps and discharge pipe, the water-pipe and two water-ways supplied thereby, one leading to the bowl and the other leading to the discharge-pipe beyond the traps of the bowl, and provided with a trap to prevent the return of gas from the sewer, and an air-pipe leading from the siphon and opening into the second water-way beyond the trap therein.

7. In combination with the bowl and siphon made integral and having the apertures a^4 and a', respectively, and the flanges H H, the box D, having the nipples D' and D^2, to fit said apertures, respectively, and the flanges H' H', whereby it is secured to the bowl and siphon, substantially as set forth.

349,348. WATER-CLOSET. PATRICK HARVEY, Chicago, Ill. Filed Mar. 18, 1886. (No model.)



Claim.—1. In combination with the bowl, the siphonic evacuating-duct, and a water-pipe terminating in a chamber, which surrounds the discharge end of the siphon, said chamber and siphon both discharging into the soil-pipe, substantially as set forth.

2. In combination with the bowl, the siphonic evacuating-duct, a water-supply pipe having one branch discharging in the bowl and another branch terminating in a chamber, which surrounds the discharge end of the siphon, said siphon and duct both discharging into the soil-pipe, substantially as set forth.

3. In combination with the bowl, the siphonic evacuating-duct, a water-pipe discharging into the soil-pipe around the discharge end of the siphon, and a check-valve in such water-pipe opening with the current toward the soil-pipe and seating in the reverse direction to check back-pressure from the soil-pipe, substantially as set forth.

4. In combination with the bowl, its evacuating-siphon discharging in the soil-pipe, a water-pipe discharging in the soil-pipe around the discharge end of the siphon, and a ventilating-pipe leading from the soil-pipe beyond the entrance thereinto of said siphon and water-pipe, substantially as set forth.

5. In combination with the bowl and its evacuating-siphon, a water-pipe having one branch leading to the bowl to flush the same, and another branch leading to and discharging about the end of the discharge-limb of the siphon, and a check-valve in the latter branch seating toward the said main water-pipe to cut off back-pressure from the sewer, substantially as set forth.

6. In combination with the bowl, the siphonic evacuating-duct, a water-pipe having one branch leading to the flushing-rim of the bowl

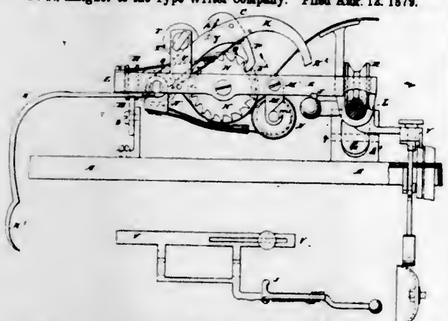
and another branch opening out of it upward and then turning downward and discharging around the discharge end of the siphon to exhaust the air therefrom, substantially as set forth.

7. In combination with the service-box, the pipe-receiving water therefrom at two levels, the apertures at the lower level being less than sufficient to supply the pipe to its full capacity, the bowl, its siphonic evacuating-duct, a branch from the water-pipe discharging into the bowl and another branch opening out of said pipe upward and then turning downward and discharging around the discharge end of the siphon to exhaust the air therefrom, substantially as set forth.

8. In combination with the bowl, its evacuating-siphon, and the service-box, the water-pipe supplied with water from the box at two levels, and insufficiently to fill it at the lower level, and having two branches, the one which is first supplied with water from the main pipe leading to the bowl, and the other, which takes the remaining water only, discharging around the mouth of the siphon, substantially as set forth.

9. In combination with the bowl, its evacuating-siphon, a water-pipe discharging around the discharge end of the siphon, and an adjustable mouth-piece for said siphon to regulate the size of the discharge aperture of the water-pipe, substantially as set forth.

349,349. TYPE-WRITING MACHINE. WILLIAM K. JENNE, Ilion, N. Y., assignor to the Type Writer Company. Filed Aug. 12, 1879.



Claim.—1. In a type-writing machine, in combination with a carriage-lever, pawl, and platen ratchet-wheel, a pin-stop to hold the platen stationary while the paper-carriage is being returned for the commencement of a new line, substantially as shown and described.

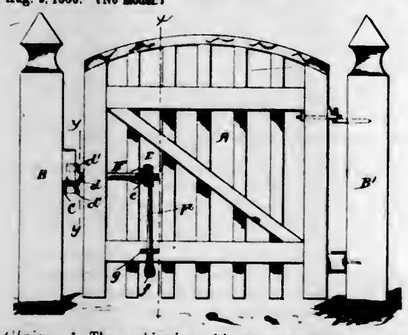
2. In a type-writing machine, an adjustable way or guide-rail, in combination with a paper-carriage, substantially as shown and described.

3. In a type-writing machine, an adjustable way or guide-rail, which is at the same time a graduated scale for indicating the progress of the writing and is provided with slots *b* at each end, substantially as shown and described.

4. In a type-writing machine, a paper-carriage, in combination with a guide-rail hinged at one end, so that both the paper-carriage and guide-rail may be moved out of the plane of their normal position, substantially as shown and described.

5. In a type-writing machine, in combination with a guide-rail hinged at one end, whereby it may be rotated so as to be perpendicular to the top plate of the machine, a paper-carriage rotating about said guide-rail as an axis, substantially as shown and described.

349,350. GATE-LATCH. ANDREW E. JESTER, Jester, Tenn. Filed Aug. 9, 1886. (No model.)



Claim.—1. The combination, with the post and gate, of a stop secured to the one and projecting some distance from its face, and an oscillating latch secured to the other, composed of a base-plate having arms extended from each end at right angles thereto and parallel with the axis of the latch for engaging the sides of the stop, substantially as shown and described.

2. The combination, with the post and gate, of the stop consisting of a strip of metal bent approximately U shape, and having flanges projecting from its edges, and the oscillating latch composed of a base-plate having arms projected from each end at right angles thereto and parallel with the axis of the latch, and adapted to embrace the sides of the stop, substantially as shown, and for the purpose described.

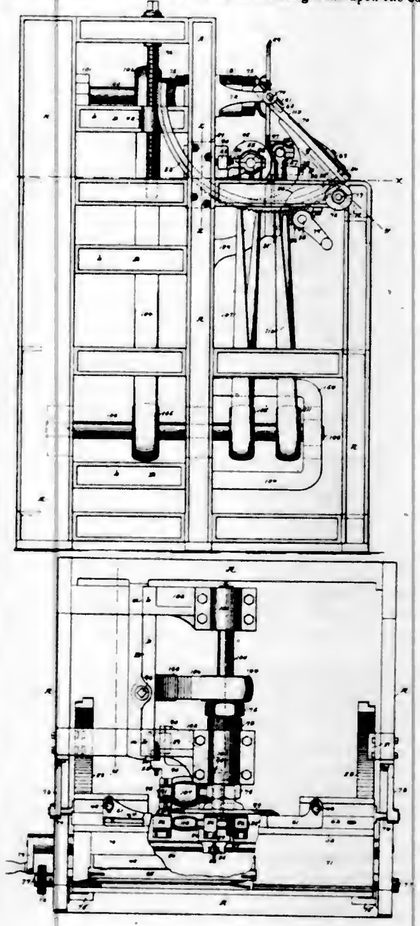
3. The combination, with the post and gate, of the stop, the oscillating shaft, the latch secured to its outer end, the short cross-bar secured to the inner end, and the operating-rods attached to each end of said bar and extended within convenient reach of the feet, substantially as and for the purposes set forth.

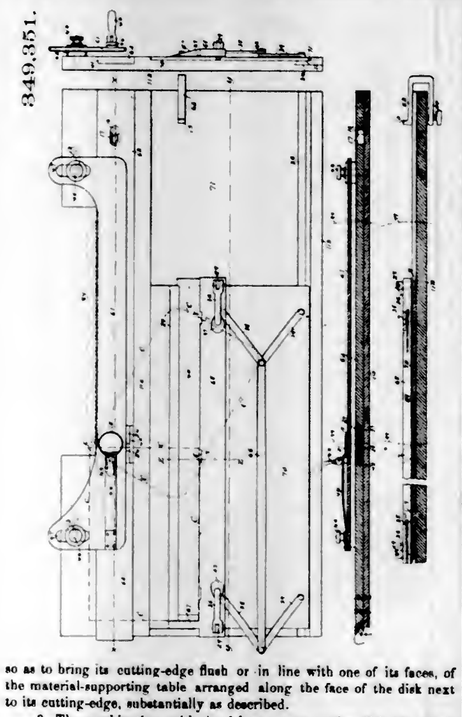
4. The combination, with the stop and the shaft having the latch on one end and the cross-bar on the other, of the operating-rods secured to the ends of the cross-bar, and curved inward at their upper ends and outward at their lower ends, substantially as and for the purpose described.

349,351. MACHINE FOR TRIMMING AND BEVELING THE EDGES OF CARDS. PIERRE LORILLARD, Jr., New York, and ORVILLE S. HARMON, Brooklyn, N. Y., assignors to P. Lorillard & Co., Jersey City, N. J. Filed Mar. 28, 1885. (No model.)

Claim.—1. The combination, with the driven rotary cutting-disk 99, which is beveled or ground upon one edge, so as to bring its cutting-edge flush or in line with one of its faces, of the material-supporting table arranged along the face of the disk next to its cutting-edge, one of said parts being vertically adjustable with relation to the other, substantially as described.

2. The combination, with the driven rotary cutting-disk 99, mounted in the vertically-movable frame B, and beveled or ground upon one edge,





349,351.

so as to bring its cutting-edge flush or in line with one of its faces, of the material-supporting table arranged along the face of the disk next to its cutting-edge, substantially as described.

3. The combination, with the driven rotary cutting-disk 99, which is beveled or ground upon one edge, so as to bring its cutting-edge flush or in line with one of its faces, of the material-supporting table arranged along the face of the disk next to its cutting-edge, and the grinding-wheel 98, arranged to run in contact with the beveled edge of the disk, substantially as described.

4. The combination, with the driven rotary cutting-disk 99, which is beveled or ground upon one edge, so as to bring its cutting-edge flush or in line with one of its faces, of the material-supporting table arranged along the face of the disk next to its cutting-edge and the grinding-wheel 98, arranged to run in contact with the beveled edge of the disk, and the smoothing-roll 97, arranged to run in contact with the face of the disk, said disk, wheel, and roll being mounted upon the vertically-adjustable frame B, so as to be moved together, substantially as described.

5. The combination, with the driven rotary cutting-disk 99, mounted in the vertically-movable frame B, and beveled or ground upon one edge, so as to bring its cutting-edge flush or in line with one of its faces, of the material-supporting table arranged along the face of the disk next to its cutting-edge, and the grinding-wheel 98, arranged to run in contact with the beveled edge of the disk, and the smoothing-roll 97, arranged to run in contact with the face of the disk, said wheel and roll being both vertically and horizontally adjustable with relation to the cutting-disk, substantially as described.

6. The combination, with the driven rotary cutter 99, which is beveled or ground upon one edge, so as to bring its cutting-edge flush or in line with one of its faces, of the material-supporting table 112, arranged along the face of the disk next to its cutting-edge, and made adjustable to different angles with relation to the face of the cutter, and the movable feed-gage, which travels with the material as it is presented to the cutter, substantially as described.

7. The combination, with the driven rotary cutter 99, of the tilting table 112, provided with the adjusting-racks 83 and pinions 82, substantially as described.

8. The combination, with the driven rotary cutter 99, of the tilting table 112, provided with the adjusting-racks 83 and pinions 82, and the locking-clamps 78, substantially as described.

9. The combination, with the driven rotary cutter 99, of the table 112, arranged along the face of the cutter, and having the movable plate or carriage 70, carrying the feed-gage 68 67, substantially as described.

10. The combination, with the driven rotary cutter 99, of the table 112, arranged along the face of the cutter, and having the movable plate or carriage 70, carrying the feed-gage 68 67, having the locking-clamps 29, substantially as described.

11. The combination, with the table 112, of the movable plate or carriage 70, the movable feed-gage 68 67, provided with the locking-clamps 29, and the guiding-arms 38 39, and the rod 66, substantially as described.

12. The combination, with the movable plate or carriage 70, of the plate 69 and bar 68, the latter having the inclined recesses 7, the movable plate 40, having the projections 8, and the stop 65, substantially as described.

13. The combination, with the driven rotary cutter 99, of a pivoted button, as 21, arranged to be clamped against the sheet to hold it and form a pivot upon which it is turned to present its corner to the cutter, substantially as described.

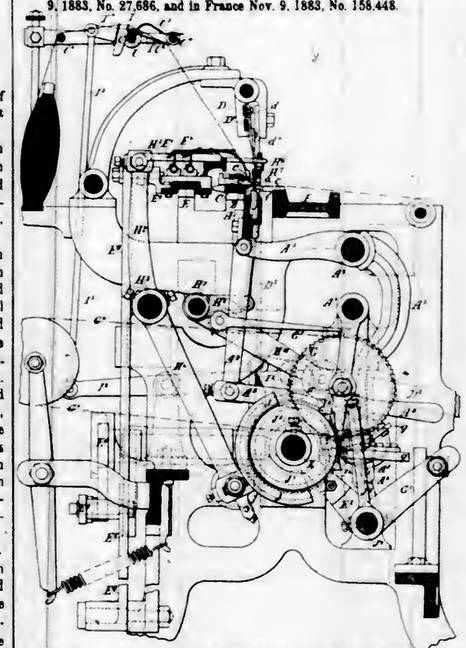
14. The combination, with the driven rotary cutter 99, of the clamping device consisting of the two pivoted buttons 21 25, which clamp the sheet and form a pivot upon which it is turned to present its corner to the cutter, substantially as described.

15. The combination, with the cutter 99 and the table 112 and the movable plate or carriage 70, of a clamping device for clamping and holding the sheet while the corner is being rounded, substantially as described.

16. The combination, with the driven rotary cutter 99 and table 112, of the pivoted buttons 21 25, forming the two members of the clamping device for clamping and holding the sheet while the corner is being rounded, substantially as described.

17. The combination, with the cutter 99 and the table 112, of the clamping device for clamping and holding the sheet while the corner is being rounded, the two members of the clamping device being adjustable in two directions, substantially as described.

349,352. KNITTING-MACHINE. SAMUEL LOWE and JOHN W. LAMB, Nottingham, County of Nottingham, England. Filed Nov. 5, 1883. (No model.) Patented in England May 10, 1883, No. 2,383; in Germany Oct. 9, 1883, No. 27,686, and in France Nov. 9, 1883, No. 158,448.



Claim.—1. The combination, with the traversing thread-carrier, of the vertically-moving needle-bar carrying the needles, and mechanism, substantially as described, by which the needle-bar is given a lateral movement toward the thread-carrier before its upward movement, so that upon its upward movement the selvage-needle will rise upon the proper side of the thread to form the selvage-loops without the assistance of the sinkers, substantially as described.

2. The combination, with the presser-bar and the jack and dividing sinkers, the latter being arranged, as described, so that their nibs project beyond the edge of the bar when in their inactive position, or at the time the needles rise, of the vertically-moving needle-bar carrying the needles, and mechanism, substantially as described, by which the needle-bar is given a lateral movement toward the presser-bar before its upward movement, so that upon its upward movement the needles will pass between the nibs of the sinkers, substantially as described.

3. The combination, with the presser-bar and the jack and dividing sinkers, the latter being arranged, as described, so that their nibs project beyond the edge of the bar when in their inactive position, or at the time the needles rise, of the vertically-moving needle-bar carrying the needles, and mechanism, substantially as described, by which the needle-bar is given a lateral movement toward the presser-bar before its upward movement, so that upon its upward movement the needles will pass between the nibs of the sinkers, and a further lateral movement toward the presser-bar upon its downward movement, so as to close the beards of the needles, substantially as described.

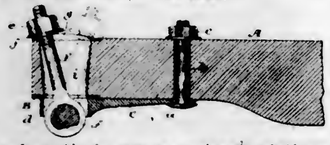
4. The combination, with the presser-bar, the jack and dividing sinkers, the latter being arranged, as described, so that their nibs project beyond the edge of the bar when in their inactive position, or at the time the needles rise, and the knock-over bits, of the vertically-moving needle-bar carrying the needles, and mechanism, substantially as described, by which the needle-bar is given a lateral movement toward the presser-bar before its upward movement, so that upon its upward movement the needles will pass between the nibs of the sinkers, and a further lateral movement toward the presser-bar upon its downward movement, so as to close the beards of the needles, and then a lateral movement away from the presser-bar to carry the needles between the knock-over bits, substantially as described.

5. The combination, with the presser-bar and the jack and dividing sinkers, the latter being arranged, as described, so that their nibs project beyond the edge of the bar when in their inactive position, or at the time the needles rise, and mechanism, substantially as described, for giving the sinkers but one forward and back movement to each traverse of the thread-carrier, of the vertically-moving needle-bar carrying the needles, and mechanism, substantially as described, by which the needle-bar is given a lateral movement toward the presser-bar before its upward movement, so that upon its upward movement the needles will pass between the nibs of the sinkers, substantially as described.

6. The combination, with the traversing thread-carrier *e*, the cam E^3, and connections between the thread-carrier and the cam, for operating the same, the jack and dividing sinkers *c c*', and the jacks *s*' and catch-bar H, and mechanism, substantially as described, for operating the jacks and catch-bar by which sinkers are caused to have but one forward and one backward movement to each traverse of the thread-carrier, of the vertically-moving needle-bar A, carrying bearded needles, and the duplex-action cams A^4 A^5, and connections, substantially as described, between the needle-bar and cams, whereby the needle-bar is given a lateral movement toward the thread-carrier before its upward movement, so that upon its upward movement the selvage-needles will rise upon the proper side of the thread to form the selvage-loops without the assistance of the sinkers, substantially as described.

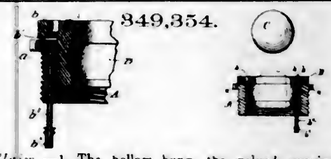
7. The combination, with the traversing thread-carrier *e*, the cam E^3, shaft E^4, gear E^2, and connections between the thread-carrier and the cam, for operating the same, the jack and dividing sinkers *c c*', and the jacks *s*' and catch-bar H, and mechanism, substantially as described, for operating the jacks and catch-bar by which the sinkers are caused to have but one forward and one backward movement to each traverse of the thread-carrier, of the vertically-moving needle-bar A, carrying bearded needles, the duplex-action cams A^4 A^5, and connections, substantially as described, between the needle-bar and cams, whereby the needle-bar is given a lateral movement toward the thread-carrier before its upward movement, so that upon its upward movement the selvage-needles will rise upon the proper side of the thread to form the selvage-loops without the assistance of the sinkers, and the miter-wheel E', shogging-cams J J', arm J^3, shogging-shaft J^3, and connections between the shogging-shaft and the gear E', substantially as described, whereby the traversing movement of the thread-carrier *e* may be stopped during the fashioning operation, substantially as described.

349,353. SCYTHE-SNATH FASTENER. DAVID W. MARSTON, Lebanon, N. H., assignor of three-fourths to Martin V. Purmont, Henry M Day, and Milo L. Stearns, all of same place, and Derby & Ball, Bellows Falls, Vt. Filed Jan. 22, 1886. (No model.)



Claim.—In combination with the usual snath, suitably mortised at *i*, and a shank-securing loop-bolt, F, having an eye which prevents the turning around therein, of a shank adapted thereto, the shank-seat *d*, and a ferrule slotted at *m* and formed or provided with curved bearing-surfaces at *g g* for the nut of said loop-bolt, all substantially as and for the purpose hereinbefore set forth.

349,354. VENT-BUNG. JOHN MEYER, Covington, Ky. Filed Dec. 14, 1885. (No model.)

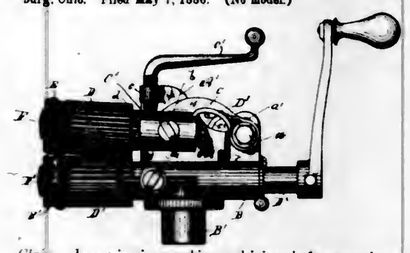


Claim.—1. The hollow bung, the valved opening extending through the same, and the stopper C, compressed within the bung, for the purpose specified.

2. The bung B, having vertical perforation *b*', the tube b^2, the opening of which forms the continuation of the said perforation, in combination with the spherical stopper C, substantially as set forth.

3. The combination, substantially as specified, of the bushing A, screw-threaded externally and internally, the bung B, having a valve-opening vertically through it and threaded externally to fit into the bushing A, with the spherical elastic stopper C to close the opening in the bung, substantially as described.

349,355. CRIMPING-MACHINE. FRANK R. PACKHAM, Mechanicsburg, Ohio. Filed May 7, 1886. (No model.)



Claim.—In a crimping-machine, a driving-shaft supporting one or more crimping-rolls which revolve with said shaft and are capable of a longitudinal movement thereon, said shaft being adapted to move longitudinally in the bearing in it, which it is also adapted to revolve, and means for holding said shaft in different positions of longitudinal adjustment, whereby a greater or less proportion of said shaft may be projected from its bearing to accommodate the roll or rolls thereon, substantially as specified.

2. The combination, in a crimping-machine, with the crimping-rolls, of a shaft adapted to revolve said rolls, one of which is connected to said shaft by means which will permit a longitudinal movement thereon, said shaft being capable of a longitudinal movement in its bearing, and provided with grooves and a suitable fastening device to engage the grooves and hold said shaft against longitudinal movement, substantially as and for the purpose set forth.

3. The combination, in a crimping-machine, of a frame having a lower bearing and a single side wing or extension, of a hinged supporting-arm in the same vertical plane with said lower bearing, pivoted to said side wing, and means, substantially as specified, for securing the upper-roller bearing to said supporting-arm.

4. The combination, in a crimping-machine, of a main frame having a lower bearing and an upwardly-projecting side wing, a hinged arm supporting the upper-roller bearing, said hinged arm being provided with a projection and shoulder adapted to project through and form a bearing on said side wing, substantially as specified.

5. The combination of the main frame having bearings with the crimping-rolls journaled in the bearings, one of said bearings being pivoted at the rear to the main frame through a slot formed on the arc of a circle, having its center at the point of intersection of the rear faces of said crimping-rolls, substantially as set forth.

6. The combination, with the main frame and the crimping-rolls supported on suitable journals on said main frame, of a hinged supporting-arm, provided with a sleeve or socket of a uniform size throughout, adapted to support the upper journal, and means for securing said journal in different positions of adjustments in said sleeve, substantially as specified.

7. The combination, with a main shaft having crimping and ogee rolls thereon, of a supplemental shaft supporting a crimping-roll, said supplemental shaft being provided with an eccentric portion to support the ogee-roll, and means for supporting said shaft which will permit of a rotary motion about its axis, substantially as and for the purpose set forth.

8. The combination, with the crimping-rolls and their respective supporting-shafts, said shafts being capable of longitudinal movement through their respective bearings or supports, of thin-headed securing-nuts adapted to screw into the said shafts to hold the roll thereon, substantially as and for the purpose set forth.

9. The combination, with the main frame and the intermeshing rolls, of the supporting-shafts for said rolls, each capable of a longitudinal movement to provide for the use of a greater or less number of rolls, substantially as specified.

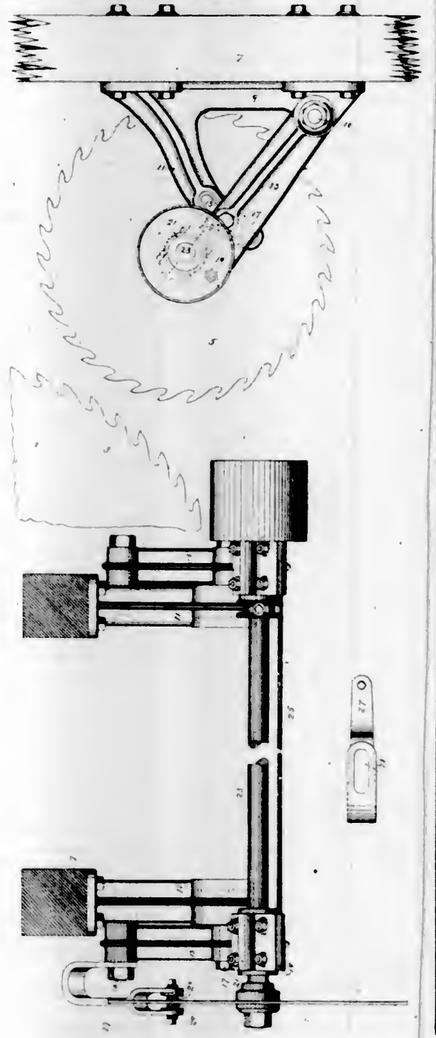
10. The combination, with the main frame, of the crimping-rolls and their supporting-bearings, said bearings being of a uniform size throughout and free or unincumbered at their outer ends, whereby the said rolls may be adapted to stand flush with the outer ends of said bearings, substantially as specified

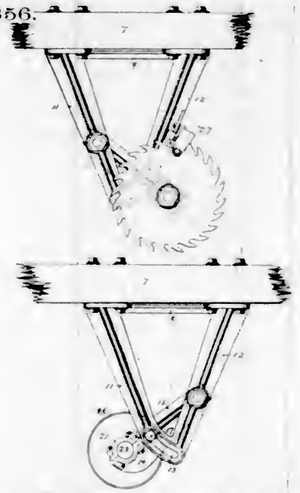
11. The combination, with the main frame having the lower bearing and a single upwardly-projecting side flange or wing, of the main shaft supporting the lower roll and adapted to slide longitudinally through the lower bearing, and the upper supporting-arm pivoted to the single upwardly-projecting flange or wing, and supporting the upper roll, substantially as described.

12. The combination, with the main frame having the lower bearing for the main shaft, and the single flange or wing, of the supporting-arm adjustably secured at either end to said flange, substantially as and for the purpose set forth.

13. The combination, with the frame and rolls, of the main shaft journaled in said frame and capable of longitudinal movement in its bearings, and provided with a series of grooves, and a hinged latch, adapted to engage with the respective grooves, substantially as specified.

349,356. CIRCULAR-SAW MILL. WILLIAM F. PARISH, Minneapolis, Minn. Filed May 3, 1886. (No model.)





Claim.—1. The combination, with a circular saw, of an independent swinging overhead frame, a top saw mounted on said swinging frame, and a depending arm or hanger, to which said swinging frame is adjustably secured at a point between its pivot and the saw-arbor, substantially as described.

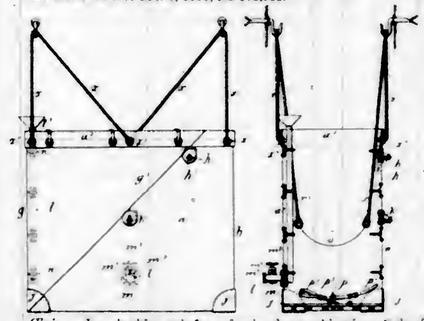
2. The combination, in a circular-saw mill, of the overhead swinging frame with the top saw mounted thereon, the independent slotted arms 11, and the bolts adjustably securing said swinging frame to said depending arms, all substantially as described.

3. The combination, in a circular-saw mill, of the plates 9, the depending arms projecting at an angle therefrom and provided with the slots 13, the pivoted arms 15, having the bolts 17 passing through the slots 13, the arbor mounted on said pivoted arms, and the saw 5 on said arbor, substantially as described.

4. The combination of the plates 9, the arms 11, projecting downwardly therefrom, and having the slots 13 therein, the arms 15, pivoted to the plates 9, the bolts 17, passing through said slots 13, the arbor, and saw, all substantially as described.

5. The combination, with the top saw, mounted on the pivoted arms 15, of the curved bar 27, adjustably secured upon the pivot-bolt 16, and having the forked end with bearing-blocks 29 upon the opposite sides of the saw, substantially as described.

349,357. WATER-PROOF-CLOTH BATHING-TUB FOR HORSES. ADRIEN PURSON, Stenay, Meuse, France. Filed July 7, 1886. (No model.) Patented in France Feb. 6, 1886, No. 173,903.



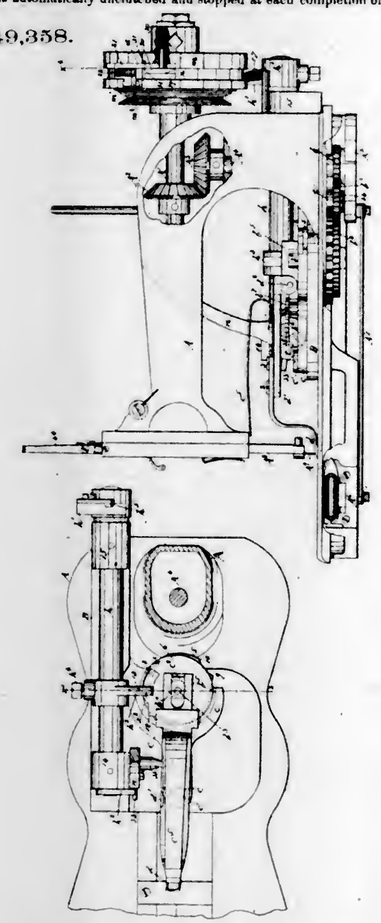
Claim.—In a bathing-tub for animals, the combination of the flexible body having folding side and end walls, *a*, *a*', *b*, and *g*, eyes *x*' and *x*^{2} in the side walls, and discharge and supply pipes supported by the side walls, with the removable bottom *o*, having strap-holders *p* and *q*, substantially as herein shown and described.

349,358. BUTTON-HOLE-BARRING MACHINE. JOHN REECE, Boston, Mass. Filed Apr. 28, 1884. (No model.)

Brief.—The machine is especially adapted to bar and cross-bar the barring-threads at the square end of an eyelet-ended button-hole previously finished about the sides and eyelet on a button-hole sewing-machine. That end to be barred of the partly-stitched button-hole, as above

stated, is placed beneath the presser-foot, with the button-hole lengthwise of the machine. The points and depressions in two disks give three quick vibrations to a forked lever, and thereby to the cloth-holding lever and its foot, and the said foot is reciprocated by a cam in the direction of the length of the button-hole, being moved at the same time slowly transversely of the button-hole by the scroll-shaped edges of the two disks to effect the proper spacing of the said stitches. A nipping tension device is attached to the top of the head of the machine. The machine is automatically unclutched and stopped at each completion of barring.

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Claim.—1. In an attachment for barring the ends of button-holes, a yielding pressing and feeding foot to bear upon the material, a slide-bar connected with said foot and provided with a yoke, a lever by which the said slide-bar is carried and on which it can slide, a cam rotating in said yoke and serving to reciprocate the said slide-bar lengthwise, and two rotating disks having at certain portions of their peripheries oppositely-arranged projections and depressions, substantially as set forth.

2. The combination, with the base B of the attachment, of the rotating shaft b^3, its cam b^4, the slide-bar b^2, having a yoke, b^5, in which said cam rotates, and the pressing and feeding foot d, connected with said slide-bar, substantially as set forth.

3. The base B of the attachment, the shaft b^3, its cam b^4, means to turn the said shaft, the slide-bar b^2, having a yoke, b^5, in which said cam rotates, and the yielding pressing and feeding foot operatively connected with said slide-bar, combined with two disks having circumferential projections and depressions, and the pivoted lever upon which said slide-bar is held and guided, said lever being forked to embrace said disks, substantially as set forth.

4. In a sewing-machine attachment, the upright shaft A^4, pinion b, the gear b^3, intermediate b', shaft b^3, its cam, the slide-bar, and the pressing and feeding foot operated by it, combined with the two disks 5 6, provided with suitable projections and depressions and with means to operate the said disks intermittingly, and with the forked lever c, operated thereby, all substantially as described.

5. In a sewing-machine, a barring attachment comprising a feeding presser-foot, a rotating cam for reciprocating said foot lengthwise of the button-hole, and rotating disks having oppositely-arranged projections and depressions and scroll-shaped edges, as described, combined with a clutch-pulley and intermediate devices for effecting the stoppage of the machine when the bar is completed, substantially as set forth.

6. The feeding-foot, the slide-bar, the pivoted forked lever to carry the latter, combined with the rotating disks 5 and 6, embraced by the fork of said lever, and having circumferential projections and depressions to move the said lever quickly over the greatest distance traveled by it to effect the movements of the said foot crosswise of the button-hole, and having other circumferential portions scroll-shaped, as described, to move said lever slowly from one to its other position, combined with a rotating cam to reciprocate the said slide-bar and foot in the direction of the length of the button-hole slit, substantially as and for the purpose set forth.

7. The combination, with the feeding presser-foot d and its operating mechanism, including the disk 6, having the depression 8, of the rock-shaft h, having a toe provided with a pin adapted to engage said depression, and having also an arm carrying a dog, of a clutch-pulley adapted to be unclutched by said dog when the said pin is forced into said depression, substantially as set forth.

8. The combination, with the reciprocating needle-bar, of the post 42, secured to the sewing-machine head or face-plate adjacent to said bar, and having a flattened face and a tension-spring, 40, pressing against said flattened face, and provided with a projection, 41, extending beyond said post into the path of the needle-bar, whereby said spring will be forced away from said post at the upward movement of the needle-bar to release the thread, substantially as set forth.

349,359. BUTTON-HOLE SEWING-MACHINE. JOHN REECE, Boston, Mass. Filed May 19, 1884. (Model.)

Brief.—The invention is an improvement on the machine represented in Letters Patent No. 240,546, granted April 26, 1881, to same party. Instead of two eye-pointed needles being used above the bed-plate, as in that machine, but one is there located, another being located beneath the bed-plate. Separate cam devices on the main shaft give movements to the needles, through lever-connections, a compound lever below the bed-plate being actuated to impart motion to complex devices, whereby the lower eye-pointed needle and a looper are caused to co-operate with the upper eye-pointed needle in overseaming, the under thread carried by the under needle being drawn about and made to cover the edge of the button-hole slit portion both above and below from that point of the material penetrated by the upper needle. The button-hole cutter-lever is adapted to be adjusted to compensate for wear of the cutting-bed to insure always a clean cut. Clamping mechanism spreads the button-hole and holds the material in a stretched condition, which mechanism is automatically released upon the completion of the stitching, automatic mechanism also slackening the thread at this instant. The length of the stitching may be automatically varied between the points of commencing and completion of the button-hole, a pattern-plate being adjustably attached to the bed-plate for this purpose, the lower end of a screw carried on one arm of the lever actuated by a cam on the driving-shaft engaging with the said pattern-plate, thus shortening or lengthening the stitch, as may be determined. The pulley-driving wheel is unclutched and the machine positively stopped at the completion of the button-hole by automatic mechanism. An eccentric stud may be operated by hand to move a lug so as to engage the inclined portion of the clutch mechanism and unclutch the same whenever desired. After the stitch-forming mechanism has been stopped at the completion of the button-hole in the ordinary use of the machine, the feed is continued until stopped by the arresting-bar, leaving the traveling frame in its forward position with the material unclamped and the thread slackened.

Claim.—1. In a button-hole-stitching mechanism, the combination, with a throat-plate, of a reciprocating needle-bar and its eye-pointed needle d, the raceway-block A^7, the needle-carrying block, its curved under needle, 3, a co-operating looper, and means for operating said needles and looper, substantially as set forth.

2. The throat-plate, the raceway-block A^7, inclined at one side, as described, the needle-block B and its attached under-thread-carrying needle, combined with the needle-bar, needle d, and means, substantially as described, to actuate the same, whereby the under needle is made to cross the path of movement of the upper needle diagonally, substantially as described.

3. The raceway-block A^7, the reciprocating needle-bar b' and its eye-pointed needle, the needle-block B, and under-thread carrier, combined with the looper-lever, the attached looper-lever cam, the looper-carrier, the looper, and the lever to operate the said cam, substantially as described.

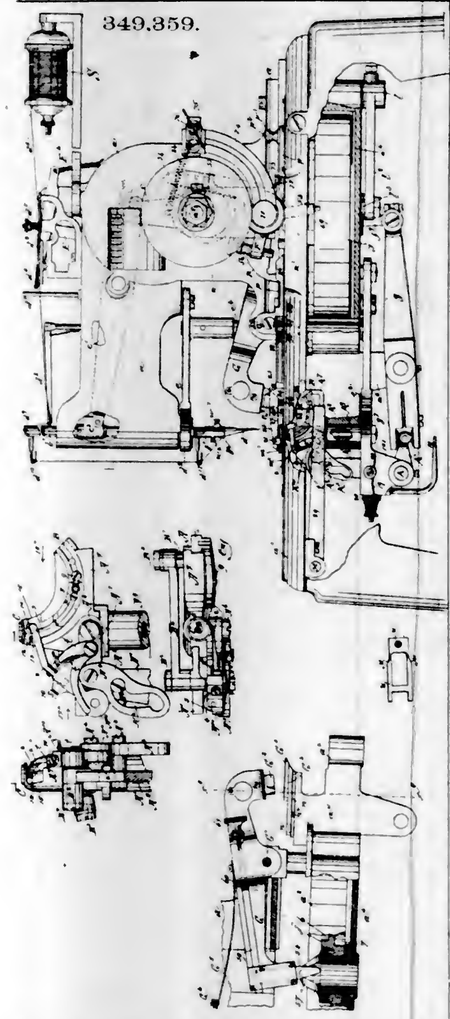
4. The raceway-block A^7, needle-block B, under-thread carrier 3, looper-lever, its attached cam and lever A', to move the said cam and looper-lever, and the cam-surface 5, combined with the looper and looper-carrier pivoted upon the looper-lever, and moved in one direction by the said cam-surface to cause the looper to carry the loop of thread taken from the needle d to the edge of the button-hole slit, to operate substantially as described.

5. The raceway-block A^7, needle-block B, attached under needle, looper-lever, looper-lever cam, looper and looper-carrier pivoted upon the looper-lever, the throat-plate, lever A', provided with stud to operate the looper-lever cam, the link to connect the lever A' and the needle-block, the needle-bar, needle d, gears d^2 and g^7, and means, substantially as described, to partially rotate the needle-bar and the said race, to operate substantially as set forth.

6. The bed-plate a', the movable frame a, means, substantially as described, to reciprocate and vibrate the same, the raceway-block A^7, the needle-block B, attached under needle, looper-lever, looper-lever cam, looper and looper-carrier pivoted upon the looper-lever, the throat-plate lever A', provided with stud to operate the looper-lever cam, the link to connect the lever A' and the needle-block, the needle-bar, needle d, gears d^2 and g^7, and means, substantially as described, to partially rotate the needle-bar and the said race, to operate substantially as set forth.

7. In a button-hole-stitching machine, the throat-plate, needle-bar, needle d, and means, substantially as described, to operate the needle-bar, combined with the looper 2, cut to form a throat, 14, and provided with the point 12 and heel 13, and with means to operate the said looper, whereby it is made to enter the loop of needle-thread under the throat-plate and carry the loop aside to the edge of the button-hole slit for the entrance of the under needle, substantially as set forth.

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8. The bed-plate, the movable frame, means, substantially as described, to reciprocate and vibrate the same, the raceway-block A^7, block B, attached under needle, looper-lever, looper-lever cam, looper and looper-carrier pivoted upon the looper-lever, the throat-plate, lever A', provided with stud to operate the looper-lever cam, the link to connect the lever A' and block, the needle-bar, needle d, gears d^2 and g^7, and means, substantially as described, to partially rotate the needle-bar and the said race, and with clamping mechanism, substantially as described, to clamp and hold the material to be stitched.

9. In a button-hole sewing-machine, the combination, with stitching mechanism to stitch the edge of a button-hole and a cam having a projection, 57, of a cutting-bed, a cutter, cutter-lever, and a toe, 58, attached to the cutter, and means, substantially as described, to adjust the said toe.

10. In a button-hole sewing-machine, a stitch-forming mechanism, the cutter-bed, the cutter-lever, its attached cutter, and the adjustable toe, combined with a cam to act upon the said toe and vibrate the cutter-lever, adjustment of the said toe compensating for the wear of the bed, substantially as described.

11. In a button-hole-stitching machine, the bed-plate, its attached clamp composed of lower members, m m, having surfaces m^2 m^2, fingers 22, provided with the plates m', links 26, and springs 28, the rock-shaft having arms 29, combined with the cam-lever 33, to operate the rock-shaft and close the clamp upon the material, substantially as described.

12. In a button-hole-stitching machine, the bed-plate, its attached clamp composed of lower members, m m, having surfaces m^2 m^2, fingers 22, provided with the plates m', links 26, and springs 28, the rock-shaft having arms 29, combined with the cam-lever 33, to operate the rock-shaft and close the clamp upon the material, and with the movable frame and pivoted spreader to operate upon the studs 65 of the lower members, m, of the clamp, as and for the purposes set forth.

13. In a button-hole-stitching machine, the bed-plate, the cloth-clamping mechanism, the movable frame a, the stitching mechanism carried thereby, and the pivoted spreader, combined with means, substantially as described, to reciprocate and vibrate the said frame, as and for the purposes set forth.

14. The bed-plate, the cloth-clamping mechanism and the cam-lever to effect the closing of the said clamping mechanism upon the material to be stitched, the latch on the cam-lever, the trigger-lever, and the trigger to hold the trigger-lever and retain the cam-lever in position to keep the clamping mechanism closed, combined with the trigger-rest, movable frame, and lever having the inclined projection to release the trigger and trigger-lever at the completion of a button-hole and automatically effect the unclamping of the material, substantially as described.

15. The clamping mechanism for the material to be stitched, the lever to hold the said mechanism closed, the latch 37 thereon, and the thread-slacking lever, combined with intermediate mechanism, substantially as described, to release the lever which holds the clamping mechanism as the button-hole is completed and to operate the thread-slacking lever to draw the needle-thread and produce slack therein, to permit the removal of the material from the open clamp, as set forth.

16. The arm 29, the cam-lever 33, mounted on the bed-plate and chambered or cut away at 66, and the feed-arresting bar provided with the projection o^3, combined with the cam-wheel and the dog 49, and with means to operate the said dog until the same is stopped by the feed-arresting bar, substantially as described.

17. The bed-plate, movable frame, the cam-wheel j, the dog 49, means, substantially as described, to operate the dog and rotate the said cam-wheel, and the feed-arresting bar provided with the projection o^3 to be acted upon by the dog 49, combined with the cam-lever 33, shaped to stop the forward movement of the feed-arresting bar and the vibration of the dog 49 when the cam-lever is in one position, the cam-lever being cut away, as described, to permit the feed-arresting bar to move forward, and permit the movement of the dog 49 when the said cam-lever is in its other position, substantially as set forth.

18. The bed-plate, the tension device, the clamping mechanism for the material to be stitched, the cam-lever 33 and its attached latch 37, and the thread-slackening lever d^6, combined with the lever D and connecting-link E, substantially as and for the purpose described.

19. The bed-plate, the cam-lever, its latch 37, the trigger-lever, the trigger, its adjustable pin 38 and foot 39, and the trigger-rest, combined with the movable frame and its lever 41, provided with the inclined projection, to operate substantially as described.

20. The bed-plate, the controlling-bar p, having portions at its upper side in two planes, and the slide-bar 67 therein, combined with the frame a, rock-shaft 71, its arms 70, provided with a toe to rest upon the controlling-bar, and the arm 74, and the dog 75 in the arm 74, combined with the main shaft a^2, clutch-wheel, its friction-plate, the belt-pulley and its spring 81, and with a spring to keep the toe of the arm 70 upon the controller-bar, substantially as described.

21. The bed-plate, the controller-bar, the washer p', and bolt p^2, and nut p^3, combined with the slide r, having the projection r', and with the movable frame a, rod or shaft E^4, and spring 72, to operate substantially as described.

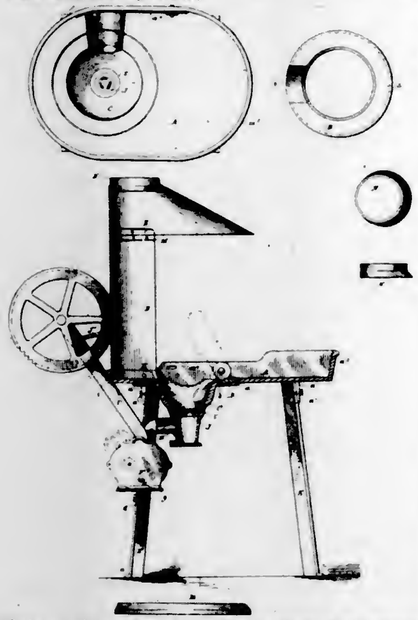
22. The controller-bar, rock-shaft 71, its arm 70, provided with the toe, the arm 74, the dog 75, and means to move it, substantially as described, combined with the movable frame *a*, main shaft a^2, its attached clutch-wheel, friction-plate, and loose belt-pulley, substantially as described.

23. The bed-plate, movable frame *a*, shaft a^2, loose belt-pulley and its attached eccentric, the cam-wheel, dog 49, and means, substantially as described, to operate the latter, and the three-armed lever F, moved by the said eccentric, and provided with the adjusting device 56, combined with the pattern-cam having different parts of its upper surface at different levels, the lever F, moving the dog 49 and actuating the cam-wheel, substantially as described.

24. The bed-plate, movable frame, lever A′, lever *g*, eccentric link f^6, shaft a^2, disk *f*, and the link f^2, attached thereto and provided with an eccentric, and pins *f′* and f^3, combined with the stationary cam 45, in which is received a roller-stud, f^7, on the pin f^6, projecting from one side of the said slotted link, all to operate substantially as described.

25. In a button-hole sewing-machine, the combination, with the stationary frame and the controlling-bar *p* thereon, of the traveling frame *a*, carrying the stitch-forming mechanism, the arms 70 and 74, the dog 75, the shaft a^2, the clutch-wheel M, fast thereon, the friction-plate M′, provided with the incline, the belt-wheel N, loose on the said shaft, and the spring 81, attached to the belt-wheel and adapted to be engaged by the said friction-plate, whereby, when a button-hole is completed, the clutch will be automatically uncoupled from the belt-wheel and the operation of the stitch-forming mechanism thus suspended, substantially as set forth.

349,360. PORTABLE FORGE. FRANCIS M. ROOTS, Connersville, Ind. Filed Jan. 19, 1886. (No model.)



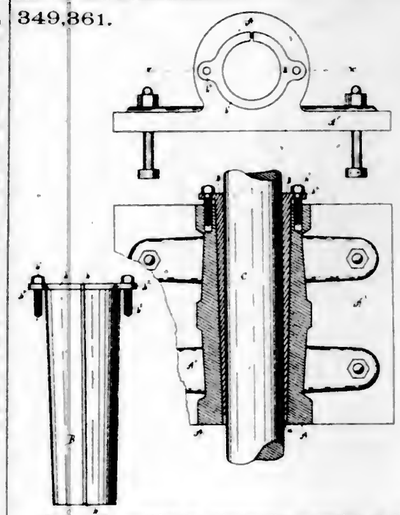
Claim.—1. In a portable forge, the combination of the open-bottomed hearth A, having flange *a*, and the loose ring B, fitting in the opening in the hearth, with a fire-bed fitting within said ring and supported by it, substantially as specified.

2. The combination, substantially as specified, of the hearth A, having an opening in it, a detachable fire-bed to fit said opening, and lugs *a*, with the angle-legs E, to be secured to said lugs.

3. In a portable forge, the combination, as specified, of the hearth A, the fire-bed C, and tuyere with the blower F, the brace and platform G *g*, legs E, and blast-pipe connecting the blower and tuyere, the said blower being mounted upon said platform, and the platform secured by its brace to the legs, the parts being detachable, for the purpose set forth.

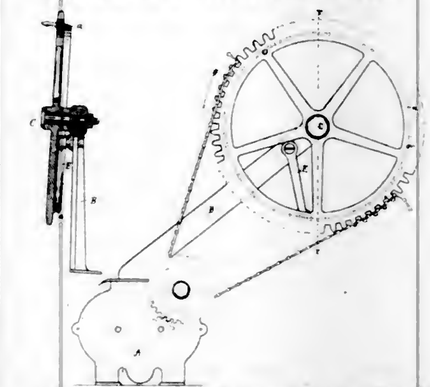
4. A leg for portable forges, consisting of wrought angle-iron, and having the upset feet or flanges *e*, substantially as specified.

349,361. JOURNAL-BOX. FRANCIS M. ROOTS, Connersville, Ind. Filed Jan. 19, 1886. (No model.)



Claim.—The combination, substantially as specified, of the box A, having a bore tapering from end to end to receive the bearing-sleeve B, the sleeve B tapering upon the outside to correspond with the bore in the box, and having a longitudinal slot, *b*, lugs b^2, and screws b^3, passing through said lugs and tapped into the end of the box to tighten the bearing upon the journal.

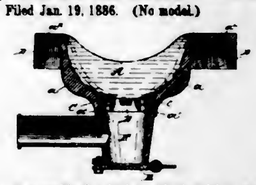
349,362. STOP MECHANISM FOR DRIVING-SHAFTS. FRANCIS M. ROOTS, Connersville, Ind. Filed Jan. 19, 1886. (No model.)



Claim.—1. The combination, substantially as specified, of the standard B and wheel D, mounted upon the pin C in said standard, the said wheel having a flange, *a*, with the arm E, pivoted to said standard B, and having its free end resting on the flange of wheel D, substantially as shown and described.

2. The combination, substantially as specified, of the driving-wheel D, having flange *a*, the arm E, pivoted on a stationary object at one end and having its opposite end in proximity to the flange, the said arm E being provided at its free end with a dovetail groove, and a friction-shoe held within said groove, for the purpose set forth.

349,363. FIRE-BED AND TUYERE. FRANCIS M. ROOTS, Connersville, Ind. Filed Jan. 19, 1886. (No model.)



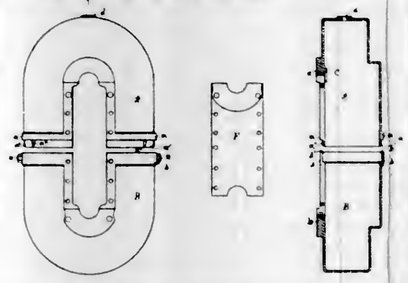
Claim.—1. A metallic fire-bed for blacksmiths, of the form shown, and having its wall thickened at *a*, for the purpose set forth.

2. A metallic fire-bed of the character described, having its body cast in a single piece, and having the downwardly-projecting flange D surrounding said body to support the same.

3. A metallic fire-bed of the character described, having its body cast in a single piece, and having a laterally-projecting flange perforated at a^2, and a downwardly-projecting flange, D, surrounding said body, and, when the device is set for use, forming an air-chamber around the same for the purpose of keeping the bed cool, substantially as specified.

4. In a blacksmith's fire-bed, the combination of the bed A and tuyere F, cast in one piece, and having an offset, *a′*, between the two, with the perforated plate B, constructed to rest loosely within said offset, and the ring C, to rest upon said plate within the body A, for the purpose set forth.

349,364. HOUSING FOR COG-WHEELS. FRANCIS M. ROOTS, Connersville, Ind. Filed Jan. 19, 1886. (No model.)



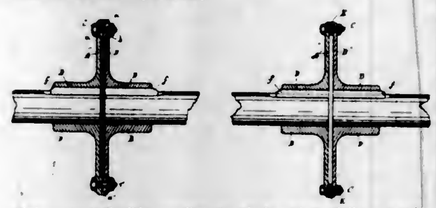
Claim.—1. In a housing for cog-wheels, the combination of the section A, having a downwardly-projecting tongue, *a′*, and the lower section, B, having a rabbet to receive said tongue, the perimeter of the tongue being small enough to allow a space between it and the wall of the rabbet, for the purpose set forth.

2. A two-part housing for cog-wheels, matched together by tongue and rabbet, the interlocking parts being separated by projections upon the adjacent face of one or other of said parts, and the parts secured together substantially as shown and described.

3. The two-part housing A B, the one having a tongue and the other a rabbet to receive it, with the projections a^2, to separate the interlocking parts, and the projections C, overhanging the shaft-openings on the inside wall of the upper section, for the purpose set forth.

4. The combination, substantially as specified, of the upper section, A, having the molding *a*, the tongue *a′*, and projections a^2, with the lower section, B, having the molding *b*, rabbet *b′*, and set-screws *c*, to secure the sections together, leaving an air-space between the adjacent walls of the interlocking parts.

349,365. SHAFT-COUPLING. FRANCIS M. ROOTS, Connersville, Ind. Filed Jan. 19, 1886. (No model.)



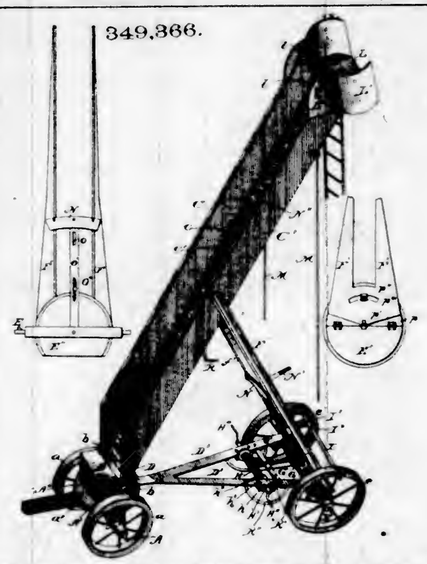
Claim.—1. A flexible coupling for shafts, substantially as hereinbefore set forth, which consists of two thin metal disks separated from each other by intervening flanges or a ring near the periphery, and having hubs for securing them on the shaft-sections.

2. In a shaft-coupling, the combination, substantially as specified, of the disks A B, having flanges *a b*, hubs D, and fastening-bolts C.

3. The combination, substantially as set forth, in a flexible shaft-coupling, of the disk A, having flange *a′*, and the disk B, having the flange *b*, and made small enough to fit within the flange *a′* of disk A, with bolts C, for securing the parts together, and hubs D, for securing them on the ends of the shaft-sections.

349,366. FIRE-ESCAPE. OBAL H. ROUNDS, Welland, Ontario, Canada. Filed Apr. 26, 1886. (No model.)

Claim.—1. In combination, the front axle carrying two superposed disks rotatable with relation to each other, a bolster secured on the upper disk and having secured to it a backward-projecting coupling-pole and hounds, a ladder pivoted to said bolster, a rear axle having hinged and pivotally connected thereto forward-projecting arms, which are pivotally connected to the ladder at their front ends, and mechanism for drawing the trucks together, whereby, when raised, the ladder may be slightly tilted to either side, as set forth.



2. In combination, the front and rear axle having, respectively, backwardly and forwardly projecting arms, the ladder pivotally connected to the front bolster at its lower end and to the forwardly-projecting arms near its mid-length, upright posts secured at the rear axle, springs coiled around them, and a perforated bar fitting over them, upon which the ladder may rest, for the purpose set forth.

3. In combination, the ladder pivotally connected at its lower end to the front bolster, the rear axle having raising-arms pivotally connected to the ladder, a steering apparatus attached to said arms, and the rear axle and its operating-post, passing upward through the ladder and provided with a hand-wheel, as set forth.

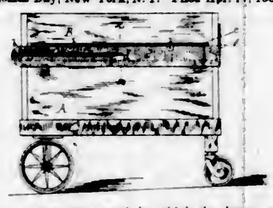
4. In combination with the ladder and rear axle, the disk or plate secured to said axle and hinged at its middle, the raising-arms pivoted to the hinged half of said plate, whereby they may be tilted sidewise, and the securing-screw or bolt for maintaining it in its tilted position, as set forth.

5. The combination, with the inclosed metallic stairway provided with metallic sheet railing and hand-rail, of the platform pivoted to the upper end thereof, having similar railing and hand-rail, and adjustable on its pivot, and a securing-bolt for maintaining it in its adjusted position, as set forth.

6. In combination, the front axle having rearward-projecting hounds, which are provided with supporting-legs and a cross-bar, as set forth, and the ladder having hooks to engage with said cross-bar, whereby the hounds may be suspended from the ladder or supported on the ground at will, as set forth.

7. In combination with the rear axle and the disk E″, pivoted thereto, the longitudinal slotted bar O′, secured to said axle, the raising-levers F′, secured to the disk and having cross-bar N, the post N′, passing through the ladder and having the steering-wheel at its upper end, and the arms *n′ n″*, secured to said post and entering the slot in the door O′, as set forth.

349,367. TRUCK. RICHARD J. SAXTON, Brooklyn, assignor of one-half to Thomas Day, New York, N. Y. Filed Apr. 17, 1886. (No model.)



Claim.—1. A two-story truck in which the lower story or section of the body has a slotted slide along the upper edge of two of its oppo-

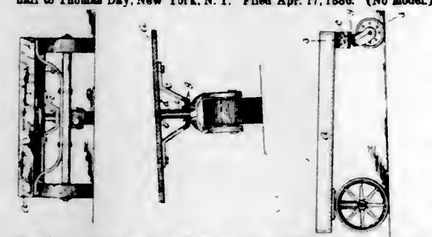
site sides, and the upper section connected therewith by trunnions or studs upon its corresponding sides, substantially as and for the purpose set forth.

2. In a truck having two or more sections or stories, the lower section, A, and the slotted arms *a*, in combination with the section B and trunnions *d*, substantially as described.

3. In a truck having two or more sections or stories, the lower section, A, slotted arms *a*, upper section, B, and trunnions or studs *d*, in combination with the angle-iron bars c and rollers *i*, substantially as described.

4. In a truck having two or more stories or sections, the lower section, A, slotted arms *a*, section B, and trunnions or studs *d*, in combination with the latch *e*, substantially as described.

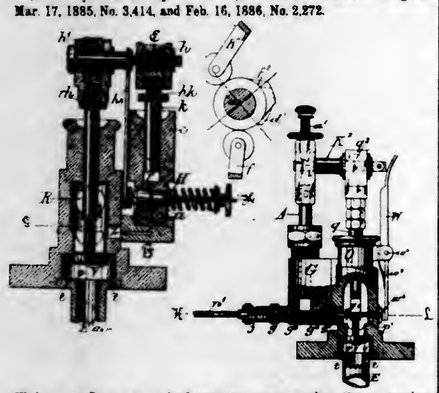
349,368. TRUCK. RICHARD J. SAXTON, Brooklyn, assignor of one-half to Thomas Day, New York, N. Y. Filed Apr. 17, 1886. (No model.)



Claim.—1. In a three-wheel truck, the combination of an angle-iron frame and the bracket *c* with a caster-wheel whose spindle has bearings both perpendicular and horizontal in both the main frame and the bracket, substantially as described.

2. In a three-wheel truck, the combination of the frame *a* and bracket *c* with the spindle *d*, having bearings and shoulders at *e* and *g*, and the pin *i*, substantially as and for the purpose set forth.

349,369. PETROLEUM AND GAS ENGINE. JOHANNES SPIEL, Berlin, Germany. Filed May 4, 1886. (No model.) Patented in England Mar. 17, 1885, No. 3,414, and Feb. 16, 1886, No. 2,272.



Claim.—1. In a gas or hydrocarbon-vapor engine, the measuring and mixing mechanism, actuated in any convenient way, consisting of a plunger working in a cylinder, through the end of which works a plug having a channel cut half-way round its central part, and which plug is worked with a reciprocating rotary motion to open as the plunger descends and the working-piston of the engine makes its first stroke, and of an air-valve opened at the same time, in combination with a mixing-space under the said air-valve, a bent pipe leading therefrom into the ignition-chamber of the engine, the top end of which is surrounded by an annular gutter, substantially as and for the purpose described with reference to the accompanying drawings.

2. In the slide of a gas or hydrocarbon-vapor engine, which is traversed to and fro between an external lighting-flame and a face formed upon the cylinder, and against which it is held in any convenient way, the combination of a port in the cylinder, through which combustible mixture can pass into a chamber in the valve as the valve starts on its outstroke, into which projects a short tube from the outer face of said slide, leaving a circular space in front of it of like diameter, and an external annular space round it, to which combustible mixture is fed during the outstroke and return-stroke of the valve through a small port in the cylinder opening into a horizontal shallow channel (part of which is only a slit) in the cylinder-face of the slide, said channel being of the length of the stroke of the slide, and thence along a port in the body of the slide opening into the external annular space aforesaid, with a spring device for effecting a rapid return-stroke, substantially as described with reference to the accompanying drawings.

3. In the slide-valve of a gas or hydrocarbon-vapor engine for igniting a high-pressure charge of combustible within the engine-cylinder, the combination, with a narrow slit in the cylinder-face of said slide, which slit forms part of a channel for the feed of combustible mixture from the engine-cylinder to the cavity in the body of the slide, of a transverse screw in the solid part of the slide, and having its nose close to the slit, whereby the width of the said slit can be increased by advancing the nose of the screw, and allowed to narrow by withdrawing the screw, substantially as and for the purpose described with reference to the accompanying figures.

4. In a gas or hydrocarbon-vapor engine, the combination of an injection-pump for supplying the combustible in measured quantity, an air-valve for allowing of the passage of air, both pump and valve being actuated by a lever connected to the latter, and working in a slot of adjustable depth in the head of the pump-plunger, with a supply and a delivery valve upon the delivery-port of the pump, said port being impeded or obstructed with a fluted or webbed pin, which, with a conical obstruction opposite the end of the delivery-port, breaks up the combustible into a fine spray as it is being injected into a cavity into which the air is admitted just before the air-valve is opened to allow the combustible mixture to pass on into the ignition-chamber of the engine, substantially as described with reference to the accompanying drawings.

5. In a gas or hydrocarbon-vapor engine, the combination of reciprocating slide bearing a transverse cavity in its end, into which a spring pushes a rod when said cavity is opposite the end of said rod, the other end of which is thereby compelled to open the delivery-valve and close the supply-valve on the delivery-port of an injection-pump, with the lever operating the plunger of said pump and the air-supply valve of the engine, substantially as described with reference to the accompanying drawings.

6. In a gas or hydrocarbon-vapor engine, the combination of the port along which the combustible passes to meet with its quota of atmospheric air or other supporter of combustion, with a fluted or webbed pin lying therein, and leaving only a thin approximately tubular space between itself and the bore of the port, thereby compelling the combustible to assume the form of, approximately, a thin tube, with a conical valve opposite the exit end of said port, which breaks up the thin tube of vapor into fine spray as it is mixing with said atmospheric air or other supporter of combustion, substantially as described with reference to the accompanying drawings.

7. In a gas or hydrocarbon-vapor engine, the combination of an injection-pump for supplying the combustible, with a valve for allowing the passage past it of the combustible and air, and controlling the passage into the cylinder of the engine, both actuated by a cross-head rigidly connected to the head of the air-valve spindle and working freely in an adjustable slot in the head of the pump-plunger, substantially as described with reference to the accompanying drawings.

8. In a gas or hydrocarbon-vapor engine, governing the engine by a governor geared to a slide which surrounds the projecting end of a valve-spindle and prevents a lever from pushing it in to open the combustible-delivery valve when the speed of the engine increases, and which slide is withdrawn by the governor as it regains its normal speed, substantially as described with reference to the accompanying drawings.

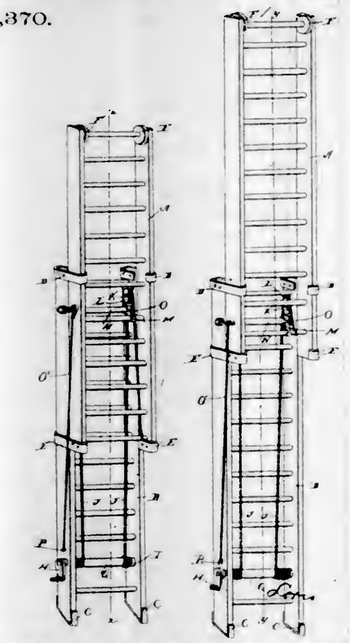
349,370. LADDER. LORIN C. SPRINGER, Darlington, Ind. Ter. Filed May 11, 1886. (No model.)

Claim.—1. The combination, with the lower ladder having the guide-pieces at its upper end and the round journaled near the said upper end, and having the hooks rigidly secured to it, the coiled springs, arranged as described, and the arm secured to the outer end of the said round and having the operating-cord, of the upper ladder having the guide-pieces at its lower end, and means, substantially as described, for raising and lowering the upper ladder.

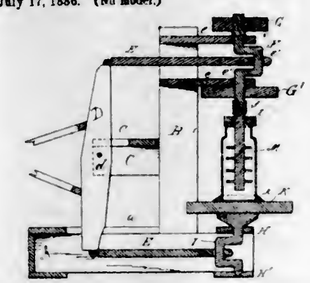
2. The combination, with the lower ladder having the guide-pieces at its upper end and the round journaled near the said upper end, and having the hooks rigidly secured to it, the coiled springs, arranged as described, and the arm secured to the outer end of the said round and having the operating-cord, of the upper ladder having the guide-pieces at its lower end, and having the anti-friction rollers journaled at its upper end, as described, and means, substantially as described, for raising and lowering the upper ladder.

3. The combination of the lower ladder having the guide-pieces at its upper end and the round journaled near the said upper end, and having the hooks rigidly secured to it, the coiled spring, arranged as described, and the arm secured to the outer end of the said round and having the operating-cord, the upper ladder having the guide-pieces at its lower end, and having the anti-friction rollers journaled at its upper end, as described, the windlass journaled in the lower portion of the ladder and having the transverse apertures and the operating-handle, the grooved rollers journaled in bearings at the inner upper end of the lower ladder, and the ropes secured at their lower ends through the apertures of the windlass, passing up over the said grooved rollers, and secured at their upper ends to the lower portion of the upper ladder.

349,370.



349,371. ROTARY CHURN. GEORGE A. STAFFORD, Deadmonia, Tex. Filed July 17, 1886. (No model.)



Claim.—1. In a churn, the combination of the supporting-frame, the walking-beam pivoted thereon, the crank-shafts journaled in bearings in the rear part of the frame, pitmen connecting the walking-beam with said crank-shafts, a dasher coupled to one of said shafts, and a churn-body carried by the other shaft and surrounding the dasher, substantially as set forth.

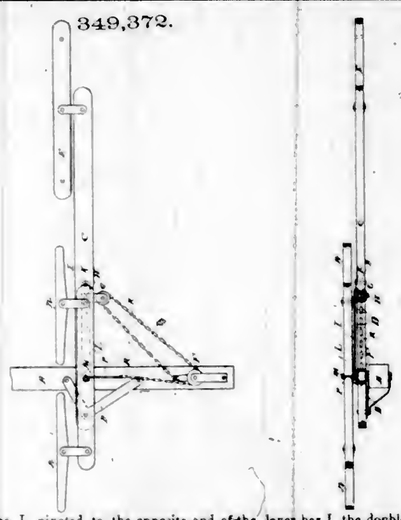
2. The combination of the supporting-frame, the walking-beam, two crank-shafts journaled in the rear part of said frame, means for connecting the walking-beam with said shafts, a balance-wheel and dasher carried by one of said shafts, a larger balance-wheel connected to the other shaft, and a churn-body secured to said balance-wheel, substantially as set forth.

3. The combination of the frame A B C, the walking-beam D, pivoted in the front part of said frame, crank-shaft F, carrying balance-wheels G G', journaled in the rear part of said frame, dasher M, coupled to said shaft, crank-shaft I, carrying balance-wheel K, having flange *k*, the churn L, secured in said flange, and the pitmen E E, substantially as described.

349,372. DRAFT-EQUALIZER. JOSEPH STAIGER and GEORGE H. SCOFIELD, Zumbrota, Minn. Filed July 12, 1886. (No model.)

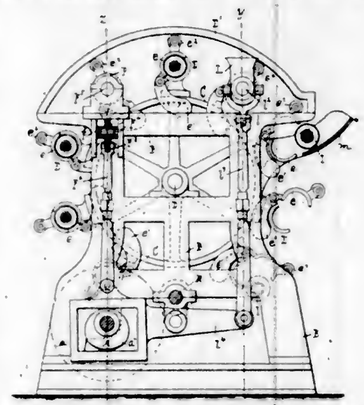
Claim.—1. The combination of the tongue, the equalizing-bar having one end pivoted on one side of the tongue, the outer end of the said bar projecting beyond the opposite side of the tongue, the pulley F, attached to the tongue, the pulley G, attached to the equalizing-bar, the lever-bar I, having one end pivoted to the equalizing-bar, the double-tree L, pivoted to the opposite end of the lever-bar I, the double-tree E, attached to the outer end of the equalizing-bar, the chain attached to the double-tree L and passed around the pulleys F and G, the free end of the said chain being attached to the tongue or to the bed of the machine or vehicle, substantially as described.

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2. The combination of the tongue having the bracket or plate B on one side, and the pulley F, with the equalizing-bar C, having the series of openings D, one end of the said bar being pivoted on the brackets B, the pulley G, attached to one of the openings D of the equalizing-bar, the lever-bar I, having one end also attached to one of the said openings, whereby the said lever-bar and pulley G may be laterally moved on the equalizing-bar, the double-tree L, attached to the free end of the bar I, the double-tree attached to the outer end of the equalizing-bar, and the chain attached to the double-tree L, passed around the pulleys F and G, and having its free end attached to the tongue or to the bed of the machine or vehicle, for the purpose set forth, substantially as described.

349,373. MACHINE FOR HEADING SHEET-METAL CANS. WILLIAM H. H. STEVENSON, Baltimore, Md. Filed Dec. 18, 1885. (No model.)



Claim.—1. In a machine for heading and curling over the edges of cans, the combination of the reciprocating placing-heads L, the curling-heads P, and a rotary carrier, C, provided with can-clamping devices, for the purpose specified.

2. The combination of the rotary carrier C, the clamping-cylinders E, mounted on the carrier, means for operating the clamping-cylinder, the reciprocating placing-heads L, and the curling-heads P, whereby the cans are first clamped on the carrier C, the end placed in the can-bodies, and the edges of the can-body turned over.

3. The combination of the carrier C, the clamping devices E, mounted on the carrier, the placing-heads L, the curling-heads P, and the band E', arranged to operate the clamping devices.

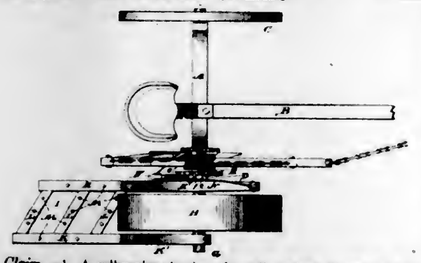
4. The combination of the carrier C and the clamping devices E, mounted on the carrier, and provided with weights which will open the said clamps.

5. In a curling-head for turning over the edges of can-bodies, the head P, arranged to rotate, and provided with a series of beveled and grooved rollers.

6. A head for placing the ends of cans in can-bodies, having a circular depression, P^2, and the slot P^3, constructed to receive the end of the can-body in only one position.

7. The heads L, constructed with the circular depression P^2, the slot l^3, and provided with the yielding finger l' and l^4, for the purpose set forth.

349,374. HARROW AND PULVERIZER ATTACHMENT. JAMES T. STRONG, Pittsburg, Kans., assignor of one-fourth to M. S. Thurmond, same place. Filed June 18, 1886. (No model.)



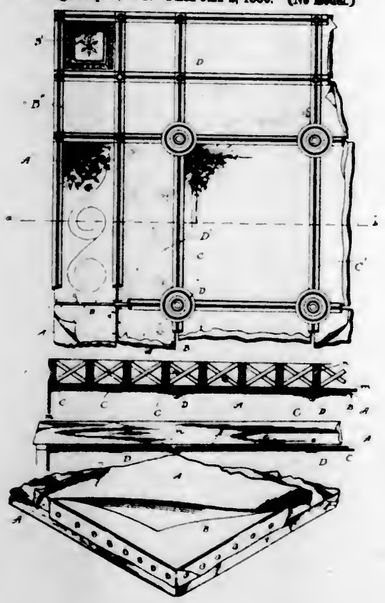
Claim.—1. A sulky-plow having the roller-wheel H and the harrow trailing in rear of the said wheel, substantially as described.

2. The sulky-plow having the roller-wheel H on one side and the harrow hinged to the spindle on which the said wheel is mounted and trailing in rear of the said roller-wheel, substantially as described.

3. The sulky-plow having the roller-wheel H on one side and the harrow hinged to the spindle on which the said wheel is mounted and trailing in rear of the said roller-wheel, and the hand-lever attached to the harrow, to raise or lower the same, substantially as described.

4. The combination, with a sulky-plow, of the block D, and means for attaching it to one of the spindles of the axle, the hand-lever pivoted to the said block, and the spindle G, projecting outwardly therefrom, the roller-wheel H, mounted on the spindle G, and the harrow in rear of the roller-wheel and having the side beams provided with forward extensions K', pivoted on the spindle G on opposite sides of the roller-wheel, the said harrow being connected to the hand-lever, for the purpose set forth, substantially as described.

349,373. ADJUSTABLE DECORATED CEILING, &c. JAMES SUTHERLAND, Poughkeepsie, N. Y. Filed Jan. 2, 1886. (No model.)



Claim.—1. An adjustable decorated ceiling or wall composed of sections made of narrow dry boards securely fastened together, painted all over, and covered on its face with canvas or cloth painted to the boards, and decorated as a member of the ceiling or wall before being placed in position, as shown and described.

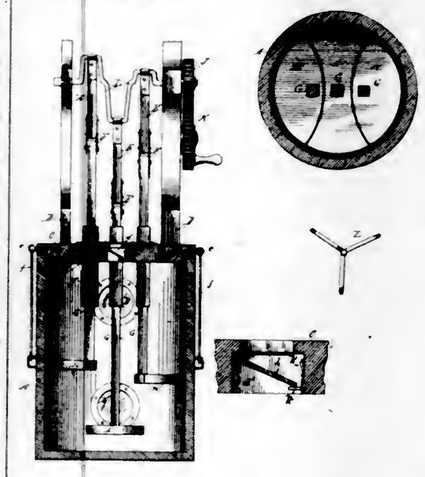
2. A section or part of a ceiling or wall composed of narrow seasoned boards fastened together and painted and covered with canvas, repainted and decorated in lead and oil, so cut and ornamented as to form part of a ceiling or wall, finished before being placed in position, as shown and described.

3. In an adjustable ceiling or wall composed of sections made of narrow boards joined firmly together and painted of shape to form members thereof, the canvas or cloth covering painted thereto and decorated before the sections are placed in position, as shown and described.

4. An adjustable ceiling and wall composed of sections made of narrow dry boards, painted and tightly covered on the face with canvas painted to the boards, and decorated according to any design, in combination with moldings, decorated beams, and rosettes of any material covering the joints, all prepared and decorated before being applied to the walls or ceilings, as shown and described.

5. An adjustable decorated ceiling or wall composed of thin seasoned common matched boards, painted with lead and oil, and covered with canvas on the face side, and decorated in lead and oil, so cut in portable sections as to fit tightly, and when in position to strengthen the building as well as ornament the same, as shown and described.

349,376. CHURN. BENJAMIN P. WHITE, East Lynne, Mo. Filed June 8, 1886. (No model.)



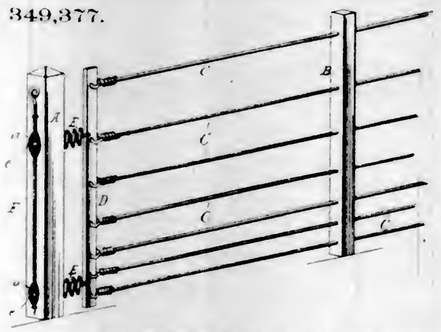
Claim.—1. In a reciprocating-dasher churn whose central dasher is constructed with concave sides, within which fit one side each of two convex adjacent dashers, whereby in the revolution of the triple-crank shaft three independent alternating strokes of the dashers are made in such manner as to form lateral and vertical currents in the cream, the combination of the said dashers, the triple-crank shaft, and the dasher rods and staffs, constructed, arranged, and operating substantially as described.

2. In a reciprocating-dasher churn, the combination of the churn body or cylinder A, provided with glass windows at top and bottom, with the jointed dasher staffs and rods E G and segmental dashers H I, each moving independently of the others, whereby lateral currents are formed in the churn, the triple eccentric shaft L, the removable head C, having air-openings with valves therein so constructed as to automatically close when the churn is accidentally overturned, as herein described, the eyebolts *e*, the hooks *f*, and the operating mechanism, all constructed, arranged, and operating substantially as described.

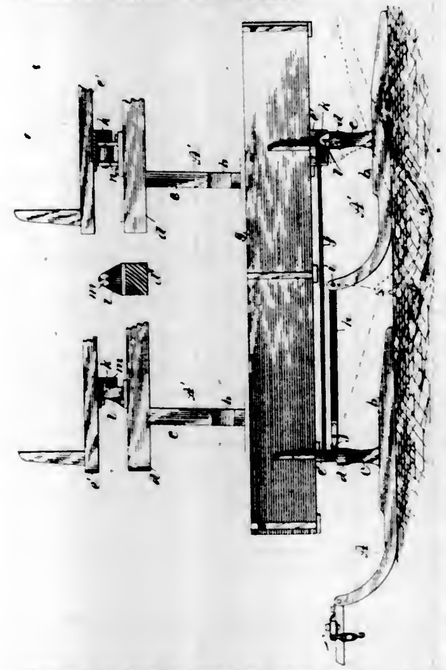
349,377. WIRE FENCE. ISAAC G. WHITE, Adams, Ind. Filed June 19, 1886. (No model.)

Claim.—The combination, in a wire fence, of the wires C, posts A B, vertically-arranged supplemental bar D, to which the wires are secured, spiral springs E, uniting said bar and end post, and pin F, secured to the post A and passing through the springs E, substantially as and for the purposes described and shown.

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349,378. BOB-SLED. JOHN S. WILLSON and WILLIAM H. MACK, Milwaukee, Wis. Filed Oct. 5, 1885. (No model.)



Claim.—1. In sleds, the beam *d* and two or more legs, *l l*, rigid on said beam, said legs being each provided with a pin, *m*, in combination with bolster *e'* and bracket *k*, rigid on the under side of said bolster, said bracket being provided with a groove adapted to receive and permit of the free sliding movement therein of pin *m*, substantially as described.

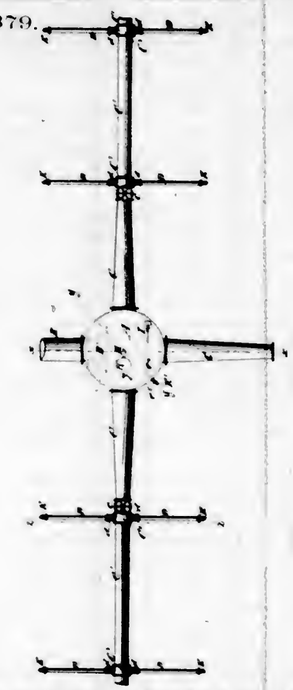
2. The forward sled, A, in combination with rear sled, A', tongue *h*, connecting the front and rear sleds movably, legs *l l*, rigid on beam *d* of sled A', brackets *k k*, rigid on bolster *e'*, and bolster *e'*, rigidly connected to the front sled by reach *f* or equivalent means, substantially as described.

349,379. MEANS FOR PROCURING SUPPLIES OF WATER FROM TUBULAR WELLS. WILLIAM D. ANDREWS, Brookhaven, N. Y. Filed Apr. 20, 1886. (No model.)

Claim.—1. The special section for the suction-main, consisting of a short section of pipe having flanges at opposite ends, and branches curving from its opposite sides and provided with flanges, substantially as herein described.

2. The special section C^2, for the suction-main, consisting of a short section of pipe having flanges c^2 at opposite ends, and having curved lateral branches *c'* on opposite sides, also provided with flanges c^3, each pair of flanges c^2 and c^3 having their faces exposed beyond the peripheries of the flanges of the other pair, substantially as herein described.

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3. A suction-main composed of alternate long sections of plain flanged pipe and intervening special sections, each consisting of a short section of pipe provided at the ends with flanges, and also having at opposite sides curved lateral branches, also provided with flanges, substantially as herein described.

4. The combination, with a main composed of long sections of plain flanged pipe, and special sections, each consisting of a short section of flanged pipe having at opposite sides curved lateral branches provided with flanges, of straight-way valves secured to said lateral branches, and cross-pipes extending from the valves and connected with well-tubes, substantially as herein described.

5. The combination, with a suction-main and well-tubes at the side or sides thereof, of cross-pipes connecting the well-tubes with the main, and having a slight rise or upward inclination from the well-tubes toward the main, substantially as and for the purpose herein described.

6. The combination, with a receiver and a series of well-tubes, of a suction-main through which water from the several well-tubes is conducted to the receiver, and which has a slight rise or upward inclination from the outer end toward the receiver, substantially as and for the purpose herein described.

7. The combination, with a receiver, of a system of well-tubes connected therewith by laterally-extending pipes, all of which have a slight rise toward the receiver to insure the passage of all air from the well-tubes and connecting-pipes to the receiver, substantially as herein described.

8. The combination, with a receiver and a series of well-tubes, of a suction-main connecting the well-tubes with the receiver, and comprising at the receiver a final section which expands or is of a gradually-increasing diameter toward the receiver, substantially as herein described.

9. The combination, with a receiver and a series of well-tubes, of a suction-main, whereby the well-tubes are connected with the receiver, and which comprises at the receiver a final section which expands or gradually increases in diameter toward the receiver, and a valve at the smaller end of said final section of the main, substantially as herein described.

10. The combination, with a receiver and a suction-main leading thereto, and comprising at the receiver a final section which expands or is of increasing diameter toward the main, of a valve at the smaller end of said final section, well-tubes arranged at the side or sides of the main, and cross-pipes connecting the well-tubes with the main and provided at the main each with a valve, substantially as herein described.

11. The combination, with a receiver and a system of well-tubes connected therewith, of an inclined false bottom in the receiver, and a sand-pump for withdrawing sand from above the false bottom, substantially as herein described.

12. The combination, with a receiver having a false bottom, of a system of well-tubes and a suction-main with which the well-tubes are connected, and which is joined to the receiver above the false bottom by a final section which expands or increases in diameter toward the receiver, substantially as herein described.

13. The combination, with a well-tube and a cross-pipe through which water is delivered therefrom, of a cross-fitting having upright and lateral branches, with two of which are connected the well-tube and cross-pipe, and the other two of which are fitted with removable plugs, whereby provision is afforded for cleaning the well-tube and cross-pipe, substantially as herein described.

14. The combination, in a well-tube, of alternate sections of plain pipe, with sections of strainer-pipe, in the proportions and for the purpose substantially as herein described.

15. The combination, with a receiver and a system of well-tubes, of a suction-main, with which are connected the well-tubes, and which has a slight upward rise toward the receiver, and comprises at the receiver a final section which expands or is of increasing diameter toward the receiver, and the bottom of which is inclined downward to the receiver, substantially as herein described.

16. The combination, with a closed receiver, of a suction-main, with which are connected a series of well-tubes, and by which the water from said well-tubes is delivered to the receiver, and an air-inlet cock on the receiver, which, when opened, allows air to enter and the water to fall in the main and series of well-tubes, substantially as herein described.

17. The combination, with a closed receiver provided with an air-inlet cock, and a system of well-tubes connected therewith, of a separate well-tube communicating with the receiver and terminating as a siphon therein, whereby water will be removed from the receiver when the air-cock is opened, substantially as herein described.

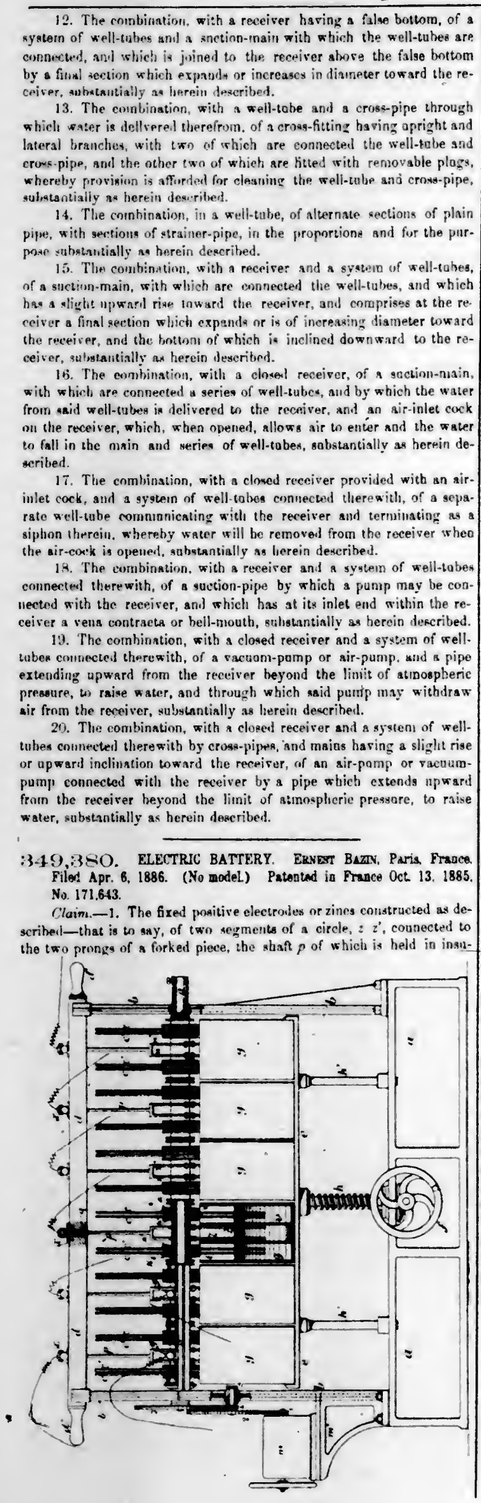
18. The combination, with a receiver and a system of well-tubes connected therewith, of a suction-pipe by which a pump may be connected with the receiver, and which has at its inlet end within the receiver a vena contracta or bell-mouth, substantially as herein described.

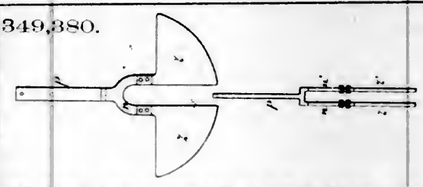
19. The combination, with a closed receiver and a system of well-tubes connected therewith, of a vacuum-pump or air-pump, and a pipe extending upward from the receiver beyond the limit of atmospheric pressure, to raise water, and through which said pump may withdraw air from the receiver, substantially as herein described.

20. The combination, with a closed receiver and a system of well-tubes connected therewith by cross-pipes, and mains having a slight rise or upward inclination toward the receiver, of an air-pump or vacuum-pump connected with the receiver by a pipe which extends upward from the receiver beyond the limit of atmospheric pressure, to raise water, substantially as herein described.

349,380. ELECTRIC BATTERY. ERNEST BAZIN, Paris, France. Filed Apr. 6, 1886. (No model.) Patented in France Oct. 13, 1885, No. 171,643.

Claim.—1. The fixed positive electrodes or zincs constructed as described—that is to say, of two segments of a circle, *z z'*, connected to the two prongs of a forked piece, the shaft *p* of which is held in insulated supports in and combined with the cross-bar *d* at the head of the frame of the apparatus, so that they hang suspended from this bar.

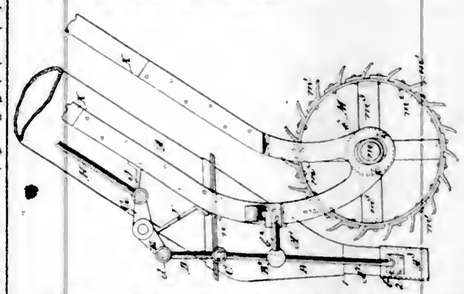




2. The negative or carbon electrodes constructed of two carbon disks arranged, as described, in pairs on each side of the zincs, the two outside carbons being plain while the inside pair nearest the zincs alone are perforated, substantially as described.

3. The carbons on a shaft, combined with means, substantially as described, for revolving said shaft, and with the forked segmental zincs *z z'* and cross-bar *d*, said zincs straddling said shaft, substantially as herein described.

349,381. SUCTION-EXCAVATOR. WILLIAM H. BEARD, Brooklyn, N. Y. Filed Jan. 19, 1886. (No model.)



Claim.—1. The combination, with the mouth of the suction-pipe of a suction-excavator, of an adjustable sliding mouth-extension operated by vertical connecting-rods B B, controlled by levers actuated from the upper part of the device, substantially as shown and described.

2. The combination, with the suction-pipe of a suction-excavator, of a funnel-shaped end gradually increasing in area and a sliding mouth-extension, substantially as and for the purpose stated.

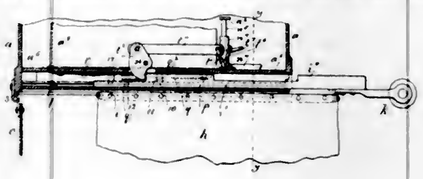
3. The combination, with a suction-excavator, of the automatic rotary stirrer or digger M, arranged transversely of the machine and provided with knives or cutters of reversed L-section, substantially as and for the purpose described.

4. The combination, with a suction-excavator tube, A, constructed with an enlargement of gradually-increasing area and a sliding mouth-extension, of an automatic rotary stirrer or digger, substantially as and for the purpose stated.

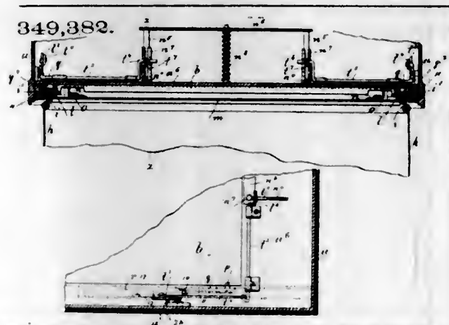
349,382. BOX FOR LETTERS AND OTHER ARTICLES. MARIO BRAGALDI, New York, N. Y. Filed Sept. 28, 1885. (No model.)

Claim.—1. The combination, with the letter-box *a*, of the keys n^4, fitted to slide vertically in the bottom plate of the box, a spring for lifting said keys, levers t^3, having their lower ends in the slideways of the box, the levers t^5, each connected at one end with a key, n^4, the links t^6, connecting the levers t^3 and t^5, the pooch, and the pooch-frame adapted to slide in the lower part of the letter-box, and having projections q^7 to act upon the levers t^5, the flap *m*, hinged to the pouch-frame, the turning-bolts *t*, for holding up said flap, and the tumblers m^3 and pinions 19, for operating the turning-bolts *t*, substantially as and for the purposes specified.

2. The combination, with the letter-box having a hinged flap at the lower portion, of keys fitted to slide vertically in the bottom plate of the box, the pouch-frame, a hinged flap to the same, tumblers upon the pouch-frame, turning-bolts for holding up the flap, and levers arranged, substantially as set forth, to bring down the keys and operate



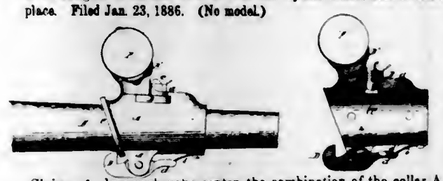
349,382.



upon the tumblers, and release the bolts that hold the flap of the pouch when its frame is inserted in the base of the box, substantially as specified.

3. The combination, with the letter-box *a* and the flap at the bottom thereof, of a movable pouch, and a frame for the same, and a glove forming part of the pouch to allow for agitating the mail-matter, substantially as set forth.

349,383. NECK-YOKE CENTER. JOHN E. CAREY, Eagle Grove, Iowa, assignor of one-half to F. J. Will and Lyman Moats, both of same place. Filed Jan. 23, 1886. (No model.)

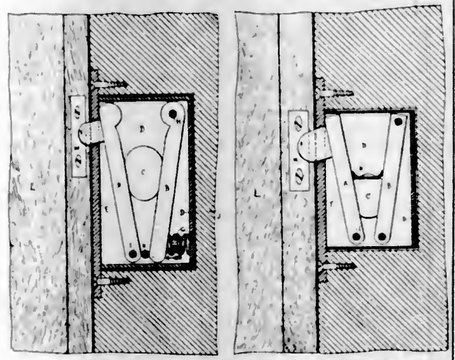


Claim.—1. In a neck-yoke center, the combination of the collar A, having an internal socket for the head of the pivot-bolt c, the swivel-plate B, having the neck-yoke-connecting portion B', joined to said plate only back of its pivotal center, whereby easy access may be had to the nut of the pivot-bolt from the outside, and the said pivot-bolt c, all constructed substantially as and for the purpose set forth.

2. In a neck-yoke center, the combination of the collar A, having a circular seat on its upper side and a spring-latch on its under side, adapted to engage with the ring of the vehicle-pole and hold said collar from displacement, the pivot-bolt c, with its head socketed in the interior of said collar, and the swivel-plate B, joined only to the back side of said plate to the neck-yoke-connecting portion B', leaving the front thereof open to receive the nut of the pivot-bolt, substantially as specified.

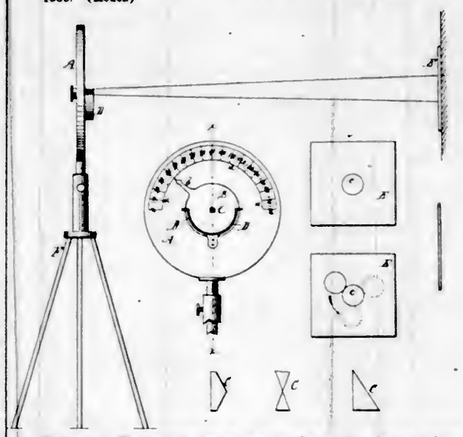
3. In combination with the swivel-plate of a neck-yoke center composed of two parts riveted together as described, the auxiliary clip B'', substantially as described.

349,384. DOOR-CHECK. SAMUEL COOMBS, Kennington Road, County of Surrey, England. Filed Mar. 4, 1886. (No model.)



Claim.—A mechanical door-check constructed with the parts A and B placed at an angle with each other, in combination with the frictional taper or wedge-shaped sliding piece C, arranged between them, the part A being acted on by the edge of the door or door-frame, substantially as described and illustrated.

349,385. OPTOMETER. HOWARD CULBERTSON, Zanesville, Ohio, assignor to the Geneva Optical Company, Geneva, N. Y. Filed July 9, 1885. (Model.)



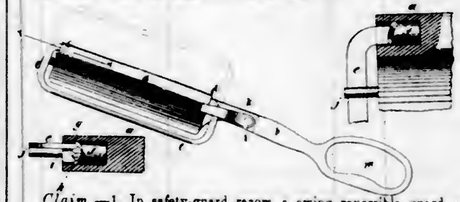
Claim.—1. The combination of a prism-holder, a prism or prisms arranged in the holder with a terminal edge of the prismatic face or faces in the central line of sight through the said prism or prisms, and an object-circle arranged concentrically in the line of sight, substantially as herein specified, and for the purpose set forth.

2. The combination of a sustaining disk or frame, a prism-holder adapted to be rotated on its axis in the said disk or frame, a prism or prisms arranged in the holder with a terminal edge of the prismatic face or faces in the central line of sight through the said prism or prisms coincident with the axis of the holder, and an object-circle arranged concentrically in the central line of sight and with the axis of the holder, substantially as and for the purpose herein set forth.

3. The combination of a supporting disk or frame provided with the degree-marks upon its face, a prism-holder adapted to be rotated on its axis in the said disk or frame, a prism or prisms arranged in the holder with a terminal edge of the prismatic face or faces in the central line of sight through the said prism or prisms coincident with the axis of the holder, and an object-circle arranged concentrically in the central line of sight and with the axis of the holder, substantially as and for the purpose herein set forth.

4. The combination of a supporting frame or disk, a prism-holder adapted to be rotated on its axis in the said disk or frame, a prism or prisms arranged in the holder with a terminal edge of the prismatic face or faces in the central line of sight through the said prism or prisms coincident with the axis of the holder, and a lens-holder attached to the disk or frame in front of the prism or prisms, and with its axis coincident with the axis of the prism-holder, substantially as and for the purpose herein set forth.

349,386. SAFETY-GUARD RAZOR. TERENCE F. CURLEY, Brooklyn, N. Y. Filed June 15, 1886. (No model.)



Claim.—1. In safety-guard razors, a swing reversible guard, *e*, substantially as described.

2. In safety-guard razors, a swing reversible guard, *e*, in combination with the movable lock-catches *f f*, for retaining the swing-guard more firmly on either side of the razor-blade, substantially as described.

3. In safety-guard razors, a swing-guard, in combination with a stud at the point of the razor containing three grooves, substantially as described.

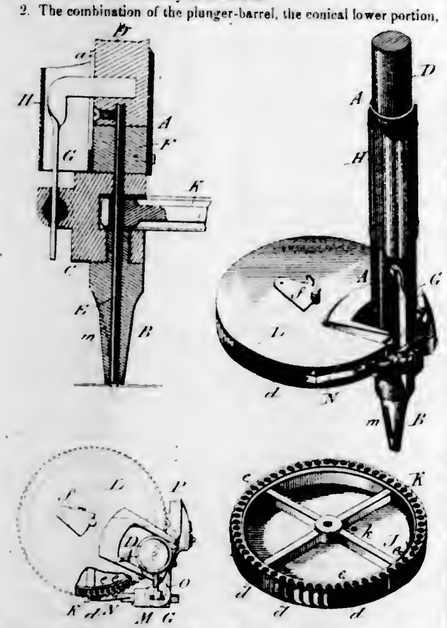
4. In safety-guard razors, a swing-guard, in combination with catches at the heel and a grooved stud at its point, substantially as described.

5. In safety-guard razors, the combination of the swing-guard *e*, the grooved stud *f*, containing grooves *g*, *h*, and *i*, catches *k k*, and the pin *j*, substantially as described.

349,387. TACK-DRIVING MACHINE. MARTIN V. B. ETHRIDGE, Boston, Mass., assignor to the Ethridge Lasting Machine Company, Kittery, Me. Filed June 12, 1886. (No model.)

Claim.—1. In a tack-driving machine, the combination of the plunger-barrel, the plunger-rod operating therein, the tack-supply wheel provided with perforations near its outer edge and ratchet-teeth on its periphery, and mechanism, substantially as described, for rotating the same step by step, so as to place a tack before the plunger at each downward stroke, substantially as described.

2. The combination of the plunger-barrel, the conical lower portion,



the connecting part between said barrel and cone, the plunger-rod, the tack-supply case containing a wheel provided with perforations near its outer edge and ratchet-teeth on its periphery, and mechanism, as described, for automatically revolving the said wheel at intervals, substantially as shown and described.

3. In a tack-driving machine, a removable tack-supply case consisting of a bottom plate having a single perforation, a cover-plate and a revoluble supply-wheel located between said plates, and having a series of ratchet-teeth on its rim, and provided with a series of perforations near its edge that hold the tacks, and that register successively with the aperture in the bottom plate, substantially as described.

4. The combination of the plunger-barrel, the conical portion, the metallic connection C, between said barrel and cone, the tack-supply case pivoted on an arm of said metallic connection and removable therefrom, the dentated and perforated supply-wheel, the spring-actuated pawl which engages the dentated wheel, and the plunger-rod, all arranged to operate substantially as shown and described.

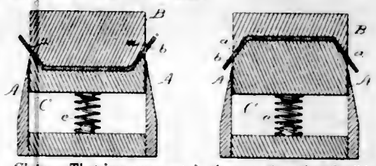
5. The combination, with the main frame of the machine and the dentated and perforated revoluble tack-supply wheel, of a plunger-rod carrying a second rod parallel thereto and moving coincident therewith, said plunger-rod proper being adapted at each reciprocation to pass through the perforations of the wheel successively, and said parallel rod being adapted to operate a spring actuated pawl to revolve the wheel, substantially as shown and described.

6. The combination of the tack-supply case, consisting of the upper and lower plates and an interposed dentated and perforated wheel, the lower plate having a single aperture with which the perforations in the wheel register successively, the main frame of the machine, the plunger-rod, and its parallel rod, the spring-actuated pawl operated by said parallel rod, and the reverse pawl for holding the wheel, as shown and set forth.

7. The combination of the main frame, consisting of barrel A, cone B, and connection C, the plunger D, carrying plunger-rod E and parallel rod G, the revolving dentated and perforated tack-supply wheel K, and means for revolving the latter, consisting of the spring-actuated pawl N, operated by the rod G at each descent, substantially as shown and described.

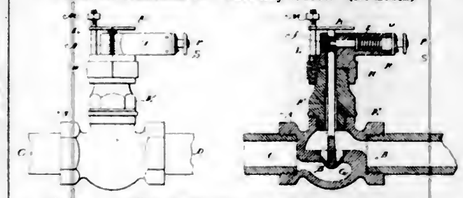
8. In a tack-driving machine, the tack-feeder K, provided with a series of perforations, *e e e*, and ratchet-teeth *d*, substantially as described.

349,388. CUTTING FLEXIBLE MATERIAL INTO PIECES HAVING BEVELED EDGES. FREDERICK A. FOWLER, New Haven, Conn. Filed June 16, 1885. (No model.)



Claim.—That improvement in the art of cutting flexible material into pieces having each a beveled edge, which consists of deflecting different portions of each piece into different planes with that portion of the material which lies along the line of cut deflected into a given angle, holding the same at said angle, then cutting the pieces throughout the entire portion to be beveled with a uniform direction of cut while they are thus held, substantially as described, and for the purpose specified.

349,389. AUTOMATIC SAFETY-VALVE. PAUL GENNET and JAMES WYMAN, Jr., Cochranton, Pa. Filed May 7, 1886. (No model.)

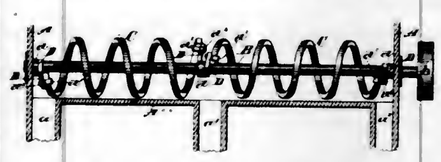


Claim.—1. The combination, in a regulating-valve, of the valve-seat, the valve having the stem F, provided with the head or button K, the regulating-screw to limit the play of the valve, and the locking-pin adapted to engage the valve-stem, to lock the valve in a closed position, substantially as described.

2. The combination, in a regulating-valve, of the valve-seat, the valve located therein, and having the stem F and the button K, the pin L, projecting from the valve-case, the nut M, screwed on the upper end of the said pin, to bear against the button K, and thereby regulate the play of the valve, the locking-pin to engage the valve-stem, and the spring bearing on the said locking-pin, for the purpose set forth, substantially as described.

3. In a regulating-valve, the combination, with the valve-seat, of the valve located in the valve-seat and adapted to be raised or opened by the flow of gas or other fluid, the head or button K, connected to the valve, and the regulating-screw to limit the play of the button, as set forth.

349,390. CONVEYER FOR GRAIN, &c. GEORGE A. GILBERT and RALPH WILCOX, Milwaukee, Wis. Filed Mar. 5, 1886. (No model.)



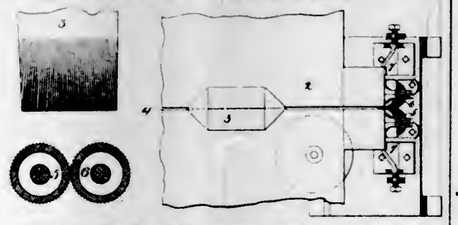
Claim.—1. In a conveyer for grain, middlings, &c., the combination of a shaft with independent skeleton spiral flights surrounding the same and secured thereto and free from contact with said shaft, except at each end of said spiral, substantially as set forth.

2. In a conveyer for grain, middlings, &c., the combination of a shaft with a series of independent skeleton spiral flights, formed in sections, surrounding the same and secured thereto and free from contact therewith, except at the ends of each spiral section, substantially as set forth.

3. In a conveyer for grain, middlings, &c., the combination of a shaft with a series of independent skeleton spiral flights, formed in sections, surrounding the same and secured thereto and free from contact therewith, except at the ends at each spiral section, the flights of one section extending in an opposite direction to that of the flights in the adjacent section, substantially as set forth.

4. In a conveyer for grain, middlings, &c., the combination of a shaft with independent skeleton spiral flights surrounding the same and arms secured to the shaft and connected to the flights, the latter being free from contact with the shaft at all points between the said arms, substantially as set forth.

349,391. DEVICE FOR CRIMPING PAPER SACKS. EDWARD C. GODFREY, Pittsburg, Pa. Filed Nov. 2, 1885. (No model.)



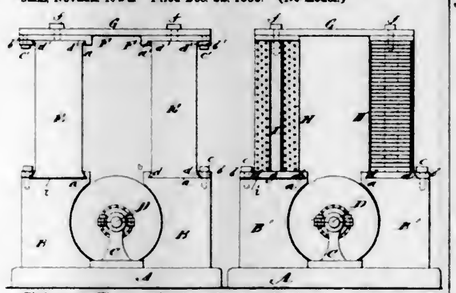
Claim.—1. As a device for crimping paper sacks, the combination of adjacent rotary fluted cylindrical rolls whose flutes taper in depth, substantially as and for the purposes described.

2. As a device for crimping paper sacks, the combination of adjacent rotary fluted rolls whose axes are inclined to the position of the median lines of the sacks as they are fed thereto, substantially as and for the purposes described.

3. As a device for crimping paper sacks, the combination of adjacent rotary fluted rolls whose flutes taper in depth, and whose axes are inclined to the position of the median lines of the sacks as they are fed thereto, substantially as and for the purposes described.

4. The combination of the delivery-table 2, for supporting the bottoms of paper sacks and guiding them in an upright position, and adjacent upright fluted rolls situate at the delivery end of the table, for receiving the sacks and crimping them, substantially as for the purposes described.

349,392. ELECTRIC MOTOR AND GENERATOR. WILLIAM HANSELL, Nevada, Iowa. Filed Dec. 22, 1885. (No model.)



Claim.—1. The combination of pairs of pole-pieces, an armature-shaft, armatures adapted to the pole-pieces, and means for securing interchangeable field-magnets to the pole-pieces, substantially as and for the purpose set forth.

2. The combination, in an electric motor or generator, of pole-pieces P having dovetail grooves *a*, beveled bars *b*, tap-bolts *c*, and field-magnets having beveled flanges on their ends, as herein specified.

3. In an electric motor or generator, the combination, with pole-pieces having dovetail grooves formed therein, of bar-magnets E, having beveled flanges on their opposite ends, the connecting-pieces F, having dovetail grooves *a'*, the yoke G, and means for clamping the ends of the permanent bar-magnets E in the connecting-pieces F and in the pole-pieces, as herein specified.

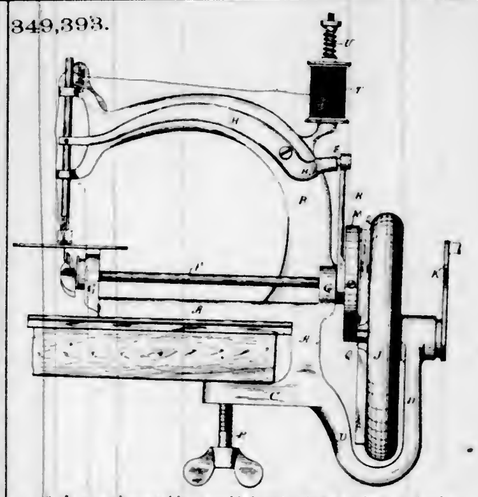
4. The combination, with a base, A, of two pairs of pole-pieces, B B', the armature-shaft D, and armatures adapted to the pole-pieces, and means for securing interchangeable field-magnets to the pole-pieces, substantially as herein specified.

349,393. SEWING-MACHINE. CHARLES F. HARLOW and EDWIN E. ANGELL, Malden, assignor to the Globe Sewing Machine Company, Boston, Mass. Filed Feb. 2, 1885. Renewed Feb. 11, 1886. (No model.)

Brief.—The balance-wheel imparts motion to the rotary shaft and its hook through a trammel-wheel, and an eccentric on said shaft, by means of an eccentric-strap connection with the short arm of the needle-lever, vibrates the latter, whereby without cogs or belts each revolution of said balance-wheel revolves the shaft twice and gives two complete reciprocations to the needle.

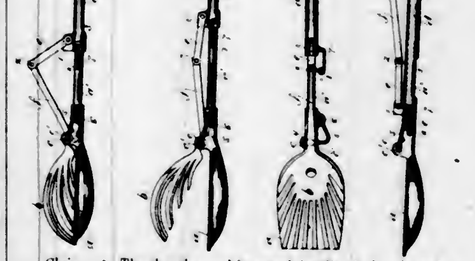
Claim.—1. In a sewing-machine provided with stitch-forming mechanism, the rotary shaft F, provided at its extremity with the member M, having two outwardly-projecting pins, P, in combination with the balance-wheel J, grooved perpendicularly on its inner face, whereby said pins may reciprocate in said grooves, substantially as and for the purpose set forth.

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2. In a sewing-machine provided with stitch-forming mechanism, the looper-shaft F, having fixed on one end the disk M, formed with the eccentric N and pins P P, in combination with the needle-arm H and rod R, and with the grooved balance-wheel I J and its bearing-arm D, substantially as and for the purpose set forth.

349,394. FIRE SHOVEL AND TONGS. ALLEN P. HEIDT, New York, N. Y. Filed Mar. 26, 1886. (No model.)



Claim.—1. The shovel *a* and its round handle *a'* the pivot-pin *c*, bent at 5, and the eye 6, to hold the pivot-pin, in combination with the sliding sleeve *d*, surrounding the handle and moving thereon, the claw *b* and its arm *f*, removably pivoted upon the handle *a'*, and the link *e*, connecting the arm *f* to the sliding sleeve *d*, substantially as set forth.

2. The combination, with the shovel *a* and handle *a'*, and the joint-plates *c'* upon the shank of the handle, of the claw *b* and its arm or handle *f*, sliding sleeve *d*, the link *e*, a pivot-pin, *c*, and an eye, 8, and bent arm upon the sliding sleeve *d*, substantially as specified.

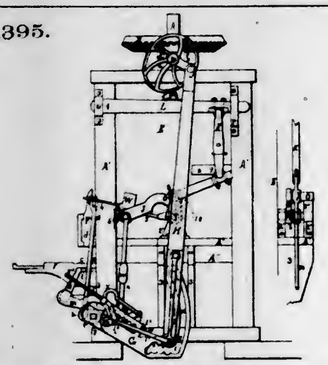
3. The combination, with the shovel *a*, handle *a'*, claw *b*, and arm *f*, of the jaw *b'* at the base of the claw, said jaw being provided with a slotted pivot-hole, a pivot-pin, *c*, with one part of small and the other part of larger diameters, and joint-plates *c'* upon the shank of the shovel *a*, through which the pivot passes, substantially as specified.

4. The combination, with the shovel and its handle-bar *a'*, and the sleeve *d*, sliding upon the bar *a'*, of a claw, *b*, and its arm *f*, and the link *e*, pivotally connected to the arm and sliding sleeve, the claw *b* having an opening and adapted to receive the end of the handle *a'*, and the pivot *c* and its hooked end 5, and the eye 8, for securing the parts in position, as set forth.

349,395. BRICK-MACHINE. CORNELIUS N. HORTON, Peekskill, N. Y., assignor to S. Fletcher Allen, same place. Filed Mar. 9, 1885. (No model.)

Claim.—1. The combination, in a brick-machine pressing mechanism, as described, of the levers G, $1'$, 1^2, and x', pitman H, and rod *t*, united and operating together substantially in the manner described.

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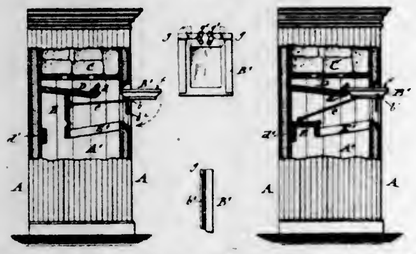
2. The pitman H and rod *t*, provided with arm *y*, combined and operating, as described, with levers 1′ 1² *x*′ and the cam G, provided with projection *y*′.

3. In a brick-machine press-tripping mechanism, the combination, substantially as shown, of the bifurcated lever 1′, pin *u*, notched lever 1², and hand-lever *x*′.

4. In a brick-machine haul-out, the combination of cam D, roller *s*, lever L, connecting-rod K, lever J, rod *n*, lever *m*, arm *h*, and rod *i*, united and operating substantially as set forth.

5. In a brick-machine haul-out-tripping mechanism, the combination of angle-iron 6, fulcrum *o*, pivot 7, standards 2″, arm 2‴, lever 5, weight W, lever 4, and stops 4′ and 9, combined and operating substantially as shown.

349,396. REFRIGERATOR. E AUGUST KROENKE, New York, N. Y. Filed July 1, 1886. (No model.)



Claim.—1. The combination, with an ice-chamber at the upper and a provision-chamber at the lower part of a refrigerator-chamber, of a deflecting-shelf below the bottom of the ice-chamber, a supporting-frame below the door-opening, a door having side guide-grooves and swinging on pivots of the door-casing, a gate hinged to the rear part of the supporting-frame, and a connecting-rod extending from the upper part of the door to the hinged gate, so as to produce simultaneously with the closing or opening of the door the opening or closing of the gate, substantially as set forth.

2. In a refrigerator, the combination of an ice-chamber, a deflecting-shelf below the bottom of the same, said shelf having a supporting front cleat, and a door that is connected by side guide-grooves to fixed pivots of the door-casing, whereby the door can be swung on said pivots and moved inwardly in horizontal position, so as to prevent the escape of cold air from the ice-chamber, substantially as set forth.

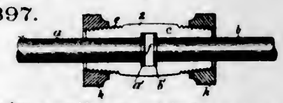
3. In a refrigerator, the combination, with the door-casing having fixed pivots, of a door having side guide-grooves, fulcrumed stop-pieces extending across the ends of the guide-grooves, and pivot-lugs for locking or releasing the stop-pieces, substantially as set forth.

349,397. COUPLING FOR ELECTRICAL WIRES. JOHN A. LANTZ, Pittsburg, Pa., assignor to George T. Oliver, same place. Filed Apr. 8, 1886. (No model.)

Claim.—1. The combination, with the electrical line-wires, of a coupling consisting of a metallic tubular socket divided lengthwise into separable parts, inclosing and in electrical contact with the ends of the wires, and devices, substantially as described, connecting the parts of the coupling and clamping them on the wires, substantially as and for the purpose specified.

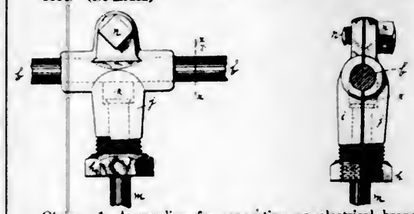
2. The combination, with an electrical line-wire having a flanged or upset end, of a coupling for connecting said wire to a second wire or electrical instrument, said coupling consisting of a tubular socket divided

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lengthwise into separable parts, and having an internal enlarged recess for the flanged end of the wire, substantially as and for the purpose specified.

349,398. COUPLING FOR ELECTRICAL WIRES. JOHN A. LANTZ, Pittsburg, Pa., assignor to George T. Oliver, same place. Filed June 26, 1886. (No model.)

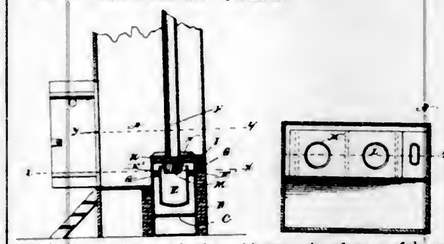


Claim.—1. A coupling for connecting an electrical branch wire with the line-wire, consisting of a socket which incloses both the branch wire and the line-wire, said socket being made in separable parts, substantially as and for the purposes described.

2. A coupling for connecting an electrical branch wire with the line-wire, consisting of an angular socket made in separable parts, substantially as and for the purposes described.

3. A coupling for connecting an electrical branch wire with the line-wire, consisting of an angular socket made in separable parts, and having an internal enlarged recess for the flanged head of the branch wire, substantially as and for the purposes described.

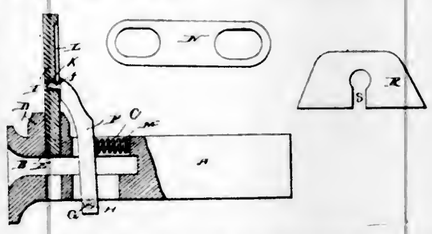
349,399. PRIVY. JAMES J. LOVEJOY and LOUIS KRAFT, Wheeling, W. Va. Filed Oct. 14, 1885. (No model.)



Claim.—1. The combination, with the vault or furnace, of the open removable box located above the grate-bars below the apertures in the seat, the removable cover, whereby the furnace may be closed for cremation, and the flue for the escape of the products of combustion and gases, substantially as specified.

2. The combination, with the vault or furnace having flanges on the inside, of the removable open box having lugs to engage the flanges, whereby the box is held in position, substantially as specified.

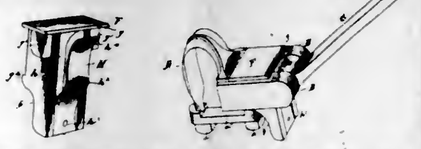
349,400. CAR-COUPLING. ISAAC MITCHELL, Woodbine, Iowa. Filed June 26, 1886. (No model.)



Claim.—The combination of the draw-head having the vertical slot C and the vertical opening E, the arm F, having its lower end pivoted in the slot *c*, and provided with the stud *f* at its upper end, the spring M, bearing against the rear side of the arm, and the coupling-pin having the opening K near its center to engage the stud *f*, and the groove L, extending vertically from the opening K, substantially as described.

349,401. THILL-COUPLING. ALBERT P. MOSES and LOUIS FRECHETTE, Malone, N. Y. Filed July 8, 1886. (No model.)

Claim.—1. In a thill-coupling, the combination of the draw-irons having the longitudinal and transverse recesses opening into each other, a thill-iron journaled in the longitudinal grooves, a key fitted in rear of the thill-iron and having the side flanges fitted in the transverse grooves



or recesses of the draw-irons, and a spring carried by the key and bearing against the draw-iron, substantially as described, for the purpose set forth.

2. In a thill-coupling, the combination of the draw-irons having the transverse recesses, the thill-iron journaled in the draw-irons, the key having the flanges on its side and rear faces, which are fitted within the transverse grooves of the draw-irons and beneath the edge of the clip, and a spring carried by the key and bearing against the thill-iron, substantially as described.

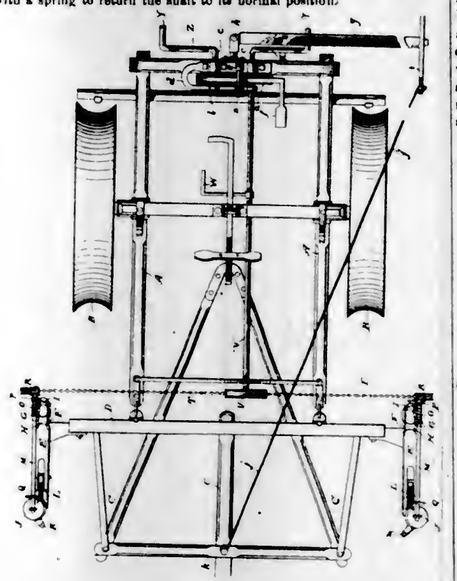
3. In a thill-coupling, the combination of the draw-irons having the longitudinal and transverse grooves on their inner opposing faces, a thill-iron having its trunnions journaled in the longitudinal recesses of the draw-irons, a key inserted in rear of the thill-iron and having the projecting flanges on its side and rear faces, and the chamber in its front face, the spring fitted and secured at one end in the key-chamber, and having its opposite free end curved or bulged and projecting beyond the chamber of the key to bear against the thill-iron, substantially as described.

349,402. CHECK-ROWER AND MARKER. CHARLES F. NEER, Catawba, Ohio. Filed May 14, 1886. (No model.)

Claim.—1. The combination, with a corn-planter provided with a shaft adapted to be actuated by the foot, of a check-rower mechanism, including a rock-shaft connected with the first-named shaft and provided with hooks which throw the wire from the pulleys.

2. The combination, with a corn-planter and a rock-shaft having a foot-lever and a pulley, of a check-rower having a rock-shaft carrying a segment connected with the said pulley and provided with hooks to throw the wire from the check-rower pulleys, and a spring to return the check-rower shaft to its normal position.

3. The combination, with a corn-planter and a rock-shaft having a foot-lever and a pulley, of a check-rower having a rock-shaft provided with a segment connected to said pulley by a chain, and with cam-hooks which engage the wire and dislodge it from the check-rower pulleys, and with a spring to return the shaft to its normal position.



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4. The combination, with the pulleys of a check-rower, of a rock-shaft provided with cam-hooks adapted when the shaft is partially rotated to engage the wire and dislodge it from said pulleys.

5. The combination, with a beam carrying grooved pulleys and a pivoted bifurcated lever, of a rock-shaft and the cam-hooks mounted thereon and adapted, one to engage the wire directly and the other the pivoted lever and then the wire when the shaft is partially rotated, to dislodge the wire from said pulley, and the spring to return the shaft to its normal position.

6. The combination, with a beam having grooved pulleys at one end, and a grooved pulley placed at right angles to said pulleys at the other end, a hook, and a pivoted lever, of a rock-shaft, the spring to hold it and return it to the normal position, a segment by which it is operated, and cam-hooks carried by the shaft and adapted, the one to engage the wire directly and the other the said lever and then the wire, to dislodge the wire from the pulleys.

7. The combination, with a rock-shaft mounted on a corn-planter, of the check-rower mechanism having a rock-shaft, and a connection between said shaft, whereby the actuation of the first-named actuates the last-named shaft.

8. The combination, with a rock-shaft, of cam-hooks adapted to engage and dislodge the wire.

9. The combination, with a corn-planter, of a rock-shaft having a foot-lever, a crank, and a gear-wheel, and another shaft having in it a meshing gear-wheel and a crank, and a pivoted marker adapted to be elevated and lowered by said cranks.

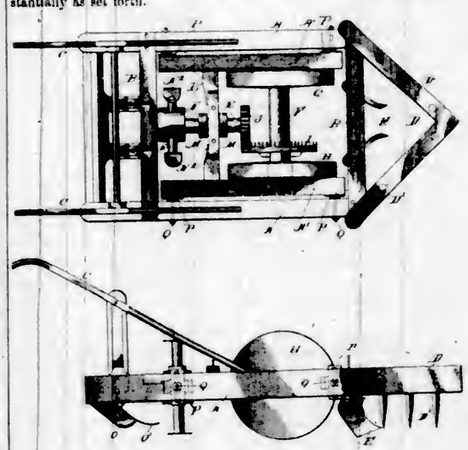
10. The combination, with a planter, of a rock-shaft having a foot-lever and gear-wheel, and a crank curved in the body and bent to form a socket at the end, and another shaft having a like crank and an intermeshing gear-wheel, a locking-pawl, and the pivoted marker adapted to be lifted from side to side and held up by said crank.

11. The combination, with a corn-planter and an actuating crank-shaft, and a crank-shaft geared thereto, of a check-rower mechanism provided with a rock-shaft carrying hooks constructed to dislodge the wire, and connected with the operating-shaft, and a pivoted marker adapted to be lifted and lowered by said crank-shafts.

12. The combination, with a corn-planter, of the U-shaped bearing-frame secured thereto and the crank-shafts mounted in said frame.

349,403. COMBINED COTTON CHOPPER AND CULTIVATOR. RICHARD S. OLIVER, Russellville, Ala. Filed June 26, 1886. (No model.)

Claim.—1. The combination, with the rectangular frame having suitable handles, of the triangular harrow secured to its forward end, having the base forming the front end piece of the frame, the scrapers secured to said end piece, a transverse axle having a loose wheel at one end and a tightly-keyed wheel at the opposite end, and having the gear-wheel mounted upon it, the shaft journaled within the frame and having at its forward end the pinion, and carrying the chopper-blades, and the rear plows arranged as described and secured to the rear end piece, substantially as set forth.

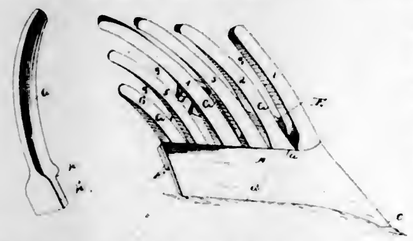


349,403.



2. The combination, with the rectangular frame having suitable handles, the triangular harrow secured to its forward end, having the base forming the front end piece, the scrapers secured to the said end piece, and the plows secured to the rear end piece, as shown, of the supplemental frame secured to and adjusted vertical independently of the main frame, the axle mounted in said supplemental frame, having suitable drive-wheels and provided with the gear-wheel, the shaft journaled within the supplemental frame, having the pinion at its front end meshing with the gear-wheel and carrying the chopper-blades at its rear end, substantially as and for the purposes described.

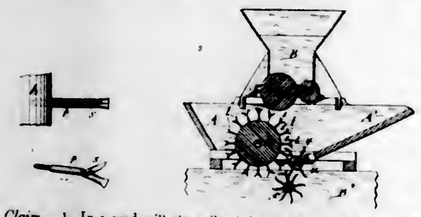
349,404. MOLD-BOARD FOR PLOWS. JAMES W. PETERS, John Adams, Cal. Filed June 24, 1886. (No model.)



Claim.—1. A mold-board for plows having a series of longitudinally-curved fingers arranged out of contact with each other to provide intermediate spaces, and having a wide working-surface and a thin neutral surface with the converging sides, the length of the fingers from the landside toward the middle of the mold-board being gradually increased, and then decreased from the middle toward the delivery side, substantially as described, for the purpose set forth.

2. The combination, with the mold-board having the longitudinal brace-plate on its neutral surface, of the independent fingers arranged out of contact with each other, and having the tongues at their lower ends bearing against and secured to the brace-plate of the mold-board, and with the notches resting upon the upper edges of the mold-board, the working-surfaces of the fingers being in line with the similar surface of the mold-board at the points where the fingers and mold-board are joined, substantially as described.

349,405. SELF-SALTING CURD-MILL. GEORGE D. POHL, Ava, N. Y. Filed Jan. 18, 1886. (No model.)



Claim.—1. In a curd-mill, the roller *b*, having the teeth *t*, provided with the rearwardly-inclined spur *s*, in combination with the toothed roller *a*, substantially as described and shown.

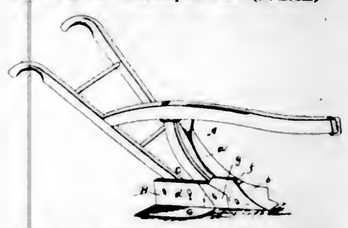
2. In a curd-mill, the roller *b*, having teeth *t*, inclined forward at their free ends and flattened in planes parallel with the axis of the roller, in combination with the toothed roller *a*, substantially as set forth and shown.

3. In a curd-mill, the roller *b*, having teeth *t*, inclined forward at their free ends and flattened in planes parallel with the axis of the roller, and rearwardly-inclined spurs *s*, projecting from the teeth *t*, in combination with the toothed roller *a*, substantially as described and shown.

4. In a curd-mill, the roller *a*, having the teeth *u*, formed at their free ends with broad edges standing parallel with the axis of the roller, in combination with the toothed roller *b*, substantially as described and shown.

5. The combination of the roller *b*, having teeth *t*, inclined forward at their free ends and flattened in planes parallel with the axis of the roller, and rearwardly-inclined spurs *s*, projecting from the teeth *t*, and the roller *a*, having teeth *u*, formed at their free ends with broad edges standing parallel with the axis of the roller, substantially as described and shown.

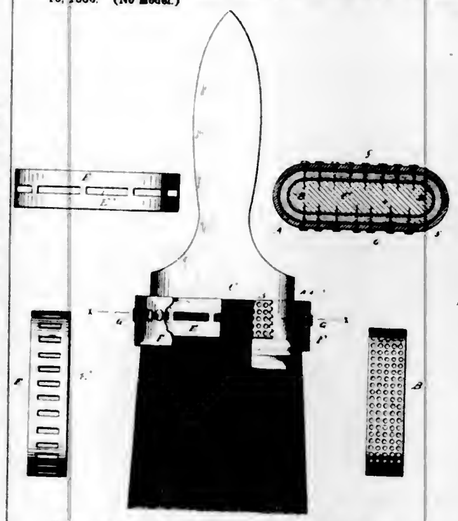
349,406. LANDSIDE-CUTTER FOR PLOWS. BENJAMIN B. REED, Forestburg, Tex. Filed May 25, 1886. (No model.)



Claim.—1. The combination, with a plow, of the colter *f* and the landside attachment B, secured to the landside of the plow, the said landside attachment B having laterally-extending cutting-wing *e*, substantially as described.

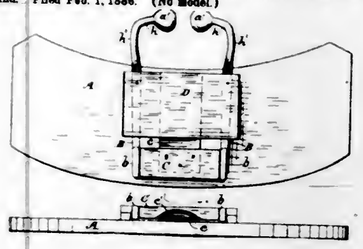
2. The combination, with a plow, of the landside attachment having the lateral horizontal blade or wing *e*, the plate *g* in front of the landside attachment, and the colter *f* on the front edge of the said plate, substantially as described.

349,407. BRUSH. HENRY ROSENTHAL, New York, N. Y. Filed Feb. 10, 1886. (No model.)



Claim.—In a brush, the combination, with a handle, of an interior ferrule surrounding the handle, bristles surrounding the interior ferrule, a ferrule surrounding the bristles, and a strip or band passed around the exterior ferrule, and of tacks or nails driven through the band, ferrule, bristles, and core into the handle, substantially as shown and described.

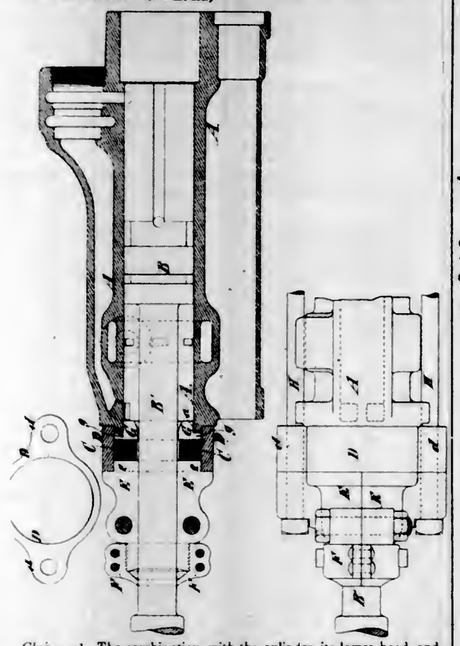
349,408. ANIMAL-MUZZLE. JOSEPH A. SAUNDERS, Quaker Hill, Ind. Filed Feb. 1, 1886. (No model.)



Claim.—1. The combination of the muzzle-plate A, the pivoted bars B B, arranged in suitable bearings, and provided with the nose-bulbs *a'*, and the lock-bar C, provided with a spring adapted to lock and unlock the pivoted bars, substantially as and for the purposes described.

2. The combination of the muzzle-plate A, the pivoted bars B B, provided with inward and upward curves A A' and the nose-bulbs *a'*, and the lock-bar C, provided with a spring adapted to lock and unlock the pivoted bars, substantially as and for the purpose set forth.

349,409. ROCK-DRILL. HENRY C. SERGEANT, New York, N. Y. Filed Jan. 2, 1886. (No model.)

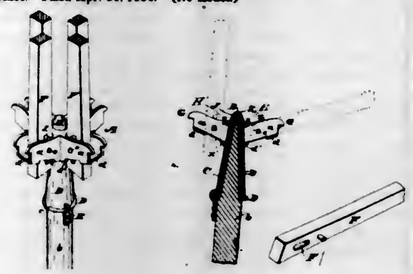


Claim.—1. The combination, with the cylinder, its lower head, and the piston of a rock-drill, of an india-rubber buffer, and a casing or frame surrounding the buffer and made separate from the cylinder and its lower head, substantially as herein described.

2. The combination, with the cylinder, piston, and lower head of a rock-drill, of an india-rubber buffer, and a casing or frame consisting of a collar or band, D, having a plain cylindric interior surrounding the buffer and interposed between and made separate from the cylinder and head, substantially as herein described.

3. The combination, with the cylinder and head of a rock-drill, both provided with cylindric or circular projections at their adjacent ends, of an india-rubber buffer between the cylinder and head, and a band or collar interposed between and made separate from the cylinder and head, and fitted to said circular projections, the said band or collar serving to sustain the strain produced by lateral expansion of the buffer, substantially as herein described.

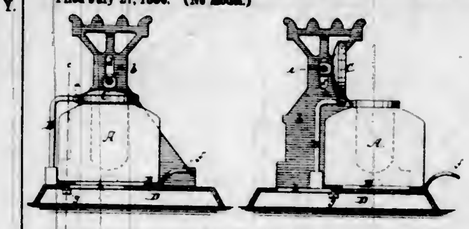
349,410. CLOTHES-DRIER. DANIEL J. SMITH, Canton, Ohio, assignor of two-thirds to Samuel A. Conklin and Walter C. Weston, both of same place. Filed Apr. 30, 1886. (No model.)



Claim.—1. The combination, with the head A, having a socket, B, and flanges or ears *a*, provided with extensions G and cross-bars *d d'*, of the adjustable arms F, having slots *F'* and pins *f*, and the pins *e*, substantially as described.

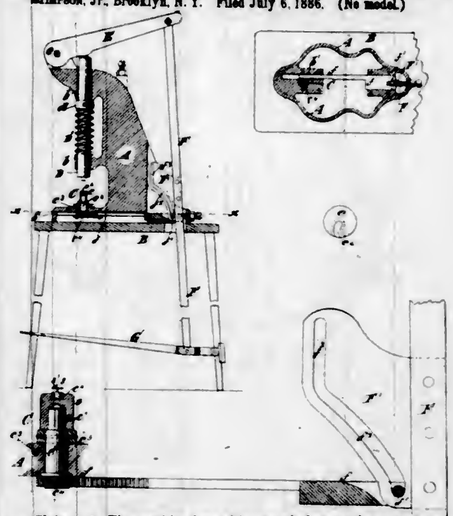
2. The combination, with the post or standard *b*, having conical cap C, of the head A, provided with conical socket B, having a notched ring, D, and the hook E, engaging said ring, substantially as described.

349,411. INKSTAND. JOHN P. STEPP, Brooklyn, N. Y., assignor to John H. Walbridge, same place, and Edward P. Hoff, New York, N. Y. Filed July 27, 1886. (No model.)



Claim.—The combination of the sliding vessel A with a pivoted cover, C, stationary supporting-frame D, having slotted uprights *d*, and with the horizontal pins *e*, that project from the cover C through the slots of said uprights, substantially as herein shown and described.

349,412. MACHINE FOR SETTING LACING-STUDS. EDWIN B. SIMPSON, Jr., Brooklyn, N. Y. Filed July 6, 1886. (No model.)



Claim.—1. The combination, with a mandrel to receive a stud, and a setting-punch movable opposite the mandrel, of a rod and lever for operating the punch, a cam operated simultaneously with the movement of the rod, and gearing, substantially as described, whereby the rod and cam during a portion of their operative movement transmit rotary motion to the mandrel, substantially as herein set forth.

2. The combination, with a mandrel to receive a stud and a setting-punch movable opposite the mandrel, of a rod and lever for operating the punch, a cam operated simultaneously with the movement of the rod, and gearing, substantially as described, whereby the said rod and cam during a portion of their operative movement transmit rotary motion to the mandrel, and a spring serving both to return the punch and to give the mandrel a return rotary motion after each operation, substantially as herein set forth.

3. The combination, with the mandrel to receive a stud, and a reciprocating setting-punch opposite the mandrel, the mandrel having a pinion upon it, of a rod and lever, whereby the punch is operated, a rack-bar engaging the mandrel-pinion, and a cam on said rod for operating the rack-bar, and which comprises an idle or straight portion, whereby the latter portion of the movement of the rod serves simply to move the punch without turning the mandrel, substantially as herein described.

4. The combination, with a mandrel having the pinion c^4, with the curved slot c^5 in its end, and a setting-punch opposite the mandrel, of a rack-bar engaging the pinion, a rod and lever, through which the punch

is moved, and a cam on said rod for operating the rack-bar, and which has an idle or straight portion, substantially as and for the purpose herein described.

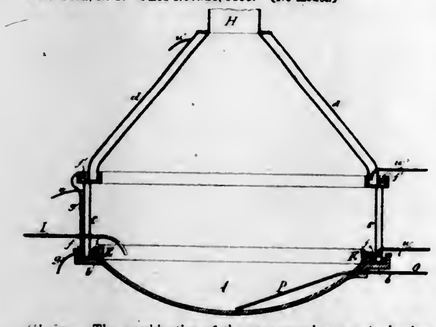
5. The combination, with the mandrel C, having a slot or groove, c^4, to receive a stud, and a pinion, c^4, and the setting-punch D, with its returning-spring, of the rack-bar f, engaging the pinion, the lever and rod E F, for operating the punch, and the slotted cam F', having a straight or idle slot portion, and which receives a pin or roller on the rack-bar, substantially as herein described.

349,413. EYEGLASSES. RICHARD STRAUBEL, New York, N. Y. Filed Apr. 19, 1886. (No model.)



Claim.—The combination of the flexible nose-pieces, attached at their lower ends to clips of the eyeglasses, and having slotted upper ends, guide-clips attached to the upper part of the glasses, said clips having inwardly-projecting shoulders or seats, a bow-spring, the ends of which rest on said shoulders, and screws for fastening the ends of the bow-spring to the clips and retaining the slotted ends of the nose-pieces in the guide-spaces below the shoulders of the clips, substantially as set forth.

349,414. PAN FOR CONCENTRATING SULPHURIC ACID. KARL J. SUNDSTRÖM, Rastic, N. J., assignor of three-fourths to Alfred de Castro, New York, N. Y. Filed Nov. 21, 1885. (No model.)



Claim.—The combination of the concentrating pan A, having a surrounding channel, f, the cylindrical cooler c, having its lower edge resting in the channel f of the pan, and having in its upper part a surrounding channel, f', the conic cooler d, having its lower edge resting in the said channel f', and the escape-pipe g, connecting the said channels f f', whereby all the condensed products collected on the surfaces of the upper and lower coolers are caused to be received in the said channel f, substantially as herein described.

349,415. BUTTONER. CHARLES A. TAYLOR, Brockton, Mass. Filed May 3, 1886. (No model.)



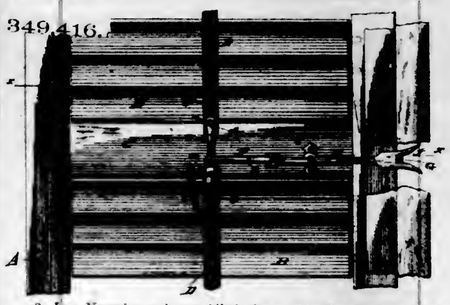
Claim.—As an improved article of manufacture, the described boot-buttoner, formed from a continuous piece of wire, bent and hooked upon itself to form an open oblong handle, and having the shank or part extending from said handle bent transversely, and provided with a button-hook near the bend, as described.

349,416. DEVICE FOR ADJUSTING BLIND-SLATS. EDWARD P. TUCKER, Whitaker's, N. C. Filed Aug. 5, 1886. (No model.)

Claim.—1. The combination, with the hand-lever pivoted in recess n of the casing, of the notched plate for locking said lever, having the inwardly-sprung arm I, substantially as and for the purpose described.

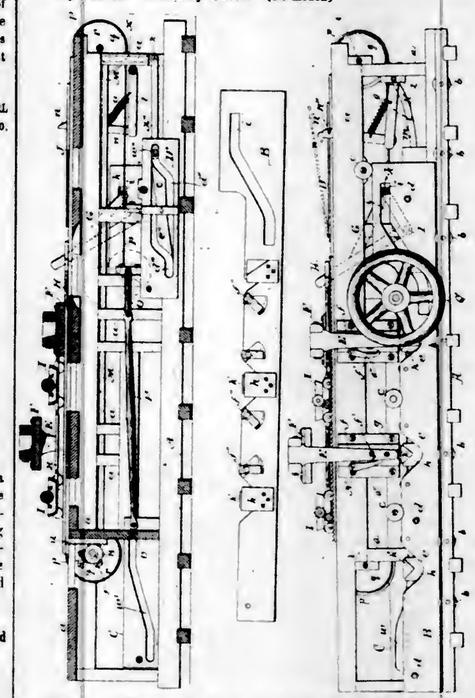
2. In a Venetian or louver blind, the combination of the arm E, pivoted to the middle rail and bifurcated on its outer end, the hinged supplemental arm connecting said arm with one of the slat-rods, a hook connecting the two slat-rods, a hand-lever engaging the main arm and operated from within, and a notched plate for locking such lever, substantially as described.

349,416.



3. In a Venetian or louver blind, the combination of plate A, pivoted to the middle rail, and the projection i on the slat-rod, for maintaining the slats of one section in an open position when the other is closed, or vice versa, substantially as described.

349,417. OIL-CLOTH-PRINTING MACHINE. GEORGE W. WILLIAMS, Topsham, Me. Filed May 8, 1886. (No model.)



Claim.—1. The combination of the reciprocating slides B, having notches e, and provided with the pivoted pieces f''', the vertically-sliding bars E, and the mechanism by which such bars are temporarily retained in an elevated position, substantially as and for the purpose described.

2. The combination of the main reciprocating slides, constructed as described, the vertically-sliding bars, the shafts N, having latches a''', and weighted levers b''', the slotted strip M, arm x, rod x'', and the auxiliary slide D', having the pivoted finger e'', and means for operating the parts, substantially in the manner described.

3. The combination of the reciprocating slides B, the vertically-sliding bars E, the fabric-carrying belts, and the means by which the same are operated, the hinged strips J, for holding the fabric to the belts, having pins n'', the auxiliary slide D, the loosely-supported shaft K, having an arm, l, at each end, and provided with curved arm m, and the levers n, having slot n', in which the pins of the hinged strips are received, substantially as shown and described.

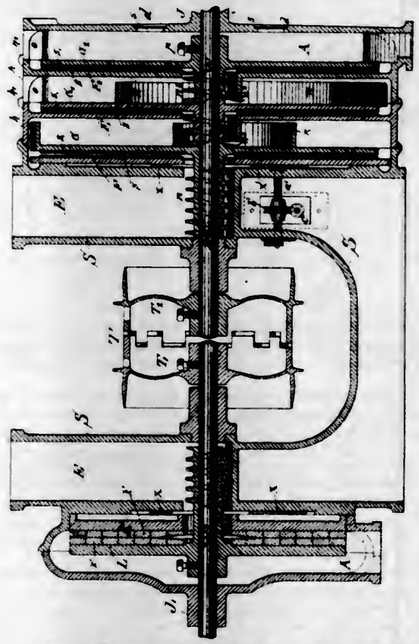
4. The combination, with the vertically-sliding bars E and the means for operating the same, of the strip M, having slot y, the shaft N, carrying the lever B''', and latches a''', the arm x, and rod x'', and the auxiliary slide D', having the pivoted finger e'', substantially as described.

5. The combination, with the vertically-sliding bars carrying the dies and moving in suitable guides and the reciprocating trough-carriers having supply-rolls, of the reciprocating slides B, provided with the pivoted pieces f'', by which the dies are lifted above the rolls, substantially as described.

6. The combination, with the fabric-carrying belts, the auxiliary slide D, and devices for operating the two, of the hinged strips J, the loosely-supported shaft K, having an arm, l, at each end, the curved arm m, held by such shaft, the levers n, and the springs o, maintaining the levers in connection with the hinged strips, substantially as shown, for the purpose described.

7. The combination, with the fabric-belts carried by pulleys at each end of the machine, and the racks and pinions, and pivoted pawls, of the forward auxiliary slides, C C, having reversely-shaped slots therein in which a roll works, carried by the racks, substantially as and for the purpose described.

349,418. MACHINE FOR HULLING AND GRINDING CORN. JOHANN U. ABEN and JAKOB MÜHLETHALER, Burgdorf, Berne, Switzerland. Filed June 2, 1885. (No model.)



Claim.—1. The combination, with the frame and a series of stationary hulling-surfaces having rasping-plates, of a shaft carrying a series of rotating disks, each provided with rasping-plates on one side, and all but the last having spiral feeding-ribs on the other side, substantially as described.

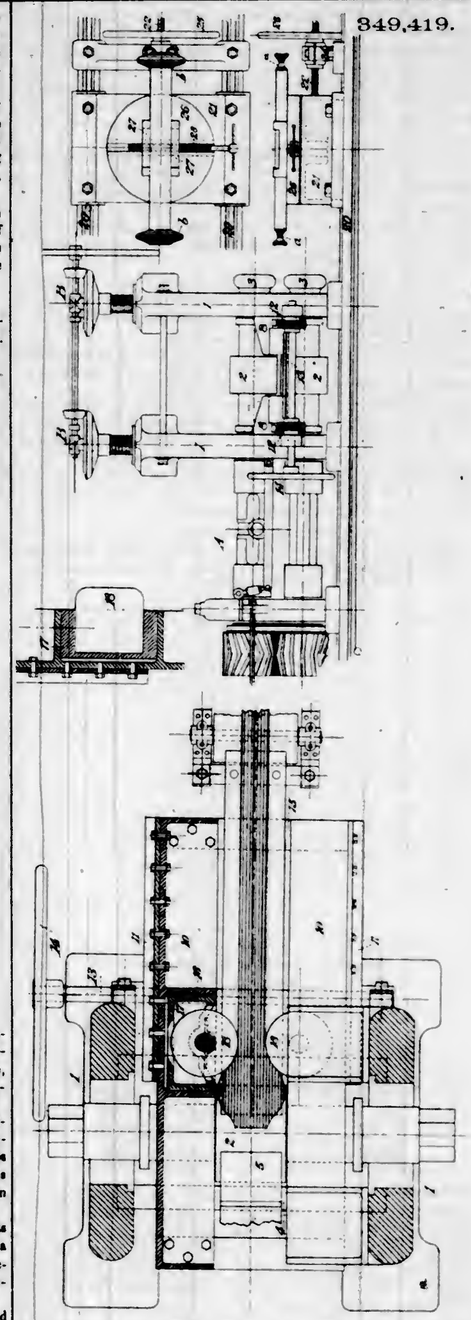
2. The combination, with a hopper, of a series of stationary hulling-surfaces having rasping-plates, a series of rotating disks having rasping-plates, and feeding-screws on one side, and the spiral feeding-ribs fixed to the sides of all the disks except the last, whereby the grain is continually fed through the machine and successively carried between the rasping-plates, substantially as described.

3. The combination, with the hopper having an opening at its base, of the valve consisting of two plates, each provided with a rack, a pinion meshing with the racks and moving the plates in opposite directions, and a worm-wheel and screw for operating the pinion, substantially as described.

4. The combination, with a supporting-frame having a grooved nave, J, and a series of stationary plates, of a shaft mounted in said frame, a series of running disks secured upon said shaft, and means for adjusting the relation of the plates and disks, consisting of the ring v, with lugs l', fitting the grooves in the nave, the shell D, fitting said nave, an adjacent stop-screw, P, supported in said shell, and clamp-nuts upon the shaft and stop-screw, substantially as and for the purpose described.

349,419. MACHINE FOR ROLLING EYE-BARS. HENRY AIKEN, Pittsburg, Pa. Filed Apr. 7, 1886. (No model.)

349,419.



Claim.—1. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls and a pair of vertical rolls, having, in addition to a rotary motion, a motion in the general direction of the feed to or toward, as well as away from, the point of bite of the horizontal rolls, substantially as set forth.

2. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls, and a single mechanism for feeding the article to be rolled to the horizontal rolls, the same mechanism being alternatively operative on both sides of the horizontal rolls, substantially as set forth.

3. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls having operative faces between the housings, the ends of said rolls projecting beyond one of the housings, said projecting ends provided with grooving-collars and a movable table or support for feeding the ends of the article to be rolled to said grooving-collars, thereby so shaping the ends of a billet that the subsequent action of the rolls will produce the desired enlargements on the ends of the bars, substantially as set forth.

4. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls having operative faces between the housings, the ends of said rolls projecting beyond one of the housings and provided with grooving-collars, and a rotating table for feeding the ends of the billet to said grooving-collars, whereby the ends of the billets are suitably shaped with reference to the formation of enlargements on the bars by the action of the rolls, substantially as set forth.

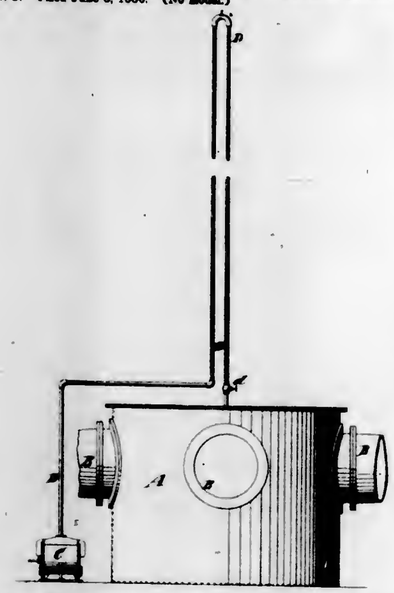
5. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls, guides located on the housings of said rolls, and a frame provided with edging-disks mounted on said guides and movable back and forth between the rolls, substantially as set forth.

6. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls and a pair of disks movable between the horizontal rolls transversely of their axes, substantially as set forth.

7. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls, a frame provided with edging-disks and movable between the rolls, and guides for supporting said frame, substantially as set forth.

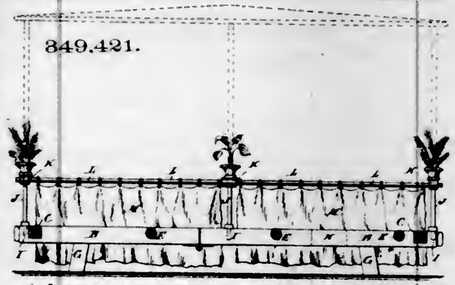
8. In a mill for rolling eye-bars, the combination of a pair of horizontal rolls, guides located on the housings of said rolls, frames 10, mounted on said guides and provided with a box, 16, and an edging-disk mounted in said box, substantially as set forth.

349,420. MEANS FOR EXHAUSTING AIR FROM LIQUID-RECEIVING VESSELS OR CASINGS. WILLIAM D. ANDREWS, Brookhaven, N. Y. Filed June 8, 1886. (No model.)



Claim.—The combination, with a vessel or casing to receive liquid, and from which air is to be exhausted, of an air-pump connected therewith by a pipe, which extends from the vessel or casing upward beyond the limit of atmospheric pressure to raise said liquid, whereby the air-pump may be operated continuously without pumping liquid, even though the vessel or casing shall fill with liquid, substantially as herein described.

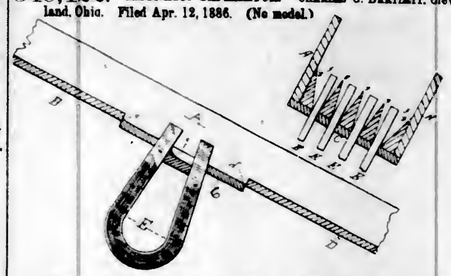
349,421. COFFIN-PLATFORM FOR GRAVES. SETH BAKER, Colorado Springs, Colo. Filed Jan. 27, 1886. (No model.)



Claim.—1. A coffin-platform for graves, constructed substantially as herein shown and described, and consisting of the side bars, A B, made in two parts hinged to each other and provided with the slots H and recesses D F, the cross-bars C, hinged to one side bar and dovetailed to the other, the legs G, attached to the said side bars, and the rollers E, journaled to the said side bars, whereby a coffin can be readily placed above the grave and supported, as set forth.

2. In a coffin-platform for graves, the combination, with the frame A B C, having sockets I, of the standards J, having transverse sockets K, the rods L, inserted in the said sockets, and the curtains M, substantially as herein shown and described, whereby the mouth of the grave will be hid and a neat appearance will be given to the platform, as set forth.

349,422. MAGNETIC SEPARATOR. CHARLES O. BARTLETT, Cleveland, Ohio. Filed Apr. 12, 1886. (No model.)



Claim.—1. The combination, with a section of a chute provided with magnets, of an anterior section of the bottom of said chute, located in a plane passing over the plane of the magnet-section, substantially as set forth.

2. The combination, with a section of a chute provided with magnets, of a posterior section of the bottom of said chute, located in a plane passing over the plane of the magnet-section, substantially as set forth.

3. The combination, with a section of a chute provided with upwardly-projecting magnets, said magnets projecting only partially between the upper surface of said section and the plane of the tops of the side walls of the chute, of a section anterior to the said magnet-section, and a section posterior to said magnet-section, said anterior and posterior sections located in planes passing over the plane of the said magnet-section, substantially as set forth.

4. The combination, with the intermediate section, C, of a chute, and magnets projecting upwardly through said section, of the two extreme sections B and D, located in planes passing over the plane of said intermediate section, and walls *c* and *d*, formed by the several junctions of sections B and D with section C, substantially as set forth.

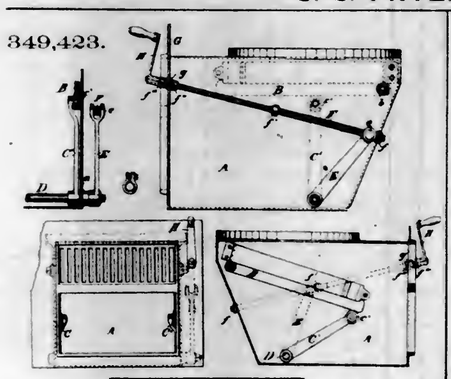
5. A magnetic separator having three successive bottom sections, the two extremes of said sections being essentially in the same plane with each other, and the intermediate section located in a corresponding plane depressed below the planes of the two other sections, said intermediate plane provided with inwardly-projecting magnets, substantially as set forth.

6. In a chute, the combination, with two bottom sections located in substantially the same plane with each other, and an intermediate bottom section connecting the same, the plane of said intermediate section being depressed below the plane of the two other said sections, of a magnet or magnets projecting upward through said depressed section, substantially as set forth.

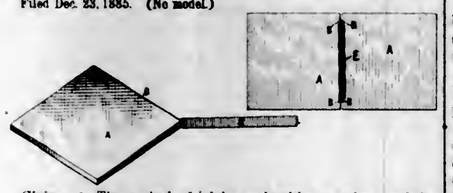
349,423. DUMPING FURNACE-GRATE. SERENA BERGNER and CHARLES E. SAJOUS, Philadelphia, Pa., executors of Theodore Bergner, deceased. Filed Mar. 26, 1886. (No model.)

Claim.—The combination, hereinbefore set forth, of a furnace ash-pit having a spherical boss, *g*, provided with an elongated slot, and provided with a hinged grate or hinged frame for the reception of a grate, with shaft D, parallel to the axis of the hinge, levers C and C', provided with rollers *c* and *c'*, respectively, and a lever, E, outside of the ash-pit, having a swivel-nut *e*, screw F, passing through the boss *g* and nut *e*, and having stops *f* and *f'*, and being secured from endwise motion by collars *f''* and *f'''*, tightly secured to screw F and engaging with boss *g*, as and for the purpose described.

349,423.



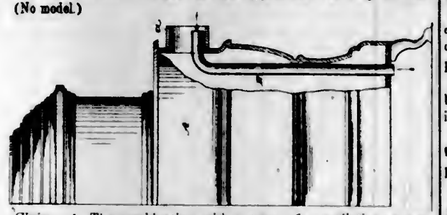
349,424. JOINTING GLASS MOSAICS. SANFORD BRAY, Boston, Mass. Filed Dec. 23, 1885. (No model.)



Claim.—1. The method of joining and uniting mosaics, consisting in providing the meeting edges with adhesive strips of thin metal, then soldering the metal joints together, as and for the purposes set forth.

2. The combination, with the pieces A, of the adhesive metal strips B, soldered together, as described.

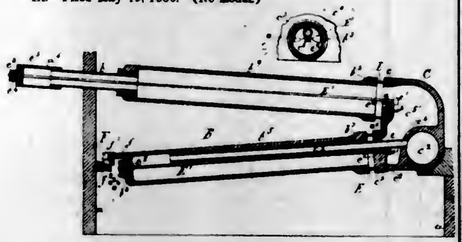
349,425. VENTILATING ATTACHMENT FOR STOVES. WARREN M. BRINKERHOFF, Auburn, N. Y. Original application filed Mar. 25, 1886, Serial No. 196,560. Divided and this application filed July 14, 1886. (No model.)



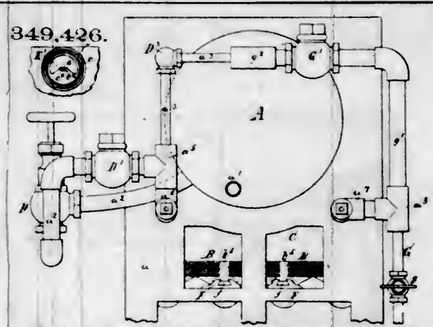
Claim.—1. The combination, with a stove, of a ventilating-passage separate from the flues of the stove, communicating with the outer air at its lower end, rising therefrom adjacent to the wall of the stove to a point above the lower wall of the smoke-outlet, and provided with an outward turn and discharging into the outlet, substantially as described.

2. The combination, with a stove having an opening through the side of the stove-body, forming the smoke-outlet, of a ventilating-passage separate from the flues of the stove, communicating with the outer air at its lower end, rising therefrom adjacent to the wall of the stove-body to a point above the lower wall and below the upper wall of the smoke-outlet, and provided with an outward turn and discharging into the outlet, the said passage having the turn and a portion of its length lying in the path of the products of combustion, substantially as described.

349,426. STEAM-GENERATOR. WILLIAM H. FARRIS, Rock Island, Ill. Filed May 19, 1886. (No model.)



349,426.



Claim.—1. In a boiler-furnace, the combination of hollow circulating grate-bars b^2, a hollow circulating fire-bridge, C, communicating hollow side bars, b' b^3, pipes a^2 a^3 g' a^4, and a boiler, A, substantially as and for the purpose described.

2. The combination, with a boiler, of the hollow grate-bars, fire-bridge and communicating hollow side bars, check-valves D' D^2 G', and suitable connecting-pipes and connections thereof, substantially as and for the purpose described.

3. The combination of the boiler A and its connecting parts, side bar b', valve D, and grate water-heater, substantially as and for the purpose described.

4. In a steam-joint, the combination of parts, as b' and C, or other analogous portions of the described apparatus, having cylindrical grooves b^4, which are outwardly flared, as at b^4, joint-ring E, having a double-convex form in cross-section, and a suitable clamping device, substantially as and for the purpose described.

5. The hollow fire-bridge C, having tubular bosses *c*, grooved lugs c^2, and flared annular grooves b^3, in combination with the hollow grate-bars b^2, having bosses b^7 and flared annular grooves b^3, a double-convex ring, E, and the bolt F', substantially as and for the purpose described.

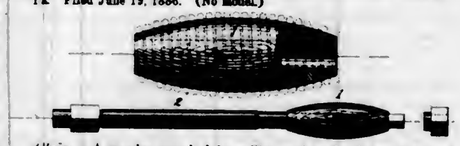
6. The lug c^2 of the bridge C, having a dovetailed groove, c^3, in combination with the hollow communicating side bars or tubes of grate, and bolt E', having a dovetailed portion, *e*, and head *e'*, and nut e^2, substantially as and for the purpose described.

7. The clamps E', nuts e^2, having convex faces e^3, and the T-joints a^6 a^7, having corresponding concave seats e^3, in combination with the connected parts of the described apparatus, substantially as and for the purpose described.

8. The grate-bar b^2, having a dovetailed end projection, *f*, in combination with a shoe, F, having a dovetailed groove, *f'*, and a supporting bearer or bar, f^2, substantially as and for the purpose described.

9. The hollow fire-bridge C, having passage-ways *c'* c^2 c^3, partition c^4, pipes c^5, and the grate-bars b^2, substantially as and for the purpose described.

349,427. MANDREL FOR SPRINGS. PHILO N. FRENCH, Pittsburg, Pa. Filed June 19, 1886. (No model.)



Claim.—A wooden mandrel for coiling springs, having an enlarged central portion and tapering ends, substantially as set forth.

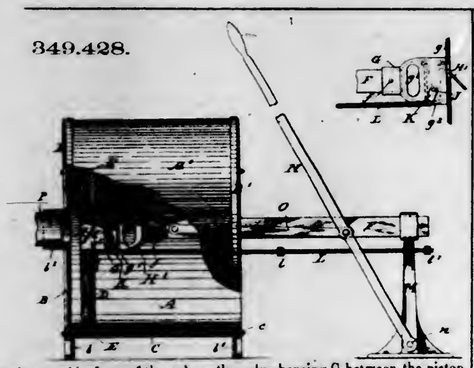
349,428. AIR-PUMP. HENRY GAZAILLE and HAMILTON F. LOW, Manchester, N. H., said Low assignor to said Gazaille. Filed Dec. 30, 1885. (No model.)

Claim.—1. The combination, with the cylinder, of the piston and its rod, the valve-housing arranged between the two, the valves within the housing, a rocker-arm between the valves, a wrist connecting said arm with a crank and stop-rod outside of the housing, and a suitable bearing for the stop-rod, whereby the piston and stop-rod move together, or the valves may be reversed just before the end of the piston-stroke, as set forth.

2. The combination, with the valve-housing placed between the piston and its rod, and provided with an external boss, of the internal valves, the rocker-arm between them, the wrist, the spring between the rocker-arm and the crank, the said crank, and the rod provided with the stop-collars and a suitable bearing, as set forth.

3. The combination, with the cylinder, composed of the inner sheet-metal portion, A, and the outer portion, A', of tougher metal, of the tube I' in the cylinder-head, the piston D, having ring-packing E and

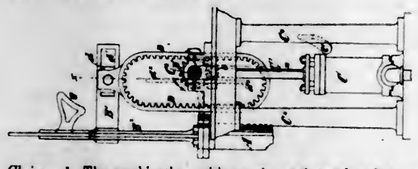
349,428.



air-port *d* in front of the valves, the valve-housing G between the piston and its rod, the valves H H' within the housing, the valve rocker-arm I, the wrist J, the spring *j* between the rocker I and crank K, the said crank, and the boss g^3 on the outer side of the housing for engaging with the former, the rod L, operating the crank, and provided with collars *l l'*, the standard M, having upper bearing, *m*, supporting said rod and acting as a stop for its collars, the lever N, pivoted to the standard, the link O, and the piston-rod F, as set forth.

4. In an air-pump, the combination, with the sheet-metal cylinder A, of the piston provided with an annular groove containing a tubular rubber packing covered with silesia or the equivalent, as and for the purpose set forth.

349,429. DEVICE FOR CONVERTING MOTION. JAMES E. GILLESPIE, Warwick, N. Y., assignor to the Warwick Machine Company, same place. Filed May 14, 1886. (No model.)



Claim.—1. The combination, with a reciprocating rod and a mangle-rack connected with the rod for operating it and movable laterally relatively to the rod, of a pinion engaging the rack, and a crank-shaft arranged in fixed bearings, and on which the pinion is secured, substantially as herein described.

2. The combination, with a reciprocating rod and a mangle-rack connected with the rod for operating it and movable laterally relatively to the rod, of stationary cams, with which the rack engages near the ends of its travel to shift it laterally, and a pinion engaging the rack and secured upon a shaft in fixed bearings, substantially as herein described.

3. The combination, with a reciprocating rod and a cross-head thereon, of a mangle-rack having a sliding connection with the cross-head to provide for the lateral movement of the rack toward and from the rod, a roller having a fixed support, and with which a rib or bearer on the rack engages to aid in holding the rack parallel with the rod as it travels, and a pinion engaging the rack and secured on a shaft in fixed bearings, substantially as herein described.

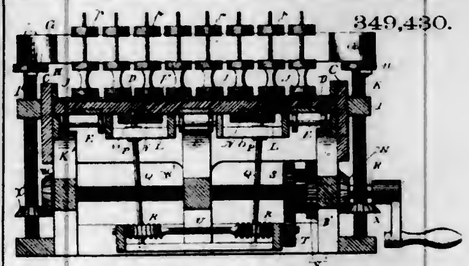
4. The combination, with the rod B and its cross-head B', of the internal mangle-rack, D, having a sliding connection at one end with the cross-head, and provided with a rib or bearer, d^2, the roller d^3, mounted on the fixed support and engaging the rib or bearer, and the crank-shaft C, mounted in fixed bearings and having upon it a pinion engaging said mangle-rack, substantially as herein described.

349,430. PLATE GLASS POLISHER. JAMES HAMLEN, Jeffersonville, Ind. Filed Mar. 4, 1884. (Model.)

Claim.—1. In a plate-glass-polishing machine, the combination of beams G G, each carrying a series of loosely-journaled rubbers or polishers, J, on each side thereof, crank-shafts upon which said beams are journaled, and means for rotating said crank-shafts, the cranks upon which one beam is mounted extending in one direction, and the cranks on which the other beam is mounted being extended in the opposite direction, whereby said beams have a curvilinear reciprocating movement in opposite directions, substantially as set forth.

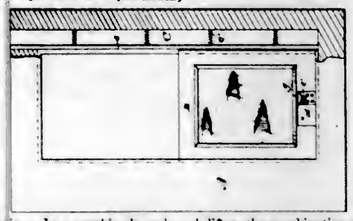
2. In a plate-glass polishing machine, the combination of beams G G, each carrying a series of loosely-journaled rubbers or polishers, J, on each side thereof, crank-shafts upon which said beams are journaled, the cranks upon which one beam is journaled extending in one direction,

349,430.



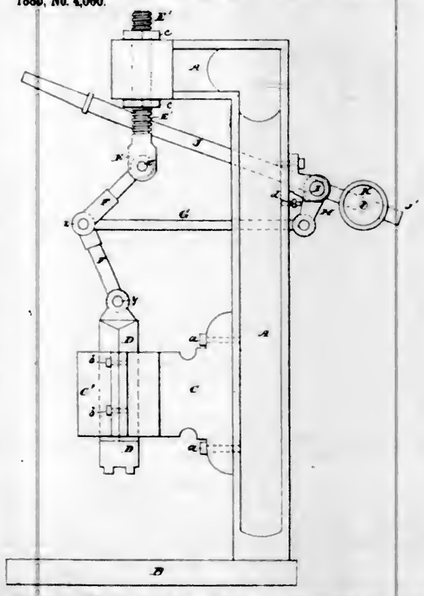
and the cranks upon which the other beam is journaled being extended in the opposite direction, whereby said beams have a curvilinear reciprocating movement in opposite directions, means for rotating said crank-shafts, a frame or support for the glass plate, and means for reciprocating said frame or support, substantially as set forth.

349,431. SASH-FASTENER. HENRY R. JACKSON, Newark, N. J. Filed Apr. 16, 1886. (No model.)



Claim.—In a combined catch and lifter, the combination of a casing having the perforated portion *h*, a spring-actuated catch arranged in said casing and working pivotally in a plane parallel with said perforated portion, and a rigid lifting-plate integral with the casing and overlying the finger-piece of the catch, substantially as set forth.

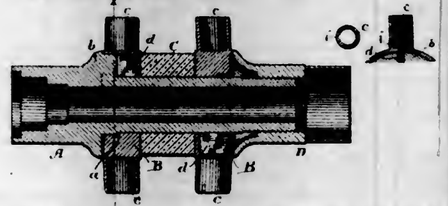
349,432. LINK-PRESS FOR MAKING EARTHENWARE, &c. FREDERIC G. JOHNSON and ALFRED JOHNSON, Hanley, County of Stafford, England. Filed July 13, 1886. (No model.) Patented in England Mar. 31, 1885, No. 4,060.



Claim.—1. The combination, with the ram D and its guide, of the fulcrum-screw mounted in the frame of the press, the adjusting-nuts c c on said fulcrum-screw, and the links F F, connected together at *z* and to the fulcrum-screw and ram, respectively, at *x* and *y*, all arranged to operate substantially as set forth.

2. The combination, with the ram D and its guide, of the fulcrum-screw mounted in the frame of the press, the adjusting-nuts c c on said fulcrum-screw, the links F F, connected to said fulcrum-screw and ram, the shaft I, provided with an arm, H, the rod G, connecting arm H with the links F F at *z*, the operating-lever J, attached to shaft I, and means for retracting the parts and throwing back said lever, substantially as set forth.

349,433. VEHICLE-HUB. JAMES L. JOHNSTON, Topeka, Kans. Filed July 3, 1886. (No model.)



Claim.—1. A hub-ring for vehicles, provided with radial spoke-sockets and having the webs or ribs *d*, notched or recessed at their ends, substantially as described.

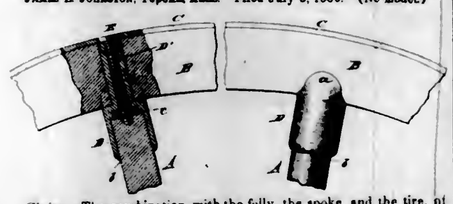
2. A hub-ring for vehicles, provided with radial spoke-sockets having each an opening or vent, and formed with the webs *d*, having notched or recessed ends, substantially as described.

3. A hub for vehicles, consisting of two rings, each of which is provided with radial spoke-sockets and recessed on their inner sides, the said recesses being formed in the webs *d*, as and in the manner described.

4. The combination, with the axle-box having the wedge-shaped lug *b*, of the rings B B, having the webs *d* and intermediate spaces for the reception of the lug, substantially as described.

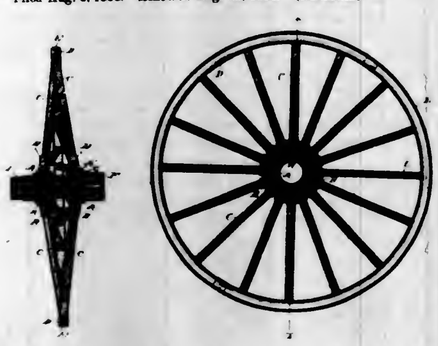
5. The combination, with the axle-box having the flange *a* and lug *b*, of the rings B B, having the webs *d*, recessed at their ends, substantially as and for the purpose described.

349,434. COMBINED SPOKE-SOCKET AND TIRE-FASTENER. JAMES L. JOHNSTON, Topeka, Kans. Filed July 3, 1886. (No model.)



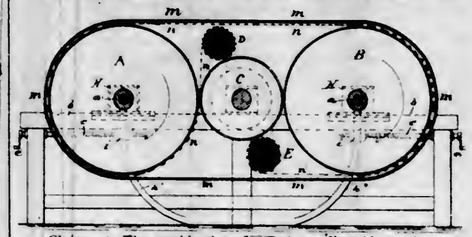
Claim.—The combination, with the felly, the spoke, and the tire, of a ferrule having a perforated tenon protruding centrally therefrom, and formed with a recess in its bottom, a nut fitting in such recess, and a screw-fastening binding the whole together, substantially as described.

349,435. VEHICLE-WHEEL. JAMES A. JOHNSTON, Topeka, Kans. Filed Aug. 3, 1885. Renewed Aug. 28, 1886. (No model.)



Claim.—The combination of the rings A A', each provided with spoke-sockets and having a recess partly through the same, the box F, having a continuous flange and a short shoulder adjacent thereto, and a securing-nut, all substantially as shown and described.

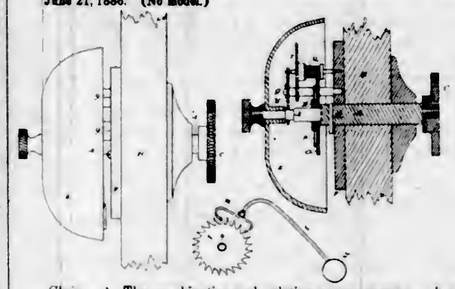
349,436. CLOTH-PRESSING MACHINE. FELIX KÜHNE, Berlin, Germany, assignor to Rudolph & Kühne, same place. Filed June 6, 1885. (No model.) Patented in Germany Feb. 28, 1885, No. 32,862; in Spain July 20, 1885, No. 7,378; in France Apr. 27, 1885, No. 168,518; in Belgium Aug. 27, 1885, No. 68,556, and in England May 6, 1885, No. 5,900.



Claim.—1. The combination of cylinders, adjustable bearings carrying the cylinder-shafts, an endless web inclosing the cylinders, and beams arranged within the space inclosed by the web and carrying the fabric, substantially as described.

2. The combination of the two cylinders, adjustable bearings therefor, a surrounding web, and beams within the space inclosed by the web, and a roller arranged between the cylinders and bearing thereon, substantially as described.

349,437. DOOR-BELL. CHARLES L. LIVINGSTON, Aurora, Ill. Filed June 21, 1886. (No model.)



Claim.—1. The combination and relative arrangement, as shown and described, of a door bell or gong, a rotating spindle provided with a disk or its described equivalent, serving to turn it on its axis and to actuate the hammer, and an escapement mechanism actuated by such rotating spindle and serving to operate the hammer.

2. In combination, the rotary spindle A, the gear O, rack N, spring-pawl *p*, gear Q, or its described equivalent, escapement I, pallet K, hammer, and gong or bell, all substantially as and for the purpose set forth.

3. The described combination of parts, and operating as set forth, namely: the spindle A, having a rotary but no endwise movement, the gear O, loosely supported on said spindle, rack N, fast on said spindle, spring-pawl *p* on the gear O and engaging with rack N, lantern-wheel Q, escapement-wheel I, pallet K, arm L and its hammer, and the gong or bell.

349,438. SEWING-MACHINE. ROBT. S. LOCKER, Springfield, Ohio. Filed Dec. 7, 1883. (No model.)

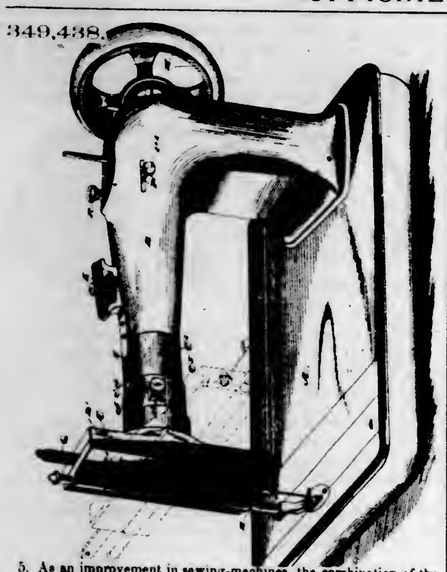
Claim.—1. As an improvement in sewing-machines, the divided arm having its entire forward end with the head thereon journaled to revolve in a vertical plane on the remaining portion or arm proper, as described and shown, whereby convenient access may be given to the needle, and an increased space afforded beneath the arm for the insertion of the fabric.

2. In combination with a sewing-machine arm and a head journaled to revolve thereon, a needle-bar mounted in said head, and a driving-shaft extended through the journal and connected with the needle-bar, substantially as described, whereby the head may be revolved around the driving-shaft to present the needle-bar in different positions without disconnecting said bar from its actuating-shaft.

3. In a sewing-machine, the combination of the sustaining-arm, the rotary head journaled thereon to turn forward at the lower side, the needle-bar mounted in the head, and means, substantially as described, to lock the head when turned to present the needle toward the operator, whereby the needle may be secured in position to permit its convenient manipulation.

4. In combination with the sewing-machine arm, the rotary head thereon, the needle-bar mounted in the head, and means, substantially as described, for locking the head in its operative position, and also for locking it when turned to present the needle to the operator.

349,438.



5. As an improvement in sewing-machines, the combination of the arm and the independent head, one of said parts provided with the horizontal journal seated and arranged to rotate in a sleeve or bearing on the other part, as described.

6. The combination of the arm and the rotary hollow head united by the journal and hub in rear of the head, as described, whereby the interior of the hub is left unobstructed.

7. In a sewing-machine, the combination of a sustaining-arm and a rotary head united by a journal secured to one of said parts, and a device engaging the journal to lock the parts together.

8. In a sewing-machine, the combination of a sustaining-arm, a head journaled thereon and guiding the needle-bar, a needle-bar-operating shaft, and means for locking said shaft against rotation, whereby the needle may be fixed against reciprocation, so as to prevent injury thereto by the movement of the rotary head.

9. In a sewing-machine, the needle-bar-operating shaft, in combination with the manual locking device, substantially as described, adapted to be adjusted and fixed at will in direct engagement with the shaft.

10. In a sewing-machine, the combination of a needle-bar-operating shaft and a set-screw acting directly against the same, whereby the shaft and needle may be secured in different positions.

11. In a sewing-machine, the combination of the arm having a journal projecting from the end thereof, the arm-head having a corresponding sleeve or journal-bearing, and means, substantially as described, for attaching and detaching the journal and bearing.

12. In a sewing-machine, the combination of the arm and head to carry the needle-bar journaled on said arm, means for locking said parts together, and a needle-bar-operating shaft passing through said journal and having free motion therein.

13. The combination of the arm, the rotary head thereon, the spring-locking device to prevent the rotation of the head, and the independently-rotating collar to operate the locking device.

14. In a sewing-machine, the arm and its rotary head, in combination with a spring-locking device, and the rider to insure the action of said device.

15. In combination with the arm and the rotary head thereon, the spring to stop the head automatically in operative position, and the screw to lock the parts firmly in position.

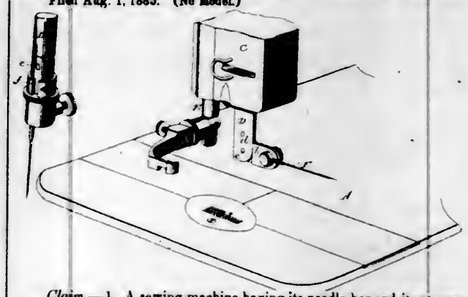
16. The combination of the arm, the spring-locking device, the slotted rotary collar to release said device, and the device to lock the collar.

17. In a sewing-machine, the combination of the shuttle-operating mechanism, the needle-operating mechanism, and an intermediate clutch constructed, substantially as described, in two parts, adapted to interlock in one position only, whereby the operator is enabled to disconnect the needle and shuttle and to reconnect them instantly in the exact relations required.

18. The needle-operating shaft and the shuttle-operating cam thereon, in combination with the clutch-pin and its operating-collar, the ring *k*, encircling the same, and the controlling-handle extending through a slot to the exterior.

19. In a sewing-machine, an arm, a rotary head thereon, and a spring-latch to lock the head, combined for joint operation, substantially as described.

349,439. SEWING-MACHINE. ROBT. S. LOOKER, Springfield, Ohio. Filed Aug. 1, 1885. (No model.)



Claim.—1. A sewing-machine having its needle-bar and its presser-foot bar jointed, substantially as described, to permit the needle and presser-foot to be lifted above their operative positions.

2. A sewing-machine having the needle-clamping portion of its needle-bar jointed to turn upward in one direction, and the presser-foot bar jointed to turn upward in a different direction, whereby free access is afforded to the bed of the machine.

3. In a sewing-machine, a needle-bar provided at its lower end with a needle-clamp, and also provided above the clamp with an independent joint, substantially as described, to permit the needle to be lifted above its operative position without releasing its clamp, whereby a space greater than the length of the needle may be secured below the needle-bar.

4. In a sewing-machine, the needle-bar having its lower end hinged to the remaining portion, in combination with the notched rotary sleeve applied thereto, as described, for the double purpose of holding the needle in its operative and in its elevated position.

349,440. SPOOL-BOX FOR SEWING-MACHINES. ROBERT S. LOOKER, Springfield, Ohio. Filed Dec. 7, 1883. Renewed July 30, 1886. (No model.)



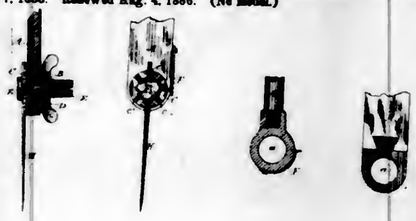
Claim.—1. A spool-holder for a sewing-machine, formed with a series of troughs, within which the spools may rest and revolve, and a corresponding series of independently-adjustable tension devices to receive the thread from the spools, substantially as described.

2. The combination, with a sewing-machine arm, of a spool-rack formed of a series of troughs, within which the spools rest and revolve, said troughs being inclosed in a box having top and side lids, and a series of independently-adjustable tension devices to receive the thread from the spools, substantially as described.

3. In a spool-box, the combination of a series of spool-holders, and a series of tension devices arranged diagonally across the tier of spool-holders, to direct the thread to openings at the end of the box, substantially as described.

4. The combination, with a sewing-machine arm, E, of a spool-box, C, having hinged top and side C' and C², a rack, A, inside of said box, independent tensions D for each thread, and the thread-throats c' c², &c., in the end C³ of the box, substantially as described.

349,441. ADJUSTABLE OSCILLATING NEEDLE-CLAMP FOR SEWING-MACHINES. ROBERT S. LOOKER, Springfield, Ohio. Filed Dec. 7, 1883. Renewed Aug. 4, 1886. (No model.)



Claim.—1. The combination of a needle-bar, with a bushing screw-threaded on its outer surface, a bolt passing through said bushing, and set-nuts, by which the needle is held between the head of said bolt and the bushing and the bushing is clamped to the needle-bar, whereby the clamp may be loosened from the needle-bar without disengaging the needle or affecting the relation between the needle and the clamp, substantially as described.

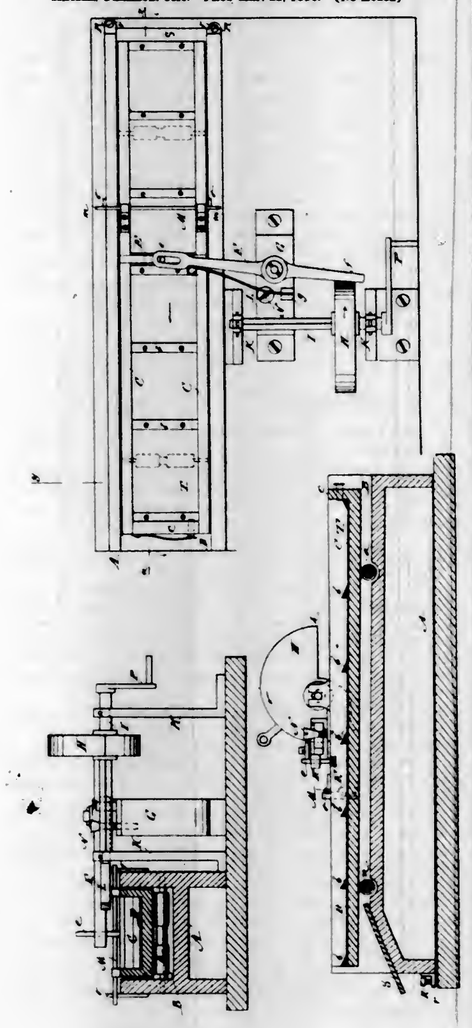
2. In combination with a needle-bar, as described, a needle-clamp having grooves of various sizes, and adapted to hold the needles of different sizes adjustably to the bar, and to be disconnected from the bar without loosening the hold of the clamp upon the needle, as set forth.

3. In combination with the needle-bar and needle-clamp constructed as described, and with notches arranged upon the periphery of said clamp, a spring-catch, as F, secured to the needle-bar and serving to engage the clamp, as herein specified.

4. The combination, with the needle-bar A, having a socket, *a*, of the sleeve B, having plate C with grooves c c' c² of various sizes, the thumb-nut D, for removably securing the said sleeve to the needle-bar, and connections for securing the needle to the plate C, as set forth.

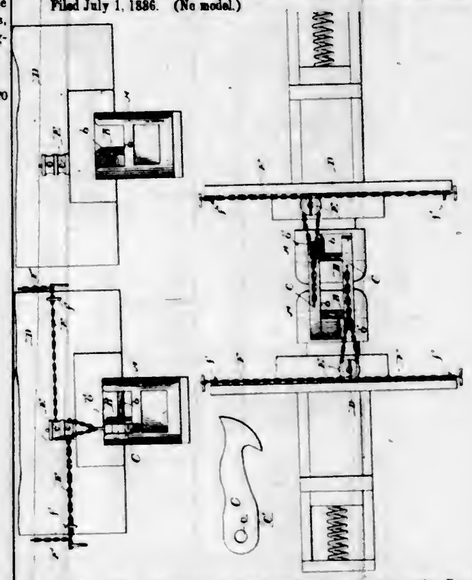
5. The combination, with the needle-bar A, having socket *a*, the sleeve B, having plate or disk C with grooves c c' c² of different sizes, and nut D, arranged as described, of the screw E, nut E', and spring-catch F, as and for the purposes specified.

349,442. DRY ORE AMALGAMATOR AND SEPARATOR. OTTO MATZER, Gunnison, Colo. Filed Mar. 23, 1886. (No model.)



Claim.—The combination of the draw-head having the cavity B on its upper side and the lug or lip *b'* projecting forwardly from the rear side of the cavity, near one side thereof, the transverse bar *b*, having its ends secured in the sides of the cavity and bearing against the front of the lug *b'*, the hook C, pivoted on the bar *b*, between the lug *b'* and the adjacent side of the cavity, the pulleys journaled above the draw-head, and the chains attached to the hook and passing around the pulleys, for the purpose set forth, substantially as described.

349,443. CAR-COUPLING. THOMAS MCGRATH, East Toledo, Ohio. Filed July 1, 1886. (No model.)

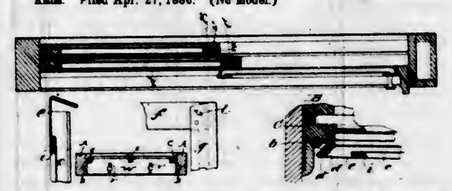


Claim.—1. The combination, with the guideway of trough C, closed at its rear end and provided with dams *b*, having vertical forward sides and inclined rearward on their upper sides, of a lever, F, connected at its inner end with trough C, the cam H, acting on the lever F to move the trough forward, having an abrupt shoulder, as at *h*, and a spring acting to throw the trough suddenly rearward at the moment the shoulder *h* passes the lever, substantially as set forth.

2. The combination, with a main trough provided with rollers *a a*, of an amalgamating-trough divided into compartments by a series of ridges or dams, a pin, *e*, carried by said amalgamating-trough, a lever, F, slotted to engage with said pin, a cam, H, a spring, L, a spring-regulating screw, N, stops *o o*, and a bar, M, substantially as described.

3. The combination, with a main trough constituting a way and carrying rollers *a a*, of an amalgamating-trough formed with a series of ridges or dams and carrying a vertical pin, *e*, a lever, F, cam H, spring L, bar M, carried by the amalgamating-trough, and stops *o o*, substantially as described.

349,444. WINDOW-SCREEN. WILLIAM E. MONROE, Cherryvale, Kans. Filed Apr. 27, 1886. (No model.)



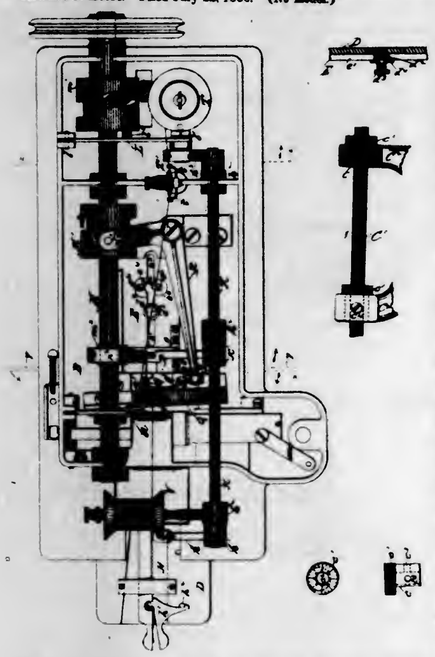
Claim.—1. In a window-screen, the combination, with the vertical strips *a*, bent back in opposite directions along their adjacent longitudinal edges, of the screen-frame, the side strips of which are bent toward each other along their adjacent longitudinal edges, the said bent portions resting behind the bent portions of the strips *a*, substantially as set forth.

2. In a window-screen, the combination, with the strips *a*, bent back in opposite directions along their adjacent longitudinal edges, of the screen-frame formed of strips, the outer edges of each pair of which are bent toward each other, the bent portions of the side strips resting behind the bent portions of the strips *a*, substantially as set forth.

3. In a window-screen, the combination, with the strips *a*, bent double along their outer edges, the doubled portions being bent back to form ways, of the screen-frame having the outer edges of the side strips bent double, and then bent toward each other to rest behind the bent portions of the strips *a*, substantially as set forth.

4. The combination, with the sashes and the screens, of an adjustable plate, *w*, having slots *v' v'*, and screws passed through said slots into the under side of the lower rail of the upper sash, substantially as set forth.

349,445. BUTTON-HOLE SEWING-MACHINE. EDWARD B. MOORE, West Chester, and GEORGE REHFUSS, Philadelphia, Pa., assignors to said Edward B. Moore. Filed July 22, 1886. (No model.)



Claim.—1. In a button-hole sewing-machine feed-slide comprising a sliding plate carrying a rotary disk having a flange or annular rib, G', the combination, with said plate and flanged disk, of ratchet *i'*, pawl i^2, and intermediate connecting means, whereby the pawl is intermittently disengaged from the ratchet, substantially as shown and described.

2. In a button-hole sewing-machine feed mechanism, the combination, with feed-slide D, having straight rack H, and rotary disk G, having flange G', of ratchet *i'*, pawl i^2, lever P, and rod O, said parts being arranged substantially as described, whereby a rotary movement of said disk will produce a longitudinal movement of said rod, which will throw said pawl out of engagement with said ratchet, substantially as shown and described.

3. In a button-hole sewing-machine feed mechanism, the combination, with a feed-slide carrying a rotary disk, said slide having a straight rack, H, and said disk having a segmental or annular rack, *g*, and a flange, G', of pinion *i*, ratchet *i'*, pawl i^2, having pin i^3, lever N, having tooth *n*, lever P, and rod O, having collar or stud *o'* and spring o^2, said rod O and lever P being connected, and the latter operating on the pawl, which engages with said ratchet, whereby the ratchet receives motion from the pawl and communicates it to the pinion to move the rack and feed-slide, said pawl being moved out of engagement with said ratchet when the disk-flange comes in contact with the collar or stud on rod O and moves the latter and lever P, the toothed lever N then imparting motion to the rotary disk, substantially as shown and described.

4. The combination, with feed-slide D, having straight rack H, and rotary disk G, having segmental or annular rack *g* and flange G', of pawl i^2, ratchet *i'*, pinion *i*, rod O, having collar or stud *o'* and retracting-spring o^3, lever P, and lever N, having tooth *n*, engaging with said rack *g*, said pawl having a stud on its tail-piece against which said lever impinges, and said spring operating to restore the engagement of said pawl and ratchet when the disk-flange moves clear of the collar or stud *o'* on said rod, as set forth.

5. In a button-hole sewing-machine, the combination, with the guide-plate E, of the detachable interchangeable shoes e^4, having, respectively, a projection and a depression, substantially as set forth.

6. In a button-hole sewing-machine, the combination, with the needle-bar, of two eccentric boxes or bearings in the head or needle-arm, by the adjustment of which the length of stitch may be varied, substantially as shown and described.

7. In a button-hole sewing-machine, the combination, with the block Q, having curvilinear groove *q*, of looper-carrier Q', lever R, and joint S, composed of pin *s*, sleeve with ball or bulb s^2, and pin s^3, having socket in its head s^4, substantially as shown and described, whereby said lever reciprocating in a horizontal plane transmits a curvilinear movement in a vertical plane to said looper-carrier, substantially as set forth.

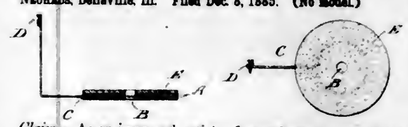
8. In a button-hole sewing-machine, the combination, with the feed-slide and stitch-forming mechanism, of means for locating a cut button-hole in position, said means consisting of block 1, stem 3, having head 5 and spring 6, arm 7, and lever 9, said parts being constructed and combined for operation substantially as set forth.

9. The combination, with the bed-piece, clamp, and stitch-forming mechanism of a sewing-machine, of a device for locating already-cut button-holes accurately in such clamp for the action of the stitch-forming mechanism, said device consisting, essentially, of a movable button-hole block, 1, fitted in a recess in the bed-piece, and having mechanism connected therewith and located below the bed-piece, substantially as described, for elevating it into position by leg motion to receive and locate a button-hole, substantially as shown and described.

10. The combination, with an organized sewing-machine, of a device or apparatus for locating an already-cut button-hole with reference to the stitching mechanism, said device comprising a block constructed and adapted to enter an already-cut button-hole, said block being fitted and normally resting in a recess in the bed-piece or below the cloth-plate of the machine, and a lever for elevating said block so as to cause it to project above the cloth-plate, substantially as shown and described.

11. The combination, with the bed-piece and stitch-forming mechanism of a sewing-machine, said bed-piece having a recess or slot, of a device for locating an already-cut button-hole, said device comprising a block constructed and adapted to enter an already-cut button-hole, which block fits in said recess or slot in the bed-piece, and is provided with mechanism for producing its projection above the plane of the surface of the bed-piece and its automatic retirement or descent in the recess, substantially as shown and described.

349,446. SPOOL-HOLDER FOR SEWING-MACHINES. FRIEDRICH NEUHAUS, Belleville, Ill. Filed Dec. 8, 1885. (No model.)



Claim.—As an improved article of manufacture, a spool-holder for sewing-machines, consisting of the apertured disks A, the wire C, held between the disks and having its upwardly-bent end provided with the eye D, and the apertured fabric layer E, secured to the upper surface of the upper disk, the whole being adapted to be placed upon the spool-spindle with the spool resting upon the fabric layer, as set forth.

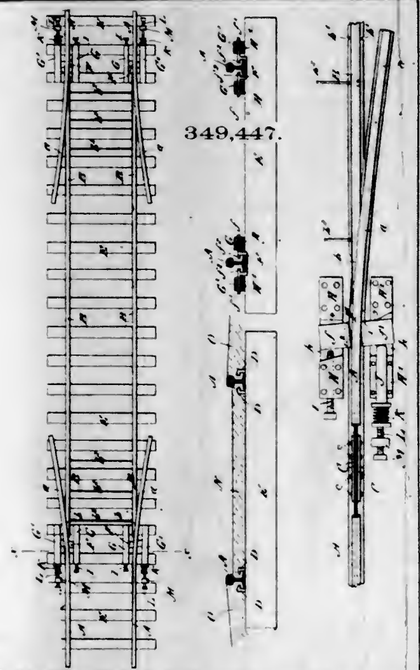
349,447. RAILWAY-TRACK SYSTEM. PHILIP NOONAN, Edgard, La. Filed May 5, 1886. (No model.)

Claim.—1. In a railway-track system, the combination, with ties, of main rails laid loosely thereon in connected sections, spikes, or equivalent fastenings fixed to the ties at the sides of the rails and allowing a free limited vertical or wave movement of the main rails, and splice-rails fixed to the ties at and connecting the ends of the main-rail sections to form a continuous track, substantially as described, for the purposes set forth.

2. In a railway-track system, the combination, with ties or other rail-supports, of main rails laid loosely on the ties or supports and outturned at their ends, splice-rails laid at and connecting the outturned ends of the main rails to form a continuous track, and grips fitted to the main-rail sections at or near their outturned ends, substantially as described, for the purposes set forth.

3. In a railway-track system, the combination, with ties E, of loose main rails A, having outturned ends *a*, and connected in sections by end-butted joints, splice-rails B, scarfed at the ends and laid fixedly at and connecting the outturned ends of the main rails to form a continuous track, grips F crossing beneath rails A, and adjusting devices, substantially as specified, whereby the grips may be caused to bite and hold the rails A, substantially as described, for the purpose set forth.

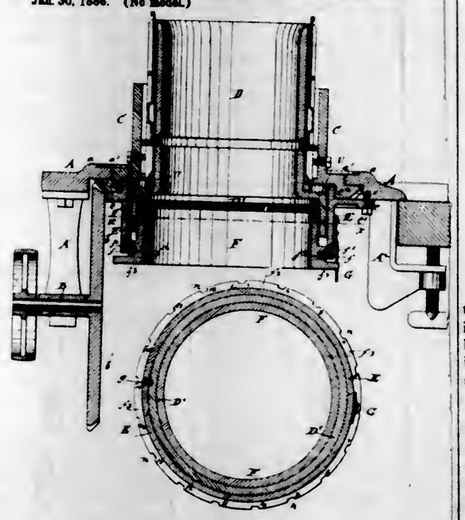
4. In a railway-track system, the combination, with the main and splice rails A B, arranged substantially as specified, and the grips F, supported in recessed blocks H H', and adapted to bite at diagonally-opposite corners on the rails A, of a pin, J, spring K, and screw L, substantially as herein set forth.



5. In a railway-track system, the combination, with the main and splice rails A B, arranged substantially as specified, and the grips F, supported in recessed blocks H H', and adapted to bite at diagonally-opposite corners on the rail A, of a screw, I, threaded into block H, substantially as herein set forth.

6. A railway-track system comprising ties E, main rails A, connected in sections having closed or end-butted joints, and provided with outturned ends *a*, and laid loosely on the ties between spikes, allowing free limited vertical or wave movement of the rails, splice-rails B, fixed to the ties and connecting by scarfed ends with the outturned ends of the main rails, to form a continuous track, grips, as at F, placed on the rails A, devices, substantially as specified, for adjusting the grips, and ballast as at N O, covering the ties, substantially as described, for the purposes set forth.

349,448. CIRCULAR-KNITTING MACHINE. JEREMIAH F. O'NEIL, New York, N. Y., assignor to Adelphus E. Karelsen, same place. Filed Jan. 30, 1886. (No model.)



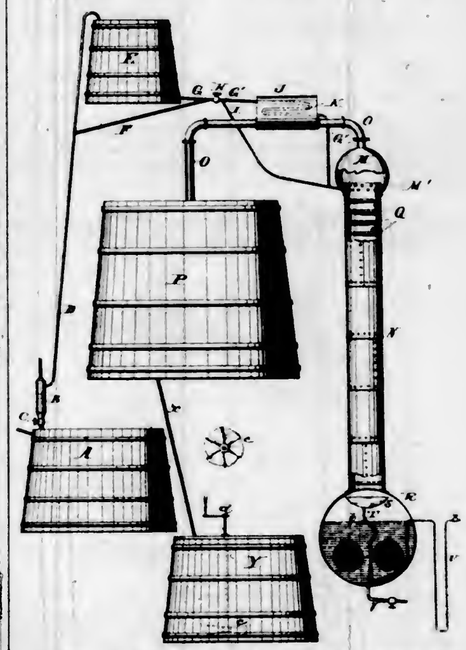
Claim.—1. The combination of the bed-plate, a rotary cam-cylinder, a needle-cylinder, a base-ring for supporting the needle-cylinder, a retaining-ring attached to the under side of the bed-plate and having an inwardly-extending bottom flange, and an adjusting-ring having an annular groove for said flange, and an exterior screw-thread for engaging the interiorly-threaded base-ring, substantially as set forth.

2. The combination of a bed-plate, a rotary cam-cylinder, a needle-cylinder, a base-ring supporting the needle-cylinder, said base-ring having an interior screw-thread, a retaining-ring attached to the under side of the bed-plate, an adjusting-ring retained by a flange of the retaining-ring and engaging the thread of the base-ring, and a locking device by which the adjusting-ring is locked to the retaining-ring, substantially as set forth.

3. The combination of a bed-plate, a rotary cam-cylinder, a needle-cylinder, a base-ring supporting said needle-cylinder, a retaining-ring attached to the under side of the bed-plate and having an upwardly-extending guard-flange and an inwardly-extending bottom flange, an adjusting-ring having an annular groove engaging said bottom flange, and an exterior screw-thread engaging an interior screw-thread of the base-ring, and a vertical key connecting the base-ring and the retaining-ring, whereby the base-ring and needle-cylinder are vertically adjustable, but prevented from turning axially, substantially as set forth.

4. The combination of the bed-plate, a rotary cam-cylinder, a needle-cylinder, a base-ring supporting said needle-cylinder, a retaining-ring attached to the under side of the bed-plate and having an inwardly-extending bottom flange, an adjusting-ring having an annular groove for said bottom flange, and an exterior screw-thread engaging an interior screw-thread of the base-ring, and a locking-spring engaging the notched bottom flange of the adjusting-ring, substantially as set forth.

349,449. PROCESS OF AND APPARATUS FOR DISTILLING. JOHN C. PENDL, Lawrenceburg, Ky., assignor to himself and the Bourbon Copper and Brass Works, Cincinnati, Ohio. Filed June 27, 1884. (No model.)



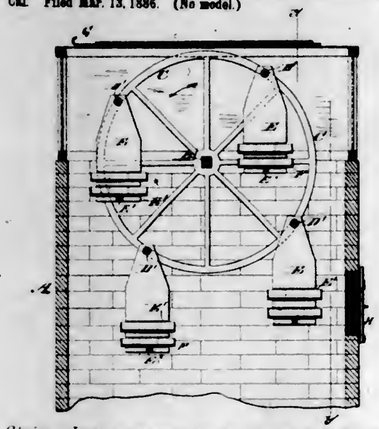
Claim.—1. The process of distillation, consisting in causing steam to ascend in a column, raising the temperature of singlings and regulating it by addition of unheated singlings, and then admitting the singlings to the column to descend therein and be acted upon by the ascending vapor, and finally condensing the resultant liquor, substantially as set forth.

2. The combination, in an apparatus for the reduction of impurities in products of distillation, of the pipe I and heater J, communicating with a common supply, a heating-vessel, substantially as described, through which the pipe G' passes, both said pipes and heaters and a condenser communicating with a column at the upper portion thereof, and a boiler or doubler located at or near the base of said column, substantially as and for the purpose specified.

3. The combination, in an apparatus for the reduction of impurities in products of distillation, of pipe I and heater J, communicating with a common supply, a heating-vessel, substantially as described, through which the pipe G' passes and intersects the pipe I, said pipe I and a condenser communicating with a column at the upper portion thereof, and a boiler or doubler located at or near the base of said column, as and for the purpose specified.

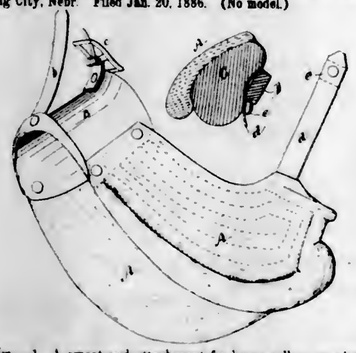
4. The combination and arrangement of the tank A, pump B, pipes I and F, tank E, pipes G, G', and I, coil K, drum J, column N, doubler R, pipe O, condenser P, and tub Y and stirrer therefor, substantially as and for the purpose specified.

349,450. FRUIT-EVAPORATOR. ARTHUR C. PENNIMAN, San José, Cal. Filed Mar. 13, 1886. (No model.)



Claim.—In an evaporator, the combination, with the wheels C, rigidly mounted on the rotary shaft B, of the bolts D, passed through the rims of the wheels, and the binding-nuts screwed on their outer ends, the tubular cross-bars D', mounted loosely on the bolts D, and serving to space the wheels C, and the pendulous tray-supporting hangers E, received on the ends of the tubular cross-bars D', substantially as shown and described.

349,451. SWEAT-PAD FOR HORSE-COLLARS. JAS. H. PHILPOTT, Rising City, Nebr. Filed Jan. 20, 1886. (No model.)



Claim.—1. A sweat-pad attachment for horse-collars, consisting of the upper arched thin collar-pad, B, adapted to receive the horse-collar over it, and the stuffed cloth sweat-pads A A, united at their upper ends to the lower ends of the arched collar-pad B, and having no connection one with the other at their lower ends, substantially as specified.

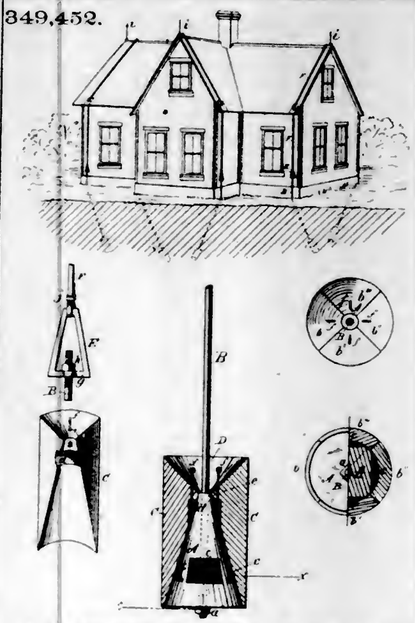
2. The combination of the leather collar-pad B, the stuffed cloth sweat-pads A A, united at their tops to the pad B, and one or more straps and buckles, *b c*, adapted to attach the whole to the collar at the top, essentially as described.

349,452. LAND-ANCHOR. CYRUS C. PRATT, Lincoln, Kans. Filed Dec. 11, 1885. (No model.)

Claim.—1. In a land-anchor, the combination, with a conical or tapering cone, of sections arranged to be expanded by the cone, substantially as herein described.

2. In a land-anchor, the combination of the rod B, cone A, and cylinder C, formed of sections *b b' b'' b'''*, substantially as herein shown and described.

349,452.



3. In a land-anchor, the combination, with the cone A, provided with notches *c*, of the cylinder C, formed of sections *b b' b'' b'''*, each section having a hook, *e*, substantially as herein shown and described.

4. The combination, in a land-anchor, of the cone A, the cylinder C, formed of sections *b b' b'' b'''*, and eyebolts *f*, attached to the sections, substantially as herein described.

5. The combination, in a land-anchor, of the cone A, the sectional cylinder C, the rod B, stirrup E, and strap F, substantially as herein shown and described.

349,453. BUTTON. PIERRE A. RAYMOND, Grenoble, France, assignor to Perrin Frères, same place. Filed June 29, 1886. (No model.)

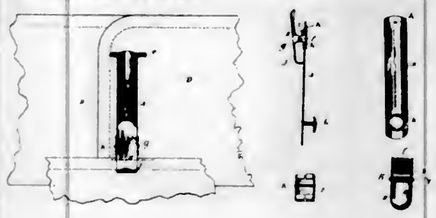


Claim.—1. The combination, with an eyelet or socket, substantially as described, of a spring-cap supported by a dome and a clamping eyelet or collar, the parts named being clamped together by a doubly-flanged ring or collar, 30, substantially as described.

2. The combination, with a socket consisting of a cap, 50, formed with a flange, 51, a doubly-flanged ring, 52, a central tubular eyelet, 60, and a concavo-convex ring, 70, of a spring-stud consisting of the spring-cap 20, formed with flanges 3, a dome, 21, a collar or eyelet, 22, a clamping-collar, 30, and a concavo-convex ring, 41, substantially as described.

3. A fastener or button consisting of a dome surrounded by a spring-cap made from a blank, 10, the dome and cap being arranged for attachment to the supporting material, in combination with an eyelet or socket, substantially as described.

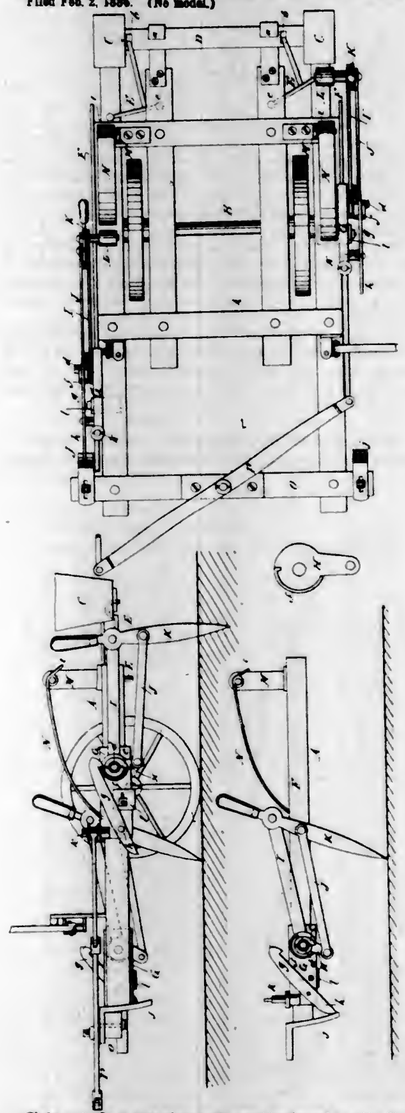
349,454. CUFF-HOLDER. WILLIAM T. REEVES, Aurora, Ill. Filed June 14, 1886. (No model.)



Claim.—1. An adjustable cuff-holder consisting of a base-plate having means, substantially as described, for removably securing it to button-holes in a cuff, combined with an adjustable spring-clip secured directly upon said plate and adapted to slide upon and to be held at any desired place on the same, and to clip or grip the annular edge of the wristband of the sleeve, and to adjust the position of the cuff relatively to said band.

2. The adjustable cuff-holder described, consisting of the combination, with the plate A, provided with a button, *b*, and a stop or projection, *k*, of the sliding clip or dog E, arranged to clip the edge of a wristband, and to be adjusted lengthwise of said plate, all substantially as and for the purpose set forth.

349,455. CORN-PLANTER. FRANK H. RYBACEK, Riverside, Iowa. Filed Feb. 2, 1886. (No model.)



Claim.—1. In a corn-planter, the combination of a guide, F, placed on the side of the planter-frame, the slide G, arranged to move thereon, the arm H, pivoted to the side of the slide G, the bar I, pivoted to the slide G, the bar J, pivoted to the arm H, the dagger K, pivoted to the arms I J, and means for locking and releasing the arm H, substantially as herein shown and described.

2. In a corn-planter, the combination of the guides F, the slides G, the bar I and arm H, pivoted on the slide G, the bar J, pivoted to the arm H, the dagger K, pivoted to the arms I J, the catch *g*, pivoted to the slide G and arranged to engage the segmental rim of the arm H, the stop *e*, and means for connecting the slides G on opposite sides of the machine, substantially as herein shown and described.

3. In a corn-planter, the combination of the guide F, the slide G, the arm H, the bar I, pivoted to the slide, the bar J, pivoted to the arm H, the dagger K, pivoted to the bars I J, the roller L, carried by the dagger, and the pivoted switch-arm N, substantially as herein shown and described.

4. In a corn-planter, the combination of the guides F, the slides G, the arms H, provided with segmental rims *f*, the stops *e*, the catches *g*, having the arms *h*, the arms *j*, arranged to engage the arms *h* of the catches, the bar I, pivoted to the slide G, and the bar J, pivoted to the arm H, the dagger K and roller L, carried thereby, the pivoted switch-arm N, the lever P, and rods connecting the same with the slides G, substantially as herein shown and described.

5. In a corn-planter, the combination of the guides F, slides G, arms H, provided with segmental rims *f*, the stop *e*, the catch *g*, the arms I J, and the dagger K, pivoted to the arms I J, the distance between the pivotal connections of the arms I J with the dagger K being greater than the distance between the pivotal connections of the opposite ends of the arms, substantially as and for the purpose specified.

6. In a corn-planter, the combination of the seed-boxes C, bar B, levers E, slides G, provided with the arms *l*, dagger K and arms I J, pivotally connected with the slides G, the lever P and rods connecting the lever with the slides G, and means for holding and releasing the dagger K, substantially as herein shown and described.

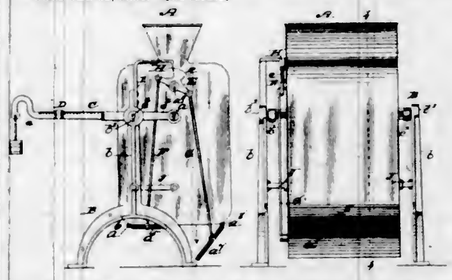
349,456. CUFF-HOLDER. ANDREW W. SAWYER, Providence, R. I. Filed June 15, 1886. (No model.)



Claim.—1. The combination of a rod with a sleeve-fastener on one end and a tube on the other end, a rod having a cuff-holding device on one end and its other end inclosed in said tube, and a coil-spring encircling said rod within the tube, all substantially as shown, and for the purposes described.

2. The combination of the sleeve-holding clamp and its attached rod, the tube B, spring F, button G, with a hole in its shank, and the fastening device for passing through said hole, all substantially as shown, and for the purposes described.

349,457. GRAIN-SCALE. KASPER H. SCHAPER, Linn's Mills, Mo. Filed Jan. 13, 1886. (No model.)

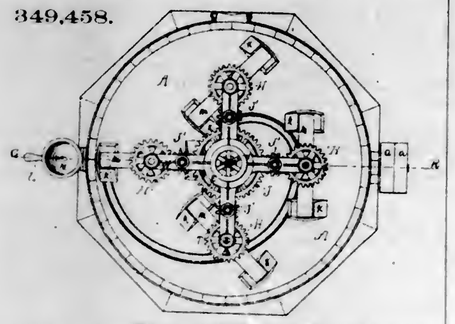


Claim.—The weighing-hopper having a valve in its opening, and two compartments, and the hinged bottoms at the lower end of the compartments, respectively, in combination with the swinging rods F and G, pivoted at their lower ends, respectively, to the hinged bottoms a^5 and a^7 of said compartments, and at their upper ends, on opposite sides of the arm E, fastened to the shaft a^{10} of the valve a^4 in the opening of the hopper, said arm having the extension *e*, the fixed shoulder H, the frame B, the beam C, and the weight D, as described.

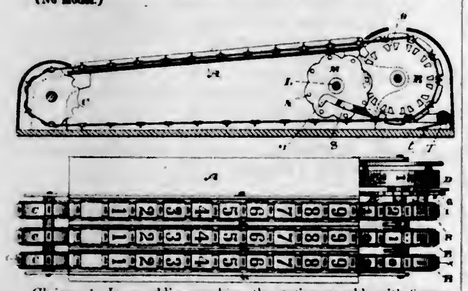
349,458. SETTLER. HIRAM H. SCOVILLE, Chicago, Ill. Filed Dec. 10, 1885. (No model.)

Claim.—The combination, in a pan or settler, with spur-wheel J and wheel H, having the axial and planetary motions, of intermediate pinion, J', for reversing and, by reversing, equalizing the motion of shoes K K in pan A, substantially as and for the purposes set forth.

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349,459. ADDING-MACHINE. ARTHUR E. SHATTUCK, Sacramento, and CHARLES THORN, Jr., San Francisco, assignors, by mesne assignments, of one-third to George C. Gaylord, Nevada City, Cal. Filed Dec. 30, 1885. (No model.)



Claim.—1. In an adding-machine, the stationary table with figures upon its surface, the traveling chain, and the numeral-rollers provided with radial slots, in combination with a disk having pins projecting upon each side of its rim, one end of said pins engaging the radial slots in one of the rollers, an adjacent and driving roller, and a pawl fulcrumed upon said roller and engaging the opposite projecting end of the pins, substantially as herein described.

2. A shaft, the numeral-rollers mounted upon said shaft, one of said rollers having a spring-pawl fulcrumed upon its side, and the other having radial slots in the adjacent side, in combination with a second shaft, a disk journaled upon said shaft, so that its periphery enters the space between the two rollers, said disk having pins projecting from its sides, whereby one end is engaged by the pawl upon the driving-roller, while the other end engages the slot or lug upon the other roller, substantially as herein described.

3. A shaft, the numeral-rollers mounted upon said shaft, a second shaft, a disk provided with pins and mounted upon said second shaft, so that its periphery extends between the adjacent numeral-rollers, and a mechanism whereby the second roller and disk are advanced by the movement of the primary roller, in combination with a lever having a hook or projection to engage the pins of the disk, and a pin upon the primary roller projecting so as to engage a lug upon the lever and depress it at the instant when the disk and second roller are advanced, substantially as herein described.

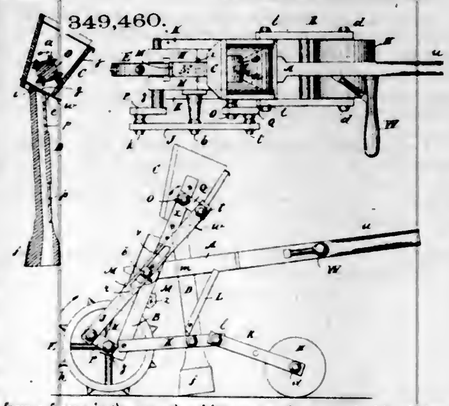
4. In combination with the numeral-rollers and intermediate disks provided with pins, as shown, the pawl fulcrumed to the driving-roller, so as to engage said pins upon the disks, said pawl being provided with a slotted arc at its inner end, the guide-pin operating in said arc, and a returning-spring, substantially as herein described.

5. A shaft, one or more numeral-rollers loosely journaled upon said shaft, an independent tally-roller loosely journaled upon the same shaft, and having a coiled spring by which it is advanced when released, in combination with an escapement-wheel, an escapement mounted upon the frame, so as to engage the teeth of said escapement-wheel, which turns with the tally-roller, and a pin projecting from the numeral-rollers, so as to engage and operate the escapement and allow the tally-roller to advance at each revolution of the numeral-roller, substantially as herein described.

349,460. SEED-PLANTER. JOHN H. SHAW, Berwick, Nova Scotia, Canada, assignor to himself, Samuel S. Young, Somerville, Mass., Frederick S. Elliz, Waterville, Nova Scotia, and James W. Young, Somerville, Mass. Filed Jan. 23, 1886. (No model.)

Claim.—1. In a seed-planter, the combination of the following instrumentalities, to wit: a hand-beam, a seed-hopper, a rotary brush disposed in said hopper, a seed-spout having its lower end adapted to

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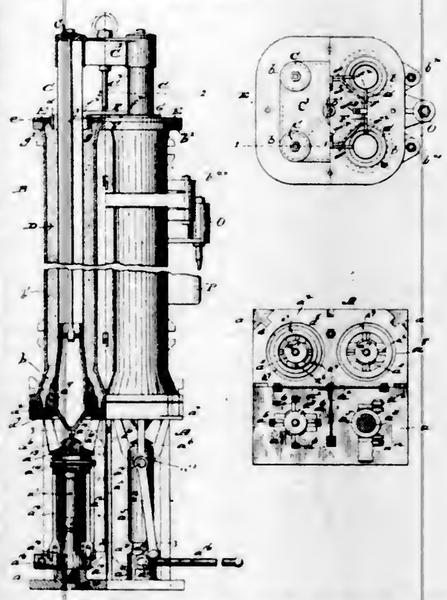


form a furrow in the ground and its upper end connected with said hopper, a roller for pressing the earth down onto the seed, a driving or supporting wheel, a crank-shaft for the driving-wheel, a crank-shaft for the brush, an oscillating pitman connecting said crank-shafts, a stud or fulcrum for the pitman disposed between said crank-shafts, and a standard or standards, substantially as set forth.

2. In a seed-planter, the bars N, provided with the stub-beam M and pin *z*, or other suitable means for adjustably mounting the wheel E on the standards B, in combination with the wheel E, standards B, crank-shaft *y*, pitman J, stud *b*, crank-shaft O, and hopper C, substantially as described.

3. The improved seed-planter herein described, the same consisting of the standards B, bars N, stub-beam M, pin *z*, wheel E, crank-shaft *y*, pitman J, stud *b*, crank-shaft O, brush *a*, hopper C, beam A, spout D, arms K, frame-work R, and roller H, constructed, combined, and arranged to operate substantially as described.

349,461. PIPE-MOLDING APPARATUS. FREDERICK SHICKLE, St. Louis, Mo. Filed Aug. 17, 1885. (No model.) Patented in England Nov. 24, 1885, No. 14,401; in Belgium Dec. 15, 1885, No. 71,014, and in France Feb. 24, 1886, No. 172,554.



Claim.—1. The ramming-stand A, having the spindle a^3 and the sleeve a^4, said sleeve being adjustable vertically and capable of being turned around with said spindle, for the purposes described.

2. The ramming-stand A, having the spindle a^3 and the sleeve a^4, said sleeve being capable of being turned around with said spindle, for the purpose described.

3. The combination of the stand A, the flask *b*, the ring a^6, the spindle a^3, and the vertically-adjustable sleeve a^4, having the ring a^5, as described.

4. The combination of the stand A, the flask *b*, the ring a^6, the spindle a^3, and the vertically-adjustable and rotatable sleeve a^4, as described.

5. The combination of the stand A, the flask *b*, the ring a^6, the spindle a^3, and the sleeve a^4, said sleeve being capable of being turned around.

6. The combination of the stand A, the spindle a^3, the sleeve a^4, having the ring a^7, the ring a^6, and the flask *b*, said sleeve and ring being movable vertically, for the purpose described.

7. The combination of the stand A, the spindle a^3, the sleeve a^4, the ring a^7, the ring a^6, and the flask *b*, as described.

8. The combination of the stand A, the spindle a^3, the sleeve a^4, the arms a^{10} a^{12}, and the lever a^{13}, as described.

9. The combination of the stand A, the spindle a^3, the slotted sleeve a^4, the arms a^{10} a^{12}, the bolt a^{14}, and the lever a^{13}, as described.

10. The combination of the stand A, the spindle a^3, the sleeve a^4, the arms a^{10} a^{12}, the bolt a^{14}, the rings a^7 a^6, the lever a^{13}, and the flask *b*, said sleeve having a shoulder, against which the arms a^{12} at their upper ends abut, and said spindle being slotted, as described.

11. The combination of the stand A, the flask *b*, the ring a^6, the spindle a^3, the arms a^{10} a^{12}, and the sleeve a^4, said sleeve having the ring a^7, and also a shoulder, against which the arms a^{12} at their upper ends abut, as described.

12. The combination of the stand A, the flask *b*, and the rings a^7 a^6, being upheld by a part that is vertically adjustable in said stand and that can be turned around horizontally.

13. The combination of the cluster flask B, the rammers C C, the yoke C', and the pin C^2, adapted to enter the perforation *b'*, as and for the purpose described.

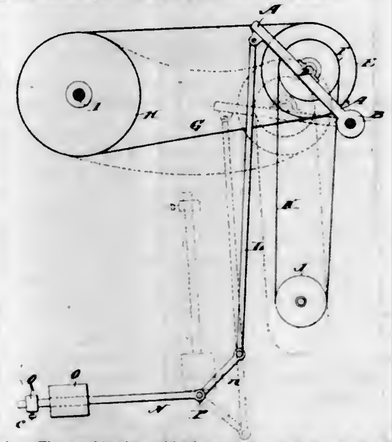
14. The combination of the cluster flask B, the rammers C C, the frame F, the top E, and the prints G G, as described.

15. The combination of the cluster flask B, the rammers C C, the yoke C', the pin C^2, the perforated part *b'*, the top E, the frame F, and the prints G G, as described.

16. The combination of the cluster flask B, the removable top E, and the prints G G, fitting within the openings of said top, as described.

17. The combination of the cluster flask B, the top E, the rammers C C, and the frame F, substantially as described, and for the purpose set forth.

349,462. SWINGING COUNTER-SHAFT FRAME AND BELT-TIGHTENER. GUSTAV H. W. SIEMON, St. Louis, Mo., assignor to J. F. Vogt & Bro., same place. Filed Jan. 19, 1886. (No model.)

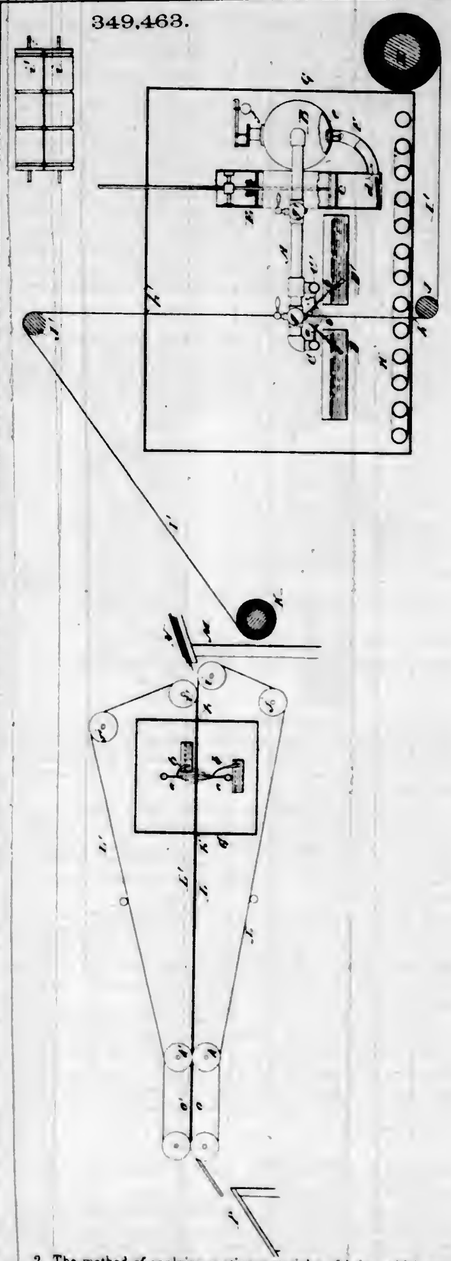


Claim.—The combination, with the main-line pulley and its belt, of a pivotally-mounted frame, A, carrying shaft D and pulleys E F, a belt, K, driving-pulley J, horizontal lever N, pivoted at P, and having upward-inclined short arm *n* and a sliding weight, O, on its long arm, and the vertical rod L, connecting the free end of the frame A with the end of the inclined arm *n*, substantially as set forth.

349,463. PROCESS OF AND APPARATUS FOR COATING FABRICS. EDWARD G. SPARKS, Brooklyn, N. Y. Filed Feb. 25, 1886. (No model.)

Claim.—1. The method of coating paper with wax, consisting, essentially, in spraying the wax in a soft, liquid, or melted state onto the paper, substantially as set forth.

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2. The method of applying coating material to fabrics, which consists in projecting the coating material upon the fabric in the form of spray, and carrying the fabric forward through the spraying apparatus to continuously present a new surface to the action of the spray, substantially as herein shown and described.

3. The method of coating fabrics, which consists in spraying the coating material upon the fabric while the coating material and the fabric are in a heated condition, substantially as herein shown and described.

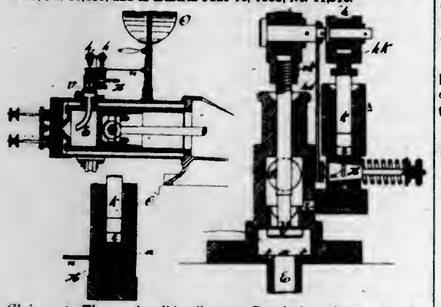
4. In apparatus for coating fabrics, one or more series of spray-tubes adapted to project the coating material on the fabric to be coated, and means for continuously feeding the fabric forward, substantially as herein shown and described.

5. In apparatus for coating fabrics, the combination, with one or more series of jets for spraying the coating material upon the fabric, and mechanism for carrying the fabric forward, of means for maintaining the fabric and the coating material in a heated condition, substantially as herein shown and described.

6. In apparatus for coating fabrics, the combination, with the series of spray-tubes, an air-compressor, and an air-reservoir, and vats for containing the coating material, of the chamber G, inclosing the air-compressing and spraying apparatus, and means for maintaining the chamber in a heated condition, substantially as herein shown and described.

7. The combination, in apparatus for coating fabrics, of the jets *a*, tubes *b*, air-reservoir B, pipes communicating between the jets *a* and the air-reservoir, the air-pump E, for compressing air in the reservoir, vats D D', for containing the coating material, the chamber G, having slits *h h'*, for the passage of the fabric, and steam-pipes H, for maintaining the chamber in a heated condition, substantially as herein shown and described.

349,464. GAS-ENGINE. JOHANNES SPIEL, Berlin, Germany. Filed Apr. 7, 1885. (No model.) Patented in Germany Mar. 3, 1885, No. 35,794; in England Mar. 17, 1885, No. 3,414; in Belgium Mar. 18, 1885, No. 68,219; in France Mar. 19, 1885, No. 167,742; in Russia Mar. 31, 1885, No. 11,418, and in Austria June 16, 1885, No. 11,318.



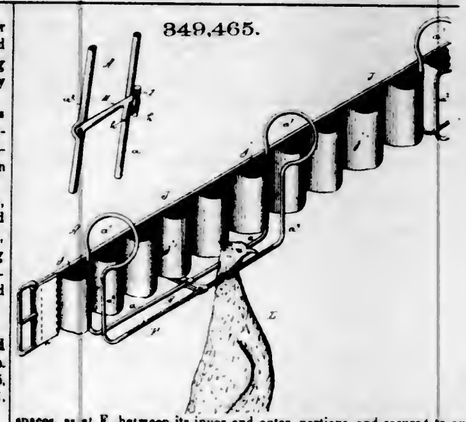
Claim.—1. The combustible-oil pump C and the mixture or inlet valve V, connected with each other by a cock, H, the tube E, and recess *l*, round the opening of the inlet-pipe, the cam *d*, and spring *f*, and the check-string *b*, between two rollers *g g*, all combined and operating as and for the purpose set forth.

2. The combination, with the working or piston chamber and an air-inlet chamber and valve, and an apparatus for feeding a combustible and explosive liquid substance to the former, of a tube, E, which projects into the middle portion of said working-chamber and serves as an extended conductor for the commingled air and explosive substance, as shown and described.

3. The combination, with the working-chamber, the air-inlet chamber and valve, and mechanism for feeding the combustible and explosive liquid to the former, of the tube E, having its head, which forms the bottom of the chamber below the air-valve, constructed with the recess *l*, for the purpose of retaining the unvaporized portion of a charge of said liquid, as specified.

4. The combination, with the working-chamber, the air-inlet chamber and valve, mechanism for working the latter, and the pump for feeding the explosive liquid substance, of the rotatable cock H and means for connecting the latter with the pump and air-valve actuating mechanism, whereby said cock and the air-valve are operated simultaneously, thus insuring a uniform supply of uniform quantities of air and explosive substance, as specified.

349,465. GAME-CARRIER. JAMES H. STEVENS, Pine Bluff, Wyo. Filed June 22, 1886. (No model.)



Claim.—1. A game-carrier constructed substantially as described, and comprising a wire frame having an eye to allow insertion of the heads of game, and a contracted space opening into the eye, and in which space the game may be held by the necks, substantially as herein set forth.

2. A game-carrier made of a wire or rod bent to form an inner part, *a*, eyes *a' a'* at opposite ends, outer parts, a^2 a^2, spaced about parallel from part *a*, to form a contracted space, F, opening into the eyes *a'*, and the ends a^2 of the wire or rod bent toward and attached to the part *a*, substantially as herein set forth.

3. A combined game-carrier and ammunition-holder comprising a pouch or belt and a game-carrier attached to the pouch or belt and formed with an eye, as at *a'*, and a contracted space, as at F, opening into the eye, substantially as described, for the purposes set forth.

4. A combined game-carrier and ammunition-holder comprising a wire or frame, A, having eyes *a' a'* at opposite ends and contracted spaces, as at F, between its inner and outer portions, and secured to an ammunition holder or pouch, B, and suspension belts or straps attached to the eyes *a' a'*, substantially as described, for the purposes set forth.

5. The combination, with the parts *a* a^2 of the game-carrier, of a pivoted pin or hook, as at H, arranged across the space between said parts *a* a^2, to form a stop for the game and a brace to the carrier, substantially as herein set forth.

349,466. RIVETING-TOOL. JAMES H. STEVENS, Pine Bluff, Wyo. Filed June 22, 1886. (No model.)



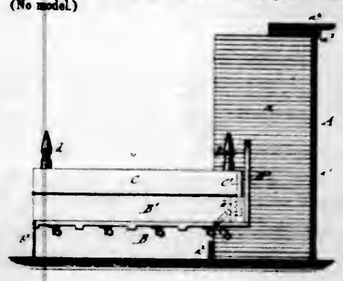
Claim.—1. A riveting-tool made with a shank, A, provided with a punch, B, and a lateral aperture, C, substantially as described, for the purposes set forth.

2. A riveting-tool made with a shank, A, provided with a punch, B, a lateral aperture, C, and a head-piece on the shank provided with a concavity, G, substantially as described, for the purposes set forth.

3. A riveting-tool made with a shank, A, provided with a punch, B, a lateral aperture, C, a boss, D, surrounding said aperture, and a head-piece provided with a concavity, G, substantially as described, for the purposes set forth.

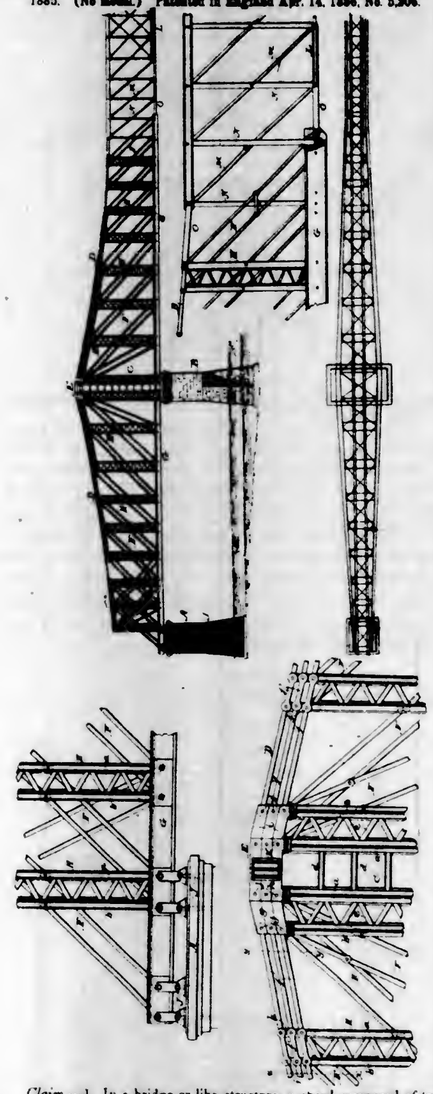
4. A riveting-tool made with a shank, A, provided with a punch, B, a lateral aperture, C, a boss, D, surrounding said aperture, and a head-piece projecting each way from the shank and provided with a concavity, G, at one end, substantially as described, for the purposes set forth.

349,467. BUREAU-BED. JAMES K. STOCKTON, Brooklyn, N. Y., assignor of one-half to Mary A. Schneider, same place. Filed Mar. 4, 1886. (No model.)



Claim.—The combination of a supporting-casing, a front wall pivoted to the side walls of said casing and provided with a fixed head-board, and a transverse partition near said head-board forming a pocket therewith, a foot-section hinged to the front wall and provided with fixed legs at both ends, and with a fixed foot-board fitting into the pocket formed by the head-board and transverse partition, substantially as shown and described.

349,468. BRIDGE. JOSEPH TOMLINSON, Ely, Iowa. Filed Nov. 12, 1885. (No model.) Patented in England Apr. 14, 1886, No. 5,206.



Claim.—1. In a bridge or like structure, a chord composed of two or more substantially-parallel eye-bar chords placed one above another and connected by upright eye-bars, but otherwise unconnected, whereby each separate chord is enabled to adjust itself to strains, but is caused to receive its due portion of the load.

2. In a bridge or like structure, a flexible chord composed of two or more eye-bar chords placed one above another, and connected only by links substantially perpendicular to said chords, whereby the individual eye-bar chords and the compound chord are permitted to move and adapt themselves to strains.

3. In combination with a compound column or pier post consisting of posts *b a a b*, the saddle E, composed of eye-bars *g h i*, connected at their ends by pins, substantially as set forth.

4. In a bridge or like structure, the combination of a compound or double post and independent sets of suspenders running from each main member of the compound post to the lower chord and vertical member to be sustained.

5. In a bridge or like structure, the combination of a series of sets of eye-bar suspenders and a separate anchorage for each series of sets of eye-bar suspenders, substantially as explained.

6. In a bridge, the combination of main trusses, an intermediate truss, and vertical posts connecting the lower chords of the main trusses and the upper chord of the intermediate trusses, and adapted to move with the chords to which they are connected as the longitudinal members of the bridge expand or contract.

7. In a bridge, the combination of pier-posts, saddles composed of eye-bars or plates resting upon said posts and arranged in tiers, one tier above another, flexible compound chords composed of two or more eye-bar chords placed one above another, connected by links substantially perpendicular thereto, and attached to the saddles, a platform, and suspenders connecting the platform and the chords, all substantially as described and shown.

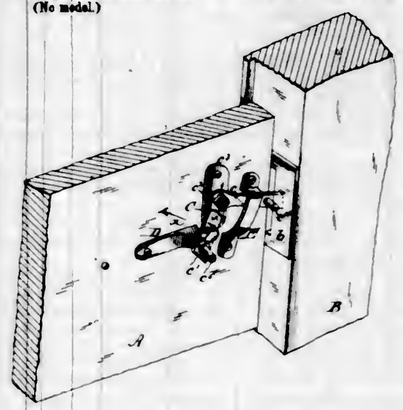
8. In a bridge, the combination of chords composed of two or more single eye-bar chords placed one above another, compression lower chords, compound posts extending from said lower chords to the eye-bar chords, and independent sets of suspenders extending from the top of each main member of the compound posts to the lower chords, substantially as set forth.

9. The herein-described bridge, consisting of suitable piers, columns or posts mounted upon the piers, compound eye-bar chords extending from the pier-posts in the direction of the bridge, compression-chords extending from the pier in the same direction, compound compression posts or members extending from compression-chords to the eye-bar chords, and suspenders extending from each main member of the compound posts to the chords, substantially as shown and described.

10. In combination with piers A B and posts C, compound eye-bar chords D, saddles E, composed of eye-bars or plates, suspenders F, lower chords, G, and compound posts H, all combined and arranged substantially as set forth.

11. In a bridge such as described and shown, the combination of lower chords, G, compound posts H, having vertical extensions *k*, and chords D, composed of eye-bar chords joined together and connected with the vertical extensions by pins *j*.

349,469. GATE-LATCH. CROMWELL P. WEAVER, Philadelphia, Pa., assignor of one-half to John L. Carre, same place. Filed Aug. 18, 1886. (No model.)



Claim.—1. The right-angle latch C, having on its arm *c'* a stud or pin c^4, in combination with a pivoted dog, D, adapted to engage arm *c'* and stud c^4, substantially as and for the purpose set forth.

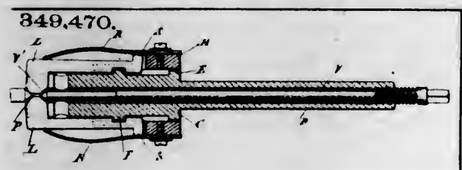
2. The right-angle latch C, having on its arm *c'* a stud or pin, c^4, in combination with the pivoted dog D and guide E, substantially as set forth.

349,470. PIVOT-CUTTING IMPLEMENT. AMOS A. WOLCOTT, Tom's River, N. J. Filed Feb. 3, 1886. (No model.)

Claim.—1. The combination, with a slotted spindle, of cutters L, detachably held to said spindle, springs R and adjusting-rod V, arranged for operation substantially as shown and described.

2. The combination, with the slotted spindle C and slotted collar H, of adjustable and removable cutters L, springs R, and adjusting-rod V, constructed and arranged for operation substantially as shown and described.

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349,471. BRICK OF IRREGULAR FORM FOR FACING WALLS.

JAMES C. ANDERSON, Highland Park, Ill. Filed Feb. 26, 1886. (No model.)



Claim.—1. A brick for the front walls of buildings, of irregular form, as set forth.

2. A brick for the front walls of buildings and for floors, of triangular, quadrilateral, or trapezoidal form, adapted to be anchored to the rear wall of the building, as set forth.

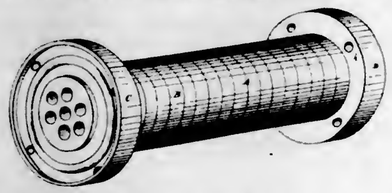
3. A brick for the front walls of buildings, of irregular form, provided with the recesses *c d*, to receive the ends of the brick of the rear wall, as set forth.

4. A brick of irregular form provided with the cuneiform flange or web *b*, as set forth.

5. A building the front wall of which is composed of bricks of irregular form, as described, whereby the same will have joints of irregular form and present a crazed or broken appearance.

349,472. UNDERGROUND CONDUIT.

JAMES C. ANDERSON, Highland Park, Ill. Filed Mar. 19, 1886. (No model.)



Claim.—1. The method herein described of making underground conduits for telegraph wires or cables, which consists in making thin perforated disks of dry powdered clay, as described, placing the same together in sections of convenient length in a kiln with a vitrifiable material between the disks, and fusing the same into one body by heat, as set forth.

2. An underground conduit for telegraph-wires, composed of clay disks having numerous perforations joined together by a vitreous material, as set forth.

349,473. EMBROIDERY-FRAME.

MURRAY BACON, Philadelphia, Pa. Filed Mar. 12, 1886. (No model.)

Claim.—1. The combination, in an embroidery or like frame, of a side bar, D, an end bar, B, recessed for the reception of the bar D, a yoke engaging said bar D, and an adjusting-screw engaging with the yoke and having a bearing on the bar B, all substantially as specified.

2. The combination of the frame comprising side and end bars with blocks carried by the side bars and having threaded openings for the reception of set-screws which act upon one of the end bars, whereby said end bar is adjusted in a direction lengthwise of the side bars, so as to stretch the cloth, all substantially as specified.

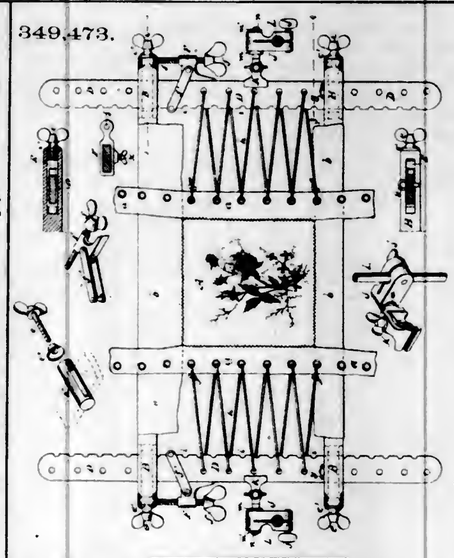
3. The combination of the side bar of the frame, the end bar free to slide thereon, a set-screw for acting on said end bar, and a block carrying said screw and adjustable on the side bar, all substantially as specified.

4. The combination of the end bar and the notched side bar with the block F, carrying the adjusting-screw for the end bar, and a link, *f'*, connected to said block and having a pin adapted to engage the notches of the side bar, all substantially as specified.

5. The combination of the embroidery-frame, the supporting-post L, the split block J, clamped to said post L, and the vise K, constructed to clamp the side bar of the frame and having a stem hung to said block J so as to be free to turn therein, all substantially as specified.

6. The combination of the frame, the post L, the split block clamped thereto, and the clamping-vise K, having a stem adapted to a bearing in the block, said vise being held in position on the block by friction, all substantially as specified.

349,473.

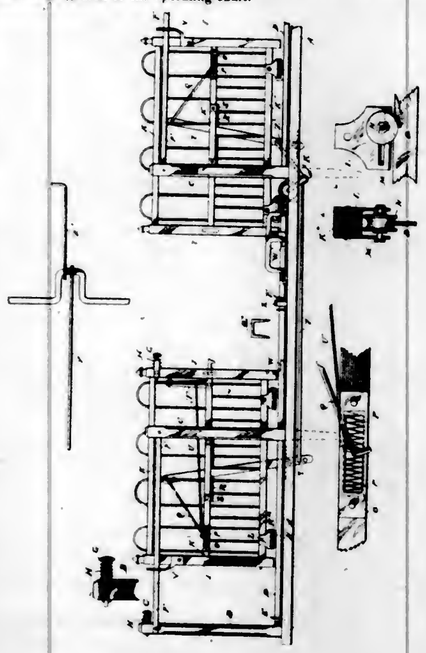


349,474. GATE.

JOHN V. BAIRD, Springfield, Ohio. Filed Apr. 13, 1886. (No model.)

Claim.—1. The combination, with two gates having supporting-rollers, the track below the fixed posts, and the guiding-strips, to which the gates are slidingly connected, of the pivoted levers having one end flexibly connected with the gates through the medium of a spring, the operating-shaft, and the pitmen connecting its crank with the other end of said levers, and the wheel crank-shaft geared to the operating-shaft.

2. The combination, with the fixed posts, the track, and the guide-strips, the gates mounted upon rollers fitted to said track and connected to the strips by brackets, and having each a slotted beam, and springs fitted to said slots, of the pivoted levers, the operating-rods connected to the levers and to the gates through said spring, the operating-shaft, and the pitmen connecting its crank with the said levers, and the wheel crank-shaft geared to the operating-shaft.



3. The combination, with two gates mounted to open and close from and toward each other, of a wheel crank-shaft, and an operating-shaft geared to the wheel-shaft and provided with a crank, and two levers respectively connected with the respective gates by a rod, and a spring to form a yielding connection, and two pitmen connecting with the operating-shaft and with the said levers—one below and the other above the pivotal points of the levers.

4. The combination, with a gate having a slotted beam and a spring or springs contained within the slot, of a pivoted lever, and an actuating-rod connected to said lever at one end and fitted through said slot and adapted to work against the said spring or springs at the other end, whereby the lever through the rod and springs is yieldingly connected with the gate, and operating mechanism to operate the lever.

5. The combination, with two gates mounted to open and close from and toward each other, of the pivoted levers connected with the gates through a spring, a latch connected with the actuating-rod, the operating-shaft, the pitmen connected with one lever above the pivotal point and with the other below the pivotal point, and the wheel crank-shaft geared to the operating-shaft.

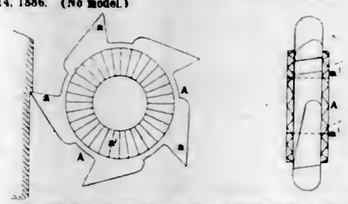
6. The combination, with the two gates, a track upon which they are mounted, and connections to sustain them vertically, of the pivoted levers connected with the gates through a spring, a latch connected with one of said levers, the actuating-shaft, the pitmen connecting its crank with said lever and the wheel crank-shaft.

7. The combination, with the gate carrying a pivoted latch, and having a slotted beam containing a spring or springs, of the pivoted lever, the actuating-rod connecting it with the springs, and a rod connecting the latch with the actuating-rod.

8. The combination, with a sliding gate, of a pivoted lever connected thereto through a spring, and a pivoted latch carried by the gate and connected to the lever.

349,475. SHAPING-TOOL.

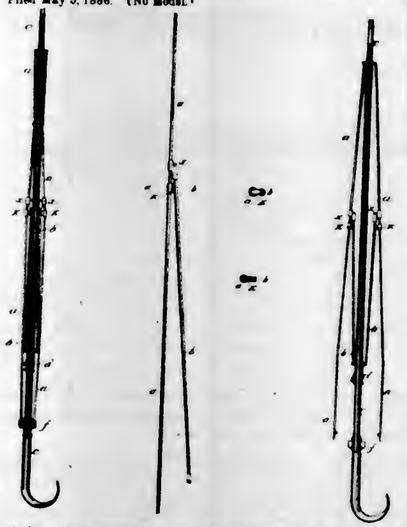
WILLIAM P. BARCLAY, Chicago, Ill. Filed Jan. 14, 1886. (No model.)



Claim.—A chilled cast-metal shaping-tool, A, with a series of projecting tool-edges, *a*, substantially as shown and described.

349,476. UMBRELLA.

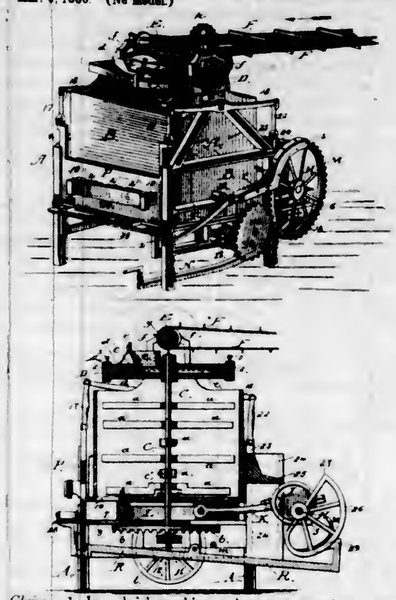
JAMES I. BARNHURST, Philadelphia, Pa. Filed May 5, 1886. (No model.)



Claim.—In an umbrella-frame, the combination, with the ribs and stretchers, of the lugs E, made separate from the frame and secured thereto, and adapted to operate substantially as and for the purpose specified.

349,477. BRICK-MACHINE.

JAMES W. BROWN, Paducah, Ky. Filed Mar. 9, 1886. (No model.)



Claim.—1. In a brick-machine, a hopper mounted on a rotating plate and adapted to be automatically adjusted to different angles, substantially as herein described.

2. In a brick-machine, a cap or top plate having a rotating plate secured thereon, in combination with a hopper secured to said rotating plate and a drum and apron or carrier for automatically adjusting said plate and delivering the clay to the hopper, substantially as herein described.

3. In a brick-machine, the frames A, shaft C, and a box or receptacle, B, in combination with a cap or top plate, D, a plate, *d*, mounted to rotate on said shaft, an internally-placed gear-wheel, *c*, the drum E, supported on the rotating plate, the gear-wheel A, engaging the gear *c*, and the belt or carrier F, substantially as herein described.

4. In a brick-machine, a vertically-moving shaper having openings approximating the form and size of a brick, in combination with a weighted frame at the rear of the machine connected with and counterbalancing the shaper, substantially as herein described.

5. In a brick-machine, a vertically-moving shaper having openings formed therein, in combination with a frame connected with and counterbalancing the shaper, and a cam engaging a lug or lip on the counterbalanced frame and operating the shaper, substantially as herein described.

6. In a brick-machine, the sides A, having guides *o*, and the box B, in combination with a vertically-moving shaper having openings therein, the arms 18, pivoted to the sides, the links 17 and 22, and a frame having the weighted bars, substantially as herein described.

7. In a brick-machine, the sides A and the box B, in combination with a shaper, P, at the front of the machine, having openings formed therein, and a weighted frame at the rear of the machine connected with and operating the shaper, substantially as herein described.

8. In a brick-machine, the sides A and box B, in combination with the transverse shaft H, mounted in the rear of the frame, the cam-segment 26 on said shaft, the weighted frame 23, having a lug or lip, 25, and the shaper P, substantially as herein described.

9. In a brick-machine, the side pieces, A, and the box or receptacle B, in combination with the transverse shaft H, the cam-segment 26, the weighted frame 23, having a lug or lip, 25, projecting therefrom, the shaper P, connected with and operated by the segment and weighted frame, the eccentric I, mounted on the shaft H, the plunger L, and the pitman K, substantially as herein described.

10. In a brick-machine, the side pieces, A, and the box or receptacle B, in combination with the transverse shaft H, the segment 26, having a cam, 30, formed thereon, the pivotally-secured lever or receiver R, having a lug, 29, and the plate 28 on the forward portion of the lever, substantially as herein described.

11. In a brick-machine, the sides A and the box or receptacle B, in combination with a pivoted mold adapted to describe arcs of circles and to receive and deposit the clay, and a mechanism comprising the

pivoted lever T and its adjuncts, whereby the mold is automatically operated, substantially as herein described.

12. In a brick-machine, the side pieces, A, and the box B, in combination with a vertically-moving shaper having a fender, 20, attached thereto, having a crank-arm, 31, a cam-lever, T, connected with said arm, and the wheel M, having a pin engaging the said lever and operating the mold, and an oscillating mold, substantially as herein described.

13. In a brick-machine, the combination, with the side pieces, A, and box B, of the vertically-moving shaper having a fender, an oscillating mold, a pivotally-secured vertically-moving lever or receiver, the transverse shaft H, having a segment mounted thereon, and a cam, 30, on the segment adapted to engage a lug on the lever, substantially as herein described.

14. In a brick-machine, the frame A, in combination with the transverse shaft H, the gears 13, 14, and M, a movable bearing for one end of the shaft H, and a lever, N, for forcing the gear M from its engagement with the gear 14, substantially as herein described.

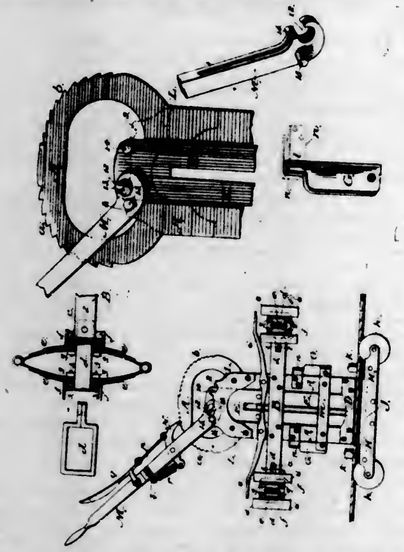
15. In a brick-machine, the sides A and box B, in combination with a transverse shaft, H, the gear M, having a projecting pin, a jointed and weighted lever, T, an oscillating mold having a crank-shaft engaged by said lever, and a spring, substantially as herein described.

349,478. SPRING BED-BOTTOM. CHARLES CARLETON, Chicago, Ill., assignor of one-half to E. M. Hulse, same place. Filed July 3, 1886. (No model.)



Claim.—In supported woven-wire-mattress spring bed-bottoms, the sustaining-rods *d d*, respectively put edgewise through the coiled woven-wire mattress, parallel to and some little distance from the end rails, B, so they will have a movement to and from each other, as the weight on the mattress may be increased or diminished, and combined with suspending-wires I, the mattress-frame A B, and coil-springs supported by the wires I and placed under the mattress C, substantially as specified, and for the purpose set forth.

349,479. GRIP FOR CABLE RAILWAYS. HENRY CASEBOLT, San Francisco, Cal. Filed Apr. 15, 1886. (No model.)



Claim.—1. The combination, with a gripping device for cable railways, of a removable and reversible operating-lever, substantially as herein described.

2. The combination, with the stationary and movable bars of a cable-railway grip, of a detachable lever having a movable fulcrum on the stationary bars, substantially as herein described.

3. The combination, with the stationary jaw-bearing bar having notches in its upper surface, of the movable jaw-bearing bar having projecting pins 13 and 14, and a removable lever having a loose bearing in the notches in said stationary bar, substantially as herein described.

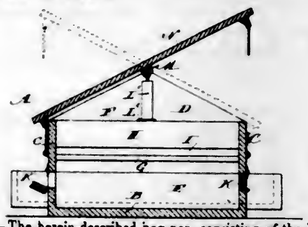
4. The combination, with the stationary jaw-bearing bar and the plates L, having notches upon each side of the vertical center of said plates, of the movable jaw-bearing bar having pins 13 and 14 projecting transversely from both sides of its upper surface, a detachable lever having a hooked end adapted to engage the pins 13 and 14, and provided with pins 15, which have a loose bearing in the notches, substantially as herein described.

5. The stationary jaw-bearing bar, the plates secured thereto and having notched upper surface, and the movable jaw-bearing bar having transversely-projecting pins, in combination with an operating-lever having a bifurcated and hook-shaped lower end and pins 15, a pawl pivoted within the lever, a second lever and connection for operating the pawl, a spring, and the oppositely-arranged ratchets, substantially as herein described.

6. The combination, with the stationary jaw-bearing bar, of the plates *n*, the C-shaped plates, the tempered-steel blocks G, having a projecting lip inclosed by the plates *n*, and the bolts or screws for detachably securing the steel plates, substantially as herein described.

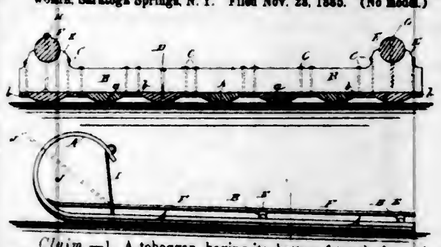
7. In a cable-railway grip, the combination, with the stationary jaw-bearing bar and the cross-bar secured thereto, of a carrier or support for said grip, comprising yokes pivoted in the ends of said cross-bar, the angle-iron plates *f*, the elliptical interposed spring, and the tie-plates and securing-nuts, substantially as herein described.

349,480. HOG-PEN. LEWIS F. CHENOWETH, Millerton, Kans. Filed May 3, 1886. (No model.)



Claim.—The herein-described hog-pen, consisting of the bottom B, the sides C, the end walls, D, projecting above the sides and slanting toward the center, the posts L L', the centrally-pivoted roof N, the trough E, the feed-box F, and the hinged ventilators K, as specified.

349,481. TOBOGGAN. BENJAMIN W. CLAFF and SEYMOUR AINSWORTH, Saratoga Springs, N. Y. Filed Nov. 23, 1885. (No model.)



Claim.—1. A toboggan having its bottom formed of a series of boards or slats each provided with a longitudinal central rounded bearing-surface, and a flange at each side of the said bearing-surface, substantially as described, whereby provision is made for reducing and presenting smooth bearing-surfaces, as set forth.

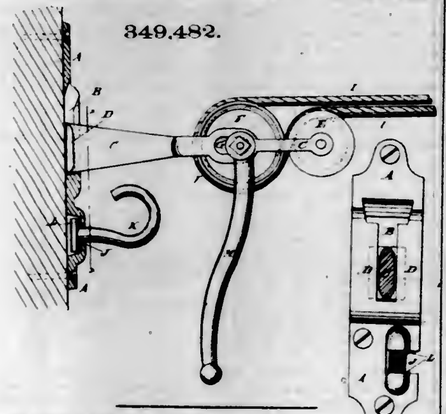
2. In a toboggan, the combination, with the cross-pieces B, of the bottom boards or slats, A, provided with the longitudinal central rounded bearing-surfaces, *a*, and side flanges, *b*, the said boards being secured to the cross-pieces by rivets or screws, substantially as described, whereby provision is made for facilitating the securing of the boards, and projections and indentations on their bearing-surfaces avoided, as set forth.

3. An improved toboggan, consisting of the boards or slats A, having the rounded projecting bearing-surfaces *a* and side flanges, *b*, the cross-pieces B, having the recessed projections E at their ends, and the side bars, F, secured in the said recessed projections of the cross-pieces, substantially as herein shown and described.

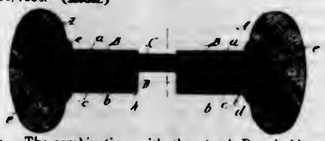
349,482. CLOTHES-LINE PULLEY. JOHN S. COLLINS and EDMUND J. LYONS, Brooklyn, N. Y. Filed Aug. 26, 1885. (No model.)

Claim.—A clothes-line pulley constructed substantially as herein shown and described, and consisting of the base-plate A, having slot B, the bracket C, having flanged inner end and forked outer end, and provided with slots G in its branches, the unequal pulleys E F, and the crank H, whereby the clothes-line will be securely held and can be readily adjusted, as set forth.

349,482.

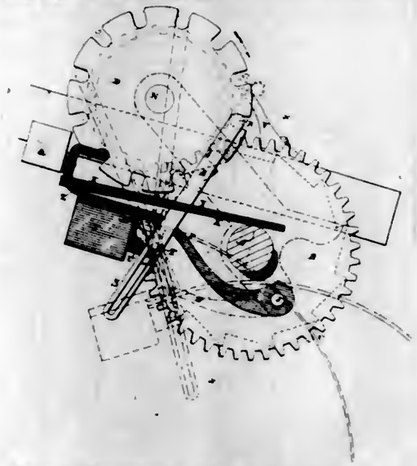


349,483. KNOB ATTACHMENT. JOHN W. DAY, Chicago, Ill. Filed June 16, 1886. (Model.)



Claim.—The combination, with the shank D, suitably attached to a knob, and provided on its inner end with a flange, A, and in its interior with a spring-chamber, a spring seated therein, and a pin, *a*, acted upon by the spring, of the spindle C, provided with suitable holes for the pin to pass through, and the sleeve B, also provided with holes for the pin, and abutting at one end against the knob, and at the other provided with shoulders to engage the flange A on the shank, substantially as and for the purpose set forth.

349,484. COMBINED HAY RAKE AND TEDDER. MIFFLIN P. DENNET, New York, N. Y., assignor to Fred A. Lehmann, Washington, D. C. Filed July 21, 1885. (No model.)



Claim.—1. The combination of the axle, the ratchet-wheel secured thereto, the rake-head located in front of the axle and supported in position by pivoted arms, and a slide or other device placed upon the rake-head, and which slide can be made to engage with the ratchet-wheel when it is desired to use the machine as a tedder, substantially as shown.

2. The combination of the axle, a gear-wheel secured thereto, a second gear-wheel which meshes with the one secured to the axle, the notched disk D, a slotted lever which is supported upon the pin T, and which has a pin upon its upper end to engage with the notches in the periphery of the disk, a movable rake-head, to which the slotted lever is connected, and the pivoted arms upon which the rake-head is supported in position, substantially as described.

3. The combination of the disk D, provided with notches in its periphery, the slotted lever provided with a pin upon its upper end, a movable rake-head which is secured to swinging arms, and a suitable mechanism for throwing the lever into gear with the wheel A, substantially as set forth.

4. The combination of the disk D, having notches in its periphery, the slotted lever having a pin upon its upper end to engage with the disk, the pin T upon the rake-head, and which passes through the slot in the lever, the rake-head secured to swinging arms, and a born or other device for disengaging the upper end of the lever from the wheel after it has made one revolution, substantially as specified.

5. The combination of the disk D, having notches in its periphery, the slotted lever S, supported at its lower end upon the pin T and provided at its upper end with the pin R, to engage with the notches in the disk D, the movable rake-head, which is secured to the pivoted arms F and placed in front of the axle, a mechanism for throwing the lever out of gear with the wheel whenever so desired, and the device for throwing the lever out of gear with the wheel after it has made one revolution, substantially as shown.

6. The combination of the rake-head secured to swinging arms and provided with a projection upon its front edge with an endwise-moving lever provided with a projection, whereby the rake-head is prevented from dropping downward, substantially as described.

7. The combination of the disk D, having notches in its periphery, the slotted lever provided with a pin at its upper end to engage with the disk, the pin T on the rake-head, and an endwise-moving lever, X, provided with a projection, Y, which catches behind the edge of the slotted lever for the purpose of throwing the lever into gear with the disk, substantially as specified.

8. The combination of the disk D, provided with suitable notches in its periphery, the slotted lever provided with a pin upon its upper end, the pin T, and a movable rake-head secured to swinging arms and provided with a projection on its front edge, with the endwise-moving lever X, provided with a projection to move the slotted lever, and a second projection, Z, to catch under the projection on the front edge of the rake-head, substantially as shown.

9. The combination of the disk D, having notches in its periphery, the lever S, slotted at its lower end and provided with a pin at its upper end, the ears U, the pivot T, on which the lever S moves, and the projection B', formed between the ears, for limiting the forward movement of the lever S, substantially as described.

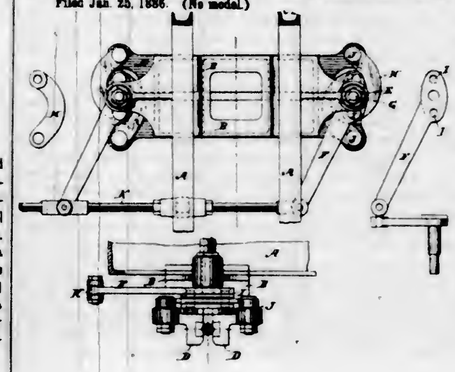
349,485. JOINTED LINK FOR ENGINES. EDSON DOE, South Newbury, Vt. Filed Feb. 4, 1886. (No model.)



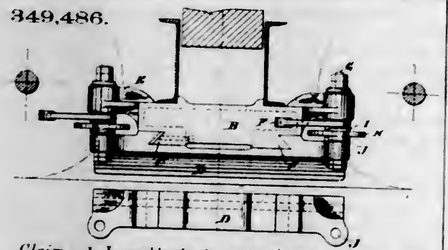
Claim.—1. An improved link for engines, consisting of an upper part provided with an annular grooved plate and a lower part provided with an annular ribbed plate fitting in the said grooved plate, substantially as herein shown and described.

2. A link for engines, consisting of the upper part, L, provided with apertured plate N, having annular groove O, and the lower part, M, provided with the plate Q, having annular rib P and pin W, substantially as herein shown and described.

349,486. CABLE-CAR GRIP. JOHN J. ENDERS, New York, N. Y. Filed Jan. 25, 1886. (No model.)



349,486.



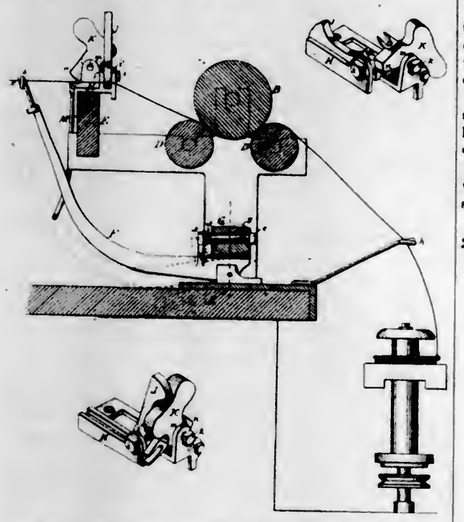
Claim.—1. In combination in a cable-car grip, two movable gripping-jaws arranged side by side and independent mechanisms arranged one at each end of the jaws for moving said jaws to and from each other, substantially as set forth.

2. In combination in a cable-car grip, two movable gripping-jaws arranged side by side and independent toggle mechanisms arranged one at each end of the jaws for moving said jaws to and from each other, substantially as set forth.

3. In combination, the body B, having ways C, the jaws D, the toggle-arms F, and the toggles H, all arranged substantially as and for the purpose set forth.

349,487. STOP-MOTION MECHANISM FOR DOUBLING-MACHINES. FRANCIS FEARON, Philadelphia, Pa. Filed Sept. 14, 1885. (No model.)

Brief.—The object of the construction is to render the stop mechanism sensitive and positive in its action.



Claim.—1. The combination of the pivoted detector-lever F, having a thread-guide, with the weight G, located above the pivotal axis of the lever and occupying the relation described in respect to a vertical line drawn through said pivotal axis, whereby the weight serves to balance the lever when the latter is held up by the thread, but causes a constantly-increasing preponderance of weight on the falling arm of the lever when the thread breaks, all substantially as specified.

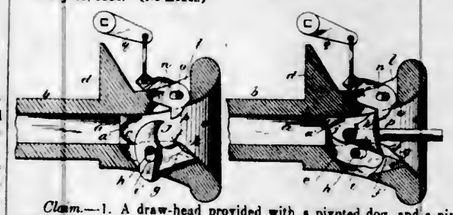
2. The combination of the pivoted detector-lever F, having a thread-guide, with the weight G, located above the pivotal axis of the lever and adjustable longitudinally in respect to a vertical line drawn through said pivotal axis, all substantially as specified.

3. The combination of the draft-rolls, a thread-supporting plate, a pivoted retaining-lever, a tripping device therefor, and a series of detector-levers, each having a thread-guiding eye and each constructed as described, whereby when supported by the thread it is held away from an arm of the tripping device, and on the breaking of the thread acquires momentum before striking said arm, all substantially as specified.

4. The combination of the draft-rolls, the thread-supporting plate, the detector-levers, the trip-lever acted upon by said detector-levers, a thread-retaining lever, J, and an actuating-lever, K, therefor, said lever K being acted upon by the trip-lever, and the short arms of the levers J and K being constructed for engagement with each other when said levers are elevated, all substantially as specified.

5. The combination of the draft-rolls, the thread-supporting plate, the detector-levers, the trip-lever, the thread-retaining lever J, and the lever K, acted upon by the trip-lever, the short arms of said levers J and K having bearing-faces which, when the levers are down, are in contact with each other, whereby the lever J is locked in position by the lever K, all substantially as specified.

349,488. CAR-COUPLING. CHARLES M. FERRELL, Utica, N. Y. Filed May 28, 1886. (No model.)



Claim.—1. A draw-head provided with a pivoted dog, and a pivoted tumbler, *g*, having a pin to engage the coupling-link, and an abutting surface which is struck by the entering link to rotate the tumbler and bring its pin into engagement with the link and with said pivoted dog in said draw-head, and abutments *f f*, against which said tumbler bears, substantially as described.

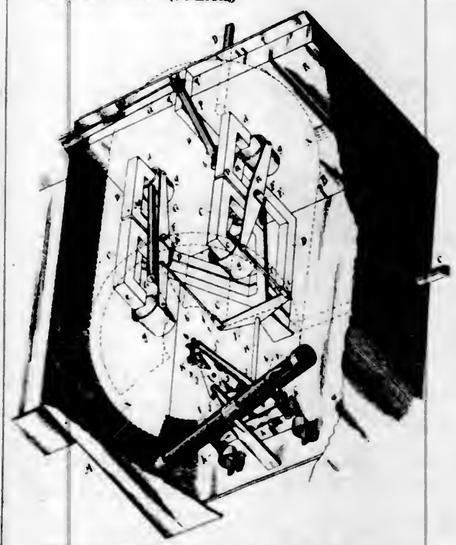
2. A draw-head, a tumbler pivoted in a cavity therein and adapted to bear against abutments *f f* in the draw-head and provided with a link-engaging pin, and a dog co-operating with the pin of the tumbler to engage and hold a coupling-link, substantially as described.

3. A draw-head provided with a tumbler, *g*, pivoted in a cavity therein and having a pin to engage the coupling-link, inclines arranged on the sides of and parallel with said cavity, abutments *f f*, against which the said tumbler seats itself, and a locking-dog to engage the pin of said tumbler, all combined substantially as described.

4. A car-coupling mechanism of the construction substantially as set forth, combined with uncoupling mechanism comprising a finger, *q*, longitudinally-movable shafts *r r'*, to operate said finger, and levers *s s'*, connected to said shafts to operate them, substantially as described.

5. The draw-head provided with the abutments *f f*, combined with the pivoted tumbler adapted to bear against said abutments, substantially as described.

349,489. OSCILLATING GAS-METER. ANSON F. FISHER, Chico, Cal., assignor of two-thirds to Allen Henry and A. M. Barley, same place. Filed Feb. 27, 1886. (No model.)



Claim.—1. In a gas-meter, the shell or casing A, having a water seal, in combination with the oscillating open-bottomed cylinder or drum B, having a partition dividing it into compartments, inlet and exhaust pipes entering said compartments, and having downwardly-opening ports *c d*, and thimbles or cup-valves controlling the ports of said pipes and operated by the movement of the drum, substantially as herein described.

2. In a gas-meter, the casing or shell A, having a water seal, in combination with the oscillating open-bottomed cylinder or drum B, mounted therein, and having compartments, as described, inlet and exhaust pipes having branches entering the compartments of said drum, and having downwardly-opening ports, valves containing fluids and controlling said ports, and mechanism, substantially as described, between the pivotal shaft of the drum and said valves, whereby they are operated to cause the oscillation of the drum, substantially as herein described.

3. In a gas-meter, the shell or casing A, containing a water seal, and the drum or cylinder B, mounted therein and adapted to oscillate, said drum or cylinder being divided into compartments, in combination with the inlet and exhaust pipes C D, entering the cylinder, and provided with divergent branches having each a downwardly-opening port in each compartment of the cylinder or drum, the thimble or cup valves *g*, containing mercury or other liquid and controlling the ports, and connecting mechanism between said valves and the drum or cylinder, whereby the valves are operated and the cylinder oscillated, substantially as described.

4. In a gas-meter, the shell or casing A, containing a water seal, and the drum or cylinder B, mounted therein and adapted to oscillate, said drum or cylinder being divided into compartments, in combination with the inlet and exhaust pipes C D, entering the cylinder, and provided with the divergent branches having each a downwardly-opening port in each compartment of the drum or cylinder, the thimble or cup valves *g*, containing mercury or other liquid and controlling the ports, the pivoted levers G, by which said valves are suspended, the oscillating shaft H below, connections between said shaft and the levers, whereby the latter are vibrated, and connections between the shaft and the drum or cylinder by which said shaft is oscillated, substantially as described.

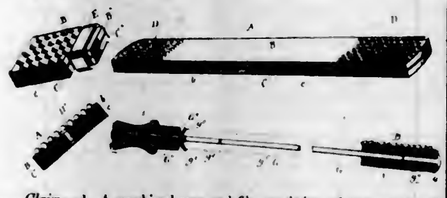
5. In a gas-meter, the shell or casing A, containing a water seal, and the oscillating drum or cylinder therein, and having compartments, as described, in combination with the inlet and exhaust pipes C D, connected with downwardly-opening ports *c d* in each compartment, the thimble or cup valves *g*, containing mercury or other liquid and controlling the ports, the pivoted levers G, suspending the valves, the oscillating shaft H, having cross-lever L, connected with levers G, and a cross-arm, A, on its other end, the pivoted lever I, actuating the cross-arm, the pivoted lever J, operating lever I, and the connection between the lever J and the pivotal shaft of the cylinder or drum, all arranged and adapted to operate substantially as herein described.

6. In a gas-meter, the shell or casing A, having a water seal, and the oscillating drum or cylinder B therein, and divided into compartments, in combination with the inlet and exhaust pipes C D, having a port in each compartment, the thimble-valves *g*, containing mercury or other liquid and controlling said ports, the levers G, by which the valves are operated, the shaft H, by which the levers are vibrated, the tubular pivoted lever I, containing some quicksilver and actuating the shaft H, and the connection between said tubular lever and the drum or cylinder by which it is vibrated, substantially as described.

7. In a gas-meter having an oscillating cylinder or drum operating in a water seal, and suitable inlet and exhaust ports, the thimble-valves *g*, containing mercury or other liquid and controlling the ports, in combination with the pivoted levers G, suspending the valves, the tubes M above the levers and containing some quicksilver, and the connections between said levers G and the drum or cylinder, whereby they are operated, substantially as herein described.

8. In a gas-meter, the shell or casing A, having a water seal and a chamber, R, in one side, in combination with the oscillating drum or cylinder B in the casing, an inlet-pipe having a port and controlling-valve, and the exhaust-pipe D, having a port and controlling-valve, said pipe communicating with the chamber R, substantially as described.

349,490. COMBINED RASP AND FILE. JOHN T. GALLAGHER, Chicago, Ill., assignor of one-half to David J. Kennedy, same place. Filed Apr. 10, 1886. (No model.)



Claim.—1. A combined rasp and file consisting of two connected parts, one of which is provided with rasp-teeth and the other with file-teeth, substantially as described.

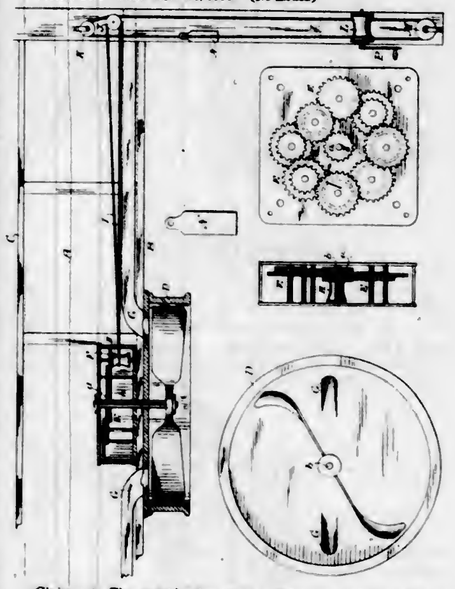
2. A combined rasp and file consisting of two connected parts, one of which is provided with rasp-teeth and the other with file or chisel-cut teeth, and means for detachably connecting said parts or bars, substantially as described.

3. A combined rasp and file consisting of two connected parts or bars, one of said parts or bars being provided with rasp-teeth upon one side or face and being made smooth upon the other side or face, and the other of said parts or bars being provided with file or chisel-cut teeth upon both faces, substantially as described

4. The combination, with two parts, A and B, of a rasp or file, of a holding device consisting of a bar, G, provided with projections *g g* at one end and a threaded shank at its opposite end, a plate, G^2, and a handle, I, said projections *g g* and the plate G^2 being constructed to engage the ends of the said parts A and B, substantially as described.

5. A combined rasp and file consisting of two connected parts, one of which is made of rasp-steel and provided with rasp-teeth, and the other of which is made of harder or file steel and provided with chisel-cut teeth, substantially as described.

349,491. VENTILATING APPARATUS. JOHN M. GARFIELD, Galveston, Tex. Filed Nov. 21, 1885. (No model.)



Claim.—1. The combination, with a fan-casing, constructed and arranged as described, of the fan arranged therein, the gearing placed above the fan, the air-ducts leading to the fan-chamber, the endless weighted chain or cord, and drums and pulleys arranged substantially as specified.

2. In a ventilating apparatus, a fan-chamber having an open bottom secured to a ceiling and communicating with air-ducts passing between the floor and ceiling of a building, the fan in the said casing, and means for rotating the said fan, substantially as specified.

349,492. STEAM-GOVERNOR. JOHN GERHARDT, Montreal, Quebec, Canada. Filed June 15, 1886. (No model.)

Claim.—1. In a steam-governor, the combination, with the valve-rod, of rotating and pivoted vanes controlled by a spring acting independently of the valve-rod and connected to the valve-rod by means whereby the opening and closing of the vanes will move the valve-rod longitudinally, substantially as described.

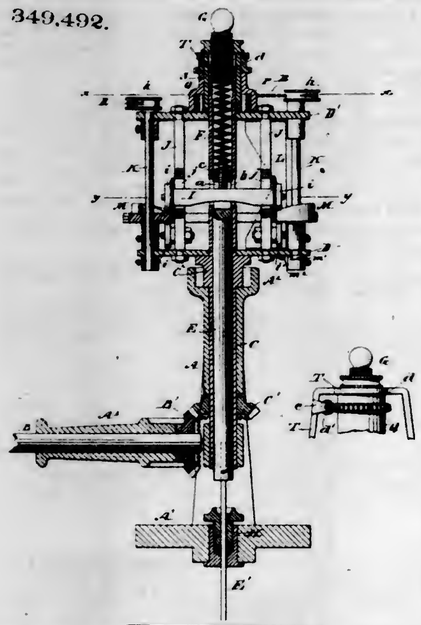
2. The valve-rod E, resting upon the cross-piece I, in combination with the shafts K, vanes L, and cams M, for lifting the cross-piece I and valve-rod, substantially as described.

3. The shafts K, to which the vanes are secured, in combination with the mainspring P, the eccentrics *k*, and the connecting-chains R, substantially as and for the purposes described.

4. The barrel Q, containing the mainspring P, in combination with the vanes and vane-shafts and connections R, the barrel being provided with means for turning the same for increasing or diminishing the tension of the spring, substantially as described.

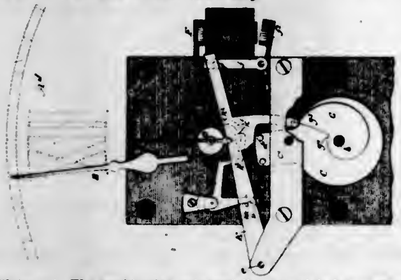
5. The standard A, containing the revolving sleeve C, and the revolving valve-rod E, and provided with the plates D D', in combination with the vanes L and their shafts K, the cams M, cross-bar *i*, that rests upon the cams and supports the valve-rods E, the mainspring P, barrel Q, and the chains R, connecting the barrel with the shafts K, substantially as described.

349,492.



349,493. ELECTRO-MECHANICAL SYNCHRONIZER FOR CLOCKS.

JAMES H. GERRY, Brooklyn, N. Y., assignor to Marshall E. Hunter, Oakland, Cal. Filed Sept. 5, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a clock-hand, of two correcting-pins moving with the arbor of the same, a wedge designed to pass between said pins and beyond their path, a lever to which said wedge is rigidly secured, and means for locking said lever away from the path of said pins.

2. The combination, substantially as hereinbefore set forth, with a clock-hand, of two correcting-pins moving therewith, a wedge designed to pass between said pins for setting the hand, a lever carrying said wedge, a detent for holding said lever in a given position, an electro-magnet for releasing the same, and means moving with said hand for replacing said lever by the action of the clock mechanism after it has been released.

3. The combination, substantially as hereinbefore set forth, with the hand of a clock and its arbor, of a disk moving therewith, correcting-points carried upon said disk, a correcting-wedge designed to pass into engagement with one or the other of the same, means for permitting said device to remain out of the path of said points for a predetermined period and then returning it to its normal position, and means, substantially such as described, for locking and releasing said wedge.

4. The combination, substantially as hereinbefore set forth, of a clock-hand, two controlling-pins moving therewith, an electro-magnet, a correcting-wedge designed to pass between said pins, and a detent controlled by said electro-magnet for normally restraining said wedge from acting, means for moving said hand in either direction by the action of said correcting wedge and pins, and a snail for returning said wedge to its normal position after it has been actuated.

5. The combination, substantially as hereinbefore set forth, with a clock-hand and its arbor, of the pins d' and d^2, the block D, having converging faces and curved sides k' and k^2, substantially as described, the electro-magnet and the lever E, and the detents f' and e', all organized substantially as described.

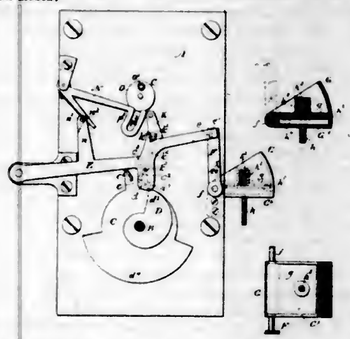
6. The combination, substantially as hereinbefore set forth, with a clock-hand and pins for correcting the position of the same, of a correcting device moving in the arc of a circle for adjusting the position of said hand by engaging the pins, said block having its sides curved to the arcs of circles whose centers coincide with the center of the first-named arc.

7. The combination, substantially as hereinbefore set forth, with the minute-hand of a clock, the correcting device for the same, and a lever for controlling said correcting device, of the second-hand of a clock, a correcting device applied thereto, and an arm projecting from said lever and engaging the second correcting device, substantially as described.

8. The combination, substantially as hereinbefore set forth, with the correcting device for the minute-hand of a clock, of the second-hand of a clock, a correcting device applied thereto consisting of a lever engaging points moving with said second-hand, a pin moved by the first-named correcting device for actuating said lever, and a latch, against one surface of which said pin moves for the purpose of operating said second-hand correcting device, and against the other side of which it moves when returned to its normal position.

349,494. PNEUMATIC MECHANICAL SYNCHRONIZER FOR CLOCKS.

JAMES H. GERRY, Brooklyn, N. Y., and MARSHALL E. HUNTER, Oakland, Cal.; said Gerry assignor to said Hunter. Filed Jan. 13, 1886. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the minute-hand of a clock, two independent converging arms moving therewith, a pin or correcting-roller designed to enter between and pass beyond said arms, a lever carrying the same, and a pneumatic release applied to said lever.

2. The combination, substantially as hereinbefore set forth, with the minute-hand of a clock, of two independent converging arms, a frictional roller combining with said arms to set the hand of the clock, and means for causing said roller to stand between said arms for an instant when the clock has been set, and to then pass beyond them, substantially as described.

3. The combination, substantially as hereinbefore set forth, with a clock-hand and a setting device consisting of converging arms having parallel extensions and a correcting-arm applied thereto, of means for normally preventing said correcting device from operating, a device moving with the clock-hand for placing said device in a condition to be operated at a predetermined time, and means, substantially such as described, for setting the device in operation at a predetermined moment.

4. The combination, substantially as hereinbefore set forth, with the arbor of a clock-hand, a hand-setting device, and a lever for operating the same, of a snail moving with the arbor for placing said lever in position to operate the setting device, a friction-roller carried upon the lever and engaged by the snail, and a fixed pin also carried upon the lever and remaining in contact with the snail after the latter has passed beyond the roller, substantially as described.

5. The combination, substantially as hereinbefore set forth, with a clock-setting device consisting of a movable lever, means controlled thereby for moving a hand backward or forward, and a device moving with the arbor of the clock for placing said lever in position to operate the setting device, of a counterpoise moving with the arbor for balancing the resistance encountered in raising said lever, substantially as described.

6. A pneumatic release for operating the clock-setting device, consisting of an expanding-chamber, an escape-valve from said chamber, a spring normally holding said valve open but overcome by an impulse sent into the chamber, and a lever moving with the movable portion of said chamber.

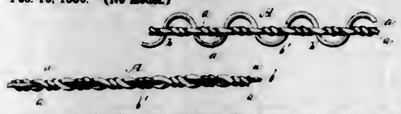
7. The combination, substantially as hereinbefore set forth, with a clock-setting device, of the movable plate g of the air-chamber or pneumatic device G, the spring h^2, the valve h', the inclosing-tube h^3, organized substantially as described.

8. The combination, substantially as hereinbefore set forth, with the clock-setting device, of the lever E, for operating the device, the lever F, the pin e, carried upon the lever E, and the two detents e' and e^2, carried upon the lever F.

9. The combination, substantially as hereinbefore set forth, with a clock-setting device consisting of a movable lever, and means for causing said lever to periodically move the hand to be corrected, of a detent momentarily interposed in the path of said lever when it is actuated and serving to retain the same in position to hold said hand in a given position.

349,495. BOX-STRAP.

CHARLES S HALL, Worcester, Mass. Filed Feb. 10, 1886. (No model.)

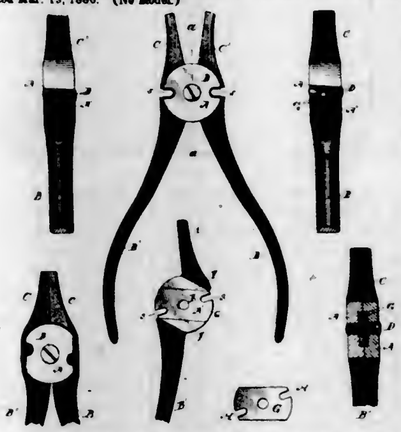


Claim.—1. A wire band for strapping boxes and similar merchandise packages, comprising, in combination, two main wires twisted together and having another and preferably a smaller wire woven back and forth in serpentine shape between the twists of said main wires, said third wire passing through the twisted strand thus made, from first one side and then the other at short intervals along its length, to form fastening-loops upon two opposite sides thereof, substantially as shown and described

2. The combination, with a box, case, bale, or similar merchandise package, of a wire strap or band consisting of two main wires twisted together and having another and preferably a smaller wire woven back and forth in serpentine shape between the twists of said main wires, said third wire passing through the twisted strand thus made from first one side and then the other at short intervals along its length, to form fastening-loops upon two opposite sides thereof, the strap or band being secured in position by means of nails or other suitable fastenings passed through said side loops, substantially as and for the purpose set forth.

349,496. WIRE-CUTTER.

RANDOLPH HAYDEN, Haddam, Conn. Filed Mar. 19, 1886. (No model.)



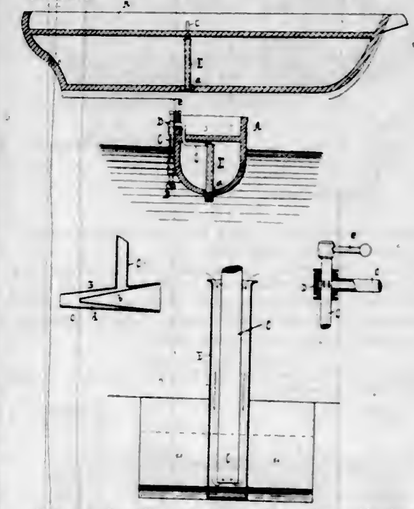
Claim.—1. In a tool of the character described, the jaw-plates A A', provided on their inner faces with transverse channels E E, having straight parallel walls, in combination with the cutters G G, fitting said channels, and each provided with a central opening to receive the pivot D, by which the joint-plates are united, substantially as shown and described.

2. In a tool of the character herein described, the joint-plates A A', provided on their inner faces with transverse channels E E, having straight parallel walls, and at opposite sides with slots S S, in combination with cutters G G, fitting said channels and having at their ends notches or slots H H, to form the cutting-jaws, substantially as shown and described.

3. The cutter for wire-cutting tools herein described, which consists of a centrally-perforated oblong plate with parallel sides, and with notches or slots at its ends to form cutting-jaws, substantially as shown and described

349,497. BILGE-WATER EJECTOR.

GEORGE HAYDN, Baltimore, Md., assignor to William L. Deming, Salem, Ohio. Filed Jan. 5, 1886. (No model.)



Claim.—1. In a bilge-water-ejecting device, the combination of the vessel A, the bilge-well a, arranged in the vessel, the discharge-pipe C, having one end communicating with the bilge-well and extending up and over the side of the vessel above the water-line, with the other end connected to the chamber d of the ejector, and the submerged ejector B, constructed with an inner cone, through which outside water passes, and an outer cone arranged around the inner one, whereby the chamber d is formed and the bilge-water ejected by the action of the water passing through the inner cone, as set forth.

2. The combination of the vessel A, the submerged ejector B, arranged on the outside of the vessel, the pipe C, connected to the ejector and extending up above the water-line of the vessel and communicating with the bilge-well, the bilge-well a, and the joint D, arranged to permit the ejector to be turned, as set forth.

3. The combination of the vessel A, the ejector B, arranged on the outside of the vessel, the discharge C, extending up above the water-line and to the bilge-well, the bilge-well a, and the pipe E, arranged to permit the bilge-water to form a seal between it and the bilge-well, and to exhaust the foul air from the upper portion of the hold, as set forth.

349,498. TRUSS.

JESSE G. HENDERSON, Grizzly Flat, Cal. Filed May 27, 1886. (No model.)



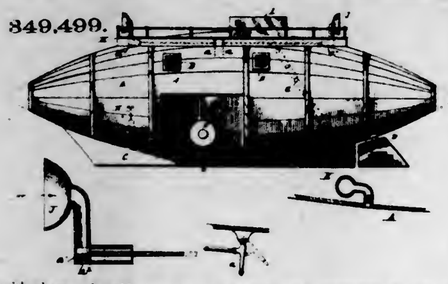
Claim.—A truss comprising the pad B, made of sprigg-wire coiled spirally to the shape of a cone-frustom, its smaller or contact end being open and having a flat smooth surface, and the securing-bands A, secured to the base-coil of the pad, substantially as herein described.

349,499. LIFE-BOAT.

CHARLES R. HERRICK and DANIEL W. BILLINGS, Penwick, Mich. Filed Dec. 3, 1885. (No model.)

Claim.—1. A life-boat provided with air-ports J, located near the ends of the staging or deck, and communicating with the interior of the boat by means of angular pipes provided with inlets, in combination

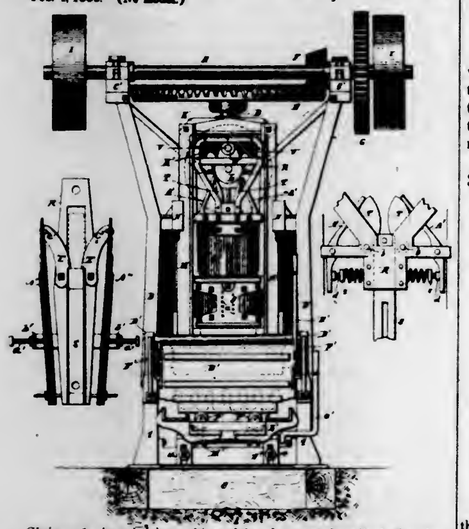
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with plungers in said pipes for closing said inlets, connected by rods to hand-levers, substantially as described.

2. A life-boat consisting of a cigar-shaped hull constructed as described, and provided with wheel-houses, propellers therein, windows, a staging or deck, a broad keel, a pilot-house having windows, air-collectors at both ends of the staging, valves therein operative as described, and a pumping-out engine, as shown and described.

349,500. BRICK-MACHINE. WILLIAM HILTON, Dunkirk, N. Y. Filed Feb. 4, 1886. (No model.)



Claim.—1. In a brick-machine of the character described, the clay forcing or pressing plunger of which is detachably secured to the operating-frame, as described, whereby said clay-forcing plunger is relieved from undue strain, as described.

2. In a brick-machine of the character described, the frame R, provided with the spring-actuated catches T, and operated by the shaft L, as described, in combination with the plunger or pressing frame M, having the adjustable bar S, adapted to engage with the catches T, as set forth.

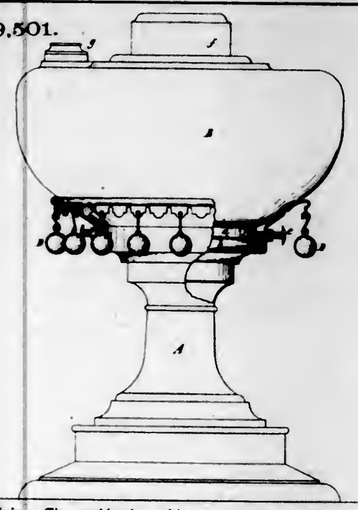
3. In a brick-machine of the character described, the catches T, adapted to engage with the top of the bar S, in combination with the spring-actuated levers A', or their described equivalents, and devices, substantially as described, for regulating the amount of pressure to be exerted on the catches, as set forth.

4. In a brick-machine of the character described, the frame S', provided with the adjustable cross-bar T', whereby the same is adapted to move mold-boxes of different sizes, as set forth.

5. In a brick-machine of the character described, the movable frame S', provided with the spring-catch A and operating-bar V', as described, whereby said bar is permitted to slide over the catch when undue pressure is exerted, as set forth.

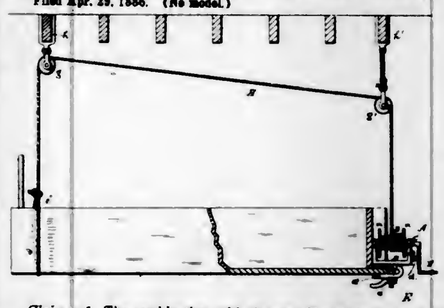
6. In a brick-machine of the character described, the mold-pushing frame S', provided with an adjustable cross-bar, T', and the adjustable spring-actuated catch A, in combination with the bar V', and devices, substantially as described, for operating the bar and frame, as set forth.

349,501. STAND-LAMP. NICHOLAS JENKINS, Waterbury, Conn., assignor to Holmes, Booth & Haydens, same place. Filed Mar. 6, 1885. (No model.)



Claim.—The combination, with a lamp-reservoir, of a pedestal provided at its upper end with a flaring sheet-metal socket made integral therewith, and having its edge bent over and downwardly for the attachment of pendants, said socket receiving the reservoir and supporting the latter above the bottom of the socket, and a screw for securing the reservoir in the socket, substantially as specified.

349,502. WAGON-BED HOIST. JAMES S. JONES, Crutchfield, Ky. Filed Apr. 29, 1886. (No model.)

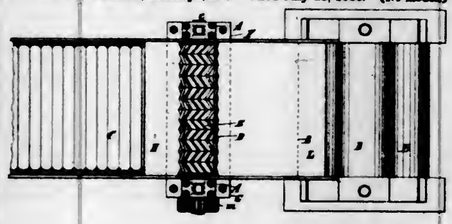


Claim.—1. The combination, with the rope H and sheaves *g g'*, of the windlass A, provided with an adjustable and removable clamp for engaging the wagon-bed, substantially as herein shown and described.

2. The combination, in a wagon-bed hoist, of the drum B, provided with the crank F, the frame D, having the shank E, made in two diameters, and provided with the rib *f*, the arm G, having a curved end fitted to the larger portion of the shank, and the nut *e*, received on the threaded part of the shank, substantially as herein shown and described.

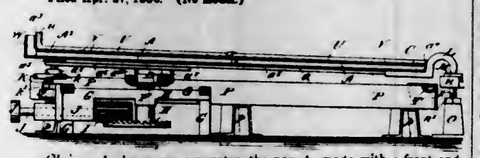
3. The combination, in a wagon-bed hoist, of the drum B, provided with the crank F, the frame D, having the shank E, made in two diameters, and provided with the rib *f*, the arm G, having a curved end fitted to the larger part of the shank, the nut *e*, received on the threaded part of the shank, the hook *d*, for engaging the crank F, the rope H, and the sheaves *g g'*, substantially as herein shown and described.

349,503. MACHINE FOR BREAKING AND CUTTING CANE. THEO. F. KRAJEWSKI, New York, assignor of one-half, by mesne assignments, to James L. Cochrane, Brooklyn, N. Y. Filed July 23, 1885. (No model.)



Claim.—The combination of rollers provided externally with more or less sharp teeth having a zigzag trend in the direction of the length of the rollers, said teeth intermeshing but not coming in contact with each other, and when intermeshed being equidistant from each other, said rollers being geared together in order to maintain their relative positions toward each other, substantially as specified.

349,504. ORE-SEPARATOR. HENRY C. KRAUSE, Lake Linden, Mich. Filed Apr. 27, 1886. (No model.)



Claim.—1. In an ore-separator, the pan A, made with a front end, A', and tail A^3, arranged about at right angles to each other, and with an oblique head, A^3, set an angle of from twenty-five to thirty degrees to its tail, substantially as described, for the purposes set forth.

2. In an ore-separator, the pan A, made with a front end, A', and tail A^3, arranged about at right angles to each other, and with an oblique head, A^3, set at an angle to the tail of from twenty-five to thirty degrees, an ore-feeding chute, W, at the front end of the pan, and head and tail aprons, a^2 a', and front and back flanges, a^3 a^4, substantially as described, for the purposes set forth.

3. In an ore-separator, the pan A, made with a front end, A', and tail A^3, arranged about at right angles to each other, and with an oblique head, A^3, set at an angle to the tail A^3 of from twenty-five to thirty degrees, in combination with mechanism for adjusting the pan-surface to give it backward slope from its front head corner, B, toward its front tail corner, B', and toward its back end, C, substantially as described, for the purposes set forth.

4. In an ore-separator, the pan A, made with a front end, A', and tail A^3, arranged about at right angles to each other, and with an oblique head, A^3, set at an angle to the tail A^3 of from twenty-five to thirty degrees, combined with mechanism for adjusting the pan vertically to give it a slope from its front head corner, B, toward its front tail corner, B', and toward its back end, C, and mechanism for imparting an accelerated horizontal movement to the pan toward its front head corner, B, substantially as described, for the purposes set forth.

5. In an ore-separator, the pan A, made with a front end, A', and tail A^3, arranged about at right angles to each other, and with an oblique head, A^3, set an angle to the tail A^3 of from twenty-five to thirty degrees, in combination with mechanism for adjusting the pan to give it a downward inclination from front to back ends and from head to tail, mechanism for imparting an accelerated horizontal movement to the pan toward its high front head corner, B, and a water-distributing pipe arranged over and along the oblique head A^3 of the pan, and having orifices giving a downward discharge of water upon the pan toward its tail in gradually-diminishing volume from the front of the pan toward its back end, substantially as described, for the purposes set forth.

6. In an ore-separator, the pan A, made with a front end, A', and tail A^3, arranged about at right angles to each other, and with an oblique head, A^3, set at an angle to the tail A^3 of from twenty-five to thirty degrees, in combination with mechanism for adjusting the head and tail of the pan to give it an inclination from the front head part, B, toward the front tail corner, B', and toward the back end, C, mechanism for imparting a forward horizontal movement to the pan toward the front head corner, B, and a laterally-adjustable bearing at the back end, C, of the pan, with which said end is in sliding connection, substantially as described, for the purposes set forth.

7. The combination, in an ore-separator, of a pan having an oblique head, mechanism for giving the pan a downward slope from its front head corner, B, to its tail and back end, mechanism for imparting a horizontal forward movement to the pan toward its front head corner, B, and a laterally-adjustable bearing at the back end, C, of the pan, with which said end is in sliding connection, substantially as set forth.

8. The combination, in an ore-separator, of a horizontally-movable pan, an eccentrically-arranged flanged plate beneath and connected to the pan, a vertical driving-shaft, to which the eccentric plate is adjustably connected, and an eccentric driving gear-wheel on said shaft, substantially as described, for the purposes set forth.

9. The combination, in an ore-separator, of a horizontally-movable pan having an oblique head and a high front head corner, as at B, an adjustable eccentric flanged plate beneath and connected to the pan, and eccentric gearing imparting an accelerated horizontal bodily movement to the pan toward the front head corner, B, substantially as described, for the purposes set forth.

10. The combination, in an ore-separator, of a horizontally-movable pan, a gimbal-ring bearing, D, a vertical driving-shaft, an adjustable eccentric flanged plate working in said ring-bearing and connected to the driving-shaft, an eccentric gear-wheel, H, on said shaft, and a pinion, I, gearing with said wheel H, substantially as herein set forth.

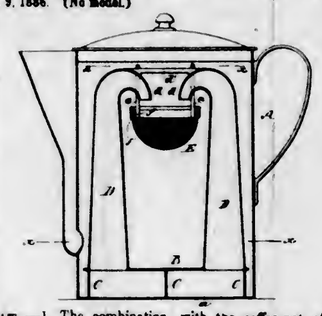
11. The combination, in an ore-separator, of a horizontally-movable pan, an eccentrically-arranged flanged plate beneath the head of the pan, a shaft to which said flanged plate is connected, an eccentric gear-wheel on said shaft, and a swiveled sliding bearing supporting the back end of the pan, substantially as described, for the purposes set forth.

12. The combination, in an ore-separator, of a pan having an oblique head and a high front head corner, B, headed screws K K, arranged beneath the front end of the pan, an arm, L, connected to the back end of the pan, a slide-block, M, swiveled to said arm, and a screw, N, threaded into a support, O, and having a head, *n*, forming a guide for the block M, which thereby may be set at different angles to the stroke-line of the pan, and mechanism for imparting a horizontal movement to the pan toward its high front head corner, B, substantially as described, and for the purposes set forth.

13. The combination, in an ore-separator, and with a horizontally-movable pan having an oblique head and a front end and a tail arranged about at right angles to each other, and the surface of said pan sloping toward its tail and back end, of mechanism for imparting a forward movement to the pan toward its high front end corner, B, and mineral and tailings boxes P R, placed below the head and tail of the pan, respectively, substantially as described, for the purposes set forth.

14. The combination, in an ore-separator, and with the horizontally-movable pan A, constructed and operated substantially as specified, of mineral and tailings boxes P R, arranged below the head and tail of the pan, respectively, said boxes being connected by a conduit, T, next the tail of the pan, substantially as herein set forth.

349,505. COFFEE-POT. JOSEPH M. LAWRENCE, Houston, Tex. Filed Feb. 9, 1886. (No model.)



Claim.—1. The combination, with the coffee-pot, of the tubes having their upper ends bent downward, a bridge or cross-piece, *d'*, connecting their upper ends, the suspending-rods *e e*, depending from the bridge, the ring *f* on the lower ends of the suspending-rods, the ring *f'*, and the separate strainer held removably between the two said rings, substantially as set forth.

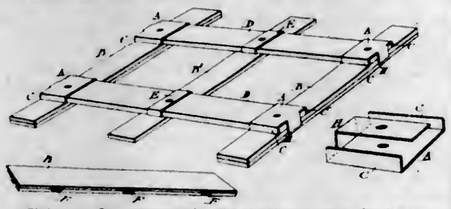
2. An attachment for coffee-pots, comprising the false bottom B, the flange C on the under side of the same, curved to form two chambers having opposite side openings, *c c*, the tubes D, extending upward from the false bottom and communicating with the upper parts of the two said chambers, the nozzles *d d*, and the strainer suspended below the nozzle, substantially as set forth.

349,506. PLOW. JOHN LENHART, Fremont, Hamilton County, Iowa. Filed June 4, 1886. (No model.)



Claim.—A plow having a beam bent to form a standard, the lower portion of which is bent outward and downward from the landside, and extended to form a right-angled arm on the same plane with the landside, and secured thereto by a depending lug, said standard and arm being secured to the mold-board and share by the braces I and G, substantially as and for the purpose set forth.

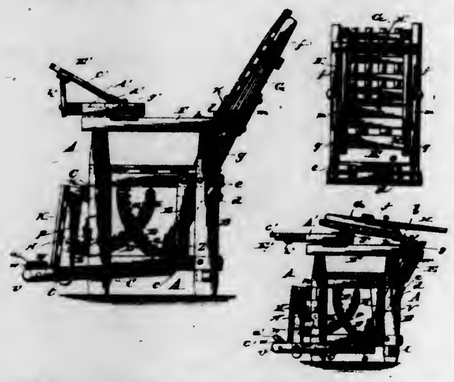
349,507. STRAW-CARRIER. J. JOSEPH LIEK, Chicago, Ill. Filed Feb. 25, 1886. (No model.)



Claim.—1. In a straw-carrier, the combination, with the side straps and cross-slats, of the securing-caps embracing the ends of the slats and provided with tongues embedded in the material of the belts or straps, whereby the device is given a smooth lower surface, substantially as and for the purpose set forth.

2. In a straw-carrier, the combination, with the straps B, made in two parts, with the spaces F formed at intervals between them, of the slats D and their caps formed with the flanges C and tongues H, substantially as and for the purpose set forth.

349,508. RECLINING-CHAIR. JOHN L. MAY, Martinsburg, Pa. Filed Feb. 4, 1884. (No model.)



Claim.—1. In a chair, the combination, with the seat-frame, constructed as described, of the back composed of the lower section, E, hinged below the level of the seat, and the upper section, G, hinged to the upper end of the lower section, the prop pivoted to the back of the said upper section, and the lower end of the lower back-section having suitable means for locking the back in different inclined positions, substantially as specified.

2. In a chair, the combination, with the main frame, of the hinged leg-rest K, the quadrants secured thereto and working in slots of the front legs, the transverse pawl-plate hinged to the said legs to engage the quadrants, the arms V, pivoted at their upper ends to the lateral seat-beams, and the bars Z, pivoted at their outer ends to the leg-rest and hinged at their inner ends to the lower ends of the arms V, substantially as specified.

349,509. SAFETY WATER-GAGE. JAMES MCCAFFREY, Philadelphia, Pa., assignor of one-half to John Forrest, same place. Filed Feb. 15, 1886. (No model.)

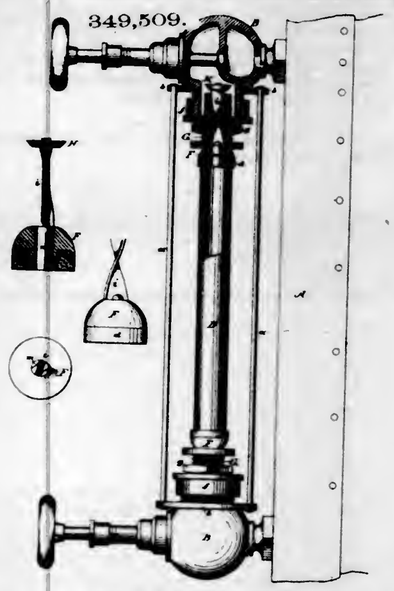
Claim.—1. The combination of the glass tube D and casing B of a water-gage with the tube G, having end valve-seats, the tubular valve F, bearing upon the end of the glass tube and adapted to the outer seat of the tube G, and the valve H, connected to said valve F, and adapted to the inner seat of said tube G, all substantially as specified.

2. The combination of the glass tube D and casing B of the water-gage, the valve F, bearing upon the end of the tube G, the valve H, connected to the said valve F, and the tube G, adjustable in the casing B, and having an outer seat for the valve F and an inner seat for the valve H, all substantially as specified.

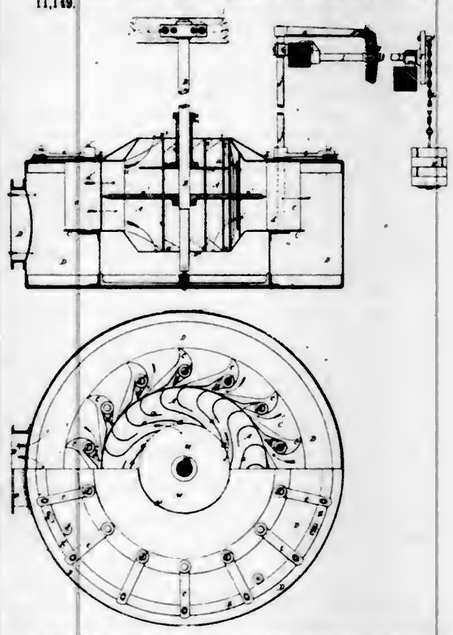
3. The combination of the tubular valve F, a stem, *i*, forming part thereof, and a valve, H, detachably secured to the end of said stem, all substantially as specified.

4. The combination of the casing B and glass tube D of a water-gage, a tubular valve, F, a valve, H, connected thereto by a twisted stem, *i*, and a tube, G, having an outer seat for the valve F and an inner seat for the valve H, all substantially as specified.

349,509.



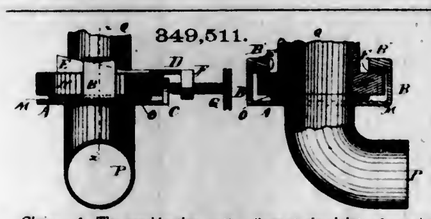
349,510. TURBINE. JACOB MCCONNELL, Liverpool, England. Filed Mar. 23, 1885. (No model.) Patented in England Aug. 11, 1884, No. 11,149.



Claim.—The combination of the case of a turbine having recessed blades *c*, hinged valves *d*, which, when open, lie within said recesses, and spindles for the valves extending to the outside of the case, with arms on the spindles, a ring, E, to which the arms of all the valve-spindles are connected, and a counter-balance connected to the said ring to tend to close the valves against the pressure of water, substantially as set forth.

349,511. PIPE-COUPLING. DAVID MCKEEHEE, Jr., Washington, D. C. Filed Jan. 11, 1886. (No model.)

349,511.

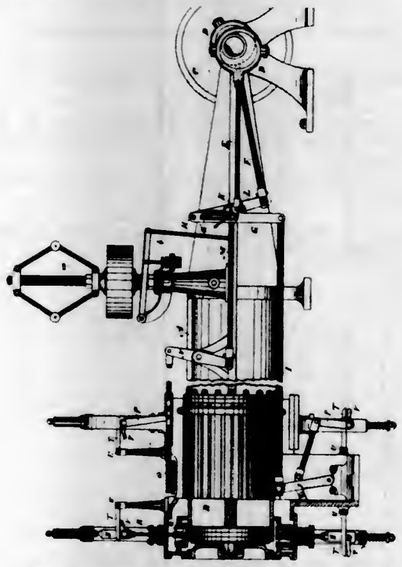


Claim.—1. The combination, with a flanged pipe-joint, of a socket embracing the flange, arms on the socket having inclines thereon, and a yoke having inclined or wedge-shaped arms engaging the flange of the joint and the inclines of the socket-arms, substantially as shown and set forth.

2. A pipe, as P, having a flange, a socket embracing said pipe next the flange, arms B B', having inclined projections and attached to said socket, arm C on the socket between the arms B B, yoke D, having wedge-arms E E and projection F, and screw G, passing through said projection and engaging arm C, all in combination, as set forth.

3. A pipe-coupling consisting, essentially, of a socket having arms provided with inclines, a yoke having wedges engaging said inclines, and a set-screw by which said wedges are forced in, the parts being and operating relatively to a pipe-joint substantially as described.

349,512. ENGINE-VALVE GEAR. ROBERT A. MCLELLAN, San Francisco, Cal. Filed June 11, 1886. (No model.)

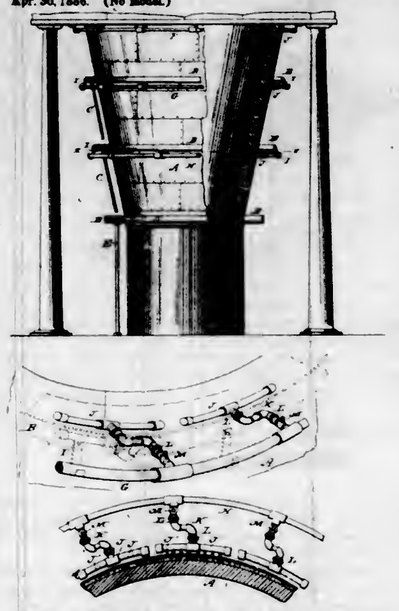


Claim.—1. A lever centrally fulcrumed to the frame and having its lower end connected with an eccentric in a radial plane with the crank, and a second lever, the upper end of which is suspended from the upper end of the first and its center connected with a second eccentric set in advance of the crank, in combination with a rod adjustable upon the second lever and connected with the steam-admission valves, substantially as herein described.

2. A lever centrally fulcrumed to the engine-frame and having its lower end connected with an eccentric upon the engine-shaft, and a second lever fulcrumed to the upper end of the first one, with its central portion connected with a second eccentric set at an angle with the first one, and the lower end of the second lever connected by a rod with the exhaust-valve, in combination with a rod adjustably connecting the upper end of the second swinging lever with the steam-admission valves and a governor by which the position of the rod is determined, substantially as herein described.

3. The steam-valve with the vertical stem, the lever connected with the stem at one end and having the opposite end fulcrumed, as shown, and an oscillating lifting arm or toe acting upon the lever, in combination with the links G and L, the eccentrics connected with them, and a governor whereby the connections of the valve-lifting toe with the link is regulated by the engine-speed, substantially as herein described.

349,513. METHOD OF AND APPARATUS FOR COOLING FURNACE BOSH-JACKETS. JAMES L. MCMICHAEL, Glen Wilton, Va. Filed Apr. 30, 1886. (No model.)



Claim.—1. The combination, with the water-bosh, of circular water-pipes having inward-extending pipes provided with segmental spray-tubes concentric with the outer face of the bosh and extending entirely around the same, and a circular trough secured to the bosh some distance below each series of spray-tubes, whereby the water sprayed on the bosh will be free to run rapidly down the same, and be exposed to the action of the outer air, substantially as set forth.

2. The combination, with the water-bosh, of circular water-pipes having inward-extending pipes formed in sections connected by universal joints, and having segmental spray-tubes on their inner ends concentric with the outer surface of the bosh and vertically adjustable by means of said universal joints, and a circular trough on the bosh some distance below each series of spray-tubes, whereby any one or an entire series of spray-tubes may be adjusted to any part of the bosh within its or their limit of adjustment, substantially as set forth.

3. The combination, with the water-bosh and the series of circular troughs B B, having outlet-pipes, the upper troughs having hooks I I depending therefrom, of the circular pipes F G H, the pipes G H resting in the said hooks, a series of adjustable pipes, K, having universal joints L, and the spray-pipes J on the inner ends of said pipes K, concentric with the outer surface of the bosh, substantially as set forth.

349,514. BOX-FASTENER. JOSEPH J. MONAHAN, Milwaukee, Wis. Filed May 17, 1886. (No model.)

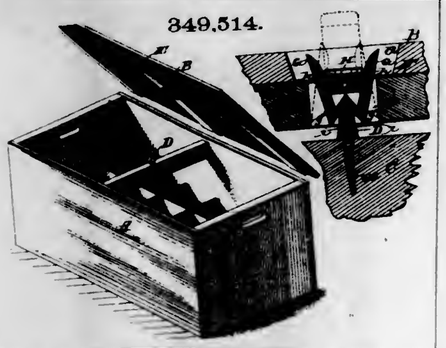
Claim.—1. A box-body provided with a stationary tongue, the lid provided with pivoted fingers that automatically engage the tongue, and a gravity-latch hinged to said lid and arranged to fall between the fingers when the above-named engagement takes place, as set forth.

2. A box-body provided with a tongue, the lid provided with pivoted fingers to engage said tongue, and a latch adapted to be interposed between said fingers, in combination with a flexible strip passed through the fingers over the latch and united at its ends by a suitable seal, as set forth.

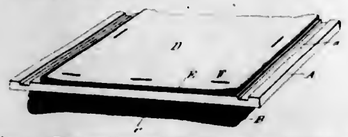
3. A box-body provided with an arrow-headed tongue, having springs attached thereto, and the box-lid provided with pivoted fingers shouldered at their lower ends to engage the tongue, and a latch designed to be interposed between the upper ends of the fingers, as set forth.

4. A box-body provided with an arrow-shaped tongue, the box-lid having a cleat upon its under side, and these latter parts provided with apertures, in combination with a suitable plate interposed between the lid and cleat, and having pivoted thereto fingers that extend up and down in the apertures of these latter parts, and are shouldered at their lower ends to engage the tongue, and a latch hinged to the plate to be interposed between the upper ends of said fingers, substantially as set forth.

349,514.



349,515. OIL-PRESS MAT. OLIVER R. NELSON, Chicago, Ill. Filed Feb. 18, 1886. (No model.)



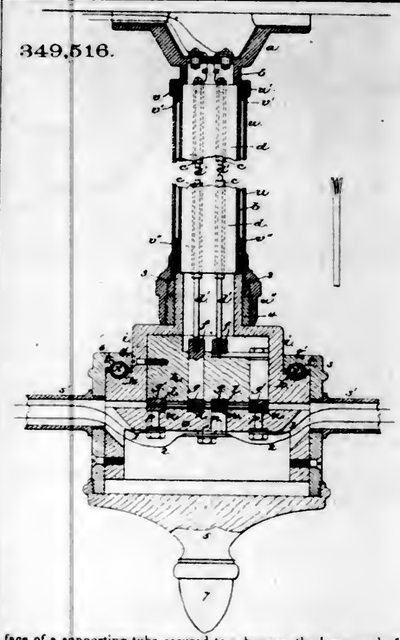
Claim.—1. The combination, with a press-plate provided with projections upon its surface, of a penetrable absorbent mat resting on said surface and adapted to be penetrated by such projections, substantially as and for the purpose set forth.

2. In combination with a penetrable and absorbent mat and a press-plate, a sheet of wire netting interposed between the mat and the press-plate, the opposite surface of the absorbent mat being uncovered and exposed directly to the meal-bag in the use of the press, substantially as described.

3. The combination, with a cast press-plate of an oil-press, of a separate sheet of smooth-surfaced metal secured to said press-plate, and a non-conducting substance interposed between said sheet and press-plate, substantially as described.

4. In combination with two adjacent press-plates, an absorbent mat applied to one of the two proximate faces of said plates and exposed directly to the bag of meal to be pressed, and a separate smooth-surfaced metal sheet secured to the other of said proximate faces of the plates, substantially as described.

349,516. ELECTROLIER. CHARLES G. PERKINS, New York, N. Y., assignor to the Imperial Electric Light Company, same place. Filed Jan. 11, 1884. (No model.)



Claim.—1. In combination with an electrolier, a supporting-tube containing metallic conducting-tubes insulated from each other, the conducting-tubes adapted to receive a metallic rod provided with means on the upper end thereof adapted to produce frictional contact with the interior of the conducting-tubes, both tubes and rods forming a part of the circuit-connections of the electrolier.

2. In combination with an electrolier, a hub provided with means for carrying electrical circuit-connections, an annular track on the exterior of the hub, a case carrying the arms for the lamps and circuit-connections of the structure, and the annular track secured to the under side of the rim of the said case, the track adapted to receive a series of balls, whereby the said case may be revolved.

3. In combination with an electrolier, substantially as shown and described, the hub *i*, neck 4, concave track *k*, balls *k'*, concave track *l*, rim *l'*, case *s*, and arms *s'*.

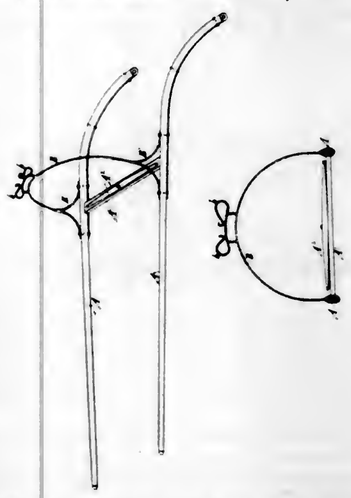
4. In combination with an electrolier, a block of insulating material secured within the fixed portion of the distributing-box of the electrolier, the lower surface of the block provided with metallic rings, forming a part of the circuit-connections of the electrolier, and the block of insulating material secured within the revolving case, forming a part of the distributing-box, the upper surface of the block provided with frictional contact-springs adapted to bear against the metallic rings secured to the block within the fixed portion of the distributing-box, said contact-springs electrically connected with conductors leading to the lamps.

5. In combination with an electrolier, substantially as shown and described, the insulating-block *h*, standard-nuts *f f*, metallic rings *g g'*, flat metallic friction-springs *l*, metallic springs *n*, second block of insulating material, *o*, metallic projections *p*, and electrical conductors 1 and 2.

6. In combination with an electrolier, a telescopic tube carrying a means at the upper end thereof adapted to bear against the exterior surface of a supporting-tube secured to a hanger, the lower end of the telescopic tube provided with means for connecting it with the arm-support of the electrolier.

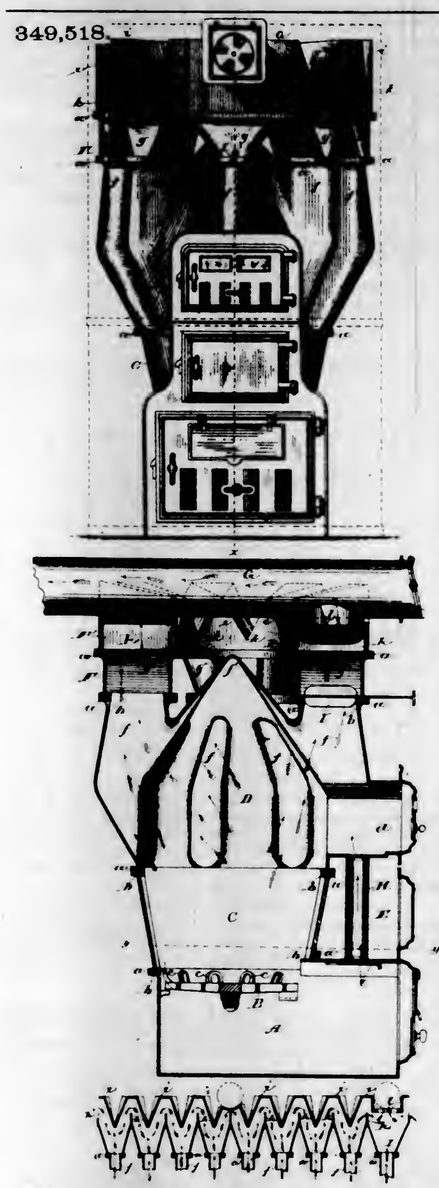
7. In combination with an electrolier, the telescopic tube *u*, friction-spring *u'*, nut *v*, offset *v'*, shoulder 3, and union-nut *u''*.

349,517. REIN-HOLDER. DANIEL C. PERKINS, Fairfield, Me. Filed Dec. 3, 1885. (No model.)



Claim.—A rein-protector and rein-holder mounted upon shafts and provided with a scroll comprising a main portion and two end portions bent over toward the main portion and toward each other into approximately the same vertical plane as the main portion, so as to form loops, the extremities of such bent-over portions touching or nearly touching the main portion, and forming springs whereby the reins may be gripped, substantially as and for the purpose specified.

349,518. HOT-AIR FURNACE. WILLIAM PHIPPS, Milwaukee, Wis. Filed Oct. 9, 1885. (No model.)



Claim.—1. In a hot-air furnace, the combination, with a fire-pot and a dome provided with flues, of a crown-piece or radiator having its lower portion provided with a series of pockets connecting with the dome-flues and joined at their upper ends, and the upper portion of this crown-piece or radiator provided with a series of caps joined at their lower ends and arranged to come in line with the vertical centers of said pockets, substantially as and for the purpose described.

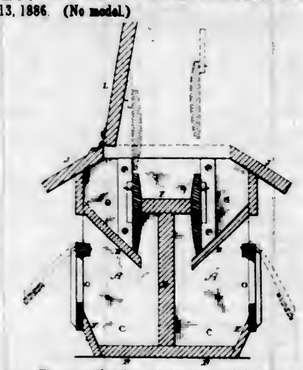
2. In a hot-air furnace, the combination, with a fire-pot and a dome provided with flues, of a crown-piece or radiator consisting of a sectional shell, the lower section comprising a series of pockets joined at their upper ends throughout the series, the upper section comprising a series of caps joined at their lower ends throughout the series, and said sections relatively united, whereby the joined ends of the pockets and those of the caps are brought in alternate arrangement, substantially as and for the purpose set forth.

3. In a hot-air furnace, the combination, with a fire-pot and a dome provided with flues, of a two-section crown-piece or radiator, the lower section consisting of a series of prismoidal pockets connecting with the dome-flues, and joined at their upper ends, the walls at their points of juncture being upwardly extended throughout the series, and the upper section consisting of a series of prismoidal caps joined at their lower ends, and the walls at their points of juncture being extended down into the pockets of the former section, substantially as described.

4. In a hot-air furnace, the combination, with the fire-pot, a dome provided with flues, and a smoke-flue, of a two-section crown-piece or radiator, the lower section consisting of a series of prismoidal pockets connecting with the dome-flues and joined at their upper ends, the upper section consisting of a series of prismoidal caps joined at their lower ends and alternately arranged with relation to the joined ends of the pockets, the rear one of the caps of less elevation than the others in the series, and the front one countersunk and provided with an opening registering with a similar opening in the smoke-flue that is supported by said front and rear caps, substantially as and for the purpose set forth.

5. In a hot-air furnace, the combination, with a fire-pot and a dome provided with flues, of a two-section radiator, the lower section consisting of a series of prismoidal pockets connecting with the dome-flues and joined at their upper ends, the upper section consisting of a series of prismoidal caps joined at their lower ends and alternately arranged with relation to the joined ends of the pockets, a damper located in the front dome-flue at its juncture with the radiator, and a dust-flue provided at its bottom with a perforated slide and extended from the ash-pit to the fuel-entrance of the furnace, substantially as shown and described.

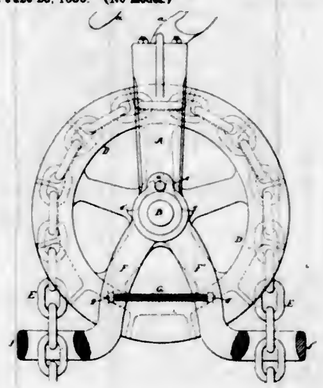
349,519. FEED-TROUGH. ROBERT G. PIPE, Audubon, Iowa. Filed July 13, 1886. (No model.)



Claim.—1. The combination of the two mixing-troughs in the upper portion of the frame, the removable side pieces, the walk located between the two troughs, and the two feeding-troughs in the lower portion of the frame, substantially as described.

2. In a feeding device, the combination of the feeding-troughs, the hinged gates connected to opposite sides of the frame, the longitudinal vertical partition which separates the two feeding-troughs from each other, the two mixing-troughs in the upper portion of the frame, the removable side pieces, and the walk which is located in between the two mixing-troughs, substantially as set forth.

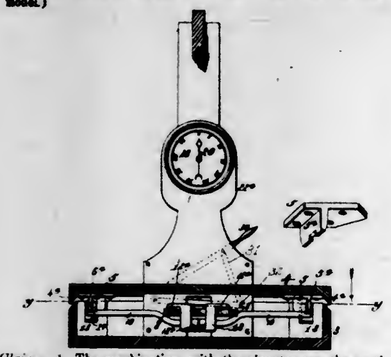
349,520. CHAIN-GUIDE FOR HOISTS. EDWARD SAMUEL, Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited,) same place. Filed June 28, 1886. (No model.)



Claim.—1. The combination of the chain-guide of a hoist with a spring to counteract the vibration of the chain and guide, substantially as described.

2. The combination of the pivoted chain-guides F F' of a hoist with a spring, G, connecting the chain-guides, substantially as and for the purpose set forth.

349,521. AUTOMATIC WEIGHING MECHANISM FOR ELEVATORS, &c. ISAAC S. SANGER, Waco, Tex. Filed June 10, 1886. (No model.)



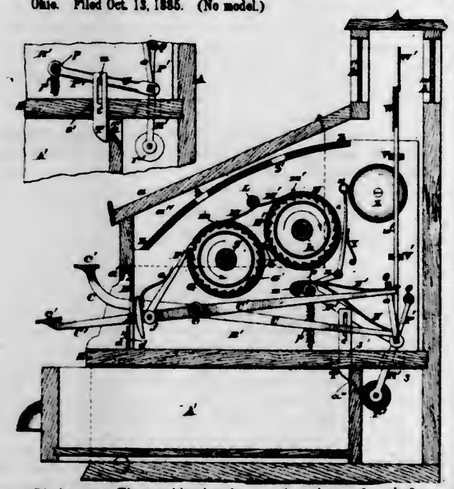
Claim.—1. The combination, with the elevator-car, the vertically-movable platform, the scale-beams arranged beneath said platform and the vertical frame of the elevator-car, of the automatic weight-indicating mechanism affixed to the vertical frame of the elevator-car above the vertically-movable platform, means for connecting the indicating mechanism with the scale-beams, and means for raising and lowering said scale-beams to cause the movable platform to bear thereupon or to rest solidly upon the elevator-car, substantially as set forth.

2. The combination of the pendulous weight 17, hub 16, arbor 17', flexible band 18, pointer 20, arbor 19, and coiled spring 21, with the holding plates or frame 22ª, stop 24, the band 15, the scale-beams, and the movable platform, substantially as herein set forth.

3. In a weighing apparatus, the combination, with the casing or support, the movable platform, and scale-levers co-operating therewith, of a presser-bar and means for operating the same to disengage the scale-levers from the platform and cause the same to firmly rest on its casing or support, substantially as described.

4. The combination of the hand-lever having locking-pin, the connecting-link, the presser-bar, and the plate having holes, with the scale-levers, the platform, and the weight-indicating devices, substantially as described.

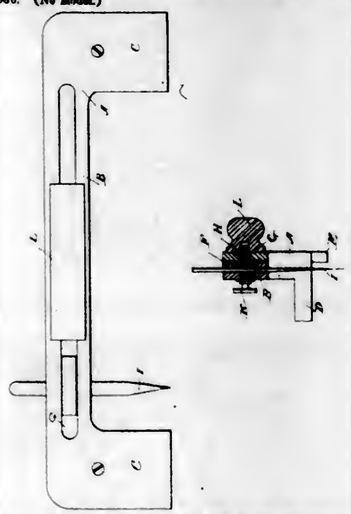
349,522. CASH-REGISTER. WILLIAM G. SCHOENER, Cincinnati, Ohio. Filed Oct. 13, 1885. (No model.)



Claim.—1. The combination, in a cash register, of a shaft, c, a series of keys, C C', pivoted thereon, the tablets W W', having rods w w', the shaft n, carrying lifters N N', the fixed guide O, having slots o, the rear ends of said keys traversing said slots o and operating said lifters and tablet-rods, the shaft p, and the pair of bell-cranks P P', pivoted thereon and carrying the rest-bar Q, the pull-pawls F, pivoted on said keys in front of their fulcrum c, the shaft g, and the disks G, having ratchet-teeth G' and spurs K, the shaft A, and the secondary disks H H' mounted thereon, the said pawls F and spurs K operating the disks G G' and H H', respectively, substantially as described.

2. The combination, in a cash-register, of keys C C', shaft c, pull-pawls F, primary disks G G', secondary disks H H', shafts g h, spurs K, lifters N, shaft n, fixed slotted guide O o, pivoted bell-cranks P P', rod p, arms R R', rollers r r', notched drawer A' a''', slotted gravitating catch T t, and straight tablet-rod w, for the purpose specified.

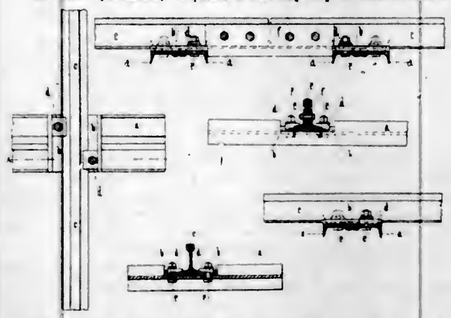
349,523. GAGE. CLAUS P. SCHMIDT, Kansas City, Mo. Filed Mar. 25, 1886. (No model.)



Claim.—1. The combination of the frame having the guideway B, provided with the vertical longitudinal slot F and the horizontal longitudinal slot G, intersecting the slot F, the depending ends C, having the horizontal flanges D projecting laterally from one side, and the vertical flanges E, with the head H, working in the slots F and G, and the vertical adjustable cutter or blade I, secured in the head, substantially as described.

2. A gage having the guideway B, to which the marking-knife is attached, the ends C, depending at right angles from the guideway, the horizontal flange plate or foot D, projecting out from one side of the ends, and a vertical depending flange, E, on the ends C, located below the plane of the flange D, as set forth.

349,524. RAILWAY-SLEEPER. EDUARD SCHMIDT, Zimmerarode, Prussia, assignor to Ludwig Schülke, Dusseldorf, Germany. Filed Apr. 22, 1886. (No model.) Patented in Germany July 14, 1885, No. 34,657.



Claim.—1. A sleeper for railways, consisting of two flanged rails placed with their heads in juxtaposition and secured together, substantially as set forth.

2. A sleeper for railways, consisting of two flanged rails placed in juxtaposition with their webs horizontal, and cross-plates and bolts by which they are secured together, substantially as set forth.

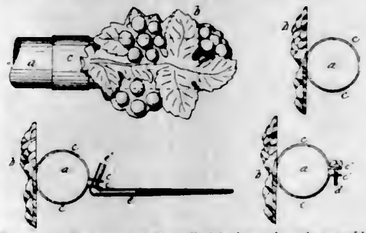
3. A sleeper consisting of two flanged rails placed in juxtaposition with their webs horizontal, the flanges being cut away at suitable distances apart to admit the base of the track-rails, substantially as set forth.

4. A sleeper for railways, consisting of two flanged rails placed with their heads in juxtaposition and having their flanges cut away at suitable distances apart, in combination with plates fitting in said cut-away places and bolts securing the whole together, substantially as set forth.

5. The combination, with the rails *a a*, placed with their heads in juxtaposition and having their flanges cut away, of the plates *b*, placed in said cut-away places, the track-rails *c*, resting upon said plates, the clamping-pieces *d*, and the bolts *e*, substantially as and for the purposes set forth.

6. A sleeper for railways, consisting of two flanged rails placed in juxtaposition with their webs horizontal and secured together, substantially as set forth.

349,525. POLE-TIP. SAMUEL R. SCOTTRON, Brooklyn, N. Y. Filed Feb. 11, 1886. (No model.)

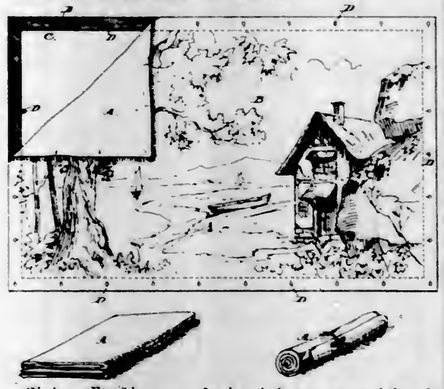


Claim.—1. An ornament for cylindrical curtain-poles provided with an adjustable clamping-ring, whereby the ornament is securely held in any desired angular position at or near the end of the pole at the side thereof.

2. The combination, with a curtain-pole tip provided with an adjustable clamping-ring adapted to grip a cylindrical pole and having perforated bent ends, of a supporting device provided with an upwardly-projecting stud or pin which passes through the bent ends of the clamping-ring.

3. In combination, a curtain-pole, pole-tips, each composed of a side ornament, and an adjustable clamping-ring having perforated bent ends, and supporting devices each provided with an inclined projecting pin or stud which passes through the bent ends of a clamping-ring.

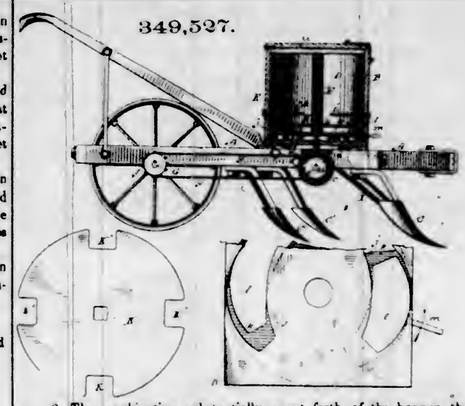
349,526. THEATRICAL SCENERY. LAFAYETTE W. SEAVEY, New York, N. Y. Filed Jan. 12, 1886. (No model.)



Claim.—Flexible scenery for theatrical purposes, consisting of a light, pliable textile fabric, in combination with aniline dyes applied thereto, substantially in the manner and for the purpose herein set forth.

349,527. SEED-PLANTER. MARTIN SHANK and FRANCIS G. GREEN, Chrisman, Ill. Filed Mar. 6, 1886. (No model.)

Claim.—1. The combination, substantially as set forth, of the hopper, the horizontal feed-wheel having blades on its edge or periphery, the openings in the hopper just over the edge of the feed-wheel, and the discharge-openings below the feed-wheel between the openings in the hopper.



2. The combination, substantially as set forth, of the hopper, the curved slotted openings in the bottom of the hopper, the slotted disk for regulating the size of the openings, the feed-wheel having blades on its periphery, and the slotted openings in the bottom plate under the feed-wheel.

3. The combination, substantially as set forth, of the hopper, the vertical shaft that extends through the hopper, the stirrers carried on the shaft, the openings in the bottom of the hopper, the horizontal feed-wheel below said openings, the openings below the feed-wheel between the openings in the hopper, and the chute that conveys the seed to the furrow.

349,528. COMPARTMENT-TANK. BENJAMIN C. SHAW, Racine, Wis. Filed July 3, 1885. (No model.)



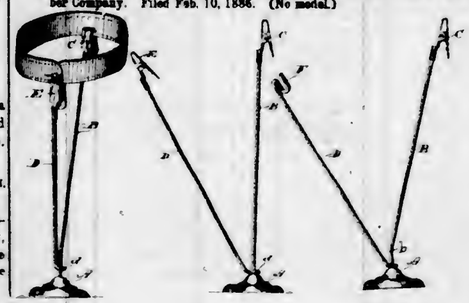
Claim.—1. The tank *t*, having its front head made in one piece of metal rising perpendicular to the height desired for the seat, thence passing backward in a horizontal line a sufficient depth, thence by a turn to a perpendicular, and attached with rivets, substantially as described.

2. The tank *t*, having two or more compartments with internal pipes leading therefrom and provided with inside brace-plates, *bp*, through which the discharge-pipes pass, substantially as described.

3. A portable compartment-tank having its front portion cut away to receive the seat for the driver, provided with domes to each compartment having movable covers secured by hand-screw *hs*, adapted to be swung around upon a curved brace, *b*, substantially as described.

4. In a portable compartment-tank, its front portion cut away to receive the seat of the driver, the compartments 1, 2, and 3, each provided with its separate dome and a separate internal discharge-pipe, the latter passing through the brace-plates *bp*, bolted to the inside of the tank and against the wall of each compartment, the whole set in a wooden cradle, as shown, and connected thereto by means of brace-rods and straps, and mounted upon a suitable truck for transportation, all combined substantially as described.

349,529. STAND FOR EXHIBITING SCARFS, COLLARS, &c. CHRISTOPHER C. SHELEY, New York, N. Y., assignor to the Canfield Rubber Company. Filed Feb. 10, 1886. (No model.)

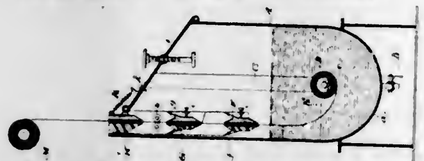


Claim.—1. The combination, with the base and the main rod or wire secured thereto and having the clasp at its upper end, of the stay-wire and its clasp mounted upon the main rod or wire, substantially as described.

2. The combination, with the base and the main rod or wire secured thereto and having the clasp, of the stay-wire adjustable upon the main wire and having the clasp at its upper end, substantially as described.

3. The combination, with the base, of the main wire inclined outward at or near the base and having the clasp upon its end, with the stay-wire and its clasp, substantially as described.

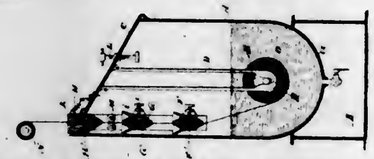
349,530. METHOD OF WAXING PAPER. ISAAC SHERCK and JOSEPH BATIS, Jr., Fremont, Ohio, assignors to themselves, and Geo. E. Raymond, Chicago, Ill. Filed June 19, 1886. (No specimens.)



Claim.—1. The method of waxing paper, consisting, essentially, in placing a quantity of paper in melted wax, incorporating the wax with the paper by heating the wax and finishing the surface of the paper within the tank of wax.

2. In a method of waxing paper, the following steps, viz: submerging a roll of paper in melted wax, saturating the paper with the wax by the application of heat, and drawing the paper between finishing pads or strippers before it leaves the tank of wax.

349,531. APPARATUS FOR COATING PAPER, &c., WITH WAX. ISAAC SHERCK and JOSEPH BATIS, Jr., Fremont, Ohio, assignors to themselves, and George E. Raymond, Chicago, Ill. Filed June 28, 1886. (No model.)



Claim.—1. In apparatus for waxing paper, a portable tank adapted to hold the melted wax, and provided with devices for submerging and stripping or smoothing the paper, said devices being located within the tank, substantially as set forth.

2. The combination, with the wax-holding tank and means for applying heat thereto, of a roller or rod adapted to hold a roll or bunch of paper beneath the surface of the wax and in a condition to be readily unwound and strippers or smoothers located within the tank for finishing the paper, substantially as set forth.

3. The combination, with the tank and the sets of strippers or smoothers located therein, of the swing-cover and the paper-holding hangers attached thereto, substantially as set forth.

4. The combination, with the tank and the adjustable paper-holding roller or rod, of the adjustable strippers or smoothers located within the tank and the drawing-rolls, substantially as set forth.

5. The combination, with the tank and its swing-cover, of the spring-actuated stripper or smoother hinged thereto, substantially as set forth.

6. The combination, with the tank, the paper-holder, and the means for drawing the paper between strippers or smoothers, of the cover, the strippers or smoothers hinged thereto, and the screws or their equivalent for adjusting the cover, substantially as set forth.

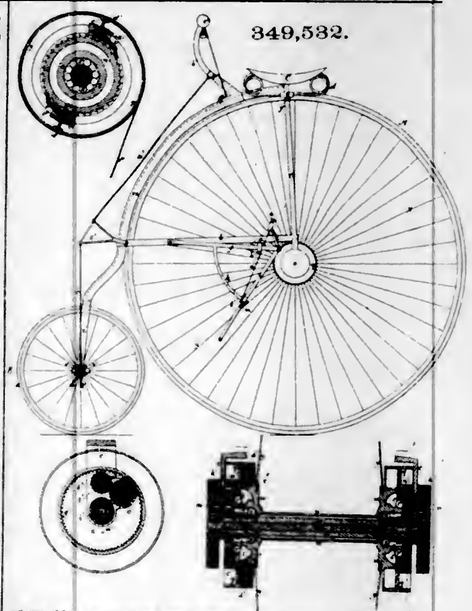
7. The combination, with the tank, the paper-holding roller or rod, and means for drawing the paper from the holding roller or rod, of the strippers or smoothers having trough-shaped upper edges and beveled lower edges, substantially as set forth.

349,532. BICYCLE. JOHN T. SLOCOMB, Hyde Park, Mass. Filed July 19, 1886. (No model.)

Claim.—1. The combination, with each foot-rest-carrying arm *f*, pivoted to the fork *b*, and with the pawl-pulley *q* and its operative band *p*, of the lever *i* and the arcal notched bar *k*, its catch *l*, and the rod *n*, all being arranged substantially and for use as set forth.

2. The combination, with the seat C and the arched bar *c*, of the springs *d*, adapted to slide in tubular bearings *e*, fixed to the arched bar and provided with set-screws, as represented.

3. The combination, substantially as described, for revolving the main wheel by means of bands attached to levers movable by the feet



349,532.

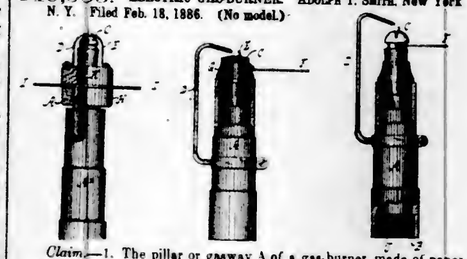
of the rider, as explained, such combination consisting of the two ratchet-wheels *u*, their connecting-tube *w*, the internal shafts, *i'* and *x*, the two pawl-pulleys *q* and their pawls, the four internal gears, *g'* and *h'*, and the five gears *m' m' n' n' o'*, all arranged and applied essentially and to operate as specified.

4. The combination of the sleeves *a'*, screwed upon the shaft *x*, with such shaft and the two connected ratchet-wheels and their two supporting series of balls, *z*, all being arranged substantially as set forth.

5. The combination, with each of the ratchet-wheels *u* and its surrounding operative pulley *p*, and the pawls *v*, applied to the latter, as set forth, of the slide-blocks *c'*, to which the pawls are fulcrumed, and the stops or pins *c'*, extending from the wheel, all being arranged substantially as represented.

6. The combination, essentially as described, for moving the steering-wheel into positions oblique to the main wheel, such combination consisting of the hand-lever b^2, rod a^2, bell-crank *s'*, fork *r'*, racks *t'*, gears *u'*, worms *v'*, curved racks *w'*, and their connecting-shaft *x'*, applied to the wheel-shaft *y'*, all being arranged and to operate substantially as set forth.

349,533. ELECTRIC GAS-BURNER. ADOLPH T. SMITH, New York N. Y. Filed Feb. 18, 1886. (No model.)



Claim.—1. The pillar or gasway A of a gas-burner, made of paper or papier-maché, substantially as set forth.

2. An insulated gas-burner having its insulating-section constructed of or from paper or papier-maché, substantially as and for the purpose specified.

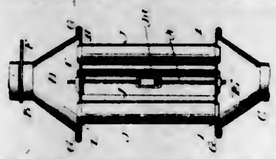
3. The combination, with a paper or papier-maché pillar or gasway, A, of a conductor, D, and a metallic gas-tip, substantially as set forth.

4. The combination, with a paper or papier-maché pillar or gasway, A, of a conductor, D, and a lava gas-tip, substantially as set forth.

5. The pillar or gasway A, made from paper or papier-maché and provided with a screw-thread, J, in combination with a conductor, D, substantially as set forth.

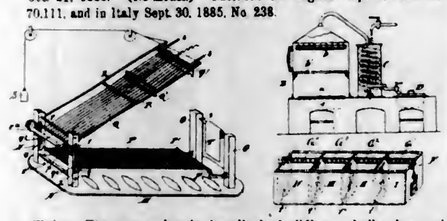
6. The pillar or gasway A, made from paper or papier-maché, provided with an electrode or electrodes, and provided with a guard-flange, I, at a point below the electrodes, substantially as set forth.

349,534. HEATING ATTACHMENT FOR STOVES. SAMUEL SMITH, Silver Lake, Ind., assignor of two-thirds to Andrew D. Houman and Henry D. Pontius, both of same place. Filed May 9, 1886. (No model.)



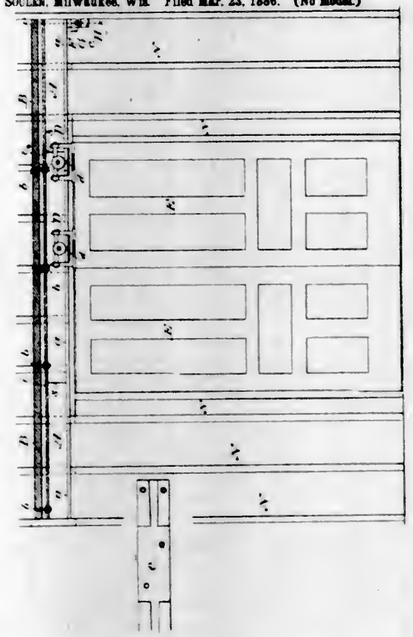
Claim.—In a heating attachment for stove-pipes, the combination of two conical chambers having pipe-sections at the apices of the chambers, and having a number of registering apertures in their bases, a number of flues having their ends tapering or conical and fitting in the apertures, and rods having right and left hand screw-threaded ends and secured at the centers of the bases of the chambers, and provided with a nut having corresponding threads fitting upon them, as and for the purpose shown and set forth.

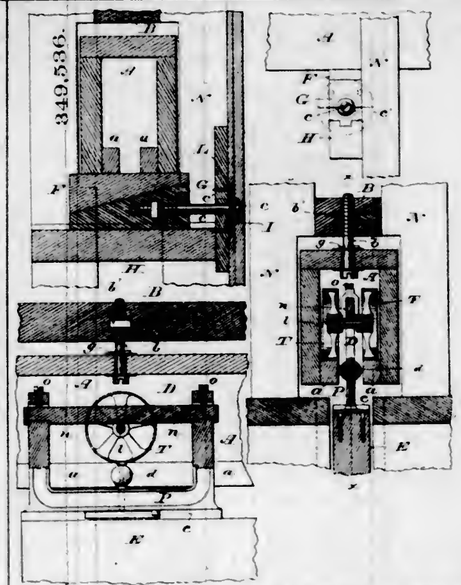
349,535. PROCESS OF RENOVATING GOLD AND SILVER LACE TRIMMINGS. ANDREAS SÖHNER, Carlsruhe, Baden, Germany. Filed Oct. 21, 1885. (No model.) Patented in Belgium Sept. 3, 1885, No. 70,111, and in Italy Sept. 30, 1885, No. 238.



Claim.—The process herein described of gilding and silvering real and imitation gold lace, the same consisting of the following steps, to wit: first, subjecting the parts to the action of steam, to soften and remove greasy and other impurities, then subjecting the articles to solutions of soda and Panama bark, to remove traces of grease, then to a solution containing hydrochloric acid, to neutralize and remove the alkali, then to a brushing with tartaric powder, then to the action of a silvering or gilding bath, and then to a final polishing, substantially as specified.

349,536. TRACK AND HANGER FOR SLIDING DOORS. HENRY SOULEN, Milwaukee, Wis. Filed Mar. 23, 1886. (No model.)





349,536.

Claim.—1. The combination, with a sliding door and hanger, of the track adjustably suspended from above, and adjusting-bolts *b b*, accessible through the opening traversed by said hanger and the upper edge of said door, substantially as and for the purposes set forth.

2. The combination, with a sliding door and hanger, of the box A, open at the bottom and adjustably suspended at the top, rails *a a*, attached to the inside of said box, and adjusting-bolts *b b*, accessible through the opening traversed by said hanger and the upper edge of said door, substantially as and for the purposes set forth.

3. The combination, with a sliding door and its hangers, of the track supported at intervals by adjusting-bolts *b b*, and at one end by adjusting-wedge G, substantially as and for the purposes set forth.

4. The combination, with a sliding door and its hangers, of the track supported at one end by wedges F and G, and adjusting-screw *c*, substantially as and for the purposes set forth.

5. The combination, with a sliding door and hanger, of the box A, open at the bottom and having transverse cuts through the top and sides, rails *a a*, secured to the inside of said box, head-piece B, provided with nuts *b' b'*, and adjusting-bolts *b b*, by which said box is suspended from said head-piece, and which are accessible through the opening traversed by said hanger and the upper edge of said door, substantially as and for the purposes set forth.

6. The combination, with a sliding door and hanger, of the track centrally suspended from above and movable laterally, substantially as and for the purposes set forth.

7. The combination, with a sliding door and hanger, of the box A, open at the bottom, centrally suspended from above, and capable of lateral movement, rails *a a*, secured to the inside of said box, and adjusting-bolts *b b*, by which said box is suspended, substantially as and for the purposes set forth.

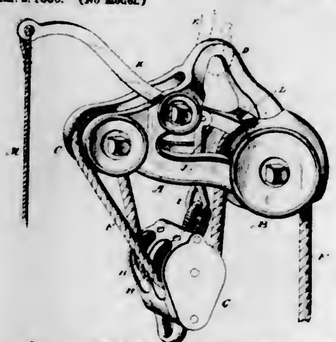
8. The combination, with a sliding door, of the vertically-adjustable track, hanger D, composed of the wheels or sheaves T T, and frame P, provided with the bearing-bar *n*, and a wedge-shaped dovetail tenon, and the attachment-plate *e*, having a similarly-shaped groove to receive said tenon, whereby said hanger is hung upon said track and rigidly secured to said door, substantially as and for the purposes set forth.

349,537. FASTENING FOR END-GATES. JOHN W. SPAFFORD, Akron, Ohio. Filed Mar. 12, 1886. (No model.)



Claim.—The combination of the frame, the catch B, having a shank which is made triangular in cross-section, and the U shaped spring, which is applied to the under side of the top of the frame, and which holds the catch in any position into which it may be adjusted, substantially as shown and described.

349,538. HOISTING DEVICE. LORENZO D SPRAGG, Marion, Ohio. Filed Mar. 2, 1886. (No model.)

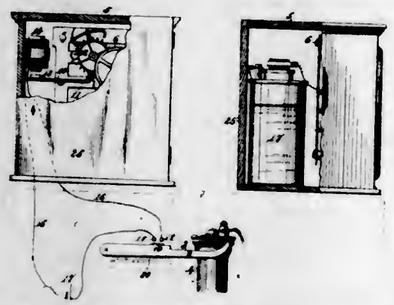


Claim.—1. In a hoisting device, the combination of a pulley or sheave, a loose pulley-block, a clamping-lever having its end bearing toward the upper edge of the pulley, and a hoisting-rope passing over the sheave and over the loose block, and secured by one end to that end of the clamping-lever nearest to said sheave, as and for the purpose shown and set forth.

2. In a hoisting device, the combination of a frame having means for suspending it, and having two pulleys or sheaves journaled in its ends, a loose pulley-block, a lever pivoted in the frame and having its ends recessed and projecting toward the upper and inner portion of one of the sheaves in the frame, and provided with a pending eyed rod, and a hoisting-rope secured to the pending eyed rod and passed under one sheave of the loose block and over one sheave of the frame, and again under a sheave of the block and over the other sheave of the frame having the end of the lever bearing against it, as and for the purpose shown and set forth.

3. In a hoisting apparatus, the combination of a frame having means for suspending it, and having two pulleys or sheaves journaled in its ends, a loose pulley-block, a lever pivoted in the frame, and having its inner end recessed and projecting toward the upper and inner portion of one of the sheaves, and provided with a pending eyed rod, and having a rope attached to its outer end, and a hoisting-rope secured to the eyed-rod and reeved over the sheaves in the frame and under the sheaves in the block, and having the inner end of the lever bearing against it, as and for the purpose shown and set forth.

349,539. TELEPHONE TIME-REGISTER. JOSEPH H. TABONY, New Orleans, La., assignor of one-half to Atwood Violett, same place. Filed Nov. 4, 1885. (No model.)

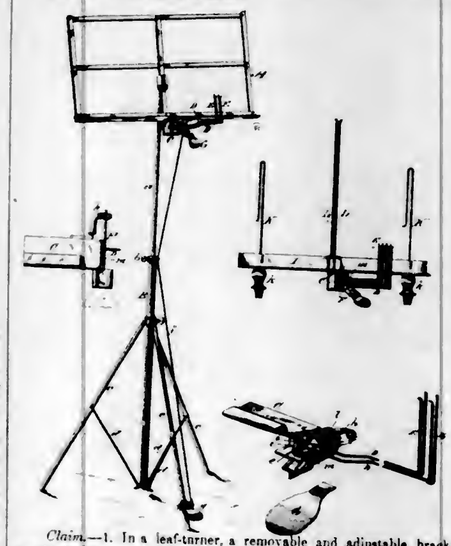


Claim.—1. The combination, with a local telephone system, of a time-keeper having a suitable prime motor, means for holding said time-keeper in an inactive state when the transmitter is not in use, and a local battery and circuit-connections for throwing the time-keeper into action when the transmitter is in use, substantially as described.

2. The combination, with a local telephone system, of a casing, a time-keeper, electro-magnet, battery, and electrically-controlled detent-lever inclosed in said casing, circuit-wires, and a cut-out lever adapted to support the telephonic receiver, substantially as described.

3. In a local telephone system, the combination of a cut-out lever having contact-plate 19, a local battery, circuit-wires having contact-plates 18, an electro-magnet located in the local-battery circuit, a clock-movement, and a detent-lever provided with an armature at one end and adapted at its other end to engage the escapement of the clock-movement, substantially as described.

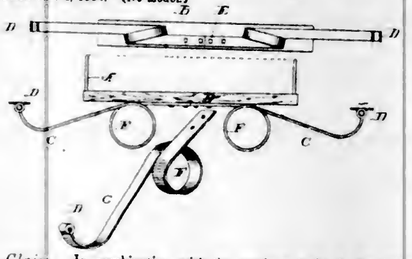
349,540. MUSIC-LEAF TURNER. JOHN VAN EPS, Somerville, N. J. Filed Apr. 20, 1886. (No model.)



Claim.—1. In a leaf-turner, a removable and adjustable bracket provided with a series of arms carrying holding devices for the leaves, and springs for automatically operating the arms, in combination with a spring-latch device pivoted to the bracket and consisting of a metal plate recessed to form a keeper to hold the arms together upon the side of the bracket, and having a cam to raise and guide the arms to the keeper, and suitable means for operating or depressing the latch, substantially as and for the purpose set forth.

2. In a leaf-turner, a suitable support provided with legs, in combination with hangers and two parallel upright rods, between which the sheet-music is held, as specified.

349,541. VEHICLE-SPRING. JOSEPH VONDRIEKA, Cincinnati, Ohio. Filed Jan. 4, 1886. (No model.)



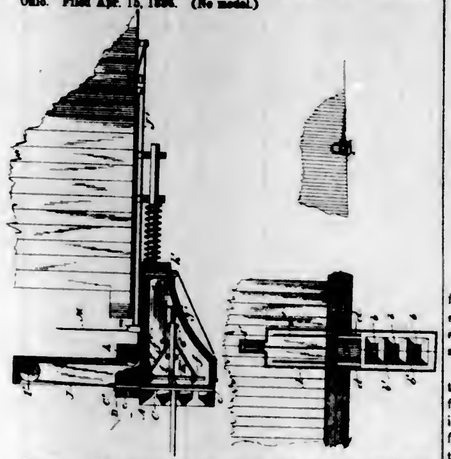
Claim.—In combination with the carriage-body A, the lateral springs C, each having a loop, F, along its horizontal length near its inner end, and each being bolted at its inner end to the carriage-body, and at its outer end, D, and in general horizontal line with the inner end, secured to the side bar, substantially in the manner and for the purpose set forth.

349,542. COMPRESSOR. CALEB WAKEFIELD, Brady, Huntingdon County, Pa. Filed Dec. 23, 1885. (No model.)



Claim.—In a shock and sheaf compressor, the combination of a cord having two knots in its intermediate portion, a ring secured to said cord at one end, and a lever secured intermediate of its length at the other, and a hook upon said cord playing freely between said knots, said ring being provided with a handle, and said lever having two lips at one end, forming a hook, and having a handle at the other.

349,543. CAR-COUPLING. GEORGE J. WALTON, Powhatan Point, Ohio. Filed Apr. 15, 1886. (No model.)



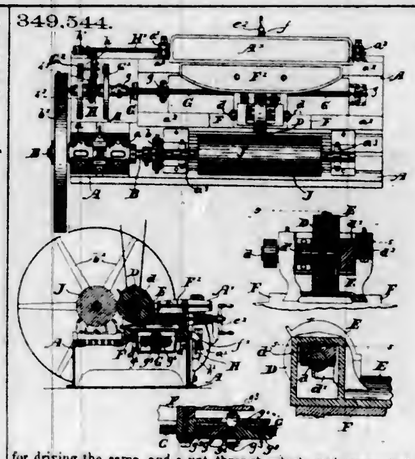
Claim.—1. The combination, in a car-coupling, of a draw-head made in two parts which interlock with each other, substantially as shown, a frame extending above said draw-head, a weighted coupling-pin, and a pin-supporting device having projecting portions *f*, substantially as shown, and for the purpose set forth.

2. The combination, in a car-coupling, of a draw-head, a pin-supporting frame journaled within said draw-head, a coupling-pin having a weight attached thereto and guide-rods for said weight and pin, and means for elevating said coupling-pin from the top or sides of the car, substantially as shown, and for the purpose set forth.

3. In combination with a car-coupler constructed substantially as described, a draw-head made in two parts and provided with interlocking portions, a pin-supporting device secured within said draw-head, and provided with a flexible connection which extends through the draw-head, for retracting the pin-supporting device from the exterior of the draw-head, substantially as shown, and for the purpose set forth.

4. In combination with a car-coupler constructed substantially as described, a frame, I, attached to said draw-head and carried thereby, pulleys *i* and *k*, journaled to the frame I, flexible connections J, J', and M, attached to a bar, L, and to a coupling-pin, substantially as shown, and for the purpose set forth.

349,544. ROLL-GRINDING MACHINE. JESSE WARRINGTON, Indianapolis, Ind., assignor of one-half to the Nordyke & Marmon Company, same place. Filed Oct. 27, 1885. (No model.)



Claim.—1. The combination, in a roll-grinding machine, of the bed-plate or frame-work having a slide-bar, A', provided with a straight flat surface, a traveling carriage mounted on ways on said frame-work, and provided with a guide-bar, F', fitted to rest against and slide upon said slide-bar, a head-block carrying the grinder mounted and transversely adjustable on said traveling carriage, and a screw-shaft for driving said traveling carriage back and forth.

2. The combination, in a grinding-machine, of the bed-plate or frame-work having inclined ways a^2, a slide-bar, A', the traveling carriage F, mounted upon said ways, and having a guide-bar resting against said slide-bar, a head-block, E, mounted and transversely adjustable on said traveling carriage, and a grinder, D, mounted in said head-block.

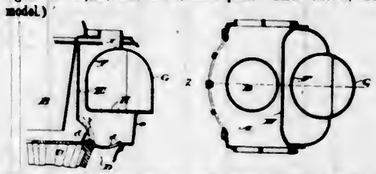
3. The combination, in a grinding-machine, of the grinder, the head-block having flat surfaces at right angles with the strain of the work and pull of the belts, and boxes having flat surfaces resting against said flat surfaces on said head-block in which the mandrel of said grinder is mounted, each set of boxes thus resisting the strain in one direction only, substantially as set forth.

4. The combination, in a roll-grinding machine, of the grinder D, having mandrel *d*, the head-block E, having flat surfaces, as described, and the boxes *d'* and d^3, independently mounted and resting against said flat surfaces, substantially as set forth.

5. The combination, in a roll-grinding machine, of the frame-work, traveling carriage mounted thereon carrying the grinder, a screw-shaft for driving the same, and a nut through which said screw-shaft passes, said nut being pivotally mounted in a bearing-block in one direction, and said bearing-block being pivotally mounted at an angle with said nut, substantially as set forth.

6. The combination, in a grinding-machine, of the frame-work, a traveling carriage mounted thereon carrying the grinder, a screw-shaft for driving the same, and a nut for said screw-shaft pivotally mounted in a bearing-block, said bearing-block being pivotally mounted in the frame of the traveling carriage and held from movement in the line of the screw-shaft by the pivoted arms g^3, substantially as shown and specified.

349,545. HEATING-STOVE. GEORGE WELLBOURN, Akron, Ohio, assignor to Taplin, Rice & Co., same place. Filed Jan. 6, 1886. (No model.)



Claim.—1. The combination, with a heating-stove having a chamber located above the fire-pot and below the top of the stove and in open communication with the fire-pot and a smoke-flue leading upwardly from beneath the fire-pot and terminating within said chamber, of an oven located within the chamber and a single damper for shutting off communication between the fire-pot and chamber, or between the flue and chamber, substantially as set forth.

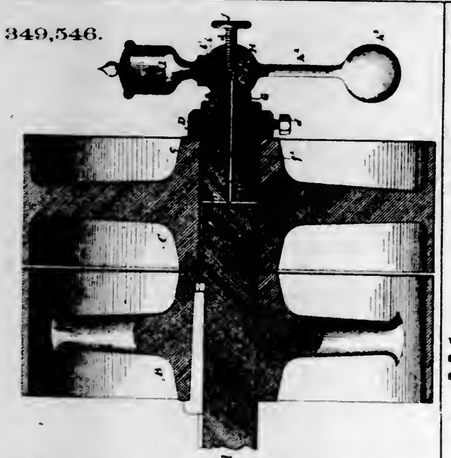
2. The combination, with a heating-stove having a chamber located above the fire-pot and in open communication therewith, the said chamber having a smoke-outlet and a smoke-flue leading upwardly and terminating in said chamber, of an oven located in said chamber below the smoke-outlet thereof, a door for closing the oven, and a single damper for shutting off communication between the fire-pot and chamber, or between the flue and chamber, substantially as set forth.

3. In a stove, the combination, with a flue extending upwardly to the top of the stove, one wall of said flue being bent, substantially as described, forming an oven, a door for closing the oven, and a fire-pot in open communication with the flue at a point below the oven, of a single damper for shutting off communication between the fire-pot and flue, or for closing the flue below the fire-pot, substantially as set forth.

349,546. DEVICE FOR OILING LOOSE PULLEYS. EDGAR J. WELLS, Ticonderoga, N. Y., assignor of one-half to Frederick Ives, same place. Filed Jan. 18, 1886. (No model.)

Claim.—1. The combination of a shaft provided with oil channels or passages *f f' f''*, and the bore *a*, having the abutment *a'*, a threaded bushing seated in the bore *a*, the fast and loose pulleys on the shaft, a tubular supply-stem having a collar, *g*, and pointed lug *g'*, adapted to bear against the abutment of the bore, a chamber-hub mounted on the stem and provided with a counterweighted arm, a movable regulating-bolt working in the hub and adjustable toward and away from the tubular supply-stem, and a reservoir secured on the hub, the whole combined and adapted to serve substantially as described, for the purpose set forth.

349,546.



2. The combination of a shaft provided with a pulley or pulleys, and having the connected axial and peripheral oil-educts, and an oil-reservoir loosely mounted directly in the shaft and adapted to be rotated therewith by frictional contact between the surfaces, whereby the centrifugal force of the shaft and reservoir generated by the revolutions thereof will automatically cut off the oil-supply from the reservoir, substantially as described.

3. The combination, with the shaft provided with the interior oil-educts, of a supply-stem loosely fitted directly in the shaft and rotating therewith, and a counterbalanced hub carried by the stem and provided with an oil-reservoir, substantially as described.

4. The combination of a shaft having the interior and peripheral oil-educts, a pulley or pulleys, a tubular stem mounted directly in and adapted to rotate with the shaft, and having its chamber or passage in communication with the oil-educts, and an oil-reservoir carried by the stem and normally held in an upright position when the shaft is at rest, substantially as described.

5. The combination of a shaft having the peripheral and the axial oil-passages, the latter having an enlarged outer end and an abutment, *a'*, a longitudinally-movable bushing fitted in the said enlarged end of the axial educts and adjustable laterally of the abutment therein, a tubular stem loosely fitted in and carried by the adjustable bushing, and a weighted hub secured on the stem and carrying an oil-reservoir, substantially as described.

6. The combination of a shaft provided with axial and peripheral oil-educts, a pulley or pulleys, a supply-stem loosely fitted directly in the axial educt of the shaft and having a conical outer end, a counterbalanced hub secured on the outer end of the stem, a reservoir carried by the hub and normally held above the plane of the educts of the shaft, and a pointed regulating-screw fitted in the hub and adjustable therein laterally of a conical end of the supply-stem, substantially as described.

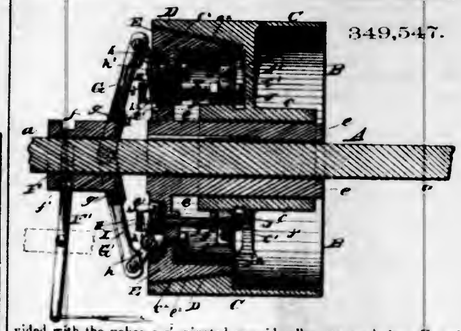
7. The combination of a shaft provided with the connected axial and peripheral oil-educts, a pulley or pulleys, a threaded bushing removably seated in the axial educt of the shaft, a supply-stem loosely fitted in the bushing, and having an annular flange bearing against the bushing to retain the stem in place, a chambered hub carried by the outer end of the stem, and an oil-reservoir mounted on the hub in communication with the chamber therein, and normally held in a vertical position above the chamber of the hub and the educts in the shaft, substantially as described.

349,547. FRICTION-PULLEY. WILLIAM W. WELLS, Sandy Hill, N. Y., assignor to himself, Harry R. Tidmarsh, and John Smith, all of same place. Filed Mar. 11, 1886. (No model.)

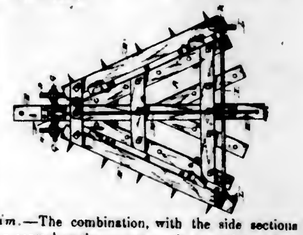
Claim.—1. The combination of the friction-block fixed upon the shaft and having a conical bearing-surface on its exterior, the pulley-shell having a corresponding interior bearing-surface, the sliding circumferentially-grooved collar controlled by a forked lever, the bifurcated arms pivoted to said collar, and the angle-bars pivoted to the outer ends of said arms and at their angles to supports projecting from the friction-block, and connected loosely at their inner ends, by means substantially as described, with the pulley-shell, so that the motion of the collar will make the shell bind on the block, substantially as specified.

2. The combination of the shaft A, the shell C, having the hub *c* and the interior conical bearing-surface, D, the friction-block E on the shaft A, having the exterior bearing-surface, *e'*, the collar F, provided with the groove *f*, the pivoted bifurcated lever F', the bars G G', provided with the yokes *g g'*, pivoted on said collar, the angle-bars H, and slotted bars I, secured to the ears J on the hub *c* of the shell C, all constructed and arranged substantially as and for the purposes specified.

349,547.

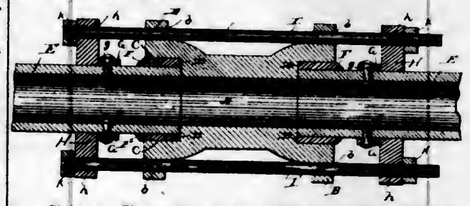


349,548. HARROW. JAMES W. WEST, Bruce, Ill. Filed Feb. 25, 1886. (No model.)



Claim.—The combination, with the side sections of a harrow, hinged to a central section so as to swing together at their forward ends, of the connecting fastenings pivoted to the respective sections at said forward ends, the cross-beams, whereby said connections are held and supported when the side sections are down, substantially as specified.

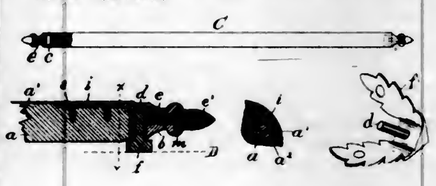
349,549. PIPE-COUPLING. LEANDER WEST, Bakersville, Pa. Filed June 5, 1886. (No model.)



Claim.—1. The combination of the sleeve having the counterbored openings in its ends with the pipes having the disks H and the collars F shrunk onto the ends of the said pipes, the said collars being adapted to enter the counterbored openings in the sleeve, and the clamping-rods connecting the disks to secure the ends of the pipes in the ends of the sleeve, substantially as described.

2. The combination of the sleeve A, having the counterbored openings C in its ends, and the end flanges, B, with the collars F, secured in the counterbores C, the pipes having their ends attached to the said collars and provided with the flanges G, the disks H on the said pipes and bearing against the said flanges, and the screw bolts or rods I, passed through openings in the said disks and in the flanges B of the sleeve, for the purpose set forth, substantially as described.

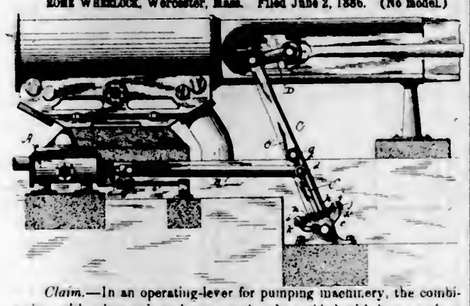
349,550. STAIR-ROD SECURER. ABRAM W. WHEATON, Newark, N. J., assignor of one-half to Matthias Wheaton, same place. Filed Mar. 11, 1886. (No model.)



Claim.—1. The combination, with a stair-rod having transverse holes near the ends and set-screws at the ends, as described, of studs projecting from the stairs, as and for the purpose set forth.

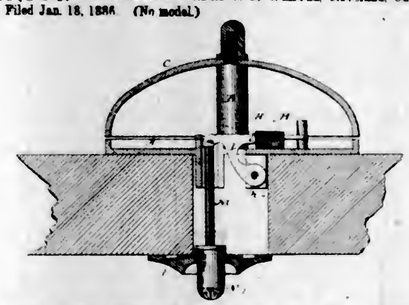
2. The combination, with a stair-rod having transverse holes near the ends and set-screws at the ends, as described, of a stud provided with an angle-plate at its foot, adapted to fit the angle between the tread and riser of the stairs, as and for the purpose set forth.

349,551. OPERATING LEVER FOR PUMPING MACHINERY. JR. ROME WHEELOCK, Worcester, Mass. Filed June 2, 1886. (No model.)



Claim.—In an operating-lever for pumping machinery, the combination, with a lever pivoted at one end and provided with lugs or wings and springs resting against the same, of an arm connected with the pump and pivoted to said lever, all operating as and for the purpose specified.

349,552. DOOR-BELL. HENRY J. P. WHIPPLE, Cleveland, Ohio. Filed Jan. 18, 1886. (No model.)



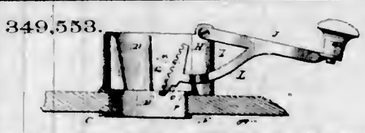
Claim.—1. The combination of the base A, the bell C, arranged thereon, the hammer-lever hung to the base and so as to swing in a plane parallel therewith, the hammer-lever constructed with an arm, F, projecting therefrom, the bell-crank lever G H, also hung to said base, so as to swing in a plane parallel therewith, the slide R, arranged in guides on the arm H, so as to be moved longitudinally toward and from the hub of the said lever, the said slide constructed with its nose *n* adapted to engage the arm F of the hammer-lever, and with a laterally-inclined projection, *r*, a bearing, *t*, on the base, against which said inclined projection is arranged to bear, substantially as described, whereby under the swinging movement imparted to said lever G H a corresponding swinging movement will be imparted to said slide, and at the same time, through the coaction of the projection *r* and the bearing *t*, a retreating movement will be imparted to said slide.

2. The combination of the base A, the bell C, arranged thereon, the hammer-lever hung to the base, so as to swing in a plane parallel therewith, the hammer-lever constructed with an arm, F, projecting therefrom, the bell-crank lever G H, also hung to said base, so as to swing in a plane parallel therewith, the slide R, arranged in guides on the arm H, so as to be moved longitudinally toward and from the hub of the said lever, the said slide constructed with its nose *n* adapted to engage the arm F of the hammer-lever, and with a laterally-inclined projection, *r*, a bearing, *t*, on the base, against which said inclined projection is arranged to bear, the dog L, hung in said base upon a pivot parallel with the plane of said base, its nose *i* arranged to bear against the said arm H, and with a projection, *m*, on its back, the push-spindle M, arranged to work against said projection *m* on the dog, and springs arranged to return the said parts to and yieldingly hold them in their normal position, substantially as described.

349,553. CORN-SHELLER. CHARLES A. WILLIAMS, Warren, Ind. Filed Apr. 30, 1886. (No model.)

Claim.—1. In a corn-sheller, the combination of a sleeve having vertical inwardly-projecting flanges and a vertical slot in one side, a

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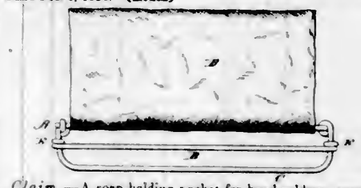


lever pivoted in said slot, the inner end of which is provided with a scraper and the outer end with a handle, and means for securing the sleeve to a board or table.

2. In a corn-sheller, the combination of a sleeve having a reduced portion, a series of vertical flanges upon its inner side, a slot in one side, and an outwardly-projecting flange at one side of said slot, a removable collar and a lever pivoted to said flange, said lever being provided with a serrated scraper at one end and a knob or handle at the other.

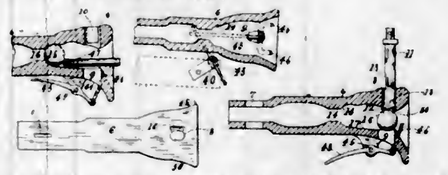
3. In a corn-sheller, the combination of a sleeve having a reduced lower portion forming a shoulder upon its inner side, and a slot in its upper portion, a lever pivoted in said slot, having a handle at its outer end, a scraper secured to the inner end of said lever, having its lower end projecting into the reduced portion of said sleeve, and a lip upon the side of said lever outside of said sleeve.

349,554. HAND-RUBBER. JAMES W. WILLIAMS, Louisville, Ky. Filed Feb 8, 1886. (Model.)



Claim.—A soap-holding pocket for hand-rubbers, consisting of a series of wire ribs separated a suitable distance from each other, bent upward and braced at their ends, and connected to a frame, to which is secured a flexible pocket, substantially as set forth.

349,555. CAR-COUPLING. WILLIAM T. WILSON, Buffalo, N. Y. Filed July 24, 1886. (No model.)



Claim.—1. In a car-coupling, a hollow coupling or draw-head having the socketed portion 14, an inclined passage for the ball, and a smaller outlet-opening to limit the forward movement of the ball, in combination with a link-pin having the bottom inclined and located so as to rest upon the ball at a point back of its center, and a means, substantially as specified, for raising the link-pin, whereby the link-pin cannot be forced down until the ball is pushed out of the way by the link, substantially as described.

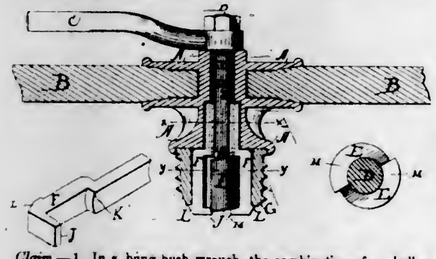
2. In a car-coupling, the rod 25 25, set loosely in bearings and provided with operating-handles and cranks united by the part 27, in combination with the supporting-piece 21, having a notch, 23, and the curved arm 19, pivoted to the piece 21 and provided with a chain connecting it with the link-pin, substantially as and for the purposes described.

3. In a car-coupling, the rod consisting of the handles, the crank portions united by the part 27 and mounted in bearings 30, in combination with the angular arm 32 33, connected by a connecting-rod to a pivoted arm, 38, having a hook-shaped end, 42, and the pivoted arm 43, having one end passed through the hook 42 and its opposite end pivoted to the forked bar 46 46, for raising the end of the link, substantially as described.

4. In a car-coupling, the draw or coupling head having the holes 8 and 9, the hole 8 being provided with a keyway and a removable key, in combination with a link-pin, 11, having the lower projecting portion, 18, whereby the link-pin is retained in its place when entered and secured by the key, so that it can neither be turned around nor withdrawn while the key is in place, substantially as described.

5. In a car-coupling, the handles for operating the parts 27, the pivoted angular arm 32 33, connected by a connection to the pivoted arm 38, having the hook-shaped portion 42, the pivoted arm 43, and the forked bar 46 46, in combination with the draw-head of a car-coupling, and a link-pin, 11, having a depression, 13, on the inner side, substantially as and for the purposes described.

349,556. BUNG-BUSH WRENCH. ANTON G. ANDERSON, Chicago, Ill. Filed Dec. 17, 1885. (No model.)

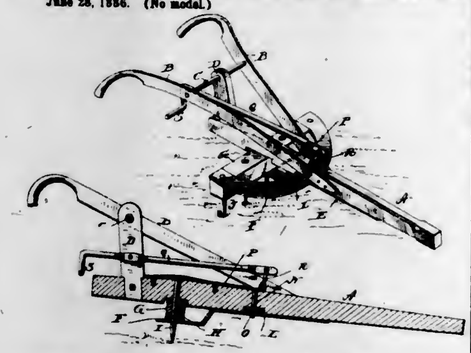


Claim.—1. In a bung-bush wrench, the combination of a shell or case, a central shaft therein, provided with cams or eccentrics at its lower end, and dogs or clasps which may both be expanded and raised by turning the shaft, substantially as described.

2. In a bung-bush wrench, the combination of a shell or case, a central shaft therein provided with cams or eccentrics with spiral inclines at its lower end, and dogs or clasps which may both be expanded and raised by turning the eccentrics, substantially as described.

3. In a bung-bush wrench, a central shaft provided with cams or eccentrics, a dog or clasp provided with shoulders or projections J and K, to bear against the upper and lower edges of the eccentrics, respectively, and the shoulder or projection L, to clasp and hold the bung-bush in place, substantially as described.

349,557. HARROW. JOHN H. ANDERSON, Jones' Valley, Tenn. Filed June 28, 1886. (No model.)



Claim.—1. In a harrow, the combination of a draft-beam having handles, a harrow-beam pivoted at its middle under the rear portion of the draft-beam, and having a semicircular bar projecting forward and formed with perforations, and a bolt fitting in a perforation in the draft-beam registering with the perforations in the semicircular bar, and having a spring for forcing it down and a foot-lever for raising it, as and for the purpose shown and set forth.

2. In a harrow, the combination of a draft-beam, a harrow-beam pivotally secured thereto, and having a forwardly-projecting perforated semicircular bar, a spring secured at one end to said draft-beam, and having a pin and a link secured to its free end, and a lever pivotally secured to the rear of said harrow, the forward end of which is secured to said link, and its rear end is bent downwardly and to one side to form a treadle.

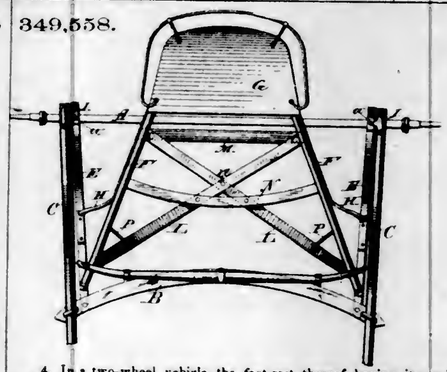
349,558. TWO-WHEELED VEHICLE. CHARLES S. BEEBE, Racine, Wis. Filed June 26, 1886. (No model.)

Claim.—1. In a two-wheel vehicle, the foot-rest thereof, having its main slats extended from front to rear, whereby a triangular space is left back of the cross-bar, and a transverse rear slat interposed between the rear ends of said main slats and the hangers, substantially as and for the purpose set forth.

2. In a two-wheel vehicle, the foot-rest thereof, having its main slats extended from front to rear, whereby a triangular space is left back of the cross-bar, and a transverse slat having its ends secured to the hangers and its central portion likewise connected to said main slats, substantially as and for the purpose set forth.

3. In a two-wheel vehicle, the foot-rest thereof, having its main slats extended from front to rear, whereby a triangular space is left back of the cross-bar, and brace-irons connecting said slats and the hangers near their front ends, substantially as and for the purpose set forth.

349,558.

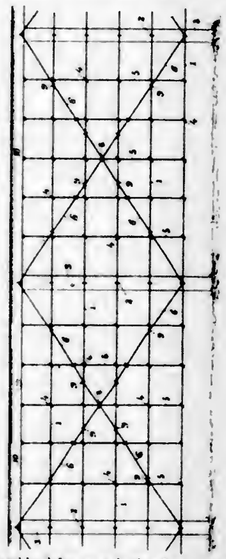


4. In a two-wheel vehicle, the foot-rest thereof, having its main slats crossing each other and extended from front to rear, and a central transverse slat secured to the hangers, and main slats near to and in front of where the latter cross each other, substantially as set forth.

5. In a two-wheel vehicle, the foot-rest thereof, having its main slats crossing each other and extended from front to rear, a central transverse slat secured to the hangers, and the main slats near to and in front of where the latter cross each other, and brace-irons connecting said main slats and hangers near their front ends, substantially as and for the purpose set forth.

6. In a two-wheel vehicle, the foot-rest thereof, having its main slats crossing each other and extended from front to rear, a transverse rear slat interposed between the rear ends of the main slats and the hangers, a central transverse slat secured to said hangers, and main slats in front of where the latter cross each other, and brace-irons connecting these main slats and hangers near their front ends, substantially as and for the purpose set forth.

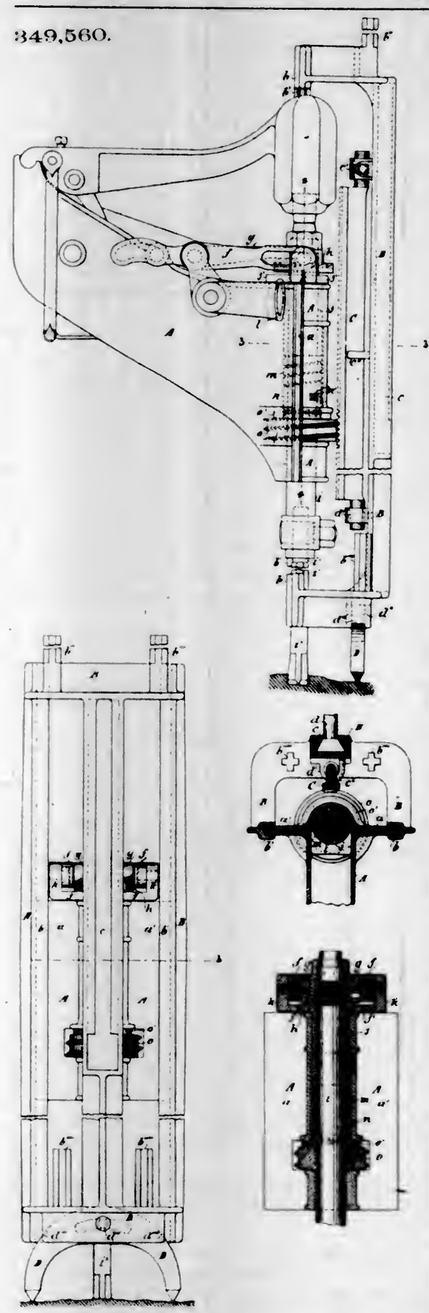
349,559. FENCE. WILLIAM BELL, Verona, Miss. Filed Apr. 7, 1886. (No model.)



Claim.—A combined frame and wire fence consisting of posts 3, having staples 2, continuous horizontal wires threaded through the post-staples, vertical wires 5, diagonal wires 6, extending from the bottom of one post to the top of the next post, and vice versa, fastenings 8, securing the crossed diagonal wires at their intersection, fastenings 9, securing the diagonal wires to the horizontal wires, and fastenings 4, securing the vertical wires and horizontal wires together, all substantially as shown and described.

349,560. ROCK-DRILL MACHINE. BROR F. BENON, New York, N. Y., assignor, by mesne assignments, to the Standard Hand Rock Drill Company, same place. Filed Feb. 6, 1885. (No model.)

349,560.



Claim.—1. In a rock-drill machine, the combination, with the supporting-frame containing two side pieces provided with guideways, and provided at top and bottom with outwardly-bowed pieces connecting the side pieces, of a rack connected with the outwardly-bowed connecting-pieces of the frame, so as to be parallel with the guideways, and a gear-wheel mounted in the sliding frame and engaging with the rack, the said rack being pivotally connected to said supporting-frame, whereby it is adapted to be thrown into or out of engagement with said gear-wheel, substantially as described.

2. In combination, the supporting-frame, the sliding frame, the rotated drill-holder, the rack connected with the supporting-frame, the gear mounted in the sliding frame and engaging with the rack, whereby the sliding frame is held stationary on the supporting-frame, caused to advance thereon, according as said gear is at rest or in motion, and mechanism interposed between said gear and the drill-holder, whereby the rotating motion of said drill-holder is communicated to said gear whenever the said drill-holder has advanced beyond a fixed point relatively to the sliding frame, substantially as described.

3. In combination, the supporting-frame, the sliding frame, the rotated drill-holder, the rack on the supporting-frame, the gear-wheel mounted in the sliding frame and engaging with said rack, and the gear-teeth interposed between said gear-wheel and said drill-holder, whereby the rotation of the drill-holder is communicated to said gear-wheel, substantially as described.

4. In a rock-drill machine, the supporting-frame adapted to rest upon the rock, the sliding frame sustaining the hammer and suitable mechanism for operating the hammer and drill, the drill-holder, the spring-pressed footbed collar encircling the drill-holder and rotating with the same, and the toothed wheel mounted in the sliding frame and adapted to engage with the supporting-frame, all combined substantially as described.

5. In a rock-drill machine, the supporting-frame adapted to rest upon the rock, the sliding frame sustaining the hammer and suitable mechanism for operating the hammer and drill, the reciprocating drill-holder rotated on its downward stroke, the piece *n*, actuated by the rotary and reciprocating motions of the drill-holder, and the piece *o*, mounted in the sliding frame and engaging with the supporting-frame, the construction and arrangement of the parts *o* and *n* being such as to adapt them to engage each other whenever the drill on its downward stroke has advanced beyond a fixed point relatively to the sliding frame.

6. In combination, the supporting-frame, the sliding frame bearing the actuating mechanism, the rotated and reciprocated drill-holder, the toothed member, as *n*, rotating therewith, and the wheels, as *o*, mounted in the sliding frame and constructed to engage both with a rack mounted on the supporting-frame and also with said toothed member *n* when the drill-holder has advanced beyond a certain point relatively to the sliding frame, all substantially as described, whereby the said wheel, when actuated by the rotation of the drill through the medium of said toothed member, is impelled to travel forward on said rack, and when not actuated by the rotation of the drill acts as a locking device between the sliding and supporting frames.

7. In combination, the supporting-frame, the sliding frame, the rotated drill-holder, the wheel mounted in the sliding frame with its plane of rotation parallel with that of the drill-holder by which it is actuated, and a worm upon the periphery of said wheel engaging with a rack on the supporting-frame, substantially as described.

8. In combination, the ratchet *h*, revolving with the drill-holder, the sleeve *j*, reciprocating with the drill-holder, the collar *n*, secured to the drill-holder, the spring *m*, interposed between the sleeve and the collar, the gear-wheel *o*, mounted on the sliding frame, and means, substantially as described, for engaging the collar *n* with the wheel *o*.

9. In combination, the supporting-frame, the sliding frame, the rotated drill-holder, the spring-pressed member *n*, connected with the drill-holder by a vertically-slotted connection, the gear-wheel mounted in the sliding frame and provided with means, substantially as described, for engaging with said spring-pressed member, and a rack on the supporting-frame for engaging with said gear-wheel, substantially as described.

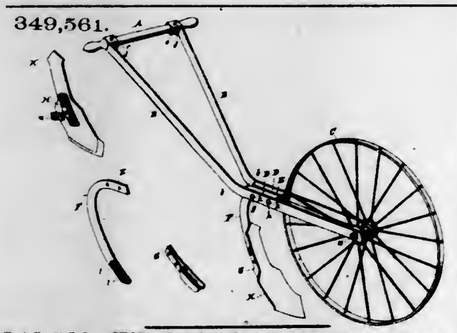
10. In combination, the supporting-frame, the sliding frame, the drill-holder, the ratchet *h*, the pawls engaging with said ratchet, whereby the drill-holder is rotated, the rack on the supporting-frame, the gear-wheel mounted in the sliding frame and engaging with said rack, and the gear-teeth interposed between said gear-wheel and said drill-holder, whereby the rotation of the drill-holder is communicated to said gear-wheel, the number of teeth on said ratchet *h* and of said interposed gear-teeth being respectively such that said two sets of teeth do not index one with another, substantially as described.

11. In combination with the supporting-frame, the double-pointed foot-piece D, held in a recess in the bottom of the frame and formed with a curved slot for the pin *d*, substantially as described.

349,561. HAND-CULTIVATOR. GEORGE H. BLACK, Buchanan, Mich., assignor of one-half to David W. Pierce, same place. Filed Mar. 29, 1886. (No model.)

Claim.—The improved hand-cultivator herein described, consisting of the bent shaft-irons parallel in their lower portions and diverging in their upper portions, which are inclined at a higher angle than said lower portions, and provided with lateral end flanges, the wooden handle secured to the said flanges, the wooden washer-blocks interposed between the bases of the diverging portions of the shaft-irons, the standard secured between the washer-blocks, and the wheel journaled between the outer ends of the parallel shaft-irons, substantially as specified.

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349,562. SHOE. JOHN BLUM, Dansville, N. Y., assignor to Gertrude Blum, same place. Filed Mar. 31, 1886. (No model.)



Claim.—The herein-described shoe, consisting of the woolen upper constituting in itself a complete foot-covering, the sole-leather sole united to the upper by stitching, as described, and the sole-leather counter pegged or otherwise attached to the top side of the sole and united to the outside of the upper by stitching around its upper edge, substantially as specified, whereby the entire interior of the shoe is left substantially smooth, as described.

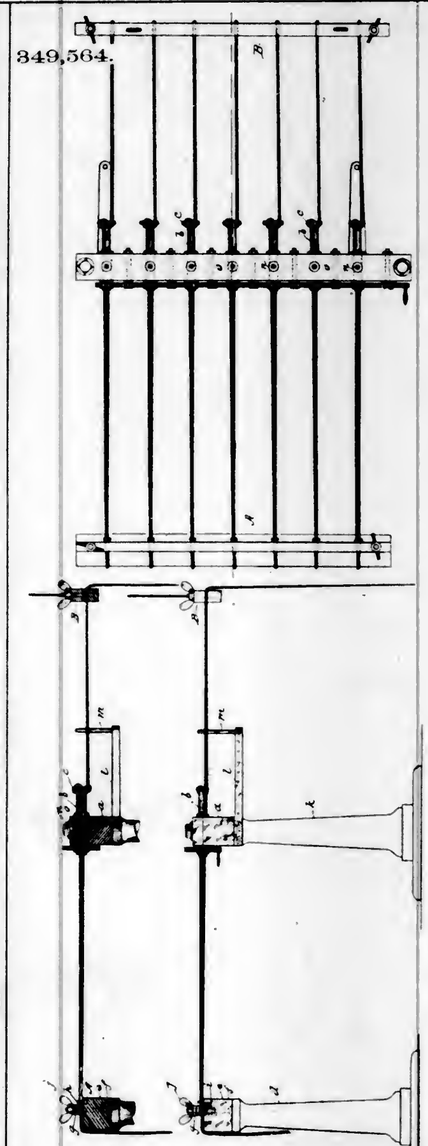
349,563. ELECTRIC MOTOR. AUGUST BOSHARD, New York, N. Y. Filed May 20, 1886. (No model.)



Claim.—1. In an electric motor, the combination of a rotary armature-shaft having pole-pieces with radial arms, a bobbin or coil of wire surrounding said shaft, a series of stationary field-magnets having cores, which form, with the armature, a closed magnetic field, and which are wound and connected in pairs by branch connections, and all connected with the armature-bobbin and a commutator, and suitable connections whereby the energizing-current is alternately directed through the different couples or pairs of field-magnets and constantly conducted in one direction through the armature-bobbin, as set forth.

2. In an electric motor, the combination, with a rotary armature-shaft having pole-pieces with radial arms, of a series of field-magnets whose coils are connected together in pairs or series, and having cores which, with the armature pole-pieces, form a closed magnetic field, said field-coils being all connected to and in common circuit with the armature-bobbins and in alternating circuit with the commutator, substantially as described.

349,564. DEVICE FOR TAPERING THE ENDS OF SHOE-MAKERS' THREADS. CHARLES K. BRADFORD, Lynnfield, Mass. Filed Dec. 5, 1885. (No model.)



Claim.—1. A device for forming tapered ends on lengths of threads, consisting of a series of rotating thread-grasping devices or guides adapted to grasp and twist the threads, the ends of which extend from both sides thereof, and two clamps or two series of clamps, said rotating devices being located at a point substantially midway between said two clamps or series of clamps, said clamps being adapted to clamp or hold the ends of thread extending from the rotating devices, whereby in the rotation of the latter the thread grasped by them may have the twist in that portion thereof between them and one of the clamps or series of clamps increased or tightened, and that portion between them and the other clamp untwisted, as set forth.

2. A device for forming tapered ends on lengths of threads, consisting of a series of rotating tubes provided at their forward ends with hooks adapted to grasp and twist the threads, the ends of which may extend from both ends thereof, and two clamps or two series of clamps, said rotating devices being located at a point substantially midway between said two clamps or two series of clamps, and said clamps being adapted to clamp or hold the ends of the thread extending from the rotating device, whereby in the rotation of the latter the thread grasped by them may have the twist in that portion thereof between them and one of the clamps or series of clamps increased or tightened, and that portion between them and the other clamp untwisted, as set forth.

3. The combination, with the bar *a* and the rotating tubes journaled therein and provided with thread-grasping devices at their forward ends, of the clamps A and B, as set forth.

4. The combination, with a series of rotating thread-grasping devices or guides adapted to grasp and twist the threads, the ends of which may extend from both sides or ends thereof, of two clamps or two series of clamps, said rotating devices being located at a point substantially midway between said two clamps or two series of clamps, and said clamps being adapted to clamp or hold the ends of thread extending from the rotating devices, whereby in the rotation of the latter the thread grasped by them may have the twist in that portion thereof between them and one of the clamps or series of clamps increased or tightened, and that portion between them and the other clamp untwisted, and one of said clamps being automatically adjustable to accommodate it to the varying length of the thread being twisted, as set forth.

5. The combination, with the series of rotating thread-grasping devices or guides adapted to grasp and twist the threads, the ends of which may extend from both sides or ends thereof, of two clamps or two series of clamps, said rotating devices being located at a point substantially midway between said two clamps or two series of clamps, and said clamps being adapted to clamp or hold the ends of threads extending from the rotating devices, whereby in the rotation of the latter the thread grasped by them may have the twist in that portion thereof between them and one of the clamps or series of clamps increased or tightened, and that portion between them and the other clamp untwisted, one of said clamps being supported by cords or like flexible devices, as set forth.

6. The combination, with the frame *a*, of the rotary tubes *b*, journaled therein, said tubes being provided with thread-grasping devices at one of their ends and adapted to receive threads therethrough, as set forth.

7. The rotary thread-tube *b*, provided with a thread-grasping device at one of its ends and adapted to receive a thread through its length, as set forth.

8. The combination, with the series of tubes *b* and their supports, of the arms *l*, provided with the pins *m*, as set forth.

349,565. OX-YOKE. CHARLES A. BROWN, Pittsfield, Vt. Filed Aug. 2, 1886. (No model.)



Claim.—1. An improved neck-yoke having its under side cut on substantially the segment of a circle, beginning at the upper rear edge of the yoke and ending in front of the middle width of the same, and continuing from the latter point in a curve of less convexity, substantially as and for the purpose set forth.

2. The combination of the connecting-bar provided with the beveled rear edge and a shoulder, and the movable yokes connected with the connecting-bar, and having a rib, *d*, bearing against the beveled side of the bar, and having the yielding surface *e*, substantially as and for the purpose set forth.

3. The combination of a slotted connecting-bar provided with the beveled rear side and a shoulder, the movable yoke having a rib working in the slot of the connecting-bar and provided with the projecting rib bearing against the beveled side of the connecting-bar, and a yielding bearing-surface, and the cap-plate secured to the rib that works in the slot of the connecting-bar, substantially as described, for the purpose set forth.

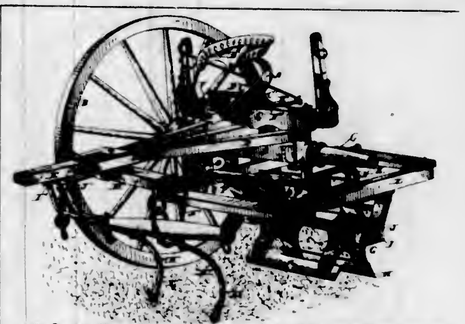
4. The combination, with a yoke having the curved under surface of the form described, of the yielding or elastic pad forming the bearing-surface, substantially as described.

5. The combination of the connecting-bar having the beveled edge, and the movable yoke secured to the bar and having the rib *d*, bearing snugly against the rear beveled edge thereof, substantially as described, for the purpose set forth.

349,566. CORNSTALK-CUTTER ATTACHMENT. GEO. B. BROWN Red Oak, Iowa. Filed Mar. 9, 1886. (No model.)

Claim.—1. In a stalk-cutting attachment for the rear portion of the running-gear of a wagon, the combination of clamps for clamping the axle and bolster, a frame having a revolving cutter, and hinged at its forward end to the lower ends of the clamps, a saddle for clamping upon the bolster, having a seat and bearings for a lifting-lever, and a lifting-lever having a chain attached to it and to the rear end of the cutter-frame, as and for the purpose shown and set forth.

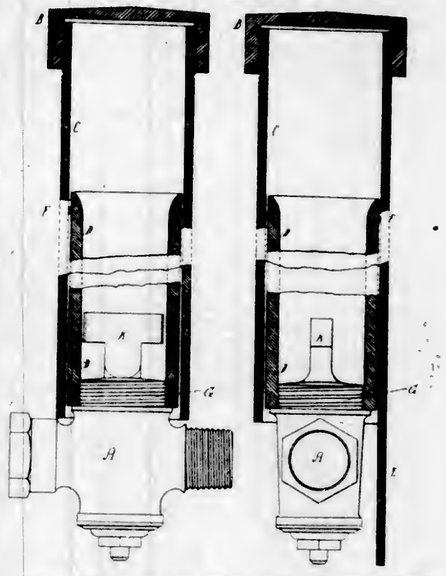
2. In a stalk-cutting attachment, the combination of a frame having a revolving cutter at its rear end, and formed with long horizontal boxes upon the upper sides of the forward ends of the side pieces of the frame, with a shaft or bar secured under the axle, and having rollers at its ends within the boxes, as and for the purpose shown and set forth.



3. In a stalk-cutting attachment for the rear portion of the running-gear of a wagon, the combination of clips formed by two upper shackles and two lower shackles having hangers upon their lower sides provided with set-screws, and bolts passing through the ends of the shackles, a shaft secured in the hangers and having rollers at its ends, and a frame having a cutter at its rear end and formed with long horizontal boxes upon the upper sides of the forward ends of its side pieces, as and for the purpose shown and set forth.

4. In a stalk-cutting attachment for the rear portion of the running-gear of a wagon, the combination of a saddle having downwardly-projecting lips at its forward and rear edges, a set-screw passing through the forward lip, and a seat secured to the upper side of the saddle, as and for the purpose shown and set forth.

349,567. BOX FOR THE STOP-COCKS OF SERVICE-PIPES. JOHN V. CLARKE, Watertown, N. Y. Filed Apr. 6, 1886. (No model.)



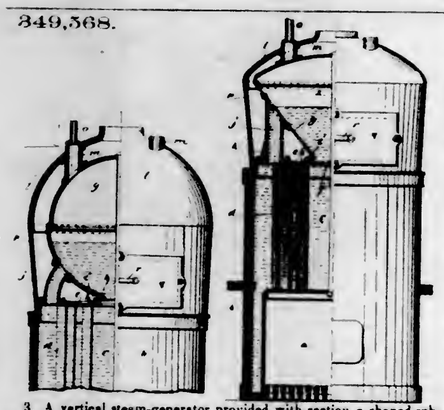
Claim.—The combination, with a service-pipe stop-cock having a tube secured to the upper side, extending upwardly therefrom, of an adjustable capped tube provided at its lower end with a downwardly-projecting lip, substantially as and for the purpose set forth.

349,568. STEAM-BOILER. JAMES W. CONNERY, Philadelphia, Pa. Filed July 20, 1886. (No model.)

Claim.—1. An upright steam-boiler having an upper section connected with the water-space by a series of passages, *f j*, and increasing in diameter as it rises from the flue-sheet, and combining the functions of a steam-generator and steam-dome, substantially as described.

2. In a vertical steam-generator having a water-space, the combined steam generator and dome connected with said water-space at its foot, and also at points on or about on a level with its greatest diameter above said foot, and of increasing diameter upward from said foot, and having suitable steam-outlets, substantially as described.

349,568.



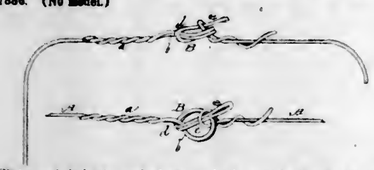
3. A vertical steam-generator provided with section *g*, shaped substantially as shown, and secured to the flue-sheet by a flange and bolts, combined with detachable pipes *j*, substantially as described.

4. In a vertical steam generator or boiler, the combination, with the jacket of the boiler and the stack-base, of a revoluble casing provided with an inlet, whereby access may be had to the interior of the smoke-chamber, substantially as described.

5. In a steam-generator, a stack-base, through which the service-pipes are passed, combined with hollow columns, upon which said stack-base is supported independent of the jacket of the boiler, substantially as described.

6. In a vertical steam generator or boiler provided with a section, *g*, deflecting plate or plates *k*, secured to the flue-sheet and inclined toward the said section, substantially as described.

349,569. BALE-TIE. LEROY COOK, Worcester, Mass. Filed Mar. 1, 1886. (No model.)



Claim.—A bale-tie made from a single strand of wire having one end left plain and the other end doubled and twisted, and having formed thereon the double wire loop *c*, and the extreme double end bent across the loop to form a locking-tongue, the plain end being adapted to be passed through the loop over the tongue, and then back across the loop and tongue, and twisted around the band to fasten the tie to the bale, substantially as and for the purpose set forth.

349,570. WEIGHING-SCALE. MOSES G. COOK, Ashfield, Mass. Filed Mar. 29, 1886. (No model.)

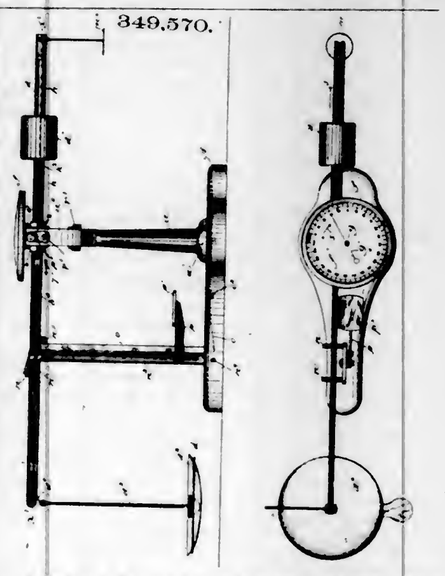
Claim.—1. In a scale, the beam having one of its arms threaded and provided with a slot, a threaded sleeve mounted on said arm, a dial, a co-operating pointer, and a support for said pointer, combined with means, substantially as described, independent of the threaded arm and traveling in the slot, to connect said sleeve and support, whereby changes of position of said sleeve with relation to the threaded arm may be indicated on said dial, as and for the purpose set forth.

2. In a scale, the beam having one of its arms threaded and provided with a slot, and a threaded sleeve mounted on said arm, combined with a dial, a co-operating pointer, a support for said pointer, and with the chain *h* and bar h^3, connecting said support and sleeve and traveling in said slot, as and for the purpose set forth.

3. The threaded arm *d*, provided with a slot, a threaded sleeve mounted on said arm, the chain *h*, and bar h^3, movable in said slot, combined with a hub connected to said chain and adapted to be rotated to move a pointer over a dial when the sleeve is moved in one direction, and with means, substantially as described, to rotate said hub and move the pointer over the dial in a contrary direction when the sleeve is moved in an opposite direction, substantially as described.

4. The base A, the upright n^3, and the lever n', pivoted to said upright and provided with studs *n*, located above and below the scale-beam, combined with the scale-beam, and with means, substantially as described, to turn said lever on its pivot to remove said studs from contact with the said beam, and with means, substantially as described, to cause the said studs to engage said beam and bring it to rest, substantially as and for the purpose specified.

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5. The base A, the upright n^3, and the lever n', pivoted to said upright and provided with studs or projections *n*, located above and below the scale-beam, combined with the scale-beam and with the link *o*, the lever *p*, provided with the finger-plate *p'*, by depressing which said studs are removed from contact with the scale-beam and said beam permitted to oscillate, and with the spring *o'*, acting on the link *o*, to turn the lever n' on its pivot, to cause the studs to engage with the scale-beam to bring the same to a state of rest when the pressure is removed from the plate *p'*, substantially as described.

6. In a scale, the beam provided with the threaded arm *d*, having a portion of its circumference cut away or made flat, and a block to support the said beam, and through which it is extended, combined with nuts 3 4, to adjust the length of the arms of the said beam, substantially as described.

7. In a scale, the beam having one of its arms threaded and provided with a slot, a threaded sleeve mounted on said arm, a dial, a co-operating pointer therefor, and a support for said pointer, combined with means, substantially as described, independent of the threaded sleeve and traveling in the slot, to connect said sleeve and support and rotate the latter, and move the pointer over the dial when the sleeve is moved in one direction, and with means, substantially as described, to rotate said support in an opposite direction when the sleeve is moved in a contrary direction, substantially as specified.

349,571. COMBINED LATCH AND LOCK. FRANKLIN T. DAVIS, Mount Vernon, assignor to himself, and Augustus P. Rockwell, East Chester, N. Y. Filed June 10, 1886. (Model.)

Claim.—1. The combination, with the latch D, the tumbler G, the swinging catch I, and a key formed to actuate both the tumbler and the catch, of the spindles E E', each constructed to actuate the latch independent of the other, substantially as described.

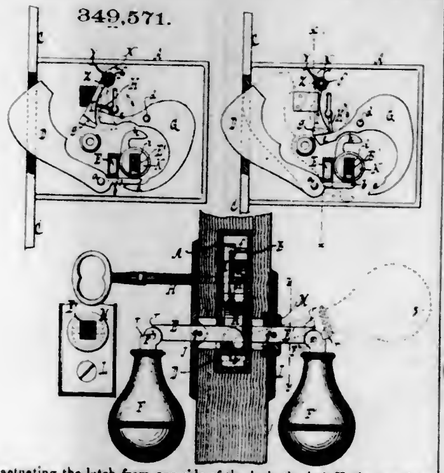
2. The combination, with the latch D, the spindle E, the tumbler G, the swinging catch I, and a key formed to actuate both the tumbler and the catch, of the hub K, the rotating hook *h*, constructed to engage the latch, and the spindle E', constructed to operate said hook, substantially as described.

3. The combination, with the latch D, of the hub K, the rotating hook *h*, constructed to engage said latch, the sectional spindle E', constructed to rotate said hook, the hinged connections between the sections of said spindle, and the shoulders *r*, substantially as described.

4. The combination, with the pivoted latch D, provided with a tail, *b*, of a pivoted tumbler, G, carrying on one side of its pivot a finger, *c*, constructed to engage said tail, and on the opposite side of its pivot an arm, *e*, a swinging catch, I, adapted to engage said arm, a key formed to actuate both the tumbler and the catch, and means, substantially as described, for actuating said latch, substantially as shown and described.

5. The combination, with the pivoted latch D, provided with a tail, *b*, of a pivoted tumbler, G, carrying on one side of its pivot a finger, *c*, constructed to engage said tail, and on the opposite side of its pivot an arm, *e*, a swinging catch, I, adapted to engage said arm, a key formed to actuate both the tumbler and the catch, means, substantially as described,

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for actuating the latch from one side of the lock, the hub K, the rotating hook *h*, and the spindle E', constructed to operate said rotating hook and constructed to actuate the latch from the other side of the lock, substantially as shown and described.

6. The combination, with the latch D, of the hub K, carrying the hook *h*, the pivoted lever-spindle E', constructed to rotate said hook and to actuate the latch, and the thimble M, carrying said spindle, substantially as described.

349,572. MANUFACTURE OF INCANDESCENTS. ROBERT DICK, Glasgow, Scotland. Filed Apr. 30, 1886. (No specimens.) Patented in England Mar. 10, 1885, No. 3,115.

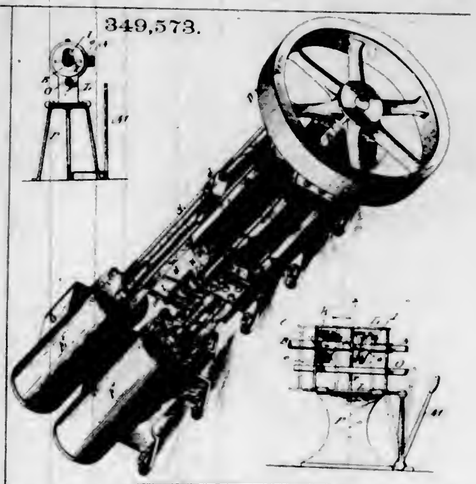
Claim.—1. The mode herein described of making carbon filaments for incandescent electric lamps, said mode consisting in compressing the fibrous or other material within ductile tubes, carbonizing the material within the tubes, and finally removing the latter, substantially as set forth.

2. As an improvement in the manufacture of carbon filaments for incandescent electric lamps, the mode of preparing the filaments by compressing the fibrous or other material within metal tubes and carbonizing the said material within the tubes under compression, as set forth.

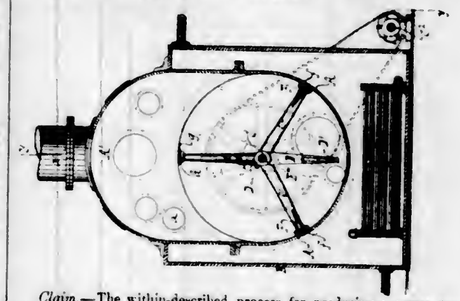
3. The mode herein described of making carbon filaments for incandescent electric lamps, said mode consisting in drawing ductile metal tubes over the fibrous or other material to compress the latter, carbonizing the material within the tubes while under compression, and finally removing the tubes after carbonization by acids, electrolysis, or melting, substantially as specified.

4. The herein-described article for the manufacture of carbon filaments for incandescent lamps, consisting of carbonized fibrous or similar material compressed within a ductile metal tube, as set forth.

349,573.

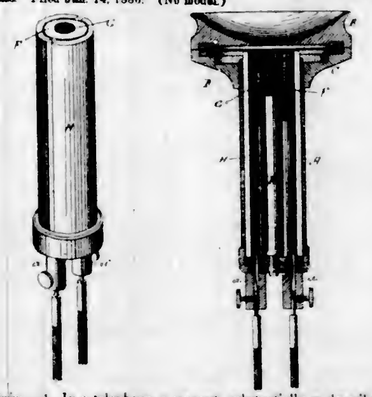


349,574. PROCESS OF PRESERVING MILK. ROBERT ELLIN, Yonkers, N. Y. Filed June 10, 1886. (No model.)



Claim.—The within-described process for producing a coarse dry powder composed of a mixture of milk and sugar, which process consists in mixing the milk with sugar in suitable proportions, and then evaporating the mixture to dryness *in vacuo* at a temperature below 140° Fahrenheit under constant agitation and comminution.

349,575. TELEPHONE-RECEIVER. LORENZO S. FAIRBANKS, Boston, Mass. Filed Jan. 14, 1886. (No model.)



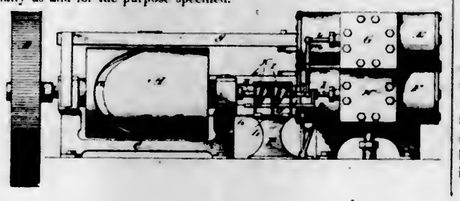
Claim.—1. In a telephone, a magnet, substantially as described, in the form of a hollow cylinder closed at one end and slit from the open end to the base, for the purpose set forth.

2. In a magneto-electric telephone, in connection with a diaphragm, the combination of a magnet made in the form of a hollow cylinder closed at one end and slit longitudinally from the open end to the base, with a bar-magnet having a soft-iron pole-extension, preferably a bundle of fine iron wires, surrounded by a coil of insulated wire fixed centrally between

349,578. STEAM-ENGINE. JOHN B. EADS, Mattoon, Ill., assignor of one-half to Charles E. McClure, same place. Filed Apr. 6, 1886. (No model.)

Claim.—1. In a steam-engine, two steam-cylinders and steam-chests connected together, in combination with a cylinder having a continuous spiral groove and mounted on a rotary shaft, means for connecting the piston-rods of the steam-cylinders with the groove, and a shifting mechanism constructed and operating substantially as shown, and connecting the rotary shaft with the valve-stems, substantially as and for the purpose set forth.

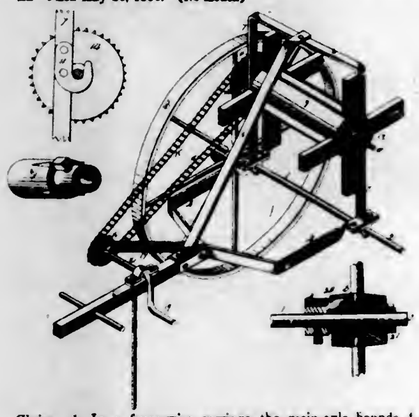
2. In a steam-engine, blocks having grooves on their periphery and pivoted to the main shaft of the engine, as shown, whereby they will have a rocking motion thereon, in combination with rods connected to the valve-stems and provided with pins to engage with the grooves on the blocks, and a shifting frame for operating the blocks, substantially as and for the purpose specified.



the poles of said cylindrical magnet, whereby a strong external magnetic field is produced around the central magnet, substantially as and for the purposes described and set forth.

3. In a magneto-electric telephone, in connection with a diaphragm, a horseshoe-magnet having its pole terminating in the form of sections of a hollow cylinder, combined with a bar-magnet surmounted by a helix and core, the latter being fixed axially between the poles of the former, to produce a strong additional magnetic field around the pole of the central magnet, substantially as and for the purposes described and set forth.

349,576. **FENCE-WIRE CARRIAGE.** ROBERT FALCONER, Rockford, Ill. Filed May 26, 1886. (No model.)



Claim.—1. In a fence-wire carriage, the main-axle bounds 4 4, bent, as described, to form a horizontal frame, and connected both to the axle and the tongue, the vertical frame mounted on said axle, a reel hung in bearings in said frame, and means for rotating said reel, substantially as described.

2. In a fence-wire carriage, the main-axle bounds 4 4, bent, as described, to form a horizontal frame, and connected both to the axle and the tongue, the vertical frame mounted on said axle, a shaft hung in bearings in said frame, means for rotating said shaft, and externally-threaded bushings adjustably secured upon said shaft and adapted to engage the eyes in the head ends of the reel, substantially as set forth.

3. The combination of the reel, reel-shaft and frame supporting said shaft and provided with closed and open bearings, the sprocket-wheel fixed on the shaft-support of the reel adjacent to the open bearing, a sprocket-wheel fixed on the crank-shaft, and a chain belt connecting the sprocket-wheels, substantially as and for the purpose set forth.

349,577. **BUGGY-BED.** JOHN C. FIGG, Barry, Ill. Filed June 2 1886. (No model.)

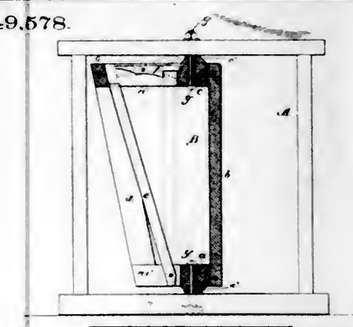


Claim.—The seat secured to the side springs of a vehicle, the foot-rest secured to said seat, the brace-rods connected to the rear board of said foot-rest and the under side of the vehicle-seat and to the horizontal board, respectively, and the flat braces, substantially as shown and described.

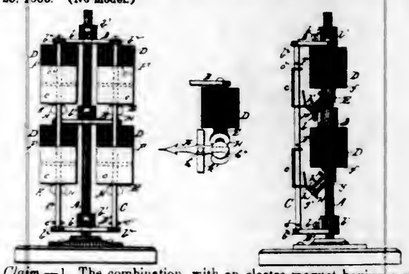
349,578. **STANCHION.** THOMAS G. FLEMING, Hanover, Ohio. Filed Mar. 6, 1886. (No model.)

Claim.—A stanchion comprising the bars *n n'*, the head-block *c*, fitted between the bars, in combination with the bars *m m'*, the block *a*, fitted between the bars *m m'*, both of said blocks *a c* being extended outward from their respective bars, and having holes for the passage of pivotal bolts, the vertical bar *b*, connecting one end of the bars *m m' n n'*, the rigid brace-bar *d*, connecting the other end of bars *m' n'*, the latch-bar *e*, pivoted at its lower end between the bars *m m'* and working at its upper end between the bars *n n'*, and a latch, *f*, engaging with the latch-bar *e* and resting upon the head-block *c*, as set forth.

349,578.



349,579. **ELECTRIC ANNUNCIATOR.** JOHN GEARY, Philadelphia, Pa., assignor of one-half to J. Elliott Shaw, same place. Filed Nov. 25, 1885. (No model.)



Claim.—1. The combination, with an electro-magnet having a pin of diamagnetic material projecting from its core, of an armature fitted on said pin and adapted to slide thereon, substantially as shown and described.

2. The combination, with an electro-magnet having a pin of diamagnetic material attached to its core and projecting therefrom at an acute angle to the axis of said core, of an armature fitted on and constructed and adapted to slide upon said pin, substantially as shown and described.

3. The combination, with an electro-magnet having a projecting core with beveled end and a pin of diamagnetic material fastened in such end, of a sliding armature on said pin and a drop or slide for which said armature forms a support, substantially as shown and described.

4. In an electric annunciator, the combination of an electro-magnet, a sliding armature fitted on a pin projecting from the core of said magnet, and a drop, plate, or indicator supported or held in position by said armature when the magnet is de-energized, substantially as shown and described.

5. In an electric annunciator, the combination of a vertical post and magnet-supporting brackets mounted thereon, said brackets having central hubs through which the post passes, and arms to which the magnets are affixed, substantially as shown and described.

6. The combination, in an electric annunciator, of a post and brackets secured to said post, said brackets having arms on which magnets are sustained, with guide-rods secured to said brackets, substantially as described and shown.

7. In an electric annunciator, the combination, with a vertical post, of a magnet-supporting bracket secured to and adjustable on said post, substantially as shown and described.

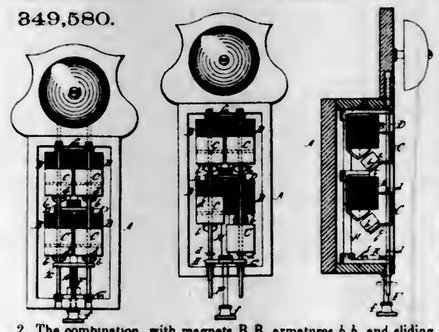
8. In an electric annunciator, the combination of vertical posts, brackets mounted on said posts, magnets fastened to said brackets having their cores vertical, pins projecting obliquely from the cores of said magnets, sliding armatures supported on said pins, guide-rods fastened in said brackets, and drops or indicators on said guide-rods and upheld by said armatures when their magnets are de-energized, said parts being constructed and combined for operation substantially as shown and described.

9. The combination, with a magnet having a pin, *g*, projecting obliquely from its core, and drop or indicator *c*, of sliding armature H, having beveled rim on which said drop or indicator rests when the magnet is de-energized or inert, substantially as shown and described.

349,580. **ELECTRIC ANNUNCIATOR.** JOHN GEARY, Philadelphia, Pa. Filed Mar. 6, 1886. (No model.)

Claim.—1. In an electric annunciator having sliding drops, the combination, with such drops, of vertically-movable rods, which form guides and lifts for such drops, substantially as shown and described.

349,580.



2. The combination, with magnets B B, armatures *b b*, and sliding drops C C, of a vertically-movable rod, D, having pins or stops *d d*, said rod forming a guide and lift for said drops, substantially as shown and described.

3. The combination, in an electric annunciator, of magnets B B, armatures *b b*, sliding drops C C, vertically-movable guide and lift rods D D, having pins or stops *d d*, cross-piece E, connecting said rods, and push-rod F, said parts being constructed and arranged for operation substantially as shown and described.

349,581. **WRENCH.** HENRY W. GETMAN, Ilion, N. Y. Filed July 7, 1886. (No model.)

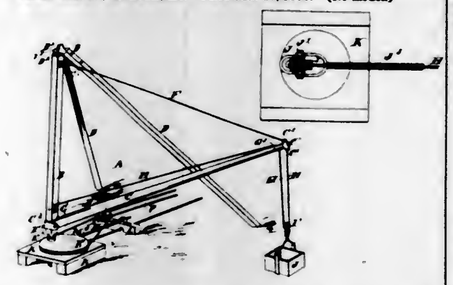


Claim.—1. The combination, with the lever or arm, the eye or bridle, and the bracket having the cross-bar, of the lever having shoulders and serrations, and the spring actuating said lever, substantially as shown and described.

2 The lever having serrations at its lower inner end and overhanging flanges on its outer portion, and the spring secured by said flanges, as shown and described.

3. The combination, with the eye or bridle having an enlarged or flanged portion, and the projection or bracket having the cross-bar, of the lever fulcrumed on said cross-bar, and the spring secured at one end to said lever and resting against its lower end, substantially as shown and described.

349,582. **AUTOMATIC DERRICK AND CRANE PLATFORM.** MICHAEL GIBBONS, St. Louis, Mo. Filed Jan. 27, 1886. (No model.)



Claim.—1. In a derrick or crane, the combination of the mast B, with ball-and-socket joint working in turn-table E, boom C, pivoted in clip-band C³, stiff guys D D, with the stay-brace F, and hoisting-cable H, all substantially as described, and for the purpose set forth.

2. In a derrick or crane, the combination of the mast, boom, stiff guys, stay-brace, and hoisting-cable, the mast stepped by a universal joint in a turn-table, which is turned by endless belts M P, engaging in sheaves O N, and with a band-wheel on the operating engine, and arranged as the table turns to automatically adjust the boom and its freight to accord relatively with the points of unlading and delivery, all substantially as described, and for the purpose set forth.

3. In a derrick or crane, the combination of the mast, boom, stiff guys, stay-brace, hoisting-cable, and turn-table arranged to automatically change the position of the mast with its boom and give lateral movement to the freight from over the place of unlading to that of delivery, all substantially as described, and for the purpose set forth.

4. The combination of a mast, B, having a ball-and-socket connection eccentrically with a turn-table at the lower end and stationary pivotal connection at the upper end, a boom connected by one part to the lower part of the mast, and having its other end connected to the upper part of the mast by a stay, substantially as F.

5. The combination of a turn-table, a mast having universal-joint connection eccentrically on the block and fixed pivotal connection at the upper end, a boom connected to the mast, substantially as set forth, and a hoisting-cable working on the boom.

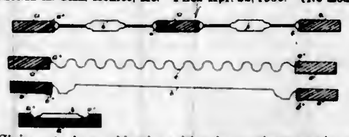
6. The combination of the turn-table, a mast having universal-joint connection eccentrically thereon, a hoisting-cable passing centrally through the joint and having bearing on the boom, substantially as and for the purpose set forth, as described.

7. The combination of the turn-table E, with crane-mast having eccentric universal-joint connection therewith, a hoisting-cable passing under a sheave whose housing is turnable upon the table, and a guide-arm, J³, operating to hold the sheave in line with the horizontal part of the cable in all positions of the turn-table, substantially as set forth.

8. In a derrick or crane, the combination of the mast stepped by a ball-and-socket joint in a turn-table, with the hoisting-cable passing round an adjustable sheave, J, with a steady-rod, J³, working in the circumlinear slots of a bearing-box on a ground-block, the table operated by endless belts and sheaves in connection with a band-wheel on the engine, and arranged as the table rotates to move the boom and its load laterally from the place of unlading to that of delivery, all substantially as and for the purpose set forth.

9. The combination of an inclined mast having at its lower end a ball-and-socket connection eccentrically with a turn-table and stationary pivotal connection to stiff guys at its upper end, and a boom with pivotal connection to the mast at its lower end and adjusted by a stay-brace at its upper end, the turn-table operated by gearing from the engine and arranged to automatically turn the mast and boom and carry the suspended freight laterally from over the place of unlading to that of delivery, all substantially as described, and for the purpose set forth.

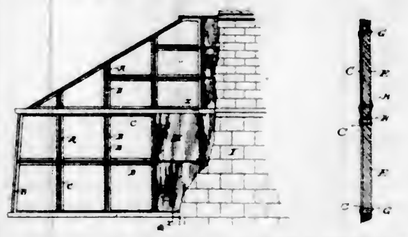
349,583. **METALLIC PANEL FOR DOORS AND OTHER USES.** GEORGE M. GILL, Merico, Mo. Filed Apr. 22, 1886. (No model.)



Claim.—1. In combination with a door, a sheet-metal panel flanged entirely round its edges and made of a single piece and held in place by grooves about the opening in which the panel is set, substantially as described.

2. In combination with a solid back and moldings grooved or recessed on their inner faces and properly secured in place, a metal panel flanged about its entire edge and made of a single piece, all substantially as described.

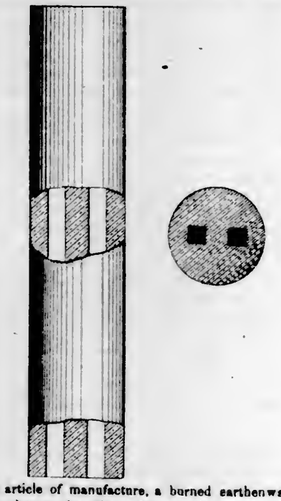
349,584. **MANSARD ROOF.** CHARLES C. GILMAN, Eldora, Iowa. Filed Jan. 25, 1886. (No model.)



Claim.—1. A Mansard roof constructed of an iron frame-work and blocks or panels of porous terra-cotta secured to said frame-work by clinched nails passing through said blocks and through flanges of said frame-work, substantially as described.

2. A Mansard roof constructed of an iron frame-work, blocks or panels of porous terra-cotta fitted in said frame-work, nails passing through said frame-work and blocks and clinched, and an outer covering of slate, substantially as described.

349,585. POROUS EARTHENWARE PRODUCT WITH STRENGTHENING-CORES. CHARLES C. GILMAN, Eldora, Iowa. Filed June 21, 1886. (No model.)

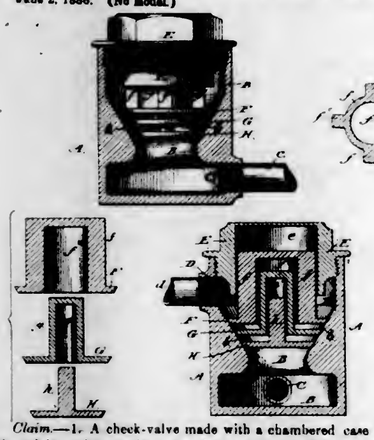


Claim.—1. As an article of manufacture, a burned earthenware product obtained from a mixture of earthy and vegetable matters, and having an iron core or cores held therein and engaging the pores of the material, substantially as described.

2. As an article of manufacture, a burned earthenware product obtained from a mixture of earthy and vegetable matters and strengthened by an iron rod or rods closely united thereto, in a manner substantially as described.

3. A column or girder consisting of a burned earthenware product obtained from a mixture of earthen and vegetable matters, having one or more strengthening-cores united to the material by casting, substantially as described.

349,586. CHECK-VALVE. ADAM D. GLAGE, Rocklin, Cal. Filed June 2, 1886. (No model.)



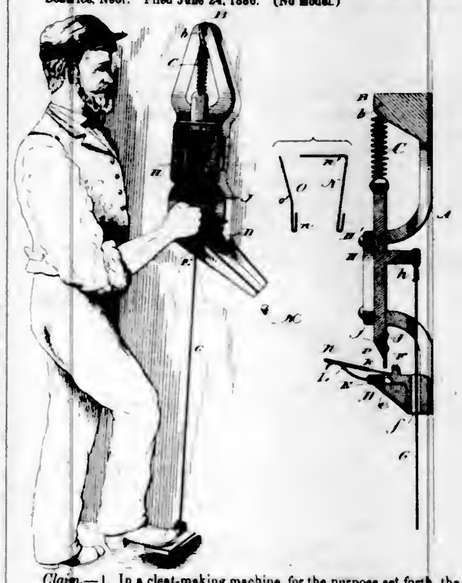
Claim.—1. A check-valve made with a chambered case provided with an inlet and an outlet, a tapering seat arranged between the inlet and outlet, and two or more valve-disks guided in the case and adapted to the tapering seat thereof, substantially as described, for the purposes set forth.

2. A check-valve made with a chambered case provided with an inlet and an outlet, a tapering seat arranged between the inlet and outlet, a recessed removable cap or plug fitted to the case, and two or more valve-disks, one having a hollow stem fitted to slide in the cap, and the stems of the valve-disks fitting loosely into each other, and said disks adapted to the tapering seat of the valve-case, substantially as described, for the purposes set forth.

3. The combination, in a check-valve, of a chambered case, A, provided with a tapering seat, *b*, an inlet, C, and an outlet, D, a removable cap, E, recessed at *e*, a disk, F, having a hollow stem, *f*, provided with ribs *f'*, and fitted in the cap-recess *e*, and an auxiliary disk, as at G, fitted by its stem *g* in the stem of disk F, said disks F G adapted to the tapering seat *b* of the valve-case, substantially as described, for the purposes set forth.

4. The combination, in a check-valve, of a chambered case, A, provided with a tapering seat, *b*, an inlet, C, and an outlet, D, a removable cap, E, recessed at *e*, a disk, F, having a hollow stem, *f*, provided with ribs *f'*, and fitted in the cap-recess *e*, a disk, G, having a hollow stem, *g*, fitted in the stem *f* of disk F, and a disk, H, having a stem, A, fitted in the stem *g* of disk G, and said disks F G H adapted to the tapering seat *b* of the valve-case, substantially as described, for the purposes set forth.

349,587. MACHINE FOR MAKING CLEATS. CHARLES J. HAGER, Beatrice, Nebr. Filed June 24, 1886. (No model.)

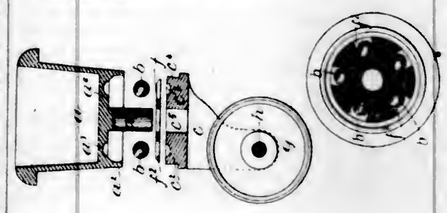


Claim.—1. In a cleat-making machine, for the purpose set forth, the combination, with the frame A, having a slotted base, D, of a reciprocating plunger which is adapted to bend one end of the cleat, and also to bend its body portion at an angle, substantially as shown, and for the purpose set forth.

2. In a cleat-making machine, the casting A, having a central projecting portion which serves as a guide for a reciprocating plunger, a bed-plate, D, having a transverse slot, *e*, and upwardly-projecting portion F, in combination with a plunger having a plate, J, and an angular portion located adjacent thereto, substantially as shown, and for the purpose set forth.

3. In a cleat-making machine, for the purpose set forth, the casting A, having a central projecting portion, plate H', attached thereto so as to form a guide for a reciprocating plunger, a retracting-spring attached to the upper portion of the frame and to the plunger, a base portion having a transverse slot, upwardly-projecting stop F, and a platform, in combination with the plunger having a plate, J, secured to its lower end, and an angular projecting portion on one side of the plate for bending the body portion of the cleat, substantially as shown.

349,588. FURNITURE-CASTER. JOHN R. HARGROVE, Sparkbrook, County of Worcester, England. Filed July 21, 1886. (No model.) Patented in England Aug. 13, 1885, No. 9,639; in France June 22, 1886, No. 164,170; in Belgium June 23, 1886, No. 54,370, and in Germany July 1, 1886, No. 4,692.

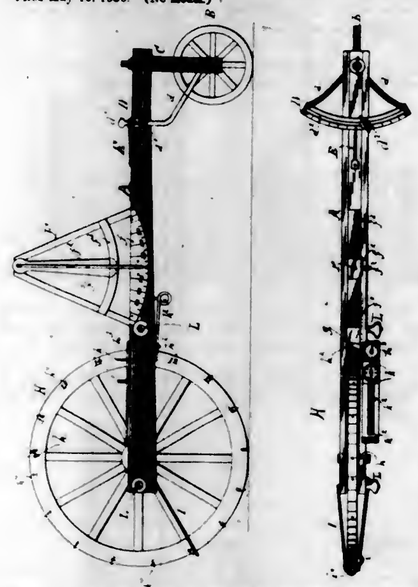


Claim.—In a furniture-caster, the combination, with the socket *a*, having the central depending peg, a^2, the depending circumferential flange a^3, and the concave annular groove a^4, of the horn-plate c^3, carrying the caster-wheel *g*, having the central opening, c^4, the shoulder or offset c^2, and the concave annular groove c^5, the anti-friction spheres *b*, located in the grooves a^4 c^5, and the guide-plate *f*, having radial kerfs f^2, embracing said spheres, the caster-wheel *g* being arranged, substantially as described, in vertical line with one of the balls or one side of the grooves a^4 c^5, as and for the purpose set forth.

349,589. TANNING PROCESS. GEORGE W. HERSEY, Empire, Wis. Filed Dec. 21, 1885. (Specimens.)

Claim.—The herein-described process of tanning leather, which consists, first, in placing the hide in a liquor consisting of lye and salt; second, adding ashes or bran until the hair starts; third, adding more bran; fourth, in placing the hide in a liquor consisting of salt, alum, borax, saccharine matter, French ocher, and water, substantially as and for the purpose set forth.

349,590. INSTRUMENT FOR MEASURING LENGTHS, GRADES, AND DIRECTIONS OF LINES. LUTHER R. HOLLINGSWORTH, Bennet, Ark. Filed May 18, 1886. (No model.)



Claim.—1. In a surveying and measuring instrument, as above described, the combination of the beam A, wheel B, journaled in fork C, fork C, pivoted in beam A, quadrant D, having the arms *d* and slot d', thumb-screw d^2, finger E, wheel H, journaled in the rear end of said beam A, and the surveyor's compass K, substantially as shown and described, and for the purposes set forth.

2. In a surveying and measuring instrument, as above described, the combination, with the wheel B, fork C, quadrant D, beam A, and wheel H, of triangle F, having the brace f^2, mounted on the upper face of beam A, its base terminating in the graduated sector *f*, plumb f', suspended from the apex of said triangle, and finger f^2, pending from said plumb, substantially as shown and described.

3. In a surveying and measuring instrument, as above described, the combination, with the wheel B, fork C, quadrant D, pointer E, triangle F, sector *f*, and plumb and finger f' f^2, of wheel H, journaled in the slot *g* of the beam A, having the pins h^4, pin *h*, spring-wire *h'*, wire h^3, and registering device h^3, substantially as shown and described.

4. In a surveying and measuring instrument, as above described, the combination of the wheel B, fork C, quadrant D, wheel H, and surveyor's compass K, register h^3, wire h^3, spring-wire *h'*, and pin *h*, projecting from the face of wheel H, substantially as shown and described.

5. In a surveying and measuring instrument, as above described, the scraper I, secured to the rear end of the beam A and loosely embracing the rim of the wheel H, and having the outward bends *i* and i', substantially as shown and described, and for the purpose set forth.

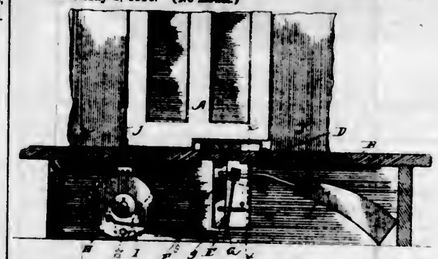
6. The surveying and grading, leveling, and land-measuring instrument, consisting of the front wheel, B, journaled in the upright fork C, the said fork C, pivoted in the horizontal beam A, quadrant D, secured to said fork C and working on the upper face of said beam A, and adapted to be set by thumb-screw d^2, triangle F, mounted on the upper face of beam A, and having the graduated sector *f* and plumb and fingers f' f^2, wheel H, journaled in the rear end of beam A, having pins h^4 rising from its periphery, and pin *h* projecting from the side of its rim, spring-wire *h'*, secured to same beam A and operated by said pin *h*, wire h^3, and register h^3, operated by said wire h^3, surveyor's compass K, attached to said beam A, and scraper I, attached to said beam A and loosely embracing the rim of said wheel H, all substantially as shown and described, and for the purpose set forth.

349,591. MEDICATED LOZENGE. ALVAH W HOLWAY, Boston, Mass. Filed Aug. 25, 1885. (No specimens.)

Claim.—1. A tablet or lozenge consisting of sugar, cream of tartar, and acid calcium lactate, substantially as set forth.

2. A tablet or lozenge in which sugar and acid calcium lactate constitute a base, substantially as expressed.

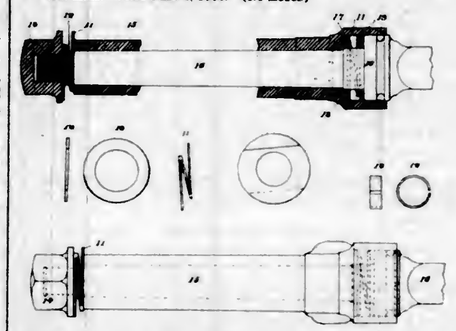
349,592. DOOR-OPERATOR. EDWARD C. JENNER, Allegan, Mich. Filed May 3, 1886. (No model.)



Claim.—1. The combination, with the door and a rod secured thereto and projecting therefrom, of a movable board, a rock-shaft, a crank connecting the rock-shaft with the board, an arm projecting from the rock-shaft, a pitman connecting with the arm at one end, and gearing connecting the opposite end of the pitman with the rod projecting from the door, and a weighted lever extending from the rock-shaft, substantially as and for the purpose described.

2. The combination of the door, a rod projecting therefrom in line with its hinges, a movable board, a rock-shaft, cranks located at different levels, the one extending from the rock-shaft, plates supported on the outer ends of the cranks and forming a rest for the movable board, an arm projecting from the rock-shaft, a toothed plate or disk journaled on short a shaft, a pitman connecting the plate and arm, a short vertical shaft secured to the rod projecting from the door, a pinion keyed thereon and meshing with the toothed disk, and a weighted lever extending from the rock-shaft, substantially as set forth.

349,593. CARRIAGE-AXLE WASHER. DANIEL A. JOHNSON, Boston, Mass. Filed June 4, 1886. (No model.)



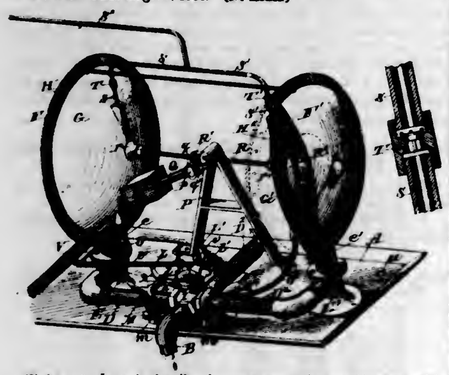
Claim.—1. A carriage-axle V-shaped spring-washer, in combination with a carriage-axle and box, substantially as described.

2. A carriage-axle V-shaped spring-washer, in combination with a carriage-axle and box, stop 12, leather washer 17, and washer 13, substantially as described.

3. A carriage-axle folded spring-washer having three or more folds and having parallel (or nearly so) bearing-surfaces, in combination with a carriage-axle and box, substantially as described.

4. A carriage-axle having the box held laterally between V-shaped spring-washers, substantially as described.

349,594. HYDRAULIC AIR-COMPRESSOR. WARREN S. JOHNSON, Whitewater, assignor to the Johnson Electric Service Company, Milwaukee, Wis. Filed Aug. 17, 1885. (No model.)



Claim.—1. In a hydraulic air-compressor, the combination, with the operating-arms of the water-valves and air-inlet ports of the air-chambers, of lugs or projections on said operating-arms, which serve to open and close the said air-inlet ports simultaneously with the movement of the water-valves, substantially as set forth.

2. In a hydraulic air-compressor, the combination, with opposing water-chambers, each water-chamber being separated from a corresponding air-compressing chamber by an impervious flexible diaphragm, of a rod having disks at its extremities within the air-chambers, said disks being independent of and free from connection with said diaphragms, water-connections having suitable valves, and connecting mechanism whereby the pressure of the diaphragms, actuated by the water against said disks, will reciprocate the rod and serve to admit and release water to and from the water-chambers, substantially as set forth.

3. In a hydraulic air-compressor, the combination, with the opposing water-chambers, each chamber being separated from a corresponding air-compressing chamber by an impervious flexible diaphragm, of a reciprocating rod having disks at its extremities within the air-chamber, and bearing a central enlargement or projection, a weighted pendulum-rod having a tooth adapted to engage with the central projection on said rod, water-pipes connecting with the water-chambers and having a valve at their point of union with the supply and discharge pipes, air-tubes having inlet-ports and connecting with the air-chambers, a water-valve stem having horns provided with stops for closing one or the other of the air-inlet ports and simultaneously shifting the water-valve ports, and a spring for continuing the motion of the valve-stem horns when the same have been carried past the center of motion by the pendulum-rod, substantially as set forth.

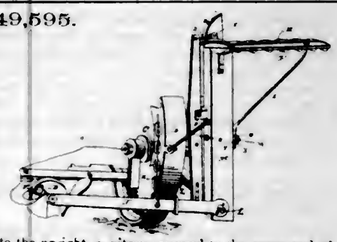
4. In a hydraulic air-compressor, the combination, with the opposing water-chambers, each chamber being separated from a corresponding air-compressing chamber by an impervious flexible diaphragm, of the rod R, having disks R^2 at its extremities within the air-chambers, and central projection, R', water-pipes connected to the water-chambers and having four-way valve at their point of union with the supply and discharge pipes, valve-stem K, with horns L L', projections *k k'*, and stops *l l'*, valve-plug I, with ears J J', pendulum-rod Q, with tooth *q'* and weight Q', air-tubes O O', connecting with the air-chambers and having air-inlet ports N N', spring U, secured to the valve-stem, and compressed-air pipes provided with check-valves, substantially as set forth.

349,595. HEDGE-TRIMMING ATTACHMENT FOR HARVESTING-MACHINES. JOHN H. KELLERHALS, Benton City, Mo. Filed Jan. 4, 1886. (No model.)

Claim.—1. In a hedge-trimming attachment for harvesting-machines, the combination of an upright secured to the machine, and having a pair of lips upon the middle of its inner side, a finger-bar secured to the upper end of the upright and having the cutter-bar sliding in it, a lever pivoted between the lips upon the upright, a pitman pivoted to the upper end of the lever and to the cutter-bar, and a pitman pivoted to the lower end of the lever and to the wrist-pin of the driving-disk, as and for the purpose shown and set forth.

2. In a hedge-trimming attachment for harvesting-machines, the combination of an upright having a transverse perforation at its lower end, the coupling-bar of the machine inserted through the perforation, the chain-bar of the machine secured at its outer end to the rear end of the thrust-bar, a lever pivoted between lips at the middle of the inner face of the upright, a finger-bar having a cutter-bar sliding in it and having a shoe at its inner end, bolts at the upper end of the upright, a brace-rod secured to the finger-bar and secured adjustably with its lower end to the outer side of the upright, a brace-rod secured to the machine

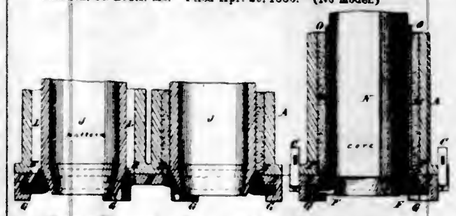
349,595.



and to the upright, a pitman secured to the upper end of the lever and to the inner end of the cutter-bar, and a pitman pivoted to the lower end of the lever and to the wrist-pin of the drive-disk, as and for the purpose shown and set forth.

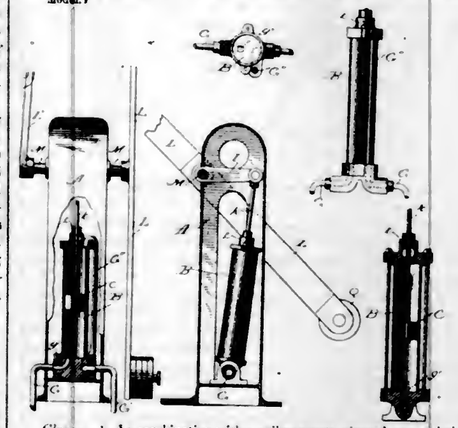
3. In a hedge-trimming attachment for harvesting-machines, the combination of an upright secured to the machine-frame at its lower end, a finger-bar secured at its inner end to the upper end of the upright, projecting laterally, a brace-rod secured at its upper end to the finger-bar and having its lower end slotted and provided with a serrated face, and a serrated plate upon the upright having an outwardly-projecting bolt, as and for the purpose shown and set forth.

349,596. APPARATUS FOR CASTING PIPE. ALEXANDER KILPATRICK, St. Louis, Mo. Filed Apr. 29, 1886. (No model.)



Claim.—The combination of the flask A, bottom B, lugs G on the bottom, seat D, lugs F on the seat, to engage the lugs on the bottom, and bead-ring E, substantially as and for the purpose set forth.

349,597. RAILWAY-GATE. JOHN A. LIDBACK, Portland, Me., assignor of one-half to J. J. Gerrish, same place. Filed Mar. 10, 1886. (No model.)



Claim.—1. In combination with a railway-gate pivoted upon a hollow post to swing in vertical plane, a closed liquid-cylinder pivoted within the hollow post, having its piston connected to an arm rigidly connected with the gate, and pipes leading into the cylinder above and below the piston, said pipes being connected with a suitable forcing mechanism, whereby the gate is operated positively both in raising and lowering, all substantially as described.

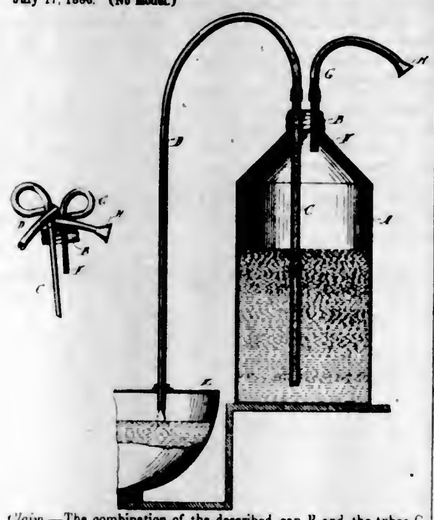
2. In combination with a gate pivoted upon a hollow post to swing in vertical plane, a closed liquid-cylinder pivoted within the hollow post to swing in a plane parallel with that of the gate, and having its piston-rod attached to an arm connected rigidly with the gate, and passages for the liquid communicating with the interior of the cylinder above and below the piston, and connected also with mechanism for forcing the liquid and operating the gate, substantially as described.

3. In combination with a vertically-swinging gate pivoted upon a hollow post, a closed cylinder pivoted within the hollow post to swing in a plane parallel with that of the gate, provided with passages through its trunnions, and having its piston-rod attached to an arm rigidly connected to the gate, and suitable pipes connecting the interior of the cylinder above and below the piston with suitable forcing mechanism, all substantially as described.

4. In combination with pivoted gates adapted to be operated by hydraulic power, closed cylinders pivoted to swing within hollow posts provided with operating-pistons and inlet and exit passages, and a forcing mechanism consisting of a main shaft, pinions mounted thereon, and the toothed piston-rods, substantially as described.

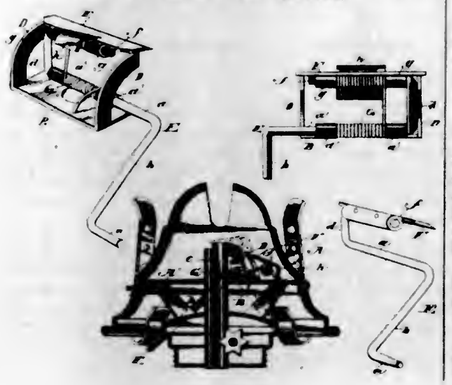
5. In combination with pivoted gates adapted to be operated by hydraulic power, closed cylinders pivoted to swing within hollow posts provided with operating-pistons and inlet and exit passages, a forcing mechanism consisting of a main shaft, collars mounted thereon carrying pinions, and toothed piston-rods, and clutch mechanism, whereby the gates may be operated in pairs, substantially as described.

349,598. OIL-CAN. THOMAS W. LIPPINCOTT, Rockford, Ill. Filed July 17, 1886. (No model.)



Claim.—The combination of the described cap B and the tubes C and F, provided, respectively, with flexible pipes D and G, the pipes being fastened in the cap in such juxtaposition in relation to each other as to afford just sufficient space between their upper ends for receiving and holding tightly the bodies of the flexible pipes when compressed and forced into such space for the purpose of preventing the escape of vapor when required, substantially as described.

349,599. LAMP TRIMMING AND EXTINGUISHING APPARATUS. FRANK H. MARKHAM, Elkhart, Ind., assignor, by direct and mesne assignments, of two-thirds to Ellis M. Chester, same place, and Carlton E. Sage, Elkhart County, Ind. Filed Oct. 27, 1885. (No model.)



Claim.—1. The combination, with a lamp-burner, of a horizontal rock-arm, *a*, carrying the angle-arm *d* and the arm *f*, and having a crank-arm, *b*, the blade F, carried by the arm *f*, and a spring in engagement with the rock-arm for holding the arm *f* and its blade normally depressed below the wick-tube of the burner, substantially as described, for the purpose set forth.

2. The combination, with a burner, of a rock-arm carrying a pivoted blade, guides on which said blade bears, and a spring for normally holding the blade depressed below the wick-tube, substantially as described.

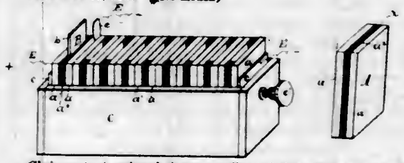
3. The combination, with a burner, of a rock-arm, a blade, pivoted on and carried by said arm, curved guides on which the blade bears, and a spring for normally holding the blade depressed below the wick-tube, substantially as described.

4. The combination, with a burner, of a spring-actuated rock-arm having an operating-handle, a spring-actuated blade pivoted on and carried by the rock-arm, and guides on which the blade bears, substantially as described.

5. The combination, with a burner, of a rock-arm, *a*, having an operating-handle and an arm, *f*, curved guides D, a blade pivoted on the arm *f* and bearing against the guides, and a spring coiled around the arms *a f*, and bearing at its ends against the burner and the blade, substantially as described.

6. A lamp trimming and extinguishing attachment, comprising a plate, a rock-arm journaled on the plate and carrying a blade, and a coiled spring for normally holding the blade depressed, substantially as described.

349,600. GALVANIC BATTERY. CHARLES E. PIPER, Moline, Ill. Filed Jan. 26, 1886. (No model.)



Claim.—1. A galvanic-battery cell consisting of two plates of different electrical potential, which lie substantially parallel with each other, and have their edges in line, said plates being cemented to a strip of insulating material which lies between them at or near the edges of three sides, thereby forming a receptacle between them, said plates being flat on their sides and edges, both of which are exposed, whereby electrical connection may be made with either or both plates of another like cell by simple contact of said cells, substantially as and for the purpose specified.

2. In a galvanic battery, two metal plates of different electrical potential cemented to a strip of insulating material which lies between them at or near the edges of three sides, thereby forming a receptacle, combined with a fibrous slip, and a suitable electrolyte deposited dry upon said slip, the whole being adapted to be set in operation by the addition of a sufficient quantity of water to fill or nearly fill said receptacle, and by completing the circuit, substantially as and for the purpose set forth.

3. As an electrolyte in a galvanic battery, mercuric nitrate.

4. As an electrolyte in a galvanic battery, a solution of mercuric nitrate combined with a salt (as potassic nitrate) which renders the combined salt non-deliquescent.

5. In a galvanic battery, a fibrous slip having one end made impervious to liquid, and having the chemical out of which the electrolyte solution is made deposited in a dry state upon the remaining portion thereof, substantially as and for the purpose set forth.

6. In a galvanic battery, the combination, with mercuric nitrate, of a salt (as potassic nitrate) which renders the combined salt non-deliquescent, and a fibrous slip upon which said combined salt is deposited in a dry state, for the purpose specified.

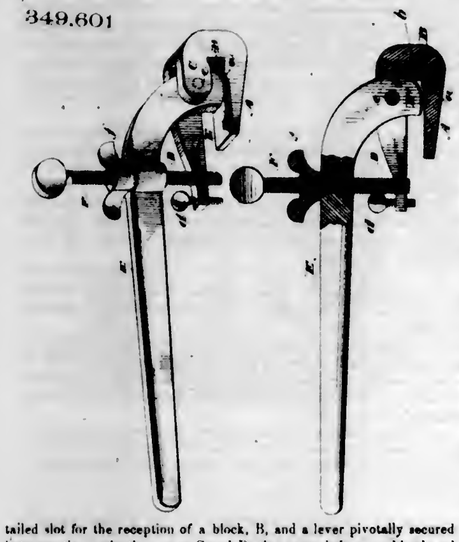
349,601. SAW-SET. PELEG A. POTTER, Wellsborough, Pa. Filed July 1, 1886. (No model.)

Claim.—1. The improved saw-set herein described, consisting of an anvil or base, A, having forwardly-projecting portion D formed integral therewith, the projecting arm D being provided at its end with a set-screw, *d*, the handle E, provided with a curved or eccentric end below its pivot and above the anvil, and a set-screw, F, the parts being combined and organized substantially as shown, and for the purpose set forth.

2. The combination, in a handsaw-set, of an anvil, a removable block, B, and a lever having an eccentric end, said lever being pivotally secured above the anvil, substantially as shown, and for the purpose set forth.

3. In a saw-set, an anvil provided with an upwardly-projecting rear portion and forwardly-projecting arms C and D, the parts being integral with each other, and being provided in rear of the anvil with a dove-

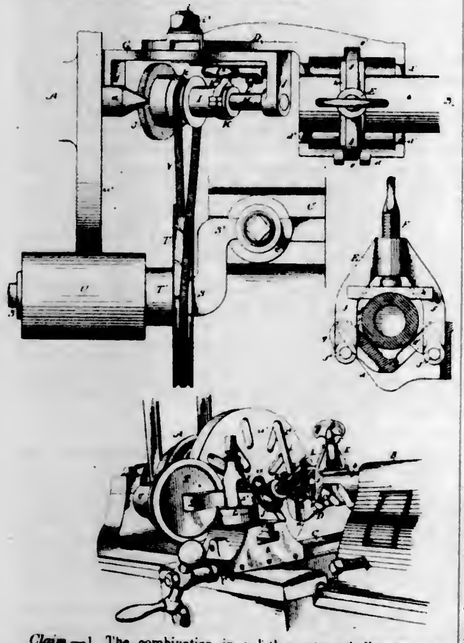
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tailed slot for the reception of a block, B, and a lever pivotally secured between the projecting arms C and D, the parts being combined and organized substantially as shown, and for the purpose set forth.

4. The combination, in a saw-set, of an anvil, A, having a transverse raised portion, *a*, arms C and D, projecting forwardly above said anvil, a dovetailed recess, *b*, formed between the anvil and the forwardly-projecting arms, for the reception of a block, B, a lever, E, having an eccentric end, and set-screws F and *d*, the parts being organized substantially as shown, and for the purpose set forth.

349,602. LATHE-CENTER-GRINDING MACHINE. ALFRED H. RANDALL, Philadelphia, Pa., assignor of one-half to Herman H. Loschmann, same place. Filed June 26, 1885. (No model.)



Claim.—1. The combination, in a lathe-center-grinding machine, of a fixed frame or carrier, D, and a supplementary frame pivoted to and adjustable across the face of said fixed frame, and the grinding-disk carried by said adjustable supplementary frame, all substantially as specified.

2. The combination, in a lathe-center-grinding machine, of the fixed frame or carrier D, the supplementary frame pivoted to and adjustable across the face of said fixed frame, and a grinding-disk carried by and movable across the face of said supplementary frame in a direction inclined in respect to the direction of movement of said frame across the face of the fixed frame, all substantially as specified.

3. The combination, in a lathe-center-grinding machine, of a grinding device and a carrier therefor secured to a spindle projecting forward from the puppet-head of the lathe, with driving mechanism carried by the tool-post of the lathe, all substantially as specified.

4. The combination, in a lathe-center-grinding machine, of a grinding device and a fixed frame or carrier, D, therefor, with driving mechanism carried by the tool-post of the lathe, and comprising a belt-pulley and drum carried by a rigid arm secured to the tool-post, the drum being driven by frictional contact with the periphery of the face-plate of the lathe, and the pulley receiving a belt for driving the grinding-disk, all substantially as specified.

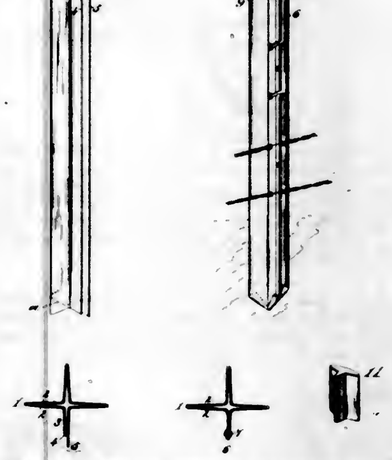
5. The combination, in a lathe-center-grinding machine, of the grinding device, a carrier therefor having a V-shaped socket adapted to the puppet-head spindle of a lathe, and a detachable yoke having a clamp-plate and set-screw, whereby said frame is clamped to the puppet-head spindle, all substantially as specified.

6. The combination of the grinding device, the carrying-frame D, having a V-shaped socket, *d*, with slots *e e'* and ears *g*, the yoke E, having legs *f*, with projections *f''*, the clamp-plate *h*, and set-screw F, all substantially as specified.

7. The combination of the frame D, having a groove, *n*, and slot *n'*, the block M, adapted to the groove, the frame G, having a segmental slot, *q*, the pivot-pin *i*, and the bolt *p*, all substantially as specified.

8. The combination of the frame D, the frame G, hung thereto and adjustable thereon, and having a groove, *m*, the grinding device having a sleeve, I, the slotted operating-lever L, and a ring adapted to a groove in the sleeve I, and having a projection adapted to the slot in the lever L and to the groove *m* of the frame G, all substantially as specified.

349,603. SHEET-METAL FENCE-POST. BENJAMIN F RANDALL, Fall River, Mass. Filed July 15, 1886. (No model.)



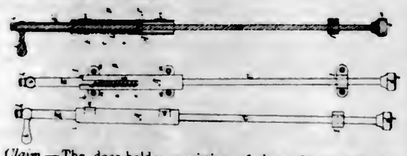
Claim.—1. A fence-post consisting of a sheet of metal bent, folded, and creased to form radial flanges, each comprising two parallel or approximately parallel thicknesses of the metal with the longitudinal ends of the sheet metal comprising one flange bent around the other and firmly secured in place, the lower ends of the flanges being bent on inclined lines and folded down upon said flanges to form hems and a pointed end to the post, substantially as described.

2. A fence-post consisting of a sheet of metal bent, folded, and creased to form radial flanges, each comprising two parallel or approximately parallel thicknesses of the metal with the longitudinal ends of the sheet metal comprising one flange bent one around the other and firmly secured to form a beaded flange, said beaded flange having slits extending its full width to receive the wire strands, whereby the latter have bearings against two of the radial flanges at opposite sides of the slitted flange, substantially as described.

3. A fence-post consisting of a sheet of metal bent, folded, and creased to form radial flanges, each comprising two parallel or approximately parallel thicknesses of the metal with the longitudinal ends of the sheet metal comprising one flange bent one around the other and firmly secured to form a beaded flange having slits extending its full length to receive the wire strands, said flanges having one of their ends folded on inclined lines to form a hemmed pointed end, substantially as described.

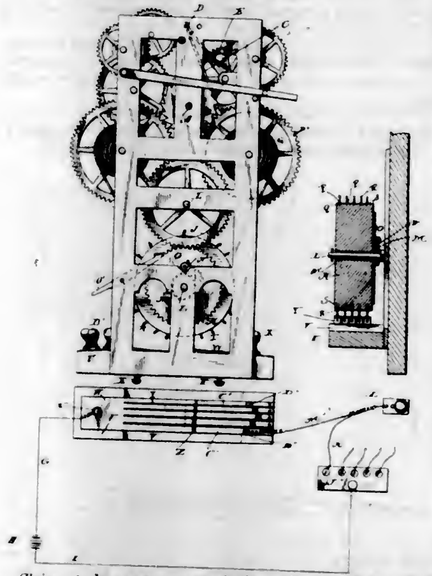
4. A metallic post consisting of a sheet of metal bent, folded, and creased to form radial flanges, each comprising two parallel or approximately parallel thicknesses of the metal, said flanges being folded at one end on inclined lines to form a hemmed pointed end, substantially as described.

349,604. DOOR-CHECK. GEORGE W. RANDALL, Boston, Mass. Filed May 23, 1885. (No model.)



Claim.—The door-holder consisting of the guide-tube A, slotted, and having serrations in one side and a notch at the top of the slot, the cylindrical rod C, having the shoulders *f* and *h*, and the frictional foot *d*, the sleeve E, provided with the handle *i* and tooth *k*, and adapted to slide lengthwise and turn laterally on the upper part of the rod C, and in the guide-tube A, and the spring D, around the rod between the sleeve and the shoulder *f*, as set forth.

349,605. ELECTRIC PROGRAMME-CLOCK. ANDREW J. REAMS, Augusta, Kans. Filed June 28, 1886. (No model.)



Claim.—1. In a programme-clock, the combination of a number of strips having upwardly-bent ends and downwardly-projecting contact-points, and having one wire of a circuit attached to them, contact-points below the points of the strips having individual wire connections to alarm-bells and to the circuit, a cylinder having circumferential rows of plugs registering with the strips and secured at suitable distances, and suitable means for revolving the cylinder a given portion of a revolution at given intervals, as and for the purpose shown and set forth.

2. In a programme-clock, the combination of a number of strips having upwardly-bent ends and downwardly-projecting contact-points, and having their inner insulated ends united and connected to the circuit-wire, a number of individual strips having upwardly-projecting contact-points below the points of the united strips, and having individual wires, a corresponding number of bells having the wires attached to them, and having a corresponding number of wires passing from them, a switch-board receiving the wires and having the line-wire entering it, and a cylinder having a number of plugs arranged in circumferential rows at given distances and engaging the ends of the strips, and having means for revolving it a certain portion of a revolution at given intervals, as and for the purpose shown and set forth.

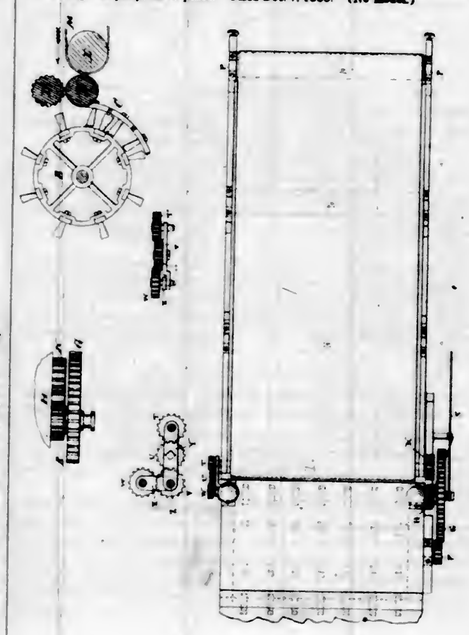
3. In a programme-clock, the combination of a cylinder having plugs projecting in circumferential rows at given distances from each other, and having means for revolving the said cylinder a given portion of a revolution in a given space of time, a plate having its free portion slitted longitudinally into strips having upwardly-bent ends, and having contact-points upon the under sides, and provided at the united portion with a circuit-wire, separated and insulated strips having contact-points registering with the other points, and having individual wires to alarm-bells, and a switch-board receiving the wires from the bells and uniting them, having a wire extending to the battery, as and for the purpose shown and set forth.

4. In a programme-clock, the combination of a set of strips having upwardly-bent ends and downwardly-projecting contact-points, a set of strips having upwardly-projecting contact-points, a cylinder having series of projecting plugs, and means for revolving it, and blocks or strips below the strips, having screws for raising and lowering them, and resting transversely under the strips, as and for the purpose shown and set forth.

5. In a programme-clock, the combination of a shelf having a recess at its middle, strips secured in a set upon one raised end of the shelf, and having upwardly-bent inner ends and downwardly-projecting contact-points, a set of strips secured to the other raised end of the shelf, and having upwardly-projecting contact-points upon their inner ends, a cylinder having circumferential rows of plugs engaging the upwardly-bent ends of the strips, insulating-blocks placed transversely under the strips, and screws passing through the bottom of the recess in the shelf and supporting the transverse blocks upon their upper ends, as and for the purpose shown and set forth.

6. In a programme-clock, the combination of a ratchet-disk having twelve teeth, and secured upon the arbor of the minute-hand, an arm from the striking-train engaging the teeth of the said disk, and having suitable connection for releasing the striking-train when dropped, a shaft having a pinion engaged by the cog-wheel upon the spring-arbor of the striking-train, and having a cog-wheel at the other end, a cylinder having a central bushing provided with a ratchet-wheel, and having circumferential rows of one hundred and forty-four sockets each, a cog-wheel meshing with the cog-wheel upon the shaft, and having a pawl engaging the ratchet-wheel upon the bushing, and having a pawl engaging it, and strips engaged by plugs in the sockets of the cylinder, and having means for closing circuits of different bells registering and connected with the strips, as and for the purpose shown and set forth.

349,606. FEEDER FOR THRASHING-MACHINES. WILLIAM S. REEDER, St. Louis, Mo., assignor to the Kingsland & Ferguson Manufacturing Company, same place. Filed Dec. 7, 1885. (No model.)

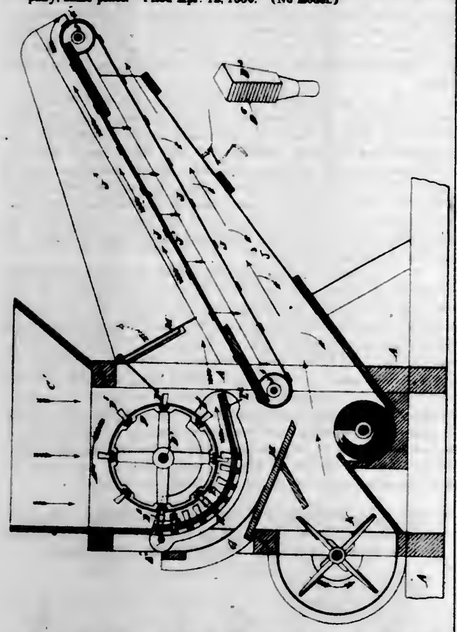


Claim.—1. In combination with the cylinder of a thrashing-machine, the upper and lower feed-rolls, gearing connecting the cylinder to the lower feed-roll, the feed-apron, gear-wheels connecting the lower feed roller to the upper roller of the apron, and gearing connecting the upper roller of the apron to the upper feed-roll, substantially as shown and described.

2. The combination, with the cylinder of a thrashing-machine, of the lower feed-roll, gearing connecting the cylinder to the said feed-roll, the feed-apron, rollers upon which the apron is supported, gearing connecting the said feed-roll to the upper apron-roll, the upper feed-roll, gearing connecting the said apron-roll to the upper feed-roll, and jointed bars supporting the gearing, substantially as shown and described, for the purpose set forth.

349,607. MACHINE FOR MASHING STRAW.

WILLIAM S. REEDER, St. Louis, Mo., assignor to the Kingsland & Ferguson Manufacturing Company, same place. Filed Apr. 12, 1886. (No model.)



Claim.—1. In a machine for mashing and breaking straw, the combination of a case provided with a hopper, a cylinder and concave beneath the hopper, provided with tearing and mashing teeth, and a raddle for conveying the straw from the case, substantially as set forth.

2. In a machine for breaking and mashing straw, the combination of the case, a hopper located on the case, a cylinder provided with teeth, part of which are notched or serrated and part smooth, a concave provided with teeth, part of which are notched or serrated and part smooth, and a carrier for conveying the straw from the case, substantially as set forth.

3. In a machine for breaking and mashing straw, the combination of the cylinder and concave provided with teeth, part of the teeth of the cylinder being notched or serrated and part smooth, and the upper row or rows of the concave being notched or serrated, the remaining teeth being smooth, substantially as shown and described, for the purpose set forth.

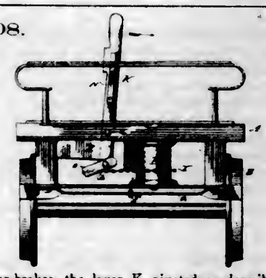
349,608. CAR-BRAKE.

EDWARD G. REILLY, Columbus, Ohio, assignor of one-half to George W. Bennett, same place. Filed Mar. 2, 1886. (No model.)

Claim.—1. In car-brakes, the main lever K, pivoted to the car, as described, and having a supplemental lever or stirrup pivoted to its lower end, adapted to be operated by coming in contact with a bracket, as set forth.

2. A brake-operating device for street-cars and other purposes, consisting of a main operating-lever having pivoted to its lower end a supplemental lever or stirrup to which the brake-chain is secured, a pulley or friction-roller over which the brake-chain passes, and a stop or bracket adapted to impinge on the short end of the supplemental lever, whereby the long arm of the supplemental lever is moved rapidly to take up the slack of the brake-chain and apply the brakes to the wheels, as set forth.

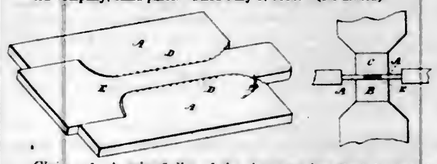
349,608.



3. In car-brakes, the lever K, pivoted as described, and having the supplemental lever pivoted thereto, with short arms extending above the pivotal point, in combination with the bracket R, adapted to impinge on the short ends of the supplemental lever or stirrup to throw the same at right angles to the main lever, thereby shortening the bite of the main lever and increasing the power of the same, as set forth.

349,609. DIE FOR SWAGING SPOON AND FORK BLANKS.

EDWARD W. SHANNON, Waterbury, Conn., assignor to the Rogers & Hamilton Company, same place. Filed July 3, 1886. (No model.)

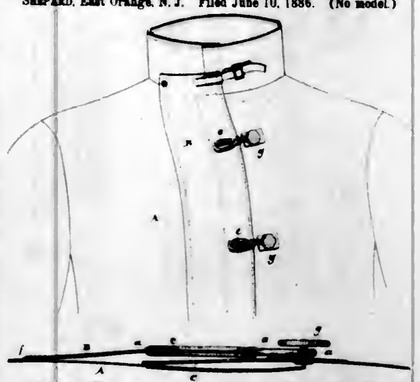


Claim.—1. A pair of dies of the character described, having their operating-surfaces corrugated or roughened transversely to the length thereof, substantially as set forth.

2. A pair of dies as described, having formed in their operating-surfaces a series of notches extending across said surfaces and substantially transverse to their length, as and for the purpose shown and described.

349,610. LOOP FOR ARTICLES OF APPAREL.

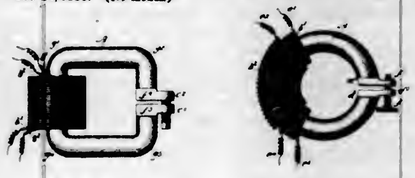
FREDERICK M. SHEPARD, East Orange, N. J. Filed June 10, 1886. (No model.)



Claim.—The combination, with a coat or other article, of a cord shaped substantially like a figure 8, one of the loops being embedded between the layers of fabric composing the article, whereby a button-hole or finger-hole within said loop is stayed, the other loop being left free, as and for the purposes set forth.

349,611. INDUCTION-COIL.

WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor to George Westinghouse, Jr., Pittsburg, Pa. Filed Oct. 23, 1885. (No model.)



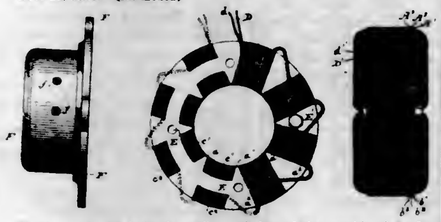
Claim.—1. An induction-coil or inductorium consisting of parallel primary and secondary conductors, an iron core within the same, forming an approximately-closed magnetic circuit, and means for modifying or varying the magnetic resistance of the closed magnetic circuit.

2. An induction-coil or inductorium provided with a core having its ends confronting, means for varying the distance of said ends from each other, and primary and secondary coils upon said core.

3. In combination with an induction-coil having the ends of its core confronting each other, a non-magnetic device for adjusting the distance of said ends from each other.

349,612. INDUCTION-COIL.

WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor to George Westinghouse, Jr., Pittsburg, Pa. Filed Nov. 23, 1885. (No model.)



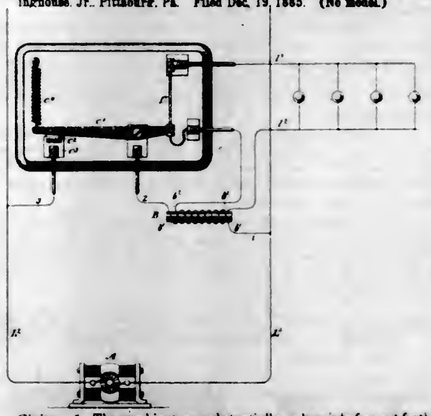
Claim.—1. An induction-coil consisting of the combination of a series of thin sheet-iron rings placed side by side, and having inwardly and outwardly projecting teeth, and primary and secondary coils wound thereupon at right angles to the direction of the laminæ of the plates.

2. An induction-coil consisting of a series of thin iron plates, having teeth upon its inner and outer peripheries and two conductors wound between the teeth.

3. The combination, substantially as hereinbefore set forth, of an induction-coil consisting of the combination of a series of plates of soft iron, each plate having a series of narrowing inwardly-projecting teeth, a corresponding series of widening outwardly-projecting teeth, and two insulated electric conductors wound in the spaces between the teeth, substantially as described.

349,613. AUTOMATIC CUT-OUT FOR ELECTRIC-LIGHT CIRCUITS.

WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor to George Westinghouse, Jr., Pittsburg, Pa. Filed Dec. 19, 1885. (No model.)



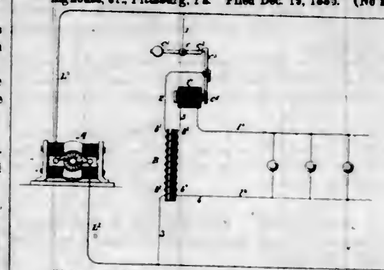
Claim.—1. The combination, substantially as hereinbefore set forth, with the primary circuit of an induction-coil, of a secondary circuit therefor, translating devices in the secondary circuit, a fusible strip, also included in the secondary circuit, and a circuit-interrupting device for the primary circuit normally restrained by said fusible strip, but released by the melting of said strip.

2. The combination, substantially as hereinbefore set forth, with the primary circuit of an induction-coil, of its secondary circuit, translating devices in the secondary circuit, and a device responding to the heat developed by an abnormal current in the secondary circuit for interrupting the connections of the primary circuit.

3. The combination, substantially as hereinbefore set forth, with the primary circuit of an induction-coil, and translating devices in the secondary circuit, of a stationary and a movable contact-point, through which the connections of said circuit are normally completed, and a fusible strip normally holding said movable contact-point in contact with said stationary contact-point, which strip is included in the secondary circuit of said induction-coil.

349,614. AUTOMATIC CUT-OUT FOR ELECTRIC-LIGHT CIRCUITS.

WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor to George Westinghouse, Jr., Pittsburg, Pa. Filed Dec. 19, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with an inductorium or converter, of a circuit including one of the coils of the same, a circuit-interrupting device included in said circuit, a circuit including the other coil of said inductorium or converter, translating devices included in the last-named circuit, and a device, also included in the last-named circuit, for operating said circuit-interrupting device.

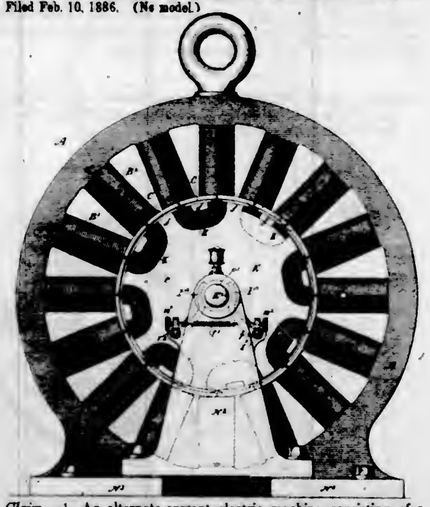
2. The combination, substantially as hereinbefore set forth, of a main line, an induction-coil or converter, circuit-connections from said main line through the primary of said induction-coil, a circuit-interrupting device, a translating-circuit including the secondary coil of said converter, translating devices in said translating-circuit, and an electro-magnet, also included in the translating-circuit, for operating said circuit-interrupting device when traversed by currents of abnormal strength.

3. The combination, substantially as hereinbefore set forth, with an electric generator and a main line leading therefrom, of an induction-coil, the primary circuit of which is included in the main-line circuit, a circuit-interrupting device included in circuit with the primary coil, a translating-circuit in which the secondary coil is included, translating devices in the last-named circuit, and a device responding to abnormal currents in the secondary circuit for operating said circuit-interrupting device, and thereby interrupting the circuit-connections of the primary.

4. The combination, substantially as hereinbefore set forth, with the primary circuit of an induction-coil and a circuit therefor, of a circuit-interrupting device included in said circuit, a circuit including the secondary of the induction-coil, and an electro-magnet included therein and applied to said circuit-interruping device, substantially as described.

349,615. ELECTRIC GENERATOR.

WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor to George Westinghouse, Jr., Pittsburg, Pa. Filed Feb. 10, 1886. (No model.)



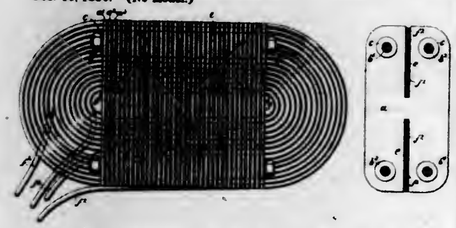
Claim.—1. An alternate-current electric machine consisting of a cylindrical frame having inwardly-projecting arms or cores, bobbins of wire surrounding the respective cores, an armature within the circle of said cores, two collector-plates revolving with the armature with which the respective terminals of the armature-coils are connected, collector-brushes bearing against said plates, respectively, and yielding springs tending to draw said brushes toward each other and against the respective plates.

2. An armature-core for electrical generators, consisting of magnetically-separated laminæ of iron having radial legs, in combination with bobbins of wire surrounding the legs, the wire composing the bobbins being wound upon the periphery of the armature in a serpentine direction and laid along the ends of the armature-core at the opposite ends of the alternate legs.

3. A field-magnet for electric generators, having a series of radial polar projections, the ends of which are formed in parabolic curves, in combination with an armature adapted to rotate within the field of said projections.

4. The combination, substantially as hereinbefore set forth, of the supporting-cylinder, the radial cores projecting inwardly therefrom, the bobbins of wire upon the cores, and the bands secured to the cores for holding the bobbins in position.

349,616. INDUCTION-COIL. WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor to George Westinghouse, Jr., Pittsburg, Pa. Filed Feb. 10, 1886. (No model.)



Claim.—1. An induction-coil consisting of a series of plates, each having one or more slots cut therein, and two coils of wire, constituting primary and secondary conductors, wound in said slots.

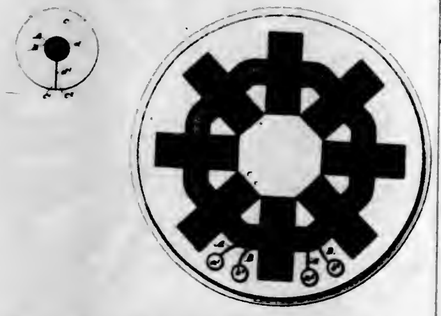
2. An induction-coil consisting of a primary and a secondary coil, each wound in a single tier of convolutions, and magnetic material upon opposite sides of each series of convolutions.

3. The combination, substantially as hereinbefore set forth, of a series of plates of soft iron, each having a narrow slot formed therein, means for supporting said plates with the slots in alignment, and primary and secondary conductors wound in said slots, substantially as described.

4. The combination, substantially as hereinbefore set forth, of a series of plates magnetically separated from each other, an opening or slot formed in each plate, the width of each opening being greater through its outer than through its inner portion, and primary and secondary conductors wound in said slots.

5. The combination, substantially as hereinbefore set forth, of an annular series of plates, each containing a narrow slot, means for supporting the plates, and primary and secondary conductors wound in said slots and filling the same, substantially as described.

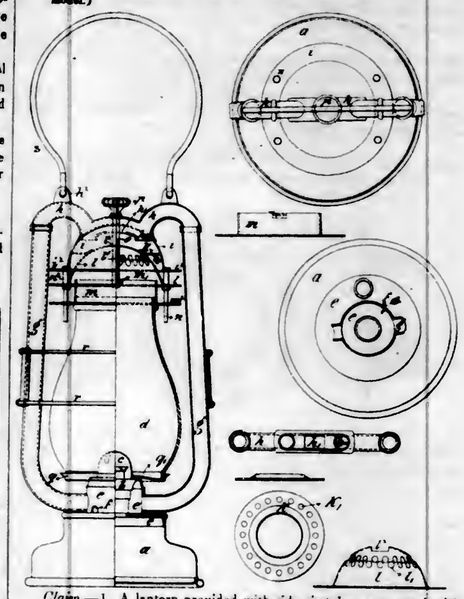
349,617. INDUCTION-COIL. WILLIAM STANLEY, Jr., Great Barrington, Mass., assignor to George Westinghouse, Jr., Pittsburg, Pa. Filed Feb. 10, 1886. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with the primary and secondary conductors of an induction-coil wound to form an annulus, of a series of slotted plates of soft iron, through which the conductors extend.

2. The combination, substantially as hereinbefore set forth, of a series of magnetically-separated disks or plates of soft iron, each having a radial slot, and primary and secondary conductors extending axially through the same, substantially as described.

349,618. LANTERN. ERNST F. STERK, Chicago, Ill., assignor to the Fire Extinguisher Manufacturing Company. Filed Mar. 19, 1886. (No model.)



Claim.—1. A lantern provided with side air-tubes, connected with an air-chamber around the burner, and with a tubular casting and an upper cap having its lower edge flanged outwardly, and under said cap two other caps having their lower edge flanged outwardly, and a screw passing through the caps whereby the lower cap is vertically adjustable, in combination with a glass globe entering and fitting within the lower cap, whereby the admission of water projected against said globe is prevented, substantially as and for the purpose described.

2. In combination with the oil-cup, burner, glass globe, and the side air-tubes of a lantern, the casting receiving their upper ends and the hemispherical cap secured to said casting and provided with an outwardly-projecting disk at its lower edge, the combined cap and disk *l*, and bolts *n*, uniting the disks of both caps, substantially as and for the purpose described.

3. In combination with the oil-cup, burner, glass globe, and the side air-tubes of a lantern, the casting receiving their upper ends and the two caps with their pendent guide-bolts, the globe receiving disk having perforation for the passage of said guide-bolt, substantially as and for the purpose described.

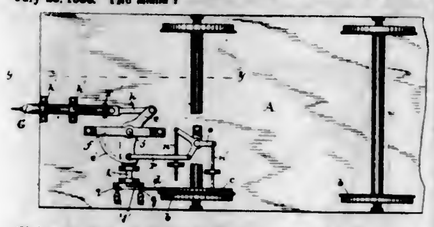
4. The combination of the oil-cup, burner, glass globe, and the side air-tubes of a lantern, the casting receiving their upper ends, the two caps retained apart by bolts passing through their outwardly projecting disks, and the perforated disk *k* between the caps, substantially as and for the purpose described.

349,619. BENCH-PLATE. FRANK E. THOMPSON and JOHN W. STADMAN, Elkhart, Ind.; said Stadman assignor to said Thompson. Filed July 9, 1886. (No model.)



Claim.—The combination, with the bench having an opening cut therethrough, and the ring A, having an offset or flange projecting from its outer edge and rabbeted on its inner edge fitted in said opening, of the apertured or socketed circular plate B, seated in the ring and provided with a flange resting in the rabbet, the bolt D, threaded at its lower end, the truss C, mounted on the bolt and having its ends extended and engaging the bench on diametrically-opposite sides of the opening, as shown, and the hand-nut *d*, substantially as and for the purpose set forth.

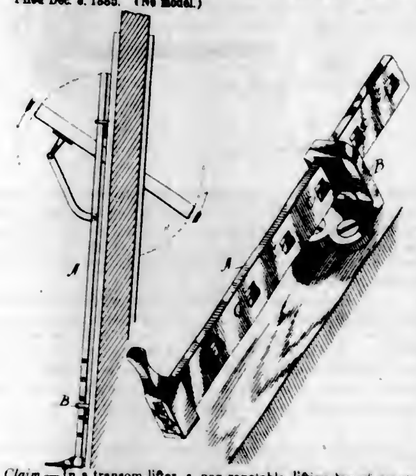
349,620. CAR-STARTER. OLIVER P. WIVEL, Baltimore, Md. Filed July 23, 1886. (No model.)



Claim.—1. In a car-starter, the combination of a ratchet-wheel, a draft-pawl, *d*, a draw-bar, G, a lever, *e*, having one end connected to the draw-bar and provided with sector-gear *e'*, a shaft, *k*, having at one end a pinion, *l*, engaging with the sector-gear, and provided at the other end with a crank, *k'*, connected with the draft-pawl, and a spring, *i*, connected with the sector-gear lever, for the purpose set forth.

2. In a car-starter, the combination of a ratchet-wheel, a draft-pawl, *d*, a draw-bar, G, a lever, *e*, and mechanism, substantially as described, connecting the draft-pawl and draw-bar, two pawl-releasers, *n n'*, having inclined ends *d'*, which take under the said draft-pawl, a three-pronged lever, *o*, and a rod, *p*, connecting the three-pronged lever with the said lever *e*, as shown and described.

349,621. TRANSOM-LIFTER. JOHN F. WOLLENRAH, Chicago, Ill. Filed Dec. 8, 1885. (No model.)



Claim.—In a transom-lifter, a non-revoluble lifting-bar of greater diameter in one direction than in the other, having one or more notches or holes in the direction of its least diameter, in combination with a locking-bracket having a hole or opening through which the lifting-rod slides up and down, and a tongue or projection extending from the side of such opening, to engage with the hole or holes in the lifting-bar, whereby the transom may be held or locked at any desired degree of openness, substantially as described.

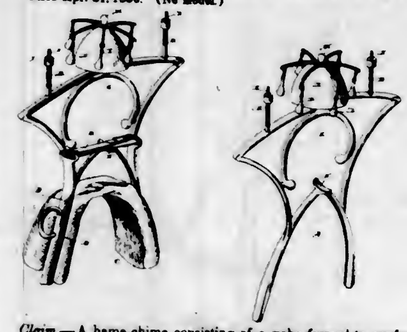
349,622. RIVETING-TOOL. RALPH A. WOODING, Kensington, Conn. Filed Apr. 21, 1886. (No model.)



Claim.—1. A tool for riveting sleigh-bells to straps, consisting of a handle having a flat lower portion provided with a straight flat lower end, and formed with two laterally-projecting bulges, making an enlargement upon the face at the lower end of the tool at the center of the said face, as and for the purpose shown and set forth.

2. A tool for riveting sleigh-bells to straps, consisting of a handle having a flat lower portion formed with a straight flat lower end provided with two laterally-projecting bulges, forming a central enlargement upon the face of the lower end of the tool having a concave face, as and for the purpose shown and set forth.

349,623. HAME-CHIME. RALPH A. WOODING, Kensington, Conn. Filed Apr. 21, 1886. (No model.)



Claim.—A hame-chime consisting of a yoke formed to conform to the shape of the upper portion of a collar and provided with a cross-bar at its upper end formed with upwardly-bent ends, and of a frame secured with its ends to the legs of the yoke, and having a chime of bells secured to uprights upon it, as and for the purpose shown and set forth.

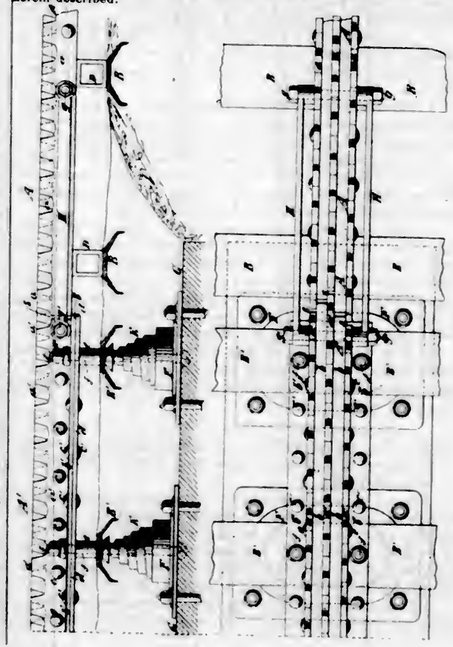
349,624. RACK-RAIL FOR RAILWAYS. ROMAN ABT, Bürgen, Switzerland, assignor of one-half to Otto Grueninger, New York, N. Y. Filed Apr. 13, 1886. (No model.)

Claim.—1. The combination, with a locomotive or vehicle comprising a pinion which is arranged to turn or yield independently of the adhesion or supporting wheels, of an entering rack-rail which has a yielding support, so that it may yield to the action of the pinion as the pinion comes into engagement with it, the pinion being meanwhile capable of turning or yielding independently of the adhesion or supporting wheels, substantially as herein described.

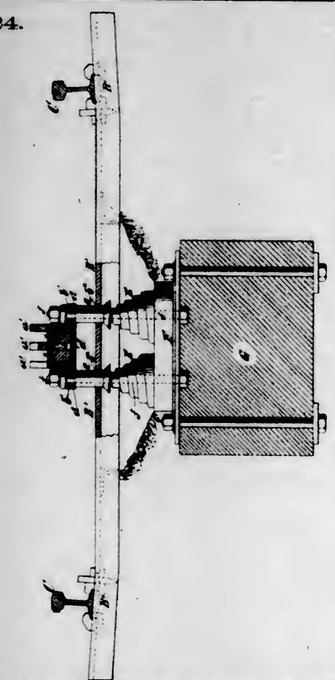
2. The combination, with the adhesion or supporting rails C, of a rack-rail comprising a yielding entering section arranged in such relation to the adhesion or supporting rails as to receive into engagement with it a pinion or pinions on the locomotive or vehicle, while approximately the whole weight of the locomotive or vehicle is sustained by the adhesion or supporting rails, substantially as herein described.

3. The combination, with a main rack-rail section, of a spring-supported entering rack-rail section and links H, pivotally connected with both rail-sections at their adjacent ends, substantially as herein described.

4. An entering rack-rail section having its teeth gradually diminishing in depth and vanishing toward the entering end, substantially as herein described.



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5. An entering rack-rail section having its teeth gradually diminishing in depth and vanishing in wavy undulations toward the entering end, substantially as herein described.

6. An entering rack-rail section having its teeth diminishing in depth and vanishing toward the entering end, and having its entering end curved downward to prevent any articles depending from a train from catching thereon, substantially as herein described.

7. The combination, with a fixed or main rack-rail having its teeth of normal and uniform pitch, of a yielding entering rail comprising teeth of abnormal pitch relatively to the teeth of the fixed or main rail, substantially as and for the purpose herein described.

8. An entering rack-rail section having its teeth of gradually-increasing pitch throughout a portion of its length at its entering end and in a direction rearward toward its entering end, substantially as herein described.

9. The combination, with an entering rack-rail section having its teeth diminishing in depth toward the entering end, of springs whereby said rail-section is supported, substantially as herein described.

10. The combination, with adhesion-rails and sleepers supporting them, of an entering rack-rail section, supports therefor movable vertically and guided in the sleepers, and springs applied to said supports below the sleepers, substantially as herein and described.

11. The combination, with adhesion-rails and sleepers supporting them, of an entering rack-rail section, base-plates arranged below the sleepers, bolts extending from the rail-section downward through the sleepers and base-plates, thimbles or sleeves surrounding the bolts guided in the sleepers and supporting the rail-section, and springs surrounding the bolts between the thimbles or sleeves and base-plates and giving yielding support to the rail-section, substantially as herein described.

12. The entering rack-rail section composed of the rack-bars *a'*, the spacing-bars *b*, interposed between the rack-bars and having laterally-extending flanges, and the sole-plate *d*, to which said flanges are secured substantially as herein described.

349,625. ANIMAL-TETHER. D. LA MONT ASPINWALL, Petersburg, Va., assignor to the American Animal Tether Company. Filed July 24, 1886. (No model.)

349,625.

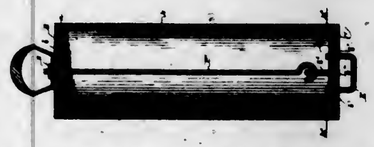


Claim.—1. In an animal-tether or hitching-post, the combination of the supporting-post, a swinging arm mounted thereon having a socketed projection, a slot, and a shoulder or stop at one side of the socket, a pivoted reach passing through the slot in said swinging arm, adapted to be automatically raised or tilted by a weight or spring, and means for attaching the animal to the said reach, substantially as described.

2. In an animal-tether or hitching-post, the combination of a supporting-post having a bearing at its top, a socketed swinging arm having a slot cut therethrough, engaging with the supporting-post, a shoulder or stop at one side of the socket in the said swinging arm, a jointed reach having the hitching-rope supported by and secured thereto, passing through and pivotally mounted in the slot in the swinging arm, to one side of the socket thereof, and means for raising or tilting the reach, substantially as described.

3. In an animal-tether or hitching-post, the combination of the supporting-post A, a swinging arm, B, mounted thereon, having a socketed projection, *b*, a slot, 1, and a shoulder or stop, 2, at one side of the socket *b*, a pivoted reach, C, passing through the slot in said swinging arm, adapted to be automatically raised or tilted by a weight or spring, suitable joints, *c*, formed therein, and a rope, 7, passing through eyes 8 secured to the said reach C, substantially as described.

349,626. WELL-BUCKET FIXTURE. SAMUEL T. ATKIN and OLIVER STEELE, Georgetown, Tex. Filed June 10, 1886. (No model.)



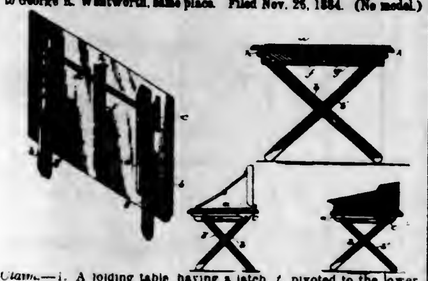
Claim.—1. The herein-described well-bucket, comprising the cylinder or barrel, the flanged top provided with an apertured cross-bar, the annular bottom having semicircular apertures, the apertured connecting-bar, the hooked connecting-rod, the bail or rope loop, the valve and the valve-opener, substantially as shown and described.

2. The combination, with the cylinder or barrel, the top having an apertured cross-bar and the apertured bottom, of the hooked connecting-rod, the apertured connecting-bar, and the bail or rope loop, substantially as shown and described.

3. The combination, with the cylinder or barrel, the top secured thereto, and the apertured bottom of the valve, the valve-opener, the connecting-rod having one end provided with a hook and the other end with a screw-thread, the apertured connecting-bar, the bail or rope loop, and the nut fitted on said connecting-rod, substantially as shown and described.

4. The combination, with the barrel or cylinder, and the valve and its opener, of the annular bottom having semicircular openings or apertures, substantially as shown and described.

349,627. ADJUSTABLE AND FOLDING MECHANISM FOR TABLES, CHAIRS, &c. FRANCIS A. BLACKMER, Springfield, Mass., assignor to George R. Wentworth, same place. Filed Nov. 26, 1884. (No model.)

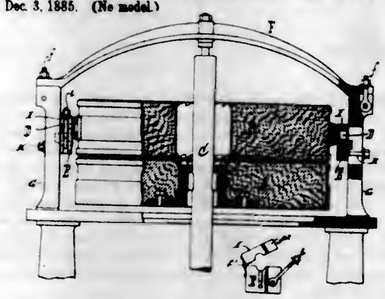


Claim.—1. A folding table having a latch, *f*, pivoted to the lower side of the table-top, as shown, and adapted to lock the free end of the legs *b* in position by engaging with a part, *d*, in combination with cross-legs *b* and *b'*, pivoted to each other, substantially as shown.

2. A folding adjustable mechanism for furniture, consisting of legs *b*, pivoted to legs *b'*, slotted pieces *c*, rod *d*, and a notched piece or latch, *f*, having two or more recesses therein to receive the rod *d*, and pivoted at each end, and adapted to swing from side to side on its pivots to engage with the rod *d* and hold the same in position, substantially as shown.

3. A folding adjustable mechanism for furniture, consisting of legs *b'*, pivoted at *c*, and having legs *b*, provided with rod *d*, pivoted thereto, as shown, and latch or notched piece *f*, pivoted at each end, all constructed and operating substantially as shown.

349,628. GRINDING-MILL. JAMES BURNS, Brooklyn, N. Y. Filed Dec. 3, 1885. (No model.)



Claim.—1. A grinding-mill comprising the standards, the runner-stone, journal-boxes secured to said standards and provided with movable covers, locking devices for securing said covers down upon the boxes, the reversible bed-stone having both faces dressed, and provided with journals attached to its circumference at the middle of its thickness, and the bridge detachably secured to the upper ends of the standards, substantially as described.

2. A grinding-mill comprising the standards, a runner-stone, journal-boxes secured to said standards and provided with movable covers, the swing-bolts for locking the covers down, the reversible bed-stone having both faces dressed, and provided at its circumference with attached journals, and the removable bridge, substantially as described.

3. A grinding-mill comprising the standards, the runner-stone, journal-boxes secured to the standards and provided with hinged covers, locking devices for securing the covers down upon the boxes, the bed-stone provided with journals and dressed upon both faces, the bridge, and the swing-bolts for detachably securing the bridge, substantially as described.

4. A grinding-mill comprising the standards, the runner-stone, journal-boxes secured to the standards and provided with movable covers, the swing-bolts for locking the covers down, the bed-stone dressed upon both faces and having attached journals, the bridge, and swing-bolts for detachably securing the bridge, substantially as described.

5. A grinding-mill comprising the standards, the runner-stone, journal-boxes secured to the standards and provided with movable covers having bifurcated ends, the swing-bolts pivoted to the boxes and engaging the bifurcated ends of the covers, the bed-stone dressed on both faces and having attached journals, and the removable bridge, substantially as described.

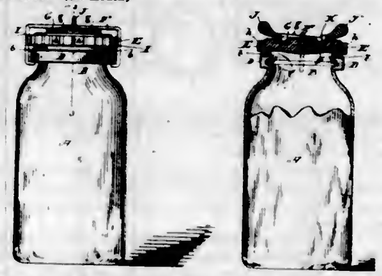
349,629. BABY-CARRIAGE. GEO. D. BURTON, New Ipswich, N. H. Filed Aug. 21, 1885. (No model.)

349,629.



Claim.—A carriage-body, of substantially the form shown, made of molded pulp and provided with bottom perforations and a closed front or shield, substantially as described.

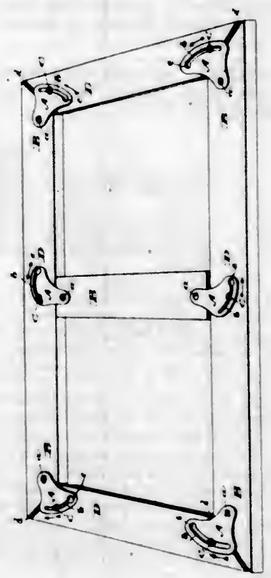
349,630. FRUIT-JAR. GEORGE D. COREY, Lowell, Mass. Filed Sept. 30, 1885. (No model.)



Claim.—1. The combination, with the jar A, provided with ledge D, and cover E, resting upon said ledge and formed with recess *f*, of the ring G, formed with inclines *g*, thumb-pieces J, and bead K, fitting in recess *f*, and the bail F, fitting across the top of ring G, and having its lower ends turned inwardly and fitted under ledge D, substantially as described.

2. The combination, with jar A, provided with ledge D, and cover E, resting on said ledge and having a serrated periphery, of the ring G, formed with inclines *g*, and the bail F, lying across said ring, with its downwardly-projecting portions fitting in the serrations of the cover and its lower ends turned inwardly and fitting under ledge D, substantially as described.

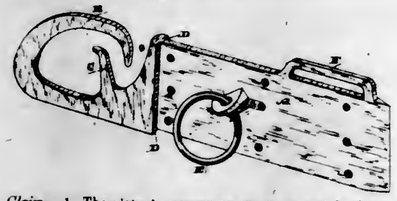
349,631. FASTENER FOR FRAME-JOINTS. WILLIAM COTTS, Toronto, Ontario, Canada. Filed Jan. 28, 1886. (No model.)



Claim.—1. A plate, A, pivoted at *a* on one side of the joint of the frame, and having a curved slot, *b*, made in it eccentric to its pivot *a*, in combination with a headed pin or screw, C, located as described, and fitting into the curved slot *b*, substantially as and for the purpose specified.

2. A plate, A, pivoted at *a* on one side of the joint of the frame, and having a curved slot, *b*, made in it eccentric to its pivot *a*, and an enlargement, *c*, at one end of the slot *b*, in combination with a headed pin or screw, C, located as described, and fitting into the curved slot *b*, substantially as and for the purpose specified.

349,632. TRACE-HOOK. CHARLES DUDLEY, Stockton, Cal. Filed June 28, 1886. (No model.)



Claim.—1. The plate A, secured to the trace and having a hook at one end, in combination with the ring E on the side of the plate, substantially as herein described.

2. An improved trace-hook comprising the plate A, having the backwardly-curved hook B, the guard C, projecting within the space inclosed by said hook, and the ring E on the side of the plate, substantially as herein described.

3. An improved trace-hook comprising the plate A, having the curved hook B, the guard C within the space inclosed by the hook, and the loop F on the rear top edge of said plate, for engaging the hip-strap, substantially as herein described.

4. A trace-hook consisting of the plate A, having at one end the backwardly-curved hook B, forming between its point and the body of the plate the passage *c*, and the guard C, projecting within the space inclosed by the hook, said plate having shoulders D on each side, against which the folds of the trace abut, substantially as herein described.

5. A trace-hook consisting of the plate A, having formed at one end the backwardly-curved hook B, the guard C, projecting within the space inclosed by the hook, and the shoulders D on each side of said plate, in combination with the trace G, having a fold or layer on each side of the plate and abutting against the shoulders thereof, and a layer or fold, *g*, on one side passing the shoulder and terminating beyond the point of the hook, substantially as herein described.

6. A trace-book consisting of the plate A, having formed at one end the backwardly-curved hook B, and the guard C, projecting within the space inclosed by the hook, the shoulders D on said plate, for fitting against the ends of the folds of the trace, the loop F at the rear top edge of the plate, for receiving the hip-strap, and the ring E on said plate, substantially as herein described.

349,633. HAT-LINING. FREDERICK W. DURHAM, Station Road, Barnet, County of Herts, England. Filed Apr. 19, 1886. (No model.) Patented in England Feb. 6, 1886, No. 1,781.

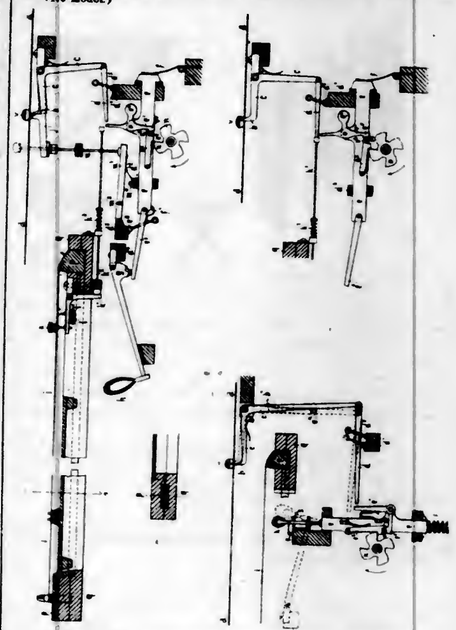


Claim.—1. In a hat-lining, the combination, with the leather band B and the steel or other stiff strip A, the two connected edge to edge, of the swinging hooks C, pivoted at one end to the strip between the latter and the band, and having their hooked ends pointed to penetrate the hat-body above the upper edge of the strip, substantially as shown and described.

2. In a hat-lining, the combination, with the leather band B and the steel or other stiff strip A, the two united edge to edge by a line of stitching, of the swinging hooks C, pivoted to the strip between the latter and the band, and having their hooked ends pointed to penetrate the hat-body above the upper edge of the strip, substantially as described.

3. The combination, with a hat, of the leather band B, the steel or other stiff strip A, having its edge secured to the edge of the band by a line of stitching, and the swinging hooks C, pivoted at one end to the strip between the latter and the band, and having their hooked ends pointed and penetrating the hat-body above the upper edge of the strip, substantially as described.

349,634. MECHANICAL MUSICAL INSTRUMENT. FRIEDRICH E. P. EHRLICH, Gohlis, near Leipsic, Saxony, Germany. Filed June 2, 1886. (No model.)



Claim.—1. The combination, with the hammer *h*, controlling-surface *a*, provided with perforations or their equivalents, and lever *c*, having the finger *b*, of the sliding bar *e*, spring *f*, moving cams *n*, latch e^2, and pawl *e'*, both pivoted to the bar *e*, jack *d*, pivoted to lever *c* and having the shoulder d^2, and bar *d'*, having an inclined surface for the said shoulder to slide on, substantially as and for the purpose specified.

2. The combination, with the hammer *h*, controlling-surface *a*, lever *c*, having the finger *b*, sliding bar *e*, spring *f*, cams *n*, latch e^2, pawl *e'*, jack *d*, with shoulder d^2, and bar *d'*, of the jack e^3, pivoted to the bar *e* and having the shoulder e^4, and bar d^3, having an inclined surface, against which the shoulder e^4 bears, substantially as and for the purpose described.

3. The combination, with the hammer *h*, controlling-surface *a*, lever *c*, having the finger *b*, sliding bar *e*, spring *f*, cams *n*, latch e^2, pawl *e'*, jack *d*, with shoulder d^2, and bar *d'*, of the damper *k*, lever *k'*, and rod k^2, substantially as hereinbefore set forth.

4. The combination, with the hammer *h*, sliding bar *e*, spring *f*, and jack e^3, having the shoulder e^4, of the bar d^3 and means for raising and lowering the said bar d^3, as and for the purpose set forth.

5. The combination, with the hammer *h*, controlling-surface *a*, sliding bar *e*, spring *f*, and jack e^3, having the shoulder e^4, of the bar d^3, having arms *m'*, pivoted at m^3, lever *j*, having a beak adapted to engage with the controlling-surface, and means for transmitting motion from the lever *j* to an arm, *m'*, substantially as and for the purpose described.

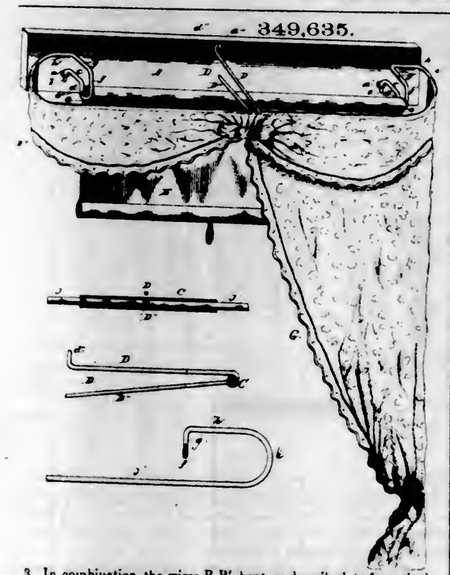
6. In a mechanical musical instrument in which the notes are produced by the impact of hammers against tuned strings, the frame to which the strings are attached, consisting of an inner part, *p*, made of metal, and an outer part, *q*, consisting of wood, the latter inclosing the former, except upon the portions to which the strings are fixed, as and for the purpose specified.

349,635. COMBINATION SHADE, CURTAIN, AND LAMBREQUIN SUPPORTER. OTTO E. ERMEL, Wabash, Ind., assignor to himself and William S. Stitt, same place. Filed Jan. 26, 1886. (No model.)

Claim.—1. A supporter having U-shaped supports for a shade-roller, an outward bend at each end, a curtain or lambrequin holder parallel to the window-facing, and bent ends to engage with eyebolts or staples in said facing, as set forth.

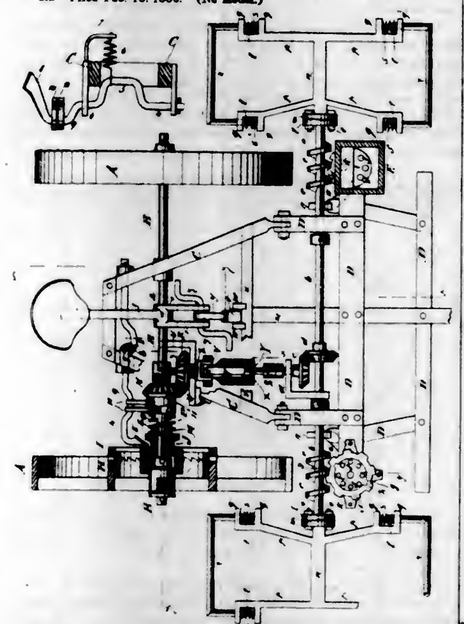
2. A combined shade, curtain, and lambrequin supporter, consisting of wire or similar material having ends *b b'* to engage eyebolts or staples in the facing, U-shaped supports for a shade-roller, outward-bent semi-circular ends, and front pieces parallel with the facing, in combination with a central tube to receive said ends and a bracket for supporting said tube, as set forth.

349,635.



3. In combination, the wires B B', bent, as described, to form shade roller supports, attaching ends, and front pieces, *j j'*, with the bracket D, having end or ring to engage eyebolt *a''*, arms D' D'', and central tube, C, to receive ends *j j'*, as set forth.

349,636. CHECK-ROW CORN-PLANTER. SILVANUS F. ENOS, Etna, Ill. Filed Feb. 18, 1886. (No model.)



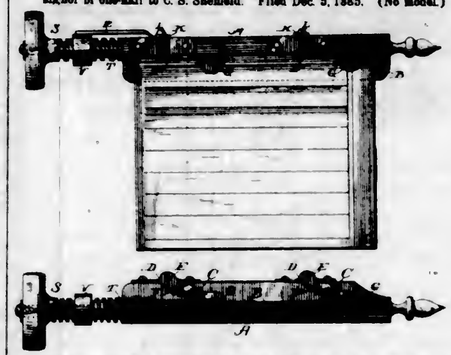
Claim.—1. In a check-row corn-planter, the combination, with the wheel A, the axle B, the hinged frames C D, and seed-boxes E, of the parts H I of the clutch, the pair of beveled gear-wheels N R, the shaft made in three parts and having its tubular middle part, W, connected with the rear end part, S, by a universal joint, V, and with the forward end part, Z, by interior gear-teeth, X, and a gear-wheel, Y, the pair of beveled gear-wheels *c d*, the cross-shaft *b*, having spiral flanges *e*, and the seed-dropping plates *f i*, substantially as herein shown and described, whereby the said seed-dropping plates will be operated to drop the seed by the advance of the machine, as set forth.

2. In a check-row corn-planter, the combination, with the cross-shaft *b*, that rotates the seed-dropping plates, and its driving mechanism, of the marker-shafts *n*, having upon their opposite sides projecting arms *p*, provided with lugs *q* upon the outer sides of their outer ends, the U-shaped marking-bars connected with the said lugs, and the springs *s* and the pins *t*, substantially as herein shown and described, whereby the ground will be marked in line with the cross-rows, and the marker-bars can yield should they strike an obstruction, as set forth.

3. In a check-row corn-planter, the combination, with the frame C and the clutch I, having an annular groove in its hub, of the shaft 4, having crank 5 and pawl 8, and the spring 6, substantially as herein shown and described, whereby the seed-dropping mechanism can be regulated to retard the seed-dropping and straighten the cross-rows, as set forth.

4. In a check-row corn-planter, the combination, with the frame C, the gear-wheel N, and the axle B, of the shaft 4, having cranks 5 and 9, the pawls 10, pivoted to the crank 9, and the ratchet-wheels 11, secured to the said gear-wheel, substantially as herein shown and described, whereby the seed-dropping mechanism can be regulated to hasten the seed-dropping and straighten the cross-rows, as set forth.

349,637. NEWSPAPER-FILE. WILLIAM F. FILE, Topeka, Kans., assignor of one-half to C. S. Sheffield. Filed Dec. 5, 1885. (No model.)



Claim.—1. The combination, with a file-body, of crank-pressure arms operating against a bearing-ledge of said body, a screw-extension and collar, and a bar connecting said collar and the pressure-cranks, substantially as specified.

2. A file-body having a ledge-bearing extending lengthwise on its side, and provided with pins and movable pressure-arms operated by a threaded collar and extension-screw at the end of the file-body, substantially as specified.

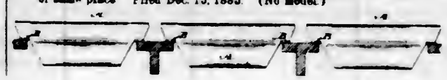
3. The combination, with the grooved file-body having a bearing-ledge, of the pivoted pressure-cranks connected to a slide-bar engaging said groove, and means for moving said slide-bar, substantially as specified.

349,638. MOTOR. ANDREW J. FLOWERS and MALON I. FLOWERS, Springfield, Mo. Filed Jan. 5, 1886. Renewed Aug. 28, 1886. (No model.)



Claim.—The combination of the case A, with its inlet and outlet ports, the eccentrically placed cylinder therein, the pistons H H of said cylinder, and the slotted concentric ring G, embedded in the head of the case, substantially as and for the purpose specified.

349,639. GRATE-BAR. WILLIAM W. FORREST, Philadelphia, Pa., assignor of one-half to George S. Hensel and Stephen B. Colladay, both of same place. Filed Dec. 15, 1885. (No model.)

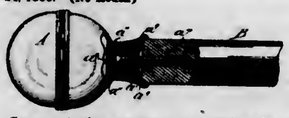


Claim.—1. A grate-bar formed of a tube of approximately wedge shape, having lips extending horisontally in the lateral direction of the bar, substantially as and for the purpose set forth.

2. A tubular grate-bar having its ends cut away inwardly and downwardly, and having lips extending from the sides at both ends, whereby the said bar is firmly held in position, substantially as described.

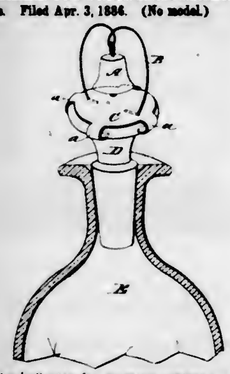
3. A grate having tubular bars of wedge-shaped form open at both ends, having cut-away lower ends, and a series of bearing-bars, the said tubular bars having their open ends opposite to but separate from each other, all combined substantially as and for the purpose set forth.

349,640. ORNAMENT FOR CURTAIN-POLES. EDWARD A. FOY, Cincinnati, Ohio, assignor to William F. Foy, same place. Filed Sept. 24, 1885. (No model.)



Claim.—A glass ornament for curtain-poles coated on its interior so as to produce a reflecting-surface, and having a neck provided with ribs a^8 and filled with plaster-of-paris to the line a^9, in combination with screw a^{10}, having projections a^{11}, and embedded in the filling, as and for the purpose set forth.

349,641. ALARM FOR POISON-RECEPTACLES. OSCAR F. FROST, Monmouth, Me. Filed Apr. 3, 1886. (No model.)



Claim.—1. An indicator for poison-receptacles, comprising the attaching-plate C, having clamping lugs or ears *a* on its outer edge and a vertical loop on its upper surface, and the bell A, hung on the cross-piece of the said loop, substantially as set forth.

2. The combination, with the stopper having a flange, of the attaching-plate C, having lugs *a* engaging the flange of the stopper, the loop B, projecting from the upper face of plate C, and the bell A, suspended within the loop, substantially as set forth.

349,642. STOVE-DOOR KNOB. SELDEN F. GIBSON and FRANKLIN M. LAWRENCE, Portland, Me.; said Lawrence assignor of his right to William H. Stevens, same place. Filed Feb. 17, 1886. (No model.)

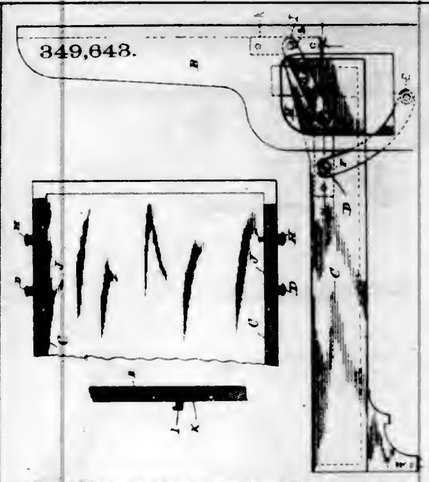


Claim.—The combination of a wooden knob with a metal disk-base having a metal boss or washer upon one side and a countersunk space on the other, with a non-conducting washer, wooden knob, and screw, substantially as described and set forth.

349,643. FOLDING BEDSTEAD. PERLEY A. GOULD and FRANK A. COOK, Melrose, Mass., assignors to said Gould and WILLIAM H. WHITCOMB, same place. Filed Dec. 24, 1885. (No model.)

Claim.—1. A folding or wardrobe bedstead consisting of a casing or support and bed proper, said bed being connected with said casing by two straps on each side, and each pivoted at one of its ends to the casing and at the other end to the bed proper, the pivots of one strap and of one end of the other strap being in the same vertical plane when the bed is folded, as set forth.

349,643.



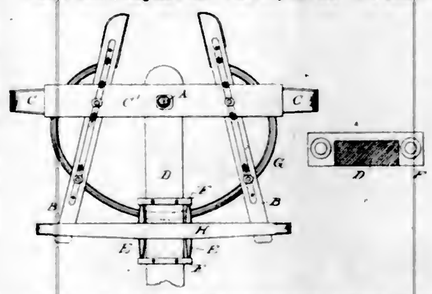
2. A folding or wardrobe bedstead consisting of the casing or support and bed proper, said bed being connected with said casing by curved and straight straps, each pivoted at one of its ends to the casing and at the other to the bed proper, as set forth.

3. The combination, with the casing and bed proper, of the curved straps F and straight straps G, a curved and a straight strap being arranged on each side of the bed, and one end of each of said straps being pivotally secured to the bed and the other to the casing, as set forth.

4. The combination, with the casing and bed proper, of the curved straps F and straight straps G, one end of each of said straps being pivotally secured to the bed and the other to the casing, and one end of each of said straps having a notched pivotal bearing, as set forth.

5. The combination, with the casing and bed proper, of the curved straps F and straight straps G, one end of said straps being pivotally connected at D and H to the bed and at E and I to the casing, the construction and arrangement being such as that when the bed is folded pivots D and E will be in substantially the same vertical plane, and pivots D and I in nearly the same horizontal plane, and when the bed is open pivots D and H will be in substantially the same horizontal plane, as set forth.

349,644. ANTI-FRICTION ROLLER FOR WAGON-REACHES. JOHN Q. GRANT, Longmont, Colo. Filed July 12, 1886. (No model.)



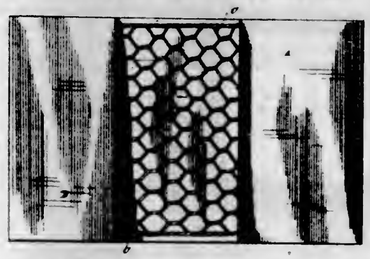
Claim.—1. The combination of a wagon-reach, a pair of brackets notched so as to fit the said reach, and in which are journaled so as to be free to rotate a pair of rollers with the sway-bar, substantially as and for the purpose set forth.

2. The combination of the coupling-pole of a wagon, two brackets having notches adapted to fit the reach, bolts securing said reach and brackets together, and a pair of double-conical or centrally-swelled rollers journaled in said brackets with the slide-bar of a wagon, substantially as and for the purpose set forth.

3. The combination of a wagon-reach or coupling-pole, a pair of brackets secured to said reach or pole, and one or more double-conical or centrally-swelled rollers supported in said brackets with a slide or sway bar of a wagon, substantially as described.

4. As a new article of manufacture, a pair of brackets adapted to be fitted to the reach of a wagon, and one or more double-conical or centrally-swelled rollers adapted to be journaled therein, substantially as described, and for the purpose set forth.

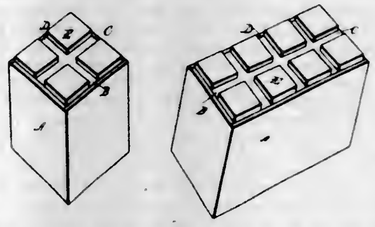
349,645. CONSTRUCTION OF CONCRETE PAVEMENTS. FRANCIS V. GREENE, New York, N. Y., assignor to the Barber Asphalt Paving Company, Washington, D. C. Filed Mar. 12, 1886. (No model.)



Claim.—1. A concrete pavement having embedded therein a layer of wire-netting or similar material which will prevent the same from cracking, as set forth.

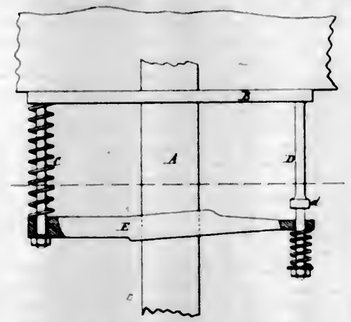
2. An asphalt concrete pavement or foot-walk having wire-netting embedded in the top layer and some little distance below the wearing-surface, as set forth.

349,646. TOY BUILDING-BLOCK. THOMAS H. GRIGG, Philadelphia, Pa., assignor to Charles H. Frost, same place. Filed Apr. 30, 1886. (No model.)



Claim.—A hollow rectangular building-block having four sides and a top piece fitted therein, said top piece having intersecting grooves extending from edge to edge thereof at right angles to each other, forming multiple squares or panels, and adapted and designed to receive the lower edges of other corresponding blocks, substantially as shown and described.

349,647. APPLIANCE FOR SUPPORTING CARRIAGE-WINDOWS. CHARLES G. GOMPEL, Leicester Square, County of Middlesex, England. Filed July 13, 1886. (No model.)



Claim.—As an appliance for holding carriage-windows and other sliding sashes, the combination, with a vertical bar fixed in the recess below the sash, of a horizontal bar embracing the vertical bar and carried by the bottom of the sash, said horizontal bar being acted upon by two springs tending to cant it, so as to clutch the vertical bar, while a stud or collar on the sash makes the horizontal bar release its hold when the sash is depressed, substantially as herein described.

349,648. LAUNDRY DRESSING. EDWARD A. A. HOVEY and ERNEST C. PHILLIPS, Chicago, Ill., assignors to the A. Erkenbrecher Company, Cincinnati, Ohio. Filed Mar. 18, 1886. (No specimens.)

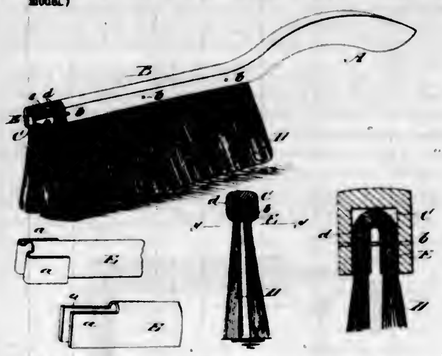
Claim.—1. The compound of starch of corn or other grain with dextrine, borax, and alum, in the proportions substantially as specified.

2. The compound of starch of corn or other grain with dextrine, potato-starch, borax, and alum, substantially as and for the purpose described.

3. The compound of starch of corn or other grain with dextrine and borax, as and for the purpose explained.

4. The compound of starch from corn or other grain with dextrine, potato-starch, and borax, for the purpose designated.

349,649. BRUSH. WILBUR F. HOWARD, Claremont, N. H., assignor to himself and David W. O'Neil, same place. Filed May 7, 1886. (No model.)

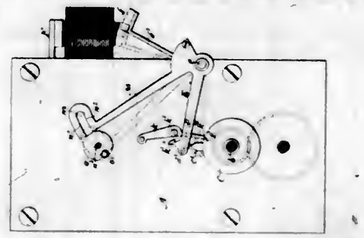


Claim.—1. The brush composed of grooved head-stock B, grooved core E, brush material D, and lateral pins *b b* in combination, substantially as shown and described.

2. The combination of core E, having oppositely-bent ends *a a*, with doubled and twisted bunches of fiber *d d*, head-stock B, having groove C, and pins *b b*, passing laterally through all these parts, substantially as shown and described.

3. The U-shaped core E, with tongues *a a a a* bent back as a fastening-piece for bristles or other brush material, substantially as shown and described.

349,650. ELECTRIC SYNCHRONIZER FOR CLOCKS. MARSHALL E. HUNTER, Oakland, Cal., and JAMES H. GERRY, Brooklyn, N. Y.; said Gerry assignor to said Hunter. Filed Jan. 11, 1886. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a clock-hand and its arbor, of a hand-synchronizer consisting of an arm and two pins or arms for engaging the same, a lever for operating the synchronizer, an electro-magnet for moving said lever toward the arbor, means for moving said lever away from the arbor, a device for locking the same in the latter position, and a releasing device for said lever moving with the clock-hand, substantially as described.

2. The combination, substantially as hereinbefore set forth, with the clock-hand, a correcting-arm moving therewith, two correcting-pins for engaging opposite sides of said arm, a lever carrying the same, a detent for holding the lever in a given position, a releasing device moving with said clock-hand, and an electro-magnet, its armature, and armature-lever for actuating said lever after it has been so released.

3. The combination, substantially as hereinbefore set forth, with the hand of a clock and a correcting device for the same, of an electro-magnet for actuating said correcting device, an armature applied to said electro-magnet, and a lever carrying the armature and pivoted at a given point, the polar faces of said electro-magnet being curved to a center eccentric from said point.

4. The combination, substantially as hereinbefore set forth, with a clock-setting device, of an electro-magnet for operating the same having curved polar faces, a pivoted armature-lever, and an armature carried thereon and moved laterally with reference to the poles of said magnet and at the same time approaching said poles, substantially as described.

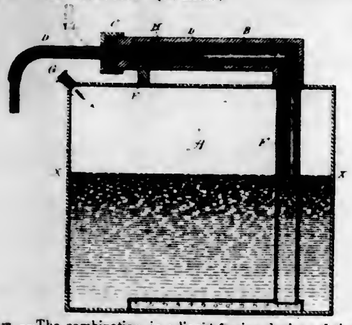
5. A device for setting the hands of a clock, consisting of the combination, substantially as described, of an arm or lever having a U-shaped extension or bow, a pin revolving about the arbor of the hand and engaged by said bow when the setting device is operated, and means for actuating said arm or lever.

6. In a clock-setting device, a second-hand arbor and second-hand frictionally secured thereto, a disk moving with said second-hand, a pin carried upon said disk, and a correcting-bow for engaging said pin and placing the same in a given position, substantially as described.

7. In a clock-setting device, the arbor of the hand having an annular groove, an arm, M, carrying the bow *m*, the disk *o*, frictionally connected with the arbor, the frictional roller *o'*, carried upon said disk, and the frictional connection between said disk and arbor, consisting of the spring-clutch o^2 and the pin o^4, entering the annular groove formed in the arbor.

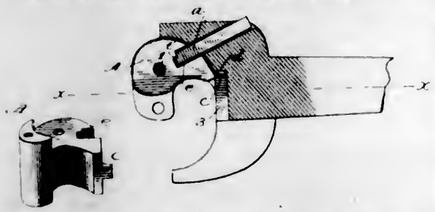
8. In a clock-setting device, the combination, substantially as hereinbefore set forth, of a device for setting the minute-hand, a lever moving therewith having the U-shaped extension or bow, a friction-roller turning about the arbor of the second-hand, and means for periodically actuating said lever to correct said second-hand by engaging said friction-roller.

349,651. LIQUID-FORCING DEVICE. THEODORE JACOBS, Norristown, Pa. Filed Feb. 3, 1886. (No model.)



Claim.—The combination, in a liquid-forcing device, of the tank A, inlet-pipe G, and the rotatory and telescopic exit-pipe D, supported by casing B and having the boss or stop-pin D and the journal H, and said casing B, fastened to tank A and communicating with the interior thereof, substantially as and for the purposes set forth.

349,652. CAR-COUPLING. HUGER W. JOHNSTONE, Idlewild, Ga. Filed Dec. 10, 1885. Renewed Aug. 24, 1886. (No model.)



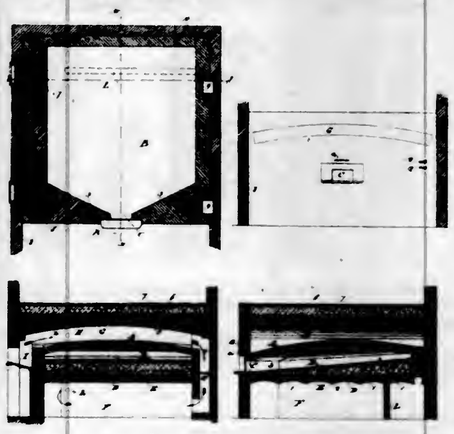
Claim.—1. In a draw-head having a knuckle formed with a curved rear face continuous with the front curve of the knuckle and turning in a curved recess of the draw-head, an inclined way formed in the draw-head, with a straight inclined bottom extending from its front opening to its rear opening in the upper surface of the draw-head, and a straight key adapted to bear by gravity against the curved face of the knuckle and to lock the same, substantially as described.

2. The knuckle having a notch and rear curved face continuous with the front face, and spur *c*, in combination with the correspondingly-curved face of the draw-head, and the shoulder *d* at the inner extremity of the curved recess of the draw-head, all substantially as described.

3. The arm of the draw-head, having the inclined slot for the key, arranged approximately in line with the draft, in combination with a straight key arranged in the slot, and having its rear end projecting to the rear and side and adapted to operate by gravity, in combination with the notched and curved knuckle, substantially as described.

4. A knuckle of a draw-head having a rear curved face, with a vertically-arranged slot or notch in its curved face, in combination with a key set on edge, and of approximately triangular shape and sliding on an inclined way in the arm of the draw-head, the said way and key extending to the rear and side with a straight bottom, substantially as described.

349,653. BAKING-OVEN. JULES JUNKER, Philadelphia, Pa. Filed Apr. 21, 1885. (No model.)



Claim.—1. The baking-chamber arranged above a heating-space or smoke-chamber and having a thick bottom and thin crown, in combination with the thick exterior crown arranged above the baking-chamber, leaving a heating-space or smoke-chamber between the two crowns, and a fire-chamber communicating directly with said last-named space, the two heating-spaces being connected in series, so that the products of combustion pass first over the thin crown and then under the thick bottom of the baking-chamber, substantially as described.

2. The baking-chamber provided with a fire-brick crown and with a bottom composed of a tile floor, an underlying bed of sand, and a horizontal supporting-partition, said horizontal partition forming the roof of a lower heating-space or smoke-chamber, in combination with the exterior crown arranged above said baking-chamber, leaving an upper heating-space or smoke-chamber between the two crowns, and a fire-chamber delivering its products directly into said upper heating-space, which communicates with and delivers the products into the lower heating-space, substantially as described.

3. A close baking-chamber having the sole sloping upward from the door or opening and provided with a crown in the form of a flat dome, arched from front to rear as well as from side to side, substantially as described.

4. A close baking-chamber, in combination with means for heating the same externally, said chamber having the sole sloping upward from the door or opening and provided with a crown, whereof the part between the middle of the chamber and the door is approximately parallel with the sole, while the part between said middle and the rear of the chamber approaches said sole at a considerable angle, substantially as described.

5. A close baking-chamber having the crown, in the form of a flat dome, arched in all directions, in combination with a fire-chamber and communicating smoke-chambers for heating said baking-chamber, substantially as described.

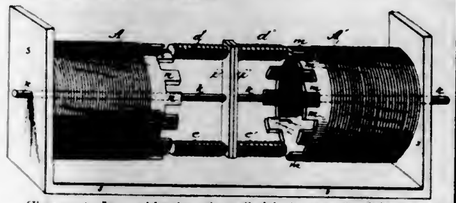
6. The baking-chamber having the bottom composed of the inclined floor, the horizontal supporting-partition, and the filling between the floor and the supporting-partition, in combination with the exterior crown arranged above the baking-chamber, leaving a heating-space or smoke-chamber between, and the fire-chamber communicating with said heating-space, a second heating-space or smoke-chamber of which said partition constitutes the roof, being formed under said baking-chamber, substantially as described.

7. The combination, with the baking-chamber supported above the lower heating-space or smoke-chamber and the exterior crown arranged above the baking-chamber, leaving between them the upper heating-space or smoke-chamber, of the fire-chambers communicating with said upper smoke-chamber, the flues connecting the two heating-spaces or smoke-chambers in series, and the upright check-wall in the lower smoke-chamber, the oven-wall behind said upright check-wall being provided with an outlet for the products of combustion, substantially as described.

8. The baking-chamber having the crown in the form of a flat dome, arched in all directions, and provided with a door in the front wall of the oven, the upright wall on either side of said door running obliquely to the side walls of the baking-chamber, in combination with the arched exterior crown spanning said dome, leaving a heating-space or smoke-chamber between, and the fire-chambers in the side wall of the oven communicating with the said heating-space or smoke-chamber, substantially as described.

9. The baking-chamber, of about equal depth and width, having the crown in the form of a flat dome arched in all directions, in combination with the exterior arched crown spanning said dome at a short distance therefrom, and the fire-chambers communicating with the heating-space between the crowns, the curvature of the exterior crown being in the direction in which the products of combustion pass, so as to reverberate them upon the inner crown or dome, substantially as described.

349,654. ELECTRIC MOTOR. VINCENT E. KENNAN, Boston, Mass. Filed Feb. 4, 1886. (No model.)



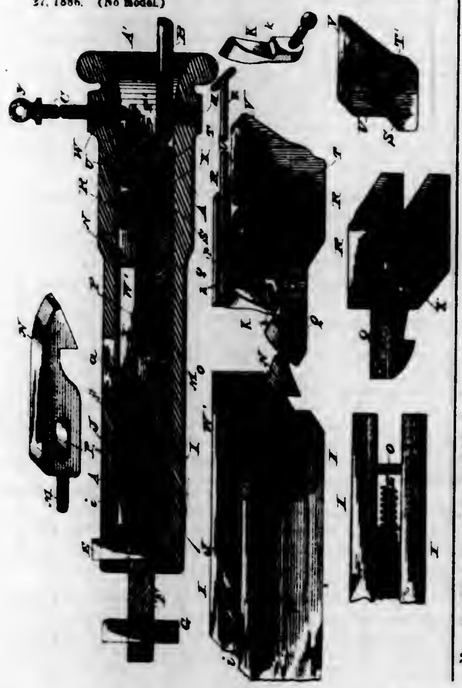
Claim.—1. In combination, the cylindrical cores of a field-magnet having crown-pieces, and an armature on the same axis as the cylindrical cores, with poles of a diameter equal to the width of one of the crown-pieces and parallel therewith, adapted to revolve by successive attractions and repulsions before one crown-piece of each cylindrical core at a time for each individual electro-magnet of the armature, substantially as described.

2. In combination, the cylindrical cores of a field-magnet having crown-pieces equal in width to the spaces between them, and an armature on an axis concentric with the cores, and having poles equal in diameter to the width of one crown-piece, adapted to revolve by attractions and repulsions before one crown-piece of each cylindrical pole at a time for each individual electro-magnet of the armature, substantially as described.

3. In combination with the hollow cylindrical cores having crown-pieces, the double armature having pole-pieces revolving on axes concentric with that of the cylindrical cores and in front of the crown-pieces, said armatures being placed back to back, all substantially as described.

4. The hollow cylindrical core of a field-magnet having crown-pieces, in combination with an interior core with the crown-pieces and an armature, all substantially as described.

349,655. CAR-COUPLING. ISAAC KLING, Louisville, Ky. Filed July 27, 1886. (No model.)



Claim.—1. The combination, with the recessed draw-bar, the link entering the draw-head, and the pin, of the sliding bifurcated block in the recess of the draw-bar, provided with the downwardly-looking shoulder between the arms of its bifurcation, the swinging block pivoted between the arms of the sliding block, provided with the upwardly-looking shoulder on its inner edge to engage the shoulder on the sliding block, and the extended front outer corner to fall forward and downward and support the end of the pin, so as to prevent the same from falling, and devices, substantially as described, in the recess of the draw-bar, to bear against the sliding block and prevent breakage by jar in coupling.

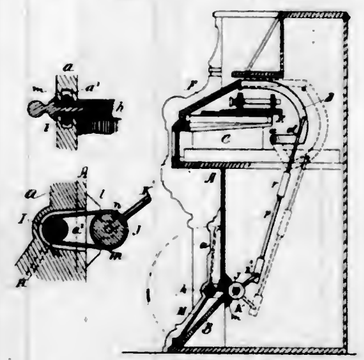
2. The combination, with the recessed draw-bar and the sliding block situated in the recess thereof, and having on its inner end the upwardly-looking hook, of the long bifurcated block I, having a longitudinal recessed groove in its upper surface, the wedge lying in said groove having the projections *j*, to fit in the recesses therein, and binding the block I in the recess of the draw-bar, the coiled spring secured to or in said block I, between the arms thereof, and the slotted downwardly-looking hook attached to the block I, between the arms thereof, by means of a pin passing through its slot and engaging the upwardly-looking hook on the sliding bifurcated block, substantially as specified.

3. The combination, with the link and pin, of the herein-described coupler-head, composed of the recessed draw-bar A, having the flaring draw-head A', the bifurcated block R, provided with the shoulder S, hook Q, and recess *q*, the pivoted block U, provided with the shoulder S and point V, the bifurcated block I, provided with the recessed groove i and arms W', the wedge J, having the projections *j* and opening *j''*, spring L, pin O, and hook N, provided with the slot P, and pin M, all constructed and arranged substantially as and for the purpose specified.

4. The combination, with the recessed draw-head, bifurcated block I, and hook N, connected thereto, of the sliding block R, hook Q, firmly secured thereto or forming part thereof, the disengaging-bar pivoted to the hook Q, and the disengaging-rod Z, moving in the groove P of the sliding block, substantially as specified.

5. The combination, in a car-coupler, of the downwardly-looking hook N, connected with a block, I, in the recess of the draw-head, near the bottom of the same, the upwardly-looking hook Q, provided in the side of its shank with the recess *q'*, the disengaging-bar K, having its lower end pivoted in the recess *q'*, and provided with the shoulder *k*, and the disengaging-rod Z, moving in the groove *p* of the block R, substantially as specified.

349,656. ORGAN-CASE. ELMER H. LORING, Worcester, Mass., assignor to the Loring & Blake Organ Company, same place. Filed June 14, 1886. (No model.)



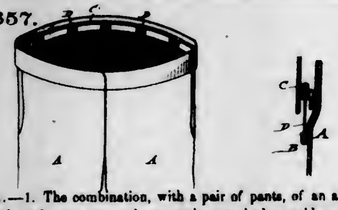
Claim.—1. The fall-swing arm curved and offset in the manner set forth, in combination with the brace and fall in an organ-case, as and for the purpose specified.

2. A pedal-cover mechanism consisting of the cover H, having a hinging-roll, *h*, at its edge, provided with a wheel fixed thereto, in combination with a rotative operating-shaft, K, provided with a wheel, J, and devices for connecting and transmitting motion between said wheels, whereby rotation of said shaft effects the elevation or depression of said cover, substantially as set forth.

3. The combination of the fall F, the fall-swing D, the crank-shaft K, supported in bearings on the case and provided with a sheave, J, the rod P, connecting the fall-swing and the crank K' on said shaft, the pedal-cover H, provided with a sheave, I, axially coincident with the hinging of said cover, and a band, *m*, connecting said sheave with the sheave on said crank-shaft, substantially as and for the purpose set forth.

349,657. ATTACHMENT FOR PANTS. HENRIETTA J. LYON, Newark, N. J. Filed Mar. 6, 1886. (No model.)

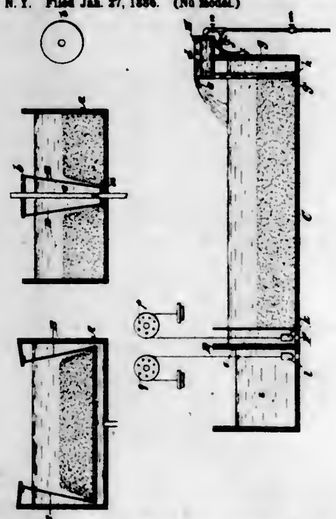
349,657.



Claim.—1. The combination, with a pair of pants, of an attachment consisting of a transverse lower strip attached to said pants, a transverse top strip parallel to the lower strip, and elastic bands connecting said strips, said bands being arranged in pairs closely to each other and having an opening forming a button-hole between each pair of bands intermediately between the strips, substantially as set forth.

2. The combination, with a pair of pants, of an attachment consisting of a transverse lower strip attached to said pants, a transverse top strip parallel to the lower strip, and elastic bands connecting said strips, said bands being arranged in pairs and having an opening or button-hole formed between each pair of bands and intermediately between said strips, the central pair being of greater length than the remaining pairs and attached at the lower end to the body of the pants, substantially as set forth.

349,658. PROCESS OF AND APPARATUS FOR WASHING, DECOLORING, AND DRAINING PYROXYLINE. GEORGE M. MOWBRAY, North Adams, Mass., assignor to the American Zylonite Company, New York, N. Y. Filed Jan. 27, 1886. (No model.)



Claim.—1. The process of decolorizing pyroxyline by subjecting it to the action of oxalic acid and hydrochloric acid, substantially as described.

2. The process of decolorizing pyroxyline by subjecting it to the action of oxalic acid, or a soluble acid oxalate, substantially as described.

3. The method herein described of purifying pyroxyline, which consists in decolorizing the same, subjecting it to a washing step, placing it in a drainage-tank and draining off the water, substantially as described.

4. The method herein described of washing out the acid from newly-converted pyroxyline, which consists in placing the same in a tank, flowing water through the mass from one side or end of the tank, and filtering or straining the overflowing water at another side or end of the tank, substantially as described.

5. The apparatus, consisting of a distributing water-trough and a filtering or straining medium, for washing pyroxyline, substantially as described.

6. The combination, with a drainage-tank, of an overhanging filtering medium, so that the felting tendency of pyroxyline pulp shall not impede the draining-liquid as it leaves the pyroxyline, substantially as described.

7. The combination of a washing-tank, means of controlling the inflow of washing-water, as at *m*, *n*, and *f*, with the overflow *o*, outflows *k* and *l*, and means of controlling at *p* and *q*, substantially as shown and described.

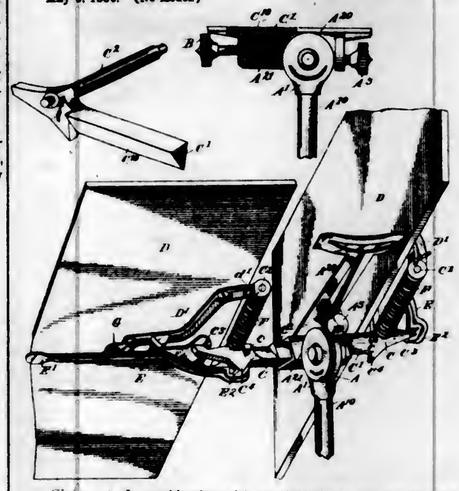
349,659. METHOD OF DRYING PYROXYLINE. GEORGE M. MOWBRAY, North Adams, Mass., assignor to the American Zylonite Company, New York, N. Y. Filed Jan. 27, 1886. (No specimens.)

Claim.—1. The within-described method of desiccating pyroxyline, the same consisting in using warmed air which has been previously deprived of its moisture by passing it over lime, substantially as and for the purpose specified.

2. The within-described method of desiccating pyroxyline, the same consisting in using warmed air which has been previously deprived of its aqueous moisture by chilling, substantially as and for the purpose specified.

3. The within-described method of desiccating pyroxyline, the same consisting in using warmed air which has been previously deprived of its aqueous moisture and then passing it over lime, substantially as and for the purpose specified.

349,660. BOOK-HOLDER. LA VERNE W. NOYES, Chicago, Ill. Filed May 6, 1886. (No model.)



Claim.—1. In combination with the shelf-plates and the brackets having the shelf-pivots C^2 and the catches C^4, the springs stopped against the plates and against the brackets, and tending to fold the shelves up toward each other, and the latches E, pivoted on the shelves and engaging the catches on the brackets, substantially as set forth.

2. In combination with the shelf-plates and the brackets having the shelf-pivots, the catches C^4 and the stops C^3, the springs tending to fold the shelves up toward each other, and the latches on the shelves engaging the catches when the plates meet the stops, substantially as set forth.

3. In combination with the central support and the horizontally-sliding brackets sustained thereby, having the shelf-pivots and the catches C^4, the springs stopped against the shelf-plates and against the brackets and tending to fold the shelves up together, and the latches on the shelves engaging the catches, substantially as set forth.

4. In combination with the brackets having the shelf-pivots, the stop-tooth C^3, and the catch C^4, the shelf-plates pivoted thereon and provided with the springs to throw them up, and the latches pivoted on the shelves and having the notch to engage the tooth C^3 when the shelves are folded and the catch C^4 when they are open, substantially as set forth.

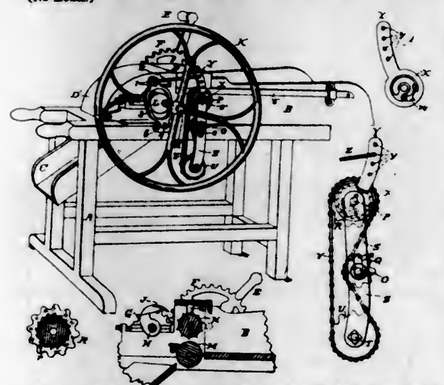
5. In combination with the brackets having the spindles C^2 to serve as pivot-bearings for the shelves, the shelves pivoted thereon, and the springs coiled around the spindles and stopped at one end against the bracket and at the other end against the shelves, and tending to fold the shelves together, and the means for fastening the shelves open, substantially as set forth.

6. In combination with the central support having the transverse slide-bearing for the shelf-sustaining brackets and provided with the clamp-screw, the shelf-sustaining brackets having their slide-arms in contact within said slide-bearing, the contiguous faces of said arms being oblique to the direction of pressure exerted by the clamp-screw, substantially as set forth.

7. In combination with the central support having the parallel-sided transverse slide-bearing, and provided with the clamp-screw B, the shelf-sustaining brackets having their slide-arms in contact within said slide-bearing, said slide-arms having oblique faces in contact, substantially as set forth.

8. In combination with the pivoted shelves rocking upward and toward each other from their horizontal position, springs reacting against stops rigid with the shelf-pivots and tending in all positions of the shelves to fold them together, and locking devices to hold them horizontal against the reaction of said springs, substantially as set forth.

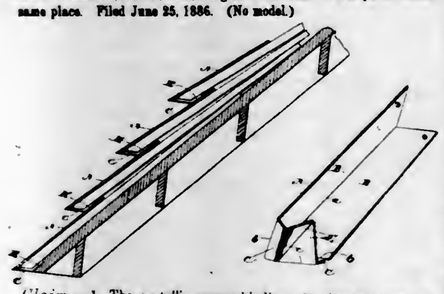
349,661. FEED-CUTTER. JESSE P. OUTCALT, Lancaster, Ohio, assignor to the Eagle Machine Company, same place. Filed July 12, 1886. (No model.)



Claim.—1. The combination of roller M, its shaft O, journaled in stationary bearings *m*, the sprocket-wheel Q upon said shaft, the roller N, its shaft P, journaled in slotted bearings *n*, sprocket-wheel R upon upon said shaft, the slotted bearing-plate S, stud T, attached to said plate, the sprocket-wheel U upon said stud, and chain belt V, for operating the sprocket-wheels, substantially as described, for the purpose set forth.

2. The combination, with the feed-rollers M and N, the shafts O and P, and the sprocket-wheels Q and R, of the slotted bearing-plate S, the stud T, the sprocket-wheel U, the chain belt V, the pawl-and-ratchet mechanism r W X Y, the rod Z, the yoke 3, the cutter-shaft, the driving-cam L upon the cutter-shaft, and means for rotating the shaft, substantially as set forth.

349,662. METALLIC CORNER-BINDING FOR SHINGLES. WILLIAM H. PRENTICE, Toledo, Ohio, assignor of one-half to Joseph L. Parks, same place. Filed June 25, 1886. (No model.)



Claim.—1. The metallic corner-bindings for shingled hip-roofs, flanged at *c* to fit over the shingles, substantially as described.

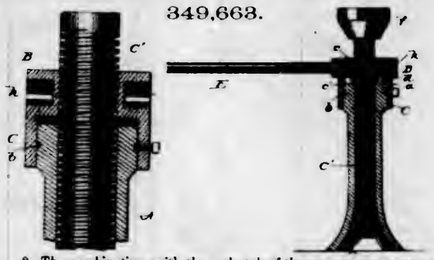
2. The corner-bindings for shingled hip-roofs having the sides B, to bear against the upper sides of the shingles forming the angles, and the flanges C, to bear against the lower ends of the shingles, substantially as described.

3. The corner-binding for shingled hip-roofs having the sides B, to bear against the upper or outer sides of the shingles forming the angles, the flanges C, to bear against the lower ends of the shingles, and the flaps E, to bear against the under sides of the shingles at their lower ends, substantially as described.

349,663. SCREW-JACK. HENRY W. ROBIE, Portsmouth, Va., assignor of two-fifths to Samuel S. Armstrong, same place. Filed Apr. 27, 1886. (No model.)

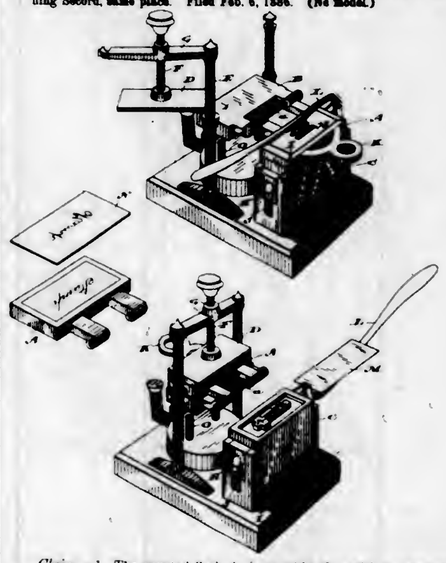
Claim.—1. In a screw-jack, the combination, with a pedestal, of a power-nut supported on the upper end of the pedestal, said nut having a downwardly-extending flange to hold it against lateral movement, and said flange having an opening, a set-screw working therein and adapted to bear against the pedestal, balls between the power-nut and pedestal, and a power-screw, substantially as set forth.

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2. The combination, with the pedestal, of the power-nut supported on the upper end of the pedestal and having a downwardly-extending flange inclosing the upper end of the pedestal, said flange having an opening, a set-screw working therein and adapted to bear against the pedestal, and a power-screw, substantially as set forth.

349,664. VULCANIZED RUBBER DIE OR STAMP. GEORGE J. B. RODWELL, Toronto, Ontario, Canada, assignor of one-half to Herbert Canning Secord, same place. Filed Feb. 6, 1886. (No model.)



Claim.—1. The pivoted flask A, in combination with a press and type-case, arranged substantially as and for the purpose specified.

2. A flask, A, pivoted at *a*, and arranged to rest upon a bed-plate, B, in combination with the pivoted case C, arranged substantially as and for the purpose specified.

3. The pivoted flask A, arranged to rest upon the pivoted case C, in combination with the springs J, arranged to support the pivot-points of the case C, substantially as and for the purpose specified.

4. A pivoted flask, A, arranged to rest upon the pivoted case C, supported by the springs J, in combination with the lever L, provided with a pivoted plate, M, substantially as and for the purpose specified.

5. The pivoted flask A, arranged to rest upon the bed-plate B, in combination with the follower D, pivoted on one of the standards E, and operated by the screw F, substantially as and for the purpose specified.

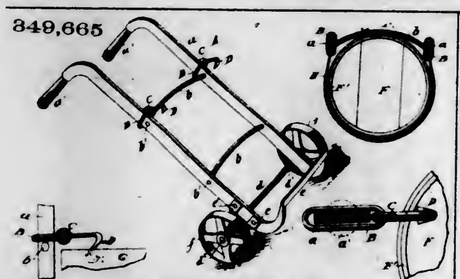
6. The pivoted flask A, resting upon the bed-plate B, in combination with the lamp O, arranged substantially as and for the purpose specified.

349,665. BARREL-TRUCK. GEORGE W. ROSE, Paterson, N. J., assignor of one-half to Richard Fielding, same place. Filed Apr. 29, 1886. (No model.)

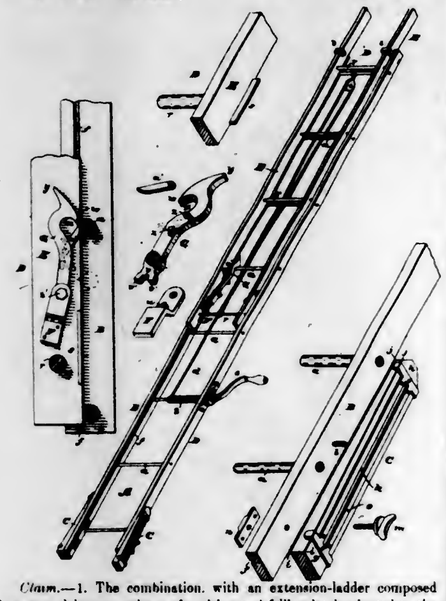
Claim.—1. In a truck, the combination, with the side bars and handles, of a link or ring provided with an eye-hook which is movable up and down said side bars for the purpose of engaging and securely holding on truck any box, bale, or barrel, substantially as set forth.

2. The combination, with the handles, side bars, and toe-piece of a truck, of movable or sliding rings on said side bars, provided with a hook and eye, substantially as described, and for the purpose specified.

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349,666. EXTENSION-LADDER. DAVID E. ROWLAND and WILLIAM T. BLACK, Canton, Ohio; said Black assignor to said Rowland. Filed Apr. 3, 1886. (No model.)



Claim.—1. The combination, with an extension-ladder composed of upper and lower sections, of a rising and falling latch pivoted to the upper section and adapted to engage the rounds of the lower section, and a trip pivoted to said upper section and engaging a lug on the latch, for the purpose of raising the latch over the rounds as the upper section is lowered, substantially as set forth.

2. The combination, with an extension-ladder composed of upper and lower sections, of a rising and falling latch having a T-shaped head, the upper end of said head forming a nose for raising the latch over the round, and the lower end thereof forming a hook to engage the rounds, and a trip pivoted to the upper section and engaging a lug on the latch, for the purpose of raising the latch over the rounds as the upper section is lowered.

3. The combination, with an extendible ladder, of the latch G, having the points *y* and *w*, hook *x*, trip *a*, projections *v' v'*, and bracket F, substantially as described, and for the purpose set forth.

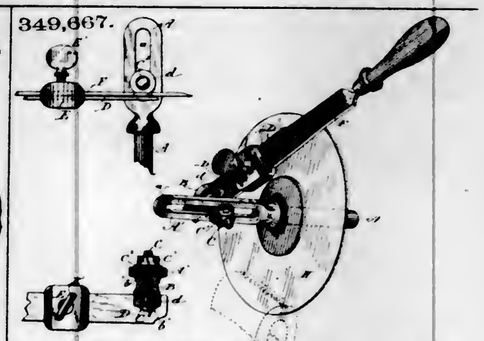
4. An extendible ladder having longitudinal grooves *f* on the inner face of the side bars of the lower section, tongue-plates *s*, attached to the upper section and adapted to said grooves, the rising and falling latch, as described, and means for raising and lowering said upper section, and an adjustable foot-piece, substantially as described, and for the purpose set forth.

349,667. SHARPENER FOR COLTERS AND HARROW-DISKS. BENJAMIN STALCUP, Worthington, Ind., assignor of one-half to Maria L. Barrackman, same place. Filed Jan. 26, 1886. (No model.)

Claim.—1. In combination, a standard pivotally secured to the colter, a stock-plate pivotally secured to said standard, and a file adjustably secured to said stock-plate, substantially as described, and for the purpose specified.

2. In combination, a standard pivotally secured to the colter, a stock-plate pivotally and adjustably secured to said standard, and a file clamped to said stock-plate, substantially as and for the purpose specified.

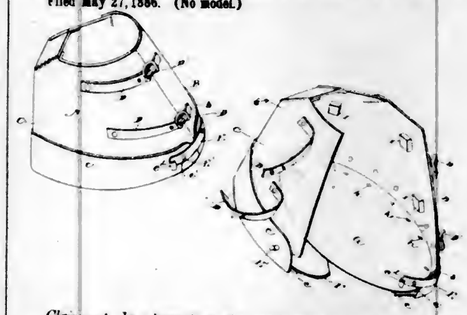
349,667.



3. In combination, a pivotal standard and a stock-plate, said stock-plate carrying a file-attaching clamp, and hinged to a pivot which is vertically adjustable on said pivotal standard, substantially as and for the purpose specified.

4. In combination, a standard, A', having a spindle, A, and slot *a*, spool B, adjustably secured to said standard, stock-plate D, pivoted to said spool, clamp E, and file F, substantially as and for the purpose specified.

349,668. HORSE-BOOT. GEORGE H. ST. JOHN, Leonardsville, N. Y. Filed May 27, 1886. (No model.)

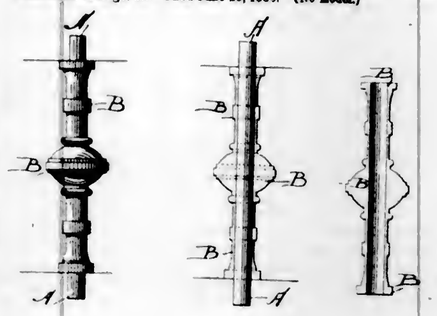


Claim.—1. In a horse-boot, the combination of the pivoted shoe-sections, a spring arm or clamp, E, affixed to the free end of one of the said sections and adapted to be connected to a stud on the other section to detachably connect the said sections together, an open pliable jacket secured to the shoe-sections, and the fastening devices for securing the meeting edges of the jacket together, for the purpose set forth.

2. In a horse-boot, the combination of the pivoted shoe-sections, a spring-clamp carried by one of the said sections at its free end to detachably connect the sections together, a jacket secured to the shoe-sections, and the pliable sheath-sections F G, secured to the shoe-sections and overlapping one another, substantially as described, for the purpose set forth.

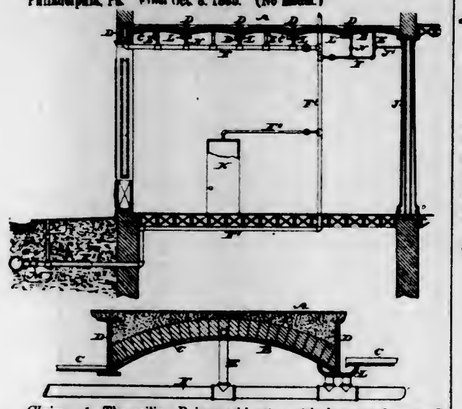
3. A horse-boot consisting of the pivoted shoe-sections, a pliable jacket carried thereby, the projecting lugs or flanges l on the inner sides of the jacket, and the fastening devices for detachably connecting the free ends of the shoe-sections and the meeting edges of the jacket, substantially as described, for the purpose set forth.

349,669. ORNAMENTAL BALUSTER AND SPINDLE. SIMON STRAHAN, Chicago, Ill. Filed June 29, 1886. (No model.)



Claim.—As a new article of manufacture, an ornamental baluster or spindle, comprising a wood or metal core or dowel and an external part or covering pressed or molded around the same in any desired form, substantially as described.

349,670. FIRE-PROOF ROOF, FLOOR, &c. J. FRANKLIN STOCKERT, Philadelphia, Pa. Filed Oct. 8, 1885. (No model.)



Claim.—1. The ceiling B, in combination with the curved gutter C and girders D D, the said gutter having an inlet-pipe, E, opening into the same at its highest part, substantially as and for the purpose set forth.

2. The floor A, in combination with the ceiling B and gutter C, the latter extending under the surface of the said ceiling, and forming a single chamber between each adjacent pair of girders, substantially as described.

3. A ceiling and a gutter below the same, in combination with the pipe E, which is in communication with said gutter, substantially as and for the purpose set forth.

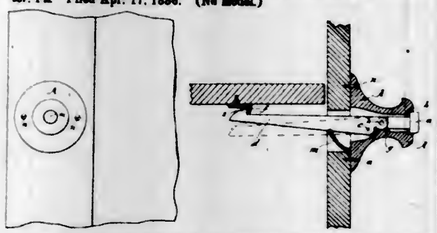
4. A hollow beam or girder provided with the gutter L, substantially as and for the purpose set forth.

5. A ceiling with a gutter below the same, in combination with a trough or gutter attached to the supporting-beam, substantially as described.

6. A ceiling and a gutter beneath the same, in combination with a supply-pipe and the check-valve M, substantially as and for the purpose set forth.

7. A ceiling and a gutter beneath the same, in combination with the pipe E and a supply-pipe, substantially as and for the purpose set forth.

349,671. CUPBOARD-CATCH. HORACE B. SWARTZWELDER, Lancaster, Pa. Filed Apr. 17, 1886. (No model.)

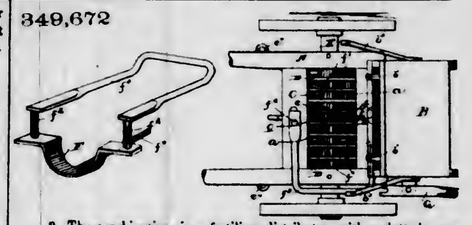


Claim.—The recessed knob A, in combination with lever *d*, which is provided with offset *e*, and pivoted within said knob at *c*, the catch *f*, which engages said offset, the spring *m*, which maintains said lever in such engagement, and the push-button *a*, which is pivoted to the inner end of said lever at a point out of line with said pivot *c*, substantially as and for the purpose set forth.

349,672. FERTILIZER-DISTRIBUTER. ELIAS S. SWEAT, Fayetteville, Ga. Filed June 22, 1886. (No model.)

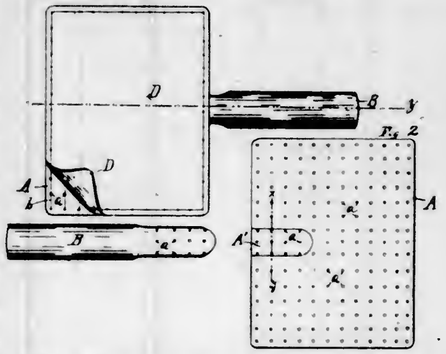
Claim.—1. The combination, in a fertilizer-distributer, of a hopper provided with a suitable opening in its bottom for the passage of the material, the parallel transverse bars D, rigidly held in the hopper above the bottom thereof, and a rotating axle arranged in the hopper beneath the bars D, and provided with a series of radial teeth, *f*, at its center, arranged in line with each other around the periphery of the axle and immediately above the opening in the hopper-bottom, and the series of radial spirally-arranged feeding-teeth *f''* on opposite sides of the teeth *f*, all of the teeth working in between the bars D, substantially as described, for the purpose set forth.

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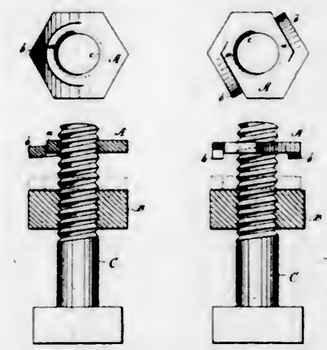
2. The combination, in a fertilizer-distributer, with a slotted carrying-frame and a hopper having a slotted bottom, of a cut-off slide, F, bearing against the said bottom of the hopper, the pins or studs secured to the extremities of the slide and passing through the slots in the frame, a bail secured to the said studs, and a lever connected with the bail for shifting the same and the slide, substantially as described, for the purpose set forth.

349,673. BRUSH. MILO THOMPSON, Lansingburg, N. Y. Filed Dec. 3, 1885. (No model.)



Claim.—A brush-head and inserted handle provided with coincident perforations for bristles, in combination with bunches of bristles inserted through said perforations in both head and handle, substantially as described, and for the purposes set forth.

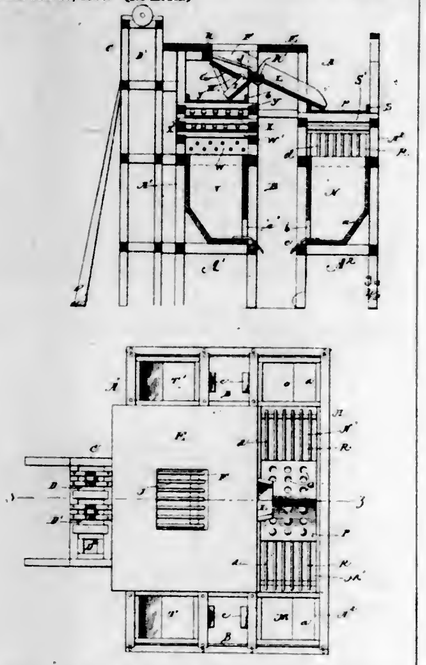
349,674. NUT-LOCK. AARON C. VAUGHAN, Shane's Crossing, Ohio. Filed Feb. 15, 1886. (No model.)



Claim.—1. A nut-lock or jam-nut consisting of a body portion having a regular screw-thread upon its inner periphery and a cut or slit extending entirely through the body portion from face to face of the nut without bisecting or penetrating the interior thread, and having the outer cut portion deflected out of the plane of the body portion to form a spring, substantially as shown and described.

2. A nut-lock or jam-nut consisting of a body portion having a regular screw-thread upon its inner periphery and a cut or slit extending entirely through the body of the nut without bisecting the screw-thread, and terminating at both ends in the body of the nut, and having the outer cut section deflected out of the plane of the body portion to form a spring, substantially as and for the purpose described.

349,675. COAL-SEPARATOR. JABEZ WOOLLEY, Sr., Evansville, Ind. Filed Jan. 28, 1886. (No model.)



Claim.—1. A separator for coal, &c., comprising two sections, A' A^2, divided by a space or passage-way, B, each section having independent separating or assorting and receiving means, and a common hopper which supplies coal to both sections, the receiving means for the coal of both sections having their outlets all opening into the passage-way B, as set forth.

2. A separator for coal, comprising the two sections A' A^2, each having independent separating or assorting means, a hopper having its outlet supplying the smaller grade of coal to one of the sections, and an open grate or grated frame located in the hopper, and chute L, to carry off the larger lumps of coal to the other section, as set forth.

3. A separator for coal, &c., comprising the sections A' A^2, separated by a space or passage-way, B, each section having independent separating or assorting means, a hopper having its outlet supplying the smaller grade of coal to one section, an open grate or grated frame for collecting the larger lumps of coal, and a chute, L, extending over the space B and carrying the coal collected by the grated frame to the other section, as set forth.

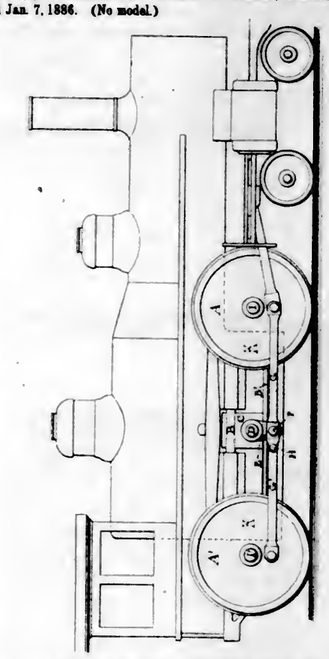
4. A separator for coal, &c., comprising two sections, each having independent separating or assorting means, a common hopper for supplying coal to both sections, the mass of coal supplied to the hopper being divided into two streams, the large grade or lumps entering one section and the smaller lumps the other section, each grade when thus divided or assorted being subsequently passed through the respective sections and assorted into different sizes, as set forth.

5. A separator for coal, &c., comprising a series of bins or receptacles all located in substantially the same plane, and parallel screens arranged one above the other and above the bins or receptacles to separate and deliver different sizes of coal thereto, the coal which fails to pass over one screen and into its receptacle below passing through to the next screen, as set forth.

6. In a separator for coal, the combination, with the stationary screens made substantially in the shape of an inverted V, the apexes or angles thereof serving to divide the coal dropped upon the same into two streams or masses which pass down onto the two inclined faces of the screens, of a series of bins located below the screens in a horizontal row to catch the coal passing from the screens, as set forth.

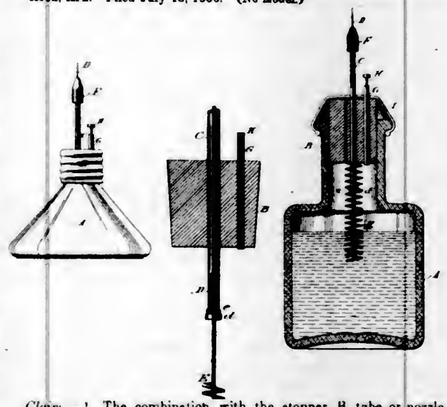
7. A separator for coal, comprising the inverted-V-shaped screens having spurs, projections, or dividers located in the spaces between the perforations or openings in the screens, said spurs or dividers extending in a zigzag line from one side of the screens to the other side, so as to cause the material to be deflected or diverted from side to side, as set forth.

349,676. LOCOMOTIVE. RANSOM C. WRIGHT, Philadelphia, Pa. Filed Jan. 7, 1886. (No model.)



Claim.—In a locomotive-engine, a revolving crank placed between the driving-wheels, on each side, to support the parallel rods, for the purpose of safely lengthening them, and thereby permit spreading of the driving-axles, to allow the introduction of a longer fire-box, all substantially as and for the purposes set forth.

349,677. WATCH AND CLOCK OILER. JESSE V. ZIMMERMAN, Little Rock, Ark. Filed July 13, 1886. (No model.)



Claim.—1. The combination, with the stopper B, tube or nozzle C, needle or rod D, oil-regulating valve, and spring E, secured to the stopper and to the needle or rod, of the detachable cap F, applied to the end of such tube or nozzle, substantially as described.

2. The combination, with the stopper B, tube or nozzle C, needle or rod D, having the collar *d* and elastic washer *e* thereon, and the spring E, of the detachable cap F, as and for the purpose set forth.

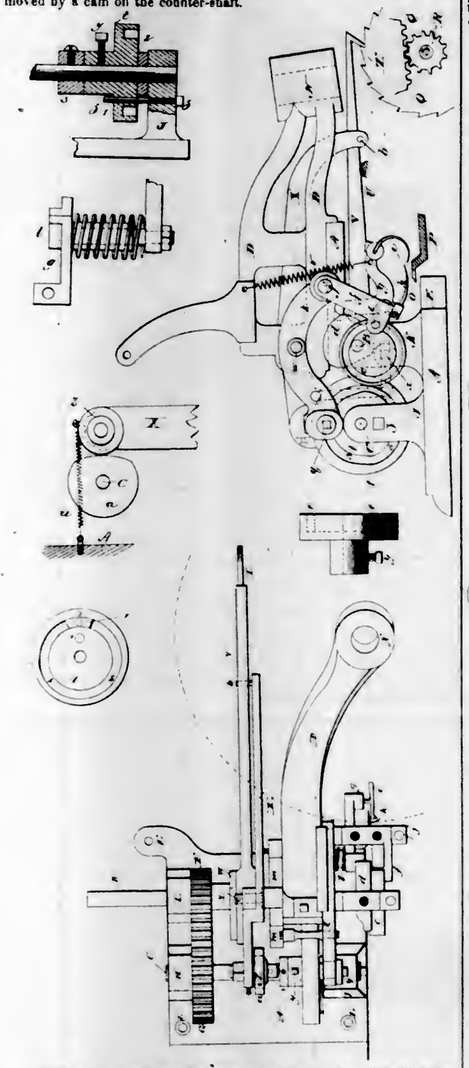
3. The combination, with the stopper B, having the vent-tube G and stopper H, the tube or nozzle C, needle or rod D, provided with the collar *d* and elastic washer *e* thereon, and the spring E, of the detachable cap F, as and for the purposes set forth.

4. The combination, with the stopper B, tube or nozzle C, needle or rod D, oil-regulating valve, spring E, and means for reducing the size of the orifice in the delivery end of said tube or nozzle, substantially as described.

REISSUES.

10,763. MACHINE FOR UNITING KNIT FABRICS. JOHN CLUTE, Cohoes, N. Y., assignor to Campbell & Clute, same place. Filed July 27, 1886. Original No. 344,897, dated July 6, 1886. Division A.

Brief.—The construction is an improvement on that class of machines described and shown in Patent No. 288,892, dated June 15, 1880, known as "circular turning-off machines," used in sewing together the two selvage or looped edges of knitted or looped fabrics. The needle and the looper are raised and lowered simultaneously by the needle-arm lever and the loop-holder lever suitably connected with each other and moved by a cam on the counter-shaft.



Claim.—1. In a machine for uniting knit fabrics, in which the needle and looper are adapted to be raised and lowered simultaneously, the needle-arm lever *k* and the looper-holder lever *m*, connected with each other, as described, and operated by a cam, *t*, on a counter-shaft C, substantially as described.

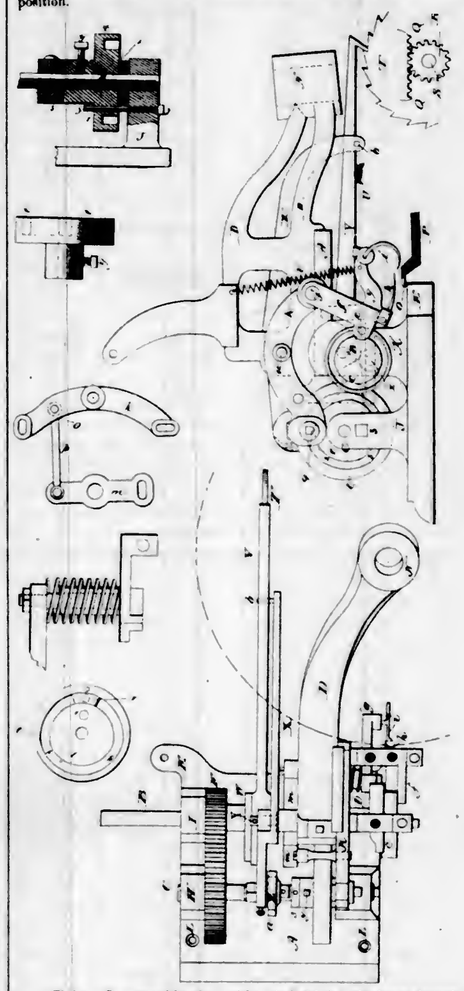
2. In a machine for uniting knit fabrics, in which the needle and looper are adapted to be raised and lowered simultaneously, the needle-arm lever *k* and the looper-holder lever *m*, connected with each other by a rod, *p*, and having their fulcrums on opposite sides of the upright K, in combination with a cam, *t*, on a counter-shaft, C, for operating said needle-arm lever and looper-holder lever, substantially as described.

3. In a machine for uniting knit fabrics, in which the needle and looper are adapted to be raised and lowered simultaneously, the needle-arm lever *k* and the looper-holder lever *m*, having a link-connection with each other, in combination with a cam, *t*, for operating the needle-arm lever and looper-holder lever, arranged on a counter-shaft, C, parallel with the needle-cam axle B, and driven by spur-wheels F and G at one-half the speed of that axle, substantially as described.

4. In a machine for uniting knit fabrics, in which the needle and looper are adapted to be raised and lowered simultaneously, the needle-arm lever *k*, the looper-holder lever *m*, connected with each other, as described, a cam, *t*, on the counter-shaft C, for actuating said levers *k* and *m*, and means, substantially as described, for fastening and loosening the cam *t* on the counter-shaft, and for holding the cam stationary while the counter-shaft revolves, substantially as described.

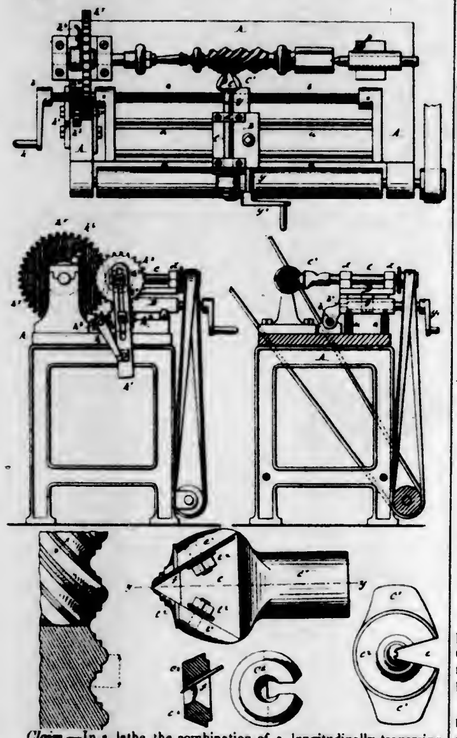
10,764. MACHINE FOR UNITING KNIT FABRICS. JOHN CLUTE, Cohoes, N. Y., assignor to Campbell & Clute, same place. Filed July 27, 1886. Original No. 344,897, dated July 6, 1886. Division B.

Brief.—Division B of a reissue of Patent No. 344,897, dated July 6, 1886. In producing a through-and-through double-stitch seam the cam on the counter-shaft is loosened therefrom and fixed in a definite position.



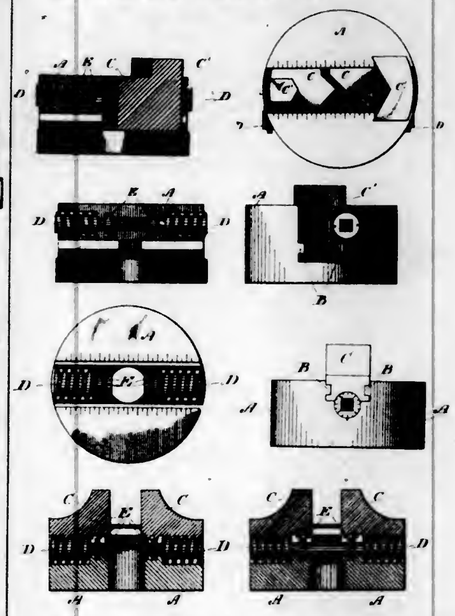
Claim.—In a machine for uniting knit fabrics, the intermittently-rotating cylinder carrying the fabric and remaining stationary while a second stitch is being formed, in combination with the needle and looper which form a second stitch in the same plane with that in which the first or preceding stitch was taken, thereby forming the through-and-through or double stitch, substantially as described.

10,765. LATHE FOR TURNING SPIRALS. VALENTINE MERKLEN, New York, N. Y. Filed Aug. 5, 1886. Original No. 345,740, dated Aug. 16, 1881.



Claim.—In a lathe, the combination of a longitudinally-traversing carriage divided horizontally, the upper part being adjustable transversely of the lathe on ways of the lower part by means of a screw, a longitudinal screw-shaft for operating the carriage, a cotter-shaft mounted on said carriage at right angles to and in one plane with the axis of the work, a rotary cutter-head attached to the cotter-shaft, and mechanism for rotating the work simultaneously with the movement of the carriage and cutter-head, substantially as shown and described.

10,766. CHUCK. CHARLES H. REID, Danbury, Conn. Filed Jan. 28, 1886. Original No. 301,277, dated July 1, 1884.



Claim.—1. In a chuck, as described, the jaws actuated by independent screws, the latter being provided at their inner ends with collars or shoulders which abut or bear against the frame of the chuck, whereby the strain on the screws may be distributed over a greater number of bearing-surfaces, substantially as set forth.

2. In a chuck, the independent screws threaded and provided at their inner ends with shoulders, in combination with the jaws and frame, substantially as set forth.

3. In combination with the frame of the chuck, recessed, as described, and the threaded jaws, the independent actuating-screws provided with collars at their inner extremities, and with the threads extended to their outer extremities, whereby the strain on the body of the screws may be divided between a greater number of bearing-surfaces, and the strain on the threads distributed among a greater number of threads, substantially as set forth.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

BROWN & VAN ARSDALE MANUFACTURING COMPANY *v.* STUDEBAKER BROTHERS MANUFACTURING COMPANY.

Decided March 22, 1886.

1. AXLE-SKEINS FOR VEHICLES.
   Letters Patent No. 216,615, of June 17, 1879, to N. L. Holmes, for an improvement in axle-skeins for vehicles, must, in view of the prior state of the art, be limited strictly to its special device, which is the cutting of the blank in such shape as that, when formed up, it will make two frustums of cones, the small end of the larger one springing from the large end of the smaller one, or the skein itself.
2. The fifth and eighth claims of this patent cannot be sustained in view of the state of the art, and there was no infringement of the first and third claims in this case.

Messrs. Munday, Evarts & Adcock for the complainant.
Messrs. Coburn & Thacher for the defendant.

BLODGETT, *J.*:

The bill in this case seeks an injunction and accounting for the alleged infringement of Patent No. 216,615, granted June 17, 1879, to N. L. Holmes, for an improvement in axle-skeins for vehicles. The patentee says in his specifications:

> My invention relates to the class of thimble-skeins in which the thimble is formed up of sheet-steel, and consists in a novel form of blank, which furnishes both upper and lower wrist-extensions continuous with the spindle portion, and which brings the seam or weld of the meeting edges in the spindle on one side of the latter, instead of on the top, as heretofore.
>
> It also consists in making the upper and lower extensions of such width and form as nearly or quite to envelop or embrace the axle back of the spindle, such complete wrist having lateral joints only, so that the clip applied thereto, after the thimble has been forced upon the axle, will more easily bind the wrist to the axle.
>
> * * * * * * *
>
> The object of my invention is to give greater strength to the skein, to the attachment of the skein to the axle, and to the axle at the inner point of attachment, and also to obviate special objections to a seam or weld situated on the top of the spindle.

The patent contains nine claims; but only the first, third, fifth, and eighth are alleged to be infringed. These claims are as follows:

> 1. The blank for a thimble-skein, having wings to form upper and lower wrist-extensions continuous with the spindle portion, substantially as described.
> 3. A thimble-skein formed from sheet metal, and having upper and lower axle extensions continuous with the spindle portion, substantially as and for the purposes set forth.
> 5. A thimble-skein formed of sheet metal, and having an axle-extension or wrist adapted to nearly or quite embrace the axle back of the spindle, so as to give lateral as well as vertical support to the spindle, substantially as described.
> 8. The thimble-skein having an upper wrist-extension sprung to rest on the rise of the axle back of the spindle, combined with the collar c, embracing the skein at the point of increased rise, substantially as and for the purpose set forth.

The "novel form of blank" shown in this patent consists of one sheet of metal so cut as that when formed up into a pipe or hollow cone it will show a complete pipe or cone, covering the end of the wooden axle, and of uniform pitch or slope back to about the point where the hurter-band is to be shrunk on, or what the patentee calls the "band *c*," from which backward the cone is enlarged for a few inches, and from thence a wing extends farther back upon the under side of the axle. The enlargement back of the hurter-band, however, is such that it will not cover or embrace the shoulder of the axle unless this part of the axle is brought substantially to a cone shape.

Several defenses are interposed; but I only propose to consider that of non-infringement and the novelty of the patent. It may be said to be part of the common knowledge with reference to the construction of wagons and of skeins for wagon-axles that where a wooden axle is used upon the end of which a pipe or hollow skein is to be fixed the axle is much enlarged back of the point reached by the inner end of the hub of the wheel, and if a skein is intended to cover substantially more than the portion of the axle subjected to wear within the box of the wheel a considerable enlargement of the skein must be made back of the spindle portion. For many years prior to the date of the patent in question a skein made of cast-iron was in common use, which extended back of the hurter-band and embraced the shoulder or part of the shoulder of the axle, and was enlarged for that purpose to conform substantially to the shape of the axle-shoulder.

In November, 1869, one Schreyer obtained two patents for a skein to be formed from a blank of sheet steel or iron, a portion of which extended back from the hurter-band along the under side of the axle; but the upper part was not enlarged to embrace or cover the shoulder of the axle. A patent was granted in February, 1862, to R. S. Hall, for a sheet-metal skein which was formed of two blanks bent so as to make an upper and lower section, the two being arranged so as to embrace the spindle of the axle, and extend back from the hurter-band upon the top and under side of the axle, and in June, 1862, D. and J. Gray received a patent for a wrought-iron axle-skein, which was to completely surround the spindle of the axle and extend back beyond the hub, and to be held in place by a clip or clips, so as to re-enforce and strengthen the axle. A similar patent was granted to M. Ehrgott in March, 1869, and a patent to J. C. Johnson in November, 1869, which show a skein formed up so as to embrace the end of the axle, and a portion thereof to extend back from the hurter-band upon the top and bottom, conforming to the shape of the shoulder of the axle. We see, therefore, that when this patentee entered the field quite a number of patents for axle-skeins to be formed up from sheet metal had already been patented and brought into public notice, and that some of them were not only clearly designed but adapted to be extended back of the hurter-band and embrace and cover some portions of the enlarged part of the axle

back of the spindle, conforming in some degree to the shape of the axle-shoulder.

The cast-iron axle-skein exhibited in the proof, and shown to have been used long prior to the date of complainant's patent, shows an enlargement back of the hurter-band for the purpose of covering a portion of the shoulder of the axle, and waiving for the time being the question of whether it is patentable to substitute wrought-iron in the place of cast-iron for the purposes of an axle-skein, it is clear that the idea of enlarging the skein back of the hurter-band so as to receive a portion of the shoulder of an axle was not new to this patentee. Indeed, the patented devices set out in the proof show several as adapted to cover a portion of the axle back of the hurter-band larger than that which was intended to enter the hub. Gray shows this in a marked degree, and the proof shows that under the Johnson patent the skeins were made to substantially conform to the shape of the axle-shoulder back of the hurter-band. In fact, the appliance ceases to be a skein back of the hurter-band, and becomes only a support (more or less) to the axle, the skein being only that portion of the device which is intended to cover and protect the spindle of the axle. In view of the state of the art at the date of this patent I have no doubt this patent must be limited strictly to the special device, which is the cutting of the blank in such shape as that when formed up it will make two frustums of cones, the small end of the larger one springing from the large end of the smaller one, or the skein itself,

The defendants make and use a skein which is formed by bending a sheet of metal around a mandrel, so as to cover (more or less) the shoulder of the axle with a wing extending backward quite a distance upon the under side of the axle. This form of blank when bent to the desired shape does not make two sections of different cones, but makes a hollow spindle, the outside of which conforms to the shape of the hub box or pipe, and with an enlargement upon the top back of the spindle, to cover and embrace the shoulder of the axle. The defendant's blank is not intended, and cannot be made, to form two cones, or sections of two cones, as does the Holmes blank, but simply forms a hollow pipe the interior of which conforms substantially to the exterior of the axle which it is to cover. It is not a thimble-skein having wings forming an upper and lower wrist-extension continuous with the spindle portion, as called for by the first and third claims of the patent. It is obvious that the device of this patent is not adapted to cover or embrace an axle the shoulder of which rises abruptly upon the top back of the hurter-band, while the lower part extends back in substantially the same cone-line as the spindle of the axle.

The fifth claim of the patent is for a thimble-skein formed of sheet metal having an extension or wrist adapted to nearly or quite embrace the axle back of the spindle, and the eighth claim is for a thimble-skein having an upper wrist-extension sprung to rest on the rise of the axle back of the spindle, &c. These claims, in view of the state of the art, I do not think can be sustained upon this patent. The fifth claim would cover any thimble-skein formed of sheet metal having an extension back of the hurter-band which embraced, or partly embraced, the axle back of the spindle, and this field was evidently more or less occupied by all the inventors shown in the proofs to have preceded Holmes, while the eighth claim is for a thimble-skein having an upper wrist-extension sprung to rest on the rise of the axle back of the spindle—that is to say, the form called for by this claim is not one which can be made by following the directions of this patent, but it would be any skein the extension of which back of the spindle should be made to cover the shoulder, while the skein called for by the patent can only be a cone back of the spindle, and cannot cover the rise of the shoulder of the axle, unless it has a corresponding rise or enlargement upon the inner side—that is to say, there is no limitation upon the size of the rear cone which may be constructed under the Holmes patent; but there must be two cones, the cone which includes the spindle, and the extension back of the spindle, which is an enlarged cone, calling for as much enlargement upon the under side as upon the upper side. I am therefore of opinion that the skein made and used by the defendant is not an infringement of that called for by the Holmes patent, because the enlargement back of the spindle in defendant's skein is only for the purpose of covering the top or shoulder of the axle, and the extension upon the under side is no more than is shown in a large number of expired patents older than Holmes'.

A decree may therefore be entered finding that the defendant does not infringe.

U. S. Circuit Court—District of Connecticut.

CELLULOID MANUFACTURING COMPANY *v.* COMSTOCK & CHENEY COMPANY.

Decided April 24, 1886.

1. WHAT IS PATENTABLE.
   It has always been the law that a patentable invention, although new and useful, must be the result of something more than and different from mechanical skill.
2. INVENTION—UTILITY AND NOVELTY AS EVIDENCE OF.
   The existence of novelty and utility in a patented thing has been potent in the determination of the question of its patentability. (*McCormick* v. *Seymour*, 2 Blatchf., 240; *Furbush* v. *Cook*, 2 Fisher, 288; *Middleton Tool Co.* v. *Judd*, 3 Fisher, 141.)
3. INVENTION—EVIDENCE INDEPENDENT OF UTILITY AND NOVELTY NOW REQUIRED.
   The decision in *Hollister* v. *Benedict & Burnham Manufacturing Company* (113 U. S., 59; S. C., 5 Sup. Ct. Rep., 717) makes independent evidence of the existence of inventive skill, apart from inferences of such existence which may be drawn from novelty and utility, to be of greater importance than has been understood heretofore.
4. HYATT PATENT—CELLULOID COVERING FOR PIANO-KEYS.
   The question of patentability in Hyatt's invention again considered and the patent sustained.
5. HYATT'S INVENTION.
   There was the creative faculty of invention in the abandonment of the ineffectual and mechanical attempt to make single celluloid keys in imitation of ivory single keys, and in the conception of the idea of covering a whole key-board with a single celluloid sheet.
6. PRACTICE—SUSPENDING ACCOUNTING.
   The patent in suit having been declared void for want of novelty by another court, (*Celluloid Manufacturing Company* v. *Tower*, 26 Fed. Rep., 451,) from which decision a notice of appeal to the Supreme Court had been given, a stay of the accounting was asked in this case; but as the facts in this case had features not brought out in the other case, *held* that there was no adequate reason for a stay of the accounting.

MOTION for rehearing.

The former opinion was rendered July 31, 1884, and is reported in 21 Fed. Rep., 313. The important ground of the motion was that since the date of the former opinion the Supreme Court of the United States had by judicial authority, in *Hollister* v. *Benedict & Burnham Manufacturing Company* (113 U. S., 59; S. C., 5 Sup. Ct. Rep., 717) and *Thompson* v. *Boisselier*, (114 U. S., 1; S. C., 5 Sup. Ct. Rep., 1042,) so far changed the law of the land governing reissues as that the claimed invention purported to have been secured by the letters patent in suit is excluded from claims to patentability.

Mr. John K. Beach and *Mr. John S. Beach* for the motion.

Mr. Frederick H. Betts against the motion.

SHIPMAN, *J.*:

This is an application by the defendant in the above-entitled case for a rehearing. The hearing upon the application was considered to be practically a rehearing or reargument of the question of patentability. The facts were substantially stated in the opinion of the court in 21 Fed. Rep., 313. The important ground for a rehearing is stated in the application as follows:

> That since said interlocutory order and decree was passed the law of the land governing the question of patentability of inventions has been so far changed, under the judicial authority of the Supreme Court of the United States, as that the claimed invention purported to have been secured by the letters patent in suit is excluded from claims to patentability.

The opinion of this court was rendered July 31, 1884. The decisions of the Supreme Court to which reference is made are *Hollister* v. *Benedict & Burnham Manufacturing Company* (113 U. S., 59; S. C., 5 Sup. Ct. Rep., 717) and *Thompson* v. *Boisselier*, (114 U. S., 1; S. C., 5 Sup. Ct. Rep., 1042.) The first of these cases was decided January 5, 1885.

The following sentences from the former opinion of this court state the point in controversy with sufficient clearness:

> The invention did not consist in the substitution of celluloid for ivory, whereby a reduction in the price of keys was caused, but it consisted in the fact that by the use of celluloid there was practically furnished a new and useful mode of constructing key-boards—viz., by cementing to the board a single sheet of the veneer, instead of by gluing a large number of separate pieces of ivory, which must each be matched and separately fastened to the wood. This new method of construction was impracticable with ivory, or with any material which was known before celluloid was manufactured, and it required invention to find out and demonstrate that key-boards could be manufactured so as to be a commercial article by covering their upper surfaces with a single sheet of a material which would make an attractive and permanent coating for the wooden keys, because from the fact that celluloid existed it by no means followed that a key-board could be sufficiently and successfully covered with it.

The single point now in the case is this: In view of the recent judicial statements of the requisites necessary to cause a new and useful improvement to be a patentable invention, as contrasted with the method of reasoning by which judges were formerly accustomed to pass upon the question of the presence of inventive skill, was the decision of the court in favor of patentability correct? It has always been the law that a patentable invention, although new and useful, must be the result of something more than and different from mechanical skill; but the existence of novelty and utility in a patented thing was potent in the determination of the question of its patentability. This is clearly shown in the well-known charges to the jury of Mr. Justice Nelson in *McCormick* v. *Seymour*, (2 Blatchf., 240,) and of Mr. Justice Curtis in *Furbush* v. *Cook*, (2 Fisher, 288.) Judge William D. Shipman, in *Middletown Tool Company* v. *Judd*, (3 Fisher, 141,) expressed the views which judges were wont to entertain in regard to the rigor with which courts should search for the presence of inventive genius as follows:

> Whenever a change or device is new and accomplishes beneficial results, courts look with favor upon it. The law in such cases has no nice standard by which to gage the degree of mental power or inventive genius brought into play in originating the new devices.

In *Hollister* v. *Benedict & Burnham Manufacturing Company* the court was called upon to consider an improvement which was admitted to be novel, and to be of superior utility, and which was not a slight advance in the art, but which was yet held to involve "only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge," and not to be the "creative work" of the "inventive faculty." The facts which were apparent in the record of the case, and which are disclosed in the opinion, as well as the vivid language of Mr. Justice Matthews, who spoke for the Court, make the decision a very significant one, for the stamp which the internal revenue department caused to be used was a marked improvement upon its predecessor, remedied a serious evil, and was regarded by the department with great satisfaction. It must be seen that this decision makes independent evidence of the existence of inventive skill, apart from inferences of such existence which may be drawn from novelty and utility, to be of greater importance than has been understood heretofore.

The facts in the case fully justify the finding of novelty and utility. The facts upon the question of invention are these: While the idea of a continuous ivory key-board has been attempted, it was practically and commercially a failure. Celluloid for single keys had been suggested and attempted and was a failure. A continuous covering for a key-board would probably diminish the expense of production. Hyatt had unsuccessfully tried celluloid strips for single keys. He abandoned that idea, and got the idea of using a single sheet of celluloid, and waited until he had succeeded in satisfactorily making thin sheets. This manufacture of thin sheets was a very important step in the art, and caused celluloid to be capable of a new variety of uses. He then applied these sheets, having the capacities of hardness, smoothness, susceptibility of polish, and uniformity of color, to a piano key-board. On the one hand, the argument is that the inventive, the creative idea—the genius—of the inventor consisted in the conception that the use of a whole sheet of celluloid would overcome the difficulties which attended the use of single strips, and would make a key-board equal to and cheaper than one made of ivory strips, and that subsequent experiment successfully embodied and carried into effect the idea. Polished sheets and various kinds of cement were tried and abandoned, and finally the sheet which is now in use was found to be adapted to the necessities of the work. On the other hand, it is said that a continuous veneer of a blank key-board was not a new idea, that it had been accomplished, and that when the new thin sheets of celluloid had been produced the idea of applying the sheet, and the application of it to a key-board, was merely the "display of the expected skill of the calling." To produce the sheet required invention, but the application of the sheets as a substitute for ivory was the work of the mechanic.

While the mind may hesitate whether one or the other line of argument preponderates, I think that there was the creative faculty of invention in the abandonment of the ineffectual and mechanical attempt to make single celluloid keys in imitation of ivory single keys, and in the conception of the idea of

covering a whole key-board with a single celluloid sheet—an idea which, when embodied, turned into commercial success what had previously been only an unsuccessful theory in regard to a similar use of ivory. It is urged by the defendant that inasmuch as the circuit court for the district of Massachusetts, in the case of the *Plaintiff* v. *Tower*, (26 Fed. Rep., 451,) had decided the plaintiff's patent to be void for want of patentability, and the plaintiff has given notice of an appeal to the Supreme Court, it would be proper to suspend the accounting in this case until the Tower case shall have been tried. Upon the facts as detailed in the opinion of the court, the decision of the Tower case was right. The facts in this case have features which were not apparently brought out in that case; therefore I think that there is no adequate reason for a stay of the accounting.

The motion for rehearing is denied.

U. S. Circuit Court—Northern District of Illinois.

WOLLENSAK *v.* REIHER.

Decided July 26, 1886.

1. TRANSOM-LIFTERS.

The Wollensak patents, No. 191,088, May 22, 1877, and No. 196,851, November 6, 1877, for skylight and transom lifters, construed and *held* to be infringed by the transom-lifter described in the Frank A. Reiher patent of April 6, 1880, No. 226,353.

2. EQUIVALENTS

Although said Wollensak patents are not foundation or generic patents, still they cover the specific devices shown therein, respectively, or known equivalents therefor.

Messrs. Banning & Banning for the complainant.

Mr. Charles T. Brown for the defendant.

BLODGETT, *J.*:

This is a suit for an injunction and accounting by reason of the alleged infringement of Patent No. 191,088, granted May 22, 1877, to the complainant, and of Patent No. 196,851, granted November 6, 1877, to complainant for skylight and transom lifters.

The first patent contains three claims, infringement being charged as to the first and second, which are as follows:

1. The sliding block C, carrying the spring locking-bolt *g*, in combination with the fixed guide-bar B, connecting rod or rods A, and the operating cord or cords *f*, substantially as described, for the purpose specified.

2. The combination of the operating-cord *f* with the spring locking-bolt *g* and the sliding block C, to which the sash is connected, arranged as described, so that the act of pulling the cord backward shall disengage the locking-bolt from the bar B, and a continued downward pull upon the same cord shall raise the sash, substantially as described.

Patent No. 196,851, of November 6, 1877, contains but one claim, which is as follows:

The plate C, slotted at both ends and attached to the door-jamb, in combination with the guide or operating rod E, connected to the lifting-arm of the transom, and carrying the lug A at one end, and the adjustable knob G at the other end, substantially as described, for the purpose specified.

The defenses set up are, 1, non-infringement; 2, that complainant's patents are void for want of novelty.

It appears from the proof that complainant obtained a patent March 11, 1873, for a transom-lifter, and that this patent was reissued, and after its reissue suit was brought against this same defendant and the first claim of the reissue held void for want of novelty by Judge Drummond, whose decision was affirmed by the Supreme Court. Owing to this older patent and the decision upon it there can be no doubt that complainant's two patents involved in this case must be limited to their specific devices—that is, they are not what we call foundation or generic patents.

Defendant's infringing device is described in the patent issued to him under date April 6, 1880, and the question in the case is whether transom-lifters constructed in accordance with the specifications and drawings of defendant's patent infringe either one or both of complainant's patents. The elements of Patent No. 191,088 seem to me to be, first, a long stationary guide provided with holes or notches to receive a spring locking-bolt; second, a spring locking-bolt adapted to fit into the holes or notches in the long stationary guide, and thus to lock automatically the transom at different degrees of openings; third, a sliding block or head-piece carrying a spring-bolt up and down the stationary guide, so that such spring-bolt can automatically lock the transom at any desired point; and, fourth, means for disengaging the locking device and opening and shutting the transom with one hand and without changing the hold.

The elements in Patent No. 196,851 seem to me to be, first, a long, slotted, stationary plate attached to the door-jamb and serving to guide the lifting-rod; second, a lug on the upper end of the lifting-rod extending outward through the slot and plate, whereby the guiding of the lifting-rod is effected and the attachment to the lifting-arm is made; third, resting or placing the weight of the transom, which would otherwise bend the lifting-rod against the slotted plate, by means of the pin placed transversely through the lug immediately on the outside of the plate; and, fourth, the knob or handle on the lower end of the lifting-rod, which serves the double purpose of unlocking the device when turned partly around and of raising or lowering the transom when moving up and down in the slotted plate.

An examination of the defendant's device as shown in his patent and in Model No. 3 in the testimony seems to me to show an application and use of the elements of complainant's two patents as charged in the bill, or substantially all of them. It has the fixed guide attached to the door-casing, the sliding block traveling in the slot, the spring-lock, locking-bolt, and rod connecting the sliding rod with the transom window or skylight, so that the window or skylight will be opened or closed by the movements of the block. It is true that Reiher uses a rod to operate the spring locking-bolt, while the plaintiff's locking-bolt in the first-named patent is operated by a cord; but it is very evident that defendant's rod is the equivalent of the cord as used by complainant. The use of the rod instead of a cord dispenses with the pulley shown in complainant's device; but defendant's rod performs the same function, and no other, that is performed by the cord. It is true that the defendant's lock is made by causing a pin upon the guiding-rod to engage when the rod is turned with a notch arranged for that purpose; but this change in the locking device is merely colorable, as it seems to me. In fact, without going into details, it is sufficient to say that I find, and I think the testimony in the case both for the complainant and defendant fully justifies me in so finding, that the defendant's patent embodies substantially the elements of both the complainant's patents, and may be said to be a combination of the essential elements of both patents in one device. I therefore have no difficulty in finding that the defendant infringes upon the complainant's patents.

The only question left is whether the complainant's patents are void for want of novelty. As already stated, I think both these patents are to some extent limited by the complainant's older patents; but this limitation does not prevent the complainant having the benefit of the specific devices shown in the two patents now in suit, and in the use of those devices, or of known equivalents for them, performing the same function, and doing substantially the same work done by the corresponding parts in the complainant's patent, he should be protected. I am therefore of the opinion that the defense of want of novelty is not sustained, and that the plaintiff is entitled to an accounting and an injunction.

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[BY AUTHORITY OF CONGRESS.]

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

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The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Issue of September 28, 1886.

Patents	417—No. 349,678 to No. 350,094,	inclusive.
Designs	12—No. 16,911 to No. 16,922,	inclusive.
Trade-Marks	14—No. 13,687 to No. 13,700,	inclusive.
Labels	6—No. 4,972 to No. 4,977,	inclusive.
Reissues	4—No. 10,767 to No. 10,770,	inclusive.
Total issue	453	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Montana Territory	1	.....
Arizona Territory	.....	.....	Nebraska	1	1
Arkansas	.....	.....	Nevada	.....	.....
California	10	.....	New Hampshire	3	.....
Colorado	1	.....	New Jersey	22	.....
Connecticut	11	.....	New Mexico Territ'y	.....	.....
Dakota Territory	.....	.....	New York	95	5
Delaware	2	.....	North Carolina	3	.....
District of Columbia	2	.....	Ohio	24	1
Florida	.....	.....	Oregon	1	.....
Georgia	4	.....	Pennsylvania	41	1
Idaho Territory	.....	.....	Rhode Island	2	.....
Illinois	27	.....	South Carolina	.....	.....
Indian Territory	.....	.....	Tennessee	1	.....
Indiana	15	.....	Texas	7	.....
Iowa	3	.....	Utah Territory	.....	.....
Kansas	7	.....	Vermont	2	.....
Kentucky	3	.....	Virginia	2	.....
Louisiana	3	.....	Washington Territ'y	.....	.....
Maine	1	.....	West Virginia	4	.....
Maryland	5	.....	Wisconsin	11	.....
Massachusetts	47	1	United States Army	.....	.....
Michigan	17	.....	United States Navy	.....	.....
Minnesota	4	.....			
Mississippi	1	.....	Total to citizens of the United States	398	12
Missouri	13	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	7	.....
Austria-Hungary	1	.....	Holland	.....	.....
Belgium	.....	.....	Mexico	3	.....
Bermuda	.....	.....	New Zealand	.....	.....
British Guiana	.....	.....	Russia	.....	.....
Canada	3	.....	Scotland	2	.....
Central America	.....	.....	Sweden	1	.....
Colombia, U. S. of	.....	.....	Switzerland	1	.....
Cuba	.....	.....	West Indies	1	.....
Denmark	.....	.....			
Egypt	.....	.....	Total to citizens of foreign countries	31	8
England	10	8			
France	2	.....			

DESIGNS.

16,911.—LAMP-SHADE.—*Frederick Watson Bach*, New Bond Street, county of Middlesex, England. Application filed August 12, 1886. Serial No. 210,742. Term of patent 3½ years.

16,912.—CLOCK-CASE.—*Walter Chauncey Camp*, New York, N. Y., assignor to *The New Haven Clock Company*, New Haven, Conn. Application filed May 25, 1886. Serial No. 203,249. Term of patent 3½ years.

16,913.—BADGE.—*Joseph K. Davison*, Philadelphia, Pa. Application filed February 18, 1886. Serial No. 192,462. Term of patent 14 years.

16,914.—HORSESHOE.—*Tilghman F. Frederick*, Catasauqua, Pa., assignor to *The Bryden Forged Horse-Shoe Works*, (*Limited*,) same place. Application filed May 3, 1886. Serial No. 201,004. Term of patent 7 years.

16,915.—RING.—*George Hartje*, New York, N. Y. Application filed June 10, 1886. Serial No. 204,807. Term of patent 14 years.

16,916.—COUNTER OR TABLE LEG.—*John Hofman*, Rochester, N. Y. Application filed May 22, 1886. Serial No. 203,047. Term of patent 7 years.

16,917.—TYPE.—*Herman Ihlenburg*, Philadelphia, Pa., assignor to *The MacKellar, Smiths & Jordan Company*, same place. Application filed August 27, 1886. Serial No. 212,024. Term of patent 3½ years.

16,918.—GIMP.—*Isaac H. Leiter*, New York, N. Y. Application filed June 4, 1886. Serial No. 204,179. Term of patent 14 years.

16,919.—FABRIC.—*James Phillips, Jr.*, Fitchburg, Mass., assignor to *The Fitchburg Worsted Company*, same place. Application filed August 7, 1886. Serial No. 210,370. Term of patent 3½ years.

16,920 and 16,921.—FONT OF COMBINATION TYPE ORNAMENTS.—*James West*, Brooklyn, N. Y. Application filed March 13, 1886. Serial Nos. 195,166 and 195,167. Term of patents 3½ years.

16,922.—RUG.—*John W. Shaw*, Philadelphia, Pa., assignor to *The Hartley Carpet and Rug Company*, same place. Application filed August 19, 1886. Serial No. 211,341. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,687.—HOSIERY.—*William Daniel Ormsby*, Fitchburg, and *Frank Henry Ormsby*, Boston, Mass. Application filed August 21, 1886. Used since August 2, 1886.

"The letters and character 'O & O.'"

13,688.—MEDICINE FOR DOGS.—*Spratt's Patent*, (*Limited*,) London, county of Surrey, England. Application filed August 14, 1886. Used since January 1, 1871.

"The representation of a pointer-dog in the act of pointing."

13,689.—SUBSTANCES AND PREPARATIONS FOR FEEDING PHEASANTS AND OTHER GAME-BIRDS AND POULTRY.—*Spratt's Patent*, (*Limited*,) London, county of Surrey, England. Application filed August 14, 1886. Used since September 1, 1884.

"The representation of a pair of pheasants."

13,690.—MEDICINE FOR PHEASANTS AND OTHER GAME-BIRDS AND POULTRY.—*Spratt's Patent*, (*Limited*,) London, county of Surrey, England. Application filed August 14, 1886. Used since September 1, 1884.

"The representation of a pair of pheasants."

13,691.—SUBSTANCES AND PREPARATIONS FOR FEEDING PHEASANTS AND OTHER GAME-BIRDS AND POULTRY.—*Spratt's Patent*, (*Limited*,) London, county of Surrey, England. Application filed August 14, 1886. Used since June 1, 1885.

"The representation of a group of poultry, consisting of a cock, two hens, a turkey, and a duck, standing together."

13,692.—MEDICINE FOR PHEASANTS AND OTHER GAME-BIRDS AND POULTRY.—*Spratt's Patent*, (*Limited*,) London, county of Surrey, England. Application filed August 14, 1886. Used since June 1, 1885.

"The representation of a group of poultry, consisting of a cock, two hens, a turkey, and a duck, standing together."

13,693.—DOG-BISCUIT AND SUBSTANCES AND PREPARATIONS FOR FEEDING PHEASANTS AND OTHER GAME-BIRDS AND POULTRY.—*Spratt's Patent*, (*Limited*,) London, county of Surrey, England. Application filed August 14, 1886. Used since January 1, 1871.

"The representation of a pointer-dog in the act of pointing."

13,694.—PREPARATIONS OF FOOD FOR DOGS, CATS, POULTRY, AND OTHER ANIMALS.—*Spratt's Patent*, (*Limited*,) London, county of Surrey, England. Application filed August 20, 1886. Used since January 1, 1870.

"The representation of a St. Andrew's cross."

13,695.—SOAP.—*Samuel Ooleman Adler*, Philadelphia, Pa. Application filed August 30, 1886. Used since July 1, 1886.

"The words 'BEVEL EDGE.'"

13,696.—MUSICAL INSTRUMENTS OF ALL KINDS.—*J. Howard Foote*, Brooklyn, N. Y. Application filed August 26, 1886. Used since July, 1884.

"The word 'ANTONIOPHONE.'"

13,697.—FLOUR.—*Charles A. Hammond & Co.*, Bazile Mills, Nebr. Application filed August 30, 1886. Used since February 6, 1886.

"The letters 'G. A. R.'"

13,698.—PRINTED SATINETS OR WOOLENS.—*J. M. Locke & Co.*, Brooklyn, N. Y. Application filed August 31, 1886. Used since August 3, 1886.

"The word 'LAMPHEAR.'"

13,699.—VEGETABLE EXTRACTS FOR FLAVORING SOUPS.—*The Normal Company*, (*Limited*,) Westminster, England, and Aberdeen, Scotland. Application filed July 26, 1886. Used since June, 1885.

"The representations of an ox's head and a fish."

13,700.—TOWELS AND TIDIES.—*Stephen Wood & Ward*, Philadelphia, Pa. Application filed August 24, 1886. Used since 1878.

"A Turkish scene, in which a Turk and his bride are entering a gondola, a slave is approaching them with a Turkish towel in his hand, the whole having a background showing the sea, sail-boat, and bath-house, and the words 'BOYLSTON MILLS.'"

LABELS.

4,972.—Title: "CARO CUM SPIRITU FRUMENTI." (FOR A MEDICAL PREPARATION OF BEEF AND WHISKY.)—*Robert A. Hance*, Philadelphia, Pa. Application filed August 31, 1886.

4,973.—Title: "THE WORKINGMAN'S BENEFICIAL ASSOCIATION." (FOR BOOKS AND PAMPHLETS.)—*John W. Priestley* and *Alexander H. Titus, Jr.*, Philadelphia, Pa. Application filed April 3, 1886.

4,974.—Title: "METHOD OF PACKING CONFECTIONERY."—*John R. Stout*, Brooklyn, N. Y. Application filed September 4, 1886.

4,975.—Title: "DR. LLOYD'S FAMILY MEDICINE."—*William R. Thompson*, Columbus, Ohio. Application filed September 1, 1886.

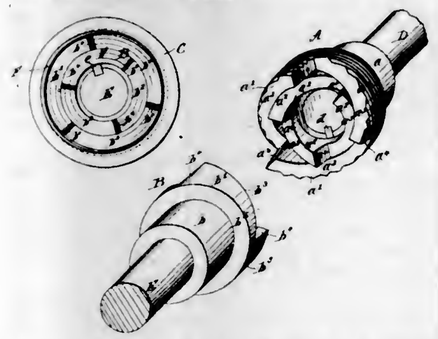
4,976.—Title: "EXPORT SODA." (FOR CRACKERS.)—*The Van Derveer & Holmes Biscuit Company*, New York, N. Y. Application filed August 25, 1886.

4,977.—Title: "WHITTEMORE'S SACRAMENTO AGUE SPECIFIC."—*E. W. Whittemore*, Hudson, N. Y. Application filed September 7, 1886.

PATENTS

GRANTED SEPT. 28, 1886.

349,678. SHAFT-COUPLING. BENJAMIN F. APPLEGATE, New Albany, Ind. Filed Jan. 22, 1886. (No model.)



Claim.—1. The combination, in a shaft-coupling, of half-clutches A B, fixed to shafts D E, and having interlocking driving-shoulders, and said half-clutch A having peripheral screw-threads G, an internally-screw-threaded sleeve, C, fitted over one half-clutch and engaging the threads G of the other half-clutch, and a fastening screw or device, as at *c*, securing the sleeve to one of the half-clutches, substantially as and for the purposes herein set forth.

2. The combination, in a shaft-coupling, of half-clutches A B, fixed to shafts D E, and provided each with interlocking teeth having separated inclined faces and driving-shoulders which are beveled backward from the roots to the points of the teeth, and said half-clutch A provided with peripheral screw-threads G, and a sleeve, C, having internal screw-threads, F, and fitted over half-clutch B, and engaging the threads G of half-clutch A, substantially as and for the purposes herein set forth.

3. The combination, in a shaft-coupling, of half-clutches A B, fixed to shafts D E, and provided each with two annular series of teeth having driving-shoulders facing reverse ways and adapted to drive the coupled shafts in reverse directions, and half-clutch A having peripheral screw-threads G, and a sleeve, C, having internal screw-threads, F, and fitted over half-clutch B, and engaging the threads G of half-clutch A, substantially as herein set forth.

4. The combination, in a shaft-coupling, of half-clutches A B, fixed to shafts D E, and provided each with two annular series of teeth which face reverse ways in each half-clutch, and also provided with separated inclined faces and with driving-shoulders which are beveled backward from the roots to the points of the teeth, and said half-clutch A having peripheral screw-threads G, and a sleeve, C, having internal screw-threads, F, and fitted over half-clutch B, and engaging the threads G of half-clutch A, substantially as and for the purposes herein set forth.

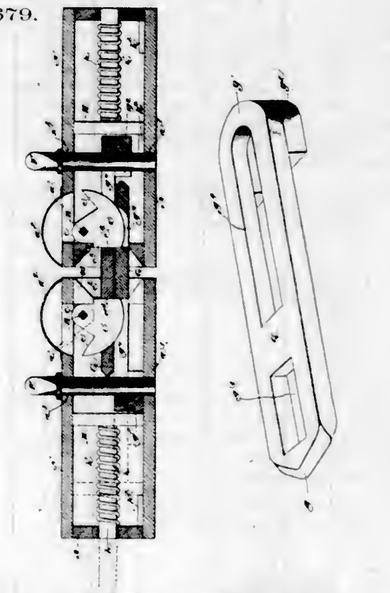
349,679. CAR-COUPLING. JAMES C. ASHEN, Mount Ayr, Iowa. Filed July 14, 1886. (No model.)

Claim.—1. The combination of the draw-heads having the links G, provided with the slots g^3 and g^4, and the pivoted depending curved catches C, adapted to enter the communicating slots of the links when the draw-heads come together, for the purpose set forth, substantially as described.

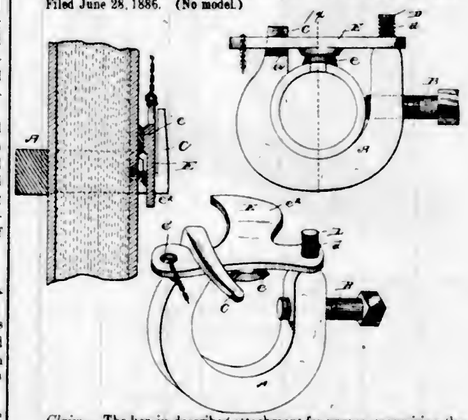
2. The combination, with a coupling-head, of the pin F, shaft B, and catch C upon said shaft, said catch having shoulders c' c^2, as set forth.

3. The combination, with casing A, having partition H, with its rod *h* and spring *h'*, the pin F, and arms E, of the shaft B, carrying catch C and arms D, the link G, having V-shaped end *g*, lug g^2, and slots g^3 g^4, and the top A', having slot *a'* and housing or boxing a^2, substantially as described.

349,679.

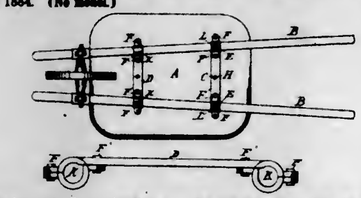


349,680. VENT-HOLE CLOSER FOR PUMPS. E. STILLMAN BABCOCK, Milton, Wis., assignor of one-half to A. S. MASON, same place. Filed June 28, 1886. (No model.)



Claim.—The herein-described attachment for pumps, comprising the attaching-band A, open at one side, and provided with the clamp-screw B, the cut-off E, arranged across the open side of the band and pivoted at one end to the band, a spring, *d*, bearing against the cut-off at the pivot-point, and a guard, c^2, depending from the cut-off, for the purpose set forth.

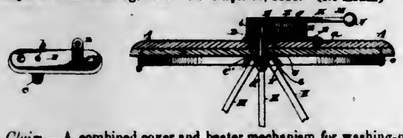
349,681. WHEELBARROW. WILLIAM BENJAMIN, Brooklyn, N. Y., assignor, by mesne assignments, to John BLAKIE, same place. Filed Jan. 22, 1884. (No model.)



Claim.—1. In a wheelbarrow, the combination, with the metal tray, of the cross-bars C D, for supporting and strengthening the bottom of the same, and the side bars or handles, B, the cross-bars being provided with eyes of adjustable size, and bolts by which said handles may be detachably clamped thereon, substantially as set forth.

2. The herein-described frame for a wheelbarrow, consisting of the front and rear cross-bars, C D, for supporting and strengthening the bottom of the tray, the substantially parallel side bars or handles, B, the cross-bars being provided with eyes of adjustable size for the reception of the handles, and bolts for detachably clamping the handles therein, substantially as set forth.

349,682. LID AND BEATER MECHANISM FOR WASHING-MACHINES. DANIEL G. BENNER, Helmsville, assignor of one-half to John Laylander, Millersburg, Ohio. Filed Apr. 17, 1885. (No model.)



Claim.—A combined cover and beater mechanism for washing-machines, &c., consisting, essentially, of a cover, the supporting-plate secured to said cover and provided with a socket adapted to retain oil, the oscillating plate having a depending stud adapted to rest in said socket and a segmental rack, the pinion-shaft passing through the cover and provided with a pinion engaging the rack, and a dasher secured to the pinion-shaft, substantially as set forth.

349,683. CONVOLUTE SPRING-HEEL. GEORGE W. BIDDLE, Centralia, Ill. Filed Apr. 7, 1886. (No model.)



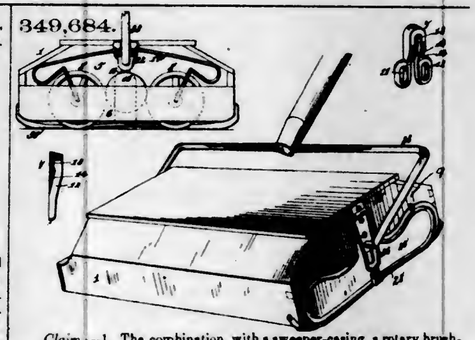
Claim.—1. A heel-shell for boots or shoes, formed of one continuous spring-metal strip or bar arranged in convolute form and provided with a metal top lift, substantially as described.

2. The combination of the convolute spring-metal heel C, the top lift, D, and the removable convolute springs F, substantially as and for the purpose described.

3. The combination of the spring-metal convolute heel C, having the flange *d*, the base-plate A, having the groove *b*, the top lift, D, and means for securing the heel to the base-plate, substantially as described.

4. The hereinbefore-described convolute spiral-spring heel, formed of one continuous piece of spring metal, the top lift, D, the flange *d*, the perforated base-plate A, shank-piece B, groove *b*, springs F, and cleat E, substantially as set forth.

349,684. CARPET-SWEEPER. MELVILLE R. BISSELL and WALTER J. DREW, Grand Rapids, Mich., assignors to the Bissell Carpet Sweeper Company, same place. Filed July 7, 1885. (No model.)



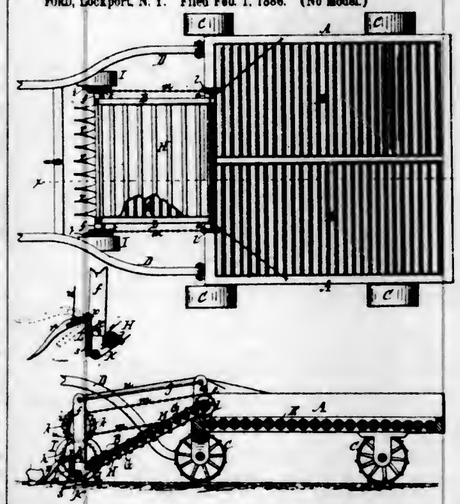
Claim.—1. The combination, with a sweeper-casing, a rotary brush-shaft, and drive-wheels, of a holder for said wheels, consisting of a wire spring, the body of which is arranged at the end wall of the casing and attached intermediate its ends to the said end wall above the brush-shaft, said wire having at each end portion a bent loop and provided at its extremities with axles carrying the drive-wheels, said casing being capable of yielding vertically in relation to the drive-wheels, to increase or diminish the frictional contact of the wheels with the brush-shaft, substantially as described.

2. The combination, with a sweeper-casing, a brush-shaft, and drive-wheels, of a holder for said wheels, consisting of a continuous wire spring having its body arranged at the end wall of the casing and provided at each extremity with an axle from which it rises at an angle to a point above the wheels, and then extends inward over the latter with portions bent around to form spring-loops, and a plate detachably securing the wire centrally between its ends to the end wall of the casing above the brush-shaft, substantially as described.

3. In a carpet-sweeper, the combination, with the dust-pans and an end board having openings communicating with said pans, of a door hinged at its upper portion to said end board and provided with a latching loop or lever locked by the bail of the sweeper, substantially as described.

4. In a carpet-sweeper, the combination, with the dust-pans and a casing end board having openings communicating therewith, of an automatic dust-discharge door hinged to said end board and provided with a latch or locking loop, and the sweeper-bail adapted to be turned to either side of the casing, whereby the dust-discharge door is closed and locked by swinging the bail to one side and opened by turning said bail to an upright position and tilting the casing, substantially as described.

349,685. MACHINE FOR GATHERING STONES. NATHAN BOSFORD, Lockport, N. Y. Filed Feb. 1, 1886. (No model.)

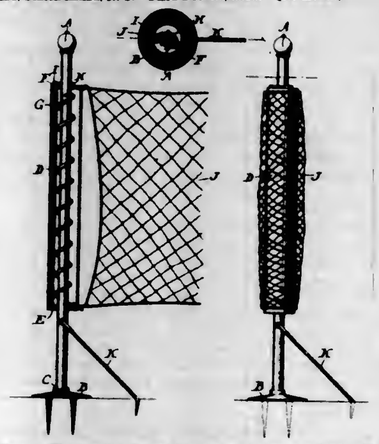


Claim.—1. In a machine for gathering stones, the combination of a main platform provided with a continuous roller-bottom, an inclined elevating-platform provided with an endless apron or lags, and a set of teeth or fingers in front, which are capable of being turned up and down, as shown and described, and for the purpose specified.

2. In a machine for gathering stones, the combination of the main platform with a roller-bottom, the inclined elevating-platform provided with an endless apron or lags, the pivoted angle-iron provided with teeth or fingers, the driving-wheels at the front of the elevating-platform, the two gear-wheels, the sprocket-wheels, and the drive-chains for giving motion to the endless apron, as shown and described, and for the purpose specified.

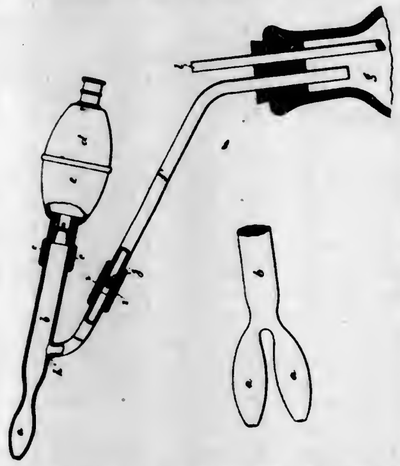
3. In a machine for gathering stones, the combination, with the main platform provided with rollers and the elevating-platform provided with an endless apron or lags, of an angle-iron pivoted in front of the elevating-platform, teeth or fingers attached to the angle-iron, and a cord or chain connected with the angle-iron and extending back within reach of the operator on the main platform, whereby said teeth or fingers may be elevated, as set forth.

349,686. POLE FOR LAWN-TENNIS NETS. CHARLES H. BRAITHWAITE, Ardmore, and GEORGE LANE, Philadelphia, Pa., and WILLIAM HERRING, Staten Island, N. Y. Filed Dec. 22, 1885. (No model.)



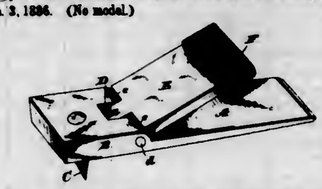
Claim.—The combination of a lawn-tennis post provided with suitable means for securing it to the ground, a reel revolving upon said post, and a spring connecting said reel and post and adapted to be wound up by the rotation of one upon the other, substantially as and for the purposes set forth.

349,687. INHALER AND RESPIRATOR. SPENCER H. BROWN, New York, N. Y. Filed Dec. 5, 1885. (No model.)



Claim.—The combination, with the receptacle *g*, of a jointed tube, *f f*, having a valve at its joint, an exhaust-tube, *b*, having tubular extensions *a a*, exhaust-bulb *d*, for assisting the expulsion of exhaust air from said tube and the nostrils, and the valves in said bulb, substantially as and for the purpose set forth.

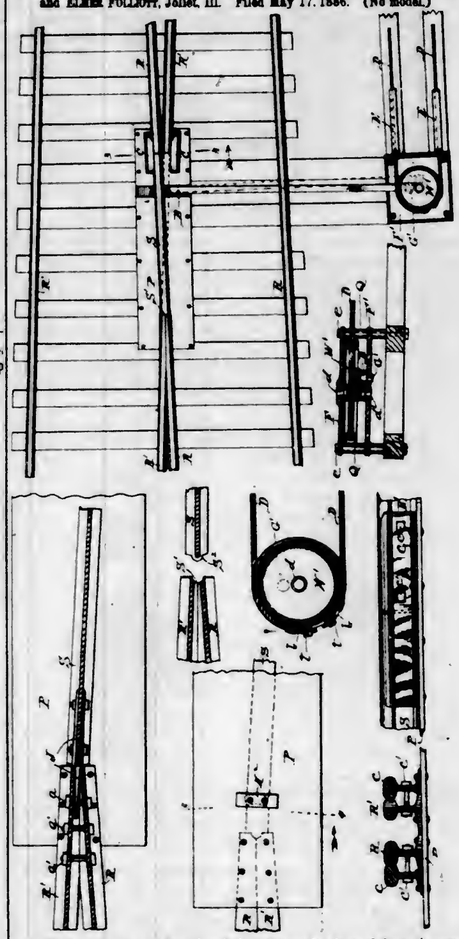
349,688. DOOR-SECURER. JOHN F. BUCKINGHAM, Washington, D. C. Filed Feb. 3, 1886. (No model.)



Claim.—1. The combination, with the wedge-shaped main bar, the enlarged end of which is slotted, as described, and provided with a depending spur, of the supplemental bar pivoted within the slotted portion of the main bar and provided with shoulders, substantially as and for the purpose described.

2. The combination, with the wedge-shaped main bar, the enlarged end of which is slotted, as described, and provided with a depending spur, of the supplemental bar having the shoulders and the rubber tip secured on the free end of said supplemental bar, substantially as set forth.

349,689. SLIP-RAIL FROG FOR RAILROADS. ISAAC BURNETT and ELMER FOLLIOTT, Joliet, Ill. Filed May 17, 1886. (No model.)



Claim.—1. In a railroad-switch, a frog-point formed from the converging ends of two fixed track-rails having a recess between them and a socketed point, in combination with the slip-rail S, having its heel pivoted to said frog-point at its socket, and the forked fish-plate J, for connecting said frog-point and slip-rail, substantially as and for the purpose set forth.

2. In a railroad-switch, a frog-point having a socketed point, in combination with a slip-rail jointed thereto at said socket, forked fish-plate J, plate P, having slot N, plate N³, and slide N', connecting said plate N³ with said slip-rail and traversing said slot, substantially as and for the purpose set forth.

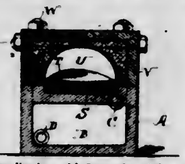
3. The combination, with the fixed railroad-tracks R R and R' R', of pointed switch-rails O and O', slip-rail S, plate P, connecting-rods B *m m'*, switch-stand H, having the cranked sheave-wheel W', automatic switch-stand T, having the cranked sheave-wheel W, and the cables D D for connecting said sheaves, substantially as and for the purpose set forth.

4. In a railroad-switch, the combination, with the fixed rails R R and R' R', of the slip-frog rail S, socketed to the frog-point and held down upon its bed-plate by means of the sliding plate N³ secured thereto, of the bed-plate P, and the anxiliary supporting-rails *c c*, having their treads of equal height with the said fixed rails and inclined at either end, and arranged at the side of and secured to said fixed rails in such manner as to form lateral support for the movable end of said slip-frog rail, substantially as set forth.

5. In combination with an automatic switch-stand, constructed and arranged substantially as shown and described, the secondary switch-stand H, cables D D, for connecting said switch-stands, connecting-rods B, *m*, and *m'*, pointed switch-rails O and O', slip-frog rail S, and the fixed track-rails R R and R' R', as and for the purpose set forth.

349,690. MOLD FOR VULCANIZING RUBBER TO LEATHER.

GEORGE F. BUTTERFIELD, Stoneham, Mass. Filed Dec. 21, 1885. (No model.)

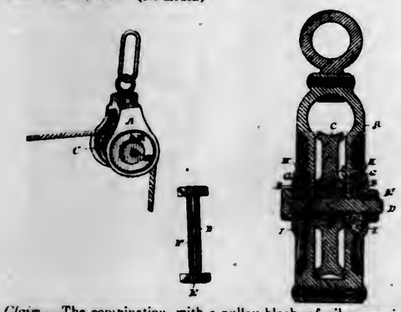


Claim.—1. The described mold for vulcanizing rubber to leather, consisting of the hollow body or steam-chamber A B, provided with suitable connecting-pipes for the passage of steam and water, and having a sunken recess, R, formed in its surface to confine the rubber during vulcanization, in combination with the cap V and with guide pins or bolts W, and nuts, serving as clamps, to hold the shoe to the mold-body A, with its sole T covering said recess R, substantially as set forth.

2. The hollow mold-body A, provided with steam-connections, as described, and having the surface recess R, in combination with the recessed cap V, having an inner surface of non-conducting material, substantially as and for the purpose set forth.

349,691. HOISTING-PULLEY.

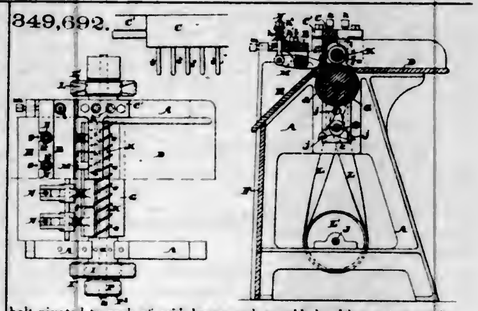
HORACE BUTTERS, Ladington, Mich. Filed June 23, 1886. (No model.)



Claim.—The combination, with a pulley-block, of oil-reservoirs B, having oil-openings G, and the pulley-shaft extending through the oil-reservoirs and block and pulley, and provided with a longitudinal oil-groove extending into the reservoirs, substantially as set forth.

349,692. COTTON-GIN.

FRANKLIN D. CHILD, West Newton, Mass. Filed Apr. 3, 1886. (No model.)



Claim.—1. In a cotton-gin, the combination of the ginning-cylinder, the breast-plate, and the series of spring-pressed levers, each provided with a shoulder to abut against the rear edge of said plate, all constructed, arranged, and adapted to operate substantially as and for the purpose described.

2. The combination, in a cotton-gin, of a ginning-cylinder, a breast-plate, a series of pivoted levers, each provided with a shoulder to abut against the rear edge of said plate, and a pad to rest upon said plate, a bolt pivoted to each of said levers and provided with a nut, a washer, and a spring, and a bar provided in one edge thereof with a series of open slots to receive said bolts, substantially as described.

3. The combination, in a cotton-gin, of a ginning-cylinder, a breast-plate, a series of spring-pressed levers, each provided with a shoulder to abut against the rear edge of said plate, and a pad to rest upon the upper side of said plate, and a beater-cylinder provided with a series of obliquely-arranged disks, substantially as and for the purpose described.

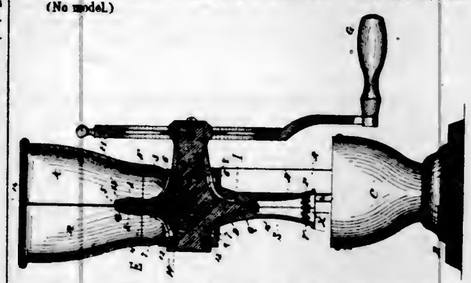
4. The combination of the ginning-cylinder G, the plate *f*, the series of levers M, each provided with a nut, a washer, and a spring, the slotted bar B, the beater-cylinder K, and the bar C, provided with the series of fingers or pins *i*, all constructed, arranged, and adapted to operate substantially as described.

5. The combination of the cylinders G K, the boxes *a a b b*, the caps C', and the set-screws *k k*, substantially as described.

6. In a cotton-gin, the combination of the ginning and beater cylinders, a plate, an adjustable bar provided with a series of open slots, a series of levers pivoted to said bar, and each provided with a shoulder to abut against the rear edge of said plate, and a pad to press upon the upper side thereof, a bolt pivoted to each of said levers and arranged to engage with the slots in said bar, a nut fitted to the upper end of each of said bolts, so as to be adjustable thereon, and a washer, and a spring mounted upon each of said bolts between its nut and said bar, substantially as described.

349,693. MILL FOR GRINDING COFFEE, SPICE, &c.

JAMES T CLARK and CLEMENT C. CLAWSON, Newark, N. J. Filed Dec. 10, 1885. (No model.)



Claim.—1. The combination, with the vertical runner and the two grinding shells or sides of the adjustable grinding-chamber, each shell or side having a portion of the hopper rigidly attached to or cast on the same, of the frame or flange rigidly attached to or cast on one of said shells or sides and surrounding the edge of the other, the latter being of the same diameter as the runner and fitting the said frame or flange, so as to prevent escape of material at the joint while permitting adjustment to be made and being prevented from turning by the portion of the hopper attached thereto, substantially as described.

2. The combination, with the vertical runner provided with journals and the frame or flange forming part of the casing and extending laterally beyond the runner, of the adjustable grinding shell or plate, of the same diameter as the runner, fitting within said frame or flange, so as to prevent escape of material at the joint while permitting adjustment to be made, and provided at the center with a bearing for the journal of said runner, substantially as described.

3. The combination, with the vertical runner, of the casing formed of two castings adjustably connected with each other, one casting comprising a part of the hopper, a grinding shell or side of the grinding-chamber, a laterally-projecting frame or flange, and the legs or support for the mill, and the other casting comprising another part of the hopper and a grinding shell or plate of the same diameter as the runner, said shell fitting within the frame or flange in the other casting, substantially as described.

4. The combination, with the vertical runner provided with journals, and the frame forming part of the casing and inclosing and extending laterally beyond the periphery of said runner, of an adjustable grinding shell or plate of the same diameter as said runner, fitting within said frame and provided with a journal-bearing for the runner, and the adjustable strap for adjusting the position of the grinding-shell within said frame, substantially as described.

5. The combination, with the adjustable grinding shell or plate, of the adjusting-strap bearing at the middle on said shell, the T-shaped lug engaging one end of said strap, and the ear, screw, and nut for drawing in the other end, and thus adjusting the position of said shell or plate, substantially as described.

6. In combination with the vertical runner, an adjustable two-part casing provided with a grinding shell or shells, and having a pivotal connection between said parts, the axis of the pivotal connection being transverse to the action of the runner, so that the grinding-shell can be adjusted laterally, substantially as described.

7. The adjustable two-part casing for an upright mill, one part consisting of the front of the grinding-chamber and the front of the hopper, and the other of the back of the grinding-chamber and the back of the hopper, and the two parts being pivotally connected at the top of said hopper, substantially as described.

8. The combination, with the runner, of the adjustable two-part casing and the spring for separating the said parts so far as the adjustment will permit, substantially as described.

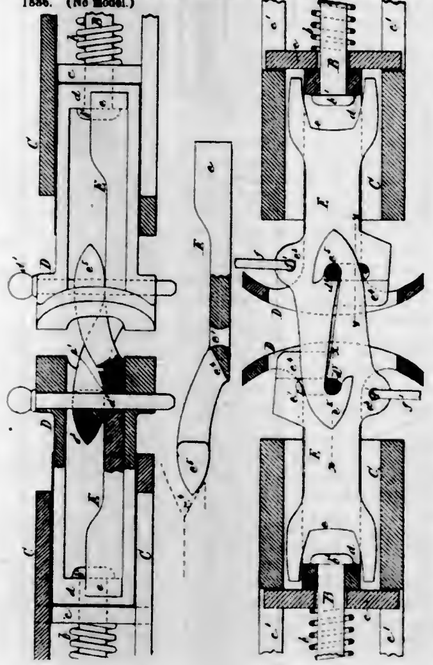
9. The combination, with the two parts of the mill-casing pivotally connected at the top, of the adjusting-strap at the middle for drawing them together, and the spring at the bottom for pressing them apart so far as the strap will permit, substantially as described.

10. The combination, with the vertical runner provided with journals and an adjustable shell or plate having at the center a journal-bearing for the runner, of an adjusting-strap having seats for bearing upon the grinding shell or plate above and below the journal, substantially as described.

11. The improved duplex mill herein described, comprising the following elements: a vertical runner provided with spaced teeth in the periphery and grinding-surfaces on both faces and movable endwise in its bearings, the two grinding shells or plates, one of said shells or plates being of the same diameter as the runner and fitting within a frame inclosing the periphery of the runner, the hopper attached to said shells or plates, the front on one shell, the back on the other, and the adjusting strap and spring for regulating the distance between the runner and the grinding-shells, substantially as described.

349,694. CAR-COUPLING.

MARK J. COLBOURNE, Three Runs, assignor of one-half to Joseph W. Merrey, Beech Creek, Pa. Filed July 21, 1886. (No model.)



Claim.—1. In combination with cars having coupling-heads D and coupling-pins *d'*, the coupler E, having a slotted end portion, *e*, transverse slot *e'*, and hooked front portion, *e²*, substantially as and for the purpose described.

2. The detachable coupling E, having a slotted end portion, *e*, transverse slot *e'*, hooked front portion, *e²*, and a sloped guide, *e³*, substantially as and for the purpose described.

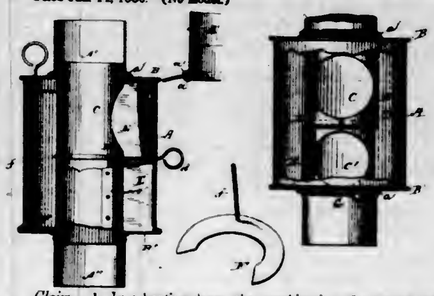
3. The swinging coupling E, having an end portion, *e*, transverse slot *e'*, and hooked front portion, *e²*, coupling-head D, and coupling-pin *d'*, in combination with the connecting-rod *f* and weighted lever *f⁵*, substantially as and for the purpose described.

4. The swinging coupling E, having an end portion, *e*, transverse slot *e'*, and front hooking portion, *e²*, coupling-head D, and coupling-pin *d'*, in combination with the levers *f⁵ g²* G', and suitable connecting-rods, substantially as and for the purpose described.

5. The combination, with two cars having coupling-heads D and coupling-pins *d'*, of two couplings, E, having hooked front portions, *e²*, the hooked portion of one coupling standing above the central or body portion of the other coupling when the cars are coupled, substantially as and for the purpose described.

349,695. HEATING-DRUM.

JAMES W. DAVIS, Enterprise, Kans. Filed Jan. 14, 1886. (No model.)



Claim.—1. In a heating-drum, the combination of an outer cylinder, A, an inner pipe, C, with openings *c c'* located on a line with each other, a damper located within the pipe C and between said openings and provided with a handle, which extends beyond the outer cylinder, the partition-plate E, having a vertical and a horizontal portion secured in position between the inner pipe and outer cylinder, said cylinder being provided at its lower head with an opening, *g*, and a covering-plate therefor, substantially as shown, and for the purpose set forth.

2. In a heating-drum, the combination of an outer cylinder, an inner pipe attached thereto and provided with openings *c* and *c'*, a damper, D, a partition extending from the upper end of the drum to its lower end and having a horizontal portion between the upper and lower openings in the pipe and cleaner located in said drum concentric with said pipe, substantially as shown, and for the purpose set forth.

349,696. MANACLE.

NATHAN DAVIS, Augusta, Ga. Filed Aug. 17, 1886. (No model.)



Claim.—1. The herein-described manacle, comprising belt A, having conical loops or cuffs D and D', secured to the belt and receiving the hands, and means for retaining the hands in the loops or cuffs, as set forth.

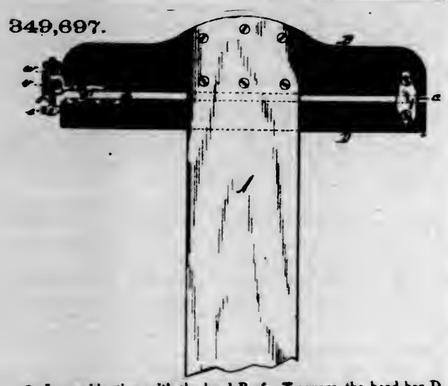
2. The herein-described manacle, comprising belt A, having loops or cuffs D and D', conical in shape, secured thereto, and adapted to receive the hands, and the retaining or securing straps E and E', adapted to pass around the wrists to secure the hands in the loops or cuffs, as set forth.

349,697. ADJUSTABLE HEAD FOR T-SQUARES.

EZRA L. DRAKE, Holyoke, Mass. Filed Feb. 20, 1886. (No model.)

Claim.—1. The combination, with the head B of a T-square, and with the head-bar D, pivotally connected by one end to said head, of an arm, *e*, on said bar opposite its pivoted end, having a screw-rod attached thereto, an arm, *e'*, on said head opposite the arm on said bar, having a bifurcated end through which said screw-rod passes, and an adjusting-nut operating on said rod between the bifurcated parts of said arm *e'*, substantially as set forth.

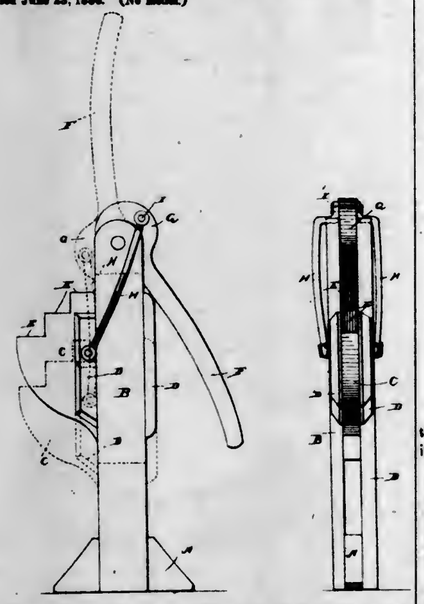
349,697.



2. In combination with the head B of a T-square, the head-bar D, pivoted by one end to one end of said head B, the screw-rod *o*, and the adjusting-nut *o*, having an engagement with the ends of arms, substantially as described, on the ends of said head and bar, substantially as set forth.

3. In combination, the head B of a T-square having the bifurcated arm *s'* thereon, the swinging head-bar D, having the arm *e* thereon, the screw-rod *o*, connected to the latter and passing through arm *s'*, and the nuts *u* and *w*, substantially as set forth.

349,698. LIFTING-JACK. JOHN W. DONOHOE, Frankfort, Ohio. Filed June 23, 1886. (No model.)

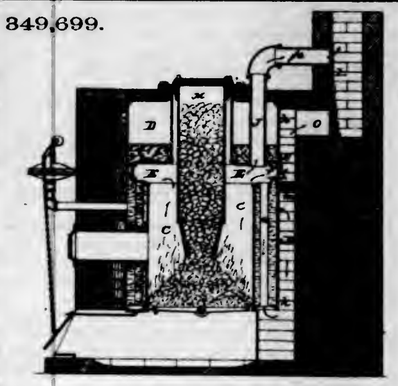


Claim.—The combination, in a lifting-jack, of the vertical standards B, arranged at a slight distance apart, sliding head C, fitting between the said standards and having the flanges D bearing on the front and rear sides thereof, the lever F, pivoted between the upper ends of the standards and having the eccentric head G, and the connecting-rods H, having their outer ends pivoted to the eccentric head and their lower ends pivoted to the sliding head C, for the purpose set forth, substantially as described.

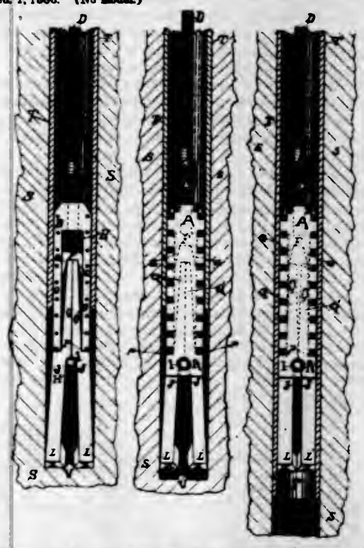
349,699. MAGAZINE STEAM-BOILER. WILLIAM B. DUNNING, Geneva, N. Y. Filed Jan. 26, 1886. (No model.)

Claim.—In combination with the boiler B, the central magazine, M, the surrounding fire-chamber C, having the annular enlargement E, with the descending flues *a*, for the indirect draft, and the upright flue J, or its equivalent outlet from the enlargement E, for a direct draft, and a damper for closing the same, substantially as shown and described.

349,699.



349,700. EXPANSION-DRILL FOR BORING WELLS. JOSEPH F. DYE, Santa Paula, Cal., assignor of one-half to Sutherland Hutton. Filed Feb. 1, 1886. (No model.)



Claim.—1. In an expansion-drill, the combination, as set forth, of two outwardly-spring-pressed pivotally-mounted drill-bits terminating in cutting-edges, as shown, the case A B, pivot-bolt I, and spring J.

2. In a well-boring tool, the combination of the case A B, the drill-bit, and the jar F, mounted upon the end of the rod D, and seated in the chamber H, substantially as and for the purpose set forth.

3. In a well-boring tool substantially such as set forth, and in combination with the pivotally-mounted drill-bits L Q and L' Q', the bifurcated jar F G.

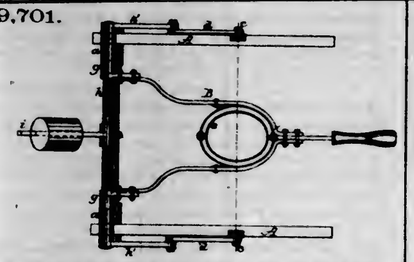
4. In a well-boring tool, the combination, substantially as set forth, of the case A B, drill-bits Q L Q' L', pivot-bolt I, spring J, jar F, rod D, and temper screw-nut E.

5. In a well-boring tool substantially such as described, the pivoted drill-bits L Q and L' Q' and the spring J, in combination, as set forth—that is to say, the cutting-edge of the tool is at the end of the bits, and the spring is so mounted as to force the bits apart, whereby the length of the cutting-edge of the tool when the bits are free is greater than that which the tool may be made to present when the bits are pressed toward each other.

349,701. MACHINE FOR FOLDING OR CURLING HAT-BRIMS. RUDOLF EICHMEYER, Yonkers, N. Y. Filed Feb. 9, 1886. (No model.)

Claim.—1. In a hat-brim folding or curling machine, the combination, substantially as hereinbefore described, of a main frame, and a top frame hinged to said main frame upon a hinge-rod which is vibrated toward and from the front of said main frame simultaneously with the lifting of the front end of said top frame, whereby that portion of the top frame at which more or less of the brim folding or curling devices are

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carried will be moved substantially in a right line toward and from an underlying portion of the main frame.

2. In a hat-brim folding or curling machine, the combination, with the main frame and the top frame, of the rock-shaft secured to said top frame, the pivoted links on which said rock-shaft is mounted, a lever-arm secured to said rock-shaft, and a link pivoted to the main frame and pivotally coupled to said arm, substantially as described, whereby when the top frame is lifted and lowered said link will cause said rock-shaft to be moved toward and from the front portion of the main frame, for the purposes specified.

3. In a hat-brim folding and curling machine, the combination, with a top frame, of a semi-rotative key-block, substantially as described, whereby a hat on a block having a hole therein for the passage of said key-block may be mounted upon and supported in an inverted position by said top frame.

4. In a hat-brim folding and curling machine, the combination, with a top frame, of a semi-rotating key-block mounted on a longitudinally-sliding rod, and a spring for lifting said key-block, substantially as described, whereby a hat on a block having a hole therein for said key-block can be locked to said frame and firmly held thereon by said key-block and its spring.

5. In a hat-brim folding and curling machine, the combination of a top frame, a key-block mounted upon a semi-rotative rod in bearings on said frame, and a torsional spring, substantially as described, whereby said key-block is normally maintained in its locked position while confining a block with a hat thereon to said top frame.

6. In a hat-brim folding and curling machine, the combination, substantially as hereinbefore described, of a top frame, a key-block mounted on a rotative and sliding rod, and a spring which operates torsionally for semi-rotating said rod and key-block, and which also lifts said key-block when in locked engagement with a hat-block.

7. In a hat-brim folding and curling machine, the combination, substantially as hereinbefore described, of the top frame, the key-block mounted on a sliding rotative rod on said frame, the spring, the handle on said rod, and the cam-faced hub.

8. In a hat-brim folding and curling machine, the combination, substantially as hereinbefore described, of the top frame, the key-block mounted on a sliding and rotative rod, the spring, the cam-faced hub, the handle on said rod, and the latch which holds said key-block in its unlocked position.

9. In a hat-brim folding and curling machine, the combination, substantially as hereinbefore described, of the top frame, the key-block mounted on a rod, the spring, the latch, and the pendent rod on said latch, whereby the key-block is released from the control of said latch by the placing of a brow-block into proper relations with said key-block.

10. In a hat-brim folding or curling machine, the combination, substantially as hereinbefore described, of a top frame carrying a guide-ring and a guide-plate for co-operating with a brim-folding ring, and a key-block for locking a hat while on its block to said frame, and in an inverted position centrally with relation to said ring.

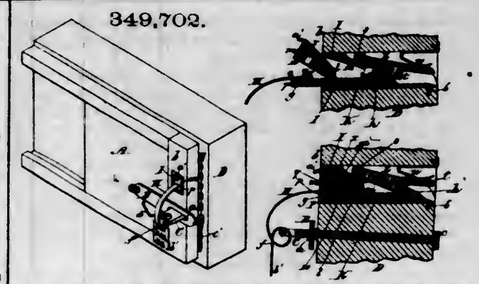
11. In a hat-brim folding or curling machine, the combination, substantially as hereinbefore described, of the top frame, the hat-block chuck mounted on and depending from said frame, and the rotative key-block at the outer face of said chuck for locking a hat-block thereon.

349,702. SEAL-LOCK. DANIEL FERRIS, Boston, Mass. Filed July 1, 1886. (Model.)

Claim.—1. In a seal-lock, a flexible seal provided with a tag bearing a distinguishing mark or device adapted to be attached to the door-fastening or door by passing or looping one part of said seal through an aperture in another part of the same, as described, to leave one end free, in combination with an automatic locking device having a pin or projection adapted to pass through an aperture in the said free end of the seal and securely hold the same, substantially in the manner and for the purpose set forth.

2. In a seal-lock, the combination, with the casing I, having a mouth or open front end, of a slide adapted to move longitudinally within said casing, and provided at its front end with a pair of jaws adapted to engage with and securely hold a flexible seal, and be kept closed upon

349,702.

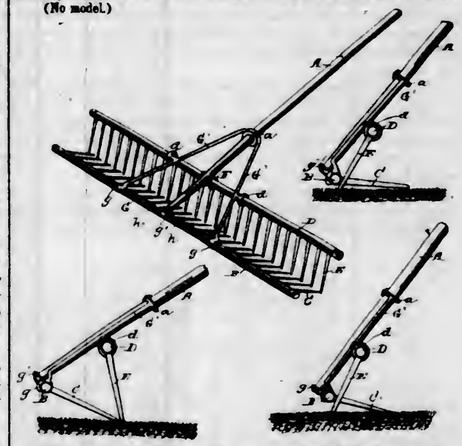


the said seal and locked by contact with the interior of the casing when the slide is pushed into the same, and a pawl or dog adapted to engage with an offset or shoulder on said slide and prevent the withdrawal of the latter after being pushed into the casing to lock the jaws, substantially as set forth.

3. In a seal-lock, the combination, with the casing I, having a mouth or open front end, of a slide, K, adapted to move longitudinally within said casing, and provided with a shoulder, A, and having at its outer end the stationary and movable jaws *p m*, one provided with a pin or projection, *q*, and the other with an aperture, *r*, for the reception of the same, and adapted to be kept closed and locked by contact with the interior of the casing when the slide K is pushed in, a stop for limiting the outward movement of the slide, a pawl or dog, L, adapted to engage the shoulder A of the slide when pushed into lock the jaws, and a flexible seal bearing a distinguishing mark or device, and having an aperture, *g*, adapted to hook over the pin or projection *q* of the jaws, whereby the seal is prevented from being removed from the jaws after the latter are pushed in and locked, all constructed to operate substantially in the manner and for the purpose described.

4. In a seal-lock, the combination, with the casing I, having its upper interior surface, 12, beveled or inclined inward and downward, as described, of the slide K, having the lower jaw, *p*, and the upper jaw, *m*, the latter having its upper surface inclined inward and downward, and a pawl or dog adapted to engage and hold the slide when pushed in to lock the jaws, whereby the raising of the pawl from the outside by the introduction of a strip of metal over the jaw *m* is prevented, substantially as set forth.

349,703. RAKE. HENRY FISHER, Canton, Ohio. Filed Dec. 10, 1885. (No model.)



Claim.—1. In combination with a rake, a clearer consisting of a rocking bar carrying teeth adapted to project between the rake-teeth, and a spring which tends to rock the bar and move the clearer-teeth from between the rake-teeth, substantially as set forth.

2. In combination with a rake, a clearer consisting of a rocking bar carrying teeth adapted to project between the rake-teeth, and which normally extend below the ends of the rake-teeth, whereby when the rake is drawn toward the operator they engage with the ground before the rake-teeth and are rocked backward between the rake-teeth, substantially as set forth.

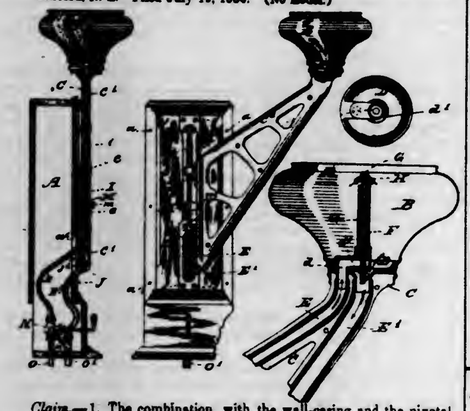
3. In combination with a rake, a clearer consisting of a rocking bar carrying teeth adapted to project between the rake-teeth, and which normally extend below the ends of the rake-teeth, whereby when the rake is drawn toward the operator they engage with the ground before

the rake-teeth and are rocked into a position between the rake-teeth, and a spring which tends to rock said bar and move its teeth from between the rake-teeth, substantially as set forth.

4. In combination with a rake-handle and a rake-head carrying the teeth, the herein-described triangular casting, consisting of the braces G' G' and the part G, parallel with the rake-head, the part G carrying seats *g g*, in which is supported the rake-head, and being provided with an eye, *g'*, for the end of the handle, and there being an eye, *a*, for the handle at the point where the braces G' G' join, substantially as set forth.

5. In combination with a rake and a clearer consisting of a rocking bar carrying teeth adapted to project between the rake-teeth, the herein-described casting G G' G', provided with seats *g g* for the rake-head, seats or eyes *g' a* for the handle, and seats *d d*, in which is mounted the rocking bar, substantially as set forth.

349,704. ADJUSTABLE FOUNTAIN-SPITTOON. JOHN M. FLETCHER, Concord, N. H. Filed July 19, 1886. (No model.)

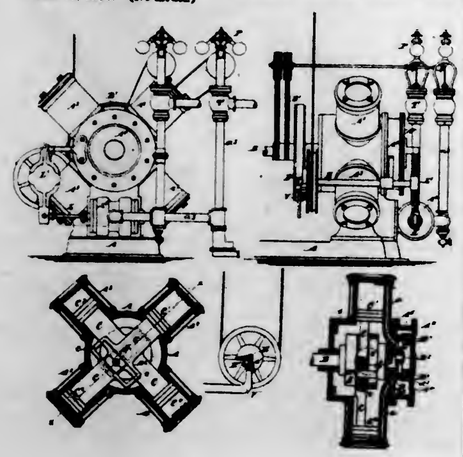


Claim.—1. The combination, with the wall-casing and the pivotal rod connected thereto, of the swinging arm carrying the spittoon and the supply and drain pipes, and the split clamp gripping said rod to hold the arm fast at any desired point of its rotative course, as set forth.

2. The combination, with a case adapted to be screwed to the wall, of a swing-arm pivotally connected thereto and adapted to carry a fountain-spittoon at its outer end, with suitable supply and drain tubes, and means, substantially as shown, for the vertical adjustment of the swing-arm, as set forth.

3. In a fountain-spittoon, the combination, with the bottom plate having cored passages for the supply and drain, as shown, of the air-tube located within the supply-tube and connecting the drain-tube with the outer air, and a suitable spreader threaded to the top of said air-tube and adapted to direct the supply horizontally against the sides of said spittoon.

349,705. STEAM AND GAS ENGINE. DENNIS FRISBIE and EDWARD M. LOCKWOOD, Philadelphia, Pa., assignors to said Dennis Frisbie. Filed Feb. 15, 1886. (No model.)



Claim.—1. In an engine reversed by reversing the direction of the pressure, the packing-ring D', having two lips, in combination with the valve D and its operating means, and with two packings, d' and d^2, arranged for joint operation as herein specified.

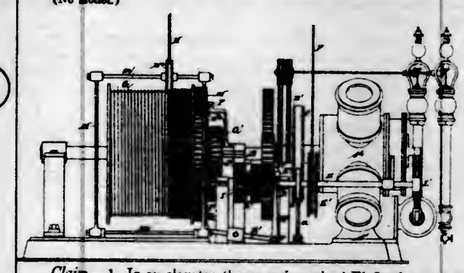
2. The valve-chest A^1, having the two annular grooves a^1 and a^4 and the ports a' a^2, in combination with the gyratory valve D and means B^2 for driving it, and with a reversing-valve, as M, operating at a lower level, all arranged for joint operation as herein specified.

3. In a hoisting and lowering engine arranged to reverse the conditions in the steam and exhaust passages, a reversing-valve having a bearing, M', wider than its port a', arranged to give a freer passage for the live steam than for the exhaust in lowering, as herein specified.

4. The stop V, in combination with the notched wheel E', shaft E, and connections with the reversing-valve M, and with means for operating it, arranged to limit the movement of the reversing-valve in the direction to lower, substantially as and for the purposes herein specified.

5. In a steam or gas engine, the two governors P and O, in combination with means for controlling independently the area of the steam and exhaust passages, as herein specified.

349,706. ELEVATOR. DENNIS FRISBIE and EDWARD M. LOCKWOOD, Philadelphia, Pa., assignors to said Dennis Frisbie. Filed Feb. 18, 1886. (No model.)



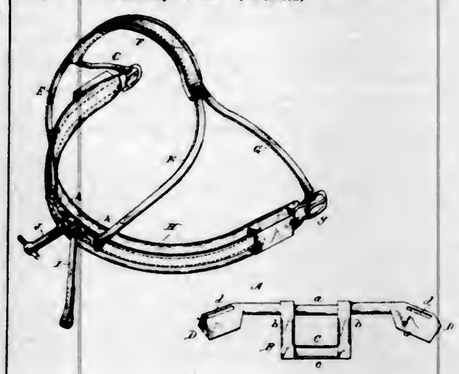
Claim.—1. In an elevator, the reversing-wheel E', fixed on the reversing-shaft E, and the cam E^2, fixed on the same shaft, in combination with the brake-wheel B' and brake-strap C, and the connected levers *a c*, the arm *c* carrying weight *d*, and having its connection with the strap C at a point between the fulcrum of the lever and the weight, all arranged for joint operation as set forth.

2. In an elevator, the sheave M^4 and connected frame M, arranged to press gently against the hoisting-rope H, in combination with means, as the arm M^3, lever P, link Q, lever R' R^3, wheel K, and reversing-shaft E, for engaging the power of the engine to shift the valve and apply the brake whenever the hoisting-rope slackens, as herein specified.

3. In an elevator, the reversing-pulley E' and operating means F, for turning the reversing-shaft at will in any position of the elevator-car, in combination with the stopping mechanism, as the arm M^3, lever P, link Q, lever R' R^3, and wheels K and I, for operating the reversing-shaft E automatically under certain conditions, and the engaging means, as the beveled ratchets I' and K', arranged for joint operation as herein specified.

4. In an elevator, the brake-wheel B', brake-strap C and means for applying it by a moving force, as the weight *d*, the piston U, and cylinder T *l*, combined and arranged for joint operation to effect the application of the brake by a gradual movement, substantially as herein specified.

349,707. LOOP-BAR FOR HARNESS. NATHAN A. GARDINER, Virgil, N. Y. Filed July 14, 1886. (No model.)



Claim.—1. As an improved article of manufacture, a loop-bar for harnesses, consisting of a main bar recessed in its center, and having depending beneath the recess a rectangular loop, and having its ends widened, forming an arm extending downward and outward with loop-holes therein, as and for the purpose set forth.

2. A loop-bar adapted to be secured to the breast-collar of a harness, being recessed in its center, and having depending beneath the recess a rectangular loop, the bar uniting the lower ends of said loop being recessed for the attachment of a neck-yoke strap, the end of the main bar being widened into arms extending downward and outward with loop-holes therein of the same inclination as the arms to receive supporting brace-straps from the neck-piece, as and for the purpose set forth.

349,708. PNEUMATIC CASH SYSTEM. HENRY GAZAILLE and HAMILTON F. LOW, Manchester, N. H., said Low assignor to said Gazaille. Filed Dec. 30, 1885. (No model.)



Claim.—1. The combination, with a pneumatic cash-transmitting tube, an air-pump capable of inducing a current of air in either direction through said tube, and a suitable cash box or carrier, of a delivery-crane constructed substantially as herein described and located near the cashier, a wire connecting with a signal-bell located near a salesman's counter, and means whereby said crane shall automatically operate said signal with the egression or regression of the cash-box, as and in the manner explained.

2. The combined receiving-box and transmitter and a vibratory delivery-crane constructed substantially as described, in combination with a pneumatic tube, an air-pump capable of inducing an air-current in either direction through said tube, a suitable cash box or carrier, and an electric signal, all arranged and operating as and for the purpose set forth.

3. The transmitter connected with an air-pump, substantially as shown, combined with the sliding cover, the connecting-arm, the shaft and the operating-lever, the dispatch-tube, and the receiver, as set forth.

4. The transmitter connected with an air-pump, substantially as shown, combined with the sliding cover having the external raised tongue and the inner felt lining, the connecting-arm, the shaft and its eccentric stud, the operating-lever and its boss, the dispatch-tube, and the receiver, as set forth.

5. The curved receiving-crane having an end stop and adapted to be rocked, substantially as shown, combined with the wires forming a connection through said crane between a battery and an alarm-bell near the salesman's counter, a dispatch-tube, a receiver, and an air-pump, as set forth.

6. The open curved receiving-crane having an end stop, combined with the base-plate, the rockers, the tension-spring, the electric wires connecting through the crane between a battery and an alarm-bell, the dispatch-tube, the receiver, and the air-pump, as set forth.

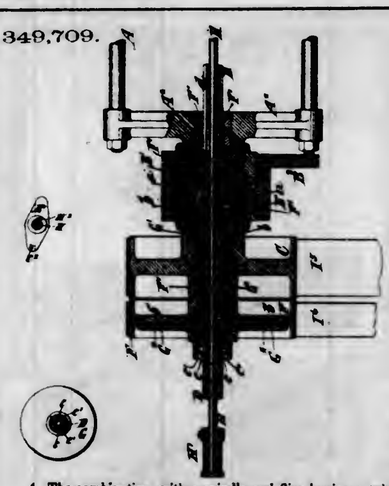
349,709. SPINDLE AND FLIER. JOHN GOOD, Brooklyn, N. Y. Filed July 18, 1884. (No model.)

Brief.—The spindle-driving pulley has a long sleeve turning within the tubular flier-journal and receiving the hollow spindle through it. The friction-disk is locked to the spindle, works against a face on the spindle-pulley, and has a sleeve receiving the spindle through it and turning in a recessed portion of the sleeve of the spindle-pulley. The traverse-rod has a head projecting through a slot in the spindle and permanently attached to the bobbin-coupling.

Claim.—1. The combination, with a spindle and flier, of a pulley on the flier-journal for driving the flier, a loose pulley concentric with the spindle for driving it, and a friction device or drag interposed between the spindle-pulley and the spindle itself, substantially as herein described.

2. The combination, with a spindle and flier having a tubular journal at its driving-head and a driving-pulley fast thereon, of a spindle-driving pulley having a long sleeve fitting and capable of turning in the tubular journal of the flier and receiving the spindle through it, substantially as herein described.

3. The combination, with a spindle and a flier having a tubular journal at its driving-head and a driving-pulley fast thereon, of a spindle-driving pulley having a long sleeve fitting and capable of turning in said tubular flier-journal, and receiving the spindle through it, and a friction device or drag interposed between the spindle-driving pulley and spindle, substantially as herein described.



4. The combination, with a spindle and flier having a tubular journal at its driving-head, and a driving-pulley fast thereon, of a spindle-driving pulley having a long sleeve fitting and capable of turning in the tubular flier-journal and recessed or counterbored from its outer end inward, and a friction disk or drag locked to the spindle, having a tubular sleeve fitting the recess or counterbore in the sleeve of the spindle-driving pulley and bearing against a friction-face on said pulley, substantially as herein described.

5. The combination, with the closed flier, fixed bearings for the journals thereof, and a hollow slotted spindle fitting bearings at opposite ends of the flier and adapted to receive upon it a sliding bobbin, of means, substantially as described, for driving the flier and spindle, a bobbin-coupling fitted to slide on the spindle, and a traverse-rod sliding loosely in the hollow spindle and having a head projecting through the slot in the spindle and permanently connected with the bobbin-coupling, substantially as set forth.

349,710. CHECK OR TICKET REGISTER APPARATUS. JOHN H. GUEST, Brooklyn, assignor of one-half to T. Fred Thomas, New York, N. Y. Filed Feb. 23, 1886. (No model.)

Brief.—A five-cent check moves the units-wheel one tooth; a ten-cent check two teeth, &c.

Claim.—1. The combination, with an electric circuit and a step-by-step register located therein, of a circuit-controller provided with two or more fingers, each of which is adapted to operate the register a different number of steps, and means for rendering operative either finger at predetermined intervals.

2. The combination, with two or more check-holding boxes holding different classes of checks, of a common ejecting mechanism, two circuit-controlling devices governed thereby, and means for throwing said circuit-controllers into and out of circuit, as and for the purpose described.

3. The combination, with a check-delivery apparatus, of two sets of circuit-controlling devices connected with the operating mechanism thereof, a time mechanism, and an electric switch for throwing one set of circuit-closing devices out of and the other into action, and vice versa, at determinate times.

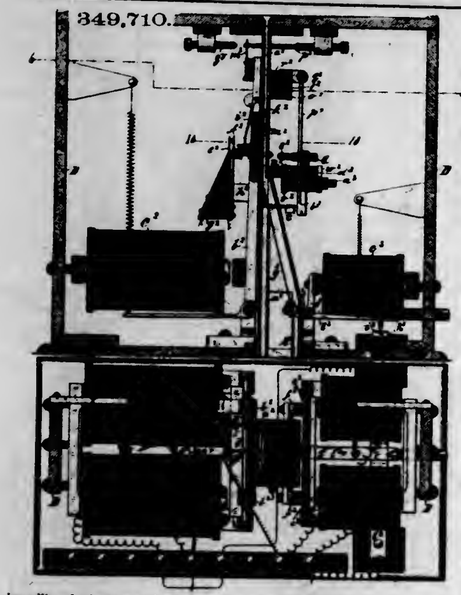
4. The combination, with a check-delivery apparatus and two sets of circuit-controlling devices, of a time mechanism for throwing one or the other set into circuit at specified times, an electric circuit connecting the said apparatus with the central office or supervising station, and an electric register or recorder at the latter station.

5. The combination, with a check-delivery apparatus provided with a register to show the number of checks issued, of two or more sets of circuit-controlling devices connected with the operating mechanism of said apparatus, a circuit governed by said devices and connected with a central or supervising station containing a register, and an electric switch for throwing the circuit-controlling devices into action in turn at specified times.

6. The combination, with a check-delivery apparatus, of two sets of circuit-controlling devices, one of which produces a closing and breaking of the circuit a greater number of times than the other, an electric switch for throwing one set of circuit-closing devices into and the other out of circuit, or vice versa, as required, and an electric register operated by current on the circuit controlled.

7. The combination, with a check-delivery apparatus provided with a register to show the number of checks or tokens issued, of two sets of

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impelling devices operating in succession and in the same direction on the register at every operation of the delivery mechanism, and an electro-magnet for throwing one set out of action at pleasure without affecting the operation of the other, as and for the purpose described.

8. The combination, with a check-delivery apparatus, substantially such as described, and the operating lever or mechanism thereof, of a registering mechanism actuated thereby, and having two impelling-pawls working in succession and in the same direction upon the units-wheel, an electro-magnet connected with one operating-pawl, and an electric switch whereby said magnet may be thrown into or out of circuit and the actuating-pawl may be controlled so that each operation of the delivery mechanism may produce a movement of the units-wheel forward one or two steps, as desired.

9. The combination, with the register and its two sets of actuating devices, of an electro-magnet connected with one set for throwing the same into or out of operative relation to the wheel actuated thereby without affecting the action of the other set, as and for the purpose described.

10. The combination, with the operating-lever and the two sets of actuating-pawls adapted to act successively and in the same direction on a register-wheel, of an electro-magnet connected with one set, and a switch for throwing said magnet into or out of action, as desired.

11. The combination, with the check-delivery apparatus and its operating-lever, of the two circuit closers and breakers, one of which has a contact-surface of reduced length, so that in a complete movement of the operating mechanism the circuit will be made and broken twice.

12. The combination, with the check-delivery apparatus and a check-receiving apparatus having an automatic register operated by the checks, of an electric switch and time mechanism for governing the circuits employed in registering checks of different denomination or character, substantially as set forth.

13. The combination, with a check-delivery apparatus containing two or more electric circuits or branches of circuits to be used in connection with the devices for registering checks of different denomination, of an electric switch controlling said circuit, as and for the purpose described.

14. The combination, with the check-delivery apparatus, of two sets of circuit-controlling devices, one of which makes and breaks the circuit twice as many times as the other, a circuit connecting said check-delivery apparatus with a central or supervising station, and an electric register whose magnet is included in the circuit at said station.

15. The combination, with a check-delivery apparatus, of a register operated thereby and an electro-magnet connected with said register for controlling its actuating mechanism, whereby the indications of the register under the operation of the delivery mechanism may be changed automatically, as and for the purpose described.

16. The combination, with the operating handle or arm for a check-delivery apparatus, of a register having mechanical connection with said mechanism, an electro-magnet whereby the mechanical action of the register under the operation of the mechanism may be changed at pleasure, and a switch for throwing said magnet into and out of circuit at pleasure.

17. The combination, in a check-receiving box, of a guideway or chute for the checks or tokens, a pivoted lever having an arm projecting into the path of the checks, and circuit-controlling contacts controlled by said lever.

18. The combination, with a register, of a guideway or chute adapted to carry or convey a number of objects or articles in succession, a spacing finger or stop, and devices controlled by the objects or articles in their passage through the guideway for operating said stop or finger so as to produce a space or interval between the successive objects as they pass through the chute, and operating or controlling devices for a register mechanism.

19. The combination, substantially as described, with a guideway or chute, of a stop or spacing finger and devices controlled by the objects passing through the chute or guideway for operating said finger so as to produce a space or interval between the successive objects.

20. The combination, substantially as described, of a guideway or chute, a spacing finger or stop, an electro-magnet for throwing the same into engagement with objects passing through the chute, and a circuit-controller governing the action of said magnet and itself operated by the passing objects.

21. The combination, substantially as described, with a chute or guideway for checks, or their equivalent, as described, of a circuit-controller having an operating-arm projecting into the path of checks passing in the guideway, a spacing finger or stop arranged, as described, to engage with the check or coin succeeding that which is in engagement with the circuit-controller, whereby an interval between the checks or coins may be produced in their passage to operate said controller.

22. The combination, with the guideway or chute, of a circuit-controlling feeler and a circuit combined therewith and containing an electro-magnet for operating devices, whereby the different kinds of objects passing through the chute may be classified or enumerated, as described.

23. The combination, with a guideway or chute, of a circuit-controlling feeler, an electro-magnet for throwing the same into engagement with objects passing through the chute, and a circuit-controller governing the action of said magnet and operated by the passing objects.

24. The combination, with a guideway or chute, of two or more sets of spacing-stops, whereby the devices passing through the chute may be permitted to fall or move in succession, but with an interval between them, an operating electro-magnet for moving said stops, a circuit-controller operated by the objects passing through the guideway, a selecting feeler or finger, and an operating-magnet for the latter controlled by the circuit-controlling mechanism that brings into action the magnet for operating the spacing-stops.

25. The combination, with the guideway or chute, of a circuit-controlling feeler or finger whose two electrodes are carried, respectively, by a part moving with the finger itself and by a part communicating motion to said finger through a flexible or extensible connection, so that when the feeler meets with an obstruction in the guideway the position of the electrodes of the controller with relation to one another will be changed.

26. The combination, with the guideway or chute, of a feeler for engaging with the objects passing through said guideway, and a stop for temporarily holding the objects in position opposite the feeler.

27. The combination, with the guideway or chute, of a circuit-controlling selecting-feeler, an electro-magnet for projecting said finger or feeler into the guideway, and a circuit-controller operated by the passage of objects through the chute for bringing said magnet into action.

28. The combination, with the guideway or chute, of a circuit-controlling feeler, an electro-magnet, and a guiding flap or valve in the passage to the receiving box or receptacle, whereby the objects passing through the guideway may be automatically classified or distributed.

29. The combination, with the guideway or chute, of a circuit-controller, a relay whose circuit, completed by the operation of said circuit-controller, is through the back contact for the relay, an electric register in a circuit completed through a front contact of the relay, and an electro-magnet brought into action by said magnet, when energized, for operating a circuit-controller, whereby the relay-magnet is de-energized.

30. The combination, with the chute or guideway, a circuit-controller, a relay actuated thereby, and a branch from the relay-circuit to a registering-magnet, of an artificial resistance in the relay-circuit, as and for the purpose described.

31. The combination, with a guideway or chute, of a spacing finger or stop, a circuit-controller operated by the objects passing through the guideway, an electro-magnet for operating the stop, and a relay controlling said magnet and having a flexible back contact in the circuit to the relay-coils closed by the operation of the circuit-controller.

32. The combination, with the guideway or chute, of a selecting finger or feeler carrying one electrode of a circuit-controller, a second electrode, the common actuating mechanism for both electrodes, and a flexible or elastic connection permitting a movement of the second electrode to bring it into contact with the first when the feeler or finger carrying the latter engages with any object in the guideway or chute.

33. The combination, with the guideway or chute, of a circuit-controlling feeler, a detaining-stop for holding objects passing through the chute in position opposite the selecting finger or feeler, and an electro-magnet for removing said stop, said magnet being controlled in its action by a circuit-controller operated by the objects passing through the chute or guideway.

34. The combination, with the chute or guideway, of a circuit-controller, an electric register governed thereby, a detaining stop or finger in position normally to stop or hold objects passing through the chute at a point where they will operate upon the circuit-controller, and an electro-magnet for removing said stop, said electro-magnet being brought into action by a circuit-controller located at the point where the moving object is brought to rest, so that after stoppage and registry the object may be permitted to pass on.

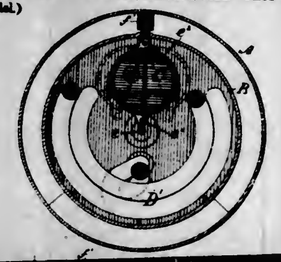
35. The combination, in a check-receiving box, of a guideway or chute, a circuit-controller governed by the passage of objects through the chute, and a stop or detaining device for temporarily holding the checks at the point opposite the circuit-controller.

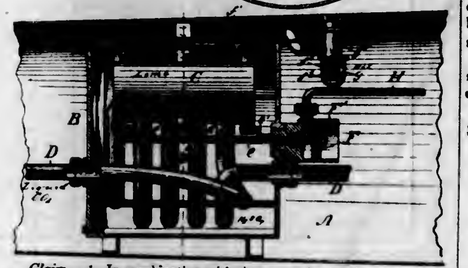
36. The combination, in a check-receiving box, of a guideway or chute, a circuit-controller, a stop or detent for holding the check temporarily in position opposite the circuit-controller, and an electro-magnet for removing the stop, said electro-magnet being governed by the action of said circuit-controller in closing or opening an electric circuit.

37. The combination, in a check-receiving box, of a guideway or chute, a circuit-controller, an electric register, and a stop or detaining device for temporarily holding the checks at a point where they engage with and operate the circuit-controller, as and for the purpose described.

38. The combination, with the check-delivery apparatus, of sets of circuit-controlling devices that make and break a circuit a different number of times, respectively, a central or supervising station electrically connected with the ticket-delivery apparatus, and an electric register operated or controlled by the circuit-controlling devices connected with the check-delivery apparatus.

349,711. GAS-HEATING CHAMBER FOR TORPEDO-BOATS. GEO. E. HARRIS, New Haven, and WM. H. WOOD, Hartford, Conn. Filed Mar. 11, 1886. (No model.)





Claim.—1. In combination with the reservoir, the pipe system and the gas heating and expanding chambers, the lime-tube secured within the chamber, the bolt locking the tube and bearing the piston in the cylinder connected with the gas-supply system, whereby by the movement of said piston-rod the tube is automatically opened, all substantially as described.

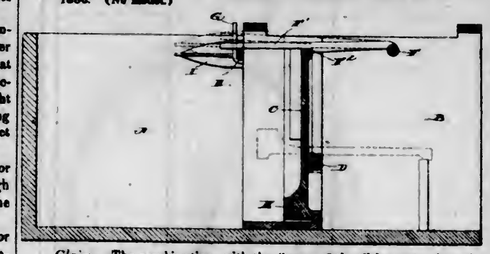
2. The combination, with the gas heating and expanding chamber, of a chamber secured within the gas-heating chamber, and a device operated by the motive power of the engine for opening the said inner chamber, all substantially as described, and for the purpose set forth.

3. In combination with a gas heating and expanding chamber containing chemicals and an inner partible vessel secured in said chamber, and also containing chemicals, the bolt or catch operated by the pressure of the gas that forms the motive power to propel a torpedo-boat, all substantially as described.

4. The combination, with a gas heating and expanding chamber, of a partible chamber secured within the gas heating and expanding chamber, all substantially as described, and for the purpose specified.

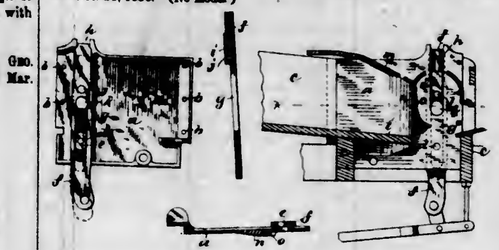
5. In combination with the outlet-pipe *f* from the gas-heating chamber B, a safety-valve, *f*, having its valve-spring submerged in oil held in an extension of the valve-body, all substantially as described.

349,712. OVERFLOW-GATE FOR RESERVOIRS. WILLIAM HALLEY, HENRY F. WILKINSON, and JAMES E. BENNETT, Auburn, Cal. Filed June 11, 1886. (No model.)



Claim.—The combination, with the flume, of the tilting gate pivoted therein, and having the weight E at its lower end to counterbalance the upper end of the gate and keep the latter normally closed in a vertical position, the latching arm or arms bearing on the upper end of the gate to lock the same when closed, the vertical guideways G at the inner end of the frame, the shaft H, working in the said guideways, and the floats (one or more) attached to the said shaft to raise the latter as the water rises, to trip the latch and release the gate, for the purpose set forth, substantially as described.

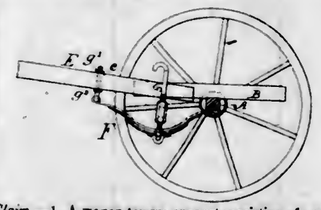
349,713. FEED-CUTTER. FRANK HANACHEK, Kewaunee, Wis. Filed Dec. 28, 1885. (No model.)



Claim.—1. In a feed-cutter, the side throat-plates, *a a*, provided with the thereon-cast rigid inwardly-inclined guide projections in front of the feed-rolls, which inclined projections extend inwardly beyond the outer ends of the feed-rolls, whereby the material being fed to the cutter is kept entirely between the rolls and away from the sides of the cutter after it has passed the projections, substantially as described.

2. The plate *a*, provided with slot *h* and wedge-shaped projection *n*, in combination with the adjustable bar *f*, provided with slot *g*, substantially as and for the purpose set forth.

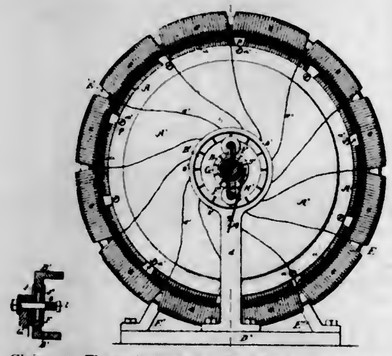
349,714. WAGON-TONGUE SUPPORT. LOUIS E. HASTINGS, Manning, Iowa. Filed July 22, 1886. (No model.)



Claim.—1. A wagon-tongue support consisting of a tongue arranged between suitable bounds on the axle of a vehicle, a spring attached at one end to the tongue and the opposite end to the axle, and an adjustable supporting device attached midway the length of and to said spring, and also to a suitable bolt on said bounds, and an adjusting-bolt on the end of said spring extending through said tongue, as and for the purpose specified.

2. The combination, in a wagon-tongue support, of the axle having bounds, a tongue between said bounds, and a supporting-bolt, of a spring having one end provided with an adjusting-bolt and nuts attached to the said tongue, and the opposite end of said spring attached to said axle, and rods provided at one end with right and left hand screw-threads attached to said spring and also to said supporting-rod, and intermediate adjusting-nuts provided with right and left hand screw-threads, as shown and described.

349,715. ELECTRIC MOTOR. ENOS T. HIGHAM and DANIEL HIGHAM, Philadelphia, Pa., assignors of one-third to James M. Jones, same place. Filed Nov. 21, 1885. (No model.)



Claim.—1. The mode herein described of operating an electric motor, said mode consisting in electrically rotating the polar points of both electro-magnets constituting the armature and field-magnet in the same direction as the rotary electro-magnet moves mechanically, all substantially as set forth.

2. An electric motor having a fixed and a rotary electro-magnet, constituting the field-magnet and armature, in combination with commutating devices to rotate the polar points of both electro-magnets in the same direction as that in which the rotary electro-magnet moves mechanically, substantially as set forth.

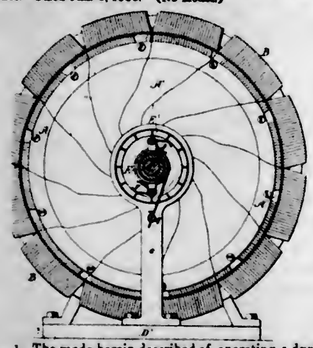
3. An electric motor having an armature and field-magnet, both provided with commutators and traveling contacts for both commutators, substantially as specified.

4. The combination of the fixed electro-magnet of an electric motor and a fixed commutator therefor with a rotary electro-magnet having a commutator moving therewith and traveling contacts for both commutators, substantially as specified.

5. The combination of the fixed and rotary electro-magnets constituting the armature and field-magnet of an electric motor, both having commutators with contacts therefor, a sleeve free to turn on the shaft of the rotary electro-magnet and carrying the said contacts, substantially as set forth.

6. The combination of a commutator having flanged segments with contact-wheels, consisting of disks between which the flanges of the segments are adapted to enter, substantially as specified.

349,716. DYNAMO-ELECTRIC MACHINE. ENOS T. HIGHAM and DANIEL HIGHAM, Philadelphia, Pa., assignors of one-third to James M. Jones, same place. Filed Jan. 6, 1886. (No model.)



Claim.—1. The mode herein described of operating a dynamo-electric machine having a stationary field-magnet and a rotary armature, said mode consisting in electrically rotating the polar points of the field-magnet and armature in a direction contrary to that in which the armature rotates mechanically, substantially as set forth.

2. A dynamo-electric machine having a fixed field-magnet and a movable armature, in combination with commutating devices for electrically rotating the polar points of the field-magnet and armature in a direction contrary to that in which the armature rotates mechanically.

3. The combination of the armature and field-magnet of a dynamo-electric machine and commutators and contacts for both armature and field-magnet with devices, substantially as set forth, to rotate the commutator-contacts.

4. The combination of the armature and field-magnet of a dynamo-electric machine and commutators for both with brushes for both commutators and a wheel or pulley to rotate the said brushes, substantially as specified.

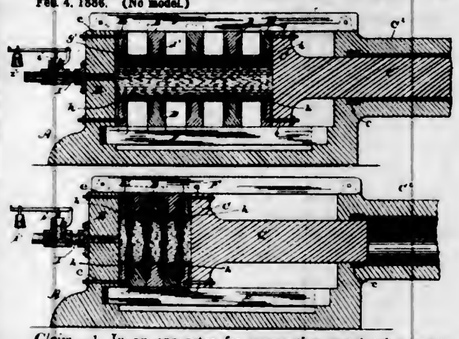
349,717. DISTRIBUTER FOR FERTILIZERS. JOSEPH HILLIARD, Northborough, Mass. Filed July 2, 1886. (No model.)



Claim.—1. As an improved article of manufacture, an apparatus for distributing fertilizer and other material, consisting of a tube having at its delivery end a hollow conical distributer connected with but separated from said tube, the base of the said conical distributer being of greater diameter than the said tube, and the apex thereof being in a line with the central axis of the tube, substantially as set forth.

2. The tube having the conical inlet of funnel *b*, and the tapering end *a'*, provided with a delivery-aperture, combined with the hollow conical distributer *c*, connected with but separated from the said tube and having its apex in line with the said aperture, substantially as set forth.

349,718. APPARATUS FOR CORRUGATING METAL TUBING. HERMAN HOLLERITH and SAMUEL G. MEICALF, New York, N. Y. Filed Feb. 4, 1886. (No model.)



Claim.—1. In an apparatus for corrugating metal tubes, a tube closed at its ends and adapted to be filled with a fluid, an internally-corrugated mold surrounding the tube, and means for imparting longitudinal pressure to the tube, substantially as described.

2. In an apparatus for corrugating metal tubes, a tube closed at its ends and adapted to be filled with a fluid, a mold for surrounding said tube, constructed of independent partible rings or sections, and means for imparting longitudinal pressure to the tube, substantially as described.

3. In an apparatus for corrugating metal tubes, a tube closed at its ends and adapted to be filled with a fluid, a mold consisting of independent partible sections or rings shaped to form a corrugated interior for the molds and adapted to be applied to the outside of the tube, and means for compressing the tube longitudinally, substantially as described.

4. The mold herein described for forming corrugations in metal tubing, consisting of independent partible sections or rings shaped to form a corrugated interior for the mold and adapted to be applied to the outside of the tube, substantially as described.

5. In a machine for corrugating metal tubing, the combination, with the stationary head, of the movable head adapted to be moved toward said stationary head by hydraulic or other pressure, and means for securing the ends of the tube to the stationary and movable heads, respectively, substantially as described.

6. In a machine for corrugating metal tubing, the combination of the stationary and movable heads, means for securing the ends of the tube to said heads, and the partible rings adapted to be placed upon the tube between said heads, substantially as described.

7. In a machine for corrugating metal tubing, the combination of the movable and stationary heads, the tube secured to them, the partible rings or sections adapted, when pressed together, to form a corrugated mold mounted upon the tube, and the rings forming a part of said mold and mounted on said movable and stationary heads and securing the tube to them, substantially as described.

8. In a machine for corrugating metal tubing, the combination of the movable and stationary heads, the tube secured between them, and a passage through the stationary head communicating with the interior of said tube, and a loaded valve for regulating the pressure of the fluid within the tube, substantially as described.

9. The mold herein described for forming corrugations in metal tubing, consisting of rings or sections shaped to form a corrugated interior for the mold, made in two parts secured removably together, substantially as described.

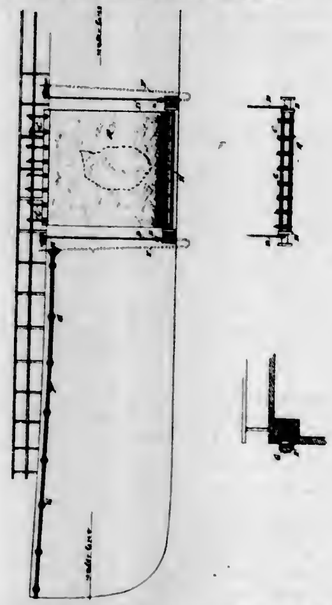
10. The mold herein described for forming corrugations in metal tubing, consisting of rings or sections shaped to form a corrugated interior for the mold, made in two parts having corresponding lugs, and the link for connecting them to fasten the parts of the ring together, substantially as described.

11. The mold herein described for forming corrugations in metal tubing, consisting of rings or sections shaped to form a corrugated interior for the mold, made in two parts secured removably together and having the grooves therein, in combination with guide-rods inserted in said grooves, substantially as described.

12. The combination, with the tube and the partible mold-sections mounted thereon, of the movable wedges placed between the sections, and means for withdrawing the wedges as the pressure within the tube is increased, substantially as described.

13. In combination with the stationary and movable heads, the tube secured to them, the partible mold-sections mounted thereon, the movable wedges placed between the sections, and devices connecting the movable head with the wedges, whereby as the heads approach each other the wedges will be gradually withdrawn from between the mold-sections, substantially as described.

349,719. DEVICE FOR STOPPING LEAKS IN VESSELS. DEMING JARVIS, Detroit, Mich. Filed May 20, 1886. (No model.)



Claim.—1. A stopper for leaks in vessels, consisting of a flexible shield having one edge detachably secured to the side of a vessel and the other fastened to a heavy roller, upon which the shield winds and unwinds when suspended, hoisting-ropes, which wind and unwind upon the roller reversely to the shield, for winding up the same, and detachable ropes having a sliding connection with the hoisting-ropes, for drawing the lower edge of the shield and the roller against the hull of the vessel, substantially as described.

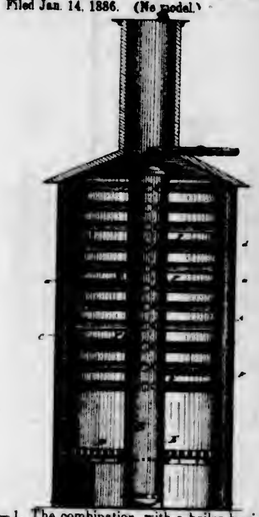
2. As a means for stopping leaks in vessels, a flexible shield detachably secured at one edge to the side of a vessel and having a heavy roller fastened at its other edge, with hoisting-lines and securing-lines having adjustable hooks sliding upon the hoisting-lines, substantially as described.

3. The combination, with a weighted flexible shield suspended over the side of a vessel, of a series of securing-lines detachably fastened to the sides of the vessel and extending around the bow, and automatically-releasing catches on the ship's side, substantially as described.

4. The combination, with a weighted flexible shield suspended over the side of a vessel, and having hoisting-lines, of securing and tantening lines detachably secured by means of automatically-releasing catches along the vessel's streak, and having a sliding connection with the hoisting-ropes and extending around bow and stern, substantially as described

5. A means for stopping leaks in vessels, consisting of a flexible shield detachably fastened at one edge to the side of a vessel, and having a heavy roller at its other edge upon which it is wound, hoisting-cords wound upon the roller when the shield is unrolled, and a series of securing-lines detachably fastened to the sides of the vessel and extending around the bow, and having a sliding connection at one end adapted to be attached to the hoisting-lines, substantially as described.

349,720. BOILER-DEFLECTOR. EDWARD S. T. KENNEDY, New York, N. Y. Filed Jan. 14, 1886. (No model.)



Claim.—1. The combination, with a boiler having a vertical cylinder with radiating tubes, of a segmental or annular deflector adapted and arranged to deflect the products of combustion from one part of the combustion-chamber to another, substantially as herein shown and described.

2. As a means for protecting the exposed ends of the radiating water-tubes of a vertical boiler of the character herein shown and described, a horizontal segmental or annular deflector arranged in place by being laid on the tubes, as set forth.

3. As a means for protecting the exposed ends of the radiating water-tubes of a vertical boiler of the character herein described, a segmental or annular deflector suspended horizontally from the tubes, substantially as herein shown and described.

4. As a means for deflecting the products of combustion from one part of the combustion-chamber of a vertical boiler having radiating water-tubes, the combination, with said boiler, of a horizontal segmental or annular deflector riveted to the boiler-cylinder, as set forth.

5. As a means for protecting the exposed ends of the radiating water-tubes of a vertical boiler of the character substantially as herein shown and described, a segmental or annular deflector riveted to the boiler-jacket and extending horizontally therefrom, as set forth.

6. As a means for protecting the exposed ends of the radiating water-tubes of a vertical boiler of the character substantially as herein shown and described, and directing the flame to the boiler-cylinder, a segmental or annular deflector built into and extending horizontally from the brick boiler-jacket, substantially as set forth.

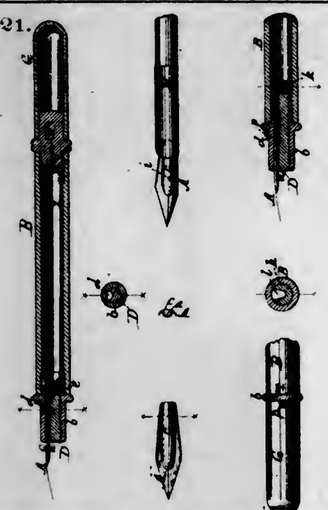
349,721. FOUNTAIN-PEN. MARION H. KERNER, New York, N. Y. Filed May 8, 1886. (No model.)

Claim.—1. A fountain-pen consisting of a holder, constituting the ink-reservoir, and a pen formed with a longitudinal groove or channel in its top or back, extending from the heel of the pen to or beyond the rear or upper end of the slit in the point, said pen being secured in the end of the holder, with its groove connected with the ink-reservoir, or with an outlet therefrom, whereby the ink may be conveyed from the reservoir to the point of the pen through said groove in the pen, substantially as set forth.

2. In a fountain-pen, the combination of a holder, constituting the ink-reservoir, and a pen formed with a longitudinal groove or channel in its top or back, extending from the heel of the pen to or beyond the rear or upper end of the slit in the point, and provided with a cover inclosing the whole or part of said groove, said pen being secured in the end of the holder with its groove connected with the ink-reservoir, or with an outlet therefrom, substantially as set forth.

3. A fountain pen holder or barrel adapted to act as a reservoir for ink, and a pen-holding connected section therewith, in combination with a

349,721.



plug formed with a longitudinal groove in its upper side, and fitted within said pen-holding section, and adapted to hold the pen between it and the pen-holding section, and a pen formed with a longitudinal channel, extending from its heel to or beyond the rear or upper end of the slit in the point, the pen being fitted within said pen-holding section, with its groove within the groove in said plug, substantially as shown and described.

4. The combination of the fountain pen-holder and the pen formed with a longitudinal groove or channel in its top or back connecting with the ink-reservoir in the holder, and provided with an inclosing-cover for said groove, formed with one or more lateral openings to admit air or ink to said groove, substantially as set forth.

5. The combination of the barrel or reservoir B, the plug *k*, having opening *l*, the pen-holding section *b*, provided with plug D, having groove *d*, (the inner ends of said pen-holding section and plug D abutting against the plug *k*,) the pin or projection *p*, and the pen-cover G, having a notch to fit over the pen or projection *p*, all being arranged substantially as shown and described.

349,722. **SHEET-METAL-SCROLL CUTTER.** ANSON O. KITTREDGE, Slate Hill, and FRANK M. LEAVITT, Brooklyn, N. Y., assignors to the Vulcan Company, of Pennsylvania. Filed Oct. 29, 1885. (No model.)

Claim.—1. The combination, with the opposed cutters of a sheet-metal-cutting machine, of means for reciprocating one of them and means for turning them simultaneously while reciprocating in the direction of different lines or curves upon the sheet metal, substantially as herein set forth.

2. In a sheet-metal-cutting machine, the combination, with a pair of cutters operating by shearing the sheet metal between them, of means for reciprocating one of the cutters, means for separating the cutters while reciprocating to introduce the sheet metal, and means for rotating the cutters simultaneously in relation to the sheet metal, substantially as shown and described.

3. In a sheet-metal-cutting machine, the combination, with a cutter and means for rotating it in relation to the sheet metal, of means adapted to grasp the sheet metal and to feed it toward such rotatable cutter, substantially as herein set forth.

4. In a sheet-metal-cutting machine, the combination, with a cutter and means for rotating it in relation to the sheet metal, of means to grasp the sheet metal and move it toward the cutter and means for directing such movement in the line of the cutting-edge when the latter is turned in relation to the sheet metal, substantially as herein set forth.

5. In a sheet-metal-cutting machine, the combination, with a cutter, of a spindle adapted to turn the cutting-edge in relation to the sheet metal, an index mounted upon a spindle and provided with means for turning it by hand, and means for connecting the index and cutter spindles for rotating them simultaneously, substantially as herein set forth.

6. In a sheet-metal-cutting machine, the combination, with a cutter, of a movable table provided with means to grasp the sheet metal and hold it to the cutter and a support upon the table to carry a rotary index, an index mounted in said support, and means for rotating the index and cutter simultaneously, substantially as herein set forth.

7. In a sheet-metal-cutting machine, the combination, with a cutter, of a movable table provided with means to grasp the sheet metal and hold it to the cutter and a support upon the table to carry a rotary index, an index mounted in said support, the index having a concentric point and a heel or projection at one side of the same, for the purpose set forth, and means for rotating the index and the cutters simultaneously, substantially as herein set forth.

8. In a sheet-metal-cutting machine, the combination, with a cutter, of a movable table provided with means to grasp the sheet metal, a rotary index carried by said table, and a rotating feeding-roller pressed upon the surface of the table, and means for turning the index, the cutter, and the feeding-roller in the same direction relative to the sheet metal, substantially as herein set forth.

9. In a sheet-metal-cutting machine, the combination, with a cutter, of a movable table provided with means to grasp the sheet metal, a rotary index carried by said table, a rotating feeding-roller pressed upon the surface of the table, means for turning the index, the cutter, and the feeding-roller in the same direction, and means for varying the speed of the feeding-roller's rotations, substantially as herein set forth.

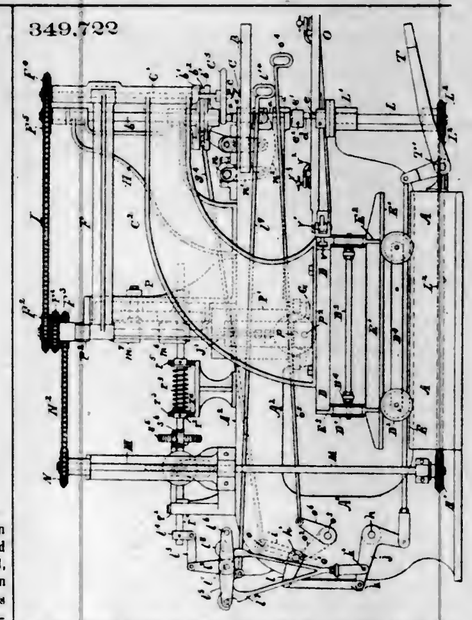
10. In sheet-metal-cutting machine, the combination, with a cutter and means for turning it in relation to the sheet metal, of a movable table provided with means to grasp the sheet metal, a rotatable index carried by said table, a rotating feeding-roller pressed upon the surface of the table, means for turning the index, the cutter, and the feeding-roller in the same direction, means for varying the speed of the feeding-roller's rotations, and means for reversing the direction of the roller's motion, substantially as herein set forth.

11. In a sheet-metal-cutting machine, the combination, with the revolving movable table D, of the feeding-roller G, adapted to move the table by frictional contact therewith, the carrier P', the shaft J', the cranks p^3, attached to the roller-axle, the propellers *m*, actuated by bars *t*, inserted in grooves in the shaft J', and cross-heads m^6 and m^7, fitted to the shaft and attached to the bars by collars t^6 and actuated by crank-pins *m'*, as and for the purpose set forth.

12. In a sheet-metal-cutting machine, the combination, with the movable table D, the feed-roller G, the carrier P', the shaft J', cross-heads m^6 and m^7, and means, substantially as described, for transmitting a crank motion from the cross-heads to the feeding-roller, of the gear-wheels m^2 and m^3, provided with the crank-pins *m'*, for actuating the cross-heads, and feeding mechaniam adapted to rotate the said gears, and provided with means for varying the speed of such rotations and stopping the same at pleasure, substantially as herein set forth.

13. In a sheet-metal-cutting machine, the feeding mechanism for producing and controlling the rotations transmitted to the feeding-roller G, consisting in the revolving feeding-disks *s*, a friction-plate, *r*, mounted upon a shaft, *r'*, with the brake-wheel s^5, a spring, r^3, and braces r^4, operating therewith to hold the plate *r* normally in the centers of the disks *s*, a treadle connected with means for moving the shaft *r'* longitudinally, and levers s^7, provided with pressers s^8, and pressed toward the brake-wheel by springs, substantially as and for the purpose set forth.

14. In a sheet-metal-cutting machine, the combination, with a frame comprising a bed, A, neck A', and arch A^2, the tracks E upon the bed, a table, D, movable upon two sets of wheels, and intermediate rails, E' and E^2, as described, of the spindles *a* and L, carrying the cutters *d* and *e*, respectively, upon the arch A^2 and bed A, an index affixed to the table D, a pattern-table, B, supported beneath the index, means for vibrating one of the cutters, means for separating the cutters to introduce the sheet metal, and a feeding-roller arranged and operated by frictional contact with the table D, substantially as and for the purpose set forth.



349,723. **BUREAU-BED.** ANTON KOLKIN, Brooklyn, N. Y. Filed Dec. 16, 1885. (No model.)



Claim.—1. The combination of a supporting-casing having hinged front and top panels with a detachable spring-mattress made of folding sections, and devices for attaching the spring-mattress to the front panel of the casing, substantially as set forth.

2. The combination of a casing having upright side walls and transverse front and rear walls, a front panel hinged to the front wall, a top panel hinged to the front panel, devices for locking the top panel at right angles to the front panel, a detachable spring-mattress formed of folding sections and a hinged head-section, and devices for attaching the folding spring-mattress to the front panel, substantially as set forth.

3. The combination of a casing having upright side walls and a transverse front wall, a front panel hinged to said front wall, a top panel hinged to the front panel, devices for locking the top panel at right angles to the front panel, a detachable spring-mattress formed of a middle section, a hinged foot-section, and a hinged head-section, and devices for attaching the middle section to the front panel, the middle and foot sections being of larger size than the front panel, so as to extend when folded into the lower part of the casing, substantially as set forth.

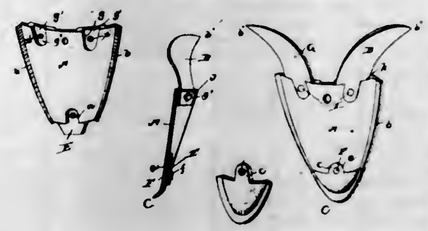
4. The combination of a supporting-casing having hinged front panel, a top panel hinged to the front panel, devices for locking the top panel at right angles to the front panel, a detachable spring-mattress formed of a middle section attached to the front panel, a hinged head-section and a hinged foot-section, the latter being pivoted to side straps of the middle section and provided with hinged supporting-legs at the outer end, substantially as set forth.

349,724. **NUT-LOCK.** EDWARD R. KYLE, Newville, assignor of three-fourths to Milton H. Wagoner, Geo. W. North, and Theodore Corbman, all of Cumberland County, Pa. Filed Apr. 3, 1886. (No model.)



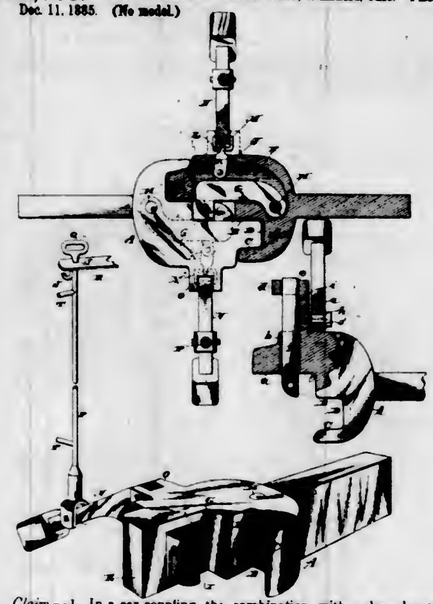
Claim.—The combination, with a bolt and nut, of the washer C, having teats *c c*, the central hole, *c'*, the groove c^2, and the slot c^3, the slide D, having pin *d* and top stud, *d'*, the pivoted detent E, notched at *e'*, and the burr F, having socket *f*, substantially as and for the purpose set forth.

349,725. **CORN AND COTTON SWEEP.** SAMUEL T. LEWIS and JOHN H. BABB, Midway, Tex. Filed May 20, 1886. (No model.)



Claim.—A cotton-sweep formed with tapering sides having the bent edges or flanges *b*, and curved in transverse section, in combination with the independently-removable wings B G, secured to the upper edges of the sweep on opposite sides of its longitudinal axis, each wing being twisted to cause its inner edge to overhang the body of the sweep, substantially as described.

349,726. **CAR-COUPLING.** DAVID LIPPY, Mansfield, Ohio. Filed Dec. 11, 1885. (No model.)



Claim.—1. In a car-coupling, the combination, with a draw-head and locking-jaw secured thereto, of a gravity-bar pivotally secured to said draw-head and pivotally connected with the jaw, whereby the same is automatically locked, substantially as set forth.

2. In a car-coupling, the combination, with a draw-head having a slot formed in one side thereof, of a locking-jaw pivoted in said slot and a gravity-bar pivotally secured to said draw-head and pivotally connected to said jaw, whereby the jaw is automatically locked, substantially as set forth.

3. In a car-coupling, the combination, with a draw-head and a slot or recess formed in the guide-bar thereof, of a jaw pivoted in said recess, an arm formed laterally on the jaw extending through said guide-bar and pivotally connected to a gravity-bar, whereby the jaw is automatically locked, substantially as set forth.

4. In a car-coupling, the combination, with a draw-head having a recess or slot formed therein, of a locking-jaw pivoted in said recess and pivotally connected with a gravity-bar and means for locking the jaw out of possible engagement, substantially as set forth.

5. In a car-coupling, the combination, with a draw-head and a locking-jaw secured thereto, the said jaw having a laterally-extending arm through said bar, of a gravity-bar pivotally secured to said arm, and an upright rod pivotally secured to the bar, and means for locking the rod in vertical adjustment, substantially as set forth.

6. The combination, with a draw-head provided with a side extension, of a lock-bar pivotally secured in said extension and a gravity-bar for automatically throwing the lock-bar into locked adjustment, substantially as set forth.

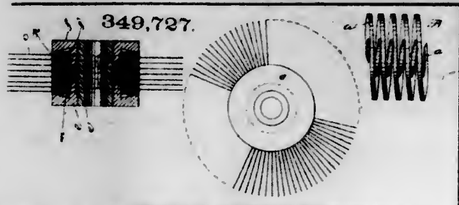
349,727. **BRUSH.** JAMES G. LUDDY, Cambridge, Mass. Filed Jan. 22, 1886. (No model.)

Claim.—1. As an improved article of manufacture, a brush consisting of a wooden hub or core cut to form a helical or spiral coil, with spaces between each coil and the coil next to it, and bristles secured in position between the said coils, all substantially as described.

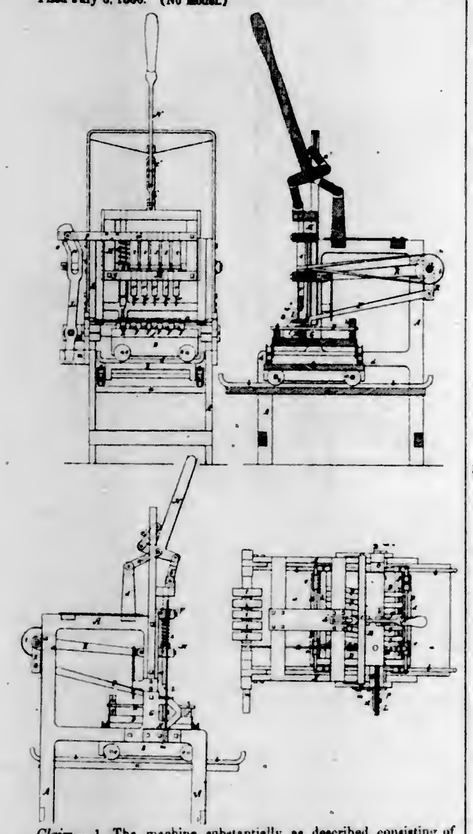
2. In a rotary brush, the hub or core A, cut spirally to form a spiral or helical coil, the material of the said coil being narrower in cross-section next the interior of the hub, combined with bristles secured in position between the coils of the hub, substantially as described.

3. In a rotary brush, the hub or core A, bored centrally and cut spirally, as described, having bristles placed in position between the coils of the hub, combined with the heads *e f*, having the cut-away or recessed portions *m*, substantially as described.

349,727.



349,728. DRILLING-MACHINE. Edwin L. Mansfield, Boston, Mass. Filed July 8, 1886. (No model.)



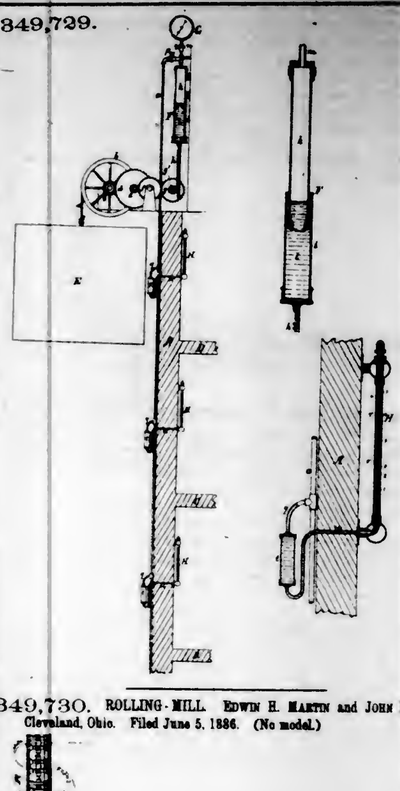
Claim.—1. The machine, substantially as described, consisting of the spindle-carriage provided with the plunger and series of boring-tool spindles, and with mechanism for imparting to it (the said carriage) reciprocating vertical movements within the frame of the machine, the stationary pointed plunger and boring-tool's guide-bar, the set of toothed bars, the work-supporting carriage and its sustaining-carriage arranged in and applied to the frame, as set forth, the movable toothed bar, and the pattern-bar, having mechanism, as explained, for operating them, as specified.

2. The combination for operating the spindle-carriage, such combination consisting of the T-lever and the three links, two of which are jointed to it and the carriage and its supporting-frame, while the third of said links is jointed to the said lever and to a stationary post, all being substantially as represented.

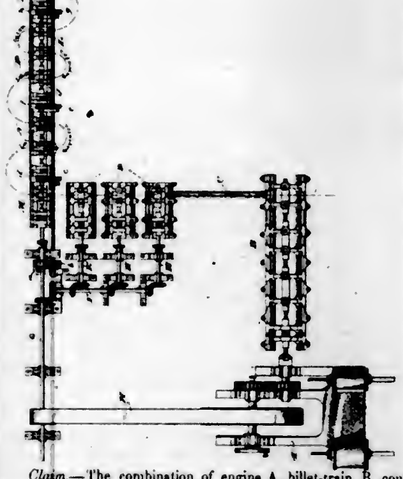
349,729. INDICATOR FOR ELEVATORS. Elias Marshall, Boston, Mass. Filed Feb. 8, 1886. (No model.)

Claim.—The combination of the air-compressor and its operative mechanism, substantially as described, arranged out of and above the lift or elevator, and stationary relatively thereto, as explained, with such lift or elevator, the series of pressure-gages arranged in the different stories of a building, and connected with such air-compressor by one or more pipes, all being essentially and to operate as and for the purpose set forth.

349,729.



349,730. ROLLING-MILL. Edwin H. Martin and John Reavis, Cleveland, Ohio. Filed June 5, 1886. (No model.)

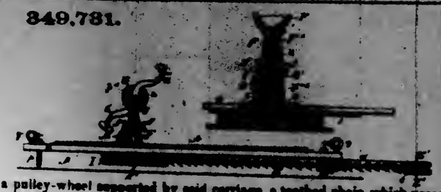


Claim.—The combination of engine A, billet-train B, continuous train D, sectional rod-train J, shafts F G I, and the described intermediate mechanism connecting said parts together as they are operated by the one engine and in the manner set forth, all substantially as and for the purpose described.

349,731. MINING-MACHINE. Samuel McCarty, Norristown, assignor of one-half to Benjamin F. Asper, Pittsburg, Pa. Filed Sept. 7, 1885. (No model.)

Claim.—1. The combination, in a mining-machine, of a bed-piece of oblong form having a central longitudinal slot and a rack located on its upper surface, of a carriage arranged to slide in said slot and having an extension which carries pinions or sprocket-wheels at its forward end,

349,731.

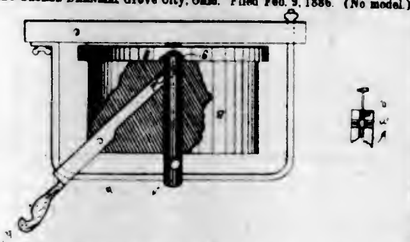


a pulley-wheel supported by said carriage, a toothed chain which passes aroond said pulley, and a pulley or pulleys on said extension, a vertical power-shaft provided with a worm, and pinions engaging, respectively, with said worm and with the rack on the bed-piece, and mechanism, substantially as described, for imparting motion to the power-shaft, and thereby operating the cutting and feeding mechanism, as set forth.

2. In a mining-machine, the combination, with the bed-piece and a traveling carriage or frame supported thereon and carrying a toothed-chain cutter, of a rack mounted on said bed-piece, and mechanism for imparting motion to the cutter and feeding the same forward, said mechanism comprising a pinion secured to its moving shaft by means of a collar, O, rigidly secured to said shaft, a movable collar, O', and a thumb-nut, o, constituting a frictional clamp for said pinion, the latter engaging with said rack and receiving motion from the power-shaft of the machine, substantially as described.

3. The combination, with base or bed piece A, having central longitudinal slot B, of carriage or slide C, which moves in said slot, pulley I, attached to said slide, and extension D, also secured to said slide and having at its forward end a cross-head or bearing, E, for pulleys e e, substantially as shown and described.

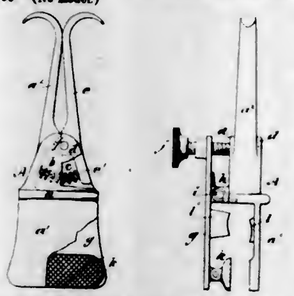
349,732. CHEESE-KNIFE. William McGiven, Alvin L. Nichols, and George Darnell, Grove City, Ohio. Filed Feb. 9, 1886. (No model.)



Claim.—1. A cheese-cutting device consisting of a sheath, A, having a handle, *f*, and central vertical slot, *a*, within which is loosely pivoted the slotted end of a knife-blade, *c*, having a handle, *h*, substantially as and for the purpose specified.

2. In a cheese-cutting device, the combination of the sheath A, having a handle, *f*, and a central vertical slot, *a*, within which is pivoted the slotted end of a knife-blade, *c*, having a handle, *h*, with the guide-rod *b*, fitted within the upper end of the sheath, substantially as and for the purpose specified.

349,733. REIN-HOLDER. Neal McGoldrick, Brooklyn, N. Y. Filed Oct. 14, 1885. (No model.)



Claim.—1. An improved rein-holder consisting of a body portion provided with two rigid jaws projecting in opposite directions and two pivoted and spring-actuated jaws, one opposite each of the rigid jaws, as and for the purpose specified.

2. As a new article of manufacture, a rein-holder having jaws a^2 e, for holding the reins, and a permanent jaw, a', and hinged jaw g, for attaching the rein-holder to a vehicle, substantially as described.

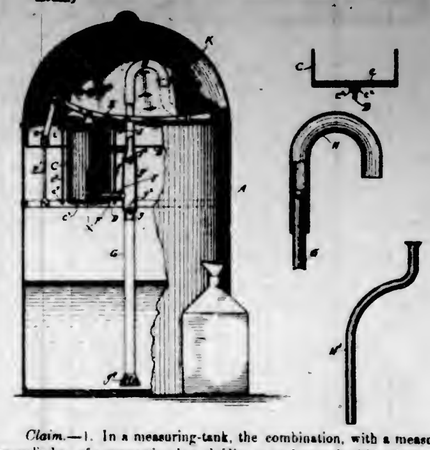
3. The combination, with the jaws a^2 e, for holding the reins, and the jaw a', of the hinged jaw g, arranged opposite to the jaw a', and provided at its upper end with a screw, j, substantially as and for the purposes set forth.

4. The combination, with casting A, provided with the rein-holding jaws a^2 e and the rigid jaw a', of the jaw g, pivoted to said casting, provided with the hinged plate k and the projection l, and the screw j, substantially as herein shown and described.

5. The combination, with the rein-holding jaws and the jaw a', of the plate g, hinged opposite the jaw a' and provided with the screw j at its upper end and the hinged plate k at its lower end, substantially as and for the purposes set forth.

6. The combination, with the rein-holding jaws and the jaw a', of the plate g, hinged opposite the jaw a' and formed with the projection l' upon its lower surface, the jaw a' being provided with a corresponding projection, l, on its lower surface, substantially as and for the purposes described.

349,734. MEASURING-TANK. William Nix, Chicago, Ill., assignor to Nail, Kuhns & Co., same place. Filed May 17, 1886. (No model.)



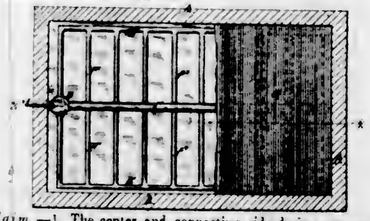
Claim.—1. In a measuring-tank, the combination, with a measuring-cylinder, of a supporting-bar rigidly secured to and within the tank to form a support for said cylinder, and a brace-rod connecting the same with the pump-lever fulcrum, whereby the top of the tank may be relieved from the strain of operating the pump, substantially as and for the purposes set forth.

2. The combination, with the tank A and measuring-cylinder C, the latter being provided with a piston and pump-lever, of the supporting-bar D and rod E', substantially as and for the purposes set forth.

3. The combination, with the tank A, having the cross-bar D rigidly attached thereto, of the cylinder C, the bottom of which is provided with flanges c^2 c^2, and means, as the rods c^4, for attaching the cylinder to said bar, substantially as set forth.

4. The combination of the bar D, secured rigidly to the tank, of the cylinder C and means for attaching the same to said tank, a pump-lever, the fulcrum of which is braced by the rod E', and means, as the screw J, for adjusting the stroke of said lever, substantially as and for the purposes specified.

349,735. DRAINING CELLARS. Joseph Nicaise, Collinsville, Ill. Filed May 12, 1886. (No model.)

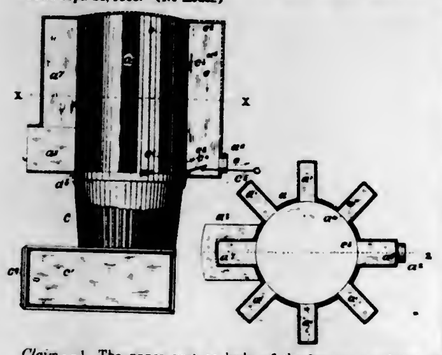


Claim.—1. The center and connecting side drains open on their under sides to the cellar bottom.

2. The combination, with the earth wall of the cellar, of the wall of masonry provided upon its face adjacent to the earth wall with channels, as set forth.

3. The combination, with the bottom of the cellar, of the center drain and the side drains, the latter being higher at the end next wall lining, as set forth.

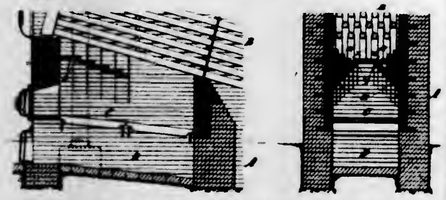
349,736. HOT-AIR FURNACE. ALEXANDER ORMSBY, Buffalo, N. Y. Filed Sept. 21, 1885. (No model.)



Claim.—1. The upper part or body of the furnace, consisting of the body *a*, having the hollow projecting radiating portions *a'*, *a⁶*, and *a⁷*, opening *a²*, partition *a³*, having openings *a⁴ a⁵*, pipe-rim *a⁸*, and rim *a⁹*, all formed in one solid piece, substantially as specified, in combination with a fire-pot, *c*, provided with a rim, *c²*, and the usual grate and ash-pit, *c'*, for the purposes described.

2. In a hot-air furnace, the combination, with a fire-pot, of the body *a*, having the radiating portions *a'*, *a⁶*, and *a⁷*, the portion *a⁷*, having an opening, *a⁸*, through which the fuel is passed into the fire-pot, and the portion *a⁵*, having a collar, *a⁹*, and partition *c³*, having an opening at the top and bottom and a damper for controlling the lower of said openings, substantially as and for the purposes described.

349,737. FURNACE FOR STEAM-GENERATORS. GEORGE E. PALMER and ARCHIBALD M. EWART, Chicago, Ill. Filed July 29, 1886. (No model.)



Claim.—1. A steam-generator furnace the interior walls whereof approach each other in the form of an arch, the surface of the walls of said arch being constructed to form a series of offsets, whereby the escape of the products of combustion is retarded and a more intimate blending of the combustive gases is effected, substantially as set forth.

2. A steam-generator furnace the interior walls whereof approach each other in the form of an arch, the surfaces of the walls of said arch being constructed to form a series of offsets, and its rear end opening upon a lower plane than the plane occupied by the top line of its front, substantially as set forth.

3. The inwardly-projecting walls provided with offsets, as explained, combined with the cap-slabs, the edges of which overlap one another, substantially as and for the purpose set forth.

349,738. CAR-BRAKE. HARVEY S. PARK, Henderson, Ky. Filed Sept. 10, 1885. (No model.)

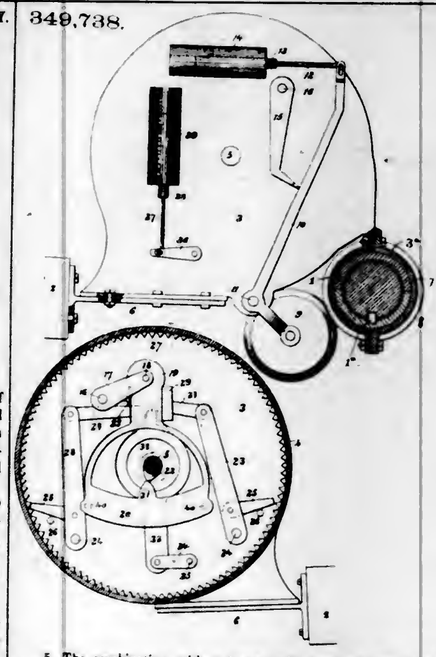
Claim.—1. The combination, with a beam, bracket extending therefrom, and an axle, of the windlass, winding-wheel on the windlass, cover having a two-part strap surrounding the axle, and means for transmitting motion from said axle to said wheel, substantially as set forth.

2. The combination, with a beam, bracket extending therefrom, and an axle, of a drum secured to the axle, a frame, 3, supported on the bracket and having a two-part strap surrounding the drum, a windlass having a winding-wheel and journaled in the frame, and means for transmitting motion from said drum to said wheel, substantially as set forth.

3. The combination, with a beam, bracket extending therefrom, and an axle, of a drum and a frame supporting the brake-chain-winding mechanism, and having a two-part strap surrounding the drum, the drum permitting the axle to have longitudinal movement therein, substantially as set forth.

4. The combination, with a frame, beam, axle, and windlass, of a winding-wheel, 4, having a friction-groove, a drum, 7, having a friction-groove, 8, a bell-crank lever, 10, journaled to the frame and having friction-wheel 9 working in said grooves, means for operating the lever, and means for locking and unlocking the winding-wheel, substantially as set forth.

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5. The combination, with a frame, axle, drum on axle, windlass, and winding-wheel, of a bell-crank lever hinged to the frame and provided with a friction-wheel working between the drum and winding-wheel, armature 13, magnet 14, rod 12, connecting the lever and armature, and means for locking the lever in operative position, substantially as set forth.

6. In combination with a circular rack connected with the brake-chain windlass, pawls adapted to engage therewith in opposite directions, levers on which said pawls are mounted, and mechanism for operating said levers from the brake-chain windlass, substantially as described.

7. In combination with a winding-wheel, having a circular rack within the wheel and connected with the brake-chain windlass, and a pawl adapted to engage the rack, a lever carrying said pawl, mechanism for operating said lever, and a stop or lock for said lever, substantially as set forth.

8. In combination with a circular rack connected with the brake-chain windlass, pawls adapted to engage therewith in opposite directions, and levers for carrying said pawls, a yoke adapted to engage with a projection of the brake-chain windlass and to oscillate said levers, substantially as and for the purpose set forth.

9. In combination with a winding-wheel having a circular rack within the wheel and connected with the brake-chain windlass, pawls adapted to engage the rack, levers carrying said pawls, and pins or projections rigid with the frame for supporting said pawls when out of contact with said rack, substantially as set forth.

10. In combination with a rack and pawls for locking the brake-chain windlass, levers carrying said pawls, and dogs on said levers, a stop for engaging with said dogs, substantially as and for the purposes set forth.

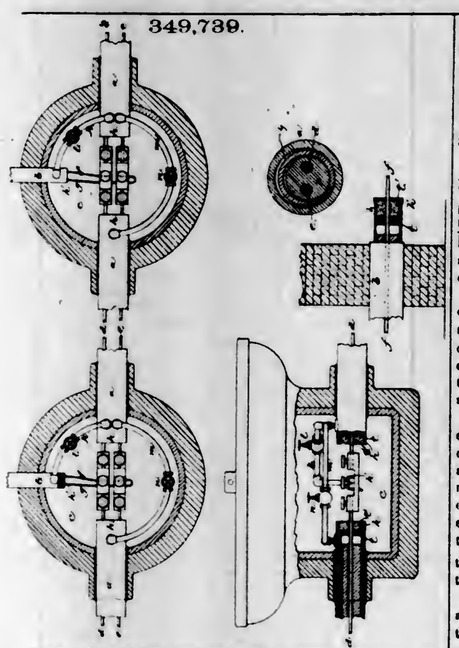
11. In combination with the brake-chain-winding mechanism and a lever for throwing the same into operation, a second arm or lever operated by the first and adapted to throw the brake-locking mechanism into operation, substantially as described.

12. In combination with a brake-chain windlass, a rack rigid therewith, and a pawl adapted to be thrown into engagement with said rack, a stop or bolt arranged to hold said pawl against said rack, an electro-magnet armature connected with said stop or bolt, and an electric circuit including said magnet, substantially as described.

13. In combination with the block 29, fixed to the frame 3, the dogs 28, sliding therein, and the stops 32 31, occupying a recess in said block 29, and adapted to engage the shoulder or ends of said dogs, substantially as and for the purposes set forth.

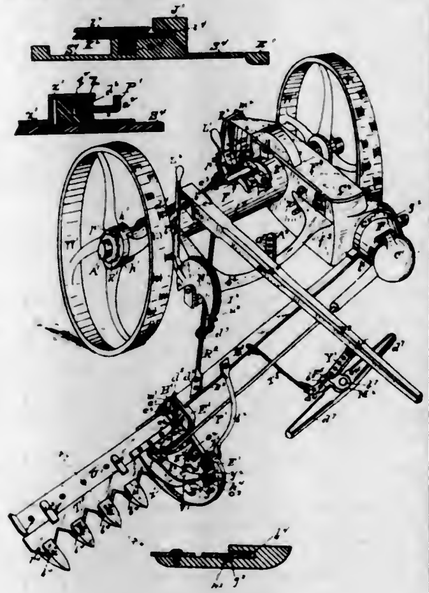
349,739. UNDERGROUND CONDUIT FOR ELECTRICAL CONDUCTORS. CHARLES G. PERKINS, New York, N. Y., assignor to the Imperial Electric Light Company, same place. Filed Dec. 14, 1883. (No model.)

349,739.



Claim.—In an underground conduit for electrical conductors having one or more test-boxes in the circuit thereof, the conduit terminating within the test-boxes hermetically sealed, the interior parts of the conduits connected with each other by means forming an air or water conduit having a device connected therewith adapted to open and close the communication between them, and a subordinate branch of the conduit, which also terminates within a test-box and has its extreme ends hermetically sealed, the interior of the subordinate branch connected with that of the main conduit by means forming an air or water conduit, and having a device connected therewith adapted to open and close the same, substantially as shown and described.

349,740. MOWING-MACHINE. JAMES PIKE, Troy, N. Y. Filed Nov. 5, 1884. (No model.)



Claim.—1. The combination, with the carriage-axle A', of the frame F', having the axle projected through it, substantially as shown and described, and comprised of the tubular sleeve *f'*, formed with the enlarged portion *f²*, the transversely-arranged receptacle *f³*, having the brace *b²* connected to the tubular sleeve, and provided with the cover C², and the forward extension, *f⁴*, provided with exterior annular groove, *g²*, and cap C', all substantially as described, and for the purpose stated.

2. In a mowing-machine main frame, the combination of the sleeve *f'*, having the enlargement *f²*, made with a top opening therein, and the cover K', the inclosure *f⁵*, connecting with and arranged at right angles to said sleeve, said inclosure having a top opening with the cover C², hinged to the open-end front offset extension, *f⁴*, of said inclosure, having the hinged cap C', and the slot *i²*, made in the side of said extension, the said parts being arranged with reference to each other and constructed substantially as and for the purposes set forth.

3. In a mowing-machine, the combination of the sleeve *f'*, made as described, the slotted cover K', hinged to close an opening in the top of said sleeve, the lever L' and standard *d'*, attached to the top of said cover, the clutch C², constructed to encircle the machine-axle within the enlargement of said sleeve, said clutch being made with the teeth *t'* and the encircling groove *v'*, the shipper I', and the bar *b'*, made to connect said shipper and lever, substantially as and for the purposes set forth.

4. In a mowing-machine, the combination of the sleeve *f'* and the clutch C², made and arranged with reference to each other and the machine-axle substantially as described, the sleeve S', arranged on the said axle, the gear-wheel G', arranged on said sleeve S', the sleeve S², arranged on the bearing-rod *r'*, the gear-wheel G² and pinion P², arranged on said sleeve S², the sleeve S³, arranged on the bearing-rod *m'*, the beveled gear-wheel G³ and spur-wheel *p⁴*, arranged on said sleeve S³, and the beveled pinion D' and disk M', the latter having the wrist-pin O² on the outer face, and said parts being arranged to operate substantially in the manner as and for the purposes set forth.

5. In a mowing-machine, the combination of the inclosure *f⁵*, constructed and arranged with reference to the machine-axle and the operation of the sickle as shown, the sleeve S', made with the gear-wheel G' and arranged on the machine-axle, the sleeve S², having arranged thereon the gear-wheel G² and pinion P², and provided with the removable pintle-shaft or bearing-rod *r'*, the sleeve S³, having arranged thereon the spur-wheel *p⁴* and beveled gear-wheel G³, and provided with the removable pintle-shaft or bearing-rod *m'*, the disk-wheel M', made with the beveled pinion D' and wrist-pin O², and the pitman P', substantially as and for the purposes set forth.

6. In a tilting frame for a mowing-machine, the combination of the coupling-bar B', made with the ring C⁴, adapted to hinge into a groove on the forward extension of the main frame, and the angle-rod R², pivoted to the rear of the main frame at *n²*, with its pivotal center thereat coincident with the center of the ring C⁴ and the center crank-shaft, with the front end of said rod R² connected with the bar B' at *d²*, as and for the purposes set forth.

7. In a mowing-machine, the combination of the shoe S⁴, the hinge H', the plate *w'*, pivoted to the plate K', and the vertically-adjustable hinge *h⁴*, constructed to connect said shoe to the plate E', substantially as and for the purposes set forth.

8. In a mowing-machine, the combination of the pitman-rod made with the angular end *a²*, the sickle T', made with the lug *d⁶*, having the eye E², the keeper K³, the latch *l³*, and catch-pin J', said parts being constructed and arranged to operate substantially as and for the purposes set forth.

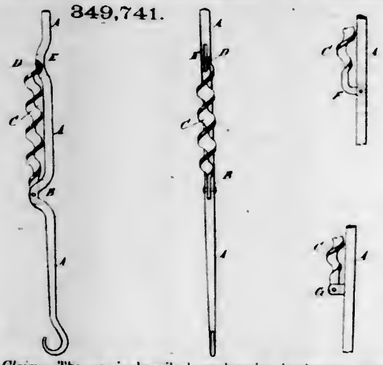
9. In a mowing-machine, the combination of the pitman P', made with the angular connecting end *a²*, the sickle made with the lug *d⁶*, having the eye E² on its upper side, the pivoted keeper K³, made with the turned-down end *a³*, the catch J', and the pivoted latch *l³*, said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

10. The combination, with the tongue of the machine, the tilting frame, and the double-tree, of the clevis-bar Y', having a series of holes, *a⁴*, and pivotally connected to the tongue of the machine, with its lower end depending and flexibly connected to the bar B' of the tilting frame, and the clevis M³, having perforated ears *c⁶*, adjustably bolted to the clevis-bar, and the ears *c⁴*, pivotally connected to the double-tree, substantially as described, and for the purpose stated.

11. In a mowing-machine, the combination of the frame F', made with the sleeve *f'*, encircling the machine-axle, the pole P⁴, hinged to said sleeve where encircling the axle, the standard A³, made with the holes *a⁵*, and upwardly projected from the brace *b²*, and the bolt *n⁴*, said parts being constructed and arranged to operate substantially in the manner as and for the purposes set forth.

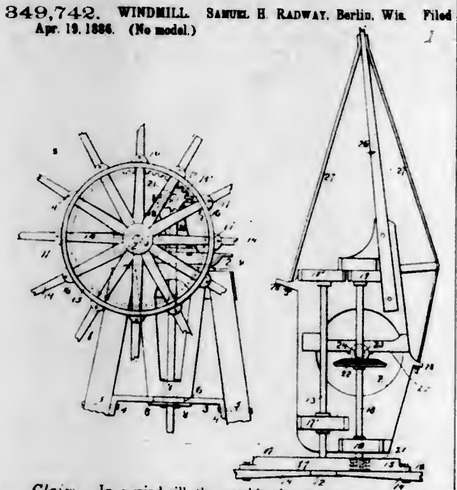
349,741. COMBINED BUTTON-HOOK AND CORKSCREW. LOUIS B. PRAHAR and CHARLES S. SHEPARD, Brooklyn, N. Y. Filed Jan. 25, 1886. (No model.)

349,741.



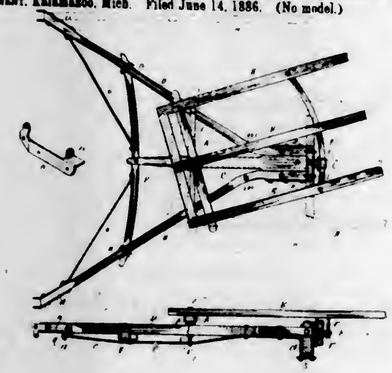
Claim.—The herein-described combination implement, consisting of a button-hook, A, and a cork-screw, C, hinged to the said button-hook, substantially as herein shown and described, whereby the implement can be conveniently carried in the pocket and readily used in either capacity, as set forth.

349,742. WINDMILL. SAMUEL H. RADWAY, Berlin, Wis. Filed Apr. 19, 1886. (No model.)



Claim.—In a windmill, the combination of a turn-table, a shaft carrying a wheel and a rack, journaled on the table and arranged to one side of the axial line thereof, a counter-shaft also journaled on the turn-table and geared with the rack of the wheel-shaft, and arranged parallel therewith, a vertical shaft geared to the counter-shaft, and a regulating-vane affixed to the table diagonally to the wheel and counter-shafts, and on the opposite side of the counter-shaft, substantially as described.

349,743. PLATFORM SPRING-WAGON GEAR. WILLIAM L. RAYMENT, Kalamazoo, Mich. Filed June 14, 1886. (No model.)



Claim.—1. In a wagon running-gear, the bent side bars, D D, center bar, C, cross-bar E, braces *b b*, the truss-rods *c c*, and the flanged rolls *r r'*, in combination with the bolster-plates of a pivoted frame, B, carrying a curved sway-bar, F, adapted to form a track for and engage with flanged rolls *r r'*, all combined, arranged, and operating as and for the purpose set forth.

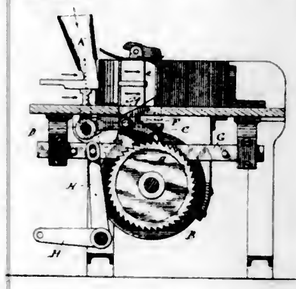
2. The pivoted frame B, carrying arc-bar F, and parts C D D E, in combination with the truss *c*, eyebolt *v*, plate *i*, sprieg-jaws *a*, lug *a'*, nut *g*, rolls *r r'*, spring-block *d*, stems *n*, and roller-block *u*, as and for the purpose specified.

349,744. PROCESS OF DEPHOSPHORIZING IRON BY MEANS OF OXIDES OF IRON. JACOB REESE, Pittsburg, Pa. Filed Aug. 23, 1883. (No specimens.)

Claim.—1. The process for converting phosphoric iron into steel, which consists in charging the phosphoritic metal into an oxide-of-iron-lined vessel, together with from ten to twenty per cent. of oxide-of-iron additions, then blowing the metal with an air-blast until a fluid non-calcareous basic slag is formed and the silicon is oxidized to silicic acid and held in the slag as silicates, then continuing the blow until the carbon is eliminated, and finally overblowing the metal in the absence of carbon and in the presence of a non-calcareous basic slag until the phosphorus is eliminated from the metal by oxidation and held in the slag as a phosphate, substantially as set forth.

2. The step of forming a non-calcareous basic slag, which consists in blowing molten metal with an air-blast while held in an oxide-of-iron-lined vessel, and in the presence of from ten to twenty per cent. of oxide-of-iron additions, until a fluid non-calcareous basic slag is formed, substantially as set forth.

349,745. ENVELOPE-COUNTING MACHINERY. ABRAM A. RHEUTAN, Worcester, Mass., assignor to W. H. Hill, same place. Filed June 22, 1885. (No model.)



Claim.—1. In a machine for counting and packing envelopes, the combination, with the counting-wheel to operate the sorting devices, of a pawl held normally out of engagement with the counting-wheel and a projecting finger lying normally within the path of motion of the passing envelope and connected with the pawl, as set forth.

2. In a machine for counting and packing envelopes, the combination, with the counting-wheel to operate the sorting devices, of a pawl held normally out of engagement with the counting-wheel, a projecting finger lying normally within the path of motion of the passing envelope and connected with the pawl, as set forth, and devices, substantially as described, for imparting a regular forward motion to the pawl, all as and for the purpose set forth.

3. In a machine of the character described, the combination, with the counting-wheel A, of a pawl, F, with its finger *f* normally projecting into the path of the envelope, and a slider, G, as set forth.

349,746. VEHICLE-WHEEL. DAVID H. RICE, Brookline, Mass. Filed Oct. 23, 1885. (No model.)

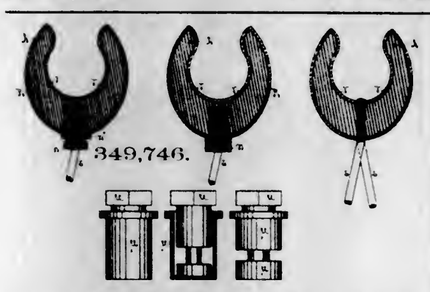
Claim.—1. The wheel-rim R, formed of an exterior tubular metallic shell without seam or joint longitudinally, and a core or filling of solid incompressible material filling the bore of the same, substantially as described.

2. The endless wheel-rim R, formed of an exterior tubular metallic shell without joint or seam longitudinally, and a solid core or filling of sulphur united therewith by heat, substantially as described.

3. The wheel-rim R, formed of the outer tubular metallic shell, in combination with the solid core A and the nut *n*, substantially as described.

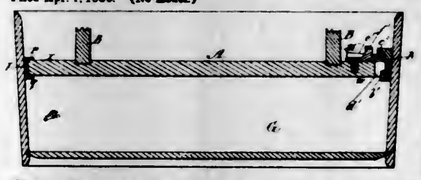
4. The wheel-rim R, formed of the outer tubular metallic shell, in combination with the solid core A and the cylinder *n'* and nut *n*, substantially as described.

5. The wheel-rim R, formed of the outer tubular metallic shell, in combination with the cylinder *n'*, secured therein, and revolving nut *n*, projecting inwardly beyond the rim, substantially as described.



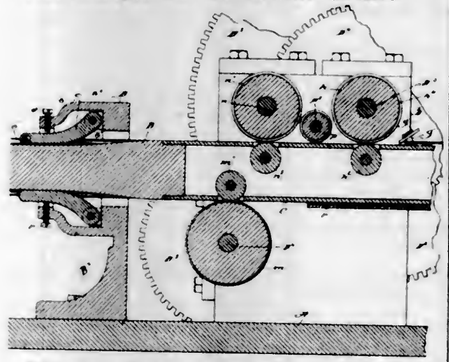
349,746.

349,747. WASHING-MACHINE. JOHN W. RICKER, Chelsea, Mass. Filed Apr. 1, 1886. (No model.)



Claim.—The combination, with the base A, provided at one end with the sockets *t* and at the opposite end with a slot, *d'*, of the fastening-plate I, adapted to be secured to the inside of the wash-tub, and having the flanges *p q* and the horizontally-projecting pins *s*, adapted to enter the sockets *t*, the fastening-plate K, adapted to be secured to the inside of the tub, opposite to the plate I, and having the flange *a'* and the projections *b' c'*, the latter projecting above the level of the upper surface of the base A, and the latch M, pivoted to the base A, and adapted to be swung under the projection *c'*, all operating substantially as and for the purpose set forth.

349,748. MACHINE FOR MAKING METAL TUBING. DAVID A. RITCHIE, Cambridgeport, Mass. Filed Feb. 6, 1886. (No model.)



Claim.—1. A mandrel to receive a sheet-metal pipe, combined with a longitudinally-corrugated beak or horn and with a series of corrugators, to operate substantially as described.

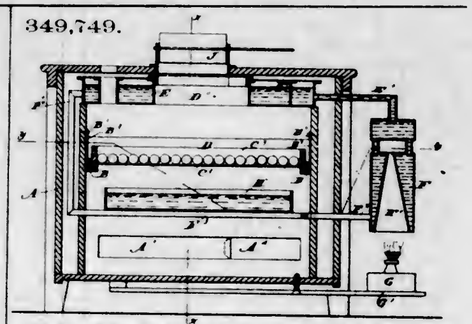
2. The mandrel and its attached longitudinally-corrugated beak or horn and the head and the series of corrugators arranged about the periphery of the said beak or horn, combined with the series of pressure-regulating devices to regulate the pressure of the corrugators upon the pipe supported by the said horn or beak, substantially as described.

3. A mandrel to receive or have formed upon it a pipe, and rollers to act upon the said pipe both externally and internally, combined with the longitudinally-corrugated beak or horn and a series of corrugators arranged about the said beak or horn, to operate substantially as described.

349,749. INCUBATOR. FRANK ROSENBROOK, Elmira, N. Y. Filed Sept. 11, 1883. (No model.)

Claim.—1. In an incubator, the combination, with a boiler, of a hot-water tank located above the egg-chamber and divided by partitions into channels for conducting the water first to both sides of the tank and then toward the middle of the same, and communicating with the upper and lower portions of the said boiler by means substantially as shown and described.

349,749.

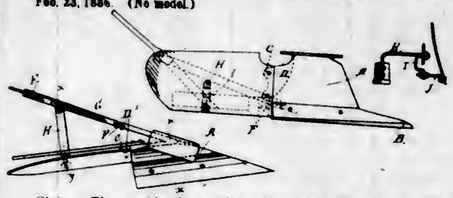


2. In an incubator, the combination, with the boiler, of a hot-water tank divided by partitions into channels that conduct the water first to the outside of the tank, then back to the center, and of a system of pipes connected with said hot-water tank and with the boiler for the purpose of conducting the water from said tank back to the boiler, substantially as herein shown and described.

3. In an incubator, the combination, with a boiler, of a hot-water tank divided by partitions into channels that conduct the water first to the outside of the tank, then back to the center, a system of pipes connected with said hot-water tank and with the boiler for the purpose of conducting the water from said tank back to the boiler, and water-pans resting upon said pipes, substantially as herein shown and described.

4. The combination, with the trays C^3, of the hangers B^3, provided with a series of apertures, and of the pins B, substantially as herein shown and described.

349,750. PLOW. FREDERICK ROTHEHUNT, San Francisco, Cal. Filed Feb. 23, 1886. (No model.)

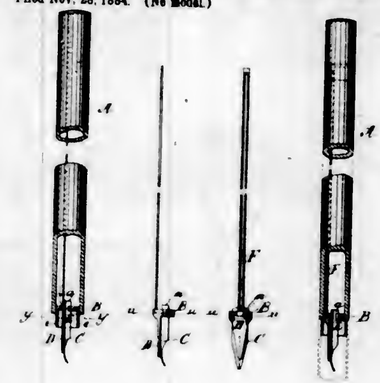


Claim.—The combination of the neck or shield A, made rounding outwardly at A^x, and provided rearwardly with an extension having lugs C, which form a shoulder, the mold-board secured by means of said shoulder, the plow-point thickened from its outer extreme to its junction with the neck at B, the divided landside having a lap-joint, and means for attaching and adjusting the same to the mold-board, consisting of the bent strap H, bolted to the inner face of the rear portion of the landside, and connecting with the mold-board by means of the curved intermediate strap, I, and rod J, substantially as set forth and shown.

349,751. COMPOSITION OF MATTER FOR PACKING THE JOINTS OF GAS-PIPES, &c. ARCHIBALD H. ROWAND, Allegheny, and RUDOLPH S. HUNSICKER, Pittsburg, Pa. Filed Jan. 23, 1886. (No specimens.)

Claim.—A compound for packing the joints of gas-pipes, composed of pitch and molasses or other saccharine matter, as set forth.

349,752. FOUNTAIN-PEN. GEORGE H. SACKETT, Brooklyn, N. Y. Filed Nov. 28, 1884. (No model.)



Claim.—1. The combination, in a fountain-pen, of the tubular reservoir A, tightly closed at its upper end, and the diaphragm provided with the lip and pen, said diaphragm having a passage for ink from the interior to the capillary channel between the lip and pen, and an opening, *a*, for the admission of air to the lower end of the reservoir, whereby an air-tube may be dispensed with, substantially as and for the purpose herein set forth.

2. The combination, in a fountain-pen, of a diaphragm constructed with a suitable opening to receive and retain a writing-pen, and with an air passage or opening, *a*, a lip, D, attached to said diaphragm and arranged to lie substantially parallel to said writing-pen, and a feeding-stem, also attached to said diaphragm, the whole constructed and arranged for insertion in and removal from the reservoir of a fountain-pen, all substantially as and for the purpose herein set forth.

349,753. FOUNTAIN-PEN. GEORGE H. SACKETT, Brooklyn, N. Y., assignor to Nicholas Sheldon, Providence, R. I. Filed Mar. 20, 1886. (No model.)



Claim.—1. The combination, in a fountain-pen, of the tubular reservoir A, closed at its upper end and made without any joint near its lower end, with the diaphragm I, provided with the lip C and pen-point B, said diaphragm having a hole for the passage of air and ink, and being constructed and adapted to be shoved up into the lower end of the tube A, substantially as shown and described.

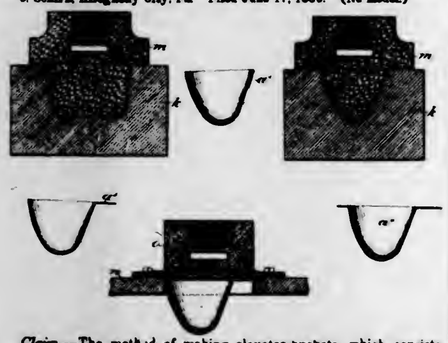
2. In a fountain-pen, the feeding-stem E, provided with the groove *s*, or equivalent slit, located within the ink-reservoir and extending from the diaphragm I upward to or near the upper end of said reservoir, said groove or slit terminating at the diaphragm, for the purpose of conducting the ink from the upper portion of the reservoir down to the diaphragm, substantially as shown and described.

3. In combination with the reservoir A, the diaphragm I, arranged to slide up into the open end of the reservoir, with the feeding-stem E, arranged to act as a stop by having its upper end strike against the closed end of the reservoir or against a projection therein, and thus hold the diaphragm at the desired point within the reservoir, substantially as shown and described.

4. In a fountain-pen, the combination, with the reservoir A, of the diaphragm I, or section to which the pen-point is secured, and a feeding-stem, E, bent or otherwise provided with means for supporting it by frictional contact with the walls of the reservoir when the diaphragm is drawn out, substantially as and for the purpose set forth.

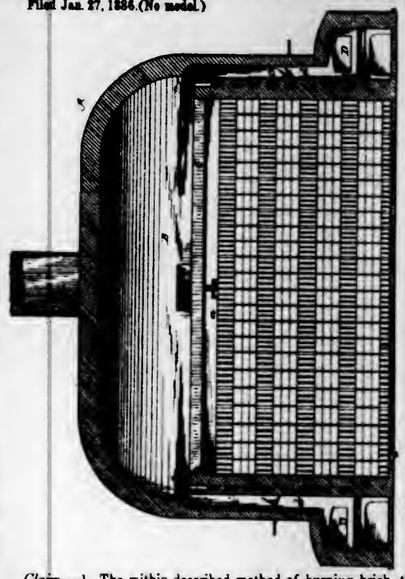
5. In combination with the diaphragm I, provided with a slit for the insertion of the upper end of the pen-point, the pen B, provided with the right-angled shoulders *n*, arranged to bear against the diaphragm I, substantially as and for the purpose set forth.

349,754. METHOD OF MAKING ELEVATOR-BUCKETS. CHARLES C. SCAIFE, Allegheny City, Pa. Filed June 17, 1886. (No model.)



Claim.—The method of making elevator-buckets, which consists in striking up a blank of cold plate metal into a cup shape by a series of operations in dies increasing in depth and decreasing in width in regular order, whereby the cup is increased in depth and decreased in diameter at each step, annealing the blank during the operation, and finally shaping it hot in a suitably-shaped die, substantially as and for the purposes described.

349,755. KILN. LEROY SIMPSON, Bellevue, Allegheny County, Pa. Filed Jan. 27, 1886. (No model.)



Claim.—1. The within-described method of burning brick, tile, or analogous articles, which consists in confining same in a close chamber free from drafts or currents, and heating from the top downward, substantially as and for the purpose described.

2. In a brick-kiln, the air-flues *c'*, arranged in the side walls, C, between the chamber *a* and fire-flues *d*, as and for the purpose described.

3. In a furnace for burning brick, tile, and analogous articles, the combination, with the chambers *a* and B, of the deflectors *c*, as and for the purposes set forth.

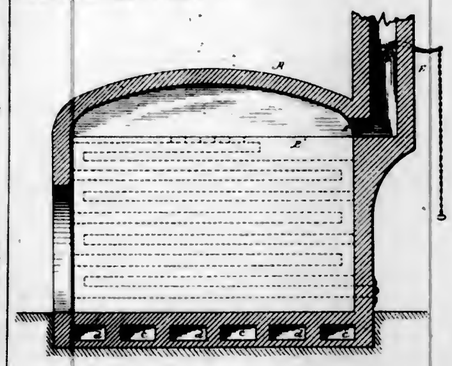
4. In a furnace for burning brick, tile, and analogous articles, the combination, with the chamber *a*, of the arched combustion-chamber B, the top of said arch being raised above the top of chamber *a* a distance approximately equal to the diameter of the circle of which the arch forms a part, substantially as and for the purposes described.

5. In a furnace for burning brick, tile, and analogous articles, the combination of the heating-chamber *a*, the combustion-chamber B, deflectors *c*, fire-places D, flues *d* E, and air-passages *c'*, substantially as and for the purposes described.

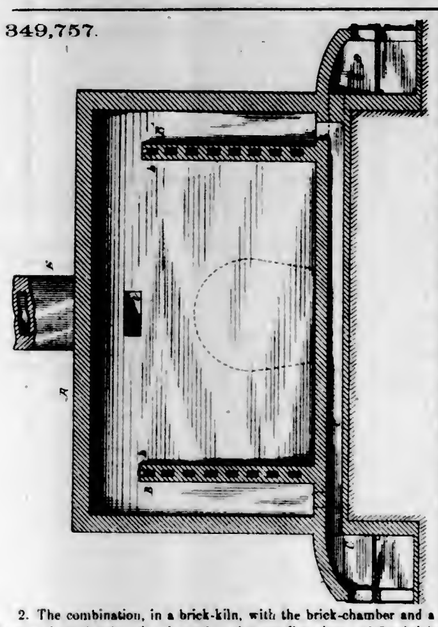
6. In a brick-kiln, the chamber *a*, provided with one or more peep-holes at the top, and combined with dampers *f g h*, arranged as shown, whereby the heat may be regulated by observing the top bricks and operating the dampers, as set forth.

349,756. BRICK-KILN. LEROY SIMPSON, Pittsburg, Pa. Filed Apr. 9, 1886. (No model.)

Claim.—1. A brick-kiln provided with imperforate flues leading from the fire-places through the floor of the kiln and behind imperforate bridge-walls at the end of the kiln, whereby the products of combustion cannot pass through the bricks.



349,757.



2. The combination, in a brick-kiln, with the brick-chamber and a superposed combustion-chamber, of an intermediate layer of fire-brick or tile, as and for the purpose specified.

3. The kiln A, provided with arched combustion-chamber, fire-places C D, bridge-walls B B', provided with zigzag air-passages, and stack E, having damper *e'*, as and for the purposes described.

349,757. ENGINE-FRAME JIG. LE GRAND SKINNER, Erie, Pa., assignor, by mesne assignments, to the Skinner Engine Company, same place. Filed June 4, 1885. (No model.)



Claim.—1. In a templet or jig, a cross-bar adapted to rest in the pillow-block boxes of an engine-frame, provided with and having attached thereto a rigid rod or frame extending to or beyond the cylinder-head on such engine-frame, in combination with a movable face-plate adapted to cover the face of such cylinder-head, and to be adjusted thereto on said rod or frame so as to line up with the pillow-block boxes, substantially as and for the purpose set forth.

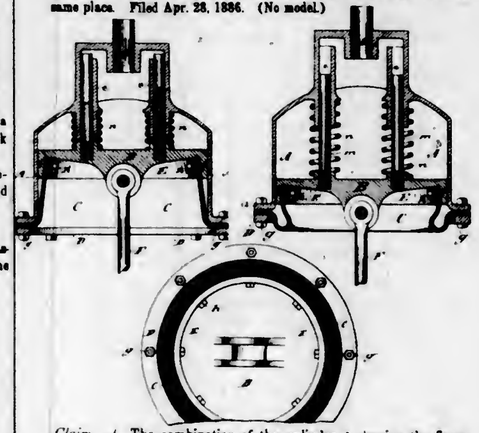
2. The combination, in a templet or jig, of a cross-bar adapted to rest in the pillow-block boxes of an engine-frame, and a rigid rod or frame attached thereto and extending to the cylinder-head on such engine-frame, with bearings or supports on said rod or frame, to which the guide-bolts may be adjusted and lined up with the pillow-block boxes and the cylinder-head on an engine-frame, substantially as and for the purpose set forth.

3. The combination, in a templet or jig, of a supporting-rod provided with a cross-piece adapted to fit the pillow-block boxes of an engine-frame, with a face-plate adapted to cover the face of a cylinder-head on said frame, templet-pins adapted to pass through cylinder bolt-hole openings, and a collar and sleeve adapted to pass through the stuffing-box in such cylinder-head, substantially as and for the purpose set forth.

4. The combination, in a templet or jig, of a supporting-rod provided with a cross-piece adapted to be placed in the pillow-block boxes of an engine-frame, and with an adjustable cylinder-head face-plate adapted to cover the face of the cylinder-head on such engine-frame, with bearings or supports attached to said rod for adjusting and sustaining guide-bolts, substantially as and for the purpose set forth.

5. The combination, in a templet or jig, of a supporting-rod provided with a pillow-block templet-rod, an adjustable cylinder-head face-plate, and guide-bolt supports, with an arm on said rod supporting a rocker-shaft templet-rod, substantially as and for the purpose set forth.

349,758. VACUUM-MOTOR. RENALDO SOLANO, Brooklyn, N. Y., assignor of two-thirds to John W. Howard and David R. Morse, both of same place. Filed Apr. 28, 1886. (No model.)



Claim.—1. The combination of the cylinder A, having the flange *a*, the piston B, having the flange *f*, the diaphragm-packing C, and bolts *g* and *h*, the whole arranged for joint use and operation substantially as and for the purpose herein set forth.

2. The combination of the cylinder A, the piston B, having its circumference contiguous to and coincident with the inner surface of the said cylinder, the diaphragm-packing C, connecting said piston with said cylinder, the guides *c*, and guide-rods *m*, substantially as and for the purpose herein set forth.

3. The combination of the cylinder A, piston B, having its circumference contiguous to and coincident with the inner surface of said cylinder, the diaphragm-packing C, connecting said cylinder and piston, the guides *c*, guide-rods *m*, and springs *n*, all substantially as and for the purpose herein set forth.

349,759. CHURN. DWIGHT B. SOPER, Flint, Mich. Filed June 10, 1886. (No model.)



Claim.—1. A body, *c*, provided with an annular rabbeted rim secured in the chine like a barrel-head, a cover provided with a packed edge to fit in said annular rim, and cover-clamping arms arranged upon said cover and engaging catches on the said rim, combined with a screw-threaded socket in said cover, a rotary threaded post arranged in said socket, socket-plates on said post receiving the said clamping-arms, and a device to rotate said post, substantially as described.

2. The cover provided with a screw-threaded socket, combined with a rotary threaded post, *r*, arms *t*, socket-plates $s s^2$ on said post receiving the said arms, and an operating-handle for said post, substantially as described.

3. The cover, a screw-threaded socket therein, a rotary threaded post in said socket, socket-plates on said post, arms seated in said plates, and an operating-handle for said post, combined with guides for said arms, a rim, and catches on said rim with which said arms are engaged, substantially as described.

349,760. ALGIN AND OTHER USEFUL PRODUCTS

EDWARD C. C. STANFORD, Dalmuir, County of Dumbarton, Scotland. Filed Jan. 2, 1886. (No specimens.) Patented in England Oct. 11, 1884, No. 13,433.

Claim.—1. The improved process for obtaining algin from sea-weeds, and consisting, principally, in treating fresh or more or less dried sea-weed directly with solution of carbonate of soda, substantially as hereinbefore described.

2. The process for obtaining useful products from sea-weeds, in which the algin is first separated by treatment with carbonate of soda and precipitation by a suitable acid or salt, and the other constituents are subsequently separated, substantially as hereinbefore described.

3. The process herein described of preparing alginates by means of a double decomposition of alginate of soda with metallic or other salts, substantially as hereinbefore described.

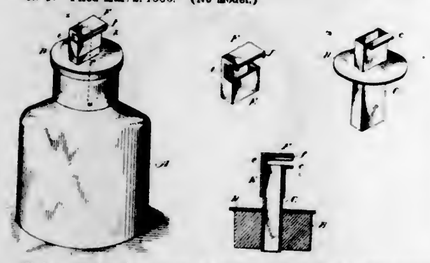
4. The process herein described of mixing a soluble alginate with an ammoniacal solution of shellac, substantially as hereinbefore described.

5. The process herein described of treating sea-weed, which consists in first mixing the sea-weed with solution of carbonate of soda and boiling the mixture to produce a cellulose residue, in then treating the solution with sulphuric acid, producing alginic acid as a precipitate, in then neutralizing the remaining solution with alkaline earth, producing a precipitate of sulphate of lime, in then evaporating the remaining solution to a density at which sulphate of soda crystallizes out as Glauber's salt, and in finally evaporating the mother-liquor to dryness and carbonizing the residue, forming kelp substitute, all as specified.

6. The process described, which consists in the employment of hydrochloric acid for the precipitation of the alginic acid, and in neutralizing the solution with carbonate of soda and boiling the whole down to dryness, and carbonizing the residue to form the kelp substitute.

349,761. BOTTLE-STOPPER.

ROSWELL O. STEBBINS, New York, N. Y. Filed Mar. 2, 1886. (No model.)



Claim.—1. A valve-stopper for bottles, consisting of a tube extending from within the bottle outward and above the filling, and having a vertically-sliding sleeve thereon, with a flanged cap at right angles with the body of the sleeve, and a lateral discharge-opening between the body of the sleeve and the cap, the cap being adapted to rest upon and close the end of the tube when the sleeve is depressed, substantially as and for the purpose set forth.

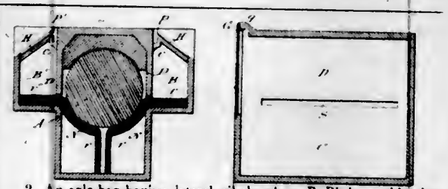
2. A valve-stopper for bottles, consisting of a sliding sleeve having a recess above its body, and its upper end bent at right angles to the body to form a cap, and a lateral discharge-opening, and flanged on its sides to receive a packing, said sleeve being adapted to slide upon and close the end of a tube, substantially as and for the purpose set forth.

3. A tube extending from within the bottle outward above the filling, having a retaining-flange for a sleeve on one side and at the top of the tube, in combination with a sliding sleeve thereon having a flanged cap, and a lateral discharge-opening between the body of the sleeve and the cap, the cap being adapted to rest upon the retaining-flange and tube and close the end of the tube, as set forth.

349,762. CAR-AXLE BOX.

HENRY STILL, Beloit, Kans. Filed Feb. 1, 1886. (No model.)

Claim.—1. A car-axle box consisting of the following elements in combination: independent oil-chambers located on each side of the journal, and having lateral apertures above the lowest element thereof, and a separate oil compartment or cellar located intermediate said chambers and directly beneath the journal, to receive the excess of lubricant, as and for the purposes described.



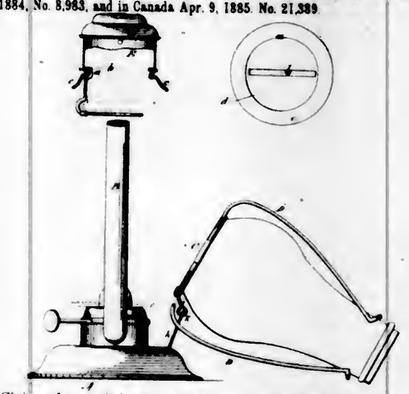
2. An axle-box having lateral oil-chambers B B', in combination with plate or finger-bars N N', communicating with the journal through apertures S S'.

3. In an axle-box, lateral oil-chambers B B', in combination with apertures S S' and finger-bars N N', connected with a lower oil-cellar, C, by means of material having capillarity, substantially as described.

4. In an axle-box, the sliding cap O O' and lugs *k* and *i*, in combination with slots H and *p* and catches *c c'*, substantially as set forth.

349,763. TUBULAR LANTERN.

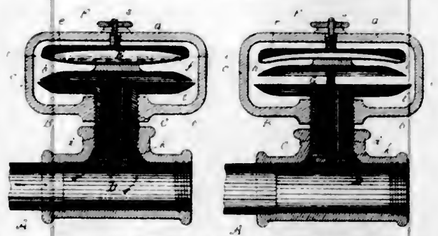
JOHN H. STONE, Hamilton, Ontario, Canada. Filed June 6, 1885. (Model.) Patented in England June 14, 1884, No. 8,983, and in Canada Apr. 9, 1885, No. 21,389.



Claim.—In a tubular lantern, the combination, with the base A, tubes B, connected therewith, and air-chamber E, connected to tubes B, of the globe-supporting disk C, the globe resting thereon, the globe holder and guard composed of the two looped wires D, secured at their lower ends to opposite sides of disk C, and bearing at their upper ends against the globe, and the spring *e*, pendent from the chamber E and clasping the upper portion of the globe to aid the holders D in securing the globe in place, substantially as described.

349,764. AUTOMATIC SPRINKLER.

LAWSON B. STONE, Marblehead, Mass. Filed June 7, 1886. (No model.)



Claim.—1. In an automatic sprinkler, the supply-valve, its valve-rod, and the two co-operating deflector-plates, in combination with an expansive vessel, one side of which is attached to said valve-rod, for the purpose set forth.

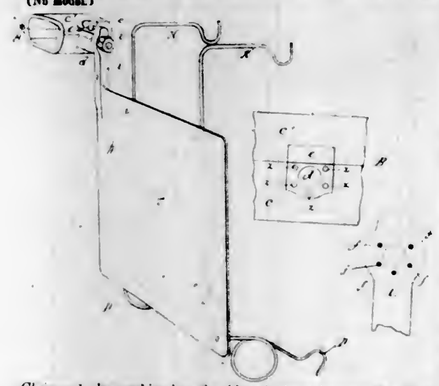
2. The combination, with a supply-valve, its valve-stem, and the two oppositely-disposed deflector-plates, of the expansive fluid-vessel and an adjusting screw and nut acting on one side of said vessel, substantially as and for the purpose set forth.

3. The combination, with the supply-pipe A, frame B, expansive vessel E, secured thereto, nipple C, and reflector-plate *i*, of the valve D and valve-stem *d*, carrying the deflector-plate *h*, all united and actuated by said vessel E, substantially as herein stated.

4. In combination with the pipe C, through which the fire-extinguishing fluid passes, the flexible distributing-plates *h i*, arranged edge to edge at the mouth of said tube, one of said plates being adjustable on the latter to vary the distance between them, substantially as set forth.

349,765. LAMP AND LANTERN ATTACHMENT.

JOSIAH SWEET, Granville, and GEORGE W. BRACE, Southwick, Mass. Filed Dec. 19, 1885. (No model.)



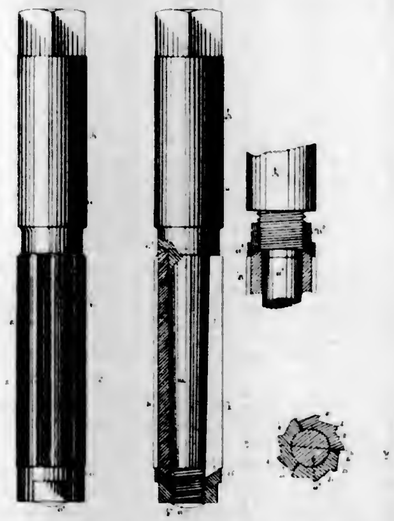
Claim.—1. In combination, the hinged clamp-bracket B to clasp the shaft of a carriage, having thereon the arm *d*, the plate *h*, having at one side the perforated arm *i* thereon, by which said plate is attached to said arm *d*, the reflector J, attached to the side of the plate *h*, and the upwardly-turned lantern-hooks K K, and the downwardly-turned lantern-hooks D D, secured to and projecting from the side of said plate, substantially as set forth.

2. The combination of the plate *h*, having the lantern-hooks K K and D D thereon, and the arm *i*, projecting from one corner and provided with the perforations *f*, and the clamp-bracket B, having the arm *d*, to which said plate is suspended, in which are fixed the pins *z*, to engage with said perforations *f*, all as set forth.

3. The clamp-bracket B, consisting of the shell *c*, having the bracket-arm *d* thereon, the shell *c'*, hinged to shell *c*, and having the arm *e*, through which a screw passes into said arm *d*, combined with the plate *h*, suspended on said arm *d* by means of its arm *i*, projecting from one corner, and provided with the flexible lantern-hooks K K and D D, to engage with the upper and the lower part of the lantern, substantially as set forth.

349,766. REAMER.

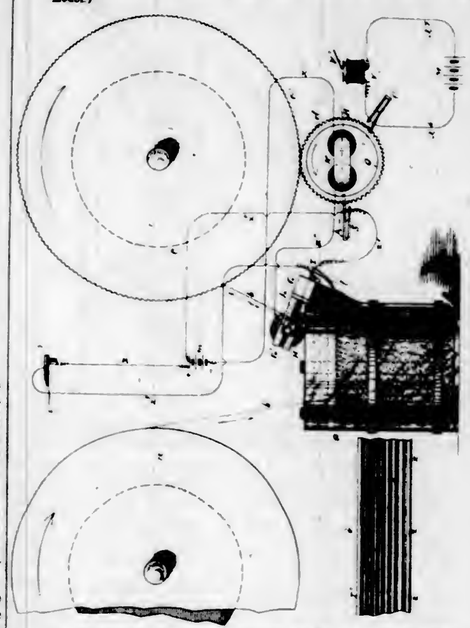
HOSEA R. TILLSON, Boston, Mass., assignor to S. A. Woods Machine Company, same place. Filed Nov. 23, 1885. (No model.)



Claim.—The reamer A, formed with the tapering spindle *a'*, the undercut shoulder a^2, the thread a^3, and the nut *a*; in combination with the segments of a cylinder, *b*, each provided with two or more longitudinal cutters, *b'*, upon its exterior and with beveled ends, substantially as described.

349,767. PASSENGER-RECORDER.

AUGUSTUS TORREY, Detroit, Mich., and DENNIS J. CAREY, Cylon, Wis. Filed July 17, 1885. (No model.)



Claim.—1. In a passenger-recording device, the steps and movable treadles having electrodes and circuit-wires leading from them, as described, the battery *m*, and metal pencils *g g*, combined with metal drum H, connected to the battery, as described, a delivery-reel from which the paper is fed and wound onto the roller *c*, sleeve *o*, spindle *p*, clock mechanism or clock mechanisms O" P", applied to sleeve and spindle *o p*, and by which said roller *c* is operated, and means, substantially as described, for chemically treating the ribbon *b*, as and for the purpose set forth.

2. In a passenger-recording device, a paper or other ribbon, *b*, a delivery and receiving roller, a battery, and movable steps in the circuit, combined with vessel *e*, containing ferro-cyanide of potassium, guide-roller *f*, the insulated metal drum H, against which the prepared ribbon is made to rest, spindle *p*, sleeve *o*, and metal pencils *g g*, held against the ribbon, as and for the purpose set forth.

3. In a passenger-recording device, the herein-described means for automatically regulating the feed of the receiving-roll for the ribbon *b*, consisting of clock mechanism or mechanisms P" O", applied, respectively, to spindle *p* and sleeve *o*, wheel *d*, loosely supported on the latter, the friction-wheels O P, secured, respectively, to sleeve *o* and spindle *p*, combined with electro-magnet N *n n*, movable armature Q, having secured to it the guide-pins *q q q*, and friction-rings P' O', as and for the purpose set forth.

4. In a passenger-recording device, step and treadle circuit-closers, a battery in the circuit, and needles having their points resting on the prepared paper or other ribbon, as described, with metal drum over which the ribbon is guided, such drum being insulated and connected to battery, as specified, combined with the wheel R, having pins *r r'*, the clock mechanism O", circuit-closer S, the pencils *g g*, and time-marker T, metal drum H, and ribbon *b* in the circuit, as and for the purpose set forth.

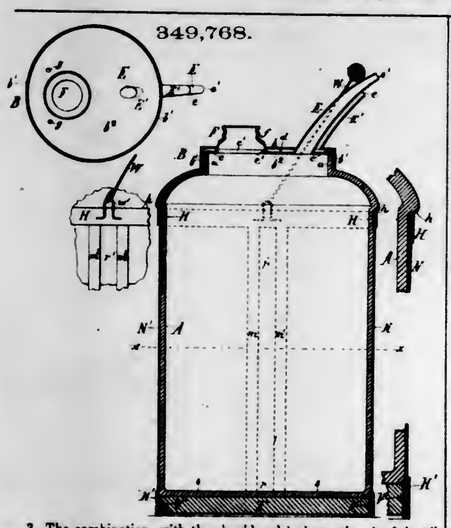
349,768. OIL-CAN.

GEORGE TRUBEL, Macomb, Ill. Filed Feb. 4, 1886. (No model.)

Claim —1. An oil-can which comprises in combination a body portion, A, a metal cap, B, having apertures *g* located near the back of the neck *a* of the can, an air-space, *d*, pouring-spout E, and drip-spout E', substantially as and for the purpose described.

2. The shouldered body portion of the oil-can, provided with a filling-neck, in combination with a paper and skeleton metal supporting, protecting, and absorbing jacket, comprising grooved shoulder and base bands, grooved vertical supports, and inclosing portions of suitable absorbent material, as paper, inserted into the grooves of the bands and vertical supports and confined thereby, substantially as and for the purpose described.

349,768.



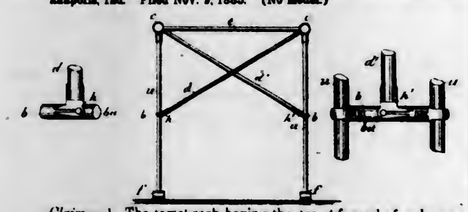
3. The combination, with the shouldered body portion A of the oil-can, provided with a filling-neck, of a supporting, protecting, and absorbing jacket comprising grooved shoulder and base bands, grooved vertical supports, inclosing portions of suitable absorbent material, as paper, inserted into the grooves of the bands and vertical supports, and a soft paper disk, T, fitted or set into the base-band, substantially as and for the purpose described.

4. An oil-can having a glass body, A, provided with a shoulder-band, h, base-band H', longitudinal supports m m' and m^2 m^2, and with a bail, W, hinged to an ear, w', directly over a vacant space, r r', between the supports m and m', m^2 and m^2, substantially as and for the purpose described.

5. The skeleton jacket comprising grooved shoulder and base bands, grooved vertical supports with inspection-spaces between each pair thereof, and inclosing portions of absorbent material, as paper, let into the grooves of the bands and supports, in combination with an oil-can which comprises in its construction a projecting shoulder, h, below its upper contracted portion and filling-neck, substantially as and for the purpose described.

6. A paper sustaining and absorbing disk, T, let into the base-band of the supporting-jacket, in combination with the supporting jacket and oil-can having a suspending-shoulder, substantially as described.

349,769. FOLDING TOWEL-RACK. CALVIN G. UDELL, North Indianapolis, Ind. Filed Nov. 9, 1885. (No model.)



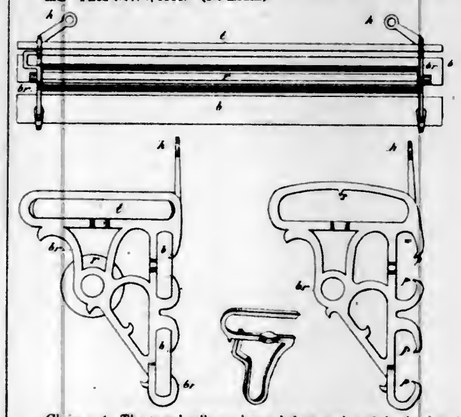
Claim.—1. The towel-rack having the top *t* formed of rods, connected by end pieces, *c'*, the uprights *u*, hinged to the top by collars *c*, and provided with feet *f*, and the diagonal braces *d d'*, all combined substantially as described.

2. The towel-rack having open top *t*, sides *u*, with feet *f*, the top and sides hinged together at their upper ends by collars *c*, and the whole braced by detachable diagonal braces *d d'*, connecting the sides and top, all combined substantially as described.

3. A towel-rack whose sides and top are composed of rods or bars, connected by hinging-collars *c*, and also by cross-braces *d d'*, which may be disconnected from the cross-bars *b*, so as to permit the parts to collapse upon each other, the sides being provided with floor-supports, all combined as described.

4. A towel-rack whose sides and top are composed of rods, connected by hinging-collars *c* at the upper corners, and provided with the cross-braces *d d'*, hinged at the upper end to the end pieces, *c'*, and having hooks *h* at their lower ends, adapted to engage with a button or stop connected with the side braces, *b*, all combined substantially as described.

349,770. TOWEL-ROLLER. CALVIN G. UDELL, North Indianapolis, Ind. Filed Nov. 9, 1885. (No model.)

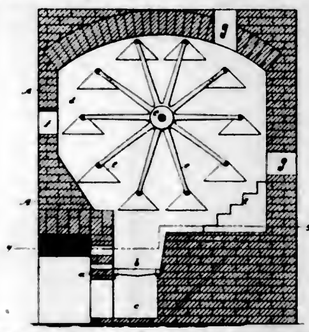


Claim.—1. The towel-roller *r*, journaled at each end in the metal brackets *br*, having openings to receive one or more boards, *b*, at the back and above to receive the top *t*, substantially as described.

2. The bracket *br*, made of malleable iron, providing bearings for the journals of a removable towel-roller, having the elliptical opening above to receive the top *t* and openings in the rear to receive the strips composing the back of the frame, and provided with spurs *s*, for securing the frame-strips in place when the spurs are driven in, all combined substantially as described.

3. The device for hanging towels, composed of the roller *r*, journaled in the malleable-iron brackets *br*, the back strips, *b*, and the top *t*, forming the frame, resting in openings provided in such brackets, and secured by driving-spurs *s*, connected with the bracket, and the hangers *h*, integral with the top of the bracket, all combined substantially as described.

349,771. BAKING FURNACE AND OVEN. BENJAMIN B. VAN DERVEER, New York, N. Y. Filed Mar. 16, 1886. (No model.)

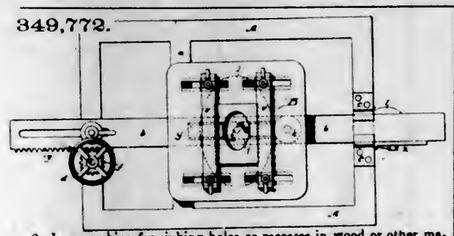


Claim.—In combination with a reel-oven having its bake-pans long in the direction across the oven from side to side, an open combustion-chamber at the bottom and near the median vertical line of the oven, corresponding in form and arrangement with the baking-pans, and having a wall with doors in front, said wall and doors being in the rear of the plane of the front wall of the oven, substantially as and for the purposes set forth.

349,772. MACHINE FOR CUTTING HOLES IN WOOD OR OTHER MATERIALS. HERRMANN WEBERT, Hoboken, N. J. Filed May 29, 1886. (No model.)

Claim.—1. In a machine for sinking holes or recesses in wood or other materials, in combination with the cutting-tool and table, a table-bearing shaft and pattern cam or cams mounted thereon, said shaft being mounted in bearings capable of a sliding motion toward or from the cutting-tool, and a bearing for the pattern cam or cams, having a fixed position in the machine relatively to the position of the cutting-tool, whereby the movements of the table relatively to the position of the cutting-tool, and therefore the shape of the cutting, is determined by the movements of the pattern-cam relatively to the position of its fixed bearing, substantially as and for the purposes set forth.

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2. In a machine for sinking holes or recesses in wood or other materials, in combination with the cutting-tool and table, a table-bearing shaft and pattern cam or cams mounted thereon, said shaft being mounted in bearings capable of a sliding motion toward or from the cutting-tool, and a bearing for the pattern cam or cams, having a fixed position in the machine relatively to the position of the cutting-tool, and suitable means of adjusting the initial position of the tool on the one hand relatively to the position of the table, the shaft, the pattern-cam, and its fixed bearing on the other hand, whereby the movements of the table relatively to the position of the cutting-tool, and therefore the shape of the cutting, is determined by the movement of the pattern-cam relatively to the position of its fixed bearing, and the size of the cutting is adjustable relatively to the size of the pattern-cam, substantially as and for the purposes set forth.

3. In a machine for sinking holes or recesses in wood or other materials, in combination with the cutting-tool and table, a table-bearing shaft and pattern cam or cams mounted thereon, said shaft being mounted in bearings capable of a sliding motion toward or from the cutting-tool, and each pattern-cam having a spiral-like groove or way, and a fixed bearing-pin taking into said groove or way, said bearing-pin having a fixed position in the machine relatively to the position of the cutting-tool, whereby the movements of the table relatively to the position of the cutting-tool, and therefore the shape of the cutting, is determined by the movements of the pattern-cams relatively to the position of its fixed bearing, and the cutting is automatically guided throughout several revolutions of the table, substantially as and for the purposes set forth.

4. In a machine for sinking holes or recesses in wood or other materials, in combination with cutting-tool and table, a table-bearing shaft and pattern cam or cams mounted thereon, said shaft being mounted in bearings capable of a sliding motion toward or from the cutting-tool, and each pattern-cam having a spiral-like groove or way, and a spring portion, *c'*, of the wall forming said groove, and a fixed bearing-pin taking into said groove or way, said bearing-pin having a fixed position in the machine relatively to the position of the cutting-tool, whereby the movements of the table relatively to the position of the cutting-tool, and therefore the shape of the cutting, is determined by the movements of the pattern-cam relatively to the position of its fixed bearing-pin, and the cutting is automatically guided throughout several revolutions of the table, substantially as and for the purposes set forth.

5. In a machine for sinking holes or recesses in wood or other materials, in combination with the cutting-tool and table, a lever-rod, treadle, and weight for lifting and lowering the cutting-tool, a table-bearing shaft, and pattern cam or cams mounted thereon, said shaft being mounted in bearings capable of a sliding motion toward or from the cutting-tool, and a bearing for the pattern cam or cams, having a fixed position in the machine relatively to the position of the cutting-tool, whereby the movements of the table relatively to the position of the cutting-tool, and therefore the shape of the cutting, is determined by the movements of the pattern-cams relatively to the position of its fixed bearing, substantially as and for the purposes set forth.

6. In a machine for cutting holes or recesses in wood or other materials, the combination of the frame A, cross-pieces *a*, table B, slides *b b*, wheel *d*, shaft *e*, cog-wheels *f f*, cogged strips *g g*, shaft *h*, slides *i i*, pattern-cams *j j*, rollers *k k*, weight *l*, tool *m*, tool-shaft *n*, arm *q*, lever *r*, rod *s*, weight *t*, treadle *u*, and clamps *v v*, substantially as and for the purposes set forth.

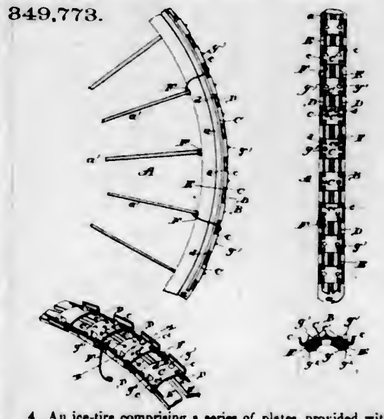
349,773. ICE-TIRE FOR VEHICLE-WHEELS. THOMAS B. WILLIAMS, Orange, Mass. Filed Feb. 6, 1886. (No model.)

Claim.—1. An ice-tire having the flexibly-connected plates provided with angular lips at their extremities and arranged transversely of the tire of the wheel when fitted thereon, substantially as described.

2. An ice-tire for vehicle-wheels, comprising a series of flexibly-connected plates arranged transversely across the wheel-tire when fitted thereto, and curved longitudinally to closely embrace the same, the extremities of said plates having angular lips which project beyond the highest point of the concave face thereof, substantially as described.

3. An ice-tire comprising a series of transversely-curved plates provided at their ends with angular lips and flexibly connected together, substantially as described.

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4. An ice-tire comprising a series of plates provided with angular lips and links pivotally connected to the plates, to flexibly connect the latter, substantially as described.

5. An ice-tire comprising the flexibly-connected plates and flexible strips to which the plates are permanently attached, substantially as described.

6. The combination, with a wheel, A, of a flexible detachable tire and links connecting the tire and wheel rigidly together, substantially as described.

7. The combination, with a wheel, A, of a detachable flexible tire applied to the outer face thereof and links permanently attached to the flexible tire and detachably hooked or connected to the spokes of the wheel A, substantially as described.

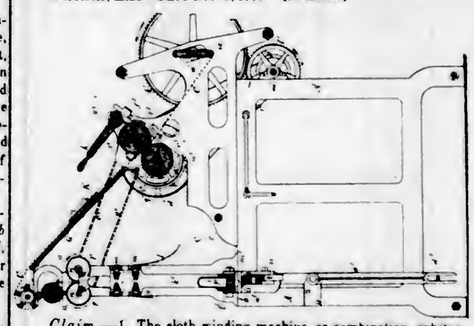
8. An ice-tire comprising the flexibly-connected plates, the flexible strips E, and studs or rivets connecting the plates and strips, and provided with the pointed heads projecting beyond the plates, substantially as described.

9. An ice-tire having a series of transverse plates provided with projecting protuberances and pivoted links intermediate of the plates to flexibly connect them together, substantially as described.

10. An ice-tire provided with a series of transverse plates having the integral indentations projecting beyond the plane thereof and the links intermediate of the plates, substantially as described.

11. An ice-tire comprising a series of flexibly-connected plates and the links F, to detachably secure the tire to the spokes of a wheel, substantially as described.

349,774. MACHINE FOR WINDING CLOTH. JOHN E. WINDLE, Worcester, Mass. Filed Nov. 2, 1885. (No model.)



Claim.—1. The cloth-winding machine or combination, substantially as described, consisting of a cloth supporter or carriage having guide-rollers D and E, as represented, the series of temples *m*, the distender F, pair of notched draft-rollers *n*, guide-rollers *q* and *z*, inclined plane G, auxiliary distender K, draft-rollers H and I, and mechanism for supporting the board *a* and revolving it at a decreasing speed, essentially and for the purpose as explained, the several rollers *n*, H, and I being provided with mechanism for revolving them, as specified, and such mechanism for sustaining the board and revolving it at a decreasing speed consisting of the two heads *a'*, shafts *b'* and *c'*, the pairs of gears *k' n' l' o'*, shaft *m'*, polleys *p'* and *q'*, belt *r'*, arms *x'*, cranks *z'*, cams d^2, separable annulus c^2, and its contracting-springs f^2, and the pulley d^2, all being arranged, supported, and adapted to operate essentially as set forth.

2. The combination, substantially as described, for folding a piece of cloth and winding it on a board, such combination consisting of the series of temples *m*, the distender F, pair of notched draft-rollers *n*, guide-rollers *q* and *z*, inclined plane G, auxiliary distender K, draft-rollers H and I, and mechanism for supporting the board and revolving it at a decreasing speed, essentially and for the purpose as explained, the several rollers *n*, H, and I being provided with mechanism for revolving them, as specified, and such mechanism for sustaining the board and revolving it at a decreasing speed consisting of the two heads *a'*, shafts *b'* and *c'*, the pairs of gears *k' l' n' o'*, shaft *m'*, pulleys *p'* and *q'*, belt *r'*, arms *x'*, cranks *z'*, cams a^2, separable annulus c^2, its contracting-springs f^2, and the pulley d^2, all being arranged, supported, and applied to operate essentially as set forth.

3. The combination, substantially as described, for supporting the board and revolving it at a decreasing speed as the load on such board may increase in size, such combination consisting of the two heads *a'*, shafts *b'* and *c'*, the pairs of gears *k' l' n' o'*, shaft *m'*, pulleys *p'* and *q'*, belt *r'*, arms *x'*, cranks *z'*, cams a^2, separable annulus c^2, its contracting-springs f^2, and the pulley d^2, all being arranged and to operate essentially as set forth.

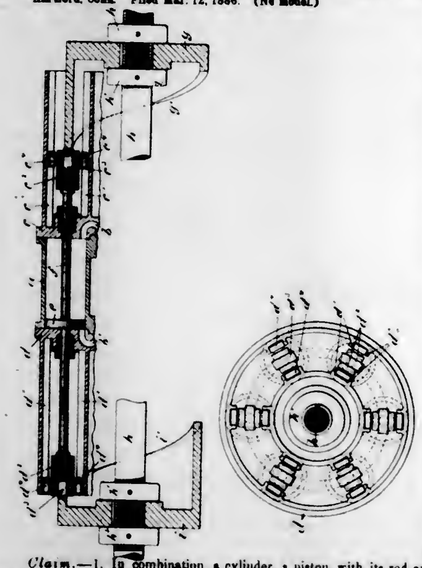
4. The combination, with the frame A, distender F, and the series of cloth-supporting temples *m*, of the pivoted arm l^2, its operative spring p^2, the slide l^2, and the bracket m^2, such arm being attached to such temples and pivoted to the said slide and the latter being adjustable on the said bracket projecting from the said frame, as set forth.

5. The combination of the sectoral notched wheels *n* and the two shafts *o* and their connecting gearing, as described, with the distender F, the series of temples *m*, the guide-rollers *q* and *z*, and the draft-rollers H and I, having mechanism for operating them, all being arranged as represented.

6. The combination, with the revoluble and sliding shaft *c'*, of the yoke *g'*, the furcated projection *h'*, and the screw *e'*, screwed into such yoke and against the outer end of the shaft, all being substantially as set forth.

7. The roller *q*, provided with the friction pulley and band, as set forth, and having the box of one of the journals of it, the said roller, pivoted, so as to enable the roller to be swung outward from underneath the roller *z*, and also having the box of the other journal furnished with a lateral opening to admit of the said journal, with the roller, being moved into or out of the box, as set forth.

349,775. DEVICE FOR CONVERTING MOTION. WILLIAM H. WOOD, Hartford, Conn. Filed Mar. 12, 1886. (No model.)

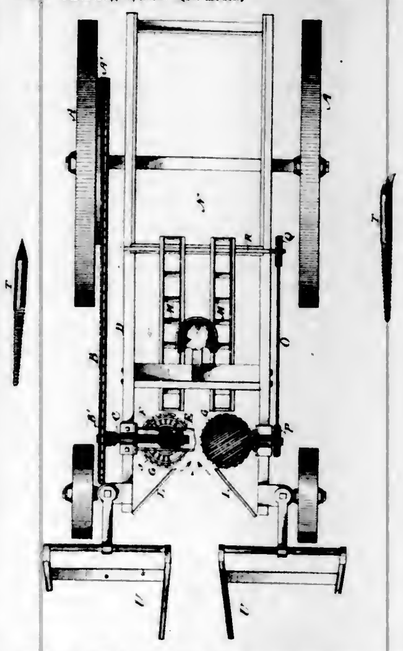


Claim.—1. In combination, a cylinder, a piston with its rod extending through both cylinder-heads and engaging curved cams at both its ends, and the curved cams fast to the main shaft, all substantially as described.

2. In combination, a cylinder, a piston with its double-ended piston-rod extending through both cylinder-heads and engaging curved cams, the ways or guides fast to and projecting from the cylinder-heads, and the hollow cam-blocks bearing the curved cams, and adjustably secured to the driving-shaft, all substantially as described.

3. In combination, the fixed cylinder, the rotary shaft bearing the inward-facing curved cams at all points equidistant from each other, and the double-ended piston-rod located between the cams and parallel to the shaft and bearing with its opposite ends directly against the similar cams, all substantially as described.

349,776. COTTON-HARVESTER. CHARLES E. WRIGHT, Vicksburg, Miss. Filed Aug. 9, 1884. (No model.)



Claim.—1. The combination of a cotton-harvester frame mounted on wheels, two vertical radially-toothed picking-cylinders provided with radially-movable tooth-cleaners perforated for the passage of the teeth on said cylinders, guide-rods controlling the movement of the tooth-cleaners, and eccentrics to withdraw and springs to project the cleaners, substantially as specified.

2. The combination of the converging guide-walls L, two vertical radially-toothed cylinders, radially-movable perforated tooth-cleaners J, guide-rods controlling their movement, and eccentrics to withdraw said cleaners and springs to project them, with conveyers M, having their rear end elevated above the front end, and a bin, N, carried on wheels, substantially as and for the purpose described.

3. The combination of the cylinders G, teeth T, and springs S therein, perforated bars J, and guide-rods J^1, having lugs J^3, substantially as shown and described.

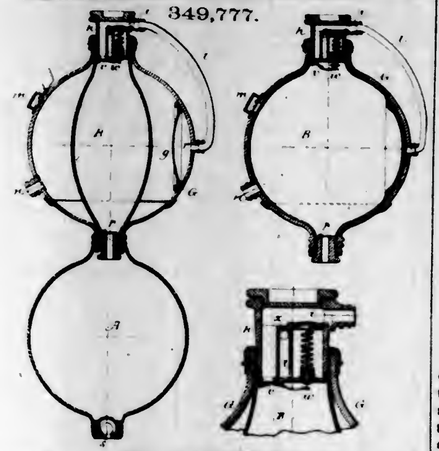
4. The combination of the wheels A, sprocket-wheels A' B', chain B, shaft C, gears E F, cylinders G, springs S therein, bars J, cam I, and bars J^1, having lugs J^3, substantially as shown and described.

349,777. PNEUMATIC PUMP. REINHOLD ADLUNG, Pankow, Germany. Filed Oct. 28, 1884. (No model.)

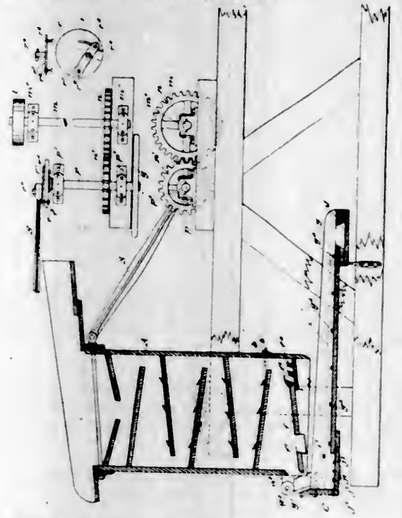
Claim.—1. In vacuum-pumps with elastic diaphragm, the combination of a rigid casing, G, having a suction-valve, *n*, discharge-valve *m*, and diaphragm *g*, forming auxiliary air-chamber *r*, and adapted to be compressed by the expansion of the displacer B, with an elastic displacer, B, inclosed by the casing, an air-compressing ball, A, communicating with the displacer by a discharge-valve, *p*, and a valve mechanism communicating with the inside of the displacer B, with the auxiliary air-chamber *r*, and with the atmosphere, the said valve mechanism being controlled by the pressure in the auxiliary air-chamber *r*, and adapted to establish communication between the displacer and the atmosphere when the chamber *r* is compressed, substantially as described.

2. In vacuum-pumps with elastic diaphragm, the combination of casing or shell G with displacer B, air-chamber *r*, valve-casing *h*, connected with chamber *r*, and having a port, *t*, and outlet *x*, valves *v* and *w*, and flexible diaphragm *i*, substantially as and for the purpose described.

349,777.



349,778. AMALGAMATOR. GEORGE S. ARMSTRONG, Denver, Colo., assignor of one-half to Julia E. Kiefer and William G. Hutchison, both of same place. Filed Dec. 29, 1885. (No model.)



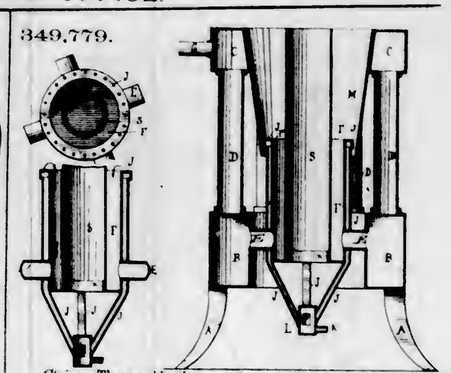
Claim.—1. In an amalgamator, the combination of amalgamating-box *g*, provided with receptacles *j* and *j''*, riffles g^3, screen *i*, provided with riffle *i'* and door *c*, said box being supported by rods *h* and brackets a suitable frame provided with boxes a^2 and *a'*, box A, provided with journals *a*, and mechanism for operating the machine, consisting of gear-wheels *n* and *n'*, shaft *p*, crank-wheel *r*, and pitman-rod *s*, substantially as described.

2. In an amalgamator, the combination of a supporting-frame provided with journal-boxes, box A, plate *f*, containing receptacles *f''* and f^3, amalgamating-box *g*, provided with screen *i*, receptacles *j* and *j''*, and riffles g^3, box *g* being attached to box A, and supported by adjusting-rods *h*, and mechanism for operating the machine, consisting of gear-wheels *n* and *n'*, crank-wheel *r*, shaft *p*, and pitman-rod *s*, substantially as described.

3. In an amalgamator, the combination of a supporting-frame provided with boxes *a'* and a^2, box A, provided with journals *a*, plate *f*, provided with receptacles *f''* and f^3, amalgamating-box *g*, provided with screen *i*, receptacles *j* and *j''*, riffles g^3, and door *c*, box *g* being attached to box A and supported by adjusting-rods *h*, and suitable mechanism for operating the machine, substantially as described.

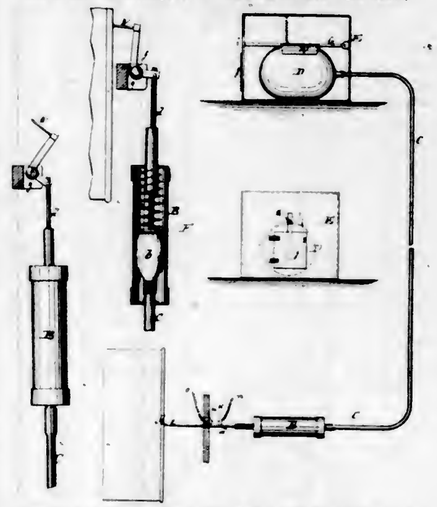
349,779. GAS-STOVE. JOHN W. BAKER, Philadelphia, Pa. Filed May 27, 1885. (No model.)

349,779.



Claim.—The combination constituting a gas-stove, of the annular drums B and C, and a series of upright flue-tubes, D, located between them and connecting the same, a central combustion flue-chamber, F, arranged and supported between said drums and connected air-tight therewith at its base, a gas-chamber, and a series of gas-tubes, J J, surrounding said flue-chamber F, and extending to the top thereof, or nearly so, a chimney, M, supported by and located at its top within the said upper annular drum, C, and extending down to the region of the gas-jets, whereby a current of air is induced thereto, and a vertical hot-air flue, S, within said flue-chamber F, and connected therewith by a flanged opening therein at its base, and extending upward to the top of said upper annular drum, C, or nearly so, the said parts being constructed, combined, and arranged substantially as set forth.

349,780. WATCHMAN'S PNEUMATIC TIME-DETECTOR. CHRISTIAN D. BERNSEE, Brooklyn, N. Y. Filed Jan. 27, 1886. (No model.)



Claim.—1. The combination of the dial A with the marking-tool *e*, stem *d* on plunger F, bag *b*, tube C, and bag D, all arranged to establish a pneumatic time-indicator, as specified.

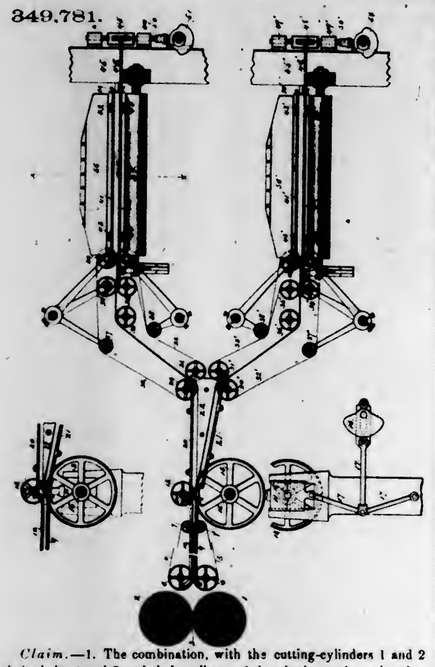
2. The combination of the actuating-bag D of a pneumatic time-indicator with the box E, having slot *i*, and with the compressing-lever G, substantially as and for the purposes shown and described.

3. The combination of the dial A, marking-tool *e*, and stem *d* of a pneumatic time-indicator, and of mechanism, substantially as described, for moving said stem, with the projection *k* on said stem, plate *m*, and condensers *n o*, as specified.

4. The combination of the slotted box E with the door *j*, which is adapted to partly close the slot in said box, and with the lever G and pneumatic actuating bulb or bag D, substantially as shown and described.

349,781. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. JOHN BROOKS, Plainfield, N. J. Filed Mar. 15, 1886. (No model.)

349,781.

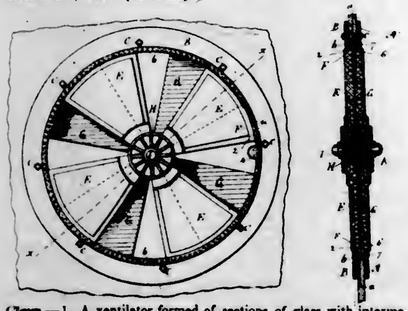


Claim.—1. The combination, with the cutting-cylinders 1 and 2 and the belts 4 and 5 and their pulleys, of the nipping and accelerating wheels 12 and 13 and the shafts and bearings for the same, and means, substantially as described, for raising and lowering such nipping and accelerating wheels, and the ranges of bars 20 21, and stationary bars or plates 22, and the respective pulleys and tapes for conveying away the sheets, substantially as set forth.

2. The combination, with the folding-rollers 47, and folding-blade 56, and ranges of bars between which the sheets to be folded are passed, of the ranges of tapes and pulleys for bringing the sheets to the folding apparatus, and the pulleys 39 and 40 in advance of the pulleys 34 35 and adjacent to the ends of the folding-rollers, and around which pulleys the two middle tapes pass beyond the pulleys 34 35, for forwarding the sheets between the ranges of bars to the fence, substantially as specified.

3. The combination, with the folding-rollers 47 and folding-blade 56, of the ranges of stationary bars 41 42, the supporting cross-bars 43 44, the lifting-frame having bars 46 intermediate to the bars 41 42, and the box of rubber or similar material to check the vibrations of the bars 46, substantially as set forth.

349,782. VENTILATOR. GEORGE R. BUFFHAM, Port Chester, N. Y. Filed Feb. 1, 1886. (No model.)



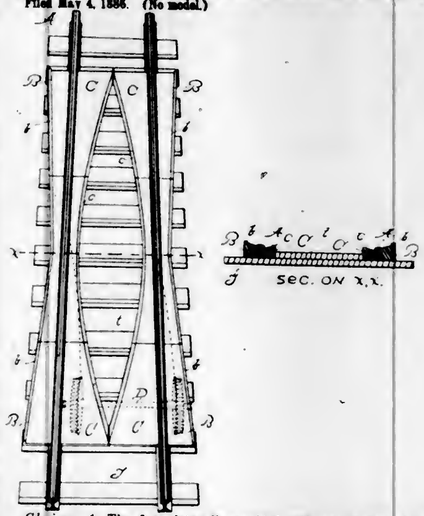
Claim.—1. A ventilator formed of sections of glass with intermediate openings, and two frames or rims for supporting such sections and for allowing one frame or rim, with its sections of glass, to be moved upon the other frame or rim in opening or closing the ventilator, the adjacent faces of the glass being in contact, and the outer edges of the sections being beveled where they are secured in the rims, substantially as set forth.

2. The metal ring A, having an internal rim, *a*, and flange *b*, in combination with the sections E, of glass, the rim F, for connecting such sections together, the sections G, of glass, and the rim 6, for connecting such sections together, the rim F being between the flanges *b* and the rim 6, and the said rim 6 being permanently secured within the rim *a*, substantially as set forth.

3. The combination, in a ventilator, of sections of glass E and G, rims for supporting the same, and the inward flanges and clip-pieces for holding the outer ends of the respective sections of glass within the rims, substantially as set forth.

4. The combination, with a stationary and turning wheel in a ventilator, of the rings A and B, and the rings of rubber or similar yielding material between the same and the surface of the glass, and the screws for clamping the parts, substantially as specified.

349,783. RAILWAY-FROG. ELWELL CAMPBELL, Kansas City, Mo. Filed May 4, 1886. (No model.)



Claim.—1. The frog-plates B, provided with side flanges, *b*, in combination with frog-plates C, having flanges *c*, and having a warped or twisted upper surface, all arranged to co-operate substantially as described.

2. In combination with the rails A, the frog-plates B, provided with side flanges, *b*, and having a warped or twisted upper surface that conforms very nearly in height to the tread of said rails, and the frogs C, provided with flanges *c*, and having a warped or inclined upper surface that is located below the inner edge of the rails, substantially as described, and for the purposes set forth.

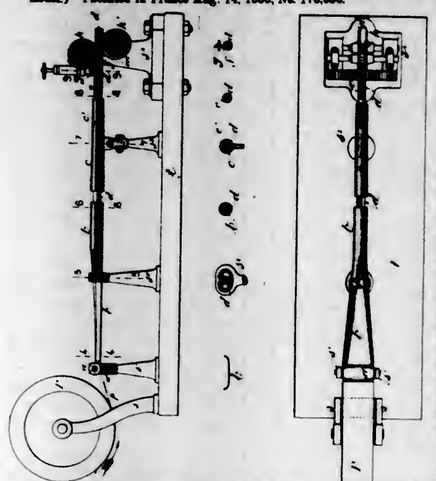
349,784. WATER-CLOSET MAT OR TOILET-PROTECTOR. STEPHEN J. COX, New York, N. Y. Filed June 7, 1886. (No model.)



Claim.—1. A portable water-closet mat rectilinear in shape provided centrally with a single row of perforations in curved line forming an ellipse, the field of which is divided into four parts by a lengthwise and crosswise row of perforations, essentially as shown and described.

2. The water-closet mat A, of medicated paper, provided centrally with a single row of perforations, *a*, arranged in curved line forming an ellipse, at one end of said ellipse the said curved line of perforations re-entering the ellipse to form the portion B, and the field inclosed within the aforesaid perforations *a* divided into four parts by the cross-lines of perforations *b*, as shown and described.

349,785. APPARATUS FOR MANUFACTURING CIGARETTE-TUBES. ANATOLE E. DECOUPLÉ, Paris, France. Filed Jan. 16, 1886. (No model.) Patented in France Aug. 14, 1885, No. 170,636.



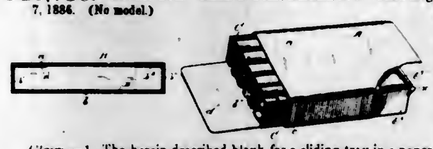
Claim.—1. In apparatus for manufacturing cigarette-tubes, the combination of the curvilinear channel *b* with the inner rod, *d*, tubular channel *c*, and rib *c'*, against which the edges of the endless paper band *p* are turned, as specified.

2. In apparatus for manufacturing cigarette-tubes, the rod or spindle *d*, combined with the tubes *b c*, rib *c'*, and funnel *e*, as described.

3. The combination of the squeezing-roller *g* with the rod *d*, having recess *f* and funnel *e*, as specified.

4. The pulling or drawing rollers *h h'*, combined with the rod *d*, provided with groove *f*, funnel *e*, roller *g*, and with the wheels *m* and *m'*, as specified.

349,786. PAPER BOX. JAMES B. DUKE, Durham, N. C. Filed Aug. 7, 1886. (No model.)

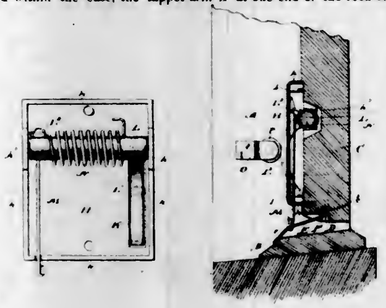


Claim.—1. The herein-described blank for a sliding tray in a paper box, it having the bottom part, B, side parts, C C, and end closing-piece at the front, a rear closing-piece, b^2, a top flap, b^3, recesses b^4 b^4 at the side of the part b^3, and the tongues b^5, hinged to the flap b^3, substantially as set forth.

2. In a paper box, a sliding tray having the bottom B, the sides C C, the front closing-piece, b', the rear closing-piece, b^2, the flap b^3, resting on the top of the sides C C, and the tongues b^5, hinged to and extending downwardly from the part b^3, substantially as set forth.

349,787. WEATHER-STRIP. JOHN W. FARR, Marion, Ind. Filed June 26, 1886. (No model.)

Claim.—1. The case H, adapted to be secured to the door, and having the slot K, in combination with the horizontal rock-shaft L, journaled within the case, the tappet-arm L' at one end of the rock-shaft,

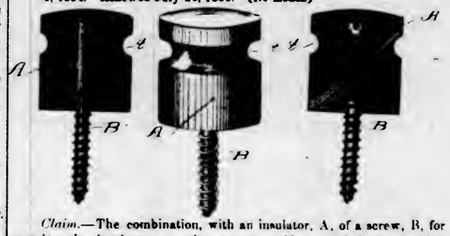


the rod M, connected to the other end, the spring N, coiled on the rock-shaft between the parts L' N, an arm, L^2, on the rock-shaft, against which the spring acts, and the weather-strip E, attached to the rod M, as set forth.

2. In a weather-strip, the door provided with a recess, D, and a channel, *b*, in combination with the strip E, having the inner edge beyond the pivot-point turned upward, as at *m*, to fit into the channel *b*, as set forth.

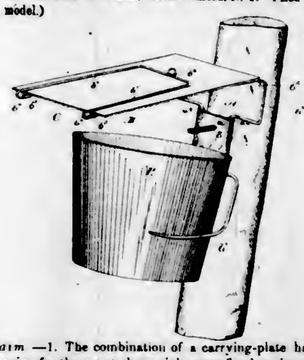
3. In combination with the strip E, pivoted to the lower edge of the door, and having the lip *m* on its inner edge fitting within a recess of the door, the rod M, connected to the strip in advance of the pivot-point, and operating means for the rod M, whereby when the latter is operated the front end of the strip is forced down and the lip *m* is thrown up into the recess of the door, said lip limiting the downward movement of the strip, and also serving to exclude drippings from the door, as set forth.

349,788. INSULATOR. NATHAN T. FITCH, Chicago, Ill. Filed Mar. 6, 1884. Renewed July 26, 1886. (No model.)



Claim.—The combination, with an insulator, A, of a screw, B, for securing the insulator upon its support, said screw being embedded throughout a part of its extent within the insulator, extending therein above the groove *t*, to afford a strengthening medium for the insulator, and projecting to the remainder of its extent beyond the insulator, substantially as described.

349,789. DEVICE FOR SUPPORTING AND PROTECTING SAP-PAILS. CHARLES O. FREER, North Walton, N. Y. Filed July 15, 1886. (No model.)



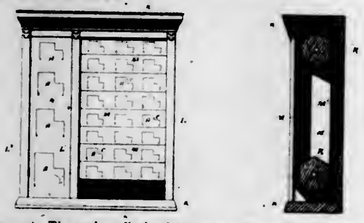
Claim.—1. The combination of a carrying-plate having a transverse opening for the spout, the upright arms fixed to the carrying-plate, the horizontal bars connected to the arms, the yielding arms b^3, arranged alongside of the horizontal bar and connected thereto, and a cover interposed between the horizontal bars and the yielding arms, substantially as described, for the purpose set forth.

2. The combination of a carrying-plate having a transverse opening for the spout, the supporting-frame B, connected to the plate and comprising the horizontal bars b^2, and the yielding clamping-bars b^3, formed from a single piece of wire, and a removable cover, C, fitted between the horizontal and clamping bars and held in place thereby, substantially as described, for the purpose set forth.

3. The combination of a carrying-plate, a supporting-frame, B, formed of a single piece of wire and comprising the upright arms connected to the plate, the horizontal yielding arms b^2, arranged at right angles to the upright arms, and the clamping-arms b^3, connected by the coils b^4 with the arms b^2, and a cover, C, fitted between the arms b^3 b^3, substantially as described, for the purpose set forth.

4. The combination, with the plate A, having hole *a*, hook *a'*, and bent sides a^2, of the frame B, having straight sections b b^2, convergent sections b^2, loops b^2 b^4 b^2, bent ends b' and the straight sections b^1 b^2, and the cover C, as set forth.

349,790. LABEL CABINET. ERNEST GABRIEL, Elmwood, Ill. Filed Feb 6, 1886. (No model.)

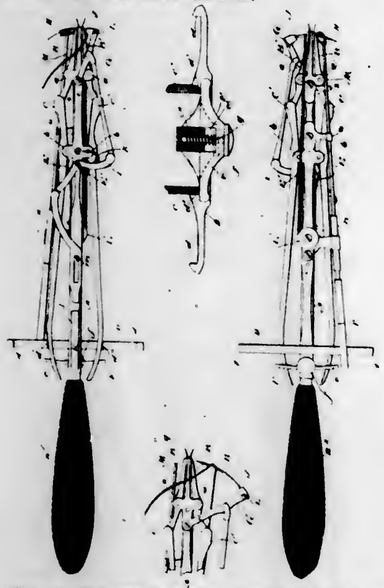


Claim.—1. The spring-clip having a corner thereof bent in toward the center of the clip, whereby a corner of the papers held thereby can be more readily grasped, substantially as set forth.

2. In a label-cabinet, the endless apron consisting of cloth M' and slats M, in combination with the spring-clips affixed to said slats and the rollers supporting said apron, substantially as and for the purpose described.

3. In a label-cabinet, the case consisting of top and bottom K K', sides L L^2, and partition L', said partition and side L having the grooves G, in combination with the board N, secured between the partition and the side L^2, and having the clips A affixed thereto, the rollers R, the endless apron M M', passing about said rollers, and the clips A, affixed to the boards M of said apron, as and for the purpose specified.

349,791. SUTURE-INSTRUMENT. WILLIAM GIBBONEY, Jr., Wythe-ville, Va. Filed June 9, 1886. (No model.)



Claim.—1. In a suture-instrument, the shank or body, in combination with the clamping means for the skin or flesh carried by the shank or body and the needle-driver connected to the latter and carrying the needle to be passed through the skin or flesh, as set forth.

2. In a suture-instrument, the combination, with the clamping means for the flesh or skin, of the needle-driver carrying the needle and the thread-catcher to engage with the thread, as set forth.

3. In a suture-instrument, the combination, with the spring-actuated clamping-jaws for the flesh or skin and means to hold the jaws closed and allow the releasing thereof automatically, of the needle-driver carrying the needle, as set forth.

4. In a suture-instrument, the spring-actuated clamping-jaws for the flesh or skin, detents to lock the jaws closed, and a releaser to disengage the jaws from the detents, as set forth.

5. In a suture-instrument, the body or shank, in combination with the needle-driver connected thereto and carrying the needle, and means, substantially as described, for operating the needle-driver, as set forth.

6. In a suture-instrument, the shank or body, in combination with the spring-actuated jaws for clamping the skin or flesh working on opposite sides of the shank or body, detents for locking the jaws, and a releaser for disengaging the jaws from the detents, as set forth.

7. In a suture-instrument, the combination, with the shank or body, of spring-actuated clamping-jaws on opposite sides thereof, levers connected to the jaws, detents for locking the levers, and a releaser for disengaging the levers from the detents, as set forth.

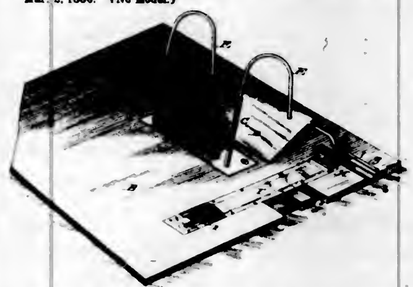
8. In a suture-instrument, the combination, with the needle-driver to pass the thread through the skin or flesh, of the thread-catcher having its engaging-point adapted to come in the path of the needle of the driver, so as to catch the thread, substantially as described.

9. In a suture-instrument, the combination, with the swinging needle-driver, of the sliding thread-catcher and the clamping-jaws, as set forth.

10. In a suture-instrument, the thread-catcher working forward and backward in guides, in combination with the needle-driver carrying the needle and a series of connecting levers and bars to operate the needle-driver, as set forth.

11. In a suture-instrument, the shank or body, in combination with the needle-driver pivoted thereto, the bell-crank lever connected to the needle-driver, and the sliding handle to operate the lever, as set forth.

349,792. BILL-FILE. JOSEPH GOTTSCHALK, Baltimore, Md. Filed Mar. 2, 1886. (No model.)



Claim.—1. In a bill-file, a plate or carrier having transfer-wires and provided with a lateral handle arm, substantially as set forth.

2. A bill-file comprising the plate having the transfer-wires and hinged at one edge, an arm extended laterally from the movable edge of such plate, and a latch arranged to engage such arm, substantially as set forth.

3. In a bill-file, the combination, with the base having a groove, *b*, and the hinged plate having the transfer-wires, of the arm extended from said plate and having its outer end movable into and out of groove *b*, and a latch movable over groove *b*, substantially as set forth.

4. In a bill-file the combination of the support or base having a side mortise, 3, the plate having a lateral arm, and a latch arranged to engage said arm, and having a lateral handle projected into and movable within the mortise 3, substantially as set forth.

349,793. SUPPORTING-BANDAGE. EDWARD H. HART, New York, N. Y. Filed Jan. 20, 1886. (No model.)

Claim.—1. The bandage A, combined, by the elastic threads *a a*, with the open ring B, substantially as herein shown and described.

2. The bandage A, connected with the ring B, having fasteners *b*, and combined with the detachable bag C, substantially as herein shown and described.



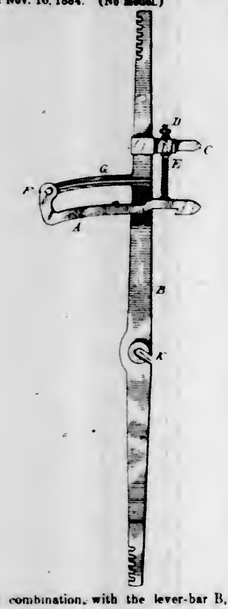
3. The bandage A, combined with the elastic threads *a a*, open ring B, fasteners *b*, and detachable bag C, substantially as herein shown and described.

4. The bandage A, provided with the lower semi-annular elastic frilling, D, substantially as and for the purpose herein shown and described.

5. The bandage A, provided with the elastic frilling D, and with the elastic frilling E, as specified.

6. The bandage A, combined with the elastic threads *a a*, open ring B, and elastic frillings D and E, substantially as herein shown and described.

349,794. SHEDDING MECHANISM FOR LOOMS. JAMES HIGHLEYER, Philadelphia, Pa., assignor of one-half to John Dobson and James Dobson. Filed Nov. 10, 1884. (No model.)



Claim.—The combination, with the lever-bar B, having a fixed arm, G, and a hooked jack, A, pivoted thereto, of a slotted horizontal post, C, secured to said lever-bar, and a vertical guide-rod, D, secured to said jack A, and reciprocated thereby in the slot of the post C, and a spring, E, encircling said rod D between said post C and jack A, said parts being constructed, combined, and arranged substantially as described.

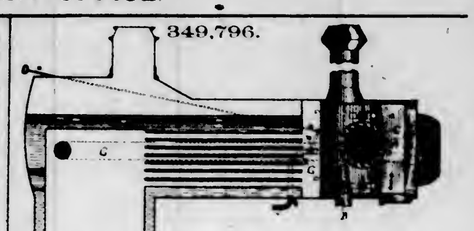
349,795. HARROW ATTACHMENT FOR CULTIVATORS. WILLIAM H. HOBSON, Lamonte, Mo. Filed Jan. 4, 1886. (No model.)



Claim.—1. The combination, with a cultivator, of the diagonally-arranged beam having the harrow-teeth, and secured to the cultivator and working in rear of the shovels thereof, for the purpose set forth, substantially as described.

2. The combination, with a cultivator, of the diagonally-arranged beam having the harrow-teeth, and the arm *a*, for securing it to one of the beams of the cultivator, the said arm *a* extending forwardly and upwardly at an angle to the beam, whereby the teeth of the latter will run in rear of the shovels or plows, substantially as described.

349,796. SPARK ARRESTER AND CONSUMER. WILLIAM HOGAN, Renovo, Pa. Filed May 15, 1886. (No model.)



Claim.—1. In a locomotive or other engine provided with means for inducing a secondary draft, a partition in the smoke-box, which may be opened or closed so as to regulate the relative strength of the two drafts.

2. In a locomotive or other engine, a smoke-box which is divided by two U-shaped partitions into three compartments, the outer partition being partly or wholly of wire-netting and the inner having sliding sides, substantially as set forth.

3. The combination, in a locomotive or other engine, of a wire-netting forming part of a partition in the smoke-box, a rotary suction-fan and discharge-nozzle arranged to induce a secondary draft, a sliding partition-wall in the smoke-box, by means of which the strength of this secondary draft may be regulated, and a cinder-pipe leading into the fire-box, substantially as set forth.

4. The combination, in a locomotive or other engine, of the smoke-box, the wire-netting *c c c*, the suction-fans D, the conducting cinder-pipes G, and the flutter-wheel C.

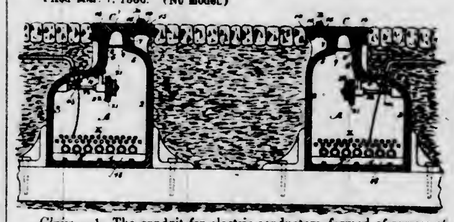
5. The combination, in a locomotive or other engine, of the smoke-box, the wire-netting *c c c*, the cinder-pipes G G, and the partition *e f e*, having the sliding sides *e*.

6. The combination, in a locomotive or other engine, of the netting *c c c*, the suction-fans D D, the conducting cinder-pipes G, and the blast-pipes *k k*.

7. The combination, in a locomotive or other engine, of the flutter-wheel C, the suction-fans D, the cinder-pipes G G, and the blast-pipes *k k*.

8. The combination, in a locomotive or other engine, of the wire-netting *c c c*, the sliding-partition walls *e e*, the flutter-wheel C, the suction-fans D, and the cinder-pipes G G.

349,797. ELECTRIC SUBWAY. JULIUS M. JAGEL, Brooklyn, N. Y. Filed Mar. 1, 1886. (No model.)



Claim.—1. The conduit for electric conductors, formed of ranges of metal boxes bolted together, each box being formed of the bottom 1, sides 2 and 3, the curved roof portion, with the vertical cheeks forming the sides of the longitudinal openings, and the tread-plates 10, for the reception of railway-rails at the top and on one side of the longitudinal opening, in combination with the removable covers, substantially as set forth.

2. The combination, with the conduit for electric conductors, of the pulleys, the endless wire rope, the tube to support the same, and the split case through which the rope passes for drawing in the conductor, substantially as set forth.

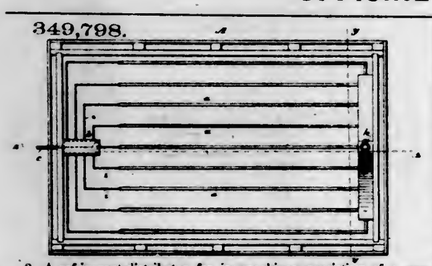
3. A combined sleeper for railway-rails and a conduit for electric conductors, composed of metallic boxes united together end to end, and having longitudinal openings in the same, and tread-plates at the sides of the openings for the reception of the railway-rails, in combination with the removable covers in the longitudinal openings, whereby access is given to the conduit without disturbing the rails, and the rails are removable from the tread-plates independent of the covers, substantially as specified.

4. A combined sleeper for a railway-track and a conduit for electric conductors, formed of a range of cases, each having the sides arching toward each other, a tread-plate for the railway-rails, and a longitudinal opening with parallel sides and covers having parallel edges that fit tightly into the longitudinal opening, substantially as set forth.

349,798. ICE-MACHINE. GEORGE R. JARMAN, Baltimore, Md., assignor to George W. S. Loucks and William H. Wheeler, both of York, Pa. Filed Mar. 19, 1886. (No model.)

Claim.—1. An ice-machine provided with a distributer for the refrigerant, into which the refrigerant is received, and thence let uniformly and equally into each and every of the several coils, substantially as described.

349,798.



2. A refrigerant-distributer for ice-machines, consisting of a gas-tight box having a prismatic partition extending its length and nearly its height, and having its sides and one end slanting toward the outlets, substantially as described.

3. A refrigerant-distributer for ice-machines, consisting of a box and prismatic partition therein, cast in one piece, substantially as described.

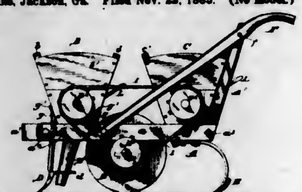
4. The combination of the distributer, a series of coils, and connections between the distributer and coils of such dimensions as to practically prevent the expansion of the refrigerant until it reaches the coils, substantially as described.

5. In an ice-machine, a receiver for the spent refrigerant, consisting of a gas-tight vessel having its suction-pipe arranged substantially equidistant from the several inlets from the coils into the said receiver, substantially as described.

6. The combination of a distributer constructed to insure an equable and uniform distribution of refrigerant to the coils, the coils connected thereto, and a receiver for the spent refrigerant having a suction-pipe arranged substantially equidistant from the inlets of said coils into said receiver, substantially as described.

7. The combination of a distributer having a prismatic partition, a series of coils connected with it, and a receiver into which said coils open, and having a suction-pipe substantially equidistant from the entrances of said several coils into the receiver, substantially as described.

349,799. **PLANTER AND FERTILIZER-DISTRIBUTER.** JOHN S. JENKINS, Jackson, Ga. Filed Nov. 23, 1885. (No model.)



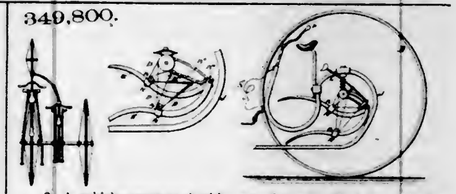
Claim.—As an improvement in combined seed-planters and fertilizer-distributers, the combination of the frame A, having the side beams and the handles, an upright, A', fitted between the rear ends of the side beams of the frame and secured directly thereto, a removable fertilizer-hopper, B, arranged at the front end of the frame, and having the dowel-pins g^3 and the pivoted hooks g, a seed-hopper, also mounted on the frame in rear of and in alignment with the fertilizer-hopper, and having its end walls inclined and extended beneath the frame and curved or inclined, as at c^3, on their opposing faces to form a discharge-spout, the opening-blades D, the delivering-tube D' to the fertilizer-hopper, and having the strap d encircling the same, a drive-wheel, H, intermediate of the hoppers and having a sprocket-wheel, the toothed cylinders B' C', journaled in the hoppers and having their shafts provided with sprocket-wheels B^3 C^3, a drive-chain encompassing the said sprocket-wheels of the cylinder and drive-wheels, the sliding valves J, fitted beneath and curved concentric with the hopper-bottoms, and the pivoted levers L, for independently operating the valves, all arranged and combined for service substantially as herein shown and described.

349,800. **VELOCIPEDE.** HOMER A. KING, Springfield, Mass. Filed May 10, 1886. (No model.)

Claim.—1. A vehicle constructed with a seat for one rider in line with one of two wheels, A, of equal diameter, and also with a seat for a rider between two wheels of equal diameter, and with pedal-levers for said seats, enabling either rider or both riders to propel the vehicle, substantially as set forth.

2. A vehicle constructed with a seat for one rider between two wheels, A, of equal diameter, and with seats for more than one rider in line with one of two wheels of equal diameter, and with pedal-levers for said seats, so that either one of the riders occupying said seats may propel the vehicle or more than one assist in propelling it, substantially as set forth.

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3. A vehicle constructed with seats for more than one rider between two wheels, A, of equal diameter, and with a seat for one rider in line with one of the two wheels of equal diameter, and with pedal-levers for said seats, enabling one rider to propel the vehicle or more than one assist in its propulsion, substantially as set forth.

4. A vehicle constructed with seats for more than one rider between two wheels, A, of equal diameter, and with seats for more than one rider in line with one of two wheels of equal diameter, and with pedal-levers for said seats, enabling one rider to propel the vehicle or more than one assist in its propulsion, substantially as set forth.

5. A vehicle constructed with a front steering-wheel, and with two driving-wheels, A, of equal diameter, and with seats to carry more than one rider in line with each driving-wheel, and with pedal-levers to said seats, enabling one of the riders to propel the vehicle or more than one rider assist in propelling it, substantially as set forth.

6. A vehicle constructed with two driving-wheels of equal diameter, and with a seat for one rider in line with each driving-wheel, and with pedal-levers each side of each driving-wheel A, enabling one rider to propel the vehicle or more than one to assist in propelling it, substantially as set forth.

7. A vehicle with two driving-wheels, A, of equal diameter, and with a seat in line with one of the driving-wheels, and with pedal-levers, enabling one person to propel the vehicle, substantially as set forth.

8. A vehicle with two driving-wheels, A, of equal diameter, united essentially as set forth, so that one driving-wheel with its driving mechanism may be removed and the part remaining be a complete bicycle, with a seat to carry one rider in line with its driving-wheel.

9. A vehicle-frame constructed of one piece of tubing, extending from the steering-wheel back undegneath the axle and curving over upon the spring-adjusted tube J', thence forward, forming a seat-support, thence curving downward, and again upward to support the handle-bar, substantially as set forth.

10. The felly u, constructed of one piece of metal, with outer protuberant projection in the rubber bed and central open formation toward the hub, which may be closed nearest the hub, forming a hollow felly-rim.

11. A felly-rim constructed of two pieces of metal, with an inner protuberant surface toward the hub and a protuberant elevation between the side flanges of the rubber tire-bed.

12. A fastener for securing rubber tire to felly-rims, having an elevation between the flanges of the rubber bed, the fastener being secured in the hollow felly-rim and having projections to hold the rubber tire in place, substantially as set forth.

13. The projection c''' on the sides of the central elevation of a hollow felly-rim, projecting outward into the rubber tire to hold it in place.

14. A bicycle with a tubular hub, with a tubular axle, and with more than one shaft through the tubular axle, connected with propelling-drums and retracing-drums and with levers, so that the depression of a lever on one side of a driving-wheel raises the lever on the other side of the driving-wheel without the use of a cog-wheel.

15. The saddle-frame p, p'', and p'''', with automatic side and upward adjustment, substantially as and for the purpose set forth.

16. The frame J, with fork F secured to the axle on each side of the drive-wheel, for the fulera-support of the levers.

349,801. **VELOCIPEDE.** HOMER A. KING, Springfield, Mass. Filed June 8, 1886. (No model.)

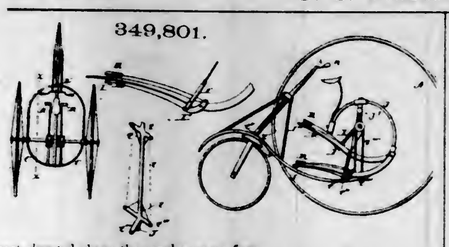
Claim.—1. In a tricycle propelled by levers with flexible connection to propelling-drums, the treadle R, in combination with the eccentric I''' and connection with the eccentric I', and the link I, substantially as set forth, to change the point of connection with the lever to increase the speed or power.

2. The centrally-located collar o, moved longitudinally on the central axle by means, substantially as set forth, by which the steering-wheel operates the collar o automatically, releasing the half-axle and its drive-wheel on the inner side of the circle in turning a curve.

3. The combination of the frame J with the tube J', springs N, and axle K, substantially as and for the purpose set forth.

4. A hollow felly-rim constructed, substantially as set forth, from one piece of metal bent to form a protuberant surface toward the hub, and bent inward at v' and v'', bringing the two surfaces together in a perpendicular or nearly perpendicular position when in the wheel, and united by brazing or riveting, and forming the rubber tire bed with a

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part elevated above the usual concave form.

5. A hollow felly constructed of one piece of metal with the edges united on the outside of the rim, between the outer sides of the side flanges, and in line or parallel or nearly parallel with a line running through the felly-rim and center of the hub of a wheel.

6. The bicycle-frame section G, G', G'', G''', and G''''

7. In a bicycle steered by the smaller wheel in the rear of the driving-wheel, the combination of a bent, curved, or partly-curved steering-shaft held at or toward each end in a frame in bearings, and a handle-bar with arms bent backward to bring the handles parallel or nearly parallel to each other, and parallel or nearly parallel to a line running through the bearings of the steering-shaft, so that the depression of the handle on the right will turn the bicycle to the right, or the depression of the left handle-bar will steer the bicycle to the left.

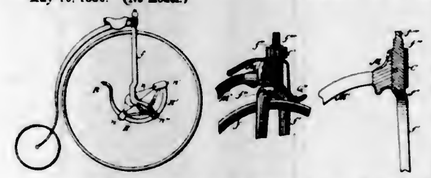
8. A bicycle steered by the smaller wheel in the rear of the driving-wheel, and having roller-bearings between the steering-connection and the bearings in the frame.

9. The combination of the hub y with the drums B and B', the tube U''', roller-bearings S'', frame G''', and nuts U'''', substantially as and for the purpose set forth.

10. The combination of the hub y, ratchet O', dogs O'', connection O''', spring O'''', and drums B and B', substantially as and for the purpose set forth.

11. The combination of the hub y, drums B and B', connections C, C', C'', and C''', with the screw U, shafts U' and U'', and connection to levers E, substantially as and for the purpose set forth.

349,802. **VELOCIPEDE.** HOMER A. KING, Springfield, Mass. Filed May 10, 1886. (No model.)



Claim.—1. The combination of the backbone M', neck M, collar C, steering-head c, and inclined spool-bearings between the collar C and the steering-head c, substantially as shown.

2. The rearwardly-inclined handle-bar, in combination with the brake G, made of one piece of metal and secured by a collar near the center to the handle-bar, substantially as shown.

3. A hollow felly-rim constructed of one piece of metal, with an outer central elevation in the rubber-tire bed, and bent inward at v' and v'' and lapped, forming a protuberance toward the hub, substantially as set forth.

4. A hollow felly-rim constructed of one piece of metal, with a central elevation in the rubber-tire bed, and with projections on each side of the central elevation, substantially as and for the purpose set forth.

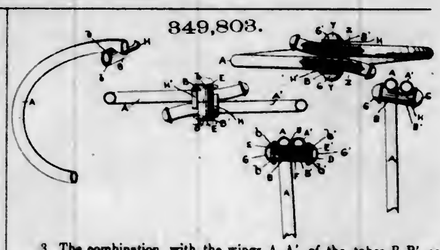
5. Inclined adjustable rollers running in a circle between an inclined surface on the outside of the circle and an inclined surface on the inside of the circle, and with the rollers held apart at each end by a collar, substantially as set forth in Fig. 11.

349,803. **BRACELET.** LOUIS LENAU, North Attleborough, assignor to E. Whitney & Co., Attleborough Falls, Mass. Filed June 5, 1886. (No model.)

Claim.—1. The combination, with the wings A A', provided with the tubes B B', attached thereto and having slots b b', of the spring D, having eyes d d' at its ends, the pins E E', passing through said eyes and slots and holding the spring in place, the pin F, located within said spring, and the caps G G', attached to said tubes, substantially as set forth.

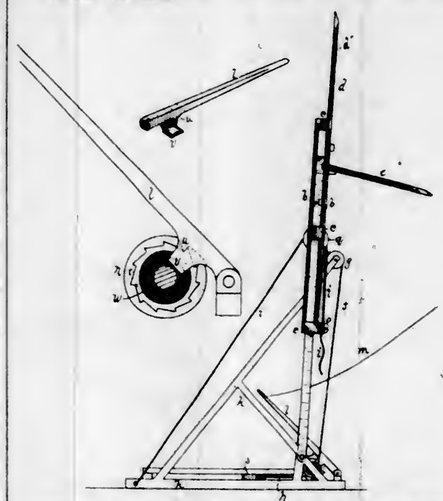
2. The combination, with the wings A A', provided with the tubes B B', attached thereto and having slots b b', of the spring D, having eyes d d' at its ends, the pins E E', passing through said eyes and slots and holding the spring in place, the pin F, located within said spring, and the caps G G' and stops H H', attached to said tubes, substantially as set forth.

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3. The combination, with the wings A A', of the tubes B B', secured to the under side thereof, respectively, and having slots b b', the spring D, having eyes d d' at its ends, the pins E E', passing through said eyes and slots and holding the spring in place, and the caps G G', substantially as set forth.

349,804. **HAY-STACKER.** JAMES LOCHER, Decatur, Ill. Filed Jan. 23, 1886. (No model.)



Claim.—1. In hay-stackers, the combination of a longitudinally-extensible frame comprising a section pivoted at one end and a section movable thereon and provided with a hay-receptacle, means of elevating the free end of the frame, and a rope anchored under the free end of the frame, passed over said frame near its outer end, and secured to the movable section near the pivot of the frame, substantially as set forth, whereby the elevation of the frame will cause an extension thereof, as specified.

2. The combination, in hay-stackers, of two parallel arms pivoted each at one end, a fork-carrying frame longitudinally movable thereon, suitable means of elevating the outer ends of the arms, and a rope anchored under the free ends of the arms, passed over the arms near their outer extremities, and secured to the movable frame near the pivot of the arms, as and for the purpose set forth.

3. The combination of supporting-frame k, carrying pulleys g, arms a, pivoted in the supporting-frame and carrying pulleys near their outer ends, frame b, longitudinally movable on the arms, ropes f, extending from the arms over the pulleys in the supporting-frame, and rope i, connected with the lower front part of the supporting-frame, passed over the pulleys in the outer portion of the arms, and connected with the inner end of the movable frame, as and for the purpose set forth.

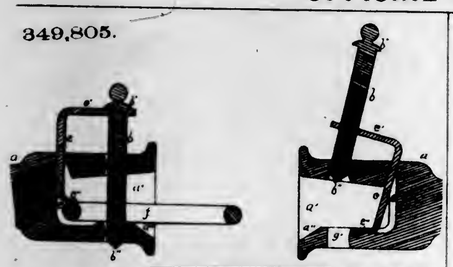
4. The combination of supporting-frame k, pulleys g, drum n, axle r, arms a, fork-carrying-frames b, ropes f, rope h, and rope i, as and for the purpose set forth.

5. The combination of drum n, ratchet t, having recess w, and lever l, having pawl-catch u and friction-clamp v, as and for the purpose set forth.

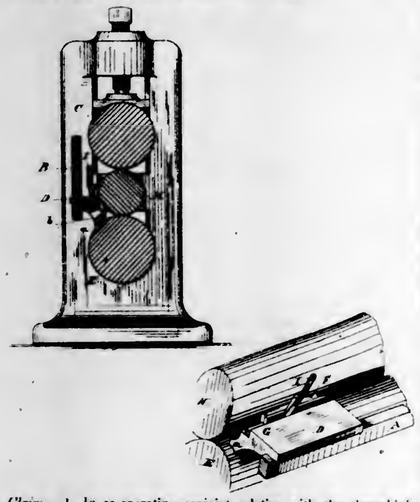
349,805. **CAR-COUPLING.** JAMES LOCHER, Decatur, Ill. Filed July 31, 1886. (No model.)

Claim.—In car-couplers, the combination of draw-bar a, having recess a', vertical aperture g g', slot d, and groove e, trip-lever c c' c'' c''', pin b, and link f, all constructed and arranged to operate as and for the purpose set forth.

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349,806. APPARATUS FOR TURNING ROLLS. JOHN MCINTOSH, Cleveland, Ohio. Filed June 28, 1886. (No model.)



Claim.—1. In co-operative conjoint relation with the three-high rolls, the cutter F, arranged adjustably in the movable rest D, supported by the bar A, located in front of the rolls and between the housing, in combination with the wedge I and backing-plates G, substantially as and for the purpose set forth.

2. In co-operative combination with three-high rolls, the bar A, sustained in parallel and horizontal position between the housing, the movable tool-rest D, adjusted to and supported on its outer side by said bar, and its inner under side by the lower roll in the shoulder c, arranged in relation to the cutter F, adjusted by the wedge I and backing-plates G, substantially as and for the purpose set forth.

349,807. STEAM PLOWING, PULVERIZING, AND CULTIVATING MACHINE. JOHN Q. A. NEWSOM, Seymour, Ind. Filed Mar. 30, 1885. (No model.)

Claim.—1. In a rotary plow, the combination, with the main frame, of a main shaft journaled therein obliquely to the line of draft and a series of continuous spiral cutters or blades secured to said shaft, substantially as described.

2. In a rotary plow, the combination, with the main frame, of a main shaft journaled in said frame obliquely to the line of draft, a series of spiral cutters or blades secured to said shaft, and means for changing the angle of the shaft relatively to the line of draft, substantially as described.

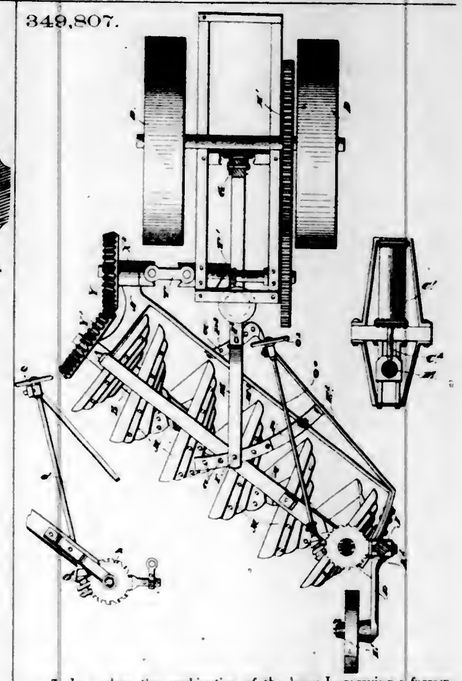
3. In a rotary plow, the combination of the bolster A, flanged boxes X X, the bars E^3 E^3, the segments P P^3, the draft-bar E, and the main shaft S, substantially as described.

4. The combination, with the main frame, of the casting N, having boxes X X^4, the shafts S H^4, the gear-wheels Y Y', and the universally-jointed coupling T, substantially as and for the purposes set forth.

5. In a plow, a lever, as L, having a universal connection with the plow-frame, so as to have a vertical movement and a horizontal movement relatively to the line of draft and carrying a trailing furrow-wheel, substantially as described.

6. In a plow, a pivoted lever carrying a trailing furrow-wheel, in combination with a pair of disks, to which such lever is connected, and means for turning such disks in order to give a horizontal and vertical movement to the lever and furrow-wheel, substantially as described.

349,807.

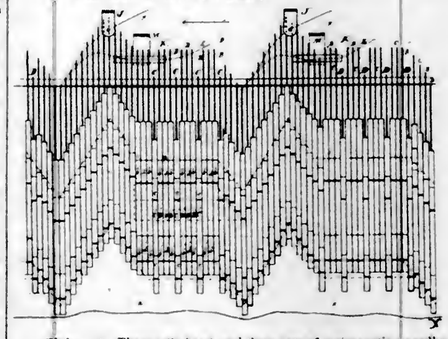


7. In a plow, the combination of the lever L, carrying a furrow-wheel, the rotary disk K^3, upon which said lever is pivoted, the rotary disk K, a universal joint between the said disk and the lever L, and shafts and hand-wheels for operating the said disks, substantially as described.

8. The combination of the lever L, carrying the furrow-wheel W, the disk K, having the clevis U^3, the ball-and-socket connection U, and the shaft O', and hand-wheel O, substantially as described.

9. In a steam-plow having a single plow-beam from which the plow-shaft and plows are supported, the combination of such plow-beam with a single steam-cylinder adapted to apply pressure directly to the plow-beam, and thus depress the said beam and the entire series of plows supported thereby, substantially as described.

349,808. KNITTING-MACHINE. JOHN H. OSBORNE, Philadelphia, Pa. Filed June 15, 1883. (No model.)



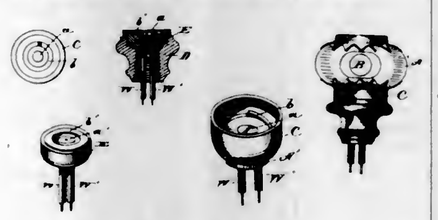
Claim.—1. The needle-head and three sets of reciprocating needles carried thereby, two sets of which are adapted to take in the weft-thread, in combination with two or more yarn-guides to feed yarn to the front of the needles, two or more feeding devices to feed yarn to the rear of some and in front of other of the needles, said feeding devices being arranged between two yarn-guides, and vice versa, cam mechanism to raise all of the needles but those of one weft-set as they pass before the feeding devices at one place, cam mechanism to raise all of the needles and then draw them down through the fabric in succession, cam mechanism to then raise all of the needles but the other weft-set as they pass before the next of said feeding devices, and, finally, cam mechanism to raise all of the needles and then draw them down through the fabric in succession, substantially as and for the purpose specified.

2. The combination of a needle-head and three sets of needles, B, C, and D, arranged therein in a circle and in the order specified, two feed-wheels for laying in the weft or pile threads, and two yarn-guides adapted to feed the yarn from which the body of the fabric is knitted, the said guides and wheels being arranged alternately, with cam mechanism to raise the B and C sets first in passing the first of said feed-wheels, and the B and D sets first in passing the second of said feed-wheels, substantially as and for the purpose specified.

3. The combination of needle-head A, three sets of needles, B, C, and D, having their jacks constructed substantially as set forth, cam-cylinder E, having cams F, G, H, and I, substantially as and for the purpose specified.

4. The combination of needle-head A, three sets of needles, B, C, and D, having their jacks constructed substantially as set forth, cam-cylinder E, having cams F, G, H, and I, the cams G and H, having, respectively, faces *g* and A, feed-wheels K, and yarn-guides J, substantially as and for the purpose specified.

349,809. COUPLING DEVICE FOR ELECTRICAL CONDUCTORS. CHARLES G. PERKINS, New York, N. Y., assignor to the Imperial Electric Light Company, same place. Filed Nov. 25, 1884. (No model.)



Claim.—1. In a coupling device for electrical conductors the members of which are provided with corresponding screw-threads for attachment each to the other, the central pin-terminals and the ring-terminals, substantially as described, whereby when the members are screwed together certain contact will be made between the corresponding terminals.

2. In a coupling device for electrical conductors the members of which are provided with corresponding screw-threads for attachment each to the other, the central pin-terminals, the countersunk ring-terminals, and the raised ring-terminals, whereby, when the members are screwed together, certain contact will be made between the corresponding terminals, and whereby spring contact will be made and preserved between the corresponding ring-terminals.

3. The combination, with screw-threaded coupling members carrying circuit-terminals, of means for operating the screws to make contact between the terminals without twisting the wires connected therewith, substantially as described.

4. The combination, with insulating-blocks carrying circuit-terminals, of screw-threaded rings for connecting the insulating-blocks, one or both of the said rings partially inclosing the said blocks and being free to move with relation thereto, whereby the terminals may be brought into firm contact by screw-pressure without twisting the wires connected with the said terminals.

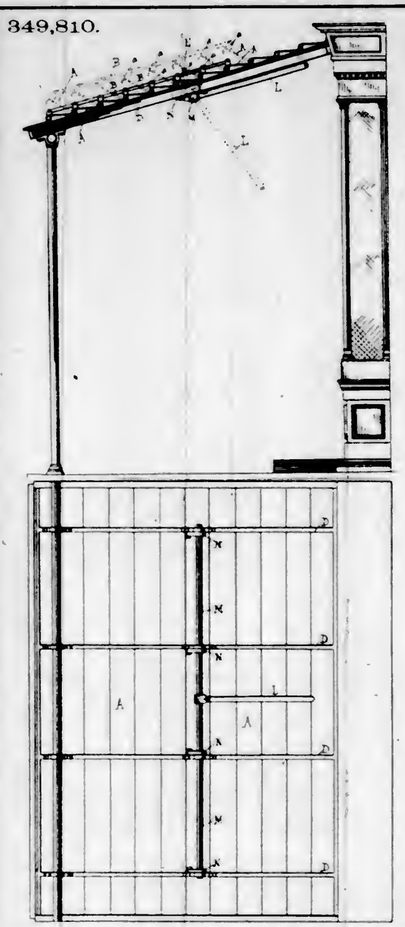
5. The combination, with two insulating-blocks carrying the circuit-terminals of an incandescent lamp, of couplers for joining the two insulating-blocks and means connected with one of the couplers for joining it to an arm of an electric-lamp fixture.

349,810. METALLIC AWNING. E. OTTO POHL, Philadelphia, Pa. Filed July 12, 1886. (No model.)

Claim.—1. In combination with an awning composed of pivoted overlapping slats connected together by one or more transverse guiding and connecting bars, mechanism for adjusting the slats at any desired angle, consisting of a rock-shaft having bearings in the frame of the awning and connected by one or more toggle-joints with one of said overlapping slats, substantially as described.

2. The combination, forming an adjustable slatted awning, consisting of a series of overlapping movable slats, A A, hinged or pivoted on one side of their length to a frame having two or more cross-pieces, D D, and on the other side to one or more guiding and connecting bars, B, and adjusting mechanism consisting of the rock-shaft M, having its bearings in said cross-pieces D D, hand-lever L to operate said shaft, and toggle-joint E F, connecting one of said slats with said shaft, the said parts being constructed, combined, and operating substantially as and for the purpose set forth.

349,810.



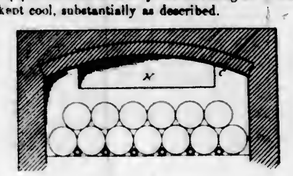
349,811. MEANS FOR UTILIZING NATURAL GAS AS A FUEL. LEMAN P. RIDER, Pittsburg, Pa. Filed June 29, 1885. (No model.)

Claim.—1. In a furnace for burning gas, a series of incombustible balls arranged in layers, in combination with a series of perforated gas-distributing pipes arranged between and under the balls of said layers, substantially as described.

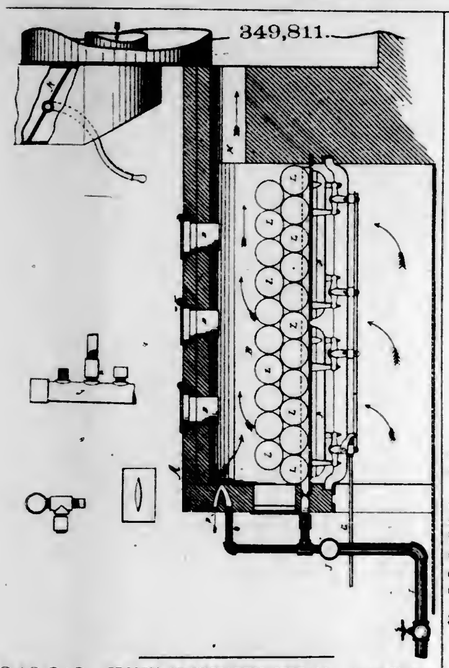
2. In a furnace for burning gas, a series of incombustible balls arranged in layers, in combination with a series of perforated gas-distributing pipes arranged between and under the balls of said layers, the balls and pipes being separately removable from the furnace, substantially as described.

3. A furnace provided with layers of removable incombustible balls and removable gas-distributing pipes arranged in the bottom of the furnace, in combination with a gas-and-air supply arranged to discharge into the space above said balls under the crown of the furnace, substantially as described.

4. A furnace having a suitable grate, in combination with layers of incombustible balls and perforated gas-distributing pipes arranged between the rows of the lower layer of balls and supported by the grate, whereby said pipes are surrounded by the incoming air to support combustion and kept cool, substantially as described.



349,811.



349,812. PROCESS OF PREPARING CEREALS. JAMES W. ROBERTSON, Detroit, Mich. Filed Dec. 12, 1885. (Specimens.)

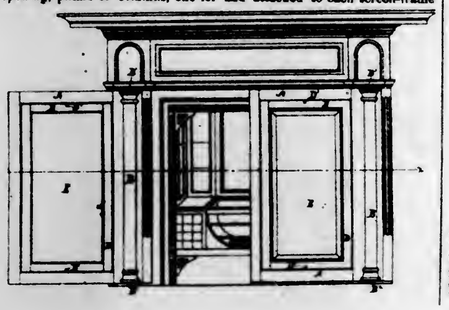
Claim.—The process herein specified of making evaporated, tender, curled granules from corn for the procuring of a nutritive product, which process consists as follows, viz: crushing the corn in a dry state and separating the hulls therefrom; second, soaking in cold water the hulless portions to soften and prepare for curling; third, passing the soaked particles while damp through a suitable mill, curling the same; fourth, evaporating the moisture from the curled product, leaving white, unsteamed, tender, curled granules.

349,813. FIRE-PLACE FRONT. JOSEPH H. SAHR, West Kensington, County of Middlesex, England. Filed July 1, 1885. (No model.) Patented in England Sept. 19, 1884, No. 12,619.

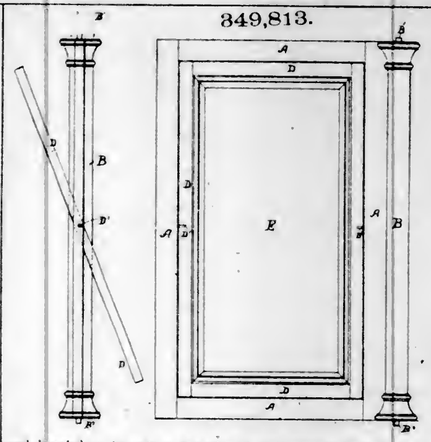
Claim.—1. The combination, with a mantel or chimney piece, of doors or screens pivotally secured or hinged thereto extending from top to bottom of the fire-place opening and adapted to be swung in any desired radial position intermediate between complete closure and complete opening of the fire-place, substantially as and for the purposes hereinbefore set forth.

2. The combination of a mantel or chimney piece, main screen-frames pivotally secured or hinged thereto and extending from top to bottom of, so as to cover at will, the entire fire-place opening, and supplemental frames pivotally mounted in said main screen-frames, substantially as set forth.

3. The combination of a mantel or chimney piece, screen-frames extending from top to bottom, so as to inclose at will the entire fire-place opening, pillars or columns, one for and attached to each screen-frame



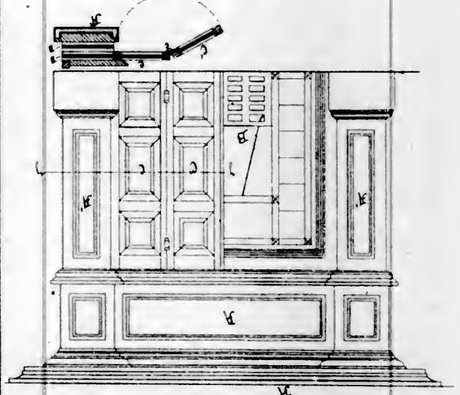
349,813.



and doweled at its ends to form the pivotal connection of the screen-frames to the mantel or chimney piece, substantially as set forth.

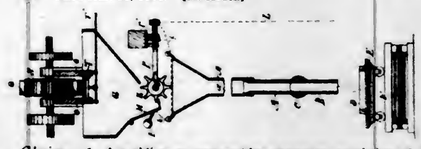
4. The combination of a mantel or chimney piece, main screen-frames provided with supplemental frames, substantially as described, and extending from top to bottom of the fire-place opening to completely inclose the same, when desired, pillars or columns, one for and attached to each main screen-frame and doweled at its ends to form the pivotal connection of the main screen-frames to the mantel or chimney piece, substantially as set forth.

349,814. FIRE-PLACE FRONT. JOSEPH H. SAHR, West Kensington, County of Middlesex, England. Filed Apr. 16, 1886. (No model.) Patented in England Sept. 19, 1884, No. 12,619.



Claim.—The combination, in a mantel or chimney piece having ways, of sliding screens formed in two or more parts hinged together and adapted to fold over one upon the other and then slide laterally in said ways to expose or inclose the fire, substantially as and for the purposes set forth.

349,815. MOLDING-MACHINE. RICHARD SAVAGE, San Francisco, Cal. Filed Mar. 31, 1885. (No model.)



Claim.—1. A molding or core-making apparatus consisting of a hopper and a discharge-chute inclosed on all sides, the said chute extending downward from the hopper-bottom in an approximately-vertical direction, whereby the sand is discharged into the molds or upon the core by gravitation, substantially as described.

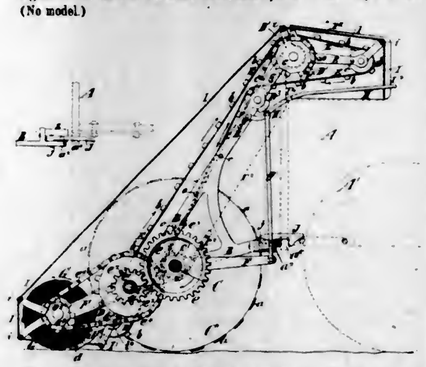
2. A molding apparatus consisting of one or more vertical and jointed chutes through which sand is delivered from a hopper or receiver above for making molds, in combination with a horizontal trough situated above the receiver, having a perforated bottom and controlling-gates, and a horizontally-moving belt, with lugs or projections moving along said trough, substantially as herein described.

3. A molding apparatus consisting of a jointed chute, with a sand-feed mechanism and sand-receiver, in combination with two or more chutes, and a horizontal supply-trough with a perforated bottom and gates, whereby two or more independent sections may be opened and closed, substantially as herein described.

4. A molding apparatus consisting of two or more independent chutes, and a supply hopper or receptacle at the top, in combination with feed-rollers mounted loosely upon a driving-shaft, and clutch mechanisms by which the rollers may be engaged or disengaged, substantially as herein described.

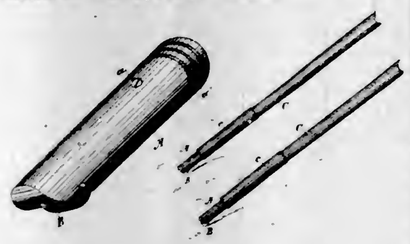
5. A molding apparatus consisting of two or more independent chutes, and a supply hopper or receptacle at the top, in combination with feed-rollers and a hinged swinging gate, and a mechanism whereby the gate may be opened and the rollers set in motion simultaneously, substantially as herein described.

349,816. APPARATUS FOR SWEEPING STREETS AND REMOVING DIRT THEREFROM. CHARLES F. W. SEIDEL, New York, N. Y., assignor of one-third to Christian Beck, same place. Filed May 28, 1885. (No model.)



Claim.—The combination, with the side frames, B, and an axle and wheels for supporting them, of the endless carrier and its supporting and operating drums journaled in said frames, a rotary brush for delivering dirt upon the carrier, rods *i*, connecting the side frames, and an apron or shield, I, covering the apparatus between the side frames, supported by the rods *i*, and having at one end a spring-connection whereby it is drawn and held taut over the said rods, substantially as herein described.

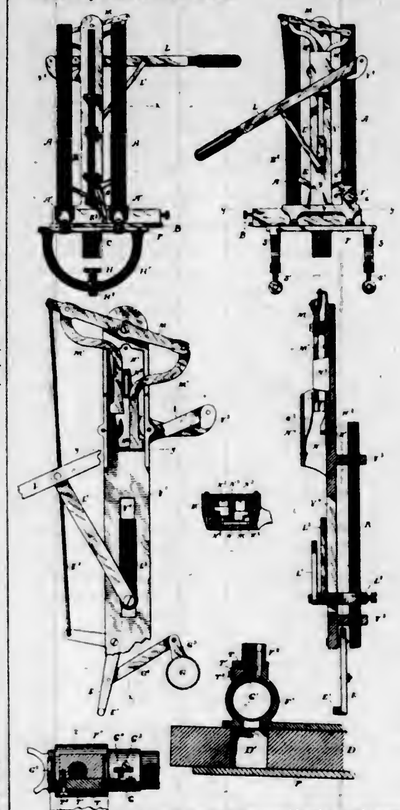
349,817. ANTI-FRICTION THILL-TIP. ROBERT W. SIMPSON, San Francisco, Cal. Filed July 26, 1886. (No model.)



Claim.—1. The combination, with the shafts or thills of a vehicle, having the leather sheaths *c*, of the tubular tips or ferrules A, fitted to the ends of the shafts and sheaths, and having the anti-friction rollers B, upon which the shafts rest when lowered, substantially as herein described.

2. In combination with the shafts or thills C of a vehicle and the leather sheaths *c*, the tubular tips or ferrules A, having the anti-friction rollers B, upon which the shafts rest when lowered, and the circumferential grooves *a'*, for the attachment of the leather sheaths, substantially as described.

349,818. CARTRIDGE-LOADER. HENRY H. SLOAN, Chillicothe, Ill. Filed Sept. 28, 1885. (No model.)



Claim.—1. In a cartridge-loader, the combination of the rammer, the ammunition-slide, the actuating-lever having the connecting-rod joining it to said rammer, the finger projecting from said rammer, the rocking lever, the pawls depending from said rocking lever and adapted to be actuated by said finger, substantially as described, the bell crank lever engaging with said ammunition-slide, and a link connecting said bell-crank lever and rocking lever, substantially as set forth.

2. In a cartridge-loader, the combination, with the post, the rammer, and the finger projecting from said rammer parallel thereto, of the rocking lever centrally pivoted to said post, the pawls M', depending from said rocking lever and having their lower ends shaped as described, the chamber N on said post, the plate N', pivoted at its upper end in said chamber and having the lugs N^3, and the springs for pressing said pawls against said plate, substantially as and for the purpose specified.

3. The combination, with the foundation-plate, the post projecting therefrom, and the rocking lever pivoted to the upper end of said post, of the ammunition-slide movable upon said plate and having the groove in a side thereof, the bell-crank lever pivoted to said post and having the lug entering said groove, and a link joining said bell-crank lever and rocking lever, substantially as and for the purpose specified.

4. In a cartridge-loader, the combination of the ammunition-slide having the groove in the side thereof, the wad-slide having the lug projecting from its edge into said groove, the bell-crank lever having the lug entering said groove, the rocking lever, and a link joining said bell-crank lever and rocking lever, substantially as described.

5. In a cartridge-loader, the combination, with the ammunition-slide and the bell-crank lever actuating said slide, of the oscillating cylinder having peripheral openings and an arm joined to said bell-crank lever, the plug removable in an end of said cylinder, and the set-screw for adjusting the same therein, as set forth.

6. In a cartridge-loader, the combination, with the peripherally-apertured oscillating cylinder, of the case enveloping said cylinder and having the passage leading from the shot-reservoir, and the passage leading to the ammunition-slide, and the lateral opening to the former

of said passages, the rubber cut-off inserted into said lateral opening, and the spring and its screw for pressing said cut-off to its place, as set forth.

7. In a cartridge-loader, the combination, with the foundation-plate and the post projecting therefrom, of the rammer vertically movable in ways connected with said post, the finger L^3, affixed to said rammer, the rocking lever M, centrally pivoted to the upper end of said post, the pawls M', depending from said rocking lever and having their lower ends movable in the chamber N, formed on said post and shaped as described, the plate N', pivoted at its upper end in said chamber and having the lugs N^2 at its lower end, and the springs for pressing said pawls against said plate, substantially as and for the purpose set forth.

349,819. DRAG-SAW. WILLIAM W. SMITH, Chicago, Ill., assignor of one-half to George R. Thamer, same place. Filed Mar. 29, 1886. (No model.)

Claim.—1. The combination, with a drive-shaft provided with a crank and crank-pin, of an oscillating carrier-frame mounted to rotate about the axis of the shaft, and a reciprocating saw-carrying bar sliding in guides in said frame, and provided with a slotted yoke engaging said crank-pin, substantially as described.

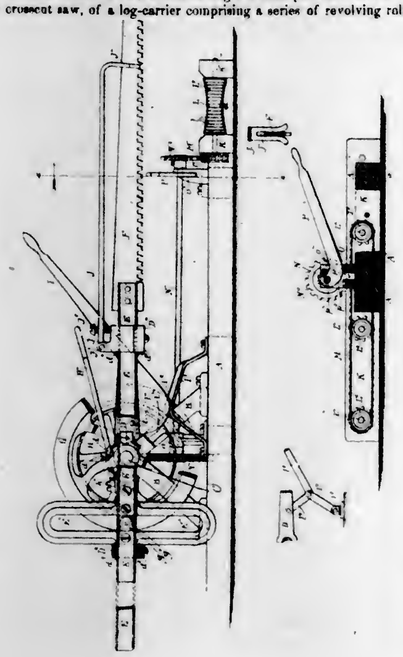
2. The combination, with a drive-shaft provided with a crank and a crank-pin, of a carrier-frame mounted to oscillate about the axis of the shaft, and a reciprocating saw-carrying bar sliding in guides in said frame, and provided with a slotted yoke engaging said crank-pin, a belt-pulley mounted upon the drive-shaft, and a clutch mechanism connecting the pulley with the shaft, substantially as described.

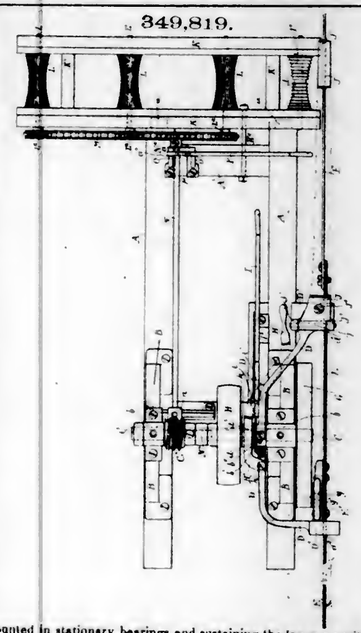
3. The combination, with a saw, a reciprocating saw-carrying bar, and a frame affording guides for said bar, of a saw-guide connected at one end with the said frame, and provided with a guide-notch for the saw, said guide being sustained without resting upon the saw, substantially as described.

4. The combination, with a saw, a reciprocating saw-carrying bar, and a frame affording guides for said bar, of a saw-guide connected at one end with the frame and extending toward the free end of the saw, and means for changing the vertical position of the outer end of said guide vertically with relation to the saw, and for holding said guide immovably in its changed position, substantially as described.

5. The combination, with a reciprocating saw-carrying bar and a frame affording guides for said bar, of a saw-guide pivotally connected with the frame, and a set-screw applied between the guide and frame to limit the downward movement of the outer end of the said guide and to adjust the position of the guide relatively to the saw, substantially as described.

6. The combination, with a sawing-machine provided with a drag or crosscut saw, of a log-carrier comprising a series of revolving rollers





349,819.

mounted in stationary bearings and sustaining the log in a position transverse to the saw, said rollers affording the sole support for the log, and driving devices for giving rotary motion to the rollers, comprising a rotating part having detachable connection with two or more of said rollers, whereby the log may be intermittingly advanced to the saw, substantially as described.

7. The combination, with a drive-shaft and the rollers of a log-carrier, of intermediate driving-connections for actuating the said rollers from the shaft, comprising a chain belt engaging sprocket-wheels upon the shafts of two or more of the rollers, and a shaft provided with a sprocket-wheel adapted for engagement with the belt, said shaft being movable relatively to the belt at its end adjacent to the said belt, whereby the sprocket-wheel of said shaft may be engaged with and disengaged from said belt at will, substantially as described.

8. The combination, with a drive-shaft and the rollers of a log-carrier, of intermediate driving-connections for actuating the said rollers from the shaft, comprising a chain belt engaging sprocket-wheels upon the shaft, a shaft provided with a sprocket-wheel adapted for engagement with the belt, and a hand-lever engaging the shaft, whereby the latter may be moved for bringing the sprocket-wheel into and out of engagement with the belt, substantially as described.

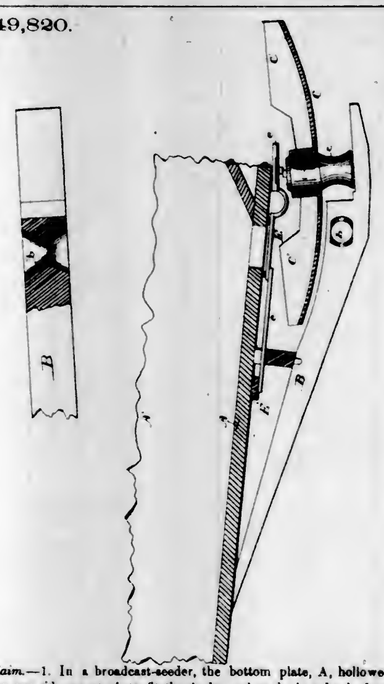
9. The combination, with a drive-shaft and the rollers of a log feeding or carrying device, of a worm upon the drive-shaft, a shaft extending from the drive-shaft to the said rollers, a worm-wheel upon said shaft engaging said worm, a sprocket-wheel upon the end of said shaft adjacent to the rollers, sprocket-wheels connected with two or more of the roller-shafts, a chain belt trained over said sprocket-wheels last mentioned, and a hand-lever connected with the end of said shaft adjacent to the rollers for raising and lowering the said end of the shaft, substantially as described.

10. The combination, with a horizontal chain belt connected with and actuating a log-carrier, of a horizontal shaft provided with a sprocket-wheel adapted to engage the chain belt, said shaft being vertically movable at its end adjacent to the belt, and a hand-lever connected with the said shaft, said hand-lever being made of sufficient weight at its outer end to sustain the shaft normally in its elevated position, substantially as described.

11. The combination, with an oscillating carrier-frame, a reciprocating saw-carrying bar mounted in said frame, and a saw attached to said bar, said frame being arranged to afford a preponderance of weight at its end adjacent to the saw, of a hand-lever pivoted to the frame and provided with a cam-surface engaging a suitable stationary part or surface, whereby the saw may be lifted and held in its elevated position, substantially as described.

349,820. BROADCAST SEED-SOWER. SAMUEL S. SPEICHER, Urbana, Ind. Filed May 14, 1884. (No model.)

349,820.



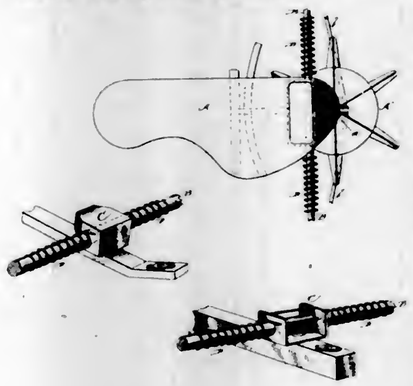
Claim.—1. In a broadcast-seeder, the bottom plate, A, hollowed out upon one side, as at a', to fit the body, and made broader in front than in rear of this hollow to better dispose of the bulk and weight of the seed, substantially as shown and described.

2. In a broadcast-seeder, the combination, with the main body of the device provided with a vibrating valve and a distributing-wheel, of an operating-bow and a guide, whereby the bow may be operated at any convenient angle with the main frame, substantially as and for the purpose set forth.

3. In a broadcast-seeder, the combination, with the reciprocating operating-bow, of a bow-guide having a hole formed flaring at both ends, whereby the bow-hand may be thrown to or from the body in the position found most comfortable by the operator, substantially as shown and described.

4. In a broadcast-seeder, the bottom A, hollowed at a' and having a seed-opening, a, and the brace B, having a double beveled hole, b, in combination with the distributing-wheel C, vibrating valve E, and the bow D, all constructed and arranged to operate substantially as and for the purpose set forth.

349,821. BROADCAST-SEEDING MACHINE. SAMUEL S. SPEICHER, Urbana, Ind. Filed Aug. 22, 1885. (No model.)



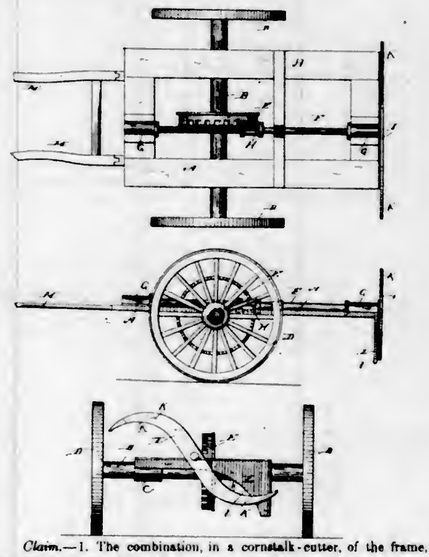
Claim.—1. In a hand broadcast-seeder, a bow-guide pivoted upon the main frame, substantially as and for the purpose set forth.

2. In a hand broadcast-seeder, a main frame provided with a distributing-disk and a bow-guide pivoted upon the main frame in proper relation thereto, in combination with an operating-bow passed through the swiveled guide and provided with a cord connected with the disk, substantially as and for the purpose set forth.

3. The bow-guide C, swiveled on the main frame and formed of metal, having epturned ends perforated for the passage of the bow, substantially as shown and described.

4. The combination, with the swiveled bow-guide C, of the springs D, secured thereto on each side, substantially as and for the purpose set forth.

349,822. CORNSTALK-CUTTER. WILLIAM R. STAFFORD, Scandia, Kans. Filed May 20, 1886. (No model.)



Claim.—1. The combination, in a cornstalk-cutter, of the frame, the stationary cutter L, and the rotating cutter I, having the curved arms adapted to sweep across the face of the cutter L, the said cutters being arranged transversely on the frame, substantially as described.

2. The combination of the frame A, having the longitudinal shaft F, carrying the rotating cutter I, the vertical cutter L, depending from the frame, the said cutters being arranged transversely on the frame, and mechanism for rotating the shaft F as the machine advances, substantially as described.

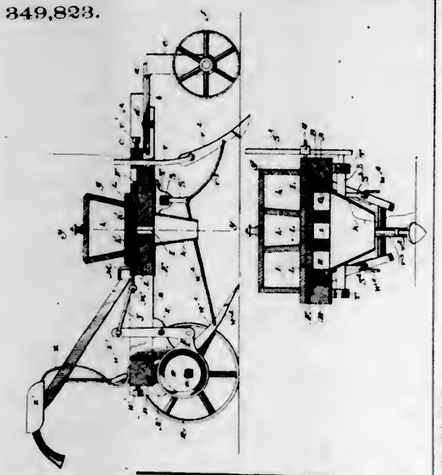
3. The combination of the frame A, having the vertical transverse cutter L, with the shaft B, journaled transversely to the frame A, and carrying the driving and supporting wheels and the gear-wheel E, and the longitudinal shaft F, journaled to the frame A and having the pinion H, meshing with the wheel E, and the cutter I, having the curved arms adapted to sweep across the face of the cutter L, for the purpose set forth, substantially as described.

349,823. PLANTER. WILLIAM S. STROTHER, Philippi, W. Va., assignor of one-half to Robert J. Durham, same place. Filed June 25, 1886. (No model.)

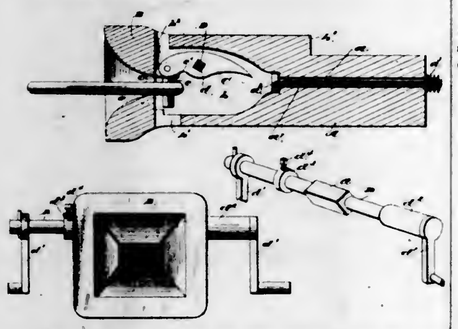
Claim.—1. The combination, in a planter, of the vertically-adjustable rods or standards, the furrow-opener and covering plows or shovels pivoted thereto, the set-screws bearing against the rods or standards to secure them at any desired adjustment, and the rock-shaft having the hand-lever and connected to the pivoted furrow-opener and covering-plows, for the purpose set forth, substantially as described.

2. The combination, in a fertilizer-distributer and seed-planter, of the frame A, the furrow-opener and covering-plows pivoted under the said frame, the rock-shaft S, having the depending arms S' and S^2 and the hand-lever S^3, the said rock-shaft being located between the furrow-opener and the covering-plows, and the rod connecting the arm S' with the pivoted furrow-opener, and the rods connecting the arms S^2 with the pivoted covering-plows, whereby the said furrow-opener and covering-plows will be raised or lowered simultaneously by moving the hand-lever S^3, substantially as described.

349,823.



349,824. CAR-COUPLING. BENJAMIN W. SWEET, Rodney, Mich. Filed Aug. 21, 1886. (No model.)

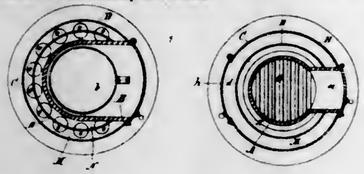


Claim.—1. In a car-coupler, the combination of a draw-head having a recess therein, a cam having a dependent pivoted arm, a rod having a square bearing passing through the draw-head and cam, and a rigid shoulder and handle on one side of the said rod and a movable collar and handle on the other side, whereby the said rod may be withdrawn from the draw-head, substantially as described.

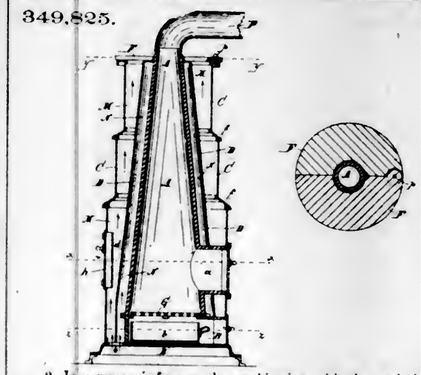
2. In a car-coupler, the combination of a draw-head having an internal recess with a T-shaped opening in the lower portion thereof, a cam having a dependent arm provided with side projections adapted to be inserted through the T-shaped slot and mounted in the recess, and a rod passing through the draw-head and cam having projecting ends provided with suitable retaining-collars and operating-handles, substantially as described.

349,825. WARM-AIR FURNACE. WILLIAM H. TURNER, Indianapolis, Ind. Filed July 11, 1885. (No model.)

Claim.—1. In a warm-air furnace, the combination, with the conical fire-pot, of the ash-pit supporting the latter, the bottom of said ash-pit being extended and formed with openings *o*, the inner conical mantle, D, inclosing the fire-pot and resting at its lower end upon the bottom of the ash-pit, over the openings *o*, and the external casing inclosing the mantle D, substantially as set forth.



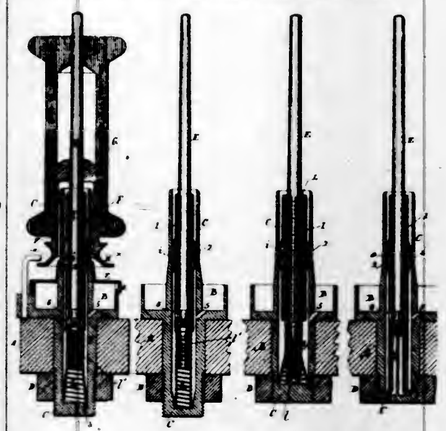
349,825.



2. In a warm-air furnace, the combination, with the conical fire-pot, of the ash-pit supporting the latter, the bottom of said ash-pit being extended and formed with openings *o*, the conical mantle D, resting on the bottom of the ash-pit at its lower end, over the openings *o*, and having the opening *d*, the outer casing, C, having an opening, and the door *h*, for closing said opening, substantially as set forth.

349,826. SPINDLE-BEARING FOR SPINNING-MACHINES. JOSEPH E. TYSAN, Paterson, N. J. Filed Jan. 2, 1885. (No model.)

Brief.—The bolster is provided with an external rounding bearing within the case and notched for the passage of oil. A tubular bolster-spring connected to the lower end of the bolster rests upon the lower end of the case and provides a yielding bearing for the bolster.



Claim.—1. A bolster-case having an oil-cup around it, and the spindle-rail to which the case is secured, in combination with a bolster with an external rounding bearing, *i*, within the case, a spindle, a tubular sleeve and pulley upon the spindle and surrounding the case, the pulley being near the bearing, and a tubular bolster-spring connected with the lower end of the bolster within the case, substantially as set forth.

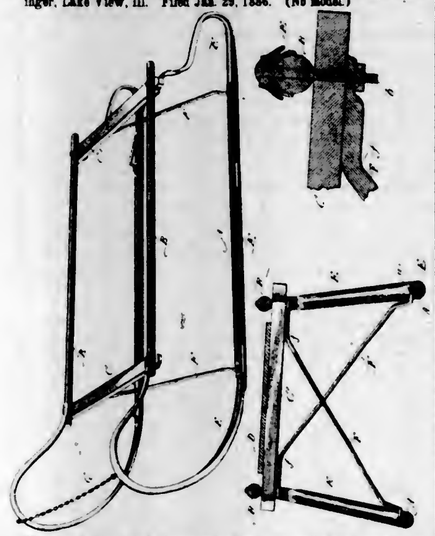
2. The combination, with the bolster, bolster-case, and spindle, of a tubular sleeve attached to the spindle and having a tapering exterior surface to receive the bobbin, and a pulley at the lower end of the sleeve, there being a rigid rounding bearing upon the bolster near the pulley, but within the bolster-case, and a tubular bolster-spring connected with the lower end of the bolster, substantially as set forth.

3. The combination, with the bolster-case and spindle, of a bolster having an exterior rigid bearing near the middle part of the bolster and fitting the interior of the case and notched for the passage of oil that may flow over the top of the bolster, and a tubular bolster-spring extending below the lower end of the bolster, substantially as set forth.

4. The combination, with the tubular bolster-case, of a bolster having an external rounding bearing within the case, a sleeve and pulley, and a helical spring passing through the bolster and extending below the same to form both a removable lining to the bolster and a spring-support for such bolster, substantially as set forth.

5. In combination with the spindle and bolster, a tubular bolster-case, the interior of which is bored of uniform diameter throughout its length, or nearly so, and a helical spring connected at its upper end to the bolster, and the lower end of such spring being enlarged to fit the interior of the bolster-case at the bottom thereof, substantially as specified.

349,827. SLED. OTTO UNBEHEN, Chicago, assignor to Adolph Shoeninger, Lake View, Ill. Filed Jan. 29, 1886. (No model.)



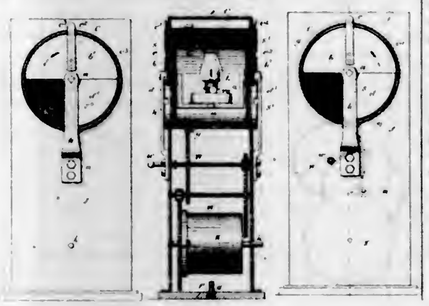
Claim.—1. In a sled, the combination, with cylindrical runners, of semicircular bars forming shoes for these runners, and having curved extensions that connect with the raves and cross-bars of the seat portion of the sled, substantially as set forth.

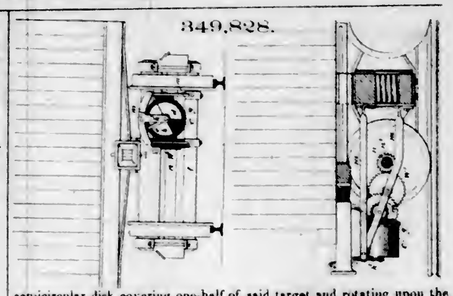
2. In a sled, the combination of cylindrical runners, of semicircular bars forming shoes for these runners and having curved extensions that connect with the raves and cross-bars, and of iron cross-rods connecting the runners with the cross-bars and acting as supports and braces thereto, substantially as set forth.

349,828. AUTOMATIC SIGNAL-LANTERN FOR USE ON RAILWAYS AND STEAM AND SAILING VESSELS. FRANK WATSON, Scarsdale, N. Y. Filed Jan. 18, 1884. (No model.)

Claim.—1. In an automatic signal-lantern, the combination, substantially as hereinbefore set forth, with the light of a stationary target composed of plates of different-colored glass, of an opaque disk covering one-half of said target rotating upon a central axis in front of said target while the body upon which the lamp is displayed is moving, and means, substantially as described, for releasing the disk from the axis and rotating it independently of the motive force thereon.

2. In an automatic signal-lantern, the combination, substantially as hereinbefore set forth, with the light of a stationary circular target composed of plates of different-colored glass placed in front of said light, of a cylinder surrounding said light and target rotating upon a central axis, means for rotating said cylinder, substantially as described, an opaque





semicircular disk covering one-half of said target and rotating upon the same axis as said cylinder, and means for causing said disk to rotate with or independent of the cylinder.

3. In an automatic signal-lantern, the combination, substantially as hereinbefore set forth, of a rotating hollow cylinder surrounding the light and the signal-target, a central axis upon which said cylinder rotates, a semicircular opaque disk covering one-half of said target rotating upon said axis within said cylinder, a series of notches in the front face of said cylinder, and a flat spring or arm on said disk, arranged to engage with said notches, for the purposes set forth.

4. In an automatic signal-lantern, the combination, substantially as hereinbefore set forth, with the light, of a stationary circular target composed of plates of different-colored glass placed in front of the light, a cylinder surrounding said target and light rotating upon a central axis, a semicircular disk rotating in front of said target and upon the same axis as said cylinder, a series of notches upon the front face of said cylinder, a flat spring or arm upon the face of said disk, arranged to engage with said notches and cause the same to rotate with said cylinder, a series of cogs upon the periphery of said cylinder, a train of clock-work engaging therewith for communicating a rotating motion to said cylinder, and means for disengaging the same, substantially as described.

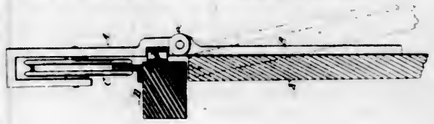
5. In an automatic signal-lantern, the combination, substantially as hereinbefore set forth, with the lamp, of two stationary circular targets composed of plates of different-colored glass placed on either side of the light, a cylinder surrounding said targets and light rotating upon a central axis, a semicircular disk rotating in front of each of said targets upon the same axis as the cylinder, a series of notches upon each end of said cylinder, a flat spring or arm upon the face of each, said disks arranged to engage with said notches and cause the disks to rotate with the cylinder, a series of cogs upon the periphery of said cylinder, a train of clock-work engaging therewith for communicating a rotary motion to said cylinder, and means for disengaging the clock-work therefrom, substantially as described.

6. In an automatic signal-lantern, the combination, substantially as hereinbefore set forth, with the light, of a stationary circular target composed of plates of different-colored glass placed in front of the light, an opaque disk rotating upon a fixed axis while the body upon which it is displayed is in motion, a train of gear-wheels connected with a revolving shaft for imparting a rotary motion to said disk, and means, substantially as described, for releasing said disk from the rotary mechanism and rotating it independently upon the axis.

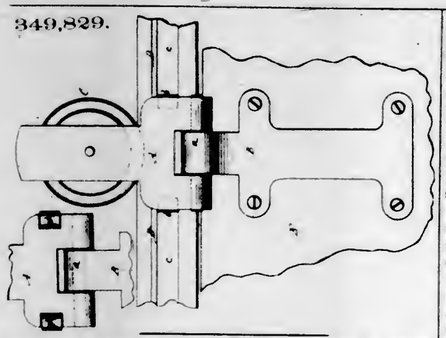
7. In an automatic signal-lantern, the combination, substantially as hereinbefore set forth, with the light, of the stationary circular target composed of plates of different-colored glass, a cylinder rotating around said light and target, a central axis upon which said cylinder revolves, a semicircular disk rotating on said axis within said cylinder and in front of said target, a series of notches on the front surface of said cylinder and a flat spring attached to the surface of said disk, arranged to engage with said notches, whereby the disk is caused to rotate with said cylinder, a set of cog-wheels on the periphery of said cylinder, a driving axis or shaft on the body on which the lamp is displayed, and a train of gear-wheels engaging with said axis or shaft and with said cylinder, whereby the movement of the former is imparted to the latter.

349,829. HANGER FOR SLIDING DOORS. BENJAMIN G. WEDD, Henrietta, N. Y. Filed May 25, 1885. (No model.)

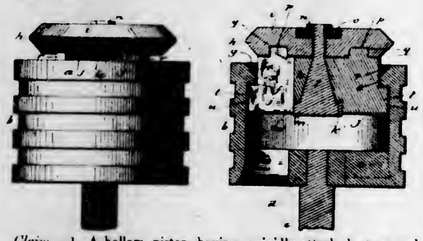
Claim.—A door-hanger consisting of the upper section, the supporting-wheel mounted thereon, the two friction-wheels secured to the upper section at opposite edges thereof below the supporting-wheel, and the lower section hinged to the upper one by a horizontal pivot, and adapted to be secured to the door, substantially as described.



349,829.



349,830. PUMP-PISTON. WILLIAM H. WHEELER, York, Pa., assignor of one-half to George W. S. Loucks, same place. Filed Mar. 30, 1886. (No model.)



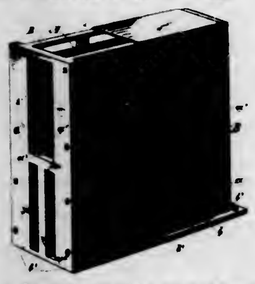
Claim.—1. A hollow piston having a rigidly-attached stem, and provided with an inwardly-projecting lip, combined with a piston-valve movable independently of the piston, and comprising a disk, a series of guides having projections to engage said lip to connect the disk with the piston, and a bolt connecting the guides and disk, substantially as described.

2. A piston-valve comprising a disk, a series of guides having meeting faces, forming an internally-tapered hub, and a correspondingly-tapered bolt engaging said guides by and through their hub, and also engaging the disk to unite disk and guides, substantially as described.

3. The combination of a hollow piston having an internal lip and a valve-seat with a valve comprising a disk fitted to said seat, and a series of separable guides connected to said disk and having projections on their inner ends to engage said lip to both guide and limit the movement of said disk with respect to its seat, and a bolt for connecting the disk and guides and retaining the valve in the piston, substantially as described.

4. The disk provided with a recess on its under side, a series of guides having projections to enter said recess, and also tongues to enter a groove in a bolt, combined with said bolt, substantially as described.

349,831. MOVABLE ICE-CHAMBER. IGNAZIO ALLEGRETTI, West Berkeley, Cal. Filed June 16, 1886. (No model.)



Claim.—1. In combination with a car or other apartment, a chamber or box containing ice placed in the car and secured thereto by bolts or other fastenings in such a manner that it may be readily removed when desired, substantially as herein described.

2. A movable ice chamber or box and a skeleton frame or casing inclosing it, said chamber and frame being placed within a car or other apartment and secured thereto in such a manner as to be readily removable, substantially as herein described.

3. A movable ice-chamber consisting of the trough-base *a*, the flanged side plates, *a'*, fitted to said base, and the flanged end plates, a^2, fitted to the base and the side plates, all of said parts being independent and separable, whereby the chamber may be taken apart, substantially as herein described.

4. A movable ice-chamber consisting of the trough-base *a*, the flanged side plates, *a'*, fitted to the base, and the flanged end plates, a^2, fitted to the base and to the side plates, one of said end plates being short, whereby an opening, a^3, is left in the end of the chamber, and all of the parts of the chamber being independent and separable, substantially as and for the purpose herein described.

5. An ice box or chamber in combination with the open or skeleton frame B, inclosing said box or chamber and having cleats b^2, whereby it may be bolted to the apartment in which it is placed and again removed, substantially as herein described.

6. An ice chamber or box having an open end, in combination with the movable skeleton frame or casing B, having an open end, *b'*, coinciding with the open end of the ice chamber or box, said frame or casing having cleats b^2, whereby it may be readily bolted to the apartment in which it is contained and removed therefrom, substantially as herein described.

7. The ice chamber or box having an open end, in combination with the skeleton frame or casing B, inclosing the ice-chamber, said frame or casing having an open end, *b'*, coinciding with the open end of the ice chamber or box, a sloping bottom, *b*, and cleats b^2, whereby it may be readily bolted to the apartment in which it is contained and removed therefrom, substantially as herein described.

8. The ice chamber or box A, consisting of the trough-base *a*, the flanged side plates, *a'*, and the flanged end plates, a^2, fitted together and separable, one of said end plates being short, whereby an opening, a^3, is left in the end of the ice chamber or box, in combination with the inclosing skeleton frame or casing B, having an open end, *b'*, coinciding with the open end of the ice chamber or box, a removable sloping bottom, *b*, and cleats b^2, whereby it may be bolted to the apartment in which it is contained and removed therefrom, substantially as herein described.

9. In a car or other room or apartment having a door, *c*, in its wall, the ice chamber or box A, having an open part, a^2, and the inclosing skeleton frame or casing B, having an open part, *b'*, coinciding with the open part of the ice chamber or box, said chamber and frame being placed within the car and secured therein by bolts or other means providing for their ready removal, and in such position that upon the opening of the door of the car the open parts of the ice-chamber and its frame shall be exposed, substantially as and for the purpose herein described.

349,832. NECKTIE-FASTENER. ALFRED J. ASH, Boston, Mass. Filed Feb. 27, 1886. (No model.)

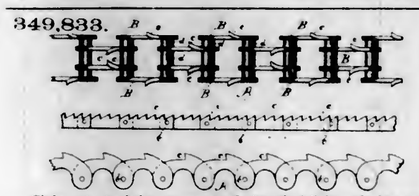


Claim.—1. The hereinbefore-described wire necktie-fastener, consisting, essentially, of the end vertical parallel portions, A, horizontal parallel portions B, vertical parallel portions C, outwardly-bent portions D, inwardly-bent portions E, outwardly-bent portions F, rearwardly-bent portions G, horizontal portions H, and means whereby the lower portion of the fastener is secured to the shield, substantially as and for the purpose set forth.

2. The hereinbefore-described wire necktie-fastener, consisting of the end vertical parallel portions, A, horizontal parallel portions B, vertical parallel portions C, outwardly-bent portions D, inwardly-bent portions E, outwardly-bent portions F, rearwardly-bent portions G, horizontal portions H, and loop I, all substantially as and for the purpose described.

349,838. CHAIN-SAW. BENJAMIN F. ASPER, Pittsburg, assignor of one-half to Samuel McCarter, Norristown, Pa. Filed Oct. 19, 1885. (No model.)

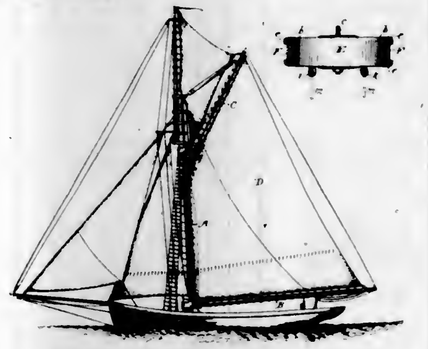
349,833.

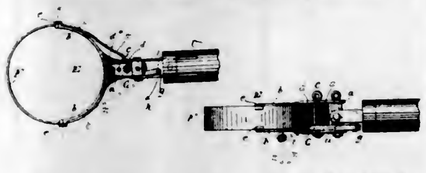


Claim.—1. A chain-saw composed of toothed links and pivot-rods, with washers arranged between said links, each of said links consisting of a single plate of metal having a tooth formed integral therewith and set or turned over obliquely from the plane of the link, as set forth.

2. A chain-saw composed of links arranged in separate parallel rows and combined with pivots and washers or collars, the said pivots or pivot-pins connecting the links laterally, uniting the rows and forming a continuous chain, the links of the two outer rows being formed with outwardly-canting teeth, while those of the inner rows project inwardly and toward each other, said outer and inner links being arranged in alternate series, or so as to break joints, substantially as described.

349,834. GAFF-CLAMP. CHESTER W. BRINK, Wilmington, Del., assignor of one-half to Eleazer Ainsworth, same place. Filed May 24, 1886. (No model.)





Claim.—1. A clamping device for securing the gaff or boom of a vessel to the mast, consisting of a flexible tightening-band carried by the gaff or boom and encircling the mast, said band being arranged to be tightened and loosened, in combination with mechanism for tightening and loosening said band, substantially as set forth.

2. The gaff and a tightening-lever pivotally connected thereto, in combination with a tightening-band which encircles the mast and is secured at opposite ends to said lever, substantially as set forth.

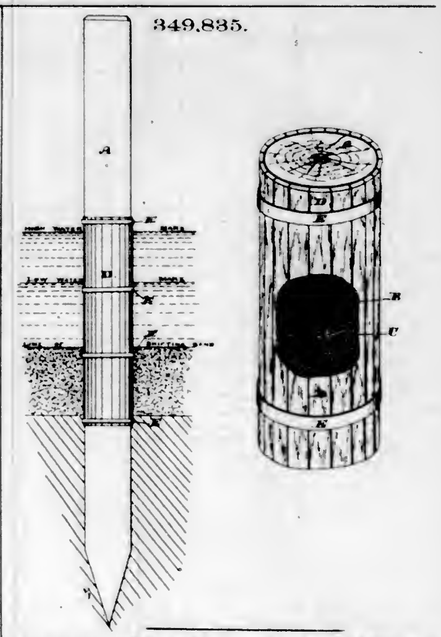
3. A gaff-jaw and a tightening-lever pivoted thereto, in combination with a flexible tightening-band which encircles the mast and is attached at opposite ends to said lever on either side of the pivotal point thereof, substantially as set forth.

349,835. PRESERVING PILES. JAMES CASS, Cayucos Landing, Cal. Filed Apr. 15, 1886. (No model.)

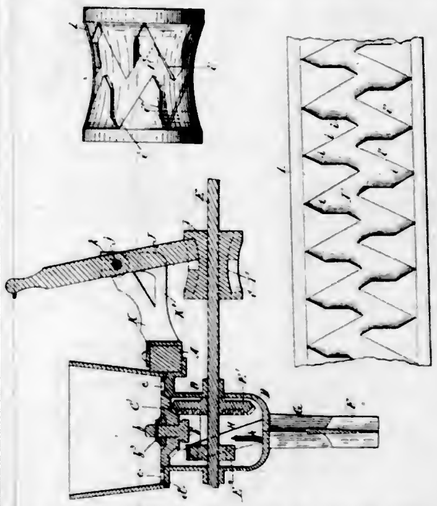
Claim.—1. The process herein described of preserving piles or other wooden structures that are to be submerged, consisting, essentially, in brushing upon said wood from which the bark has been removed a waterproof poisonous compound, then applying a coating of ship-felt, and finally securing battens or strips upon the pile outside of the felt, substantially as herein described.

2. The improved process of preserving timber that is to be submerged, consisting, essentially, in coating said timber with a compound of pitch, tar, and arsenic, next surrounding said compound with a covering of ship-felt, then nailing thin longitudinal battens upon the timber outside of the felt, so as to inclose the whole, and finally securing the battens by hoops or holding-bands, substantially as herein described.

349,835.



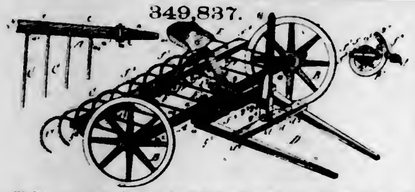
349,836. CORN-PLANTER. OCTAVIUS J. COLTON, Galesburg, Ill., assignor to G. D. Colton & Company, same place. Filed Feb. 9, 1885. (No model.)



Claim.—The combination, with the revolving horizontal plates C, each having apertures *c* and an orifice, *d'*, with which the said apertures successively register, each of the said plates being provided with a bevel-gear, C', of the shaft E, having bevel-gears E', to mesh with the gears C' on the plates C, and provided with wheel I, having a cam-groove formed in its periphery, and a vibrating lever, J, adapted to engage with the said cam-groove to impart an intermittent rotary motion to the said shaft E and revolving plates C, said lever being mounted in brackets between the guides K', which hold it in its proper plane of vibration, substantially as and for the purposes specified.

349,837. WHEELED HAY-RAKE. CLYDE EASTMAN, Thompson Falls, Mont. Filed Sept. 16, 1885. (No model.)

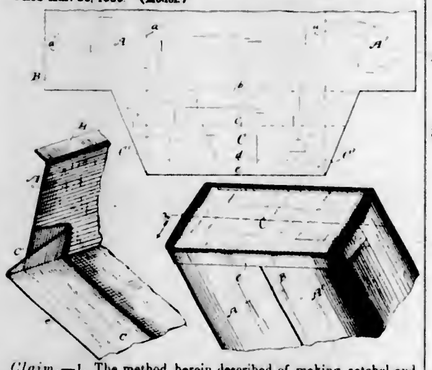
349,837.



Claim.—1. An axle rake-head divided longitudinally from the end of one of its spindles or arms to the end of its other spindle or arm in a vertical plane, and having a groove between its halves and perforations in the rear half, in combination with rake-teeth having angular retaining ends and clamping-bolts or equivalents, substantially as and for the purpose described.

2. The combination, with an axle rake-head, A, divided longitudinally through its spindles or arms, and having teeth clamped between its halves and turning up and down on said arms, of the rake-elevating mechanism comprising a stop-standard, d' d^2, on bar d^3 of hinged shafts D, hand-lever G, arm g^2, link g, and curved lever F, fulcrumed on bar of said shafts and pivoted to the rear portion of bolt f of axle A, substantially as and for the purpose described.

349,838. PAPER BAG. WARREN C. FAGELEY, Philadelphia, Pa. Filed Mar. 30, 1886. (Model.)



Claim.—1. The method herein described of making satchel and square bottom paper bags, consisting in first producing the blank described, folding the extension C upon the body portion of the blank, then back upon itself, then folding the two sides A A' and pasting them together along their longitudinal edges, and finally pasting the marginal portion of said extension upon the outside of the said flaps, as herein specified.

2. As an improved article of manufacture, a paper bag having a seamless satchel and square bottom formed of an extension of the body of the bag-blank and provided with re-enforcing corner folds, and an outside margin pasted upon the two united side flaps, substantially as described.

349,839. TELEPHONIC APPARATUS. PATRICK GANNON, 107 St George's Road, County of Surrey, England. Filed June 7, 1886. (No model.) Patented in England May 1, 1886, No. 5,940.

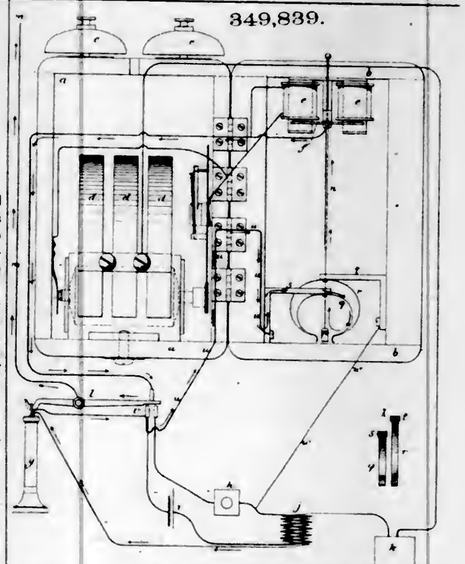
Claim.—1. In a telephone-station apparatus, the combination, with the armature of the calling or signaling device, of an arm or pendulum connected therewith, and means, such as circuit closing and breaking switch carried by said arm or pendulum and electrical circuits and connections, whereby a return-signal is transmitted to the calling-station whenever said calling or signaling device is operated, substantially as described.

2. The combination, with the armature of the bell or calling device, of an arm or pendulum connected with and operated by said armature and means actuated by said arm or pendulum for sending a return current when said calling device is operated, substantially as described.

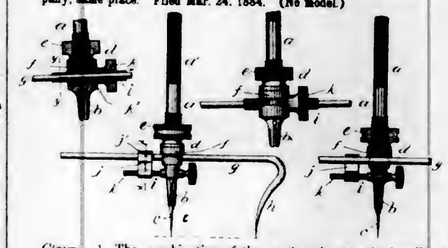
3. In a telephone system, the combination, with the battery-circuit and the primary of an induction-coil the secondary whereof is connected to line, of the calling device at a subscriber's station, a pendulum operated by the armature of said calling device, and a circuit adapted to be opened and closed by the oscillation of said pendulum, and thereby transmit a return-signal, substantially as described.

4. In a telephone-station apparatus, the combination of the bell-armature, the pendulum connected therewith, the contact-springs, and the local-battery circuit including the primary of an induction-coil, the secondary thereof being connected to line, substantially as described.

349,839.



349,840. DRAFTING-COMPASSES. FREDERICK N. GARDNER, Hartford, Conn., assignor, by mesne assignments, to the Pratt & Whitney Company, same place. Filed Mar. 24, 1884. (No model.)



Claim.—1. The combination of the stock a, having the handle a' and point-holding socket, with the point that forms the bearing-center, the sliding beam g, having the leg h, the positive clamp d, and the frictional clamp i, all substantially as described.

2. The combination of the stock a, having handle a' and point c, nut e, and collar f, sliding beam g, nut j, with yielding jaws j' that grasp the beam, and a thread engaging a slow-motion screw or nut fixed against longitudinal movement, all substantially as described.

3. In compasses, a stock, a, bearing a handle and point or its equivalent, in combination with the positive clamp d, the sliding beam g, the nut or sleeve arranged upon the beam and within the transverse opening in the stock, and having a thread engaging with the thread within the thumb-nut k', all substantially as described.

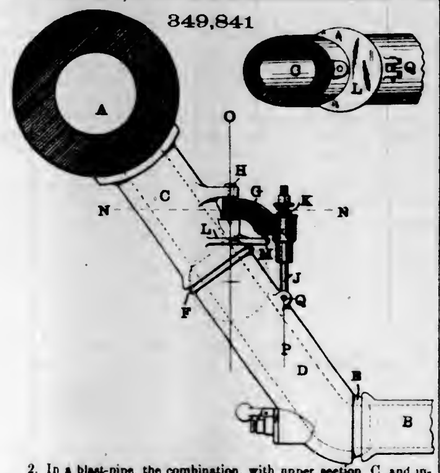
4. In combination with the compass-beam g, having the leg h, with a point and pencil-socket, h', the holding-spring l, fast at one end to the beam and having its other end biting against the pencil at an angle with the latter, whereby return movement of the pencil is obstructed, all substantially as described.

5. In combination with the compass-beam g, having the leg h, with longitudinal socket h', and lateral opening h^2, and point or pencil m, and a spring, l, with one end fast to the beam standing at an angle with the pencil and having the edge of the free end resting against the pencil, whereby return movement of the latter is obstructed, all substantially as described.

349,841. TUYERE-PIPE FOR BLAST-FURNACES. FRED. W. GORDON, Philadelphia, Pa., assignor to Gordon, Strobel & Lawreau, same place. Filed Jan. 18, 1886. (No model.)

Claim.—1. In a blast-pipe, the combination, with upper section, C, and inclined lower section, D, coupled together by a separable joint, of a horizontally-traveling support disposed over the lower section and a suspender connecting the lower section with such support, substantially as described, for the purpose of enabling the suspended lower section to be moved sidewise.

349,841



2. In a blast-pipe, the combination, with upper section, C, and inclined lower section, D, coupled together by a separable joint, of a horizontally-traveling support disposed over the lower section and a suspender connecting the lower section to the support and vertically pivoted in the support, substantially as described, for the purpose of enabling the lower section to be moved sidewise and rotated upon the axis of the suspender.

3. In a blast-pipe, the combination, with upper section, C, and lower section, D, coupled together by a separable joint, of a horizontally-traveling support disposed over the lower section and a suspender connecting the support with the lower section and united to the latter by a horizontal pivot, substantially as described.

4. In a blast-pipe, the combination, with upper section, C, and lower section, D, coupled together by a separable joint, of a support disposed above the lower section and a suspender connecting the support with the lower section and united to the latter by a horizontal pivot disposed in the plane of the center of gravity of the lower section, substantially as described.

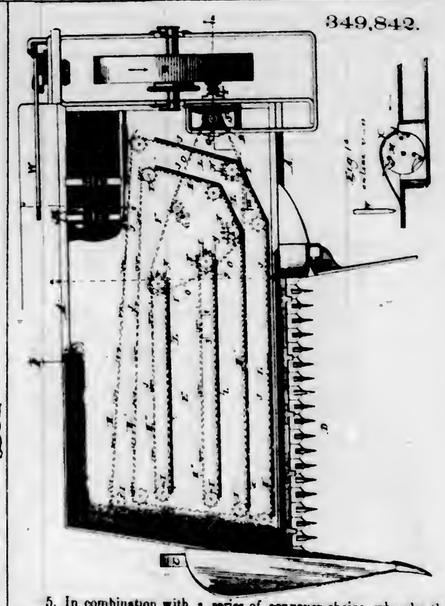
5. In a blast-pipe, the combination of the upper section, C, and lower section, D, coupled together by a separable joint, of a horizontally-traveling support pivoted over the lower section, and a suspender connecting the support with the lower section, substantially as described.

6. In a blast-pipe, the combination of the upper section, C, and lower section, D, coupled together by a separable joint, of a horizontally-traveling support pivoted over the lower section, a wheel housed in the support, a shelf below the wheel, and a suspender connecting the support with the lower section, substantially as described.

7. In a blast-pipe, the combination of the upper section, C, and lower section, D, coupled together by a separable ball-joint, of a pivoted traveling support disposed over the lower section, and with its pivot-axis in line with the sphere-center of the joint, and a suspender connecting the support with the lower section, substantially as described.

8. In a blast-pipe, the combination of upper section, C, side moving lower section, D, provided with the male element of a ball-joint at its lower end, ball-joint F, connecting the two sections, a support and suspender for the lower section, and a tuyere-pipe, B, provided with the female element of a ball-joint, substantially as described.

349,842.



5. In combination with a series of conveyer-chains, whereby the grain-stalks are carried first in a straight line in rear of the cutters, and thence in a curved or oblique path in the auxiliary platform, a vibratory binder-arm, and a revolving toothed packer located between the delivery end of the conveyers and the binder-arm.

6. In combination with a series of endless toothed conveyer-chains, substantially as herein described, whereby the grain-stalks as they are cut are carried continuously across the platform in rear of the cutters, and thence in a curved or oblique path toward the binder, a shoulder or abutment rising above the platform, and secondary conveying or packing mechanism acting between the delivery end of the conveyers and the binding mechanism to deliver the grain over the abutment, substantially as described.

349,842. GRAIN HARVESTING AND BINDING MACHINE. JAMES F. GORDON, Rochester, N. Y.; Mary A. Gordon executrix of said James F. Gordon, deceased. Filed Jan. 14, 1884. (No model.)

Claim.—1. In a harvesting-machine, two endless horizontally-traveling conveyer-chains provided with vertically-movable teeth, one chain arranged to encircle the other, substantially as described.

2. In combination with the series of endless chains, the horizontally-revolving wheels to sustain the same, the driving-wheels N, and the driving-chain O common to the series of wheels, as described.

3. The combination, in a harvester, of the main or ground wheel, the wheel P, geared thereto and driven therefrom, a series of conveyer-chains, driving-wheels for the respective chains, and a single driving-chain, O, communicating motion from the wheel P to the several wheels N, as described and shown.

4. In a harvester, one or more horizontal revolving toothed conveyer-chains extending lengthwise of the harvester-platform, in rear of the cutters, and thence in a curved or oblique path in the supplementary platform, in combination with one or more toothed conveyer-chains extending horizontally in a straight line within the harvester-platform only, substantially as and for the purpose set forth.

349,843. DEVICE FOR SUPPLYING SALT TO STOCK. JOHN GOBART, Buckeye, Ill. Filed Mar. 19, 1886. (No model.)



Claim.—1. In a stock-salter, a receptacle for salt having an opening in its bottom, and a block suspended loosely in said opening and extending below the box or receptacle for salt.

2. In a stock-salter, a salt-receptacle provided with an opening in the form of a vertical wedge, combined with a vertically-adjustable wedge-shaped block suspended in said opening, whereby the passage of salt from the receptacle may be accelerated, retarded, or prevented at will.

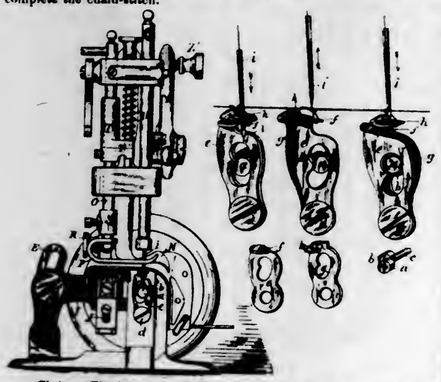
3. In a stock-salter, a trough, a salt-receptacle centrally mounted upon and above said trough, and provided with an aperture for the passage of the salt to said trough, and a downwardly-tapering block suspended in said aperture, and adapted to partially or completely close it by vertical adjustment.

4. The trough 2, box 1, and swinging block 9, adjustably supported in an opening in said box, all co-operating substantially as set forth.

5. The trough 2, box 1, grooved block 9, grooved blocks 7, pins 11, and chains 10, supported by the top of said box, combined substantially as shown and described.

349,844. SEWING-MACHINE. CHARLES F. HARLOW and EDWIN E. ARNELL, Malden, assignors to the Globe Sewing Machine Company, Boston, Mass. Filed Feb. 24, 1885. Renewed Feb. 11, 1886. (No model.)

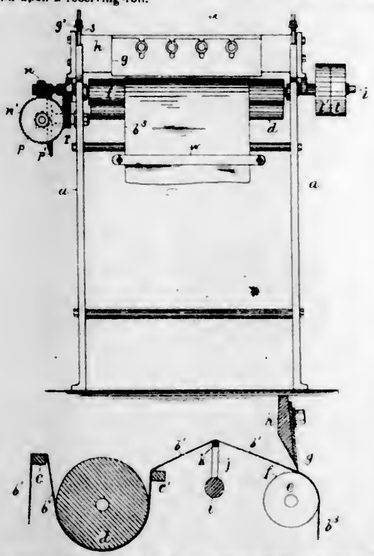
Brief.—The hook or loop-taker and the loop-spreader are carried by levers oscillated on the same pivot. The spreader is provided with prongs. After the spreading of the loop the hook recedes, the needle again descends through the goods and the open loop on the spreader, whereupon the hook again moves forward, taking a new loop and drawing it out through the prongs of the spreader, thereby casting off the previous loop, which is drawn by the needle and tightened under the goods to complete the chain-stitch.



Claim.—The looper mechanism herein described, consisting of the eye-pointed needle and the rotating double eccentric *a b*, in combination with the hook-lever *e f* and spreader-lever *g h*, pivoted on the axis *d*, and slotted for engagement with said eccentrics, for the purpose set forth.

349,845. LINT-MACHINE. J. WOOD JOHNSON, New Brunswick, N. J. Filed May 18, 1886. (No model.)

Brief.—A knife reciprocates to and from a yielding cushion, over which latter the fabric is passed. When the knife is thus in contact with the fabric, said fabric is moved forward by a bar mounted on a revolving shaft beneath the fabric striking the under side thereof. After being thus drawn beneath the knife the fabric is drawn forward and wound upon a receiving-roll.

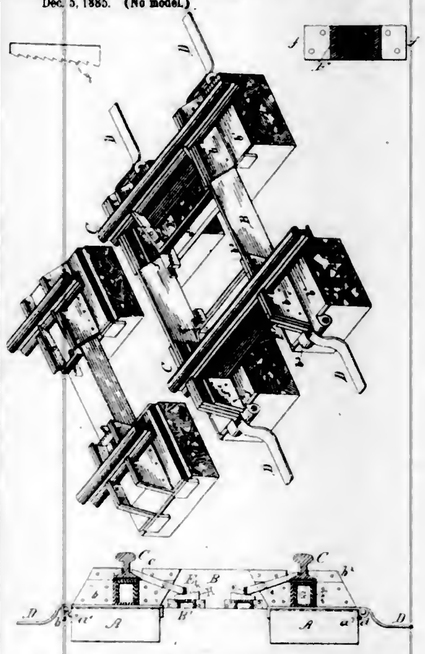


Claim.—1. The combination, in a linting-machine, of a yielding cushion, a reciprocating knife, mechanism, substantially as described, for operating the same to and from the cushion, devices for feeding the cloth to the knife, and mechanism, substantially as described, for pressing the cloth laterally between the feeding device and the knife, when the latter is pressed upon the cushion, the whole arranged and operated substantially as and for the purpose set forth.

2. The combination, in a linting-machine, of a yielding cushion, a reciprocating knife operated to and from the same, a roller adapted to grasp the cloth and rotated intermittently when the knife is raised from the cushion, one or more guide-bars adjacent to the roller, a stretcher pressed laterally upon the cloth between the feed-roller and the knife, when the latter is pressed upon the cushion, and means for actuating the knife, roller, and stretcher, substantially in the manner and for the purpose set forth.

3. The combination, in a linting-machine, of a yielding cushion, a reciprocating knife operated to and from the same, a roller adapted to grasp the cloth and rotated intermittently when the knife is raised from the cushion, one or more guide-bars adjacent to the roller, a revolving shaft located between the cushion and the feed-roller, a stretcher-bar attached to such shaft and pressed upon the cloth at the same time with the knife, and means for actuating the knife, roller, and revolving shaft, substantially in the manner and for the purpose set forth.

349,846. RAILWAY. EDWARD C. JONES, Kansas City, Mo. Filed Dec. 5, 1885. (No model.)



Claim.—1. In railways, the combination, with the bridge-tree, of a suitable filling therein and packing upon said filling, for the purpose specified.

2. The combination, in railways, with a suitable foundation, of a tie and a plate removably attached to said foundation, having an upright flange extending from said plate and said foundation and rigidly attached to said tie, whereby the spreading of the track-rails upon the foundation is prevented.

3. In railways, the combination, with a suitable foundation or support, of a covering-plate, packing interposed between said covering-plate and said foundation, and suitable retaining devices on said covering-plate, for the purpose described.

4. In railways, the combination, with a suitable foundation or support, of a plate adapted to support a tie removably attached to said foundation, and having one portion of said plate engaging with said foundation, and a lever fulcrumed upon an opposite portion of said plate and engaging with said foundation, as and for the purpose specified.

5. In railways, the combination, with a suitable foundation or support provided with a suitable recess, of a flanged covering-plate and tie rigidly attached together and arranged upon said foundation, and adapted to engage upon one side with said foundation, and a lever fulcrumed upon said flanged covering-plate and upon an opposite side of said flanged plate, and adapted to engage with said recess in said foundation, as described.

6. In railways, the combination, with a suitable tie, of the track-rails and an adjustable clutch or lever, and means for locking said lever or clutch, as described.

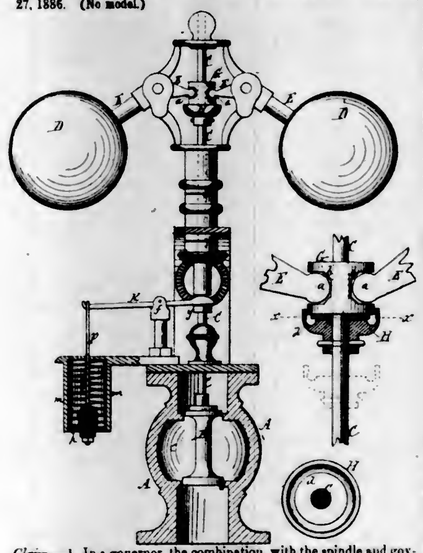
7. In railways, the combination, with a suitable tie, of the track-rails and an adjustable clutch or lever, and a self-locking ratchet-key, substantially as specified.

8. In railways, the combination, with a suitable tie having a recess to admit and retain the rail, of a clutch or lever for adjustably retaining said rail in said recess and a self-locking ratchet-key, as described.

9. In railways, the combination, with the bridge-tree, of an inverted box adapted to afford a rest for the track-rails, as described.

10. In railways, a tie constructed with opposite longitudinal side plates and intermediate filling, as described.

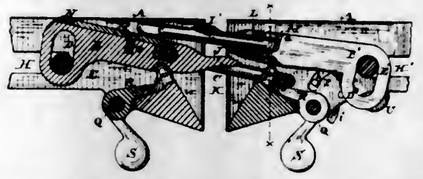
349,847. GOVERNOR. JUDSON JUDSON, Rochester, N. Y. Filed Jan. 27, 1886. (No model.)



Claim.—1. In a governor, the combination, with the spindle and governor-ball arms, of a spool turning free on the spindle and slotted to receive the arms, and a cup fastened to the spindle below the spool, serving as a bearing to the spool and a receptacle for oil, in which the spool revolves, as hereinbefore set forth.

2. In a governor, the combination, with the spindle and governor-ball arms, of a spool turning freely on the spindle and provided with slots to receive the arms, a cup fastened to the spindle below the spool, and a lever connected with the spindle, by which the spindle can be thrown to separate the cup from the spool, as herein set forth, and for the purpose specified.

349,848. CAR-COUPLING. MASON H. KERN, Bellevue, Ohio. Filed July 26, 1886. (No model.)



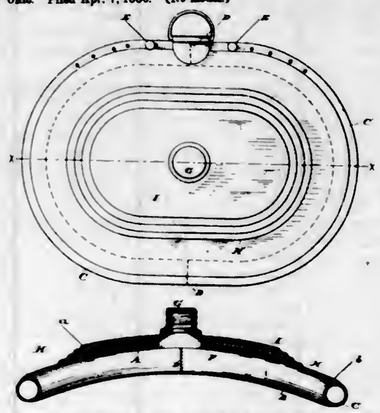
Claim.—1. In a railway-car coupling, the draw-arm having connected therewith a slide-bar, M, a head, I, a projection, L, with a shoulder or rest at the sides of said projection, in combination with a removable link and coupling-hook arranged, substantially as and for the purpose set forth.

2. The combination, with a railway-car coupling, of a draw-arm having at one end a coupling-link removably connected with said arm in the manner described, the rear end provided with a slot, a shaft passing through said slot, and an elongated opening in the draw-bar, a spring attached to the ends of said shaft, and sides of the draw-bar, substantially as described, and for the purpose specified.

3. The combination of a removable coupling-link connected with a draw-arm, B, by means of a head of said arm lapping over the link-bars on one side, and a rest or shoulder for the link on the other, with a lug or projection between the shoulder extending into the opening of the link, and a slide-bar, M, connected with the draw-bar for retaining the link in position and relieving the same from the draw-arm, substantially as and for the purpose specified.

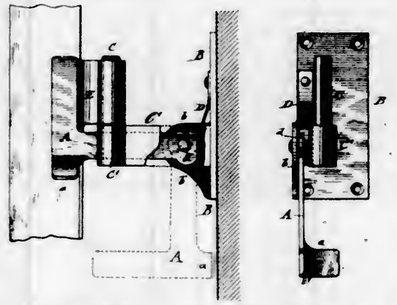
4. In a railway-car coupling, the draw-arm having a pivotal support upon the hook P within the draw-bar A in coupling, and the rear end provided with a slot for the reception of the bar E, and for the vibration of the draw-bar on the said hook for adjusting the links in position for self-coupling of cars, substantially as described, and for the purpose specified.

349,849. REMEDIAL APPLIANCE. GEORGE KUEHLER, Cleveland, Ohio. Filed Apr. 7, 1886. (No model.)



Claim.—The chambered case having a tubular attachment between the plates of the case around the edges thereof, and provided with screw-caps E and G, for admission to the chamber and interior of the tube, said tube having perforations therein, arranged substantially as described, and for the purpose set forth.

349,850. LOCK-HINGE. MICHAEL G. KUBS, New York, N. Y. Filed Jan. 21, 1886. (No model.)

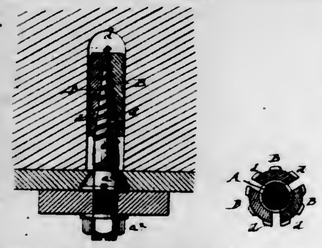


Claim.—The combination, with the pintle member of a lock-hinge provided with a forwardly-extending ear, of a locking lever or fastener pivoted to said ear and adapted to swing in a plane at a right angle to the face of the shutter, and to engage the inner edge of the shutter, said fastener being provided at its pivot end with a straight rear edge and with laterally-extending heels, and with a thumb-piece at its front end, and a tension-spring applied to said pintle member and adapted to bear against said pivot end, substantially as described.

349,851. EXPANSIBLE NUT AND BOLT. ANTOINE T. LORIER, West Hoboken, N. J. Filed June 16, 1886. (No model.)

Claim.—The combination of a screw-bolt having a nicked head and a shank with a tapering and screw-threaded end, and wedge-jaws having exterior rows of serrations and interior-threaded faces that fit on the tapering end of the shank, substantially as set forth.

349,851.



349,852. PRESERVATION OF MEAT. CHARLES MARCHAND, New York, N. Y. Filed Aug. 19, 1885. (No specimens.)

Claim.—1. The process of preserving meat by immersing the same in a solution of hydrogen peroxide in close vessels and retaining the said solution under pressure, substantially as described.

2. The process of preserving meat by immersing the same in a raw state in a solution of hydrogen peroxide in close vessels and retaining the said solution under pressure, substantially as described.

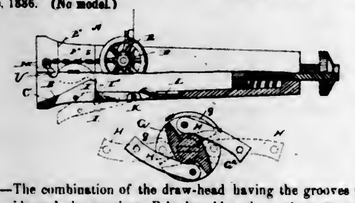
3. The process of preserving meat by treating the same with peroxide of hydrogen in solution, substantially as described.

4. As a new manufacture, meat immersed in and impregnated with a solution of peroxide of hydrogen, substantially as described.

5. The method of preserving food and other substances, which consists in keeping the same impregnated or charged with an antiseptic or preservative in liquid form by subjecting it to continuous pressure of such preservative itself, substantially as described.

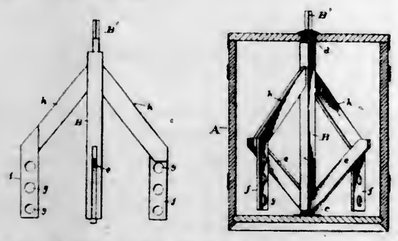
6. The method of preserving food substance or other matter in solid or other form, which method consists in keeping the matter to be preserved charged with a suitable liquid antiseptic or preservative substance by retaining it until used under constant or continuous pressure of such antiseptic or preservative itself, substantially as described

349,853. CAR-COUPLING. ALLEN M. MARLEY, De Soto, Kans. Filed June 25, 1886. (No model.)



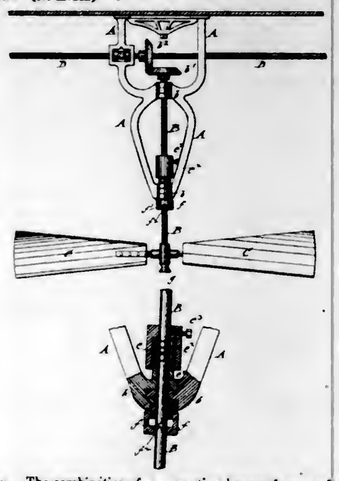
Claim.—The combination of the draw-head having the grooves C in its lower side and the openings B in its sides, the spring-actuated jaws hinged in the openings B, and having the shoulders I' on their inner opposing sides at their outer ends, the cam having the arms H, extending outwardly in opposite directions and connected to the coupling-jaws, and the coupling-link having the head T', adapted to engage the shouldered outer ends of the coupling-jaws, and the tongues T², (one or more,) adapted to enter the groove C when the cars come together, and direct the coupling-link between the shouldered ends of the coupling-jaws, substantially as described.

349,854. CHURN-DASHER. JAS. B. MELLOR, Baltimore, Md. Filed June 15, 1886. (No model.)



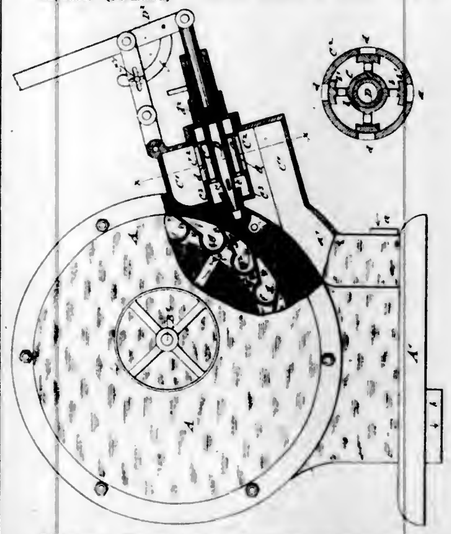
Claim.—A churn comprising the barrel A and revoluble shaft B, having at one end two upward-inclined arms, e, each attached at an opposite side, and at or near the other end two downward-pointing arms projecting from a different side of the shaft and at right angles with respect to the first-named arms, each of said downward-pointing arms consisting of an upper portion, *h*, which inclines downward, and a lower portion, *f*, which is parallel with the revoluble shaft and has its lower end free or unattached, as shown and described.

349,855. ROTARY FAN. PETER MURRAY, Jr., Newark, N. J., assignor to the Backus Manufacturing Company, same place. Filed May 12, 1886. (No model.)



Claim.—The combination of a supporting hanger-frame, a fan-shaft supported in bearings of said frame, a fan attached to the lower end of the fan-shaft, a driving-shaft, a friction-gear transmitting motion from the driving-shaft to the fan-shaft, a spiral spring resting on a collar of the hanger-frame, a sleeve attached to the fan-shaft and inclosing said spiral spring, a recessed collar attached to the hanger-frame, and a pin on the fan-shaft which engages or disengages the recessed collar when raising or lowering the fan-shaft, so as to throw the fan in or out of motion, substantially as set forth

349,856. WATER-MOTOR. PETER MURRAY, Jr., Newark, N. J., assignor to the Backus Manufacturing Company, same place. Filed May 12, 1886. (No model.)

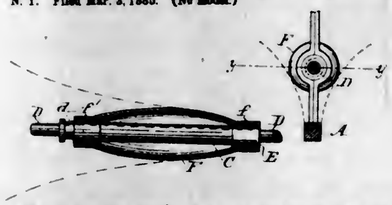


Claim.—1. The combination, in a water-motor, of a cylindrical casing having water-supply and discharge channels, a rotary water-wheel within said casing, an axially-adjustable supply-regulating valve, a casing surrounding said valve and provided with an annular equalising-chamber and injection-nozzle, a needle-valve located in the regulating-valve and provided with a hollow slotted nozzle, whereby an exterior and an interior jet are supplied to the water-wheel, substantially as set forth.

2. A water-wheel having a rim formed of ring-shaped flanges and buckets formed of straight and inclined front parts and semicircular rear parts projecting back of the plane of the front parts and resting upon the straight portion of the next adjoining buckets, substantially as set forth.

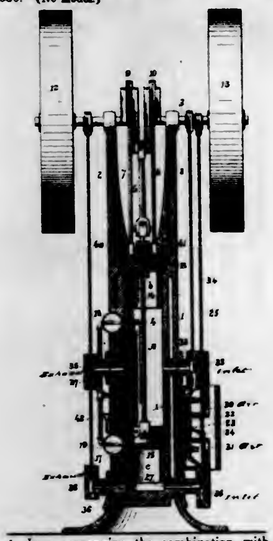
3. A water-wheel having a rim formed of ring-shaped supporting-flanges and buckets arranged tangential to the jet, said buckets having straight front parts and cup-shaped rear parts which project out of the plane of the front parts, and are adapted to deflect the water so as not to interfere with the jet, substantially as set forth.

349,857. IRON MARINE VESSEL. ROBERT A. REED, Brooklyn, N. Y. Filed Mar. 3, 1885. (No model.)



Claim.—In an iron marine vessel, the combination, with the propeller-shaft and the sleeve thereof having a journal-box at its outer end to accommodate the shaft and a stuffing-box at its inner end to prevent the entrance of water between the shaft and sleeve, of a casing, F, having its outer and inner ends secured water-tight upon the journal-box and the stuffing-box, respectively, and having considerable space between its interior surface and the exterior surface of the shaft-sleeve box, for the purpose specified.

349,858. GAS-ENGINE. ANDREW L. RIKER, New York, N. Y. Filed July 15, 1886. (No model.)



Claim.—1. In a gas-engine, the combination, with the cylinder open at one end, of the two pistons working therein, their connection-rods, the supply and exhaust ports and valves therefor, and the gas-burners constructed and arranged, as specified, so that explosions alternately take place between the two pistons and between one piston and the closed end of the cylinder, substantially as described.

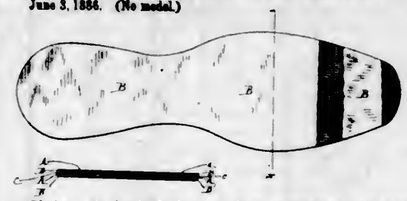
2. In a gas-engine, the combination, with the cylinder provided with two ignition-ports, two supply-ports, and two exhaust-ports, of the two pistons working in said cylinder in opposite directions and connected, respectively, with cranks on opposite sides of the same shaft, and valves operated by eccentrics on said shaft and controlling said supply and exhaust ports, so that explosions take place alternately between the two cylinders and behind one of them, substantially as described.

3. The combination of the cylinder open at one end and provided with two sets of ignition, supply, and exhaust ports, the valves and operating mechanism for opening and closing said ports at the proper times, and the two pistons working in said cylinder and connected to cranks on opposite sides of the same shaft, substantially as described.

4. The combination, with the cylinder having two sets of ignition, supply, and exhaust ports, of the power-shaft, the two working pistons connected therewith, as described, the gas-supply pipe having two outlets, and the three-way cock operated from said shaft through suitable connections to open said outlets alternately, substantially as described.

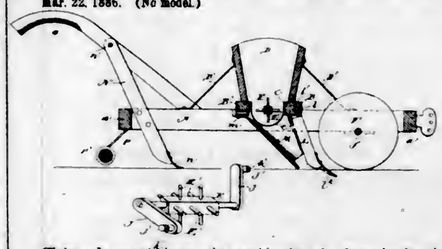
5. The combination, with the cylinder having two sets of supply and exhaust ports and the two pistons working therein and connected with the same shaft, of the valves operated from said shaft through eccentrics and connecting-rods, the valves for the two exhaust-ports being mounted on and operated by the same rod, substantially as described.

349,859. INSOLE. ABRAHAM P. RINTHOFF, Brooklyn, N. Y. Filed June 3, 1886. (No model.)



Claim.—An insole for boots or shoes, consisting of two layers of textile fabric, an intermediate layer of gutta-percha tissue, and a lowermost or bottom layer of gutta-percha tissue, said bottom layer having an upturned flap which incloses the edges of the layers above it, being united therewith, substantially as described.

349,860. PLANTER. THOMAS J. SAVAGE, Valley Creek, Tex. Filed Mar. 22, 1886. (No model.)



Claim.—In a seed-planter, the combination of a frame having the transverse beams B B', a removable hopper resting on the beams, a curved slotted bottom secured at its edges to the beams, a removable shaft, E, having means, substantially as described, for dropping or agitating the seed, and the cranks at its ends, a drive-wheel journaled in the frame and having cranks H, the pitmen I, intermediate of the cranks on the shaft E and the drive-wheel and detachably connected with the shaft E, a standard, L, carrying the opening-blade and depending from the beam B, and the conducting-spout M, secured to the beams, and the standard L, substantially as described, for the purpose set forth.

349,861. PRESS FOR MAKING ARTIFICIAL-STONE SLABS. FREDERICK SCHILLINGER, Toledo, Ohio. Filed Mar. 9, 1886. (No model.)

Claim.—1. A screw-press provided with a vertical guide-groove in one of the uprights, and a latch fitting in said groove, pivoted on the follower, for the purpose of guiding the same, substantially as shown and described.

2. A press for making artificial-stone slabs, provided with a hinged press-plate on the press-table, on which plate the slabs are pressed, substantially as shown and described.

3. A press for making artificial-stone slabs, constructed with a press-plate hinged on the press-table and a weighted arm connected with the said hinged press-plate, substantially as shown and described.

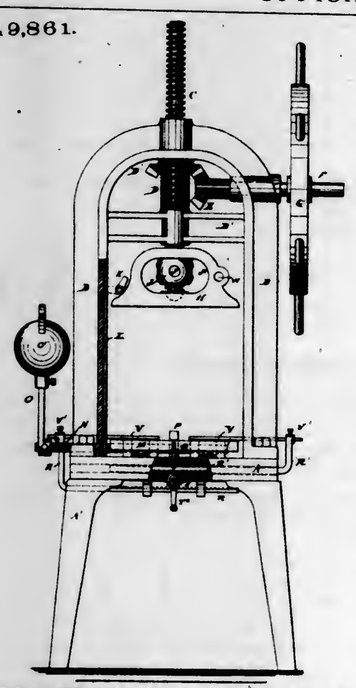
4. A press for making artificial-stone slabs, constructed with a press-plate hinged on the press-table, and provided with a weighted arm, and a latch for locking the swinging end of the press-plate on the table, substantially as shown and described.

5. In a press for making artificial-stone slabs, the combination, with an upright frame, a screw, and follower, of a press-plate hinged on the press-table, a weighted arm connected with the press-plate, a latch for locking the swinging end of the press-plate on the table, and a rod connected with the latch for operating the latch, substantially as shown and described.

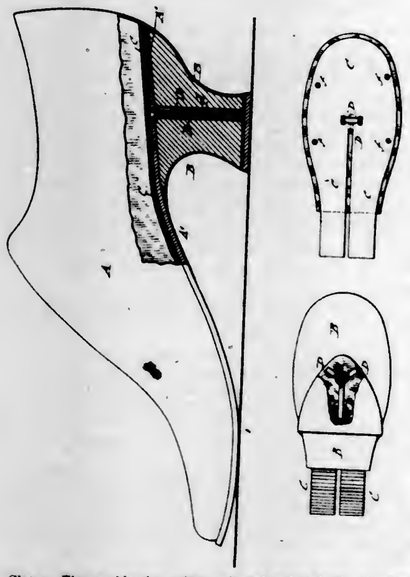
6. A press for making artificial-stone slabs, constructed of a press-plate hinged on the press-table and mechanism for moving the gage-rods toward and from each other above the press-plate, substantially as shown and described.

7. A press for making artificial-stone slabs, constructed with a press-block hinged on the press-table, gage-rods extending over the press-plate, racks connected with said gage-rods, and a pinion engaging said racks at diametrically-opposite points, substantially as shown and described.

349,861.



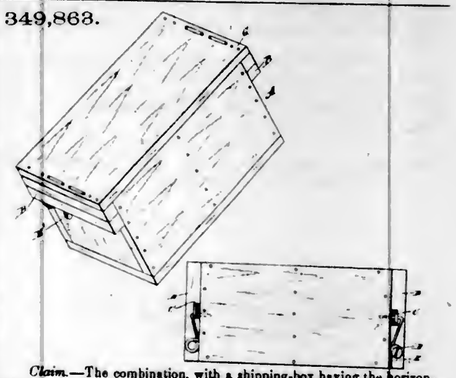
349,862. HEEL FOR SHOES. ISIDOR SOMMERFIELD, New York, N. Y. Filed June 25, 1886. (No model.)



Claim.—The combination, with a sole and spring-shank, of a heel having a vertical perforation, a tongue or anchor cut from the body of the shank, and auxiliary tongues or anchors that are passed through slots of the shank, all the tongues being passed through the heel and bent over the bottom of the same, substantially as set forth.

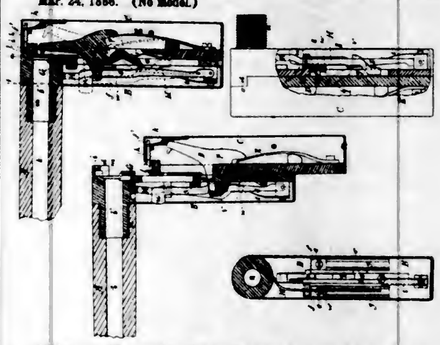
349,863. COVER-FASTENING FOR SHIPPING-CASES. JOHN B. THOMPSON, Lateaville, Me. Filed May 28, 1886. (No model.)

349,863.



Claim.—The combination, with a shipping-box having the horizontal apertures in its end walls and the finger-recesses adjacent thereto, of the transverse cleats having the vertical recesses, the cover carrying the staples to enter the said recesses and coincide with the horizontal apertures, and the spring-fastenings having their outer ends coiled and secured to the box, and their opposite ends hooked and adapted to enter the staples of the cover and the horizontal apertures of the box, substantially as specified.

349,864. CANE-GUN. FRANK A. WARDWELL, Methuen, Mass. Filed Mar. 24, 1886. (No model.)



Claim.—1. The combination of the barrel A and the handle part B, extending therefrom, with the movable or sliding breech-piece C, connected to and fitted to slide on such part B, and forming therewith the handle of the cane-gun, the hammer and its catch-lever and their operative springs, carried by such breech-piece, and the trigger and its actuating-spring applied to the said part B, such hammer having its tail extending within the said part B, and the latter being provided with the projection *n*, and all being arranged and to operate substantially as set forth.

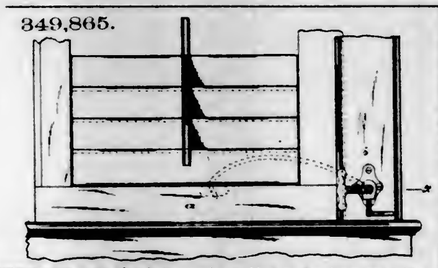
2. The combination of the barrel and the handle part B, connected therewith, and having the recessed projection *d*, with the movable or sliding breech-piece C, provided with the tenon to enter the said projection, and connected with and fitted to slide on such part B, and forming therewith the handle of the cane-gun, such part C being provided with the lock-hammer, its actuating-spring, and catch-lever and its actuating-spring, and the part B being furnished with the trigger and its actuating-spring, and the projection against which the tail of the hammer, extending within such part B, strikes in order to effect the cocking of the hammer, as specified.

3. The combination of the barrel A and its handle part B, extending therefrom, with the movable or sliding breech-piece C, connected to and fitted to slide on such part B, and forming therewith the handle of the cane-gun, the hammer and its catch-lever and their operative springs, carried by such breech-piece, and the trigger and its actuating-spring, and the cartridge-extractor and its operative lever applied to the part B, all being substantially and to operate as set forth.

349,865. SHUTTER-WORKER. HENRY H. WEBLER, Newark, N. J. Filed Feb. 3, 1886. (No model.)

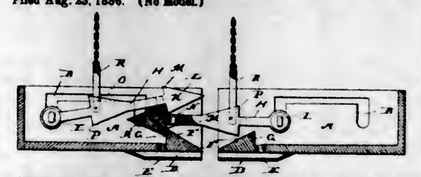
Claim.—The combination, with the shutter *a* and frame *b*, having the hole *c*, of a working-bar bent at the outer side, as at *f*, to extend parallel with the face of the house, and curved and hooked, as at *d*, to

349,865.



enter an eye, *g*, on the shutter, and provided on the inner end with a hand-piece having a jointed shank, allowing the hand-piece to drop automatically, and bearings *e e*, secured at the inner and outer ends of the said hole, the inner bearing having a jointed set-screw, all said parts being arranged and adapted to operate substantially as set forth.

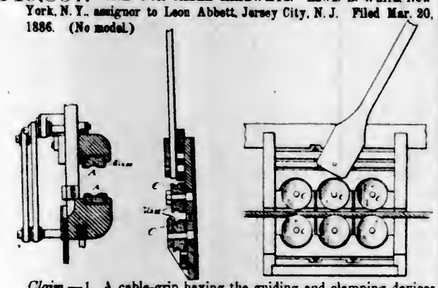
349,866. CAR-COUPLING. GEORGE F. WHITE, Middletown, N. Y. Filed Aug. 23, 1886. (No model.)



Claim.—1. The combination, in a car-coupling, of the draw-head and the draw-bar pivoted therein and having the inclines L and O, thereby forming the shoulders M and P at the outer end and at the center of the draw-bar, for the purpose set forth, substantially as described.

2. The combination of the draw-head having the incline F at its front end and the vertical slots B in its sides connected by the horizontal slots C, and the draw-bar having the trunnions adapted to enter the slots and pivot the inner end of the draw-bar to the draw-head, the said draw-bar having the inclines L at its outer end, and the shoulders M, for the purpose set forth, substantially as described.

349,867. GRIP FOR CABLE RAILWAYS. LEWIS B. WHITE, New York, N. Y., assignor to Leon Abbett, Jersey City, N. J. Filed Mar. 30, 1886. (No model.)



Claim.—1. A cable-grip having the guiding and clamping devices made of glass, substantially as shown and described.

2. In a cable-grip, the combination, with glass jaws or gripping devices, of mechanism for operating the same, substantially as shown and described.

3. A cable-grip having its jaws and guide-rollers made of glass, substantially as shown and described.

349,868. CONDUIT FOR CABLE RAILWAYS. LEWIS B. WHITE, New York, N. Y., assignor to Leon Abbett, Jersey City, N. J. Filed Mar. 23, 1886. (No model.)



Claim.—1. The combination, with railway-tracks, of a conduit tube or trough embedded between the rails, and of straps secured to the rails and passed under the said conduit tube or trough, substantially as shown and described.

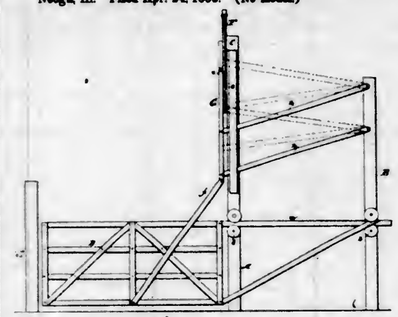
2. The combination, with railway-tracks, of a conduit tube or trough embedded between the tracks, brace-rods connecting the tube with the rails, and V-shaped straps or bars secured to the rails and passing under the conduit, substantially as shown and described.

3. The combination, with rails, of a conduit tube or trough embedded between said rails, wings secured on top of the conduit tube or trough, brace-rods connected with said wings and the rails, and V-shaped bars or straps secured to the rails and passing under the conduit trough or tube, substantially as shown and described.

4. The combination, with rails, of a sheet-iron conduit tube or trough embedded between the rails, and V-shaped bars passing under the said conduit tube or trough and connected with the rails, substantially as shown and described.

5. The combination, with rails, of a conduit-tube embedded between the same, wings C, secured on the top of the trough, the gates J, pivoted above the trough between said wings, rods connecting the wings with the rails, and bars or straps secured to the rails and passing under the conduit or trough, substantially as shown and described.

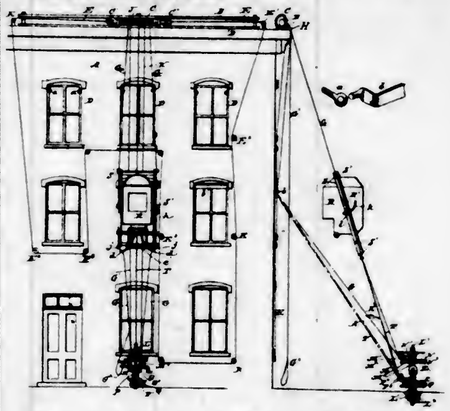
349,869. GATE-ACTUATING MECHANISM. WILLIAM R. WHITE, Neoga, Ill. Filed Apr. 24, 1885. (No model.)



Claim.—1. In a gate, the combination, with the vertical standards A B, each carrying rollers upon which the gate slides, of a reciprocating bar, G, connected by a pitman to the gate, and a pair of parallel arms, A, pivoted at one end to the standard B and at the other to the bar G, substantially as described and shown.

2. The combination, with the vertical standards A B, the sliding gate, the reciprocating bar G, and the pitman *f*, of the parallel links A A and the strip *s*, substantially as described and shown.

349,870. FIRE-ESCAPE. THEODORE B. WOODWARD, Norway, Pa. Filed Mar. 27, 1886. (No model.)



Claim.—1. The combination, in a fire-escape, of a pair of rails secured one above the other and parallel therewith along the edge of the roof of a house, a carrier mounted on two grooved-edged wheels between the said rails, spools journaled in the said carrier to receive wires or ropes, a system of pulleys attached to the house near the window thereof and at the ends of the said rails, and a wire or cord passing around the said system at its ends to the ends of the said carrier, substantially as shown and described, for the purpose specified.

2. The combination of two rails secured along the edge of the roof of a house, a carrier mounted between the said rails on wheels, two

double spools journaled in the said carrier, a pair of wires wound upon one of the said spools side by side, and means for securing the same to the ground, an elevator-car mounted on the said pair of wires, another pair of wires wound in opposite directions upon the other spool of the carrier, the first of which is secured to the top of the car and the second to a windlass on the ground, the said windlass being provided with a double spool and a wire wound thereon in the direction opposite to the said second wire and connected with the lower end of the car, substantially as shown and described.

3. The combination of a winch or windlass having a vertical shaft squared along its lower end and spools journaled on the upper portion of said shaft, a socket buried vertically in the ground and fitted to receive the square portion of the said shaft, a spool or pulley mounted on a house opposite to the socket, and connecting-wires, substantially as shown and described.

4. The combination, in a fire-escape, of a shaft adapted to be fixed vertically in the ground, two collars fixed on the said shaft, a double spool journaled on the shaft between the collars, and provided with a beveled gear-wheel at one end and a ratchet-wheel at the other end, a crank-shaft journaled horizontally in brackets of one of the collars, and a beveled gear-wheel thereon engaging the aforesaid beveled gear-wheel, a double spool journaled on the said vertical shaft above the upper collar, and provided with lever-arms and with a ratchet-wheel, and pawls pivoted to the two collars to engage the two ratchet-wheels, substantially as shown and described.

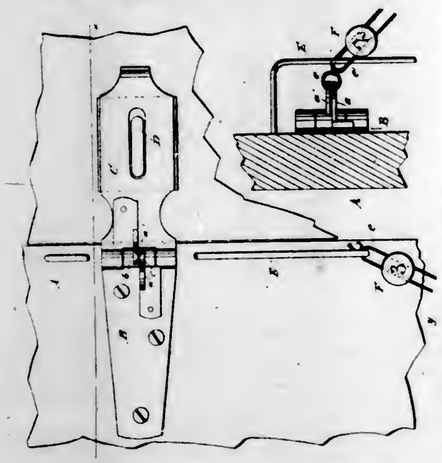
5. The combination of a fire-escape car, a bail in which the same is pivoted above its center of gravity, wires secured to the house and to the ground and passing through eyes along the sides of the bail, wires secured to the upper and lower ends of the bail, and spools for the same, substantially as shown and described, whereby the car may be guided on the first wires and raised or lowered by the second wires, as specified.

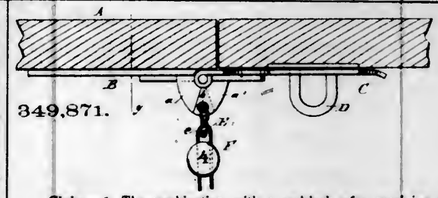
6. The combination, in a fire-escape, of means for attaching wires at the edge of the roof of a house, a windlass secured on the ground at some distance from the house, eyes or loops secured at the sides of windows in the house, and a cross-bar having ends adapted to engage the said eyes, substantially as shown and described, whereby the said wires may be guided to any window thus provided, as set forth.

7. The combination, in a fire-escape, of guide-wires secured to a house and to the ground in front of it, a bail mounted to ride on the said wires, a car pivoted above its center of gravity in the said bail, a pair of brakes engaging at their lower ends the said wires, their upper ends being secured to the said bail nearer together than their lower ends, a loop inclosing the slanting bodies of the said brakes and secured to play vertically through the said bail by means of side bars and a cross-bar joining them, a hand-lever pivoted within the car, and a link or connection attached to the lever and passing down through the bottom of the car, and provided with a circular arc concentric with the pivot of the car, to engage the said cross-bar, substantially as shown and described.

8. The combination, in a fire-escape, of a bail, a car pivoted above its center of gravity in the bail, and provided with a grooved arc in its side concentric with its pivot, and a set-screw mounted in an arm of the bail in position to engage the said arc, substantially as shown and described.

349,871. SEAL-LOCK. SIDNEY E. ALLEN, Winston, N. C. Filed July 29, 1886. (No model.)





Claim.—1. The combination, with a seal-lock, of a receiving device for holding and retaining the seals, when broken, substantially as described.

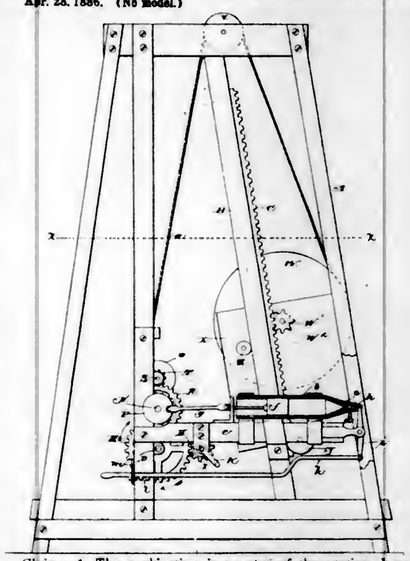
2. The plate B and hasp C, hinged to the plate B by an ordinary knuckle-hinge, in combination with the apertured plates *a a'*, attached, respectively, to the plate B and hasp C at the hinge, so that in opening the hasp C the plate *a'* will swing in a plane parallel with the plane of the plate *a*, for severing the seal-wire, substantially as described.

3. The combination, with the plate B and hasp C, hinged together, of the seal-retaining wire E, permanently attached at its ends to the lock, substantially as described.

4. The plate B and hasp C, provided with perforated lugs *a a'*, in combination with the seal holder or receiver E, substantially as described.

5. The method herein described of sealing cars and other objects, which consists in uniting the wire to the lock with a knot, then connecting the wire with a receiver for the broken seals, and finally compressing the leads upon the sealing-wire and forming a figure or design thereon to indicate the origin of the seal, substantially as and for the purposes described.

349,872. WEIGHT-MOTOR. THOS. J. BLAGG, Waverly, Nebr. Filed Apr. 28, 1886. (No model.)

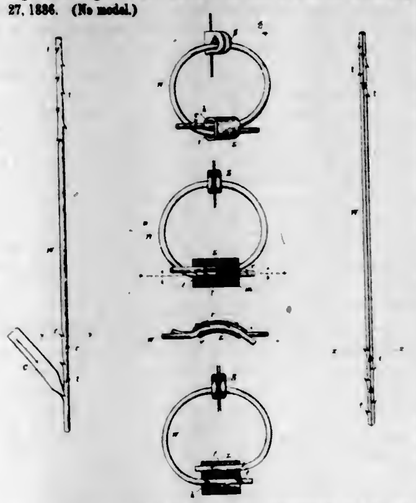


Claim.—1. The combination, in a motor, of the rotating descending weighted drum W, the operating-drum F for the motor, and the rope connecting the said drums, whereby when the drum W descends the rope is coiled thereon and uncoiled from the drum F, which is caused to rotate in one direction, and when the said drum F is rotated in the contrary direction the rope is coiled thereon and uncoiled from the drum W, thereby rotating and elevating the latter, substantially as described.

2. The combination, in a weight-motor, of the inclined track-bars having the spur-teeth C, the drum F for the motor, the weighted drum W, having the spur-pinions W', engaging with the rack-teeth C, the pulley or drum V at the upper end of the inclined track, and the rope *a*, having one end attached to the drum F and the other end attached to the drum W, substantially as described.

3. The combination, in a weight-motor, of the shaft D, having the ratchet L and the loose drum F, the descending rotating weighted drum W, the pulley or drum V, the rope connecting the drums F and W, and means for rotating the drum F independently of its shaft D, for the purpose set forth, substantially as described.

349,873. LEAD-AND-WIRE SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed Aug. 27, 1886. (No model.)

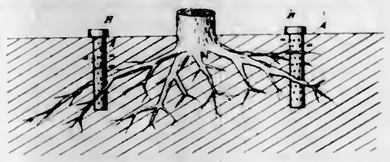


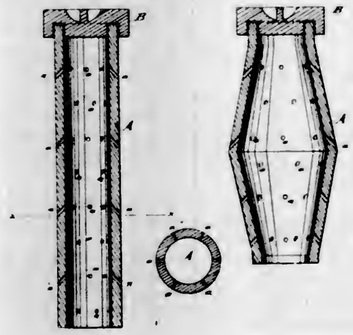
Claim.—1. In a lead-and-wire seal, the combination of the lead of a shackle of single thick wire having one or each end threaded into the lead and provided with ratchet anchoring-teeth, each of which has an inclined back, a radially-projecting sharp point, and a broad flat face, the faces of said teeth being directed toward mid-length of the shackle, substantially as herein specified.

2. The combination, in a lead-and-wire seal, of a shackle of single thick wire having each end provided against withdrawal with ratchet anchoring-teeth, and a seal proper of lead having a single longitudinal threading-hole oblong in cross-section into which hole the respective shackle ends are threaded in opposite directions, substantially as herein specified.

3. The within-described method of fastening a lead-and-wire seal, the shackle of which is provided at each end with ratchet anchoring-teeth to resist withdrawal, consisting in threading the respective shackle ends into the lead in opposite directions and drawing out the lead longitudinally at the pressing operation, substantially as specified.

349,874. ROOT-FERTILIZER. JACOB BÜHRER, Konstanz, Baden, Germany, assignor of one-half to Frank B. Van De Velde, Henry T. Van De Velde, and Bernard F. Van De Velde, all of Cleveland, Ohio. Filed Apr. 8, 1886. (No model.) Patented in Germany Aug. 4, 1884, No. 27,756, and in Austria-Hungary Aug. 5, 1884, No. 1,354 and No. 34.



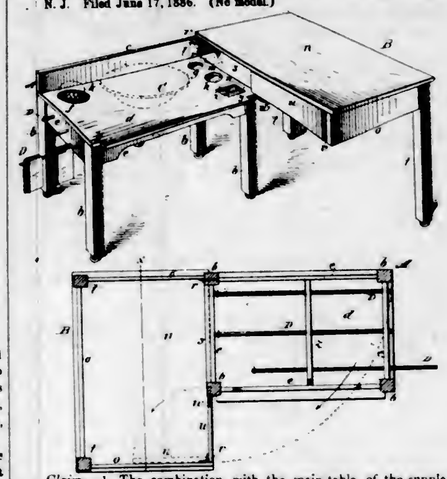


Claim.—1. A distributer for fertilizers, formed of a pipe open at the ends and having perforated sides, substantially as herein shown and described.

2. A pipe for distributing fertilizers, open at the ends and having inclined apertures in the sides thereof, substantially as herein shown and described.

3. The combination, with the fertilizer-distributing pipe A, provided with the inclined holes in the walls thereof, of a cover, B, fitted to the end of the pipe, substantially as herein shown and described.

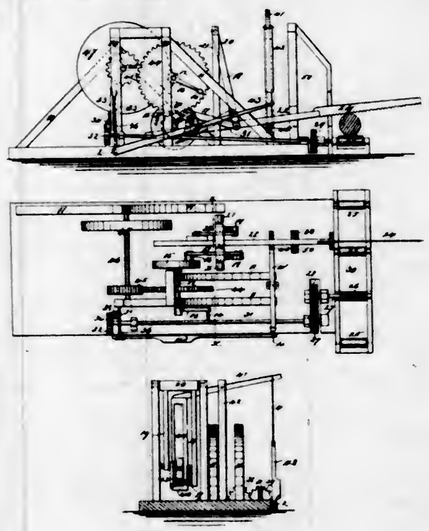
349,875. INFANT'S TOILET-TABLE. HANNAH CROCKER, Plainfield N. J. Filed June 17, 1886. (No model.)



Claim.—1. The combination, with the main table, of the supplementary table hinged to the main table at one end of the back thereof, and having a raised top constructed to form a hollow cover over the top of the main table, substantially as specified.

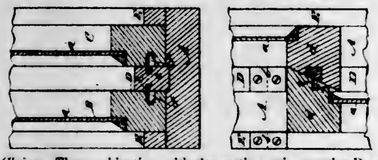
2. In combination with the main table A, the swinging table B, provided with legs adapted to support one of its sides, and with a hinged supporting-leaf upon another of its sides, said table B hinged at one of its corners to the main table at one end of the back thereof, and having a raised top constructed to form a hollow cover, open on its closing side, over the top of the main table, essentially as shown and described.

349,876. DRAG-SAW. JERED P. CYPHERS, Holton, Mich. Filed May 1, 1886. (No model.)



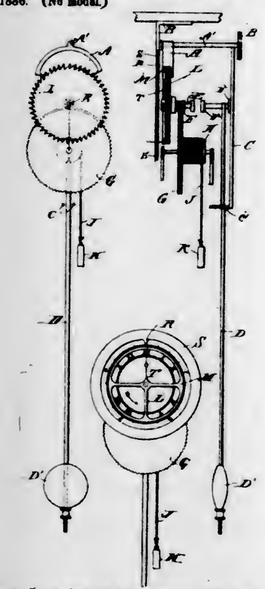
Claim.—A drag-saw comprising the frame, the shaft 12, having the gear 44, the shaft 60 below shaft 12, and having the gear-wheel 61 meshing into the gear 44, and the crank-wheel 15, the shaft 46, having a fly-wheel, 47, and a gear, 45, meshing into gear 44, the standards 21 in front of the crank-wheel, the swinging frame 20, suspended from said standards, the arm 18 of said frame being connected at its lower end to the pin 16 of the crank-wheel by the pitman 17, the bar 22, having the saw 24, and connected at its rear end to the arm 19 of frame 20 by the pitman 23, the vertically-movable gate 40 in front of the frame 20, and means for operating it, and the guide-frame 50 in front of the gate, substantially as set forth.

349,877. WEATHER-STRIP FOR WINDOWS, &c. GEORGE W. EVERETT, New York, N. Y. Filed Mar. 2, 1886. (No model.)



Claim.—The combination, with the parting strip or strips D, of the attached elastic strip or strips *e*, arranged to project from the sides of the parting-strips, and the sash or sashes B C, provided with flutes, grooves, or elongated recesses *f*, adapted to receive under cover of the sashes in a close or closing manner the free edges of the elastic strips within them, essentially as shown and described.

349,878. CLOCK. DOMINGO T. GARCIA, Guadalajara, Mexico. Filed Feb. 13, 1886. (No model.)



Claim.—1. In a clock, the combination, with the clock-work, of two toothed wheels, of which one has one or more teeth more than the other, and of an escapement anchor lever or pallet engaging with both of the said wheels, substantially as herein shown and described.

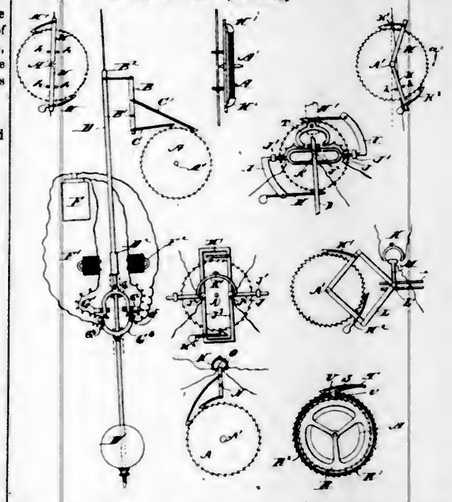
2. The combination, with a clock mechanism, of two toothed wheels, of which one has one or more teeth more than the other, and of an escapement anchor lever or pallet engaging with the teeth of both wheels, the wheel having the smaller number of teeth being mounted rigidly on a spindle or arbor, and the wheel having the larger number of teeth being mounted loosely on said spindle or arbor, substantially as herein shown and described.

3. The combination, with a cog-wheel, of a weight and cord or spring for revolving the same, a pinion engaging with said cog-wheel and mounted on a shaft, two toothed wheels, one of which is mounted rigidly and the other loosely on the pinion-shaft, the loose wheel having one or more teeth more in its rim than the fixed wheel, and of an escapement anchor lever or pallet engaging with the teeth of both wheels, substantially as herein shown and described.

4. The combination, with a clock-work mechanism, of two toothed wheels mounted on the same shaft, one being fixed and the other loose, the fixed wheel having less teeth than the loose wheel, and an escapement anchor pallet or lever engaging with both wheels, the loose escapement-wheel having part of its face cut out and a circular scale formed around the opening, and the fixed wheel with the smaller number of teeth having a circular scale produced on its face, substantially as herein shown and described.

5. The combination, with a clock-work mechanism, of two toothed wheels mounted on the same shaft, one being fixed and the other loose, the fixed wheel having fewer teeth than the loose wheel, an escapement pallet anchor or lever engaging the teeth of both wheels, the front loose wheel provided with the larger number of teeth having part of its face cut out to form an opening through which the rear wheel having the smaller number of teeth shows, a pointer formed on the front loose wheel having the larger number of teeth and projecting over a scale on the face of the inner fixed wheel having the smaller number of teeth, and of a casing or frame having a pointer projecting over the scale formed on the face of the front loose wheel with the larger number of teeth, substantially as herein shown and described.

349,879. ELECTRIC CLOCK. DOMINGO T. GARCIA, Guadalajara, Mexico. Filed Feb. 13, 1886. (No model.)



Claim.—1. A clock provided with two ratchet-wheels, of which one has a few more teeth than the other, and with two pawls operated by the actuating mechanism of the clock, and each engaging alternately with the teeth of both ratchet-wheels, substantially as shown and described.

2. In a clock, the combination, with two wheels, of which one has one or more teeth more than the other, of two pawls each engaging with the teeth of both wheels, and devices for operating said pawls from the pendulum to cause the pawls to operate alternately, substantially as herein shown and described.

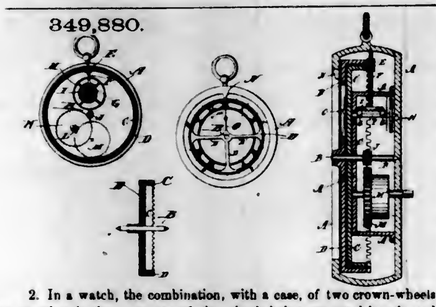
3. In a clock, the combination, with two wheels mounted on the same shaft, and one having one or more teeth more than the other, of two pawls, each engaging with the teeth of both wheels, the frame or lever to which the pawls are pivoted, and a pendulum actuating said frame or lever, substantially as herein shown and described.

4. In a clock, the combination, with a ratchet-wheel, of two pawls engaging the teeth of the ratchet-wheel, the frame or lever to which the pawls are pivoted, a pendolum actuating the said frame or lever, a fixed frame having electric contact-points, a movable frame operated by the pendulum, and having electric contact-points adjacent to those on the fixed frame, and an electric battery connected with the above-mentioned contact-points, and with electro-magnets acting on the pendulum, substantially as specified.

349,880. WATCH. DOMINGO T. GARCIA, Guadalajara, Mexico. Filed Apr. 13, 1886. (No model.)

Claim.—1. In a watch, the combination, with the case, of two crown-wheels mounted on the same arbor, one wheel having one or more teeth more than the other, and of a pinion on the escapment-arbor in gear with the teeth of both crown-wheels, substantially as herein shown and described.

349,880.



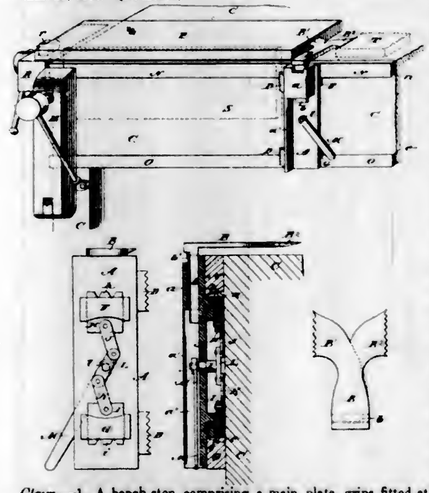
2. In a watch, the combination, with a case, of two crown-wheels on an arbor in the case, one of the wheels being mounted loosely and the other rigidly, and one crown-wheel having a few more teeth than the other, and of a pinion on the escapment-arbor in gear with the teeth of both crown-wheels, substantially as shown and described.

3. In a watch, the combination, with a case, of a spindle in the same, a pinion on the spindle-gearing for revolving the spindle from the mainspring, two-crown wheels mounted on the spindle, one rigidly and the other loosely, and one of said wheels having a few teeth more than the other, and of a pinion on the escapement-arbor in gear with the teeth of both wheels, substantially as specified.

4. In a watch, the combination, with a case, of two crown-wheels mounted on an arbor in the case, one of the wheels having a few teeth more than the other, a pinion engaging with the teeth of both crown-wheels, a shaft carrying the pinion, a crown scape-wheel on the shaft, and pallets and balance-wheel controlling the motion of the scape-wheel, substantially as shown and described.

5. In a watch, the combination, with the case, of the spindle or arbor B in the same, gearing for revolving the spindle from the mainspring, the crown-wheels C D on the arbor, the wheel D being mounted loosely and having a few teeth more than the wheel C, which is mounted rigidly, the pointer O on the open wheel D, registering with the circular scale on wheel C, a fixed pointer registering with the scale on wheel D, and an escapement in gear with both wheels C and D, substantially as specified.

349,881. BENCH-STOP. GEORGE B. GARDNER, Lynn, Mass. Filed Mar. 25, 1886. (No model.)



Claim.—1. A bench-stop comprising a main plate, gripe fitted at the back of the plate and adapted to be forced into guide-strips fixed to the side of a work-bench, and dogs, as at D, at the front edge of the main plate and adapted to hold the back end of work clamped to the side of the work-bench, substantially as herein set forth.

2. The combination, in a bench-stop, of a main plate, A, provided with a slotted lug, *a*, a dog, B, having a shank, *b*, fitted in the lug *a*, and having a toothed body portion adapted to overlap the top of a work-bench, dogs, as at D, at the front edge of plate A and adapted to hold the back end of the work at the side of a bench, and devices adapted to clamp the plate A to the side of the bench, substantially as herein set forth.

3. The combination, in a bench-stop, of a main plate, A, having a slotted lug, *a*, a dog, B, having a shank, *b*, fitted in lug *a*, and provided with a toothed body portion adapted to overlap the top of a work-bench, gripe H I, fitted at the back of plate A and adapted to clamp guide-stripe fixed at the side of a work-bench, links J K, attached to gripe H I, a plate L, pivoted to plate A and also to links J K, and a lever, M, connected to plate L, substantially as and for the purposes herein set forth.

4. In combination, a work-bench provided with guide-stripe N O at the side, and a bench-stop comprising a main plate, A, gripe H I, fitted thereto and adapted to clamp the stop to the stripe N O, links J K, pivoted plate L, a lever, M, connected to plate L, and one or more work-holding dogs fitted to plate A, substantially as herein set forth.

5. In a bench-stop, the combination, with a main plate, A, held adjustably to the side of a work-bench, of a dog, B, fitted in plate A and bent over the top of the bench, and provided with oppositely-extending extremities B' B^2, adapted to hold the work, substantially as herein set forth.

349,882. ROAD-CART. WILLIAM B. GETTY, Hicksville, Ohio. Filed Aug. 4, 1886. (No model.)



Claim.—1. In a road-cart, the combination of an axle, the thills connected to the axle, a suspended frame arranged between the thills and axle and beneath the plane thereof and carrying an elevated seat, the front springs affixed to the thills and pivotally connected to the front part of the suspended frame, a transverse rear spring arranged in front of the axle and connected at its ends with the rear ends of the thills, a spring-support secured to the middle of the spring, and the vertical shackles pivotally connected to the suspended frame and the free ends of the spring-support, substantially as described, for the purpose set forth.

2. In a road-cart, the combination of an axle, the thills connected to the axle, a suspended frame arranged between the thills and axle and beneath the plane thereof and carrying an elevated seat, the curved front springs affixed rigidly to the thills at one end and pivotally connected to the front end of the suspended frame, a transverse spring arranged in front of the axle and having its extremities bent around the rear ends of the thills and pivotally connected thereto, a spring-support secured to the middle of the transverse spring, and the vertically-disposed shackles pivotally connected to the suspended frame and the free ends of the spring-support, substantially as described, for the purpose set forth.

3. The combination, in a road-cart, of the thills, an axle, a frame carrying a seat, the front springs connecting the frame with the thills, the rear transverse spring, the block secured to the transverse spring at its middle, the spring-support affixed to the block and having the curved ends, the brace-irons affixed to the seat-frame, and the pivoted vertical shackles intermediate of the free ends of the spring-support and the brace-irons, substantially as described.

4. In a road-cart, the combination of an axle, the thills connected with the axle, a frame carrying a seat and comprising the side rails, the platform-bars connecting the side rails and the uprights on which the seat is secured, and the rear and front springs, K L, arranged and connected, as described, for suspending the frame out of contact with the thills and axle, substantially as described.

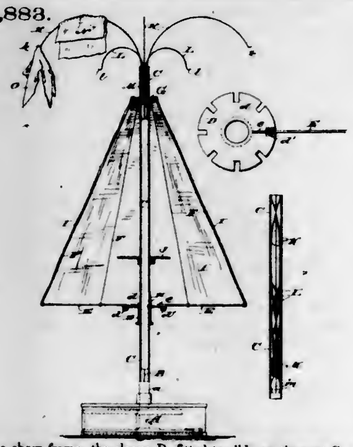
5. In a road-cart, the combination of an axle, the thills connected thereto, a suspended frame comprising the diagonal side rails or bars having the upwardly-curved front ends, the transverse rails or bars connecting the side rails near their rear ends, a segmental cross-bar having a mortise in its rear side in which one edge of one of the transverse bars is fitted, and the vertically-disposed standards affixed to the rear ends of the side bars and carrying a seat at their upper ends, and the front and rear springs arranged, as described, for suspending the frame from the axle and thills and out of contact therewith, substantially as described, for the purpose set forth.

349,883. REVOLVING SHOW-FRAME. WILLIAM H. GEHUNG, Madison, Ohio. Filed July 30, 1885. (No model.)

Claim.—1. A show-frame comprising a base, A, a spindle, B, journaled therein, mechanism in the base for rotating the spindle, a post, C, fixed to the spindle, a sleeve, D, arms E *e*, hinged thereto, cords F F', fabric covering I, spring H, and elastic arms K L, tied together at M, and having diverging ends *m*, and fitted in post C, all substantially as herein set forth.

2. The combination, in a show-frame, of the base A, a spindle, B, journaled therein, mechanism in the base for rotating the spindle, a post, C, fixed to the spindle, the sleeve D, arms E *e*, hinged thereto, the spring H, cords F F', and fabric covering I, substantially as herein set forth.

349,883.



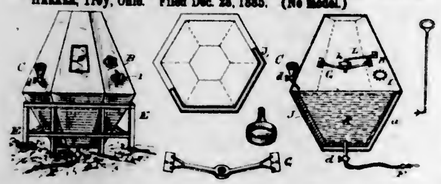
3. In a show-frame, the sleeve D, fitted to slide on the post C, and having arms E, hinged to its flange *d* at *d'*, and said arms having ends *e*, overlapping the flange *d*, and the spring H, combined for operation substantially as herein set forth.

4. The combination, in a revolving show-frame, and with the actuating-motor thereof, of a spindle, B, connected with the motor, a hollow post, C, rotated by said spindle, and a series of elastic arms, K L, tied together at or near one end and fitted adjustably in the post C, substantially as herein set forth.

5. The combination, in a revolving show-frame, and with the actuating-motor thereof, of a spindle, B, a post, C, rotated thereby, a series of arms, K L, tied together at or near one end and fitted in the post C, and fabrics, as at N O, hung on said arms, substantially as herein set forth.

6. In a show-frame, the combination, with the hollow rotating post C, of a series of elastic curved arms, as at K L, tied together at M, and bent divergently at their lower ends, as at *m*, to take frictional hold in the post, substantially as herein set forth.

349,884. APPARATUS FOR MEDICATING WATER. CHARLES C. HARKER, Troy, Ohio. Filed Dec. 28, 1885. (No model.)



Claim.—1. A water-medicating apparatus consisting of an air-tight vessel having its lower part lined with a non-corrodible substance, a supply-funnel provided with a cock, a cup supported upon a bracket and adapted to contain burning charcoal and sulphur, a glazed peep-hole, a stuffing-box adapted to receive through it an agitator, and a draw-off pipe at the bottom of the vessel, substantially as described.

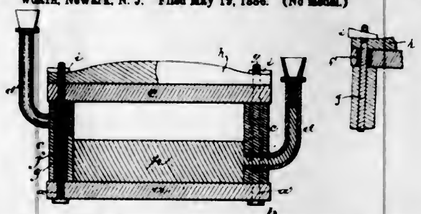
2. The combination, with an air-tight tank, for the purposes described, having its lower portion lined with wood, surrounded by an air-space, a draw-off pipe provided with a cock, a feed-funnel, also provided with a cock, a furnace, H, a glazed peep-hole, and a hand-hole, substantially as described.

349,885. MANUFACTURE OF PAINT. GEORGE W. HOLLEY, Ithaca, N. Y. Filed Nov. 19, 1885. (Specimens.)

Claim.—1. The process for making improved paints or pigments herein described, which consists in first thoroughly mixing with the given quantity of mineral oxide, earth, or other pigmentary material from one-tenth to one-half its weight of flour of sulphur, then gradually adding to the mixture about one-third of its weight of linseed-oil, previously heated to a temperature of 80° centigrade, constantly stirring the the same meanwhile, and at the same time gradually raising the temperature to about 120° or 125° centigrade; thirdly, allowing the whole slowly to cool down while being constantly stirred, and lastly grinding the mass as paint is ground, and thinning the same when necessary to the desired consistency for use as a paint, substantially as set forth.

2. The improved product, composition, or paint herein described, consisting of a given quantity of mineral oxides, earths, or other pigments, combined with from one-tenth to one-half its weight of finely-pulverized sulphur and linseed-oil, in the proportions and in the manner specified, all substantially as set forth.

349,886. MOLD FOR CASTING COMPOUND INGOTS. JOHN ILLINGWORTH, Newark, N. J. Filed May 19, 1886. (No model.)



Claim.—1. The improved ingot-mold herein described, combining the bottom and top plates, movable side plates, bolts, wedges, or keys, and a funnel or aperture through which the metal may be poured, substantially as set forth.

2. The combination, in a mold, with the bottom and top plates and movable side plates, of funnels having their exit to the mold-chamber at different elevations, substantially as shown and described.

3. The combination of bottom and top plates, movable side plates, a funnel or funnels, bolts, keys, and braces A, said parts being arranged and combined substantially as set forth.

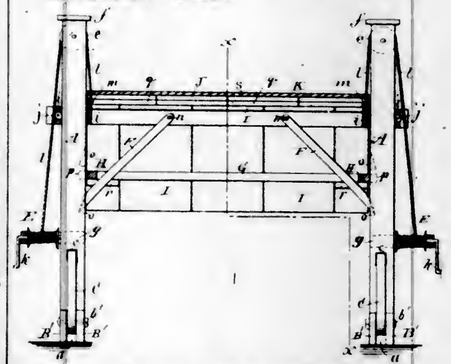
4. In combination with the bottom and top plates, intermediate movable side plates, and funnels, bolts which extend from said bottom to the top plate, and suitable keys, which bear on said top plate and positively prevent any vertical play or movement thereof, substantially as set forth.

5. A mold substantially such as herein described, for casting plates for covering the exposed sides of ships, fortifications, &c., having yielding sides, a top plate or cover, and a bottom bolted together, and a funnel, combined substantially as set forth.

6. In combination, in an ingot-mold, a bottom, top plate or cover, and movable sides, and bolts which extend from the bottom through the cover and hold the sides in place, said bolts being arranged in slots which extend in the direction of expansion of the solidifying metal or approximately at right angles to the sides of the molds, substantially as set forth.

7. In combination with the bottom and top plates and movable sides, and funnels *d d'*, having their exits at varying heights in said movable sides, substantially as set forth.

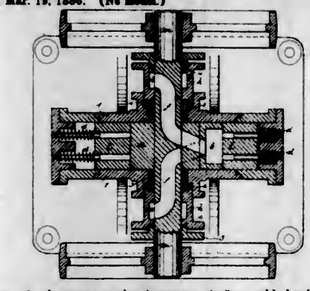
349,887. PORTABLE ROOF. CLARK MCE. KEELER, Haskins, Ohio. Filed Jan. 13, 1886. (No model.)



Claim.—1. In a portable roof, the combination of the posts A, sills B, braces C, ridge-pole D, braces F, the frame formed of the end bars, H, and side bars, G, the roof-boards I J, having cleats *q* upon opposite ends and provided with cleats *r*, for engaging the side-bars, G, and means for raising and lowering the roof, substantially as herein specified.

2. In a portable roof, the combination of the posts A, provided with the notches *o*, the sheaves *e*, journaled in the upper ends of the posts, the sills B, braces C, the ridge-pole D, formed of beams *h h*, the braces F, the frame formed of end pieces, H, and side pieces, G, roof-boards I J, having end cleats, *q*, L-shaped cleats *r*, windlasses E, and ropes *l*, substantially as herein specified.

349,888. STEAM-ENGINE. HERMAN KNEMEL, Birmingham, Ala. Filed Mar. 19, 1886. (No model.)



Claim.—1. A rotary engine having a shaft provided with a piston having a head, and with steam-channels opening at their inner ends on opposite sides of the head, and extended thence outward in opposite directions, substantially as set forth.

2. The combination of the casing or shell having blades *l*, the piston having head *b*, and a rib, *c*, and having a notch, *e*, at the base of such rib, substantially as set forth.

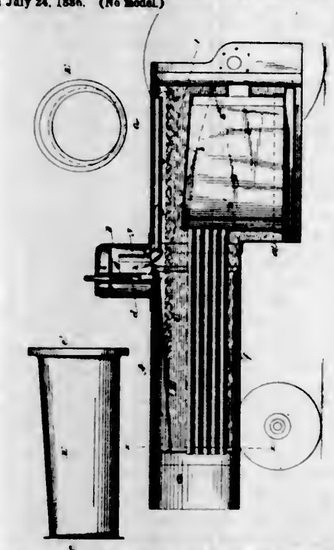
3. The combination of the casing, the shaft having a piston-head and provided with channels opening at their inner ends on opposite sides of the head, and extended thence outward in opposite directions, the valve-chamber and valve, and the pipes connecting said chamber with the channels of the shaft, and extended on opposite sides of the casing, substantially as set forth.

4. The combination of the casing or shell, the shaft having a piston-head and channeled, substantially as described, the glands A, having internal chambers, *i*, registering with the outer ends of the channels of the shaft, the valve and its chamber, and pipes connecting said chamber and the glands, substantially as set forth.

5. In a rotary engine, a piston formed of a body portion having a portion of its periphery cut away, forming shoulders 9 9, and the head and ribs conformed to the body portion, and the ribs abutting at their ends the shoulders 9, substantially as set forth.

6. The combination of the shaft having a piston-head and channels whereby to conduct the live steam to and discharge the exhaust from the piston, a gland having an internal chamber and fitted over the outer end of the live-steam channel, and a pipe for supplying steam to the gland, substantially as set forth.

349,889. TRACTION-ENGINE BOILER. WILLIAM B. KURTZ, Greencastle, Pa., assignor to the Crowell Manufacturing Company, same place. Filed July 24, 1886. (No model.)



Claim.—1. A traction-engine boiler provided with the internal shell, forming a closed steam-space around said shell and within the boiler, substantially as described.

2. The combination, in a traction-engine boiler, of the internal shell located within the boiler and forming a closed steam-space around said inner shell within the boiler, and a fire-box having an inclined crown-sheet, whereby the level of the water is maintained at all times above the crown-sheet, substantially as set forth.

3. The combination, with a traction-engine and its steam-dome, of the internal shell of gradually-diminishing diameter located within the front end of the boiler, and forming a steam-space within the boiler around said shell, an open pipe connecting said steam-space and the steam-dome, a perforated pipe entering said open pipe and communicating with the engine, and a bent tube entering the steam-dome and communicating with the water-space of the boiler, substantially as and for the purposes specified.

4. The combination, with the boiler A, its dome D, and fire-box B, of the frusto-conical shell E, having flanges *e e'*, the rearwardly-inclined crown-sheet *b*, the pipes *d d'* within the dome, and the pipe G, extending from the water-space into the dome, as described.

349,890. SOAP-DISH. GEORGE H. LAYTON, Jersey City, N. J. Filed Nov. 3, 1885. (No model.)



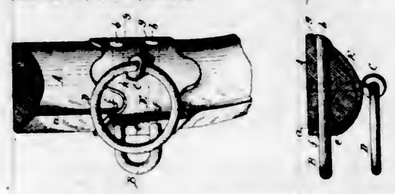
Claim.—As an improved article of manufacture, a soap-dish having an inclined bottom, A, and provided with corrugations *a* and apertures *b* in the said bottom, ribs *c* and apertures *d* in its front B, slots *e* in its back C, and legs projecting from the under surface of the bottom, as specified.

349,891. HAME. JOSIAH LETCHWORTH, Buffalo, N. Y. Filed June 10, 1886. (No model.)



Claim.—The combination, with the hame-body, of a bolt, C, provided with a breast-strap ring, and a washer, E, surrounding said bolt, and provided with projections *f*, which enter the hame-body, and whereby the washer is prevented from turning, substantially as set forth.

349,892. HAME ATTACHMENT. JOSIAH LETCHWORTH, Buffalo, N. Y. Filed June 10, 1886. (No model.)



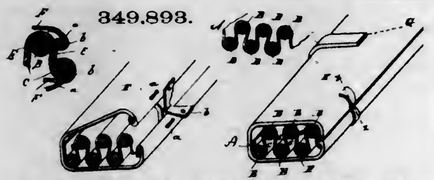
Claim.—1. The combination, with the hame-body, of a shield, E, extending from the outer to the inner side of the body on the front thereof, and provided in its outer and inner portions with openings *f f* and *g g*, respectively, and a draft-staple seated with the outer and inner portions of its legs *b b* in said openings, substantially as set forth.

2. The combination, with the hame-body, of a shield, E, extending from the outer to the inner side of the body on the front thereof, and provided in its outer and inner portions with openings *f f* and *g g*, and in its front portion with an opening, *h*, a draft-staple seated with the outer and inner portions of its legs *b b* in said openings *f f* and *g g*, and a breast-ring bolt, C, seated in the opening *h*, substantially as set forth.

349,893. INSULATOR FOR ELECTRICAL CONDUCTORS. SAMUEL F. MCGILL, Keene, N. H. Filed Apr. 3, 1886. (No model.)

Claim.—1. An insulator for electrical conductors, formed of a sheet of insulating material—such as rubber—bent alternately in opposite directions or folded upon itself to form pockets for receiving the conductors, substantially as described.

349,893.



2. The combination, with a sheet of insulating material—such as rubber—bent alternately in opposite directions or folded upon itself to form pockets, of a non-conducting spring formed of a strip of wood or analogous material bent alternately in opposite directions, forming oppositely-disposed loops, substantially as described.

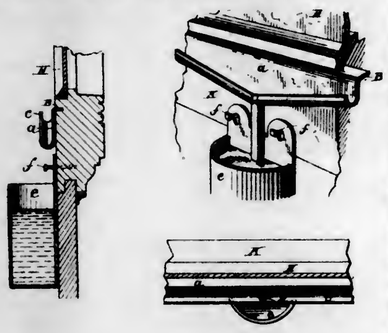
3. The combination, with a sheet of insulating material—such as rubber—bent alternately in opposite directions or folded upon itself to form pockets, of a non-conducting spring formed of a strip of wood or analogous material bent alternately in opposite directions, forming oppositely-disposed loops, and covering E, secured to the spring, substantially as described.

4. The combination, with the insulator A, formed of a sheet of insulating material bent alternately in opposite directions, forming longitudinal pockets for receiving the electrical conductors, and the electrical conductors contained by the pockets, of the canvas covering F and means, substantially as shown and described, for fastening the covering.

5. The combination, with the insulator A, formed of a sheet of insulating material bent alternately in opposite directions, forming longitudinal pockets for receiving the electrical conductors, and the electrical conductors contained by the pockets, of the canvas covering F, having holes *a*, and the leather strap *b*, provided with widened ends, secured to the insulating-covering and received in the holes *a*, substantially as described.

6. The combination, with the insulator A, formed of a sheet of insulating material bent alternately in opposite directions, forming longitudinal pockets for receiving the electrical conductors, and the electrical conductors contained by the pockets, of the canvas covering F and springs G, embracing the covering, substantially as described.

349,894. **WATER CONDUCTOR AND RECEIVER.** WILLIAM H. MCKEEVER, Waverly, Ohio. Filed Mar. 23, 1886. (No model.)



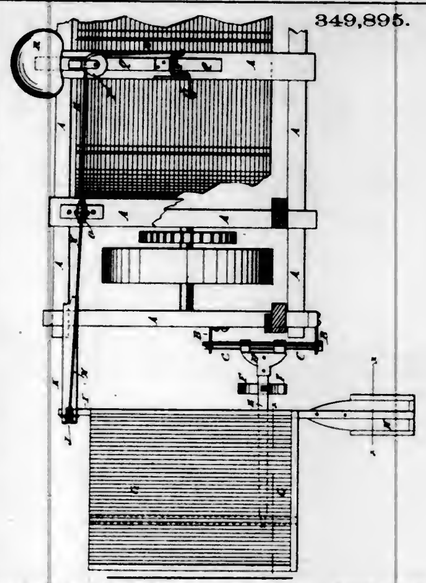
Claim.—The combination, with the water-conductor and its discharge-pipe, of the receiver *e*, as herein shown and described.

349,895. **BUNDLE-CARRIER FOR SELF-BINDING HARVESTERS.** CHARLES F. MORGAN, Taylor, Minn. Filed Dec. 16, 1885. (No model.)

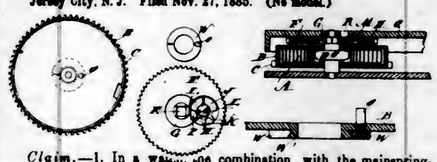
Claim.—1. The combination, with a harvester-frame, A, of the supporting-bar E, secured to the said frame, the platform G, hinged near one end to the said bar, and provided at its hinged end with a weight-box, H, and at its other end with a latch, I, the pivoted catch-bar J, provided with a spring, M, and the cord N, the guide-pulleys O P, and bent foot-lever S, substantially as herein shown and described, whereby the said platform will be securely supported, can be readily tripped, and will return automatically to its normal position, as set forth.

2. The combination, with the harvester-frame A, provided with the brackets B and the rod C, of the hinged platform G, the bar E, to which the platform is hinged, the eye-plate D, secured to the said bar and fitted to turn and slide back and forth upon the said rod, and the U-shaped strap F, secured to the said bar and the binder-frame, substantially as herein shown and described, whereby provision is made for adjusting the platform forward or backward to correspond with the adjustment of the binder.

349,895.



349,896. **WINDING-STOP FOR MAINSPRINGS.** CHARLES MORLEY, Jersey City, N. J. Filed Nov. 27, 1885. (No model.)



Claim.—1. In a watch, the combination, with the mainspring-barrel and barrel-arbor, of a winding-wheel revolving with the arbor, of a toothed wheel revolving with the said wheel on the arbor, and of a pin on the barrel and adapted to engage with the teeth of the toothed wheel, substantially as herein shown and described.

2. In a watch, the combination, with the mainspring-barrel and the spring-arbor, of a winding-wheel turning with the arbor, a toothed wheel in a recess in the wheel on the arbor, and a pin on the barrel adapted to engage with the teeth of the toothed wheel, substantially as herein shown and described.

3. In a watch, the combination, with the mainspring-barrel and the spring-arbor, of the wheel F, mounted on the spring-arbor to turn with the same, the wheel J, mounted to turn in a recess in the under side of the wheel F, and the pin O, projecting from the top of the spring-barrel into the groove G in the under side of the wheel F, and adapted to engage with the teeth of the wheel J, substantially as herein shown and described.

4. In a watch, the combination, with the plate Q, having the slot R, of the spring-barrel B, the pin O, projecting upward from the same, the winding-wheel F on the spring-arbor, and the toothed wheel J on the under side of the wheel F, the said wheel F having the slot P, substantially as herein shown and described.

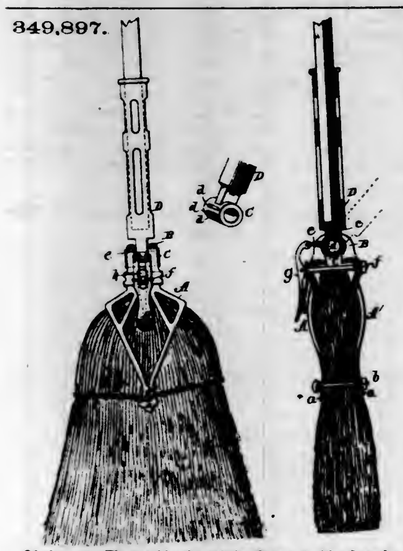
5. In a watch, the combination, with the wheel F, of the split spring-wheel J, pivoted in the recess in the wheel F, and provided with teeth, substantially as herein shown and described.

6. In a watch, the combination, with a spring-barrel and a barrel-arbor, of a spring-ring held on the under side of the top of the barrel, and a pin projecting from said spring-ring up through and from the top of the barrel, a winding-wheel mounted on the arbor, and a toothed wheel pivoted on the winding-wheel and adapted to engage with the above-mentioned wheel, substantially as herein shown and described.

7. In a watch, the combination, with a spring-barrel provided on its under side with a projection, of a spring-ring snapped on said projection, a pin projecting from said ring up through and from the top of the barrel, a winding-wheel on the arbor above the casing, and a toothed wheel pivoted on the winding-wheel and adapted to engage with said pin, substantially as herein shown and described.

349,897. **BROOM.** WILLIAM A. NIXON, Maple Rapids, Mich. Filed Mar. 16, 1886. (No model.)

349,897.

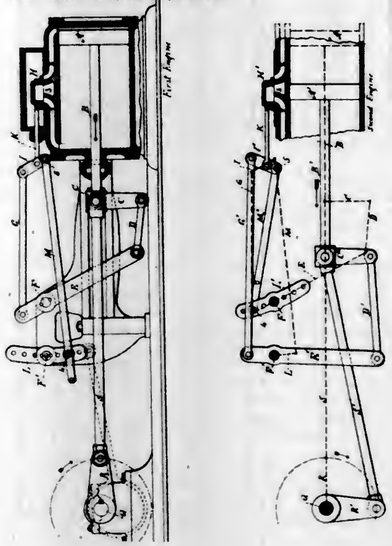


Claim.—1. The combination of the frames A A', adapted to receive the brush of a broom, the bolts *b f*, for clamping the frames on the brush, the knuckle C, provided with the socket D, and having the openings *d*, and adapted to be received in the socket B, formed in the frames A A', and the bolt *e*, adapted to hold the knuckle C in different positions, substantially as herein shown and described.

2. The combination, with the brush and handle of a broom, of the frames A A', bolts *b f*, for clamping the frames to the brush of the broom, the socket D, adapted to receive the broom-handle, and provided with the knuckle C, having the openings *d*, the bolt *e*, and the spring-acted lever *g*, as herein described.

3. The combination, with the frames A A', provided with the socket B, of the bolts *b f*, for clamping the frames to the brush, the handle-socket D, provided with the knuckle C, having the openings *d*, the bolt *e*, lever *g*, pivoted in the bolt *f*, and the spring *h*, secured to the lever *g*, and arranged to hold the bolt *e* in the holes *d* of the knuckle, substantially as herein described.

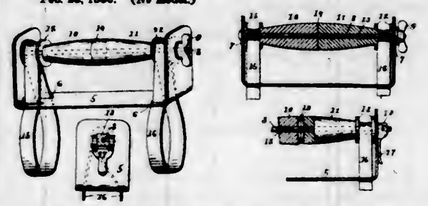
349,898. **VALVE-GEAR.** JOHN H. PENDLETON, Brooklyn, assignor to himself, and Cornelius Tiers and Alexander H. Tiers, both of New York, N.Y. Filed Jan. 9, 1886. (No model.)



Claim.—1. The combination, with two engine-cylinders, their valves and pistons, of the rock-shafts F F', levers E E', and links D D', for connecting the rock-shafts to the respective cross-heads, the links G G', valve-rod levers I I', connecting-rods M M', and the link-levers L L', substantially as specified, the link-levers L L' being on opposite ends of the respective shafts F F', and the levers E E' on the other ends of such shafts, substantially as set forth.

2. The combination, with the valves, valve-rods, lever and link connections, of the two cross-shafts F F', having upon their opposite ends the lever-links, and the cross-shaft T, lever-arms U U', passing off in opposite directions from the cross-shaft, and the connecting-rods to the respective link-connections, substantially as specified, for raising one link-connection and depressing the other in reversing the engine, substantially as specified.

849,899. **SHAWL-STRAP.** JOHN B. PERKINS, Taunton, Mass. Filed Feb. 25, 1886. (No model.)



Claim.—1. In combination, a transversely-divided handle and straps therefor, a tie-rod extending loosely and entirely through said handle in the axial line thereof, a binding device at one end of said tie-rod, whereby the parts of said handle may be rotated independently upon said rod or bound together immovably, substantially as described.

2. In combination, a transversely-halved handle having an interposed yielding washer, straps for said handle, a tie-rod extending loosely and entirely through said handle in the axial line thereof, and a three-sided frame whose opposite uprights support the respective ends of said tie-rod, provided at one end with a fixed head, at the other end with an adjustable nut, whereby the halves of said handle may be independently rotated or rigidly bound together, substantially as described.

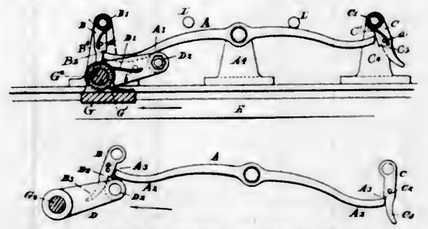
3. The combination, with the frame 5, of the tie-rod 8, set in said frame, and the thumb-nut 9, and of the two-part handle 10 11, provided at the outer ends with the holding-straps 15 and 16, respectively, substantially as described.

4. The combination, with the frame 5, provided with the slots 6, and having the upright ends perforated at 7, of the tie-rod 8, provided with the thumb-nut 9 and set in said perforations 7, and the two-part handle 10 11, provided with the reel-like hubs 12 and channels 13, and the straps 15 and 16, affixed to said hubs and passing down through said slots 6 in the frame, all substantially as and for the purpose described.

349,900. **COMPOSITION FOR PRESERVING FOOD.** WILLIAM RADAM, Austin, Tex. Filed June 8, 1886. (No specimens.)

Claim.—The within-described fumigating composition for preserving and purifying purposes, the same consisting of sulphur, nitrate of soda, black oxide of magnanese, sandal-wood, and chloride of potash, in or about the proportions specified.

349,901. **MECHANICAL MOVEMENT.** ABRAM A. RHEUTAN, Worcester, Mass., assignor to Wade H. Hill, same place. Filed Apr. 17, 1886. (No model.)



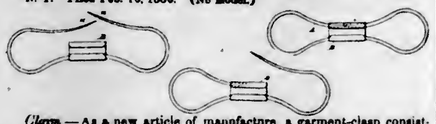
Claim.—A mechanical movement comprising a rocking cam-lever pivoted between the extremities thereof, and adapted to be alternately unlocked and locked at first one end and then the other by means of suitable locking devices, in combination with a traveling body having a reciprocating movement between said lever-locking devices adapted to unlock the latter and to press against the surfaces of the lever, substantially as and for the purposes set forth.

349,902. CUFF-HOLDER. CHARLES H. RICHARDSON and HIRAM A. BARKHAUSEN, Jr., Los Angeles, Cal. Filed June 19, 1886. (No model.)



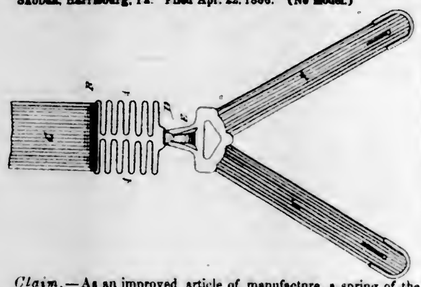
Claim.—A cuff-holder consisting of a single sheet of spring metal having the following parts, as set forth: a perforated and roughened curved plate, A, and the curved and roughened tongue B, constructed, arranged, and combined as set forth.

349,903. CLASP FOR GARMENTS. DONATO ROSADO, New York, N. Y. Filed Feb. 16, 1886. (No model.)



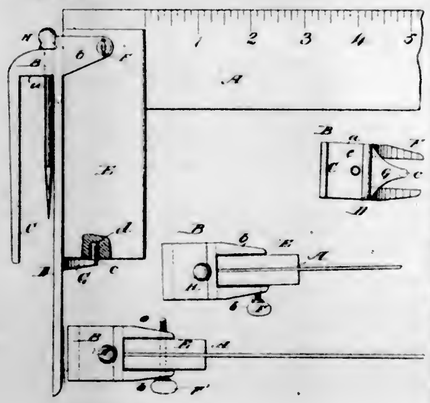
Claim.—As a new article of manufacture, a garment-clasp consisting of spring-wire A, formed in a double loop, the extremities of said wire being pointed and bent forward toward each other, as set forth, and the center of the wire being provided with a keeper, B, secured thereto, adapted to engage with one or both of the pointed ends, and also adapted to entirely cover said points and to protect articles to which the clasp may be attached from injury therefrom.

349,904. METALLIC SPRING FOR SUSPENDERS, &c. JOHN M. SAUDER, Harrisburg, Pa. Filed Apr. 22, 1886. (No model.)



Claim.—As an improved article of manufacture, a spring of the character described, formed of two parallel series of flat loops and cross-pieces connecting said loops at their opposite ends and forming securing or attaching loops, substantially as set forth.

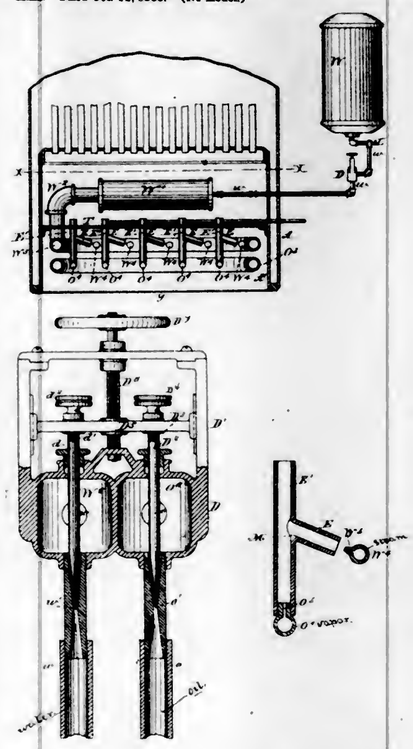
349,905. WEATHER-BOARDING ATTACHMENT FOR TRY-SQUARES. WILLIAM F. SERGEANT, Marshall, Mo. Filed Feb. 10, 1886. (No model.)



Claim.—1. In a combined try-square and scriber, the combination, with a try-square in the stock of which there is formed a recess, *d*, of a scriber formed with two legs, one of which is provided with ears *b b* and a lug, G, said lug having a pin, *c*, that fits within the recess *d*, a set-screw, F, being mounted in one of the ears *b*, substantially as described.

2. The combination, with a try-square, in the stock of which there is formed a recess, *d*, of a scriber formed with two parallel legs, one of which legs is provided with ears *b b*, and a lug, G, having a pin, *c*, adapted to fit within the recess *d*, a set-screw or bolt being mounted in one of the ears *b*, the device being provided with a means for carrying a scribing-point, substantially as described.

349,906. VAPOR-BURNING FURNACE. JAS. M. SHEPARD, Boston, Mass. Filed Oct. 12, 1885. (No model.)



Claim.—1. In vapor-burning furnaces, the combination of the oil-vapor supply-pipe O^4 O^5 with the pipe E', said pipe E' having near its ignition end an air and steam supply pipe, E, substantially as described, and for the purpose set forth.

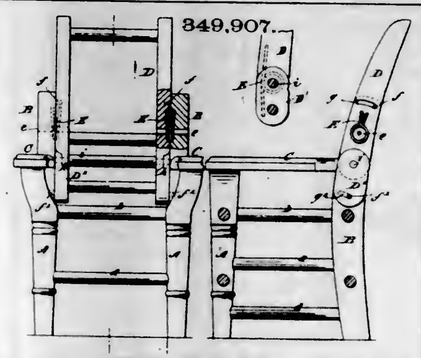
2. The combination of the pipes e e^3 and w w^3 with the regulating-valves D^2 d and their adjusting devices D^3 D^4 d' d^3, with the cross-head D^5 and adjusting-screw D^6 D^7, substantially as described, and for the purpose set forth.

349,907. CHAIR. GEORGE J. SHULTS, Avoca, N. Y. Filed Jan. 15, 1886. (No model.)

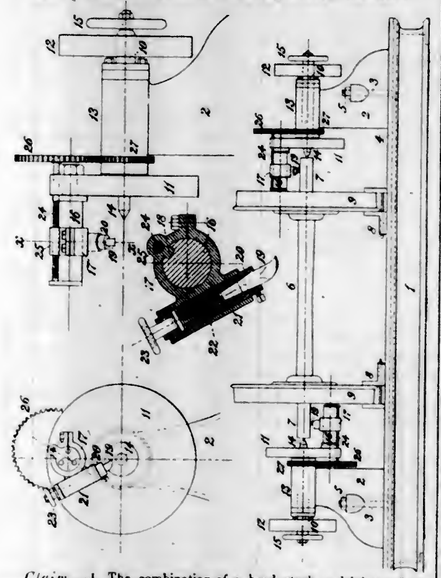
Claim.—1. In a chair having a pivoted back composed of upper and lower sections jointed together and controlled by springs, as described, the combination, with the chair-frame, of the upper chair-back section, D, pivoted intermediately of its height to said frame, the lower chair-back section, D', jointed at its top to the bottom of the section D, and fitted to hang loose or pendent therefrom, and means, substantially as described, for directing its movement at its free lower ends, whereby said lower chair-back section is made to move bodily forward in an approximately-upright position, essentially as and for the purpose herein set forth.

2. The combination, with the rear posts, B, of the chair, of the pivots *e e*, the upper and lower back sections, D D', jointed to each other, as described, the springs E E, and the pins or stops *f f'*, arranged to work in grooves *q q'*, essentially as shown and described.

349,907.



349,908. LATHE FOR TURNING JOURNALS OF CAR-AXLES. HENRY J. SMALL, Brainerd, Minn. Filed Aug. 7, 1886. (No model.)



Claim.—1. The combination of a head-stock, a driving-spindle mounted therein, a radial arm or face-plate secured on said spindle, a tool-carrier bar fixed upon the face-plate, a tool-post head fitted to move longitudinally on and rotate with the tool-carrier bar, and a feed-screw journaled on the tool-carrier bar and engaging a nut on the tool-post head, substantially as set forth.

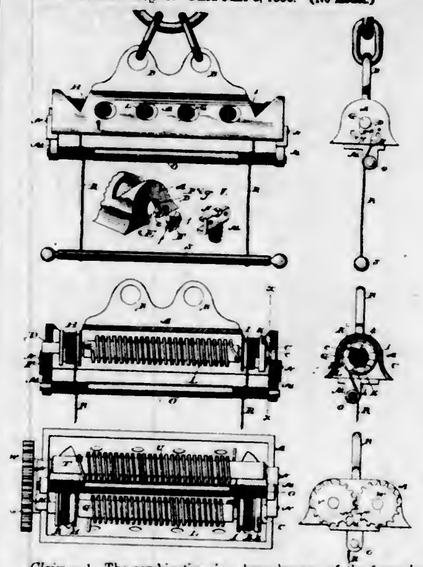
2. The combination of a head-stock, a driving-spindle mounted therein, a radial arm or face-plate secured on said spindle, a tool-carrier bar fixed upon the face-plate, a tool-post head fitted to move longitudinally on and rotate with the tool-carrier bar, a feed-screw journaled on the tool-carrier bar and engaging a nut on the tool-post head, and a gear fixed upon the feed-screw and engaging a stationary gear on the head-stock, substantially as set forth.

3. The combination of a bed-plate, a pair of head-stocks connected adjustably thereto, and a pair of longitudinally-movable tool-post heads each fitted on a bar or support connected parallel with the axis thereof to a spindle mounted in one of said head-stocks, substantially as set forth.

4. The combination of a bed-plate, a pair of head-stocks connected with the capacity of longitudinal movement thereto, a pair of dogs or clamps each adapted to be secured to a car-wheel and connected to the bed-plate between the head-stocks, a pair of spindles mounted in the head-stocks, each having an arm or face-plate fixed upon one of its ends and a driving-pulley on the other, a pair of tool-post heads each fitted to move longitudinally on and rotate with a bar fixed to one of the face-plates, and feed-gearing for imparting longitudinal movement to said tool-post heads, substantially as set forth.

5. The combination of a bed-plate, a pair of head-stocks connected with the capacity of longitudinal adjustment thereto, a pair of adjustable dogs or clamps each adapted to be fixed to a car-wheel and connected to the bed-plate between the head-stocks, a pair of tool-post heads each fitted to move longitudinally on a bar or support connected to a main or driving spindle mounted in one of said head-stocks, and a pair of center spindles each fitted removably in one of said driving-spindles, substantially as set forth.

349,909. HANGER FOR EXTENSION-LAMPS. GEORGE E. SOVEREIGN, Pottersville, N. J. Filed June 8, 1886. (No model.)



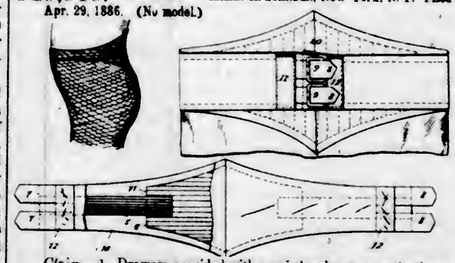
Claim.—1. The combination, in a lamp-hanger, of the frame having the opening D at one end, and the slot E extending from the edge into the said opening, and the hollow stud C at the other end, the removable block F, adapted to fit in the slot E below the opening D, and the spring roller or drum having one end journaled in the hollow stud C, and the other end journaled in the opening D, substantially as described.

2. The combination, in a lamp-hanger, of the rotating drums or roller, the spring coiled thereon, and the elevating-chains coiled in the contrary direction on the roller, and the dogs or detents to arrest the rotation of the roller, with the shaft O journaled below the roller, and having the right and left hand threads to guide the elevating-chains on the roller, substantially as described.

3. The combination, in a lamp-hanger, of the spring-roller G, the dogs or detents engaging therewith, the elevating-chains attached to the said roller, and the spring-roller T, geared to the roller G, for the purpose set forth, substantially as described.

4. The combination, in a lamp-hanger, of the frame having the roller or drum, the shaft O, below the said roller or drum and having the right and left hand threads, and the elevating-chains attached to the roller or drum and passed around the threads of the shaft O, for the purpose set forth, substantially as described.

349,910. DRAWERS. WILLIAM R. STANDEN, New York, N. Y. Filed Apr. 29, 1886. (No model.)

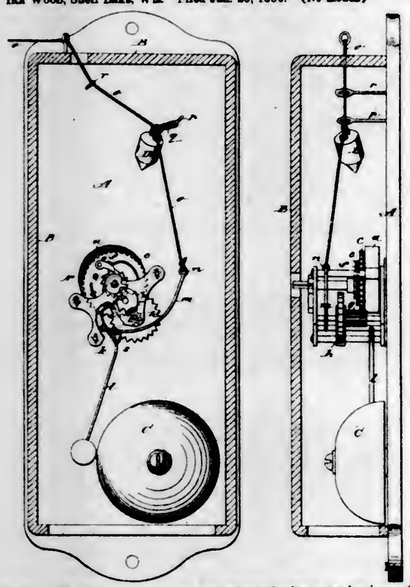


Claim.—1. Drawers provided with a waistband permanently closed at the back and provided with buckles and straps on its free ends, the said back portion being padded and convex transversely to conform to the contour of the small of the back, substantially as herein shown and described.

2. As a new article of manufacture, drawers provided with a waist-band made up of strips or pieces, the permanently-united ends of which are cut with an inward curve, while the forward ends are provided with straps and buckles, substantially as described.

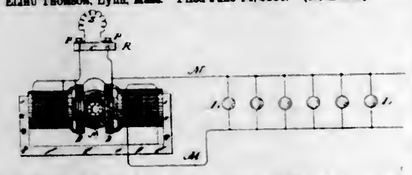
3. As a new article of manufacture, drawers provided with a waist-band consisting of four strips, 10, formed with ends 3, cut with a curve, 4, intermediate lining, 11, buckles 9, and straps 8, substantially as described.

349,911. FIRE AND BURGLAR ALARM. LEANDER E. THOMAS and IRA WOOD, Shell Lake, Wis. Filed Jan. 20, 1886. (No model.)



Claim.—The combination, with a clock-work-alarm mechanism, of a lever, *m*, rigidly fixed to an escapement-lever, and a cord, *o*, formed with a loop, *q*, which is passed through an eye, *p*, and carries a weight, D, substantially as described.

349,912. COMPOUND-WOUND DYNAMO-ELECTRIC MACHINE. ELIHU THOMSON, Lynn, Mass. Filed June 14, 1886. (No model.)



Claim.—1. The combination, in a compound-wound dynamo-machine, of a direct-circuit coil of proper power to give a considerable increase of potential in passing from light to full load, and shunting devices whereby the exciting power of said coil may be lessened to adapt the machine for use in conditions where a lesser increase of potential is required, as and for the purpose set forth.

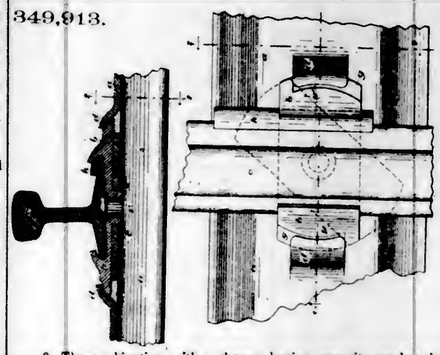
2. The combination, with the direct-circuit field coil in a compound-wound dynamo, of shunt-connections from the same to a set of clamping devices and a set of attachable resistances of graduated amounts, each adapted for connection to the clamping devices.

349,913. PART OF THE PERMANENT WAY OF RAILWAYS. JAMES H. TOZER and WILLIAM TOZER, London, England. Filed June 16, 1886. (No model.)

Claim.—1. A railway-chair constructed with inclined or beveled provisions on its opposite sides or ends, adapted by a twisting movement to be engaged with corresponding fastening projections on a sleeper, substantially as set forth.

2. The combination, with a sleeper having opposite projections, of a chair constructed with corresponding inclines or beveled provisions on its opposite sides or ends, adapted to be engaged with the projections on the sleeper by a twisting movement of the chair relatively to the sleeper, substantially as set forth.

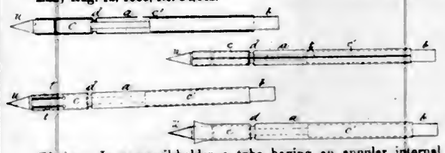
349,913.



3. The combination, with a sleeper having opposite overhanging projections, of a chair having corresponding inclines adapted to enter beneath said projections laterally by a twisting movement of the chair and a swiveled or pivotal connection between said chair and sleeper, substantially as set forth.

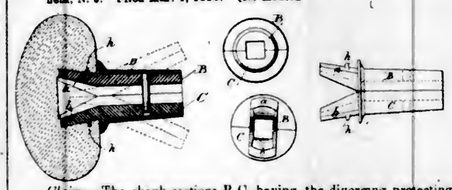
4. The combination, with a sleeper and chair having reciprocal locking provisions adapted to be engaged by a twisting movement of said chair, of a pivot-pin on one of said parts and a socket therefor in the other, substantially as set forth.

349,914. PENCIL-HOLDER. JOHANN TREIBITSCHEK, Dux-Dawitz, Austria-Hungary. Filed May 1, 1885. (No model.) Patented in Germany Aug. 12, 1885, No. 34,442.



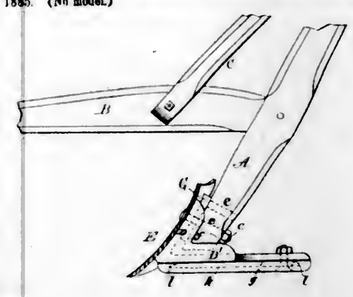
Claim.—In a pencil-holder, a tube having an annular internal shoulder-depression, *d*, in combination with a pusher having two shoulders arranged one on each side of said depression, to serve as stops in connection therewith, substantially as set forth.

349,915. KNOB ATTACHMENT. GARRET VAN WINKLE, North Plainfield, N. J. Filed Mar. 1, 1886. (No model.)



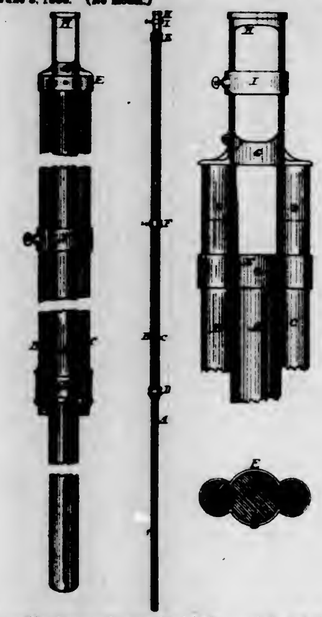
Claim.—The shank-sections B C, having the diverging projecting ends *a b*, said ends being convex on their outer surfaces, and having ribs or projections thereon, in combination with the knob having the dovetailed recess adapted to receive the shank-sections, substantially as set forth.

349,916. PLOW. JONATHAN M. WOODLEY, Clio, S. C. Filed Dec. 28, 1885. (No model.)



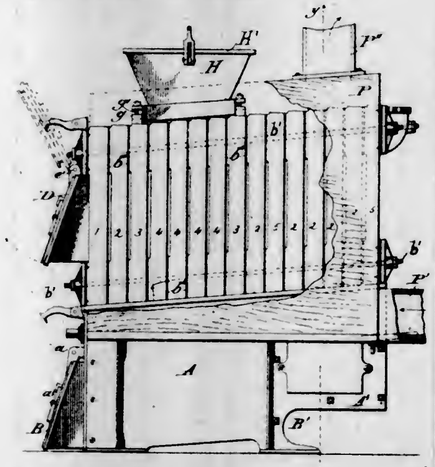
Claim.—The combination with the standard and securing-bolt, of the foot-piece having a longitudinally-slotted curved breast portion and the longitudinal strip upon its horizontal bottom portion, said strip having a hook at one end, the reversible recessed shoe, and the reversible slotted wedge, substantially as and for the purpose set forth.

349,917. EXTENSION-HANDLE. JOHN A. ACKLEY, Cleveland, Ohio. Filed June 3, 1886. (No model.)



Claim.—The improved extension-handle, consisting of the main staff A, the two side staffs, B C, fitting and sliding in shallow grooves in sides of main staff A, and provided with bands D and E and the clamping-band F, the cross-head G, having socket H, all constructed, combined, and operating substantially as and for the purpose specified.

349,918. SECTIONAL STEAM-BOILER. DANIEL L. ADAMS, Reading, Pa. Filed June 17, 1886. (No model.)



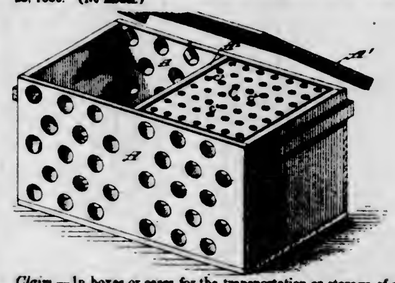
Claim.—1. The herein-described steam-boiler having sections arranged to form an inclined base, which is provided with the ash-pit, combustion-chamber, and smoke-box, said combustion-chamber and smoke-box being separated by a sliding damper, as set forth.

2. The base constructed as shown and described, in combination with the boiler-sections, the lower parts of which form the furnace grate-bars and shaking devices carried upon oscillating rock-shafts, with both an upward and a lateral movement between said grate-bars, as specified.

3. In a sectional steam-boiler, the combination of the several sections arranged upon an incline, with the base constructed as shown, and the outer case surrounding the sections and provided with air-ducts, as and for the purpose stated.

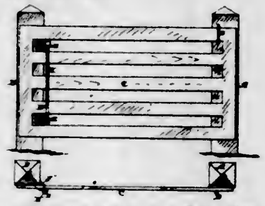
4. The steam-boiler composed of sections arranged as described, in combination with the magazine and fuel-hopper attached to said sections in the manner specified.

349,919. EGG-BOX. ELIJAH C. BOWEN, Milwaukee, Wis. Filed Apr. 23, 1886. (No model.)



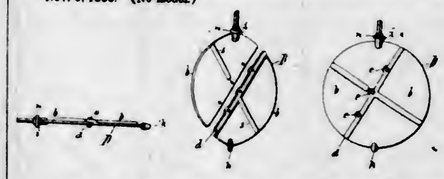
Claim.—In boxes or cases for the transportation or storage of soap, eggs, or other perishable material, the combination of the sides A A, provided with series of round perforations cut or bored slantingly through said sides, with a series of trays or receptacles consisting of straw-board or analogous strips, each having vertical slits extending from one edge to the center and there terminating in enlarged circular openings, whereby when the trays are in place in the box or case the openings in the center of the tray-strips will be in line with the series of openings in the box or case sides, substantially as set forth.

349,920. SLIDING GATE. WILLIAM S. BROWN, Baxterville, Kans. Filed May 6, 1886. (No model.)



Claim.—The combination of the posts A B, the sliding gate C, the eyebolts E, the friction-blocks F, which are placed upon the bolts, and the vertical rod which is passed down through the bolts upon the outer side of the gate, substantially as described.

349,921. DAMPER. REINARD S. T. CRESSE, Elizabeth, N. J. Filed Nov. 9, 1885. (No model.)

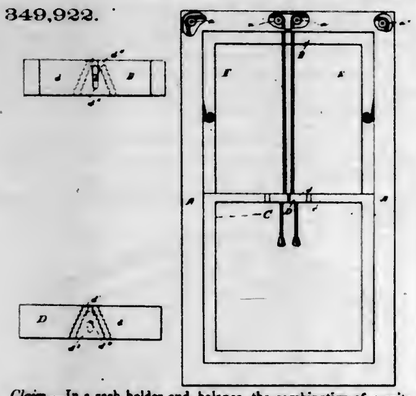


Claim.—1. A damper consisting of two semicircular parts secured together by lap-joints and bolts, one of said parts being provided with a teat to form its lower axis, and the other part provided with a shaft to form its upper axis, substantially as herein described.

2. A damper, D, made in two semicircular parts having radial arms *s*, secured together by lap-joints and bolts, one of said parts being provided with a teat to form its lower axis, and the other part provided with a shaft to form its upper axis, substantially as herein described.

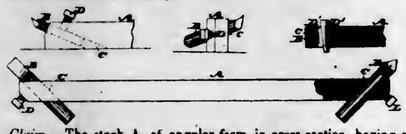
349,922. SASH-BALANCE. JAMES H. CORBIN, Hartsell's, Ala., assignor, by direct and mesne assignments, of two-thirds to Milton Speaks and John S. Mitchell, both of same place. Filed July 20, 1886. (No model.)

349,922.



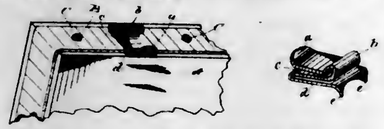
Claim.—In a sash holder and balance, the combination of a suitable frame or casing, the central guide-pulleys, *a*, journaled thereon, the guide-pulleys *a'*, arranged at the outer sides of the frame, the upper and lower sashes, a slotted plate, *d*, affixed to the lower sash in line with the central guide-pulleys, *a*, and having a recess, *d'*, formed with the converging and serrated sides, the slide fitted in the recess of the plate, and having the converging and serrated sides corresponding with the side of the recess, and a pin which works in the slot of the plate, and the cords secured to the sides of the upper sash and passing over the guide-pulleys *a a'*, and through the recess in the plate, all arranged and adapted for service substantially as and for the purpose set forth.

349,923. TOOL-HOLDER. JOHN CRABTREE, Philadelphia, Pa. Filed Nov. 23, 1885. (No model.)



Claim.—The stock A, of angular form in cross-section, having an opening, C, therein, said opening extending diagonally both longitudinally and laterally, being circular in horizontal section, a round tool inserted in said holder, and fastening devices securing said tool, all combined substantially as and for the purpose set forth.

349,924. TICKET-HOLDER. DAVID F. CROFUT, Bridgeport, Conn. Filed Apr. 5, 1886. (No model.)



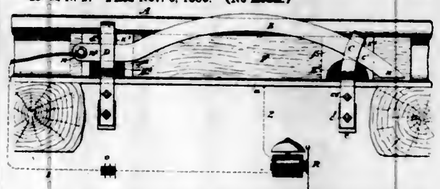
Claim.—In combination with the back and binding-strip of a car or other seat, a ticket-clasp consisting of a strip of metal bent upon itself to form a resilient clip for the ticket, then bent backward to embrace the binding-strip, and terminating at its lower end in a downwardly-projecting prong or prongs adapted to engage with the seat-back, substantially as shown and described.

349,925. SLIDING AND SWINGING GATE. THEODORE C. CURTIS, Carroll, Ind. Filed Aug. 24, 1885. (No model.)



Claim.—In a swinging and sliding gate, the combination, with a pivoted post, substantially such as shown and described, of a metallic hanger or bracket, C, composed of two parts, each part having a horizontal arm, c^3, provided with a curvature, c^1, an upwardly-inclined part, c^4, having a curvature, c^2, and the friction-rollers e e' e^2, as and for the purpose set forth.

349,926. CIRCUIT-CLOSER FOR RAILS. WILLIAM DAVIS, Crabstone, N. Y. Filed Nov. 6, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a railway-track, of a bar supported from one of the rails of said track, and projecting above said rail and extending at one end beyond the end of the abutting rail, a contact-surface at the end of the bar, a contact-surface upon the lower flange of the abutting rail, and a yielding cushion normally holding said bar away from said flange, but permitting it to be pressed into contact therewith.

2. The combination, substantially as hereinbefore set forth, with a railway-track, of an insulated circuit-closing bar free to move at both ends, and clamps secured to the rails for supporting said bar, a contact-surface upon the lower flange of one of the rails, and means for causing one end of the said bar to strike said surface by the pressure of the wheels of a passing train.

3. The combination, substantially as hereinbefore set forth, with a railway-track and a contact-surface upon the lower flange of a rail of said track, of an insulated circuit-closing bar free to move at both ends, and operated by passing trains to complete a circuit through said contact-surface directly without the intervention of the wheels of the train as a conducting medium.

4. The combination, substantially as hereinbefore set forth, with a battery and a railway-track, of the insulated bar B, supported therefrom, and electrically connected with one pole of said battery, a contact-surface consisting of the flange of a rail electrically connected with the other pole of said battery, and means, substantially such as described, for permitting said bar to strike against said contact-surface under the influence of the weight of a passing train.

5. The combination, substantially as hereinbefore set forth, with a railway-track and a contact-surface consisting of the lower flange of a rail of said track, of an insulated circuit-closing bar operated by passing trains to complete a circuit through said contact-surface directly without the intervention of the wheels of the train as a conducting medium.

349,927. ELECTRIC RAILWAY-SIGNAL. WILLIAM DAVIS, Crabstone, N. Y. Filed Nov. 6, 1885. (No model.)

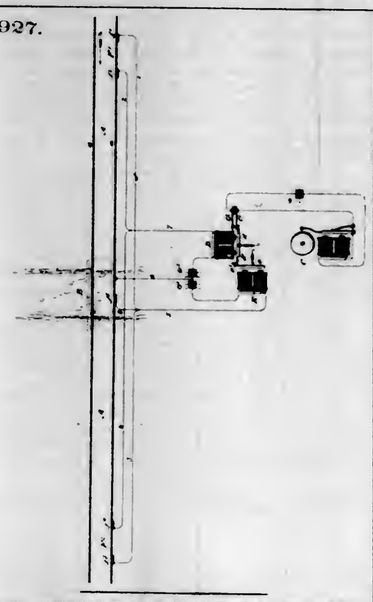
Claim.—1. The combination, substantially as hereinbefore set forth, with a railway-track, of two electro-magnets, a circuit-closing device, means for completing a circuit through one of these magnets by a train moving in a given direction, and then completing a circuit through the second, and thereby operating the circuit-closer, means for demagnetizing the first magnet, and thereby locking the circuit-closer, and means for subsequently vitalizing the first-named magnet, and thereby releasing the circuit-closer, substantially as described.

2. The combination, substantially as hereinbefore set forth, with a railway-track and four circuit-closers located along said track, of an electro-magnet, means for vitalizing said electro-magnet by the operation of either of the two extreme circuit-closers, a second electro-magnet, means for vitalizing the same by the operation of either of the remaining circuit-closers, a signaling device controlled by said electro-magnets and operated only when the first of said electro-magnets is first vitalized, and then the second, substantially as described.

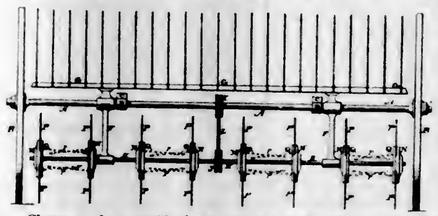
3. The combination, substantially as hereinbefore set forth, of a railway-track, two circuit-closers operated by a train passing along said track, two electro-magnets respectively included in the circuits controlled by said circuit-closers, means for vitalizing said electro-magnets in the succession in which the corresponding circuit-closers are operated, a signaling device, a local circuit for the same, and means for closing said circuit only when said circuit-closers are operated in a given succession.

4. The combination, substantially as hereinbefore set forth, of a railway-track, two circuit-closers operated by a train passing along said track, two electro-magnets respectively included in the circuits controlled by said circuit-closers, a signaling device, a local circuit for the same, means for closing said circuit only when said circuit-closers are operated in a given succession, and a third circuit-closing device for subsequently completing the circuit completed by the first of said circuit-closers.

349,927.



349,928. COMBINED HAY RAKE AND TEDDER. MIFFLIN P. DENNET, New York, N. Y. Filed Sept. 9, 1885. (No model.)



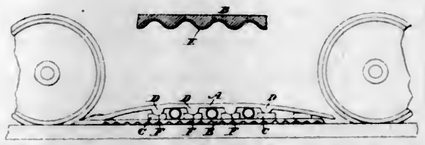
Claim.—1. In a combined hay rake and tedder, the combination of the axle, arms or castings pivoted thereon, and which have their ends to project beyond opposite sides of the axle in a straight line with each other, the hay-rake secured to one end of the arms and the tedder secured to the other, substantially as shown.

2. In a combined hay rake and tedder, the combination of the rake the tedder, a suitable casting or arm for connecting the two together, the casting or arm being pivoted upon the axle, so that when either rake or tedder is brought into use the other is raised up out of contact with the ground, substantially as described.

3. In a combined hay rake and tedder, the combination of the axle, the arms or castings F, placed thereon, the rake-head rigidly secured to one end of the arms, and the tedder-shaft journaled in the opposite ends of the arms from the rake-head, the arms being adapted to turn upon the axle so as to bring either the rake or the tedder into operation, substantially as shown.

4. The combination of the tedder-shaft, the heads provided with L-shaped grooves, the teeth, and the clamping-plates Q, movable on the shaft and provided with L-shaped slots, substantially as set forth.

349,929. HOSE-PROTECTOR. DANIEL P. DUSTERER, Philadelphia, Pa. Filed Feb. 20, 1886. (No model.)



Claim.—1. A hose-protector formed of upper and lower sheets of flexible material connected at one end, the lower sheet being corrugated, substantially as described.

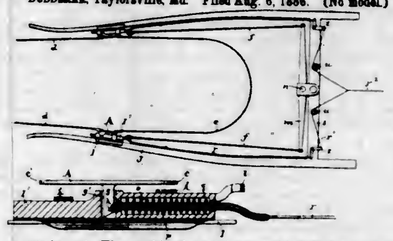
2. A hose-protector formed of upper and lower sheets of flexible material connected at one end, each sheet having on its inner face ribs or projections, which are adapted to abut when the upper sheet is depressed, substantially as described.

3. A hose-protector formed of upper and lower sheets of flexible material connected at one end, the lower sheet being corrugated and provided on its inner face with upwardly-projecting ribs, and the inner face of the upper sheet being provided with downwardly-projecting ribs, which are adapted to abut against the ribs of the lower sheet, substantially as described.

4. In a hose bridge or protector, the corrugated lower plate faced with fabric, substantially as described.

5. In a hose bridge or protector, the interlocking ribs C D, substantially as described.

349,930. ATTACHMENT FOR VEHICLE-THILLS. DANIEL W. DUDDERAR, Taylorsville, Md. Filed Aug. 5, 1886. (No model.)

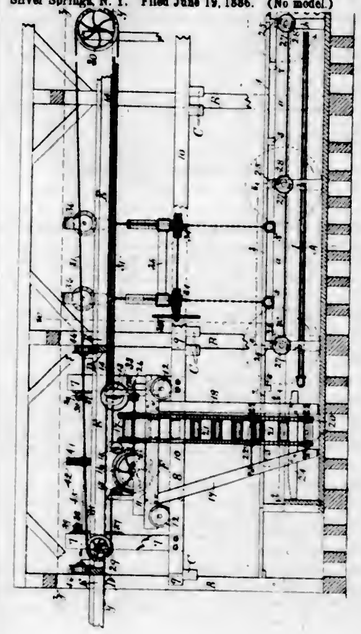


Claim.—1. The combination of the trace-hitch I', loosely connected with a thill-plate, I, so as to be movable endwise, and provided with a side socket, *g'*, and a loop, *l*, for the trace, and a harness-plate, A, having slots and bars for the attachment of straps, and provided with a stud, *g*, to enter the said socket, for the purpose set forth.

2. The combination of a thill-plate, I, having keepers *k*, a trace-hitch, I', movable endwise in the said keepers and provided with a side socket, *g'*, and a loop, *l*, for the trace, and a harness-plate, A, provided with a stud, *g*, to enter the said socket, for the purpose set forth.

3. The combination of a thill-plate, I, having keepers *k*, a trace-hitch, I', movable endwise in the said keepers and provided with a side socket, *g'*, a tubular portion, *o*, and a loop, *l*, for the trace, a harness-plate, A, provided with a stud, *g*, having a notch, *h*, and a spring-bolt, *p*, fitted in said tubular portion of the trace-hitch, as set forth.

349,931. SALT-GRAINING APPARATUS. JOSEPH M. DUNCAN, Silver Springs, N. Y. Filed June 19, 1886. (No model.)



Claim.—1. In a salt-grainer, an elevator operating transversely to the grainer and simultaneously traversing it longitudinally, substantially as described.

2. In a salt-grainer, a carriage, F, mounted upon the trackway 10 and carrying the elevator, substantially as shown and described.

3. A salt-grainer constructed with removable sectional platforms mounted upon legs standing in the grainer, substantially as shown and described.

4. In a salt-grainer, the slotted pinions 27, mounted upon joists 25, in combination with the legs *b*, provided with stop-pins 28, constructed and operating substantially as set forth.

5. In a salt-grainer, the combination of the slotted pinions 27, mounted upon joists 25, and legs *b*, provided with pins 28, with the rack 24, mounted upon the elevator-legs, constructed and operating together substantially as described, for the purposes set forth.

6. The combination of the drum 13 and rope 14 with the carriage F, mounted upon the trackway 10, constructed and operating together substantially as described.

7. In a salt-grainer, the conveyer consisting of frame 35, gears 34, wheel 36ª, and chains, and the hangers 36, mounted upon the trackway E, in combination with the platform-sections, constructed and operating together substantially as shown and described.

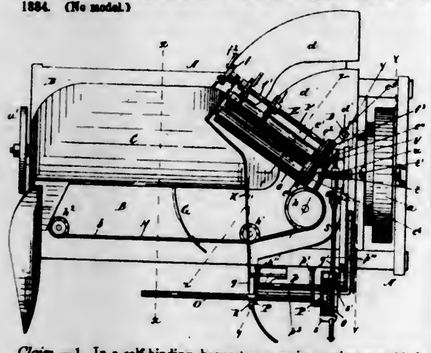
8. In a salt-grainer, the combination of sills 8, posts 7, provided with rack 37, shafts 38, provided with pinions 39, and with an actuating mechanism, with the carriage F, substantially as shown and described.

9. In a salt-grainer, the combination of the posts 7, provided with rack-bars, pinions 39, and carriage F, in combination with the frame 44 45, rollers 46, and trackway D, constructed and operating together substantially as shown and described.

10. A salt-grainer provided with platforms standing above it upon legs automatically removed and replaced by the movement of the elevator, substantially as shown and described.

11. In a salt-grainer, an elevator consisting of legs 18 19, disposed in pairs rectangularly and carrying the sprockets 20 22, chain-bucket belt 21, and sprockets 17, in combination with and supported by the carriage F, substantially as shown and described.

349,932. HARVESTING-MACHINE. RICHARD EMERSON, Sycamore, Ill., assignor of one-half to Horatio H. Mason, same place. Filed Oct. 20, 1884. (No model.)



Claim.—1. In a self-binding harvester, a grain receiver and binding table arranged near the inner rear corner of the platform, in combination with a grain-elevator arranged diagonally of said platform of the machine, substantially as and for the purposes set forth.

2. In a self-binding harvester, a grain receiver and binding table arranged near the inner rear corner of the platform, in combination with a grain-elevator arranged diagonally of the grain-platform of the machine and a packer-shaft also arranged diagonally of said platform, substantially as and for the purposes set forth.

3. In a self-binding harvester, a grain receiver and binding table arranged near the inner rear corner of the platform, in combination with a grain-elevator arranged diagonally of the grain-platform of the machine and a gathering mechanism which moves the grain from the platform and delivers it to the elevator, substantially as and for the purposes set forth.

4. The grain-platform, in combination with the table extending nearly to the front of the platform and free to rise and fall at its inner end, the elevator arranged diagonally of said platform at the free end of the table, and the gathering and delivering rakes, substantially as and for the purposes set forth.

5. The grain-elevator arranged as described, in combination with the grain-platform, the table free to rise and fall at its inner end, the gathering-rakes, and the yielding compressor or gathering board, substantially as and for the purposes set forth.

6. The grain-platform, in combination with the table free to rise and fall at its inner end and the gathering-rakes inclined at the rear ends and arranged to lift the free end of the table as they are drawn under the same, substantially as and for the purposes set forth.

7. The grain-receiver of the binder, in combination with two elevating-aprons, the front one arranged higher than the other, the grain-platform, the table with its inner end free to rise and fall and extending underneath the front elevator-apron, and the series of gathering-rakes, substantially as and for the purposes set forth.

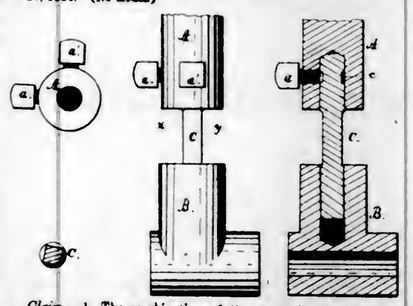
8. The grain-platform, in combination with the rake-chain, the rakes hinged at their heads to the chain and at the other end to guides, and the guideway I, composed of three sections, *i i'' i²*, substantially as and for the purposes set forth.

9. The guideway I, composed of the sections *i i'' i²*, in combination with the switches J J', the rake-guides arranged to move in said guideway, the rake-chain arranged to run in a slot in the platform, and the gathering-rakes hinged at one end to the chain and at the other to the guides, substantially as and for the purposes set forth.

10. The grain-elevator arranged diagonally of the grain-platform of the machine, in combination with the guard K, the spring-compressor or gathering board *k*, the grain-platform, the table, and the gathering-rakes, substantially as and for the purposes set forth.

11. The grain-platform, in combination with the table extending nearly to the front of the platform and free at its inner end to rise and fall, the reel-shaft mounted in adjustable supports, and gathering-rakes arranged below the table and to lift the free end thereof as they pass underneath it, substantially as and for the purposes set forth.

349,933. LOOM. JOHN W. EMERY, Worcester, Mass. Filed Mar. 27, 1886. (No model.)



Claim.—1. The combination of the eye-socket having the screw-threaded hole therein with the sword of a loom-lathe having a hole in the end thereof, the screw-threaded connecting-bar C, and the set screw or screws *a a'*, whereby the said bar is adjustably held at one end by its screw-thread and rigidly at the other by set-screws, substantially as described.

2. The adjusting-bar C, its middle portion made square, whereby it can be readily turned, and having a groove or bed, *c'*, in its upper end, combined with the sword A and the socket B, substantially in the manner and for the purposes described.

3. A sword and an eye-socket, combined with a connecting-bar screw-threaded on its lower end and provided with a set-screw at the upper end, in the manner substantially as described, whereby at its lower end it can be vertically adjusted and at its upper end it can be rigidly held, and the sword thereby adjusted to and secured at any desired height.

349,934. BALING-PRESS. GEORGE ERTEL, Quincy, Ill. Filed Apr. 7, 1886. (No model.)

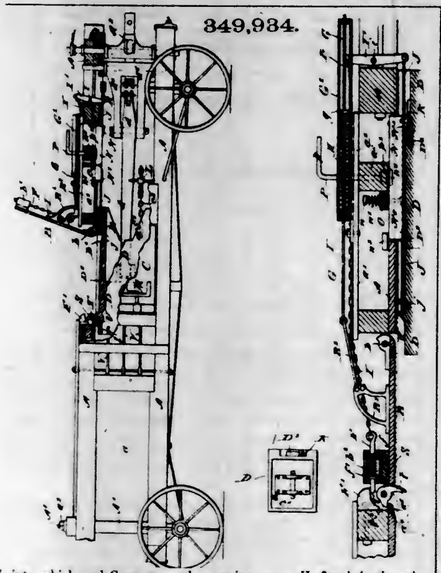
Claim.—1. A baling-press comprising a case, a plunger operating therein, top and side feed-doors provided with latch devices, and connections from said latch devices adapted for alternate attachment to the plunger, substantially as shown and described, whereby either the top or side feed-door may be unlatched for opening by the movement of the plunger, as set forth.

2. A baling-press having its bottom planking or lining made in two sections spaced apart to provide a dust-exit slot, as at E, at the bottom of the feed-opening of the press-case, substantially as described, for the purposes set forth.

3. In a baling-press, the combination, with the press-case and a top feed-door, as at B, hinged thereto, of a tube, G', fixed to the case, a spring, as at H, fitted in the tube, and connections from the back end of the spring to the door, substantially as shown and described, whereby the spring will be put in tension by the closing of the door, and will automatically open the door when said door is unlatched, as set forth.

4. In a baling-press, the combination, with the press-case having a top feed-opening and a door, B, hinged thereat, of rods B¹ G, a tube,

349,934.



G', into which rod G passes, and a spring, as at H, fitted in the tube between one end of it and a shoulder on the rod G, substantially as herein set forth.

5. In a baling-press, the combination, with the press-case having a top feed-opening, a door, B, hinged thereat, a latch, as at F, on the door, adapted to engage a catch-plate on the press-case, and a plunger working in the case, of a chain, I, lever I', and a rod, J, connected to the lever I' and to the plunger, substantially as shown and described.

6. In a baling-press, the combination, with the press-case having a top feed-opening, a door, B, hinged thereat, a latch, as at F, on the door, adapted to engage a plate on the press-case, and a plunger working in the case, of a chain, I, lever I', rod J, a plate, as at K, on the plunger, and a stop or nut, *j*, on the rod J, substantially as described, for the purpose set forth.

7. In a baling-press, the combination, with the press-case and a plunger operating therein, of a brake-lever, as at N, hung so as to be adjustable vertically at the top of the press-case, and adapted to clamp the plunger automatically about at the limit of the back-stroke of the plunger, and a vertically-movable fulcrum pin or shaft, as at P, fitted in the press-case and bearing on the brake-lever and adapted to adjust it bodily to the plunger, substantially as described, for the purposes set forth.

8. In a baling-press, the combination, with the press-case and a plunger operating therein, of a brake-lever, N, hung at the top of the press-case by a pin or bolt, *n*, and a spring, *n'*, and adapted to clamp the plunger automatically about at the limit of the back-stroke of the plunger, and a vertically-movable fulcrum pin or shaft, as at P, fitted in the press-case and bearing on the lever and adapted to adjust it bodily to the plunger, substantially as herein set forth.

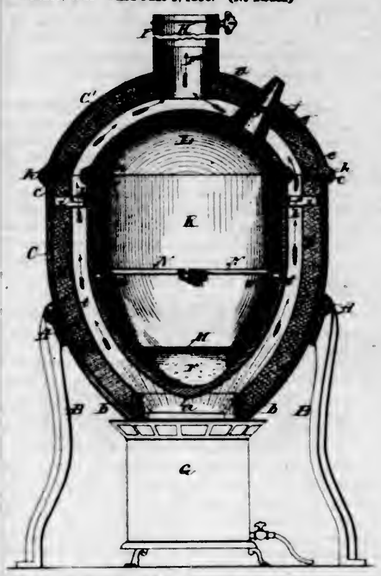
9. In a baling-press, the combination, with the press-case and a plunger operating therein, of a brake-lever, N, hung at the top of the case and provided with an inclined clamp-block, N', and a correspondingly-inclined block, D', on the plunger, substantially as herein set forth.

10. In a baling-press, the combination, with the press-case and a plunger operating therein, of a brake-lever, N, hung at the top of the case by a pin or bolt, *n*, and a spring, *n'*, a vertically-movable fulcrum pin or shaft, as at P, fitted in the press-case and bearing on the lever and adapted to adjust it bodily to the plunger, and inclined blocks N' D' on the brake-lever and plunger, respectively, substantially as herein set forth.

11. In a baling-press, the combination, with the press-case and a plunger operating therein, of a brake-lever, N, hung at the top of the case and provided with inclined and flat clamp-plates N' N², a vertically-movable fulcrum pin or shaft, as at P, fitted in the press-case and bearing on the lever, and inclined and flat clamp-plates D' D², fixed to the plunger, substantially as herein set forth.

12. In a baling-press, the combination, with the press-case and a plunger operating therein, of a retainer, T, formed with a pendent lip, *t*, and stop *t'*, and pivoted, as at S, at the rear end of a top feed-opening of the press-case, and said case cut away at a^4 to receive the lip *t*, and having a stop flange or lip, a^4, which the retainer-stop *t'* is adapted to strike, substantially as herein set forth.

349,935. CHINA-FIRING APPARATUS. SUSAN S. FRACKELTON, Milwaukee, Wis. Filed June 1, 1886. (No model.)



Claim.—1. In a china-firing apparatus, the combination of a suitably-suspended heat-refracting shell having an opening in its top and bottom, respectively, an inner receptacle for the china having a less diameter throughout than the interior of the shell, whereby a continuous air-space is left between said parts, and a detachable heat-generating apparatus having a tight connection with the bottom opening in the shell, substantially as and for the purpose set forth.

2. In a china-firing apparatus, the combination of a suitably-suspended outer shell having its body portion and removable top composed of cast metal lined with fire-clay or other heat-refracting material, the former part having an inlet and the latter an outlet opening, a cast-metal receptacle for china suspended within the shell and having a less diameter throughout than the interior of said shell, whereby a continuous air-space is left between the parts, and a heat-generating apparatus having a tight connection with the inlet at the bottom of the shell-body, substantially as and for the purpose set forth.

3. In a china-firing apparatus, the combination of a suitably-suspended outer shell having its body portion and removable top composed of cast metal, the former part having a vertical upwardly-extended flanged opening in its bottom, and a horizontal inwardly-extended flange at its upper edge, and the top part provided with a central vertical flue extended down inside to form a flange, and the lower edge of this part inwardly extended to form a horizontal flange corresponding to the one on said former part, a lining of heat-refracting material held between and of a thickness equal to the width of the several flanges, a receptacle for china suspended within the shell, and having a less diameter throughout than the interior of said shell, and a heat-generating apparatus having a tight connection with the inlet at the bottom of the shell-body, substantially as and for the purpose set forth.

4. In a china-firing apparatus, the combination of a suitably-suspended heat-refracting shell having an opening in its top and bottom, respectively, and said top provided at its lower edge with a vertically-depending flange that comes over around the upper part of the body portion, a sectional cast-metal receptacle for the china suspended within the shell and of a less diameter throughout than the interior of the latter, and the top section of this receptacle provided with a bead around its lower edge that partially obstructs the space between said receptacle and shell, and a heat-generating apparatus having a tight connection with the bottom opening in the shell, substantially as and for the purpose set forth.

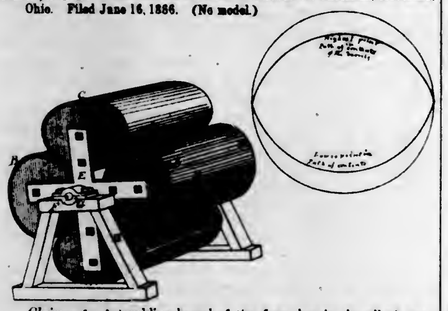
5. In a china-firing apparatus, the combination of a suitably-suspended heat-refracting shell having an opening in its top and bottom, respectively, an inner receptacle for the china that terminates in a point at its bottom and is of less diameter throughout than the interior of the shell to leave a continuous air-space that has its greatest area between the lower ends of said parts, and a detachable heat-generating apparatus having a tight connection with the bottom opening of the shell, substantially as set forth.

6. In a china-firing apparatus, the combination of a suitably-suspended heat-refracting shell of substantially conical form upon its interior, and provided with a top and bottom opening, an inner receptacle for the china of a form similar to that of the interior of said shell but of less diameter throughout, whereby a continuous air-space is left between said parts, and a detachable heat-generating apparatus having a tight connection with the bottom opening of the shell, as and for the purpose set forth.

7. In a china-firing apparatus, the combination of a suspended sectional cast-metal shell having a lining of refractory material, an opening in its top and bottom and lugs that project through the lining, a sectional cast-metal receptacle having lugs upon its body portion that rest upon the lugs of the shell and is of less diameter throughout than the interior of the latter, whereby an air-space is formed between said parts, the top section of this receptacle provided with a hollow conical extension extended through a corresponding opening in the top of the shell, and its body portion internally provided with lugs and removable grates supported by said lugs, and a heat-generating apparatus having a tight connection with the bottom opening of the shell, substantially as and for the purpose set forth.

8. In a china-firing apparatus, the combination of a sectional heat-refracting shell having a cup-shaped bottom and dome-shaped top, each provided with a vertical opening, and the interior body portion of this shell provided with a series of lugs, a cast-metal sectional receptacle for the china similar in contour to the former part but of less diameter throughout than the interior thereof, the body portion of this receptacle provided upon its exterior with a series of lugs that rest on those of the shell and upon its interior with another series of lugs, grates supported upon these latter lugs and a removable perforated plate, and the top section of said receptacle provided with a projecting bead or flange around its lower edge and a conical hollow extension that passes through a corresponding opening in the shell top, a heat-generating apparatus having a tight connection with the bottom opening in the shell, and a supporting-frame comprising an open seat for said shell, and suitable legs secured at their upper ends to the seat, substantially as set forth.

349,936. TUMBLING-BARREL. Augustus W. Gitchell, Cleveland, Ohio. Filed June 16, 1886. (No model.)



Claim.—1. A tumbling-barrel of the form herein described, consisting of a cylinder having one half its side made in a true circle and the other half in the arc of an oval in cross-section, as shown and described.

2. In tumbling-barrels, the combination of two or more barrels of the form herein described, consisting of cylinders having one half their sides made in a true circle and the other half in the arc of an oval in their cross-section, arranged with their concentric sides toward each other and mounted on one common shaft rotating in suitable bearings, whereby the loads in the said barrels perform an oval movement in each revolution of said barrels around said axis, as and for the purpose specified.

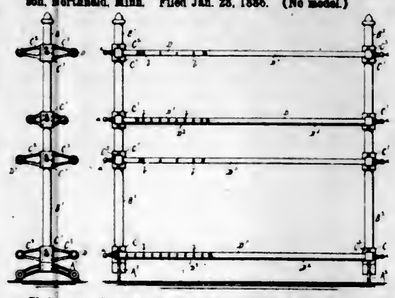
349,937. ATTACHMENT FOR JOURNAL-BOXES. Alanson B. Grewold and John M. Bradbury, Bunker Hill, Kans. Filed Apr. 15, 1886. (No model.)



Claim.—1. The combination of the metallic strip, formed of metals which expand unequally when heated, with the shaft, the journal box or bearing for the shaft, a projection which is formed upon the shaft, and an alarm, substantially as shown.

2. The combination of the shaft A, provided with a projection, B, the box C, the strip H, formed of metals which expand and contract unequally, a suitable device for connecting the strip to the box, and an alarm which is operated by means of the strip, substantially as set forth.

349,938. DISPLAY-RACK FOR PARASOLS, &c. Samuel Van Rensselaer Hendryx, Farmington, assignor of one-half to Andrew Finkelson, Northfield, Minn. Filed Jan. 28, 1886. (No model.)

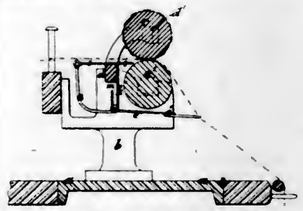


Claim.—1. In a display-rack for umbrellas, parasols, and the like, vertical standards and a support for the lower ends of the umbrellas, &c., said support consisting of cross-pieces carried by the standards, rods connecting the cross-pieces on the two standards, and a bottom or rest supported by said cross-pieces and rods, in combination with a vertically-adjustable support for the upper ends of the umbrellas, &c., said support consisting of cross-pieces vertically adjustable on said standards and rods connecting said cross-pieces on the two standards, substantially as set forth.

2. A display-rack for umbrellas, parasols, and the like, consisting of the standards B' B^2, supported in bases A' A^2, cross-frames C' C^2, adjustable upon said standards B' B^2, rods D', connecting said cross-frames, separating-wires *b*, and bottoms D^2 D^3, substantially as set forth.

349,939. STOP-MOTION MECHANISM FOR DOUBLING-MACHINES. James Holroyd, Manchester, County of Lancaster, England. Filed Dec. 12, 1885. (No model.) Patented in England Oct. 27, 1885, No. 12,863.

Brief.—The entire stop-lever is made out of one piece of wire to which the stop-plate is pivoted. A short pivot-pin is fixed in a loop of the wire, and is adapted to be supported by hangers, so that each lever is entirely independent of the rest.



Claim.—1. The combination of the rollers, cap-bar, and series of hangers with a series of stop-motion levers, each independent of the other, and each consisting of a short pivot-pin adapted to adjoining hangers, and a single piece of wire bent at its lower end for the thread-guide coiled near that end to give it weight, coiled to embrace and hold fast the pivot-pin, and carrying at its upper end the stop-plate, substantially as specified.

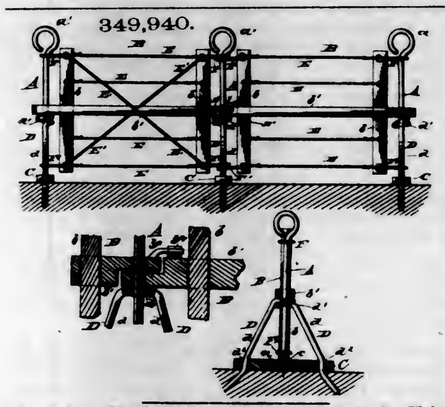
2. The combination of the rollers *c c'* and cap-bar *d* with a series of stop-motion levers, pivots and stop-plates carried by the levers, and hangers *k*, each consisting of a bent plate secured to the cap-bar and open at *m* for the free removal of any of the levers, substantially as set forth.

349,940. FENCE. William Kelly, Saranac, Mich. Filed Apr. 26, 1886. (No model.)

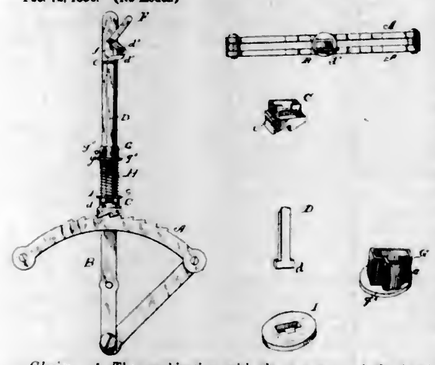
Claim.—1. In a portable fence, the combination of bars C, each having a central opening, *c*, and brace-bars D, having loops *d'* and arms *d*, fence-sections B, composed of horizontal supporting-rail *b'*, having extended perforated ends, and vertical bars *b*, secured to rail *b'* near its ends, and provided with loops secured to their upper and lower edges, and suitable posts or rods passing through the loops of the fence-sections and brace-bars, all constructed and adapted to operate substantially as and for the purpose specified.

2. The combination of the posts A A, having the pointed lower ends, *a*, and the looped or handled upper ends, *a'*, the brace-bars D, having the inclined arms *d* and openings *d'* in their coiled centers, and the bed-beams C, each having the recess *c* and openings a^2, with the fence-sections B, each composed of the end rails, *b*, and central rail *b'*, having the extended rabbeted and perforated ends *x x'*, and provided with the loops F F', all constructed and arranged substantially as and for the purpose specified.

349,940.



349,941. BRAKE-LEVER. Joseph Kroupa, St. Louis, Mo. Filed Feb. 12, 1886. (No model.)



Claim.—1. The combination, with the segment and the hand-lever, of a pawl having an inverted-T opening in its side, and an operating-rod terminating in a T-head resting in said opening and forming the means of contact between the rod and pawl, substantially as set forth.

2. The combination, with the double segment, the hand-lever working between them, and a pawl sleeved on the lever and engaging the double segment, of an operating-rod engaging said pawl, a stop, a spring interposed between the stop and pawl, and a bell-crank lever pivoted to the upper end of the hand-lever and having a slot in its horizontal arm, in which works a pin projecting from the upper bent end of the operating-rod, substantially as shown and described.

3. The combination of the segment, hand-lever, pawl sleeved thereon having an inverted-T opening in its side, an operating-rod terminating in a T-head resting in said opening, a washer holding the parts relatively in place, the flanged keeper and washer, and the bell-crank lever for actuating the pawl-operating lever, substantially as specified.

349,942. HORSE-RAKE. Charles La Dow, Albany, N. Y. Filed Dec. 12, 1884. (No model.)

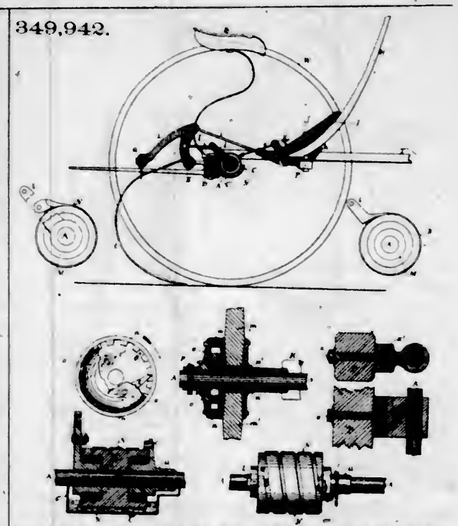
Claim.—1 In a hay-rake, the combination, with the draft-frame and rake-teeth, of a revolving axle, a drum or enlargement mounted thereon at a point between the carrying-wheels, a spiral coil encircling the drum, a lever for tightening the coil, rake-teeth oscillating on a pivot eccentric to the revolving axle, and a link which pivotally connects the coil and rake-teeth.

2. In a hay-rake, the combination, with the draft-frame and rake, of a spiral coil loosely encircling a revolving element of the machine, devices for preventing the drawing together of the convolutions of the spiral, and mechanism for tightening the spiral upon the revolving part.

3. In a hay-rake, the combination, with the draft-frame and rake, of a revolving axle provided with a drum or enlargement connected therewith, a spiral coil loosely encircling said drum and connected with the rake, devices for maintaining constantly each end of the coil in the same vertical plane with the proximate end of the drum, and mechanism for tightening the coil on the drum.

4. In a hay-rake, the combination, with the draft-frame and rake, of a revolving axle provided with a drum or enlargement connected therewith, a spiral coil loosely encircling said drum, loose sleeves or collars upon the axle, to which the ends of the coil are attached, an operating-lever connected with one of said collars, and a transmitting-lever connected with the other collar and with the rake.

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5. In a hay-rake, the combination, with the draft-frame and rake, of a revolving axle provided with a drum or enlargement connected therewith, a spiral coil loosely encircling said drum, loose sleeves or collars upon the axle provided with projecting arms, to which the ends of the coil are attached, an operating-lever connected with one of said collars, and a transmitting-lever connected with the collar and with the rake.

6. In a hay-rake, the combination, with the draft-frame and rake, of a revolving axle provided with a drum or enlargement connected therewith, a spiral coil loosely encircling said drum and connected at one end with the rake, a shubbing-chain connected with the other end of the coil and with an operating-lever, and a sleeve or collar upon the axle, around which said chain passes.

7. In a hay-rake, the combination, with the draft-frame and rake, of a revolving axle provided with a drum or enlargement connected therewith, a spiral coil loosely encircling said drum, loose sleeves or collars upon the axle, to which the ends of the coil are attached, an operating-lever connected by a chain with one of said collars, whose external diameter, about which the chain passes, is less than that of the drum, and a transmitting-lever connected with the other collar and with the rake.

8. In a hay-rake, the combination, with the draft-frame and rake, of a revolving axle provided with a drum or enlargement connected therewith and internally recessed, a spiral coil loosely encircling said drum, loose sleeves or collars upon the axle projecting within the drum-recesses and provided with projecting arms connected, respectively, with opposite ends of the coil, an operating-lever connected with one of the collars, and a transmitting-lever connected with the other and with the rake.

9. In a hay-rake having a draft-frame and revolving axle, a journal-box laterally adjustable upon the axle and connected with the draft-frame.

10. In a hay-rake having a draft-frame and revolving axle, a journal-box having a lug provided with a retaining-groove, and a bolt connected with the draft-frame, and whose head is adapted to engage in said groove.

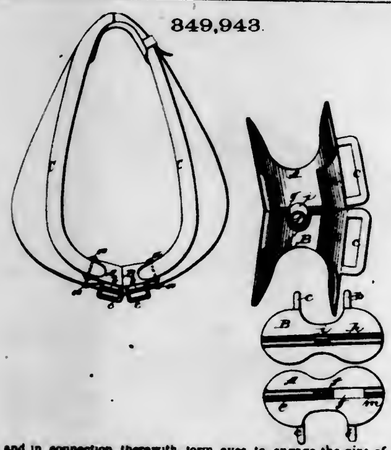
11. In a hay-rake having a draft-frame, rake-friction dumping-clutch, and operative mechanism for the same, the combination with said clutch of an oil-pan subjacent thereto.

12. In a hay-rake, the combination, with the draft-frame, rake, and revolving axle provided with a drum or enlargement loosely encircled by a spiral coil, said coil being connected with an operating-lever and with the rake, of an oil-pan partially inclosing the drum and coil.

349,943. HORSE-COLLAR FASTENER. Robert T. Lombard, Racine, Wis. Filed June 19, 1886. (No model.)

Claim.—1. A fastener for horse-collars, consisting of two metallic sections secured to the respective lower ends of a collar and each provided with depending front and rear staples, one of said sections having its face provided with one or more convex projections terminating in pins and the face of the other section provided with a continuous concave depression, and one or more convex bands that bridge said depres-

349,943.

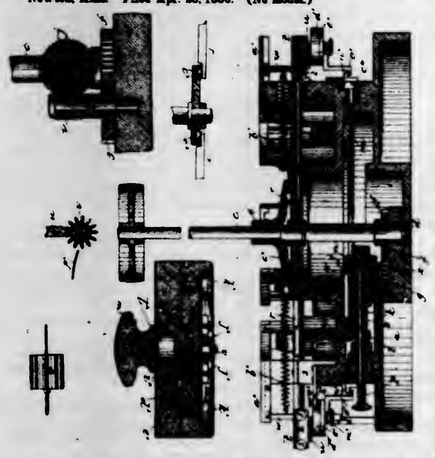


sion and in connection therewith form eyes to engage the pins of the former section, as set forth.

2. A fastener for horse-collars, consisting of two metallic sections secured to the respective lower ends of a collar and each provided with an exterior central depression and depending front and rear staples in line with said depression, one of the locking-sections having one or more convex projections on its face that terminate in pins, and the other section having a continuous concave depression and one or more convex bands that bridge said depression, and in connection therewith form eyes to engage the pins of the former section, as set forth.

3. In a fastener for horse-collars, the combination of the section A, consisting of a metallic socket for the reception of the lower end of a collar-section, and a face-plate provided with one or more convex projections terminating in pins, and the section B, consisting of a similar metallic socket, and a face-plate provided with a continuous concave depression and one or more convex bands bridging the same, the two opposing faces of the said sections A and B being adapted to slide longitudinally one upon the other and when in place to be securely locked against lateral movement, as set forth.

349,944. PINION-LEAF-POLISHING MACHINE. EDWD. A. MARSH, Newton, Mass. Filed Apr. 28, 1886. (No model.)



Claim.—1. The combination, in a pinion-leaf-polishing machine, of a supporting-bed, a series of radial polisher-holders, and reciprocating devices, substantially such as a driving-shaft and cam, the latter being common to all holders, to successively contact therewith, substantially as set forth.

2. The combination, in a pinion-leaf-polishing machine, of a turret, means, substantially such as a pinion and gear rack, for revolving said turret, a series of polisher-holders carried by said turret, and devices, substantially such as a driving-shaft and cam, for reciprocating said polisher-holders, substantially as set forth.

3. The combination, in a pinion-leaf-polishing machine, of a base, a turret mounted thereon, means, substantially such as a pinion and gear rack, for revolving said turret, a series of polisher-holders carried by said turret, and a series of pinion-holders and devices, substantially such as a driving-shaft and cam, for reciprocating said polisher-holders, substantially as set forth.

4. The combination, in a pinion-leaf-polishing machine, of a base, a turret mounted thereon, means, substantially such as a pinion and gear rack, for revolving said turret, a series of polisher-holders carried by said turret, devices, substantially such as a cam and driving shaft, for reciprocating said polisher-holders, a series of spring-supported pinion-holders, and lugs located on said base and pinion-holders for depressing each pinion-holder at intervals, substantially as set forth.

5. The combination, in a pinion-leaf-polishing machine having a revolving turret and reciprocating polisher-holders, as described, of a series of polisher-holders, and means, substantially such as a lever, q', and a finger, p', and lug u', for dipping the finger to rotate the pinion, substantially as set forth.

6. The combination, in a pinion-leaf-polishing machine having a revolving turret and reciprocating polisher-holders, as described, of a series of spring-supported pinion-holders, lugs on said holders, and fixed lugs for intermittently depressing the pinion-holders, and an elongated lip or lug for effecting an extended depression of each pinion-holder when it arrives thereat, substantially as set forth.

7. The combination, in a pinion-leaf-polishing machine having a revolving turret and reciprocating polisher-holders, as described, of a series of studs located on said turret, an arm pivotally mounted at one end on each stud, a pinion-holder located on each arm, a spring for maintaining each arm in an operative position, and a lug carried by each arm, and a series of fixed lugs to operate therewith to effect the depression of each arm at regular intervals, substantially as described.

8. The combination of the fixed base having the lugs n', the rotating turret on said base, the polisher-carrying slides carried by the turret, the spring-supported arms e', pivoted to the turret and provided with the pinion-holding devices and with the lugs o', arranged to co-operate with the lugs n' in depressing the arms e', and means for partly rotating the pinions while the arms are thus depressed, as set forth.

9. The combination of the fixed base having the lugs n', the rotating turret on said base, the polisher-carrying slides carried by the turret, the spring-supported arms e', pivoted to the turret and provided with the pinion-holding devices, the lugs o', the pinion-rotating fingers and their supporting and operating levers q' r', and the lugs u' v', affixed to the base and arranged to co-operate with the levers q' r' in rotating the pinions, as set forth.

10. The combination, with the reciprocating leaf-polishers, of pinion-holders, each composed of a plate, d', secured to a movable support, as e', a convex-bottomed plate, i', set in a concave recess in the plate d', and adjustably held at its ends by screws k' k', and the adjustable supports j' j' for the pinion-arbor, as set forth.

349,945. QUADRUPLEX TELEGRAPH. WILLIAM MAVER, Jr., Jersey City, N. J., assignor to the Baltimore & Ohio Telegraph Company, Baltimore, Md. Filed Oct. 9, 1885. (No model.)

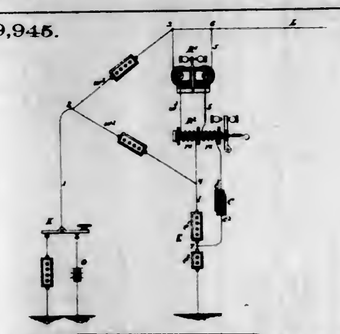
Claim.—1. The combination, substantially as hereinbefore set forth, of a telegraph main line, an artificial line, one or more receiving-instruments, means for transmitting currents upon the line without affecting the instruments, a condenser, conductors connecting the respective plates of said condenser with the main line at a point between the instruments and the main line, at an intermediate point in the artificial line, and additional coils applied to said receiving instrument or instruments and included in one of said conductors.

2. The combination, substantially as hereinbefore set forth, of a telegraph main line, an artificial line, a receiving-instrument, means for causing incoming currents to traverse said instrument while it remains unaffected by outgoing currents, an artificial resistance, a condenser, conductors connecting the respective plates with the main line at a point between the instruments and the main line and the earth, through said resistance, an artificial resistance between the ends of the conductors so connected, and independent coils applied to said receiving-instrument and included in one of said conductors.

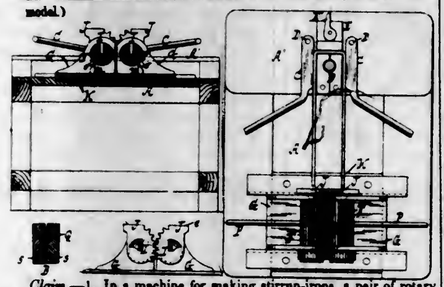
3. The combination, substantially as hereinbefore set forth, of the main line, the artificial line containing the resistances e' and e^2, one or more receiving-instruments, the condenser having one plate connected with the main line at a point, 6, beyond the instruments, and the other with the artificial line between the resistances e' and e^2, and additional coils applied to said receiving instrument or instruments included in one of said conductors.

4. The combination, in a duplex or quadruplex telegraph system, of a Wheatstone bridge, an artificial line, a condenser-circuit bridging from a point in the main line beyond the dividing-point of the arms of the bridge to a point of lower potential in the artificial line, and neutralizing-coils applied to the receiving-instruments included in said condenser-circuit.

349,945.



349,946. MACHINE FOR MAKING STIRRUP-IRONS FOR BEAMS, &c. WILLIAM MCPHERSON, New York, N. Y. Filed May 8, 1886. (No model.)



Claim.—1. In a machine for making stirrup-irons, a pair of rotary twisting-dies adapted to receive the ends of the bent blanks and operate thereon, as set forth.

2. In a machine for making stirrup-irons, a pair of rotary twisting-dies adapted to receive the ends of the bent blanks and provided with supporting-frames having means, substantially as described, to move the same both laterally and longitudinally, substantially as and for the purpose set forth.

3. In a machine for making stirrup-irons, a former and bending-dies adapted to co-operate therewith, in combination with rotary twisting-dies adapted to engage the ends of the blank, substantially as and for the purpose herein described.

4. In a machine for making stirrup-irons, a former, a clamp adapted to hold the blank against one end of said former, and oscillating arms pivoted on opposite sides of said former to form bending-dies, in combination with rotary twisting-dies adapted to engage the ends of the bent blank, substantially as and for the purpose herein described.

5. In a machine for making stirrup-irons, a pair of rotary twisting-dies having longitudinal slots adapted to receive the ends of the bent blank, in combination with a former, bending-dies adapted to co-operate therewith, and a means for adjusting said twisting-dies and former in relation to each other, substantially as and for the purpose herein described.

6. In a machine for making stirrup-irons, a pair of rotary twisting-dies adapted to receive the ends of the bent blank and constructed with eccentric-toothed segments meshing with each other, in combination with die-supporting frames adapted to move laterally to the dies, substantially as and for the purpose herein described.

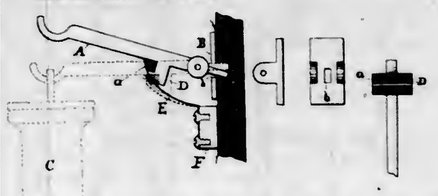
7. In a machine for making stirrup-irons, a pair of rotary twisting-dies adapted to receive the ends of the bent blank and constructed with eccentric-toothed segments meshing with each other, in combination with die-supporting frames adapted to move laterally to the dies and a frame-supporting base adapted to move parallel with the dies, substantially as and for the purpose herein described.

8. In a machine for making stirrup-irons, a raised bed-plate, in combination with rotary twisting-dies having longitudinal slots adapted to coincide with said bed-plate, substantially as and for the purpose herein described.

9. In a machine for making stirrup-irons, a former made in sections, each pivoted at one end, in combination with a cam arranged intermediate of the sections to act thereon, substantially as and for the purpose herein described.

10. In a machine for making stirrup-irons, a pair of rotary twisting-dies constructed with eccentric-toothed segments terminating in plane edges to form stops for regulating the lateral motion of said dies, in combination with stops and counter-stops adapted to regulate the inner position of said dies, substantially as and for the purpose herein described.

349,947. TELEPHONE-SWITCH. JACOB F. MILLER, Chicago, Ill. Filed Jan. 2, 1885. (No model.)



Claim.—1. In a telephone-switch, the combination, with an arm or lever adapted to be moved in one direction by the placing of the receiver on its support, of a spring for moving said arm in the other direction, said arm and spring being included in the circuit, and said spring making and breaking electrical contact with said arm as the same is moved, whereby the circuit is made and broken, substantially as set forth.

2. In a telephone-switch, the combination, with a metal arm or lever adapted to be moved in one direction by the placing of the receiver on its support, and having an insulating-section upon its surface, of a spring for moving said arm in the other direction, adapted to bear upon the metal portion of the arm in one position and upon the insulating-section in the other, whereby the circuit is made and broken, substantially as set forth.

3. In a telephone-switch, the combination, with an arm formed or provided with a curved surface partly of metal and partly of insulating material, and adapted to be moved in one direction by the placing of the receiver on its support, of a spring for moving said arm in the other direction, adapted to bear upon said metal portion in one position and upon said insulating portion in the other, whereby the circuit is made and broken, substantially as set forth.

4. In a telephone-switch, the combination, with the telephone-box, of a metal plate on the outside of said box, a movable arm connected with said plate and adapted to be moved by the receiver, and a spring attached also to the outside of said box bearing against said arm, and adapted to make and break electrical contact therewith, substantially as set forth.

349,948. TRUNK OR FURNITURE CASTER. SIGMUND M. MICHELSON, Milwaukee, Wis., assignor of one-half to George Sylvester, same place. Filed July 20, 1885. (Model.)



Claim.—1. In a trunk or furniture caster, the combination, with a housing, of a wheel-frame, slotted bottom and base plates, and a locking-pin and locking-lug adapted to fit within the central slot in the base-plate, as set forth.

2. The base-plate have key-hole slots, as described, in combination with the housing G, having projecting rivets g, slotted wheel-frame and bottom plate, a locking-pin, and locking-lug, as set forth.

3. The combination, in a trunk or furniture caster, of a slotted wheel-frame having projections B' with a bottom plate having hangers D' and a center-pin, slotted base-plate, and locking-lug, as set forth.

4. The combination, in a trunk or furniture caster, of a wheel-frame and slotted base-plate made separate from each other and detachably connected by a pin, F, and locking-lug, as set forth.

349,949. LINK. WILLIAM MILD, Cincinnati, Ohio. Filed May 24, 1886. (No model.)

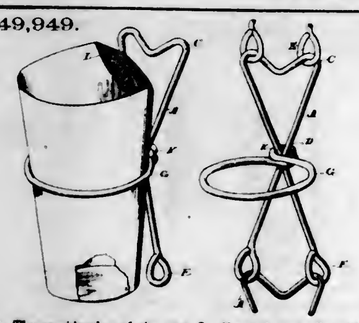
Claim.—1. A link formed of a single piece indented at one end, the central part curved inwardly, and the opposite end provided at each of its two extremities with a loop, substantially as described.

2. The combination of a link made of a single piece, indented at one end, curved inwardly at the central part, and provided with a loop at each of its opposite ends, with a loop having its ends secured in position around the waist of the link, substantially as described.

3. The combination of the link A, having the indentations B and loop C at one end, the central part, D, formed narrow, and the opposite end with loops E, with the cup-loop G, so disposed as to clasp the narrowest part of the link, substantially as herein set forth.

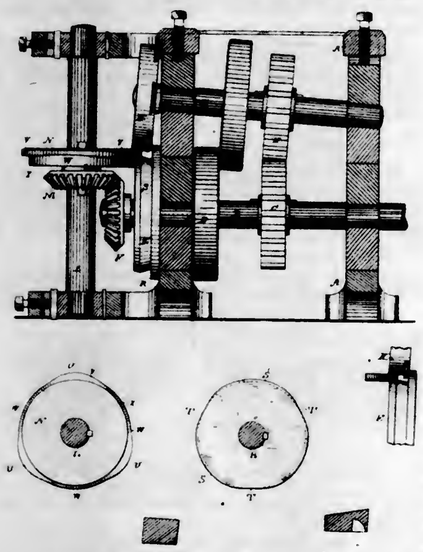
4. The combination of the link A, having therein the indentations B, loops C and E, with the loop G, secured in position at the central portion, D, of the link to receive the cup L, substantially as herein set forth.

349,949.



5. The combination of the cup L, disposed centrally within the hoop G, attached to the central portion, D, of the link A, the said link having the connecting-loops C and E and the indentations B, the whole arranged as and for the purpose substantially as herein set forth and described.

349,950. MACHINE FOR ROLLING HORSESHOE-BLANK BARS. HENRY C. OSTERHUD, Richmond, Va. Filed Aug. 3, 1886. (No model.)



Claim.—1. The combination, with the horizontal, inclined, and vertical roller-shafts, of the adjustable pinions C and H, the collars D and I, and the bottom roller, swaging-roller, and creasing-roller, constructed and operating together substantially as set forth.

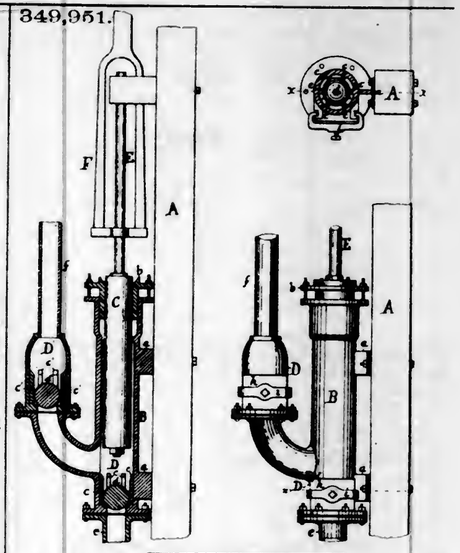
2. The combination of the bottom roller, E, provided with collar R, its surface S having the heel-forming depressions T, the inclined creasing-roller K, and the swaging-roller N, having projections U, irregular lower surface, W, and concentric bearing part X, substantially as set forth.

349,951. PUMP. THOMAS PATTEN, Jr., and CHRISTIAN ANDERSON, Appleton, Wis. Filed Jan. 30, 1886. (No model.)

Claim.—1. In a force-pump, the combination of the cylinder B, the valve-chambers D and B', the plunger or piston C, the globe-valves *d* and *d'*, their seats, and the valve-guides *c* and *c'*, the latter formed integral with the chambers D and D', respectively, substantially as shown and described.

2. In a force-pump, the combination of a cylinder, a plunger or piston adapted to be reciprocated therein, two valve-chambers in close proximity one to the other, having each a globe-valve, guides therefor integral with said chambers for guiding the vertical movement of said valves, seats therefor, and the removable cover and hand-holes for giving access to said valve-chambers, substantially as set forth.

349,951.



349,952. CASTER. HENRY B. PLUMB, Terryville, Conn. Filed May 10, 1886. (No model.)



Claim.—1. A caster having a flexible shank adapted to engage throughout its length and under tension with the walls of the socket or hole receiving it, whereby it holds the caster in place and is prevented from turning, substantially as set forth.

2. A caster having a flexible shank made of sheet metal and having straight sides, substantially as set forth.

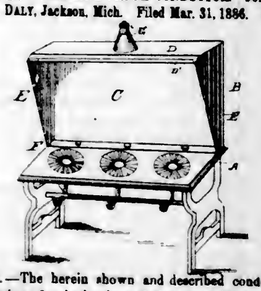
3. A caster having a flexible shank composed of one or more upright arms made of sheet metal, substantially as set forth.

4. A caster having a shank and a plate made in one piece of sheet metal, substantially as set forth.

5. A caster having a flexible shank and a plate provided upon its upper face with one or more points, substantially as set forth.

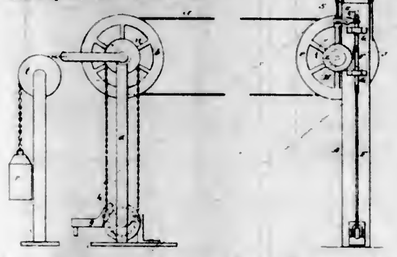
6. A caster having a shank composed of two flexible arms, the upper ends of which are spread apart, and a plate provided upon its upper face with two points, such shank and plate being struck up from a single piece of wrought metal, substantially as set forth.

349,953. GASOLINE-VAPOR CONDUCTOR. JOHN H. PORTER and JOHN H. DALY, Jackson, Mich. Filed Mar. 31, 1886. (No model.)



Claim.—The herein shown and described conductor for vapor stoves, consisting of a single piece of sheet metal formed into the back C, the top D, provided with a depending front edge, D', the bottom or flange F, and the sides E uniting the top and bottom and widening as they recede from the bottom and approach the top, which latter is apertured and provided with an escape-flue, G, substantially as and for the purposes described.

349,954. RAILWAY-SIGNAL. JAMES B. RATHBUN and EDWARD A. BURGESS, New Haven, Conn.; said Burgess assignor to said Rathbun. Filed July 12, 1886. (No model.)



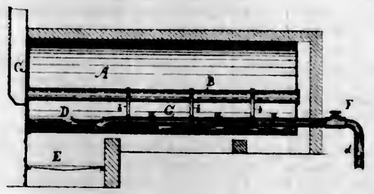
Claim.—1. In a signaling apparatus, the combination of a lever, C, extending transversely from the rail to the station, a vertical slide, F, a rod, E, extending from the said lever C to a point beneath but in line with said slide F, and whereby the upward movement of the said rod E may be imparted to said slide F, the said slide detached from the rod E, a ratchet fixed with relation to said slide and a pawl on said slide adapted to engage the teeth of said ratchet, a signal hung upon a lever and a counter-balance hung to said lever, under the action of which counter-balance, when free, the said signal will rise, and mechanism between said counter-balance and said vertical slide F, substantially as specified, and whereby in the ascent of said slide F the counter-balance is released, and under the fall of the said slide F the counter-balance is raised.

2. In a signaling apparatus, the combination of a lever, C, extending transversely from the rail, a vertical slide, F, a rod, E, extending from the said lever C to a point beneath but in line with said slide F, and whereby the upward movement of the said rod E will be imparted to said slide F, the said slide detached from the rod E, a ratchet fixed with relation to said slide and a pawl on said slide adapted to engage the teeth of said ratchet, a signal hung upon a lever and a counter-balance hung to said lever, under the action of which counter-balance, when free, the said signal will rise, and mechanism between said counter-balance and said vertical slide F, substantially such as described, whereby in the ascent of said slide F the counter-balance is released, and under the fall of the said slide F the counter-balance is raised, with a second lever at a distant station from the rail, and mechanism, substantially such as described, between said second lever and the said ratchet, substantially as specified, and whereby as the train passes the first station the said slide will be raised and engaged with said ratchet, and the said ratchet rotated as the train passes the next lever by said mechanism connecting the said second lever with said ratchet.

3. The combination of the lever C, vertical slide F, connecting-rod E, ratchet I, pawl J between said slide and ratchet, a pulley, *e*, on said ratchet-shaft, the lever L, carrying the signal, the counter-balance S, hung to said lever L, lever T, one arm in connection with said slide F, and the other adapted to support and release said counter-balance, and a second pulley, *b*, at a distant station, with a band connecting the said two pulleys, and a second lever at said second station adapted to impart rotation to said second pulley, *b*, substantially as described.

4. In a block-signal for railways, the pulley *e* at one station, adapted to disengage the signal at that station, a pulley, *b*, at the next station, hung upon a post adapted to swing in a plane parallel with the plane of the pulleys, a counterbalancing-weight, the tendency of which is to draw the second pulley from the first, an endless band connecting said pulleys, and the lever at said second station, with mechanism, substantially such as described, between it and the said second pulley, whereby rotation is imparted to said second pulley, and thence to the first pulley, while the said counter-balance maintains the requisite tension upon said band.

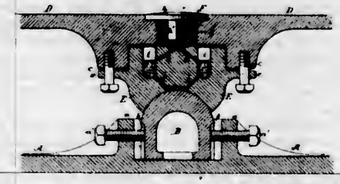
349,955. BOILER-CLEANER. WILLIAM ROW, Wheeling, W. Va., assignor of one-half to Alexander Hirth, same place. Filed June 23, 1886. (No model.)



Claim.—1. The combination, with a steam-boiler, of a blow-off pipe provided with a series of perforations along its side, and having a trumpet-shaped open end or mouth, said pipe suspended within the boiler with the mouth turned downward and in close proximity to the bottom of the boiler, and means to regulate the pressure of the steam, substantially as and for the purpose set forth.

2. The combination, with the boiler A, of the pipe C, having a trumpet-shaped open end, D, and perforations *a a*, hangers *b b b*, valve F, and escape-pipe *d*, substantially as and for the purpose set forth.

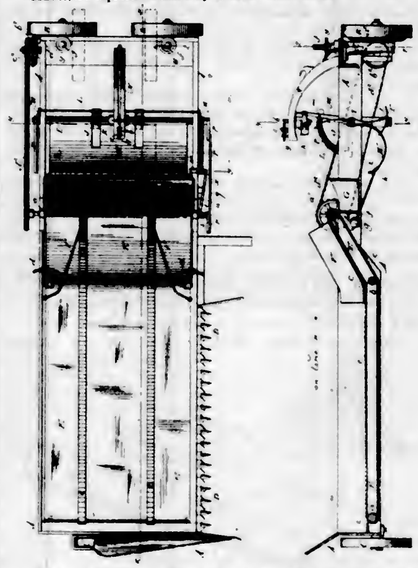
349,956. CENTER BEARING FOR TURN-TABLES. EDWARD SAMUEL, Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited,) same place. Filed June 23, 1886. (No model.)



Claim.—1. The combination of the bearing-block B, table D, and block E, attached to the table, with a screw-plug, F, within and completely below the surface of the table D, and adapted to be turned by a key, substantially as set forth.

2. The combination of the bearing-block B and table D with block E, having an annular oil-chamber, *i*, and a plug, F, having a socket and passages in the plug, and block E, connecting the said socket with the top of the bearing-block, substantially as and for the purpose set forth.

349,957. GRAIN HARVESTING AND BINDING MACHINE. WILLIAM SCHWINGEL, Farmer Village, N. Y., assignor of one-half to B. M. Graves, same place. Filed July 8, 1885. (No model.)



Claim.—1. In a grain harvesting and binding machine, a conveyer-apron provided with longitudinal ribs, substantially as described, to hold the ends of the grain-stalks above the surface of the apron.

2. In combination with one or more adjuster-boards, F, to determine the longitudinal position of the grain, the conveyer-apron and the longitudinal ribs thereon to prevent the ends of the grain from passing beneath the boards.

3. In a grain harvesting and binding machine, the conveyer-apron provided with the longitudinal ribs having teeth or serrations at the upper edge.

4. In combination with the vibratory receiver, the rotary compressor-arms J and the spring T, to resist the rotation of said arms, whereby they are caused to co-operate with the receiver to effect the compression of the grain.

5. In combination with the vibratory concave and the cord-carrying finger at its edge, the head K, having the cord tying, cutting, and clamping devices mounted therein, said head arranged to travel in a path coincident with that of the finger.

6. The combination of the vibratory concave H, the compressor-arm J, and the head K, containing the band-fastening devices, all arranged to move about a common center.

7. In combination with the stationary arm N, to operate the band-fastening devices, the concave H and its shaft, the head K, sustained by arms revolving loosely about the shaft of the receiver and provided with band-fastening devices, and the slotted arm P and pin *m*, whereby motion is communicated from the concave to the head.

8. In a grain harvesting and binding machine, the combination of the continuously-moving conveyer-apron, the concave to receive the grain, the clutch, and intermediate mechanism, substantially as described, for communicating motion to the concave, a spring to resist the final downward motion of the concave, and a clutch-operating arm connected with the concave, whereby the weight of the accumulated grain, by depressing the concave, is caused to throw into action the clutch for imparting motion thereto.

9. In combination with the concave to receive the grain and a spring to resist its final downward movement, the driving-clutch connected by intermediate devices with the concave, the lever *t*, and spring *u*, for operating said clutch, the finger *x*, pivoted to the lever, and the arm *w*, connected with the concave, whereby the concave, in descending, is caused to throw its driving-clutch out of action, and subsequently, by a continued downward movement, to throw the clutch again into action.

10. The combination of the concave adapted to trip the driving mechanism into action, the swinging head K, connected with and moved by the concave, the sliding rod *y* and its spring *z*, arranged, substantially as shown, to resist the movement of the head, and thereby resist the final downward movement of the receiver.

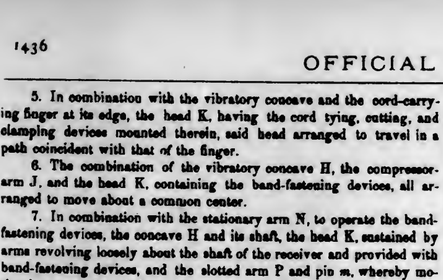
11. In a harvesting-machine, the combination of the main frame, the carrying-wheel, the intermediate spring of strength sufficient to lift the frame above its operative position, and mechanism, substantially as described, for forcibly depressing the frame against the resistance of the spring and holding the same in the required position.

12. In combination with the main frame, the tubular posts *d'*, the springs *e'* therein, the blocks *c'*, having the journal or axle attached, the screw *f'*, and nut *g'*.

13. In a harvesting and binding machine, the main frame and tubular posts *d'*, provided with the vertical slots having an offset portion at the lower end, in combination with the blocks *c'*, carrying the lateral stud or axle, adapted to slide vertically and to be turned horizontally in said posts.

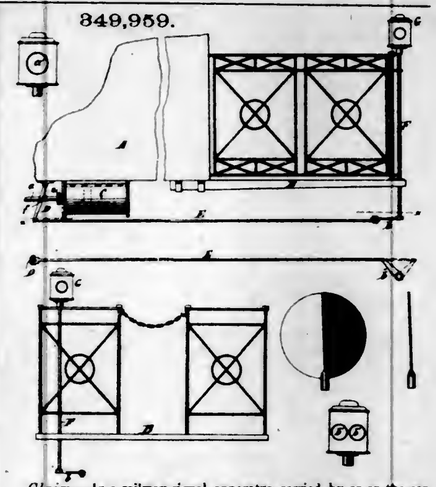
14. In a harvesting-machine, the combination of the main frame, its tubular posts having vertical slots with offset portions at their lower ends, and the vertically-adjustable blocks provided with wheel-carrying studs or journals adapted to be turned into and engaged within the offset portion of the slots, as described.

349,958. RAILWAY-RAIL SPLICE. CHARLES P. SHARRER, Syracuse, N. Y., assignor of one-half to Edwin H. Croly, same place. Filed June 23, 1886. (No model.)



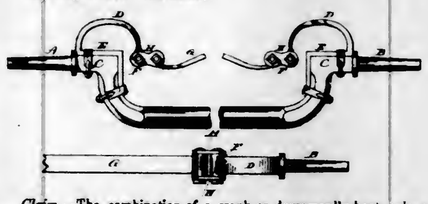
Claim.—The combination, with the rails provided with the orifices *a a a a*, of the straight plate A, having affixed to it the dovetailed tenons *t t*, formed longitudinally straight and parallel with said plate, the straight plate B, provided with the dovetailed groove *b*, formed likewise longitudinally straight and parallel with the plate, and the wedge *w*, provided with the longitudinal slots *s s*, and inserted endwise between the plate B and stems of the adjacent end portions of the rails, substantially as described and shown.

349,959. SIGNAL FOR RAILWAY-CARS. RENALDO SOLARO, Brooklyn, N. Y., assignor of two-thirds to John W. Howard and David R. Morse, both of same place. Filed Sept. 23, 1885. (No model.)



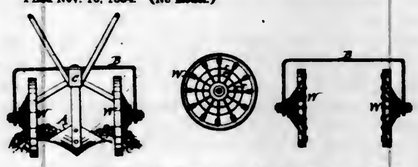
Claim.—In a railway-signal apparatus carried by or on the car, the combination of a signal device, a standard, shaft, or journal constructed and arranged to receive an axial movement, a compressed-air cylinder, piston, and piston-rod, and mechanical devices for connecting the said standard, shaft, or journal with the piston-rod, substantially as and for the purpose herein set forth.

349,960. VEHICLE-SPRING. BRYANT A. TREAT, Wallingford, Conn. Filed Aug. 9, 1886. (No model.)



Claim.—The combination of a crank or downwardly-bent axle, a principal spring, G, less in length than the distance between the bends of the axle, and an auxiliary spring, D, resting upon the straight part of the axle and starting substantially at the collar, curved upward, ieward, and downward into the bend of the axle, the principal spring G hang by its respective ends to the free end of the said auxiliary springs D, substantially as described.

349,961. POTATO-DIGGER. WILLIS H. TUTTLE, Canandaigua, N. Y. Filed Nov. 10, 1884. (No model.)



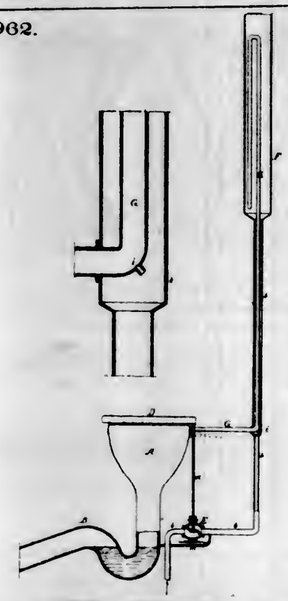
Claim.—In combination with the digger, the wheels W W, arranged at opposite sides of the digger, and the chains or rods *r r*, extended from spoke to spoke of said wheels, substantially as shown and described.

349,962. WATER-CLOSET. JOHN UPPERMARD, Philadelphia, Pa. Filed Aug. 14, 1886. (No model.)

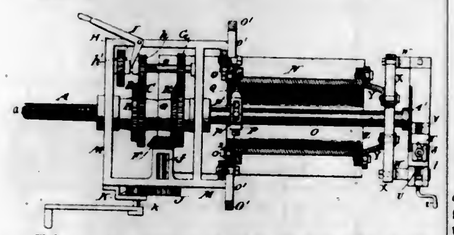
Claim.—1. The combination of the water-closet, the valved water-supply pipe, the elevated tank, the siphon-pipe through which the contents of the tank are discharged into the bowl of the closet, and a communication between the supply-pipe and the bowl independent of said siphon-pipe, all substantially as specified.

2. The combination of the water-closet, the valved water-supply pipe, and the elevated flushing-tank with a siphon-pipe, a portion of which is contained in the supply-pipe, said portion having an opening therein, through which water can pass directly from the supply-pipe to the bowl of the closet, all substantially as specified.

349,962.



349,963. APPARATUS FOR BORING CYLINDERS. JOHN D. WATSON and JASPER A. WILCOX, Wyatt, W. Va. Filed May 28, 1886. (No model.)



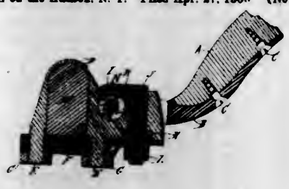
Claim.—1. In an apparatus for boring engine-cylinders, the combination of the threaded feed-bar A, the internally-threaded hub B, carrying the spur-wheels C D, the bevel and spur wheel E, the pinions F G, the shaft *g*, the sleeve H, carrying unequal pinions *h h'*, the shaft *f*, carrying end pinion, J, and the smaller pinion on the shaft *k*, whereby the boring-tool may be fed through the cylinder, in the manner described.

2. The combination, with the feed-bar A, of the tool-head P, the slotted slides *p p*, the wheel or roller R, and the bit Q, the said wheel and bit being changeable to opposite directions, as and for the purpose set forth.

3. The combination, with the feed-bar A, of the terminal face-plate A', to hold the piston-rod or packing-ring, and a lathe, arranged substantially as and for the purpose specified.

4. The combination, with the feed-screw A, of a frame-support, M, having the curved slots *o o* in its arms O', and the screws O^2 O^2, whereby the feed-screw may be centered to cylinders of different diameter, as and for the purpose specified.

349,964. THILL-COUPLING. DANIEL D. WHITNEY, Cornwall, N. Y., assignor to Arthur F. Whitin, Whitinsville, Mass., and William H. Vail, Cornwall on the Hudson, N. Y. Filed Apr. 27, 1886. (No model.)

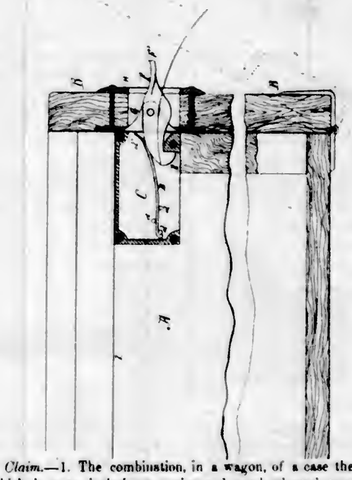


Claim.—1. In a thill-coupling, the combination, with the cross-bolt of the thill-iron, of a clamping-bolt passing through the axle-clip, a recess in said clip containing a spring-washer, against which a shouldered nut presses, said nut being held against displacement by the clip-bar passing beneath the axle, substantially as shown and described.

2. The combination, in a thill-coupling, of a clip-bar passing beneath the axle, provided with an apertured end extending forwardly and engaging with and supporting the nut of a clamping-bolt, so that the clip-bar will hold the nut in place upon unscrewing the same and cause the projection of the clamping-bolt, substantially as and for the purposes set forth.

3. A thill-coupling consisting of coupling-iron B, bolt H, provided with a rubber cushion, I, clamping-bolt J, spring-washer R, shouldered nut L, clip D, and clip-bar F, the whole combined and arranged substantially as shown and described.

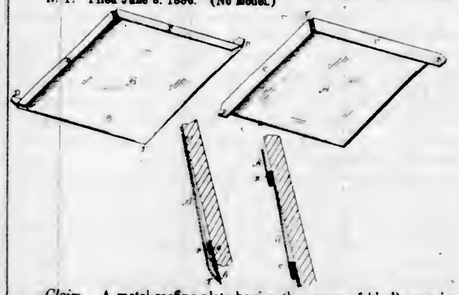
349,965. LOCK FOR WAGON END-GATES. DANIEL D. WHITNEY, Cornwall, N. Y., assignor to Arthur F. Whitin, Whitinsville, Mass., and William H. Vail, Cornwall on the Hudson, N. Y. Filed June 22, 1886. (No model.)



Claim.—1. The combination, in a wagon, of a case the rear end of which is open, inclosing a spring and catch adapted to receive the front end of a hooked latch between them, and a hooked latch attached to the end-board of the wagon and adjusted and arranged to enter the case, passing between the spring and catch therein, and to lock over the catch, substantially as and for the purposes set forth.

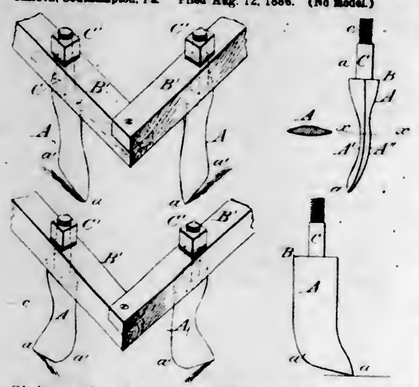
2. The combination, in a wagon, of a case the rear end and bottom whereof are open, inclosing a spring and a catch adapted to receive the front end of a hooked latch attached to the end-board of the wagon, and adjusted and arranged to enter the case, passing between the spring and catch therein, and to lock over the catch, substantially as and for the purposes set forth.

349,966. METALLIC ROOFING. ANDREW WIGHTMAN, Peekskill, N. Y. Filed June 8, 1886. (No model.)



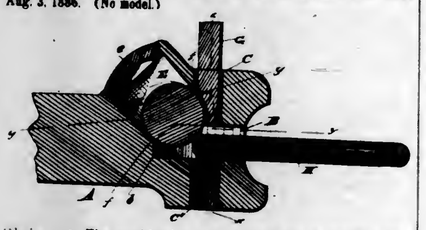
Claim.—A metal roofing-plate having the narrow folds B upon its top and the wider folds C upon its under side, and the projecting corners D, which catch under the corner formed by the meeting of the narrower folds, B, and which plate has its lower corner, F, bent downward, substantially as shown and described.

349,967. HARROW OR CULTIVATOR TOOTH. FRANCIS F. WOLGAMUTH, Southampton, Pa. Filed Aug. 12, 1886. (No model.)



Claim.—A harrow or cultivator tooth, A, having its longitudinal central line curved to one side, one face, A', being longitudinally concave in its curve, and the opposite face, A'', correspondingly convex longitudinally, and both faces convex in transverse direction, and having the angular toe *a*, and curved heel *a'*, and shank C, as and for the purposes described.

349,968. CAR-COUPLING. GEORGE F. ALMY, Delphos, Ohio. Filed Aug. 3, 1886. (No model.)



Claim.—1. The combination of a pin and link of ordinary construction with the draw-head having the link-recess, the cylinder-recess inclining upward and inward from the rear end of the link-recess, and the pin-openings through the roof and floor of the link-recess, the former opening into the lower part of the cylinder-recess, the cylinder fitting snugly and adapted to roll in its recess, and detent projections standing inward from the surface of the cylinder-recess, so as to allow the cylinder to protrude into the path of the pin, but preventing it from leaving its recess and touching the floor of the link-recess, substantially as specified.

2. The combination of the link and the pin provided with the curved shoulder *g*, to fit upon the periphery of the cylinder F, with the draw-head provided with the link-recess, the cylinder-recess having at its lower end the detent projections *f* and the pin-openings C C', the former communicating with the cylinder-recess, so that the cylinder can project into said opening, and the cylinder lying, when at its lowest position, against the side and shoulder of the pin, substantially as specified.

3. The combination of a link and pin of common construction, the cylinder F, with the draw-head provided with the openings, the link-recesses B, having the shoulder *b*, curved correspondingly to the end of the link, and the cylinder-recess inclined upward and inward from the top of said shoulder, and provided at its lower end, on each side of its communication with the upper pin-opening, with the projections *f f*, which allow the cylinder to protrude into the path of the pin, but prevent its leaving its recess and touching the floor of the link-recess, substantially as specified.

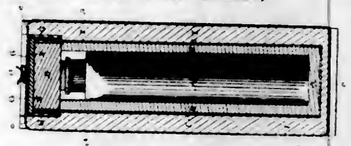
4. The combination of the draw-head A, having the pin-openings C C', the link-recess B, provided with the shoulder *b*, and the cylinder-recess E, provided with the detent projections *f*, the screw-cap *e*, the cylinder F, the link H, and the pin G, provided with the curved shoulder *g*, all constructed and arranged substantially as and for the purposes specified.

349,969. CORSET. JOHN A. ANDERSON, Boston, Mass. Filed May 5, 1886. (No model.)



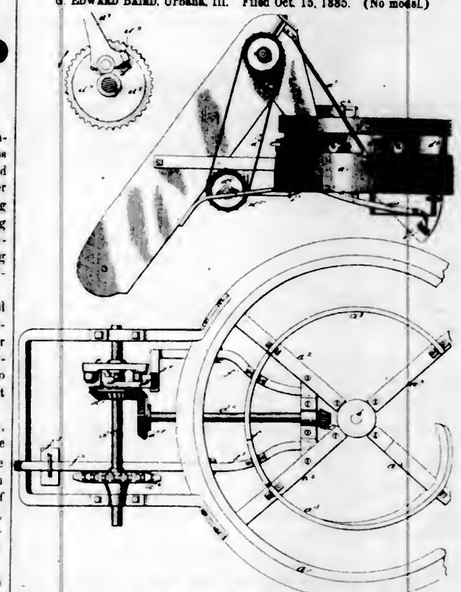
Claim.—A corset having stiffening-pieces A at the front central division, and buttons or studs *a*, secured to one of said stiffening-pieces, and pockets *a'*, formed of the fabric of the corset, combined with elastic bands B, attached to the body of the corset back of the adjacent stiffening-piece A and within and at the farther ends of the pockets *a'*, and provided at their outer ends with metallic eyes *c*, adapted to connect with the buttons or studs *a*, substantially as set forth.

349,970. PACKAGE. JAMES B. ANDREWS and HENRY R. GILLINGHAM, Baltimore, Md. Filed Aug. 10, 1886. (No model.)



Claim.—The combination, in a package for the transportation of liquid or pasty substances through the mails, of the pad or casing B, made of absorbent material, the separate and distinct pad D, the tin box C, provided with a water-proof cap, and the wooden block or casing in which the tin box is inclosed, substantially as set forth.

349,971. GRAIN WEIGHING AND REGISTERING APPARATUS. G. EDWARD BAIRD, Urbana, Ill. Filed Oct. 15, 1885. (No model.)

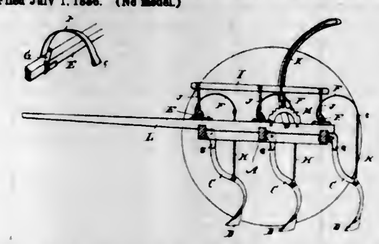


Claim.—1. In a grain-measure, the combination, with a circular supporting-frame provided with a circular track, having one end bent at an incline, and a central pivotal standard, of a series of receptacles hinged to a sleeve on said standard and having hinged bottoms resting on the segmental track, said receptacles being at the outer ends provided with rollers running on the edge of the main frame, substantially as and for the purpose set forth.

2. In a grain-measure, a series of revolving receptacles, each having a vertical play independent of the others, and a scale-beam or frame over which these receptacles are drawn, and on which they rest while being filled, in combination with means, substantially as described, for turning the receptacles, and a clutch for connecting and disconnecting this mechanism with the driving-shaft, said clutch being automatically operated by connection with and the movement of the scale-beam, substantially as and for the purpose set forth.

3. In a grain-measure, the combination of the independent rotating receptacles, the main frame on which they are moved provided with the segmental track for supporting their hinged bottoms, a scraper under which the receptacles are passed, a scale beam or frame on which they successively rest, and provided with a stop-arm, a main driving-shaft provided with a loose wheel, and a clutch contacting with the stop-arm, and an intermediate mechanism between said clutch and loose wheel and the rotating receptacles, all constructed and arranged to hold the receptacles stationary on the scale while filling, and to automatically move them forward and discharge them when filled, substantially as shown and described.

349,972. WHEEL-CULTIVATOR. ANDREW C. BAKER, Albion, Mich. Filed July 1, 1886. (No model.)

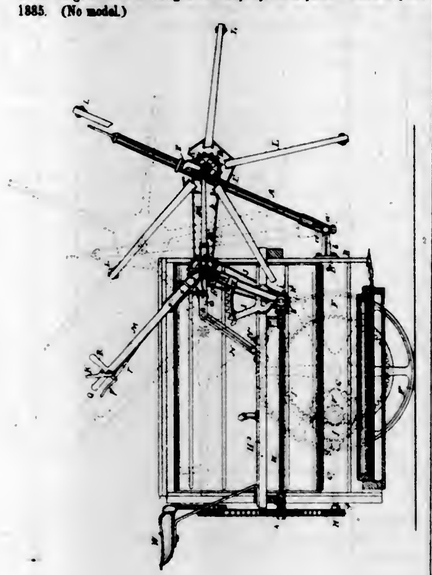


Claim.—1. In a wheel-cultivator, the combination, with the frame and rocker-arm journaled therein, of the rigid tooth-arm pivoted at one end to said frame, the spring connected with the rocker-arm, and the link pivotally connected to said tooth-arm and spring, substantially as described.

2. In a wheel-cultivator, a spring connected with a rocker-arm and with the standard, which carries a tooth, in combination with the means described for giving partial rotation to the rocker-arm, substantially as and for the purposes specified.

3. In a wheel-cultivator, the combination of the frame having vertically-adjustable wheels carrying stub-axles, ears secured to the rear face of the cross-bars of the frame, to which are pivotally secured the curved standards, which carry the teeth, links connecting such standards with springs, which are secured to rocker-bars, and means described for rocking such bars, substantially as and for the purposes set forth.

349,973. HARVESTER-REEL. FREDERICK G. BECKER, Brockport, N. Y., assignor to D. S. Morgan & Company, same place. Filed Sept. 3, 1885. (No model.)



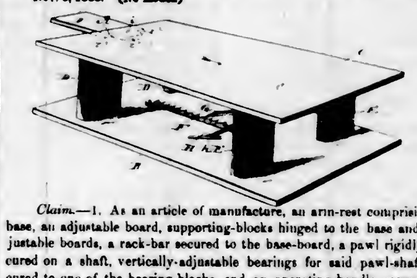
Claim.—1. The combination of the main frame, the rocking reel-post having supporting and bracing connection therewith, the reel-shaft, its sleeve-bearing, the sleeve sliding on the reel-post and carrying the reel-shaft bearing, and the single controlling-lever of the reel-adjusting mechanism pivotally connected with the reel-shaft bearing, and by which the reel-post is rocked and the sliding sleeve on the reel-post moved lengthwise thereof, substantially as and for the purpose set forth.

2 The combination of the rocking reel-post, the bearing for the reel-shaft, the sliding sleeve by which said bearing has adjustable supporting connection with the reel-post, the controlling-lever having jointed connection with the reel-shaft bearing, the rocking support to which the controlling-lever is pivoted, detent mechanism by which to lock the lever against pivotal movement, and detent mechanism for locking its support against rocking, substantially as and for the purpose set forth.

3. The combination of the main frame, the rocking lever pivotally supported at its lower end, the rocking arm pivotally supported at its lower end, the link-arm jointed at its opposite ends to the upper ends of the rocking lever and rocking arm, respectively, the single controlling-lever having pivotal connection with the rocking lever, the rack *l*, the rack P, the detents for engaging these racks, the detent-actuating devices carried by the single controlling-lever, the reel-shaft bearing with which the controlling-lever has jointed connection, and the sleeve sliding on the reel-post and carrying the reel-shaft bearing, substantially as and for the purpose set forth.

4. The combination of the main frame, the controlling-lever, the rocking support with which the lever is pivotally connected, detent mechanism for preventing rocking movement of said support, detent mechanism for locking the lever to its rocking support, the rocking reel-post, the vertically-adjustable reel, its shaft, the forked bearing therefor, the sliding sleeve by which said bearing has adjustable connection with the reel-post and with which the controlling-lever has jointed connection, the sprocket-wheels of the reel-driving gearing rotating about the axes of oscillation of the controlling-lever and its rocking support, and the sprocket-wheel secured to the reel-shaft between the members of its bearing, substantially as and for the purpose set forth.

349,974. ARM-REST. EDWARD A. BENNETT, Weston, W. Va. Filed Nov. 5, 1885. (No model.)



Claim.—1. As an article of manufacture, an arm-rest comprising a base, an adjustable board, supporting-blocks hinged to the base and adjustable boards, a rack-bar secured to the base-board, a pawl rigidly secured on a shaft, vertically-adjustable bearings for said pawl-shaft secured to one of the bearing-blocks, and an operating-handle secured to the pawl and extending outwardly therefrom, substantially as described.

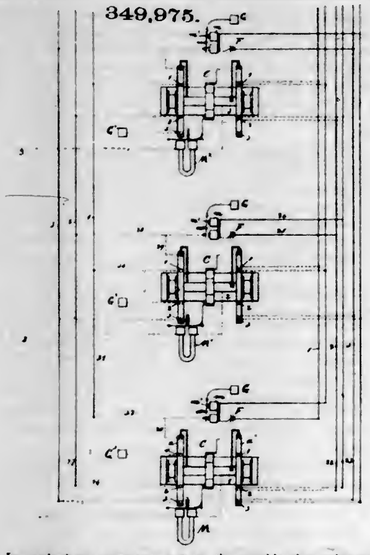
2. In an arm-rest, the combination of a base, a vertically-adjustable board arranged parallel therewith, the swinging stop-blocks connected with the base and adjustable board, a pawl carried by said blocks and adjustable at one end vertically thereon, and a rack with which the pawl engages to retain the adjustable board at any desired elevation, substantially as described, for the purpose set forth.

3. As a new article of manufacture, an arm-rest consisting, essentially, of a base, a vertically-adjustable board, the swinging stop-blocks hinged to the base and the adjustable board, a foldable leaf, l, pivoted to the adjustable board near one end, a stop-pin affixed to the board and arranged in the path of the leaf to limit the inward movement thereof, a ratchet, and a pivoted pawl on one of the stop-blocks, substantially as described, for the purpose set forth.

349,975. AUTOMATIC TELEPHONE-EXCHANGE SYSTEM. JOHN H. BICKFORD, Salem, Mass., assignor of one-third to S. Fred Smith, same place. Filed Nov. 25, 1885. (No model.)

Claim.—1. In a telephone-exchange system, the combination, substantially as herein set forth, of a series of subscribers' lines converging at a main or central station, a selecting-instrument, substantially as described, including a polarized magnet for each subscriber's line located at the central office, all of said selecting-instruments being interchangeably connected with each other, a movable contact piece or pen forming a co-operative part of the selecting-instrument, for establishing electrical connection with another instrument, mechanism, substantially as described, for moving the said contact piece or pen, and means, substantially as described, for operating said mechanism from a distance.

349,975.



2. In a telephone-exchange system, the combination, substantially as hereinbefore set forth, of a series of subscribers' lines converging at a central or main office, a selecting-instrument, substantially as described, including a polarized magnet for each subscriber's line and located at the central office, said selecting-instrument containing a series of conducting stops or surfaces, a co-operating movable contact piece or pen and actuating-motor therefor for causing the contact piece or pen to make connection with the said conducting stops or surfaces consecutively, said contact-piece normally resting upon a grounded conducting-stop, while the remaining conducting-stops are interchangeably connected with corresponding conducting-stops of the several selecting-instruments, with the exception of that conducting-stop which is characterized by the number of the selecting-instrument of which it forms a component part, which latter is grounded.

3. In a telephone-exchange system, the combination, substantially as hereinbefore set forth, of a series of subscribers' lines converging at a central or main office, a selecting-instrument, substantially as described, for each subscriber's line, and located at the central office, said selecting-instrument containing a series of conducting stops or surfaces, a co-operating movable contact piece or pen and actuating-motor therefor, for causing the contact piece or pen to make connection with the said conducting stops or surfaces consecutively, said contact-piece normally resting upon a grounded conducting-stop, while the remaining conducting-stops are interchangeably connected with corresponding conducting-stops of the several selecting-instruments, with the exception of that conducting-stop which is characterized by the number of the selecting-instrument of which it forms a component part, which latter is grounded; also a series of pairs of conducting stops or surfaces correspondingly located with the former series of conducting-stops, those two pairs corresponding with the two grounded conducting-stops being omitted, a local circuit connected with each remaining pair, and a contact piece or pen and actuating-motor therefor moved simultaneously with the contact-piece above mentioned, and arranged to make connection with the several pairs of conducting-stops consecutively, but normally disengaged therefrom, electro-magnets in said local circuits and operating to remove the normal ground-terminal from the first-mentioned contact-piece.

4. In a telephone-exchange system, the combination, substantially as hereinbefore set forth, of a series of subscribers' lines converging at a central office, a normally-grounded selecting-instrument, substantially as described, for each subscriber's line, located at the central office, and interchangeably connected with each other, a movable contact piece or pen forming a co-operative part of the selecting-instrument, a shaft, to which said contact-piece is attached, a ratchet-wheel, and pawl for rotating the ratchet-wheel, and a polarized magnet controlling the operation of the said pawl and forming part of each selecting-instrument.

5. In a telephone-exchange system, the combination, substantially as hereinbefore set forth, of a series of subscribers' lines converging at a central or main office, a normally-grounded selecting-instrument, substantially as described, for each subscriber's line, located at the central office, and interchangeably connected with each other, a movable contact-piece for each selecting-instrument, and a rotary shaft carrying such contact-piece, a ratchet on said shaft, and a pawl co-operating therewith, and controlled by a polarized magnet, for intermittingly moving the said contact-piece to establish electrical connection between different pairs of the said selecting-instruments, and operating simultaneously with the said contact-piece for removing the ground-terminals from the several selecting-instruments consecutively.

6. In a telephone-exchange syst m, the combination, substantially as hereinbefore set forth, of a series of subscribers' lines converging at a central or main office, a normally-grounded selecting-instrument, substantially as described, for each subscriber's line, located at the central office, and interchangeably connected with each other, an intermittingly-moving contact-piece under the control of a polarized magnet for establishing electrical connection between different pairs of selecting-instruments, a call or signal box at the subscriber's station, containing a break-wheel and co-operating pen for controlling the movement of the polarized magnet, and means, substantially as described, for stopping the break-wheel at any predetermined point during its rotation for an interval of time.

7. In an electric circuit, a call or signal box containing a motor, break-wheel, and co-operating pen or contact-piece normally disengaged therefrom, and connected with the battery-line, a pointer mounted upon the break-wheel shaft, which latter is connected with the main line, a contact-stud, also connected with the main line, and upon which the pointer normally bears, a series of normally-grounded stops, *n*, arranged to be brought independently into the path of rotation of the said pointer, and against which the pointer strikes when rotated by the break-wheel, thereby determining at will the number of impulses transmitted by the break-wheel breaking the line behind the box and grounding the main line.

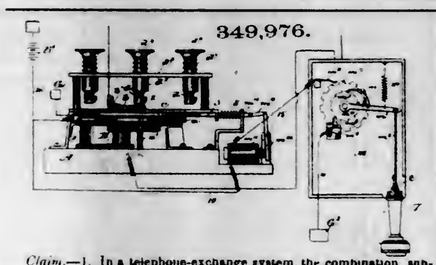
8. In an electric circuit, a call or signal box containing a motor, break-wheel, and co-operating pen or contact-piece normally disengaged therefrom and connected with the battery-line, a pointer mounted upon the break-wheel shaft, which latter is connected with the main line, a contact-stud, also connected with the main line, and upon which the pointer normally bears, a series of normally-grounded stops, *n*, arranged to be brought independently into the path of rotation of the said pointer, and against which the pointer strikes when rotated by the break-wheel, thereby determining at will the number of impulses transmitted by the break-wheel, breaking the line behind the box and grounding the main line, and means, substantially as described, for automatically restoring the stop *n* to its normal position, permitting the break-wheel to complete its rotation.

9. An instrument for governing the transmission of an electric current over several normally-grounded subscribers' lines consecutively, which consists of a disk, *a*, having a series of conducting stops or surfaces about its periphery, a pen, *b'*, and rotating shaft *b*, said pen normally resting upon that conducting-stop through which the main line is grounded, while the remaining conducting-stops are independently connected with the lines having the ground-terminals, a disk, *a'*, having a series of pairs of conducting-stops about its periphery, a pen, b^2, having a bifurcated end and attached to but insulated from the said rotating shaft *b*, thereby moving simultaneously with the pen *b'*, the said pen b^2 normally resting upon an insulated portion of the disk *a'*, while the several pairs of conducting-stops are connected with local circuits containing local batteries and electro-magnets, which, when operated, remove the normal ground-terminal at one end of the several subscribers' lines consecutively, a ratchet-wheel, *c*, and pawl *c'*, and means, substantially as described, for intermittingly moving the said pawl, all as set forth.

10. In a system for telephonic communication, a series of subscribers' lines leading to a central office, and having normal ground-terminals, a selecting-instrument, substantially as described, for each subscriber's line, located at the central office, and interchangeably connected with each other, means, substantially as described, intermittingly controlled by a polarized magnet, for establishing electrical connection with each of the several selecting-instruments consecutively and simultaneously removing the ground-terminals of each subscriber's line at the central office consecutively, commencing with instrument No. 1, and following in rotation until a desired number is reached, a call or signal box at each subscriber's station containing a break-wheel, and co-operating contact piece or pen normally disengaged therefrom, and connected in circuit with a main battery, the break-wheel having as many notches as there are subscribers lines, a pointer mounted upon the break-wheel shaft, which latter is connected with the subscriber's line, while the pointer normally bears upon a contact-stud, also connected with the subscriber's line, and means, substantially as described, under control of the subscriber, for stopping the rotation of the break-wheel at any desired point for a period of time, and grounding the subscriber's line at the box in which the break-wheel is rotating, thereby controlling the intermittent operation of the polarized magnet and releasing mechanism for the break-wheel, that it may complete its rotation, all substantially as described.

349,976. **AUTOMATIC TELEPHONE-EXCHANGE SYSTEM.** JOHN H. BRETFORD, Salem, Mass., assignor of one-third to S. Fred Smith, same place. Filed Jan. 18, 1886. (No model.)

349,976.



Claim.—1. In a telephone-exchange system, the combination, substantially as described, with a call or signal box containing a break-wheel, co-operating pen, and motor for revolving said break-wheel, a movable finger, *b'*, and pointer *b*, normally in contact therewith and connected in circuit with the main line, a series of independently-movable arresting-stops for arresting the movement of the break-wheel at any predetermined point, of a selecting-instrument, substantially as described, governing the electrical connection with various subscribers, and means, substantially as described, controlled by the interruptions of the break-wheel in the call or signal box for controlling the operation of said selecting-instrument.

2. In a telephone-exchange system, the combination, substantially as described, with a call or signal box containing a break-wheel, co-operating pen, and motor for revolving said break-wheel, a movable finger, *b'*, and pointer *b*, normally in contact therewith and connected in circuit with the main line, a series of independently-movable arresting-stops for arresting the movement of the break-wheel at any predetermined point, and a locking device, substantially as described, having a ground-terminal, for locking the arresting-stops in their lowermost position, of a selecting-instrument, substantially as described, governing the electrical connection with various subscribers' lines, and means, substantially as described, controlled by the interruptions of the break-wheel in the call or signal box for controlling the operatinn of said selecting-instrument.

3. In a telephone-exchange system, the combination, substantially as described, with a call or signal box containing a break-wheel, co-operating pen, and motor for revolving said break-wheel, a series of independently-movable arresting-stops for arresting the movement of the break-wheel at any predetermined point, and a locking device, substantially as described, for locking the arresting-stops in their lowermost position, and means, substantially as described, operated by a weight, for automatically releasing said locking device, thereby restoring the call or signal box to its normal position, of a selecting-instrument, substantially as described, governing the electrical connection with various subscribers' lines, and means, substantially as described, controlled by the interruptions of the break-wheel in the call or signal box, for controlling the operation of said selecting-instrument.

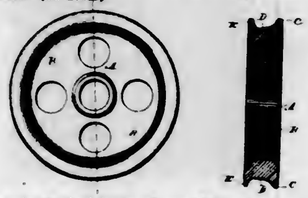
4. In an electric circuit, the combination, substantially as described, of a call or signal box containing a break-wheel, co-operating pen, and motor, and a series of independently-movable arresting-stops to arrest the movement of the break-wheel at a predetermined point, a locking device, substantially as described, for locking said arresting-stops in their lowermost position, and releasing mechanism consisting of a branch circuit, electro-magnet therein, and a break-wheel automatically operated by a weight, also in said branch circuit, to control the electro-magnet.

5. In an electric circuit, the combination, substantially as described, of a call or signal box containing a break-wheel, co-operating pen, and motor, and a series of independently-movable arresting-stops to arrest the movement of the break-wheel at a predetermined point, and a movable plate, 5, having holes corresponding in number with the number of arresting-stops, through and beneath which the said arresting-stops pass and catch, an electro-magnet in a branch circuit for moving said plate 5, a break-wheel and co-operating pen also in said branch circuit, a ratchet-wheel upon the break-wheel shaft and co-operating pawl therefor, and the spring-controlled lever automatically moved by a weight, whereby the break-wheel is rotated to change the condition of the branch circuit and operate the electro-magnet.

6. In an electric circuit, the combination, substantially as described, of a selecting-instrument consisting of a disk having conducting-stops to which various subscribers' lines are interchangeably connected, an intermittingly-moving pen co-operating with said conducting-stops, a rotating shaft to which said pen is attached, and a second series of conducting-stops located upon said disk alternately positioned with relation to the first series of conducting-stops and insulated therefrom, an intermittingly-moving pen co-operating with said second series of conducting-stops, and means, substantially as described, controlled from a distance for rotating said shaft to move the pens simultaneously.

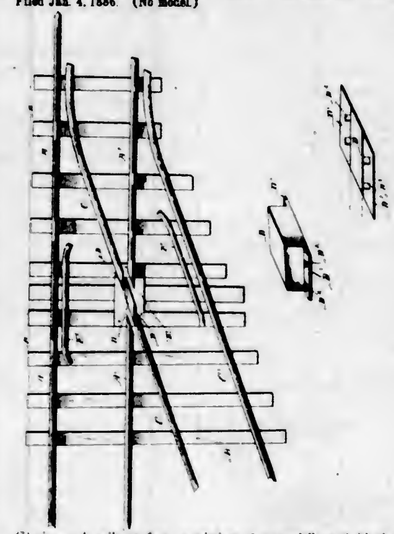
7. In an electric circuit, the combination, substantially as described, of a selecting-instrument consisting of a disk having conducting-stops to which various subscribers' lines are interchangeably connected, an intermittingly-moving pen co-operating with said conducting-stops, a rotating shaft to which said pen is attached, and a second series of conducting-stops located upon said disk alternately positioned with relation to the first series of conducting-stops and insulated therefrom, an intermittingly-moving pen co-operating with said second series of conducting-stops, a ratchet-wheel mounted upon said shaft, a pawl connected with the armature of an electro-magnet for intermittingly rotating said shaft, a polarized magnet controlled from a distance, and a branch circuit controlled by said polarized magnet, in which the electro-magnet controlling the movement of the ratchet-wheel is interposed.

349,977. **CAR-WHEEL.** JAMES J. BILLINGSLEY, Minden, La. Filed Jan. 4, 1886. (No model.)



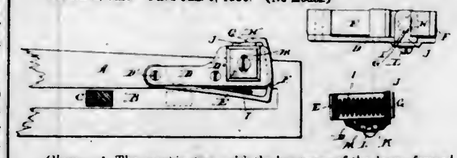
Claim.—A car-wheel having flanges E C arranged on opposite sides of the periphery of a single inclined tread, the whole cast in one piece, as shown and described.

349,978. **RAILWAY-FROG.** JAMES J. BILLINGSLEY, Minden, La. Filed Jan. 4, 1886. (No model.)



Claim.—A railway-frog consisting of a quadrilateral block with vertical sides, provided with bottom side flanges, D', having openings D^2 therein for the reception of spikes for securing the same to the crossties or underlying plate or block, substantially as specified.

349,979. **PICKER-STAFF CHECK FOR LOOMS.** BENJ. F. CARTER, Cleveland, Ohio. Filed Jan. 9, 1886. (No model.)

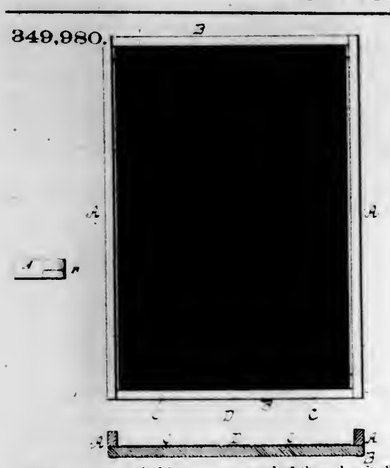


Claim.—1. The combination, with the lay-beam of the loom, formed with the slot and the picking-stick therein, of the plate D, spring I, adjustable slide J K, latch E, and screws L and D', substantially as specified.

2. The combination, with the plate D and latch E, of the spring I, adjustable slide J K, and set-screw L, substantially as specified.

349,980. **SPRING BED-BOTTOM.** SAMUEL J. CLARK, Bunker Hill, Ind. Filed Mar. 25, 1886. (No model.)

349,980.



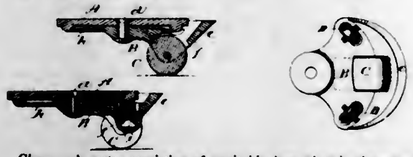
Claim.—A spring bed-bottom composed of three longitudinal extending sections of woven wire unconnected with each other, the center section being much narrower than the side ones and stretched to a greater tension, substantially as set forth.

349,981. **OBTAINING SULPHUR FROM HYDROGEN SULPHIDE.** CARL F. CLAUS, London, England. Filed Sept. 26, 1883. (No specimens.) Patented in England July 29, 1882, No. 3,606.

Claim.—1. In the process of obtaining sulphur from sulphide of hydrogen, first heating anhydrous oxide of iron to a temperature not less than 200° Fahrenheit, and then introducing sulphide of hydrogen into the chamber containing the heated anhydrous oxide, the heat in the chamber being maintained from 200° Fahrenheit upward, as described, whereby sulphide of iron is formed, and then "burning" the iron, for the purposes set forth.

2. In the process of obtaining sulphur from sulphide of hydrogen, first heating anhydrous oxide of iron to a temperature not less than 200° Fahrenheit, then mixing sulphide of hydrogen with a chemical equivalent of atmospheric oxygen, and passing the same, either heated or cold, through the heated anhydrous oxide of iron, whereby the desired heat of the oxide is maintained and free sulphur is formed continuously without removal of the oxide of iron from the chamber, substantially as set forth.

349,982. **CASTER.** THEODORE F. CONKLIN, Fond du Lac, Wis. Filed Nov. 9, 1885. (No model.)

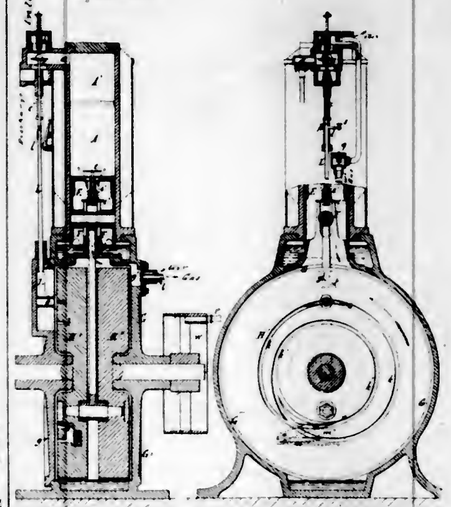


Claim.—A caster consisting of a suitable base-plate having an annular guide upon its under side, a pivotally-connected guide-frame having a semicircular outer edge extended beyond said base-plate, a main roller journaled to said guide-frame, and friction-rollers also journaled to the guide-frame and adapted to come in operative contact with the annular guide on the base-plate, substantially as and for the purpose set forth.

349,983. **MOTOR-ENGINE.** GOTTLIEB DAIMLER, Cannstadt, Wurtemberg, Germany. Filed May 13, 1885. (No model.) Patented in England Apr. 7, 1885, No. 4,315; in Belgium Apr. 30, 1885, No. 68,536; in Austria-Hungary July 10, 1885, No. 13,745 and No. 35,256; in Spain July 21, 1885, No. 5,021; in Italy Aug. 27, 1885, No. 18,747, and in France Sept. 16, 1885, No. 168,279.

Claim.—1. In a gas or petroleum motor engine every alternate instroke of which is a working-stroke, the method of introducing into the cylinder, first, during the outstroke following the working-instroke, a preliminary charge of combustible mixture or air through the piston, whereby the residual products of combustion are expelled; secondly, during the following instroke, the main charge of combustible mixture, and, thirdly, at the end of the said instroke, a supplemental charge of combustible mixture or air admitted through the piston, the said combined charges being then further compressed by the following outstroke and ignited, substantially as herein described.

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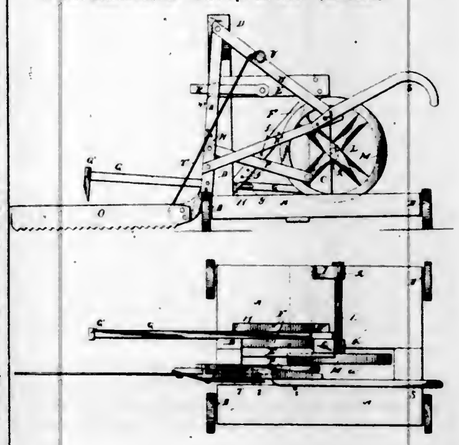
2. In a gas or petroleum motor engine every alternate instroke of which is a working-stroke, the method of introducing into the cylinder, after the main charge, a supplemental charge of combustible mixture or of air admitted through the piston at the end of the suction-instroke, the combined charges being then compressed by the following outstroke and fired, substantially as herein described.

3. In a gas or petroleum motor engine every alternate instroke of which is a working-stroke, the method of introducing into the cylinder, before the main charge, a preliminary charge of combustible mixture or air admitted through the piston, whereby the residual products of combustion are expelled from the cylinder before the admission of the main charge, substantially as herein described.

4. In gas-motor engines wherein the ignition of the charge is effected by its compression in contact with a heated surface, the method of retarding the ignition till the crank is at or about the dead-center by introducing into the admission-passage a charge of combustible mixture weaker than that contained in the cylinder, substantially as herein described.

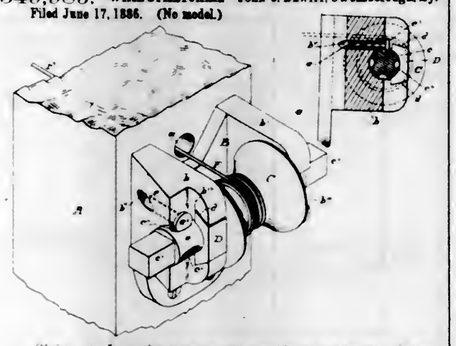
5. The method of regulating the speed of the engine by causing the discharge-valve for the products of combustion to remain closed when the speed is too great, so that the products of combustion are retained under pressure in the cylinder, and no fresh charge is consequently admitted until the speed is again reduced and the discharge-valve opened, substantially as herein described.

349,984. **SAWING-MACHINE.** ANDREW J. DIBBINS and WILLIAM S. PEARCE, Noblesville, Ind. Filed Apr. 24, 1886. (No model.)



Claim.—The combination, in a sawing-machine, of the platform having the standards C and D in line with each other, the standard I at right angles thereto, and the inclined bars F against the standard C, and provided with the series of openings *f*, the shaft L, journaled to standards C and I, and having the fly-wheel M, the oscillating frame N, pivoted to the upper end of standard D, and having the handle S and the saw O, the pitman connecting the said frame with the fly-wheel, the pivoted bar G, having the slot *g*, and the detent or wedge at its outer end and extending between the bars F, and the pin H, passed through one of the openings *f* and through the slot *g*, for the purpose set forth, substantially as described.

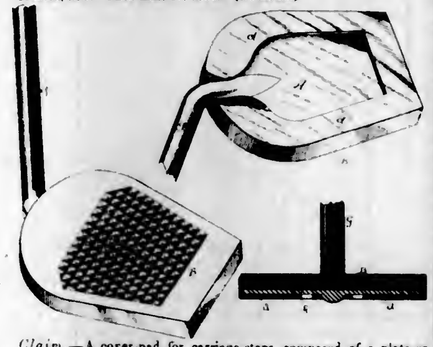
349,985. **WIRE-STRETCHER.** JOHN C. DEWITT, Owensborough, Ky. Filed June 17, 1886. (No model.)



Claim.—1. In a wire-stretcher, the combination of bracket B, having lugs *b b'*, provided with journal-bearings *b'' b'''*, and orifice *b'*, windlass-shaft *c*, journaled in said bearings *b'' b'''*, and having indentations *c''*, and a headed pin, E, adapted to engage by its shank in the orifice *b'*, and by its head in the indentations *c''*, substantially as and for the purpose set forth.

2. In a wire-stretcher, the combination of bracket B, having lugs *b b'*, provided with open slots *b'' b'''*, of which slot *b''* has in its walls dovetailed grooves *b''*, shaft *c*, occupying said slots *b'' b'''*, and wedge-formed block D, closing the slot *b''* and bearing against the shaft *c*, and having beveled ends *d* occupying the grooves *b''*, substantially as and for the purpose specified.

349,986. **PAD-COVER FOR CARRIAGE-STEPS.** JOHN T. DICKEY, Trenton, N. J. Filed Mar. 17, 1886. (No model.)

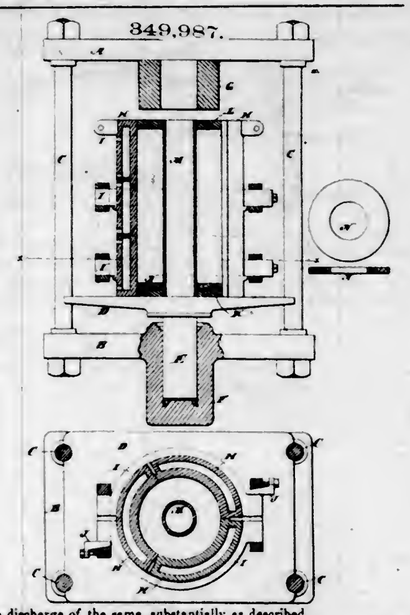


Claim.—A cover-pad for carriage-steps, composed of a plate or pad, B, provided on its under side with a continuous under-turned margin, *d*, constituting a pocket adapted to receive and inclose all the edge of the step-plate, except at the point where the step-arm is joined to said plate, whereby said pad will be retained in place without other fastenings, substantially as set forth.

349,987. **REDUCTION OF ZYLONITE AND OTHER PLASTIC COMPOSITIONS TO FORM SHEETS.** JARVIS B. EDSON, Brooklyn, assignor to the American Zylonite Company, New York, N. Y. Filed Jan. 30, 1886. (No model.)

Claim.—1. In an apparatus for consolidating and affixing a mass of plastic material upon a mandrel for the purpose of sheeting therefrom, and in combination with such mandrel, a cylindrical mold composed of two or more segmental jacketed sections for the reception of heating and cooling agents, all firmly combined and held together by bolts and suitable clamping devices, and capable of being opened for the discharge of the same, and the removable washer K at the bottom of the cylinder, with or without the annular metal top washer, L, substantially as described.

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2. In an apparatus for consolidating and affixing a mass of plastic material upon a mandrel for the purpose of sheeting therefrom, and in combination with such mandrel, a cylindrical mold composed of two or more segmental jacketed sections for the reception of heating and cooling agents, and all firmly combined and held together by bolts and suitable clamping devices, and capable of being opened for the discharge of the same, and the removable washer K at the bottom of the cylinder, with or without the annular metal top washer, L, substantially as described.

3. A cylindrical mold composed of two or more sections firmly clamped together and open at both ends, each section cored out to provide for heating or cooling agents along any portion of its length, according to the location of the cored chambers, without heating or cooling simultaneously the remaining portions thereof, substantially as described.

4. A cylindrical mold composed of two or more cored sections, said sections or parts being provided with communicating passages at their edges for the circulation of the heating or cooling medium from one plate into another and entirely around the cylinder, substantially as described.

5. In a molding device, a cylindrical mold divided longitudinally into two or more parts, each part being jacketed for the heating or cooling agent, and said cylinder being provided with a loose head at one end and a loose follower at the other, substantially as described.

6. The process of consolidating a mass of plastic material upon a mandrel, consisting in, surrounding said mandrel with previously-prepared forms of said plastic material of predetermined dimensions by heat and pressure, and subsequently cooling, said mandrel being located within a cylinder capable of being opened for the discharge of its contents, the consolidating pressure being applied in the direction of the length of the mandrel, substantially as described.

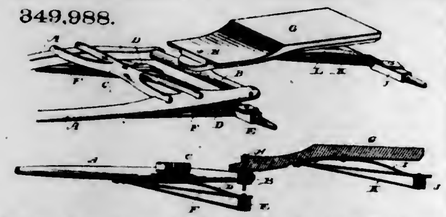
7. The process of manufacturing sheets of plastic composition, consisting in, first, making the material into predetermined separate forms; second, placing upon a mandrel located within a mold the several separate forms and consolidating them into one entire mass upon said mandrel by heat and pressure, and, third, removing said mandrel and contents and placing the same within a suitable lathe or mechanism and subjecting the same to a cutting-edge, substantially as described.

349,988. **RUNNING-GEAR FOR VEHICLES.** ELI FAIR, Aroma, Ind. Filed Feb. 15, 1886. (No model.)

Claim.—1. The combination of the body of a vehicle having the rear axle supported under it, a cross-bar pivoted at its middle to swing in a horizontal plane under the forward end of the body, and shafts pivoted at their rear ends to the ends of the cross-bar, and having the front axle supported by springs under their rear ends, as and for the purpose shown and set forth.

2. The combination of a pair of shafts having a rigid cross-bar connecting them near the rear ends, and having rearwardly-inclined springs secured to their under sides near their rear ends, a cross-bar pivoted at its ends in the rear ends of the shafts, and having a central vertical per-

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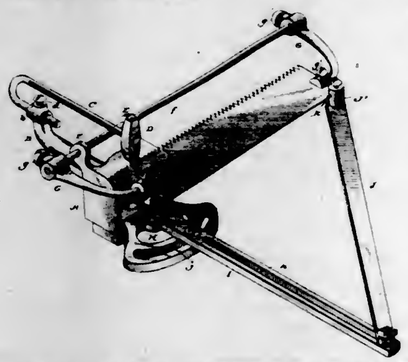


foration, a front axle secured to the rear ends of the springs directly under the pivoted cross-bar, and a vehicle-body having its rear end supported by springs from a rear axle, and having a downwardly-projecting king-bolt at its forward end pivoted in the central bearing in the pivoted cross-bar, as and for the purpose shown and set forth.

3. The combination of the rearwardly-inclined springs, the axles secured to their rear ends, and the straps secured at their forward ends near the forward ends of the springs, and having their doubled ends passed around the axles, as and for the purpose shown and set forth.

4. The combination of the shafts having a rigid cross-bar secured with its spreading bifurcated ends to the shafts near the rear ends of the same, flat springs secured at their forward ends to the under sides of the shafts, and having their rear ends downwardly inclined, a front axle secured to the rear ends of the springs under the rear ends of the shafts, doubled straps passed around the axle and secured to the shafts, a cross-bar pivoted at its ends in the rear ends of the shafts, and having a vertical central perforation or bearing, a vehicle-body having a downwardly-projecting king-bolt at its forward end turning and fitting in the central bearing of the pivoted cross-bar, flat springs secured at their forward ends to the bottom of the vehicle-body near its forward end, a rear axle secured to the rear inclined ends of the springs, and doubled straps passing around the axle and secured to the bottom of the vehicle-body near the forward ends of the springs, as and for the purpose shown and set forth.

349,989. SAW-SETTING DEVICE. ORRIN G. FRANKS, Oneida, N. Y. Filed Jan. 30, 1886. (No model.)



Claim.—1. In a saw-set, the combination, with an anvil having upwardly-extending brackets, of a rod sliding in said brackets, curved arms secured to said rod and adapted to receive and retain the saw, and a spring carrying a hammer, substantially as set forth.

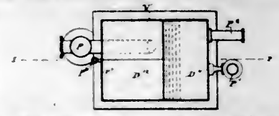
2. In a saw-set, the combination, with an anvil, of a sliding carriage, means, substantially as described, for holding the saw, a pivoted arm, I, having an arm, J, pivoted to its outer end, said arm J carrying a slotted post, and a set-screw working in the post, substantially as set forth.

3. The combination, with an anvil having brackets, of a rod sliding in said brackets, curved arms removably secured to the rod, and a spring carrying a hammer and adjustable to or from the anvil, substantially as set forth.

4. The combination, with an anvil and a hammer, of a sliding carriage, an arm pivotally connected with a segmental plate formed with the anvil and having a curved slot, a bolt connecting the arm with the slotted plate, and a rod pivoted to the outer end of the arm and adapted to be connected with the saw, substantially as set forth.

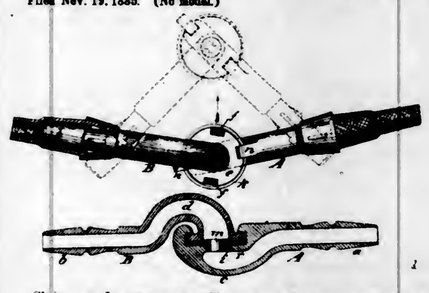
5. The combination, with an anvil and hammer, of a sliding carriage for holding the saw, an arm pivotally connected with a plate formed with the anvil, and a rod adapted to be secured to the saw and pivotally connected with the outer end of the arm, substantially as set forth.

349,990. APPARATUS FOR SEPARATING LIQUIDS FROM SOLIDS. PAUL H. A. GAILLET and LOUIS H. S. H. HUET, Lille, France. Filed Sept. 11, 1884. (No model.) Patented in France Oct. 24, 1883, No. 151,593; in Belgium Feb. 17, 1883, No. 60,435; in England Feb. 22, 1883, No. 972; in Austria-Hungary May 15, 1883, No. 18,438/14,220 and No. 29,720 1,387, and in Russia July 1, 1883, No. 4,634.



Claim.—The combination of the casing having alternating inclined plates D D' D², &c., V-shaped in cross-section, with inlets and outlets for the water and discharge openings at the bottoms of the V-pockets formed by said plates, all substantially as described.

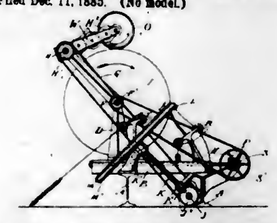
349,991. HOSE-COUPLING. EDWARD K. GOLD, New York, N. Y. Filed Nov. 19, 1885. (No model.)



Claim.—1. In a two-part or bisected coupling, the combination of the section B, having the bearing-flange *e*, with the section A, having the socket *k*, with the washer *i* and retaining thimble *m*, substantially as herein set forth.

2. In a two-part bisected coupling, the combination of the socket-section A, with washer *i*, thimble *m*, and projections *n*, with the section B, having the seating-flange *e*, with notches *f* and inclines *g*, substantially as shown and described.

349,992. PROCESS OF MANUFACTURING FROM WOOD EXCELSIOR AND MATERIAL FOR WOOD PULP. JOHN E. GOODWIN, Memphis, Tenn. Filed Dec. 11, 1885. (No model.)



Claim.—1. The herein-described process or method of reducing wood to excelsior and material for wood pulp, consisting in simultaneously cutting the timber along its entire length and in a plane parallel, or nearly so, with the fiber or grain of the wood without making a kerf, substantially as herein described.

2. The herein-described process or method of reducing wood to excelsior and material for wood pulp, the same consisting in revolving the wood in a direction at a right angle to the direction of the motion of the saw, substantially in the manner herein set forth.

3. The herein-described process of making excelsior and material for wood pulp from the wood by cutting the timber parallel, or nearly so, with the fiber or grain of wood, by revolving the timber at right angles to the direction of the motion of the saw and without cutting a kerf, substantially as set forth.

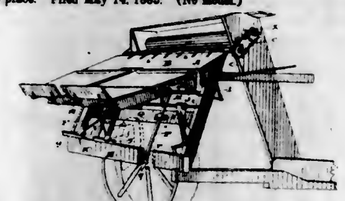
349,993. PAPER-FASTENER. FRED C. HAMILTON, Brooklyn, assignor to Hamilton & Lilley, New York, N. Y. Filed Mar. 25, 1886. (No model.)



Claim.—1. A paper-fastener comprising two parallel shanks resting against each other and having the inner adjacent edges of their pointed extremities formed into diverging cutters C C, substantially as and for the purpose described.

2. As an improved article of manufacture, a paper-fastener consisting of a strip of metal having the folded head D E and the pointed folded shanks F lying parallel and against each other, with their inner adjacent edges at their pointed extremities formed into diverging cutters C C, substantially as and for the purpose described.

349,994. HARVESTER-BINDER. JOHN HARRIS and JOSIAH LUCAS, Brantford, Ontario, Canada, assignors to A. Harris, Son & Co., (Limited,) same place. Filed May 14, 1885. (No model.)



Claim.—1. The combination, with the harvester and the binding-table thereof, of the roller A, having lugs *a*, and the straps *b*, arranged to rest between said lugs, and having their lower ends fastened to the main frame and their upper ends loose and resting on the top of the slanting deck B, the rear end of said roller having smooth periphery, substantially as and for the purpose specified.

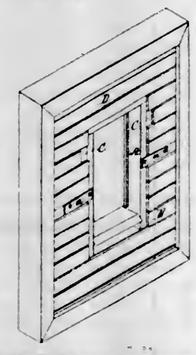
2. The combination, with the packer-shaft and the packing and binding apparatus, of bearings arranged to support the frame-work of said binding and packing apparatus, all constructed and arranged substantially as described, whereby the same may be folded on a pivot whose center shall correspond with that of said packer-shaft, substantially as described.

3. The binding-table and pillars arranged to support and form pivot-bearings for the frame carrying the packing and binding apparatus, in combination with the lug *j* on one of said pillars and bearings formed on the cross-sill in such a manner that the pillars may be moved laterally with the binder-table without disconnecting them from the cross-sill, substantially as and for the purpose specified.

4. The stop-rod O, having a looped end, *q'*, through which the pipe J passes, and a toe or enlargement at its other end, in combination with the binder-platform, the shaft on which it is pivoted, the bar J, and a guide arranged to hold the hanger O to the sill H, while permitting it to have sufficient longitudinal movement to allow of the rolling of the table.

5. The stop-rod O, having a looped end, *q'*, and a toe, *q*, at its other end, in combination with the binder-platform, the shaft on which it is pivoted, the bar J, and the bearings or castings *r* and *s*, the whole being arranged substantially as and for the purpose specified.

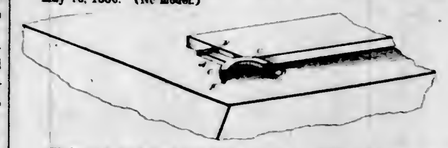
349,995. WINDOW-CASING. ALBERT B. HOLMES, Salem, Mass. Filed Apr. 29, 1886. (No model.)



Claim.—1. A device for fastening a window-casing within its jamb or opening, consisting of a tie, *a*, extending from and secured to each vertical side of the casing and the studding contiguous thereto, as and for the purpose set forth.

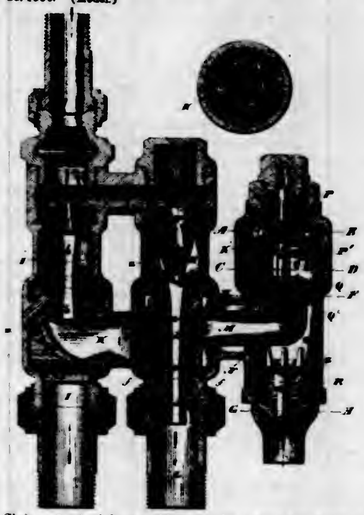
2. The combination of the dog *a* with the window-casing A and the studding B, as and for the purpose described.

349,996. BENCH-DOG. BRINTON B. HOOPES, Avondale, Pa. Filed May 10, 1886. (No model.)



Claim.—A Y-shaped bench-dog having a spud at the end of each arm, two of said spuds being flat and wedge-shaped, and the other one being round and pointed, one of said flat spuds projecting laterally from its arm.

349,997. INJECTOR. ELMER P. HOWE, Boston, Mass. Filed Apr 28, 1886. (Model.)



Claim.—1. An injector which contains a restarting-forcer, provided with an overflow-valve to prevent the indraft of air into its overflow-chamber, and which contains, also, a lifter which continuously supplies water to the forcer, and is provided with a valve on its overflow-chamber when the overflow-valves are arranged relatively to each other, as described, so that when the forcer overflow-valve is opened the lifter overflow-valve shall also be open, substantially as and for the purpose described.

2. An injector which contains a restarting-forcer provided with an overflow-chamber, M, and a lifter which continuously supplies water thereto, provided with a valve on its overflow-conduit K', adapted to be closed by pressure within that conduit, and to be opened by pressure in the overflow-chamber of the forcer, substantially as and for the purpose specified.

3. An injector which contains a restarting-forcer provided with an overflow-valve, Q, having a piston-extension, Q², and which contains, also, a lifter which continuously supplies water to the forcer, and is provided with a valve on its overflow-chamber when the overflow-valves are arranged relatively to each other, as described, so that whenever the forcer overflow-valve is opened the lifter overflow-valve shall be held wide open, substantially as and for the purpose described.

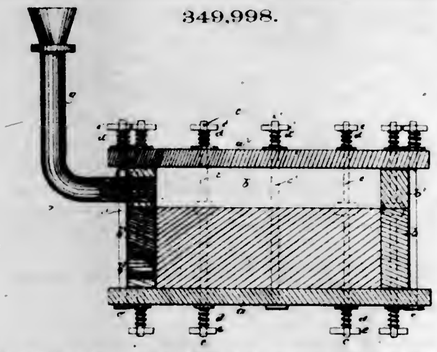
4. An injector which contains a forcer having relief-openings *e* and *f* and overflow-chamber M, into which the openings *e* and *f* lead, a lifter which continuously supplies water to the forcer, the intermediate chamber, K, the common overflow-chamber O, and valves P and Q on opposite sides of the chamber O, operating automatically to open and close both overflows, substantially as described, and for the purpose specified.

5. An injector which contains a restarting-forcer provided with an overflow-valve, Q, and a lifter which continuously supplies water to the forcer provided with an overflow-valve, P, the forcer and lifter being arranged relatively to each other, as described, and the valve R, opening outwardly from the chamber O, substantially as and for the purpose described.

349,998. COMPOUND INGOT-MOLD. JOHN ILLINGWORTH, Newark, N. J. Filed Apr. 2, 1886. (No model.)

Claim.—1 In an ingot-mold, the combination of the bottom plate,

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a, movable sides *b*, and top plates, *a'* *a²*, the latter adapted to form a chamber with the ingot-layer first cast in the mold, substantially as and for the purposes set forth.

2. In an ingot-mold, the combination of a bottom, *a*, sides *b*, and top plate or cover, *a²*, having sides *b'*, adapted to raise said plate above the ingot to form a horizontal chamber thereover, substantially as and for the purposes set forth.

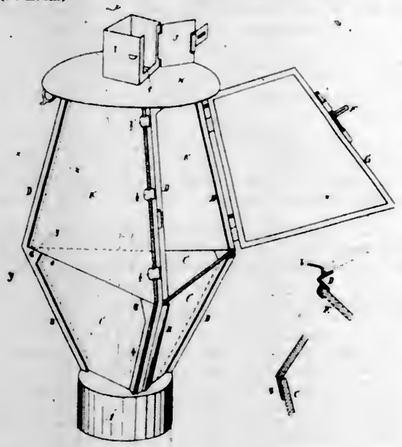
3. In an ingot-mold, the combination, with a bottom, movable sides, and a top cover, of bolts *c'* and springs or compressible pieces, said parts being arranged and adapted to operate substantially as and for the purposes set forth.

4. In an ingot-mold, the combination, with a bottom, *a*, arranged on an incline, movable sides *b*, and suitable bolts for holding said parts together, of a cover, *a*, and a second cover, *a²*, having movable sides *b'*, substantially as and for the purposes set forth.

5. In an ingot-mold, the combination of the bottom *a*, sides *b*, bolts *c*, springs *d*, and nuts or keys *e*, a cover, bolts *c'*, and springs and nuts or keys *e'*, for providing bearings for said springs, substantially as and for the purposes set forth.

6. A mold for casting armor-plate, combining a bottom plate, *a*, sides *b*, one of which is provided with a movable piece, *b⁴*, and perforation *b³*, a cover-plate, *a'*, and a cover-plate, *a²*, having movable sides *b'*, one of which is perforated, and a funnel, substantially as and for the purposes set forth.

349,999. ELECTRIC-ARC-LAMP PROTECTOR. GEORGE JEFFERY, Detroit, Mich., assignor to T. P. Tuite, same place. Filed Oct. 29, 1885. (No model.)

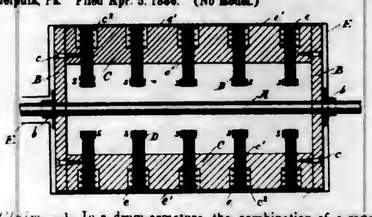


Claim.—1. An electric-arc-lamp protector composed of a lower section, B, an upper section, D, formed integral therewith, a metallic roof surmounting and overhanging the section D, and having central aperture, and a metallic casing on said cover surrounding said aperture, and provided with a door, substantially as and for the purpose specified.

2. A removable electric-arc-lamp protector composed of a series of panes of glass, in two communicating integral sections—one upper and one lower—and held in place by a metallic frame, having a cap surmounted by a chamber adapted to inclose the feed mechanism of the lamp, substantially as set forth.

3. An electric-arc-lamp protector consisting of a metallic frame holding panels of glass, in an upper and lower section, a door leading into the upper of said sections, an overhanging disk-shaped metallic roof surmounted by an open-top chamber having a door leading thereinto, and a socket-support below the bottom proper, the parts being constructed and operating substantially as and for the purposes described.

350,000. DYNAMO-ELECTRIC MACHINE. JAMES JENKINS, Philadelphia, Pa. Filed Apr. 5, 1886. (No model.)



Claim.—1. In a drum-armature, the combination of a revolving shaft, circular heads secured upon the said shaft, horizontal strips connecting the said heads and having a line of holes in them, cores of soft iron passing through the said holes radially to the shaft, and a circuit-wire wound horizontally about the drum and comprising in its length a series of spirals wound around the said cores, substantially as and for the purpose set forth.

2. In a drum-armature, the combination of a revolving shaft, circular heads secured upon the said shaft, horizontal strips connecting the said heads and having a line of holes in them, the outer ends of which are counterbored to form pockets, a series of cores of soft iron passing through the said holes radially to the said shaft, a series of spirals placed in the said pockets and wound around the said cores, and a circuit-wire wound horizontally about the drum and including the said spirals in the circuit, substantially as and for the purpose set forth.

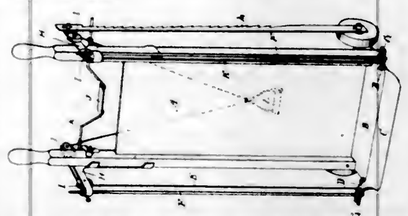
3. The series of cores D, each formed of a bound bundle of soft-iron wires, in combination with the longitudinal drum-strips C, through which said cores extend radially from the outside surface toward the center of the drum, and a circuit-wire, E, wound around the outer end of each core, beginning at one end of the drum and extending over its opposite end in continuous succession from end to end on opposite sides of said drum and terminating at the starting end thereof, substantially as described, for the purpose specified.

4. In a drum-armature, the combination of a series of soft-iron cores, each core formed of a bundle of soft-iron wires, with the circuit-wire E forming a coil-binder for each core-bundle, and a means whereby each core is secured to the drum in longitudinal lines.

5. In a drum-armature for dynamo-electric machines, the combination of a series of separate soft-iron cores arranged in longitudinal lines, with the circuit-wire wound around each core in the same direction from end to end of the drum, crossing the end of the latter and returning on its opposite side around a similar series of cores, substantially as described, for the purpose specified.

6. The combination, in a drum-armature for dynamo-electric machines, of a series of soft-iron cores, each formed of a bundle of wires bound separately at their inner ends, with a circuit-wire connecting and binding the several cores in separate bundles at their outer ends, and a suitable socketed carrier, to which the said series of cores are bound by the circuit-wires, substantially as herein set forth.

350,001. HAND-TRUCK. ASA KELL, Concord, Mich. Filed July 29, 1886. (No model.)



Claim.—1. In an elevating-truck, a movable shoe fitting the scoop of the truck, in combination with elevating-ropes attached thereto and passing over pulleys on the opposite end of the truck, substantially as described.

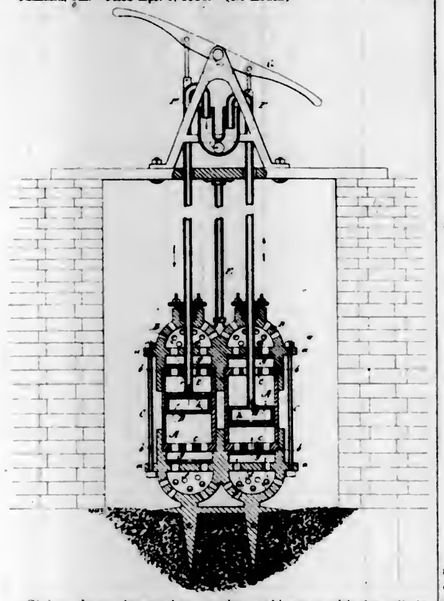
2. In an elevating-truck, a movable shoe fitting the scoop of the truck and combined with elevating-ropes attached thereto and passing over pulleys to the back of the truck and terminating in stirrups, substantially as described.

3. In an elevating-truck, the combination of the shoe C, having guides G, guide-bars F, elevating-ropes F, pulleys I, stirrups J L, and notched bars M, all arranged to operate substantially as described.

4. In an elevating-truck, the combination of the shoe C, having slotted guides G, guide-bars F, elevating-ropes E, brackets H, pulleys I, notched bars M, stirrup L, stirrup J, and bar K, all arranged to operate substantially as described.

5. In combination with a truck having a scoop, an elevating attachment consisting of the movable shoe C, fitting the scoop and having guides G, the elevating-ropes E, secured thereto, the brackets H, detachably secured to the sills of the frame, the guide-bars F, detachably secured at one end to the brackets H and at the other to the scoop, the pulleys I, carried by the brackets H, the stirrup J, rigidly connected to the elevating-ropes, the flexibly-connected stirrup L, and the notched bars M, detachably secured at the lower ends to the axle of the wheels and at the upper end to the brackets H, all substantially as described.

350,002. SUBMERGED FORCE-PUMP. LAWRENCE A. KELLY, East Oakland, Cal. Filed Apr. 9, 1886. (No model.)



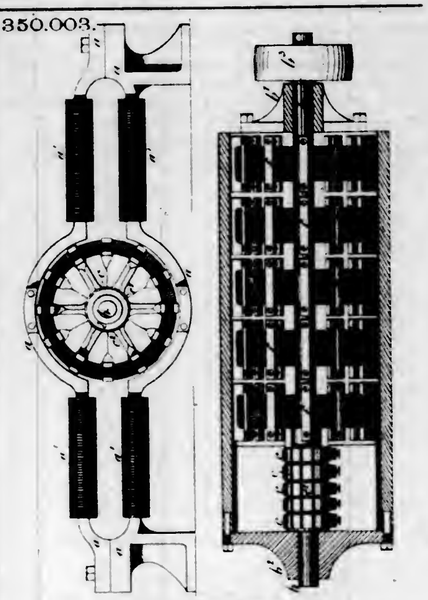
Claim.—In a submerged pump, the combination, with the cylinder A and an independent perforated diaphragm, *c*, of the cap B, having an internal shoulder, *b*, and a perforated diaphragm, all arranged as shown and described, whereby the said diaphragm *c* is confined between the cap and cylinder, and a chamber provided for the disk-valve, as shown and described.

350,003. DYNAMO-ELECTRIC MACHINE. RANKIN KENNEDY, Paisley, County of Renfrew, assignor to David Graham, Glasgow, Scotland. Filed Apr. 3, 1882. (No model.) Patented in England Oct. 18, 1881, No. 4,541.

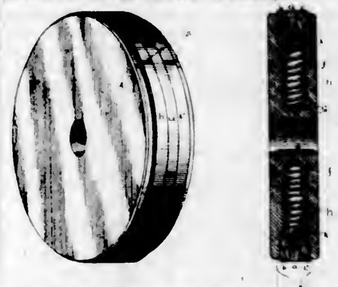
Claim.—1. The ring-armature frame wound peripherally with a soft-iron wire which constitutes the core, and having soft-iron projections or cross-bars placed upon the external face of said core, and provided with ends which project laterally beyond the side edges thereof and are united by screws or equivalent fastening devices with the ends of corresponding laterally-projecting under pieces, as described, combined with insulated wires wound upon the soft-iron-wire core in the intervals between said projections continuously in one direction, as hereinbefore shown and described.

2. The combination, with machines constructed, as described, for generating and collecting a number of independent electric currents, of connections arranged in conjunction with the positive and negative springs, plates, or brushes of the commutators of such machines in the manner specified, to enable the said currents to be readily combined and altered, as and for the purposes set forth.

350,003.



350,004. METALLIC PACKING FOR PISTONS. WILLIAM H. LANG, Burlington, Vt. Filed June 25, 1886. (No model.)



Claim.—1. A segmental packing-ring wherein each segment has at one end the ⊥-shaped tongue herein shown and described, and at the other end a corresponding slot and undercut transversely to fit the corresponding tongue of the adjoining segment, substantially as shown.

2. A segmental packing-ring composed of the concentric parts *a b c*, having the cross-section, substantially as shown, the rings *b c* cut transversely at points not coincident with the point where ring *a* is cut, and the several parts riveted together to constitute solid segments, as set forth.

3. A segmental packing-ring combined with housings *h*, which enter cells *g* in the piston-head and cells *k* in said ring, and the springs *f* within said housings, as set forth.

350,005. WATCH-MAKER'S EYEGLASS. JOHN R. LAWRENCE, Highland Park, Ill., assignor to Milton H. Baker and Eva M. Lawrence, both of same place. Filed Jan. 26, 1886. (No model.)



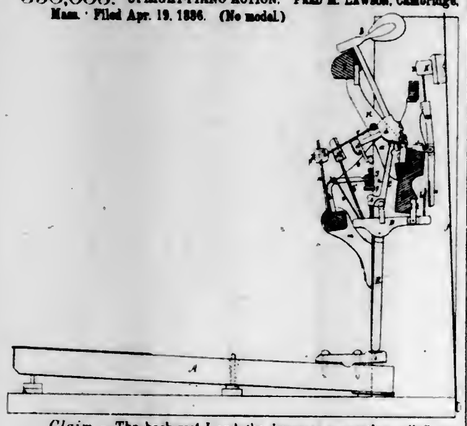
Claim.—1. The ring containing the lens and the ears attached thereto and the wire loops or wings fitted to the sockets in the ears, said ears being provided with grooves whereby the loops or wings are braced apart when held at the eye, and when extended are held in their horizontal position, substantially as and for the purpose specified.

2. The combination, with the glass *a*, of the wings or loops *e f* on opposite sides thereof, and ears for attaching the said wings or loops to the glass, said ears being provided with grooves for bracing said wings

and holding the same when extended horizontally, substantially as and for the purpose specified.

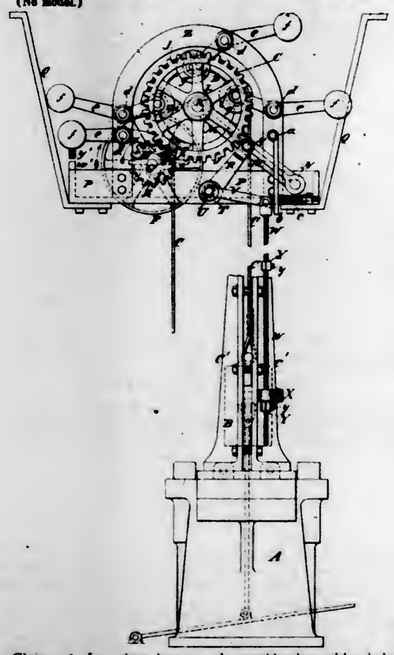
3. The combination, with the eye-piece, of the folding wire wings *e f*, pivoted on opposite sides thereof, said wings flaring outwardly, whereby the glass may be supported by the muscular contraction of the eyebrows, substantially as and for the purpose specified.

350,006. UPRIGHT-PIANO ACTION. FRED M. LAWSON, Cambridge, Mass. Filed Apr. 19, 1886. (No model.)



Claim.—The back-rest I and the hammer-supporting rail G, arranged with and fastened to opposite arms of a lever, H, as set forth, having its fulcrum level or essentially in line with the jack-bearings of the hammers, in combination with the jack-button-supporting rail *h*, having mechanism, substantially as described, for moving it downward toward the jack during the advance of the back-rest of the hammer, such mechanism being the rock-shaft *k*, bent arm *i*, wire *n*, adjustable slide *o*, and the rod *r*, connecting such slide with the upper arm of the back-rest lever H, all being essentially as represented.

350,007. DROP-HAMMER. FRANK M. LEAVITT, Brooklyn, N. Y., assignor to the E. W. Bliss Company, same place. Filed Apr. 22, 1886. (No model.)



Claim.—1. In a drop-hammer, the combination, with a hoisting-pulley and hammer-head, of a belt attached to said hammer-head and passing over said pulley, and a series of idler-pulleys or rollers for taking the belt off the hoisting-pulley preparatory to the fall of the hammer-head, whereby the loss of velocity due to friction is materially diminished and the force of the blow consequently increased, substantially as set forth.

2. The combination, with the hoisting-pulley and hammer-head, of a drop-hammer and a belt attached to the hammer-head and passing over the hoisting-pulley, of a gripping or clutch pulley for engaging said belt with said hoisting-pulley, and movable idler-pulleys or rollers for taking the belt off the hoisting-pulley preparatory to the fall of the hammer, substantially as and for the purposes described.

3. The combination, with the hoisting-pulley and hammer-head in a drop-hammer, of a hoisting-belt wider than the face of said hoisting-pulley, and flanged idler-pulleys or rollers engaging the overhanging edges of said belt for disengaging said belt from the hoisting-pulley preparatory to the fall of the hammer, substantially as and for the purposes set forth.

4. In a drop-hammer or drop-press, the combination of a hoisting-pulley, a belt passing over the hoisting-pulley and attached to said hammer-head, a friction or gripping roller or pulley, and mechanism operated by the hammer-head for effecting the gripping action of the friction-roller and hoisting-pulley, with a series of idler-pulleys for engaging the edges of the belt and lifting the belt off the hoisting-pulley preparatory to the fall of the hammer-head, substantially as and for the purposes specified.

5. In a drop-press or drop-hammer, the combination, with a flexible strap, band, or belt for raising the hammer, and clamping-pulleys narrower than such belt, one of which is a driving-pulley having fixed bearings, the other having movable bearings for clamping such belt between said pulleys when the face of one of the pulleys is pressed toward the face of the other, of idler-pulleys arranged in relation with said clamping-pulleys, and provided with movable bearings actuated by weights or their equivalent in such manner as to press said idler-pulleys outward against the inside faces of the margins of said strap, band, or belt, which project laterally over the perimeter of the clamping-pulleys for receiving the weight of such strap, band, or belt, and relieving it from frictional contact or engagement with said perimeter while the hammer or strap falls, substantially as and for the purpose specified.

6. The combination, with clamping-pulleys, one having fixed and another having movable bearings for alternately clamping and releasing the strap, band, or belt which raises the hammer of a drop-press, of a strap, band, or belt broader than the clamping-pulleys, and idler-pulleys having movable bearings arranged in relation with said clamping-pulleys, said idler-pulleys being actuated by weights or their equivalent for pressing said strap, band, or belt away from the faces of the clamping-pulleys when the hammer is falling, and provided with flanges for guiding said strap, band, or belt in proper relation with the clamping and idler pulleys, substantially as and for the purposes described.

7. The combination, with clamping-pulleys, one having fixed bearings and another having movable bearings for alternately clamping or gripping the strap, band, or belt of the hammer of a drop-press, of a lever of the third order having the movable bearings of one of the clamping-pulleys at one extremity, and the fulcrum bearing or bearings at the other extremity, of such lever, a link-bar pivoted to said lever between said fulcrum-bearing and said movable bearings of the clamping-pulley, an eccentric with fixed bearings fitted to a movable bearing in the other end of said link-bar, and a lever rigidly connected at one end to said eccentric and having its other end pivoted to a tappet-rod for actuating said eccentric, link-bar levers, and movable pulley in clamping and releasing such strap, band, or belt, substantially as and for the purposes specified.

8. The combination of the pulley E, having fixed journal-bearings, the pulley D, having movable journal-bearings, the lever or levers M of the third order having the movable bearings of the pulley D at one end and a fulcrum bearing or bearings at the other end, a link-bar, R, pivoted to the lever or levers M between the fulcrum bearing or bearings of said lever and the movable bearings of the pulley D, an eccentric, T, having fixed bearings and fitted to a movable bearing in the end of said link-bar, not pivoted to the lever M, a lever, V, rigidly attached to the eccentric T at one end, the tappet-rod W, pivoted to the other end of the lever V, and the spring brake-bar *b*, pivoted to a support in relation with the end of the lever V, for holding the lever V and the parts connected with it when moved by said tappet-rod in a fixed position till again moved by the tappet-rod, substantially as and for the purposes specified.

9. The combination, with clamping or gripping pulleys, one having fixed and the other movable journal-bearings, a band, strap, or belt wider than said pulleys, attached to the drop or hammer of a drop-press, passing between said pulleys, for alternately lifting and dropping said hammer, and mechanism for effecting approach and retreat of the face of the pulley having movable journal-bearings toward or away from the pulley having fixed bearings for alternate clamping and release of said strap, band, or belt, of a series of idler-pulleys arranged in relation with the clamping-pulleys in a manner to bear against the inside of the margins of said strap, band, or belt, which project laterally over the faces of the clamping-pulleys, and counterpoised rock-levers for pressing said idler-pulleys out against the inside of the projecting margins of the strap, constructed and operating substantially as herein described, and for the purposes specified.

10. The combination of the strap C, attached to the hammer or drop B, lever V, eccentric T, link-bar R, rock lever or levers M, movable clamping-pulley D, pulley E, and the gears I and J, for causing the faces of the pulleys D and E to move with equal circumferential velocity, substantially as and for the purpose set forth.

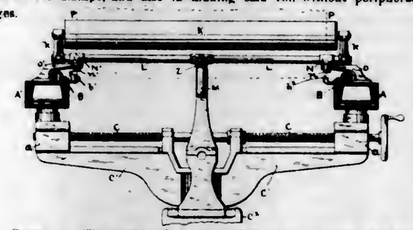
11. The combination, with the rock-lever *e'*, of the set-screw *y'*, and stop *w'*, for limiting the movement of said lever, substantially as and for the purpose specified.

350,008. ART OF FINISHING IMPERFECTLY-WOVEN CLOTH. NELSON T. HASH, Chicopee Falls, Mass. Filed June 28, 1886. (No model.)

Claim.—The improvement, substantially as described, in treating cloth woven with imperfections, such consisting in covering the imperfect parts with paraffine-wax and combing it in by means of a weaver's comb, and next raising the nap by a napping-machine preparatory to shearing the nap and finishing it in the ordinary way.

350,009. CLOTH-TENTERING MACHINE. RUFUS S. MATTESON, Providence, R. I., assignor to the Phœnix Iron Foundry, same place. Filed June 11, 1886. (No model.)

Brief.—The object of the invention is to prevent the fabric from being slackened and tightened on the delivery-roll; and the invention consists in pivoting the delivery-roll to or with relation to the side rails at points substantially in vertical planes passing through the gripping-faces of the clamps, and also in making said roll without peripheral ridges.

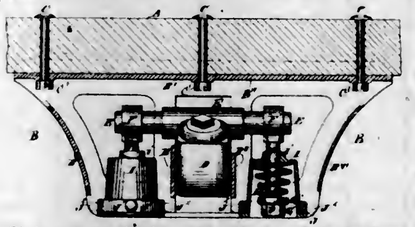


Claim.—1. The combination, substantially as hereinbefore set forth, with the rails and traveling chains provided with clamps or tenter-pins, and means, substantially as described, for reciprocating said rails, of a delivery-roll pivoted with relation to said rails substantially in vertical planes passing through the gripping-faces of the chain-clamps or tenter-pins, as described, whereby a slackening and tightening of the fabric on the delivery-roll while passing over the same is avoided.

2. The combination, substantially as hereinbefore set forth, with the rails and means, substantially as described, for laterally adjusting the rails with relation to each other, of a delivery-roll, a yoke or frame in which said roll is mounted, and connections, substantially as described, between said frame and the rails, whereby one or both of the rails may be slid laterally with relation to the roll.

3. The combination, with the rails A A', of the roll K, a yoke or frame, *k* l, in which said roll is mounted, a support, M, to which the yoke is pivoted, the arms O O', secured to the rails, and the sleeves N N', mounted on the yoke and pivoted to said arms, substantially as and for the purposes specified.

350,010. PEDESTAL AND AXLE-BOX FOR CARS. DANIEL MCALLISTER, St. Louis, Mo., assignor of one-half to William Lofmann and Julius F. W. Lofmann, both of same place. Filed May 13, 1886. (No model.)

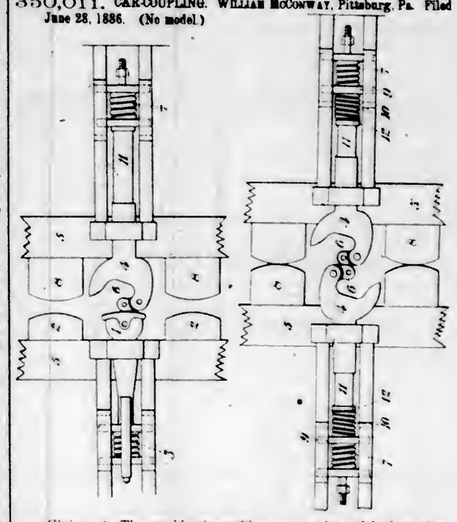


Claim.—1. A pedestal comprising side plates, B', having flanges B''', horizontal plate B^{IV}, end plates, B^{V}, apertures B^{VI}, cheek-plates B'', and journal-bearings B', substantially as shown and described.

2. An axle-box, D, formed with trunnion-block E' and trunnions E, and a pedestal, B, in combination with spring-connections between the trunnions and the base of the pedestal, substantially as shown and described.

3. The combination of the pedestal B, axle-box D, formed with trunnion-block E', having trunnions E, eyebolts F', forming hangers hinged to the trunnions, having nuts G, springs supported on the nuts, and inverted bells I, supported on the springs, having bearing-studs, substantially as shown and described.

350,011. CAR-COUPLING. WILLIAM MCCONWAY, Pittsburg, Pa. Filed June 28, 1886. (No model.)



Claim.—1. The combination, with a car-coupler and draft mechanism, of an auxiliary buffer-spring, substantially as shown and described, to compensate for differential projections from the ends of the cars of the coupler-heads or the dead-blocks.

2. In a car-coupler, the combination, with the draw-bar and its draft and buffing mechanism, of an auxiliary buffing-spring arranged to permit of an increased rearward movement of said draw-bar, and thereby compensate for different projections of the coupling or buffing devices from the ends of the cars, substantially as set forth.

3. The combination of a draw-bar, a combined draft and buffing spring, an auxiliary buffing-spring arranged to operate during the rearward movement of the draw-bar and dead-blocks, substantially as set forth.

4. The combination of a draw-bar having a swinging or pivoted hook, a combined draft and buffing spring, an auxiliary buffing-spring and dead-blocks, the length of the dead-blocks being such relatively to the traverse of the springs that the dead-blocks will receive the impact of an adjoining car before the springs have been closed by such impact, substantially as set forth.

350,012. PRODUCTION OF SALOL. MARREL V. NENCKI, Berne, Switzerland, and RICHARD SIEPERT, Dresden, Saxony, Germany, assignors to Dr. F. Von Heyden, Nachfolger, Radebeul, Dresden, Germany. Filed July 22, 1886. (Specimens.)

Claim.—1. As a new product, the compound ether herein described, produced by the action of oxychloride of phosphorus upon a mixture of salicylic acid and a phenol, and which is insoluble in water, and is decomposed by caustic alkalies and also by the pancreatic juice into its component parts.

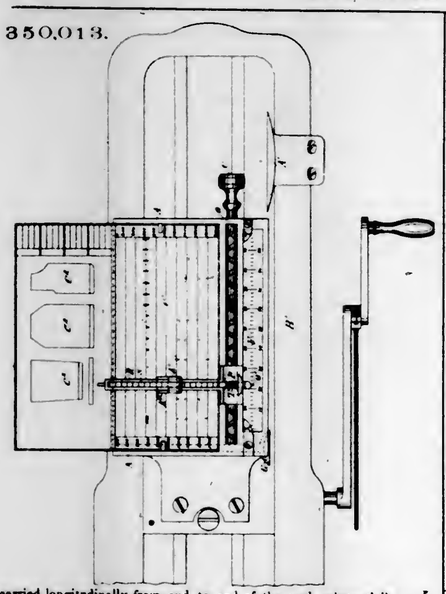
2. The within-described process of producing the compound ether, which consists in mixing together two molecules of salicylate of soda with two molecules of phenol, heating the mixture to about 120° centigrade, adding to the heated mass one molecule of oxychloride of phosphorus, and finally separating the salol from the melt and washing the same, substantially as set forth.

350,013. COUNTING APPARATUS AND PATTERN-CARD FOR KNITTING-MACHINES. PER PERSSON OLSSON, Trelleborg, Sweden. Filed Oct. 23, 1885. (No model.)

Brief.—By the use of the previously-prepared pattern-cards with the counting apparatus, the operator is saved all calculations both before commencing and during the progress of the work.

Claim.—1. In a knitting-machine, the combination, with a stationary pattern-card, C', of an indicator, A^2, a block for carrying said indicator, a rack-bar moving longitudinally on the card, a movable support for said rack, a pawl on the carrying-block engaging with said rack, a spring moving the latter in one direction, blocks at each end of the card, whereby the rack is moved against the tension of said spring, and a double-threaded screw engaging the rack-support, whereby the rack is

350,013.



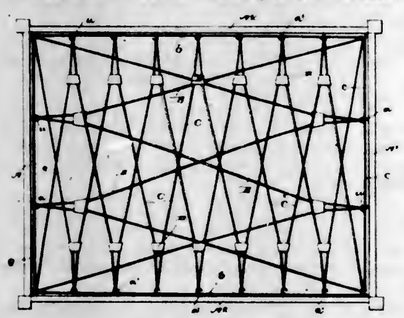
carried longitudinally from end to end of the card, substantially as described.

2. The combination, with a stationary pattern-card, C', of a reciprocating indicator, A^3, a carrying-block, A'', having pawl Z, a reciprocating rack, S, blocks X and Y, spring T, reciprocating block P, and screw-shaft B, substantially as described.

3. The combination, with a stationary pattern-card, C', provided with scales, parallel lines or marks, signs, or characters, of a reciprocating indicator-block, A'', pawl Z, rack S, having pointer O', scale V, blocks X Y, block P, having arm R, spring T, and screw B, substantially as described.

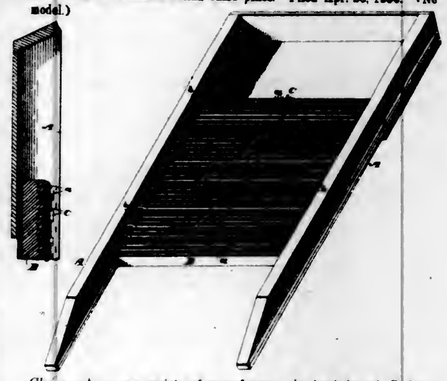
4. The combination of the slotted table A, sliding frame B', having a projection, A', the stationary pattern-card C', block A'', having indicator A^3 and pawl Z, the rack S, having spring T, the reciprocating block P, having a grooved arm, R, and tooth Q, the screw B, ratchet-wheel D, rod F, having pawl H and button G, the springs L, M, and the projections X Y, substantially as described.

350,014. BED-BOTTOM. JOHN C. PEACOCK, JAMES B. GRAVES, and GEORGE A. HUFFOR, Waelder, Tex. Filed July 23, 1886. (No model.)



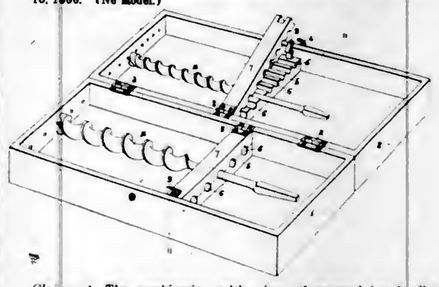
Claim.—In a bed-bottom, the combination of a series of hooks or eyes secured to opposite sides and ends of a bed, a wire laced back and forth between the series of hooks at the sides of the bed, another wire lying beneath the first wire and laced back and forth between the hooks of the ends of the bed, and a series of straining-slides for taking up and releasing the strands of wire, each slide embracing two adjoining strands of wire and having one end made smaller than the opposite end, the smaller or contracted end of each slide being nearest to the point of convergence of the two wires which it embraces, and the enlarged end thereof toward the middle of the bed, substantially as described, for the purpose set forth.

350,015. WASH-BOARD. JOHN M. PETERS, Canton, Ohio, assignor of one-half to Frank L. Palm, same place. Filed Apr. 26, 1886. (No model.)



Claim.—As a new article of manufacture, the back board, B, having a flat surface, the cross-wires *a*, attached thereto with suitable staples, each alternate wire having one end attached to one of the side pieces, A, and extending to within a short distance of the opposite side piece, and the other or intervening wires extending from said opposite side piece to within a short distance of the first-mentioned side piece, substantially as set forth.

350,016. BOX FOR TOOLS. GEORGE E. RICHARDS, Fiskdale, Mass., assignor to the Snell Manufacturing Company, same place. Filed Mar. 10, 1886. (No model.)



Claim.—1. The combination, with a box, of grooved bar 5, clip-bar 7, and an automatic means for fastening bar 7 to bar 5.

2. The combination of the two parts 1 2, of the box, hinged together, grooved bridge-bar 5, hinged clip-bars 7, and spring-catch 9, substantially as and for the purpose set forth.

350,017. DRIVING MECHANISM FOR STREET-CARS. NEWTON ROGERS, Terre Haute, Ind., assignor of two-thirds to Joseph H. Blake and James Wharry, same place. Filed Apr. 19, 1886. (No model.)

Claim.—1. In combination with the frame of a car-truck, an axle mounted thereon and having the friction-gears I' I'', the two shafts at right angles to the axle and carrying friction-gears I and G', said shafts being adjustable to bring the gears G' G' nearer to or farther from each other, and having universal joints *h*, and the shaft D, mounted in the frame and provided with friction-gear G, as set forth.

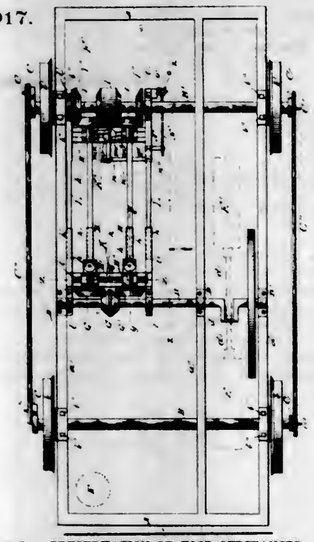
2. In combination, the shaft D, having friction-gear G, the shafts H, having gears G' and I, slip-joints *h'*, and universal joints *h*, and being adjusted laterally, as set forth, and the axle B', having gears I' I'', and mounted in spring-bearings, as set forth.

3. In combination, the shaft D, having double gear G, the shafts H H, carrying gears G', the bearings H' H', provided with dovetail projections, the dovetail grooved bar K *k*, the bar *i'*, springs *i''*, and nuts *i* and *i'''*, as set forth.

4. In combination, the axle B', having double gear I' and two gears, I'', the shafts H H, carrying gears I, the bearing-block H'', having dovetail projections, the bar K', having dovetail groove *k'* to receive said projections, and the system of levers connected with said bearing-blocks, whereby they are moved and the gears I caused to engage either the gear I' or the two gears I'' I'', as desired.

5. In combination, the shaft D, the axle B', mounted in spring-bearings, intermediate mechanism whereby motion is communicated from the shaft to the axle, and the bars L L', provided with slip-joints *h'*, and mounted by means of bearings *l l'* upon said shaft and axle, as set forth.

350,017.



350,018. PRESERVATION OF FOOD SUBSTANCES. AUGUST M. ROGERS, Hamburg, Germany. Filed July 6, 1885. (No specimens.)

Claim.—The method of preservation for storage or in transportation of food-substance in solid or other form, fish, flesh, or liquid, or of any nitrogenous or other matter liable to change, eremacausis, decay, or putrefaction, or to the formation of mold or the presence of bacilli or other objectionable organisms, whether microscopic or visible to the naked eye, like mites, bugs, worms, or the like, which consists in placing it in a receptacle capable of being hermetically sealed, then directly filling the receptacle with a liquid preservative, and charging it and the substance to be preserved with such liquid preservative, and then at once closing the receptacle and retaining the substance to be preserved under continuous pressure of the body of the preservative thus first supplied until used, substantially as set forth.

350,019. BUTTON. MADISON D. SHIPMAN, De Kalb, Ill. Filed Nov. 23, 1885. (No model.)



Claim.—1. In a separable button, the combination of the cap A, an eyelet, C, having a flange, and a spring held by said flange, with a stud, B, substantially as described.

2. In a separable button, the combination of the cap A, having aperture *a'*, an eyelet, C, and a spring partly encircling the eyelet and having a part thereof extending through the aperture *a'*, substantially as described.

3. In a separable button, and in combination with a suitable cap, its fastening, and a notched stud, a spring having its lower portion secured in said cap and partly encircling the opening to receive the stud and then turned upward and over the said opening, substantially as described.

4. In a separable button, a stud, B, set centrally in a downwardly and inwardly turned flange, *b'*, and a projection, *b*, in combination with a fastener, as E, adapted to be expanded into said flange, substantially as described.

5. In a separable button, the stud B, provided with a projection, *b*, combined with the downwardly and inwardly turned flange *b'*, having an opening to receive the stud, and a fastener, as E, adapted to be expanded into said flange, thus holding both the stud in the flange and the latter to the material, substantially as described.

350,020. BUTTON. MADISON D. SHIPMAN, De Kalb, Ill. Filed Nov. 23, 1885. (No model.)



Claim.—1. In a separable button, the combination of the cap, a tube having a flange clinched by said cap with its lower end turned outward, and an eyelet having sloping sides at its base and a turned-over rim to receive the outturned end of said tube, substantially as and for the purpose specified.

2. In a separable button, the combination of a tube having an annular recess, a spring or springs secured in said recess and projecting through the upper part of said tube and an eyelet, substantially as and for the purpose specified.

3. In a separable button, the combination of a tube, a spring or springs projecting through said tube, a plug for securing said springs, and an eyelet, substantially as and for the purpose specified.

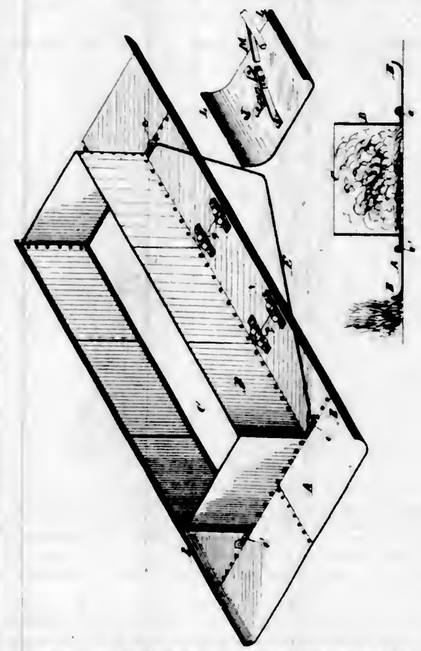
4. In a separable button, the combination, with the tube D, of the springs E inserted therein, and the plug G, arranged between said springs and adapted to retain them in position in said tube, substantially as described.

5. In a separable button, the combination, with the tube D, having outwardly-turned flange, of a spring-catch, a plug for holding the same in position, and an eyelet spread by the head of said plug, substantially as described.

6. In a separable button, the combination, with the tube B uniting the button to the fabric, of a spring-catch secured to a stud and engaging with the upper end of said tube, substantially as described.

7. In a separable button, the combination, with a suitable head, as the cap A, the tube C and eyelet B, of a stud consisting of a tube and a spring or springs secured therein and projecting beyond the same and adapted to pass into and be held by the head, substantially as described.

350,021. SAFETY FIRE-GUARD BURNER AND EXTINGUISHER. FREDERICK W. B. SMITH, Greenleaf, Kans. Filed Jan. 7, 1886. (No model.)



Claim.—1. A prairie-grass extinguisher consisting of a table having an upturned edge and a device for moving the table, substantially as described.

2. The combination of a flat table, formed with upturned edges, and a connection for shifting it forward or backward, substantially as described.

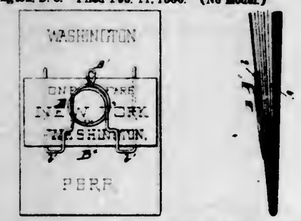
3. The combination of a table, formed with a central opening, and a flange around the opening, substantially as described.

4. The combination of a table, formed with upturned edges and a central opening, and a flange around the opening, substantially as described.

5. The combination of a flat table formed with upturned edges, a pair of eye-plates, and a handle, substantially as described.

6. The combination of a table formed of flat pieces of metal jointed together, forming a central opening, and a vertical flange formed of overlapping pieces of metal, substantially as described.

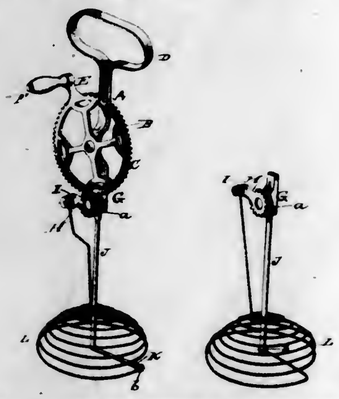
350,022. COMBINED ADVERTISING MEDIUM AND CARD OR TICKET HOLDER. HENRY K. SOUTHLAND and CHARLES F. WARREN, Washington, D. C. Filed Feb. 11, 1886. (No model.)



Claim.—1. A combined advertising medium and ticket-holder consisting of a book or pamphlet having a ticket-holder secured upon its cover, said ticket-holder being formed of wire bent upon itself to form a spring-clamp, and suitably shaped at the top to receive the ticket, the free ends of the wire being bent to form supports or retaining portions at its bottom, and suitably fastened to the cover to secure the holder in place, substantially as described.

2. A combined advertising medium and ticket-holder consisting of a book or pamphlet having a ticket-holder secured upon its cover, said ticket-holder composed of a single piece of wire bent upon itself to form a spring-clamp, and an outwardly curved or extended guide on top, the free ends of the wire being bent to form supports or retaining portions at its bottom, and passed through the cover to secure the holder in place, substantially as described.

350,023. EGG-BEATER. GEORGE H. THOMAS, Chicopee Falls, Mass. Filed Mar. 6, 1886. (No model.)



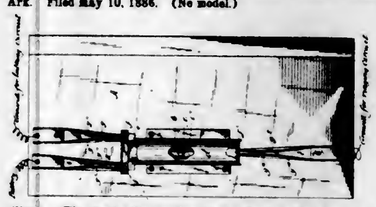
Claim.—1. An egg-beater consisting of a supporting-frame, a rod depending therefrom, a beater consisting of a coiled wire spring rigidly connected at its bottom portion to the bottom of said depending rod, and mechanism mounted upon said frame and connected to the spring-beater by a wire extending upwardly therefrom and adapted to be operated by hand so as to reciprocate the beater by power transmitted through said mechanism, substantially as set forth.

2. An egg-beater consisting of a suitable frame, a drive-wheel, and an intermeshing pinion mounted thereon, a rod depending from said frame, and a spring-beater composed of a helically or other shaped coiled spring-wire connected at its bottom portion to said rod and having connection with the operative mechanism, substantially as and for the purpose set forth.

3. In an egg-beater, the combination, with a suitable frame, connecting drive-wheels, and a supporting-rod, of a spring-beater composed of a suitable coiled wire connected at its lower portion with said rod and at its apex loosely coiled around said shaft, so as to permit of its reciprocation thereon, and from thence extending up to and connecting with the hand-operating mechanism.

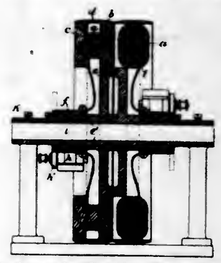
4. In an egg-beater, the combination, with a suitable frame having a drive-wheel mounted thereon, of a pinion gearing therewith and having an outwardly-extending grooved arm, a vertical rod depending from the framing, and a spring-beater connected at its lower end to said shaft and having its apex formed with an eye sliding thereon at its apex, and having an upwardly-extending arm or rod connecting with the grooved arm on the gear-pinion, substantially as and for the purpose set forth.

350,024. CALL-BELL SWITCH. LOUIS TOWNSEND, Evansville, Ind., assignor of one-half to Joseph L. Bay and Wm. B. Worthen, Little Rock, Ark. Filed May 10, 1886. (No model.)



Claim.—The vertically-moving bolt *b*, having the hook *a'* rigidly secured thereto, and provided at its ends with the projecting contact-pins *f f'*, in combination with the housing *d*, three finger spring-contacts, *g g' g'' g''' g⁴ g⁵*, and supporting-spring *k*, all constructed, arranged, and operated substantially as set forth.

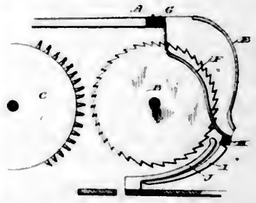
350,025. ELECTRIC MOTOR. ROMAN VOGLER, Oberturkheim, Wurtemberg, Germany. Filed Dec. 24, 1885. (No model.)



Claim.—1. In an electric motor, the combination of two or more pulley-rings carrying on the interior thereof a suitable number of coils of wire wound upon an iron core, one side of each core between the coils mounted with an iron cheek, the other side mounted with an insulating cheek supported by suitable means surrounding a fixed shaft and carrying a collector with brushes bearing thereon, one end of each coil separately connected with one and the same plate of the collector to which an end of the adjacent coil is connected.

2. In an electric motor, the combination, substantially as shown and described, consisting of the iron pulley-ring *d*, armature-ring *a*, coils *l*, iron cheeks *b*, wooden cheeks *c*, brass plates *e*, naves *e'*, metallic collector-plates *f*, brushes *h*, holders *h'*, shaft *i*, and porters *k*, the whole forming a complete device.

350,026. GUARD FOR GIN-SAWS. JOHN C. WALLACE, Cornicana, Tex. Filed Jan. 13, 1886. (No model.)

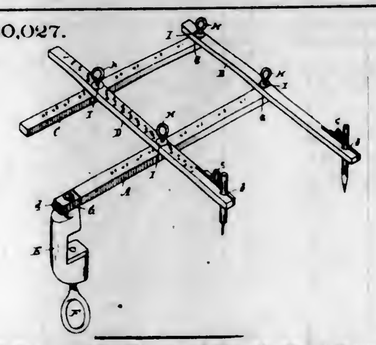


Claim.—In a cotton-gin, the combination of the saws, the breast, the grate formed by the ribs and hinged at its upper edge in the frame, guides upon the inner sides of the side pieces of the gin-frame below the saws, and a curved plate or guard hinged to the lower edge of the grate formed by the ribs, folding inward, and having its edges guided by the guides so that it covers the lower portions of the saws below the lower edge of the breast, as and for the purpose set forth.

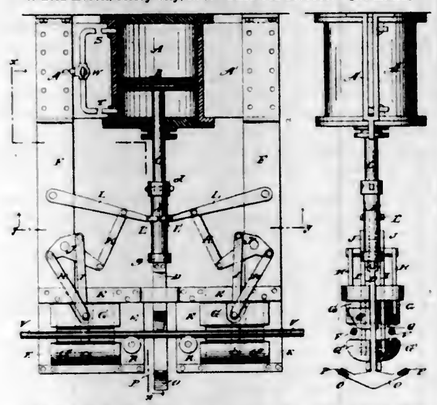
350,027. PANTOGRAPH. JAMES A. WARD, Alpena, Mich. Filed Apr. 8, 1886. (No model.)

Claim.—In a pantograph, the combination of the rules A C, the rule B, pivoted on permanent pivots *a* to one end of said rules and provided with pencil-point, the rule D, adjustable on the rules A C parallel with the rule B and carrying pointer, the block G, pivotally secured to the end of the rule A, and the clamp E, pivoted to the block G and provided with screw F, substantially as and for the purpose specified.

350,027.



350,028. CABLE-GRIP. LEWIS B. WHITE, New York, N. Y., assignor to Leon Abbett, Jersey City, N. J. Filed Oct. 20, 1885. (No model.)



Claim.—1. In a cable-grip, the combination, with a plate, of two pairs of gripping-jaws on each side of the same, substantially as herein shown and described.

2. In a cable-grip, the combination, with a plate, of a pair of gripping-jaws mounted to slide vertically on said plate, and of a compressed-air cylinder, a piston in the same, and a piston-rod connected by rods with the jaws, substantially as herein shown and described.

3. In a cable-grip, the combination, with a compressed-air cylinder, a piston in the same, and a piston-rod connected with the piston, of a rod projecting down from the piston-rod and provided with lateral projections at its lower end, and of cable-gripping jaws operated from the piston-rod, substantially as herein shown and described.

4. In a cable-grip, the combination, with the vertically-moving rod C, of the rod D, projecting down from the same, which rod D is provided on its lower end with two lateral projections on the same side, the cable being between the said projections, substantially as herein shown and described.

5. In a cable-grip, the combination, with the vertically-moving rod C and mechanism for operating the same, of the rod D, projecting downward from the piston-rod C, the arms O, and the beveled lugs Q on the side of the said rod, and of cable-gripping jaws operated from the said vertically-moving rod C, substantially as herein shown and described.

6. The combination, with a cable-grip rod, of arms on the lower end of the same, which arms project from the side of the rod and upward and outward, substantially as herein shown and described.

7. In a cable-grip, the combination, with a frame to be fastened on the under side of the car, of sliding grip-jaws on the bottom part of the said frame, the T-shaped levers J, pivoted on the frame and connected by suitable rods with the jaws, the pivoted levers L, connected with the T-shaped levers J, the rod C, which operates the levers L, the piston B, and cylinder A, substantially as herein shown and described.

8. In a cable-grip, the combination, with the cylinder A, the piston B, and the piston-rod C, of the flanged sleeve M on the piston-rod, the pivoted levers L, acted upon by the flanges of the sleeve M, and gripping-jaws operated from the levers L, substantially as herein shown and described.

9. In a cable-grip, the combination, with the cylinder A, the piston B, and the piston-rod C, of the levers L, operated from the piston-rod C, gripping-jaws operated from the levers L by means of suitable rods, the rod D, projecting down from the piston-rod C, the bevel lugs Q, and the inclined arms O on the lower end of the said rod D, and of a frame on which the gripping-jaws slide, substantially as herein shown and described.

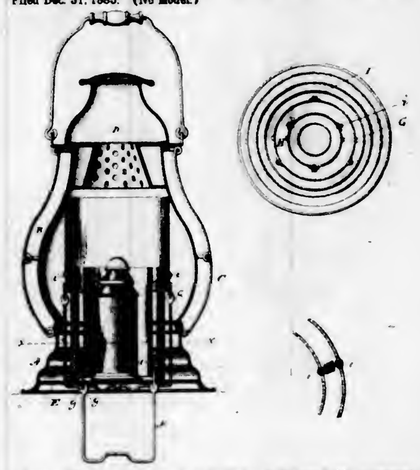
10. In a cable-grip, the combination, with two jaws mounted to move toward and from each other, of a frame on which they are mounted, a T-shaped lever having the opposite ends connected with the two jaws, and of mechanism for operating the T-shaped lever, substantially as herein shown and described.

11. In a cable-grip, the combination, with a cylinder and a piston in the same, of tubes for conducting compressed air into both ends of the cylinder, cable-gripping devices, and levers for operating said gripping devices from the piston in the cylinder, substantially as herein shown and described.

12. In a cable-grip, the combination, with a cylinder, a piston in the same, and a piston-rod projecting from the piston, of a cable-lifting device on the piston-rod, substantially as shown and described.

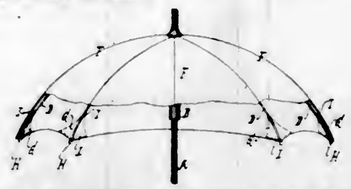
13. In a cable-grip, the combination, with a cylinder, a piston in the same, and a piston-rod projecting from the piston, of an inclined plane projecting on an extension of the piston rod, substantially as shown and described.

350,029. SIGNAL-LANTERN. CHARLES H. ANGLE, Chicago, Ill. Filed Dec. 31, 1885. (No model.)



Claim.—The combination, in a lantern, of the movable concentric tubes of transparent differently-colored material, the vertical guides, and the projections or buttons attached to the tubes and adapted to slide in said guides, and the frame extending through the bottom of the lantern and secured to the tubes, whereby they may be moved up and down, substantially as specified.

350,030. UMBRELLA. MORRIS APPELBAUM, New York, N. Y. Filed June 24, 1886. (No model.)

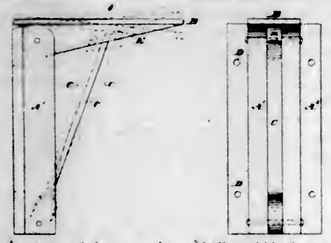


Claim.—The combination, with the cover of an umbrella or similar article, of the re-enforcing piece or strip G, arranged between the cover and ribs near the ends of the latter, and having its outer edge secured to the cover with its two side edges free and unattached, substantially as described.

350,031. SHELF-BRACKET. JOHN H. BACON, Philadelphia, Pa., assignor of one-half to Austin D. Elwell, same place. Filed June 24, 1886. (No model.)

Claim.—1. A shelf-bracket consisting of a frame between which are pivoted at opposite ends an arm and a prop, the arm being sup-

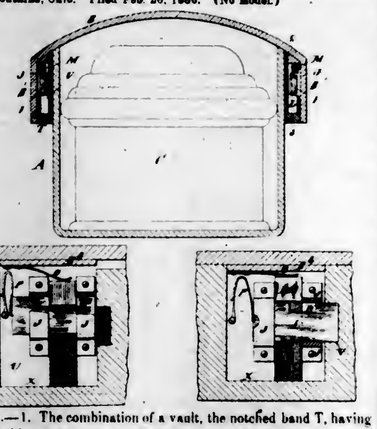
350,031.



ported by the prop, and the arm and prop folding within the frame, substantially as described.

2. A shelf-bracket having a frame consisting of parallel bars between which are pivoted at opposite ends an arm and a prop, the arm being supported by the prop, and the arm and prop folding within the frame, substantially as described.

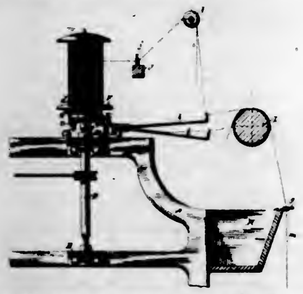
350,032. DEVICE FOR LOCKING COFFINS. JOHN Q. A. BENNETT, Bellefontaine, Ohio. Filed Feb. 26, 1886. (No model.)



Claim.—1. The combination of a vault, the notched band T, having recess V, locking-bolt secured to the top or cover, the brackets, and retaining-bolt, arranged and operating substantially as and for the purpose set forth.

2. The combination of the vault-body, band T, having notches U, with bottoms X and walls recessed at V, cover B, consisting of a notched locking-bolt, and a headed retaining-bolt, the latter being disengaged from the locking-bolt by coming against the bottom of the notches U, substantially as shown and described, for the purpose set forth.

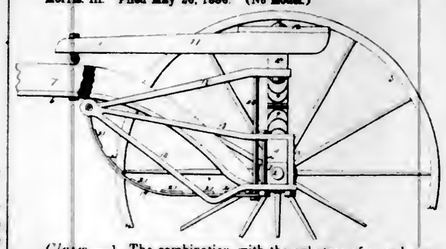
350,033. STOP-MOTION FOR SPOOLING-MACHINES. GEORGE P. BOSWORTH, Pawtucket, R. I., assignor of one-half to John B. Gray, same place. Filed Apr. 12, 1886. (No model.)



Claim.—1. The friction disk or cap, which is provided with a central perforation adapted to loosely fit the spindle, the opposite frictional disks, and the catch-spurs, substantially as described.

2. The combination of the spindle, provided with the spool-revolving disk or cap and the stop-lever and drop-wires, with the disk or cap arranged loosely upon the spindle at the upper side of the spool-revolving disk or cap, and provided with upper and lower frictional surfaces, and with projecting catch-spurs adapted for engagement with the stop-lever, substantially as described.

350,034. TWO-WHEELED VEHICLE. GEORGE C. BOVEY, Mount Morris, Ill. Filed May 26, 1886. (No model.)



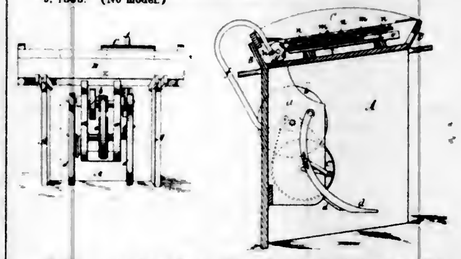
Claim.—1. The combination, with the axle-tree of a road-cart, of basket-supporting brackets fixed to the axle-tree and extending forward thereof, and a transverse bar connecting the forward ends of the brackets, substantially as and for the purpose set forth.

2. The combination, with the basket-supports fixed to the axle-tree and projecting forward thereof, and with the spring-bar, of basket-supporting arms hinge-jointed to the bracket-supports and fixed to the spring-bar, substantially as and for the purpose set forth.

3. The combination, with the bracket-supports fixed to the axle-tree and projecting forward thereof, and with the basket-supporting arm connecting the forward end of the brackets with the spring-bar, of a foot-basket hinge-jointed at its forward end to the bracket-supports, and its rear end suspended from the supporting-arm, substantially as and for the purpose set forth.

4. The combination, with the thills, with the spring-bar, and with the bracket-supports, of a seat supported on the spring-bar, and the forward ends of its supports hinge-jointed to the thills, a foot-basket supported at its rear end to the spring-bar, and its forward end hinge-jointed to the bracket-supports, substantially as and for the purpose set forth.

350,035. WASHING-MACHINE. ABNER G. BROWN, Lima, Ohio; R. W. BROWN administrator of said Abner G. Brown, deceased. Filed July 9, 1883. (No model.)



Claim.—1. In the washing-machine herein described, the standing frame A, having the brackets *a*, fly-wheel *b*, band-wheel *c*, and treadles *d*, in combination with the detachable wash-tray B and its inclosed wash-board C, provided with the hook-pitman *f*, rocker *g*, rods *r*, and the series of simultaneously and oppositely reciprocated slats *e* and *i*, substantially as and for the purposes herein specified.

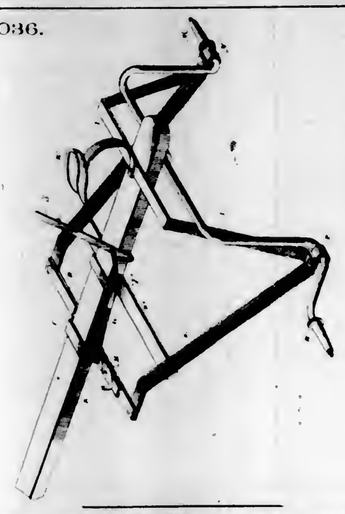
2. In the wash-board C, inclosed within the wash-tray B of the machine herein described, the combination of the rocker *g*, connecting-rods *r*, the oppositely-reciprocated alternate slats *e* and *i*, the riding bars *m* and *n*, the rails *o*, and operating mechanism, substantially as described, substantially as and for the purposes herein specified.

350,036. SULKY-PLOW. PETER C. BROWN and THOMAS P. BRAGG, Ennis, Tex. Filed Feb. 24, 1886. (No model.)

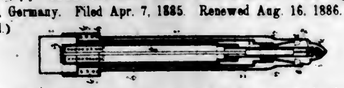
Claim.—1. The combination, in a cultivator, of the pole or center-beam, the hounds and their cross-bar adapted to slide thereon, the bent frame rigidly attached to said hounds, and the bent axle journaled in bearings on the beam and at the ends of the hounds, the axle at one side having a spindle extending at right angles from it and at the other being bent into the form of a crank having a spindle at its extremity, whereby the wheels may be elevated or depressed for the purpose of leveling the plow, substantially as specified.

2. The combination, with the beam and the hounds attached thereto by a sliding band, of the locking spring and lever, the rigid seat-supporting frame, and the axle journaled to the beam and at the ends of the hounds, the axle being bent at the ends, as described, and provided with spindles for the wheels, the whole arranged to operate substantially as and for the purposes specified.

350,036.



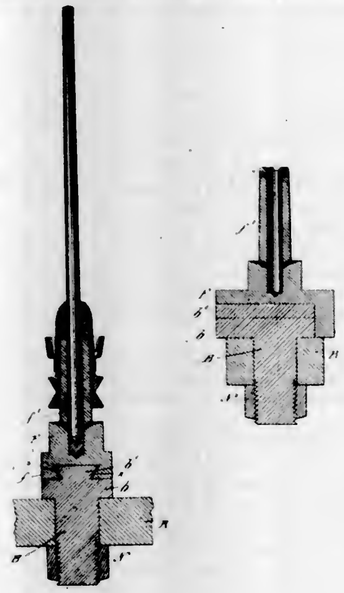
350,037. STYLOGRAPHIC PEN. OTTO BUBBLER, Nuremberg, Bavaria, Germany. Filed Apr. 7, 1885. Renewed Aug. 16, 1886. (No model.)



Claim.—The combination of a movable ink-reservoir having recesses *i*, or a lateral detent, with an expansible clamp, *k*, adapted to either close together in front of the point of the reservoir or to engage with the recesses *i*, or detent of the same, for the purpose of holding the reservoir in position when in use and protecting the point when not in use, substantially as described.

350,038. SPINDLE-SUPPORT FOR SPINNING-MACHINES. EDGAR J. CARROLL, Worcester, assignor to George Draper & Sons, Hopedale, Mass. Filed June 22, 1886. (No model.)

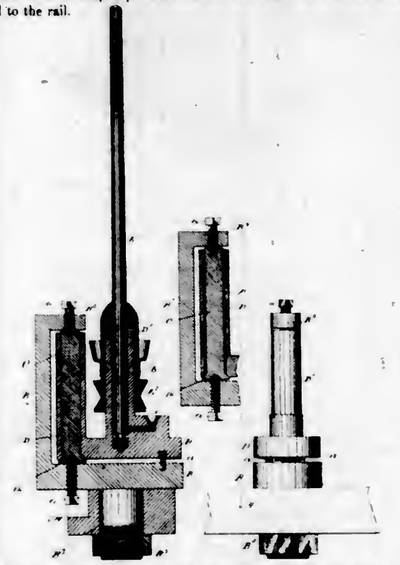
Brief.—The object is to permit the spindle-support to move freely to limited extent in any direction as the lower end of the spindle is caused to vibrate by its high speed of rotation or unequal loading, and this without the employment of a bolster held loosely in a bolster-case.



Claim.—The combination, substantially as described, with a sleeve-whirl spindle and a bolster composed of a block having a solid sleeve to receive the pintle of the spindle and a foot, of a bolt having a head, the head and foot being loosely connected one with the other by a keel, substantially as described, one entering a groove made in the other, whereby the spindle-support is enabled to move to a limited extent in any direction with the lower end of the spindle.

350,039. SPINDLE-SUPPORT FOR SPINNING-MACHINES. WILLIAM T. CARROLL, Worcester, assignor to George Draper & Sons, Hopedale, Mass. Filed May 28, 1886. (No model.)

Brief.—A block having a socket to receive the pintle of the spindle has parallel with said socket a hole to receive with a loose fit a bolt. Said bolt is shaped to sustain the weight of the spindle, and is mounted at its ends upon pivot-screws attached to a bracket which is secured to the rail.



Claim.—1. The spindle, a block provided with a socket for the reception of the spindle, and having a hole substantially parallel to the said socket, and a bolt having a shoulder, 12, to sustain the weight of the said bracket, combined with a bracket and means to hold the said bolt therein in position parallel to the center line of the said socket, substantially as described.

2. The spindle and the block provided with a socket for the pintle of the spindle, and having a hole substantially parallel to the said socket for the reception of a bolt, combined with a bracket, the bolt, and screws or points *a*, to hold the bolt at its ends in the said bracket, the said bolt serving as the fulcrum for the block, substantially as described.

350,040. CARPET-SWEEPER. GEORGE J. CLINE, Goshen, Ind. Filed June 3, 1886. (No model.)



Claim.—1. The combination, with the case having the small rollers at one end and the slotted partition near the other end, of the larger wheel with the inwardly-projecting peripheral flange, the brush-shaft provided with the smaller friction-wheel, and the spring for holding the smaller wheel in contact with the flange of the larger wheel, substantially as specified.

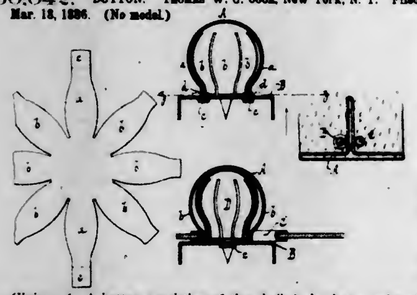
2. The combination, with the case having the casting provided with a seat-opening, of the handle having the beaded shouldered casting and the button on said casting, substantially as specified.

350,041. LETTER-BOX. ABNER S. COOK, Burlington, Iowa. Filed Feb. 4, 1886. (No model.)



Claim.—The combination, with a letter-box provided with a perforated top and a lid, of a combined bottom and front flap, B, arranged at right angles, said flap being provided at its angle with lugs *b*, which bear in the perforation *c* to form hinges, and a ridge or stop, X, substantially as described.

350,042. BUTTON. THOMAS W. G. COOK, New York, N. Y. Filed Mar. 13, 1886. (No model.)



Claim.—1. A button consisting of the shell A, having a series of fingers, *a*, for attaching it to an article or base-plate, and intermediate said attaching-fingers provided with a series of expansible and contractible spring-fingers, *b*, the extremities of which are free or unattached, substantially as described.

2. A button consisting of the shell A, formed integral with a solid central top, curved attaching-fingers *a*, expansible and contractible spring-fingers *b*, intermediate the attaching fingers and free or unattached at their extremities, and an interior spring, D, for distending the spring-fingers, substantially as described.

3. The combination, with the supporting-plate B, of the button-head consisting of the shell A, having the curved fingers *a*, secured to the plate, and intermediate said attaching-fingers provided with expansible and contractible spring-fingers *b*, free or unattached at their extremities, substantially as described.

4. A button comprising a spherical head formed integral with a central solid top, bow-shaped attaching-fingers *a*, for securing the button, a series of bow-shaped expansible and contractible spring-fingers, *b*, having free or unattached extremities, and an interior spring, D, for distending the spring-fingers, substantially as described.

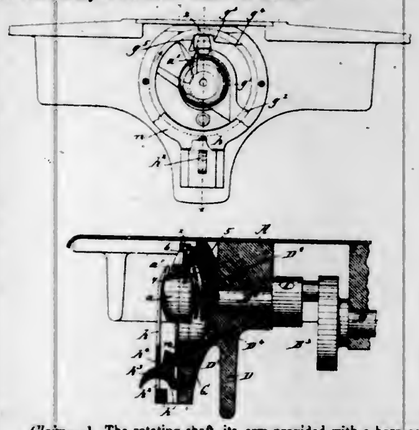
350,043. COMBINED GAG-RUNNER AND ROSETTE-FASTENING. ENOCH COVERT, Farmer Village, N. Y. Filed June 2, 1886. (No model.)



Claim.—A combined gag-runner and rosette-fastening consisting of a plate, A, having a gag-loop runner at one side, and a loop, C, on the opposite side adapted to pass through an opening in the rosette and crown-piece, and be connected by the brow-band, so as to secure the whole together, substantially as specified.

350,044. SEWING-MACHINE. WILBUR F. DIAL, Bridgeport, Conn., assignor to the Wheeler & Wilson Manufacturing Company, same place. Filed Jan. 22, 1886. (No model.)

Brief.—An arm attached to the end of the loop-taker-actuating shaft is provided with a "horn" having two projections, one extending outwardly into a notch in the loop-taker back of its hook, the second projection extending downwardly and entering a notch in the loop-taker or its bridge at or near its junction with the shoulder of the loop-taker, the outer projection entering the outer notch at one time, and the inner projection (as the outer is withdrawn) entering the inner notch, said movements being so timed as to permit the loop of needle-thread to pass the horn and the loop-taker to pass through the said loop. The horn at all times impels the loop-taker positively. The loop-taker guide is set eccentrically to the axis of rotation of the shaft.



Claim.—1. The rotating shaft, its arm provided with a horn comprising inwardly and outwardly extended projections, and a loop-taker provided with two recesses back of its point, combined with a loop-taker guide set eccentrically to the axis of rotation of the shaft for rotating the arm carrying the said horn, the combination being and operating substantially as described.

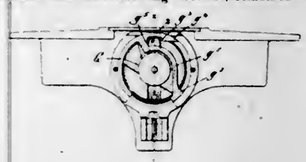
2. A variably-rotating shaft, an arm attached to it provided with a horn consisting of an outwardly-extended projection, 6, and an inwardly-extended projection, 7, and a loop-taker guide set eccentrically to the center of the said shaft, combined with a loop-taker having two opposite recesses, 2 4, at the rear of its point or beak and in line with the center of rotation of the loop-taker, into which recesses the ends of the said horn enter alternately as the said shaft is rotated, one or the other of the projections of the said horn constantly pulling the said loop-taker, point forward, in the loop-taker guide, as set forth.

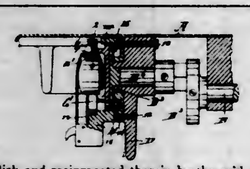
3. The loop-taker guide, its cap *n*, the loop-taker free to be rotated in the said guide, and the bobbin-case, combined with the pivoted bobbin-holder *h* to restrain the rotation of the bobbin-case with the shuttle, and the latch h^4, pivoted at h^4, and acted upon by a spring to secure the bobbin-holder in place, substantially as described.

350,045. SEWING-MACHINE. WILBUR F. DIAL, Bridgeport, Conn., assignor to the Wheeler & Wilson Manufacturing Company, same place. Filed Jan. 22, 1886. (No model.)

Brief.—The construction is designed as an improvement on that described in Patent No. 328,165, dated October 13, 1885. The shaft actuating the loop-taker has on its adjacent end a disk grooved across its face, in which a slide-bar is fitted, one end of said bar having a roller-stud to enter an eccentric groove in a fixed plate, the other end being provided with a horn to enter one and then another of the two recesses in the loop-taker to pull the latter positively about in the loop-taker guide.

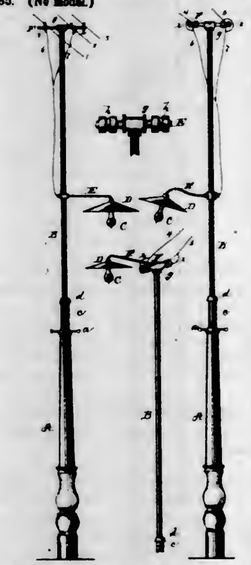
Claim.—The rotating shaft B^4, its attached disk having a groove, *m'*, the loop-taker guide, the plate having the groove 16, and the loop-taker provided with horn-receiving recesses, combined with the slide-





bar carried by the disk and reciprocated therein by the said groove, and having a horn provided with two projections to enter recesses in and pull the loop-taker continuously forward in the loop-taker guide, substantially as described.

350,046. ELECTRIC-LAMP POST. HARRY M. DOUBLEDAY, New York, N. Y., and JAMES LYMAN, Middlefield, Conn., assignors of one-half to James S. Hemblrd and Frank S. Marr, both of Harrisburg, Pa. Filed June 26, 1885. (No model.)

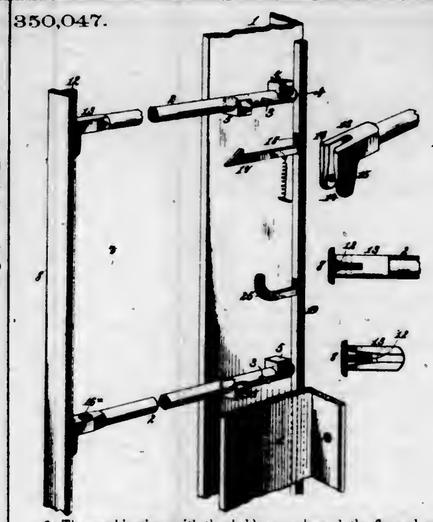


Claim.—1. The combination, with the post A and upward extension B, of a pipe lamp-arm, E, supported by B, and the lamp-conductors 6 7, extending from insulators through the air to the inner end of the lamp-arm, and through such lamp-arm to its outer end, substantially as set forth.

2. The combination, with post A and upward extension B, of the lamp-arm E, supported from B below the top thereof, a cross-arm for wires at top of B, above lamp-arm, and lamp-wires extending downwardly from such cross-arm, substantially as set forth.

3. The combination, with the metal post and a horizontal metal lamp-arm projecting therefrom, of an electric-lamp socket secured to such arm by an insulating-nipple, substantially as set forth.

350,047. FIRE-ESCAPE LADDER. J. PARR DUNN, New York, N. Y. Filed July 10, 1884. Renewed June 22, 1885. Again renewed May 16, 1886. (No model.)



Claim.—1. The combination, with the pivoted rounds of a folding ladder, of a guide and support composed of a bottom rest and side flanges for guiding the rounds and holding them against lateral movement, substantially as described.

2. The combination, with the pivoted rounds of a folding ladder, of a pair of guides and holders for each round arranged respectively above and below and in front and rear of the pivot, and each composed of a bottom rest and side flanges for holding the round against lateral movement, substantially as described.

3. The combination of the pivoted ladder-rounds and the flanges for embracing the rounds when unfolded and holding them against lateral movement, substantially as described.

4. The combination, with the pivoted ladder-rounds and the flanged rail, of a hinge having flanges, which closely embrace and steady the rail-flange when unfolded, and are free from contact with the rail-flange when folded, substantially as described.

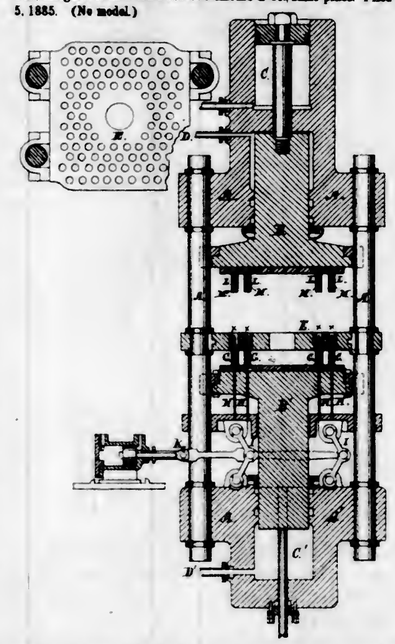
5. The hinge-block constructed with a slot decreasing in width from the toe to the heel, substantially as described.

6. The combination, with the ladder-rounds and the flanged rail, of a hinge-block having a slot decreasing in width from the toe to the heel end portion, substantially as described.

7. The combination, with the pivoted rounds and the flanged rail-section, of the hinge-block having two flanges embracing and pivotally connected with the rail-flange at their toe portion, said flanges being separated by a slot, the sides of which converge from toe to heel, substantially as described.

8. The combination, with the case, the pivoted rounds, a front rail and the vertical latch-operating bar, of a pivoted lever having an attached tail end directly engaging the bar, substantially as described.

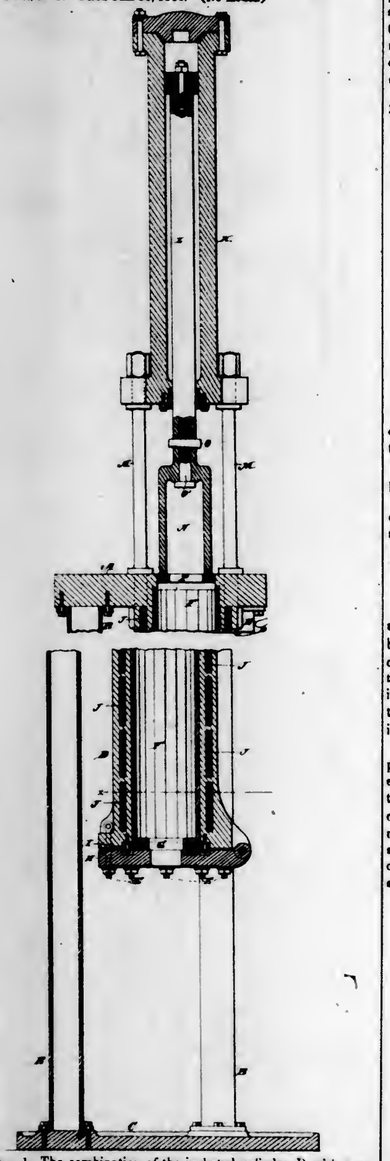
350,048. GUNPOWDER-PRESS. EUGENE DU POST, Wilmington, Del., assignor to E. J. Du Pont de Nemours & Co., same place. Filed June 5, 1885. (No model.)



Claim.—In a machine for forming grains of explosive compounds, the combination of a fixed mold-plate containing suitably-formed apertures for molding powder, two equally-moving and balanced rams acting

to compress the grains from both ends, and pins passing through the apertures in said mold-plate and having a longitudinal motion therein independently of said rams, substantially as and for the purposes described.

350,049. **PROCESS OF AND APPARATUS FOR MOUNTING PYROXYLINE OR ANALOGOUS SUBSTANCES UPON A MANDREL.** JARVIS B. EDSON, Brooklyn, assignor to the American Zylonite Company, New York, N. Y. Filed Jan. 30, 1886. (No model.)



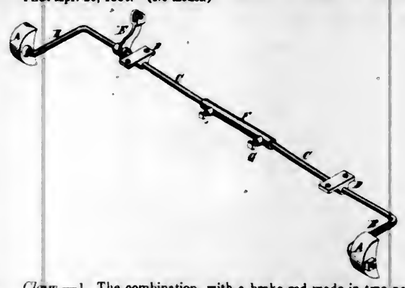
Claim.—1. The combination of the jacketed cylinder D with a removable internal lining, F, the door H, and the hydraulic cylinder and ram K L, connected with the cylinder and forming part thereof, substantially as described.

2. In a hydraulic molding apparatus provided with a heating and cooling agent and an ejecting-ram, the combination, with a molding-cylinder, of an internal lining to facilitate the ejecting of the contents of said mold, said lining being composed of a number of stave-like pieces, F, to facilitate their removal from the molded mass after it has been removed from the cylinder, substantially as described.

3. A molding device consisting of a cylinder capable of being heated and cooled, a ram for the consolidation of its contents, and an internal lining composed of more than one part and preferably made tapering toward the discharge end, substantially as described.

4. The process of affixing a mass of previously-formed plastic composition upon a mandrel by heat and pressure, consisting in inserting said mandrel within a molding-cylinder provided with a removable multipart lining, either tapering or straight, to facilitate the removal of said mandrel and contents, together with said multipart lining, and subsequently detaching said lining from the material on the mandrel, substantially as described.

350,050. **VEHICLE-BRAKE.** JOSEPH L. FREASIER, St. Louis, Mo. Filed Apr. 29, 1886. (No model.)



Claim.—1. The combination, with a brake-rod made in two parts, of a sleeve connecting the parts and provided with means for securing it to the rod, as set forth.

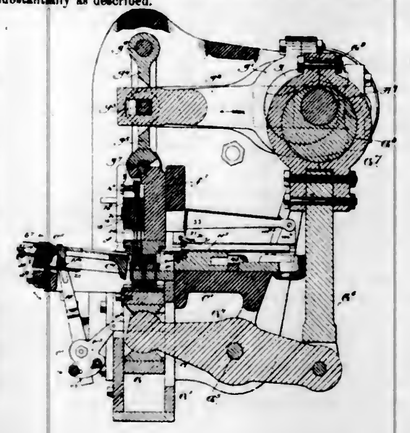
2. The combination, with a brake-rod made in sections, of a sleeve provided with set-screws for connecting the rod, substantially as set forth.

3. The combination of the shoes A, rod C, made in two parts, brackets D, sleeve F, and set-screws G, substantially as and for the purpose set forth.

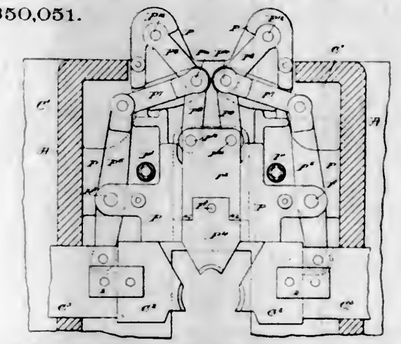
350,051. **HEEL-MAKING MACHINE.** CHARLES W. GLIDDEN, Lynn, assignor to James W. Brooks, trustee, Cambridge, Mass. Filed Aug. 31, 1885. (No model.)

Claim.—1. In a machine for compressing and pricking heel-blanks, a perforated block to act against the tread of the heel-blank and movable mold-pieces to compress the heel-blank laterally, combined with a reciprocating plunger, f', and follower f, both located at the seat side of the heel-blank and adapted to compress the heel-blank in the direction of its thickness, and with a set of awls to perforate the heel-blank at its tread end, the said follower, while the awls are perforating the blank, being fixedly or immovably held in place, substantially as described.

2. In a machine for compressing and pricking heel-blanks, the plunger having the convexed follower to act upon and concave the seat end of the heel-blank, and means, substantially as described, to depress the follower to a definite point preparatory to pricking the heel-blank, combined with a yielding and perforated support for the heel-blank, movable molds to compress the heel-blank laterally, and with a series of awls and means to operate them to perforate or prick the heel-blank after compressing the same and while the follower is in its depressed position, substantially as described.



350,051.



3. In a machine for compressing heel-blanks, a support for the blank and movable mold-pieces to compress it laterally, and a plunger and follower to co-operate with the support to compress the heel vertically, combined with a plunger and an independent blank-lifting awl passing through the follower and acting to lift the compressed blank from between the mold-pieces, substantially as described.

4. In a machine for compressing heel-blanks, a support for the blank and movable mold-pieces to compress it laterally, and a plunger and follower to co-operate with the support to compress the heel vertically, combined with a plunger and awl passing through the follower and acting to lift the compressed blank from between the mold-pieces, and with an ejector, A^4, to detach the heel-blank quickly from the lower end of the follower, substantially as described.

5. In a machine for compressing heel-blanks, a hopper to receive the blanks and a blank-feeder arranged below the said hopper, and a breast-piece, combined with a support for the blank, movable mold-pieces to act upon the sides of the blank, and with a plunger and follower to co-operate with the support to compress the blank vertically, substantially as described.

6. The support for the heel-blank, and the reciprocating plunger and follower, and the toggle-lever and lug g, to move it to operate the plunger and follower, substantially as described.

7. The support for the heel-blank, and the reciprocating plunger and follower, and the toggle-lever and lug g, to move it to operate the plunger and follower, and with accelerating mechanism, substantially as described, to accelerate the movement of the plunger for part of its length, substantially as described.

8. The main shaft A^7, its eccentric, the link G^4, lever G^4, yielding guide perforated plate e, and perforated support e' for the heel-blank, combined with the awl-carrier G, the series of awls, and with the plunger and its follower, the said follower, while the awls penetrate the blank, being held fixedly or immovably to insure the passage of the awls entering through the blank, substantially as described.

9. A support for the heel-blank, the plunger, its attached follower, the toggle-joint link g^2, eccentric g', shaft A^7, and cam n, combined with the link n^3, provided with a stud or projection, n', the latter link being joined with the center pin, g^3, of the said toggle-lever, to operate substantially as described.

10. In a machine for compressing and pricking heel-blanks, a support for the blank, the plunger f', and follower f, movable molds to compress the blank laterally, and awls and awl-carrier to perforate the blank, combined with blank-feeding mechanism, substantially as described, to automatically present a blank in position to be compressed and pricked, substantially as described.

11. In a machine for compressing and pricking heel-blanks, a support for the blank, a plunger and follower, movable molds to compress the blank laterally, and awls and awl-carrier to perforate the blank, combined with a feeder to automatically present a blank in position to be compressed and pricked, and with an independent carriage to receive the compressed and pricked blank and discharge it from the machine, substantially as described.

12. The support for the heel-blank, and the plunger and follower, and the movable mold parts to compress the heel-blank, and the independent awl to pick up the heel-blank and lift it above the mold-pieces, combined with an independent carriage to receive the compressed and pricked heel and carry it away from the follower, substantially as described.

13. The support for the heel-blank, and the plunger and follower, and the movable mold parts to compress the heel-blank, and the awl to pick up the heel-blank and lift it above the mold-pieces, combined with a carriage to receive the compressed and pricked heel and carry it away from the follower, and with a scraper to pass under the heel-blank during the forward movement of the carriage and to rise behind the breast of the heel as the carriage moves backward, substantially as described.

14. The support for the heel-blank, and the plunger and follower, and the movable mold parts to compress the heel-blank, and the awl to pick up the heel-blank and lift it above the mold-pieces, combined with a carriage to receive the compressed and pricked heel and carry it away from the follower, and with a scraper to pass under the heel-blank during the forward movement of the carriage and to rise behind the breast of the heel as the carriage moves backward, and with a hooked lever or stop to prevent the heel-blank from being moved forward with the said carriage, substantially as described.

15. The support for the heel and the movable mold parts, combined with the pivoted breast-piece, and with means, substantially as described, to raise and lower it.

16. The support for the heel and the movable mold parts, combined with the pivoted breast-piece, and with means, substantially as described, to raise and lower it, and with guides arranged at the top of the breast-piece to guide the blanks, substantially as described.

17. The support for the heel and the movable mold parts, combined with the pivoted breast-piece, and with means, substantially as described, to raise and lower it, and with guides arranged at the top of the breast-piece to guide the blanks, and with means, substantially as described, to move the said guides to accommodate blanks of varying width.

18. The carriage and the crank-shaft 29, mounted in bearings thereon and provided with the scraper 31, combined with a lever connected with the crank-pins 27, to operate substantially as described.

19. The shell b of the hopper, combined with the movable back piece, b^2, and the movable side pieces, b' b', to contract the effective opening of the hopper to correspond with heel-blanks of different lengths, substantially as described.

20. In a heel-blank-making machine, the shell b of the hopper, the rod E, and a spring to move it in one direction, and a stud or projection to actuate the said rod in opposition to the said spring, combined with a breast-piece to receive the blank discharged from the hopper, substantially as described.

21. The breast-piece and blank-feeder sliding thereon, and the lever b^9, combined with the lever c^3, having tappets 14 15, to operate substantially as described.

22. The pivoted breast-piece, the link D, the arms D' D^2, and rock-shaft, combined with the link D^3 and means, substantially as described, to actuate it, as set forth.

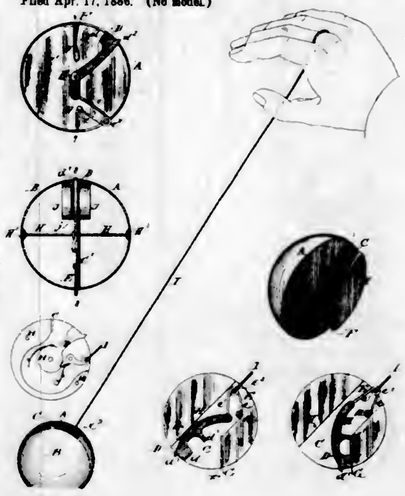
23. In a heel-blank-making machine, the follower f, the plunger f', and slide 19 thereon and its attached awl, and the lever h, combined with the stop h^2, substantially as described.

24. The follower f, the plunger f', and slide 19 thereon, and its attached awl, and the lever h, combined with the stop h^2, and with the link h^4, lever h^5, ejector h^6, and stop h^2, substantially as described.

25. In a heel-blank-making machine, the movable mold-pieces C^2, their connected slides C^3, and the toggle-levers 3 4 to move them, combined with the slides a and levers to move the said slides, substantially as described.

26. The slides C^3, to move the mold-pieces C^2, and the mold-pieces P^4 and the slide P^2, with which it is connected, combined with the levers P^3, and toggle-levers and links to actuate the slide P^2 from the slides C^3, substantially as described.

350,052. **RETURN-BALL.** JOHN A. GROENINGER, St. Louis, Mo. Filed Apr. 17, 1886. (No model.)



Claim.—1. The return-ball having a slot, C, and a second slot, F, formed at one extremity of the first and at right angles thereto, in combination with a spring-hammer located in the slot C, and a cord having connection with said hammer, substantially as set forth.

2. A return-ball formed of two hemispheres having a recess in their meeting-faces, a spring-hammer pivoted in said recess concentrically with the circumference of the ball, and a cord, all constructed and arranged to operate substantially as and for the purposes set forth.

3. A return-ball having a pivoted hammer, a spring of substantially V shape having one arm pivoted to the ball and the other arm pivotally connected to an arm or finger projecting from the hammer, and a cord attached to said spring at a point between the extremities of its arms, substantially as set forth.

4. A return-ball formed of two hemispheres, A B, having a recess, C, in their meeting-faces, dowel-pins H, one of which is concentric with the circumference of the ball, the hammer D, pivoted to said concentric dowel-pin, the substantially V-shaped spring E, having one arm, *e*, pivoted to the ball, and the arm *e'*, connected to the heel of the hammer, and the cord I, connected to said spring, substantially as set forth.

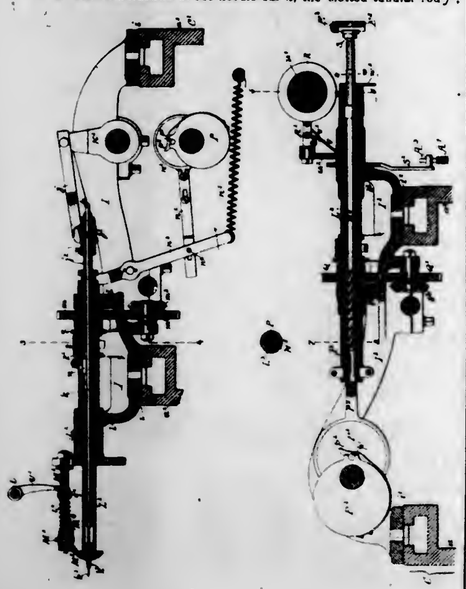
350,053. EMBROIDERING-MACHINE. CARL GÖTTNESS, Camden, N. J., assignor to Jacob Loeb, Cheltenham Township, Pa., Max Schoenfeld, Rorschach, Switzerland, and David Schoenfeld, Philadelphia, Pa. Filed Jan. 7, 1884. (No model.)

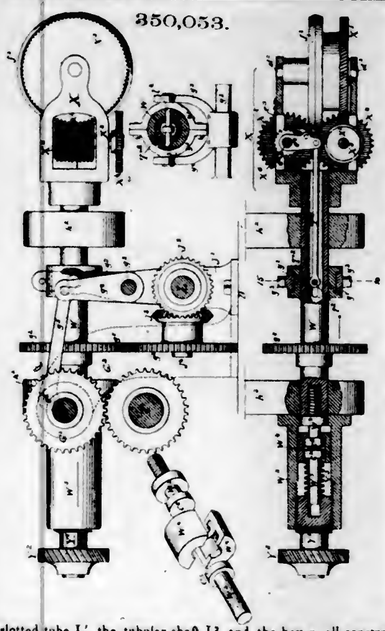
Brief.—The machine relates to the order shown and described in the patents of Ebneter, No. 262,383, dated August 8, 1882, and Wurth, No. 271,182, dated January 3, 1883. The improvements are directed mainly to the particular needle operating and looping mechanism, to the pantograph mechanism, to a device for simultaneously cutting all the threads when such a proceeding is required, and to mechanism for notifying the attendant when one or more of the threads break. A mechanism for gradually starting the machine and for reducing the speed of the machine before it is finally stopped is shown and described.

Claim.—1. The combination, in an embroidering-machine, of the following elements: first, an embroidery-frame, and mechanism for imparting an intermittent movement to the said frame; second, a bar, E^3, between the looper and the fabric; third, the nipple k^3 on the opposite side of the fabric, and the needle *k'*, passing through the nipple; and, fourth, mechanism, substantially as described, whereby the nipple k^3 is caused to confine the fabric to the bar E^3 while the needle is passing through and out of the fabric, and whereby the needle is caused to retreat from the fabric during the intermittent movement of the same, as set forth.

2. The combination of the tube L', carrying the nipple, the tubular shaft L^2, bearings adapted thereto, mechanism whereby the said tube L' can be intermittently reciprocated and rotated in said shaft L^2, with the needle-carrying bar *k*, and with mechanism whereby the needle-bar can be reciprocated independently of the tube, but can be rotated with the said tubular shaft and tube, substantially as described.

3. The combination of the needle-bar *k*, the slotted tubular rod j^2,





the slotted tube L', the tubular shaft L^2, and the key *n*, all constructed substantially as specified.

4. The combination of the rotated shaft J, tube L', carrying the nipple, and the reciprocated needle-bar with the hand-controlled shaft L and connecting mechanism, by which a vibrating motion may be imparted from the shaft L to the said tube L' and the needle-bar simultaneously, and with mechanism by which the tube L' is reciprocated from the said shaft J, all substantially as set forth.

5. The combination of the arm *j*, the tube j^2, a sleeve, j', connected to said arm, and the needle-bar *k*, attached to and removable from the tube, all constructed substantially as set forth.

6. The combination, in an embroidering-machine, of an embroidery-frame, and a pantograph-plate attached thereto, and two pantograph-wheels, f' f^3, one on one side and the other on the opposite side of said plate, with the two shafts N and T geared together, mechanism for rotating the said pantograph-wheels simultaneously from the said shafts, the two hand-operated shafts L and N', and mechanism whereby the wheels may be turned laterally simultaneously from the said shafts, all substantially as set forth.

7. The combination, in an embroidering-machine, of the shaft W, carrying a pantograph-wheel, and adapted to turn and slide in suitable bearings, with a sleeve, W^4, attached to one of the bearings, the screw-plug Y', and devices by which an endwise-yielding pressure may be imparted by the said screw-plug to the shaft W, to force the pantograph-wheel against the pantograph-plate, substantially as specified.

8. The combination, with the embroidery-frame of an embroidering-machine, of the shaft W, fixed sleeve W^2, screw-plug Y', the stud W^3, attached to the shaft, and having a head, c^2, a pin, W^3, having a head, c^3, the two-part sliding box W^4, recessed to contain the said heads c^2 c^3, and spring Y^3, interposed between the said box and screw-plug, all substantially as set forth.

9. The combination, with the embroidery-frame of an embroidering-machine, of the tubular shaft W, the carrier X, attached thereto, the pantograph-wheel having journals bearing in the said carrier, the shaft X^2, geared to the said pantograph-wheel, and having a ratchet-wheel, c^7, with an arm, c^8, provided with a spring-pawl and connected to the reciprocated sleeve T^2 on the shaft W by a rod, T', contained partly within the said shaft by a pin, t^3, passing through slots in the shaft, all substantially as specified.

10. The combination of the tubular shaft L^2 of the needle mechanism of the embroidering-machine with a shield, M^2, and knife q^2, and mechanism for operating the knife, substantially as set forth.

11. The combination of the shaft N^2 of the looping mechanism of an embroidering-machine, the looper S, carried by the shaft, the bar in front of the same, the thread-retainer attached to the bar, and under the control of the attendant, with the shaft L' of the needle mechanism, and the shield M^2, carried by the shaft, and a knife, q^2, also under the control of the attendant, substantially as described.

12. The combination of the tubular shaft L^2 of the needle mechanism of the embroidering-machine, the rod M', carried by the said shaft, the shield M^2, secured to the rod M', the lever M^4, pivoted thereto, one arm of this lever being a knife, q^2, a sliding collar, q^4, and a spring, l^3, all substantially as set forth.

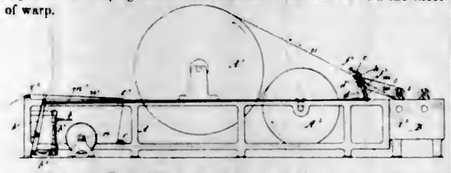
13. The combination of a series of tubular shafts, L^2, of the needle mechanism of a series of embroidering devices in an embroidery-machine, a thread-cutting device carried by each tubular shaft, a shaft, U, and mechanism by which it may be operated, a series of arms, U', on the said shaft, and mechanism, substantially as described, by which each arm is caused to operate the thread-cutter, all substantially as set forth.

14. The combination of the looper S of the looping mechanisms of a series of embroidering-machines, a movable bar, E^3, and a fixed bar, E^2, having a number of orifices, one for the passage of the thread of each embroidering-machine, a series of thread-retainers controlled by the said bar E^3, and mechanism whereby the latter is placed under the control of the attendant, all substantially as set forth.

15. The combination of the series of shafts L^2 of the looping mechanisms of a series of embroidering-machines, an arm, S', on each shaft and devices, substantially as described, for locking and releasing said arm in obedience to the condition of the thread, with the sliding bar A^3, common to all the series of embroidering mechanisms, and constructed to be operated by any one or more of the said arms S', and with a bell or other signaling device, to be operated by the movement of any one or more of the arms, all substantially as described.

350,054. SLASHER. CHARLES H. HOWARD, Auburn, Me., assignor to Jefferson S. Bailey, Milford, Mass. Filed Dec. 19, 1885. (No model.)

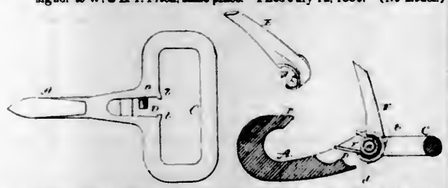
Brief.—The yarn, as it passes from the sizing-vat to the drying-drum, is led between wiping surfaces made of rolls covered with cloth, the said rolls being placed alternately above and below the sheet of warp, the latter being drawn between and in contact with said wiping-surfaces, which effect the laying of the fibers in the same direction. The said rolls are, by suitable links or connections, placed in operative connection with the belt-shipper, so that upon stoppage of the machine for any cause the wiping-surfaces are removed from contact with the sheet of warp.



Claim.—1. The wiping-surfaces and the shaft to support them and the shipper-lever, combined with intermediate connecting mechanism, substantially as described, whereby the position of the wiping-surfaces with relation to the sheet of warp is controlled automatically by the movement of the belt-shipper in one or the other direction, substantially as described.

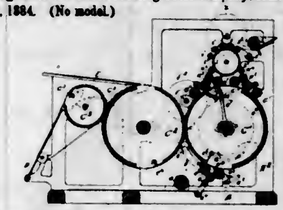
2. The wiping-surfaces, means, substantially as described, to rotate the said wiping-surfaces and the shaft to support them and the shipper-lever, combined with intermediate connecting mechanism, substantially as described, whereby the position of the wiping-surfaces with relation to the sheet of warp is controlled automatically by the movement of the shipper-lever in one or the other direction, substantially as described.

350,055. SNAP-HOOK. GEORGE M. HUBBARD, New Haven, Conn., assignor to W. & E. T. Fitch, same place. Filed July 12, 1886. (No model.)



Claim.—In a snap-hook, substantially such as described, the body constructed with a recess at its loop end to receive the hub of the tongue the said recess having a pivot cast upon one of the cheeks and extending transversely toward the other, but so as to leave a space between the end of the pivot and the opposite cheek, and also with one or more lugs, *b*, at the rear, extending inward over said recess, combined with a tongue constructed with a hub adapted to enter said recess, and the tongue near the hub constructed thinner and so as to pass between the lugs into the recess, and the hub of the tongue also constructed with a concentric recess upon one side, and with a pivot-opening in the opposite side, the said opening extending radially outward and downward, and a spring arranged on said pivot within the recess, substantially as described.

350,056. PRINTING-MACHINE. BERTHOLD HUBER, Taunton, Mass., assignor to the Huber Printing Press Company, same place. Filed Sept. 29, 1884. (No model.)



Claim.—1. In a rotary printing-press, the form-cylinder having a form-surface and a depressed or cut-away surface below the level of said form-surface, an ink-drum, and form-rollers, combined with a main driving-shaft for rotating said cylinder and drum, and thereby the said rollers, substantially as described.

2. The combination, with the form-cylinder having a form-surface and a cut-away surface below the level of the form-surface, as specified, and provided with a fixed gear, and a driving-shaft provided with a fast gear, a loose gear, and clutch, of an ink-drum and the ink and water distributer rollers and gear mechanism connecting the drum and rollers with the fixed gear on the driving-shaft, substantially as and for the purpose set forth.

3. The combination, with the form-cylinder having a form-surface and a cut-away surface below the level of the form-surface, as specified, and provided with a fixed gear, and a driving-shaft provided with a fast gear, a loose gear, and a clutch to engage the loose gear, of an ink-drum, ink-distributer rollers, and gear mechanism, substantially as described, connecting the ink-drum and rollers with the fast gear on the driving-shaft, and the form-inking rollers retained in frictional contact with the distributer-rollers, substantially as described.

4. The combination, with the form-cylinder having a form-surface and a cut-away surface below the level of said form-surface, as specified, the impression-cylinder at one side of the form-cylinder, and the water-rollers below and adjacent to the form-cylinder, of the ink-drum arranged above the form-cylinder, an ink-distributer and form-rollers intermediate of the drum and form-cylinder, and a main driving-shaft and gearing connecting said shaft and the cylinder, drum, and rollers to positively actuate them, substantially as and for the purpose set forth.

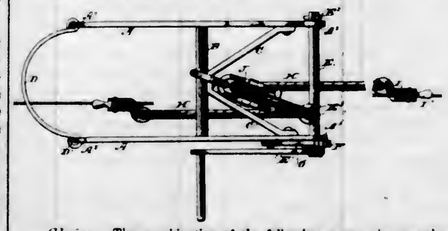
5. In a rotary printing-machine, the shaft F', with two pinions, one, H', firmly secured to said shaft, and the other, G^4, provided with a clutch, F^3, of the cylinders C' C^2 C^3, with their respective gears G' G^2 G^3, forming a train and driven by the pinion G^4 when engaged by the clutch F^3, combined with the gear H^3, loose on the shaft of the cylinder C' and driven by the pinion H', and to drive in turn the inking and water apparatus, substantially as set forth.

6. The water-distributer roller o^2 and the water form-rollers o^3 in frictional contact with the said water-distributer roller, swinging arms o^6, in which said water-distributer and form rollers are arranged, and means, substantially as described, to raise and lower them with respect to the form-cylinder, combined with the form-cylinder having a form-surface and a cut-away or depressed surface, substantially as described.

7. The combination, with the form-cylinder having the loose gear H^3, of the swinging arms o^6, provided with the water-distributer roll o^2, the water form-rollers o^3, and the gear H^3, engaging the gear H^3 and a gear on the distributer-roll o^2, and the cam-shaft o^4, all arranged to operate substantially as described.

8. The combination, with the form-cylinder, ink-drum, form-rollers, and gearing, substantially as set forth, connecting the said cylinder, drum, and rollers, of a main driving-shaft provided with a clutch-gear for actuating the said cylinder and adapted to be thrown out of gear with said cylinder and by the same motion thrown into gear with the form-inking rollers, substantially as described.

350,057. WIRE-STRETCHER. WILLIAMS N. HULDEN, Lampasas, Tex. Filed June 19, 1886. (No model.)



Claim.—The combination of the following parts: the stretcher-frame composed of side bars and a cross-bar which connects them, the

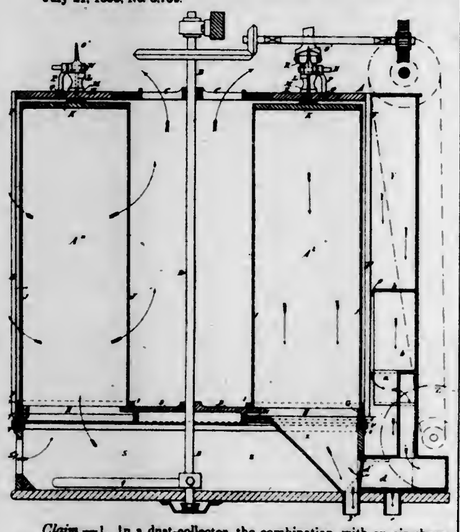
hinged loop attached at one end of said side pieces and the rotary shaft arranged in bearings at the other end, the ratchet and pawl, the rope having catches, and the sheave attached to the cross-bar of the frame, all as shown and described, to operate as specified.

350,058. ORNAMENT FOR LAMP-SHADES. WOLCOTT A. HULL, New York, N. Y. Filed June 17, 1886. (No model.)



Claim.—The combination of a shade and separate ornaments therefor, severally comprising a portion forming a segment of a shade-crown, a portion extending downwardly below the same, and projections whereby it may be secured to a shade, substantially as specified.

350,059. DUST-COLLECTOR. WILLIAM IRON, Hayle, County of Cornwall, England. Filed Apr. 19, 1886. (No model.) Patented in England July 21, 1885, No. 8,739.



Claim.—1. In a dust-collector, the combination, with an air-chamber and a roller pivoted in a fixed bracket, of a rotary drum provided with a series of vertical filtering-sections open at their lower ends and arranged in the form of a circle, a spring-actuated bell-crank lever mounted on said drum and above each section, and a rod connecting one arm of said lever with the upper end of its filtering-section, said lever being engaged by said roller as the series of sections rotate, substantially as described.

2. In a dust-collector, the combination, with an air-chamber and a roller pivoted in a fixed bracket, of a rotary drum provided with a series of vertical filtering-sections open at their lower ends and arranged in the form of a circle, a three-arm lever mounted above each section, a rod connecting one arm of said lever with the upper end of its filtering-section, and a spring connecting another arm of said lever with the frame-work of the drum for keeping the section normally distended, the third arm of said lever being engaged by said roller as the series of sections rotate, substantially as described.

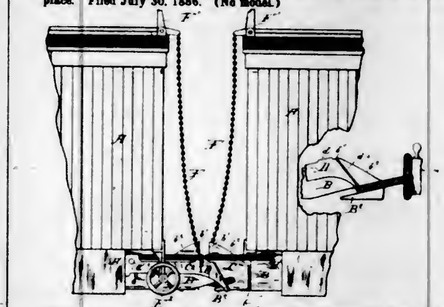
3. In a dust-collector, the combination, with an air-chamber, of a series of vertical filtering-sections open at their lower ends and arranged in the form of a circle, means for supporting and rotating said series of sections bodily around a common center, means for imparting a shake to each section at a given point in its course of rotation, a dust-collecting chamber contiguous to and opening toward the filtering-sections opposite said point, and an exhaust fan for said dust-collecting chamber, substantially as described.

4. In a dust-collector, the combination, with an air-chamber, of a series of vertical filtering-sections open at their lower ends and arranged in the form of a circle, means for supporting and rotating said series of sections bodily around a common center, means for imparting a shake to each section at a given point in its course of rotation, a chute below said point, a dust-collecting chamber contiguous to and opening toward the filtering-sections opposite said point, said chute and chamber communicating at their lower ends, and an exhaust-fan outside of the point of communication for exhausting the air from both the chute and dust-collecting chamber, substantially as described.

5. In a dust-collector, the combination, with an air-chamber, of a series of vertical filtering-sections open at their lower ends and arranged in the form of a circle, means for supporting and rotating said series of sections bodily around a common center, means for imparting a shake to each section at a given point in its course of rotation, a dust-collecting chamber contiguous to and opening toward the filtering-sections opposite said point, an exhaust-opening within said chamber opposite each side of the lower end of said section, and an exhaust-fan for said dust-collecting chamber, substantially as described.

6. In a dust-collector, the combination, with an air-chamber, of a series of vertical filtering-sections open at their lower ends and arranged in the form of a circle, means for supporting and rotating said series of sections bodily around a common center, means for imparting a shake to each section at a given point in its course of rotation, a chute below said point, a dust-collecting chamber contiguous to and opening toward the filtering-sections opposite said point, said chute and chamber communicating at their lower ends, an outwardly-opening valve within said chute inside of said point of communication, and an exhaust-fan outside of the point of communication for exhausting the air from both the chute and dust-collecting chamber, substantially as described.

350,060. CAR-COUPLING. WILLIAM JOHNSTON, Menominee, Mich., assignor to himself, Joseph Fleshiem, and Henry O. Fifield, all of same place. Filed July 30, 1886. (No model.)



Claim.—1. The offset combined coupler and bumper bars B B, adapted to fit side by side, having inclined or cam upper faces and locking notches or projections, and provided with pivoted links C C, adapted to ride on said inclined or cam faces and fit over said locking projections, said bars B B having square ends adapted to fit against the corresponding offsets or shoulders in said bars, and serve as bumpers, substantially as specified.

2. The offset coupler-bars B B, adapted to fit side by side, having inclined or cam upper faces and locking notches or projections, and provided with pivoted links C C, adapted to ride on said inclined or cam faces and fit over said locking projections, in combination with operating-levers D D, having ledges or projections *d d*, for the ends of said links to rest upon, substantially as specified.

3. The offset coupler-bars B B, adapted to fit side by side, having inclined or cam upper faces and locking notches or projections, and provided with pivoted links C C, adapted to ride on said inclined or cam faces and fit over said locking projections, in combination with operating-levers D D, having ledges or projections *d d*, for the ends of said links to rest upon, and operating-shafts E' E', and cams E E, substantially as specified.

4. The offset coupler-bars B B, adapted to fit side by side, having inclined or cam upper faces and locking notches or projections, and provided with pivoted links C C, adapted to ride on said inclined or cam faces and fit over said locking projections, in combination with operating-levers D D, having ledges or projections *d d*, for the ends of said links to rest upon, operating-shafts E' E', and cams E E, and chain F F, and levers F' F', substantially as specified.

5. The offset coupler-bars B B, adapted to fit side by side, having inclined or cam upper faces and locking notches or projections, and provided with pivoted links C C, adapted to ride on said inclined or cam faces and fit over said locking projections, each of said coupler-bars B B being also furnished with a hook, B^3, at its lower edge for engagement with the ordinary link-and-pin coupling, substantially as specified.

6. The offset coupler-bars B B, adapted to fit side by side, having inclined or cam upper faces and locking notches or projections, and provided with pivoted links C C, adapted to ride on said inclined or cam faces and fit over said locking projections, in combination with operating

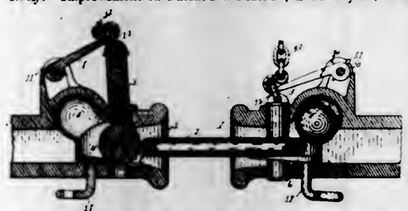
levers D D, having ledges or projections *d d*, for the ends of said links to rest upon, said levers D D having inclined ends adapted to continue the inclined faces of said coupler-bars when said levers are raised and thus prevent the automatic engagement of said links, substantially as specified.

7. The offset coupler-bars B B, adapted to fit side by side, having inclined or cam upper faces and locking notches or projections, and provided with pivoted links C C, adapted to ride on said inclined or cam faces and fit over said locking projections, in combination with springs B' B', substantially as specified.

8. The combination of coupler-bars B B, having offsets *b b*, the ends of said coupler-bars adapted to abut against said offsets as bumpers, said coupler-bars being furnished with locking projections or notches *b' b'*, inclined upper faces b^2 b^2, coupling-links C C, pivoted to said coupler-bars near their upper edges and adapted to rest on their flat upper faces, operating-levers D D, having ledges *d d* and inclined ends d^2 d^2, said coupler-bars B B being furnished with notches d^3 d^3 for said ledges D D to rest in, cam E E, and operating-shafts E' F', substantially as specified.

350,061. CAR-COUPLING. REUBEN JONES, Atlanta, Ga., assignor of three-fourths to Charles A. Sindall, same place. Filed July 2, 1886. (No model.)

Brief.—Improvement on Patent No. 342,517, dated May 25, 1886



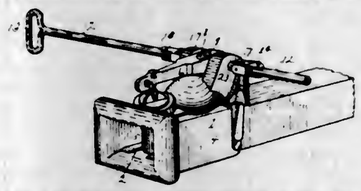
Claim.—1. In the draw-gear of a railway-car, the combination of the draw-head, coupling pin and link, with a U-shaped link-lifter, having at its rear end a downwardly-projecting lever connected by rock-shafts with actuating-levers at the sides of the car, substantially as shown and described.

2. In the draw-gear of a railway-car, the combination of a coupling pin and link with a draw-head provided with lugs 9, having shoulders 13, the pivoted arm and link connecting it with the coupling-pin, and the rock-shafts 15, substantially as shown and described, and for the purpose specified.

3. In the draw-gear of a railway-car, the combination of the draw-heads 1, coupling pins and links 2 and 3, the balls 4, the link-lifters 6, having downwardly-projecting levers 18, and rock-shafts 7, the pin-lifting arm 8, the rock-shafts 15, and the pin 11 to prevent the withdrawal of the coupling-pin, all arranged substantially as described and shown, and for the purpose specified.

350,062. CAR-COUPLING. REUBEN JONES, Atlanta, Ga., assignor of three-fourths to Charles A. Sindall, same place. Filed Aug. 23, 1886. (No model.)

Brief.—Improvement on Patent No. 342,517, dated May 25, 1886.



Claim.—In a car-coupling, the combination of the draw-head 1, the link-lifter 2, pivoted by a shaft having a crank, 4, a pin-lifting arm, 6, pivoted on a shaft having a crank, 21, and the rock-shaft 12, substantially as described, and for the purpose specified.

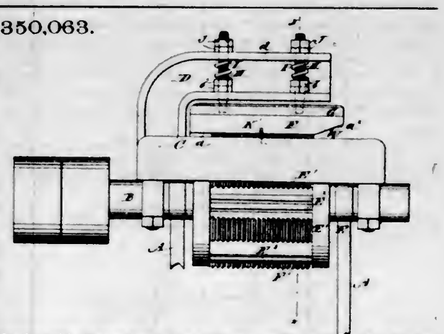
350,063. FIBER-MACHINE. JAMES KENNEDY, Kingston, Jamaica, West Indies. Filed Jan. 30, 1886. (No model.)

Claim.—1. In a fiber-machine, the block F, held above the table and macerating-drum and formed with a flat lower surface, *a*, substantially as described.

2. In a fiber-machine, the block F, held in the overhanging arm D by the adjustable rods H, having the springs I placed therein, substantially as and for the purposes set forth.

3. The table C, provided with guide pins or studs, in combination with the block F and macerating-drum E, substantially as described.

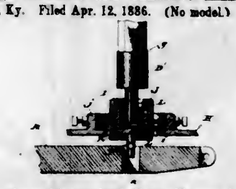
4. In a fiber-machine, the table C and macerating-drum E, in combination with the overhanging arm D, supporting the block F, whereby the material may be fed into the machine at the end of the block F, substantially as described.



5. The scraper-block F, made flat upon the bottom and beveled at a^3, substantially as and for the purposes set forth.

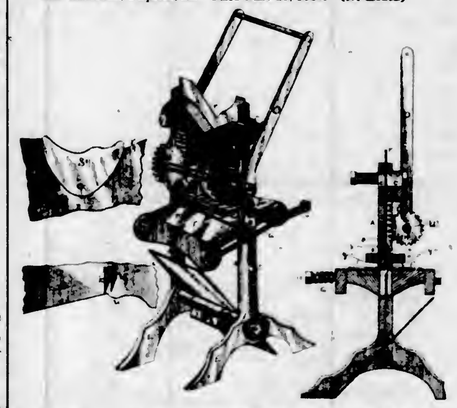
6. The block F, held in the frame G, in combination with the screw-bolts H, overhanging arm D, springs I, and nuts *b* J, for adjusting the block and the tension of the springs, substantially as described.

350,064. CRUSHING AND GRINDING MILL. JABEZ G. KIRKER, Louisville, Ky. Filed Apr. 12, 1886. (No model.)



Claim.—A crushing and grinding mill comprising a shell, a shaft passing therethrough, a cone mounted on said shaft within the shell, a curved bracket, H, provided with plate H', having an upwardly-extending flange, *j*, and an opening, *i*, a bearing-box having an annular flange, a circular piece located in said box, bolts working in flange *j* and abutting against the bearing-box, a lever pivoted at one end and adjustable at its other end, and a stud pivoted in an opening of the lever and bearing against the circular piece K, substantially as set forth.

350,065. CRIMPING-MACHINE FOR BOOTS AND SHOES. LEONARD KNEISSER, Duquoin, Ill. Filed June 25, 1886. (No model.)



Claim.—1. In a crimping-machine, the divided table F, with adjustable tension-pressure springs on rods G, combined with the stretching-plate B, fitted to slide in the frame A, the clamp H, and the operative racks *l*, pinion *m*, and lever O, substantially as set forth.

2. The stretching-plate B, provided with two or more laterally-projecting ribs, *k k*, combined with the divided table F, provided with lateral-extending notches *n*, corresponding with said ribs, whereby the edge of the blank is stretched at several points, as set forth.

3. In a crimping and stretching machine, the plate B, fitted to slide in the frame A, and provided on its free ends with the crimping and

stretching edges *l* and *r*, respectively, combined with the crimping-table F, clamp H, matrix C, and means for actuating said plate B, as set forth.

4. In a crimping and stretching machine, a divided table, F, a clamp, H, held down upon said table by springs, combined with a stretching plate or blade provided with lugs *q*, to engage and automatically raise said clamp when said stretching-plate is retracted, substantially as set forth.

5. In a crimping and stretching machine, a stretching plate or blade, and a matrix, combined with a removable saddle-piece, S, adapted to fit on and be secured to said blade, whereby the form of the working edge of the stretcher may be varied, as set forth.

350,066. TOBOGGAN. JOSEPH C. LESLIE, St. Albans, Vt. Filed Feb. 8, 1886. (No model.)



Claim.—1. In a toboggan, the shoes F F, removably attached to the under side of a toboggan by means of adjustable bolts, the forward attachment being rigid, the remaining bolts passing through longitudinally-slotted recesses in the bottom and cleats C C, substantially as described, and for the purpose set forth.

2. In combination with a toboggan, the removable shoes F F, attached to its sliding surface so as to permit its free longitudinal movement, substantially as specified.

350,067. MANUFACTURE OF SHOVELS. JOHN M. W. LOSE and JOSEPH B. FROMME, Hamilton, Ohio. Filed Mar. 29, 1886. (No model.)

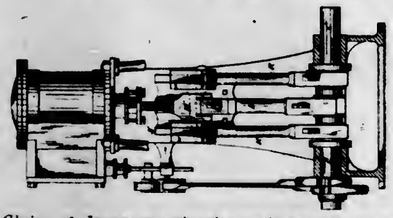


Claim.—1. The improved planchet for use in the manufacture of hoes, formed with a body and a shank of equal thickness, the shank projecting centrally from the heel of the body and having a length equal to the length of the body, substantially as and for the purpose set forth.

2. A hoe-blank formed from a shanked sheet-metal planchet, whose body is broadened at the heel and whose shank is narrowed at the junctures with the body, substantially as and for the purpose set forth.

3. The method herein described of cutting blanks from metal plate to the form or shape shown—that is to say, blanks having angular outlines, the blade slightly broader at the heel than at the point, the tang slightly broader at the extremity than at the heel, by adopting lines of cut to be followed by the cutters, which shall lead to the production in contiguous blanks, and by the process of division of accurately defined edges of such particularly-shaped blanks, and all of this substantially without waste of material.

350,068. RECIPROCATING BALANCE FOR STEAM-ENGINES. CHARLES LOUDIN, New Orleans, La. Filed Apr. 24, 1886. (No model.)



Claim.—1. In a steam-engine, the combination, with the main crank-shaft having cranks on opposite sides thereof, a piston connected to one of said cranks, and a reciprocating weight connected to the opposite crank, whereby the weight and piston will be moved in opposite directions, substantially as described.

2. In a steam-engine, the combination, with the main shaft, the reciprocating piston connected thereto, and the reciprocating weights connected to said shaft on the side opposite the piston, so as to move in opposition thereto, substantially as described.

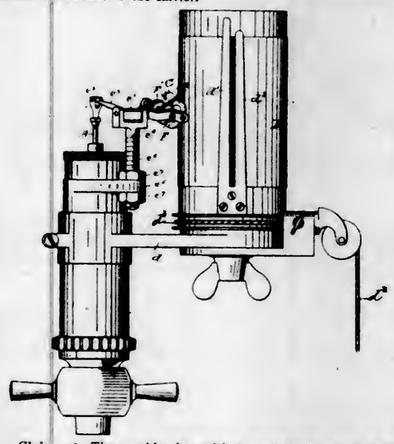
3. In a steam-engine, the combination, with the main shaft having the three cranks, the reciprocating piston-head and connecting-rod, of the two reciprocating weights, and their connecting-rods connected to the opposite side of the shaft from the main piston, so as to move in opposition thereto, substantially as described.

4. In a steam-engine, the combination, with the main frame having the three guideways, the piston-rod, the main cross-head, connecting-rod, and crank-shaft, of the two reciprocating weights—one on either side—the cross-head moving in the guides and connected to the main shaft on the side opposite the main connecting-rod, substantially as described.

5. In a vertical steam-engine, the combination, with the piston-head, piston-rod, cross-head and connecting-rod, the main crank-shaft to which the latter is connected, of the vertically-reciprocating weights connected to the crank-shaft so as to move in a direction opposite to the piston, so adjusted with all connecting parts as to balance the weight of the piston-head, piston-rod, cross-head, connecting-rod, and connected joints, substantially as described.

350,069. STEAM-ENGINE INDICATOR. FREDERICK R. LOW, Chelsea, assignor to the Ashcroft Manufacturing Company, Boston, Mass. Filed Sept. 16, 1885. (No model.)

Brief.—Mounts a card on the carrier so that the planimeter may not mar the surface of the carrier.



Claim.—1. The combination, with a card-carrier, of an indicator, the planimeter-wheel C, piston A, yoke E, the block *e'*, the planimeter-wheel being journaled in said yoke and thereby connected with said block, the support *e*, and connecting-rod *e²*, substantially as and for the purpose described.

2. The combination of a movable drum, means to move said drum about its axis, a rock-shaft adjacent to said drum, the axis of which is transverse to the axis of the drum, means to rock said rock-shaft actuated by the same prime mover as those which actuate the drum, but by an independent train, means for opposing a differential and cumulative resistance in one direction to the rocking of said rock-shaft, a planimeter-wheel mounted on the end of said rock-shaft with its axis of rotation transverse to the axis of rotation of the rock-shaft and normally at right angles to the axis of rotation of the drum, and with its surface in contact with the surface of the drum, all substantially as and for the purpose described.

3. An organized indicator consisting of the following parts: a spring-piston of usual construction, its piston-rod and link, a rock-shaft connected with said link and actuated by it, and carrying bearings on the end of its axis for a planimeter-wheel, a planimeter-wheel mounted on said rock-shaft with its axis transverse to the axis of rotation of the rock-shaft, and a usual reciprocating diagram, drum, or card carrier, substantially as and for the purpose described.

4. In an indicator, the combination, upon the end of the rock-shaft which is actuated by the movement of the pressure-weighing device of such indicator, of a planimeter-wheel mounted at right angles to the axis of reciprocation of the rock-shaft and normally at right angles to the axis of reciprocation of the diagram-drum, with the diagram-drum and rock-shaft to bear against said diagram-drum and register the areas of the power-diagrams continuously, substantially as described.

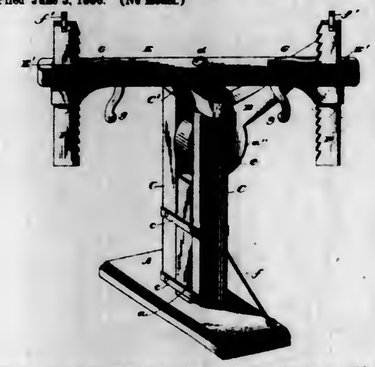
350,070. SHIRT. SOLOMON MENDELSOHN, San Francisco, Cal. Filed Aug. 20, 1883. (No model.)

Claim.—A shirt in which the neckband is composed of two or more continuous plies or thicknesses of fabric, the outer ply only being provided with a button or stud hole, all the plies of the said neckband being stitched to the body of the shirt at the neck-opening, except that portion of the outer ply which is below the button-hole therein, whereby a button or stud pocket is formed having a downwardly-opening mouth, as set forth.

350,070.



350,071. LIFTING-JACK. WILLIAM F. MORELL, Cutchogue, N. Y. Filed June 3, 1886. (No model.)

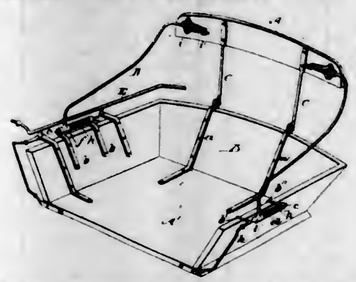


Claim.—1. In a wagon-jack, the combination of the movable portion, to which is pivotally attached a cam-lever, a horizontal bar, E, attached to the movable portion of the lifting-jack and provided at its ends with slots, within which are located pivoted locking-dogs and adjustable ratchet-bars, substantially as shown, and for the purpose set forth.

2. In combination with a lifting-jack, a device for supporting wagon-axles, consisting of a horizontal bar, vertical adjustable bars F, with ratchet-teeth, and gravity-dogs for holding said bars in place, substantially as shown, and for the purpose set forth.

3. In combination with a lifting-jack constructed substantially as described, a horizontal bar with vertical adjustable end pieces, said bar being attached to the lifting-jack so as to swing horizontally, substantially as shown, and for the purpose set forth.

350,072. CARRIAGE-SEAT. CHARLES MORGAN, Bridgwater, Nova Scotia, Canada. Filed Feb. 5, 1886. (No model.)

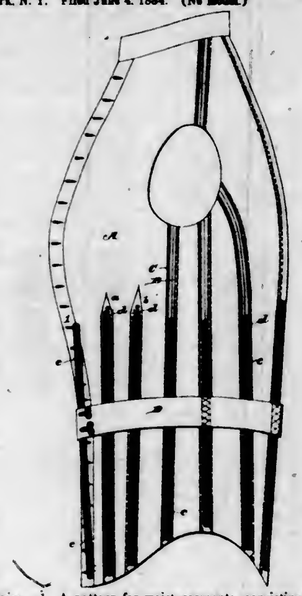


Claim.—1. The combination, with the carriage-seat A' and the back-board A, of back arms, C, attached to the back-board and hinged to the seat-back, side arms, D, connected by a joint with the back-board and provided with a sleeve, *f*, the rod *d*, supporting and guiding the sleeve *f*, and the spiral spring A, placed on the rod *d* and maintained under compression, said joint being formed by inwardly-extended screw-threaded ends of said arms and plates *j*, having screw-threaded eyes which receive said ends of arms, and said rod passing through lower end sleeves of the arms and having screw-threaded connection with sockets connected to the seat, substantially as herein shown and described.

2. The combination, with the vehicle-seat and the back-board, of the side arms having screw-threaded end and eye-plate connections with the back-board, and provided at their lower ends with sleeves, screw-threaded sockets connected to the seat, and the screw-threaded rods passed through the sleeves at the lower ends of the side arms and screwed into the said sockets, together with means to hold the said sleeves in position against the said sockets, substantially as and for the purpose set forth.

3. The combination, with the sleeve *f* of the side arm, D, the rod *d*, and spiral spring *h*, of a yielding lining, *g*, received in the sleeve *f* and covering the end thereof, substantially as herein shown and described.

350,073. PATTERN FOR GARMENTS. HERMAN MOSKOWITZ, New York, N. Y. Filed June 4, 1884. (No model.)



Claim.—1. A pattern for waist-garments, consisting of a base having marked thereon characters representing the pockets in the garment and characters indicating the relative height of several stays to be attached thereto, and having secured to it stays in the relative positions which they are to be affixed to the garment, substantially as described.

2. A pattern for waist-garments, consisting of a base having marked thereon a series of characters consecutively designated, representing stay-pockets in the garment, and marked to designate the relative height of several stays as attached to the garment, and provided with a series of stays to be used on the garment, substantially as described.

3. A pattern for a waist-garment, consisting of parts of a waist garment cut into the desired form and connected together and having stays secured thereto in the positions they are to be when the garment is made up, substantially as described.

350,074. BUTTON-FASTENER. AUGUST E. MÜLLER, Elberfeld, Prussia, Germany. Filed May 8, 1886. (No model.) Patented in Belgium Jan. 30, 1886, No. 52,942, and in France Feb. 2, 1886, No. 161,235.



Claim.—1. In a button-fastener, the oval flanged fastening-plate C, with oval holes *d d'*, so shaped or inclined as to form the shoulders *e f*, and tongue E, constructed as shown, and formed out of said plate, substantially as and for the purpose set forth.

2. In a button-fastener, the eye B, with large oval hole *a*, attached to the button A, the oval flanged fastening-plate C, with oval holes *d d'*, and the tongue E, formed out of the said plate C, substantially as and for the purpose set forth.

350,075. METHOD OF UNITING TUBES. OSCAR MUSSMAN, Jr., New York, assignor to Eberhard Faber, Port Richmond, N. Y. Filed Mar. 25, 1886. (No model.)

Claim.—1. The method of interlocking tubes one upon another by placing one inside the other, and then producing indentations 1 and pro-

350,075.

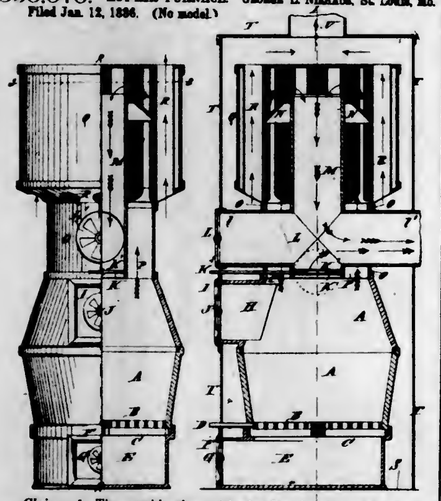


jections J thereon, extending from within outward, interlocking with each other and pressing a portion of the outer tube into a hole, B, formed in the inner tube, substantially as described.

2. Two or more tubes placed one within the other and provided with indentations I and projections J, made in their sides, extending in an outward direction and interlocking with each other, combined with a projection or projections, H, pressed from the outer tube inwardly into a hole, B, formed in the inner tube, substantially as shown and described.

3. The combination of the inner tube having the hole B with the outer tube formed with the unbroken projection H, pressed into said hole and interlocked therewith, substantially as described.

350,076. **HOT-AIR FURNACE.** GEORGE L. NIEHAUS, St. Louis, Mo. Filed Jan. 12, 1886. (No model.)



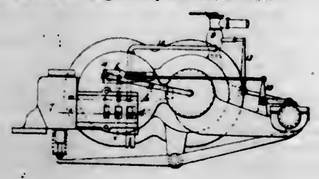
Claim.—1. The combination, with the fire-chamber and the radiating-drum, of a flue communicating at one end with the smoke-flue and at the other with the external atmosphere, a valve for controlling the latter communication, and a branch flue extending from the flue first named into the radiating-drum, substantially as and for the purpose set forth.

2. The combination, in a hot-air furnace, of a fire-chamber, passage K, with damper K', neck O, drum Q, flues L and M, and deflector N, substantially as set forth.

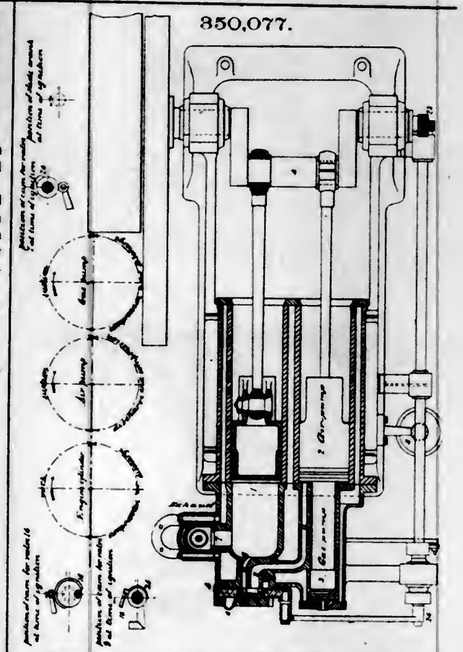
3. The combination, with the fire-chamber and the radiating-drum having communication therewith, of a flue having communication with the said drum, fire-chamber, and the external atmosphere, and dampers for controlling the two latter communications, substantially as set forth.

4. The combination, with the fire-chamber, of a flue having communication with the smoke-flue, an aperture, K, through which it communicates with the fire-chamber, and an opening, *l*, through which it communicates with the external atmosphere, and valves or dampers K' L,' for controlling the two last-named communications, substantially as and for the purpose set forth.

350,077. **GAS-MOTOR ENGINE.** NICOLAUS A. OTTO, Cologne-on-the-Rhine, assignor to the Gas-Motoren-Fabrik-Deutz, Deutz-on-the-Rhine, Germany. Filed May 27, 1886. (No model.) Patented in England Apr. 28, 1886, No. 5,804, and in Belgium May 13, 1886, No. 73,097.



350,077.



Claim.—1. In a gas-motor engine, the combination of a single-acting working-cylinder with an air-pump and a gas-pump, the pistons of said air and gas pumps performing their strokes in time with the working-cylinder piston, the air-pump drawing in its charge during the working outstroke of the engine-piston and discharging its contents into the engine-cylinder during the entire instroke of the engine-piston, so as to assist in the expulsion of the products of combustion and allow the escape-valve to be closed at about one-half the instroke of the engine-piston, while the gas-pump draws in a variable charge during the outstroke of the engine-piston and forces that charge into the engine-cylinder after the closing of the escape-valve and while the charge of the engine-cylinder is being compressed by the completion of the instrokes of the engine-piston and air-pump piston, substantially as herein described.

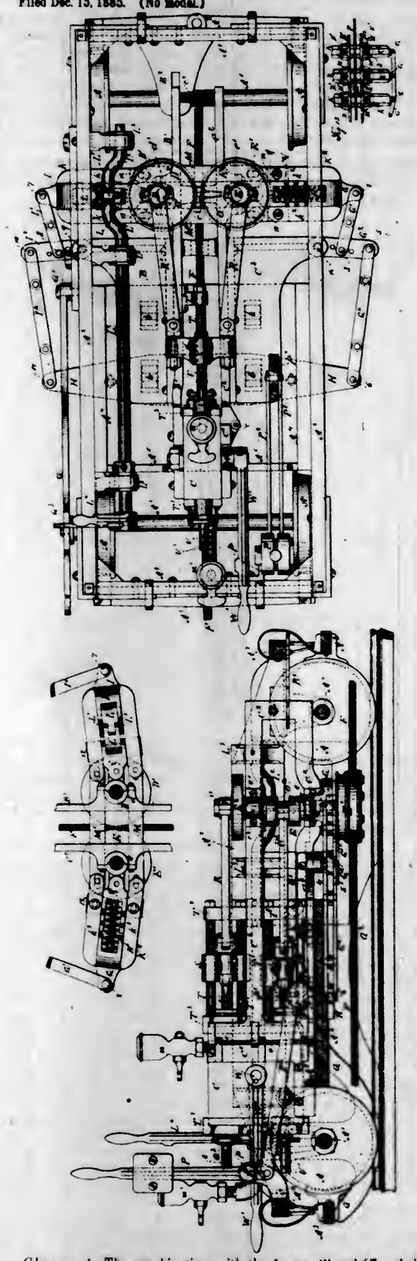
2. In a gas-motor engine, the combination, with the working-cylinder 1, of an air-pump, 2, moving in time with the engine-piston and communicating with the cylinder 1 through passages 10 and 11 and cavity 21 of slide 6, making one to-and-fro motion for each revolution of the crank-shaft, the pump 2 drawing in a charge of air while the engine-piston performs its working outstroke and forcing that charge into the engine-cylinder through the slide-valve during the return-stroke, during the first part of which the products of combustion are expelled through an escape-valve, while during the last part the charge of air introduced is compressed, substantially as herein described.

3. In a gas-motor engine, the combination, with the engine-cylinder 1, of a gas pump, 3, moving in time with the engine-piston and communicating with the gas-supply valve 9, through pipe 14, slide-cavity 15, valve 16, and pipe 17, and with the cylinder 1 through pipe 17, valve 16, and slide-cavity 15, the pump 3 being made to draw in a variable charge of combustible gas while the engine-piston performs its outstroke, then to compress the charge during the first part of the instroke of the engine-piston, and, lastly, to deliver the charge into the engine-cylinder during the last part of the piston's instroke, substantially as herein described.

4. In a gas-motor engine, the combination of a working-cylinder, 1, with inlet-port 10, an air-pump, 2, with passages 11 12, a gas-pump, 3, with passage 17 and valve 16, and a slide, 6, with cavities 15, 20, and 21, whereby charges of air and gas are drawn separately through the slide into the air and gas pumps, the charge of air being then delivered from the air-pump through the engine-slide into the engine-cylinder, after which the charge of gas is delivered in a compressed state from the gas-pump through the slide into the engine-cylinder, substantially as herein described.

5. In a gas-motor engine, a gas-pump receiving a charge of gas through a regulating-valve and delivering such charge into the cylinder through an intermediate valve actuated by a cam on the slide-valve shaft, said intermediate valve being opened by the cam to allow the charge of gas to pass to the working-cylinder after the gas-pump has performed part of its stroke, substantially as and for the purposes herein described.

350,078. **TRACTION DEVICE FOR CABLE RAILWAYS.** JOHN H. PENDLETON, Brooklyn, N. Y., assignor, by direct and mesne assignments, to himself, Cornelius Tiers, Alexander H. Tiers, Robert I. Sloan, and Lincoln Moss, all of New York, N. Y., and Thomas Nast, Morristown, N. J. Filed Dec. 15, 1885. (No model.)



Claim.—1. The combination, with the frames B' and C^2 and the traction-grip upon the same, of the bed-pieces I G, with jaws by which they are pivoted at their inner ends, the link-frames, K K^2, the links M M', for connecting the link-frames, and the links G' I', connected to the respective bed-pieces G and I, for swinging the same and the link-frames into an inclined position to the frames B' and C^2, and thereby applying the grip, substantially set forth.

2. The combination, with the frames B' and C^2 and the gripping devices carried by the same, of the bed-pieces G and I, pivoted at their inner ends, the link-frames K and K^2, sliding upon the pieces G and I, the links M, M', for connecting the link-frames, the spring N, and the toggles L, substantially as set forth.

3. The combination, with the frames B' C^2, capable of receiving an endwise movement, of the shafts D E, the traction-wheels D' E', supported by such frames, the bed-pieces G and I, pivoted at their inner ends to the frames, the link-frames K K^2, the links M M', connecting the link-frames, and the links G' I', connected to the outer ends of the bed-pieces G and I, substantially as specified, whereby the wheels E' D' are caused to grip the cable or its equivalent in proportion to the load to be moved, substantially as set forth.

4. The frames B' C^2 and the shafts D and E, supported by the same, the traction-wheels D' E', the bed-pieces G and I, link-frames K K^2, links M M', for connecting the link-frames, the spring N between the link-frame K^2 and the jaw *g*, and the toggles L between the link-frame K and the jaw *i*, and the links I' and G', substantially as set forth.

5. The combination, with the wheels A, frame A^2, and bed-plate A^4, of the bed B, adapted to slide upon the frame A^2, and the vertical frame B', connected to the bed B, the supporting-plate C^2 and swinging frame C^2, connected to and moving with the bed B and frame B', the shafts D and E, sustained by the respective frames B' and C^2, the traction-wheels D' E', and mechanism, substantially as specified, for pressing the wheel E' toward the wheel D' and grasping the cable or its equivalent, and the cranks, connecting-rods, and cross-heads, substantially as set forth.

6. The combination, with the traction-wheels and the frames for supporting the same, of the bed-pieces G I, hinged to the respective supporting-frames, and the links G' I', lever-links G^2 I^2, links G^4 I^4, and connection H to the truck or car frame, and the link-frames K K^2, and connecting mechanism, substantially as specified, for applying the traction-wheels D' E' to the cable or its equivalent with a gripping pressure resulting from the action of the load to be drawn tending to swing the bed-pieces G and I into inclined positions, substantially as set forth.

7. The combination, with the traction-wheels D' E' and their respective shafts and cranks, of connecting-rods, cross-heads, piston rods, piston, and cylinders adapted to contain oil or other fluid, and valves or cocks in the ports that connect the ends of the respective cylinders, whereby the revolution of the traction-wheels is controlled or arrested, according to the positions of the valves or cocks, substantially as set forth.

8. The combination, with the truck and wheels and the frames B' C^2, of the traction-wheels, bed-pieces G I, hinged to the frames C^2 B', the link-frames K K^2, links M M', toggles L, toggle-link L', crank-shaft L^2, and lever L^4, substantially as specified.

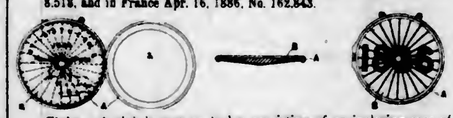
9. The combination, with the truck and wheels and the frames B' C^2, of the traction-wheels, bed-pieces G I, hinged to the frames C^2 B', the link-frames K K^2, links M M', toggles L, toggle-link L', crank-shaft L^2 and lever L^4, foot Q^2, cam-lifter Q, and incline Q^2, substantially as set forth.

10. The combination, with the frames B' C^2 and the bed B and supporting-plate C^2, of the hinge-block and hinge upon which the frame C^2 swings, the mechanism carried by the respective frames B' C^2, respectively, substantially as specified, for clamping the traction-cable, the bed-plate A^4, for supporting the parts, the links that connect the bed-plate A^4 to the bed-pieces G and I of the gripping mechanism, and the lever P and links P^2, for moving the frames B' C^2 endwise and increasing or lessening the grip upon the cable, substantially as set forth.

11. The combination, with the cable and gripping devices, of levers at each side of the cable, a link connecting the fulcra of such levers together, and links between the outer ends of such levers and the car, substantially as and for the purposes set forth.

12. The combination, with the cable and the gripping devices, of levers at opposite sides of the cable, two links for connecting the fulcra of the levers on one side to the fulcra of the levers on the other side, and connections from the outer ends of the levers to the cars, whereby the resistance in moving the cars either in one direction or the other applies the leverage to the gripping devices, substantially as specified.

350,079. **BROOCH OR BADGE FOR CLUBS.** ROBERT E. PHILLIPS and ERNEST R. SHIPTON, London, County of Middlesex, England. Filed May 24, 1886. (No model.) Patented in England July 14, 1885, No. 8,518, and in France Apr. 16, 1886, No. 162,843.



Claim.—A club brooch or badge consisting of an inclosing-case of any desired design, formed partly in open work, and a renewable card placed within the case and having a corresponding design on it in in-

taglio, registering with the said open work of the case, and bearing, also, an inscription indicating the term of membership of the wearer.

350,080. VELOCIPEDE. WALTER PHILLIPS, Coventry, County of Warwick, England. Filed Mar. 2, 1886. (No model.)

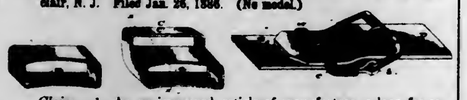


Claim.—1. In a velocipede, the combination of a steering-wheel fork provided with a pivot-pin projecting from it at right angles, and having the cam *j* on the fork at its base, a central frame provided with a socket, in which the said pivot-pin is journaled, and having recesses engaging with the said cam, a spring for pressing the said recesses and cam together, a nut for adjusting the pressure of the spring, and a steering-bar journaled in the said central frame for operating the steering-fork, substantially as set forth.

2. In a velocipede, the combination of a steering-wheel fork provided with a pivot-pin projecting from it at right angles, and having the cam *j* on the fork at the base of the said pin, a lever secured to the fork on the opposite side of the pivot-pin from the steering-wheel, the central frame provided with a socket, in which the said pivot-pin is journaled, and having recesses engaging with the said cam, a spring for pressing the said recesses onto the cam and keeping the steering-wheel in line with the central frame, a steering-bar journaled in the central frame, and a lever secured to the steering-bar and connected to the lever for operating the steering-wheel, substantially as set forth.

3. In a velocipede, the combination of a steering-wheel fork provided with a pivot-pin projecting from it at right angles, and having the cam *j* on the fork at the base of the said pin, a lever provided with the pin R, and secured to the fork on the opposite side of the pivot-pin from the steering-wheel, the central frame provided with a socket, in which the said pivot-pin is journaled, and having recesses engaging with the said cam, a spring for pressing the said recesses onto the cam and keeping the steering-wheel in line with the central frame, a nut for regulating the pressure of the spring, a steering-bar journaled in the central frame, and a lever secured to the steering-bar and provided with a slot for engaging with the said pin R and operating the steering-wheel, substantially as set forth.

350,081. LOOP OR BAND FOR STRAPS. THOMAS L. RIVERS, Montclair, N. J. Filed Jan. 26, 1886. (No model.)

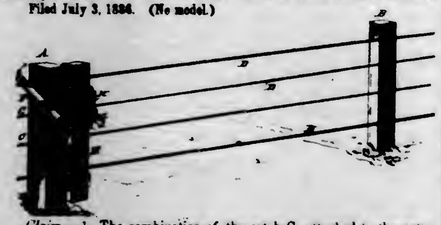


Claim.—1. As an improved article of manufacture, a loop for securing the meeting or folded ends of straps, formed of a single piece of metal, and having its longitudinal walls arranged parallel with each other and provided on their inner opposing faces with a series of longitudinal corrugations or teeth, which bite upon the outer faces of the straps inclosed within the same, substantially as described.

2. As an article of manufacture, a loop cast in one piece and having interior teeth or corrugations, and an extended auxiliary loop, substantially as described.

3. The combination of a strap, B, folded upon itself, a buckle secured in the folded end of the strap, a main loop fitted over the strap and its folded end, and provided with interior teeth or corrugations that bind on the straps, and an integral auxiliary loop extended out of the plane of the opening in the main loop, and a strap, D, connected to the buckle and having its free end confined in the extended auxiliary loop, substantially as described.

350,082. WIRE-FENCE GATE. THEODOR RUEDIGER, Chaska, Minn. Filed July 3, 1886. (No model.)



Claim.—1. The combination of the catch G, attached to the gate-bar E in horizontal position, and having its outer end curved and provided with the pin c, with the lever pivoted to the post, and having its shorter arm curved and provided with an aperture adapted to receive said pin, all as shown and described, whereby the parts are locked by turning the lever until the curved end of the catch passes beyond or around its pivotal bearings, as specified.

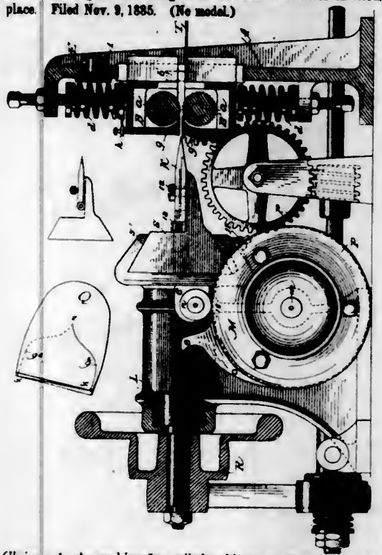
2. The combination, with the post, the fulcrumed lever, the gate-bar E, and wires D, of the catch G, which is slotted lengthwise, screws for securing it to the bar, and a wedge for adjusting it to take up slack, as shown and described.

350,083. COMPOUND FOR PROTECTING WALLS. FREDERICK M. RUSCHHAUPT, Milwaukee, Wis. Filed Jan. 2, 1886. (No specimens.)

Claim.—1. A compound for protecting walls, which consists of rosin, a solid or semi-solid hydrocarbon, or in lieu thereof a solid or semi-solid fat, and a solvent, combined in about the proportions stated.

2. A compound for protecting walls, consisting of rosin, a solid or semi-solid hydrocarbon, or in lieu thereof a solid or semi-solid fat, a solvent, and sulphur balsam, combined in about the proportions stated.

350,084. SHOE-UPPER-SPLITTING MACHINE. GEORGE W. SLEEPER, Westborough, Mass., assignor of one-half to William A. Reed, same place. Filed Nov. 9, 1885. (No model.)



Claim.—1. A machine for splitting blanks to form uppers, having feed-rolls, guide-plates in rear of said feed-rolls, and a knife arranged in rear of the guide-plates, and mechanism, substantially as described, adapted to turn the said knife partially in relation to said guide-plates, and mechanism for imparting the required motions to the parts specified, all substantially as described.

2. In a machine for splitting blanks, feed-rolls mounted in boxes, said boxes being pivoted at one end, the upper at one side and the lower at the other side of the frame, and yielding guide-plates placed in the described relation to the knife, all substantially as described.

3. In a machine for splitting blanks, feed-rolls mounted in boxes, said boxes being pivoted at one end, the upper on one side and the lower on the other side of the frame, and yielding guide-plates pivoted at one end on the boxes and having independent movement, all substantially as described.

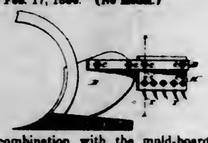
4. In combination, the feed-rolls, the guide-plates, and the knife mounted on a shaft and provided with a stud, and a cam-wheel adapted to move the stud to turn the knife, and mechanisms, substantially as described, for operating the parts specified, all substantially as described.

5. In combination with the pivoted boxes and feed-rolls mounted therein, the springs *d*, the lever E, and links *e*, these parts being arranged and operating in the machine substantially as described.

6. The combination, with feed-rolls and guide-plates, and with a knife mounted on a shaft adapted to turn, of a stud on said shaft, and a cam-wheel having circular and raised parts fitted to hold the knife in position during part of the operation and to turn it during a part, whereby the split portion of the blank is gradually narrowed, all substantially as described.

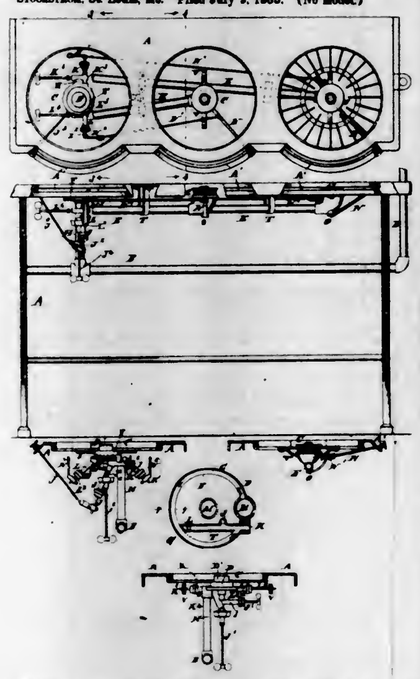
7. In a machine for splitting blanks to form uppers of shoes, a pair of feed-rolls and guide-plates, and a splitting-knife arranged in relation to the guide-plates as described, with mechanism, substantially as described, for automatically causing the knife to incline from the plane of the guides, all substantially as described.

350,085. PLOW ATTACHMENT. SHELDON A. STEINBARGER, Augusta, Ill. Filed Feb. 17, 1886. (No model.)



Claim.—The combination, with the mold-board of a plow, of a laterally-extending beam secured thereto, a plate having a vertical series of holes at each end, and a series of rearwardly-extending teeth secured to the lower edge of said plate, each tooth being provided with a rearwardly-extending lug or arm near its top, a small portion of each tooth extending above said lug or arm, and a nut upon the end of each of said arms.

350,086. VAPOR-BURNER. CHARLES A. STOCKSTROM and LOUIS STOCKSTROM, St. Louis, Mo. Filed July 9, 1885. (No model.)



Claim.—1. The combination, with a gasoline-stove having a suitable burner, of a generator having a valve, a connecting-tube extending from the valve to the burner, an operating-rod in proximity to the burner, and a rod or its equivalent for connecting the operating-rod at the burner to the valve-rod at the generator, substantially as set forth.

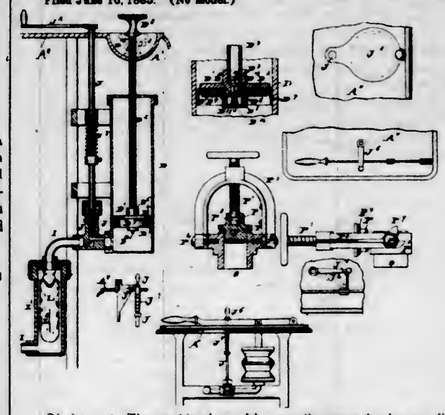
2. The combination, with a gasoline-stove having a plurality of burners, of a generator having a valve for each burner, conducting-tubes extending from the respective valves to the respective burners, an operating-rod for and in proximity to each burner, and a rod or its equivalent for connecting the operating-rods to their respective valve-rods located at the generator, substantially as and for the purpose set forth.

3. The combination, with a burner, of a generator having a valve, a commingling-tube extending from the valve to the burner, a crank-arm on the valve-stem, a lever in close proximity to the burner, and a rod connecting the crank-arm and lever, substantially as set forth.

4. The combination, with burners, of a generator having valves provided with crank-arms, independent levers in proximity to the burners, independent commingling-tubes extending from the burners to their respective valves, and rods connecting the levers with their respective crank-arms, substantially as set forth.

5. The generator for a vapor-burner, comprising a supply-pipe, disk F, having port or passage G around the periphery, and transverse port or passage F', valves having tubes J K L connecting with said transverse port or passage, and a perforated cap or cover, D, substantially as set forth.

350,087. GASOLINE-STOVE. LOUIS STOCKSTROM, St. Louis, Mo. Filed June 10, 1885. (No model.)



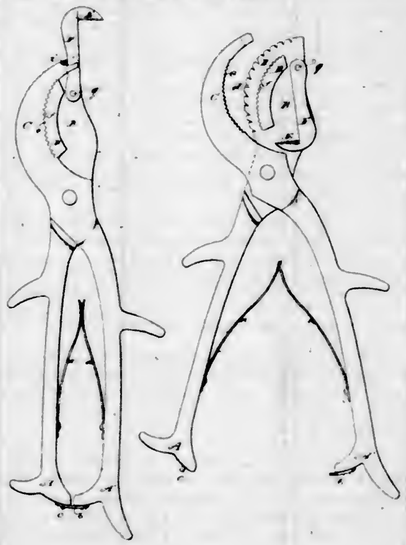
Claim.—1. The combination, with a gasoline-stove having an oil-reservoir, of an air-compressor communicating with the reservoir, and a valve located between the compressor and reservoir having a lever or arm which in its normal position stands in the path of the compressor, rendering the compressor inoperative until the valve is opened, substantially as set forth.

2. The combination, with the reservoir of a gasoline-stove, of a compressor for forcing air into said reservoir, connection between the compressor and reservoir, a valve located in said connection, and which in its closed position prevents the pump from being operated, and mechanism for closing said valve automatically when the compressor has been operated.

3. The combination, with the oil-reservoir of a gasoline-stove, of an air-compressing device having a pipe leading to the reservoir and a valve located in the pipe having a lever or arm extending in normal position over the compressing device, preventing access to the latter until the valve is opened by shifting the lever or arm, substantially as set forth.

4. The combination, with an oil-reservoir of a gasoline-stove, of an air-pump having a pipe leading to the reservoir, a valve located between the pump and reservoir having a rod, J, closing-spring, and an arm or lever extending in normal position over the pump, rendering the latter inoperative until the arm or lever is shifted to open the valve, substantially as set forth.

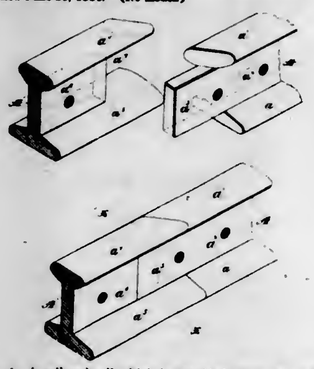
350,088. CASTRATING-INSTRUMENT. JAMES TRULLINGER, Silverton, Oreg. Filed Jan. 23, 1886. (No model.)



Claim.—1. A castrating-instrument formed with handles A A', blade B, having serrated edge *d*, and carrying serrated-faced block D, and a jaw, C, having a serrated edge, *e*, substantially as described.

2. A combination castrating-instrument, consisting of a pair of shears having serrated edges *e* and *d*, and a knife, E, formed with a shank, F, and pivotally connected to the blade of the shears, substantially as described.

350,089. **RAILROAD-RAIL.** DANIEL S. TUTHILL, Newburg, N. Y., assignor of one-half to B. H. Dubois and J. J. B. Dubois, both of Leadville, Colo. Filed June 10, 1886. (No model.)



Claim.—1. A railroad-rail which is provided upon one end with a longitudinal projecting tongue and has its head at such point formed upon an oblique line, in combination with a rail which has an obliquely-cut head, and is provided with a groove that is adapted to receive and contain the tongue of the opposite rail, substantially as and for the purpose shown.

2. A railroad-rail which at one end has its head formed upon a horizontally-oblique line and its foot formed upon a line having a right angle to the length of said rail, and is provided with a tongue that projects longitudinally forward from, and is a continuation of its web, in combination with a second rail which has the ends of its head and foot formed, respectively, upon diagonal and right-angle lines, and within its web is provided with a groove that corresponds to and is adapted to receive the web-tongue of the opposite rail, substantially as and for the purpose set forth.

3. A railroad-rail which at one end has its head formed upon a horizontally-oblique line and its foot formed upon a line having a right angle to the length of said rail, and is provided with a tongue that projects longitudinally forward from and is a continuation of its web, a rail which has the ends of its head and foot formed, respectively, upon diagonal and right angle lines, and within its web is provided with a groove that corresponds to and is adapted to receive the web-tongue of the opposite rail, in combination with each other and with means, substantially as described, whereby said rails may have their intersecting ends confined in relative lateral position, substantially as and for the purpose specified.

350,090. **TRACK-GRIPPING DEVICE FOR RAILWAY-CARS.** LEWIS B. WHITE, New York, N. Y., assignor to Leon Abbett, Jersey City, N. J. Filed Feb. 6, 1886. (No model.)

Claim.—1. The combination, with pivoted jaws serving to clamp a rail, of a piston-rod for operating on said jaws, a piston on the piston-rod, and a cylinder in which the piston is contained, substantially as shown and described.

2. A car having vertical guides a short distance above a rail, track-gripping jaws sliding between the guides, and mechanism for operating the jaws, substantially as set forth.

3. A car provided with guides a short distance above a rail, track-gripping jaws mounted to slide between said guides, a wedge-shaped head which can act on the jaws, links connecting the head with the jaws, and of a rod for operating said wedge-shaped head, substantially as shown and described.

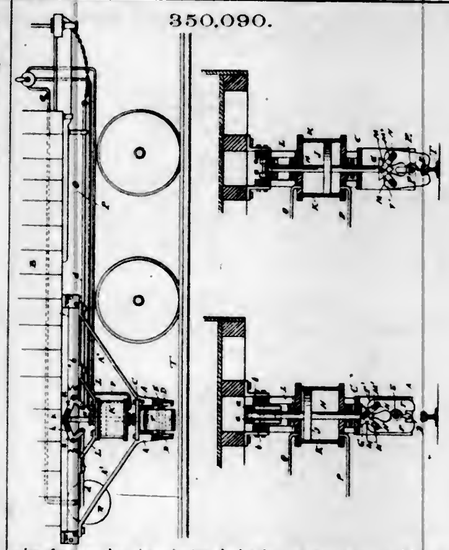
4. The combination, with a car, of guides secured on the same and held a short distance above a rail, a bolt or pivot mounted to slide in grooves of said guides, track-gripping jaws mounted to swing on said bolt or pivot, and of mechanism for operating the jaws, substantially as shown and described.

5. The combination, with a car, of a track-gripping device, a cylinder, a piston in the cylinder, a piston-rod on the piston, which piston-rod operates the track-gripping device, and levers connected with the piston-rod, for the purpose of operating said rod independent of the piston and cylinder, substantially as shown and described.

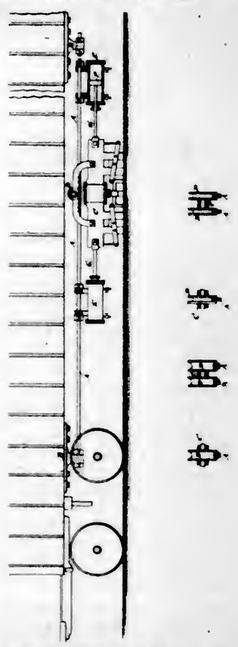
6. The combination, with a car, of a track-gripping device, mechanism for operating the gripping device by compressed air, and levers for operating the piston-rod of the compressed-air mechanism, independent of the said compressed-air mechanism, substantially as shown and described.

7. The combination, with a car, of a track-gripping device, a cylinder, a piston in the same, a piston-rod on the piston, a wedge-shaped head on the lower end of the piston for operating the gripping device, and levers connected with the upper end of the piston-rod above the top of the cylinder and rods connected with said levers, substantially as shown and described.

350,090.



350,091. **CABLE-RAILWAY CAR.** LEWIS B. WHITE, New York, N. Y., assignor to Leon Abbett, Jersey City, N. J. Filed Feb. 6, 1886. (No model.)



Claim.—1. The combination, with a car, of one or more rods or bars secured to the under side of the same, at or near the ends of the car, a grip-frame having one or more rollers resting on said rods or bars, and of devices for limiting the movement of the grip on said rods or bars in the direction of the length of the car, substantially as shown and described.

2. The combination, with a car, of one or more rods or bars held on the under side of the car, at or near the ends of the same, a cable-grip supported by said rods, cylinders supported on the rods, pistons in the cylinders, and piston-rods on the pistons, which piston-rods are connected with the grip-frame, substantially as shown and described.

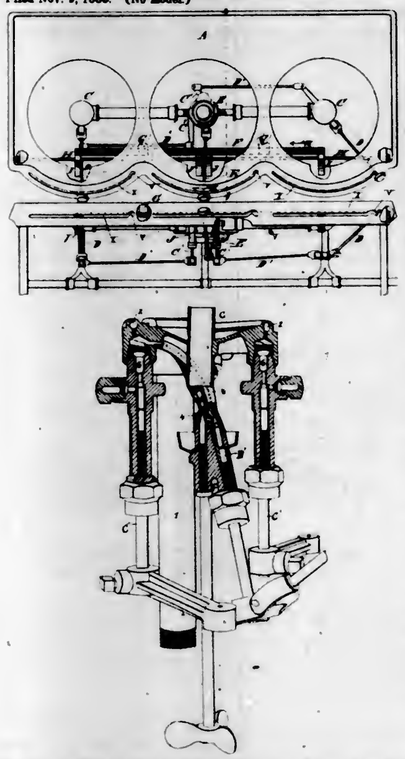
3. The combination, with a car, of one or more rods or bars held on the under side of the same, a cable-grip frame having one or more rollers running on said rods or bars, and of cushioning devices supported and held by the rods, substantially as herein shown and described.

4. The combination, with a car, of one or more rods or bars provided at the under side of the same, and fastened to the car, at or near the ends of the same, a cable-grip, one or more rollers on the frame of said cable-grip, which rollers rest on said rods or bars, piston-rods projecting from the frame of the cable-grip, and pistons on the piston-rods, and cylinders in which said pistons work, substantially as set forth.

350,092. **WITHDRAWN.**

350,093. **WITHDRAWN.**

350,094. **GASOLINE-STOVE ATTACHMENT.** CHARLES A. STOCKSTROM, St. Louis, Mo., assignor of one-half to Louis Stockstrom, same place. Filed Nov. 9, 1885. (No model.)



Claim.—1. The combination of a gasoline-stove frame, a generator having a jet-orifice, a side burner having a pipe into which the gas enters from said jet-orifice, a valve controlling the supply of gasoline to the generator-burner, a valve controlling the flow of gas to the side burner, levers or their equivalents connected with said valves, and a device connected to the generator-burner valve-lever and extending to the side-burner valve-lever and engaging the same upon one side, whereby the gas-valve will be closed when the gasoline-valve is closed and the gasoline-valve opened without opening the gas-valve.

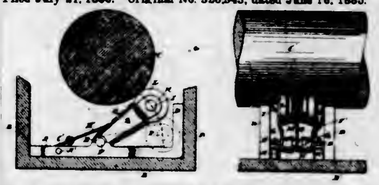
2. The combination of a gasoline-stove frame, a generator having a jet-orifice, a side burner having a pipe into which the gas enters from said jet-orifice, a valve controlling the supply of gasoline to the generator-burner, a valve controlling the flow of gas to the side burner, levers or their equivalents connected with said valves, the sliding plate having arms or projections engaged by the valve-levers, and a guide-rod passing through the arms or projections, substantially as and for the purpose set forth.

3. The combination of a gasoline-stove frame, a generator having a jet-orifice, a side burner having a pipe into which the gas enters from said jet-orifice, a valve controlling the supply of gasoline to the generator-burner, a valve controlling the flow of gas to the side burner, levers or their equivalents connected with said valves, the sliding plate having arms or projections engaged by the valve-levers, guide-brackets, and a guide-rod passing through the arms, substantially as and for the purpose set forth.

4. The combination of a gasoline-stove frame, a generator having a jet-orifice, a side burner having a pipe into which the gas enters from said jet-orifice, a valve controlling the supply of gasoline to the generator-burner, valves controlling the flow of gas to the side burner, levers or their equivalents connected with all of said valves, a sliding plate having guides, lugs J J on each side of the generator-valve lever, and lugs I, engaging the side-burner valve-levers, substantially as and for the purpose set forth.

REISSUES.

10,767. **CAR-AXLE LUBRICATOR.** ISAIE FRECHETTE and CHARLES LOUIS GIRARD, St. Hyacinthe, Quebec, Canada, assignors, by mesne assignments, to the National Automatic Lubricator Company, Portland, Me. Filed July 21, 1886. Original No. 320,343, dated June 16, 1885.



Claim.—1. In a detachable lubricating device for car-axles and other journals, the combination of an independent yielding lubricating-roller to be rotated by contact with the car-axle or journal, a parallel rod or shaft, a movable frame, upon and by which the roller and shaft are supported, and an endless revolving oil-conveying chain carried over the roller and shaft, substantially in the manner and for the purpose herein set forth.

2. In a lubricating device for car-axles and other journals, the combination, with a movable frame, swinging arms pivoted upon a common axis carried by the frame, a spring upholding said arms, and a grooved lubricating-roller mounted to rotate between their outer ends and vibrate therewith about their pivotal axis as a center, of an endless oil-conveying chain extended between and carried over both the roller and the pivotal axis of its swinging supporting-arms to be driven by the rotation of the roller and maintained in position by said pivotal axis, substantially in the manner and for the purpose herein set forth.

3. The combination, with the axle C, of the roller L, arms G, axis F, chain O, operating-spring B', and frame A, the whole constructed and arranged substantially as and for the purpose set forth.

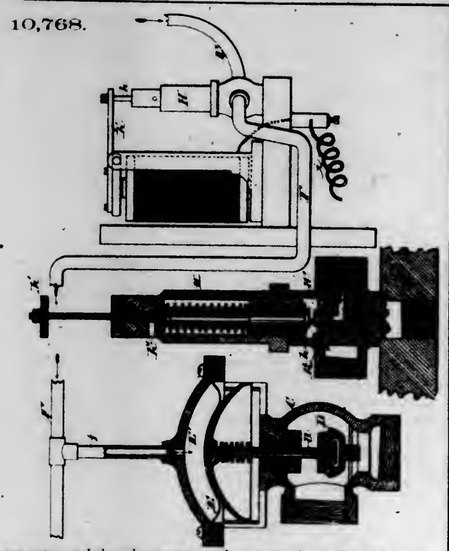
4. The combination, with the arms G G, swinging upon a common pivotal axis, the transverse detachable pin I, connecting their outer ends, and the roller L, revolving upon said pin, of the spring-arm F', engaging the outer end of said pin, substantially in the manner and for the purpose herein set forth.

10,768. **SYSTEM OF TEMPERATURE-REGULATION.** WARREN S. JOHNSON, Milwaukee, Wis., assignor to the Johnson Electric Service Company, same place. Filed Sept. 4, 1886. Original No. 331,406, dated Dec. 1, 1885.

Brief.—Some of the details are found in Patents Nos. 301,059 and 314,027.

Claim.—1. In a system of temperature-regulation, the combination of one thermostat, which serves to control, through the means of a fluid under pressure, the valves which govern the supply of heat to an apartment, with said valves and the fluid under pressure, one of which valves is a supply-valve which shuts against the pressure from the steam-

10,768.



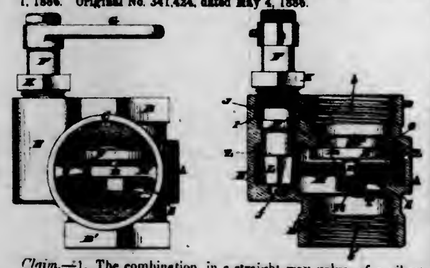
generator, and the other a return-valve which shuts with said pressure, substantially as set forth.

2. In a system of temperature-regulation, the combination of one thermostat, which serves to control, by means of a fluid under pressure, the valves which govern the admission of heat to the apartment in which the thermostat is situated, with an auxiliary valve and the fluid under pressure, and two or more main valves connected with the source of heat, whereby all of the main valves are operated at the same time by means of the one thermostat, substantially as set forth.

3. In a system of temperature-regulation, the combination of a system of heating-pipes having valves operated by a fluid under pressure, a system of pipes containing and conveying said fluid under pressure, an electrically-actuated valve which serves to admit or release the fluid under pressure when it actuates said valves in the heating system, and a suitable electric generator and thermostat in circuit with said electric valve, whereby the thermostat, through the means of the electric valve and the system of pipes containing a fluid under pressure, operates a series of main valves in the heating system, substantially as set forth.

4. In a system of temperature-regulation, the combination of a heat-generator, A, and system of heating-pipes leading therefrom, provided with the supply-valves C and return-valves C', with the coils or radiators B B, reservoir G, containing fluid under pressure, pipe F and connections, and thermostat I, connected by wires *i i* with battery J and valve H on the pipe F, substantially as set forth.

10,769. STRAIGHT-WAY VALVE. EDMUND LUNKENHEIMER, Cincinnati, Ohio, assignor to Frederick Lunkenheimer, same place. Filed July 1, 1886. Original No. 341,424, dated May 4, 1886.



Claim.—1. The combination, in a straight-way valve, of a vibrating carrier having a loosely-coupled valve applied to its free end, said carrier being adapted to impinge against a wedge or beveled bearing, and thereby force said valve to its seat with a positive closing movement, substantially as described.

2. The combination, in a straight-way valve, of a vibrating carrier having a loosely-coupled adjustable valve applied to its free end, said carrier being adapted to impinge against a wedge or beveled bearing, and thereby force said valve to its seat with a positive closing movement, substantially as described.

3. In a straight-way valve, the main chamber A and removable cap D, in combination with the rock-shaft F, vibrating carrier M, loosely-coupled valve N, beveled shoulder S, and a wedge or inclined projection, T, for the purpose described.

4. The combination, in a straight-way valve, of vibrating carrier M *m*, loosely-coupled valve N *n*, and adjusting-screw R, for the purpose described.

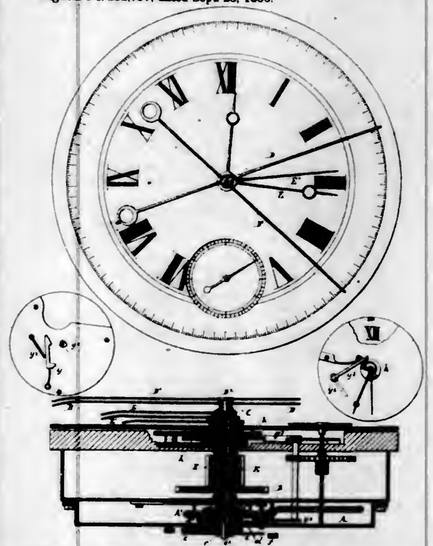
5. The combination, in a straight-way valve, of a vibrating carrier having a loosely-coupled valve applied to its free end, said carrier being provided with a stop that prevents the open valve coming in contact with the interior of the shell, substantially as described.

6. The combination, with a valve and its seat, of a rib, as P, extending diametrically across and connecting opposite sides of the seat, and with its lower edge in the same plane therewith, whereby tilting of the valve is prevented, substantially as described.

7. A valve-shell consisting of the main chamber A, provided with pipe-connections B B' in line with each other, a neck, C, projecting laterally from said chamber, and a tubular portion, E, located between said chamber and neck and having its axis parallel with the axis of said pipe-connections, these parts A, B, B', C, and E being integral, as herein described.

8. A shell provided with a rib, the bearing-surface of which is in the same plane as the seat against which the valve closes, whereby tilting of the latter is prevented, substantially as herein described.

10,770. STOP-WATCH. HENRY A. LUGRIN, New York, N. Y., assignor to himself and Prosper Nordmann, same place. Filed May 27, 1886. Original No. 232,737, dated Sept. 28, 1880.



Claim.—1. In a stop-watch, the combination of a toothed wheel on the arbor of the seconds-hand, and of an intermediate double-beveled transmitting-pinion, with a toothed wheel on the arbor of the quarter-second hand, and with a lever and spring devices for throwing the toothed wheel of the quarter-second hand in or out of gear with the transmitting-pinion, as set forth.

2. In a stop-watch, the combination of the hollow arbor of the minute-hand, the hollow arbor of the quarter-second hand passing through the hollow arbor of the minute-hand, transmitting-gearing located at the top of the movement, mechanism for throwing the arbor of the quarter-second hand in or out of mesh with said gearing, the arbor of the split quarter-second hand passing through the hollow arbor of the quarter-second hand, and mechanism located at the top of the movement for actuating said split quarter-second hand, substantially as set forth.

3. In a stop-watch, the combination of the hollow arbor of the minute-hand, carrying a disk and split minute-hand, with a stop-lever and shifting mechanism working jointly with the shifting mechanism of the quarter-second hand, substantially as set forth.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

COMMERCIAL MANUFACTURING COMPANY, CONSOLIDATED, *et al.*, *v.* FAIRBANK CANNING COMPANY.

Decided March 22, 1886.

1. IDENTITY OF PATENTED PROCESSES.

In a suit for infringement of Reissued Letters Patent No. 10,137, of June 13, 1882, to complainants, as assignees of Hippolyte Mége, for an improved method of treating animal fats, *held* that the invention covered by this patent was identical with that described in a Bavarian patent which expired April 8, 1876, and in an Austrian patent which expired May 26, 1876, both to the same inventor, and that the American patent expired with said foreign patents prior to the beginning of this suit.

2. ESTOPPEL.

Where it was urged that patentee had estopped himself to deny that his American patent was for the same invention as patented to him in prior foreign patents, after having represented that to be a fact in his application for the former, *held* that if the inventor was laboring under a mistake as to this point his rights should not thereby be prejudiced.

3. TEST TO DETERMINE IDENTITY OF PATENTS.

A fair test to determine whether an American patent is identical with or included in a prior foreign patent to the same inventor is to inquire whether the use of the precise process described in the foreign patent, after the grant of the American patent, would be enjoined as an infringement of the latter.

Messrs. Offield & Towle (*B. F. Thurston* and *T. D. Lincoln* of counsel) for complainant.

Messrs. Hill & Dixon for the defendants.

Heard before Judges GRESHAM and BLODGETT.

BLODGETT, *J.*:

This suit was brought for an alleged violation of Reissued Patent No. 10,137, granted June 13, 1882, to complainant, assignee of Hippolyte Mége, for an improved method of treating animal fats, the original patent having been granted December 30, 1873, and reissued May 12, 1874, and again reissued September 24, 1878, before the reissue now in question. By the specifications it is claimed that Mége invented an improved means for transforming animal fat into butter, the process described resulting in artificially producing the natural work which is performed by the cow when it reabsorbs its fat in order to transform the same into butter. His process included nine steps, the first five of which only are in controversy in this case. Briefly stated, these steps are as follows:

(I.) Neutralization of the ferments or germs of decay, which is done by plunging the suet or raw fat, as soon as possible after the death of the animal, into water containing fifteen per cent. of seasalt and one per cent. of sulphite of soda, where it was to remain not less than one hour, nor more than twelve hours.

(II.) The raw fat or suet is then completely crushed by passing it between cylinders, and from them under millstones, which completely bruises all the cells.

(III.) This crushed fat is then placed in a vessel of well tinned or enameled iron or baked clay, and this vessel is placed in a water bath. To about one hundred kilograms of fat there are added two liters of artificial gastric juice, made by macerating, for three hours, half the stomach, well washed, of a pig or sheep, with three liters of water and thirty grams of biphosphate of lime. The temperature of the mass of fat and gastric juice thus contained in the vessel is then slowly raised to about 103° Fahrenheit, (which is the temperature of the stomach of domestic animals from which fats are obtained,) and kept at that heat until the fatty matter is completely separated from the tissue in which it is held. When this is accomplished, about one kilogram of powdered seasalt is added to each hundred kilograms of fat, and the mass thoroughly stirred for about one quarter of an hour, when the clear fat is drawn off. The fat thus drawn off must not have any taste of fat, but, on the contrary, must have the taste of molten butter.

(IV.) The molten fat thus obtained is placed in a vessel, and this vessel placed in a water bath, where it is surrounded by water which is kept at a fixed temperature of 80° Fahrenheit for the soft fats, or 98° Fahrenheit for the harder fats—such as mutton fats—where the vessel remains until the stearine of this molten fat is crystallized, or deposited in the form of teats, in the middle of the liquid mass. The stearine having become hardened or crystallized, the oleomargarine remains mixed with it in a liquid or semi-liquid condition.

(V.) The mass is then placed in a centrifugal machine or hydro-extractor and the machine set in motion. The liquid oleomargarine is thrown off by the centrifugal force, while the hard stearine is retained in the cloths. A press may also be used for the purpose of separating the oil from the stearine, especially if the fat used is very soft.

The patentee says the product of these steps in the process is a greasy matter of very good taste, which may replace the butter in the kitchen, where it is employed under the name of margarine, but that it may be transformed into more perfect butter by subsequent steps, which he describes, such as making the oil into an emulsion, with a certain quantity of fresh cream and pepsin obtained from the mammary glands of a cow; but as this part of the process is not now in question it is needless to give it in further detail.

The claims of the patent are:

1. The improved material herein described, produced by treating animal fat so as to remove the tissues and other portions

named, with or without the addition of substances to change the flavor, consistency, or color, as set forth.

2. The process herein described of treating animal fats in the production of oleomargarine.

The claims of the present reissue being substantially the same as those of the original patent—that is, after two reissues, in which different claims were made from those of the original patent, the owners of the patent have by this reissue gone back to the original claims.

The defenses interposed are (1) that the patent had expired before the last reissue thereof, by reason of the expiration of certain foreign patents granted to Mege for the same invention; (2) that the present reissue, if it has not expired, is otherwise invalid, because of the surrender of the original patent and taking two reissues, with new and different claims, on the ground that the original was defective and did not describe the invention, and that the patentees are now estopped from returning to the original specifications and claims as their patent; (3) that the defendants do not infringe the process described in the reissued patent.

It is conceded that Mége, who was a scientist of much merit and repute in France, some years before the application for his patent in this country set about a series of experiments for the purpose of obtaining healthful and yet cheaper fat for the use of working people in that country, in the place of the poor butter then used by them, or to take the place of butter which they were not able to buy; and, as the result of such experiments, he discovered that the fat of beef animals and the fat of butter were substantially identical. Of the utility of Mége's discovery Professor Henry Morton, president of the Stevens Institute of Technology, of New Jersey, whose testimony is found in the record, says:

There is of course a difference in the improved product described and claimed in the Mége patent, according as it is made with or without the addition of materials affecting its color, consistency, and flavor. I will therefore refer to each of these conditions separately. When the improved product of Mége, without these additions referred to, is compared with ordinary dairy butter, we find it to be substantially identical therewith, as regards its main constituents and its general consistency and character. Both products then consist substantially of mixtures, in nearly the same proportions in either case, of stearine, margarine, and oleine, and both are unctuous solids, varying in consistency, being quite solid near the melting-point of ice, quite fluid at a temperature of about 90°, and more or less soft and plastic at intermediate temperatures. The Mége product, however, differs from dairy butter, in the first place, as to its composition, by reason of the presence in the dairy butter of several substances not found in the Mége product. Thus the dairy butter contains about five per cent. to six per cent. of the peculiar fat known as "butyrine." It also contains a smaller amount of caseine, some trace of albumen, also extremely minute quantities of caprilin, caprolin, and caprylin. None of these substances would be present in the Mége product above referred to, which would therefore lack the peculiar flavor due to the presence of these products. The amount of water and salt would also, as a rule, be greater in dairy butter than in the Mége products. There would also be a difference in consistency, inasmuch as the dairy butter would not constitute a homogeneous mass of fatty substance, but would be a solid emulsion of such fatty substance, in which the same existed as minute spheroids or particles of the said fatty substance, separated from each other by aqueous fluid, consisting of water holding in solution salt and traces of albumen and caseine. When the Mége product has been converted into a "more perfect butter," as he calls it, by the addition of certain substances, as indicated by him, it will then contain all or nearly all of the materials found in dairy butter, though not exactly in the same proportions, all these distinctive matters being, as a rule, present in smaller proportions in the Mége product than in the dairy butter. * * * As articles of food the Mége product and ordinary dairy butter are only distinguishable by characteristics which are variations of degree. Thus the Mége product in its simplest form would have less flavor and a less agreeable consistency than good dairy butter, while, on the other hand, its freedom from disagreeable flavor would render it superior to a low or poor grade of dairy butter. When the flavoring materials were added, the Mége product would then be extremely difficult to distinguish from the best dairy butter, but, as compared with a very fine and highly-flavored dairy butter, would be lacking in flavor. As regards wholesomeness, I do not think there would be any difference between the Mége product, in either of its conditions, and ordinary good dairy butter, though the Mége product would be the better in this respect than a strong or rancid quality of dairy butter. The same remark applies to the nutritiousness of the materials compared, while, as regards palatableness, the Mége product would, I think, hold an intermediate place between the highest and the lower grades of dairy butter, being better than the low grades and not quite equal to the highest in this respect.

Upon the process for utilizing his discovery Mége obtained foreign patents as follows: In France July 15, 1869, for fifteen years; in England on July 17, 1869; in Austria on October 31, 1869, which expired May 26, 1876; and in Bavaria on April 8, 1873, which expired April 8, 1876. The application for the issue of the patent in the United States was made December 13, 1873.

Under the first point raised by the defense it is now insisted that the patent granted to Mége in this country had expired in this conntry before this suit was commenced, pursuant to the terms of section 4887, Revised Statutes, because the Bavarian and Austrian patents having expired in 1876, therefore that this patent, being for the same invention, expired at the same time, while it is contended on the part of the complainant that the American patent now before us is for a process different from that described in the foreign patents and stands as an independent patent, to run seventeen years from the date of the original patent.

It is urged on the part of the defendants that Mége has estopped himself from denying the identity of the American and foreign patents, first, because his attorney, Mr. Seward, in his letter to the Commissioner of Patents of October 31, 1869, inclosing the application of Mége for the United States patent, says:

I am informed that a French patent for this process was issued to Mr. Mége, October 2, 1869.

Second, because Mége, on making the application for his patent in this country, made and filed in the Patent Office an affidavit in which occurs the following statement.

I am the inventor of the improvement for transforming animal fats into butter referred to in said application; that French letters patent were duly issued to me therefor on the 15th day of July, 1869, and that I have caused the above application to be made for the issuance of letters patent for the United States for the said improvement.

We think there can be no doubt from the proofs in the case that both Mége and his solictors, who are men of high standing in their professions, thought at the time the original patent was applied for that they were covering the substantial process which Mége had patented abroad; but if these parties were laboring under a mistake their rights ought not to be defeated, or seriously abridged, by such mistakes, and we therefore feel compelled to examine the proof as to the identity of the foreign and American patents.

We have already stated the steps in the process of the American patent, and a comparison of these with the foreign patents will, as it seems to us, best settle this question of the identity between this patent and Mége's foreign patents. Mége's Bavarian patent was granted April 8, 1873, and in his specification he says:

The new modes of procedure described therein consist both of chemical and physiological processes. * * * They are especially intended to benefit the navy and the less wealthy classes by furnishing excellent edible and preservable fats at a price considerably lower than that of present similar products—for instance, butter and the finer grades of fat. * * *

The new procedure depends on the following conclusions of modern science: (1) That the malodorous, colored, acid, and rancid ingredients are not originally contained in the crude fats as they occur in nature; (2) that those harmful substances are developed by activity of the organized tissues under the influence of fermentation, heat, and chemical agents; (3) that the fats of milk, termed "butter," consist only of the intermediate fat, which is altered by a cellular tissue and then by the organizing tissue of the udder. By utilizing these principles in industrial pursuits or in domestic economy there is obtained from the crude fat and the tallow (a) a pure fat, without the customary fatty smell and taste, which does not stick to the palate, and which resembles the fatty qualities most desired for eating purposes; (b) stearine for candles; (c) as a residue, common tallow; (d) this fat, really identical with the fat of butter taken from its source before it has been changed in the milk-gland, can be made into different kinds of butter, which, although prepared by an artificial process, is really butter, and differs only from the ordinary butter by keeping fresh for a much longer length of time. The means employed in the preparation of these partly new, partly old, products consitute in their details and in their entirety the invention which we claim as our property. They are as follows:

(1) Washing and crushing. The crude fat is exposed to a jet of cold water between the conical cogs of two iron cylinders. It is finely subdivided by the current of water and the pressure, and falls thence into a tank, where a current of cold water completes the washing. (2) Artificial digestion. This fat, now freed from all soluble animal substances, is mixed with artificial gastric juice (stomach of the pig or sheep in acidulated water, to the extent of immersing it completely, or to one thousand kilos of fat three hundred kilos of water, one kilo of bicarbonate of sodium, and two stomachs (pig or sheep) are added. This mixture is then kept at the temperature of the animal body (by means of steam-pipes or otherwise) until all the molten fat has been dissolved by the pepsin, (the stomachs) and appears in a clear layer on the surface. It is allowed to settle, or it is decanted, and the process repeated, in order to extract all the fatty constituents, which now have lost the odor of animal fat and have obtained a particular taste. The residue is tallow. (3) Cooling. The fluid fat is poured into vessels which have an opening at the bottom and contain a layer of tepid water. They are covered, and when crystallization has occurred in consequence of cooling, the water is drawn off from the opening and the vessel is inverted, and the cake is allowed to fall on a table. (4) Pressure. This operation is intended to separate the hard constituent which makes the fat granular, congeal rapidly, and stick to the palate. The cooled fat is cut into slices about one inch thick, and put into a cloth between hot plates of a press. The portion which runs off is a mixture of margarine and oleine, resembling lard in composition, and of about the taste of fresh butter. The solid residue taken out of the cloth is good stearine, fit for making candles immediately.

Here we have the directions of the Bavarian patent for producing the Mége product, consisting, "first, of crushing between cogged cylinders and washing, by which it is finely subdivided."

The American patent says: "A complete crushing is necessary under millstones." So that it would seem there is only a difference in degree in the Bavarian and American processes as to the crushing. The American process says the fat must be completely crushed, so as to bruise all the cells. The Bavarian patent says it is to be finely subdivided by the current of water and by crushing between the conical cogs of iron cylinders. In both patents Mége uses the word "crushing" as a title or heading for his directions. The directions for the artificial digestion are the same for the two patents, except that in the Bavarian he does not instruct specifically how to make the artificial gastric juice. He simply says it is "the stomach of a pig or sheep in acidulated water." But the proof in this case shows that the mode of making artificial gastric juice was well known in the arts before the date of Mége's invention, and he undoubtedly assumed that the person who would attempt to use the process covered by his patent would have sufficient physiological and chemical knowledge and skill to make artificial gastric juice. The American patent also states that the fat, while in the process of digestion, is to be kept at a temperature of 103° Fahrenheit, while the Bavarian patent says it is to be the temperature of the animal body; but the proof in this case shows that 103° Fahrenheit is the temperature of the animal body; so it would seem there is no substantial difference between the processes of digestion described in the two patents. The third step in the Bavarian patent is entitled "Cooling," the process of which is pouring the clear liquid fat into vessels which have an opening at the bottom, and containing a layer of tepid water, where they are covered and remain until crystallization has occurred in consequence of the cooling. He does not give specific directions as to the temperature at which the fat is to be kept during the crystallizing process, but evidently leaves that to the skill of the operator, assuming that he will sufficiently understand by the use of the word "crystallization" what the process must be. The next step after crystallization is the separation of the oleo and margarine from the crystallized stearine, and this, in the Bavarian patent, is accomplished by pressure between the hot plates of the press. Inasmuch as the centrifugal machine or the hydro-extractor and the press are equivalent devices for accomplishing the same results—that is, of expelling the liquid or fluid contents from the mass—there is no essential difference between the Bavarian and American patents in this step of the process. The Bavarian patent is also silent as to the neutralization of the ferments or germs of decay; but it can hardly be possible that any person would enter upon the manipulation of animal fat without sufficient common knowledge and skill to know, without instruction by the specific terms of the patent, that, in order to produce sweet and pure oil or fat, the process of fermentation and decay must be prevented. So that, taking the Bavarian patent as a whole, there would seem to be such an identity in the processes described as to make them essentially the same. Probably because Mége assumed that whoever would attempt the transformation of crude fats under his process in Bavaria would possess more knowledge or experience in regard to the handling of fats than he assumed would be known in this country, as a matter of general knowledge, he deemed it necessary in his American patent to give more minute and specific directions in regard to some of the steps of the process than he did in his foreign patents. Yet we think there can be no doubt that he has substantially described the same process in both patents.

In the Austrian patent, issued to Mége October 31, 1869, he describes the first process under the title of "Perfect Washing," which he says is done "by crushing the fresh fat, just taken from the animal, between rollers under a spray of fresh water." The second step, "Artificial Digestion," consists in mixing the crushed fat with artificial gastric juice (maceration of a pig's stomach in acidulated water) in sufficient quantity to immerse it, and the mixture is kept at the temperature of the animal body until the fat appears in a clear layer on the surface. Here we have the same process as in the American patent, except that the directions for crushing do not include grinding or crushing under millstones, and he gives no recipe for making artificial gastric juice, except that of the maceration of a pig's stomach in acidulated water, which we must infer he assumed was a sufficient direction to enable an ordinarily intelligent person skilled in the art of manipulating or handling fats to make the gastric juice. The directions for crystallization require the clear fluid fat to be poured into a vessel with an opening at the bottom and containing a layer of tepid water. The vessel is then covered, and when the cooling and crystallization have taken place the cooled mass is turned out, cut in slices, and placed in canvas bags and pressed between warm plates, by which method he says there is obtained about sixty per cent. of a fatty body resembling butter, and identical in composition with lard, but free from odor, and of a perfectly pure taste.

The French and English patents give substantially the same description for the process as is contained in the Austrian and Bavarian patents. All the steps of the American patent, with the exception of the neutralization of the ferments, are specifically called for and described, although perhaps not with all the minute directions which are found with the American patent.

All the proofs agree that Mège was a man of inventive genius and high scientific acquirements, and it can hardly be possible that if between the time he took out the French, English, and Austrian patents in 1869, and the Bavarian patents in April, 1873, and the time when he applied for his American patent, in December, 1873, he had discovered any substantially new and material addition to the process covered by those foreign patents he would not have specifically named and stated wherein the American differed from the foreign patents. As already said, it seems clear from Mège's own statements and those of his solicitors that the purpose was to cover by the American patent what had been covered by his French patent of 1869, and we cannot believe that if anything in addition to this foreign patent had been intended to be introduced into the American patent it would not have been stated in some explicit terms, and there can be no doubt that the French, Austrian, and Bavarian patents are substantially identical.

The scientific experts called by the complainant, Professors Morton, Chandler, and Wheeler, have testified that they do not think the invention described in the American patent is found in either of the foreign patents. Their reasons for such conclusion, briefly summarized, are: (1) That the crushing spoken of in the foreign patents is not so complete and thorough as that called for by the American patent, where the fat is to fall from cylinders under millstones, which shall completely bruise all the cells; (2) that in the American patent the digestion is to be accomplished with a less quantity of gastric juice than is called for by the foreign patents, as the foreign patents say the crushed fat is to be immersed in the artificial gastric juice; (3) that by the American patent the temperature may be raised above 103° Fahrenheit, "so that the matters shall completely separate," while the foreign patents limit the degree of heat to the temperature of the animal body; (4) that in the foreign patents the process of cooling is allowed to proceed to such a point that the mass can be cut in pieces or slices, while in the American patent the product is not allowed to cool so as to become rigid, but is retained at a temperature of about 86°.

With all due respect to the opinions of these eminent chemists, we must say that the points of difference suggested by their testimony are purely and wholly differences in degree. The necessity of crushing is stated in all the patents, both American and foreign. The degree of crushing would obviously affect the quantity of oil extracted from the fat by the process of digestion, as the only object of crushing is to release the fat from the tissues in which it is held in its natural condition. The necessity for thorough and minute comminution is one that would suggest itself from any operative's common knowledge. Any man who had intelligence enough to know the use of his own teeth would know the necessity of the complete comminution of any article to be subjected to the process of digestion or the action of the gastric juice. It would hardly require a scientist to instruct an operative that the more finely a substance is comminuted the more direct and prompt would be the action of the gastric juice and the process of digestion.

As to the differences in the process of digestion between the American and foreign patents, it would seem to be true that the measured quantity of gastric juice directed to be used in the American patent is less than that called for in the foreign patents, because he gives specific directions as to the number of liters of gastric juice for one hundred kilograms of fat in the American patent, while in the foreign patent he says the fat must be immersed in the gastric juice; but the proof shows that the formula for the gastric juice in the American patent gives a more potent and effective product, and we presume Mège may, by his experience and practice under his patents, have ascertained at the time he took the American patent that the process of digestion could be accomplished with a less quantity of gastric juice than was described in his first patents; but this is only a difference in degree, and with a larger quantity of gastric juice and not so complete comminution about the same result would probably be obtained as with complete and thorough crushing of all the fat-cells and a smaller quantity of gastric juice, especially if made stronger or more potent, so that the difference in the American and foreign patents in that regard seems to us wholly immaterial and unsubstantial.

As to the claim that these witnesses find in the American patent permission to raise the temperature above 103° Fahrenheit, we do not think it is well founded, when the whole of Mège's specifications in his American patent are considered. Under the third head, "Concentrated Digestion," Mège says:

> When the fat has descended in the vessel, he melts it by means of an artificial digestion, so that the heat does not exceed 103° Fahrenheit.

Further on, in the same paragraph, he says:

> He slowly raises the temperature to about 103° Fahrenheit, so that the matter shall completely separate.

Taking these two expressions together, it seems to us the first limits the second, and that the directions of the patent are specific not to raise the temperature above 103° Fahrenheit. Certainly the language "I slowly raise the temperatnre to about 103°" does not authorize raising the temperature above that point. When the distinction immediately before us is that it must not exceed 103° Fahrenheit, and when we consider this language of the specifications in the light of the testimony in the case, which shows that gastric juice is destroyed whenever its temperature is raised much above 103° Fahrenheit, we think there can be no doubt that the eminent scientist who devised this process intended to keep within the limits in which gastric juice would be operative for the purposes of digestion.

The last and final distinction that the foreign patents contemplated a cooling of the mass below 86°, or until it had become stiff, so that it could be handled and cut before the pressure was applied, for the purpose of separating the oleomargarine from the stearine, is a distinction, as it seems to us, without a difference. If the stearine had become crystallized in the mass, although it might at one time have been cooled below 86°, when it was sliced and placed between the warm plates in the press, the oleomargarine would again become liquid and flow out under the action of the warm plates and the press, so as to secure the separation, and that such was the result is sufficiently established by the statements in the foreign patents, notably the Austrian and English, that about sixty per cent. of a mixture of the margarine and oleine, of a composition identical with lard, but of superior flavor, was obtained by the pressure, would seem to show, in the light of the proof in this case, that he obtained as large a product as is obtained by the process of the American patent.

A fair test of the question as to whether the American patent is anticipated by the foreign patents, or is included in them, we think would be, were a person in this country, after the issue of the present American patent, to commence the manufacture of oleomargarine by the precise process described in the Bavarian or Austrian patents—supposing that process had not been patented abroad—would the courts refuse an injunction to restrain the use of the process on the ground that it infringed that covered by the American patent? We can hardly deem it possible that any intelligent court would deny an injunction, if applied for under such circumstances, and we think this fairly illustrates the relation of the foreign to the American patent.

As to the question of infringement, it is stipulated in the record in this case that the defendant, in its factory, "first runs the fresh beef fat, which has been packed with ice during the preceding night, through a hasher, where it is thoroughly hashed and is comminuted, and then melts the hashed fat in a jacketed kettle at a temperature ranging from 120° to 130° Fahrenheit, the fat being thoroughly agitated by mechanical stirs while melting, and salt being mixed with the fat while it enters the kettle, and then, when settled, the melted fat is drawn off into other kettles, when the temperature is raised about 5°, and maintained about three hours, when the fat is put into seeders, which are kept in a room at a temperature of 84° to 86° Fahrenheit, until it granulates and thickens, when the stock is put into cloths holding three pounds each, in a flat cake seven by ten inches, and one inch thick. Eight of these are placed on an iron plate, and then an iron plate, in alternation, to seventy-five rows of cakes and plates, and put into a press. Then the oil is squeezed out by pressure in the press, and runs into a tank, from which it is pumped through pipes into a kettle in the same room and temperature, where it remains several hours, and is run into tierces.

The scientific experts for complainant say that this process is identical with that covered by the American patent; that the higher temperature at which the rendering or melting is done is the equivalent of the digestion called for by the patent, and that the process of crystallization, or seeder and separation by pressure, is substantially the same.

We do not think it necessary to decide whether the process used by the defendant and that covered by the patent are identical, or substantially so, because our view of the first question raised by the defendant must be decisive of the case; but it would seem to the uninitiated certainly that there is room for a wide difference between the physiological process which Mège describes and directed should be pursued and the mere rendering process at a low temperature which the defendant followed. A reading of Mège's several patents, with his introductory remarks in regard to the nature and character of his invention, impresses us with the conviction that he thought his was a physiological process and dependent on physiological principles; that this process of digestion by means of artificial gastric juice at the temperature of the animal body was an essential step in the production of the article which he designed should take the place of butter, while all the witnesses in this case agree that the product of the defendant's process, while it is pure fat, is odorless and tasteless, which is not the product which Mège intended should result from the practice of his process, as he says the product of his process should have the taste of almonds or of fresh butter. Without, therefore, further discussing the question of infringement, we simply say that we find that the complainant's patent expired April, 1876, by the expiration of the Bavarian and Austrian patents.

The bill is therefore dismissed for want of equity.

U. S. Circuit Court—Eastern District of Missouri.

STEAM GAUGE AND LANTERN COMPANY v. MEYROSE.

Decided March 29, 1886.

1. INFRINGEMENT—ESTOPPEL—JUDGMENTS.

Where, in a suit for the infringement of a patent, the bill is dismissed because of failure to show any infringement, the decree dismissing the bill will not estop the plaintiff or his assigns from again suing the same defendant for infringing the same patent.

2. SAME.

In order to make a judgment available as a technical estoppel in a case, it must appear by the record of the prior suit that the particular controversy sought to be concluded was necessarily tried and determined.

PLEA in bar.

Messrs. Hough, Overall & Judson and *Mr. E. S. Jenny* for the complainant.

Mr. Edward J. O'Brien for the defendant.

BREWER, *J.*, (orally:)

In the cases of *Steam Gauge and Lantern Company* v. *Meyrose* there are pleas of a former adjudication. The pleas set out that in 1880, in an action between the assignors of these plaintiffs and this defendant, a decree was entered dismissing the bill on the merits, and it is contended that that is an adjudication and estoppel against these bills. The complainants allege in this bill their patent, and that the defendants at this time and since that decree have been making lanterns which are an infringement upon their patent. How far can that decree on the merits, dismissing the bill, estop these complainants? The estoppel must be certain. In the case of *Russell* v. *Place*, (94 U. S., 606,) Mr. Justice Field closes his opinion in these words:

> According to Coke an estoppel must be certain to the very intent, and if, upon the face of a record, anything is left to conjecture as to what is necessarily involved and decided, there is no estoppel in it when pleaded, and nothing conclusive in it when offered as evidence.

The same doctrine is affirmed by a multitude of courts, quotations from whose opinions are found in the brief of the plaintiff. I give a few of them.

In *Hooker* v. *Hubbard* (102 Mass., 245) is this language:

> The court are of opinion that upon the facts here presented the learned judge erred in extending the doctrine of estoppel by former judgment to the degree stated. Estoppels of this description are attended with qualifications which must be strictly observed.

They are conclusive only as to facts which were directly put in issue and determined in the former suit. If the pleadings present several distinct propositions of fact, the judgment is not conclusive upon any one of them, unless it appears from the record or *aliunde* that the issue upon which it was rendered was upon that proposition.

The same doctrine was laid down by the Supreme Court in *Packet Company* v. *Sickles*, (5 Wall., 580,) the Court, by Mr. Justice Nelson, saying:

When a judgment is used in pleading as a technical estoppel or is relied on by way of evidence as conclusive, *per se*, it must appear by the record of the prior suit that the particular controversy sought to be concluded was necessarily tried and determined. * * * But even when it appears from the intrinsic evidence that the matter was properly within the issue controverted in the former suit, if it be not shown that the verdict and judgment necessarily involved its consideration and determination, it will not be concluded.

Also, in *Burlen* v. *Shannon*, (99 Mass., 203:)

It is lawful to reason back from a judgment to the basis on which it stands, upon the obvious principle that where a conclusion is indisputable, and could have been drawn only from certain premises, the premises are equally indisputable with the conclusion; but such an inference must be inevitable or it cannot be drawn. These we understand to be limitations of the rule, according to all well-considered authorities, ancient and modern.

Now, what was necessarily involved and decided in that former decree? The bill in that case alleged the patent, that the defendants were making lanterns, and that those lanterns were an infringement on the patent. There was a general decree dismissing the bill upon its merits. Was it necessarily involved and decided that the patent was void? Might not the decision have been that the defendants were making no lanterns? Would not the decree necessarily have been dismissing the bill upon the merits, if there had simply been a failure to prove that the defendants were making lanterns? Now, if it is uncertain upon the face of the record as to what was in fact settled and decided, how can it be said that the decree bars this suit? Of course the extent to which a judgment or decree is certain varies very much, whether it is for the plaintiff or the defendant. Were I to bring an action for trespass, averring title and possession of a piece of real estate, and a trespass on it by the defendant, and obtain judgment, it would be necessarily involved and decided therein that I had the title and possession, for otherwise I could not have obtained such a judgment. But, on the other hand, if the judgment were in favor of the defendant, it would not be necessarily involved and decided therein that I had no title, because the decision might have been upon the ground that no trespass was proven. The famous case of *Outram* v. *Morewood*, (3 East, 346,) in which Lord Ellenborough wrote an elaborate opinion, illustrates this. There a party sued in trespass, averring title to a mine, and trespass by defendant, and obtained judgment. In a subsequent action Lord Ellenborough held that the title to the mine was necessarily involved and decided, and therefore it was an adjudication. But if the judgment had been in favor of the defendant, it might have been either on the ground that plaintiff had no title to the mine or that there had been no trespass. There is practical good sense in that. Take the case that I put of a suit in trespass. It would be a terrible outcome if, after judgment in one case in favor of the defendant, it should be held that title and possession were adjudicated against me, and that I could never thereafter maintain any action of trespass against him, no matter what subsequent trespasses he might commit.

The Supreme Court of the United States in two cases in 94 U. S., one of *Russell* v. *Place* and the other of *Cromwell* v. *County of Sac*, have, in elaborate opinions, discussed this question, and laid down the rule as has been stated. The case of *Cromwell* v. *County of Sac* was this: A party brought suit upon coupons, averring that the bonds were valid; that he was a *bona fide* holder. Judgment went against him. He subsequently sued upon the bonds of the same series, and coupons taken from the same bonds as the coupons in the prior suit, averring that he was the *bona fide* holder, and that the issue was valid, and the Supreme Court, with one dissenting voice, affirmed that the prior judgment was no bar. So, in the case of *Russell* v. *Place*, (94 U. S., 606,) a party in an action at law for damages for infringement of a patent recovered. Afterward he brought a suit in equity on the same patent, and the court held that the former judgment was not an adjudication, and did not estop the defendant in the equity suit for an injunction and accounting, because the validity of the patent was not necessarily involved in the prior case, except in respect to the claim which was the basis of recovery. There were two claims in the patent. A patent might be valid as to one claim and invalid as to the other. The sum and substance of it is that an estoppel must be certain to the very intent, so that if, upon the face of the record, anything is left to the conjecture as to what was necessarily involved and decided, there is no estoppel in it when pleaded, and nothing conclusive in it when offered as evidence.

Further, if we are to look beyond the face of the decree in this case and gather what light we can from the opinion that was expressed upon the demurrer to a bill of review of the former decree relied on, we find from the language of my brother Treat, who decided that case, that the decision was upon the ground that the parties had failed to prove that the defendant made any lanterns. He says plaintiffs offered no proofs, and had none taken, tending to show any infringement by the defendants, and hence the court was bound to dismiss the bill. "It was not necessary for it," says the court, "to inquire into the validity of the plaintiff's patent, because if such patents were valid no evidence that the defendants had infringed them was offered." It is true, he says, if he had gone into the question of the validity of the patent he would possibly have decided the same way; but that was not the basis of the decision. We are therefore constrained to hold that the pleas are not good.

Pleas overruled, and defendants ordered to answer by May rules.

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DIGEST OF DECISIONS.

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AMENDMENTS.

(See Oath, 4.)

ANALOGOUS DEVICES.

(See Infringement, 1, 4, 5, 6, 7, 8, 9, 12; Invention, 4.)

ANTICIPATION.

(See Combinations, 1; Construction of Specifications and Patents, 6, 7.)

1. ANTICIPATION BY DESCRIPTION.
A description in prior publications, in order to defeat a patent, must be in such terms as would enable a person skilled in the art to make, construct, or practice the invention, as he could from a prior patent or from the patent in suit.
[*Adams v. The Bellaire Stamping Company *et al.*, 567.

2. SAME BY PATENT.
Where a prior patent had the same construction of parts, except that two catches were used to secure the top to the guard, instead of a hinge and a catch, and hinges and catches had been before used to secure tops to lanterns, then the substitution of the old hinge and catch for the two old catches required no invention, and the prior patent is an anticipation.
[*Id.

3. SAME BY PRIOR PATENT OF SAME INVENTOR.
Where the patentee had an earlier patent differing from that in suit only in the location of the hinge, but without difference in function, the prior patent anticipates the later, although the later may have been in fact the earlier invention.
[*Id.

4. SAME.
A patentee cannot claim the same thing described by him in a prior patent in which there is no reservation, and what he omitted to claim and reserve in a prior patent in which the invention was described be dedicates to the public. Whether the two patents cover the same thing must be determined by the scope of the claim in the later patent, rather than by the description in the specification.
[*Id.

APPEALS.

(See Practice in the Patent Office, 4.)

APPEAL TO THE SUPREME COURT OF THE UNITED STATES.

(See Practice in the Courts, 6.)

APPLICATIONS.

(See Limitation of United States Patent by Foreign Patent Previously Granted, 5; Oath, 1, 2, 3, 4, 5.)

ASSIGNMENTS.

(See Contracts, 1.)

PROOF OF ASSIGNMENT OF PATENT—CERTIFIED COPY.
A certified copy of a recorded but unacknowledged instrument purporting to be the assignment of a patent is admissible in evidence to prove the execution of such assignment, and is sufficient proof thereof in the absence of countervailing testimony.
[*Dederick v. Whitman Agricultural Company, 570.

BILL IN EQUITY.

(See Infringement, 17; Practice in the Courts, 2, 3, 4, 5.)

BOND FOR DAMAGES.

(See Injunction.)

BURDEN OF PROOF.

PRIOR USE—EVIDENCE TO ESTABLISH.
A party asserting a prior use of a device covered by a patent has the burden of proof, and is bound to establish such prior use by strong and convincing, if not absolutely conclusive, proof.
[*Thayer v. Spaulding, 1044.

CERTIFIED COPY OF ASSIGNMENT.

(See Assignments.)

CHANGE OF LOCATION.

(See Anticipation, 1, 2; Invention, 3; Mechanical Skill, 2, 3; Particular Patents, 4, 5.)

CHANGE OF PROCESS.

(See Construction of Specifications and Patents, 12; Infringement, 13, 14; Invention, 5; Particular Patents, 11, 30; Patentability.)

CHANGE OF STRUCTURE.

(See Combinations, 2; Construction of Specifications and Patents, 9; Infringement, 4, 5, 6, 7, 10, 12, 16; Particular Patents, 26, 28, 36, 37.)

CITIZENSHIP.

(See Oath, 5.)

CLAIMS.

(See Construction of Specifications and Patents, 2, 4, 7, 8, 9, 10, 15.)

COMBINATIONS.

(See Infringement, 1, 2, 3, 4, 5, 7, 8, 11, 12, 14, 15, 16; Invention, 6, 7; Mechanical Skill, 2.)

1. NO ANTICIPATION OF COMBINATION WHERE ONE OF THE ELEMENTS IS NEW.
The invention in this case considered to consist, principally, in the removal of the fore-hearth before used in furnaces of a similar character and in closing the breast of the furnace, and this feature being new there can be no anticipation of the claim in which it is the principal element.
[*Asmus v. Freeman, 231.

2. WHEN CHANGES IN CONSTRUCTION INDICATE PATENTABLE INVENTION.
Where an old device or machine in general use with acknowledged serious defects, which have been long endured because no one has previously discovered a means of obviating them, is taken in hand, and, by changing its former structure, they are

removed and a different and greatly improved result obtained, it may safely be affirmed that the change required invention.
[*Id.

COMMISSIONER OF PATENTS.

(See Labels, 6; Reissues, 2.)

CONSTRUCTION OF CLAIMS.

(See Construction of Specifications and Patents, 4, 14, 15.)

1. WHAT CONSTITUTES THE CLAIM.
The statute requirement as to claims in a patent is complied with when the specification shows clearly what the inventor intended to cover in language found in immediate connection with the claims proper.
[*LaRue v. Western Electric Company, 453.

2. CONSTRUCTION OF CLAIM.
Where the prior state of the art is such that the field of invention is limited and circumscribed, not admitting of any great original discovery, the invention in a patent must be strictly confined to its claim.
[*Adams v. The Bellaire Stamping Company *et al.*, 567.

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Anticipation, 4; Combinations, 1; Construction of Claims; Designs; Infringements, 15, 16; Invention, 8; Limitation of United States Patent by Foreign Patent Previously Granted, 3, 6; Particular Patents; Reissues, 1, 2, 3, 4.)

1. LITTLE EVIDENCE OF INVENTION REQUIRED UNDER CERTAIN CIRCUMSTANCES.
Where the improvement and consequent public benefit is great very little (other) evidence of invention is required.
[*Asmus v. Freeman, 231.

2. NEW ELEMENT INSERTED AND CLAIM EXPANDED.
It does not aid the complainant to show that a claim has been narrowed at one end, when it is apparent that it has been doubly expanded at the other.
[*Gage v. Kellogg *et al.*, 234.

3. PRACTICE—REHEARING.
It would tend to great confusion and uncertainty in the administration of the law if a conclusion, reached after mature deliberation, should, upon the same facts and a repetition of the same arguments, be set aside and reversed by the same tribunal that rendered it.
[*Id.

4. CONSTRUCTION OF CLAIMS GENERALLY.
The several claims of a patent should be so construed, if possible, that each may represent distinct inventions.
[*The Cohansey Glass Manufacturing Company v. Wharton, 343.

5. ROCKING AND TILTING CHAIRS.
The distinction between a tilting and a rocking chair—that the former takes its motion from a single point or pivot, and the latter from an axis which is continually changing—recognized as "a well-defined difference" between them; and the M. D. Connolly patent of December 19, 1876, construed, and *held* to cover a tilting-chair whose seat and occupant are supported by a central spiral spring interposed between and connecting the upper and lower parts, but not a chair in which the weight of the occupant is sustained by rockers resting on base-supports.
[*Bunker *et al.* v. Stevens, 345.

6. WANT OF NOVELTY.
A claim reading "As a new article of manufacture, a plug of tobacco one or both faces of which are marked off by indented lines, which serve to secure the wrapper to the filling, and also as guides for cutting up the plug into small pieces of definite size and weight," is void for want of novelty, in view of the fact that it was common prior to the date of the alleged invention to mark cakes, candies, chocolate, &c., with indented lines to indicate measured quantities.
[*Drummond *et al* v. Venable *et al.*, 347.

7. INCIDENTAL UTILITY.
A feature of utility which is merely incidental to the main purpose of the invention is not of itself sufficient to sustain a claim where it is shown that the main purpose has been accomplished prior to the date of the alleged invention.
[*Id.

8. MOTION FOR PRELIMINARY INJUNCTION.
Letters Patent No. 270,767, granted to Edgar A. Edwards, January 16, 1883, for an improvement in telegraph-transmitters, adjudged valid, and the third claim thereof to have been infringed by defendant.
[*LaRue v. Western Electric Company, 453.

9. DESCRIPTION OF THE INVENTION.
The invention in controversy consisted in substituting for the trunnions or pivots of the lever of telegraph-transmitters a torsional spring or strip of metal. The defendant used this torsional spring upon a "sounder." A transmitter is operated by the finger at one end of the line, and a "sounder" is operated by electricity at the other end of the line. The third claim covered the combination, in a telegraph-key, of the lever, its torsional spring, and adjusting-screws. It was stated in the specification, immediately before the claims, that the invention was not limited to the application of torsional springs to telegraph-keys, but they might replace the trunnions of the relay and sounder.
[*Id.

10. CONSTRUCTION OF CLAIM.
The third claim covers the operative combination, whether in a telegraph-key or in a sounder, and the language in the claim, "in a telegraph-key," must be taken in connection with the statement in the specification that the invention is not limited to the use of torsional springs in telegraph-keys.
[*Id.

11. DESCRIPTION OF INVENTION.
The specification of this patent sufficiently describes the invention to enable persons skilled in the art to which it relates to produce the patented article.
[*Libbey v. Mount Washington Glass Company *et al.*, 572.

12. RESULT, AS EVIDENCE OF NOVELTY.
Where the process of the patent in suit produced a marked and beneficial change in the character of the product and uncertainty became certainty and success followed imperfection, there must necessarily have been a material modification of the pre-existing process.
[*The Celluloid Manufacturing Company v. The American Zylonite Company *et al.*, 1043.

13. BROAD CLAIM.
As patentee appeared, from the evidence, to be the first in the art to show a mask to protect the face having a rest for the forehead, *held* that he was entitled to cover such forehead-rest, broadly, and was not limited to the special means by which he affixed it to the wires of the cage.
[*Thayer v. Spaulding, 1044.

14. DESCRIPTION OF THE INVENTION—OFFICE OF A CLAIM.
The specification of Letters Patent No. 206,930, of August 13, 1878, to William P. Clotworthy, for a baking-powder, described as one of the ingredients "ammoniated potash-alum," but the claim was for "a compound of exsiccated ammonia-alum," &c. The proof showed there was no such article known to commerce or chemistry as "ammoniated potash-alum." It was contended that the claim, when standing alone, was a sufficient "description" of the compound to comply with the statute. *Held* that it was a matter of grave doubt whether the "claim" was to be considered as the "description" required by law, because the statute speaks of the "description and claim," and the office of the claim is merely to point out what is claimed as the invention.
[*Smith *et al.* v. Murray, 1045.

15. SPECIFICATION AND CLAIMS CONTRADICTORY—PATENT VOID.
But the claim being repugnant to the specification, *held* that the whole invention must be found in the one or in the other, and that the two, taken together, were so contradictory as to render the patent void for uncertainty.
[*Id.

CONSTRUCTION OF STATUTES.

(See Construction of Claims, 1; Construction of Specifications and Patents, 14, 15; Designs, 1; Oath, 1, 2, 3, 4.)

CONTRACTS.

1. AGREEMENT TO ASSIGN FUTURE IMPROVEMENTS.
C. & C. contracted with S. to give him the refusal of the purchase of a patent, at any time within a year for a stipulated price, and, as a consideration for this option, S. agreed that if he did not so purchase he would assign to C. & C. any and all improvements upon or relating to the invention described and shown in the patent which he might make or patent. He elected not to purchase, but refused to assign his improvements claimed to be within the contract, whereupon this bill for a specific performance was filed against him. *Held* that the contract only contemplated and covered improvements made within the year therein specified.
[*Bunker *et al.* v. Stevens, 345.

2. CONTRACT FOR USE OF INVENTION CONSTRUED.
An agreement to pay thirty dollars for each of the first four hundred locomotive-engines to which an invention should be applied is not an agreement to apply the invention to four hundred locomotives, and to pay thirty dollars for each one.
[*Babcock, deceased, by another, special administrator, v. Northern Pacific Railroad Company.

3. SAME.
The terms of payment under this contract were six thousand dollars within thirty days after the contract was executed and the remainder within the period of one year. *Held* that this was an agreement to pay six thousand dollars absolutely within thirty days, and in case the invention was applied to a number of locomotives sufficient to produce, at thirty dollars for each, a greater sum than six thousand dollars, then this excess was the remainder contemplated, and was payable within the year.
[*Id.

COSTS OF SUIT.

1. PRACTICE—COSTS, WHEN ALLOWED.
Costs are always awarded to the successful party, unless there has been something in his conduct which renders such a course inequitable and unjust to the losing side.
[*Bunker *et al.* v. Stevens, 345.

2. SAME—COSTS REFUSED ON ACCOUNT OF DEFENDANT'S CONDUCT.
In this case the defendant had written various letters, in the hope of an advantageous business arrangement, suggesting that his improvements, patented and unpatented, related to the Connolly patent, which induced the complainant to purchase the interest of C. & C. in the contract; but he afterward assumed a different ground. *Held*, in view of these letters, as written and acted on, that he should not be allowed to recover costs.
[*Id.

DAMAGES AND PROFITS.

(See Contracts, 2, 3; Injunction.)

1. DAMAGES—LICENSE-FEES, HOW PROVED.
A sale of a single license at an early date is not sufficient to establish a royalty or uniform license-fee. License-fees must be sufficient in number to establish the fee or royalty charged and must be uniform, and be actually paid or secured before the infringement of defendants was committed.
[*Adams v. The Bellaire Stamping Company *et al.*, 567.

2. SAME—LICENSE-FEES MUST BE DISTINCT.
License-fees for the use of the patent in suit and another patent blended together would not establish a royalty as to either patent. If the license embraces other inducements and agreements which actually or probably influenced the licensees to pay the royalty, then the license would not constitute an established royalty.
[*Id.

3. WHEN EMPLOYER MAY USE IMPROVEMENTS MADE BY EMPLOYÉ.
The improvements covered by the second and fourth claims of Letters Patent No. 162,789, of May 4, 1875, for machines for finishing horseshoe-nails, were made while the inventors and patentees were in the employ of the defendant company, under agreements, whereby said company acquired the right to use all improvements made by complainant, and applicable to its nail-finishing machines, and hence complainant cannot demand compensation for such use.
[*Bensley, Trustee, v. Northwestern Horse Nail Company *et al.*, 689.

4. PRESUMPTIONS FROM RELATIONS OF EMPLOYER AND EMPLOYÉ.
Where the patented improvements were developed and perfected at the sole expense of an employer by employés who received extra pay on account of their known ability as inventors, *held* that these facts, standing alone, made a very strong case in favor of the right of the employer to use such improvements without further compensation.
[*Id.

5. USERS LIABLE FOR INFRINGEMENT AFTER ACCOUNTING OF SELLERS.
Complainants procured an interlocutory decree against the defendant and proceeded to an accounting, pending which, and before a final decree, and before defendant had paid on account of the infringement, the complainants collected, or attempted to collect, money from the users for infringing machine which had been included in the accounting, whereupon the defendant moved for an injunction to restrain complainants and their agents from interference with defendant's customers in the use of the machines he had sold to them. *Held* that there was no just ground for the intervention of the court, and the motion was denied.
[*Tuttle *et al.* v. Matthews, 694.

6. DAMAGES.
The invention in suit was a harrow-tooth. The master allowed the complainants the gross profits arising from the defendant's sales of complete harrows. There was no proof as to the proportion of profits due to the patented tooth. *Held* that complainants could recover only nominal damages.
[*Tuttle *et al.* v. Gaylord, 694.

7. SALE—ACTION—INFRINGEMENT.
The fact that the purchaser of a patented machine has been sued as an infringer by third parties, and put to expense in making defenses, is no defense to a suit by the vendor on the contract of sale, even where that contract provides that indemnity bonds shall be given the vendee, and none have been furnished.
[*Horne v. Hoyle, 1248.

DEDICATION TO THE PUBLIC.

(See Anticipation, 4.)

DEFENSE.

(See Damages and Profits, 7; Practice in the Courts, 2, 3, 4, 5.)

DELAY IN APPLYING FOR REISSUE.

(See Reissues, 3.)

DESCRIPTION.

(See Construction of Claims, 1; Construction of Specifications and Patents, 9, 10, 11, 14, 15.)

DESIGNS.

1. FUNCTIONAL FEATURES NOT PATENTABLE AS DESIGNS.
The ornamentation of a clock-dial is a legitimate subject for a design patent under section 4929 Revised Statutes; but the ornamentation must be distinctly separable from and irrespective of particular time-indicating figures and characters and their particular arrangement upon the dial. This latter feature, being solely of functional value, is not the subject of the design section, but of section 4886 Revised Statutes.
[*Ex parte* Stetson, 343.

2. SAME.
A design cannot consist of any mere arrangement of particular letters or numerals; but it may consist of the shape or configuration of a particular letter or numeral—never in their combination to make up a function in an organized apparatus.
[Id.

DILIGENCE.

(See Reissues, 5.)

DISCLAIMER.

DISCLAIMER PENDING SUIT.
A disclaimer can be made after the suit is commenced; and the defendants in this case having knowledge of the scope of the patent, and sufficient time to prepare their defense to a motion for an injunction, *held* that their rights had not been prejudiced in any degree by the disclaimer.
[*Libbey v. Mount Washington Glass Company *et al.*, 572.

DURATION OF PATENT.

(See Limitation of United States Patent by Foreign Patents Previously Granted, 1, 2, 3, 4, 5, 6.)

EMPLOYÉS.

(See Damages and Profits, 3, 4; Licenses, 6.)

ENLARGEMENT OF CLAIMS.

(See Construction of Specifications and Patents, 2; Particular Patents, 16, 20, 25; Reissues, 4.)

EQUIVALENTS.

(See Infringements, 4, 12.)

ESTOPPEL.

(See Infringement, 17, 18; Limitation of United States by Foreign Patents Previously Granted, 5.)

EVIDENCE.

(See Assignments; Burden of Proof.)

PREPONDERANCE OF EVIDENCE.
Against the testimony of one of the complainants, that he had not agreed his employer might use his improvements, was opposed the testimony of two equally credible and disinterested witnesses, one of whom had made a written entry or memorandum of the agreement on an occasion when it was assented to

by complainant. *Held* that the preponderance of evidence was in favor of the employer.
[*Beasley, trustee, v. Northwestern Horse Nail Company *et al.*, 669.

EXAMINERS.

(See Practice in the Patent Office, 1, 2, 3.)

EXPIRATION OF PATENT.

(See Limitation of United States Patent by Foreign Patents Previously Granted, 1, 2, 3, 4, 5, 6; Practice in the Courts, 1; Trade-Marks, 4.)

FIRST AND ORIGINAL INVENTOR.

(See Oath.)

FOREIGN PATENTS.

(See Limitation of United States Patent by Foreign Patents Previously Granted.)

FORMER DECISIONS AFFIRMED.

(See Invention, 9, 10; Particular Patents, 16; Reissues, 3.)

FRAUD.

(See Trade-Marks, 2.)

FUNCTION.

(See Designs, 2; Mechanical Skill, 2, 3.)

GENERIC CLAIMS.

(See Construction of Specifications and Patents, 13.)

IDENTITY OF INVENTION.

(See Limitation of United States Patent by Foreign Patents Previously Granted, 5.)

IMPROVEMENTS.

(See Combinations, 2.)

INFRINGEMENT.

(See Damages and Profits, 7; Injunction; Particular Patents, 1, 10, 15, 19, 24, 28, 29, 31, 37, 39, 41; Trade-Marks, 3.)

1. INFRINGEMENT OF COMBINATION CLAIM.
Where defendant's furnace had the combination of the first claim of the patent in suit, except that one of the elements was not operative to the same extent, it was *held* that this claim was infringed.
[*Asmus v. Freeman, 231.

2. USE OF PATENTED INVENTION IN OTHER MACHINES.
Where the combination patented is only a part of the machine, it is infringed by the use of the same combination in a different machine.
[*LaRue v. Western Electric Company, 453.

3. DUPLICATE STRUCTURE.
If in view of the prior state of the art the patent in suit is valid, it must be for a combination of devices which amount to a new lantern, and would be infringed only by substantially a duplicate lantern.
[*Adams v. The Bellaire Stamping Company *et al.*, 567.

4. COMBINATION PATENT—EQUIVALENTS.
A substitution of an equivalent for an ingredient of a combination covered by a patent cannot avert a charge of infringement.
[*Dederick v. Whitman Agricultural Company, 370.

5. CHANGE OF STRUCTURE.
A combination of an open upper cylinder and an open lower cylinder is not infringed by the use of an open upper cylinder in connection with a lower cylinder which is only open when opened for repairs.
[*Newark Machine Company v. Hargett *et al.*, 692.

6. SAME.
A claim for rubbers having roughened sides and rounded front edges, restricted by the state of the art, is not infringed by the use of rubbers having roughened sides with beveled front edges.
[*Id.

7. COMBINATION—OMISSION OF ONE ELEMENT.
A claim for the combination of devices constituting a seed-cleaning machine is not infringed by the use of a seed-cleaning machine in which one of the elements claimed is not found.
[*Id.

8. SAME—CHANGE OF STRUCTURE.
A claim to the combination of the seed-cleaner with a thrashing-machine is not infringed by the use of a different seed-cleaner with a thrashing-machine.
[*Id.

9. INFRINGING DEVICE.
The patent held to be infringed by a supplemental locking device which dogs the power that retracts the door-bolts and which also is used in connection with automatic bolt-work.
[*Newbury *et al. v.* Fowler, 617.

10. BOOTS—CHANGE OF STRUCTURE.
A patent for a boot consisting of an inside counter-protector at the back of the boot, with the sides extending over the cross-seams at the sides of the boot, fastened by a row of stitching beyond the eye-seams, by which they are covered and protected, is not infringed by a boot having an outside counter-protector extending into and fastened by seams lapped at the side of the boot and extending no farther and not fastened by stitching outside of the lapped seams.
[*Buckingham v. Porter *et al.*, 820.

11. OMISSION OF ELEMENT OF COMBINATION—CONSTRUCTION OF CLAIM.
The third claim of the Wheeler patent was not infringed because defendant used only three of the four elements of the combination, and the seventh claim was not infringed because, if valid at all, it must be strictly construed and limited to the particular adjustment of parts described.
[*Wheeler v. Morris *et al.*, 822.

12. EQUIVALENTS.
Although the defendants did not use a toggle-joint mechanism, which was an element of the claims held infringed, the court finds that what they did use was an equivalent which any skilled mechanic could have devised without the exercise of invention.
[*Id.

13. CHANGE OF PROCESS.
Defendant cannot escape the charge of infringement because it first abnormally dries the wet pulp, whereas the plaintiff first substantially or comparatively dries it, and then, after the pulp and camphor have been mixed, expels all the remaining moisture.
[*The Celluloid Manufacturing Company v. The American Zylonite Company *et al.*, 1043.

14. SUBSTITUTION OF ELEMENT.
As the defendants did not use the entire formula of the patent, but used an additional ingredient producing another result, *held*, that they did not infringe.
[*Smith *et al. v.* Murray *et al.*, 1045.

15. CLAIM CONSTRUED BY SPECIFICATION.
Infringement was charged of the fifth claim of this patent, which was for "the combination of brake-arms, rest-blocks, and supporting carrying-tapes, substantially as described." *Held*, the true construction of this claim required that the folding blade or rollers described by the patent be read into this claim, and that under this construction the defendants did not infringe.
[*Hoe *et al. v.* Knap *et al.*, 1244.

16. SUBSTITUTION OF ELEMENT.
The defendants did not use the stopping or retarding device of the patent for the purpose it described, and they had the same right as patentee to take another element from the older art and use it in combination with the elements he described for another purpose in their machines.
[*Id.

17. ESTOPPEL—JUDGMENTS.
Where, in a suit for the infringement of a patent, the bill is dismissed because of failure to show any infringement, the decree dismissing the bill will not estop the plaintiff or his assigns from again suing the same defendant for infringing the same patent.
[*Steam Gauge and Lantern Company v. Meyrose, 1477.

18. SAME.
In order to make a judgment available as a technical estoppel in a case, it must appear by the record of the prior suit that the particular controversy sought to be concluded was necessarily tried and determined.
[*Id.

INJUNCTION.

(See Trade-Marks, 2.)

INJUNCTION WHERE PARTY HAS FAILED TO WORK HIS INVENTION.
Where the owner of a patent had never made, used, or sold to others to be used, the invention covered by the patent, an injunction in the interlocutory decree against its use by an infringer was refused on his giving bond to secure any damages which might be awarded on final hearing.
[*Hoe *et al. v.* Knap *et al.*, 1244.

INTERLOCUTORY APPEALS.

(See Practice in the Patent Office, 4.)

INVENTION.

(See Combinations, 2; Construction of Specifications and Patents, 13; Mechanical Skill; Patentability.)

1. EXPERIMENTS AS TO OTHER MACHINES.
The mere fact that others were long wandering by the wrong path is not evidence that it required invention to accomplish what has been done by taking the direct path pursued by these patentees, whose merit was in overcoming the dxed prejudice in favor of hand-made goods, rather than in inventing any radically new process for making the same goods by machinery.
[*Butler *et al. v.* Steckel *et al.*, 455.

2. QUALITIES OF INVENTION.
To constitute a patentable invention, there must be a novelty created by or originating in the mind of the inventor, and not deduced as a matter of inference, reasoning, or mechanical skill.
[*Adams v. The Bellaire Stamping Company *et al.*, 567.

3. CHANGE OF LOCATION OF PARTS, NOT INVENTION.
The mere change of position of an old mechanical device from one part of a machine to another to effect the same result involves no patentable invention.
[*Dederick v. Whitman Agricultural Company, 371.

4. IMPROVEMENTS PATENTABLE.
Although the patented mask and the old fencing-mask are in some respects analogous in their use, *held* that there was enough difference to make the former patentable over the latter.
[*Thayer v. Spaulding, 1044.

5. CHANGE OF PROCESS.
It being known to the art that the burning or drying of the alum used as an ingredient of baking-powder made it keep better, there was nothing patentable in the discovery that drying the alum so that all the water was expelled would make a baking-powder which would keep longer than if a part of the water had not been expelled.
[*Smith *et al. v.* Murray *et al.*, 1045.

6. OLD ELEMENTS.
The patent was for a carriage-body having rounded corner-posts, with grooves to receive the side and end panels, and tenons to receive side and end rails, and corner-irons to hold the rails rigidly to the posts, the whole forming a carriage-body ingeniously adjusted and held together without the aid of screws; but all the elements of the claim were old, and, in view of the prior state of the art, *held* that it did not require invention to bring them together.
[*Calkins *et al. v.* Oshkosh Carriage Company *et al.*, 1149.

7. MECHANICAL SKILL.
Although the adjustment of the different parts of patentee's combination was novel, and the combination, as an entirety, useful, *held* that it exhibited only the expected skill of the mechanic's calling, and not the creative work of the inventor.
[*Id.

8. WHAT IS PATENTABLE.
It has always been the law that a patentable invention, although new and useful, must be the result of something more than and different from mechanical skill.
[*Celluloid Manufacturing Company v. Comstock & Cheney Company, 1356.

9. INVENTION—UTILITY AND NOVELTY AS EVIDENCE OF.
The existence of novelty and utility in a patented thing has been potent in the determination of the question of its patentability. (*McCormick v. Seymour*, 2 Blatchf., 240; *Furbush* v. *Cook*, 2 Fisher, 388; *Middleton Tool Co. v. Judd*, 3 Fisher, 141.)
[*Id.

10. INVENTION—EVIDENCE INDEPENDENT OF UTILITY AND NOVELTY NOW REQUIRED.
The decision in *Hollister v. Benedict & Burnham Manufacturing Company* (113 U. S., 59; S. C., 5 Sup. Ct. Rep., 717) makes independent evidence of the existence of inventive skill, apart from inferences of such existence which may be drawn from novelty and utility, to be of greater importance than has been understood heretofore.
[*Id.

11. KEY-BOARDS FOR PIANOS.
There was the creative faculty of invention in the abandonment of the ineffectual and mechanical attempt to make single celluloid keys in imitation of ivory single keys, and in the conception of the idea of covering a whole key-board with a single celluloid sheet.
[*Id.

JUDGMENT.

(See Infringement, 17, 18.)

JURISDICTION.

(See Licenses, 1, 2.)

1. SUIT BETWEEN CITIZENS OF SAME STATE.
The suit being between citizens of the same State, and a subsisting license being proved, the circuit court of the United States has no jurisdiction over the cause.
[*Jencks v. The Langdon Mills *et al.*, 347.

LABELS.

1. The fact that a label has been registered as a trade-mark under the United States statute of March 3, 1881, does not abridge the powers of the State courts at common law to determine whether or not the matter on such label can be considered a trade-mark.
[*Schumacher & Ettlinger v. Schwenke, Jr., *et al.*, 457.

2. A manufacturer of labels may impress them with a uniform device to indicate them as of his manufacture, but the labels themselves cannot constitute his trade-mark.
[*Id.

3. Labels sold to cigar-manufacturers and used upon their merchandise become the brand or pretended trade-mark of the cigar-manufacturer, and not of the lithographer. It is impossible that the same label can be the trade-mark of both.
[*Id.

4. By the use which a merchant makes of a label in applying it to a package containing the product of his manufacture it may become for him a trade-mark, for it may be a distinctive mark, without being the object of his commerce; but as to the printer of such label, it can be nothing but the special object of his industry.
[*Id.

5. When a printer publishes a label intended to convey to the public the impression that it covers cigars of superior excellence, and sells such label to anybody to cover just such cigars as the manufacturer chooses to apply it to, the label is no guarantee of excellence, or even of any certain brand of cigars, and the publisher is chargeable with facilitating others in making false representations.
[*Id.

6. The act of June 18, 1874, providing for the registration of labels in the Patent Office, did not intend to provide for such registration of a label which was in fact a trade-mark. Where a label which "bears such distinguishing marks as entitle it to registration as a trade-mark" is proposed for registration, the "function of the Commissioner" is not "merely ministerial," and he is at liberty to refuse such registration.
[*Ex parte* Wiesel, 669.

LICENSES.

1. LICENSE—JURISDICTION OF FEDERAL COURTS TO ENFORCE OR FORFEIT.
It is undoubtedly the rule that where there appears to be a subsisting license between the complainant and the respondent the jurisdiction of the court, under the patent law, will not be extended to cover a suit to enforce or forfeit the license on the ground that the terms thereof have been violated; citing *Hartell* v. *Tuttman*, (99 U. S., 547.)
[*Hammacher *et al. v.* Wilson, 233.

2. JURISDICTION TO DETERMINE WHETHER THERE IS A LICENSE.
But where a suit is brought for infringement, and the existence of a license is alleged by the respondent and denied by the complainant, it is competent for the court to determine whether at the time of the filing of the bill there was a subsisting license between the parties.
[*Id.

3. FAILURE TO PAY ROYALTIES—TERMINATION OF LICENSE.
Defendant failed to pay royalties, and thereupon complainant served notice of termination of the license in the manner provided by its terms, and afterward filed his bill for infringement. Defendant sought to excuse his failure to pay royalties on the ground that he could not ascertain where the owner of the patent was when they fell due, offered to pay any sum due under the license, and urged that it ought not to be forfeited.

Held that the question to be decided was not whether the license should be declared forfeited, but whether it had already been forfeited by the acts of the parties pursuant to its provisions.
[*Id.

4. SAME—AGREEMENT FOR FORFEITURE.
An agreement that upon failure of a party to a license to perform his covenant it may be forfeited by a written notice served on him is valid and may be enforced. (*White* v. *Lee*, 3 Fed Rep., 223; 4 Fed. Rep., 916, and 14 Fed. Rep., 789.)
[*Id.

5. SAME—EFFECT OF FORFEITURE.
When a license is terminated by service of notice in accordance with its provisions, it ceases thereupon to protect the licensee, and a bill against him for infringement will lie.
[*Id.

6. LICENSE, WHAT FACTS WILL SUPPORT PRESUMPTION OF.
When complainant was an employé of defendant company, and used the time it paid for, and its tools, workmen, and materials in experiment and perfection of the invention, and put it, when completed, in use in defendants' mill, and made no contract as to compensation or royalty, the law will infer a license to the defendant to use the invention in the particular mill without royalty during the term of complainant's patent.
[*Jencks v. The Langdon Mills *et al.*, 347.

LICENSE-FEE.

(See Damages and Profits, 1, 2.)

LIMITATION OF UNITED STATES PATENT BY FOREIGN PATENTS PREVIOUSLY GRANTED.

1. EXPIRATION OF UNITED STATES PATENT WITH ENGLISH PATENT.
United States Letters Patent No. 137,595, granted April 8, 1873, to A. Clark, expired with the expiration of English Patent No. 1,322, granted May 2, 1872, to the same party.
[*Clark v. Wilson, 456.

2. IDENTITY BETWEEN DOMESTIC AND FOREIGN PATENTS.
Where the claims in the domestic and foreign patents were the same, but in the domestic patent a feature was described which was not found in the foreign patent, but this feature did not involve invention, *held* that both patents were for the same invention, and the domestic patent expired at the same date with the foreign patent.
[*Id.

3. SAME.
If this feature found only in the domestic patent had been described as material in such patent, it would simply narrow such patent, but would not make it a different invention, and by the expiration of the foreign patent nothing patentable would be left in the domestic patent.
[*Id.

4. IDENTITY OF PATENTED PROCESSES.
In a suit for infringement of Reissued Letters Patent No. 10,137, of June 13, 1883, to complainants, as assignees of Hippolyte Mége, for an improved method of treating animal fats, *held* that the invention covered by this patent was identical with that described in a Bavarian patent which expired April 8, 1876, and in an Austrian patent which expired May 26, 1876, both to the same inventor, and that the American patent expired with said foreign patents prior to the beginning of this suit.
[*Commercial Manufacturing Company, Consolidated, *et al.*, v. Fairbank Canning Company, 1473.

5. IDENTITY OF INVENTION MAY BE DENIED.
Where it was urged that patentee had estopped himself to deny that his American patent was for the same invention as patented to him in prior foreign patents, after having represented that to be a fact in his application for the former, *held* that if the inventor was laboring under a mistake as to this point his rights should not thereby be prejudiced.
[*Id.

6. TEST TO DETERMINE IDENTITY OF PATENTS.
A fair test to determine whether an American patent is identical with or included in a prior foreign patent to the same inventor is to inquire whether the use of the precise process described in the foreign patent, after the grant of the American patent, would be enjoined as an infringement of the latter.
[*Id.

MASTER'S REPORT.

(See Damages and Profits, 6.)

MECHANICAL SKILL.

(See Invention, 2, 6, 7, 8, 11; Particular Patents, 5, 7, 33.)

1. COMBINING OLD ELEMENTS.
If the patentee did nothing more than take a lantern-top, such as he could then have found in use, and secure it to the guard by a hinge and catch, substantially as lantern-tops had previously been fastened to the guard, this improvement would not amount to invention.
[*Adams v. The Bellaire Stamping Company *et al.*, 567.

2. CHANGE OF LOCATION.
The mere change of location of the parts of a mechanism, so long as no different or additional function is performed, does not make the change an invention, even though one of the parts thus transposed performs a double function, if the same part had been used before to perform the same functions in separate mechanisms.
[*Id.

3. COMBINING OLD ELEMENTS.
While it may be true that none of the earlier lanterns are equal to that of the patentee in beauty of form or convenience for the particular use, yet if every part had been anticipated and used in some form or other for the very purpose to which it is applied in the patent and claim, the patentee could not properly be regarded as an inventor of the same.
[*Id.

MOTIONS.

(See Practice in the Courts, 1.)

NEW ELEMENTS.

(See Combinations, 1; Construction of Specifications and Patents, 2.)

NOVELTY.

(See Invention.)

OATH.

1. STATUTORY REQUIREMENT.
The statute, section 4892, and Rule 45 require every applicant for patent, "if he be the inventor," to make oath that he believes himself to be the original and first inventor of the improvement, &c., for which he solicits patent.
[*Ex parte* Clarke, 120.

2. SAME.
This statute and rule intend that when a patent shall be issued, applicant, if the inventor, shall have sworn that everything which he *claims* (everything described and claimed by him) was his invention, and that he was the original and first inventor thereof.
[Id.

3. SAME.
The statute and rule *imperatively* require that when patent *does* go out everything *patented*, and everything claimed, should be alleged by the inventor, upon oath, to be his invention.
[Id.

4. SUPPLEMENTAL OATH UPON INSERTING NEW MATTER.
Where, therefore, applicant seeks to amend by claiming some feature not heretofore claimed in his application, he will be required to file the supplemental oath provided for by Rule 47.
[Id.

5. WHAT AN OATH SHOULD COVER.
All applicants for patent are required to make oath to the following facts: (1) That applicant, if the inventor, verily believes himself to be the original and first inventor of the thing which he seeks to patent; (2) that he does not know and does not believe that the same was ever before known or used; (3) he shall state of what country he is a citizen and where he resides.
[*Ex parte* Whiteley *et al.*, 1243.

OATHS IN REISSUE CASES.

STATEMENT UNDER OATH AS REQUIRED BY RULE 86.
Applications for reissue must be accompanied by a statement on oath in which it shall be shown: (1) That applicant verily believes his original patent to be inoperative or invalid; (2) the reason why so inoperative or invalid; (3) where inoperative or invalid by reason of defective or insufficient specification, specify particularly such defect or insufficiency; (4) where the trouble has arisen because applicant has claimed too much he must state distinctly the part or parts so improperly claimed; (5) that the error which renders the old patent inoperative arose from inadvertence, accident, or mistake; (6) specify particularly how such errors arose or occurred; (7) that such errors arose without any fraudulent or deceptive intention on the part of applicant.
[*Ex parte* Whiteley *et al.*, 1243.

OLD DEVICE.

(See Combinations, 2; Invention, 6, 7.)

OMISSION OF CLAIMS.

(See Reissues, 2.)

PARTIAL USE.

(See Infringement, 14, 16.)

PARTICULAR PATENTS.

(See Construction of Specifications and Patents, 8, 14.)

1. ARMSTRONG—MACHINE FOR FINISHING HORSESHOE-NAILS.
Letters Patent No. 163,789, granted May 4, 1875, for an improvement in machines for finishing horseshoe-nails. Although this case is expressly decided on other grounds, the court had grave doubts whether Armstrong was the inventor of the three-part die covered by the second claim of the patent, and whether the bow-spring shown in and covered by the fourth claim of the patent was infringed by the combined centering device and ejector used by the defendants.
[*Bensley, Trustee, *v.* Northwestern Horse Nail Company *et al.*, 689.

2. BOYD—FRUIT-JAR CAP.
Reissued Letters Patent No. 9,909, granted to complainant as assignee of Lewis R. Boyd, October 25, 1881, declared invalid for want of patentable invention.
[*The Consolidated Fruit Jar Company *v.* The Bellaire Stamping Company, 121.

3. IMPROVEMENT UPON AN EARLIER PATENT.
The court adopts the theory of complainant's counsel that the Taylor and Hodgetts patent in suit covered broadly the porcelain-lined fruit jar cap sold by defendant, and the Boyd patent in suit covered certain modifications, and considers the question to be determined is whether such modifications are patentable.
[*Id.

4. BOYD'S IMPROVEMENT IN VIEW OF THE STATE OF THE ART.
The cap of the Taylor and Hodgetts patent was composed of soft metal with a glass lining-plate secured within it, and was adapted to be screwed into the necks of tin fruit-cans; the cap of the Boyd patent was composed of thin flexible metal with a glass lining-plate secured within it, and was adapted to be screwed over the necks of glass jars; but metallic fruit-jar caps of both thick and thin metal, adapted to be used with tin cans or glass jars, and having linings or protective plates of incorrodible material, preceded the date of the Taylor and Hodgetts invention, and the particular unlined cap of the Boyd patent was described in the earlier Chase patent. *Held* that the modifications made by Boyd was to put the Taylor and Hodgetts glass lining-plate into the Chase cap.
[*Id.

5. MECHANICAL SKILL AND NOT INVENTION.
This modification of Boyd, although it became successful at once, and so continues, and has superseded the Taylor and Hodgetts cap, was not a patentable improvement over the Taylor and Hodgetts invention, but resulted simply from the exercise of mechanical skill.
[*Id.

6. BUTLER, EARHART, AND CRAWFORD—BRETZEL-CUTTER.
The Butler, Earhart, and Crawford bretzel-cutter patent of March 20, 1883, No. 274,264, held void for want of patentable novelty.
[*Butler *et al.* v. Steckel *et al.*, 455.

7. MECHANICAL SKILL.
It being old to cut crackers, cookies, and cakes of various sorts into different shapes—as, for instance, in the shape of animals or of capital B or character &—only mechanical skill was required to change the die so as to make it cut dough in the shape of bretzel, and this, too, notwithstanding the bretzel is somewhat clumsily shaped, the parts being bent, twisted, and laid upon each other, so as to require some study, effort, and experiment to make the shape of the die correspond to its external formation. The fact that the mechanic might be compelled to experiment somewhat—that is, cut several dies—does not show invention.
[*Id.

8. CALKINS—CARRIAGE-BODIES.
Letters Patent No. 241,829, of August 1, 1882, to Alton J. Calkins, for an improvement in carriage-bodies, are void for want of novelty.
[*Calkins *et al.* v. Oshkosh Carriage Company *et al.*, 1149.

9. CLOTWORTHY—BAKING-POWDER.
Letters Patent No. 206,930, granted August 13, 1878, to William P. Clotworthy, for an improvement in baking-powders, declared void for want of novelty.
[*Smith *et al.* v. Murray *et al.*, 1045.

10. CROWELL—PRINTING-MACHINES.
Letters Patent No. 269,150, of December 12, 1882, to Luther C. Crowell, for a sheet-delivering mechanism for printing-machines, construed, sustained as to the sixth claim, and *held* infringed.
[*Hoe *et al.* v. Knap *et al.*, 1344.

11. SAME.
So far as appeared from the proof in this case, Crowell was the first to superimpose the sheets as they follow each other from a web printing-press, by causing them to travel in different pathways of equal lengths and to stop or retard the advance sheet until the following sheet or sheets is or are brought abreast of it, when they move at a common rate of speed to a point where they come together, and he is therefore entitled to protection against the use of equivalents by others.
[*Id.

12. DEDERICK—BALING-PRESSES—NO. 170,998.
The first claim of Letters Patent No. 170,998, granted to P. K. Dederick, December 14, 1875, for an improvement in baling-presses, is void for want of invention.
[*Dederick *v.* Whitman Agricultural Company, 571.

13. DEDERICK—BALING-PRESSES—NO. 224,281.
The first claim of Letters Patent No. 224,281, granted to P. K. Dederick, February 10, 1880, for an improvement in baling-presses, is, in view of the previous state of the art, void, unless restricted to the peculiar devices named in the combination therein described.
[*Id.

14. DRUMMOND—MARKING PLUG-TOBACCO.
Patent No. 200,133, of February 12, 1878, to James Drummond, for an improvement in marking plug-tobacco, is void for want of novelty.
[*Drummond *et al.* v. Venable *et al.*, 347.

15. EDWARDS—TELEGRAPH-TRANSMITTERS.
Letters Patent No. 270,767, granted to Edgar A. Edwards, January 16, 1883, for an improvement in telegraph-transmitters, adjudged valid, and the third claim thereof to have been infringed by defendant.
[*LaRue *v.* Western Electric Company, 453.

16. FISHER—METHOD AND APPARATUS FOR TREATING SEEDS.
On rehearing, the decision of the court in this case (23 Fed. Rep., 891) reaffirmed, and *held* that the claims of Reissued Letters Patent No. 8,615, to William B. Fisher, for improvement in methods and apparatus for treating seeds, are unduly expanded, and are therefore void.
[*Gage *v.* Kellogg *et al.*, 234.

17. GEHRT—PORTABLE HAY AND COTTON PRESSES.
First claim of Letters Patent No. 190,052, granted January 8, 1878, to Albert A. Gehrt, for an improvement in portable hay and cotton presses, is valid.
[*Id.

18. HIPWELL—GLASS-GRINDING MACHINE.
Letters Patent No. 180,584, granted August 1, 1876, to Thomas Hipwell for machines for grinding the mouths of glass vessels, adjudged valid as to the first claim thereof.
[*The Cohansey Glass Manufacturing Company *v.* Wharton, 343.

19. CONSTRUCTION OF PARTICULAR CLAIM.
In the first claim of this patent one of the elements was called "suitable gearing," in the second claim corresponding parts were described as "cog-gearing," the purpose of the gearing in both instances being the production of a planetary movement in the vessels to be ground, while in the specification there was a disclaimer to mechanism broadly for the production of a planetary movement in articles to be ground. *Held* that the suitable gearing of the first claim was not qualified by the cog-gearing of the second claim, or by the disclaimer, and included belt-gearing such as was used by defendant.
[*Id.

20. HOE AND TUCKER—PRINTING-MACHINES.
The first claim of the Hoe and Tucker patent (Reissue No. 8,801, of July 15, 1879) printing-machines is void because an unwarranted enlargement of the original patent, which was granted December 1, 1868, and of the first reissue, which was granted May 30, 1871.
[*Hoe *et al.* v. Knap *et al.*, 1344.

21. VOID CLAIM.
The second claim of the original of the Hoe and Tucker reissue sued on, and the corresponding claim of the first reissue, included the flies or piling mechanism described; but the first claim of the reissue sued on does not, and it is therefore void.
[*Id.

22. PATENTABILITY.
In view of the prior state of the art, the court doubted whether this patent was not void for want of patentable novelty.
[*Id.

23. HOLMES—AXLE-SKEINS FOR VEHICLES.
Letters Patent No. 216,615, of June 17, 1879, to N. L. Holmes, for an improvement in axle-skeins for vehicles, must, in view of the prior state of the art, be limited strictly to its special device, which is the cutting of the blank in such shape as that, when formed up, it will make two frustums of cones, the small end of the larger one springing from the large end of the smaller one, or the skein itself.
[*Brown & Van Arsdale Manufacturing Company *v.* Studebaker Brothers Manufacturing Company, 1355.

24. VOID CLAIMS.
The fifth and eighth claims of this patent cannot be sustained in view of the state of the art, and there was no infringement of the first and third claims in this case.
[*Id.

25. HUBEL—MACHINES FOR CUTTING OFF GELATINE CAPSULES.
Reissued Letters Patent No. 10,437, granted to Frederick A. Hubel, January 15, 1884, for an improvement in machines for cutting off gelatine capsules, declared void for enlargement of claims.
[*Hubel v. Dick et al., 939.

26. HUNTINGTON AND CARTER—BALING-PRESSES.
The first claim of Letters Patent No. 196,394, granted May 7, 1872, to Frank A. Huntington and John F. Carter, for an improvement in baling-presses, is for the combination therein named, involving as essential thereto the peculiar construction of the press-box, and is not infringed by a combination into which such press-box does not enter.
[*Dederick v. Whitman Agricultural Company, 570.

27. HYATT—CELLULOID COVERING FOR PIANO-KEYS.
The question of patentability in Hyatt's invention again considered and the patent sustained.
[*Celluloid Manufacturing Company v. Comstock & Cheney Company, 1356.

28. JOHNSTON—RUFFLING AND GATHERING ATTACHMENTS FOR SEWING-MACHINES.
Letters Patent No. 334,261, granted August 11, 1885, to Allen Johnston, for an improvement in ruffling and gathering attachments for sewing-machines, construed, and *held* to be an improvement merely on a pre-existing machine, covering mechanism to regulate the length of the stroke with reference to the fullness of the gathers, and the forward limit of the stroke with reference to the place of the needle at the same time, and not to be infringed by mechanisms and means accomplishing the same results in ruffling-machines but not in the same way.
[*Johnston Ruffler Company v. Avery Machine Company, 1043.

29. LOCKE—PARTY-COLORED GLASSWARE.
On motion for preliminary injunction Letters Patent No. 232,902, granted to Joseph Locke, July 24, 1880, for an improved article of glassware, and the process of making the same, sustained.
[*Libbey v. Mount Washington Glass Company *et al.*, 572.

30. NOVELTY.
This patent was for an article of glassware of ruby and amber colors made from a gold-ruby compound, which was a well-known glass mixture containing gold. Patentee discovered that by reheating only a portion of the article the ruby color was developed in the reheated portions, while the other portions remained amber-colored, producing an article known as "amberina." This process of obtaining party-colored glassware had been before practiced, but not with gold-ruby compound—the amber color had not been obtained, except by accident, and then with no thought of utilizing the product—and, although this fact undoubtedly led patentee to make the discovery, the patent was sustained.
[*Id.

31. LUDMANN—FURNACES.
The first claim of Reissued Letters Patent No. 3,204, for furnaces, granted to Asmus, assignee, November 24, 1868, adjudged valid and to have been infringed by defendants.
[*Asmus v. Freeman, 231.

32. MILLER—BOOTS—PATENT NO. 214,684.
Letters Patent No. 214,684, granted April 22, 1879, to William R. Miller, for an improvement in the manufacture of boots and shoes, in so far as it claims an outside counter-protector with lateral ends extending to the side seams of the boots, inserted in the side seams formed by doubling down the back and front leathers of the boot, with or without welts, and stitching all together to form the seams, is void for want of novelty.
[*Buckingham v. Porter *et al.*, 820.

33. MÜLLER—CHAIN FOR BRACELETS, &c.
Letters Patent No. 287,564, granted October 30, 1883, to Carl A. Müller, for an improvement in chains for bracelets, &c., declared void. The entire invention consists in bending inward the ends of the spiral. In this there is no inventive genius, but the ordinary work of a skilled artisan.
[*Müller v. Ellison *et al.*, 122.

34. NEWBURY TIME-LOCKS.
Letters Patent No. 252,033, granted August 1, 1882, to Henry F. Newbury, for improvement in time-locks, considered and adjudged valid.
[*Newbury *et al.* v. Fowler, 817.

35. CLAIM CONSTRUED.
Newbury is entitled to a liberal construction of the first claim of his patent, so as to cover any supplemental locking mechanism which, when used in combination with a time-lock, will prevent the retraction of the door-bolts in case of such shock or violence as will disable the time-lock, because he seems to have been the first to have discovered the need of such mechanism and to have supplied the want. The primary and controlling feature of the invention is that the supplemental locking device is to be brought into action and made operative by the shock or violence which breaks or displaces or renders ineffective the time-lock, and is not limited to the use of such device with any particular mechanism for casting or retracting the door-bolts of the safe or vault, nor to such device when dogging the door-bolts directly.
[*Id.

36. ANTICIPATION.
The patent is not anticipated by the use of supplemental locking devices that were designed to be brought into operation only on the *removal*, in whole or in part, of the main lock with which they are used.
[*Id.

37. STUTZ—CAR-WHEELS.
Letters Patent No. 173,369, granted February 8, 1876, to Sebastian Stutz, for an improvement in car-wheels, construed, and the first claim held to cover the patented combination of a recessed hub having the cap or oil-holding cup in a single casting with the removable sleeve or journal-box, and is not infringed by an article manufactured under Letters Patent No. 234,098, granted November 2, 1880, to James H. Watt, in which the cap or oil-cup is made separate and distinct from the hub or body of the wheel, and is detachable therefrom, and in which the journal-box is not removable, but is cast solid or integral with the hub or body of the wheel.
[*The Osceola Manufacturing Company (Limited) v. Pié & Co., 819.

38. THAYER—MASKS.
Letters Patent No. 200,358, of February 12, 1878, to Frederick W. Thayer, for an improvement in masks, is not anticipated by the old fencing-mask, as the fencing-mask had no forehead or chin rest, such as are specified in the Thayer patent.
[*Thayer v. Spaulding, 1044.

39. WOLLENSAK—TRANSOM-LIFTERS.
The Wollensak patents, No. 191,088, May 22, 1877, and No. 196,851, November 6, 1877, for skylight and transom lifters, construed and *held* to be infringed by the transom-lifter described in the Frank A. Reiher patent of April 6, 1880, No. 226,353.
[*Wollensak v. Reiher, 1358.

40. EQUIVALENTS.
Although said Wollensak patents are not foundation or generic patents, still they cover the specific devices shown therein, respectively, or known equivalents therefor.
[*Id.

41. WHEELER—MACHINES FOR MAKING STOVE-PIPE ELBOWS.
The first, second, and sixth claims of Letters Patent No. 224,974, of February 24, 1880, to William A. Wheeler, for machines for making stove-pipe elbows, are infringed by a machine made in accordance with Letters Patent No. 234,191, of November 9, 1880, to John P. Ioor.
[*Wheeler v. Morris *et al.*, 822.

PATENTS.

(See Construction of Specifications and Patents; Use of Patented Articles, 1.)

PATENTS DECLARED VOID IN ONE CIRCUIT.

(See Practice in the Courts, 6.)

PATENTABILITY.

(See Invention; Mechanical Skill; Trade-Marks, 4.)

RESULT, AS EVIDENCE OF INVENTION.
Although it is easy to argue that everything claimed in the patent in suit was known before, and the modifications in the process of manufacture described in the patent were trivial, if the fact remains that the patented process was the first that was actually successful in the long attempt by skilled inventors to make an article both attractive and useful, the law as to patentability can hardly be doubted.
[*The Celluloid Manufacturing Company v. The American Zylonite Company *et al.*, 1043.

PETITION.

(See Practice in the Patent Office, 4.)

PLEADINGS.

(See Practice in the Courts, 2, 3, 4, 5.)

PRACTICE IN THE COURTS.

(See Assignments; Burden of Proof; Costs of Suit, 1, 2; Evidence; Infringement, 16, 17; License, 1, 2, 3, 4, 5.)

1. INJUNCTION—PATENT EXPIRED.
The patent in suit having thus expired before the motion was made, the same was denied.
[*Clark v. Wilson, 456.

2. PLEADINGS.
Exceptions for impertinence and immateriality were filed to that part of a bill which described prior patents to the same inventor, and involving the same principle as one of the patents in suit. *Held* that it was entirely proper, and under the circumstances of the case almost necessary, to show the relation which the patent in suit bore to the prior patents.
[*Steam Gauge and Lantern Company *et al.* v. McRoberts *et al.*, 822.

3. SAME.
The history of the invention is a part of the controversy in a patent case. The state of the art and the steps which have been taken, either by the inventor of the patent in question or by other inventors, are a necessary part of the testimony and proper matters of averment in the bill.
[*Id.

4. RECITAL OF PRIOR LITIGATION.
It is proper to recite in a bill for infringement of a patent prior litigation over the same patent.
[*Id.

5. COMITY—RULE OF, IN SEVENTH CIRCUIT.
In the seventh circuit, by a rule of comity, the courts, in patent cases, endeavor to observe and follow the decisions which have been made in reference to the same patents, and even upon kindred questions, in other circuits.
[*Id.

6. PRACTICE—SUSPENDING ACCOUNTING.
The patent in suit having been declared void for want of novelty by another court, (*Celluloid Manufacturing Company* v. *Tower*, 26 Fed. Rep., 451,) from which decision a notice of appeal to the Supreme Court had been given, a stay of the accounting was asked in this case; but as the facts in this case had features not brought out in the other case, *held* that there was no adequate reason for a stay of the accounting.
[*Celluloid Manufacturing Company v. Comstock & Cheney Company, 1356.

PRACTICE IN THE PATENT OFFICE.

(See Infringement, 16, 17; Oath; Oath in Reissue Cases.)

1. REFERENCES TO BE CITED UPON FINAL REJECTION.
In case of final rejection of applicant's claims by the principal examiner, it is the examiner's duty, at or before such final rejection, to cite to applicant all his references and to suggest all his reasons.
[*Ex parte* Parker, 119.

2. SAME.
Every reference and every reason which is thought by the examiner to be a bar to the issue of such patent should be cited or suggested at or before such final rejection.
[Id.

3. REFERENCE OVERLOOKED.
While this is very desirable in cases where a reference or reason has been overlooked, it is the duty of the examiner to cite or suggest the same as soon as may be after final rejection.
[Id.

4. RULE 140.
The purpose of the amendment of November 16 last to Rule 140 of the Rules of Practice was to secure a uniformity of practice in regard to interlocutory matters, as well as to induce a presentation of the precise point or question intended for review.
[*Ex parte* Baker, 1149.

PRIOR LITIGATION.

(See Practice in the Courts, 4, 5, 6.)

PRIOR PATENTS.

(See Anticipation, 2, 3, 4.)

PRIOR PUBLICATIONS.

(See Anticipation, 1, 2, 3.)

PRIOR USE.

(See Burden of Proof.)

PROCESS.

(See Construction of Specifications and Patents, 12, 14; Patentability.)

PUBLIC USE.

(See Use of Patented Articles.)

REFERENCES.

(See Practice in the Patent Office, 1, 2, 3.)

REISSUES.

(See Oaths in Reissue Cases; Particular Patents, 2, 16, 20, 21, 25, 31.)

1. NEW CLAIM IN REISSUE, WHEN VALID.
The reissue in this case having been applied for promptly, and the new claim being one that might have been properly embraced in the original specification, such new claim is valid.
[*Asmus v. Freeman, 231.

2. THE ACTION OF THE COMMISSIONER CONCLUSIVE OF CERTAIN FACTS.
Where a reissue is otherwise valid the action of the Commissioner of Patents is conclusive of the fact that the new claim was omitted from the original specification through "inadvertence, accident, or mistake."
[*Id.

3. MILLER V. BRASS COMPANY EXPLAINED.
Miller v. *Bridgeport Brass Company* does not sanction the idea that new claims are prohibited in all reissues. It simply applies the doctrine of equitable estoppel to a patentee, who, without excuse, delays to reissue his patent until rights have accrued to other parties, and then reissues with new claims which affect injuriously the rights of such other parties.
[*Id.

4. DIFFERENT INVENTION.
Although a claim in a second reissue contained a larger number of elements than the claim in a first reissue, granted five years before, it was *held* to be void because for a different invention.
[*Hubel v. Dick, 939.

5. INTERFERING PATENTS—SECTION 4818 REVISED STATUTES.
Rule as to diligence restated.
[*Id.

6. BASIS FOR A REISSUE.
To entitle a party to a reissue of letters patent the following facts must exist and be established:
The old patent must be inoperative and invalid.
[*Ex parte* Whiteley *et al.*, 1043.

7. SAME.
It must be so inoperative and invalid because of defective or insufficient specification or by reason of the patentee having claimed more than he had a right to claim as new.
[Id.

8. SAME.
The error which so rendered the old patent inoperative or invalid must have arisen by inadvertence, accident, or mistake.
[Id.

9. SAME.
It must have occurred without any fraudulent or deceptive intention on the part of applicant.
[Id.

REJECTION.

(See Practice in the Patent Office, 1, 2, 3.)

RESERVATION FOR SUBSEQUENT PATENTS.

(See Anticipation, 4.)

RESIDENCE.

(See Oath, 5.)

RESULTS.

(See Construction of Specifications and Patents, 12; Patentability.)

RIGHT TO USE.

(See Damages and Profits, 3, 4.)

ROYALTY.

(See Damages and Profits, 1, 2.)

SALE OF PATENTED ARTICLES.

(See Damages and Profits; Use of Patented Articles.)

SEPARATE INVENTIONS.

(See Construction of Specifications and Patents, 4.)

STATE OF THE ART.

(See Invention, 6, 7; Particular Patents, 22.)

STATE COURTS.

(See Jurisdiction; Labels, 1.)

SUBSEQUENT PATENT FOR SAME INVENTION.

(See Anticipation, 4.)

SUBSTITUTION OF PARTS.

(See Infringement, 4.)

SUITS FOR INFRINGEMENT.

(See Infringement, 17, 18.)

TRADE-MARKS.

(See Labels, 1, 2, 3, 4, 5, 6.)

1. Is a Substitute for Owner's Signature and Authenticates his Goods.
The office of a trade-mark is to authenticate the article on which it is borne as the product of the owner of the trade-mark, and is a representative of or substitute for the owner's signature.
[*Schumacher & Ettlinger v. Schwenke, Jr., *et al.*, 457.

2. False Representations by Registrant Forfeits Protection.
When the owner of a trade-mark applies for injunction to restrain another from injuring his property by making false representations to the public, it is essential that the plaintiff should not in his trade-mark, or in the business connected with it, be himself guilty of any false or misleading representations; for if the plaintiff makes any material false statement in connection with the property he seeks to protect he loses his right to claim the assistance of a court of equity.
[*Id.

3. Trade-Marks as Affected by Common Rights.
Tin being one of the common metals in use by the public for a very large variety of purposes, and being easily stamped or impressed with letters, figures, or characters, or cut into various shapes, and taking readily different colors or shades besides its natural metallic luster, and, like paper, becoming readily the vehicle or material for receiving whatever impression or color may be stamped upon it, *held* that the attempt of complainants to appropriate tin to their exclusive use in marking plug-tobacco, without regard to its color, shape, or the characters or letters it bears, is not within the scope and purpose of the law of trade-marks.
[*Lorillard *et al.* v. Pride, 1150.

4. Trade-Marks not Available to Perpetuate Rights Secured by Patents.
Complainants having attempted to secure to themselves by means of a patent the exclusive use of tin as a badge for their plug-tobacco, and their goods having acquired the name of "Tin Tag" goods while they were acting under their patent, *held* that when the patent was declared void the right to so indicate or mark such goods became public, and complainants cannot perpetuate or continue this right by claiming it as a trade-mark.
[*Id.

5. An Arbitrary Term Distinguished from the Thing Signified Thereby.
The use of arbitrary terms—such as "Tin Tag" or "Wood Tag"—by a manufacturer to indicate goods produced or sold by him might be allowed if the person so using the name or words branded them upon his goods, or in any way gave the goods the name; but that would give no right to the exclusive use of the tin or wood as a material to designate the goods.
[*Id.

USE OF PATENTED ARTICLES.

(See Damages and Profits, 3, 4, 5, 7; Injunction; Licenses, 6.)

Patentee must Use or Else Permit Others to Use.
A patentee is bound either to use the patent himself or allow others to use it on reasonable and equitable terms.
[*Hoe *et al.* v. Knap *et al.*, 1244.

UTILITY.

(See Construction of Specifications and Patents, 7; Invention, 9, 10.)

VALID PATENTS.

(See Particular Patents, 10, 15, 17, 18, 23, 26, 27, 28, 29, 31, 34, 37, 39; Reissues, 2.)

VOID PATENTS.

(See Construction of Specifications and Patents, 6, 15; Particular Patents, 2, 5, 6, 8, 9, 12, 13, 14, 16, 20, 21, 25, 32, 33; Practice in the Courts, 6; Reissues, 5.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING SEPTEMBER 30, 1886.

[Claims and drawings of Designs do not appear in the Monthly Volumes or the Gazette. Separate indexes for Designs, Trade-Marks, Labels, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abbett, Henry, Carrollton, Ky. Padlock	346,011	July 20	1739	448	36	324
Abbett, Leon. (See White, Lewis B., assignor.)						
Abbott, Edwin W., *et al.* (See Punches, Oscar J., assignor.)						
Abbott, Henry, Newark, N. J. Stem winding and setting mechanism for watches	346,254	July 27	2075	533, 534	36	398
Abbott, James G., Lawrence, Mass. Carriage-cover support	345,821	July 20	1471	380	36	277
Abbott, Noel, Kansas City, Mo. Grip for cable railways	345,354	July 13	771	193	36	144
Abbott, Orson, *et al.* (See Punches, Oscar J., assignor.)						
Abercrombie, Alexander V. (See Abercrombie, Charles M. and A. V.)						
Abercrombie, Charles M. and A. V., Bridgeport, Conn. Sewing-machine bobbin	347,678	Aug. 17	1704	455	36	796
Abercrombie, Frank P., Camden, N. J. Railway-signal	349,131	Sept. 14	821	208	36	1201
Abrahams, Abram, East St. Louis, Ill. Swivel for watch-chains	348,811	Sept. 7	365	99	36	1115
Abt, Roman, Bünzen, Switzerland, assignor of one-half to O. Gruninger, New York, N. Y. Rack-rail for railways	349,624	Sept. 21	1481	383, 384	36	1339
Accles, James G., Hartford, Conn. Carriage for machine-guns	348,180	Aug. 31	2437	653, 654	36	945
Acker, Willitt H., Syracuse, N. Y. Combined latch and lock	349,195	Sept. 14	902	232	36	1217
Ackerson, Garret G., St. Louis, Mo. Corset	346,339	July 27	2188	561	36	418
Ackley, Ami C., *et al.* (See Henderson, Harry D., assignor.)						
Ackley, John A., Cleveland, Ohio. Extension-handle	349,917	Sept. 28	1892	489	36	1425
Acme Dust Collector and Wheat Cleaning Company. (See Holt, Noah W., assignor.)						
Acme Liquid Fuel Company of New York. (See Roberts, James, assignor.)						
Acme Manufacturing Company. (See Shamp, George W., assignor.)						
Adam, William J. (See Brainard, Curtis B., assignor.)						
Adams Company, F. F. (See Hurley, John A., assignor.)						
Adams, Daniel L., Reading, Pa. Sectional steam-boiler	349,918	Sept. 28	1892	489, 490	36	1425
Adams, E. A., *et al.* (See Warner, John P., assignor.)						
Adams, Franklin L. (See Barnett and Adams.)						
Adams, George, Waterbury, Conn. Revolving mold for casting tubes	348,709	Sept. 7	243	64	36	1092
Adams, George F., *et al.* (See Allgire, James R., assignor.)						
Adams, Gilbert L., Altoona, Pa. Car-brake	347,911	Aug. 24	2040	539	36	865
Adams, Henry A., Sandwich, Ill. Grinding-mill	348,607	Sept. 7	104	29, 30	36	1066
Adams, Henry P., assignor of five-eighths to J. N. Brady and R. C. Blackall, Albany, N. Y. Construction of railway-tracks and the constituent parts thereof	348,877	Sept. 7	456	120	36	1131
Adams, James A., assignor of one-half to L. Newelt, Atlanta, Ga. Steam-boiler feeder	345,355	July 13	774	194	36	145
Adams, John B., Camden, N. J. Fuel-block and fire-kindler	344,691	July 6	137	.....	36	25
Adams, John W., Kelat, Ky. Railway-switch	348,606	Sept. 7	106	30	36	1067
Adams, Paul H., assignor of one-half to H. Gerlach, Philadelphia, Pa. Spark-arrester	346,012	July 20	1741	448	36	325
Adams, W. Irving, Montclair, N. J., assignor to Scovill Manufacturing Company, New York, N. Y. Pan for the use of photographers	345,871	July 20	1539	398	36	288
Adams, W. Irving, Montclair, N. J., assignor to Scovill Manufacturing Company, New York, N. Y. Photographic-printing frame	346,255	July 27	2078	534	36	398
Adams, Walter G., Sandwich, Ill. Winding-drum	349,196	Sept. 14	903	232	36	1217
Adams, William T., Baltimore, Md. Ash-sifter	346,340	July 27	2188	561	36	418
Adler, Georg, Buchhols, Saxony, Germany. Folding box	347,761	Aug. 24	1821	485	36	825
Adlung, Reinhold, Pankow, Germany. Pneumatic pump	349,777	Sept. 28	1715	442	36	1388
Adt, John B. (See Kaiser and Adt.)						
Aebi, Johann U., and J. Mühlethaler, Burgdorf, Berne, Switzerland. Machine for hulling and grinding corn	349,418	Sept. 21	1309	313, 314	36	1285
Agnew, Marion W., New York, N. Y. Under-garment	348,181	Aug. 31	2439	654, 655	36	945
Ahrens, George, Crete, Ill. Plastering-strip	347,080	Aug. 10	841	223	36	628
Ahrens, George, Crete, assignor of one-half to H. Scherer, Chicago, Ill. Plastering-strip	349,331	Sept. 21	1068	274	36	1256
Aiken, Henry, Pittsburg, Pa. Machine for rolling eye-bars	349,419	Sept. 21	1210	314, 315	36	1285
Ainsworth, Eleazer. (See Brink, Chester W., assignor.)						
Ainsworth, Seymour. (See Clapp and Ainsworth.)						
Aker, Joseph M. (See Costello and Aker.)						
Albee, Edson P. (See Albee, Truman C., assignor.)						
Albee, Harry C., Detroit, Mich. Manufacture of broom-handles	347,981	Aug. 24	2144	571	36	864

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Albee, Harry C., Detroit, Mich. Machine for finishing broom-handles	348,878	Sept. 7	456	121	36	1131
Albee, Truman C., Chicago, assignor to himself and E. P. Albee, Lombard, Ill. Windmill	349,197	Sept. 14	905	232	36	1217
Albert Nail Company. (See Parkhurst and Lovell, assignors.)						
Albrecht, Charles H. (See Dalton, Clarence L., assignor.)						
Albrecht, George W. (See Hall, Chauncey M., assignor.)						
Albright, Chester E., Muncy, Pa. Road-wagon	346,341	July 27	2189	562	36	419
Albright, Chester E., Muncy, Pa. Vehicle-spring reliever	346,342	July 27	2191	562	36	419
Alden, Samuel R. (See Pisano, Martin, assignor.)						
Aldrich, Elbert, New York, N. Y. Tile	345,942	July 20	1639	422	36	307
Alexander, Charles F., assignor of three-fourths to S. B., B. W., and M. Fleisher, Philadelphia, Pa. Bobbin-holder for winding-machines	345,943	July 20	1640	422	36	307
Alexander, F. B. (See Huffman, Jefferson M., assignor.)						
Alexander, James H. (See Ohlwine and Alexander.)						
Alexander, Samuel G., Detroit, Mich. Felt boot	345,471	July 13	988	236	36	174
Allbright, William B., Boston, Mass. Bleaching animal fats and oils	345,872	July 20	1539	.....	36	288
Allegretti, Ignazio, West Berkley, Cal. Movable ice-chamber	349,831	Sept. 28	1789	462	36	1404
Allen, Chancellor C. (See Crockett and Allen.)						
Allen, Charles. (See Rehrbach, Henry J., assignor.)						
Allen, Charles S. (See Gaunt and Allen.)						
Allen, David H., Miamisburg, Ohio. Carriage-top	345,472	July 13	989	237	36	174
Allen, Edward B., Portland, Me., assignor to J. W. Brooks, trustee, Cambridge, Mass. Heel-loading machine	348,091	Aug. 24	2297	615, 616	36	913
Allen, Edward B., Portland, Me., assignor to J. W. Brooks, trustee, Cambridge, Mass. Heel-loading machine	348,092	Aug. 24	2301	616, 617	36	914
Allen, Edward M., assignor to S. E. Allen, Stafford, Md. Wagon-brake	346,686	Aug. 3	319	86	36	522
Allen, Erastus W., Auburn, N. Y. Mop washing and wringing machine	348,609	Sept. 7	108	31	36	1067
Allen, George, assignor of one-half to J. C. Sibley, Franklin, Pa. Sucker-rod	348,944	Sept. 14	555	147	36	1135
Allen, George H., *et al.* (See Barton, Richard T., assignor.)						
Allen, George H., Ayer, assignor to G. Draper & Sons, Hopedale, Mass. Spindle-bearing	348,651	Sept. 7	162	45	36	1077
Allen, Hiram, and L. S. Mason, Sandy Hill, N. Y.; said Allen assignor to said Mason. Felt-cleaning device for paper-making machines	346,013	July 20	1742	448	36	325
Allen, John F. and J. H., New York, N. Y. Sectional boiler	347,859	Aug. 24	1959	590	36	852
Allen, John H. (See Allen, John F. and J. H.)						
Allen, S. Fletcher. (See Horton, Cornelius N., assignor.)						
Allen, Sallie E. (See Allen, Edward M., assignor.)						
Allen, Sidney E., Winston, N. C. Seal-lock	349,871	Sept. 28	1836	475	36	1414
Allen, Thomas, Bristol, county of Bristol, England. Bedstead	347,912	Aug. 24	2041	539, 540, 541, 542	36	865
Allen, William H., Conway, N. H. Machine for cutting spool-blanks	344,931	July 6	187	48	36	35
Alexander, Clifford J., *et al.* (See Wilmont, Edwin, assignor.)						
Alexander, William S., *et al.* (See Wilmont, Edwin, assignor.)						
Allgire, James R., assignor of two-thirds to G. F. Adams and M. D. Williamson, Indianapolis, Ind. Barrel	347,800	Aug. 24	1960	590	36	852
Allis, Edward P. (See Hinkley, George M., assignor.)						
Allis, Edward P. (See Robinson, George W., assignor.)						
Allison, Asa H., assignor of one-half to J. I. Irwin, near Columbus, Ind. Fence-machine	349,294	Sept. 21	1087	263	36	1251
Allison, John M., Columbus, and C. P. Bowden, Johnstown, Mo. Corn-planter	345,757	July 20	1380	359	36	261
Alsworth, Gustaf, Elgin, Ill., assignor of one-tenth to V. Bertsch, Boston, Mass. Protractor	346,836	Aug. 3	477	132	36	554
Almy, George F., Delphos, Ohio. Car-coupling	349,968	Sept. 28	1964	507, 508	36	1438
Alsop, Charles R., Syracuse, N. Y. Hot-air furnace	345,564	July 13	1097	280	36	903
Althouse, Nathan S. (See Christman, Augustus G., assignor.)						
Altick, James O., assignor of one-half to D. Weaver, Dayton, Ohio. Elliptic spring	348,710	Sept. 7	244	65	36	1092
Alvord, Elisha H., Seattle, Wash. Ter. Sash-fastener	349,295	Sept. 21	1088	263	36	1251
Alvord, Williston I., Bridgeport, Conn. Knob attachment	347,411	Aug. 17	1305	348	36	722
Alvord, Williston I., Bridgeport, Conn. Knob attachment	347,412	Aug. 17	1306	348	36	722
Alvord, Williston I., Bridgeport, Conn. Knob attachment	347,413	Aug. 17	1307	349	36	722
Alvord, Williston I., Bridgeport, Conn. Lock and latch	347,414	Aug. 17	1308	349	36	722
Amann, Charles H., Columbus, Ohio. Stove	346,631	Aug. 3	233	64	36	565
American Animal Tether Company. (See Aspinwall, D. La Mont, assignor.)						
American Automatic Fire Alarm Association. (See Wheeler, Alden D., assignor.)						
American Bell Telephone Company. (See Watson, Thomas A., assignor.)						
American Brake Company. (See Higham, Charles C., assignor.)						
American Brake Company. (See Poor, George H., assignor.)						
American Brake Company. (See Wahlert, Henry A., assignor.)						
American Button Fastener Company. (See Richards, Francis H., assignor.)						
American Electric Head Light Company. (See Pyle, George C., assignor.)						
American Endolithic Company. (See Coleman, Caryl, assignor.)						
American Fire Hose Manufacturing Company. (See Sibley, Edwin F., assignor.)						
American Globe and School Supply Company. (See Cheney, Flavius, assignor.)						
American Manufacturing Company. (See Leopold, Charles F., assignor.)						
American Screw Company. (See Harvey and Clark, assignors.)						
American Ship Windlass Company. (See Whitney, Edwin H., assignor.)						
American Writing Machine Company. (See Lake, Vincent F., assignor.)						
American Zylonite Company. (See Edison, Jarvis B., assignor.)						
American Zylonite Company. (See Mowbray, George M., assignor.)						
Ames, Charles L., *et al.* (See Briggs, Orlando P., assignor.)						
Ames, Charles S., Bishop, Ill. Channeling-machine	345,873	July 20	1540	396	36	288
Ames, John, Jr., assignor of one-half to J. C. Bonner, Toledo, Ohio. Brush	349,296	Sept. 21	1089	263	36	1251
Ames, Oliver. (See Clark, John H., assignor.)						
Ames, Warren W., De Ruyter, N. Y. Pillow-sham holder	348,819	Sept. 7	365	89	36	1115
Ames, William L., Terre Haute, Ind. Cork-extractor	345,822	July 20	1471	380	36	277
Amidon, Charles H., Buffalo, N. Y. Machine for applying heads to bit-braces	348,182	Aug. 31	2440	655	36	945
Amon, George M., Brooklyn, and F. X. Berger, New York, N. Y. Ash-sifter	345,823	July 20	1472	380	36	277
Amos, Mark, and J. Hunt, Westbury-on-Trym, county of Gloucester, England. Storing castings	346,699	Aug. 3	313	86	36	582
Anderfuren, William J., assignor of one-half to J. Eva, San Francisco, Cal. Portable house	345,944	July 20	1640	422	36	307
Andersen, Anton G., Chicago, Ill. Bung-bush wrench	349,556	Sept. 21	1397	362	36	1362
Anderson, Charles, assignor to South Bend Iron Works, South Bend, Ind. Sulky-plow	348,487	Aug. 31	2699	709, 710	36	1086
Anderson, Charles, assignor to South Bend Iron Works, South Bend, Ind. Plow	348,652	Sept. 7	163	45	36	1077
Anderson, Charles, assignor to South Bend Iron Works, South Bend, Ind. Sulky-plow	348,945	Sept. 14	556	147, 148	36	1155
Anderson, Christian. (See Patten and Anderson.)						
Anderson, Christian, Appleton, Wis. Bar or blade for the rolls of paper-pulp engines	349,332	Sept. 21	1069	274	36	1250
Anderson, Clark, Holden, Mo. Baking-powder mixer	345,904	July 6	555	143	36	101
Anderson, David S., assignor of one-half to C. M. Bean, McGrawville, N. Y. Running-gear for vehicles	346,700	Aug. 3	314	86	36	563
Anderson, George K., Memphis, Tenn. Inking-ribbon for type-writing machines	349,096	Sept. 14	671	173	36	1174
Anderson, George P. (See Hogeland, Israel, assignor.)						
Anderson, Hugh K. (See Pyle, Emma A., assignor.)						
Anderson, James, Louisville, Ky. Making hydraulic cement	346,385	Aug. 3	98	.....	36	479
Anderson, James C., Highland Park, Ill. Brick for window-sills, &c.	346,394	July 27	2267	561	36	434
Anderson, James C., Highland Park, Ill. Brick for window-sills, &c.	346,701	Aug. 3	315	87	36	582
Anderson, James C., Highland Park, Ill. Manufacture of ornamental brick from clays of different colors	348,443	Aug. 31	2789	732	36	1016
Anderson, James C., Highland Park, Ill. Method of and apparatus for making bricks, &c.	348,444	Aug. 31	2800	732, 733	36	1016
Anderson, James C., Highland Park, Ill. Method of and apparatus for manufacturing brick and tile	348,445	Aug. 31	2803	733, 734	36	1016
Anderson, James C., Highland Park, Ill. Brick of irregular form for facing walls	349,471	Sept. 21	1284	333, 334	36	1300
Anderson, James C., Highland Park, Ill. Underground conduit	349,472	Sept. 21	1285	334	36	1300
Anderson, James S., Cincinnati, Ohio. Stamping hard or irregular surfaces	346,632	Aug. 3	234	.....	36	505
Anderson, John A., Boston, Mass. Corset	349,969	Sept. 28	1966	508	36	1438
Anderson, John H., Jones Valley, Tenn. Harrow	349,557	Sept. 21	1398	362	36	1322
Anderson, John R. (See Morrison, Hamon, assignor.)						
Anderson, John W., Lancaster, Pa. Nut-lock	347,147	Aug. 10	932	248	36	645
Anderson, Richard. (See Jones, Harvey L., assignor.)						
Anderson, Silas, Owatonna, Minn. Stove-pipe drum or heat-radiator	346,256	July 27	2078	534	36	398
Anderson, Valerius D., Cleveland, Ohio. Drying apparatus	348,541	Sept. 7	1	1	36	1049
Anderson, William C. (See Wolcott, Henry E., assignor.)						
Andreé, Franz W., Chicago, Ill. Bone-reducer	348,946	Sept. 14	560	148	36	1156
Andrew, Joseph Lonsdale, R. I. Automatic fire-extinguisher	346,706	Aug. 3	422	116	36	543
Andrews, Hezekiah P., Everett, Mass. Ventilator	345,945	July 20	1642	423	36	308
Andrews, James B., and H. R. Gillingham, Baltimore, Md. Package	349,970	Sept. 28	1966	508	36	1438
Andrews, Nathaniel S., and H. F. Burnap, Dubuque, Iowa. Churn	345,087	July 6	415	107	36	76
Andrews, William, Buffalo Grove, Iowa. Sled-brake	349,132	Sept. 14	822	209	36	1201
Andrews, William D., Brookhaven, N. Y. Procuring supplies of water from tubular wells	349,379	Sept. 21	1155	299, 300	36	1275
Andrews, William D., Brookhaven, N. Y. Means for exhausting air from liquid-receiving vessels or casings	349,490	Sept. 21	1212	315	36	1286
Andrews, William S., New York, N. Y. Safety-catch	348,371	Aug. 31	2697	725	36	996
Andrews, William T. (See Timmins and Humphreys, assignors.)						
Angell, Edwin E. (See Harlow and Angell.)						
Angle, Charles H., Chicago, Ill. Signal-lantern	350,029	Sept. 28	2049	528	36	1453
Ansonia Brass and Copper Company. (See Hull, Wolcott A., assignor.)						
Ansonia Brass and Copper Company, *et al.* (See Wayland, James, assignor.)						
Anthony & Co., E. & H. T. (See Anthony and Lewis, assignors.)						
Anthony & Co., E. & H. T. (See Barker, Erastus B., assignor.)						
Anthony & Co., E. & H. T. (See Roche, Thomas C., assignor.)						
Anthony, John R., Sherman City, Kans. Fertilizer-distributer	348,507	Aug. 31	2691	777, 778	36	1039
Anthony, Richard A., and W. H. Lewis, assignors to E. & H. T. Anthony & Co., New York, N. Y. Photographic camera	349,133	Sept. 14	894	209	36	1202
Apfelbaum, Morris, New York, N. Y. Umbrella	350,030	Sept. 28	2049	528	36	1453
Apgar, Elias, Grand Crossing, Ill. Car-coupling	347,679	Aug. 17	1706	455	36	796
Apgar, George W., Ithaca, N. Y. Writing-tablet	346,586	Aug. 3	99	28	36	479
App, Michael, Cleveland, Ohio. Brush	346,421	July 27	2306	504	36	441
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Grain-binder for harvesters	346,451	Aug. 3	1	1	36	461
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Harvester	348,259	Aug. 31	2546	683, 684	36	965
Appleby, John F., assignor to Minneapolis Harvester Works, Minneapolis, Minn. Harvester	348,260	Aug. 31	2547	684, 685	36	966
Appleby, Joseph, Birmingham, England. Holder for pencils and other implements	346,014	July 20	1743	449	36	325
Applegate, Benjamin F., New Albany, Ind. Shaft-coupling	349,678	Sept. 28	1555	403	36	1361
Arkland, Alexander D. (See Wilder and Arkland.)						
Armant, Edmond. (See Bartholomew, George E., assignor.)						
Armitage, Albert, Lyons, assignor, by mesne assignments, to L. Bickford and H. M. Kirkpatrick, Macedon, N. Y. Changeable speed-gearing	345,018	July 6	318	80	36	58
Armstrong, Elvin, Jerseyville, Ill. Bee-hive	346,883	Aug. 10	549	149	36	575
Armstrong, Elvin S., Jerseyville, Ill. Bee-hive	349,073	Sept. 14	737	188	36	1186
Armstrong, George S., assignor of one-half to J. E. Kiefer and W. G. Hutchison, Denver, Colo. Amalgamator	349,778	Sept. 28	1716	443	36	1389
Armstrong, Samuel S. (See Robie, Henry W., assignor.)						
Arnett, William D., Morrison, Colo. Seeding-machine	345,403	July 13	838	210	36	156
Arnett, William D., Denver, Colo. Grain-drill	347,982	Aug. 24	2145	571	36	884
Arnold, William T., *et al.* (See Belt, Samuel, assignor.)						
Artman, Clifford A., Dansville, N. Y. Polishing attachment for lathes	348,146	Aug. 24	2306	634	36	926
Ash, Alfred J., Boston, Mass. Necktie-fastener	349,832	Sept. 28	1791	463	36	1404
Ash, John S., Buckingham, Pa. Steam-engine	347,219	Aug. 10	1028	274	36	602
Ashby, Daniel S., assignor to himself, C. D. H. and J. G. Bustard, and H. L. Snapp, Stephenville, Tex. Head-rest for chairs	346,634	Aug. 3	236	65	36	506
Ashcroft, Edward H., Lynn, Mass. Automatic fire-extinguisher	346,571	Aug. 3	150	41	36	469
Ashcroft, John, New York, N. Y. Grate-bar	347,548	Aug. 17	1503	388, 389	36	758
Ashcroft, John, New York, N. Y. Feeding air to furnaces	347,549	Aug. 17	1504	389	36	758
Ashcroft, John, New York, N. Y. Draft-regulator	347,550	Aug. 17	1505	400	36	758
Ashcroft Manufacturing Company. (See Low, Frederick R., assignor.)						
Ashley, Carlton G., Cleveland, assignor of one-half to R. L. Ashley, Perry, Ohio. Surgical instrument	346,633	Aug. 3	235	64	36	565
Ashley, R. L. (See Ashley, Carlton G., assignor.)						
Ashton, William, Manchester, assignor of one-half to E. Scott, Newcastle, England. Apparatus for registering the power of steam-engines, &c.	348,147	Aug. 24	2367	635, 636	36	926

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Ashworth, John, Somerville, Mass. Covered elastic endless band	345,660	July 20	1245	323	36	237
Askren, James C., Mount Ayr, Iowa. Car-coupling	349,679	Sept. 28	1556	403	36	1361
Asper, Benjamin F. (See McCarter, Samuel, assignor.)						
Asper, Benjamin F., Pittsburg, assignor of one-half to S. McCarter, Norristown, Pa. Chain-saw	349,833	Sept. 28	1792	463	36	1404
Aspinwall, D. La Mont, Petersburg, Va., assignor to American Animal Tether Company. Animal-tether	349,625	Sept. 21	1485	384	36	1340
Atherton, Jesse, Brockton, Mass. Metallic shoe-shank	346,572	Aug. 3	152	42	36	489
Atkin, Samuel T., and O. Steele, Georgetown, Tex. Well-bucket fixture	349,626	Sept. 21	1486	385	36	1340
Atkins, Daniel T., Worsham, Va. Millstone-dress	346,015	July 20	1746	449	36	326
Atkinson, Samuel, Cincinnati, Ohio. Vehicle-spring	346,016	July 20	1747	449	36	326
Atterbury, Allen W. (See Likins, William H., assignor.)						
Atwood, Eugene. (See Atwood and Bradley.)						
Atwood, George F., Swanton, Vt. Garment-supporter	345,205	July 6	555	142	36	101
Atwood, John E., Stonington, Conn. Cotton-gin	346,573	Aug. 3	152	42	36	489
Atwood, John E. and E., and E. E. Bradley, assignors to Atwood Machine Company, Stonington, Conn. Shedding mechanism for looms	346,574	Aug. 3	156	42, 43	36	490
Atwood Machine Company. (See Atwood and Bradley, assignors.)						
Austermell, Jefferson H., *et al.* (See Brooks, Willard P., assignor.)						
Austin, Alonzo D., assignor of one-half to N. M. Terry, Jackson, Mich. Device for driving tube-wells	348,813	Sept. 7	366	99	36	1116
Austin, Newton W., Newport, Ky. Weighing and price scale	346,017	July 20	1748	{449 / 450}	36	326
Austin, Oren, assignor of one-half to H. Greek, Painted Post, N. Y. Bridle-bit	349,246	Sept. 14	975	249	36	1231
Austin, William K., Brooklyn, N. Y. Rotary steam-engine	348,879	Sept. 7	458	{121 / 122}	36	1139
Automatic Dining Table Company. (See Grillwitzer, Charles A., assignor.)						
Averell, William W., Washington, D. C. Insulating conduit	348,880	Sept. 7	464	123	36	1133
Avery Lactate Company. (See Nowell, Thomas S., assignor.)						
A. W. O. Curry Comb Company. (See Warner, Peter W., assignor.)						
Ayers, James R., Petersburg, Va. Peanut-planter	346,976	Aug. 10	679	180	36	599
Aylsworth, George H., Niles, Mich. Wind-wheel	346,797	Aug. 3	423	117	36	543
Ayres, Daniel B., Brooklyn, Mich. Fence-post	349,266	Sept. 14	998	255	36	1236
Ayres, Ruben B., St. Louis, Mo. Furnace	45,611	July 13	1154	{295 / 296}	36	914
Ayres, Ruben B., St. Louis, Mo. Wardrobe-bedstead	345,612	July 13	1155	296	36	914
Ayres, Ruben B., St. Louis, Mo. Steam-boiler	346,837	Aug. 3	478	132	36	554
Babb, John H. (See Lewis and Babb.)						
Babbitt, Benjamin T., New York, N. Y. Ordnance-projectile	346,343	July 27	2193	568	36	419
Babbitt, Benjamin T., New York, N. Y. Apparatus for steering vessels	347,963	Aug. 24	2146	571	36	984
Babbitt, Benjamin T., New York, N. Y. Operating ordnance	347,964	Aug. 24	2148	571	36	985
Babbitt, Benjamin T., New York, N. Y. Apparatus for steering vessels	347,965	Aug. 24	2149	572	36	985
Babbitt, Benjamin T., New York, N. Y. Steam-generator	348,093	Aug. 24	2302	617	36	914
Babcock, E. Stillman, assignor of one-half to A. S. Maxson, Milton, Wis. Vent-hole closer for pumps	349,680	Sept. 28	1557	403	36	1361
Babendreier, C. Albert. (See Brickenstein and Babendreier.)						
Baca, Roman L., and J. L. Leavitt, Grant, N. Mex. Ter. Device for controlling the opening of locks on railway-cars, &c	345,473	July 13	940	237	36	174
Bachelder, Charles H., assignor of one-half to G. E. Kent, Pittsfield, N. H. Shuttle-operating mechanism for looms	345,946	July 20	1643	423	36	308
Bachman, Jacob, Stony Run, Pa. Reel for harvesters	347,551	Aug. 17	1506	400	36	758
Bachman, Ulrich, St. Helena, Cal. Automatic filling-faucet	348,372	Aug. 31	2698	725	36	996
Backus Manufacturing Company. (See Murray, Peter, Jr., assignor.)						
Backus, Victor M., Indianapolis, Ind. Portable tank	344,932	July 6	189	48	36	35
Bacon, Clovis N., assignor of one-fourth to J. Smith, Boston, Mass. Steam-boiler and furnace	346,663	July 27	1831	473	36	351
Bacon, John H., assignor of one-half to A. D. Elwell, Philadelphia, Pa. Shelf-bracket	350,031	Sept. 28	2050	529	36	1453
Bacon, Murray, Philadelphia, Pa. Embroidery-frame	349,473	Sept. 21	12-6	334	36	1300
Bacon, Walter R., London, England. Apparatus for the manufacture of blank tickets or cards	345,474	July 13	941	237	36	175
Badische Anilin and Soda Fabrik. (See Bohn, René, assignor.)						
Badische Anilin and Soda Fabrik. (See Bull and Müller, assignors.)						
Baer, Lucien, and D. Kraemer, New York, N. Y. Wall-paper and other fabric	346,257	July 27	2079	534	36	399
Baer, Gottlieb, Springfield, Mass. Cigar	348,814	Sept. 7	367	99	36	1116
Bailey, Albert H., Nashua, N. H. Thread-cleaning device for spooling-machines	345,475	July 13	942	237	36	175
Bailey, Andrew J. (See Ethridge, Martin V. B., assignor.)						
Bailey, Farrell & Co. (See Franklin, Edward A., assignor.)						
Bailey, Gilbert L., Portland, Me. Trunk-fastening	346,575	Aug. 3	159	43	36	490
Bailey, Jefferson S. (See Howard, Charles H., assignor.)						
Bailey, Leonard, Hartford, Conn. Screw-driver	348,815	Sept. 7	368	100	36	1116
Bailey, Samuel T. (See Rich, Farr, and Bailey.)						
Bailey, Thomas. (See Schevenell, Leonard, assignor.)						
Bailey, William H., Winchester, assignor to G. H. Wilbur, trustee, Malden, Mass. Malt-drier	346,344	July 27	2194	{562 / 563}	36	490
Bailhache, Gabriel. (See De Virloy, Commelin, and Bailhache.)						
Bailie, James. (See Duncan and Bailie.)						
Bair, Alvin. (See Copper and Bair.)						
Baird, Albert W. (See Miller, James W., assignor.)						
Baird, Andrew J., Van Orin, assignor of one-half to M. Buhler, Lamoille, Ill. Cultivator or plow	346,139	July 27	1914	494	36	367
Baird, G. Edward, Urbana, Ill. Grain weighing and registering apparatus	349,971	Sept. 28	1967	{508 / 509}	36	1438
Baird, John V., Springfield, Ohio. Gate	349,474	Sept. 21	1987	{334 / 335}	36	1300
Baird, William R. (See Crawford, Middleton, assignor.)						
Baker, Alvira, Mitchell, Ind. Dress-maker's chart	349,198	Sept. 14	906	233	36	1216
Baker, Andrew C., Albion, Mich. Wheel-cultivator	349,972	Sept. 28	1969	509	36	1439
Baker, Daniel B., Rising Sun, Ohio. Hame-fastener	348,711	Sept. 7	345	65	36	1092
Baker, Edgar J., Tiffin, Ohio. Sad-iron	347,148	Aug. 10	533	140	36	645
Baker, Edward E., Morgantown, W. Va. Letter and document file	347,709	Aug. 24	1491	385	36	685
Baker, Frank E., Akron, Ohio. Tea-pot and coffee-pot handle	347,021	Aug. 10	745	198	36	610
Baker, Frank E., Akron, Ohio. Coffee-pot	349,199	Sept. 14	907	233	36	1216
Baker, Grant G., *et al.* (See Baker, John, assignor.)						
Baker, Hayda M., Brooklyn, N. Y. Resorcin-blue compound	348,816	Sept. 7	369	.....	36	1116
Baker, Jacob M., Boston, Mass., assignor to Indented Paper Company, Portland, Me. Carpet-lining	347,763	Aug. 24	1889	485	36	685

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Baker, John, Hillside, Dak. Ter. Nut-lock	347,764	Aug. 24	1893	485	36	695
Baker, John, assignor of two-thirds to G. G. Baker and T. A. Long, Sweet Valley, Pa. Lifting-jack	348,817	Sept. 7	371	100	36	1116
Baker, John W., Philadelphia, Pa. Gas-stove	349,779	Sept. 28	1718	443	36	1389
Baker, Joseph G., Fernwood, Pa. Pipe and rod vise	348,818	Sept. 7	372	100	36	1116
Baker, Milton H., *et al.* (See Lawrence, John R., assignor.)						
Baker, Philander, Roxbury, Mass. Elevator	349,074	Sept. 14	739	188	36	1186
Baker, Robert. (See Mathewson, Sebra R., assignor.)						
Baker, Seth, Colorado Springs, Colo. Coffin-platform for graves	349,421	Sept. 21	1213	315	36	1296
Baker, William H., assignor of two-thirds to W. J. and C. F. Tunstead, Oxford, Mich. Draft-equalizer	346,798	Aug. 3	424	117	36	543
Baker, William N., assignor of one-half to T. J. Ream, Damascus, Ohio. Nut-lock	346,452	Aug. 3	3	2	36	461
Baker, William R., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Harvester-dropper	349,267	Sept. 14	998	255	36	1236
Bakewell, Paul. (See Ramel and Dean, assignors.)						
Bakewell, William H., Allegheny, Pa. Awning-pulley	346,084	July 27	1832	473	36	351
Baldrige, George W., St. Louis, Mo. Key-board for type-writing machines	345,565	July 13	1099	280	36	903
Baldrige, George W., and G. H. Lasar, St. Louis, Mo.: said Lasar assignor to said Baldrige. Escapement for type-writers	344,933	July 6	190	49	36	35
Baldwin, Charles E., assignor to E. P. Stewart, New York, N. Y. Dice-throwing attachment for cigar-cutters	346,453	Aug. 3	4	2	36	461
Baldwin, Miller & Co. (See Pyle, William M., assignor.)						
Baldwin, Philander. (See Gould and Baldwin.)						
Baldwin, Willis, assignor to Lockwood, Baldwin & Co., Hunter, N. Y. Folding settee	346,454	Aug. 3	5	2	36	461
Ball, Alice M., *et al.* (See Stone, James, assignor.)						
Ball, Clinton M., Troy, assignor to Vitrite and Luminoid Company, Watervliet, N. Y. Making incandescents	346,345	July 27	2195	.....	36	490
Ball, Edward W., and C. A. Fletcher, Worcester, Mass. Oil-stove	348,094	Aug. 24	2303	617	36	914
Ball, Sarah E., Brooklyn, N. Y. Combined work table and basket	348,373	Aug. 31	2701	725	36	996
Ballon, Russell A., Newton, Mass., assignor to Chemical Hand Fire Extinguisher Company, Portland, Me. Chemical fire-extinguisher	348,095	Aug. 24	2305	618	36	915
Ballon, Russell A., Newton, Mass., assignor to Chemical Hand Fire Extinguisher Company, Portland, Me. Faucet for chemical fire-extinguishers	348,096	Aug. 24	2306	618	36	915
Balmer, Abraham, Bluffton, Ohio. Pen for swine	349,200	Sept. 14	908	233	36	1216
Baltes, Joseph. (See Richards, Valentine W. A., assignor.)						
Baltimore & Ohio Telegraph Company. (See Mayer, William, Jr., assignor.)						
Bancroft, George, and J. H. Horsfall, assignors of one-third to G. S. Jones, Montreal, Quebec, Canada. Apparatus for cancelling stamps	345,586	July 13	1100	281	36	203
Banford, John J., *et al.* (See Knowles, Mortimer L., assignor.)						
Bandy, Oliver L., La Salle, Ill. Folding cradle	345,098	July 6	416	107	36	76
Banks, Charles W., Baltimore, Md., assignor, by mesne assignments, of one-half to G. G. Thomson, Philadelphia, Pa. Portable wardrobe	346,346	July 27	2197	563	36	490
Bannister, Oliver C., assignor of one-half to T. J. Evans, Council Bluffs, Iowa. Rocking grate	346,455	Aug. 3	6	2	36	462
Barager, Winfield S. (See Long and Barager.)						
Barber, Alonzo, assignor of one-half to J. Leffler, Bentonsport, Iowa. Paint-brush	348,598	Aug. 31	2893	778	36	1039
Barber Asphalt Paving Company. (See Greene, Francis V., assignor.)						
Barber, Edwin J., and T. F. White, Salem, Kans. Windlass	348,446	Aug. 31	2806	754	36	1017
Barber, Frederic A. (See Côté, Louis, assignor.)						
Barber, Moses, and S. P. Weeks, South Coventry, Conn. Lap-feeding mechanism for carding-machines	349,901	Sept. 14	909	234	36	1218
Barber, Richard H., Galena, Kans. Automatic stock water-tank	346,702	Aug. 3	316	87	36	523
Barber, Varnum T. (See Young and Barber.)						
Barber, William E., Wyoming, R. I. Trace-fastening	347,149	Aug. 10	934	249	36	645
Barclay, James, Erie, Pa. Chill for use in casting cross-heads	348,819	Sept. 7	373	101	36	1117
Barclay, William P., Chicago, Ill. Shaping-tool	349,475	Sept. 21	1289	335	36	1301
Barcus, William W. (See Duthie, George H., assignor.)						
Bard, Cephas L., San Buenaventura, Cal. Check-rein attachment	345,404	July 13	840	210	36	156
Barden, Emmet T., Wausau, Wis. Machine for making sewer-pipes of clay, &c	347,457	Aug. 17	1377	366	36	734
Barden, George F., Vineland, N. J., assignor of one-half to L. L. Brown Paper Company, Adams, Mass. Combined entry and blotter sheet	346,703	Aug. 3	318	87	36	523
Barden, John S., Warren, assignor to J. O. Draper, Pawtucket, R. I. Vibrating-cylinder engine	348,097	Aug. 24	2307	618	36	915
Barden, Merritt C., West Pawlet, Vt. Cream-separator	345,874	July 20	1541	398	36	288
Barkelew, Hiram A., Jr. (See Richardson and Barkelew.)						
Barker, Erastus B., assignor to E. & H. T. Anthony & Co., New York, N. Y. Photographic camera	348,712	Sept. 7	946	65, 66	36	1092
Barker, Lester S. (See Guthrie and Peterson, assignors.)						
Barler, Augustus C., Des Moines, Iowa. Damper for stove-pipes and hot-air flues	348,947	Sept. 14	561	149	36	1156
Barley, A. M., *et al.* (See Fisher, Anson F., assignor.)						
Barlow, Charles O., San Francisco, Cal. Rock-drill	344,892	July 6	138	34	36	95
Barnard Attachment Company. (See Barnard, Henry H., assignor.)						
Barnard, Henry H., assignor to Barnard Attachment Company, Syracuse, N. Y. Button-hole cutter	346,977	Aug. 10	680	181	36	599
Barnard, William H., and C. E. Benedict, Los Angeles, Cal. Orange-peel seperating and shredding machine	348,075	Sept. 14	741	189	36	1186
Barnes, Erastus H., Brooklyn, N. Y. Automatic feed for edging saws	345,758	July 20	1382	359	36	261
Barnes, Hamlin, East Liverpool, Ohio, assignor of one-half to Hastings & Co., Philadelphia, Pa. Lining plates of plastic material with gold, &c	348,183	Aug. 31	2442	655	36	946
Barnes, John H., and J. H. Woolaston, assignors to Barnes Manufacturing Company, New Haven, Conn. Night-latch	346,704	Aug. 3	319	88	36	523
Barnes Manufacturing Company. (See Barnes and Woolaston, assignors.)						
Barnes, Merrick M., Boston, Mass. Micrometer-calipers	346,456	Aug. 3	7	3	36	462
Barnes, Merrick M., Boston, Mass. Micrometer-calipers	346,705	Aug. 3	320	88	36	524
Barnes, Merrick M., Boston, Mass. Micrometer-caliper handle	346,706	Aug. 3	322	88	36	524
Barnes, Willie A. (See Bastet, Louis, assignor.)						
Barnes, Willis A., New York, N. Y. Mechanism for burning fine fuel	345,019	July 6	320	81	36	58
Barnesley, Nelson, Keron, Mo. Churn	347,312	Aug. 17	1165	313	36	697
Barnett, John W., Lewisburg, assignor of one-half to M. G. Nowlin, Farmington, Tenn. Plow	345,099	July 6	417	107	36	76
Barnett, William F., and F. L. Adams, Hampton, Ga. Plow-stock	346,978	Aug. 10	681	181	36	599
Barney, Frank P., Charthey, Mass. Button	345,824	July 20	1473	3+1	36	277
Barney, James W., Junction City, Kans. Lamp-bracket	345,020	July 6	321	81	36	58
Barnhart, Clarence L., Flint, Mich. Car-mover	346,347	July 27	2196	563	36	490

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Barnhart, Frank, Warren, Pa. Burner for natural gas	345,925	July 20	1476	361	36	377
Barnhurst, James L., Philadelphia, Pa. Umbrella	349,476	Sept. 21	1290	336	36	1301
Barnitz, Richard H., Washington, D. C. Combined fastener and label for mail-bags	348,374	Aug. 31	2702	725	36	996
Barnsdall, John J., and E. C. Bell, Titusville, Pa. Device for tightening forms of type in chases	346,457	Aug. 3	9	3	36	468
Barnum, William H., Danbury, Conn. Packing hats	344,934	July 6	191	49	36	35
Baron, Alfred L., and W. T. Rufer, Bellaire, Ohio. Tubular lantern	345,100	July 6	418	107	36	76
Baron, Theodore S., New York, N. Y. Knit fabric	345,021	July 6	222	81	36	59
Baron, Theodore S., New York, N. Y. Knit fabric. (Reissue)	10,755	Aug. 17	1812	483	36	815
Barr, Lester J., Ashland, Wis. Coal and ore car	349,134	Sept. 14	925	209	36	1202
Barr, Pinckney F., San Marcial, N. Mex. Ter. Rail-brace	346,979	Aug. 10	682	181	36	599
Barraclough, Maria L. (See Stalcup, Benjamin, assignor.)						
Barraclough, Edward, Brooklyn, N. Y. Music-leaf turner	348,098	Aug. 24	2308	618	36	915
Barrett, Cornelius S. (See Decker, Riley, assignor.)						
Barrett, Edward H., Minneapolis, Minn. Tile pavement	347,861	Aug. 24	1962	.....	36	892
Barrett, Henry, and J. J. Varley, London, England. Elastic wheel-tire and driving-band	345,476	July 13	944	238	36	175
Barrett, Samuel. (See Gordon and Hamilton, assignors.)						
Barron, Marcellus, Addison, N. Y. Nut-lock	346,185	July 27	1971	508	36	378
Barrows, Henry F., and L. D. Knowles, Three Rivers, Mich., assignors to Initial Toepad Company, (limited.) Carriage foot-pad	344,935	July 6	192	49	36	36
Barse, Millis W., Olean, N. Y. Furnace for heating glass pots, crucibles, blanks, &c	345,356	July 13	775	194	36	145
Barse, Millis W., Olean, N. Y. Steam-boiler furnace	345,357	July 13	775	194	36	145
Bartholomew, George E., assignor to himself and E. Armant, Brooklyn, N. Y. Vehicle-seat	349,135	Sept. 14	898	210	36	1202
Bartholomew, George E., assignor to himself and E. Armant, Brooklyn, N. Y. Vehicle running-gear	349,136	Sept. 14	827	210	36	1203
Bartlett, Charles F., *et al.* (See McIlvain, John H., assignor.)						
Bartlett, Charles O., Cleveland, Ohio. Magnetic separator	349,422	Sept. 21	1214	315	36	1286
Bartlett, Jason T., assignor to himself and E. E. Butman, Boston, Mass. Truss	345,405	July 13	842	210	36	157
Bartlett, Joseph B., *et al.* (See McIlvain, John H., assignor.)						
Bartlett, Wallace A., Washington, D. C. Pneumatic cannon	344,936	July 6	193	49, 50	36	36
Bartly, Robert, Ennis, Tex. Pruning implement	347,552	Aug. 17	1509	401	36	750
Barton, Albert G., Constantine, Mich. Tedder	344,803	July 6	1	1	36	3
Barton, Elijah C., East Hampton, Conn. Gong-bell	345,101	July 6	419	108	36	76
Barton, G. F. (See Thurston, William H., assignor.)						
Barton, Richard T., assignor to A. H. Smith, New Haven, and G. H. Allen, Hamden, Conn. Machine for straightening bar-iron	346,884	Aug. 10	550	149	36	575
Barton, Richard T., assignor to A. H. Smith, New Haven, and G. H. Allen, Hamden, Conn. Machine for making crowned nuts	346,885	Aug. 10	551	149	36	575
Baruch, Nathan, and O. L. Williams, Athens, Ga. Feather-renovator	347,458	Aug. 17	1379	366 / 367	36	735
Basham, Wesley H., assignor of one-half to B. R. Milam, Glen Rose, Tex. Combined cotton chopper and scraper	349,076	Sept. 14	742	189	36	1186
Baskin, William S., Corning, N. Y. Compound for cleaning boilers	345,906	July 6	556	.....	36	101
Bassett, George B., Watertown, N. Y. System of water-distribution	349,202	Sept. 14	911	234	36	1219
Bassett, George W. (See Reilly, Edward G., assignor.)						
Bassett, Norman C., assignor to Crane Brothers Manufacturing Company, Chicago, Ill. Automatic regulating-valve for hydraulic elevators	348,610	Sept. 7	109	31	36	1067
Bastet, Louis, South Orange, N. J., assignor of one-half to W. A. Barnes, New York, N. Y. Elastic paper or felting for carpet-lining	346,799	Aug. 3	495	.....	36	543
Batcheller, Alfred H. (See Fifield, John W. D., assignor.)						
Batcheler, Joseph F., Baltimore, Md. Freight-car	347,553	Aug. 17	1510	401	36	750
Bate, Wallace H., Malden, Mass. Handle or pull for water-closets	347,313	Aug. 17	1166	313	36	607
Bates, Albert J., Joliet, Ill., assignor to Washburn & Moen Manufacturing Company, Worcester, Mass. Wire-barbing machine	345,759	July 20	1383	359 / 360	36	262
Bates, Edward C., Salem, Mass., assignor to O. B. Morris, Moorestown, N. J. Electro-depositing nickel	346,258	July 27	2080	.....	36	399
Bates, Loring L., Everett, Mass. Lock	347,554	Aug. 17	1511	401	36	750
Bates, William S., Chicago, Ill. Breakwater	346,140	July 27	1914	494	36	367
Batig, Joseph, Jr. (See Sherck and Batig.)						
Battersby, Jessyna C. (See Waring, Clara K., assignor.)						
Battles, E. S. (See Gilbert, George D., assignor.)						
Battles, Rush S., Girard, Pa. Sand-reel for well-digging rigs	347,314	Aug. 17	1167	313	36	607
Batty, Lindley M., Canton, Ohio. Feed-cutting machine	346,707	Aug. 3	382	89	36	524
Bauer, Raymund. (See Row and Bauer.)						
Bauffil, William C., Ipswich, Mass. Burr for knitting-machines	347,986	Aug. 24	2149	572	36	885
Baughman, Nelson C. (See Johnston, James M., assignor.)						
Bauhahn, Gustav E. (See Keller and Bauhahn.)						
Baumann, Heinrich W., Memphis, Tenn. Show-box cover	348,713	Sept. 7	948	66	36	1063
Baur, Wilhelm, and J. V. V. Boorsem, Brooklyn, N. Y. Machine for cutting sugar	349,027	Sept. 14	672	173 / 174	36	1174
Baur, Wilhelm, and J. V. V. Boorsem, Brooklyn, N. Y. Tray for picking up and handling cut sugar	349,028	Sept. 14	675	174	36	1174
Bay, Jacques, Paris, France. Toilet-glass	349,333	Sept. 21	1070	275	36	1250
Bay, Joseph L., *et al.* (See Townsend, Louis, assignor.)						
Bayley, Charles H., Boston, Mass., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	345,207	July 6	556	142	36	101
Bayley, Thomas S., Alturas, Cal. Two-wheeled vehicle	347,022	Aug. 10	745	196	36	610
Bayley, William. (See Whiteley and Bayley.)						
Bayley, William, Milwaukee, Wis. Cover for vaults, sidewalk-traps, &c	346,800	Aug. 3	426	117	36	543
Baylies, Benjamin, Jr., Baltahoover, Pa. Working converters	347,913	Aug. 24	2044	542	36	866
Baynard, William H., Baltimore, Md. Safe-door	346,960	Aug. 10	683	181 / 182	36	599
Bayrer, William J., assignor to Peck, Stow & Wilcox Company, Southington, Conn. Footpress	346,141	July 27	1915	494	36	367
Bazin, Ernest, Paris, France. Electric battery	349,380	Sept. 21	1170	300	36	1276
Beach, Clifton B., Cleveland, Ohio. Converting tires into bars, &c	347,459	Aug. 17	1381	367	36	735
Beach, Edward P., Chicago, Ill. Calculator	345,022	July 6	394	81	36	59
Beach, Milo D., Litchfield, Conn. Feed-trough for poultry	347,061	Aug. 10	642	234	36	698
Beach, Robert B., Philadelphia, Pa. Shoe-pinchers	346,896	Aug. 10	552	149	36	575
Beach, William W., New York, assignor to D. R. Morse, Brooklyn, N. Y., and R. M. Stelle, Plainfield, N. J. Blinder for bridles	347,862	Aug. 24	1962	590	36	862
Beaird, James W. A. and M., Bayou La Chute, La. Wagon-brake	348,714	Sept. 7	948	66	36	1063

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Beaird, Marion. (See Beaird, James W. A. and M.)						
Beal, Seth, Manchester, Iowa. Corn-planter	346,186	July 27	1972	508 / 509	36	378
Beales, Emanuel D., Guyandotte, W. Va. Combination-tool	345,898	July 20	1476	361	36	377
Beales, Emanuel D., assignor to himself and J. L. Caldwell, Guyandotte, W. Va. Lock-hinge	348,099	Aug. 24	2310	619	36	916
Beaman, Timothy L., Knoxville, Tenn. Rolls for rolling girder-rails	347,283	Aug. 10	1113	298	36	678
Bean, Charles M. (See Anderson, David S., assignor.)						
Bean, Roscoe, Springfield, Ohio. Pump	348,861	Sept. 7	466	123	36	1133
Beard, Andrew, Woodlawn, Ala. Plow or cultivator	347,230	Aug. 10	1029	274	36	662
Beard, Ell F., Republic, Ohio. Knockdown table	344,893	July 6	140	35	36	25
Beard, Joseph, Boston, Mass. Discharge-pipe for vaults	345,023	July 6	325	89	36	59
Beard, William H., Brooklyn, N. Y. Suction-excavator	349,361	Sept. 21	1161	301	36	1276
Beardsley, John A., Minneapolis, Minn. Vapor-generator	348,820	Sept. 7	374	101	36	1117
Beardsley, Melvin W. (See Pearce and Beardsley.)						
Beattie, John, Jr., Westport, Mass. Electric motor	348,587	Aug. 3	100	26	36	479
Beattie, John, Jr., Westport, Mass. Electric battery	348,588	Aug. 3	101	27	36	479
Beatty, George, *et al.* (See Kleese, Wilson, assignor.)						
Beatty, Robert P., Norwalk, Conn. Advertising-box	348,611	Sept. 7	111	32	36	1067
Beaudry, Henri, Montreal, Quebec, Canada. Suspenders	348,100	Aug. 24	2311	619	36	916
Beavis, John. (See Martin and Beavis.)						
Bechly, Charles, Sheboygan, Wis. Staining-machine	348,375	Aug. 31	2703	726	36	997
Bechman, Henry F., assignor to Schniedewend & Lee Company, Chicago, Ill. Inking device for printing-machines	345,760	July 20	1388	360 / 361	36	263
Bechman, Henry F., assignor to Schniedewend & Lee Company, Chicago, Ill. Throw-off mechanism for printing-presses	346,635	Aug. 3	236	65	36	506
Becht, Frank, Colona, Ill. Road-cart	348,447	Aug. 31	2807	754	36	1017
Beck, Charles W., Joliet, Ill. Hitching-strap and buckle therefor	347,089	Aug. 10	642	234	36	698
Beck, Christian. (See Seidel, Charles F. W., assignor.)						
Becker, Adolph, Newark, N. J. Bottle-stopper	349,208	Sept. 14	1008	255	36	1238
Becker, Carl, Berlin, Germany. Cooking apparatus	348,821	Sept. 7	376	102	36	1117
Becker, Frederick G., assignor to D. S. Morgan & Company, Brockport, N. Y. Harvester-reel	349,973	Sept. 28	1970	509 / 510	36	1439
Beckhardt, Louis. (See Newman, Anton E., assignor.)						
Beckwith, Lizzie S., *et al.* (See Oliver, Reuben W., assignor.)						
Bedford, George J., Anamosa, Iowa. Freight-car lock	348,715	Sept. 7	249	66, 67	36	1063
Bedlington, Peter R. (See Roe and Bedlington.)						
Beebe, Charles S., Racine, Wis. Two-wheeled vehicle	349,558	Sept. 21	1399	362	36	1322
Beebe, Henry C., Canton, Ill. Grain-drill	347,863	Aug. 24	1963	591	36	859
Beebe, James F., New Haven, Conn. Clapboard-marker	344,937	July 6	195	50	36	36
Beebe, John S., assignor of one-half to D. Stearns and W. H. Liddle, Holden, Mo. Extensible stove-pipe	347,150	Aug. 10	935	249	36	645
Beebe, Joseph E., Adair, Iowa. Harrow-tooth holder	344,804	July 6	2	1	36	3
Beebe, Oscar, assignor of one-third to S. Mitchell, Hornellsville, N. Y. Sash-cord fastener	348,101	Aug. 24	2312	619	36	916
Beehler, Charles W., assignor of one-half to W. H. Lonergan, St. Louis, Mo. Box-fastener	349,077	Sept. 14	743	190	36	1187
Beek, John O., Pleasant Plains, Ill. Cultivator-shovel	349,334	Sept. 21	1071	275	36	1250
Beeler, Charles H., Jr., Philadelphia, Pa. Bee-hive	348,308	Aug. 31	2615	704	36	980
Beeman, William S., assignor of one-half to B. W. Davenport, Ashland, Wis. Oiler for wrist-plus	349,137	Sept. 14	899	211	36	1203
Beggs, Charles A., and C. S. Cozzy, Rice Lake, Wis. Fermentation-lock	345,870	July 13	655	167	36	125
Begole, Gordon W., Augusta, Mich. Machine for making slat and wire fences	348,184	Aug. 31	2443	656	36	946
Béguelin, Léopold, Tramelan, Bern, Switzerland. Universal watch	345,466	July 13	843	211	36	157
Behn, Henry A., Union Hill, N. J. Machine for winding sewing-machine-shuttle bobbins	345,908	July 6	559	143	36	101
Behr, Hans C., assignor of one-half to L. H. Heynemann, San Francisco, Cal. Valve-gear for steam-engines	348,309	Aug. 31	2616	705	36	980
Beiermeister, Frederick, Jr., Troy, N. Y. Making collars	345,947	July 20	1644	423	36	308
Beiermeister, Frederick, Jr., Troy, N. Y. Collar	346,259	July 27	2081	535	36	389
Belanski, Charles R., and H. Pitts, Nora Springs, Iowa. Ironing-board and plaiting-machine	344,895	July 6	4	1	36	3
Belk, John C., Tombstone, Ariz. Ter. Machine for covering wire and other cores	348,822	Sept. 7	376	102	36	1117
Belknap, Samuel C., Columbus, Ohio. Shoe-stay	346,458	Aug. 3	10	3	36	462
Bell, Charles L. O., Rolling Prairie, Ind. Vehicle-wheel	349,138	Sept. 14	899	211	36	1203
Bell, Chichester A., London, county of Middlesex, England. System of telephonic communication	346,708	Aug. 3	394	89	36	524
Bell, Edwin C. (See Barnsdall and Bell.)						
Bell, George A., Morley, Mo. Equalizing-ventilator	348,109	Aug. 24	2312	620	36	916
Bell, William, Verona, Miss. Fence	349,559	Sept. 21	1400	342	36	1322
Belt, Perley P., Columbus, Kans. Rotary engine	345,875	July 20	1542	398 / 399	36	289
Belt, Samuel, assignor of one-half to W. C. Mattex and W. T. Arnold, Elberton, Ga. Combined harrow, cotton-chopper, and cultivator	347,765	Aug. 24	1894	486	36	825
Benbow, John, assignor of one-half to Hayes Manufacturing Company, Cleveland, Ohio. Wire-drawing block	346,709	Aug. 3	398	89	36	525
Benedict, Charles E. (See Barnard and Benedict.)						
Benedict, Read, West New Brighton, N. Y. Collar or cuff button or stud	347,555	Aug. 17	1513	402	36	760
Benett, David, Andalusia, Pa. Harvester-cutter	348,861	Aug. 31	2551	686	36	966
Benington, Walter. (See Veilleux and Benington.)						
Benjamin, William, assignor, by mesne assignments, to J. Blaum, Brooklyn, N. Y. Wheelbarrow	349,681	Sept. 28	1558	404	36	1362
Benner, Daniel G., Holmesville, assignor of one-half to J. Laylander, Millersburg, Ohio. Lid and beater mechanism for washing-machines	349,682	Sept. 28	1559	404	36	1362
Bennett, Edward A., Weston, W. Va. Arm-rest	349,974	Sept. 28	1972	511	36	1439
Bennett, Edwin, Rio de Janeiro, Brazil, assignor of one-half to R. Lavery, Boston, Mass. Screw-propeller	345,761	July 20	1391	361	36	263
Bennett, George, G. Dike, and W. W. Rich, Lincoln, Nebr. Railway-switch	347,987	Aug. 24	2151	572	36	885
Bennett, Grant S. (See Sorter and Bennett.)						
Bennett, Henry A., New Haven, Conn. Sash-fastener	346,142	July 27	1916	495	36	367
Bennett, James F., and B. B. Smith, Sheffield, county of York, England. Draftsman's compasses	349,203	Sept. 14	913	234	36	1219
Bennett, John Q. A., Bellefontaine, Ohio. Device for locking coffins	350,032	Sept. 28	2051	529	36	1454
Bennett, Phineas A., assignor of one-half to T. Bennett, Chicago, Ill. Lubricator	347,284	Aug. 10	1115	299	36	678
Bennett, Thomas. (See Bennett, Phineas A., assignor.)						
Bennett, William G., Sharpsburg, Pa. Alarm-lock	344,806	July 6	5	2	36	3
Bennett, William G., Sharpsburg, Pa. Window-lock and burglar-alarm	344,807	July 6	6	2	36	4
Bennett, William G., Sharpsburg, Pa. Alarm-lock	348,293	Aug. 31	2559	686	36	966

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bennett, William W., New York, N. Y. Manufacture of paper from the tobacco-plant	346,887	Aug. 10	553	.....	36	575
Benoit, Frederick, Chicago, Ill. Harness-buckle	348,310	Aug. 31	9617	980	36	960
Benschoter, Charles W., Grand Rapids, Ohio. Farm-gate	347,152	Aug. 10	937	250	36	646
Benzmann, Hermann, Minster, Ohio. Running-gear for wagons	345,661	July 20	1946	323	36	237
Benson, Benjamin S., Baltimore, Md. Surface-condenser	346,348	July 27	2199	563, 564	36	420
Benson, Joseph, Capron, Iowa. Hay-elevator	347,660	Aug. 17	1706	456	36	796
Benson, Samuel J., Boulder Creek, Cal. Pipe-wrench	345,567	July 13	1100	281	36	203
Benton, Samuel, assignor of one-half to W. H. Delano, Baltimore, Md. Sash-holder	348,103	Aug. 24	2313	690	36	916
Berg, Johann, Naremberg, Germany. Screw-tap	347,864	Aug. 24	1965	521	36	653
Berger, Franz X. (See Amon and Berger.)						
Berger, William H., Philadelphia, Pa. Eaves-trough hanger	345,102	July 6	420	108	36	77
Berger, William H., Philadelphia, Pa. Conductor-hook	345,477	July 13	945	238	36	175
Bergh, Bror F., assignor, by mesne assignments, to Standard Hand Rock Drill Company, New York, N. Y. Rock-drill machine	349,560	Sept. 21	1401	363	36	1332
Bergmann, Sigmund, New York, N. Y. Telephone	344,938	July 6	196	50	36	36
Bergner, Serena, *et al.*, executors. (See Bergner, Theodore.)						
Bergner, Theodore, deceased; S. Bergner and C. E. Sajous, executors, Philadelphia, Pa. Dumping furnace-grate	349,423	Sept. 21	1216	316	36	1286
Berkey, Julius, and W. R. Fox, Grand Rapids, Mich.; said Fox assignor of one-half his right to said Berkey. Furniture-caster	345,613	July 13	1156	296	36	214
Berliner, Emile, Washington, D. C. Spongy-carbon battery	347,023	Aug. 10	746	199	36	610
Bernard, Philippe, assignor to W. C. De Pauw, New Albany, Ind. Machine for polishing glass	348,311	Aug. 31	9618	705	36	960
Bernsee, Christian D., Brooklyn, N. Y. Watchman's pneumatic time-detector	349,780	Sept. 28	1719	443, 444	36	1389
Bernstein, Adolph, and A. Goldstein, assignors of one-sixth to A. Fink, Pittsburg, Pa. Safety appliance for railways	346,018	July 20	1750	450	36	396
Bernstein, Samuel, *et al.* (See Douglas, Edward J., assignor.)						
Berray, Edward P., C. W. Shepard, and H. White, Walton, N. Y. Spring bed-bottom	347,556	Aug. 17	1513	402	36	760
Berry, Henry C., Wauseon, Ohio. Heating apparatus	345,876	July 20	1543	399	36	289
Berry, Joe, Springfield, Mass. Stop-valve	348,104	Aug. 24	2315	620, 621	36	917
Berry, Robert, and J. C. Parker, Brockport, N. Y. Stove-leg	346,888	Aug. 10	556	150	36	576
Bertsch, Vincent. (See Ainorth, Gustaf, assignor.)						
Besse, Irwin, Newburyport, Mass. Key-ring	345,407	July 13	845	211	36	157
Besson, Hyppolite, and E. N. Kent, Bethnel Green, London, county of Middlesex, England. Device for holding glass while being ground or polished	349,204	Sept. 14	914	235	36	1219
Betsinger, Nicholas N., Marcellus, N. Y. Bee-hive	349,078	Sept. 14	744	190	36	1187
Bettschen, Gottlieb, Wilmot, county of Waterloo, Ontario, Canada. Cultivator	347,063	Aug. 10	843	294	36	628
Beutel, Jacob, assignor to C. Gousset and F. Eller, New York, N. Y. Confectioner's dropping-tube	347,460	Aug. 17	1382	367	36	735
Beuttel, Carl, Cincinnati, Ohio. Self-supporting combination-pavement	347,557	Aug. 17	1514	402	36	760
Bew, Charles, Angola, Ind. Two-wheeled vehicle	348,448	Aug. 31	2808	755	36	1017
Bex, Frederick, and E. F. Heunsch, Washington, D. C. Top for two-wheeled vehicles	349,079	Sept. 14	746	190	36	1187
Beyer, Ira, and A. E. Rohde, Mishicot, Wis. Cow-milking machine	347,558	Aug. 17	1515	402, 403	36	760
Bickford, John H., assignor of one-third to S. F. Smith, Salem, Mass. Automatic telephone-exchange system	349,975	Sept. 28	1974	511	36	1439
Bickford, John H., assignor of one-third to S. F. Smith, Salem, Mass. Automatic telephone-exchange system	349,976	Sept. 28	1980	512	36	1440
Bickford, John L., Brooklyn, assignor to Copeland Manufacturing Company, New York, N. Y. Railway-gate	345,568	July 13	1101	281	36	203
Bickford, Lyman, *et al.* (See Armitage, Albert, assignor.)						
Bickford, Lyman, *et al.* (See Gallup, Silas N., assignor.)						
Biddle, Clement M., Philadelphia, Pa. Refrigerator	347,560	Aug. 17	1520	404	36	761
Biddle, George W., Centralia, Ill. Convolute spring-heel	349,693	Sept. 28	1560	404	36	1362
Bierley, Henry A., Manchester, Ohio. Door-bell	347,221	Aug. 10	1030	275	36	662
Bigge, Frederick J., London, England. Reversible latch	346,349	July 27	2200	564	36	421
Bixler, Reed & Co. (See Reed, Frank B., assignor.)						
Bihl, Ignace, Newport, Ky., and C. Platt, Cincinnati, Ohio. Sewing-machine take-up	349,029	Sept. 14	676	174	36	1175
Billings, Daniel W. (See Herrick and Billings.)						
Billingsley, James J., Minden, La. Car-wheel	349,977	Sept. 28	1983	512	36	1441
Billingsley, James J., Minden, La. Railway-frog	349,978	Sept. 28	1983	512	36	1441
Billwiller, Johann S., St. Gall, Switzerland. Tanning hides	345,827	July 20	1478	.....	36	278
Bilton, Henry C., assignor of one-half to J. F. McGee, Buffalo, N. Y. Machine for tonguing buckles	344,894	July 6	140	35	36	25
Bingham, John E., Walla Walla, Wash. Ter. Manufacture for the shoeing of horses	346,350	July 27	2201	564, 565	36	421
Bingham, John E., Walla Walla, Wash. Ter. Horseshoe	346,351	July 27	2203	565	36	421
Bingham, John E., Walla Walla, Wash. Ter. Horseshoe	349,080	Sept. 14	746	190	36	1187
Bingham, John E., Walla Walla, Wash. Ter. Horseshoe	349,081	Sept. 14	748	191	36	1187
Bingham, William H., St. Cloud, Minn. Lubricator	346,981	Aug. 10	684	182	36	600
Birch, William, Broughton, near Manchester, county of Lancaster, England. Apparatus for stretching woven fabrics	349,139	Sept. 14	831	211, 212	36	1203
Birck, William H., and W. Fischer, Brooklyn, assignors of one-third to J. Harrington, New York, N. Y. Suspended scaffold	346,019	July 20	1750	450	36	396
Birge, Walter F., Buffalo, N. Y. Disintegrating-machine	345,408	July 13	846	212	36	158
Birge, Walter F., Buffalo, N. Y. Manufacture of starch	345,409	July 13	847	212	36	158
Birmingham Iron Foundry. (See Clark, Maurice C., assignor.)						
Bisbee, Clarence L., Brooklyn, N. Y. Gas-stove	347,561	Aug. 17	1522	404, 405	36	761
Bissell Carpet Sweeper Company. (See Bissell and Drew, assignors.)						
Bissell, Melville R., and W. J. Drew, assignors to Bissell Carpet Sweeper Company, Grand Rapids, Mich. Carpet-sweeper	349,684	Sept. 28	1561	404, 405	36	1362
Bisset, James, Jr., Aberdeen, county of Aberdeen, Scotland. Recorder for cars, &c., to denote the number of passengers and the distance and time ridden	347,153	Aug. 10	938	250	36	646
Bissett, James E. (See Halley, Wilkinson, and Bissett.)						
Bixby, William P. (See Moorehead and Bixby.)						
Black, George H., assignor of one-half to D. W. Pierce, Buchanan, Mich. Hand-cultivator	349,561	Sept. 21	1404	363	36	1323
Black, Henry, assignor of sixty-five one-hundredths to J. R. Knox, J. H. Martin, E. B. Hussey, Jamison & Marts, and A. T. Miller, Greenville, Ohio. Harvesting machine	347,285	Aug. 10	1116	299	36	678
Black, Henry, and A. T. Miller, assignors of fifty-two one-hundredths to J. H. Martin, E. B. Hussey, Jamison & Marts, and J. R. Knox, Greenville, Ohio. Harvester and binder	347,286	Aug. 10	1119	300, 301	36	679
Black, James W., Berwick, Nova Scotia, Canada. Carriage-fender	349,247	Sept. 14	976	249	36	1231
Black, John W., Glasgow, county of Lanark, Scotland. Signal-tube apparatus	347,154	Aug. 10	941	251	36	646
Black, Joseph P., assignor to Hapgood Plow Company, Alton, Ill. Planting-plow. (Reissue)	10,745	July 13	1243	322	36	230
Black, Robert. (See Havey, Black, and Palmer.)						
Black, Robert H., Kendall, Pa. Uniting sucker-rods	348,823	Sept. 7	377	103	36	1118
Black, William T. (See Rowland and Black.)						
Blackall, Robert C., *et al.* (See Adams, Henry P., assignor.)						
Blackburn, Samuel P., Boston, Mass. Valve for steam-engines	347,914	Aug. 24	2045	543	36	866
Blackburn, Samuel P., Boston, Mass. Valve for steam-engines	347,915	Aug. 24	2046	543	36	866
Blackman, Ebenezer, Brooklyn, N. Y. Lamp-burner	346,889	Aug. 10	557	150	36	576
Blackman, Ebenezer, Brooklyn, N. Y. Lamp-burner	346,890	Aug. 10	558	150	36	576
Blackmer, Francis A., assignor to G. R. Wentworth, Springfield, Mass. Adjustable and folding mechanism for tables, chairs, &c.	349,627	Sept. 21	1487	385	36	1341
Blackmore, James, and T. D. Steen, Putnam, Pa. Casing for natural-gas conduits	347,064	Aug. 10	845	225	36	628
Blackwell, Kennet W., Montreal, Quebec, Canada. Material for use in molds for casting	348,105	Aug. 24	2316	621	36	917
Blagg, Thomas J., Waverly, Nebr. Weight-motor	349,872	Sept. 28	1839	475, 476	36	1414
Blair, George W., Pittsburg, Pa. Manufacture of glassware. (Reissue)	10,753	Aug. 10	1161	311	36	667
Blake, Charles H. (See Blake, Francis M., assignor.)						
Blake, Eben W., Waltham, assignor of one-half to G. Draper & Sons, Hopedale, Mass. Sizing-machine	346,636	Aug. 3	239	65	36	506
Blake, Edward A. (See Campbell, George, assignor.)						
Blake, Edward A., Chicago, Ill. Stereotype-shaving machine	347,222	Aug. 10	1032	275	36	663
Blake, Edward A., Chicago, Ill. Stereotype-shaving machine	347,223	Aug. 10	1033	275, 276	36	663
Blake, Francis M., assignor of one-half to C. H. Blake, Worcester, Mass. Friction-clutch	348,612	Sept. 7	112	32	36	1067
Blake, Joseph H., *et al.* (See Rogers, Newton, assignor.)						
Blakesley, Gilbert H., Bristol, Conn. Hair-dressing appliance	345,024	July 6	326	82	36	60
Blakesley, Gilbert H., Bristol, Conn. Hair-crimper	348,263	Aug. 31	2553	686	36	966
Blanchard, Sidney R., *et al.* (See Kleese, Wilson, assignor.)						
Bland, John, assignor to J. W. and R. I. Bland, Thomaston, Ga. Bridle	346,352	July 27	2204	565	36	421
Bland, John W., *et al.* (See Bland, John, assignor.)						
Bland, Robert I., *et al.* (See Bland, John, assignor.)						
Blaney, Elbridge G., Jr., Swampscott, assignor, by mesne assignments, to himself and S. N. Breed & Co., Lynn, Mass. Cutter-head	345,662	July 20	1946	323	36	237
Blazer, George B., *et al.* (See Hoepfner, Henry J., assignor.)						
Blaum, John. (See Benjamin, William, assignor.)						
Blechschmidt, Gustav. (See Hoefer and Blechschmidt.)						
Bleichert, Adolf, Gohlis, near Leipsic, Saxony, Germany, and J. Schatte, Vienna, Austria-Hungary, assignors to A. Bleichert & Co., Gohlis, near Leipsic, Germany. Elevated wire-rope line	345,828	July 20	1479	381, 382, 383, 384	36	278
Bleichert & Co., Adolph. (See Bleichert and Schatte, assignors.)						
Blessing, James H., Albany, N. Y. Pump-regulator	347,559	Aug. 17	1518	403	36	761
Blessing, James H., Albany, N. Y. Steam-trap	348,948	Sept. 14	562	149	36	1156
Bligh, Samuel L., Custards, Pa. Broom-holder	348,106	Aug. 24	2317	621	36	917
Bliss Company, E. W. (See Leavitt, Frank M., assignor.)						
Blodgett, Frank M., New York, N. Y. Micro-audiphone	345,025	July 6	327	82	36	60
Blodgett, John W., Chicago, Ill. Machine for punching and stitching eyelet-holes	345,663	July 20	1247	323, 324	36	237
Bloede, Victor G., Baltimore, Md. Improving the finish and durability of fabrics for window-shades, &c.	347,315	Aug. 17	1168	.....	36	697
Bloom, Nicklas H., Charles City, Iowa. Spring for vehicles	346,085	July 27	1832	473	36	351
Blum, Gertrude. (See Blum, John, assignor.)						
Blum, John, assignor to G. Blum, Dansville, N. Y. Shoe	349,562	Sept. 21	1405	363	36	1324
Blun, Ferdinand S. M. (See Leve, Gustave, assignor.)						
Blundell, William J., New York, N. Y. Derrick	345,478	July 13	947	238, 239	36	176
Boaz, Charles, Utica, Ill. Steam clothes-washer	349,140	Sept. 14	532	212	36	1204
Bock, Henry F., Lansing, Ill. Whiffletree-hook	345,103	July 6	422	108	36	77
Bock, Henry F., Lansing, Ill. Coffee-roaster	346,459	Aug. 3	11	4	36	462
Boda, William J., Dayton, Ohio. Finishing of house interiors	346,187	July 27	1974	509, 510	36	378
Bodge, John W., Rochester, N. Y. Ballot-box	346,710	Aug. 3	329	90	36	525
Boecher, Adam, New York, N. Y. Feeding mechanism for sewing-machines	345,942	July 20	1646	424	36	308
Boehm, Alexander, assignor to L. Levi and A. Mayer, New York, N. Y. Reversible ruching for ladies' neck-wear	349,297	Sept. 21	1032	264	36	1251
Boehme, Emil, Breslau, Prussia, Germany. Hydraulic shears	345,358	July 13	776	194, 195	36	145
Boehme, Emil, Breslau, Prussia, Germany. Hydraulic shears	345,359	July 13	777	195	36	146
Boehme, Emil, Breslau, Prussia, Germany. Differential accumulator	345,360	July 13	778	196	36	146
Boesch, Emile, San Francisco, Cal. Head-light lamp	349,082	Sept. 14	750	191	36	1188
Bogardus, Washington A. H., 2d, Newark, N. J. Refrigerator-tank	346,520	Aug. 3	102	27	36	479
Bogart, Isaac, assignor of one-half to J. C. Groves, Dana, Ind. Churn	347,916	Aug. 24	2047	543	36	867
Boggs, Alden, Covington, Ohio. Wire-fence machine	347,562	Aug. 17	1523	405	36	761
Boggs, John W., and D. M. McLauchlan, Albina, Oreg. Reclining-chair	348,716	Sept. 7	250	67	36	1094
Boggs, Samuel L., *et al.* (See Flehartv, George A., assignor.)						
Böhling, John, Washington, D. C. Electric time-ball	348,949	Sept. 14	563	149	36	1156
Bohn, René, Ludwigshafen-on-the-Rhine, Bavaria, assignor to Badische Anilin and Soda Fabrik, Mannheim, Germany. Manufacture of yellow coloring-matter or dye-stuff from gallic acid	348,613	Sept. 7	113	.....	36	1068
Bollinger, Benjamin B., White Pigeon, Mich. Cane and corn harvester	347,316	Aug. 17	1169	313, 314	36	697
Bollinger, Phares S. (See Kuhns and Bollinger.)						
Bolte, Theodore H., Columbus, Wis. Smoke-stack	345,664	July 20	1250	324	36	238
Bolton, Frank T. (See Temple and Bolton.)						
Bolton, Henry F., and T. Drake, Dow City, Iowa. Clothes-drier	348,892	Sept. 7	467	123	36	1133
Bommer, Lorenz, New York, N. Y. Spring-hinge	348,312	Aug. 31	2619	705	36	980
Bone, Alfred P., *et al.* (See Saunders, Isaac R., assignor.)						
Bonesteel, Albert E., Troy, N. Y., assignor to P. & F. Corbin, New Britain, Conn. Packing-box	347,917	Aug. 24	2049	544	36	867
Bonine, Robert A., Altoona, Pa. Camera-stand	345,949	July 20	1647	424, 425	36	309

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bonneau, Nelson, assignor of two-thirds to C. Lacaillade, and C. Perron, Lawrence, Mass. Picker staff-check for looms	345,361	July 13	779	196	36	146
Bonnefoy, Eugene, Roanne, France. Surgical chair	347,094	Aug. 10	747	199 200	36	610
Bonner, Joseph C. (See Ames, John, Jr., assignor.)						
Boorsem, John V. V. (See Baur and Boorsem.)						
Booth, Ebenezer H., Kirkwood, N. Y. Vehicle-spring	346,711	Aug. 3	331	90	36	585
Borgfeldt, Nicholas H., assignor to A. C. Schuts, A. Lewyn, M. Martin, and Levy Bros., New York, N. Y. Cigar-bunching machine	349,336	Sept. 21	1074	273	36	1260
Borgfeldt, Nicholas H., and A. C. Schuts, New York, N. Y. Cigar-bunching machine	345,614	July 13	1157	297	36	214
Borgfeldt, Nicholas H., and A. C. Schuts, assignors to said Schuts, A. Lewyn, M. Martin, and Levy Bros., New York, N. Y. Cigar-bunching machine	349,335	Sept. 21	1072	275 276	36	1259
Borro, Joseph, New York, N. Y. Apparatus for producing flash-signals	348,313	Aug. 31	2690	706	36	980
Bortree, Francis E., Ledgedale, Pa. Carriage-spring	349,298	Sept. 21	1032	264	36	1251
Bertree, Hannah M., Madison, Wis. Combined corset and garment-supporter	346,992	Aug. 10	685	182	36	600
Boschke, Albert, San Francisco, Cal. Excavating-machine	348,370	Aug. 31	2704	726	36	997
Bossard, August, New York, N. Y. Armature for dynamo-electric machines	348,883	Sept. 7	468	123 124	36	1133
Bossard, August, New York, N. Y. Electric motor	349,563	Sept. 21	1406	364	36	1394
Bossler, Joseph B., Middletown, Pa. Rotary grate	346,712	Aug. 3	332	90	36	585
Boston Trans-Phototype Company. (See Read, William, Jr., assignor.)						
Boston Woven Hose Company. (See Hopkins, James R., assignor.)						
Bosworth, George P., assignor of one-half to J. B. Gray, Pawtucket, R. I. Stop-motion for spooling-machines	350,033	Sept. 28	2052	529 530	36	1454
Botsford, Nathan, Lockport, N. Y. Machine for gathering stones	349,685	Sept. 28	1563	405	36	1362
Bottenfield, Carey J., Prospect, Ohio. Farm-gate	348,148	Aug. 24	2369	636	36	927
Boulton, Matthew P. W., Tew Park, county of Oxford, England. Employing steam for producing motive power	345,026	July 6	328	82, 83	36	60
Bourbon Copper and Brass Works. (See Peden, John C., assignor.)						
Bourke, Martin, Youngstown, Ohio. Sash-holder	345,665	July 20	1251	324	36	238
Bourne, Edward, Allegheny, Pa. Gas-burner	347,155	Aug. 10	943	252	36	647
Bourne, Jonathan, Jr., Portland, Oreg. Car-axle	347,562	Aug. 17	1524	405	36	762
Bové, Hubert, New York, N. Y. Candle-burner	348,377	Aug. 31	2706	727	36	997
Bovey, George C., Mount Morris, Ill. Two-wheeled vehicle	350,034	Sept. 28	2053	530	36	1454
Bowden, Charles P. (See Allison and Bowden.)						
Bowdle, William R., Piqua, Ohio. Machine for making wire and picket fencing	346,200	July 27	2082	535 536	36	399
Bowen, Daniel C., assignor of one-half to B. McNeal, Byron Centre, Mich. Wire-stretcher	347,402	Aug. 17	1394	368	36	736
Bowen, Philip A., assignor of one-half to Loeffelholz & Co., Milwaukee, Wis. Fluid-cock	347,156	Aug. 10	944	252	36	647
Bowen, Thomas W., Philadelphia, Pa. Swing	345,950	July 20	1648	425	36	309
Bower, Elijah C., Milwaukee, Wis. Egg-box	349,919	Sept. 28	1895	491	36	1425
Bowers, John H., Mound City, Mo. Pipe and nut wrench	347,157	Aug. 10	945	252	36	647
Bowker, Alfonso V. (See La Fave and Bowker.)						
Bowker, William, Medford, assignor to Bowker & Williams Hoop Machine Company, Boston, Mass. Hoop-sawing machine	348,149	Aug. 24	2370	636	36	927
Bowker, William, E. M. Cole, and A. L. Smith, Geneva, N. Y. Eyeglasses	346,713	Aug. 3	333	91	36	596
Bowker & Williams Hoop Machine Company. (See Bowker, William, assignor.)						
Bowley, James D., Brandon, Manitoba, Canada. Device for carrying off smoke and steam from cooking utensils	347,564	Aug. 17	1525	405 406	36	762
Bowman, George D., *et al.* (See Murray, James H., assignor.)						
Bowman, John D., Altoona, Pa. Wrench	348,185	Aug. 31	2443	656	36	946
Bowman, John E., assignor of one-half to A. M. V. B. Deaner, Boonsborough, Md. Ironing-table	347,987	Aug. 10	1123	301	36	679
Bowyer, David G. (See Goodwin and Bowyer.)						
Bowyer, John M., Erie, Pa. Percussion-fuse for shells	348,314	Aug. 31	2690	706	36	981
Boyce, James. (See Tacy, Samuel H., assignor.)						
Boyce, Washington, Danville, Ill. Photographic-paper box	346,353	July 27	2205	585	36	491
Boyd, Thomas C., Chicago, Ill. Frost-proof protector for ventilation and other pipes	346,714	Aug. 3	334	91	36	596
Boyd, Thomas C., Chicago, Ill. Frost-proof attachment for soil and other pipes	346,715	Aug. 3	335	91	36	596
Boyd, William E., Selma, Ala. Shot-cartridge	347,968	Aug. 24	2152	572	36	885
Boyd, William S., 3d, Chicago, Ill. Automatic railway-switch	347,317	Aug. 17	1171	314	36	698
Boyer, Allen P., Jones, Mich. Hay-sling	348,950	Sept. 14	565	150	36	1156
Boyer, Louis W., San Francisco, Cal., assignor to Roller Bearing Company, New York, N. Y. Anti-friction bearing	346,716	Aug. 3	336	91, 92	36	596
Boyer, Zaccur P., Philadelphia, Pa. Steam-heating apparatus	347,463	Aug. 17	1385	368 369	36	736
Boyle, James E., East New York, N. Y. Flushing-tank	346,261	July 27	2085	536 537	36	400
Boyle, Thaddeus W., Augusta, Ga. Plow	345,027	July 6	330	83	36	60
Boyntes, Horace S., Oshkosh, Wis. Cutter-head	344,810	July 6	9	3	36	4
Brace, George W. (See Swett and Brace.)						
Brach, Otto, Berlin, Germany. Porous mass for blotting purposes and for making cigar-pipes, &c	347,565	Aug. 17	1527	.....	36	762
Brachmann, William P., Newark, N. J. Injector	347,566	Aug. 17	1527	406 407	36	763
Bracken, Henry W., San Francisco, Cal. Safety air-clutch for elevators	349,299	Sept. 21	1033	264	36	1252
Bradberry, William T., Allegheny, Pa. Gas-burner	344,808	July 6	7	2	36	4
Bradbury, Edward T., Mahanoy City, Pa. Sash-cord fastener	345,878	July 20	1545	399	36	289
Bradbury, Edward T., Mahanoy City, Pa. Pie-lifter	348,717	Sept. 7	251	67	36	1084
Bradbury, John M. (See Griswold and Bradbury.)						
Braddock, Warren L., Boston, Mass. Garment-supporter	346,262	July 27	2086	537	36	400
Bradford, Charles K., Lynnfield, Mass. Sole-inking device	345,646	July 20	1251	324	36	238
Bradford, Charles K., Lynnfield, Mass. Device for tapering the ends of shoe-makers' threads	349,564	Sept. 21	1408	364	36	1394
Bradford, Edward A. (See Greenleaf, Joseph H., assignor.)						
Bradford, Edward W., trustee. (See King, Charles W., assignor.)						
Bradford, Hezekiah, Philadelphia, Pa. Saving floating materials in ore-separation	345,951	July 20	1649	425 426	36	309
Bradley, Byron C., Chicago, Ill. Locking device for harrow-teeth	344,809	July 6	8	2	36	4
Bradley, Christopher C. (See Fanlder, Thomas, assignor.)						
Bradley, Edward E. (See Atwood and Bradley.)						
Bradley Manufacturing Company, David. (See Packer, John F., assignor.)						
Bradley, Peter B., Boston, Mass. Apparatus for handling fertilizers and other granular substances	345,479	July 13	947	239	36	176
Bradley, Willis H., Rockford, Ill. Wrench	347,681	Aug. 17	1708	456	36	796

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brady, James N., *et al.* (See Adams, Henry P., assignor.)						
Brady, John, Philadelphia, Pa. Sash-lock	345,480	July 13	949	239	36	176
Bragaldi, Mario, New York, N. Y. Box for letters and other articles	349,382	Sept. 21	1163	301	36	1276
Bragg, Thomas P. (See Brown and Bragg.)						
Brainard, Curtis B., assignor to W. J. Adam, Joliet, Ill. Machine for making stays for wire fences	345,104	July 6	423	108 109	36	77
Brainard, Curtis B., assignor to W. J. Adam, Joliet, Ill. Stay for wire fences	345,877	July 20	1545	399	36	289
Braithwaite, Charles H., Ardmore, G. Lane, Philadelphia, Pa., and W. Herring, Staten Island, N. Y. Pole for lawn-tennis nets	349,686	Sept. 28	1565	405	36	1363
Brambel, Grant, assignor of one-half to F. J. Dunham, Havana, N. Y. Telephone-transmitter	345,762	July 20	1392	361	36	963
Bramkamp, John H., Denver, Colo. Milk-cooler	347,085	Aug. 10	847	225	36	628
Brand, Fred J., *et al.* (See Wood, Lucius A., assignor.)						
Brand, John S., *et al.* (See Wood, Lucius A., assignor.)						
Brandes, Charles E. A., Brooklyn, N. Y. Station-indicator	349,141	Sept. 14	833	212	36	1204
Brandes, Henry H., assignor of one half to A. P. Floyd, Corydon, Ky. Harness-bridal attachment	347,464	Aug. 17	1396	369	36	736
Brandon, James, New York, N. Y. Piston-packing	345,569	July 13	1102	282	36	904
Branham, George F. (See Noble and Branham.)						
Braun, Frederick, Milwaukee, Wis. Combined sidewalk light and ventilator	345,105	July 6	425	109	36	78
Brantigam, Joseph A., New York, N. Y. Presser-foot for pearl-braid sewing-machines	347,465	Aug. 17	1387	369 370	36	736
Brantigam, Joseph A., New York, N. Y. Stitching reed-covers to hat-sweats	347,466	Aug. 17	1389	370	36	737
Bray, Horace B., Gainesville, Tex. Burglar-alarm	347,066	Aug. 10	848	225	36	629
Bray, Sanford, Boston, Mass. Joining glass mosaics	349,424	Sept. 21	1217	316	36	1267
Brayton, James T., assignor of one-half to S. G. Hart, Geneva, N. Y. Thermometer or like instrument	345,106	July 6	426	109 110	36	78
Brazel, Peter B., Cheboygan, Mich. Snow-plow	346,637	Aug. 3	240	66	36	506
Breed & Co., S. N. (See Blaney, Elbridge G., Jr., assignor.)						
Brennan, Ann, *et al.* (See Harney, Michael C., assignor.)						
Brennan, William N., *et al.* (See Harney, Michael C., assignor.)						
Bretherton, Martin, St. Louis, Mo. Combined window-seat and bedstead	348,653	Sept. 7	164	45	36	1077
Bretherton, Martin, St. Louis, Mo. Combined window-seat, bedstead, and couch	348,654	Sept. 7	167	46	36	1078
Bretherton, Martin, St. Louis, Mo. Combined window-seat and couch	348,655	Sept. 7	170	46	36	1078
Brewer, Horatio J., New York, N. Y. Galvanic battery	346,395	July 27	2268	561	36	434
Brewer, James P., and W. G. Smith, New Haven, Conn. Apparatus for signaling policemen	347,318	Aug. 17	1174	314	36	698
Brewster, Hiram E. (See McLoughlin and Brewster.)						
Brickenstein, Laurence C., and C. A. Babendreier, Baltimore, Md. Device for decanting liquids	349,248	Sept. 14	977	249	36	1231
Bridges, Mortimer A., *et al.* (See Gooch, Harold, assignor.)						
Briggs, George E., Bowling Green, Mo. Cultivator	347,087	Aug. 10	849	226	36	629
Briggs, J. Henry, Philadelphia, Pa. Sewing-cord	346,577	Aug. 3	161	44	36	491
Briggs, John N., Coeymans, N. Y. Apparatus for planing cakes of ice for storing	346,576	Aug. 3	160	43	36	491
Briggs, Orlando P., assignor to C. L. Ames and A. H. Frost, Chicago, Ill. Machine for weaving coiled-wire fabric for bed-bottoms	348,150	Aug. 24	2371	636 637	36	927
Briggs, Thomas, and E. Webb, Salford, county of Lancaster, England. Doubling and twisting machine	346,396	July 27	2269	581 582	36	434
Briggs, William H., Bond Hill, assignor to Post & Co., Cincinnati, Ohio. Lamp-coupling	345,615	July 13	1160	297	36	215
Briggs, Warren R., Bridgeport, Conn. Latch	348,656	Sept. 7	172	46, 47	36	1078
Briggs, Warren R., Bridgeport, Conn. Night-latch	348,657	Sept. 7	173	47	36	1078
Brigham, Lyscom, Orangeville Mills, Mich. Soft-ground horseshoe	345,763	July 20	1393	361	36	264
Brill, John A., and E. H. Zitzman, Philadelphia, Pa. Car-coupling	346,469	Aug. 3	13	4	36	463
Brink, Chester W., assignor of one-half to E. Ainsworth, Wilmington, Del. Gaff-clamp	349,534	Sept. 28	1793	463	36	1405
Brinkerhoff, John J., Auburn, N. Y. Clothes-wringer	345,952	July 20	1651	426	36	309
Brinkerhoff, Warren M., Auburn, N. Y. Ventilator	345,107	July 6	429	110	36	78
Brinkerhoff, Warren M., Auburn, N. Y. Ventilating attachment for stoves	346,717	Aug. 3	337	92	36	596
Brinkerhoff, Warren M., Auburn, N. Y. Ventilating attachment for stoves	349,425	Sept. 21	1218	316	36	1267
Brinton, Caleb J., Jr., Philadelphia, Pa. Car-coupling	345,108	July 6	430	110	36	78
Brislin, David A. (See Murray and Brislin.)						
Brislin, John, Millvale, and A. Vimaso, Pittsburg, Pa. Feeding mechanism for rolling-mills	345,953	July 20	1653	426	36	310
Brittain, John A., assignor to himself and F. G. Du Bois, New York, N. Y. Game counter	347,467	Aug. 17	1390	370	36	737
Broadbent, Charles F., assignor to Magnolia Laundry Soap Manufacturing Company, Baltimore, Md. Soap compound	346,461	Aug. 3	15	.....	36	463
Brodrick, John, New York, N. Y. Autographic stencil and producing the same	345,109	July 6	430	110	36	79
Bronson, Enos A., Wymore, Nebr. Compound for coating and finishing walls	346,143	July 27	1917	.....	36	367
Bronson, Lewis G., Chicago, Ill. Electric-arc lamp	348,542	Sept. 7	3	1	36	1049
Bronson, William C., Saratoga Springs, N. Y. Steam-heater	345,879	July 20	1547	400	36	290
Brookfield, William. (See O'Brien, John, assignor.)						
Brooks, A. S., *et al.* (See Michael, George W., assignor.)						
Brooks, Charles M. (See Skinner and Brooks.)						
Brooks & Co., E. J. (See Brooks, Edward J., assignor.)						
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Seal	345,764	July 20	1394	362	36	264
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Tin-strip seal	345,765	July 20	1396	362	36	264
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Self-fastening seal	348,509	Aug. 31	2694	778	36	1032
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Seal	348,884	Sept. 7	470	124	36	1134
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Lead and wire seal	349,873	Sept. 28	1841	476	36	1415
Brooks, Horatio G., *et al.* (See Haskin, Uri, assignor.)						
Brooks, James W., trustee. (See Allen, Edward B., assignor.)						
Brooks, James W., trustee. (See Gliddon, Charles W., assignor.)						
Brooks, Jasper A. (See McNorton, John T., assignor.)						
Brooks, John, Plainfield, N. J. Sheet-delivery apparatus for printing-machines	349,781	Sept. 28	1720	444	36	1389
Brooks, John, and W. A. Sweetser, Brockton, Mass. Lubricator	344,811	July 6	10	3	35	4
Brooks, S. E., *et al.* (See Michael, George W., assignor.)						
Brooks, Willard P., Topeka, Kans., assignor of two-thirds to F. A. A. Neals and J. H. Austermuell, Kansas City, Mo. Clothes-rack	348,510	Aug. 31	2695	778	36	1033
Brophy, Truman W., Chicago, Ill. Dental matrix	346,092	July 20	1396	472	36	342
Brower, Emmett H., and J. J. Travis, Carson City, Mich. Stove-pipe collar and clamp	346,188	July 27	1976	510	36	379

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Brown, Abner G., deceased, Lima, Ohio., R. W. Brown, administrator. Washing-machine	350,035	Sept. 28	2054	530 531	36	1454
Brown, Alexander T., Syracuse, N. Y. Lock mechanism for concealed-hammer guns	345,362	July 13	780	197	36	146
Brown, Alfred H., Freeport, Ill. Bag-tie	349,300	Sept. 21	1034	264	36	1252
Brown, Archie. (See Houtz and Brown.)						
Brown, Arthur G., Brooklyn, N. Y., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Circuit-controlling key for incandescent electric lights	345,880	July 20	1548	400	36	290
Brown, Arthur G., Brooklyn, N. Y., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Circuit-controlling key for incandescent electric lamps	346,020	July 20	1751	451	36	327
Brown, Charles, Albert Lea, Minn. Fire-escape	345,110	July 6	431	111	36	79
Brown, Charles A., Pittsfield, Vt. Ox-yoke	349,565	Sept. 21	1410	365	36	1325
Brown, Charles H., and H. W. Meyer, assignors to S. N. Brown & Co., Dayton, Ohio. Hub-mortising machine	345,766	July 20	1398	362	36	264
Brown, Charles M., Melbourne, Iowa. Submerged pump	345,271	July 13	656	167	36	125
Brown & Co., S. N. (See Brown and Meyer, assignors.)						
Brown, Daniel V., Philadelphia, Pa. Eyeglasses	348,449	Aug. 31	2809	755	36	1017
Brown, Edwin H., *et al.*, executors. (See Saunders, Frank.)						
Brown, Edwin L., Chicago, Ill. Candle	345,272	July 13	657	167	36	125
Brown, Edwin W., assignor to Preston Machine Company, Boston, Mass. Machine for stretching and molding the uppers of boots and shoes	346,422	July 27	2307	595	36	441
Brown, Ethan A., assignor of one-half to W. McGinnis, Indianapolis, Ind. Tug-holder	345,410	July 13	851	212	36	158
Brown, Francis C., New York, N. Y. Fountain-pen	345,411	July 13	852	213	36	158
Brown, Francis H. (See Brown, Harold P. and F. H.)						
Brown, Frank, *et al.* (See Holt, Selden W., assignor.)						
Brown, George B., Red Oak, Iowa. Cornstalk-cutter attachment	349,566	Sept. 21	1411	365	36	1325
Brown, George W. (See Metzger and Brown.)						
Brown, Gilman W., West Newbury, Mass. Signaling apparatus	347,319	Aug. 17	1176	315	36	699
Brown, Glenn, Washington, D. C. Garbage attachment for ranges or stoves	346,891	Aug. 10	560	150	36	576
Brown, Harold P., Chicago, Ill. Incandescent electric-light hanger	347,767	Aug. 24	1925	496	36	898
Brown, Harold P. and F. H., Chicago, Ill. Artificial electrical resistance	347,766	Aug. 24	1925	486	36	895
Brown, Henry H., Madison, Wis. Ankle-boot for horses	348,614	Sept. 7	114	32	36	1068
Brown, Isaac T., Columbus, Ind. Paper-box machine	345,363	July 13	781	197	36	146
Brown, James W., Paducah, Ky. Brick-machine	349,477	Sept. 21	1291	336	36	1301
Brown, John N., New London, Conn. Adjustable pole-coupling for vehicles	346,144	July 27	1918	495	36	367
Brown, Morgan D., Forest, Ohio. Automatic railway-signal	345,412	July 13	855	213 214	36	159
Brown Paper Company, L. L. (See Barden, George F., assignor.)						
Brown, Peter C., and T. P. Bragg, Ennis, Tex. Sulky-plow	350,036	Sept. 28	2055	531	36	1454
Brown, R. W., administrator. (See Brown, Abner G.)						
Brown, Richard T., assignor to himself and W. Downing, Erie, Pa. Feeding-table for paper-folding machines	347,224	Aug. 10	1035	276	36	663
Brown, Robert. (See Hoover and Brown.)						
Brown, Robert G., Brooklyn, assignor to Standard Multiplex Telegraph Company, New York, N. Y. Contact-finger for vibrating reeds	345,209	July 6	561	143	36	102
Brown, Robert H. (See Johnson, Melvin L., assignor.)						
Brown, Royal F., Chicago, Ill. Furnace	348,885	Sept. 7	471	124	36	1134
Brown, Samuel, Russellville, Ark. Refrigerator store-house for fruits and vegetables	346,189	July 27	1977	511	36	379
Brown, Samuel C. (See Hauck, Charles E., assignor.)						
Brown, Spencer H., New York, N. Y. Inhaler and respirator	349,687	Sept. 28	1566	406	36	1363
Brown, Walter F., Providence, R. I. Steam-engine indicator	347,088	Aug. 10	851	226	36	629
Brown, William H., New York, N. Y., assignor to Brown's Seamless Metal Company, Jersey City, N. J. Manufacture of copper tubes	348,718	Sept. 7	252	67	36	1094
Brown, William H., New York, N. Y., assignor to Brown's Seamless Metal Company, Jersey City, N. J. Making ordnance	348,719	Sept. 7	253	68	36	1094
Brown, William P. (See Shea and Brown.)						
Brown, William P., Zanesville, Ohio. Wheel-cultivator	345,111	July 6	432	111	36	79
Brown, William S., Bayneville, Kans. Sliding gate	349,920	Sept. 28	1896	491	36	1425
Browne, Arthur W., Westfield, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental plugger	347,567	Aug. 17	1529	407	36	763
Browne, Francis F., Hyde Park, Ill. Sash-fastener	345,273	July 13	659	168	36	125
Browne, Joseph P., South Hadley, Mass. Paper-making machine	345,274	July 13	662	168	36	126
Browne, William H., Brooklyn, N. Y. Heater	344,812	July 6	13	3, 4	36	4
Browning, John M. and M. S., Ogden City, Utah Ter. Magazine fire-arm	345,881	July 20	1549	400	36	290
Browning, John M. and M. S., Ogden City, Utah Ter., assignors to Winchester Repeating Arms Company, New Haven, Conn. Magazine fire-arm	345,882	July 20	1553	401	36	291
Browning, John M. and M. S., Ogden City, Utah Ter., assignors to Winchester Repeating Arms Company, New Haven, Conn. Breech-loading fire-arm	346,021	July 20	1753	451	36	327
Browning, Matthew S. (See Browning, John M. and M. S.)						
Brown's Seamless Metal Company. (See Brown, William H., assignor.)						
Brownson, Walter G., St. Louis, Mo. Blower	348,488	Aug. 31	2863	770	36	1027
Bruce, Thomas J., Whig Hill, Pa. Car-coupling	348,720	Sept. 7	254	68	36	1094
Bruce, William A. (See Stark, Theodore C., assignor.)						
Bruckart, Christian, Salunga, Pa. Animal-trap	344,939	July 6	197	50, 51	36	36
Brüncker, Ewald, Sieglahr, near Troisdorf, Germany. Device for converting motion	346,397	July 27	2271	582	36	434
Brundage, Fred. A., Belmont, N. Y. Fruit-pail for gathering fruit	347,918	Aug. 24	2050	544	36	867
Brunner, Preston M., St. Louis, Mo. Cable railway	345,616	July 13	1161	298	36	215
Brunswick, Balke & Collender Company. (See Scheef, Charles, assignor.)						
Brush, A. P., Jr., *et al.* (See Nolen, Robert, assignor.)						
Brush, Charles F., Cleveland, Ohio. Multiple-series cut-out	347,025	Aug. 10	750	200	36	611
Brüstle, Andrew, and A. Siegel, Hyde Park, Mass. Die for making joints of forceps, pinchers, &c.	346,578	Aug. 3	162	44	36	491
Bryan, Louis W., Quincy, Ill., assignor to himself and C. C. Lee, Palmyra, Mo. Valve-gear	346,190	July 27	1978	511	36	379
Bryce-Douglas, Archibald D., Seafield, Ardrossan, county of Ayr, Scotland. Link-motion for engines	345,617	July 13	1162	298	36	215
Bryce, Stephen T., Dayton, Ohio. Hot-air furnace. (Reissue)	10,747	July 27	2162	605	36	449
Bryden, John R., Georgetown, British Guiana. Sanitary apparatus	347,568	Aug. 17	1531	407	36	763
Buchheit, Charles J., and T. L. Popp, Buffalo, N. Y. Type-writing machine	348,511	Aug. 31	2996	779	36	1033
Buchholz, Edward, Philadelphia, Pa. Shawl and bundle carrier	347,415	Aug. 17	1309	349	36	722
Buckelew, Charles H., Plainfield, N. J. Submarine tunnel	349,301	Sept. 21	1035	265	36	1252
Buckingham, John E., Washington, D. C. Door-securer	349,688	Sept. 28	1567	406	36	1363
Buckingham, Joseph P., New York, N. Y. Mailing-tube	347,416	Aug. 17	1310	350	36	722
Buckingham, Joseph P., Brooklyn, N. Y. Collapsible toy horse	347,692	Aug. 17	1709	456	36	796
Buckland, Thomas A., St. Louis, Mo. Locomotive-furnace	347,683	Aug. 17	1710	456	36	797

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Buckley, George W. (See Null, Jasper N., assignor.)						
Buckley, Jeremiah M., Sioux City, Iowa. Spark-arrester	349,337	Sept. 21	1074	276	36	1260
Buckley, William, Sheffield, county of York, England. Metallic spring	345,767	July 20	1400	363	36	984
Budd, William E., Chatham, N. J., assignor of one-third to F. Hussey, New York, N. Y. Sulky-plow	346,801	Aug. 3	427	117	36	543
Buell, Charles E., New Haven, Conn. Storing and utilizing electricity on vehicles	347,768	Aug. 24	1927	486 487	36	896
Buermann, August, Newark, N. J. Bridle-bit	347,925	Aug. 10	1036	276	36	663
Buffham, George R., Port Chester, N. Y. Ventilator	349,782	Sept. 28	1721	444	36	1390
Buhler, M. (See Baird, Andrew J., assignor.)						
Bührer, Jacob, Konstanz, Baden, Germany, assignor of one-half to F. B., H. T., and B. F. Van De Velde, Cleveland, Ohio. Root-fertilizer	349,874	Sept. 28	1843	476	36	1415
Buisc, James, Catonsville, Md. Grate for burning coal-dust	346,086	July 27	1833	473	36	351
Bull, Henry, Basle, Switzerland, and C. L. Müller, Ludwigshafen-on-the-Rhine, assignors to Badische Anilin und Soda Fabrik, Mannheim, Germany. Sulphonated purple dye-stuff from benzyldiphenylamine	346,022	July 20	1754	.....	36	327
Bull, Richard H. (See Hall and Bull.)						
Bull, Richard H., New York, and H. H. Hall, New Hamburg, N. Y. Constructing water-works	344,813	July 6	14	4	36	5
Bullard, Charles W., Chicago, Ill. Door-bell	347,296	Aug. 10	1037	276 277	36	664
Bullard, David C., Elberton, Ga. Planter and manure-distributer	345,210	July 6	562	144	36	102
Bullard, James H., Springfield, assignor of one-half to A. W. Page, Chicopee Falls, Mass. Machine for bending the ends of knitting-machine needles	348,151	Aug. 24	2376	637 638	36	998
Bullard, William P., assignor to Fuller Manufacturing Company, New York, N. Y. Bit-brace	347,417	Aug. 17	1311	350	36	723
Bullis, George W. (See Krehbiel, John, assignor.)						
Bullock, Marie D., Philadelphia, Pa. Game	346,892	Aug. 10	561	151	36	577
Bumgarner, George W., Baltimore, Md. Shut-off cock	346,462	Aug. 3	15	4	36	463
Bunce, Thomas A., Berlin, Conn. Folding table	346,145	July 27	1919	495	36	368
Bunch, William E., Nebo, Ark. Fence	347,865	Aug. 24	1966	522	36	853
Bunting, William, Jr., Boston, Mass., assignor to Meyer-Sniffen Company, (limited,) New York, N. Y. Combined valve and overflow-pipe for bath-tubs, wash-basins, sinks, &c	347,684	Aug. 17	1711	457	36	797
Bunton, William A., trustee. (See Moores, Henry C., assignor.)						
Buob, Louis, Jr., and W. Jochum, assignors to Cincinnati Neck Yoke Company, Cincinnati, Ohio. Neck-yoke	346,802	Aug. 3	429	118	36	544
Burchfield, David C., Ashland, Pa. Carpet-stretcher	345,211	July 6	563	144	36	102
Burden, James A., Troy, N. Y. Buckboard-wagon	344,895	July 6	142	35, 36	36	26
Burdick, James T., Friendship, N. Y. Wagon	346,398	July 27	2272	582 583	36	435
Burdick Manufacturing Company, H. N. (See White, George, assignor.)						
Burdict, Orrin C., assignor to Plumb, Burdict & Barnard, Buffalo, N. Y. Screw-threading machine	349,063	Sept. 14	752	191 192	36	1188
Burgans, Charles E., Oakland, Cal. Trigger attachment for double guns	344,896	July 6	143	36	36	26
Burgess, Charles M., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Drawer-pull	346,463	Aug. 3	16	5	36	463
Burgess, Edward A. (See Rathbun and Burgess.)						
Burgess, Edward C., Philadelphia, Pa. Apparatus for burning hydrocarbon oils	346,464	Aug. 3	17	5	36	463
Burgess, Eli M., Leesburg, Ohio. Clipping-machine	347,263	Aug. 10	1085	290	36	672
Burgess, Harry A., Boston, Mass. Inkstand	346,963	July 27	2087	537	36	400
Burgess, Ira J. (See Strader, Gray, and Burgess.)						
Burgess, John, Manchester, county of Lancaster, England. Buckle	348,186	Aug. 31	2445	656 657	36	946
Burgess, William V., Sterling, Kans. Washing-machine	348,543	Sept. 7	4	1	36	1049
Burk, Frank W., assignor of three fourths to W. H. Hebberd and C. M. Sawyer, New York, N. Y. Carbureting compound	346,803	Aug. 3	430	.....	36	544
Burkart, August, assignor to himself and F. G. Datoit, Berne, Switzerland. Ash-pit for stoves	346,804	Aug. 3	430	118	36	544
Burke, Edmund V. (See Swan, T. Bryant, assignor.)						
Burkhard, John P., St. Paul, Minn. Toboggan	349,269	Sept. 14	1001	255	36	1236
Burkhard, Thomas, Brooklyn, N. Y. Cooking-kettle for candy and other substances	349,084	Sept. 14	754	192	36	1188
Burnap, Hiram. (See Andrews and Burnap.)						
Burnet, Jacob, Jr., Cincinnati, Ohio. Wick-carrier	347,969	Aug. 24	2153	573	36	896
Burnett, Isaac, and E. Folliott, Joliet, Ill. Slip-rail frog for railways	349,689	Sept. 28	1568	406 407	36	1363
Burnham, Charles E., White Plains, N. Y. Clock mechanism for operating gas-cocks	346,399	July 27	2373	583	36	435
Burns, Jabez, Brooklyn, N. Y. Grinding-mill	349,628	Sept. 21	1488	385	36	1341
Burns, Joseph, Montezuma, Ind. Fence-post	349,142	Sept. 14	834	212	36	1204
Burns, Robert, assignor of one-half to E. S. Skinner, Chicago, Ill. Non-conducting pipe-covering	348,187	Aug. 31	2445	657	36	946
Burrall, William D., *et al.* (See De Zeng, Henry L., assignor.)						
Burrell, David H. (See Evans, Jonathan, assignor.)						
Burrell, David H., *et al.* (See Koelkebeck, Carl W. A., assignor.)						
Burris, Samuel C., Victoria, British Columbia, Canada. Construction of buildings	346,638	Aug. 3	242	66	36	507
Burrows, Francis O., Cleveland, Ohio. Steam-boiler	348,315	Aug. 31	2021	706	36	981
Burson, William W., Chicago, Ill. Low-level self-binding harvester	347,769	Aug. 24	1929	487 488	36	827
Burt, Townsend W., Mineola, N. Y. Automatic block-signaling apparatus	346,893	Aug. 10	562	151	36	577
Burton, George D., New Ipswich, N. H. Electrical connection and guard therefor	346,423	July 27	2309	595	36	441
Burton, George D., New Ipswich, N. H. Stock-car	348,866	Sept. 7	472	125	36	1134
Burton, George D., New Ipswich, N. H. Baby-carriage	349,629	Sept. 21	1489	385 386	36	1341
Burton, John, London, England. Notation-slip for finger-board instruments	346,424	July 27	2310	595	36	441
Burwell & Whitman. (See Ostman, Edward J., assignor.)						
Buschemeyer, Henry W., Louisville, Ky. Dental tool	349,338	Sept. 21	1076	277	36	1260
Bush, J. W., *et al.* (See McMillan, John L., assignor.)						
Bush, John S., Turnpike, N. C. Well mechanism	345,275	July 13	664	168	36	126
Bush, Madison M. (See Driver, Charles H., assignor.)						
Buskirk, Schuyler V., Brooklyn, N. Y. Attaching water-closet pans to their rock-shafts	345,667	July 20	1253	335	36	238
Buss, George F., Grand Rapids, Mich. Dadoing-machine	345,668	July 20	1254	325	36	238
Bussler, Otto, Nuremberg, Bavaria, Germany. Sheath for lead-pencils	345,364	July 13	783	198	36	147
Bussler, Otto, Nuremberg, Bavaria, Germany. Stylographic pen	350,037	Sept. 28	2056	531	36	1455
Bustard, Cyrus D. H., *et al.* (See Ashby, Daniel S., assignor.)						
Bustard, James G., *et al.* (See Ashby, Daniel S., assignor.)						
Buster, John H., Spenceville, Cal. Car-coupling	347,919	Aug. 24	2051	544	36	867

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Buswell, Simeon H., Manchester, N. H. Snow-plow	345,618	July 13	1163	298	36	215
Butler, Charles A., assignor of one-half to G. W. Powell, Moriah, N. Y. Bee-escape	346,023	July 20	1756	451	36	327
Butler, H. S. (See Terman, James W., assignor.)						
Butler, Hiram E., and M. Harris, Jamestown, N. Y. Combined blackboard and writing-desk	346,638	Aug. 3	479	132	36	554
Butler, Jay F., New York, N. Y. Spring for baby-carriages	348,378	Aug. 31	2707	727	36	998
Butler, Theodore, assignor to J. L. Mott Iron Works, New York, N. Y. Bath waste and overflow	346,579	Aug. 3	164	44	36	491
Butman, Edward E. (See Bartlett, Jason F., assignor.)						
Butterfield, George F., Stoneham, Mass. Mold for vulcanizing rubber to leather	349,690	Sept. 28	1570	407	36	1364
Butters, Horace, Ludington, Mich. Hoisting-pulley	349,691	Sept. 28	1572	407	36	1364
Button, Benjamin G., *et al.* (See Kittell, Ernest A., assignor.)						
Butts, Alexander P., Brockport, N. Y. Paper-file	346,639	Aug. 3	480	132	36	554
Buts, Albert M., Minneapolis, Minn. Thermo-electric damper regulator and alarm	347,866	Aug. 24	1967	522	36	853
Byam, George A., *et al.* (See Logan, Thomas H., assignor.)						
Byerley, Francis X., assignor of one-half to C. M. Mix, Cleveland, Ohio. Purifying paraffine and extracting oil from oleaginous materials	347,298	Aug. 10	1194	301	36	679
Byers, Joseph J., Brooklyn, N. Y. Ventilated water-proof and other garments	346,067	July 27	1534	474	36	351
Bylesby, Henry M., Roselle, N. J., assignor to G. Westinghouse, Jr., Pittsburg, Pa. System of electrical distribution	345,212	July 6	564	144 145	36	102
Cabble, Elijah, Brooklyn, N. Y. Centrifugal machine for extracting water from coils of wire, &c	348,316	Aug. 31	2922	707	36	981
Caddick, Edward, *et al.*, trustees. (See Tickle and Leonardt, assignors.)						
Caesar, Julius, New York, N. Y. Exercising device for musicians	348,379	Aug. 31	2707	727	36	998
Cahill, Thaddeus, assignor of two-thirds to T. Cahill, Oberlin, Ohio. Organ	345,098	July 6	331	83	36	61
Cahill, Timothy. (See Cahill, Thaddeus, assignor.)						
Caboone, Edwin R., Newark, N. J. Mucilage-bottle	346,088	July 27	1535	474	36	352
Cahow, Daniel B., Akron, Ohio. Pump	349,205	Sept. 14	915	235	36	1219
Calbuth, Richard D., *et al.* (See McKinster, Frank, assignor.)						
Caldwell, Benjamin F., Wheeling, W. Va. Painting metallic plates	347,990	Aug. 24	2153	573	36	886
Caldwell, Benjamin F., Wheeling, W. Va. Machine for forming metallic roofing into packages	347,991	Aug. 24	2155	573 574	36	886
Caldwell, James L. (See Beales, Emanuel D., assignor.)						
Caldwell, William M., *et al.* (See Reinhardt, James H., assignor.)						
Callahan, Cornelius, Chelsea, Mass. Hose pipe and nozzle	345,570	July 13	1104	282	36	204
Cameron, John F., New York, N. Y. Floor-cleaning machine	348,317	Aug. 31	2923	707	36	981
Cammann, Louis D., New York, N. Y. Sand-box for tram-cars	345,768	July 20	1401	363	36	264
Campbell, Allan. (See Westerlin and Campbell.)						
Campbell, Andrew, Brooklyn, assignor to J. and E. McLoughlin, New York, N. Y. Printing-machine	345,669	July 20	1255	325 326	36	239
Campbell, Andrew, Brooklyn, assignor to J. and E. McLoughlin, New York, N. Y. Speed-regulator	345,670	July 20	1260	326 327	36	240
Campbell, Christopher C., Chester, Mass. Reversible broiler	347,992	Aug. 24	2157	574	36	886
Campbell & Clute. (See Clute, John, assignor.)						
Campbell & Clute. (See Clute, John, assignor.) (Reissue.)						
Campbell, Elwell, Kansas City, Mo. Railway-frog	349,783	Sept. 28	1793	445	36	1390
Campbell, Enos, Minneapolis, Minn. Conduit for electrical conductors	346,840	Aug. 3	480	133	36	555
Campbell, Frank L. (See Vandegrift and Campbell.)						
Campbell, George, Toronto, Ontario, Canada, assignor to E. A. Blake, Chicago, Ill. Exhaust-fan	347,227	Aug. 10	1038	277	36	664
Campbell, George W., Alamo, Ind. Cultivator attachment	348,721	Sept. 7	255	68	36	1094
Campbell, Joseph H., New York, N. Y. Utilizing aqua-ammonia in engines	346,425	July 27	2310	595	36	441
Campbell, Peter E., Duncanville, S. C. Remedy for dropsy	345,671	July 20	1262	.....	36	240
Campbell, Thomas. (See Webber, Charles C., assignor.)						
Campbell, William W., Kilmore, Ind. Car-coupling	346,069	July 27	1536	474	36	352
Camus, Henri, deceased, J. C. Jalageas, St. Louis, Mo., administrator. Shutter-fastener	347,610	Aug. 17	1588	422	36	775
Canan, James, Port Colborne, Ontario, Canada. Bottle	345,112	July 6	435	112	36	79
Canda, Ferdinand E., New York, N. Y. Cattle-car	345,481	July 13	950	239 240	36	176
Canda, Ferdinand E., New York, N. Y. Cattle-car	345,482	July 13	951	240	36	177
Canfield Rubber Company. (See Shelby, Christopher C., assignor.)						
Canning, William P., assignor to Lowell Machine Shop, Lowell, Mass. Slasher for sizing and drying yarn	346,639	Aug. 3	243	67	36	508
Capewell, Walter S., Oakville, Conn. Shot and powder charger	346,718	Aug. 3	339	92	36	527
Capewell, Walter S., Oakville, Conn. Cartridge-belt	346,719	Aug. 3	340	92	36	527
Cappiani, Luisa, New York, N. Y. Sheet-music case	346,530	Aug. 3	103	28	36	480
Card, William J., assignor of one-half to G. V. Foreman, Olean, N. Y. Handle-lock for stamps and other articles	347,685	Aug. 17	1713	457	36	797
Card, William L., La Crosse, Wis., assignor to Tierra Seca Mining Company. Gold-separator	347,867	Aug. 24	1970	532 533	36	853
Card, William L., La Crosse, Wis., assignor to Tierra Seca Mining Company. Machine for eliminating metals from their matrices	347,868	Aug. 24	1974	533 534	36	854
Card, William L., La Crosse, Wis., assignor to Tierra Seca Mining Company. Crusher and pulveriser	347,869	Aug. 24	1977	534	36	854
Card, William L., La Crosse, Wis., assignor to Tierra Seca Mining Company. Screen	347,870	Aug. 24	1980	535	36	854
Carey, John E., assignor of one-half to F. J. Will and L. Monts, Eagle Grove, Iowa. Neck-yoke center	349,383	Sept. 21	1164	309	36	1277
Carhart, Elliott, Brooklyn, N. Y. Electric bell	344,940	July 6	197	51	36	37
Carleton, Charles, assignor of one-half to E. M. Hulse, Chicago, Ill. Spring bed-bottom	349,478	Sept. 21	1284	336	36	1303
Carley, John W., Thornton, Tex. Tamping-machine	347,920	Aug. 24	2058	544 545	36	868
Carll, Maskell F., Providence, R. I. Vulcanizer	345,883	July 20	1557	409	36	292
Carlough, Daniel. (See Cooke and Carlough.)						
Carlough, Daniel. (See Ludlow and Carlough.)						
Carlson, Charles P., McKeesport, Pa. Boat-pump	346,720	Aug. 3	340	93	36	527
Carman, William W., Portsmouth, N. H. Steam-heating radiator	348,615	Sept. 7	115	39	36	1068
Carmical, Luther M., Jeneaville, Va. Calculator	346,905	Aug. 3	430	118	36	544
Carpenter, Alice P. (See Carpenter and Wright, assignors.)						
Carpenter, Alice P. (See Wood, Lucius A., assignor.)						
Carpenter, Charles C. (See Whitmarsh, Henry C., assignor.)						
Carpenter, Edwin P., and M. S. Wright, Brattleborough, Vt., assignors to A. P. Carpenter, Foxcroft, Me. Key-indicator for musical instruments	347,686	Aug. 17	1714	457	36	797
Carpenter & Sons, Earl. (See Cary, George W., assignor.)						
Carpenter, Wilbur M., St. Louis, Mo. Window	348,984	Aug. 31	2554	686	36	967

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Carpentier, Jules. (See Deprez and Carpentier.)						
Carr, Ellsworth, assignor of one-half to J. H. Reynolds, Troy, N. Y. Ball-caster	348,867	Sept. 7	473	125	36	1134
Carr, James W., Richmond, Va. Plow	345,113	July 6	436	112	36	80
Carr, Washington P., Tazewell, Ga. Cotton-press	347,468	Aug. 17	1391	370	36	737
Carr, William, St. Louis, Mo. Cover for sewing-machine needle-bars	347,089	Aug. 10	853	226	36	629
Carran, Richard B., Ludlow, Ky. Hinge	346,264	July 27	2088	537	36	400
Carre, John L. (See Weaver, Cromwell P., assignor.)						
Carroll, Edgar J., Worcester, assignor to G. Draper & Sons, Hopedale, Mass. Spindle-support for spinning-machines	350,038	Sept. 28	2057	531	36	1455
Carroll, Edward, and P. Ryan, Guelph, Ontario, Canada. Supporting-frame for carriage-tops	348,722	Sept. 7	256	69	36	1095
Carroll, William T., Worcester, assignor to G. Draper & Sons, Hopedale, Mass. Spindle-support for spinning-machines	350,039	Sept. 28	2057	539	36	1455
Carsley, George F., Mayerville Centre, Mo. Transplanter	344,814	July 6	15	4	36	5
Carter, Benjamin F., Cleveland, Ohio. Picker-staff check for looms	349,979	Sept. 28	1964	519	36	1441
Carter, Travis, Seymour, Ind. Dovetailing-machine	347,418	Aug. 17	1313	350	36	723
Carton, Furnace Company. (See Jones, John B., assignor.)						
Carty, John J., Cambridge, assignor to New England Telephone and Telegraph Company, Boston, Mass. Telephone and telegraph circuit	348,512	Aug. 31	2897	779	36	1033
Carver, George H. (See Dixon and Carver.)						
Cary, Charles H., Bristol, R. I. Rotary engine and pump	346,721	Aug. 3	341	93	36	527
Cary, Charles H., Bristol, R. I. Rotary pump	346,722	Aug. 3	343	93	36	528
Cary, Charles P., Pekin, Ill. Sled	345,899	July 20	1483	384	36	278
Cary, George W., assignor to E. Carpenter & Sons, Providence, R. I. Wagon-brake	346,723	Aug. 3	343	93	36	528
Cary, James C., New York, N. Y. Household furniture	345,769	July 20	1402	363	36	265
Casaday, William L., South Bend, Ind. Plow	345,276	July 13	965	168	36	126
Case, Augustus L., Bristol, R. I. Flower-press	346,640	Aug. 3	245	67	36	508
Case, Henry F., South Manchester, Conn. Machine for sizing and coloring paper and other fabrics	346,894	Aug. 10	566	151 152	36	577
Case Threshing Machine Company, J. I. (See Walrath, Jesse, assignor.)						
Casebolt, Henry, San Francisco, Cal. Grip for cable railways	348,380	Aug. 31	2708	727	36	998
Casebolt, Henry, San Francisco, Cal. Grip for cable railways	349,479	Sept. 21	1295	336	36	1302
Casey, Dennis J. (See Torrey and Casey.)						
Casey, Frederick A., Boston, Mass. Car-coupling	344,815	July 6	16	4.5	36	5
Casner, John, Cherry Flats, Pa. Vehicle-seat lock	345,672	July 20	1263	327	36	240
Cass, James, Cayucos Landing, Cal. Preserving piles	349,835	Sept. 28	1794	463	36	1405
Cassaday, William J., Finchford, Iowa. Device for converting motion	348,107	Aug. 24	2317	621	36	917
Cassella & Co., Leopold. (See Hoffmann and Weinberg, assignors.)						
Castell, James, Chicago, Ill. Ice-tank for refrigerators, refrigerator-buildings, &c	348,450	Aug. 31	2810	755	36	1017
Castle, William H., Geneva, Ohio. Carpet-sweeper	346,641	Aug. 3	245	67	36	508
Cately, Shepard W., assignor of one-half to Hitchcock Manufacturing Company, Cortland, N. Y. Reach-coupling for carriages	349,302	Sept. 21	1036	265	36	1252
Caunter, George, *et al.* (See Stevens, James S., assignor.)						
Cavanagh, John M. (See Hearan, James C., assignor.)						
Cawley, Daniel C., and C. P. Wall, Pittsburg, Pa. Window-ventilator	347,158	Aug. 10	946	252	36	647
Cawley, John. (See Dane and Reardon, assignors.)						
Cazier, Marion H., Chicago, Ill. Garment-hanger	347,569	Aug. 17	1532	407	36	764
Cazier, Marion H., Burlingame, Kans. Wardrobe attachment	347,687	Aug. 17	1716	458	36	798
Celluloid Manufacturing Company. (See Lefferts and Hyatt, assignors.)						
Challiss, Paul. (See Mock, William L., assignor.)						
Chamberlain, Marcus W., assignor to E. A. and F. S. Ely, Branchville, N. J., and P. A. Ely, Madison, N. Y. Elevator and carrier	344,941	July 6	198	51	36	37
Chamberlin, Levi, and A. S. Turnbull, Ypsilanti, Mich. Rotary steam-engine	346,531	Aug. 3	105	28	36	480
Chambers, Arthur, New York, N. Y. Boot or shoe	347,090	Aug. 10	854	226	36	629
Chambers, James M., St. Louis, Mo., assignor of one-half to St. Louis Cooperage Company. Apparatus for heating and drying barrels	348,888	Sept. 7	474	125	36	1134
Chambers, John D. (See Kane, Bart, assignor.)						
Chambers, Robert E. (See Summit, Christian A., assignor.)						
Champlin, Amos F. (See Heath and Champlin.)						
Chancellor, Joshua G., and E. C. Henry, Bloomington, Ill., said Chancellor assignor to said Henry. Hand fire-engine	345,571	July 13	1105	282 283	36	204
Chandler, Theophilus P., Jr., Philadelphia, Pa. Electric or other railway	346,465	Aug. 3	18	5	36	464
Chandler, Theophilus P., Jr., Philadelphia, Pa. Railway	346,724	Aug. 3	345	94	36	528
Channell, John D., Nevada City, Cal. Ore-concentrator	347,993	Aug. 24	2158	574	36	886
Chantrell, John, assignor to Reading Hardware Company, Reading, Pa. Nail-extractor	346,426	July 27	2314	596	36	442
Chapman, George F., Evanston, Wyo. Ter. Track-clearer	347,026	Aug. 10	752	200	36	611
Chapman, Horace P., assignor of one-third to S. M. Jones, Akron, Ohio. Middlings-purifier	345,954	July 20	1655	427	36	310
Chapman, Matthew T., Aurora, Ill. Tube-well and pumping mechanism for the same	349,339	Sept. 21	1076	277	36	1260
Chapman, Samuel A., Waterbury, assignor to J. C. Hammond, Jr., Rockville, and T. E King, Westport, Conn. Catch-plate for shoe-clasps	346,963	Aug. 10	686	182	36	600
Charles, Edgar A. (See Smith and Charles.)						
Charlton, James, and H. C. Lynch, assignors of one-third to W. F. Himstedt, Houston, Tex. Funnel attachment	346,265	July 27	2090	538	36	400
Charmantier, Léon, and S. De Casenave, Paris, France. Manufacture of stained-glass windows	346,984	Aug. 10	686	.....	36	600
Chase, Andrew J., Boston, Mass. Refrigerating buildings and vessels	346,354	July 27	2206	566	36	422
Chase, Andrew J., Boston, and C. F. Smith, Fitchburg, Mass. Method of and means for refrigeration	348,894	Sept. 7	378	163	36	1118
Chase, George C., New York, N. Y. Bin	346,191	July 27	1990	511	36	379
Chase, J. Herbert, Brooklyn, N. Y. Valve for organ-bellows	345,673	July 20	1264	327	36	240
Chase, James. (See Dekter and Chase.) (Reissue.)						
Chase, John W., assignor to F. A. Holcomb, Grand Rapids, Mich. District-telegraph	346,355	July 27	2207	566	36	422
Chase, Sidney A., assignor of one-half to W. R. Mapes, Evart, Mich. Fire-alarm signal-box	345,572	July 13	1106	283	36	205
Cheeseman, Sherwood E., Kansas City, Mo. Cartridge-loading implement. (Reissue)	10,752	July 27	2373	608	36	458
Cheever, John O., assignor to himself and H. T. Litchfield, Boston, Mass. Rotary pump	349,270	Sept. 14	1003	256	36	1237
Cheevers, John M. (See Lord and Cheevers.)						
Chemical Electric Light and Power Company. (See Goldner, William C., assignor.)						
Chemical Electric Light and Power Company. (See Jarriant, Benoit, assignor.)						
Chemical Hand Fire Extinguisher Company. (See Ballou, Russell A., assignor.)						
Cheney, Flavius, assignor to American Globe and School Supply Company, Seneca Falls, N. Y. Blackboard-eraser	345,830	July 20	1485	385	36	279
Chenoweth, Lewis F., Millerton, Kans. Hog-pen	349,480	Sept. 21	1296	337	36	1302
Chesebro, James F., Minneapolis, Minn. Vaporizing-inhaler	349,085	Sept. 14	755	193	36	1188

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chester, Ellis M., *et al.* (See Marker, Frank H., assignor.)						
Chester, Samuel M., Cincinnati, Ohio. Vehicle running-gear	347,159	Aug. 10	947	253	36	648
Cheswright, Charles, Leith Villa, Parkhurst Road, County of Middlesex, England. Machine for perforating the sides of capsules for bottles	345,365	July 13	784	198	36	147
Chicago Glycerine Company. (See Porter, Charles L., assignor.)						
Child, Frank E., assignor to H. Howard, Providence, R. I. Button	348,658	Sept. 7	174	47	36	1078
Child, Franklin D., West Newton, Mass. Cotton-gin	349,692	Sept. 28	1572	408	36	1364
Childs, J. Morris, Utica, N. Y. Harrow	346,956	July 27	2091	538	36	400
Childs, J. Morris, Utica, N. Y. Harrow	348,544	Sept. 7	5	2	36	1049
Chinnock, Charles E., Brooklyn, N. Y. Cash-carrier	345,884	July 20	1558	402	36	292
Chormann, Ernest G., Philadelphia, Pa., assignor to Chormann-Mitchell Manufacturing Company, of New Jersey. Composition for decorative purposes	346,841	Aug. 3	482	.....	36	555
Chormann-Mitchell Manufacturing Company. (See Chormann, Ernest G., assignor.)						
Christman, Augustus G., assignor of one-half to N. S. Althouse, Reading, Pa. Plow-jointer	345,770	July 20	1402	363	36	265
Christman, Augustus G., assignor to N. S. Althouse, Reading, Pa. Combined cultivator and hoe	347,330	Aug. 17	1179	315	36	699
Christie, Thomas K., Detroit, Mich. Hydrant	349,906	Sept. 14	916	235	36	1220
Christy, James, Jr. (See Denmead and McAllister, assignors.)						
Church, Duane H., Newton, Mass. Watch-case pendant	347,994	Aug. 24	2159	575	36	887
Churchill, Joshua W., Clarks Green, Pa. Lifting-jack	347,570	Aug. 17	1533	408	36	764
Cincinnati Neck Yoke Company. (See Bnob and Jochum, assignors.)						
Cincinnati Neck Yoke Company. (See Sterner and Hawes, assignors.)						
Cissel, Richard S. T., Elizabeth, N. J. Damper	349,921	Sept. 28	1896	491	36	1425
Clapham, Thomas, Roslyn, N. Y. Lee-board for small vessels	346,642	Aug. 3	247	68	36	508
Clapp, Benjamin W., and S. Ainsworth, Saratoga Springs, N. Y. Toboggan	349,481	Sept. 21	1297	337	36	1302
Clapp, John, and W. J. Keep, assignors to Michigan Stove Company, Detroit, Mich. Stove fire-pot	347,995	Aug. 24	2160	575	36	887
Clapp, John I. (See Heymann, Edward and F. W., assignors.)						
Claque, Wegman, Schlicht & Co. (See Schlicht, Paul J., assignor.)						
Clark, Charles S. (See Harvey and Clark.)						
Clark, Frank M., Tilton, N. H., and F. R. Low, Chelsea, Mass. Control-gear for elevators	344,942	July 6	200	51	36	37
Clark, George H., Newburyport, assignor to Whitin Machine Works, Whitinsville, Mass. Top-roll saddle for spinning-machines	345,831	July 20	1486	385	36	279
Clark, James T., and C. C. Clawson, Newark, N. J. Mill for grinding coffee, spice, &c.	349,693	Sept. 28	1573	408	36	1364
Clark, John H., Boston, assignor to O. Ames, Easton, Mass. Gas-engine	347,469	Aug. 17	1392	371	36	737
Clark, Maurice C., Derby, assignor to Birmingham Iron Foundry, Birmingham, Conn. Apparatus for manufacturing vulcanized-rubber belting	348,659	Sept. 7	175	47	36	1078
Clark, R. Neilson, and N. H. Cone, Leadville, Colo. Ore-concentrator	345,114	July 6	437	112	36	80
Clark, Resin, Bolivar, Ohio. Device for twisting wire	345,366	July 13	786	198	36	147
Clark, Samuel J., Bunker Hill, Ind. Spring bed-bottom	349,980	Sept. 28	1964	513	36	1441
Clarke, Alexander D., New York, N. Y. Ore-concentrator	347,770	Aug. 24	1833	488	36	887
Clarke, Alexander D., New York, N. Y. Machine for concentrating gold, &c	347,771	Aug. 24	1834	488	36	887
Clarke, Alfred, Lowell, Mass. Metal-planing machine	346,090	July 27	1837	474 / 475	36	352
Clarke, Benjamin S., *et al.* (See Tyler, James E., assignor.)						
Clarke, Charles L., East Orange, N. J. Electric-clock system	347,572	Aug. 17	1536	408	36	764
Clarke, Charles L., East Orange, N. J., assignor to Telemeter Company, New York, N. Y. Indicating apparatus	347,571	Aug. 17	1534	408	36	764
Clarke, Christopher, Northampton, Mass. Invalid-chair	347,321	Aug. 17	1182	316	36	700
Clarke, George H. (See Rae, John, assignor.)						
Clarke, James L., Leamington, county of Warwick, Eng'and. Apparatus for sharpening pencils	346,356	July 27	2209	566	36	493
Clarke, John V., Watertown, N. Y. Catch-basin	345,115	July 6	438	113	36	80
Clarke, John V., Watertown, N. Y. Box for the stop-cocks of service-pipes	349,567	Sept. 21	1413	365	36	1325
Clarke, Joseph W., assignor of one-third to N. B. Glover, Newnan, Ga. Machine for sprinkling fluid poison	345,413	July 13	857	214	36	159
Clarke, Thomas, and W. S. Flynn, Jersey City, N. J. Feed-water heater	347,298	Aug. 10	1039	277	36	664
Clarke, Thomas T., Meldrum, Kilbeggan, county of Westmeath, Ireland. Apparatus for feeding steam-boilers	346,146	July 27	1920	495	36	368
Clarke, William E., Providence, R. I. Garment-supporter	347,871	Aug. 24	1982	525	36	854
Classen, Abraham T., Danbury, Conn. Machinery for felting, planking, sizing, &c., hats	348,825	Sept. 7	379	103	36	1118
Claudin, Edward D. (See Claudin, John L. and E. D.)						
Claudin, John L. and E. D., Morton, Ill. Combined pulverizer, harrow, and cultivator	347,573	Aug. 17	1538	409	36	765
Claus, Carl F., London, England. Obtaining sulphur from hydrogen sulphide	349,981	Sept. 28	1985	.....	36	1442
Clawson, Clement C. (See Clark and Clawson.)						
Clayton, Herbert, Cincinnati, Ohio. Hood for fire-places	346,267	July 27	2092	538	36	401
Cleaveland, John B., Indianapolis, Ind. Wire-stretcher	345,367	July 13	787	199	36	147
Clement & Dunbar. (See Reid and Dunbar, assignors.)						
Clements, John, assignor to J. Cunningham, Son & Company, Rochester, N. Y. Draft attachment for vehicles	348,545	Sept. 7	7	2	36	1050
Clemson, George N., Middletown, N. Y. Saw	349,143	Sept. 14	836	213	36	1204
Cleveland Faucet Company. (See Weatherhead, Albert J., assignor.)						
Cliff, Edward, assignor to Cliff & Righter Co., Oswego, N. Y. Wagon bolster-spring	346,725	Aug. 3	347	94	36	509
Cliff & Righter Co. (See Cliff, Edward, assignor.)						
Clifford, Thomas, Mount Savage, Md. Water-heater for boilers	347,772	Aug. 24	1836	489	36	888
Clifton, Edward, Lowell, Mass. Apparatus for reeling or winding wire	345,832	July 20	1486	385	36	279
Clifton, Jackson M., Aunt, Tenn. Mail-carrier	346,257	July 27	2210	567	36	422
Cline, George J., Goshen, Ind. Carpet-sweeper	350,040	Sept. 28	2058	539	36	1455
Cline, Milan S., Bristow, Iowa. Sulky-harrow	347,773	Aug. 24	1837	489	36	888
Clinton Wire Cloth Company. (See Newton, Lewis W., assignor.)						
Clinton Wire Cloth Company. (See Scarles, Benjamin, assignor.)						
Clokey, William J. (See Garvin and Clokey.)						
Cloud, William H., Detroit, Mich. Pump	345,116	July 6	440	113	36	80
Cloyes, James H., Kalamazoo, Mich. Two-wheeled vehicle	349,907	Sept. 14	917	236	36	1220
Cloyes, James H., Kalamazoo, Mich. Two-wheeled vehicle	349,908	Sept. 14	918	236	36	1220
Cleaver, Henry, Albany, and N. Theien, Schenectady, N. Y. Railway-gate	347,574	Aug. 17	1539	409	36	765
Cluts, John, assignor to Campbell & Cluts, Cohoes, N. Y. Machine for uniting knit fabrics	344,897	July 6	144	36, 37	36	96
Cluts, John, assignor to Campbell & Cluts, Cohoes, N. Y. Machine for uniting knit fabrics. (Reissue)	10,763	Sept. 21	1545	389	36	1363
Cluts, John, assignor to Campbell & Cluts, Cohoes, N. Y. Machine for uniting knit fabrics. (Reissue)	10,764	Sept. 21	1547	389 / 400	36	1363
Cluts, Nicholas J., Chicago, Ill. Making laundry-soap, &c	347,087	Aug. 10	783	.....	36	612

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cluthe, Charles, Toronto, Ontario, Canada. Ventilator	345,117	July 6	441	113 / 114	36	81
Coatsworth, Reuben H., Buffalo, N. Y. Harness	348,889	Sept. 7	475	196	36	1135
Cobb, Henry B., Wilmington, Del. Manufacturing dies for producing perforated patterns	347,229	Aug. 10	1040	277	36	664
Cochran, Oscar, *et al.* (See Sharp, Taylor E., assignor.)	346,580	Aug. 3	165	44	36	491
Cochrane, James L. (See Krajewski, Thomas F., assignor.)						
Cochrane, John, Jr., Malden, Mass. Apparatus for steaming fabrics or yarns	348,616	Sept. 7	115	33	36	1068
Codd, Hiram, London, England. Bottle	345,277	July 13	666	169	36	126
Coddington, Frank J. (See Olin and Coddington.)						
Coffee, Edward Z., Philadelphia, Pa. Composition for preserving leather	346,581	Aug. 3	166	.....	36	492
Coffin, Francis A., Indianapolis, Ind. Lock for rotating desks	344,943	July 5	200	52	36	37
Coffin, John W., Oskaloosa, Iowa. Sliding and rolling gate	348,108	Aug. 24	2318	622	36	917
Coit, John W. L., and J. R. McNamara, Norwich, Conn. Device for tapping beer-casks, &c	349,210	Sept. 14	920	236	36	1220
Colbert, Lewis H., Bluffton, Ind. Fence	348,318	Aug. 31	2624	707	36	981
Colbourne, Mark J., Three Runs, assignor of one-half to J. W. Merrey, Beech Creek, Pa. Car-coupling	349,694	Sept. 28	1576	408 / 409	36	1365
Colburn, Lyman S., Oberlin, Ohio. Car-brake shoe	347,419	Aug. 17	1314	350	36	723
Cole, Carey W., West Hartford, Mo. Gate-hinge	348,381	Aug. 31	2710	728	36	998
Cole, E. Merritt. (See Bowker, Cole, and Smith.)						
Cole, Edward H., Brooklyn, N. Y. Stuffing-box	344,816	July 6	17	5	36	5
Cole, Elizabeth J., assignor to H. G. Underwood, Milwaukee, Wis. Frame for making rugs	345,029	July 6	332	84	36	61
Cole, George S., The Dean, near Cirencester, county of Gloucester, England. Tree-guard	349,086	Sept. 14	756	193	36	1189
Cole, Mary E., Letts, Iowa. Sash-fastener	345,453	July 13	953	240	36	177
Cole, Mary J., Grand Rapids, Mich. Trunk	348,188	Aug. 31	2447	657	36	947
Cole, Wesley, Lawrence, Kans. Vehicle-spring	345,118	July 6	443	114	36	81
Cole, William W., Philadelphia, Pa. Lubricator	348,451	Aug. 31	2811	755	36	1018
Colebrook, Cemer T., Islington, county of Middlesex, England. Rotary pump or similar apparatus	345,885	July 20	1561	402	36	292
Coleman, Caryl, assignor to American Endolithic Company, New York, N. Y. Producing designs, &c., upon surfaces	349,340	Sept. 21	1078	.....	36	1060
Coleman, George W., Cincinnati, Ohio. Gas-stove	349,209	Sept. 14	919	236	36	1220
Colhapp, John L., Chicago, Ill. Machine for manufacturing plug-tobacco	348,617	Sept. 7	118	33	36	1069
Colladay, Stephen B., *et al.* (See Forrest, William W., assignor.)						
Collamore, William L., Warren, R. I. Steam-engine governor	348,265	Aug. 31	2555	687	36	967
Collier, Phoebe. (See Collier, Thomas, assignor.)						
Collier, Thomas, assignor to P. Collier, Racine, Wis. Combined mangle and wringer	346,427	July 27	2315	596	36	442
Collins, Henry, *et al.* (See Murray, William, assignor.)	345,278	July 13	668	169	36	127
Collins, Henry and J. W., Pawtucket, R. I. Bobbin-supporting spindle and bolster therefor for winding-machines	345,030	July 6	333	84	36	61
Collins, Horatio E., assignor to himself and O. Hartman, Detroit, Mich. Straw-cutter	345,484	July 13	954	241	36	177
Collins, Jacob T., and E. B. Grant, Byesville, Ohio. Fire-screen	347,091	Aug. 10	855	227	36	630
Collins, John J., Washington, D. C. Mechanism for converting motion	347,230	Aug. 10	1041	278	36	664
Collins, John S., and E. J. Lyons, Brooklyn, N. Y. Clothes-line pulley	349,482	Sept. 21	1298	337	36	1302
Collins, Joseph W. (See Collins, Henry and J. W.)						
Collins, Joseph W., *et al.* (See Murray, William, assignor.)						
Collins, Olmstead, assignor of one-half to A. P. Dodge, Chicago, Ill. Wire straightener and cutter	348,660	Sept. 7	176	48	36	1078
Collins, Peter. (See Walters, Alfred, assignor.)						
Collmer, Charles E. (See Reyher, William H., assignor.)						
Collyer, Henry M. (See Crawford, Middleton, assignor.)						
Colman, Hutson B., Kalamazoo, Mich. Windmill	346,582	Aug. 3	166	45	36	492
Colquhoun, Cecil H., St. Andrew's Bay, Fla. Hydraulic gate or water-regulator	348,109	Aug. 24	2320	622	36	918
Colquitt, Hugh H., Atlanta, Ga. Fertilizer	348,266	Aug. 31	2557	687	36	967
Colton & Company, G. D. (See Colton, Octavius J., assignor.)	346,024	July 20	1757	.....	36	327
Colton, Octavius J., assignor to G. D. Colton & Company, Galesburg, Ill. Corn-planter	349,836	Sept. 28	1795	464	36	1405
Colwell Lead Company. (See Hooper, John, assignor.)						
Combs, Nelson D., assignor to himself and A. W. Culver, Hawthorne, Iowa. Gate	348,489	Aug. 31	2863	770	36	1027
Comegys, Cornelius G., Cincinnati, Ohio. Attachment for steam-boilers	348,546	Sept. 7	8	2	36	1050
Comfort, John. (See Perrigo, Ephraim H., assignor.)						
Commelin, Edmond. (See De Virloy, Commelin, and Bailhache.)						
Commiskey, Frank W., Brooklyn, N. Y. Spoon	349,144	Sept. 14	837	213	36	1204
Condit, Ezekiel C., Kansas City, Mo. Urinal	349,030	Sept. 14	678	174	36	1175
Cone, Norris H. (See Clark and Cone.)						
Cone, Owen S. M., St. Paul, Minn. Combined baby-jumper, &c	347,092	Aug. 10	856	227	36	630
Congdon, Isaac H., Omaha, Nebr. Sliding-door fastener	346,192	July 27	1960	511	36	380
Conklin, Edward R., Wauseon, Ohio. Wheel cultivator	346,193	July 27	1962	512	36	380
Conklin, Samuel A., *et al.* (See Smith, Daniel J., assignor.)						
Conklin, Theodore F., Fond du Lac, Wis. Caster	349,982	Sept. 28	1986	513	36	1442
Conlee, Harrison, Petersburg, Ill. Instrument for obtaining lengths and bevels of rafters	348,723	Sept. 7	258	69	36	1095
Connelly, John S., Brooklyn, assignor of one-half to T. E. Connelly, New York, N. Y. Street-car motor	345,279	July 13	668	169	36	127
Connelly, John S., Brooklyn, N. Y., assignor of one-half to T. E. Connelly, Pittsburg, Pa. Gas-governor	345,369	July 13	790	199	36	148
Connelly, John S., Brooklyn, assignor of one-half to T. E. Connelly, New York, N. Y. Car-motor	347,470	Aug. 17	1396	372	36	738
Connelly, Thomas E. (See Connelly, John S., assignor.)						
Connelly, Thomas E., Pittsburg, Pa., assignor of one-half to J. S. Connelly, New York, N. Y. Automatic gas-governor	345,368	July 13	788	199	36	148
Conner, Albert C., assignor to Hoosier Drill Company, Richmond, Ind. Wire-and-slat-fence machine	346,429	July 27	2319	597	36	443
Conner, Albert C., and J. M. Westcott, assignors to Hoosier Drill Company, Richmond, Ind. Wire-and-slat-fence machine	346,428	July 27	2316	597	36	442
Connery, James W., Philadelphia, Pa. Steam-boiler	349,568	Sept. 21	1414	366	36	1325
Connolly, Patrick, Brooklyn, N. Y. Clamp for wash-basins, &c	347,921	Aug. 24	2054	545	36	868
Conover, George W., Philadelphia, Pa. Tobacco-pipe	348,189	Aug. 31	2448	658	36	947
Conover, Jacob A., Rochester, N. Y. Hobby-horse	348,513	Aug. 31	2902	780	36	1034
Conrad, Samuel, Kirk's Mills, Pa. Holdback for vehicles	346,968	July 27	2093	538	36	401

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Conroy, John, Bay City, Mich. Heating apparatus	345,833	July 20	1488	385	36	279
Conroy, Thomas. (See Doherty, John, assignor.)						
Consolidated Railway Telephone and Signal Company. (See Vogel, William, assignor.)						
Consolidated Refrigerating Company. (See Johnson, Henry C., assigner.)						
Consolidated Safety Valve Company. (See Richardson, George W., assignor.)						
Contant, Claude. (See Simon and Contant.)						
Converse, Bolivar C., Springfield, Ohio. Harrow	346,895	Aug. 10	569	158 / 153	36	578
Converse, Edmund C., Pittsburg, Pa. Joint for gas-mains	348,951	Sept. 14	565	150	36	1157
Converse, Henry W., Chicago, Ill. Overalsleeve	348,618	Sept. 7	119	34	36	1069
Converse, Morton E., Winchendon, Mass. Toy	348,952	Sept. 14	566	150	36	1157
Convis, Perry T., Frankfort, Ind. Holdback	348,953	Sept. 14	568	151	36	1157
Cook, Abner S., Burlington, Iowa. Letter-box	350,041	Sept. 28	2059	532	36	1456
Cook, Charles C., Baltimore, Md. Cigar	346,025	July 20	1758	452	36	327
Cook, Cornelius, Fremont, Nebr. Snow-plow	346,726	Aug. 3	348	94	36	529
Cook, Frank A. (See Gould and Cook.)						
Cook, George W., assignor to M. Cummings, Chicago, Ill. Rope check or lock	349,031	Sept. 14	679	175	36	1175
Cook, Henry F., New York, N. Y. Car-brake	347,575	Aug. 17	1541	409 / 410	36	766
Cook, Leroy, Worcester, Mass. Bale-tie	349,569	Sept. 21	1415	366	36	1326
Cook, Moses G., Ashfield, Mass. Weighing-scale	349,570	Sept. 21	1416	366 / 367	36	1326
Cook, Philander B., Hastings, Minn. Whiffletree-hook	347,774	Aug. 24	1838	489	36	928
Cook, Stephen S., Philadelphia, Pa. Boiler-tube cleaner	346,727	Aug. 3	349	95	36	529
Cook, Thomas A., Ottawa, Ontario, and F. Labelle, Hull, Quebec; said Labelle assignor to said Cook and J. Courselle, Ottawa, and J. H. Kerr, Hull, Canada. Match-machine	345,485	July 13	955	241 / 242	36	177
Cook, Thomas W. G., New York, N. Y. Button	350,042	Sept. 28	2060	532	36	1456
Cook, Winfield S. (See Westbrook and Cook.)						
Cooke, Watts, and D. Carlough, Paterson, N. J. Machine for upsetting eye-bars	345,573	July 13	1107	283	36	205
Cool, Peter, Manhattan, Kans. Lock	345,119	July 6	444	115	36	81
Cooley, Harry W., Easton, Pa. Metal loop and catch	347,471	Aug. 17	1397	372	36	738
Cooley, Orville, assignor to Johnston Harvester Company, Batavia, N. Y. Cord-holder for grain-binders	345,674	July 20	1264	327 / 328	36	340
Coolidge, Charles E. (See Romans, John B., assignor.)						
Coolidge, T. S., *et al.* (See McMillan, John L., assignor.)						
Coombs, Samuel, Kensington Road, county of Surrey, England. Door-check	349,384	Sept. 21	1166	309	36	1277
Coon, James H., Des Moines, Iowa. Double-walled magazine for burning hay	346,965	Aug. 10	688	183	36	600
Cooper, Albert. (See Metsger and Cooper.)						
Cooper, Henry M., and L. J. Kohl, assignors to F. A. Sears and J. T. Steel, New Albany, Ind. Burglar-alarm	347,688	Aug. 17	1716	458	36	798
Cooper, James A. Lima, Ohio. Store-counter	346,896	Aug. 10	572	153	36	579
Cooper, John W., Boston, Mass. Piano-case	348,110	Aug. 24	2321	622	36	918
Cooper, John W., Boston, Mass. Piano-action	348,111	Aug. 24	2323	623	36	918
Cope, Henry P., assignor to Detroit Stove Works, Detroit, Mich. Device for operating sectional blowers	345,574	July 13	1109	283	36	205
Copeland, Charles, Barker Creek, Mich. Crutch	348,967	Aug. 31	2558	687	36	967
Copeland, Charles F., *et al.*, trustees. (See Fiske, Henry P., assignor.)						
Copeland Manufacturing Company. (See Bickford, John L., assignor.)						
Copland, Henry S. S., and J. C. Gilmour, London, England. Car-coupling	346,966	Aug. 10	689	183	36	600
Copper, Frank P., and A. Bair, Tiffin, Ohio. Signal-lantern	345,575	July 13	1109	284	36	205
Corbett, Edgar M., Brooklyn, N. Y. Scissors	346,583	Aug. 3	167	45	36	492
Corbett, George, Bradford, Pa. Pipe-derrick	346,466	Aug. 3	19	5	36	464
Corbin, P. & F. (See Bonesteel, Albert E., assignor.)						
Cordier, Charles X., *et al.* (See Reinhardt, James H., assignor.)						
Corey, George D., Lowell, Mass. Fruit-jar	349,630	Sept. 21	1490	386	36	1341
Corliss, Charles P., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Stem winding and setting watch	345,619	July 13	1163	298 / 299	36	216
Corman, Charles A., Cochituate, Mass. Punching and eyeleting machine	348,190	Aug. 31	2449	658	36	947
Cornell, Evan W., Adrian, Mich. Automatic grain-weigher	346,728	Aug. 3	350	95	36	529
Cornely, Emil, Paris, France. Embroidering-machine	345,886	July 20	1563	402 / 403	36	392
Cornely, Emil, Paris, France. Stop-motion mechanism for sewing and embroidering machines	345,887	July 20	1565	403	36	393
Cornely, Emile, Paris, France. Thread-cutting apparatus for sewing and embroidering machines	346,091	July 27	1839	475	36	353
Cornita, Peter V., Chicago, Ill. Car-coupling	348,954	Sept. 14	568	151	36	1157
Cornman, Theodore, *et al.* (See Kyle, Edward E., assignor.)						
Corson, William P., assignor of one-half to H. Gardner, New York, N. Y. Milling-tool for heels of boots and shoes	347,689	Aug. 17	1717	458	36	798
Costello, John, Wabasha, and J. M. Aker, Reed's Landing, Minn. Sled-brake	347,322	Aug. 17	1182	316	36	700
Côté, Louis, assignor of one-half to F. A. Barber, Lynn, Mass. Machine for marking shoe-vamps	348,514	Aug. 31	2903	780	36	1034
Cothren, William H. (See Robinson and Cothren.)						
Cotton Harvester Company. (See Mason, Charles T., Jr., assignor.)						
Cotton, John E., Fairfield, Me. Folding table	345,620	July 13	1166	300	36	216
Cottrell, Abraham, Lansing, Mich. Gunstock	345,120	July 6	444	115	36	81
Cottrell, Calvert B. (See Walther, John, assignor.)						
Cottrell, Calvert B., Stonington, Conn. Stop-cylinder printing-machine	347,922	Aug. 24	2056	545 / 546	36	868
Cottrell, George R., New York, N. Y. Method of and apparatus for carbureting and mixing gas and air	349,211	Sept. 14	921	237	36	1221
Couch, George S., Minneapolis, Minn. Combined ink-eraser and burnisher	345,031	July 6	334	84	36	61
Coudyzer, Adolph, Hartford, Conn. Polycycle	345,414	July 13	858	214	36	150
Coultaus, Joseph A., assignor to himself, D. M. and A. W. Rollins, Brooklyn, N. Y. Door-check	346,194	July 27	1984	512	36	380
Coultaus, Joseph A., assignor to himself, D. M. and A. W. Rollins, Brooklyn, N. Y. Bolt	347,996	Aug. 24	2161	575	36	867
Countryman, George W., Birmingham, Iowa. Car-coupling	345,771	July 20	1404	364	36	265
Coupal, Peter A., Boston, Mass. Staple forming and driving machine	347,923	Aug. 17	1183	316 / 317	36	700
Courren, Robert R., Newark, N. J. Mason's hawk	348,968	Aug. 31	2559	688	36	968
Courselle, Joseph, *et al.* (See Cook and Labelle, assignors.)						
Court, John W., Brooklyn, N. Y. Wire-nail machine	346,467	Aug. 3	20	6	36	464
Courtney, Charles E., Union Springs, N. Y. Velocipede	348,619	Sept. 7	120	34	36	1069

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Courtright, Edgar. (See Kynoch and Courtright.)						
Couvier, Gustave V. A., Fils, and G. Gourand, Seloncourt, (Doubs,) France. Sorting-machine for classifying wooden stuffs	347,264	Aug. 10	1085	290 / 291	36	673
Covel, Milo, Chicago, Ill. Saw-swaging machine	345,121	July 6	445	115	36	81
Covert, Enoch, Farmer Village, N. Y. Combined gag-runner and rosette-fastening	350,043	Sept. 28	2061	533	36	1456
Cowell, William H., Logan, Ohio. Raising steam in locomotive-boilers	347,420	Aug. 17	1315	351	36	723
Cox, Albert W., Hastings, Nebr. Spring link and bar for chains	347,421	Aug. 17	1317	351	36	724
Cox, Albert W., Hastings, Nebr. Spring link and bar for chains	347,422	Aug. 17	1317	351	36	724
Cox, Joseph L., assignor to Duplex Printing Press Company, Battle Creek, Mich. Web-controlling device for printing-machines	347,690	Aug. 17	1718	458 / 459	36	798
Cox, Stephen J., New York, N. Y. Water-closet mat or toilet-protector	349,784	Sept. 28	1724	445	36	1390
Cox, Thomas, Gloster, Mout. Ter. Miner's candlestick	347,691	Aug. 17	1720	459	36	799
Coxey, Jasper S. (See Begga and Coxey.)						
Coy, Frederick W., Boston, Mass. Heel-strip blank	345,122	July 6	447	115	36	82
Crabb, William, Newark, N. J. Making cotton-picker teeth	345,772	July 20	1405	364	36	265
Crabtree, John, Philadelphia, Pa. Tool-holder	349,923	Sept. 28	1898	492	36	1426
Cragin, Patrick H. (See Russell and Cragin.)						
Craig, John W., Kirkwood, Ill. Farm-gate	346,806	Aug. 3	433	119	36	544
Craig, William, Brooklyn, N. Y. Condenser for steam pumps	346,195	July 27	1985	512	36	381
Crain, Edmund C. (See Startsman and Crain.)						
Cramer, Anthony F., Detroit, Mich. Device for cooling storage-chambers	346,807	Aug. 3	435	119	36	544
Cramer, Charley, Clarington, Ohio. Shutter-worker	346,643	Aug. 3	248	68	36	509
Cramer, Peter T., Chicago, Ill. Shipping-tray	347,324	Aug. 17	1185	317	36	700
Crandall, Charles, Newport, R. I. Axle-lubricator	345,213	July 6	567	145	36	103
Crandall, Henry B., assignor of two-thirds to W. F. Head and W. H. Woolland, Cortland, N. Y. Carriage-seat iron	347,775	Aug. 24	1839	489	36	898
Crandall, Nathan W., assignor of two-thirds to G. W. Jopson, Meriden, Conn. Fabric-turfing implement	348,724	Sept. 7	259	69	36	1095
Crane Brothers Manufacturing Company. (See Bassett, Norman C., assignor.)						
Crane Brothers Manufacturing Company. (See Pupikofer, Otto, assignor.)						
Crane Brothers Manufacturing Company. (See Reynolds, George H., assignor.)						
Crane, Robert, Philadelphia, Pa. Water-supply system	345,773	July 20	1407	364 / 365	36	266
Crane, Thomas R., Heathsville, Va. Combined seed-distributer, harrow, and roller	345,214	July 6	569	145	36	103
Craver, Charles F., Grinnell, Iowa. Harvesting-machine	347,692	Aug. 17	1721	459	36	799
Crawbuck, James F., Jersey City, N. J. Fifth-wheel	345,621	July 13	1167	300	36	216
Crawford, Harry C., and E. V. Mundy, Duluth, Minn. Frying-pan and baker	347,093	Aug. 10	858	227	36	630
Crawford, Middleton, Brooklyn, N. Y. Grain-cleaning machine	348,890	Sept. 7	476	126 / 127	36	1135
Crawford, Middleton, Brooklyn, assignor to W. R. Baird, New York, N. Y. Vise	348,927	Sept. 7	383	104	36	1119
Crawford, Middleton, Brooklyn, assignor to W. R. Baird, New York, N. Y. Vise	348,928	Sept. 7	385	104	36	1119
Crawford, Middleton, Chicago, Ill., assignor of one-half to H. M. Collyer, New York, N. Y. Grain cleaning and scouring machine	348,926	Sept. 7	380	103 / 104	36	1118
Crawford, Norman M., Harrisburg, Pa. Signal-lantern	346,897	Aug. 10	574	153 / 154	36	579
Cressey, Robert E., Jersey City, N. J. Apparatus for perspective drawing	349,303	Sept. 21	1037	365	36	1252
Crelli, Richard L., F. Koch, and G. W. Miller, Bridgeport, Conn. Harness attachment for vehicles	344,944	July 6	202	52	36	37
Creed, William, *et al.*, trustees. (See Tickle and Leonardt, assignors.)						
Criley, Alfred H., Fort Scott, Kans. Wrench	349,249	Sept. 14	979	250	36	1232
Crisp, John H., Chambersburg, Trenton, N. J. Sheet-metal picket-fence	346,644	Aug. 3	249	68	36	509
Critchlow, John M., Beaver Falls, Pa. Decomposing and carbureting natural gas	347,693	Aug. 17	1722	459	36	799
Crocker, Eugene B., Pawtucket, R. I. Cutting-pliers	345,215	July 6	571	146	36	103
Crocker, Henry, Bristol, R. I. Book-holder	348,382	Aug. 31	2711	728	36	999
Crockett, Hannah, Plainfield, N. J. Infant's toilet-table	349,875	Sept. 28	1844	476	36	1415
Crockett, Charles H., and C. C. Allen, Boston, Mass. Electric alarm	346,532	Aug. 3	106	28	36	480
Crockett, Charles H., and C. C. Allen, Boston, Mass. Gas-lighting device	346,533	Aug. 3	107	28	36	480
Crofut, David F., Bridgeport, Conn. Ticket-holder	349,924	Sept. 28	1898	492	36	1426
Crofut, John A. (See Wheeler, Dwight and D. C., assignors.)						
Croliua, Edwin R. (See Willets and Croliua.)						
Croly, Edwin H. (See Sharrer, Charles P., assignor.)						
Crompton, George, Worcester, Mass. Woven fabric. (Reissue)	10,743	July 6	651	165	36	118
Cronk Hanger Company. (See Sanford, Addison G., assignor.)						
Crosbie, James H., assignor of two-thirds to M. Speaks and J. S. Mitchell, Hartsell's, Ala. Sash-balance	349,922	Sept. 28	1897	491	36	1425
Crosby, Charles M., Hillsborough, Ohio. Railway-switch	349,250	Sept. 14	980	250	36	1232
Cross, Anson K., Boston, Mass. Fountain-pen	348,661	Sept. 7	179	48	36	1079
Crossley, Arthur, Cleckheaton, county of York, England. Machine for riveting and dressing wheels	346,987	Aug. 10	690	183	36	600
Crossley, Louis J., R. Hanson, Halifax, county of York, and J. J. Hicks, Hatton Garden, county of Middlesex, England. Glass tube for water-gages	349,271	Sept. 14	1003	256	36	1237
Croswell, William, Boston, Mass. Mechanical toy	346,092	July 27	1840	475	36	353
Crönch, George, New York, N. Y. Spring-bolt	348,662	Sept. 7	180	48	36	1079
Cronp, Henry C., Butler, Pa. Cuff button and holder	345,216	July 6	572	146	36	104
Crow, Abijah T., Clarinda, Iowa. Anchor for check-rowers	348,152	Aug. 24	2380	638	36	939
Crowell Manufacturing Company. (See Kurtz, William B., assignor.)						
Crowley, J. W. (See Reaves, William B., assignor.)						
Crowley, John H., Philadelphia, Pa. Picker-check for looms	346,400	July 27	2276	563 / 564	36	435
Crowley, John J. (See Lorden, Dennis J., assignor.)						
Crowninshield, Mary B., Washington, D. C. Darning-last	347,757	Aug. 17	1809	482	36	815
Cruickshank, George M., assignor to W. W. Douglas, trustee, Providence, R. I. Machine for making and trimming compound wire cables	346,645	Aug. 3	250	68	36	509
Crump, Samuel, Montclair, N. J. Paper box	348,547	Sept. 7	9	3	36	1050
Crump, Samuel, Montclair, N. J. Die for cutting paper, &c	348,548	Sept. 7	10	3	36	1050
Crump, Samuel, Montclair, N. J. Forming dies	348,549	Sept. 7	11	3	36	1050
Cudell, Frank E., Cleveland, Ohio. Sewer-gas trap	348,929	Sept. 7	387	105	36	1119
Cudell, Frank E., Cleveland, Ohio. Sewer-gas trap	348,930	Sept. 7	387	105	36	1119
Culbertson, Howard, Zanesville, Ohio, assignor to Geneva Optical Company, Geneva, N. Y. Optometer	349,385	Sept. 21	1167	302	36	1277
Cullen, Thomas, *et al.* (See Dewey and Short, assignors.)						
Cullingworth, George R., New York, N. Y. Chuck for rock-drills	345,834	July 20	1489	386	36	279

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Cullum, Charles F., London, England. Combined organ and piano	346,842	Aug. 3	483	133, 134	35	555
Culver, Addison W. (See Combs, Nelson D., assignor.)						
Cumming, Findlay. (See McLean and Cumming.)						
Cummings, Edwin H., assignor to Lowell Machine Shop, Lowell, Mass. Yarn-separating device for spinning-machines	345,888	July 20	1566	403	35	293
Cummings, Henry H., Malden, Mass. Cutting-machine	346,093	July 27	1842	475, 476	35	353
Cummings, Merrick. (See Cook, George W., assignor.)						
Cummings, Montrovill D., Hope, Ohio. Iron fence-post	348,383	Aug. 31	2712	728	35	999
Cunningham Son & Company, James. (See Clements, John, assignor.)						
Cunningham, William, Watsontown, Pa. Boiler-feeder	346,269	July 27	2094	539	35	401
Curd, William H., Lick Run, Va. Wheel	346,401	July 27	2277	584	35	436
Curley, Terence F., Brooklyn, N. Y. Safety-guard razor	349,386	Sept. 21	1168	302	35	1277
Curran, Franklin J., Stanford, Ky. Target-trap	346,988	Aug. 10	691	184	35	601
Curtis, Henry J., Hartford, Conn. Brake for tricycles	348,891	Sept. 7	479	127	35	1135
Curtis, Nelson, Boston, Mass. Damper-regulator	346,898	Aug. 10	575	154	35	580
Curtis, Nelson, Boston, Mass. Boiler-feeder	348,892	Sept. 7	480	127, 128	35	1136
Curtis, Nelson, Boston, Mass. Boiler-feeder	348,893	Sept. 7	481	128	35	1136
Curtis, Theodore C., Carroll, Ind. Sliding and swinging gate	349,925	Sept. 28	1899	492	35	1436
Curts, Frederick F. (See Hall, Edward P., assignor.)						
Cushing, George W., St. Paul, Minn. Air-feeder for fire-boxes	348,894	Sept. 7	485	128, 129	35	1136
Custard, Joseph F., assignor of one-half to W. A. Fulsenger, Slatington, Pa. Grinding-mill	348,153	Aug. 24	2381	638, 639	35	929
Cutler, Henry, assignor to H. W. Cutler, North Wilbraham, Mass. Grinding-mill	348,384	Aug. 31	2714	729	35	999
Cutler, Henry W. (See Cutler, Henry, assignor.)						
Cutten, Elisha B., assignor to Electrical and Mechanical Developing Company, Pittsburg, Pa. Electric-arc lamp	346,430	July 27	2320	597, 598	35	443
Cutting, Lewis H., Stockton, Cal. Heat-regulator for incubators	345,280	July 13	670	169	35	127
Cutts, William, Toronto, Ontario, Canada. Fastener for frame-joints	349,631	Sept. 21	1491	386	35	1341
Cyphers, Jared P., Holton, Mich. Drag-saw	349,876	Sept. 28	1845	477	35	1415
Daggett, Robert P., assignor of one-half to J. B. Lizius, Indianapolis, Ind. Stove-pipe flange and retainer	346,431	July 27	2326	599	35	444
Dahl, Carl A., Cambridgeport, assignor of one-half to O. Klindt, Worcester, Mass. Automatic mechanical railway stop and signal	346,843	Aug. 3	485	134	35	555
Dahlström, Robert, Hamburg, Germany. Machine for cutting nails	347,923	Aug. 24	2058	546	35	869
Dailey, Asa G., Detroit, Mich. Cut-out switch	347,576	Aug. 17	1542	410	35	766
Daimler, Gottlieb, Cannstadt, Würtemberg, Germany. Power-driven vehicle	347,160	Aug. 10	948	253	35	648
Daimler, Gottlieb, Cannstadt, Würtemberg, Germany. Gas-engine. (Reissue)	10,759	Aug. 24	2429	650	35	938
Daimler, Gottlieb, Cannstadt, Würtemberg, Germany. Motor-engine	349,983	Sept. 28	1987	513	35	1442
Dallas, John B. (See Young, James P., assignor.)						
Dalton, Dan F., Waterbury, Conn. Shoe-clasp	345,622	July 13	1167	300	35	217
Dalton, Clarence L., assignor to C. H. Albrecht, Cincinnati, Ohio. Whip-holder	349,341	Sept. 21	1080	277	35	1261
Dalton, Joseph, New York, N. Y. Thread-guide for looms, &c	347,028	Aug. 10	754	201	35	612
Daly, John H. (See Porter and Daly.)						
Dalsell, Allan C., Newport, Ky. Manufacture of watch-crowns	348,620	Sept. 7	122	35	35	1070
Dammeyer, Henry, Chicago, Ill. Bridge-gate	344,817	July 6	18	5	35	5
Damon, Lewis P., Wyoming, Ill. End-gate and shoveling-board for wagons	346,534	Aug. 3	108	29	35	481
Dana, Charles S., and D. Furnall, Belpre, Ohio. Self-heating sad-iron	345,123	July 6	449	116	35	82
Dana, Edward A., Fairhaven, Mass. Windmill	346,468	Aug. 3	26	7	35	466
Daniels, Granville W., *et al.*, trustees. (See Fiske, Henry P., assignor.)						
Daniels, Henry A., Yonkers, N. Y. Artificial stone	346,729	Aug. 3	354	.....	35	530
Daniels, Henry A., Yonkers, N. Y. Artificial stone	346,730	Aug. 3	355	.....	35	530
Daniels, Henry A., Yonkers, N. Y. Artificial stone	346,731	Aug. 3	355	.....	35	530
Daniels, Henry A., Yonkers, N. Y. Artificial stone	346,732	Aug. 3	356	.....	35	530
Daniels, Henry A., Yonkers, N. Y. Artificial stone	346,733	Aug. 3	356	.....	35	530
Daniels, Henry A., Yonkers, N. Y. Building-block	346,734	Aug. 3	357	96	35	530
Daniels, Henry A., Yonkers, N. Y. Manufacture of artificial stone	346,736	Aug. 3	359	96	35	531
Daniels, Henry A., Yonkers, and A. G. Dickinson, New York, N. Y. Pavement	346,735	Aug. 3	358	96	35	530
Daniels, Samuel, assignor of one-half to M. E. Dayton, Chicago, Ill. Vapor-stove	347,161	Aug. 10	948	253, 254	35	648
Danker, Charles. (See Robertson and Danker.)						
Dann, John E., and J. Lapp, Honeoye Falls, N. Y. Telephone-transmitter	347,924	Aug. 24	2060	547	35	869
Danner, John, Canton, Ohio. Goods-rack	349,212	Sept. 14	924	237	35	1221
Dardenne, Auguste, Marienbourg, Belgium. Clock-escapement	345,486	July 13	957	242	35	178
Dare, Lee, La Gro, Ind. Crupper-former	348,319	Aug. 31	2625	708	35	962
Darnell, George. (See McGiven, Nichols, and Darnell.)						
Darr, Emory O., *et al.* (See Saunders, Isaac R., assignor.)						
Darr, Emory O., Shelbyville, Ind. Harness-trace	346,535	Aug. 3	109	29	35	481
Dart, Roswell P. (See Frambach, Dart, and Vollrath.)						
Davenport, Birge W. (See Beeman, William S., assignor.)						
Daves, William, Cranston, N. Y. Circuit-closer for rails	349,926	Sept. 28	1900	492, 493	35	1426
Daves, William, Cranston, N. Y. Electric railway-signal	349,927	Sept. 28	1902	493	35	1426
Davidson, James H., *et al.* (See Whitney, Samuel C., assignor.)						
Davidson, John M., assignor to Globe Seat Company, Columbus, Ohio. Corner-iron for carriage-seats	348,621	Sept. 7	125	35	35	1070
Davidson, Otis E., Nashville, Tenn. Coffee-roaster	345,370	July 13	792	200	35	148
Davies, John, Peckville, Pa. Oil-cup	347,577	Aug. 17	1543	410	35	766
Davies, Squire. (See Dunning, Elisha, assignor.)						
Davis, Arthur W. S., assignor to F. Taylor, Lowell, Mass. Line-holder for acoustic telephones	347,325	Aug. 17	1186	318	35	700
Davis, Charles E., Chicago, Ill. Nut-lock	348,112	Aug. 24	2324	623	35	918
Davis, Charles E., Fort Wayne, Ind. Case or cabinet for filing letters, invoices, &c	348,855	Sept. 14	570	151	35	1157
Davis, Chyler B., Chicago, Ill. Apparatus for hermetically sealing cans	345,487	July 13	957	242	35	178
Davis, Chyler B., Chicago, Ill. Apparatus for hermetically sealing cans	345,488	July 13	958	243	35	178
Davis, Chyler B., Chicago, Ill. Apparatus for sealing cans	345,576	July 13	1111	284	35	205
Davis, Daniel J., *et al.* (See Komp, John F., assignor.)						
Davis, Edwin S., Winona, Minn. Wagon-body	345,577	July 13	1113	285	35	206
Davis, Frank B., Honey Brook, Pa. Tobacco-stick holder	347,579	Aug. 17	1546	411	35	767
Davis, Frank E., assignor of one-half to W. W. Harris, Charlestown, N. H. Fire-escape	348,895	Sept. 7	486	129	35	1136
Davis, Franklin C., Springfield, Mass. Combined hay raker and loader	347,578	Aug. 17	1544	411	35	766

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Davis, Franklin T., Mount Vernon, N. Y. Check-rein	347,162	Aug. 10	932	254, 255	35	649
Davis, Franklin T., Mount Vernon, assignor to himself and A. P. Rockwell, East Chester, N. Y. Combined latch and lock	349,571	Sept. 21	1418	367	36	1326
Davis, George W., and C. L. Kinstatter, Steubenville, Ohio. Device for attaching pinngers to glass-presses	346,737	Aug. 3	360	96	36	531
Davis, Henry J., assignor of one-half to E. J. Winslow, Brooklyn, N. Y. Car-coupling	346,926	July 20	1758	452	36	327
Davis, Isaac P. (See Patterson and Davis.)						
Davis, James W., Enterprise, Kans. Heating-drum	349,695	Sept. 28	1578	409	36	1365
Davis, John B., Westhampton, N. J. Shutter-fastener	348,622	Sept. 7	126	35	36	1070
Davis, John R., Bristol, assignor of one-half to E. F. Riley, Madison, Wis. Whiffletree-hook	348,191	Aug. 31	2452	659	36	948
Davis, John V., assignor of one-third to F. B. Enslow, Huntington, W. Va. Bolting and purifying flour	347,326	Aug. 17	1187	.....	36	701
Davis, Joseph, Altoona, Pa. Steam-engine piston	346,584	Aug. 3	168	45	36	492
Davis, Nathan, Augusta, Ga. Manacle	349,696	Sept. 28	1579	409	36	1365
Davis, Nathan R., Freetown, Mass. Breech-loading fire-arm	346,536	Aug. 3	110	29, 30	36	481
Davis & Son, I. B. (See Shepard, Wilbur L., assignor.)						
Davis, Solomon P., Napa City, Cal. Two-wheeled vehicle	345,371	July 13	794	200	36	148
Davis, Thomas, and W. W. Tyler, Cleveland, Ohio; said Tyler assignor to said Davis. Feed-water heater and purifier	345,578	July 13	1114	285	36	206
Davis, W. M. (See Marks, Thomas K., assignor.)						
Davis, William. (See Phillips, John H., assignor.)						
Davis, William H., and W. Hatfield, Fort Wayne, Ind.; said Hatfield assignor to said Davis. Paper-file holder	346,537	Aug. 3	112	30	36	481
Davis, William J., Pittston, Pa. Potato-digger	345,032	July 6	335	84	36	61
Davison, George W. (See Davison, James P., assignor.)						
Davison, James P., assignor of one-half to G. W. Davison, Watervliet, N. Y. Corn-shaver	346,585	Aug. 3	169	45, 46	36	492
Dawson, George A., Cardington, Ohio. Grain-separator	348,515	Aug. 31	2905	781	36	1035
Dawson, Walter, assignor of one-half to W. F. Hallstead, Scranton, Pa. Locomotive-boiler	348,831	Sept. 7	388	105	36	1120
Day, Benjamin B., *et al.* (See Rew, Richard A., assignor.)						
Day, Henry M., *et al.* (See Marston, David W., assignor.)						
Day, John W., Chicago, Ill. Knob attachment	349,483	Sept. 21	1299	337	36	1303
Day, Thomas. (See Saxton, Richard J., assignor.)						
Dayton, Melville E. (See Daniels, Samuel, assignor.)						
Dayton, William H., assignor to Excelsior Needle Company, Torrington, Conn. Machine for sticking needles	344,945	July 6	203	52, 53	36	38
De Bousignac, Leopold. (See De Virloy, Commelin, and Bailhache, assignors.)						
De Castro, Alfred. (See Sundström, Karl J., assignor.)						
De Cazenave, Simon. (See Charmantier and De Cazenave.)						
De Forest, Thomas B. (See Fowler, Thaddeus, assignor.)						
De Khotinsky, Achilles, Rotterdam, Netherlands. Secondary electric battery	347,231	Aug. 10	1042	278	36	664
De la Mar, Joseph, Poughkeepsie, N. Y. Machine for stripping and booking tobacco	346,028	July 20	1761	453	36	328
De Laski, Albert, Lynn, Mass. Sad-iron	345,033	July 6	336	85	36	61
De Lodyguine, Alexandre, Paris, France. Manufacture of incandescents	347,164	Aug. 10	954	.....	36	649
De Palos, James S., New York, N. Y. Price and quantity register for gas-meters	346,402	July 27	2278	584, 585	36	436
De Palos, James S., New York, N. Y. Pressure-regulator	346,403	July 27	2280	585	36	436
De Pauw, W. C. (See Bernard, Philippe, assignor.)						
De Solomé, George F., assignor to J. S. Page, New York, N. Y. Galvanic battery	344,946	July 6	204	53	36	38
De Solomé, George F., assignor to J. S. Page, New York, N. Y. Connection for galvanic batteries	344,947	July 6	206	53	36	38
De Solomé, George F., assignor to J. S. Page, New York, N. Y. Automatic means for opening and closing electric circuits	344,948	July 6	207	53	36	38
De Virloy, Alexandre L., E. Commelin, and G. Bailhache, assignors of one-fourth to L. De Bousignac, Paris, France. Secondary battery	345,124	July 6	450	116	36	82
De Wandelaer, John A., Washington, D. C. Dumping-wagon	345,773	July 20	1410	365	36	206
De Witt, Edward A., Odessa, N. Y. Sulky-plow	347,472	Aug. 17	1398	372	36	738
De Witt, John C., Owensborough, Ky. Wire-stretcher	349,985	Sept. 28	1991	514	36	1443
De Zeng, Henry L., Geneva, assignor to himself, A. G. Lucas, Utica, and W. D. Burrall, Waterloo, N. Y. Metallic railway-tie and fastening for rails	348,550	Sept. 7	12	3	36	1050
Deal, Josiah J., Wilmot, Ohio. Fabric-turfing implement	347,163	Aug. 10	953	255	36	649
Dean, Edgar E. (See Fish and Dean.)						
Dean, James B., Stockton, N. J. Wrench	347,580	Aug. 17	1547	411	36	767
Dean, William W. (See Ramel and Dean.)						
Deane, Ezra L., Holyoke, Mass. Adjustable head for T-squares	349,697	Sept. 28	1580	409	36	1365
Deaner, Andrew M. V. B. (See Bowman, John E., assignor.)						
Decker, George F., Johnstown, N. Y. Base-board and wainscoting	346,899	Aug. 10	577	154	36	580
Decker, Peter H., Ellenville, N. Y. Lead-corroding pot	347,997	Aug. 24	2162	575	36	887
Decker, Riley, assignor of one-half to C. S. Barrett, Charlotte, Mich. Folding table	346,027	July 20	1761	453	36	328
Decouflé, Anatole E., Paris, France. Cigarette-machine	345,415	July 13	859	214, 215	36	160
Decouflé, Anatole E., Paris, France. Apparatus for manufacturing cigarette-tubes	349,785	Sept. 28	1725	445	36	1391
Dederick, Ezra, Milwaukee, Wis. Car-starter	345,281	July 13	671	170	36	127
Dederick, Ezra, Milwaukee, Wis. Car-coupling	345,282	July 13	673	170	36	127
Dederick, Peter K., Loudonville, N. Y. Baling-press	347,327	Aug. 17	1188	318	36	701
Deeley, John, Jr., Aston, county of Warwick, England. Cartridge-extractor for breaking-down guns	348,452	Aug. 31	2812	756	36	1018
Deering & Co., William. (See Maake, Robert W., assignor.)						
Deering & Company, William. (See Olin and Coddington, assignors.)						
Deevy, Patrick, Dudley, Iowa. Wheeled scraper	346,147	July 27	1921	496	36	368
Delaney, Alexander, and W. Simpkin, Richmond, Va. Apparatus for the purification of gas	348,832	Sept. 7	389	105	36	1120
Delano, William H. (See Benton, Samuel, assignor.)						
Delashmutt, William G. (See Hainley, Franklin E., assignor.)						
Delpy, François F., Paris, France. Corset-clasp	347,094	Aug. 10	859	227	36	630
Demarest, John, assignor to J. L. Mott Iron Works, New York, N. Y. Cistern overflow-valve	348,663	Sept. 7	181	48	36	1079
Deming, William L. (See Haydn, George, assignor.)						
Demoret, Jacob E. (See McCarty, Lewis C., assignor.)						
Demoss, Andrew J., and W. S. Pearce, Noblesville, Ind. Sawing-machine	349,964	Sept. 28	1990	514	36	1442
Dempsey, James H., Chicago, Ill. Hoof-pad	345,283	July 13	674	170	36	128
Denio, George F., Oneida, N. Y. Thill-lug	348,453	Aug. 31	2814	756	36	1018
Denison, James R., Grand Rapids, Mich. Water-heater	347,332	Aug. 17	1194	319	36	702

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Denmead, John W., and R. L. McAllister, assignors of one-third to J. Christy, Jr., Akron, Ohio. Rotary engine	346,029	July 20	1764	454	36	328
Denney, Mifflin P., New York, N. Y. Combined hay rake and tedder	349,928	Sept. 28	1903	493	36	1427
Denney, Mifflin P., New York, N. Y., assignor to F. A. Lehmann, Washington, D. C. Combined hay rake and tedder	349,484	Sept. 21	1300	338	36	1303
Dennis, Wilbert J., Augusta, Ga. Plant and tree culture apparatus	349,067	Sept. 14	757	193	36	1189
Dennison, Alfred. (See Wightman, Olin C., assignor.)						
Deno, Joseph, and T. H. Reardon, assignors, by mesne assignments, to said Reardon and J. Cawley, Lowell, Mass. Centerer	347,925	Aug. 24	2062	547	36	870
Densmore, Edwin, Grand Rapids, Mich. Portable furnace	347,328	Aug. 17	1189	318	36	701
Densmore, Edwin, Grand Rapids, Mich. Gluing-machine	347,329	Aug. 17	1190	318	36	701
Densmore, Edwin, Grand Rapids, Mich. Machine for drying veneers	347,330	Aug. 17	1191	319	36	701
Densmore, Edwin, Grand Rapids, Mich. Machine for cutting veneers	347,331	Aug. 17	1192	319	36	702
Deprez, Marcel, and J. Carpentier, Paris, France. Regulator for dynamo electric generators	348,395	Aug. 31	2716	729	36	999
Depuy, Martin M. and W. B., Rowland, Pa. Tricycle	349,145	Sept. 14	837	213	36	1205
Depuy, William B. (See Depuy, Martin M. and W. B.)						
Derby & Ball *et al.* (See Marston, David W., assignor.)						
Dering, H. R., *et al.* (See Le Grande, William W., assignor.)						
Dering, W. W., *et al.* (See Le Grand, William W., assignor.)						
Derthick, John. (See Rarig and Derthick.)						
Detroit Stove Works. (See Cope, Henry P., assignor.)						
Deuel, Jacob, Poughkeepsie, N. Y., assignor, by mesne assignments, to Palmer Torpedo Railway Signal Company, Plainfield, N. J. Attachment for torpedo railway-signals	345,774	July 20	1409	365	36	266
Devoe & Co., F. W. (See Whytal, Frank G., assignor.)						
Dewey, Addice E., *et al.* (See Holbrook, Charles E., assignor.)						
Dewey, Alvah, and J. Short, assignors of one-third to I. Dunn and T. Cullen, Cannelton, Ind. Grain-huller	346,738	Aug. 3	361	97	36	531
Dewhurst, John H. (See Hodgkinson and Dewhurst.)						
Dexter, Everett A., Black River, and J. Chase, Rochester, N. Y. Chair. (Reissue)	10,754	Aug. 10	1162	311	36	687
Dexter, Talbot C., Des Moines, Iowa. Paper folding and pasting machine	347,333	Aug. 17	1194	320	36	702
Desendorf, John F., *et al.* (See Warner, John P., assignor.)						
Dial, Wilbur F., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	350,044	Sept. 28	2061	533	36	1456
Dial, Wilbur F., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine	350,045	Sept. 28	2063	533	36	1456
Diamond Match Company. (See Mantion, Macdonald, and Riley, assignors.)						
Diamond Safety Razor Company. (See Partridge, Andrew, assignor.)						
Dibble, Horace V. (See Lawrence and Dibble.)						
Dibble, Stephen J., *et al.* (See Walker, William C., assignor.)						
Dick, Dundas, New York, N. Y. Protected menthol cone	344,949	July 6	208	54	36	39
Dick, Robert, Glasgow, Scotland. Manufacture of incandescents	349,572	Sept. 21	1420	.....	36	1327
Dickerman, Amos, New Haven, Conn. Mechanism for cupping paper shells for cartridges	347,165	Aug. 10	955	255 / 256	36	649
Dickerman, Amos, New Haven, Conn. Heading paper cartridge-shells	347,166	Aug. 10	957	256	36	650
Dicket, Peter, and A. Hendrickson, West Liberty, Iowa. Shoe	346,739	Aug. 3	362	97	36	531
Dickey, John S., and W. P. McKinney, Payne, Tex. Bedstead-fastener	346,646	Aug. 3	252	69	36	509
Dickey, John T., Trenton, N. J. Pad-cover for carriage-steps	349,986	Sept. 28	1991	514	36	1443
Dickinson, Andrew G. (See Daniels and Dickinson.)						
Dickinson, Benjamin, Bourne End, county of Bucks, England. Screw-propeller	344,898	July 6	146	37	36	27
Dickinson, Silas C., Wilton, Iowa. Electric-clock movement	346,094	July 27	1844	476	36	354
Dickson, Henry, assignor to S. C. Dickson, Pittsburg, Pa. Manufacture of brick, tile, drain-pipes, &c	346,358	July 27	2212	567	36	423
Dickson, Henry, assignor to S. C. Dickson, Pittsburg, Pa. Making brick	346,359	July 27	2213	567 / 568	36	423
Dickson, Henry, assignor to S. C. Dickson, Pittsburg, Pa. Making brick	346,360	July 27	2215	568	36	424
Dickson, Henry, assignor to S. C. Dickson, Pittsburg, Pa. Making brick	346,361	July 27	2217	568 / 569	36	424
Dickson, Henry, assignor to S. C. Dickson, Pittsburg, Pa. Drying brick	346,362	July 27	2219	569	36	424
Dickson, John A., Pulaski, Tenn. Automatic wagon-brake	346,196	July 27	1986	512	36	381
Dickson, Susan C. (See Dickson, Henry, assignor.)						
Diefendorf, Abram. (See Eckerson, David L., assignor.)						
Diehl, Peter, Gloversville, N. Y. Machine for breaking hides or skins	346,900	Aug. 10	578	154	36	580
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Sewing-machine	347,776	Aug. 24	1841	490	36	898
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Tension device for sewing-machines	347,777	Aug. 24	1843	491	36	899
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Trimming device for sewing-machines	348,113	Aug. 24	2325	623 / 624	36	919
Diener, Frederic, San Antonio, Tex. Ice-machine	348,192	Aug. 31	2453	650	36	948
Diestel, Johann C. F. W., Altona, Prussia, Germany. Till-lock	345,125	July 6	451	116 / 117	36	82
Dieterich, Daniel P., Philadelphia, Pa. Hose-protector	349,929	Sept. 28	1905	493	36	1427
Dietz, Frederick, New York, N. Y. Lantern globe-support	346,095	July 27	1845	476	36	354
Dike, George. (See Bennett, Dike, and Rich.)						
Dikeman, Charles W., Racine, Wis. Safety attachment for locomotive-tenders	348,454	Aug. 31	2815	756	36	1018
Dillemuth, Fredrick. (See Sheer and Dillemuth.)						
Dilley, Wilburn, Atchison, Mo. Plow	348,193	Aug. 31	2454	650	36	948
Dillon, Ellen, Sioux City, Iowa. Flat-iron heater	346,740	Aug. 3	362	97	36	531
Dimon, Frank S., assignor of one-half to B. F. Hepler, Fort Scott, Kans. Artificial fuel	345,217	July 6	573	146	36	104
Dinkel, George, Jersey City, N. J. Machine for sifting powdered sugar, &c	347,473	Aug. 17	1400	372 / 373	36	739
Dion, Peter, assignor of one-sixteenth to E. D. Smith, Toledo, Ohio. Wheel	345,218	July 6	574	146	36	104
Dirckx, Charles L., Taos, Mo. Corn-harvesting machine	348,154	Aug. 24	2382	639	36	929
Dismant, Ems. (See Goodwin, Thomas A., assignor.)						
Disston, Thomas S., Philadelphia, Pa. Adjustable stool and seat	348,386	Aug. 31	2717	730	36	1000
Dittrick, Thomas B., East Tawas, Mich. Barrel-roller	345,034	July 6	338	85	36	62
Dixon, Henry M., New York, N. Y. Combined ice-pick, chisel, and mallet	347,998	Aug. 24	2163	576	36	887
Dixon, Robert H., and G. H. Carver, Ravenswood, Ill. Mower	346,538	Aug. 3	113	30	36	482
Dobbie, Archibald, Thorold, Ontario, Canada. Hoisting-machine	345,489	July 13	961	244	36	178
Dobson, James, *et al.* (See Hinchliffe, James, assignor.)						
Dobson, John, *et al.* (See Hinchliffe, James, assignor.)						
Dockstader, Dennis S. (See Huidekoper, Mambourg, Houze, and Dockstader.)						
Dodge, Almon P. (See Collins, Olmstead, assignor.)						
Dodge, Celinda A., Kinnickinnick, Wis. Milk-strainer	347,581	Aug. 17	1548	412	36	767
Dodge, Israel A., Brady, Tex. Appliance for training horses	346,989	Aug. 10	693	184	36	601
Dodge, Martin, *et al.* (See Johnson, Delbert E., assignor.)						
Dodge, Wallace H., Mishawaka, Ind. Rope-splice	345,219	July 6	575	147	36	104
Dodge, Wallace H., Mishawaka, Ind. Band-saw pulley	348,269	Aug. 31	2560	688	36	968
Dodge, Wallace H., Mishawaka, Ind. Wooden pulley-covering	348,270	Aug. 31	2561	688	36	968
Doe, Edson, South Newbury, Vt. Jointed link for engines	349,495	Sept. 21	1302	339	36	1303
Doebler, John F., Rockville, Conn. Baking-pan	346,808	Aug. 3	436	119	36	545
Doehring, Carl F. W., Leipsic, Saxony, Germany. Fire-proof ceiling and floor	347,474	Aug. 17	1401	373	36	739
Doherty, George A., Crescent Mills, Cal. Bridle-bit	349,088	Sept. 14	759	194	36	1189
Doherty, John, assignor to himself and T. Conroy, Lockport, N. Y. Jar-cover	347,095	Aug. 10	859	228	36	630
Dolan, Edward J., assignor to W. Hacker, trustee, Philadelphia, Pa. Device for forming and seaming tin-can bodies	345,284	July 13	676	170	36	128
Dolge, Alfred. (See Millet, John W., assignor.)						
Dolph Company, A. M. (See Sherman, Frank P., assignor.)						
Dolphin, Matthew J. (See Hey, George W., assignor.)						
Donohoe, John W., Frankfort, Ohio. Lifting-jack	349,698	Sept. 28	1581	410	36	1366
Donohue, James A. (See Stretcher, Howard, assignor.)						
Donohue, James S., assignor of one-half to W. O. Kline, Philadelphia, Pa. Crockery or earthenware	349,272	Sept. 14	1004	256	36	1237
Donohue, Thomas H., Washington, D. C. Ventilating sewers	347,096	Aug. 10	860	228	36	631
Donovan, John F., Lomira, Wis. Land-roller	346,270	July 27	2095	539	36	401
Doolittle, William E., New Haven, Conn. Manufacture of matches	347,265	Aug. 10	1087	291	36	673
Dorsey, Basil C., Porterville, Cal. Disk-seeder and cultivator	344,950	July 6	209	54	36	39
Doty, William H. H., Oakland, N. J. Printer's galley	346,809	Aug. 3	437	119	36	545
Doubleday, Harry M., New York, N. Y., and J. Lyman, Middlefield, Conn., assignors of one-half to J. S. Humbird and F. S. Marr, Harrisburg, Pa. Electric-lamp post	350,046	Sept. 28	2064	533	36	1457
Dougan, William T., Salem, Mo. Grinding-mill	347,232	Aug. 10	1043	279	36	664
Dougherty, Edward D., Philadelphia, Pa. Device for turning curves in cable railways	348,725	Sept. 7	261	70	36	1096
Douglas Axe Manufacturing Company. (See Loomer, Henry M., assignor.)						
Douglas, Edward J., assignor to A. Rudgear, Melbourne, Victoria, Australia, S. Bernstein, and E. Kuhne, San Francisco, Cal. Apparatus for heating water	345,416	July 13	860	215	36	160
Douglas, James, Cornwall-on-the-Hudson, N. Y. Detachable milk-can refrigerator	346,647	Aug. 3	253	69	36	509
Douglas, William W., trustee. (See Crnickshank, George M., assignor.)						
Douglass, Anu. (See Douglass, John, assignor.)						
Douglass, John, assignor to A. Douglass, Brooklyn, N. Y. Bridle-bit	345,955	July 20	1655	427	36	310
Dow, Charles B., Manchester, Dak. Ter. Separator-shoe for thrashing-machines	345,285	July 13	678	171	36	128
Dow, George B. N., assignor, by mesne assignments, to Granite State Plating Company, Manchester, N. H. Check-rein hook	348,194	Aug. 31	2455	650	36	948
Dowd, Daniel L., assignor to himself and W. E. Forrest, New York, N. Y. Exercising-machine	345,286	July 13	679	171	36	128
Dowling, Patrick. (See Kimball, Charles M., assignor.)						
Dowling, Thomas W., Detroit, Mich. Window-screen	346,810	Aug. 3	438	120	36	545
Downing, Wellington. (See Brown, Richard T., assignor.)						
Drake, Theodore. (See Bolton and Drake.)						
Drake, Thomas, Huddersfield, England. Steam-generator	347,266	Aug. 10	1088	291	36	673
Draper, James O. (See Barden, John S., assignor.)						
Draper & Sons, George. (See Allen, George H., assignor.)						
Draper & Sons, George. (See Blake, Eben W., assignor.)						
Draper & Sons, George. (See Carroll, Edgar J., assignor.)						
Draper & Sons, George. (See Carroll, William T., assignor.)						
Draper & Sons, George. (See Wilmott, Louis, assignor.)						
Drawbaugh, Daniel. Eberly's Mill, Pa., assignor to Peoples Telephone Company, New York, N. Y. Induction-coil	344,818	July 6	19	5	36	6
Dress, Charles G., Buffalo, N. Y. Puzzle	345,287	July 13	681	171 / 172	36	129
Dressel, George C., New York, N. Y. Signal-lantern	348,623	Sept. 7	126	35	36	1070
Drew, George W., Butte City, Mont. Ter. Snap-hook	346,811	Aug. 3	438	120	36	545
Drew, Walter J. (See Bissell and Drew.)						
Dreyfus, Leon, New Orleans, La. Pin-tongue for breastpins	347,289	Aug. 10	1126	301	36	680
Driver, Charles H., assignor of one-half to M. M. Bush, Towns, Ga. Jack-carrier	345,490	July 13	964	244	36	179
Driver, Frank. (See Driver, George and F.)						
Driver, George and F., Toledo, Ohio. Derrick	348,726	Sept. 7	262	70	36	1096
Drodzewski, Julius R., assignor of two-thirds to H. C. Shannon and J. M. Ormsbee, Erie, Pa. Steam-pipe connection between railway-cars	348,664	Sept. 7	182	49	36	1079
Dromgold, Walker A. (See Hench and Dromgold.)						
Du Bois, Frank G. (See Brittain, John A., assignor.)						
Du Bois, Frank G. (See Hawley, William H., assignor.)						
Du Pont, Alfred V., Louisville, Ky., assignor to Johnson Steel Street Rail Company, Johnstown, Pa. Turn-table guide	345,288	July 13	682	172	36	129
Du Pont de Nemours & Co., E. J. (See Du Pont, Eugene, assignor.)						
Du Pont, Eugene, assignor to E. J. Du Pont de Nemours & Co., Wilmington, Del. Gunpowder-press	350,048	Sept. 28	2067	534	36	1457
Du Shane, James, South Bend, Ind. School-slate	347,696	Aug. 17	1725	460	36	800
Duboce, Augustin, San Francisco, Cal. Advertising optical apparatus	347,926	Aug. 24	2063	547 / 548	36	870
Dubois, B. H., *et al.* (See Tuthill, Daniel S., assignor.)						
Dubois, J. J. B., *et al.* (See Tuthill, Daniel S., assignor.)						
Dudderar, Daniel W., Taylorsville, Md. Attachment for vehicle-thills	349,930	Sept. 28	1906	494	36	1427
Dudley, Charles, Stockton, Cal. Trace-hook	349,632	Sept. 21	1491	386	36	1342
Dudley, William L., Covington, Ky., and N. W. Perry, Cincinnati, Ohio. Removing fiber from cotton-seed	344,951	July 6	210	54	36	39
Duff, John L., Sago, Ohio. Pipe-coupling	349,146	Sept. 14	839	214	36	1205
Duff, William H., St. Louis, Mo. Umbrella case or bin	346,648	Aug. 3	254	69	36	510
Dugar, Deiano H., Cedartown, Ga. Valve-gear	345,372	July 13	794	200	36	148
Duke, James B., Durham, N. C. Paper box	349,766	Sept. 28	1726	445	36	1391
Dulany, John T., near Belton, Tex. Cotton-packer	348,490	Aug. 31	2465	770	36	1027
Dulin, Charles E., Philadelphia, Pa. Centrifugal hydro-extractor	346,030	July 20	1765	454 / 455	36	328
Dula, Jacob, Charlotte, N. C. Gate latch	344,952	July 6	212	54	36	39
Dunbar, Daniel. (See Feldmann and Dunbar.)						
Dunbar, John H. (See Reid and Dunbar.)						
Duncan, George B., and J. Bailie, Cincinnati, Ohio; said Duncan assignor to said Bailie. Reel-oven	347,475	Aug. 17	1403	373	36	739

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Duncan, John M., *et al.* (See Gowans, James A., assignor.)						
Duncan, Joseph M., Silver Springs, N. Y. Salt-graining apparatus	349,931	Sept. 28	1907	494, 495	36	1427
Duncan, Robert D., and A. Wallace, Omaha, Nebr. Grease-trap	346,432	July 27	2327	599	36	444
Dundon, Patrick F., San Francisco, Cal. Steam-boiler. (Reissue)	10,758	Aug. 17	1818	484	36	816
Dunham, Bradford, Baltimore, Md. Locomotive-brake	346,271	July 27	2096	539	36	402
Dunham, Edwin L., Quincy, Mich. Door-hanger	347,694	Aug. 17	1723	460	36	799
Dunham, Fred J. (See Brambel, Grant, assignor.)						
Dunkel, Wilber R., Macon, Ill. Grain weighing and registering apparatus	346,272	July 27	2097	540	36	402
Dunkin, James, Bridgeport, W. Va. Planter	346,901	Aug. 10	579	155	36	580
Dunn, Isaac, *et al.* (See Dewey and Short, assignors.)						
Dunn, J. Paris, New York, N. Y. Machine for printing and registering tickets	345,623	July 13	1169	300, 301, 302	36	217
Dunn, J. Paris, New York, N. Y. Machine for printing, dating, and registering tickets	345,624	July 13	1175	302, 303	36	218
Dunn, J. Paris, New York, N. Y. Fire-escape ladder	350,047	Sept. 28	2085	534	36	1467
Dunn, Patrick C., Buffalo, N. Y. Railway frog-crossing	348,516	Aug. 31	2907	781	36	1035
Dunne, John J., Philadelphia, Pa. Making phosphates	345,625	July 13	1182	.....	36	219
Dunne, Martin. (See Miles and Dunne.)						
Dunning, Elisha, Bluffton, assignor of one-half to S. Davies, Muskegon, Mich. Saw-swaging machine	346,844	Aug. 3	486	134, 135	36	555
Dunning, William B., Geneva, N. Y. Magazine steam-boiler	349,699	Sept. 28	1581	410	36	1366
Duplain, Francis P., assignor to Western Electric Company, Chicago, Ill. Machine for winding lead tape upon telegraph-cables	346,433	July 27	2328	599	36	444
Duplex Printing Press Company. (See Cox, Joseph L., assignor.)						
Duprat, Seothène. (See Lamal and Duprat.)						
Durand, Thomas P., New York, N. Y. Clothes-line	349,147	Sept. 14	840	214	36	1205
Durando, Francis P., West Chester, N. Y. Holder for papers and similar articles	346,845	Aug. 3	488	135	36	556
Durell, Mary S., and A. L. Geilhard, Schoharie, N. Y. Steam-radiator attachment	347,476	Aug. 17	1403	374	36	739
Durham, Daniel P., Withamsville, Ohio. Nail	346,148	July 27	1923	496	36	369
Durham, Frederick W., Station Road, Barnet, county of Herts, England. Hat-lining	349,633	Sept. 21	1492	387	36	1342
Durham, Robert J. (See Strother, William S., assignor.)						
Durr, Sebastian. (See Owens, James, assignor.)						
Duryea, Edgar E., Glen Cove, N. Y. Manufacturing starch	345,417	July 13	862	215	36	161
Duryea, Edgar E., Glen Cove, N. Y. Apparatus for liquefying starch upon starch runs or planes	345,418	July 13	864	216	36	161
Duryee, Albertus R., assignor of one-half to J. W. Wheeler, Washington, D. C. Combined lock and hasp	347,695	Aug. 17	1724	460	36	800
Dustin, Harmon. (See Mayfield, Washington B., assignor.)						
Duthie, George H., assignor of one-half to W. W. Barcus, Muskegon, Mich. Steam-valve	346,434	July 27	2328	599	36	444
Duthie, George H., assignor of one-half to W. W. Barcus, Muskegon, Mich. Steam-valve	346,435	July 27	2329	600	36	444
Dutoit, Fritz G. (See Burkart, August, assignor.)						
Dutrisac, Moses, Muskegon, Mich. Drive-chain	347,697	Aug. 17	1726	460	36	800
Duval, Stephen C., New York, N. Y. Graphic negative-film for photographic printing	345,220	July 6	576	147	36	105
Dwiggins, William, assignor of one-half to A. S. Hinshaw, Westfield, Ind. Lifting-jack	345,626	July 13	1183	304	36	219
Dye, Joseph F., Santa Paula, Cal., assignor of one-half to S. Hutton. Expansion-drill for boring-mills	349,700	Sept. 28	1583	410	36	1366
Dyer, Richard N., New York, N. Y., assignor to J. W. Howell and C. S. Van Nuis, New Brunswick, N. J., and Dyer & Seely, New York, N. Y. Night-lamp for electric lighting systems	348,155	Aug. 24	2384	640	36	930
Dyer & Seely *et al.* (See Dyer, Richard N., assignor.)						
Dyer & Seely *et al.* (See Howell, John W., assignor.)						
Dyer, Whitman S., Boston, Mass. Sheet-metal can	348,551	Sept. 7	13	4	36	1051
Eads, John B., assignor of one-half to C. E. McClure, Mattoon, Ill. Steam-engine	349,573	Sept. 21	1421	367	36	1327
Eagle, Henry A. (See Sullivan and Eagle.)						
Eagle Machine Company. (See Outcalt, Jesse P., assignor.)						
Eagle Pencil Company. (See Singleton, George, assignor.)						
Eakins, John, Philadelphia, Pa. Sash-holder	346,363	July 27	2221	569, 570	36	425
Eames, Elisha D., Watertown, N. Y. Locomotive-brake	346,364	July 27	2222	570	36	425
East, Albert C. (See Kuhns, Edgar A., assignor.)						
East, Henry, D. K. Price, and H. R. East, Rochester, N. Y.; said H. R. East assignor of one-half his right to Henry East. Machine for sharpening horseshoe-calks	347,698	Aug. 17	1727	461	36	800
East, Henry R. (See East, Price, and East.)						
Eastman, Andrew M., assignor to T. C. Eastman, Milford, Mass. Machine for covering the exterior of paper boxes	347,999	Aug. 24	2163	576, 577	36	868
Eastman, Andrew M., assignor to T. C. Eastman, Milford, Mass. Cutter for paper-box-covering machines	348,000	Aug. 24	2168	577	36	868
Eastman, Clyde, Thompson Falls, Mont. Ter. Wheeled hay-rake	349,837	Sept. 28	1797	464	36	1405
Eastman, Franklin P., New York, N. Y. Feed-bag for animals	347,582	Aug. 17	1549	412	36	767
Eastman, Thomas C. (See Eastman, Andrew M., assignor.)						
Eastman, William H., assignor, by mesne assignments, to Popular Telephone Company, Concord, N. H. Mechanical telephone	348,896	Sept. 7	488	129	36	1137
Eaton, Asahel K., Brooklyn, N. Y. Machine for covering insulated wires with lead	345,956	July 20	1656	427, 428	36	310
Eaton, Edmund O., London, county of Middlesex, England. Kettle	347,334	Aug. 17	1195	320	36	702
Eaton, George H., North Middleborough, Mass. Axle-nut	346,469	Aug. 3	28	7	36	466
Eaton, James W., *et al.* (See Hyman, Samuel, assignor.)						
Eaton, Levi F., Meriden, Conn. Blacking-box holder	345,957	July 20	1659	428	36	311
Eaton, Thomas W., P. H. Prince, and J. H. Livesey, Chicago, Ill., assignors to said Eaton and Prince. Safety-brake for elevators	347,778	Aug. 24	1845	491, 492	36	829
Eccles, James, Philadelphia, Pa. Machine for coiling warps	349,148	Sept. 14	841	214, 215	36	1205
Eckerson, David I., assignor to himself and A. Diefendorf, Worcester, N. Y. Machine for straightening and cutting wire	344,819	July 6	20	6	36	6
Eckerson, David I., assignor to himself and A. Diefendorf, Worcester, N. Y. Machine for making bale-ties	348,833	Sept. 7	390	106	36	1120
Economist Plow Company. (See Meagher, Edmund D., assignor.)						
Economy Manufacturing Company. (See Gold, Joseph S., assignor.)						
Eddington, Edwin E., Janesville, Wis. Cultivator	347,583	Aug. 17	1550	412	36	768
Eddington, Frank G., assignor to E. B. Foote and W. R. Wagner, Chicago, Ill. Adjustable leg for wash-tube	348,195	Aug. 31	2456	660	36	949

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Eddy, Alfonzo J., assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Meat-cutter	347,477	Aug. 17	1404	374	36	739
Edgar, Ellis F., Woodbridge, N. J. Pneumatic and electric railway	346,902	Aug. 10	580	155, 156	36	580
Edgerly, James N., Cleveland, Ohio. Truss hedge fence	347,423	Aug. 17	1318	351	36	724
Edison, Thomas A. (See Stern, William A., assignor.)						
Edison, Thomas A. Menlo Park, N. J. Electrical signaling apparatus	347,097	Aug. 10	863	228, 229	36	631
Edison, Thomas A., Menlo Park, N. J. Electrode for telephone-transmitters	348,114	Aug. 24	2327	624	36	919
Edson, Jarvis B., Brooklyn, assignor to American Zylonite Company, New York, N. Y. Reduction of zylonite and other plastic compositions to form sheets	349,987	Sept. 28	1992	515	36	1443
Edson, Jarvis B., Brooklyn, assignor to American Zylonite Company, New York, N. Y. Process of and apparatus for mounting pyroxyline or analogous substances upon a mandrel	350,049	Sept. 28	2068	534, 535	36	1458
Edwards, Charles J., Fairville, Mo. Sash-fastener	346,096	July 27	1846	476	36	354
Edwards, Henry. (See Green, Hiram E., assignor.)						
Edwards, Thomas, Jr., Haring, Mich. Garden-seed drill	347,779	Aug. 24	1846	492	36	830
Egan, James, Chicago, Ill. Street-lamp	347,478	Aug. 17	1405	374	36	740
Egan, James W., Philadelphia, Pa. Refrigerator	348,115	Aug. 24	2328	624	36	919
Egan, Thomas. (See Gunn, John C., assignor.)						
Egan, Thomas, Pittsburg, Pa. Composition for streets, sidewalks, &c	349,304	Sept. 21	1038	.....	36	1252
Egan, William M., Salt Lake City, Utah Ter. Washing-machine	347,780	Aug. 24	1847	492	36	830
Ege, Alexander H., Mechanicsburg, Pa. Rail-joint support	349,305	Sept. 21	1039	266	36	1252
Egge, Frederick, assignor to Smith & Egge Manufacturing Company, Bridgeport, Conn. Metal chain-link	344,953	July 6	214	55	36	40
Egge, Frederick, assignor to Smith & Egge Manufacturing Company, Bridgeport, Conn. Attachment for stitching and cutting button-holes	345,419	July 13	866	216	36	161
Egly, John C., assignor to T. A. Pearce, Philadelphia, Pa. Knitting-machine needle	345,126	July 6	452	117	36	82
Egnor, James W. (See Greene and Egnor.)						
Ehlers, John D., Baltimore, Md. Varnishing machine	344,951	July 6	215	55	36	40
Ehrenzeller-Hoegger, George, St. Galle, Switzerland. Embroidering	345,127	July 6	453	117	36	82
Ehrlich, Friedrich E. P., Gohlis, near Leipsic, Saxony, Germany. Mechanical musical instrument	349,634	Sept. 21	1493	387	36	1342
Ehrlich, Herman, Jersey City, N. J. Telephone-transmitter	346,846	Aug. 3	489	135	36	556
Ehler, Frederick, Cleveland, Ohio. Compressor	349,342	Sept. 21	1081	277, 278	36	1261
Eickemeyer, Rudolf, Yonkers, N. Y. Machine for folding or curling hat-brims	349,701	Sept. 28	1584	410, 411	36	1366
Einstein, Henriette, Philadelphia, Pa. Dress-shield	349,149	Sept. 14	842	215	36	1206
Eirick, Luther M., Chicago, Ill., assignor to I. A. Whitman, New York, N. Y., C. S. Norris and I. Stover, Chicago, Ill. Combined rack and table	348,271	Aug. 31	2563	688	36	968
Eisenhart, Henry W. (See Farquhar, Eisenhart, and Root.)						
Eisenhour, Martin A. (See Zehner and Eisenhour.)						
Eisler, Manuel, New York, N. Y., assignor to United States Dynamite Company of New York. Dynamite	347,424	Aug. 17	1319	.....	36	724
Elbel, Gustavus, Canton, Ohio. Trace-chain carrier	348,196	Aug. 31	2457	660	36	949
Electrical and Mechanical Developing Company. (See Cutten, Elisha B., assignor.)						
Elger & Elger. (See Weller, Chester A., assignor.)						
Elgin National Watch Company. (See Corliss, Charles P., assignor.)						
Elgin National Watch Company. (See Hunter, George E., assignor.)						
Elkin, Edwin S., Springfield, Ill. Device for sharpening horseshoe-calks	345,491	July 13	965	244	36	179
Elkins, Ira S., New York, N. Y. Box-strap	349,150	Sept. 14	843	215	36	1206
Eller, Frederick, *et al.* (See Beutel, Jacob, assignor.)						
Ellin, Robert, Yonkers, N. Y. Vacuum-evaporator for milk	347,584	Aug. 17	1552	413	36	768
Ellin, Robert, Yonkers, N. Y. Preserving milk	349,574	Sept. 21	1423	368	36	1327
Elliott, Ebenezer. (See Vinson, Peter, assignor.)						
Elliott, Franklin O., Sparkling Catawba Springs, N. C. Steam-engine	346,741	Aug. 3	363	97, 98	36	531
Elliott, George W., De Smet, Dak. Ter. Machinery for pressing hay, &c., for fuel	346,470	Aug. 3	29	7	36	466
Elliott, Matthew P. (See Neale and Elliott.)						
Elliott, Millard F., Philadelphia, Pa. Regulating-valve for gas-burners	348,897	Sept. 7	489	129	36	1137
Ellis, Frederick L., New Haven, Conn. Making buttons	345,835	July 20	1490	386	36	279
Ellis, Frederick S., *et al.* (See Shaw, John H., assignor.)						
Ellis, Harry S. (See Ramsden and Ellis.)						
Ellis, John, Lynn, Mass. Lubricator	347,335	Aug. 17	1196	320	36	703
Ellis, John, Lynn, Mass. Lubricator	347,336	Aug. 17	1196	320	36	703
Ellison, Robert S., Canton, Ohio. Last	346,273	July 27	2098	540	36	402
Ells, Bertha J. (See Ells, James E., assignor.)						
Ells, George F., Binghamton, N. Y. Car-coupling	344,955	July 6	215	55	36	40
Ells, James E., assignor to B. J. Ells, Norwalk, Conn. Portable baker's oven	346,365	July 27	2223	570	36	425
Elmer, Albert E., Springfield, Mass., assignor to E. E. Garvin & Co., New York, N. Y. Hollow spindle-chuck	347,167	Aug. 10	958	256	36	650
Elmore, Benton, assignor of one-half to F. Grotefend, Redding, Cal. Motor	347,479	Aug. 17	1407	375	36	740
Elston, Walter S., Colorado Springs, Colo. Sprinkler	345,958	July 20	1659	428	36	311
Elward, John H., St. Paul, Minn. Drive-chain	345,579	July 13	1115	285	36	206
Elwell, Austin D. (See Bacon, John H., assignor.)						
Elwell, George W., and B. Fay, Danbury, Conn.; said Elwell assignor to said Fay. Hat-sizing machine	344,920	July 6	23	6, 7	36	6
Ely, E. A., *et al.* (See Chamberlain, Marcus W., assignor.)						
Emerick, Fred A., Fulton, N. Y. Shook-binder	348,197	Aug. 31	2459	660	36	949
Emerson, Cyrus J., Jr. (See Lakin and Emerson.)						
Emerson & Fisher Company. (See Ransom, Hiram W., assignor.)						
Emerson, James, Willimansett, assignor of two-thirds to E. A. Thissell, Lowell, Mass. Dynamometer	346,404	July 27	2221	585, 586	36	436
Emerson, Richard, assignor of one-half to H. H. Mason, Sycamore, Ill. Harvesting-machine	349,932	Sept. 28	1910	495, 496	36	1428
Emmert, Ezra, Dixon, Ill. Combined seeder and harrow	345,289	July 13	684	172, 173	36	129
Emmett, John V. (See Richardson, Charles H., assignor.)						
Emmer, Julius, Washington, D. C. Telephone	346,031	July 20	1767	455	36	329
Emsley, John W., Worcester, Mass. Loom	349,933	Sept. 28	1914	496	36	1428
Emslie, William, Montezuma, Iowa. Ditching-machine	348,624	Sept. 7	127	36	36	1070
Endres, John J., New York, N. Y. Mechanism for operating cable-car gripping and braking devices	347,781	Aug. 24	1848	492	36	830

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Endres, John J., New York, N. Y. Cable-road rail	347,782	Aug. 24	1849	493	36	830
Endres, John J., New York, N. Y. Grip for cable cars	347,783	Aug. 24	1850	493	36	831
Endres, John J., New York, N. Y. Cable railway	347,784	Aug. 24	1852	493	36	831
Endres, John J., New York, N. Y. Cable-lifting mechanism	347,785	Aug. 24	1853	494	36	831
Endres, John J., New York, N. Y. Cable-car grip	349,486	Sept. 21	1303	339	36	1303
Enell, Otto E., assignor to himself and W. S. Stitt, Wabash, Ind. Combination shade, curtain, and lambrequin supporter	349,635	Sept. 21	1495	387	36	1342
Engelbert, Henry, Detroit, Mich. Water-back	344,899	July 6	147	37	36	27
Engelhardt, John H., Jr., Montgomery, Ala. Water-closet-seat protector	347,586	Aug. 17	1554	413	36	768
English, Henry R., Jackson, Mo. Hitching device	347,585	Aug. 17	1553	413	36	768
English, William W., Lincoln, Nebr. Door-check	344,821	July 6	25	7	36	6
Engrand, Celestine, Marseilles, France. Grain-silo	349,213	Sept. 14	925	237	36	1222
Enich, Joseph E., Mahanoy City, Pa. Miner's can	344,956	July 6	216	55	36	40
Enkler, Albert, Poughkeepsie, N. Y. Demijohn	348,645	Sept. 7	183	49	36	1060
Enos, Eben F., Magnolia, Mass. Sheet-holder for marine vessels	348,001	Aug. 24	2170	577	36	889
Enos, Silvanus F., Etna, Ill. Check-row corn-planter	349,636	Sept. 21	1496	387 / 388	36	1343
Enslow, Frank B. (See Davis, John V., assignor.)						
Eppley, John, York, Pa. Furnace	348,116	Aug. 24	2328	624 / 625	36	919
Erber, Gottlob, Indianapolis, Ind. Extension-table	346,903	Aug. 10	585	156	36	581
Erhard, Georg. (See Wiegard and Erhard.)						
Erhard, Theodor, Stüttgart, Württemberg, Germany. Galvanic battery	346,032	July 20	1769	455	36	339
Erkenbrecher Company, A. (See Hovey and Phillips, assignors.)						
Ernst, John, assignor to H. W. Simms, Bay City, Mich. Vise	349,032	Sept. 14	680	175	36	1175
Ernst, Victor H., Jersey City, N. J. Machine for turning irregular forms	349,343	Sept. 21	1082	278	36	1261
Ertel, George, Quincy, Ill. Baling-press	345,899	July 20	1568	404	36	294
Ertel, George, Quincy, Ill. Baling-press	349,934	Sept. 28	1914	496	36	1428
Esborn, Homer, Petaluma, Cal. Animal-exterminator	345,373	July 13	796	200	36	149
Eskholme, John W., assignor of one-half to E. J. Kiley, Bridgeport, Conn. Check-valve	345,420	July 13	869	216 / 217	36	162
Esp, Andrew, McCune, Kans. Spring-equalizer	348,272	Aug. 31	2564	689	36	966
Esser, Hermann, Hoboken, N. J. Extension-tripod	347,927	Aug. 24	2066	548	36	870
Estabrook, Alanson C., assignor to Florence Manufacturing Company, Florence, Mass. Machine for milling bone blanks for handles	347,699	Aug. 17	1728	461	36	800
Estabrook, Alanson C., assignor to Florence Manufacturing Company, Florence, Mass. Machine for graving brush-handles	347,700	Aug. 17	1730	461 / 462	36	801
Esten, Henry L., and A. Greaves, Pascoag, R. I. Let-off motion for looms	345,627	July 13	1184	304	36	219
Esterly, William A., and E. W. Poe, Bowling Green, Ohio. Hand corn-planter	348,387	Aug. 31	2718	730	36	1000
Ethridge, John H., Painxy, Tex. Dust-box	347,781	Aug. 17	1735	463	36	801
Ethridge Lasting Machine Company. (See Ethridge, Martin V. B., assignor.)						
Ethridge, Martin V. B., assignor to A. J. Bailey, Boston, Mass. Inking-roller	345,035	July 6	338	85	36	62
Ethridge, Martin V. B., assignor to A. J. Bailey, Boston, Mass. Combined mail-bag fastener and label-holder	346,675	July 20	1266	328	36	241
Ethridge, Martin V. B., assignor to A. J. Bailey, Boston, Mass. Mail-bag fastening	346,149	July 27	1924	497	36	369
Ethridge, Martin V. B., Boston, Mass., assignor to Ethridge Lasting Machine Company, Kittery, Me. Tack-driving machine	349,387	Sept. 21	1169	303 / 304	36	1278
Ethridge, Martin V. B., assignor to H. E. Waite, Boston, Mass. Railway-rail-joint fastening	345,421	July 13	871	217	36	162
Ethridge, Martin V. B., Boston, Mass., assignor of two-thirds to J. Swan, New York, N. Y., and H. E. Waite, West Newton, Mass. Time-piece dial	347,337	Aug. 17	1200	321	36	703
Eureka Tap Valve Company. (See Gillette and King, assignors.)						
Eva, James. (See Anderfuren, William J., assignor.)						
Evans, Cadwallader, *et al.* (See Stubbe, John, assignor.)						
Evans, David, Ansonia, Conn. Wire-nail machine	348,156	Aug. 24	2385	640 / 641	36	930
Evans, George T., Buffalo, N. Y. Chair	345,290	July 13	686	173	36	129
Evans, Jonathan, *et al.* (See Koelkebeck, Carl W. A., assignor.)						
Evans, Jonathan, Philadelphia, Pa., assignor of one-half to D. H. Burrell, Little Falls, N. Y. Centrifugal liquid-separator	347,702	Aug. 17	1736	463	36	801
Evans, Thomas J. (See Bannister, Oliver C., assignor.)						
Everding, Edward, Eureka, Cal. Automatic attachment for working ships' pumps	348,956	Sept. 14	570	152	36	1157
Everding, John, and A. v. Olszewski, Newark, N. J. Shoe-fastening	348,727	Sept. 7	263	70	36	1096
Everest & Co. D. O. (See Hunt, Ira J., assignor.)						
Everett, George W., New York, N. Y. Weather-strip for windows, &c	349,877	Sept. 28	1846	477	36	1416
Evers, August F., Cleveland, Ohio. Shutter-worker	345,221	July 6	577	147	36	105
Everson, Carrie J., Chicago, Ill. Concentrating ores	348,157	Aug. 24	2387	.....	36	930
Evison, Francis, Morenci, Mich. Clod crusher and pulverizer	347,099	Aug. 10	865	229	36	631
Ewart, Archibald M. (See Palmer and Ewart.)						
Excelsior Grain Door Company. (See Rogers, Nathaniel P., assignor.)						
Excelsior Needle Company. (See Dayton, William H., assignor.)						
Eysaman, Adam H., Herkimer, N. Y. Roller-skate wheel	345,422	July 13	872	217	36	162
Faber, Eberhard. (See Mussinan, Oscar, Jr., assignor.)						
Fageley, Warren C., Philadelphia, Pa. Paper bag	349,838	Sept. 28	1798	465	36	1406
Fagerburg, Alfred T., Bloomington, Ill. Revolving sign	346,197	July 27	1968	513	36	381
Fair, Eli, Aroma, Ind. Running-gear for vehicles	349,988	Sept. 28	1995	515	36	1443
Fairbairn, Charles, Maybank, Sale, county of Chester, England. Screw-swaging machine	345,959	July 20	1660	428 / 429 / 430	36	311
Fairbanks, Henry. (See Parker, Howard, assignor.)						
Fairbanks, John A., Cambridgeport, assignor to E. C. Upton, Boston, Mass. Bridle-bit	348,834	Sept. 7	393	107	36	1120
Fairbanks, Lorenzo S., Boston, Mass. Telephone-receiver	349,575	Sept. 21	1424	368	36	1327
Fairchild, John M., assignor of one-half to J. O'Connor, Portland, Oreg. Cut-out for electric circuits	348,455	Aug. 31	2817	756	36	1019
Fairchild, John M., and J. O'Connor, Portland, Oreg. Switch for electric circuits	348,456	Aug. 31	2818	757	36	1019
Falcon, Joseph G. and P. E., Chicago, Ill. Rotary pump	346,471	Aug. 3	30	8	36	466
Falcon, Peter E. (See Falcon, Joseph G. and P. E.)						
Falconer, Robert, Rockford, Ill. Fence-wire carriage	349,576	Sept. 21	1425	368	36	1328
Fales, Amos, Rockfall, Conn. Variable bench-plane	348,198	Aug. 31	2459	660 / 661	36	949
Falk, David B., Charleston, S. C. Trousers-stretcher	348,835	Sept. 7	394	107	36	1121
Fallows, James, Philadelphia, Pa. Mechanical toy	346,586	Aug. 3	170	46	36	492
Fant, Frank, assignor to J. Fant, Joliet, Ill. Bustle	346,436	July 27	2231	600	36	444

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Fant, James. (See Fant, Frank, assignor.)						
Farbaky, Stephen, and S. Schenek, Schemnitz, Austria-Hungary. Secondary battery or accumulator	344,957	July 6	217	56	36	40
Farbaky, Stephan, and S. Schenck, Schemnitz, Austria-Hungary. Manufacture of secondary batteries or accumulators	348,625	Sept. 7	129	36	36	1071
Farber, Mannaseh W., assignor to himself and J. E. Marshall, El Dorado, Kans. Nut-lock	348,117	Aug. 24	2330	625	36	920
Faries, Robert, Decatur, Ill. Check-rower	347,168	Aug. 10	961	256 / 257	36	650
Farmer, J. Lueco. (See Talbot and Farmer.)						
Farmer, James, Salford, county of Lancaster, England, and A. Lalance, Mulhouse, Germany. Apparatus for washing and dyeing fabrics	345,492	July 13	965	245	36	179
Farmer, Moses G., New York, N. Y. Metallic shingle	347,928	Aug. 24	2066	548	36	871
Farmer, Moses G., New York, N. Y. Telegraph system	349,214	Sept. 14	936	237	36	1222
Farmers' Friend Manufacturing Company. (See Runstetler, Andrew, assignor.)						
Farnsworth, George. (See Schmid, Charles, assignor.)						
Farquhar, Arthur B., H. W. Eisenhart, and B. M. Root, York, Pa., assignors to said Farquhar. Fertilizer-distributer	345,580	July 13	1117	285 / 286	36	206
Farquhar, William T., Trenton, Ind. Fence-post	345,374	July 13	797	201	36	149
Farr, Edward L. (See Rich, Farr, and Bailey.)						
Farr, Hiram G., Boston, assignor of one-half to T. King, Quincy, Mass. Car-axle lubricator	348,728	Sept. 7	264	70	36	1097
Farr, Hiram G., Boston, assignor of one-half to T. King, Quincy, Mass. Car-axle lubricator	348,729	Sept. 7	265	71	36	1097
Farr, John W., Marion, Ind. Weather-strip	349,787	Sept. 28	1727	446	36	1391
Farr, Willis M., Dowagiac, Mich. Sand-band	346,274	July 27	2099	540	36	402
Farrel, John, New York, N. Y. Safe for express transportation, &c	346,275	July 27	2100	541	36	402
Farris, William H., Rock Island, Ill. Steam-generator	349,496	Sept. 21	1219	316 / 317	36	1287
Farson, Enoch S., Philadelphia, Pa. Cabinet-commode	345,890	July 20	1570	404	36	294
Fassett, Nelson B., Moline, Ill. Machine for trimming and coupling chain-links	347,338	Aug. 17	1201	321 / 322	36	703
Fatio, Henry, Middletown, Ind. Automatic vehicle-brake	349,033	Sept. 14	681	175	36	1176
Faulder, Thomas, assignor to C. C. Bradley, Syracuse, N. Y. Tail-board fastening for wagons	346,366	July 27	2224	571	36	426
Faulkner, Elza T. (See Faulkner, James J. and E. T.)						
Faulkner, James J. and E. T., McMinnville, Tenn., assignors of one-third to C. H. Plummer, Jackson, Mich. Flour-bolt	348,199	Aug. 31	2462	661	36	950
Fawcett, Ezra, Alliance, Ohio. Automatic shaft-governor	349,215	Sept. 14	927	238	36	1222
Fay, Bernard. (See Elwell and Fay.)						
Fay & Co., J. A. (See Passel, George W., assignor.)						
Fayanz, Augustus L., Philadelphia, Pa. Drum-snare strainer	349,151	Sept. 14	844	216	36	1206
Fearn, Amelia A., Philadelphia, Pa. Life-preserving corset	345,960	July 20	1662	430	36	311
Fearon, Francis, Philadelphia, Pa. Stop-motion mechanism for doubling-machines	349,487	Sept. 21	1304	339 / 340	36	1304
Feeny, George. (See Millar and Feeny.)						
Feigel, William, Butler, Pa. Ironing-board	345,676	July 20	1267	328	36	241
Fein, Sophia M., Cincinnati, Ohio. Door-mat	345,291	July 13	687	173	36	130
Feldmann, Charles H. (See Feldmann and Dunbar.)						
Feldmann, Hermann B., assignor of one-half to S. P. M. Tasker, Philadelphia, Pa. Pulverizing-machine	347,480	Aug. 17	1409	375	36	741
Feldmann, Jakob and C. H., and D. Dunbar, Portland, Oreg. Water-proof composition for felt shoes, slippers, &c	346,150	July 27	1925	.....	36	369
Fellrath, Charles J., Gatesville, Tex. Vibrating churn	345,961	July 20	1663	430	36	312
Fellrath, Charles J., Gatesville, Tex. Well-bucket	348,118	Aug. 24	2331	625	36	920
Felmlee, John H., Greely, assignor of one-half to G. C. Norris, Denver, Colo. Sash-holder	348,273	Aug. 31	2564	689	36	969
Fenner, George P., New London, Conn. Sheet-delivery apparatus	345,222	July 6	578	147 / 148	36	105
Fenner, Richard E. (See Giles and Fenner.)						
Fenner, Richard E., assignor of one-half to C. K. Giles, Chicago, Ill. Electric clock	345,292	July 13	688	173	36	130
Fennerty, John M., Washington, D. C. Railway-spike	345,423	July 13	873	217	36	162
Ferguson, Charles W., Janesville, Wis. Car-coupling	345,036	July 6	340	86	36	62
Ferguson, Hugh, Pittsburg, Pa. Regenerative heating-furnace	349,306	Sept. 21	1041	266	36	1253
Ferguson, James F., Burlington, Vt. Coasting apparatus	349,152	Sept. 14	845	216	36	1206
Ferguson, John L. (See Miller, Horace E., assignor.)						
Ferguson, Sylvester E., Eureka Springs, Ark. Automatic wagon-brake	347,872	Aug. 24	1983	526	36	855
Ferguson, Sylvester E., Eureka Springs, Ark. Corn-harvester	348,730	Sept. 7	266	71, 72	36	1097
Féron, Arthur C., New York, N. Y. Drawing apparatus	347,099	Aug. 10	866	229	36	632
Ferrell, Charles M., Utica, N. Y. Car-coupling	348,488	Sept. 21	1306	340	36	1304
Ferris, Daniel, Boston, Mass. Seal-lock	349,702	Sept. 28	1598	411	36	1367
Ferris, Sherwood B., Lakewood, N. J. Flexible button-fastening for corsets or other garments	345,037	July 6	342	86	36	62
Ferry, Daniel J., Philadelphia, Pa. Printer's quoin	348,119	Aug. 24	2332	626	36	920
Ferry, Edwin R., New Haven, Conn. Combined latch and lock	347,100	Aug. 10	867	229	36	632
Ferry, Edwin R., New Haven, Conn. Sash-lock	347,101	Aug. 10	868	230	36	632
Feusler, Joseph, *et al.* (See Fleharty, George A., assignor.)						
Fey, Charles, Brooklyn, N. Y. Apparatus for the manufacture of malt	345,128	July 6	453	117	36	83
Fiberlene Collar Company. (See March, George N., assignor.)						
Field, Edwin S. (See Hindley and Field.)						
Field, Martin S., Racine, Wis. Feed-cutter	346,151	July 27	1926	497	36	369
Field, Millard F., Chelsea, assignor to G. W. Linscott, trustee, Boston, Mass. Let-off device for delivery-rolls	345,677	July 20	1269	328 / 329	36	241
Fielding, Richard. (See Rose, George W., assignor.)						
Fieweger, Julius, Menasha, Wis. Bob-sled	347,786	Aug. 24	1854	494	36	832
Fifield, Henry O., *et al.* (See Johnston, William, assignor.)						
Fifield, John W. D., North Brookfield, assignor to A. H. Batcheller, Boston, Mass. Machine for turning boots or shoes	347,233	Aug. 10	1044	279	36	665
Figg, John C., Barry, Ill. Buggy-bed	349,577	Sept. 21	1426	368	36	1328
File, William F., Topeka, Kans., assignor of one-half to C. S. Sheffield. Newspaper-file	349,637	Sept. 21	1498	388	36	1343
Finch, Reuben R., assignor to Union Stove Works, Peekskill, N. Y. Hot-air furnace	345,293	July 13	691	174	36	130
Finch, Thomas F. N., Worcester, county of Worcester, England. Manufacture of buttons and other analogous articles	345,962	July 20	1664	430	36	312
Fink, Alexander. (See Bernstein and Goldstein, assignors.)						
Fink, Henry, Newark, N. J. Feed-bag for horses	347,929	Aug. 24	2067	549	36	871
Finke, Joseph, Berlin, Germany. Preserving cereals	348,320	Aug. 31	2626	708	36	968

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Finkelson, Andrew. (See Hendryx, Samuel V., assignor.)						
Finn, William H., Oswego, N. Y. Circular sawing machine	346,097	July 27	1847	477	36	354
Finney, Joseph B., Pittsburg, assignor of one-half to T. B. Kerr, Allegheny, Pa. Electrical conductor	346,990	Aug. 10	694	124	36	601
Fire Extinguisher Manufacturing Company. (See Greenleaf, Abner, assignor.)						
Fire Extinguisher Manufacturing Company. (See Steck, Ernst F., assignor.)						
Fischer, Carl G., Schloss Holte Brackwede, near Bielefeld, Westphalia, Germany. Apparatus for setting type	348,836	Sept. 7	395	107	36	1121
Fischer, John, Louisville, Ky. Shaft-tug	345,038	July 6	343	86	36	62
Fischer, John, Louisville, Ky. Harness-loop	345,039	July 6	343	86	36	63
Fischer, Joseph B. (See Long and Fischer.)						
Fischer, Julius, Washington, D. C. Expansible life-boat	348,158	Aug. 24	2390	641	36	930
Fischer, Therese R., Baltimore, Md. Dress-form	347,930	Aug. 24	2068	549	36	871
Fischer, Wilhelm M., Alexandria, Va. Cork-fastener	345,963	July 20	1665	421	36	312
Fischer, William. (See Birck and Fischer.)						
Fish, Warren L., Newark, N. J. Bicycle-saddle	345,424	July 13	874	218	36	162
Fish, William H., and E. E. Dean, Brockton, Mass. Odorless excavator	345,425	July 13	877	218	36	163
Fisher, Anson P., assignor of two-thirds to A. Henry and A. M. Barley, Chico, Cal. Oscillating gas-meter	349,469	Sept. 21	1307	340	36	1304
Fisher & Co., S. E. (See Lenau, Gustavus, assignor.)						
Fisher, Henry, Canton, Ohio. Rake	349,703	Sept. 28	1590	411	36	1367
Fisher, J. Harmanus, Baltimore, Md. Fly and mosquito net	348,388	Aug. 31	2719	730	36	1000
Fisher, Jacob P. (See Haentges and Fisher.)						
Fisher, James S. (See Powell, Howard, assignor.)						
Fisher, William, *et al.* (See Harris, Richard G., assignor.)						
Fisher, William C., Boston, Mass. Locking and releasing mechanism for locks	347,029	Aug. 10	755	201	36	612
Fisk, Clark & Flagg. (See Heath, Henry, assignor.)						
Fiske, Henry P., assignor, by mesne assignments, to C. F. Copeland, Boston, and G. W. Daniels, Somerville, Mass., trustees. Bed for paper-cutting dies	344,822	July 6	25	7	36	7
Fitch, Eugene, Des Moines, Iowa. Type-writing machine	345,836	July 20	1491	386 387	36	280
Fitch, Franklin. (See Hills, Justin, assignor.)						
Fitch, Nathan T., Wilmington, Del. Grinding-mill	345,493	July 13	966	245	36	179
Fitch, Nathan T., Chicago, Ill. Insulator	349,788	Sept. 28	1728	446	36	1391
Fitch, W. & E. T. (See Hubbard, George M., assignor.)						
Fitz Gerald, A. Ogden, Newark, N. J. Shipping-can	345,223	July 6	581	148	36	105
Fitz Gerald, A. Ogden, Newark, N. J. Shipping-can	345,224	July 6	582	148	36	106
Fitz Gerald, A. Ogden, Newark, N. J. Can-valve	346,033	July 20	1770	455	36	329
Fitz Gerald, William F., Norfolk, Va. Desk attachment	345,040	July 6	344	87	36	63
Fitzhugh, Benjamin G., Baltimore, Md. Dumping-cart	345,225	July 6	584	148 149	36	106
Fix, Albert S. (See Fix, Thomas and A. S.)						
Fix, Thomas and A. S., Reading, Pa. Newspaper-clip	346,004	Aug. 10	586	136	36	581
Fixary, Edouard, Paris, France. Packing piston-rods of refrigerating-machines	345,041	July 6	345	87	36	63
Flagg, George H. P., trustee. (See Helms, Charles H., assignor.)						
Flagg, J. Walter, Worcester, Mass. Automatic cash-carrier	348,957	Sept. 14	572	132	36	1158
Flanders, Brown S., Boston, Mass., assignor to Tooker Fire Alarm Improvement Company, Chicago, Ill. Door for signal-boxes and similar apparatus	346,847	Aug. 3	490	135 136	36	556
Flanigan, John R., and W. E. Harrison, assignors to Fort Madison Chair Company and said John R. Flanigan, Fort Madison, Iowa. Knockdown chair	347,339	Aug. 17	1206	302	36	704
Flegle, Martin, Minneapolis, Minn. Covering for steam-pipes	348,958	Sept. 14	574	.....	36	1158
Flegle, Martin, Minneapolis, Minn. Covering for steam-pipes, boilers, &c.	348,959	Sept. 14	574	132	36	1158
Flaherty, George A., assignor to J. Fensler, Cleveland, F. K. Hurxthal, Canton, Ohio, and S. L. Boggs, Pittsburg, Pa. Intermittingly-acting tension	345,581	July 13	1119	286	36	207
Fleisher, B. W., *et al.* (See Alexander, Charles F., assignor.)						
Fleisher, M., *et al.* (See Alexander, Charles F., assignor.)						
Fleisher, S. B., *et al.* (See Alexander, Charles F., assignor.)						
Fleming, James A. (See Young, Robert W., assignor.)						
Fleming, Silas W., Steubenville, Ohio. Medical compound	347,759	Aug. 17	1811	.....	36	815
Fleming, Thomas G., Hanover, Ohio. Stanchion	349,578	Sept. 21	1497	369	36	1398
Fleshlem, Joseph, *et al.* (See Johnston, William, assignor.)						
Fletcher, Charles A. (See Ball and Fletcher.)						
Fletcher, Frank A. (See Just, Fletcher, and Gibbs.)						
Fletcher, John M., Concord, N. H. Adjustable fountain-spittoon	349,704	Sept. 28	1591	411	36	1368
Flinn, John, Cleveland, Ohio. Base-rocking chair	345,678	July 20	1670	389	36	241
Flinn, Thomas F., Brooklyn, N. Y. Differential hoisting-machine	346,290	Aug. 31	2463	662	36	950
Flint, Eber C., Saginaw, Mich. Gate-hinge	345,294	July 13	692	174	36	130
Flodqvist, Carl W., Gothenburg, Sweden. Boiler or vessel lined with lead for use in treatment of fibrous substances	348,457	Aug. 31	2419	737	36	1019
Flomerfelt, Jacob, Peapack, N. J. Marking and furrowing machine	345,042	July 6	346	87	36	63
Florence Machine Company. (See Goodell, Dexter W., assignor.)						
Florence Manufacturing Company. (See Estabrook, Alanson C, assignor.)						
Florsheim, Elizabeth, *et al.* (See Stone, James, assignor.)						
Florsheim, Simon, Chicago, Ill. Lacing-stud	345,494	July 13	969	245	36	180
Flowers, Andrew J. and M. I., Springfield, Mo. Motor	349,638	Sept. 21	1499	382	36	1343
Flowers, Malon I. (See Flowers, Andrew J. and M. I.)						
Floyd, Alexander P. (See Brandes, Henry H., assignor.)						
Floyd, James R. (See Nock, George W., assignor.)						
Flynn, John F., Bordentown, N. J. Cross-tie	345,837	July 20	1495	387	36	280
Flynn, William S. (See Clarke and Flynn.)						
Fogleson, Schiller, and J. B. Mouser, Marion, Ohio. Twine-cutter	347,234	Aug. 10	1045	279	36	665
Foglesong, Washington, Dayton, Ohio. Collar-stuffing machine	349,034	Sept. 14	683	176	36	1176
Foglesong, Washington, Dayton, Ohio. Horse-collar-stuffing machine	349,035	Sept. 14	684	176	36	1176
Foley, James S., Chicago, Ill. Pedal-cover for organs	345,129	July 6	454	118	36	83
Folliott, Elmer. (See Burnett and Folliott.)						
Folsom, Alfred I. (See Garrett, Jackson B., assignor.)						
Foote, Charles B., *et al.* (See Rew, Richard A., assignor.)						
Foote, E. Brainerd, *et al.* (See Eddington, Frank G., assignor.)						
Foote, Frank M., Ceresco, Mich. Car-coupling	346,034	July 20	1771	458	36	329
Forbes, George. (See Timmis and Forbes.)						
Forbes, Jesse P., Coshocton, Ohio. Steam-generator	345,375	July 13	798	201	36	149
Forbes, John S., Philadelphia, Pa. Cable-grip	345,495	July 13	971	246	36	180
Force, James B., Portville, N. Y. Car-coupling	349,153	Sept. 14	846	215	36	1206
Forchheimer, Paul, New York, N. Y. Shaving-cup	345,295	July 13	693	176	36	130

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Ford, Archibald, San Francisco, California. Gas-regulator	348,389	Aug. 31	2720	731	36	1000
Ford, James H. (See Gray, Robert D., assignor.)						
Foreman, George V. (See Card, William J., assignor.)						
Foreman, Samuel E., and F. T. Walls, Randolph, Kans. Churn	348,002	Aug. 24	2171	577	36	869
Forest City Carbon Manufacturing Company. (See Pfannkuche, Alfred, assignor.)						
Forrest, John. (See McCaffrey, James, assignor.)						
Forrest, William E. (See Dowd, Daniel L., assignor.)						
Forrest, William W., assignor of one-half to G. S. Hensel and S. B. Colladay, Philadelphia, Pa. Grate-bar	349,639	Sept. 21	1500	389	36	1343
Forster, Albert G. (See Forster, Ferdinand E., assignor.)						
Forster, Ferdinand E., assignor to himself and A. G. Forster, New York, N. Y. Apparatus for laying anells	345,496	July 13	972	246	36	181
Fort Madison Chair Company. (See Flanigan and Harrison, assignors.)						
Forth, John F., Nottingham, England. Tobacco-pipe cleaner	347,169	Aug. 10	962	257	36	650
Foster, Caleb R. (See Walk and Foster.)						
Foster, Charles H., Omaha, Nebr. Well-bucket bottom	348,960	Sept. 14	575	133	36	1159
Foster, Frederick, Elizabeth, N. J. Safe-deposit vault	347,267	Aug. 10	1090	291	36	673
Foster, Gilbert S., Concord, N. H. Barrel-hoop machine	346,035	July 20	1772	456	36	329
Foster, William B., Derby, Kans. Car-coupling	345,582	July 13	1120	286	36	207
Fottrell, John, Philadelphia, Pa. Composition of matter for the electrical insulation of wires covered with cotton, silk, or worsted braid or tape	344,823	July 6	26	.....	36	7
Foulon, Peter J., New York, N. Y. Self-lubricating hub	348,961	Sept. 14	576	133	36	1159
Fourcault, Emile, and E. Jacques, Dampremy, Belgium. Regenerative gas-furnace	347,703	Aug. 17	1738	463 464	36	892
Fowler, Charles W., and E. H. Shelman, Brandenburg, Ky. Hand-grenade	347,587	Aug. 17	1555	413	36	768
Fowler, Frank G., Bridgeport, Conn. Preparing feed-water for steam-boilers	346,198	July 27	1989	513	36	382
Fowler, Frederick A., New Haven, Conn. Cutting flexible material into pieces having beveled edges	349,388	Sept. 21	1171	303	36	1278
Fowler, Hervey W., Chicago, Ill. Railway-spike	345,628	July 13	1186	304	36	219
Fowler, James L., *et al.* (See Littlefield, Charles W., assignor.)						
Fowler, Joseph, *et al.* (See McMillan, John L., assignor.)						
Fowler, Thaddeus, Shelton, assignor of one-half to T. B. De Forest, Birmingham, Conn. Nail-driving machine	345,679	July 20	1270	329	36	241
Fowler, Thaddeus, Shelton, assignor of one-half to T. B. De Forest, Birmingham, Conn. Nail-driving apparatus	345,680	July 20	1272	329	36	241
Fowler, William, Philadelphia, Pa., assignor to Keystone Watch Case Company. Watch-case spring	345,226	July 6	585	149	36	106
Fowler, William R., Lafayette, Ind. Milk-cooler	345,776	July 20	1411	366	36	267
Fox, Frank A., assignor of one-fourth to H. R. Smith, New York, N. Y. Button	346,649	Aug. 3	254	69	36	510
Fox, Joseph, West Middleburg, Ohio. Lifting-valve for tubular wells	348,491	Aug. 31	2866	771	36	1027
Fox, Samson, Harrogate, county of York, England. Apparatus for the manufacture of horn plates	346,539	Aug. 3	114	30	36	482
Fox, William R. (See Berkey and Fox.)						
Foy, Edward A., assignor to W. F. Foy, Cincinnati, Ohio. Ornament for curtain-poles	349,640	Sept. 21	1501	389	36	1344
Foy, William F. (See Foy, Edward A., assignor.)						
Frackelton, Susan S., Milwaukee, Wis. China-firing apparatus	349,935	Sept. 28	1918	497	36	1429
Frambach, Henry A., and R. P. Dart, Kauksuna, and A. J. Vollrath, Sheboygan, Wis. Boiler or digester for reducing wood and other paper-stock	348,159	Aug. 24	2391	642	36	931
Francis, Allan E., Cleveland, Ohio. Shell for axle-bearings	347,931	Aug. 24	2069	549	36	871
Frank, Alonzo W., Bolivar, N. Y., assignor to H. L. McMullin, Bradford, Pa. Kettle-cover	346,405	July 27	2284	586	36	437
Frank, Francis A., New York, N. Y. Churn	345,376	July 13	799	201	36	149
Frank, Henry C., New York, N. Y. Armpit-shield	348,390	Aug. 31	2721	731	36	1001
Frankenthal, Ettie J. (See Reeves, Charles W., assignor.)						
Franklin, Edward A., Brenham, Tex., assignor to Bailey, Farrell & Co., Pittsburg, Pa. Machine for loading cartridges	347,030	Aug. 10	756	201 202	36	612
Franklin, Edward A., Brenham, Tex., assignor to Bailey, Farrell & Co., Pittsburg, Pa. Machine for loading cartridges	347,268	Aug. 10	1091	292	36	674
Franklin, George E., Natick, Mass. Pipe-wrench	345,777	July 20	1412	366	36	267
Franks, Orrin G., Oneida, N. Y. Saw-setting device	349,969	Sept. 28	1996	515 516	36	1444
Fraser, Simon J., Lowell, Mass. Drawer check and support	345,227	July 6	586	149	36	106
Freasier, Joseph L., St. Louis, Mo. Vehicle-brake	350,050	Sept. 28	2069	535	36	1458
Fréchette, Isaïe, St. Hyacinthe, Quebec, Canada, assignor to National Automatic Lubricator Company, Portland, Me. Car-axle lubricator	345,228	July 6	587	149 150	36	106
Fréchette, Isaïe, and C. L. Girard, St. Hyacinthe, Quebec, Canada, assignors, by mesne assignments, to National Automatic Lubricator Company, Portland, Me. Car-axle lubricator. (Reissue)	10,767	Sept. 28	2140	554	36	1471
Frechette, Louis. (See Moses and Frechette.)						
Frederick, Christian, and C. N. Trump, Wilmington, Del. Pneumatic hammer	348,837	Sept. 7	397	107	36	1121
Fredericks, Herman, Jersey City, N. J. Vial and sample case	346,276	July 27	2101	541	36	403
Freeland, Francis T., Leadville, Colo. Jig-box for separating ores	348,517	Aug. 31	2906	782	36	1035
Freeland, William H., Edwardsport, Ind. Device for handling wagon-bodies	348,274	Aug. 31	2565	689	36	989
Freeman, Edward F., assignor of one-half to F. Yunck, Bryan, Ohio. Sand-blower	346,650	Aug. 3	253	70	36	510
Freeman, George B., Middleville, Mich. Draft-equalizing harness	347,290	Aug. 10	1126	302	36	680
Freeman, Leander W., Liberty, Ind. Horse hay-rake	348,898	Sept. 7	490	130	36	1137
Freer, Charles O., North Walton, N. Y. Device for supporting and protecting sap-pails	349,789	Sept. 28	1729	446	36	1391
Frega, Giuseppe, Philadelphia, Pa. Curve-scriber for tailors' use	347,760	Aug. 17	1812	482	36	815
French, Julia B., Boston, Mass. Tub or tank for toilet, laundry, and refrigerating purposes	348,321	Aug. 31	2627	709	36	962
French, Philo N., Pittsburg, Pa. Mandrel for springs	349,427	Sept. 21	1221	317	36	1287
French, Philo N., assignor to A. French Spring Company, (limited,) Pittsburg, Pa. Machine for straightening and nibbing spring-leaves	345,089	July 13	1187	304 305	36	220
French Spring Company, A. (See French, Philo N., assignor.)						
Friborg, John, London, England. Fire-escape	346,540	Aug. 3	115	31	36	482
Friebertshauser, August, Sandusky, Ohio. Pocket-knife	345,296	July 13	694	175	36	131
Friedenwald, Benjamin R., *et al.* (See White, Charles, assignor.)						
Friend, Samuel, Decatur, Ill. Sand and gravel separator	348,666	Sept. 7	184	49	36	1080
Frisbie, Dennis, and E. M. Lockwood, Philadelphia, Pa., assignors to said Frisbie. Steam and gas engine	349,705	Sept. 28	1593	412	36	1368
Frisbie, Dennis, and E. M. Lockwood, Philadelphia, Pa., assignors to said Frisbie. Elevator	349,706	Sept. 28	1596	412	36	1368
Frits, Philip, Grand Rapids, Mich. Sleigh	347,787	Aug. 24	1855	494	36	832
Frost, Abel H., *et al.* (See Briggs, Orlando P., assignor.)						
Frost, Charles H. (See Grigg, Thomas H., assignor.)						
Frost, Oscar F., Monmouth, Me. Alarm for poison-receptacles	349,641	Sept. 21	1501	389	36	1344

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Fruen, William H., Minneapolis, Minn. Mechanism for changing coin	344,824	July 6	26	7	36	7
Fry, George W., Uxbridge, Mass. Interfering-pad	348,003	Aug. 24	2171	578	36	869
Fryberger, Anthony Z., assignor of one-half to W. V. Snyder, New Baltimore, Ohio. Thill-coupling	347,291	Aug. 10	1128	302	36	680
Fulford, Bertram, assignor to himself and O. Hand, Shelbyville, Ind. Wire-twisting machine	349,251	Sept. 14	981	230	36	1232
Fuller Manufacturing Company. (See Bullard, William P., assignor.)						
Fulton, Alexander, Philadelphia, Pa. Vaporizer	349,273	Sept. 14	1005	236	36	1277
Fulzenger, William A. (See Custard, Joseph F., assignor.)						
Funk, Daniel D., Greenville, assignor of one-half to J. W. and N. P. Lehr, Fremont, Ohio. Cultivator	348,518	Aug. 31	2909	782 / 783	36	1035
Funk, John W., Heyworth, Ill. Harness-buckle	346,036	July 20	1774	426	36	330
Furbish, Zachary T., Augusta, assignor to W. H. Stevens, Portland, Me. Rosette-lock	348,899	Sept. 7	491	130	36	1138
Furnall, David. (See Dana and Furnall.)						
Fyler, Silas B., East Syracuse, N. Y. Railway-signal	348,322	Aug. 31	2628	708	36	982
Fyrberg, Andrew. (See Johnson, Torkelson, and Fyrberg.)						
Gabet, Joseph, and G. Koehlinger, New Haven, Ind. Combined door check and buffer	348,275	Aug. 31	2566	680	36	969
Gable, John E., and F. M. Williams, Grand Rapids, Mich. Buckle	347,340	Aug. 17	1207	332	36	704
Gabriel, Ernesti, Elmwood, Ill. Label-cabinet	349,790	Sept. 28	1730	446	36	1392
Gaddis, Benjamin W., Kingston, Kans. Respirator	347,788	Aug. 24	1956	495	36	832
Gadney, John H., Worcester, Mass. Parlor game of base-ball	347,704	Aug. 17	1740	464	36	802
Gagne, Fabina P. (See McCarty and Gagne.)						
Gaillard, Ella N., New York, N. Y. Musical watch	346,812	Aug. 3	439	120	36	545
Gaillet, Paul H. A., and L. H. S. H. Huet, Lille, France. Apparatus for separating liquids from solids	349,990	Sept. 28	1997	515	36	1444
Gaines, Marshall N., Dunedin, Fla. Fruit-conveyer	345,891	July 20	1571	405	36	294
Gaitley, John E., *et al.* (See Hildreth, George, assignor.)						
Gale, Augustus J., Albion, Mich. Plow	347,102	Aug. 10	869	230	36	632
Gale, Frank A., Lowell, Mass. Speed-governor	346,472	Aug. 3	31	8	36	466
Gallagher, John T., assignor of one-half to D. J. Kennedy, Chicago, Ill. Combined rasp and file	349,490	Sept. 21	1309	341	36	1305
Galland, George, and E. Groux, Wilkes-Barré, Pa. Gas-burner	344,900	July 6	148	38	36	27
Galligan, Michael J., Cedar Rapids, Iowa. Feed-water heater	345,778	July 20	1414	366	36	267
Galloway, James B., Chicago, Ill. Hinge	347,341	Aug. 17	1208	328	36	704
Gallup, Silas N., assignor to L. Bickford, and H. M. Kirkpatrick, Macedon, N. Y. Gearing for changing speed	345,377	July 13	800	209	36	150
Gally, Merritt, New York, N. Y. Mechanical musical instrument	346,159	July 27	1927	497 / 498	36	369
Gamble, William. (See Hoover and Brown, assignors.)						
Gannon, Patrick, 107 St. George's Road, county of Surrey, England. Telephonic apparatus	349,839	Sept. 28	1799	465	36	1406
Gantt, James T., Macon, Ga. Seed-planter	345,426	July 13	878	219	36	163
Garcelon, Charles C. (See Woods and Garcelon.)						
Garcia, Domingo T., Guadalajara, Mexico. Clock	349,878	Sept. 28	1846	477	36	1416
Garcia, Domingo T., Guadalajara, Mexico. Electric clock	349,879	Sept. 28	1848	477	36	1416
Garcia, Domingo T., Guadalajara, Mexico. Watch	349,880	Sept. 28	1850	478	36	1416
Gardiner, Nathan A., Virgil, N. Y. Loop-bar for harness	349,707	Sept. 28	1599	413	36	1368
Gardner, Frederick N., assignor, by mesne assignments, to Pratt & Whitney Company, Hartford, Conn. Drafting-compasses	349,840	Sept. 28	1801	465	36	1406
Gardner, George B., Lynn, Mass. Bench-stop	349,881	Sept. 28	1851	478	36	1417
Gardner, Hubert. (See Corson, William P., assignor.)						
Gardner, Jefferson M., assignor of two-thirds to Stewart & Bruckner, Nashville, Tenn. Cotton-gin	348,900	Sept. 7	492	130 / 131	36	1138
Gardner, John J., Sanlte Sainte Marie, Mich. Hinged sleigh-knee	347,103	Aug. 10	870	230	36	632
Gardner, John T. (See Zöller and Gardner.)						
Garfield, John M., Galveston, Tex. Ventilating apparatus	349,491	Sept. 21	1311	341	36	1305
Gargrave, Amos, Yorkville, Ill. Bar-cutter	348,731	Sept. 7	968	72	36	1097
Garinger, Daniel W., Cleveland, Ohio. Opera-chair	348,532	Sept. 7	14	4	36	1051
Garland, Michael, Bay City, Mich. Chain-conveyer	345,497	July 13	974	247	36	181
Garland, Thomas H., Chicago, Ill. Music-leaf turner	348,323	Aug. 31	2629	709	36	982
Garland, William H., and H. Schulze-Berge, Rochester, Pa.; said Garland assignor to said Schulze-Berge. Sewing-machine	344,925	July 6	29	9	36	7
Gariock, William H., Cleveland, Ohio. Starching-machine	345,043	July 6	347	88	36	63
Garrett, Jackson B., assignor of one-half to A. I. Folsom, McGregor, Tex. Car-coupling	345,498	July 13	976	247	36	181
Garrood, John C. Boston, Mass. Velocipede	348,276	Aug. 31	2567	690	36	969
Gartzke, Gustav A., Milwaukee, Wis. Oil-can	347,789	Aug. 24	1858	493	36	832
Garvin & Co., E. E. (See Elmer, Albert E., assignor.)						
Garvin, Matthew, and W. J. Clokey, Toronto, Ontario, Canada, assignors to W. N. Whiteley, Springfield, Ohio. Mowing-machine	346,277	July 27	2103	541	36	403
Gas-Motoren-Fabrik-Deutz. (See Otto, Nicolaus A., assignor.)						
Gash, Edgar, Macomb, Ill. Carpet stretcher	345,681	July 20	1273	330	36	242
Gaskins, George H., Pantego, N. C. Mechanical detector	348,120	Aug. 24	2333	626	36	920
Gates, Edwin L., assignor to Worcester Wire Company, Worcester, Mass. Wire-coating compound	348,391	Aug. 31	2722	.....	36	1001
Gates, Henry L., *et al.* (See Gowans, James A., assignor.)						
Gathright, Josiah B., Louisville, Ky. Automatic car-brake. (Reissue)	10,744	July 6	653	166	36	118
Gaunt, Thomas T., and C. S. Allen, New York, N. Y. Package-holder	347,235	Aug. 10	1046	280	36	665
Gaylord, Elam H. (See Jenkins and Gaylord.)						
Gaylord, Frank D. (See Hopkins, William H., assignor.)						
Gaylord, George C. (See Shattuck and Thorn, assignors.)						
Gazaille, Henry, and H. F. Low, Manchester, N. H.; said Low assignor to said Gazaille. Air-pump	349,428	Sept. 21	1222	317	36	1287
Gazaille, Henry, and H. F. Low, Manchester, N. H.; said Low assignor to said Gazaille. Pneumatic cash system	349,708	Sept. 28	1600	413	36	1369
Gearhard, Jacob, New Salem, Ind. Tile-kiln	345,964	July 20	1666	431	36	312
Geary, John, Philadelphia, Pa. Electric annunciator	349,580	Sept. 21	1430	369	36	1328
Geary, John, assignor of one-half to J. E. Shaw, Philadelphia, Pa. Electric annunciator	349,579	Sept. 21	1428	369	36	1328
Geary, Michael, Oil City, Pa. Reciprocating steam-engine	347,104	Aug. 10	871	230 / 231	36	633
Gebhard, Annie L. (See Durell and Gebhard.)						
Gehrich, Hermann, New York, N. Y. Candle-holder for Christmas-trees	347,873	Aug. 24	1985	520	36	855
Geiger, J. J. (See Wood, Irving T., assignor.)						
Geisert, William, New York, N. Y. Beer-vent	345,563	July 13	1122	287	36	207
Geismar, Leo. (See Muser, Adolph, assignor.)						
Geisinger, Annie E., assignor of one-half to G. B. Geisinger, Allegheny, Pa. Step-ladder	346,437	July 27	2332	600	36	445

Alphabetical list of patentees, July to September, inclusive—Continued.

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Geisinger, George B. (See Geisinger, Annie E., assignor.)						
Gellman, Charles. (See Shenfield and Gellman.)						
Genese, David, Baltimore, Md. Respirator	346,367	July 27	2225	571	36	426
Geneux, Emile C., Jeanerette, La. Lantern-holder for vehicles	349,307	Sept. 21	1042	266	36	1253
Geneva Optical Company. (See Culbertson, Howard, assignor.)						
Gennet, Paul, and J. Wyman, Jr., Coolranton, Pa. Automatic safety-valve	349,389	Sept. 21	1172	303	36	1278
Gent, Joseph F., Columbus, Ind. Machine for making sheets of ground cereals	347,790	Aug. 24	1859	495	36	833
Gentesse, Camille, Montreal, Quebec, Canada. Toboggan	348,962	Sept. 14	577	153	36	1159
Genung, William H., Madison, Ohio. Revolving show-frame	349,883	Sept. 28	1855	479	36	1417
George, David J., Minneapolis, Minn. Wash-board	346,991	Aug. 10	695	184	36	602
George, James A., Southbridge, Mass. Device for straightening carriage-axles	347,588	Aug. 17	1556	414	36	769
Gérard, John, and C. F. Smith, assignors to Landers, Frary & Clark, New Britain, Conn. Carving-fork	345,044	July 6	348	88	36	63
Gercke, Rudolf O., Augusta, Ga. Car-starter	348,732	Sept. 7	969	72	36	1097
Gere, William C., Syracuse, N. Y. Key-fastener	347,170	Aug. 10	961	257	36	650
Gerhardt, John, Montreal, Quebec, Canada. Steam-governor	349,492	Sept. 21	1312	341	36	1305
Gerlach, Henry. (See Adams, Paul H., assignor.)						
Gerow, Daniel T., *et al.* (See Gilman, Everett P., assignor.)						
Gerrish, J. J. (See Lidback, John A., assignor.)						
Gerry, James H. (See Hunter and Gerry.)						
Gerry, James H., Brooklyn, N. Y., assignor to M. E. Hunter, Oakland, Cal. Electro-mechanical synchronizer for clocks	349,493	Sept. 21	1314	342	36	1306
Gerry, James H., Brooklyn, N. Y., and M. E. Hunter, Oakland, Cal.; said Gerry assignor to said Hunter. Pneumatic mechanical synchronizer for clocks	349,494	Sept. 21	1316	342	36	1306
Geseen, Alfred, and J. Tyler, South Chicago, Ill. Folding table	348,733	Sept. 7	970	73	36	1097
Gessner, Gustavus A., Fremont, Ohio. Bottle-stopping mechanism	347,031	Aug. 10	759	202	36	613
Getchell, Augustus W., Cleveland, Ohio. Tumbling-barrel	349,936	Sept. 28	1920	497	36	1430
Getman, Henry W., Ilion, N. Y. Wrench	349,581	Sept. 21	1431	349	36	1329
Getty, William B., Hicksville, Ohio. Road-cart	349,892	Sept. 28	1853	478	36	1417
Geyer, John W., West Milligrove, Ohio. Rocking toothed harrow and leveler	347,791	Aug. 24	1861	495	36	833
Ghegan, John J., Newark, N. J. Automatic electric liquid-level indicator and controller	347,589	Aug. 17	1558	414	36	769
Gibbon, Thomas H., assignor to Metallic Steel Railway Supply Company, Albany, N. Y. Construction of railway-tracks	347,236	Aug. 10	1047	280	36	665
Gibboney, William, Jr., Wytheville, Va. Suture-instrument	349,791	Sept. 28	1731	447	36	1392
Gibbons, Michael, St. Louis, Mo. Automatic derrick and crane platform	349,582	Sept. 21	1431	370	36	1329
Gibbs, Callie F. (See Just, Fletcher, and Gibbs.)						
Gibson, John W., and C. C. Harris, Denver, Colo. Saw-filing machine	346,541	Aug. 3	116	31	36	483
Gibson, Selden F., and F. M. Lawrence; said Lawrence assignor to W. H. Stevens, Portland, Me. Stove-door knob	349,642	Sept. 21	1502	389	36	1344
Giesler, Arthur, Dayton, Ohio. Anti-friction shaft-bearing	348,392	Aug. 31	2723	731	36	1001
Gifford, Clarence T., administrator. (See Knowles, Lewis G.)						
Gilbert, Charles M. (See Macy and Gilbert.)						
Gilbert, Franklin T., Walla Walla, Wash. Ter. Rotary water-meter	348,277	Aug. 31	2568	690	36	969
Gilbert, George A., Lincoln, Ill. Magnetic separator	348,121	Aug. 24	2334	626	36	920
Gilbert, George A., and R. Wilcox, Milwaukee, Wis. Conveyer for grain, &c	349,390	Sept. 21	1173	304	36	1278
Gilbert, George D., Corry, assignor to R. S. Battles, Girard, Pa. Steam-engine	348,458	Aug. 31	2821	758	36	1019
Gilbert, Henry J., Dayton, Ohio. Roller-mill	348,554	Sept. 7	16	5	36	1051
Gilbert, Henry J., assignor to Stout, Mills & Temple, Dayton, Ohio. Roller-mill	348,553	Sept. 7	15	4	36	1051
Gilbert, James T., Amherst Court-House, Va. Invalid-lounge	349,089	Sept. 14	760	194	36	1189
Gilbert, Orvellas H., Newark, N. J. Latch-operating device	345,297	July 13	694	175	36	131
Gilchrest, James, Chicago, Ill. Mowing-machine	347,481	Aug. 17	1411	375 / 376	36	741
Giles, Charles K. (See Fenner, Richard E., assignor.)						
Giles, Charles K., and R. E. Fenner, Chicago, Ill.; said Fenner assignor to said Giles. Apparatus for demagnetising watches	345,838	July 20	1496	388	36	281
Gill, George M., Mexico, Mo. Metallic panel for doors and other uses	349,583	Sept. 21	1433	370	36	1329
Gilleas, Hugh, Waterloo, Iowa. Safety guard-rail	348,734	Sept. 7	272	73	36	1098
Gillespie, James E., assignor to Warwick Machine Company, Warwick, N. Y. Folding extension-ladder and truck therefor	345,427	July 13	879	219	36	163
Gillespie, James E., assignor to Warwick Machine Company, Warwick, N. Y. Device for converting motion	349,429	Sept. 21	1224	317	36	1288
Gillet, Joseph, assignor to Société Gillet et Fils, Lyons, France. Dyeing apparatus	345,892	July 20	1572	405 / 406	36	294
Gillette, Mott G., New York, N. Y., and L. King, Newark, N. J., assignors to Eureka Tap Valve Company, New York, N. Y. Tap-valve and tap-valve faucet	346,438	July 27	2333	600 / 601	36	445
Gillham, Robert, Kansas City, Mo. Cable railway	345,378	July 13	801	202	36	150
Gillham, Robert J., Orlando, Fla. Guard for railway-cars	345,045	July 6	349	88	36	63
Gillingham, Henry R. (See Andrews and Gillingham.)						
Gilman, Charles C., Eldora, Iowa. Construction of tunnels	345,046	July 6	350	88	36	64
Gilman, Charles C., Eldora, Iowa. Porous earthenware gravel for bedding ties in bridge-work, &c	345,047	July 6	351	.....	36	64
Gilman, Charles C., Eldora, Iowa. Fire-proof floor-arch	345,379	July 13	803	202	36	150
Gilman, Charles C., Eldora, Iowa. Mansard roof	349,584	Sept. 21	1434	370	36	1329
Gilman, Charles C., Eldora, Iowa. Porous earthenware product with strengthening-cores	349,585	Sept. 21	1435	370	36	1330
Gilman, Everett P., assignor of three-fourths to E. D. Rockwell and D. T. Gerow, Jacksonville, Fla. Sash lock and holder	345,779	July 20	1415	366	36	267
Gilmore, Isaac C. H. (See Hostetter and Gilmore.)						
Gilmour, James C. (See Copland and Gilmour.)						
Giralt, Alberto, Cardenas, Cuba. Truss	347,171	Aug. 10	964	257	36	651
Girard, Alfred W. (See Girard, Joseph N., assignor.)						
Girard, Joseph N., assignor, by mesne assignments, to said J. N. and A. W. Girard, Ipswich, Mass. Combined tool	345,630	July 13	1188	305	36	220
Girard, Louis. (See Fréchette and Girard.) (Reissue.)						
Given, John S., Jr., and F. F. Martinez, Jr., New York, N. Y. Urinal	345,564	July 13	1123	287	36	207
Glace, Adam D., Rocklin, Cal. Check-valve	349,586	Sept. 21	1436	371	36	1330
Gladding, George S. (See Perry and Gladding.)						
Glanville, William L., Auburn, N. Y. Electric alarm	346,587	Aug. 3	171	46	36	493
Glazier, George W., Salem, Mass. Gluing-machine	346,992	Aug. 10	696	185	36	602
Gleason, Benjamin F., Brockport, N. Y. Corpse-supporting table	348,626	Sept. 7	130	37	36	1071
Gleason, John W., Ballston, N. Y. Mop-wringer	347,590	Aug. 17	1559	414	36	770
Glennon, Joseph, Chicago, Ill. Hammock-supporter	349,210	Sept. 14	928	238	36	1222
Glidden, Charles W., Lynn, assignor to J. W. Brooks, trustee, Cambridge, Mass. Heel-nailing machine	347,482	Aug. 17	1414	376	36	741

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Glidden, Charles W., Lynn, assignor to J. W. Brooks, trustee, Cambridge, Mass. Heel-making machine	350,051	Sept. 28	2070	535, 536, 537	36	1458
Globe Drug and Capsule Company. (See Krehbiel, John, assignor.)						
Globe Seat Company. (See Davidson, John M., assignor.)						
Globe Sewing Machine Company. (See Harlow and Angell, assignors.)						
Glover, Nathaniel B. (See Clarke, Joseph W., assignor.)						
Gobeillé, Joseph L., and W. Wicke, Cleveland, Ohio, assignors to Terstegge, Gohmann & Co., Albany, Ind. Balance-blower for stoves and grates	349,217	Sept. 14	929	238	36	1222
Goddard, Calvin. (See Rankin, Abram G. W., assignor.)						
Goddu Improvement Company of Maine. (See Goddu, Louis, assignor.)						
Goddu, Louis, Winchester, Mass., assignor to Goddu Improvement Company of Maine. Safety device for cable roads	349,344	Sept. 21	1066	279	36	1292
Godfrey, Edward C., Pittsburg, Pa. Device for crimping paper sacks	349,391	Sept. 21	1174	304	36	1279
Godley, George F., Philadelphia, Pa. Heater	348,555	Sept. 7	17	5, 6	36	1051
Godman, Solomon H., Indianapolis, Ind. Bridge	349,345	Sept. 21	1088	279	36	1292
Godshalk, Edward H., Philadelphia, Pa. Take-up for knitting-machines	345,130	July 6	456	118	36	83
Goebel, John C., Chicago, Ill. Hat or cap	345,965	July 20	1068	431	36	312
Goercke, Bernhard, *et al.* (See Rocker, Christopher, assignor.)						
Goettel, John, Boston, Mass. Car-truck	348,459	Aug. 31	2821	758	36	1019
Goez, Herman, *et al.* (See Rocker, Christopher, assignor.)						
Goff, Francis C., Englewood, Ill. Coffin	348,963	Sept. 14	577	153	36	1159
Gold, Edward E., New York, N. Y. Hose-coupling	349,991	Sept. 28	1998	516	36	1444
Gold, Joseph S., assignor to Economy Manufacturing Company, Columbus, Ohio. Spinning-top	346,037	July 20	1774	456	36	330
Gold, Joseph S., assignor to O. D. Jackson, Columbus, Ohio. Spinning-top	347,032	Aug. 10	761	202	36	613
Golding, William H., Chelsea, Mass. Composing-stick	347,591	Aug. 17	1560	414	36	770
Goldman, Isaac S., Pasadena, Cal. Motor	347,705	Aug. 17	1741	464	36	802
Goldner, William C., Boston, Mass., assignor to Chemical Electric Light and Power Company, Portland, Me. Galvanic battery	348,901	Sept. 7	494	131	36	1138
Goldschmid, Theodore J., Philadelphia, Pa. Trap for ammonia refrigerating apparatus	346,039	July 20	1775	457	36	330
Goldsmith, Gustavus A. (See Merrill, Alfred K., assignor.)						
Goldsmith, John S., New York, N. Y. Life-preserver for vehicles	347,269	Aug. 10	1093	292, 293	36	674
Goldsmith, John S., New York, N. Y. Shaving-cup	348,160	Aug. 24	2393	642	36	931
Goldstein, Abraham. (See Bernstein and Goldstein.)						
Gomez, Robert. (See Potter and Gomez.)						
Gooch, Harold, assignor of one-half to A. B. Scarborough and M. A. Bridges, Bonham, Tex. Rein-holder	349,154	Sept. 14	848	216	36	1207
Gooch, Wheatley G., and J. Olsen, Bellingham, Wash. Ter. Washing-machine	346,473	Aug. 3	33	6	36	467
Good, Francis H., Philadelphia, Pa. Carpet-cleaner	348,460	Aug. 31	2824	759	36	1020
Good, Israel F., Allentown, Pa. Combined railway tie and chair	344,926	July 6	34	9	36	8
Good, John, Brooklyn, N. Y. Spindle and flier	349,709	Sept. 28	1602	413, 414	36	1369
Goodall, John N. (See Seavey and Goodall.)						
Goodbody, William, New York, N. Y. Folding box	345,298	July 13	697	175	36	131
Goodell, Abner C., *et al.* (See Rogers, Columbus K., assignor.)						
Goodell Company. (See Oaks, William A. C., assignor.)						
Goodell, Dexter W., assignor to Florence Machine Company, Florence, Mass. Sewing-machine stand	348,004	Aug. 24	2173	578	36	889
Goodell, Zina, *et al.* (See Rogers, Columbus K., assignor.)						
Goodman, Frederick A. (See Goodman, Joseph, Sr., F. A., and J. F.)						
Goodman, John P. and J., Plymouth, Pa. Stop-block	348,735	Sept. 7	273	73	36	1098
Goodman, Joseph. (See Goodman, John P. and J.)						
Goodman, Joseph, Sr., F. A., and J. F., Detroit, Mich. Truck for moving houses	348,005	Aug. 24	2174	578	36	890
Goodman, Julina F. (See Goodman, Joseph, Sr., F. A., and J. F.)						
Goodnow, Daniel W. (See Goodnow, Leslie H. and D. W.)						
Goodnow, Leslie H. and D. W., East Sullivan, N. H. Folding table	348,201	Aug. 31	2466	662	36	950
Goodrich, Loren S., Warner, Tenn. Manufacturing charcoal	345,131	July 6	457	.....	36	84
Goodrich, Loren S., Warner, Tenn. Apparatus for purifying gases	345,132	July 6	459	118	36	84
Goodson, John W., Morrisburg, Ontario, Canada. Remedy for piles	348,278	Aug. 31	2470	.....	36	969
Goodwin, Adolphus D., assignor to D. G. Bowyer, Lexington, Va. Door-checker	346,742	Aug. 3	364	98	36	532
Goodwin, Caleb. (See Goodwin, Leonard R., assignor.)						
Goodwin, Hannibal, Newark, N. J. Bed for zincographic presses	348,736	Sept. 7	274	73, 74	36	1098
Goodwin, John E., Memphis, Tenn. Manufacturing from wood excelsior and material for wood pulp	349,992	Sept. 28	2000	516, 517	36	1444
Goodwin, Leonard R., assignor of one-half to C. Goodwin, Chicago, Ill. Necktie-holder	346,993	Aug. 10	697	185	36	602
Goodwin, Thomas A., assignor of one-half to E. Dismant, Camden, N. J. Stair-rod securer	347,792	Aug. 24	1862	496	36	933
Gordon, Alexander. (See Perry and Gordon.)						
Gordon, Edwin, Hyde Park, Mass. Railway-switch and switch-stand	348,006	Aug. 24	2175	579	36	890
Gordon, Fred. W., assignor to Gordon, Strobel & Lawrean, Philadelphia, Pa. Tuyere-pipe for blast-furnaces	349,841	Sept. 28	1802	466	36	1406
Gordon, James F., deceased, Rochester, N. Y., M. A. Gordon, executrix. Grain harvesting and binding machine	349,842	Sept. 28	1804	466	36	1407
Gordon, James T., and J. H. Hamilton, assignors of one-third to S. Barrett, Concord, N. H. Sliding-door latch	345,048	July 6	352	89	36	64
Gordon, Mary A., executrix. (See Gordon, James F.)						
Gordon, Selden S., Brooklyn, N. Y. Button	349,038	Sept. 14	687	177	36	1177
Gordon, Strobel & Lawrean. (See Gordon, Fred. W., assignor.)						
Gordon, Thomas, Philadelphia, Pa. Gas-burner	345,499	July 13	977	247	36	181
Gordon, Walter S., Atlanta, Ga. Coal-mining machine	345,500	July 13	979	248	36	181
Gormly, Robert W., Troy, N. Y. Landing and cast-off attachment for knitting-machines	346,743	Aug. 3	365	98	36	532
Gorny, Jacob, Houston, Tex. Car-coupling	346,639	July 20	1776	457	36	330
Goss Pump and Rubber Bucket Manufacturing Company. (See Goss, Sanford A., assignor.)						
Goss, Sanford A., assignor to Goss Pump and Rubber Bucket Manufacturing Company, Chicago, Ill. Expansion rubber bucket for chain-pumps	347,342	Aug. 17	1909	323	36	704
Gottschalk, Joseph, Baltimore, Md. Bill-file	349,792	Sept. 28	1734	447	36	1392
Gottstein, Peter R., and G. P. McFarlane, Houghton, Mich.; said McFarlane assignor of one-half to said Gottstein. Vehicle-brake	345,299	July 13	697	175, 176	36	131
Gould, Damon R., and P. Baldwin, Chestertown, N. Y. Coffin	347,172	Aug. 10	965	258	36	651
Gould, P. W. (See Wait, Oscar E., assignor.)						
Gould, Perley A., and F. A. Cook, assignors to said Gould and W. H. Whitcomb, Melrose, Mass. Folding bedstead	349,643	Sept. 21	1502	390	36	1344

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Goulding, Henry C., assignor to M. W. Hazelton, New York, N. Y. Steam-boiler	349,039	Sept. 14	688	177	36	1177
Gourand, Georges. (See Cuvier and Gourand.)						
Gousset, Cyprien, *et al.* (See Bentel, Jacob, assignor.)						
Gowans, James A., assignor of two-thirds to H. L. Gates, Stratford, Ontario, Canada, and J. M. Duncan, Boston, Mass. Screw-conveyer for grain	349,155	Sept. 14	848	217	36	1207
Goyne, Arthur H., *et al.* (See Goyne, Charles A., assignor.)						
Goyne, Charles A., assignor to himself, T. R., F. H., and A. H. Goyne, Ashland, Pa. Valve-operating device	347,173	Aug. 10	966	258	36	651
Goyne, Francis H., *et al.* (See Goyne, Charles A., assignor.)						
Goyne, Thomas R., *et al.* (See Goyne, Charles A., assignor.)						
Graf, Leopold, assignor to T. A. Graf, Newark, N. J. Bottle-stopper	348,461	Aug. 31	2825	759	36	1020
Graf, Theodor A. (See Graf, Leopold, assignor.)						
Graham, David. (See Kennedy, Rankin, assignor.)						
Graham, William S. A., Lancaster, Wis. Harrow	346,744	Aug. 3	366	98	36	532
Gramer, John T., Bowmansville, Pa. Scrubbing-brush holder	345,893	July 20	1574	406	36	295
Grandjean, Arthur, Cincinnati, Ohio. Watch-case	348,902	Aug. 31	2467	662, 663	36	951
Granger, Almon M., Medford, Mass. Automatic sprinkler for fire-extinguishers	347,033	Aug. 10	761	202, 203	36	613
Granite State Plating Company. (See Dow, George B. N., assignor.)						
Grant, Arthur W., assignor to Tricycle Manufacturing Company, Springfield, Ohio. Wheel-riveting machine	345,133	July 6	460	118, 119	36	84
Grant, Elijah B. (See Collins and Grant.)						
Grant, Horace. (See Westgate, Ida H., assignor.)						
Grant, John, Omaha, Nebr. Underground conductor for electric wires	344,827	July 6	35	9	36	8
Grant, John Q., Longmount, Colo. Anti-friction roller for wagon-reaches	349,644	Sept. 21	1504	390	36	1344
Grant, Jott, Boston, Mass. Water-filter	344,958	July 6	219	56	36	40
Grant, Jott, Boston, Mass. Pantaloon-stretcher	348,903	Aug. 31	2470	663	36	951
Graser, Edward, assignor to R. A. Graser, Elmira, N. Y. Coat	349,274	Sept. 14	1006	257	36	1237
Graser, Rosetta A. (See Graser, Edward, assignor.)						
Grater, Peter, Florida, Ohio. Endless carrier	349,346	Sept. 21	1069	279	36	1293
Grau, John M., Fort Leavenworth, Kans. Permutation-lock	346,542	Aug. 3	117	32	36	483
Graves, B. M. (See Schwingen, William, assignor.)						
Graves, Benjamin M., Waterloo, assignor to M. H. C. Graves, Farmer Village, N. Y. Dish-washing machine	345,380	July 13	804	202	36	150
Graves, James B. (See Peacock, Graves, and Huffor.)						
Graves, Mert H. C. (See Graves, Benjamin M., assignor.)						
Gray, Charles, and H. Kemp, assignors to A. Wrench, London, England. Magic lantern	348,994	Aug. 10	698	185	36	602
Gray, George, New York, N. Y. Nose-bag	345,839	July 20	1499	388	36	281
Gray, George and J. W., Sauk Centre, Minn. Fanning-mill	347,706	Aug. 17	1744	465	36	803
Gray, Ira, San Francisco, Cal. Therapeutic electric belt	347,592	Aug. 17	1561	415	36	770
Gray, Henry F. (See Strader, Gray, and Burgess.)						
Gray, John B. (See Bosworth, George P., assignor.)						
Gray, John W. (See Gray, George and J. W.)						
Gray, John W. (See White and Gray.)						
Gray, Joseph, Amelia, Ohio. Gutter for buildings	345,894	July 20	1575	406	36	295
Gray, Richard E., Muncy, Pa. Separator for dry paint, &c.	348,324	Aug. 31	2631	709	36	983
Gray, Robert D., assignor of one-third to J. H. Ford, New York, N. Y. Portable photographic camera	346,199	July 27	1990	513	36	382
Greaves, Abraham. (See Eaton and Greaves.)						
Greek, Henry. (See Austin, Oren, assignor.)						
Greeley, Mary A., Ottumwa, Iowa. Candlestick	349,036	Sept. 14	685	176	36	1176
Green, Francis G. (See Shank and Green.)						
Green, Hiram E., Lowell, assignor to himself and H. Edwards, Andover, Mass. Cloth-printing machine	349,037	Sept. 14	686	176	36	1177
Greene, Albert C., Willett, N. Y. Stanchion	348,964	Sept. 14	579	154	36	1159
Greene, Francis V., New York, N. Y., assignor to Barber Asphalt Paving Company, Washington, D. C. Apparatus for preparing asphaltic concrete for paving purposes	348,492	Aug. 31	2867	771	36	1027
Greene, Francis V., New York, N. Y., assignor to Barber Asphalt Paving Company, Washington, D. C. Device for manufacturing asphaltic concrete for paving purposes	348,493	Aug. 31	2868	771, 772	36	1028
Greene, Francis V., New York, N. Y., assignor to Barber Asphalt Paving Company, Washington, D. C. Construction of concrete pavements	349,645	Sept. 21	1505	390	36	1345
Greene, J. Durell, Ypsilanti, Mich. One-wheeled vehicle	346,813	Aug. 3	439	120, 121	36	545
Greene, John R., and J. W. Egnor, Spencer, Ind. Broom-handle extension	347,270	Aug. 10	1096	293	36	675
Greene Knitting Company. (See Weldon, Leonard, assignor.)						
Greenhalgh, Fredrick W. (See Hazard and Greenhalgh.)						
Greening, Winfield S., Decatur, Ill. Combined plow and planting mechanism	348,204	Aug. 31	2471	663, 664	36	951
Greenleaf, Abner, Baltimore, Md., assignor to Fire Extinguisher Manufacturing Company, New York, N. Y. Fire-extinguishing apparatus	347,593	Aug. 17	1563	415, 416	36	770
Greenleaf, Joseph H., New Haven, Conn., assignor to E. A. Bradford, Brooklyn, N. Y. Turnstile	349,156	Sept. 14	850	217	36	1207
Greenwald, Herman D., St. Paul, Minn. Handkerchief-display case	345,300	July 13	699	176	36	132
Gregg, William C., Golconda, Nev. Shovel	348,161	Aug. 24	2394	642	36	932
Gregg, William L., Philadelphia, Pa. Apparatus for drying brick	348,838	Sept. 7	398	108	36	1121
Gregory, Albert M., assignor of one-third to T. M. White, Newton Factory, Ga. Car-coupling	348,519	Aug. 31	2911	783	36	1036
Gregory, Robert B., *et al.* (See Post, Charles N., assignor.)						
Grellner, Christopher J., St. Louis, Mo. Hammer	347,932	Aug. 24	2070	550	36	871
Gribi, Theophilus, Elgin, Ill. Poising the hair-springs of watches	345,840	July 20	1499	388	36	281
Grier, William W., Hulton, Pa. Fifth-wheel for vehicles	345,585	July 13	1124	297	36	307
Griffin, George, Botsford, Conn. Hydraulic press	347,237	Aug. 10	1042	280, 281	36	666
Griffin, Michael D., *et al.* (See Le Clair, George, assignor.)						
Griffith, Cyrus S., Murphysborough, Ill. Hog-cholera remedy	347,483	Aug. 17	1415	.....	36	742
Griffith, George F. (See Reeder, Edred A., assignor.)						
Griffiths, James A., Winter Park, Fla. Wire binder for boxes	345,895	July 20	1576	407	36	295
Grigg, Thomas H., assignor to C. H. Frost, Philadelphia, Pa. Toy building-block	349,646	Sept. 21	1506	390	36	1345
Griggs, Eugene W., *et al.* (See Strait, Andrew V., assignor.)						
Grillwitzer, Charles A., assignor to Automatic Dining Table Company, San Francisco, Cal. Dining-table	348,667	Sept. 7	184	49, 50	36	1080
Grimm, Charles. (See Mangold and Grimm.)						
Grimm, Henry F. A., St. Louis, Mo. Reflecting-view and spy-glass	348,279	Aug. 31	2570	690	36	969

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Grisel, George, assignor of one-half to C. C. Volberg, San Francisco, Cal. Candlestick attachment	347,484	Aug. 17	1416	376	36	742
Griswold, Alanson B., Bunker Hill, Kans. Draft-equalizer	345,631	July 13	1189	305	36	220
Griswold, Alanson B., and J. M. Bradbury, Bunker Hill, Kans. Attachment for journal-boxes	349,937	Sept. 28	1922	497	36	1430
Griswold, Bradford H., Millerstown, Pa. Spear for removing casings from oil-wells	348,580	Aug. 31	2912	783	36	1036
Griswold, Edward H., Marthasville, Mo. Drag-saw	348,737	Sept. 7	275	74	36	1098
Griswold, Frank B., Troy, N. Y. Adjustable bale-tie	345,841	July 20	1500	389	36	281
Griswold, Henry F., Chicago, Ill. Sheet-metal coffee and spice can	345,780	July 20	1416	367	36	267
Griswold, James D., Brooklyn, N. Y. Ornament for lamp-shades	344,959	July 6	220	56	36	40
Griswold, James D., Brooklyn, N. Y. Suspension device for lamps	346,096	July 27	1847	477	36	354
Griswold, James D., Brooklyn, N. Y. Suspension device	346,995	Aug. 10	700	186	36	602
Groeninger, John A., St. Louis, Mo. Return-ball	350,059	Sept. 28	2076	537	36	1459
Gross, Charles L., Canton, Miss. Trace-carrier	345,301	July 13	700	176	36	132
Gross, George W., Oxford, N. J. Machine for cutting leather	346,651	Aug. 3	256	70	36	516
Grosscup, Matias G., Milwaukee, Wis. Hay elevator and carrier	345,299	July 6	500	150	36	107
Grossman, George, Lancaster, Pa. Nut-lock	345,842	July 20	1501	389	36	281
Gross, Martin J., Emporia, Kans. Pie-plate	348,839	Sept. 7	400	108	36	1122
Grotefend, Fred. (See Elmore, Benton, assignor.)						
Grout, Charles P., New York, N. Y. Artificial tooth-crown	347,933	Aug. 24	2071	550	36	871
Grout, Charles P., New York, N. Y. Dental bridge	347,934	Aug. 24	2072	550	36	871
Grout, William L. (See Hadley and Grout.)						
Groux, Emile. (See Galland and Groux.)						
Grove, Shepherd B., Urbana, Ohio. Indicator for hat-boxes	346,474	Aug. 3	34	9	36	467
Grover, Charles, Kansas City, Mo. Combined band-cutter and grain-feeder for thrashers	345,230	July 6	591	150	36	107
Grover, Susan O., Granville, Ohio. Coffin attachment	344,901	July 6	151	38	36	27
Groves, Julius C. (See Bogart, Isaac, assignor.)						
Grovesteen, Milton W., New York, N. Y. Electro-magnetic valve	347,707	Aug. 17	1745	465	36	803
Grovesteen, Milton W., New York, N. Y. Clutch	347,708	Aug. 17	1746	465	36	803
Gruber, John P., Jersey City, N. J. Service apparatus for malt liquors	348,668	Sept. 7	186	50	36	1081
Gruber, John P., Jersey City, N. J. Store-service measuring apparatus for oils and similar fluids	348,669	Sept. 7	189	50	36	1081
Grueninger, Edward, Cincinnati, Ohio. Pipe-joint	348,556	Sept. 7	20	6	36	1052
Grueninger, Otto. (See Abt, Roman, assignor.)						
Guerber, Frederick S., Allentown, Pa. Combined switch-stand and semaphore-signal	346,848	Aug. 3	491	136	36	556
Guerber, Frederick S., Allentown, Pa. Safety-bar for railways	348,902	Sept. 7	495	131	36	1139
Guest, John H., Brooklyn, assignor of one-half to T. F. Thomas, New York, N. Y. Check or ticket register apparatus	349,710	Sept. 28	1604	414, 415, 416, 417	36	1369
Guldhang, John J., Stoughton, Wis. Window-blind	349,252	Sept. 14	982	250	36	1233
Gulick, Henry, Orange County, Fla. Budding trees	346,905	Aug. 10	587	157	36	581
Gümpel, Charles G., Leicester Square, county of Middlesex, England. Appliance for supporting carriage-windows	349,647	Sept. 21	1506	391	36	1345
Gunn, John C., Knoxville, Tenn. Bedstead-clamp	346,153	July 27	1931	498	36	370
Gunn, John C., assignor of one-half to T. Egan, Knoxville, Tenn. Mail-bag	348,965	Sept. 14	592	154	36	1160
Gunning, James F. J., New Haven, Conn. Stiffening material for corsets	347,034	Aug. 10	763	203	36	613
Gushart, John, Buckeye, Ill. Device for supplying salt to stock	349,843	Sept. 28	1806	466	36	1407
Guthrie, William F., and N. C. Peterson; said Peterson assignor to L. S. Barker, Minneapolis, Minn. Automatic register for photographic-printing frames	347,292	Aug. 10	1128	302	36	680
Güttinger, Carl, Camden, N. J., assignor to J. Loeb, Cheltenham Township, Pa., M. Schoenfeld, Rorschach, Switzerland, and D. Schoenfeld, Philadelphia, Pa. Embroidering-machine	350,053	Sept. 28	2077	538, 539, 540	36	1460
Gwinn, William H. (See Hindmarsh and Gwinn.)						
Gwyer, Frederick S., New York, N. Y. Refrigerator	347,293	Aug. 10	1129	302	36	681
György, Joseph, New York, N. Y. Combined fur collar and muff	345,632	July 13	1190	305	36	220
Haak, Henry, Prescott, Pa. Butter-shipper	348,557	Sept. 7	20	6	36	1052
Haas, Edwin, Philadelphia, Pa. Lead pipe	347,594	Aug. 17	1569	416	36	771
Hachenberg, John P., and E. F. Radcliff, Austin, Mo. Churn	348,670	Sept. 7	191	51	36	1081
Hackenberg, Jacob A., Kimberton, Pa. Commode	348,738	Sept. 7	277	74	36	1099
Hacker, William, trustee. (See Dolan, Edward J., assignor.)						
Hackett, John C., Belleville, Ill. Hame-fastening	345,134	July 6	468	119	36	85
Hackney, John M. (See Scott, Winfield R., assignor.)						
Hadden, William, Brooklyn, N. Y. Railway-signal	349,040	Sept. 14	690	177	36	1177
Hadley, Amos, Washington, D. C. Paper-holder	346,154	July 27	1932	498	36	370
Hadley, Horace W., and W. L. Grout, Orange, Mass. Shuttle for sewing-machines	345,682	July 20	1274	330	36	242
Hadley, Horace W., and W. L. Grout, Orange, Mass. Take-up mechanism for sewing-machines	345,683	July 20	1275	330	36	242
Hadley, Horace W., and W. L. Grout, Orange, Mass. Feeding mechanism for sewing-machines	345,684	July 20	1276	331	36	242
Haehnlen, Louis F., Chicago, Ill. Candy-box	348,671	Sept. 7	192	51	36	1082
Haentges, John G., and J. P. Fisher, Buffalo, N. Y. Boot or shoe stretcher	347,485	Aug. 17	1416	377	36	742
Haerter, Hugo, New York, N. Y. Spring-balance	345,049	July 6	353	89	36	64
Hafer, Henry F. (See Jennings, Linnaeus C., assignor.)						
Haffcke, Charles, Baltimore, Md. Refrigerator-car	348,840	Sept. 7	401	109	36	1122
Hager, Charles J., Beatrice, Nebr. Machine for making cleats	349,587	Sept. 21	1438	371	36	1330
Hagerty, John H., Lowell, Mass. Water-motor	344,960	July 6	220	56, 57	36	41
Haight, George E., New Haven, and W. H. Wood, Hartford, Conn. Gas-heating chamber for torpedo-boats	349,711	Sept. 28	1620	417	36	1371
Haines, John D. (See Lake and Haines.)						
Hainley, Franklin E., assignor of one-fourth to W. G. Delashmutt, Martinsville, Ill. Apparatus for utilizing the expansive and contractive power of metals	348,841	Sept. 7	402	109	36	1122
Haire, Herbert, Grand Rapids, Mich. Feed mechanism for grinding-mills	348,905	Aug. 31	2473	664	36	952
Haitz, Frederick. (See Levenguth, John, assignor.)						
Haitz, Fredrick, Towanda, Ill. Umbrella-support	347,343	Aug. 17	1210	323, 324	36	705
Hake, Francis A., Cuero, Tex. Riding-saddle	344,898	July 6	36	9	36	8
Hale, Beverly, Rushville, Ill. Balanced slide-valve	347,793	Aug. 24	1863	496	36	833
Hale, George C., Kansas City, Mo. Hitching-strap	346,906	Aug. 10	588	157	36	582
Hale, George C., Kansas City, Mo. Fire-escape	346,907	Aug. 10	589	157	36	582
Hale, Irving. (See Richards and Hale.)						
Hale, Perley, and W. E. Sparks; said Hale assignor to C. H. Sparks, Chicago, Ill. Device for operating cell-doors	346,155	July 27	1934	498	36	370
Hall, Albert F., Boston, Mass. Steam-engine	347,344	Aug. 17	1211	324	36	705

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hall, Allan T., 1 Grosvenor Terrace, Beverley Road, Hull, England. Refining vegetable oils	347,345	Aug. 17	1213	.....	36	705
Hall, Cassius L., Ypsilanti, Mich. Milk-can	347,174	Aug. 10	967	258	36	651
Hall, Charles. (See Murdock, George J., assignor.) (Reissue.)						
Hall, Charles S., Worcester, Mass. Box-strap	349,495	Sept. 21	1318	342	36	1307
Hall, Chauncey M., assignor of one-half to G. W. Albrecht, Bellaire, Mich. Bow-facing oar	346,745	Aug. 3	362	99	36	532
Hall, Daniel, Galt, Mo. Car brake and starter	347,346	Aug. 17	1213	324	36	705
Hall, Edward P., assignor of one-half to F. F. Curtz, Erie, Pa. Attachment for tables, &c.	348,462	Aug. 31	2626	750	36	1080
Hall, Hayden H. (See Bull and Hall.)						
Hall, Hayden H., New Hamburg, and R. H. Bull, New York, N. Y. Caisson	346,543	Aug. 3	119	33	36	463
Hall, Henry, St. Pancras, county of Middlesex, England. Tile for facing walls, &c.	347,425	Aug. 17	1320	352	36	794
Hall, Milan W., assignor to Hall Steam Pump Company, Plainfield, N. J. Duplex steam-engine	349,157	Sept. 14	851	217, 218	36	1097
Hall Steam Pump Company. (See Hall, Milan W., assignor.)						
Hall, Thursten G., Niagara Falls, N. Y. Obtaining oil from wells	345,586	July 13	1126	287	36	208
Hall, Tyra R. (See Wroe and Hall.)						
Hall, Zachary T., Philadelphia, Pa. Water-conductor fastening	349,158	Sept. 14	856	219	36	1208
Halley, William, H. F. Wilkinson, and J. E. Blasett, Auburn, Cal. Overflow-gate for reservoirs	349,712	Sept. 28	1621	418	36	1371
Halloway, Seneca V., Buffalo, N. Y. Hame-fastener	346,908	Aug. 10	591	158	36	583
Hallstead, William F. (See Dawson, Walter, assignor.)						
Halstead, Charles, New York, N. Y. Coffee-urn	346,278	July 27	2104	542	36	403
Halter, Andrew. (See Mottinger and Halter.)						
Ham Coal Saving Company. (See Ham, John, assignor.)						
Ham, John, Brooklyn, N. Y., assignor to Ham Coal Saving Company. Steam-boiler furnace	348,463	Aug. 31	2628	750	36	1080
Ham, Zachariah M., Mineola, Tex. Tongue-support for vehicles	348,122	Aug. 24	2235	627	36	930
Hamacek, Adolph, Ahnapee, Wis. Feed-cutter	346,200	July 27	1903	514	36	382
Hamacheck, Frank, Kewaunee, Wis. Feed-cutter	349,713	Sept. 28	1622	418	36	1371
Haman, Frederick H., Wapakoneta, Ohio. Churn-head	349,218	Sept. 14	931	239	36	1223
Hambruch, Heinrich F., Hamburg, Germany. Watch-winding mechanism	345,231	July 6	594	151	36	107
Hambujer, Ephraim, assignor to B. G. and M. G. Morris, Detroit, Mich. Brush	348,642	Sept. 7	406	110	36	1122
Hamerely, William H., Catasauqua, Pa. Inhaler	346,909	Aug. 10	592	158	36	583
Hamilton, Fred C., Brooklyn, assignor to Hamilton & Lilley, New York, N. Y. Paper-fastener	349,993	Sept. 28	2001	517	36	1444
Hamilton, George J. (See Pudor, J. Ferdinand, assignor.)						
Hamilton, Henry W., Springfield, Mass. Rectal speculum	348,843	Sept. 7	404	110	36	1122
Hamilton, John H. (See Gordon and Hamilton.)						
Hamilton, John H., Concord, N. H. Seal-press	344,829	July 6	87	10	36	8
Hamilton & Lilley. (See Hamilton, Fred C., assignor.)						
Hamilton, Miles E., assignor of one-half to A. B. Radney, Auburn, N. Y. Thill-coupling	347,238	Aug. 10	1051	281	36	666
Hamilton, William, Allegheny City, Pa. Device for fastening coffins	345,685	July 20	1277	331	36	243
Hammerl, Joseph, Long Island City, N. Y. Graining	347,595	Aug. 17	1570	417	36	771
Hammerstein, Oscar, New York, N. Y. Tobacco stripping and booking machine	347,794	Aug. 24	1863	496	36	833
Hammerstein, Oscar, New York, N. Y. Clutch for tobacco-stripping machines	347,795	Aug. 24	1864	496	36	834
Hammerstein, Oscar, New York, N. Y. Machine for stripping and booking tobacco	347,796	Aug. 24	1866	496, 499	36	834
Hammerstein, Oscar, New York, N. Y. Cigar-rolling machine	348,206	Aug. 31	2473	665	36	952
Hammick, Joseph T., Rhinebeck, N. Y. Car-coupling	345,501	July 13	969	248	36	182
Hammick, Joseph T., Rhinebeck, N. Y. Car-coupling	348,739	Sept. 7	278	74	36	1099
Hammond, J. C., Jr., *et al.* (See Chapman, Samuel A., assignor.)	347,347	Aug. 17	1215	324	36	706
Hammond, J. C., Jr., *et al.* (See Pullman, Herbert S., assignor.)						
Hammond, M. Burdett. (See Taylor and Hammond.)						
Hampton, John A., Rosedale, Kans., and E. C. Sooy, Kansas City, Mo. Baling-press	345,502	July 13	961	248, 249	36	182
Hamshaw, Charles W., Blue Springs, Mo. Velocipede	348,325	Aug. 31	2632	709, 710	36	963
Hanan, James D., Brooklyn, N. Y. Pantaloons-protector	346,658	Aug. 3	257	70	36	510
Hancock, A. Stanley. (See Tefft, James W., assignor.)						
Hand, Oscar. (See Fulford, Bertram, assignor.)						
Handforth, Benjamin, Hoboken, N. J. Shade-fixture	348,393	Aug. 31	2734	731	36	1001
Handlan, Alexander H., Jr., St. Louis, Mo. Head-light	348,464	Aug. 31	2627	750	36	1080
Hanika, Christian, Springfield, Ohio. Constructing metallic fences	346,544	Aug. 3	121	32	36	483
Hankinson, John N. O., Harrisburg, Pa. Key for locking quoins	346,156	July 27	1937	499	36	371
Hanley, William, Chicago, Ill. Safety-gate	345,587	July 13	1127	288	36	208
Hanmore, Hiram M., Philadelphia, assignor of one-half to H. G. Keasbey, Ambler, and R. V. Mattison, Philadelphia, Pa. Boiler-covering	345,843	July 20	1502	389	36	281
Hanna, John F., near Momence, Ill. Stretching-truck for fence-wire sections	345,966	July 20	1668	432	36	312
Hansell, William, Nevada, Iowa. Electric motor and generator	349,332	Sept. 21	1176	304	36	1279
Hansen, Peder, Fresno, Cal. Gang-plow	344,830	July 6	38	10	36	9
Hanson, Edward H., Philadelphia, Pa. Wood-planing machine	345,503	July 13	964	249	36	182
Hanson, Richard. (See Crossley, Hanson, and Hicks.)						
Hapgood Plow Company. (See Black, Joseph P., assignor.) (Reissue.)						
Happe, John, Brooklyn, N. Y. Quilting-machine	349,090	Sept. 14	761	194, 195	36	1190
Harbert, John W., Sheldon, Mo. Burglar-proof window-fastening	346,545	Aug. 3	122	32	36	483
Hard, J. Randolph, New York, N. Y. Medico-electrical apparatus	348,465	Aug. 31	2628	760, 761	36	1021
Harden, George T., assignor to himself, L. and P. Swift, Middleport, Ohio. Nail-plate feeder	348,746	Aug. 3	368	99	36	533
Harder, Edward G., Ashuelot, N. H. Thill-coupling	346,279	July 27	2105	542	36	403
Hardingham, George G. M., London, county of Middlesex, England. Steam-generator	346,572	Sept. 7	193	51, 52	36	1082
Hardy, Emery E., and S. A. Wall, Newark, N. J. Fastener for harness-mountings	345,428	July 13	881	219	36	164
Harell, William H. (See Harell, Richard, assignor.)	348,007	Aug. 24	2177	579	36	890
Harger, David, Des Moines, Iowa. Roofing	348,844	Sept. 7	405	110	36	1122
Hargrave, Moses C., Wilmington, N. C. Sash-holder	345,050	July 6	354	89	36	64
Hargrove, John R., Sparbrook, county of Worcester, England. Furniture-caster	349,588	Sept. 21	1439	371	36	1330
Harker, Charles C., Troy, Ohio. Apparatus for medicating water	349,884	Sept. 28	1857	479	36	1418
Harlow, Charles F., and E. E. Angell, Malden, assignors to Globe Sewing Machine Company, Boston, Mass. Sewing-machine	349,383	Sept. 21	1177	305	36	1279
Harlow, Charles F., and E. E. Angell, Malden, assignors to Globe Sewing Machine Company, Boston, Mass. Sewing-machine	349,844	Sept. 28	1807	467	36	1408
Harman, David H., New Philadelphia, Ohio. Eaves-trough hanger	347,348	Aug. 17	1217	325	36	706

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Harman, Samuel W., Aliceville, Kans. Wire-stretcher	349,041	Sept. 14	692	177	36	1178
Harman, Stephen S., New York, N. Y. Cushion and guard for pen-holders	344,961	July 6	222	57	36	41
Harmon, Orville S. (See Lorillard and Harmon.)						
Harmon, Willard D., Beloit, Wis. Animal-bit	345,051	July 6	355	89	36	65
Harmstead, Charles A., Urbana, Ohio. Combined brace for brow-bands and winkers for bridles	348,207	Aug. 31	2476	665	36	952
Harney, John M., Florisant, Mo. Refrigerator	349,253	Sept. 14	983	251	36	1233
Harney, Michael C., assignor of one-half to W. N. and A. Brennan, St. Louis, Mo. Seal-lock	346,157	July 27	1938	499	36	371
Harrington, John. (See Birck and Fischer, assignors.)						
Harris, Azariah B., Springfield, Mass. Car-ventilator	346,040	July 20	1777	457	36	330
Harris, Azariah B., Springfield, Mass. Game-puzzle	347,596	Aug. 17	1571	417	36	771
Harris, Benjamin P., Southfleet, and A. Stagg, Milton, county of Kent, England. Kiln for drying purposes	349,091	Sept. 14	766	195	36	1191
Harris, Carleton C. (See Gibson and Harris.)						
Harris, Charles R., Jersey Shore, assignor to himself and W. Silverman, Williamsport, Pa. Suspender or other buckle	345,967	July 20	1669	432	36	313
Harris, Charles T. (See Harris, John P. and C. T.)						
Harris, Charles W., Garnett, Kans. Bagasse-feeder	346,099	July 27	1849	477	36	355
Harris, George M., Pawnee City, Nebr., assignor to himself, J. G. Maclay, Jr., and W. H. Harrum. Brick-kiln	346,653	Aug. 3	257	71	36	510
Harris, John, and J. Lucas, assignors to A. Harris, Son & Co., (limited,) Brantford, Ontario, Canada. Harvester-binder	349,994	Sept. 28	2002	517	36	1445
Harris, John P. and C. T., Newburg, N. Y. Windlass for elevators	347,239	Aug. 10	1052	281	36	606
Harris, Milo. (See Butler and Harris.)						
Harris, Nathan, Wabash, Ind. Railway-gate	345,896	July 20	1576	407	36	295
Harris, Orrin C., Newport, N. Y. Car-coupling	345,504	July 13	985	249	36	183
Harris, Richard G., assignor of two-thirds to W. Fisher, Boonsborough, and L. W. Reynolds, Boone, Iowa. Steam-engine	349,275	Sept. 14	1006	257	36	1238
Harris, Robert L., Brooklyn, N. Y. Electric railway	344,962	July 6	223	57	36	41
Harris, Robert L., Brooklyn, N. Y. Conductor for electric railways	348,008	Aug. 24	2178	579	36	891
Harris, Son & Co., A. (See Harris and Lucas, assignors.)						
Harris, William R., Manchester, county of Lancaster, England. Belt or strap fastener	346,747	Aug. 3	369	99	36	533
Harris, William W. (See Davis, Frank E., assignor.)						
Harrison, Alfred C., Philadelphia, Pa. Retort for calcining bone-black	345,968	July 20	1671	432	36	313
Harrison, Henry H., New York, N. Y. Combined feeder and cutter for toilet-paper	345,052	July 6	356	90	36	65
Harrison, Jeremiah, O. Huntress, and A. S. Lewis, Manhattan, Kans.; said Huntress assignor to said Harrison and Lewis. Car-coupling	347,035	Aug. 10	764	203	36	613
Harrison, Martin E., Pittsburg, Pa. Bearing-brass for car-axle journals	345,232	July 6	595	151	36	108
Harrison, William E. (See Flanigan and Harrison.)						
Harrold, Mahlon, Fort Worth, Tex. Air-compressor	345,969	July 20	1673	433	36	313
Harrop, Seth, Cabery, Ill. Band-cutting attachment for thrashers	348,966	Sept. 14	583	154	36	1160
Harrum, William H., *et al.* (See Harris, George M., assignor.)						
Harshman, Jonathan S., Harshman, Ohio. Railway-rail	348,673	Sept. 7	196	52	36	1062
Hart, Edward H., New York, N. Y. Supporting-bandage	349,793	Sept. 28	1734	447	36	1392
Hart, George E., assignor to Waterbury Watch Company, Waterbury, Conn. Winding pinion and ratchet for watches	345,588	July 13	1128	288	36	208
Hart, George E., assignor to Waterbury Watch Company, Waterbury, Conn. Watch-dial wheel	345,589	July 13	1129	288	36	208
Hart, John W. (See Lang and Hart.)						
Hart, Samuel G. (See Brayton, James T., assignor.)						
Hart, Sarah A. (See Herman, Addison M., assignor.)						
Hart, Thomas J. (See Jenks and Hart.)						
Hartford Fruit Jar Company. (See Taylor, Frederick D., assignor.)						
Hartley, Charles J., Decatur, Ill. Corn-harvester	348,627	Sept. 7	131	37	36	1071
Hartman, Otto. (See Collins, Horatio E., assignor.)						
Hartman, Rufus A., Berwick, Pa. Railway-gate	345,429	July 13	892	220	36	164
Hartman, William H., *et al.* (See Kittell, Ernest A., assignor.)						
Hartmeyer, John, assignor to himself, J. P. and A. Palmer, Zanesville, Ohio. Water-cooler	346,849	Aug. 3	493	136	36	557
Hartshorne, William D. (See Petzold, Charles G., assignor.)						
Harty, William, assignor of one-half to C. D. Root, Kalamazoo, Mich. Vehicle-spring	347,175	Aug. 10	969	259	36	651
Harvey, Charles A., Washington, D. C. Grip for cable railways	347,597	Aug. 17	1572	417	36	772
Harvey, Hayward A., Orange, N. J., and C. S. Clark, assignors, by mesne assignments, to American Screw Company, Providence, R. I. Multiple screw-shaving machine	348,967	Sept. 14	586	155 / 156	36	1160
Harvey, Patrick, Chicago, Ill. Water-closet	349,347	Sept. 21	1090	279	36	1263
Harvey, Patrick, Chicago, Ill. Water-closet	349,348	Sept. 21	1092	280	36	1263
Haskell, Jenny M., Greenwich, N. Y. Dress-protector	345,970	July 20	1674	433	36	313
Haskin, Uri, McDonald, Tenn., assignor of three-fifths to H. G. Brooks, Dunkirk, N. Y., S. B. Lowe and A. E. Tucker, Chattanooga, Tenn., and E. Nichols, Cincinnati, Ohio. Mechanical movement	347,294	Aug. 10	1131	303	36	661
Haskin, Uri, McDonald, Tenn., assignor of three-fifths to H. G. Brooks, Dunkirk, N. Y., S. B. Lowe and A. E. Tucker, Chattanooga, Tenn., and E. Nichols, Cincinnati, Ohio. Spike-machine	347,295	Aug. 10	1132	303	36	661
Haskins, Clark C., Chicago, Ill. Hanger for electric lamps	348,845	Sept. 7	407	110	36	1123
Haslem, James, Jeffersonville, Ind. Plate-glass polisher	349,430	Sept. 21	1225	318	36	1288
Hassellund, George W., New Castle, N. Y. Spring and nose-piece for eyeglasses	346,654	Aug. 3	258	71	36	511
Hastings & Co. (See Barnes, Hamlin, assignor.)						
Hastings, Louis E., Manning, Iowa. Wagon-tongue support	349,714	Sept. 28	1623	419	36	1371
Hatch, James L., Rochester, N. Y. Heel-stiffener machine	346,100	July 27	1849	477	36	355
Hatfield, Albert S. (See Schmidt, Giacomo, assignor.)						
Hatfield, Charles B., Rochester, N. Y. Button-fly-scalloping machine	347,105	Aug. 10	872	231	36	633
Hatfield, William. (See Davis and Hatfield.)						
Hathaway, Frederick T. (See Williams, Robert N., assignor.)						
Hathoway, Edwin E., Oriskany Falls, N. Y. Wagon-gear	348,846	Sept. 7	408	111	36	1123
Haubner, Wilhelm, New York, N. Y. Upright-piano case	345,505	July 13	986	249	36	183
Hauck, Charles E., assignor of one-half to S. C. Brown, Pittsburg, Pa. Flat-iron	345,135	July 6	469	119	36	95
Havanagh, Bernard, New York, N. Y. Water-closet	347,598	Aug. 17	1574	418	36	772
Havens, Joseph G., Trenton, N. J. Roller-skate	345,781	July 20	1418	367	36	268
Havenstrite, David J. (See Hayward and Havenstrite.)						
Havey, Cornelius M., R. Black, New York, and T. G. Palmer, Schultzville, N. Y.; said Havey assignor to said Black and Palmer. Railway-signal	345,782	July 20	1419	367	36	268
Hawes, William L. (See Sterner and Hawes.)						
Hawken, Thomas, Salem, Mass. Insulator-block for electric conductors	346,475	Aug. 3	36	9	36	497

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Hawkins, John T., Taunton, Mass. Sheet-delivery for printing-machines	346,910	Aug. 10	593	158 / 159	36	583
Hawkins, John T., Taunton, Mass. Oscillating-cylinder printing-machine	346,911	Aug. 10	593	158 / 159 / 160	36	583
Hawks, Enos S., Cummington, Mass. Game-protector	346,748	Aug. 3	370	99	36	533
Hawks, Mark E., West Union, Iowa. Adjustable plate-holder for photographic cameras	346,546	Aug. 3	123	33	36	483
Hawley, William H., assignor to himself and F. G. Du Bois, New York, N. Y. Lathe for irregular forms	347,036	Aug. 10	765	203 / 204	36	613
Hawlowetz, John, New York, N. Y. Machine for scraping the quills of feathers	347,486	Aug. 17	1417	377	36	748
Hay, Edward S., Lynn, Mass. Heel for boots or shoes	348,847	Sept. 7	409	111	36	1123
Hayden, Randolph, Haddam, Conn. Wire-cutter	349,496	Sept. 21	1319	349	36	1307
Haydn, George, Baltimore, Md., assignor to W. L. Deming, Salem, Ohio. Bilge-water ejector	349,497	Sept. 21	1321	349	36	1307
Hayes, Daniel D., Oakland, Cal. Extension fire-ladder	345,686	July 20	1278	332	36	243
Hayes, Elbert N., and V. A. Sauer, Houston, Tex. Treasure-box	345,702	July 13	701	177	36	132
Hayes, George, New York, N. Y. Hand-tool	345,687	July 20	1279	332	36	243
Hayes, George, New York, N. Y. Ventilating-skylight	345,688	July 20	1280	332	36	243
Hayes, George, New York, N. Y. Blind-slat and apparatus for operating the same	345,689	July 20	1281	332 / 333	36	243
Hayes, George, New York, N. Y. Blind or other ventilating adjunct for buildings	345,690	July 20	1283	333	36	244
Hayes, George, New York, N. Y. Louver and blind	345,691	July 20	1284	333	36	244
Hayes, George, New York, N. Y. Ventilating-screen	345,692	July 20	1285	333	36	244
Hayes, George, New York, N. Y. Louver and blind	345,693	July 20	1286	334	36	244
Hayes, George, New York, N. Y. Louver and blind	345,694	July 20	1287	334	36	245
Hayes, George B., Ottawa, Kans. Tongue-support	348,466	Aug. 31	2231	761	36	1021
Hayes, George H., De Ruyter, N. Y. Clothes-drier	349,092	Sept. 14	768	196	36	1191
Hayes, James H., St. Paul, Minn. Car-coupling	346,101	July 27	1850	478	36	355
Hayes Manufacturing Company. (See Benbow, John, assignor.)						
Hayes, Seneca E., Lutheraburg, Pa. Door-sill	344,963	July 6	224	57	36	41
Hayward, Charles O., and D. J. Havenstrite, Newark, N. J. Game-board	345,430	July 13	884	220	36	165
Hazard, Eugene F., and F. W. Greenhalgh, Peace Dale, R. I. Tension-regulating device for loom-shuttles	346,812	Aug. 10	598	160	36	583
Hazard, Robert H., Washington, D. C. Stopper-fastener	346,250	July 27	2106	542	36	404
Hazeltine, Ezra T., Warren, Pa., and F. A. Weld, Stanton, Nebr. Book-folding machine	345,506	July 13	987	250	36	183
Hazelton, Benjamin F., and P. H. Mack, Bradford, Pa. Railway-track jack	345,844	July 20	1503	389	36	282
Hazelton, Milton W. (See Goulding, Henry C., assignor.)						
Head, William F., *et al.* (See Crandall, Henry B., assignor.)						
Headly, Charles B., Philadelphia, Pa. Compound metal bar or plate	344,831	July 6	39	.....	36	9
Healy, John T., Attleborough, Mass. Combined watch-chain swivel and watch-protector	345,783	July 20	1420	368	36	268
Healy, Patrick J., *et al.* (See Post, Charles N., assignor.)						
Heap, William, Owen Sound, Ontario, Canada. Earth-closet	345,053	July 6	358	90	36	65
Heap, William, Owen Sound, Ontario, Canada. Earth-closet	347,037	Aug. 10	766	204	36	614
Hearan, James C., assignor of one-half to J. M. Cavanagh, Brooklyn, N. Y. Machine for shaping counter-stiffeners for boots or shoes	348,903	Sept. 7	496	131	36	1139
Heath, George S., and A. F. Champlin, Hartford, Conn. Stem winding and setting watch	348,009	Aug. 24	2176	580	36	891
Heath, Henry, assignor to Fisk, Clark & Flagg, New York, N. Y. Sailor-knot scarf	345,897	July 20	1578	407	36	296
Heath, Henry, assignor to Fisk, Clark & Flagg, New York, N. Y. Sailor-knot scarf	346,041	July 20	1778	457 / 458	36	331
Hebbard, William H., *et al.* (See Bark, Frank W., assignor.)						
Heberling, Warren. (See Heberling, William L., assignor.)						
Heberling, William L., Bath, assignor of one-fourth to W. Heberling, Havana, Ill. Sewing-machine shuttle	346,281	July 27	2108	542	36	404
Hébert, Antoine C., Chicago, Ill. Car-axle box	347,589	Aug. 17	1576	418 / 419	36	772
Hedden, Charles I. (See Teed, William P., assignor.)						
Hedges, Charles, Grinnell, Iowa. Ice-cream freezer	347,600	Aug. 17	1577	419	36	773
Heebner, David S., *et al.* (See Heebner, Isaac D., assignor.)						
Heebner, Isaac D., assignor of two-thirds to D. S. and W. D. Heebner, Lansdale, Pa. Thrashing-machine	345,695	July 20	1288	334	36	245
Heebner, William D., *et al.* (See Heebner, Isaac D., assignor.)						
Heffernan, Edward F., Toronto, Ontario, Canada, assignor to Keystone Watch Case Company. Pendant-stem for watches	345,055	July 6	360	91	36	66
Heidt, Allen P., New York, N. Y. Fire shovel and tongs	349,394	Sept. 21	1178	305	36	1279
Heine, August, Silver Creek, N. Y. Flour-bolt	346,282	July 27	2110	543	36	404
Heintzelman, Taylor W., assignor of one-half to W. McCrory, Minneapolis, Minn. Locomotive grate-bar	347,601	Aug. 17	1578	419	36	773
Heiss, Charles E., assignor of one-half to J. N. Raymond, Chicago, Ill. Hydraulic press	346,913	Aug. 10	598	161	36	584
Helfker, Merlin B., Farmington, Mich. Belt coiler for thrashing-machines	346,042	July 20	1779	458	36	331
Heller, Emanuel I., Iglau, Austria-Hungary. Artificial millstone or burr	344,902	July 6	151	38	36	28
Helme, Jeremiah E., *et al.* (See Logan, Thomas H., assignor.)						
Helms, Charles H., Poughkeepsie, N. Y., assignor to G. H. P. Flagg, trustee, Boston, Mass. Seam-trimming machine	345,303	July 13	703	177	36	132
Heltzel, Peter F., Fond du Lac, Wis. Hydraulic motor	348,010	Aug. 24	2180	581	36	891
Hempsted, Samuel W., Columbus, Ohio. Oscillating steam-engine	346,996	Aug. 10	701	186	36	603
Hench, Samuel N., and W. A. Dromgold, York, Pa. Cultivator	348,208	Aug. 31	2476	665 / 666	36	952
Henderson, Harry D., Earlville, N. Y., assignor of two-thirds to R. T. Van Vanlkenburg, Manchester, Mich., and A. C. Ackley, Earlville, N. Y. Fire-kindler	347,176	Aug. 10	969	259	36	652
Henderson, James, Bellefonte, Pa. Dephosphorizing iron by means of fluorine	347,349	Aug. 17	1218	.....	36	706
Henderson, Jesse G., Grizzly Flat, Cal. Truss	349,498	Sept. 21	1321	343	36	1307
Henderson, John, Jr., Waterbury, Conn. Tumbling-barrel	348,011	Aug. 24	2181	581	36	891
Henderson, Mary A., Clinton, Mo. Coffee-pot	346,914	Aug. 10	600	161	36	584
Henderson, Norman M., Broxburn, county of Linlithgow, Scotland. Apparatus for cooling oil to extract paraffine, &c.	348,904	Sept. 7	497	132	36	1139
Henderson, William M., Morton, Pa. Steam-engine	347,874	Aug. 24	1986	526	36	855
Hendey Machine Company. (See O'Neill, James F., assignor.)						
Hendey, Thomas C., Torrington, Conn. Calipers	346,915	Aug. 10	601	161	36	584
Hendricks, Edward A., Carpentersville, Ill. Platform-spring for vehicles	345,898	July 20	1579	407	36	296
Hendrickson, Andrew. (See Dicket and Hendrickson.)						
Hendryx, Andrew B., New Haven, Conn. Bird-cage	346,283	July 27	2112	543	36	405
Hendryx, Andrew B., New Haven, Conn. Bird-cage screen	348,012	Aug. 24	2183	581	36	892
Hendryx, Samuel V., Farmington, assignor of one-half to A. Finkelson, Northfield, Minn. Display-rack for parasols, &c.	349,938	Sept. 28	1923	497	36	1430
Henius, Max W., Bridgeport, Conn. Corset-trimming	346,476	Aug. 3	36	9	36	467

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Henkle, Leonard, Rochester, N. Y. Lamp	348,969	Sept. 14	599	156	36	1161
Henkle, Leonard, Rochester, N. Y. Wick-raiser	348,970	Sept. 14	599	156	36	1161
Henley, Micajah C., Richmond, Ind. Fence-machine	346,749	Aug. 3	370	100	36	533
Henneberle, Frank, South Chicago, Ill. Valve	345,056	July 6	362	91	36	66
Henning, Julius, Minneapolis, Minn. Roofing-machine	348,558	Sept. 7	22	6	36	1052
Henry, A. C., *et al.* (See Rogers, John A., assignor.)						
Henry, Allen, *et al.* (See Fisher, Anson F., assignor.)						
Henry, Elias C. (See Chancellor and Henry.)						
Henry, John C., Kansas City, Mo. Speed-changing mechanism	345,057	July 6	363	91, 92	36	66
Henry, John C., Kansas City, Mo. Electric railway	345,845	July 20	1504	390, 391	36	262
Henry, Philip B. (See Ingersoll and Henry.)						
Hensel, George S., *et al.* (See Forrest, William W., assignor.)						
Hensley, Joseph D., Rogers, Ark. Stump-extractor	348,209	Aug. 31	2478	666	36	953
Hepler, Benjamin F. (See Dimon, Frank S., assignor.)						
Herendeen, Almanson, Putnam, Conn. Chimney-top	344,832	July 6	40	10	36	9
Herman, Addison M., assignor of one-half to S. A. Hart, Newtonia, Mo. Kitchen-safe	345,784	July 20	1421	368	36	268
Herrick, Charles R., and D. W. Billings, Fenwick, Mich. Life-boat	349,499	Sept. 21	1392	343	36	1307
Herring, William. (See Braithwaite, Lane, and Herring.)						
Herrington, Ephraim F., West Hoosick, N. Y. Oil-hole cover	345,136	July 6	470	120	36	85
Herron, Hiram C., Cleveland, Ohio. Telegraph-pole	347,602	Aug. 17	1579	419	36	773
Hersey, George W., Empire, Wis. Tanning	349,589	Sept. 21	1440	.....	36	1331
Hers, Cornelius, Paris, France. Telephone system	349,042	Sept. 14	693	178	36	1178
Hers, Cornelius, Paris, France. Telephone	349,043	Sept. 14	696	178	36	1178
Hersog, Philip W., Minneapolis, Minn. Construction of prison-cells	348,210	Aug. 31	2479	666, 667	36	953
Heslop, Christopher. (See Hudson, Rowe, and Heslop.)						
Hess, Abraham. (See Schwab and Hess.)						
Hess, George H., Chicago, Ill. Hot-air equalising-register	346,102	July 27	1858	478	36	355
Hess, George H., Chicago, Ill. Fire-pot	348,013	Aug. 24	2184	561, 562	36	892
Hess, Jacob, Muscatine, Iowa. Harness-saddle	346,750	Aug. 3	372	100	36	533
Heunsch, Edmund F. (See Bex and Heunsch.)						
Hewett, Austin C., Chicago, Ill. Dental matrix	348,698	Sept. 7	134	37	36	1078
Hewitt, Edward G., Brooklyn, N. Y. Furnace	345,971	July 20	1675	433	36	314
Hewitt, Edward G., Brooklyn, N. Y. Furnace	345,972	July 20	1677	434	36	314
Hewitt, John, *et al.* (See Phillips, Francis V., assignor.)						
Hey, George W., Syracuse, assignor of one-half to M. J. Dolphin, Brooklyn, N. Y. Automatic electric barrel-register	347,038	Aug. 10	767	304, 305	36	615
Heyer, Carl. (See Reichardt and Heyer.)						
Heyman, Harry. (See Surratt and Heyman.)						
Heymann, Edward and F. W., assignors of one-half to J. I. Clapp, Boston, Mass. Electric lamp	348,971	Sept. 14	591	157	36	1161
Heymann, Edward and F. W., assignors of one-half to J. I. Clapp, Boston, Mass. Electric lamp	348,972	Sept. 14	593	157	36	1162
Heymann, Edward and F. W., assignors of one-half to J. I. Clapp, Boston, Mass. Electric lamp	348,973	Sept. 14	595	157	36	1162
Heymann, Frank W. (See Heymann, Edward and F. W.)						
Heynemann, Lionel H. (See Behr, Hans C., assignor.)						
Heysinger, Isaac W., Philadelphia, Pa. Hair-crimper	347,177	Aug. 10	970	259	36	632
Heysinger, Isaac W., Philadelphia, Pa. Machine for inserting metallic staples in papers, &c	349,093	Sept. 14	769	196	36	1191
Heysinger, Isaac W., Philadelphia, Pa. Stick for holding staples, &c	349,094	Sept. 14	773	196	36	1192
Hexamer, Charles J., Philadelphia, Pa. Mechanism for extinguishing fires in malt and grain mills	347,797	Aug. 24	1869	499	36	834
Hiberger, Emanuel, Hagerstown, Md. Watch-maker's oil-cabinet	346,901	July 27	1995	514	36	382
Hice, Richard R., Beaver, Pa., assignor to Rote Automatic Brake Company, Mansfield, Ohio. Car-brake	346,902	July 27	1997	515	36	383
Hice, Richard R., Beaver, Pa., assignor to Rote Automatic Brake Company, Mansfield, Ohio. Car-brake	347,039	Aug. 10	770	205, 206	36	615
Hickman, Erasmus D., Havre de Grace, Md., assignor of one-half to W. T. Hickman, Wilmington, Del. Harness-buckle	345,381	July 13	805	203	36	150
Hickman, William T. (See Hickman, Erasmus D., assignor.)						
Hickok, W. O. (See Metzger and Brown, assignors.)						
Hickok, William O. (See Metzger and Cooper, assignors.)						
Hicks, Behn C., Minneapolis, Minn. Stock-car	344,833	July 6	41	10	36	9
Hicks, James J. (See Crossley, Hanson, and Hicks.)						
Hicks, William W., Fort Mason, Fla. Treatment of humus and muck	345,507	July 13	990	251	36	184
Higgin, Henry, Newport, Ky. Prop-nut	347,240	Aug. 10	1053	282	36	667
Higgins, Charles J., Hallowell, Me. Lantern-globe	349,219	Sept. 14	932	239	36	1223
Higgins, Solomon S. (See Lakin, Rinaldo S., assignor.)						
High, Isaac, Janesville, Iowa. Reel for fence-wire	347,241	Aug. 10	1054	282	36	667
Higham, Charles C., Rome, N. Y., assignor to American Brake Company, St. Louis, Mo. Adjustable lock for bolts and shafts	347,798	Aug. 24	1871	499	36	835
Higham, Daniel. (See Higham, Enos T. and D.)						
Higham, Enos T. and D., assignors of one-third to J. M. Jones, Philadelphia, Pa. Electric motor	349,715	Sept. 28	1624	419	36	1372
Higham, Enos T. and D., assignors of one-third to J. M. Jones, Philadelphia, Pa. Dynamo-electric machine	349,716	Sept. 28	1625	419	36	1372
Highbarger, John L., assignor of one-half to H. C. Mumma, Sharpsburg, Md. Finger-bar for reapers and mowers	348,905	Sept. 7	498	132	36	1139
Hight, Paal, Spencer, Ind. Oil-pump	345,431	July 13	880	220	36	165
Hilbirt, Gustave, Buffalo, N. Y. Steam-boiler	349,159	Sept. 14	857	219	36	1208
Hildebrand, Wilhelm H., Indianapolis, Ind. Fountain-pen	348,395	Aug. 31	2726	732	36	1001
Hildesheim, Joseph, Alton, Iowa. Harrow	347,106	Aug. 10	874	231	36	634
Hildreth, George, assignor to G. W. Perry and J. E. Gaitley, Troy, N. Y. Wire-coiling machine	347,350	Aug. 17	1221	325, 326	36	706
Hill, Benjamin B., Philadelphia, Pa. Hand-stamp	344,903	July 6	152	38	36	28
Hill, Benjamin B., Philadelphia, Pa. Dating-stamp	344,904	July 6	153	39	36	28
Hill, Benjamin B., Philadelphia, Pa. Hand-stamp	348,211	Aug. 31	2481	667	36	953
Hill, Edward A., Keithsburg, Ill. Wagon running-gear	346,284	July 27	2113	543	36	405
Hill, Edwin H., Worcester, Mass. Coating wire with zinc	345,382	July 13	806	208	36	150
Hill, Frederick W., New Haven, Conn. Roller-skate	346,158	July 27	1939	499	36	371
Hill, George W., New York, N. Y. Protective garment	345,899	July 20	1560	408	36	296

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hill, James, Wilkes-Barré, Pa. Combined truck and step-ladder	345,973	July 20	1679	434	36	314
Hill, James D., Lamar, Mo. Ironing-machine	345,785	July 20	1422	368	36	268
Hill, W. H. (See Rheutan, Abram A., assignor.)						
Hill, Wade H. (See Rheutan, Abram A., assignor.)						
Hill, William, *et al.* (See Platt, Mathias, assignor.)						
Hillard, James P., Fall River, Mass. Cotton-waste picker	348,394	Aug. 31	2725	732	36	1001
Hillebrand, Louis, assignor of one-half to D. Wolf, Philadelphia, Pa. Padlock	348,521	Aug. 31	2913	783	36	1036
Hilliard, Joseph, Northborough, Mass. Distributer for fertilizers	349,717	Sept. 28	1626	419	36	1372
Hillman, Herbert & Cooper. (See Hillman, William, assignor.)						
Hillman, John W. L., Fairhaven, Mass. Pocket-knife, pencil-sharpener, &c	346,043	July 20	1780	458	36	321
Hillman, William, assignor to Hillman, Herbert & Cooper, (limited,) Coventry, county of Warwick, England. Tennis-bat	346,751	Aug. 3	373	100, 101	36	533
Hills, Justin, Ischua, assignor of one-half to F. Fitch, Franklinville, N. Y. Rotary steam-engine	347,242	Aug. 10	1054	282	36	667
Hilton, William, Dunkirk, N. Y. Brick-machine	349,500	Sept. 21	1323	343, 344	36	1308
Hime, John F., Farmersville, Ohio. Animal-stock	346,985	July 27	2114	544	36	405
Himstedt, William F. (See Charlton and Lynch, assignors.)						
Hinchliffe, James, Philadelphia, Pa., assignor of one-half to J. and J. Dobson. Shedding mechanism for looms	349,794	Sept. 28	1735	448	36	1393
Hinckley, Gustavus A., Barnstable, Mass. Paper-holder	346,139	July 27	1939	499	36	372
Hinckley, Howard V., Topeka, Kans. Switch-stand	348,968	Sept. 14	588	156	36	1161
Hincks, Enoch P., and G. H. Johnson, Bridgeport, Conn. Coach-hinge	348,212	Aug. 31	2482	667	36	953
Hindley, Solomon K., and E. S. Field, Springfield, Mass. Breech-loading fire-arm	345,058	July 6	367	92	36	67
Hindmarsh, Percy J., and W. H. Gwinn, Centralia, Kans. Thill-coupling	348,014	Aug. 24	2186	582	36	892
Hine, L. G. (See Maltby, Philo, assignor.)						
Hines, Andrew L., Charlotte, Mich. Folding table	344,834	July 6	42	11	36	9
Hinkley, George M., assignor of one-half to E. P. Allis, Milwaukee, Wis. Band-saw mill	348,280	Aug. 31	2572	691, 692	36	970
Hinkley, George M., assignor of one-half to E. P. Allis, Milwaukee, Wis. Combined band and circular saw mill	348,281	Aug. 31	2573	692, 693	36	971
Hinkley, George M., assignor of one-half to E. P. Allis, Milwaukee, Wis. Combined band and circular saw mill	348,282	Aug. 31	2576	693	36	972
Hinkley, George M., assignor of one-half to E. P. Allis, Milwaukee, Wis. Supporting-wheel for band-saws	348,283	Aug. 31	2578	693	36	972
Hinman, Albert, Friendship, and J. Hinman, West Almond, N. Y. Seeding-machine	348,213	Aug. 31	2483	667, 668	36	954
Hinman, Jesse. (See Hinman, Albert and J.)						
Hinsdale, William R., Brooklyn, N. Y. System for disposing of sewage	346,903	July 27	1998	515, 516	36	383
Hinshaw, Amos S. (See Dwiggins, William, assignor.)						
Hinternesch, Herman D. and Herman D., Jr., Baltimore, Md. Roller for hanging curtains	346,752	Aug. 3	374	101	36	534
Hintz, Julius C., Cincinnati, Ohio. Bolt for jail-doors	345,786	July 20	1423	368	36	269
Hinze, Charles W., Cumberland, Md. Miter-box	345,590	July 13	1130	288	36	209
Hipp, Preston O., Moro Bay, assignor of one-half to W. R. Watson, Bradley County, Ark. Car-coupling	348,559	Sept. 7	23	7	36	1052
Hirth, Alexander. (See Rew, William, assignor.)						
Hitchcock Manufacturing Company. (See Cately, Shepard W., assignor.)						
Hitchcock, Robert, Watertown, N. Y. Forced-draft lamp	345,900	July 20	1580	408	36	297
Hoagland, John B., assignor of one-half to W. B. Sheffield, Nashville, Tenn. Metallic shingle	349,095	Sept. 14	774	197	36	1192
Hobbs, Marmaduke W., Richmond, Ind. Inhaler	346,477	Aug. 3	37	9	36	467
Hobson, William H., Lamonte, Mo. Harrow attachment for cultivators	349,795	Sept. 28	1736	448	36	1393
Hodges, Frederick H., Newport, R. I. Banjo tail-piece	349,308	Sept. 21	1042	266	36	1253
Hodges, Pliny F., Minneapolis, Minn. Grain-binder	344,964	July 6	225	58	36	41
Hodgkinson, James, and J. H. Dewhurst, Manchester, county of Lancaster, England. Gas-engine	347,603	Aug. 17	1580	420	36	773
Hodgman, Willis K. (See Huber and Hodgman.)						
Hodgson, George, Conklin Station, N. Y. Indicator for steam-boilers	344,905	July 6	155	39	36	28
Hodgson, John G. (See Norton and Hodgson.)						
Hoefer, Hermann, and G. Blechschmidt, La Salle, Ill. Hub for vehicle-wheels	347,040	Aug. 10	772	206	36	616
Hoepfner, Henry J., assignor to himself, M. Poston, and G. B. Blazer, Nelsonville, Ohio. Eaves-trough hanger	346,655	Aug. 3	259	71	36	511
Hoff, Edward P., *et al.* (See Stepp, John P., assignor.)						
Hoffman, Horace J., Milwaukee, Wis. Case for holding blank forms	348,015	Aug. 24	2186	582	36	892
Hoffman, John W., Creston, Ohio. Work-box	349,096	Sept. 14	776	197	36	1192
Hoffman, Ross J., Binghamton, N. Y. Steam-actuated damper-regulator	347,799	Aug. 24	1872	500	36	835
Hoffmann, Meinhard, and A. Weinberg, Mainkur, near Frankfort-on-the-Main, assignors to L. Cassella & Co., Frankfort-on-the-Main, Germany. Naphthol-black color compound	345,901	July 20	1582	.....	36	297
Hogan, William, Renovo, Pa. Spark arrester and consumer	349,796	Sept. 28	1736	448	36	1393
Hogeland, Israel, assignor of one-half to G. P. Anderson, Indianapolis, Ind. Apparatus for forming and drying barrels	348,906	Sept. 7	499	132	36	1139
Hoggatt, Jabesh H., Lynn, Ind. Neck-yoke	347,604	Aug. 17	1581	420	36	774
Holbrook, Benjamin, and C. E. Norcott, Chicago, Ill.; said Norcott assignor to said Holbrook. Smoke and steam escape for heating apparatus	349,097	Sept. 14	777	197	36	1193
Holbrook, Charles E., assignor of one-half to H. M. Stevens and A. E. Dewey, Watertown, N. Y. Sheet-piling attachment for printing-machines	348,123	Aug. 24	2335	627	36	921
Holbrook, Silas W., Newburg, N. Y. Starching-machine	345,137	July 6	471	120	36	86
Holcomb, Fred A. (See Chase, John W., assignor.)						
Holgate, Jacob B., Burnley, county of Lancaster, England. Dust-collector	345,508	July 13	991	251	36	184
Holland, Harold, Lynn, Mass. Ice-creeper	346,286	July 27	2115	544	36	405
Holland, Harold, Lynn, Mass. Horseshoe	349,044	Sept. 14	698	178	36	1179
Hollenbeck, Frank A., Syracuse, N. Y. Knob attachment	348,494	Aug. 31	2870	772	36	1028
Hollerith, Herman, and S. G. Metcalf, New York, N. Y. Apparatus for corrugating metal tubing	349,718	Sept. 28	1627	420	36	1372
Holley, George W., Ithaca, N. Y. Manufacture of paint	349,885	Sept. 28	1858	.....	36	1418
Hollidge, George H., Tacoma, Wash. Ter. Pie-plate lifter or culinary utensil	346,287	July 27	2116	544	36	405
Hollings, J. Charles. (See Rouse, John H., assignor.)						
Hollingsworth, Joseph, assignor of one-half to S. Witkowski, Kilbourne, La. Cotton-hoeing machine	347,605	Aug. 17	1582	420	36	774
Hollingsworth, Luther R., Emmet, Ark. Instrument for measuring lengths, grades, and directions of lines	349,500	Sept. 21	1441	371	36	1331
Hollister, Elisha S., Bristol, Conn. Polishing-machine	344,835	July 6	44	11	36	9
Holloway, Charles T., Baltimore, Md. Chemical fire-extinguisher	347,606	Aug. 17	1583	421	36	774

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Holloway, Joseph C., Sr., Eddyville, Ky. Vehicle-hub	347,426	Aug. 17	1321	352	36	734
Holloway, Joseph C., Sr., Eddyville, Ky. Hub	347,427	Aug. 17	1322	352	36	734
Holly, Carlos, Lockport, N. Y. Milling-tool	346,103	July 27	1853	478	36	356
Holly, John, Rouseville, Pa. Tube-clamp for oil-wells	348,907	Sept. 7	500	132	36	1139
Holmes, Alba L., Grand Haven, Mich. Ball-and-socket joint for water and gas pipes	346,478	Aug. 3	38	10	36	467
Holmes, Albert B., Salem, Mass. Window-casing	349,995	Sept. 28	2004	518	36	1445
Holmes, Alonzo J., Saratoga Springs, N. Y. Culinary tongs	345,846	July 20	1508	391	36	283
Holmes, Benjamin F., assignor to S. F. Pierson, trustee, New York, N. Y. Stock-car	346,439	July 27	2337	601	36	446
Holmes, Booth & Haydens. (See Jenkins, Nicholas, assignor.)						
Holmes, Booth & Haydens. (See McGill, George W., assignor.)						
Holmes, Booth & Haydens. (See Noé, William R., assignor.)						
Holmes, Britain. (See Holmes, Edward and B.)						
Holmes, Edward and B., Buffalo, N. Y. Combined cart and sugar-cane planter	347,800	Aug. 24	1873	500	36	835
Holmes, George A., *et al.* (See Oliver, Reuben W., assignor.)						
Holroyd, James, Manchester, county of Lancaster, England. Stop-motion mechanism for doubling-machines	349,939	Sept. 28	1924	498	36	1430
Holroyd, John. (See White, Thomas H., assignor.)						
Holt, Mary J., San Francisco, Cal. Portable book-holder, &c	346,547	Aug. 3	123	33	36	483
Holt, Noah W., assignor to Acme Dust Collector and Wheat Cleaning Company, Jackson, Mich. Dust-collector	347,243	Aug. 10	1055	292 / 283	36	667
Holt, Selden W., assignor of two-thirds to F. Brown and H. E. Shaw, Lowell, Mass. Picker-staff check for looms	347,801	Aug. 24	1875	500	36	836
Holway, Alvah W., Boston, Mass. Medicated lozenge	349,591	Sept. 21	1442	.....	36	1331
Home Gas and Oil Stove Company. (See McConnell, Hugh, assignor.)						
Homman, Andrew J., *et al.* (See Smith, Samuel, assignor.)						
Hommel, Joseph M., Detroit, Mich. Window-screen	346,916	Aug. 10	602	162	36	584
Honeycutt, John T., New Brunswick, N. J. Linear scale	346,368	July 27	2226	571	36	426
Hood, Gustave, Newark, N. J., assignor to S. I. Knight, New York, N. Y. Lap writing-desk or portfolio	348,124	Aug. 24	2337	627	36	921
Hooker, William D., St. Louis, Mo. Valve-movement for direct-acting engines	349,045	Sept. 14	690	179	36	1179
Hooker, William D., St. Louis, Mo. Circulation of feed-water in multitubular upright boilers	349,046	Sept. 14	701	179	36	1179
Hooker, William D., St. Louis, Mo. Double-acting pump	349,047	Sept. 14	703	179 / 180	36	1179
Hooks, John H., Collierville, Tenn. Cotton-bale tie	346,917	Aug. 10	603	162	36	584
Hooper, John, assignor to Colwell Lead Company, New York, N. Y. Die for lead-presses	347,607	Aug. 17	1585	421	36	774
Hoopes, Brinton B., Avondale, Pa. Bench-dog	349,996	Sept. 28	2005	518	36	1445
Hoosier Drill Company. (See Conner, Albert C., assignor.)						
Hoosier Drill Company. (See Conner and Westcott, assignors.)						
Hoover, Abel, and R. Brown, assignors to said Hoover and W. Gamble, Miamisburg, Ohio. Harvester	348,495	Aug. 31	2871	773	36	1029
Hoover, Henry H., Macy, Ind. Farm-gate	346,588	Aug. 3	172	46	36	493
Hoover, Isaac W., Milan, Ohio. Combined potato digger and separator	348,214	Aug. 31	2484	668	36	954
Hoover, John H. (See Taylor, Joseph A. D., assignor.)						
Hope, John T. (See Hope, Luke J. and J. T.)						
Hope, Luke J. and J. T., Kansas City, Mo. Ventilating-motor	347,709	Aug. 17	1747	465 / 466	36	803
Hopkins, Cabel B., assignor to himself and O. E. Robinson, Louisville, Ky. Cash resister and indicator	347,296	Aug. 10	1134	303 / 304 / 305	36	682
Hopkins, Henry C., Lancaster, Pa., and R. E. Linham, assignors to Rote Automatic Brake Company, Mansfield, Ohio. Automatic car-brake	346,204	July 27	2001	516	36	383
Hopkins, Herbert, and A. E. Johnson, Austin, Nev. Throttle-valve	347,041	Aug. 10	773	206	36	616
Hopkins, James R., Somerville, Mass., assignor to Boston Woven Hose Company, Portland, Me. Combined wrench and spanner	347,042	Aug. 10	774	206	36	616
Hopkins, William F., Sturgis, Dak. Ter. Alphabetical toy	346,656	Aug. 3	960	72	36	511
Hopkins, William H., assignor of one-half to F. D. Gaylord, Sodus, N. Y. Coffee or tea pot	346,044	July 20	1781	458	36	331
Hopkinson, John E., London, county of Middlesex, England. Curtain-roller	346,045	July 20	1782	459	36	331
Hopkinson, Lizzie, Frankfort, Ind. Combined embroidery-frame, easel, work-table, and desk	345,509	July 13	993	251	36	184
Hornbeck, James, Des Moines, Iowa. Brick-machine	345,304	July 13	704	177 / 178	36	133
Horne, John H., Lawrence, Mass. Rag-engine for beating paper-pulp	347,043	Aug. 10	775	207	36	616
Horner, Charles H., Xenia, Ohio. Invalid-bedstead	348,910	Sept. 7	503	133	36	1140
Horner, William H. (See Renshaw and Horner.)						
Horrae, Henry M., Paris, Tex. Spring socket-iron for vehicles	349,098	Sept. 14	778	197	36	1193
Horrocks, William, Philadelphia, Pa. Spiral stairway	348,908	Sept. 7	501	133	36	1139
Horsfall, John H. (See Bancroft and Horsfall.)						
Horstmann, William, New York, N. Y. Composition for plastering, filling, wall-ornaments, &c	345,847	July 20	1509	.....	36	283
Horton, Cornelius N., assignor to S. F. Allen, Peekskill, N. Y. Brick-machine	349,395	Sept. 21	1179	305	36	1279
Horton, Peter D., San Francisco, Cal. Toy air-gun	347,244	Aug. 10	1057	293	36	667
Horton, Raughley, Walton, Kans. Land-roller and stalk-cutter	348,284	Aug. 31	2579	693	36	972
Hosack, Samuel G., East Saginaw, assignor of one-half to A. A. Meuth, Ann Arbor, Mich. Bench-clamp	349,099	Sept. 14	780	198	36	1193
Hostetter, Benjamin F., and I. C. H. Gilmore, Oskaloosa, Iowa. Smoothing and polishing iron	346,814	Aug. 3	440	121	36	546
Hotchkiss, Emerson M., Waterbury, Conn. Door-alarm	345,138	July 6	473	120	36	86
Hough, Benjamin B., assignor of one-half to S. G. Warner, Wilmington, Del. Valve mechanism	346,657	Aug. 3	261	72	36	511
Hough, Benjamin B., assignor of one-half to S. G. Warner, Wilmington, Del. Valve-gear	346,658	Aug. 3	261	72	36	512
Houlehan, James, Toledo, Ohio, assignor to Railway Water Hoist Company, Chicago, Ill. Automatic apparatus for accumulating and utilizing power	347,710	Aug. 17	1748	466	36	803
Houlgate, Joshua, Fairfield, Nebr. Water-elevator	349,254	Sept. 14	984	251	36	1233
Hourigan, John, Galveston, Tex. Wood-working machine	347,044	Aug. 10	778	207	36	617
House, Isaac M., Gravenhurst, assignor of three-fourths to A. R. Williams, Toronto, Ontario, Canada. Shingle-sawing machine	346,369	July 27	2227	571 / 572	36	426
Houston, George W., and E. F. Mulkey, Savoy, Tex. Motor	349,276	Sept. 14	1008	257	36	1238
Houts, Edward, and A. Brown, Blunt, Dak. Ter. Plow	349,220	Sept. 14	933	239	36	1223
House, Ulgis. (See Huidekoper, Mambourg, Houze, and Dockstader.)						
House, Ulgis, assignor of two-thirds to A. C. Huidekoper and L. Mambourg, Meadville, Pa. Glass-melting furnace	347,045	Aug. 10	780	207	36	617
Hover, William, Freeport, Ill. Padlock	347,711	Aug. 17	1750	466	36	804

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Hovey, A. N., *et al.* (See Kimball, Freddie C., assignor.)						
Hovey, Asa E., Chicago, Ill. Gripping device for cable railways	347,935	Aug. 24	2074	550 / 551	36	872
Hovey, E. H., *et al.* (See Kimball, Freddie C., assignor.)						
Hovey, Edward A. A., and E. C. Phillips, Chicago, Ill., assignors to A. Erkenbrecher Company, Cincinnati, Ohio. Laundry dressing	349,648	Sept. 21	1507	.....	36	1345
Hovey, Frank A., assignor of one-half to W. L. Ramey, Madison, Nebr. Combined flour safe and sieve	345,139	July 6	474	120	36	86
Howard, Charles H., Great Falls, N. H. Creel for warping or beaming machines	349,100	Sept. 14	781	198	36	1193
Howard, Charles H., Auburn, Me., assignor to J. S. Bailey, Milford, Mass. Slasher	350,054	Sept. 28	2086	540	36	1461
Howard, Ebenezer, London, England. Type-writing machine	346,104	July 27	1854	479	36	356
Howard, Edward. (See Shaw, Loring D., assignor.)						
Howard, Hiram. (See Child, Frank E., assignor.)						
Howard Iron Works. (See Schlenker, Erhard, assignor.)						
Howard, John W., *et al.* (See Solano, Renaldo, assignor.)						
Howard, Wilbur F., assignor to himself and D. W. O'Neil, Claremont, N. H. Brush	349,649	Sept. 21	1508	391	36	1345
Howe, Elmer P., Boston, Mass. Injector	349,997	Sept. 28	2005	518	36	1445
Howe, John C., assignor to J. Luther, Worcester, Mass. Lock-hinge	346,046	July 20	1783	459	36	332
Howe, Solon G., Detroit, Mich. Car-coupling	346,370	July 27	2229	572	36	427
Howe, Warren B., and M. D. Knowlton, Chicago, Ill. Coating paper with paraffine	344,965	July 6	227	58	36	42
Howell, Frederick W., assignor to M. T. Howell, Buffalo, N. Y. Cockle-separator	346,815	Aug. 3	441	121 / 122	36	546
Howell, Isaac F., Chase, Kans. Clothes-rack	346,816	Aug. 3	445	122	36	547
Howell, John W., *et al.* (See Dyer, Richard N., assignor.)						
Howell, John W., assignor to C. S. Van Nuis, New Brunswick, N. J., and Dyer & Seely, New York, N. Y. Night-lamp for electric lighting systems	348,125	Aug. 24	2339	628	36	921
Howell, Margaret T. (See Howell, Frederick W., assignor.)						
Howes, John, Worcester, Mass. Filtering apparatus	348,101	Sept. 14	783	198	36	1194
Howle, William L., Eccles, England. Preventing accumulation of snow in railway-cuttings	347,107	Aug. 10	876	232	36	634
Howland, George B., Chicago, Ill. Gate-latch	348,900	Sept. 7	502	133	36	1140
Hoy, Eugene, Spencerport, N. Y. Potato-digger	346,918	Aug. 10	604	162	36	585
Hoyle, Charles. (See Rose and Rein, assignors.)						
Hoyt, Lucius P., Aurora, Ill. Chain-feed surfacing and sizing machine	344,836	July 6	45	11 / 12 / 13	36	10
Hubbard, Fred W., assignor to Kilbourne & Jacobs Manufacturing Company, Columbus, Ohio. Drag-scraper	348,740	Sept. 7	279	75	36	1099
Hubbard, George M., assignor to W. & E. T. Fitch, New Haven, Conn. Snap-hook	347,108	Aug. 10	877	232	36	634
Hubbard, George M., assignor to W. & E. T. Fitch, New Haven, Conn. Snap-hook	350,055	Sept. 28	2087	540	36	1461
Hubbard, Moses G., Philadelphia, Pa. Automatic unwinding attachment	347,802	Aug. 24	1876	500	36	836
Hubbard, Moses G., Philadelphia, Pa. Automatic unwinding attachment	347,803	Aug. 24	1877	501	36	836
Hubbard, Moses G., Philadelphia, Pa. Automatic twine-unwinder	347,804	Aug. 24	1878	501	36	836
Hubbard, Moses G., Norristown, Pa. Car-truck	348,741	Sept. 7	280	75	36	1100
Hubbell, Charles H. (See Kelly and Hubbell.)						
Hubbell, John N., Bedford, Ohio. Safety-switch for railways	347,805	Aug. 24	1879	501 / 502	36	837
Hubel, Frederick A., and F. J. Reinhold, Detroit, Mich.; said Reinhold assignor of one-half to said Hubel. Capsule-mold-greasing machine	345,591	July 13	1131	289	36	209
Huber, Berthold, Taunton, Mass. Gripper mechanism for printing-machines	347,487	Aug. 17	1419	377	36	742
Huber, Berthold, assignor to Huber Printing Press Company, Taunton, Mass. Printing-machine	350,056	Sept. 28	2089	541	36	1461
Huber, Berthold, and W. K. Hodgman, assignors to Huber Printing Press Company, Taunton, Mass. Mechanical movement	348,162	Aug. 24	2395	642 / 643	36	932
Huber Printing Press Company. (See Huber, Berthold, assignor.)						
Huber Printing Press Company. (See Huber and Hodgman, assignors.)						
Hubler, John W., Young America, Ind. Fence-making machine	348,742	Sept. 7	283	76	36	1100
Hübner, Curt, Berlin, Germany. Bridle-bit	345,592	July 13	1133	289	36	209
Hudgins, Richard W. (See McDowell, Hudgins, and Moore.)						
Hudson, Thomas, E. Rowe, Darlington, county of Durham, and C. Heslop, Stranghow, county of York, England, assignors to J. H. Lancaster, New York, N. Y. Coal-mining machine	345,696	July 20	1290	334	36	245
Huet, Louis H. S. H. (See Gaillet and Huet.)						
Huff, George A., Champaign, Ill. Snap-hook	346,047	July 20	1783	459	36	332
Huff, James H., Boston, Mass. Suspender-end	349,277	Sept. 14	1008	258	36	1238
Huffman, Jefferson M., assignor of one-third to F. B. Alexander, Hickory, N. C. Combined planter and fertilizer-distributer	346,548	Aug. 3	124	33	36	484
Huffman, John S., Rockford, Ill. Wrench	348,522	Aug. 31	2914	784	36	1036
Huffor, George A. (See Peacock, Graves, and Huffor.)						
Hughes, John, Stapleton, N. Y. Making sulphuric acid	345,140	July 6	475	121	36	86
Hughes, Robert. (See Hughes, William H. and R.)						
Hughes, Samuel R., Benton Harbor, Mich. Feed-water heater	345,593	July 13	1135	289	36	210
Hughes, William, Auburn, N. Y. Upper	345,141	July 6	477	121	36	87
Hughes, William H., New York, N. Y. Inking apparatus for printing-machines	348,163	Aug. 24	2396	643	36	932
Hughes, William H. and R., Cleveland, Ohio. Steam-actuated valve	348,915	Aug. 31	2487	668	36	954
Hughes, William W., Washington Mills, N. Y. Scaffold-bracket	346,160	July 27	1940	500	36	372
Huidekoper, Arthur C., *et al.* (See House, Ulgis, assignor.)						
Huidekoper, Arthur C., L. Mambourg, U. Houze, and D. S. Dockstader, Meadville, Pa. Furnace-forge for welding and forging iron, steel, and other metallic bodies	347,875	Aug. 24	1990	527	36	856
Huling, William N., Lampasas, Tex. Wire-stretcher	350,057	Sept. 28	2091	541	36	1461
Hull, James W., *et al.* (See Rew, Richard A., assignor.)						
Hull, Martin L., Cleveland, Ohio. Vapor-burner	347,712	Aug. 17	1751	466	36	804
Hull, Wolcott A., *et al.* (See Wayland, James, assignor.)						
Hull, Wolcott A., New York, N. Y. Ornament for lamp-shades	350,058	Sept. 28	2092	541	36	1462
Hull, Wolcott A., assignor of one-half to Ansonia Brass and Copper Company, New York, N. Y. Lamp-burner	345,233	July 6	596	151	36	108
Hull, Wolcott A., assignor of one-half to Ansonia Brass and Copper Company, New York, N. Y. Lamp-shade ornament	345,234	July 6	598	152	36	108
Hulse, E. M. (See Carleton, Charles, assignor.)						
Humbird, James S., *et al.* (See Doubleday and Lyman, assignors.)						
Hume, George H. and J. S., Osawatomie, Kans. Fence-support	347,713	Aug. 17	1753	467	36	804
Hume, John S. (See Hume, George H. and J. S.)						
Humphrey, Frank A., Worcester, Mass. Temporary center and templet instrument	346,048	July 20	1784	459 / 460	36	332

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Humphrey, Frank A., Worcester, Mass. Bar-center tool	346,371	July 27	2231	572	36	427
Humphrey, Frank A., Worcester, Mass. Combined panel-gage, measuring-rod, and trammel	348,674	Sept. 7	197	52	36	1092
Humphrey, Frank A., Worcester, Mass. Marking-gage	349,102	Sept. 14	784	199	36	1194
Humphrey, Fred, Boston, Mass. Oil-cup	346,305	July 27	2004	516	36	384
Humphrey, William. (See Knapp, McKenzie, and Humphrey.)						
Humphreys, Charles I. (See Timmins and Humphreys.)						
Hungerford, George S., New York, N. Y. Machine for separating coffee, &c.	345,633	July 13	1190	306	36	220
Hungerford, Henry, Norwalk, Conn. Mill-roll	346,817	Aug. 3	445	122, 123	36	547
Hunsicker, Charles M., Dayton, Ohio. Machine for bending metal pipes	347,488	Aug. 17	1420	377	36	742
Hunt, Charles M., Pocahontas, Iowa. Arm-support	346,549	Aug. 3	126	34	36	484
Hunt, Charles W., West New Brighton, assignor to C. W. Hunt Company, New York, N. Y. Car-truck	347,936	Aug. 24	2077	552	36	873
Hunt, Charles W., West New Brighton, assignor to C. W. Hunt Company, New York, N. Y. Coal-conveying apparatus	349,309	Sept. 21	1043	267	36	1253
Hunt Company, C. W. (See Hunt, Charles W., assignor.)						
Hunt, Ira J., Kalamazoo, assignor of one-half to D. O. Everest & Co., Pine Grove, Mich. Wheel-cultivator	347,806	Aug. 24	1881	502	36	837
Hunt, James. (See Amos and Hunt.)						
Hunt, James E., San Francisco, Cal. Window burglar-alarm	346,105	July 27	1856	479	36	356
Hunt, Myron A., Wright's Grove, Ill. Manufacture of brick and other burned products of clay	345,305	July 13	705	.....	36	133
Hunt, Robert W., Troy, N. Y. Feeding-table for rolling-mills	348,216	Aug. 31	2488	669	36	954
Hunter, George, Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Watch-movement	347,272	Aug. 10	1098	294	36	675
Hunter, George E., Elgin, Ill. Compensation-balance for time-pieces	347,297	Aug. 10	1139	305	36	683
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Machine for driving and cutting steady-pins for watch-escapements	345,634	July 13	1192	306, 307, 308	36	220
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Device for heading steady-pins of watch-escapements	345,635	July 13	1195	308, 309	36	221
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Machine for securing guard-pins in escape-levers	345,636	July 13	1196	309, 310	36	221
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Manufacture of watch-balances	347,271	Aug. 10	1097	293	36	675
Hunter, George W., Logansport, Ind. Water-closet	346,997	Aug. 10	703	196	36	603
Hunter, Griffith, assignor to S. A. Hunter, Chicago, Ill. Apparatus for hoisting stone	346,850	Aug. 3	494	136, 137	36	557
Hunter, James, Ruff's Dale, Pa. Fence-post	347,298	Aug. 10	1141	305	36	683
Hunter, Marshall E. (See Gerry, James H., assignor.)						
Hunter, Marshall E. (See Gerry and Hunter.)						
Hunter, Marshall E., Oakland, Cal., and J. H. Gerry, Brooklyn, N. Y.; said Gerry assignor to said Hunter. Electric synchronizer for clocks	349,650	Sept. 21	1509	391	36	1345
Hunter, Rudolph M., Philadelphia, Pa. Regulator for dynamo-electric machines	347,937	Aug. 24	2078	552	36	873
Hunter, S. A. (See Hunter, Griffith, assignor.)						
Huntington, Charles P. (See Perrin, Thomas J., assignor.)						
Huntington, Joseph D., Chicago, Ill. Device for supporting machinery	346,106	July 27	1857	480	36	356
Huntley, Gibbs, Bay City, Mich. Breech-loading fire-arm	345,902	July 20	1583	408	36	297
Huntress, Orville. (See Harrison, Huntress, and Lewis.)						
Hunzeker, Rudolph S. (See Rowand and Hunzeker.)						
Hurley, John A., assignor to F. F. Adams Company, Erie, Pa. Cork-puller	348,743	Sept. 7	284	76	36	1100
Hurley, John A., assignor to F. F. Adams Company, Erie, Pa. Cork-puller	348,911	Sept. 7	504	134	36	1140
Hurley, William G., Terrell, Tex. Fertilizer-distributer	347,876	Aug. 24	1991	527	36	856
Hurxthal, Frederick K., *et al.* (See Fleharty, George A., assignor.)						
Huse, Warren D., Laconia, N. H. Spindle for yarn-winding machines	348,560	Sept. 7	24	7	36	1053
Huse, Warren D., Laconia, N. H. Yarn-winding machine	348,561	Sept. 7	25	7, 8	36	1053
Hussey, E. B., *et al.* (See Black, Henry, assignor.)						
Hussey, E. B., *et al.* (See Black and Miller, assignors.)						
Hussey, Frederick. (See Budd, William E., assignor.)						
Hussey, Jasper F., New Vienna, Ohio. Ash-pan for locomotives	346,049	July 20	1786	460	36	338
Hussey, Timothy B., North Berwick, Me. Harrow	346,372	July 27	2233	573	36	498
Huster, Theodore, Paterson, N. J. Caster	346,161	July 27	1941	500	36	372
Hutchings, Arthur, Buffalo, N. Y. Fire-escape	346,406	July 27	2285	587	36	437
Hutchins, George F., assignor to Knowles Loom Works, Worcester, Mass. Locking device for the harness-jacks of looms	346,407	July 27	2287	587, 588	36	437
Hutchins, George F., assignor to Knowles Loom Works, Worcester, Mass. Mechanism for depressing loom-harnesses	346,408	July 27	2289	588	36	437
Hutchinson, Clinton C., assignor to L. P. Morris Company, Philadelphia, Pa. Apparatus for refrigerating rooms	348,523	Aug. 31	2915	784	36	1036
Hutchison, William G., *et al.* (See Armstrong, George S., assignor.)						
Huttenloecher, Gottlieb H., Des Moines, Iowa. Car-coupling	346,107	July 27	1859	480	36	356
Hutton, Sutherland. (See Dye, Joseph F., assignor.)						
Hyatt, John W. (See Lefferts and Hyatt.)						
Hyatt, Jonah G., Waverly, N. Y. Door-hanger	347,109	Aug. 10	878	232	36	634
Hyatt, Walter P., Matteawan, N. Y., assignor to New York Felting Company. Felt articles, such as boots, shoes, and slippers with felt soles	345,432	July 13	867	221	36	165
Hyatt, Walter P., Matteawan, N. Y., assignor to New York Felting Company. Felt footwear	347,110	Aug. 10	879	232	36	634
Hyatt, Walter P., Matteawan, N. Y., assignor to New York Felting Company. Felt shoe	347,111	Aug. 10	880	233	36	635
Hyde, James C., assignor to West Haven Buckle Company, West Haven, Conn. Suspender-buckle	346,851	Aug. 3	496	137	36	557
Hyman, Samuel, assignor of three-fourths to J. W. Eaton and C. Wetherwax, Albany, N. Y. Railway-track	345,054	July 6	358	90	36	65
Hynds, Francis P., Ralston's Station, Tenn. Car-coupling	346,409	July 27	2290	588	36	438
Ickes, Gustav, Omaha, Nebr. Corn-planter	346,550	Aug. 3	126	34	36	484
Iler, Leroy, Ridott, and W. H. Piper, Leaf River, Ill. Grinding-mill	346,108	July 27	1860	480	36	357
Illingworth, John, Newark, N. J. Mold for casting compound ingots	349,886	Sept. 28	1859	479	36	1418
Illingworth, John, Newark, N. J. Compound ingot-mold	349,998	Sept. 28	2008	518, 519	36	1445
Illinois Watch Company. (See Taft, Ryland L., assignor.)						
Imhorst, Ferdinand, San Francisco, Cal. Upright piano-forte	348,629	Sept. 7	135	36	36	1072
Imlay, William L., Camden, N. J. Jar-clamp	345,142	July 6	477	121	36	87

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Imperial Electric Light Company. (See Perkins, Charles G., assignor.)						
Ince, William, Hayle, county of Cornwall, England. Dust-collector	350,059	Sept. 28	2093	541, 542	36	1462
Indented Paper Company. (See Baker, Jacob M., assignor.)						
Ingersoll, Robert H., and P. B. Henry, New York, N. Y. Rotary hand numbering and printing machine	345,697	July 20	1291	335	36	945
Ingersoll, Simon, Glenbrook, Conn., assignor to Pond, West & Simons, Port Chester, N. Y. Rock-drill	344,906	July 6	156	39, 40	36	28
Ingersoll, Simon, Glenbrook, Conn., assignor to Pond, West & Simons, Port Chester, N. Y. Rock-drilling machine	344,907	July 6	158	40	36	29
Ingersoll, Simon, Stamford, Conn., assignor to N. C. Pond, M. O. West, and E. Simons, Port Chester, N. Y. Projectile for throwing life-lines	348,848	Sept. 7	409	111	36	1123
Ingersoll, Simon, Stamford, Conn., assignor to N. C. Pond, M. O. West, and E. Simons, Port Chester, N. Y. Gun and projectile for throwing life-lines	348,849	Sept. 7	411	111	36	1123
Ingram, John A., assignor of one-half to W. B. Kile, Canton, Kans. Belt-guide	348,285	Aug. 31	2580	694	36	973
Ingres, Charles. (See Poore, Ingrey, and Latham.)						
Initial Toepad Company. (See Barrows and Knowles, assignors.)						
Intze, Otto, Aachen, Prussia, Germany. Fluid-reservoir	348,912	Sept. 7	505	134, 135	36	1140
Intze, Otto, Aachen, Prussia, Germany. Gasometer	348,913	Sept. 7	507	135	36	1140
Irish, Charles S. (See Lewis and Irish.)						
Irish, Joseph, assignor to J. McVickar, New York, N. Y. Embroidering-machine	348,562	Sept. 7	27	8, 9, 10, 11, 12	36	1053
Irving, George M. (See Watson, William, assignor.)						
Irwin, Frank, Centreport, N. Y. Carrier for cobs	346,919	Aug. 10	605	162	36	42
Irwin, Joseph I. (See Allison, Asa H., assignor.)						
Isbell, Robert H., New York, N. Y. Rotary engine	348,217	Aug. 31	2490	670	36	955
Isbester, Richard T., Chattanooga, Tenn. Condenser	349,103	Sept. 14	786	199	36	1194
Ishe, Albert. (See Ishe, Anthony and A.)						
Ishe, Anthony and A., assignors of one-half to P. C. and C. S. Snyder, Lancaster, Pa. Burglar-alarm	348,675	Sept. 7	199	52, 53	36	1083
Ives, Charles, assignor of one-half to G. H. Ives, Kirkland, N. Y. Bung	347,046	Aug. 10	781	208	36	617
Ives, Frederick. (See Wells, Edgar J., assignor.)						
Ives, George H. (See Ives, Charles, assignor.)						
Iwan, Henry and L., Streator, Ill. Liquid-receptacle for canes and the like	344,966	July 6	231	59	36	585
Iwan, Louis. (See Iwan, Henry and L.)						
Jackson, Amos H., Fremont, Ohio. Show-rack	349,255	Sept. 14	985	251	36	1233
Jackson, Caleb H., Allegheny, assignor to Union Switch and Signal Company, Pittsburg, Pa. Ladder	347,608	Aug. 17	1585	421	36	774
Jackson, Edward W., Mount Kisco, N. Y. Crupper press and former	345,143	July 6	478	121, 122	36	87
Jackson, Edwin A., New York, N. Y. Self-closing ash-pan	347,351	Aug. 17	1224	326	36	706
Jackson, Henry R., Newark, N. J. Sash-fastener	349,431	Sept. 21	1227	318	36	1288
Jackson, Johiel, Fort Atkinson, Wis. Spring for vehicles	349,221	Sept. 14	934	239, 240	36	1223
Jackson, Oliver D. (See Gold, Joseph S., assignor.)						
Jackson, William, Allegheny City, Pa. Balanced slide-valve	345,235	July 6	599	152	36	108
Jackson, William W., Chicago, Ill. Faucet	348,914	Sept. 7	508	135	36	1141
Jacobs, Charles A., assignor to J. E. Patterson and S. Kohn, Toledo, Ohio. Steam-engine	348,563	Sept. 7	40	12	36	1055
Jacobs, Joseph H., Atchison, Kans. Flying target	349,160	Sept. 14	857	219	36	1208
Jacobs, T. E., *et al.* (See Warner, John P., assignor.)						
Jacobs, Theodore, Norristown, Pa. Liquid-forcing device	349,651	Sept. 21	1511	391	36	1346
Jacobson, Andrew, Foster, Minn. Device for releasing animals	347,807	Aug. 24	1892	502	36	837
Jacot, Charles H., Hoboken, N. J. Music-box attachment for clocks	347,047	Aug. 10	782	208	36	617
Jacques, Ernest. (See Fourcault and Jacques.)						
Jaeger & Co. (See Jaeger, Julius, assignor.)						
Jaeger, Julius, assignor to Jaeger & Co., Rutherford, N. J. Screw-faucet	347,609	Aug. 17	1586	421	36	775
Jagel, Julius M., Brooklyn, N. Y. Electric subway	349,797	Sept. 28	1739	448	36	1393
Jalageas, Jules C., administrator. (See Camus, Henri.)						
James, David, Jefferson, Ill. Machine for wiring the edges of sheet-metal vessels	348,396	Aug. 31	2127	732	36	1001
Jameson & Martz, *et al.* (See Black, Henry, assignor.)						
Jameson & Martz, *et al.* (See Black and Miller, assignors.)						
Jamison, Samuel S., Saltsburg, Pa. Apparatus for regulating the temperature of milk or cream vats	348,016	Aug. 24	2188	582	36	893
Jarman, George R., Baltimore, Md., assignor to G. W. S. Loucks and W. H. Wheeler, York, Pa. Ice-machine	349,798	Sept. 28	1740	449	36	1393
Jarriant, Benoit, Paris, France, assignor, by mesne assignments, to Chemical Electric Light and Power Company, Portland, Me. Galvanic battery	349,222	Sept. 14	936	240	36	1224
Jarves, Deming, Detroit, Mich. Device for stopping leaks in vessels	349,719	Sept. 28	1630	420	36	1373
Jebb, William T. (See Schuman, John C., assignor.)						
Jebb, William T., Buffalo, N. Y. Manufacturing malt liquors from starch	347,611	Aug. 17	1589	422	36	775
Jebb, William T., Buffalo, N. Y. Manufacturing malt liquors from starch	347,612	Aug. 17	1591	.....	36	775
Jeffery, Frank M., Jersey City, N. J. Riveting-machine	348,397	Aug. 31	2730	332, 333	36	1002
Jeffery, George, assignor to T. P. Tuite, Detroit, Mich. Electric-arc-lamp protector	349,999	Sept. 28	2010	519	36	1446
Jeffrey, Joseph A. (See Legg, Benjamin A., assignor.)						
Jenkins, Edward W., Norristown, Pa. Grain-binder	347,938	Aug. 24	2080	532	36	873
Jenkins, Francis E., Frankville, Ga. Back-band buckle for plow-harness	345,306	July 13	706	178	36	133
Jenkins, Jabez, Philadelphia, Pa. Dynamo-electric machine	350,000	Sept. 28	2011	519	36	1446
Jenkins, Joel, Montclair, N. J. Safety-pin machine	345,144	July 6	479	122	36	87
Jenkins, Joel, Montclair, N. J. Safety-pin	345,848	July 20	1509	391	36	283
Jenkins, Joel, Montclair, N. J. Safety-pin machine	349,223	Sept. 14	937	240	36	1224
Jenkins, Joel, Montclair, N. J. Safety-pin machine	349,224	Sept. 14	941	241	36	1224
Jenkins, Joel, Montclair, N. J. Safety-pin-heading machine	349,225	Sept. 14	943	241	36	1225
Jenkins, Joel, Montclair, N. J. Machine for making safety-pins	349,226	Sept. 14	946	242	36	1225
Jenkins, Joel, Montclair, N. J., and E. H. Gaylord, Waterbury, Conn.; said Gaylord assignor to said Jenkins. Safety-pin machine	344,837	July 6	55	13, 14	36	11
Jenkins, John S., Jackson, Ga. Planter and fertilizer-distributer	349,799	Sept. 28	1741	449	36	1394
Jenkins, Monroe R., Red Creek, N. Y. Hay-fork	348,744	Sept. 7	285	76	36	1100
Jenkins, Nicholas, Waterbury, assignor to Holmes, Booth & Haydens, New Haven, Conn. Suspension device for lamps	347,613	Aug. 17	1592	422	36	776

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Jenkins, Nicholas, assignor to Holmes, Booth & Haydens, Waterbury, Conn. Stand-lamp	349,501	Sept. 21	1326	344	36	1308
Jenkins, Simeon T., and T. J. McGuire, Baltimore, Md. Box	345,510	July 13	994	251	36	184
Jenkins, Simeon T., and T. J. McGuire, Baltimore, Md. Packing-box for transporting ripe fruit	346,162	July 27	1942	500	36	372
Jenks, James, and T. J. Hart, Detroit, Mich. Injector	347,245	Aug. 10	1958	283	36	667
Jenne, William K., Ilion, N. Y., assignor to Type Writer Company. Type-writing machine	349,349	Sept. 21	1094	280	36	1264
Jenner, Edward C., Allegan, Mich. Door-operator	349,592	Sept. 21	1443	372	36	1331
Jennings, David, Lyons, N. Y. Merry-go-round	345,787	July 20	1424	369	36	269
Jennings, Franklin A., *et al.* (See Strait, Andrew V., assignor.)						
Jennings, Linnaeus C., St. Louis, assignor of one-half to H. F. Hafer, St. Charles, Mo. Grip-slot closer for cable railways	345,594	July 13	1136	290	36	210
Jennings, Linson D. (See Tourgee and Jennings.)						
Jennings & Sons, A. G. (See Ward, Anthony, assignor.)						
Jensen, Christopher, Holdrege, Nebr. Pump	346,206	July 27	2005	517	36	384
Jerome, Charles C., Chicago, Ill. Rod and piston packing	344,908	July 6	160	40	36	29
Jessup, George W., Cinnaminson, N. J. System of irrigation	346,920	Aug. 10	606	163	36	585
Jester, Andrew E., Jester, Tenn. Gate-latch	349,350	Sept. 21	1096	280	36	1264
Jewett, Dewitt C., Sand Spring, Iowa. Hay-loader	348,398	Aug. 31	2732	733	36	1002
Jewett, Edward M., assignor to E. W. Jewett, Buffalo, N. Y. Box-forming machine	347,299	Aug. 10	1141	305	36	683
Jewett, Edward W. (See Jewett, Edward M., assignor.)						
Jewett, George M., Bridgeport, Conn. Hinge	344,967	July 6	232	59	36	42
Jewett, Josiah, Buffalo, N. Y. Heating-stove	348,218	Aug. 31	2494	670	36	955
Jochum, William. (See Buoh and Jochum.)						
Johns, David W., Columbus, Ohio. Fire-kindler	348,326	Aug. 31	2633	710	36	983
Johnson, Alfred. (See Johnson, Frederic G. and A.)						
Johnson, Alfred E. (See Hopkins and Johnson.)						
Johnson, Bernt M., Racine, Wis. Combined seeder and cultivator	348,399	Aug. 31	2734	733, 734	36	1003
Johnson, Charles R. (See Johnson, Henry and C. R.)						
Johnson, Charles W., Lexington, Ill. Kitchen-cabinet	344,909	July 6	162	41	36	30
Johnson, Daniel A., Boston, Mass. Carriage-axle washer	349,593	Sept. 21	1443	372	36	1331
Johnson, Delbert E., assignor of one-half to J. D. Lott and M. Dodge, De Kalb, Ill. Track-laying apparatus	347,808	Aug. 24	1883	502, 503	36	837
Johnson Electric Service Company. (See Johnson, Warren S., assignor.) (Reissue.)						
Johnson, Ferdinand. (See Simms, Henry W., assignor.)						
Johnson, Frank P., Eyer's Grove, Pa. Thill-coupling	346,659	Aug. 3	266	73	36	513
Johnson, Frederic G. and A., Hanley, county of Stafford, England. Link-press for making earthenware, &c	349,472	Sept. 21	1228	318	36	1288
Johnson, Frederick L., Wallingford, Conn. Top	346,921	Aug. 10	607	163	36	585
Johnson, George C., Fort Bragg, Cal. Whiffletree-clip	346,589	Aug. 3	173	47	36	493
Johnson, George C., Fort Bragg, Cal. Whiffletree-hook	346,590	Aug. 3	174	47	36	494
Johnson, George H. (See Hincks and Johnson.)						
Johnson, Henry, Flixton, county of Lancaster, England, and C. R. Johnson, Pittsburg, Pa. Mechanism for operating railway switches and signals	347,939	Aug. 24	2083	553	36	874
Johnson, Henry C., Meadville, Pa., assignor to Consolidated Refrigerating Company, New York, N. Y. Apparatus for cooling beer	345,959	July 6	369	93	36	67
Johnson, Isaac W., New Richmond, Wis. Mortising-machine	345,637	July 13	1198	310	36	229
Johnson, Iver, R. T. Torkelson, and A. Fyrberg, Worcester, Mass.; said Torkelson and Fyrberg assignors to said Johnson. Revolver	345,974	July 20	1679	434, 435	36	315
Johnson, J. Wood, New Brunswick, N. J. Lint-machine	349,845	Sept. 28	1808	467	36	1408
Johnson, James P., Willmar, Minn. Field-weeder	345,903	July 20	1564	409	36	297
Johnson, John A., Madison, Wis. Plow	346,288	July 27	2117	544	36	406
Johnson, John A., Madison, Wis. Cultivator	347,273	Aug. 10	1090	294	36	675
Johnson, Lemson, Vincennes, Ind. Combined wagon-seat and feed-trough	348,974	Sept. 14	597	158	36	1162
Johnson, Melvin L., assignor of one-half to R. H. Brown, West Mansfield, Ohio. Carpet-fastener	349,278	Sept. 14	1009	258	36	1238
Johnson, Monroe E., Pittsburg, Kans. Wagon-tongue support	344,910	July 6	163	41	36	30
Johnson, Monroe E., Pittsburg, Kans. Churn	346,163	July 27	1943	500	36	372
Johnson Steel Street Rail Company. (See Du Pont, Alfred V., assignor.)						
Johnson, Tom L., Cleveland, Ohio. Wire-crimping machine	346,479	Aug. 3	39	10	36	468
Johnson, Tom L., Cleveland, Ohio. Curve-rail for railway-tracks	348,017	Aug. 24	2189	583	36	893
Johnson, Warren S., Whitewater, assignor to Johnson Electric Service Company, Milwaukee, Wis. Hydraulic air-compressor	349,594	Sept. 21	1444	372	36	1332
Johnson, Warren S., assignor to Johnson Electric Service Company, Milwaukee, Wis. System of temperature-regulation. (Reissue)	10,768	Sept. 28	2141	554, 555	36	1471
Johnston, Allen, Ottumwa, Iowa. Ruffling and gathering attachment for sewing-machines	349,279	Sept. 14	1010	258	36	1238
Johnston, Edward H., assignor to Wharton Railroad Switch Company, Philadelphia, Pa. Interlocking switch and signal mechanism for railways	349,161	Sept. 14	859	220, 221	36	1209
Johnston, George, Detroit, Mich. Eyeglass-frame	348,018	Aug. 24	2190	583	36	893
Johnston Harvester Company. (See Cooley, Orville, assignor.)						
Johnston, James A., Topeka, Kans. Vehicle-wheel	349,435	Sept. 21	1231	319	36	1289
Johnston, James F. (See Ritch, John P., assignor.)						
Johnston, James L., Topeka, Kans. Vehicle-hub	349,433	Sept. 21	1229	319	36	1289
Johnston, James L., Topeka, Kans. Combined spoke-socket and tire-fastener	349,434	Sept. 21	1230	319	36	1289
Johnston, James M., assignor to N. C. Baughman, York, Pa. Planter and seeder	347,614	Aug. 17	1593	422, 423	36	776
Johnston, John J., Boston, Mass. Can-soldering apparatus	345,638	July 13	1200	311	36	222
Johnston, William, assignor to himself, J. Fleshiem, and H. O. Fifield, Menominee, Mich. Car-coupling	350,060	Sept. 28	2095	542	36	1462
Johnstone, George D., *et al.* (See Whitley, Thomas, assignor.)						
Johnstone, Hugo W., Idlewild, Ga. Car-coupling	349,652	Sept. 21	1511	392	36	1346
Joly, Charles C. (See Lloyd, Edwin L., assignor.)						
Jonas, Frank B., New Orleans, La., assignor of one-half to W. A. Wright, Baltimore, Md. Swinging gate	346,050	July 20	1786	460	36	333
Jones, Alonzo B., Jeffersonville, Ind. Folding table	346,660	Aug. 3	267	73	36	513
Jones, Caleb, Richland Springs, Tex. Churn	345,060	July 6	370	93	36	68
Jones, Edward C., Boston, Mass. Sounding-bar	345,698	July 20	1292	335	36	245
Jones, Edward C., Kansas City, Mo. Railway	349,846	Sept. 28	1810	467, 468	36	1408
Jones, Florentine A., Malden, Mass. Recording pressure-gage	345,061	July 6	371	93, 94	36	68
Jones, Florentine A., Malden, Mass. Recording pressure-gage	348,219	Aug. 31	2496	671, 672	36	956
Jones, George, Chicago, Ill. Steam-heater	344,968	July 6	233	59, 60	36	42

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Pages.
Jones, George, Chicago, Ill. Fire-grate	347,352	Aug. 17	1225	326	36	707
Jones, George S. (See Bancroft and Horsfall, assignors.)						
Jones, Harry, Richmond, Ind. Lifting-pump	345,145	July 6	482	123	36	88
Jones, Harvey L., assignor of one-half to R. Anderson, Cofferville, Kans. Calf-weaner	349,104	Sept. 14	787	199	36	1195
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Wire-nail	348,126	Aug. 24	2341	628	36	922
Jones, James E., Blood's Depot, N. Y. Cider-press	348,019	Aug. 24	2191	584	36	893
Jones, James M. (See Higham, Enos T. and D., assignors.)						
Jones, James S., Crutchfield, Ky. Wagon-bed hoist	349,502	Sept. 21	1327	344	36	1308
Jones, John B., assignor of one-third to Carton Furnace Company, Utica, N. Y. Stove or furnace-grate	347,714	Aug. 17	1753	467	36	804
Jones, John W., Glasco, Kans. Harness-pad machine	348,327	Aug. 31	2634	710	36	984
Jones, Lavenia D., Lafayette, Ind. Steam-cooking utensil	345,307	July 13	707	178	36	133
Jones, Levi, Hendersonville, N. C. Mill and fish dam	348,127	Aug. 24	2342	628	36	922
Jones, Levin T., Baltimore, Md. Shoe-brushing machine	347,715	Aug. 17	1754	467	36	805
Jones, Reuben, assignor of three-fourths to C. A. Sindall, Atlanta, Ga. Car coupling	350,061	Sept. 28	2097	542	36	1463
Jones, Reuben, assignor of three-fourths to C. A. Sindall, Atlanta, Ga. Car-coupling	350,062	Sept. 28	2098	543	36	1463
Jones, Sebra M. (See Chapman, Horace P., assignor.)						
Jones, Stephen, Minneota, Minn. Car-coupling	346,551	Aug. 3	128	34, 35	36	484
Jopson, George W. (See Crandall, Nathan W., assignor.)						
Jordan, Ambrose L., Ottawa, Ill. Hay-carrier	347,178	Aug. 10	973	259	36	652
Jordan, David C., David City, Nebr. Pounder washing-machine	347,716	Aug. 17	1756	468	36	805
Jordan, Joseph, Bridgeport, Pa. Machine for coating paper, &c	345,236	July 6	599	152	36	106
Jordan, Robert W., Mount Sterling, Ala. Corn-planter	349,162	Sept. 14	861	221	36	1209
Jowell, George R., Thorp's Spring, Tex. Anti-friction wagon-slide	346,373	July 27	2234	573	36	428
Joyce, Jacob O., Dayton, Ohio. Vise	349,280	Sept. 14	1011	258	36	1238
Joyce, Maurice, Washington, D. C. Stereotype-block	345,433	July 13	889	221	36	165
Judson, Frederick H., Harewood, Deepdene Road, Streatham, county of Surrey, England. Show-case	348,164	Aug. 24	2397	643	36	932
Judson, Junius, Rochester, N. Y. Lathe	346,164	July 27	1944	501	36	372
Judson, Junius, Rochester, N. Y. Governor	349,847	Sept. 28	1812	466	36	1409
Jullen, Edmond, Brussels, Belgium. Secondary electric battery	347,300	Aug. 10	1144	306	36	683
Junker, Jules, Philadelphia, Pa. Baking-oven	349,653	Sept. 21	1513	392	36	1346
Junkerman, Otto, Centralia, Ill. Pump	347,112	Aug. 10	881	233	36	635
Just, John A., New York, F. A. Fletcher and C. F. Gibbs, Watertown, N. Y.; said Just and Gibbs assignors to said Fletcher. Bleaching mechanical wood-pulp and other raw vegetable fibers for the purpose of manufacturing paper	348,165	Aug. 24	2398	.....	36	932
Kaiser, Charles, and J. B. Adt, Baltimore, Md. Light-deflector	347,113	Aug. 10	881	233	36	635
Kandeler, C. F. Theodor, Chicago, Ill. Construction of bridges	346,591	Aug. 3	175	47	36	494
Kandeler, C. F. Theodor, Chicago, Ill. Bridge	348,020	Aug. 24	2192	584	36	893
Kandeler, C. F. Theodor, Chicago, Ill. Bridge	348,467	Aug. 31	2832	761, 762	36	1021
Kane, Bart, Cincinnati, assignor to J. D. Chambers, Cleveland, Ohio. Chasing-mill	348,524	Aug. 31	2916	784	36	1037
Kane, Maurice, Chicago, Ill. Sheaf-carrier for harvesters	348,975	Sept. 14	598	158	36	1163
Kane, Patrick J., Boston, Mass. Manufacture of brushes	347,048	Aug. 10	783	208	36	618
Karelsen, Adolphus E. (See O'Neil, Jeremiah F., assignor.)						
Karsch, Feodor T., Philadelphia, Pa. Cigar-bundling machine	348,745	Sept. 7	286	76, 77	36	1101
Kasson, William O., Cedar Rapids, Iowa. Door-hanger	348,976	Sept. 14	599	158	36	1163
Kauffman, Harry C., Richmond, Ind. Combined shutter-fastener and shutter-bower	346,299	July 27	2118	545	36	406
Kaufman, Daniel, Boiling Springs, Pa. Metallic railway-track	346,998	Aug. 10	704	186	36	603
Kaufman, Joseph, assignor to J. Shamberg, New York, N. Y. Window-guard	347,717	Aug. 17	1758	468, 469	36	805
Kattell, Charles W., New York, N. Y. Potato-digger	346,819	Aug. 3	447	123, 124	36	547
Kavanagh, Terence B., New York, N. Y. Butter-dish refrigerator	347,049	Aug. 10	784	209	36	618
Kay, George M. (See Thomas and Kay.)						
Kay, William V., Belton, Tex. Buckle	347,114	Aug. 10	882	233	36	635
Kay, William V., Belton, Tex. Combined buckle and trace or breeching loop	347,115	Aug. 10	883	234	36	635
Kaylor, Edward, and H. Prase, Allegheny City, Pa. Pipe-coupling	345,146	July 6	484	123	36	88
Keane, Frederick H. (See Wilson, David, assignor.)						
Keane, John, San Francisco, Cal. Smoke-consumer	347,615	Aug. 17	1596	423	36	777
Keashey, Henry G., *et al.* (See Hanmore, Hiram M., assignor.)						
Keegan, Vincent E., Boston, Mass. Electric motor	349,654	Sept. 21	1515	392	36	1347
Keeler, Clark M., Haskins, Ohio. Portable roof	349,887	Sept. 28	1860	480	36	1418
Keene, Alvin F., Monticello, Minn. Bed-spring	349,310	Sept. 21	1044	267	36	1234
Keene, James M., Wauregan, Conn. Apparatus for clamping and stretching leather and other material	345,699	July 20	1293	335	36	246
Keeney, John W., assignor of one-half to J. R. Newberry, Riverside, Cal. Orange-grader	348,128	Aug. 24	2343	628	36	922
Keep, William J. (See Clapp and Keep.)						
Keilholtz, Pierre O., assignor to J. F. Morrison, Baltimore, Md. Arc-light regulator	348,977	Sept. 14	601	158, 159	36	1163
Keilholtz, Pierre O., assignor to J. F. Morrison, Baltimore, Md. Carbon-holder for electric-arc lamps	348,978	Sept. 14	603	159	36	1164
Keim, Othneil A., Shenandoah, Pa. Grate	348,129	Aug. 24	2343	629	36	922
Keith, Harrison T., assignor of one-half to J. Schaible, Princeton, Ind. Lamp-support	348,746	Sept. 7	287	77	36	1101
Kell, Asa, Concord, Mich. Hand-truck	350,001	Sept. 28	2013	520	36	1446
Keller, Constantine. (See Keller and Bauhahn.)						
Keller, David K., Montgomery, Ohio. Pump for wells	348,986	Aug. 31	2581	694	36	973
Keller, David M., Raphine, Va. Cutting apparatus for mowers and reapers	349,105	Sept. 14	788	199	36	1195
Keller, Emanuel and C., and G. E. Banhahn, New York, N. Y. Piano-action	346,753	Aug. 3	375	101	36	534
Keller, Emanuel and C., and G. E. Banhahn, New York, N. Y. Piano-damper	348,676	Sept. 7	200	53	36	1083
Keller, Louis, New York, N. Y. Gun-case	348,630	Sept. 7	136	38	36	1079
Kellerbals, John H., Benton City, Mo. Hedge-trimming attachment for harvesting-machines	349,595	Sept. 21	1447	373	36	1332
Kellogg, Joseph A. (See Webb and Kellogg.)						
Kellogg Newspaper Company, A. N. (See Pratt, Edwin E., assignor.)						
Kellogg, Timothy A., *et al.* (See Kittell, Ernest A., assignor.)						
Kelly, George, Chicago, Ill. Fire-shield	345,147	July 6	485	123	36	88
Kelly, George A., assignor to Longview Kelly Plow Manufacturing Company, Longview, Tex. Mold-board for plows	346,480	Aug. 3	41	10, 11	36	468
Kelly, James, Chicago, Ill. Water-closet bowl	346,922	Aug. 10	608	163	36	585
Kelly, John J., assignor of three-fourths to L. D. Latimer, W. W. Morrow, and R. Lambert, San Francisco, Cal. Car-axle	347,353	Aug. 17	1226	327	36	707
Kelly, Lawrence A., East Oakland, Cal. Submerged force-pump	350,002	Sept. 28	2013	520	36	1447

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Kelly, Robert A., Xenia, Ohio. Twine-balling machine	347,116	Aug. 10	883	234	36	635
Kelly, Samuel V., Tazewell Court-House, Va. Wagon-box	345,975	July 20	1663	435	36	315
Kelly, William, Saranac, Mich. Fence	349,940	Sept. 28	1925	498	36	1430
Kelly, William A., and C. H. Hubbell, East Tawas, Mich. Wrench attachment	347,179	Aug. 10	974	260	36	652
Kelpien, Theodore, New York, N. Y. Refrigerating attachment for beer-kegs	347,117	Aug. 10	886	235	36	636
Kelsey, D. (See Ritchel, Charles F., assignor.)						
Kelsey, William A., Meriden, Conn. Printing-press	348,021	Aug. 24	2194	584	36	894
Kemp, Henry. (See Gray and Kemp.)						
Kempshall, Eleazer, assignor, by mesne assignments, to Richard Fastener Company, New Britain, Conn. Paper-fastener	347,718	Aug. 17	1760	469	36	806
Kempshall, Eleazer, assignor, by mesne assignments, to Richard Fastener Company, New Britain, Conn. Paper-fastener	347,719	Aug. 17	1761	469	36	806
Kendall, Isaac N., Rockland, Ontario, Canada. Method of and device for turning down the points of saw-teeth	348,220	Aug. 31	2497	672	36	956
Kendall, John L. (See Kendall, William H., assignor.)						
Kendall, Stephen, Angel's Camp, Cal. Ore-crusher	347,809	Aug. 24	1887	503, 504	36	838
Kendall, William H., assignor to himself and J. L. Kendall, Brooklyn, N. Y. Drying hats	346,754	Aug. 3	375	101	36	534
Kennedy, Edward S. T. (See Wilkinson, Asa W., assignor.)						
Kennedy, Edward S. T., New York, N. Y. Boiler-deflector	349,720	Sept. 28	1631	420, 421	36	1373
Kennedy, Herman N., Chicago, Ill. Grain-harvester	346,552	Aug. 3	129	35	36	485
Kennedy, James, Kingston, Jamaica, West Indies. Fiber-machine	350,063	Sept. 28	2099	543	36	1463
Kennedy, Rankin, Paisley, county of Renfrew, assignor to D. Graham, Glasgow, Scotland. Dynamo-electric machine	350,003	Sept. 28	2014	520, 521	36	1447
Kenney, Edward S., Minneapolis, Minn. Drapery-hook	345,904	July 20	1585	409	36	297
Kent, Ernest N. (See Besson and Kent.)						
Kent, George E. (See Bachelder, Charles H., assignor.)						
Kent, Auxhum P., Providence, R. I. Check-rein holder	346,109	July 27	1861	481	36	357
Kenway, Percy N., New York, N. Y. Hanger for piping	347,489	Aug. 17	1421	378	36	743
Kenyon, Bloomfield L., Lee Centre, N. Y. Mechanical telephone	348,328	Aug. 31	2635	710	36	984
Kephart, Cyrus J., *et al.* (See Stevens, James S., assignor.)						
Kern, Isaac R., Kansas City, Mo. Steam-engine	347,616	Aug. 17	1597	424	36	777
Kern, Mason H., Bellevue, Ohio. Car-coupling	345,308	July 13	707	178, 179	36	133
Kern, Mason H., Bellevue, Ohio. Car-coupling	349,848	Sept. 28	1813	468, 469	36	1409
Kerner, Marion H., New York, N. Y. Fountain-pen	349,721	Sept. 28	1633	421	36	1373
Kerr, James H., *et al.* (See Cook and Labelle, assignors.)						
Kerr, Thomas B. (See Finney, Joseph R., assignor.)						
Kerr, William, Saccarappa, Me. Machine for separating and drying warps after being dyed	348,130	Aug. 24	2344	629	36	922
Kersten, Marzell, Oxford Junction, Iowa, assignor to Loeffelholz & Co., Milwaukee, Wis. Seal-lock	347,180	Aug. 10	975	260	36	652
Kesling, Granville and L., Onward, Ind. Machine for making picket fences	346,923	Aug. 10	609	163, 164	36	586
Kesling, Luther. (See Kesling, Granville and L.)						
Kessler, Heinrich P. J., Ober Lahnstein, Prussia, Germany. Electro-magnetic apparatus for separating ores	345,383	July 13	807	201	36	151
Keyes, Edward F., Boston, Mass. Skate-roller	349,163	Sept. 14	862	221	36	1209
Keyser, Andrew, Philadelphia, Pa. Sash-balancing device	346,110	July 27	1862	481	36	357
Keystone Watch Case Company. (See Fowler, William, assignor.)						
Keystone Watch Case Company. (See Heffernan, Edward F., assignor.)						
Khotinsky, Achilles, Rotterdam, Holland. Construction of electrodes for secondary batteries	345,511	July 13	995	252	36	185
Kidd, Alexander, Jersey City, N. J. Feed-nut	347,877	Aug. 24	1992	527	36	856
Kiefer, Julia E., *et al.* (See Armstrong, George S., assignor.)						
Kilbourne & Jacobs Manufacturing Company. (See Hubbard, Fred W., assignor.)						
Kilbourne, S. E. (See Tourgee, Albion W., assignor.)						
Kile, William B. (See Ingram, John A., assignor.)						
Kiley, Edward J. (See Eskholme, John W., assignor.)						
Kilmer, Sylvester A., and E. J. Crandell, Binghamton, N. Y. Car-coupling	348,747	Sept. 7	288	77	36	1101
Kilpatrick, Alexander, St. Louis, Mo. Apparatus for casting pipe	349,596	Sept. 21	1448	373	36	1332
Kimball, Benjamin M., *et al.* (See Marston, George, assignor.)						
Kimball, Charles M., *et al.* (See Marston, George, assignor.)						
Kimball, Charles M., Toledo, assignor of one-half to P. Dowling, Holland, Ohio. Water-elevator	344,911	July 6	164	41	36	30
Kimball, Clara M., Milwaukee, Wis. Composition for medicating bed-quilts	348,748	Sept. 7	289	.....	36	1101
Kimball, Freddie C., assignor of one-half to A. N. and E. H. Hovey, Jackson, Mich. Harness-saddle	345,237	July 6	604	153	36	109
Kimbler, George H. (See Kimbler, Henry and G. H.)						
Kimbler, Henry and G. H., Creelsborough, Ky. Sheep-shears	347,878	Aug. 24	1992	528	36	856
Kimbler, Henry R., Creelsborough, Ky. Scissors	348,749	Sept. 7	289	77	36	1101
Kimes, Hugh W. (See Sparks, Albert F., assignor.)						
Kinder, Julius, Brooklyn, assignor to Solid Link Chain Manufacturing Company, New York, N. Y. Machine for making ornamental chains	348,850	Sept. 7	411	112	36	1124
King, Charles W., Rutherford, N. J., assignor to E. F. Bradford, trustee, Cincinnati, Ohio. Ipsole	346,353	Aug. 3	130	35	36	485
King, H. T., *et al.* (See Latchford, William J., assignor.)						
King, Homer A., Springfield, Mass. Velocipede	349,800	Sept. 28	1743	449	36	1394
King, Homer A., Springfield, Mass. Velocipede	349,801	Sept. 28	1746	450	36	1394
King, Homer A., Springfield, Mass. Velocipede	349,802	Sept. 28	1748	450	36	1395
King, John T., Madison, Wis. Exhaust-steam-heating apparatus	345,850	July 20	1512	392	36	283
King, Leach. (See Gillette and King.)						
King, Obed H. and W. T., Houghton, Iowa. Horse hay-rake	348,750	Sept. 7	291	78	36	1101
King, Robert E., Warrenton, N. C. Check-rein holder	345,062	July 6	372	94	36	68
King, Robert W., Georgetown, Ontario, Canada. Steam-boiler	345,849	July 20	1511	391	36	283
King, Sidney D., Pittston, Pa. Car-truck	348,221	Aug. 31	2497	672	36	956
King, T. E., *et al.* (See Chapman, Samuel A., assignor.)						
King, T. E., *et al.* (See Pullman, Herbert S., assignor.)						
King, Theophilus. (See Farr, Hiram G., assignor.)						
King, William T. (See King, Obed H. and W. T.)						
Kingsbury, Addison, South Coventry, Conn. Machine for cutting paper-box blanks	346,165	July 27	1945	501	36	373

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Kingsbury, Addison, South Coventry, Conn. Pasting-machine	347,246	Aug. 10	1059	283	36	668
Kingsland & Ferguson Manufacturing Company. (See Reeder, William S., assignor.)						
Kinnear, Peter. (See Loftus, John, assignor.)						
Kinnear, William R., Columbus, Ohio. Gas-stove	346,554	Aug. 3	131	35, 36	36	485
Kinsfatter, Carle L. (See Davis and Kinsfatter.)						
Kinsman, Frank E., New York, N. Y. Safety automatic brake	345,700	July 20	1294	335	36	246
Kinzer, Jacob, Pittsburg, Pa. Apparatus for forming molds	347,940	Aug. 24	2065	553, 554	36	874
Kirk, Ferrender, Indianapolis, Ind. Corset	344,969	July 6	236	60	36	43
Kirk, Peter, Workington, county of Cumberland, England. Rolls for making tram-rails	345,512	July 13	995	252	36	185
Kirker, Jabez G., Louisville, Ky. Crushing and grinding mill	350,064	Sept. 28	2100	543	36	1463
Kirkpatrick, Helen M., *et al.* (See Armitage, Albert, assignor.)						
Kirkpatrick, Helen M., *et al.* (See Gallup, Silas N., assignor.)						
Kirkpatrick, Robert W., Glenville, Minn. Air-blast regulator for fanning-mills, &c	344,912	July 6	164	42	36	30
Kirschbaum, John. (See Putnam and Kirschbaum.)						
Kistler, Casper, Stirling, Ill. Stem winding and setting watch	344,838	July 6	58	14	36	11
Kitchel, Lyman B., Rushville, assignor of one-half to Maxwell & Mowry, Rome, N. Y. Halter attachment	348,166	Aug. 24	2400	644	36	933
Kittell, Ernest A., assignor of five-eighths to B. G. Button, T. A. Kellogg, and W. H. Hartman, Waterloo, Iowa. Powder-case	348,525	Aug. 31	2919	785	36	1037
Kittredge, Anson O., Slate Hill, and F. M. Leavitt, Brooklyn, N. Y. Squaring-shears	345,639	July 13	1201	311, 312	36	922
Kittredge, Anson O., Slate Hill, and F. M. Leavitt, Brooklyn, N. Y., assignors to Vulcan Company, of Pennsylvania. Sheet-metal-scroll cutter	349,722	Sept. 28	1635	422, 423	36	1374
Kitts, Charles W., Grass Valley, Cal. Fruit-drier	345,701	July 20	1296	336	36	246
Klaasert, Henry. (See Weitz and Klaasert.)						
Kleese, Wilson, assignor of one-half to M. B. Mitchell, G. Beatty, and S. R. Blanchard, Ottawa, Ill. Machine for forming wire coils	347,720	Aug. 17	1761	470	36	806
Klein, Adolph A., Philadelphia, Pa. Hoisting-machine	345,309	July 13	709	179	36	133
Kleinert, Isaac B., New York, N. Y. Armpit dress-shield	345,595	July 13	1137	290	36	210
Klindt, Oswald. (See Dahl, Carl A., assignor.)						
Kline, Henry, assignor of one-half to J. H. Snyder, Canton, Ohio. Swinging and reclining chair	347,428	Aug. 17	1323	352, 353	36	794
Kline, William O. (See Donohue, James S., assignor.)						
Kling, Isaac, Louisville, Ky. Car-coupling	349,655	Sept. 21	1517	392	36	1347
Klinkermann, Friedorich, Dillsborough, Ind. Striking mechanism for clocks	348,915	Sept. 7	510	135, 136	36	1141
Klotts, Samuel R. (See Qurin, Georges, assignor.)						
Kluge, Oskar, Berlin, Germany. Rolling-curtain	346,999	Aug. 10	705	187	36	603
Knapp, John I., J. C. McKenzie, and W. Humphrey, Adrian, Mich. Brick and tile kiln	348,916	Sept. 7	515	136	36	1141
Knapp, Joseph, Coloma, Mich. Water-wheel	347,810	Aug. 24	1888	504	36	838
Knapp, Riley I., Platteville, Wis. Pump	345,384	July 13	806	204	36	151
Knebel, Herman, Birmingham, Ala. Steam-engine	349,888	Sept. 28	1861	480	36	1419
Kneedler, John A., Grant, Pa. Thill-coupling	345,148	July 6	485	124	36	88
Kneedler, Lewis, Caledonia, Iowa, assignor to F. F. Leathers, F. Offenhauser, Sr., and J. N. Lineburg, trustees. Balanced slide-valve	349,048	Sept. 14	705	180	36	1180
Knell, James W., Boston, Mass. Advertising device	346,924	Aug. 10	611	164	36	586
Knetzger, Leonard, Duquoin, Ill. Crimping-machine for boots or shoes	350,065	Sept. 28	2101	544	36	1463
Kniese, Frederick C., Baltimore, Md. Carburetor to be used in the manufacture of water-gas	348,917	Sept. 7	517	137	36	1142
Knight, George H., Providence, R. I. Jeweler's stock	346,661	Aug. 3	268	73	36	513
Knight, Lewis, Lancaster, Pa. Reamer	346,111	July 27	1863	481	36	357
Knight, Samuel I. (See Hood, Gustave, assignor.)						
Knighton, Charles J., Birmingham, Ala. Elevator and carrier	348,329	Aug. 31	2630	711	36	984
Knipe, William A., Haverhill, Mass. Heel-burnishing tool	345,063	July 6	373	94	36	68
Knoop, Josiah, Canstown, Ohio. Grain harvesting and binding machine	347,617	Aug. 17	1599	424	36	777
Knowles, J. Henry. (See Proctor and Knowles.)						
Knowles, Lawrence D. (See Barrows and Knowles.)						
Knowles, Lewis G., deceased, New York, N. Y., C. T. Gifford, Aberdeen, Miss., administrator. Permutation-lock	347,618	Aug. 17	1602	425	36	778
Knowles' Loom Works. (See Hutchins, George F., assignor.)						
Knowles, Mortimer L., assignor of two-thirds to J. J. Banford and C. A. Zimmerman, Union City, Mich. Two-wheeled vehicle	347,490	Aug. 17	1422	378	36	743
Knowlton, Mark D. (See Howe and Knowlton.)						
Knowlton, William H. H., Chicago, Ill. Feed-water heater	344,913	July 6	166	42	36	31
Knox, David, Lynn, Mass. Sole-molding machine for boots and shoes	347,429	Aug. 17	1324	353	36	725
Knox, John R., *et al.* (See Black, Henry, assignor.)						
Knox, John R., *et al.* (See Black and Miller, assignors.)						
Knox, Julia A., Burr Oak, Kans. Remedy for hog and chicken cholera	345,788	July 20	1426	.....	36	269
Knox, Oscar F., Watertown, Mass. Machine for shaping shoe-soles	347,050	Aug. 10	786	209	36	618
Koch, Charles, assignor to Le Société Anonyme des Usines Franco-Russes, Paris, France. Compound motive-power engine	347,619	Aug. 17	1604	425	36	778
Koch, Frederic. (See Crebb, Koch, and Miller.)						
Koch, Morris F., New York, N. Y. Automatic weighing-scale	346,852	Aug. 3	497	137, 138	36	557
Koch, William, New York, N. Y. Shuttle carrier and race mechanism	346,853	Aug. 3	500	138	36	558
Koch, William, assignor to Kruse Check and Adding Machine Company, New York, N. Y. Adding-machine	346,925	Aug. 10	612	164	36	587
Koch, William, and C. Kruse, assignors to Kruse Check and Adding Machine Company, New York, N. Y. Check printing and adding machine	348,496	Aug. 31	2873	773	36	1029
Kochendorfer, George, assignor of one-half to J. Roth, Marysville, Ohio. Cuspidor	347,354	Aug. 17	1227	327	36	707
Kochsmeier, Henry P., and G. M. Waldorf, Freeport, Ill. Spring-hinge	345,905	July 20	1586	409	36	298
Koehlinger, Gustav. (See Gabet and Koehlinger.)						
Koelkebeck, Carl W. A., Camden, N. J., assignor to J. Evans, Philadelphia, Pa., and D. H. Burrell, Little Falls, N. Y. Centrifugal liquid-separator	349,106	Sept. 14	789	200	36	1195
Koeller, Hermann H., Quincy, Ill. Combined foot rest and scraper attachment for hitching-posts	345,149	July 6	486	124	36	88
Kohl, Lea J. (See Cooper and Kohl.)						
Kohlsaat, James. (See Seller, Philipp, assignor.)						
Kohn, Samuel, *et al.* (See Jacobs, Charles A., assignor.)						
Kokernot, Alexander B., New Orleans, La. Rocking-seat mechanism for operating churn-dashers, &c	346,926	Aug. 10	615	165	36	587
Komp, John F., assignor to D. J. Davis and T. Rankin, Chicago, Ill. Cream-testing churn	346,051	July 20	1787	460, 461	36	333

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Kopecky, Joseph L., Summitville, Iowa. Gate	347,620	Aug. 17	1605	426	36	778
Kopp, George F., South Egremont, Mass. Pole or shaft supporter	346,290	July 27	2119	545	36	406
Korte, Frank J., Zanesville, Ohio. Boiler	348,918	Sept. 7	518	137	36	1142
Körting, Ern. s, Hanover, Prussia, Germany. Regulator for gas-engines	346,374	July 27	2235	573	36	428
Kosminski, Martin, London, England. Muff	347,879	Aug. 24	1994	528	36	856
Kourian, Michael, Chicago, Ill. Bridge-gate	345,150	July 6	487	124	36	29
Kraemer, David. (See Baer and Kraemer.)						
Kraft, Louis. (See Lovejoy and Kraft.)						
Krajewski, Thomas F., New York, assignor, by mesne assignments, of one-half to J. L. Cochrane, Brooklyn, N. Y. Machine for breaking and cutting cane	349,503	Sept. 21	1327	345	36	1308
Kranse, Ernest E., Rio Vista, Cal. Gang-plow	347,721	Aug. 17	1762	470	36	806
Kranse, Ernest E., Rio Vista, Cal. Cultivator	347,722	Aug. 17	1763	470	36	806
Kranse, Henry C., Lake Linden, Mich. Ore-separator	349,504	Sept. 21	1329	345	36	1309
Krehbiel, John, Detroit, assignor to G. W. Bullis, Ann Arbor, Mich. Capsule-stripping machine	347,274	Aug. 10	1101	294	36	675
Krehbiel, John, assignor to Globe Drug and Capsule Company, Detroit, Mich. Capsule-machine	347,941	Aug. 24	2067	554	36	874
Kris, William J., St. Louis, Mo. Breech-loading fire-arm	345,769	July 20	1426	369	36	269
Kroenke, E. August, New York, N. Y. Refrigerator	349,396	Sept. 21	1181	306	36	1280
Kroupa, Joseph, St. Louis, Mo. Brake-lever	349,941	Sept. 28	1926	498	36	1431
Kruse, Charles. (See Koch and Kruse.)						
Kruse Check and Adding Machine Company. (See Koch, William, assignor.)						
Kruse Check and Adding Machine Company. (See Koch and Kruse, assignors.)						
Kruse Check and Adding Machine Company. (See Weiss, Charles W., assignor.)						
Kruse Check and Adding Machine Company. (See Weiss, Louis T., assignor.)						
Krutzsch, Herman, assignor of one-half to St. Louis Iron and Machine Works, St. Louis, Mo. Brick-machine	345,513	July 13	996	252, 253	36	185
Kuehnle, John, Cincinnati, Ohio. Frizzing-machine	345,514	July 13	998	253	36	185
Kugler, George, Cleveland, Ohio. Remedial appliance	349,849	Sept. 28	1815	469	36	1409
Kuhn, Michael G., New York, N. Y. Lock-hinge	349,850	Sept. 28	1816	469	36	1409
Kuhne, Edward, *et al.* (See Douglas, Edward J., assignor.)						
Kühne, Felix, assignor to Rudolph & Kühne, Berlin, Germany. Cloth-pressing machine	349,436	Sept. 21	1232	319, 320	36	1289
Kuhns, Benjamin. (See Kuhns and Bollinger, assignors.)						
Kuhns, Edgar A., assignor of one-half to A. C. East, Dayton, Ohio. Oiler for loose pulleys	348,919	Sept. 7	519	137	36	1142
Kuhns, George F. and W. N., and P. S. Bollinger, assignors to B. Kuhns, Dayton, Ohio. Corn-planting machine	345,640	July 13	1204	312, 313	36	222
Kuhns, William N. (See Kuhns and Bollinger.)						
Kulage, Joseph J., St. Louis, Mo. Brick-machine	347,355	Aug. 17	1229	327	36	707
Kulich, Anton, Brooklyn, N. Y. Bureau-bed	349,728	Sept. 28	1641	423	36	1375
Kunstädter, Jacob J., New York, N. Y. Propelling and steering vessels	345,702	July 20	1299	336	36	247
Kupferle, John C., St. Louis, Mo. Door-hanger	344,914	July 6	167	42, 43	36	31
Kupferle, John C., St. Louis, Mo. Fire-hydrant	345,790	July 20	1428	370	36	269
Kurtz, William B., assignor to Crowell Manufacturing Company, Greencastle, Pa. Traction-engine boiler	349,889	Sept. 28	1862	480	36	1419
Kyle, Edward E., Newville, assignor of three-fourths to M. H. Wagoner, G. W. North, and T. Cornman, Cumberland County, Pa. Nut-lock	349,724	Sept. 28	1642	424	36	1375
Kyle, Robert J., New York, N. Y. Button	346,112	July 27	1864	491	36	357
Kynoch, Charles, and E. Courtright, St. Ignace, Mich. Apparatus for cleaning steam-pipes	345,431	July 13	990	221	36	165
L'Africain, Joseph R., Lowell, Mass. Dress-maker's table	346,481	Aug. 3	42	11	36	468
La Boiteaux, Frank M., assignor to H. Varwig, Cincinnati, Ohio. Vent-bung	347,723	Aug. 17	1765	471	36	806
La Dow, Charles, Albany, N. Y. Horse-rake	349,942	Sept. 28	1927	499	36	1431
La Fave, Joseph H., assignor to A. V. Bowker, Miller's Falls, Mass. Handle for cutlery and other articles	348,330	Aug. 31	2637	711	36	984
La Grassa, Salvadore, New York, N. Y. Key-bottom for pianos	347,356	Aug. 17	1230	327	36	707
La Rue, Abrom, Danville, Pa. Car-coupling	345,977	July 20	1685	435	36	316
Labelle, Felix. (See Cook and Labelle.)						
Lacaillade, Charles, *et al.* (See Bonneau, Nelson, assignor.)						
Lachner, Conrad, New York, N. Y. Machine for cutting the down from feathers	345,515	July 13	1000	254	36	186
Laconrse, Octave, Putnam, Conn. Sash-cord-pulley frame	348,979	Sept. 14	605	159	36	1164
Lafferty, Hugh W., Gloucester, N. J. Utilizing refuse of breweries	345,703	July 20	1299	337	36	247
Lafferty, Hugh W., Gloucester, N. J. Apparatus for utilizing refuse of breweries	345,704	July 20	1301	337	36	247
Laidlaw, William A., Cherokee, Kans. Device for pressing hay	347,811	Aug. 24	1890	504	36	839
Laing, Andrew, Glasgow, county of Lanark, Scotland. Apparatus for ventilating stoke-holes, &c	346,755	Aug. 3	376	102, 103, 104	36	534
Lake, Jesse S., Pleasantville, N. J. Broom-corn-sizing machine	348,677	Sept. 7	201	53	36	1063
Lake, Stephen D., Rochester, and J. D. Haines, Sandy Hill, N. Y. Register for fares	345,151	July 6	488	125	36	89
Lake, Vincent F., Pleasantville, N. J., assignor, by mesne assignments, to American Writing Machine Company, of New York. Type-writing machine	344,839	July 6	59	14, 15	36	12
Lakin, James A., and C. J. Emerson, Jr., Westfield, Mass.; said Emerson assignor to said Lakin. Cyclometer	348,851	Sept. 7	414	112	36	1124
Lakin, Rinaldo S., Boston, assignor to S. S. Higgins, Somerville, Mass. Folding tooth-brush	345,517	July 13	1003	254	36	186
Lalance, Auguste. (See Farmer and Lalance.)						
Lalonde, Maurice, Oscoda, Mich. Combined saw-set, gage, and raker-guide	345,791	July 20	1430	370	36	270
Lamal, Edmond, and S. Duprat, Paris, France. Stamped roofing-tile	349,227	Sept. 14	950	242, 243	36	1296
Lamb, John. (See Sintzenich, Horace H. C., assignor.)						
Lamb, John W. (See Lowe and Lamb.)						
Lamb, Richard, assignor to Thompson Gas Kiln and Oven Company, New York, N. Y. Baker's oven	345,906	July 20	1588	410	36	298
Lambert, Catholina. (See Müller, Andrew, assignor.)						
Lambert, Richard, *et al.* (See Kelly, John J., assignor.)						
Lambert, William F., San Francisco, Cal. Bath apparatus	347,430	Aug. 17	1326	354	36	725
Lambing, Isaac P., Ione, Cal. Vertical shaft-bearing	347,431	Aug. 17	1329	354	36	726
Lamm, Friedrich L., Embarrass, Wis. Water-wheel	348,400	Aug. 31	2736	734	36	1063
Lamoureux, Sylvain, Paris, France. Baker's oven	347,181	Aug. 10	976	360, 361	36	653
Lanback, H. H. (See Schmidt, Theodore F. W., assignor.)						
Lancaster, James H. (See Hudson, Rowe, and Heslop, assignors.)						
Landers, Frary & Clark. (See Gérard and Smith, assignors.)						
Landfear, William R., Brooklyn, N. Y. Rotary printing-machine	346,592	Aug. 3	176	47, 48	36	494
Landis, Samuel E., Philadelphia, Pa. Machine-belt fastener	346,113	July 27	1865	482	36	357

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Landon, Albert, Rutland, Vt. Sand and water feeding mechanism	345,976	July 20	1664	435	36	315
Lane, Almeron M., Meriden, Conn. Escapement-lever for time-pieces	348,980	Sept. 14	606	160	36	1164
Lane, Almeron M., Meriden, Conn. Calendar-clock	348,981	Sept. 14	606	160	36	1164
Lane, Almeron M., Meriden, Conn. Calendar-clock	378,982	Sept. 14	607	160	36	1164
Lane, Charles C., San Francisco, Cal. Expanding drill-bit for Artesian-well boring	345,385	July 13	809	204	36	151
Lane, George. (See Braithwaite, Lane, and Herring.)						
Lane, M. Henry, Kalamazoo, Mich. Road-cart	346,555	Aug. 3	132	36	36	485
Lang, Lewis H., and J. W. Hart, Stockton, Cal. Blow-gun	344,915	July 6	168	43	36	31
Lang, William, Brooklyn, N. Y. Metal-feeding roll	345,386	July 13	811	204, 205	36	151
Lang, William, Brooklyn, N. Y. Machine for straightening and cutting wire	346,291	July 27	2119	545, 546	36	406
Lang, William H., Burlington, Vt. Metallic packing for pistons	350,004	Sept. 28	2017	521	36	1447
Langan, John B., Chicago, Ill. Pan for packing candy	345,907	July 20	1589	410	36	296
Langlot, Adam G., La Grange, Mo. Corn-planter attachment	345,387	July 13	812	205	36	152
Langmaid, Charles E., *et al.* (See Langmaid, George A., assignor.)						
Langmaid, George A., Portsmouth, N. H., assignor, by mesne assignments, to G. A. and C. E. Langmaid, Middleborough, Mass. Shoe or gaiter-boot	349,164	Sept. 14	863	221	36	1210
Lanton, Peter. (See Lynch and Lanton.)						
Lantz, John A., assignor to G. T. Oliver, Pittsburg, Pa. Coupling for electrical wires	349,397	Sept. 21	1182	306	36	1280
Lantz, John A., assignor to G. T. Oliver, Pittsburg, Pa. Coupling for electrical wires	349,398	Sept. 21	1183	306	36	1280
Lapeyre, Antoine, Paris, France. Adding-machine	346,927	Aug. 10	616	165	36	587
Lapp, John. (See Dann and Lapp.)						
Laraway, George W., Boston, Mass., assignor, by mesne assignments, to himself and J. Seiberling, Akron, Ohio. Mechanism for use in supporting the paper-pulp molded heads of barrels while being dried	345,705	July 20	1302	337	36	248
Larmay, George, Chazy, N. Y. Car-coupling	345,152	July 6	492	126	36	89
Lasar, Godfrey H. (See Baldrige and Lasar.)						
Lasher, Lemuel A. (See Stephenson and Lasher.)						
Lassiter, Nannie M. (See Roden, Florida M., assignor.)						
Laswell, John, Augusta, Kans. Churn	348,331	Aug. 31	2638	711	36	984
Latchford, William J., assignor of one-third to H. T. King and M. I. McKusick, Stillwater, Minn. Rafting-wedge	345,153	July 6	493	126	36	90
Latham, Ernest. (See Peers, Ingrey, and Latham.)						
Lathrop, Levi B., Hollister, Cal. Mail-pouch	348,678	Sept. 7	203	53, 54	36	1064
Latimer, Lorenzo D., *et al.* (See Kelly, John J., assignor.)						
Latta, Adrian C. (See Latta, Emmit G., assignor.)						
Latta, Emmit G., assignor of one-half to A. C. Latta, Friendship, N. Y. Velocipede	346,292	July 27	2121	546	36	406
Latta, Emmit G., assignor of one-half to A. C. Latta, Friendship, N. Y. Velocipede	347,357	Aug. 17	1231	328	36	708
Laube, Godfried, Huron, Dak. Ter. Egg-beater	346,375	July 27	2237	574	36	428
Laube, Godfried, Huron, Dak. Ter. Cigar-tray	347,189	Aug. 10	978	261	36	653
Lauer, Jean P., Buffalo, N. Y. Handsaw	346,492	Aug. 3	43	11	36	468
Laufer, Elizabeth, Cincinnati, Ohio. Sewing-machine table	347,358	Aug. 17	1233	328	36	708
Laughlin, Alexander W., Brookville, Iowa. Grip for stretching wire	345,154	July 6	494	126	36	90
Launius, Charles A., assignor of one-half to T. G. Launius, High Shoals, Ga. Device for transmitting power	348,022	Aug. 24	2195	585	36	894
Launius, Thomas G. (See Launius, Charles A., assignor.)						
Lauth, Bernard C., *et al.* (See McCarty, William F. C. M., assignor.) (Reissue.)						
Lauth, Joseph H., Fremont, Nebr. Spring tug-link	347,812	Aug. 24	1892	505	36	839
Lavaggi, John C., Lancaster, Pa. Hat, bonnet, and apparel rack or stand	346,293	July 27	2124	547	36	407
Lavery, Richard. (See Bennett, Edwin, assignor.)						
Lawrence, David G., New York, N. Y. Daubing-brush	346,662	Aug. 3	269	74	36	513
Lawrence, Eva M., *et al.* (See Lawrence, John R., assignor.)						
Lawrence, Franklin M. (See Gibson and Lawrence.)						
Lawrence, John R., assignor to M. H. Baker and E. M. Lawrence, Highland Park, Ill. Watch-maker's eyeglass	350,005	Sept. 28	2018	521	36	1447
Lawrence, Joseph M., Houston, Tex. Coffee-pot	349,505	Sept. 21	1332	345	36	1309
Lawrence, Russell F., Buffalo, N. Y. Bouquet-holder	349,107	Sept. 14	791	200	36	1195
Lawrence, William, and H. V. Dibble, Bethel, Conn. Hat-brim	346,563	Aug. 3	179	48	36	494
Lawrence, William E., New York, N. Y. Curry-comb	345,155	July 6	495	127	36	90
Lawrenz, William F., Duluth, Minn. Rotary steam-engine	349,108	Sept. 14	792	200	36	1195
Lawson, Benjamin S., Brooklyn, N. Y. Grinding-mill	346,854	Aug. 3	501	138	36	556
Lawson, Fred M., Cambridge, Mass. Upright-piano action	350,006	Sept. 28	2019	521	36	1448
Lawson, Henry J., Coventry, county of Warwick, England. Velocipede	345,851	July 20	1514	392	36	983
Lawson, James, Denver, Colo. Lawn-sprinkler	347,359	Aug. 17	1234	329	36	708
Lawton, George W., New York, N. Y. Pressure-regulator	347,118	Aug. 10	888	235	36	636
Laxton, George H., Jersey City, N. J. Soap-dish	349,890	Sept. 28	1863	481	36	1419
Lay, William, Omaha, Tex. Steam-plow	348,401	Aug. 31	2737	734, 735	36	1003
Laylander, John. (See Benner, Daniel G., assignor.)						
Le Clair, George, Mexico, assignor to C. Moulter and M. D. Griffin, Syracuse, N. Y. Tobacco-cutting machine	348,402	Aug. 31	2738	735	36	1004
Le Grande, William W., assignor of eleven twenty-fourths to H. R. and W. W. Dering and T. H. Upperman, Louisville, Ky. Galvanic battery	346,207	July 27	2006	517	36	384
Le Roy, Charles J., St. Louis, Mo. Automatic knife-grinder	348,753	Sept. 7	293	78	36	1102
Le Société Anonyme des Usines Franco-Russes. (See Koch, Charles, assignor.)						
Lea, Samuel J., assignor to J. H. Lincoln, Chattanooga, Tenn. Dental drill	348,131	Aug. 24	2345	629	36	992
Leary, Daniel, Greenville, N. J., assignor of one-half to S. Schener, New York, N. Y. Mandrel for circular saws	347,942	Aug. 24	2088	554	36	875
Lease, George M., Centralia, Mo. Cutter-bar for reapers and mowers	349,311	Sept. 21	1045	267	36	1254
Leathers, Fernando F., *et al.*, trustees. (See Kneedler, Lewis, assignor.)						
Leavitt, Frank M. (See Kittredge and Leavitt.)						
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Drop-hammer	350,007	Sept. 28	2020	522	36	1448
Leavitt, John L. (See Baca and Leavitt.)						
Lee, Arthur M., Pomona, Ill. Combination blacking-box	348,468	Aug. 31	2834	762	36	1022
Lee, Charles C. (See Bryan, Louis W., assignor.)						
Lee, George P., Manchester, England. Vehicle-body	347,621	Aug. 17	1607	426	36	778
Leech, Charles, Oakland, Cal. Automatic gas cut-off	344,916	July 6	166	43	36	31
Leerme, Eric O., Gold Hill, Nev. Cane-stool	345,852	July 20	1515	392	36	283
Lefevre, John W., Mooney, Ind. Writing-teacher's cabinet	345,435	July 13	890	221, 222	36	165
Lefferts, Marshall C., New York, N. Y., assignor to Celluloid Manufacturing Company. Printing upon or decorating the surface of celluloid	346,376	July 27	2238	.....	36	428

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Lefferts, Marshall C., New York, N. Y., and J. W. Hyatt, Newark, N. J., assignors to Celluloid Manufacturing Company, New York, N. Y. Printing on pyroxyline compounds	348,222	Aug. 31	2498	.....	36	956
Leffler, James. (See Barber, Alonzo, assignor.)						
Lefmann, Julius F. W., *et al.* (See McAllister, Daniel, assignor.)						
Lefmann, William, *et al.* (See McAllister, Daniel, assignor.)						
Legg, Benjamin A., assignor to J. A. Jeffrey, Columbus, Ohio. Mining-machine	347,813	Aug. 24	1893	505	36	839
Lehmann, Fred A. (See Denney, Mifflin F., assignor.)						
Lehr, J. W., *et al.* (See Funk, Daniel D., assignor.)						
Leib, John. (See Price and Leib.)						
Leib, John, Sandy Run, Pa. Pipe-wrench	348,751	Sept. 7	292	78	36	1101
Leidgen, Nielsen, Milwaukee, Wis. Door-closer	346,294	July 27	2124	547	36	407
Lelièvre, Ernest L. P., Caen, France. Nursing-bottle	345,518	July 13	1004	255	36	186
Lemos, Leon, San Francisco, Cal. Spice and dredging box	348,752	Sept. 7	293	78	36	1102
Lemp, Hermann. (See Wightmann and Lemp.)						
Lenaerts, Leon, Brussels, Belgium. Operating the stop-cocks of gas-meters	349,109	Sept. 14	793	201	36	1196
Lenau, Gustavus, assignor to S. E. Fisher & Co., Attleborough, Mass. Bracelet	345,310	July 13	710	179	36	134
Lenau, Louis, North Attleborough, assignor to E. Whitney & Co., Attleborough Falls, Mass. Bracelet	349,603	Sept. 28	1749	451	36	1305
Lenhart, John, Fremont, Iowa. Plow	349,506	Sept. 21	1333	345	36	1309
Lennon, William F., New York, N. Y. Sash-balance	346,663	Aug. 3	270	74	36	513
Lenoir, Etienne J. J., Paris, France. Gas-engine	345,596	July 13	1138	290 / 291	36	210
Leonardson, John M., Ludington, Mich. Insulator for electric wires	347,943	Aug. 24	2089	554	36	875
Leonardt, Frederick. (See Tickle and Leonardt.)						
Leopold, Charles F., assignor to American Manufacturing Company, Philadelphia, Pa. Transom-lifter	345,238	July 6	605	153	36	109
Leopold, Charles F., assignor to American Manufacturing Company, Philadelphia, Pa. Meat-cutter	348,132	Aug. 24	2346	630	36	923
Leprévost-Bourgerel, Georges O. L., Paris, France. Pipe-coupling	347,461	Aug. 17	1383	367 / 368	36	735
Lerch, Karl, and K. Seidl, Grätz, Austria-Hungary. Stove	346,756	Aug. 3	377	104	36	534
Leslie, Joseph C., St. Albans, Vt. Toboggan	350,066	Sept. 28	2103	544	36	1464
Lester, Milton, Jr., Suffield, Conn. Sling-shot frame	344,840	July 6	63	15	36	12
Letchworth, Josiah, Buffalo, N. Y. Hame	349,891	Sept. 28	1864	481	36	1419
Letchworth, Josiah, Buffalo, N. Y. Hame attachment	349,892	Sept. 28	1865	481	36	1419
Letton, Raphael E., Quincy, Ill. Upright-piano action	345,706	July 20	1303	337	36	948
Leuchsenring, Herman H. (See Randall, Alfred H., assignor.)						
Levalley, Nelly P., Milwaukee, Wis. Drive-chain	345,707	July 20	1305	338	36	248
Leve, Gustave, assignor to F. S. M. Blun, New York, N. Y. Chair-fitting for drawing-room cars	347,758	Aug. 17	1810	482	36	815
Levenguth, John, Bloomington, assignor of one-half to F. Haitz, Towanda, Ill. Cabinet for exhibiting wares	346,295	July 27	2126	547	36	408
Levi, Louis, *et al.* (See Boehm, Alexander, assignor.)						
Levy Bros. *et al.* (See Borgfeldt, Nicholas H., assignor.)						
Levy Bros. *et al.* (See Borgfeldt and Schutz, assignors.)						
Levy, Max, New Albany, Miss. Lifting-jack	344,841	July 6	64	15	36	12
Lewis, Alfred D., and C. S. Irish, Jordan, N. Y. Measuring-can	348,564	Sept. 7	42	12	36	1055
Lewis, Augustus S. (See Harrison, Huntress, and Lewis.)						
Lewis, George T., Philadelphia, Pa. Manufacture of white pigments	346,114	July 27	1866	482	36	358
Lewis, John C., and W. H. Rainey, Decatur, Tex. Gate	346,483	Aug. 3	44	11	36	468
Lewis, Leroy S., East Hartford, assignor of one-half to G. S. Miller, Hartford, Conn. Fire-extinguisher	345,908	July 20	1591	410	36	299
Lewis, Richard, Newport, R. I. Machine for washing flower-pots	344,942	July 6	65	16	36	13
Lewis, Samuel T., and J. H. Babb, Midway, Tex. Corn and cotton sweep	349,725	Sept. 28	1643	424	36	1375
Lewis, W. T. (See Tracy, Patrick J., assignor.)						
Lewis, William H. (See Anthony and Lewis.)						
Lewy, Henry, Montgomery, Ala. Door-spring	346,296	July 27	2128	548	36	408
Lewyn, Adolph, *et al.* (See Borgfeldt, Nicholas H., assignor.)						
Lewyn, Adolph, *et al.* (See Borgfeldt and Schutz, assignors.)						
Libbey, Edward D. (See Locke, Joseph, assignor.)						
Libbey, Hosea, Boston, Mass. Sectional cartridge-shell	347,051	Aug. 10	787	209	36	618
Libbey, Hosea W., Boston, assignor of one-fourth to E. Ward, Linden, Mass. Roller-skate	346,664	Aug. 3	271	74	36	513
Lichtenwalner, Charles, Macungie, Pa. Brake for motors	346,556	Aug. 3	133	36	36	485
Lidback, John A., assignor of one-half to J. J. Gerrish, Portland, Me. Railway-gate	345,239	July 6	606	153	36	110
Lidback, John A., assignor of one-half to J. J. Gerrish, Portland, Me. Railway-gate	349,597	Sept. 21	1449	373 / 374	36	1332
Liddell, Walter J. F., Charlotte, N. C. Portable steam-boiler furnace	344,970	July 6	238	60	36	43
Liddell, Walter J. F., Charlotte, N. C. Saw-mill feed mechanism	347,000	Aug. 10	706	187	36	604
Lidke, Fred C., Washington, D. C. Hand-stamp	345,064	July 6	374	94	36	68
Liemke, Herman H., St. Louis, Mo. Railway-signal	346,484	Aug. 3	45	12	36	468
Liemke, Herman H., St. Louis, Mo. Railway-signal	346,485	Aug. 3	46	12	36	469
Light, Peter, and J. Luscher, Frankfort, Ky. Flue-broom	348,469	Aug. 31	2236	762	36	1022
Likins, William H., Jackson, assignor of one-half to A. W. Atterbury, Detroit, Mich. Middlings-purifier	348,754	Sept. 7	295	79	36	1102
Lincoln, J. H. (See Lea, Samuel J., assignor.)						
Lindley, Thomas E. (See Riggle, Michael M., assignor.)						
Lindquist, Andrew J., Bertrand, Nebr. Windmill	346,665	Aug. 3	272	74, 75	36	514
Lindsey, Edwin F., Bristol, R. I. Chuck	347,491	Aug. 17	1422	378	36	743
Lindsey, John M., Crystal Springs, Ga. Fertilizer-distributer	348,023	Aug. 24	2197	585	36	894
Lindsey, William C., New London, Mo. Heating-drum	348,852	Sept. 7	416	113	36	1124
Lineburg, John N., *et al.*, trustees. (See Kneedler, Lewis, assignor.)						
Linham, Robert E. (See Hopkins and Linham.)						
Link, J. Joseph, Chicago, Ill. Straw-carrier	349,507	Sept. 21	1333	346	36	1310
Linnell, Jonathan E., Norwich, Conn. Bottle-cabinet	346,166	July 27	1946	502	36	373
Linscott, George W., trustee. (See Field, Millard F., assignor.)						
Linsley, Joel, Burlington, Vt. Refrigerator	345,240	July 6	607	154	36	110
Linton, August W. (See Swanson and Linton.)						
Lippincott, Jason E., Cincinnati, Ohio. Telegraph-pole	349,049	Sept. 14	706	180	36	1180
Lippincott, Thomas W., Rockford, Ill. Siphon oil-can	346,666	Aug. 3	273	75	36	514
Lippincott, Thomas W., Rockford, Ill. Oil-can	349,598	Sept. 21	1451	374	36	1333
Lippitt, Peleg W., Providence, R. I. Furnace-grate	345,792	July 20	1430	370	36	270
Lippy, David, Mansfield, Ohio. Car-coupling	349,726	Sept. 28	1644	424	36	1375
Lips, Godfrey E., Louisville, Ky. Gig-saddle	345,853	July 20	1516	393	36	224

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Lister, John T., Cleveland, Ohio. Apparatus for making carbons	347,947	Aug. 10	1060	284 / 285	36	668
Liston, John, Glasgow, county of Lanark, Scotland. Cork-cutting machine	345,900	July 20	1592	410 / 411	36	299
Litchfield, Henry T. (See Cheever, John O., assignor.)						
Litterer, Fred, and L. McKinniss, Decatur, Ill. Check-rower for corn-planters	348,470	Aug. 31	2837	763	36	1022
Little, Joseph B., Winnipeg, Manitoba, Canada. Safety water-gage	345,156	July 6	496	127	36	90
Littlefield, Charles W., assignor of three-fourths to F. P. Todd and J. L. Fowler. Amesbury, Mass. Shutter-operator	346,855	Aug. 3	504	138	36	558
Littlejohn, Charles F., assignor to W. A. Nettleton, Bridgeport, Conn. Folder for covering stays	345,793	July 20	1431	370	36	270
Littlejohn, Fitz Hugh, Broadalbin, N. Y. Lap-robe holder for vehicles	347,944	Aug. 24	2090	555	36	875
Litzelle, John C., Rockford, Ill. Tile-roof	348,920	Sept. 7	580	137	36	1142
Livesey, Joseph H. (See Eaton, Prince, and Livesey.)						
Livingston, Charles L., Aurora, Ill. Door-bell	349,437	Sept. 21	1233	330	36	1289
Lizins, James B. (See Daggett, Robert P., assignor.)						
Lloyd, Edwin L., assignor of one-half to C. C. Joly, Philadelphia, Pa. Bottle-stopper	345,910	July 20	1595	411	36	300
Lloyd, Samuel, Washington, D. C. Awning	348,094	Aug. 24	2198	586 / 587	36	895
Lloyd, Walter J., and W. Priest, Harborne, county of Stafford, England. Tricycle	346,908	July 27	2007	517	36	384
Locher, James, Decatur, Ill. Hay-stacker	349,[illegible]	Sept. 28	1750	451	36	1305
Locher, James, Decatur, Ill. Car-coupling	34[illegible]805	Sept. 28	1751	451 / 452	36	1305
Lochmann, Paul, Gohlis, near Leipsic, Saxony, Germany. Musical box	346,[illegible]27	Aug. 3	378	104	36	535
Locke, Joseph, Medford, assignor to E. D. Libbey, Boston, Mass. Ornamental glassware	345,436	July 13	891	222	36	166
Locke, Joseph, Glenwood, (Medford,) and S. O. Richardson, Jr., Wakefield, Mass. Apparatus for making and burning gaseous fuel	349,298	Sept. 14	953	243	36	1226
Lockwood, Baldwin & Co. (See Baldwin, Willis assignor.)						
Lockwood, Edward M. (See Frisbie and Lockwood.)						
Lockwood, Henry S., assignor to Lockwood Manufacturing Company, South Norwalk, Conn. Sliding-door lock	346,928	Aug. 10	618	166	36	587
Lockwood Manufacturing Company. (See Lockwood, Henry S., assignor.)						
Lockwood, William C., Hoboken, N. J., assignor of one-half to S. M. Stilwell, New York, N. Y. Telephone	346,377	July 27	2229	574	36	429
Loeb, Jacob, *et al.* (See Güttinger, Carl, assignor.)						
Loeffelholz & Co. (See Bowen, Philip A., assignor.)						
Loeffelholz & Co. (See Kersten, Marsell, assignor.)						
Loeffler, Otto. (See Müller, Ludwig, assignor.)						
Loeser, Henry, Boston, Mass. Die for cutting leather	346,929	Aug. 10	620	166	36	588
Loftus, John, assignor of one-half to P. Kinnear, Albany, N. Y. Stuffing-box	346,378	July 27	2240	574	36	429
Loftus, John, assignor of one-half to P. Kinnear, Albany, N. Y. Injector	348,925	Aug. 24	2200	567	36	895
Logan, John B., Baltimore, Md. Umbrella	348,923	Aug. 31	2499	672	36	956
Logan, Leonard, Plymouth, Ind. Wire-fastener for fences	345,516	July 13	1002	254	36	186
Logan, Thomas H., Lowell, assignor of two-thirds to G. A. Byam, Chelmsford, L. T. Trull and J. E. Helms, Lowell, Mass. Spindle and support therefor	345,157	July 6	497	127	36	91
Lohmann, Albert C., Akron, Ohio. Paper box	349,165	Sept. 14	864	222	36	1210
Lombard, Nathan C. (See Southack, C. Frank, assignor.)						
Lombard, Robert T., Racine, Wis. Horse-collar fastener	349,943	Sept. 28	1931	499	36	1431
Lombard, Walter E., Somerville, Mass. Proportional caliper	345,978	July 20	1686	436	36	316
Lonergan, William H. (See Beehler, Charles W., assignor.)						
Long, Andrew L., and W. S. Barager, Dalton, N. Y. Sash-fastener	348,631	Sept. 7	138	39	36	1072
Long, George A., Northfield, Mass. Tool-holder for grinding	348,497	Aug. 31	2876	774	36	1029
Long, John M. W., and J. B. Fischer, Hamilton, Ohio. Manufacture of shovels	350,067	Sept. 28	2104	544	36	1464
Long, Malcolm W., Hyde Park, Mass. Railway-signal	345,641	July 13	1008	313	36	223
Long, Malcolm W., Hyde Park, Mass. Electric railway-signal	345,642	July 13	1311	313	36	224
Long, Thomas A., *et al.* (See Baker, John, assignor.)						
Longabore, Alfred R., Hasleton, Pa. Window frame and sash	348,596	Aug. 31	2920	785	36	1037
Longview Kelly Plow Manufacturing Company. (See Kelly, George A., assignor.)						
Looker, Robert S., Springfield, Ohio. Sewing-machine	349,438	Sept. 21	1234	320 / 321	36	1289
Looker, Robert S., Springfield, Ohio. Sewing-machine	349,439	Sept. 21	1238	321	36	1290
Looker, Robert S., Springfield, Ohio. Spool-box for sewing-machines	349,440	Sept. 21	1240	321	36	1290
Looker, Robert S., Springfield, Ohio. Adjustable oscillating needle-clamp for sewing-machines	349,441	Sept. 21	1241	321	36	1290
Loomer, Henry M., East Douglas, assignor to Douglas Axe Manufacturing Company, Boston, Mass. Dies for making ax-polls	348,921	Sept. 7	521	138	36	1143
Looney, William, Oxford, Ind. Automatic grain-measure	348,287	Aug. 31	2582	694	36	973
Loper, Charles H., Hickory, N. C. Rotary lamp	346,758	Aug. 3	379	105	36	535
Lord, George W., assignor of one-half to H. E. Townsend, Boston, Mass. Acoustic telephone	346,594	Aug. 3	179	48	36	495
Lord, Jerome D., and J. M. Cheevers, Dover, Mich. Potato-planter	347,275	Aug. 10	1102	295	36	676
Lord, Nathaniel W. (See Murphy and Lord.)						
Lord, Victor, Odessa, Del. Mechanism for preparing rock, &c., for fertilizers and cements	349,229	Sept. 14	954	243	36	1226
Lorden, Dennis J., Sandwich, assignor of one-half to J. J. Crowley, Boston, Mass. Machine for making glass globes, shades, &c	345,979	July 20	1687	436	36	316
Lorenz, Wilhelm, Carlsruhe, Baden, Germany. Making cartridge-shells	346,759	Aug. 3	381	105	36	535
Lorillard & Co., P. (See Lorillard and Harmon, assignors.)						
Lorillard, Pierre, Jr., New York, and O. S. Harmon, Brooklyn, N. Y., assignors to P. Lorillard & Co., Jersey City, N. J. Machine for trimming and beveling the edges of cards	349,351	Sept. 21	1098	280 / 281	36	1264
Lorimer, John H., Philadelphia, Pa. Wool-drier	347,360	Aug. 17	1235	329	36	708
Loring & Blake Organ Company. (See Loring, Elmer H., assignor.)						
Loring, Elmer H., assignor to Loring & Blake Organ Company, Worcester, Mass. Organ-case	349,656	Sept. 21	1519	393	36	1347
Lorne, Antoine T., West Hoboken, N. J. Expansible nut and bolt	349,851	Sept. 28	1816	469	36	1409
Lostutter, Peter R., *et al.* (See Walker, William C., assignor.)						
Lotstrom, Alexander. (See Reindl and Lotstrom.)						
Lott, James D., *et al.* (See Johnson, Delbert E., assignor.)						
Loucks, George W. S., *et al.* (See Jarman, George R., assignor.)						
Loucks, George W. S. (See Wheeler, William H., assignor.)						
Loud, Waldo A., Springfield, Mass. Traction-wheel	346,410	July 27	2291	588	36	438
Louden, William, Fairfield, Iowa. Hay-elevator	347,052	Aug. 10	787	209 / 210	36	618
Louden, William, Fairfield, Iowa. Hay-elevating fork	348,632	Sept. 7	138	39	36	1072
Louisville Spirit Cured Tobacco Company. (See Robinson, Goldsborough, assignor.)						
Lounsbury, Fred C., Brooklyn, N. Y. Visiting or fancy card	345,158	July 6	499	127	36	91

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Louque, Charles, New Orleans, La. Reciprocating balance for steam-engines	350,068	Sept. 28	2105	544	36	1464
Love, Francis M., assignor of one-half to S. C. Love, Shelbyville, Ind. Wire-fence machine	346,595	Aug. 3	181	49	36	495
Love, Samuel C. (See Love, Francis M., assignor.)						
Lovejoy, James J., and L. Kraft, Wheeling, W. Va. Privy	349,399	Sept. 21	1184	306	36	1280
Lovell, Clinton. (See Parkhurst and Lovell.)						
Low, Frederick R. (See Clark and Low.)						
Low, Frederick R., Chelsea, assignor to Ashcroft Manufacturing Company, Boston, Mass. Steam-engine indicator	350,069	Sept. 28	2106	545	36	1464
Low, Hamilton F. (See Gazaill and Low.)						
Lowden, Leonidas C., Lawrence, Ind. Wire-fence machine	346,052	July 20	1780	461	36	333
Lowe, Samuel, and J. W. Lamb, Nottingham, county of Nottingham, England. Knitting-machine	349,352	Sept. 21	1163	282, 283, 284, 285, 286	36	1265
Lowe, Samuel B., *et al.* (See Haskin, Uri, assignor.)						
Lowell Machine Shop. (See Canning, William P., assignor.)						
Lowell Machine Shop. (See Cummings, Edwin H., assignor.)						
Lucas, Albert G., *et al.* (See De Zeng, Henry L., assignor.)						
Lucas, Josiah. (See Harris and Lucas.)						
Luce, Theodore, Detroit, Mich. Filter	347,432	Aug. 17	1399	354	36	796
Luddy, James G., Cambridge, Mass. Brush	349,727	Sept. 28	1646	425	36	1375
Ludlow, Francis M., Sr., St. Louis, Mo. Packing for pistons, plungers, &c	348,527	Aug. 31	2221	785	36	1037
Ludlow, George M., Chicago, Ill. Crimping-machine	345,241	July 6	608	154	36	110
Ludlow, Josiah A., and D. Carlough, assignors of one-third to J. T. Seely, Paterson, N. J. Hinge	348,133	Aug. 24	2348	630	36	923
Ludwig, Thomas I., Fremont, assignor of one-half to G. Moore, Ballville, Ohio. Corn-husker	348,528	Aug. 31	2223	785, 786	36	1037
Lufkin, John W., Winchester, Mass. Stop mechanism for sewing and other machines	347,053	Aug. 10	792	210	36	619
Lugo, Orazio, New York, N. Y. Electric battery	346,653	July 20	1790	461	36	334
Lugo, Orazio, New York, N. Y. Receiving-telephone	348,134	Aug. 24	2349	630	36	923
Lugrin, Henry A., assignor to himself and P. Nordmann, New York, N. Y. Stop-watch. (Reissue)	10,770	Sept. 28	2145	555	36	1472
Lührs, Ernst A. (See Schaefer, John C., assignor.)						
Lumber Saving and Dressing Saw Company. (See Proctor, David R., assignor.)						
Lundgren, John, New York, N. Y. Swimming-leggin	349,256	Sept. 14	986	251	36	1233
Lungren, Charles M., New York, N. Y. Regenerative gas-lamp	347,622	Aug. 17	1607	426	36	778
Lunkenheimer, Edmund, assignor to F. Lunkenheimer, Cincinnati, Ohio. Straight-way valve. (Reissue)	10,769	Sept. 28	2143	555	36	1472
Lunkenheimer, Frederick. (See Lunkenheimer, Edmund, assignor.) (Reissue.)						
Luscher, John. (See Light and Luscher.)						
Luther, Jonathan. (See Howe, John C., assignor.)						
Luthy, Charles T., *et al.* (See Luthy, Godfrey, assignor.)						
Luthy, Charles T., Peoria, Ill. Coffee-case	345,242	July 6	610	154	36	110
Luthy, Ferdinand, *et al.* (See Luthy, Godfrey, assignor.)						
Luthy, Godfrey, assignor of two-thirds to C. T. and F. Luthy, Peoria, Ill. Preparing starch	346,920	Aug. 3	449	124	36	547
Luton, Robert M. (See Tracy, William P., assignor.)						
Luts, Albert C., Flint, Mich. Manufacturing cigar-holders and other articles from soluble and non-soluble gums	345,243	July 6	611	155	36	111
Luts, Charles, Londonville, Ohio. Nut-lock	346,440	July 27	2338	601	36	446
Lyman, James. (See Doubleday and Lyman.)						
Lyman, Nathan R., and A. Morley, Chicago, Ill. Stereotype plate and base with locking device	349,257	Sept. 14	987	252	36	1234
Lyman, William, Middlefield, Conn. Sight for fire-arms	348,224	Aug. 31	2501	673	36	956
Lynch, Edward P., Davenport, Iowa. Lister-plow	347,880	Aug. 24	1994	528	36	857
Lynch, Edward P., Davenport, Iowa. Stalk-cutting machine	348,167	Aug. 24	2401	644	36	933
Lynch, Garry G., and P. Lanton, Illaward, La. Saw-sharpening device	348,168	Aug. 24	2403	644	36	933
Lynch, Hubbard C. (See Charlton and Lynch.)						
Lynch, John C., Sycamore, Ohio. Work-bench vise	345,244	July 6	612	155	36	111
Lynde, Myron, Grundy Center, Iowa. Draft-equalizer	346,054	July 20	1791	461	36	334
Lyon, George W., *et al.* (See Post, Charles N., assignor.)						
Lyon, Henrietta J., Newark, N. J. Attachment for pants	349,657	Sept. 21	1520	393	36	1347
Lyons, Edmund J. (See Collins and Lyons.)						
Lyons, George W., and J. Sheldon, Watertown, N. Y. Can-opener	349,281	Sept. 14	1012	259	36	1239
Lyons, James B., Norway, Mich. Mining-pump	347,724	Aug. 17	1765	471	36	806
Lyth, George W., Stockholm, Sweden. Burner and lamp for mineral oils or their equivalents	346,856	Aug. 3	505	139	36	559
Maass, Franz, assignor to H. Reinhold, Berlin, Germany. Cork core steam-packing	346,598	Aug. 3	188	50	36	497
Macdonald, Ranald, Brooklyn, N. Y. Underground conduit	344,843	July 6	66	16	36	13
Macdonald, William C. (See Mantion, Macdonald, and Riley.)						
Mace, Alonzo M., Needham, Mass. Gas retort and furnace	345,437	July 13	892	222	36	166
MacGonigle, John N., Oil City, Pa. Gas-heating furnace	346,297	July 27	2129	548	36	408
MacMackin, Bernard. (See Young, William H., assignor.)						
Mack, Josiah D., and J. G. Newbury, Albany, N. Y. Hat and coat rack	348,983	Sept. 14	908	160	36	1164
Mack, Patrick H. (See Hazleton and Mack.)						
Mack, William A., Norwalk, Ohio. Cabinet-lock	344,844	July 6	68	17	36	13
Mack, William H. (See Willson and Mack.)						
Mackey, David S., Batavia, N. Y. Feed-regulator for roller-mills	348,755	Sept. 7	296	79	36	1102
Mackintosh, Edward D., Brooklyn, assignor to P. Prybil, New York, N. Y. Carving-machine	346,596	Aug. 3	192	49	36	495
Mackley, Carl T., Innspruck, Tyrol, Austria-Hungary. Match	348,679	Sept. 7	205	54	36	1064
Maclay, James G., *et al.* (See Harris, George M., assignor.)						
Macready, Robert A., New York, N. Y. Telegraphic key	346,930	Aug. 10	620	166	36	568
Macy, James, and C. M. Gilbert, Stranghns, Ind. Fence-machine	348,288	Aug. 31	2583	694	36	973
Madlem, Daniel. (See Tippett and Madlem.)						
Magee, Frank A., Chelsea, Mass., assignor to Magee Furnace Company. Cooking stove or range	344,845	July 6	68	17	36	13
Magee Furnace Company. (See Magee, Frank A., assignor.)						
Magee, Nelson, Hoboken, N. J. Bell-crank	345,438	July 13	894	223	36	166
Magnolia Laundry Soap Manufacturing Company. (See Broadbent, Charles F., assignor.)						
Maher, Michael, Fremont, Nebr. Car-coupling	347,001	Aug. 10	708	187, 188	36	604
Mahnken, Henry, New York, N. Y. Printing-telegraph receiver	345,945	July 6	613	155	36	111

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mahon, Alexander, assignor of one-third to L. W. Sinsabaugh, Washington, D. C. Combined cigar and ash holder	346,471	Aug. 31	2238	763	36	1083
Mahony, Michael, Troy, N. Y. Furnace-grate	346,115	July 27	1867	482	36	358
Mahony, Michael, Troy, N. Y. Ash-chute	346,466	Aug. 3	47	12	36	489
Maish, Calvin H., Carson, Nev. Lamp-burner	349,110	Sept. 14	794	201	36	1196
Makutchan, Charles A. (See Makutchan, William H. and C. A.)						
Makutchan, William H. and C. A., Buda, Ill. Two-wheeled vehicle	345,708	July 20	1307	336	36	248
Malam, William, Edgemoor, Del. Car wheel and axle	347,119	Aug. 10	899	235	36	637
Malet, Henry C. E., Brighton, county of Sussex, England. Gun carriage and shield	347,002	Aug. 10	708	187, 188	36	604
Malley, John O., Pittsburg, Pa. Machine for finishing the necks of bottles	346,116	July 27	1868	483	36	358
Mallory Wheeler Company. (See Sparks, Henry H., assignor.)						
Maloney, James A., assignor to Pneumatic Signal and Telephone Company, Washington, D. C. Pneumatic signal-bell	347,183	Aug. 10	979	261, 262	36	653
Maloney, James A., assignor to Pneumatic Signal and Telephone Company, Washington, D. C. Pneumatic signal-bell	347,184	Aug. 10	980	262	36	652
Maloy, James W., Boston, Mass. Ornamenting stone	348,225	Aug. 31	2502	673	36	957
Maltby, Philo, Cleveland, Ohio, assignor of one-half to L. G. Hine, Washington, D.C. Reversing-valve for locomotives	347,881	Aug. 24	1996	529, 530	36	857
Mambert, Isaac H., Albany, N. Y. Attaching gussets	347,882	Aug. 24	1999	530	36	857
Mambourg, Leopold, *et al.* (See House, Ulgis, assignor.)						
Mambourg, Leopold. (See Huidekoper, Mambourg, House, and Dockstader.)						
Mandeville, Ira J., Hazleton, Pa. Combination-tool	348,565	Sept. 7	44	13	36	1056
Mandt, Targe G., Stroughton, Wis. Jump-seat vehicle	346,760	Aug. 3	323	105	36	535
Mangold, Leonard, and C. Grimm, Chattanooga, Tenn. Harrow	346,117	July 27	1869	483	36	358
Mankey, Frederick, Williamsport, Pa. Manufacture of ornamental clapboards	346,209	July 27	2009	518	36	385
Mankey, Frederick, Williamsport, Pa. Manufacturing ornamental moldings	347,361	Aug. 17	1236	320	36	796
Manley, Anthony V., Norwich, N. Y. Tanner's apron-support	346,487	Aug. 3	48	12	36	489
Manley, Mandelbert L., Ferry, Mich. Car-door lock	347,185	Aug. 10	962	262	36	654
Mann's Boudoir Car Company. (See Stanley, Ethelbert A., assignor.)						
Mansfield, Edwin L., Boston, Mass. Drilling-machine	349,728	Sept. 28	1647	425	36	1376
Mantion, John D., W. C. Macdonald, and J. J. Riley, Lyons, Iowa, assignors to Diamond Match Company, of Connecticut. Apparatus for manufacturing matches	346,597	Aug. 3	187	50	36	496
Mapes, William R. (See Chase, Sidney A., assignor.)						
Mara, Rhody, Warsaw, N. Y. Drying apparatus	348,566	Sept. 7	45	13	36	1056
March, George N., Watertown, Mass., assignor to Fiberlene Collar Company, Portland, Me. Lady's collar	345,911	July 20	1597	411	36	300
March, George N., Watertown, Mass., assignor to Fiberlene Collar Company, Portland, Me. Collar	345,912	July 20	1598	412	36	300
March, George N., Watertown, Mass., assignor to Fiberlene Collar Company, Portland, Me. Collar	345,913	July 20	1599	412	36	300
Marchand, Charles, New York, N. Y. Preservation of meat	349,852	Sept. 28	1817	.....	36	1410
Marder, Luce & Co. (See Tufford, William V., assignor.)						
Maret, John C., Paducah, Ky. Velocipede	346,667	Aug. 3	274	75, 76	36	514
Margerum, Mary. (See Marsh and Margeram.)						
Maris, Jared, Columbus, Ohio. Vehicle-hub	347,623	Aug. 17	1609	427	36	779
Marker, Frank H., assignor of two-thirds to E. M. Chester, Elkhart, and C. E. Sage, Elkhart County, Ind. Lamp trimming and extinguishing apparatus	349,599	Sept. 21	1452	374	36	1333
Marks, Thomas K., assignor of one-half to W. M. Davis, Cornersville, Tenn. Truss-bridge	346,118	July 27	1870	483	36	359
Marley, Allen M., De Soto, Kans. Car-coupling	349,853	Sept. 28	1819	470	36	1410
Marlin, John M., New Haven, Conn. Clutch for bicycles	348,680	Sept. 7	206	54, 55	36	1064
Marr, Frank S., *et al.* (See Doubleday and Lyman, assignors.)						
Marsh, Charles, Reading, Pa. Stamp and envelope moistener	348,403	Aug. 31	2740	735	36	1004
Marsh, Edith A., New Albany, Ind. Egg-beater	345,709	July 20	1308	338	36	248
Marsh, Edward A., Newton, Mass. Pinion-leaf-polishing machine	349,944	Sept. 28	1932	499, 500	36	1432
Marsh, Elon A., Battle Creek, Mich. Steam-pump	345,311	July 13	711	179, 180	36	133
Marsh, Fanny K., and M. Margerum, Bloomsburg, Pa. Dust-pan	347,751	Aug. 3	384	106	36	536
Marsh, Orlo J., Titusville, Pa. Combined chair and step-ladder	347,883	Aug. 24	2001	531	36	858
Marshall, Elias, Boston, Mass. Indicator for elevators	349,729	Sept. 28	1648	425	36	1376
Marshall, James C., Boston, Mass. Machine for scoring and cutting paper for boxes	347,492	Aug. 17	1424	378, 379	36	743
Marshall, James E. (See Farber, Manasseh W., assignor.)						
Marshall, John, Brooklyn, N. Y. Faucet for shipping-cans, &c	348,756	Sept. 7	297	79	36	1102
Marshall, Joseph S., Clear Water, Kans. Grain weighing and registering apparatus	346,668	Aug. 3	276	76	36	515
Marshall, Robert, Hamilton, Ontario, Canada. Crimping-machine for boots and shoes	348,135	Aug. 24	2350	630, 631	36	923
Marshall, Thomas T., Hamilton, Ontario, assignor to J. A. McRae, Montreal, Canada. Crimping-machine for boots and shoes	346,655	July 20	1792	462	36	334
Marshall, William, New York, N. Y. Telephonic circuit	349,342	Sept. 21	1046	268	36	1254
Marston, David W., assignor of three-fourths to M. V. Purmont, H. M. Day, M. L. Stearns, Lebanon, N. H., and Derby & Ball, Bellows Falls, Vt. Scythe-snath fastening	349,353	Sept. 21	1110	286	36	1266
Marston, George, assignor to himself, B. M. and C. M. Kimball, Haverhill, Mass. Safety-attachment for railway-cars	346,762	Aug. 3	385	106	36	536
Martin, Charles, Toronto, Ontario, Canada. Match-dipping apparatus	349,111	Sept. 14	795	201	36	1196
Martin, Charles, Toronto, Ontario, Canada. Match-tray	349,112	Sept. 14	797	202	36	1196
Martin, Charles, Toronto, Ontario, Canada. Match making and dipping machine	349,113	Sept. 14	798	202, 203	36	1196
Martin, Charles S., *et al.* (See Wilcox, Harlow M., assignor.)						
Martin, Edwin H., and J. Beavis, Cleveland, Ohio. Rolling-mill	349,730	Sept. 28	1649	426	36	1376
Martin, Gabriel, Monroe, Ohio. Corn-cutting machine	346,210	July 27	2010	518, 519	36	385
Martin, Henry, Lancaster, Pa. Brick-machine	346,931	Aug. 10	622	167	36	568
Martin, John H., *et al.* (See Black, Henry, assignor.)						
Martin, John H., *et al.* (See Black and Miller, assignors.)						
Martin, John H., *et al.* (See Murray, James H., assignor.)						
Martin, John H., Warwick, R. I. Bolster for spinning-spindles	347,814	Aug. 24	1896	505	36	840
Martin, Max, *et al.* (See Borgfeldt, Nicholas H., assignor.)						
Martin, Max, *et al.* (See Borgfeldt and Schnts, assignors.)						
Martines, Frederic F., Jr. (See Given and Martines.)						
Martini, Frederick W., Brooklyn, N. Y. Picture-exhibitor	349,114	Sept. 14	800	203	36	1197
Martius, Carl A., Berlin, Germany. Producing mixed azo colors	344,971	July 6	239	.....	36	43
Mafty, Auguste, Vera Cruz, Mexico. Ship	346,211	July 27	2011	519	36	385

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Marx, Joseph. (See Mueller and Marx.)						
Marx, Philipp, assignor to L. Schlesinger & Co., New York, N. Y. Flour-sifter	344,973	July 6	240	61	36	43
Maser, Michael, Mount Carmel, Ill. Sash-fastener	346,488	Aug. 3	49	13	36	469
Mash, Nelson T., Chicopee Falls, Mass. Finishing imperfectly-woven cloth	350,008	Sept. 28	2094		36	1449
Maske, Robert W., assignor to W. Deering & Co., Chicago, Ill. Grain-binder	347,815	Aug. 24	1807	505 506	36	840
Mason, Carlile, and A. Miller, Chicago, Ill. Steam-generator and furnace	347,816	Aug. 24	1808	506	36	840
Mason, Charles T., Jr., Sumter, S. C., assignor to Cotton Harvester Company. Cotton-harvester	345,246	July 6	614	156 157	36	111
Mason, Charles T., Jr., Sumter, S. C., assignor to Mason Cotton Harvester Company. Making cotton-picker stems	345,312	July 13	714	180	36	134
Mason & Co., J. W. (See Mason, Joel W., assignor.)						
Mason Cotton Harvester Company. (See Mason, Charles T., Jr., assignor.)						
Mason, Horatio H. (See Emerson, Richard, assignor.)						
Mason, James H., assignor of one-half to A. B. Simmons, Springfield, Ark. Cultivator	347,725	Aug. 17	1766	471	36	907
Mason, Joel W., assignor to J. W. Mason & Co., New York, N. Y. Folding chair	345,710	July 20	1308	338	36	249
Mason, Lyman S. (See Allen and Mason.)						
Mast & Company, P. P. (See Startzman and Crain, assignors.)						
Mast, L. Lavake, West Milton, Ohio. Weather-strip	347,493	Aug. 17	1425	379	36	743
Masten, Alanson T., Shiloh, Iowa. Four-horse evener	346,932	Aug. 10	623	167	36	588
Master, John E., Flushing, N. Y. Device for securing scarf-pins	345,794	July 20	1433	371	36	270
Masters, Frank A., Troy, N. Y. Refrigerator	348,404	Aug. 31	2741	736	36	1004
Mather, Richard, Windsor, Conn. Rheostat	347,120	Aug. 10	890	236	36	637
Mathewson, Sebra R., Pleasant Valley, assignor of one-half to R. Baker, Portersville, Cal. Saw-gummer	345,388	July 13	813	205	36	152
Mathieu, Jean A., Detroit, Mich. Apparatus for distilling wood	344,917	July 6	170	44	36	31
Matson, C. M., *et al.* (See Matson, Wilmarth P. and J. C., assignors.)						
Matson, James C. (See Matson, Wilmarth P. and J. C.)						
Matson, Wilmarth P. and J. C., assignors of one-half to C. M. Matson and D. L. Paine, Brookville, Pa. Alarm-lock	348,026	Aug. 24	2201	587	36	895
Matteson, Rufus S., assignor to Phenix Iron Foundry, Providence, R. I. Cloth-tentering machine	350,009	Sept. 28	2025	523	36	1449
Mattex, William C., *et al.* (See Belt, Samuel, assignor.)						
Matthews, Elizabeth, *et al.* (See O'Donnell, James D., assignor.)						
Matthews, George, *et al.* (See O'Donnell, James D., assignor.)						
Matthews, John H., *et al.* (See O'Donnell, James D., assignor.)						
Matthias, William, and C. E. Rudolph, Colfax, Dak. Ter. Oat-bulling machine	346,933	Aug. 10	624	167 168	36	589
Matthias, William, and C. E. Rudolph, Colfax, Dak. Ter. Oatmeal-machine	346,934	Aug. 10	625	168	36	589
Mattice, John C., Cohoctou, N. Y. Potato-digger	349,166	Sept. 14	865	222	36	1210
Mattison, Richard V., *et al.* (See Hanmore, Hiram M., assignor.)						
Matzke, Otto, Gunnison, Colo. Dry ore amalgamator and separator	349,442	Sept. 21	1243	322	36	1291
Maull, Charles, St. Louis, Mo. Making potato-meal	345,159	July 6	500	.....	36	91
Maver, William, Jr., Jersey City, N. J., assignor to Baltimore & Ohio Telegraph Company, Baltimore, Md. Quadruplex telegraph	349,945	Sept. 28	1936	500	36	1432
Maxim, Hiram S., London, England. Recoil mechanism for guns	347,945	Aug. 24	2090	555 556	36	875
Maxon, Samuel L. (See McClure, Albert E., assignor.)						
Maxson, A. S. (See Babcock, E. Stillman, assignor.)						
Maxson, William M., Akron, Ohio. Shoe-fastening	346,119	July 27	1872	483	36	359
Maxwell, Elmer R., Bolivar, N. Y. Piston-packing for deep-well pumps	348,027	Aug. 24	2204	588	36	895
Maxwell, John, Denver, Colo. Machine for making nuts	345,795	July 20	1435	371	36	271
Maxwell & Mowry. (See Kitchel, Lyman B., assignor.)						
May, Benjamin, Moseley, county of Worcester, assignor to W. Powell, Birmingham, England. Match-box	345,914	July 20	1600	412	36	301
May, Charles, Sunbury, Pa. Lock for reverse and throttle levers	348,681	Sept. 7	208	55	36	1085
May, Horatio N. (See Munsie, James F., assignor.)						
May, Isaac, Brooklyn, N. Y. Switch and signal lock	347,494	Aug. 17	1426	379	36	744
May, John L., Martinsburg, Pa. Reclining-chair	349,508	Sept. 21	1334	346	36	1310
May, Thomas J., *et al.* (See Sharp, Taylor E., assignor.)						
Mayer, A. M. (See Mayer, Herman, assignor.)						
Mayer, Alexander, *et al.* (See Boehm, Alexander, assignor.)						
Mayer, Herman, assignor of one-half to A. M. Mayer, Bradford, Pa. Stock-record	345,519	July 13	1005	255	36	187
Mayer, Julius C., Cleveland, Ohio. Curtain-fixture	344,846	July 6	69	17	36	13
Mayfield, Daniel D., Sullivan, Ind. Weather-strip	345,597	July 13	1140	291	36	211
Mayfield, Washington B., assignor to himself and H. Dustin, South West City, Mo. Fruit-picker	347,495	Aug. 17	1427	379	36	744
Mayhew, Theophilus, New York, N. Y. Transom-lifter	348,226	Aug. 31	2504	673	36	957
Mayhew, Theophilus, New York, N. Y. Receptacle for poisons	348,227	Aug. 31	2505	673 674	36	957
Maynard, John M., Hickory, assignor of three-fourths to C. E. Ward, Green Level, N. C. Machine for marking or laying out mortises	348,028	Aug. 24	2205	588	36	895
Mayor, William R., Pawtucket, R. I. Spinning-mule	346,298	July 27	2130	548 549	36	408
McAdam, Alexander J., San Francisco, Cal. Elevator	347,433	Aug. 17	1330	354 355	36	726
McAdams, John, Boston, Mass. Paper ruling machine	349,167	Sept. 14	867	222	36	1210
McAllister, Daniel, assignor of one-half to W. and J. F. W. Lefmann, St. Louis, Mo. Pedestal and axle-box for cars	350,010	Sept. 28	2027	523	36	1449
McAllister, Randall L. (See Denmead and McAllister.)						
McArdell, John W., Brooklyn, N. Y. Flushing device	348,682	Sept. 7	210	55	36	1085
McBride, Patrick V., Charleston, S. C. Truck	347,186	Aug. 10	983	262 263	36	654
McCaffrey, James, assignor of one-half to J. Forrest, Philadelphia, Pa. Safety water-gage	349,509	Sept. 21	1335	346	36	1310
McCarter, Samuel. (See Asper, Benjamin F., assignor.)						
McCarter, Samuel, Norristown, assignor of one-half to B. F. Asper, Pittsburg, Pa. Mining-machine	349,731	Sept. 28	1650	426	36	1376
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Ornamental nail for coffins	348,030	Aug. 24	2206	589	36	896
McCarty, Benjamin W., and F. P. Gague, Houston, Tex. Support for coffee-mills	348,984	Sept. 14	610	161	36	1165
McCarty, Cornelius M., assignor to J. Wirgman, Jr., Romney, W. Va. Door check and holder	348,031	Aug. 24	2209	590	36	896
McCarty, Lewis C., Noblesville, assignor of one-half to J. E. Demoret, Fisher's Switch, Ind. Combined hay rake and loader	347,726	Aug. 17	1767	471 472	36	907

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McCarty, Thomas D., and F. C. Sawhill, Midway, Pa. Pipe-wrench	346,299	July 27	2132	549	36	408
McCarty, William F. C. M., Pittsburg, assignor, by mesne assignments, of one-half to A. Ohl and B. C. Lauth, Philadelphia, Pa. Manufacturing hydrocarbon gas. (Reissue)	10,757	Aug. 17	1817	483 484	36	816
McChristian, Edward, assignor to Superior Drill Company, Springfield, Ohio. Horse hay-fork	348,853	Sept. 7	416	113	36	1134
McClain, Robert T. (See McCormick and McClain.)						
McClintock, Maria R., Abbyville, Va. Coin-holder	345,590	July 13	1006	255	36	187
McClure, Albert E., assignor of one-fourth to S. L. Maxon, Sedalia, Mo. Rope-clamp	345,313	July 13	715	180	36	135
McClure, Charles E. (See Eads, John B., assignor.)						
McConnaughay, Thomas J., Harrisonville, Mo. Rotary brush	345,854	July 20	1517	393	36	284
McConnell, A. N., *et al.* (See Whitney, Samuel G., assignor.)						
McConnell, Hugh, Cleveland, Ohio. Lamp-stove	347,187	Aug. 10	985	263	36	654
McConnell, Hugh, Cleveland, Ohio. Oil-stove	348,089	Aug. 24	2206	588 589	36	896
McConnell, Hugh, assignor to Home Gas and Oil Stove Company, Detroit, Mich. Vapor-burning attachment for stoves	347,188	Aug. 10	986	263 264	36	655
McConnell, Jacob, Liverpool, England. Turbine	349,510	Sept. 21	1336	347	36	1310
McConnell, Joseph. (See Miller and McConnell.)						
McConnell, Robert F., Estillville, Va. Heel for boots and shoes	348,472	Aug. 31	2839	764	36	1023
McConway, William, Pittsburg, Pa. Car-coupling	350,011	Sept. 28	2028	523 524	36	1449
McCormick, George, and R. T. McClain, Fairfield, Iowa. Check-row corn-planter	347,302	Aug. 17	1237	329 330	36	709
McCormick Harvesting Machine Company. (See Baker, William R., assignor.)						
McCoy, Curtis, Greensburg, Ind. Tongue-support	345,521	July 13	1007	255	36	187
McCracken, Edwin D., Alpine, N. J. Skirt	344,973	July 6	241	61	36	43
McCray, John H. B., Kellerville, Ill. Car-coupling	347,121	Aug. 10	892	236	36	637
McCree, James, Lansing, Mich. Car coupling	348,567	Sept. 7	46	13	36	1056
McCreedy, John W., *et al.* (See Platt, Mathias, assignor.)						
McCrory, William. (See Heintzelman, Taylor W., assignor.)						
McCrory, William. (See McGlauflin, Eugene O., assignor.)						
McCully, Robert, Philadelphia, Pa. Crushing-machine	348,757	Sept. 7	298	80	36	1103
McCully, Robert, Philadelphia, Pa. Crushing-machine	348,758	Sept. 7	302	80, 81	36	1103
McCutcheon, Alexander T. (See McCutcheon, Nathan C. and A. T.)						
McCutcheon, Nathan C. and A. T., Springfield, Ohio. Remedy for kidney diseases	348,851	Sept. 7	418	.....	36	1125
McDermott, James, West N. Y. Sickle-bar for harvesters	345,439	July 13	894	223	36	166
McDonald, Harry P., Louisville, Ky. Drier	348,759	Sept. 7	304	81	36	1104
McDonald, Hiram W., Bucyrus, Ohio. Catch-basin inlet and cover for sewers	347,496	Aug. 17	1428	380	36	744
McDonald, William C., assignor, by mesne assignments, to said McDonald and A. F. Pierce, Reading, Mass. Life-preserver	346,599	Aug. 3	190	50	36	497
McDowell, John H., R. W. Hudgins, and J. E. Moore, Union City, Tenn. Railway-gate	345,522	July 13	1007	256	36	187
McDowell, Samuel J., Boston, Mass. Portable oven	346,763	Aug. 3	386	106	36	536
McFarland, Thomas A., Meadville, Pa. Chair	348,633	Sept. 7	140	39	36	1073
McFarlane, George P. (See Gottstein and McFarlane.)						
McGee, James, Scott County, Iowa. Wheel-cultivator	348,760	Sept. 7	305	81	36	1104
McGee, John F. (See Bilton, Henry C., assignor.)						
McGill, George W., Salineville, Ohio. Window-shade	347,434	Aug. 17	1333	355	36	727
McGill, George W., New York, N. Y. Fastening for bags, &c	345,523	July 13	1009	256	36	187
McGill, George W., New York, N. Y. Suspension device	346,300	July 27	2133	549	36	409
McGill, George W., New York, N. Y., assignor to Holmes, Booth & Haydens, Waterbury, Conn. Lamp	348,405	Aug. 31	2742	736	36	1004
McGill, Samuel F., Keene, N. H. Insulator for electrical conductors	349,893	Sept. 28	1805	481	36	1419
McGill, William C., Washington, D. C. Cash-register	345,247	July 6	619	157	36	112
McGinnis, William. (See Brown, Ethan A., assignor.)						
McGiven, William, A. L. Nichols, and G. Darnell, Grove City, Ohio. Cheese-knife	349,732	Sept. 28	1652	426	36	1377
McGlauflin, Eugene O., assignor of one-half to W. McCrory, Minneapolis, Minn. Cable railway	347,624	Aug. 17	1610	427	36	779
McGloflin, Harry B., Swan Lake, Miss. Swinging crib and bed	345,796	July 20	1436	372	36	271
McGoldrick, Neal, Brooklyn, N. Y. Rein-holder	349,733	Sept. 28	1652	426	36	1377
McGovern, Thomas A., Bolinas, Cal. King-bolt for vehicles	347,435	Aug. 17	1335	355	36	727
McGowan, John H., Cincinnati, Ohio. Piston-rod packing	347,817	Aug. 24	1809	506	36	841
McGowan, John H., Cincinnati, Ohio. Hydraulic press	348,568	Sept. 7	47	13	36	1056
McGrady, James, and G. H. Sloane, Boston, Mass. Medical electric belt or pad	348,406	Aug. 31	2744	737	36	1005
McGrath, Thomas, East Toledo, Ohio. Car-coupling	349,443	Sept. 21	1244	322	36	1291
McGrew, Alonzo H., Hurley, Dak. Ter. Railway ditching-machine	345,855	July 20	1518	393	36	284
McGrew, James E., *et al.* (See Whaley, Thomas, assignor.)						
McGrew, James G., Crookston, Minn. Heating-stove	346,764	Aug. 3	387	107	36	536
McGuire, Thomas J. (See Jenkins and McGuire.)						
McHarg, John B., Rome, N. Y. Spinning fish-bait	347,122	Aug. 10	893	236	36	637
McHugh, James W., Du Bois, Pa. Nut-lock	348,569	Sept. 7	48	14	36	1056
McIlhenny, George A., Washington, D. C. Gas-retort furnace	346,301	July 27	2133	549 550	36	409
McIlvain, John H., Camden, N. J., assignor to J. B. and C. F. Bartlett, Philadelphia, Pa. Shaking-grate for ranges	346,056	July 20	1795	462 463	36	335
McIlvenna, Felix, Manchester, county of Lancaster, assignor to W. P. Thompson, Liverpool, England. Bottle-stopper	345,160	July 6	500	128	36	91
McInroy, George, Charleston, Pa. Automatic brake for vehicles	345,598	July 13	1141	292	36	211
McIntire, Charles, Newark, N. J. Wire joint	347,625	Aug. 17	1611	427	36	779
McIntosh, John, Cleveland, Ohio. Apparatus for turning rolls	349,806	Sept. 28	1752	452	36	1396
McIntosh, John E., Cayuga, N. Y. Centrifugal governor	346,302	July 27	2135	550	36	409
McIntyre, James S., Clarinda, Iowa. Compound for increasing combustion of coal, &c	346,765	Aug. 3	388	.....	36	536
McKay, John, Titusville, Pa. Treating natural gas to convert it into illuminating-gas	345,980	July 20	1629	.....	36	316
McKee, James. (See Whitaker, William W., assignor.)						
McKee, John W., Stoutland, Mo. Preserving eggs	345,065	July 6	376	.....	36	69
McKenna, Edward W., Louisville, Ky. Cleaning and lubricating railway-tracks	346,303	July 27	2136	550	36	409
McKenna, Edward W., Louisville, Ky. Air-brake attachment	348,289	Aug. 31	2564	695	36	974
McKenzie, David, Jr., Washington, D. C. Pipe-coupling	349,511	Sept. 21	1337	347	36	1310
McKenzie, Joseph C. (See Knapp, McKenzie, and Humphrey.)						
McKenzie, William H., Wayerly, Ohio. Water condnefor and receiver	349,894	Sept. 28	1866	482	36	1430
McKeogh, Lizzie, Pittsburg, Pa. Foot-pad for machine-treadles	345,248	July 6	621	158	36	112
McKinney, William P. (See Dickey and McKinney.)						
McKinniss, Lewis. (See Litterer and McKinniss.)						
McKinster, Frank, assignor to T. P. Randall and R. D. Calbuth, Adrian, Mich. Thill-coupling	348,985	Sept. 14	611	161	36	1165

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McKusick, Myron L., *et al.* (See Latchford, William J., assignor.)						
McLain, James B., Knoxville, Iowa. Cuspidor for railway-coaches, &c	347,189	Aug. 10	988	264	36	655
McLane, Alexander, Paterson, N. J. Bouquet-holder	348,332	Aug. 31	2638	711	36	981
McLaren, Daniel R., Hinckley, Minn. Sled	347,436	Aug. 17	1336	356	36	728
McLauchlan, Daniel M. (See Boggs and McLauchlan.)						
McLaughlin, George, Cincinnati, Ohio. Camera	346,120	July 27	1873	484	36	359
McLean, Anthony, and F. Cumming, San Francisco, Cal. Water-filter	346,304	July 27	2137	551	36	409
McLean, Neil, Watsonville, Cal. Reversible plow	345,797	July 20	1437	372	36	271
McLellan, Robert A., San Francisco, Cal. Engine valve-gear	349,512	Sept. 21	1338	347, 348	36	1311
McLoughlin, Edmund, *et al.* (See Campbell, Andrew, assignor.)						
McLoughlin, John, *et al.* (See Campbell, Andrew, assignor.)						
McLoughlin, John E., and H. E. Brewster, Utica, N. Y. Case for holding Scotch caps	348,228	Aug. 31	2307	674	36	957
McMains, William W., Monongahela City, Pa. Hand printing-roller	346,489	Aug. 3	51	13	36	469
McMichael, James L., Glen Wilton, Va. Method of and apparatus for cooling furnace bosh-jackets	349,513	Sept. 21	1339	348	36	1311
McMillan, John J., Brooklyn, N. Y. Sliding-door sheave	345,314	July 13	716	181	36	135
McMillan, John L., Ilion, assignor of one-half to J. Fowler, D. L. Robertson, T. S. Coolidge, and J. W. Bush, Glens Falls, N. Y. Type-setting machine	347,626	Aug. 17	1612	427, 428, 429, 430	36	779
McMillan, John L., Ilion, assignor of one-half to J. Fowler, T. S. Coolidge, J. W. Bush, and D. L. Robertson, Glens Falls, N. Y. Type-distributing machine	347,627	Aug. 17	1620	430, 431	36	781
McMillan, Richard, Kingston, Ontario, Canada. Piano tuning-pin	345,711	July 20	1309	339	36	249
McMullin, Hugh L. (See Frank, Alonzo W., assignor.)						
McNamara, John R. (See Coit and McNamara.)						
McNaughton, James. (See Small and McNaughton.)						
McNeal, Andrew C., Geigersville, Ky. Plow	345,161	July 6	501	128	36	91
McNeal, Byron. (See Bowen, Daniel C., assignor.)						
McNorton, John T., assignor to J. A. Brooks, Burnet, Tex. Corn and cotton planter	345,389	July 13	814	205	36	152
McPherson, John W., Moline, Ill. Brake-lever	348,229	Aug. 31	2508	674	36	958
McPherson, William, New York, N. Y. Machine for making stirrup-irons for beams, &c	349,946	Sept. 28	1937	501	36	1433
McQueen, Fletcher J., Ocala, Fla. Electric train-controlling system	347,628	Aug. 17	1625	431	36	782
McQuitty, Andrew J., *et al.* (See Platt, Mathias, assignor.)						
McRae, John A. (See Marshall, Thomas T., assignor.)						
McTighe, James J., Pittsburg, Pa. Apparatus for manufacturing lamp-black	346,168	July 27	1949	502	36	373
McTighe, James J., Pittsburg, Pa. Manufacturing carbon-black	346,169	July 27	1950	503	36	374
McVickar, James. (See Irish, Joseph, assignor.)						
McVoy, Martin, South Bay City, Mich. Cooler and filter	348,032	Aug. 24	2210	590	36	897
Meacham, James H., Petersburg, Va. Smoke and cinder conductor	345,524	July 13	1010	256	36	188
Mead, Isaac V., Corona, N. Y. Bush-hammer	345,598	July 13	1140	291	36	211
Mead, John, Detroit, Mich. Hydrant	349,230	Sept. 14	956	244	36	1227
Meagher, Edmund D., assignor to Economist Plow Company, South Bend, Ind. Sulky-plow	345,712	July 20	1310	339	36	249
Meaker, John W., assignor to Railway Register Company, Chicago, Ill. Fare-register	345,713	July 20	1312	339	36	249
Meatyard, Edward B., Lake Geneva, Wis. Apparatus for compressing cast metal	347,437	Aug. 17	1337	356, 357	36	728
Meatyard, Edward B., Lake Geneva, Wis. Apparatus for compressing fluid metal	347,003	Aug. 10	711	188	36	604
Meatyard, Edward B., Lake Geneva, Wis. Machine for rolling I-beams	347,004	Aug. 10	713	188, 189, 190	36	605
Medley, Granville E., Hopkinsville, Ky. Fishing-reel	347,005	Aug. 10	718	190, 191	36	605
Megill, Edward L., Brooklyn, N. Y. Gage-pin for printing-presses	346,490	Aug. 3	52	13	36	470
Megeon, John, Adams, Mass. Stop-motion for looms	345,066	July 6	376	95	36	69
Mehren, Jacob F., Chicago, Ill. Telephone-switch	348,761	Sept. 7	306	81, 82	36	1104
Meiners, Gustave, Hoboken, N. J. Cuff-button	349,947	Sept. 28	1939	501	36	1433
Mellor, James B., Baltimore, Md. Churn-dasher	346,935	Aug. 10	627	168	36	580
Melson, John T., Laurel, Del. Car-coupling	349,854	Sept. 28	1920	470	36	1410
Memmler, F. William. (See Taber, David F., assignor.)	349,050	Sept. 14	708	181	36	1180
Menahan & Co., John. (See Menahan, John, assignor.)						
Menahan, John, Brooklyn, assignor to J. Menahan & Co., New York, N. Y. Fastener for purses	345,067	July 6	377	95	36	69
Mendel, Sarah A., Chicago, Ill. Water-proof cloak	349,313	Sept. 21	1047	266	36	1254
Mendelsohn, Solomon, San Francisco, Cal. Shirt	350,070	Sept. 28	2106	545	36	1464
Meneely, George R., Albany, N. Y. Journal-box	345,798	July 20	1438	372	36	271
Menzies, William J., St. Helens, county of Lancaster, England. Composition for the manufacture of soap	345,714	July 20	1313	.....	36	249
Menzies, William J., St. Helens, county of Lancaster, England. Manufacture of soap by the cold process	345,715	July 20	1314	.....	36	249
Mergenthaler, Ottmar, Baltimore, Md., assignor, by mesne assignments, to National Typographic Company, W. Va. Machine for producing type-matrices	344,974	July 6	943	61, 62	36	44
Mergenthaler, Ottmar, Baltimore, Md., assignor, by mesne assignments, to National Typographic Company, Washington, D. C. Machine for casting stereotypes	347,818	Aug. 24	1901	507, 508	36	841
Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company, Washington, D. C. Machine for producing type-bars and matrices therefor	345,525	July 13	1012	257, 258, 259	36	188
Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company, Washington, D. C. Type-matrix and mechanism for distributing the same	347,630	Aug. 17	1639	435	36	784
Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company. Machine for producing type-bars	345,526	July 13	1021	259, 260, 261, 262, 263	36	189
Mergenthaler, Ottmar, Baltimore, Md., assignor to National Typographic Company. Machine for producing type-bars	347,629	Aug. 17	1637	432, 433, 434	36	782
Meriden Britannia Company. (See McCarthy, Oliver, assignor.)						
Merkien, Valentine, New York, N. Y. Lathe for turning spirals. (Reissue)	10,765	Sept. 21	1559	460	36	1354
Merrey, Joseph W. (See Colbourne, Mark J., assignor.)						
Merriam, Truman, Milwaukee, Wis. Covering for pipes, &c	347,631	Aug. 17	1642	435	36	785
Merrill, Alfred K., Brooklyn, assignor to G. A. Goldsmith, New York, N. Y. Collar	346,868	Aug. 3	278	76	36	515

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Merrill, William, *et al.* (See Pake, Edward G., assignor.)						
Merrin, William L., Fredericktown, Ohio. Organ-pipe	347,363	Aug. 17	1238	330	36	709
Merritt, Samuel F., Springfield, Mass. Eyeglass holder	346,305	July 27	2130	551	36	410
Merritt, Worth, Indianapolis, Ind. Doffer-cleaner for carding-machines	348,498	Aug. 31	2678	774	36	1030
Merry, Whiting P., Cortland, Ohio. Heat-equalizer	347,819	Aug. 24	1910	508	36	842
Merserau, William T., South Orange, N. J. Brass rod and tubing	344,847	July 6	70	18	36	13
Merz, Theodore C., assignor of one-half to P. Pleasner, Detroit, Mich. Bottle-stopper	345,249	July 6	622	158	36	112
Meschter, Jacob K., Philadelphia, Pa. Incubator	347,946	Aug. 24	2092	556	36	876
Meserole, Jacob, Southington, Conn. Rotary paper-cutter	346,167	July 27	1948	502	36	373
Messinger, William T., Cambridge, Mass. Check-valve	346,600	Aug. 3	190	51	36	497
Metallic Steel Railway Supply Company. (See Gibbon, Thomas H., assignor.)						
Metcalf, Samuel G. (See Hollerith and Metcalf.)						
Metcalfe, Henry, Paris, Ontario, Canada. Wagon-spring	345,162	July 6	502	128	36	91
Metropolitan Wire Nail Manufacturing Company. (See Voigt, Max G., Sr., assignee.)						
Metzger, Martin L., and A. Cooper, assignors to W. O. Hickok, Harrisburg, Pa. Feed-grinder	345,163	July 6	503	128, 129	36	92
Metzger, Martin L., and G. W. Brown, assignors to W. O. Hickok, Harrisburg, Pa. Receiving-box for ruling-machines	346,411	July 27	2292	580, 580	36	438
Metzger, Martin L., and A. Cooper, assignors to W. O. Hickok, Harrisburg, Pa. Book-trimming machine	346,412	July 27	2295	580	36	438
Metzler, Benjamin F. (See Noble and Metzler.)						
Menth, Adam A. (See Hoesch, Samuel G., assignor.)						
Meyer, Ernest A. E., Watertown, N. Y. Starching washed goods	348,762	Sept. 7	308	82	36	1104
Meyer, Henry W. (See Brown and Meyer.)						
Meyer, Isaac, St. Louis, Mo. Fly-net	349,231	Sept. 14	958	244	36	1227
Meyer, John, Covington, Ky. Vent-bung	349,354	Sept. 21	1111	287	36	1308
Meyer, Joseph O., and W. Strickler, Buffalo, N. Y. Baking-machine	349,115	Sept. 14	801	203	36	1197
Meyer-Sniffen Company. (See Bunting, William, Jr., assignor.)						
Meyers, Julius R., San Francisco, Cal. Preventing the obstruction of streets at fires	349,051	Sept. 14	709	181	36	1181
Meysenburg, Theodore A. (See Westenholm, George, assignor.)						
Michael, George W., Oberlin, assignor of one-half to S. E. and A. S. Brooks, Cleveland, Ohio. Pen-holder	346,670	Aug. 3	278	76	36	515
Michaud, Charles E., St. Michel d'Yamaska, Quebec, Canada. Car-coupling	346,936	Aug. 10	627	169	36	580
Michelson, Sigismund M., assignor of one-half to G. Sylvester, Milwaukee, Wis. Trunk or furniture caster	349,948	Sept. 28	1940	501	36	1433
Michigan Stove Company. (See Clapp and Keep, assignors.)						
Middaugh, Jacob, and C. M. Wilcox, New Paris, Ohio. Portable fence-machine	347,190	Aug. 10	989	264	36	655
Midgley, Sam, Lowell, Mass. Card-setting machine	348,529	Aug. 31	2924	786	36	1038
Miehle, Robert, Chicago, Ill. Air-cushion for printing-presses	345,527	July 13	1035	263	36	191
Miehle, Robert, Chicago, Ill. Inking apparatus for printing-machines	347,364	Aug. 17	1239	330, 331	36	709
Milam, B. R. (See Basham, Wesley H., assignor.)						
Mild, William, Cincinnati, Ohio. Link	349,949	Sept. 28	1941	502	36	1433
Miles, Benjamin J., and M. Dunne, Girard, Ohio. Car-coupling	347,006	Aug. 10	722	191	36	606
Miles, Manoah, Russell, Kans. Railway-switch	345,440	July 13	895	223	36	166
Miles, William A., Copake Iron Works, N. Y. Charcoal-kiln. (Reissue)	10,746	July 20	1227	472	36	342
Miles, William A., Copake Iron Works, N. Y. Joint for metal pipes	347,947	Aug. 24	2094	557	36	876
Millar, James, and G. Peeny, Amabel, Ontario, Canada. Boiler-cleaner	348,530	Aug. 31	2927	786	36	1038
Millard, Martin S., assignor to W. H. H. Tainter, Kansas City, Mo. Refrigerator	348,855	Sept. 7	418	113	36	1125
Miller, Alexander. (See Mason and Miller.)						
Miller, Allen T. (See Black and Miller.)						
Miller, Allen T., *et al.* (See Black, Henry, assignor.)						
Miller, August, St. Louis, Mo. Ventilating freight-cars	344,848	July 6	71	18	36	13
Miller, Bradford, *et al.* (See Miller, Richard W., assignor.)						
Miller, Charles, assignor to J. Stompe, Auburn, N. Y. Mop-wringer	348,033	Aug. 24	2210	590	36	897
Miller, Charles E., Indianapolis, Ind. Fence-machine	348,570	Sept. 7	49	14	36	1056
Miller, Charles L. (See Miller, James P. and C. L.)						
Miller, Edgar E., Canton, Ohio. Oil-can	344,975	July 6	246	63	36	45
Miller, Fred W., Caledonia, N. Y. Bean-harvester	345,981	July 20	1692	436	36	317
Miller, Frederick T., Fredericksburg, Va. Sulky-plow	345,068	July 6	378	95	36	69
Miller, George S. (See Lewis, Leroy S., assignor.)						
Miller, George W. (See Crebb, Koch, and Miller.)						
Miller, Harry, Morristown, Ind. Railway-frog	346,671	Aug. 3	279	77	36	515
Miller, Horace E., Newark, N. J., assignor of one-half to J. L. Ferguson, Larchmont Manor, N. Y. Manufacturing mirror-backs from plastic material and the product thereof	345,[illegible]92	July 20	1693	437	36	317
Miller, Horace E., Newark, N. J., assignor of one-half to J. L. Ferguson, Larchmont Manor, N. Y. Manufacture of backs for brushes from celluloid and other plastic material	345,993	July 20	1695	437	36	317
Miller, Jacob, Canton, Ohio. Bag-holder	348,986	Sept. 14	612	161	36	1165
Miller, James P., Kenney, and C. L. Miller, Ridgeville, Ill. Ball-joint coupler	344,918	July 6	171	44	36	32
Miller, James W., Central City, Nebr. Clothes-drying apparatus	347,248	Aug. 10	1066	286	36	670
Miller, James W., assignor to himself and A. W. Baird, Butler, Pa. Coffee and spice mill	345,441	July 13	897	223	36	167
Miller, John, Cambridge, Mass. Device for releasing animals	345,799	July 20	1440	373	36	272
Miller, John G., Champaign, Ill. Hame-tug	348,987	Sept. 14	613	161	36	1165
Miller, Lewis. (See Myers, Levi, assignor.)						
Miller, Lewis, Akron, Ohio. Grain-binder	346,491	Aug. 3	53	13, 14	36	470
Miller, Martin L., Oregon City, Oreg. Sliding-grate attachment for stove-ovens	347,007	Aug. 10	722	191	36	606
Miller, Metcalf & Parkin. (See Parkin, Charles, assignor.)						
Miller, Oliver A. (See Tyler, Abel D., Jr., assignor.)						
Miller, Oliver A. (See Wellman, Alexander R., assignor.)						
Miller, Philip, Sharpsburg, Pa. Wire basket for cooking utensils	348,988	Sept. 14	614	162	36	1165
Miller, Rachel, *et al.* (See Miller, Richard W., assignor.)						
Miller, Richard W., assignor to E. H. Taylor, J. Talbert, D. G. Slafter, R. and B. Miller, Vassar, Mich. Machine for cutting paving-blocks	346,672	Aug. 3	279	77	36	515
Miller, Robert W., Allegheny City, and J. McConnell, Pittsburg, Pa. Oil-well casing	344,849	July 6	72	18	36	14
Miller, William, Brantford, Kans. Incubator	347,249	Aug. 10	1068	286	36	670
Miller, William D., Springfield, Ohio. Horse hay-rake	348,230	Aug. 31	2510	674	36	958
Miller, William J., Colorado, Tex. Wheel-hub	345,716	July 20	1315	340	36	250
Miller, Willis E., New Haven, Conn. Die for forging axle-flaps	346,306	July 27	2140	551	36	410
Millet, John W., Dolgeville, assignor to A. Dolge, New York, N. Y. Machine for cutting felt and other materials	348,763	Sept. 7	308	82	36	1104
Millner, George W., Charlottetown, Prince Edward Island, Canada. Ash-sifter	347,250	Aug. 10	1069	286	36	670
Millot, James. (See Millot, Theophilus and J.)						
Millot, Theophilus and J., New York, N. Y. Transferring a precipitated or reduced metal	345,442	July 13	898	.....	36	167
Millot, Theophilus and J., New York, N. Y. Metal-faced fabric or material for interior decorations, &c	347,497	Aug. 17	1429	360	36	744

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Mills, Mortimer B., Chicago, Ill. Mechanical movement for operating gate-bars, switches, signals, and the like	348,856	Sept. 7	422	114	36	1195
Mills, Mortimer B., assignor to Safety Gate Company, Chicago, Ill. Gate	346,121	July 27	1875	484	36	350
Miltimore, George W., Arlington, Vt., assignor to United States Car Wheel Dressing Company, Chicago, Ill. Dressing and hardening metal surfaces	347,948	Aug. 24	2094	567; 558; 550	36	876
Miltimore, George W., Arlington, Vt., assignor to United States Car Wheel Dressing Company, Chicago, Ill. Machine for dressing and hardening car-wheels and other bodies	347,949	Aug. 24	2100	559; 560; 561	36	876
Miltimore, George W., Arlington, Vt., assignor to United States Car Wheel Dressing Company, Chicago, Ill. Car-wheel	347,950	Aug. 24	2105	561	36	877
Miltimore, George W., Arlington, Vt., assignor to United States Car Wheel Dressing Company, Chicago, Ill. Machine for dressing car-wheels	347,951	Aug. 24	2107	561; 562	36	877
Miltimore, J. Harvey, and H. M. Underwood, Waukegan, Ill.; said Miltimore assignor to said Underwood. Machine for trimming wall-paper	346,307	July 27	2141	551; 552	36	410
Minneapolis Harvester Works. (See Appleby, John E., assignor.)						
Mitchell, Abraham, Bradford, county of York, England. Manufacturing woven fabrics	346,673	Aug. 3	280	.....	36	515
Mitchell, Charles J., St. Clair, Mich. Wall-paper-exhibiting device	348,764	Sept. 7	310	83	36	1105
Mitchell, Hiram, Scottdale, Pa. Carving device	345,529	July 13	1038	263	36	192
Mitchell, Isaac, Woodbine, Iowa. Car-coupling	349,400	Sept. 21	1185	307	36	1280
Mitchell, John, Newark, Ohio. Scaffold-bracket for ladders	349,322	Sept. 14	950	244	36	1288
Mitchell, John S., *et al.* (See Crosbie, James H., assignor.)						
Mitchell, Marshall B., *et al.* (See Kleese, Wilson, assignor.)						
Mitchell, Rufus S., Beardstown, Ill. Pitman	346,034	Aug. 24	2211	590	36	897
Mitchell, Samuel. (See Beebe, Oscar, assignor.)						
Mitts, Sylvanis S., *et al.* (See Pake, Edward G., assignor.)						
Mix, Charles M. (See Byerley, Francis X., assignor.)						
Mixner, L. B. (See Pringle, George W., assignor.)						
Moat, Elijah, Los Angeles, Cal. Oiler	347,251	Aug. 10	1070	286	36	670
Moats, Lyman, *et al.* (See Carey, John E., assignor.)						
Mock, William L., assignor of one-half to P. Challiss, Woodlawn, Kans. Elevator-spout	346,821	Aug. 3	450	124	36	548
Moeller, Jacob, assignor of one-half to E. Sondermann, Manitowoc, Wis. Table	345,643	July 13	1215	314	36	224
Mobler, Levi H., *et al.* (See Van Horn, William, assignor.)						
Momburg, Frederick W., Sauk Rapids, Minn. Water-heater	348,989	Sept. 14	615	162	36	1166
Monaghan, John F., assignor, by mesne assignments, to himself and O. B. Smith, Palmer, Mass. Saw-guard	347,884	Aug. 24	2001	531	36	858
Monahan, Joseph J., Milwaukee, Wis. Box-fastener	349,514	Sept. 21	1341	348	36	1311
Monroe, Charles F., Meriden, Conn. Napkin-ring	345,164	July 6	504	129	36	92
Monroe, William E., Cherryvale, Kans. Window-screen	349,444	Sept. 21	1345	322	36	1291
Montant, Alphonse, New York, N. Y. Vise	347,365	Aug. 17	1242	331	36	710
Montant, Alphonse, New York, N. Y. Vise	347,366	Aug. 17	1244	311	36	710
Monteer, Alexander N., Kansas City, Mo. Freight-car	347,895	Aug. 24	2002	531	36	858
Montgomery, George W., Grangeville, W. Va. Boring-machine	344,970	July 6	240	63, 64	36	45
Montgomery, Harry C., Cleveland, Ohio. Beer-pump	348,333	Aug. 31	2639	712	36	985
Montgomery, Samuel, West Toledo, Ohio. Capstan	346,822	Aug. 3	451	124; 125	36	548
Montgomery, William T., Wakefield, assignor to Star Manufacturing Company, Boston, Mass. Automatic sprinkler	348,531	Aug. 31	2928	787	36	1038
Moock, Otto T., and G. H. Regar, Philadelphia, Pa.; said Moock assignor to said Regar. Ice-carrier	348,858	Sept. 7	427	115	36	1126
Moocrs, Henry C., Toledo, Ohio, assignor to W. A. Bunton, trustee, Cambridge, Mass. Valve-gear	346,492	Aug. 3	55	14	36	470
Moon, Edward W., St. Louis, Mo. Brake for dumb-waiters	349,258	Sept. 14	987	252	36	1234
Moor, George C., assignor of one-half to J. Stark, Jr., Waltham, Mass. Cannon-pinion for watches	345,800	July 20	1441	373	36	272
Moore, David A., Jr. (See Moore, George W. and D. A., Jr.)						
Moore, Edward B., West Chester, and G. Rehfuss, Philadelphia, Pa., assignor to said Moore. Button-hole sewing-machine	349,445	Sept. 21	1246	323; 324	36	1292
Moore, Frank. (See Westinghouse and Moore.)						
Moore, George. (See Ludwig, Thomas I., assignor.)						
Moore, George W. and D. A., Jr., Guthrieville, Pa. Upholstering-roll	348,634	Sept. 7	141	39	36	1073
Moore, James E. (See McDowell, Hudgins, and Moore.)						
Moore, Jesse B., Eldorado, Ark. Back-band hook	348,571	Sept. 7	50	14	36	1057
Moore, John N. B., Hartford, Conn. Suspending electric lights or gas or oil lamps	348,407	Aug. 31	2745	737	36	1005
Moore, Joshua, Marseilles, Ill. Road-grading machine	345,315	July 13	717	181	36	135
Moore, Matthew R., Indianapolis, Ind. Sand-molding machine	346,380	July 27	2243	575	36	429
Moore, Matthew R., assignor to Pneumatic Company, Indianapolis, Ind. Sand-molding machine	346,379	July 27	2241	574	36	429
Moore, Matthew R., assignor to Pneumatic Company, Indianapolis, Ind. Sand-molding machine	346,381	July 27	2244	575	36	430
Moore, Matthew R., assignor to Pneumatic Company, Indianapolis, Ind. Sand-molding machine	346,382	July 27	2248	575	36	430
Moore, Thomas A. L., New Orleans, La. Sash-lock	348,344	Aug. 31	2640	712	36	985
Moore, Thomas J., Waciasa, Fla. Egg-preserving apparatus	347,498	Aug. 17	1430	380	36	744
Moore, William M., Empire City, Colo. Carriage-screen	346,857	Aug. 3	506	139	36	569
Moorshead, Alfred J., and W. P. Bixby, Attica, Ind. Stock-car	347,632	Aug. 17	1643	435; 436	36	785
Moran, George T., Burlington, Iowa. Cheese-knife	346,557	Aug. 3	134	37	36	486
Moran, John D., New York, N. Y. Faucet-hung	346,558	Aug. 3	134	37	36	486
Moreau, Eugène, San Francisco, Cal., assignor to T. W. Sterling, New York, N. Y. Rock-drill	347,438	Aug. 17	1345	357; 358; 359; 360	36	729
Morein, Jules, Norfolk, Va. Fence, railing, or balcony	346,057	July 20	1797	463; 464	36	335
Morell, William F., Cutchogue, N. Y. Lifting-jack	350,071	Sept. 28	2109	545; 546	36	1465
Morey, Parker F., Portland, Oreg. Pressure-regulating valve	346,212	July 27	2012	519	36	385
Morgan, Charles, Bridgewater, Nova Scotia, Canada. Carriage-seat	350,072	Sept. 28	2110	546	36	1465
Morgan, Charles F., Taylor, Minn. Bundle-carrier for self-binding harvesters	349,895	Sept. 28	1867	482	36	1420
Morgan & Company, D. S. (See Becker, Frederick G., assignor.)						
Morlet, Charles, Jersey City, N. J. Winding-stop for mainsprings	349,896	Sept. 28	1868	483	36	1420
Morley, Albert. (See Lyman and Morley.)						
Morrill, Charles F., Boston, Mass. Watch-case	347,252	Aug. 10	1070	287	36	670
Morris, Thomas F., Jersey City, N. J. Valve	347,727	Aug. 17	1769	472	36	807

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Morris, Bernard G., *et al.* (See Hambujer, Ephraim, assignor.)						
Morris Company, I. P. (See Hutchinson, Clinton C., assignor.)						
Morris, John H. and T. D., Seward, Nebr. Permutation-lock	344,977	July 6	255	64	36	46
Morris, John H. and T. D., Seward, Nebr. Combination-lock	349,168	Sept. 14	889	223	36	1211
Morris, Mark G., *et al.* (See Hambujer, Ephraim, assignor.)						
Morris, O. B. (See Bates, Edward C., assignor.)						
Morris, Thomas D. (See Morris, John H. and T. D.)						
Morrison, Hanson, assignor of one-half to J. R. Anderson, Xenia, Kans. Check-row corn-planter	349,259	Sept. 14	989	252	36	1234
Morrison, J. Frank. (See Keilholtz, Pierre O., assignor.)						
Morrison, John. (See Waite, Charles N., assignor.)						
Morrow, George, Pullman, Ill. Support for drawers	347,276	Aug. 10	1103	285	36	676
Morrow, Henry W., Wilmington, Del. Nut-lock	346,823	Aug. 3	454	125	36	548
Morrow, James. (See Morrow, Richard H., assignor.)						
Morrow, Richard H., Washington Court-House, assignor of one-half to J. Morrow, Steubenville, Ohio. Corn-harvester	347,301	Aug. 10	1146	306; 307	36	684
Morrow, Thomas T., Caro, Mich. Snap-hook	349,169	Sept. 14	870	223	36	1211
Morrow, Thomas T., Caro, Mich. Snap-hook	349,170	Sept. 14	870	223	36	1211
Morrow, William W., *et al.* (See Kelly, John J., assignor.)						
Morse, David R., *et al.* (See Beach, William W., assignor.)						
Morse, David R., *et al.* (See Solano, Renaldo, assignor.)						
Morse, Edward A. (See Shortaleave, David, assignor.)						
Morse, Frederick H., St. Louis, assignor of one-half to G. S. Morse, Columbia, Mo. Handle for bicycles	347,054	Aug. 10	793	211	36	619
Morse, George S. (See Morse, Frederick H., assignor.)						
Morse, George W., Washington, D. C. Reloading-cartridge	345,165	July 6	505	130	36	92
Morse, George W., Washington, D. C. Cartridge-resizing implement	346,213	July 27	2013	519; 520	36	386
Morse, Ira, Danbury, Conn. Pipe-wrench	344,978	July 6	256	64	36	46
Morse, William J., assignor of two-thirds to H. Mullen and J. Noble, Jr., Westfield, Mass. Whip-button	345,166	July 6	507	130	36	92
Morton, Frederic C., Chelsea, Mass. Steam-engine	349,171	Sept. 14	871	223	36	1211
Morton, James G., Canton, Mo. Hay-press	346,937	Aug. 10	929	169	36	569
Moschcowitz, Herman. (See Moschcowitz, Schamu M. and H.)						
Moschcowitz, Herman, New York, N. Y. Pattern for garments	350,073	Sept. 28	2111	546	36	1465
Moschcowitz, Schamu M. and H., New York, N. Y. Dress-skirt facing	348,859	Sept. 7	428	115	36	1126
Moseley, Fredrick W., Poultney, Vt., and J. G. Pritchard, Clinton, Iowa. Cream-raising apparatus	348,540	Aug. 31	2939	790	36	1041
Moseley, Joseph, Marcy, N. Y. Sulky-plow	348,231	Aug. 31	2511	675	36	958
Moseley, Orlando, Peru, Ind. Wire fence	348,035	Aug. 24	2212	591	36	897
Mosely, George W., Philmont, N. Y. Tally or check tag	345,443	July 13	899	224	36	167
Moseman, Willett W., assignor to W. A. Stevenson, Brooklyn, N. Y. Evener or sheet-straightener for the receiving-tables of printing-machines	345,644	July 13	1215	314	36	225
Moses, Albert P., and L. Frechette, Malone, N. Y. Thill-coupling	349,401	Sept. 21	1186	307	36	1281
Moses, Otto A., New York, N. Y. Crayon-holder	347,439	Aug. 17	1354	360	36	730
Moss, Lincoln, *et al.* (See Pendleton, John H., assignor.)						
Moss, Ralph S., London, England. Bat for lawn-tennis	346,858	Aug. 3	507	139	36	550
Motes, Martin H. (See Smith and Motes.)						
Mott Iron Works, J. L. (See Butler, Theodore, assignor.)						
Mott Iron Works, J. L. (See Demarest, John, assignor.)						
Mott Iron Works, J. L. (See Mott, Jordan L., Jr., assignor.)						
Mott, Jordan L., Jr., assignor to J. L. Mott Iron Works, New York, N. Y. Flushing apparatus for water-closet cisterns	345,390	July 13	815	206	36	152
Mottinger, Noah W., and A. Halter, Akron, Ohio. Earthenware-lined refrigerator	348,036	Aug. 24	2213	591	36	897
Moust, Thomas G. G., Detroit, Mich. Screw-driver	346,058	July 20	1798	464	36	335
Moulter, Charles, *et al.* (See Le Clair, George, assignor.)						
Moulton, David, Malden, Mass. Elevated railway	345,645	July 13	1217	314	36	225
Moulton, Fordyce M., Vergennes, Vt. Road-scraper	347,820	Aug. 24	1911	508	36	842
Moulton, Hamilton L., Philadelphia, Pa. Carding-machine	347,728	Aug. 17	1771	472	36	807
Mount Washington Glass Company. (See Shirley and Steffin, assignors.)						
Mounts, Daniel D., San Francisco, Cal. Steam-cooking apparatus	345,391	July 13	815	206	36	153
Mouser, John B. (See Fogleson and Mouser.)						
Mowbray, George M., North Adams, Mass., assignor to American Zylonite Company, New York, N. Y. Process of and apparatus for washing, decoloring, and draining pyroxyline	349,658	Sept. 21	1521	393	36	1348
Mowbray, George M., North Adams, Mass., assignor to American Zylonite Company, New York, N. Y. Drying pyroxyline	349,659	Sept. 21	1523	.....	36	1348
Mowry, George, Derry Station, Pa. Washing-machine	349,314	Sept. 21	1048	268	36	1254
Moyers, William H., Bunnno, Ind. Log-wagon	347,729	Aug. 17	1772	473	36	808
Mudge, Charles F., Eskridge, Kans. Canning apparatus	346,122	July 27	1877	485	36	360
Mueller, Joseph H., and J. Marx, Cross Plains, Wis. Spoke-fitting machine	348,922	Sept. 7	523	138	36	1143
Muenchinger, Gustave A., Newport, R. I. Heat-regulator for incubators	346,938	Aug. 10	631	169	36	590
Mühlethaler, Jakob. (See Aebi and Mühlethaler.)						
Mulholen, Joseph S., Fostoria, Pa. Corn-planter	347,499	Aug. 17	1432	380	36	745
Mulholland, Richard, Dunkirk, N. Y. Vehicle-spring	347,500	Aug. 17	1433	381	36	745
Mulkey, Elijah F. (See Houston and Mulkey.)						
Mullen, Henry, *et al.* (See Morse, William J., assignor.)						
Mullen, Henry, and J. Noble, Jr., Westfield, Mass. Whip-core	344,979	July 6	258	64	36	46
Müller, Andrew, Hawley, Pa., assignor to C. Lambert, New York, N. Y. Cleaning and tension-equalizing device for silk-doubling frames	348,408	Aug. 31	2747	738	36	1005
Müller, August E., Elberfeld, Prussia, Germany. Button-fastener	350,074	Sept. 28	2112	547	36	1465
Müller, Augustus F., New York, N. Y. Lady's riding-habit	348,573	Sept. 7	52	15	36	1057
Müller, Carl L. (See Bull and Müller.)						
Müller, Friedrich W., Berlin, Germany. Presser-foot for sewing-machines	346,601	Aug. 3	192	51	36	497
Müller, John, Rochester, N. Y. Brake	347,501	Aug. 17	1435	381	36	745
Müller, Ludwig, Dresden, Saxony, Germany, assignor to O. Loeffler, New York, N. Y. File	348,290	Aug. 31	2585	695	36	974
Müller, Telle H., New York, N. Y. Reamer	346,214	July 27	2014	520	36	386
Mullins, John W., London, Ky. Magazine fire-arm	349,282	Sept. 14	1013	259	36	1239
Mulloy, William, Great Falls, N. H. Hoof-pad	347,821	Aug. 24	1912	508	36	842
Mumma, Henry C. (See Highbarger, John L., assignor.)						
Mundy, Edwin V. (See Crawford and Mundy.)						
Munk, Henry, Fremont, Ohio. Cigar-lighter and perfumery-ejector combined	348,409	Aug. 31	2747	738	36	1005
Munro, Carrie A., Olive Branch, Ohio. Vapor-bath	348,923	Sept. 7	524	138	36	1143

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Munsie, James F., assignor of five-twelfths to H. N. May, Chicago, Ill. Testing-station for conduit systems	348,572	Sept. 7	51	14	36	1057
Munson, Corydon W., Toledo, Ohio. Inhaler and respirator	345,718	July 20	1318	341	36	250
Munson, Harvey S., New Haven, Conn. Paper box	348,921	Sept. 7	596	138, 139	36	1144
Murdock, Edwin F., Washington, D. C. File-box	346,216	July 27	2016	590	36	387
Murdock, George J., assignor to C. Hall, New York, N. Y. Bolt-machine. (Reissue)	10,769	Sept. 7	551	145, 146	36	1148
Murphy, Andrew, and C. Weinman, Columbus, Ohio. Platform for scaffolds	347,055	Aug. 10	794	211	36	619
Murphy, Jeremiah, Brooklyn, N. Y. Mill for pressing cane, &c	346,493	Aug. 3	57	14	36	471
Murphy, John, and N. W. Lord, Columbus, Ohio. Hydraulic cement	347,367	Aug. 17	1244	.....	36	710
Murphy, Junius A. and M. T., New Orleans, La. Oil-cake mat	346,059	July 20	1799	464	36	335
Murphy, Marcus T. (See Murphy, Junius A., assignor.)						
Murray, David M., Dayton, Ohio. Stove	346,939	Aug. 10	632	170	36	590
Murray, David M., Dayton, Ohio. Latch	348,125	Sept. 7	327	139	36	1144
Murray, James, and D. A. Brislin, St. Louis, Mo. Spring-key-shaping machine	345,717	July 20	1315	340, 341	36	250
Murray, James H., assignor to D. A. Sargent, G. D. Bowman, and J. H. Martin, Hopkins, Mo. Galvanic belt	346,215	July 27	2015	520	36	386
Murray, Peter, Jr. Newark, N. J., assignor to Backus Manufacturing Company. Fan	344,960	July 6	258	65	36	46
Murray, Peter, Jr., Newark, N. J., assignor to Backus Manufacturing Company. Hydraulic motor	348,136	Aug. 24	2352	631	36	924
Murray, Peter, Jr., assignor to Backus Manufacturing Company, Newark, N. J. Rotary fan	347,952	Aug. 24	2110	562	36	878
Murray, Peter, Jr., assignor to Backus Manufacturing Company, Newark, N. J. Rotary fan	348,683	Sept. 7	211	56	36	1085
Murray, Peter, Jr., assignor to Backus Manufacturing Company, Newark, N. J. Differential hoisting-gear	348,684	Sept 7	212	56	36	1086
Murray, Peter, Jr., assignor to Backus Manufacturing Company, Newark, N. J. Rotary fan	349,855	Sept. 28	1821	470	36	1410
Murray, Peter, Jr., assignor to Backus Manufacturing Company, Newark, N. J. Water-motor	349,856	Sept. 28	1821	470	36	1410
Murray, William, Providence, assignor of one-half to H. and J. W. Collins, Pawtucket, R. I. Stop-motion mechanism for winding and spooling machines	345,250	July 6	623	158	36	113
Murry, Walter C. (See Schroder, John, assignor.)						
Muser, Adolph, assignor of one-half to L. Geismar, Detroit, Mich. Confectioner's melting-bath	345,251	July 6	624	159	36	113
Musinan, Oscar, Jr., New York, assignor to E. Faber, Port Richmond, N. Y. Uniting tubes	350,075	Sept. 28	2113	547	36	1465
Mustard, James E., Glen Hall, Ind. Draft-equalizer	345,252	July 6	625	159	36	113
Myer, William P., Indianapolis, Ind. Hoisting-bucket	347,302	Aug. 10	1150	307	36	684
Myers, Edward. (See Smith and Myers.)						
Myers, Henry M., Beaver Falls, Pa. Machine for splitting the tangs and forming the sockets of shovel-blanks	348,037	Aug. 24	2214	591, 592	36	898
Myers, Henry S., New York, N. Y. Lamp-shade	348,232	Aug. 31	2512	675	36	958
Myers, Levi, assignor to L. Miller, Akron, Ohio. Elevator for grain-harvesters	349,116	Sept. 14	802	203	36	1197
Myers, Lewis, *et al.* (See Swan, Henry H., assignor.)						
Nally, Thomas, Lynn, Mass. Machine for crimping the quarters of boots and shoes	345,915	July 20	1602	412	36	301
Nascimento, Manoel J. (See Roeske, Henry, assignor.)						
Nash, Thomas C., Chicago, Ill. Splicing cables	345,719	July 20	1319	342	36	250
Nash, Walter E., Darlington, Wis. Broom attachment	345,069	July 6	379	95	36	69
Nassau Manufacturing Company, W. L. (See Williams, George M., assignor.)						
Nast, Thomas, *et al.* (See Pendleton, John H., assignor.)						
National Automatic Lubricator Company. (See Fréchette, Isaïe, assignor.)						
National Automatic Lubricator Company. (See Fréchette and Girard, assignors.) (Reissue.)						
National Cash Register Company. (See Patterson and Davis, assignors.)						
National Electrical Company. (See Parcelle, Albert L., assignor.)						
National Improved Telephone Company. (See Perrin, Thomas J., assignor.)						
National Typographic Company. (See Mergenthaler, Ottmar, assignor.)						
Neal, Oliver L., Waltham, Mass. Screw and drill tool	348,765	Sept. 7	311	83	36	1105
Neale, George F., and M. P. Elliott, Crystal City, Mo. Machine for grinding and smoothing plate-glass	348,766	Sept. 7	312	83, 84	36	1105
Neall, Samuel W., Philadelphia, Pa. Seal-lock	347,191	Aug. 10	991	264	36	655
Neals, Francis A. A., *et al.* (See Brooks, Willard P., assignor.)						
Neer, Charles F., Catawba, Ohio. Check rower and marker	349,402	Sept. 21	1187	307, 308	36	1281
Neff, Joseph B., assignor to M. E. Neff, Burlington, Iowa. Stalk-cutter	344,850	July 6	73	19	36	14
Neff, Mary E. (See Neff, Joseph B., assignor.)						
Neff, Nathan, *et al.* (See Wade, William, assignor.)						
Neff, Thomas H., assignor of one-half to S. A. Shroff, York, Pa. Bearing-block for vehicle-springs	345,392	July 13	816	206	36	153
Neil, Kuhns & Co. (See Neil, William, assignor.)						
Neil, William, assignor to Neil, Kuhns & Co., Chicago, Ill. Measuring-tank	349,534	Sept. 28	1653	427	36	1377
Nelmes, Philip N., Taunton, Mass. Mosquito-screen attachment for hammocks	348,685	Sept. 7	214	56	36	1086
Nelson, James, Titusville, Pa. Grain-conveyer	349,231	Sept. 14	950	245	36	1228
Nelson, Oliver R., Chicago, Ill. Oil-press mat	349,515	Sept. 21	1342	348, 349	36	1312
Nenoki, Marrel V., Berne, Switzerland, and R. Seifert, assignors to F. Von Heyden, Radebeul, Dresden, Germany. Production of salol	350,012	Sept. 28	2029	.....	36	1449
Nesmith, John W. (See Short and Nesmith.)						
Nesom, Thomas, assignor of one-half to R. E. Poindexter, Indianapolis, Ind. Steam-boiler	347,502	Aug. 17	1436	381	36	745
Neutlen, Adolf, Freudenstadt, Würtemberg, Germany. Lighting and closing device for bakers' ovens	347,953	Aug. 24	2111	562	36	878
Nettleton, William A. (See Littlejohn, Charles F., assignor.)						
Neuhaus, Friedrich, Belleville, Ill. Spool-holder for sewing-machines	349,446	Sept. 21	1250	324	36	1292
New England Telephone and Telegraph Company. (See Carty, John J., assignor.)						
New York Felting Company. (See Hyatt, Walter P., assignor.)						
Newberry, J. R. (See Keeney, John W., assignor.)						
Newbury, James G. (See Mack and Newbury.)						
Newbury, James G., Albany, N. Y. Toy gun	348,860	Sept. 7	430	115	36	1127
Newell, Henry G., Orwell, Pa. Gearing for windmills	346,674	Aug. 3	281	77	36	516
Newell, Lewis T., Albany, N. Y. Gridiron	347,822	Aug. 24	1913	509	36	843
Newell, Nelson C., Springfield, Mass. Button	347,633	Aug. 17	1644	436	36	785

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Newell, Louis. (See Adams, James A., assignor.)						
Newhard, Franklin H. D., Hokendauqua, Pa. Car-brake	348,038	Aug. 24	2215	592	36	898
Newhard, Franklin H. D., Hokendauqua, Pa. Car-brake	348,039	Aug. 24	2217	593	36	898
Newhard, Franklin H. D., Hokendauqua, Pa. Car-brake	348,040	Aug. 24	2218	593	36	899
Newhard, Franklin H. D., Hokendauqua, Pa. Brake-shoe	348,041	Aug. 24	2220	594	36	899
Newman, Anton E., assignor of one-half to L. Beckhardt, New York, N. Y. Obtaining fiber from fiber-producing plants	345,984	July 20	1697	437	36	317
Newman, Anton E., assignor of one-half to L. Beckhardt, New York, N. Y. Scutching-machine	345,985	July 20	1698	437	36	318
Newman, Edwin A., Washington, D. C., assignor of one-fourth to D. L. Snediker, Emporia, Kans. Anti-freezing apparatus for water-pipes	346,308	July 27	2143	552, 553	36	410
Newman, William C., Charlevoix, Mich. Bridge-guard	348,410	Aug. 31	2748	736	36	1005
Newsom, John Q. A., Seymour, Ind. Steam plowing, pulverising, and cultivating machine	349,807	Sept. 28	1754	452, 453	36	1396
Newton, Lewis W., assignor to Clinton Wire Cloth Company, Clinton, Mass. Filling-carrier for looms for weaving wire	345,167	July 6	508	130	36	92
Newton, William H., Assumption, Ill. Revolving table	348,042	Aug. 24	2221	594	36	899
Neyraud, Jean B., Lyons, France. Electric pile	347,823	Aug. 24	1914	509	36	843
Nicaise, Joseph, Collinsville, Ill. Draining cellars	349,735	Sept. 28	1654	437	36	1377
Nichols, Alvin L. (See McGiven, Nichols, and Darnell.)						
Nichols, Edward, *et al.* (See Haskin, Uri, assignor.)						
Nichols, John P., Marion, Ind. Exercising-machine and register therefor	346,675	Aug. 3	282	78	36	516
Nichols, Reuben E., Philadelphia, Pa. Composition for preserving and waterproofing	349,172	Sept. 14	873	.....	36	1211
Nicholson, Charles W., Assamoosick, Va. Guano-distributer	348,686	Sept. 7	215	57	36	1086
Nicholson, Ellis H., Santa Maria, Cal. Gang-plow	346,766	Aug. 3	369	107	36	536
Nicholson, Henry C., Mount Washington, Ohio. Automatic electric signal	347,634	Aug. 17	1645	436	36	785
Nickel, David, Morris, Ill. Door-hanger	349,173	Sept. 14	874	223	36	1211
Nickels, William F., Philadelphia, Pa. Water-cooler and refrigerator	348,043	Aug. 24	2222	594	36	899
Nichaus, George L., St. Louis, Mo. Hot-air furnace	350,076	Sept. 28	2114	547	36	1466
Niehoff, Henry, New York, N. Y. Coal-receptacle	346,676	Aug. 3	285	78	36	516
Nightingale, John. (See Nightingale, Joseph and J.)						
Nightingale, Joseph and J., Paterson, N. J. Let-off mechanism for looms	348,335	Aug. 31	2641	712, 713	36	985
Nightingale, Joseph and J., Paterson, N. J. Quilling-machine	348,336	Aug. 31	2643	713	36	985
Nilson, Nils J., Meridian, Wis. Horse hay-fork	347,253	Aug. 10	1072	287	36	671
Nixon, William A., Maple Rapids, Mich. Broom	349,897	Sept. 28	1869	483	36	1420
Nober, Julius A., Bolivar, N. Y. Vest-seam protector	345,646	July 13	1217	314	36	225
Noble, Clarence B., Cleveland, Ohio. Clutch for electric lamps	346,217	July 27	2018	521	36	387
Noble, Edward, Jr., St. Louis, Mo., and G. F. Branham, Indianapolis, Ind. Metal-bending apparatus	345,444	July 13	900	224, 225, 226	36	167
Noble, Edward, Jr., St. Louis, Mo., and G. F. Branham, Indianapolis, Ind. Endless-cable car-propelling mechanism	348,574	Sept. 7	53	15, 16, 17	36	1057
Noble, George B., Buckhurst Hill, county of Essex, England. Making lead-lined boilers	345,168	July 6	509	130	36	93
Noble, James, Jr. (See Mullen and Noble.)						
Noble, James, Jr., *et al.* (See Morse, William J., assignor.)						
Noble, John D., and B. F. Metsler, Holden, Mo. Churn	345,529	July 13	1038	264	36	192
Nock, George W., Philadelphia, Pa., assignor of one-half to J. R. Floyd, New York, N. Y. Elevating device for covers of gas-purifiers	348,137	Aug. 24	2354	631	36	924
Noé, William R., Newark, N. J., assignor to Holmes, Booth & Haydens, Waterbury, Conn. Suspension-lamp	348,291	Aug. 31	2567	695, 696	36	974
Nolan, John H., Pleasanton, Kans. Lamp-chimney cleaner	345,169	July 6	510	131	36	93
Nolan, John H., Pleasanton, Kans. Weather-strip	346,060	July 20	1800	464	36	336
Nolan, Patrick, Birmingham, Ala. Railway-frog	349,260	Sept. 14	961	253	36	1234
Nolen, Robert, assignor of two-thirds to O. F. Rodgers and A. P. Brush, Jr., Colorado, Tex. Hub	348,635	Sept. 7	141	40	36	1073
Noonan, Philip, Edgard, La. Railway-track system	349,447	Sept. 21	1251	324	36	1292
Norcott, Charles E. (See Holbrook and Norcott.)						
Norcross, Linnaeus B., Birmingham, Iowa. Stem-winding watch	347,886	Aug. 24	2003	531	36	858
Nordmann, Prosper. (See Lugrin, Henry A., assignor.) (Reissue.)						
Nordyke & Marmon Company. (See Warrington, Jesse, assignor.)						
Norris, Charles S., *et al.* (See Elrick, Luther M., assignor.)						
Norris, George C. (See Felmlee, John H., assignor.)						
Norris, Stephen L., Portsmouth, county of Hants, England. Car starter and brake	348,169	Aug. 24	2404	645	36	933
North, George W., *et al.* (See Kyle, Edward E., assignor.)						
Northampton Emery Wheel Company. (See Otis, Phillip A., assignor.)						
Northey, Thomas, Toronto, Ontario, Canada. Double-acting pump	345,253	July 6	626	159	36	113
Northrup, James R., Rocky Brook, R. I. Side-spring vehicle	348,926	Sept. 7	588	139	36	1144
Norton, Edwin, and J. G. Hodgson, assignors to said Edwin Norton and O. W. Norton, Chicago, Ill. Soldering-machine	345,254	July 6	628	160	36	114
Norton, Oliver W. (See Norton and Hodgson, assignors.)						
Norwood, Joseph, Brooklyn, N. Y. Screen	347,730	Aug. 17	1773	473	36	808
Nottingham, Lloyd, Norfolk, Va. Letter-file	346,061	July 20	1800	465	36	336
Novelty Manufacturing Company. (See Putnam and Kirschbaum, assignors.)						
Nowell, Thomas S., Boston, Mass., assignor to Avery Lactate Company, Portsmouth, N. H. Tonic base for aerated beverages	346,824	Aug. 3	455	.....	36	549
Nowlin, Milton G. (See Barnett, John W., assignor.)						
Noyes, Charles W., Kalamazoo, Mich. Two-wheeled vehicle	344,851	July 6	74	19	36	14
Noyes, La Verne W., Chicago, Ill. Book-holder	349,660	Sept. 21	1524	393	36	1348
Nunn, Emma G., Vassar, Mich. Adjustable handle for dusters	347,123	Aug. 10	893	237	36	637
Nutt, Jasper N., assignor of one-half to G. W. Buckley, Sidney, Ohio. Churn	346,859	Aug. 3	508	130	36	559
Nye, George H., Chicago, Ill. Manufacture of rubber decoy-ducks	349,315	Sept. 21	1049	269	36	1254
Nye, George H., Chicago, Ill. Hunting and fishing boat	349,316	Sept. 21	1050	269	36	1254
O'Brien, Daniel, Minneapolis, Minn. Bed-pan	346,309	July 27	2149	553	36	412
O'Brien, John, assignor to W. Brookfield, New York, N. Y. Telegraph-insulator	347,635	Aug. 17	1647	437	36	785
O'Brien, Junius D., assignor to M. C. O'Brien, Pembroke, Ky. Exercising-machine	345,856	July 20	1520	393	36	284
O'Brien, Martha C. (See O'Brien, Junius D., assignor.)						
O'Brien, Martin H., *et al.* (See Woodward, William D., assignor.)						
O'Brien, Thomas, New York, N. Y. Tricycle	347,503	Aug. 17	1437	381, 382	36	745
O'Connor, James. (See Fairchild, John M., assignor.)						
O'Connor, James. (See Fairchild and O'Connor.)						
O'Connor, Patrick J., San Francisco, Cal. Hose and pipe coupling	347,308	Aug. 17	1245	331	36	710

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O'Connor, Patrick J., Seymour, Ind. Tack-driver and carpet-stretcher	348,337	Aug. 31	2046	714	36	986
O'Dell, Clark, W., and L. L., New Market, Iowa. Veterinary surgical instrument	348,044	Aug. 24	2283	595	36	899
O'Dell, Lester L. (See O'Dell, Clark, W., and L. L.)						
O'Dell, Warren. (See O'Dell, Clark, W., and L. L.)						
O'Donnell, James D., Washington, D. C., assignor to E., G., and J. H. Matthews, New York, N. Y. Tumbler-washer	349,052	Sept. 14	710	181	36	1161
O'Keefe, Warner F. H., Allegheny, Pa. Apparatus for carbureting gas	346,940	Aug. 10	633	170	36	590
O'Neil, David W. (See Howard, Wilbur F., assignor.)						
O'Neil, Jeremiah F., assignor to A. E. Karelsen, New York, N. Y. Circular-knitting machine	349,448	Sept. 21	1253	394 / 325	36	1263
O'Neill, James F., assignor to Hendey Machine Company, Torrington, Conn. Chuck	346,310	July 27	2151	553	36	412
O'Neill, Philip H., Brooklyn, N. Y. Weighing-scales	347,056	Aug. 10	795	211	36	619
Oaks, William A. C., assignor to Goodell Company, Antrim, N. H. Machine for paring and stoning peaches	348,532	Aug. 31	2029	787	36	1039
Oatman, Edward J., Dundee, Ill., assignor to Burwell & Whitman, Little Falls, N. Y. Manufacture of artificially-enriched cheese from milk	346,092	July 20	1801	.....	36	336
Obermann, August W., Pittsburg, Pa. Cooking vessel	349,317	Sept. 21	1051	269	36	1255
Offenhauser, Frederick, Sr., *et al.*, trustees. (See Kneedler, Lewis, assignor.)						
Ohl, Adolph, *et al.* (See McCarty, William F. C. M., assignor.) (Reissue.)						
Ohlwine, David F., and J. H. Alexander, Kendallville, Ind. Oil-can holder	346,494	Aug. 3	58	14	36	471
Olds, Charles W. (See Olds, Henry H. and C. W.)						
Olds, Henry H. and C. W., Martinsville, Ind. Book-case	345,986	July 20	1699	438	36	318
Olin, William F., and F. J. Coddington; said Olin assignor to W. Deering & Company, Chicago, Ill. Wheel	344,852	July 6	75	19	36	14
Oliver, David B., Allegheny City, Pa. Making plates	348,990	Sept. 14	615	162	36	1166
Oliver, George T. (See Lantz, John A., assignor.)						
Oliver, George T., *et al.* (See Stubbs, John, assignor.)						
Oliver, Henry M., Newark, N. J. Whiffletree-hook	347,954	Aug. 24	2112	563	36	878
Oliver, Reuben W., Lockport, assignor of three-fourths to L. S. Beckwith and G. A. Holmes, Albion, N. Y. Hedge and wire fence	346,123	July 27	1677	485	36	360
Oliver, Richard S., Russellville, Ala. Combined cotton-chopper and cultivator	349,403	Sept. 21	1190	308	36	1221
Olmstead, Leverett H., Corona, N. J. Mole-trap	346,218	July 27	2090	521	36	387
Olsen, Jens. (See Gooch and Olsen.)						
Olson, Frank A., Galesburg, Ill. Combined pitchfork and hand-rake	346,677	Aug. 3	286	78	36	517
Olsson, Per P., Trelleborg, Sweden. Counting apparatus and pattern-card for knitting-machines	350,013	Sept. 28	2030	524	36	1449
Olszewski, Alexander v. (See Everding and Olszewski.)						
Ordonneau, Charles, Cognac, Charente, France. Making alcohol	347,731	Aug. 17	1773	.....	36	806
Ordway, George F. (See Ordway, John M. and G. F.)						
Ordway, John M. and G. F., Boston, Mass. Non-conducting covering for cylinders of ice-machines, pipes, &c.	346,767	Aug. 3	390	107	36	537
Ormsbee, John M., *et al.* (See Drodzewski, Julius R., assignor.)						
Ormsby, Alexander, Buffalo, N. Y. Hot-air furnace	349,736	Sept. 28	1655	427	36	1378
Ortman, Barnim F., assignor to G. Urban, Jr., Buffalo, N. Y. Bread-pan	345,316	July 13	719	181 / 189	36	135
Orton, Lyman O., Philadelphia, Pa. Saw-mill	346,383	July 27	2251	576	36	430
Osborn, Isaiah H., Wilmington, Ohio. Buckle	347,955	Aug. 24	2113	563	36	878
Osborne, John H., Philadelphia, Pa. Knitting-machine	349,808	Sept. 28	1757	454	36	1396
Osgood, Isaac, Chicago, Ill. School-desk	346,866	Aug. 3	509	140	36	559
Osgood, J. Lester, assignor to W. F. Wendt, Buffalo, N. Y. Metal-shears	346,170	July 27	1950	503	36	374
Osterbind, Henry C., Richmond, Va. Machine for rolling horseshoe-blank bars	349,950	Sept. 28	1942	502	36	1434
Osterwalder, Conrad, Biel, Switzerland. Mixing and kneading machine	346,413	July 27	2397	591 / 592	36	439
Oswell, William, Boston, Mass. Show-window shelving	349,117	Sept. 14	893	204	36	1198
Otis, Daniel C., New York, N. Y. Turn-up bed	347,009	Aug. 10	784	198	36	607
Otis, Philip A., assignor to Northampton Emery Wheel Company, Leeds, Mass. Grinding machinery	344,919	July 6	173	44	36	32
Ott, Frederick, Philadelphia, Pa. Digging-machine	344,981	July 6	259	65	36	46
Otto, Edward C. F., Peckham, county of Surrey, England. Velocipede-wheel. (Reissue)	10,760	Aug. 24	2434	650	36	938
Otto, Nicholaus A., Cologne-on-the-Rhine, assignor to Gas-Motoren-Fabrik-Deutz, Deutz-on-the-Rhine, Germany. Gas-motor engine	350,077	Sept. 28	2115	547 / 548	36	1466
Oudin, Charles P., New York, N. Y. Friction-hinge	347,124	Aug. 10	804	237	36	637
Outcalt, Jesse P., assignor to Eagle Machine Company, Lancaster, Ohio. Feed-cutter	349,651	Sept. 21	1596	394	36	1349
Overhiser, George C., Ionia, Mich. Hair-pin	348,138	Aug. 24	2255	638	36	924
Owen, Clinton. (See Scoville and Owen.)						
Owen, Frederick D., Washington, D. C. Game-card	347,192	Aug. 10	992	265	36	656
Owen, Thomas G., assignor to A. H. Parker, Chicago, Ill. Truss	346,176	July 6	511	131	36	93
Owens, Bernard, Kansas City, Mo. Striker attachment for paper-ruling machines	346,064	July 20	1802	465	36	336
Owens, James, assignor of one-half to S. Durr, Russellville, Ind. Cutting attachment for plows	345,916	July 20	1604	413	36	301
Pace, Joseph T., Carlyle, and W. G. Read, Huey, Ill. Crib attachment for beds	346,495	Aug. 3	59	15	36	471
Packer, George W., Rock Falls, Ill. Hoop-driver	347,369	Aug. 17	1946	332	36	710
Packer, George W., Rock Falls, Ill. Barrel-making machine	347,370	Aug. 17	1946	332	36	711
Packer, George W., Rock Falls, Ill. Stave-jointing machine	347,371	Aug. 17	1950	339	36	711
Packer, George W., Rock Falls, Ill. Barrel-making machine	347,372	Aug. 17	1952	332	36	711
Packer, John F., assignor to D. Bradley Manufacturing Company, Chicago, Ill. Seed-dropper	345,917	July 20	1604	413 / 414	36	301
Packham, Frank R., Mechanicsburg, Ohio. Crimping-machine	349,355	Sept. 21	1112	287	36	1266
Page, Amos W. (See Bullard, James H., assignor.)						
Page, J. Seaver. (See De Solomé, George F., assignor.)						
Paine, D. L., *et al.* (See Matson, Wilmarth P. and J. C., assignors.)						
Paine, George H., Philadelphia, Pa. Pipe-vise	346,496	Aug. 3	60	15	36	471
Paine, George W., Sullivan, Ill. Device for operating sashes	345,857	July 20	1521	394	36	285
Paine, George W. Odessa, N. Y. Hitching-strap	348,991	Sept. 14	616	162	36	1166
Painter, Gwynne E., Baltimore, Md. Electrical annunciator	348,045	Aug. 24	2284	595	36	900
Pake, Edward G., Zilwaukee, assignor to S. S. Mitts and W. Merrill, East Saginaw, Mich. Wood-cutting machine	348,768	Sept. 7	315	84	36	1106
Palm, Frank L. (See Petree, John M., assignor.)						
Palm, John H., Minneapolis, Minn. Circular sawing machine	345,070	July 6	380	96	36	69
Palm, John H., Minneapolis, Minn. Saw-table gage	345,071	July 6	382	96	36	69
Palmer, Addison, *et al.* (See Hartmeyer, John, assignor.)						
Palmer, Charles, Philadelphia, Pa. Soap-dish for bath-tubs	345,918	July 20	1606	414	36	301
Palmer, Charles H., New York, N. Y. Straw-braid-sewing machine	345,801	July 20	1442	373 / 374	36	272

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Palmer, Charles H., New York, N. Y. Straw-braid-sewing machine	345,802	July 20	1444	374 / 375	36	272
Palmer, George E., and A. M. Ewart, Chicago, Ill. Furnace for steam-generators	349,737	Sept. 28	1656	427	36	1378
Palmer, George W., assignor of one-half to C. B. Watkins, South Norwalk, Conn. Row-lock	345,919	July 20	1607	414	36	301
Palmer, Isaac E., Middletown, Conn. Starch-clearing, &c., woven fabrics	346,602	Aug. 3	192	51, 52	36	497
Palmer, John P., *et al.* (See Hartmeyer, John, assignor.)						
Palmer, Lyman F., assignor to L. I. Palmer, Topeka, Kans. Folding rack	347,732	Aug. 17	1775	473	36	808
Palmer, Lyman I. (See Palmer, Lyman F., assignor.)						
Palmer, Stephen L., Lansingburg, N. Y. Window-blind slat	346,678	Aug. 3	287	78	36	517
Palmer, Timothy G. (See Havey, Black, and Palmer.)						
Palmer Torpedo Railway Signal Company. (See Denel, Jacob, assignor.)						
Palmer, William, assignor of one-half to G. H. Venning, Jacksonville, Ohio. Air shutter or door	344,853	July 6	77	20	36	15
Pancoast, David S., Philadelphia, Pa. Fence-post	347,956	Aug. 24	2114	563	36	879
Paradis, Joseph H., Amherstburg, Ontario, Canada. Book-holder	348,767	Sept. 7	314	84	36	1106
Paraffine Paint Company. (See Pearce and Beardsley, assignors.)						
Parcelle, Albert L., Boston, Mass., assignor to National Electrical Company, New York, N. Y. Vibrating electric motor	345,720	July 20	1322	342 / 343	36	251
Parcelle, Albert L., Boston, Mass., assignor to National Electrical Company, New York, N. Y. Electrical synchronous movement	345,721	July 20	1325	344	36	251
Paris, Daniel E., Troy, N. Y. Combined parlor and cooking stove	345,530	July 13	1039	264	36	192
Paris, Daniel E., Troy, N. Y. Oven-door	345,531	July 13	1041	264 / 265	36	193
Paris, Daniel E., Troy, N. Y. Extension-top and feeder for stoves	345,532	July 13	1043	265 / 266	36	193
Paris, Daniel E., Troy, N. Y. Shelf for ovens	345,533	July 13	1045	266	36	193
Parish, William F., Minneapolis, Minn. Circular-saw mill	349,356	Sept. 21	1115	287 / 288	36	1267
Park, Aaron, Ottumwa, Iowa. Springless lock	345,072	July 6	383	96, 97	36	70
Park, Harvey S., Henderson, Ky. Electro-magnetic car-brake	348,636	Sept. 7	142	40	36	1073
Park, Harvey S., Henderson, Ky. Car-brake	349,738	Sept. 28	1657	428	36	1378
Parker, Andrew H. (See Owen, Thomas G., assignor.)						
Parker, Chauncey C., Brooklyn, N. Y. Nose-piece for eyeglasses	348,992	Sept. 14	618	163	36	1166
Parker, Howard, Saccarappa, Me., assignor of one-half to H. Fairbanks, St. Johnsbury, Vt. Machine for forming hollow ware from pulp	348,292	Aug. 31	2588	696	36	974
Parker, John C. (See Berry and Parker.)						
Parker, Samuel J. (See Ross and Parker.)						
Parker & Whipple Company. (See Wright and Wood, assignors.)						
Parkhurst, Edward B., Woburn, and C. Lovell, Boston, Mass., assignors to Albert Nail Company, New York, N. Y. Wire-nail machine	345,534	July 13	1046	266 / 267	36	194
Parkin, Charles, assignor to Miller, Metcalf & Parkin, Pittsburg, Pa. Compound ingot-mold	347,636	Aug. 17	1848	437	36	786
Parks, Joseph L. (See Prentice, William H., assignor.)	345,987	July 20	1700	.....	36	318
Parks, William, Sr., and W. L., Jr., Meadville, Pa. Meat-clamp	348,769	Sept. 7	316	84	36	1106
Parks, William L., Jr. (See Parks, William, Sr., and W. L., Jr.)						
Parmelee, Edwin S., Wallingford, Conn. Carriage-gear	348,770	Sept. 7	317	85	36	1106
Parmelee, William A., New Haven, Conn. Rope-molding machine	346,679	Aug. 3	288	79	36	517
Parrish, William H., Richmond, Va. Strap-ear for well-buckets	348,046	Aug. 24	2225	593	36	900
Parry, David M., Rushville, Ind. Cut-off for planters	347,637	Aug. 17	1649	437	36	786
Parry, Henry, Milwaukee, Wis. Chair	346,311	July 27	2152	553	36	412
Parsons, Erskine D., Kansas City, Mo. File-stand	347,504	Aug. 17	1439	382	36	746
Parsons, Francis W., Philadelphia, Pa., assignor to W. Warren, Dedham, Mass. Car-coupling link	348,575	Sept. 7	50	17	36	1058
Partridge, Andrew, assignor of one-half to D. F. Sweeney, Springfield, Mass. Safety-razor. (Reissue)	10,748	July 27	2363	606	36	450
Partridge, Andrew, assignor to Diamond Safety Razor Company, Springfield, Mass. Shaving apparatus	348,576	Sept. 7	60	18	36	1058
Partz, August F. W., assignor to Partz Electric Battery Company, Philadelphia, Pa. Voltaic battery	347,440	Aug. 17	1355	361	36	739
Partz Electric Battery Company. (See Partz, August F. W., assignor.)						
Passel, George W., assignor to J. A. Fay & Co., Cincinnati, Ohio. Presser attachment for planing-machines	347,254	Aug. 10	1073	287	36	671
Patent Paper Cigar Box Company. (See Powers, Daniel E., assignor.)						
Patrick, John J. R., Belleville, Ill. Artificial tooth	346,312	July 27	2154	554	36	412
Patten, Thomas, Jr., and C. Anderson, Appleton, Wis. Pump	349,951	Sept. 28	1944	503	36	1434
Patterson, Frank J., and I. P. Davis, assignors to National Cash Register Company, Dayton, Ohio. Cash register and indicator	344,992	July 6	261	65, 66	36	47
Patterson, James S., Juniata County, assignor of one-half to S. P. Wharton, Philadelphia, Pa. Fire-arm lock	346,941	Aug. 10	635	170	36	591
Patterson, Jesse E., *et al.* (See Jacobs, Charles A., assignor.)						
Patterson, William F., Boston, Mass., and H. B. Stillman, New York, N. Y. Screw-driver	346,603	Aug. 3	194	52	36	498
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Machine for winding lead tape upon telegraph-cables	346,414	July 27	2299	592	36	439
Patterson, William R., assignor to Western Electric Company, Chicago, Ill. Splice for underground cables	346,942	Aug. 10	636	171	36	591
Pattison, George H., Freeport, Ill. Gearing for windmills	345,317	July 13	719	182	36	136
Pattison, George H., Freeport, Ill. Gearing for windmills	345,722	July 20	1322	344	36	252
Pattison, George H., Freeport, Ill. Gearing for windmills	348,411	Aug. 31	2750	738	36	1006
Paul, William H., assignor of one-half to W. D. Smith, Baltimore, Md. Securing bosoms to shirt-bodies	349,283	Sept. 14	1015	259	36	1239
Payne, Alexander, Walton-upon-Thames, county of Surrey, England. Razor-sharpener	345,723	July 20	1330	345	36	252
Payne, Clarence Q., Stamford, Conn. Magnetic ore-separator	348,771	Sept. 7	318	85	36	1106
Peace, Frank H., Sheffield, county of York, England. Case for needles	349,174	Sept. 14	874	224	36	1212
Peacock, Jacob S., Lancaster, Pa. Car-coupling	346,171	July 27	1952	503 / 504	36	374
Peacock, John C., J. B. Graves, and G. A. Huffor, Waelder, Tex. Bed-bottom	350,014	Sept. 28	2033	525	36	1450
Pearce, Lionel H., Coalbourne Brook, Stourbridge, county of Worcester, England. Vaporizing and distilling liquids	348,772	Sept. 7	319	85	36	1107
Pearce, Thomas A. (See Egly, John C., assignor.)						
Pearce, Truman J., and M. W. Beardsley, Oakland, assignors to Paraffine Paint Company, San Francisco, Cal. Rendering animal and vegetable fiber water-proof, &c	348,993	Sept. 14	619	.....	36	1166
Pearce, Truman J., and M. W. Beardsley, Oakland, assignors to Paraffine Paint Company, San Francisco, Cal. Insulating wire and conductor for electrical purposes	348,994	Sept. 14	620	.....	36	1166

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pearce, Truman J., and M. W. Beardsley, Oakland, assignors to Paraffine Paint Company, San Francisco, Cal. Paper and products and manufacture thereof	348,995	Sept. 14	622	.....	36	1166
Pearce, Truman J., and M. W. Beardsley, Oakland, assignors to Paraffine Paint Company, San Francisco, Cal. Roofing fabric	348,996	Sept. 14	623	.....	36	1167
Pearce, William S. (See Deneen and Pearce.)						
Peaslee, Charles R., Louisville, Ky. Power sheet-metal grooving machine	348,577	Sept. 7	61	18	36	1058
Peck Car Coupler and Manufacturing Company. (See Peck, Henry L., assignor.)						
Peck, Charles H., assignor to I. F. Peck, Providence, R. I. Attaching needles to threads, &c.	348,047	Aug. 24	2226	595	36	900
Peck, Henry L., Newark, assignor to Peck Car Coupler and Manufacturing Company, Columbus, Ohio. Car-coupling	346,559	Aug. 3	136	37	36	486
Peck, Ira F. (See Peck, Charles H., assignor.)						
Peck, Stow & Wilcox Company. (See Bayrer, William J., assignor.)						
Peck, Theodore S. (See Stevens, Benjamin D., assignor.)						
Peden, John C., Lawrenceburg, Ky., assignor to himself and Bourbon Copper and Brass Works, Cincinnati, Ohio. Process of and apparatus for distilling	349,449	Sept. 21	1955	395	36	1293
Peoples, Thomas W., New York, N. Y. Gate for railway-cars	347,057	Aug. 10	799	211	36	619
Peer, Benjamin, Jr., Honeoye Falls, N. Y. Hop-kiln	345,535	July 13	1050	268	36	194
Pegg, Abijah H., Dowagiac, Mich. Furnace	345,536	July 13	1052	268	36	195
Pelletier, Charles, Cusay-les-Forges, France. Ball-calculator	345,445	July 13	904	226	36	168
Pemberthy, Jac..es R., *et al.* (See Wolferts, Herman, assignor.)						
Pendleton, John H., Brooklyn, assignor to himself, C. and A. H. Tiers, R. I. Sloan, L. Moss, New York, N. Y., and T. Nast, Morristown, N. J. Regulator for revolving shafts	345,394	July 13	899	208	36	154
Pendleton, John H., Brooklyn, assignor to himself, C. and A. H. Tiers, New York, N. Y. Valve-gear	349,898	Sept. 28	1870	483	36	1421
Pendleton, John H., Brooklyn, assignor to himself, C. and A. H. Tiers, R. I. Sloan, L. Moss, New York, N. Y., and T. Nast, Morristown, N. J. Traction device for cable railways	350,078	Sept. 28	2118	{548 549	36	1467
Penhorwood, Thomas, Millwood, Ohio. Horseshoe	348,861	Sept. 7	432	116	36	1127
Peninsular Novelty Company. (See Vinton, John H., assignor.)						
Pennal, Robert A., Bigby Fork, Miss. Fertilizer-distributer	348,862	Sept. 7	433	116	36	1127
Penney, Joseph, Grand Rapids, Mich. Pivotal support for mirrors	344,854	July 6	79	20	36	15
Penney, Joseph, Grand Rapids, Mich. Wash-stand and commode	347,193	Aug. 10	993	265	36	656
Penniman, Arthur C., San José, Cal. Fruit-evaporator	349,450	Sept. 21	1256	325	36	1294
Peoples Telephone Company. (See Drawbaugh, Daniel, assignor.)						
Pepper, William H., Lake Village, N. H. Circular-knitting machine	346,604	Aug. 3	195	52, 53	36	498
Pepper, William H., Lake Village, N. H. Circular-knitting machine	347,505	Aug. 17	1440	{382 383	36	746
Percival, William H., 93 Westbourne Villas, county of Middlesex, England. Apparatus for automatically extinguishing fires	347,194	Aug. 10	994	265	36	656
Percy, George W., *et al.* (See Hildreth, George, assignor.)						
Perkins, Charles G., assignor to Imperial Electric Light Company, New York, N. Y. Fusible cut-out for electric circuits	348,048	Aug. 24	2227	596	36	900
Perkins, Charles G., assignor to Imperial Electric Light Company, New York, N. Y. Fusible cut-out for incandescent electric lamps	348,049	Aug. 24	2227	596	36	900
Perkins, Charles G., assignor to Imperial Electric Light Company, New York, N. Y. Electroller	349,516	Sept. 21	1344	349	36	1312
Perkins, Charles G., assignor to Imperial Electric Light Company, New York, N. Y. Underground conduit for electrical conductors	349,739	Sept. 28	1650	{428 429	36	1378
Perkins, Charles G., assignor to Imperial Electric Light Company, New York, N. Y. Coupling device for electrical conductors	349,809	Sept. 28	1758	454	36	1397
Perkins, Daniel C., Fairfield, Me. Rein-holder	349,517	Sept. 21	1345	350	36	1312
Perkins, Duane T., assignor of one-third to E. W. Seeger, Springfield, Mass. Air-brake	345,537	July 13	1053	{268 269	36	195
Perkins, Francis B., Boston, Mass. Elevator	349,175	Sept. 14	675	224	36	1212
Perkins, John B., Taunton, Mass. Shawl-strap	349,699	Sept. 28	1872	484	36	1421
Perkins, Michael R., Portsmouth, N. H. Railway-rail chair	344,920	July 6	174	45	36	32
Perkins, Willis J., Grand Rapids, Mich. Type-writing machine	347,373	Aug. 17	1254	333	36	712
Perkins, Willis J., Grand Rapids, Mich. Shingle-sawing machine	348,050	Aug. 24	2228	{596 597 598	36	900
Perley, John L., Enosburg, Vt. Water-wheel	348,997	Sept. 14	625	163	36	1167
Perrigo, Ephraim H., assignor, by mesne assignments, to said Perrigo and J. Comfort, Manchester, N. H. Bobbin-reamer	348,412	Aug. 31	2751	739	36	1006
Perrin, Frères. (See Raymond, Pierre A., assignor.)						
Perrin, Thomas J., Brooklyn, N. Y., assignor, by mesne assignments, to National Improved Telephone Company, New Orleans, La. Telephonic apparatus	347,374	Aug. 17	1257	333	36	712
Perrin, Thomas J., Brooklyn, N. Y., assignor to C. P. Huntington, Greenville, Miss. Multiple switch-board	348,578	Sept. 7	62	18	36	1059
Perrin, Thomas J., Brooklyn, N. Y., assignor to C. P. Huntington, Greenville, Miss. Multiple switch-board	348,579	Sept. 7	64	19	36	1059
Perron, Clement, *et al.* (See Bonneau, Nelson, assignor.)						
Perry, Edward L., Paterson, N. J., assignor to himself and H. L. Winans, Long Island City, N. Y. Sheet formed of india-rubber or other elastic water-proof material	347,733	Aug. 17	1776	473	36	808
Perry, Frank H. (See Winter, Oscar O., assignor.)						
Perry, James L., Watertown, Wis. Sand-paper cylinder	346,680	Aug. 3	289	79	36	517
Perry, James L., Watertown, Wis. Abrading-cylinder	346,681	Aug. 3	290	79	36	517
Perry, James L., Watertown, Wis. Wood-polishing machine	347,125	Aug. 10	895	{237 238 239	36	637
Perry, James M., Sharon, and A. Gordon, Pittsburg, Pa. Machine for rounding and polishing metal rods	346,943	Aug. 10	637	171	36	591
Perry, John G., and T. W. Wright, Wakefield, R. I.; said Wright assignor to said Perry. Tobacco-cutter	347,824	Aug. 24	1915	509	36	843
Perry, Noah C., Chester, Conn. Tool-handle	346,219	July 27	2020	521	36	388
Perry, Noah C., and G. S. Gladding, Chester, Conn.; said Perry assignor to said Gladding. Device for locking ends of a jointed rod	346,605	Aug. 3	197	53	36	498
Perry, Nelson W. (See Dudley and Perry.)						
Pershall, James R., Lawrence, Kans. Refrigerator	345,171	July 6	519	131	36	93
Pestin, John L., Appleton, Wis. Smoke-consuming furnace	348,863	Sept. 7	434	116	36	1128
Pessenger, John S., Brooklyn, N. Y. Hot-air furnace	346,769	Aug. 3	292	108	36	537
Pessenger, John S., Brooklyn, N. Y. Heating-furnace	346,770	Aug. 3	293	108	36	537
Peteler, Francis, assignor to Peteler Portable Railway Manufacturing Company, Minneapolis, Minn. Portable railway-track	348,533	Aug. 31	2932	726	36	1040
Peteler Portable Railway Manufacturing Company. (See Peteler, Francis, assignor.)						
Peter, George, New York, N. Y. Scraper-sharpener	347,506	Aug. 17	1442	383	36	747

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Peters & Calhoun Company. (See Webster, William S., assignor.)						
Peters, James W., John Adams, Cal. Mold-board for plows	349,404	Sept. 21	1191	308	36	1288
Petersen, Charles J., Port Chester, N. Y. Suspension device	345,172	July 6	516	132	36	93
Petersen, Marcus H., Hamburg, Germany. Horseshoe	349,234	Sept. 14	960	245	36	1238
Peterson, Niels C. (See Guthrie and Petersen.)						
Petree, John M., assignor of one-half to F. L. Palm, Canton, Ohio. Wash-board	350,015	Sept. 28	2034	525	36	1450
Petru, Emanuel, and J. Zidek, Chicago, Ill. Bridge-gate	344,855	July 6	80	20, 21	36	15
Pettibone, John B., Farmington, Mich. Carriage-top	345,538	July 13	1058	269	36	196
Pettit, Edward E., Belvidere, Ill. Cabinet	347,638	Aug. 17	1650	437	36	786
Petsold, Charles G., assignor of one-half to W. D. Hartshorne, Lawrence, Mass. Loom-shuttle	349,284	Sept. 14	1016	260	36	1239
Pfannkuche, Alfred, New York, N. Y., assignor to Forest City Carbon Manufacturing Company, Cleveland, Ohio. Machine for making carbons for electric lamps	345,539	July 13	1058	269	36	196
Pfannkuche, Gustav, assignor to Schuyler Electric Light Company, Hartford, Conn. Electric-arc lamp	348,927	Sept. 7	599	{139 140	36	1143
Pfeil, Henry S., assignor to R. M. Popham, Philadelphia, Pa. Railway and other signal	349,285	Sept. 14	1017	260	36	1240
Pfingst, Louis, Pullman, assignor to G. M. Pullman, Chicago, Ill. Spring-holder for lamp-chimneys	347,375	Aug. 17	1256	331	36	713
Phalan, Daniel G., Woonsocket, R. I., assignor of one-half to T. A. Tallon, Boston, Mass. Boot	348,933	Aug. 31	2513	675	36	958
Phelps, Arthur M., Seabrook, Md. Telephone	344,963	July 6	963	66	36	47
Phelps, Frank O., Blue Island, Ill. Spring-lock	347,957	Aug. 24	2115	563	36	579
Phenix Iron Foundry. (See Matteson, Rufus S., assignor.)						
Phifer, Charles E., Jesup, Iowa. Animal-poke	345,600	July 13	1142	292	36	211
Philadelphia Textile Machinery Company. (See Proctor and Knowles, assignors.)						
Phillippi, Adile C., New Orleans, La. Attachment for cooking-stoves	349,116	Sept. 14	904	204	36	1198
Phillips, Cornelius J., New York, N. Y. Device for closing openings in pipes	345,073	July 6	384	97	36	70
Phillips, Cornelius J., New York, N. Y. Cold-chisel	349,119	Sept. 14	905	204	36	1198
Phillips, Erbine C. (See Hovey and Phillips.)						
Phillips, Francis V., assignor to C. H. Smith and J. Hewitt, Chicago, Ill. Supporting device for sliding doors	345,988	July 20	1701	438	36	318
Phillips, Francis V., assignor of one-half to C. H. Smith and J. Hewitt, Chicago, Ill. Sash-cord guide	347,507	Aug. 17	1443	383	36	747
Phillips, Francis V., assignor of one-half to C. H. Smith and J. Hewitt, Chicago, Ill. Sash-cord guide	347,508	Aug. 17	1444	384	36	747
Phillips, Francis V., assignor of two-thirds to C. H. Smith and J. Hewitt, Chicago, Ill. Sash-cord guide	347,509	Aug. 17	1446	384	36	747
Phillips, Isaac O., Brooklyn, N. Y. Self-adjusting turn-buckle	346,771	Aug. 3	294	109	36	538
Phillips, John H., assignor of one-half to W. Davis, Wheeling, W. Va. Machine for forging horseshoe-nails	347,510	Aug. 17	1447	{384 385	36	747
Phillips, Robert E., and E. R. Shipton, London, county of Middlesex, England. Brooch or badge for clubs	350,079	Sept. 28	2122	529	36	1467
Phillips, Sydney A., New York, N. Y. Window-mirror	345,074	July 6	385	97	36	70
Phillips, Thomas C., Sedalia, Mo. Lamp-burner	347,196	Aug. 10	796	239	36	638
Phillips, Walter, Coventry, county of Warwick, England. Velocipede	350,080	Sept. 28	2124	549	36	1468
Philpott, James H., Rising City, Nebr. Sweat-pad for horse-collars	349,451	Sept. 21	1257	325	36	1294
Phipps, William, Milwaukee, Wis. Hot-air furnace	349,518	Sept. 21	1346	350	36	1312
Phoenix Glass Company. (See Tietz, Godfried A. J., assignor.)						
Pickering, Richard, Cleveland, Ohio. Gas-pressure regulator	346,338	Aug. 31	2647	714	36	986
Picket, Orlando B., Danbury, Conn. Tongue-support	348,580	Sept. 7	65	19	36	1059
Pierce, Arthur W. (See Poole, Samuel, assignor.)						
Pierce, Augustus F. (See McDonald, William C., assignor.)						
Pierce, David W. (See Black, George H., assignor.)						
Pierce, Ebenezer, New Bedford, Mass. Bomb-lance	345,803	July 20	1447	375	36	273
Pierce, Jonathan E., Deming's Bridge, Tex., and D. C. Pryor, Cucharas, Colo. Stock-car	345,601	July 13	1143	292	36	211
Pierson, Samuel F., trustee. (See Holmes, Benjamin F., assignor.)						
Pillings, George T., assignor to R. T. Smith and W. A. Wicks, Baltimore, Md. Machine for soldering the longitudinal seams of sheet-metal cans	344,856	July 6	82	21, 22	36	16
Pine, James, Troy, N. Y. Mowing-machine	349,740	Sept. 28	1680	429	36	1379
Pine, Leighton, South Bend, Ind., assignor to Singer Manufacturing Company of New Jersey. Manufacture of sheets of veneer	348,051	Aug. 24	2237	.....	36	903
Ping, Robert G., Audubon, Iowa. Feed-trough	349,519	Sept. 21	1348	351	36	1313
Piper, Charles E., Moline, Ill. Galvanic battery	349,600	Sept. 21	1454	374	36	1333
Piper, Edward S., Toronto, Ontario, Canada. Lamp-case	347,639	Aug. 17	1651	438	36	786
Piper, Edward S., Toronto, Ontario, Canada. Semaphore and other elevated signal-lights	347,640	Aug. 17	1652	438	36	787
Piper, William H. (See Iler and Piper.)						
Pisano, Martin, assignor of one-half to S. R. Alden, Fort Wayne, Ind. Jack for holding boots or shoes	346,772	Aug. 3	295	109	36	538
Pitrat, Julius E., Gallipolis, Ohio. Weighing and price scale	344,857	July 6	87	23	36	16
Pitts, Hanover. (See Belanski and Pitts.)						
Place, James F., New York, N. Y. Gas-engine	348,998	Sept. 14	626	{163 164	36	1167
Place, James F., New York, N. Y. Gas-engine	348,999	Sept. 14	634	{164 165	36	1167
Platt, Charles. (See Bihl and Platt.)						
Platt, John A., assignor to himself and R. W. Whittaker, Langley, S. C. Filling-fork for loom stop-motions	348,339	Aug. 31	2650	714	36	987
Platt, Mathias, Imperial, assignor of three-fourths to J. W. McCreedy, A. J. McQuitty, and W. Hill, Mansfield, Pa. Cotton-picking machine	347,058	Aug. 10	797	212	36	620
Plessner, Paul. (See Merx, Theodore C., assignor.)						
Pleukharp, Charles V., Columbus, Ohio. Caster	348,052	Aug. 24	2238	598	36	903
Plisson, Hippolyte L., Arcueilles, France. Vehicle-seat	348,053	Aug. 24	2239	{598 599	36	903
Plowman, Joseph G., White Pigeon, Mich. Chair	346,313	July 27	2155	554	36	413
Plumb, Burdict & Barnard. (See Burdict, Orrin C., assignor.)						
Plumb, David S., Newark, N. J. Earthenware and glassware and ornamenting the same	347,195	Aug. 10	995	266	36	656
Plumb, Henry B., Terryville, Conn. Caster	349,952	Sept. 28	1945	503	36	1434
Plummer, Charles H. (See Faulkner, James J. and E. T., assignors.)						
Plummer, William S., Leavenworth, Kans. Hop-drier	345,647	July 13	1218	315	36	225
Pneumatic Company. (See Moore, Matthew R., assignor.)						
Pneumatic Signal and Telephone Company. (See Maloney, James A., assignor.)						
Poe, Ebenezer W. (See Esterly and Poe.)						
Podgórski, Casimir M., Northampton, Mass. Scale-section liner	345,989	July 20	1705	438	36	310
Pohl, E. Otto, Philadelphia, Pa. Metallic awning	349,810	Sept. 28	1760	455	36	1397

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pohl, George D., Ava, N. Y. Self-salting curd-mill	349,405	Sept 21	1192	308	36	1282
Pohlé, Julius D., Georgetown, Colo. Compressed-air water-elevator	347,196	Aug. 10	986	266	36	658
Pohlman, William, Middletown, N. Y. Adjustable packing for piston-rods	347,197	Aug. 10	986	266	36	677
Pohlmann, John W., Buffalo, N. Y. Ash-sifter	346,384	July 27	2252	576	36	431
Poiees, William F., assignor to H. B. and F. A. Richlé, Philadelphia, Pa. Marble counter-sinking and molding machine	349,000	Sept. 14	640	165	36	1168
Poindexter, Robert E. (See Nesom, Thomas, assignor.)						
Poindexter, Robert E., Indianapolis, Ind. Saw-handle	345,648	July 13	1219	315	36	225
Poindexter, Robert E., Indianapolis, Ind. Saw-set	346,944	Aug. 10	639	171	36	591
Pollard, James H., Clarence, Mo. Car-coupling	347,511	Aug. 17	1450	385	36	748
Pomeroy, William H., Gloucester, Mass. Foil-condenser	345,724	July 20	1332	345	36	253
Pond, Charles L., Buffalo, N. Y. Metallic seal	345,173	July 6	515	132	36	94
Pond, Nathan C., *et al.* (See Ingersoll, Simon, assignor.)						
Pond, West & Simons. (See Ingersoll, Simon, assignor.)						
Pontius, Henry D., *et al.* (See Smith, Samuel, assignor.)						
Poole, Samuel, Brooklyn, assignor to himself and A. W. Pierce, Hackensack, N. J. Glove-stretcher	346,415	July 27	2300	593	36	439
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Brake for locomotives	346,441	July 27	2339	601 602	36	446
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Brake-shoe	346,825	Aug. 3	456	125	36	549
Poor, George H., assignor to American Brake Company, St. Louis, Mo. Automatic car-brake	348,234	Aug. 31	2514	675 676	36	958
Poor, John R., Boston, Mass. Filter	345,318	July 13	722	182	36	136
Poore, Graydon, C. Ingrey, and E. Latham, Loudon, county of Middlesex, England. Fluid-pressure motor	345,858	July 20	1522	394	36	285
Pope, Edwin, Quebec, Quebec, Canada. Telephone switch and circuit	348,139	Aug. 24	2256	532	36	921
Pope, Frederic, Boston, Mass. Shell	348,340	Aug. 31	2650	714	36	987
Pope, John L., Cleveland, Ohio. Nut-lock	348,235	Aug. 31	2516	676	36	959
Pope Manufacturing Company. (See Waite, James N., assignor.)						
Pope, Richard C., St. Louis, Mo. Machine for jointing staves	347,059	Aug. 10	799	213	36	620
Pope, William A., Oshkosh, Wis. Holder for blacking boxes and brushes	347,641	Aug. 17	1654	439	36	787
Popham, Richard M. (See Pfeil, Henry S., assignor.)						
Popp, Theodore L. (See Buchholt and Popp.)						
Popular Telephone Company. (See Eastman, William H., assignor.)						
Porter, David W., assignor of one-half to C. Prill, Pittsburg, Pa. Automatic fan	347,255	Aug. 10	1074	288	36	671
Porter, Charles L., St. Louis, Mo., assignor to Chicago Glycerine Company. Refining glycerine	345,174	July 6	516	.....	36	94
Porter, John B., Philadelphia, Pa., assignor of one-half to G. W. Ryer, Brooklyn, N. Y. Coupon-ticket	347,958	Aug. 24	2115	564	36	879
Potter, John H., and J. H. Daly, Jackson, Mich. Gasoline-vapor conductor	349,953	Sept. 28	1946	503	36	1434
Post, Charles C., Burlington, Vt. Sap-spout	348,581	Sept. 7	67	19	36	1060
Post, Charles N., assignor to G. W. Lyon, P. J. Healy, R. B. Gregory, and C. N. Post, Chicago, Ill. Tambourine	347,512	Aug. 17	1451	385	36	748
Post, Charles N., assignor to himself, G. W. Lyon, P. J. Healy, and R. B. Gregory, Chicago, Ill. Tambourine	349,001	Sept. 14	642	166	36	1139
Post & Co. (See Briggs, William H., assignor.)						
Poston, Mac, *et al.* (See Hoepfner, Henry J., assignor.)						
Potter, Addison, Portland, Oreg., assignor of one-half to N. W. Spaulding, San Francisco, Cal. Gage for planer-knives	348,341	Aug. 31	2651	715	36	987
Potter, James, and R. Gomez, San Francisco, Cal. Barrel-tilting device	345,395	July 13	830	208	36	155
Potter, James C., Lowell, Mass. Machinery for opening and cleaning cotton, &c	345,255	July 6	630	160	36	114
Potter, James W., Potterville, Mich. Extension-table slide	345,175	July 6	517	132	36	94
Potter, Peleg A., Wellsborough, Pa. Saw-set	349,601	Sept. 21	1456	375	36	1333
Potts, Anthony W., Apple Valley, Ga. Mold-board for cultivators	346,064	July 26	1804	465	36	336
Powell, Edwin, Williamsport, Pa. Hoop-cutting machine	348,582	Sept. 7	68	19	36	1060
Powell, George W. (See Butler, Charles A., assignor.)						
Powell, Howard, assignor of one-half to J. S. Fisher, Chicago, Ill. Sash-fastener	348,342	Aug. 31	2652	715	36	987
Powell, James, Cincinnati, Ohio. Lubricator	348,170	Aug. 24	2407	645	36	934
Powell, James C., Macon, Ga. Hand-stamp	346,065	July 20	1805	466	36	336
Powell, Walter. (See May, Benjamin, assignor.)						
Powers, Daniel E., assignor to Patent Paper Cigar Box Company, New York, N. Y. Cigar-box	348,928	Sept. 7	531	140	36	1145
Powers, Francis J., Creason, Pa. Rail-joint	346,826	Aug. 3	457	125	36	549
Powers, Titus, assignor of four-fifths to D. C. Scoville and H. Timm, New York, N. Y. Hydraulic motor	345,446	July 13	905	296 297	36	168
Prahar, Louis B., and C. S. Shepard, Brooklyn, N. Y. Combined button-hook and cork-screw	349,741	Sept. 28	1665	430	36	1379
Pratt, Abram E., *et al.* (See Thomas, Henry J., assignor.)						
Pratt, Edwin E., assignor to A. N. Kellogg Newspaper Company, Chicago, Ill. Stereotype plate and block	348,583	Sept. 7	69	20	36	1060
Pratt, Henry C., Canandaigua, N. Y. Warning-strip for barbed fences	348,929	Sept. 7	533	141	36	1145
Pratt, Henry L., Brooklyn, N. Y. Saw-frame	345,256	July 6	631	160	36	114
Pratt & Letchworth. (See Thornton, James, assignor.)						
Pratt Manufacturing Company. (See Vose, Clarence, assignor.)						
Pratt & Whitney Company. (See Gardner, Frederick N., assignor.)						
Prause, Reinhard, Bastrop, Tex. Folding lamp-shelf for pianos	348,343	Aug. 31	2652	715	36	987
Prentice, George W., Providence, R. I. Button-fastener	344,858	July 6	91	23	36	17
Prentice, William H., assignor of one-half to J. L. Parks, Toledo, Ohio. Metallic corner-binding for shingles	349,662	Sept. 21	1527	394	36	1349
Prescott, Thomas H., Sackville, New Brunswick, Canada. Automatic fire-alarm	348,473	Aug. 31	2240	764	36	1023
Preston Machine Company. (See Brown, Edwin W., assignor.)						
Price, Henry K. (See East, Price, and East.)						
Price, Parker, and J. Leib, Sandy Run, Pa. Device for connecting pipe to bore-holes for Artesian wells	347,277	Aug. 10	1104	295	36	676
Price, Pendleton P., Louisville, Ky. Anal speculum	344,984	July 6	284	66	36	47
Pridmore, Edward, Brockport, N. Y. Tension device for grain-binders	347,376	Aug. 17	1250	334	36	713
Priest, Augustus F., Fort William, Ontario, Canada. Rail-clearer	345,257	July 6	632	161	36	115
Priest, Joseph K. (See Smith and Priest.)						
Priest, William. (See Lloyd and Priest.)						
Prill, Charles. (See Porter, David W., assignor.)						
Prince, Frederick H. (See Eaton, Prince, and Livesey.)						
Pringle, Eugene, Gloversville, N. Y. Button for gloves, &c	347,887	Aug. 24	2005	532	36	858
Pringle, George W., assignor of one-half to L. B. Misner, Benicia, Cal. Sewer-cleaning apparatus	345,804	July 20	1449	375 376	36	273

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pringle, William J., Belltown, Pa. Well-drilling machine	347,377	Aug. 17	1961	334	36	713
Prins, Faustin, Milwaukee, Wis. Cockle-machine	345,725	July 20	1333	345	36	253
Pritchard, John G. (See Moseley and Pritchard.)						
Procter, Edwin R., Washington Court-House, Ohio. Railway cross-tie	347,734	Aug. 17	1777	474	36	808
Procter, Edwin R., Washington Court-House, Ohio. Car-wheel	347,735	Aug. 17	1779	474	36	809
Procter, Edwin R., Washington Court-House, Ohio. Seed or corn planter	347,825	Aug. 24	1916	509	36	843
Procter, Edwin R., Washington Court-House, Ohio. Double-tree	347,826	Aug. 24	1919	510	36	844
Procter, Edwin R., Washington Court-House, Ohio. Culinary utensil	349,002	Sept. 14	643	166	36	1169
Proctor, David R., assignor to Lumber Saving and Dressing Saw Company, Chicago, Ill. Saw	347,006	Aug. 10	723	192	36	606
Proctor, Josiah K., and J. H. Knowles, assignors to Philadelphia Textile Machinery Company, Philadelphia, Pa. Apparatus for winding toothed wire on carding-cylinders	347,736	Aug. 17	1780	474 475	36	809
Promoll, Louis, Toronto, Ontario, Canada. Terro-metallic paving stone, slab, &c	345,726	July 20	1335	346	36	253
Promoll, Louis, Toronto, Ontario, Canada. Furnace for the manufacture of terro-metallic paving-stone	345,727	July 20	1336	346 347	36	254
Promoll, Louis, Toronto, Ontario, Canada. Process for the manufacture of terro-metallic paving-stones, &c	345,805	July 20	1451	.....	36	273
Prouty, Augustus B., Providence, R. I. Knob attachment	346,861	Aug. 3	511	140	36	560
Pruim, Hiram P., Grand Haven, Mich. Clock-movement	347,737	Aug. 17	1783	475	36	810
Pruse, Henry. (See Kaylor and Pruse.)						
Pryibil, Paul. (See Mackintosh, Edward D., assignor.)						
Pryor, David C. (See Pierce and Pryor.)						
Pryor, David J., Boston, Mass. Horseshoe	346,497	Aug. 3	61	15	36	472
Pudor, J. Ferdinand, assignor of one-half to G. J. Hamilton, Winona, Mass. Protector or guard for boots or shoes	345,728	July 20	1337	347	36	254
Puffer, Alvin D., Medford, Mass. Cradle for carbonating soda or other mineral waters	347,378	Aug. 17	1962	334	36	713
Puffer, Charles C., assignor of one-half to J. Sargent, Rochester, N. Y. Cask for fermenting	346,066	July 20	1806	466 467	36	337
Pugh, John J., Deer Ridge, Mo. Churn	347,827	Aug. 24	1921	510	36	844
Pugsley, John G., Brooklyn, N. Y. Ankle-supporter	346,606	Aug. 3	198	53	36	499
Pullman, George M. (See Pângst, Louis, assignor.)						
Pullman, Herbert S., assignor to J. C. Hammond, Jr., Rockville, and T. E. King, Westport, Conn. Catch-plate for shoe-clasps	346,945	Aug. 10	640	171	36	591
Punches, Oscar J., Plymouth, assignor of one-half to E. W. and O. Abbott, Detroit, Mich. Chair and rocker fastener	346,560	Aug. 3	137	38	36	486
Pupikofer, Otto, assignor to Crane Brothers Manufacturing Company, Chicago, Ill. Automatic stop for elevators	348,687	Sept. 7	216	57	36	1066
Purdie, Charles F., Detroit, Mich. Metallic fence	348,499	Aug. 31	2879	774	36	1030
Purdy, John H. (See Sedgwick, Frederick, assignor.)						
Purmont, Martin V., *et al.* (See Marston, David W., assignor.)						
Pursell, Harry D., Washington Court-House, Ohio. Pigeon-hole case	348,930	Sept. 7	534	141	36	1145
Pursell, John, Sr., Thomaston, Conn. Folding music-stool	349,053	Sept. 14	711	181	36	1181
Purson, Adrien, Stenay, Meuse, France. Water-proof-cloth bathing-tub for horses	349,357	Sept. 21	1116	288	36	1267
Pusey, Caroline S., Philadelphia, Pa. Pattern for garments	347,888	Aug. 24	2007	532	36	859
Putnam, Edwin, Newark, N. J., and J. Kirschbaum, assignors to Novelty Manufacturing Company, Waterbury, Conn. Holder for matches	348,688	Sept. 7	217	57	36	1066
Putzeys, Désiré, Brussels, Belgium. Fire-extinguisher for chimneys	345,447	July 13	907	227	36	168
Pyke, David, Philadelphia, Pa. Compound water-gage for steam-boilers	347,303	Aug. 10	1151	308	36	684
Pyle, Emma A., New Orleans, La., assignor to H. K. Anderson, Nashville, Tenn. Corset-fastening	346,442	July 27	2342	602	36	446
Pyle, George C., Dayton, Ohio, assignor to American Electric Head Light Company, Indianapolis, Ind. Electric-arc lamp for locomotive head-lights	346,561	Aug. 3	138	38, 39	36	487
Pyle, Richard, Plymouth, Pa. Car-coupling	349,261	Sept. 14	992	253	36	1235
Pyle, William M., Chillicothe, Ill., assignor to Baldwin, Miller & Co., Indianapolis, Ind. Spectacles	347,738	Aug. 17	1784	475	36	810
Quackenbush, Andrew W., Peru, Ind. Smoke-jack	349,318	Sept. 21	1053	269	36	1255
Quackenbush, George, Bath, N. Y. Snap-hook	349,003	Sept. 14	644	166	36	1169
Quackenbush, Jay L., Portland, Oreg. Fence-post	345,075	July 6	386	97	36	70
Quinlan, William, Punta Arenas, Cal. Boot-jack attachment	346,682	Aug. 3	290	80	36	517
Quinn, James, Jr., Grand Rapids, Mich. Manufacture of whiting	346,768	Aug. 3	391	.....	36	537
Qurin, Georges, assignor of one third to S. R. Klotts, Columbus, Ohio. Duplex wire-nail machine	349,654	Sept. 14	712	182	36	1181
Quisenberry, Leonidas, Carrollton, Mo. Car-coupling	345,319	July 13	792	193	36	137
Radam, William, Austin, Tex. Composition for preserving food	349,900	Sept. 28	1874	.....	36	1421
Radcliff, Elias F. (See Hachenberg and Radcliff.)						
Radford, Charles W., Oshkosh, Wis. Window-blind	346,220	July 27	2021	521	36	388
Radford, William, Philadelphia, Pa. Brick-kiln	348,413	Aug. 31	2752	739	36	1006
Radney, Alvah B. (See Hamilton, Miles E., assignor.)						
Radway, Samuel H., Berlin, Wis. Windmill	349,742	Sept. 28	1665	430	36	1380
Rae, John, New York, assignor to G. H. Clarke, Brooklyn, N. Y. Steam-engine indicator	348,414	Aug. 31	2753	739	36	1007
Railway Register Company. (See Meaker, John W., assignor.)						
Railway Water Hoist Company. (See Henlehan, James, assignor.)						
Rainey, William H. (See Lewis and Rainey.)						
Rainville, Nary D., Braidwood, Ill. Show-stand	345,602	July 13	1144	292 293	36	211
Rairigh, Jacob C., Brockwayville, Pa. Cylinder printing-machine	347,513	Aug. 17	1452	385 386	36	748
Ramel, Alfred, and W. W. Dean, assignors of one-half to P. Bakewell, St. Louis, Mo. Clock-synchronizing device	346,862	Aug. 3	512	140 141	36	560
Ramel, Alfred, and W. W. Dean, assignors of one-half to P. Bakewell, St. Louis, Mo. Circuit-closer for primary electric clocks	346,863	Aug. 3	513	141	36	560
Ramey, William L. (See Hovey, Frank A., assignor.)						
Ramsay, Charles W., Brooklyn, assignor to Ramsay Purifying Company, New York, N. Y. Treating fermented, fermentable, and distilled liquids in vacuo	347,441	Aug. 17	1357	361	36	730
Ramsay Purifying Company. (See Ramsay, Charles W., assignor.)						
Ramsay, Richard, Braceville, Ill. Apparatus for stopping cars	348,773	Sept. 7	321	85	36	1107
Ramsden, John W., and H. S. Ellis, Leeds, county of York, England. Sewing-machine	348,474	Aug. 31	2841	764 765 766	36	1023
Ramsey, Jacob E. (See Roberts, Marion M., assignor.)						
Ramsey, William V., Flemington, N. J. Horse-tail supporter	349,120	Sept. 14	805	204	36	1198
Ransdell, Ilde, Atlanta, Ga. Ink	345,448	July 13	908	.....	36	169
Randall, Alfred H., assignor of one-half to H. H. Leuchsenring, Philadelphia, Pa. Lathe-center-grinding machine	349,672	Sept. 21	1457	375	36	1334
Randall, Benjamin F., Fall River, Mass. Sheet-metal fence-post	349,603	Sept. 21	1459	375	36	1334

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Randall, George W., Boston, Mass. Door-check	349,604	Sept. 21	1460	376	36	1335
Randall, Timothy P., *et al.* (See McKinster, Frank, assignor.)						
Randle, William H., Glasco, Kans. Weather-strip	344,921	July 6	174	45	36	33
Randolph, James L., Martinsburg, W. Va. Treadle attachment	346,562	Aug. 3	141	30	36	488
Randolph, Mahlon, New York, N. Y., assignor to Randolph Manufacturing Company. Journal-bearing	349,055	Sept. 14	716	183	36	1182
Randolph, Mahlon, New York, N. Y., assignor to Randolph Manufacturing Company. Journal-bearing	349,056	Sept. 14	717	183	36	1182
Randolph, Mahlon, New York, N. Y., assignor to Randolph Manufacturing Company. Journal-bearing	349,057	Sept. 14	719	183	36	1182
Randolph Manufacturing Company. (See Randolph, Mahlon, assignor.)						
Range, Gustav, assignor to S. Range, New York, N. Y. Cabinet for sewing-machines	349,176	Sept. 14	877	234, 235	36	1212
Range, Sophie. (See Range, Gustav, assignor.)						
Rankin, Abram G. W., Jersey City, N. J., assignor to C. Goddard, New York, N. Y. Domestic water-distilling apparatus	346,221	July 27	2022	522	36	388
Rankin, Andrew N., Jamaica, N. Y. Cold-packed pipe-joint and producing the same	347,060	Aug. 10	801	213	36	621
Rankin, Thomas, *et al.* (See Komp, John F., assignor.)						
Rankins, William J., Augusta, Ky. Garden implement	348,774	Sept. 7	322	86	36	1107
Ransom, Hiram W., assignor of one-half to Emerson & Fisher Company, Cincinnati, Ohio. Carriage-top	345,729	July 20	1338	348	36	254
Ransome, Ernest L., San Francisco, Cal. Concrete-mold for walling wells, &c.	349,058	Sept. 14	719	183, 184	36	1182
Rapp, Frederick, Chicago, Ill. Watch-case hinge	344,859	July 6	91	24	36	17
Rapp, John V. B., New York, N. Y. Ground-marker	345,730	July 20	1339	348	36	254
Rappleyea, Nicholas, and W. A. Sparks, Rochester, N. Y. Burial-casket	347,739	Aug. 17	1785	475	36	810
Rarig, Alexander K., and J. Derthick, Columbus, Ohio. Mining-machine	346,172	July 27	1954	504	36	374
Rathbun, James B., and E. A. Burgess, New Haven, Conn.; said Burgess assignor to said Rathbun. Railway-signal	349,954	Sept. 28	1946	503	36	1435
Rau, Eugene, assignor to J. G. Watmough, Philadelphia, Pa. Apparatus for dyeing	347,959	Aug. 24	2116	564	36	879
Rauh, Samuel, New York, N. Y. Combined shoe and stocking	347,442	Aug. 17	1358	361	36	730
Ray, Frank B., Kansas City, Mo., assignor to himself and H. C. Staver, Chicago, Ill. Pulley-belter	346,067	July 20	1810	467	36	337
Ray, Mitchell M., Bellefonte, Pa. Umbrella	348,584	Sept. 7	70	20	36	1060
Rayment, William L., Kalamazoo, Mich. Platform spring-wagon gear	349,743	Sept. 28	1667	430	36	1360
Raymond, Albert. (See Raymond, George and A.)						
Raymond, Freeborn F., 2d. (See Towns and Raymond.)						
Raymond, Freeborn F., 2d, Newton, Mass. Nail-making machine	344,985	July 6	206	67, 68, 69	36	48
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	345,449	July 13	908	227, 228	36	169
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	345,920	July 20	1608	414	36	302
Raymond, Freeborn F., 2d, Newton, Mass. Sole-nailing machine	346,124	July 27	1678	485, 486, 487	36	360
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	346,125	July 27	1882	487, 488	36	361
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	346,607	Aug. 3	199	53, 54	36	499
Raymond, Freeborn F., 2d, Newton, Mass. Heel-attaching machine	347,061	Aug. 10	803	213, 214	36	621
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	347,062	Aug. 10	808	214, 215, 216	36	621
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	347,063	Aug. 10	813	216, 217	36	622
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	347,514	Aug. 17	1454	366	36	748
Raymond, Freeborn F., 2d, Newton, Mass. Nail making and distributing machine	347,960	Aug. 24	2117	564, 565	36	879
Raymond, Freeborn F., 2d, Newton, Mass. Heel-nailing machine	348,699	Sept. 7	219	58	36	1067
Raymond, George and A., Chicago, Ill. Grinding-mill	348,585	Sept. 7	71	20, 21	36	1060
Raymond, George and A., Chicago, Ill. Grinding-disk for mills	348,637	Sept. 7	144	40	36	1073
Raymond, George E. (See Sheerck and Betig, assignors.)						
Raymond, James N. (See Heiss, Charles E., assignor.)						
Raymond, Pierre A., assignor to Perrin Frères, Grenoble, France. Button	349,453	Sept. 21	1259	326	36	1294
Raymond, William J., Cherry Vale, Kans. Wire-fence machine	348,775	Sept. 7	323	86	36	1107
Read, Charles H., Jr., Washington, D C. Passenger-elevator	348,586	Sept. 7	73	22	36	1061
Read, Walter G. (See Pace and Read.)						
Read, William, Jr., assignor, by mesne assignments, to Boston Trans-Phototype Company, Boston, Mass. Transparency	346,864	Aug. 3	515	141	36	500
Reading Hardware Company. (See Chantrell, John, assignor.)						
Ream, Hiram W., Canton, Ohio. Crate	347,198	Aug. 10	999	266	36	657
Ream, Theodore J. (See Baker, William N., assignor.)						
Reame, Andrew J., Augusta, Kans. Electric programme-clock	349,605	Sept. 21	1461	376	36	1335
Rearick, Timothy H. (See Deno and Reardon.)						
Reaves, Timothy D., Farmington, Ky. Animal-poke	345,879	July 20	1594	394	36	285
Reaves, William B., assignor of one-half to J. W. Crowley, Friar's Point, Miss. Washing-machine	348,776	Sept. 7	323	86	36	1108
Rebentisch, Oswald, Salem, Va. Mechanical clock	344,922	July 6	175	45	36	33
Reddy, James M., Chicago, Ill. Gasoline-stove	347,379	Aug. 17	1964	335	36	714
Redmayne, Thomas, Sheffield, county of York, England. Gas-burner for cooking purposes	344,986	July 6	270	69	36	48
Redmayne, Thomas, Sheffield, county of York, England. Gas-burner for cooking purposes	344,987	July 6	271	70	36	49
Reece, John, Boston, Mass. Button-hole-barring machine	349,358	Sept. 21	1118	289	36	1267
Reece, John, Boston, Mass. Button-hole sewing-machine	349,359	Sept. 21	1122	289, 290	36	1268
Reed, Benjamin B., Forestburg, Tex. Landside-cutter for plows	349,406	Sept. 21	1194	309	36	1282
Reed, Beverly S., Boston, Mass. Bustle	344,860	July 6	92	24	36	17
Reed, Brent M., Arlington, Md. Hen's nest	348,654	Aug. 24	2240	599	36	903
Reed, Dallas, Anita, Iowa. Check-rower for corn-planters	345,176	July 6	518	133	36	94
Reed, Frank B., assignor to Bigler, Reed & Co., Clearfield, Pa. Car-axle	346,068	July 20	1811	467, 468	36	338
Reed, John R., Westfield, Mass. Radiator	347,127	Aug. 10	897	240	36	638
Reed, Robert A., Brooklyn, N. Y. Marine vessel	348,587	Sept. 7	75	22	36	1061
Reed, Robert A., Brooklyn, N. Y. Iron marine vessel	349,867	Sept. 28	1823	471	36	1411

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Reed, Thomas B. (See Templeton and Reed.)						
Reed, William A. (See Sleeper, George W., assignor.)						
Reed, William H. (See Templeton and Reed.)						
Reeder, Edred A., assignor to G. E. Griffith, Dayton, Ohio. Electrical call	346,314	July 27	2156	554	36	413
Reeder, William S., assignor to Kingsland & Ferguson Manufacturing Company, St. Louis, Mo. Feeder for thrashing-machines	349,606	Sept. 21	1463	376, 377	36	1335
Reeder, William S., assignor to Kingsland & Ferguson Manufacturing Company, St. Louis, Mo. Machine for washing straw	349,607	Sept. 21	1464	377	36	1336
Rees, B. F. (See Timms, James, assignor.)						
Rees, Charles S., Philadelphia, Pa. Bath-pad	346,773	Aug. 3	397	110	36	536
Rees-Philippa, Henry, Birmingham, county of Warwick, England. Safety saddle-bar	345,540	July 13	1060	270	36	196
Reese, Jacob, Pittsburg, Pa. Utilizing old rails	346,498	Aug. 3	62	15	36	472
Reese, Jacob, Pittsburg, Pa. Dephosphorizing iron by means of oxides of iron	349,744	Sept. 28	1668	.....	36	1380
Reeves, Charles W., assignor to E. J. Frankenthal, Boston, Mass. Violin-case	348,055	Aug. 24	2241	509	36	903
Reeves, Henry C. (See Reeves, William F. and H. C.)						
Reeves, P. Kennedy, Bridgeton, N. J. Cover for jars	348,588	Sept. 7	76	22	36	1061
Reeves, William F. and H. C., Miltonvale, Kans. Combined weed-cutter and harrow	346,173	July 27	1956	504	36	375
Reeves, William T., Aurora, Ill. Cuff-holder	349,454	Sept. 21	1260	327	36	1294
Regar, George H. (See Moock and Regar.)						
Regester, Robert A., Baltimore, Md. Bath-boiler stand	348,690	Sept. 7	220	58	36	1067
Register, Henry C., Philadelphia, Pa. Dental plugger	347,898	Aug. 24	1922	510	36	845
Rehfuss, George. (See Moore and Rehfuss.)						
Reichardt, Ferdinand A., Elizabeth, N. J. Suture appliance	345,541	July 13	1062	270, 271	36	196
Reichardt, Ferdinand A., New York, N. Y. Atomizer	345,659	July 13	1241	321	36	229
Reichardt, Hermann, and C. Heyer, Dessau, Anhalt, Germany. Manufacturing sugar	344,923	July 6	176	.....	36	33
Reid, Charles H., Danbury, Conn. Chuck. (Reissue)	10,786	Sept. 21	1551	401	36	1354
Reid, Paul J., Lancaster, and J. H. Dunbar, assignors to Clement & Dunbar, Philadelphia, Pa. Butter-printing machine	349,121	Sept. 14	806	205	36	1198
Reilly, Edward G., assignor of one-half to G. W. Bassett, Columbus, Ohio. Car-brake	349,608	Sept. 21	1465	378	36	1336
Reimers, Fredrick, Ottumwa, Iowa. Manufacture of artificial stone	348,415	Aug. 31	2756	.....	36	1007
Rein, Gustavus. (See Rose and Rein.)						
Reindl, Wolfgang, and A. Lotstrom, Menominee, Mich. Boot or shoe	346,126	July 27	1886	488	36	362
Reinhardt, James H., Memphis, Tenn., assignor of one-half to C. X. Cordier, New York, and W. M. Caldwell, Brooklyn, N. Y. Railway-signal	346,946	Aug. 10	641	172	36	592
Reinheimer, David F., New Paris, Ohio. Wire-twisting wrench	348,293	Aug. 31	2590	697	36	975
Reinheimer, David F., New Paris, Ohio. Fence-wire tension device	348,294	Aug. 31	2591	697	36	975
Reinhold, Frank J. (See Hubel and Reinhold.)						
Reinhold, Hermann. (See Maass, Franz, assignor.)						
Reinmann, Albert L., Pittsburg, Pa. Cement for securing metal rings to electric-lamp bulbs and for other purposes	345,542	July 13	1064	.....	36	197
Reinmann, Albert L., Pittsburg, Pa. Apparatus for carbonizing fiber	345,660	July 20	1525	394	36	285
Reinmann, Albert L. and C. F., Pittsburg, Pa. Valve for mercurial pumps	345,543	July 13	1064	271	36	197
Reimann, Charles F. (See Reinmann, Albert L. and C. F.)						
Reinnan, Ole, Chicago, Ill. Machine for manufacturing wire mattresses	347,899	Aug. 24	1924	510, 511	36	845
Reisor, Andrew S., Reisor, La. Post-driver	347,128	Aug. 10	899	240	36	638
Remers, John, Buffalo, N. Y. Machine for cleaning ice, &c., from street-railways	349,124	Sept. 14	808	205	36	1198
Remick, Harry E., Boston, Mass. T-square and bevel	345,806	July 20	1472	376	36	273
Renehan, James J., New Britain, Conn. Street-support for electric lamps	347,340	Aug. 24	1325	511	36	845
Rennekamp, Anton L., Cincinnati, Ohio. Clothes-hanging device for wardrobes and closets	345,821	July 20	1608	415	36	302
Rennekamp, Francis J., Bridgetown, Ohio. Clothes-hanging device	346,683	Aug. 3	291	80	36	518
Renniman, William J., Avoca, Pa. Dumping device for mining-cars	347,151	Aug. 10	936	249	36	645
Reno, Zachary T., New Orleans, La. Slide-valve	348,777	Sept. 7	324	87	36	1108
Renshaw, Morrison, and W. H. Horner, St. Louis, Mo. Fastening for coupling or joint pins	349,604	Sept. 14	645	167	36	1169
Reppenhagen, Max E., Highland Falls, N. Y. Razor-strop	347,831	Aug. 24	1926	511	36	846
Reppeto, William H., Flora, Ind. Wire-fence machine	347,064	Aug. 10	815	217	36	623
Ress, Carl, Leipsic, Saxony, Germany. Note-indicator for pianos	346,922	July 27	2024	522	36	389
Rew, Noel W., Garden City, Minn. Harrow attachment for plows	347,380	Aug. 17	1266	335	36	714
Rew, Richard A., assignor of one-half to B. B. Day, J. W. Hull, and C. B. Foote, Pomeroy, Wash. Ter. Middlings-purifier	345,177	July 6	519	133	36	95
Reyher, William H., assignor of one-half to C. E. Collmer, Boston, Mass. Vise	345,990	July 20	1706	439	36	319
Reynolds, Andrew J., Chicago, Ill. Street-sweeper	348,778	Sept. 7	325	87	36	1108
Reynolds, Edmund D. and O. B., Brockton, Mass. Harrow	346,315	July 27	2159	555	36	413
Reynolds, Edward F., Bruce, Dak. Ter. Fanning-mill	349,235	Sept. 14	961	245	36	1238
Reynolds, Edwin, Milwaukee, Wis. Combined steam generator and radiator	345,991	July 20	1707	439	36	319
Reynolds, George H., New York, N. Y., assignor of one-half to Crane Brothers Manufacturing Company, Chicago, Ill. Operating elevators	348,056	Aug. 24	2243	599, 600	36	903
Reynolds, John H. (See Carr, Ellsworth, assignor.)						
Reynolds, Loran W., *et al.* (See Harris, Richard G., assignor.)						
Reynolds, Oliver B. (See Reynolds, Edmund D. and O. B.)						
Reynolds, Willie H., Antioch, Ill. Bobbin-winder for sewing-machines	348,638	Sept. 7	145	41	36	1074
Rheutan, Abram A., assignor to W. H. Hill, Worcester, Mass. Envelope-counting machinery	349,745	Sept. 28	1669	430, 431	36	1380
Rheutan, Abram A., assignor to W. H. Hill, Worcester, Mass. Mechanical movement	349,901	Sept. 28	1875	484	36	1421
Rhodes, George W., Manchester, county of Lancaster, England. Take-up motion for looms	345,544	July 13	1065	271, 272	36	197
Rhodes, Leverett E., Hartford, Conn. Screw-cutting lathe-tool	346,499	Aug. 3	63	16	36	472
Rhodes, William J., Cleveland, Ohio. Car-coupling	346,684	Aug. 3	292	80	36	518
Ribbeck, Ferdinand, New Iberia, La. Drip-coffee pot	346,774	Aug. 3	398	110	36	538
Rice, David H., Brookline, Mass. Clutch for tricycles	348,691	Sept. 7	220	58	36	1067
Rice, David H., Brookline, Mass. Wheel for velocipedes	348,692	Sept. 7	223	59	36	1068
Rice, David H., Brookline, Mass. Vehicle-wheel	349,746	Sept. 28	1671	431	36	1380
Rice, David H. and L. H., Brookline, Mass. Velocipede	348,057	Aug. 24	2245	600, 601	36	904
Rice, John W., Springfield, Mass. Railway-car brake	345,330	July 13	723	183	36	137
Rice, Lepine H. (See Rice, David H. and L. H.)						
Rice, Nathaniel B., Chicago, Ill. Vacuum-evaporator for saccharine and gelatinous liquids, milk, &c	347,381	Aug. 17	1267	335, 336	36	714
Rich, Abraham L., Allegheny, Pa. Street-car motor	348,416	Aug. 31	2757	740	36	1007
Rich, George. (See Rich, Farr, and Bailey.)						
Rich, John and G., Philadelphia, Pa., E. L. Farr, Wenonah, and S. T. Bailey, Camden, N. J.; said J. and G. Rich assignors to said Farr and Bailey. Oil-cloth-rubbing machine	348,417	Aug. 31	2759	740, 741	36	1008

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Rich, William W. (See Bennett, Dike, and Rich.)						
Richard Fastener Company. (See Kempshall, Eleazer, assignor.)						
Richards, Augustus, Sr., Willis, Tex. Leaf-turner	344,861	July 6	94	24	36	17
Richards, David M., Denver, Colo., and I. Hale, Whitestone, N. Y. Railway-car	348,058	Aug. 24	2348	601, 602	36	904
Richards, Francis H., Springfield, Mass., assignor to American Button Fastener Company, New Britain, Conn. Button-setting instrument	348,236	Aug. 31	2516	676	36	959
Richards, Francis H., Springfield, Mass., assignor to American Button Fastener Company, New Britain, Conn. Button setting instrument	348,237	Aug. 31	2519	677	36	959
Richards, George E., assignor to Snell Manufacturing Company, Fiskdale, Mass. Box for tools	350,016	Sept. 28	2034	325	36	1450
Richards, Lovell A., Grayson, Cal. Disk-harrow	348,693	Sept. 7	294	59	36	1088
Richards, Valentine W. A., assignor of one-half to J. Baltes, Minneapolis, Minn. Shaft-carrier	345,922	July 28	1609	415	36	308
Richards, William J., Coaldale, Pa. Padlock	348,864	Sept. 7	436	116	36	1128
Richardson, Charles H., assignor of one-half to J. V. Emmett, Sterling, Ill. Corn-planter	347,889	Aug. 24	2008	532	36	859
Richardson, Charles H., and H. A. Barkelew, Jr., Los Angeles, Cal. Cuff-holder	349,902	Sept. 28	1877	485	36	1492
Richardson, Chester F., Milwaukee, Wis. Valve-movement in pumping-engines	345,731	July 20	1340	348	36	254
Richardson, George W., Medford, Mass., assignor to Consolidated Safety Valve Company, Hartford, Conn. Safety-valve	344,862	July 6	95	24	36	18
Richardson, George W., Medford, Mass., assignor to Consolidated Safety Valve Company, Hartford, Conn. Steam-muffler	344,863	July 6	98	25	36	18
Richardson, George W., Boston, Mass., assignor to Consolidated Safety Valve Company, Hartford, Conn. Safety-valve	344,864	July 6	99	25	36	18
Richardson, George W., Boston, Mass., assignor to Consolidated Safety Valve Company, Hartford, Conn. Safety-valve	344,865	July 6	100	25	36	18
Richardson, George W., Medford, Mass., assignor to Consolidated Safety Valve Company, Hartford, Conn. Safety-valve	344,866	July 6	102	26	36	19
Richardson, M. F. (See Wisner, A. Jackson and A., assignors.)						
Richardson, Robert, Detroit, Mich. Musical top	346,199	Aug. 10	1000	267	36	657
Richardson, Solon O., Jr. (See Locke and Richardson.)						
Richmond, Cassius M., New York, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial tooth-crown	346,316	July 27	2161	555	36	414
Richmond, Denison, Syracuse, N. Y. Caster	344,988	July 6	272	70	36	49
Richmond, Edmond C. (See Warren and Richmond.)						
Richter, George H., Toronto, Ontario, Canada. Device for simultaneously locking and unlocking a number of paper-files arranged within a cabinet	345,861	July 20	1526	395	36	285
Richter, Peter J., assignor of one-half to L. M. Ross, Bay City, Mich. Wagon-gearing	345,321	July 13	726	183	36	137
Ricker, John W., Chelsea, Mass. Washing-machine	349,747	Sept. 28	1672	431	36	1381
Rickey, Joseph K., Clarinda, Iowa. Surgeon's operating-table	348,418	Aug. 31	2761	741	36	1008
Rider, Alexander K., Walden, N. Y. Air-engine	345,450	July 13	910	229	36	169
Rider, Leman P., Pittsburg, Pa. Bagasse-furnace	349,236	Sept. 14	902	245, 246	36	1298
Rider, Leman P., Pittsburg, Pa. Utilizing natural gas as a fuel	349,811	Sept. 28	1761	455	36	1397
Riehlé, Frederick A., *et al.* (See Poiesz, William F., assignor.)						
Riehlé, Henry B., *et al.* (See Poiesz, William F., assignor.)						
Ries, Augustus. (See Topping, Alfred S., assignor.)						
Riethmayer, Jacob F., Lansdale, Pa. Signal	345,862	July 20	1527	395	36	286
Riggle, Michael M., Orleans, assignor of one-half to T. E. Lindley, Paoli, Ind. Snap-hook	345,923	July 20	1610	415	36	302
Rigga, John V., Amsterdam, N. Y. Medicinal aerated water	348,344	Aug. 31	2653		36	988
Ringen, John, St. Louis, Mo. Gasoline-stove	345,545	July 13	1067	272	36	197
Riker, Andrew L., New York, N. Y. Gas-engine	349,858	Sept. 28	1823	471	36	1411
Riley, E. F. (See Davis, John R., assignor.)						
Riley, John J. (See Mantion, Macdonald, and Riley.)						
Riley, Joseph B., Pittsburg, Kans. Churn	348,639	Sept. 7	146	41	36	1094
Rindskopf, Abraham P., Brooklyn, N. Y. Insole	349,859	Sept. 28	1825	471	36	1411
Ring, Guldbrand O., Horten, Norway. Button-hook	346,608	Aug. 3	201	55	36	499
Ripley, Robert A., New York, N. Y. Electric-current converter	347,642	Aug. 17	1655	439	36	767
Risler, George, Sennheim, Alsace, Germany. Cotton-picker	347,382	Aug. 17	1908	336, 337	36	714
Ritch, John P., assignor of one-half to J. F. Johnston, Charlotte, N. C. Cultivator	346,223	July 27	2025	523	36	389
Ritchel, Charles F., Bridgeport, Conn., assignor to Ritchel Waved Flooring and Wainscoting Company, of New York. Planing and matching machine	344,867	July 6	104	26	36	19
Ritchel, Charles F., Bridgeport, Conn., assignor of one-half to D. Kelsey, New York, N. Y. Corset	346,416	July 27	2301	593	36	440
Ritchel Waved Flooring and Wainscoting Company. (See Ritchel, Charles F., assignor.)						
Ritchie, David A., Cambridgeport, Mass. Machine for making metal tubing	349,748	Sept. 28	1673	432	36	1381
Rittenhouse, Charles C., Hastings, Nebr. Jail or prison	345,924	July 20	1612	415, 416	36	302
Ritter, Isaac R., Reading, Pa. Nut-lock	348,345	Aug. 31	2654	715	36	988
Ritton, Peter L., *et al.* (See Strait, Andrew V., assignor.)						
Ritty, Sebastian, Dayton, Ohio. Horse-rake	346,947	Aug. 10	643	172	36	592
Rivera, Thomas L., Montclair, N. J. Loop or band for straps	350,081	Sept. 28	2125	550	36	1468
Robb, George H., Severance, Kans. Sulky-harrow	345,603	July 13	1145	293	36	212
Robbins, Elisha F., Boston, Mass. Hawse-pipe stopper	346,685	Aug. 3	293	80	36	518
Robbins, Joseph T., Newton, Iowa. Apparatus for the disposal of night-soil	347,383	Aug. 17	1270	337	36	715
Roberts, Abner L., *et al.* (See Woodward, William D., assignor.)						
Roberts, James, New York, N. Y., assignor to Acme Liquid Fuel Company of New York. Process of and apparatus for manufacturing heating and illuminating gas	345,649	July 13	1230	315, 316	36	226
Roberts, James, New Haven, Conn. Chisel	346,948	Aug. 10	644	172	36	592
Roberts, Jesse W., Philadelphia, Pa. Potato-digger	346,666	Aug. 3	294	81	36	518
Roberts, John R., Youngstown, Ohio. Dish-cover	346,386	July 27	2254	577	36	431
Roberts, Marion M., assignor of one-half to J. E. Ramsey, Norris City, Ill. Gate	347,740	Aug. 17	1786	476	36	810
Roberts, Newell J., Battle Creek, Mich. Car-starter	348,238	Aug. 31	2521	677	36	960
Roberts, Robert E. L., Farmers Branch, Tex. Motor	347,890	Aug. 24	2009	532	36	859
Robertson, D. L., *et al.* (See McMillan, John L., assignor.)						
Robertson, Henry B., and C. Danker, Havensville, Kans. Scythe-fastening	347,515	Aug. 17	1456	387	36	749
Robertson, James, Northampton, Mass. Take-up or thread-controlling mechanism for sewing-machines	346,775	Aug. 3	399	110	36	539
Robertson, James W., Detroit, Mich. Preparing cereals	349,812	Sept. 28	1762		36	1398
Robertson, John, Brooklyn, N. Y. Hydraulic lead-press	346,563	Aug. 3	142	39	36	488
Robie, Henry W., assignor of two-fifths to S. S. Armstrong, Portsmouth, Va. Screw-jack	349,663	Sept. 21	1528	394	36	1349
Robinson, Albert S., Albany, N. Y. Baling-press	348,875	Sept. 7	437	117	36	1128

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Robinson, Franklin C., and W. H. Cothren, Brunswick, Me. Treating articles made of paper-stock or wood pulp, &c	347,900	Aug. 10	1001	.....	36	657
Robinson, George E., Moravia, N. Y. Horse hay-rake	348,806	Sept. 7	440	118	36	1129
Robinson, George W., Pensacola, Fla., assignor of one-third to E. P. Allis, Milwaukee, Wis. Saw-mill carriage	348,295	Aug. 31	2592	697	36	975
Robinson, Goldsborough, assignor to Louisville Spirit Cured Tobacco Company, Louisville, Ky. Treating tobacco	345,076	July 6	387	.....	36	71
Robinson, Horace, Manchester, county of Lancaster, England. Gas-motor engine	346,687	Aug. 3	296	81	36	519
Robinson, O. E. (See Hopkins, Cabel B., assignor.)						
Robinson, Stillman W., Columbus, Ohio. Machine for uniting soles to uppers of boots or shoes	346,127	July 27	1887	468	36	362
Robinson, Stillman W., Columbus, Ohio. Machine for uniting soles to uppers	346,128	July 27	1889	468	36	362
Robinson, Stillman W., Columbus, Ohio. Machine for uniting soles to uppers	346,129	July 27	1891	469	36	362
Robinson, Stillman W., Columbus, Ohio. Machine for uniting the soles and uppers of boots or shoes	346,130	July 27	1892	469	36	363
Robinson, William L., Philadelphia, Pa. Underground conduit for electric wires	346,668	Aug. 3	298	82	36	519
Robinson, William W., Ripon, Wis. Window-screen	346,949	Aug. 10	645	173	36	592
Roche, Thomas C., Brooklyn, assignor to E. & H. T. Anthony & Co., New York, N. Y. Composition for holding photographic paper on its support, &c	346,294	July 27	2026	.....	36	389
Rocker, Christopher, assignor of one-half to B. Goercke and H. Goes, St. Louis, Mo. Vitiating-valve for barrels	346,385	July 27	2253	576	36	431
Rockford Watch Company. (See Troller, Albert, assignor.)						
Rockwell, Augustus P. (See Davis, Franklin T., assignor.)						
Rockwell, Edward D., *et al.* (See Gilman, Everett P., assignor.						
Rockwell, Robert N., Peabody, Kans. Electric chain battery	345,178	July 6	390	133	36	95
Rodenberger, Levi C., Medford, Oreg. Protector for boots or shoes	346,776	Aug. 3	402	111	36	539
Rodes, Florida M., Fayetteville, assignor to N. M. Lassiter, Manchester, Tenn. Grate-cover	345,258	July 6	635	161	36	115
Rodgers, O. F., *et al.* (See Noles, Robert, assignor.)						
Rodgers, Toppan P., Taunton, Mass. Hitching-post	348,475	Aug. 31	2844	706	36	1094
Rodwell, George J. B., assignor of one-half to H. C. Secord, Toronto, Ontario, Canada. Vulcanized rubber die or stamp	349,664	Sept. 21	1599	395	36	1349
Roe, John P., and P. R. Bedlington, Bilboa, Spain. Apparatus for supporting and guiding traveling ropes or cables used in transporting loads	347,443	Aug. 17	1359	362	36	730
Roeske, Henry, assignor of one-half to M. J. Nascimento, Philadelphia, Pa. Filter	346,534	Aug. 31	2933	788	36	1040
Rogers, Albert C., Little Genesee, N. Y. Mowing-machine	348,239	Aug. 31	2522	677, 678	36	960
Rogers, Columbus K., assignor to Z. and A. C. Goodell, Jr., Salem, Mass. Elevator	349,177	Sept. 14	878	225	36	1212
Rogers & Hamilton Company. (See Shannon, Edward W., assignor.)						
Rogers, John A., assignor of one-half to A. W. Sharpley and A. C. Henry, Hartsell's, Ala. Sash-balance	348,580	Aug. 31	2881	775	36	1030
Rogers, Nathaniel P., Michigan City, Ind., assignor to Excelsior Grain Door Company. Car-door	348,694	Sept. 7	295	59	36	1088
Rogers, Newton, assignor of two-thirds to J. H. Blake and J. Wharry, Terre Haute, Ind. Driving mechanism for street-cars	350,017	Sept. 28	2035	325, 596	36	1450
Rohde, August E. (See Beyer and Rohde.)						
Rohrbach, Henry J., Chicago, assignor of one-half to C. Allen, Hinsdale, Ill. Bridge-gate	347,065	Aug. 10	817	218	36	623
Rohrer, Henry, New York, N. Y., and J. S. Rohrer, Lancaster, Pa. Setting tires	345,322	July 13	727	184	36	137
Rohrer, John S. (See Rohrer, Henry and J. S.)						
Roller Bearing Company. (See Boyer, Louis W., assignor.)						
Rollins, Alice W., *et al.* (See Coultaus, Joseph A., assignor.)						
Rollins, Daniel M., *et al.* (See Coultaus, Joseph A., assignor.)						
Roloy, Artemus, Cherokee, Iowa. Plow	347,992	July 20	1708	440	36	319
Romana, John B., assignor of one-half to C. R. Coolidge, Helena, Ark. Baling-press	346,827	Aug. 3	458	126	36	549
Romig, William. (See Wealand, Henry K., assignor.)						
Roop, Jacob W., Harrisburg, Pa. Barbed fencing-strip	345,250	July 6	636	161	36	115
Roosen, August R., Hamburg, Germany. Preservation of food substances	350,018	Sept. 28	2037	.....	36	1451
Root, Benjamin M. (See Farquhar, Eisenhart, and Root.)						
Root, Chester D. (See Harty, William, assignor.)						
Root, John B., Port Chester, N. Y. Spiral-pipe machine	346,500	Aug. 3	64	16, 17	36	472
Root, John B., Port Chester, N. Y. Heating metal for welding	346,611	Aug. 3	205	56	36	500
Root, John B., Port Chester, N. Y. Spiral-pipe machine	346,612	Aug. 3	206	56	36	500
Root, John B., Port Chester, N. Y. Machine for making metal pipes	346,613	Aug. 3	208	56	36	500
Root, John B., Port Chester, N. Y. Welding-machine	346,614	Aug. 3	209	57	36	501
Root, John B., Port Chester, N. Y. Machine for making spirally-jointed metal pipes	346,615	Aug. 3	210	57, 58	36	501
Root, John B., Port Chester, N. Y. Welding-machine	346,628	Aug. 3	450	126	36	549
Root, Russell H., South Orange, N. J. Permutation-lock	345,323	July 13	730	184	36	138
Roots, Francis M., Connersville, Ind. Portable forge	349,360	Sept. 21	1130	291	36	1270
Roots, Francis M., Connersville, Ind. Journal-box	349,361	Sept. 21	1131	291	36	1270
Roots, Francis M., Connersville, Ind. Stop mechanism for driving-shafts	349,362	Sept. 21	1131	291	36	1270
Roots, Francis M., Connersville, Ind. Fire-bed and tuyere	349,363	Sept. 21	1132	292	36	1270
Roots, Francis M., Connersville, Ind. Housing for cog-wheels	349,364	Sept. 21	1133	292	36	1271
Roots, Francis M., Connersville, Ind. Shaft-coupling	349,365	Sept. 21	1134	292	36	1271
Roots, James, London, England. Oil-lamp	349,262	Sept. 14	993	253	36	1235
Rosado, Donato, New York, N. Y. Clasp for garments	349,903	Sept. 28	1878	485	36	1422
Rose, Ernst. (See Van Schaumburg, Louis S., assignor.)						
Rose, George W., assignor of one-half to R. Fielding, Paterson, N. J. Barrel-truck	349,665	Sept 21	1530	395	36	1349
Rose, Philip L., and G. Rein, St. Louis, Mo. Toll-collecting mechanism for telephone-exchange systems	346,866	Aug. 3	520	142	36	561
Rose, Philip L., and G. Rein, assignors of three-fourths to C. Hoyle, St. Louis, Mo. Automatic telephone-toll system	346,865	Aug. 3	516	141	36	560
Rosebrook, Frank, Elmira, N. Y. Incubator	349,749	Sept. 28	1674	432	36	1381
Rosebrooks, John M., assignor to W. A. Wood Mowing and Reaping Machine Company, Hoosick Falls, N. Y. Harvesting-machine	349,319	Sept. 21	1054	270	36	1255
Rosebush, David, assignor of two-thirds to J. J. Rupp, East Saginaw, Mich. Automatic fire-extinguisher	348,140	Aug. 24	2358	632	36	924
Rosell, Claude A. O., Natrona, Pa. Gas or vapor burner	348,346	Aug. 31	2655	716	36	988
Rosenbaum, Arno S., New York, N. Y. Cigar-tip	348,347	Aug. 31	2656	716	36	988
Rosenblatt, Charles A., Smolensk, assignor of one-half to R. G. Salomé, Moscow, Russia. Painting-machine	348,535	Aug. 31	2934	788, 789	36	1040
Rosenblatt, Samuel, New York, N. Y. Soap-frame	349,320	Sept. 21	1054	270	36	1255
Rosenstock, Moritz, New York, N. Y. Bustle or bustle-skirt	345,863	July 20	1528	396	36	286
Rosenthal, Henry, New York, N. Y. Brush	349,407	Sept. 21	1195	309	36	1282

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Rosenthal, James, *et al.* (See Swan, Henry H., assignor.)						
Rosevelt, Charles A. (See Ryder and Rosevelt.)						
Ross, Alexander, and S. J. Parker, Rochester, N. Y. Self-binding harvester	345,650	July 13	1323	{316 317 318}	36	226
Ross, Charles, Jr., Brooklyn, N. Y. Paint-mixing machine	348,931	Sept. 7	535	141	36	1145
Ross, Donald G., East Saginaw, Mich. Railway-tie	346,069	July 20	1813	468	36	338
Ross, George P., Chicago, Ill. Mitten	346,070	July 20	1813	468	36	338
Ross, Lois M. (See Richter, Peter J., assignor.)						
Ross, Perry L., Bradford, Pa. Attachment for rubber shoes	347,066	Aug. 10	818	218	36	624
Rossney, William C., Hyde Park, assignor to C. A. Shaw, Boston, Mass. Gas-regulator	344,989	July 6	273	70	36	49
Rossney, William C., Hyde Park, assignor to C. A. Shaw, Boston, Mass. Gas-regulator	344,990	July 6	276	71	36	50
Rost, Henry A., Richmond, Indiana. Door-check	345,451	July 13	913	229	36	169
Rote Automatic Brake Company. (See Hice, Richard R., assignor.)						
Rote Automatic Brake Company. (See Hopkins and Linham, assignors.)						
Rote Automatic Brake Company. (See Rote, Charles V., assignor.)						
Rote, Charles V., Lancaster, Pa., assignor to Rote Automatic Brake Company, Mansfield, Ohio. Automatic car-brake	347,010	Aug. 10	727	{192 193}	36	607
Rote, Charles V., Lancaster, Pa., assignor to Rote Automatic Brake Company, Mansfield, Ohio. Automatic car-brake	347,011	Aug. 10	730	{194 195}	36	607
Roth, Charles W., Evansville, Ind. Flour-packer	345,452	July 13	913	{229 230}	36	169
Roth, Julius. (See Kochendorfer, George, assignor.)						
Roth, William, New York, N. Y. Hoisting-machine	349,123	Sept. 14	809	206	36	1199
Rothmund, Fredrick, San Francisco, Cal. Plow	349,750	Sept. 28	1675	432	36	1391
Rothschild, Maier, Shamokin, Pa. Mortising-machine	344,868	July 6	105	26	36	19
Rouart, Stanislas H., Paris, France. Cooling air and apparatus therefor	349,178	Sept. 14	880	226	36	1212
Rounds, Oziel H., Welland, Ontario, Canada. Fire-escape	349,366	Sept. 21	1135	{292 293}	36	1271
Rouse, John H., Malden, assignor to J. C. Hollings, Boston, Mass. Clutch for sliding joints	346,987	Aug. 3	521	142	36	561
Rouse, Roswell E., Indianapolis, Ind. Pipe-wrench	346,501	Aug. 3	66	17	36	473
Rouse, Roswell E., Indianapolis, Ind. Valve-coupling	349,321	Sept. 21	1055	270	36	1256
Rousseau, David, New York, N. Y. Electrical annunciator	346,609	Aug. 3	902	55	36	500
Row, William, assignor of one-half to A. Hirth, Wheeling, W. Va. Boiler-cleaner	349,955	Sept. 28	1949	504	36	1435
Row, William, and R. Bauer, Wheeling, W. Va. Floor for rolling-mills	346,610	Aug. 3	904	55	36	500
Rowand, Archibald H., Pittsburg, and R. S. Hunzeker, Allegheny, Pa. Coupling for pipes	345,732	July 20	1341	348	36	254
Rowand, Archibald H., Allegheny, and R. S. Hunzeker, Pittsburg, Pa. Composition of matter for packing the joints of gas-pipes, &c.	349,751	Sept. 28	1676	.....	36	1391
Rowe, Edward. (See Hudson, Rowe, and Healop.)						
Rowe, Gottlob, Danville, Pa. Nail-furnace	345,260	July 6	636	162	36	116
Rowell, George A., Brooklyn, N. Y. Tube-cleaner	348,141	Aug. 24	2359	633	36	925
Rowland, David E., and W. T. Black, Canton, Ohio; said Black assignor to said Rowland. Extension-ladder	349,666	Sept. 21	1531	395	36	1350
Rowley, Charles B., Brooklyn, N. Y. Fountain pen-holder	346,131	July 27	1894	489	36	363
Royer, David H., Millmont, Pa. Shutter-worker	348,142	Aug. 24	2360	633	36	925
Rudgear, Andrew, *et al.* (See Douglas, Edward J., assignor.)						
Rudolph, Charles E. (See Matthias and Rudolph.)						
Rudolph & Kühne. (See Kühne, Felix, assignor.)						
Ruediger, Theodor, Chaska, Minn. Wire-fence gate	350,082	Sept. 28	2126	550	36	1468
Rufer, William T. (See Baron and Rufer.)						
Ragg, Charles W., Cambridge, Mass. Steam-heating apparatus	348,932	Sept. 7	535	{141 142}	36	1145
Ruggles, William G., Hydes Mills, Wis. Shipping-case	348,171	Aug. 24	2410	646	36	934
Rumely, Meinrad and W. N., La Porte, Ind. Steam-boiler	347,384	Aug. 17	1272	398	36	715
Rumely, William N. (See Rumely, Meinrad and W. N.)						
Rumetsch, Katy, San Francisco, Cal. Key-hole guard	345,396	July 13	831	209	36	155
Rumpf, Charles E., Youngstown, Ohio. Sweat-pad for hats and caps	347,891	Aug. 24	2010	533	36	859
Rumpf, Gustave, Frankfort-on-the-Main, Prussia, Germany, assignor to Verein für Chemische Industrie in Mainz. Producing chlorine	348,348	Aug. 31	2658	.....	36	989
Rundlett, George W., Freeport, Ill. Windmill	347,385	Aug. 17	1273	338	36	715
Runstetler, Andrew, assignor to Farmers Friend Manufacturing Company, Dayton, Ohio. Corn-planter	347,643	Aug. 17	1658	{439 440}	36	787
Rupp, John J. (See Rosebush, David, assignor.)						
Ruprecht, Charles, Cleveland, Ohio. Gas-pressure regulator	348,179	Aug. 24	2413	646	36	935
Rusby, James O., Chico, Cal. Relief-valve	347,892	Aug. 24	2011	533	36	859
Ruschenek, Henry, Brockport, N. Y. Grain-wheel for mowing-machines	346,443	July 27	2343	602	36	447
Ruschhaupt, Frederick M., Milwaukee, Wis. Compound for protecting walls	350,083	Sept. 28	2127	.....	36	1468
Rush, Peter S., Atlanta, Tex. Steam-engine	346,616	Aug. 3	213	58	36	502
Russell, Anthony O., Cincinnati, Ohio. Electrotype-registering machine	347,256	Aug. 10	1075	286	36	671
Russell, Calvin, and P. H. Cragin, Penn Yan, assignors of one-third to H. Russell, Albany, N. Y. Paper-pulp screen	347,893	Aug. 24	2012	533	36	859
Russell & Erwin Manufacturing Company. (See Burgess, Charles M., assignor.)						
Russell & Erwin Manufacturing Company. (See Eddy, Alfonzo J., assignor.)						
Russell & Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell, Henry. (See Russell and Cragin, assignors.)						
Russell, Joseph A., Constantine, Mich. Carriage-seat	348,240	Aug. 31	2524	678	36	961
Russell, Richard M. (See Standish, Arthur K., assignor.)						
Ruth, Charles E., Atalissa, Iowa. Combined double desk and book-case	347,278	Aug. 10	1104	295	36	676
Ryan, Edward R., Philadelphia, Pa. Vehicle-jack	349,179	Sept. 14	881	226	36	1213
Ryan, Patrick. (See Carroll and Ryan.)						
Rybacek, Frank H., Riverside, Iowa. Corn-planter	349,455	Sept. 21	1261	327	36	1295
Ryder, Enoch W., and C. A. Rosevelt, Keeler, Mich. Check-rower tension device	347,832	Aug. 24	1927	511	36	846
Ryer, George W. (See Porter, John B., assignor.)						
Rylands, Dan, Stairfoot, Barnsley, county of York, England. Forming indents in glass bottles	347,741	Aug. 17	1787	476	36	810
Rylands, Dan, Stairfoot, county of York, England. Punching holes in bottles	347,742	Aug. 17	1788	476	36	810
Sabold, John, Little Oley, Pa. Ingot-mold	348,779	Sept. 7	527	87	36	1108
Sackett, George H., Brooklyn, N. Y. Fountain-pen	349,752	Sept. 28	1677	433	36	1391
Sackett, George H., assignor to G. O. Sackett, Brooklyn, N. Y. Fountain-pen	347,961	Aug. 24	2120	565	36	899
Sackett, George H., Brooklyn, N. Y., assignor to N. Sheldon, Providence, R. I. Fountain-pen	349,753	Sept. 28	1678	433	36	1392
Sackett, George O. (See Sackett, George H., assignor.)						
Safety Gate Company. (See Mills, Mortimer B., assignor.)						
Sage, Carlton E., *et al.* (See Marker, Frank H., assignor.)						
Sallilez, Clotaire, What Cheer, Iowa. Railway tie or sleeper	345,733	July 20	1342	349	36	255
Sajous, Charles E., *et al.*, executors. (See Bergner, Theodore.)						
Saladee, Cyrus W., Birmingham, Conn. Vehicle	345,179	July 6	591	134	36	95
Salmon, William C., Portland, Oreg. Steam engine or pump	347,644	Aug. 17	1660	440	36	788
Salomé, Robert G. (See Rosenblatt, Charles A., assignor.)						
Salter, Joseph R., Thomasville, Ga. Cultivator	346,617	Aug. 3	214	59	36	502
Saltzer, Isaac J., Prescott, Pa. Sash-fastener	346,777	Aug. 3	403	111	36	539
Sample, John, Norwood, Mass. Can-opener	347,067	Aug. 10	819	218	36	624
Sams, Joseph H., West Kensington, county of Middlesex, England. Fire-place front	349,813	Sept. 28	1763	456	36	1398
Sams, Joseph H., West Kensington, county of Middlesex, England. Fire-place front	349,814	Sept. 28	1764	456	36	1398
Samuel, Edward, assignor to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Chain-guide for hoists	349,320	Sept. 21	1349	351	36	1313
Samuel, Edward, assignor to W. Wharton, Jr., & Co., (limited,) Philadelphia, Pa. Center-bearing for turn-tables	349,956	Sept. 28	1950	504	36	1435
Sandberg, Carl G., Helena, Ark. Cracker-box cover	345,453	July 13	915	230	36	170
Sanders, P. Otto. (See Wilson and Sanders.)						
Sanders, William. (See Wilson and Sanders.)						
Sanderson, Joseph M., Mesopotamia, Ohio. Fence	346,778	Aug. 3	404	111	36	539
Sandford, Charles, Paterson, N. J. Broom-holder	344,869	July 6	106	26	36	19
Sanford, Addison V., assignor to Crouk Hanger Company, Elmira, N. Y. Low-pressure engine	346,502	Aug. 3	67	17	36	473
Sanford, Richard, Providence, R. I. Button-fastener	344,870	July 6	107	27	36	20
Sanford, Stephen, Amsterdam, N. Y. Machine for coloring yarn	346,950	Aug. 10	646	173	36	592
Sanger, Isaac S., Waco, Tex. Automatic weighing mechanism for elevators, &c.	349,321	Sept. 21	1350	351	36	1314
Sargent, Dana A., *et al.* (See Murray, James H., assignor.)						
Sargent, Frank P., New Haven, Conn. Device for adjusting shafts	349,005	Sept. 14	646	167	36	1169
Sargent, James. (See Puffer, Charles C., assignor.)						
Sargent, James, Rochester, N. Y. Safety-valve	347,516	Aug. 17	1456	387	36	749
Sattes, John, Butte City, Mont. Ter. Pendulum-hoist	348,780	Sept. 7	528	88	36	1108
Sattley, Archibald. (See Sattley, Marshall, assignor.)						
Sattley, Marshall, assignor to himself and A. Sattley, Taylorville, Ill. Cultivator	346,695	Sept. 7	927	60	36	1068
Sauer, Venant A. (See Hayes and Sauer.)						
Saul, Herman D., Thomaston, Conn. Burglar-alarm	348,781	Sept. 7	329	88	36	1109
Sander, John M., Harrisburg, Pa. Metallic spring for suspenders, &c	349,904	Sept. 28	1879	495	36	1422
Saunders, Arthur C., *et al.*, executors. (See Saunders, Frank.)						
Saunders, Frank, deceased; A. C. Saunders, E. H. Brown, and G. C. Thomas, executors, assignors to C. H. Shaw, Brooklyn, N. Y. Door-check	347,517	Aug. 17	1458	387	36	749
Saunders, Frank, deceased; A. C. Saunders, E. H. Brown, and G. C. Thomas, executors, assignors to C. H. Shaw, Brooklyn, N. Y. Door-check	347,518	Aug. 17	1459	388	36	750
Saunders, Isaac R. Noah, assignor of one-half to A. P. Bone and E. Q. Darr, Shelbyville, Ind. Wire-twister for wire fences	346,618	Aug. 3	215	59	36	502
Saunders, Joseph A., Quaker Hill, Ind. Animal-muzzle	349,408	Sept. 21	1195	309	36	1282
Saunders, William, Washington, D. C. Cultivator	345,734	July 20	1343	349	36	255
Saunders, William L., New York, N. Y. Steam-actuated valve	344,991	July 6	281	71	36	51
Savage, Richard, San Francisco, Cal. Molding-machine	349,815	Sept. 28	1765	{456 457}	36	1398
Savage, Thomas J., Valley Creek, Tex. Planter	349,860	Sept. 28	1825	471	36	1411
Sawhill, Frank C. (See McCarty and Sawhill.)						
Sawtell, Henry F., Leominster, Mass. Curry-comb	348,241	Aug. 31	2525	678	36	961
Sawyer, Andrew W., Providence, R. I. Cuff-holder	349,456	Sept. 21	1263	327	36	1295
Sawyer, Carrie M., *et al.* (See Burk, Frank W., assignor.)						
Sawyer, Francis A., Boston, Mass. Rubber step and carpet	348,782	Sept. 7	331	88, 89	36	1109
Sawyer, George H., Lamoille, Ill. Cultivator	348,242	Aug. 31	2526	678	36	961
Saxton, Richard J., Brooklyn, assignor of one-half to T. Day, New York, N. Y. Truck	349,367	Sept. 21	1138	293	36	1271
Saxton, Richard J., Brooklyn, assignor of one-half to T. Day, New York, N. Y. Truck	349,368	Sept. 21	1138	293	36	1272
Scaife, Charles C., Allegheny City, Pa. Making elevator-buckets	349,754	Sept. 28	1680	{433 434}	36	1392
Scarborough, Albert B., *et al.* (See Gooch, Harold, assignor.)						
Scarles, Benjamin, assignor to Clinton Wire Cloth Company, Clinton, Mass. Wire-cloth	345,735	July 20	1345	350	36	255
Scarles, Benjamin, assignor to Clinton Wire Cloth Company, Clinton, Mass. Metallic lathing	346,317	July 27	2163	535	36	414
Scarles, Benjamin, assignor to Clinton Wire Cloth Company, Clinton, Mass. Metallic lathing	349,059	Sept. 14	721	184	36	1183
Schaare, Martin, New York, N. Y. Toy kitchen	344,992	July 6	282	71	36	51
Schaefer, John C., assignor to himself and E. A. Lührs, New York, N. Y. Safety-valve for beer-casks	347,645	Aug. 17	1661	440	36	788
Schäffer & Budenberg. (See Westphal, Otto, assignor.)						
Schaible, John. (See Keith, Harrison T., assignor.)						
Schall, Reuben T., Norristown, Pa. Cart	346,619	Aug. 3	216	59	36	502
Schaper, Kasper H., Linn's Mills, Mo. Grain-scale	349,457	Sept. 21	1264	328	36	1295
Schatte, Julius. (See Bleichert and Schatte.)						
Schansten, August, Washington, D. C. Propelling canal-boats	348,296	Aug. 31	2593	698	36	975
Scheef, Charles, assignor to Brunswick, Balke & Collender Company, Chicago, Ill. Faucet-inclosing fixture for refrigerator-boxes	348,783	Sept. 7	332	89	36	1109
Scheeler, Philip, assignor to Scheeler & Sons, Buffalo, N. Y. Elevator-door	347,519	Aug. 17	1461	388	36	750
Scheeler & Sons. (See Scheeler, Philip, assignor.)						
Scheidt, Charles. (See Scheidt, Peter and C.)						
Scheidt, Peter and C., Saranac, Mich. Vehicle-spring	346,225	July 27	2027	{520 521}	36	389
Schenck, Richard H., New York, N. Y. Window-washing machine	347,520	Aug. 17	1462	388	36	750
Schenek, Stefan. (See Farlasky and Schenek.)						
Schenkenberg, Frederick, Fort Atkinson, Wis. Combined check-rein carrier and blinder-stay	347,444	Aug. 17	1360	362	36	731
Scherer, Henry. (See Ahrens, George, assignor.)						
Scheuer, Isaac, New York, N. Y. Shawl-strap handle	347,201	Aug. 10	1002	267	36	658
Scheuer, Simon. (See Leary, Daniel, assignor.)						
Schevenell, Leonard, assignor of one-half to T. Bailey, Athens, Ga. Saw-sharpener	348,163	Aug. 24	2362	633	36	925
Schickner, William G., Cincinnati, Ohio. Cash-register	349,522	Sept. 21	1352	352	36	1314
Schillinger, Frederick, Toledo, Ohio. Press for making artificial-stone slabs	349,861	Sept. 28	1827	472	36	1411
Schirrmeister, Charles, Brooklyn, N. Y. Mechanical movement	345,077	July 6	367	98	36	71
Schitler, Hiram, Reading, Pa. Thill-coupling	346,583	Aug. 3	66	18	36	473

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Schlenker, Erhard, assignor of one-half to Howard Iron Works, Buffalo, N. Y. Hydrant	346,951	Aug. 10	647	173	36	591
Schlesinger & Co., Leo. (See Marx, Philipp, assignor.)						
Schlesinger, David, New York, N. Y. Reversible cap	345,807	July 20	1453	376	36	274
Schlicht, Paul J., Rochester, N. Y. Index	347,304	Aug. 10	1152	388 / 389	36	685
Schlicht, Paul J., assignor to Claque, Wegman, Schlicht & Co., Rochester, N. Y. Index	347,305	Aug. 10	1153	388	36	685
Schlichting, Julius, Merseburg, Germany. Cutting-machine	347,962	Aug. 24	2122	565	36	890
Schmalts, Paul L., Albany, N. Y. Reversible valve-gear	347,306	Aug. 17	1274	379	36	716
Schmalts, Paul L., Albany, N. Y. Engine valve-gear	347,521	Aug. 17	1463	398	36	750
Schmandt, Charles H. C., Brooklyn, N. Y. Bone-black kiln	345,384	July 13	731	184	36	138
Schmid, Charles, assignor of one-half to G. Farnsworth, Chicago, Ill. Slide-valve for engines	347,019	Aug. 10	734	195	36	692
Schmidlapp, Jacob, New York, N. Y. Extension-ladder	345,808	July 20	1454	376	36	274
Schmidt, Claus P., Kansas City, Mo. Gage	349,523	Sept. 21	1355	352	36	1314
Schmidt, Eduard, Ziumersrode, Prussia, assignor to L. Schülke, Dusseldorf, Germany. Railway-sleeper	349,524	Sept. 21	1356	352	36	1314
Schmidt, Eugene, Stillwater, Minn. Movable threshold	348,349	Aug. 31	2650	710	36	989
Schmidt, Eugene, Stillwater, Minn. Combined carpet stretcher and tacker	348,350	Aug. 31	2660	716	36	989
Schmidt, Fred A., Minneapolis, Minn. Automatic speed and station indicator	344,993	July 6	283	71, 72	36	51
Schmidt, Giacomo, assignor of one-half to A. S. Hatfield, New York, N. Y. Burglar-alarm	344,871	July 6	108	27	36	20
Schmidt, Henry C., and D. W. Thuma, Oregon, Mo.: said Thuma assignor to said Schmidt. Curtain-fixture	348,784	Sept. 7	333	89	36	1109
Schmidt, Theodore F. W., assignor of one-half to H. H. Lanback, Dayton, Ohio. Paper box	347,646	Aug. 17	1662	441	36	788
Schmidt, Wilhelm, Brunswick, Germany. Steam-engine	348,144	Aug. 24	2364	634	36	926
Schneider, August, Jr., New Bremen, Ohio. Sad-iron	345,180	July 6	524	134	36	96
Schneider, Henry, Troy, N. Y. Bridge-wall for the fire-beds of steam-boilers	345,809	July 20	1456	377	36	274
Schneider, Mary A. (See Stockton, James K., assignor.)						
Schneidewend & Lee Company. (See Bechman, Henry F., assignor.)						
Schniedewend & Lee Company. (See Wellman, Henry F., assignor.)						
Schoen, Charles T., Philadelphia, Pa. Ash-pit for furnaces	347,522	Aug. 17	1464	389	36	750
Schoen, Charles T., Philadelphia, Pa. Car-spring	347,647	Aug. 17	1663	441 / 442	36	789
Schoenfeld, David, *et al.* (See Güttinger, Carl, assignor.)						
Schoenfeld, Max, *et al.* (See Güttinger, Carl, assignor.)						
Schoening, Herman, Antwerp, Belgium. Sea anchor or drogue	346,669	Aug. 3	299	82	36	519
Schoenthaler, John C., St. Louis, Mo. Christmas-tree holder	345,925	July 20	1614	416	36	303
Schofield, William, Philadelphia, Pa. Lap-feeding device for carding-machines	348,419	Aug. 31	2762	741	36	1009
Schofield, William, Philadelphia, Pa. Lap-feeding device for carding-machines	348,420	Aug. 31	2764	742	36	1009
Schofield, William, Philadelphia, Pa. Lap-feeding device for carding-machines	348,421	Aug. 31	2765	742	36	1009
Schollborn & Co., William. (See Schollborn, William, assignor.)						
Schollborn, William, assignor to W. Schollborn & Co., New Haven, Conn. Coach-latch	346,318	July 27	2165	556	36	414
Schott Button Hole Attachment Company of New York. (See Schott, William, assignor.)						
Schott, William, New York, N. Y., assignor to Schott Button Hole Attachment Company of New York. Button-hole attachment for sewing-machines	348,640	Sept. 7	146	41	36	1074
Schrader, Theodore O. L., New York, N. Y. Combined letter-sheet and envelope	346,620	Aug. 3	217	59	36	502
Schreuder, Jens. (See Spicer and Schreuder.)						
Schroder, Henry W., Springfield, Ohio. Book-support	346,417	July 27	2302	593	36	440
Schroder, John, assignor of one-half to W. C. Murry, Tama City, Iowa. Hose-coupling	348,059	Aug. 24	2254	603	36	905
Schubert, Carl, Alma, Kans. Pump	348,060	Aug. 24	2255	603	36	905
Schuermann, Ludwig, Decatur, Ill. Shutter-worker	347,202	Aug. 10	1003	267	36	658
Schulenburg, August W., St. Louis, Mo. Fire-proof portable corrugated-iron warehouse	346,071	July 20	1815	469	36	339
Schülke, Ludwig. (See Schmidt, Eduard, assignor.)						
Schults, Frederick W., Baltimore, Md. Soldering-iron	346,319	July 27	2165	556	36	414
Schulze-Berge, Hermann. (See Garland and Schulze-Berge.)						
Schulze-Berge, Hermann, Rochester, Pa. Overseaming-machine	344,872	July 6	110	27	36	20
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Preparing starch from grain	345,926	July 20	1615	416	36	303
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Preparing starch from grain	345,927	July 20	1617	416	36	303
Schuman, John C., Akron, assignor to W. T. Jebb, Buffalo, N. Y. Disintegrator for the reduction of grain in the manufacture of starch, &c	346,320	July 27	2166	556	36	414
Schupp, Fred. J., Marshall, Mo. Car-coupling	348,061	Aug. 24	2256	603	36	906
Schutt, Duny A., Hulton, Pa. Vehicle-spring	346,952	Aug. 10	648	173	36	593
Schuts, Adolph C. (See Borgfeldt and Schuts.)						
Schuts, Adolph C., *et al.* (See Borgfeldt, Nicholas H., assignor.)						
Schuyler Electric Light Company. (See Pfannkuche, Gustav, assignor.)						
Schuyler Electric Light Company. (See Wightman, Merle J., assignor.)						
Schuyler Electric Light Company. (See Wightman and Lemp, assignors.)						
Schwab, William, and A. Hess, New York, N. Y. Fringe-reel	346,321	July 27	2168	556	36	415
Schwengers, Franz, Uerdingen, Prussia, Germany. Manufacture of sugar	345,810	July 20	1457	.....	36	274
Schwingen, William, assignor of one-half to B. M. Graves, Farmer Village, N. Y. Grain harvesting and binding machine	349,957	Sept. 28	1950	504	36	1435
Scofield, George H. (See Staiger and Scofield.)						
Scoia, Jean P. A., Paris, France. Electric fuse for blasting	347,013	Aug. 10	736	195	36	608
Scotford, Louis K., Kansas City, Mo., assignor to Scotford Manufacturing Company, Chicago, Ill. Self-inking hand-stamp	346,690	Aug. 3	301	82	36	520
Scotford Manufacturing Company. (See Scotford, Louis K., assignor.)						
Scott, Erastus W., Danielsonville, Conn. Whip-socket	346,953	Aug. 10	649	174	36	593
Scott, Ernest. (See Ashton, William, assignor.)						
Scott, George H., Worcester, Mass. Machine for making spiral springs	346,322	July 27	2168	557	36	415
Scott, James, Denver, Colo. Apparatus for flushing sewers	344,873	July 6	112	28	36	20
Scott, Margarett L. (See Scott, Thomas, assignor.)						
Scott, Stephen G., Plainwell, Mich. Tie-truss for railways	347,120	Aug. 10	800	240	36	639
Scott, Thomas, assignor to M. L. Scott, St. Paul, Minn. Sleigh attachment for vehicles	346,323	July 27	2171	557	36	415
Scott, Winfield R., assignor of one-half to J. M. Hackney, Danville, Ky. Rain-water cut-off and filter	347,203	Aug. 10	1003	267	36	658
Scottron, Samuel R., Brooklyn, N. Y. Pole-tip	349,525	Sept. 21	1357	353	36	1315
Scovil, Samuel J., Jamaica, N. Y. Buckle	348,351	Aug. 31	2661	717	36	989
Scovil, Samuel J., Jamaica, N. Y. Buckle	348,352	Aug. 31	2662	717	36	989
Scovill Manufacturing Company. (See Adams, W. Irving, assignor.)						
Scovill Manufacturing Company. (See Spruce, James, assignor.)						
Scoville, Delavan C., *et al.* (See Powers, Titus, assignor.)						
Scoville, Elijah U., Manlius, N. Y. Faucet	347,131	Aug. 10	904	241	36	639

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scoville, Elijah U., and C. Owen, Manlius, N. Y. Machine for grinding-valves on their seats	347,130	Aug. 10	901	240 / 241	36	639
Scoville, Hiram H., Chicago, Ill. Settler	349,458	Sept. 21	1985	536	36	1295
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone-exchange switch	345,325	July 13	732	185	36	138
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Test-plug for multiple switch-boards	345,326	July 13	732	186	36	138
Scully, John, South Amboy, N. J. Dumping-car	347,583	Aug. 17	1465	399	36	751
Seagrave, Frederic S., Bay City, Mich. Ladder	347,648	Aug. 17	1665	442	36	789
Seargeant, William F., Marshall, Mo. Weather-boarding attachment for try-squares	349,905	Sept. 28	1879	485	36	1422
Searley, Charles R., Baltimore, Md. Overalls	346,691	Aug. 3	302	83	36	520
Sears, Frank A., *et al.* (See Cooper and Kohl, assignors.)						
Sears, John W., Taunton, Mass. Automatic device for feeding animals	346,504	Aug. 3	69	18	36	473
Sears, John W., Taunton, Mass. Automatic device for feeding stock	346,505	Aug. 3	71	18, 19	36	473
Sears, Robert M., San Francisco, Cal. Horse-collar	346,296	July 27	2028	523	36	389
Seavey, John L., and J. N. Goodall, Greenland, N. H. Elevator cup or bucket	347,983	Aug. 24	2123	566	36	890
Seavey, Lafayette W., New York, N. Y. Theatrical scenery	349,526	Sept. 21	1358	353	36	1315
Secord, Herbert C. (See Rodwell, George J. B., assignor.)						
Sedgwick, Frederick, Chicago, Ill. Electro-magnetic time-lock	347,069	Aug. 10	825	210 / 220	36	685
Sedgwick, Frederick, Chicago, Ill. Electric lock and bolt-moving mechanism	347,070	Aug. 10	828	220	36	685
Sedgwick, Frederick, Chicago, Ill. Electric safe-lock and bolt-moving mechanism	347,071	Aug. 10	829	220 / 221	36	686
Sedgwick, Frederick, Cincinnati, Ohio, assignor to J. H. Purdy, Chicago, Ill. Electro-magnetic permutation-lock	347,068	Aug. 10	819	218 / 219	36	684
Seeger, Edward W. (See Perkins, Duane T., assignor.)						
Seegmueller, Charles, assignor of one-half to E. A. Smith, Hamilton, Ohio. Holder for coin and other disks	346,564	Aug. 3	144	39	36	488
Seely, Jared T. (See Ludlow and Carlough, assignors.)						
Seelye, Seymour K., Hudson, Mich. Stretcher for endless conveyers	346,868	Aug. 3	523	142	36	562
Seiberling, John. (See Laraway, George W., assignor.)						
Seiberling, John F., Akron, Ohio. Grain-binding harvester	348,353	Aug. 31	2663	717 / 718	36	990
Seibert, Joseph, St. Louis, Mo. Steady-rest for lathes	346,394	July 27	2172	557	36	416
Seidel, Charles F. W., assignor of one-third to C. Beck, New York, N. Y. Apparatus for sweeping streets and removing dirt therefrom	349,816	Sept. 28	1767	457	36	1399
Seidl, Karl. (See Lerch and Seidl.)						
Seifert, Katharina, Cincinnati, Ohio. Machine for degranulating cheese-curd	346,927	July 27	2029	523	36	390
Seifert, Richard. (See Nencki and Seifert.)						
Seiler, Philipp, assignor of one-half to J. Kohlsaat, Chicago, Ill. Sash-lock	348,696	Sept. 7	229	60	36	1069
Seiser, George F., Worthville, Ky. Permutation-padlock	346,954	Aug. 10	650	174	36	593
Selah, Clarence, Ewing, Nebr. Writing-tablet	346,928	July 27	2030	523	36	390
Self, William R., Newton, N. C. Steam-vehicle	345,327	July 13	734	185	36	139
Seligman, Barah, New York, N. Y. Stay for garments	347,633	Aug. 24	1948	512	36	846
Selle, Ferdinand, Akron, Ohio. Wagon-reach	346,325	July 27	2173	557 / 558	36	416
Semper, Conrad, Philadelphia, Pa. Making porous alum	345,604	July 13	1146	.....	36	212
Semper, Conrad, Philadelphia, Pa. Making porous alum	345,605	July 13	1147	.....	36	212
Seng, Wendelin, Chicago, Ill. Drilling-machine	348,422	Aug. 31	2767	743	36	1010
Senseman, Jacob, *et al.* (See Van Horn, William, assignor.)						
Sentenay, John T., Blocksburg, Cal. Shoe-fastening	347,584	Aug. 17	1466	389	36	751
Sergeant, Benjamin E., Greensborough, N. C. Feed-work for saw-mills	349,180	Sept. 14	882	226 / 227	36	1213
Sergeant, Henry C., New York, N. Y. Rock-drill	349,409	Sept. 21	1196	310	36	1283
Serve, Jean P., Givors, France. Boiler-tube	349,060	Sept. 14	722	184	36	1183
Severance, James R., Fremont, Ohio. Grain-binder	345,546	July 13	1068	272 / 273	36	197
Seymour, Frederick H., *et al.* (See Wade, William, assignor.)						
Seymour, Henry J., Community, N. Y. Animal-trap	344,904	July 6	285	72	36	52
Seymour, Joseph L., New York, N. Y. Preparation of kindling-wood	345,928	July 20	1618	417	36	304
Shackell, Richard G., Portage, Wis. Stove	347,649	Aug. 17	1665	442 / 443	36	789
Shackleton, Parker, Cleveland, Ohio. Gutter-beading device	348,423	Aug. 31	2769	743 / 744	36	1010
Shafer, Otto, and J. Strasin, Chicago, Ill. Car-coupling	348,785	Sept. 7	334	90	36	1110
Shaffer, Henry E., Rochester, N. Y. Lamp-burner	346,132	Aug. 10	905	241	36	640
Shallenberger, Oliver B., Rochester, Pa. Regulator for electric motors	347,964	Aug. 24	2124	566	36	891
Shamberg, Jacob. (See Kaufman, Joseph, assignor.)						
Shamberger, George A., Mound City, Mo. Snap-hook	347,965	Aug. 24	2127	566	36	891
Shamp, George W., assignor to Acme Manufacturing Company, Buffalo, N. Y. Paper-folding machine	349,322	Sept. 21	1056	271	36	1256
Shank, Martin, and F. G. Green, Chrisman, Ill. Seed-planter	349,527	Sept. 21	1359	353	36	1315
Shannon, Edward W., assignor to Rogers & Hamilton Company, Waterbury, Conn. Die for swaging spoon and fork blanks	349,009	Sept. 21	1466	378	36	1336
Shannon, Henry C., *et al.* (See Drodzewski, Julius R., assignor.)						
Shannon, James S., Chicago, Ill. Paper-tying apparatus	344,995	July 6	286	72	36	52
Shannon, James S., Chicago, Ill. Eyeleting apparatus	344,996	July 6	288	72, 73	36	52
Shannon, James S., Chicago, Ill. Eyeleting-machine	344,997	July 6	292	73	36	52
Shannon, William T., Brooklyn, N. Y. Railway-crossing	346,929	July 27	2030	524	36	390
Sharer, George W., Terre Haute, Ind. Lumber-drier	347,387	Aug. 17	1279	339 / 340	36	716
Sharer, George W., Terre Haute, Ind. Brick-kiln	347,650	Aug. 17	1667	443	36	789
Sharp, Frank, Oakland, Cal. Can-opener	347,834	Aug. 24	1929	512	36	846
Sharp, Taylor E., assignor of two-thirds to O. Cochran and T. J. May, Worthington, W. Va. Meat-tenderer	347,651	Aug. 17	1668	443	36	790
Sharpley, A. W., *et al.* (See Rogers, John A., assignor.)						
Sharrer, Charles P., assignor of one-half to E. H. Croly, Syracuse, N.Y. Railway-rail splice	349,958	Sept. 28	1954	505	36	1436
Shattuck, Arthur E., Sacramento, and C. Thorn, Jr., San Francisco, assignors, by mesne assignments, of one-third to G. C. Gaylord, Nevada City, Cal. Adding-machine	349,459	Sept. 21	1266	328 / 329	36	1296
Shaw, Charles A. (See Rooney, William C., assignor.)						
Shaw, Charles H. (See Saunders, Frank, assignor.)						
Shaw, Charles H., Brooklyn, N. Y. Door-check	347,525	Aug. 17	1467	389	36	751
Shaw, Charles H., Brooklyn, N. Y. Door-check	347,526	Aug. 17	1469	390	36	751
Shaw, Benjamin C., Racine, Wis. Compartment-tank	349,528	Sept. 21	1360	353	36	1315

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shaw, Harry E., *et al.* (See Holt, Selden W., assignor.)						
Shaw, J. Elliott. (See Geary, John, assignor.)						
Shaw, John H., Berwick, Nova Scotia, Canada, assignor to himself, S. S. Young, Somerville, Mass., F. S. Ellis, Waterville, Nova Scotia, Canada, and J. W. Young, Somerville, Mass. Seed-planter	349,460	Sept. 21	1909	329	36	1296
Shaw, Loring D., Melrose, assignor of one-fourth to E. Howard, Boston, Mass. Combined water-tower and fire-escape	348,397	Aug. 31	2596	698 699	36	976
Shea, James P., and W. Brown, Waupun, Wis. Boot or shoe	345,993	July 20	1709	440	36	320
Shea, William J., Hartford, Conn. Tension device for printing-machines	347,966	Aug. 24	2127	566 567	36	881
Shear, William C., Port Crane, N. Y. Well-drilling machine	345,181	July 6	525	134 135	36	96
Shearer, Leighton L., Weiser, Idaho Ter. Stirrup	346,174	July 27	1957	504	36	375
Shears, Albert L., St. Louis, Mich. Life-boat	348,424	Aug. 31	2771	744	36	1010
Sheehan, Patrick, Monroe, Wis. Horse-collar	347,967	Aug. 24	2128	567	36	881
Sheer, Henry M., and F. Dillemuth, Quincy, Ill. Traction-wheel	348,786	Sept. 7	336	90	36	1110
Sheffield, C. S. (See Fle, William F., assignor.)						
Sheffield, Wiley B. (See Hoagland, John B., assignor.)						
Shelby, Christopher C., Paterson, N. J. Bell-cord coupling	349,061	Sept. 14	723	184	36	1183
Shelby, Christopher C., New York, N. Y., assignor to Canfield Rubber Company, Bridgeport, Conn. Ear-muff	346,175	July 27	1958	505	36	375
Shelby, Christopher C., New York, N. Y., assignor to Canfield Rubber Company. Stand for exhibiting scarfs, collars, &c.	349,529	Sept. 21	1361	354	36	1315
Shelby, Christopher C., Paterson, N. J., assignor to Canfield Rubber Company, Bridgeport, Conn. Button	346,956	Aug. 10	653	174	36	594
Sheldon, John. (See Lyons and Sheldon.)						
Sheldon, Nicholas. (See Sackett, George H., assignor.)						
Shellaberger, L. P., *et al.* (See Van Horn, William, assignor.)						
Shellaberger, George H., assignor of two-thirds to R. Willman and J. F. Tyler, St. Joseph, Mo. Bucket for endless-chain pumps	348,298	Aug. 31	2600	700	36	977
Shellenberger, Samuel L., Tyler, Tex. Brick-machine	348,425	Aug. 31	2773	745	36	1011
Shellenberger, Samuel L., Dallas, Tex. Nut-lock	348,426	Aug. 31	2775	745	36	1011
Shelman, Edward H. (See Fowler and Shelman.)						
Shelton, John M., Union City, Tenn. Umbrella-support	348,062	Aug. 24	2257	604	36	906
Shenfield, Abraham. (See Shenfield and Gellman, assignors.)						
Shenfield, Abraham. (See Voorhis, Calvin, assignor.)						
Shenfield, Harry L., and C. Gellman, assignors to A. Shenfield, New York, N. Y. Suspender-clasp	348,697	Sept. 7	230	60	36	1069
Shepard, Amos, Plantaville, Conn. Coffee-mill	349,062	Sept. 14	724	185	36	1183
Shepard, Charles G. (See Veilleux and Bennington, assignors.)						
Shepard, Charles S. (See Prahar and Shepard.)						
Shepard, Charles W. (See Berray, Shepard, and White.)						
Shepard, Frederic M., New York, N. Y. Barber's chair	349,063	Sept. 14	724	185	36	1183
Shepard, Frederick M., East Orange, N. J. Loop for articles of apparel	349,610	Sept. 21	1467	379	36	1336
Shepard, James M., Boston, Mass. Vapor-burning furnace	349,906	Sept. 28	1860	486	36	1422
Shepard, Wilbur L., assignor to I. B. Davis & Son, Hartford, Conn. Valve mechanism for steam pumping-engines	344,998	July 6	293	73	36	53
Sherburne, Charles W., Boston, Mass. Cylinder-lubricator	345,929	July 20	1620	417 418	36	304
Sherck, Isaac, and J. Batig, Jr., Fremont, Ohio. Apparatus for waxing paper, &c.	345,864	July 20	1530	396	36	286
Sherck, Isaac, and J. Batig, Jr., Fremont, Ohio. Apparatus for waxing paper	346,869	Aug. 3	524	143	36	562
Sherck, Isaac, and J. Batig, Jr., Fremont, Ohio. Device for coating paper and other materials with wax	346,870	Aug. 3	525	143	36	562
Sherck, Isaac, and J. Batig, Jr., Fremont, Ohio, assignors to themselves and G. E. Raymond, Chicago, Ill. Waxing paper	349,530	Sept. 21	1362	354	36	1316
Sherck, Isaac, and J. Batig, Jr., Fremont, Ohio, assignors to themselves and G. E. Raymond, Chicago, Ill. Apparatus for coating paper, &c., with wax	349,531	Sept. 21	1363	354	36	1316
Sherman, Daniel H., Brooklyn, N. Y. Lock-escutcheon	347,445	Aug. 17	1361	362	36	731
Sherman, Frank P., assignor to A. M. Dolph Company, Cincinnati, Ohio. Centrifugal machine	345,994	July 20	1710	440 441	36	320
Sherman, James M., St. Louis, Mo. Ratchet-drill	345,547	July 13	1073	274	36	198
Sherwin, Edwin C., Brandon, Wis. Harrow	349,006	Sept. 14	646	167	36	1169
Shibley, John, New York, N. Y. Egg-carrier	347,835	Aug. 24	1930	512	36	846
Shickle, Frederick, St. Louis, Mo. Traveling crane	345,736	July 20	1346	350 351 352	36	255
Shickle, Frederick, St. Louis, Mo. Pipe-molding apparatus	349,461	Sept. 21	1270	329	36	1296
Shindle, Michael G., Mountville, Pa. Rail-joint	344,924	July 6	178	45	36	33
Shipman, Madison D., De Kalb, Ill. Button	350,019	Sept. 28	2038	526	36	1451
Shipman, Madison D., De Kalb, Ill. Button	350,020	Sept. 28	2039	526	36	1451
Shipton, Ernest E. (See Phillips and Shipton.)						
Shirley, Frederick S., and A. Steffin; said Steffin assignor to Mount Washington Glass Company, New Bedford, Mass. Lamp shade and bowl	345,182	July 6	526	135	36	96
Shirreff, Charles J., Brockville, Ontario, Canada. Window-screen	345,328	July 13	734	185	36	139
Shoemberger, John L., Pittsburg, Pa. Car-coupling	348,243	Aug. 31	2587	679	36	961
Shoeninger, Adolph. (See Unzicker, Otto, assignor.)						
Shook, William M., Canton, Ohio. Middlings-purifier	346,336	July 27	2174	558	36	416
Shorey, Samuel W., Boston, Mass. Glove-fastening	345,930	July 20	1622	418	36	304
Short, Job. (See Dewey and Short.)						
Short, Sidney H., assignor to United States Electric Company, Denver, Colo. Regulator for dynamo-electric machines	347,204	Aug. 10	1005	268	36	658
Short, Sidney H., and J. W. Nesmith, Denver, Colo. Electric railway	348,476	Aug. 31	2845	766	36	1024
Short, Sidney H., and J. W. Nesmith, Denver, Colo. Electric railway	348,477	Aug. 31	2848	767	36	1024
Shortsleeve, David, assignor to E. A. Morse, Rutland, Vt. Sand-feeding mechanism for stone-sawing machines	347,398	Aug. 17	1277	340	36	716
Shriver, Charles H. (See Shriver, James, assignor.)						
Shriver, James, Westminster, Md., assignor to C. H. Shriver, Dedham, Mass. Refrigerator	347,205	Aug. 10	1007	268	36	658
Shriver, Robert, Cumberland, Md. Adjustable indicator for calendars	346,132	July 27	1895	490	36	363
Shroff, Samuel A. (See Neff, Thomas H., assignor.)						
Shults, George J., Avoca, N. Y. Chair	349,907	Sept. 28	1891	486	36	1422
Shute, James L., Gloucester, and W. O. Taylor, Malden, Mass.; said Taylor assignor to said Shute. Machine for cutting fish into blocks	346,871	Aug. 3	527	143 144	36	562
Sibley, Edwin E., assignor to American Fire Hose Manufacturing Company, Chelsea, Mass. Knitted fabric	348,698	Sept. 7	230	61	36	1069
Sibley, Joseph C. (See Allen, George, assignor.)						
Sidney, William E., Frankfort, Ind. Flue-cleaner	346,692	Aug. 3	303	83	36	580
Siebold, John H., Hoboken, N. J. Lithographer's arm-rest	344,874	July 6	114	28	36	21
Siedhof, Charles, Union, N. J. Fuel compound	345,329	July 13	735	.....	36	139
Siegel, Andrew. (See Bristle and Siegel.)						
Silbersahn, Charles and C. A., West Bend, Wis. Feed-cutter	345,078	July 6	389	98	36	71
Silberzahn, Charles A. (See Silbersahn, Charles and C. A.)						
Silverlock, William B., Loudon, county of Middlesex, England. Bronzing-machine	347,652	Aug. 17	1668	444	36	790
Silvermann, William. (See Harris, Charles R., assignor.)						
Simmon, Gustav H. W., assignor to J. F. Vogt & Bro., St. Louis, Mo. Swinging countershaft frame and belt-fastener	349,462	Sept. 21	1272	330	36	1297
Simmons, Alexander B. (See Mason, James H., assignor.)						
Simmons, George, Hobart, N. Y. Seat-lock for vehicles	347,824	Aug. 24	2014	534	36	860
Simms, Henry W. (See Ernst, John, assignor.)						
Simms, Henry W., assignor of one-half to F. Johnson, Bay City, Mich. Curtain-fixture	345,811	July 20	1457	377	36	275
Simms, Henry W., assignor of one-half to F. Johnson, Bay City, Mich. Curtain-fixture	345,812	July 20	1459	377	36	275
Simon, August T., Bloomington, assignor to M. R. Vandervoort, Clinton, Ill. Fire-engine	346,872	Aug. 3	530	144	36	563
Simon, Jules, and C. Contant, Fort Wayne, Ind. Axle-lubricator	348,787	Sept. 7	337	90	36	1110
Simon, Robert, Weehawken, N. J. Silk fabric and method of preparing tram for the same	348,063	Aug. 24	2258	604	36	906
Simonds, Daniel, Fitchburg, Mass. Band-saw	346,565	Aug. 3	145	40	36	488
Simonds, George F., Fitchburg, Mass. Shell and method of making the same	348,788	Sept. 7	338	90	36	1110
Simonds, George F., Fitchburg, Mass. Armor-piercing shell	348,789	Sept. 7	339	91	36	1110
Simonds, George F., Fitchburg, Mass. Die for making rolled forgings	348,790	Sept. 7	339	91	36	1110
Simonds, Gustavus B., Sedalia, Mo. Churn	344,999	July 6	295	73	36	53
Simonds, Joseph S., Detroit, Mich. Preparing paper for sun-pictures	347,527	Aug. 17	1470	.....	36	751
Simons, Ernest, *et al.* (See Ingersoll, Simon, assignor.)						
Simpkin, William. (See Delaney and Simpkin.)						
Simpkins, Alvin T., St. Louis, Mo. Baker's oven	346,631	Aug. 3	218	60	36	502
Simpson, Alfred H. (See Simpson, James E., Jr., and A. H.)						
Simpson & Co., James E. (See Simpson, James E., Jr., and A. H., assignors.)						
Simpson, David T., New York, N. Y. Web-perfecting cylinder printing-machine	345,079	July 6	390	98, 99	36	71
Simpson, George F., Brooklyn, N. Y. Grinding-mill	347,968	Aug. 24	2129	567	36	881
Simpson, James E., Jr., and A. H., Brooklyn, assignors to J. E. Simpson & Co., New York, N. Y. Dry-dock	347,895	Aug. 24	2014	534	36	860
Simpson, James E., Jr., and A. H., Brooklyn, assignors to J. E. Simpson & Co., New York, N. Y. Dry-dock	347,896	Aug. 24	2016	534	36	860
Simpson, James H., Pittsburg, Pa. Manufacture of hooked coupling-links	345,060	July 6	394	99	36	72
Simpson, Lenox, Bellevue, Pa. Kiln	349,755	Sept. 28	1681	434	36	1382
Simpson, Lenox, Pittsburg, Pa. Brick-kiln	349,756	Sept. 28	1682	435	36	1382
Simpson, Peter L., Minneapolis, Minn. Brick-machine	348,064	Aug. 24	2259	604 605	36	906
Simpson, Robert W., San Francisco, Cal. Anti-friction thill-tip	349,817	Sept. 28	1769	457	36	1399
Sima, Henry, Erie, Pa. Automatic boiler-cleaner	344,925	July 6	179	46	36	33
Sinclair, James M., New York, N. Y. Fire-proof-flue structure	345,000	July 6	297	74	36	53
Sinclair, John E., Worcester, Mass. Ratchet-wrench	349,007	Sept. 14	648	167	36	1170
Sindall, Charles A. (See Jones, Reuben, assignor.)						
Singer, Charles A., New York, N. Y. Lathe-chuck	346,133	July 27	1896	490	36	363
Singer Manufacturing Company of New Jersey. (See Diehl, Philip, assignor.)						
Singer Manufacturing Company of New Jersey. (See Pine, Leighton, assignor.)						
Singerly, William M. (See Snyder, Theodore H. and E. V., assignors.)						
Singiser, Henry C., Mechanicsburg, Pa. Switch-stand	345,081	July 6	395	99	36	72
Singiser, Henry C., Mechanicsburg, Pa. Car-door fastener	346,230	July 27	2031	594	36	300
Singleton, George, Jersey City, N. J., assignor to Eagle Pencil Company, New York, N. Y. Rubber-tip attachment for lead-pencils, &c.	345,865	July 20	1531	396	36	287
Singley, Laiseur N., Uniontown, Pa. Collapsible case	346,779	Aug. 3	404	111	36	539
Sinsabaugh, Louis W. (See Mabon, Alexander, assignor.)						
Sintzenich, Horace H. C., assignor to J. Lamb, Toronto, Ontario, Canada. Railway-rail chair	348,699	Sept. 7	231	61	36	1069
Skellenger, Theodore P., Morristown, N. J. Farm-gate	346,506	Aug. 3	73	19	36	474
Skinner, Edwin S. (See Burns, Robert, assignor.)						
Skinner Engine Company. (See Skinner, Le Grand, assignor.)						
Skinner, George C., and C. M. Brooks, Troy, Ohio. Weather-strip	347,906	Aug. 10	1007	268	36	659
Skinner, Le Grand, assignor, by mesne assignments, to Skinner Engine Company, Erie, Pa. Engine-frame jig	349,757	Sept. 28	1684	435	36	1383
Skogrud, Gustav A., Genesee, Idaho Ter. Violin	345,454	July 13	916	230	36	170
Slafter, David G., *et al.* (See Miller, Richard W., assignor.)						
Slate, Dwight, Hartford, Conn. Drilling-machine	347,969	Aug. 24	2130	567	36	881
Sleeper, George W., assignor of one-half to W. A. Reed, Westborough, Mass. Shoe-upper-splitting machine	350,084	Sept. 28	2128	550 551	36	1468
Slinn, Henry H., Chillicothe, Ill. Cartridge-loader	349,818	Sept. 28	1769	457 458	36	1399
Sloan, Richard, Torrington, Conn. Rubber boot	347,633	Aug. 17	1670	444	36	790
Sloan, Robert I., *et al.* (See Pendleton, John H., assignor.)						
Sloan, Thomas J., St. Mande, France. Wire nail	348,589	Sept. 7	77	23	36	1062
Sloane, George H. (See McGrady and Sloane.)						
Slocomb, John T., Hyde Park, Mass. Bicycle	349,532	Sept. 21	1364	354 355	36	1316
Slocum, George S., Newport, R. I. Bottling-machine	347,654	Aug. 17	1671	444 445	36	790
Small, Frank E. (See Small, Frederick E. and F. E.)						
Small, Frederick E., Revere, Mass., and F. E. Small, Brooklyn, N. Y. Valve	348,590	Sept. 7	78	23	36	1062
Small, Henry J., Brainerd, Minn. Lathe for turning journals of car-axles	349,908	Sept. 28	1863	487	36	1423
Small, Henry J., and J. McNaughton, Brainerd, Minn. Liquid-pressure generator	347,897	Aug. 24	2017	534 535	36	861
Smalley, Edmund, Sparkill, N. Y. Door-check	346,235	July 27	2044	526	36	392
Smalstig, Fredrick C., Allegheny City, Pa. Cigar-bunching machine	347,257	Aug. 10	1077	288	36	671
Smart, Charles W., Carbondale, Ill. Sewing-machine treadle	347,736	Aug. 24	1931	512	36	847
Smith, A. Hyatt. (See Smith, Maurice, assignor.)						
Smith, Adolph T., New York, N. Y. Electric gas-burner	349,533	Sept. 21	1366	355	36	1316
Smith, Albert, Conway, Iowa. Hay-loader	347,349	Aug. 17	1279	340	36	717
Smith, Albert, Bradford, and H. W. Whitehead, Leeds, county of York, England. Screw-gill drawing machinery	347,655	Aug. 17	1673	445 446	36	791
Smith, Albert E. (See Smith, Jerome T. and A. E.)						
Smith, Albert U., Seymour, Conn. Buckle	345,082	July 6	396	100	36	72

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Smith, Andrew H., *et al.* (See Barton, Richard T., assignor.)						
Smith, Andrew L. (See Bowker, Cole, and Smith.)						
Smith, Andrew L., Geneva, N. Y. Show-case for holding spectacles and eyeglasses	348,354	Aug. 31	2665	718	36	990
Smith, Anton, Lorain, Ohio. Apparatus for loading vessels	348,478	Aug. 31	2849	767	36	1025
Smith, Benjamin B. (See Bennett and Smith.)						
Smith, Benjamin F., Chicago, Ill. Automatic plug for wash-bowls and bath-tubs	347,390	Aug. 17	1280	341	36	717
Smith, Charles F. (See Chase and Smith.)						
Smith, Charles F. (See Gérard and Smith.)						
Smith, Charles F., Fitchburg, Mass. Ice-machine	345,548	July 13	1075	274	36	199
Smith, Charles F., Fitchburg, Mass. Covering for pipes and surfaces in ice-machines, &c	345,549	July 13	1076	274	36	199
Smith, Charles F., Fitchburg, Mass. Ice-forming box for ice-machines	345,550	July 13	1076	275	36	199
Smith, Charles H., *et al.* (See Phillips, Francis V., assignor.)						
Smith, Chipman G. (See Walsh and Smith.)						
Smith, Daniel J., assignor of two-thirds to S. A. Conklin and W. C. Weston, Canton, Ohio. Clothes-drier	349,410	Sept. 21	1197	310	36	1283
Smith, E. A. (See Seegmueller, Charles, assignor.)						
Smith, E. D. (See Dion, Peter, assignor.)						
Smith, Edward H., Rutherford, Cal. Safety-hook	348,791	Sept. 7	340	91	36	1111
Smith & Egge Manufacturing Company. (See Egge, Frederick, assignor.)						
Smith, Eldridge J., Washington, D. C. Chair	348,244	Aug. 31	2529	679	36	961
Smith, Frank A., Steelton, Pa. Ice-making and refrigerating machine	349,064	Sept. 14	725	185	36	1183
Smith, Franklin A., Jr., Providence, R. I. Button-fastener	345,813	July 20	1460	378	36	275
Smith, Frederick W. B., Greenleaf, Kans. Safety fire-guard burner and extinguisher	350,021	Sept. 28	2040	526	36	1451
Smith, Friend W., Jr., and S. S. Williamson, Bridgeport, Conn. Button-hole-sewing attachment for sewing-machines	347,133	Aug. 10	906	241	36	640
Smith, George L., Wellesley, Mass. Drying-board	346,507	Aug. 3	74	19	36	474
Smith, George Y., Cedar Rapids, Iowa. Cinder-hopper	349,009	Sept. 14	652	168	36	1170
Smith, George Y., and E. A. Charles, Cedar Rapids, Iowa. Stump-extractor	349,008	Sept. 14	640	168	36	1170
Smith, Hamilton E., New York, N. Y. Ironing-machine	345,737	July 20	1359	352	36	256
Smith, Hamilton E., New York, N. Y. Starching-machine	345,995	July 20	1713	441	36	330
Smith, Hamilton E., New York, N. Y. Ironing-machine	345,996	July 20	1714	442	36	330
Smith, Henry B. (See Fox, Frank A., assignor.)						
Smith, Henry W., St. Louis, Mo. Removable and adjustable awning	345,183	July 6	598	135	36	96
Smith, James. (See Bacon, Clovis N., assignor.)						
Smith, James, Cleveland, Ohio. Fire-proof wall and ceiling	345,001	July 6	298	74	36	54
Smith, Jerome T. and A. E., Scotland, Dak. Ter. Grain-separator	347,391	Aug. 17	1281	341	36	717
Smith, John, *et al.* (See Wells, William W., assignor.)						
Smith, John A., Shoe Heel, N. C. Plow	346,780	Aug. 3	405	112	36	539
Smith, John H., Buffalo, N. Y. Cash-check device	346,955	Aug. 10	652	174	36	583
Smith, John S., and M. H. Motes, Hamburg, Pa. Automatic car-coupling	348,479	Aug. 31	2851	767	36	1025
Smith, John T., Rockfall, Conn. Revolver	346,327	July 27	2175	558	36	416
Smith, John W., Boston, Mass., and J. K. Priest, Nashua, N. H. Hair-clipper	347,207	Aug. 10	1009	268	36	659
Smith, Joseph P., Glastonbury, assignor of one-half to O. J. Smith, Bridgeport, Conn. Trace-fastener	345,330	July 13	736	186	36	139
Smith, Lewis M., Canandaigua, N. Y. Machine for cleaning grain	345,997	July 20	1715	442	36	321
Smith, Martin V., Tyrone, Pa. Gas-producer	346,781	Aug. 3	406	112	36	540
Smith, Maurice, assignor of one-half to A. H. Smith, Janesville, Wis. Tobacco-transplanter	345,184	July 6	529	135 / 136	36	96
Smith, Maurice M., Washington, D. C. Brick for ventilation	347,392	Aug. 17	1282	341	36	717
Smith, Michael H., Halifax, county of York, England. Electric tramway system	348,792	Sept. 7	341	91, 92	36	1111
Smith, Myers & Schnier. (See Smith and Myers, assignors.)						
Smith, Oliver J. (See Smith, Joseph P., assignor.)						
Smith, Oren B. (See Monaghan, John F., assignor.)						
Smith, Orville T., Brooklyn, N. Y. Button	345,814	July 20	1461	378	36	275
Smith, Orville T., Brooklyn, N. Y. Button	345,866	July 20	1532	396	36	287
Smith, R. Tynes, *et al.* (See Pillings, George T., assignor.)						
Smith, Reuben F., Atchison, Kans. Gas-engine	345,908	July 20	1716	442 / 443	36	321
Smith, Reuben F., Pleasant Hill, Ala. Gas-engine	347,656	Aug. 17	1674	446	36	791
Smith, Richard. (See Welderman, Charles H., assignor.)						
Smith, Roswell T., Nashua, N. H. Key-board player for musical instruments	346,236	July 27	2045	527	36	393
Smith, Roswell T., Nashua, N. H. Key-board attachment for musical instruments	346,237	July 27	2049	527	36	393
Smith, Roswell T., Nashua, N. H. Key-board attachment for musical instruments	346,238	July 27	2051	527 / 528	36	393
Smith, Roswell T., Nashua, N. H. Key-board player	346,239	July 27	2055	528	36	394
Smith, Roswell T., Nashua, N. H. Key-board player	347,134	Aug. 10	908	242 / 243	36	640
Smith, S. Fred. (See Bickford, John H., assignor.)						
Smith, Samuel, assignor of two-thirds to A. D. Homman and H. D. Pontius, Silver Lake, Ind. Heating attachment for stoves	349,534	Sept. 21	1368	355	36	1317
Smith, Samuel J., Merrimacport, Mass. Machine for coating emery-belts	345,063	July 6	397	100	36	72
Smith, Samuel R., and E. Myers, assignors to Smith, Myers & Schnier, Cincinnati, Ohio. Gang-edger	348,065	Aug. 24	2263	606	36	907
Smith, Stephen N., Providence, R. I. Lacing-hook	346,176	July 27	1959	505	36	375
Smith, Thomas H., Rome City, Ind. Bug-holder	347,393	Aug. 17	1283	341	36	717
Smith, Walter D. (See Paul, William H., assignor.)						
Smith, Walter J., Philadelphia, Pa. Wood-molding machine	347,970	Aug. 24	2131	568	36	881
Smith, William C. (See Brewer and Smith.)						
Smith, William H., Canton, Ohio. Regenerator gas-furnace	346,508	Aug. 3	75	19, 20	36	474
Smith, William H., Canton, Ohio. Brick for gas-regenerating furnaces	346,782	Aug. 3	408	112	36	540
Smith, William J., San Francisco, Cal. Feed-water heater and purifier	349,181	Sept. 14	883	227	36	1213
Smith, William S., Salem, Oreg. Churn	348,793	Sept. 7	342	93	36	1111
Smith, William T., Boseman, Ala. Lumber-stacker	348,591	Sept. 7	80	23, 24	36	1062
Smith, William W., assignor of one-half to G. R. Thamer, Chicago, Ill. Drag-saw	349,819	Sept. 28	1772	458	36	1400
Smith, Zwingle H., Franksville, Wis. Detachable shovel-blade	348,794	Sept. 7	343	93	36	1111
Snapp, Hezekiah L., *et al.* (See Ashby, Daniel S., assignor.)						
Snavely, Thomas, Pontiac, Kans. Listing-cultivator	349,065	Sept. 14	727	185	36	1184
Snedliker, David L. (See Newman, Edwin A., assignor.)						
Snell Manufacturing Company. (See Richards, George E., assignor.)						
Snow, Horace C., Winnipeg, Manitoba, Canada. Stove-grate	349,237	Sept. 14	964	246	36	1229
Snyder, Charles S., *et al.* (See Ike, Anthony and A., assignors.)						
Snyder, Edwin V. (See Snyder, Theodore H. and E. V.)						
Snyder, Gustavus C., New York, N. Y. Automatic candy-shaping machine	347,971	Aug. 24	2139	568	36	882
Snyder, Jacob H. (See Kline, Henry, assignor.)						
Snyder, John H., Richmond, Va. Machine for rolling horseshoe-blank bars	349,182	Sept. 14	884	227	36	1214
Snyder, Peter F., McKeesport, Pa. Operating mine-doors	347,135	Aug. 10	913	243	36	641
Snyder, Philip C., *et al.* (See Ike, Anthony and A., assignors.)						
Snyder, Theodore H. and E. V., assignors of one-half to W. M. Singerly, Philadelphia, Pa. Car-coupling	347,908	Aug. 10	1010	269	36	659
Snyder, Waldo V. (See Fryberger, Anthony Z., assignor.)						
Sochefsky, William, New York, N. Y. Decorated fabric	349,238	Sept. 14	965	.....	36	1229
Société Gillet et Fils. (See Gillet, Joseph, assignor.)						
Society of Chemical Industry. (See Von Perger, Hugo, assignor.)						
Soevyn, Francis, Washington, D. C. Trunk	348,245	Aug. 31	2530	680	36	962
Söhner, Andreas, Carlsruhe, Baden, Germany. Renovating gold and silver lace trimmings	349,535	Sept. 21	1369	355 / 356	36	1317
Solano, Renaldo, assignor of two-thirds to J. W. Howard and D. R. Morse, Brooklyn, N. Y. Vacuum-motor	349,758	Sept. 28	1685	436	36	1323
Solano, Renaldo, assignor of two-thirds to J. W. Howard and D. R. Morse, Brooklyn, N. Y. Signal for railway-cars	349,959	Sept. 28	1955	505	36	1436
Solid Link Chain Manufacturing Company. (See Kinder, Julius, assignor.)						
Somers Brothers. (See Somers, Daniel M., assignor.)						
Somers, Daniel M., assignor to Somers Brothers, Brooklyn, N. Y. Packing and storing vessel	345,931	July 20	1622	418	36	304
Somerville, William, St. Louis, Mo. Jar	345,999	July 20	1718	443	36	321
Sommer, Charles, Sloan's Valley, Ky. Stave-dressing machine	349,323	Sept. 21	1058	272	36	1250
Sommerfield, Isidor, New York, N. Y. Heel for shoes	349,869	Sept. 28	1828	472	36	1412
Sondermann, Ernst. (See Moeller, Jacob, assignor.)						
Sonstadt, Edward, Cheshunt, county of Hertford, England. Medical compound	345,867	July 20	1534	.....	36	287
Sooy, Ephraim C. (See Hampton and Sooy.)						
Soper, Dwight B., Flint, Mich. Churn	349,759	Sept. 28	1686	436	36	1383
Sorter, Hobart B., and G. S. Bennett, Kalamazoo, Mich. Two-wheeled vehicle	348,795	Sept. 7	344	93	36	1111
Soulers, Addison, Greentown, Ohio. Lifting-jack	348,480	Aug. 31	2852	768	36	1025
Soukup, Albert H., Kansas City, Mo. Miter-box	346,240	July 27	2050	528	36	394
Soulen, Henry, Milwaukee, Wis. Track and hanger for sliding doors	349,536	Sept. 21	1372	356	36	1317
South Bend Iron Works. (See Anderson, Charles, assignor.)						
Southack, C. Frank, assignor of one-half to N. C. Loubard, Cambridgeport, Mass. Reed-chamber	346,177	July 27	1960	505	36	376
Southland, Henry K., and C. F. Warren, Washington, D. C. Combined advertising medium and card or ticket holder	350,022	Sept. 28	2041	527	36	1452
Sovereign, George E., Pottersville, N. J. Hanger for extension-lamps	349,909	Sept. 28	1884	487	36	1423
Sowers, George, Webster, Ill. Horse-power	348,246	Aug. 31	2531	680	36	962
Sowers, Percy S., Canton, Ohio. Sanitary muffle for vessels	349,010	Sept. 14	654	169	36	1171
Spafford, John W., Akron, Ohio. Fastening for end-gates	349,537	Sept. 21	1373	356	36	1317
Spafford, Mark A., Rock Falls, Ill. Corn-planter	348,536	Aug. 31	2735	709	36	1040
Spalding, Henry C., Boston, Mass. Apparatus for waterproofing fabrics	345,002	July 6	299	74	36	54
Spalding, Henry C., Boston, Mass. Apparatus for waterproofing paper, &c	345,003	July 6	300	75	36	54
Spalding, Henry C., Boston, Mass. Electric circuit	346,509	Aug. 3	76	21	36	475
Spalding, Henry C., Boston, Mass. Electric circuit	346,510	Aug. 3	77	21	36	475
Spangler, George H., Canton, Ohio. Cash-carrier	347,657	Aug. 17	1677	447	36	791
Sparks, Albert F., assignor of one-half to H. W. Kimes, Dayton, Ohio. Automatic grain-scale	348,066	Aug. 24	2265	606 / 607	36	907
Sparks, Charles H. (See Hale and Sparks, assignors.)						
Sparks, Edward G., Brooklyn, N. Y. Process of and apparatus for coating fabrics	349,463	Sept. 21	1273	330 / 331	36	1297
Sparks, Henry H., assignor to Mallory Wheeler Company, New Haven, Conn. Device for fastening windows	348,355	Aug. 31	2666	718	36	990
Sparks, Major A., Honey Creek, Ill. Gate-post	347,658	Aug. 17	1680	447	36	792
Sparks, Walter E. (See Hale and Sparks.)						
Sparks, William A. (See Rappleyea and Sparks.)						
Spaulding, Edward S., New York, N. Y. Transmitting and receiving articulate sounds to distant points	345,064	July 6	399	100	36	73
Spaulding, Edward S., New York, N. Y. Apparatus for transmitting to distant points articulate sounds	345,065	July 6	400	101	36	73
Spaulding, N. W. (See Potter, Addison, assignor.)						
Spaulding, William S., Paintersville, Pa. Gate for hens' nests	348,356	Aug. 31	2667	719	36	990
Speaks, Milton *et al.* (See Crosbie, James H., assignor.)						
Spear, William, Lynn, Mass. Combined sweat-scraper and curry-comb	348,067	Aug. 24	2263	607	36	908
Spedden, Robert R., Astoria, Oreg. Anchor	347,972	Aug. 24	2134	568	36	882
Speer, Alfred, Passaic, N. J. Illuminated clock hand and dial	347,592	Aug. 17	1470	390	36	751
Speer, Darius B., Blue Grass, Iowa. Grafting-machine	348,592	Sept. 7	83	24	36	1062
Speicher, Samuel S., Urbana, Ind. Broadcast seed-sower	349,820	Sept. 28	1776	459	36	1400
Speicher, Samuel S., Urbana, Ind. Broadcast-seeding machine	349,821	Sept. 28	1777	459	36	1401
Speight, Thomas, Bradford, and H. W. Whitehead, Leeds, county of York, England. Machine for oiling and drying wool	345,185	July 6	531	136	36	97
Spencer, Edward, North Carlton, Victoria. Apparatus for amalgamating ore	345,868	July 20	1535	397	36	287
Spencer, George N., Three Rivers, Mich. Magazine fire-arm	347,072	Aug. 10	831	221	36	626
Spicer, Pratt A., Marshall, Mich. Hay-tedder	345,932	July 20	1624	418	36	305
Spicer, Vibe, and J. Schreuder, Pittsburg, Pa. Semaphore-signal	346,387	July 27	2255	577 / 578	36	431
Spiegel, Charles A., Philadelphia, Pa. Holder for checks, notes, &c	345,933	July 20	1625	419	36	305
Spiel, Johannes, Berlin, Germany. Petroleum and gas engine	349,369	Sept. 21	1139	293 / 294 / 295	36	1272
Spiel, Johannes, Berlin, Germany. Gas-engine	349,464	Sept. 21	1275	331	36	1298
Spielmann, Isidore, London, county of Middlesex, England. Gas-heater	348,641	Sept. 7	149	42	36	1074
Spooner, Shipley W., Astoria, Oreg. Lamp-burner	347,973	Aug. 24	2135	569	36	882
Spragg, Lorenzo D., Marion, Ohio. Hoisting device	349,538	Sept. 21	1375	357	36	1318
Sprague, Daniel A., Poland, N. Y. Vehicle running-gear	348,642	Sept. 7	150	42	36	1075
Sprague, Ward, Sandy Creek, N. Y. Combined burglar-alarm and door-fastener	347,974	Aug. 24	2136	569	36	883
Springer, Lorin C., Darlington, Indian Ter. Scaffold-bracket	347,659	Aug. 17	1681	448	36	792
Springer, Lorin C., Darlington, Indian Ter. Ladder	349,370	Sept. 21	1144	295	36	1273
Springsteen, Nelson E., Detroit, Mich. Bridle-bit	347,909	Aug. 10	1010	269	36	659
Sprout, Charles H. (See Sprout Lewis B. and C. H.)						
Sprout, Lewis B. and C. H., Muncy, Pa. Grinding-mill	346,511	Aug. 3	78	21	36	475
Spruce, James, assignor to Scovill Manufacturing Company, Waterbury, Conn. Buckle	348,796	Sept. 7	345	93	36	1111
Spurr, Charles W., Boston, Mass. Veneering	348,593	Sept. 7	84	24	36	1063

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Stackpole, Charles F., Lynn, Mass. Rod-cutting instrument	346,178	July 27	1961	505	36	876
Stafford, George A., Deadimonia, Tex. Rotary churn	349,371	Sept. 21	1146	296	36	1273
Stafford, William R., Scandia, Kans. Cornstalk-cutter	349,622	Sept. 28	1778	459	36	1401
Stagg, Alfred. (See Harris and Stagg.)						
Stahl, Jasper, San Francisco, Cal. Tree-cover	349,066	Sept. 14	728	186	36	1184
Stahl, Sidney S., Connellsville, Pa. Snap-hook	345,066	July 6	401	101	36	73
Staiger, Joseph, and G. H. Scofield, Zumbrota, Minn. Draft-equalizer	349,372	Sept. 21	1147	296	36	1273
Stair, Jacob L., Altamont, Ill. Bedstead	346,622	Aug. 3	219	60	36	503
Stalcup, Benjamin, assignor of one-half to M. L. Barrackman, Worthington, Ind. Sharpener for colters and harrow-disks	349,667	Sept. 21	1539	395	36	1350
Stambaugh, Charles W., assignor of one-half to C. Wetzig, Cleveland, Ohio. Toaster	347,306	Aug. 10	1155	309	36	685
Stambaugh, David F., St. Louis, Mo. Bed-bottom. (Reissue)	10,749	July 27	2364	606	36	450
Standard Hand Rock Drill Company. (See Bergh, Bror F., assignor.)						
Standard Multiplex Telegraph Company. (See Brown, Robert G., assignor.)						
Standen, William R., New York, N. Y. Drawer	349,910	Sept. 28	1886	487	36	1423
Standiford Brothers. (See Standiford, Emmet C., assignor.)						
Standiford, Emmet C., assignor to Standiford Brothers, Chrisman, Ill. Stereotype plate and block	347,837	Aug. 24	1932	513	36	847
Standish, Arthur K., assignor of one-half to R. M. Russell, New Haven, Conn. Lighting device	347,529	Aug. 17	1471	390	36	752
Stanert, Henry B., Newark, N. J. Hollow chill	345,455	July 13	917	230	36	170
Stanford, Arthur L., Waukegan, Ill. Lifting-jack	346,783	Aug. 3	408	113	36	540
Stanford, Arthur L., Waukegan, Ill. Clutch	346,784	Aug. 3	410	113	36	540
Stanford, Edward C. C., Dalmuir, county of Dumbarton, Scotland. Algin and other useful products	349,760	Sept. 28	1668	.....	36	1384
Stanley, Ethelbert A., assignor to Mann's Boudoir Car Company, New York, N. Y. Car-truck	346,785	Aug. 3	412	114	36	540
Stanley, Frank E. (See Stanley, Freelan O. and F. E.)						
Stanley, Freelan O., Lewiston, and F. E. Stanley, Auburn, Me. Machine for manufacturing photographic dry-plates	345,331	July 13	737	186	36	139
Stanley, James, Newark, N. J. Bridle-bit	346,231	July 27	2032	524	36	390
Stanley, Reginald, Nuneaton, county of Warwick, England. Boring-machine for mining coal, &c.	345,551	July 13	1077	275	36	199
Stanley, William, Jr., Great Barrington, Mass. Thermal telephone	348,501	Aug. 31	2881	775	36	1030
Stanley, William, Jr., Great Barrington, Mass., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Induction-coil	349,611	Sept. 21	1468	379	36	1336
Stanley, William, Jr., Great Barrington, Mass., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Induction-coil	349,612	Sept. 21	1469	379	36	1337
Stanley, William, Jr., Great Barrington, Mass., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Automatic cut-out for electric-light circuits	349,613	Sept. 21	1470	379	36	1337
Stanley, William, Jr., Great Barrington, Mass., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Automatic cut-out for electric-light circuits	349,614	Sept. 21	1471	380	36	1337
Stanley, William, Jr., Great Barrington, Mass., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Electric generator	349,615	Sept. 21	1472	380	36	1337
Stanley, William, Jr., Great Barrington, Mass., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Induction-coil	349,616	Sept. 21	1474	381	36	1338
Stanley, William, Jr., Great Barrington, Mass., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Induction-coil	349,617	Sept. 21	1475	381	36	1338
Stanley, William F., Cumberlow, South Norwood, county of Surrey, England. Buffer for the prevention of collisions on land and water	345,592	July 13	1079	276	36	200
Star Brass Manufacturing Company. (See Taber, Freeman A., assignor.)						
Star Manufacturing Company. (See Montgomery, William T., assignor.)						
Stark, John, Jr. (See Moor, George C., assignor.)						
Stark, Theodore C., assignor of one-half to W. A. Bruce, Vallejo, Cal. Fruit and flower picker and holder	348,357	Aug. 31	2868	719	36	990
Starr Electric Storage Company. (See Starr, Eli T., assignor.)						
Starr, Eli T., Philadelphia, Pa., assignor to Starr Electric Storage Company, Camden, N. J. Secondary battery	347,258	Aug. 10	1080	289	36	672
Starr, Eli T., Philadelphia, Pa., assignor to Starr Electric Storage Company, Camden, N. J. Electric-battery element or electrode	347,259	Aug. 10	1082	289	36	672
Starr, Eli T., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial tooth-crown	347,975	Aug. 24	2137	569	36	883
Starr, Eli T., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental impression-cup	347,976	Aug. 24	2138	569	36	883
Starr, Eli T., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Adjustable chair	348,173	Aug. 24	2414	646 647	36 36	935
Starr, Ellen D., Chittenango, N. Y. Appliance for setting writing-copies	345,553	July 13	1080	276	36	200
Starr, Ferdinand W., Springfield, Ohio. Tool for cutting slots or kerfs in wood, &c	345,397	July 13	832	209	36	155
Starr, Horace C. (See Starr, William C. and H. C.)						
Starr, William C. and H. C., Richmond, Ind. Ornamenting chains	346,786	Aug. 3	412	.....	36	540
Startzman, George W., and E. C. Crain, assignors to P. P. Mast & Company, Springfield, Ohio. Fertilizer-distributer	347,838	Aug. 24	1932	513	36	847
States, John C., Boston, Mass. Combined embroidery frame and stand	347,743	Aug. 17	1789	477	36	811
Stauffer, David F., York, Pa. Apparatus for treating bretzels and crackers	345,186	July 6	533	137	36	97
Staver, H. C. (See Ray, Frank B., assignor.)						
Stearns, Daniel, *et al.* (See Beebe, John S., assignor.)						
Stearns, Milo L., *et al.* (See Marston, David W., assignor.)						
Stebbins, Roswell O., New York, N. Y. Bottle-stopper	349,761	Sept. 28	1690	436	36	1384
Stechhan, Otto, Indianapolis, Ind. Bed-lounge	347,446	Aug. 17	1363	363	36	731
Steck, Ernst F., Chicago, Ill. Extension-ladder	346,594	Sept. 7	85	25	36	1063
Steck, Ernst F., Chicago, Ill., assignor to Fire Extinguisher Manufacturing Company. Lantern	349,618	Sept. 21	1476	381	36	1338
Stedman, John W. (See Thompson and Stedman.)						
Steel, John T., *et al.* (See Cooper and Kohl, assignors.)						
Steele, George, New York, N. Y. Steam-boiler	347,014	Aug. 10	737	196	36	608
Steele, Oliver. (See Atkin and Steele.)						
Steen, Thomas D. (See Blackmore and Steen.)						
Steffin, Albert. (See Shirley and Steffin.)						
Stehman, Edward S., Lancaster, Pa. Block for engravers' use	348,299	Aug. 31	2601	700	36	977
Steinbach, William E., Philadelphia, Pa. Window-jack	347,260	Aug. 10	1083	289	36	672
Stelle, Randolph M., *et al.* (See Beach, William W., assignor.)						
Steller, Charles E., Milwaukee, Wis. Knob attachment	349,011	Sept. 14	654	169	36	1171
Stephens, Clements T., Ithaca, N. Y. Fire-grate	345,004	July 6	303	75	36	55
Stephens, Richard, Illogan, county of Cornwall, England. Rock-drill	345,606	July 13	1148	294	36	212

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Stephens, Samuel, Central House, Cal. Gate	347,898	Aug. 24	2019	535	36	861
Stephenson, Casper C., Escanaba, Mich. Ice-road machine	348,502	Aug. 31	2882	775	36	1031
Stephenson, Elmer E., and L. A. Lasher, San Francisco, Cal. Trace and whiffletree guard	347,899	Aug. 24	2020	535	36	861
Stepp, John P., assignor to J. H. Walbridge, Brooklyn, and E. P. Hoff, New York, N. Y. Inkstand	349,411	Sept. 21	1198	310	36	1283
Sterling, Joseph N., Springfield, Ohio. Roller-skate	346,512	Aug. 3	80	21, 22	36	475
Sterling, Theodore W. (See Moreau, Eugène, assignor.)						
Stern, William A., Menlo Park, assignor to himself and T. A. Edison, Llewellyn Park, N. J. System of lighting railway-trains by electricity	346,398	July 27	2259	578 579	36	432
Sterner, William N., and W. L. Hawes, assignors to Cincinnati Neck Yoke Company, Cincinnati, Ohio. Neck-yoke center	348,867	Sept. 7	441	118	36	1129
Stevens, Andrew J., Sacramento, Cal. Apparatus for burning petroleum	348,700	Sept. 7	232	61, 62	36	1069
Stevens, Benjamin A., Toledo, Ohio. Steam-heater	348,247	Aug. 31	2532	680	36	962
Stevens, Benjamin D., assignor of three-fourths to T. S. Peck, Burlington, Vt. Refrigerator	345,607	July 13	1149	294	36	213
Stevens, Fits H., Gloucester, Mass. Oil-can	345,738	July 20	1353	352	36	256
Stevens, Frank M., New York, N. Y. Automatic lathe	344,926	July 6	181	46	36	33
Stevens, Henry M., *et al.* (See Holbrook, Charles E., assignor.)						
Stevens, James H., Pine Bluff, Wyo. Ter. Game-carrier	349,465	Sept. 21	1276	331	36	1298
Stevens, James H., Pine Bluff, Wyo. Ter. Riveting-tool	349,466	Sept. 21	1277	332	36	1298
Stevens, James S., assignor of seven-tenths to G. Caunter, Avalon, Mo., and C. J. Kephart, Toledo, Iowa. Dish-washing cabinet	346,072	July 20	1815	469	36	339
Stevens, Samuel F., North Adams, Mass. Railway passenger-tariff and distance guide-book	348,595	Sept. 7	88	26	36	1063
Stevens, Samuel F., North Adams, Mass. Railway passenger-tariff and distance guide-book	348,596	Sept. 7	91	26, 27	36	1063
Stevens, W. H. (See Furbish, Zachary T., assignor.)						
Stevens, William, Philadelphia, Pa. Elevator	348,597	Sept. 7	93	27	36	1064
Stevens, William H. (See Gibson and Lawrence, assignors.)						
Stevens, William L., Dorchester, Mass. Electrical meter	346,957	Aug. 10	654	175	36	594
Stevens, William L., Cedarville, N. J. Chimney-cap	347,394	Aug. 17	1284	342	36	718
Stevenson, William A. (See Moseman, Willett W., assignor.)						
Stevenson, William A., Brooklyn, N. Y. Curtain-pole and banner-rod	348,701	Sept. 7	234	62	36	1069
Stevenson, William H. H., Baltimore, Md. Machine for heading sheet-metal cans	349,373	Sept. 21	1148	296 297	36	1273
Steward, John F., Chicago, Ill. Harvester-reel	346,232	July 27	2034	525	36	391
Steward, John F., Chicago, Ill. Self-binding harvester	346,233	July 27	2037	525 526	36	391
Stewart, Alexander, Philadelphia, Pa. Lamp	346,629	Aug. 3	461	127	36	550
Stewart, Arthur, assignor to Stewart & Mattson Manufacturing Company, Philadelphia, Pa. Padlock	345,187	July 6	534	137	36	98
Stewart & Bruckner. (See Gardner, Jefferson M., assignor.)						
Stewart, Edmund P. (See Baldwin, Charles E., assignor.)						
Stewart, James, Chicago, Ill. Oil-cup	347,839	Aug. 24	1933	513	36	847
Stewart, Joseph, Mount Vernon, N. Y. Yarn-carrier for knitting-machines	348,503	Aug. 31	2884	775 776	36	1031
Stewart & Mattson Manufacturing Company. (See Stewart, Arthur, assignor.)						
Stewart, Robert, London, county of Middlesex, England. Boiler-covering	349,183	Sept. 14	886	228	36	1214
Stieglitz, Martha S., New York, N. Y. Sad-iron	349,263	Sept. 14	995	254	36	1235
Stienbarger, Sheldon A., Augusta, Ill. Plow attachment	350,085	Sept. 28	2130	551	36	1469
Stiles, George A., Newark, N. J. Cyclometer	345,188	July 6	535	137	36	98
Still, Henry, Beloit, Kans. Car-axle box	349,762	Sept. 28	1691	436	36	1384
Stillman, Henry B. (See Patterson and Stillman.)						
Stilwell, Silas M. (See Lockwood, William C., assignor.)						
Stimpson, Edwin B., Jr., Brooklyn, N. Y. Machine for setting lacing-studs	349,412	Sept. 21	1199	310	36	1283
Stimpson, Edwin B. and Edwin B., Jr., Brooklyn, N. Y. Perforating-machine	345,189	July 6	536	137 138	36	98
Stimpson, Edwin B. and Edwin B., Jr., Brooklyn, N. Y. Perforating-machine	345,190	July 6	538	138	36	98
Stitt, William S. (See Snell, Otto E., assignor.)						
St. John, George H., Leonardsville, N. Y. Horse-boot	349,668	Sept. 21	1534	396	36	1350
St. John, Thomas J., St. Joseph, Mo. Motor for washing-machines and churns	345,651	July 13	1231	318	36	227
St. Louis Cooperage Company. (See Chambers, James M., assignor.)						
St. Louis Iron and Machine Works. (See Krutzsch, Herman, assignor.)						
Stockstrom, Charles A., assignor of one-half to L. Stockstrom, St. Louis, Mo. Gasoline-stove attachment	350,094	Sept. 28	2138	553 554	36	1471
Stockstrom, Charles A. and L., St. Louis, Mo. Vapor-burner	350,096	Sept. 28	2131	551	36	1469
Stockstrom, Louis. (See Stockstrom, Charles A., assignor.)						
Stockstrom, Louis. (See Stockstrom, Charles A. and L.)						
Stockstrom, Louis, St. Louis, Mo. Gasoline-stove	350,087	Sept. 28	2132	552	36	1469
Stockton, James K., assignor of one-half to M. A. Schneider, Brooklyn, N. Y. Bureau-bed	349,467	Sept. 21	1278	332	36	1298
Stoddard, E. Fowler, assignor to Stoddard Manufacturing Company, Dayton, Ohio. Harrow	347,530	Aug. 17	1473	390 391	36	752
Stoddard, E. Fowler, assignor to Stoddard Manufacturing Company, Dayton, Ohio. Harrow	347,744	Aug. 17	1791	477	36	811
Stoddard, E. Fowler, assignor to Stoddard Manufacturing Company, Dayton, Ohio. Harrow	347,745	Aug. 17	1793	478	36	811
Stoddard Manufacturing Company. (See Stoddard, E. Fowler, assignor.)						
Stohlmann, Frederick A., Brooklyn, assignor to G. Tiemann & Co., New York, N. Y. Surgical-needle holder	348,537	Aug. 31	2936	789	36	1041
Stokes, Russell T., Garnett, Kans. Combined hopple and tail-holder	349,124	Sept. 14	812	206	36	1199
Stompe, Joseph. (See Miller, Charles, assignor.)						
Stone, Elias S., LaGro, Ind. Barrel-truck	346,958	Aug. 10	657	175	36	594
Stone, James, assignor of two-thirds to A. M. Ball, Aurora, and E. Florsheim, Chicago, Ill. Corset-lacing	349,184	Sept. 14	887	228	36	1214
Stone, John H., Hamilton, Ontario, Canada. Tubular lantern	349,763	Sept. 28	1692	437	36	1384
Stone, Lawson B., Marblehead, Mass. Automatic sprinkler	349,764	Sept. 28	1693	437	36	1384
Stone, Marvin C., Washington, D. C. Mouth-piece for cigarettes	345,869	July 20	1537	397	36	287
Stotlemeyer, Devolt, Hancock, Md. Agricultural fork	346,830	Aug. 3	462	127	36	550
Stover, Daniel C., Freeport, Ill. Grinding-mill	348,300	Aug. 31	2603	700	36	977
Stover, Ira, *et al.* (See Eirick, Luther M., assignor.)	347,531	Aug. 17	1477	392	36	753
Stout, Mills & Temple. (See Gilbert, Henry J., assignor.)						
Stowe, Aaron F., Worcester, Mass. Leather-splitting machine	346,389	July 27	2262	579	36	432
Strader, Levi T., H. F. Gray and I. J. Burgess, Columbus, Ohio, assignors to said Strader. Knockdown or folding table	349,185	Sept. 14	889	228	36	1214

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Strahan, John T., Grand Rapids, Mich. Wardrobe folding bed	348,643	Sept. 7	151	42	36	1075
Strahan, Simon, Chicago, Ill. Ornamental baluster and spindle	349,669	Sept. 21	1535	396	36	1350
Strahan, Thomas, Chelsea, Mass. Fabric for wall decoration and other purposes	345,191	July 6	540	.....	36	99
Straight, Andrew V., assignor to himself, F. A. Jennings, S. M. Thornton, P. L. Ritton, and E. W. Griggs, Sidney Plains, N. Y. Advertising attachment for clocks	345,739	July 20	1354	353	36	256
Stranahan, William G., Minneapolis, Minn. Blind-nailing plane	345,870	July 20	1538	397	36	298
Strange, Howell M., Beaver Valley, Ala. Harrow	346,959	Aug. 10	658	175	36	594
Strasin, John. (See Shafer and Strasin.)						
Stratton, William D., Boston, Mass. Buckle	347,015	Aug. 10	739	196	36	609
Straube, Otto, Spandau, Germany. Pneumatic device for discharging fire-arms, &c	348,868	Sept. 7	442	118	36	1129
Straubel, Richard, New York, N. Y. Eyeglasses	349,413	Sept. 21	1201	311	36	1284
Streeter, Alfred L., Chicago, Ill. Brake	345,652	July 13	1232	318	36	238
Stretcher, Howard, assignor to J. A. Donohue, Cincinnati, Ohio. Piano-pedal stool	345,005	July 6	304	76	36	55
Stribling, John V., Westminster, S. C. Steering apparatus for traction-engines	348,538	Aug. 31	2937	789	36	1041
Strickland, George W., San Francisco, Cal. Ornamental border for flower-beds, &c	348,598	Sept. 7	94	27	36	1064
Strickland, Thomas J., Randolph, Mass. Bicycle-pedal	347,977	Aug. 24	2139	570	36	883
Strickler, Walter. (See Meyer and Strickler.)						
Strobel, Charles, Philadelphia, Pa. Loom for weaving terry fabrics	346,073	July 20	1817	469	36	339
Strom, Axel A., Austin, Ill. Clutch for lifting-jacks	347,379	Aug. 10	1105	296	36	676
Strong, James T., assignor of one-fourth to M. S. Thurmond, Pittsburg, Kans. Harrow and pulverizer attachment	349,374	Sept. 21	1150	298	36	1274
Strong, John A., Cain, Kans. Box-fastener	344,875	July 6	114	28	36	21
Strother, William S., assignor of one-half to R. J. Durham, Phillippi, W. Va. Planter	349,823	Sept. 28	1779	460	36	1401
Strout, Horace C., Brooklyn, N. Y. Heating and ventilating system	346,623	Aug. 3	290	60, 61	36	503
Stubbe, John, assignor of two-thirds to G. T. Oliver and C. Evans, Pittsburg, Pa. Gas-regulator	347,840	Aug. 24	1935	513	36	847
Stuckert, J. Franklin, Philadelphia, Pa. Fire-proof roof, floor, &c	349,670	Sept. 21	1536	396	36	1351
Stuempfle, Frederick, and H. S. Thomas, Elmira, N. Y. Fireman's ladder	347,746	Aug. 17	1795	478	36	812
Stufft, Robert L., Scottdale, Pa. Watch-case spring	345,192	July 6	541	138	36	99
Stunts, Chauncey E., Terrace Park, Ohio. Ruling slates	348,599	Sept. 7	94	.....	36	1064
Sturgis, Francis M. (See Westenhaver, Erdwal, assignor.)						
Sturtevant, Thomas L., Framingham, Mass. Attrition-mill	346,513	Aug. 3	92	21	36	476
Suchland, Theodor, Berlin, Germany. Car-brake	347,841	Aug. 24	1937	514	36	848
Sullivan, Theodore J., and H. A. Eagle, Peru, Ind. Buggy-top	345,332	July 13	738	187	36	139
Sultzer, Joseph B., New York, N. Y. Mustache-curler	346,831	Aug. 3	469	128	36	532
Summers, Andrew J., Archie, Mo. Compounding or mixing machine	346,514	Aug. 3	84	22, 23	36	476
Summers, Clifton R. and M. E., Stanberry, Mo. Fence-wire stretcher	348,248	Aug. 31	2533	680	36	962
Summers, Marshall E. (See Summers, Clifton R. and M. E.)						
Summers, Rufus A., Mount Vernon, Ill. Trash-drill	346,234	July 27	2041	526	36	392
Summit, Christian A., assignor of one-half to R. E. Chambers, Spencer, Ind. Weather-boarding gage	345,261	July 6	637	162	36	116
Sundström, Karl J., Rustic, N. J., assignor of three-fourths to A. De Castro, New York, N. Y. Pan for concentrating sulphuric acid	349,414	Sept. 21	1202	311	36	1284
Superior Drill Company. (See McChristian, Edward, assignor.)						
Surratt, George, and H. Heyman, Gainesville, Tex. Apparatus for forcing beer from kegs	349,012	Sept. 14	655	169	36	1171
Susemihl, Charles G., deceased, Detroit, Mich.; F. G. Susemihl, administrator. Car-axle box	348,933	Sept. 7	538	142	36	1146
Susemihl, Francis G., administrator. (See Susemihl, Charles G.)						
Sutherland, James, Poughkeepsie, N. Y. Adjustable decorated ceiling, &c	349,375	Sept. 21	1151	298	36	1274
Sutton, William, St. Louis, Mo. Hanger for car-doors	346,074	July 20	1819	470	36	339
Swan, Henry H., Marinea, assignor of three-fourths to L. Myers and J. Rosenthal, Chicago, Ill. Railway signal-light	345,853	July 13	1233	319	36	228
Swan, John, *et al.* (See Ethridge, Martin V. B., assignor.)						
Swan, Samuel B., Tippecanoe, Ohio. Buggy-gear	349,125	Sept. 14	813	206	36	1199
Swan, T. Bryant, assignor of one-half to E. V. Burke, Atlantic, Iowa. Harrow	344,576	July 6	115	28	36	21
Swanson, John A., and A. W. Linton, Fargo, Dak. Ter. Machine for making brick from dry material	348,702	Sept. 7	235	62	36	1090
Swanton, George R. B., Okawa, Hawk's Bay, New Zealand. Whiffletree-hook	345,456	July 13	918	231	36	170
Swarts, Daniel H., London Mills, Ill. Bridge	346,573	Aug. 3	532	144	36	563
Swarts, Hiram B., Wooster, Ohio. Extension step-ladder	349,286	Sept. 14	1018	260	36	1240
Swartz, Samuel P., Allentown, Pa. Soldering-iron	347,307	Aug. 10	1156	309	36	698
Swartzwelder, Horace B., Lancaster, Pa. Cupboard-catch	349,671	Sept. 21	1537	396	36	1351
Swayze, Stephen J., Sag Harbor, N. Y. Button	348,934	Sept. 7	540	142	36	1146
Sweat, Elias S., Fayetteville, Ga. Fertilizer-distributer	349,672	Sept. 21	1538	397	36	1351
Sweeney, Dennis F. (See Partridge, Andrew, assignor.) (Reissue.)						
Sweeny, Robert G. (See Waters and Sweeny.)						
Sweeny, Robert G., Terre Haute, Ind. Electrical switch	346,515	Aug. 3	85	23	36	476
Sweet, Benjamin W., Rodney, Mich. Car-coupling	345,262	July 6	638	162	36	116
Sweet, Benjamin W., Rodney, Mich. Car-coupling	349,824	Sept. 28	1780	460	36	1402
Sweet, John M., Batavia, N. Y. Wheel-hub	345,006	July 6	304	76	36	55
Swett, Josiah, Granville, and G. W. Brace, Southwick, Mass. Lamp and lantern attachment	349,765	Sept. 28	1695	437	36	1385
Sweet, Miles, Troy, N. Y. Curry-comb	346,444	July 27	2344	603	36	447
Sweet, Miles, Troy, N. Y. Curry-comb	346,445	July 27	2345	603	36	447
Sweetland, William L., New Haven, Conn. Lathe-chuck	347,395	Aug. 17	1285	342	36	718
Sweetser, William A. (See Brooks and Sweetser.)						
Swift, Lemuel, *et al.* (See Harden, George T., assignor.)						
Swift, Peleg, *et al.* (See Harden, George T., assignor.)						
Swift, William H., Revere, Mass. Portable heating apparatus for warming feet	346,075	July 20	1819	470	36	340
Switzer, John J., Chelsea, assignor, by mesne assignments, to himself, W. Tuxbury, Boston, and A. F. Cowles, Amherst, Mass. Warp stop-motion for looms	348,174	Aug. 24	2417	648	36	935
Syester, William, Ashersville, Ind. Bee-hive	348,935	Sept. 7	541	143	36	1146
Sylvester, George. (See Michelson, Sigismund M., assignor.)						
Sylvester, William W., Chattanooga, Tenn. Mail-bag fastening	349,067	Sept. 14	729	186	36	1184
Sypher, Abraham J., Iron Mountain, Mo. Steam rock-drill	348,175	Aug. 24	2419	648	36	936
Taber, David F., Atlanta, assignor to himself and F. W. Memmler, Marietta, Ga. Umbrella drip-cup	348,600	Sept. 7	95	27	36	1064
Taber, Freeman A., Newton, assignor to Star Brass Manufacturing Company, Boston, Mass. Lamp-holder for car and other lamps	349,186	Sept. 14	891	229	36	1215
Tabony, Joseph H., assignor of one-half to A. Violett, New Orleans, La. Telephone time-register	349,539	Sept. 21	1376	357	36	1318
Tabor, Harris, assignor to Tabor Manufacturing Company, New York, N. Y. Metal-founding machine	347,447	Aug. 17	1365	363	36	731
Tabor, Harris, assignor to Tabor Manufacturing Company, New York, N. Y. Molder's flask	347,448	Aug. 17	1366	363	36	732
Tabor Manufacturing Company. (See Tabor, Harris, assignor.)						
Tacy, Samuel H., New York, N. Y., assignor of one-half to J. Boyce, Baltimore, Md. Mining-machine	346,398	July 27	2177	559	36	417
Taft, Ryland L., assignor to Illinois Watch Company, Springfield, Ill. Stem winding and setting mechanism for watches	345,193	July 6	542	138	36	99
Tainter, Jeremiah B., Menomonee, Wis. Coffer-dam, mill-dam, and similar works	344,877	July 6	116	29	36	21
Tainter, Jeremiah B., Menomonee, Wis. Sluiceway-gate	344,878	July 6	119	29, 30	36	21
Tainter, Jeremiah B., Menomonee, Wis. Canal-lock	344,879	July 6	122	30	36	22
Tainter, William H. H. (See Millard, Martin S., assignor.)						
Talbot, Thomas W., and J. L. Farmer, Florence, S. C. Car-coupling	346,329	July 27	2178	559	36	417
Talcot, William E., Croton Landing, N. Y. Brick-machine	347,136	Aug. 10	914	243 244	36	641
Talion, Thomas A. (See Phalan, Daniel G., assignor.)						
Tankersly, Fountain, Richmond, Ky. Sash-supporter	346,516	Aug. 3	86	23	36	477
Taplin, Rice & Co. (See Wellhouse, George, assignor.)						
Tasker, Stephen P. M. (See Feldmann, Hermann B., assignor.)						
Tate, George J. F., London, England. Canister	355,554	July 13	1081	276	36	900
Taubeneck, Arvor A., Marshall, Ill. Animal-trap	348,703	Sept. 7	237	63	36	1080
Taussig, Hubert P. (See Wnerp 1 and Taussig.)						
Taylor, Amos B., Wollaston, and J. P. Tirrell, Chelsea, Mass., assignors to said Taylor. Loom-shuttle	349,013	Sept. 14	657	169	36	1171
Taylor, Charles A., Brockton, Mass. Buttoner	349,415	Sept. 21	1203	311	36	1284
Taylor, Charles W., Portsmouth, N. H. Stove-pipe shelf	349,239	Sept. 14	906	246	36	1229
Taylor, Clarence W., Janesville, Wis. Fountain-pen	346,330	July 27	2179	559	36	417
Taylor, Elbert C., Stockton, Mo. Target	347,747	Aug. 17	1797	479	36	812
Taylor, Edward H., *et al.* (See Miller, Richard W., assignor.)						
Taylor, Fenner B., Washington, D. C. Gas-engine pump	347,137	Aug. 10	916	244	36	642
Taylor, Fred M., Albion, Mich. Map	348,068	Aug. 24	2269	607	36	908
Taylor, Frederick. (See Davis, Arthur W. S., assignor.)						
Taylor, Frederick, Lowell, Mass. Wire loom-heddle	347,138	Aug. 10	918	245	36	642
Taylor, Frederick D., assignor to Hartford Fruit Jar Company, Hartford, Conn. Tool for finishing glass jars	345,194	July 6	543	139	36	99
Taylor, James H., Westfield, Mass. Churn	345,067	July 6	402	101	36	73
Taylor, John E., Walla Walla, Wash. Ter. Steam-generator	345,333	July 13	739	187	36	139
Taylor, Joseph A. D., assignor of one-half to J. H. Hoover, Ossian, Ind. Gate	346,787	Aug. 3	413	114	36	541
Taylor, Thomas P., Bridgeport, Conn. Lacing-stay for corsets	347,449	Aug. 17	1367	364	36	732
Taylor, Thomas P., and M. B. Hammond, Bridgeport, Conn. Combined corset-cover and dress-shield	349,068	Sept. 14	731	186	36	1184
Taylor, William. (See Shute and Taylor.)						
Teague, Benjamin H., Aiken, S. C. Dental disk	346,331	July 27	2181	559	36	417
Teed, William P., Livingston, assignor of one-half to C. I. Hedden, Newark, N. J. Rein-holder	346,176	Aug. 24	2421	649	36	936
Tefft, James W., Collamer, assignor of one-half to A. S. Hancock, Buffalo, N. Y. Bee-hive	349,126	Sept. 14	814	206	36	1199
Telemeter Company. (See Clarke, Charles L., assignor.)						
Temple, Charles E., and F. T. Bolton, Terre Haute, Ind. Machine for setting buttons	345,740	July 20	1356	353	36	257
Temple, Edward A., Charlton, Iowa. Rail-joint	348,704	Sept. 7	237	63	36	1090
Temple, Joseph S., Reading, Mass. Necktie-holder	347,073	Aug. 10	833	221	36	636
Temple, Morris D., Chicago, Ill. Rubber bucket for chain-pumps	346,980	Aug. 10	659	176	36	595
Templeton, Levi E., T. B. and W. H. Reed, North Springfield, Mo. Cosmetic wash	349,014	Sept. 14	658	.....	36	1172
Tepel, Christian, Pittsburg, Pa. Calipers for inside and outside measurement	347,016	Aug. 10	739	196 197	36	609
Terman, James W., assignor to H. S. Butler, Des Moines, Iowa. Corn-harvester	346,134	July 27	1898	491	36	364
Terry, Norton M. (See Austin, Alonzo D., assignor.)						
Terry, Samuel H., Brooklyn, N. Y. Car-brake	345,963	July 6	640	162 163	36	116
Terstegge, Gohmann & Co. (See Gobeillé and Wicke, assignors.)						
Teske, Charles, Windsor, Conn. Watch-movement holder	345,815	July 20	1463	378	36	275
Teufel, Christoph F., Woolstock, Iowa. Storm-door	346,788	Aug. 3	414	114	36	541
Teufel, Julius. (See Teufel, Wilhelm and J.)						
Teufel, Wilhelm and J., Stuttgart, Germany. Abdominal bandage	347,532	Aug. 17	1480	392	36	753
Thal, Frederick W., Milwaukee, Wis. Cravat-retainer	345,934	July 20	1626	419	36	305
Thal, Frederick W., Milwaukee, Wis. Cravat-retainer	345,935	July 20	1626	419	36	305
Thamer, George R. (See Smith, William W., assignor.)						
Thaxton, William W., Jackson, Ga. Water-elevator	348,601	Sept. 7	96	28	36	1064
Thayer, Charles, Ann Arbor, Mich. Car-coupling	347,660	Aug. 17	1682	448	36	792
Thelen, Nicholas. (See Cluever and Thelen.)						
Thies, Carl A., Concord, N. C. Tappet for stamp-mills	347,661	Aug. 17	1684	448	36	792
Thissell, Earl A. (See Emerson, James, assignor.)						
Thom, John, Barrow-in-Furness, county of Lancaster, England. Valve for engines	344,881	July 6	125	31	36	22
Thomas, Arnold, *et al.*, trustees. (See Tickle and Leonardt, assignees.)						
Thomas, Charles E., Williamstown, N. J. Machine for finishing the mouths of glass bottles	348,797	Sept. 7	346	94	36	1112
Thomas, Edward W., Lowell, Mass. Spindle and bobbin-support therefor for spinning-machines	346,135	July 27	1899	491	36	364
Thomas, Frank A., Cedar Rapids, Iowa. Rope-fastening	346,390	July 27	2263	580	36	433
Thomas, Franklin, and G. M. Kay, Letart, W. Va. Horse detacher	349,127	Sept. 14	816	207	36	1200
Thomas, George C., *et al.*, executors. (See Saunders, Frank.)						
Thomas, George H., Chicopee Falls, Mass. Egg-beater	350,023	Sept. 28	2043	527	36	1452
Thomas, Henry J., assignor of four-sixths to A. E. Pratt, New York, and S. C. Thompson, Brooklyn, N. Y. Type-writing machine	346,000	July 20	1719	443 444	36	321
Thomas, Henry O., Fremont, Nebr. Bedclothes-holder	348,427	Aug. 31	2776	746	36	1011
Thomas, Horace S. (See Stuempfle and Thomas.)						
Thomas, Leander E., and I. Wood, Shell Lake, Wis. Fire and burglar alarm	349,911	Sept. 28	1887	457	36	1424
Thomas, Nathan R., Pettisville, Ohio. Door check and holder	348,428	Aug. 31	2777	746	36	1012
Thomas, T. Fred. (See Guest, John H., assignor.)						
Thomas, William B., Green Camp, Ohio. Post-holder	349,240	Sept. 14	966	246	36	1229
Thommen, Gedeon, Waldenburg, near Basle, Switzerland. Watch	347,139	Aug. 10	920	245 246	36	642
Thompson, Charles E., Lansingburg, N. Y. Fire-kindler	344,880	July 6	124	.....	36	22
Thompson, David, Byron, Mich. Thill-coupling	347,842	Aug. 24	1938	514	36	848
Thompson, David M., Providence, R. I. Carding-engine	347,662	Aug. 17	1685	448 449	36	792
Thompson, Edward H. (See Thompson, Francis and E. H.)						
Thompson, Evert M., Evansville, Ind. Mechanism for making metal pipes	349,915	Sept. 14	659	170	36	1172

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Thompson, Francis and E. H., Allegheny City, Pa. Cigar-bunching machine	349,069	Sept. 14	731	186, 187	36	1185
Thompson, Frank E., and J. W. Stedman, Elkhart, Ind.; said Stedman assignor to said Thompson. Bench-plate	349,619	Sept. 21	1477	382	36	1338
Thompson Gas Kiln and Oven Company. (See Lamb, Richard, assignor.)						
Thompson, Herbert J., Ogema, Wis. Saw-table	346,241	July 27	2060	529	36	395
Thompson, Hugh M., St. Louis, Mo. Amalgamator	346,517	Aug. 3	87	93, 94	36	477
Thompson, James V., Fort Madison, Iowa. Cartridge-loader	346,242	July 27	2061	529	36	395
Thompson, John B., Lutesville, Mo. Cover-fastening for shipping-cases	349,863	Sept. 28	1629	472	36	1412
Thompson, La Marcus A., Philadelphia, Pa. Pleasure cable railway	348,798	Sept. 7	347	94, 95	36	1112
Thompson, Lester P., Phelps, N. Y. Hilling-plow	348,069	Aug. 24	2270	608	36	908
Thompson, Milo, Lansingburg, N. Y. Brush	349,673	Sept. 21	1539	397	36	1351
Thompson, Sidney C., *et al.* (See Thomas, Henry J., assignor.)						
Thompson, William J., St. Paul, Minn. Sash-balance	347,396	Aug. 17	1286	342	36	718
Thompson, William P. (See McIlvenna, Felix, assignor.)						
Thomson & Co., Judson L. (See Unbehend, Jacob J., assignor.)						
Thomson, Elihu, Lynn, Mass. Electro-magnetic motor	345,334	July 13	740	187	36	140
Thomson, Elihu, Lynn, Mass. Socket for incandescent lamps	345,335	July 13	743	188	36	140
Thomson, Elihu, Lynn, Mass. Commutator-brush	345,336	July 13	746	188	36	140
Thomson, Elihu, Lynn, Mass. Apparatus for electric welding	347,140	Aug. 10	921	246	36	642
Thomson, Elihu, Lynn, Mass. Apparatus for electric welding	347,141	Aug. 10	924	246, 247	36	643
Thomson, Elihu, Lynn, Mass. Electric welding	347,142	Aug. 10	925	247	36	643
Thomson, Elihu, Lynn, Mass. Compound-wound dynamo-electric machine	349,912	Sept. 28	1887	488	36	1424
Thomson, George G. (See Banks, Charles W., assignor.)						
Thone, Frank, Fort Wayne, Ind. Electric-arc light	348,799	Sept. 7	350	95	36	1113
Thorn, Charles, Jr. (See Shatluck and Thorn.)						
Thorn, Jacob S., Philadelphia, Pa. Combination metallic roofing tile-plate	347,843	Aug. 24	1939	515	36	848
Thornburgh, William, Elyria, Ohio. Semaphore-signal	346,243	July 27	2062	529	36	395
Thornton, James, Wellsville, assignor to Pratt & Letchworth, Buffalo, N. Y. Breast-ring attachment	347,533	Aug. 17	1480	392	36	754
Thornton, Stephen M., *et al.* (See Strait, Andrew V., assignor.)						
Thornycroft, John I., Chiswick, county of Middlesex, England. Rudder for steering vessels	348,070	Aug. 24	2271	608	36	908
Thorp, Henry H., Cleveland, Ohio. Ink-fountain for printing-machines	345,654	July 13	1235	319, 320	36	228
Thoubboron, James, Brooklyn, N. Y. Show-card	347,534	Aug. 17	1481	393	36	754
Throckmorton, James and J. G., Harvey's, Pa. Chuck for rock-drills	347,397	Aug. 17	1287	343	36	718
Throckmorton, Joseph G. (See Throckmorton, James and J. G.)						
Thuma, Daniel W. (See Schmidt and Thuma.)						
Thurlow, Danville, Gardiner, Me. Thill-supporter	348,071	Aug. 24	2272	608	36	909
Thurlow, Winfield S., Norwood, Mass. Attachment for plows	349,264	Sept. 14	996	254	36	1235
Thurmond, M. S. (See Strong, James T., assignor.)						
Thurston, William H., assignor of one-fourth to G. F. Barton, Duke Centre, Pa. Clothes-rack stand	345,741	July 20	1358	353, 354	36	257
Thurnó, Georg N., Vienna, Austria-Hungary. Rotary cap for boot-heels	348,800	Sept. 7	351	95	36	1113
Thyss, Jean J., Baku, Caucasus, Russia. Apparatus for making sulphuric acid	349,241	Sept. 14	967	247	36	1229
Tibbles, George N., Jersey City, N. J. Device for converting reciprocating into rotary motion	346,961	Aug. 10	659	176	36	595
Tibbets, Jonathan S., Jeffersonville, Ind. Apparatus for carbureting gas	347,663	Aug. 17	1686	449	36	793
Tickle, John, West Bromwich, and F. Leonardt, Handsworth, county of Stafford, assignors to E. Carrick, West Bromwich, W. Creed, Stroud, and A. Thomas, Newnham, England, trustees. Machine for labeling packets	346,832	Aug. 3	470	128, 129, 130	36	552
Tidmarsh, Harry E., *et al.* (See Wells, William W., assignor.)						
Tiemann & Co., George. (See Stohlmann, Frederick A., assignor.)						
Tier, William H., Astoria, N. Y. Brake for baby-carriages	345,457	July 13	919	231	36	170
Tierra Seca Mining Company. (See Card, William L., assignor.)						
Tiers, Alexander H., *et al.* (See Pendleton, John H., assignor.)						
Tiers, Cornelius, *et al.* (See Pendleton, John H., assignor.)						
Tietz, Godfried A. J., assignor to Phœnix Glass Company, Philipsburg, Pa. Manufacture of decotated hollow glassware	345,264	July 6	644	163	36	117
Tigner, James A., Rome, Ga. Combined truss and abdominal support	346,244	July 27	2063	529	36	396
Tigner, James A., Gordon, La. Plow-point	347,074	Aug. 10	833	223	36	626
Tilghman, Benjamin C., Philadelphia, Pa. Drawing metal rods	345,816	July 20	1464	378	36	275
Tillison, Hosea R., assignor to S. A. Woods Machine Company, Boston, Mass. Reamer	349,766	Sept. 28	1697	438	36	1385
Timm, Henry, *et al.* (See Powers, Titus, assignor.)						
Timmins, William, and C. I. Humphreys, assignors to W. T. Andrews, Boston, Mass. Guide-collar for screw-machines	346,391	July 27	2264	580	36	433
Timmis, Illius A., and G. Forbes, London, county of Middlesex, England. Electro-magnetic car-brake	347,075	Aug. 10	835	222	36	627
Timus, James, assignor of one-half to B. F. Rees, Columbus, Ohio. Car-axle box	345,458	July 13	920	231	36	171
Tippett, Robert G., and D. Madlem, Reading, Pa. Door-knob	346,566	Aug. 3	145	40	36	488
Tipton, Playlander S., Anson, Tex. Gate	349,187	Sept. 14	893	229	36	1215
Tirrell, Jacob P. (See Taylor and Tirrell.)						
Tisdel, Abner G., assignor of one-half to E. A. Whittlesey, Brooklyn, N. Y. Photographic camera	348,301	Aug. 31	2604	701	36	978
Tixier, John, San Francisco, Cal. Stop-watch. (Reissue)	10,756	Aug. 17	1814	483	36	815
Tobias, Cyrus, Freeport, Ill. Coffee-mill	345,742	July 20	1360	354	36	257
Todd, Frank P., *et al.* (See Littlefield, Charles W., assignor.)						
Todt, A. Henry, Lapeer, Mich. Sleigh-runner	346,874	Aug. 3	533	145	36	564
Tolbert, James, *et al.* (See Miller, Richard W., assignor.)						
Toliner, Hugo, Brooklyn, N. Y. Lock	345,337	July 13	748	188	36	141
Tolson, George and J. E., Dewsbury, county of York, England. Apparatus for separating mixed fibers	346,245	July 27	2064	530	36	396
Tolson, John E. (See Tolson, George and J. E.)						
Tomlinson, Joseph, Ely, Iowa. Bridge	349,468	Sept. 21	1279	332, 333	36	1299
Tooker Fire Alarm Improvement Company. (See Flanders, Brown S., assignor.)						
Toomey, Samuel, Canal Dover, Ohio. Axle for vehicles	346,001	July 20	1723	444	36	322
Topliff, D'Alton, Franklin, Ill. Buggy-iron	349,128	Sept. 14	816	207	36	1200
Topping, Alfred S., assignor of one-half to A. Ries, Metamora, Ohio. Fire wood drag-saw	346,179	July 27	1962	506	36	376
Torkelson, Reinhard T. (See Johnson, Torkelson, and Fyrberg.)						
Torneberg, Fredrik W., Stockholm, Sweden. Revolving tooth-brush	347,900	Aug. 24	2021	535	36	862
Torrey, Augustus, Detroit, Mich., and D. J. Casey, Cylon, Wis. Passenger-recorder	349,767	Sept. 28	1697	438	36	1385

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Torrey, Joseph R. (See Wilson, John A., assignor.)						
Torrey, Joseph R., assignor to J. R. Torrey Razor Company, Worcester, Mass. Razor-guard	349,287	Sept. 14	1019	260	36	1240
Torrey Razor Company, J. R. (See Torrey, Joseph R., assignor.)						
Toske, Thomas, Richmond, Ind. Pocket cigarette machine	346,076	July 20	1720	470	36	340
Totman, Edsell, Hinsdale, Ill. Sandpapering-machine	348,177	Aug. 24	2422	649	36	936
Tourgee, Albion W., assignor to S. E. Kilbourne, Mayville, N. Y. Harness	345,459	July 13	920	231	36	171
Tourgee, Albion W., and L. D. Jennings, Mayville, N. Y. Harness	347,210	Aug. 10	1011	269	36	650
Towberman, Adam, Sutherland, Iowa. Post and pile driver	347,211	Aug. 10	1014	270	36	660
Towne, Alban N., San Francisco, Cal. Lock and seal for trunks	348,358	Aug. 31	2719	719	36	991
Towner, William M., Stamford, Conn. Crucible-tongs	346,136	July 27	1700	491	36	364
Towne, Albert O., Boston, and F. F. Raymond, 2d, Newton, Mass.; said Towne assignor to said Raymond. Nail making and distributing machine	346,137	July 27	1901	492, 493	36	364
Towne, Walter F., Boston, Mass. Device for beating and mixing egg-lemonade	347,398	Aug. 17	1288	343	36	718
Townsend, Henry E. (See Lord, George W., assignor.)						
Townsend, Louis, Evansville, Ind., assignor to J. L. Bay and W. B. Worthen, Little Rock, Ark. Telephone receiver	348,429	Aug. 31	2778	746	36	1012
Townsend, Louis, Evansville, Ind., assignor of one-half to J. L. Bay and W. B. Worthen, Little Rock, Ark. Telephone-transmitter	348,430	Aug. 31	2779	746, 747	36	1012
Townsend, Louis, Evansville, Ind., assignor of one-half to J. L. Bay and W. B. Worthen, Little Rock, Ark. Call-bell switch	350,024	Sept. 28	2044	527	36	1452
Tozer, James H. and W., London, England. Part of the permanent way of railways	349,913	Sept. 28	1888	488	36	1424
Tozer, William. (See Tozer, James H. and W.)						
Tracy, Patrick J., assignor of one-half to W. T. Lewis, Racine, Wis. Filter	348,869	Sept. 7	443	118	36	1129
Tracy, William P., Grand Rapids, Mich. Caster	347,261	Aug. 10	1083	289	36	672
Tracy, William P., assignor of one-half to R. M. Luton, Grand Rapids, Mich. Barrel-making machine	348,481	Aug. 31	2853	768	36	1025
Travis, John J. (See Brower and Travis.)						
Treat, Bryant A., Wallingford, Conn. Vehicle-spring	349,960	Sept. 28	1957	505	36	1436
Trebentscheck, Johann, Donawitz, Austria-Hungary. Pencil-holder	349,914	Sept. 28	1890	488	36	1424
Tricycle Manufacturing Company. (See Grant, Arthur W., assignor.)						
Tripp, Solomon, Grand Rapids, Mich. Hay-tedder	345,338	July 13	750	188, 189	36	141
Trippe, Sylvanus L., Denver, Colo. Composition for electrodes for secondary batteries	344,582	July 6	128	31, 32	36	23
Trippe, Sylvanus L., Denver, Colo. Electrode for electric batteries	348,482	Aug. 31	2854	768	36	1026
Troller, Albert, assignor to Rockford Watch Company, Rockford, Ill. Stem-setting mechanism for watches	347,450	Aug. 17	1368	364	36	732
Tromblay, Edward, Lowell, Mass. Self-feeder for carding-machines, &c	346,418	July 27	2303	593, 594	36	440
Trout, Jacob S., Landisville, Pa. Barn-door fastener	347,748	Aug. 17	1798	479	36	813
Trout, James A. (See Trout, Lewis A. and J. A.)						
Trout, Lewis A. and J. A., Lamar, Mo. Churn	346,518	Aug. 3	99	24	36	477
Trow, Charles W., assignor to Wakefield Rattan Company, Wakefield, Mass. Shade-holder for carriages	344,883	July 6	129	32	36	23
Trubel, George, Macomb, Ill. Oil-can	349,768	Sept. 28	1700	438	36	1385
Trull, Larkin T., *et al.* (See Logan, Thomas H., assignor.)						
Trullinger, James, Silverton, Oreg. Castrating-instrument	350,088	Sept. 28	2134	552	36	1469
Trum, Emanuel J., Brooklyn, N. Y. Document-envelope	349,188	Sept. 14	894	230	36	1215
Trump, Charles N. (See Frederick and Trump.)						
Trump, Edward N., Syracuse, N. Y. Pneumatic hammer	348,870	Sept. 7	445	119	36	1130
Trunser, John, Pittsburg, Pa. Heater for fire-places, &c	349,324	Sept. 21	1060	272	36	1257
Tschira, Edward, Jr., Cincinnati, Ohio. Fly-trap	345,817	July 20	1466	379	36	276
Tucke, Edward P., Whitaker's, N. C. Device for adjusting blind-slats	349,410	Sept. 21	1203	311, 312	36	1264
Tucker, Albert E., *et al.* (See Haskin, Uri, assignor.)						
Tucker, Henry S., Faulkner, Miss. Hinge for awning-blinds	349,016	Sept. 14	661	170	36	1172
Tucker, Ozro F., Decatur, Ill. Roller-skate	348,249	Aug. 31	2535	681	36	963
Tucker, Samuel, Pleasanton, Kans. Adjustable scaffold	348,359	Aug. 31	2671	730	36	991
Tucker, William H., Indianapolis, Ind. Furniture-caster	347,749	Aug. 17	1798	479	36	813
Tuerk, Gustavus A., Chicago, Ill. Water-motor	348,504	Aug. 31	2885	776	36	1031
Tufford, William V., Clinton, Iowa, assignor to Marder, Luce & Co., Chicago, Ill. Attachment for printing-case stands	344,927	July 6	184	47	36	34
Tuite, T. P. (See Jeffery, George, assignor.)						
Tunstead, Charles F., *et al.* (See Baker, William H., assignor.)						
Tunstead, William J., *et al.* (See Baker, William H., assignor.)						
Turley, Marshall, Council Bluffs, Iowa. Mortar or composition for coating walls	348,644	Sept. 7	153	.....	36	1075
Turnbull, Adam S. (See Chamberlin and Turnbull.)						
Turnbull, William C., Baltimore, Md. Telephone-receiver	346,962	Aug. 10	661	176	36	595
Turnbull, William C., Baltimore, Md. Telephone-switch	348,936	Sept. 7	542	143	36	1146
Turner, Jacob W., Middle Point, Ohio. Band-cutter and feeder for thrashing-machines	347,280	Aug. 10	1107	296, 297	36	677
Turner, William H., Indianapolis, Ind. Warm-air furnace	349,825	Sept. 28	1781	460	36	1402
Tuthill, Daniel S., Newburg, N. Y., assignor of one-half to B. H. and J. J. B. Dubois, Leadville, Colo. Railway-rail	350,089	Sept. 28	2134	552	36	1470
Tuttle Bailey Manufacturing Company. (See Tuttle, Silas, Jr., assignor.)						
Tuttle, Silas, Jr., Brooklyn, assignor to Tuttle Bailey Manufacturing Company, New York, N. Y. Hot-air register	346,875	Aug. 3	535	145	36	564
Tuttle, Sterling D., Sr., Eaton, Ohio. Spring bed bottom	348,539	Aug. 31	2938	790	36	1041
Tuttle, Willis H., Canandaigua, N. Y. Potato-digger	349,961	Sept. 28	1957	506	36	1436
Tutton, Anaximander B., Sioux Falls, Dak. Ter. Atomizer	347,750	Aug. 17	1799	480	36	813
Tuxbury, Willis, *et al.* (See Switzer, John J., assignor.)						
Tybjerg, Olaf, Copenhagen, Denmark. Protractor	346,519	Aug. 3	91	24	36	478
Tylee, James E., assignor to himself, B. S. Clarke, and J. C. Tylee, Ashland, Nebr. Clip-coupling for vehicles	345,460	July 13	922	232	36	171
Tylee, John C., *et al.* (See Tylee, James E., assignor.)						
Tyler, Abel D., Jr., assignor to O. A. Miller, Brockton, Mass. Boot or shoe tree	348,937	Sept. 7	543	143	36	1146
Tyler Bradford Machine Company. (See Tyler, George L., assignor.)						
Tyler, George L., Lynn, Mass., assignor to Tyler Bradford Machine Company. Leather-splitting machine	345,007	July 6	305	76, 77	36	56
Tyler, John. (See Geesen and Tyler.)						
Tyler, John F., *et al.* (See Shellaberger, George H., assignor.)						
Tyler, Washington S. (See White, Joseph W., assignor.)						
Tyler, William W. (See Davis and Tyler.)						
Tynan, Joseph E., Paterson, N. J. Doubling and winding machine	346,693	Aug. 3	304	83, 84	36	520

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Tynan, Joseph E., Paterson, N. J. Spindle-bearing for spinning-machines	349,896	Sept. 28	1783	461	36	1402
Type Writer Company. (See Jenne, William K., assignor.)						
Tyrell, Samuel. Grass Valley, Cal. Candlestick	345,461	July 13	923	272	36	171
Udell, Calvin G., North Indianapolis, Ind. Folding towel-rack	349,709	Sept. 28	1702	439	36	1396
Udell, Calvin G., North Indianapolis, Ind. Towel-roller	349,770	Sept. 28	1703	439	36	1396
Uecke, Charles W. (See Uecke, Robert C. and C. W.)						
Uecke, Robert C. and C. W., Seymour, Wis. Hame-fastening	347,076	Aug. 10	837	223	36	627
Uhle, Frederick W., Philadelphia, Pa. Medical operating-couch	346,246	July 27	2064	530	36	396
Uhlig, Augustinus, Pegau, Saxony, Germany. Piano tuning-pin	345,743	July 20	1361	354	36	258
Uhlmann, Charles R., Peoria, Ill. Lock	347,664	Aug. 17	1688	449, 450	36	793
Ullman, Morris, Washington, D. C. Electric annunciator-target	346,876	Aug. 3	536	145, 146	36	505
Umpleby, William H., Trenton, N. J. Water-closet	344,884	July 6	130	32	36	23
Umpleby, William H., Trenton, N. J. Water-closet	349,293	Sept. 14	1025	262	36	1242
Unbehend, Jacob J., assignor to J. L. Thomson & Co., Syracuse, N. Y. Rivet attachment for rubber boots or shoes	345,555	July 13	1089	277	36	200
Underwood, Frederick W. (See Underwood, John T. and F. W.)						
Underwood, George B., Toronto, Ontario, Canada. Lock	349,017	Sept. 14	662	170	36	1172
Underwood, Harold G. (See Cole, Elizabeth J., assignor.)						
Underwood, Henry M. (See Miltimore and Underwood.)						
Underwood, John T. and F. W., Brooklyn, N. Y. Composition for transfer surfaces for producing copies of type-writing	348,072	Aug. 24	2273	.....	36	909
Underwood, John T. and F. W., Brooklyn, N. Y. Reproducing surface for type-writing and manifolding	348,073	Aug. 24	2273	.....	36	909
Union Stove Works. (See Finch, Reuben R., assignor.)						
Union Switch and Signal Company. (See Jackson, Caleb H., assignor.)						
United States Car Wheel Dressing Company. (See Miltimore, George W., assignor.)						
United States Dynamite Company of New York. (See Eissler, Manuel, assignor.)						
United States Electric Company. (See Short, Sidney H., assignor.)						
United States Electric Lighting Company. (See Weston, Edward, assignor.)						
Unzicker, Otto, Chicago, assignor to A. Shoeninger, Lake View, Ill. Sled	349,827	Sept. 28	1784	461	36	1403
Upham, Andrew J., Sycamore, Ill. Cleaner for gun-barrels	345,818	July 20	1467	379	36	276
Upperman, T. H., *et al.* (See L. Grande, William W., assignor.)						
Uprichard, John, Philadelphia, Pa. Water-closet	349,962	Sept. 28	1958	506	36	1436
Upshaw, Loucius L., Jackson's Gap, Ala. Cotton-planter and fertilizer-distributer	349,325	Sept. 21	1061	272	36	1257
Upton, Eugene C. (See Fairbanks, John A., assignor.)						
Upton, James S., Battle Creek, Mich. Wire fence	347,751	Aug. 17	1800	480	36	813
Urban, George, Jr. (See Ortman, Barnim F., assignor.)						
Urie, Henry F., Chestertown, Md. Corn-harvester	345,195	July 6	544	139	36	99
Usher, John T., Elmira, N. Y. Micrometer inside calipers	347,844	Aug. 24	1941	515	36	848
Utter, Samuel N., Franklin, Ind. Rotary churn	346,180	July 27	1963	506	36	376
Vail, John D., Blairstown, N. J. Indicator for closet and other doors	345,339	July 13	751	189	36	141
Vail, Martha A., New Milford, Pa. Dish-drainer	347,665	Aug. 17	1690	450	36	793
Vail, William H., *et al.* (See Whitney, Daniel D., assignor.)						
Valle, Charles A., assignor of one-half to L. F. Young, Baltimore, Md. Skylight	346,077	July 20	1822	470	36	310
Valentine, Waldo W., Buffalo, N. Y. Vehicle-wheel	347,845	Aug. 24	1943	515	36	849
Valentine, William M., Glen Cove, N. Y. Sash-holder	348,431	Aug. 31	2780	747	36	1012
Van De Velde, Bernard F., *et al.* (See Bührer, Jacob, assignor.)						
Van De Velde, Frank B., *et al.* (See Bührer, Jacob, assignor.)						
Van De Velde, Henry T., *et al.* (See Bührer, Jacob, assignor.)						
Van Depoele, Charles J., Chicago, Ill. Automatic suspended switching device for electric railways	346,963	Aug. 10	662	176	36	595
Van Depoele, Charles J., Chicago, Ill. Electric railway-traveler and switch-operator	347,901	Aug. 24	2021	536	36	862
Van Depoele, Charles J., Chicago, Ill. Electro-dynamic motor	347,902	Aug. 24	2025	536	36	862
Van Depoele, Charles J., Chicago, Ill. Regulator for electric motors	347,903	Aug. 24	2027	536	36	863
Van Depoele, Charles J., Chicago, Ill. Dynamo-electric railway-brake	347,904	Aug. 24	2029	537	36	863
Van Depoele, Charles J., Chicago, Ill. Underground conduit for electric railways	347,905	Aug. 24	2030	537	36	863
Van Depoele, Charles J., Chicago, Ill. Electro-magnetic railway-brake	348,360	Aug. 31	2672	720	36	991
Van Derveer, Benjamin B., New York, N. Y. Baking furnace and oven	349,771	Sept. 28	1704	439	36	1396
Van Denson, Clarence R., Passaic, N. J. Rubbing-machine	345,462	July 13	924	232	36	171
Van Epa, John, Somerville, N. J. Music-leaf turner	349,510	Sept. 21	1378	357	36	1318
Van Gestel, Jean T., Hartford, Conn. Incandescent lamp and connections	345,008	July 6	306	77	36	56
Van Horn, William, Piqua, assignor to L. S. Mohler, L. P. Shellabarger, and J. Senseman, Covington, Ohio. Fence-machine	347,400	Aug. 17	1290	344	36	719
Van Normann, Gustaf, assignor to M. M. Van Normann, Minneapolis, Minn. Fish-hook	345,088	July 6	404	102	36	73
Van Normann, Minna M. (See Van Normann, Gustaf, assignor.)						
Van Nuis, Charles S., *et al.* (See Dyer, Richard N., assignor.)						
Van Nuis, Charles S., *et al.* (See Howell, John W., assignor.)						
Van Order, Jacob W., Arlington, Oreg. Force-pump	348,361	Aug. 31	2673	720	36	991
Van Schaumburg, Louis S., Bochum, assignor to E. Rose, Hanover, Prussia, Germany. Axle-box	348,432	Aug. 31	2780	747	36	1012
Van Sicien, James, Jamaica, N. Y. Potato-digger	345,936	July 20	1627	419, 420	36	305
Van Sicien, James, Jamaica, N. Y. Fertilizer-distributer	347,535	Aug. 17	1492	393	36	754
Van Vleck, John P., Cookeville, Wis. Potato-planting machine	349,242	Sept. 14	968	247	36	1229
Van Vaulkenburg, Randall T., *et al.* (See Henderson, Harry D., assignor.)						
Van Winkle, Edward, Atlanta, Ga. Cotton-gin	347,666	Aug. 17	1690	450	36	793
Van Winkle, Garret, North Plainfield, N. J. Knob attachment	349,915	Sept. 28	1890	489	36	1424
Van Wyck, Frederick, New York, N. Y. Throw-off mechanism for oscillating printing-machines	348,302	Aug. 31	2605	701	36	978
Vance, Samuel J., Macomb, Ill. Sash-balance	346,567	Aug. 3	147	40	36	489
Vance, Thomas C. H., Louisville, Ky. Electric clock and indicator system	347,399	Aug. 17	1289	343	36	749
Vandegrift, John W., and F. L. Campbell, Pulaski City, Va. Railway-switch	346,789	Aug. 3	413	114, 115	36	541
Vanderalice, Thomas L., Philadelphia, Pa. Extension step-ladder	349,189	Sept. 14	895	230	36	1216
Vanderveort, Manly R. (See Simon, August T., assignor.)						
Vandyke, James F., Anderson, Ind. Releasing device	345,556	July 13	1083	277	36	200
Vanmerson, Alfred T., Baltimore, Md. Baby-carriage	346,790	Aug. 3	416	115	36	541
Vanmerson, Alfred T., Baltimore, Md. Top for children's carriages	348,074	Aug. 24	2274	609	36	909
Vanstrom, Salomon, Canby, Minn. Spinning attachment for sewing-machines	345,341	July 13	753	189	36	142
Varing, Olaf, Christiania, Norway. Photographic camera	347,451	Aug. 17	1369	364	36	732
Varley, John J. (See Barrett and Varley.)						
Varnauf, George P., Wichita, Kans. Weather-strip	346,833	Aug. 3	474	131	36	583

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Varney, John H., Hallowell, Me. Apparatus for stretching and drying cloth	347,212	Aug. 10	1016	270, 271	36	680
Varwig, Henry. (See La Boiteaux, Frank M., assignor.)						
Vaughan, Aaron C., Shane's Crossing, Ohio. Nut-lock	349,674	Sept. 21	1539	397	36	1351
Vaughan, Frank, Elizabeth City, N. C. Life-preserving float	346,332	July 27	2182	560	36	417
Vaughen, Samuel W. (See Williams and Vaughen.)						
Vavasseur, Josiah, Southwark, county of Surrey, England. Gun-mounting	345,744	July 20	1361	354, 355	36	258
Veillenx, Anselm, and W. Benington, assignors of one-third to C. G. Shepard, Stillwater, Minn. Letter-press	347,536	Aug. 17	1485	394	36	755
Venning, George H. (See Palmer, William, assignor.)						
Verdol, Jules, Paris, France. Jacquard machine	346,877	Aug. 3	539	146, 147	36	565
Verein für Chemische Industrie in Mainz. (See Rumpf, Gustave, assignor.)						
Verner, Morris S., assignor to G. Westinghouse, Jr., Pittsburg, Pa. Pipe joint and line	345,463	July 13	925	233	36	172
Vernon, Isaiah Great Bridge, Tipton, county of Stafford, England. Steam-engine	345,609	July 6	307	77	36	56
Vernon, Joseph, Avalon, Mo. Cooking apparatus	349,288	Sept. 14	1020	261	36	1240
Vick, Alfred, Mount Carmel, Conn. Velocipede	346,078	July 20	1823	471	36	340
Vinnac, Antoine. (See Brislin and Vinnac.)						
Vinson, Peter, assignor of one-half to E. Elliott, Elrod, Ind. Combined fertilizer and insecticide	349,289	Sept. 14	1021	.....	36	1241
Vinton, John H., Boston, Mass., assignor to Peninsular Novelty Company, Grand Rapids, Mich. Staple-machine	345,464	July 13	928	233, 234	36	172
Vinton, John H., Boston, Mass., assignor to Peninsular Novelty Company, Grand Rapids, Mich. Button-setting machine	346,419	July 27	2304	594	36	440
Violett, Atwood. (See Tabony, Joseph H., assignor.)						
Visser, William M., Paducah, Ky. Hedge	344,885	July 6	132	33	36	23
Vitrite and Linoleum Company. (See Hall, Clinton M., assignor.)						
Vogel, William, Chicago, Ill., assignor to Consolidated Railway Telephone and Signal Company. Signal for railway-crossings	347,752	Aug. 17	1801	480	36	813
Vogel, William, Chicago, Ill., assignor to Consolidated Railway Telephone and Signal Company. Railway-signaling apparatus	347,753	Aug. 17	1804	481	36	814
Vogler, Roman, Oberinrkheim, Würtemberg, Germany. Electric motor	350,025	Sept. 28	2045	527	36	1452
Vogt & Bro., J. F. (See Simmon, Gustav H. W., assignor.)						
Voigt, Max G., Sr., assignor to Metropolitan Wire Nail Manufacturing Company, New York, N. Y. Wire-nail machine	345,745	July 20	1364	355	36	258
Voigt, Max G., Sr., assignor to Metropolitan Wire Nail Manufacturing Company, New York, N. Y. Wire-nail machine	345,746	July 20	1365	355	36	258
Volberg, C. C. (See Grisel, George, assignor.)						
Volke, Charles A., Stapleton, N. Y. Permutation-padlock	345,340	July 13	752	189	36	141
Vollrath, Andrew J. (See Frambach, Dart, and Vollrath.)						
Von Heyden F. (See Nencki and Seifert, assignors.)						
Von Perger, Hugo, assignor to Society of Chemical Industry, Reichenberg, Bohemia, Austria-Hungary. Production of phenyl-methyl oxyquinicine	348,483	Aug. 31	2855	.....	36	1096
Vondriska, Joseph, Cincinnati, Ohio. Vehicle-spring	349,541	Sept. 21	1379	357	36	1318
Voorhees, John K., Pella, Iowa. Check-row corn-planter	348,250	Aug. 31	2535	681	36	963
Voorhis, Calvin, assignor to himself and A. Shenfield, New York, N. Y. Snap-hook for suspender-buckles	345,819	July 20	1467	379	36	276
Voorhis, Calvin, assignor to himself and A. Shenfield, New York, N. Y. Suspender-buckle	347,143	Aug. 10	926	247	36	643
Vose, Ambrose S., Windsor, Vt. Try and bevel square	345,196	July 6	545	140	36	99
Vose, Clarence, Brooklyn, assignor to Pratt Manufacturing Company, New York, N. Y. Apparatus for refrigerating brine, cooling liquids, and making ice	346,446	July 27	2346	603	36	447
Vose, Clarence, Brooklyn, assignor to Pratt Manufacturing Company, New York, N. Y. Apparatus for cutting up paraffine distillate	346,447	July 27	2350	604	36	448
Vose, Clarence, Brooklyn, assignor to Pratt Manufacturing Company, New York, N. Y. Extracting paraffine from petroleum distillate	346,448	July 27	2352	604	36	448
Vose, Richard, New York, N. Y. Car-spring	347,251	Aug. 10	1109	297	36	677
Vose, Richard, New York, N. Y. Car-spring	348,251	Aug. 31	2537	681	36	963
Vose, Richard, New York, N. Y. Car-spring	349,070	Sept. 14	734	187	36	1185
Votey, Edwin S., assignor to Whitney Organ Company, Detroit, Mich. Organ-case	348,505	Aug. 31	2888	777	36	1032
Vulcan Company. (See Kittredge and Leavitt, assignors.)						
Waddell, Robert R., Hillsborough, Ohio. Spring-holder for spectacles	349,018	Sept. 14	663	170	36	1172
Wade, Lanslatt D., Puyallup, Wash. Ter. Gate	348,453	Aug. 31	2781	748	36	1012
Wade, William, assignor of two-thirds to N. Neff, Trenton, and F. H. Seymour, Detroit, Mich. Valve	345,197	July 6	547	140	36	100
Wagner, Fred J., Kirwin, Kans. Windmill	344,886	July 6	133	33	36	24
Wagner, Henry J., Dayton, Mo. Churn	347,978	Aug. 24	2140	570	36	883
Wagner, William R., *et al.* (See Eddington, Frank G., assignor.)						
Wagoner, Milton H., *et al.* (See Kyle, Edward E., assignor.)						
Wahlert, Henry A., assignor to American Brake Company, St. Louis, Mo. Locomotive-brake	347,017	Aug. 10	741	197	36	609
Wahlert, Henry A., assignor to American Brake Company, St. Louis, Mo. Locomotive-brake	347,407	Aug. 17	1300	346	36	721
Wait, Oscar E., assignor to P. W. Gould, Springfield, Vt. Spool or bobbin	344,928	July 6	185	47	36	35
Waite, Charles N., assignor of one-half to J. Morrison, Medford, Mass. Marking-crayon	346,602	July 20	1724	.....	36	322
Waite, Henry E. (See Ethridge, Martin Y. B., assignor.)						
Waite, James N., assignor to Pope Manufacturing Company, Hartford, Conn. Velocipede	345,465	July 13	929	234	36	172
Wakefield, Caleb, Brady, Pa. Compressor	349,542	Sept. 21	1379	358	36	1318
Wakefield Rattan Company. (See Trow, Charles W., assignor.)						
Walbridge, John H., *et al.* (See Stepp, John P., assignor.)						
Waldorf, George M. (See Kochsmeier and Waldorf.)						
Wales, Harriet H. (See Wales, Sigourney, assignor.)						
Wales, Sigourney, assignor to H. H. Wales, Cambridge Mass. Connection for belts, bands, &c	348,871	Sept. 7	446	119	36	1130
Wales, Sigourney, assignor, by mesne assignments, to H. H. Wales, Cambridge, Mass. Clasp for supporting articles	348,872	Sept. 7	447	119	36	1130
Wales, Sigourney, assignor to H. H. Wales, Cambridge, Mass. Garment-supporter	348,873	Sept. 7	449	119	36	1130
Walk, Jacob M., Osnaburg, and C. R. Foster, Cleveland, Ohio; said Foster assignor to said Walk. Fence-post	348,874	Sept. 7	450	120	36	1130
Walker, John, Cleveland, Ohio. Roller-mill	347,667	Aug. 17	1692	450, 451	36	793
Walker, Leverett B., St. Johns, Mich. Planter	348,801	Sept. 7	352	96	36	1113
Walker, Randall W., Oxford, N. Y. Guard-finger	346,568	Aug. 3	148	40	36	489

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Walker & Rhemberg. (See Wilcox, Stephen C., assignor.)						
Walker, Robert, Harrisville, Ohio. Neck-yoke attachment	345,557	July 13	1084	277	36	201
Walker, Thomas G., Morristown, N. J. Process of drying	347,846	Aug. 24	1944	516	36	849
Walker, William C., assignor of two-thirds to S. J. Dibble and P. R. Lostutter, Patriot, Ind. Machine for making wire-and-picket fences	347,668	Aug. 17	1693	451	36	793
Walker, William F., Chicago, Ill. Safety-valve	347,213	Aug. 10	1021	279	36	661
Walker, William L., Brooks, Cal. Shaft for two-wheeled vehicles	346,624	Aug. 3	229	61	36	503
Walker, William W., Tuebrook, county of Lancaster, England. Tobacco-pouch	347,669	Aug. 17	1694	451	36	794
Wall, Charles P. (See Cawley and Wall.)						
Wall, John C., assignor of one-half to J. F. Wall, Amsterdam, N. Y. Automatic grinder for woolen and cotton cards	347,847	Aug. 24	1945	516	36	849
Wall, John F. (See Wall, John C., assignor.)						
Wall, Stephen A. (See Hardy and Wall.)						
Wallace, Alexander. (See Duncan and Wallace.)						
Wallace, George W., Canandaigua, N. Y. Stove-hood	346,694	Aug. 3	307	84	36	521
Wallace, Hamilton, White Haven, Pa. Perforating-machine	348,434	Aug. 31	2783	748	36	1013
Wallace, John C., Corsicana, Tex. Guard for gin-saws	350,026	Sept. 28	2046	528	36	1452
Walls, Frank T. (See Foreman and Walls.)						
Walrath, Jesse, assignor to J. I. Case Thrashing Machine Company, Racine, Wis. Furnace-grate	347,214	Aug. 10	1029	272	36	661
Walsh, Edward, Jr., St. Louis, Mo. Rolling plate-glass	346,695	Aug. 3	308	84, 85	36	521
Walsh, James M., and C. G. Smith, Taylorville, Cal. Adjustable connection for brake-beams	346,333	July 27	2182	560	36	417
Walsh, John D., Covington, Ky. Extension book-case	348,252	Aug. 31	2538	661	36	963
Walsh, Ralph, Washington, D. C. Capsule-filling machine	346,964	Aug. 10	664	177	36	596
Walter, Adolph, Fremont, Ohio. Buggy-top joint	345,398	July 13	833	209	36	155
Walter, Anton W., Canton, Ohio. Metal roofing	345,080	July 6	404	102	36	74
Walter, Charles, Brooklyn, N. Y. Hand-truck	345,080	July 6	405	102	36	74
Walter, Hamilton F., York, Pa. Shaft-tug	347,670	Aug. 17	1695	451	36	794
Walter, John T., Easton, Pa. Eccentric for operating screens of middlings-purifiers	347,844	Aug. 24	1946	517	36	850
Walter, William P., Newton, Kans. Flue thimble and stopper	348,435	Aug. 31	2784	748	36	1013
Walters, Alfred, assignor of one-half to P. Collins, Averit, La. Churn	347,849	Aug. 24	1947	517	36	850
Walther, John, Brooklyn, N. Y., assignor to C. B. Cottrell, Stonington, Conn. Sheet-delivery apparatus for printing-machines	348,075	Aug. 24	2275	609	36	909
Walton, George J., Powhatan Point, Ohio. Car-coupling	349,543	Sept. 21	1390	358	36	1319
Walton, George L., Bougere, La. Car coupling	347,537	Aug. 17	1486	394	36	755
Walton, Thomas, Newton le Willows, county of Lancaster, England. Apparatus for manufacturing glass tumblers	346,181	July 27	1965	506 / 507	36	376
Walworth, Arthur C., Boston, Mass. Air-valve for radiators	345,747	July 20	1366	355	36	258
Walser, Justin, Chaux-de-Fonds, Switzerland. Game attachment for watches	348,645	Sept. 7	154	43	36	1075
Wandell, Wilber S., Vicksburg, Mich. Heater and condenser for steam force-pumps	347,215	Aug. 10	1023	272	36	661
Wang, Jens A., Alpena, Mich. Pantograph	350,027	Sept. 28	2046	528	36	1452
Ward, Alexander F., Detroit, Mich. Hoop-coiling machine	349,243	Sept. 14	970	248	36	1230
Ward, Anthony, assignor to A. G. Jennings & Sons, Brooklyn, N. Y. Knitting-machine	346,182	July 27	1967	507	36	377
Ward, C. E. (See Maynard, John M., assignor.)						
Ward, Edward F., Grand Rapids, Mich. Heating apparatus	348,662	Sept. 7	97	28	36	1065
Ward, Emily. (See Libbey, Hosea W., assignor.)						
Wardwell, Frank A., Methuen, Mass. Cane-gun	349,864	Sept. 28	1830	473	36	1412
Ware, Walter F., Camden, N. J. Nursing-bottle	347,018	Aug. 10	742	197	36	610
Waring, Charles W., Wrightsville, Ark. Traction-wheel	345,342	July 13	754	190	36	142
Waring, Clara K., Middletown, assignor to J. C. Battersby, New York, N. Y. Portable folding wardrobe	347,308	Aug. 10	1157	310	36	686
Waring, John T., Yonkers, N. Y. Apparatus for manufacturing napped or filled yarns or threads	347,538	Aug. 17	1487	394 / 395	36	755
Wark, David, Mount Vernon, N. Y. Movement cure apparatus	349,019	Sept. 14	663	171	36	1172
Warner, Ernest P., assignor to Western Electric Company, Chicago, Ill. Armature for dynamo-electric machines	346,965	Aug. 10	665	177	36	596
Warner, G. Wilber, Freeport, Ill. Anti-friction roller and wheel	348,802	Sept. 7	53	96	36	1113
Warner, George W., Freeport, Ill. Spring-hinge	345,748	July 20	1367	356	36	258
Warner, John P., Philadelphia, Pa., assignor of part to J. F. Dezendorf, Norfolk, Va., E. A. Adams and T. E. Jacobs, Washington, D. C. Feed-water purifier and heater	346,247	July 27	2065	530	36	396
Warner, Peter W., assignor to A. W. C. Curry Comb Company, Hastings, Nebr. Curry-comb	346,625	Aug. 3	224	61	36	504
Warner, Samuel G. (See Hough, Benjamin B., assignor.)						
Warren, Charles F. (See Southland and Warren.)						
Warren, Cyrus M., Brookline, Mass. Roofing and paring material	345,399	July 13	834	.....	36	155
Warren, George H., and E. C. Richmond, Shelburne Falls, Mass. Shingling bracket	348,705	Sept. 7	238	63	36	1091
Warren, Henry H., Côté St. Paul, Quebec, Canada. Die for making hammers	348,362	Aug. 31	2674	720	36	992
Warren, Winslow. (See Parsons, Francis, assignor.)						
Warrington, Jesse, assignor of one-half to Nordyke & Marmon Company, Indianapolis, Ind. Roll-grinding machine	349,544	Sept. 21	1382	358	36	1319
Warth, Albin, Stapleton, N. Y. Lubricator	345,558	July 13	1085	277 / 278	36	201
Warth, Albin, Stapleton, N. Y. Steam pumping-engine	348,076	Aug. 24	2277	610	36	910
Warwick Machine Company. (See Gillespie, James E., assignor.)						
Washburn, Freeman C., Wellsborough, Pa. Cartridge-loading implement	345,343	July 13	755	190	36	142
Washburn & Moen Manufacturing Company. (See Bates, Albert J., assignor.)						
Waterbury Watch Company. (See Hart, George E., assignor.)						
Waterhouse, Addison G., assignor to Waterhouse Electric and Manufacturing Company, Hartford, Conn. Electric arc lamp	345,937	July 20	1029	420	36	305
Waterhouse Electric and Manufacturing Company. (See Waterhouse, Addison G., assignor.)						
Waterman, John S., Ithaca, N. Y. Key-seat-milling machine	347,539	Aug. 17	1489	395	36	755
Waters, Edward G., and R. G. Sweeny, Terre Haute, Ind. Electrical switch	346,183	July 27	1968	507	36	377
Waters, Isaac L., Sutton, Mass. Breech-loading fire-arm	349,244	Sept. 14	973	248	36	1230
Waters, Samuel H. (See Waters, Wordsworth F. and S. H.)						
Waters, Wordsworth F., Johnson, and S. H. Waters, Lyndon, Vt. Butter-worker	349,326	Sept. 21	1092	273	36	1257
Wathins, Charles B. (See Palmer, George W., assignor.)						
Watkins, Edgar W., Falls Church, Va. Steamer	346,334	July 27	2184	560	36	418
Watmough, John G. (See Rau, Eugene, assignor.)						
Watson, Algernon C., London, Ohio. Adjustable chair	349,129	Sept. 14	817	207	36	1200
Watson, Frank, Scarsdale, N. Y. Automatic signal-lantern for use on railways and steam and sailing vessels	349,828	Sept. 28	1785	461	36	1403
Watson, John D., and J. A. Wilcox, Wyatt, W. Va. Apparatus for boring cylinders	349,943	Sept. 28	1859	506	36	1437

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Watson, Thomas A., Everett, assignor to American Bell Telephone Company, Boston, Mass. Telephone	348,077	Aug. 24	2279	610	36	910
Watson, William, assignor of one-half to G. M. Irving, Victoria, British Columbia, Canada. Heel-die	349,071	Sept. 14	736	187	36	1185
Watson, William R. (See Hipp, Preston O., assignor.)						
Wayland, James, Newark, N. J., assignor to Ansonia Brass and Copper Company, and W. A. Hull, New York, N. Y. Wick for lamp-burners	345,091	July 6	406	102	36	74
Weatherhead, Albert J., assignor to Cleveland Faucet Company, Cleveland, Ohio. Drain-tube for faucets	346,590	Aug. 3	92	24	36	478
Wealand, Henry K., Durlach, assignor of one-half to W. Romig, Lincoln, Pa. Bag-holder	347,077	Aug. 10	838	223	36	627
Weaver, Cromwell P., assignor of one-half to J. L. Carre, Philadelphia, Pa. Gate-latch	349,469	Sept. 21	1282	333	36	1299
Weaver, Daniel. (See Altick, James O., assignor.)						
Weaver, Henry M., Mansfield, Ohio. Grate	347,401	Aug. 17	1692	344 / 345	36	719
Weaver, Theophilus, Harrisburg, Pa. Hand corn-sheller	349,327	Sept. 21	1063	273	36	1257
Webb, Cyrus O., Moravia, N. Y. Machine for pearling barley, wheat, &c.	347,540	Aug. 17	1493	395	36	756
Webb, Edward. (See Briggs and Webb.)						
Webb, Harry C., and J. A. Kellogg, Nashville, Tenn.; said Webb assignor to said Kellogg. Car-coupling	348,363	Aug. 31	2675	721	36	992
Webb, Joseph, Beaver, Pa. Manufacture of fancy glassware	345,965	July 6	645	163	36	117
Webb, William J., Harbor au Bouche, Nova Scotia, Canada. Lamp-chimney cleaner	347,671	Aug. 17	1695	452	36	794
Webber, Charles C., Holyoke, Mass., assignor to himself and T. Campbell, Chicago, Ill. Cloth-doubling and rolling-up machine	345,344	July 13	756	190	36	142
Webber, Edward B., Collierville, Tenn. Muzzle	345,749	July 20	1367	356	36	259
Weber, Theodor R. A., New York, N. Y. Railway-signal	347,541	Aug. 17	1493	396	36	756
Webster, Andrew G., Boston, Mass. Leather-splitting machine	347,402	Aug. 17	1294	345	36	720
Webster, Joseph W., Little Rock, S. C. Shovel-plow	348,436	Aug. 31	2785	748	36	1013
Webster, William, Armley, Leeds, county of York, England. Over-edge sewing-machine	346,248	July 27	2067	531	36	397
Webster, William S., Newark, N. J., assignor of one-half to Peters & Calhoun Company. Saddle-tree	347,672	Aug. 17	1696	452	36	794
Week, Friedrich, Lilleshall, county of Salop, England. Dry center-valve for gas-purifiers	345,559	July 13	1088	278	36	201
Weekman, John, Canton, Ohio. Harrow	346,591	Aug. 3	93	25	36	478
Wedd, Benjamin G., Henrietta, N. Y. Hanger for sliding doors	349,829	Sept. 28	1787	462	36	1403
Weeden, Henry C., Boston, Mass. Ball-cock	348,364	Aug. 31	2677	721	36	992
Weedon, Walter C., Kansas City, Mo. Ear-tag for marking animals	347,850	Aug. 24	1948	517	36	850
Weekes, Charles, Dublin, Ireland. Combined cork-extractor and lemon-squeezer	346,249	July 27	2069	532	36	397
Weeks, Stephen P. (See Barber and Weeks.)						
Wehmeyer, Edward, Brunswick, Mo. Shutter-fastener	345,750	July 20	1370	356	36	259
Weichert, Herrmann, Hoboken, N. J. Machine for cutting holes in wood or other materials	349,772	Sept. 28	1705	440	36	1366
Weichhart, John, San Francisco, Cal. Gopher-trap	345,345	July 13	760	190	36	143
Weickum, Georg, Vienna, Austria-Hungary. Mechanism for converting motion by helical surfaces	346,335	July 27	2184	560	36	418
Welderman, Charles H., assignor of one-half to R. Smith, Chicago, Ill. Filter	347,403	Aug. 17	1295	345	36	720
Weimer, Peter L., Lebanon, Pa. Rotary blower	345,751	July 20	1370	357	36	259
Weimer, Peter L., Lebanon, Pa. Compound air-compressor	345,752	July 20	1372	357	36	259
Weinberg, Arthur. (See Hoffmann and Weinberg.)						
Weiner, Isidore H., Houston, Tex. Reporter's desk	348,706	Sept. 7	240	63	36	1091
Weinman, Christian. (See Murphy and Weinman.)						
Weinmann, August A., Dallas, Tex. Combination-plow	347,144	Aug. 10	992	247 / 248	36	644
Weir, Daniel P., Salem, Mass. Valve	348,303	Aug. 31	2607	701 / 702	36	978
Weir, Frederic C., Cincinnati, Ohio. Automatic continuous rail-frog	348,078	Aug. 24	2280	611	36	910
Weise, Carl, Dermbach, Saxe-Weimar, Germany. Roofing-tile	345,400	July 13	834	209	36	155
Weiser, John W., Chicago, Ill. Wheel-hub	349,190	Sept. 14	896	230	36	1216
Weiss, Charles W., Brooklyn, assignor to Kruse Check and Adding Machine Company, New York, N. Y. Electro-magnetic adding-machine	348,437	Aug. 31	2786	749 / 750	36	1013
Weiss, Louis T., Brooklyn, assignor to Kruse Check and Adding Machine Company, New York, N. Y. Machine for delivering and adding checks	348,369	Aug. 31	2687	723 / 724	36	994
Weitmyer, John H., Harrisburg, Pa. Boiler-flue cleaner	347,145	Aug. 10	992	248	36	644
Weitz, Conrad, Buffalo, N. Y. Refrigerator and table combined	346,966	Aug. 10	667	178	36	596
Weitz, Jacob, and H. Klassert, Buffalo, N. Y. Refrigerator	348,803	Sept. 7	351	96	36	1113
Weitzel, George, Toledo, Ohio. Cash drawer and register	345,092	July 6	407	103	36	74
Weld, Frank A. (See Hazeltine and Weld.)						
Weldon, Leonard, assignor of one-half to Greene Knitting Company, Amsterdam, N. Y. Dyeing apparatus	347,404	Aug. 17	1296	345	36	720
Weller, Chester A., Croton Landing, assignor of one half to Elger & Elger, New York, N. Y. Screw-cutting machine	348,365	Aug. 31	2679	721 / 722	36	992
Welles, Richard J., Athens, Pa. Harness-pad tree	348,253	Aug. 31	2630	682	36	964
Wellhouse, George, assignor to Taplin, Rice & Co., Akron, Ohio. Heating-stove	349,545	Sept. 21	1381	359	36	1319
Wellington, Frederick, Saginaw, Mich. Blacking-box holder	349,328	Sept. 21	1065	273	36	1258
Wellman, Alexander R., assignor to O. A. Miller, Brockton, Mass. Boot-tree	347,309	Aug. 10	1158	310	36	686
Wellman, Henry F., Englewood, assignor to Schneidewend & Lee Company, Chicago, Ill. Machine for shaving printers' leads	348,804	Sept. 7	356	96, 97	36	1111
Wellman, Samuel T., Cleveland, Ohio. Drawing disks of metal into tubular forms	348,079	Aug. 24	2283	611	36	911
Wells, Edgar J., assignor of one-half to F. Ives, Ticonderoga, N. Y. Device for oiling loose pulleys	349,516	Sept. 21	1385	359	36	1319
Wells, William W., assignor to himself, H. E. Tidmarsh, and J. Smith, Sandy Hill, N. Y. Friction-pulley	349,547	Sept. 21	1387	359	36	1320
Wendling, Friedrich, Munich, Bavaria, Germany. Mixed paint	346,336	July 27	2186	.....	36	418
Wendt, Arthur F., New York, N. Y. Extracting copper from pyrites	345,401	July 13	836	.....	36	156
Wendt, William F. (See Osgood, J. Lester, assignor.)						
Wentworth, Barton M., Berwick, Me. Sleigh-runner	346,337	July 27	2186	561	36	418
Wentworth, George R. (See Blackmer, Francis A., assignor.)						
Wentz, Rufus J., Stevens, N. C. Seed-planter	344,887	July 6	135	33	36	34
Wesler, Henry H., Newark, N. J. Shutter-worker	349,865	Sept. 28	1831	473	36	1412
Wessels, Edward J., Roselle, N. J. Electric railway-car illumination	348,603	Sept. 7	98	28	36	1065
Wesson, Abner, Memphis, Tenn. Stock-muzzle	348,438	Aug. 31	2792	750	36	1014
Wesson, Isaac A., Wingo, Ky. Seed-planter	345,198	July 6	548	140	36	100
West, Charles F., Philadelphia, Pa. Ice-creeper	346,338	July 27	2187	561	36	418
West Haven Buckle Company. (See Hyde, James C., assignor.)						
West, James W., Bruce, Ill. Harrow	349,548	Sept. 21	1388	359	36	1320
West, Leander, Bakersville, Pa. Pipe-coupling	349,549	Sept. 21	1389	360	36	1320

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
West, Marshall O., *et al.* (See Ingersoll, Simon, assignor.)						
West, Redfield B., Guilford, Conn. Photographic printing	345,753	July 20	1374	.....	36	260
West, Redfield B., Guilford, Conn. Photographic printing	345,938	July 20	1631	.....	36	306
Westbrook, Frank A., and W. S. Cook, Port Jervis, N. Y. Car-coupling	346,791	Aug. 3	417	115	36	542
Westcott, Charles H. and F., Seneca Falls, N. Y. Fire-extinguisher	347,216	Aug. 10	1024	273	36	661
Westcott, Frank. (See Westcott, Charles H. and F.)						
Westcott, John M. (See Conner and Westcott.)						
Westenhaver, Edward, assignor of one-half to F. M. Sturgis, Shelbyville, Ill. Oven for heating flat-irons	347,542	Aug. 17	1495	396	36	756
Westerlin, John M., Lake View, and A. Campbell, Chicago, Ill. Dash-pot	345,939	July 20	1632	420	36	306
Western Electric Company. (See Duplain, Francis P., assignor.)						
Western Electric Company. (See Patterson, William R., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Warner, Ernest P., assignor.)						
Westervelt, Henry R., Taughannock Falls, N. Y. Station-indicator	348,366	Aug. 31	2683	722	36	993
Westgate, Ida H., assignor of one-half to H. Grant, Worcester, Mass. Protector and stiffener	345,199	July 6	550	141	36	100
Westinghouse, George, Jr. (See Brown, Arthur G., assignor.)						
Westinghouse, George, Jr. (See Bylleaby, Henry M., assignor.)						
Westinghouse, George, Jr. (See Stanley, William, Jr., assignor.)						
Westinghouse, George, Jr. (See Verner, Morris S., assignor.)						
Westinghouse, George, Jr., Pittsburg, Pa. Car-brake	345,093	July 6	409	104	36	74
Westinghouse, George, Jr., Pittsburg, Pa. Automatic brake-regulator	345,820	July 20	1468	{379 389}	36	276
Westinghouse, George, Jr., Pittsburg, Pa. Proportional meter	347,673	Aug. 17	1697	{452 453}	36	794
Westinghouse, George, Jr., and F. Moore, Pittsburg, Pa. Dynamometer	349,130	Sept. 14	818	{207 208}	36	1200
Westphal, Otto, assignor to Schäffer & Budenberg, Buckau, near Magdeburg, Germany. Injector	345,200	July 6	551	141	36	100
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Safety-strip for electric circuits	348,646	Sept. 7	154	43	36	1075
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Holder for incandescent lamps	348,647	Sept. 7	156	43	36	1076
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Ampère-meter	348,648	Sept. 7	157	43	36	1076
Weston, Edward, Newark, N. J., assignor to United States Electric Lighting Company, New York, N. Y. Electric lighting system	348,649	Sept. 7	159	44	36	1076
Weston, Walter C., *et al.* (See Smith, Daniel J., assignor.)						
Wetherby, John A. (See Wetherby, Stephen D., assignor.)						
Wetherby, Stephen D., Bolivar, assignor to himself and J. A. Wetherby, Wellsville, N. Y. Vegetable-cutter	347,146	Aug. 10	931	248	36	644
Wetherwax, Charles, *et al.* (See Hyman, Samuel, assignor.)						
Wetmore, Jean A., Brooklyn, N. Y. Propelling cars by gas-motors	348,080	Aug. 24	2284	612	36	911
Wetmore, Lafayette, New Bremen, N. Y. Sheaf table and stand for thrashers	345,346	July 13	760	191	36	143
Wetmore, Sylvester J., Lowville, N. Y. Railway-gate	349,020	Sept. 14	664	171	36	1172
Wetzig, Charles. (See Stambaugh, Charles W., assignor.)						
Whaley, Thomas, assignor of one-half to J. E. McGrew and G. D. Johnstone, Aspen, Colo. Line-spacing device for type-writing machines	345,347	July 13	761	191	36	143
Wharry, James, *et al.* (See Rogers, Newton, assignor.)						
Wharton & Co., William, Jr. (See Sammel, Edward, assignor.)						
Wharton Railroad Switch Company. (See Johnston, Edward H., assignor.)						
Wharton Railroad Switch Company. (See Woolten, John E., assignor.)						
Wharton, S. P. (See Patterson, James S., assignor.)						
Wheaton, Abram W., assignor of one-half to M. Wheaton, Newark, N. J. Stair-rod securer	349,550	Sept. 21	1390	360	36	1320
Wheaton, Frank, New York, N. Y., assignor to Wheaton Sub-Electric Conduit Company. Underground conduit for electric wires	346,250	July 27	2070	532	36	397
Wheaton, Matthias. (See Wheaton, Abram W., assignor.)						
Wheaton Sub-Electric Condnit Company. (See Wheaton, Frank, assignor.)						
Wheeler, Alden D., Boston, Mass., assignor to American Automatic Fire Alarm Association, Portland, Me. Automatic fire-alarm system	348,707	Sept. 7	241	64	36	1091
Wheeler, David C. (See Wheeler, Dwight and D. C.)						
Wheeler, Dwight and D. C., assignors of one-third to J. A. Crofut, Bridgeport, Conn. Tool-handle	348,145	Aug. 24	2365	634	36	926
Wheeler, Edward H., Waterbury, Conn. Tape-measure	348,805	Sept. 7	358	97	36	1114
Wheeler, Emory A., Chicago, Ill. Can-opener	347,674	Aug. 17	1700	453	36	795
Wheeler, John W. (See Dingee, Albertus R., assignor.)						
Wheeler, Paris H., Washington, D. C. Photographic-plate holder	346,392	July 27	2265	580	36	433
Wheeler, William H., York, Pa. Balanced slide-valve	348,254	Aug. 31	2540	682	36	964
Wheeler, William H., assignor of one-half to G. W. S. Loucks, York, Pa. Pump-piston	349,830	Sept. 28	1788	462	36	1404
Wheeler & Wilson Manufacturing Company. (See Bayley, Charles H., assignor.)						
Wheeler & Wilson Manufacturing Company. (See Dial, Wilbur F., assignor.)						
Wheelock, Jerome, Worcester, Mass. Operating-lever for pumping machinery	349,551	Sept. 21	1391	360	36	1321
Whidden, Joseph E., South Abington, Mass. Window-fastener	344,888	July 6	135	34	36	24
Whipple, Henry J. P., Cleveland, Ohio. Door-bell	349,552	Sept. 21	1392	361	36	1321
Whipple, Leander E., Hartford, Conn. Tool for uniting wires	347,675	Aug. 17	1701	453	36	795
Whitaker, Edwin V., Gloversville, N. Y. Glove	348,806	Sept. 7	361	97	36	1114
Whitaker, Edwin V., Gloversville, N. Y. Glove	348,807	Sept. 7	361	97	36	1114
Whitaker, William W., assignor to J. McKee, Gloversville, N. Y. Glove and making the same	348,439	Aug. 31	2793	{750 751}	36	1014
Whitcomb, William H. (See Gould and Cook, assignors.)						
White, Benjamin P., East Lynne, Mo. Churn	349,376	Sept. 21	1152	298	36	1274
White, Charles, assignor to B. B. and H. W. Friedenwald, Baltimore, Md. Fluid-ejector	346,792	Aug. 3	418	115	36	542
White, Charles, assignor to B. B. and H. W. Friedenwald, Baltimore, Md. Fluid-ejector	346,878	Aug. 3	541	147	36	565
White, Charles, assignor to B. B. and H. W. Friedenwald, Baltimore, Md. Fluid-ejector	346,967	Aug. 10	668	178	36	596
White, Charles P., assignor to White, Walker & Company, Taunton, Mass. Stove	348,808	Sept. 7	362	98	36	1115
White, Charles V., Leavenworth, Kans. Shutter-fastener	345,348	July 13	763	191	36	143
White Dental Manufacturing Company, S. S. (See Browne, Arthur W., assignor.)						
White Dental Manufacturing Company, S. S. (See Richmond, Cassius M., assignor.)						
White Dental Manufacturing Company, S. S. (See Starr, Eli T., assignor.)						
White Dental Manufacturing Company, S. S. (See Williams, James L., assignor.)						
White, George, assignor to H. N. Burdick Manufacturing Company, New York, N. Y. Compound for perfecting the combustion of coal or other fuel	347,078	Aug. 10	839	.....	36	627

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
White, George F., Middletown, N. Y. Car-coupling	349,866	Sept. 28	1838	473	36	1413
White, George S., Danbury, Conn. Holder for lamp-burners	346,966	Aug. 10	669	178	36	597
White, Herman M., New York, N. Y. Sheet-tobacco	347,906	Aug. 24	2039	537	36	864
White, Hugh. (See Berray, Shepard, and White.)						
White, Isaac G., Adams, Ind. Wire fence	349,377	Sept. 21	1153	299	36	1274
White, John E., Syracuse, N. Y. Circuit-closing thermometer	347,851	Aug. 24	1949	518	36	850
White, John M., Terra Haute, Ind. Car-coupling	345,560	July 13	1090	278	36	202
White, Joseph A., and J. W. Gray, Hartford, Conn.; said White assignor to said Gray. Sprinkler	347,405	Aug. 17	1297	346	36	721
White, Joseph W., assignor of one-half to W. S. Tyler, Cleveland, Ohio. Tension-regulating rolls for wire-looms	348,081	Aug. 24	2286	{612 613}	36	911
White, Lewis B., New York, N. Y., assignor to L. Abbett, Jersey City, N. J. Grip for cable railways	349,867	Sept. 28	1833	474	36	1413
White, Lewis B., New York, N. Y., assignor to L. Abbett, Jersey City, N. J. Conduit for cable railways	349,868	Sept. 28	1834	474	36	1413
White, Lewis B., New York, N. Y., assignor to L. Abbett, Jersey City, N. J. Cable-grip	350,098	Sept. 28	2047	598	36	1453
White, Lewis B., New York, N. Y., assignor to L. Abbett, Jersey City, N. J. Track-gripping device for railway-cars	350,090	Sept. 28	2136	552	36	1470
White, Lewis B., New York, N. Y., assignor to L. Abbett, Jersey City, N. J. Cable-railway car	350,091	Sept. 28	2137	553	36	1470
White, Peter, St. Louis, Mo. Stop-box	346,989	Aug. 10	670	178	36	597
White, Reynolds T., Boston, Mass. Machine for mortising, boring, molding, rosette-cutting, &c	345,010	July 6	308	77, 78	36	56
White, Rollin, Lowell, Mass. Die for drawing shells or hollow articles	346,722	Aug. 3	94	25	36	478
White, Rollin, Lowell, Mass. Punch and die for trimming shells	348,440	Aug. 31	2795	751	36	1015
White, Rollin, Lowell, Mass. Device for trimming cartridge-shells	348,441	Aug. 31	2796	751	36	1015
White, Samuel O., Windsor Locks, Conn. Chuck	347,676	Aug. 17	1702	453	36	795
White Sewing Machine Company. (See Whitney, Ruel W., assignor.)						
White, Thomas F. (See Barber and White.)						
White, Thomas H., Salford, Manchester, county of Lancaster, assignor to J. Holroyd, Manchester, England. Injector	349,191	Sept. 14	898	231	36	1216
White, Thomas M. (See Gregory, Albert M., assignor.)						
White, Thomas S., Benton, Ill. Door	347,852	Aug. 24	1951	518	36	850
White, Walker & Company. (See White, Charles P., assignor.)						
White, William R., Neogs, Ill. Gate-actuating mechanism	349,869	Sept. 28	1835	474	36	1413
Whitehead, Henry W. (See Smith and Whitehead.)						
Whitehead, Henry W. (See Speight and Whitehead.)						
Whitehead, John D., Northumberland, Pa. Car-coupling	345,349	July 13	764	192	36	143
Whitehurst, Eair D., Glen Rose, Tex. Planter	346,793	Aug. 3	419	116	36	542
Whiteley, William N. (See Garvin and Clokey, assignors.)						
Whiteley, William N., Springfield, Ohio. Knotter for grain-binders	346,393	July 27	2286	{580 581}	36	433
Whiteley, William N., Springfield, Ohio. Harvester	347,677	Aug. 17	1702	454	36	795
Whiteley, William N., Springfield, Ohio. Ejector for automatic grain-binders	348,255	Aug. 31	2541	682	36	964
Whiteley, William N., Springfield, Ohio. Harvester-frame	348,304	Aug. 31	2609	702	36	978
Whiteley, William N., and W. Bayley, Springfield, Ohio. Harvester	345,094	July 6	410	{104 105}	36	75
Whitin, Arthur F., *et al.* (See Whitney, Daniel D., assignor.)						
Whitin Machine Works. (See Clark, George H., assignor.)						
Whiting, Harold, Cambridge, Mass. Electrical device for synchronizing clock-pendulums	346,970	Aug. 10	671	179	36	597
Whiting, James H., Flint, Mich. Running-gear for wagons	345,201	July 6	552	141	36	101
Whitman, Emma J., Oakland, Cal. Combined press-board and sleeve-pressing frame	347,853	Aug. 24	1952	518	36	851
Whitman, Ira A., *et al.* (See Elrick, Luther M., assignor.)						
Whitmarsh, Henry C., Brooklyn, assignor of one-half to C. C. Carpenter, New York, N. Y. Suspenders	346,626	Aug. 3	225	61	36	504
Whitmarsh, Samuel P., Palmyra, Mich. Apparatus for heating buildings	346,794	Aug. 3	421	116	36	542
Whitney & Co., E. (See Lenau, Louis, assignor.)						
Whitney, Daniel D., Cornwall, N. Y., assignor to A. F. Whitin, Whitinsville, Mass., and W. H. Vail, Cornwall-on-the-Hudson, N. Y. Thill-coupling	349,964	Sept. 28	1960	506	36	1437
Whitney, Daniel D., Cornwall, N. Y., assignor to A. F. Whitin, Whitinsville, Mass., and W. H. Vail, Cornwall-on-the-Hudson, N. Y. Lock for wagon end-gates	349,965	Sept. 28	1961	507	36	1437
Whitney, Edwin H., assignor to American Ship Windlass Company, Providence, R. I. Windlass-beam	348,370	Aug. 31	2696	724	36	995
Whitney, Erastus P., New York, N. Y. Button and fastening	346,923	Aug. 3	95	25	36	478
Whitney Organ Company. (See Votey, Edwin S., assignor.)						
Whitney, Ruel W., assignor to White Sewing Machine Company, Cleveland, Ohio. Combined brake and belt-shifter	346,696	Aug. 3	309	85	36	522
Whitney, Samuel C., Cleveland, assignor of one-third to J. H. Davidson, and A. N. McConnell, Poland, Ohio. Burglar-alarm for window-sashes	345,350	July 13	765	192	36	144
Whiton, Lucius E., West Stafford, Conn. Bicycle-tire	345,351	July 13	766	192	36	144
Whittaker, Rolan W. (See Platt, John A., assignor.)						
Whittelsey, Elbert A. (See Tisdel, Abner G., assignor.)						
Whittelsey, Frank C., Providence, R. I. Surface-gage	348,442	Aug. 31	2798	751	36	1015
Whitty, Frank L., Allegheny, Pa. Rolls for forming table-knives	346,138	July 27	1913	494	36	367
Whytal, Frank G., assignor to F. W. Devoe & Co., New York, N. Y. Tack-puller	347,019	Aug. 10	743	198	36	610
Wiard, George, assignor to Wiard Plow Company, Batavia, N. Y. Plow	346,879	Aug. 3	542	147	36	566
Wiard Plow Company. (See Wiard, George, assignor.)						
Wick, Foster, Coultersville, Pa. Thill-coupling	346,490	July 27	2305	594	36	440
Wicke, Wilhelm. (See Gobeillé and Wicke.)						
Wicke, William, New York, N. Y. Log-dressing machine	347,854	Aug. 24	1953	518	36	851
Wicker, Albert G., Cincinnati, Ohio. Rocking furniture	348,809	Sept. 7	363	98	36	1115
Wickers, William H., Mount Comfort, Ind. Brick-kiln	347,907	Aug. 24	2032	537	36	864
Wicks, William A., *et al.* (See Pillings, George T., assignor.)						
Wicksteed, Charles, Kettering, county of Northampton, England. Tube-expander	346,251	July 27	2071	532	36	397
Widmer, Charles, New York, N. Y. Shuttle-motion for looms	345,011	July 6	311	78	36	57
Wiedemann, William, Lawrence, Kans. Curtain-fastener	347,543	Aug. 17	1496	396	36	757
Wiedling, Hermann, assignor to Wiedling Motor Company, New York, N. Y. Pipe-coupling	347,855	Aug. 24	1954	519	36	851
Wiedling, Hermann, assignor to Wiedling Motor Company, New York, N. Y. Differential valve	347,856	Aug. 24	1955	519	36	851
Wiedling Motor Company. (See Wiedling, Hermann, assignor.)						
Wiegard, August, and G. Erhard, New York, N. Y. Coat-rack	345,012	July 6	312	78	36	57
Wiesebrock, Friederick W., New York, N. Y. Apparatus for packing dried brewers' grain, &c	346,003	July 20	1725	{444 445}	36	322

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wiesebrock, Robert, New York, N. Y. Grain-drier	348,650	Sept. 7	161	44	36	1076
Wiesendanger, Emil U., Comanche, Tex. Coffee-mill attachment	349,021	Sept. 14	666	171	36	1173
Wightman, Andrew, Peekskill, N. Y. Metallic roofing	349,966	Sept. 28	1962	507	36	1437
Wightman, Merle J., Hartford, Conn., assignor to Schuyler Electric Light Company. Regulator for electric circuits	345,561	July 13	1091	279	36	202
Wightman, Merle J., Hartford, Conn., assignor to Schuyler Electric Light Company. Electric-current regulator	348,876	Sept. 7	452	120	36	1131
Wightman, Merle J., and H. Lemp, Hartford, Conn., assignors to Schuyler Electric Light Company. Switch-socket for incandescent lamps	348,875	Sept. 7	451	120	36	1131
Wightman, Olin C., assignor of one-half to A. Dennison, Mohawk, N. Y. Check-hook for harness	345,013	July 6	313	79	36	57
Wilber, John D., Chicago, Ill. Mower	346,007	July 20	1731	446	36	323
Wilbur, George H., trustee. (See Bailey, William H., assignor.)						
Wilbur, Miles, Palmyra, Wis. Churn	346,697	Aug. 3	310	86	36	522
Wilcke, Heinrich, Berlin, Germany. Furnace	345,014	July 6	314	79	36	57
Wilcox, Charles M. (See Middaugh and Wilcox.)						
Wilcox, Clark, Apponang, R. I. Railway-rail joint	348,484	Aug. 31	2856	768	36	1026
Wilcox, Daniel L., Pawtucket, R. I., assignor to D. L. Wilcox Manufacturing Company. Desk	346,795	Aug. 3	422	116	36	542
Wilcox, Harlow M., assignor to M. J. Wilcox, Wausau, Wis., and C. S. Martin, Osage City, Kans. Set-works for saw-mills	347,908	Aug. 24	2033	538	36	864
Wilcox, Jasper A. (See Watson and Wilcox.)						
Wilcox Manufacturing Company, D. L. (See Wilcox, Daniel L., assignor.)						
Wilcox, Marilla J., *et al.* (See Wilcox, Harlow M., assignor.)						
Wilcox, Ralph. (See Gilbert and Wilcox.)						
Wilcox, Stephen, Brooklyn, N. Y. Air and gas engine. (Reissue)	10,750	July 27	2365	606, 607	36	450
Wilcox, Stephen C., assignor of one-third to Walker & Rhemberg, Dubuque, Iowa. Lamp-wick	346,569	Aug. 3	149	41	36	489
Wilcox, Stephen C., assignor of one-third to Walker & Rhemberg, Dubuque, Iowa. Lamp-wick tube	346,570	Aug. 3	150	41	36	489
Wild, Hermann, Brooklyn, N. Y. Baker's oven	345,095	July 6	413	105, 106	36	75
Wilde, Thomas B., Philadelphia, Pa. Lap-feeding device for carding-machines	345,940	July 20	1635	420, 421	36	306
Wilder, Charles W., Fitchburg, Mass. Wood-turning lathe	345,466	July 13	930	234, 235	36	173
Wilder, Julius P., and A. D. Arkland, Willis, Kans. Stock-feeder	348,305	Aug. 31	2610	702, 703	36	979
Wildermuth, La Fayette, Lancaster, Ohio. Punching-machine	349,072	Sept. 14	736	188	36	1185
Wilkins, Alexander G., Meadville, Pa. Button-fastener	345,562	July 13	1094	279	36	202
Wilkins, Joseph, Baltimore, Md. Amalgamator	345,096	July 6	414	106	36	75
Wilkinson, Asa W., assignor of one-half to E. S. T. Kennedy, New York, N. Y. Process of and apparatus for manufacturing heating-gas	348,178	Aug. 24	2425	649, 650	36	937
Wilkinson, Henry F. (See Halley, Wilkinson, and Bissett.)						
Will, F. J., *et al.* (See Carey, John E., assignor.)						
Willard, Rodney S., St. Albans, Vt. Stocking-supporter	344,889	July 6	136	34	36	24
Wilcox, Charles H., New York, N. Y. Trimming attachment for sewing-machines	348,485	Aug. 31	2857	769	36	1026
Willer, Henry E., Milwaukee, Wis. Holding-spring for sashes and screens	346,524	Aug. 3	97	26	36	479
Willet, Richard H., Washington, D. C. Stair-carpet fastener	349,329	Sept. 21	1066	273, 274	36	1258
Willets, John P., Jersey City, N. J., and E. R. Crolius, New York, N. Y. Electric connection for chandeliers	348,708	Sept. 7	242	64	36	1092
Williams, Alfred R. (See House, Isaac M., assignor.)						
Williams, Charles A., Warren, Ind. Corn-sheller	349,553	Sept. 21	1393	361	36	1321
Williams, Charles D., Philadelphia, Pa. Show-window	349,290	Sept. 14	1021	261	36	1241
Williams, Charles I. (See Williams, Irvin A. and C. I.) (Reissue.)						
Williams, Edward, Dubuque, Iowa. Windmill	348,256	Aug. 31	2542	692	36	964
Williams, Edwin F., Chicago, Ill. Cut-off regulator	347,979	Aug. 24	2141	570	36	883
Williams, Elkanah G., Pitt, Ohio. Railway-gate	348,810	Sept. 7	364	98	36	1115
Williams, Fitzallan B., Chicago, Ill. Attachment for wardrobe-bedsteads	347,079	Aug. 10	840	223	36	627
Williams, Fitzallan B., assignor of one-fourth to W. A. Williams, Chicago, Ill. Wardrobe-bedstead	347,217	Aug. 10	1026	273, 274	36	662
Williams, Frank M. (See Gable and Williams.)						
Williams, George M., assignor of one-half to E. R. Wilson, Newark, Del. Lawn-mower	346,004	July 20	1727	445	36	323
Williams, George M., assignor to W. L. Nassau Manufacturing Company, Newark, Del. Pawl-and-ratchet mechanism	348,083	Aug. 24	2288	613	36	911
Williams, George W., Topsham, Me. Oil-cloth-printing machine	349,417	Sept. 21	1205	312, 313	36	1284
Williams, Irvin A. and C. I., Utica, N. Y. Locomotive head-light with signal attachment. (Reissue)	10,751	July 27	2370	607, 608	36	451
Williams, J. Newton, New York, N. Y. Combined pocket match-safe and cigar-cutter	346,005	July 20	1728	445	36	323
Williams, James A., Boston, Mass. Brush	345,941	July 20	1637	421	36	306
Williams, James L., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial denture	347,544	Aug. 17	1497	397	36	757
Williams, James W., Louisville, Ky. Hand-rubber	349,554	Sept. 21	1394	361	36	1321
Williams, John D., Denton, Ky. Miner's squib-box, &c	346,534	Aug. 3	474	131	36	553
Williams, John R., Newark, N. J. Cigar-machine	346,627	Aug. 3	226	62, 63	36	504
Williams, John R., Newark, N. J. Cigar-bunching machine	346,628	Aug. 3	230	63	36	505
Williams, Morgan, and S. W. Vaughen, Johnstown, Pa. Joint for the bricks of ladle-rods	349,265	Sept. 14	997	254	36	1236
Williams, Owen L. (See Baruch and Williams.)						
Williams, Robert N., assignor of one-half to F. T. Hathaway, West Troy, N. Y. Bell	347,452	Aug. 17	1370	364	36	732
Williams, Thomas, Jr., 45 Myddelton Square, county of Middlesex, England. Combined meat-mincing and sausage-stuffing machine	345,408	Aug. 17	1301	347	36	721
Williams, Thomas B., Orange, Mass. Ice-tire for vehicle-wheels	349,773	Sept. 28	1709	440	36	1387
Williams, Virgil L., Cartersville, Ga. Washing-machine	346,629	Aug. 3	231	63	36	505
Williams, Waldo A. (See Williams, Fitzallan B., assignor.)						
Williams, William E., Boonville, Mo. Car-coupling	347,409	Aug. 17	1303	347, 348	36	722
Williams, William P., Bartlett, Tex. Barrel-truck	345,467	July 13	934	235	36	173
Williamson, Catherine A., St. Louis, Mo., Gasoline-stove	348,092	Aug. 24	2287	613	36	911
Williamson, David, Hartford, Conn. Carbon-holder for arc lamps	347,218	Aug. 10	1027	274	36	662
Williamson, John J., Boston, Mass. Lap-robe and splatter-dasher	346,096	July 20	1729	445, 446	36	323

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Williamson, Marshall D., *et al.* (See Allgire, James R., assignor.)						
Williamson, S. Stuart. (See Smith and Williamson.)						
Williamson, William C., Blackville, S. C. Spoke-socket	345,015	July 6	314	79	36	58
Willis, Eben, Colton, N. Y. Arch for boiling sap-sugar, &c	348,938	Sept. 7	544	143, 144	36	1147
Willman, Reinhold, *et al.* (See Shellaberger, George H., assignor.)						
Willson, John S., and W. H. Mack, Milwaukee, Wis. Bob-sled	349,378	Sept. 21	1154	299	36	1275
Willson, Walter V., Brunswick, N. Y. Clutch for street-car brakes	348,306	Aug. 31	2612	703	36	979
Wilmont, Edwin, assignor of one-half to C. J. and W. S. Allexander, Laona, N. Y. Paper-making machine	346,079	July 20	1824	471	36	341
Wilmott, Louis, New Bedford, assignor of one-half to G. Draper & Sons, Hopedale, Mass. Let-off mechanism for looms	345,468	July 13	935	235	36	173
Wilson, David, assignor to F. H. Keane, Cappoquin, county of Waterford, Ireland. Belt-fastener	347,857	Aug. 24	1957	519	36	851
Wilson, Edward A., Deckertown, N. J. Fastener for gloves, &c	348,604	Sept. 7	99	28	36	1065
Wilson, Edward R. (See Williams, George M., assignor.)						
Wilson, Fitzland L., West Bay City, Mich. Hoop pointing and lapping machine	348,307	Aug. 31	2613	703, 704	36	979
Wilson, Floyd B., New York, N. Y. Nursery folding chair	348,939	Sept. 7	546	144	36	1147
Wilson, George A., Broad Green, near Liverpool, county of Lancaster, England. Rotary folding apparatus	345,352	July 13	767	192	36	144
Wilson, John, New York, N. Y. Telegraph-insulator	346,971	Aug. 10	675	179	36	589
Wilson, John, New York, N. Y. Telegraph-insulator	346,972	Aug. 10	676	179	36	589
Wilson, John, New York, N. Y. Apparatus for manufacturing lamp-black	346,973	Aug. 10	676	180	36	590
Wilson, John, New York, N. Y. Brick-kiln	347,453	Aug. 17	1371	365	36	732
Wilson, John, New York, N. Y. Telegraph wire and insulator fastening	347,454	Aug. 17	1372	365	36	733
Wilson, John, New York, N. Y. Telegraph-wire and insulator fastening	349,022	Sept. 14	668	171	36	1173
Wilson, John A., assignor to J. R. Torrey, Worcester, Mass. Razor-strop	348,486	Aug. 31	2859	769	36	1026
Wilson, Joseph B., Clayton, N. J. Air-tight jar	348,084	Aug. 24	2289	613	36	912
Wilson, Joseph O., Chester, Pa. Speed-controller	345,754	July 20	1376	358	36	960
Wilson, Milo L., W. and P. O. Sanders, Jefferson, Ind. Auxiliary shovel or spade handle	344,890	July 6	136	34	36	24
Wilson, Needham M., Philadelphia, Pa. Velocipede-wheel	348,805	Sept. 7	100	29	36	1066
Wilson, William J., Wabash, Ind. Gate	348,940	Sept. 7	546	144	36	1147
Wilson, William T., Buffalo, N. Y. Car-coupling	349,555	Sept. 21	1395	361	36	1321
Wilt, Ambrose, Bourneville, Ohio. Check-rower	345,563	July 13	1095	279	36	202
Wimpee, William, Rome, Ga. Cultivator, cotton-planter, and fertilizer-distributer	347,545	Aug. 17	1500	397, 398	36	757
Winans, Henry L. (See Perry, Edward L., assignor.)						
Windle, John E., Worcester, Mass. Machine for winding cloth	349,774	Sept. 28	1710	441	36	1387
Winchester, Edward S., Dorchester, Mass. Door-latch	345,016	July 6	315	79	36	58
Winchester Repeating Arms Company. (See Browning, John M. and M. S., assignors.)						
Wingard, Edwin V., Philadelphia, Pa. Lime-kiln	346,835	Aug. 3	475	131	36	553
Winslow, Edward J. (See Davis, Henry J., assignor.)						
Winsor, Jason C., Brockton, Wis. Extension-ladder	348,257	Aug. 31	2543	693	36	965
Winston, John R., Hycotee, N. C. Vehicle-wheel	346,048	July 20	1733	447	36	323
Winter, Oscar O., assignor of one-half to F. H. Perry, Des Moines, Iowa. Car-coupling	345,608	July 13	1151	294	36	213
Wirgman, James, Jr. (See McCarty, Cornelius M., assignor.)						
Wirt, Charles, Chicago, Ill. Electrical indicator	345,755	July 20	1377	358	36	960
Wirt, Charles, Chicago, Ill. Electric battery	345,756	July 20	1379	358	36	961
Wise, William C., Lamonte, Mo. Churn	347,020	Aug. 10	744	198	36	610
Wisner, A. Jackson and A., assignors of one-half to M. F. Richardson, Philadelphia, Pa. Mold for candy whistles	347,406	Aug. 17	1298	346	36	721
Wisner, Albert. (See Wisner, A. Jackson and A.)						
Witkowski, Simon. (See Hollingsworth, Joseph, assignor.)						
Witt, Edward, Aachen, Germany. Automatic apparatus for measuring and registering grain	345,353	July 13	768	193	36	144
Witt, Joseph H., Bobring, Mo. Plant-shield for plows	348,941	Sept. 7	548	144	36	1147
Wittmann, Rudolf C., East New York, N. Y. Time-register for billiards	346,880	Aug. 3	544	148	36	566
Wivel, Oliver P., Baltimore, Md. Car-starter	349,020	Sept. 21	1478	382	36	1339
Wolcott, Amos A., Tom's River, N. J. Pivot-cutting implement	349,470	Sept. 21	1983	333	36	1299
Wolcott, Anson, Wolcott, Ind. Grain-drier	346,449	July 27	2358	605	36	449
Wolcott, Henry E., assignor to W. C. Anderson, Syracuse, N. Y. Oil-can	344,929	July 6	186	47	36	35
Wolf, Daniel. (See Hillebran (, Louis, assignor.)						
Wolf, Josef, Hoboken, N. J. Bag, satchel, &c	348,085	Aug. 24	2290	614	36	912
Wolf, Joseph, Milwaukee, Wis. Box-fastener	345,609	July 13	1152	295	36	213
Wolfe, James W., assignor of one-half to W. H. McMillan, Oak Grove, Mich. Draft-equalizer	346,080	July 20	1825	471	36	341
Wolfertz, Charles W., *et al.* (See Wolfertz, Herman, assignor.)						
Wolfertz, Herman, assignor of one-half to C. W. Wolfertz and J. R. Pemberthy, Detroit, Mich. Car-axle	346,009	July 20	1734	447	36	324
Wolff, George S., Philadelphia, Pa. Treating lac	345,202	July 6	553	.....	36	101
Wolff, George S., Philadelphia, Pa. Product from lac	345,203	July 6	554	.....	36	101
Wolgamuth, Francis F., Southampton, Pa. Harrow or cultivator tooth	349,967	Sept. 28	1963	507	36	1438
Wollensak, John F., Chicago, Ill. Transom-lifter	349,621	Sept. 21	1479	382	36	1339
Wonacott, Charles, Murphy's, Cal. Cartridge-loading machine	347,455	Aug. 17	1372	365	36	733
Wood, Alfred, Trenton, N. J. Wrench	347,262	Aug. 10	1084	280	36	672
Wood, Charles L., Oshkosh, Wis. Dust-removing apparatus	345,610	July 13	1153	295	36	213
Wood, Henry A. W., New York, N. Y. Umbrella	349,023	Sept. 14	668	172	36	1173
Wood, Ira. (See Thomas and Wood.)						
Wood, Irving T., assignor of one-half to J. J. Geiger, Clyde, Ohio. Combined pole and shafts	349,292	Sept. 14	1023	261	36	1241
Wood, Joseph S., Brooklyn, N. Y. Gas-machine	345,402	July 13	837	210	36	156
Wood, Lucius A., Worcester, Mass., assignor of one half to J. S. and F. J. Brand, New Britain, Conn. Attaching wires and rods together	345,655	July 13	1237	320	36	228
Wood, Lucius A., Worcester, Mass., assignor of one-half to A. P. Carpenter, Brattleborough, Vt. Manufacture of organ-reeds	347,546	Aug. 17	1501	398	36	757
Wood Mowing and Reaping Machine Company, Walter A. (See Rosebrooks, John M., assignor.)						
Wood, Richard G., McKeesport, Pa. Making sheet-iron	348,258	Aug. 31	2544	693	36	965
Wood, Walter J., Atlanta, Ga. Automatic cut-off for water-pipes	345,017	July 6	317	80	36	58
Wood, Warren M. (See Wright and Wood.)						
Wood, William H. (See Haight and Wood.)						
Wood, William H., New York, N. Y. Refrigeration and ice machine	346,184	July 27	1970	508	36	378
Wood, William H., Hartford, Conn. Device for converting motion	349,775	Sept. 28	1713	441	36	1388
Woodard, Alvin N., Charleston, W. Va. Lifting-jack	348,086	Aug. 24	2291	614	36	912

Alphabetical list of patentees, July to September, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Woodard, Francis C., Gridley, Ill. Combined tile-ditcher and grader	347,282	Aug. 10	1110	297, 298	36	677
Woodbury, Daniel A., Rochester, N. Y. Cranked shaft	344,930	July 6	187	47	36	35
Woodhouse, John A., Santa Ana, Cal. Well-boring tool	349,192	Sept. 14	899	231	36	1216
Wooding, Ralph A., Kepsington, Conn. Riveting-tool	349,622	Sept. 21	1480	382	36	1339
Wooding, Ralph A., Kensington, Conn. Hame-chime	349,621	Sept. 21	1481	383	36	1339
Woodley, Jonathan M., Clio, S. C. Plow	349,916	Sept. 28	1891	489	36	1424
Woolman, Reuel W., Bar Mills, Me. Knockdown bed-bottom	347,980	Aug. 24	2143	570	36	883
Woodroffe, William A., Mechunis River, Va. Cutter-head	348,367	Aug. 31	2685	723	36	994
Woods Machine Company, S. A. (See Tillison, Hosea R., assignor.)						
Woods, William A., and C. C. Garcelon, Santa Cruz, Cal. Ore-concentrator	347,909	Aug. 24	2036	538, 539	36	864
Woodward, Henry, Shepherd's Bush, county of Middlesex, England. Battery and battery-plate	347,754	Aug. 17	1806	481	36	814
Woodward, Samuel S., Guide Rock, Nebr. Lamp-shade support	347,456	Aug. 17	1376	366	36	734
Woodward, Theodore B., Norway, Pa. Fire-escape	349,870	Sept. 28	1836	474	36	1413
Woodward, William D., assignor of two-thirds to A. L. Roberts and M. H. O'Brien, Plattsburg, N. Y. Car-coupling	347,547	Aug. 17	1502	398	36	758
Woodworth, Gilman P., Colfax, Iowa. Time-lock	348,087	Aug. 24	2292	614	36	912
Woolaston, Joseph H. (See Barnes and Woolaston.)						
Wooley, Charles D., Walden, N. Y. Car-coupling	346,630	Aug. 3	232	64	36	505
Woolland, W. H., *et al.* (See Crandall, Henry B., assignor.)						
Woolley, Edward J., Omaha, Nebr. Time-lock	345,266	July 6	646	164	36	117
Woolley, Jabez, Sr., Evansville, Ind. Coal-separator	349,675	Sept. 21	1540	397, 398	36	1352
Woolley, Joseph, Rutland, Vt. Car for removing snow from railways, &c	349,024	Sept. 14	670	172	36	1173
Wootten, John E., assignor to Wharton Railroad Switch Company, Philadelphia, Pa. Locomotive-boiler	348,942	Sept. 7	548	145	36	1147
Worcester Wire Company. (See Gates, Edwin L., assignor.)						
Worrall, Thomas H., Meredith, N. H. Needle-cylinder for circular-knitting machines	348,088	Aug. 24	2293	615	36	913
Worrell, Stanley E., Hannibal, Mo. Road-engine	346,974	Aug. 10	677	180	36	598
Worswick, William H., San Francisco, Cal. Incubator	348,368	Aug. 31	2686	723	36	994
Wortendyke, David L., Midland Park, N. J. Paper-feeding device and cutter for printing-machines	348,506	Aug. 31	2889	777	36	1032
Worth, Albert B., Greenport, N. Y. Electric air-pump system	348,606	Sept. 7	102	29	36	1066
Worthen, William B., *et al.* (See Townsend, Louis, assignor.)						
Worthington, Charles C., Irvington, N. Y. Draining steam-jackets	345,469	July 13	935	236	36	174
Wostenholm, George, Jeffersonville, Ill., assignor of one-half to T. A. Meysenburg, St. Louis, Mo. Rolls for rolling fish-bars from old rails	347,310	Aug. 10	1150	310	36	686
Wrench, Alfred. (See Gray and Kemp, assignors.)						
Wright, Charles E., Vicksburg, Miss. Cotton-harvester	349,776	Sept. 28	1714	442	36	1388
Wright, Frank M., Bristol, and W. M. Wood, Cheshire, assignors to Parker & Whipple Company, Meriden, Conn. Calendar-clock	349,025	Sept. 14	671	172	36	1174
Wright, John E., Corydon, Iowa. Quilting-frame	345,267	July 6	647	164	36	117
Wright, Morris S. (See Carpenter and Wright.)						
Wright, Ransom C., Philadelphia, Pa. Locomotive	349,676	Sept. 21	1543	398	36	1352
Wright, Thomas W. (See Perry and Wright.)						
Wright, William A. (See Jonas, Frank B., assignor.)						
Wright, William L., Jersey City, N. J. Windlass for ferry-bridges	345,268	July 6	648	164	36	118
Wrigley, Thomas, Paterson, N. J. Doubling-machine	345,656	July 13	1238	320	36	229
Wroe, James T., and T. R. Hall, Ellinwood, Kans. Car-coupling	346,975	Aug. 10	678	180	36	598
Wyatt, James, Pleasant View, Kans. Light-draft corn-planter	346,252	July 27	2073	533	36	318
Wylie, Charlie B., Pittsburg, Pa. Double-acting pump	345,657	July 13	1239	321	36	229
Wyman, James, Jr. (See Gennet and Wyman.)						
Wuerpel, Morris, and H. P. Tansaig, St. Louis, Mo. Railway-switch	348,089	Aug. 24	2295	615	36	913
Wulfert, Friedrich, St. Charles, Mo. Grain-screen	348,090	Aug. 24	2296	615	36	913
Youart, Isabella, Troy, Ohio. Pastry-board	345,470	July 13	938	236	36	174
Youman, Orson, Walnut, Iowa. Hay-stacking derrick	347,755	Aug. 17	1807	481	36	814
Young, Adelbert R., Jewett City, Conn., and V. T. Barber, New Bedford, Mass. Saddle for the top rolls of spinning-frames	347,910	Aug. 24	2038	539	36	865
Young, Franklin E., Canton, Ohio. Surgical chair. (Reissue)	10,761	Aug. 24	2435	651	36	938
Young, Jackson B., Sioux Falls, Dak. Time-lock	346,010	July 20	1735	447, 448	36	324
Young, James P., assignor of one-half to J. B. Dallas, Philadelphia, Pa. Telephone-transmitter	345,658	July 13	1241	321	36	229
Young, James W., *et al.* (See Shaw, John H., assignor.)						
Young, Louis F. (See Valle, Charles A., assignor.)						
Young, Robert W., assignor of one-half to J. A. Fleming, Chicago, Ill. Show-card sign	349,193	Sept. 14	900	231	36	1216
Young, Samuel S., *et al.* (See Shaw, John H., assignor.)						
Young, William H., assignor of one-half to B. MacMackin, Wilmington, Del. Pipe-organ	346,450	July 27	2359	605	36	449
Young, William L., St. Charles, Mo. Wire-rope drum-reel	348,943	Sept. 7	550	145	36	1148
Yount, Solomon. (See Yount, William H. H. and S.)						
Yount, William H., H. and S., Troy, Ohio. Fence-post	349,245	Sept. 14	974	249	36	1231
Yunck, Frederick. (See Freeman, Edward F., assignor.)						
Zahn, J. Adam, New York, N. Y. Wagon-jack	349,194	Sept. 14	901	231	36	1217
Zebner, William, and M. A. Eisenhour, Plymouth, Ind. Cultivator-bar and cultivator-clip	347,756	Aug. 17	1808	482	36	815
Zeigler, Daniel, assignor of one-half to C. A. Zerbe, Lewistown, Pa. Car-coupling	346,861	Aug. 3	545	148	36	566
Zeigler, Daniel, assignor of one-half to C. A. Zerbe, Lewistown, Pa. Car-coupling	346,862	Aug. 3	546	148	36	566
Zeller, John P., South Bend, Ind. Plow	346,081	July 20	1625	471	36	341
Zerbe, Charles A. (See Zeigler, Daniel, assignor.)						
Zidek, Josef. (See Petru and Zidek.)						
Ziegel, Peter, Nashville, Ill. Mainspring-winder for watch-makers	349,291	Sept. 14	1029	261	36	1241
Zilliessen, Ernst, Crefeld, Prussia, Germany. Machine for dyeing yarn	345,269	July 6	649	165	36	118
Zimmer, Eugene, Mobile, Ala. Plant-protector	346,253	July 27	2074	533	36	318
Zimmerling, Charles, Philadelphia, Pa. Compound for scrubbing paint, floors, &c	348,179	Aug. 24	2428	.....	36	937
Zimmerman, Charles A., *et al.* (See Knowles, Mortimer L., assignor.)						
Zimmerman, Jesse V., Little Rock, Ark. Ruby-pin setter and remover	347,858	Aug. 24	1958	520	36	652
Zimmerman, Jesse V., Little Rock, Ark. Watch and clock oiler	349,677	Sept. 21	1544	398	36	1352
Zimmermann, Charles R., Syracuse, N. Y. Marking-gage	349,330	Sept. 21	1067	274	36	1258
Zistel, Oscar, Sandusky, Ohio. Lawn-mower	347,311	Aug. 10	1160	310	36	687
Zitzman, Edward H. (See Brill and Zitzman.)						
Zöller, Edmund, and J. T. Gardner, Indianapolis, Ind.; said Zöller assignor to said Gardner. Hinged-shoe button	347,410	Aug. 17	1305	348	36	722

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
Andrews & Co., A. H. (See Parker, Henry F., assignor.)				
Angell, Edwin E., Malden, Mass. Sewing-machine arm	16,862	Aug. 24	36	893
Bach, Frederick W., New Bond Street, county of Middlesex, England. Lamp-shade	16,903	Sept. 21	36	1250
Bacon, Murray, assignor to Novelty Electric Company, Philadelphia, Pa. Frame for telegraph-instruments	16,911	Sept. 28	36	1360
Baker, William C., New York, N. Y. Heater-base	16,803	July 20	36	236
Ball, James P., Philadelphia, Pa., assignor to Keystone Safety Nut Lock Company. Book-mark	16,804	July 20	36	236
Banm, William, New Haven, Conn., assignor to New Jersey Car Spring and Rubber Company, Jersey City, N. J. Rubber sole	16,896	Sept. 14	36	1154
Birnbaum, Bonheim, New York, N. Y. Window-shade	16,904	Sept. 21	36	1250
Bishop, Louis C., East New York, N. Y. Trail-piece for toy cannon	16,853 to 16,855	Aug. 17	36	696
Black & Germer. (See Germer and Moulton, assignors.)	16,856	Aug. 17	36	696
Bradley & Hubbard Manufacturing Company. (See Seidensticker, F. Robert, assignor.)				
Briggs, Orlando P., Chicago, Ill. Water spout or conductor	16,877	Aug. 31	36	944
Brittin, Frederick W., assignor to Silver Plate Cutlery Company, Birmingham, Conn. Button-hook	16,766	July 6	36	2
Bromley & Sons, John. (See Pegel, Julius, assignor.)				
Bromley & Sons, John. (See Petzold, Adolph, assignor.)				
Brooke, Isaac, *et al.* (See Caley, Edward L., assignor.)				
Brown, Wilbur F., New York, N. Y. Comb or brush box	16,765	July 6	36	2
Bryden Forged Horse-Shoe Works. (See Frederick, Tilghman F., assignor.)				
Buermann, August, Newark, N. J. Pattern for spurs	16,767	July 6	36	2
Bullard, Charles E., Worcester, Mass. Border for cards, &c	16,824	Aug. 3	36	460
Bullard, Charles E., Worcester, Mass. Card	16,905	Sept. 21	36	1250
Caley, Edward L., Philadelphia, assignor to G. W. Floyd, I. I. Wells, I. Brooke, C. W. and W. Wagner, I. Hallman, and D. Finkbiner, Royer's Ford, Pa. Chamber-casing for stoves	16,815	July 20	36	236
Camp, Walter C., New York, N. Y., assignor to New Haven Clock Company, New Haven, Conn. Clock-case	16,912	Sept. 28	36	1360
Captain, William F., assignor to Marder, Luse & Co., Chicago, Ill. Type	16,878	Aug. 31	36	944
Carlisle, Robert, assignor to T. Gibson Company, Cincinnati, Ohio. Water-closet bowl and base	16,841	Aug. 10	36	574
Carter, John V. B., assignor to Co-operative Foundry Company, Rochester, N. Y. Heating-stove	16,805	July 20	36	236
Christesen, Rodolphe, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Hinge	16,906	Sept. 21	36	1250
Co-Operative Foundry Company. (See Carter, John V. B., assignor.)				
Corson, Samuel S., Chicago, Ill. Shirt	16,898	Sept. 14	36	1154
Cox, Arthur W., Ballard Vale, Mass. Knife-handle	16,781	July 6	36	2
Cox, Arthur W., Ballard Vale, Mass. Knife-handle	16,785	July 13	36	124
Crouch, George, New York, N. Y. Trunk-lid lifter	16,879	Aug. 31	36	944
Currier, Edward M., assignor to J. M. Read, Everett, Mass. Handle for pokers or like implements	16,786	July 13	36	124
Davison, Joseph K., Philadelphia, Pa. Badge	16,913	Sept. 28	36	1360
Dilworth, William H., Hoboken, N. J. Fruit-jar	16,817	July 27	36	350
Drucklieb, Carl, New York, N. Y. Ice-cream mold	16,840	Aug. 3	36	460
Dntemple, William R., Providence, R. I. Advertising-card for scarf-pins	16,787	July 13	36	124
Dwight, Alfred, Agawam, Mass. Printer's bodkin	16,880	Aug. 31	36	944
Dwight, Alfred, Agawam, Mass. Type-case	16,881	Aug. 31	36	944
Ennis & Co., George W. (See Hemming, Richard P., assignor.)				
Faessler, Jacob, *et al.* (See Hall, Charles M., assignor.)				
Farrel, John, New York, N. Y. Safe	16,806	July 20	36	236
Finkbiner, David, *et al.* (See Caley, Edward L., assignor.)				
Fisher, Edwin, Boston, assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	16,825 to 16,829	Aug. 3	36	460
Fisk, Clark & Flagg. (See Heath, Henry, assignor.)				
Fitchburg Worsted Company. (See Phillips, James, Jr., assignor.)				
Floyd, George W., *et al.* (See Caley, Edward L., assignor.)				
Folsom & Son, A. (See Hutchison, James, assignor.)				
Frederick, Tilghman F., assignor to Bryden Forged Horse-Shoe Works, (limited,) Catasauqua, Pa. Horseshoe	16,914	Sept. 28	36	1360
Frenzel, Franz, New York, N. Y. Embossed leather	16,807	July 20	36	236
Fritz, George J., St. Louis, Mo. Frame for ironing-machines	16,788	July 13	36	124
Fuller, Abigail R., Chicago, Ill. Rosette	16,887	Sept. 7	36	1048
Garbutt, Andrew. (See Magee and Garbutt.)				
Germer, Otto, and C. G. Moulton, assignors to Black & Germer, Erie, Pa. Heating-stove	16,789	July 13	36	124
Gibson Company, Thomas. (See Carlisle, Robert, assignor.)				
Gleseeke, George F., Leipsic, Saxony, Germany. Type-border	16,842	Aug. 10	36	574
Guerin, Pierre E., New York, N. Y. Standard for lamps, &c	16,790	July 13	36	124
Guerin, Pierre E., New York, N. Y. Standard for lamps, &c	16,857	Aug. 17	36	696
Hall, Charles M., assignor of two-thirds to W. Walton and J. Faessler, Brooklyn, N. Y. Memorial plaque	16,768	July 6	36	2
Hallman, Isaac, *et al.* (See Caley, Edward L., assignor.)				
Hartje, George, New York, N. Y. Ring	16,915	Sept. 28	36	1360
Hartley Carpet and Rug Company. (See Lawrence, Emma J., assignor.)				
Hartley Carpet and Rug Company. (See Shaw, John W., assignor.)				
Heath, Henry, assignor to Fisk, Clark & Flagg, New York, N. Y. Scarf	16,791	July 13	36	124
Hemming, Richard P., assignor to G. W. Ennis & Co., Philadelphia, Pa. Rug	16,768	July 6	36	2
Hensel, George F., Philadelphia, Pa. Fringe	16,907	Sept. 21	36	1250
Hiller, Louis C., Meriden, Conn. Clock-case	16,899	Sept. 14	36	1154
Hofman, John, Rochester, N. Y. Counter or table leg	16,916	Sept. 28	36	1360
Howell, Joseph B., assignor to H. C. Stont, trustee, Philadelphia, Pa. Badge	16,863	Aug. 24	36	893

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Hurley, Thomas J., New York, N. Y. Bottle	16,864	Aug. 24	36	823
Hutchison, James, Newark, N. J., assignor to A. Folsom & Son, Boston, Mass. Oil-cloth	16,865 to 16,866	Aug. 24	36	823
Ihlenburg, Herman, assignor to MacKellar, Smiths & Jordan Company, Philadelphia, Pa. Type	16,917	Sept. 28	36	1360
Jackson, Charles W., Chicago, Ill. Furniture-gimp	16,882	Sept. 7	36	1048
Jennings, Arthur O., Southport, Conn. Ornamentation of watch-dials	16,858	Aug. 17	36	696
Jerome, Luther E., assignor to New Haven Clock Company, New Haven, Conn. Clock-case	16,900 to 16,901	Sept. 14	36	1154
Johnson, Peter G., Riley Centre, Kans. Wing cultivator-shovel	16,889	Sept. 7	36	1048
Keep, William J., and C. Wipfler, Detroit, Mich. Heating-stove	16,792	July 13	36	124
Keep, William J., and C. Wipfler, Detroit, Mich. Heating-stove	16,818	July 27	36	350
Keep, William J., and C. Wipfler, assignors to Michigan Stove Company, Detroit, Mich. Cooking-stove	16,830	Aug. 3	36	460
Kerner, Marion H., New York, N. Y. Paper-cutter	16,843	Aug. 10	36	574
Keystone Safety Nut Lock Company. (See Ball, James P., assignor.)				
Krause, Richard, New York, N. Y. Trimming	16,859	Aug. 17	36	696
Knudts, Theodor, Cleveland, Ohio. Skeleton frame for drawers	16,882	Aug. 31	36	944
La Dow, Charles, Albany, N. Y. Disk for disk-harrows	16,819	July 27	36	350
Lawrence, Emma J., assignor to Hartley Carpet and Rug Company, Philadelphia, Pa. Rug	16,820	July 27	36	350
Lawrence, Emma J., assignor to Hartley Carpet and Rug Company, Philadelphia, Pa. Rug	16,863	Aug. 31	36	944
Lawrence, Emma J., assignor to Hartley Carpet and Rug Company, Philadelphia, Pa. Rug	16,890 to 16,891	Sept. 7	36	1048
Leiter, Isaac H., New York, N. Y. Gimp	16,918	Sept. 28	36	1360
Lindenthal, Leopold, New York, N. Y. Gimp	16,884	Aug. 31	36	944
Lipman, Hymen L., Philadelphia, Pa. Frame for eyelet-machines	16,844	Aug. 10	36	574
Lochner, John, New York, N. Y., assignor to Norwalk Lock Company, South Norwalk, Conn. Ornamentation of builders' hardware	16,892	Sept. 7	36	1048
Logee, Edgar L., Providence, R. I. Lace-pin	16,770	July 6	36	2
Lorsch, Albert, New York, N. Y. Watch-case or locket	16,808	July 20	36	236
Lowell Manufacturing Company. (See Fisher, Edwin, assignor.)				
Lowell Manufacturing Company. (See Swapp, Charles W., assignor.)				
MacKellar, Smiths & Jordan Company. (See Ihlenburg, Herman, assignor.)				
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Coffin-trimming	16,792	July 6	36	2
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Coffin-handle arm	16,893	Sept. 7	36	1048
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Coffin-trimmings	16,897	Sept. 14	36	1154
Magee, Frank A., Chelsea, and A. Garbutt, assignors to Magee Furnace Company, Boston, Mass. Heating-stove	16,876	Aug. 24	36	824
Magee Furnace Company. (See Magee and Garbutt, assignors.)				
Mankey, Frederick, Williamsport, Pa. Molding	16,860	Aug. 17	36	696
Mankey, Frederick, Williamsport, Pa. Surface ornamentation of walls	16,861	Aug. 17	36	696
Marder, Luse & Co. (See Capitain, William F., assignor.)				
Merceron, Victor J., assignor to Perfection Playing Card Company, Philadelphia, Pa. Playing-card	16,868	Aug. 24	36	823
Meriden Britannia Company. (See McCarthy, Oliver, assignor.)				
Merriman, James G., assignor to Rome Malleable Iron Works, Rome, N. Y. Harness-saddle	16,867	Aug. 24	36	823
Meyer, Charles T. and V. E., Bergen, N. J., assignors to E. C. Sampson, New York, N. Y. Oil-cloth	16,771 to 16,776	July 6	36	2
Meyer, Victor E. (See Meyer, Charles T. and V. E.)				
Michigan Stove Company. (See Keep and Wipfler, assignors.)				
Monroe, Charles W., Bay City, Mich. Air-moistener	16,783	July 6	36	2
Montross, Isaac T., Peekskill, N. Y. Heating-stove	16,793	July 13	36	124
Moulton, Charles G. (See Germer and Moulton.)				
Moulton, Hamilton L., Philadelphia, Pa. Side bar of rub-roll frames	16,794	July 13	36	124
Mott Iron Works, J. L. (See Peet, William C., assignor.)				
New Haven Clock Company. (See Camp, Walter C., assignor.)				
New Haven Clock Company. (See Jerome, Luther E., assignor.)				
New Jersey Car Spring and Rubber Company. (See Baum, William, assignor.)				
Norwalk Lock Company. (See Lochner, John, assignor.)				
Novelty Electric Company. (See Bacon, Murray, assignor.)				
Oertling, Friedrich, Berlin, Prussia, Germany. Barometer-frame	16,845	Aug. 10	36	574
Osborn, Edward C. and H., Brooklyn, N. Y. Paper box	16,831	Aug. 3	36	460
Osborn, Herbert. (See Osborn, Edward C. and H.)				
Parker, Henry F., New York, N. Y., assignor to A. H. Andrews & Co. End support for seats	16,816	July 20	36	236
Parker, John J., Aitkin, Minn., assignor to W. W. Parker, Spearfish, Dak. Ter. Saw-blade	16,869	Aug. 24	36	823
Parker, W. W. (See Parker, John J., assignor.)				
Parkhurst, Augustus G., Minneapolis, Minn. Tile	16,777	July 6	36	2
Peet, William C., assignor to J. L. Mott Iron Works, New York, N. Y. Leg for bath-tubs, &c	16,784	July 6	36	2
Pegel, Julius, Camden, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	16,795	July 13	36	124
Pegel, Julius, Camden, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	16,832 to 16,835	Aug. 3	36	460
Perfection Playing Card Company. (See Merceron, Victor J., assignor.)				
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	16,809 to 16,810	July 20	36	236
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	16,821	July 27	36	350
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	16,846	Aug. 10	36	574
Phillips, James, Jr., assignor to Fitchburg Worsted Company, Fitchburg, Mass. Fabric	16,919	Sept. 28	36	1360
Place, Charles, Cambridge, Mass. Jewelry and pin cushion	16,778	July 6	36	2
Powell, Frank M., Chicago, Ill. Printing-type	16,870	Aug. 24	36	823
Rapp, Frederick, Chicago, Ill. Watch-case	16,885	Aug. 31	36	944
Rathbone, Sard & Co. (See Van Buren, Jafew S., assignor.)				
Read, Josiah M. (See Currier, Edward M., assignor.)				
Rivers, Thomas L., Newark, N. J. Trunk-catch	16,871	Aug. 24	36	823
Rogers & Bros., C. (See Sperry, Albert A., assignor.)				
Rogers, John, New Canaan, Conn. Group of statuary	16,836	Aug. 3	36	460
Rogers, John, New Canaan, Conn. Group of statuary	16,894	Sept. 7	36	1048
Rome Malleable Iron Works. (See Merriman, James G., assignor.)				
Russell & Erwin Manufacturing Company. (See Christesen, Rodolphe, assignor.)				
Sampson, Edward C. (See Meyer, Charles T. and V. E., assignors.)				
Sawtelle, Clarence W., assignor to himself, W. L. and L. W. Woodcock, Winchendon, Mass. Work-box or toilet-case	16,811	July 20	36	236
Schram, Jacob and L., Chicago, Ill. Combined easel and frame	16,875	Aug. 24	36	824
Schram, Louis. (See Schram, Jacob and L.)				
Seehaus, Paul, New York, N. Y. Cane or umbrella handle	16,796	July 13	36	124

Alphabetical list of patentees of designs, July to September, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Seely, Frank, New York, N. Y. Label	16,779	July 6	36	2
Seidensticker, F. Robert, assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Andiron	16,872 to 16,873	Aug. 24	36	824
Seidensticker, F. Robert, assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Andiron				
Seidensticker, F. Robert, assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Fender	16,908	Sept. 21	36	1250
Shaw, John W., assignor to Hartley Carpet and Rug Company, Philadelphia, Pa. Rug	16,909 to 16,910	Sept. 21	36	1250
Shepard, Wilbur L., Hartford, Conn. Lamp-body	16,922	Sept. 28	36	1360
Silver Plate Cuttery Company. (See Brittin, Frederick W., assignor.)	16,797	July 13	36	124
Smith, Thomas C., Brooklyn, N. Y. Dish				
Sneider, Robert, Brooklyn, N. Y. Game-box	16,812	July 20	36	236
Sneider, Robert, Brooklyn, N. Y. Inkstand	16,780	July 6	36	2
Sperry, Albert A., assignor to C. Rogers & Bros., Meriden, Conn. Spoon or fork handle	16,847	Aug. 10	36	574
Sprague, James H., Norwalk, Ohio. Kite-cover	16,798	July 13	36	124
Stark, Andrew, Chicago, Ill. Sofa	16,895	Sept. 7	36	1048
Stauffer, David F., York, Pa. Cracker	16,850	Aug. 10	36	574
Stegmann, Edward H., Indianapolis, Ind. Badge	16,848 to 16,849	Aug. 10	36	574
Stout, Harry C., trustee. (See Howell, Joseph B., assignor.)	16,813	July 20	36	236
Swapp, Charles W., New York, N. Y., assignor to Lowell Manufacturing Company, Lowell, Mass. Carpet	16,837 to 16,839	Aug. 3	36	460
Tenfel, Charles, Chicago, Ill. Folding-bed case	16,851	Aug. 10	36	574
Trunk, Anton, Bridgeport, Conn. Corkscrew	16,799	July 13	36	124
Tucker, William B., Columbus, Ohio. Index-plate and nut	16,874	Aug. 24	36	824
Van Buren, Jafew S., assignor to Rathbone, Sard & Co., Albany, N. Y. Cooking-stove	16,800 to 16,801	July 13	36	124
Wagner, Christian W., *et al.* (See Calely, Edward L., assignor.)				
Wagner, William, *et al.* (See Calely, Edward L., assignor.)				
Walton, William, *et al.* (See Hall, Charles M., assignor.)				
Weatherhead, Albert J., Cleveland, Ohio. Vent-valve				
Weinberg, Charles, assignor to C. Weinberg & Co., New York, N. Y. Gimp	16,886	Aug. 31	36	944
Weinberg & Co., C. (See Weinberg, Charles, assignor.)	16,902	Sept. 14	36	1154
Wells, Irvin L., *et al.* (See Calely, Edward L., assignor.)				
West, James, Brooklyn, N. Y. Font of combination type ornaments	16,920 to 16,921	Sept. 28	36	1360
Winger, Josiah G., Grand Valley, Pa. Combined inkstand and pen-rack	16,822	July 27	36	350
Wipfler, Charles. (See Keep and Wipfler.)	16,852	Aug. 10	36	574
Withman, Louis J., Plainville, Mass. Jewelry-stock				
Woodcock, Leslie W., *et al.* (See Sawtelle, Clarence W., assignor.)	16,814	July 20	36	236
Woodcock, William L., *et al.* (See Sawtelle, Clarence W., assignor.)				
Woolf, Mortimor, New York, N. Y. Bottle	16,802	July 13	36	124
Young, William L., St. Charles, Mo. Box	16,823	July 27	36	350

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Acid Iron Earth Company, Mobile, Ala. Medicinal remedies prepared from a certain natural deposit of earthy formation	13,547	Aug. 10	36	574
Acker, Albert E., Washington, D. C. Medicinal tonic	13,504	July 20	36	236
Allones, Ramon, Havana, Cuba, New York, N. Y., and New Orleans, La. Cigars and cigarettes	13,695	Sept. 28	36	1360
Angell, Albert, Newark, N. J. Belt-grease	13,514	July 20	36	236
Angell, Albert, Newark, N. J. Soap	13,513	July 20	36	236
Arnold & Co., F. R., New York, N. Y. Perfumery, extracts, soaps, toilet-waters, sachets, tooth powders and washes, and toilet-powders	13,544	Aug. 3	36	460
Arnold Print Works, North Adams, Mass. Cotton cloth	13,505	July 20	36	236
Ascough, Jesse, Handsworth, near Birmingham, county of Stafford, England. Perfumed soap and perfumed saponaceous preparations, preparations for the teeth and hair, detergents, and antiseptics	13,526	July 27	36	350
Ascough, Jesse, Handsworth, near Birmingham, county of Stafford, England. Washing compounds and soap	13,482	July 13	36	124
Ascough, Jesse, Handsworth, near Birmingham, county of Stafford, England. Perfumed soap, preparations for the bath, the teeth, the hair, and the skin	13,483	July 13	36	124
Ascough, Jesse, Handsworth, near Birmingham, county of Stafford, England. Substances used for antiseptic, agricultural, horticultural, veterinary, and sanitary purposes	13,484	July 13	36	124
Ascough, Jesse, Handsworth, near Birmingham, county of Stafford, England. Soap and saponaceous preparations, detergents, starch, and blue	13,493	July 13	36	124
Ascough, Jesse, Handsworth, near Birmingham, county of Stafford, England. Starch and starch-glaze	13,494	July 13	36	124
Atwood, L. W., Portland, Me. Canned oysters	13,663	Aug. 24	36	824
Auchincloss Brothers, New York, N. Y. Bagging for cotton	13,465	July 6	36	2
Ayres & Sons, William, Philadelphia, Pa. Horse blankets, covers, and nets, and saddle-housings, lap-robes, and lap-dusters	13,628	Aug. 31	36	944
Badger Basket Manufacturing Company, Weyauwega, Wis. Baskets	13,595	Aug. 24	36	824
Barker & Company, C. B., (Limited,) New York, N. Y. Scissors, shears, razors, and pocket and table cutlery	13,653	Sept. 14	36	1154
Barney, Everett H., Springfield, Mass. Roller and ice skates	13,506	July 20	36	236
Barney, Everett H., Springfield, Mass. Roller and ice skates	13,596	Aug. 24	36	824
Barney Myrolenm Company, Portsmouth, N. H. Perfumery	13,597	Aug. 24	36	824
Beck, Charles, Baltimore, Md. Carbonated beverage	13,629	Aug. 31	36	944
Beck & Co., August, Chicago, Ill. Combined smoking and chewing tobacco	13,579	Aug. 17	36	696
Bemis & Fletcher, Worcester, Mass. Boots and shoes	13,578	Aug. 17	36	696
Benedict, James W., Port Huron, Mich. Cut plug smoking-tobacco	13,608	Aug. 24	36	824
Benjamin, Joseph, Elmira, N. Y. Butternut taffy and nut candy	13,609	Aug. 24	36	824
Besly & Co., Charles H., Chicago, Ill. Machine-grease or solid oil	13,654	Sept. 14	36	1154
Bigelow & Co., Moses, Newark, N. J. Japan varnish	13,471	July 6	36	2
Boone, Thomas R., Rochester, N. Y. Overcoats, undercoats, pants, and vests	13,515	July 20	36	236
Boyce, William W., Baltimore, Md. Liniment	13,571	Aug. 17	36	696
Boyle, Henry. (See Boyle, John T. and H.)	13,472	July 6	36	2
Boyle, John T. and H., Fond du Lac, Wis. Yeast-cakes	13,572	Aug. 17	36	696
Brown, Simon V. B. (See Hausman and Brown.)				
Buerkel & Co., Boston, Mass. Steam-boilers	13,619	Aug. 31	36	944
Buffalo Co-Operative Brewing Company, Buffalo, N. Y. Beer	13,516	July 20	36	236
Burnet, William H., Chicago, Ill., New York, N. Y., St. Louis, Mo., and Omaha, Nebr. Refined lard	13,529	July 27	36	350
Butler, Gardiner S., Minneapolis, Minn. Clothes and furnishing goods for men and boys	13,485	July 13	36	124
Cargemel, Jules. (See Stiegler and Cargemel.)				
Chichester Chemical Company, Philadelphia, Pa. Pennyroyal pills	13,589	Aug. 24	36	824
Cockrell & Co., Sarah H., Dallas, Tex. Flour	13,560	Aug. 10	36	574
Cohen, Julius, New York, N. Y. Cordials	13,680	Sept. 21	36	1250
Compañia Vinicola del Norte de España, Bilbao, Spain. Wines	13,570	Aug. 10	36	574
Cowan, Archibald S., Chicago, Ill. Lotion or liniment	13,330	Sept. 7	36	1048
Crosse & Blackwell, Soho Square, county of Middlesex, England. Pickles	13,580	Aug. 17	36	696
Crosse & Blackwell, Soho Square, county of Middlesex, England. Pickles	13,649	Sept. 7	36	1048
Damon & Co., A. F., Philadelphia, Pa. Coffee	13,640	Sept. 7	36	1048
Dansby, Robert C., Terrell, Tex. Tonic or bitters	13,671	Sept. 21	36	1250
Delano, William H., Paris, France. Asphaltum cakes or blocks	13,655	Sept. 14	36	1154
Densmore, Emmet and H., New York, N. Y. Herb medicine	13,656	Sept. 14	36	1154
Densmore, Helen. (See Densmore, Emmet and H.)				
Dolge, Carl B., Brooklyn, N. Y. Embalming-fluid	13,532	Aug. 3	36	460
Drysdale & Co., Thomas, Buenos Ayres, Argentine Republic, and New York, N. Y. Extract of tobacco	13,473	July 6	36	2
Drysdale & Co., Thomas, Buenos Ayres, Argentine Republic, and New York, N. Y. Cutlery, hardware, and agricultural implements	13,474	July 6	36	2
Duffy Malt Whiskey Company, Baltimore, Md. Malt bitters	13,682	Sept. 21	36	1250
Durable Printers' Roller Company, (Limited,) London, county of Middlesex, England. Composition for covering printers' rollers	13,466	July 6	36	2
Durable Printers' Roller Company, (Limited,) London, county of Middlesex, England. Composition for covering printers' rollers	13,481	July 6	36	2
Eagle Pencil Company, New York, N. Y. Lead-pencils and pen-holders	13,657	Sept. 14	36	1154
Eastman, James D., Deer Lodge, Mont. Ter. Tonic or bitters	13,641	Sept. 7	36	1048
Eckman & Peterson, Philadelphia, Pa. Canned fruits, vegetables, fish, &c	13,658	Sept. 14	36	1154
Eggeman, C. Rudolph, Detroit, Mich. Catarrh remedy	13,598	Aug. 24	36	824
Eggemann, Pauline R., A. R. Jacobi, A. R. Erichsen, and A. Schremser, Detroit, Mich. Catarrh remedy	13,630	Aug. 31	36	944
Elstroth, George H., Brooklyn, N. Y. Salve	13,590	Aug. 24	36	824
Engelke & Feiner, St. Louis, Mo. Wheat-flour, cornmeal, pearl meal, and pearl grits	13,517	July 20	36	236

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Erichsen, Amalie R. (See Eggemann, Jacobi, Erichsen, and Schremser.)				
Escher, C. Schindler, Zurich, Switzerland. Bolting-cloth	13,581	Aug. 17	36	696
Fairbank & Company, N. K., Chicago, Ill., New York, N. Y., St. Louis, Mo., and Omaha, Nebr. Family soap	13,495	July 13	36	124
Fairbank & Company, N. K., Chicago, Ill., St. Louis, Mo., New York, N. Y., and Omaha, Nebr. Soap	13,545	Aug. 3	36	460
Fairbank & Company, N. K., Chicago, Ill. Family soap	13,582	Aug. 17	36	696
Faven, W. B., New York, N. Y. Vinona essence consisting of medicinal herbs and flowers extracted and refined with wine and alcohol	13 659	Sept. 14	36	1154
Ferrer, Joaquin F., New York, N. Y. Beer	13,620	Aug. 31	36	944
Ferris Bros., New York, N. Y. Underwear for adults and children of both sexes	13,573	Aug. 17	36	696
Fetterman, N. P., Pittsburg, Pa. Bronchial cough-sirup	13,660	Sept. 14	36	1154
Finkler & Co., Godramstein, Germany. Medicinal preparations from carica papaïa, (melon-tree)	13,642	Sept. 7	36	1048
Fischer, J. & C., New York, N. Y. Grand, square, and upright pianos	13,584	Aug. 17	36	696
Fish, William L., Newark, N. J. Salve	13,574	Aug. 17	36	696
Flagg Cutlery Company, (limited,) New York, N. Y. Razors	13,583	Aug. 17	36	696
Focht & Co., D., Philadelphia, Pa. Washing compounds in the form of powder	13,487	July 13	36	124
Foote, J. Howard, Brooklyn, N. Y. Musical instruments of all kinds	13,696	Sept. 28	36	1360
Fox River Butter Company, Aurora and Oswego, Ill. Butter	13,643	Sept. 7	36	1048
Freiberg Bros., Cincinnati, Ohio. Mixture of ingredients to be commingled with milk to compose a punch	13,610	Aug. 24	36	824
Fries, Valentine. (See Weldeman, Holmes, and Fries.)				
Gall & Ax., G. W., Baltimore, Md. Smoking and chewing tobacco	13,650	Sept. 7	36	1048
Gilbertson & Company, W., (limited) near Swansea, England. Tin plates, terne plates, and black plates	13,631	Aug. 31	36	944
Glaccum, William, New York, N. Y. Cigars, cigarettes, and smoking and chewing tobacco	13,533	Aug. 3	36	460
Glass, Hoafmyre & Co., New York, N. Y. Gentlemen's white and figured shirts	13,661	Sept. 14	36	1154
Graham Bros. & Co., Chicago, Ill. Fine scented and medicinal soaps	13,518	July 20	36	236
Granger, Warren, St. Paul, Minn. Coffee	13,662	Sept. 14	36	1154
Gray & Co., W. T., Winston, N. C. Smoking-tobacco	13,467	July 6	36	2
Gross, Andrew, New York, N. Y. Medicinal preparation for purifying the blood	13,548	Aug. 10	36	574
Hall, Alexander C. (See Hall and Hedges.)				
Hall, Jesse T. and A. C., and J. M. Hedges, Pittsburg, Pa. Phosphorated bitters	13,549	Aug. 10	36	574
Hall, Jesse T. and A. C., and J. M. Hedges, Pittsburg, Pa. Remedy for catarrh	13,550	Aug. 10	36	574
Hammond & Co., Charles A., Bazile Mills, Nebr. Flour	13 697	Sept. 28	36	1360
Hausman, Joseph, and S. V. B. Brown, Trinidad, Colo. Compound for exterminating prairie-dogs, ground-squirrels, gophers, rats, and mice	13,591	Aug. 24	36	824
Hausman, Joseph, and S. V. B. Brown, Trinidad, Colo. Compound for exterminating prairie-dogs, ground-squirrels, gophers, rats and mice	13,611	Aug. 24	36	824
Hayes, Murray & Co., Philadelphia, Pa. Shoes	13,530	July 27	36	350
Heapy & Sons, William, Liverpool, county of Lancaster, England. Hog products, cheese, butter, and butterine	13,531	July 27	36	350
Heathcote, Dexter & Co., San Francisco, Cal. Wines and brandies	13,681	Sept. 21	36	1250
Hedges, John M. (See Hall and Hedges.)				
Heins, John J., New York, N. Y. Gliders' size	13,534	Aug. 3	36	460
Holmes, John H. (See Weldeman, Holmes, and Fries.)				
Hoyt & Co., F., Philadelphia, Pa. Cologne-water and other perfumery	13,651	Sept. 7	36	1048
Hunt & Co., F. W., Boston, Mass. Whisky	13,575	Aug. 17	36	696
Imhof, Henry, Buffalo, N. Y. Liquid nerve-tonic	13,621	Aug. 31	36	944
Ireland, Howard L., Philadelphia, Pa. Bird-food	13,496	July 13	36	124
Jacobi, Alwine R. (See Eggemann, Jacobi, Erichsen, and Schremser.)				
Jaeger's Sanitary Woolen System Company, Dr., New York, N. Y. Certain named woolen bedding	13,561	Aug. 10	36	574
Jaeger's Sanitary Woolen System Co., New York, N. Y. Certain articles of wearing-apparel	13,632	Aug. 31	36	944
Jaffé & Darmstaedter, Benno, Charlottenburg, near Berlin, Germany. Toilet-soap, cream, milk, paste, and pomatum	13,527	July 27	36	350
Jaffé & Darmstaedter, Benno, Charlottenburg, near Berlin, Germany. Salves and plasters	13,528	July 27	36	350
Jaffé & Darmstaedter, Benno, Charlottenburg, near Berlin, Germany. Unguent or salve	13,629	Aug. 31	36	944
Jameson & Son, John, Dublin, Ireland. Whisky	13,576	Aug. 17	36	696
Johnson & Co., J. C., Memphis, Tenn. Fulling and scouring, toilet, and laundry soap	13,535	Aug. 3	36	460
Keasbey & Mattison, Philadelphia, Pa. Tonic and stimulant	13,663	Sept. 14	36	1154
Kidder, Samuel, Boston, Mass. Belting	13,604	Aug. 24	36	824
Kirk & Co., James S., Chicago, Ill. Toilet-soap	13,623	Aug. 31	36	944
Kirk & Co., James S., Chicago, Ill. Toilet-soap	13,664	Sept. 14	36	1154
Lawton, Frank B., Albion, Wis. Inka	13,652	Sept. 7	36	1048
Lennon, William F., New York, N. Y. Sash-balances	13,497	July 13	36	124
Leonard & Co., Minneapolis, Minn. Corn-remover	13,644	Sept. 7	36	1048
Lever Bros., Warrington, county of Lancaster, England. Soap for household and all other purposes	13,624	Aug. 31	36	944
Levering & Co., Lafayette, Ind. Gloves	13,612	Aug. 24	36	824
Levy, Arthur, Paris, France. Telescopes, spy-glasses, and magnifying-glasses	13,605	Aug. 24	36	824
Levy & Bro., H. L., New York, N. Y. Boys' shirt-waists, men's flannel shirts, and ladies wrappers	13,599	Aug. 24	36	824
Lifofuge Manufacturing Company, New York, N. Y. Compound for preventing and removing lime and other deposits in steam-boilers	13,488	July 13	36	124
Locke & Co., J. M., Brooklyn, N. Y. Printed satinets or woolens	13,698	Sept. 28	36	1360
Loefund, Eduard, Stuttgart, Würtemberg, Germany. Infants' food	13,507	July 20	36	236
Loefund, Eduard, Stuttgart, Germany. Medicine for lung and throat troubles, anæmia, scrofula, phthisis, indigestion, nervous and general debility, and rickets	13,536	Aug. 3	36	460
Lord, Francis C., Boston, Mass. Preparation for removing grease and stains	13,537	Aug. 3	36	460
Louisville Spirit Cured Tobacco Company, Louisville, Ky. Extract of tobacco for sheep-dip	13,475	July 6	36	2
Manufacture de Feutres & Chapeaux, Brussels, Belgium. Hatters' furs	13,520	July 20	36	236
Markle, John E., Winchester, Ind. Compound for the treatment of female complaints	13,592	Aug. 10	36	574
Martin Bros., Port Huron, Mich. Roasted ground and unground coffee	13,672	Sept. 21	36	1250
Martin Bros., Port Huron, Mich. Roasted ground and unground coffee	13 673	Sept. 21	36	1250
Massasoit Paper Manufacturing Company, Holyoke, Mass. Writing-paper	13,563	Aug. 10	36	574
Mattocks, Charles P., Portland, Me. Canned sugar-corn	13,476	July 6	36	2
Mayer Brothers & Co., New York, N. Y. Roasted coffee	13,551	Aug. 10	36	574
Mayer, Michel & Deninger, Mayence, Germany. Calf-skins, morocco, sheep-skins, and patent-leather	13,552	Aug. 10	36	574
Mayer, Michel & Deninger, Mayence, Germany. Calf-skins, morocco, sheep-skins, and patent-leather	13,633	Aug. 31	36	944
McCaine, Louise M. and M. B., St. Paul, Minn. Liniment	13,519	July 20	36	236
McCaine, Maria B. (See McCaine, Louise M. and M. B.)				
McConnell, Clancey & Co., Chillicothe, Ohio. Canned corn	13,665	Sept. 14	36	1154
McLean, Albert C., Allegheny, Pa. Soap	13,585	Aug. 17	36	696

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Mechanische Weberei zu Linden, Linden, near Hanover, Prussia, Germany. Cotton, half-woolen, and half-silk goods	13,468	July 6	36	2
Medinna & Item, Chicago, Ill. Hog-cholera medicine	13,553	Aug. 10	36	574
Megros, Portier, Grose & Co., New York, N. Y. Dress fabrics of silk, wool, or cotton	13,645	Sept. 7	36	1048
Mennen, Gerhard, Newark, N. J. Medicine or cure for corns, bunions, warts, moles, callousness, &c	13,666	Sept. 14	36	1154
Minaldi, Antonio, New York, N. Y. Oranges and lemons	13,684	Sept. 21	36	1250
Montagne, William E., Philadelphia, Pa. Carpets ribbed upon both faces	13,667	Sept. 14	36	1154
Mortimer, Charles G., New York, N. Y. Toilet-paper	13,606	Aug. 24	36	824
Nash & Brother, Millington, N. J. Pulverizing-harrows, clod-crushers, and levelers	13,546	Aug. 3	36	460
New York Belting and Packing Company, New York, N. Y. Emery-wheels	13,508	July 20	36	236
New York Knife Company, Walden, N. Y. Pocket and table cutlery solely	13,538	Aug. 3	36	460
Normal Company, (limited,) Westminster, England. Certain named animal and fish products	13,498	July 13	36	124
Normal Company, (limited,) Westminster, England, and Aberdeen, Scotland. Vegetable extracts for flavoring soups	13,613	Aug. 24	36	824
O'Shaughnessy, John W., New York, N. Y. Mocha coffee	13,699	Sept. 28	36	1360
Ormsby, Frank H. (See Ormsby, William D. and F. H.)	13,592	Aug. 24	36	824
Ormsby, William D., Fitchburg, and F. H. Ormsby, Boston, Mass. Hosiery	13,687	Sept. 28	36	1360
Osborn & Co., Samuel, Sheffield, county of York, England. Steel	13,469	July 6	36	2
Osborn & Co., Samuel, Sheffield, county of York, England. Steel	13,470	July 6	36	2
Pa Dro, Clara R., Springfield, Mass. Medicinal preparation for the feet, in powdered or liquid form	13,554	Aug. 10	36	574
Parker, John J., Aitkin, Minn. Saws	13,607	Aug. 24	36	824
Parker, Willard F., Philadelphia, Pa. Butter-scotch or taffy	13,535	Aug. 10	36	574
Patrick, Zebulon W., Helena, Ark. Remedies for stomach, liver, and kidney affections	13,521	July 20	36	236
Paxton Bros. & Co., Cincinnati, Ohio. Whisky	13,614	Aug. 24	36	824
Peabody & Co., Henry W., Boston, Mass. Refined petroleum	13,668	Sept. 14	36	1154
Perkins & Ernst, Covington, Ky. Plug-tobacco	13,600	Aug. 24	36	824
Perkins, Richard C., New York, N. Y. Wool and silk and wool black dress goods	13,477	July 6	36	2
Peterson, Carl T., Miles City, Mont. Ter. Liniment	13,489	July 13	36	124
Petzolds German Bitters Company, Baltimore, Md. Medicinal bitters	13,486	July 13	36	124
Platt & Co., Baltimore, Md. Oysters, raw, cove, and pickled, put up in plain tin-plate cans	13,646	Sept. 7	36	1048
Provident Chemical Works, St. Louis, Mo. Powdered acid phosphate of lime	13,593	Aug. 24	36	824
Provident Chemical Works, St. Louis, Mo. Phosphatic food products, as designated	13,674	Sept. 21	36	1250
Provident Chemical Works, St. Louis, Mo. Powdered acid phosphate of lime for baking-powder	13,675	Sept. 21	36	1250
Pullar & Sons., Robert, Bridge of Allan, county of Stirling, Scotland. Linings for ladies' and gentlemen's habits, also for umbrella and parasol cloths	13,676	Sept. 21	36	1250
Reed, John D., Boston, Mass. Hams, shoulders, and bacon	13,601	Aug. 24	36	824
Reinhard, Francis H., New York, N. Y. Lubricating-oil	13,510	July 20	36	236
Revere Rubber Company, Boston, Mass. Compound for packing the joints of steam-engines and for other purposes	13,564	Aug. 10	36	574
Reynolds, Richard J., Winston, N. C. Plug and twist tobacco	13,539	Aug. 3	36	460
Riley, Michael, London, Ohio. Fluid, wet, and dry yeast	13,556	Aug. 10	36	574
Roever, H. & G. A., Cincinnati, Ohio. Soap in cakes, bars, blocks, or balls	13,478	July 6	36	2
Russell & Co., New York, N. Y. Sheetings, drills, jeans, and other cotton cloths	13,479	July 6	36	2
Santos, M. A. & C. A., Norfolk, Va. Dentifrice or tooth-wash	13,634	Aug. 31	36	944
Saxlehner, Andreas, Buda-Pesth, Austria-Hungary. Natural aperient water	13,565	Aug. 10	36	574
Scherer Company, P., New York, N. Y. Mineral water and mineral salts	13,677	Sept. 21	36	1250
Schremser, Agnes. (See Eggemann, Jacobi, Erichsen, and Schremser.)	13,500	July 13	36	124
Search, Newton C., Baltimore, Md. Cough, cold, croup, and consumption cure, and a liniment	13,685	Sept. 21	36	1250
Sherman, Marr & Higgins, Chicago, Ill. Dried apricots	13,522	July 20	36	236
Shirley, Frederick S., New Bedford, Mass. Glass table-ware and fancy articles of all kinds	13,566	Aug. 10	36	574
Siebel & Matthael, Hamburg, Germany. Portland, Keene's, Roman, and hydraulic cements	13,523	July 20	36	236
Sieber, Fred., Allegheny, Pa. Medicinal beverage for cure of drunkenness	13,625	Aug. 31	36	944
Silsby, Harry D., Springfield, Mo. Cooking and heating stoves and ranges	13,686	Sept. 21	36	1250
Silver Lake Company, Boston, Mass. Cords, lines, twines, and ropes	13,615	Aug. 24	36	824
Silver Lake Company, Boston, Mass. Cords, lines, twines, and ropes	13,540	Aug. 3	36	460
Silver Lake Company, Boston, Mass. Cords, lines, twines, and ropes	13,541	Aug. 3	36	460
Simpson, Crawford & Simpson, New York, N. Y. Kid gloves	13,542	Aug. 3	36	460
Simpson, Crawford & Simpson, New York, N. Y. Knit shirts, drawers, stockings, and socks	13,626	Aug. 31	36	944
Simpson, Crawford & Simpson, New York, N. Y. Kid gloves	13,627	Aug. 31	36	944
Simpson, Crawford & Simpson, New York, N. Y. Kid gloves	13,635	Aug. 31	36	944
Simpson, Greenleaf W., Boston, Mass. Creamery butter	13,636	Aug. 31	36	944
Smith, Barclay J., San Francisco, Cal. Tea and burnt or ground coffee	13,524	July 20	36	236
Smither, James W., Burlington, Iowa. Crackers	13,491	July 13	36	124
Soler & Guardias, New York, N. Y. Blood-purifying medicine	13,647	Sept. 7	36	1048
Soltmann, Edward G., New York, N. Y. Certain named drawing materials	13,637	Aug. 31	36	944
Sommer, Richardson & Co., St. Joseph, Mo. Crackers	13,602	Aug. 24	36	824
Sommer, Richardson & Co., St. Joseph, Mo. Candy	13,511	July 20	36	236
Speidel & Co., Joseph, Wheeling, W. Va. Coffee	13,512	July 20	36	236
Spratt's Patent, (limited,) London, county of Surrey, England. Medicine for dogs	13,586	Aug. 17	36	696
Spratt's Patent, (limited,) London, county of Surrey, England. Substances and preparations for feeding pheasants and other game-birds and poultry	13,688	Sept. 28	36	1360
Spratt's Patent, (limited,) London, county of Surrey, England. Medicine for pheasants and other game-birds and poultry	13,689	Sept. 28	36	1360
Spratt's Patent, (limited,) London, county of Surrey, England. Substances and preparations for feeding pheasants and other game-birds and poultry	13,690	Sept. 28	36	1360
Spratt's Patent, (limited,) London, county of Surrey, England. Medicine for pheasants and other game-birds and poultry	13,691	Sept. 28	36	1360
Spratt's Patent, (limited,) London, county of Surrey, England. Dog-biscuit and substances and preparations for feeding pheasants and other game-birds and poultry	13,692	Sept. 28	36	1360
Spratt's Patent, (limited,) London, county of Surrey, England. Preparations of food for dogs, cats, poultry, and other animals	13,693	Sept. 28	36	1360
Stearns & Company, Frederick, Detroit, Mich. Medicines for the treatment of diseases of the blood, fevers, coughs, colds, and catarrh	13,694	Sept. 28	36	1360
Stiegler, Xavier, Jne., and J. Carremel, Bar-le-Duc, Meuse, France. Corsets	13,490	July 13	36	124
Taylor Bros., Rochester, N. Y. Thermometers and barometers	13,616	Aug. 24	36	824
True, Jacob, Buffalo, N. Y. Medicine for the cure of dyspepsia and all diseases incident thereto	13,480	July 6	36	2
Union Cement Company, East Kingston, N. Y. Hydraulic cement	13,557	Aug. 10	36	574
Valentino, J. Louis, Nashville, Tenn. Chewing-gum	13,683	Sept. 21	36	1250
Van Derveer & Holmes Biscuit Company, New York, N. Y. Biscuits, crackers, and wafers	13,678	Sept. 21	36	1250
Van Houten & Zoon, C. J., Weesp, Holland. Cocoa and chocolate	13,587	Aug. 17	36	696
Varin, William G., Indianapolis, Ind. Toilet-water and hair-tonic	13,638	Aug. 31	36	944
	13,588	Aug. 17	36	696

Alphabetical list of registrants of trade-marks, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Villeroy & Boch, Mettlach, Germany. China, stoneware, terra-cotta, and statuary porcelain	13,567	Aug. 10	36	574
Vorwohler Portland Cement Fabrik, Prüssing, Planck and Company, Holzminden, Germany. Portland cement	13,568	Aug. 10	36	574
Warner Brothers, New York, N. Y. Corsets	13,492	July 13	36	124
Warner, William R., Philadelphia, Pa. Headache cure, an ointment or lotion, and aromatic cachous	13,617	Aug. 24	36	824
Wasemer, Joseph, New York, N. Y. Lager-beer	13,648	Sept. 7	36	1048
Watson, Armstrong & Co., London, England, Paris, France, Portadown and Belfast, Ireland, and New York, N. Y. Table-linens	13,618	Aug. 24	36	824
Webster, Warren, Philadelphia, Pa. Ventilators for buildings, chimneys, &c	13,501	July 13	36	124
Weedon & Dent, Eufaula, Ala. Pills	13,556	Aug. 10	36	574
Weeks & Co., S. H., New York, N. Y. Oil-meal and flaxseed meal	13,569	Aug. 10	36	574
Weideman, John J., J. H. Holmes, and V. Fries, Cleveland, Ohio. Whisky	13,669	Sept. 14	36	1154
Wells & Co., M. D., Chicago, Ill. Men's and boys' leather boots and shoes	13,585	July 20	36	236
White Proprietary Company, Peleg, New York, N. Y. Plasters and medicines for use in the treatment of corns	13,499	July 13	36	124
White Proprietary Company, Peleg, New York, N. Y. Medicated plasters	13,509	July 20	36	236
Wheeler, Parsons & Hayes, New York, N. Y. Finger-rings	13,679	Sept. 21	36	1250
Wickham & Co., W. J., Baltimore, Md. Non-alcoholic summer-drink	13,594	Aug. 24	36	824
Wilkinson Bros. & Co., New York, N. Y. Writing-paper	13,577	Aug. 17	36	696
Winkelmann, John H., Baltimore, Md. Remedy for malaria and fever and ague	13,543	Aug. 3	36	460
Wollensak, John F., Chicago, Ill. Transom-lifters	13,502	July 13	36	124
Wollensak, John F., Chicago, Ill. Transom-lifters	13,503	July 13	36	124
Wood & Ward, Stephen, Philadelphia, Pa. Towels and tidies	13,700	Sept. 28	36	1360
Young & Smylie, Brooklyn, N. Y. Manufactured licorice	13,670	Sept. 14	36	1154
Zane Tobacco Company, Zanesville, Ohio. Plug-tobacco	13,559	Aug. 10	36	574

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Adrot, Christelle & Co., Chicago, Ill. "Knights of Labor Soap"	4,901	July 13	36	124
Allen & Co., W. E., Hilladale, Mich. "The American Circulating Library Co." (for Book Covers)	4,902	July 13	36	124
American Waltham Watch Company, Waltham, Mass. "1 Doz. Main Springs American Waltham Watch Co. Waltham, Mass. U. S. A."	4,944	Aug. 31	36	944
Andrews, Constant A., New York, N. Y. "Jersey Doll." (for Stuffed Dolls made of Jersey Cloth)	4,950	Sept. 14	36	1154
Arnold Print Works, North Adams, Mass. "Fabric" (for Cloth)	4,910	July 20	36	236
Arnold Print Works, North Adams, Mass. "Printed Fabric" (for Cloth)	4,911	July 20	36	236
Auburn Mineral Water Company, Philadelphia, Pa. "Ginger Ale"	4,903	July 13	36	124
Barker, Moore & Mein, Philadelphia, Pa. "Vegetable, Horse, Cattle & Poultry Powder"	4,931	Aug. 17	36	696
Barrett, Angelica, Le Roy, N. Y. "Dr. Solomon Barrett's Prescription for diseases of the stomach and bowels"	4,932	Aug. 17	36	696
Beecham, Thomas, St. Helen's, county of Lancaster, England. "Beecham's Patent Pills"	4,957	Sept. 7	36	1048
Capron, Charles L., St. Albans, Vt. "Dr. Bain's Dyspepsia Cure"	4,923	Aug. 3	36	460
Cary, Ogden & Parker, Chicago, Ill. "Western Lead Works Strictly Pure White Lead"	4,960	Sept. 14	36	1154
Chichester Chemical Co., Philadelphia, Pa. "Chichesters English." (for Pills)	4,939	Aug. 24	36	824
Clapp & Son, Otis, Boston, Mass. "Elixir of Beef"	4,945	Aug. 31	36	944
Clark & Co., S. P., Attlebero, Mass. "Vegetable Nerve Food"	4,933	Aug. 17	36	696
Clark, Judson S. (See Fowler and Clark.)				
Colby & Buskirk, Dowagiac, Mich. "Wheat Germicelli"	4,913	July 27	36	350
Cooke, Thomas B., Baltimore, Md. "Tonic Phosphates"	4,914	July 27	36	350
Crandall, Eben V., Brooklyn, N. Y. "Union Label," (for Whiting and Paris White)	4,904	July 13	36	124
Dahl, Harald A. C., Brooklyn, N. Y. "Dahls Dyspepsia Cake Manufacturing Company." (for Bread)	4,940	Aug. 24	36	824
Davis, Leonard C., Philadelphia, Pa. "Belmont Chemical Illuminator" (For Burning Fluid)	4,915	July 27	36	350
Deitz, John, St. Louis, Mo. "Union Cigar Maker's Label, of Cigar Maker's Union No. 44 of St. Louis, Mo., of the Cigar Maker's International Union of America"	4,905	July 13	36	124
Deming, Arthur B., Chicago, Ill. "Deming's Charcoal," (not Willow, very much better)	4,961	Sept. 14	36	1154
Donnell, William, Peabody, Mass. "Donnell's Standard Household Ammonia"	4,927	Aug. 10	36	574
Downer, Chester, Boston, Mass. "Baldwin Mineral Springs Water"	4,894	July 6	36	2
Dunn, Thomas B., Rochester, N. Y. "Domestic Package Dyes"	4,916	July 27	36	350
Flynn, Peter H., Fresno, Cal. "Blood Purifier for the Horse"	4,962	Sept. 14	36	1154
Fowler, Ralph P., Waterloo, Iowa. "Fowler's Chilblain Cure"	4,928	Aug. 10	36	574
Fowler, William J., and J. S. Clark, Calais, Me. "Dr. H. B. Knowles' Cough Syrup"	4,958	Sept. 7	36	1048
Ganter, L. F., Glasgow, Ky. "L. F. Ganter's Tooth Ache Cure"	4,925	Aug. 3	36	460
Ganter, L. F., Glasgow, Ky. "L. F. Ganter's Chicken Cholera Cure"	4,946	Aug. 31	36	944
Gilbert, Frank E., New York, N. Y. "Genuine," (for a Medicinal Compound)	4,924	Aug. 3	36	460
Goebner, Gustav A., Chicago, Ill. "Liquid Opaque" (for a Coating for Photographic Negatives)	4,929	Aug. 10	36	574
Greene, Tweed & Co., New York, N. Y. "The Old Style Belt Stud"	4,947	Aug. 31	36	944
Greene, Tweed & Co., New York, N. Y. "Blake's Pattern Belt Stud"	4,967	Sept. 21	36	1250
Greene, Tweed & Co., New York, N. Y. "The Improved Belt Stud"	4,968	Sept. 21	36	1250
Greifenberg, Carl, Brooklyn, N. Y. "Deutsch-Amerikanische (Union Printer) Typographia" (for Printed Matter)	4,895	July 6	36	2
Hance, Robert A., Philadelphia, Pa. "Beef with Whiskey." (for a Medical Preparation)	4,969	Sept. 21	36	1250
Hance, Robert A., Philadelphia, Pa. "Caro Cum Spiritu Frumenti." (for a Medical Preparation of Beef and Whisky)	4,972	Sept. 28	36	1360
Harvey, John W., Sunset, Tex. "Dr. Harvey's Tobacco Antidote"	4,948	Aug. 31	36	944
Hegeman & Co., New York, N. Y. "Rodolph's Great English Blood Purifier"	4,896	July 6	36	2
Holt, Lewis B., Concord, N. H. "Mrs. L. D. Boynton's Family Salve"	4,934	Aug. 17	36	696
Hughes, Edward P., Zanesville, Ohio. "Dermal Hair Restorer"	4,949	Aug. 31	36	944
Keasbey & Mattison, Philadelphia, Pa. "Coca Caffeine" (for a medicinal preparation)	4,950	Aug. 31	36	944
Keasbey & Mattison, Philadelphia, Pa. "Coca Theine" (for a medicinal preparation)	4,951	Aug. 31	36	944
Keasbey & Mattison, Philadelphia, Pa. "Bromo Theine." (for a medicinal preparation)	4,952	Aug. 31	36	944
Keasbey & Mattison, Philadelphia, Pa. "Bromo Cocaine." (for a medicinal preparation)	4,953	Aug. 31	36	944
Keasbey & Mattison, Philadelphia, Pa. "Bromo Cocaffeine." (for a medicine)	4,963	Sept. 14	36	1154
Kibby, William E., assignor to Monumental Assembly No. 2389, Knights of Labor, Washington, D. C. "K. L." (for Bread)	4,906	July 13	36	124
Kirk & Co., Jas. S., Chicago, Ill. "Cream White Honey." (for Soap)	4,954	Aug. 31	36	944
Lighthill, August P., Boston, Mass. "Magnetic Vitalizer," (for Magnetic Appliances)	4,917	July 27	36	350
Lighthill, August P., Boston, Mass. "Witch Hazel Ointment."	4,918	July 27	36	350
Lyon, Whitney, Brooklyn, N. Y. "Lyon's Face Powder."	4,941	Aug. 24	36	824
Manhattan Watch Company, New York, N. Y. "M. W. Co. Ship Time." (for Watch Dials)	4,970	Sept. 21	36	1250
Mann, Abram S., Rochester, N. Y. "Roller Lacing" (for Corsets, Gloves, Shoes, &c)	4,897	July 6	36	2
Mann, Abram S., Rochester, N. Y. "Roller Corset"	4,898	July 6	36	2
Masten, Cornelius E., Boston, and B. T. Wells, Newton, Mass. "American Cannon Cracker." (for Fire-Crackers)	4,942	Aug. 24	36	824
McMillen, M. W., Milwaukee, Wis. "Manford's White Pine Cordial"	4,919	July 27	36	350
Medinus & Iten, Chicago, Ill. "Hog Cholera Medicine"	4,920	July 27	36	350
Monumental Assembly No. 2389, Knights of Labor. (See Kibby, William E., assignor.)				
Norton, H. E., Ironton, Ohio. "Perfect Baking Powder"	4,955	Aug. 31	36	944
Palmer, Charles W., New Haven, Conn. "Dr. Jacobs' Bitters"	4,943	Aug. 24	36	824
Partz Electric Battery Company, Philadelphia, Pa. "Sulpho-Chromic Salt"	4,964	Sept. 14	36	1154
Pfaudler Vacuum Fermentation Company, Rochester, N. Y. "Fermentation Vacuum Beer"	4,921	July 27	36	350
Priestley, John W., and A. H. Titus, Jr., Philadelphia, Pa. "The Workingman's Beneficial Association." (for Books and Pamphlets)	4,973	Sept. 28	36	1360
Roof, Clarence M., New York, N. Y. "Huile D'Olives Vierge"	4,899	July 6	36	2
Schuyler, John, San Bernardino, Cal. "Schuyler's Pile Panacea"	4,930	Aug. 10	36	574
Shepard, L. C., Nicholville, N. Y. "Shepard's Condition Powders"	4,908	July 13	36	124
Shufelt, Henry M., New York, N. Y. "Shufelt's Dyspepsia Cure"	4,909	July 13	36	124
Smith, Flavius J., Austin, Tex. "The Great Ante-Anthrax Remedy"	4,900	July 6	36	2
Strauss, George A., Baltimore, Md. "Tonic Milk Phosphates or Chemical Food"	4,926	Aug. 3	36	460
Stout, John E., Brooklyn, N. Y. "Method of Packing Confectionery"	4,974	Sept. 28	36	1360

Alphabetical list of registrants of labels, July to September, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Thompson, Charles A., Irwin, Pa. "Wei de Lesseps' Norman Balsam"	4,956	Aug. 31	36	944
Thompson, William R., Columbus, Ohio. "Dr. Lloyd's Family Medicine"	4,975	Sept. 28	36	1360
Titus, Alexander H., Jr. (See Priestley and Titus.)				
Twitchell & Bro., S., Philadelphia, Pa. "Rose Soda." (for Beverages and Beverage Extracts)	4,965	Sept. 14	36	1154
Twitchell & Bro., S., Philadelphia, Pa. "India Aromatic Ale"	4,966	Sept. 14	36	1154
Van Derveer & Holmes Biscuit Company, New York, N. Y. "Export Soda." (for Crackers)	4,976	Sept. 28	36	1360
Van Pelt, Charles E., Lincoln, Nebr. "Improved German Embrocation"	4,936	Aug. 17	36	696
Waring Bros., Colora, Md. "Self-Raising Corn Meal"	4,937	Aug. 17	36	696
Warner, William R., Philadelphia, Pa. "Warner & Co's Bromo Soda"	4,912	July 20	36	236
Wells, Benjamin T. (See Masten and Wells.")				
Whitcomb, P. R., New York, N. Y. "Slocum's Coltsfoot Expectorant"	4,971	Sept. 21	36	1250
White Proprietary Company, Peleg, New York, N. Y. "Pedacura Combination Corn Cure"	4,907	July 13	36	124
White Proprietary Co., Peleg, New York, N. Y. "Pomeroy's Petroline Porousad Plasters"	4,935	Aug. 17	36	696
Whittemore, F. W., Hudson, N. Y. "Whittemore's Sacramento Ague Specific"	4,977	Sept. 28	36	1360
Williamson, Frank G., Pekin, Ill. "Williamson's Cream" (for the Skin)	4,938	Aug. 17	36	696
Wolf, Joseph J., Yates Center, Kans. "Sulpho Lotio the Infallible Skin Cure"	4,922	July 27	36	350

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Abdominal bandage	W. and J. Teufel	347,538	Aug. 17	1486	392	36	753
Abrading-cylinder	J. L. Perry	346,681	Aug. 3	290	79	36	517
Accumulator. Differential	E. Boehme	345,360	July 13	778	196	36	146
Acid. Apparatus for making sulphuric	J. J. Thyse	349,941	Sept. 14	967	247	36	1299
Acid. Making sulphuric	J. Hughes	345,140	July 6	475	121	36	96
Acid. Pan for concentrating sulphuric	K. J. Sundström	349,414	Sept. 21	1902	371	36	1284
Adding-machine	W. Koch	346,925	Aug. 10	612	164	36	587
Adding-machine	A. Lapeyre	346,927	Aug. 10	616	165	36	587
Adding-machine	A. E. Shattuck and C. Thorn, Jr	349,459	Sept. 21	1906	328, 329	36	1296
Adding-machine. Electro-magnetic	C. W. Weise	348,437	Aug. 31	2786	749, 750	36	1013
Adjustable chair	E. T. Starr	348,173	Aug. 24	2414	646, 647	36	935
Adjustable chair	A. C. Watson	349,129	Sept. 14	817	207	36	1209
Advertising attachment for clocks	A. V. Strait	345,739	July 20	1354	353	36	256
Advertising-box	R. P. Beatty	348,611	Sept. 7	111	32	36	1067
Advertising device	J. W. Knell	346,924	Aug. 10	611	164	36	586
Advertising medium and card or ticket holder. Combined	H. K. Southland and C. F. Warren	350,022	Sept. 28	2041	527	36	1452
Advertising optical apparatus	A. Duboce	347,996	Aug. 24	2063	547, 548	36	870
Aerated beverages. Tonic base for	T. S. Nowell	346,824	Aug. 3	455	.....	36	549
Agricultural fork	D. Stotlemeyer	348,300	Aug. 31	2603	700	36	977
Air and apparatus therefor. Cooling	S. H. Rouart	349,178	Sept. 14	880	226	36	1212
Air and gas engine	S. Wilcox. (Reissue)	10,750	July 27	2365	606, 607	36	450
Air-brake	D. T. Perkins	345,537	July 13	1053	268, 269	36	195
Air-brake attachment	E. W. McKenna	348,929	Aug. 31	2584	695	36	974
Air-compressor	M. Harrold	345,969	July 20	1673	433	36	313
Air-compressor. Compound	P. L. Weimer	345,758	July 20	1372	357	36	259
Air-compressor. Hydraulic	W. S. Johnson	349,594	Sept. 21	1444	372	36	1332
Air-engine	A. K. Rider	345,450	July 13	916	229	36	1286
Air from liquid-receiving vessels or casings. Exhausting	W. D. Andrews	349,490	Sept. 21	1212	315	36	169
Air-tight jar	J. B. Wilson	348,084	Aug. 24	2989	613	36	912
Alarm:							
See Burglar-alarm. Door-alarm. Electric alarm. Fire-alarm. Fire and burglar alarm.							
Alarm for poison-receptacles	O. F. Frost	349,641	Sept. 21	1501	389	36	1344
Alarm-lock	W. G. Bennett	344,806	July 6	5	1	36	3
Alarm-lock	W. G. Bennett	348,262	Aug. 31	2352	686	36	966
Alarm-lock	W. P. and J. C. Matson	348,096	Aug. 24	2201	587	36	895
Alcohol. Making	C. Ordonneau	347,731	Aug. 17	1773	.....	36	808
Algin and other useful products	E. C. C. Stanford	349,760	Sept. 28	1688	.....	36	1384
Alum. Making porous	C. Semper	345,604	July 13	1146	.....	36	212
Alum. Making porous	C. Semper	345,605	July 13	1147	.....	36	212
Amalgamator	G. S. Armstrong	349,778	Sept. 28	1716	443	36	1389
Amalgamator	H. M. Thompson	346,517	Aug. 3	87	23, 24	36	477
Amalgamator	J. Wilkins	345,096	July 6	414	106	36	75
Amalgamator and separator. Dry ore	O. Matzke	349,442	Sept. 21	1243	322	36	1291
Ammonia in engines. Utilizing aqua-	J. H. Campbell	346,425	July 27	2310	595	36	441
Ampère-meter	E. Weston	348,648	Sept. 7	157	43	36	1076
Anchor	R. R. Spedden	347,972	Aug. 24	2134	568	36	882
Anchor or drogue. Sea	H. Schoening	346,689	Aug. 3	299	82	36	519
Animal-bit	W. D. Harmon	345,051	July 6	355	89	36	65
Animal-exterminator	H. Eaborn	345,373	July 13	796	200	36	149
Animal-releasing device	A. Jacobson	347,807	Aug. 24	1882	502	36	837
Animal-stock	J. F. Hine	346,285	July 27	2114	544	36	405
Animal-trap	C. Bruckart	344,939	July 6	197	50, 51	36	36
Animal-trap	H. J. Seymour	344,994	July 6	285	72	36	52
Animal-trap	A. A. Tanbeneck	348,703	Sept. 7	237	63	36	1090
Animals. Device for releasing	J. Miller	345,799	July 20	1440	373	36	272
Animals. Ear-tag for marking	W. C. Weedon	347,850	Aug. 24	1948	517	36	850
Ankle-supporter	J. G. Pugsley	346,606	Aug. 3	196	53	36	499
Annunciator. Electric	J. Geary	349,579	Sept. 21	1428	369	36	1328
Annunciator. Electric	J. Geary	349,580	Sept. 21	1430	369	36	1328
Annunciator. Electrical	G. F. Painter	348,045	Aug. 24	2224	595	36	900
Annunciator. Electrical	D. Rousseau	346,609	Aug. 3	202	55	36	500
Anti-friction roller and wheel	G. W. Warner	348,802	Sept. 7	353	96	36	1113
Arc-light regulator	P. O. Keilholtz	348,977	Sept. 14	601	158, 159	36	1163
Arch. Fire-proof floor	C. C. Giffman	345,379	July 13	803	202	36	150
Armpit-shield	H. C. Frank	348,380	Aug. 31	2721	731	36	1001
Arm-rest	E. A. Bennett	349,974	Sept. 28	1972	511	36	1430
Arm-support	C. M. Hunt	346,549	Aug. 3	128	34	36	484

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ash-pan. Self-closing	E. A. Jackson	347,351	Aug. 17	1224	326	36	706
Asphaltic concrete for paving purposes. Apparatus for preparing	F. V. Greene	348,492	Aug. 31	2867	771	36	1027
Asphaltic concrete for paving purposes. Device for manufacturing	F. V. Greene	348,493	Aug. 31	2868	771, 772	36	1028
Atomizer	F. A. Reichardt	345,659	July 13	1241	321	36	229
Atomizer	A. B. Tutton	347,750	Aug. 17	1799	480	36	813
Attrition-mill	T. L. Sturtevant	346,513	Aug. 3	92	22	36	476
Automatic sprinkler	W. T. Montgomery	348,531	Aug. 31	2928	787	36	1038
Automatic sprinkler	L. B. Stone	349,764	Sept. 28	1693	437	36	1384
Awning	S. Lloyd	348,024	Aug. 24	2198	586, 587	36	895
Awning. Metallic	E. O. Pohl	349,810	Sept. 28	1760	455	36	1397
Awning. Removable and adjustable	H. W. Smith	345,183	July 6	528	135	36	96
Ax-polls. Dies for making	H. M. Loomer	348,921	Sept. 7	521	138	36	1143
Axle-bearings. Shell for	A. E. Francis	347,931	Aug. 24	2009	549	36	871
Axle-box	L. S. Van Schaumburg	348,432	Aug. 31	2780	747	36	1012
Axle box. Car	A. C. Hébert	347,599	Aug. 17	1576	418, 419	36	772
Axle box. Car	H. Still	349,762	Sept. 28	1691	436	36	1384
Axle box. Car	C. G. Susemihl	348,933	Sept. 7	538	142	36	1146
Axle box. Car	J. Timnie	345,458	July 13	920	231	36	171
Axle. Car	J. Bourne, Jr	347,563	Aug. 17	1524	405	36	762
Axle. Car	J. J. Kelly	347,353	Aug. 17	1226	327	36	707
Axle. Car	F. B. Reed	346,068	July 20	1811	467, 468	36	338
Axle. Car	H. Wolfertz	346,009	July 20	1734	447	36	324
Axle-flaps. Die for forging	W. E. Miller	346,306	July 27	2140	551	36	410
Axle for vehicles	S. Toomey	346,001	July 20	1723	444	36	322
Axle-lubricator	C. Crandall	345,213	July 6	567	145	36	103
Axle-lubricator	J. Simon and C. Contant	348,787	Sept. 7	337	90	36	1110
Axle lubricator. Car	H. G. Farr	348,728	Sept. 7	264	70	36	1097
Axle lubricator. Car	H. G. Farr	348,729	Sept. 7	265	71	36	1097
Axle lubricator. Car	I. Fréchette	345,228	July 6	587	149, 150	36	106
Axle lubricator. Car	I. Fréchette and C. L. Girard. (Reissue.)	10,767	Sept. 28	2140	554	36	1471
Axle-nut	G. H. Eaton	346,469	Aug. 3	28	7	36	486
Axle washer. Carriage	D. A. Johnson	349,583	Sept. 21	1443	372	36	1331
Axles. Device for straightening carriage	J. A. George	347,588	Aug. 17	1556	414	36	789
Baby-jumper, &c. Combined	O. S. M. Cone	347,099	Aug. 10	856	227	36	630
Back-band hook	J. B. Moore	348,571	Sept. 7	50	14	36	1057
Bag: *See* Feed-bag. Paper bag. Mail-bag.							
Bag-holder	J. Miller	348,986	Sept. 14	612	161	36	1165
Bag-holder	T. H. Smith	347,393	Aug. 17	1283	341	36	717
Bag-holder	H. K. Wealand	347,077	Aug. 10	838	223	36	627
Bag, satchel, &c	J. Wolf	348,085	Aug. 24	2290	614	36	912
Bag-tie	A. H. Brown	349,300	Sept. 21	1034	264	36	1252
Bags, &c. Fastening for	G. W. McGill	345,523	July 13	1009	256	36	187
Bagasse-feeder	C. W. Harris	346,099	July 27	1849	477	36	355
Bagasse-furnace	L. P. Rider	349,236	Sept. 14	962	245, 246	36	1228
Baking furnace and oven	B. B. Van Derveer	349,771	Sept. 28	1704	439	36	1386
Baking-machine	J. O. Meyer and W. Strickler	349,115	Sept. 14	801	203	36	1197
Baking-pan	J. F. Doebler	346,606	Aug. 3	436	119	36	545
Baking-powder mixer	C. Anderson	345,204	July 6	555	142	36	101
Balance. Spring	H. Haerter	345,049	July 6	353	89	36	64
Bale-tie	L. Cook	349,569	Sept. 21	1415	366	36	1326
Bale-tie. Adjustable	F. B. Griswold	345,841	July 20	1500	389	36	981
Bale tie. Cotton	J. H. Hooks	346,917	Aug. 10	603	162	36	584
Bale-ties. Machine for making	D. I. Eckerson	348,633	Sept. 7	390	106	36	1120
Baling-press	P. K. Dederick	347,327	Aug. 17	1188	318	36	701
Baling-press	G. Ertel	345,869	July 20	1568	404	36	994
Baling-press	G. Ertel	349,934	Sept. 28	1914	496	36	1428
Baling-press	J. A. Hampton and E. C. Sooy	345,502	July 13	981	248, 249	36	182
Baling-press	A. S. Robinson	348,865	Sept. 7	437	117	36	1128
Baling-press	J. B. Romans	346,827	Aug. 3	458	126	36	549
Ball: *See* Return-ball. Time-ball.							
Ball-joint coupler	J. P. and C. L. Miller	344,918	July 6	171	44	36	32
Ballot-box	J. W. Bodge	346,710	Aug. 3	329	90	36	525
Balluster and spindle. Ornamental	S. Strahan	349,669	Sept. 21	1535	396	36	1350
Band. Covered elastic endless	J. Ashworth	345,660	July 20	1245	323	36	237
Bandage. Supporting	E. H. Hart	349,793	Sept. 28	1731	447	36	1392
Banjo tail-piece	F. H. Hodges	349,308	Sept. 21	1042	266	36	1253
Bar: *See* Cultivator-bar. Harvester sickle-bar. Eye-bar. Metal bar. Grate-bar. Saddle-bar.							
Bar-cutter	A. Gargrave	348,731	Sept. 7	268	72	36	1097
Bars, &c. Converting tires into	C. B. Beach	347,459	Aug. 17	1391	367	36	735
Barber's chair	F. M. Shepard	349,063	Sept. 14	724	185	36	1183
Barley, wheat, &c. Machine for pearling	C. O. Webb	347,540	Aug. 17	1493	395	36	756
Barrel	J. R. Alligire	347,900	Aug. 24	1960	520	36	852
Barrel-making machine	G. W. Packer	347,370	Aug. 17	1248	332	36	711
Barrel-making machine	G. W. Packer	347,372	Aug. 17	1252	332	36	711
Barrel-making machine	W. P. Tracy	348,481	Aug. 31	2853	758	36	1025
Barrel-register. Automatic electric	G. W. Hey	347,038	Aug. 10	767	204, 205	36	615
Barrel-roller	P. B. Dittrick	345,034	July 6	338	85	36	62
Barrel-tilting device	J. Potter and R. Gomes	345,395	July 13	830	208	36	155
Barrel. Tumbling	A. W. Getchell	349,936	Sept. 28	1920	497	36	1430

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Barrel. Tumbling	J. Henderson, Jr	348,011	Aug. 24	2181	581	36	891
Barrels. Apparatus for forming and drying	I. Hogeland	348,906	Sept. 7	499	132	36	1139
Barrels. Apparatus for heating and drying	J. M. Chambers	348,888	Sept. 7	474	125	36	1134
Base-board and wainscoting	G. F. Decker	346,899	Aug. 10	577	154	36	580
Basin. Catch	J. V. Clarke	345,115	July 6	438	113	36	80
Bat for lawn-tennis	R. S. Moss	346,858	Aug. 3	507	130	36	559
Bat. Tennis	W. Hillman	346,751	Aug. 3	373	100, 101	36	533
Bath: *See* Vapor-bath.							
Bath apparatus	W. F. Lambert	347,430	Aug. 17	1326	354	36	725
Bath-pad	C. S. Rees	346,773	Aug. 3	397	110	36	538
Bath-tubs. Soap-dish for	C. Palmer	345,918	July 20	1606	414	36	301
Bath waste and overflow	T. Butler	346,579	Aug. 3	164	44	36	491
Bathing-tub for horses. Water-proof-cloth	A. Purson	349,357	Sept. 21	1116	288	36	1267
Battery: *See* Carbon battery. Galvanic battery. Electric battery. Secondary battery. Electric chain battery. Voltaic battery.							
Battery and battery-plate	H. Woodward	347,754	Aug. 17	1807	482	36	814
Bearing. Anti-friction	L. W. Boyer	346,716	Aug. 3	336	91, 92	36	528
Bed-bottom	J. C. Peacock, J. B. Graves, and G. A. Huffor.	350,014	Sept. 28	2033	525	36	1450
Bed-bottom	D. P. Stambaugh. (Reissue)	10,749	July 27	2364	606	36	450
Bed-bottom. Knockdown	R. W. Woodman	347,980	Aug. 24	2143	570	36	883
Bed-bottom. Spring	E. P. Berray, C. W. Shepard, and H. White.	347,556	Aug. 17	1513	402	36	760
Bed-bottom. Spring	C. Carleton	349,478	Sept. 21	1294	336	36	1302
Bed-bottom. Spring	S. J. Clark	349,980	Sept. 28	1984	513	36	1441
Bed-bottom. Spring	S. D. Tuttle, Sr	348,589	Aug. 31	2938	790	36	1041
Bed. Bureau	A. Kulich	349,723	Sept. 28	1641	423	36	1375
Bed. Bureau	J. K. Stockton	349,467	Sept. 21	1278	332	36	1298
Bedclothes-holder	H. O. Thomas	348,427	Aug. 31	2776	746	36	1011
Bed-lounge	O. Stechhan	347,446	Aug. 17	1363	363	36	731
Bed-pan	D. O'Brien	346,309	July 27	2149	553	36	412
Bed. Spring	A. F. Keene	349,310	Sept. 21	1044	267	36	1254
Bed. Turn-up	D. C. Otis	347,009	Aug. 10	794	192	36	607
Bed. Wardrobe folding	J. T. Strahan	348,643	Sept. 7	151	42	36	1075
Beds. Crib attachment for	J. T. Pace and W. G. Read	346,495	Aug. 3	59	15	36	471
Bedstead	T. Allen	347,912	Aug. 24	2041	539, 540, 541, 542	36	885
Bedstead	J. L. Stair	346,622	Aug. 3	219	60	36	503
Bedstead-clamp	J. C. Gunn	346,153	July 27	1931	498	36	370
Bedstead-fastener	J. S. Dickey and W. P. McKinney	346,646	Aug. 3	252	69	36	509
Bedstead. Folding	P. A. Gould and F. A. Cook	349,643	Sept. 21	1502	380	36	1344
Bedstead. Invalid	C. H. Horner	348,910	Sept. 7	503	133	36	1140
Bedstead. Wardrobe	R. B. Ayres	345,612	July 13	1155	296	36	214
Bedstead. Wardrobe	F. B. Williams	347,217	Aug. 10	1096	273, 274	36	662
Bedsteads. Attachment for wardrobe	F. B. Williams	347,079	Aug. 10	840	223	36	627
Bee-escape	C. A. Butler	346,023	July 20	1756	451	36	327
Bee-hive	E. Armstrong	346,883	Aug. 10	449	149	36	575
Bee-hive	E. S. Armstrong	349,073	Sept. 14	737	188	36	1186
Bee-hive	C. H. Beeler, Jr	348,308	Aug. 31	2615	704	36	980
Bee-hive	N. N. Betsinger	349,078	Sept. 14	744	190	36	1187
Bee-hive	W. Sycster	348,935	Sept. 7	541	143	36	1146
Bee-hive	J. W. Tefft	349,126	Sept. 14	814	206	36	1199
Beer-cooling apparatus	H. C. Johnson	345,059	July 6	369	93	36	67
Beer from kegs. Apparatus for forcing	G. Surratt and H. Heyman	349,012	Sept. 14	655	169	36	1171
Beer-vent	W. Geisert	345,583	July 13	1122	287	36	907
Bell	R. N. Williams	347,452	Aug. 17	1370	364	36	732
Bell-cord coupling	C. C. Shelby	349,061	Sept. 14	723	184	36	1183
Bell-crank	N. Magee	345,438	July 13	894	223	36	166
Bell. Door	H. A. Bierley	347,821	Aug. 10	1030	275	36	662
Bell. Door	C. W. Bullard	347,226	Aug. 10	1037	276, 277	36	664
Bell. Door	C. L. Livingston	349,437	Sept. 21	1233	320	36	1289
Bell. Door	H. J. P. Whipple	349,559	Sept. 21	1392	361	36	1321
Bell. Electric	E. Carhart	344,940	July 6	197	51	36	37
Bell. Gong	E. C. Barton	345,101	July 6	419	108	36	76
Bell. Pneumatic signal	J. A. Maloney	347,183	Aug. 10	979	261, 262	36	653
Bell. Pneumatic signal	J. A. Maloney	347,184	Aug. 10	980	262	36	653
Bell switch. Call	L. Townsend	350,024	Sept. 28	2044	527	36	1452
Belt. Cartridge	W. S. Capewell	346,719	Aug. 3	340	92	36	527
Belt-fastener	D. Wilson	347,857	Aug. 24	1957	519	36	851
Belt fastener. Machine	S. E. Landis	346,113	July 27	1965	482	36	357
Belt. Galvanic	J. H. Murray	346,215	July 27	2015	520	36	386
Belt-guide	J. A. Ingram	348,285	Aug. 31	2580	694	36	973
Belt or pad. Medical electric	J. McGrady and G. H. Sloane	348,406	Aug. 31	2744	737	36	1005
Belt or strap fastener	W. R. Harris	346,747	Aug. 3	369	99	36	533
Belt. Therapeutic electric	I. Gray	347,592	Aug. 17	1561	415	36	770
Belts, bands, &c. Connection for	S. Wales	348,871	Sept. 7	446	119	36	1130
Belts. Machine for coating emery	S. J. Smith	345,063	July 6	397	100	36	72
Bench-clamp	S. G. Hosack	349,099	Sept 14	780	198	36	1193
Bench-dog	B. B. Hoopes	349,906	Sept. 28	2005	518	36	1445
Bench-plate	F. E. Thompson and J. W. Stedman	349,619	Sept. 21	1477	382	36	1338
Bench-stop	G. B. Gardner	349,881	Sept. 28	1851	478	36	1417
Bicycle	J. T. Slocomb	349,532	Sept. 21	1364	354, 355	36	1316
Bicycle-handle	F. H. Morse	347,054	Aug. 10	793	211	36	619
Bicycle-pedal	T. J. Strickland	347,977	Aug. 24	2139	570	36	883
Bicycle saddle	W. L. Fish	345,424	July 13	874	218	36	168

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle-tire	L. E. Whiton	345,351	July 13	766	192	36	144
Billiards. Time-register for	R. C. Whittman	346,880	Aug. 3	544	148	36	566
Bin	G. C. Chase	346 191	July 27	1980	511	36	566
Bird-cage	A. B. Hendryx	346,283	July 27	2112	543	36	379
Bird-cage screen	A. B. Hendryx	348,012	Aug. 24	2183	581	36	405
						36	892
Bit:							
See Animal-bit. Bridle-bit.							
Bit-brace	W. P. Bullard	347,417	Aug. 17	1311	350	36	723
Bit-braces. Machine for applying beads to	C. H. Amidon	348,182	Aug. 31	2440	655	36	945
Blackboard and writing-desk combined	H. E. Butler and M. Harris	346,838	Aug. 3	479	132	36	554
Blackboard-eraser	F. Cheney	345,830	July 20	1485	385	36	279
Blacking-box. Combination	A. M. Lee	348,468	Aug. 31	2834	769	36	1022
Blacking-box holder	L. F. Eaton	345,957	July 20	1659	428	36	311
Blacking-box holder	F. Wellington	349,328	Sept. 21	1065	273	36	1258
Blacking-boxes and brushes. Holder for	W. A. Pope	347,641	Aug. 17	1654	439	36	787
Blank forms. Case for holding	H. J. Hoffman	348,015	Aug. 24	2186	582	36	892
Blast-furnaces. Tuyere-pipe for	F. W. Gordon	349,541	Sept. 28	1802	466	36	1406
Blind or other ventilating adjunct for buildings	G. Hayes	345,690	July 20	1283	333	36	244
Blind-slat and apparatus for operating the same	G. Hayes	345,689	July 20	1281	332	36	243
Blind slat. Window	S. Palmer	346,678	Aug. 3	2-7	78	36	517
Blind-slats. Device for adjusting	E. P. Tucke	349,416	Sept. 21	1203	311 / 312	36	1284
Blind. Window	J. J. Guldhang	349,252	Sept. 14	992	250	36	1233
Blind. Window	C. W. Radford	346.220	July 27	2021	521	36	388
Block:							
See Building-block. Stop-block. Fuel-block. Wire-drawing block. Stereotype-block.							
Blower	W. G. Brownson	348,488	Aug. 31	2863	770	36	1027
Blower for stoves and grates. Balance	J. L. Gobeillé and W. Wicke	349,217	Sept. 14	929	238	36	1222
Blower. Rotary	P. L. Weimer	345.751	July 20	1370	357	36	259
Blower. Sand	E. F. Freeman	346 650	Aug. 3	255	70	36	510
Blowers. Device for operating sectional	H. P. Cope	345.574	July 13	1109	283	36	205
Blue compound. Resorcin	H. M. Baker	348,816	Sept. 7	369	.....	36	1116
Board:							
See Base-board. Pastry-board. Drying-board. Press-board. Game-board. Switch-board. Ironing-board. Wash-board. Key-board.							
Boat:							
See Hunting and fishing boat. Life-boat.							
Bobbin-reamer	E. H. Perrigo	348,412	Aug. 31	2751	739	36	1006
Boiler:							
See Locomotive-boiler. Steam-boiler. Sectional steam-boiler. Traction-engine boiler.							
Boiler	F. J. Korte	348,918	Sept. 7	518	137	36	1142
Boiler-cleaner	J. Millar and G. Fenny	348,530	Aug. 31	2927	786	36	1038
Boiler-cleaner	W. Row	349,955	Sept. 28	1949	504	36	1435
Boiler-cleaner. Automatic	H. Sims	344,925	July 6	179	46	36	33
Boiler-covering	H. M. Hanmore	345,843	July 20	1502	389	36	281
Boiler-covering	R. Stewart	349,183	Sept. 14	896	228	36	1214
Boiler-deflector	E. S. T. Kennedy	349,720	Sept. 28	1631	420 / 421	36	1373
Boiler-flue cleaner	J. H. Weltmyer	347.145	Aug. 10	929	248	36	644
Boiler furnace. Portable steam	W. J. F. Liddell	344,970	July 6	238	60	36	43
Boiler furnace. Steam	M. W. Barse	345,357	July 13	775	194	36	145
Boiler furnace. Steam	J. Ham	348,463	Aug. 31	2826	759	36	1020
Boiler or vessel lined with lead for use in treatment of fibrous substances	C. W. Flodqvist	348,457	Aug. 31	2819	757	36	1019
Boiler stand. Bath	R. A. Regester	348,690	Sept. 7	220	58	36	1087
Boiler-tube	J. P. Serve	349,060	Sept. 14	722	184	36	1183
Boiler-tube cleaner	S. S. Cook	346,727	Aug. 3	349	95	36	529
Boilers. Compound for cleaning	W. S. Baskin	345,906	July 6	556	.....	36	101
Boilers. Making lead-lined	G. R. Noble	345,168	July 6	509	130	36	93
Boilers. Water-heater for	T. Clifford	347,772	Aug. 24	1836	489	36	828
Boilers. Raising steam in locomotive	W. H. Cowell	347,490	Aug. 17	1315	351	36	723
Bolt:							
See Door-bolt. Spring-bolt. Floor-bolt.							
Bolt	J. A. Coultana	347,996	Aug. 24	2161	575	36	887
Bolt-machine	G. J. Murdock. (Reissue)	10,762	Sept. 7	551	145 / 146	36	1148
Bolts and shafts. Adjustable lock for	C. C. Higham	347,798	Aug. 24	1871	499	36	835
Bone-black kiln	C. H. C. Schmandt	345,324	July 13	731	184	36	138
Bone-black. Retort for calcining	A. C. Harrison	345,968	July 20	1671	432	36	313
Bone blanks for handles. Machine for milling	A. C. Estabrook	347,699	Aug. 17	1728	461	36	900
Bone-reducer	F. W. Andreé	348,946	Sept. 14	560	148	36	1156
Book-case	H. H. and C. W. Olds	345,986	July 20	1699	438	36	318
Book-case. Extension	J. D. Walsh	348,252	Aug. 31	2538	681	36	963
Book-folding machine	E. T. Hazeltine and F. A. Weld	345.506	July 13	987	250	36	183
Book-holder	H. Crocker	348,382	Aug. 31	2711	728	36	999
Book-holder	L. W. Noyes	349,680	Sept. 21	1594	393	36	1348
Book-holder	J. H. Paradis	348,767	Sept. 7	314	84	36	1106
Book-holder, &c. Portable	M. J. Holt	346,547	Aug. 3	123	33	36	483
Book. Railway passenger-tariff and distance guide	S. F. Stevens	348,595	Sept. 7	88	26	36	1063
Book. Railway passenger-tariff and distance guide	S. F Stevens	348,596	Sept. 7	91	26, 27	36	1063
Book-support	H. W. Schroder	346,417	July 27	2308	593	36	440
Book-trimming machine	M. L. Metzger and A. Cooper	346,412	July 27	2295	590	36	438
Boot	D. G. Phalan	348,233	Aug. 31	2513	675	36	958
Boot and shoe crimping machine	L. Knetzger	350,065	Sept. 28	2101	544	36	1463
Boot and shoe crimping machine	R. Marshall	348,135	Aug. 24	2350	630 / 631	36	923

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Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Boot and shoe crimping machine	T. T. Marshall	348,055	July 20	1792	462	36	734
Boot and shoe heel	R. F. McConnell	348,472	Aug. 31	2839	764	36	1023
Boot. Felt	S. G. Alexander	345,471	July 13	938	236	36	174
Boot-heels. Rotary cap for	G. N. Thurzó	348,990	Sept. 7	351	95	36	1113
Boot-jack attachment	W. Quinlan	346,682	Aug. 3	290	80	36	517
Boot or shoe	A. Chambers	347,090	Aug. 10	854	236	36	620
Boot or shoe	W. Reindl and A. Lotstrom	346,126	July 27	1886	488	36	362
Boot or shoe	J. P. Shea and W. Brown	345,993	July 20	1709	440	36	320
Boot or shoe heel	E. S. Hay	348,847	Sept. 7	409	111	36	1123
Boot or shoe protector	L. C. Rudenberger	346,776	Aug. 3	402	111	36	539
Boot or shoe stretcher	J. G. Haentges and J. P. Fisher	347,485	Aug. 17	1416	377	36	742
Boot or shoe tree	A. D. Tyler, Jr.	348,937	Sept. 7	543	143	36	1146
Boot. Rubber	R. Sloan	347,653	Aug. 17	1670	444	36	790
Boot-tree	A. R. Wellman	347,309	Aug. 10	1158	310	36	686
Boots and shoes. Machine for crimping the quarters of	T. Nally	345,915	July 20	1602	412	36	301
Boots and shoes. Machine for stretching and molding the uppers of	E. W. Brown	346,422	July 27	2307	595	36	441
Boots and shoes. Milling-tool for heels of	W. P. Corson	347,689	Aug. 17	1717	458	36	798
Boots and shoes. Sole-molding machine for	D. Knox	347,429	Aug. 17	1394	353	36	725
Boots or shoes. Jack for holding	M. Pisano	346,772	Aug. 3	395	109	36	538
Boots or shoes. Machine for shaping counter stiffeners for	J. C. Hearan	348,903	Sept. 7	496	131	36	1139
Boots or shoes. Machine for turning	J. W. D. Fifield	347,233	Aug. 10	1044	279	36	665
Boots or shoes. Machine for uniting soles to uppers of	S. W. Robinson	346,127	July 27	1887	488	36	362
Boots or shoes. Machine for uniting the soles and uppers of	S. W. Robinson	346,130	July 27	1892	489	36	363
Boots or shoes. Protector or guard for	J. F. Pudor	345,728	July 20	1337	347	36	254
Boots or shoes. Rivet attachment for rubber	J. J. Unbehend	345,555	July 13	1082	277	36	200
Boots, shoes, and slippers with felt soles. Felt articles such as	W. P. Hyatt	345,432	July 13	887	221	36	165
Boring cylinders. Apparatus for	J. D. Watson and J. A. Wilcox	349,963	Sept. 28	1959	506	36	1437
Boring-machine	G. W. Montgomery	344,976	July 6	249	63, 64	36	45
Bottle	J. Canan	345,112	July 6	435	112	36	79
Bottle	H. Codd	345,277	July 13	666	169	36	126
Bottle-cabinet	J. E. Linnell	346,166	July 27	1946	502	36	377
Bottle. Mucilage	E. R. Cahoone	346,088	July 27	1835	474	36	352
Bottle. Nursing	E. L. P. Lellévre	345,518	July 13	1004	255	36	186
Bottle. Nursing	W. F. Ware	347,018	Aug. 10	742	197	36	610
Bottle-stopper	A. Becker	349 268	Sept. 14	1000	255	36	1236
Bottle-stopper	L. Graf	348,461	Aug. 31	2825	759	36	1020
Bottle-stopper	E. L. Lloyd	345.910	July 20	1595	411	36	300
Bottle-stopper	F. McIlvenna	345,160	July 6	500	128	36	91
Bottle-stopper	T. C. Merz	345,240	July 6	622	158	36	112
Bottle-stopper	R. O. Stebbins	349,761	Sept. 28	1690	436	36	1384
Bottle-stopping mechanism	G. A. Gessner	347,031	Aug. 10	759	202	36	613
Bottles. Machine for finishing the necks of	J. O. Malley	346,116	July 27	1868	483	36	358
Bottles. Machine for perforating the sides of capsules for	C. Cheswright	345,365	July 13	784	198	36	147
Bottles. Punching holes in	D. Rylands	347,742	Aug. 17	1788	476	36	810
Bottling-machine	G. S. Slocum	347,654	Aug. 17	1671	444 / 445	36	790
Bouquet-holder	R. F. Lawrence	349,107	Sept. 14	791	200	36	1195
Bonquet-holder	A. McLane	348,332	Aug. 31	2638	711	36	984
Box:							
See Advertising-box. Match-box. Axle-box. Miter-box. Ballot-box. Molding-box. Blacking-box. Musical box. Candy-box. Paper box. Cigar-box. Spice and dredging box. Egg-box. Squib-box. File-box. Stop-box. Fire-alarm signal-box. Stuffing-box. Tool-box. Folding box. Treasure-box. Journal-box. Work-box. Letter-box.							
Box	S. T. Jenkins and T. J. McGuire	345,510	July 13	994	251	36	184
Box cover. Show	H. W. Baumann	348,713	Sept. 7	248	66	36	1093
Box-fastener	C. W. Beehler	349,077	Sept. 14	743	190	36	1187
Box-fastener	J. J. Monahan	349,514	Sept. 21	1341	348	36	1311
Box-fastener	J. A. Strong	344,875	July 6	114	28	36	21
Box-fastener	J. Wolf	345,609	July 13	1152	295	36	213
Box for letters and other articles	M. Bragaldi	349,382	Sept. 21	1163	301	36	1276
Box-forming machine	E. M. Jewett	347,299	Aug. 10	1141	305	36	683
Box-strap	I. S. Elkins	349,150	Sept. 14	843	215	36	1206
Box-strap	C. S. Hall	349,495	Sept. 21	1318	342	36	1307
Boxes. Wire binder for	J. A. Griffiths	345,895	July 20	1576	407	36	295
Brace:							
See Bit-brace. Rail-brace.							
Bracelet	G. Lenau	345,310	July 13	710	179	36	134
Bracelet	L. Lenau	349,803	Sept. 28	1749	451	36	1395
Bracket:							
See Lamp-bracket. Shelf-bracket. Scaffold-bracket. Shingling-bracket.							
Brake:							
See Car-brake. Sled-brake. Locomotive-brake. Tricycle-brake. Railway-brake. Vehicle-brake. Safety automatic brake. Wagon-brake.							
Brake	J. Müller	347,501	Aug. 17	1435	381	36	745

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brake	A. L. Streeter	345,652	July 13	1238	318	36	228
Brake and belt-shifter. Combined	R. W. Whitney	346,696	Aug. 3	309	85	36	522
Brake-beams. Adjustable connection for	J. M. Walsh and C. G. Smith	346,333	July 27	2182	560	36	417
Brake-lever	J. Kroupa	349,941	Sept. 28	1986	498	36	1431
Brake-lever	J. W. McPherson	348,229	Aug. 31	2508	674	36	958
Brake-regulator. Automatic	G. Westinghouse, Jr	345,820	July 20	1468	379, 380	36	276
Brake-shoe	F. H. D. Newhard	348,041	Aug. 24	2220	584	36	899
Brake-shoe	G. H. Poor	346,925	Aug. 3	456	125	36	549
Brass rod and tubing	W. T. Mersereau	344,847	July 6	70	18	36	13
Bread-pan	B. F. Ortman	345,316	July 13	719	181, 182	36	135
Breakwater	W. S. Bates	346,140	July 27	1914	494	36	367
Breastpins. Pin-tongue for	L. Dreyfus	347,289	Aug. 10	1196	302	36	689
Breast-ring attachment	J. Thornton	347,533	Aug. 17	1460	392	36	754
Bretzels and crackers. Apparatus for treating	D. F. Stauffer	345,186	July 6	533	137	36	97
Breweries. Apparatus for utilizing refuse of	H. W. Lafferty	345,704	July 20	1301	337	36	247
Breweries. Utilizing refuse of	H. W. Lafferty	345,703	July 20	1299	337	36	247
Breweries, &c. Utilizing the waste of	A. Parks, Jr	345,987	July 20	1700	.....	36	318
Brewers' grain, &c. Packing dried	F. W. Wiesebrock	346,003	July 20	1725	444, 445	36	322
Brick and other burned products of clay. Manufacture of	M. A. Hunt	345,305	July 13	705	.....	36	133
Brick and tile kiln	J. I. Knapp, J. C. McKenzie, and W. Humphrey.	348,916	Sept. 7	515	136	36	1141
Brick and tile. Method of and apparatus for manufacturing	J. C. Anderson	348,445	Aug. 31	2803	753, 754	36	1016
Brick. Apparatus for drying	W. L. Gregg	348,838	Sept. 7	398	108	36	1121
Brick. Drying	H. Dickson	346,362	July 27	2219	569	36	494
Brick for gas-regenerating furnaces	W. H. Smith	346,782	Aug. 3	408	113	36	540
Brick for ventilation	M. M. Smith	347,392	Aug. 17	1982	541	36	717
Brick for window-sills, &c	J. C. Anderson	346,304	July 27	2267	581	36	434
Brick for window-sills, &c	J. C. Anderson	346,701	Aug. 3	315	87	36	523
Brick from clays of different colors. Manufacture of ornamental	J.C. Anderson	348,443	Aug. 31	2799	752	36	1016
Brick from dry material. Machine for making	J. A. Swanson and A. W. Linton	348,709	Sept. 7	235	62	36	1090
Brick-kiln	G. M. Harris	346,653	Aug. 3	257	71	36	510
Brick-kiln	W. Radford	348,413	Aug. 31	2759	739	36	1006
Brick-kiln	G. W. Sharer	347,650	Aug. 17	1668	443	36	739
Brick-kiln	L. Simpson	349,756	Sept. 28	1683	435	36	1392
Brick-kiln	W. H. Wickers	347,907	Aug. 24	2032	537	36	864
Brick-kiln	J. Wilson	347,453	Aug. 17	1371	365	36	732
Brick-machine	J. W. Brown	349,477	Sept. 21	1291	336	36	1301
Brick-machine	W. Hilton	349,500	Sept. 21	1323	343, 344	36	1308
Brick-machine	J. Hornbeck	345,304	July 13	704	177, 178	36	133
Brick-machine	C. N. Horton	349,395	Sept. 21	1170	305	36	1279
Brick-machine	H. Krutzsch	345,513	July 13	996	252, 253	36	185
Brick-machine	J. J. Kulage	347,355	Aug. 17	1229	327	36	707
Brick-machine	H. Martin	346,931	Aug. 10	692	167	36	588
Brick-machine	S. L. Shellenberger	348,425	Aug. 31	2773	745	36	1011
Brick-machine	P. L. Simpson	348,064	Aug. 24	2259	604, 605	36	906
Brick-machine	W. E. Talcot	347,136	Aug. 10	914	243, 244	36	641
Brick. Making	H. Dickson	346,359	July 27	2213	567, 568	36	423
Brick. Making	H. Dickson	346,360	July 27	2215	568	36	424
Brick. Making	H. Dickson	346,361	July 27	2217	568, 569	36	424
Brick of irregular form for facing walls	J. C. Anderson	349,471	Sept. 21	1284	334, 335	36	1300
Brick-tile, drain-pipes, &c. Manufacture of	H. Dickson	346,358	July 27	2212	567	36	423
Bricks, &c. Method of and apparatus for making	J. C. Anderson	348,444	Aug. 31	2800	752, 753	36	1016
Bricks of ladle-rods. Joint for	M. Williams and S. W. Vaughen	349,265	Sept. 14	997	254	36	1236
Bridge	S. H. Godman	349,345	Sept. 21	1068	279	36	1262
Bridge	C. F. T. Kandeler	348,020	Aug. 24	2192	584	36	893
Bridge	C. F. T. Kandeler	348,467	Aug. 31	2832	761, 762	36	1021
Bridge	D. H. Swartz	346,873	Aug. 3	532	144	36	563
Bridge	J. Tomlinson	349,468	Sept. 21	1279	332, 333	36	1299
Bridge-gate	H. Dammeyer	344,817	July 6	18	5	36	5
Bridge-gate	M. Kourian	345,150	July 6	487	124	36	89
Bridge-gate	E. Petru and J. Zidek	344,853	July 6	80	20, 21	36	15
Bridge-gate	H. J. Rohrbach	347,065	Aug. 10	817	218	36	624
Bridge-guard	W. C. Newman	348,410	Aug. 31	2748	738	36	1005
Bridge. Truss	T. K. Marks	346,118	July 27	1870	483	36	359
Bridge-work, &c. Porous earthenware gravel for bedding ties in	C. C. Gilman	345,047	July 6	351	.....	36	64
Bridges. Construction of	C. F. T. Kandeler	346,591	Aug. 3	175	47	36	494
Bridges. Windlass for ferry	W. L. Wright	345,268	July 6	648	164	36	118
Bridle	J. Bland	346,352	July 27	2204	565	36	421
Bridle-bit	O. Austin	349,246	Sept. 14	975	249	36	1231
Bridle-bit	A. Buermann	347,225	Aug. 10	1036	276	36	663
Bridle-bit	G. A. Doherty	349,088	Sept. 14	750	194	36	1189
Bridle-bit	J. Douglass	345,955	July 20	1655	427	36	310
Bridle-bit	J. A. Fairbanks	348,834	Sept. 7	393	107	36	1120
Bridle-bit	C. Hübner	345,599	July 13	1133	289	36	909
Bridle-bit	N. E. Springsteen	347,249	Aug. 10	1010	260	36	659
Bridle-bit	J. Stanley	346,231	July 27	2032	524	36	390

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bridle-blinder	W. W. Beach	347,862	Aug. 24	1962	520	36	852
Bridles. Combined brace for brow-bands and winkers for	C. A. Harmstead	348,207	Aug. 31	2476	665	36	952
Broiler. Reversible	C. C. Campbell	347,992	Aug. 24	2157	574	36	886
Brooch or badge for clubs	R. E. Phillips and E. R. Shipton	350,079	Sept. 28	2122	549	36	1467
Broom	W. A. Nixon	349,687	Sept. 28	1969	483	36	1420
Broom attachment	W. E. Nash	345,065	July 6	379	95	36	69
Broom-corn-sizing machine	J. S. Lake	348,677	Sept. 7	901	53	36	1063
Broom. Flue	P. Light and J. Luscher	348,469	Aug. 31	2836	762	36	1022
Broom-handle extension	J. R. Greene and J. W. Egnor	347,270	Aug. 10	1006	293	36	675
Broom-handles. Machine for finishing	H. C. Albee	348,678	Sept. 7	456	121	36	1131
Broom-handles. Manufacture of	H. C. Albee	347,981	Aug. 24	2144	571	36	864
Broom-holder	S. L. Bligh	348,106	Aug. 24	2317	621	36	917
Broom-holder	C. Sandford	344,869	July 6	100	26	36	19
Bronzing-machine	W. B. Silverlock	347,652	Aug. 17	1668	444	36	790
Brush	J. Ames, Jr	349,296	Sept. 21	1020	263	36	1251
Brush	M. App	346,421	July 27	2306	591	36	441
Brush	E. Hambujer	348,842	Sept. 7	403	110	36	1122
Brush	W. F. Howard	349,640	Sept. 21	1508	391	36	1345
Brush	J. G. Luddy	349,727	Sept. 28	1646	425	36	1375
Brush	H. Rosenthal	349,407	Sept. 21	1195	309	36	1282
Brush	M. Thompson	349,673	Sept. 21	1539	397	36	1351
Brush	J. A. Williams	345,941	July 20	1637	421	36	306
Brush. Commutator	E. Thomson	345,336	July 13	746	188	36	140
Brush. Daubing	D. G. Lawrence	346,662	Aug. 3	269	74	36	513
Brush. Folding tooth	R. S. Lakin	345,517	July 13	1003	254	36	186
Brush-handles. Machine for graving	A. C. Estabrook	347,700	Aug. 17	1730	461, 462	36	801
Brush holder. Scrubbing	J. T. Gramer	345,893	July 20	1574	406	36	295
Brush. Paint	A. Barber	348,508	Aug. 31	2983	779	36	1082
Brush. Revolving tooth	F. W. Tornberg	347,900	Aug. 24	2021	535	36	862
Brush. Rotary	T. J. McConnaughay	345,854	July 20	1517	393	36	294
Brushes from celluloid and other plastic material. Manufacture of backs for	H. E. Miller	345,963	July 20	1695	437	36	317
Brushes. Manufacture of	P. J. Kane	347,048	Aug. 10	783	208	36	618
Brushing machine. Shoe	L. T. Jones	347,715	Aug. 17	1754	467	36	805
Bucket bottom. Well	C. H. Foster	348,960	Sept. 14	575	153	36	1159
Bucket fixture. Well	S. T. Atkin and O. Steele	349,626	Sept. 21	1486	385	36	1340
Bucket. Well	C. J. Fellrath	348,118	Aug. 24	2331	625	36	920
Buckets. Strap-ear for well	W. H. Parrish	348,046	Aug. 24	2225	595	36	900
Buckle	J. Burgess	348,186	Aug. 31	2445	656, 657	36	946
Buckle	J. E. Gable and F. M. Williams	347,340	Aug. 17	1707	322	36	704
Buckle	W. V. Kay	347,114	Aug. 10	882	233	36	635
Buckle	I. H. Osborn	347,955	Aug. 24	2113	563	36	878
Buckle	S. J. Scovil	348,351	Aug. 31	2661	717	36	969
Buckle	S. J. Scovil	348,352	Aug. 31	2662	717	36	969
Buckle	A. U. Smith	345,062	July 6	396	100	36	72
Buckle	J. Spruce	348,796	Sept. 7	345	93	36	1111
Buckle	W. D. Stratton	347,015	Aug. 10	739	196	36	609
Buckle	W. V. Kay	347,115	Aug. 10	883	234	36	635
Buckle for plow-harness. Back-band	F. E. Jenkins	345,306	July 13	706	178	36	133
Buckle. Harness	F. Benoit	348,310	Aug. 31	2617	705	36	960
Buckle. Harness	J. W. Funk	346,036	July 20	1774	456	36	330
Buckle. Harness	E. D. Hickman	345,381	July 13	805	203	36	150
Buckle. Suspender	J. C. Hyde	346,951	Aug. 3	496	137	36	557
Buckle. Suspender	C. Voorhis	347,143	Aug. 10	926	247	36	643
Buckle. Suspender or other	C. R. Harris	345,967	July 20	1669	432	36	313
Buckles. Machine for tonguing	H. C Bilton	344,894	July 6	140	35, 36	36	25
Buckles. Snap-hook for suspender	C. Voorhis	345,819	July 20	1467	379	36	276
Budding trees	H. Gulick	346,905	Aug. 10	587	157	36	581
Buffer for the prevention of collisions on land and water	W. F. Stanley	345,552	July 13	1079	276	36	200
Buggy-bed	J. C. Figg	349,577	Sept. 21	1496	368	36	1326
Buggy-gear	S. B. Swan	349,125	Sept. 14	813	206	36	1199
Buggy-iron	D. Topliff	349,128	Sept. 14	816	207	36	1200
Buggy-top	T. J. Sullivan and H. A. Eagle	345,332	July 13	738	187	36	139
Buggy-top joint	A. Walter	345,398	July 13	833	209	36	155
Building-block	H. A. Daniels	346,734	Aug. 3	357	96	36	530
Buildings. Construction of	S. C. Burris	346,638	Aug. 3	242	66	36	507
Buildings. Gutter for	J. Gray	345,894	July 20	1575	406	36	295
Bung	C. Ives	347,046	Aug. 10	781	208	36	617
Bung-bush wrench	A. G. Anderson	349,556	Sept. 21	1397	362	36	1322
Bung-faucet	J. D. Moran	346,558	Aug. 3	134	37	36	486
Bung-vent	F. M. La Bolteaux	347,723	Aug. 17	1765	471	36	806
Bung. Vent	J. Meyer	349,354	Sept. 21	1111	287	36	1266
Burglar-alarm	H. B. Bray	347,086	Aug. 10	848	225	36	629
Burglar-alarm	H. M. Cooper and L. J. Kohl	347,684	Aug. 17	1716	458	36	796
Burglar-alarm	A. and A. Iake	348,675	Sept. 7	199	52, 53	36	1063
Burglar-alarm	H. D. Saul	348,781	Sept. 7	329	88	36	1109
Burglar-alarm	G. Schmidt	344,871	July 6	108	27	36	20
Burglar-alarm and door-fastener. Combined	W. Sprague	347,974	Aug. 24	2136	569	36	883
Burglar-alarm for window-sashes	S. C. Whitney	345,350	July 13	765	.....	36	144
Burglar-alarm. Window	J. E. Hunt	346,105	July 27	1856	479	36	356
Burial-casket	N. Rappleyea and W. A. Sparks	347,739	Aug. 17	1785	475	36	810
Burner: *See* Candle-burner. Gas or vapor burner. Electric gas-burner. Lamp-burner. Fire-guard burner. Vapor-burner. Gas-burner.							
Burner and lamp for mineral oils or the equivalents	G. W. Lyth	346,856	Aug. 3	505	139	36	559
Burning hay. Double-walled magazine for	J. H. Coon	346,985	Aug. 10	688	183	36	600
Bustle	F. Fant	346,436	July 27	2331	600	36	442
Bustle	B. S. Reed	344,860	July 6	92	24	36	17

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bustle or bustle-skirt	M. Rosenstock	345,863	July 20	1528	396	36	286
Butter-printing machine	P. J. Reid and J. H. Dunbar	349,121	Sept. 14	806	205	36	1198
Butter-shipper	H. Haak	348,557	Sept. 7	90	6	36	1052
Butter-worker	W. F. and S. H. Waters	349,396	Sept. 21	1069	273	36	1257
Button	F. P. Barney	345,824	July 20	1473	381	36	277
Button	F. E. Child	348,658	Sept. 7	174	47	36	1078
Button	T. W. G. Cook	350,042	Sept. 28	2060	532	36	1456
Button	F. A. Fox	346,649	Aug. 3	251	69	36	510
Button	S. S. Gordon	349,038	Sept. 14	687	177	36	1177
Button	R. J. Kyle	346,112	July 27	1864	481	36	357
Button	N. C. Newell	347,633	Aug. 17	1644	436	36	785
Button	P. A. Raymond	349,453	Sept. 21	1259	326	36	1294
Button	C. C. Shelby	346,956	Aug. 10	653	174	36	594
Button	M. D. Shipman	350,019	Sept. 28	2038	526	36	1451
Button	M. D. Shipman	350,020	Sept. 28	2039	526	36	1451
Button	O. T. Smith	345,814	July 20	1461	378	36	275
Button	O. T. Smith	345,866	July 20	1532	396	36	287
Button	S. J. Swayze	348,934	Sept. 7	540	142	36	1146
Button and fastening	E. P. Whitney	346,523	Aug. 3	95	25	36	478
Button and holder. Cuff	H. C. Croup	345,216	July 6	572	146	36	104
Button. Cuff	G. Meiners	346,935	Aug. 10	627	168	36	589
Button-fastener	A. E. Müller	350,074	Sept. 28	2112	547	36	1465
Button-fastener	G. W. Prentice	344,858	July 6	91	23	36	17
Button-fastener	R. Sanford	344,870	July 6	107	27	36	20
Button-fastener	F. A. Smith, Jr.	345,813	July 20	1460	378	36	275
Button-fastener	A. G. Wilkins	345,562	July 13	1094	279	36	202
Button-fastening for corsets or other garments. Flexible	S. B. Ferris	345,037	July 6	342	86	36	62
Button for gloves, &c	E. Pringle	347,887	Aug. 24	2905	532	36	858
Button-fly-scalloping machine	C. B. Hatfield	347,105	Aug. 10	872	231	36	631
Button. Hinged-shoe	E. Zöller and J. T. Gardner	347,410	Aug. 17	1305	348	36	722
Button-hole-barring machine	J. Reece	349,358	Sept. 21	1118	289	36	1267
Button-hole cutter	H. H. Barnard	346,977	Aug. 10	680	181	36	599
Button-holes. Attachment for stitching and cutting	F. Egge	345,419	July 13	866	216	36	161
Button-holes. Machine for cutting and stitching	J. A. Osterhout	345,393	July 13	818	206, 207, 208	36	153
Button-hook	G. O. Ring	346,608	Aug. 3	201	55	36	499
Button-hook and corkscrew. Combined	L. B. Prahar and C. S. Shepard	349,741	Sept. 28	1665	430	36	1379
Button or stud. Collar or cuff	R. Benedict	347,555	Aug. 17	1513	402	36	760
Button-setting instrument	F. H. Richards	348,236	Aug. 31	2516	676	36	959
Button-setting instrument	F. H. Richards	348,237	Aug. 31	2519	677	36	959
Button-setting machine	C. E. Temple and F. T. Bolton	345,740	July 20	1356	353	36	257
Button-setting machine	J. H. Vinton	346,419	July 27	2304	594	36	440
Buttons and other analogous articles. Manufacture of	T. F. N. Finch	345,962	July 20	1664	430	36	312
Buttons. Making	F. L. Ellis	345,835	July 20	1490	386	36	279
Buttoner	C. A. Taylor	349,415	Sept. 21	1203	311	36	1284
Cabinet	E. E. Pettit	347,638	Aug. 17	1650	437	36	786
Cabinet for exhibiting wares	J. Levenguth	346,295	July 27	2126	547	36	408
Cabinet-lock	W. A. Mack	344,744	July 6	68	17	36	13
Cable-grip	J. S. Forbes	345,495	July 13	971	246	36	180
Cable-grip	L. B. White	350,028	Sept. 28	2047	528	36	1453
Cable-lifting mechanism	J. J. Endres	347,785	Aug. 24	1853	494	36	831
Cable-road rail	J. J. Endres	347,782	Aug. 24	1849	493	36	830
Cables. Machine for making and trimming compound wire	G. M. Cruickshank	346,645	Aug. 3	250	68	36	509
Cables. Splice for underground	W. R. Patterson	346,942	Aug. 10	636	171	36	591
Cables. Splicing	T. C. Nash	345,719	July 20	1319	342	36	250
Caisson	H. H. Hall and B. H. Bull	346,543	Aug. 3	119	32	36	483
Calculator	E. P. Beach	345,022	July 6	324	81	36	59
Calculator	L. M. Carmical	346,805	Aug. 3	430	118	36	544
Calculator. Ball	C. Pelletier	345,445	July 13	904	226	36	168
Calendars. Adjustable indicator for	R. Shriver	346,132	July 27	1895	490	36	363
Caliper handle. Micrometer	M. M. Barnes	346,706	Aug. 3	322	88	36	524
Calipers	T. C. Hendey	346,915	Aug. 10	601	161	36	584
Calipers for inside and outside measurement	C. Tepel	347,016	Aug. 10	739	196, 197	36	609
Calipers. Micrometer	M. M. Barnes	346,456	Aug. 3	7	3	36	462
Calipers. Micrometer	M. M. Barnes	346,705	Aug. 3	320	88	36	524
Calipers. Micrometer inside	J. T. Usher	347,844	Aug. 24	1941	515	36	848
Calipers. Proportional	W. E. Lombard	345,978	July 20	1686	436	36	316
Camera: *See* Photographic camera.							
Camera	G. McLaughlin	346,120	July 27	1873	484	36	359
Camera-stand	R. A. Bonine	345,949	July 20	1647	494, 495	36	309
Can: *See* Coffee or spice can. Oil-can. Measuring-can. Sheet-metal can. Milk-can. Shipping-can. Miner's can.							
Can bodies. Device for forming and seaming tin	E. J. Dolan	345,284	July 13	676	170	36	128
Can-opener	G. W. Lyons and J. Sheldon	349,281	Sept. 14	1013	259	36	1239
Can-opener	J. Sample	347,067	Aug. 10	819	218	36	694
Can-opener	F. Sharp	347,834	Aug. 24	1929	512	36	846
Can-opener	E. A. Wheeler	347,674	Aug. 17	1700	453	36	795
Can-valve	A. O. Fitz Gerald	346,031	July 20	1770	455	36	339
Cans. Apparatus for sealing	C. B. Davis	345,576	July 13	1111	284	36	205
Canal-lock	J. R. Tainter	344,879	July 6	122	30	36	22
Candle	E. L. Brown	345,272	July 13	657	167	36	125
Candle-burner	H. Bové	348,377	Aug. 31	2706	727	36	997
Candlestick	M. A. Greeley	349,036	Sept. 14	685	176	36	1176
Candlestick	S. Tyrell	345,461	July 13	923	232	36	171

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Candlestick attachment	G. Grisel	347,484	Aug. 17	1416	376	36	742
Candlestick. Miner's	T. Cox	347,691	Aug. 17	1780	459	36	799
Candy-box	L. F. Haehnlen	348,671	Sept. 7	192	51	36	1062
Candy. Pan for packing	J. B. Langan	345,907	July 20	1589	410	36	298
Candy-shaping machine. Automatic	G. C. Snyder	347,971	Aug. 24	2132	568	36	892
Candy-whistle mold	A. J. and A. Wisner	347,406	Aug. 17	1298	346	36	731
Cane. Machine for breaking and cutting	T. F. Krajewski	349,503	Sept. 21	1327	345	36	1308
Cane, &c. Mill for pressing	J. Murphy	346,493	Aug. 3	57	14	36	471
Canes and the like. Liquid-receptacle for	H. and L. Iwan	344,966	July 6	231	59	36	42
Canister	G. J. F. Tate	345,554	July 13	1061	276	36	200
Canning apparatus	C. F. Mudge	346,122	July 27	1877	485	36	360
Cannon. Pneumatic	W. A. Bartlett	344,936	July 6	193	49, 50	36	36
Cap. Reversible	D. Schlesinger	345,807	July 20	1453	376	36	276
Caps. Case for holding Scotch	J. E. McLoughlin and H. E. Brewster.	348,228	Aug. 31	2507	674	36	957
Capstan	S. Montgomery	346,822	Aug. 3	451	124, 125	36	548
Capsule-filling machine	R. Walsh	346,964	Aug. 10	664	177	36	586
Capsule-machine	J. Krehbiel	347,941	Aug. 24	2087	554	36	874
Capsule-mold-greasing machine	F. A. Hubel and F. J. Reinhold	345,591	July 13	1131	289	36	209
Capsule-stripping machine	J. Krehbiel	347,274	Aug. 10	1101	294	36	675
Car-brake	G. L. Adams	347,911	Aug. 24	2040	539	36	865
Car-brake	H. F. Cook	347,575	Aug. 17	1541	409, 410	36	706
Car-brake	R. R. Hice	346,902	July 27	1997	515	36	383
Car-brake	R. R. Hice	347,039	Aug. 10	770	205, 206	36	615
Car-brake	F. H. D. Newhard	348,038	Aug. 24	2215	592	36	898
Car-brake	F. H. D. Newhard	348,039	Aug. 24	2217	593	36	898
Car-brake	F. H. D. Newhard	348,040	Aug. 24	2218	593	36	899
Car-brake	H. S. Park	349,738	Sept. 28	1657	428	36	1378
Car-brake	E. G. Reilly	349,608	Sept. 21	1465	378	36	1336
Car-brake	T. Suchland	347,841	Aug. 24	1937	514	36	848
Car-brake	S. H. Terry	345,263	July 6	640	162, 163	36	116
Car-brake	G. Westinghouse, Jr	345,093	July 6	409	104	36	74
Car brake and starter	D. Hall	347,346	Aug. 17	1213	324	36	705
Car-brake. Automatic	J. B. Gaybright. (Reissue)	10,744	July 6	653	166	36	118
Car-brake. Automatic	H. C. Hopkins and R. E. Linham	346,204	July 27	2001	516	36	383
Car-brake. Automatic	G. H. Poor	348,234	Aug. 31	2514	675, 676	36	958
Car-brake. Automatic	C. V. Rote	347,010	Aug. 10	727	192, 193	36	607
Car-brake. Automatic	C. V. Rote	347,011	Aug. 10	730	194, 195	36	607
Car-brake. Electro-magnetic	H. S. Park	348,636	Sept. 7	142	40	36	1073
Car-brake. Electro-magnetic	I. A. Timmis and G. Forbes	347,075	Aug. 10	845	222	36	627
Car brake. Railway	J. W. Rice	345,350	July 13	723	183	36	137
Car-brake shoe	L. S. Colburn	347,419	Aug. 17	1314	350	36	733
Car brakes. Clutch for street	W. V. Willson	348,306	Aug. 31	2612	703	36	979
Car. Cable-railway	L. B. White	350,091	Sept. 28	2137	553	36	1470
Car. Cattle	F. E. Canda	345,481	July 13	950	239, 240	36	176
Car. Cattle	F. E. Canda	345,482	July 13	951	240	36	177
Car. Coal and ore	L. J. Barr	349,134	Sept. 14	825	209	36	1202
Car-coupling	G. F. Almy	349,968	Sept. 28	1964	507, 508	36	1438
Car-coupling	E. Apgar	347,679	Aug. 17	1706	455	36	796
Car-coupling	J. C. Askren	349,679	Sept. 28	1556	403	36	1361
Car-coupling	J. A. Brill and E. H. Zitzman	346,460	Aug. 3	13	4	36	463
Car-coupling	C. J. Brinton, Jr.	345,108	July 6	430	110	36	78
Car-coupling	T. J. Bruce	348,720	Sept. 7	254	68	36	1094
Car-coupling	J. H. Buster	347,919	Aug. 24	2051	544	36	867
Car-coupling	W. W. Campbell	346,069	July 27	1836	474	36	352
Car-coupling	F. A. Casey	344,815	July 6	16	4	36	5
Car-coupling	M. J. Colbourne	349,694	Sept. 28	1576	408, 409	36	1365
Car-coupling	H. S. S. Copland and J. C. Gilmour	346,966	Aug. 10	689	183	36	600
Car-coupling	P. V. Cornils	348,954	Sept. 14	568	151	36	1157
Car-coupling	G. W. Countryman	345,771	July 20	1404	364	36	255
Car-coupling	H. J. Davis	346,026	July 20	1758	452	36	337
Car-coupling	E. Dederick	345,282	July 13	673	170	36	127
Car-coupling	G. F. Ells	344,955	July 6	215	55	36	40
Car-coupling	C. W. Ferguson	345,036	July 6	340	86	36	62
Car-coupling	C. M. Ferrell	349,488	Sept. 21	1306	340	36	1304
Car-coupling	F. M. Foote	346,034	July 20	1771	456	36	329
Car-coupling	J. B. Force	349,153	Sept. 14	846	216	36	1206
Car-coupling	W. B. Foster	345,582	July 13	1120	286	36	207
Car-coupling	J. B. Garrett	345,498	July 13	976	247	36	181
Car-coupling	J. Gorny	346,039	July 20	1776	457	36	330
Car-coupling	A. M. Gregory	348,519	Aug. 31	2911	783	36	1036
Car-coupling	J. T. Hammick	345,501	July 13	980	248	36	182
Car-coupling	J. T. Hammick	348,739	Sept. 7	278	74	36	1099
Car-coupling	O. C. Harris	345,504	July 13	985	249	36	183
Car-coupling	J. Harrison, O. Huntress, and A. S. Lewis.	347,035	Aug. 10	764	203	36	613
Car-coupling	J. H. Hayes	346,101	July 27	1850	478	36	355
Car-coupling	P. O. Hipp	348,559	Sept. 7	93	7	36	1052
Car-coupling	S. G. Howe	346,370	July 27	2229	572	36	427
Car-coupling	G. H. Hutenlocher	346,107	July 27	1859	480	36	356
Car-coupling	F. P. Hynds	346,409	July 27	2290	588	36	438
Car-coupling	W. Johnston	350,060	Sept. 28	2095	542	36	1462
Car-coupling	H. W. Johnstone	349,652	Sept. 21	1511	392	36	1346
Car-coupling	R. Jones	350,061	Sept. 28	2097	542	36	1463

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Car-coupling	R. Jones	350,062	Sept. 28	2098	543	36	1463
Car-coupling	S. Jones	346,551	Aug. 3	128	34, 35	36	484
Car-coupling	M. H. Kern	345,308	July 13	707	178, 179	36	133
Car-coupling	M. H. Kern	349,848	Sept. 28	1813	468, 469	36	1400
Car-coupling	S. A. Kilmer and E. J. Crandell	348,747	Sept. 7	288	77	36	1101
Car-coupling	I. Kling	349,655	Sept. 21	1517	392	36	1347
Car-coupling	A. La Rue	343,977	July 20	1085	435	36	316
Car-coupling	G. Larmay	345,152	July 6	492	126	36	89
Car-coupling	D. Lippy	349,736	Sept. 28	1644	424	36	1375
Car-coupling	J. Locher	349,805	Sept. 28	1751	451, 452	36	1395
Car-coupling	M. Maher	347,001	Aug. 10	708	187	36	604
Car-coupling	A. M. Marley	349,853	Sept. 28	1819	470	36	1410
Car-coupling	W. McConway	350,011	Sept. 28	2028	523, 524	36	1449
Car-coupling	J. H. B. McCray	347,121	Aug. 10	892	236	36	637
Car-coupling	J. McCree	348,567	Sept. 7	46	13	36	1056
Car-coupling	T. McGrath	349,443	Sept. 21	1244	322	36	1291
Car-coupling	J. T. Melson	349,050	Sept. 14	708	181	36	1180
Car-coupling	C. E. Michand	346,936	Aug. 10	627	169	36	589
Car-coupling	B. J. Miles and M. Dunne	347,006	Aug. 10	722	191	36	606
Car-coupling	I. Mitchell	349,400	Sept. 21	1185	307	36	1280
Car-coupling	J. S. Peacock	346,171	July 27	1952	503, 504	36	374
Car-coupling	H. L. Peck	346,559	Aug. 3	136	37	36	486
Car-coupling	J. H. Pollard	347,511	Aug. 17	1450	385	36	748
Car-coupling	R. Pyle	349,261	Sept. 14	992	253	36	1235
Car-coupling	L. Quisenberry	345,319	July 13	722	183	36	137
Car-coupling	W. J. Rhodes	346,684	Aug. 3	292	80	36	518
Car-coupling	J. L. Schoenberger	349,243	Aug. 31	2527	679	36	961
Car-coupling	F. J. Schupp	348,061	Aug. 24	2256	603	36	806
Car-coupling	O. Shafer and J. Strasin	348,745	Sept. 7	334	90	36	1110
Car-coupling	T. H. and E. V. Snyder	347,208	Aug. 10	1010	260	36	650
Car-coupling	B. W. Sweet	345,992	July 6	638	162	36	116
Car-coupling	B. W. Sweet	349,824	Sept. 28	1780	460	36	1402
Car-coupling	T. W. Talbot and J. L. Farmer	346,329	July 27	2178	559	36	417
Car-coupling	C. Thayer	348,060	Aug. 17	1662	448	36	792
Car-coupling	G. J. Walton	347,537	Aug. 17	1486	394	36	755
Car-coupling	G. L. Walton	349,543	Sept. 21	1350	358	36	1319
Car-coupling	H. C. Webb and J. A. Kellogg	348,363	Aug. 31	2675	721	36	992
Car-coupling	F. A. Westbrook and W. S. Cook	346,791	Aug. 3	417	115	36	542
Car-coupling	G. F. White	349,866	Sept. 28	1832	473	36	1413
Car-coupling	J. M. White	345,560	July 13	1090	278	36	202
Car-coupling	J. D. Whitehead	345,349	July 13	764	192	36	143
Car-coupling	W. E. Williams	347,409	Aug. 17	1303	347, 348	36	722
Car-coupling	W. T. Wilson	349,555	Sept. 21	1395	361	36	1321
Car-coupling	O. O. Winter	345,608	July 13	1151	294	36	213
Car-coupling	W. D. Woodward	347,547	Aug. 17	1502	398	36	758
Car-coupling	C. D. Wooley	346,630	Aug. 3	232	64	36	505
Car-coupling	J. T. Wroe and T. R. Hall	346,975	Aug. 10	678	180	36	598
Car-coupling	D. Zeigler	346,881	Aug. 3	545	148	36	566
Car-coupling	D. Zeigler	346,882	Aug. 3	546	148	36	566
Car-coupling. Automatic	J. S. Smith and M. H. Motes	348,479	Aug. 31	2851	767	36	1025
Car-coupling link	F. W. Parsons	348,575	Sept. 7	59	17	36	1058
Car-door	N. P. Rogers	348,694	Sept. 7	225	58	36	1068
Car-door fastener	H. C. Singiser	346,230	July 27	2031	524	36	390
Car-door lock	M. L. Manley	347,185	Aug. 10	982	262	36	654
Car-doors. Hanger for	W. Sutton	346,674	July 20	1819	470	36	339
Car. Dumping	J. Scully	347,523	Aug. 17	1465	389	36	751
Car for removing snow from railways, &c	J. Woolley	349,024	Sept. 14	670	172	36	1173
Car. Freight	J. F. Batchelor	347,533	Aug. 17	1510	401	36	759
Car. Freight	A. N. Monteer	347,885	Aug. 24	2002	531	36	858
Car gate. Railway	T. W. Peeples	347,057	Aug. 10	796	211	36	619
Car grip. Cable	J. J. Endres	349,486	Sept. 21	1303	349	36	1303
Car gripping and braking devices. Mechanism for operating cable	J. J. Endres	347,781	Aug. 24	1848	492	36	830
Car guard. Railway	R. J. Gillham	345,045	July 6	349	88	36	63
Car illumination. Electric railway	E. J. Wessels	348,603	Sept. 7	98	28	36	1065
Car lock. Freight	G. J. Bedford	348,715	Sept. 7	249	66, 67	36	1093
Car-motor	J. S. Connelly	347,450	Aug. 17	1396	372	36	738
Car motor. Street	J. S. Connelly	345,279	July 13	668	169	36	127
Car motor. Street	A. L. Rich	348,416	Aug. 31	2757	740	36	1007
Car-mover	C. L. Barnhart	346,347	July 27	2198	563	36	420
Car-propelling mechanism. Endless-cable	E. Noble, Jr., and G. F. Branham	348,574	Sept. 7	53	15, 16, 17	36	1057
Car. Railway	D. M. Richards and I. Hale	348,058	Aug. 24	2248	601, 602	36	804
Car-spring	C. T. Schoen	347,647	Aug. 17	1663	441, 442	36	789
Car-spring	R. Vose	347,281	Aug. 10	1109	297	36	677
Car-spring	R. Vose	348,251	Aug. 31	2537	681	36	963
Car-spring	R. Vose	349,070	Sept. 14	734	187	36	1185
Car-starter	E. Dederick	345,241	July 13	671	170	36	127
Car-starter	R. O. Gercke	348,732	Sept. 7	269	72	36	1097
Car-starter	N. J. Roberts	348,238	Aug. 31	2521	677	36	960
Car-starter	O. P. Wivel	349,620	Sept. 21	1472	382	36	1339
Car starter and brake	S. L. Norris	348,169	Aug. 24	2404	645	36	933
Car. Stock	G. D. Burton	348,896	Sept. 7	472	125	36	1134
Car. Stock	B. C. Hicks	344,833	July 6	41	10	36	9
Car. Stock	B. F. Holmes	346,439	July 27	2337	601	36	446

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Car. Stock	A. J. Moorshead and W. P. Bixby	347,632	Aug. 17	1643	435, 436	36	785
Car. Stock	J. E. Pierce and D. C. Pryor	345,601	July 13	1143	292	36	211
Car-ventilator	A. B. Harris	346,040	July 20	1777	457	36	330
Car-wheel	J. J. Billingsley	349,977	Sept. 28	1983	512	36	1441
Car-wheel	G. W. Miltimore	347,950	Aug. 24	2105	561	36	877
Car-wheel	E. R. Procter	347,735	Aug. 17	1779	474	36	809
Car wheel and axle	W. Malam	347,119	Aug. 10	889	235	36	637
Car-wheels and other bodies. Machine for dressing and hardening	G. W. Miltimore	347,949	Aug. 24	2100	458, 460, 461	36	876
Car-wheels. Machine for dressing	G. W. Miltimore	347,951	Aug. 24	2107	561, 562	36	877
Cars. Apparatus for stopping	R. Ramsay	348,773	Sept. 7	321	85	36	1107
Cars by gas-motors. Propelling	J. A. Wetmore	348,080	Aug. 24	2284	612	36	911
Cars. Chair-fitting for drawing-room	G. Love	347,758	Aug. 17	1810	482	36	815
Cars, &c. Device for controlling the opening of locks on railway	R. L. Baca and J. L. Leavitt	345,473	July 13	940	237	36	174
Cars. Dumping device for mining	W. J. Rentiman	347,151	Aug. 10	936	249	36	645
Cars. Grip for cable	J. J. Endres	347,783	Aug. 24	1850	493	36	831
Cars. Pedestal and axle-box for	D. McAllister	350,010	Sept. 28	2027	525	36	1449
Cars. Safety attachment for railway	G. Marston	346,762	Aug. 3	385	106	36	536
Cars. Sand-box for tram	L. D. Cammann	345,768	July 20	1401	363	36	964
Cars. Steam-pipe connection between railway	J. R. Drodzewski	348,664	Sept. 7	182	49	36	1079
Cars, &c., to denote the number of passengers and the distance and time ridden. Recorder for	J. Blaser, Jr	347,153	Aug. 10	938	250	36	646
Cars. Track-gripping device for railway	L. B. White	350,090	Sept. 28	2136	552	36	1470
Cars. Ventilating freight	A. Miller	344,848	July 6	71	18	36	13
Carbon battery. Spongy	E. Berliner	347,023	Aug. 10	746	199	36	610
Carbon-black. Manufacturing	J. J. McTighe	346,169	July 27	1950	503	36	374
Carbons. Apparatus for making	J. T. Lister	347,247	Aug. 10	1060	284, 285	36	668
Carbureting and mixing gas and air. Method of and apparatus for	G. R. Cottrell	349,211	Sept. 14	921	237	36	1221
Carbureting apparatus. Gas	W. F. H. O'Keefe	346,940	Aug. 10	833	170	36	590
Carbureting compound	F. W. Burk	346,803	Aug. 3	430	.....	36	544
Carbureting gas. Apparatus for	J. S. Tibbets	347,663	Aug. 17	1698	449	36	793
Carburetor to be used in the manufacture of water-gas	F. C. Kniese	348,917	Sept. 7	517	137	36	1142
Card. Game	F. D. Owen	347,192	Aug. 10	992	265	36	656
Card-setting machine	S. Midgley	348,529	Aug. 31	2924	786	36	1038
Card. Show	J. Thomlinson	347,534	Aug. 17	1481	393	36	754
Card. Visiting or fancy	F. C. Lounsbury	345,158	July 6	499	137	36	91
Cards. Automatic grinder for woolen and cotton	J. C. Wall	347,847	Aug. 24	1945	516	36	849
Cards. Machine for trimming and beveling the edges of	P. Lorillard, Jr., and O. S. Harmon	349,351	Sept. 21	1098	230, 231	36	1264
Carding-cylinders. Apparatus for winding toothed wire on	J. K. Proctor and J. H. Knowles	347,736	Aug. 17	1780	474, 475	36	809
Carding-engine	D. M. Thompson	347,662	Aug. 17	1685	448, 449	36	792
Carding-machine	H. L. Moulton	347,798	Aug. 17	1771	472	36	807
Carding-machines. Doffer-cleaner for	W. Merritt	348,498	Aug. 31	2878	774	36	1030
Carding-machines. Lap-feeding device for	W. Schofield	348,419	Aug. 31	2762	741	36	1009
Carding-machines. Lap-feeding device for	W. Schofield	348,420	Aug. 31	2764	742	36	1009
Carding-machines. Lap-feeding device for	W. Schofield	348,421	Aug. 31	2765	742	36	1009
Carding-machines. Lap-feeding device for	T. B. Wilde	345,940	July 20	1635	420, 421	36	306
Carding-machines. Lap-feeding mechanism for	M. Barber and S. P. Weeks	349,201	Sept. 14	909	224	36	1218
Carding-machines, &c. Self-feeder for	E. Trombley	346,418	July 27	2303	593, 594	36	440
Carpet-cleaner	F. H. Good	348,460	Aug. 31	2824	759	36	1020
Carpet-fastener	M. L. Johnson	349,278	Sept. 14	1009	258	36	1238
Carpet fastener. Stair	R. H. Willet	349,329	Sept. 21	1066	273, 274	36	1258
Carpet-lining	J. M. Baker	347,713	Aug. 24	1892	485	36	825
Carpet-stretcher	D. C. Burchfield	345,211	July 6	563	144	36	102
Carpet-stretcher	E. Gash	345,681	July 20	1273	321	36	242
Carpet stretcher and tacker. Combined	E. Schmidt	348,350	Aug. 31	2660	716	36	969
Carpet-sweeper	M. R. Bissell and W. J. Drew	349,684	Sept. 28	1561	404, 405	36	1362
Carpet-sweeper	W. H. Castle	346,641	Aug. 3	245	67	36	508
Carpet-sweeper	G. J. Cline	350,040	Sept. 28	2058	532	36	1455
Carriage. Baby	G. D. Burton	349,629	Sept. 21	1489	385, 386	36	1341
Carriage. Baby	A. T. Vanneman	346,790	Aug. 3	416	115	36	541
Carriage brake. Baby	W. H. Tier	345,457	July 13	949	251	36	170
Carriage cover support	J. G. Abbott	345,821	July 20	1471	380	36	277
Carriage-fender	J. W. Black	349,247	Sept. 14	976	249	36	1231
Carriage foot-pad	H. P. Barrows and L. D. Knowles	344,935	July 6	19	49	36	36
Carriage-gear	E. S. Parmelee	348,770	Sept. 7	317	85	36	1106
Carriage-screen	W. M. Moore	346,857	Aug. 3	506	139	36	550
Carriage-seat	C. Morgan	350,072	Sept. 28	2110	546	36	1465
Carriage-seat	J. A. Russell	348,240	Aug. 31	2524	678	36	961
Carriage-seat corner-iron	J. M. Davidson	348,021	Sept. 7	127	35	36	1070
Carriage-seat iron	H. B. Crandall	347,775	Aug. 24	1839	489	36	824
Carriage shade-holder	C. W. Trow	344,883	July 6	129	32	36	23
Carriage spring. Baby	F. E. Bottree	349,298	Sept. 21	1032	264	36	1251
Carriage-steps. Pad-cover for	J. F. Butler	348,378	Aug. 31	2707	727	36	998
Carriage-top	J. T. Dickey	349,986	Sept. 28	1991	514	36	1443
Carriage-top	D. H. Allen	345,472	July 13	939	237	36	174
Carriage-top	J. B. Pettibone	345,538	July 13	1058	269	36	186
Carriage-top	H. W. Ransom	345,729	July 20	1838	348	36	234
Carriage-tops. Supporting-frame for	E. Carroll and P. Ryan	348,722	Sept. 7	256	69	36	1095
Carriage-windows. Appl[illegible] for supporting	C. G. Gümpel	349,647	Sept. 21	1506	391	36	1345

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Carriages. Reach-coupling for	S. W. Cately	349,302	Sept. 21	1036	265	36	1258
Carriages. Top for children's	A. T. Vanneson	348,074	Aug. 24	2274	609	36	980
Carrier:							
See Cash-carrier. Jack-carrier. Cob-carrier. Rein-carrier. Endless carrier. Shaft-carrier. Game-carrier. Shuttle-carrier. Hair-carrier. Straw-carrier. Harvester sheaf-carrier. Trace-carrier. Trace-chain carrier. Hay-carrier. Wick-carrier. Ice-carrier. Yarn-carrier.							
Cart	R. T. Schall	346,619	Aug. 3	216	59	36	502
Cart and sugar-cane planter. Combined	E. and B. Holmes	347,800	Aug. 24	1673	500	36	835
Cart. Dumping	B. G. Fitzhugh	345,225	July 6	584	{148 149}	36	106
Cart. Road	F. Becht	348,447	Aug. 31	2807	754	36	1017
Cart. Road	W. B. Getty	349,882	Sept. 28	1853	478	36	1417
Cart. Road	M. H. Lane	346,555	Aug. 3	132	36	36	485
Cartridge-extractor for breakdown guns	J. Deeley, Jr	348,452	Aug. 31	2812	756	36	1018
Cartridge-loader	H. H. Slinn	349,818	Sept. 28	1769	{457 458}	36	1399
Cartridge-loader	J. V. Thompson	346,242	July 27	2061	529	36	395
Cartridge-loading implement	S. E. Cheeseman. (Reissue)	10,752	July 27	2373	608	36	452
Cartridge-loading implement	F. C. Washburn	345,343	July 13	755	190	36	142
Cartridge-loading machine	C. Wonscott	347,455	Aug. 17	1372	365	36	733
Cartridge-resizing implement	G. W. Morse	346,213	July 27	2013	{519 520}	36	386
Cartridge-shell. Sectional	H. W. Libby	347,051	Aug. 10	787	209	36	618
Cartridge-shells. Device for trimming	R. White	348,441	Aug. 31	2796	751	36	1015
Cartridge-shells. Making	W. Lorenz	346,759	Aug. 3	381	105	36	535
Cartridge. Shot	W. E. Boyd	347,988	Aug. 24	2152	572	36	885
Cartridges. Machine for loading	E. A. Franklin	347,030	Aug. 10	756	{201 202}	36	612
Cartridges. Machine for loading	E. A. Franklin	347,968	Aug. 10	1091	292	36	674
Cartridges. Reloading	G. W. Morse	345,165	July 6	505	130	36	92
Carving device	H. Mitchell	345,528	July 13	1038	263	36	192
Carving-fork	J. Gérard and C. F. Smith	345,044	July 6	348	88	36	63
Carving-machine	E. D Mackintosh	346,596	Aug. 3	182	49	36	495
Case:							
See Book-case. Organ-case. Coffee-case. Piano-case. Collapsible case. Pigeon-hole case. Gun-case. Powder-case. Handkerchief-display case. Shipping-case. Lamp-case. Show-case. Music-case. Vial and sample case. Needle-case. Violin-case. Watch-case.							
Cash-carrier	C. E. Chinnock	345,884	July 20	1558	402	36	292
Cash-carrier	G. H. Spangler	347,657	Aug. 17	1677	447	36	791
Cash-carrier. Automatic	J. W. Flagg	348,957	Sept. 14	572	152	36	1158
Cash-check device	J. H. Smith	346,955	Aug. 10	652	174	36	563
Cash drawer and register	G. Weitzel	345,092	July 6	407	103	36	74
Cash-register	W. C. McGill	345,247	July 6	619	157	36	112
Cash-register	W. G. Schlickner	349,522	Sept. 21	1352	352	36	1314
Cash register and indicator	C. B. Hopkins	347,296	Aug. 10	1134	{303 304 305}	36	682
Cash register and indicator	F. J. Patterson and I. P. Davis	344,982	July 6	261	65, 66	36	47
Cash system. Pneumatic	H. Gazaille and H. F. Low	349,708	Sept. 28	1600	413	36	1369
Cask for fermenting	C. C. Puffer	346,066	July 20	1806	{466 467}	36	337
Caster	T. F. Conklin	349,982	Sept. 28	1986	513	36	1442
Caster	T. Huster	346,161	July 27	1941	500	36	372
Caster	C. V. Pleukharp	348,052	Aug. 24	2238	598	36	903
Caster	H. B. Plumb	349,952	Sept. 28	1945	503	36	1434
Caster	D. Richmond	344,988	July 6	272	70	36	49
Caster	W. P. Tracy	347,361	Aug. 10	1083	289	36	672
Caster. Ball	E. Carr	348,887	Sept. 7	473	125	36	1134
Caster. Furniture	J. Berkey and W. R. Fox	345,613	July 13	1156	296	36	214
Caster. Furniture	J. R. Hargrove	349,589	Sept. 21	1439	371	36	1330
Caster. Furniture	W. H. Tucker	347,749	Aug. 17	1798	479	36	813
Caster. Trunk or furniture	S. M. Michelson	349,948	Sept. 28	1940	501	36	1433
Casting compound ingots. Mold for	J. Illingworth	349,886	Sept. 28	1859	479	36	1418
Casting cross-heads. Chill for use in	J. Barclay	348,819	Sept. 7	373	101	36	1117
Casting. Material for use in molds for	K. W. Blackwell	348,105	Aug. 24	2316	621	36	917
Casting pipe. Apparatus for	A. Kilpatrick	349,596	Sept. 21	1448	373	36	1332
Casting stereotypes. Machine for	O. Mergenthaler	347,818	Aug. 24	1901	{507 508}	36	841
Casting tubes. Revolving mold for	G. Adams	348,709	Sept. 7	243	64	36	1092
Castrating-instrument	J. Trullinger	350,068	Sept. 28	2134	552	36	1469
Catch. Safety	W. S. Andrews	348,371	Aug. 31	2087	725	36	996
Celling, &c. Adjustable decorated	J. Sutherland	349,375	Sept. 21	1151	298	36	1274
Celling and floor. Fire-proof	C. F. W. Doehring	347,474	Aug. 17	1401	373	36	739
Cellars. Draining	J. Nicaise	349,735	Sept. 28	1654	427	36	1377
Cement for securing metal rings to electric-lamp bulbs and for other purposes	A. L. Reinmann	335,542	July 13	1064	.....	36	197
Cement. Hydraulic	J. Murphy and N. W. Lord	347,367	Aug. 17	1244	.....	36	710
Cement. Making hydraulic	J. Anderson	346,525	Aug. 3	98	.....	36	479
Center and templet instrument. Temporary	F. A. Humphrey	346,048	July 20	1784	{459 460}	36	338
Centerer	J. Deno and T. H. Reardon	347,925	Aug. 24	2068	547	36	870

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Centrifugal machine	F. P. Sherman	345,994	July 20	1710	{440 441}	36	320
Centrifugal machine for extracting water from coils of wire, &c.	E. Cabble	348,316	Aug. 31	2022	707	36	981
Cereals. Machine for making sheets of ground	J. F. Gent	347,790	Aug. 24	1859	495	36	833
Cereals. Preparing	J. W. Robertson	349,812	Sept. 28	1762	.....	36	1398
Cereals. Preserving	J. Finke	348,390	Aug. 31	2026	708	36	982
Chain. Drive	M. Dutrisac	347,697	Aug. 17	1736	480	36	800
Chain. Drive	J. H. Elward	345,579	July 13	1115	285	36	306
Chain. Drive	N. P. Levalley	345,707	July 20	1305	338	36	348
Chain-link. Metal	F. Egge	344,953	July 6	214	53	36	40
Chain-links. Machine for trimming and coupling	N. B. Fassett	347,338	Aug. 17	1401	{381 382}	36	703
Chains. Machine for making ornamental	J. Kinder	348,850	Sept. 7	411	112	36	1124
Chains. Ornamenting	W. C. and H. C. Starr	346,786	Aug. 3	412	.....	36	540
Chains. Spring link and bar for	A. W. Cox	347,421	Aug. 17	1315	351	36	794
Chains. Spring link and bar for	A. W. Cox	347,422	Aug. 17	1317	351	36	794
Chair:							
See Adjustable chair. Railway-rail chair. Barber's chair. Reclining-chair. Folding chair. Surgical chair. Invalid-chair. Swinging and reclining chair. Opera-chair.							
Chair	E. A. Dexter and J. Chase. (Reissue)	10,754	Aug. 10	1162	3.1	36	987
Chair	G. T. Evans	345,200	July 13	686	17	36	129
Chair	T. A. McFarland	348,633	Sept. 7	140	39	36	1073
Chair	H. Parry	346,311	July 27	2154	553	36	413
Chair	J. G. Plowman	346,313	July 27	2155	554	36	413
Chair	G. J. Shults	349,907	Sept. 28	1881	486	36	1422
Chair	E. J. Smith	348,244	Aug. 31	2529	679	36	961
Chair and rocker fastener	O. J. Punches	346,560	Aug. 3	137	38	36	486
Chair and step-ladder. Combined	O. J. Marsh	347,883	Aug. 24	2001	531	36	858
Chairs. Head-rest for	D. S. Ashby	346,634	Aug. 3	236	65	36	506
Chandeliers. Electric connection for	J. P. Willets and E. R. Crolius	348,708	Sept. 7	242	64	36	1092
Channeling-machine	C. S. Ames	345,873	July 20	1540	398	36	288
Charcoal-kiln	W. A. Miles. (Reissue)	10,746	July 20	1827	472	36	342
Charcoal. Manufacturing	L. S. Goodrich	345,131	July 6	457	.....	36	84
Chart. Dress-maker's	E. Baker	319,198	Sept. 14	906	233	36	1218
Chasing-mill	B. Kane	348,524	Aug. 31	2916	764	36	1037
Check-hook. Harness	O. C. Wightman	345,013	July 6	313	79	36	57
Check or ticket register apparatus	J. H. Gneat	339,710	Sept. 28	1674	{414 415 416}	36	1369
Check-rower	R. Faries	347,168	Aug. 10	961	{256 257}	36	650
Check-rower	A. Wilt	345,563	July 13	1095	279	36	302
Check rower and marker	C. F. Neer	349,402	Sept. 21	1187	{307 308}	36	1281
Check-rower tension device	E. W. Ryder and C. A. Rosevelt	347,832	Aug. 24	1927	511	36	846
Check-rowers. Anchor for	A. T. Crow	348,152	Aug. 24	2380	638	36	929
Checks. Machine for delivering and adding	L. T. Weiss	348,369	Aug. 31	2687	{723 724}	36	994
Checks, notes, &c. Holder for	C. A. Spiegel	345,923	July 20	1625	419	36	305
Cheese-curd. Machine for degranulating	K. Seifert	346,2..	July 27	2029	523	36	390
Cheese from milk. Manufacture of artificially-enriched	E. J. Oatman	346,062	July 20	1801	.....	36	336
Cheese-knife	W. McGiven, A. L. Nichols, and G. Darnell.	349,732	Sept. 28	1652	426	36	1377
Cheese-knife	G. T. Moran	347,857	Aug. 3	134	37	36	486
Chill. Hollow	H. B. Stanert	345,455	July 13	917	230	36	170
Chimney-cap	W. L. Stevens	347,394	Aug. 17	1284	342	36	718
Chimney-top	A. Herendeen	344,832	July 6	40	10	36	9
China-firing apparatus	S. S. Frackelton	349,935	Sept. 28	1918	497	36	1429
Chisel	J. Roberts	346,948	Aug. 10	644	172	36	592
Chisel. Cold	C. J. Phillips	349,119	Sept. 14	805	204	36	1198
Chlorine. Producing	G. Rumpf	348,348	Aug. 31	2658	.....	36	989
Chopper:							
See Cotton-chopper.							
Christmas-tree candle-holder	H. Gehrich	347,873	Aug. 24	1985	526	36	855
Christmas-tree holder	J. C. Schoenthaler	345,925	July 20	1614	361	36	303
Chuck	E. F. Lindsey	347,491	Aug. 17	1422	378	36	743
Chuck	J. F. O'Neill	346,310	July 27	2151	553	36	412
Chuck	C. H. Reid. (Reissue)	10,766	Sept. 21	1551	401	36	1254
Chuck	S. O. White	347,676	Aug. 17	1702	483	36	795
Chuck for rock-drills	G. R. Cullingworth	345,834	July 20	1489	386	36	279
Chuck for rock-drills	J. and J. G. Throckmorton	347,397	Aug. 17	1287	343	36	718
Chuck. Hollow spindle	A. E. Elmer	347,167	Aug. 10	958	256	36	650
Chuck. Lathe	C. A. Singer	346,133	July 27	1896	490	36	363
Chuck. Lathe	W. L. Sweetland	347,395	Aug. 17	1285	342	36	718
Churn	N. S. Andrews and H. F. Burnap	345,097	July 6	415	107	36	76
Churn	N. Barnesley	347,312	Aug. 17	1165	313	36	697
Churn	I. Bogart	347,916	Aug. 24	2047	543	36	867
Churn	S. E. Foreman and F. T. Walls	348,002	Aug. 24	2171	577	36	889
Churn	F. A. Frank	345,376	July 13	799	201	36	149
Churn	J. P. Hachenberg and E. F. Radcliff	348,670	Sept. 7	191	51	36	1081
Churn	M. E. Johnson	346,163	July 27	1943	500	36	372
Churn	C. Jones	345,060	July 6	370	93	36	68
Churn	J. Lasswell	348,331	Aug. 31	2638	711	36	984
Churn	J. D. Noble and B. F. Metzler	345,529	July 13	1038	264	36	192
Churn	J. N. Nutt	346,959	Aug. 3	508	139	36	559
Churn	J. J. Pugh	347,827	Aug. 24	1921	510	36	844
Churn	J. B. Riley	348,639	Sept. 7	146	41	36	1074
Churn	G. B. Simonds	344,999	July 6	285	73	36	53
Churn	W. S. Smith	348,733	Sept. 7	340	93	36	1111
Churn	D. B. Soper	349,759	Sept. 28	1696	436	36	1383

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Churn	J. H. Taylor	345,087	July 6	402	101	36	73
Churn	L. A. and J. A. Trout	346,518	Aug. 3	90	24	36	477
Churn	H. J. Wagner	347,978	Aug. 24	2140	570	36	883
Churn	A. Walters	347,849	Aug. 24	1947	517	36	850
Churn	B. P. White	349,376	Sept. 21	1159	208	36	1274
Churn	M. Wilbur	346,697	Aug. 3	310	68	36	592
Churn	W. G. Wise	347,020	Aug. 10	744	198	36	610
Churn. Cream-testing	J. F. Komp	346,051	July 20	1787	460 / 461	36	333
Churn-dasher	J. B. Mellor	349,854	Sept. 28	1890	470	36	1410
Churn-head	F. H. Haman	349,218	Sept. 14	931	239	36	1223
Churn. Rotary	G. A. Stafford	349,371	Sept. 21	1146	296	36	1273
Churn. Rotary	S. N. Utter	346,189	July 27	1963	506	36	376
Churn. Vibrating	C. J. Fellrath	345,961	July 20	1663	430	36	312
Chute. Ash	M. Mahoney	346,496	Aug. 3	47	12	36	469
Cider-press	J. E. Jones	348,019	Aug. 24	2191	564	36	893
Cigar	G. Baer	348,814	Sept. 7	367	99	36	1116
Cigar	C. C. Cook	346,025	July 20	1758	452	36	327
Cigar and ash holder. Combined	A. Mahon	348,471	Aug. 31	2638	763	36	1023
Cigar-box	D. E. Powers	348,928	Sept. 7	531	140	36	1145
Cigar-bunching machine	N. H. Borgfeldt	349,336	Sept. 21	1074	276	36	1260
Cigar-bunching machine	N. H. Borgfeldt and A. C. Schutz	345,614	July 13	1157	297	36	214
Cigar-bunching machine	N. H. Borgfeldt and A. C. Schutz	349,335	Sept. 21	1072	275 / 276	36	1259
Cigar-bunching machine	F. C. Smalatig	347,257	Aug. 10	1077	288	36	671
Cigar-bunching machine	F. and E. H. Thompson	349,089	Sept. 14	731	186 / 187	36	1185
Cigar-bunching machine	J. R. Williams	346,628	Aug. 3	230	63	36	505
Cigar-bundling machine	F. T. Karsch	348,745	Sept. 7	286	76, 77	36	1101
Cigar-cutters. Dice-throwing attachment for	C. E. Baldwin	346,453	Aug. 3	4	2	36	461
Cigar-holders and other articles from soluble and non-soluble gums. Manufacturing	A. C. Lutz	345,243	July 6	611	154	36	111
Cigar-lighter and perfumery-ejector combined	H. Munk	348,409	Aug. 31	2747	738	36	1005
Cigar-machine	J. R. Williams	346,627	Aug. 3	226	62, 63	36	504
Cigar rolling machine	O. Hammerstein	348,206	Aug. 31	2473	665	36	952
Cigar-tip	A. S. Rosenbaum	348,347	Aug. 31	2658	716	36	988
Cigar-tray	G. Laube	347,182	Aug. 10	978	261	36	653
Cigarette-machine	A. E. Decoufié	345,415	July 13	859	214 / 215	36	160
Cigarette-machine. Pocket	T. Toske	346,076	July 20	1820	470	36	340
Cigarette mouth-piece	M. C. Stone	345,869	July 20	1537	397	36	247
Cigarette-tubes. Apparatus for manufacturing	A. E. Decoufié	349,785	Sept. 28	1725	445	36	1391
Clamp: *See* Bedstead-clamp. Bench-clamp. Gaff-clamp. Jar-clamp. Meat-clamp. Rope-clamp.							
Clapboard-marker	J. F. Beebe	344,937	July 6	195	50	36	36
Clapboards. Manufacture of ornamental	F. Mankey	346,209	July 27	2009	518	36	385
Clasp: *See* Corset-clasp. Garment-clasp. Shoe-clasp. Suspender-clasp.							
Clasp for supporting articles	S. Wales	348,872	Sept. 7	447	119	36	1130
Cleaner: *See* Boiler-cleaner. Boiler-flue cleaner. Boiler-tube cleaner. Carpet-cleaner. Flue-cleaner. Lamp-chimney cleaner. Pipe-cleaner. Tobacco-pipe cleaner. Tube-cleaner.							
Cleats. Machine for making	C. J. Hager	349,587	Sept. 21	1438	371	36	1330
Clip: *See* Newspaper-clip.							
Clipper. Hair	J. W. Smith and J. K. Priest	347,207	Aug. 10	1009	268	36	659
Clipping-machine	E. M. Burgess	347,263	Aug. 10	1065	290	36	672
Clock	D. T. Garcia	349,878	Sept. 28	1846	477	36	1416
Clock and indicator systems. Electric	T. C. H. Vance	347,399	Aug. 17	1290	343	36	719
Clock. Calendar	A. M. Lane	348,981	Sept. 14	606	160	36	1164
Clock. Calendar	A. M. Lane	348,982	Sept. 14	607	160	36	1164
Clock. Calendar	F. M. Wright and W. M. Wood	349,025	Sept. 14	671	172	36	1174
Clock. Electric	R. E. Fenner	345,292	July 13	688	173	36	130
Clock. Electric	D. T. Garcia	349,879	Sept. 28	1848	477	36	1416
Clock. Electric programme	A. J. Reams	349,605	Sept. 21	1461	376	36	1335
Clock-escapement	A. Dardenne	345,486	July 13	957	242	36	178
Clock hand and dial. Illuminated	A. Speer	347,528	Aug. 17	1470	390	36	751
Clock. Mechanical	O. Rebentisch	344,982	July 6	175	45	36	33
Clock mechanism for operating gas-cocks	C. E. Burnham	346,309	July 27	2273	583	36	435
Clock-movement	H. P. Pruim	347,737	Aug. 17	1783	475	36	810
Clock movement. Electric	S. C. Dickinson	346,094	July 27	1844	476	36	354
Clock-pendulums. Electrical device for synchronising	H. Whitlig	346,970	Aug. 10	671	179	36	597
Clock striking mechanism	F. Klinkermann	348,915	Sept. 7	510	135 / 136	36	1141
Clock-synchronizing device	A. Ramel and W. W. Dean	346,862	Aug. 3	512	140 / 141	36	500
Clock system. Electric	C. L. Clarke	347,572	Aug. 17	1536	408	36	764
Clocks. Circuit-closer for primary electric	A. Ramel and W. W. Dean	346,863	Aug. 3	513	141	36	500
Clocks. Electric synchronizer for	M. E. Hunter and J. H. Gerry	349,650	Sept. 21	1509	391	36	1345
Clocks. Electro-mechanical synchronizer for	J. H. Gerry	349,493	Sept. 21	1314	342	36	1306
Clocks. Music-box attachment for	C. H. Jacot	347,047	Aug. 10	782	208	36	617
Clocks. Pneumatic mechanical synchronizer for	J. H. Gerry and M. E. Hunter	349,494	Sept. 21	1316	342	36	1306
Clod crusher and pulverizer	F. Evison	347,098	Aug. 10	865	229	36	631
Closet: *See* Earth-closet. Water-closet.							
Closet and other doors. Indicator for	J. D. Vail	345,339	July 13	751	189	36	141
Cloth. Apparatus for stretching and drying	J. H. Varney	347,212	Aug. 10	1016	270 / 271	36	660

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cloth doubling and rolling-up machine	C. C. Webber	345,344	July 13	756	190	36	142
Cloth. Finishing imperfectly-woven	N. T. Mash	350,008	Sept. 28	2024	.....	36	1449
Cloth. Machine for winding	J. E. Windle	349,774	Sept. 28	1710	441	36	1387
Cloth-pressing machine	F. Kühne	349,436	Sept. 21	1232	319 / 320	36	1269
Cloth-tentering machine	R. S. Matteson	350,009	Sept. 28	2025	523	36	1449
Clothes-drier	H. F. Bolton and T. Drake	348,882	Sept. 7	467	123	36	1133
Clothes-drier	G. H. Hayes	349,092	Sept. 14	768	196	36	1191
Clothes-drier	D. J. Smith	349,410	Sept. 21	1197	310	36	1283
Clothes-drying apparatus	J. W. Miller	347,948	Aug. 10	1066	286	36	670
Clothes-hanging device	F. J. Rennekamp	346,663	Aug. 3	291	80	36	518
Clothes-line	T. F. Durand	349,147	Sept. 14	840	214	36	1205
Clothes-rack	W. P. Brooks	348,510	Aug. 31	2895	774	36	1033
Clothes-rack	I. F. Howell	346,816	Aug. 3	445	122	36	547
Clothes-rack stand	W. H. Thurston	345,741	July 20	1358	353 / 354	36	257
Clothes-wringer	J. J. Brinkerhoff	345,872	July 20	1651	436	36	309
Clothes-washer. Steam	C. Boas	349,140	Sept. 14	832	212	36	1204
Clutch	M. W. Grovesteen	347,708	Aug. 17	1746	465	36	803
Clutch	A. L. Stanford	346,784	Aug. 3	410	113	36	540
Clutch for lifting-jacks	A. A. Strom	347,279	Aug. 10	1105	296	36	676
Clutch for sliding joints	J. H. Rouse	346,807	Aug. 3	521	142	36	561
Clutch. Friction	F. M. Blake	348,612	Sept. 7	112	32	36	1067
Coal-conveying apparatus	C. W. Hunt	349,309	Sept. 21	1043	267	36	1253
Coal or other fuel. Compound for perfecting the combustion of	G. White	347,078	Aug. 10	839	.....	36	627
Coal-receptacle	H. Niehoff	346,676	Aug. 3	285	78	36	516
Coal-separator	J. Woolley, Sr	349,675	Sept. 21	1540	397 / 398	36	1352
Coasting apparatus	J. F. Ferguson	349,152	Sept. 14	845	216	36	1206
Coat	E. Graser	349,274	Sept. 14	1006	257	36	1237
Coat-rack	A. Wiegard and G. Erhard	345,012	July 6	312	78	36	57
Cob-carrier	F. Irwin	346,919	Aug. 10	615	162	36	585
Cock. Ball	H. C. Weeden	348,364	Aug. 31	2677	721	36	999
Cock. Fluid	P. A. Bowen	347,156	Aug. 10	944	252	36	647
Cock. Shut-off	G. W. Bumgarner	346,492	Aug. 3	15	4	36	463
Cockle-machine	F. Prinz	345,725	July 20	1333	345	36	253
Cockle-separator	F. W. Howell	346,815	Aug. 3	441	121 / 122	36	546
Coffee and spice mill	J. W. Miller	345,441	July 13	897	223	36	167
Coffee-case	C. T. Luthy	345,242	July 6	610	154	36	110
Coffee, &c. Machine for separating	G. S. Hungerford	345,633	July 13	1190	306	36	220
Coffee-mill	A. Shepard	349,062	Sept. 14	794	185	36	1183
Coffee-mill	C. Tobias	345,742	July 20	1360	354	36	257
Coffee-mill attachment	E. U. Wiesendanger	349,021	Sept. 14	666	171	36	1173
Coffee-mill support	B. W. McCarty and F. P. Gagne	348,984	Sept. 14	610	161	36	1165
Coffee or spice can. Sheet-metal	H. F. Griswold	345,780	July 20	1416	367	36	267
Coffee or tea pot	W. H. Hopkins	346,044	July 20	1781	458	36	331
Coffee-pot	F. E. Baker	349,199	Sept. 14	907	233	36	1218
Coffee-pot	M. A. Henderson	346,914	Aug. 10	600	161	36	584
Coffee-pot	J. M. Lawrence	349,505	Sept. 21	1332	345	36	1309
Coffee pot. Drip	F. Ribbeck	346,774	Aug. 3	398	110	36	538
Coffee-roaster	H. F. Bock	346,450	Aug. 3	11	4	36	462
Coffee-roaster	O. E. Davidson	345,370	July 13	792	200	36	148
Coffee, spice, &c. Mill for grinding	J. T. Clark and C. C. Clawson	349,693	Sept. 28	1573	408	36	1364
Coffer-dam, mill-dam, and similar works	J. B. Tainter	344,817	July 6	116	29	36	21
Coffin	F. C. Goff	348,963	Sept. 14	577	153	36	1159
Coffin	D. R. Gould and P. Baldwin	347,172	Aug. 10	985	258	36	651
Coffin attachment	S. O. Grover	344,901	July 6	151	38	36	27
Coffin-platform for graves	S. Baker	349,421	Sept. 21	1213	315	36	1286
Coffins. Device for fastening	W. Hamilton	345,685	July 20	1277	331	36	243
Coffins. Device for locking	J. Q. A. Bennett	350,032	Sept. 28	2051	529	36	1454
Coffins. Ornamental nail for	O. McCarthy	348,030	Aug. 24	2206	569	36	896
Cog-wheels. Housing for	F. M. Roots	349,364	Sept. 21	1133	292	36	1271
Coin-holder	M. R. McClintock	345,520	July 13	1006	255	36	187
Coin. Mechanism for changing	W. H. Fruen	344,824	July 6	26	7	36	7
Coins and other disks. Holder for	C. Seegmueller	346,564	Aug. 3	144	39	36	488
Collapsible case	L. N. Singley	346,779	Aug. 3	404	111	36	539
Collar	F. Beiermeister, Jr	346,259	July 27	6081	535	36	399
Collar	G. N. March	345,912	July 20	1598	412	36	300
Collar	G. N. March	345,913	July 20	1599	412	36	300
Collar	A. K. Merrill	346,669	Aug. 3	278	76	36	515
Collar fastener. Horse	R. T. Lombard	349,943	Sept. 28	1931	499	36	1431
Collar. Horse	R. M. Sears	346,296	July 27	2026	523	36	389
Collar. Horse	P. Sheehan	347,967	Aug. 24	2198	567	36	881
Collar. Lady's	G. N. March	345,911	July 20	1597	411	36	300
Collar-stuffing machine	W. Fogleson	349,034	Sept. 14	683	176	36	1176
Collar stuffing machine. Horse	W. Fogleson	349,035	Sept. 14	684	176	36	1176
Collar sweat-pad. Horse	J. H. Philpott	349,451	Sept. 21	1257	326	36	1294
Collars. Making	F. Beiermeister, Jr	345,947	July 20	1644	423	36	308
Color compound. Naphthol-black	M. Hoffmann and A. Weinberg	345,901	July 20	1592	.....	36	297
Colors. Producing mixed azo	C. A. Martius	344,971	July 6	239	.....	36	43
Coloring-matter or dye-stuff from gallic acid. Manufacture of yellow	R. Bohn	348,613	Sept. 7	113	.....	36	1068
Coloring yarn. Machine for	S. Sanford	346,950	Aug. 10	646	173	36	592
Colters and harrow-disks. Sharpener for	B. Stalcup	349,667	Sept. 21	1532	395	36	1350
Comb: *See* Curry-comb.							
Combination-lock	J. H. and T. D. Morris	349,168	Sept. 14	869	222	36	1211
Combustion of coal, &c. Compound for increasing	J. S. McIntyre	346,765	Aug. 3	398	.....	36	536
Commode	J. A. Hackenberg	348,738	Sept. 7	277	74	36	1099
Commode. Cabinet	E. S. Farson	345,890	July 20	1570	404	36	294
Compartment-tank	B. C. Shaw	349,388	Sept. 21	1360	353	36	1315
Compasses. Drafting	F. N. Gardner	349,840	Sept. 28	1801	465	36	1406
Compasses. Draftsman's	J. F. Bennett and B. B. Smith	349,203	Sept. 14	913	234	36	1219

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Composing-stick	W. H. Golding	347,591	Aug. 17	1560	414	36	770
Compound motive-power engine	C. Koch	347,619	Aug. 17	1604	425	36	778
Compounding or mixing machine	A. J. Summers	346 514	Aug. 3	84	22, 23	36	476
Compressor	F. Eibler	349,342	Sept. 21	1081	277, 278	36	1261
Compressor	C. Wakefield	349,542	Sept. 21	1379	358	36	1318
Condenser	R. T. Isbester	349,103	Sept. 14	786	199	36	1194
Condenser. Surface	B. S. Benson	346,348	July 27	2199	563, 564	36	490
Conductor-hook	W. H. Berger	345,477	July 13	945	238	36	175
Conduit systems. Testing-station for	J. F. Munsie	348,572	Sept. 7	51	14	36	1057
Conduit. Underground	J. C. Anderson	349,472	Sept. 21	1285	334	36	1300
Conduit. Underground	R. Macdonald	344,843	July 6	66	16	36	13
Confectioner's dropping-tube	J. Bentel	347,460	Aug. 17	1382	367	36	735
Confectioner's melting-bath	A. Muser	345,251	July 6	624	159	36	113
Converters. Working	B. Bayliss, Jr	347,913	Aug. 24	2044	542	36	866
Conveyer. Chain	M. Garland	345,497	July 13	974	247	36	181
Conveyers. Stretcher for endless	S. K. Seelye	346,868	Aug. 3	523	142	36	562
Cooking apparatus	C. Becker	348,821	Sept. 7	376	102	36	1117
Cooking apparatus	J. Vernon	349,288	Sept. 14	1020	261	36	1240
Cooking apparatus. Steam	D. D. Mounts	345,391	July 13	815	206	36	153
Cooking utensil. Steam	L. D. Jones	345,307	July 13	707	178	36	133
Cooking utensils. Device for carrying off smoke and steam from	J. D. Bowley	347,564	Aug. 17	1525	405, 406	36	769
Cooking utensils. Wire basket for	P. Miller	348,988	Sept. 14	614	162	36	1165
Cooking-vessel	A. W. Obermann	349,317	Sept. 21	1051	269	36	1255
Cooler: *See* Milk-cooler. Water-cooler.							
Cooler and filter	M. McVoy	348,032	Aug. 24	2210	590	36	897
Cooling storage-chambers. Device for	A. F. Cramer	346,807	Aug. 3	435	119	36	544
Copper from pyrites. Extracting	A. F. Wendt	345,401	July 13	836	.....	36	156
Copper tubes. Manufacture of	W. H. Brown	348,718	Sept. 7	252	67	36	1094
Cores. Machine for covering wire and other	J. C. Belk	348,822	Sept. 7	376	102	36	1117
Cork-cutting machine	J. Liston	345,909	July 20	1592	410, 411	36	299
Cork-extractor	W. L. Ames	345,822	July 20	1471	380	36	277
Cork-extractor and lemon-squeezer. Combined	C. Weekes	346,249	July 27	2069	532	36	397
Cork-fastener	W. M. Fischer	345,963	July 20	1665	431	36	312
Cork-puller	J. A. Hurley	348,743	Sept. 7	284	76	36	1100
Cork-puller	J. A. Hurley	348,911	Sept. 7	504	134	36	1140
Corn and cotton sweep	S. T. Lewis and J. H. Babb	349,725	Sept. 28	1643	424	36	1375
Corn-cutting machine	G. Martin	346,210	July 27	2010	518, 519	36	385
Corn hulling and grinding machine	J. U. Aebi and J. Mühlethaler	349,418	Sept. 21	1209	313, 314	36	1265
Corn-husker	T. I. Ludwig	346,528	Aug. 31	2923	785, 786	36	1037
Corn-shaver	J. P. Davison	346,585	Aug. 3	169	45, 46	36	492
Corn-sheller	C. A. Williams	349,553	Sept. 21	1393	361	36	1321
Corn-sheller. Hand	T. Weaver	349,327	Sept. 21	1063	273	36	1257
Cornstalk-cutter	W. R. Stafford	349,822	Sept. 28	1778	459	36	1401
Cornstalk-cutter attachment	G. B. Brown	349,566	Sept. 21	1411	365	36	1325
Corpse-supporting table	B. F. Gleason	348,626	Sept. 7	130	37	36	1071
Corset	G. G. Ackerson	346,339	July 27	2188	561	36	418
Corset	J. A. Anderson	349,969	Sept. 28	1966	508	36	1438
Corset	F. Kirk	344,969	July 6	236	60	36	43
Corset	C. F. Ritchel	346,416	July 27	2301	593	36	440
Corset and garment supporter combined	H. M. Bortree	346,982	Aug. 10	685	182	36	600
Corset-clasp	F. F. Delpy	347,094	Aug. 10	859	227	36	630
Corset-cover and dress-shield. Combined	T. P. Taylor and M. B. Hammond	349,068	Sept. 14	731	186	36	1184
Corset-fastening	E. A. Pyle	346,442	July 27	2342	602	36	446
Corset-lacing	J. Stone	349,184	Sept. 14	887	228	36	1214
Corset-trimming	M. W. Henius	346,476	Aug. 3	36	9	36	467
Corsets. Lacing-stay for	T. P. Taylor	347,449	Aug. 17	1367	364	36	732
Corsets. Stiffening material for	J. F. J. Gunning	347,034	Aug. 10	763	203	36	613
Cosmetic wash	L. K. Templeton, T. B. and W. H. Reed.	349,014	Sept. 14	658	.....	36	1172
Cotton chopper and cultivator. Combined	R. S. Oliver	349,463	Sept. 21	1190	308	36	1251
Cotton chopper and scraper. Combined	W. H. Basham	349,076	Sept. 14	742	189	36	1186
Cotton-gin	J. E. Atwood	346,573	Aug. 3	152	42	36	489
Cotton-gin	F. D. Child	349,692	Sept. 28	1572	408	36	1364
Cotton-gin	J. M. Gardner	348,900	Sept. 7	492	130, 131	36	1138
Cotton-gin	E. Van Winkle	347,666	Aug. 17	1690	450	36	793
Cotton, &c. Machinery for opening and cleaning	J. C. Potter	345,255	July 6	630	160	36	114
Cotton-packer	J. T. Dulany	348,490	Aug. 31	2865	770	36	1027
Cotton-picker	G. Bisler	347,382	Aug. 17	1268	336, 337	36	714
Cotton-picker stems. Making	C. T. Mason, Jr	345,312	July 13	714	180	36	134
Cotton-picker teeth. Making	W. Crabb	345,772	July 20	1405	364	36	265
Cotton-picking machine	M. Platt	347,058	Aug. 10	797	212	36	620
Cotton-press	W. P. Carr	347,468	Aug. 17	1391	370	36	737
Cotton-waste picker	J. P. Hillard	348,394	Aug. 31	2725	732	36	1001
Counter-shaft frame and belt-tightener. Swinging	G. H. W. Simmon	349,462	Sept. 21	1272	330	36	1297
Counter. Store	J. A. Cooper	346,896	Aug. 10	572	153	36	579
Countersinking and molding-machine. Marble	W. F. Poleza	349,800	Sept. 14	640	165	36	1168
Coupling: *See* Bell-cord coupling. Car-coupling. Hose-coupling. Hose and pipe coupling. Lamp-coupling. Pipe-coupling. Pole-coupling. Reach-coupling. Shaft-coupling. Thill-coupling. Valve-coupling.							
Coupling-links. Manufacture of hooked	J. H. Simpson	345,660	July 6	394	99	36	72
Coupling or joint pins. Fastening for	M. Renshaw and W. H. Horner	349,604	Sept. 14	645	167	36	1169

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cover. Jar	P. K. Reeves	348,588	Sept. 7	76	22	36	1061
Covering for cylinders of ice-machines, pipes, &c. Non-conducting	J. M. and G. F. Ordway	346,767	Aug. 3	390	107	36	537
Cracker-box cover	C. G. Sandberg	345,453	July 13	915	230	36	170
Cradle. Folding	O. L. Bandy	348,698	July 6	416	107	36	76
Crane. Traveling	F. Shickle	345,736	July 20	1346	350, 351, 352	36	255
Crate	H. W. Ream	347,198	Aug. 10	999	266	36	657
Cravat-retainer	F. W. Thal	345,934	July 20	1696	419	36	305
Cravat-retainer	F. W. Thal	345,935	July 20	1697	419	36	305
Crayon-holder	O. A. Moses	347,439	Aug. 17	1356	360	36	730
Crayon. Marking	C. N. Waite	348,002	July 20	1724	.....	36	982
Cream-raising apparatus	F. W. Moseley and J. G. Pritchard	348,540	Aug. 31	2939	780	36	1041
Cream-separator	M. C. Barden	345,874	July 20	1541	398	36	288
Crib and bed. Swinging	H. B. McGlodlin	345,796	July 20	1436	372	36	271
Crimping-machine	G. M. Ludlow	345,241	July 6	608	151	36	110
Crimping-machine	F. R. Packham	349,355	Sept. 21	1112	287	36	1266
Crockery or earthenware	J. S. Donohue	349,272	Sept. 14	1004	256	36	1237
Cross-tie	J. W. Flynn	345,837	July 20	1495	387	36	290
Crupper-former	L. Dare	348,319	Aug. 31	2625	708	36	982
Crupper press and former	E. W. Jackson	345,143	July 6	478	121	36	87
Crusher: *See* Clod-crusher.							
Crusher and pulverizer	W. L. Card	347,869	Aug. 24	1977	524	36	854
Crushing and grinding mill	J. G. Kirker	350,064	Sept. 28	2100	543	36	1463
Crushing-machine	R. McCully	348,757	Sept. 7	286	80	36	1103
Crushing-machine	R. McCully	348,758	Sept. 7	302	80, 81	36	1103
Crutch	C. Copeland	348,267	Aug. 31	2558	687	36	967
Cuff-holder	W. T. Reeves	349,454	Sept. 21	1260	327	36	1294
Cuff-holder	C. H. Richardson and H. A. Barkelew, Jr.	349,902	Sept. 28	1877	485	36	1422
Cuff-holder	A. W. Sawyer	349,456	Sept. 21	1263	327	36	1295
Culinary utensil	R. R. Procter	349,002	Sept. 14	643	166	36	1160
Cultivator	G. Bettschen	347,683	Aug. 10	843	224	36	628
Cultivator	G. E. Briggs	347,667	Aug. 10	849	226	36	629
Cultivator	E. E. Eddington	347,583	Aug. 17	1550	412	36	768
Cultivator	D. D. Funk	348,518	Aug. 31	2909	782, 783	36	1035
Cultivator	S. N. Hench and W. A. Dromgold	348,208	Aug. 31	2476	665, 666	36	952
Cultivator	J. A. Johnson	347,273	Aug. 10	1099	294	36	675
Cultivator	E. E. Krause	347,722	Aug. 17	1763	470	36	906
Cultivator	J. H. Mason	347,725	Aug. 17	1766	471	36	907
Cultivator	J. P. Ritch	346,923	July 27	2025	522	36	389
Cultivator	J. R. Salter	346,617	Aug. 3	214	59	36	502
Cultivator	M. Sattley	348,695	Sept. 7	227	60	36	1088
Cultivator	W. Saunders	345,734	July 20	1343	349	36	255
Cultivator	G. H. Sawyer	348,242	Aug. 31	2586	678	36	961
Cultivator and hoe. Combined	A. G. Christman	347,320	Aug. 17	1179	315	36	699
Cultivator attachment	G. W. Campbell	348,721	Sept. 7	255	68	36	1094
Cultivator-bar and cultivator-clip	W. Zehner and M. A. Eisenhour	347,756	Aug. 17	1808	482	36	815
Cultivator, cotton-planter, and fertilizer-distributer	W. Wimpee	347,545	Aug. 17	1500	397, 398	36	757
Cultivator. Hand	G. H. Black	349,561	Sept. 21	1404	363	36	1323
Cultivator. Listing	T. Snavely	349,065	Sept. 14	727	185	36	1184
Cultivator or plow	A. J. Baird	346,139	July 27	1914	494	36	367
Cultivator-shovel	J. O. Beck	349,334	Sept. 21	1071	275	36	1259
Cultivator. Wheel	A. C. Baker	349,972	Sept. 28	1969	509	36	1439
Cultivator. Wheel	W. P. Brown	345,111	July 6	432	111	36	79
Cultivator. Wheel	E. R. Conklin	346,191	July 27	1982	512	36	380
Cultivator. Wheel	I. J. Hunt	347,806	Aug. 24	1891	502	36	837
Cultivator. Wheel	J. McGee	348,780	Sept. 7	305	81	36	1104
Cultivators. Harrow attachment for	W. H. Hobson	349,795	Sept. 28	1736	448	36	1393
Cultivators. Mold-board for	A. W. Potts	346 064	July 20	1804	465	36	336
Cup: *See* Dental impression-cup. Oil-cup. Shaving-cup. Umbrella drip-cup.							
Cupboard-catch	H. B. Swartzwelder	349,671	Sept. 21	1537	396	36	1351
Curd-mill. Self-salting	G. D. Pohl	349,405	Sept. 21	1192	309	36	1262
Curry-comb	W. E. Lawrence	345,155	July 6	495	127	36	90
Curry-comb	H. F. Sawtelle	348,241	Aug. 31	2525	678	36	961
Curry-comb	M. Sweet	346,444	July 27	2344	603	36	447
Curry-comb	M. Sweet	346,445	July 27	2345	603	36	447
Curry-comb	P. W. Warner	346,625	Aug. 3	224	61	36	504
Curtain-fastener	W. Wiedemann	347,543	Aug. 17	1496	396	36	757
Curtain-fixture	J. C. Mayer	344,846	July 6	69	17	36	13
Curtain-fixture	H. C. Schmidt and D. W. Thuma	348,784	Sept. 7	333	89	36	1109
Curtain-fixture	H. W. Simms	345,811	July 20	1457	377	36	274
Curtain-fixture	H. W. Simms	345,812	July 20	1458	377	36	275
Curtain-pole and banner-rod	W. A. Stevenson	348,701	Sept. 7	234	62	36	1089
Curtain-poles. Ornament for	E. A. Foy	349,640	Sept. 21	1301	349	36	1344
Curtain-roller	J. E. Hopkinson	346,045	July 20	1782	459	36	331
Curtain. Rolling	O. Kluge	346,999	Aug. 10	705	187	36	603
Curtains. Roller for hanging	H. D. and H. D. Hinternesch, Jr	346,752	Aug. 3	374	101	36	534
Cuspidor	G. Kochendorfer	347,354	Aug. 17	1227	327	36	707
Cut-off and filter. Rain-water	W. R. Scott	347,903	Aug. 10	1063	267	36	658
Cut-off for water-pipes. Automatic	W. J. Wood	345,017	July 6	317	80	36	58
Cut-off regulator	E. F. Williams	347,979	Aug. 24	2141	570	36	883
Cut-out switch	A. G. Dailey	347,576	Aug. 17	1542	410	36	766
Cut-out. Multiple-series	C. F. Brush	347,025	Aug. 10	750	200	36	611

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Pages.
Cutter:							
See Bar-cutter. Tobacco-cutter. Cornstalk-cutter. Twine-cutter. Feed-cutter. Vegetable-cutter. Harvester-cutter. Weed-cutter. Meat-cutter. Wire-cutter. Stalk-cutter.							
Cutter-head	E. G. Blaney, Jr.	345,662	July 20	1246	393	36	237
Cutter-head	H. S. Boynton	344,810	July 6	9	2	36	4
Cutter-head	W. A. Woodroffe	348,367	Aug. 31	2685	723	36	994
Cutting flexible material into pieces having beveled edges.	F. A. Fowler	349,388	Sept. 21	1171	303	36	1278
Cutting holes in wood or other materials. Machine for	H. Weichert	349,772	Sept. 28	1705	440	36	1386
Cutting-machine	H. H. Cummings	346,093	July 27	1842	475 / 476	36	353
Cutting-machine	J. Schlichting	347,962	Aug. 24	2122	565	36	889
Cyclometer	J. A. Lakin and C. J. Emerson, Jr.	348,851	Sept. 7	474	112	36	1134
Cyclometer	G. A. Stiles	345,188	July 6	535	137	36	98
Cylinder engine. Vibrating	J. S. Barden	348,097	Aug. 24	2307	618	36	915
Cylinder-lubricator	C. W. Sherburne	345,929	July 20	1620	417 / 418	36	304
Dadoing-machine	G. F. Buss	345,668	July 20	1254	325	36	238
Dam. Mill and fish	L. Jones	348,127	Aug. 24	2342	628	36	922
Damper	R. S. T. Cissel	349,921	Sept. 28	1896	491	36	1425
Damper for stove-pipes and hot-air flues	A. C. Barler	348,947	Sept. 14	561	149	36	1156
Damper-regulator	N. Curtis	346,898	Aug. 10	575	154	36	580
Damper regulator and alarm. Thermo-electric	A. M. Butz	347,866	Aug. 24	1907	522	36	853
Damper-regulator. Steam-actuated	R. J. Hoffman	347,799	Aug. 24	1872	500	36	835
Darning-last	M. B. Crowninshield	347,737	Aug. 17	1809	482	36	815
Dash-pot	J. M. Westerlin and A. Campbell	345,939	July 20	1632	420	36	306
Decanting liquids. Device for	L. C. Brickenstein and C. A. Babendreier.	349,248	Sept. 14	977	249	36	1231
Decorated fabric	W. Sochefsky	349,238	Sept. 14	965	.....	36	1229
Decorative purposes. Composition for	E. G. Chormann	346,841	Aug. 3	492	.....	36	555
Demijohn	A. Enkler	348,665	Sept. 7	193	49	36	1080
Dental bridge	C. P. Grout	347,934	Aug. 24	2072	550	36	871
Dental disk	B. H. Teague	346,331	July 27	2181	550	36	417
Dental drill	S. J. Lea	348,131	Aug. 24	2345	629	36	922
Dental impression-cup	E. T. Starr	347,976	Aug. 24	2138	569	36	883
Dental matrix	T. W. Brophy	346,092	July 20	1826	472	36	342
Dental matrix	A. C. Hewett	348,628	Sept. 7	134	37	36	1072
Dental plugger	A. W. Browne	347,567	Aug. 17	1529	407	36	763
Dental plugger	H. C. Register	347,928	Aug. 24	1922	510	36	845
Dental tool	H. W. Buschemeyer	349,338	Sept. 21	1076	277	36	1260
Denture. Artificial	J. L. Williams	347,544	Aug. 17	1497	397	36	757
Derrick	W. J. Blundell	345,478	July 13	947	238 / 239	36	176
Derrick	G. and F. Driver	348,726	Sept. 7	262	70	36	1096
Derrick and crane platform. Automatic	M. Gibbons	349,582	Sept. 21	1431	370	36	1329
Derrick. Hay-stacking	O. Youman	347,755	Aug. 17	1807	481	36	814
Derrick. Pipe	G. Corbett	346,466	Aug. 3	19	5	36	464
Designs, &c., upon surfaces. Producing	C. Coleman	349,340	Sept. 21	1078	.....	36	1260
Desk	D. L. Wilcox	346,795	Aug. 3	422	116	36	542
Desk and book-case. Combined double	C. E. Ruth	347,278	Aug. 10	1104	295	36	676
Desk attachment	W. F. Fitz Gerald	345,040	July 6	344	87	36	63
Desk or portfolio. Lap writing	G. Hood	348,124	Aug. 24	2337	627	36	921
Desk. Reporter's	I. H. Weiner	348,706	Sept. 7	240	63	36	1091
Desk. School	I. Osgood	346,860	Aug. 3	509	140	36	559
Desks. Lock for rotating	F. A. Coffin	344,943	July 6	200	52	36	37
Detector:							
See Mechanical detector. Time-detector.							
Die:							
See Heel-die. Vulcanized rubber die.							
Dies. Forming	S. Crump	348,549	Sept. 7	11	3	36	1050
Digger:							
See Potato-digger.							
Dining-table	C. A. Grillwitzer	348,667	Sept. 7	184	49, 50	36	1080
Dish-cover	J. R. Roberts	346,386	July 27	2254	577	36	434
Dish. Soap	G. H. Laxton	349,890	Sept. 28	1861	481	36	1419
Dish-washing cabinet	J. S. Stevens	346,072	July 20	1815	469	36	339
Dish-washing machine	B. M. Graves	345,360	July 13	804	202	36	150
Disintegrating-machine	W. F. Birge	345,408	July 13	846	212	36	178
Display-rack for parasols, &c	S. V. Hendrux	349,938	Sept. 28	1923	497	36	1430
Distilling apparatus. Domestic water	A. G. W. Rankin	346,221	July 27	2022	522	36	348
Distilling. Process of and apparatus for	J. C. Peden	349,449	Sept. 21	1255	325	36	1293
Distilling wood. Apparatus for	J. A. Mathieu	344,917	July 6	170	44	36	31
Ditcher and grader. Combined tile	F. C. Woodard	347,282	Aug. 10	1110	297 / 298	36	677
Ditching-machine	W. Emslie	348,624	Sept. 7	127	36	36	1070
Ditching-machine. Railway	A. H. McGrew	345,855	July 20	1518	393	36	284
Dock. Dry	J. E., Jr., and A. H. Simpson	347,895	Aug. 21	2014	534	36	860
Dock. Dry	J. E., Jr., and A. H. Simpson	347,896	Aug. 24	2016	534	36	860
Door	T. S. White	347,852	Aug. 24	1951	518	36	850
Door-alarm	E. M. Hotchkiss	345,138	July 6	473	120	36	86
Door bolt. Jail	J. C. Hintz	345,786	July 20	1423	368	36	260
Door-check	S. Combs	349,384	Sept. 21	1166	302	36	1277
Door-check	J. A. Conltans	346,194	July 27	1984	512	36	380
Door-check	W. W. English	344,821	July 6	25	7	36	6
Door-check	G. W. Randall	349,604	Sept. 21	1460	376	36	1335
Door-check	H. A. Rost	345,451	July 13	913	239	36	109
Door-check	F. Saunders	347,517	Aug. 17	1458	387	36	749
Door-check	F. Saunders	347,518	Aug. 17	1459	388	36	750
Door-check	C. H. Shaw	347,525	Aug. 17	1467	389	36	751

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Pages.
Door-check	C. H. Shaw	347,526	Aug. 17	1469	390	36	751
Door-check	E. Smalley	346,235	July 27	2044	538	36	392
Door check and buffer. Combined	J. Gabet and G. Koehlinger	346,375	Aug. 31	2566	669	36	989
Door check and holder	C. M. McCarty	348,031	Aug. 24	2309	599	36	886
Door check and holder	N. R. Thomas	348,494	Aug. 31	2777	746	36	1018
Door-closer	A. D. Goodwin	346,742	Aug. 3	364	98	36	532
Door-closer	N. Leidgen	346,294	July 27	2194	547	36	407
Door. Elevator	P. Scheeler	347,519	Aug. 17	1461	388	36	750
Door fastener. Barn	J. S. Trout	347,748	Aug. 17	1796	479	36	813
Door fastener. Sliding	I. H. Congdon	346,198	July 27	1989	511	36	360
Door-hanger	E. L. Dunham	347,694	Aug. 17	1723	460	36	769
Door hanger	J. G. Hyatt	347,109	Aug. 10	878	232	36	634
Door-hanger	W. O. Kasson	348,976	Sept. 14	599	158	36	1163
Door-hanger	J. C. Kupferle	344,914	July 6	167	42, 43	36	31
Door-hanger	D. Nickel	349,173	Sept. 14	874	223	36	1211
Door hanger. Sliding	B. G. Wedd	349,889	Sept. 28	1787	462	36	1403
Door lock. Sliding	H. S. Lockwood	346,928	Aug. 10	618	166	36	587
Door-mat	S. M. Fein	345,291	July 13	687	173	36	130
Door-operator	E. C. Jenner	349,592	Sept. 21	1443	372	36	1331
Door. Safe	W. H. Baynard	346,980	Aug. 10	683	181 / 182	36	599
Door-securer	J. E. Buckingham	349,688	Sept. 28	1567	406	36	1363
Door sheave. Sliding	J. J. McMillan	345,314	July 13	716	181	36	135
Door-sill	S. E. Hayes	344,963	July 6	294	57	36	41
Door-spring	H. Lewy	346,296	July 27	2128	548	36	408
Door. Storm	C. F. Teufel	348,788	Aug. 3	414	114	36	541
Doors. Device for operating cell	P. Hale and W. E. Sparks	346,155	July 27	1934	498	36	370
Doors. Supporting device for	F. V. Phillips	345,968	July 20	1701	438	36	318
Doors. Track and hanger for sliding	H. Soulen	349,536	Sept. 21	1372	356	36	1317
Double-tree	E. R. Procter	347,926	Aug. 24	1919	510	36	844
Doubling and twisting machine	T. Briggs and E. Webb	346,396	July 27	2269	581 / 582	36	434
Doubling and winding machine	J. E. Tynan	346,693	Aug. 3	304	83, 84	36	590
Doubling frames. Cleaning and tension equalizing device for silk	A. Müller	348,408	Aug. 31	2747	738	36	1005
Doubling-machine	T. Wrigley	345,656	July 13	1238	320	36	229
Doubling-machines. Stop-motion mechanism for	F. Fearon	349,487	Sept. 21	1304	339 / 340	36	1304
Doubling-machines. Stop-motion mechanism for	J. Holroyd	349,939	Sept. 28	1924	498	36	1430
Dovetailing-machine	T. Carter	347,418	Aug. 17	1313	350	36	723
Draft attachment for vehicles	J. Clements	348,545	Sept. 7	7	2	36	1050
Draft-equalizer	W. H. Baker	346,798	Aug. 3	424	117	36	543
Draft-equalizer	A. B. Griswold	345,631	July 13	1189	305	36	220
Draft-equalizer	M. Lynde	346,054	July 20	1791	461	36	334
Draft-equalizer	J. E. Mustard	345,252	July 6	625	159	36	113
Draft-equalizer	J. Staiger and G. H. Scofield	349,772	Sept. 21	1147	296	36	1273
Draft-equalizer	J. W. Wolfe	346,040	July 20	1825	471	36	341
Draft-regulator	J. Ashcroft	347,550	Aug. 17	1508	400	36	758
Drainer. Dish	M. A. Vail	347,665	Aug. 17	1690	450	36	793
Drapery-hook	E. S. Kenney	345,904	July 20	1595	409	36	297
Drawer check and support	S. J. Fraser	345,227	July 6	588	149	36	106
Drawer-pull	C. M. Burgess	346,463	Aug. 3	16	5	36	463
Drawers	W. R. Standen	349,910	Sept. 28	1886	487	36	1423
Drawers. Support for	G. Murrow	347,276	Aug. 10	1109	295	36	676
Drawing apparatus	A. C. Féron	347,099	Aug. 10	866	229	36	632
Drawing. Apparatus for perspective	R. E. Creasey	349,303	Sept. 21	1037	265	36	1252
Drawing machinery. Screw-gill	A. Smith and H. W. Whitehead	347,655	Aug. 17	1673	445 / 446	36	791
Dress form	T. R. Fischer	347,930	Aug. 24	2068	549	36	871
Dress-maker's table	J. R. L'Africain	346,481	Aug. 3	42	11	36	468
Dress protector	J. M. Haskell	345,970	July 20	1674	433	36	313
Dress-shield	H. Einstein	349,149	Sept. 14	842	215	36	1206
Dress-shield. Armpit	I. B. Kleinert	345,595	July 13	1137	290	36	210
Drier:							
See Clothes-drier. Lumber-drier. Fruit-drier. Malt-drier. Grain-drier. Wool-drier. Hop-drier.							
Drier	H. P. McDonald	348,759	Sept. 7	304	81	36	1104
Drill:							
See Dental drill. Rock-drill. Grain-drill. Seed-drill. Ratchet-drill. Trash-drill.							
Drilling-machine	E. L. Mansfield	349,728	Sept. 28	1647	425	36	1376
Drilling-machine	W. Seng	348,422	Aug. 31	2767	743	36	1010
Drilling-machine	D. Slate	347,969	Aug. 24	2130	567	36	881
Dropper:							
See Harvester-dropper. Seed-dropper.							
Drum. Heating	J. W. Davis	349,695	Sept. 28	1578	409	36	1365
Drum. Heating	W. C. Lindsey	348,852	Sept. 7	416	113	36	1124
Drum or heat-radiator. Stove-pipe	S. Anderson	346,256	July 27	2078	534	36	398
Drum-snare strainer	A. L. Favaux	349,151	Sept. 14	844	216	36	1206
Drum. Winding	W. G. Adams	349,196	Sept. 14	903	232	36	1217
Drying apparatus	V. D. Anderson	348,541	Sept. 7	1	1	36	1049
Drying apparatus	R. Mara	348,566	Sept. 7	45	13	36	1056
Drying-board	G. L. Smith	346,507	Aug. 3	74	19	36	474
Drying. Process of	T. G. Walker	347,846	Aug. 24	1944	516	36	840
Dumb-waiters. Brake for	E. W. Moon	349,258	Sept. 14	987	252	36	1234
Duplex steam-engine	M. W. Hall	349,157	Sept. 14	851	217 / 218 / 219	36	1207
Dust-box	J. H. Ethridge	347,701	Aug. 17	1735	463	36	801
Dust-collector	J. B. Holgate	345,508	July 13	991	251	36	184
Dust-collector	N. W. Holt	347,243	Aug. 10	1055	282 / 283	36	667

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Pages.
Dust-collector	W. Ince	350,059	Sept. 28	2083	541 542	36	1462
Dust-pan	F. K. Marsh and M. Margerum	346,761	Aug. 3	394	108	36	536
Dust-removing apparatus	C. L. Wood	345,610	July 13	1153	285	36	213
Dusters. Adjustable handle for	E. G. Nunn	347,123	Aug. 10	983	237	36	637
Dye-stuff from benzyldiphenylamine. Sulphonated purple	H. Bull and C. L. Müller	346,092	July 20	1754	.....	36	327
Dyed. Machine for separating and drying warps after being	W. Kerr	348,130	Aug. 24	2344	639	36	922
Dyeing apparatus	J. Gillet	345,892	July 20	1572	405 406	36	294
Dyeing apparatus	L. Weldon	347,404	Aug. 17	1296	345	36	720
Dyeing. Apparatus for	E. Ran	347,959	Aug. 24	2116	564	36	879
Dyeing yarn. Machine for	E. Zillessen	345,269	July 6	649	165	36	118
Dynamite	M. Eissler	347,424	Aug. 17	1319	.....	36	724
Dynamometer	J. Emerson	346,404	July 27	2281	585 586	36	436
Dynamometer	G. Westinghouse, Jr., and F. Moore	349,130	Sept. 14	818	207 208	36	1200
Ear-muff	C. C. Shelby	346,175	July 27	1958	505	36	375
Earth-closet	W. Heap	345,053	July 6	358	90	36	65
Earth-closet	W. Heap	347,037	Aug. 10	766	204	36	614
Earthenware and glassware and ornamenting the same.	D. S. Plumb	347,195	Aug. 10	995	266	36	656
Earthenware, &c. Link-press for making	F. G. and A. Johnson	349,432	Sept. 21	1298	318	36	1288
Earthenware product with strengthening-cores. Porous	C. C. Gilman	349,585	Sept. 21	1435	370	36	1330
Eaves-trough hanger	W. H. Berger	345,102	July 6	420	108	36	77
Eaves-trough hanger	D. H. Herman	347,348	Aug. 17	1217	325	36	706
Eaves-trough hanger	H. J. Hoepfner	346,655	Aug. 3	259	71	36	511
Edger. Gang-	S. R. Smith and E. Myers	348,065	Aug. 24	2263	606	36	907
Egg-beater	G. Laube	346,375	July 27	2237	574	36	498
Egg-beater	E. A. Marsh	345,709	July 20	1308	338	36	248
Egg-beater	G. H. Thomas	350,023	Sept. 28	2043	527	36	1452
Egg-box	E. C. Bower	349,919	Sept. 28	1895	491	36	1425
Egg-carrier	J. Shibley	347,635	Aug. 24	1930	512	36	846
Egg-preserving apparatus	T. J. Moore	347,498	Aug. 17	1430	380	36	744
Ejector. Bilge-water	J. W. McKee	345,065	July 6	376	.....	36	69
Ejector. Fluid-	G. Haydn	349,497	Sept. 21	1321	343	36	1307
Ejector. Fluid-	C. White	346,792	Aug. 3	418	115	36	542
Ejector. Fluid-	C. White	346,878	Aug. 3	541	147	36	565
Ejector. Fluid-	C. White	348,967	Aug. 10	668	178	36	596
Electric alarm	C. H. Crockett and C. C. Allen	346,532	Aug. 3	106	28	36	480
Electric alarm	W. L. Glanville	346,587	Aug. 3	171	46	36	493
Electric-arc light	F. Thone	348,799	Sept. 7	350	95	36	1113
Electric battery	E. Bazin	349,380	Sept. 21	1160	300	36	1276
Electric battery	J. Beattie, Jr	346,528	Aug. 3	101	27	36	479
Electric battery	O. Lugo	346,653	July 20	1790	461	36	334
Electric battery	C. Wirt	345,756	July 20	1379	358	36	261
Electric-battery element or electrode	E. T. Starr	347,259	Aug. 10	1062	289	36	672
Electric battery. Secondary	A. De Khotinsky	347,231	Aug. 10	1042	278	36	664
Electric battery. Secondary	E. Julien	347,300	Aug. 10	1144	306	36	683
Electric chain battery	R. N. Rockwell	345,178	July 6	520	133	36	95
Electric circuit	H. C. Spalding	346,509	Aug. 3	76	21	36	475
Electric circuit	H. C. Spalding	346,510	Aug. 3	77	21	36	475
Electric-circuit regulator	M. J. Wightman	345,561	July 13	1091	279	36	302
Electric circuits. Automatic means for opening and closing	G. F. de Solomé	344,948	July 6	207	53	36	38
Electric circuits. Cut-out for	J. M. Fairchild	348,455	Aug. 31	2817	756	36	1019
Electric circuits. Fusible cut-out for	C. G. Perkins	348,048	Aug. 24	2227	596	36	900
Electric circuits. Safety-strip for	E. Weston	348,646	Sept. 7	154	43	36	1075
Electric circuits. Switch for	J. M. Fairchild and J. O'Connor	348,456	Aug. 31	2818	757	36	1019
Electric-current converter	R. A. Ripley	347,642	Aug. 17	1655	439	36	787
Electric-current regulator	M. J. Wightman	348,876	Sept. 7	452	120	36	1131
Electric generator	W. Stanley, Jr	349,615	Sept. 21	1472	380	36	1337
Electric generators. Regulator for dynamo-	M. Deprez and J. Carpentier	348,385	Aug. 31	2716	729	36	999
Electric-light circuits. Automatic cut-out for	W. Stanley, Jr	349,613	Sept. 21	1470	379	36	1337
Electric-light circuits. Automatic cut-out for	W. Stanley, Jr	349,614	Sept. 21	1471	380	36	1337
Electric-light hanger. Incandescent-	H. P. Brown	347,767	Aug. 24	1925	486	36	826
Electric lights. Circuit-controlling key for incandescent	A. G. Brown	345,880	July 20	1548	400	36	290
Electric lights or gas or oil lamps. Suspending	J. N. B. Moore	348,407	Aug. 31	2745	737	36	1005
Electric lighting system	E. Weston	348,649	Sept. 7	159	44	36	1076
Electric lock and bolt-moving mechanism	F. Sedgwick	347,070	Aug. 10	928	220 221	36	625
Electric machine. Compound-wound dynamo-	E. Thomson	349,912	Sept. 28	1887	488	36	1424
Electric machine. Dynamo-	J. Jenkins	350,000	Sept. 28	2011	519	36	1446
Electric machine. Dynamo-	R. Kennedy	350,003	Sept. 28	2014	520 521	36	1447
Electric-machine regulator. Dynamo-	R. M. Hunter	347,937	Aug. 24	2078	552	36	873
Electric-machine regulator. Dynamo-	S. H. Short	347,204	Aug. 10	1005	268	36	658
Electric machines. Armature for dynamo-	A. Bossard	348,883	Sept. 7	468	123 124	36	1133
Electric machines. Armature for dynamo-	E. P. Warner	346,965	Aug. 10	665	177	36	596
Electric motor	J. Beattie, Jr	346,527	Aug. 3	100	26	36	479
Electric motor	A. Bossard	349,563	Sept. 21	1406	364	36	1324
Electric motor	E. T. and D. Higham	349,715	Sept. 28	1624	419	36	1372
Electric motor	V. E. Keegan	349,654	Sept. 21	1515	392	36	1347
Electric motor	R. Vogler	350,025	Sept. 28	2005	527	36	1452
Electric motor and generator	W. Hansell	349,392	Sept. 21	1176	304	36	1279
Electric motor. Dynamo-	E. T. and D. Higham	349,716	Sept. 28	1625	419	36	1372
Electric-motor regulator	O. B. Shallenberger	347,964	Aug. 24	2124	566	36	861
Electric-motor regulator	C. J. Van Depoele	347,903	Aug. 24	2027	536	36	863
Electric motor. Vibrating	A. L. Parcelle	345,730	July 20	1322	342 343	36	251

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Pages.
Electric pile	J. B. Neyraud	347,823	Aug. 24	1914	509	36	843
Electric signal. Automatic	H. C. Nickolson	347,634	Aug. 17	1645	436	36	785
Electric subway	R. L. Harris	344,902	July 6	223	57	36	41
Electric subway	J. M. Jagel	349,797	Sept. 28	1759	448	36	1383
Electric train-controlling system	F. J. McQueen	347,628	Aug. 17	1625	431	36	782
Electric welding	E. Thomson	347,142	Aug. 10	925	247	36	643
Electric welding. Apparatus for	E. Thomson	347,140	Aug. 10	921	246	36	642
Electric welding. Apparatus for	E. Thomson	347,141	Aug. 10	924	246 247	36	643
Electric wires. Underground conductor for	J. Grant	344,827	July 6	35	9	36	8
Electric wires. Underground conduit for	W. L. Robinson	346,668	Aug. 3	298	82	36	519
Electric wires. Underground conduit for	F. Wheaton	348,250	July 27	2070	532	36	397
Electrical call	E. A. Reeder	346,314	July 27	2156	554	36	413
Electrical conductor	J. R. Finney	346,980	Aug. 10	694	184	36	601
Electrical conductors. Conduit for	E. Campbell	346,840	Aug. 3	480	133	36	555
Electrical conductors. Coupling device for	C. G. Perkins	349,809	Sept. 28	1758	454	36	1397
Electrical conductors. Underground conduit for	C. G. Perkins	349,739	Sept. 28	1659	428 429	36	1378
Electrical connection and guard therefor	G. D. Burton	346,423	July 27	2309	595	36	441
Electrical distribution. System of	H. M. Byllesby	345,212	July 6	564	144 145	36	102
Electrical indicator	C. Wirt	345,755	July 20	1377	358	36	260
Electrical meter	W. L. Stevens	346,957	Aug. 10	654	175	36	594
Electrical resistance. Artificial	H. P. and F. H. Brown	347,766	Aug. 24	1925	486	36	825
Electrical switch	R. G. Sweeney	346,515	Aug. 3	85	23	36	476
Electrical switch	E. G. Waters and R. G. Sweeny	346,183	July 27	1962	507	36	377
Electrical synchronous movement	A. L. Parcelle	345,721	July 20	1325	344	36	251
Electrical wires. Coupling for	J. A. Lantz	349,397	Sept. 21	1182	306	36	1280
Electrical wires. Coupling for	J. A. Lantz	349,396	Sept. 21	1183	306	36	1280
Electricity on vehicles. Storing and utilizing	C. E. Buell	347,768	Aug. 24	1927	486 487	36	826
Electro-dynamic motor	C. J. Van Depoele	347,902	Aug. 24	2025	536	36	862
Electro-magnetic motor	E. Thomson	345,334	July 13	740	187	36	146
Electro-magnetic valve	M. W. Grovesteen	347,707	Aug. 17	1745	465	36	803
Electrode for electric batteries	S. L. Trippe	348,482	Aug. 31	2854	768	36	1026
Electrodes for secondary batteries. Composition for	S. L. Trippe	344,882	July 6	128	31, 32	36	23
Electrodes for secondary batteries. Construction of	A. Khotinsky	345,511	July 13	995	252	36	185
Electrolier	C. G. Perkins	349,516	Sept. 21	1344	349	36	1312
Electrotype-registering machine	A. O. Russell	347,256	Aug. 10	1075	288	36	671
Elevator: *See* Harvester-elevator. Passenger-elevator. Hay-elevator. Water-elevator.							
Elevator	P. Baker	349,074	Sept. 14	739	188	36	1186
Elevator	D. Frisbie and E. M. Lockwood	349,706	Sept. 28	1596	412	36	1388
Elevator	A. J. McAdam	347,433	Aug. 17	1330	354 355	36	796
Elevator	F. B. Perkins	349,175	Sept. 14	875	224	36	1212
Elevator	C. K. Rogers	349,177	Sept. 14	878	225	36	1212
Elevator	W. Stevens	348,587	Sept. 7	93	27	36	1064
Elevator and carrier	M. W. Chamberlain	344,941	July 6	198	51	36	37
Elevator and carrier	C. J. Knighton	348,329	Aug. 31	2836	711	36	964
Elevator-buckets. Making	C. C. Scaife	349,754	Sept. 28	1680	433 434	36	1382
Elevator cup or bucket	J. L. Seavey and J. N. Goodall	347,963	Aug. 24	2123	566	36	880
Elevator-indicator	E. Marshall	349,729	Sept. 28	1648	425	36	1376
Elevator safety-brake	T. W. Eaton, F. H. Prince, and J. H. Livesey.	347,778	Aug. 24	1845	491 492	36	829
Elevator-spout	W. L. Mock	346,921	Aug. 3	450	124	36	548
Elevators. Automatic stop for	O. Pupikofer	348,687	Sept. 7	216	57	36	1066
Elevators. Control-gear for	F. M. Clark and F. R. Low	344,942	July 6	200	51	36	37
Elevators. Operating	G. H. Reynolds	348,056	Aug. 24	2243	599 600	36	903
Elevators. Safety air-clutch for	H. W. Bracken	349,299	Sept. 21	1033	264	36	1252
Elliptic spring	J. O. Altick	348,710	Sept. 7	244	65	36	1092
Embroidering	G. Ehrenzeller-Hoegger	345,127	July 6	453	117	36	82
Embroidering-machine	E. Cornely	345,866	July 20	1563	402 403 538	36	292
Embroidering-machine	C. Güttinger	350,053	Sept. 28	2077	539 540	36	1460
Embroidering-machine	J. Irish	348,562	Sept. 7	27	8 9 10 11 12	36	1053
Embroidery-frame	M. Bacon	349,473	Sept. 21	1286	334	36	1300
Embroidery frame and stand. Combined	J. C. States	347,743	Aug. 17	1789	477	36	811
Embroidery-frame, easel, work-table, and desk. Combined	L. Hopkinson	345,509	July 13	993	251	36	184
End-gate and shoveling-board for wagons	L. P. Damon	346,534	Aug. 3	108	29	36	481
End-gate fastening	J. W. Spafford	349,537	Sept. 21	1375	356	36	1317
End-gate lock. Wagon	D. D. Whitney	349,965	Sept. 28	1961	507	36	1437
Endless carrier	P. Grater	349,346	Sept. 21	1089	279	36	1263
Engine: *See* Air-engine. Paper-pulp engine. Cylinder-engine. Petroleum and gas engine. Duplex steam-engine. Pumping-engine. Road-engine. Fire-engine. Rotary engine. Gas-engine. Rotary steam-engine. Gas-motor engine. Steam-engine. Motor-engine. Traction-engine.							
Engine and pump. Rotary	C. H. Cary	346,721	Aug. 3	341	93	36	527
Engine-frame jig	L. Skinner	349,757	Sept. 28	1684	435	36	1383
Engines. Jointed link for	E. Doe	349,485	Sept. 21	1302	339	36	1263

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Engines. Link-motion for	A. D. Bryce-Douglas	345,617	July 13	1162	298	36	215
Engravers' use. Block for	E. S. Stehman	346,299	Aug. 31	2601	709	36	977
Ensilage. Storing	M. Amos and J. Hunt	346,699	Aug. 3	313	86	36	522
Entry and blotter sheet. Combined	G. F. Barden	346,703	Aug. 3	318	87	36	523
Envelope-counting machinery	A. A. Rheutan	349,745	Sept. 28	1669	430 / 431	36	1380
Envelope. Doenment	E. J. Trum	349,188	Sept. 14	894	230	36	1215
Equalising-ventilator	G. A. Bell	348 102	Aug. 24	2312	620	36	916
Escape-levers. Machine for securing guard-pins in	G. E. Hunter	345,636	July 13	1196	309 / 310	36	221
Evaporator: *See* **Fruit-evaporator.**							
Evener. Four-horse	A. T. Masten	346,932	Aug. 10	623	167	36	588
Excavating-machine	A. Boschke	348,376	Aug. 31	2704	726	36	997
Excavator. Odorless	W. H. Fish and E. E. Dean	345,425	July 13	877	218	36	163
Excavator. Suction	W. H Beard	349,381	Sept. 21	1161	301	36	1276
Excelsior and material for wood pulp. Manufacturing from wood	J. E. Goodwin	349,992	Sept. 28	2000	516 / 517	36	1444
Exercising-machine	D. L. Dowd	345,286	July 13	679	171	36	128
Exercising-machine	J. D. O'Brien	345,856	July 20	1520	393	36	284
Exercising-machine and register therefor	J. P. Nichols	346,675	Aug. 3	299	78	36	516
Extension-handle	J. A. Ackley	349,917	Sept. 28	1892	489	36	1425
Extension-table	G. Erber	346,903	Aug. 10	585	156	36	581
Extractor: *See* **Stump-extractor.**							
Eye-bars. Machine for rolling	H. Aiken	349,419	Sept. 21	1210	314 / 315	36	1225
Eye-bars. Machine for upsetting	W. Cooke and D. Carlough	345,573	July 13	1107	283	36	205
Eyeglass-frame	G. Johnston	348,018	Aug. 24	2190	583	36	893
Eyeglass-holder	S. F. Merritt	346 305	July 27	2139	551	36	410
Eyeglasses	W. Bowker, E. M. Cole, and A. L. Smith.	346,713	Aug. 3	333	91	36	526
Eyeglasses	D. V. Brown	348,449	Aug. 31	2809	755	36	1017
Eyeglasses	R. Strandel	349,413	Sept. 21	1201	311	36	1224
Eyeglasses. Nose-piece for	C. C. Parker	348,992	Sept. 14	618	163	36	1166
Eyeglasses. Spring and nose-piece for	G. W. Hassellund	346,654	Aug. 3	258	71	36	511
Eyeleting apparatus	J. S. Shannon	344,996	July 6	288	72, 73	36	52
Eyeleting-machine	J. S. Shannon	344,997	July 6	292	73	36	52
Fabric: *See* Decorated fabric. Roofing fabric. Knit fabric. Woven fabric. Knitted fabric.							
Fabric for window-shades, &c. Improving the finish and durability of	V. G. Bloede	347,315	Aug. 17	1168	.....	36	697
Fabric or material for interior decorations, &c. Metal-faced	T. and J. Millot	347,497	Aug. 17	1429	380	36	744
Fabric-turfing implement	N. W. Crandall	348,724	Sept. 7	259	69	36	1095
Fabric-turfing implement	J. J. Deal	347,163	Aug. 10	953	255	36	649
Fabrics. Manufacturing woven	A. Mitchell	346,673	Aug. 3	290	.....	36	515
Fabrics or yarns. Apparatus for steaming	J. Cochrane, Jr	348,616	Sept. 7	115	33	36	1068
Fabrics. Process of and apparatus for coating	E. G. Sparks	349,463	Sept. 21	1273	330 / 331	36	1297
Fan	P. Murray, Jr	344,980	July 6	258	65	36	46
Fan. Automatic	D. W. Porter	347,255	Aug. 10	1074	288	36	671
Fan. Exhaust	G. Campbell	347,227	Aug. 10	1038	277	36	664
Fan. Rotary	P. Murray, Jr	347,952	Aug. 24	2110	562	36	878
Fan. Rotary	P. Murray, Jr	348,683	Sept. 7	211	56	36	1085
Fan. Rotary	P. Murray, Jr	349,855	Sept. 28	1821	470	36	1410
Fanning-mill	G. and J. W. Gray	347,706	Aug. 17	1744	465	36	803
Fanning-mill	E. F. Reynolds	349,215	Sept. 14	961	245	36	1228
Fanning-mills, &c. Air-blast regulator for	R. W. Kirkpatrick	344,912	July 6	164	42	36	30
Fare-register	S. D. Lake and J. D. Haines	345,151	July 6	488	125	36	89
Fare-register	J. W. Meaker	347,437	Aug. 17	1337	356 / 357	36	728
Farm-gate	C. W. Benschoter	347,152	Aug. 10	937	250	36	646
Farm-gate	C. J. Bottenfield	348,148	Aug. 24	2369	636	36	927
Farm-gate	J. W. Craig	346,806	Aug. 3	433	119	36	544
Farm-gate	H. H. Hoover	346,588	Aug. 3	172	46	36	493
Farm-gate	T. P. Skellenger	346,506	Aug. 3	73	19	36	474
Fats and oils. Bleaching animal	W. B. Allbright	345,872	July 20	1539	.....	36	288
Faucet	W. W. Jackson	348,914	Sept. 7	508	135	36	1141
Faucet	E. U. Scoville	347,131	Aug. 10	904	241	36	639
Faucet. Automatic filling	U. Bachmann	348,372	Aug. 31	2698	725	36	996
Faucet for shipping-cans, &c	J. Marshall	348,756	Sept. 7	297	79	36	1102
Faucet. Screw	J. Jaeger	347,609	Aug. 17	1586	421	36	775
Faucets. Drain-tube for	A. J. Weatherhead	346,520	Aug. 3	92	24	36	478
Feather-renovator	N. Baruch and O. L. Williams	347,458	Aug. 17	1379	366 / 367	36	735
Feathers. Machine for cutting the down from	C. Lachner	345,515	July 13	1000	254	36	186
Feathers. Machine for scraping the quills of	J. Hawlowetz	347,486	Aug. 17	1417	377	36	742
Feed-bag for horses	H. Fink	347,929	Aug. 24	2067	549	36	871
Feed-boxes for animals	F. P. Eastman	347,582	Aug. 17	1549	412	36	767
Feed-cutter	M. S. Field	346,151	July 27	1926	497	36	369
Feed-cutter	A. Hamacek	346,200	July 27	1993	514	36	382
Feed-cutter	F. Hamachek	349,713	Sept. 28	1622	418	36	1371
Feed-cutter	J. P. Outcalt	349,661	Sept. 21	1526	394	36	1349
Feed-cutter	C. and C. A. Silbermann	345,078	July 6	389	98	36	71
Feed-cutting machine	L. M. Baity	346,707	Aug. 3	322	89	36	524
Feed grinder	M. L. Metzger and A. Cooper	345,163	July 6	503	128 / 129	36	92
Feed-trough	R. G. Ping	349,519	Sept. 21	1348	351	36	1313
Feed-trough. Poultry	M. D. Beach	347,081	Aug. 10	842	224	36	628
Feed-water for steam-boilers. Preparing	F. G. Fowler	346,198	July 27	1969	513	36	382
Feed-water heater	T. Clarke and W. S. Flynn	347,228	Aug. 10	1039	277	36	664
Feed-water heater	M. J. Galligan	345,778	July 20	1414	366	36	367

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Feed-water heater	S. R. Hughes	345,593	July 13	1134	289	36	210
Feed-water heater	W. H. H. Knowlton	344,913	July 6	166	42	36	31
Feed-water heater and purifier	T. Davis and W. W. Tyler	345,578	July 13	1114	285	36	206
Feed-water heater and purifier	W. J. Smith	349,181	Sept. 14	883	227	36	1217
Feed-water in multitubular upright boilers. Circulation of	W. D. Hooker	349,046	Sept. 14	701	179	36	1179
Feed-water purifier and heater	J. P. Warner	346,247	July 27	2065	530	36	396
Feeder. Boiler	W. Cunningham	346,269	July 27	2094	539	36	401
Feeder. Boiler	N. Curtis	348,892	Sept. 7	480	127 / 128	36	1136
Feeder. Boiler	N. Curtis	348,893	Sept. 7	481	128	36	1136
Feeder. Steam-boiler	J. A. Adams	345,355	July 13	774	194	36	145
Feeder. Stock	J. P. Wilder and A. D. Arkland	348,305	Aug. 31	2610	702 / 703	36	979
Feeding animals. Automatic device for	J. W. Sears	346,504	Aug. 3	69	18	36	473
Feeding stock. Automatic device for	J. W. Sears	346,505	Aug. 3	71	18, 19	36	473
Felt and other materials. Machine for cutting	J. W. Millet	348,563	Sept. 7	308	82	36	1104
Felt foot-wear	W. P. Hyatt	347,110	Aug. 10	879	232	36	634
Fence	W. Bell	349,559	Sept. 21	1400	362	36	1322
Fence	W. E. Bunch	347,865	Aug. 24	1966	522	36	853
Fence	L. H. Colbert	348,318	Aug. 31	2624	707	36	981
Fence	W. Kelly	349,940	Sept. 28	1925	498	36	1430
Fence	J. M. Sanderson	346,778	Aug. 3	401	111	36	539
Fence gate. Wire	T. Roediger	350,082	Sept. 28	2196	550	36	1468
Fence. Hedge and wire	R. W. Oliver	346,123	July 27	1877	485	36	360
Fence-machine	A. H. Allison	349,294	Sept. 21	1027	263	36	1251
Fence-machine	M. C. Henley	346,749	Aug. 3	370	100	36	533
Fence-machine	J. Macy and C. M. Gilbert	348,286	Aug. 31	2583	694	36	973
Fence-machine	C. E. Miller	348,570	Sept. 7	49	14	36	1056
Fence-machine. Portable	W. Van Horn	347,400	Aug. 17	1290	344	36	719
Fence machine. Wire	J. Middaugh and C. M. Wilcox	347,190	Aug. 10	989	264	36	655
Fence machine. Wire	A. Boggs	347,562	Aug. 17	1523	405	36	761
Fence machine. Wire	F. M. Love	346,595	Aug. 3	181	49	36	495
Fence machine. Wire	L. C. Lowden	346,652	July 20	1789	461	36	333
Fence machine. Wire	W. J. Raymond	348,775	Sept. 7	323	86	36	1107
Fence machine. Wire	W. H. Reppeto	347,064	Aug. 10	815	217	36	623
Fence machine. Wire-and-slat	A. C. Conner	346,420	July 27	2219	597	36	443
Fence machine. Wire-and-slat	A. C. Conner and J. M. Westcott	346,498	July 27	2216	597	36	442
Fence-making machine	J. W. Hubler	348,742	Sept. 7	283	76	36	1100
Fence. Metallic	C. F. Purdie	348,499	Aug. 31	2779	774	36	1030
Fence-post	D. B. Ayres	349,266	Sept. 14	998	255	36	1236
Fence-post	J. Burns	349,142	Sept. 14	834	219	36	1204
Fence-post	W. T. Farquhar	345,374	July 13	797	201	36	149
Fence-post	J. Hunter	347,298	Aug. 10	1141	305	36	683
Fence-post	D. S. Pancoast	347,956	Aug. 24	2114	563	36	879
Fence-post	J. L. Quackenbush	345,075	July 6	386	97	36	70
Fence-post	J. M. Walk and C. R. Foster	348,874	Sept. 7	450	120	36	1130
Fence-post. Iron	W. H. H. and S. Yount	349,245	Sept. 14	974	249	36	1231
Fence-post. Sheet-metal	B. F. Randall	349,603	Sept. 21	1459	375	36	1334
Fence, railing, or balcony	J. Morein	346,057	July 20	1797	463 / 464	36	335
Fence. Sheet-metal picket	J. H. Crisp	346,644	Aug. 3	249	68	36	509
Fence-support	G. H. and J. S. Hume	347,713	Aug. 17	1753	467	36	804
Fence. Truss hedge	J. N. Edgerly	347,423	Aug. 17	1318	351	36	724
Fence. Wire	O. Moseley	348 035	Aug. 24	2212	591	36	897
Fence. Wire	J. S. Upton	347,751	Aug. 17	1800	480	36	813
Fence. Wire	I. G. White	349,377	Sept. 21	1253	299	36	1274
Fence-wire carriage	R. Falconer	349,576	Sept. 21	1425	368	36	1328
Fence-wire reel	I. High	347,241	Aug. 10	1054	282	36	667
Fence-wire sections. Stretching-truck for	J. F. Hanna	345,966	July 20	1068	432	36	312
Fence-wire stretcher	C. R. and M. E. Summers	348,248	Aug. 31	2533	680	36	962
Fence-wire tension device	D. F. Reinhelmer	348,294	Aug. 31	2591	697	36	975
Fences. Constructing metallic	C. Hamlin	346,544	Aug. 3	121	32	36	483
Fences. Machine for making picket	G. and L. Kealing	346,923	Aug. 10	609	163 / 164	36	586
Fences. Machine for making slat-and-wire	G. W. Begole	348,184	Aug. 31	2443	656	36	946
Fences. Machine for making stays for wire	C. B. Brainard	345,104	July 6	423	108 / 109	36	77
Fences. Machine for making wire-and-picket	W. C. Walker	347,668	Aug. 17	1693	451	36	793
Fences. Stay for wire	C. B. Brainard	345,877	July 20	1545	393	36	289
Fences. Warning-strip for barbed	H. C. Pratt	348,929	Sept. 7	573	141	36	1145
Fences. Wire fastener for	L. Logan	345,516	July 13	1002	254	36	186
Fences. Wire-twister for wire	I. R. Saunders	346,618	Aug. 3	215	59	36	502
Fencing. Machine for making wire-and-picket	W. R. Bowdle	346,960	July 27	2082	535 / 536	36	399
Fencing-strip. Barbed	J. W. Roop	345,259	July 6	636	161	36	115
Fender: *See* **Carriage-fender.**							
Fertilizer	H. H. Colquitt	346,024	July 20	1757	.....	36	327
Fertilizer and insecticide. Combined	P. Vinson	349,289	Sept. 14	1021	.....	36	1241
Fertilizer-distributer	J. R. Anthony	348,507	Aug. 31	2491	777 / 778	36	1032
Fertilizer distributer	A. B. Farquhar, H. W. Eisenhart, and B. M. Root.	345,580	July 13	1117	285 / 286	36	206
Fertilizer-distributer	J. Hilliard	349,717	Sept. 28	1626	419	36	1372
Fertilizer-distributer	W. G. Hurley	347,876	Aug. 24	1991	527	36	856
Fertilizer-distributer	J. M. Lindsey	348,023	Aug. 24	2197	585	36	894
Fertilizer-distributer	R. A. Pennal	348,862	Sept. 7	433	116	36	1127
Fertilizer-distributer	G. W. Startzman and E. C. Crain	347,938	Aug. 24	1932	513	36	847
Fertilizer-distributer	E. S. Sweat	349,672	Sept. 21	1538	397	36	1351
Fertilizer-distributer	J. Van Sicien	347,535	Aug. 17	1482	393	36	754
Fertilizer. Root	J. Bühner	349,874	Sept. 28	1843	476	36	1415
Fertilizers and cements. Mechanism for preparing rocks, &c., for	V. Lord	349,229	Sept. 14	954	243	36	1236

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fertilizers and other granular substances. Apparatus for handling	P. B. Bradley	345,479	July 13	947	239	36	176
Fiber. Apparatus for carbonizing	A. L. Reinmann	345,980	July 20	1525	394	36	985
Fiber from fiber-producing plants. Obtaining	A. E. Newman	345,984	July 20	1697	437	36	317
Fiber-machine	J. Kennedy	350,063	Sept. 28	2099	543	36	1463
Fiber water-proof, &c. Rendering animal and vegetable	T. J. Pearce and M. W. Beardsley	348,993	Sept. 14	619	.....	36	1166
Fibers. Apparatus for separating mixed	G. and J. E. Tolson	346,245	July 27	2064	530	36	396
Fifth-wheel	J. F. Crawbuck	345,621	July 13	1167	300	36	316
Fifth-wheel. Vehicle	W. W. Grier	345,585	July 13	1124	287	36	307
File	L. Müller	348,290	Aug. 31	2585	695	36	974
File. Bill	J. Gottschalk	349,792	Sept. 28	1734	447	36	1392
File-box	E. F. Murdock	346,216	July 27	2016	520	36	387
File holder. Paper	W. H. Davis and W. Hatfield	346,537	Aug. 3	112	30	36	481
File. Letter	L. Nottingham	346,061	July 20	1900	465	36	336
File. Letter and document	E. E. Baker	347,702	Aug. 24	1921	495	36	925
File. Newspaper	W. F. File	349,637	Sept. 21	1498	388	36	1343
File. Paper	A. P. Butts	346,839	Aug. 3	480	132	36	554
File-stand	E. D. Parsons	347,504	Aug. 17	1439	382	36	746
Filing letters, invoices, &c. Case or cabinet for	C. E. Davis	348,955	Sept. 14	570	151	36	1157
Filter	T. Luce	347,432	Aug. 17	1329	354	36	726
Filter	J. R. Poor	345,318	July 13	722	182	36	136
Filter	H. Roeske	348,534	Aug. 31	2933	788	36	1040
Filter	P. J. Tracy	348,969	Sept. 7	443	118	36	1129
Filter	C. H. Weiderman	347,403	Aug. 17	1295	345	36	730
Filter. Water	J. Grant	344,958	July 6	210	56	36	40
Filter. Water	A. McLean and F. Cumming	346,304	July 27	2137	551	36	409
Filtering apparatus	J. Howes	349,101	Sept. 14	783	198	36	1194
Finger-board instruments. Notation-slip for	J. Burton	346,424	July 27	2110	595	36	441
Finger for vibrating reeds. Contact	R. G. Brown	345,209	July 6	561	143	36	102
Fire-alarm. Automatic	T. H. Prescott	348,473	Aug. 31	2840	764	36	1023
Fire-alarm signal-box	S. A. Chase	345,552	July 13	1106	283	36	905
Fire-alarm system. Automatic	A. D. Wheeler	348,707	Sept. 7	241	64	36	1091
Fire and burglar alarm	L. E. Thomas and I. Wood	349,911	Sept. 28	1867	487	36	1424
Fire-arm. Breech-loading	J. M. and M. S. Browning	346,021	July 20	1753	451	36	327
Fire-arm. Breech-loading	N. R. Davis	346,536	Aug. 3	110	29, 30	36	481
Fire-arm. Breech-loading	S. K. Hindley and E. S. Field	345,058	July 6	367	92	36	67
Fire-arm. Breech-loading	G. Huntley	345,902	July 20	1583	408	36	297
Fire-arm. Breech-loading	W. J. Kriz	345,789	July 20	1426	369	36	269
Fire-arm. Breech-loading	I. L. Waters	349,244	Sept. 14	973	248	36	1230
Fire-arm lock	J. S. Patterson	346,941	Aug. 10	635	170	36	591
Fire-arm. Magazine	J. M. and M. S. Browning	345,881	July 20	1549	400	36	290
Fire-arm. Magazine	J. M. and M. S. Browning	345,882	July 20	1553	401	36	291
Fire-arm. Magazine	J. W. Mullins	349,292	Sept. 14	1013	259	36	1239
Fire-arm. Magazine	G. N. Spencer	347,072	Aug. 10	731	221	36	626
Fire-arm sight	W. Lyman	348,224	Aug. 31	2501	673	36	956
Fire-arms, &c. Pneumatic device for discharging	O. Straube	348,868	Sept. 7	442	118	36	1129
Fire-bed and tuyere	F. M. Roots	349,363	Sept. 21	1132	292	36	1270
Fire-boxes. Air-feeder for	G. W. Cushing	348,894	Sept. 7	485	128, 129	36	1136
Fire-engine	A. T. Simon	346,872	Aug. 3	530	144	36	563
Fire-engine. Hand	J. G. Chancellor and E. C. Henry	345,571	July 13	1105	282, 283	36	904
Fire-escape	C. Brown	345,110	July 6	431	111	36	79
Fire-escape	F. E. Davis	348,895	Sept. 7	486	129	36	1136
Fire-escape	J. Friborg	346,540	Aug. 3	115	31	36	482
Fire-escape	G. C. Hale	346,907	Aug. 10	589	157	36	582
Fire-escape	A. Hutchings	346,406	July 27	2285	587	36	437
Fire-escape	O. H. Rounds	349,366	Sept. 21	1136	292, 293	36	1271
Fire-escape	T. B. Woodward	349,870	Sept. 28	1856	474	36	1413
Fire-escape ladder	J. P. Dunn	350,047	Sept. 28	2085	534	36	1457
Fire-extinguisher	L. S. Lewis	345,908	July 20	1591	410	36	299
Fire-extinguisher	C. H. and F. Westcott	347,216	Aug. 10	1024	273	36	661
Fire-extinguisher. Automatic	J. Andrew	346,796	Aug. 3	422	116	36	543
Fire-extinguisher. Automatic	E. H. Ashcroft	346,571	Aug. 3	150	41	36	489
Fire-extinguisher. Automatic	D. Rosebush	348,140	Aug. 24	2358	632	36	994
Fire-extinguisher. Chemical	R. A. Ballou	348,095	Aug. 24	2305	618	36	915
Fire-extinguisher. Chemical	C. T. Holloway	347,606	Aug. 17	1583	421	36	774
Fire-extinguisher for chimneys	D. Putzeys	345,447	July 13	907	237	36	168
Fire-extinguishers. Automatic sprinkler for	A. M. Granger	347,033	Aug. 10	761	202, 203	36	613
Fire-extinguishers. Faucet for chemical	R. A. Ballou	348,096	Aug. 24	2306	618	36	915
Fire-extinguishing apparatus	A. Greenleaf	347,593	Aug. 17	1563	415, 416	36	770
Fire-guard burner and extinguisher. Safety	F. W. B. Smith	350,021	Sept. 28	2040	526	36	1457
Fire-hydrant	J. C. Kupferle	345,790	July 20	1428	370	36	269
Fire-kindler	H. D. Henderson	347,176	Aug. 10	969	259	36	652
Fire-kindler	D. W. Johns	348,326	Aug. 31	2633	710	36	983
Fire-kindler	C. E. Thompson	344,880	July 6	124	.....	36	22
Fire-place front	J. H. Sams	349,813	Sept. 28	1763	456	36	1398
Fire-place front	J. H. Sams	349,814	Sept. 28	1764	456	36	1398
Fire-place hood	H. Clayton	346,267	July 27	2092	538	36	401
Fire-places, &c. Heater for	J. Trunzer	349,324	Sept. 21	1060	272	36	1257
Fire-pot	G. H. Hess	348,013	Aug. 24	2184	561, 562	36	992
Fire-screen	J. T. Collins and E. B. Grant	347,091	Aug. 10	855	227	36	630
Fire-shield	G. Kelly	345,147	July 6	485	123	36	88
Fire shovel and tongs	A. P. Heidt	349,394	Sept. 21	1178	305	36	1279
Fires. Apparatus for automatically extinguishing	W. H. Percival	347,194	Aug. 10	994	265	36	656
Fires in malt and grain mills. Mechanism for extinguishing	C. J. Hexamer	347,797	Aug. 24	1869	499	36	834
Fires. Preventing the obstruction of streets at	J. R. Meyers	349,051	Sept. 14	709	181	36	1181
Fish-bait. Spinning	J. B. McHarg	347,122	Aug. 10	893	236	36	637

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fish-hook	G. Van Normann	345,088	July 6	404	102	36	73
Fish into blocks. Machine for cutting	J. L. Shute and W. O. Taylor	346,871	Aug. 3	527	143, 144	36	562
Fishing-reel	G. E. Medley	346,490	Aug. 3	52	13	36	470
Flask: *See* Molder's flask.							
Flat-iron	C. E. Hanck	345,135	July 6	469	119	36	85
Floor-cleaning machine	J. F. Cameron	348,317	Aug. 31	2623	707	36	981
Flour-bolt	J. J. and E. T. Faulkner	348,199	Aug. 31	2462	661	36	950
Flour-bolt	A. Heine	346,282	July 27	2110	543	36	404
Flour. Bolting and purifying	J. V. Davis	347,326	Aug. 17	1187	.....	36	701
Flour-packer	C. W. Roth	345,452	July 13	913	229, 230	36	169
Flower-beds, &c. Ornamental border for	G. W. Strickland	348,598	Sept. 7	94	27	36	1064
Flower-pots. Machine for washing	R. Lewis	344,842	July 6	65	16	36	13
Flower-press	A. L. Case	346,640	Aug. 3	245	67	36	508
Flue-cleaner	W. E. Sidney	346,692	Aug. 3	303	83	36	520
Flue structure. Fire-proof	J. M. Sinclair	345,000	July 6	297	74	36	53
Fine thimble and stopper	W. P. Walter	348,435	Aug. 31	2784	748	36	1013
Fluid-pressure motor	G. Poore, C. Ingrey, and E. Latham	345,858	July 20	1522	394	36	285
Flushing device	J. W. McArdell	348,682	Sept. 7	210	55	36	1085
Flushing-tank	J. E. Boyle	346,261	July 27	2085	536, 537	36	400
Fly-trap	E. Tachira, Jr	345,817	July 20	1466	379	36	276
Foil-condenser	W. H. Pomeroy	345,724	July 20	1332	345	36	253
Folding apparatus. Rotary	G. A. Wilson	345,352	July 13	767	198	36	144
Folding box	G. Adler	347,761	Aug. 24	1921	495	36	925
Folding box	W. Goodbody	345,298	July 13	697	175	36	131
Folding chair	J. W. Mason	345,710	July 20	1308	338	36	249
Folding rack	L. F. Palmer	347,732	Aug. 17	1775	473	36	908
Folding table	T. A. Bunce	346,145	July 27	1919	495	36	368
Folding table	J. E. Cotton	345,620	July 13	1166	300	36	216
Folding table	R. Decker	346,027	July 20	1761	453	36	328
Folding table	A. Gessen and J. Tyler	348,733	Sept. 7	270	73	36	1097
Folding table	L. H. and D. W. Goodnow	348,301	Aug. 31	2466	662	36	950
Folding table	A. L. Hines	344,834	July 6	42	10	36	6
Folding table	A. B. Jones	346,660	Aug. 3	267	73	36	513
Foot-press	W. J. Bayrer	346,141	July 27	1915	494	36	367
Forceps, pinchers, &c. Die for making joints of	A. Brüstle and A. Siegel	346,578	Aug. 3	162	44	36	491
Forge for welding and forging iron, steel, and other metallic bodies. Furnace	A. C. Hnidekoper, L. Mambourg, U. House, and D. S. Dockstader	347,875	Aug. 24	1990	527	36	856
Forge. Portable	F. M. Roots	349,360	Sept. 21	1130	291	36	1270
Forgings. Die for making rolled	G. F. Simonds	348,790	Sept. 7	339	91	36	1110
Fork: *See* Agricultural fork. Carving-fork. Hay-fork. Hay-elevating fork.							
Fountain: *See* Printing-machine ink-fountain.							
Frame: *See* Counter-shaft frame. Embroidery-frame. Eyeglass-frame. Harvester-frame. Quilting-frame. Saw-frame. Show-frame. Sling-shot frame. Soap-frame. Window-frame.							
Frame-joint fastener	W. Cutts	349,631	Sept. 21	1491	386	36	1341
Fringe-reel	W. Schwab and A. Hess	346,321	July 27	2168	556	36	415
Fruit and flower picker and holder	T. C. Stark	348,357	Aug. 31	2666	719	36	990
Fruit-conveyer	M. N. Gaines	345,891	July 20	1571	405	36	294
Fruit-drier	C. W. Kitts	345,701	July 20	1296	335, 336	36	246
Fruit-evaporator	A. C. Penniman	349,450	Sept. 21	1256	325	36	1294
Fruit. Fruit-pail for gathering	F. A. Brundage	347,918	Aug. 24	2050	544	36	867
Fruit-jar	G. D. Corey	349,630	Sept. 21	1490	386	36	1341
Fruit. Packing-box for transporting ripe	S. T. Jenkins and T. J. McGuire	346,162	July 27	1942	500	36	378
Fruit-picker	W. B. Mayfield	347,495	Aug. 17	1427	379	36	744
Frizzing-machine	J. Kuehnle	345,514	July 13	998	253	36	185
Frying-pan and baker	H. C. Crawford and E. V. Mundy	347,093	Aug. 10	858	227	36	630
Fuel. Apparatus for making and burning gaseous	J. Locke and S. O. Richardson, Jr	349,228	Sept. 14	953	243	36	1226
Fuel. Artificial	F. S. Dimon	345,217	July 6	573	146	36	104
Fuel-block and fire-kindler	J. B. Adams	344,891	July 6	137	.....	36	25
Fuel compound	C. Siedhof	345,329	July 13	735	.....	36	139
Fuel. Machine for pressing hay, &c., for	G. W. Elliott	346,470	Aug. 3	29	7	36	466
Fuel. Mechanism for burning fine	W. A. Barnes	345,019	July 6	320	81	36	58
Funnel attachment	J. Charlton and H. C. Lynch	346,265	July 27	2090	538	36	400
Fur collar and muff. Combined	J. György	345,632	July 13	1190	305	36	290
Furnace: *See* Bagasse-furnace. Baking-furnace. Blast-furnace. Boiler-furnace. Gas-furnace. Glass-melting furnace. Heating-furnace. Hot-air furnace. Locomotive-furnace. Nail-furnace. Portable furnace. Regenerative heating-furnace. Smoke-consuming furnace. Steam-generator furnace. Vapor-burning furnace. Warm-air furnace.							
Furnace	R. B. Ayres	345,611	July 13	1154	295, 296	36	214
Furnace	R. F. Brown	348,885	Sept. 7	471	124	36	1134
Furnace	J. Eppley	348,116	Aug. 24	2328	624, 625	36	919
Furnace	E. G. Hewitt	345,971	July 20	1675	433	36	314
Furnace	E. G. Hewitt	345,972	July 20	1677	434	36	314

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Furnace	A. H. Pegg	345,536	July 13	1052	268	36	195
Furnace	H. Wilcke	345,014	July 6	314	79	36	57
Furnace bosh-jackets. Method of and apparatus for cooling	J. L. McMichael	349,513	Sept. 21	1339	348	36	1311
Furnace for heating glass pots, crucibles, blanks, &c.	M. W. Barse	345,356	July 13	775	194	36	145
Furnace-grate	P. W. Lippitt	345,792	July 20	1430	370	36	270
Furnace-grate	M. Mahony	346,115	July 27	1867	482	36	356
Furnace-grate	J. Walrath	347,214	Aug. 10	1022	272	36	661
Furnace-grate. Dumping	T. Bergner	349,423	Sept. 21	1216	316	36	1296
Furnaces. Ash-pit for	C. T. Schoen	347,522	Aug. 17	1464	369	36	750
Furnaces. Feeding air to	J. Ashcroft	347,540	Aug. 17	150	399	36	758
Furniture. Household	J. C. Cary	345,769	July 20	1402	363	36	965
Furniture. Rocking	A. G. Wicker	348,809	Sept. 7	363	98	36	1115
Fuse for blasting. Electric	J. P. A. Scola	347,013	Aug. 10	736	195	36	608
Fuse for shells. Percussion	J. M. Bowyer	346,314	Aug. 31	2620	706	36	981
Gaff-clamp	C. W. Brink	349,834	Sept. 28	1793	463	36	1405
Gage: *See* Marking-gage. Saw-table gage. Panel-gage. Surface-gage. Planer-knife gage. Water-gage. Pressure-gage.							
Gage	C. P. Schmidt	349,523	Sept. 21	1355	352	36	1314
Gag-runner and rosette-fastening. Combined	E. Covert	350,043	Sept. 28	2061	533	36	1456
Galvanic batteries. Connection for	G. F. De Solomé	344,947	July 6	206	53	36	38
Galvanic battery	H. J. Brewer	346,393	July 27	2268	581	36	434
Galvanic battery	G. F. De Solomé	344,946	July 6	204	53	36	38
Galvanic battery	T. Erhard	346,039	July 20	1789	455	36	329
Galvanic battery	W. C. Goldner	348,901	Sept. 7	494	131	36	1138
Galvanic battery	B. Jarriant	349,222	Sept. 14	936	240	36	1294
Galvanic battery	W. W. Le Grande	346,207	July 27	2006	517	36	394
Galvanic battery	C. E. Piper	349,600	Sept. 21	1454	374	36	1333
Game	M. D. Bullock	346,892	Aug. 10	561	151	36	577
Game-board	C. O. Hayward and D. J. Havenstrite	345,430	July 13	884	220	36	165
Game-carrier	J. H. Stevens	349,465	Sept. 21	1276	331	36	1298
Game-counter	J. A. Brittain	347,467	Aug. 17	1390	370	36	737
Game of base-ball. Parlor	J. H. Gaffney	347,704	Aug. 17	1740	464	36	802
Game-protector	E. S. Hawks	346,748	Aug. 3	370	99	36	533
Game. Puzzle	A. B. Harris	347,596	Aug. 17	1571	417	36	771
Garden implement	W. J. Rankins	348,774	Sept. 7	322	86	36	1107
Garment-clasp	D. Rosado	349,903	Sept. 28	1678	485	36	1422
Garment-hanger	M. H. Cazier	347,569	Aug. 17	1532	407	36	764
Garment-pattern	C. S. Pusey	347,888	Aug. 24	2007	532	36	859
Garment. Protective	G. W. Hill	345,899	July 20	1580	408	36	296
Garment-supporter	G. F. Atwood	345,205	July 6	555	142	36	101
Garment-supporter	W. L. Braddock	346,262	July 27	2086	537	36	400
Garment-supporter	W. E. Clarke	347,871	Aug. 24	1993	525	36	854
Garment-supporter	S. Wales	348,873	Sept. 7	449	119	36	1130
Gas. Apparatus for the purification of	A. Delaney and W. Simpkin	348,232	Sept. 7	369	105	36	1120
Gas as a fuel. Utilizing natural	L. P. Rider	349,811	Sept. 28	1761	455	36	1397
Gas-burner	E. Bourne	347,155	Aug. 10	943	252	36	647
Gas-burner	W. T. Bradberry	355,808	July 6	7	2	36	4
Gas-burner	G. Galland and E. Groux	344,900	July 6	148	38	36	27
Gas-burner	T. Gordon	345,499	July 13	977	247	36	181
Gas-burner. Electric	A. T. Smith	349,533	Sept. 21	1366	355	36	1316
Gas-burner for cooking purposes	T. Redmayne	344,986	July 6	270	69	36	48
Gas-burner for cooking purposes	T. Redmayne	344,987	July 6	271	70	36	49
Gas. Burner for natural	F. Barnhart	345,895	July 20	1476	381	36	277
Gas burner. Water and oil	W. S. Mead	345,712	July 20	1310	339	36	249
Gas-burners. Regulating-valve for	M. F. Elliott	348,897	Sept. 7	489	129	36	1137
Gas conduits. Casing for natural	J. Blackmore and T. D. Steen	347,084	Aug. 10	845	225	36	628
Gas cut-off. Automatic	C. Leech	344,916	July 6	168	43	36	31
Gas. Decomposing and carbureting natural	J. M. Critchlow	347,093	Aug. 17	1722	450	36	759
Gas-engine	J. H. Clark	347,469	Aug. 17	1392	371	36	737
Gas-engine	G. Daimler. (Reissue)	10,759	Aug. 24	2429	650	36	938
Gas-engine	J. Hodgkinson and J. H. Dewhurst	347,603	Aug. 17	1580	420	36	773
Gas-engine	E. J. J. Lenoir	345,596	July 13	1138	290, 291	36	210
Gas-engine	J. F. Place	348,998	Sept. 14	626	163, 164	36	1167
Gas-engine	J. F. Place	348,999	Sept. 14	634	164, 165	36	1167
Gas-engine	A. L. Riker	349,858	Sept. 28	1823	471	36	1411
Gas-engine	R. F. Smith	345,998	July 20	1718	442, 443	36	321
Gas-engine	R. F. Smith	347,656	Aug. 17	1674	446	36	791
Gas-engine	J. Spiel	349,464	Sept. 21	1275	331	36	1298
Gas-engine regulator	E. Körting	346,374	July 27	2235	573	36	428
Gas-furnace. Regenerative	E. Fourcault and E. Jacques	347,703	Aug. 17	1738	463, 464	36	802
Gas-furnace. Regenerator	W. H. Smith	346,508	Aug. 3	75	19, 20	36	474
Gas-governor	J. S. Connelly	345,369	July 13	790	199	36	148
Gas-governor. Automatic	T. E. Connolly	345,368	July 13	788	199	36	148
Gas-heater	I. Spielmann	348,641	Sept. 7	149	42	36	1074
Gas-heating furnace	J. N. MacGonigle	346,297	July 27	2129	548	36	402
Gas-lighting device	C. H. Crockett and C. C. Allen	346,533	Aug. 3	107	28	36	480
Gas-machine	J. S. Wood	345,402	July 13	837	210	36	156
Gas-mains. Joint for	E. C. Converse	348,951	Sept. 14	565	150	36	1157
Gas. Manufacturing hydrocarbon	W. F. C. M. McCarty. (Reissue)	10,757	Aug. 17	1817	483, 484	36	816
Gas-meter. Oscillating	A. F. Fisher	349,469	Sept. 21	1307	340	36	1304
Gas-meters. Operating the stop-cocks of	L. Lenaerts	349,109	Sept. 14	793	201	36	1196
Gas-meters. Price and quantity register for	J. S. De Palos	346,402	July 27	2278	584, 585	36	436
Gas-motor engine	N. A. Otto	350,077	Sept. 28	2115	547, 548	36	1406
Gas-motor engine	H. Robinson	346,687	Aug. 3	296	81	36	519
Gas or vapor burner	C. A. O. Roseli	348,346	Aug. 31	2655	716	36	988
Gas-pressure regulator	R. Pickering	348,338	Aug. 31	2647	714	36	986
Gas-pressure regulator	C. Ruprecht	34e,172	Aug. 24	2413	646	36	935
Gas. Process of and apparatus for manufacturing heating	A. W. Wilkinson	348,178	Aug. 24	2425	649, 650	36	937
Gas. Process of and apparatus for manufacturing heating, and illuminating	J. Roberts	345,649	July 13	1220	315, 316	36	226
Gas-producer	M. V. Smith	346,781	Aug. 3	406	112	36	540
Gas-purifiers. Elevating device for covers of	G. W. Nock	348,137	Aug. 24	2354	631	36	924
Gas-regulator	A. Ford	348,349	Aug. 31	2720	731	36	1000
Gas-regulator	W. C. Rosaney	344,989	July 6	273	70	36	49
Gas-regulator	W. C. Rosaney	344,990	July 6	276	71	36	50
Gas retort and furnace	J. Stubbe	347,840	Aug. 24	1935	513	36	847
Gas-retort furnace	A. M. Mace	345,437	July 13	892	222	36	166
Gas to convert it into illuminating-gas. Treating natural	G. A. McIlhenny	346,301	July 27	2133	549, 550	36	409
Gases. Apparatus for purifying	J. McKay	345,980	July 20	1669	.....	36	316
Gasoline-vapor conductor	L. S. Goodrich	345,132	July 6	450	118	36	84
Gasometer	J. H. Porter and J. H. Daly	349,953	Sept. 28	1946	503	36	1434
Gate: *See* Bridge-gate. Railway-gate. Car-gate. Sliding gate. End-gate. Sliding and rolling gate. Farm-gate. Sliding and swinging gate. Fence-gate. Hydraulic gate. Sluiceway-gate. Overflow-gate.	O. Intze	348,913	Sept. 7	507	135	36	1140
Gate	J. V. Baird	349,474	Sept. 21	1287	334, 335	36	1300
Gate	N. D. Combs	348,489	Aug. 31	2863	770	36	1097
Gate	J. C. Lewis and W. H. Rainey	346,483	Aug. 3	44	11	36	468
Gate	J. L. Kopecky	347,620	Aug. 17	1605	496	36	778
Gate	M. B. Mills	346,121	July 27	1875	484	36	359
Gate	M. M. Roberts	347,740	Aug. 17	1756	476	36	810
Gate	S. Stephens	347,898	Aug. 24	2019	535	36	861
Gate	J. A. D. Taylor	346,787	Aug. 3	410	114	36	541
Gate	P. S. Tipton	349,187	Sept. 14	893	229	36	1215
Gate	L. D. Wade	348,433	Aug. 31	2761	748	36	1012
Gate	W. J. Wilson	348,940	Sept. 7	546	144	36	1147
Gate-actuating mechanism	W. R. White	349,869	Sept. 28	1835	474	36	1413
Gate-post	M. A. Sparks	347,658	Aug. 17	1680	447	36	792
Gearing. Changeable speed	A. Armitage	345,018	July 6	318	80	36	58
Gearing for changing speed	S. N. Gallup	345,377	July 13	800	202	36	150
Generator: *See* Electric generator. Steam-generator. Liquid-pressure generator.							
Gigging machine	F. Ott	344,981	July 6	259	65	36	46
Glass: *See* Plate-glass. Toilet-glass.							
Glass bottles. Forming indents in	D. Rylands	357,741	Aug. 17	1787	476	36	810
Glass bottles. Machine for finishing the mouths of	C. E. Thomas	348,797	Sept. 7	346	94	36	1112
Glass globes, shades, &c. Machine for making	D. J. Lorden	345,979	July 20	1667	436	36	316
Glass jars. Tool for finishing	F. D. Taylor	345,194	July 6	543	139	36	99
Glass. Machine for grinding and smoothing plate	G. F. Neale and M. P. Elliott	348,766	Sept. 7	312	83, 84	36	1105
Glass-melting furnace	U. House	347,045	Aug. 10	780	207	36	617
Glass mosaics. Joining	S. Bray	349,424	Sept. 21	1217	316	36	1287
Glass polisher. Plate	J. Haslem	349,430	Sept. 21	1225	318	36	1288
Glass-polishing machine	P. Bernard	348,311	Aug. 31	2618	705	36	980
Glass-presses. Device for attaching plungers to	G. W. Davis and C. L. Kinsfalter	346,737	Aug. 3	360	96	36	531
Glass. Rolling plate	E. Walsh, Jr	346,695	Aug. 3	308	84, 85	36	521
Glass tumblers. Apparatus for manufacturing	T. Walton	346,181	July 27	1965	506, 547	36	376
Glass while being ground or polished. Device for holding	H. Besson and E. N. Kent	349,204	Sept. 14	914	235	36	1219
Glass windows. Manufacture of stained	L. Charmantier and S. DeCazenave	346,984	Aug. 10	687	.....	36	600
Glassware. Manufacture of	G. W. Blair. (Reissue)	10,753	Aug. 10	1161	311	36	687
Glassware. Manufacture of decorated hollow	G. A. J. Tietz	345,264	July 6	644	163	36	117
Glassware. Manufacture of fancy	J. Webb	345,265	July 6	645	163	36	117
Glassware. Ornamental	J. Locke	345,436	July 13	891	222	36	166
Glove	E. V. Whitaker	348,806	Sept. 7	361	97	36	1114
Glove	E. V. Whitaker	348,807	Sept. 7	361	97	36	1114
Glove and making the same	W. W. Whitaker	348,439	Aug. 31	2793	750, 751	36	1014
Glove-fastening	S. W. Shorey	345,930	July 20	1622	418	36	304
Glove-stretcher	S. Poole	346,415	July 27	2300	593	36	439
Gloves, &c. Fastener for	E. A. Wilson	348,604	Sept. 7	99	28	36	1065
Gluing-machine	E. Denamore	347,329	Aug. 17	1190	318	36	701
Gluing-machine	G. W. Glazier	346,992	Aug. 10	698	185	36	602
Glycerine. Refining	C. L. Porter	345,174	July 6	516	.....	36	94
Gold and silver lace trimmings. Renovating	A. Söhner	349,535	Sept. 21	1369	355, 356	36	1317
Gold, &c. Machine for concentrating	A. D. Clarke	347,771	Aug. 24	1934	488	36	827
Gold-separator	W. L. Card	347,867	Aug. 24	1970	582, 583	36	853
Goods-rack	J. Danner	349,212	Sept. 14	924	227	36	1221
Gopher-trap	J. Welchhart	345,345	July 13	760	190	36	143
Governor	J. Judson	349,847	Sept. 28	1812	468	36	1409
Governor. Centrifugal	J. F. McIntosh	346,302	July 27	2135	550	36	409
Governor. Steam	J. Gerhardt	349,492	Sept. 21	1312	341	36	1305

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Governor. Steam-engine	W. L. Collamore	348,265	Aug. 31	2555	687	36	867
Grading machine. Road	J. Moore	345,315	July 13	717	181	36	135
Grafting-machine	D. B. Speer	348,592	Sept. 7	83	24	36	1062
Grain-binder	P. F. Hodges	344,964	July 6	225	58	36	41
Grain-binder	E. W. Jenkins	347,536	Aug. 24	2060	552	36	873
Grain-binder	R. W. Maske	347,815	Aug. 24	1897	505, 506	36	840
Grain-binder	L. Miller	346,491	Aug. 3	53	13, 14	36	470
Grain-binder	J. R. Severance	345,546	July 13	1068	372, 373	36	197
Grain-binder cord-holder	O. Cooley	345,674	July 20	1964	397	36	340
Grain-binders. Ejector for automatic	W. N. Whiteley	348,255	Aug. 31	2541	682	36	964
Grain-binders. Knotter for	W. N. Whiteley	346,393	July 27	2066	580, 581	36	433
Grain-binders. Tension device for	E. Pridmore	347,376	Aug. 17	1259	334	36	713
Grain cleaning and scouring machine	M. Crawford	348,226	Sept. 7	380	103, 104	36	1116
Grain-cleaning machine	M. Crawford	348,290	Sept. 7	476	126, 127	36	1135
Grain-conveyer	J. Nelson	349,233	Sept. 14	959	215	36	1228
Grain, &c. Conveyer for	G. A. Gilbert and R. Wilcox	349,390	Sept. 21	1173	304	36	1278
Grain-drier	R. Wiesebrock	348,650	Sept. 7	161	44	36	1076
Grain-drier	A. Wolcott	346,449	July 27	2258	605	36	449
Grain-drill	W. D. Arnett	347,982	Aug. 24	2145	571	36	884
Grain-drill	H. C. Beebe	347,863	Aug. 24	1963	521	36	852
Grain-huller	A. Dewey and J. Short	346,738	Aug. 3	361	97	36	531
Grain. Machine for cleaning	L. M. Smith	345,997	July 20	1715	442	36	321
Grain-screen	F. Wulfert	348,090	Aug. 24	2296	615	36	913
Grain. Screw-conveyer for	J. A. Gowans	349,155	Sept. 14	848	217	36	1207
Grain-separator	G. A. Dawson	348,515	Aug. 31	2905	781	36	1035
Grain-separator	J. T. and A. E. Smith	347,391	Aug. 17	1281	341	36	717
Grain-silo	C. Engrand	349,243	Sept. 14	925	237	36	1222
Graining	J. Hammerl	347,505	Aug. 17	1570	417	36	771
Grate	O. A. Kelm	348,129	Aug. 24	2343	629	36	922
Grate	H. M. Weaver	347,401	Aug. 17	1292	344, 345	36	719
Grate-bar	J. Ashcroft	347,548	Aug. 17	1503	398, 399	36	758
Grate-bar	W. W. Forrest	349,639	Sept. 21	1500	389	36	1343
Grate-cover	F. M. Rodes	345,256	July 6	635	161	36	115
Grate. Fire	G. Jones	347,352	Aug. 17	1225	326	36	707
Grate. Fire	C. T. Stephens	345,004	July 6	303	75	36	55
Grate. Fire	E. J. Story	346,830	Aug. 3	462	127	36	550
Grate for burning coal-dust	J. Bujac	346,066	July 27	1833	473	36	351
Grate. Rocking	O. C. Bannister	346,475	Aug. 3	6	2	36	462
Grate. Rotary	J. B. Bossler	346,712	Aug. 3	332	90	36	525
Grate. Stove or furnace	J. B. Jones	347,714	Aug. 17	1753	467	36	804
Grease-trap	R. D. Duncan and A. Wallace	346,432	July 27	2327	599	36	444
Grenade. Hand	C. W. Fowler and E. H. Shelman	347,587	Aug. 17	1558	413	36	766
Gridiron	L. T. Newell	347,822	Aug. 24	1913	509	36	843
Grinding-disk for mills	G. and A. Raymond	348,637	Sept. 7	144	40	36	1073
Grinding machine. Lathe-center	A. H. Randall	349,602	Sept. 21	1457	375	36	1334
Grinding machinery	P. A. Otis	344,919	July 6	173	44	36	32
Grinding-mill	H. A. Adams	348,607	Sept. 7	104	29, 30	36	1066
Grinding-mill	J. Burns	349,628	Sept. 21	1498	385	36	1341
Grinding-mill	J. F. Custard	348,153	Aug. 24	2381	638, 639	36	920
Grinding-mill	H. Cutler	348,324	Aug. 31	2714	729	36	999
Grinding-mill	W. T. Dougan	347,232	Aug. 10	1043	279	36	664
Grinding-mill	N. T. Fitch	345,493	July 13	966	245	36	179
Grinding-mill	L. Iler and W. H. Piper	346,104	July 27	1860	480	36	357
Grinding-mill	B. S. Lawson	346,854	Aug. 3	501	138	36	556
Grinding-mill	G. and A. Raymond	348,545	Sept. 7	72	20, 21	36	1060
Grinding-mill	G. F. Simpson	347,968	Aug. 24	2129	567	36	881
Grinding-mill	L. B. and C. H. Sprout	346,511	Aug. 3	78	21	36	475
Grinding-mill	D. C. Stover	347,531	Aug. 17	1477	393	36	753
Grinding-mills. Feed mechanism for	H. Haire	348,305	Aug. 31	2473	664	36	952
Guano-distributer	C. W. Nicholson	348,686	Sept. 7	215	57	36	1086
Guard: *See* Bridge-guard. Car-guard. Key-hole guard. Razor-guard. Saw-guard. Trace and whiffletree guard. Tree-guard. Window-guard.							
Guard-finger	R. W. Walker	346,568	Aug. 3	148	40	36	489
Gun and projectile for throwing life-lines	S. Ingersoll	348,849	Sept. 7	411	111	36	1123
Gun-barrel cleaner	A. J. Upham	345,818	July 20	1467	379	36	276
Gun. Blow	L. H. Lang and J. W. Hart	344,915	July 6	168	43	36	31
Gun. Cane	F. A. Wardwell	349,864	Sept. 28	1830	473	36	1412
Gun carriage and shield	H. C. E. Malet	347,002	Aug. 10	708	187, 188	36	604
Gun carriage. Machine	J. G. Accles	348,180	Aug. 31	2437	653, 654	36	945
Gun-case	L. Keller	348,630	Sept. 7	136	36	36	1072
Gun-mounting	J. Vavasseur	345,744	July 20	1361	354, 355	36	258
Guns. Lock mechanism for concealed-hammer	A. T. Brown	345,362	July 13	780	197	36	146
Guns. Recoil mechanism for	H. S. Maxim	347,945	Aug. 24	2090	555, 556	36	875
Guns. Trigger attachment for double	C. E. Burgess	344,896	July 6	143	36	36	26
Gunpowder-press	E. Du Pont	350,048	Sept. 28	2067	534	36	1457
Gunstock	A. Cottrell	345,120	July 6	444	115	36	81
Gussets. Attaching	I. H. Mambert	347,882	Aug. 24	1980	530	36	857
Gutter-beading device	P. Shackleton	348,493	Aug. 31	2769	743, 744	36	1010

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Habit. Lady's riding	A. F. Müller	348,573	Sept. 7	52	15	36	1057
Hair-crimper	G. H. Blakesley	348,263	Aug. 31	2553	686	36	998
Hair-crimper	I. W. Heysinger	347,177	Aug. 10	970	259	36	632
Hair-dressing appliance	G. H. Blakesley	345,024	July 6	326	82	36	60
Hair-pin	G. C. Overhiser	348,138	Aug. 24	2355	632	36	924
Halter attachment	L. B. Kitchel	348,166	Aug. 24	2400	644	36	933
Hame	J. Letchworth	349,891	Sept. 28	1864	481	36	1419
Hame attachment	J. Letchworth	349,892	Sept. 28	1865	481	36	1419
Hame-chime	R. A. Wooding	349,623	Sept. 21	1481	383	36	1339
Hame-fastener	D. B. Baker	348,711	Sept. 7	245	65	36	1092
Hame-fastener	S. V. Halloway	346,908	Aug. 10	591	158	36	582
Hame-fastening	J. C. Hackett	345,134	July 6	468	119	36	85
Hame-fastening	R. C. and C. W. Uecke	347,076	Aug. 10	837	223	36	627
Hammer	C. J. Grellner	347,932	Aug. 24	2070	550	36	871
Hammer. Bush	I. V. Mead	345,598	July 13	1140	291	36	211
Hammer. Drop	F. M. Leavitt	349,067	Sept. 28	2030	522	36	1448
Hammer. Pneumatic	C. Frederick and C. N. Trump	348,837	Sept. 7	397	107	36	1121
Hammer. Pneumatic	E. N. Trump	348,870	Sept. 7	445	119	36	1130
Hammers. Die for making	H. H. Warren	348,362	Aug. 31	2674	720	36	992
Hammock-supporter	J. Glennon	349,216	Sept. 14	928	238	36	1222
Handkerchief-display case	H. D. Greenwald	345,300	July 13	699	176	36	132
Handle: *See* Broom-handle. Extension-handle. Saw-handle. Shawl-strap handle. Shovel and spade handle. Tea and coffee pot handle. Tool-handle.							
Handle for cutlery and other articles	J. H. La Fave	348,330	Aug. 31	2637	711	36	984
Hanger: *See* Door-hanger. Eaves-trough hanger. Garment-hanger.							
Harness	R. H. Comtsworth	347,229	Aug. 10	1040	277	36	664
Harness	A. W. Tourgee	345,459	July 13	920	231	36	171
Harness	A. W. Tourgee and L. D. Jennings	347,210	Aug. 10	1011	269	36	659
Harness attachment for vehicles	R. L. Crebb, F. Koch, and G. W. Miller	344,944	July 6	202	52	36	37
Harness-bridle attachment	H. H. Brandes	347,464	Aug. 17	1396	369	36	736
Harness. Draft-equalizing	G. B. Freeman	347,290	Aug. 10	1126	302	36	680
Harness-loop	J. Fischer	345,039	July 6	343	86	36	63
Harness. Loop-bar for	N. A. Gardiner	349,707	Sept. 28	1599	413	36	1368
Harness-mountings. Fastener for	E. E. Hardy and S. A. Wall	345,428	July 13	881	219	36	164
Harness-pad machine	J. W. Jones	348,327	Aug. 31	2634	710	36	984
Harness-pad tree	R. J. Welles	348,253	Aug. 31	2539	682	36	964
Harness-trace	E. Q. Darr	346,535	Aug. 3	109	29	36	481
Harrow	J. H. Anderson	349,557	Sept. 21	1398	362	36	1322
Harrow	J. M. Childs	346,266	July 27	2091	538	36	400
Harrow	J. M. Childs	348,544	Sept. 7	5	2	36	1049
Harrow	B. C. Converse	346,895	Aug. 10	569	152, 153	36	578
Harrow	W. S. A. Graham	346,744	Aug. 3	366	98	36	532
Harrow	J. Hildesheim	347,106	Aug. 10	874	231	36	634
Harrow	T. B. Hussey	346,372	July 27	2233	573	36	428
Harrow	L. Mangold and C. Grimm	346,117	July 27	1869	483	36	358
Harrow	E. D. and O. B. Reynolds	346,315	July 27	2150	555	36	413
Harrow	E. C. Sherwin	349,006	Sept. 14	646	167	36	1169
Harrow	E. F. Stoddard	347,530	Aug. 17	1473	390, 391	36	752
Harrow	E. F. Stoddard	347,744	Aug. 17	1791	477	36	811
Harrow	E. F. Stoddard	347,745	Aug. 17	1793	478	36	811
Harrow	H. M. Strange	346,959	Aug. 10	658	175	36	594
Harrow	T. B. Swan	344,876	July 6	115	28	36	21
Harrow	J. Weckman	346,521	Aug. 3	93	25	36	478
Harrow	J. W. West	349,548	Sept. 21	1388	359	36	1320
Harrow and leveler. Rocking toothed	J. W. Geyer	347,791	Aug. 24	1861	495	36	833
Harrow and pulverizer attachment	J. T. Strong	349,374	Sept. 21	1150	298	36	1274
Harrow, cotton-chopper, and cultivator. Combined	S. Belt	347,765	Aug. 24	1824	486	36	825
Harrow. Disk	L. A. Richards	348,693	Sept. 7	224	59	36	1088
Harrow or cultivator tooth	F. F. Wolgamuth	349,967	Sept. 28	1963	507	36	1438
Harrow. Sulky	M. S. Cline	347,773	Aug. 24	1837	489	36	828
Harrow. Sulky	G. H. Robb	345,603	July 13	1145	293	36	212
Harrow-teeth. Locking device for	B. C. Bradley	344,809	July 6	8	2	36	4
Harrow-tooth holder	J. E. Beebe	344,804	July 6	2	1	36	3
Harvester	J. F. Appleby	348,259	Aug. 31	2546	683, 684	36	965
Harvester	J. F. Appleby	348,260	Aug. 31	2547	684, 685	36	966
Harvester	A. Hoover and R. Brown	348,495	Aug. 31	2871	773	36	1029
Harvester	W. N. Whiteley	347,677	Aug. 17	1702	454	36	795
Harvester	W. N. Whiteley and W. Bayley	345,094	July 6	410	104, 105	36	75
Harvester and binder	H. Black and A. T. Miller	347,286	Aug. 10	1119	300, 301	36	679
Harvester. Bean	F. W. Miller	345,981	July 20	1692	436	36	317
Harvester-binder	J. Harris and J. Lucas	349,994	Sept. 28	2002	517	36	1445
Harvester. Cane and corn	B. B. Bollinger	347,316	Aug. 17	1169	313, 314	36	697
Harvester. Corn	S. E. Ferguson	348,730	Sept. 7	266	71, 72	36	1097
Harvester. Corn	C. J. Hartley	348,627	Sept. 7	131	37	36	1071
Harvester. Corn	R. H. Morrow	347,301	Aug. 10	1146	306, 307	36	684
Harvester. Corn	J. W. Terman	346,134	July 27	1898	491	36	364
Harvester. Corn	H. F. Urie	345,195	July 6	544	139	36	99
Harvester. Cotton	C. T. Mason, Jr.	345,246	July 6	614	156, 157	36	111
Harvester. Cotton	C. E. Wright	349,776	Sept. 28	1714	442	36	1388
Harvester-cutter	D. Benett	348,261	Aug. 31	2551	686	36	999

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Harvester-dropper	W. R. Baker	349,267	Sept. 14	996	255	36	1236
Harvester elevator. Grain-	L. Myers	349,116	Sept. 14	809	203	36	1197
Harvester-frame	W. N. Whiteley	348,304	Aug. 31	9809	709	36	978
Harvester. Grain-	H. N. Kennedy	346,552	Aug. 3	199	35	36	495
Harvester. Grain-binding	J. F. Seiberling	348,353	Aug. 31	9063	717, 718	36	990
Harvester. Low-level self-binding	W. W. Burson	347,769	Aug. 24	1829	487, 488	36	827
Harvester-reel	J. Bachman	347,551	Aug. 17	1506	409	36	758
Harvester-reel	F. G. Becker	349,973	Sept. 28	1970	509, 510	36	1439
Harvester-reel	J. F. Steward	346,232	July 27	9034	525	36	391
Harvester. Self-binding	A. Ross and S. J. Parker	345,650	July 13	1223	316, 317, 318	36	236
Harvester. Self-binding	J. F. Steward	346,233	July 27	9037	525, 526	36	391
Harvester sheaf-carrier	M. Kane	348,975	Sept. 14	598	158	36	1163
Harvester sickle-bar	J. McDermott	345,439	July 13	894	223	36	166
Harvesters. Bundle-carrier for self-binding	C. F. Morgan	349,895	Sept. 28	1867	482	36	1420
Harvesters. Grain-binder for	J. F. Appleby	346,451	Aug. 3	1	1	36	461
Harvesting and binding machine. Grain	J. F. Gorrion	349,842	Sept. 28	1804	466	36	1407
Harvesting and binding machine. Grain	J. Knoop	347,617	Aug. 17	1599	424	36	777
Harvesting and binding machine. Grain	W. Schwingen	349,957	Sept. 28	1950	504	36	1435
Harvesting-machine	H. Black	347,985	Aug. 10	1116	299	36	678
Harvesting-machine	C. F. Craver	347,692	Aug. 17	1721	458	36	799
Harvesting-machine	R. Emerson	349,832	Sept. 28	1910	495, 496	36	1432
Harvesting-machine	J. M. Rosebrooks	349,319	Sept. 21	1054	270	36	1255
Harvesting machine. Corn-	C. L. Direkx	348,154	Aug. 24	2282	639	36	929
Harvesting-machines. Hedge-trimming attachment for	J. H. Kellerhals	349,505	Sept. 21	1447	373	36	1332
Hat and coat rack	J. D. Mack and J. G. Newbury	348,983	Sept. 14	608	160	36	1164
Hat-boxes. Indicator for	S. B. Grove	346,474	Aug. 3	34	9	36	467
Hat-brim	W. Lawrence and H. V. Dibble	346,593	Aug. 3	179	48	36	494
Hat-brims. Machine for folding or curling	R. Eickemeyer	349,701	Sept. 28	1584	410, 411	36	1366
Hat-lining	F. W. Durham	349,633	Sept. 21	1492	387	36	1342
Hat or cap	J. C. Goebel	345,965	July 20	1668	431	36	312
Hat-sizing machine	G. W. Elwell and B. Fay	344,820	July 6	23	6	36	6
Hat-sweats. Stitching reed-covers to	J. A. Brautigam	347,166	Aug. 17	1389	370	36	737
Hats and caps. Sweat-pad for	C. E. Rumpf	347,891	Aug. 24	2010	533	36	850
Hats. Drying	W. H. Kendall	346,754	Aug. 3	375	101	36	534
Hats. Machinery for felting, planking, sizing, &c.	A. T. Ellison	348,825	Sept. 7	379	103	36	1118
Hats. Packing	W. H. Barnum	344,934	July 6	191	119	36	35
Hawse-pipe stopper	E. F. Robbins	346,685	Aug. 3	293	80	36	518
Hay-carrier	A. L. Jordan	347,178	Aug. 10	973	259	36	662
Hay. Device for pressing	W. A. Laidlaw	347,811	Aug. 24	1890	504	36	839
Hay-elevator	J. Benson	347,6-0	Aug. 17	1706	455	36	796
Hay-elevator	W. Louden	347,052	Aug. 10	787	209, 210	36	618
Hay elevator and carrier	M. G. Grosscup	345,229	July 6	590	150	36	107
Hay-elevating fork	W. Louden	348,632	Sept. 7	138	39	36	1072
Hay-fork	M. R. Jenkins	348,744	Sept. 7	285	76	36	1100
Hay-fork. Horse	E. McChristian	348,853	Sept. 7	416	113	36	1124
Hay-fork. Horse	N. J. Nilson	347,253	Aug. 10	1072	287	36	671
Hay-loader	D. C. Jewett	348,398	Aug. 31	2732	733	36	1002
Hay-loader	A. Smith	347,389	Aug. 17	1279	340	36	717
Hay-press	J. G. Morton	346,937	Aug. 10	629	169	36	589
Hay rake and loader. Combined	F. C. Davis	347,578	Aug. 17	1544	411	36	766
Hay rake and tedder. Combined	M. P. Denney	349,484	Sept. 21	1300	338	36	1303
Hay rake and tedder. Combined	M. P. Denney	349,928	Sept. 28	1903	493	36	1427
Hay-rake. Horse	L. W. Freeman	348,986	Sept. 7	490	130	36	1137
Hay-rake. Horse	O. H. and W. T. King	348,750	Sept. 7	291	78	36	1101
Hay-rake. Horse	W. D. Miller	346,230	Aug. 31	2510	674	36	958
Hay-rake. Horse	G. E. Robison	348,866	Sept. 7	440	118	36	1129
Hay-rake. Wheeled	C. Eastman	349,837	Sept. 28	1797	464	36	1405
Hay raker and loader. Combined	L. C. McCarthy	347,726	Aug. 17	1767	471, 472	36	807
Hay-sling	A. P. Boyer	348,950	Sept. 14	565	150	36	1156
Hay-stacker	J. Locher	349,804	Sept. 28	1750	451	36	1395
Hay-tedder	P. A. Spicer	345,932	July 20	1624	418	36	305
Hay-tedder	S. Tripp	345,338	July 13	750	188, 189	36	141
Head-light	A. C. Handlan, Jr	348,464	Aug. 31	2827	760	36	1080
Heat-equaliser	W. P. Merry	347,819	Aug. 24	1910	508	36	842
Heater: *See* Feed-water heater. Steam-heater. Gas-heater. Water-heater.							
Heater	W. H. Browne	344,812	July 6	13	3	36	4
Heater	G. F. Godley	348,555	Sept. 7	17	5, 6	36	1051
Heating and ventilating system	H. C. Stront	346,623	Aug. 3	220	60, 61	36	503
Heating apparatus	H. C. Berry	345,876	July 20	1543	399	36	289
Heating apparatus	J. Conroy	345,833	July 20	1488	385	36	279
Heating apparatus	E. F. Ward	348,602	Sept. 7	97	28	36	1065
Heating apparatus. Exhaust-steam	J. T. King	345,850	July 20	1512	392	36	283
Heating apparatus for warming feet. Portable	W. H. Swift	346,075	July 20	1819	470	36	340
Heating apparatus. Smoke and steam escape for	B. Holbrook and C. E. Norcott	349,097	Sept. 14	777	197	36	1193
Heating apparatus. Steam	Z. P. Boyer	347,463	Aug. 17	1385	368, 369	36	736
Heating apparatus. Steam	C. W. Rugg	348,932	Sept. 7	535	141, 142	36	1145
Heating buildings. Apparatus for	S. P. Whitmarsh	346,794	Aug. 3	421	116	36	542
Heating-furnace	J. S. Pessenger	346,770	Aug. 3	393	108	36	537

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Heating water. Apparatus for	E. J. Douglas	345,416	July 13	880	215	36	160
Hedge	W. M. Viser	344,885	July 6	139	33	36	23
Heel-attaching machine	F. F. Raymond, 2d	347,061	Aug. 10	803	213, 214	36	621
Heel-burnishing tool	W. A. Knipe	345,063	July 6	373	94	36	68
Heel. Convolute spring	G. W. Biddle	349,683	Sept. 28	1560	404	36	1382
Heel-die	W. Watson	349,071	Sept. 14	736	187	36	1185
Heel-loading machine	E. B. Allen	348,091	Aug. 24	2297	615, 616	36	913
Heel-loading machine	E. B. Allen	348,092	Aug. 24	2301	616, 617	36	914
Heel-making machine	C. W. Glidden	350,051	Sept. 28	2079	533, 536, 537	36	1458
Heel-nailing machine	C. W. Glidden	347,482	Aug. 17	1414	376	36	741
Heel-nailing machine	F. F. Raymond, 2d	345,449	July 13	908	227, 228	36	169
Heel-nailing machine	F. F. Raymond, 2d	345,990	July 20	1606	414	36	302
Heel-nailing machine	F. F. Raymond, 2d	346,125	July 27	1882	487, 488	36	361
Heel-nailing machine	F. F. Raymond, 2d	346,607	Aug. 3	199	53, 54	36	499
Heel-nailing machine	F. F. Raymond, 2d	347,062	Aug. 10	806	214, 215, 216	36	622
Heel-nailing machine	F. F. Raymond, 2d	347,063	Aug. 10	813	216, 217	36	622
Heel-nailing machine	F. F. Raymond, 2d	347,514	Aug. 17	1454	386	36	748
Heel-nailing machine	F. F. Raymond, 2d	348,689	Sept. 7	219	58	36	1087
Heel-stiffener machine	J. L. Hatch	346,100	July 27	1849	477	36	355
Heel-strip blank	F. W. Coy	345,122	July 6	447	115	36	82
Hides or skins. Machine for breaking	P. Diehl	346,900	Aug. 10	578	154	36	580
Hinge	R. B. Carran	346,264	July 27	2088	537	36	400
Hinge	J. B. Galloway	347,341	Aug. 17	1206	323	36	704
Hinge	G. M. Jewett	344,967	July 6	223	59	36	42
Hinge	J. A. Ludlow and D. Carlough	348,133	Aug. 24	2348	630	36	924
Hinge. Coach	E. P. Hincks and G. H. Johnson	348,212	Aug. 31	2482	667	36	953
Hinge for awning-blinds	H. S. Tucker	349,016	Sept. 14	661	170	36	1172
Hinge. Friction	C. P. Oudin	347,124	Aug. 10	894	237	36	637
Hinge. Gate	C. W. Cole	348,381	Aug. 31	2710	728	36	998
Hinge. Gate	E. C. Flint	345,284	July 13	694	174	36	130
Hinge. Lock	E. D. Beales	348,099	Aug. 24	2316	619	36	916
Hinge. Lock	J. C. Howe	346,046	July 20	1783	459	36	332
Hinge. Lock	M. G. Kuhn	349,850	Sept. 28	1816	468	36	1409
Hinge. Spring	L. Bommer	348,312	Aug. 31	2619	705	36	980
Hinge. Spring	H. P. Kochsmeier and G. M. Waldorf	345,905	July 20	1586	409	36	298
Hinge. Spring	G. W. Warner	345,748	July 20	1367	356	36	258
Hitching device	H. R. English	347,585	Aug. 17	1553	413	36	768
Hitching-post	T. P. Rodgers	348,475	Aug. 31	2844	766	36	1094
Hitching-post. Combined foot-rest and scraper attachment for	H. H. Koeller	345,149	July 6	486	194	36	88
Hitching-strap	G. C. Hale	346,906	Aug. 10	598	157	36	582
Hitching-strap	G. W. Paine	348,991	Sept. 14	616	162	36	1166
Hitching-strap and buckle therefor	C. W. Beck	347,082	Aug. 10	842	224	36	628
Hobby-horse	J. A. Conover	348,513	Aug. 31	2202	780	36	1034
Hoeing machine. Cotton-	J. Hollingsworth	347,605	Aug. 17	1583	420	36	774
Hog and chicken cholera. Remedy for	J. A. Knox	345,788	July 20	1496		36	269
Hog-cholera remedy	C. S. Griffith	347,483	Aug. 17	1415		36	742
Hoist. Wagon-bed	J. S. Jones	349,502	Sept. 21	1327	344	36	1308
Hoist. Pendulum	J. Sattes	348,780	Sept. 7	328	88	36	1108
Hoists. Chain-guide for	E. Samuel	349,520	Sept. 21	1349	351	36	1313
Hoisting apparatus. Stone-	G. Hunter	346,850	Aug. 3	494	136, 137	36	557
Hoisting-bucket	W. P. Myer	347,302	Aug. 10	1150	307	36	684
Hoisting device	L. D. Spragg	349,536	Sept. 21	1375	357	36	1318
Hoisting-gear. Differential	P. Murray, Jr	348,684	Sept. 7	218	56	36	1096
Hoisting-machine	A. Dobbie	345,489	July 13	961	244	36	178
Hoisting-machine	A. A. Klein	345,309	July 13	709	179	36	133
Hoisting-machine	W. Roth	349,193	Sept. 14	809	206	36	1199
Hoisting-machine. Differential	T. F. Flinn	348,200	Aug. 31	2462	632	36	950
Holdback	P. T. Convis	348,953	Sept. 14	568	151	36	1157
Holdback. Vehicle	S. Conrad	346,268	July 27	2093	538	36	401
Holder: *See* Bag-holder. Bedclothes-holder. Blacking-box holder. Book-holder. Bouquet-holder. Broom-holder. Carriage-shade holder. Christmas-tree candle-holder. Christmas-tree holder. Cigar and ash holder. Coin-holder. Crayon-holder. Cuff-holder. File-holder. Grain-binder cord-holder. Harrow-tooth holder. Lamp-holder. Lamp-burner holder. Match-holder. Necktie-holder. Oil-can holder. Package-holder. Pen-holder. Pencil-holder. Pillow-sham holder. Plate-holder. Post-holder. Rein-holder. Sash-holder. Surgical-needle holder. Ticket-holder. Tobacco-stick holder. Tool-holder. Tug-holder. Vehicle lantern-holder. Whip-holder.							
Holder for papers and similar articles	F. P. Durando	346,845	Aug. 3	488	135	36	556
Hoof-pad	J. H. Dempsey	345,283	July 13	674	170	36	128

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Hoof-pad	W. Mulloy	347,821	Aug. 24	1912	508	36	642
Hook:							
See Back-band hook. Lacing-hook. Button-hook. Rein-hook. Conductor-hook. Safety-hook. Drapery-hook. Snap-hook. Fish-hook. Trace-hook. Harness check-hook. Whiffletree-hook.							
Hoop-coiling machine	A. F. Ward	349,243	Sept. 14	970	948	36	1239
Hoop-cutting machine	E. Powell	348,592	Sept. 7	68	19	36	1089
Hoop-driver	G. W. Packer	347,369	Aug. 17	1946	338	36	710
Hoop machine. Barrel	G. S. Foster	346,035	July 20	1772	456	36	389
Hoop pointing and lapping machine	F. L. Wilson	348,307	Aug. 31	2613	703 / 704	36	979
Hoop-sawing machine	W. Bowker	348,149	Aug. 24	2370	636	36	987
Hop-drier	W. S. Plummer	345,647	July 13	1118	315	36	225
Hop-kiln	B. Peer, Jr	345,535	July 13	1050	268	36	194
Hopper. Cinder	G. Y. Smith	349,009	Sept. 14	652	168	36	1179
Hopple and tail-holder. Combined	R. T. Stokes	349,124	Sept. 14	812	206	36	1189
Horn plates. Apparatus for the manufacture of	S. Fox	346,530	Aug. 3	114	30	36	482
Horse-boot	G. H. St. John	349,068	Sept. 21	1534	396	36	1350
Horse-detacher	F. Thomas and G. M. Kay	349,127	Sept. 14	816	207	36	1209
Horse-power	G. Sowers	348,246	Aug. 31	2531	680	36	982
Horse-rake	C. La Dew	349,942	Sept. 28	1927	499	36	1431
Horse-rake	S. Ritty	346,947	Aug. 10	643	172	36	592
Horses. Ankle-boot for	H. H. Brown	348,614	Sept. 7	114	32	36	1088
Horses. Appliance for training	I. A. Dodge	346,989	Aug. 10	693	184	36	601
Horses. Manufacture for the shoeing of	J. E. Bingham	346,350	July 27	2201	564 / 565	36	421
Horseshoe	J. E. Bingham	346,351	July 27	2203	565	36	421
Horseshoe	J. E. Bingham	349,080	Sept. 14	746	190	36	1187
Horseshoe	J. E. Bingham	349,081	Sept. 14	748	191	36	1187
Horseshoe	H. Holland	349,044	Sept. 14	698	178	36	1179
Horseshoe	T. Penhorwood	348,861	Sept. 7	432	116	36	1137
Horseshoe	M. H. Petersen	349,231	Sept. 14	900	245	36	1229
Horseshoe	D J. Pryor	346,497	Aug. 3	61	15	36	472
Horseshoe-blank bars. Machine for rolling	H. C. Osterbind	349,250	Sept. 28	1942	502	36	1434
Horseshoe-blank bars. Machine for rolling	J. H. Snyder	349,182	Sept. 14	884	227	36	1214
Horseshoe-calks. Device for sharpening	E. S. Elkin	345,491	July 13	965	244	36	179
Horseshoe-calks. Machine for sharpening	H. East, D. K. Price, and H. R. East.	347,698	Aug. 17	1727	461	36	669
Horseshoe-nails. Machine for forging	J. H. Phillips	347,510	Aug. 17	1447	384 / 385	36	747
Horseshoe. Soft-ground	L. Brigham	345,763	July 20	1393	361	36	364
Horse-tail supporter	W. V. Ramsey	349,120	Sept. 14	985	204	36	1198
Hose and pipe coupling	P. J. O'Connor	347,368	Aug. 17	1945	331	36	710
Hose pipe and nozzle	C. Callahan	345,570	July 13	1104	282	36	204
Hose-coupling	E. E. Gold	349,991	Sept. 28	1998	516	36	1444
Hose-coupling	J. Schroder	348,059	Aug. 24	2251	603	36	965
Hose-protector	D. P. Dieterich	349,929	Sept. 28	1905	493	36	1427
Hot-air equalizing-register	G. H. Hess	346,102	July 27	1852	478	36	355
Hot-air furnace	C. R. Alsop	345,564	July 13	1097	280	36	203
Hot-air furnace	S. T. Bryce. (Reissue)	10,747	July 27	2362	605	36	449
Hot-air furnace	R. R. Finch	345,293	July 13	691	174	36	139
Hot-air furnace	G. L. Niehaus	350,076	Sept. 28	2114	547	36	1466
Hot-air furnace	A. Ormsby	349,736	Sept. 28	1655	427	36	1378
Hot-air furnace	J. S. Pessenger	346,769	Aug. 3	392	108	36	537
Hot-air furnace	W. Phipps	349,518	Sept. 21	1346	350	36	1312
Hot-air register	S. Tuttle, Jr	346,875	Aug. 3	535	145	36	564
House:							
See Toy house.							
House interiors. Finishing of	W. J. Boda	346,187	July 27	1974	509 / 510	36	378
House. Portable	W. J. Anderfuren	345,944	July 20	1640	422	36	307
Hub	J. C. Holloway, Sr	347,427	Aug. 17	1322	352	36	734
Hub	R. Nolen	348,535	Sept. 7	141	40	36	1073
Hub-mortising machine	C. H. Brown and H. W. Meyer	345,766	July 20	1398	362	36	264
Hub. Self-lubricating	P. J. Fonlon	348,961	Sept. 14	576	153	36	1159
Hub. Vehicle	J. C. Holloway, Sr	347,426	Aug. 17	1321	352	36	734
Hub. Vehicle	J. L. Johnston	349,433	Sept. 21	1229	319	36	1289
Hub. Vehicle	J. Maris	347,123	Aug. 17	1609	427	36	779
Hub. Vehicle-wheel	H. Hoefer and G. Blechschmidt	347,040	Aug. 10	772	206	36	616
Hub. Wheel	W. J. Miller	345,716	July 20	1315	339 / 340	36	250
Hub. Wheel	J. M. Sweet	345,006	July 6	304	16	36	55
Hub. Wheel	J. W. Weiser	349,190	Sept. 14	896	230	36	1216
Humus and muck. Treatment of	W. W. Hicks	345,507	July 13	990	251	36	184
Hunting and fishing boat	G. H. Nye	349,316	Sept. 21	1050	269	36	1254
Hydrant	T. K. Christie	349,206	Sept. 14	916	235	36	1220
Hydrant	J. Mead	349,230	Sept. 14	956	244	36	1227
Hydrant	E. Schlenker	346,951	Aug. 10	647	173	36	593
Hydraulic gate or water-regulator	C. H. Colquhoun	348,266	Aug. 31	2557	687	36	967
Hydraulic press	G. Griffin	347,237	Aug. 10	1048	280 / 281	36	666
Hydraulic press	C. E. Heiss	346,913	Aug. 10	598	161	36	584
Hydraulic press	J. H. McGowan	348,568	Sept. 7	47	13	36	1056
Hydraulic motor	P. F. Heltzel	348,010	Aug. 24	2180	581	36	991
Hydraulic motor	P. Murray, Jr	348,136	Aug. 24	2352	631	36	994
Hydraulic motor	T. Powers	345,446	July 13	905	226 / 227	36	168
Hydraulic shears	E. Boehme	345,358	July 13	776	194 / 195	36	145
Hydraulic shears	E. Boehme	345,359	July 13	777	195	36	146
Hydrocarbon oils. Apparatus for burning	E. C. Burgess	346,464	Aug. 3	17	5	36	463

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hydro-extractor. Centrifugal	C. E. Dulin	346,030	July 20	1765	454 / 455	36	388
Ice-carrier	O. T. Moock and G. H. Regar	348,858	Sept. 7	427	115	36	1126
Ice-chamber. Movable	I. Allegretti	349,831	Sept. 28	1780	462	36	1404
Ice-cream freezer	C. Hedges	347,600	Aug. 17	1577	419	36	773
Ice-creeper	H. Holland	346,226	July 27	2135	544	36	405
Ice-creeper	C. F. Wrat	346,338	July 27	2187	561	36	418
Ice for storing. Apparatus for planing cakes of	J. N. Briggs	346,576	Aug. 3	169	43	36	491
Ice-machine	F. Diener	348,192	Aug. 31	2453	659	36	948
Ice-machine	G. R. Jarman	349,798	Sept. 28	1740	449	36	1393
Ice-machine	C. F. Smith	345,548	July 13	1075	274	36	199
Ice-machines, &c. Covering for pipes and surfaces in	C. F. Smith	345,549	July 13	1076	274	36	199
Ice-machines. Ice-forming box for	C. F. Smith	345,550	July 13	1076	275	36	199
Ice-making and refrigerating machine	F. A. Smith	349,064	Sept. 14	725	185	36	1183
Ice-pick, chisel, and mallet. Combined	H. M. Dixon	347,998	Aug. 24	2163	576	36	867
Ice-road machine	C. C. Stephenson	348,602	Aug. 31	2882	775	36	1031
Incandescents. Manufacture of	A. De Lodyguine	347,164	Aug. 10	954	.....	36	649
Incandescents. Manufacture of	R. Dick	349,572	Sept. 21	1490	.....	36	1327
Incandescents. Making	C. M. Ball	346,345	July 27	2195	.....	36	420
Incubator	J. K. Meschter	347,946	Aug. 24	2092	556	36	876
Incubator	W. Miller	347,249	Aug. 10	1068	296	36	670
Incubator	F. Rosebrock	349,749	Sept. 28	1674	432	36	1361
Incubator	W. H. Worswick	348,368	Aug. 31	2686	723	36	994
Incubators. Heat-regulator for	L. H. Cutting	345,290	July 13	670	169	36	187
Incubators. Heat-regulator for	G. A. Muenchinger	346,938	Aug. 10	631	169	36	590
Index	P. J. Schlicht	347,304	Aug. 10	1152	308 / 309	36	685
Index	P. J. Schlicht	347,305	Aug. 10	1153	309	36	685
Indicating apparatus	C. L. Clarke	347,571	Aug. 17	1534	408	36	764
Indicator:							
See Electrical indicator. Station-indicator. Elevator-indicator. Steam-boiler indicator. Speed and station indicator. Steam-engine indicator.							
Induction-coil	D. Drawbaugh	344,818	July 6	19	5	36	6
Induction-coil	W. Stanley, Jr	349,611	Sept. 21	1468	379	36	1336
Induction-coil	W. Stanley, Jr	349,612	Sept. 21	1469	379	36	1337
Induction-coil	W. Stanley, Jr	349,616	Sept. 21	1474	381	36	1338
Induction-coil	W. Stanley, Jr	349,617	Sept. 21	1475	381	36	1338
Ingot-mold	J. Sabold	348,779	Sept. 7	327	87	36	1106
Ingot-mold. Compound	J. Illingworth	349,998	Sept. 28	2008	518 / 519	36	1445
Ingot-mold. Compound	C. Parkin	347,686	Aug. 17	1646	437	36	786
Inhaler	W. H. Hamersly	346,909	Aug. 10	592	158	36	583
Inhaler	M. W. Hobbs	346,477	Aug. 3	37	9	36	467
Inhaler and respirator	S. H. Brown	349,687	Sept. 28	1566	406	36	1363
Inhaler and respirator	C. W. Munson	345,718	July 20	1318	341	36	250
Inhaler. Vaporizing	J. F. Chesebro	349,085	Sept. 14	755	193	36	1188
Injector	W. P. Brachmann	347,566	Aug. 17	1527	406 / 407	36	763
Injector	E. P. Howe	349,997	Sept. 28	2005	518	36	1445
Injector	J. Jenks and T. J. Hart	347,245	Aug. 10	1058	283	36	667
Injector	J. Loftus	348,025	Aug. 24	2200	587	36	895
Injector	O. Westphal	345,200	July 6	551	141	36	100
Injector	T. H. White	349,191	Sept. 14	898	231	36	1216
Ink	I. Ramadell	345,448	July 13	908	.....	36	169
Ink eraser and burnisher. Combined	G. S. Couch	345,031	July 6	314	84	36	61
Inking-roller	M. V. B. Ethridge	345,035	July 6	338	85	36	62
Inkstand	H. A. Burgess	346,983	July 27	2087	537	36	400
Inkstand	J. P. Stepp	349,411	Sept. 21	1196	310	36	1283
Insole	C. W. King	346,353	Aug. 3	130	35	36	485
Insole	A. P. Rindskopf	349,859	Sept. 28	1825	471	36	1411
Insulator	N. T. Fitch	349,788	Sept. 28	1728	446	36	1391
Insulator-block for electric conductors	T. Hawken	346,475	Aug. 3	36	9	36	467
Insulator for electric wires	J. M. Leonardson	347,943	Aug. 24	2089	554	36	875
Insulator for electrical conductors	S. F. McGill	349,993	Sept. 28	1865	481	36	1419
Insulator. Telegraph	J. O'Brien	347,635	Aug. 17	1647	437	36	785
Insulator. Telegraph	J. Wilson	346,971	Aug. 10	675	179	36	598
Insulator. Telegraph	J. Wilson	346,972	Aug. 10	676	179	36	598
Insulating-conduit	W. W. Averell	348,880	Sept. 7	464	123	36	1133
Insulating wire and conductor for electrical purposes	T. J. Pearce and M. W. Beardsley	348,994	Sept. 14	620	.....	36	1166
Insulation of wires covered with cotton, silk, or worsted braid or tape. Composition of matter for the electrical	J. Fotirell	344,823	July 6	26	.....	36	7
Interfering-pad	G. W. Fry	348,003	Aug. 24	2171	578	36	889
Invalid-chair	C. Clarke	347,321	Aug. 17	1184	316	36	709
Iron:							
See Buggy-iron. Sad-iron. Carriage-seat iron. Soldering-iron. Carriage-seat corner-iron.							
Iron by means of fluorine. Dephosphorizing	J. Henderson	347,349	Aug. 17	1218	.....	36	706
Iron by means of oxides of iron. Dephosphorizing	J. Reese	349,744	Sept. 28	1668	.....	36	1380
Iron heater. Flat	E Dillon	346,740	Aug. 3	362	97	36	531
Iron. Machine for straightening bar	R. T. Barton	346,884	Aug. 10	550	149	36	575
Iron. Making sheet	E. G. Wood	348,258	Aug. 31	2544	683	36	965
Ironing-board	W. Feigel	345,676	July 20	1267	328	36	241
Ironing-board and plaiting-machine	C. R. Bolanski and H. Pitts	344,805	July 6	4	1	36	3
Ironing-machine	J. D. Hill	345,795	July 20	1422	368	36	289
Ironing-machine	H. E. Smith	345,737	July 20	1352	350	36	256
Ironing-machine	H. E. Smith	345,906	July 20	1714	449	36	389
Ironing-table	J. E. Bowman	347,267	Aug. 10	1123	301	36	679
Irrigation. System of	G. W. Jessup	346,990	Aug. 10	606	163	36	585

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jack:							
See Lifting-jack. Vehicle-jack. Screw-jack. Wagon-jack. Smoke-jack. Window-jack.							
Jack-carrier	C. H. Driver	345,490	July 13	964	244	36	179
Jacquard machine	J. Verdol	346,877	Aug. 3	539	146 / 147	36	565
Jail or prison	C. C. Rittenhouse	345,924	July 20	1612	415 / 416	36	302
Jar:							
See Air-tight jar. Fruit-jar.							
Jar	W. Somerville	345,909	July 20	1718	443	36	321
Jar-clasp	W. L. Imlay	345,148	July 6	477	131	36	87
Jar-cover	J. Doherty	347,095	Aug. 10	850	228	36	630
Jeweler's stock	G. H. Knight	346,661	Aug. 3	988	73	36	513
Joint:							
See Buggy-top joint. Rail-joint. Frame-joint. Railway-rail joint. Pipe-joint. Wire joint.							
Journal-bearing	M. Randolph	349,055	Sept. 14	716	183	36	1182
Journal-bearing	M. Randolph	349,056	Sept. 14	717	183	36	1182
Journal-bearing	M. Randolph	349,057	Sept. 14	719	183	36	1182
Journal-box	G. R. Meneely	345,798	July 20	1438	372	36	271
Journal-box	F. M. Roots	349,361	Sept. 21	1131	291	36	1270
Journal-boxes. Attachment for	A. B. Griswold and J. M. Bradbury.	349,937	Sept. 28	1922	497	36	1430
Journals. Bearing-brass for car-axle	M. E. Harrison	345,229	July 6	595	151	36	108
Kettle	E. O. Eaton	347,334	Aug. 17	1195	320	36	709
Kettle-cover	A. W. Frank	346,405	July 27	2984	586	36	437
Kettle for candy and other substances. Cooking-	T. Burkhard	349,084	Sept. 14	754	192	36	1188
Key:							
See Telegraphic key.							
Key-board player	R. T. Smith	346,239	July 27	2055	598	36	394
Key-board player	R. T. Smith	347,134	Aug. 10	907	242 / 243	36	640
Key-fastener	W. C. Gere	347,170	Aug. 10	963	257	36	650
Key-hole guard	K. Rumetsch	345,396	July 13	831	209	36	155
Key-ring	I. Besse	345,407	July 13	845	211	36	157
Key-shaping machine. Spring-	J. Murray and D. A. Brislin	345,717	July 20	1315	340 / 341	36	250
Kiln:							
See Bone-black kiln. Hop-kiln. Brick-kiln. Limekiln. Brick and tile kiln.							
Kiln	L. Simpson	349,755	Sept. 28	1681	434	36	1382
Kiln for drying purposes	B. P. Harris and A. Stagg	349,091	Sept. 14	766	195	36	1191
Kitchen-cabinet	C. W. Johnson	344,909	July 6	102	41	36	30
Knife:							
See Cheese-knife.							
Knife-grinder. Automatic	C. J. Le Roy	348,753	Sept. 7	393	78	36	1102
Knife, pencil-sharpener, &c. Pocket	J. W. L. Hillman	346,043	July 20	1780	458	36	331
Knives. Rolls for forming table	F. L. Whitty	346,138	July 27	1913	494	36	367
Knit fabric	T. S. Baron	345,021	July 6	322	81	36	59
Knit fabric	T. S. Baron. (Reissue)	10,755	Aug. 17	1812	483	36	815
Knit fabrics. Machine for uniting	J. Clute	344,897	July 6	144	36, 37	36	96
Knit fabrics. Machine for uniting	J. Clute. (Reissue)	10,763	Sept. 21	1545	390	36	1353
Knit fabrics. Machine for uniting	J. Clute. (Reissue)	10,764	Sept. 21	1547	399 / 400	36	1353
Knitted fabric	E. E. Sibley	348,698	Sept. 7	230	61	36	1089
Knitting-machine	S. Lowe and J. W. Lamb	349,352	Sept. 21	1103	282 / 283 / 284 / 285 / 286	36	1265
Knitting-machine	J. H. Osborne	349,808	Sept. 28	1757	454	36	1396
Knitting-machine	A. Ward	346,182	July 27	1967	507	36	377
Knitting machine. Circular-	J. F. O'Neil	349,448	Sept. 21	1253	324 / 325	36	1293
Knitting machine. Circular-	W. H. Pepper	346,604	Aug. 3	195	52, 53	36	498
Knitting machine. Circular-	W. H. Pepper	347,505	Aug. 17	1440	392 / 393	36	746
Knitting-machine needle	J. C. Egly	345,126	July 6	458	117	36	82
Knitting-machine needles. Machine for bending the ends of	J. H. Bullard	348,151	Aug. 24	2376	637 / 638	36	998
Knitting-machines. Burr for	W. C. Banfill	347,986	Aug. 24	2149	572	36	885
Knitting-machines. Counting apparatus and pattern-card for	P. P. Olsson	350,013	Sept. 28	2030	524	36	1449
Knitting-machines. Landing and cast-off attachment for	R. W. Gormly	346,743	Aug. 3	365	98	36	532
Knitting machines. Needle-cylinder for circular-	T. H. Worrall	348,088	Aug. 24	2293	615	36	913
Knitting-machines. Take-up for	E. H. Godshalk	345,130	July 6	456	118	36	83
Knitting-machines. Yarn-carrier for	J. Stewart	348,508	Aug. 31	2884	775 / 776	36	1031
Knob attachment	W. I. Alvord	347,411	Aug. 17	1305	348	36	722
Knob attachment	W. I. Alvord	347,412	Aug. 17	1306	348	36	722
Knob attachment	W. I. Alvord	347,413	Aug. 17	1307	349	36	722
Knob attachment	J. W. Day	349,463	Sept. 21	1299	337	36	1308
Knob attachment	F. A. Hollenbeck	348,494	Aug. 31	2870	772	36	1028
Knob attachment	A. B. Prouty	346,861	Aug. 3	511	140	36	560
Knob attachment	C. E. Steller	349,011	Sept. 14	654	169	36	1171
Knob attachment	G. Van Winkle	349,915	Sept. 28	1890	489	36	1494
Knob, Door-	R. G. Tippett and D. Madlem	346,566	Aug. 3	145	40	36	488
Knockdown chair	J. R. Flanigan and W. E. Harrison	347,330	Aug. 17	1286	383	36	704

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Knockdown or folding table	L. T. Strader, H. F. Gray, and I. J. Burgess.	349,185	Sept. 14	869	228	36	1214
Knockdown table	E. F. Beard	344,893	July 6	140	35	36	25
Label. Cabinet-	E. Gabriel	349,790	Sept. 28	1730	446	36	1392
Labeling packets. Machine for	J. Tickle and F. Leonardt	346,838	Aug. 3	670	128 / 129 / 130	36	558
Lac. Product from	G. S. Wolff	345,203	July 6	554	.....	36	101
Lac. Treating	G. S. Wolff	345,202	July 6	553	.....	36	101
Lacing-hook	S. N. Smith	346,176	July 27	1950	505	36	375
Lacing-stud	S. Flotsheim	345,494	July 13	988	245	36	180
Ladder	C. H. Jackson	347,608	Aug. 17	1586	421	36	774
Ladder	F. S. Seagrave	347,648	Aug. 17	1665	442	36	789
Ladder	L. C. Springer	349,370	Sept. 21	1144	295	36	1272
Ladder and truck therefor. Folding extension	J. E. Gillespie	345,427	July 13	879	219	36	163
Ladder. Extension-	D. E. Rowland and W. T. Black	349,666	Sept. 21	1531	395	36	1350
Ladder. Extension-	J. Schmidlapp	345,868	July 20	1454	376	36	274
Ladder. Extension-	E. F. Stock	348,594	Sept. 7	85	25	36	1063
Ladder. Extension-	J. C. Winsor	348,257	Aug. 31	2543	683	36	965
Ladder. Extension fire-	D. D. Hayes	345,686	July 20	1378	331	36	243
Ladder. Extension step-	H. B. Swartz	349,286	Sept. 14	1018	260	36	1240
Ladder. Extension step-	T. L. Vanderslice	349,189	Sept. 14	895	230	36	1216
Ladder. Fireman's	F. Stuempfle and H. S. Thomas	347,746	Aug. 17	1795	478	36	812
Ladder. Step-	A. E. Geisslinger	346,437	July 27	2332	600	36	445
Lamp	L. Henkle	348,969	Sept. 14	589	158	36	1161
Lamp	W. McGill	348,405	Aug. 31	2742	736	36	1004
Lamp	A. Stewart	346,889	Aug. 3	461	127	36	550
Lamp and connections. Incandescent	J. T. Van Gestel	345,008	July 6	306	77	36	56
Lamp and lantern attachment	J. Swett and G. W. Brace	349,765	Sept. 28	1695	437	36	1385
Lamp-black. Apparatus for manufacturing	J. J. McTighe	346,168	July 27	1949	502	36	373
Lamp-black. Apparatus for manufacturing	J. Wilson	346,973	Aug. 10	676	180	36	586
Lamp-bracket	J. W. Barney	315,020	July 6	321	81	36	59
Lamp-burner	E. Blackman	346,889	Aug. 10	557	150	36	576
Lamp-burner	E. Blackman	346,890	Aug. 10	558	150	36	576
Lamp-burner	W. A. Hull	345,233	July 6	596	151	36	108
Lamp-burner	C. H. Maish	349,110	Sept. 14	794	201	36	1196
Lamp-burner	T. C. Phillips	347,126	Aug. 10	896	239	36	638
Lamp-burner	H. E. Shaffer	347,132	Aug. 10	905	241	36	640
Lamp-burner	S. W. Spooner	347,973	Aug. 24	2135	569	36	882
Lamp-burner holder	G. S. White	346,968	Aug. 10	669	178	36	597
Lamp-case	E. S. Piper	347,639	Aug. 17	1651	438	36	786
Lamp-chimney cleaner	J. H. Nolan	345,169	July 6	510	131	36	93
Lamp-chimney cleaner	W. J. Webb	347,671	Aug. 17	1695	452	36	794
Lamp-chimneys. Spring-holder for	L. Pfingst	347,375	Aug. 17	1258	338	36	713
Lamp-coupling	W. H. Briggs	345,615	July 13	1160	297	36	215
Lamp. Electric	E. and F. W. Heymann	348,971	Sept. 14	591	157	36	1161
Lamp. Electric	E. and F. W. Heymann	348,972	Sept. 14	592	157	36	1162
Lamp. Electric	E. and F. W. Heymann	348,973	Sept. 14	593	157	36	1162
Lamp. Electric-arc	L. G. Bronson	348,542	Sept. 7	3	1	36	1049
Lamp. Electric-arc	E. B. Cutten	346,430	July 27	2390	597 / 598 / 599	36	443
Lamp. Electric-arc	G. Pfannkuche	348,927	Sept. 7	529	139 / 140	36	1144
Lamp. Electric-arc	A. G. Waterhouse	345,937	July 20	1629	420	36	305
Lamp for electric lighting systems. Night-	R. N. Dyer	348,155	Aug. 24	2384	640	36	930
Lamp for electric lighting systems. Night-	J. W. Howell	348,125	Aug. 24	2339	628	36	921
Lamp for locomotive head-lights. Electric-arc	G. C. Pyle	346,561	Aug. 3	138	38, 39	36	487
Lamp. Forced-draft	R. Hitchcock	345,900	July 20	1580	408	36	297
Lamp hanger. Electric-	C. C. Haskins	348,845	Sept. 7	407	110	36	1123
Lamp. Head-light	E. Boesch	349,062	Sept. 14	750	191	36	1188
Lamp-holder for car and other lamps	F. A. Taber	349,186	Sept. 14	891	229	36	1215
Lamp holder. Incandescent-	E. Weston	348,647	Sept. 7	156	43	36	1076
Lamp. Oil-	J. Roots	349,362	Sept. 14	993	253	36	1235
Lamp post. Electric-	H. M. Doubleday and J. Lyman	350,046	Sept. 28	2064	533	36	1457
Lamp protector. Electric-arc-	G. Jeffery	349,999	Sept. 28	2010	519	36	1446
Lamp. Regenerative gas-	C. M. Lungren	347,622	Aug. 17	1607	426	36	778
Lamp. Rotary	C. H. Lopez	346,758	Aug. 3	379	105	36	535
Lamp-shade	H. S. Myers	348,232	Aug. 31	2512	675	36	958
Lamp shade and bowl	F. S. Shirley and A. Steffin	345,182	July 6	586	135	36	96
Lamp-shade ornament	J. D. Griswold	344,959	July 6	220	56	36	40
Lamp-shade ornament	W. A. Hull	345,234	July 6	598	152	36	108
Lamp-shade support	S. S. Woodward	347,456	Aug. 17	1376	366	36	724
Lamp-shades. Ornament for	W. A. Hull	350,058	Sept. 28	2082	541	36	1462
Lamp. Stand-	N. Jenkins	349,501	Sept. 21	1398	344	36	1308
Lamp. Street-	J. Eagan	347,478	Aug. 17	1405	374	36	740
Lamp-support	H. T. Kelib	348,746	Sept. 7	287	77	36	1101
Lamp. Suspension-	W. R. Noé	348,291	Aug. 31	2587	695 / 696	36	974
Lamp trimming and extinguishing apparatus	F. H. Marker	349,599	Sept. 21	1458	374	36	1333
Lamps. Carbon-holder for arc	D. Williamson	347,218	Aug. 10	1027	274	36	662
Lamps. Carbon-holder for electric-arc	P. O. Kellbolts	349,978	Sept. 14	603	159	36	1164
Lamps. Circuit-controlling key for incandescent electric	A. G. Brown	346,040	July 20	1751	451	36	327
Lamps. Clutch for electric	C. B. Noble	346,217	July 27	2018	521	36	387
Lamps. Fusible cut-out for incandescent electric	C. G. Perkins	348,049	Aug. 24	2227	596	36	900
Lamps. Hanger for extension	G. E. Sovereign	349,909	Sept. 28	1864	487	36	1423
Lamps. Machine for making carbons for electric	A. Pfannkuche	345,539	July 13	1058	269	36	196
Lamps. Socket for incandescent	E. Thomson	345,333	July 13	743	188	36	140
Lamps. Street-support for electric	J. J. Renehan	347,830	Aug. 24	1925	511	36	845
Lamps. Suspension device for	J. D. Griswold	346,098	July 27	1847	477	36	354
Lamps. Suspension device for	N. Jenkins	347,613	Aug. 17	1592	422	36	776
Lamps. Switch-socket for incandescent	M. J. Wightman and H. Lemp	348,875	Sept. 7	451	120	36	1131
Lance. Bomb-	E. Pierce	345,803	July 20	1447	375	36	273
Land-roller	J. F. Donovan	346,270	July 27	2085	539	36	401

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Pages.
Land-roller and stalk-cutter	R. Horton	348,284	Aug. 31	2579	693	36	972
Lantern	E. F. Steck	349,618	Sept. 21	1476	381	36	1338
Lantern for use on railways and steam and sailing vessels. Automatic signal.	F. M. Watson	349,898	Sept. 28	1785	461	36	1403
Lantern-globe	C. J. Higgins	349,219	Sept. 14	932	230	36	1223
Lantern globe-support	F. Dietz	346,095	July 27	1845	476	36	354
Lantern. Magic	C. Gray and H. Kemp	346,984	Aug. 10	698	185	36	602
Lantern. Signal	C. H. Angle	350,029	Sept. 28	2040	528	36	1453
Lantern. Signal	F. P. Copper and A. Bair	345,575	July 13	1109	284	36	205
Lantern. Signal	N. M. Crawford	346,697	Aug. 10	574	{153 154	36	579
Lantern. Signal	G. C. Dressel	348,623	Sept. 7	126	33	36	1070
Lantern. Tubular	A. L. Baron and W. T. Rufer	345,100	July 6	418	107	36	76
Lantern. Tubular	J. H. Stone	349,763	Sept. 28	1692	437	36	1384
Lap-robe and splatter-dasher	J. J. Williamson	346,006	July 20	1729	{443 444	36	322
Last	R. S. Ellison	346,273	July 27	2098	540	36	402
Latch	W. R. Briggs	348,656	Sept. 7	179	46, 47	36	1078
Latch	D. M. Murray	348,925	Sept. 7	527	136	36	1144
Latch and lock. Combined	W. H. Acker	349,195	Sept. 14	902	239	36	1217
Latch and lock. Combined	E. R. Ferry	347,100	Aug. 10	867	228	36	1326
Latch. Couch	W. Schollhorn	346,318	July 27	2165	556	36	414
Latch. Door	E. S. Winchester	345,016	July 6	315	79	36	58
Latch. Gate	J. Dula	344,952	July 6	212	54	36	39
Latch. Gate	G. B. Howland	348,909	Sept. 7	502	133	36	1140
Latch. Gate	A. E. Jester	349,350	Sept. 21	1096	280	36	1264
Latch. Gate	C. P. Weaver	349,469	Sept. 21	1282	333	36	1299
Latch. Night	J. H. Barnes and J. H. Woolaston	346,704	Aug. 3	319	88	36	523
Latch. Night	W. R. Briggs	348,657	Sept. 7	173	47	36	1078
Latch-operating device	O. H. Gilbert	345,297	Jnly 13	694	175	36	131
Latch. Reversible	F. J. Biggs	346,349	July 27	2200	564	36	421
Latch. Sliding-door	J. T. Gordon and J. H. Hamilton	345,048	July 6	352	89	36	64
Lathe	J. Judson	346,164	July 27	1944	501	36	372
Lathe. Automatic	F. M. Stevens	344,926	July 6	181	46	36	33
Lathe for irregular forms	W. H. Hawley	347,036	Aug. 10	765	{303 304	36	614
Lathe for turning spirals	V. Merklen. (Reissue)	10,765	Sept. 21	1550	400	36	1354
Lathe for turning journals of car-axles	H. J. Small	349,908	Sept. 28	1883	487	36	1423
Lathe. Wood-turning	C. W. Wilder	345,466	July 13	930	{234 235	36	173
Lathes. Polishing attachment for	C. A. Artman	348,146	Aug. 24	2366	534	36	926
Lathes. Steady-rest for	J. Seibert	346,324	July 27	2172	557	36	416
Lathing. Metallic	B. Scarles	346,317	July 27	2163	555	36	414
Lathing. Metallic	B. Scarles	349,059	Sept. 14	721	184	36	1183
Laundry dressing	E. A. A. Hovey and E. C. Phillips	349,648	Sept. 21	1507	.....	36	1345
Lawn-sprinkler	J. Lawson	347,359	Aug. 17	1234	319	36	708
Lead-corroding pot	P. H. Decker	347,997	Aug. 24	2162	575	36	897
Lead pipe	E. Haas	347,504	Aug. 17	1569	416	36	771
Lead-press. Hydraulic	J. Robertson	346,563	Aug. 3	142	39	36	488
Lead-presses. Die for	J. Hooper	347,607	Aug. 17	1585	421	36	774
Leaf-turner	A. Richards, Sr	344,861	July 6	94	24	36	17
Leather and other material. Apparatus for clamping and stretching	J. M. Keene	345,699	July 20	1293	335	36	246
Leather. Composition for preserving	E. Z. Coffee	346,581	Aug. 3	166	.....	36	492
Leather-cutting die	H. Loeser	346,929	Aug. 10	690	166	36	588
Leather. Machine for cutting	G. W. Gross	346,651	Aug. 3	256	70	36	510
Leather-splitting machine	A. F. Stowe	346,389	July 27	2262	579	36	432
Leather-splitting machine	G. L. Tyler	345,007	July 6	305	76, 77	36	56
Leather-splitting machine	A. G. Webster	347,402	Aug. 17	1294	345	36	720
Leggin. Swimming	J. Lundgren	349,256	Sept. 14	986	251	36	1233
Lemonade. Device for beating and mixing egg	W. F. Towns	347,398	Aug. 17	1288	343	36	718
Letter-box	A. S. Cook	350,041	Sept. 28	2059	532	36	1456
Letter-press	A. Veilleux and W. Benington	347,536	Aug. 17	1485	394	36	755
Letter-sheet and envelope. Combined	T. O. L. Schrader	346,620	Aug. 3	217	59	36	502
Lever. Lock for reverse and throttle	C. May	348,691	Sept. 7	208	55	36	1065
Life-boat	C. R. Herrick and D. W. Billings	349,499	Sept. 21	1322	343	36	1307
Life-boat	A. L. Shears	348,424	Aug. 31	2771	744	36	1010
Life-boat. Expansible	J. Fischer	348,158	Aug. 24	2390	641	36	930
Life-preserver	W. C. McDonald	346,599	Aug. 3	190	50	36	497
Life-preserver for vehicles	J. S. Goldsmith	347,269	Aug. 10	1093	{292 293	36	674
Life-preserving corset	A. A. Fearn	345,960	July 20	1662	430	36	311
Life-preserving float	F. Vaughan	346,332	July 27	2189	560	36	417
Lifter: *See* Pie-lifter. Transom-lifter. Pie-plate lifter.							
Lifting-jack	J. Baker	348,847	Sept. 7	371	100	36	1116
Lifting-jack	J. W. Churchill	347,570	Aug. 17	1533	408	36	764
Lifting-jack	J. W. Donohoe	349,698	Sept. 28	1581	410	36	1366
Lifting-jack	W. Dwiggins	345,626	July 13	1183	304	36	219
Lifting-jack	M. H. Levy	344,841	July 6	64	15	36	12
Lifting-jack	W. F. Morell	350,071	Sept. 28	2109	{545 546	36	1465
Lifting-jack	A. Souders	348,480	Aug. 31	2859	768	36	1025
Lifting-jack	A. L. Stanford	346,783	Aug. 3	408	113	36	540
Lifting-jack	A. N. Woodard	348,086	Aug. 24	2291	614	36	912
Light: *See* Head-light. Railway signal-light. Electric-arc light. Sidewalk-light.							
Light-deflector	C. Kaiser and J. B. Adt	347,113	Aug. 10	891	233	36	635
Lighting device	A. K. Standish	347,589	Aug. 17	1471	390	36	758
Limekiln	E. Y. Wingard	346,835	Aug. 3	475	131	36	553
Link	W. Mild	349,949	Sept. 28	1941	502	36	1433

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Pages.
Lint-machine	J. W. Johnson	349,845	Sept. 28	1908	467	36	1408
Liquid-forcing device	T. Jacobs	349,651	Sept. 21	1511	391	36	1346
Liquid-level indicator and controller. Automatic electric	J. J. Ghegan	347,589	Aug. 17	1558	414	36	769
Liquid-pressure generator	H. J. Small and J. McNaughton	347,897	Aug. 24	2017	{534 535	36	861
Liquid-separator. Centrifugal	J. Evans	347,702	Aug. 17	1736	463	36	801
Liquid-separator. Centrifugal	C. W. A. Koelkebeck	349,106	Sept. 14	789	200	36	1195
Liquids from solids. Apparatus for separating	P. H. A. Gaillet and L. H. S. H. Huet	349,990	Sept. 28	1997	516	36	1444
Liquids in vacuo. Treating fermented, fermentable, and distilled	C. W. Ramsay	347,441	Aug. 17	1357	361	36	730
Lithographer's arm-rest	J. H. Siebold	344,874	July 6	114	28	36	21
Lock: *See* Alarm-lock. Nut-lock. Cabinet-lock. Padlock. Canal-lock. Permutation-lock. Car-lock. Rosette-lock. Car-door lock. Safe-lock. Combination-lock. Sash-lock. Electric lock. Seal-lock. Electro-magnetic permutation-lock. Spring-lock. Springless lock. Electro-magnetic time-lock. Switch and signal lock. Till-lock. End-gate lock. Time-lock. Fire-arm lock. Vehicle-seat lock.							
Lock	L. L. Bates	347,554	Aug. 17	1511	401	36	759
Lock	P. Cool	345,119	July 6	444	115	36	81
Lock	H. Tolliner	345,337	July 13	748	188	36	141
Lock	C. R. Uhlmann	347,664	Aug. 17	1688	{449 450	36	793
Lock	G. B. Underwood	349,017	Sept. 14	662	170	36	1172
Lock and hasp. Combined	A. R. Duryee	347,695	Aug. 17	1724	460	36	800
Lock and latch	W. I. Alvord	347,414	Aug. 17	1308	349	36	722
Lock and seal for trunks	A. N. Towne	348,358	Aug. 31	2609	719	36	991
Lock-escutcheon	D. H. Sherman	347,445	Aug. 17	1361	362	36	731
Locks. Locking and releasing mechanism for	W. C. Fisher	347,029	Aug. 10	755	201	36	612
Locking and unlocking a number of paper-files arranged within a cabinet. Device for simultaneously	G. H. Richter	345,861	July 20	1526	395	36	285
Locomotive	R. C. Wright	349,676	Sept. 21	1543	398	36	1352
Locomotive ash-pan	J. F. Hussey	346,049	July 20	1786	460	36	329
Locomotive-boiler	W. Dawson	348,831	Sept. 7	388	105	36	1120
Locomotive-boiler	J. E. Wootten	348,942	Sept. 7	548	145	36	1147
Locomotive-brake	B. Dunham	346,271	July 27	2096	539	36	402
Locomotive-brake	E. D. Eames	346,364	July 27	2222	570	36	425
Locomotive-brake	G. H. Poor	346,441	July 27	2339	{601 602	36	446
Locomotive-brake	H. A. Wahlert	347,017	Aug. 10	741	197	36	609
Locomotive-brake	H. A. Wahlert	347,407	Aug. 17	1300	346	36	721
Locomotive-furnace	P. A. Buckland	347,683	Aug. 17	1710	456	36	797
Locomotive grate-bar	T. W. Heintzelman	347,601	Aug. 17	1578	419	36	773
Locomotive head-light with signal attachment	I. A. and C. I. Williams. (Reissue)	10,751	July 27	2370	{607 608	36	451
Locomotive-tenders. Safety attachment for	C. W. Dikeman	348,454	Aug. 31	2815	756	36	1018
Log-dressing machine	W. Wicke	347,854	Aug. 24	1953	518	36	851
Loom	J. W. Emsley	349,933	Sept. 28	1914	496	36	1428
Loom for weaving terry fabrics	C. Strobel	346,073	July 20	1817	469	36	339
Loom-harness. Mechanism for depressing	G. F. Hutchins	346,408	July 27	2289	588	36	437
Loom-heddle. Wire	F. Taylor	347,138	Aug. 10	918	245	36	642
Loom let-off mechanism	J. and J. Nightingale	348,335	Aug. 31	2841	{712 713	36	985
Loom let-off mechanism	L. Wilmott	345,468	July 13	935	235	36	173
Loom let-off motion	H. L. Esten and A. Greaves	345,627	July 13	1184	304	36	219
Loom picker-check	J. H. Crowley	346,400	July 27	2276	{583 584	36	435
Loom picker-staff check	N. Bonneau	345,361	July 13	779	196	36	146
Loom picker-staff check	B. F. Carter	349,979	Sept. 28	1984	512	36	1441
Loom picker-staff check	S. W. Holt	347,801	Aug. 24	1875	500	36	836
Loom shedding mechanism	J. E. and E. Atwood and E. E. Bradley	346,574	Aug. 3	156	42, 43	36	490
Loom shedding mechanism	J. Hinchliffe	349,794	Sept. 28	1735	448	36	1383
Loom-shuttle	C. G. Petzold	349,284	Sept. 14	1016	260	36	1239
Loom-shuttle	A. B. Taylor and J. P. Tirrell	349,013	Sept. 14	657	169	36	1171
Loom shuttle-motion	C. Widmer	345,011	July 6	311	78	36	57
Loom-shuttles. Tension-regulating device for	E. F. Hazard and F. W. Greenhalgh.	346,912	Aug. 10	598	160	36	583
Loom stop-motion	J. Megson	348,761	Sept. 7	306	81, 82	36	1104
Loom stop-motions. Filling-fork for	J. A. Platt	348,339	Aug. 31	2650	714	36	987
Looms for weaving wire. Filling-carrier for	L. W. Newton	345,167	July 6	508	130	36	92
Looms. Locking device for the harness-jacks of	G. F. Hutchins	346,407	July 27	2287	{587 588	36	437
Looms. Shuttle-operating mechanism for	C. H. Bachelder	345,946	July 20	1643	423	36	308
Looms. Take-up motion for	G. W. Rhodes	345,544	July 13	1065	{271 272	36	197
Looms. Tension-regulating rolls for wire	J. W. White	348,081	Aug. 24	2286	{612 613	36	911
Looms, &c. Thread-guide for	J. Dalton	347,028	Aug. 10	754	201	36	612
Looms. Warp stop-motion for	J. J. Switzer	348,174	Aug. 24	2417	648	36	935
Loop for articles of apparel	F. M. Shepard	349,610	Sept. 21	1467	379	36	1336
Lounge. Invalid	J. T. Gilbert	349,069	Sept. 14	760	194	36	1189
Louver and blind	G. Hayes	345,691	July 20	1284	333	36	244
Louver and blind	G. Hayes	345,693	July 20	1286	333	36	244
Louver and blind	G. Hayes	345,694	July 20	1287	334	36	245
Low pressure engine	A. V. Sanford	346,502	Aug. 3	67	17	36	473

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lubricator: *See* Axle-lubricator. Cylinder-lubricator.							
Lubricator	P. A. Bennett	347,284	Aug. 10	1115	299	36	678
Lubricator	W. H. Bingham	346,981	Aug. 10	684	182	36	600
Lubricator	J. Brooks and W. A. Sweetser	344,811	July 6	10	3	36	4
Lubricator	W. W. Cole	348,451	Aug. 31	2811	755	36	1018
Lubricator	J. Ellis	347,335	Aug. 17	1196	320	36	703
Lubricator	J. Ellis	347,336	Aug. 17	1196	320	36	703
Lubricator	J. Powell	348,170	Aug. 24	2407	645	36	934
Lubricator	A. Warth	345,558	July 13	1065	277, 278	36	201
Lumber-drier	G. W. Sharer	347,387	Aug. 17	1275	339, 340	36	716
Lumber-stacker	W. T. Smith	348,591	Sept. 7	80	23, 24	36	1062
Machinery. Device for supporting	J. D. Huntington	346,106	July 27	1857	490	36	356
Magnetic separator	C. O. Bartlett	349,422	Sept. 21	1214	315	36	1286
Magnetic separator	G. A. Gilbert	348,121	Aug. 24	2334	626	36	920
Mail-bag	J. C. Gunn	348,965	Sept. 14	562	154	36	1160
Mail-bag fastener and label-holder. Combined	M. V. B. Ethridge	345,675	July 20	1266	338	36	241
Mail-bag fastening	M. V. B. Ethridge	346,149	July 27	1924	497	36	369
Mail-bag fastening	W. W. Sylvester	349,067	Sept. 14	729	186	36	1184
Mail-bags. Combined fastener and label for	R. H. Barnliz	348,374	Aug. 31	2702	725	36	996
Mail-carrier	J. M. Clifton	346,357	July 27	2310	567	36	423
Mail-pouch	L. B. Lathrop	348,678	Sept. 7	203	53, 54	36	1064
Mailing-tube	J. P. Buckingham	347,416	Aug. 17	1310	350	36	722
Mainsprings. Winding-stop for	C. Morlet	349,896	Sept. 28	1868	483	36	1420
Malt. Apparatus for the manufacture of	C. Fey	345,128	July 6	453	117	36	83
Malt-drier	W. H. Bailey	346,344	July 27	2194	562, 563	36	420
Malt liquors. Service apparatus for	J. P. Gruber	348,668	Sept. 7	186	50	36	1061
Mandrel for springs	N. Davis	349,696	Sept. 28	1579	409	36	1365
Mangle and wringer. Combined	P. N. French	349,427	Sept. 21	1221	317	36	1287
Map	T. Collier	346,427	July 27	2315	596	36	442
Marker. Ground-	F. M. Taylor	348,068	Aug. 24	2309	607	36	906
Marking and furrowing machine	J. V. B. Rapp	345,730	July 20	1339	348	36	254
Marking-gage	J. Flomerfelt	345,042	July 6	346	87	36	63
Marking-gage	F. A. Humphrey	349,102	Sept. 14	784	199	36	1194
Marking-gage	C. E. Zimmermann	349,330	Sept. 21	1067	274	36	1258
Mason's hawk	R. R. Courson	348,268	Aug. 31	2559	686	36	968
Mat: *See* Door-mat. Water-closet mat. Oil-press mat.							
Match	C. T. Mackley	348,679	Sept. 7	205	54	36	1064
Match-box	B. May	345,914	July 20	1600	412	36	301
Match-dipping apparatus	C. Martin	349,111	Sept. 14	795	201	36	1196
Match-holder	E. Putnam and J. Kirschbaum	348,688	Sept. 7	217	57	36	1066
Match-machine	T. A. Cook and F. Labelle	345,485	July 13	955	241, 242	36	177
Match making and dipping machine	C. Martin	349,113	Sept. 14	798	202, 203	36	1196
Match-safe and cigar-cutter combined. Pocket	J. N. Williams	345,005	July 20	1728	445	36	393
Match-tray	C. Martin	349,112	Sept. 14	797	202	36	1196
Matches. Apparatus for manufacturing	J. D. Mantion, W. C. Macdonald, and J. J. Riley.	346,597	Aug. 3	187	50	36	496
Matches. Manufacture of	W. E. Doolittle	347,915	Aug. 10	1067	291	36	673
Mattresses. Machine for manufacturing wire	O. Reinnan	347,829	Aug. 24	1924	510, 511	36	845
Measure. Automatic grain-	W. Looney	349,287	Aug. 31	2562	694	36	973
Measure. Tape-	E. H. Wheeler	348,805	Sept. 7	358	97	36	1114
Measuring and registering grain. Automatic apparatus for	E. Witt	345,353	July 13	768	193	36	144
Measuring apparatus for oils and similar fluids. Store-service	J. P. Gruber	348,669	Sept. 7	189	50	36	1061
Measuring-can	A. D. Lewis and C. S. Irish	348,564	Sept. 7	42	12	36	1055
Measuring lengths, grades, and directions of lines. Instrument for	L. R. Hollingsworth	349,590	Sept. 21	1441	371	36	1331
Measuring-tank	W. Neil	349,734	Sept. 28	1653	427	36	1377
Meat-clamp	W., Sr., and W. L. Parks, Jr	348,869	Sept. 7	316	84	36	1106
Meat-cutter	A. J. Eddy	347,477	Aug. 17	1404	374	36	739
Meat-cutter	C. F. Leopold	348,132	Aug. 24	2346	630	36	923
Meat-mincing and sausage-stuffing machine. Combined	T. Williams, Jr	347,408	Aug. 17	1301	347	36	721
Meat. Preservation of	C. Marchand	349,852	Sept. 28	1817	.....	36	1410
Meat-tenderer	T. E. Sharp	347,651	Aug. 17	1668	443	36	790
Mechanical detector	G. H. Gaskins	348,120	Aug. 24	2333	626	36	920
Mechanical movement	U. Haskin	347,294	Aug. 10	1131	303	36	681
Mechanical movement	B. Huber and W. K. Hodgman	348,102	Aug. 24	2395	642, 643	36	932
Mechanical movement	A. A. Rheutan	349,901	Sept. 28	1875	484	36	1421
Mechanical movement	C. Schirrmeister	345,077	July 6	387	98	36	71
Mechanical movement for operating gate-bars, switches, signals, and the like	M. B. Mills	348,856	Sept. 7	422	114	36	1125
Medical compound	S. W. Fleming	347,759	Aug. 17	1811	.....	36	815
Medical compound	E. Sonstadt	345,867	July 20	1534	.....	36	287
Medical operating-couch	F. W. Uhde	346,246	July 27	2064	530	36	396
Medicated lozenge	A. W. Holway	349,591	Sept. 21	1442	.....	36	1331
Medicating bed-quilts. Composition for	C. M. Kimball	348,748	Sept. 7	289	.....	36	1101
Medicating water. Apparatus for	C. C. Harker	349,884	Sept. 28	1857	479	36	1418
Medicinal aerated water	J. V. Rigga	348,344	Aug. 31	2653	.....	36	988
(Medicine.) Kidney diseases. Remedy for	N. C. and A. T. McCutcheon	348,854	Sept. 7	418	.....	36	1125
(Medicine.) Pile remedy	J. W. Goodson	348,278	Aug. 31	2570	.....	36	909
(Medicine.) Remedy for dropsy	P. E. Campbell	345,671	July 20	1362	.....	36	240
Medico-electrical apparatus	J. R. Hard	348,465	Aug. 31	2628	760, 761	36	1021

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Menthol cone. Protected	D. Dick	344,949	July 6	208	54	36	39
Merry-go-round	D. Jennings	345,787	July 20	1424	369	36	289
Metal. Apparatus for compressing cast	E. B. Meatyard	347,003	Aug. 10	711	186	36	604
Metal. Apparatus for compressing fluid	E. B. Meatyard	347,004	Aug. 10	713	188, 189, 190	36	605
Metal bar or plate. Compound	C. B. Headly	344,831	July 6	39	.....	36	9
Metal-bending apparatus	E. Noble, Jr., and G. F. Branham	345,444	July 13	900	224, 225, 226	36	167
Metal-feeding roll	W. Lang	345,396	July 13	811	204, 205	36	151
Metal for welding. Heating	J. B. Root	346,611	Aug. 3	205	56	36	500
Metal-founding machine	H. Tabor	347,447	Aug. 17	1365	363	36	731
Metal into tubular forms. Drawing disks of	S. T. Wellman	348,079	Aug. 24	2283	611	36	911
Metal loop and catch	H. W. Cooley	347,471	Aug. 17	1397	372	36	738
Metal pipes. Mechanism for making	E. M. Thompson	349,015	Sept. 14	650	170	36	1172
Metal rods. Drawing	B. C. Tilghman	345,816	July 20	1464	378	36	275
Metal rods. Machine for rounding and polishing	J. M. Perry and A. Gordon	346,943	Aug. 10	637	171	36	591
Metal shears	J. L. Osgood	346,170	July 27	1950	503	36	374
Metal surfaces. Dressing and hardening	G. W. Miltimore	347,948	Aug. 24	2094	557, 558, 559	36	876
Metal. Transferring a precipitated or reduced	T. and J. Millot	345,442	July 13	898	.....	36	167
Metals. Apparatus for utilizing the expansive and contractive power of	F. E. Hainley	348,841	Sept. 7	402	109	36	1122
Metals from their matrices. Machine for eliminating	W. L. Card	347,868	Aug. 24	1974	593, 594	36	854
Metallic spring	W. Buckley	345,767	July 20	1400	363	36	264
Meter: *See* Ampère-meter. Proportional meter. Electrical meter. Water-meter. Gas-meter.							
Micro-andiphone	F. M. Blodgett	345,025	July 6	327	82	36	60
Middlings-purifier	H. P. Chapman	345,954	July 20	1655	427	36	310
Middlings-purifier	W. H. Likins	348,754	Sept. 7	295	79	36	1102
Middlings-purifier	R. A. Rew	345,177	July 6	519	133	36	95
Middlings-purifier	W. M. Shook	346,326	July 27	2174	558	36	416
Middlings-purifiers. Eccentric for operating screens of	J. T. Walter	347,848	Aug. 24	1946	517	36	850
Milk-can	C. L. Hall	347,174	Aug. 10	967	258	36	651
Milk-cooler	J. H. Bramkamp	347,085	Aug. 10	847	225	36	628
Milk-cooler	W. R. Fowler	345,776	July 20	1411	366	36	267
Milk or cream vats. Apparatus for regulating the temperature of	S. S. Jamison	346,016	Aug. 24	2188	582	36	893
Milk. Preserving	R. Ellin	349,574	Sept. 21	1423	368	36	1327
Milk-strainer	C. A. Dodge	347,581	Aug. 17	1548	412	36	767
Milk. Vacuum-evaporator for	R. Ellin	347,584	Aug. 17	1552	413	36	768
Milking machine. Cow-	I. Beyer and A. E. Robde	347,558	Aug. 17	1515	402, 403	36	760
Mill: *See* Attrition-mill. Fanning-mill. Chasing-mill. Grinding-mill. Coffee-mill. Roller-mill. Coffee and spice mill. Rolling-mill. Crushing and grinding mill. Saw-mill. Windmill. Curd-mill.							
Mill-roll	H. Hungerford	346,817	Aug. 3	445	122, 123	36	547
Mills. Tappet for stamp-	C. A. Thies	347,661	Aug. 17	1684	448	36	792
Milling machine. Key-seat-	J. S. Waterman	347,539	Aug. 17	1489	395	36	755
Milling-tool	C. Holly	346,103	July 27	1853	478	36	356
Millstone-dress	D. T. Atkins	346,015	July 20	1746	449	36	326
Millstone or burr. Artificial	E. I. Heller	344,902	July 6	151	38	36	28
Mine-doors. Operating	P. F. Snyder	347,135	Aug. 10	913	243	36	641
Miner's can	J. H. Enich	344,956	July 6	216	55	36	40
Mining coal, &c. Boring-machine for	R. Stanley	345,551	July 13	1077	275	36	199
Mining-machine	B. A. Legg	347,913	Aug. 24	1993	505	36	830
Mining-machine	S. McCarter	349,731	Sept. 28	1650	426	36	1376
Mining-machine	A. K. Rarig and J. Derthick	346,172	July 27	1954	504	36	374
Mining-machine	S. H. Tacy	346,328	July 27	2177	559	36	417
Mining machine. Coal-	W. S. Gordon	345,500	July 13	979	248	36	181
Mining machine. Coal-	T. Hudson, E. Howe, and C. Heslop	345,696	July 20	1290	334	36	245
Mirror-backs from plastic material and the product thereof. Manufacturing	H. E. Miller	345,982	July 20	1693	437	36	317
Mirror. Window-	S. A. Phillips	345,074	July 6	385	97	36	70
Mirrors. Pivotal support for	J. Penney	344,854	July 6	79	20	36	15
Miter-box	C. W. Hinze	345,590	July 13	1130	288	36	209
Miter-box	A. H. Soukup	346,240	July 27	2059	528	36	394
Mitten	G. P. Ross	346,070	July 20	1813	468	36	338
Mixing and kneading machine	C. Osterwalder	346,413	July 27	2297	591, 592	36	439
Mold: *See* Candy-whistle mold. Ingot-mold.							
Mold for walling wells, &c. Concrete	E. L. Ransome	349,058	Sept. 14	719	183, 184	36	1182
Molds. Apparatus for forming	J. Kinzer	347,940	Aug. 24	2085	553, 554	36	874
Molder's flask	H. Tabor	347,448	Aug. 17	1366	363	36	732
Molding-machine	R. Savage	349,815	Sept. 28	1765	456, 457	36	1398
Molding machine. Rope-	W. A. Parmelee	346,679	Aug. 3	398	79	36	517
Molding machine. Sand-	M. R. Moore	346,379	July 27	2241	574	36	429
Molding machine. Sand-	M. R. Moore	346,380	July 27	2243	575	36	429

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Molding machine. Sand-	M. R. Moore	346,381	July 27	2944	575	36	430
Molding machine. Sand-	M. R. Moore	346,382	July 27	2948	575	36	430
Molding machine. Wood-	W. J. Smith	347,970	Aug. 24	2131	569	36	681
Moldings. Manufacturing ornamental	F. Mankey	347,361	Aug. 17	1236	329	36	708
Mole-trap	L. H. Olmsted	346,218	July 27	2920	521	36	387
Mop washing and wringing machine	E. W. Allen	348,009	Sept. 7	109	31	36	1067
Mop-wringer	J. W. Gleason	347,500	Aug. 17	1559	414	36	770
Mop-wringer	C. Miller	348,033	Aug. 24	2210	590	36	897
Mortar or composition for coating walls	M. Turley	348,644	Sept. 7	153	.....	36	1075
Mortises. Machine for marking or laying out	J. M. Maynard	348,028	Aug. 24	2205	588	36	895
Mortising, boring, molding, rosette-cutting, &c.	R. T. White	345,010	July 6	308	77, 78	36	56
Mortising-machine	I. W. Johnson	345,637	July 13	1198	310	36	222
Mortising-machine	M. Rothschild	344,868	July 6	105	26	36	19
Mosquito-screen attachment for hammocks	P. N. Nelmes	348,685	Sept. 7	214	56	36	1086
Motion by helical surfaces. Mechanism for converting	G. Weickum	346,335	July 27	2184	560	36	418
Motion. Device for converting	E. Brüncker	346,397	July 27	2271	589	36	434
Motion. Device for converting	W. J. Cassaday	348,107	Aug. 24	2317	621	36	917
Motion. Device for converting	J. E. Gillespie	349,429	Sept. 21	1224	317	36	1288
Motion. Device for converting	W. H. Wood	349,775	Sept. 28	1713	441	36	1388
Motion. Device for converting reciprocating into rotary	G. N. Tibbles	346,961	Aug. 10	659	176	36	595
Motion. Mechanism for converting	J. J. Collins	347,230	Aug. 10	1041	278	36	664
Motive power. Employing steam for producing	M. P. W. Boulton	345,026	July 6	328	823	36	60
Motor: *See* Car-motor. Electric motor. Electro-dynamic motor. Electro-magnetic motor. Fluid-pressure motor. Hydraulic motor. Vacuum-motor. Water-motor. Weight-motor.							
Motor	B. Elmore	347,479	Aug. 17	1407	375	36	740
Motor	A. J. and M. I. Flowers	349,639	Sept. 21	1499	388	36	1343
Motor	I. S. Goldman	347,705	Aug. 17	1741	464	36	802
Motor	G. W. Houston and E. F. Mulkey	349,276	Sept. 14	1008	257	36	1238
Motor	R. E. L. Roberts	347,890	Aug. 24	2009	532	36	859
Motor-engine	G. Daimler	349,963	Sept. 28	1987	513	36	1442
Motors. Brake for	C. Lichtenwalner	346,556	Aug. 3	133	36	36	485
Movement-cure apparatus	D. Wark	349,019	Sept. 14	663	171	36	1172
Mower: *See* Lawn-mower.							
Mower	R. H. Dixon and G. H. Carver	346,538	Aug. 3	113	30	36	482
Mower	J. D. Wilber	346,007	July 20	1731	446	36	323
Mower. Lawn-	G. M. Williams	346,004	July 20	1727	445	36	323
Mower. Lawn-	O. Zistel	347,311	Aug. 10	1160	310	36	687
Mowers and reapers. Cutting apparatus for	D. M. Keller	349,105	Sept. 14	788	199	36	1195
Mowing-machine	M. Garvin and W. J. Clokey	346,277	July 27	2103	541	36	403
Mowing-machine	J. Gilchrest	347,481	Aug. 17	1411	375, 376	36	741
Mowing-machine	J. Pine	349,740	Sept. 28	1660	429	36	1379
Mowing-machine	A. C. Rogers	348,239	Aug. 31	2522	677, 678	36	960
Mowing-machines. Grain-wheel for	H. Ruschenek	346,443	July 27	2343	602	36	447
Muff	M. Kosminski	347,879	Aug. 24	1994	528	36	856
Muffle for vessels. Sanitary	P. S. Sowers	349,010	Sept. 14	654	169	36	1171
Multiple switch-boards. Test-plug for	C. E. Scribner	345,326	July 13	732	185	36	138
Music case. Sheet-	L. Cappiani	346,530	Aug. 3	103	26	36	480
Music-leaf turner	E. Barraclough	348,098	Aug. 24	2308	618	36	915
Music-leaf turner	T. H. Garland	348,323	Aug. 31	2629	709	36	982
Music-leaf turner	J. Van Epe	349,540	Sept. 21	1378	357	36	1318
Musical box	P. Lochmann	346,757	Aug. 3	378	104	36	535
Musical instrument. Mechanical	F. E. P. Ehrlich	349,634	Sept. 21	1493	387	36	1342
Musical instrument. Mechanical	M. Gally	346,152	July 27	1927	497, 498	36	369
Musical instruments. Key-board attachment for	R. T. Smith	346,237	July 27	2049	527	36	393
Musical instruments. Key-board attachment for	R. T. Smith	346,238	July 27	2051	527, 528	36	393
Musical instruments. Key-board player for	R. T. Smith	346,236	July 27	2045	527	36	393
Musical instruments. Key-indicator for	E. P. Carpenter and M. S. Wright	347,686	Aug. 17	1714	457	36	797
Musician's exercising device	J. Caesar	348,379	Aug. 31	2707	727	36	998
Mustache-curler	J. B. Sultzer	346,531	Aug. 3	469	128	36	552
Muzzle	E. B. Webber	345,749	July 20	1367	356	36	259
Muzzle. Animal-	J. A. Saunders	349,408	Sept. 21	1195	309	36	1282
Muzzle. Stock-	A. Wesson	348,438	Aug. 31	2792	750	36	1014
Nail	D. P. Durham	346,148	July 27	1923	496	36	369
Nail-driving apparatus	T. Fowler	345,680	July 20	1372	329	36	241
Nail-driving machine	T. Fowler	345,679	July 20	1270	329	36	241
Nail-extractor	J. Chantrell	346,426	July 27	2314	596	36	442
Nail-furnace	G. Rowe	345,260	July 6	636	162	36	116
Nail machine. Duplex wire-	G. Qnrin	349,054	Sept. 14	712	182	36	1161
Nail machine. Wire-	J. W. Court	346,467	Aug. 3	90	6	36	464
Nail machine. Wire-	D. Evans	348,156	Aug. 24	2385	640, 641	36	930
Nail machine. Wire-	E. B. Parkhurst and C. Lovell	345,534	July 13	1046	266, 267	36	194
Nail machine. Wire-	M. G. Voight, Sr	345,745	July 20	1364	355	36	258
Nail machine. Wire-	M. G. Voight, Sr	345,746	July 20	1365	355	36	258
Nail making and distributing machine	F. F. Raymond, 2d	347,960	Aug. 24	2117	561, 565	36	879
Nail making and distributing machine	A. O. Towns and F. F. Raymond, 2d	346,137	July 27	1901	492, 493	36	364
Nail-making machine	F. F. Raymond, 2d	344,965	July 6	986	67, 68, 69	36	46
Nail-plate feeder	G. T. Hardee	346,746	Aug. 3	368	99	36	533

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Invention	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Nail. Wire	H. K. Jones	348,196	Aug. 24	2341	588	36	922
Nail. Wire	T. J. Sloan	348,589	Sept. 7	77	23	36	1062
Nails. Machine for cutting	R. Dahlström	347,923	Aug. 24	2059	546	36	869
Napkin-ring	C. F. Monroe	345,164	July 6	504	130	36	99
Neck-wear. Reversible ruching for ladies	A. Boehm	349,297	Sept. 21	1038	264	36	1251
Necktie-fastener	A. J. Ash	349,832	Sept. 28	1791	463	36	1404
Necktie-holder	L. R. Goodwin	346,993	Aug. 10	697	185	36	602
Necktie-holder	J. S. Temple	347,073	Aug. 10	833	221	36	696
Needle-case	F. H. Pierce	349,174	Sept. 14	874	224	36	1212
Needles. Machine for sticking	W. H. Dayton	344,945	July 6	203	52, 53	36	38
Needles to threads, &c. Attaching	C. H. Peck	348,047	Aug. 24	2296	595	36	900
Nest. Hen's	B. M. Reed	348,051	Aug. 24	2240	599	36	903
Nests. Gate for hens'	W. S. Spaulding	348,356	Aug. 31	2667	719	36	990
Net. Fly-	I. Meyer	349,231	Sept. 14	958	244	36	1227
Net. Fly and mosquito	J. H. Fisher	348,388	Aug. 31	2719	730	36	1000
Newspaper-clip	T. and A. S. Fix	346,904	Aug. 10	586	156	36	581
Nickel. Electro-depositing	E. C. Bates	346,258	July 27	2080	.....	36	399
Night-soil. Apparatus for the disposal of	J. T. Robbins	347,383	Aug. 17	1270	337	36	715
Nose-bag	G. Gray	345,639	July 20	1499	398	36	281
Numbering and printing machine. Rotary hand-	R. H. Ingersoll and P. B. Henry	345,697	July 20	1291	334	36	245
Nursery folding chair	F. B. Wilson	348,939	Sept. 7	546	144	36	1147
Nut and bolt. Expansible	A. T. Lorme	349,651	Sept. 28	1816	469	36	1409
Nut. Feed-	A. Kidd	347,877	Aug. 24	1992	527	36	856
Nut-lock	J. W. Anderson	347,147	Aug. 10	932	248	36	645
Nut-lock	J. Baker	347,764	Aug. 24	1823	485	36	825
Nut-lock	W. N. Baker	346,452	Aug. 3	3	2	36	461
Nut-lock	M. Barron	346,185	July 27	1971	508	36	378
Nut-lock	C. E. Davis	348,112	Aug. 24	2324	623	36	918
Nut-lock	M. W. Farber	348,117	Aug. 24	2330	625	36	920
Nut-lock	G. Grossman	345,642	July 20	1501	389	36	281
Nut-lock	E. E. Kyle	349,724	Sept. 28	1642	424	36	1375
Nut-lock	C. Lutz	346,440	July 27	2338	601	36	446
Nut-lock	J. W. McHugh	348,589	Sept. 7	48	14	36	1056
Nut-lock	H. W. Morrow	346,823	Aug. 3	454	125	36	548
Nut-lock	J. L. Pope	348,235	Aug. 31	2516	676	36	959
Nut-lock	J. R. Ritter	348,345	Aug. 31	2654	715	36	988
Nut-lock	S. L. Shellenberger	348,496	Aug. 31	2775	745	36	1011
Nut-lock	A. C. Vaughan	349,674	Sept. 21	1539	397	36	1351
Nut. Prop-	H. Higgin	347,240	Aug. 10	1053	282	36	667
Nuts. Machine for making	J. Maxwell	345,795	July 20	1434	371	36	271
Nuts. Machine for making crowned	R. T. Barton	346,885	Aug. 10	551	149	36	575
Oar. Bow-facing	C. M. Hall	346,745	Aug. 3	368	99	36	532
Oat-hulling machine	W. Matthias and C. E. Rudolph	346,933	Aug. 10	624	167, 168	36	589
Oatmeal-machine	W. Matthias and C. E. Rudolph	346,934	Aug. 10	625	168	36	589
Oil-cake mat	J. A. and M. T. Murphy	346,059	July 20	1799	464	36	335
Oil-can	G. A. Gartzke	347,789	Aug. 24	1858	495	36	892
Oil-can	T. W. Lippincott	349,598	Sept. 21	1451	374	36	1333
Oil-can	E. E. Miller	344,975	July 6	248	63	36	45
Oil-can	F. H. Stevens	345,738	July 20	1353	352	36	256
Oil-can	G. Trubel	349,768	Sept. 28	1700	438	36	1385
Oil-can	H. E. Wolcott	344,929	July 6	186	47	36	35
Oil-can holder	D. F. Oblwine and J. H. Alexander	346,494	Aug. 3	58	14	36	471
Oil-can, Siphon	T. W. Lippincott	346,686	Aug. 3	273	75	36	514
Oil-cloth-rubbing machine	J. and G. Rich, E. L. Farr, and S. T. Bailey.	348,417	Aug. 31	2750	740, 741	36	1008
Oil-cup	J. Davies	347,577	Aug. 17	1543	410	36	766
Oil-cup	F. Humphrey	346,205	July 27	2004	516	36	384
Oil-cup	J. Stewart	347,839	Aug. 24	1933	513	36	847
Oil from wells. Obtaining	T. G. Hall	345,586	July 13	1125	287	36	208
Oil-hole cover	E. F. Herrington	345,136	July 6	470	120	36	85
Oil-press mat	O. R. Nelson	349,515	Sept. 21	1342	348, 349	36	1312
Oil to extract paraffine, &c. Apparatus for cooling	N. M. Henderson	348,904	Sept. 7	497	132	36	1139
Oiler	E. Moat	347,251	Aug. 10	1070	286	36	670
Oiler for loose pulleys	E. A. Kuhns	348,919	Sept. 7	519	137	36	1142
Oiler for wrist-pins	W. S. Beeman	349,137	Sept. 14	698	211	36	1203
Oiler. Watch and clock	J. V. Zimmerman	349,677	Sept. 21	1544	398	36	1352
Oils. Refining vegetable	A. T. Hall	347,345	Aug. 17	1013	.....	36	705
Oiling loose pulleys. Device for	E. J. Wells	349,546	Sept. 21	1385	359	36	1319
Opera-chair	D. W. Garinger	348,552	Sept. 7	14	4	36	1051
Optometer	H. Culbertson	349,385	Sept. 21	1167	302	36	1277
Orange-grader	J. W. Keeney	348,128	Aug. 24	2343	628	36	922
Orange-peel separating and shredding machine	W. H. Barnard and C. E. Benedict	349,075	Sept. 14	741	189	36	1186
Ordnance. Making	W. H. Brown	348,719	Sept. 7	253	68	36	1094
Ordnance. Operating	B. T. Babbitt	347,864	Aug. 24	2148	571	36	885
Ore. Apparatus for amalgamating	E. Spencer	345,868	July 20	1535	397	36	287
Ore-concentrator	J. D. Channell	347,993	Aug. 24	2158	574	36	866
Ore-concentrator	R. N. Clark and N. H. Cone	345,114	July 6	437	112	36	90
Ore-concentrator	A. D. Clarke	347,770	Aug. 24	1833	488	36	827
Ore-concentrator	W. A. Woods and C. C. Garcelon	347,909	Aug. 24	2036	538, 539	36	864
Ore-crusher	S. Kendall	347,809	Aug. 24	1887	503, 504	36	838
Ore-separation. Saving floating materials in	H. Bradford	345,951	July 20	1649	425, 426	36	309
Ore-separator	H. C. Krause	349,504	Sept. 21	1329	345	36	1309
Ore-separator. Magnetic	C. Q. Payne	349,771	Sept. 7	318	85	36	1106
Ores. Concentrating	C. J. Everson	348,152	Aug. 24	2387	.....	36	930
Ores. Electro-magnetic apparatus for separating	H. P. J. Kessler	345,383	July 13	907	203	36	151
Ores. Jig-box for separating	F. T. Freeland	348,517	Aug. 31	2908	782	36	1035
Organ	T. Cahill	345,098	July 6	331	83	36	60
Organ and piano. Combined	C. F. Cullum	346,842	Aug. 3	483	133, 134	36	555

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drs.	Official Gazette. Vol.	Page.
Organ-bellows. Valve for	J. H. Chase	345,673	July 20	1264	327	36	240
Organ-case	E. H. Loring	349,656	Sept. 21	1519	393	36	1347
Organ-case	E. S. Votey	348,505	Aug. 31	2888	777	36	1032
Organ-pipe	W. L. Merrin	347,363	Aug. 17	1238	330	36	709
Organ. Pipe	W. H. Young	346,450	July 27	2359	605	36	449
Organ-reeds. Manufacture of	L. A. Wood	347,546	Aug. 17	1501	388	36	757
Organs. Pedal-cover for	J. S. Foley	345,129	July 6	454	118	36	84
Oven. Baker's	R. Lamb	345,906	July 20	1588	410	36	298
Oven. Baker's	S. Lamonreux	347,181	Aug. 10	976	{260 261	36	653
Oven. Baker's	A. T. Slingkins	346,621	Aug. 3	218	60	36	502
Oven. Baker's	H. Wild	345,095	July 6	413	{105 105	36	75
Oven. Baker's portable	J. E. Ellis	346,365	July 27	2223	570	36	425
Oven. Baking	J. Junker	349,653	Sept. 21	1513	392	36	1346
Oven-door	D. E. Paris	345,531	July 13	1041	{266 265	36	193
Oven for heating flat-irons	E. Westenhaver	347,542	Aug. 17	1495	388	36	756
Oven. Portable	S. J. McDowell	346,763	Aug. 3	388	103	36	536
Oven. Reel	G. B. Duncan and J. Baillie	347,475	Aug. 17	1402	372	36	739
Oven-shelf	D. E. Paris	345,533	July 13	1045	266	36	193
Ovens. Lighting and closing device for baker's	A. Nestlin	347,953	Aug. 24	2111	562	36	878
Overalls	C. R. Searley	346,691	Aug. 3	302	80	36	520
Overflow-gate for reservoirs	W. Halley, H. F. Wilkinson, and J. E. Bissett	349,712	Sept. 28	1621	418	36	1371
Overseaming-machine	H. Schulze-Berge	344,872	July 6	110	22	36	20
Oversleeve	H. W. Converse	348,616	Sept. 7	119	31	36	1069
Package	J. B. Andrews and H. E. Gillingham	349,970	Sept. 28	1966	508	36	1435
Package-holder	T. T. Gaunt and C. S. Allen	347,235	Aug. 10	1046	269	36	665
Packing-box	A. E. Bonesteel	347,917	Aug. 21	2049	544	36	987
Packing. Cork-core steam	F. Maass	346,598	Aug. 3	188	50	36	497
Packing for deep-well pumps. Piston	E. R. Maxwell	348,027	Aug. 21	2204	568	36	685
Packing for piston-rods. Adjustable	W. Pohlman	347,197	Aug. 10	998	260	36	657
Packing for pistons. Metallic	W. H. Lang	350,004	Sept. 28	2017	521	36	1447
Packing for pistons, plungers, &c.	F. M. Ludlow	348,527	Aug. 31	2921	785	36	1037
Packing. Piston	J. Brandon	345,569	July 13	1102	282	36	204
Packing. Piston-rod	J. H. McGowan	347,817	Aug. 24	1899	506	36	841
Packing piston-rods of refrigerating-machines	E. Fixary	345,041	July 6	345	87	36	63
Packing. Rod and piston	C. C. Jerome	344,908	July 6	160	40	36	29
Packing the joints of gas-pipes, &c. Composition of matter for	A. H. Rowand and R. S. Hunzeker	349,751	Sept. 28	1676	.....	36	1381
Pad: *See* Bath-pad. Carriage foot-pad. Collar sweat-pad. Hoof-pad. Interfering-pad.							
Padlock	H. Abbett	346,011	July 20	1739	446	36	324
Padlock	L. Hillebrand	348,528	Aug. 31	2913	783	36	1036
Padlock	W. Hover	347,711	Aug. 17	1750	466	36	804
Padlock	W. J. Richards	349,061	Sept. 7	436	116	36	1128
Padlock	A. Stewart	345,187	July 6	534	137	36	98
Padlock. Permutation	G. F. Selser	346,954	Aug. 10	650	174	36	563
Paint. Manufacture of	G. W. Holley	349,665	Sept. 28	1858	.....	36	1418
Paint. Mixed	F. Wendling	346,376	July 27	2186	.....	36	418
Paint-mixing machine	C. Rosa, Jr	348,931	Sept. 7	535	141	36	1145
Paint, &c. Separator for dry	R. E. Gray	348,324	Aug. 31	2631	700	36	983
Painting-machine	C. A. Rosenblatt	348,535	Aug. 31	2934	{789 790	36	1040
Painting metallic plates	B. F. Caldwell	347,990	Aug. 24	2153	573	36	886
Pan: *See* Ash-pan. Baking-pan. Bed-pan. Bread-pan. Dust-pan. Frying-pan.							
Panel for doors and other uses. Metallic	G. M. Gill	349,583	Sept. 21	1433	376	36	1339
Panel-gage, measuring-rod, and trammel. Combined	F. A. Humphrey	348,674	Sept. 7	197	52	36	1069
Pantaloon-stretcher	J. Grant	348,203	Aug. 31	2470	663	36	951
Pantaloons-protector	J. D. Hanan	346,852	Aug. 3	257	70	36	510
Pantograph	J. A. Wang	350,027	Sept. 28	2046	528	36	1452
Pants. Attachment for	H. J. Lyon	349,657	Sept. 21	1520	393	36	1347
Paper and other fabrics. Machine for sizing and coloring	H. F. Case	346,894	Aug. 10	566	{151 152	36	577
Paper and other material with wax. Device for coating	I. Sherck and J. Batig, Jr	346,870	Aug. 3	525	143	36	562
Paper and products and manufacture thereof	T. J. Pearce and M. W. Beardsley	348,995	Sept. 14	622	.....	36	1166
Paper, &c. Apparatus for waterproofing	H. C. Spalding	345,003	July 6	300	75	36	54
Paper, &c. Apparatus for waxing	I. Sherck and J. Batig, Jr	345,864	July 20	1530	394	36	286
Paper. Apparatus for waxing	I. Sherck and J. Batig, Jr	346,869	Aug. 3	524	143	36	562
Paper bag	W. C. Fageley	349,838	Sept. 28	1798	463	36	1406
Paper. Bleaching mechanical wood-pulp and other raw vegetable fibers for the purpose of manufacturing	J. A. Just, F. A. Fletcher, and C. F. Gibbs	348,165	Aug. 24	2398	.....	36	932
Paper box	S. Crump	348,547	Sept. 7	9	3	36	1050
Paper box	J. B. Duke	349,786	Sept. 28	1726	445	36	1391
Paper box	A. C. Lohmann	349,165	Sept. 14	864	222	36	1210
Paper box	H. S. Munson	348,921	Sept. 7	526	{138 139	36	1144
Paper box	T. F. W. Schmidt	347,646	Aug. 17	1662	441	36	788
Paper-box blanks. Machine for cutting	A. Kingsbury	346,165	July 27	1945	501	36	373
Paper-box-covering machines. Cutter for	A. M. Eastman	348,000	Aug. 24	2168	577	36	888
Paper-box machine	I. T. Brown	345,363	July 13	781	197	36	146
Paper boxes. Machine for covering the exterior of	A. M. Eastman	347,999	Aug. 24	2163	{576 577	36	888
Paper cartridge-shells. Heading	A. Dickerman	347,166	Aug. 10	957	256	36	650
Paper. Combined feeder and cutter for toilet	H. H. Harrison	345,052	July 6	356	90	36	65
Paper-cutter. Rotary	J. Meserole	346,167	July 27	1948	502	36	373

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drs.	Official Gazette. Vol.	Page.
Paper-cutting dies. Bed for	H. P. Fiske	344,822	July 6	25	7	36	7
Paper, &c. Die for cutting	S. Crump	348,548	Sept. 7	10	3	36	1050
Paper-fastener	F. C. Hamilton	349,993	Sept. 28	2001	517	36	1444
Paper-fastener	E. Kempshall	347,718	Aug. 17	1760	469	36	806
Paper-fastener	E. Kempshall	347,719	Aug. 17	1761	469	36	806
Paper folding and pasting machine	T. C. Dexter	347,333	Aug. 17	1194	320	36	702
Paper-folding machine	G. W. Shamp	349,322	Sept. 21	1656	271	36	1256
Paper-folding machines. Feeding-table for	R. T. Brown	347,224	Aug. 10	1035	276	36	663
Paper for boxes. Machine for scoring and cutting	J. C. Marshall	347,492	Aug. 17	1494	{378 379	36	743
Paper for sun-pictures. Preparing	J. S. Simonds	347,527	Aug. 17	1470	.....	36	751
Paper from the tobacco-plant. Manufacture of	W. W. Bennett	346,887	Aug. 10	553	.....	36	575
Paper-holder	A. Hadley	346,154	July 27	1932	498	36	370
Paper-holder	G. A. Hinckley	346,150	July 27	1929	499	36	372
Paper, &c. Machine for coating	J. Jordan	345,236	July 6	509	152	36	108
Paper-making machine	J. P. Browne	345,274	July 13	692	168	36	195
Paper-making machine	E. Wilmont	346,079	July 20	1824	471	36	341
Paper-making machine. Felt-cleaning device for	H. Allan and L. S. Mason	346,013	July 20	1742	448	36	325
Paper or felting for carpet-lining. Elastic	L. Bastet	346,799	Aug. 3	425	.....	36	543
Paper-pulp engines. Bar or blade for the rolls of	C. Anderson	349,332	Sept. 21	1069	274	36	1259
Paper-pulp molded heads of barrels while being dried. Mechanism for use in supporting the	G. W. Laraway	345,705	July 20	1302	337	36	948
Paper-pulp. Rag-engine for beating	J. H. Horne	347,043	Aug. 10	775	207	36	616
Paper-pulp screen	C. Russell and P. H. Cragin	347,883	Aug. 24	2012	533	36	859
Paper sacks. Device for crimping	E. C. Godfrey	349,391	Sept. 21	1174	304	36	1279
Paper-shells for cartridges. Mechanism for cupping	A. Dickerman	347,165	Aug. 10	955	{255 256	36	649
Paper-stock. Boiler or digester for reducing wood and other	H. A. Frambach, R. P. Dart, and A. J. Vollrath	348,159	Aug. 24	2391	642	36	931
Paper-stock or wood pulp, &c. Treating articles made of	F. C. Robinson and W. H. Cothren	347,200	Aug. 10	1001	.....	36	657
Paper-tying apparatus	J. S. Shannon	344,905	July 6	286	72	36	52
Paper. Waxing	I. Sherck and J. Batig, Jr	349,530	Sept. 21	1302	354	36	1316
Paper with paraffine. Coating	W. B. Howe and M. D. Knowlton	344,965	July 6	227	54	36	42
Paper, &c. with wax. Apparatus for coating	I. Sherck and J. Batig, Jr	349,531	Sept. 21	1363	354	36	1316
Paraffine and extracting oil from oleaginous materials. Purifying	F. X. Byerley	347,288	Aug. 10	1124	301	36	679
Paraffine distillate. Apparatus for cutting up	C. Vose	346,447	July 27	2350	604	36	448
Paraffine from petroleum distillate. Extracting	C. Vose	346,448	July 27	2352	604	36	448
Paring and stoning peaches. Machine for	W. A. C. Oaks	348,532	Aug. 31	2929	787	36	1039
Passenger-elevator	C. H. Read, Jr	349,586	Sept. 7	73	22	36	1061
Passenger-recorder	A. Torrey and D. J. Casey	349,767	Sept. 28	1697	438	36	1385
Pasting-machine	A. Kingsbury	347,246	Aug. 10	1050	283	36	668
Pastry-board	I. Youart	345,470	July 13	938	236	36	174
Pattern: *See* Garment-pattern.							
Pattern for garments	H. Moschcowitz	350,073	Sept. 28	2111	546	36	1465
Patterns. Manufacturing dies for producing perforated	H. B. Cobb	346,580	Aug. 3	165	44	36	491
Paving-blocks. Machine for cutting	R. W. Miller	346,672	Aug. 3	279	77	36	515
Paving stone, slab, &c. Terro-metallic	L. Promoli	345,726	July 20	1335	346	36	253
Paving-stones, &c. Manufacture of terro-metallic	L. Promoli	345,405	July 20	1451	.....	36	373
Paving stones, slabs, &c. Furnace for the manufacture of terro-metallic	L. Promoli	345,727	July 20	1336	{346 347	36	254
Pavement	H. A. Daniels and A. G. Dickinson	346,735	Aug. 3	358	96	36	530
Pavement. Self-supporting combination	C. Beuttel	347,557	Aug. 17	1514	409	36	760
Pavement. Tile	E. H. Barrett	347,861	Aug. 24	1962	.....	36	852
Pavements. Construction of concrete	F. V. Greene	349,645	Sept. 21	1505	390	36	1345
Pawl-and-ratchet mechanism	G. M. Williams	348,083	Aug. 24	2286	613	36	911
Pen for swine	A. Balmer	349,280	Sept. 14	906	233	36	1218
Pen. Fountain	F. C. Brown	345,411	July 13	852	213	36	156
Pen. Fountain	A. K. Cross	348,661	Sept. 7	179	48	36	1079
Pen. Fountain	W. H. Hildebrand	348,395	Aug. 31	2796	739	36	1001
Pen. Fountain	M. H. Kerner	349,721	Sept. 28	1633	491	36	1373
Pen. Fountain	G. H. Sackett	347,961	Aug. 24	2120	565	36	880
Pen. Fountain	G. H. Sackett	349,752	Sept. 28	1677	433	36	1381
Pen. Fountain	G. H. Sackett	349,753	Sept. 28	1678	433	36	1382
Pen. Fountain	C. W. Taylor	346,330	July 27	2179	559	36	417
Pen. Hog	L. F. Chenoweth	349,480	Sept. 21	1296	337	36	1302
Pen-holder	G. W. Michael	346,670	Aug. 3	278	76	36	515
Pen-holder. Fountain	C. B. Rowley	346,131	July 27	1894	489	36	363
Pen-holders. Cushion and guard for	S. S. Harman	344,961	July 6	222	57	36	41
Pen. Stylographic	O. Busaler	350,037	Sept. 28	2056	531	36	1455
Pencil-holder	J. Trebentscheck	349,914	Sept. 28	1890	488	36	1494
Pencils and other implements. Holder for	J. Appleby	346,014	July 20	1743	449	36	325
Pencils. Apparatus for sharpening	J. L. Clarke	346,356	July 27	2209	566	36	423
Pencils, &c. Rubber-tip attachment for lead	G. Singleton	345,465	July 20	1531	396	36	287
Pencils. Sheath for lead	O. Busaler	345,364	July 13	783	198	36	147
Perforating-machine	E. B. and E. B. Stimpson, Jr	345,189	July 6	536	{137 138	36	98
Perforating-machine	E. B. and E. B. Stimpson, Jr	345,190	July 6	538	138	36	98
Perforating-machine	H. Wallace	348,434	Aug. 31	2783	748	36	1013
Permutation-lock	C. A. Beggs and J. S. Coxey	345,270	July 13	655	167	36	125
Permutation-lock	J. M. Gran	346,542	Aug. 3	117	32	36	483
Permutation-lock	L. G. Knowles	347,618	Aug. 17	1602	425	36	778
Permutation-lock	J. H. and T. D. Morris	344,977	July 6	255	64	36	46
Permutation-lock	R. H. Root	345,393	July 13	730	184	36	139
Permutation-lock. Electro-magnetic	F. Sedgwick	347,008	Aug. 10	819	{218 219	36	694
Permutation-padlock	C. A. Volke	345,340	July 13	752	189	36	141
Petroleum and gas engine	J. Spiel	349,369	Sept. 21	1139	{293 294 295	36	1278
Petroleum. Apparatus for burning	A. J. Stevens	348,700	Sept. 7	232	61, 62	36	1060

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Phenyl-methyl oxyquinicine. Production of	H. Von Perger	348,483	Aug. 31	2858	.....	36	1086
Phosphates. Making	J. J. Dunne	345,625	July 13	1189	.....	36	219
Photographers. Pan for the use of	W. I. Adams	345,871	July 20	1539	398	36	288
Photographic camera	R. A. Anthony and W. H. Lewis	349,133	Sept. 14	894	209	36	1203
Photographic camera	E. B. Barker	348,718	Sept. 7	246	65.96	36	1092
Photographic camera	A. G. Tisdel	348,301	Aug. 31	2604	791	36	978
Photographic camera	O. Varing	347,451	Aug. 17	1309	324	36	732
Photographic camera. Portable	R. D. Gray	346,199	July 27	1990	513	36	389
Photographic cameras. Adjustable plate-holder for	M. E. Hawks	346,546	Aug. 3	123	33	36	483
Photographic dry-plates. Machine for manufacturing	F. O. and F. E. Stanley	345,331	July 13	737	186	36	139
Photographic-paper box	W. Boyce	346,353	July 27	2205	585	36	491
Photographic paper on its support, &c. Composition for holding	T. C. Roche	346,224	July 27	2036	.....	36	389
Photographic-plate holder	P. H. Wheeler	346,392	July 27	2265	580	36	433
Photographic printing	R. B. West	345,753	July 20	1374	.....	36	266
Photographic printing	R. B. West	345,838	July 20	1631	420	36	306
Photographic-printing frame	W. I. Adams	346,255	July 27	2078	534	36	398
Photographic-printing frames. Automatic register for	W. F. Guthrie and N. C. Peterson	347,292	Aug. 10	1128	302	36	690
Photographic printing. Graphic negative-film for	S. C. Duval	345,220	July 6	576	147	36	105
Piano-action	J. W. Cooper	348,111	Aug. 24	2323	623	36	918
Piano-action	E. and C. Keller and G. E. Bauhahn	346,753	Aug. 3	375	101	36	534
Piano action. Upright	F. M. Lawson	350,006	Sept. 28	3019	801	36	1448
Piano action. Upright	R. E. Letton	345,706	July 20	1303	337	36	248
Piano-case	J. W. Cooper	348,110	Aug. 24	2321	622	36	918
Piano case. Upright	W. Haubner	345,505	July 13	986	249	36	183
Piano-damper	E. and C. Keller and G. E. Bauhahn	348,676	Sept. 7	200	53	36	1083
Piano-pedal stool	H. Stretcher	345,005	July 6	304	76	36	55
Piano tuning-pin	R. McMillan	345,711	July 20	1309	339	36	249
Piano tuning-pin	A. Uhlig	345,743	July 20	1361	354	36	258
Piano. Upright	F. Imhorst	348,629	Sept. 7	135	38	36	1072
Pianos. Folding lamp-shelf for	R. Prause	348,343	Aug. 31	2652	715	36	987
Pianos. Key-bottom for	S. La Grassa	347,356	Aug. 17	1238	327	36	707
Pianos. Note-indicator for	C. Ress	346,222	July 27	2024	502	36	389
Picker: *See* Cotton-picker. Fruit and flower picker. Cotton-waste picker.							
Picture-exhibitor	F. W. Martini	349,114	Sept. 14	800	203	36	1197
Pie-lifter	E. T. Bradbury	348,717	Sept. 7	251	67	36	1094
Pie-plate lifter or culinary utensil	G. H. Hollidge	346,287	July 27	2116	544	36	405
Pigeon-hole case	H. D. Pursell	348,930	Sept. 7	534	141	36	1145
Pigments. Manufacture of white	G. T. Lewis	346,114	July 27	1866	482	36	358
Piles. Preserving	J. Cass	349,835	Sept. 28	1794	463	36	1405
Pillow-sham holder	W. W. Ames	348,812	Sept. 7	365	99	36	1115
Pin: *See* Hair-pin. Safety-pin. Piano tuning-pin. Wrist-pin. Printing-press gage-pin.							
Pin-heading machine. Safety	J. Jenkins	349,225	Sept. 14	943	241	36	1225
Pin machine. Safety	J. Jenkins	345,144	July 6	479	122	36	87
Pin machine. Safety	J. Jenkins	349,223	Sept. 14	937	240	36	1224
Pin machine. Safety	J. Jenkins	349,224	Sept. 14	941	241	36	1224
Pin machine. Safety	J. Jenkins and E. H. Gaylord	344,837	July 6	55	13.14	36	11
Pins. Machine for making safety	J. Jenkins	349,226	Sept. 14	946	242	36	1225
Pinchers. Shoe	R. B. Beach	346,886	Aug. 10	562	149	36	575
Pipe: *See* Casting pipe. Service-pipe. Hose-pipe. Stove-pipe. Lead pipe. Tobacco-pipe. Organ-pipe.							
Pipe and nut wrench	J. H. Bowers	347,157	Aug. 10	945	232	36	647
Pipe-covering. Non-conducting	R. Burns	348,187	Aug. 31	2445	637	36	946
Pipe-coupling	J. L. Duff	349,146	Sept. 14	839	214	36	1205
Pipe-coupling	E. Kaylor and H. Prase	345,146	July 6	484	123	36	88
Pipe-coupling	G. O. L. Leprévost-Bourgerel	347,461	Aug. 17	1383	{347 / 368}	36	735
Pipe-coupling	D. McKenzie, Jr	349,511	Sept. 21	1337	347	36	1310
Pipe-coupling	A. H. Rowand and R. S. Hunzeker	345,732	July 20	1341	348	36	254
Pipe-coupling	L. West	349,549	Sept. 21	1369	340	36	1320
Pipe-coupling	H. Wiedling	347,855	Aug. 24	1954	519	36	851
Pipe-joint	E. Grueninger	348,536	Sept. 7	20	6	36	1052
Pipe joint and line	M. S. Verner	345,463	July 13	925	233	36	172
Pipe joint. Metal	W. A. Miles	347,947	Aug. 24	2094	537	36	876
Pipe-joints and producing the same. Cold-packed	A. N. Rankin	347,060	Aug. 10	801	213	36	621
Pipe. Machine for bending metal	C. M. Hunsicker	347,488	Aug. 17	1420	377	36	742
Pipe machine. Spiral	J. B. Root	346,500	Aug. 3	64	16, 17	36	472
Pipe machine. Spiral	J. B. Root	346,812	Aug. 3	206	56	36	500
Pipe-molding apparatus	F. Shickle	349,461	Sept. 21	1270	339	36	1296
Pipe-wrench	S. J. Benson	345,567	July 13	1100	291	36	203
Pipe-wrench	G. E. Franklin	345,777	July 20	1412	368	36	267
Pipe-wrench	J. Leib	348,751	Sept. 7	292	78	36	1101
Pipe-wrench	T. D. McCarty and F. C. Sawhill	346,299	July 27	2132	569	36	408
Pipe-wrench	I. Morse	344,978	July 6	256	64	36	46
Pipe-wrench	R. R. Rouse	346,501	Aug. 3	66	17	36	473
Pipes, &c. Covering for	T. Merriam	347,611	Aug. 17	1642	435	36	785
Pipes. Device for closing openings in	C. J. Phillips	345,073	July 6	384	97	36	70
Pipes. Frost-proof attachment for soil and other	T. C. Boyd	346,715	Aug. 3	335	91	36	526
Pipes. Frost-proof protector for ventilation and other	T. C. Boyd	346,714	Aug. 3	334	91	36	526
Pipes. Machine for making metal	J. B. Root	346,613	Aug. 3	208	56	36	500
Pipes. Machine for making spirally-jointed metal	J. B. Root	346,615	Aug. 3	210	57, 58	36	501
Pipes of clay, &c., Machine for making sewer	E. T. Barden	347,457	Aug. 17	1377	368	36	734
Piping. Hanger for	P. N. Kenway	347,489	Aug. 17	1421	378	36	743

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Piston. Steam-engine	J. Davis	346,584	Aug. 3	168	45	36	492
Pitchfork and hand-rake combined	F. A. Olsen	346,677	Aug. 3	286	78	36	517
Pitman	R. S. Mitchell	348,634	Aug. 24	2311	580	36	887
Pivot-cutting implement	A. A. Wolcott	349,470	Sept. 21	1263	333	36	1269
Plane. Blind-nailing	W. G. Stranahan	345,870	July 20	1538	397	36	288
Plane. Variable bench	A. Fales	348,198	Aug. 31	2450	{660 / 661}	36	949
Planer. Core-box	C. H. S. Collins	345,278	July 13	668	169	36	127
Planer-knife gage	A. Potter	348,341	Aug. 31	2631	715	36	967
Planing and matching machine	C. F. Ritchel	344,867	July 6	104	26	36	19
Planing machine. Metal	A. Clarke	346,090	July 27	1837	{474 / 475}	36	352
Planing machine. Wood	E. H. Hanson	345,503	July 13	964	249	36	182
Planing-machines. Presser attachment for	G. W. Passel	347,234	Aug. 10	1073	287	36	671
Plant and tree culture apparatus	W. J. Dennis	349,067	Sept. 14	757	193	36	1189
Plant-protector	E. Zimmer	346,233	July 27	2074	533	36	396
Planter	J. Dunkin	346,901	Aug. 10	579	155	36	580
Planter	T. J. Savage	349,860	Sept. 28	1825	471	36	1411
Planter	W. S. Strother	349,823	Sept. 28	1779	460	36	1401
Planter	L. B. Walker	348,801	Sept. 7	352	90	36	1113
Planter	E. D. Whitehurst	346,793	Aug. 3	419	116	36	542
Planter and fertiliser-distributer	J. S. Jenkins	349,799	Sept. 28	1741	449	36	1394
Planter and fertiliser-distributer. Combined	J. M. Huffman	346,548	Aug. 3	124	33	36	484
Planter and fertilizer-distributer. Cotton	L. L. Upshaw	349,325	Sept. 21	1081	272	36	1257
Planter and manure-distributer	D. C. Bullard	345,210	July 6	562	144	36	102
Planter and seeder	J. M. Johnston	347,614	Aug. 17	1563	{492 / 493}	36	776
Planter attachment. Corn	A. G. Langlot	345,387	July 13	812	205	36	152
Planter. Check-row corn	S. F. Enos	349,636	Sept. 21	1496	{387 / 388}	36	1343
Planter. Check-row corn	G. McCormick and E. T. McClain	347,362	Aug. 17	1237	{329 / 330}	36	709
Planter. Check-row corn	H. Morrison	349,259	Sept. 14	989	252	36	1234
Planter. Check-row corn	J. K. Voorhees	348,250	Aug. 31	2535	661	36	963
Planter check-rower. Corn	F. Litterer and L. McKinnies	349,470	Aug. 31	2837	763	36	1022
Planter. Corn	J. M. Allison and C. P. Bowden	345,757	July 20	1360	359	36	261
Planter. Corn	S. Beal	346,186	July 27	1972	{508 / 509}	36	378
Planter. Corn	O. J. Colton	349,836	Sept. 28	1795	464	36	1405
Planter. Corn	G. Ecken	346,550	Aug. 3	126	34	36	484
Planter. Corn	R. W. Jordan	349,162	Sept. 14	961	221	36	1209
Planter. Corn	J. S. Mulholen	347,489	Aug. 17	1432	380	36	745
Planter. Corn	C. H. Richardson	347,989	Aug. 24	2008	532	36	859
Planter. Corn	A. Runstetler	347,643	Aug. 17	1658	{439 / 440}	36	787
Planter. Corn	F. H. Rybacek	349,455	Sept. 21	1261	327	36	1265
Planter. Corn	M. A. Spafford	348,536	Aug. 31	2835	760	36	1040
Planter. Corn and cotton	J. T. McNorton	345,369	July 13	814	205	36	152
Planter. Hand corn	W. A. Esterly and E. W. Poe	348,387	Aug. 31	2718	730	36	1000
Planter. Light-draft corn	J. Wyatt	346,252	July 27	2073	533	36	396
Planter. Peanut	J. R. Ayers	346,976	Aug. 10	679	180	36	599
Planter. Potato	J. D. Lord and J. M. Cheevers	347,275	Aug. 10	1102	295	36	676
Planter. Seed	J. T. Gantt	345,426	July 13	878	219	36	163
Planter. Seed	M. Shank and F. G. Green	349,527	Sept. 21	1359	353	36	1315
Planter. Seed	J. H. Shaw	349,460	Sept. 21	1269	329	36	1266
Planter. Seed	R. J. Wentz	344,867	July 6	135	33	36	24
Planter. Seed	I. A. Wesson	345,198	July 6	548	140	36	100
Planter. Seed or corn	E. R. Procter	347,825	Aug. 24	1916	509	36	843
Planters. Check-rower for corn	D. Reed	345,176	July 6	518	131	36	94
Planters. Cut-off for	D. M. Parry	347,637	Aug. 17	1649	437	36	786
Planting machine. Corn	G. F. and W. N. Kuhns and P. S. Bollinger	345,640	July 13	1204	{312 / 313}	36	232
Planting machine. Potato	J. P. Van Vleck	349,242	Sept. 14	968	247	36	1229
Plastering, filling, wall-ornaments, &c. Composition for	W. Horstmann	345,847	July 20	1509	.....	36	283
Plastering-strip	G. Ahrens	347,080	Aug. 10	841	223	36	628
Plastering-strip	G. Ahrens	349,331	Sept. 21	1008	274	36	1258
Plastic material with gold, &c. Lining plates of	H. Barnes	348,184	Aug. 31	2462	655	36	946
Plate. Pie	M. J. Gross	348,539	Sept. 7	400	108	36	1122
Plates. Making	D. B. Oliver	348,990	Sept. 14	615	162	36	1166
Platform: *See* Coffin-platform.							
Platform or scaffold	A. Murphy and C. Weinman	347,055	Aug. 10	794	211	36	619
Pliers. Cutting	E. B. Crocker	345,215	July 6	571	146	36	103
Plow	C. Anderson	348,652	Sept. 7	163	45	36	1077
Plow	J. W. Barnett	345,099	July 6	417	107	36	76
Plow	T. W. Boyle	345,097	July 6	330	83	36	60
Plow	J. W. Carr	345,113	July 6	436	112	36	80
Plow	W. L. Casaday	345,276	July 13	665	168	36	126
Plow	W. Dilien	348,193	Aug. 31	2454	659	36	948
Plow	A. J. Gale	347,102	Aug. 10	869	230	36	632
Plow	E. Houts and A. Brown	349,290	Sept. 14	931	239	36	1223
Plow	J. A. Johnson	346,288	July 27	2117	544	36	406
Plow	J. Lenhart	349,506	Sept. 21	1333	345	36	1309
Plow	A. C. McNeal	345,161	July 6	501	128	36	91
Plow	A. Rolow	345,992	July 20	1708	440	36	319
Plow	F. Rothmunt	349,750	Sept. 28	1675	432	36	1381
Plow	J. A. Smith	346,780	Aug. 3	465	119	36	539
Plow	G. Wiard	346,879	Aug. 3	542	147	36	566
Plow	J. M. Woodley	349,916	Sept. 28	1891	489	36	1424
Plow	J. P. Zeller	346,081	July 20	1685	471	36	341
Plow and planting mechanism. Combined	W. S. Greening	348,204	Aug. 31	2471	{663 / 664}	36	951
Plow attachment	S. A. Stienbarger	350,085	Sept. 28	2130	551	36	1469

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Plow attachment	W. S. Thurlow	349,364	Sept. 14	996	654	36	1235
Plow. Combination	A. A. Weinmann	347,144	Aug. 10	926	947	36	644
Plow. Gang	P. Hansen	344,530	July 6	36	10	36	9
Plow. Gang	E. E. Krause	347,721	Aug. 17	1768	670	36	696
Plow. Gang	E. H. Nicholson	346,766	Aug. 3	269	107	36	536
Plow. Hilling	L. P. Thompson	348,089	Aug. 24	2270	664	36	908
Plow-jointer	A. G. Christman	345,770	July 20	1408	263	36	265
Plow. Lister	E. P. Lynch	347,860	Aug. 24	1894	689	36	957
Plow. Mold-board	G. A. Kelly	346,460	Aug. 3	41	10, 11	36	468
Plow or cultivator	A. Beard	347,220	Aug. 10	1039	274	36	662
Plow. Planting	J. P. Black. (Reissue)	10,745	July 13	1943	398	36	230
Plow-point	J. A. Tigner	347,074	Aug. 10	833	273	36	696
Plow. Reversible	N. McLean	345,797	July 20	1437	278	36	271
Plow. Shovel	J. W. Webster	348,436	Aug. 31	2726	748	36	1013
Plow. Steam	W. Lay	348,401	Aug. 31	2737	734	36	1003
Plow-stock	W. F. Barnett and F. L. Adams	346,978	Aug. 10	681	735	36	599
Plow. Sulky	C. Anderson	348,487	Aug. 31	2859	769	36	1026
Plow. Sulky	C. Anderson	348,945	Sept. 14	556	770	36	1155
Plow. Sulky	P. C. Brown and T. P. Bragg	350,036	Sept. 28	2055	147	36	1454
Plow. Sulky	W. E. Budd	346,801	Aug. 3	427	331	36	543
Plow. Sulky	E. A. DeWitt	347,472	Aug. 17	1398	117	36	543
Plow. Sulky	E. D. Meagher	345,713	July 20	1312	279	36	739
Plow. Sulky	F. T. Miller	345,068	July 6	378	339	36	249
Plow. Sulky	J. Moseley	348,231	Aug. 31	2511	675	36	69
Plows. Cutting attachment for	J. Owens	345,916	July 20	1604	413	36	958
Plows. Harrow attachment for	N. W. Rew	347,380	Aug. 17	1260	335	36	301
Plows. Landside-cutter for	B. B. Reed	349,406	Sept. 21	1194	309	36	714
Plows. Mold-board for	J. W. Peters	349,404	Sept. 21	1191	308	36	1282
Plows. Plant-shield for	J. H. Witt	348,941	Sept. 7	548	144	36	1282
Plowing, pulverizing, and cultivating machine. Steam	J. Q. A. Newson	349,807	Sept. 28	1754	452	36	1147
Pocket-knife	A. Friebertshauser	345,296	July 13	694	453	36	1396
Poison. Machine for sprinkling fluid	J. W. Clarke	345,413	July 13	857	175	36	171
Poisons. Receptacle for	T. Mayhew	348,227	Aug. 31	2505	.....	36	159
Pole and shafts. Combined	I. T. Wood	349,292	Sept. 14	1023	673	36	957
Poke. Animal	T. D. Reaves	345,850	July 20	1584	381	36	1941
Poke. Animal	C. E. Phifer	345,600	July 13	1142	394	36	985
Pole-coupling for vehicles. Adjustable	J. N. Brown	346,144	July 27	1918	392	36	211
Pole or shaft supporter	G. F. Kopp	346,226	July 27	2119	405	36	767
Pole-tip	S. R. Scantron	349,525	Sept. 21	1357	345	36	406
Polishing-machine	E. S. Hollister	344,835	July 6	44	353	36	1315
Polishing machine. Pinion-leaf	E. A. Marsh	349,944	Sept. 28	1932	11	36	9
Polycycle	A. Coudyser	345,414	July 13	858	699	36	1432
Porous mass for blotting purposes and for making cigar-pipes, &c.	O. Brach	347,565	Aug. 17	1527	700	36	159
Portable furnace	E. Densmore	347,328	Aug. 17	1189	.....	36	702
Portable tank	V. M. Backus	344,932	July 6	169	318	36	701
Post:					68	36	35
See Fence-post. Gate-post. Hitching-post.							
Post and pile driver	A. Towberman	347,211	Aug. 10	1014	270	36	660
Post-driver	A. S. Reisor	347,128	Aug. 10	899	260	36	638
Post-holder	W. B. Thomas	349,240	Sept. 14	966	286	36	1239
Pot:							
See Coffee-pot. Coffee and tea pot. Dash-pot. Lead-corroding pot. Stove fire-pot.							
Potato-digger	W. J. Davis	345,032	July 6	335	94	36	61
Potato-digger	E. Hoy	346,918	Aug. 10	604	151	36	585
Potato-digger	C. W. Kattell	346,819	Aug. 3	447	193	36	547
Potato-digger	J. C. Mattice	348,166	Sept. 14	865	194	36	1210
Potato-digger	J. W. Roberts	346,696	Aug. 3	294	232	36	1210
Potato-digger	W. H. Tuttle	349,986	Sept. 28	1957	91	36	518
Potato-digger	J. Van Sielen	345,936	July 20	1627	506	36	1436
Potato digger and separator. Combined	I. W. Hoover	348,214	Aug. 31	2484	419	36	365
Potato-meal. Making	C. Maull	345,159	July 6	560	600	36	954
Powder-case	E. A. Kittell	348,585	Aug. 31	2919	.....	36	91
Power:					765	36	1037
See Horse-power.							
Power. Automatic apparatus for accumulating and utilizing	J. Houlehan	347,710	Aug. 17	1748	496	36	803
Power. Device for transmitting	C. A. Launins	348,022	Aug. 24	2195	595	36	894
Preservation of food substances	A. R. Roosen	350,018	Sept. 28	2037	.....	36	1451
Preserving and waterproofing composition	R. E. Nichols	349,172	Sept. 14	873	.....	36	1211
Preserving food. Composition for	W. Radam	349,900	Sept. 28	1874	.....	36	1491
Press:							
See Baling-press. Cider-press. Cotton-press. Crupper-press. Foot-press. Gunpowder-press. Hay-press. Hydraulic press. Lead-press. Printing-press. Seal-press.							
Press-board and sleeve-pressing frame. Combined	E. J. Whitman	347,853	Aug. 24	1956	518	36	851
Pressure-gage. Recording	F. A. Jones	345,061	July 6	371	93, 94	36	69
Pressure-gage. Recording	F. A. Jones	348,219	Aug. 31	2496	671	36	966

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pressure-regulator	J. S. De Palos	346,403	July 27	2280	585	36	636
Pressure-regulator	G. W. Lawton	347,118	Aug. 10	666	235	36	636
Printer's galley	W. H. H Doty	346,800	Aug. 3	437	119	36	545
Printers' leads. Machine for shaving	H. F. Wellman	348,604	Sept. 7	356	96, 97	36	1114
Printer's quoin	D. J. Ferry	348,119	Aug. 24	2332	636	36	980
Printing and adding machine. Check	W. Koch and C. Kruse	348,496	Aug. 31	2873	773	36	1089
Printing and registering tickets. Machine for	J. P. Dunn	345,623	July 13	1169	300	36	217
Printing-case stands. Attachment for	W. V. Tufford	344,927	July 6	184	47	36	34
Printing, dating, and registering tickets. Machine for	J. P. Dunn	345,624	July 13	1175	302	36	218
Printing-machine	A. Campbell	345,669	July 20	1255	395	36	239
Printing-machine	B. Huber	350,056	Sept. 28	2069	541	36	1461
Printing machine. Cloth	H. E. Green	349,037	Sept. 14	686	176	36	1177
Printing-machine. Cylinder	J. C. Rairigh	347,513	Aug. 17	1459	385	36	748
Printing-machine ink-fountain	H. H. Thoop	348,654	July 13	1235	319	36	998
Printing-machine inking apparatus	R. Miehle	347,364	Aug. 17	1230	330	36	709
Printing-machine inking device	H. F. Bechman	345,760	July 20	1388	340	36	963
Printing machine. Oil-cloth	G. W. Williams	349,417	Sept. 21	1205	312	36	1284
Printing-machine. Oscillating-cylinder	J. T. Hawkins	346,911	Aug. 10	595	159	36	563
Printing-machine. Rotary	W. R. Landfear	346,592	Aug. 3	176	47, 48	36	494
Printing-machine sheet-delivery apparatus	J. Brooks	349,781	Sept. 28	1790	444	36	1369
Printing-machine. Stop-cylinder	C. B. Cottrell	347,922	Aug. 24	2056	545	36	868
Printing-machine. Web-perfecting cylinder	D. T. Simpson	345,079	July 6	390	98, 99	36	71
Printing-machines. Evener or sheet-straightener for the receiving-tables of	W. W. Moseman	345,644	July 13	1215	314	36	225
Printing-machines. Gripper mechanism for	B. Huber	347,487	Aug. 17	1419	377	36	742
Printing-machines. Inking apparatus for	W. H. Hughes	348,163	Aug. 24	2306	643	36	932
Printing-machines. Paper-feeding device and cutter for	D. L. Wortendyke	348,506	Aug. 31	2888	777	36	1032
Printing-machines. Sheet-delivery apparatus for	J. Walther	348,075	Aug. 24	2275	609	36	909
Printing-machines. Sheet-delivery for	J. T. Hawkins	346,910	Aug. 10	593	158	36	563
Printing-machines. Sheet-piling attachment for	C. E. Holbrook	348,123	Aug. 24	2335	159	36	921
Printing-machines. Tension device for	W. J. Shea	347,966	Aug. 24	2127	627	36	921
Printing-machines. Throw-off mechanism for oscillating	F. Van Wyck	348,302	Aug. 31	2605	566	36	881
Printing-machines. Web-controlling device for	J. L. Cox	347,690	Aug. 17	1718	701	36	978
Printing on pyroxyline compounds	M. C. Lefferts and J. W. Hyatt	348,229	Aug. 31	2488	456	36	798
Printing-press	W. A. Kelsey	348,021	Aug. 24	2194	459	36	956
Printing-press gage-pin	E. L. Megill	345,086	July 6	376	584	36	894
Printing-presses. Air-cushion for	R. Miehle	345,587	July 13	1035	95	36	69
Printing-presses. Throw-off mechanism for	H. F. Bechman	346,635	Aug. 3	236	963	36	191
Printing-roller. Hand	W. W. McMains	346,480	Aug. 3	51	65	36	506
Printing upon or decorating the surface of celluloid	M. C. Lefferts	346,376	July 27	2238	13	36	469
Prison-cells. Construction of	P. W. Herzog	348,210	Aug. 31	2479	.....	36	498
Privy	J. J. Lovejoy and L. Kraft	349,399	Sept. 21	1184	666	36	953
Projectile for throwing life-lines	S. Ingersoll	348,848	Sept. 7	499	306	36	1080
Projectile. Ordnance	B. T. Babbitt	346,343	July 27	2193	111	36	1123
Propeller. Screw	E. Bennett	345,761	July 20	1391	563	36	419
Propeller. Screw	B. Dickinson	344,686	July 6	146	361	36	953
Propelling and steering vessels	J. J. Kunstädter	345,702	July 20	1299	37	36	27
Propelling canal-boats	A. Schausten	348,296	Aug. 31	2593	336	36	947
Proportional meter	G. Westinghouse, Jr	347,673	Aug. 17	1697	698	36	975
Protector:					458	36	794
See Boot or shoe protector. Game-protector. Hose-protector. Lamp-protector. Pantaloons-protector. Plant-protector. Vest-seam protector. Water-closet-seat protector.					453		
Protractor	G. Almorth	346,836	Aug. 3	477	139	36	554
Protractor	O. Tybjerg	346,519	Aug. 3	91	24	36	478
Protector and stiffener	I. H. Westgate	345,199	July 6	550	141	36	100
Pruning implement	R. Bartly	347,552	Aug. 17	1509	401	36	750
Puller:							
See Cork-puller.							
Pulley. Awning	W. H. Bakewell	346,084	July 27	1832	473	36	551
Pulley. Band-saw	W. H. Dodge	346,209	Aug. 31	2560	628	36	988
Pulley-belter	F. B. Ray	346,067	July 20	1410	467	36	537
Pulley. Clothes-line	J. S. Collins and E. J. Lyons	349,482	Sept. 21	1288	337	36	1362
Pulley-covering. Wooden	W. H. Dodge	346,270	Aug. 31	2561	628	36	988
Pulley frame. Sash-cord	O. Lecourse	348,979	Sept. 14	665	159	36	1164
Pulley. Friction	W. W. Wells	349,547	Sept. 21	1367	359	36	1360
Pulley. Hoisting	H. Butters	349,691	Sept. 28	1572	402	36	1364
Pulp. Machine for forming hollow ware from	H. Parker	346,292	Aug. 31	2568	696	36	974
Pulverizer, harrow, and cultivator. Combined	J. L. and E. D. Claudin	347,573	Aug. 17	1536	409	36	705
Pulverizing-machine	H. B. Feldmann	347,480	Aug. 17	1469	375	36	741
Pump	R. Bean	346,861	Sept. 7	466	123	36	1133
Pump	D. B. Cahow	349,905	Sept. 14	915	235	36	1219
Pump	W. H. Cloud	345,118	July 6	440	113	36	89
Pump	C. Jensen	346,208	July 27	2005	517	36	334

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Pump	O. Junkerman	347,112	Aug. 10	891	333	36	635
Pump	R. I. Knapp	345,364	July 13	806	304	36	151
Pump	T. Patten, Jr., and C. Anderson	349,951	Sept. 28	1944	503	36	1434
Pump	C. Schubert	348,060	Aug. 24	2855	803	36	965
Pump. Air-	H. Gazaille and H. F. Low	349,498	Sept. 21	1292	317	36	1267
Pump. Beer-	H. C. Montgomery	348,333	Aug. 31	2639	712	36	936
Pump. Boat-	C. P. Carlson	346,780	Aug. 3	340	93	36	527
Pump bucket. Endless-chain-	G. H. Shellabergar	348,298	Aug. 31	2880	709	36	977
Pump. Double-acting	W. D. Hooker	349,047	Sept. 14	703	179 / 180	36	1179
Pump. Double-acting	T. Northey	345,253	July 6	626	159	36	113
Pump. Double-acting	C. B. Wylie	345,657	July 13	1239	321	36	329
Pump for wells	D. K. Keller	348,296	Aug. 31	2581	694	36	973
Pump. Force-	J. W. Van Order	348,361	Aug. 31	2873	720	36	991
Pump. Gas-engine	F. B. Taylor	347,137	Aug. 10	916	244	36	642
Pump. Lifting-	H. Jones	345,145	July 6	488	123	36	99
Pump. Mining-	J. B. Lyons	347,734	Aug. 17	1765	471	36	806
Pump. Oil-	P. Hight	345,431	July 13	896	230	36	165
Pump or similar apparatus. Rotary	C. T. Colebrook	345,885	July 20	1561	402	36	292
Pump-piston	W. H. Wheeler	349,830	Sept. 28	1788	462	36	1404
Pump. Pneumatic	R. Adlung	349,777	Sept. 28	1715	448	36	1389
Pump-regulator	J. H. Blessing	347,559	Aug. 17	1518	403	36	761
Pump. Rotary	C. H. Cary	346,722	Aug. 3	343	93	36	508
Pump. Rotary	J. O. Cheever	349,270	Sept. 14	1003	256	36	1237
Pump. Rotary	J. G. and P. E. Falcon	346,471	Aug. 3	30	8	36	466
Pump. Steam-	E. A. Marsh	345,311	July 13	711	179 / 180	36	134
Pump. Submerged	C. M. Brown	345,271	July 13	656	167	36	125
Pump. Submerged force-	L. A. Kelly	350,002	Sept. 28	2013	520	36	1447
Pump system. Electric air-	A. B. Worth	348,606	Sept. 7	102	39	36	1066
Pumps. Automatic attachment for working ships'	E. Everding	348,956	Sept. 14	570	152	36	1157
Pumps. Condenser for steam-	W. Craig	346,195	July 27	1985	512	36	381
Pumps. Expansion rubber bucket for chain-	S. A. Goss	347,342	Aug. 17	1909	393	36	704
Pumps. Heater and condenser for steam force-	W. S. Wandell	347,215	Aug. 10	1023	272	36	661
Pumps. Rubber bucket for chain-	M. D. Temple	346,960	Aug. 10	659	176	36	595
Pumps. Valve for mercurial	A. L. and C. F. Reinmann	345,543	July 13	1064	271	36	197
Pumps. Vent-hole closer for	E. S. Babcock	349,680	Sept. 28	1557	403	36	1361
Pumping-engine. Steam	A. Warth	348,076	Aug. 24	2277	610	36	910
Pumping machinery. Operating-lever for	J. Wheelock	349,551	Sept. 21	1391	360	36	1321
Punch and die for trimming shells	R. White	348,440	Aug. 31	2795	751	36	1015
Punching and eyeleting machine	C. A. Corman	348,190	Aug. 31	2449	658	36	947
Punching and stitching eyelet-holes. Machine for	J. W. Blodgett	345,663	July 20	1947	523	36	337
Punching-machine	L. Wildermuth	349,072	Sept. 14	736	188	36	1185
Purifier: *See* Middlings-purifier.							
Purse-fastener	J. Menahan	345,067	July 6	377	95	36	69
Puzzle	C. G. Dress	345,287	July 13	681	171 / 172	36	129
Pyroxyline. Drying	G. M. Mowbray	349,659	Sept. 21	1523	.....	36	1348
Pyroxyline or analogous substances upon a mandrel. Process of and apparatus for mounting	J. B. Edson	350,049	Sept. 28	2068	534 / 535	36	1458
Pyroxyline. Process of and apparatus for washing, decoloring, and draining	G. M. Mowbray	349,658	Sept. 21	1521	393	36	1348
Quilling-machine	J. and J. Nightingale	348,336	Aug. 31	2643	713	36	985
Quilting-frame	J. E. Wright	345,267	July 6	647	164	36	117
Quilting-machine	J. Happe	349,090	Sept. 14	761	194 / 195	36	1190
Quoins. Key for locking	J. N. O. Hankinson	346,156	July 27	1937	499	36	371
Rack: *See* Clothes-rack. Cent-rack. Display-rack. Folding rack. Gonda-rack. Hat and coat rack. Show-rack. Stove-rack. Towel-rack.							
Rack and table. Combined	L. M. Elrick	348,272	Aug. 31	2563	688	36	968
Rack or stand. Hat, bonnet, and apparel	J. C. Lavaggi	346,293	July 27	2124	547	36	407
Radiator	J. R. Reed	347,127	Aug. 10	897	240	36	638
Radiator attachment. Steam-	M. S. Durrell and A. L. Gebhard	347,476	Aug. 17	1403	374	36	739
Radiator. Steam-heating	W. W. Carman	348,615	Sept. 7	115	32	36	1068
Rafters. Instrument for obtaining lengths and bevels of	H. Conlee	348,723	Sept. 7	258	69	36	1085
Rail-brace	P. F. Barr	346,979	Aug. 10	682	181	36	599
Rail-clearer	A. F. Priest	345,257	July 6	632	161	36	115
Rail-frog. Automatic continuous	F. C. Weir	348,078	Aug. 24	2280	611	36	910
Rail-joint	F. J. Powers	346,926	Aug. 3	457	125	36	549
Rail-joint	M. G. Shindle	344,994	July 6	178	45	36	33
Rail-joint	E. A. Temple	348,704	Sept. 7	227	63	36	1090
Rail-joint support	A. H. Ege	349,305	Sept. 21	1088	266	36	1252
Rail. Safety-guard	H. Gilleas	348,734	Sept. 7	272	73	36	1098
Rails. Circuit-closer for	W. Daves	349,926	Sept. 28	1900	492 / 493	36	1426
Rails. Roll for rolling girder-	T. L. Beaman	347,283	Aug. 10	1113	286	36	678
Rails. Rolls for making tram-	P. Kirk	345,512	July 13	985	259	36	185
Rails. Rolls for rolling fish-bars from old	G. Westenholm	347,310	Aug. 10	1159	310	36	648
Rails. Utilizing old	J. Reese	346,498	Aug. 3	62	15	36	472
Railway	T. P. Chandler, Jr.	346,734	Aug. 3	345	94	36	528
Railway	E. C. Jones	349,846	Sept. 28	1810	467 / 468	36	1408
Railway-brake. Dynamo-electric	C. J. Van Depoele	347,904	Aug. 24	2029	537	36	883
Railway-brake. Electro-magnetic	C. J. Van Depoele	348,360	Aug. 31	2672	720	36	991
Railway. Cable	P. M. Brenner	345,616	July 13	1161	298	36	215
Railway. Cable	J. J. Endres	347,784	Aug. 24	1858	493	36	831
Railway. Cable	R. Gillham	345,378	July 13	801	202	36	150
Railway. Cable	E. O. McGlauflin	347,624	Aug. 17	1610	427	36	729
Railway-car signal	R. Solano	349,959	Sept. 28	1955	505	36	1436
Railway-coaches, &c. Cuspidor for	J. B. McLain	347,189	Aug. 10	988	264	36	655
Railway cross-tie	E. R. Procter	347,734	Aug. 17	1777	474	36	808
Railway-crossing	W. T. Shannon	346,229	July 27	2030	524	36	390
Railway-crossing signal	W. Vogel	347,752	Aug. 17	1801	480	36	813
Railway. Electric	J. C. Henry	345,845	July 20	1504	390 / 391	36	982
Railway. Electric	S. H. Short and J. W. Nesmith	348,476	Aug. 31	2845	766	36	1034
Railway. Electric	S. H. Short and J. W. Nesmith	348,477	Aug. 31	2848	767	36	1034
Railway. Electric or other	T. P. Chandler, Jr.	346,465	Aug. 3	18	5	36	464
Railway. Elevated	D. Moulton	345,645	July 13	1217	314	36	225
Railway-frog	J. J. Billingsley	349,978	Sept. 28	1983	519	36	1441
Railway-frog	E. Campbell	349,783	Sept. 28	1723	445	36	1390
Railway-frog	H. Miller	346,671	Aug. 3	279	77	36	515
Railway-frog	P. Nolan	349,960	Sept. 14	991	253	36	1234
Railway-frog crossing	P. C. Dunn	348,516	Aug. 31	2907	781	36	1035
Railway-gate	J. L. Bickford	345,568	July 13	1101	281	36	203
Railway-gate	H. Cluever and N. Thelen	347,574	Aug. 17	1539	409	36	765
Railway-gate	N. Harris	345,896	July 20	1576	407	36	295
Railway-gate	R. A. Hartman	345,429	July 13	882	230	36	164
Railway-gate	J. A. Lidback	345,239	July 6	606	153	36	110
Railway-gate	J. A. Lidback	349,507	Sept. 21	1449	373 / 374	36	1332
Railway-gate	J. H. McDowell, R. W. Hudgins, and J. E. Moore.	345,522	July 13	1007	256	36	187
Railway-gate	S. J. Wetmore	349,020	Sept. 14	664	171	36	1179
Railway-gate	E. G. Williams	348,810	Sept. 7	364	98	36	1115
Railway or other signal	H. S. Pfeil	349,285	Sept. 14	1017	260	36	1240
Railway. Pleasure cable	L. A. Thompson	348,798	Sept. 7	347	94, 95	36	1112
Railway. Pneumatic and electric	E. F. Edgar	346,902	Aug. 10	580	155 / 156	36	586
Railway-rail	J. S. Harshman	348,673	Sept. 7	196	52	36	1082
Railway-rail	D. S. Tuthill	350,069	Sept. 28	2134	552	36	1470
Railway-rail chair	M. R. Perkins	344,920	July 6	174	45	36	32
Railway-rail chair	H. H. C. Sintzenich	348,699	Sept. 7	231	61	36	1069
Railway-rail joint	C. Wilcox	348,484	Aug. 31	2858	768	36	1038
Railway-rail joint fastening	M. V. B. Ethridge	345,421	July 13	871	217	36	162
Railway-rail splice	C. P. Sharrer	349,958	Sept. 28	1954	505 / 506	36	1436
Railway safety-switch	J. N. Habbell	347,605	Aug. 24	1879	501 / 502	36	837
Railway-signal	F. P. Abercrombie	349,131	Sept. 14	891	206	36	1201
Railway-signal	S. B. Fyler	348,322	Aug. 31	2628	708	36	962
Railway-signal	W. Hadden	349,040	Sept. 14	690	177	36	1177
Railway-signal	C. M. Havey, R. Black, and T. G. Palmer.	345,782	July 20	1419	367	36	969
Railway-signal	H. H. Liemke	346,484	Aug. 3	45	12	36	468
Railway-signal	H. H. Liemke	346,485	Aug. 3	46	12	36	468
Railway-signal	M. W. Long	345,641	July 13	1208	313	36	283
Railway-signal	J. B. Rathbun and E. A. Burgess	349,954	Sept. 28	1946	503	36	1435
Railway-signal	J. H. Reinhardt	346,946	Aug. 10	641	172	36	592
Railway-signal	T. R. A. Weber	347,541	Aug. 17	1493	396	36	756
Railway-signal. Automatic	M. D. Brown	345,412	July 13	855	213 / 214	36	159
Railway-signal. Electric	W. Daves	349,927	Sept. 28	1902	493	36	1426
Railway-signal. Electric	M. W. Long	345,642	July 13	1211	313	36	284
Railway signal-light	H. H. Swan	345,653	July 13	1233	319	36	298
Railway signaling apparatus	W. Vogel	347,753	Aug. 17	1804	481	36	814
Railway-sleeper	E. Schmidt	349,524	Sept. 21	1356	352	36	1314
Railway-spike	J. M. Fennerty	345,423	July 13	873	217	36	162
Railway-spike	H. W. Fowler	345,628	July 13	1186	304	36	219
Railway stop and signal. Automatic mechanical	C. A. Dahl	346,843	Aug. 3	483	134	36	556
Railway-switch	J. W. Adams	348,606	Sept. 7	106	30	36	1067
Railway-switch	G. Bennett, G. Dike, and W. W. Rich.	347,967	Aug. 24	2151	572	36	885
Railway-switch	C. M. Crosby	349,250	Sept. 14	980	250	36	1239
Railway-switch	M. Miles	345,440	July 13	895	223	36	166
Railway-switch	J. W. Vandegrift and F. L. Campbell	346,789	Aug. 3	415	114 / 115	36	541
Railway-switch	M. Wuerpel and H. P. Tausesig	348,089	Aug. 24	2295	615	36	813
Railway-switch and switch-stand	E. Gordon	348,006	Aug. 24	2175	579	36	890
Railway-switch. Automatic	W. S. Boyd, 3d	347,317	Aug. 17	1171	314	36	698
Railway switches and signals. Mechanism for operating	H. and C. R. Johnson	347,939	Aug. 24	2083	553	36	874
Railway-tie	D. G. Ross	346,069	July 20	1813	468	36	338
Railway tie and chair. Combined	I. F. Good	344,926	July 6	34	8	36	8
Railway-tie and fastening for rails. Metallic	H. L. De Zeng	348,550	Sept. 7	12	3	36	1050
Railway tie or sleeper	C. Saillies	345,733	July 20	1342	349	36	255
Railway-track	S. Hyman	345,054	July 6	358	90	36	65
Railway-track jack	B. F. Hazelton and P. H. Mack	345,844	July 20	1503	389	36	292
Railway-track. Metallic	D. Kaufman	346,998	Aug. 10	704	186	36	603
Railway-track. Portable	F. Peteler	348,533	Aug. 31	2932	768	36	1040
Railway-track system	P. Noonan	349,447	Sept. 21	1251	314	36	1292
Railway-tracks and the constituents parts thereof. Construction of	H. P. Adams	348,877	Sept. 7	456	120	36	1131
Railway-tracks. Cleaning and lubricating	E. W. McKenna	346,303	July 27	2136	550	36	409
Railway-tracks. Constructing	T. H. Gibbon	347,236	Aug. 10	1047	280	36	665
Railway-tracks. Curve-rail for	T. L. Johnson	348,017	Aug. 24	2189	563	36	893
Railway-trains by electricity. System of lighting	W. A. Stern	346,268	July 27	2259	578 / 579	36	432
Railway traveler and switch operator. Electric	C. J. Van Depoele	347,901	Aug. 24	2021	536	36	862
Railways. Automatic suspended switching device for electric	C. J. Van Depoele	349,963	Aug. 10	662	176	36	595
Railways. Conductor for electric	R. L. Harris	348,088	Aug. 24	2178	579	36	891
Railways. Conduit for cable	L. B. White	348,689	Sept. 28	1834	474	36	1412

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railways. Device for turning curves in cable	E. D. Dougherty	348,725	Sept. 7	981	70	36	1022
Railways. Grip for cable	N. Abbott	345,354	July 13	771	193	36	144
Railways. Grip for cable	H. Casebolt	348,380	Aug. 31	2706	727	36	998
Railways. Grip for cable	H. Casebolt	349,479	Sept. 21	1295	336	36	1302
Railways. Grip for cable	C. A. Harvey	347,597	Aug. 17	1573	417 / 418	36	772
Railways. Grip for cable	L. B. White	349,867	Sept. 28	1833	474	36	1413
Railways. Grip-slot closer for cable	L. C. Jennings	345,594	July 13	1136	296	36	210
Railways. Gripping device for cable	A. E. Hovey	347,935	Aug. 24	2074	550 / 551	36	872
Railways. Interlocking switch and signal mechanism for	E. H. Johnston	349,161	Sept. 14	859	220 / 221	36	1209
Railways. Machine for cleaning ice, &c., from street	J. Remers	349,122	Sept. 14	808	203	36	1196
Railways. Part of the permanent way of	J. H. and W. Tozer	349,913	Sept. 28	1888	484	36	1421
Railways. Rack-rail for	R. Abt	349,624	Sept. 21	1481	383 / 384	36	1339
Railways. Safety appliance for	A. Bernstein and A. Goldstein	346 018	July 20	1750	450	36	326
Railways. Safety-bar for	F. S. Guerber	348,902	Sept. 7	495	131	36	1138
Railways. Slip-rail frog for	I. Burnett and E. Folliott	349,689	Sept. 28	1598	406 / 407	36	1363
Railways. Traction device for cable	J. H. Pendleton	350,078	Sept. 28	2118	548 / 549	36	1467
Railways. Tie-truss for	S. G. Scott	347,129	Aug. 10	900	240	36	630
Railways. Underground conduit for electric	C. J. Van Depoele	347,905	Aug. 24	2039	537	36	863
Rake: *See* Hay-rake. Horse-rake.							
Rake	H. Fisher	349,703	Sept. 28	1590	411	36	1367
Ranges or stoves. Garbage attachment for	G. Brown	346,291	Aug. 10	560	150	36	576
Ranges. Shaking-grate for	J. H. McIlvain	346,056	July 20	1795	462 / 463	36	325
Rasp and file. Combined	J. T. Gallagher	349,490	Sept. 21	1389	341	36	1305
Ratchet-drill	J. M. Sherman	345,547	July 13	1073	274	36	196
Ratchet-wrench	J. E. Sinclair	349,007	Sept. 14	648	167	36	1170
Razor-guard	J. R. Torrey	349,267	Sept. 14	1019	260	36	1240
Razor. Safety	A. Partridge. (Reissue)	10,748	July 27	2363	606	36	450
Razor. Safety-guard	T. F. Curley	349,386	Sept. 21	1166	302	36	1277
Razor-sharpener	A. Payne	345,723	July 20	1330	345	36	258
Razor-strop	M. E. Reppenhagen	347,831	Aug. 24	1926	511	36	846
Razor-strop	J. A. Wilson	348,486	Aug. 31	2850	709	36	1026
Reamer	L. Knight	346,111	July 27	1863	481	36	357
Reamer	T. H. Müller	346 214	July 27	2014	520	36	396
Reamer	H. R. Tillison	349,766	Sept. 28	1697	438	36	1385
Reapers and mowers. Cutter-bar for	G. M. Lease	349,311	Sept. 21	1045	267	36	1254
Reapers and mowers. Finger-bar for	J. L. Highberger	348,905	Sept. 7	496	139	36	1139
Reclining-chair	J. W. Boggs and D. M. McLauchlan.	348,716	Sept. 7	250	67	36	1094
Reclining-chair	J. L. May	349,508	Sept. 21	1334	346	36	1320
Recorder: *See* Passenger-recorder.							
Reed-chamber	C. F. Southack	346,177	July 27	1960	505	36	376
Reel: *See* Fence-wire reel. Harvester-reel. Fringe-reel.							
Reflecting view and spyglass	H. F. A. Grimm	348,279	Aug. 31	2570	690	36	969
Refrigerating apparatus. Trap for ammonia	T. J. Goldschmid	346,038	July 20	1775	456	36	330
Refrigerating attachment for beer-kegs	T. Kelpien	347,117	Aug. 10	886	235	36	636
Refrigerating brine, cooling liquids, and making ice. Apparatus for	C. Vose	346,446	July 27	2346	603	36	447
Refrigerating buildings and vessels	A. J. Chase	346,354	July 27	2206	566	36	422
Refrigerating rooms. Apparatus for	C. C. Hutchinson	348,523	Aug. 31	2915	784	36	1036
Refrigeration and ice machine	W. H. Wood	346,184	July 27	1970	508	36	378
Refrigeration. Method of and means for	A. J. Chase and C. F. Smith	348,824	Sept. 7	378	103	36	1118
Refrigerator	C. M. Biddle	347,560	Aug. 17	1580	404	36	761
Refrigerator	J. D. Colony	348,109	Aug. 24	2330	622	36	918
Refrigerator	J. W. Egan	348,115	Aug. 24	2338	624	36	919
Refrigerator	F. S. Gwyer	347,293	Aug. 10	1139	302	36	661
Refrigerator	J. M. Harney	349,253	Sept. 14	983	251	36	1233
Refrigerator	E. A. Kroenke	349,296	Sept. 21	1181	306	36	1280
Refrigerator	J. Linsley	345,240	July 6	607	154	36	110
Refrigerator	F. A. Masters	348,404	Aug. 31	2741	736	36	1004
Refrigerator	M. S. Millard	348,855	Sept. 7	418	113	36	1135
Refrigerator	J. R. Pershall	345,171	July 6	512	131	36	93
Refrigerator	J. Shriver	347,905	Aug. 10	1007	268	36	658
Refrigerator	B. D. Stevens	345,607	July 13	1149	294	36	213
Refrigerator	J. Weits and H. Klassert	348,803	Sept. 7	354	96	36	1121
Refrigerator and table combined	C. Weits	346,906	Aug. 10	867	172	36	596
Refrigerator-boxes. Faucet-inclosing fixture for	C. Scheef	348,783	Sept. 7	332	89	36	1109
Refrigerator. Butter-dish	T. B. Kavanagh	347,049	Aug. 10	784	209	36	618
Refrigerator-car	C. Haffcke	348,840	Sept. 7	401	109	36	1122
Refrigerator. Detachable milk-can	J. Douglas	346,647	Aug. 3	253	69	36	509
Refrigerator. Earthenware-lined	N. W. Mottinger and A. Halter	348,036	Aug. 24	2313	581	36	897
Refrigerator store-house for fruits and vegetables	S. Brown	346,189	July 27	1977	511	36	379
Refrigerator-tank	W. A. H. Bogardus, 2d	346,529	Aug. 3	102	17	36	479
Refrigerators, refrigerator-buildings, &c. Ice-tank for	J. Castell	348,450	Aug. 31	2610	755	36	1017
Regenerative heating-furnace	H. Ferguson	349,306	Sept. 21	1041	266	36	1263
Register: *See* Barrel-register. Fare-register. Cash-register. Hot-air-equalizing register. Check or ticket register. Telephone time-register.							
Registering the power of steam-engines, &c. Apparatus for	W. Ashton	348,147	Aug. 24	2287	635 / 636	36	986

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Regulator: *See* Arc-light regulator. Gas-regulator. Cut-off regulator. Gas-engine regulator. Damper-regulator. Gas-pressure regulator. Electric-current regulator. Pressure-regulator. Pump-regulator. Electric-machine regulator.							
Rein attachment. Check	C. L. Bard	345,404	July 13	840	210	36	156
Rein carrier and blinder-stay. Combined check	F. Schenkenberg	347,444	Aug. 17	1260	302	36	731
Rein. Check	F. T. Davis	347,102	Aug. 10	958	254 / 255	36	649
Rein-holder	H. Geoch	349,154	Sept. 14	848	216	36	1207
Rein-holder	N. McGeldrick	349,733	Sept. 28	1652	426	36	1377
Rein-holder	D. C. Perkins	349,517	Sept. 21	1345	350	36	1319
Rein-holder	W. P. Teed	348,178	Aug. 24	2021	649	36	926
Rein holder. Check	H. P. Kent	348,109	July 27	1681	403	36	357
Rein holder. Check	E. E. King	345,068	July 6	378	94	36	68
Rein hook. Check	G. B. N. Dow	348,194	Aug. 31	2455	650	36	948
Releasing device	J. F. Vandyke	345,556	July 13	1083	277	36	209
Remedial appliance	G. Kugler	349,849	Sept. 28	1815	469	36	1409
Reservoir. Fluid	O. Intze	348,912	Sept. 7	505	134 / 135	36	1140
Respirator	B. W. Gaddis	347,788	Aug. 24	1856	495	36	892
Respirator	D. Genese	346,367	July 27	2285	571	36	495
Return-ball	J. A. Greeninger	350,052	Sept. 28	2076	537	36	1450
Revolver	I. Johnson, R. T. Torkelson, and A. Fyrberg.	345,974	July 20	1679	434 / 435	36	315
Revolver	J. T. Smith	346,327	July 27	2175	558	36	416
Revolving table	W. H. Newton	348,042	Aug. 24	2221	584	36	889
Rheostat	R. H. Mather	347,180	Aug. 10	890	236	36	637
Ring: *See* Key-ring. Napkin-ring.							
Riveting-machine	F. M. Jeffery	348,397	Aug. 31	2730	732 / 733	36	1002
Riveting-tool	J. H. Stevens	349,466	Sept. 21	1277	332	36	1298
Riveting-tool	R. A. Wooding	349,682	Sept. 21	1460	382	36	1339
Road-engine	S. E. Worrell	346,974	Aug. 10	677	180	36	598
Roads. Safety device for cable	L. Geddu	349,344	Sept. 21	1086	279	36	1262
Roaster: *See* Coffee-roaster.							
Robe holder for vehicles. Lap	F. H. Littlejohn	347,944	Aug. 24	2090	555	36	875
Rock-drill	C. O. Barlow	344,992	July 6	139	34	36	25
Rock-drill	S. Ingersoll	344,906	July 6	156	39, 40	36	29
Rock-drill	E. Moreau	347,438	Aug. 17	1345	357 / 358 / 359 / 360	36	728
Rock-drill	H. C. Sergeant	349,409	Sept. 21	1196	310	36	1263
Rock-drill	R. Stephens	345,606	July 13	1148	294	36	219
Rock-drill machine	B. F. Bergh	349,560	Sept. 21	1401	363	36	1322
Rock-drill. Steam	A. J. Sypher	348,175	Aug. 24	2419	648	36	926
Rock-drilling machine	S. Ingersoll	344,907	July 6	158	40	36	29
Rocking chair. Base	J. Flinn	345,678	July 20	1270	329	36	243
Rocking-seat mechanism for operating churn-dashers, &c.	A. B. Kukernot	346,926	Aug. 10	615	165	36	587
Rod: *See* Stacker-rod.							
Rod-cutting instrument	C. F. Stackpole	348,178	July 27	1961	505	36	376
Rod. Device for locking ends of a jointed	N. C. Perry and G. S. Gladding	346,605	Aug. 3	197	53	36	498
Roll-grinding machine	J. Warrington	349,544	Sept. 21	1382	358	36	1319
Rolls. Let-off device for delivery	M. F. Field	345,677	July 20	1269	328	36	241
Roller: *See* Anti-friction roller. Land-roller. Barrel-roller. Printing-roller. Curtain-roller. Skate-roller. Inking-roller. Towel-roller.							
Roller-mill	H. J. Gilbert	348,553	Sept. 7	15	4	36	1051
Roller-mill	H. J. Gilbert	348,554	Sept. 7	16	5	36	1051
Roller-mill	J. Walker	347,667	Aug. 17	1692	450 / 451	36	798
Roller mills. Feed-regulator for	D. S. Mackey	348,755	Sept. 7	296	79	36	1109
Roller-mills. Feeding mechanism for	J. Brislin and A. Vinnac	345,953	July 20	1653	438 / 439 / 440 / 441	36	310
Rolling I-beams. Machine for	E. B. Meatyard	347,005	Aug. 10	718	190 / 191	36	605
Rolling-mill	E. H. Martin and J. Beavis	349,730	Sept. 28	1649	436	36	1376
Rolling-mills. Feeding-table for	R. W. Hunt	348,216	Aug. 31	2488	669	36	954
Rolling mills. Flow for	W. Row and R. Bauer	346,610	Aug. 3	204	55	36	500
Roof, floor, &c. Fire-proof	J. F. Stuckert	349,670	Sept. 21	1536	396	36	1351
Roof. Mansard	C. C. Gilman	349,584	Sept. 21	1434	370	36	1389
Roof. Portable	C. M. Keeler	349,887	Sept. 28	1860	480	36	1418
Roof. Tile	J. C. Litzelle	348,990	Sept. 7	590	137	36	1142
Roofing	D. Harger	348,844	Sept. 7	405	110	36	1122
Roofing and paving material	C. M. Warren	345,399	July 13	834	.....	36	155
Roofing fabric	T. J. Pearce and M. W. Beardsley	348,996	Sept. 14	622	.....	36	1167
Roofing into packages. Machine for forming metallic	B. F. Caldwell	347 991	Aug. 24	2155	573 / 574	36	886
Roofing-machine	J. Henning	348,558	Sept. 7	22	6	36	1062
Roofing. Metal	A. W. Walter	345,069	July 6	404	102	30	74
Roofing. Metallic	A. Wightman	349,966	Sept. 28	1962	507	36	1437
Roofing tile-plate. Combination metallic	J. S. Thorn	347,843	Aug. 24	1930	515	36	848
Rope check or lock	G. W. Cook	349,031	Sept. 14	679	175	36	1175
Rope-clamp	A. E. McClure	345,313	July 13	715	180	36	126

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Invention	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rope-fastening	F. A. Thomas	346,390	July 27	2963	560	36	433
Rope-splice	W. H. Dodge	345,219	July 6	575	147	36	104
Ropes or cables used in transporting loads. Apparatus for supporting and guiding traveling	J. P. Roe and P. R. Bedlington	347,443	Aug. 17	1359	302	36	730
Rosette-lock	Z. T. Furbish	348,899	Sept. 7	490	130	36	1138
Rotary engine	P. P. Belt	345,875	July 20	1542	398 / 399	36	289
Rotary engine	J. W. Denmead and R. L. McAllister.	346,029	July 20	1764	454	36	398
Rotary engine	R. H. Isbell	348,217	Aug. 31	2490	670	36	955
Rotary steam-engine	W. K. Austin	348,879	Sept. 7	458	131 / 132	36	1132
Rotary steam-engine	L. Chamberlin and A. S. Turnbull	346,531	Aug. 3	105	26	36	480
Rotary steam-engine	J. Hills	347,242	Aug. 10	1054	262	36	667
Rowlock	W. F. Lawrenz	349,108	Sept. 14	792	200	36	1195
Rubber belting. Apparatus for manufacturing vulcanized.	G. W. Palmer	345,919	July 20	1607	414	36	301
Rubber decoy-ducks. Manufacture of	M. C. Clark	348,659	Sept. 7	175	47	36	1078
Rubber. Hand-	G. H. Nye	349,315	Sept. 21	1049	269	36	1254
Rubber or other elastic water-proof material. Sheet formed of india-	J. W. Williams	349,554	Sept. 21	1394	361	36	1321
Rubber step or carpet	E. L. Perry	347,733	Aug. 17	1776	473	36	808
Rubber to leather. Mold for vulcanizing	F. A. Sawyer	348,782	Sept. 7	331	88, 89	36	1109
Rubbing-machine	G. F. Butterfield	349,090	Sept. 28	1570	407	36	1364
Ruby-pin setter and remover	C. R. Van Deusen	345,462	July 13	924	232	36	171
Rudder for steering vessels	J. V. Zimmerman	347,858	Aug. 24	1958	520	36	852
Rugs. Frame for making	J. I. Thornycroft	348,070	Aug. 24	2271	604	36	908
Ruling machine. Paper-	E. J. Cole	345,029	July 6	332	84	36	61
Ruling-machines. Receiving-box for	J. McAdams	349,167	Sept. 14	867	222	36	1210
Ruling machines. Striker attachment for paper-	M. L. Metzger and G. W. Brown	346,411	July 27	2292	588 / 590	36	436
Ruling slates	B. Owens	346,063	July 20	1802	465	36	336
Saccharine and gelatinous liquids, milk, &c. Vacuum-evaporator for	C. R. Stuntz	348,599	Sept. 7	94		36	1064
Sad-iron	N. B. Rice	347,381	Aug. 17	1967	335 / 336	36	714
Sad-iron	E. J. Baker	347,148	Aug. 10	833	949	36	645
Sad-iron	A. De Laski	345,033	July 6	336	85	36	61
Sad-iron	A. Schneider, Jr	345,180	July 6	594	134	36	90
Sad-iron. Self-heating	M. S. Stieglitz	349,263	Sept. 14	995	254	36	1235
Saddle-bar. Safety	C. S. Dana and D. Furnall	345,123	July 6	449	116	36	89
Saddle. Gig-	H. Rees-Phillips	345,540	July 13	1080	270	36	196
Saddle. Harness-	G. R. Lips	345,853	July 20	1516	393	36	284
Saddle. Harness-	J. Hess	346,750	Aug. 3	372	100	36	533
Saddle. Riding-	F. C. Kimball	345,237	July 6	904	153	36	109
Saddle-tree	F. A. Hake	344,898	July 6	36	9	36	8
Safe and sieve. Combined flour	W. S. Webster	347,672	Aug. 17	1696	452	36	794
Safe for express transportation, &c	F. A. Hovey	345,139	July 6	474	120	36	86
Safe. Kitchen-	J. Farrel	346,875	July 27	2100	541	36	402
Safe-lock and bolt-moving mechanism. Electric	A. M. Herman	345,784	July 20	1421	368	36	268
Safety automatic brake	F. Sedgwick	347,071	Aug. 10	889	220 / 221	36	626
Safety-gate	F. E. Kinsman	345,700	July 20	1394	335	36	246
Safety-hook	W. Hanley	345,567	July 13	1197	288	36	208
Safety-pin	E. H. Smith	348,791	Sept. 7	340	91	36	1111
Salol. Production of	J. Jenkins	345,848	July 20	1509	391	36	283
Salt-graining apparatus	M. V. Neucki and R. Seifert	350,012	Sept. 28	2029		36	1449
Salt to stock. Device for supplying	J. M. Duncan	349,931	Sept. 28	1907	494 / 495	36	1427
Sand and gravel separator	J. Gushart	349,843	Sept. 28	1886	466	36	1407
Sand and water feeding mechanism	S. Friend	348,666	Sept. 7	184	49	36	1060
Sand-band	A. Landon	345,976	July 20	1684	435	36	315
Sand-paper cylinder	W. M. Farr	346,274	July 27	2099	540	36	402
Sandpapering-machine	J. L. Perry	346,690	Aug. 3	269	79	36	517
Sanitary apparatus	E. Totman	348,177	Aug. 24	2422	649	36	936
Sap-pails. Device for supporting and protecting	J. R. Bryden	347,568	Aug. 17	1531	407	36	763
Sash-balance	C. O. Freer	349,799	Sept. 28	1789	446	36	1391
Sash-balance	J. H. Corsbie	349,922	Sept. 28	1897	491	36	1425
Sash-balance	W. F. Lennon	346,663	Aug. 3	270	74	36	513
Sash-balance	J. A. Rogers	348,500	Aug. 31	2881	775	36	1030
Sash-balance	W. J. Thompson	347,396	Aug. 17	1286	349	36	718
Sash-balancing device	S. J. Vance	346,567	Aug. 3	147	40	36	489
Sash-cord fastener	A. Keyser	346,110	July 27	1892	491	36	357
Sash-cord fastener	O. Beebe	348,101	Aug. 24	2312	619	36	916
Sash-cord guide	E. T. Bradbury	345,878	July 20	1545	399	36	289
Sash-cord guide	F. V. Phillips	347,507	Aug. 17	1443	383	36	747
Sash-cord guide	F. V. Phillips	347,508	Aug. 17	1444	384	36	747
Sash-fastener	F. V. Phillips	347,509	Aug. 17	1446	384	36	747
Sash-fastener	E. H. Alvord	349,295	Sept. 21	1028	263	36	1251
Sash-fastener	H. A. Bennett	346,142	July 27	1916	495	36	367
Sash-fastener	F. F. Browne	345,273	July 13	659	168	36	125
Sash-fastener	M. E. Cole	345,483	July 13	953	240	36	177
Sash-fastener	C. J. Edwards	346,096	July 27	1846	476	36	354
Sash-fastener	H. R. Jackson	349,431	Sept. 21	1227	318	36	1298
Sash-fastener	A. L. Long and W. S. Barager	348,631	Sept. 7	138	39	36	1072
Sash-fastener	M. Maser	346,488	Aug. 3	49	13	36	469
Sash-fastener	H. Powell	348,342	Aug. 31	2652	715	36	987
Sash-holder	I. J. Saltzer	346,777	Aug. 3	403	111	36	539
Sash-holder	S. Benton	348,103	Aug. 24	2313	620	36	916
Sash-holder	M. Bourke	345,665	July 20	1251	304	36	236
Sash-holder	J. Eakins	346,363	July 27	2221	569 / 570	36	425
Sash-holder	J. H. Felmlee	348,273	Aug. 31	2564	689	36	969
Sash-holder	M. C. Hargrave	345,050	July 6	354	89	36	64
Sash-holder	W. M. Valentine	348,431	Aug. 31	2780	747	36	1012

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sash-lock	J. Brady	345,480	July 13	949	239	36	176
Sash-lock	E. R. Farry	347,101	Aug. 10	868	230	36	632
Sash-lock	T. A. L. Moore	348,334	Aug. 31	2640	712	36	985
Sash-lock	P. Seiler	348,686	Sept. 7	230	60	36	1089
Sash-lock and holder	E. P. Gilman	345,779	July 20	1415	366	36	267
Sash-supporter	F. Tankersly	346,516	Aug. 3	96	21	36	477
Sashes and screens. Holding-spring for	H. E. Willer	346,524	Aug. 3	97	26	36	478
Sashes. Device for operating	G. W. Paine	345,857	July 20	1521	394	36	285
Saw	G. N. Clemson	349,143	Sept. 14	836	213	36	1204
Saw	D. R. Proctor	347,008	Aug. 10	723	192	36	606
Saw. Band-	D. Simonds	346,565	Aug. 3	145	40	36	488
Saw. Chain-	B. F. Asper	349,833	Sept. 28	1792	463	36	1404
Saw. Drag-	J. P. Cyphers	349,876	Sept. 28	1845	477	36	1415
Saw. Drag-	E. H. Griswold	348,737	Sept. 7	275	74	36	1098
Saw. Drag-	W. W. Smith	349,819	Sept. 28	1772	458	36	1400
Saw-filing machine	J. W. Gibson and C. C. Harris	346,541	Aug. 3	116	31	36	483
Saw. Fire-wood drag-	A. S. Topping	346,179	July 27	1962	506	36	376
Saw-frame	H. L. Pratt	345,256	July 6	631	160	36	114
Saw-guard	J. F. Monaghan	347,884	Aug. 24	2001	531	36	858
Saw-gummer	S. R. Mathewson	345,388	July 13	813	205	36	152
Saw. Hand-	J. P. Lauer	346,482	Aug. 3	43	11	36	468
Saw-handle	R. E. Poindexter	345,648	July 13	1219	315	36	225
Saw-mill	L. O. Orton	346,383	July 27	2251	576	36	430
Saw mill. Band-	G. M. Hinkley	348,280	Aug. 31	2572	691 / 692	36	970
Saw-mill carriage	G. W. Robinson	348,295	Aug. 31	2592	697	36	975
Saw mill. Circular-	W. F. Parish	349,356	Sept. 21	1115	287 / 288	36	1267
Saw mill. Combined band and circular	G. M. Hinkley	348,281	Aug. 31	2575	692 / 693	36	971
Saw mill. Combined band and circular	G. M. Hinkley	348,282	Aug. 31	2578	693	36	972
Saw-mill feed mechanism	W. J. F. Liddell	347,000	Aug. 10	706	187	36	604
Saw-mills. Feed-work for	B. E. Sergeant	349,180	Sept. 14	862	226 / 227	36	1213
Saw-mills. Set-works for	H. M. Wilcox	347,908	Aug. 24	2033	538	36	864
Saw-set	R. E. Poindexter	346,944	Aug. 10	639	171	36	591
Saw-set	P. A. Potter	349,601	Sept. 21	1456	375	36	1333
Saw set, gage, and raker-guide. Combined	M. Lalonde	345,791	July 20	1430	370	36	270
Saw-setting device	O. G. Franks	349,989	Sept. 28	1996	515 / 516	36	1444
Saw-sharpener	L. Schevenell	348,143	Aug. 24	2362	613	36	925
Saw-sharpening device	J. G. Lynch and P. Lanton	348,168	Aug. 24	2405	644	36	933
Saw-swaging machine	M. Covel	345,121	July 6	445	115	36	81
Saw-swaging machine	E. Dunning	346,844	Aug. 3	486	134 / 135	36	555
Saw-table	H. J. Thompson	346,241	July 27	2060	529	36	395
Saw-table gage	J. H. Palm	345,071	July 6	362	96	36	69
Saw-teeth. Method of and device for turning down the points of	I. N. Kendall	348,220	Aug. 31	2497	672	36	956
Saws. Automatic feed for edging-	E. H. Barnes	345,758	July 20	1382	359	36	261
Saws. Guard for gin-	J. C. Wallace	350,026	Sept. 28	2046	528	36	1452
Saws. Mandrel for circular	D. Leary	347,942	Aug. 24	2068	534	36	875
Saws. Supporting-wheel for band-	G. M. Hinkley	348,283	Aug. 31	2578	693	36	972
Sawing-machine	A. J. Demoss and W. S. Pearce	349,984	Sept. 28	1990	514	36	1442
Sawing machine. Circular	W. H. Finn	346,697	July 27	1847	477	36	354
Sawing machine. Circular	J. H. Palm	345,070	July 6	360	96	36	69
Scaffold. Adjustable	S. Tucker	348,359	Aug. 31	2671	720	36	991
Scaffold-bracket	W. W. Hughes	346,160	July 27	1940	500	36	373
Scaffold-bracket	L. C. Springer	347,659	Aug. 17	1681	448	36	792
Scaffold-bracket for ladders	J. Mitchell	349,332	Sept. 14	959	244	36	1223
Scaffold. Suspended	W. H. Birck and W. Fischer	346,019	July 20	1750	450	36	396
Scale. Automatic grain-	A. F. Sparks	348,066	Aug. 24	2265	606 / 607	36	907
Scale. Automatic weighing	M. F. Koch	346,852	Aug. 3	497	137 / 138	36	557
Scale. Grain-	K. H. Schaper	349,457	Sept. 21	1364	338	36	1295
Scale. Linear	J. T. Honeycutt	346,368	July 27	2296	571	36	498
Scale-section liner	C. M. Podgórski	345,989	July 20	1705	438	36	319
Scale. Weighing-	M. G. Cook	349,570	Sept. 21	1416	366 / 367	36	1336
Scale. Weighing-	P. H. O'Neill	347,056	Aug. 10	795	211	36	619
Scale. Weighing and price	N. W. Austin	346,017	July 20	1748	449 / 450	36	396
Scale. Weighing and price	J. E. Pitrat	344,857	July 6	87	23	36	16
Scarf-pins. Device for securing	J. E. Master	345,794	July 20	1433	371	36	270
Scarf. Sailor-knot	H. Heath	345,897	July 20	1578	407	36	296
Scarf. Sailor-knot	H. Heath	346,041	July 20	1778	457 / 458	36	331
Scarfs, collars, &c. Stand for exhibiting	C. C. Shelby	349,520	Sept. 21	1361	354	36	1315
Scissors	E. M. Corbett	346,883	Aug. 3	167	45	36	492
Scissors	H. R. Kimbler	348,740	Sept. 7	290	77	36	1101
Scraper. Drag-	F. W. Hubbard	348,740	Sept. 7	270	75	36	1099
Scraper. Road-	F. M. Moulton	347,820	Aug. 24	1911	506	36	842
Scraper-sharpener	G. Peter	347,506	Aug. 17	1462	383	36	747
Scraper. Wheeled	P. Deevy	346,147	July 27	1921	496	36	368
Screen:							
See Bird-cage screen. Carriage-screen. Fire-screen. Grain-screen. Paper-pulp screen. Ventilating-screen. Window-screen.							
Screen	W. L. Card	347,670	Aug. 24	1980	525	36	854
Screen	J. Norwood	347,730	Aug. 17	1773	473	36	808
Screw and drill tool	O. L. Neal	348,765	Sept. 7	311	83	36	1105
Screw-cutting lathe-tool	L. E. Rhodes	346,499	Aug. 3	63	16	36	472

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Screw-cutting machine	C. A. Weller	348,365	Aug. 31	2679	721, 722	36	992
Screw driver	L. Bailey	348,815	Sept. 7	368	100	36	1116
Screw-driver	T. G. G. Mouat	346,058	July 20	1798	464	36	335
Screw-driver	W. F. Patterson and H. B. Stillman	346,603	Aug. 3	194	52	36	498
Screw-jack	H. W. Ruhle	349,663	Sept. 21	1528	394	36	1349
Screw-machines. Guide-collar for	W. Timmins and C. J. Humphreys	346,391	July 27	2384	569	36	433
Screw-shaving machine. Multiple	H. A. Harvey and C. S. Clark	348,967	Sept. 14	586	155, 156	36	1160
Screw-swaging machine	C. Fairbairn	345,959	July 20	1660	428, 429, 430	36	311
Screw-tap	J. Berg	347,264	Aug. 24	1965	521	36	853
Screw-threading machine	O. C. Burdict	349,063	Sept. 14	752	191, 192	36	1158
Scrubbing paint. floors, &c. Compound for	C. Zimmerling	348,179	Aug. 24	2428	.....	36	937
Scutching-machine	A. E. Newman	345,985	July 20	1698	437	36	318
Scythe-fastening	H. B. Robertson and C. Danker	347,515	Aug. 17	1456	347	36	749
Scythe-snath fastener	D. W. Marston	349,353	Sept. 21	1110	286	36	1266
Seal	E. J. Brooks	345,764	July 20	1394	369	36	264
Seal	E. J. Brooks	348,884	Sept. 7	470	194	36	1134
Seal. Lead and wire	E. J. Brooks	349,873	Sept. 28	1841	476	36	1415
Seal-lock	S. E. Allen	349,871	Sept. 28	1838	475	36	1414
Seal-lock	D. Ferris	349,702	Sept. 28	1588	411	36	1367
Seal-lock	M. C. Harney	346,157	July 27	1938	499	36	371
Seal-lock	M. Kersten	347,180	Aug. 10	975	260	36	652
Seal-lock	S. W. Neall	347,191	Aug. 10	991	264	36	655
Seal. Metallic	C. L. Pond	345,173	July 6	515	132	36	94
Seal-press	J. H. Hamilton	344,829	July 6	37	9	36	8
Seal. Self-fastening	E. J. Brooks	348,509	Aug. 31	2804	778	36	1032
Seal. Tin-strip	E. J. Brooks	345,765	July 20	1396	362	36	264
Sealing cans. Apparatus for hermetically	C. B. Davis	345,487	July 13	957	243	36	178
Sealing cans. Apparatus for hermetically	C. B. Davis	345,486	July 13	958	243	36	178
Seam protector. Veat	J. A. Nober	345,646	July 13	1217	314	36	225
Seam-trimming machine	C. H. Helms	345,303	July 13	703	177	36	132
Seat: *See* Carriage-seat. Rocking seat. Vehicle-seat. Wagon-seat. Window-seat.							
Secondary batteries or accumulators. Manufacture of	S. Farbaky and S. Schenek	348,625	Sept. 7	129	36	36	1071
Secondary battery	A. L. De Virloy, E. Commelin, and G. Baillache.	345,124	July 6	450	116	36	92
Secondary battery	E. T. Starr	347,258	Aug. 10	1080	289	36	672
Secondary battery or accumulator	S. Farbaky and S. Schenek	344,957	July 6	217	56	36	40
Sectional boiler	J. F. and J. H. Allen	347,859	Aug. 24	1959	590	36	852
Securer: *See* Door-securer. Stair-rod securer.							
Seed-distributer, harrow, and roller. Combined	T. R. Crane	345,214	July 6	569	145	36	103
Seed-drill. Garden	T. Edwards, Jr.	347,779	Aug. 24	1946	492	36	830
Seed-dropper	J. F. Packer	345,917	July 20	1604	413, 414	36	301
Seed. Removing fiber from cotton	W. L. Dudley and N. W. Perry	344,951	July 6	210	54	36	39
Seeder and cultivator. Combined	B. M. Johnson	348,399	Aug. 31	2734	33, 734	36	1003
Seeder and cultivator. Disk	B. C. Dorsey	344,950	July 6	209	54	36	39
Seeder and harrow. Combined	E. Emmert	345,289	July 13	684	172, 173	36	129
Seeding-machine	W. D. Arnett	345,403	July 13	838	210	36	156
Seeding-machine	A. and J. Hinman	348,213	Aug. 31	2483	667, 668	36	954
Seeding machine. Broadcast	S. S. Speicher	349,821	Sept. 28	1777	459	36	1401
Semaphore and other elevated signal-lights	E. S. Piper	347,640	Aug. 17	1652	438	36	787
Semaphore-signal	V. Spicer and J. Schrender	346,387	July 27	2255	577, 578	36	431
Semaphore-signal	W. Thornburgh	346,243	July 27	2062	529	36	395
Separator: *See* Coal-separator. Cockle-separator. Grain-separator. Liquid-separator. Magnetic separator. Ore-separator. Sand and gravel separator.							
Service-pipes. Box for the stop cocks of	J. V. Clarke	349,567	Sept. 21	1413	365	36	1325
Settee. Folding	W. Baldwin	346,454	Aug. 3	5	2	36	461
Settler	H. H. Scoville	349,458	Sept. 21	1365	398	36	1295
Sewage. System of disposing of	W. R. Hinsdale	346,263	July 27	1998	515, 516	36	383
Sewer-cleaning apparatus	G. W. Pringle	345,804	July 20	1449	375, 376	36	273
Sewer-gas trap	F. E. Cudell	348,829	Sept. 7	387	105	36	1119
Sewer-gas trap	F. E. Cudell	348,830	Sept. 7	387	105	36	1119
Sewers. Apparatus for flushing	J. Scott	344,873	July 6	112	28	36	20
Sewers. Catch-basin inlet and cover for	H. W. McDonald	347,496	Aug. 17	1428	380	36	744
Sewing and embroidering machines. Stop-motion mechanism for	E. Cornely	345,887	July 20	1565	403	36	293
Sewing and embroidering machines. Thread-cutting apparatus for	E. Cornely	346,091	July 27	1639	475	36	353
Sewing and other machines. Stop mechanism for	J. W. Lufkin	347,053	Aug. 10	792	210	36	619
Sewing-cord	J. H. Briggs	346,577	Aug. 3	161	44	36	491
Sewing-machine	C. H. Bayley	345,907	July 6	556	142	36	101
Sewing-machine	W. F. Dial	350,044	Sept. 28	2061	533	36	1456
Sewing-machine	W. F. Dial	350,045	Sept. 28	2063	533	36	1456
Sewing-machine	P. Diehl	347,776	Aug. 24	1941	490	36	828
Sewing-machine	W. H. Garland and H. Schulze-Berge.	344,825	July 6	29	8	36	7
Sewing-machine	C. F. Harlow and E. E. Angell	349,383	Sept. 21	1177	305	36	1279

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine	C. F. Harlow and E. E. Angell	349,844	Sept. 28	1807	467	36	1406
Sewing-machine	R. S. Looker	349,438	Sept. 21	1234	320, 321	36	1289
Sewing-machine	R. S. Looker	349,439	Sept. 21	1238	321	36	1290
Sewing-machine	J. W. Ramsden and H. S. Ellis	348,474	Aug. 31	2841	764, 765, 766	36	1023
Sewing-machine bobbin	C. M. and A. V. Abercrombie	347,678	Aug. 17	1704	455	36	796
Sewing-machine bobbin-winder	W. H. Reynolds	348,638	Sept. 7	145	41	36	1074
Sewing-machine. Button-hole	E. B. Moore and G. Rehfuss	349,445	Sept. 21	1246	323, 324	36	1292
Sewing-machine. Button-hole	J. Reece	349,359	Sept. 21	1122	289, 290	36	1268
Sewing-machine button-hole attachment	W. Schott	348,640	Sept. 7	146	41	36	1074
Sewing-machine cabinet	G. Range	349,176	Sept. 14	877	224, 225	36	1212
Sewing-machine feeding mechanism	A. Boecher	345,948	July 20	1646	424	36	308
Sewing-machine feeding mechanism	H. W. Hadley and W. L. Grout	345,684	July 20	1576	330, 331	36	242
Sewing-machine needle-bar cover	W. Carr	347,089	Aug. 10	953	236	36	629
Sewing-machine. Over-edge	W. Webster	346,248	July 27	2057	531	36	397
Sewing-machine shuttle	H. W. Hadley and W. L. Grout	345,682	July 20	1574	330	36	242
Sewing-machine shuttle	W. L. Heberling	346,281	July 27	2108	542	36	404
Sewing-machine-shuttle bobbins. Machine for winding	H. A. Behn	345,208	July 6	359	143	36	101
Sewing-machine stand	D. W. Goodell	348,004	Aug. 24	2173	578	36	869
Sewing-machine. Straw-braid	C. H. Palmer	345,801	July 20	1442	373, 374	36	272
Sewing-machine. Straw-braid	C. H. Palmer	345,802	July 20	1444	374, 375	36	272
Sewing-machine table	E. Lanfer	347,358	Aug. 17	1233	328	36	708
Sewing-machine take-up	I. Iihl and C. Platt	349,029	Sept. 14	696	174	36	1175
Sewing-machine take-up mechanism	H. W. Hadley and W. L. Grout	345,683	July 20	1575	330	36	242
Sewing-machine tension device	P. Diehl	347,777	Aug. 24	1943	491	36	829
Sewing-machine treadle	C. W. Smart	347,836	Aug. 24	1931	512	36	847
Sewing-machine trimming attachment	C. H. Willcox	348,485	Aug. 31	2857	769	36	1026
Sewing-machines. Adjustable oscillating needle-clamp for	R. S. Looker	349,441	Sept. 21	1241	321	36	1290
Sewing-machines. Button-hole-sewing attachment for	F. W. Smith, Jr., and S. S. Williamson.	347,133	Aug. 10	906	241	36	640
Sewing-machines. Presser-foot for	F. W. Müller	346,601	Aug. 3	192	51	36	497
Sewing-machines. Presser-foot for pearl-braid	J. A. Brantigam	347,465	Aug. 17	1387	369, 370	36	736
Sewing-machines. Ruffling and gathering attachment for	A. Johnston	349,279	Sept. 14	1010	258	36	1238
Sewing-machines. Spinning attachment for	S. Vanstrom	345,341	July 13	753	189	36	142
Sewing-machines. Spool-box for	R. S. Looker	349,440	Sept. 21	1240	321	36	1290
Sewing-machines. Spool-holder for	F. Neuhaus	349,446	Sept. 21	1250	324	36	1292
Sewing-machines. Take-up or thread-controlling mechanism for	J. Robertson	346,775	Aug. 3	399	110	36	539
Sewing-machines. Trimming device for	P. Diehl	348,113	Aug. 24	2325	623, 624	36	919
Shade, curtain, and lambrequin supporter. Combination	O. E. Enell	349,635	Sept. 21	1405	387	36	1342
Shade-fixture	B. Handforth	348,393	Aug. 31	2724	731	36	1001
Shaft-bearing. Anti-friction	A. Giesler	348,392	Aug. 31	2723	731	36	1001
Shaft bearing. Vertical	I. P. Lambing	347,431	Aug. 17	1398	354	36	726
Shaft-carrier	V. W. A. Richards	345,922	July 20	1609	415	36	303
Shaft-coupling	B. F. Applegate	349,678	Sept. 28	1535	403	36	1361
Shaft-coupling	F. M. Roots	349,385	Sept. 21	1134	299	36	1271
Shaft. Cranked	D. A. Woodbury	344,930	July 6	187	47	36	35
Shaft for two-wheeled vehicles	W. L. Walker	346,624	Aug. 3	232	61	36	503
Shaft-governor. Automatic	E. Fawcett	349,215	Sept. 14	927	238	36	1222
Shafts. Device for adjusting	F. P. Sargent	349,005	Sept. 14	646	167	36	1169
Shafts. Regulator for revolving	J. H. Pendleton	345,304	July 13	820	208	36	154
Shafts. Stop mechanism for driving	F. M. Roots	349,382	Sept. 21	1131	291	36	1270
Shaping-tool	W. P. Barclay	349,475	Sept. 21	1269	335	36	1301
Shaving apparatus	A. Partridge	348,576	Sept. 7	60	18	36	1058
Shaving-cup	P. Forchheimer	345,295	July 13	693	174	36	130
Shaving-cup	J. S. Goldsmith	348,160	Aug. 24	2381	642	36	931
Shawl and bundle carrier	E. Buchholz	347,415	Aug. 17	1309	349	36	722
Shawl-strap	J. B. Perkins	349,898	Sept. 28	1872	484	36	1421
Shawl-strap handle	I. Scheuer	347,201	Aug. 10	1002	267	36	658
Shears: *See* Hydraulic shears. Metal-shears. Sheep-shears. Squaring-shears.							
Sheep-shears	H. and G. H. Kimbler	347,878	Aug. 24	1992	528	36	856
Sheet-delivery apparatus	G. P. Fenner	345,222	July 6	578	147, 148	36	105
Sheet-metal can	W. S. Dyer	348,551	Sept. 7	13	4	36	1051
Sheet-metal cans. Machine for heading	W. H. H. Stevenson	349,373	Sept. 21	1148	296, 297	36	1273
Sheet-metal-grooving machine. Power	C. R. Peaslee	348,577	Sept. 7	61	18	36	1058
Sheet-metal-scroll cutter	A. O. Kittredge and F. M. Leavitt	349,722	Sept. 28	1635	422, 423	36	1374
Sheet-metal vessels. Machine for wiring the edges of	D. James	348,396	Aug. 31	2727	732	36	1001
Shelf-bracket	J. H. Bacon	350,031	Sept. 28	2050	529	36	1453
Shell	F. Pope	348,340	Aug. 31	2650	714	36	987
Shell and making the same	G. F. Simonds	348,788	Sept. 7	338	90	36	1110
Shell. Armor-piercing	G. F. Simonds	348,789	Sept. 7	339	91	36	1110
Shells or hollow articles. Die for drawing	R. White	346,522	Aug. 3	94	25	36	478
Sheller: *See* Corn-sheller.							
Shelving. Show-window	W. Oswell	349,117	Sept. 14	803	204	36	1196

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Shingle. Metallic	M. G. Farmer	347,926	Aug. 24	2026	538	36	871
Shingle. Metallic	J. B. Hoagland	349,095	Sept. 14	774	197	36	1199
Shingle-sawing machine	I. M. House	346,369	July 27	2227	571	36	426
Shingle-sawing machine	W. J. Perkins	348,050	Aug. 24	2289	596 / 597 / 596	36	900
Shingles. Metallic corner-binding for	W. H. Prentice	349,602	Sept. 21	1527	394	36	1349
Shingling-bracket	G. H. Warren and E. C. Richmond	348,705	Sept. 7	538	83	36	1091
Ship	A. Marty	346,211	July 27	2011	519	36	385
Shipping-can	A. O. Fitz Gerald	345,223	July 6	581	148	36	105
Shipping-can	A. O. Fitz Gerald	345,224	July 6	582	148	36	106
Shipping-case	W. G. Ruggles	348,171	Aug. 24	2410	640	36	934
Shipping-cases. Cover-fastening for	J. B. Thompson	349,863	Sept. 28	1929	472	36	1412
Shirt	S. Mendelsohn	350 070	Sept. 28	2108	515	36	1464
Shirt-bodies. Securing bosoms to	W. H. Paul	349,263	Sept. 14	1015	259	36	1259
Shoe	J. Blum	349,502	Sept. 21	1405	363	36	1324
Shoe	P. Dicket and A. Hendrickson	346,739	Aug. 3	362	97	36	531
Shoe and stocking. Combined	S. Rauh	347,442	Aug. 17	1358	391	36	730
Shoe-clasp	D. F. Dalton	345,822	July 13	1167	300	36	217
Shoe-clasps. Catch-plate for	S. A. Chapman	346,963	Aug. 10	686	192	36	600
Shoe-clasps. Catch-plate for	H. S. Pullman	346,945	Aug. 10	640	171	36	591
Shoe-fastening	J. Everling and A. v. Olazewski	348,727	Sept. 7	263	70	36	1096
Shoe-fastening	W. M. Maxson	346,119	July 27	1872	483	36	359
Shoe-fastening	J. T. Senteney	347,524	Aug. 17	1466	389	36	751
Shoe. Felt	W. P. Hyatt	347,111	Aug. 10	880	233	36	635
Shoe-heel	I. Sommerfield	349,862	Sept. 28	1828	472	36	1412
Shoe-maker's threads. Device for tapering the ends of	C. K. Bradford	349,564	Sept. 21	1408	364	36	1334
Shoe or gaiter-boot	G. A. Langmaid	349,164	Sept. 14	863	221	36	1210
Shoe-shank. Metallic	J. Atherton	346,572	Aug. 3	152	42	36	489
Shoe-soles. Machine for shaping	O. F. Knox	347,050	Aug. 10	786	209	36	618
Shoe-stay	S. C. Belknap	346,458	Aug. 3	10	3	36	462
Shoe-upper-splitting machine	G. W. Sleeper	350,084	Sept. 28	2128	550 / 551	36	1468
Shoe-vamps. Machine for marking	L. Côté	348,514	Aug. 31	2903	760	36	1034
Shoes. Attachment for rubber	P. L. Ross	347,066	Aug. 10	818	218	36	624
Shoes, slippers, &c. Water-proof composition for felt	J. and C. H. Feldmann and D. Dunbar.	346,150	July 27	1925	.....	36	369
Shook-binder	F. A. Emerick	348,197	Aug. 31	2459	660	36	949
Shot and powder charger	W. S. Capewell	346,718	Aug. 3	339	92	36	527
Shovel: *See* Cultivator-shovel. Fire-shovel.							
Shovel	W. C. Gregg	348,161	Aug. 24	2394	642	36	932
Shovel-blade. Detachable	Z. H. Smith	348,794	Sept. 7	343	93	36	1111
Shovel-blanks. Machine for splitting the tangs and forming the sockets of	H. M. Myers	348,037	Aug. 24	2214	591 / 592	36	898
Shovel or spade handle. Auxiliary	M. L. Wilson, W. and P. O. Sanders	344,890	July 6	136	34	36	24
Shovels. Manufacture of	J. M. W. Long and J. B. Fischer	350,067	Sept. 28	2104	544	36	1464
Show-case	F. H. Judson	348,164	Aug. 24	2397	643	36	932
Show-case for holding spectacles and eyeglasses	A. L. Smith	348,354	Aug. 31	2665	718	36	990
Show-frame. Revolving	W. H. Genung	349,863	Sept. 28	1855	479	36	1417
Show-rack	A. H. Jackson	349,255	Sept. 14	985	251	36	1233
Show-stand	N. D. Rainville	345,602	July 13	1144	292 / 293	36	211
Shutter-fastener	H. Camus	347,610	Aug. 17	1588	422	36	775
Shutter-fastener	J. B. Davis	348,622	Sept. 7	196	55	36	1070
Shutter-fastener	E. Wehmeyer	345,750	July 20	1370	346	36	259
Shutter-fastener	C. V. White	345,348	July 13	763	191	36	143
Shutter-fastener and shutter-bower. Combined	H. C. Kauffman	346,289	July 27	2118	545	36	406
Shutter-operator	C. W. Littlefield	346,865	Aug. 3	504	138	36	558
Shutter or door. Air	W. Palmer	344,853	July 6	77	20	36	15
Shutter-worker	C. Cramer	346,643	Aug. 3	348	98	36	509
Shutter-worker	A. F. Evers	345,221	July 6	577	147	36	105
Shutter-worker	D. H. Royer	348,142	Aug. 24	2380	633	36	925
Shutter-worker	L. Schuermann	347,302	Aug. 10	1003	267	36	658
Shutter-worker	H. H. Wesler	349,865	Sept. 28	1831	473	36	1412
Shuttle carrier and race mechanism	W. Koch	346,853	Aug. 3	500	38	36	558
Sidewalk light and ventilator. Combined	F. Braun	345,105	July 6	425	109	36	78
Sifter. Ash	W. T. Adams	346,340	July 27	2188	541	36	418
Sifter. Ash	G. M. Amon and F. X. Berger	345,923	July 20	1472	380	36	277
Sifter. Ash	G. W. Milner	347,250	Aug. 10	1069	286	36	670
Sifter. Ash	J. W. Pohlmann	346,384	July 27	2253	576	36	431
Sifter. Flour	P. Marx	344,972	July 6	240	61	36	63
Sign. Revolving	A. T. Fagerburg	346,197	July 27	1988	513	36	381
Sign. Show-card	R. W. Young	349,193	Sept. 14	900	231	36	1216
Signal: *See* Electric signal. Railway-signal. Railway-car signal. Railway-crossing signal. Railway or other signal. Semaphore-signal. Torpedo railway-signal.							
Signal	J. F. Riethmayer	345,862	July 20	1527	395	36	286
Signal-boxes and similar apparatus. Door for	B. S. Flanders	346,847	Aug. 3	490	135 / 136	36	556
Signal-tube apparatus	J. W. Black	347,154	Aug. 10	941	231	36	646
Signals. Apparatus for producing flash	J. Borro	348,313	Aug. 31	2620	706	36	980
Signaling apparatus	G. W. Brown	347,319	Aug. 17	1176	315	36	699
Signaling apparatus. Automatic block	T. W. Burt	346,893	Aug. 10	562	151	36	577
Signaling apparatus. Electrical	T. A. Edison	347,097	Aug. 10	863	228 / 229	36	631
Signaling policemen. Apparatus for	J. P. Brewer and W. C. Smith	347,318	Aug. 17	1174	314	36	698
Silk fabric and method of preparing tram for the same	R. Simon	348,063	Aug. 24	2258	604	36	906
Sizing-machine	E. W. Blake	346,636	Aug. 3	339	85	36	508

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Skate-roller	E. F. Keyes	349,163	Sept. 14	863	221	36	1209
Skate. Roller	J. G. Ilaveus	345,781	July 20	1416	367	36	228
Skate. Roller	F. W. Hill	346,158	July 27	1939	499	36	371
Skate. Roller	H. W. Libbey	346,664	Aug. 3	871	74	36	513
Skate. Roller	J. N. Sterling	346,512	Aug. 3	80	21, 22	36	475
Skate. Roller	O. F. Tucker	348,249	Aug. 31	2535	661	36	963
Skate wheel. Roller	A. H. Eyeaman	345,422	July 13	872	217	36	168
Skirt	E. D. McCracken	344,973	July 6	241	61	36	43
Skirt facing. Dress	S. M. and H. Moschcowitz	348,859	Sept. 7	428	115	36	1120
Skylight	C. A. Vaile	346,677	July 20	1882	470	36	340
Skylight. Ventilating	G. Hayes	345,868	July 20	1280	332	36	243
Slasher	C. H. Howard	350,054	Sept. 28	2068	540	36	1461
Slate. School	J. Du Shane	347,696	Aug. 17	1725	460	36	800
Sled	C. P. Cary	345,829	July 20	1483	384	36	278
Sled	D. R. McLaren	347,436	Aug. 17	1336	356	36	738
Sled	O. Unsicker	349,827	Sept. 28	1784	461	36	1403
Sled. Bob	J. Fiewreger	347,766	Aug. 24	1854	494	36	932
Sled. Bob	J. S. Willson and W. H. Mack	349,378	Sept. 21	1154	299	36	1275
Sled-brake	W. Andrews	349,139	Sept. 14	822	209	36	1201
Sled-brake	J. Costello and J. M. Aker	347,322	Aug. 17	1182	316	36	700
Sleigh	P. Fritz	347,767	Aug. 24	1855	494	36	932
Sleigh attachment for vehicles	T. Scott	346,323	July 27	2171	557	36	415
Sleigh-knee. Hinged	J. J. Gardner	347,103	Aug. 10	870	230	36	632
Sleigh-runner	A. H. Todt	346,874	Aug. 3	533	145	36	584
Sleigh-runner	B. M. Wentworth	346,337	July 27	2186	561	36	418
Sliding and rolling gate	J. W. Coffin	348,108	Aug. 24	2318	622	36	917
Sliding and swinging gate	T. C. Curtis	349,925	Sept. 28	1890	492	36	1426
Sliding gate	W. S. Brown	349,920	Sept. 28	1886	491	36	1425
Slug-shot frame	M. Lester, Jr	344,840	July 6	63	15	36	12
Sluiceway-gate	J. B. Tainter	344,878	July 6	119	29, 30	36	21
Smoke and cinder conductor	J. H. Meacham	345,524	July 13	1010	256	36	188
Smoke-consumer	J. Keane	347,615	Aug. 17	1596	423	36	777
Smoke-consuming furnace	J. L. Preslin	348,863	Sept. 7	434	116	36	1128
Smoke-jack	A. W. Quackenbush	349,318	Sept. 21	1033	269	36	1255
Smoke-stack	T. H. Bolte	345,664	July 20	1250	324	36	238
Smoothing and polishing iron	B. F. Hostetter and I. C. H. Gilmore	346,814	Aug. 3	440	121	36	546
Snap-hook	G. W. Drew	346,811	Aug. 3	438	120	36	545
Snap-hook	G. M. Hubbard	347,108	Aug. 10	877	232	36	634
Snap-hook	G. M. Hubbard	350,055	Sept. 28	2067	540	36	1461
Snap-hook	G. A. Huff	346,047	July 20	1783	459	36	332
Snap-hook	T. T. Morrow	349,169	Sept. 14	870	223	36	1211
Snap-hook	T. T. Morrow	349,170	Sept. 14	870	223	36	1211
Snap-hook	G. Quackenbush	349,003	Sept. 14	644	166	36	1169
Snap-hook	M. M. Riggle	345,923	July 20	1510	415	36	302
Snap-hook	G. A. Shamberger	347,965	Aug. 24	2127	566	36	821
Snap-hook	S. S. Stahl	345,086	July 6	401	101	36	73
Snells. Apparatus for laying	F. E. Forster	345,496	July 13	972	246	36	181
Snow in railway-cuttings. Preventing accumulation of	W. L. Howie	347,107	Aug. 10	876	232	36	634
Snow-plow	P. B. Brazel	346,637	Aug. 3	240	66	36	506
Snow-plow	S. H. Buswell	345,618	July 13	1163	298	36	215
Snow-plow	C. Cook	346,726	Aug. 3	348	94	36	529
Soap by the cold process. Manufacture of	W. J. Menzies	345,715	July 20	1314	.....	36	240
Soap. Composition for the manufacture of	W. J. Menzies	345,714	July 20	1313	.....	36	240
Soap. Compound	C. F. Broadbent	346,461	Aug. 3	15	.....	36	463
Soap-frame	S. Rosenblatt	349,220	Sept. 21	1054	270	36	1255
Soap, &c. Making laundry	N. J Clute	347,027	Aug. 10	753	.....	36	612
Soda or other mineral waters. Cradle for carbonating	A. D. Puffer	347,378	Aug. 17	1302	334	36	713
Soldering apparatus. Can	J. J. Johnston	345,638	July 13	1200	311	36	222
Soldering-iron	F. W. Schultz	346,319	July 27	2165	556	36	414
Soldering-iron	S. P. Swartz	347,307	Aug. 10	1156	309	36	696
Soldering-machine	E. Norton and J. G. Hodgson	345,254	July 6	698	160	36	114
Soldering the longitudinal seams of sheet-metal cans. Machine for	G. T. Pillings	344,856	July 6	62	21, 22	36	16
Sole-inking device	C. K. Bradford	345,666	July 20	1251	324	36	238
Sole-nailing machine	F. F. Raymond, 2d	346,124	July 27	1878	485 / 486 / 487	36	360
Soles to uppers. Machine for uniting	S. W. Robinson	346,128	July 27	1880	488	36	362
Soles to uppers. Machine for uniting	S. W. Robinson	346,129	July 27	1891	489	36	363
Sorting-machine for classifying wooden stuffs	G. V. A. Cuvier, Fils, and Gourand	347,364	Aug. 10	1085	290 / 291	36	673
Sounding-bar	E. C. Jones	345,698	July 20	1298	335	36	245
Sounds. Apparatus for transmitting to distant points articulate	E. S. Spaulding	345,085	July 6	400	101	36	73
Sounds to distant points. Transmitting and receiving articulate	E. S. Spaulding	345,084	July 6	399	100	36	73
Sower. Broadcast seed	S. S. Speicher	349,820	Sept. 28	1778	459	36	1400
Spark-arrester	P. H. Adams	346,012	July 20	1741	448	36	325
Spark-arrester	J. M. Buckley	349,337	Sept. 21	1074	276	36	1260
Spark arrester and consumer	W. Hogan	349,796	Sept. 28	1736	448	36	1393
Spectacles	W. M. Pyle	347,738	Aug. 17	1784	478	36	810
Spectacles. Spring-holder for	R. R. Waddell	349,018	Sept. 14	663	170	36	1172
Speculum. Anal	P. P. Price	344,964	July 6	264	66	36	47
Speculum. Rectal	H. W. Hamilton	348,843	Sept. 7	404	110	36	1122
Speed and station indicator. Automatic	F. A. Schmidt	344,993	July 6	283	71, 72	36	51
Speed-changing mechanism	J. C. Henry	345,057	July 6	363	91, 92	36	66
Speed-controller	J. O. Wilson	345,754	July 20	1376	358	36	260
Speed-governor	F. A. Gale	346,472	Aug. 3	31	8	36	466
Speed-regulator	A. Campbell	345,670	July 20	1260	326	36	240
Spice and dredging box	L. Lemos	348,752	Sept. 7	293	78	36	1102
Spike-machine	U. Haskin	347,295	Aug. 10	1139	303	36	681
Spindle and flier	J. Good	349,709	Sept. 28	1602	413 / 414	36	1369

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spindle and support therefor	T. H. Logan	345,157	July 6	497	137	36	91
Spindle-bearing	G. H. Allen	348,651	Sept. 7	102	45	36	1077
Spinning-frames. Saddle for the top rolls of	A. R. Young and V. T. Barber	347,910	Aug. 24	2036	339	36	965
Spinning-machines. Spindle and bobbin-support therefor for	E. W. Thomas	346,135	July 27	1899	491	36	364
Spinning-machines. Spindle-bearing for	J. E. Tynan	349,926	Sept. 28	1769	461	36	1402
Spinning-machines. Spindle-support for	E. J. Carroll	350,038	Sept. 28	2057	531	36	1455
Spinning-machines. Spindle-support for	W. T. Carroll	350,039	Sept. 28	2057	539	36	1455
Spinning-machines. Top-roll saddle for	G. H. Clark	345,831	July 20	1466	365	36	279
Spinning-machines. Yarn-separating device for	E. H. Cummings	345,868	July 20	1506	403	36	293
Spinning-mule	W. R. Mayor	346,296	July 27	2130	{548 549	{36	408
Spinning-spindles. Bolster for	J. H. Martin	347,814	Aug. 24	1896	365	36	840
Spiral springs. Machine for making	G. H. Scott	346,322	July 27	2168	457	36	415
Spittoon. Adjustable fountain	J. M. Fletcher	349,704	Sept. 28	1591	411	36	1388
Spoke-fitting machine	J. H. Moeller and J. Marx	348,922	Sept. 7	563	138	36	1143
Spoke-socket	W. C. Williamson	345,015	July 6	314	79	36	58
Spoke-socket and tire-fastener. Combined	J. L. Johnston	349,434	Sept. 21	1230	319	36	1289
Spool-blanks. Machine for cutting	W. H. Allen	344,911	July 6	187	48	36	35
Spool or bobbin	O. E. Wait	344,928	July 6	185	47	36	35
Spooling-machines. Stop-motion for	G. P. Bosworth	350,033	Sept. 28	2052	{529 530	{36	1454
Spooling-machines. Thread-cleaning device for	A. H. Bailey	345,475	July 13	942	237	36	175
Spoon	F. W. Commiskey	349,144	Sept. 14	837	213	36	1204
Spoon and fork blanks. Die for swaging	E. W. Shannon	349,609	Sept. 21	1486	378	36	1336
Spout. Sap	C. C. Post	348,581	Sept. 7	67	19	36	1060
Spring: *See* Bed-spring. Car-spring. Carriage-spring. Door-spring. Elliptic spring. Metallic spring. Vehicle-spring. Vehicle platform-spring. Wagon-spring. Wagon bolster-spring.							
Spring-bolt	G. Crouch	348,662	Sept. 7	180	48	36	1079
Spring-equaliser	A. Esp	348,272	Aug. 31	2564	689	36	966
Spring-leaves. Machine for straightening and nibbing	P. N. French	345,629	July 13	1187	{304 305	{36	220
Spring-lock	F. O. Phelps	347,957	Aug. 24	2115	563	36	879
Springless lock	A. Park	345,072	July 6	363	96,97	36	70
Sprinkler: *See* Automatic sprinkler. Lawn-sprinkler.							
Sprinkler	W. S. Elston	345,958	July 20	1659	438	36	311
Sprinkler	J. A. White and J. W. Gray	347,405	Aug. 17	1297	346	36	721
Square and bevel. T-	H. E. Remick	345,806	July 20	1452	376	36	278
Square. Try and bevel	A. S. Vose	345,196	July 6	545	140	36	99
Squares. Adjustable head for T-	E. L. Deane	349,607	Sept. 28	1560	409	36	1365
Squares. Weather-boarding attachment for try-	W. F. Seargeant	349,905	Sept. 28	1879	495	36	1422
Squaring-shears	A. O. Kittredge and F. M. Leavitt	345,639	July 13	1201	{311 312	{36	223
Squib-box, &c. Miner's	J. D. Williams	346,834	Aug. 3	474	131	36	553
Staining-machine	C. Bechly	348,375	Aug. 31	2703	726	36	997
Stair-rod securer	T. A. Goodwin	347,792	Aug. 24	1863	496	36	833
Stair-rod securer	A. W. Wheaton	349,550	Sept. 21	1380	360	36	1360
Stairway. Spiral	W. Horrocks	348,908	Sept. 7	501	133	36	1139
Stalk-cutter	J. B. Neff	344,850	July 6	73	19	36	14
Stalk-cutting machine	E. P. Lynch	348,167	Aug. 24	2401	644	36	853
Stamp and envelope moistener	C. Marsh	349,403	Aug. 31	2740	735	36	1004
Stamp and other articles. Handle-lock for	W. J. Card	347,085	Aug. 17	1713	457	36	797
Stamp. Dating	B. B. Hill	344,904	July 6	153	37	36	28
Stamp. Hand	B. B. Hill	344,903	July 6	152	38	36	28
Stamp. Hand	B. B. Hill	348,211	Aug. 31	2481	667	36	953
Stamp. Hand	F. C. Lidke	345,064	July 6	374	94	36	68
Stamp. Hand	J. C. Powell	346,065	July 20	1805	486	36	338
Stamp. Self-inking hand	L. K. Scotford	346,890	Aug. 3	301	82	36	580
Stamps. Apparatus for canceling	G. Bancroft and J. H. Horsfall	345,566	July 13	1100	281	36	203
Stamping hard or irregular surfaces	J. S. Anderson	346,638	Aug. 3	234	.....	36	585
Stanchion	T. G. Fleming	349,578	Sept. 21	1427	380	36	1309
Stanchion	A. C. Greene	348,964	Sept. 14	579	154	36	1159
Staple forming and driving machine	P. A. Coupal	347,323	Aug. 17	1183	{316 317	{36	709
Staple-machine	J. H. Vinton	345,464	July 13	928	{233 234	{36	172
Staples in papers, &c. Machine for inserting metallic	I. W. Heysinger	349,093	Sept. 14	769	196	36	1191
Staples, &c. Stick for holding	I. W. Heysinger	349,094	Sept. 14	773	196	36	1192
Starch-clearing, &c., woven fabrics	I. E. Palmer	346,602	Aug. 3	192	51,52	36	497
Starch, &c. Disintegrator for the reduction of grain in the manufacture of	J. C. Schuman	346,390	July 27	2166	556	36	414
Starch from grain. Preparing	J. C. Schuman	345,926	July 20	1615	381	36	303
Starch from grain. Preparing	J. C. Schuman	345,927	July 20	1617	.....	36	303
Starch. Manufacture of	W. F. Birge	345,409	July 13	847	212	36	158
Starch. Manufacturing	E. E. Duryea	345,417	July 13	862	215	36	161
Starch. Manufacturing malt liquors from	W. T. Jebb	347,611	Aug. 17	1569	422	36	775
Starch. Manufacturing malt liquors from	W. T. Jebb	347,612	Aug. 17	1591	.....	36	775
Starch. Preparing	G. Luthy	346,890	Aug. 3	449	124	36	547
Starch upon starch runs or planes. Apparatus for liquefying	E. E. Duryea	345,418	July 13	864	216	36	161
Starching-machine	W. H. Garlock	345,043	July 6	347	88	36	63
Starching-machine	S. W. Holbrook	345,137	July 6	471	120	36	86
Starching-machine	H. E. Smith	345,985	July 20	1713	441	36	320
Starching washed goods	E. A. E. Meyer	348,702	Sept. 7	306	82	36	1104
Station-indicator	C. E. A. Brandes	349,141	Sept. 14	833	212	36	1204

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Station-indicator	H. R. Westervelt	348,366	Aug. 31	2683	728	36	988
Stave-dressing machine	C. Sumner	349,323	Sept. 21	1456	373	36	1256
Stave-jointing machine	G. W. Packer	347,371	Aug. 17	1250	333	36	711
Stave-jointing machine	R. C. Pope	347,039	Aug. 10	799	213	36	630
Stay for garments	B. Seligman	347,833	Aug. 24	1928	512	36	846
Stays. Folder for covering	C. F. Littlejohn	345,793	July 20	1431	370	36	270
Steam and gas engine	D. Frisbie and E. M. Lockwood	349,165	Sept. 28	1303	412	36	1369
Steam-boiler	R. B. Ayres	348,887	Aug. 3	478	132	36	554
Steam-boiler	F. O. Barrows	348,315	Aug. 31	2621	706	36	961
Steam-boiler	J. W. Connery	349,568	Sept. 21	1414	366	36	1325
Steam-boiler	P. F. Dundon. (Reissue)	10,758	Aug. 17	1818	484	36	816
Steam-boiler	H. C. Goulding	349,039	Sept. 14	688	177	36	1177
Steam-boiler	R. Harell	348,007	Aug. 24	2177	579	36	890
Steam-boiler	G. Hilbirt	349,159	Sept. 14	857	219	36	1208
Steam-boiler	R. W. King	345,849	July 20	1511	391	36	283
Steam-boiler	T. Nason	347,502	Aug. 17	1436	381	36	745
Steam-boiler	M. and W. N. Rumely	347,344	Aug. 17	1372	338	36	715
Steam-boiler	G. Steele	347,014	Aug. 10	737	196	36	609
Steam-boiler and furnace	C. N. Bacon	346,063	July 27	1831	473	36	351
Steam-boiler attachment	C. G. Comegys	348,548	Sept. 7	18	2	36	1050
Steam-boiler indicator	G. Hodgson	344,905	July 6	155	39	36	28
Steam-boiler. Magazine	W. B. Dunning	349,699	Sept. 28	1581	410	36	1396
Steam-boiler. Sectional	D. L. Adams	349,918	Sept. 28	1892	{489 490	{36	1425
Steam-boilers. Apparatus for feeding	T. T. Clarke	346,146	July 27	1920	495	36	368
Steam-boilers. Bridge-wall for the fire-beds of	H. Schneider	345,809	July 20	1456	377	36	274
Steam-boilers. Compound water-gage for	D. Pyke	347,303	Aug. 10	1151	308	36	664
Steam-engine	J. S. Ash	347,810	Aug. 10	1928	274	36	662
Steam-engine	J. B. Eads	349,573	Sept. 21	1421	367	36	1327
Steam-engine	F. O. Elliott	346,741	Aug. 3	363	97, 98	36	531
Steam-engine	G. D. Gilbert	348,458	Aug. 31	2621	758	36	1019
Steam-engine	A. F. Hall	347,344	Aug. 17	1211	324	36	705
Steam-engine	R. G. Harris	349,375	Sept. 14	1006	257	36	1249
Steam-engine	W. M. Henderson	347,874	Aug. 24	1906	596	36	855
Steam-engine	C. A. Jacobs	348,563	Sept. 7	40	12	36	1055
Steam-engine	I. R. Kern	347,816	Aug. 17	1507	424	36	777
Steam-engine	H. Knebel	349,898	Sept. 28	1861	480	36	1419
Steam-engine	F. C. Morton	349,171	Sept. 14	871	223	36	1211
Steam-engine	P. S. Rush	346,616	Aug. 3	213	58	36	502
Steam-engine	W. Schmidt	348,144	Aug. 24	2264	634	36	996
Steam-engine	I. Vernon	345,009	July 6	307	77	36	56
Steam-engine indicator	W. F. Brown	347,068	Aug. 10	851	226	36	629
Steam-engine indicator	F. R. Low	350,069	Sept. 28	2106	545	36	1464
Steam-engine indicator	J. Rae	348,414	Aug. 31	2753	750	36	1007
Steam engine or pump	W. C. Salmon	347,644	Aug. 17	1660	440	36	798
Steam-engine. Oscillating	S. W. Hempsted	346,996	Aug. 10	701	186	36	603
Steam-engine. Reciprocating	M. Geary	347,104	Aug. 10	871	{230 231	{36	633
Steam-engines. Reciprocating balance for	C. Louque	350,068	Sept. 28	2105	544	36	1464
Steam-generator	B. T. Babbitt	348,088	Aug. 24	2302	617	36	914
Steam-generator	T. Drake	347,206	Aug. 10	1066	291	36	673
Steam-generator	W. H. Farris	349,498	Sept. 21	1219	{316 317	{36	1287
Steam-generator	J. P. Forbes	345,375	July 13	798	201	36	149
Steam-generator	G. G. M. Hardingham	348,672	Sept. 7	183	51, 52	36	1098
Steam-generator	J. E. Taylor	345,333	July 13	739	187	36	139
Steam generator and furnace	C. Mason and A. Miller	347,816	Aug. 24	1898	506	36	840
Steam generator and radiator. Combined	E. Reynolds	345,891	July 20	1707	430	36	319
Steam-generator furnace	G. R. Palmer and A. M. Ewart	349,737	Sept. 28	1656	427	36	1378
Steam-heater	W. C. Bronson	345,979	July 20	1547	408	36	290
Steam-heater	G. Jones	344,968	July 6	253	59, 60	36	42
Steam-jackets. Draining	B. A. Stevens	348,247	Aug. 31	2532	660	36	982
Steam-muffler	C. C. Worthington	345,469	July 13	925	236	36	174
Steam-pipe covering	G. W. Richardson	344,883	July 6	98	25	36	18
Steam-pipes. Apparatus for cleaning	M. Fiegle	348,956	Sept. 14	574	.....	36	1156
Steam-pipes, boilers, &c. Covering for	C. Kynoch and E. Courtright	345,434	July 13	890	221	36	165
Steam-trap	M. Fiegle	348,949	Sept. 14	574	152	36	1158
Steamer	J. H. Blessing	348,946	Sept. 14	563	149	36	1156
Steering vessels. Apparatus for	E. W. Watkins	346,334	July 27	2164	560	36	418
Steering vessels. Apparatus for	B. T. Babbitt	347,963	Aug. 24	2140	571	36	884
Stencil and producing the same. Autographic	B. T. Babbitt	347,965	Aug. 24	2140	572	36	885
Stereotype-block	J. Brodrick	345,109	July 6	430	110	36	79
Stereotype plate and base with locking device	M. Joyce	345,433	July 13	889	221	36	165
Stereotype plate and block	N. R. Lyman and A. Morley	349,257	Sept. 14	967	250	36	1234
Stereotype plate and block	E. E. Pratt	348,593	Sept. 7	89	30	36	1049
Stereotype-shaving machine	E. C. Standifford	347,937	Aug. 24	1932	513	36	847
Stereotype-shaving machine	E. A. Blake	347,222	Aug. 10	1092	275	36	663
Stirrup	E. A. Blake	347,223	Aug. 10	1093	{275 276	{36	663
Stirrup-irons for beams, &c. Machine for making	L. L. Shearer	346,174	July 27	1957	504	36	375
Stock-record	W. McPherson	349,946	Sept. 28	1937	501	36	1433
Stocking-supporter	H. Mayer	345,519	July 13	1085	255	36	187
Stone. Artificial	R. S. Willard	344,889	July 6	126	34	36	24
Stone. Artificial	H. A. Daniels	346,729	Aug. 3	354	.....	36	530
Stone. Artificial	H. A. Daniels	346,730	Aug. 3	355	.....	36	530
Stone. Artificial	H. A. Daniels	346,731	Aug. 3	355	.....	36	530
Stone. Artificial	H. A. Daniels	346,732	Aug. 3	356	.....	36	530
Stone. Artificial	H. A. Daniels	346,733	Aug. 3	356	.....	36	530
Stone. Manufacture of artificial	H. A. Daniels	346,736	Aug. 3	359	96	36	531
Stone. Manufacture of artificial	F. Reimers	348,418	Aug. 31	2756	.....	36	1007
Stone. Ornamenting	J. W. Maley	348,225	Aug. 31	2602	673	36	957
Stone-sawing machines. Sand-feeding mechanism for	D. Shortsleeve	347,368	Aug. 17	1277	340	36	716
Stone slabs. Press for making artificial	F. Schillinger	349,861	Sept. 28	1887	472	36	1411
Stones. Machine for gathering	N. Botsford	349,685	Sept. 28	1853	405	36	1392
Stool and seat. Adjustable	T. S. Disston	348,366	Aug. 31	2717	730	36	1000

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steel. Cane	E. O. Leermo	345,852	July 20	1515	208	36	283
Steel. Folding music	J. Pursell, Sr.	349,053	Sept. 14	711	181	36	1181
Step-block	J. P. and J. Goodman	348,735	Sept. 7	873	23	36	1086
Step-box	P. White	346,969	Aug. 10	670	178	36	387
Stopper: *See* Bottle-stopper. Hawse-pipe stopper.							
Stopper-fastener	R. H. Hazard	346,280	July 27	2106	309	36	404
Stove	C. H. Amann	346,631	Aug. 3	237	54	36	605
Stove	K. Lersch and K. Seidl	346,756	Aug. 3	377	104	36	534
Stove	D. M. Murray	346,939	Aug. 10	632	170	36	890
Stove	R. G. Shackell	347,649	Aug. 17	1665	449 / 462	36	789
Stove	C. P. White	348,808	Sept. 7	362	94	36	1115
Stove attachment. Gasoline	C. A. Stockstrom	350,094	Sept. 28	2138	553 / 554	36	1471
Stove. Combined parlor and cooking	D. E. Paris	345,530	July 13	1039	284	36	192
Stove-door knob	S. F. Gibson and F. M. Lawrence	349,642	Sept. 21	1502	379	36	1344
Stove fire-pot	J. Clapp and W. J. Keep	347,995	Aug. 24	2160	525	36	997
Stove. Gas	J. W. Baker	349,779	Sept. 28	1718	443	36	1389
Stove. Gas	C. L. Blabee	347,561	Aug. 17	1522	404 / 405	36	761
Stove. Gas	G. W. Coleman	349,209	Sept. 14	919	236	36	1220
Stove. Gas	W. R. Kinnear	346,554	Aug. 3	131	35, 36	36	495
Stove. Gasoline	J. M. Reddy	347,379	Aug. 17	1264	325	36	714
Stove. Gasoline	J. Ringen	345,545	July 13	1067	272	36	197
Stove. Gasoline	L. Stockstrom	350,087	Sept. 28	2139	552	36	1469
Stove. Gasoline	C. A. Williamson	348,092	Aug. 24	2287	613	36	911
Stove-grate	H. C. Snow	349,237	Sept. 14	961	246	36	1229
Stove. Heating	J. Jewett	348,218	Aug. 31	2494	670	36	955
Stove. Heating	J. G. McGrew	346,764	Aug. 3	387	107	36	536
Stove. Heating	G. Wellhouse	349,545	Sept. 21	1384	359	36	1319
Stove-hood	G. W. Wallace	346,684	Aug. 3	307	84	36	521
Stove. Lamp	H. McConnell	347,187	Aug. 10	985	253	36	654
Stove-leg	R. Berry and J. C. Parker	346,868	Aug. 10	556	150	36	576
Stove. Oil	E. W. Ball and C. A. Fletcher	348,094	Aug. 24	2303	617	36	914
Stove. Oil	H. McConnell	348,029	Aug. 24	2206	588 / 589	36	896
Stove or range. Cooking	F. A. Macee	344,845	July 6	68	17	36	13
Stove-ovens. Sliding-grate attachment for	M. L. Miller	347,007	Aug. 10	722	191	36	606
Stove-pipe collar and clamp	E. H. Brower and J. J. Travis	346,188	July 27	1976	530	36	379
Stove-pipe. Extensible	J. S. Beebe	347,150	Aug. 10	935	249	36	645
Stove-pipe flange and retainer	R. P. Daggett	346,431	July 27	2328	599	36	444
Stove-pipe shelf	C. W. Taylor	349,239	Sept. 14	966	246	36	1229
Stove rack and shelf. Combination	A. J. Coats	348,889	Sept. 7	475	126	36	1135
Stove. Vapor	S. Daniels	347,161	Aug. 10	948	253 / 254	36	648
Stoves. Ash-pit for	A. Burkart	346,804	Aug. 3	430	118	36	544
Stoves. Attachment for cooking	A. C. Philippi	349,118	Sept. 14	804	204	36	1166
Stoves. Extension-top and feeder for	D. E. Paris	345,532	July 13	1043	265 / 266	36	193
Stoves. Heating attachment for	S. Smith	349,534	Sept. 21	1368	355	36	1317
Stoves. Vapor-burning attachment for	H. McConnell	347,188	Aug. 10	986	253 / 254	36	655
Stoves. Ventilating attachment for	W. M. Brinkerhoff	346,717	Aug. 3	337	92	36	526
Stoves. Ventilating attachment for	W. M. Brinkerhoff	349,425	Sept. 21	1218	316	36	1287
Strap: *See* Box-strap. Shawl-strap. Hitching-strap.							
Straps. Loop or band for	T. L. Rivers	350,021	Sept. 28	2125	550	36	1468
Straw-carrier	J. J. Link	349,507	Sept. 21	1333	346	36	1310
Straw-cutter	H. E. Collins	345,494	July 13	954	241	36	177
Straw. Machine for mashing	W. S. Reeder	349,607	Sept. 21	1464	377	36	1336
Street-cars. Driving mechanism for	N. Rogers	350,017	Sept. 28	2035	525 / 526	36	1459
Street-sweeper	A. J. Reynolds	348,778	Sept. 7	395	97	36	1108
Streets and removing dirt therefrom. Apparatus for sweeping	C. F. W. Seidel	349,816	Sept. 28	1767	457	36	1389
Streets, sidewalks, &c. Composition for	T. Egan	349,304	Sept. 21	1038	.....	36	1258
Studs. Machine for setting lacing	E. B Stimpson, Jr	349,412	Sept. 21	1199	310	36	1263
Stuffing-box	E. H. Cole	344,816	July 6	17	5	36	5
Stuffing-box	J. Loftus	346,378	July 27	2340	574	36	429
Stump-extractor	J. D. Hensley	347,260	Aug. 31	2478	626	36	953
Stump-extractor	G. Y. Smith and E. A. Charles	349,008	Sept. 14	649	168	36	1170
Sucker-rod	G. Allen	348,944	Sept. 14	555	147	36	1155
Sucker-rods. Uniting	R. H. Black	348,823	Sept. 7	377	103	36	1118
Sugar, &c. Arch for boiling sap	E. Willis	348,938	Sept. 7	544	143 / 144	36	1147
Sugar-cutting machine	W. Baur and J. V. V. Booraem	349,027	Sept. 14	672	173 / 174	36	1174
Sugar, &c. Machine for sifting powdered	G. Dinkel	347,473	Aug. 17	1400	372 / 373	36	739
Sugar. Manufacture of	F. Schwengers	345,810	July 20	1457	.....	36	274
Sugar. Manufacturing	H. Reichardt and C. Heyer	344,923	July 6	176	.....	36	33
Sugar. Tray for picking up and handling cut	W. Baur and J. V. V. Booraem	349,028	Sept. 14	675	174	36	1174
Sulphur from hydrogen sulphide. Obtaining	C. F. Claus	349,981	Sept. 28	1985	.....	36	1442
Supporter: *See* Axle-supporter. Horse-tail supporter. Garment-supporter. Pole and shaft supporter. Hammock-supporter. Shade, curtain, and lambrequin supporter.							
Surface-gage	R. C. Whittelsey	348,442	Aug. 31	2788	751	36	1015
Surfacing and sizing machine. Chain-feed	L. P. Hoyt	344,836	July 6	45	11 / 12 / 13	36	10
Surgeon's operating table	J. K. Rickey	348,418	Aug. 31	2761	741	36	1008

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Surgical chair	E. Bonnefoy	347,024	Aug. 10	747	199 / 200	36	610
Surgical chair	F. E. Young. (Reissue)	10,761	Aug. 24	9435	651	36	938
Surgical instrument	C. G. Ashley	346,633	Aug. 3	235	64	36	505
Surgical-needle holder	F. A. Stohlmann	348,537	Aug. 31	2936	789	36	1041
Suspender-clasp	H. L. Shenfield and C. Gellman	348,687	Sept. 7	230	60	36	1089
Suspender-end	J. H. Huff	349,277	Sept. 14	1008	258	36	1232
Suspenders	H. Beaudry	348,100	Aug. 24	2311	619	36	916
Suspenders	H. C. Whitmarsh	346,696	Aug. 3	225	61	36	504
Suspenders, &c. Metallic spring for	J. M. Sanker	349,904	Sept. 28	1879	485	36	1422
Suspension device	J. D. Griswold	346,985	Aug. 10	700	180	36	602
Suspension device	G. W. McGill	346,300	July 27	2133	549	36	409
Suspension device	C. J. Petersen	345,172	July 6	514	132	36	93
Suture appliance	F. A. Reichardt	345,541	July 13	1062	270 / 271	36	196
Suture-instrument	W. Glidoney, Jr	349,791	Sept. 28	1731	447	36	1392
Sweat-scraper and curry-comb. Combined	W. Spear	348,067	Aug. 24	2268	607	36	902
Swing	T. W. Bowen	345,950	July 20	1648	425	36	309
Swinging and reclining chair	H. Kline	347,428	Aug. 17	1393	352 / 353	36	734
Swinging gate	F. B. Jonas	346,050	July 20	1786	460	36	333
Switch: *See* Bell-switch. Telephone-switch. Cut-out switch. Telephone-exchange switch. Railway-switch. Railway-safety-switch.							
Switch and signal lock	I. May	347,494	Aug. 17	1426	379	36	744
Switch-board. Multiple	T. J. Perrin	348,578	Sept. 7	62	18	36	1059
Switch-board. Multiple	T. J. Perrin	348,579	Sept. 7	64	19	36	1059
Switch-stand	H. Y. Hinckley	348,968	Sept. 14	588	156	36	1161
Switch-stand	H. C. Singiser	345,061	July 6	395	99	36	72
Switch-stand and semaphore-signal combined	F. S. Guerber	346,848	Aug. 3	491	136	36	556
Swivel for watch-chains	A. Abrahams	348,811	Sept. 7	365	99	36	1115
Table: *See* Corpse-supporting table. Knockdown or folding table. Dining-table. Revolving table. Dress-maker's table. Saw-table. Extension-table. Sewing-machine table. Folding table. Surgeon's operating-table. Ironing-table. Toilet-table. Knockdown table. Work-table.							
Table	J. Moeller	345,643	July 13	1215	314	36	234
Table slide. Extension	J. W. Potter	345,175	July 6	517	138	36	94
Tables, &c. Attachment for	E. P. Hall	348,462	Aug. 31	2926	759	36	1090
Tables, chairs, &c. Adjustable and folding mechanism for	F. A. Blackmer	349,027	Sept. 21	1467	385	36	1341
Tablet. Writing	G. W. Apgar	346,526	Aug. 3	99	26	36	479
Tablet. Writing	C. Selah	346,228	July 27	2030	523	36	390
Tack-driver and carpet-stretcher	P. J. O'Connor	348,337	Aug. 31	2646	714	36	986
Tack-driving machine	M. V. B Ethridge	349,387	Sept. 21	1169	303	36	1279
Tack-puller	F. G. Whytal	347,019	Aug. 10	743	198	36	610
Tag, tally, or check	G. W. Mosely	345,443	July 13	899	224	36	167
Tailors' use. Curve-scriber for	G. Frega	347,160	Aug. 17	1819	482	36	815
Tambourine	C. N. Post	347,512	Aug. 17	1451	385	36	748
Tambourine	C. N. Post	349,001	Sept. 14	642	166	36	1169
Tamping-machine	J. W. Carley	347,920	Aug. 24	2052	544 / 545	36	886
Tank: *See* Compartment-tank. Refrigerator-tank. Measuring-tank.							
Tanner's apron-support	A. V. Manley	346,487	Aug. 3	48	12	36	469
Tanning	G. W. Hersey	349,589	Sept. 21	1440	.....	36	1331
Tanning hides	J. S. Billwiller	345,927	July 20	1478	.....	36	278
Tapping beer-casks, &c. Device for	J. W. L. Coit and J. R. McNamara	349,210	Sept. 14	920	236	36	1220
Target	E. C. Taylor	347,747	Aug. 17	1797	479	36	812
Target. Electric annunciator	M. Ullman	346,976	Aug. 3	536	145 / 146	36	545
Target. Flying	J. H. Jacobs	349,160	Sept. 14	857	219	36	1208
Target-trap	F. J. Curran	346,988	Aug. 10	691	184	36	601
Tea-pot and coffee-pot handle	F. E. Baker	347,021	Aug. 10	745	198	36	610
Tedder	A. G. Barton	344,803	July 6	1	1	36	3
Telegraph-cables. Machine for winding lead tape upon	F. P. Duplain	346,433	July 27	2328	599	36	444
Telegraph-cables. Machine for winding lead tape upon	W. R. Patterson	346,414	July 27	2299	592	36	439
Telegraph. District	J. W. Chase	346,355	July 27	2207	566	36	422
Telegraph-pole	H. C. Herron	347,602	Aug. 17	1579	419	36	773
Telegraph-pole	J. E. Lippincott	349,049	Sept. 14	706	180	36	1160
Telegraph. Quadruplex	W. Maver, Jr.	349,915	Sept. 28	1936	500	36	1432
Telegraph receiver. Printing	H. Mahnken	345,245	July 6	613	155	36	117
Telegraph system	M. G. Farmer	349,214	Sept. 14	926	237	36	1222
Telegraph-wire and insulator-fastening	J. Wilson	347,454	Aug. 17	1372	365	36	733
Telegraph-wire and insulator-fastening	J. Wilson	349,022	Sept. 14	668	171	36	1173
Telegraphic key	R. A. Macready	346,930	Aug. 10	689	166	36	588
Telephone	S. Bergmann	344,938	July 6	196	50	36	36
Telephone	J. Emmner, Jr.	346,031	July 20	1767	455	36	329
Telephone	C. Herz	349,043	Sept. 14	696	178	36	1178
Telephone	W. C. Lockwood	346,377	July 27	2230	574	36	429
Telephone	A. M. Phelps	344,983	July 6	263	66	36	47
Telephone	T. A. Watson	348,077	Aug. 24	2279	610	36	910
Telephone. Acoustic	G. W. Lord	346,384	Aug. 3	179	48	36	495
Telephone and telegraph circuit	J. J. Carty	348,512	Aug. 31	2887	779	36	1023

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drs.	Official Gazette. Vol.	Page.
Telephone-exchange switch	C. E. Scribner	345,325	July 13	738	186	36	136
Telephone-exchange system. Automatic	J. H. Bickford	349,975	Sept. 28	1974	511	36	1439
Telephone-exchange system. Automatic	J. H. Bickford	349,976	Sept. 28	1980	512	36	1440
Telephone-exchange systems. Toll-collecting mechanism for	P. L. Rose and G. Rein	346,886	Aug. 3	899	142	36	561
Telephone. Mechanical	W. H. Eastman	348,986	Sept. 7	488	129	36	1137
Telephone. Mechanical	B. L. Kenyon	348,398	Aug. 31	2635	710	36	964
Telephone-receiver	L. S. Fairbanks	349,575	Sept. 21	1494	388	36	1327
Telephone-receiver	L. Townsend	348,429	Aug. 31	2778	746	36	1012
Telephone-receiver	W. C. Turnbull	346,962	Aug. 10	661	176	36	585
Telephone. Receiving	O Lugo	348,134	Aug. 24	2349	630	36	923
Telephone-switch	J. F. Melrum	349,947	Sept. 28	1939	501	36	1433
Telephone-switch	W. C. Turnbull	348,936	Sept. 7	542	143	36	1146
Telephone switch and circuit	E. Pope	348,139	Aug. 24	2356	628	36	924
Telephone system	C. Hera	349,042	Sept. 14	693	178	36	1178
Telephone. Thermal	W. Stanley, Jr	348,501	Aug. 31	2991	775	36	1020
Telephone time-register	J. H. Tabony	349,539	Sept. 21	1376	357	36	1318
Telephone-toll system. Automatic	P. L. Rose and G. Rein	346,865	Aug. 3	516	141	36	560
Telephone-transmitter	G. Brambel	345,762	July 20	1392	361	36	263
Telephone-transmitter	J. E. Dann and J. Lapp	347,924	Aug. 24	2080	547	36	869
Telephone-transmitter	H. Ehrlich	346,846	Aug. 3	489	135	36	556
Telephone-transmitter	L. Townsend	348,430	Aug. 31	2779	746 747	36	1012
Telephone-transmitter	J. P. Young	345,658	July 13	1941	221	36	229
Telephone-transmitters. Electrode for	T. A. Edison	348,114	Aug. 24	2357	624	36	919
Telephones. Line-holder for aconatic	A. W. S. Davis	347,325	Aug. 17	1186	318	36	700
Telephonic apparatus	P. Gannon	349,839	Sept. 28	1799	465	36	1406
Telephonic apparatus	T. J. Perrin	347,374	Aug. 17	1257	333	36	712
Telephonic circuit	W. Marshall	349,312	Sept. 21	1046	268	36	1254
Telephonic communication. System of	C. A. Bell	346,708	Aug. 3	324	99	36	524
Temperature regulation. System of	W. S. Johnson. (Reissue)	10,768	Sept. 28	2141	354 355	36	1471
Tennis nets. Pole for lawn	C. H. Brathwaite and G. Lane	349,696	Sept. 28	1565	405	36	1363
Tension. Intermittently-acting	G. A. Flaharty	345,561	July 13	1119	296	36	207
Tether. Animal	D. L. Aspinwall	349,625	Sept. 21	1485	384	36	1340
Theatrical scenery	L. W. Seavey	349,536	Sept. 21	1358	353	36	1315
Thermometer. Circuit-closing	J. E. White	347,851	Aug. 24	1949	518	36	850
Thermometer or like instrument	J. T. Brayton	345,106	July 6	426	109 110	36	78
Thill attachment. Vehicle	D. W. Dudderar	349,930	Sept. 28	1906	494	36	1427
Thill-coupling	A. Z. Fryberger	347,291	Aug. 10	1198	309	36	669
Thill-coupling	M. E. Hamilton	347,236	Aug. 10	1051	271	36	606
Thill-coupling	E. G. Harder	346,279	July 27	2105	542	36	463
Thill-coupling	P. J. Hindmarsh and W. H. Gwinn	348,014	Aug. 24	2186	562	36	892
Thill-coupling	F. P. Johnson	346,650	Aug. 3	266	73	36	513
Thill-coupling	J. A. Kneedler	345,148	July 6	485	124	36	88
Thill-coupling	F. McKinster	348,985	Sept. 14	611	161	36	1165
Thill-coupling	A. P. Moses and L. Frechette	349,401	Sept. 21	1186	307	36	1281
Thill-coupling	H. Schiller	346,503	Aug. 3	68	18	36	473
Thill-coupling	D. Thompson	347,842	Aug. 24	1938	514	36	849
Thill-coupling	D. D. Whitney	349,964	Sept. 28	1960	506	36	1437
Thill coupling	F. Wick	346,490	July 27	2305	594	36	440
Thill-lug	G. F. Denio	348,453	Aug. 31	2814	756	36	1018
Thill-supporter	D. Thurlow	348,071	Aug. 24	2279	606	36	909
Thill-tip. Anti-friction	R. W. Simpson	349,817	Sept. 28	1769	457	36	1389
Thrashers. Band-cutting attachment for	S. Harrop	348,966	Sept. 14	563	154	36	1160
Thrashers. Combined band-cutter and grain-feeder for	C. Grover	345,230	July 6	501	150	36	107
Thrashers. Sheaf table and stand for	L. Wetmore	345,346	July 13	760	191	36	143
Thrashing-machine	I. D. Heebner	345,695	July 20	1288	334	36	245
Thrashing-machines. Band-cutter and feeder for	J. W. Turner	347,980	Aug. 10	1107	296 297	36	677
Thrashing-machines. Belt-coiler for	M. B. Heliker	346,042	July 20	1779	458	36	331
Thrashing-machines. Feeder for	W. S. Reeder	349,606	Sept. 21	1463	376 377	36	1335
Thrashing-machines. Separator-shoe for	C. B. Dow	345,285	July 13	678	171	36	198
Threshold. Movable	E. Schmidt	348,349	Aug. 31	2650	716	36	989
Ticket. Coupon	J. B. Porter	347,958	Aug. 24	2115	554	36	879
Ticket-holder	D. F. Crofut	348,924	Sept. 28	1898	492	36	1436
Tickets or cards. Apparatus for the manufacture of blank	W. R. Bacon	345,474	July 13	941	237	36	175
Tie: *See* Bag-tie. Railway-tie. Bale-tie.							
Tile	E. Aldrich	345,942	July 20	1639	422	36	307
Tile for facing walls, &c	H. Hall	347,425	Aug. 17	1320	342	36	784
Tile-kiln	J. Gearhard	345,964	July 20	1656	431	36	312
Tile. Roofing	C. Weise	345,400	July 13	934	209	36	155
Tile. Stamped roofing	E. Lamal and S. Duprat	349,227	Sept. 14	950	242 243	36	1196
Till-lock	J. C. F. W. Diestel	345,125	July 6	451	116 117	36	82
Time-ball. Electric	J. Böhling	348,949	Sept. 14	563	149	36	1156
Time-detector. Watchman's pneumatic	C. D. Bernsee	349,780	Sept. 28	1719	443 444	36	1389
Time-lock	G. P. Woodworth	348,087	Aug. 24	2302	614	36	912
Time-lock	E. J. Woolley	345,206	July 6	646	164	36	117
Time-lock	J. B. Young	346,010	July 20	1735	447 448	36	324
Time-lock. Electro-magnetic	F. Sedgwick	347,069	Aug. 10	825	219 220	36	685
Time-piece dial	M. V. B. Ethridge	347,337	Aug. 17	1300	331	36	703
Time-pieces. Compensation-balance for	G. E. Hunter	347,297	Aug. 10	1130	305	36	663
Time-pieces. Escapement-lever for	A. M. Lane	346,980	Sept. 14	606	160	36	1184

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drs.	Official Gazette. Vol.	Page.
Tire and driving-band. Elastic wheel	H. Barrett and J. J. Varley	345,476	July 13	944	238	36	175
Tire for vehicle-wheels. Ice-	T. B. Williams	349,773	Sept. 28	1709	440	36	1387
Tire-tightener	C. D. Hammon	347,347	Aug. 17	1215	324	36	706
Tires. Setting	H. and J. S. Rohrer	345,382	July 13	727	184	36	137
Toaster	C. W. Stambaugh	347,366	Aug. 10	1155	309	36	665
Tobacco-cutter	J. G. Perry and T. W. Wright	347,694	Aug. 24	1915	509	36	843
Tobacco-cutting machine	G. Lo Clair	348,402	Aug. 31	2738	735	36	1004
Tobacco. Machine for manufacturing plug	J. L. Colhapp	348,617	Sept. 7	118	33	36	1060
Tobacco. Machine for stripping and booking	J. de la Mar	346,098	July 20	1761	451	36	328
Tobacco-pipe	G. W. Conover	348,180	Aug. 31	9448	658	36	947
Tobacco-pipe cleaner	J. F. Fouth	347,107	Aug. 10	963	257	36	650
Tobacco-pouch	W. W. Walker	347,660	Aug. 17	1694	451	36	794
Tobacco. Sheet	H. M. White	347,906	Aug. 24	2038	537	36	864
Tobacco-stick holder	F. B. Davis	347,579	Aug. 17	1546	411	36	767
Tobacco stripping and booking machine	O. Hammerstein	347,794	Aug. 24	1863	496 497 498 499	36	833
Tobacco stripping and booking machine	O. Hammerstein	347,796	Aug. 24	1868	498	36	833
Tobacco-stripping machines. Clutch for	O. Hammerstein	347,795	Aug. 24	1866	498	36	833
Tobacco. Treating	G. Robinson	345,076	July 6	387	.....	36	71
Toboggan	J. P. Burkhard	349,269	Sept. 14	1001	255	36	1286
Toboggan	B. W. Clapp and S. Ainsworth	349,481	Sept. 21	1297	337	36	1302
Toboggan	C. Gentesse	348,982	Sept. 14	577	153	36	1159
Toboggan	J. C. Leslie	350,006	Sept. 28	2103	544	36	1464
Toilet-glass	J. Ray	349,333	Sept. 21	1070	275	36	1260
Toilet-table. Infant's	H. Crocker	349,875	Sept. 28	1844	476	36	1415
Tongs. Crucible	W. M. Towner	346,136	July 27	1900	491	36	364
Tongs. Culinary	A. J. Holmes	345,848	July 20	1508	391	36	283
Tongue-support	G. B. Hayes	348,466	Aug. 31	2831	761	36	1021
Tongue-support	C. McCoy	345,521	July 13	1007	255	36	187
Tongue-support	O. B. Pickett	348,580	Sept. 7	65	19	36	1059
Tongue-support for vehicles	Z. M. Ham	348,122	Aug. 24	2335	627	36	920
Tongue support. Wagon	L. E. Hastings	349,714	Sept. 28	1623	419	36	1371
Tongue support. Wagon	M. E. Johnson	344,910	July 6	163	41	36	30
Tool. Bar-center	F. A. Humphrey	346,371	July 27	2231	572	36	427
Tool-box	G. E. Richards	350,016	Sept. 28	2034	525	36	1450
Tool. Combination	E. D. Beahs	345,826	July 20	1476	381	36	277
Tool. Combination	I. J. Mandeville	348,563	Sept. 7	44	13	36	1056
Tool. Combined	J. N. Girard	345,630	July 13	1199	305	36	220
Tool. Hand	G. Hayes	345,667	July 20	1379	329	36	243
Tool-handle	N. C. Perry	346,219	July 27	2090	521	36	398
Tool-handle	D. and D. C. Wheeler	348,145	Aug. 24	2365	634	36	996
Tool-holder	J. Crabtree	349,923	Sept. 28	1898	492	36	1436
Tool-holder for grinding	G. A. Long	348,497	Aug. 31	2876	774	36	1029
Tooth. Artificial	J. J. R. Patrick	346,312	July 27	2154	554	36	419
Tooth-crown. Artificial	C. P. Grout	347,933	Aug. 24	2071	550	36	871
Tooth-crown. Artificial	C. M. Richmond	346,316	July 27	2161	555	36	414
Tooth-crown. Artificial	E. T. Starr	347,975	Aug. 24	2137	569	36	883
Top	F. L. Johnson	346,921	Aug. 10	607	163	36	585
Top. Musical	R. Richardson	347,199	Aug. 10	1000	267	36	657
Top. Spinning	J. S. Gold	346,637	July 20	1774	456	36	330
Top. Spinning	J. S. Gold	347,632	Aug. 10	761	202	36	613
Torpedo-boats. Gas-heating chamber for	G. E. Haight and W. H. Wood	349,711	Sept. 28	1690	417	36	1371
Torpedo railway-signals. Attachment for	J. Denel	345,774	July 20	1469	365	36	266
Towel-rack. Folding	C. G. Udell	349,769	Sept. 28	1702	439	36	1396
Towel-roller	C. G. Udell	349,770	Sept. 28	1703	439	36	1396
Toy	M. E. Converse	348,952	Sept. 14	586	150	36	1157
Toy. Alphabetical	W. F. Hopkins	346,656	Aug. 3	260	73	36	511
Toy air-gun	P. D. Horton	347,944	Aug. 10	1057	283	36	667
Toy building-block	T. H. Grigg	349,646	Sept. 21	1506	390	36	1345
Toy gun	J. G. Newbury	348,860	Sept. 7	430	115	36	1127
Toy house. Collapsible	J. P. Buckingham	347,662	Aug. 17	1709	456	36	796
Toy kitchen	M. Schaare	344,998	July 6	262	71	36	51
Toy. Mechanical	W. Crowell	346,092	July 27	1840	475	36	353
Toy. Mechanical	J. Fallows	346,586	Aug. 3	170	46	36	492
Trace and whiffletree guard	E. E. Stephenson and I. A. Lasher	347,890	Aug. 24	2020	535	36	861
Trace-carrier	C. L. Gross	345,301	July 13	700	176	36	139
Trace-chain carrier	G. Elbel	348,196	Aug. 31	9457	660	36	949
Trace-fastener	J. P. Smith	345,330	July 13	736	186	36	139
Trace-fastening	W. E. Barber	347,149	Aug. 10	934	249	36	645
Trace-hook	C. Dudley	349,632	Sept. 21	1491	388	36	1342
Track-clearer	G. F. Chapman	347,096	Aug. 10	752	200	36	611
Track-laying apparatus	D. E. Johnson	347,808	Aug. 24	1863	502 503	36	837
Traction-engine boiler	W. B. Kurtz	349,869	Sept. 28	1862	480	36	1419
Traction-engines. Steering apparatus for	J. V. Stribling	348,538	Aug. 31	2937	789	36	1041
Traction-wheel	W. A. Loud	346,410	July 27	2201	568	36	436
Traction-wheel	H. M. Sheer and F. Dillemuth	348,786	Sept. 7	336	90	36	1110
Traction-wheel	C. W. Waring	345,342	July 13	754	190	36	162
Tramway system. Electric	M. H. Smith	348,799	Sept. 7	341	91.68	36	1111
Transom-lifter	C. F. Leopold	345,236	July 6	605	153	36	109
Transom-lifter	T. Mayhew	349,926	Aug. 31	2564	674	36	957
Transom-lifter	J. F. Wollensak	349,921	Sept. 21	1479	382	36	1330
Transparency	W. Read, Jr	346,864	Aug. 3	515	141	36	589
Transplanter	G F. Carsley	341,814	July 6	15	4	36	5
Transplanter. Tobacco	M. Smith	345,184	July 6	529	135 136	36	96
Trap: *See* Animal-trap. Sewer-gas trap. Gopher-trap. Steam-trap. Grease-trap. Target-trap. Mole-trap.							
Trash-drill	R. A. Summers	346,234	July 27	2041	526	36	392
Tray. Shipping	P. T. Cramer	347,394	Aug. 17	1185	317	36	709
Treadle attachment	J. L. Randolph	346,562	Aug. 3	141	39	36	488

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Treadles. Foot-pad for machine	L. McKeogh	345,948	July 6	621	157	36	112
Treasure-box	E. N. Hayes and V. A. Sauer	345,392	July 13	701	177	36	132
Tree: *See* Boot-tree. Double-tree. Boot or shoe tree. Harness-pad tree.							
Tree-cover	J. Stahl	349,066	Sept. 14	728	186	36	1184
Tree-guard	G. S. Cole	349,082	Sept. 14	756	192	36	1189
Tricycle	M. M. and W. B. Depuy	349,145	Sept. 14	857	213	36	1205
Tricycle	W. J. Lloyd and W. Priest	346,286	July 27	2007	517	36	384
Tricycle	T. O'Brien	347,503	Aug. 17	1437	{371 372}	36	745
Tricycle-brake	H. J. Curtis	348,691	Sept. 7	479	127	36	1135
Tricycles. Clutch for	J. M. Marlin	348,680	Sept. 7	286	54,255	36	1084
Tricycles. Clutch for	D. H. Rice	348,691	Sept. 7	330	58	36	1067
Tripod. Extension	H. Esser	347,927	Aug. 24	2066	548	36	870
Trough: *See* Feed-trough. Poultry feed-trough.							
Trousers-stretcher	D. B. Falk	348,635	Sept. 7	394	107	36	1121
Truck	P. V. McBride	347,186	Aug. 10	963	{382 383}	36	654
Truck	R. J. Saxton	349,367	Sept. 21	1138	293	36	1271
Truck	R. J. Saxton	349,368	Sept. 21	1138	293	36	1272
Truck and step ladder. Combined	J. Hill	345,973	July 20	1679	434	36	314
Truck. Barrel	G. W. Rose	349,665	Sept. 21	1530	395	36	1349
Truck. Barrel	E. S. Stowe	346,958	Aug. 10	657	175	36	594
Truck. Barrel	W. P. Williams	345,467	July 13	934	235	36	173
Truck. Car	J. Goettel	348,459	Aug. 31	2821	758	36	1019
Truck. Car	M. G. Hubbard	348,741	Sept. 7	980	75	36	1100
Truck. Car	C. W. Hunt	347,936	Aug. 24	2077	559	36	873
Truck. Car	S. D. King	348,221	Aug. 31	2497	672	36	956
Truck. Car	E. A. Stanley	346,785	Aug. 3	412	114	36	540
Truck for moving houses	J., Sr., F. A., and J. F. Goodman	348,005	Aug. 24	2174	578	36	890
Truck. Hand	A. Kell	350,001	Sept. 28	2012	530	36	1446
Truck. Hand	C. Walter	345,090	July 6	405	102	36	74
Trunk	M. J. Cole	348,188	Aug. 31	2447	657	36	947
Trunk-fastening	F. Seevyn	348,245	Aug. 31	2530	680	36	962
Truss	G. L. Bailey	346,575	Aug. 3	159	43	36	490
Truss	J. T. Bartlett	345,405	July 13	842	210	36	157
Truss	A. Giralt	347,171	Aug. 10	964	257	36	651
Truss	J. G. Henderson	349,498	Sept. 21	1321	353	36	1307
Truss	T. G. Owen	345,170	July 6	511	131	36	98
Truss and abdominal support. Combined	J. A. Tigner	346,244	July 27	2063	539	36	396
Tub: *See* Bathing-tub.							
Tub or tank for toilet, laundry, and refrigerating purposes	J. B. French	348,321	Aug. 31	2627	706	36	962
Tube. Adjustable leg for wash	F. G. Eddington	348,195	Aug. 31	2456	660	36	949
Tube: *See* Boiler-tube. Mailing-tube. Lamp-wick tube.							
Tube-cleaner	G. A. Rowell	348,141	Aug. 24	2359	633	36	925
Tube-expander	C. Wicksteed	346,251	July 27	2071	532	36	397
Tubes. Uniting	O. Musadnan, Jr	350,075	Sept. 28	2113	547	36	1465
Tubing. Apparatus for corrugating metal	H. Hollerith and S. G. Metcalf	349,718	Sept. 28	1627	420	36	1372
Tubing. Machine for making metal	D. A. Ritchie	349,748	Sept. 28	1673	432	36	1381
Tug. Hame	J. G. Miller	348,987	Sept. 14	613	161	36	1165
Tug-holder	E. A. Brown	345,410	July 13	851	212	36	158
Tug-link. Spring	J. H. Lamb	347,812	Aug. 21	1892	505	36	839
Tug. Shaft	J. Fischer	345,038	July 6	343	96	36	62
Tug. Shaft	H. F. Walter	347,670	Aug. 17	1695	451	36	794
Tumbler-washer	J. D. O'Donnell	349,052	Sept. 14	710	181	36	1181
Tunnel. Submarine	C. H. Buckelew	349,301	Sept. 21	1035	265	36	1252
Tunnels. Construction of	C. C. Gilman	345,046	July 6	350	98	36	64
Turbine	J. McConnell	349,510	Sept. 21	1336	347	36	1310
Turn-buckle. Self-adjusting	I. O. Phillips	346,771	Aug. 3	394	109	36	538
Turn-table guide	A. V. du Pont	345,288	July 13	692	172	36	120
Turn-tables. Center-bearing for	E. Samuel	349,956	Sept. 28	1950	504	36	1435
Turning irregular forms. Machine for	V. H. Ernst	349,343	Sept. 21	1062	278	36	1261
Turning rolls. Apparatus for	J. McIntosh	349,806	Sept. 28	1752	452	36	1396
Turnstile	J. H. Greenleaf	349,156	Sept. 14	850	217	36	1207
Twine-baling machine	R. A. Kelly	347,116	Aug. 10	863	224	36	635
Twine-cutter	S. Fogleson and J. B. Mouser	347,234	Aug. 10	1045	279	36	665
Twine-nawinder. Automatic	M. G. Hubbard	347,804	Aug. 24	1878	501	36	836
Type. Apparatus for setting	C. G. Fischer	348,836	Sept. 7	395	107	36	1121
Type-bars and matrices therefor. Machine for producing	O. Mergenthaler	345,525	July 13	1012	{227 228 229}	36	188
Type-bars. Machine for producing	O. Mergenthaler	345,526	July 13	1021	{229 230 231 232 233}	36	189
Type-bars. Machine for producing	O. Mergenthaler	347,629	Aug. 17	1627	{432 433 434}	36	782
Type-distributing machine	J. L. McMillan	347,627	Aug. 17	1620	{430 431}	36	781
Type in chases. Device for tightening forms of	J. J. Barnsdall and E. C. Bell	346,457	Aug. 3	9	3	36	462
Type-matrix and mechanism for distributing the same	O. Mergenthaler	347,630	Aug. 17	1630	435	36	784
Type-matrices. Machine for producing	O. Mergenthaler	344,974	July 6	243	61, 62	36	46
Type-setting machine	J. L. McMillan	347,626	Aug. 17	1612	{427 428 429 430}	36	779
Type-writers. Escapement for	G. W. Baldrige and G. H. Lazar	344,933	July 6	199	49	36	35

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drs.	Official Gazette. Vol.	Official Gazette. Page.
Type-writing and manifolding. Reproducing-surface for	J. T. and F. W. Underwood	348,073	Aug. 24	2073	.....	36	889
Type-writing. Composition for transfer-surfaces for producing copies of	J. T. and F. W. Underwood	348,072	Aug. 24	2073	.....	36	889
Type-writing machine	C. J. Buchholt and T. L. Popp	348,511	Aug. 31	2396	779	36	1033
Type-writing machine	E. Fitch	345,836	July 20	1491	{366 367}	36	309
Type-writing machine	E. Howard	346,104	July 27	1854	479	36	326
Type-writing machine	W. K. Jenne	349,349	Sept. 21	1304	339	36	1284
Type-writing machine	V. F. Lake	344,939	July 6	50	14, 15	36	18
Type-writing machine	W. J. Perkins	347,373	Aug. 17	1254	323	36	719
Type-writing machine	H. J. Thomas	346,000	July 20	1719	{443 444}	36	321
Type-writing machines. Inking-ribbon for	G. K. Anderson	349,026	Sept. 14	671	173	36	1176
Type-writing machines. Key-board for	G. W. Baldrige	345,565	July 13	1469	380	36	202
Type-writing machines. Line-spacing device for	T. Whaley	345,347	July 13	761	191	36	143
Umbrella	M. Apfelbaum	350,030	Sept. 28	2049	529	36	1423
Umbrella	J. I. Barnhurst	349,476	Sept. 21	1290	335	36	1301
Umbrella	J. B. Logan	348,223	Aug. 31	2499	673	36	956
Umbrella	M. M. Ray	348,584	Sept. 7	70	20	36	1090
Umbrella	H. A. W. Wood	349,023	Sept. 14	668	172	36	1173
Umbrella case or bin	W. H. Duff	346,648	Aug. 3	254	69	36	510
Umbrella drip-cup	D. F. Taber	348,600	Sept. 7	95	27	36	1084
Umbrella-support	F. Haits	347,343	Aug. 17	1210	{383 384}	36	706
Umbrella-support	J. M. Shelton	348,062	Aug. 24	2257	604	36	866
Under-garment	M. W. Agnew	348,181	Aug. 31	2439	{654 655}	36	945
Unwinding attachment. Automatic	M. G. Hubbard	347,802	Aug. 24	1876	500	36	836
Unwinding attachment. Automatic	M. G. Hubbard	347,803	Aug. 24	1877	501	36	836
Upholstering-roll	G. W. and D. A. Moore, Jr	348,634	Sept. 7	141	39	36	1073
Upper	W. Hughes	345,141	July 6	477	121	36	87
Urinal	E. C. Condit	349,030	Sept. 14	678	174	36	1175
Urinal	J. S. Given, Jr., and F. F. Martinez, Jr.	345,584	July 13	1123	287	36	207
Urn. Coffee	C. Halstead	346,278	July 27	2104	542	36	403
Vacuum-motor	R. Solano	349,758	Sept. 28	1685	436	36	1363
Valve	F. Hennebochle	345,056	July 6	362	91	36	66
Valve	T. F. Morris	347,727	Aug. 17	1769	472	36	807
Valve	F. E. and F. E. Small	348,580	Sept. 7	78	23	36	1068
Valve	W. Wade	345,197	July 6	547	140	36	100
Valve	D. P. Weir	348,303	Aug. 31	2607	{701 702}	36	979
Valve and overflow-pipe for bath-tubs, wash-basins, sinks, &c. Combined	W. Bunting, Jr	347,684	Aug. 17	1711	457	36	797
Valve and tap-valve faucet. Tap	M. G. Gillette and L. King	346,436	July 27	2333	{600 601}	36	445
Valve. Automatic safety	P. Gennet and J. Wyman, Jr	349,389	Sept. 21	1172	303	36	1278
Valve. Balanced slide	B. Hale	347,703	Aug. 24	1863	496	36	833
Valve. Balanced slide	W. Jackson	345,235	July 6	589	152	36	109
Valve. Balanced slide	L. Kneedler	349,048	Sept. 14	705	180	36	1180
Valve. Balanced slide	W. H. Wheeler	348,254	Aug. 31	2540	662	36	964
Valve. Check	J. W. Eskholme	345,490	July 13	869	{216 217}	36	168
Valve. Check	A. D. Glace	349,586	Sept. 21	1436	371	36	1330
Valve. Check	W. T. Messinger	346,600	Aug. 3	190	51	36	497
Valve. Cistern overflow	J. Demarest	348,661	Sept. 7	181	48	36	1079
Valve. Differential	R. R. Rouse	349,321	Sept. 21	1055	270	36	1256
Valve. Differential	H. Wiedling	347,876	Aug. 24	1955	519	36	851
Valve for barrels. Ventilating	C. Rocker	346,385	July 27	2253	576	36	431
Valve for beer-casks. Safety	J. C. Schaefer	347,645	Aug. 17	1661	440	36	788
Valve for engines	J. Thom	344,881	July 6	125	31	36	82
Valve for engines. Slide	C. Schmid	347,012	Aug. 10	734	195	36	608
Valve for gas-purifiers. Dry center	F. Weck	345,559	July 13	1068	278	36	201
Valve for hydraulic elevators. Automatic regulating	N. C. Bassett	348,610	Sept. 7	109	31	36	1067
Valve for locomotives. Reversing	P. Maltby	347,881	Aug. 24	1996	{529 530}	36	857
Valve for radiators. Air	A. C. Walworth	345,747	July 20	1366	355	36	258
Valve for tubular wells. Lifting	J. Fox	346,491	Aug. 31	2866	771	36	1027
Valve-gear	L. W. Bryan	346,190	July 27	1978	511	36	379
Valve-gear	D. H. Dugar	345,373	July 13	794	200	36	148
Valve-gear	B. B. Hough	346,658	Aug. 3	964	72	36	512
Valve-gear	H. C. Mooers	346,492	Aug. 3	55	14	36	470
Valve-gear	J. H. Pendleton	349,896	Sept. 28	1870	483	36	1421
Valve-gear. Engine	R. A. McLellan	349,512	Sept. 21	1338	{347 348}	36	1311
Valve-gear. Engine	P. I. Schmaltz	347,521	Aug. 17	1463	388	36	750
Valve-gear for steam-engines	H. C. Behr	348,309	Aug. 31	2616	705	36	980
Valve-gear. Reversible	P. I. Schmaltz	347,386	Aug. 17	1274	339	36	716
Valve mechanism	B. B. Hough	346,657	Aug. 3	961	72	36	511
Valve mechanism for steam pumping-engines	W. L. Shepard	344,998	July 6	293	73	36	53
Valve-movement for direct-acting engines	W. D. Hooker	349,045	Sept. 14	699	179	36	1179
Valve-movement in pumping-engines	C. F. Richardson	345,731	July 20	1340	348	36	254
Valve-operating device	C. A. Goyne	347,173	Aug. 10	966	258	36	651
Valve. Pressure-regulating	P. F. Morey	346,212	July 27	2012	519	36	385
Valve. Relief	J. O. Ruaby	347,792	Aug. 24	2011	533	36	859
Valve. Safety	G. W. Richardson	344,862	July 6	95	24	36	18
Valve. Safety	G. W. Richardson	344,864	July 6	99	25	36	18
Valve. Safety	G. W. Richardson	344,865	July 6	100	25	36	18
Valve. Safety	G. W. Richardson	344,866	July 6	102	26	36	19
Valve. Safety	J. Sargent	347,516	Aug. 17	1456	387	36	749
Valve. Safety	W. F. Walker	347,213	Aug. 10	1021	272	36	661
Valve. Slide	Z. T. Reno	348,777	Sept. 7	324	87	36	1089
Valve. Steam	G. H. Duthie	346,434	July 27	2288	589	36	444

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Valve. Steam	G. H. Duthie	346,435	July 27	2289	600	36	444
Valve. Steam-actuated	W. H. and R. Hughes	348,215	Aug. 31	2487	668	36	954
Valve. Steam-actuated	W. L. Saunders	344,991	July 6	261	71	36	51
Valve. Steam-engine	S. P. Blackburn	347,914	Aug. 24	2045	543	36	866
Valve. Steam-engine	S. P. Blackburn	347,915	Aug. 24	2046	543	36	866
Valve. Stop	J. Berry	348,104	Aug. 24	2315	620 / 621	36	917
Valve. Straight-way	E. Lunkenheimer. (Reissue)	10,769	Sept. 28	2143	558	36	1472
Valve. Throttle	H. Hopkins and A. E. Johnson	347,041	Aug. 10	773	206	36	616
Valves on their seats. Machine for grinding	E. U. Scoville and C. Owen	347,130	Aug. 10	901	240 / 241	36	639
Vapor-bath	C. A. Munro	348,923	Sept. 7	524	136	36	1143
Vapor-burner	M. L. Hull	347,712	Aug. 17	1751	466	36	804
Vapor-burner	C. A. and L. Stockstrom	350,048	Sept. 28	2131	551	36	1469
Vapor-burning furnace	J. M. Shephard	349,906	Sept. 28	1880	496	36	1462
Vapor-generator	J. A. Beardsley	348,890	Sept. 7	374	101	36	1117
Vaporizer	A. Fulton	349,273	Sept. 14	1003	256	36	1237
Vaporizing and distilling liquids	L. H. Pearce	348,772	Sept. 7	319	85	36	1107
Varnishing-machine	J. D. Ehlers	344,954	July 6	215	55	36	40
Vault. Safe-deposit	F. Foster	347,267	Aug. 10	1090	291	36	673
Vaults. Discharge-pipe for	J. Beard	345,023	July 6	325	82	36	59
Vaults, sidewalk-traps, &c. Cover for	W. Bayley	346,800	Aug. 3	426	117	36	543
Vegetable cutter	S. D. Wetherby	347,146	Aug. 10	931	248	36	644
Vehicle	C. W. Saladee	345,179	July 6	521	134	36	95
Vehicle-brake	J. L. Freasier	350,050	Sept. 28	2069	535	36	1458
Vehicle-brake	P. R. Gottstein and G. P. McFarlane	345,299	July 13	697	175 / 176	36	131
Vehicle-brake. Automatic	H. Fatic	349,033	Sept. 14	681	175	36	1176
Vehicle-body	G. P. Lee	347,621	Aug. 17	1607	426	36	778
Vehicle-jack	E. H. Ryan	349,179	Sept. 14	881	226	36	1213
Vehicle. Jump-seat	T. G. Maudt	346,762	Aug. 3	383	105	36	535
Vehicle lantern-holder	E. C. Geneax	349,307	Sept. 21	1042	266	36	1253
Vehicle. One-wheeled	J. D. Greene	346,813	Aug. 3	430	120 / 121	36	545
Vehicle platform-spring	E. A. Hendricks	345,893	July 20	1579	407	36	296
Vehicle. Power-driven	G. Daimler	347,160	Aug. 10	948	253	36	648
Vehicle running-gear	D. S. Anderson	346,709	Aug. 3	314	86	36	503
Vehicle running-gear	G. E. Bartholomew	349,135	Sept. 14	827	210	36	1203
Vehicle running-gear	S. M. Chester	347,159	Aug. 10	947	253	36	648
Vehicle running-gear	E. Fair	349,908	Sept. 28	1995	515	36	1443
Vehicle running-gear	D. A. Sprague	348,642	Sept. 7	150	42	36	1075
Vehicle-seat	G. E. Bartholomew	349,135	Sept. 14	826	210	36	1203
Vehicle-seat	H. L. Plisson	348,058	Aug. 24	2230	598 / 599	36	903
Vehicle-seat lock	J. Casner	345,672	July 20	1263	307	36	240
Vehicle-seat lock	G. Simmons	347,894	Aug. 24	2014	534	36	860
Vehicle. Side-spring	J. R. Northrup	348,926	Sept. 7	528	139	36	1144
Vehicle-spring	S. Atkinson	346,016	July 20	1747	449	36	326
Vehicle-spring	N. H. Bloom	346,065	July 27	1838	473	36	351
Vehicle-spring	E. H. Booth	346,711	Aug. 3	331	90	36	525
Vehicle-spring	W. Cole	345,118	July 6	443	114	36	81
Vehicle-spring	W. Harty	347,175	Aug. 10	969	259	36	651
Vehicle-spring	J. Jackson	349,221	Sept. 14	934	239 / 240	36	1223
Vehicle-spring	R. Mulholland	347,500	Aug. 17	1483	381	36	745
Vehicle-spring	P. and C. Scheidt	346,285	July 27	2087	532 / 533	36	389
Vehicle-spring	D. A. Schutt	346,952	Aug. 10	648	173	36	593
Vehicle-spring	B. A. Treat	349,960	Sept. 28	1957	505	36	1436
Vehicle-spring	J. Vondrisku	349,541	Sept. 21	1379	357	36	1318
Vehicle-spring reliever	C. E. Albright	346,342	July 27	2101	536	36	419
Vehicle-springs. Bearing-block for	T. H. Neff	345,392	July 13	816	208	36	153
Vehicle. Steam	W. R. Self	345,267	July 13	734	185	36	139
Vehicle. Two-wheeled	T. S. Bayley	347,092	Aug. 10	745	190	36	610
Vehicle. Two-wheeled	C. S. Beebe	349,556	Sept. 21	1389	362	36	1322
Vehicle. Two-wheeled	C. Bew	348,448	Aug. 31	2208	755	36	1017
Vehicle. Two-wheeled	G. C. Borey	350,034	Sept. 28	2053	530	36	1454
Vehicle. Two-wheeled	J. H. Cloyes	349,207	Sept. 14	917	234	36	1220
Vehicle. Two-wheeled	J. H. Cloyes	349,208	Sept. 14	918	236	36	1220
Vehicle. Two-wheeled	S. P. Davis	345,371	July 13	794	200	36	148
Vehicle. Two-wheeled	M. L. Knowles	347,490	Aug. 17	1492	378	36	743
Vehicle. Two-wheeled	W. H. and C. A. Makutchan	345,708	July 20	1307	338	36	248
Vehicle. Two-wheeled	C. W. Noyes	341,851	July 6	74	19	36	14
Vehicle-wheel	H. B. Sorfor and G. S. Bennett	348,795	Sept. 7	344	93	36	1111
Vehicle-wheel	C. L. O. Bell	349,138	Sept. 14	830	211	36	1203
Vehicle-wheel	J. A. Johnston	349,435	Sept. 21	1231	319	36	1289
Vehicle-wheel	D. H. Rice	349,748	Sept. 28	1671	431	36	1380
Vehicle-wheel	W. W. Valentine	347,845	Aug. 24	1943	515	36	849
Vehicles. Automatic brake for	J. R. Winston	346,008	July 20	1733	447	36	363
Vehicles. Clip-coupling for	G. McInroy	345,589	July 13	1141	292	36	211
Vehicles. King-bolt for	J. E. Tyler	345,460	July 13	988	238	36	171
Vehicles. Spring socket-iron for	T. A. McGovern	347,435	Aug. 17	1335	355	36	727
Vehicles. Top for two-wheeled	H. M. Horrne	349,866	Sept. 14	778	197	36	1193
Velocipede	F. Box and E. F. Heunsch	349,079	Sept. 14	746	190	36	1167
Velocipede	C. E. Courtney	348,619	Sept. 7	120	34	36	1089
Velocipede	J. C. Garrood	346,276	Aug. 31	2567	680	36	980
Velocipede	C. W. Hamshaw	348,325	Aug. 31	2630	709 / 710	36	983
Velocipede	H. A. King	349,800	Sept. 28	1743	449	36	1294
Velocipede	H. A. King	349,801	Sept. 28	1746	450	36	1294
Velocipede	H. A. King	349,802	Sept. 28	1748	450	36	1295
Velocipede	E. G. Latta	346,292	July 27	2121	540	36	400
Velocipede	E. G. Latta	347,357	Aug. 17	1631	393	36	706
Velocipede	H. J. Lawson	345,851	July 20	1514	396	36	283
Velocipede	J. C. Marot	346,667	Aug. 3	274	75, 76	36	514
Velocipede	W. Phillips	350,080	Sept. 28	2194	549	36	1460
Velocipede	D. H. and L. H. Rice	348,057	Aug. 24	2245	560 / 561	36	904
Velocipede	A. Vick	346,078	July 20	1762	471	36	340
Velocipede	J. N. Waite	345,465	July 13	929	234	36	172
Velocipede-wheel	E. C. F. Otto. (Reissue)	10,760	Aug. 24	2434	630	36	938
Velocipede-wheel	D. H. Rice	348,692	Sept. 7	923	58	36	1068
Velocipede-wheel	N. M. Wilson	348,605	Sept. 7	100	29	36	1068
Veneer. Manufacture of sheets of	L. Pine	348,051	Aug. 24	2237	.....	36	893
Veneers. Machine for cutting	E. Densmore	347,331	Aug. 17	1192	319	36	709
Veneers. Machine for drying	E. Densmore	347,330	Aug. 17	1191	319	36	701
Veneering	C. W. Spurr	348,583	Sept. 7	84	24	36	1063
Ventilating apparatus	J. M. Garfield	349,491	Sept. 21	1311	341	36	1305
Ventilating-motor	L. J. and J. T. Hope	347,709	Aug. 17	1747	465 / 466	36	803
Ventilating-screen	G. Hayes	345,692	July 20	1285	333	36	244
Ventilating-sewers	T. H. Donahue	347,096	Aug. 10	880	228	36	631
Ventilating stoke-holes, &c. Apparatus for	A. Laing	346,755	Aug. 3	376	102 / 103 / 104	36	534
Ventilator: *See* Car-ventilator. Window-ventilator. Equalizing-ventilator.							
Ventilator	H. P. Andrews	345,945	July 20	1642	423	36	308
Ventilator	W. M. Brinkerhoff	345,107	July 6	429	110	36	78
Ventilator	G. R. Buffham	349,782	Sept. 28	1721	444	36	1390
Ventilator	C. Cluthe	345,117	July 6	441	113 / 114	36	81
Vessel. Iron marine	R. A. Reed	349,857	Sept. 28	1823	471	36	1411
Vessel. Marine	R. A. Reed	348,587	Sept. 7	75	23	36	1061
Vessel. Packing and storing	D. M. Somers	345,931	July 20	1632	418	36	304
Vessels. Apparatus for loading	A. Smith	348,478	Aug. 31	2349	767	36	1025
Vessels. Device for stopping leaks in	D. Jarvis	349,719	Sept. 28	1630	420	36	1373
Vessels. Lee-board for small	T. Clapham	346,642	Aug. 3	247	66	36	508
Vessels. Sheet-holder for marine	E. F. Enos	348,001	Aug. 24	2170	577	36	889
Veterinary surgical instrument	C., W., and L. L. O'Dell	349,044	Aug. 24	2253	585	36	889
Vial and sample case	H. Fredericks	346,276	July 27	2101	541	36	401
Violin	G. A. Skugrud	345,454	July 13	916	230	36	170
Violin-case	C. W. Reeves	348,055	Aug. 24	2241	599	36	903
Vise	M. Crawford	348,827	Sept. 7	393	104	36	1119
Vise	M. Crawford	348,828	Sept. 7	395	104	36	1119
Vise	J. Ernst	349,032	Sept. 14	660	176	36	1175
Vise	J. O. Joyce	349,280	Sept. 14	1011	258	36	1236
Vise	A. Montant	347,365	Aug. 17	1242	331	36	710
Vise	A. Montant	347,366	Aug. 17	1244	331	36	710
Vise	W. H. Reyher	345,990	July 20	1706	439	36	310
Vise. Pipe	G. H. Paine	346,496	Aug. 3	60	15	36	471
Vise. Pipe and rod	J. G. Baker	348,818	Sept. 7	372	100	36	1116
Vise. Work-bench	J. C. Lynch	345,944	July 6	612	155	36	111
Voltaic battery	A. F. W. Parts	347,440	Aug. 17	1355	361	36	730
Vulcanized rubber die or stamp	G. J. B. Redwell	348,664	Sept. 21	1598	395	36	1349
Vulcanizer	M. F. Carll	345,883	July 20	1557	402	36	292
Wagon	J. T. Burdick	346,398	July 27	2272	562 / 563	36	435
Wagon-bodies. Device for handling	W. H. Freeland	348,274	Aug. 31	2365	620	36	920
Wagon-body	E. S. Davis	345,577	July 13	1113	265	36	206
Wagon bolster-spring	E. Cliff	346,725	Aug. 3	347	94	36	509
Wagon-box	S. V. Kelly	345,975	July 20	1683	435	36	315
Wagon-brake	E. M. Allen	346,698	Aug. 3	312	86	36	502
Wagon-brake	J. W. A. and M. Beaird	348,714	Sept. 7	248	66	36	1093
Wagon-brake	G. W. Cary	346,723	Aug. 3	343	93	36	509
Wagon-brake. Automatic	J. A. Dickson	346,196	July 27	1966	512	36	381
Wagon-brake. Automatic	S. E. Ferguson	347,572	Aug. 24	1983	586	36	855
Wagon. Buckboard	J. A. Burlen	344,895	July 6	142	35, 36	36	26
Wagon. Dumping	J. A. De Wandelaer	345,775	July 20	1410	365	36	264
Wagon-gear	E. E. Hatheway	348,846	Sept. 7	406	111	36	1123
Wagon gear. Platform spring	W. L. Raymont	349,743	Sept. 28	1667	430	36	1380
Wagon-gearing	P. J. Richter	345,321	July 13	796	183	36	137
Wagon-jack	J. A. Zahn	349,194	Sept. 14	901	231	36	1217
Wagon. Log	W. H. Moyers	347,729	Aug. 17	1772	473	36	808
Wagon-reach	F. Selle	346,325	July 27	2173	557 / 558	36	416
Wagon-reaches. Anti-friction roller for	J. Q. Grant	349,644	Sept. 21	1504	390	36	1344
Wagon. Road	C. E. Albright	346,341	July 27	2189	562	36	419
Wagon running-gear	H. Bensmann	345,661	July 20	1946	323	36	237
Wagon running-gear	E. A. Hill	346,284	July 27	2113	543	36	405
Wagon running-gear	J. H. Whiting	345,201	July 6	552	141	36	101
Wagon-seat and feed-trough. Combined	L. Johnson	348,974	Sept. 14	597	156	36	1182
Wagon-slide. Anti-friction	G. R. Jewell	346,373	July 27	2234	573	36	428
Wagon-spring	H. Metcalfe	345,148	July 6	509	198	36	91
Wagons. Tail-board fastening for	T. Fanlder	346,368	July 27	2234	571	36	426
Wall and ceiling. Fire-proof	J. Smith	345,001	July 6	396	74	36	54
Wall decoration and other purposes. Fabric for	T. Strahan	345,191	July 6	540	.....	36	89
Wall-paper and other fabric	L. Baer and D. Kraemer	346,257	July 27	2079	534	36	399
Wall-paper-exhibiting device	C. J. Mitchell	348,784	Sept. 7	310	83	36	1105
Wall-paper. Machine for trimming	J. H. Millimore and H. M. Underwood.	346,307	July 27	2141	551 / 552	36	410
Walls. Compound for coating and finishing	E. A. Bronson	346,143	July 27	1917	.....	36	387
Walls. Compound for protecting	F. M. Ruschhaupt	350,083	Sept. 28	2127	.....	36	1469
Wardrobe attachment	M. H. Cazier	347,667	Aug. 17	1716	458	36	788
Wardrobe. Portable	C. W. Banks	346,346	July 27	2197	563	36	429
Wardrobe. Portable folding	C. K. Waring	347,306	Aug. 10	1157	310	36	668

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Wardrobes and closets. Clothes-hanging device for	A. L. Rennekamp	345,921	July 20	1600	415	36	399
Warehouse. Fire-proof portable corrugated	A. W. Schulenburg	346,071	July 20	1815	469	36	339
Warm-air furnace	W. H. Turner	349,885	Sept. 28	1781	480	36	1402
Warping or beaming machines. Creel for	C. H. Howard	349,160	Sept. 14	781	198	36	1193
Warps. Machine for coiling	J. Eccles	349,148	Sept. 14	841	214 215	36	1205
Wash-basins, &c. Clamp for	P. Connolly	347,921	Aug. 24	2054	545	36	688
Wash-board	D. J. George	346,981	Aug. 10	685	184	36	688
Wash-board	J. M. Petree	350,015	Sept. 28	2034	525	36	1450
Wash-bowls and bath-tubs. Automatic plug for	B. F. Smith	347,390	Aug. 17	1999	341	36	717
Wash-stand and commode	J. Penney	347,193	Aug. 10	993	265	36	656
Washer: *See* Axle-washer. Tumbler-washer. Clothes-washer.							
Washing and dyeing fabrics. Apparatus for	J. Farmer and A. Lalance	345,492	July 13	965	245	36	179
Washing-machine	A. G. Brown	350,055	Sept. 28	2054	530 531	36	1454
Washing-machine	W. V. Burgess	348,543	Sept. 7	4	1	36	1049
Washing-machine	W. M. Egan	347,780	Aug. 24	1847	492	36	630
Washing-machine	W. G. Gooch and J. Olsen	346,473	Aug. 3	33	8	36	467
Washing-machine	G. Mowry	349,314	Sept. 21	1048	268	36	1254
Washing-machine	W. B. Reaves	346,776	Sept. 7	393	86	36	1108
Washing-machine	J. W. Ricket	349,747	Sept. 28	1672	431	36	1391
Washing-machine	V. L. Williams	346,829	Aug. 3	231	63	36	505
Washing-machine. Pounder	D. C. Jordan	347,716	Aug. 17	1756	468	36	985
Washing-machines and churns. Motor for	T. J. St. John	345,651	July 13	1231	318	36	227
Washing-machines. Lid and beater mechanism for	D. G. Bennet	349,692	Sept. 28	1559	404	36	1382
Watch	D. T. Garcia	349,880	Sept. 28	1850	478	36	1416
Watch	G. Thommen	347,130	Aug. 10	920	245 246	36	642
Watch-balances. Manufacture of	G. E. Hunter	347,271	Aug. 10	1097	289 290	36	675
Watch-case	A. Grandjean	348,302	Aug. 31	2467	653 654	36	951
Watch-case	C. F. Morrill	347,228	Aug. 10	1070	277	36	670
Watch-case hinge	F. Rapp	344,859	July 6	91	24	36	17
Watch-case pendant	D. H. Church	347,994	Aug. 24	2150	575	36	697
Watch-case spring	W. Fowler	345,226	July 6	585	149	36	102
Watch-case spring	R. L. Stuff	345,199	July 6	541	138	36	99
Watch-chain swivel and watch-protector. Combined	J. T. Healy	345,783	July 20	1420	368	36	368
Watch-crowns. Manufacture of	A. C. Dalzell	349,630	Sept. 7	122	35	36	1070
Watch-escapements. Device for bending steady-pins of	G. E. Hunter	345,589	July 13	1129	288	36	998
Watch-escapements. Machine for driving and cutting steady-pins for	G. E. Hunter	345,635	July 13	1195	306 309 306 307 308	36	221
Watch-escapements. Machine for driving and cutting steady-pins for	G. E. Hunter	345,634	July 13	1193	306 307 308	36	220
Watch-maker's eyeglass	J. R. Lawrence	350,005	Sept. 28	2018	521	36	1447
Watch-makers. Mainspring-winder for	P. Ziegel	349,291	Sept. 14	1022	261	36	1241
Watch-maker's oil-cabinet	E. Hibarger	346,201	July 27	1965	514	36	382
Watch-movement	G. Hunter	347,272	Aug. 10	1098	284	36	675
Watch-movement holder	C. Teske	345,815	July 20	1463	378	36	275
Watch. Musical	E. N. Gaillard	346,812	Aug. 3	430	120	36	545
Watch. Stem-winding	L. B. Norcross	347,886	Aug. 24	2003	531	36	659
Watch. Stem winding and setting	C. P. Corliss	345,619	July 13	1163	298 299	36	216
Watch. Stem winding and setting	G. S. Heath and A. F. Champlin	348,009	Aug. 24	2178	560	36	891
Watch. Stem winding and setting	C. Kistler	344,838	July 6	58	14	36	11
Watch. Stop	H. A. Lugrin. (Reissue)	10,710	Sept. 28	2145	555	36	1472
Watch. Stop	J. Tixier. (Reissue)	10,756	Aug. 17	1814	483	36	815
Watch. Universal	L. Béguelin	345,406	July 13	843	211	36	157
Watch-winding mechanism	H. F. Hambruch	345,231	July 6	594	151	36	107
Watches. Apparatus for demagnetizing	C. K. Giles and R. E. Fenner	345,838	July 20	1496	388	36	281
Watches. Cannon-pinion for	G. C. Moor	345,800	July 20	1441	373	36	272
Watches. Gauge attachment for	J. Walzer	348,645	Sept. 7	154	43	36	1075
Watches. Pendant-stem for	E. F. Heffernan	345,055	July 6	360	91	36	66
Watches. Prizing the hair-springs of	T. Gribi	345,840	July 20	1499	388	36	281
Watches. Stem-setting mechanism for	A. Troller	347,450	Aug. 17	1366	354	36	732
Watches. Stem winding and setting mechanism for	H. Abbott	346,254	July 27	2075	533 534	36	398
Watches. Stem winding and setting mechanism for	R. L. Taft	345,193	July 6	542	138	36	99
Watches. Winding pinion and ratchet for	G. E. Hart	345,588	July 13	1128	288	36	208
Water and gas pipes. Ball-and-socket joint for	A. L. Holmes	346,478	Aug. 3	38	10	36	467
Water-back	H. Eugelbert	344,899	July 6	147	37	36	27
Water-closet	P. Harvey	349,317	Sept. 21	1090	279	36	1263
Water-closet	P. Harvey	349,318	Sept. 21	1092	280	36	1263
Water-closet	B. Havanagh	347,398	Aug. 17	1574	418	36	772
Water-closet	G. W. Hunter	346,927	Aug. 10	703	186	36	663
Water-closet	W. H. Umpleby	344,864	July 6	130	32	36	23
Water-closet	W. H. Umpleby	349,293	Sept. 14	1025	266	36	1242
Water-closet	J. Uprichard	349,962	Sept. 28	1958	506	36	1436
Water-closet bowl	J. Kelly	346,929	Aug. 10	608	163	36	595
Water-closet cisterns. Flushing apparatus for	J. L. Mott, Jr	345,390	July 13	815	204	36	152
Water-closet mat or toilet-protector	S. J. Cox	349,784	Sept. 28	1784	445	36	1399
Water-closet pans to their rock-shafts. Attaching	S. V. Baskirk	345,667	July 20	1253	324	36	228
Water-closet-seat protector	J. H. Engelhardt, Jr	347,526	Aug. 17	1554	413	36	768
Water-closets. Handle or pull for	W. H. Rafe	347,313	Aug. 17	1166	313	36	697
Water-conductor and receiver	W. H. McKenzie	349,494	Sept. 28	1866	492	36	1429
Water-conductor fastening	Z. T. Hall	349,158	Sept. 14	856	219	36	1208
Water-cooler	J. Hartmeyer	346,849	Aug. 3	493	136	36	557
Water-cooler and refrigerator	W. F. Nickels	348,043	Aug. 24	2222	594	36	899
Water-distribution. System of	G. B. Bassett	349,302	Sept. 14	911	224	36	1219
Water-elevator	J. Houlgate	349,254	Sept. 14	984	251	36	1233
Water-elevator	C. M. Kimball	344,911	July 6	164	41	36	30
Water-elevator	W. W. Thaxton	348,691	Sept. 7	96	28	36	1064

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Water-elevator. Compressed-air	J. G. Pohlé	347,196	Aug. 10	996	266	36	686
Water-gage. Safety	J. B. Little	345,156	July 6	496	127	36	89
Water-gage. Safety	J. McCaffrey	349,509	Sept. 21	1335	346	36	1340
Water-gages. Glass tube for	L. J. Crossley, R. Hanson, and J. J. Hicks.	349,271	Sept. 14	1003	256	36	1227
Water-heater	J. R. Denison	347,238	Aug. 17	1194	319	36	702
Water-heater	F. W. Momberg	348,909	Sept. 14	615	168	36	1166
Water-meter. Rotary	F. T. Gilbert	348,277	Aug. 31	2566	680	36	989
Water-motor	J. H. Hagerty	344,900	July 6	220	56, 57	36	41
Water-motor	P. Murray, Jr	349,856	Sept. 28	1921	476	36	1410
Water-motor	G. A. Tuerk	348,504	Aug. 31	2395	776	36	1031
Water-pipes. Anti-freezing apparatus for	E. A. Newman	346,398	July 27	2143	552 553	36	410
Water-proof and other garments. Ventilated	J. J. Byers	346,067	July 27	1834	474	36	351
Water-proof cloak	S. A. Mendel	349,313	Sept. 21	1047	268	36	1234
Waterproofing fabrics. Apparatus for	H. C. Spalding	345,002	July 6	299	74	36	54
Water-supply system	R. Crane	345,773	July 20	1407	364 365	36	206
Water-tanks. Automatic stock	E. H. Barber	346,702	Aug. 3	316	87	36	523
Water-tower and fire-escape. Combined	L. D. Shaw	348,297	Aug. 31	2596	668 669	36	976
Water-wheel	J. Knapp	347,610	Aug. 24	1888	504	36	638
Water-wheel	F. L. Lamm	348,400	Aug. 31	2730	734	36	1003
Water-wheel	J. L. Perley	348,997	Sept. 14	625	163	36	1167
Water-works. Constructing	R. H. Bull and H. H. Hall	344,813	July 6	14	4	36	5
Weaner. Calf	H. L. Jones	349,104	Sept. 14	787	198	36	1195
Weather-boarding gage	C. A. Summit	345,961	July 6	637	169	36	116
Weather-strip	J. W. Farr	349,787	Sept. 28	1787	446	36	1391
Weather-strip	L. L. Mast	347,493	Aug. 17	1425	379	36	743
Weather-strip	D. D. Mayfield	345,597	July 13	1140	291	36	211
Weather-strip	J. H. Nolan	346,060	July 20	1800	464	36	336
Weather-strip	W. H. Randle	344,921	July 6	174	45	36	33
Weather-strip	G. C. Skinner and C. M. Brooks	347,906	Aug. 10	1007	268	36	639
Weather-strip	G. P. Varnauf	346,833	Aug. 3	474	131	36	583
Weather-strip for windows, &c	G. W. Everett	349,877	Sept. 28	1846	477	36	1416
Wedge. Rafting	W. J. Latchford	345,153	July 6	493	126	36	90
Weed-cutter and harrow. Combined	W. F. and H. C. Reeves	346,173	July 27	1956	504	36	375
Weeder. Field	J. P. Johnson	345,903	July 20	1584	409	36	297
Weigher. Automatic grain	E. W. Cornell	346,728	Aug. 3	350	95	36	580
Weighing and registering apparatus. Grain	G. E. Baird	349,971	Sept. 28	1987	508 509	36	1439
Weighing and registering apparatus. Grain	W. R. Dunkel	346,272	July 27	2097	540	36	492
Weighing and registering apparatus. Grain	J. S. Marshall	346,668	Aug. 3	276	76	36	515
Weighing mechanism for elevators, &c. Automatic	I. S. Sanger	349,521	Sept. 21	1350	351	36	1314
Weight-motor	T. J. Blagg	349,872	Sept. 28	1839	475 476	36	1414
Welding-machine	J. B. Root	346,614	Aug. 3	209	57	36	501
Welding-machine	J. B. Root	346,828	Aug. 3	459	126	36	549
Well and pumping mechanism for the same. Tube-	M. T. Chapman	349,339	Sept. 21	1076	277	36	1220
Well boring. Expanding drill-bit for Artesian-	C. C. Lane	345,385	July 13	609	284	36	151
Well-boring tool	J. A. Woodhouse	349,192	Sept. 14	899	231	36	1216
Well casing. Oil-	R. W. Miller and J. McConnell	344,849	July 6	72	18	36	14
Well-digging rigs. Sand-reel for	R. S. Batiles	347,314	Aug. 17	1167	313	36	697
Well-drilling machine	W. J. Pringle	347,377	Aug. 17	1261	334	36	713
Well-drilling machine	W. C. Shear	345,181	July 6	525	134 135	36	96
Well mechanism	J. S. Bush	345,975	July 13	644	168	36	126
Wells. Device for connecting pipe to bore-holes for Artesian	P. Price and J. Leib	347,277	Aug. 10	1104	285	36	676
Wells. Device for driving tube	A. D. Austin	348,813	Sept. 7	396	99	36	1116
Wells. Expansion-drill for boring	J. F. Dye	349,700	Sept. 28	1593	410	36	1368
Wells. Procuring supplies of water from tubular	W. D. Andrews	349,379	Sept. 21	1155	299 300	36	1275
Wells. Spear for removing casings from oil	B. H. Griswold	348,580	Aug. 31	2012	753	36	1036
Wells. Tube-clamp for oil	J. Holly	348,907	Sept. 7	500	130	36	1130
Wheel: *See* Car-wheel. Velocipede-wheel. Cog-wheel. Watch-dial wheel. Fifth-wheel. Water-wheel Traction-wheel. Wind-wheel. Vehicle-wheel.							
Wheel	W. H. Curd	346,401	July 27	2277	584	36	436
Wheel	P. Dion	345,218	July 6	574	146	36	104
Wheel	W. F. Olin and F. J. Coddington	344,852	July 6	75	19	36	14
Wheel-riveting machine	A. W. Grant	345,133	July 6	460	118 119	36	84
Wheels. Machine for riveting and dressing	A. Crossley	346,967	Aug. 10	680	183	36	660
Wheelbarrow	W. Benjamin	349,681	Sept. 28	1558	404	36	1361
Whiffletree-clip	G. C. Johnson	346,569	Aug. 3	173	47	36	483
Whiffletree-hook	H. F. Bock	345,103	July 6	422	108	36	77
Whiffletree-hook	P. B. Cook	347,774	Aug. 24	1838	469	36	688
Whiffletree-hook	J. R. Davis	348,191	Aug. 31	2452	650	36	946
Whiffletree-hook	G. C. Johnson	346,580	Aug. 3	174	47	36	494
Whiffletree-hook	H. M. Oliver	347,954	Aug. 24	2112	563	36	878
Whiffletree-hook	G. R. B. Swanton	345,456	July 13	918	231	36	170
Whip-button	W. J Morse	345,166	July 6	507	130	36	92
Whip-core	H. Mullen and J. Noble, Jr	344,979	July 6	256	64	36	46
Whip-holder	C. L. Dalton	349,341	Sept. 21	1080	277	36	1221
Whip-socket	E. W. Scott	346,853	Aug. 10	649	174	36	583
Whiting. Manufacture of	J. Quinn, Jr	348,768	Aug. 3	391		36	537
Wick-carrier	J. Burnet, Jr	347,909	Aug. 24	2153	573	36	886
Wick for lamp-burners	J. Wayland	345,091	July 6	406	102	36	74
Wick. Lamp	S. C. Wilcox	346,589	Aug. 3	149	41	36	499

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wick-raiser	L. Henkle	348,970	Sept. 14	510	156	36	1161
Wick-raiser. Lamp	S. C. Wilcox	346,570	Aug. 3	150	41	36	489
Winding and spooling machines. Stop-motion mechanism for	G. H. Aylsworth	346,797	Aug. 3	423	117	36	543
Winding-machines. Bobbin-holder for	W. Murray	345,250	July 6	663	158	36	113
Winding-machines. Bobbin-supporting spindle and bolster therefor for	C. F Alexander	345,943	July 20	1640	422	36	307
Windlass	H. and J. W. Collins	345,030	July 6	333	84	36	61
Windlass-beam	E. J. Barber and T. P. White	348,446	Aug. 31	2806	754	36	1017
Windlass for elevators	E. H. Whitney	348,370	Aug. 31	2696	794	36	995
Windmill	J. P. and C. T. Harris	347,289	Aug. 10	1052	281	36	686
Windmill	T. C. Albee	349,191	Sept. 14	985	232	36	1217
Windmill	H. B. Colman	346,582	Aug. 3	165	45	36	492
Windmill	E. A. Dana	346,408	Aug. 3	26	7	36	466
Windmill	A. J. Lindquist	346,665	Aug. 3	372	94	36	514
Windmill	S. H Radway	349,742	Sept. 28	1085	430	36	1380
Windmill	G. W. Rundlett	347,385	Aug. 17	1273	338	36	788
Windmill	F. J. Wagner	344,868	July 6	133	33	36	24
Windmill	E. Williams	348,256	Aug. 31	2542	688	36	984
Windmill-gearing	G. H. Pattison	345,317	July 13	719	182	36	136
Windmill-gearing	G. H. Pattison	345,722	July 20	1338	344	36	252
Windmill-gearing	G. H. Pattison	348,411	Aug. 31	2750	736	36	1006
Windmills. Gearing for	H. G. Newell	346,674	Aug. 3	291	77	36	516
Window	W. M. Carpenter	348,264	Aug. 31	2554	666	36	967
Window-casing	A. B. Holmes	349,995	Sept. 28	2804	518	36	1445
Window-fastener	J. E. Whidden	344,868	July 6	135	34	36	24
Window-fastening. Burglar-proof	J. W. Harbert	346,545	Aug. 3	122	32	36	483
Window frame and sash	A. R. Longshore	348,526	Aug. 31	2990	785	36	1037
Window-guard	J. Kaufman	347,717	Aug. 17	1758	468 / 469	36	805
Window-jack	W. E. Steinbach	347,260	Aug. 10	1063	269	36	674
Window-lock and burglar-alarm	W. G. Bennett	344,807	July 6	6	2	36	4
Window-screen	T. W. Dowling	346,810	Aug. 3	436	120	36	545
Window-screen	J. M. Hommel	346,916	Aug. 10	602	162	36	594
Window-screen	W. E. Monroe	349,444	Sept. 21	1945	522	36	1391
Window-screen	W. W. Robinson	346,949	Aug. 10	645	173	36	592
Window-screen	C. J. Shirrell	345,388	July 13	734	185	36	139
Window-seat and bedstead. Combined	M. Bretherton	348,653	Sept. 7	164	45	36	1077
Window-seat and couch. Combined	M. Bretherton	348,655	Sept. 7	170	46	36	1078
Window-seat, bedstead, and couch. Combined	M. Bretherton	348,654	Sept. 7	167	46	36	1078
Window-shade	G. W. McGill	347,434	Aug. 17	1333	355	36	727
Window. Show	C. D. Williams	349,290	Sept. 14	1021	261	36	1241
Window-ventilator	D. C. Cawley and C. P. Wall	347,158	Aug. 10	946	250	36	647
Window-washing machine	R. H. Schenck	347,520	Aug. 17	1402	366	36	750
Windows. Device for fastening	H. H. Sparks	348,353	Aug. 31	2696	718	36	990
Wire. Apparatus for reeling or winding	E. Clifton	345,839	July 20	1486	395	36	279
Wire-barbing machine	A. J. Bates	345,759	July 20	1383	359 / 360	36	262
Wire-cloth	B. Scarles	345,735	July 20	1345	350	36	255
Wire-coating compound	E. L. Gates	349,391	Aug. 31	2722		36	1001
Wire-cutting machine	G. Hildreth	347,350	Aug. 17	1321	325 / 326	36	706
Wire coils. Machine for forming	W. Kleese	347,780	Aug. 17	1761	470	36	806
Wire-crimping machine	T. L. Johnson	346,479	Aug. 3	36	10	36	468
Wire-cutter	R. Hayden	349,496	Sept. 21	1319	342	36	1207
Wire. Device for twisting	R. Clark	345,708	July 13	786	196	36	147
Wire-drawing block	J. Benbow	346,709	Aug. 3	398	89	36	585
Wire fabric for bed-bottoms. Machine for weaving called.	O. P. Briggs	348,150	Aug. 24	2371	636 / 637	36	927
Wire. Grip for stretching	A. W. Laughlin	345,154	July 6	494	128	36	90
Wire joint	C. McIntire	347,625	Aug. 17	1611	427	36	779
Wire. Machine for straightening and cutting	D. I. Eckerson	344,819	July 6	20	5.6	36	6
Wire. Machine for straightening and cutting	W. Lang	346,291	July 27	2119	545 / 546	36	406
Wire-rope drum-reel	W. L. Young	348,943	Sept. 7	550	145	36	1148
Wire-rope lines. Elevated	A. Bleichert and J. Schatte	345,898	July 20	1479	381 / 382 / 383 / 384	36	278
Wire straightener and cutter	O. Collins	348,680	Sept. 7	178	46	36	1078
Wire-stretcher	D. C. Bowen	347,468	Aug. 17	1364	360	36	736
Wire-stretcher	J. B. Cleaveland	345,367	July 13	737	190	36	147
Wire-stretcher	J. C. De Witt	349,985	Sept. 28	1991	514	36	1443
Wire-stretcher	S. W. Harman	349,041	Sept. 14	692	177	36	1178
Wire-stretcher	W. N. Huling	350,057	Sept. 28	2091	541	36	1461
Wire-twisting machine	B. Fulford	349,251	Sept. 14	981	250	36	1232
Wire-twisting wrench	D. F. Reinheimer	348,293	Aug. 31	2500	637	36	975
Wire with zinc. Coating	E. H. Hill	345,382	July 13	806	203	36	150
Wires and rods together. Attaching	L. A. Wood	345,653	July 13	1237	300	36	228
Wires. Tool for uniting	L. E. Whipple	347,675	Aug. 17	1701	453	36	795
Wires with lead. Machine for covering insulated	A. K. Eaton	345,956	July 20	1656	427 / 428	36	310
Wood-cutting machine	E. G. Pake	348,768	Sept. 7	315	84	36	1106
Wood-polishing machine	J. L. Perry	347,125	Aug. 10	896	237 / 238 / 239	36	637
Wood. Preparation of kindling	J. L. Seymour	345,928	July 20	1618	417	36	304
Wood, &c. Tool for cutting slots or kerfs in	F. W. Starr	345,397	July 13	832	208	36	155
Wood-working machine	J. Hourigan	347,044	Aug. 10	778	207	36	617
Wool-drier	J. H. Lorimer	347,360	Aug. 17	1325	330	36	708
Wool. Machine for oiling and drying	T. Speight and H. W. Whitehead	345,185	July 6	521	136	36	97
Work-box	J. W. Hoffman	349,696	Sept. 14	776	197	36	1198
Work table and basket. Combined	S. E. Ball	348,373	Aug. 31	2701	725	36	996

Alphabetical list of inventions, July to September, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Woven fabric	G. Crompton. (Reissue)	10,743	July 6	651	165	36	118
Woven fabrics. Apparatus for stretching	W. Birch	349,139	Sept. 14	831	211 / 212	36	1003
Wrench: *See* Bung-bush wrench. Ratchet-wrench. Pipe-wrench. Wire-twisting wrench. Pipe and nut wrench.							
Wrench	J. D. Bowman	348,185	Aug. 31	2443	656	36	946
Wrench	W. H. Bradley	347,681	Aug. 17	1708	456	36	796
Wrench	A. H. Criley	349,349	Sept. 14	979	260	36	1232
Wrench	J. B. Dean	347,580	Aug. 17	1547	411	36	767
Wrench	H. W. Getman	349,581	Sept. 21	1431	389	36	1289
Wrench	J. S. Huffman	348,582	Aug. 31	2914	784	36	1036
Wrench	A. Wood	347,282	Aug. 10	1064	295	36	672
Wrench and spanner. Combined	J. R. Hopkins	347,042	Aug. 10	774	206	36	616
Wrench attachment	W. A. Kelly and C. H. Hubbell	347,179	Aug. 10	974	260	36	652
Wringer: *See* Clothes-wringer. Mop-wringer.							
Writing-copies. Appliance for setting	E. D. Starr	345,553	July 13	1080	276	36	980
Writing-teacher's cabinet	J. W. Lefevre	345,435	July 13	890	231 / 232	36	165
Yarn. Slasher for sizing and drying	W. P. Canning	346,639	Aug. 3	243	67	36	508
Yarn-winding machine	W. D. Huse	348,561	Sept. 7	25	7, 8	36	1053
Yarn-winding machines. Spindle for	W. D. Huse	348,560	Sept. 7	24	7	36	1053
Yarns or threads. Apparatus for manufacturing napped or filled	J. T. Waring	347,538	Aug. 17	1487	384 / 385	36	755
Yoke attachment. Neck-	R. Walker	345,557	July 13	1084	277	36	991
Yoke center. Neck-	J. E. Carey	349,383	Sept. 21	1164	302	36	1277
Yoke center. Neck-	W. N. Sterner and W. L. Hawes	348,867	Sept. 7	441	118	36	1129
Yoke. Neck-	L. Buch, Jr., and W. Jochum	346,892	Aug. 3	620	118	36	544
Yoke. Neck-	J. H. Heggatt	347,604	Aug. 17	1581	420	36	774
Yoke. Ox-	C. A. Brown	349,565	Sept. 21	1410	365	36	1285
Zincographic presses. Bed for	H. Goodwin	348,736	Sept. 7	274	73, 74	36	1094
Zylonite and other plastic compositions to form sheets. Reduction of	J. B. Edson	349,987	Sept. 28	1002	515	36	1443

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Advertising-card for scarf-pins	W. R. Dutemple	16,787	July 13	36	194
Air-moistener	C. W. Monroe	16,783	July 6	36	2
Andiron	R. R. Seidensticker	16,872 to 16,873	Aug. 24	36	894
Andiron	F. R. Seidensticker	16,908	Sept. 21	36	1250
Badge	J. K. Davison	16,913	Sept. 28	36	1360
Badge	J. B. Howell	16,863	Aug. 24	36	893
Badge	E. H. Stegmann	16,813	July 20	36	236
Barometer-frame	F. Oertling	16,845	Aug. 10	36	574
Bath-tubs, &c. Leg for	W. C. Peet	16,784	July 6	36	2
Bed case. Folding	C. Teufel	16,851	Aug. 10	36	574
Book-mark	J. P. Ball	16,896	Sept. 14	36	1154
Bottle	T. J. Hurley	16,864	Aug. 24	36	893
Bottle	M. Woolf	16,802	July 13	36	194
Box	W. L. Young	16,823	July 27	36	350
Button-hook	F. W. Brittin	16,766	July 6	36	2
Cane or umbrella handle	P. Seehaus	16,796	July 13	36	194
Card	C. E. Bullard	16,905	Sept. 21	36	1250
Card. Playing	V. G. Merceron	16,868	Aug. 24	36	893
Cards, &c. Border for	C. E. Bullard	16,824	Aug. 3	36	460
Carpet	E. Fisher	16,825 to 16,829	Aug. 3	36	460
Carpet	C. W. Swapp	16,837 to 16,839	Aug. 3	36	460
Clock-case	W. C. Camp	16,912	Sept. 28	36	1360
Clock-case	L. C. Hiller	16,899	Sept. 14	36	1154
Clock-case	L. E. Jerome	16,900 to 16,901	Sept. 14	36	1154
Coffin-handle arm	O. McCarthy	16,793	Sept. 7	36	1048
Coffin-trimming	O. McCarthy	16,782	July 6	36	2
Coffin-trimming	O. McCarthy	16,897	Sept. 14	36	1154
Comb or brush box	W. F. Brown	16,765	July 6	36	2
Corkscrew	A. Trunk	16,799	July 13	36	194
Counter or table leg	J. Hofman	16,916	Sept. 28	36	1360
Cracker	D. F. Stauffer	16,848 to 16,849	Aug. 10	36	574
Cultivator-shovel. Wing	P. G. Johnson	16,889	Sept. 7	36	1048
Dish	T. C. Smith	16,812	July 20	36	236
Drawers. Skeleton frame for	T. Knudtz	16,892	Aug. 31	36	944
Easel and frame. Combined	J. and L. Schram	16,875	Aug. 24	36	894
Eyelet-machines. Frame for	H. L. Lipman	16,844	Aug. 10	36	574
Fabric	J. Phillips, Jr.	16,919	Sept. 28	36	1360
Fender	F. R. Seidensticker	16,909 to 16,910	Sept. 21	36	1250
Fringe	G. F. Hensel	16,907	Sept. 21	36	1250
Fruit-jar	W. H. Dilworth	16,817	July 27	36	350
Game-box	R. Sneider	16,780	July 6	36	2
Gimp	I. H. Leiter	16,918	Sept. 28	36	1360
Gimp	L. Lindenthal	16,864	Aug. 31	36	944
Gimp	C. Weinberg	16,902	Sept. 14	36	1154
Gimp. Furniture	C. W. Jackson	16,888	Sept. 7	36	1048
Hardware. Ornamentation of builders'	J. Lochner	16,893	Sept. 7	36	1048
Harrows. Disk for disk	C. La Dow	16,819	July 27	36	350
Heater-base	W. C. Baker	16,804	July 20	36	236
Hinge	R. Christesen	16,906	Sept. 21	36	1250
Horseshoe	T. F. Frederick	16,914	Sept. 28	36	1360
Ice-cream mold	C. Dracklieb	16,840	Aug. 3	36	460
Index plate and nut	W. B. Tucker	16,874	Aug. 24	36	894
Inkstand	R. Sneider	16,847	Aug. 10	36	574
Inkstand and pen-rack. Combined	J. G. Winger	16,852	Aug. 10	36	574
Ironing-machine frame	G. J. Fritz	16,788	July 13	36	194
Jewelry and pin cushion	C. Place	16,778	July 6	36	2
Jewelry-stock	L. J. Withman	16,814	July 20	36	236
Kite-cover	J. H. Sprague	16,895	Sept. 7	36	1048
Knife-handle	A. W. Cox	16,781	July 6	36	2
Knife-handle	A. W. Cox	16,785	July 13	36	194
Label	F. Seely	16,779	July 6	36	2
Lace-pin	E. L. Logee	16,770	July 6	36	2
Lamp-body	W. L. Shepard	16,797	July 13	36	194
Lamp-shade	F. W. Bach	16,903	Sept. 21	36	1250
Lamp-shade	F. W. Bach	16,911	Sept. 28	36	1360
Lamps, &c. Standard for	P. E. Guerin	16,790	July 13	36	194
Lamps, &c. Standard for	P. E. Guerin	16,857	Aug. 17	36	696
Leather. Embossed	F. Frenzel	16,807	July 20	36	236
Molding	F. Mankey	16,860	Aug. 17	36	696
Oil-cloth	J. Hutchison	16,865 to 16,866	Aug. 24	36	893

Alphabetical list of designs, July to September, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Oil-cloth	C. T. and V. E. Meyer	16,771 to 16,778	July 6	36	2
Paper box	E. C. and H. Osborn	16,831	Aug. 3	36	460
Paper-cutter	M. H. Kerner	16,843	Aug. 10	36	574
Pliers. Memorial	C. M. Hall	16,768	July 6	36	2
Probes or like instruments. Handle for	E. M. Carrier	16,786	July 13	36	194
Printer's leaders	A. Ilbright	16,889	Aug. 31	36	944
Rind	G. Hartje	16,913	Sept. 28	36	1360
Rosette	A. R. Fuller	16,887	Sept. 7	36	1048
Rubber sole	W. Baum	16,904	Sept. 21	36	1250
Rug	F. P. Hemming	16,760	July 6	36	2
Rug	E. J. Lawrence	16,849	July 27	36	350
Rug	E. J. Lawrence	16,873	Aug. 31	36	944
Rug	E. J. Lawrence	16,890 to 16,891	Sept. 7	36	1048
Rug	J. Pegel	16,795	July 13	36	194
Rug	J. Pegel	16,832 to 16,835	Aug. 3	36	460
Rug	A. Petzold	16,909 to 16,910	July 20	36	236
Rug	A. Petzold	16,851	July 27	36	350
Rug	A. Petzold	16,846	Aug. 10	36	574
Saddle. Harness	J. W. Shaw	16,922	Sept. 28	36	1360
Safe	J. G. Merriman	16,867	Aug. 24	36	823
Saw-blade	J. Farrel	16,886	July 20	36	236
Scarf	J. J. Parker	16,889	Aug. 24	36	823
Seats. Bed support for	H. Heath	16,791	July 13	36	194
Sewing-machine arm	H. F. Parker	16,816	July 20	36	236
Shirt	E. E. Angell	16,862	Aug. 24	36	823
Slide bar of rub-roll frames	S. S. Gerson	16,898	Sept. 14	36	1154
Sofa	H. L. Moulton	16,794	July 13	36	194
Spoon or fork handle	A. Stark	16,850	Aug. 10	36	574
Spout or conductor. Water	A. A. Sperry	16,790	July 13	36	194
Sprinkling-can	O. P. Briggs	16,877	Aug. 31	36	944
Stove. Pattern for	W. Wilkinson	16,823	July 27	36	350
Stove. Cooking. Group of	A. Buermann	16,767	July 6	36	2
Stationery. Group of	J. Rogers	16,836	Aug. 3	36	460
Stove. Cooking	J. Rogers	16,894	Sept. 7	36	1048
Stove. Cooking	W. J. Keep and C. Wipfler	16,830	Aug. 3	36	460
Stove. Heating	J. S. Van Baren	16,800 to 16,801	July 13	36	194
Stove. Heating	J. V. B. Carter	16,885	July 20	36	236
Stove. Heating	O. Gessner and C. G. Moulton	16,789	July 13	36	194
Stove. Heating	W. J. Keep and C. Wipfler	16,792	July 13	36	194
Stove. Heating	W. J. Keep and C. Wipfler	16,818	July 27	36	350
Stove. Heating	F. A. Magee and A. Garbutt	16,876	Aug. 24	36	894
Stoves. Heating	I. T. Montrose	16,793	July 13	36	194
Stoves. Chamber-casing for	E. L. Caley	16,815	July 20	36	236
Telegraph-instruments. Frame for	M. Bacon	16,803	July 20	36	236
Tile	A. G. Parkhurst	16,777	July 6	36	2
Toy cannon. Trail-piece for	L. C. Bishop	16,856	Aug. 17	36	696
Trimming	R. Krause	16,859	Aug. 17	36	696
Trunk-catch	T. L. Rivers	16,871	Aug. 24	36	823
Trunk-lid lifter	G. Crunch	16,879	Aug. 31	36	944
Type	W. F. Capitain	16,878	Aug. 31	36	944
Type	H. Ihlenburg	16,917	Sept. 28	36	1360
Type-border	G. F. Giesecke	16,842	Aug. 10	36	574
Type-case	A. Dwight	16,861	Aug. 31	36	944
Type ornaments. Font of combination	J. West	16,920 to 16,921	Sept. 28	36	1360
Type. Printing	F. M. Powell	16,870	Aug. 24	36	823
Vent-valve	A. J. Weatherhead	16,866	Aug. 31	36	944
Watch-case	F. Rapp	16,865	Aug. 31	36	944
Watch-case or locket	A. Lorch	16,808	July 20	36	236
Watch-dials. Ornamentation of	A. O. Jennings	16,856	Aug. 17	36	696
Water-closet bowl and base	R. Carlisle	16,841	Aug. 10	36	574
Window-shade	B. Birnbaum	16,853 to 16,855	Aug. 17	36	696
Work-box or toilet-case	C. W. Sawtelle	16,811	July 20	36	236

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Acid phosphate of lime for baking-powder. Powdered	Provident Chemical Works	13,675	Sept. 21	36	1250
Acid phosphate of lime for baking-powder. Powdered	Provident Chemical Works	13,676	Sept. 21	36	1250
Acid phosphate of lime. Powdered	Provident Chemical Works	13,583	Aug. 24	36	894
Animal and fish products. Certain named	Normal Company	13,613	Aug. 24	36	894
Antiseptic, agricultural, horticultural, veterinary, and sanitary purposes. Substances used for	J. Ascough	13,493	July 13	36	194
Aperient water. Natural	A. Saxlehner	13,677	Sept. 21	36	1250
Apricots. Dried	Sherman, Marr & Higgins	13,586	Aug. 10	36	574
Asphaltum cakes or blocks	W. H. Delano	13,655	Sept. 14	36	1154
Bagging for cotton	Auchincloss Brothers	13,698	Aug. 31	36	944
Baskets	Badger Basket Manufacturing Company.	13,653	Sept. 14	36	1154
Beer	Buffalo Co-Operative Brewing Company.	13,516	July 20	36	236
Beer	J. F. Ferrer	13,620	Aug. 31	36	944
Beer. Lager	J. Wassmer	13,646	Sept. 7	36	1048
Belting	S. Kidder	13,604	Aug. 24	36	894
Bird-food	H. I. Ireland	13,496	July 13	36	194
Biscuits, crackers, and wafers	Van Derveer & Holmes Biscuit Company.	13,587	Aug. 17	36	696
Bitters. Malt	Duffy Malt Whiskey Company	13,662	Sept. 21	36	1250
Bitters. Medicinal	Dr. Petzold's German Bitters Company.	13,486	July 13	36	194
Bitters. Phosphorated	J. T. and A. C. Hall and J. M. Hedges	13,549	Aug. 10	36	574
Bolting-cloth	C. S. Kacher	13,581	Aug. 17	36	696
Boots and shoes	Bemis & Fletcher	13,608	Aug. 24	36	894
Boots and shoes. Men's and boys'	M. D. Wells & Co	13,525	July 20	36	236
Butter	Fox River Butter Company	13,643	Sept. 7	36	1048
Butter. Creamery	G. W. Simpson	13,324	July 20	36	236
Butter-scotch or taffy	W. F. Parker	13,555	Aug. 10	36	574
Butternut taffy and nut candy	J. Benjamin	13,654	Sept. 14	36	1154
Calf-skins, morocco, sheep-skins, and patent-leather	Mayer, Michel & Desinger	13,558	Aug. 10	36	574
Calf-skins, morocco, sheep-skins, and patent-leather	Mayer, Michel & Desinger	13,633	Aug. 31	36	944
Candy	Sommer, Richardson & Co	13,512	July 20	36	236
Canned corn	McConnell, Clancey & Co	13,665	Sept. 14	36	1154
Canned fruits, vegetables, fish, &c	Eckman & Peterson	13,658	Sept. 14	36	1154
Canned oysters	L. W. Atwood	13,465	July 6	36	2
Canned sugar-corn	C. P. Mattocks	13,476	July 6	36	2
Carbonated beverage	C. Beck	13,579	Aug. 17	36	696
Carpets ribbed upon both faces	W. E. Montague	13,606	Aug. 24	36	894
Cement. Hydraulic	Union Cement Company	13,683	Sept. 21	36	1250
Cement. Portland	Vorwohler Portland Cement Fabrik. Prüssing, Planck and Company.	13,568	Aug. 10	36	574
Cements. Portland, Keene's, Roman, and hydraulic	Siebel & Matthaei	13,625	Aug. 31	36	944
China, stoneware, terra-cotta, and statuary porcelain	Villeroy & Boch	13,567	Aug. 10	36	574
Cigars and cigarettes	R. Allones	13,514	July 20	36	236
Cigars, cigarettes, and smoking and chewing tobacco	W. Glaccum	13,533	Aug. 3	36	460
Clothes and furnishing goods for men and boys	G. S. Butler	13,485	July 13	36	194
Cocoa and chocolate	C. J. Van Houten & Zoon	13,638	Aug. 31	36	944
Coffee	A. F. Damon & Co	13,640	Sept. 7	36	1048
Coffee	W. Granger	13,662	Sept. 14	36	1154
Coffee	J. Speidel & Co	13,586	Aug. 17	36	696
Coffee. Mocha	J. W. O'Shaughnessy	13,592	Aug. 24	36	894
Coffee. Roasted	Mayer Brothers & Co	13,551	Aug. 10	36	574
Coffee. Roasted ground and unground	Martin Bros	13,672	Sept. 21	36	1250
Coffee. Roasted ground and unground	Martin Bros	13,673	Sept. 21	36	1250
Cologne-water and other perfumery	F. Hoyt & Co	13,651	Sept. 7	36	1048
Compound for exterminating prairie-dogs, ground-squirrels, gophers, rats, and mice.	J. Hausman and S. V. B. Brown	13,591	Aug. 24	36	894
Compound for exterminating prairie-dogs, ground-squirrels, gophers, rats, and mice.	J. Hausman and S. V. B. Brown	13,611	Aug. 24	36	894
Compound for the treatment of female complaints	J. E. Markle	13,562	Aug. 10	36	574
Cordials	J. Cohen	13,680	Sept. 21	36	1250
Cords, lines, twines, and ropes	Silver Lake Company	13,540	Aug. 3	36	460
Cords, lines, twines, and ropes	Silver Lake Company	13,541	Aug. 3	36	460
Cords, lines, twines, and ropes	Silver Lake Company	13,542	Aug. 3	36	460
Corn-remover	Leonard & Co	13,644	Sept. 7	36	1048
Corsets	X. Stiegler, Jne., and J. Cargemel	13,616	Aug. 24	36	894
Corsets	Warner Brothers	13,492	July 13	36	194
Cotton cloth	Arnold Print Works	13,526	July 27	36	350
Cotton, half-woolen, and half silk goods	Mechanische Weberei zu Linden	13,468	July 6	36	2
Cough, cold, croup, and consumption cure, and a liniment	N. C. Search	13,665	Sept. 21	36	1250
Cough-syrup. Bronchial	N. P. Fetterman	13,660	Sept. 14	36	1154
Crackers	J. W. Swithor	13,647	Sept. 7	36	1048
Crackers	Sommer, Richardson & Co	13,511	July 20	36	236
Cutlery, hardware, and agricultural implements	T. Drysdale & Co	13,474	July 6	36	2
Cutlery solely. Pocket and table	New York Knife Company	13,498	July 13	36	194
Dentifrice or tooth-wash	M. A. & C. A. Santos	13,565	Aug. 10	36	574
Dog-biscuit and substances and preparations for feeding pheasants and other game-birds and poultry.	Spratt's Patent	13,693	Sept. 28	36	1360

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Drawing materials. Certain named	E. G. Soltmann	13,603	Aug. 24	36	894
Dress fabrics of silk, wool, or cotton	Messrs. Portier, Grose & Co	13,645	Sept. 7	36	1048
Embalming-fluid	C. B. Dolge	13,538	Aug. 3	36	460
Emery-wheels	New York Belting and Packing Company.	13,536	Aug. 3	36	460
Essence consisting of medicinal herbs and flowers extracted and refined with wine and alcohol. Vinous	W. B. Fayen	13,659	Sept. 14	36	1154
Feeding pheasants and other game-birds and poultry. Substances and preparations for	Spratt's Patent	13,689	Sept. 28	36	1360
Feeding pheasants and other game-birds and poultry. Substances and preparations for	Spratt's Patent	13,691	Sept. 28	36	1360
Flour	S. H. Cockrell & Co	13,560	Aug. 10	36	574
Flour	C. A. Hammond & Co	13,697	Sept. 28	36	1360
Food for dogs, cats, poultry, and other animals. Preparations of	Spratt's Patent	13,694	Sept. 28	36	1360
Food. Infants'	E. Lundlund	13,507	July 20	36	236
Food products, as designated. Phosphatic	Provident Chemical Works	13,674	Sept. 21	36	1250
Gilders' size	J. J. Heins	13,534	Aug. 3	36	460
Glass table-ware and fancy articles of all kinds	F. S. Shirley	13,523	July 20	36	236
Gloves	Levering & Co	13,612	Aug. 24	36	894
Gloves. Kid	Simpson, Crawford & Simpson	13,636	Aug. 31	36	944
Gloves. Kid	Simpson, Crawford & Simpson	13,635	Aug. 31	36	944
Gloves. Kid	Simpson, Crawford & Simpson	13,636	Aug. 31	36	944
Grease and stains. Preparation for removing	F. C. Lord	13,537	Aug. 3	36	460
Grease. Belt	A. Angell	13,513	July 20	36	236
Grease or solid oil. Machine	C. H. Healy & Co	13,471	July 6	36	2
Gum. Chewing	J. L. Valentino	13,678	Sept. 21	36	1250
Hams, shoulders, and bacon	J. D. Reed	13,510	July 20	36	236
Harrows, clod-crushers, and levelers. Pulverizing	Nash & Brother	13,508	July 20	36	236
Hatters' furs	Manufacture de Feutres & Chapeaux	13,520	July 20	36	236
Headache cure, an ointment or lotion, and aromatic cachous	W. R. Warner	13,617	Aug. 24	36	894
Hog products, cheese, butter, and butterine	W. Heapy & Sons	13,531	July 27	36	350
Horse blankets, covers, and nets, and saddle-housings, lap-robes, and lap-dusters.	W. Ayres & Sons	13,595	Aug. 24	36	894
Hosiery	W. D. and F. H. Ormsby	13,687	Sept. 28	36	1360
Inks	F. B. Lawton	13,652	Sept. 7	36	1048
Knit shirts, drawers, stockings, and socks	Simpson, Crawford & Simpson	13,637	Aug. 31	36	944
Lard. Refined	W. H. Burnet	13,529	July 27	36	350
Licorice. Manufactured	Young & Smylie	13,670	Sept. 14	36	1154
Linen. Table	Watson, Armstrong & Co	13,618	Aug. 24	36	894
Liniment	W. W. Boyce	13,472	July 6	36	2
Liniment	L. M. and M. B. McCaine	13,519	July 20	36	236
Liniment	C. T. Peterson	13,489	July 13	36	124
Liniment	Shaw & Drummond	13,522	July 20	36	236
Linings for ladies' and gentlemen's habits, also for umbrella and parasol cloths.	R. Pullar & Sons	13,601	Aug. 24	36	894
Lotion or liniment	A. S. Cowan	13,639	Sept. 7	36	1048
Medicinal beverage for cure of drunkenness	F. Sieber	13,686	Sept. 21	36	1250
Medicinal preparation for purifying the blood	A. Gmas	13,548	Aug. 10	36	574
Medicinal preparation for the feet, in powdered or liquid form	C. R. Pa Dro	13,554	Aug. 10	36	574
Medicinal preparations from carica papala, (melon-tree)	Finkler & Co	13,642	Sept. 7	36	1048
Medicinal remedies prepared from a certain natural deposit of earthy formation.	Acid Iron Earth Company	13,547	Aug. 10	36	574
Medicine. Blood-purifying	Soler & Guardias	13,637	Aug. 31	36	941
Medicine for dogs	Spratt's Patent	13,688	Sept. 28	36	1360
Medicine for pheasants and other game-birds and poultry	Spratt's Patent	13,690	Sept. 28	36	1360
Medicine for pheasants and other game-birds and poultry	Spratt's Patent	13,692	Sept. 28	36	1360
Medicine for lung and throat troubles, anæmia, scrofula, phthisis, indigestion, nervous and general debility, and rickets.	E. Loefund	13,536	Aug. 3	36	460
Medicine for the cure of dyspepsia and all diseases incident thereto.	J. True	13,557	Aug. 10	36	574
Medicine for the treatment of diseases of the blood, fevers, coughs, colds, and catarrh.	F. Stearns & Company	13,490	July 13	36	124
Medicine. Herb	E. and H. Densmore	13,656	Sept. 14	36	1154
Medicine. Hog-cholera	Medicus & Iten	13,553	Aug. 10	36	574
Medicine or cure for corns, bunions, warts, moles, callousness, &c.	G. Meunen	13,666	Sept. 14	36	1154
Mineral water and mineral salts	P. Scherer Company	13,500	July 13	36	124
Musical instruments of all kinds	J. H. Foote	13,696	Sept. 28	36	1360
Non-alcoholic summer-drink	W. J. Wickham & Co	13,584	Aug. 24	36	894
Oil. Lubricating	F. H. Reinhard	13,564	Aug. 10	36	574
Oil-meal and flaxseed meal	S. H. Weeks & Co	13,569	Aug. 10	36	574
Oranges and lemons	A. Misaldi	13,667	Sept. 14	36	1154
Overcoats, undercoats, pants, and vests	T. R. Poone	13,571	Aug. 17	36	696
Oysters, raw, cove, and pickled, put up in plain tin-plate cans.	Platt & Co	13,646	Sept. 7	36	1048
Packing the joints of steam-engines and for other purposes. Compound for	Revere Rubber Company	13,539	Aug. 3	36	460
Paper. Toilet	C. G. Mortimer	13,546	Aug. 3	36	460
Paper. Writing	Massasoit Paper Manufacturing Company.	13,563	Aug. 10	36	574
Paper. Writing	Wilkinson Bros. & Co	13,577	Aug. 17	36	696
Pencils and pen-holders. Lead	Eagle Pencil Company	13,657	Sept. 14	36	1154
Perfumery	Barnet Myroleum Company	13,620	Aug. 31	36	944
Perfumery, extracts, soaps, toilet-waters, sachets, tooth powders and washes, and toilet-powders.	F. R. Arnold & Co	13,505	July 20	36	236
Petroleum. Refined	H. W. Peabody & Co	13,668	Sept. 14	36	1154
Pianos. Grand, square, and upright	J. & C. Fischer	13,594	Aug. 17	36	696
Pickles	Crosse & Blackwell	13,580	Aug. 17	36	696
Pickles	Crosse & Blackwell	13,649	Sept. 7	36	1048
Pills	Weeden & Dent	13,553	Aug. 10	36	574

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pills. Pennyroyal	Chichester Chemical Company	13,589	Aug. 24	36	894
Plasters and medicines for use in the treatment of corns	P. White Proprietary Company	13,499	July 13	36	124
Plasters. Medicated	Peleg White Proprietary Company	13,509	July 20	36	236
Printers' rollers. Composition for covering	Durable Printers' Roller Company, (limited.)	13,466	July 6	36	2
Printers' rollers. Composition for covering	Durable Printers' Roller Company, (limited.)	13,481	July 6	36	2
Punch. Mixture of ingredients to be commingled with milk to compose a	Freiberg Bros	13,610	Aug. 24	36	894
Razor	Flagg Cutlery Company, (limited)	13,583	Aug. 17	36	696
Remedies for diseases of the blood and skin. Specific	G. J. Meyer	13,684	Sept. 21	36	1250
Remedies for stomach, liver, and kidney affections	Z. W. Patrick	13,521	July 20	36	236
Remedy. Catarrh	C. R. Eggeman	13,598	Aug. 24	36	894
Remedy. Catarrh	P. R. Eggemann, C. R. Jacobi, A. R. Erichsen and A. Schremser.	13,630	Aug. 31	36	944
Remedy for catarrh	J. T. and A. C. Halland J. M. Hedges	13,550	Aug. 10	36	574
Remedy for malaria and fever and ague	J. H. Winkelmann	13,543	Aug. 3	36	460
Rings. Finger	Wheeler, Parsons & Hayes	13,679	Sept. 21	36	1250
Salve	G. H. Eistroth	13,560	Aug. 24	36	894
Salve	W. L. Fish	13,574	Aug. 17	36	696
Salves and plasters	B. Jaffé & Darmstaedter	13,528	July 27	36	350
Sash-balances	W. F. Lennon	13,497	July 13	36	124
Satinets or woolens. Printed	J. M. Locke & Co	13,698	Sept. 28	36	1360
Saws	J. J. Parker	13,607	Aug. 24	36	894
Scissors, shears, razors, and pocket and table cutlery	C. B. Barker & Company (limited)	13,506	July 20	36	236
Sheetings, drills, jeans, and other cotton cloths	Russell & Co	13,634	Aug. 31	36	944
Shirt-waists, men's flannel shirts, and ladies' wrappers. Boys'	H. L. Levy & Bro	13,599	Aug. 24	36	894
Shirts. Gentlemen's white and figured	Glass, Hoafmyre & Co	13,661	Sept. 14	36	1154
Shoes	Hayes, Murray & Co	13,530	July 27	36	350
Skates. Roller and ice	E. H. Barney	13,596	Aug. 24	36	894
Skates. Roller and ice	E. H. Barney	13,597	Aug. 24	36	894
Soap	S. C. Adler	13,695	Sept. 28	36	1360
Soap	A. Angell	13,544	Aug. 3	36	460
Soap	N. K. Fairbank & Company	13,545	Aug. 3	36	460
Soap	A. C. McLean	13,585	Aug. 17	36	696
Soap and saponaceous preparations, detergents, starch, and blue.	J. Ascough	13,494	July 13	36	124
Soap and perfumed saponaceous preparations, preparations for the teeth and hair, detergents, and antiseptics. Perfumed	J. Ascough	13,493	July 13	36	124
Soap, cream, milk, paste, and pomatum. Toilet	B. Jaffé & Darmstaedter	13,527	July 27	36	350
Soap. Family	N. K. Fairbank & Company	13,485	July 13	36	124
Soap. Family	N. K. Fairbank & Company	13,582	Aug. 17	36	696
Soap for household and all other purposes	Lever Bros	13,624	Aug. 31	36	944
Soap. Fulling and scouring, toilet, and laundry	J. C. Johnson & Co	13,535	Aug. 3	36	460
Soap in cakes, bars, blocks, or balls	H. & G. A. Roever	13,479	July 6	36	124
Soap, preparations for the bath, the teeth, the hair, and the skin. Perfumed	J. Ascough	13,484	July 13	36	2
Soap. Toilet	J. S. Kirk & Co	13,623	Aug. 31	36	944
Soap. Toilet	J. S. Kirk & Co	13,664	Sept. 14	36	1154
Soaps. Fine scented and medicinal	Graham Bros. & Co	13,518	July 20	36	236
Starch and starch-glaze	J. Ascough	13,603	Aug. 24	36	894
Steam-boilers	Buerkel & Co	13,619	Aug 31	36	944
Steam-boilers. Compound for preventing and removing lime and other deposits in	Litofuge Manufacturing Company	13,488	July 13	36	124
Steel	S. Osborn & Co	13,469	July 6	36	2
Steel	S. Osborn & Co	13,470	July 6	36	2
Stoves and ranges. Cooking and heating	H. D. Sibley	13,615	Aug. 24	36	894
Tea and burnt or ground coffee	B. J. Smith	13,491	July 13	36	124
Telescopes, spy-glasses and magnifying-glasses	A. Levy	13,605	Aug. 24	36	894
Thermometers and barometers	Taylor Bros	13,480	July 6	36	2
Tin plates, terne plates, and black plates	W. Gilbertson & Company	13,631	Aug. 31	36	944
Tobacco. Combined smoking and chewing	A. Beck & Co	13,578	Aug. 17	36	696
Tobacco. Cut plug smoking	J. W. Benedict	13,609	Aug. 24	36	894
Tobacco. Extract of	T. Drysdale & Co	13,473	July 6	36	2
Tobacco for sheep-dip. Extract of	Louisville Spirit Cured Tobacco Company.	13,475	July 6	36	2
Tobacco. Plug	Perkins & Ernst	13,600	Aug. 24	36	894
Tobacco. Plug	Zane Tobacco Company	13,549	Aug. 10	36	574
Tobacco. Plug and twist	R. J. Reynolds	13,556	Aug. 10	36	574
Tobacco. Smoking	W. T. Gray & Co	13,467	July 6	36	2
Tobacco. Smoking and chewing	G. W. Gail & Ax	13,650	Sept. 7	36	1048
Toilet-water and hair tonic	W. G. Varin	13,588	Aug. 17	36	696
Tonic and stimulant	Keasbey & Mattison	13,663	Sept. 14	36	1154
Tonic. Liquid nerve	H. Imhof	13,621	Aug. 31	36	944
Tonic. Medicinal	A. F. Acker	13,504	July 20	36	236
Tonic or bitters	R. C. Danahy	13,671	Sept. 21	36	1250
Tonic or bitters	J. D. Eastman	13,641	Sept. 7	36	1048
Towels and tidies	S. Wood & Ward	13,700	Sept. 28	36	1360
Transom-lifters	J. F. Wollensak	13,502	July 13	36	124
Transom-lifters	J. F. Wollensak	13,503	July 13	36	124
Underwear for adults and children of both sexes	Ferris Bros	13,573	Aug. 17	36	696
Unguent or salve	B. Jaffé & Darmstaedter	13,622	Aug. 31	36	944
Varnish. Japan	M. Bigelow & Co	13,515	July 20	36	236
Vegetable extracts for flavoring soups	Normal Company	13,699	Sept. 28	36	1360
Ventilators for buildings, chimneys, &c	W. Webster	13,501	July 13	36	124
Washing compounds and soaps	J. Ascough	13,483	July 13	36	124
Washing compounds in the form of powder	D. Focht & Co	13,487	July 13	36	124
Wearing-apparel. Certain articles of	Jaeger's Sanitary Woolen System Co.	13,632	Aug. 31	36	944
Wheat-flour, cornmeal, pearl meal, and pearl grits	F. ge ke & Feiner	13,517	July 20	36	236
Whisky	F. W. Hunt & Co	13,575	Aug. 17	36	696

Alphabetical list of trade-marks, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Whisky	J. Jameson & Son	13,576	Aug. 17	36	696
Whisky	Paxton Bros. & Co	13,614	Aug. 24	36	894
Whisky	J. J. Wedeman, J. H. Holmes, and V. Fribe.	13,669	Sept. 14	36	1154
Wines	Compañia Vinicola del Norte de España.	13,570	Aug. 10	36	574
Wines and brandies	Heathcote, Dexter & Co	13,681	Sept. 21	36	1250
Wool and silk and wool black dress goods	R. C. Perkins	13,477	July 6	36	2
Woolen bedding. Certain named	Dr. Jaeger's Sanitary Woolen System Company.	13,561	Aug. 10	36	574
Yeast-cakes	J. T. and H. Boyle	13,572	Aug. 17	36	696
Yeast. Fluid, wet, and dry	M. Riley	13,478	July 6	36	2

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"American Cannon Cracker." (for Fire-Crackers)	C. E. Masten and B. T. Wells	4,942	Aug. 24	36	894
"Baldwin Mineral Springs Water"	C. Downer	4,894	July 6	36	2
"Beecham's Patent Pills"	T. Beecham	4,957	Sept. 7	36	1048
"Beef with Whiskey." (for a Medical Preparation)	R. A. Hance	4,969	Sept. 21	36	1250
"Belmont Chemical Illuminator" (For Burning Fluid)	L. C. Davis	4,915	July 27	36	350
"Blake's Pattern Belt Stud"	Greene, Tweed & Co	4,967	Sept. 21	36	1250
"Blood Purifier for the Horse"	P. H. Flynn	4,908	Sept. 14	36	1154
"Bromo Cocaffeine." (for a medicine)	Keasbey & Mattison	4,963	Sept. 14	36	1154
"Bromo Cocaine." (for a medicinal preparation)	Keasbey & Mattison	4,953	Aug. 31	36	944
"Bromo Theine." (for a medicinal preparation)	Keasbey & Mattison	4,952	Aug. 31	36	944
"Caro Cum Spiritu Frumenti." (for a Medical Preparation of Beef and Whisky.)	R. A. Hance	4,972	Sept. 28	36	1360
"Chichesters English." (for Pills)	Chichester Chemical Co	4,939	Aug. 24	36	894
"Coca Caffeine" (for a medicinal preparation)	Keasbey & Mattison	4,950	Aug. 31	36	944
"Coca Theine" (for a medicinal preparation)	Keasbey & Mattison	4,951	Aug. 31	36	944
"Cream White Honey." (for Soap)	J. S. Kirk & Co	4,954	Aug. 31	36	944
"Dahl's Dyspepsia Cake Manufacturing Company." (for Bread.)	H. A. C. Dahl	4,940	Aug. 24	36	894
"Deming's Charcoal," (not Willow, very much better)	A. B. Deming	4,961	Sept. 14	36	1154
"Dermal Hair Restorer"	E. P. Hughes	4,949	Aug. 31	36	944
"Deutsch-Amerikanische (Union Printer) Typographia" (for Printed Matter.)	C. Greifenberg	4,895	July 6	36	2
"Domestic Package Dyes"	T. B. Dunn	4,916	July 27	36	350
"Donnell's Standard Household Ammonia"	W. Donnell	4,927	Aug. 10	36	574
"1 Doz. Main Springs American Waltham Watch Co. Waltham, Mass. U. S. A."	American Waltham Watch Company.	4,944	Aug. 31	36	944
"Dr. Bain's Dyspepsia Cure"	C. L. Capron	4,923	Aug. 3	36	460
"Dr. H. B. Knowles' Cough Syrup"	W. J. Fowler and J. S. Clark	4,956	Sept. 7	36	1048
"Dr. Harvey's Tobacco Antidote"	J. W. Harvey	4,948	Aug. 31	36	944
"Dr. Jacobs' Bitters"	C. W. Palmer	4,943	Aug. 24	36	894
"Dr. Lloyd's Family Medicine"	W. R. Thompson	4,975	Sept. 28	36	1360
"Dr. Solomon Barrett's Prescription for diseases of the stomach and bowels."	A. Barrett	4,932	Aug. 17	36	696
"Elixir of Beef"	O. Clapp & Son	4,945	Aug. 31	36	944
"Export Soda." (for Crackers)	Van Derveer & Holmes Biscuit Company.	4,976	Sept. 28	36	1360
"Fabric" (for Cloth)	Arnold Print Works	4,910	July 20	36	236
"Fermentation Vacuum Beer"	Pfaudler Vacuum Fermentation Company.	4,921	July 27	36	350
"Fowler's Chilblain Cure"	R. F. Fowler	4,928	Aug. 10	36	574
"Genuine." (for a Medicinal Compound)	F. E. Gilbert	4,924	Aug. 3	36	460
"Ginger Ale"	Auburn Mineral Water Company	4,903	July 13	36	194
"Hog Cholera Medicine"	Medinus & Iten	4,920	July 27	36	350
"Huile D'Olives Vierge"	C. M. Roof	4,899	July 6	36	2
"Improved German Embrocation"	C. E. Van Pelt	4,936	Aug. 17	36	696
"India Aromatic Ale"	S. Twitchell & Bro	4,966	Sept. 14	36	1154
"Jersey Doll." (for Stuffed Dolls made of Jersey Cloth)	C. A. Andrews	4,950	Sept. 14	36	1154
"K. L." (for Bread)	W. E. Kibby	4,906	July 13	36	194
"Knights of Labor Soap"	Adrot, Christello & Co	4,901	July 13	36	194
"L. F. Ganter's Chicken Cholera Cure"	L. F. Ganter	4,946	Aug. 31	36	944
"L. F. Ganter's Tooth Ache Cure"	L. F. Ganter	4,925	Aug. 3	36	460
"Liquid Opaque" (for a Coating for Photographic Negatives	G. A. Goebner	4,929	Aug. 10	36	574
"Lyon's Face Powder"	W. Lyon	4,941	Aug. 24	36	894
"M. W. Co. Ship Time." (for Watch Dials)	Manhattan Watch Company	4,970	Sept. 21	36	1250
"Magnetic Vitalizer." (for Magnetic Appliances)	A. P. Lighthill	4,917	July 27	36	350
"Manford's White Pine Cordial"	M. W. McMillen	4,919	July 27	36	350
"Method of Packing Confectionery"	J. R. Stout	4,974	Sept. 28	36	1360
"Mrs. L. D. Boynton's Family Salve"	L. B. Holt	4,934	Aug. 17	36	696
"Pedacura Combination Corn Cure"	P. White Proprietary Company	4,907	July 13	36	194
"Perfect Baking Powder"	H. E. Norton	4,955	Aug. 31	36	944
"Pomeroy's Petrolina Porvused Plasters"	Peleg White Proprietary Co	4,935	Aug. 17	36	696
"Printed Fabric" (for Cloth)	Arnold Print Works	4,911	July 20	36	236
"Roller Corset"	A. S. Mann	4,898	July 6	36	2
"Roller Lacing" (for Corsets, Gloves, Shoes, &c)	A. S. Mann	4,897	July 6	36	2
"Rose Soda." (for Beverages and Beverage Extracts)	S. Twitchell & Bro	4,965	Sept. 14	36	1154
"Rudolph's Great English Blood Purifier"	Hegeman & Co	4,898	July 6	36	2
"Schuyler's Pile Panacea"	J. Schuyler	4,930	Aug. 10	36	574
"Self-Raising Corn Meal"	Waring Bros	4,937	Aug. 17	36	696
"Shepard's Condition Powders"	L. C. Shepard	4,908	July 13	36	194
"Shufelt's Dyspepsia Cure"	H. M. Shufelt	4,909	July 13	36	194
"Slocum's Coltsfoot Expectorant"	P. R. Whitcomb	4,971	Sept. 21	36	1250
"Sulpho-Chromic Salt"	Partz Electric Battery Company	4,964	Sept. 14	36	1154
"Sulpho Lotio the Infallible Skin Cure"	J. J. Wolf	4,922	July 27	36	350
"The American Circulating Library Co." (for Book Covers)	W. E. Allen & Co	4,902	July 13	36	194
"The Great Ante-Anthrax Remedy"	F. J. Smith	4,900	July 6	36	2
"The Improved Belt Stud"	Greene, Tweed & Co	4,968	Sept. 21	36	1250
"The Old Style Belt Stud"	Greene, Tweed & Co	4,947	Aug. 31	36	944
"The Workingman's Beneficial Association." (for Books and Pamphlets.)	J. W. Priestley and A. H. Titus, Jr.	4,973	Sept. 28	36	1360
"Tonic Milk Phosphates or Chemical Food"	G. A. Strauss	4,926	Aug. 3	36	460
"Tonic Phosphates"	T. B. Cooke	4,914	July 27	36	350

Alphabetical list of labels, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette.	
				Vol.	Page.
"Union Cigar Maker's Label, of Cigar Maker's Union No. 44 of St. Louis, Mo., of the Cigar Maker's International Union of America."	J. Deitz	4,965	July 13	36	194
"Union Label." (for Whiting and Paris White)	E. V. Crandall	4,904	July 13	36	194
"Vegetable, Horse, Cattle & Poultry Powder"	Barker, Moore & Mein	4,931	Aug. 17	36	696
"Vegetable Nerve Food"	S. P. Clark & Co	4,933	Aug. 17	36	696
"Warner & Co's Bromo Soda"	W. R. Warner	4,912	July 20	36	236
"Wei de Leasepe' Norman Balsam"	C. A. Thompson	4,956	Aug. 31	36	944
"Western Lead Works Strictly Pure White Lead"	Cary, Ogden & Parker	4,960	Sept. 14	36	1154
"Wheat Germicelli"	Colby & Buskirk	4,913	July 27	36	350
"Whittemore's Sacramento Ague Specific"	F. W. Whittemore	4,977	Sept. 28	36	1360
"Williamson's Cream" (for the Skin)	F. G. Williamson	4,936	Aug. 17	36	696
"Witch Hazel Ointment"	A. P. Lighthill	4,918	July 27	36	350

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Alphabetical list of labels, July to September, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Union Cigar Maker's Label, of Cigar Maker's Union No. 44 of St. Louis, Mo., of the Cigar Maker's International Union of America."	J. Deitz	4,905	July 13	36	194
"Union Label" (for Whiting and Paris White)	E. V. Crandall	4,904	July 13	36	194
"Vegetable, Horse, Cattle & Poultry Powder"	Barker, Moore & Mein	4,931	Aug. 17	36	606
"Vegetable Nerve Food"	S. P. Clark & Co	4,933	Aug. 17	36	606
"Warner & Co's Bromo Soda"	W. R. Warner	4,912	July 20	36	236
"Wei do Lemoges' Norman Balsam"	C. A. Thompson	4,956	Aug. 31	36	944
"Western Lead Works Strictly Pure White Lead"	Cary, Ogden & Parker	4,980	Sept. 14	36	1154
"Wheat Germoselli"	Colby & Buskirk	4,913	July 27	36	350
"Whittemore's Sacramento Ague Specide"	F. W. Whittemore	4,977	Sept. 28	36	1360
"Williamson's Cream" (for the Skin)	F. G. Williamson	4,938	Aug. 17	36	606
"Witch Hazel Ointment"	A. P. Lighthill	4,918	July 27	36	350

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XXXVII.

OCTOBER 5 TO DECEMBER 28, INCLUSIVE.

1886.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1887.

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DIGEST OF DECISIONS OF THE COMMISSIONER OF PATENTS AND OF THE UNITED STATES COURTS IN PATENT CASES.

INDEX OF PATENTS AND PATENTEES FOR THE QUARTER YEAR, OCTOBER TO DECEMBER, 1886.

ERRATA.

350,285, page 52, in title, names of inventors, for "Paul Chalon" read *Paul Chalou.*

350,702, page 163, in title, name of assignor, for "Blün & Henius Manufacturing Company" read *Blün & Henius Manufacturing Company.*

350,710, page 165, in title, after "(No model)" insert *Patented in England Nov.* 20, 1885, *No.* 14,199.

350,836, page 198, in title, names of assignees, for "T. J. Crister" read *T. J. Critser.*

351,112, page 277, in title, residence of inventor, for "Kruman" read *Krumau.*

351,384, page 351, strike out all after number—title, drawings, and claims—and insert CANCELED.

351,524 and **351,525,** pages 396 and 397, in title, after residence of inventor, insert *assignor to The Railway Telegraph Company, of New York.*

351,866, page 495, in title, names of assignees, for "Pfauschmidt, Dodge & Co." read *Pfanschmidt, Dodge & Co.*

352,077, page 553, in title, name of assignee, for "William C. Avery" read *William G. Avery.*

352,391, page 643, in title, for "assignor of one-fourth" read *assignor of one-half.*

352,409, page 648, claim 1, line 2, for "each half a member" read *each half or member.*

352,459, page 660, in title, for "assignors" read *said Fuller assignor.*

352,990, page 809, strike out all after number—title, drawing, and claims—and insert CANCELED.

353,544, page 969, strike out all after number—title, drawings, and claims—and insert CANCELED.

353,620, page 990, claim 1, line 1, strike out "transverse" and insert the same between "the" and "spring-bar" in line 2.

353,649, page 999, in title, after residence of inventor, insert *assignor to himself, and William S. Waddell, New York, N. Y.*

353,832, page 1052, first claim, line 3, second claim, line 2, and third claim, line 5, strike out the comma after "material," and first claim, line 4, insert comma after "adhering."

354,049, page 1111, first claim, line 7, for "wheel V" read *feed-rollers.*

354,469, page 1230, in title, name of assignees, for "Walter Smith" read *Walton Smith*, and for "seven-eighths" read *five-eighths.*

354,752, page 1315, name of assignee, for "The Economic Plow Company" read *The Economist Plow Company.*

354,838, page 1336, strike out all after number—title, drawings, and claims—and insert CANCELED.

355,095, page 1397, first and second claims, lines 1, insert a comma after "can," and first claim, line 3, strike out the comma after "flange."

355,098, page 1418, in title, names of inventors, for "Andrew F. Lauderholm" read *Andrew F. Landerholm.*

ANNOUNCEMENTS—VOL. XXXVII.

ABANDONED APPLICATIONS—

Order—Relative to access thereto ..... Page. 1251

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Order—Disbarring Frank A. Bidwell 1005

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George W. Vennum 1005

Revoking order disbarring Hosea B. Moulton 569

Change in classification 569, 787

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

OCTOBER–DECEMBER, 1886.

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OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

OFFICIAL GAZETTE—October–December, 1886.

VOL. 37 O. G.—2

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DIGEST OF DECISIONS

OF THE

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AND OF

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DIGEST OF DECISIONS.

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ABANDONED CLAIMS.

(See Construction of Specifications and Patents, 8.)

ABANDONMENT.

BY FAILURE TO APPEAL.

An application for patent was constructively abandoned in 1877 under section 4894 Revised Statutes, because the various efforts to procure a reversal of the decision of 1875 and the application filed in 1885 were irregular and illegal proceedings not contemplated by said section.

[‡Kirk *v.* Commissioner of Patents and Secretary of the Interior, 451.

ACQUIESCENCE.

(See Infringement, 4; Injunction, 2; Interference, 1; Rejected Claims.)

ACQUIESCENCE IN ACTION OF PATENT OFFICE.

(See Construction of Specifications and Patents, 8.)

AFFIDAVITS.

(See Interference, 9, 10, 11, 12, 13, 15, 16, 17, 18; Practice in the Courts, 2; Public Use.)

AGENTS.

(See Escrow.)

AGREEMENTS.

(See Assignment, 1; Contracts; Escrow.)

AMENDMENTS.

(See Rejected Claims, 1, 2, 3.)

1. AFTER TWO REJECTIONS.

After all the claims of an application have been twice rejected on the same references, and with no material amendment intervening, applicant has no *right* to again amend without showing good and sufficient cause therefor, together with the reason why he did not earlier propose his amendment.

[*Ex parte* Thurmond, 217.

2. SAME.

After two such rejections, in the absence of any showing or claim that applicant would be deprived of any substantial right by being required to file a new application, he cannot ordinarily be permitted to amend. [Id.

3. CONTAINING NEW MATTER.

"Where an amendment is proposed in cases capable of illustration by drawing or model, if such proposed amendment embodies something not found in the specification, drawing, or model, the Principal Examiner should refuse to enter or consider it." (*Ex parte Bennett*, 35 O. G., 1004.)

[*Ex parte* Valle, 563.

4. MAY PETITION IF REFUSED.

"In cases of such refusal applicant's remedy is by petition to the Commissioner." (Ib.) [Id.

5. ACTION ON PETITION.

"In case of such petition to the Commissioner, unless it be clearly apparent that the proposed amendment was improper, direction would be given that the examiner receive, enter, and incorporate the same, and then act upon the case as so amended." (Ib.) [Id.

6. EXAMINER MAY AGAIN REJECT.

When the case is so returned to the examiner and re-examined by him, if, in his opinion, such amendment "plainly and unmistakably" includes matter not found in the case as originally filed, he is at liberty to reject such amendment or amended claim without examining the merits of the invention. [Id.

7. ACTION ON OTHER CLAIMS.

If, however, the case as filed contained other claims not affected by the amendment, they should be examined upon the merits. [Id.

8. SAME.

If, for instance, an applicant presents a case with a single claim and afterward seeks to amend by adding another claim, the amendment is refused because it involves a departure from the original invention. Upon direction by the Commissioner the examiner receives it, but rejects for the reason that it is plain and unmistakable to him that the new claim contains an invention not found in the case as originally filed. Applicant would notwithstanding have a right to ask for the examination of his original claim upon the merits. [Id.

AMENDMENTS TO ALLOWED CASES.

(See Withdrawal of Case from Issue.)

AMENDMENTS TO PRELIMINARY STATEMENTS.

(See Interference, 3, 4, 5.)

ANALOGOUS DEVICES.

(See Construction of Specifications and Patents, 3; Infringement, 2, 5, 6; Particular Patents, 1, 9, 12, 24.)

ANSWER TO BILL.

(See Practice in the Courts, 1.)

ANTICIPATION.

(See Evidence, 1, 2; Particular Patents, 19, 20, 22.)

EVIDENCE OF PRIOR USE.

In order to defeat a patent on the ground of prior use, such use must be established beyond reasonable doubt. (*Coffin v. Ogden*, 18 Wall., 120; *Washburn & Moen Manufacturing Company v. Haish*, 4 Fed. Rep., 900.)

[*Wetherell v. Keith *et al.*, 337.

APPEALS.

(See Abandonment; Interference, 6, 7, 8, 20; Secretary of the Interior.)

RELIEF FROM ADVERSE ACTION OF PATENT OFFICE MUST BE ATTEMPTED BY APPEAL BEFORE RESORTING TO BILL IN EQUITY.
It appears from the bill that an application for patent was filed in the Patent Office in 1874 and definitively refused by decision of the Commissioner in 1875; that no appeal therefrom to the Supreme Court of the District was taken, but that various efforts for the review and reversal of said decision were made from time to time; that in 1885 another application was filed in the Patent Office, which was again rejected for the same cause; that from said last refusal no appeal was taken, but in 1886 a bill in equity under section 4915 Revised Statutes was filed in the Supreme Court of the District of Columbia, the Secretary of the Interior being joined with the Commissioner of Patents as a party defendant. On demurrer to this bill it was *Held* that an applicant for patent is not in an *ex parte* case entitled to the redress by bill in equity until he has exhausted the remedy by appeal provided in section 4911 Revised Statutes.
[Kirk v. Commissioner of Patents and Secretary of the Interior, 451.

APPLICATIONS.

(See Designs, 1, 2.)

SECOND APPLICATION.
After one application which describes and claims a particular invention, or a particular feature has been patented or passed to issue, no other application describing and claiming the same invention or feature should be passed.
[*Ex parte* Gaboury, 217.

ASSIGNEES.

(See Rejected Claims, 2.)

ASSIGNMENTS.

(See Contracts, 6; Damages and Profits, 6, 7; Employés, 1, 2.)

1. ESTOPPEL.
A party who clothes another with the legal title to a patent, and relegates to the assignee the question as to who shall have the benefit of the purchase, is estopped to complain of fraud because another was not allowed to share in the benefit of such purchase.
[*Racine Seeder Company v. Joliet Wire Check Rower Company, 452.

2. CONVEYANCE BY RECORD OWNER VALID.
Where a party owning the title of record to a patent for over six months conveyed it for a valuable consideration to a corporation competent to purchase and hold it, and whose title was made a matter of record in the Patent Office, *Held* that this title could not be attacked for fraud in the assignor to the corporation.
[*Id.

ATTORNEYS.

(See Revocation of Power of Attorney.)

ATTORNEYS' POWER TO AMEND APPLICATIONS.

(See Rejected Claims.)

BAR TO PATENT.

(See Construction of Statutes.)

BILL IN EQUITY.

(See Appeals; Injunction, 1, 3, 4, 5, 6, 7; Licenses, 2.)

EQUITABLE JURISDICTION, WHERE IT DOES NOT ATTACH.
Where the bill alleges equitable grounds for relief—as, for instance, fraud—and the allegations are not sustained by the proofs, the bill will be dismissed *in toto*, both as to the principal relief sought as well as to the relief incidental thereto.
[*Clark *et al.* v. Wooster, 1477.

BILL OF REVIVOR.

(See Jurisdiction, 1.)

PRACTICE IN CASE OF DEATH OF DEFENDANT BEFORE DECREE.
A bill of revivor is the proper remedy for preserving and continuing an original suit, under the circumstances.
[*Kirk v. Du Bois, 102.

BREACH OF CONTRACT.

(See Contracts, 6; Escrow.)

CHANGE OF MATERIAL.

(See Substitution of Material.)

CLAIMS.

(See Construction of Specifications and Patents, 6; Disclaimer; Rejected Claims, 1, 2, 3.)

COMBINATIONS.

(See Construction of Specifications and Patents, 3; Infringement, 1, 2, 7; Invention, 2, 3, 4, 5, 10; Patentability.)

COMMISSIONER OF PATENTS.

(See Amendments, 4, 5, 8; Appeals; Interferences, 3, 6, 7, 8; Public Use; Revocation of Power of Attorney, 3.)

CONCEPTION OF INVENTION.

(See Priority of Invention.)

1. CONCEPTION, UNLESS FOLLOWED SEASONABLY BY PRACTICAL STEPS, IS NOT INVENTION.
A mere conception not seasonably followed by some practical step counts for nothing as against a subsequent independent inventor, who, having complied with the patent laws, has obtained his patent.
[*Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

2. SUPINENESS IS NOT REWARDED BY THE LAW.
One who has conceived of a new device and proceeded so far as to embody it in rough sketches, or even in finished drawings, cannot there stop and yet hold that field of invention against all comers for a period of twelve years.
[*Id.

CONSTRUCTION OF CLAIMS.

(See Particular Patents, 27.)

CONSTRUCTION OF CLAIM.
The claim is a statutory requirement calling for precision on the part of the patentee, and must be construed in accordance with the plain import of its terms.
[*White *et al.* v. Dunbar *et al.*, 1092.

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Construction of Claims; Disclaimer; Infringement, 1; Invention; Particular Patents; Rejected Claims, 2.)

1. CONSTRUCTION OF PATENTS.
As a patent is read by persons skilled in the arts so should it be read by the court.
[*Tondeur v. Stewart, Estep & Co., 672.

2. FORMER DECISION.
The rule laid down in *Klein* v. *Russell* that in construing a patent the court should proceed in a liberal spirit, so as to sustain the patent and the construction claimed by the patentee himself, if this can be done consistently with the language he has employed, affirmed.
[*Id.

3. CONSTRUCTION OF CLAIM—INFRINGEMENT.
A patent on a machine for making barrel-heads from paper-pulp contained a claim for "the combination of the piston, the resisting surface opposed to the piston, and the laterally-removable matrix-case, all substantially as described." The specification described the matrix-case as made in sections pivoted or hinged together. *Held* that the hinged features of the matrix-case were not a part of this claim, and that said claim was infringed by a combination of the same parts operating in the same way, although the matrix-case was made of a single piece.
[*American Paper Barrel Company v. Lorraway, 674.

4. OBJECT OF THE INVENTION.
The statement of the object of the invention in the specification is a very different thing from the invention itself.
[*White *et al.* v. Dunbar *et al.*, 1092.

5. SPECIFICATION—CLAIMS.
While the specification may be resorted to for a better understanding of the claims, it cannot be used for the purpose of changing it.
[*Id.

6. EXPLICITNESS.
One seeking a monopoly, which for seventeen years is to levy a tax upon the whole country for the use of a device which may occur to many others many times during the life of the monopoly, is required to use plain terms, that plain people may be able to understand, explaining what it is he claims to have invented.
[*Schillinger v. Cranford, 1349.

7. DATE OF PATENT—REVISED STATUTES, SECTION 4887.
Section 4887 of the Revised Statutes cannot be successfully invoked to carry the date of an invention back to the date of a previously-issued English patent where the two patents are not alike.
[*Gandy v. Main Belting Company, 1357.

8. LIMITATION OF CLAIMS BY ACQUIESCENCE IN ACTIONS OF THE PATENT OFFICE.
The defendants use a form of lock-case which the complainant endeavored to cover by claims in his application upon which the patent in suit was granted, which claims were rejected by the Patent Office, and the rejection acquiesced in by complainant. *Held* that by this action of the complainant his claim must be limited to his particular form of lock, which is not used by defendant, who therefore does not infringe.
[*Reemer v. Peddie *et al.*, 338.

CONSTRUCTION OF STATUTES.

(See Abandonment; Appeals; Injunction, 1.)

DATE OF PATENT—REVISED STATUTES, SECTION 4887.
Section 4887 of the Revised Statutes cannot be successfully invoked to carry the date of an invention back to the date of a previously-issued English patent where the two patents are not alike.
[*Gandy v. Main Belting Company, 1357.

CONTRACTS.

(See Damages and Profits, 7; Licenses, 9, 10, 11, 12, 13, 14; Settlement of Royalty, 3.)

1. SPECIFIC PERFORMANCE.
A court of equity will not attempt to enforce the specific performance of a contract to make an invention or build a machine embodying the same.
[*Wollensak v. Briggs, 339.

2. SAME.
Nor will a court of equity attempt to enforce the specific performance of a contract where it is impossible for it to specify or describe in its decree the particular thing to be done, or where, if it attempted to lay its mandate upon the defendant to proceed, it could never know with certainty whether its order was obeyed.
[*Id.

3. SAME—PERSONAL SERVICES.
Courts of chancery will not entertain bills to compel the specific performance of contracts for personal services, especially where the services stipulated for require the exercise of mechanical skill, intellectual ability, or judgment.
[*Id.

4. SAME—DISCLOSURE OF AN INVENTION.
A contract by one to make an invention for another involves as a necessary element a complete disclosure and discovery of the invention to the latter, and, therefore, to compel such a disclosure would be in effect to enforce a specific performance of the contract, and on this ground a discovery was denied in this case.
[*Id.

5. BARGAIN—WHAT IS EVIDENCE OF.
Where parties have met and discussed the subject of the purchase by one of a patent from the other, but the terms of purchase were not fixed in the personal interview, but were subsequently settled by interchange of letters between the parties, *Held* that these letters were the evidence of what the bargain was.
[*Racine Seeder Company v. Joliet Wire Check Rower Company, 452.

6. PERSONAL LICENSE UNDER A PATENT NOT ASSIGNABLE.
S. empowered H., by contract in writing, as his lawful attorney, to sell rights under a patent at prices to be approved by S. for the then unexpired term of the patent, and authorized H. to manufacture under the patent at a certain royalty, but reserved the power to revoke the contract in case H. should not faithfully perform his agreements under it. *Held* that the contract both as a power to sell and as a license was a merely personal one, and not transferable by H. except with the consent of S., and that when S. parted with his title to the patent he parted with his right to sanction or vivify any assignment from H.
[*Id.

CORPORATIONS.

(See Assignments, 2; Employés, 1, 2; Injunction, 3.)

COSTS OF SUIT.

PRACTICE WHERE SUIT FAILS IN PART.
Where the suit fails upon one patent and prevails upon another, the complainant is entitled to a decree; but the costs are the subject of equitable consideration by the court.
[*Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

COURTS OF CHANCERY.

(See Contracts, 3.)

COURTS OF EQUITY.

(See Contracts, 1, 2, 4; Licenses, 6.)

DAMAGES AND PROFITS.

(See Bill of Revivor; Infringement, 4; Jurisdiction, 1; Licenses; Settlement of Royalty.)

1. SURVIVAL OF SUITS AS TO PROFITS AND DAMAGES.
Suits for profits and damages for infringement of patents are not extinguished by the death of the infringer.
[*Kirk v. Du Bois, 102.

2. MEASURE OF DAMAGES.
The proofs disclosing an established license-fee of one thousand dollars, *Held, further*, that the amount of such fee was a just measure of compensation for the infringement.
[*Keller *et al.* v. Stolzenbach *et al.*, 564.

3. SALE OF PATENTED ARTICLE—INSUFFICIENT EVIDENCE OF DAMAGES.
Infringement consisted in sale of the patented article. Proof of an established license-fee for the use of the invention *Held* insufficient to authorize a recovery.
[*Colgate v. Western Electric Manufacturing Company, 883.

4. MEASURE OF DAMAGES.
Royalty paid for a license to sell and transfer to purchasers the right to use is not the criterion of the value of an ordinary selling right.
[*Id.

5. SAME.
Established license-fees are the best measure of damages for infringement of patents, and special damages beyond these are more properly the subjects of allowance by the court under the provisions of the statute.
[Clark *et al.* v. Wooster, 1477.

6. PARTIES TO SUIT.
Where a patentee has transferred the "exclusive right to the use of the improvements and rights secured to her by the letters patent," for the whole term of the patent, "by way of license, and not as a transfer of a title to the letters patent," and stipulates "to defend the validity of the patent against all infringements, and on due notice of * * * infringement to proceed * * * to seek to enjoin * * * such infringements, and to secure such damages as may be reasonable and commensurate with the injury done by such infringement to the rights secured" by the transfer, an action for damages for infringement and injunction should be brought in the transferee's name, as the patentee would not suffer damages by the infringement, and has not made herself liable for the payment of damages, and they would not belong to her if recovered.
[*Hermann v. Hermann, 892.

7. CONTRACT—INJUNCTION.
Where the affidavits show that inventor, while employed by a manufacturer as superintendent, had been accustomed to prepare new designs for the use of defendant's business, for some of which he had obtained patents, and that this was part of his employment and duty, and that in the course of such employment he designed the "Daisy Hood," and applied for a patent therefor, the solicitor's charge for which was paid by defendant, and defendant for several months manufactured the design under the inventor's superintendence and by his permission, and without further compensation to him than his salary, and the inventor, having quit defendant's employ, assigned the patent-right in the design to his wife, and organized a new firm for the manufacture of the design, to which his wife assigned the exclusive right to use the patent-right *Held* that a grant, license, or privilege to use the design was implied from the contract and relation of the parties, and that a preliminary injunction should not be granted.
[*Id.

DEATH OF INFRINGER.

(See Damages and Profits, 1.)

DEATH OF PARTY TO SUIT.

(See Bill of Revivor.)

DEFENSE.

(See Evidence, 1, 2; Joint Invention, 2, 3; Licenses, 13; Reissues, 4.

MATTERS OF DEFENSE—ORIGINAL, WHAT ARE.
That the patent sued on has expired by reason of the expiration of foreign patents for the same invention is an original defense, and should not be left to be introduced as surrebuttal.
[*American Paper Barrel Company v. Laraway, 674.

DELAY IN BRINGING SUIT.

(See Infringement, 4.)

DELAY IN APPLYING FOR REISSUE.

(See Reissues, 7.)

DEMURRER.

(See Appeals; Jurisdiction, 1.)

DESCRIPTION.

(See Construction of Specifications and Patents, 4, 5, 6.)

DESIGNS.

1. APPLICATION ERRONEOUSLY MADE FOR DESIGN.
When an application for design patent is received which is a clear, palpable, and manifest error, and for the subject-matter of which applicant is entitled to, if anything, a mechanical patent, the case should be withheld by the application clerk and applicant advised.
[*Ex parte* Bailey, 781.

2. FEE CANNOT BE REFUNDED.
When, however, such error is not plain, palpable, and manifest, and the case goes to a division for examination, the preliminary fee cannot be refunded to applicant or applied upon a new application.
[Id.

DIFFERENT INVENTIONS.

(See Reissues, 3, 7.)

DILIGENCE.

(See Conception of Invention, 1, 2.)

DISCLAIMER.

REISSUE—DISCLAIMER.
A claim in a reissue, and not within the original patent, renounced by disclaimer.
[*Schillinger v. Cranford, 1349.

DISCOVERY.

(See Contracts, 4; Licenses, 6.)

DOUBLE USE.

(See Patentability.)

EMPLOYÉS.

(See Contracts, 3, 4; Damages and Profits, 7.)

1. RIGHT OF AN EMPLOYER.
An employé of a corporation making an invention in the direct line of its business while in its pay, and using material and labor wholly paid for by it, but under no special contract to invent for it, and there being no circumstances from which it might fairly be inferred that he was required or expected to invent for it, does not thereby give such corporation a right to an assignment of the patent granted for such invention.
[*Hapgood *et al.* v. Hewitt, 1247.

2. LICENSE TO MAKE AND USE—WHEN INFERABLE.
Under such circumstances the corporation had only a naked license to make and sell the patented improvement as a part of its business.
[*Id.

3. LICENSE, WHEN TERMINATED.
This right was a mere personal one, was not transferable, and was extinguished with the dissolution of the corporation.
[*Id.

ENLARGEMENT OF CLAIMS.

(See Reissues, 3, 7.)

EQUIVALENTS.

(See Infringement, 5; Substitution of Material.)

ESCROW.

KNOWLEDGE OF ACT OF AGENT BINDS PRINCIPAL.
S. claimed that a bank had, against instructions, delivered a deed to a patent without payment of purchase money, instead of holding the deed as collateral to secure a note given in payment. It appeared that S. knew of the action of the bank, but took the note and discounted it. *Held* that S. could not be allowed, even against his immediate assignee, to treat the deed as having been obtained by such fraud as would vitiate it.
[*Racine Seeder Company v. Joliet Wire Check Rower Company, 452.

ESTOPPEL.

(See Assignments; Licenses, 5, 9, 13, 14; Settlement of Royalty, 3.)

INJUNCTION—INVENTOR ESTOPPED TO DENY ORIGINALITY OF HIS INVENTION.
On a motion for a preliminary injunction to restrain an inventor and assignor of letters patent from infringing them, he is estopped to deny that he was the first inventor.
[*American Paper Barrel Company v. Laraway, 674.

EVIDENCE.

(See Contracts, 5; Reissues, 5.)

1. PRIOR USE.
Where a witness testified to his use of a patented invention sixteen years before the time when he testified, and that he employed some ten persons in its manufacture, and yet could not tell the names of any of such persons, *Held* that his testimony failed to make out a defense.
[*Wetherell v. Keith *et al.*, 337.

2. SAME.
Two witnesses testified in 1884 to seeing the patented device in use in 1864; but their testimony was indefinite and contradicted in many important particulars, and none of the alleged prior devices were produced. *Held* insufficient to defeat the patent.
[*Id.

EVIDENCE OF INVENTION.

(See Invention, 1, 4, 5, 9.)

EXAMINATION OF APPLICATIONS.

(See Applications; Designs, 2; Rejection of Application.)

EXAMINERS.

(See Amendments, 3, 5, 6, 8.)

EXAMINER OF INTERFERENCES.

(See Interference, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19.)

EXAMINERS-IN-CHIEF.

(See Interference, 7, 8.)

EXPIRATION OF PATENT.

(See Defense; Injunction, 4, 5, 6, 7; Jurisdiction, 2.)

FIRST OR ORIGINAL INVENTOR.

(See Estoppel; Invention, 6.)

FOREIGN PATENTS.

(See Construction of Statutes, 1; Limitation of United States Patents by Foreign Patents Previously Granted.)

FORMER DECISIONS.

FORMER DECISIONS ON SAME PATENT.
While respect is due former adjudications on a patent, it is the duty of a court to decide only upon its own convictions of the merits of the case before it.
[*Schillinger v. Cranford, 1349.

FORMER DECISIONS AFFIRMED.

(See Amendments, 3.)

CASES COMPARED.
Root v. *Railway Company* (105 U. S., 189) is not inconsistent with the views expressed in this case.
[*Clark *et al.* v. Wooster, 1477.

FRAUD.

(See Assignments; Bill in Equity; Joint Invention, 2, 3; Licenses, 10, 11; Reissues, 4; Settlement of Royalty, 1, 2; Trade-Marks.)

FUNCTION.

(See Infringement, 5.)

INFRINGEMENT.

(See Construction of Specifications and Patents, 3; Damages and Profits, 1, 3, 5; Injunction; Licenses, 2, 7, 10, 11, 14; Particular Patents, 4, 5, 9, 10, 13, 17, 18, 24, 26, 30; Reissues, 1, 2; Settlement of Royalty.)

1 PATENTS CANNOT SUPPLEMENT EACH OTHER.
These two patents cannot support or supplement each other. They are each for combinations, and the question is, whether the defendants use the combination shown in each, and not whether parts in each combination can be found in each patent.
[*Blades v. Rand, McNally & Co., 99.

2. INFRINGEMENT, WHAT CONSTITUTES.
Where the claim of the Frisbee patent was for the combination of an annular core-lifter and a tube with an inner tapering recess, and the patent described a loose elastic cut ring within a tapering recess in a boring-tube, and the defendants used a loose solid unelastic ring in a cylindrical recess in a boring-tube, but this ring had four dependent springs with jaws, which engaged with inclines at the lower end of the recess, and the purpose and mode of operation of the two devices were similar, the difference in the construction was not material, and the claim was infringed.
[*Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

3. INFRINGEMENT MUST BE PROVED.
In a suit for infringement of the fourth claim of Letters Patent No. 76,903, of February 21, 1868, for a broadcast seeder, the only proof as to the kind of machine made by the defendant was the testimony of a witness that the defendant was making a seeding-machine with two feeding-holes and a disk. *Held* "this proof does not make even a *prima facie* case of infringement without proof showing that the feeding-holes and disk in defendant's machine perform the same function as those covered by the fourth claim of the Floyd patent."
[*Racine Seeder Company v. Joliet Wire Check Rower Company, 452.

4. LACHES AS A BAR TO AN ACCOUNT FOR PROFITS.
To a bill to restrain infringement of a patent the defendants by plea set up a claim of right to use the patented apparatus in question and the grounds thereof. The plaintiff having neglected for over two years to reply or set the plea down for hearing, the court, under equity rule 38, decreed that he was to be deemed to admit its truth and sufficiency, and that the bill be dismissed. The defendants were then suffered to continue to use the apparatus for nearly two years more before a second (the present) suit was brought to restrain them. *Held* that the court would not decree an account of profits, the defendants having acted under a *bona fide* claim of right, and there being on the other side acquiescence and inexcusable laches in seeking redress.
[*Keller *et al.* v. Stolzenbach *et al.*, 564.

5. EQUIVALENTS.
The only defense in this case was non-infringement, and while it was true that defendant's mechanism was not an exact copy or reproduction of the patented machines, and there was a noticeable display of ingenuity and skill in an attempt to evade the patent, *Held* that defendant's mechanism worked out the same result as complainants', and by substantially the same means, using equivalent parts to perform the functions performed by the complainants' construction.
[*Halliday *et al.* v. Covel, 785.

6. CHANGE OF STRUCTURE.
A mere change of position of the button, or the fact that the tack is not bent before passing through the eye of the button, not material, nor sufficient to evade infringement of this patent.
[*Belle Patent Button Fastener Company v. Lucas, 1004.

7. COMBINATION.
A claim for a combination of devices constituting a seed-cleaning machine is not infringed by the use of a machine in which certain of the elements are not found.
[*Newark Machine Company v. Gaar, Scott & Co., 1250.

INJUNCTION.

(See Damages and Profits, 7; Estoppel; Jurisdiction, 1; Practice in the Courts, 2; Reissues, 1, 2; Trade-Marks.)

1. PRACTICE WHERE DEFENDANT HAS A PENDING SUIT FOR A PATENT.
The fact that a suit by the defendant for a patent under section 4915 is pending will not affect complainant's right to a preliminary injunction if entitled to it by the equities presented.
[*Minneapolis Harvester Works v. McCormick Harvesting Machine Company, 566.

2. WHEN INFRINGEMENT BY LICENSEE WILL BE ENJOINED.
Taking and operating under a license is sufficient evidence of acquiescence to warrant an injunction without any previous adjudication if the patent is unchallenged.
[*Brown v. Lapham *et al.*, 676.

3. AGAINST BRINGING SUIT.
The bill asked to have the patentee enjoined from bringing any action for infringement at law or in equity against said corporation. As the patentee could only bring a suit at law against the trustees or stockholders of said corporation for infringements by it while it existed, and the theory of the bill discloses a perfect defense to such suit, no equity court, certainly no circuit court of the United States, will interfere to enjoin a pending suit at law, much less the bringing of one in the future.
[*Hapgood *et al.* v. Hewitt, 1247.

4. EQUITY JURISDICTION, WHERE IT ATTACHES.
Where a bill in equity for the infringement of a patent and praying for an injunction was filed fifteen days before the expiration of the patent, and in season, by the rules of the proper court, to have obtained a preliminary injunction, the court had jurisdiction of the case, and could retain the bill if in its discretion it saw fit to do so.
[*Clark *et al.* v. Wooster, 1477.

5. SAME, WHERE JURISDICTION DOES NOT ATTACH.
If, however, by the course of the court where the suit was brought no preliminary injunction could be obtained, the bill should be dismissed for want of jurisdiction.
[*Id.

6. SAME, WHERE JURISDICTION REMAINS AFTER IT ATTACHES.
The jurisdiction of the court having attached, although the principal grounds of relief expired with the patent, if the general allegations of the bill covered other grounds of relief the jurisdiction remained.
[*Id.

7. SAME, WHERE JURISDICTION REMAINS.
Even if the bill had no such general allegations, if it was for equitable relief when the suit was commenced, the mere fact that the ground for such relief expired with the patent would not take away the jurisdiction and preclude the court from the incidental relief which belongs to cases of that sort.
[*Id.

8. ESTOPPEL.
Where defendant had been a licensee under the patents on which he was sued, and at one time claimed to own them, and had dealt extensively in the patented articles, the infringement being clear, *Held* that he was hardly in position to deny the validity of the patents, and a preliminary injunction granted.
[*Burr v. Kimbark, 1480.

INTERFERENCE.

ON MOTION FOR PRELIMINARY INJUNCTION.
Complainant's bill was based upon a patent to Appleby, and defendant justified under a prior similar invention of Jewel which had not been patented. On appeal to the Commissioner of Patents in an interference between Appleby and Jewel Appleby prevailed, and Jewel promptly filed a bill for a patent, under section 4915, which is now pending.

1. JUDGMENT IN INTERFERENCE—WHEN NOT CONCLUSIVE.
An interference proceeding in the Patent Office cannot be regarded as a judgment where the losing party does not acquiesce in the conclusion of the tribunal which decides the question in controversy.
[*Minneapolis Harvester Works v. McCormick Harvesting Machine Company, 566.

2. RENEWAL OF MOTION.
Where a motion is made and denied absolutely and without reservation, a repetition of the same motion without first obtaining leave to make the same is irregular and unauthorised. [Clemson v. Fowler, 671.

3. AMENDMENT OF PRELIMINARY STATEMENTS.
The Commissioner of Patents has authority, which should and will be duly exercised in proper cases and on proper application, to permit the amendment of preliminary statements. [Id.

4. SAME.
A party to an interference who has, without negligence or carelessness, mistaken a date, or been misled into asserting an incorrect date in his preliminary statement, may thereafter, upon a clear and satisfactory showing of the reason why he was misled or mistaken, be permitted to file an amended statement which shall conform to the facts. [Id.

5. SAME.
Such amendments, however, will be refused "where the error, omission, or mistakes in the first statement are directly chargeable to the carelessness, indifference, or want of attention of the party himself." [Id.

6. APPEAL TO THE COMMISSIONER.
A party to an interference proceeding on appeal to the Commissioner is entitled to have his case considered and decided upon the law and the evidence.
[Sellers and Bancroft v. Walter and Walter, 1001.

7. SAME—PRIORITY OF INVENTION.
In an interference proceeding between an applicant on the one side and a patentee on the other, even though the Examiner of Interferences and the Board of Examiners-in-Chief have respectively upon the facts awarded priority to such patentee, it is the duty of the Commissioner on appeal to reverse such award if, in his opinion, applicant has established by a clear preponderance of the proof that he and not such patentee was the first inventor. [Id.

8. SAME—REVERSAL OF DECISION OF EXAMINER-IN-CHIEF.
The fact that the Examiner of Interferences and the Board of Examiners-in-Chief had respectively reached the same conclusion, while "somewhat persuasive in its character," will not excuse the Commissioner from awarding priority to the party who is, in his judgment, by clear preponderance of proof, entitled thereto. [Id.

9. MOTION TO DISSOLVE.
A motion to dissolve an interference should state the reasons therefor, recite the grounds upon which it is founded, and be accompanied by all the showing on which such motion is based.
[Green v. Hall *et al*, 1475.

10. SAME.
On the hearing of such motion nothing can be considered except the showing so filed and the records and files of the proceeding. [Id.

11. SAME—DELAY IN FILING.
When such motion is filed more than twenty days after the approval of preliminary statements, unaccompanied by any showing, and no sufficient showing appears in the records and files, the Examiner of Interferences should decline to transmit the same to the Primary Examiner. [Id.

12. SAME—IRREGULARLY MADE.
In case such motion to dissolve be made irregularly and unseasonably, or based upon papers irregularly and unseasonably filed, the adverse party may move to dismiss such motion and to strike such papers from the files. [Id.

13. SAME—NOTICE TO ADVERSE PARTY.
A motion to dissolve based upon the grounds above referred to, and filed more than twenty days after the approval of preliminary statements, should never be transmitted to the Primary Examiner for his determination without affording the adverse parties an opportunity to be heard on the question of such transmission. [Id.

14. SAME—SAME.
Adverse parties should be served with a copy of the motion, and of such showing, together with a notice of when the motion will be brought on to be heard. [Id.

15. SAME—AFFIDAVIT.
Affidavits filed by the moving party during the pendency of the motion and without leave cannot be considered. [Id.

16. SAME—COUNTER-AFFIDAVITS.
Counter-affidavits may usually be filed at the time named for hearing in the notice of the moving party, and without service of copies. [Id.

17. SAME—EXPLANATION OF DELAY.
When, however, such motion to dissolve is not made within twenty days after the preliminary statements are approved, the delay should be explained by affidavit, unless the reason and excuse therefor appear in the records and files of the proceeding. [Id.

18. SAME—EXTENSION OF TIME TO MEET COUNTER-AFFIDAVITS.
If such counter-showing manifestly surprise the moving party, or otherwise render it necessary that he be allowed time in which to meet the averments of such counter-affidavit, it is competent for the Examiner of Interferences to grant such time. [Id.

19. SAME—WHEN TO BE RETURNED TO PRIMARY EXAMINER.
When a motion to dissolve an interference based on any of the grounds mentioned in Rule 116 is regularly and reasonably filed with the Examiner of Interferences, it must be by him transmitted to the proper Primary Examiner for his determination. [Id.

20. SAME—SAME—APPEAL TO THE COMMISSIONER.
From such declination the party conceiving himself aggrieved may appeal to the Commissioner. [Id.

INVALID PATENTS.

(See Void Patents, 3.)

INVENTION.

(See Contracts, 4; Patentability.)

1. EVIDENCE OF FACT OF INVENTION.
In an interference proceeding in 1873, upon a different invention of the same general character, Allison had testified to making the invention here in question; but this testimony did not constitute invention any more than did the previous sketches.
[Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

2. COMBINATION OF OLD DEVICES.
Mangles having a large feed-roll surrounded by small polishing-rolls having differential speed being old, and mangles employing the large roll as a polishing-roll and small ones as feed-rolls, the latter having the same rate of speed, being also old, there was no invention in combining in a mangle a large roll for polishing and small feed-rolls having differential speed.
[*Baldwin v. Haynes, 565.

3. SAME.
A new combination of old parts for attaining an object may sometimes, and perhaps often, be so obvious as to merit no title to invention.
[*Enterprise Manufacturing Company, Pennsylvania, v. Sargent *et al.*, 891.

4. NOVELTY AND UTILITY.
While in ordinary cases of new combinations of old parts for attaining an object novelty and utility are evidence of invention, there should be other evidence to show that it exists. [*Id.

5. EVIDENCE OF INVENTION.
Evidence of invention, in addition to novelty and utility, may often be found in the machine itself, which shows that it came from a creative mind, or the necessary evidence may sometimes be found in the history of the invention. [*Id.

6. RESULT AS EVIDENCE OF INVENTION.
In this case the patentee accomplished a new and beneficial result by means which others had been near to and apparently wanted to find, but did not see. *Held* that he was entitled to be styled an inventor. [*Id.

7. NOVELTY AND INVENTION.
Patented inventions which cannot be assailed for want of novelty may be void for lack of invention.
[*Butler *et al.* v. Bainbridge *et al.*, 1124.

8. INVENTION AND MECHANICAL SKILL.
Where the distinction between invention and mechanical skill is very doubtful, the doubt should be resolved in favor of invention. [Id.

9. SAME.
In the particular instance the patented article was new, useful, and cheap, supplied a popular want, and required time and thought for its development, and these altogether are evidences of invention, rather than of mechanical skill. [*Id.

10. NO INVENTION.
Where the rack for the pomace was old, and a cloth to envelop the pomace on the rack was old, and, in combination with these parts, an inclosure to confine the pomace with a uniform depth was old, it did not involve invention to employ a guide-frame smaller than the rack to confine the pomace.
[*Clark Pomace Holder Company v. Ferguson, 1479.

JOINT INVENTION.

1. EVIDENCE TO INVALIDATE A PATENT.
Upon the evidence, *Held* that it was not shown with sufficient clearness and certainty to overthrow the patent that the improvements covered by it were not the joint inventions of Farnsworth and Barnes, as stated in the patent.
[*Belle Patent Button Fastener Company v. Lucas, 1004.

2. DEFENSE—PLEADING.
The defense that patentees are not joint inventors cannot be regarded with favor, unless the action of the patentees in this regard was evidently disingenuous or calculated to mislead.
[*Butler *et al.* v. Bainbridge *et al.*, 1124.

3. SAME.
It is doubted if this defense can be made, unless clearly set out in the answer. [*Id.

JURISDICTION.

(See Bill in Equity; Injunction, 4, 5, 6, 7; Licenses, 3, 6; Secretary of the Interior.)

1. ON DEMURRER—JURISDICTION ONCE ATTACHED NOT SEVERED BY DEATH OF DEFENDANT.
Kirk filed his bill for infringement against Du Bois, with the usual allegations and prayers. Before any decree Du Bois died, leaving an executor. Kirk then filed a bill of revivor against the executor, who demurred upon the ground that, as by the death of Du Bois the prayer of the original bill could not be granted, the court ceased to have jurisdiction of the controversy and the suit could not be revived for any purpose. *Held* that where the jurisdiction of the court in an injunction bill has attached, it cannot be ousted in consequence of subsequent events which would preclude the grant of an injunction, but the right will remain of a decree for an account of profits and damages.
[*Kirk v. Du Bois, 102.

2. EQUITY JURISDICTION.
As this patent was within about two months of its expiration at the time the bill was filed, *Held* that it was doubtful whether, under the rule in *Root* v. *Railway Company*, (105 U. S., 189,) the court had jurisdiction in equity, and the bill was therefore dismissed without prejudice to a suit at law.
[*Racine Seeder Company v. Joliet Wire Check Rower Company, 452.

3. PRACTICE IN SUPREME COURT—JURISDICTION.
Where the court below had jurisdiction at the commencement of the suit, even upon a narrow ground, if the defendant did not ask for a dismissal for want of jurisdiction, this Court will be reluctant, if it had the power, after the case had been tried and determined on the merits, to reverse the decree upon appeal on the ground of lack of jurisdiction in the lower court.
[*Clark *et al.* v Wooster, 1477.

LACHES.

(See Conception of Invention; Infringement, 4; Reissues, 7.)

LICENSES.

(See Damages and Profits, 6, 7; Employés, 2, 3; Injunction, 2; Parties to Suit; Settlement of Royalty.)

1. LICENSE WITHOUT CLAUSE OF FORFEITURE NOT FORFEITED BY NON-PAYMENT OF ROYALTY.
Where a license under patents gave the right to make and sell the patented article upon a certain royalty, to be paid at designated periods, the failure to pay such royalty does not forfeit the license, unless there is such a condition embodied in it.
[*Consolidated Middlings Purifier Company v. Wolf *et al.*, 567.

2. BILL FOR INFRINGEMENT NOT MAINTAINABLE UNDER PATENT LAW FOR SUCH ROYALTY.
Upon failure to pay such royalty the licensor may sue for the same, but cannot maintain a bill in equity for the infringement of the patents, or maintain such a bill framed as a suit for infringement and for profits and damages. [*Id.

3. BILL TO RECOVER SUCH ROYALTY NOT MAINTAINABLE UNDER GENERAL EQUITY JURISDICTION.
A suit for royalty on such a license is not dependent upon patent law, and is not within the general equitable jurisdiction of the court. [*Id.

4. TERRITORIAL INTERESTS—RIGHTS OF OWNERS OF.
The owner of letters patent for two counties in New York would not have the right to manufacture the patented machines in Boston for use in Ohio.
[*American Paper Barrel Company v. Laraway, 676.

5. LICENSE—ESTOPPEL.
A licensee under a patent is estopped to deny its validity on any question arising out of that relation between the parties, (*Kinsman* v. *Parkhurst*, 18 How., 289;) but it does not follow that he will be always estopped because he has stood in that relation.
[*Brown v Lapham *et al.*, 676.

6. EQUITY JURISDICTION—LICENSE—DISCOVERY.
Equity has jurisdiction to compel a discovery of the number of patented articles made under a license, where the licensee neglects or refuses to make monthly reports, as he has covenanted to do, and a covenant to make monthly reports is, in fact, a covenant for a monthly discovery of the work done under the license.
[*Pope Manufacturing Company v. Owsley, 781.

7. RESTRICTED LICENSE—INFRINGEMENT.
Where a license does not purport to give an unlimited right to the use of the patent, but restricts the right to machines of certain descriptions, when licensee makes machines not in conformity to his license, but within the patent, he not only violates his express covenant not to do so, but violates the patents. [*Id.

8. REVOCATION OF LICENSE.
A license provided that licenser might terminate it by notice in writing. He sent a postal-card to licensee, reading: "Your royalty return for February has not come to hand. Failure to forward same within five days from March 10 subjects your license to revokement." *Held* that this paper fell far short of a notice in writing of a revocation or termination of the license. [*Id.

9. WHEN LICENSEE ESTOPPED TO DISPUTE VALIDITY OF PATENT.
Licensees under patents covenanted that they would not dispute or contest the validity of the same or of complainant's title thereto. *Held* that as long as the licensees remain in force defendants are estopped by the terms of their agreements from denying the validity of the patents in question. [*Id.

10. LICENSE UNDER EXPIRED PATENT.
Where a license was granted covering a large number of patents, including one which had already expired, but which licenser owned and licensee had infringed, and there was no proof that it was included by the licenser in bad faith, *Held* not enough to taint the transaction as fraudulent. [*Id.

11. SAME.
The date or duration of a patent is a matter of public record, of which a licensee is as much bound to take notice as the licenser. [*Id.

12. EFFECT OF DECISION ADVERSE TO PATENT.
A license under patents is not affected by the fact that in a suit between other parties the patents have been adjudged void where the licensee has agreed not to contest their validity. [*Id.

13. ESTOPPEL.
Where licensee under a patent agrees not to contest its validity nor licenser's title, he cannot urge want of patentability nor any question save that whether his devices are covered by it. [*Id.

14. SAME.
Where the alternative to settle a claim for infringement or litigate is fairly tendered to a party and he chooses to settle, he cannot afterward retreat from the settlement merely because some other party has successfully contested the validity of the patents. [*Id.

LICENSE-FEE.

(See Damages and Profits, 2, 3, 4, 5.)

LIMITATION OF UNITED STATES PATENTS BY FOREIGN PATENTS PREVIOUSLY GRANTED.

(See Defense.)

UNITED STATES PATENT NOT LIMITED UPON ITS FACE TO EXPIRE WITH PRIOR FOREIGN PATENT IS VALID.
The fact that United States patents are not limited upon their face to expire with the life of a prior English patent is not held in the second circuit to affect their validity.

MEASURE OF DAMAGES.

(See Damages and Profits, 2, 3, 4, 5.)

MECHANICAL SKILL.

(See Invention, 2, 3, 8, 9, 10; Patentability.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.)

MOTIONS.

(See Interference, 2.)

NEGLIGENCE.

(See Interference, 4, 5.)

NEW APPLICATIONS.

(See Amendments, 2.)

NEW MATTER.

(See Amendments, 6, 7, 8.)

NOTICE OF MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 9, 10, 11, 12, 13, 14.)

NOVELTY.

(See Invention, 4, 5, 7; Particular Patents, 14, 15, 21, 23.)

OLD ELEMENTS.

(See Invention, 2, 3, 10; Patentability.)

OMISSION OF CLAIMS.

(See Reissues, 6.)

OMISSION OF PARTS.

(See Infringement, 7.)

ORIGINAL PATENT.

(See Reissues, 5.)

PARTIAL USE.

(See Infringement, 1, 7.)

PARTICULAR PATENTS.

1. BAKER—MACHINE FOR MINCING MEAT.
The first and second claims of Letters Patent No. 271,398, of January 30, 1883, to John G. Baker, for a machine for mincing meat, considered, and *Held* not infringed by the defendant's machine, patented in Reissued Letters Patent No. 10,717, of April 17, 1883, to John H. Shaw.
[*Enterprise Manufacturing Company, Pennsylvania v. Sargent *et al.*, 891.

2. BALDWIN—MANGLES.
Letters Patent No. 253,661, of February 14, 1882, to Joseph F. Baldwin, for an improvement in mangles, are void for want of invention in the making of the device therein described.
[*Baldwin v Haynes, 565.

3. BALL AND CASE—PRIORITY OF INVENTION.
The patents of Ball and Case, No. 247,872, dated October 4, 1881, and No. 249,982, dated November 1, 1881, are for inventions made by them prior to similar inventions made by Allison, and described in his Patent No. 261,978, dated August 1, 1882.
[Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

4. BLADES—TICKET-CASES.
Letters Patent No. 86,277, of January 26, 1869, to Frank Brewster, and No. 145,386, of December 9, 1873, to Leonard J. Blades, construed, and *Held* limited to the special devices which they describe and claim, and not infringed.
[*Blades v. Rand, McNally & Co., 99.

5. BREWSTER—TICKET-CASES.
Letters Patent No. 86,277, of January 26, 1869, to Frank Brewster, and No. 145,386, of December 9, 1873, to Leonard J. Blades, construed, and *Held* limited to the special devices which they describe and claim, and not infringed. [*Id.

6. BUTLER AND KELLEY—PAPER FOR CARDS AND CIRCULARS.
Patent No. 273,023, granted to Butler and Kelley, February 27, 1883, for an improvement in paper for cards and circulars, adjudged to be valid.
[*Butler *et al.* v. Bainbridge *et al.*, 1124.

7. CLARK—CHEESE-FORMERS FOR CIDER-PRESSES.
Letters Patent No. 187,100, granted to John Clark, February 6, 1877, for "improvements in cheese-formers for cider-presses," adjudged invalid for want of invention.
[*Clark Pomace Holder Company v. Ferguson, 1479.

8. CARPENTER—HOOP-SKIRTS.
Letters Patent No. 116,411, granted June 27, 1871, to Charles C. Carpenter for an improvement in hoop-skirts, sustained over the alleged prior use by Max Schwab, at Ottawa, Illinois, and that seen by Robert G. Lester and August Seligman in 1864.
[Wetherell v. Keith *et al.*, 337.

9. CHURCH—ORNAMENTAL CHAINS.
Letters Patent No. 230,745, of August 3, 1880, to Henry A. Church, for an ornamental chain composed of a series of rows of rings united together by passing connecting-wires through orifices in disks or washers forming part of or secured within the outside rings of each alternate row and securing the ends of the connecting-wires within the edge of such outside rings are valid, and infringed by the same combinations, notwithstanding the ends of the connecting-wires are twisted to secure them, instead of clinched, as described in the patent.
[*Church v. Spaulding, 565.

10. COVEL—SAW-SHARPENING MACHINES.
Claims 12, 13, and 14 of Reissued Letters Patent No. 10,252, granted December 5, 1882, to W. L. Covel, and the fourth claim of Patent No. 254,869, granted March 14, 1882, to William H. Halliday, for improvements in saw-sharpening machines, construed and *Held* infringed.
[*Halliday *et al.* v. Covel, 785.

11. DUNBAR—METAL CANS.
Reissued Letters Patent No. 9,257, granted December 6, 1881, to Dunbar *et al.*, for preserving shrimps in metal cans, adjudged to be invalid.
[*White *et al.* v. Dunbar *et al.*, 1002.

12. FARNSWORTH AND ROBINSON—BUTTON-FASTENERS.
Letters Patent No. 247,032, of September 13, 1881, to Farnsworth and Robinson, for a new mode of attaching buttons to garments, and a device for accomplishing the same, sustained, none of the prior patents containing the essential features of this invention, which comprises a malleable tack passed through the garment and clinched through the eye of the button by means of a clinching device.
[*Belle Patent Button Fastener Company v. Lucas, 1004.

13. FRISBEE—CORE-LIFTERS.
Letters Patent No. 147,492, granted to G. Frisbee, February 17, 1874, for core-lifters, declared valid and infringed by defendants.
[*Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

14. GANDY—COTTON BELTING AND PROCESS OF MANUFACTURE.
Letters Patent No. 228,186 were granted June 1, 1880, to Gandy for a hard, even-surfaced, rigid, impervious, non-elastic belt composed of cotton canvas or duck having its warp threads larger than the weft, both warp and weft being hard spun, the fabric tight woven, and folded, stitched, and saturated with linseed-oil. *Held* invalid for want of novelty.
[*Gandy v. Main Belting Company, 1357.

15. GANDY—STRETCHING BELTING AND APPARATUS THEREFOR.
Letters Patent No. 269,519 were granted December 26, 1882, to Maurice Gandy for improvement in stretching by means of an apparatus consisting of a frame-work on the ends of which is a series of rollers free to revolve upon their axis. The belts are placed upon the rollers and the ends are fastened with a taking-up device. Pressure is then applied, and the belt is submitted to a continuous strain, as if in actual use, until all the elasticity in the belt is killed. The taking-up device serves to keep the belt taut throughout the entire proceeding. *Held* that the process and apparatus possessed novelty, and that the patent was therefore valid.
[*Gandy v. Main Belting Company, 1358.

16. GREELY—SUSPENDERS.
Letters Patent No. 141,926, of August 19, 1873, to Benjamin J. Greely, for improvements in suspenders, construed, and *Held* that if any invention is to be found in the patent it is in the form of the pin, which is the subject-matter of the first claim.
[*Frost *et al.* v. Chase, 566.

17. SAME—PATENT LIMITED TO FORM DESCRIBED.
The question whether there is any invention in the pin described in the Greely patent, in view of the state of the art, not decided, but *Held* that this patent is limited to the form of the pin described, and when so limited not infringed by the defendant's construction. [*Id.

18. HALLIDAY—SAW-SHARPENING MACHINES.
Claims 12, 13, and 14 of Reissued Letters Patent No. 10,252, granted December 5, 1882, to W. L. Covel, and the fourth claim of Patent No. 254,869, granted March 14, 1882, to William H Halliday, for improvements in saw-sharpening machines, construed and *Held* infringed.
[*Halliday *et al.* v. Covel, 785.

19. HASSELMAN—STRAW-STACKER.
The third claim of Letters Patent No. 290,050, granted to Lewis Wm. Hasselman, December 11, 1883, for an improvement in straw-stackers, anticipated and declared void. There is nothing new in the combination, and as added to a straw-stacker it is nothing but an aggregation of well-known devices which, in their new relation, if it can be called new, perform no new office.
[*Hasselman v. Gaar, Scott & Co., 1126.

20. SAME.
The sixth and eighth claims of Reissued Letters Patent No. 10,347, granted July 3, 1883, to Lewis W. Hasselman, for an improvement in straw-stackers, anticipated by Letters Patent No. 152,760, granted July 7, 1874, to D. Morey for a hay and grain elevator. [*Id.

21. MAST—GRAIN-DRILLS.
Letters Patent No. 157,478, to P. P. Mast, for an improvement in grain-drills, construed, and, in view of the prior state of the art, *Held* that there was no patentable novelty in the device set out in said patent.
[*Grain Drill Manufacturers' Company v. Hart *et al.*, 1123.

22. MILLER—RECLEANERS FOR GRAIN AND SEED SEPARATORS.
Letters Patent No. 332,465, granted July 22, 1885, to Abraham Miller, for an improvement in recleaners for grain and seed separators, anticipated.
[*Newark Machine Company v. Gaar, Scott & Co., 1250.

23. ORCUTT—ROTARY CUTTERS.
Letters Patent No. 236,303, of March 1, 1881, to William D. Orcutt, for improvements in rotary cutters for trimming the edges of boot and shoe soles, *Held* void for want of patentable novelty.
[*Busell Trimmer Company *et al.* v. Stevens *et al.*, 1249.

24. RICHARDSON—STEAM SAFETY-VALVES.
The claims of the patents of Richardson, Nos. 58,294 and 85,963, as limited in the case of the *Consolidated Safety Valve Company* v. *Crosby Steam Gage Valve Company*, (113 U. S., 157,) are not infringed by a valve which has no huddling-chamber and no strictured orifice leading from a huddling-chamber to the open air.
[*Consolidated Safety Valve Company v. Kunkle, 1003.

25. ROEMER—LOCKS FOR TRAVELING-BAGS.
Letters Patent No. 195,233, granted to Roemer, for an improvement in lock and handle for traveling-bags, again declared valid.
[*Roemer v. Peddle *et al.*, 338.

26. ROSS—HORSE-NAIL MACHINE.
Letters Patent No. 172,660, of January 25, 1876, to Robert Ross, for an improved machine for the manufacture of horse-nails, considered, the seventh and eighth claims thereof construed, and the former found to be infringed.
[*Northwestern Horse Nail Company v. New Haven Horse Nail Company *et al.*, 1121.

27. ROWELL—GRAIN-DRILLS.
The claim of Letters Patent No. 97,317, to J. S. Rowell, for an improvement in grain-drills, reads: "The sliding shell-cylinder C, constructed with radial slots and arranged upon the feed-cylinder F, and shaft B, so that the adjustment is effected by the horizontal movement of the shell-cylinder C, while the feed-wheel F remains stationary as regards the case H M." *Held* that a ledge or offset, which was the "M" of the claim, was not an element or part of the claim.
[*Grain Drill Manufacturers' Company v. Hart *et al.*, 1123.

28. SCHILLINGER—CONCRETE PAVEMENT.
Reissued Patent No. 4,364, to J. J. Schillinger, dated May 2, 1871, construed to be for a combination which would furnish a complete and efficient method of separating adjoining blocks of concrete by interposing strips of tar-paper, or some equivalent material, between the joints of the adjacent blocks.
[*Schillinger v. Cranford, 1349.

29. THOMAS, MAST, AND GARDINER—GRAIN-DRILLS.
Claims 12 to 15 of Reissued Letters Patent No. 4,091, to Thomas, Mast, and Gardiner, improvement in grain-drills, considered, and *Held* that, while the device covered by these claims may have been an improvement upon the ruder devices of earlier patents, the changes necessary to make it were purely mechanical and did not involve invention.
[*Grain Drill Manufacturers' Company v. Hart *et al.*, 1123.

30. TONDEUR—GLASS-ANNEALING FURNACES.
Letters Patent No. 258,156, granted May 16, 1882, to Cleon Tondeur, for an improvement in glass-annealing furnaces, construed, sustained, and *Held* to be infringed by the defendants' furnace.
[Tondeur v. Stewart, Estep & Co., 672.

PARTIES TO SUIT.

(See Bill of Revivor; Damages and Profits, 6; Licensee, 9; Secretary of the Interior.)

WHEN LICENSEE MAY CHALLENGE VALIDITY OF PATENT.
When a licensee under a patent stands out from under the license, and claims nothing from it, and does nothing more under it, with full knowledge to the licensor of his position, he is at as full liberty to contest the patent as any one.
[*Brown v. Lapham *et al.*, 676.

PATENTABILITY.

(See Invention, 1, 7, 8.)

DOUBLE USE.
The application of an old and well-known form of blade from a hand-tool for trimming sole-edges to an old gear-cutter for trimming such edges is merely a case of double use, and therefore not patentable.
[*Busell Trimmer Company *et al.* v. Stevens *et al.*, 1249.

PATENTS.

(See Anticipation; Construction of Specifications and Patents, 1, 2, 6; Estoppel; Infringement, 1; Injunction, 1; Invention, 7, 8; Licensee, 11; Reissues, 1, 2; Rejected Claims, 1, 2, 3; Secretary of the Interior.)

PETITION.

(See Amendments, 4.)

PLEADINGS.

(See Joint Invention, 2, 3; Practice in the Courts, 1.)

PRACTICE IN THE COURTS.

(See Bill in Equity; Bill of Revivor; Construction of Specifications and Patents, 1, 2; Contracts, 1, 2, 3, 4; Costs of Suit, 1; Defense; Evidence, 5; Estoppel; Former Decisions; Injunction; Joint Invention, 2, 3; Jurisdiction, 1, 3; Licensee, 2, 3, 5, 9, 13; Parties to Suit; Reissues, 1, 2, 4, 5.)

1. PLEADING.
It was sufficient to raise the question of priority of invention for defendants in their answer to deny that Allison was the original and first inventor, and to justify under the prior patents of Ball and Case without alleging an abandonment by Allison.
[*Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

2. PRACTICE—AFFIDAVITS FILED OUT OF TIME NOT CONSIDERED.
Where, by stipulation, the time within which evidence to show cause upon motions for preliminary injunctions was limited to expire on a certain date, and the hearing was to be had as soon thereafter as the court could give it, *Held* that affidavits filed after such date, without any stipulation or order of court permitting it, could not be considered.
[*American Paper Barrel Company v. Laraway, 674.

PRACTICE IN THE PATENT OFFICE.

(See Amendments; Applications; Designs, 1, 2; Interference; Public Use; Rejection of Application; Secretary of the Interior; Withdrawal of Case from Issue.)

PRELIMINARY STATEMENTS.

(See Interference, 3, 4, 5.)

PRINCIPAL BOUND BY ACTS OF AGENT OF WHICH HE HAS KNOWLEDGE.

(See Escrow.)

PRIORITY OF INVENTION.

(See Conception of Invention, 1, 2; Invention, 1; Interference, 7, 8; Particular Patents, 3, 29.)

WHAT CONSTITUTES.
Allison, in 1870, conceived of the invention described in his patent of 1882, and made rough sketches of the same, one of which is preserved, but made no model, and did not consider the invention worth putting into a permanent form, and has never since made the machine, and applied for his patent, at the instance of his assignee, after Ball and Case had applied promptly after invention and had obtained patents and had put the patented article on the market. *Held* that under these circumstances Ball and Case were prior inventors.
[Pennsylvania Diamond Drill Company v. Simpson *et al.*, 218.

PRIOR USE.

(See Anticipation; Evidence, 1, 2; Particular Patents, 8.)

PROOF OF INFRINGEMENT.

(See Infringement, 3.)

PROTEST.

(See Public Use.)

PUBLIC USE.

PRACTICE IN THE PATENT OFFICE.

Where an alleged invention is asserted to have been in public use and on sale for more than two years before the time of filing the application, which assertion is predicated upon affidavits or a similar *ex parte* showing, the same should be called to the attention of the Commissioner, that he may, in case the proceeding seems to be warranted, call upon applicant to show cause why an inquiry into these questions under the statute should not be directed.

[*Ex parte* Barricklo, 672.

RECOGNITION OF THE VALUE OF AN INVENTION BY THE PUBLIC.

(See Invention, 9.)

REDUCTION TO PRACTICE.

(See Conception of Invention, 1, 2; Invention, 6; Priority of Invention.)

REFERENCES.

(See Amendments, 1; Rejected Claims, 3.)

REFUNDMENT OF FEES.

(See Designs, 2.)

REISSUES.

(See Disclaimer.)

1. CONTEST IN PATENT OFFICE—INJUNCTION.

The action of the Patent Office in granting a reissue after an exhaustive discussion and examination of the art, in which opposing interests to the grant were fully heard, is of weight in an application for a preliminary injunction to restrain infringement of the reissue.

[*Consolidated Bunging Apparatus Company v. Peter Schoenhofen Brewing Company, 786.

2. SAME—INCIDENTAL CONSIDERATION OF PATENT—NOVELTY.

The patent sued on having been discussed in its relation to the state of the art in another suit, where it was held to anticipate the patent there sued on, and infringement being clear, such decision considered on the question of novelty and a preliminary injunction granted. [*Id.

3. DIFFERENT INVENTION.

The original patent covered the use of a textile fabric between the can and its contents, while the reissue covered the use of an enveloping material for the shrimps between the can and the shrimps. This was a material expansion and enlargement.

[*White *et al.* v. Dunbar *et al.*, 1002.

4. FRAUD IN PROCURING REISSUE.

Questions of fraud on the part of the patentee in procuring a reissue cannot be considered in an action for infringement.

[*Schillinger v. Cranford, 1349.

5. REISSUE PATENTS IN SUIT—INVALIDITY MUST BE PROVED.

In a suit upon a reissued patent the allegations of invalidity of the reissue must be proved, and the original patent is material evidence for the purpose of comparison with the reissue.

[*Clark *et al.* v. Wooster, 1477.

6. OMISSION OF CLAIM.

It is competent for a patentee to reissue and omit a claim which is too broad, or to restate the claim, coupled with such restrictions as will bring it within the limits of his original invention.

[*Hubel v. Dick, 1480.

7. NEW CLAIM.

It is not competent for a patentee by reissue, after five years, to insert a claim for an invention which had never been the subject-matter of the original claims. [*Id.

8. INTERVENING RIGHTS.

While rights of other parties intervening between the original patent and its reissue may illustrate the evil consequences of improper reissues, they add nothing to its illegality, which is determined from general principles of law applied to the statutes.

[*White *et al.* v. Dunbar *et al.*, 1502.

REJECTED CASES.

(See Abandonment; Appeals.)

REJECTED CLAIMS.

(See Amendments, 1, 2; Construction of Specifications and Patents, 2.)

1. ACQUIESCENCE IN REJECTION OF APPLICATION, EFFECT OF.

Where a patentee, having made broad claims in his application, which were rejected, accepted claims for a combination of the parts shown, he must be limited to his specific device.

[*Blades v. Rand, McNally & Co., 99.

2. ASSIGNEE BOUND BY APPLICANT'S ACTIONS.

The action of an applicant for a patent in accepting restricted claims is part of the law of the patent, and controls the assignee as well as the original patentee. [*Id.

3. REFERENCE TO REJECTED APPLICATION.

Although the broad claims of this application were rejected on a reference to a rejected application, in accordance with the then practice of the Patent Office, which practice was soon afterward overruled by the Supreme Court, *Held* that the applicant, having acquiesced and taken a limited claim, must now be confined to the claim he accepted. [*Id.

REJECTION OF APPLICATION.

SECOND APPLICATION.

"The bare fact that one application is pending when another is filed [by the same applicant and for the same invention] and when it is reached for action constitutes no reason for the refusal or rejection of the second case."

[*Ex parte* Gaboury, 217.

RESULTS.

(See Infringement, 5; Invention, 6.)

REVERSAL OF DECREE.

(See Jurisdiction, 3.)

REVOCATION OF LICENSE.

(See Licenses, 8.)

REVOCATION OF POWER OF ATTORNEY.

1. APPLICANT MAY REVOKE AT WILL.

An applicant for a patent who has duly empowered an attorney in fact to act for him in a case as his agent or attorney may ordinarily revoke such power at will.

[*Ex parte* Morley, 337.

2. SAME—EXCEPTION.

Such right to revoke is in ordinary cases absolute, and can only be denied in exceptional cases, as, for instance, where some interest is coupled or connected with the power of attorney.

[Id.

3. POWER OF COMMISSIONER.

The Commissioner of Patents has no right to refuse to recognize, receive, and act upon such revocation. [Id.

RIGHT TO USE.

(See Employés, 1, 2.)

ROYALTY.

(See Damages and Profits, 3, 4, 5; Licenses, 1, 2, 3, 12, 13, 14; Settlement of Royalty, 1, 2, 3.)

SALE OF PATENTED ARTICLES.

(See Damages and Profits; Licenses, 4.)

SECOND APPLICATION.

(See Rejection of Application.)

SECRETARY OF THE INTERIOR.

(See Appeals.)

HAS NO AUTHORITY IN THE MATTER OF GRANTING PATENTS.

The Secretary of the Interior has nothing whatsoever to do with the granting or refusal of a patent. While he is the presiding officer over the discipline of the Patent Office, he has no judicial function, so to speak, with regard to the granting of a patent. That belongs to the Commissioner of Patents. There is no appeal to the Secretary of the Interior in that regard, and, therefore, he having no control over the granting of a patent further than to have his name affixed to the letters patent as a matter of form, he is in no sense, by proper form of proceeding, a party to a bill in equity.

[*Kirk v. Commissioner of Patents and Secretary of the Interior, 451.

SETTLEMENT OF ROYALTY.

1. THREATS OF SUIT—EFFECT ON LICENSE TAKEN IN CONSEQUENCE.

The mere fact that the owner of a patent alleges an infringement and threatens suit unless a settlement is made with him cannot be held to make such settlement void for fraud or intimidation.

[*Pope Manufacturing Company v. Owsley, 781.

2. SAME.

The fact that defendants feared the result upon their business of a suit for infringement of patents, and therefore settled and took a license, is no support to a charge of fraud in the procurement of the license. [*Id.

3. CONSTRUCTION OF INSTRUMENT.

Where a license included a large number of patents, and provided that licensees should pay a stipulated royalty on all machines made by them "embodying in their construction or mode of operation the inventions and improvements shown and described in each, all, or either of said letters patent," *Held* that so long as licensees used either of the patents they were liable to pay the royalty named in the license. [*Id.

SPECIFICATIONS.

(See Construction of Specifications and Patents.)

STIPULATION.

(See Practice in the Courts, 2.)

SUBSTITUTION OF MATERIAL.

EQUIVALENTS.

The equivalent of the tar-paper contemplated by Schillinger was some flexible or manageable substance, such as tin-foil.

[*Schillinger v. Cranford, 1349.

SUITS AT LAW.

(See Jurisdiction, 2.)

SUITS FOR INFRINGEMENT.

(See Damages and Profits, 1; Infringement; Injunction, 3; Jurisdiction, 1; Licenses, 2.)

SUIT IN EQUITY TO PROCURE THE GRANTING OF PATENT.

(See Injunction, 1.)

SUITS TO ANNUL REISSUED PATENTS.

(See Reissues, 5.)

SUPREME COURT DISTRICT OF COLUMBIA.

(See Abandonment; Appeals.)

TERM OF PATENT.

(See Licenses, 11; Limitation of United States Patents by Foreign Patents Previously Granted, 1.)

TERRITORIAL RIGHTS.

(See Licenses, 4.)

TESTIMONY.

(See Anticipation; Evidence, 1, 2; Invention, 1.)

TITLE TO PATENT.

(See Assignments, 1, 2; Employés, 1, 2.)

TRADE-MARKS.

IMITATION OF OTHER GOODS—INJUNCTION.

Parties will be restrained by injunction from putting up goods in packages in imitation of others in the trade calculated to deceive the buying public and to defraud the original users of such packages; but such imitation must be sufficiently close to have that effect or the injunction will be refused.

[*Gail *et al.* v. Wackerbarth *et al.*, 894.

TRANSFER OF CONTRACT.

(See Contracts, 6.)

TWO APPLICATIONS FOR SAME INVENTION.

(See Applications.)

USE OF PATENTED ARTICLES.

(See Licenses.)

UTILITY.

(See Invention, 4, 5.)

VALID PATENTS.

(See Particular Patents, 3, 4, 5, 6, 7, 8, 9, 13, 14, 15, 16, 18, 25, 26, 27, 28, 30.)

VOID PATENTS.

(See Licenses, 12, 13; Particular Patents, 2, 7, 11, 12, 14, 19, 21, 22, 23, 29; Reissues, 3; Settlement of Royalty.)

WITNESSES.

(See Evidence, 1, 2.)

WITHDRAWAL OF CASE FROM ISSUE.

SHOWING NECESSARY TO SECURE THE WITHDRAWAL OF A CASE.

Where an application has passed to issue on request of and in the shape desired by applicant, in the absence of any showing that any damage, irreparable or otherwise, may result from a refusal to withdraw the same for further amendment such withdrawal will not ordinarily be allowed.

[*Ex parte* Gaboury, 217.

THE OFFICIAL GAZETTE

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

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The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Issue of October 5, 1886.

Patents	376	No. 350,095 to No. 350,470, inclusive.
Designs	5	No. 16,923 to No. 16,927, inclusive.
Trade-Marks	10	No. 13,701 to No. 13,710, inclusive.
Labels	9	No. 4,978 to No. 4,986, inclusive.
Total issue	400	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	2	
Arizona Territory			Nevada		
Arkansas			New Hampshire	3	
California	13		New Jersey	17	1
Colorado	5		New Mexico Territ'y		
Connecticut	14	2	New York	71	3
Dakota Territory	1		North Carolina		
Delaware	3	1	Ohio	30	2
District of Columbia	1		Oregon	1	
Florida	1		Pennsylvania	33	2
Georgia	3		Rhode Island	5	
Idaho Territory	1		South Carolina	1	
Illinois	23	1	Tennessee	3	
Indiana	10		Texas	7	
Indian Territory			Utah Territory	1	
Iowa	4		Vermont	4	
Kansas	7	1	Virginia	4	1
Kentucky	4		Washington Territ'y		
Louisiana	1		West Virginia	3	
Maine			Wisconsin	5	
Maryland	1	1	Wyoming Territory		
Massachusetts	35	3	United States Army		
Michigan	8		United States Navy	3	
Minnesota	3				
Mississippi	1		Total to citizens of the United States	352	19
Missouri	10	1			
Montana Territory	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	9	
Austria-Hungary			Ireland		
Barbadoes			Holland		
Belgium			Mexico		
Brazil			Netherlands		
British Columbia			Norway		
Canada	4		Russia		
Central America			Scotland		
Colombia, U. S. of			Spain		
Cuba			Switzerland		
Denmark			Victoria	1	
Ecuador					
England	8		Total to citizens of foreign countries	29	
France	7				

DESIGNS.

16,923.—PERFUMERY-CASE.—*Paul J. Bolitzka*, Jersey City, N. J., assignor to *J. Schwartz & Co.*, New York, N. Y. Application filed July 28, 1886. Serial No. 209,353. Term of patent 7 years.

16,924.—CHAIR-BACK.—*Peter T. Grasse*, Milwaukee, Wis., assignor to *The Milwaukee Chair Company*, same place. Application filed August 31, 1885. Serial No. 175,849. Term of patent 7 years.

16,925.—BUSINESS-WAGON BODY.—*Charles B. Husted*, Bridgeport, Conn. Application filed October 17, 1885. Serial No. 180,213. Term of patent 7 years.

16,926.—TAPESTRY CLOTH.—*Barton B. Kingman*, Yonkers, N. Y. Application filed August 13, 1886. Serial No. 210,830. Term of patent 3½ years.

16,927.—WATCH DISPLAY-CASE.—*Henry B. Sommer*, Philadelphia, Pa. Application filed August 19, 1886. Serial No. 211,349. Term of patent 3½ years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

12,701.—METAL-POLISH.—*George A. Hawe*, New York, N. Y. Application filed August 14, 1886. Used since May 1, 1886.

"The word 'PEERLESS' printed upon a red background."

13,702.—HAIR-RESTORER.—*A. Willard Johnson*, Saline, Kans. Application filed September 1, 1886. Used since March, 1886.

"The representation of an old man riding upon a musk-ox, above his head a crown, and on either side vines and their shadows, which latter represent musk-oxen."

13,703.—BAKING-POWDER.—*Henry C. Miller*, Quincy, Ill. Application filed May 25, 1886. Used since April 1, 1886.

"The representation of clasped hands."

13,704.—LIQUID PREPARATION TO BE USED AS AN INJECTION.—*William J. Shore*, Shore's Landing, Md. Application filed August 19, 1886. Used since July 23, 1886.

"The word 'SOVEREIGN' associated with the representation of a mortar and pestle."

13,705.—FINGER-RINGS.—*Wheeler, Parsons & Hayes*, New York, N. Y. Application filed August 12, 1886. Used since May 1, 1886.

"The initials 'W. P. H.,' in conjunction with the pictorial representation of an anchor."

13,706.—FLOUR.—*The Riverton Mills Co.*, (*Limited*,) Riverton, Va. Application filed July 27, 1886. Used since 1877.

"The letters 'F. F. V.'"

13,707.—BUSTLES.—*The Canfield Rubber Company*, Bridgeport, Conn., and New York, N. Y. Application filed August 12, 1886. Used since August 1, 1886.

"The word 'WORTH.'"

13,708.—BUSTLES.—*The Canfield Rubber Company*, Bridgeport, Conn., and New York, N. Y. Application filed August 12, 1886. Used since August 1, 1886.

"The word 'LANGTRY.'"

13,709.—FLYING OR SO-CALLED BIRD TARGETS.—*The Cleveland Target Company*, Cleveland, Ohio. Application filed August 30, 1886. Used since February, 1886.

"The words 'BLUE ROCK.'"

13,710.—PETROLEUM.—*John Schwartz*, Titusville, Pa. Application filed February 23, 1886. Used since August 1, 1882.

"The representation of a crescent and the words 'CRESCENT OIL WORKS.'"

LABELS.

4,978.—Title: "BRAGDON'S HOG CHOLERA SPECIFIC."—*J. Gaylord Bragdon*, Middletown, Del. Application filed September 2, 1886.

4,979.—Title: "CARMON'S VETERINARY SWEATING OINTMENT."—*O. E. Carmon*, Lyons, Ohio. Application filed September 10, 1886.

4,980.—Title: "J. E. JACKSON'S PLEASANT DIARRHŒA CURE."—*J. E. Jackson*, Woodbury, N. J. Application filed August 23, 1886.

4,981.—Title: "CHANGE 50c." (FOR CHANGE ENVELOPES.)—*Morgan Envelope Company*, Springfield, Mass. Application filed September 8, 1886.

4,982.—Title: "CHANGE 1.00" (FOR CHANGE ENVELOPES.)—*Morgan Envelope Company*, Springfield, Mass. Application filed September 8, 1886.

4,983.—Title: "CHANGE 25c." (FOR CHANGE ENVELOPES.)—*Morgan Envelope Company*, Springfield, Mass. Application filed September 8, 1886.

4,984.—Title: "CRYSTALLINE PHOSPHATE."—*Provident Chemical Works*, St. Louis, Mo. Application filed May 24, 1886.

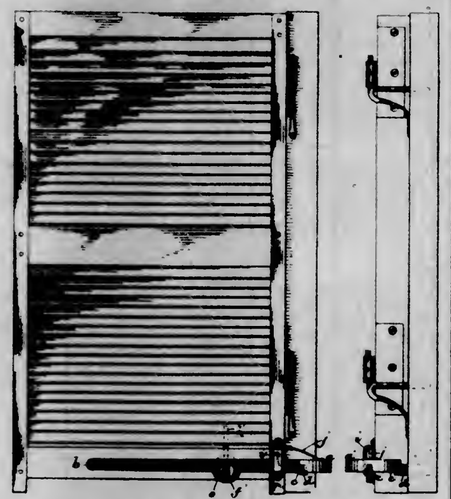
4,985.—Title: "JAPANESE CIGARETTES."—*William S. Kimball & Co.*, Rochester, N. Y. Application filed September 11, 1886.

4,986.—Title: "GODDARD'S COUGH SYRUP."—*Edmund R. Getchel*, Philadelphia, Pa. Application filed September 13, 1886.

PATENTS

GRANTED OCT. 5, 1886.

350,095. SHUTTER-FASTENER. LEVI ABBOTT, Cambridge, assignor of one-half to George C. Barney, Boston, Mass. Filed Nov. 23, 1884. Renewed Mar. 5, 1886. (No model.)



Claim.—1. The improved blind-fastener composed of the latch pivoted to the side of the blind, and projecting at its free end beyond the inner edge of the blind, and provided with the radially-grooved head or enlargement at its swinging end, and a stud or catch secured to the casing in position to engage with the notch in the latch, as set forth.

2. The pivoted latch having the grooved head or enlargement, combined with the handle or operating device journaled in the blind and provided with a cam or eccentric engaged with the latch, as set forth.

3. The pivoted latch having the grooved head or enlargement, combined with the spring *j*, pressing downwardly on the swinging end of the latch, as set forth.

350,096. CARTRIDGE. EMMANUEL ABODEO-SALVATOR, U. S. Navy. Filed Mar. 2, 1886. (No model.)



Claim.—1. A cartridge having a prong formed integral therewith extending rearwardly, and adapted to be closed down into the body of the metal when inserted in the breech of a gun, substantially as described.

2. A cartridge having a prong cut out of the metal forming its wall, with its free end directed toward the flange of the cartridge, substantially as described.

3. A cartridge having a prong formed integral therewith and extending rearwardly, in combination with a belt or ribbon, to which the cartridge is attached by the prong being inserted through the belt, substantially as described.

350,097. CARTRIDGE-BOX. EMMANUEL ABODEO-SALVATOR, U. S. Navy. Filed Mar. 2, 1886. (No model.)

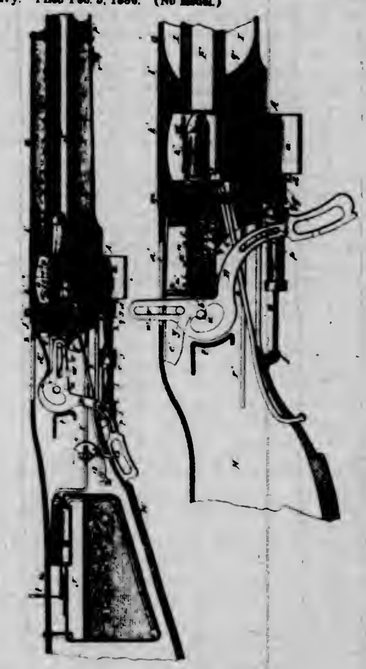


Claim.—1. A cartridge-box provided with a rest or foot projecting from the lower side thereof and adapted to bear upon the leg of the user when in a kneeling position, in combination with a support provided with belts for attachment to the person and a sliding connection between the box and the support, whereby the former may reciprocate on the latter, substantially as described.

2. A cartridge-box, in combination with a revoluble coil of ribbon having cartridges attached thereto, substantially as described.

3. A cartridge-box having a central stud, in combination with a revoluble coil of ribbon having cartridges attached thereto and a thimble in the center of said coil, substantially as described.

350,098. MAGAZINE-GUN. EMMANUEL ABODEO-SALVATOR, U. S. Navy. Filed Feb. 5, 1886. (No model.)



350,098.



Claim.—1. In a magazine-gun, a cartridge-cylinder journaled eccentrically to the barrel and provided with gear on one end, in combination with a pinion, a shaft having a worm formed thereon, a movable sleeve mounted upon said shaft and engaging therewith, and an operating-lever, substantially as described.

2. In a magazine-gun, a cartridge-cylinder having a series of longitudinal cartridge-chambers and a series of intermediate chambers, and slots formed in the walls of said chambers, in combination with a knife attached to the breech-block and reciprocating in said slot, substantially as described.

3. In a magazine-gun, a cylinder having a series of open chambers formed therein to receive cartridges and provided with gearing on one end, in combination with a pinion meshing with said gear, a reciprocating sleeve engaging with a shaft having a worm formed thereon, a movable block to carry the cartridge from the cylinder to the barrel of the gun, and a lever for operating said block and revolving the cylinder, substantially as described.

4. In combination with a longitudinally-reciprocating breech-block having a vertical slot in its rear end, a sliding block engaging in such slot and an operating-lever having a slip-connection with such block, whereby the block may be withdrawn and returned, substantially as described.

5. A breech-block having a slot in its rear end, in combination with a sliding block having a head engaging with said slot, an arm thereon, a spring attached to the frame and bearing upon the arm, and a slotted lever connected to said block, substantially as described.

6. A breech-block having a slot in its rear end, a sliding block engaging with said slot and provided with projecting pins, and a lever having slots in which said pins slide, and pivoted to the breech-frame above the horizontal plane of the center of the pins and the slots when the breech-block is in its forward position, all combined substantially as described.

7. A reciprocating breech-block having a slot in its rear end and a vertically-reciprocating block engaging with said slot and provided with projecting pins, in combination with a lever having slots in which said pins slide, and pivoted to the breech-frame above the horizontal plane of the center of the pins and the slots when the breech-block is in its forward position, and a fixed bearing in the frame in line with the thrust of the breech-block, against which the rear face of the lever bears and forms a supplementary brace for the block, substantially as described.

8. In a fire-arm, the combination of a reciprocating breech-block having a cartridge-extractor at its forward end, a spring surrounding the block and bearing against a fixed abutment in the frame at its forward end, and at its rear end upon a support on the block, and an operating-lever, whereby both the spring and the lever co-operate in withdrawing the block and extracting the shell, substantially as described.

9. In a magazine-gun, a cartridge-cylinder having gear formed on one end, in combination with a pinion meshing therewith, its shaft supporting a worm-gear, a sleeve reciprocating on said gear, a collar thereon, and an operating-lever connected to the collar, substantially as described.

10. In a magazine-gun, a revolving cartridge-cylinder and a reciprocating breech-block, in combination with a lever connected to said block, said lever having a slip-connection with a converting-motion gear, which operates to turn the aforesaid cylinder only on the forward throw of said lever, substantially as set forth.

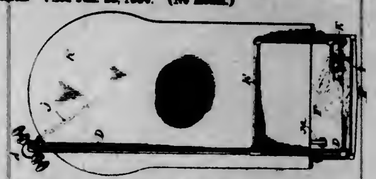
11. In a magazine-gun, a revolving cartridge-cylinder and a reciprocating breech-block having an operating-lever connected thereto, in combination with a reciprocating and revolving sleeve having a thread formed therein, and provided with an external bearing-surface, a threaded shaft, and a movable collar connected to the operating-lever, substantially as described.

12. A fire-arm composed of a barrel, a casing surrounding the barrel and secured together by screw-threads, a stock having a screw-threaded socket engaging with a corresponding extension on the casing, and a hinged plate attached to the casing and secured to the stock, substantially as described.

13. A magazine fire-arm provided with a cooling-chamber surrounding the rear portion of the barrel, in combination with a reservoir and suitable pipe-connections, both entirely inclosed by the stock, substantially as described.

14. A magazine fire-arm provided with a cooling-chamber surrounding the rear portion of the barrel and a relief-valve in the wall of said chamber, in combination with a reservoir, a pump, and a suitable pipe-connection, all inclosed within the stock, substantially as described.

350,099. BOILER ATTACHMENT. Edward F. Barrett, Ionia, Mich. Filed Jan. 28, 1886. (No model.)



Claim.—1. In combination with a boiler and an ash-pan therefor, a two-way valve, A, communicating with the steam-space and the water-space of the boiler, and a pipe connected to said valve and extending into the ash-pan, whereby either steam or water, or both, may be discharged into the ash-pan at will.

2. In combination with boiler K and ash-pan F, a valve, A, communicating with the steam-space of the boiler, a pipe, D, connected to valve A and extending into the ash-pan, a pipe, J, connected to valve A and communicating with the water-space of the boiler, and valve-plugs B C, for controlling the discharge of steam and water, substantially as shown.

350,100. AXLE-BOX. Sidney H. Barrett, Springfield, Mass., assignor of three-fourths to Charles E. Barrett, Brattleborough, Vt., and Richard T. Hawkins and Dwight Holland, Springfield, Mass. Filed Apr. 26, 1886. (No model.)

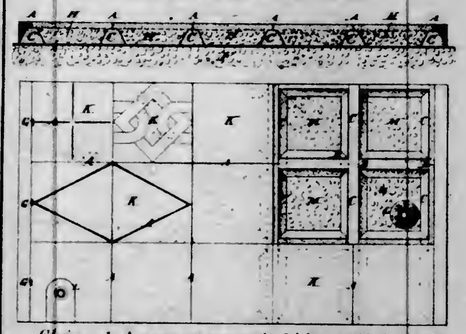


Claim.—1. In vehicles, the within-described means for converting a taper into a cylindrical axle-journal to conform to the cylindrical box of a hub, and consisting of a cylindrical sleeve conforming outwardly to the box-surface, and a split thimble cylindrical externally, and internally conforming to the cone of the axle-spindle, the two being rigidly combined with the axle-spindle, as shown, by having the thimble forcibly slid over said axle and under the sleeve, as and for the purpose set forth.

2. In wheeled vehicles, a taper axle, A, a thimble, B, cylindrical outwardly, and inwardly conforming to the axle, and provided with a longitudinal slit, as shown, to adapt it to be forced upon the axle-cone, a slit cylindrical sleeve, C, held to the axle by said thimble, and adapted to be expanded by the sliding of the thimble thereunder, and a hub, H, provided with a cylindrical bearing adapted to conform to said sleeve, all combined and operating as and for the purpose set forth.

3. The combination and arrangement, substantially as shown, of a taper axle, A, split thimble B, sleeve C, having diagonal slits opposite the rolls *b*, box D, formed in screw-sections, as shown, anti-friction rolls *b*, interposed between the box D and sleeve C, the hub H, secured to the box.

350,101. ARTIFICIAL-STONE OR CONCRETE PAVEMENT. John H. Bates, Pottsville, Pa. Filed Apr. 27, 1886. (Model.)



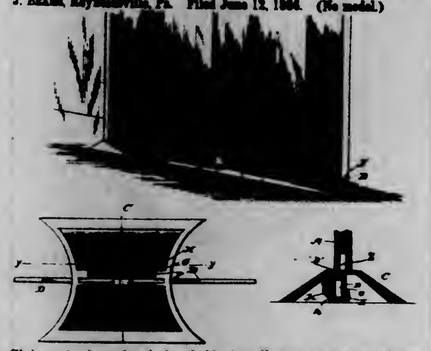
Claim.—1. A pavement composed of joint rest-blocks, having square or flat surface, beveled sides, and formed with beveled meeting portions, fitted together as described, and surface-blocks molded between and over the rest-blocks, the meeting sides of said surface-blocks extending over and resting upon the flat upper surfaces of the rest-blocks, and all being free for removal, substantially as described.

2. A pavement composed of a concrete foundation, rest-blocks with beveled sides and flat surface, as described, and surface-blocks separated from the rest-blocks by a wash of clay, all as and for the purposes described.

3. A concrete pavement of separate blocks having inserted at or near the edge thereof an iron pry-box, as and for the purposes set forth.

4. A pavement composed of joint rest-blocks having square or flat upper surfaces and beveled sides, and formed with beveled meeting portions, fitted together as described, and surface-blocks molded between and over the rest-blocks, having iron pry-boxes in or near the edge thereof, the meeting surfaces of the surface-blocks extending over and resting upon the flat upper surfaces of the rest-blocks, the blocks kept from adhering by a clay wash, all being free for removal and relaying, substantially as described.

350,102. COMBINED THRESHOLD AND WEATHER-STRIP. Henry J. Beahm, Reynoldsville, Pa. Filed June 12, 1886. (No model.)



Claim.—1. A sectional threshold, the adjacent ends of which are provided with interlocking portions and a longitudinal slot, in combination with a vertically-adjustable guard, substantially as described.

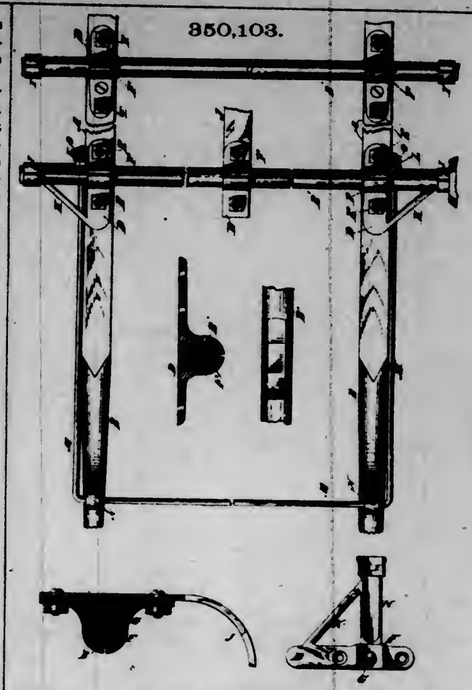
2. A sectional threshold, the middle section of which is provided with concave ends and the outer section with convex inner ends, and a longitudinal slot extending throughout all of the sections, in combination with a vertically-adjustable weather-guard, substantially as described.

3. A threshold having a longitudinal slot, in combination with a vertically-adjustable weather-guard having a flange on the upper edge thereof and a lever pivotally secured thereto for raising and lowering the same, substantially as described.

4. The combination, with the longitudinally slotted and grooved end sections, B B', of the middle section, C, with the integral brackets F F, one having groove *e*, the pivoted cam-lever H, having the integral handle H' and the slot *h*, for receiving the rod E, and the guard or weather strip D; having flange D' and recesses D^2, substantially as specified.

5. The combination, with the door-frame and the door having the longitudinally-grooved lower edge, Z, of the sectional threshold with the longitudinal middle slots, the flanged and recessed guard or weather strip D, the brackets F F, having a guard, G, and the slotted cam H, swinging or pivoted on pin *g*, substantially as specified.

350,103. COMBINED CLIP-IRON AND BRACE FOR CARRIAGES. Roscoe Bean and Arthur W. Grant, Springfield, Ohio, assignors to the Tricycle Manufacturing Company, same place. Filed Apr. 2, 1886. (No model.)



Claim.—1. In a child's carriage, the combination, with the reach-bars thereof and a round axle, of the clip-iron consisting of a plate constructed with wings which are bent around the axle and embrace and bind it and prevent its turning.

2. In a child's carriage, the combination, with the reach-bars and the practically round axle having an indentation, of the clip-iron consisting of the plate having a stud and projecting wings which respectively engage the indentation and embrace and bind the axle.

3. In a child's carriage, the combination, with the reach-bars and handles, and the axle, of the clip-irons consisting of a plate having projecting wings which embrace and bind the axle, and having lugs and a brace-rod connected to the clips and to the handles.

4. In a child's carriage, the combination, with the handles and clips secured thereto, of the brace-rod secured to the clips and to the handles, and extended across the curvature and along the sides of the handles.

5. In a child's carriage, the brace-rod constructed of a single piece of wire or rod, and with a cross portion and side portions.

6. In a child's carriage, the combination, with the reach-bars thereof and the axle, of the clip-iron consisting of a plate having wings which embrace and bind the axles, and a lateral arm which serves as a shoulder for the wheel-hub, and which is provided with wings which embrace the axle.

7. In a child's carriage, the combination, with the reach-bars thereof and the practically round axle having an indentation, of the clip-iron consisting of a plate having a stud and wings which respectively engage the indentation and embrace and bind the axle, and having a lateral arm which serves as a shoulder for the wheel-hub, and which also has wings which bind the axle.

8. In a child's carriage, a clip-iron consisting of a plate having projecting wings and a stud, and having a lateral arm provided with wings.

9. In a child's carriage, a clip-iron consisting of a plate having a stud and projecting wings, and having a lateral arm whose outer end terminates in wings, and an oblique bar connecting the plate with the lateral arm.

10. In a child's carriage, the combination, with the handle, the reach-bars, and a round axle, of a plate elongated to form a brace and adapted to support the handle, and having wings which are bent around the axle and embrace and bind it and prevent its turning.

11. In a child's carriage, a clip-iron consisting of a plate elongated to form a brace and adapted to support the carriage-handle, and having a projecting stud and wings, the stud to engage an indentation in the axle, and the wings to embrace and bind the axle.

12. In a child's carriage, the combination, with the handles, of the clips secured thereto, and having wings which embrace and bind the axle, and lugs for the brace-rods, and the brace-rod secured to the handles, and having threaded ends which extend through the lugs and nuts placed one on each side of each lug.

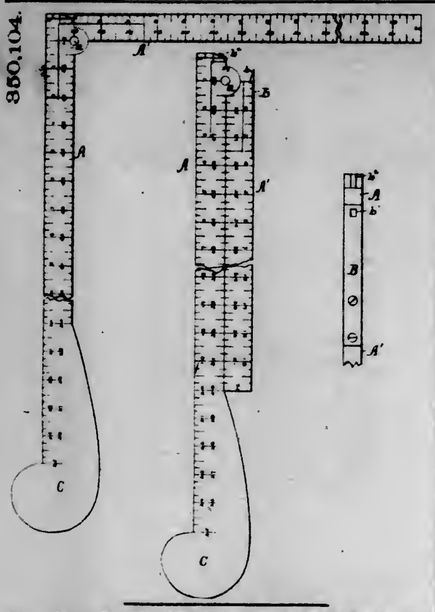
13. In a child's carriage, the combination, with clips having lugs, of a brace-rod having threaded ends extending through the lugs and nuts placed one on each side of each lug.

350,104. TAILOR'S SQUARE. Arthur E. Bearrie, Chicago, Ill. Filed Apr. 13, 1886. (No model.)

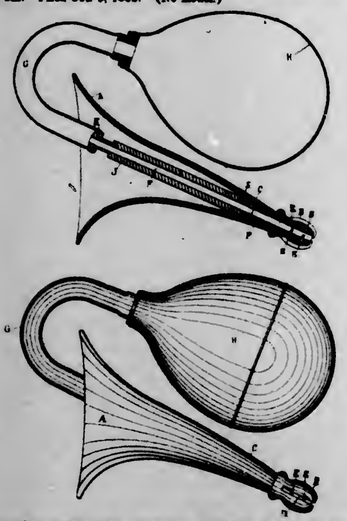
Claim.—1. A tailor's square consisting of two legs pivoted together, combined with a slotted spring-catch secured to one edge of one leg, and a beveled stud secured to the corresponding edge of the other leg adapted to automatically enter said slot, substantially as and for the purpose set forth.

2. A tailor's square consisting of two legs pivoted together, the end of one leg being beveled toward its inner edge and having a beveled stud secured to said beveled part, the outer edge of the other leg being provided with a flat spring having a beveled end and a slot through said beveled end, the whole combined and arranged substantially as and for the purpose specified.

350,104.



350,105. VAGINAL SYRINGE. Delbert F. Bennett, San Francisco, Cal. Filed Oct. 5, 1885. (No model.)



Claim.—In a syringe, the combination, with the bulb and a flexible tube connected therewith, of a tapering funnel-shaped shield having the passage F, a stem removably secured within the shield and connected with the flexible tube, and a nozzle removably secured to the shield and having the channels D, in which are located the eduction-openings, as set forth.

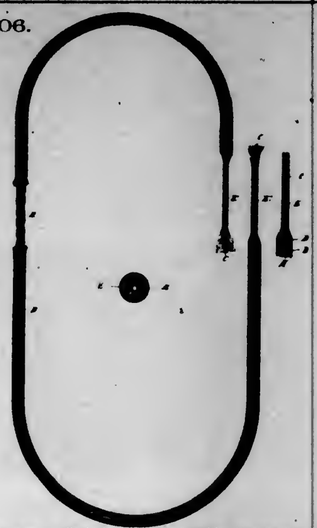
350,106. BELTING. Gilbert H. Blakeslee, Bristol, Conn. Filed Dec. 16, 1885. (No model.)

Claim.—1. Belting composed of a spiral spring, a braided covering applied thereto, so as to limit its extension within its capacity for recovery, and independent flexible extensions connected with the ends of the spring, substantially as set forth.

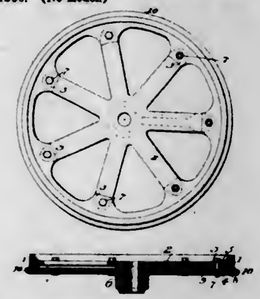
2. Belting composed of a spiral spring and a braided covering applied thereto, so as to limit its extension within its capacity for recovery, and extended beyond the ends of the spring, substantially as set forth.

3. Belting composed of a spiral spring and a braided covering applied thereto, so as to limit its extension within its capacity for recovery, and extended beyond the ends of the spring, and flexible extensions connected with the ends of the spring and covered by the described extensions of the covering, substantially as set forth.

350,106.



350,107. CAR-WHEEL. Noadiah P. Bowler, Cleveland, Ohio. Filed May 24, 1886. (No model.)



Claim.—1. A car-wheel composed of a hub, a tire, and spokes, the latter connected to the hub, and having their other extremities bolted in a scarf-joint to the inside surface of the tire, the said tire being provided with plane faces and seats to receive and closely fit, corresponding with the faces and seats upon the said extremities of the spokes, substantially as described.

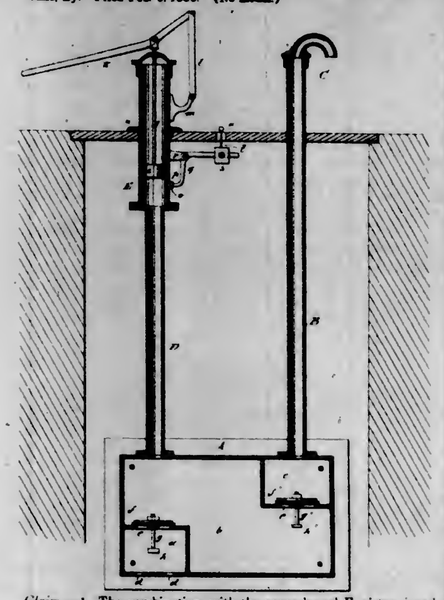
2. A car-wheel composed of a hub and spokes and flanged tire, the latter provided at equal intervals with the projecting plates 3 3, having smooth faces, and the spokes having their outer ends halved like a scarf-jointing, and being fastened by bolts in the form of such joint to said plates 3 3, substantially as shown and described.

3. The construction, in car-wheels whose parts are interchangeable, of the flanged tire 1, provided with shoulders 8 8 at the base of the flange, and projecting faces 3 3, whose surfaces are on the same plane with the lateral surface of the rim of the tire, fastened by bolts to spokes 2 2, whose outer ends are scarfed, such spokes being also connected with a hub, 6, the connection of the tire to the spokes forming a scarf-joint, substantially as shown and described.

4. A car-wheel composed of a flanged tire, spokes, and hub, said tire being provided with projecting plates 3 3, whose faces are on the same plane as the lateral face of the rim of the tire, and having elevations beneath the flange, which form shoulders against which the ends of the spokes may rest when they are bolted to the projections 3 3 at 5 by bolt 7, and forming in such position, with the scarfed ends of said spokes, a complete scarf-joint, substantially as shown and described.

5. A car-wheel composed of a hub, 6, and spokes 2 2, connected to said hub at their one end and halved or scarfed at their other into the straight faces 5 9 4, bolted to and closely fitting against the tire 1 in corresponding faces on its inner side, the latter faces being formed by the projections 3 3 from the under side of said tire toward the hub, and the elevations 8 8 from said tire having straight faces at 4 4 at the same angle with the inner surface of the projections 3 3 as the faces of the spokes at 9 9 have to their faces at 5 5, the said elevations extending to and being a part of the base and under side of the flange 10, substantially as shown and described.

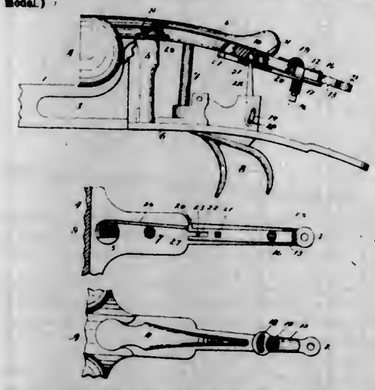
350,108. PUMP. Adam R. Brown and William H. Bell, Simpsonville, Ky. Filed Feb. 5, 1886. (No model.)



Claim.—1. The combination, with the pump-barrel E, piston i, and an outwardly-opening valve in the pump-barrel below the point reached by the piston in its downstroke, of the water-box A, provided with compartments *a b c*, apertured valve-seats *e e'*, and valves *f f'*, the riser B, and the pipe D, connecting the pump-barrel with the water-box, substantially as herein shown and described.

2. A pump formed of the water-box A, having compartments *a b c*, and provided with the apertured valve-seats *e e'* and valves *f f'*, the riser B, discharge-nozzle C, the pipe D, pump-barrel E, provided with the opening *o*, the piston *i*, the lever *k*, and link *l*, the weighted lever *q*, carrying the valve *p*, and provided with the handle *u*, all constructed and combined substantially as herein shown and described.

350,109. SAFETY-CATCH FOR GUN-LOCKS. Alexander T. Brown and Wilbert L. Smith, Syracuse, N. Y. Filed May 26, 1886. (No model.)

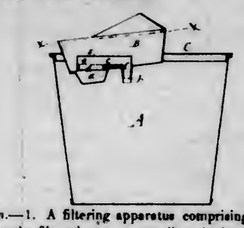


Claim.—1. The combination of the tang having two recesses therein, a safety sliding bar beneath said tang, a locking-bar extending up from the trigger through said slide-bar into position to be shifted into line with either recess in the tang, and a slide-bar extending from the breech-operating mechanism into position to shift the locking position from beneath one of the tang-recesses, but not from the other, substantially as described.

2. The combination, in a breakdown gun, of the trigger-locking mechanism, the connection from the breech-locking lever in line therewith, but not attached thereto, and a slide on the frame controlling the trigger-locking mechanism, said slide having a locked position to the rear of the position where it is engaged by the breech-locking mechanism, whereby the trigger-locking mechanism may be controlled or thrown out of the control of the breech-locking mechanism, substantially as described.

3. The combination, in a gun-lock, of a trigger-locking rod extending upward from the lock mechanism and having its upper end just beneath the tang, a slide beneath the tang embracing the top of said rod, a slide or button on top of the tang connected to said inner slide and having a slot therein, and the tang having two recesses and an abutment on its lower face in line with the different positions of the locking-rod, and having an index on its upper surface which is visible through the perforation in the sliding button in one position, but is covered in other positions of said slide, substantially as described.

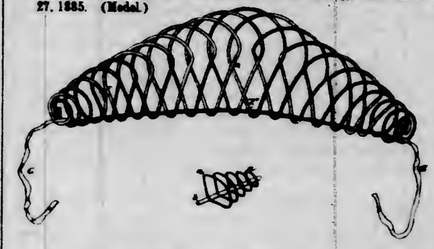
350,110. MILK-STRAINER. Oliver L. F. Browne, Syracuse, N. Y. Filed Aug. 6, 1885. (No model.)



Claim.—1. A filtering apparatus comprising a receptacle for the substance to be filtered, a trap or well at the bottom of said receptacle, a filtering-diaphragm over the trap, and a conduit over the diaphragm and leading from the same, substantially as set forth and shown.

2. The combination of a liquid-receptacle formed with a trap at its bottom, a discharge-opening at or near the top of the trap, a conduit extended from the top of the discharge-opening and having its mouth on its under side and facing the trap, and a filtering-diaphragm spanning the mouth of the conduit, substantially as described and shown.

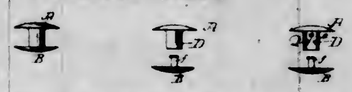
350,111. BUSTLE. Worthington Brown, Chillicothe, Mo., assignor, by mesne assignments, to Emerson C. Fulton, Chicago, Ill. Filed May 27, 1885. (Model.)



Claim.—1. A bustle consisting of a series of forms of an approximate triangular shape, each form constructed of wire and slightly curved inwardly at one or more sides and outwardly curved at the other, and all flexibly connected together to form a frame diminishing in thickness from the center toward the ends, substantially as and for the purpose set forth.

2. A bustle consisting of a frame composed of wire bent to form coils of an approximate triangular shape, flexibly connected together, and constituting a flexible frame diminishing in size from the center toward each end, substantially as and for the purpose set forth.

350,112. EAR-MARK FOR ANIMALS. Asa W. Burbank, Chicago, Ill. Filed Feb. 16, 1885. (No model.)



Claim.—1. The combination, with the plate B and bolt or tenon *f*, having a head, of plate A, shank Q thereof, and tongues *e e* within the same for locking said bolt to prevent its withdrawal.

2. The combination, with plate B, having bolt *f* projecting therefrom, of plate A, having shank Q and protector D, as set forth.

350,113. BINDING-GUIDE FOR SEWING-MACHINES. John Bracken, Utica, N. Y. Filed July 23, 1884. (No model.)

Brief.—The guide is adapted to apply a strip of binding material to the surface of cloth.



Claim.—1. In a binding-guide attachment for sewing-machines, a presser-foot and extension-plate, in combination with a single elongated slotted guide which receives and accommodates a single flat binding and guides the same to one side of the cloth, and a longitudinally-adjustable gage fitted between the free ends of the U-shaped guide, substantially as described.

2. In a binding-guide attachment for sewing-machines, a presser-foot and its extension-plate, said plate having a screw-threaded perforation, in combination with a perforated binding-guide, and an adjustable gage fitting in between the free or disconnected ends of the U-shaped guide, all secured to the presser-foot and its extension-plate by a set-screw in one compact device, substantially as described.

3. In a binding-guide attachment for sewing-machines, the longitudinally-slotted binding-guide, which receives and accommodates the binding, and a gage that confines it against lateral movement away from the needle, in combination with a presser-foot and extension-plate, and the set-screw to hold the parts together, substantially as described.

4. In a binding-guide attachment for sewing-machines, the presser-foot and its extension-plate provided with a longitudinally-slotted binding-guide, and an adjustable gage for said binding-guide, in combination with a bifurcated slotted cloth-guide, substantially as described.

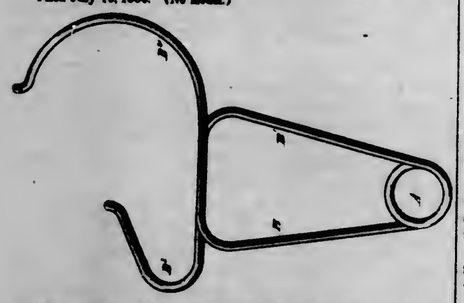
5. In a binding-guide attachment for sewing-machines, the longitudinally-adjustable bifurcated cloth-guide having on its bifurcated ends the enlargements or lugs a^3 a^3 each side of the binding-guide, in combination with a single flat binding-guide, and means for securing them in position, substantially as described.

6. In a sewing-machine, a presser-foot and extension-plate having on its lower side a single flat binding-guide, and means for securing it to the extension-plate, in combination with an adjustable cloth-guide.

7. In a sewing-machine, a presser-foot and its extension-plate provided with a single slotted flat binding-guide under the lower portion of the presser foot extension, and the set-screw to hold the same in position.

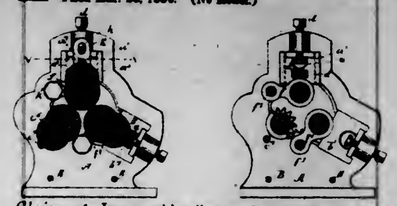
8. In a flat binding-guide attachment for sewing-machines, the rabbeted presser-foot plate and its extension, in combination with a single slotted flat binding-guide secured beneath the presser-foot and extension-plate.

350,114. COW-TAIL HOLDER. Joseph C. Cady, Northfield, Vt. Filed July 19, 1886. (No model.)



Claim.—A cow-tail holder consisting of a single piece of tempered wire coiled to form the spring A and arms B B', which arms are bent to pass or traverse each other and again bent to form the curved extensions B^2 B^2, substantially as described.

350,115. METAL-BENDING MACHINE. John C. Chapman, Boston, Mass. Filed Mar. 20, 1886. (No model.)

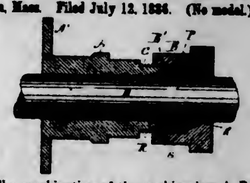


Claim.—1. In a metal-bending machine, the combination of the roll *a*, rod a', and saddles a^4 a^5 a^6 with the boxes a' a', all arranged to operate together, substantially as described, and for the purpose set forth.

2. In a metal-bending machine, the combination of the roll *a*, rod a', saddles a^4 a^5 a^6, and rod A with the boxes a' a', all arranged substantially as described, and for the purpose set forth.

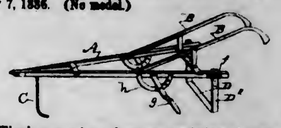
3. In a metal-bending machine, the combination of the rolls *a b c* and the swinging frame A' with the compound lever K K^2 and pin *g'*, substantially as described, and for the purpose set forth.

350,116. METALLIC PACKING FOR PISTON-RODS. John C. Chapman, Boston, Mass. Filed July 12, 1886. (No model.)



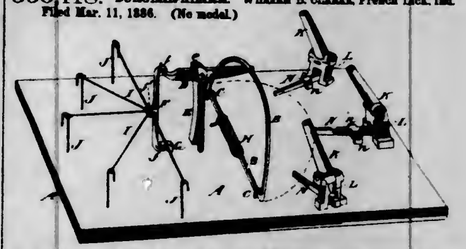
Claim.—The combination of the packing-box A B, having recesses R R, and being interiorly coned, with a soft-metal piece, P, adapted to fit the coned space in the packing-box and to be compressed, all substantially as described, and for the purpose set forth.

350,117. WEED-CUTTER. Andrew Cribbs, Sergeant Bluff, Iowa. Filed May 7, 1886. (No model.)



Claim.—The improved weed-cutter consisting of a straight cutting-blade having shanks extending at right angles from its ends, a triangular-shaped frame having a runner at its front end and laterally-bent cutters at its sides, substantially as shown and described, to operate in the manner set forth.

350,118. BURGLAR-ALARM. William B. Clarke, French Lick, Ind. Filed Mar. 11, 1886. (No model.)



Claim.—1. In burglar-alarms, the combination of the base-plate A, the fall B, pivoted at C, the post E, having bifurcations *e e*, the bar F, bent at *f f*, the right-angled staples G, and the spring H, whereby the trap may be set, as described.

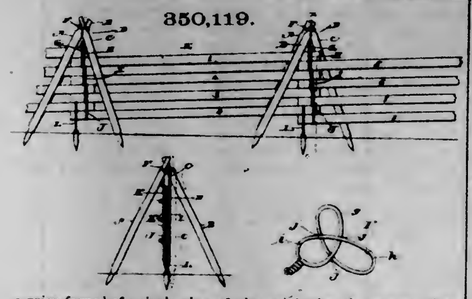
2. In a burglar-alarm, the combination, with the bar F, having the eye *f'* on its back, and connected with mechanism, substantially as described, of the wires I and fixed pins J, carved at the top, whereby the trap may be sprung, as described.

3. The combination, with a trap, substantially as described, of the fire-arms K, trunnioned in supports L, and the lever N, pivoted at *n*, whereby a needle may be made to pierce a cartridge, as specified.

350,119. FENCE. Edward McC. Coppedge, Bridgeport, W. Va. Filed May 26, 1886. (No model.)

Claim.—1. In a portable fence, the combination of a tripod comprising the diagonal stakes overlapping each other at their upper ends,

350,119.



a union formed of a single piece of wire and having the separate rings or loops which are fitted over the stakes, the fence-panels, and a loop connected with the union and the fence-panels for suspending the latter from the triped, substantially as described.

2. In a portable fence, the combination of a triped, a union formed of a single piece of wire and connecting the legs of the tripod, the lapped rails or panels, the loop connected with the union and upper panel, and the loops intermediate of the upper panel and the lower panels, one of the legs of two adjacent tripods being arranged on opposite sides of and in contact with the rails or panels, all arranged and combined substantially as and for the purpose described.

350,120. HINGED SHOE-BUTTON. Wm. W. Covell, Providence, R. I., assignor to Frederick I. Harey, same place. Filed July 15, 1886. (No model.)

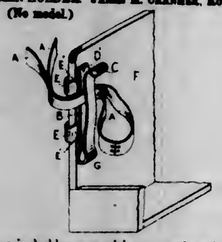


Claim.—1. The combination, with the head, of the springs C, attached thereto and furnished with side notches or slots, *c'*, and the shoe parts D, having hinge portions *d'* passing through said slots or notches and pivoting the said parts to the springs, substantially as set forth.

2. A button or stud having a head, a rearwardly-projecting stem, B, springs C, secured to said stem and having side notches or slots, *c'*, and shoe parts D, each furnished with hinge portions *d'*, passing through said notches or slots and pivoting said parts to the springs and wing portions d^2, substantially as set forth.

3. The combination, with the head A, having a projecting stem, B, furnished with spurs *b'*, of springs C, secured to said stem and provided with side notches or slots, *c'*, and shoe parts D, each having hinge portions *d'* passing through said notches or slots and pivoting said parts to the springs, and provided with wings d^2 and ribs d^3, substantially as set forth.

350,121. REIN-HOLDER. James M. Cranmer, Rockford, Mich. Filed Feb. 5, 1886. (No model.)



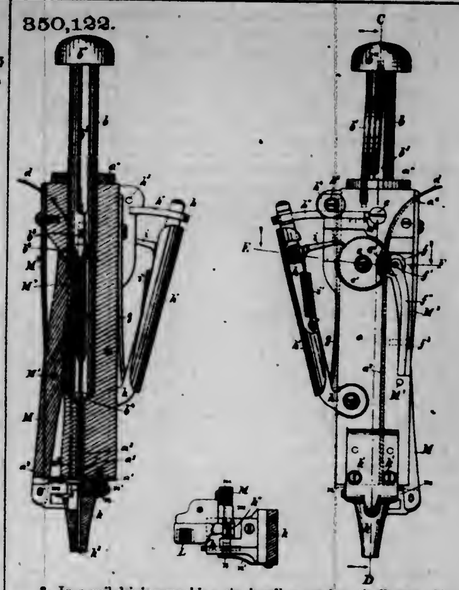
Claim.—A rein-holder comprising a spring-shank, D, having its inner upper end, D', turned outwardly to bear against the dash-board, and having its other end carved, as at C, the attaching-clips E, and the shoulders on said clips, as set forth.

350,122. NAILING-MACHINE. Warren C. Evans and John P. Smith, Exeter, N. H. Filed Jan. 4, 1886. (No model.)

Claim.—1. In a nailing-machine, the frame or handle *a*, having hinged to it the feed-lever *h*, provided with pawl *i*, for actuating the ratchet-wheel *o'*, and corrugated feed-rolls *o'' f'*, in combination with the adjustable guide-piece *h''*, adapted to be secured on the said frame or handle *a*, for the purpose of regulating the feed of the wire according to the length of nail required, as herein set forth.

2. In a nailing-machine, the laterally-movable cutter *l*, combined with the stationary projection *k''*, arranged in the nail-tube *k*, for the purpose of cutting off a nail-blank and forming a knee or bent head on the upper end of the nail, as herein set forth and described.

350,122.



3. In a nail-driving machine, the handle *a*, and vertically-movable driver-bar *b*, having incline b^4, as described, in combination with the cutting-off and heading mechanism consisting of lever L L'', hinged at L', spring L^2, laterally-movable cutter *l*, and stationary projection *k''* in nail-tube *k*, as and for the purpose set forth.

4. In a nail-driving machine, the laterally-movable cutter *l*, and stationary projection *k''* in nail-tube *k*, combined with the laterally-movable nail-carrier *m*, and the yielding die *n*, as and for the purpose set forth.

5. In a nail-driving machine, the handle *a*, and vertically-movable driver-bar *b*, having incline b^4, as described, in combination with the nail-carrier mechanism consisting of lever M M'', hinged at M', spring M^2, and the angular carrier *m*, connected to the lower end of lever M, and adapted to move laterally in bearings in the nail-tube *k*, as and for the purpose set forth.

350,123. TOBOGGAN. James F. Ferguson, Burlington, Vt. Filed Mar. 6, 1886. (No model.)



Claim.—1. A toboggan or coaster constructed in sections so hinged together that each section has an independent vertical movement, substantially as described.

2. A toboggan or coaster consisting of two or more hinged sections, A A', the front end of each being carved upward sufficiently to avoid frictional contact with the surface of the slide, substantially as specified.

3. In combination with a toboggan or coaster, the revolving fenders D D, attached to the exterior surface of its sides, substantially as described, and for the purpose set forth.

350,124. OILER. Alvin L. Ferris, New Brunswick, N. J., assignor to the Overman Wheel Company, Boston, Mass. Filed Feb. 12, 1886. (No model.)



Claim.—1. In an oiler, the combination, with a can and a spout therefor, of a tube extending transversely through the spout and a swing-stopper provided with arms entering the said tube, substantially as set forth.

2. In an oiler, the combination, with a can and a spout therefor, of a tube extending transversely through the spout and a swing-stopper provided with a loop extending through the said tube, substantially as set forth.

3. In an oiler, the combination, with a can and a spout therefor, of a

a swing-stopper having a plunger, a spring for controlling the same, a box for the plunger, and a spring and arms attached to the box and pivotally connected with the spout, substantially as set forth.

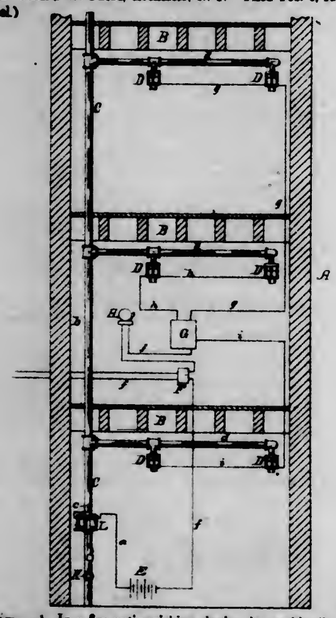
4. In an oiler, the combination, with a can and a spout therefor, of a swing-stopper provided at one end with an opening containing a cushion and at its other end with a stem, a spring for controlling each plunger, a box for the plunger and spring, and arms attached to the box and pivotally connected with the spout, substantially as set forth.

350,125. LAMP-CHIMNEY FASTENING. Joseph S. Foster, Salem, Mass. Filed Sept. 11, 1885. (No model.)



Claim.—The combination, with a lamp-chimney, of spring fastening devices secured to the base thereof and provided at their lower ends, below said base, with hooks and having at their upper ends outwardly-turned arms, which, when forced inward, release said hooks, substantially as set forth.

350,126. ELECTRIC FIRE EXTINGUISHING AND ALARM SYSTEM. Joseph W. Frost, Rochester, N. Y. Filed Feb. 6, 1886. (No model.)



Claim.—1. In a fire-extinguishing device, in combination with a water-pipe, a stop-cock therefor having a plug or stop for the flow of water provided with a pivot-pin, d', a weighted arm held to turn upon said pivot-pin, pivoted stop e, for said arm, an electro-magnet to release said stop, and a projection of said plug to receive said arm, substantially as and for the purpose set forth.

2. A vertically-movable sprinkler, a fusible attachment which prevents it from falling, a tongue arranged below said sprinkler to be struck by the latter when it falls, circuit-wires attached to said sprinkler and tongue, an electro-magnet in the circuit with said wires, an armature for said magnet formed with a detent, c', a pivoted stop, s, held by said detent until the armature is attracted, a weighted lever, o, engaged by said stop, and a plug or cut-off arranged in the pipe which supplies the sprinkler, and having the lever attached to it, for the purpose set forth.

3. In combination with the vertically-movable sprinklers and the tongues arranged below them, the wires g h i, annunciator G, alarm H, and the water-pipes which form part of the circuit, in order that on the falling of one of the sprinklers the annunciator may announce the story, the local bell may strike an alarm, and the district central-office alarm may also be sounded, substantially as set forth.

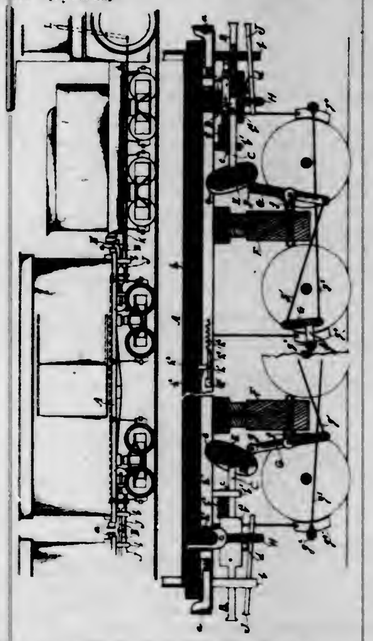
350,127. FENCE. George A. Galloway, Fountain, Ind. Filed Jan. 5, 1886. (No model.)



Claim.—1. The combination, with the base having dovetailed projections, of the side sections dovetailed to the base and to each other and inclining inwardly toward the top, and the conical cap dovetailed to and surmounting said sections, substantially as specified.

2. In combination with the dovetailed sections and base, constructed as described, the internal braces dovetailed thereto, substantially as specified.

350,128. AUTOMATIC CAR-BRAKE. George T. Gifford, Calabrook, assignor of one-half to A. A. Chapman, Warren County, Ill. Filed May 1, 1886. (No model.)



Claim.—1. An automatic car-brake consisting of push-bars at the respective ends of the car, means, as spiral springs, for normally extending the outer ends of the same, respectively, in substantially the same transverse plane with the ends of the draw-bar, eccentrics bearing upon the ends of brake-levers having suitable connections with the brake-beams, jointed connections between said eccentrics and push-bars, and means, as a buffer-block, for producing a backward pressure of said push-bars and for abnormally tilting the joints of said connecting-bars, substantially as and for the purposes set forth.

2. In an automatic car-brake, the combination of one or more push-bars loosely supported lengthwise of and beneath the car, one or more eccentrics bearing upon the end of one or more brake-levers having the usual connections with the brake-beams, said eccentric or eccentrics being connected, respectively, by a rigid bar and knee-joint with said push-bar, a spring for extending said push bar or bars toward the end or ends of the car, and a buffer-block for producing a backward pressure upon said push-bar upon impeding the motion of the engine, substantially as described, and for the purposes specified.

3. The combination, with a railway-car, of the push-bar B, provided with a spring, b^2, for holding the same normally in an extended position for engaging a buffer upon a car coupled therewith, an eccentric pivoted to the bed of the car and bearing upon the end of a brake-lever having suitable rod-connections with the brake-beams, a bar connecting said eccentric with the push-bar by a knee-joint, D, and means, as the stirrup H and trigger d, for tilting said knee-joint, substantially as and for the purposes specified.

4. The combination of the bar B, provided with a spring, b^2, for normally extending the same, eccentric E, bearing upon the end of a brake-lever, and means for connecting the same to the brake-beams, bar C, connected by the knee-joint D to the push-bar, means, as the trigger d, stirrup H, and bar J, for tilting said lever-joint, and a suitable lever and detached or disconnected mechanism, as a bar, K, for pushing said bar J, substantially as and for the purposes described.

5. The combination, with a car, of the push-bars B B, having springs b^2 b^2, eccentrics E E, bearing upon brake-levers G G, connected with the brake-beams of their respective trucks, bars C C, connecting said eccentrics and push-bars, respectively, by means of knee-joints D D, having triggers d, bars J J, stirrups H H, connected by a rod, h, and means, as a spring, for retaining said rod in a normal position.

6. In an automatic car-brake, the combination, with a suitable push-bar and mechanism, substantially as described, for setting the brakes, of a pivoted lever, M, and means, as a chain attached to the adjoining forward car, for detachably connecting with said lever, substantially as described, and for the purposes set forth.

350,129. HAT-HARDENING MACHINE. Denis H. Haggerty, Newark, N. J. Filed Aug. 25, 1885. (No model.)



Claim.—1. In a hat-hardening machine, a series of rollers between which the hats are placed, one of which may be lifted from its normal position, and means—as a pivoted link connected to the driving-shaft, and sprocket-wheels upon the roller-trunnions, connected by chains or belts—whereby an oscillatory motion is imparted to the rollers.

2. The rollers, one or more of which have hollow trunnions through which steam is admitted, and perforations through which it escapes in direct contact with the hats, in combination with sprocket-wheels upon the roller-trunnions, belts or chains connecting said sprocket-wheels, and means—for example, a driving-shaft having a crank-disk, link F, and crank F'—whereby oscillatory motion is imparted to the rollers.

3. The rollers having sprocket-wheels and belts or chains connecting them, in combination with a crank upon the trunnion of one of the rollers, and a pivoted link connecting said crank with a crank-disk upon the driving-shaft, whereby an oscillatory motion is imparted to the rollers, substantially as described.

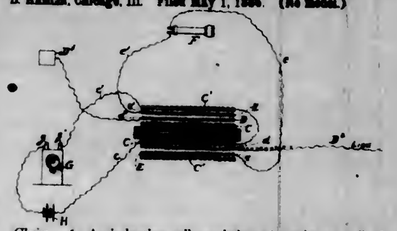
4. The frame-work having at the top on each side an extension-arm which supports the main shaft, said shaft having at one end a crank-disk which at each revolution imparts to one of the rollers an oscillatory motion by means of a link fastened to a crank upon the shaft of said lower roller, in combination with sprocket-wheels connected by belts or chains, whereby the motion is transmitted to the other rollers.

5. In a hat-hardening machine, detachable lags consisting of base plates M', having angular lags M, which are provided with perforations M², as and for the purpose set forth.

6. In a hardening-machine, a top roller which may be moved from operative position by the bell-crank lever, in combination with two lower rollers, to which motion is imparted by a crank-disk having a link fastened thereto, said link being also secured to a crank which is securely fastened to one of the lower rolls by means of a key or spline, so that when the crank-disk revolves it will cause the rolls to rock back and forth, motion being imparted from one to the other by means of sprockets and chains or belts.

7. In a hardening-machine, two hollow lower rollers having perforations, whereby steam is admitted and brought in direct contact with the hats, and having hollow trunnions which are flanged on the inside and securely bolted to the rollers, in combination with a frame supporting said rollers, a tank under the rollers, and a table.

350,130. INDUCTION-COIL FOR TELEPHONE SERVICE. Evelyn B. Hamlin, Chicago, Ill. Filed May 1, 1886. (No model.)



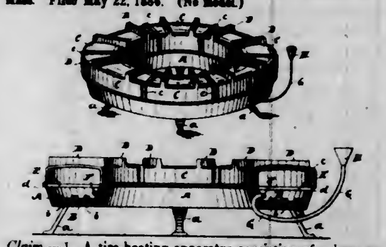
Claim.—1. An induction-coil consisting of a primary coil of coarse wire surrounding a soft-iron core, a primary-induction coil of fine wire, the terminals of which are designed to be connected with the line and ground, respectively, a continuous secondary-induction coil of fine wire, with the terminals of which a local circuit may be formed, and a primary-extension coil of coarse wire connected with said primary coil and surrounding the whole, the terminals of said primary and primary-extension coils being intended to be in circuit with a local battery, substantially as and for the purposes set forth.

2. In an induction-coil having the core B, the primary coil C, the coil D, connected with the line and ground, respectively, primary-extension coil C', connected with said primary coil, and the interposed coil E, arranged substantially as and for the purposes set forth.

3. The combination, in an induction-coil, of a soft-iron core, a primary coil of low resistance, continuous and independent primary and secondary induction coils of high resistance, and a primary-extension coil surrounding the whole and connected with said primary coil, substantially as and for the purposes set forth.

4. In a telephone service, an induction-coil consisting of a primary coil of coarse wire enveloping a soft-iron core, a primary-induction coil of fine wire having its terminals connected with a telephone-line and with the ground, respectively, a secondary-induction coil of fine wire, and a primary-extension coil, said primary and primary-extension coils being connected with each other and in circuit with a local battery, in combination with a telephonic transmitter and receiver, the former of which is interposed in circuit with said primary and primary-extension coils and the latter with said secondary induced coil, substantially as and for the purposes described.

350,131. TIRE-HEATING FURNACE. Joseph Harris, Jr., Boston, Mass. Filed May 22, 1886. (No model.)



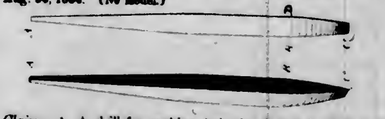
Claim.—1. A tire-heating apparatus consisting of a base or oil-receptacle, A, in combination with a cover composed of sections C, each provided with radial flues or openings D D, as shown and described.

2. In a tire-heating apparatus, the circular base or oil-receptacle A, provided with perforated nipples b, all cast in one piece, as and for the purpose set forth.

3. In combination with the oil-receptacle A, the perforated oil-supply pipe F, provided with a mouth-piece, H, as shown and described.

4. In a tire-heating apparatus, the sections C, provided with radial flues or openings D, and connected together to form a circular cover for the heating-chamber, substantially as shown and described.

350,132. DRILL FOR GLASS. Edwin Hyman, Chicago, Ill. Filed Aug. 30, 1886. (No model.)



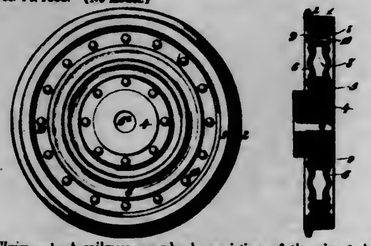
Claim.—1. A drill for making holes in glass and other material, having a beveled point terminating in a straight knife-edge as a cutting face, and to be rotated upon its longitudinal axis, substantially as shown and described.

2. A drill for making holes in glass and other material, provided with a wedge-shaped point terminating in a knife-edge at right angles or nearly at right angles to the longitudinal axis of the drill, substantially as shown and described.

3. A drill for making holes in glass or other material, having a sharp straight cutting-face at or nearly at right angles with the longitudinal axis of the drill, and the sharp corners or supplementary cutting-edges B C, to complete the hole to be drilled, substantially as shown and described.

4. In a drill for making holes in glass and other vitreous or brittle substance, the straight knife-edge C at right angles to the longitudinal axis of the drill, as a cutting-face, in combination with the sharp corners B C, as supplementary cutting-edges to enlarge and complete the hole as drilled, substantially as shown and described.

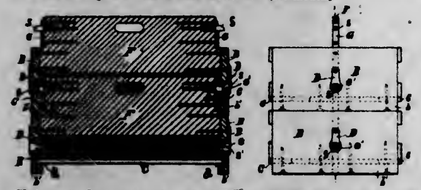
350,133. CAR-WHEEL. Joseph G. Hill, Flatbush, N. Y. Filed Dec. 14, 1885. (No model.)



Claim.—1. A railway-car wheel consisting of the rim 1, having the inwardly-projecting annular flange 3 formed centrally on its inner face, the hub 4, formed with the central annular flange 5, and the web-plates 6, each formed with annular curves semi-elliptic in cross-section, said plates being secured at their inner edges directly to the opposite faces of the single central hub-flange 5, and at their outer edges directly to the opposite faces of the single central rim-flange 3, substantially as described.

2. A railway-car wheel consisting of the rim 1, provided with the exterior annular side flange, 2, and having the single inwardly-projecting annular flange 3 formed centrally on its inner face, the hub 4, formed with the single central annular flange 5, the web-plates 6, each formed with annular curves semi-elliptic in cross-section and having their inner edges abutting directly against the opposite faces of the single central hub-flange and their outer edges abutting directly against the opposite faces of the single central rim-flange, and bolts 10, each passing through both web-plates and attaching them to the said central flanges, substantially as described.

350,134. CRATE. Ernst Horton, Dundee, N. Y., assignor to George Wilkins, same place. Filed Feb. 23, 1886. (No model.)



Claim.—1. In a crate, the raised portion F, having a spring-actuated bolt, in combination with crate-head B, having opening O through it, substantially as described.

2. A crate-head having a groove, *a*, slats *c*, inserted in the groove, projections *b'* below the bottom slats of the crate, and an opening, O, in combination with a crate having a central partition, F, provided with a spring-actuated bolt, S, substantially as described.

3. A crate having a raised portion, F, on one side and a recess or groove, *e*, Fig. 5, in its opposite side, in combination with legs *b' b'*, substantially as set forth.

4. The crate-iron D, having the inclined shoulder *t* and opening O above it, in combination with crate-head B, having opening O^2 through it, and the raised part F, carrying the bolt S, substantially as set forth and described.

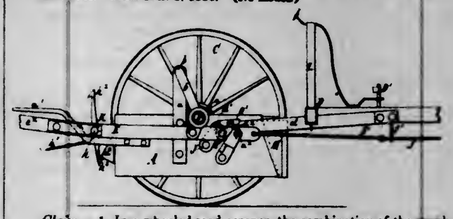
350,135. SEAT FOR AGRICULTURAL MACHINES. William E. Jacobs, Columbus, Ohio. Filed Aug. 3, 1886. (No model.)

Claim.—A vehicle-seat which comprises in its construction a body portion, A, having corrugations *a* running lengthwise of the seat, forming an open groove on the under side of the seat, into which the seat-standard can be inserted, so as to be properly fastened by a bolt, and when fastened will have contact against the sides of the corrugations, and also that portion of the under side of the seat which is between said



corrugations, the whole being formed of stamped or swaged sheet metal, and said corrugations staying the seat positively against the lateral movement, substantially as described.

350,136. WHEELED ROAD-SCRAPER. William E. Jacobs, Columbus, Ohio. Filed Mar. 5, 1886. (No model.)



Claim.—1. In a wheeled road-scraper, the combination of the crank-axle B, hangers *a*, pivoted links I, suspended bowl A, lever-frame E, and tongue D, the pivotal connections of the lever frame and tongue being near the top of the bowl and nearly on the same horizontal plane, substantially as and for the purpose described.

2. In a wheel-scraper, the combination of the crank-axle B, hangers *a*, pivoted links I, lever-frame E, a suspended bowl, A, having pivots d', located near the top edge of the bowl, and a tongue, D, pivoted at d^2 to the bowl, substantially as and for the purpose described.

3. In a wheeled road-scraper, the combination of a cranked axle, B, a suspended bowl, A, a lever-frame, E, pivoted to the bowl A at a^2, and a draft-bail, F, for a snatch-team attached to lever-extensions of the lever-frame beyond the pivots a^2, substantially as and for the purpose described.

4. The combination of the bowl A, having pivots d' a^2 with the tongue-braces *d*, having pins d^3, and the lever-frame E, having lugs *e'*, substantially as and for the purpose described.

5. The automatic end-gate G, having lugs *g'*, in combination with the bowl having pivots d', and with the lever-frame E, having lugs *e'*, substantially as described.

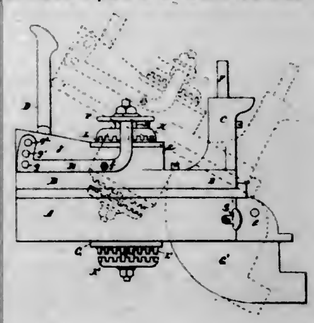
6. The combination of the swinging bowl A, having lug d^3, the lever-frame E, having double pawl K, link I, axle B, and the tongue-standard L, having hook *l*, substantially as and for the purpose described.

7. The combination of the cranked axle B, tongue-standard L, having hook *l*, the swinging bowl A, and lever-frame E, having hook l^2, substantially as described.

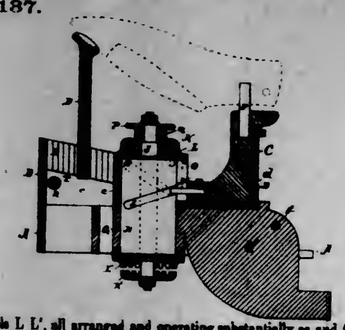
8. The cranked axle B of a wheeled road-scraper, having sleeves M, with flanges *m* secured removably upon its spindle-arms, in combination with the links I, and wheels C, having hubs with counterbores around their eyes at their inner ends for the close seating of the flanges *m*, substantially as and for the purpose described.

350,137. SHOE-MAKER'S JACK. Albert Jeffreys, Philadelphia, Pa. Filed Feb. 12, 1886. (No model.)

Claim.—1. The combination, in a shoe-maker's jack, of the base A, plate B, with journal-bearing *a* and holes *c* and *d*, for receiving last-seats C and D, last-seats C and D, journal-bearing G, with arm G', screw *b*, journal H, with slot I, pin N on last-seat C, bar J, with wheels K K',



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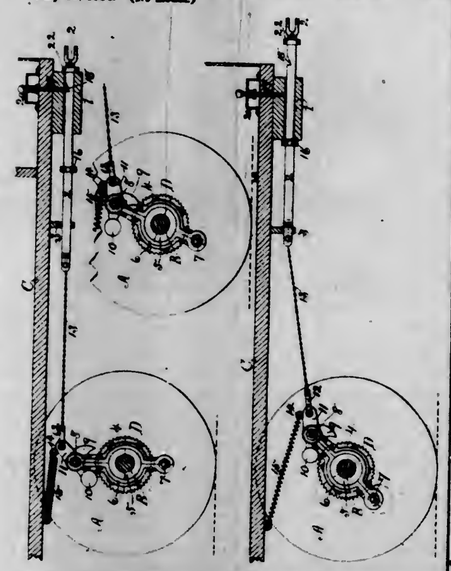
and wheels L L', all arranged and operating substantially as and for the purposes set forth.

2. The combination, in a shoe-maker's jack, of the base A, with radial slot *a*, plate B, with journal-bearing *a* and holes *c* and *d*, for receiving last-seats C and D, last-seats C and D, the former with pins F and N, journal-bearing G, with arm G', screw *b*, journal H, with slot I, bar J, with wheels K K', wheels L L', screw S', and clamp S, all substantially as and for the purposes set forth.

3. The herein-described device for raising and lowering the bar J, and for throwing the wheels K L K' L' in or out of gear, consisting of the lever M, pivoted at *f*, having its top Q bifurcated and its outside end furnished with three holes, g g' g^2, and bolt R, with conical pointed head *h* and helical spring T, all substantially as set forth.

4. The herein-described device for retaining the plate B and journal-bearing arm G' at any angle, consisting of the clamp S, pivoted to base A at *k*, and operated by a screw, S', substantially as set forth.

350,138. CAR-STARTER. David Jennings, Lyons, N. Y. Filed July 17, 1886. (No model.)



Claim.—1. In a car-starter, the combination of a counterbalanced pawl, a yoke, 11, fitted upon the pawl-axle and resting against the pawl and provided with a return-spring, 15, a bipartite ratchet provided with side hubs and secured together upon the car-axle, and a bipartite main frame secured upon the ratchet-hubs and provided with set-screws 17 and with the draw-bar 2, connected to the yoke 11, and mounted substantially as shown and described.

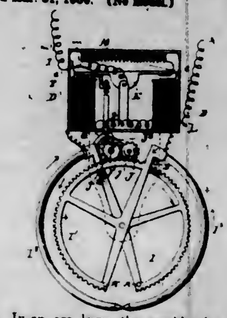
2. A car-starter consisting of an axle, a hubbed ratchet secured thereon, a frame mounted upon the ratchet, a counterbalanced pawl mounted in the frame, and a draw-bar connected to the pawl-yoke and mounted upon the car-bottom and provided with collars 16 and 22 and notch 18, and a car-platform provided with a bumper, and a stop-pin, 19, in combination, substantially as shown and described.

350,139. COFFEE-MILL. Frederic Krauss, Altoona, Pa., assignor of one-half to Jacob W. Leslie, same place. Filed Sept. 28, 1886. (No model.)



Claim.—The combination of the shell B, the cone B', the spindle C, and handle D, having screw-threads *c* and *d*, the screw-threaded and slotted hollow post E, the screw-threaded adjusting-nut F, and the lugged washer G, substantially as shown and described.

350,140. ELECTRIC-ARC LIGHT. George M. Lane, Asbury Park, N. J. Filed Mar. 31, 1886. (No model.)



Claim.—1. In an arc lamp, the combination, with the segments having the carbon-holders, of the driving-pinions and means, substantially as set forth, for throwing one of said pinions into and out of gear with the corresponding segment, substantially as set forth, whereby one carbon may be adjusted independently of the other.

2. In an arc lamp, the combination of the segments, the supports provided with pins forming terminals provided with holders, and having corresponding projections to engage with the pins and short-circuit the lamp, the differential gearing meshing with said segments and moving them at different rates, the reciprocating pawl for actuating said gearing, and a supplementary pawl carried by said reciprocating pawl to limit and hold in check the movement of said gearing, substantially as and for the purpose set forth.

3. In an arc lamp, the combination of the supports H H', provided with projections B B', shafts A A' in axial line, segments I I', provided with holders *i i'* and projections A A', shafts *j j'* at different distances from the peripheries of the segments, differential gearing J J' J^3, toothed disk J^3, keyed to one of said shafts, and the reciprocating pawl G, provided with the supplementary pawl *g*, substantially as and for the purposes set forth.

350,141. MACHINE FOR FACING COUNTERBORES. Albert Latham, Waltham, Mass. Filed June 21, 1886. (No model.)

Claim.—1. In combination with spindle J and tail-stock I, formed with a suitable transverse seat therein, the eccentric ring L, having an actuating-handle, and formed to receive said spindle and to fit in the seat in stock I, substantially as specified.

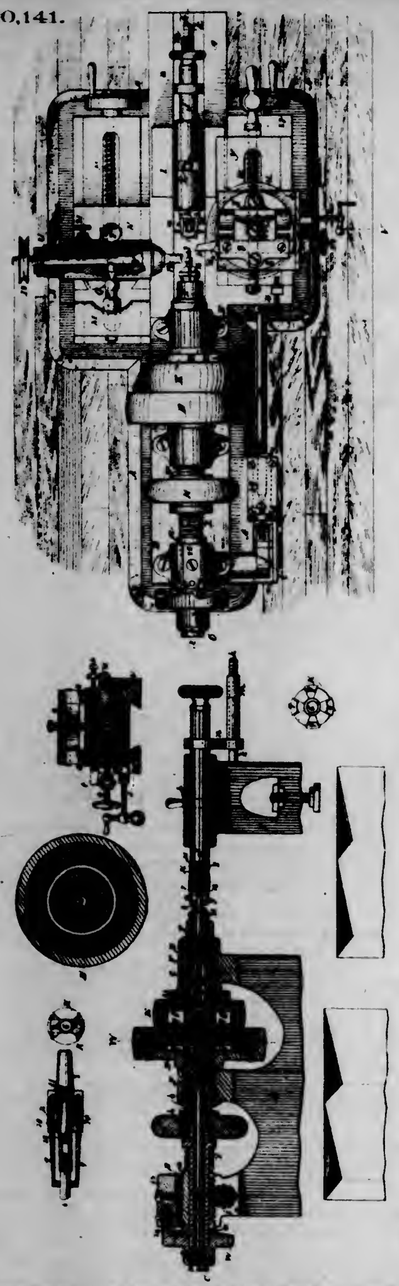
2. In combination with a counterbore-facing machine, a gaging-chuck formed with center 8, the jaws 9, thereto pivoted, their actuating-spring 11 and gaging-screws 10, and a hollow center, 12, seated in center 6, to receive the stem of the counterbore, all substantially as specified.

3. The combination, with a gaging-chuck in the dead-spindle J, of the hollow spindle C, its rods 13 15, with the interposed spring 14, chuck 16, secured in said spindle, and sleeve F, arranged to close said chuck, and provided with an actuating hand-wheel, H, by which to force it against said chuck, all substantially as specified.

4. The combination, with spindle C, provided with means for end adjustment, of sleeve F, having wings *g*, and interlocked with said spindle, pulley D, mounted on sleeve F, and having hub G, with slots *f*, to receive wings *g*, whereby the rotation of pulley D imparts a corresponding motion to said spindle and sleeve, and allows a linear movement thereof, substantially as specified.

5. The combination, with sliding spindle J, of its hook *n*, a stud,

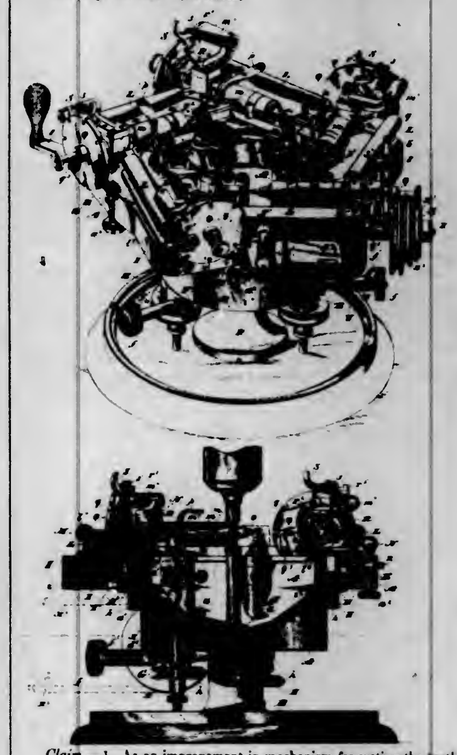
350,141.



toothed sleeve *a*, the thrust-spring X, pinion *d*, engaging said sleeve, and devices, substantially as specified, for rotating said pinion, to thereby actuate the sleeve, substantially as specified.

8. In a counterbore-facing machine, the combination of a facing-tool, supporting and adjusting mechanism, a rotary and linearly-reciprocating spindle, a counterbore supporting and securing chuck carried by said spindle, and a duly-formed cam arranged to linearly actuate th spindle in accordance with the lips of the counterbore and the requisite spirality or clearance thereof, substantially as specified.

350,142. PINION-CUTTING MACHINE. Frank Leman, Elgin, Ill. Filed Sept. 15, 1883. (No model.)



Claim.—1. As an improvement in mechanism for cutting the teeth of pinions, the combination of a series of cutters which are adapted by successive action to rough out and complete such teeth, a holder or a series of holders for a pinion-blank or pinion-blanks, mechanism for moving said holder or holders from cutter to cutter, and automatic mechanism for rotating each pinion-blank or pinion step by step while in position before a cutter, to bring each tooth of the same into contact with said cutter, substantially as and for the purpose specified.

2. As an improvement in mechanism for cutting the teeth of pinions, the combination of a series of cutters, and operating mechanism therefor, substantially as described, a series of pinion-holding spindles which are adapted to present a series of pinions simultaneously to said cutters, mechanism for rotating said spindles simultaneously upon their own axes step by step, and mechanism for moving the series of spindles simultaneously to bring each into position before the next cutter of the series, substantially as and for the purpose shown.

3. As an improvement in mechanism for cutting the teeth of pinions, the combination of a series of cutters, and operating mechanism therefor, substantially as described, a rotary carriage or turret having journaled thereon a series of pinion-holding spindles, mechanism for simultaneously rotating said spindles step by step one complete revolution, and mechanism alternating in its action with said spindle-rotating mechanism to partially rotate said turret and bring each spindle into position before the next cutter of the series, substantially as and for the purpose set forth.

4. As organized machine for cutting the teeth of pinions, in which are combined the following elements, to wit: a series of cutters having operating mechanisms, substantially as described, that are arranged in circular order, and with exception of the first and last of the series are separated by equal spaces, a series of pinion-holding spindles which exceed said cutters one in number and are arranged at equidistant points around a circle, mechanism for rotating said spindles step by step, and mechanism for moving the series of spindles at stated intervals, whereby the spindle having the completed pinion is brought into the space between the first and last of said cutters, and the other spindles are each brought into position to present a pinion-blank or a partially-cut pinion to one of said cutters for its action, substantially as and for the purpose shown and described.

k, secured in stock I, and nut *m*, threaded on said stud to adjust the shoulder to receive said hook, all substantially as specified.

6. The combination, with sliding spindle C, of toothed sleeve *a*, arranged between a solid abutment on said spindle, on the one hand, and a resisting-spring having a solid abutment on said spindle, on the other hand, and a pinion engaging the teeth of said sleeve and provided with means, substantially as described, whereby it may be rotated to linearly move said sleeve, substantially as specified.

7. In combination with spindle C, provided with a chuck for holding the counterbore, and means for rotating it, the cam W, roll 26

5. An organized machine for cutting the teeth of pinions, in which is combined a series of spindles for holding pinion-blanks or pinions that are normally locked and prevented from rotating, a series of cutters having operating mechanism, substantially as described, and adapted to perform the successive operations required to form pinion-teeth, mechanism for intermittingly unlocking said pinion-holders and giving to the same a step-by-step rotary movement, and mechanism for moving said pinion-holders, while locked against rotation, into position before said cutters, substantially as specified.

6. As an improvement in pinion-cutting mechanism, a machine in which are combined the following elements to wit: two or more cutter-spindles provided each with a cutter, three or more slides each adapted to support a pinion-blank, means whereby said blank may be intermittingly rotated and said slides caused to move back and forth in front of said cutters, and means whereby said slides may be successively moved into position before each cutter, substantially as and for the purpose shown.

7. As an improvement in pinion-cutting mechanism, a machine in which are combined a series of rotatable cutters that are arranged in circular order, an annular table which carries a number of reciprocable pinion-holding slides, mechanism, substantially as described, whereby said table may be revolved step by step around its axis to bring each slide into position before each successive cutter, and mechanism, substantially as described, whereby each slide is caused to reciprocate before each cutter and to remain at rest when between the first and last cutters of the series, substantially as and for the purpose set forth.

8. A pinion-cutting machine in which are combined several rotating cutters arranged in a circle, an annular table adapted to revolve in said cutters, pinion-holding slides exceeding in number the said cutters secured to and revolving with said table, and mechanism whereby each slide is caused to reciprocate when turned to position in front of a cutter, substantially as and for the purpose shown and described.

9. A pinion-cutting machine in which are combined a series of revolvable cutters that are arranged in a circle, a table which is adapted to be rotated step by step around said cutters, rotatable longitudinally-reciprocable pinion-holding spindles that are secured to and rotate with said table, and mechanism, substantially as described, whereby said slides are reciprocated only when said table is at rest, substantially as and for the purpose shown.

10. A pinion-cutting machine in which are combined a series of revolvable cutters that are arranged in a circle, a table which is adapted to be rotated step by step around said cutters, rotatable longitudinally-reciprocable pinion-holding spindles that are carried by and rotate with said table, and mechanism, substantially as described, whereby each spindle is reciprocated and rotated step by step only when in position before a cutter and said table is at rest, substantially as and for the purpose specified.

11. A pinion-cutting machine in which are combined a table that is adapted to be rotated step by step around a series of revolvable cutters, rotatable longitudinally-reciprocable pinion-holding spindles which are supported by and rotate with said table, a reciprocable ring that is journaled upon said table, and means, substantially as described, whereby, when said table is moved forward a step, said ring is automatically connected with and caused to reciprocate said spindles a predetermined number of times, and is then automatically disconnected from the same, substantially as and for the purpose shown.

12. A pinion-cutting machine in which are combined a table that is adapted to be rotated step by step around a series of rotatable cutters, pinion-holding spindles which are supported by and rotate with said table, a reciprocable ring that moves in the same plane as and around the axis of said table, means, substantially as described, whereby, when said table is moved forward a step, said ring is automatically connected with and caused to reciprocate said spindles a predetermined number of times and is then automatically disconnected from the same, and means, substantially as described, whereby each spindle is partially rotated each time that it is moved longitudinally forward or back, substantially as and for the purpose shown.

13. The combination of the frame A, the vertical spindles G, having the cutters *g'*, the table I, supported by and capable of being revolved around said frame, the slides M, each adapted to hold a pinion-blank and to reciprocate upon said table, the ring T, fitted within and arranged to reciprocate around said frame, the hooked bars U, pivoted upon said ring, and the studs V, projecting downward from said slides and engaged by said hooked bars, substantially as and for the purpose specified.

14. As a means for journaling in position and adjusting laterally the cutter-spindle G, the quill D, fitted within the bearing *a* and provided with an eccentric axial opening, *d*, for the reception of said spindle, the worm-wheel E, secured to the lower end of said quill, and the worm F, adapted to engage with said wheel, all combined to operate substantially as shown.

15. As a means for adjusting the cutter-spindle G longitudinally, and in combination therewith, the quill D, fitted within the bearing *a* and provided with the circumferential groove *d''*, the block d^3, engaging with said groove, adapted to slide within the vertical slot a^2, and the screw d^5, journaled within the upper end of said bearing and having its threaded end contained within a threaded opening in said block, substantially as set forth.

16. As a means for rotating the spindle O, and in combination therewith, the ratchet-wheel *q'*, the lever R, pivoted upon the outer end of the slide M, provided at its upper end with the pawl r^2, and the table I, having the cam-groove i^2, which receives and contains the lower end, r^4, of said lever, substantially as shown and described.

17. As a means for locking in and releasing from position the spindle O, the index-plate Q, secured to the end of said spindle and provided with the peripheral notches *q*, the pawl S, pivoted upon the arm m^4 of the slide M and provided with the laterally-projecting lug *s'*, and the pivoted reciprocating lever, R, having the pivoted laterally-swinging spring-pressed lug r^3, all combined to operate substantially as specified.

18. In combination with the reciprocating ring T, provided with the hooked bars U, the star-wheels Y, provided each with notches *y* and arms *y'*, the cams Z, pivoted within the table I and provided each with an arm, z^3, and the pins q^3, projecting inward through the index-plates Q, substantially as and for the purpose shown.

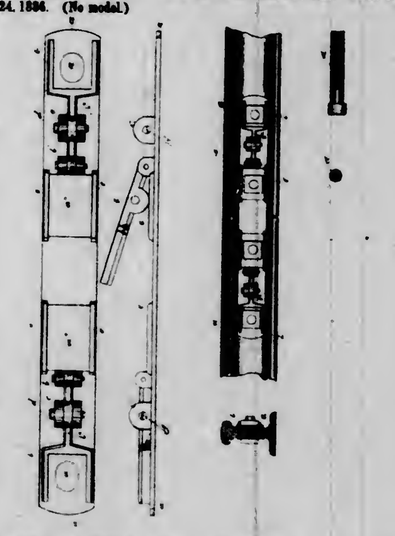
19. In combination with the star-wheel Y and cam Z, the plate *t'*, secured upon the vibrating ring T immediately over said wheel and operating to disengage said cam when said wheel has been rotated the required distance, substantially as set forth.

20. In combination with the hooked bar U and star-wheel Y, pivoted upon the vibrating ring T, the cam D', secured to the table I and adapted to engage with an arm, *y'*, of said star-wheel upon the rearward movement of said ring, substantially as and for the purpose shown and described.

21. In combination with the cam D', provided with the raised part d^5, which is adapted to engage with the inner edge of the cam Z, the spindle A', secured to said cam D', journaled within the housing B' and capable of being moved longitudinally within its bearings, and the spring E', arranged to hold said spindle with a yielding pressure at the upper limit of its motion, substantially as and for the purpose specified.

22. In combination with the table I, journaled upon the frame A, and provided with the stop-notches i^5, and with the locking-pawl F', having the inclined lug f^3, the ring H', journaled upon said frame, and provided with the handle I', pawl K', and peripheral roller L', substantially as and for the purpose shown.

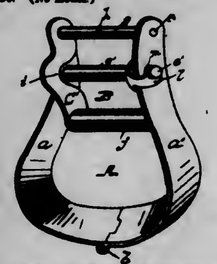
350,143. NUT-LOCK. Lewis E. Lemen, Denver, Colo. Filed June 24, 1886. (No model.)



Claim.—In a nut-lock, a plate provided with one or more square or rectangular openings with flanges on two opposite sides, said open-

ings being suitable for the reception of nuts, and provided with one or more openings, *a'*, for the reception of bolts, said plates being also provided with one or more hinged or movable wrenches, *b*, which may be dropped down over the nut or nuts after the nuts are placed in position, said wrenches being held in position, when in use, by means of suitable sockets, in which are placed spring-keys, substantially as described.

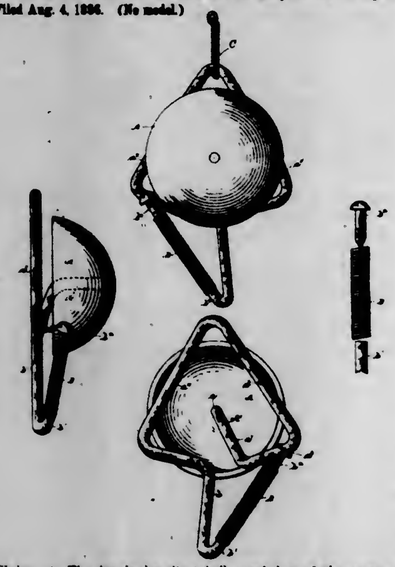
350,144. SAFETY-STIRRUP. WILLIAM LEBKEISS, Montrose, Colo. Filed July 23, 1886. (No model.)



Claim.—1. In a riding-stirrup, the combination with the hinged sections of the tripping-lever provided with the locking-plate, the cross-bar provided with the notch in said plate, adapted to engage the notch in the cross-bar, substantially as and for the purpose described.

2. The stirrup described, consisting of the twin sections *a a'*, hinged to one another, one section having perforations at its upper end, and the opposite section provided with the cross-bars, the bar *d* being provided with the notch *m*, the ends of the bars engaging said perforations, and the sleeves removably secured to these bars, as shown, the hinged or pivoted lever provided with the roller at its lower end, and with the bent locking-plate secured to one arm thereof, and designed to engage the notch in the end of the lower cross-bar of the stirrup, as shown and described.

350,145. BELL. WILLIAM E. T. HERRELL, Philadelphia, Pa., assignor of two-thirds to Robert Resch and Alexander Gray, both of same place. Filed Aug. 4, 1886. (No model.)

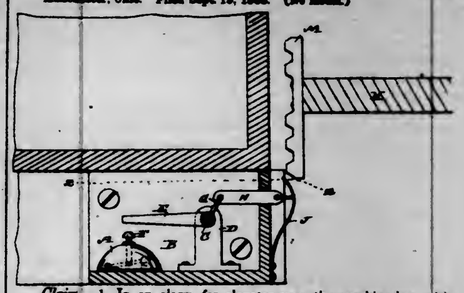


Claim.—1. The herein-described bell, consisting of the gong or plate, the wire of triangular formation having one end secured to the center of said gong or plate on its concave side, and the clapper or striker connected to the other or hooked end of said wire, substantially as shown and described.

2. The combination, with the gong or plate and the wire secured to the center thereof on its concave side, having a hooked end, of the coil-spring secured on said end and the screw in the upper end of said spring, substantially as shown and described.

3. The combination, with the gong or plate, of the clapper or striker consisting of a coil-spring and screw, said spring being connected to one end of a wire, the other end of which is connected to the center of said gong or plate on its concave side, substantially as shown and described.

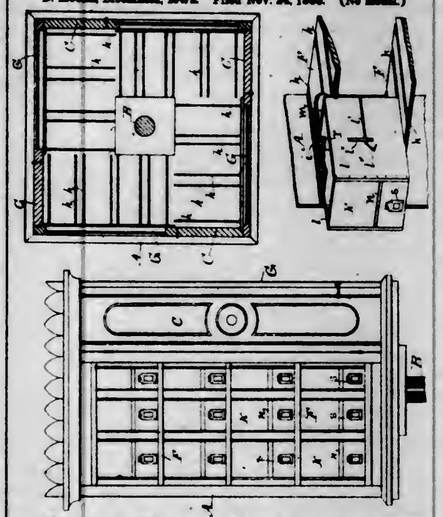
350,146. BELL-ALARM FOR ELEVATOR-CARS. JOHN W. [illegible], Manchester, Ohio. Filed Sept. 15, 1885. (No model.)



Claim.—1. In an alarm for elevator-cars, the combination, with the rack fixed to the floor, of the gong, the rock-shaft having an arm actuating the gong-hammer, and a spring connected by a link to a second arm of the said shaft, said spring having contact or engaging with said rack, substantially as and for the purpose specified.

2. In an alarm for elevator-cars, the combination, with the gong, the rock-shaft having an arm for actuating the gong-hammer and the spring connected or linked to a second arm of said shaft, of a rack fixed to the floor and engaging with said spring, said rack having teeth extending above and below the level of the floor and being toothless opposite the floor, substantially as and for the purpose set forth.

350,147. REVOLVING LACE AND RIBBON HOLDER. FRANKLIN D. MOORE, Moorefield, Iowa. Filed Nov. 24, 1885. (No model.)



Claim.—1. A sliding case and ribbon-holder composed of two uniform side pieces having slots extending from their rear edges to their central portions, and a front having a horizontal slot in its central portion, an axle and spool support adapted to slide in the coinciding slots in the side pieces, and fastening devices adjustably connected with the sides of the case to fasten the spool-axle, in combination with a case having parallel grooves in the top surface of its bottom or horizontal partitions, to operate in the manner set forth, for the purposes stated.

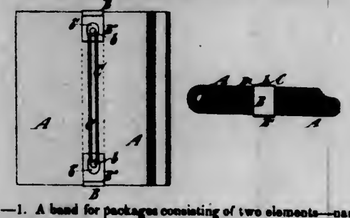
2. A sliding case composed of a front, K, having a horizontal slot, two sides, *l*, having slots *l'*, spring-latch devices *l''*, a cross-piece, *m*, and a leaf-spring or latch, *r*, in combination with a case having parallel grooves *h* and a cross-groove, *i*, in its bottom, substantially as shown and described, for the purposes specified.

3. The improved ribbon and lace holder and exhibitor composed of a rotating case having series of parallel grooves *h* in the top surface of its bottom and horizontal partitions, and grooves in the under sides of said partitions, and series of sliding cases composed of fronts K and sides *l*, having slots *l'*, and carrying spools on axles extending through said slots *l'*, and springs or latches *r*, substantially as shown and described, to operate in the manner set forth.

350,148. EXTRACTING ZINC FROM ITS ORES BY MEANS OF GASES. CHARLES H. MURRAY, Denver, Colo., assignor of one-half to Oscar P. Myers, same place. Filed June 2, 1885. (No specimens.)

Claim.—In a process for distilling zinc from its ores, effecting its distillation by forcing through such ores superheated reducing-gases, which gases are prevented from burning with fresh air or free oxygen at any stage of the operation, either before or after they have entered the ore-retort, and by pressure and the imposed high temperature, in combination with said reducing-gases, effecting the reduction, distillation, and condensation of the metal in a separated liquid state in one and the same operation, all substantially as set forth and specified.

350,149. BAND FOR PACKAGES. ISAAC E. PALMER, Middletown, Conn. Filed Aug. 27, 1885. (No model.)

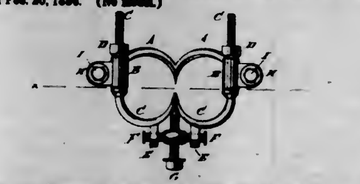


Claim.—1. A band for packages consisting of two elements—namely, a flexible or folding member or strap adapted to embrace one side and the edges of the package, and an extensible connection between the ends of such member or strap and detachably secured to one or both ends thereof, substantially as herein described.

2. A band for packages consisting of a flexible or folding member or strap provided at one end or both ends with integral tongues *b*, extending inward from the ends and formed by slotting the member or strap, as described, and an extensible connection engaging said tongue or tongues and serving to connect the two ends of said member or strap, substantially as herein set forth.

3. A band for packages consisting of the flexible or folding member or strap B, provided at the ends with tongues *b*, which extend inward from the ends of the strap and are formed by slotting the same, as described, and the endless elastic band C, connecting the ends of the flexible member or strap, substantially as herein set forth.

350,150. TOOTH-SEPARATOR. HENRY A. PARR, New York, N. Y. Filed Feb. 20, 1886. (No model.)



Claim.—1. In a tooth-separator, the combination, with the angular bar A, having sharp angle and curved arms and provided with sockets B upon its ends, of the curved bars C, having tapered inner ends and long outer arms having screw-threads upon their ends, and provided with perforated lugs E upon the inner parts of their convex sides, and cross-bar F, inserted in the said lugs and provided with a central screw-hole, the screw G, having conical forward end, and the nuts D, screwed upon the ends of the bars C, substantially as herein shown and described, whereby teeth can be readily separated, as set forth.

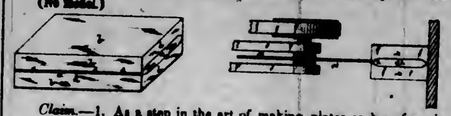
2. In a tooth-separator, the combination, with the sockets B, formed upon the angular bar A and receiving the outer arms of the bars C, of the lugs H, formed upon the said sockets and having screw-holes, and the screws I, screwed into the said screw-holes and having rounded forward ends, substantially as herein shown and described, whereby the implement can be readily leveled upon the teeth and adjusted to the length of the teeth, as set forth.

350,151. INTRENCHING-TOOL. JOHN H. PATTERSON, Fort Assiniboine, Mont. Filed July 7, 1886. (No model.)



Claim.—In an intrenching-tool, a blade having at its top two parallel lugs, one of which is perforated at its top and opposite sides, in combination with a handle pivoted between such lugs and bearing a catch for engaging the holes in the apertured lug, as set forth.

350,152. MANUFACTURE OF PLATES HAVING STRATA OF DIFFERENT METAL. JOHN FRODSH, Pittsburg, Pa. Filed Sept. 22, 1884. (No model.)



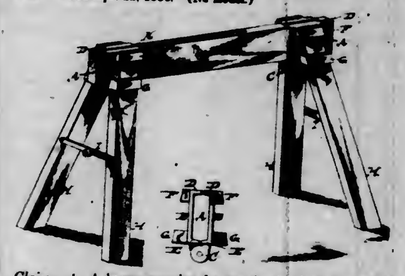
Claim.—1. As a step in the art of making plates or bars from ingots having strata of different metals, removing from the ingot the metal overlapping the side edges of the several strata to expose even edges for the subsequent reduction of the ingot to plate or bar.

2. As a step in the art of making plates or bars from ingots having strata of different metals, removing from the ingot the chilled portion along the side edges of the several strata to prepare the edges of the strata for proper union on the subsequent reduction of the ingot to plate or bar.

3. As a step in the art of making plates or bars from ingots having strata of different metals, fusing off the chilled portion along the side edges of the ingot to prepare the strata for proper union on the subsequent reduction to plate or bar.

4. An ingot formed of strata of different metals having the side edges of said strata substantially even and the metal of the outer strata extending over the ends of the inner strata, substantially as and for the purposes set forth.

350,153. TRESTLE AND SCAFFOLD. JAMES E. PETTY, Omaha, Nebr. Filed Apr. 23, 1886. (No model.)



Claim.—1. A brace or socket for trestles having a pair of bearer-receiving jaws hinged together at their bottom portions, and having inwardly-extending flanges to receive and grip the bearer and outwardly-extending sockets or bands to receive the supporting-legs, substantially as set forth.

2. A trestle or scaffold platform or table support consisting of a bearer having a notch or recess in its upper face, a clamp adapted to receive and grip said bearer, and having hinged bottom portions and beveled and obliquely extending sockets on its outer faces, legs fitting at their upper ends within said sockets, and a hinged brace-bar connecting said legs, all as and for the purpose set forth.

3. The combination of the clamp herein described, having a hinge at its bottom portion and bevel-shaped sockets or bands on its opposite sides, and the angularly-extending supporting-legs having beveled upper ends to removably fit within said sockets or bands, substantially as set forth.

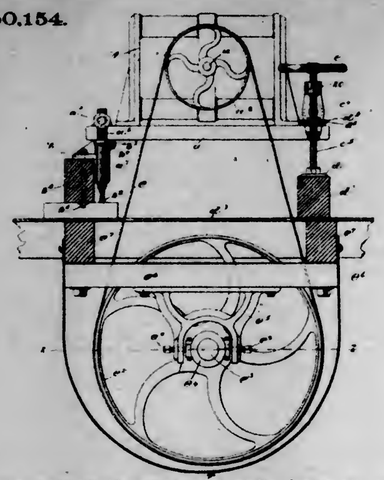
4. The combination of the clamp herein described, having a hinge at its bottom portion and bevel-shaped sockets or bands on its opposite sides, and the angularly-extending supporting-legs having beveled upper ends to removably fit within said sockets or bands, and the hinged brace-bar attached to said legs to prevent the movement and spreading thereof, substantially as set forth.

350,154. BELT-CONTROLLER FOR DYNAMO-MACHINES. BENJAMIN F. RADFORD, Hyde Park, Mass. Filed Feb. 13, 1886. (No model.)

Claim.—1. A main or driving shaft provided with a fast pulley, and a dynamo or magneto-electric machine or motor having its armature-shaft substantially parallel to the said main shaft and located above it, and a belt connecting a pulley on the main shaft with a pulley on the armature-shaft, combined with a rocking support at one point and an adjustable support at another, whereby the pulley on the armature-shaft of said machine or motor may be made to approach the pulley on the main shaft to lower the driving-belt below and away from the pulley on the driving-shaft and leave the belt at rest, thereby stopping the machine or motor, and thereafter to recede from the pulley on the main shaft to raise the belt into engagement with the said main-shaft pulley and start the machine in operation, substantially as described.

2. A main or driving shaft provided with a pulley, a belt, a dynamo or magneto-electric machine or motor having its armature-shaft provided with a pulley, a rocking support, substantially as described, at one end, and a transverse shaft at its other end having screw-threaded

350,154.



and yokes, combined with screw-threaded spindles entering said yokes, and with chain-wheels and an endless chain engaging said wheels, to operate substantially as and for the purpose specified.

3. A main or driving shaft provided with a fast pulley, a dynamo or magneto-electric machine or motor having its armature-shaft substantially parallel to said main shaft and located above it, adjustable supports for said dynamo or magneto-electric machine or motor, and a belt connecting a pulley on the dynamo-shaft with a pulley on the main shaft, combined with the rest *r*, located below the pulley on the driving-shaft, the said rest, when the machine is inoperative, receiving upon it the belt and supporting the same from contact with said main-shaft pulley, to thereby reduce the wear upon the said belt, substantially as described.

350,155. COFFIN. Gilbert Reynolds, Ridgebury, Conn. Filed Feb. 12, 1886. (No model.)



Claim.—1. In a burial-casket, the combination, with a body, A, having an inclined way, *c*, a locking-recess, *c'*, and inclines *c*⁴, with which the locking-lugs of the lid engage when the lid has found its seat, of the lid having locking-ribs with inclined surface and locking-lugs, as set forth.

2. In a burial-casket, A B, having recesses *g* and *g'*, as shown, the combination, with the castings C D, as described, of the spring-catch F, having slot *f''*, catch *f*, and thumb-plate *f*³, all arranged and adapted to serve as set forth.

350,156. HAME. Carl Rosel, Cherry Valley, assignor of one-half to Charles F. Klenze, Davenport, Ill. Filed Jan. 16, 1886. (No model.)

Claim.—1. A harness-hame composed of sections provided with screw-studs having jam-nuts, and of screw-threaded sockets for adjustably and rigidly connecting such sections, substantially as set forth.

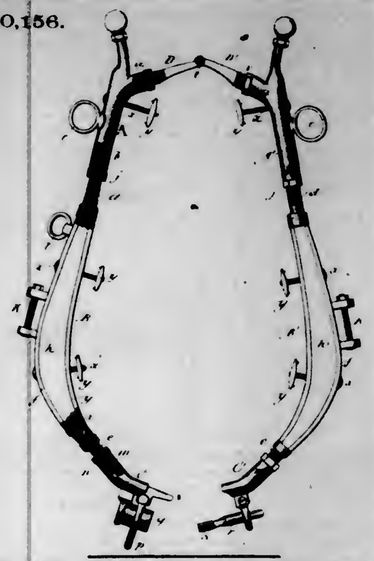
2. A harness-hame composed of two side bars hinged together on top and provided on bottom with a suitable locking device, and each side bar composed of four sections provided with screw-studs and screw-threaded sockets for adjustably securing these sections together, all substantially as described, for the purpose specified.

3. A harness-hame composed of plates D D', hinged together and provided with screw-studs for entering screw-threaded sockets of the side bars, substantially as and for the purpose set forth.

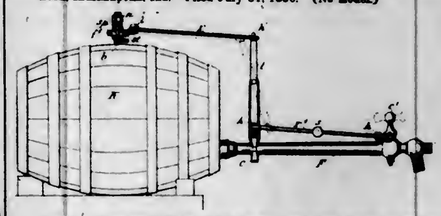
4. In a harness hame, the sections B, having studs *d* and *e*, to screw into sockets of sections A and C, substantially as and for the purpose set forth.

5. In a harness-hame, the sections B, composed of screw-studs *d* and *e*, connected by curved iron bars *f* and *g*, that inclose wooden bars *h*, and the studs *d* and *e* adapted to enter sockets *b* and *m* of sections A and C, all substantially as and for the purpose set forth.

350,156.

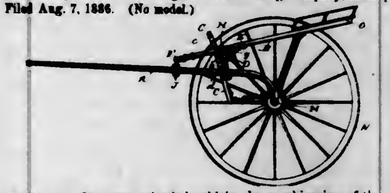


350,157. DRAWING LIQUIDS FROM CASKS. George W. Rothrock, Indianapolis, Ind. Filed July 31, 1886. (No model.)



Claim.—The combination, with the cask and the faucet having turn-valve *c'*, of the bung *b*, having openings *o'* and *o*², collar *f''*, having opening *o*, standard *u*, clamp *c*, lever *l*, and connecting-rods *r* and *r'*, all arranged to co-operate as and for the purpose specified.

350,158. TWO-WHEELED VEHICLE. William Rooke, Jackson, Mich., assignor to the Michigan Manufacturing Company, same place. Filed Aug. 7, 1886. (No model.)



Claim.—1. In a two-wheeled vehicle, the combination of the axle, the shafts, the seat-supporting bars attached to the shafts at their forward ends, a seat supported at the rear ends of said bars, a spring supplemental to said bars, situated in front of the seat, and upon which the bars are supported, and means for vertically adjusting the forward ends of said bars, substantially as set forth.

2. In a two-wheeled vehicle, the combination of the axle, the shafts, the seat-supporting bars, a seat supported at the rear ends of said bars, a spring, *d*, between the shafts in front of the seat, a cross-bar, D, interposed between the seat-supporting bars and the spring *d*, and means for vertically adjusting the forward end of the seat-supporting bars, substantially as set forth.

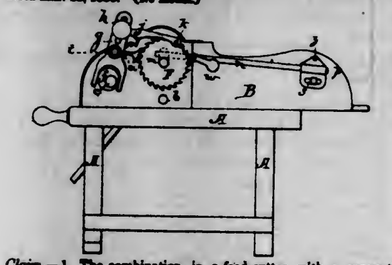
3. In a two-wheeled vehicle, the combination of the axle, the shafts, the seat-supporting bars, the screw-rods J, passing through the shafts and carrying at their upper ends eyes or loops, to which the forwards ends of the bars B are hinged, means for vertically adjusting said screw-rods, and a support for said bars in rear of their hinged front ends, substantially as set forth.

4. In a two-wheeled vehicle, the combination of the axle, the shafts, the seat, the foot-rest non-adjustably supported at its rear end, and means for adjusting the forward end of the foot-rest relatively to the seat and to its rear end, substantially as set forth.

5. In a two-wheeled vehicle, the combination of the axle, the shafts, the seat, a foot-rest having the extended bars C C, provided with a series of perforations, *a*, and the bolts *h*, passing through said perforations and supporting the forward end of the foot-rest, substantially as set forth.

6. In a two-wheeled vehicle, the combination of the axle, the shafts, the seat-supporting bars attached to the shafts at their forward ends, a support for said bars in rear of their forward ends, means for vertically adjusting the forward ends of the bars, a foot-rest, and means for adjusting the foot-rest relatively to the seat and independently of the adjustment of the seat-supporting bars, substantially as set forth.

350,159. FEED-CUTTER. John Sammuvlin, Gardenville, N. Y. Filed Mar. 23, 1886. (No model.)

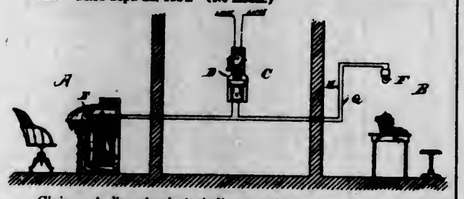


Claim.—1. The combination, in a feed-cutter, with a supporting-frame, of a feed-roll, a ratchet-wheel on one end of the same, a cutter-shaft carrying a cam, a forked upright pivoted to the frame and having its forked end fitting over the cam, said upright being formed with a slot, *h*, an arm, *j*, secured adjustably in said slot, a roller carried by the arm *j* and resting on the ratchet-wheel, and detent devices, as described, for preventing the backward movement of the ratchet-wheel, substantially as set forth.

2. The combination, in a feed-cutter, with a supporting-frame, of a feed-roller having bearing and vertically adjustable in slots of the frame, springs bearing against the upper side of the shaft of said roller, means, as described, for regulating the tension of said springs, a ratchet-wheel on the roller-shaft, the cutter-shaft, a cam on one end of the latter, a forked standard pivoted to the frame and having an elongated slot, an arm, *j*, vertically adjustable in the slot and carrying a roller, which rests on the ratchet-wheel, a dog, *t*, having a serrated face, and a stop, *u*, for said dog, substantially as set forth.

3. In a feed-cutter, the combination, with a supporting-frame, of an upper feed-roller vertically movable, springs *n*, and means, as described, for regulating the tension of the latter, a ratchet-wheel, F, the cutter-shaft, a cam, *f*, a pivoted forked standard, *g*, having a vertical slot, *h*, arm *j*, carrying roller *k*, removable fly-wheel, detent devices, as described, and an under feed-roll having tapering heads, as set forth.

350,160. TELEPHONIC APPARATUS. James W. Sim, Hamilton, Ohio. Filed Sept. 23, 1884. (No model.)



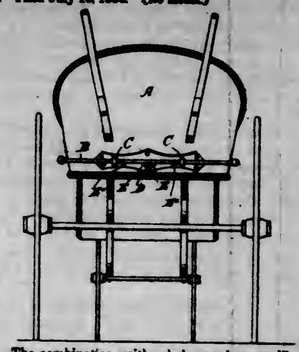
Claim.—A line-circuit including a telephone-transmitter, a local circuit including a test-bell and a circuit-closer, and a battery independently connected onto each of said circuits, combined substantially as and for the purpose set forth.

350,161. APPARATUS FOR RULING AND DESIGNING. Count Hugo Seilern, Munich, Germany. Filed Aug. 4, 1885. (No model.)



Claim.—The combination of the frames L L, with rollers *f r*, supported in frames *l l'*, respectively, and having bearings in the frames L L, and springs F *p*, substantially as and for the purpose described.

350,162. BABY-CARRIAGE. Irvine L. Smith, Montreal, Quebec, Canada. Filed July 19, 1886. (No model.)



Claim.—The combination, with a baby-carriage or like vehicle, of a sliding bar carried in rings, eyes, or brackets secured to the carriage and having a handle projecting therefrom, and stops, all as herein set forth, and for the purpose described.

350,163. CORN-PLANTER. Jacob W. Spangler, York, Pa. Filed Mar. 24, 1884. Renewed Feb. 23, 1886. (No model.)



Claim.—1. The combination of the frame-work and driving-gearing of the fertilizer-distributing mechanism, and the corn-planting mechanism located at the rear of the fertilizer-distributing mechanism and so as to be in view of the operator, substantially as shown and described.

2. The combination, with the driving-wheel, its shaft, and the framing, of the reversing clutch-gear and the overhanging flat spring shield or guard, substantially as shown and described.

3. The combination, with the feeder and driving mechanism of a corn-planter, of the driving clutch-gear provided with the disconnecting member J, loosely fitted to the driving-shaft, and removable to render the driving-gear inoperative, and the spring K, substantially as shown and described.

4. The combination, in a corn-planter, of a fertilizer-distributer arranged in front of the corn-planting mechanism, a standard or boot, and a pivoted valve arranged in such standard and operable to throw the fertilizer in front of the corn, partly in front and partly together with the corn, or altogether with the corn, substantially as described.

5. The combination, with the fertilizer-distributer, of the agitator having socketed and lipped base and a hub attached to the distributer and provided with lateral lugs to engage the socketed and lipped base to adapt the agitator for removable connection therewith, substantially as shown and described.

6. The combination, with the fertilizer-distributer, of the throat-cap having the elevated portion and large opening thereunder, substantially as shown in Fig. 13.

7. The combination, with the box q, having the walls q^2 q^3 and q^4, of the brush-bristles laid therein, and the cap r, engaging the walls of the box, and the bolt to hold said cap in place and bind the bristles in the box, substantially as shown and described.

8. The combination of a rotary plate positively driven, valves hinged thereto, a superposed grain-carrier from which the grain is discharged by the opening of such valves, and means, substantially as set forth, to set said valves to discharge one or more grains at a time, substantially as shown and described.

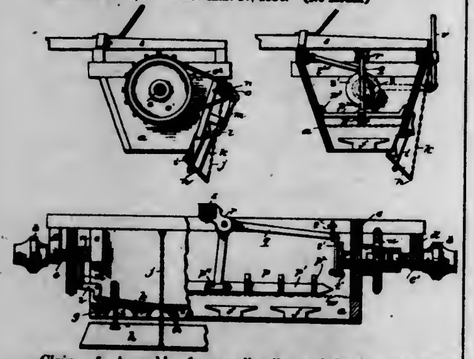
9. The combination of a rotary plate positively driven, valves hinged thereto, a grain-carrying plate removably attached to and moving with said valve-plate, a shipper-lever to set said valves to open, more or less, to discharge one grain at a time a given distance apart, or two grains twice such distance, substantially as described.

10. The combination, in a corn-planting mechanism, of a grain-carrier, a series of valves underneath the cells in said carrier, and having tappets, and a shipper having a cam-flange to engage said tappets, to throw the valves to discharge the grain, substantially as shown and described.

11. The combination, with the plate j, having arms j^1, of the valves m, having lips m^1, and pivoted to said arms, substantially as and for the purpose described.

12. In a combined corn-planter and fertilizer-distributer, a planting mechanism, a fertilizing-distributing mechanism, an outlet for each, and an outlet common to both, and a valve pivoted in said common outlet and operable to throw the fertilizer in front of the descending seed, or partly in front and partly together with the seed, or altogether with it, substantially as described.

350,164. BROADCAST FERTILIZER-DISTRIBUTER. JACOB W. SPANGLER, York, Pa. Filed Mar. 17, 1886. (No model.)



Claim.—1. A machine for spreading lime and fertilizer broadcast, comprising a hopper having suitable feeders for ejecting the fertilizer from the same and a shaker-board arranged, substantially as set forth, to receive the material to be distributed from the outlets of said hopper and discharge it rearwardly of the hopper, substantially as described.

2. A hopper of substantially the type shown and described, provided with the feeders, combined with a board adjustably and movably hung at the rear of the outlets of said hopper and means to impart a reciprocating shaking motion to said board in the direction of its length, substantially as set forth.

3. A wheeled hopper and feeders therein, combined with a board movably and adjustably hung in the rear of said hopper in line with its outlets, a crank or its described equivalent, and connections for the same with a source of motion and the said board, substantially as described.

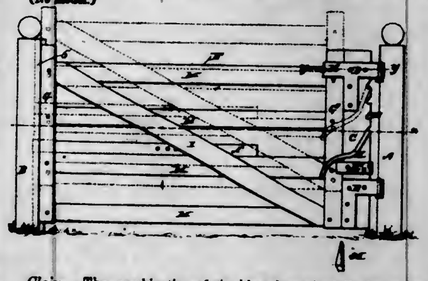
4. A hopper, combined with supporting-wheels and their independent and disconnected axles arranged at or near the top of the hopper, at opposite sides, substantially as described.

5. An agitator comprising a bar provided with lateral arms and adapted to be placed loosely in a hopper and loosely connected to its motive power, so as to rise and fall independently of it, substantially as described.

6. In a fertilizer-distributer, a removable agitator provided with a socket, p^3, combined with an elbow-lever, q, loosely fitted in said socket, a vibrator for said lever, and means to keep it in a vertical path, substantially as described.

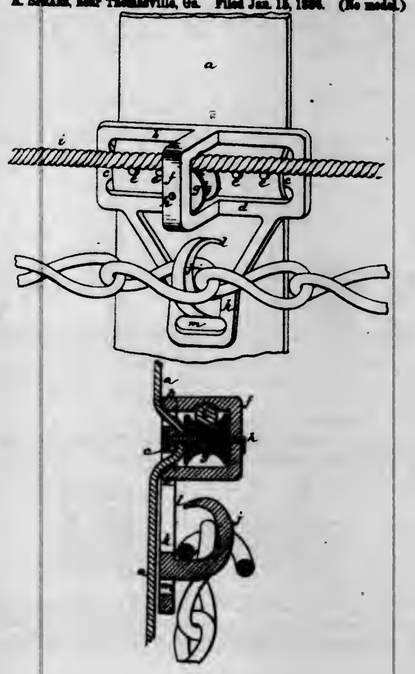
7. A hopper and its laterally-projecting frame, combined with supporting-wheels and their axle arranged in bearings in or upon the said laterally-projecting frame at or near the top of the hopper, substantially as described.

350,165. GATE. SILAS SPAKER, Pomeroy, Ohio. Filed May 15, 1886. (No model.)



Claim.—The combination of the hinged standard C, the straps K on opposite sides of the upper end thereof and having the hooks K², the straps K' on opposite sides of the said standard, near the lower end thereof, the said straps K' being without hooks, and the gate having the vertical bar G' at its inner end, the said bar being placed between the straps K and K' and engaged at its upper end, on its inner side, by the hooks K², and the wedge or key adapted to be inserted between the lower ends of the hinged standard C and the bar G', for the purpose set forth, substantially as described.

350,166. TRACE AND REIN CARRIER FOR HARNESS. JOHN A. SPEARS, near Thomasville, Ga. Filed Jan. 15, 1886. (No model.)



Claim.—1. In a system of operating railroads by means of cables, substantially in the manner set forth, the combination, with cars provided with suitable cable-gripping mechanism and with a main or carrier cable, of an auxiliary or starting cable, provided with means, substantially such as described, for stopping and starting it and causing it to attain a speed equal to that of the said main or carrying cable, substantially in the manner and for the purpose described.

2. In a system of operating railroads by means of cables, substantially as set forth, one or more intermediate conveying-cables between stations or termini, in combination with auxiliary starting-cables arranged at the intermediate stations or termini, substantially in the manner and for the purpose described.

3. In a system of operating railroads by means of cables, substantially in the manner set forth, the means herein shown and described for stopping and starting the cables, in combination with the lateral deviations in the track, substantially in the manner and for the purpose described.

4. In a system of operating railroads by means of cables, substantially in the manner and for the purpose described, the means herein shown and described for automatically loosening or tightening the cable-gripping device upon the car, in combination with the lateral deviation in the track, substantially in the manner and for the purpose described.

5. In a system of operating railroads by means of cables, substantially in the manner and for the purpose described, the means, substantially such as described, for automatically bringing the parts into proper relative position for engaging and disengaging the cable, consisting of the grip and idlers upon the car in combination with the lateral deviations in the track and the elevated and inclined portion of the cable, substantially in the manner and for the purpose described.

6. In a system of operating railroads by means of cables, substantially in the manner and for the purpose described, the combination, with the gripping mechanism, of the cable-supporting idlers upon the car, substantially in the manner and for the purpose described.

Claim.—1. The combination, with the back-band and the buckle part having the toothed bar c and the loop f, of the roller g, arranged in relation to the said toothed bar c to confine the back-band upon the teeth thereof and to carry the reins, as shown and described.

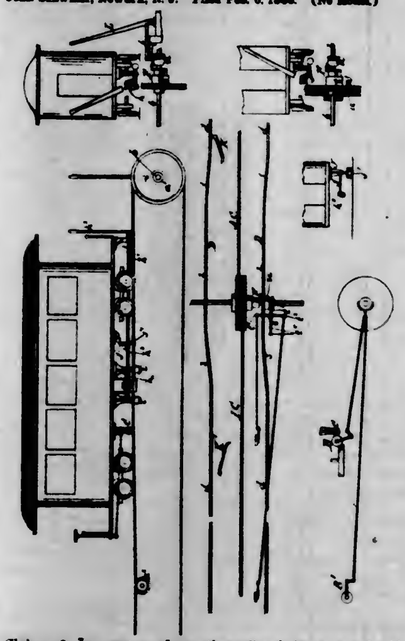
2. The plow-harness carrier herein described, consisting of the buckle part having the middle toothed bar, c, the loop f, the removable pin A, passed through the said toothed bar and the back-band, and the grooved roller g, confined by said pin against the back-band at the point of its crossing the toothed bar, as and for the purpose described.

350,167. POST-HOLE BORER. JAMES C. STALEY, Glade Hills, Pa. Filed Mar. 17, 1886. (No model.)



Claim.—In an earth-auger such as described, the cutting-blades formed from one piece of metal, each blade being inclined at a different angle from the adjoining blades, and the said piece of metal being provided with a perforation in the center for the reception of a handle, substantially as shown and described.

350,168. MEANS OF OPERATING RAILROADS BY CABLES. JOHN STEWART, Newark, N. J. Filed Feb. 6, 1886. (No model.)



Claim.—1. In a system of operating railroads by means of cables, substantially in the manner set forth, the combination, with cars provided with suitable cable-gripping mechanism and with a main or carrier cable, of an auxiliary or starting cable, provided with means, substantially such as described, for stopping and starting it and causing it to attain a speed equal to that of the said main or carrying cable, substantially in the manner and for the purpose described.

2. In a system of operating railroads by means of cables, substantially as set forth, one or more intermediate conveying-cables between stations or termini, in combination with auxiliary starting-cables arranged at the intermediate stations or termini, substantially in the manner and for the purpose described.

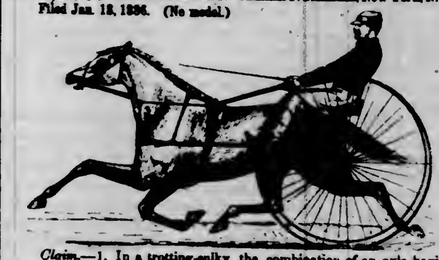
3. In a system of operating railroads by means of cables, substantially in the manner set forth, the means herein shown and described for stopping and starting the cables, in combination with the lateral deviations in the track, substantially in the manner and for the purpose described.

4. In a system of operating railroads by means of cables, substantially in the manner and for the purpose described, the means herein shown and described for automatically loosening or tightening the cable-gripping device upon the car, in combination with the lateral deviation in the track, substantially in the manner and for the purpose described.

5. In a system of operating railroads by means of cables, substantially in the manner and for the purpose described, the means, substantially such as described, for automatically bringing the parts into proper relative position for engaging and disengaging the cable, consisting of the grip and idlers upon the car in combination with the lateral deviations in the track and the elevated and inclined portion of the cable, substantially in the manner and for the purpose described.

6. In a system of operating railroads by means of cables, substantially in the manner and for the purpose described, the combination, with the gripping mechanism, of the cable-supporting idlers upon the car, substantially in the manner and for the purpose described.

350,169. TROTTING-SULKY. CHARLES F. SPILLMAN, New York, N. Y. Filed Jan. 18, 1886. (No model.)



Claim.—1. In a trotting-sulky, the combination of an axle having short horizontal arms at its extremities to receive the wheels and arched above the plane of the shafts, and traction-shafts loosely pivoted to each side of the said axle, substantially as described.

2. The combination, in a trotting-sulky, of an axle arched above the plane of the shafts, traction-shafts loosely pivoted to said axle, and springs attached to said axle and bearing upon the upper and lower surfaces of said shafts.

3. In a trotting-sulky, an axle arched above the plane of the shafts, said axle formed continuous with the shafts, and having short horizontal arms attached thereto to receive the wheels, substantially as described.

4. The combination, in a trotting-sulky, and with the axle thereof, of traction-shafts loosely pivoted to said axle, and springs fixedly attached to said axle and bearing upon the upper and lower surfaces of said shafts.

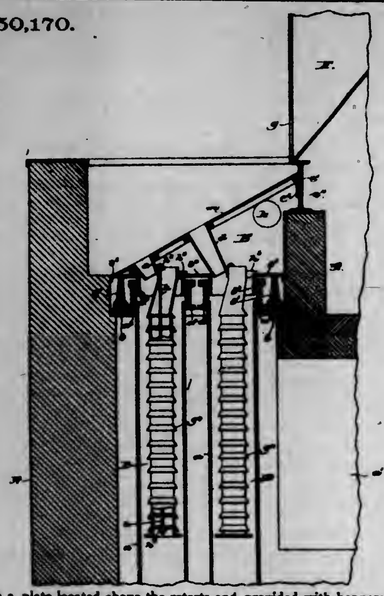
350,170. BONE-BLACK REVIVIFIER. JOSEPH F. STILLMAN, Brookline, Mass. Filed Mar. 25, 1886. (No model.)

Claim.—1. In a kiln for revivifying bone-black, the combustion-chamber, one or more passages or chambers communicating with said combustion-chamber, one or more retorts in said passages, and the chute F, to contain unrevivified bone-black, combined with a plate located above the retorts to form a chamber, E, and hoppers projecting from the said plate into said retorts, said chamber receiving the aqueous vapor and products of combustion arising from said retorts, substantially as described.

2. In a kiln for revivifying bone-black, the combustion-chamber, one or more passages or chambers communicating with said combustion-chamber, one or more retorts in said passages, a pipe in each retort, and the chute F, to contain unrevivified bone-black, combined with a plate located above the retorts and provided with hoppers projecting into said retorts, a chamber, E, being left below the said plate and above said retorts, said chamber receiving the aqueous vapor and products of combustion arising from said retorts, substantially as described.

3. In a kiln for revivifying bone-black, the combustion-chamber, one or more passages or chambers communicating with said combustion-chamber, one or more retorts in said passages, a sectional pipe in each retort, and the chute F, to contain unrevivified bone-black, combined

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with a plate located above the retorts and provided with hoppers projecting into said retorts, a chamber, E, being left below the said plate and above said retorts, said chamber receiving the aqueous vapor and products of combustion arising from said retorts, substantially as described.

4. In a kiln for revivifying bone-black, the combustion-chamber, one or more passages or chambers communicating with said combustion-chamber, one or more retorts in said passages, a sectional pipe in each retort, and the chute F, to contain unrevivified bone-black, combined with a sectional plate located above the retorts and provided with hoppers projecting into said retorts, a chamber, E, being left below the said plate and above said retorts, said chamber receiving the aqueous vapor and products of combustion arising from said retorts, substantially as described.

5. In a kiln for revivifying bone-black, the combustion-chamber, one or more passages communicating with said chamber, and the retorts a in each of said passages, combined with the plate composed of sections m, each section having a stud, c', and one or more openings, c, to receive a hopper, d, and with the girder c^4, having the bracket c^5, to be engaged by the stud c', to lock and maintain the section m in place, substantially as described.

6. In a kiln for revivifying bone-black, the combustion-chamber, one or more passages communicating with said chamber, the retorts a in each of said passages, and the plate located above said retorts and composed of sections m, provided with flanges m', combined with the girder m^2, adapted to receive a flange, m', of each of two contiguous sections and form a seal for said plate, as and for the purpose set forth.

7. The pipe B, composed of superimposed sections provided each with a projecting lip and passages g^3, combined with the rod A, extended through said pipe, and provided with means, substantially as described, at its top and bottom to unite said superimposed sections, as and for the purpose set forth.

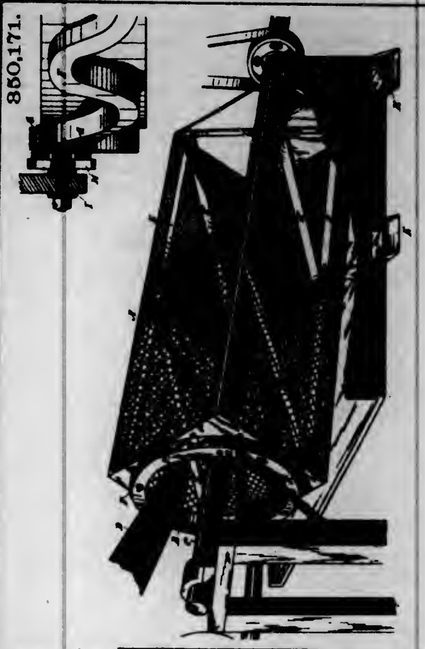
8. The pipe B, composed of superimposed sections provided each with projecting lip and passages g^3 and cross-bar h', having an opening, combined with the rod A, provided with means, substantially as described, at its top and bottom to unite said superimposed sections, as and for the purpose set forth.

350,171. SEPARATOR OR CLEANER. Alfred Dwindle, San Francisco, Cal. Filed Feb. 24, 1886. (No model.)

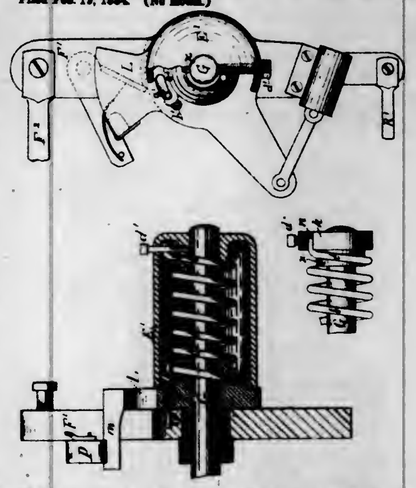
Claim.—1. In a rotary separator or cleaner, the horizontal shaft and the screen box or chamber provided at one end with a serpentine cam, in combination with a stationary spindle and a plate having its center turning upon said stationary spindle and its ends provided with rollers, which project upon each side of the cam, substantially as herein described.

2. In a separator or cleaner, the combination of a rectangular screen box or chamber provided with the lifting-plates E, projecting from near its angles, and the diagonal distributing-plates E', with the horizontal shaft and means for longitudinally reciprocating said rectangular screen box or chamber, substantially as described.

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350,172. VALVE-GEAR. Nelson W. Twiss, New Haven, Conn. Filed Feb. 19, 1884. (No model.)



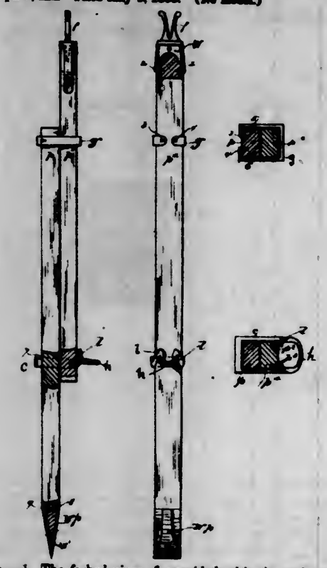
Claim.—1. In automatic valve-gearing having an oscillating cut-off valve within and concentric to the main valve, the combination, with the valve stems or shafts, of a spiral spring coiled around the cut-off-valve stem and arranged to act torsionally on the respective valve-stems and the cut-off valve, and a cup or case inclosing the spring and secured upon the cut-off-valve stem, substantially in the manner and for the purpose described.

2. The combination of the cut-off-valve stem or shaft G, the main-valve crank F', the cylindrical cup or case E', secured on the valve-stem, and the spiral spring c', inclosed within the case, coiled around the cut-off-valve stem, secured to the main-valve crank, and adapted to act on the cut-off-valve stem in the direction to close the valve, substantially in the manner described.

3. In automatic valve-gearing having an oscillating cut-off valve within and concentric to the main valve, the combination, with the valve stems or shafts, of a spiral spring coiled around the cut-off-valve stem and arranged to act at one end torsionally on the main-valve crank, and

an adjustable collar clamped upon the cut-off-valve stem, and having a projection or abutment upon which the opposite end of the spring acts to close the valve, substantially in the manner and for the purpose specified.

350,173. CLOTHES-LINE SUPPORT. Calvin G. Udell, North Indianapolis, Ind. Filed May 2, 1886. (No model.)



Claim.—1. The forked piece *f*, provided with the web *w* and the lateral spurs 1 and 2, in combination with the pole *p'*, provided with a slot at its upper end to receive the web of the forked piece, substantially as shown and described.

2. The guide *g*, provided with spurs on the sides and on one end for driving into the pole, substantially as described.

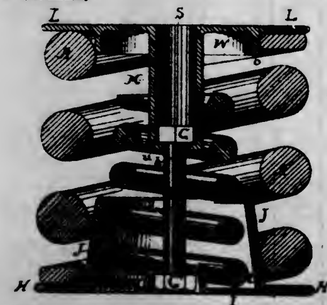
3. The clamp *c*, provided with pivots p^2 on the inside, projection 7 at one end, and the legs *l* and handle *h* at the other, substantially as described.

4. The wedge-point *wp*, adapted to receive the wedge-shaped end of the pole *p*, and provided with the transverse central web, *w'*, and the spurs 8 and 9, substantially as described.

5. The pole *p'*, having the clamp *c* hinged at the lower end thereof by means of the pivots p^2, formed on the inside of the clamp, the forked piece *f*, having the central web, *w*, fastened to the upper end thereof, in the manner herein shown, and the pole *p*, having the guide *g* fastened at the upper end thereof, all combined substantially as described.

6. The pole *p'*, having the forked piece *f*, provided with the web *w* and the spurs 1 and 2, fastened to the upper end thereof, in the manner herein shown, the clamp *c*, hinged to the lower end thereof by the pivots p^2 entering openings in the sides of the pole, the pole *p*, having the guide *g* fastened to the upper end thereof, and the wedge-point *wp* at the lower end thereof, all combined substantially as described.

350,174. CAR-SPRING. Reinard Voss, New York, N. Y. Filed Sept. 30, 1884. (No model.)



Claim.—1. The combination, with a base-plate constructed in annular form and provided around its inner circular aperture with an upwardly-projecting circumferential flange, and an exterior coil resting upon the base-plate outside of said flange, of an interior coil arranged within the circular aperture formed in said base-plate and within the circumferential flange, substantially as described.

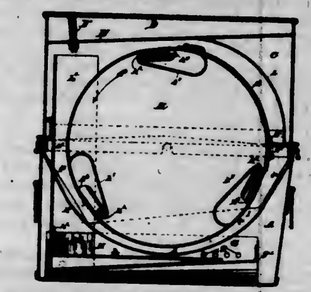
2. The combination, with an exterior coil and an interior coil, of a top plate or cap provided with a circumferential flange depending from its under side for engagement with the interior of the external coil, and a centrally-arranged sleeve-like portion which enters the upper end of the interior coil, substantially as described.

3. The combination, with a base-plate constructed in annular form and provided with an upwardly-projecting circumferential flange around the central circular aperture formed therein, an exterior coil resting upon said base-plate outside the circumferential flange, an interior coil arranged within said flange, and a disk for supporting said interior coil, of a top plate or cap having centrally-arranged depending sleeve-like portion, which enters the upper end of the interior coil and is provided with a recess or chamber and an aperture, and a bolt passing through said aperture, through the interior coil, and through the disk, substantially as described.

4. The combination, with an exterior conical coil and an interior coil, of a top plate or cap provided with a sleeve-like portion depending from its under side and entering the upper end of the interior coil, substantially as described.

5. The combination, with an exterior and an interior conical coil, of a base-plate made in annular form and provided with an upwardly-projecting circumferential flange extending up between the coils, substantially as described.

350,175. WASHING-MACHINE. Simon H. Waldeer, Louisburg, Kans. Filed Aug. 20, 1885. (Model.)



Claim.—1. The cylinder K, having the openings k^1, having the inclined sides, conductors k^2, arranged on the inclined sides of the openings and communicating with the interior of the cylinder, discharge-openings in the sides of the cylinder communicating with the conductors k^2, and perforated bottoms or covers for the openings k^1, substantially as described.

2. The combination of the boiler, the clear-water pan suspended or supported therein, and the cylinder journaled in the boiler, the lower side of the cylinder entering the clear-water pan, substantially as described.

3. The combination of the boiler, the rotating clothes-cylinder therein, the condenser, and the clear-water pan for receiving the waters of condensation and supplying the same to the clothes-cylinder, whereby the latter will be supplied with a constant accession of clear, pure water, substantially as described.

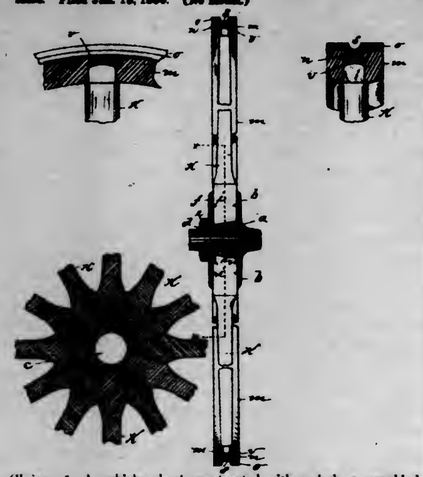
4. The combination of the boiler, the rotating cylinder therein, the condenser, the clear-water pan for receiving the waters of condensation and supplying the same to the clothes-cylinder, and the pan to receive the impure water from the clothes-cylinder, substantially as described.

5. The combination of the boiler, the rotating cylinder therein, the dirt-pan for collecting the sediment, the condenser, the clear-water pan for receiving the waters of condensation and supplying the same to the clothes-cylinder, and the cover H for the dirt-pan, to prevent diffusion of the sediment therein, substantially as described.

6. The combination of the boiler having the condensing chamber or reservoir on its top, the cylinder journaled in the boiler, the pan G, located in the bottom of the boiler and having the inclined bottom, the cover H, located in the pan, and the clear-water pan above the said cover, in which the lower side of the cylinder revolves, substantially as described.

7. The combination of the boiler, the rotating cylinder, and the clear-water pan for supplying water to the cylinder, the latter having openings in its periphery to receive the water from the pan, and inclined discharge-conductors for conveying the impure water in the cylinder through the sides of the same over the sides of the clear-water pan as the cylinder rotates, to avoid polluting the water in the clear-water pan, substantially as described.

350,176. VEHICLE-WHEEL. George T. Warner, Springfield, Mass. Filed Jan. 18, 1886. (No model.)



Claim.—1. A vehicle-wheel constructed with a hub, *a*, provided with a conical spoke-abutment, *c*, and with the fixed flange *b* at the larger end of said abutment, and having the nut *e* screwed thereon opposite the small end of the latter, combined with the loose flange *f*, the spokes *k*, having their inner ends made in the form in cross-section of truncated cones, the felly *m*, having an annular groove in its periphery, and the tire *o*, having the rib *n* to fit said groove in the felly and the annular groove *s* in its outer surface, substantially as set forth.

2. The hub *a*, having the conical spoke-abutment *c*, the fixed flange *b* at the larger end of said abutment, and the nut *e*, screwed thereon opposite the small end of the latter, combined with the loose flange *f*, the spokes *k*, the felly *m*, having an annular groove in its periphery and the rubber cushions *v* in its spoke-holes, and the tire *o*, having the rib *n* to fit said annular groove in the felly and the annular groove *s* in its outer surface, substantially as set forth.

3. A vehicle-wheel having a tire provided with an annular groove in its outer surface midway between its edges and a corresponding rib projecting from its inner surface, combined with a felly having a groove in its periphery to receive said rib, a series of spokes, and a hub, *a*, having the conical spoke-abutment *c*, and means, substantially as described, for clamping the inner ends of said spokes on said abutment, substantially as set forth.

350,177. ELECTRIC WINDING DEVICE FOR CLOCKS. William F. Wirsching and Ida C. Hibbard, New York, N. Y., assignors, by direct and mesne assignments, to the Standard Electric Clock Company, same place. Filed Apr. 23, 1884. (No model.)

Brief.—A circuit-closer connected with the pendulum is made to act at definite intervals to vitalize an electro-magnet. The armature, when attracted, raises a weighted lever so connected with the mainspring as to wind it by its descent. The arrangement is such as to wind the spring faster than it runs off. The action of the armature is used to transmit impulses to a secondary clock.

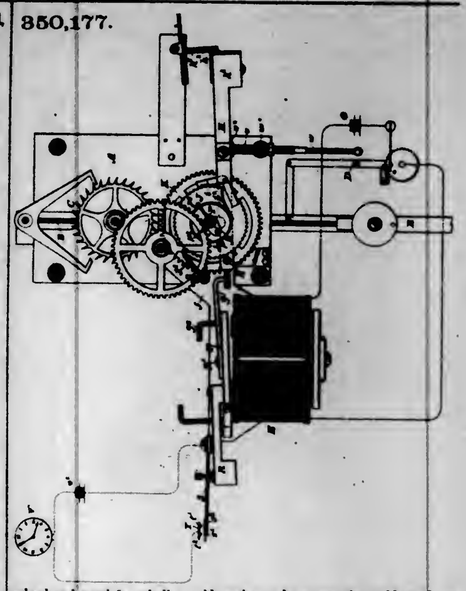
Claim.—1. The combination, substantially as hereinbefore set forth, of a revolving arbor, a wheel movable upon said arbor, a revolving arm also carried upon said arbor, and two stops respectively carried upon said arbor and wheel for engaging the respective extremities of said arms.

2. The combination, substantially as hereinbefore set forth, with a spring in a clock-winding mechanism, of a weighted lever for communicating energy to said winding mechanism, an electro-magnet and its armature for placing said weighted lever in position to actuate said winding mechanism, means, substantially such as described, for preventing the further winding of said spring when it is under a predetermined tension, and a rod for manually actuating said lever.

3. The combination, substantially as hereinbefore set forth, of a clock mechanism, an electro-magnet periodically vitalized through the action of said mechanism, a spring or weight for actuating said mechanism, a lever actuated by said electro-magnet, a ratchet-wheel advanced by the action of said lever, and having a number of teeth less than the number of times said lever is actuated during a single revolution of the arbor primarily actuated by said wheel, and a rod for manually actuating said lever.

4. The combination, substantially as hereinbefore set forth, with a clock-escapement, of a spring for actuating said escapement, of a ratchet-

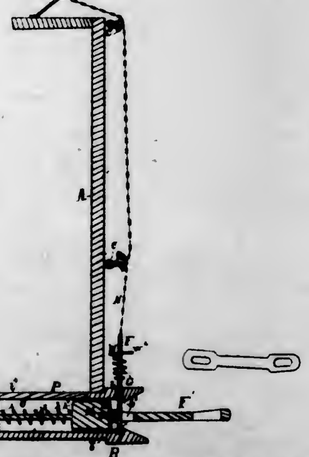
350,177.



wheel and pawl for winding said spring, a lever carrying said pawl, an electro-magnet, its armature and armature-lever for actuating said lever, an extension carried upon said armature-lever, an adjustable insulated circuit-closing arm carried upon said extension, a contact-point applied thereto, and an electric circuit having its terminals at said point and circuit-closing arm, respectively.

5. The combination, substantially as hereinbefore set forth, with a clock-movement and an electrical winding device applied thereto, consisting of an electro-magnet and armature-lever, a ratchet-wheel and intermediate mechanism for revolving said ratchet-wheel by the movements of said armature-lever, of a circuit-closing arm carried by said armature-lever, having a forked end, one fork being lower than the other, and two electrically-connected contact-points respectively applied to these forks.

350,178. CAR-COUPLING. Thomas J. Williams, Ozark, Mo. Filed Aug. 16, 1886. (No model.)



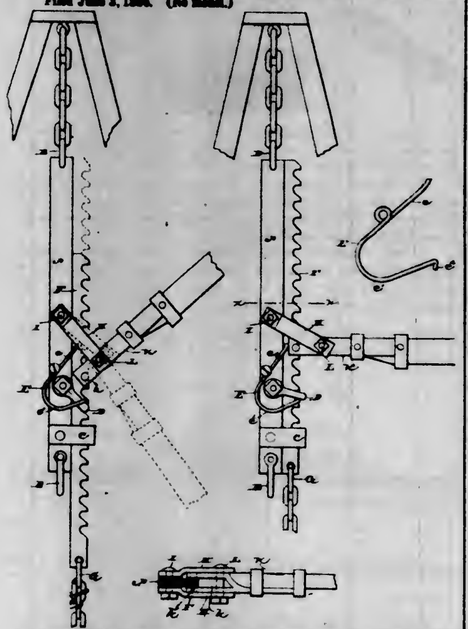
Claim.—1. In a car-coupling, a draw-head, B, provided with a head-block, H, which is provided with a spring, A, combined with a pin, F, having a spring, G, and a support, W, having a hinged collar, w^2, substantially as shown and described.

2. The combination of a hollow draw-head, B, having a head-block, H, provided with a spring, A, and a pin, F, having a support, W,

and a spring, G, with a chain, N, provided with cams C C', and levers L^2 K, substantially as shown and described.

3. The combination, with levers L^2 and K, having a chain provided with cams C C', of a pin, F, provided with a spring, G, and a support, W, a hollow draw-head, B, provided with a head-block, H, having a spring, A, and link F', substantially as shown and described.

350,179. STUMP-EXTRACTOR. William H. Webber, Laconia, N. H. Filed June 3, 1886. (No model.)



Claim.—The combination, in a stump-extractor, of the bar A, the sliding ratchet-bar, the detent or dog pivoted to the bar A to engage the teeth of the ratchet-bar, the pivoted spring-lever E, having the upper arm, e, and the lower arm, e', adapted to engage either side of the dog or detent, the link-arms having their upper ends pivoted to the bar A, and the hand-lever pivoted to the lower end of the link-bars and adapted to engage the teeth of the ratchet-bar, and also the arm s of the spring-lever, for the purposes set forth, substantially as described.

350,180. BED-SPRING. Elam B. Yaeger, Kenton, Ohio. Filed June 3, 1886. (No model.)



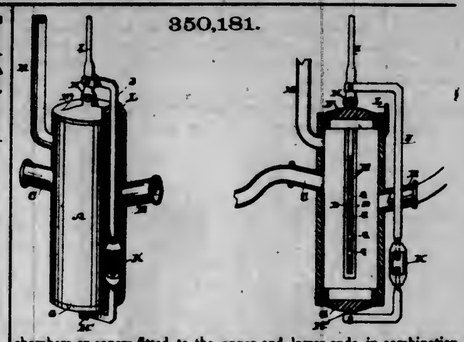
Claim.—As a new article of manufacture, a bed-spring made of a single piece of wire and having a foot, C, formed from the same piece of wire and comprising the vertical binding-arms D and F, arranged to bear against the sides of a bed-slat, and the horizontal V-shaped portion E, lying between and connecting the vertical arms, and having the arms thereof arranged at an acute angle to each other and bearing against the bottom of the bed-slat, to which the spring is adjusted, substantially as described, for the purpose set forth.

350,181. GREASE-TRAP. Charles H. Ackerson, San Francisco, Cal. Filed Apr. 9, 1886. (No model.)

Claim.—1. The combination, with a vertical chamber and a diaphragm or partition arranged therein, of the removable covers or sediment-chambers upon the upper and lower end of said chamber, and the connecting-arm J, attached to both covers, whereby said covers operate in unison, substantially as described.

2. A vertical chamber or cylinder with the inlet and outlet passages, transverse perforated diaphragm or partition, and the sediment

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chambers or covers fitted to the upper and lower ends, in combination with the bent arm or link connecting the two covers, and a lever fulcrumed so as to move the arm and close or enclose the two covers, substantially as described.

3. The vertical chamber with inlet and outlet passages, transverse perforated diaphragm and covers fitting the upper and lower ends, respectively, with centrally-arranged exterior lugs, in combination with a bent arm the length of which is made adjustable, the lower end hinged to the lower cover and the upper end to a lever which is fulcrumed upon the upper cover, substantially as described.

4. The covers fixed upon the upper and lower ends of the chamber, the bent arm or link fulcrumed to the upper cover, in combination with a fixed projection or fulcrum extending upward at the side of the chamber, so that the lever may rest upon it when thrown down, substantially as described.

350,182. GAS-REGULATOR. William Armbruster, New York, N. Y. Filed Mar. 22, 1886. (No model.)

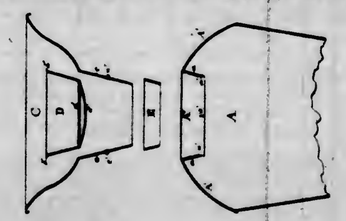


Claim.—1. In a gas-regulator, the valve-shell made in two sections, one having a transverse slot and an external screw-thread extending above and below said slot, and the screw-ring fitted to said thread, in combination with the valve, the valve-stem, the valve-spring, the hollow set-screw, and the operating-rod projecting laterally from said screw into said slot of the shell, the whole adapted to operate substantially as herein described.

2. In a gas-regulator, the valve-shell made in two sections, one having a transverse slot provided with a recess on the outer edge and having an external screw-thread extending above and below said slot, and the screw-ring fitted to said thread, in combination with the valve, the valve-stem, the valve-spring, the hollow set-screw, and the operating-rod projecting laterally from said screw into said slot of the shell, the whole being adapted to operate substantially as herein described.

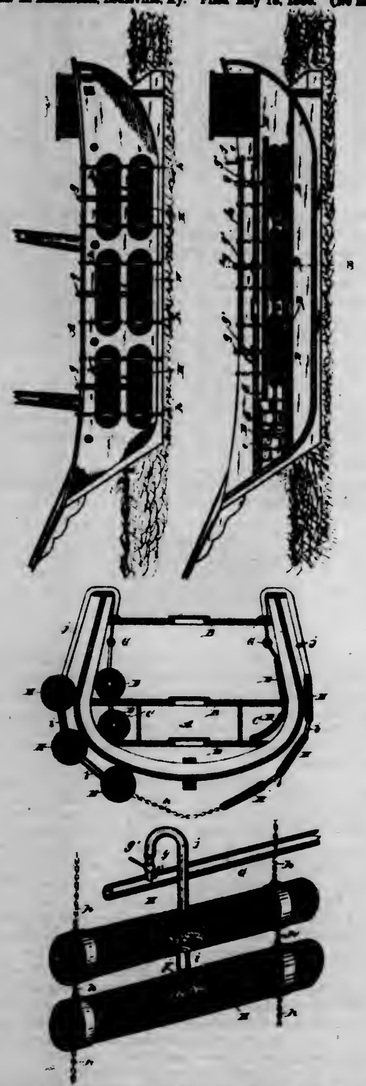
3. In a gas-regulator, the valve-shell made in two sections, one having a transverse slot, an external screw-thread extending above and below said slot, and a shoulder at both the upper and lower ends of said thread, and the screw-ring fitted to said thread and constructed with an inwardly-projecting flange on the upper edge to abut against said upper shoulder, the lower edge of the ring abutting against said lower shoulder, in combination with the valve, the valve-stem, the valve-spring, the hollow set-screw and the operating-rod projecting laterally from said screw into said slot of the shell, the whole being adapted to operate substantially as herein described.

350,183. MILK-PAIL STRAINER. Joseph O. Bramley and Henry S. Brewington, Baltimore, Md. Filed July 15, 1886. (No model.)



Claim.—The combination of the strainer-bowl having the conical flange *c* and pins *c'* with the pail A, having a dome-shaped top provided with a conical flange, *a*, having slots *a'* around the opening in the dome, substantially as described.

350,184. STEAM FOR PREVENTING VESSELS FROM SINKING. Jesse A. Bennerson, Louisville, Ky. Filed May 13, 1886. (No model.)



Claim.—1. The combination, with a vessel's hull, of collapsible bags connected together in a series by means of pipes provided with valves and located at the middle of the length of the bags, also connected together by means of chains near their ends, the supply-pipes *j*, coupled to branch pipes of main pipes located along the sides of the vessel inside thereof and communicating with a reservoir adapted to contain compressed air, and the cocks applied to said branch pipes and connected by their handles to an endwise-movable rod, by which all of the cocks can be opened simultaneously, substantially as and for the purposes described.

2. A vessel's hull provided with collapsible bags or floats connected together by means of vertical pipes and chains in several series and communicating with mains inside of the vessel by means of pipes provided with valves adapted to be moved by a single rod, the reservoir with which said mains communicate, and the collapsible bags located inside of the vessel, communicating with each other and also with said reservoir by means of pipes provided with a cock, substantially as described.

350,185. BRUSH. Joseph C. Bonsall, Toledo, Ohio, assignor of one-half to John Ames, Jr., same place. Filed Dec. 17, 1885. (No model.)

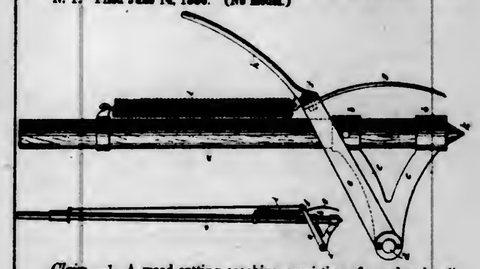


Claim.—1. The combination of the brush-back A, the handle C, the metallic clamps or fastenings D, having closed bottoms, and devices for securing the clamps to the sides of the brush-back.

2. In brushes having flexible cross-handles applied to their backs and metal clamps or fastenings for securing the same, the metal clamps D, constructed on their inner faces with end lips, *b b*, and a bottom lip, *c*, essentially as shown and described.

3. The combination of the brush-back A, the flexible handle C, having indentations on their outer sides and bulges on their inner sides that correspond with grooves in the sides of the brush-back, and the staples E E, for securing the fastenings to the brush-back.

350,186. WEEDING IMPLEMENT. Alfred G. Compton, New York, N. Y. Filed June 14, 1886. (No model.)



Claim.—1. A weed-cutting machine consisting of a rod or handle having a projecting arm or portion near its lower end, to some part of which projecting arm or portion a knife-carrying frame or lever is pivoted, and a knife attached to said frame or lever, the knife-frame being pivoted at a point sufficiently near the end of the rod to enable the knife to pass freely under the end of the rod and beyond that end for any desired distance, and a spring or other suitable means for raising the knife-carrying frame or lever with the knife, substantially as and for the purposes set forth.

2. A weed-cutting machine consisting of a rod or handle having a projecting arm or portion near its lower end, to some part of which projecting arm or portion a knife-carrying frame or lever is pivoted, and a knife and a foot-piece attached to said frame or lever, the knife-frame being pivoted at a point sufficiently near the end of the rod to enable the knife to pass freely under the end of the rod and beyond that end for any desired distance, and a spring or other suitable means for raising the knife-carrying frame or lever with the knife, substantially as and for the purposes set forth.

3. A machine for cutting out weeds or the like from the ground, consisting of the handle *a*, the metal rings *b b*, the braces *c c*, the bar *d*, the arms *e e*, the cross-piece *f*, the knife *g*, the foot-piece *h*, the spring *i*, and the spike *k*, substantially as and for the purposes set forth.

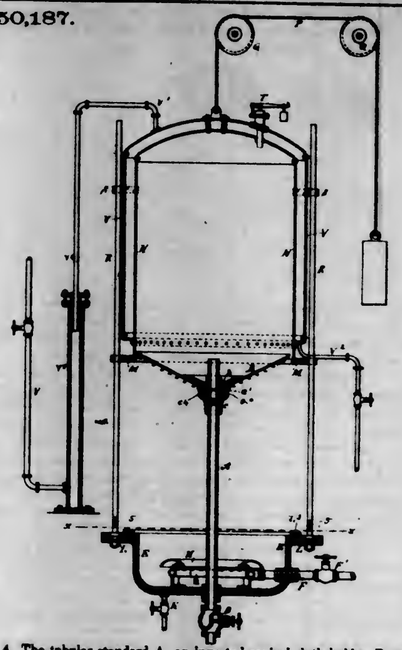
350,187. APPARATUS FOR STEAMING CLOTH. Charles Courland, Seymour, Conn. Filed Oct. 5, 1885. (No model.)

Claim.—1. A cloth-holder in the form of an inverted cone having hooks upon its under surface arranged spirally or as a volute, in combination with a central support upon which the cloth-holder can be revolved in applying or removing the cloth, and a surrounding case and steam-supply pipe, substantially as set forth.

2. The tubular standard A, having around the same a flange and ball-bearings, in combination with a cloth-holder in the form of an inverted cone and hooks upon such cloth-holder arranged as a volute, there being an opening into the tubular standard for passing away any water of condensation, substantially as set forth.

3. The standard A and inverted conical cloth-holder with hooks upon its under surface, in combination with a base and steam-supply pipe, and an inclosing-case resting upon the base and surrounding the cloth-holder and cloth, and means for raising and lowering such inclosing-case, substantially as set forth.

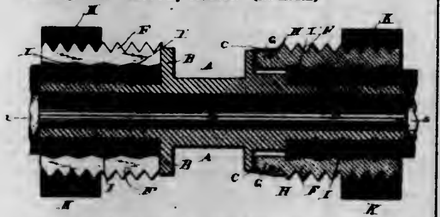
350,187.



4. The tubular standard A, an inverted conical cloth-holder, B, and hooks upon its under surface, in combination with the hollow base F, perforated steam-supplying ring G, deflector H above the same, the movable inclosing-case N, guide-rods R, and a steam-jacket and pipes connected to the same around the case N, substantially as set forth.

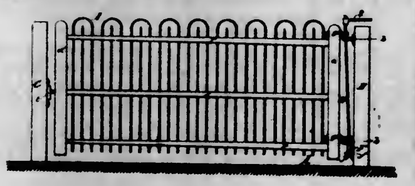
5. The means herein specified for suspending a piece of cloth from one edge and for allowing it to be put in place or removed rapidly, consisting in a central support, a volute range of suspending-pins, and an inverted conical support for the same, so that the volute range as they increase in diameter are successively higher up, for the purposes set forth.

350,188. HOSE-COUPLER. Joshua J. Ogg and Asea J. Allison, Pittsburg, Kans. Filed July 19, 1886. (No model.)

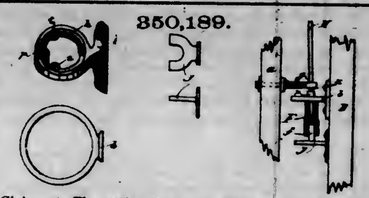


Claim.—The combination, in a hose-coupler, of the body A, having the spindles to receive the ends of the hose, and the flanges B, provided with the sockets C, the semi-cylindrical clamping-jaws F, having the interior corrugations to bear against the hose on the spindles, the exterior screw-threads, and the projecting tongues G, entering the sockets C and pivoted therein, and the interiorly-threaded clamping-collars K, to screw onto the clamping-jaws, substantially as described.

350,189. AUTOMATIC SWINGING GATE. Samuel L. Dunbeny, Gap, assignor to Israel L. Landis, Lancaster, Pa. Filed Dec. 26, 1885. (No model.)



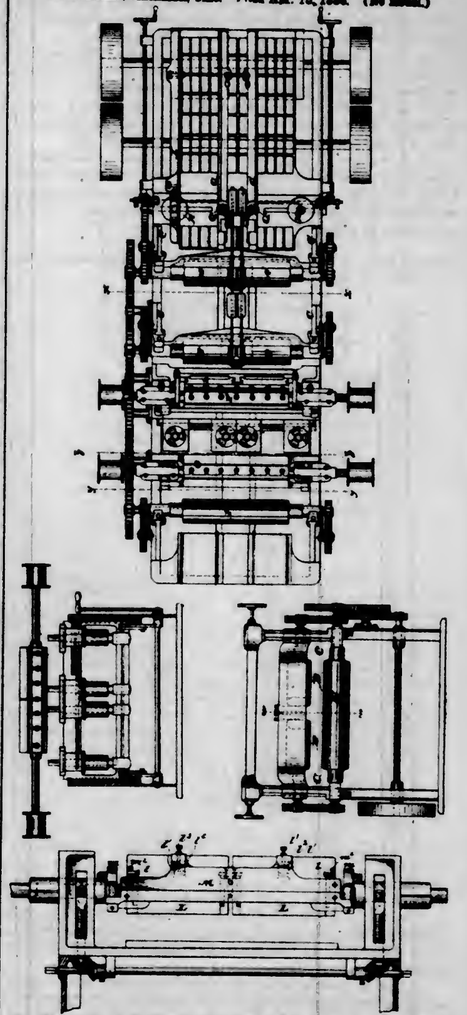
350,189.



Claim.—1. The combination, in an automatic swinging gate, of the gate A, vertical shaft H, rings *h h*, ring-brackets *b b*, roller-socket F, roller *f*, plate J, and crank *q*, substantially as set forth.

2. The combination of the gate A, vertical shaft H, rings *h*, ring-brackets *b*, socket F, roller *f*, plate J, crank *q*, rod R, and lever *n*, substantially as described.

350,190. DUPLEX PLANING AND MATCHING MACHINE. William H. Doane, Cincinnati, Ohio. Filed Apr. 15, 1886. (No model.)



Claim.—1. A duplex planing and matching machine constructed with a planing-cylinder or planing-cylinders exceeding substantially across the bed of the machine, upper feeding mechanism arranged to leave an unobstructed passage for lumber beneath the same across the machine, and duplex matcher-works arranged to be dropped below the bed-plate, substantially as described.

2. In a duplex planing and matching machine, the combination, substantially as before set forth, with duplex feeding-in rolls and a single long upper planing-cylinder, of drop matcher-works and a removable duplex center fence, whereby the machine is enabled to plane and match two narrow boards simultaneously, or, on dropping the matcher-works, to plane two narrow boards simultaneously, or, on dropping the matcher-works and removing the duplex center fence, to plane one wide board.

3. In a duplex planing and matching machine, the combination, substantially as before set forth, with duplex feeding-in rolls, a single long upper planing-cylinder and a single long lower planing-cylinder, of drop matcher-works and a removable duplex center fence, whereby the machine is enabled to plane and match two narrow boards simultaneously, or, on dropping the matcher-works, to plane two narrow boards simultaneously, or, on dropping the matcher-works and removing the duplex center fence, to plane one wide board.

4. The combination, with a long upper planing-cylinder, of duplex independently-adjustable presser-bars on each side of such planing-cylinder.

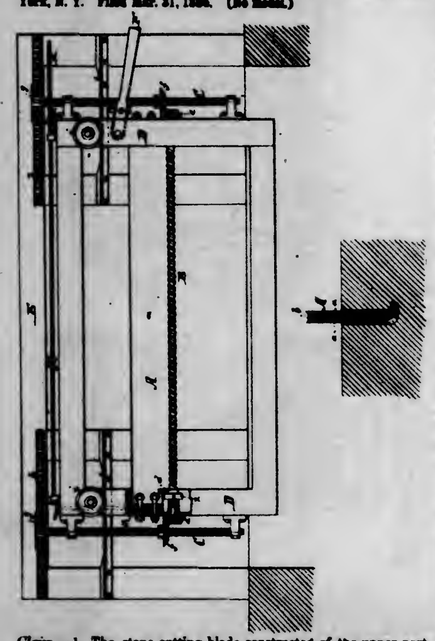
5. The combination, with duplex feeding-in rolls, duplex center fence, and single long upper planing-cylinder, of duplex independently-adjustable presser-bars on each side of such planing-cylinder.

6. A rear presser, substantially as before set forth, consisting of a horizontally-adjustable bar and two independently adjustable and yielding presser-bars attached thereto, substantially as described.

7. In a planing-machine, the combination, substantially as before set forth, of a laterally-movable edge-feed roll and the side fence provided with an arch through which said edge-feed roll can pass.

8. In a duplex planing and matching machine, the combination, substantially as before set forth, with the plates, of a feed-roll stand having a cross-bar elevated throughout its length above said plates, and two independently-adjustable feed-rolls, the center journal-boxes of which are mounted on guides on the said elevated cross-bar.

350,191. STONE-SAWING MACHINE. Reuben. Forester, New York, N. Y. Filed Mar. 31, 1886. (No model.)



Claim.—1. The stone-cutting blade constructed of the upper part, A, having cheek-pieces *a a* and middle piece, *b*, and lower twisted bar, B, the piece *b* being of softer metal than the pieces *a*, substantially as herein shown and described.

2. The stone-cutting blade constructed of the upper part, A, having hard-metal cheek-pieces and softer middle piece, and of the lower twisted bar, B, and means, substantially as described, for revolving said bar and reciprocating said blade simultaneously, as described.

3. The upper part, A, of the saw-blade, constructed of three or more thicknesses, *a b a*, the central thickness being of softer metal than the outer thicknesses, in combination with the lower twisted bar, B, as specified.

350,192. NOSE-PIECE FOR SPECTACLES. John J. Frawley, Philadelphia, Pa., assignor to Edward Kirstein, Rochester, N. Y. Filed Apr. 21, 1886. (No model.)



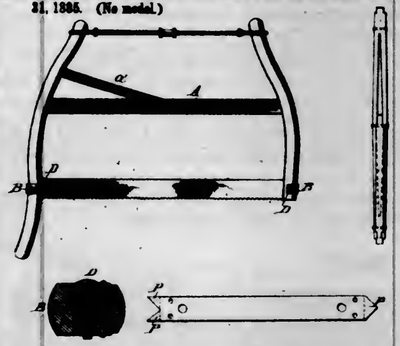
Claim.—1. A spectacle nose-bridge formed or provided with loops or folds, one of which is adapted to lie flatwise upon each side of the nose of the wearer, and within each of which folds is secured a cushion of rubber, cork, or other material, substantially as described

2. A spectacle nose-bridge formed of a continuous piece of metal and bent or otherwise shaped to form loops or folds below its points of attachment to the lenses or lens-frames, and within each of which folds is secured a cushion of cork or other material, substantially as described.

3. A spectacle nose-bridge formed of a continuous piece of metal and bent or otherwise shaped to form loops or folds below its points of attachment to the lenses or lens-frames, which loops or folds lie in planes approximately right-angular to the plane of the lenses, and within each of which folds is secured a cushion of cork or other material, substantially as described.

4. A spectacle nose-bridge parts of which respectively intermediate between its central portion and its extremities are folded, bent, or otherwise shaped to form bearings or rests adapted to lie one upon each side of the nose of the wearer, and within each of which rests is secured a cushion of cork or other material, substantially as described.

350,193. HANDSAW. William H. Peter, Piano, Ill. Filed Aug. 31, 1885. (No model.)



Claim.—1. In a saw-frame, the stretcher A, formed in halves and forced apart at the center to form a truss, in combination with the brace *a'*, having one end inserted in the trussed stretcher, forming a key therefor, and the other end secured to the frame, substantially as described.

2. The combination, in a saw-frame, of the clips B, bent around the arms of the frame, and having the sharpened points *p* forced therein, the saw-blade, and the bolts or pins D, passed through openings made in the ends of the saw-blade, the clips, and the arms of the frame to secure the saw-blade to the frame, substantially as described.

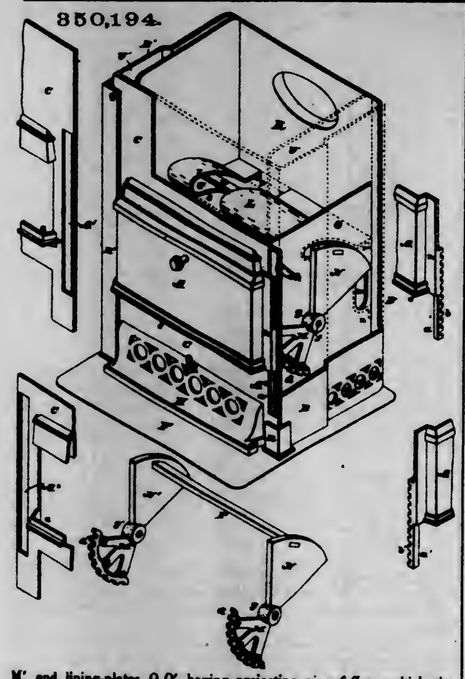
3. The combination, with the saw-frame, the blade, and the clips encircling the arms of the frame, of the bolts or pins D, passed through openings made in the blade, the frame, and the clips, the said pins having the grooves near their outer ends to engage in the openings in the clips and prevent working loose, substantially as described.

350,194. ADJUSTABLE BLOWER FOR STOVES AND FIRE-PLACES. Joseph L. Gobrecht, Cleveland, assignor to the Girard Stove Works, Girard, Ohio. Filed Feb. 12, 1886. (No model.)

Claim.—1. The combination, in a stove or fire-place, of a vertically-adjustable blower having toothed racks, counter-weighted toothed segments engaging said toothed racks, and a bar connecting the weighted ends of the segments, substantially as described, and for the purpose set forth.

2. The combination, in a stove or fire-place, of a vertically-adjustable blower, A, having toothed racks *a a'*, counterweighted segments M

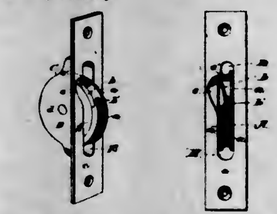
350,194.



M', and lining-plates, O O', having projecting pins *f f'*, on which the segments and counter-weights may be supported, and about which they may be oscillated, and the slots *n* for the passage of the connecting-bar, and the connecting-bar P, adapted to rigidly connect the counter-weight M to the weight M', substantially as described, and for the purpose set forth.

3. The combination, in a stove, of the front plate, C, having slots A' and A^2, a vertically-adjustable blower, A, provided with toothed racks *a* and *a'*, adapted to and projecting through the said slots A' and A^2, the toothed segments M and M', engaging the toothed racks and provided with counter-weights N and N', a connecting-bar, P, and an open way connecting the flue U and U', through which the bar P may pass and be vibrated, substantially as described, and for the purpose set forth.

350,195. SASH-PULLEY. William Goforth, Windsor, Me. Filed Mar. 27, 1884. (No model.)

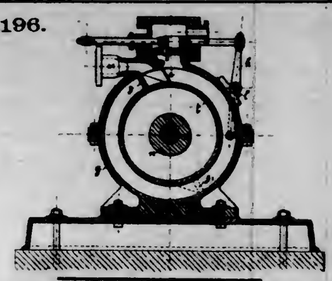


Claim.—The herein shown and described sash-pulley, comprising the following elements in combination: face-plate *c*, provided with the longitudinal slot E, having the notch *e* to one side thereof, forming the overhanging point *c'*, and the flanged pulley A, journaled to the face-plate and projecting part way through the slot, and having a notch, *b*, cut in the flange adjacent the notched side of the slot E, forming a projection, *b'*, to coact with the overhanging point *c'*, as and for the purpose set forth.

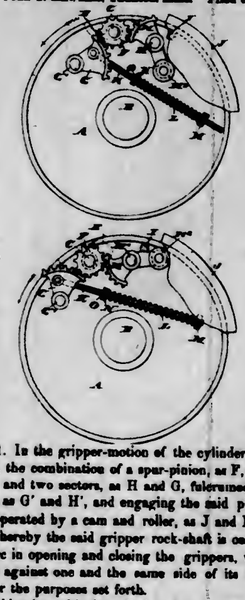
350,196. ROTARY MOTOR. C. F. Heinrich Hamko, Barmen, Prussia, Germany. Filed July 19, 1886. (No model.)

Claim.—In a rotary motor, the combination of two parallel steam-chambers, *a* and *b*, in the circumference of a disk, *i*, within a casing, *g*, said chambers being provided with the dividing-walls *z z'* and with flaps *z*, hinged to the casing, with a slide-box, *k*, controlling-lever *h*, and groove *m*, substantially as described and illustrated:

350,196.



350,197. GRIPPER-MOTION FOR CYLINDER PRINTING-MACHINES. John T. Hawkins, Taunton, Mass. Filed July 10, 1885. (No model.)



Claim.—1. In the gripper-motion of the cylinder of a printing or other machine, the combination of a spur-pinion, as F, secured to a gripper rock-shaft, and two sectors, as H and G, fulcrumed on the cylinder-head by studs, as G' and H', and engaging the said pinion, one of said sectors being operated by a cam and roller, as J and H^2, and the other by a spring, whereby the said gripper rock-shaft is oscillated through a considerable arc in opening and closing the grippers, while being constantly pressed against one and the same side of its bearing, substantially as and for the purposes set forth.

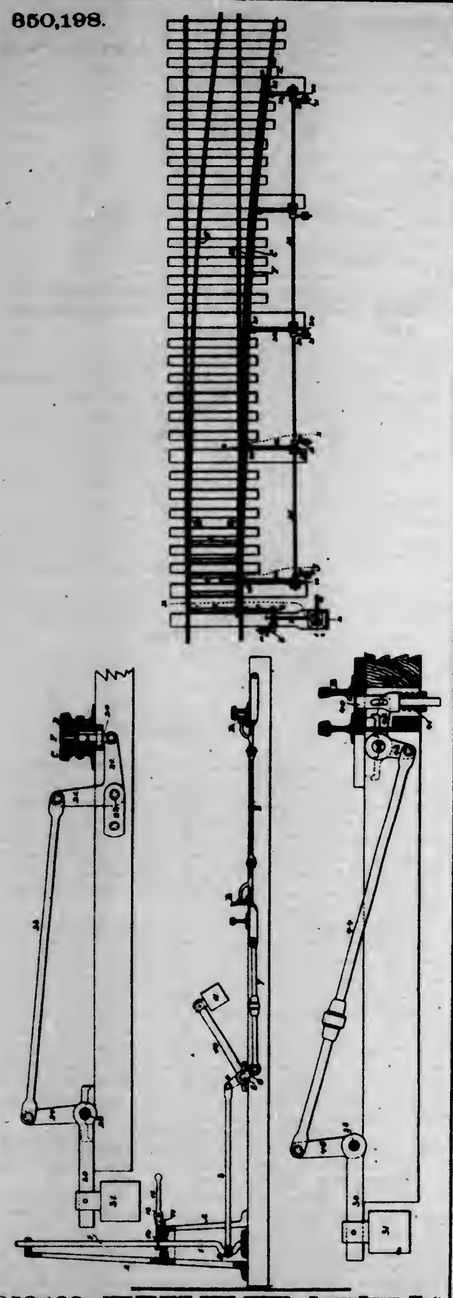
2. In combination with the cylinder of a printing or other machine, a gripper-motion consisting of a gripper rock-shaft, as C, carrying grippers, as E, a spur-pinion, as F, secured to said gripper rock-shaft, a sector, as H, fulcrumed in the cylinder-head by a stud, as H', engaging said pinion and carrying a roller, as H^2, said roller engaging a suitably-formed cam, as J, and a second sector, as G, also fulcrumed in the cylinder-head by a stud, as G', engaging said pinion and operated so as to keep the said roller H^2 in contact with said cam by means of a spring, as L, and rod, as K, whereby said parts all co-operate to open and close said grippers at the desired times, while keeping the said rock-shaft at all times in contact with one and the same side of its bearing, substantially as and for the purposes set forth.

350,198. AUTOMATIC SAFETY DEVICE FOR RAILWAY-SWITCHES. Charles L. Houston, New Haven, Conn., and Washington I. Fox, Fitchburg, Mass. Filed July 20, 1886. (No model.)

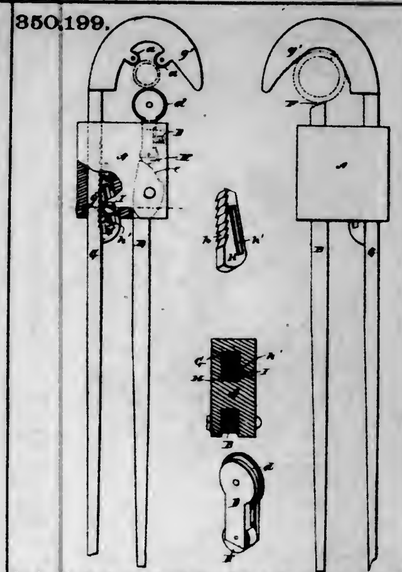
Claim.—1. The combination, with the main line, switch, and siding, of the switch-stand, shaft and connection for moving the switch, and a bolt for holding the switch when open, a flange-plate, locking-shaft, and lever-connection between the flange-plate and locking-shaft, and lever-connection to the locking-bolt of the switch, a lever-arm and weight that is raised in opening the switch, and lever-arms and weights connected to the locking-shaft, which are raised when the train depresses the flange-plate, and which weights withdraw the locking-bolt when the train passes clear of the flange-plate, substantially as set forth.

2. The combination, with the main line, siding, and switch, of mechanism for operating the switch, a spring-bolt to lock the switch open, a flange-plate, a locking-shaft, lever-arms, connecting-rods and bent levers for moving the locking-shaft by the depression of the flange-plate, weight for moving the locking-shaft in the opposite direction, and lever-connection from the locking-shaft to the bolt, substantially as set forth.

350,198.



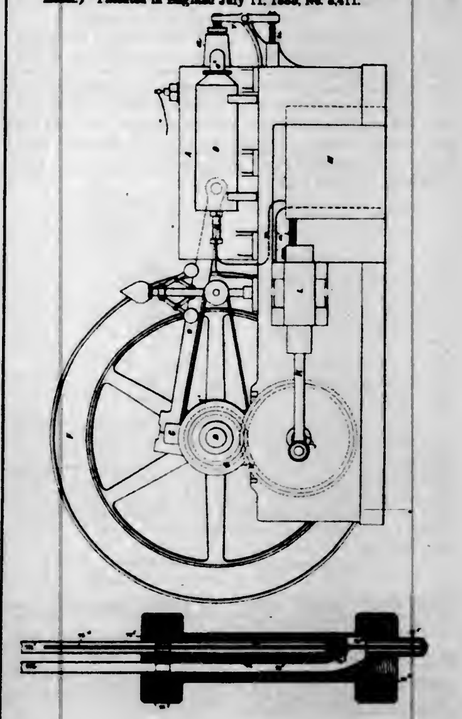
350,199.



having the hook-arm g' and the rollers a, the pivoted cam-lever B, and the movable rod D, bearing against the cam and having the rotating cutting-disk at its outer end, for the purpose set forth, substantially as described.

3. The combination of the head A, the endwise-moving bar G, having the friction-rollers a, the cam-lever B, and the movable rod D, actuated by the cam-lever and having the cutting-disk d, as set forth.

350,200. HYDROCARBON-VAPOR ENGINE. John J. R. Rouse, Camberwell, County of Surrey, England. Filed May 8, 1886. (No model.) Patented in England July 11, 1885, No. 8,411.

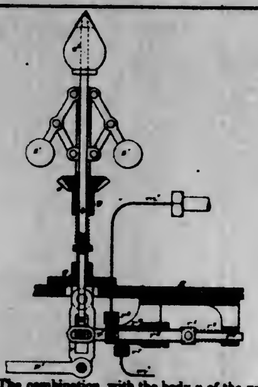


350,199. PIPE-WRENCH WITH CUTTER. Harvey Rubber, West Salem, Ohio, assignor of one-half to E. L. Peters, same place. Filed May 18, 1886. (No model.)

Claim.—1. The combination of the head A, the endwise-moving rod G, provided with the ratchet-teeth g and the arm g', the key H in the head, having the teeth h to engage the teeth g, and the diagonal slot or groove h', the screw I in the head, entering the said slot or groove, the cam-lever pivoted to the head, and the endwise-moving rod D, having its inner end bearing against the cam, substantially as described.

2. The combination of the head A, the endwise-moving bar G,

350,200.



Claim.—1. The combination, with the body n of the vaporizer, provided with the gas-passage n' and the liquid-hydrocarbon passage n^2, stopped at its forward end by a plug, n^3, of the nozzle n^4 and the tube n^5, the latter extending through plug n^3, forward into the nozzle n^4, and backward into the passage n^2, substantially as and for the purposes set forth.

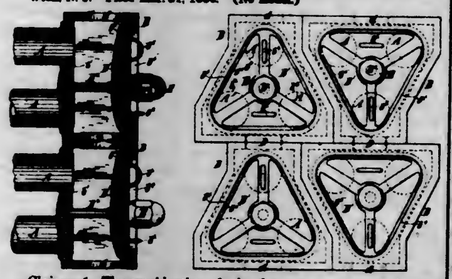
2. The combination, with the body n of the vaporizer, provided with the passages n' n^2, the latter stopped by a screw-plug, n^3, of the removable nozzle n^4 at the front end of the body n, the tube n^5, fixed in plug n^3, and extending forward into nozzle n^4, and backward into passage n^2, the union n^7, the plug or body n^8, screwed into union n^7, and the pipes m and m', fixed in said body and coinciding with the passages n' and n^2, respectively, substantially as and for the purposes set forth.

3. In a liquid-hydrocarbon engine, the combination, with the hydrocarbon-pipe m', of the plunger r^2, mounted to reciprocate in a casing or chamber, r^3, and to control the passage of the liquid through pipe m', the said chamber through which the hydrocarbon passes, the vibrating link or links r, means for vibrating said links through the medium of the engine, the governor-spindle t, provided with a slotted lower end coupled to a block which slides in slots in links r, said sliding block, and bars or rods r', which couple said plunger r^2 to said sliding block, whereby the vertical movement of the governor-spindle is caused to regulate the extent of movement of the said plunger, substantially as set forth.

4. In liquid-hydrocarbon engines where the inflammable charge is fired by electricity, the improved means, substantially as herein described, for making and breaking the electric circuit, the same consisting of an insulated connector mounted on any suitable reciprocating part of the engine and working in conjunction with two flexible or pivoted arms connected with the circuit.

5. The improved means, substantially as herein described, for rendering liquid-hydrocarbon engines reversible, such means consisting of a pair of clutches for working the exhaust-valve and firing apparatus, respectively, the construction and setting of the clutches in relation to one another and to the crank being such that in either direction of rotation the action of the firing apparatus precedes by a proper interval that of the exhaust-valve.

350,201. STEAM-GENERATOR. William P. Kelly, New Brunswick, N. J. Filed Mar. 31, 1886. (No model.)



Claim.—1. The combination of a header, a cap or cover inside the same, and a securing device forcing the cap or cover outwardly from the rear, substantially as specified.

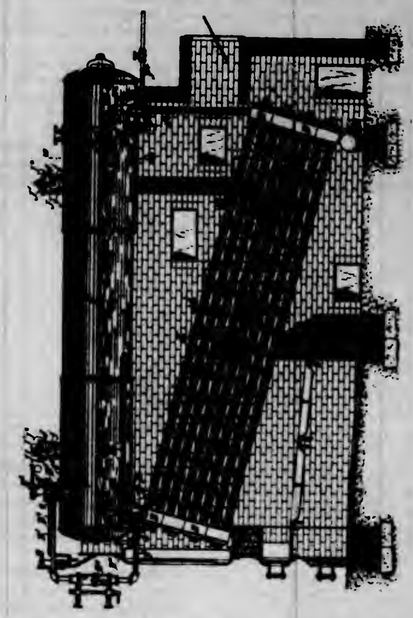
2. The combination of a header, a cap or cover inside the same, and a screw having a bearing in rear of the cap or cover, and forcing the latter outwardly, substantially as specified.

3. The combination of a header, a cap or cover inside the same, a screw having a bearing in rear of the cap or cover, and a nut for securing the cap or cover in place, substantially as specified.

4. The combination of a header, a cap or cover therefor, and a rotary screw having a bearing in rear of the cap or cover, and forcing the latter outwardly, substantially as specified.

5. The combination of inclined tubes, headers connected to the tubes and connected together in groups or sets beyond opposite ends of the tubes, caps or covers for hand-holes in the headers, arranged inside the headers and securing devices forcing the caps or covers outwardly from the rear, substantially as specified.

350,202. STEAM-GENERATOR. William P. Kelly, New Brunswick, N. J. Filed Apr. 20, 1886. (No model.)



Claim.—1. The combination, with a steam-generator comprising circulating-tubes and a steam and water drum, of a saddle affording communication between the circulating-tubes and the drum, a conduit in said saddle, and pipes for a water-gage communicating with said conduit, substantially as specified.

2. The combination, with a steam-generator comprising circulating-tubes and a steam and water drum, of an outlet-nozzle, a conduit in said nozzle, and pipes for a water-gage communicating with said conduit, substantially as specified.

3. The combination, with a steam-generator comprising circulating-tubes and a steam and water drum, of a saddle affording communication between the circulating-tubes and the drum, a conduit in said saddle, an outlet-nozzle, a conduit in said nozzle, pipes connecting the conduit in the saddle with the conduit in the outlet-nozzle, and pipes connecting the conduits with the interior of the drum, substantially as specified.

4. The combination, with a steam-generator comprising circulating-tubes and a steam and water drum, of a saddle affording communication between the circulating-tubes and the drum, a conduit in said saddle, a feed-water pipe communicating with said conduit, and a communication between said conduit and the interior of said drum, substantially as specified.

5. The combination, with a steam-generator comprising circulating-tubes and a steam and water drum, of an outlet-nozzle, a conduit in said nozzle, a pipe connecting said conduit with a steam-gage, and a communication between said conduit and the interior of the drum, substantially as specified.

6. The combination, with a steam-generator comprising circulating-tubes and a steam and water drum, of a saddle affording communication between the circulating-tubes and the drum, a conduit in said saddle, and a blow-off pipe or pipes communicating with said conduit, substantially as specified.

7. In a steam-generator, the combination, with circulating-tubes, of a flame-plate of shell-like construction provided with pins or projections arranged at inclines to each other and fire-resisting material within the flame-plate, substantially as specified.

8. In a steam-generator, the combination, with circulating-tubes, of a flame-plate composed of sections through which the tubes extend

and superposed one upon the other, said sections being filled with fire-resisting material, substantially as specified.

9. In a steam-generator, the combination, with circulating-tubes, of headers to which the circulating-tubes are connected at their ends, and a section of a flame-plate between the headers, through which the circulating-tubes extend, the said flame-plate sections being of the same shape as the headers, each section being undivided and inclosing one or more tubes, substantially as specified.

10. In a steam-generator, the combination, with circulating-tubes, of a flame-plate, as K, composed of sections G, each provided with a hook, g, rim g', thimbles g^2, and pins or projections g^3, the sections being filled with fire-resisting material, substantially as specified.

11. In a steam-generator, the combination, with a steam and water drum, of channel-irons extending above the drum and provided upon their under sides with flanges turned inwardly or toward each other, so that a considerable space will be left between the channel-irons, and a hook inclosed within the space between the channel-irons and engaging a loop on the drum, substantially as specified.

350,203. TELEPHONE ATTACHMENT. John T. Lieber, Cleveland, Ohio, assignor, by direct and mesne assignments, to James C. O'Neil and Charles A. Dains, both of same place. Filed Dec. 10, 1884. (No model.)



Claim.—1. As an article of manufacture, a sound-receiver adapted to be attached to or placed in juxtaposition with a so-called "Blake" or other telephone-transmitter, said sound-receiver combining, essentially, of successive funnel-shaped chambers, joined together at their ends, each chamber having its apex presenting toward the telephone-transmitter and its base toward the speaker, substantially as set forth.

2. In combination with a telephone-transmitter, a sound-receiver consisting of successive funnel-shaped chambers joined together at their adjacent ends, said funnel-shaped chambers having their bases presenting toward the speaker and their apices toward the telephone-transmitter, substantially as set forth.

3. In combination with a telephone-transmitter, a sound-receiver, said sound-receiver consisting of successive chambers substantially funnel-shaped, the chambers next adjacent to the telephone-transmitter provided with the sound-reflecting shoulder a, and having its apex end flush with or inside of the mouth of the telephone-transmitter, substantially as set forth.

4. In combination with a telephone-transmitter, a sound-receiver consisting of successive chambers substantially funnel-shaped, having their bases presenting toward the speaker with the larger end of the inner chamber of greater diameter than the contiguous smaller end of the outer chamber, the said chambers being joined together at their ends, substantially as set forth.

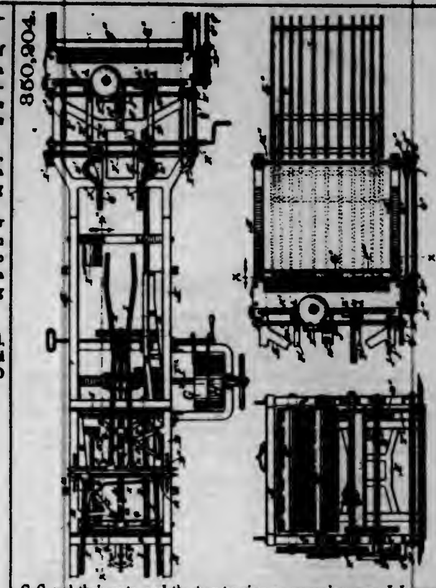
5. In combination with a sound-receiver for a telephone-transmitter, consisting of successive chambers substantially funnel-shaped, with their bases presenting toward the speaker and their apices toward the telephone-transmitter, of a sound-deflector preferably conical or conoidal in form and located inside the said receiver with its apex presenting toward the speaker, substantially as set forth.

6. An attachment for telephone-transmitter, consisting, essentially, of a jointed arm rigidly secured at one end to any suitable support, and provided at its free end with a funnel-shaped sound-receiver, which latter can be moved against or away from said transmitter, substantially as set forth.

350,204. BAG-TURNING MACHINE. Samuel T. Lockwood, Chicago, Ill., assignor to Juliet F. Lockwood, same place. Filed Sept. 21, 1885. (No model.)

Claim.—1. The combination, substantially as specified, in a bag-turning machine, of a reciprocating carriage with a rotative right and left screw-threaded rod, C, nuts H H on the said rod, and the bag turning or reversing arms I I, pivoted or jointed to the said nuts, the said arms having fulcrums or bearings applied to the said carriage carrying the said rods, for the purposes specified.

2. The combination, substantially as specified, in a bag-turning machine, of a reciprocating carriage with a rotative right and left screw-threaded rod, C, the nuts H H on the said rod, the blocks F F, the bolts



G G and their nuts, and the bag turning or reversing arms I I, pivoted or jointed to the said nuts and fulcrumed in the said blocks, all the said parts being mounted on the said carriage, for the purposes set forth.

3. The combination, substantially as specified, in a bag-turning machine, of a reciprocating carriage with a rotative right and left screw-threaded rod, C, the nuts H H on the said rod, the slides E E, the fulcrums F F, the arms I I, a bell-crank lever pivoted to the slide M and to the carriage, the fixed cams O and P, the frame A, a reciprocating carriage, and a roller in connection with the said lever, and arranged for riding on the said cams, respectively, substantially as and for the purposes specified.

6. The combination of the slide M, the links Q Q, pivoted to the said slide, the slides E E, the fulcrums F F, the arms I I, a bell-crank lever pivoted to the slide M and to the carriage, the fixed cams O and P, the frame A, a reciprocating carriage, and a roller in connection with the said lever, and arranged for riding on the said cams, respectively, substantially as and for the purposes specified.

7. The combination, substantially as specified, in a bag-turning machine, of the laterally-adjustable supplemental feed-rollers L' L', having extensions M' M', in one pair of which are the grooves A A, and on the other pair of which are the ribs A' A', the laterally-adjustable bag-holding fingers G' and H', the right and left screw-rods N' N', the nuts O' O', the bars P', connecting the said nuts and engaging the said fingers and ribs, the shafts F', F'', and K', and means for supporting and reciprocating the bag-turning arms, for the purposes specified.

350,205. CLOD CRUSHER AND LEVELER. David Liebe, Sacramento, Cal. Filed June 28, 1886. (No model.)

Claim.—1. A clod-crusher having an artificial platform upon which the clods are first raised, in combination with vibrating arms between which and the platform the clods are crushed, substantially as herein described.

2. In a clod-crusher, the inclined lifting fingers or arms forming the open platform upon which the clods are raised, in combination with a series of arms extending backward above the lifting-fingers and approaching them at the same time, and cranks, eccentrics, or cams, by which the arms are caused to oscillate or vibrate above the fingers, substantially as herein described.

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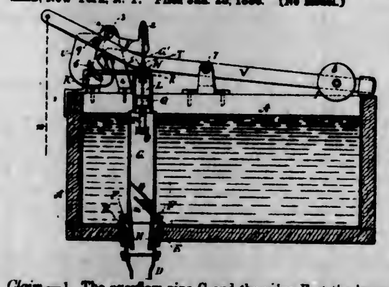
3. The lifting-fingers forming an open-work platform, in combination with the inclined arms having cutters or crushing-plates attached to them, and cranks or eccentrics by which these arms are caused to rise and fall above the lifting-fingers, substantially as herein described.

4. The inclined lifting-fingers forming an open platform upon which the clods are raised, having their rear ends pivoted or hinged to the rear of the fixed frame-work, and the transverse bars I, in combination with the screw L upon the pole of the frame, the nut N, engaged by said screw, and the arms extending downward and connecting with the one of the bars I, whereby the lifting-fingers may be raised or depressed, substantially as herein described.

5. The inclined adjustable lifting-fingers forming an open platform upon which the clods are raised, in combination with the movable arms and eccentrics or cranks by which they are caused to oscillate above the platform, said arms being provided with the cutting or crushing blades attached in a series one behind the other, and forming a tapering or gradually-reduced space between the arms and fingers, substantially as herein described.

6. A series of oscillating or vibrating arms with blades or breaking-edges, a wheeled vehicle from which these arms are suspended, and a mechanism by which the arms are moved, so as to crush or break lumps or clods as they pass under them, substantially as herein described.

350,206. CISTERN FOR WATER-CLOSETS. Samuel G. McFarland, New York, N. Y. Filed Jan. 25, 1886. (No model.)

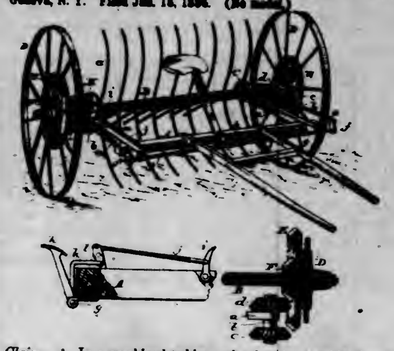


Claim.—1. The overflow-pipe G and the valve F at the lower end of the same, the guide-fingers, and the discharge-pipe D, in combination with the variable chamber L above the upper end of the overflow G and the bracket for supporting the same, the plunger connected with and moved by the overflow-pipe, and the valve S, opening outwardly, and the regulating-screw T, substantially as specified, whereby the variable chamber and the parts connected with the same are above the water in the cistern and easily accessible for regulating, cleaning, and repairs, substantially as set forth.

2. The combination, with the water-closet cistern and the valve and flushing-pipe to the closet, of a lever connected to the pull and a roller or stud thereon, a pivoted tumbler, an arm thereon, and a connection to the valve, and the curved cams 5 and 6, projecting from the face of the tumbler, and lying one below the other, with a groove between them, so that the roller, acting on the cam 5, gives a preliminary wash, and by passing around on the opposite side of the cam 6 as the lever rises gives a greater movement to the valve and a more copious afterwash, substantially as set forth.

3. The combination, with the valve and the overflow-pipe for the same in a water-closet cistern, of partitions 13 and 14 within the overflow-pipe for receiving water and lessening the noise, substantially as set forth.

350,207. COMBINED RAKE AND TEDDER. Charles McIntire, Geneva, N. Y. Filed Jan. 18, 1886. (No model.)



Claim.—1. In a combined tedder and rake, the combination, with a frame, of an axle or shaft loosely mounted therein and provided with teeth or fingers, driving-wheels loosely mounted upon said axle, a gear-wheel secured to the axle, a gear-wheel secured to the driving-wheel, and a clutch for connecting and disconnecting the gear-wheels, as shown, whereby the shaft is caused to rotate or remain at rest, as desired.

2. In combination with frame A, having fingers G, ratchet-wheel H, gear-wheel F, driving-wheels D, loosely mounted on the shaft B, a gear-wheel, E, secured to one of said wheels, shaft b, mounted on the frame and provided with gear-wheels c and d, and a pawl, i, to engage the wheel H, substantially as shown and described.

3. In combination with frame A, shaft B, loosely mounted therein and provided with teeth or fingers G, a gear-wheel, F, at each end of said shaft B, a ratchet-wheel, H, secured to said shaft, driving-wheels D, mounted loosely upon the shaft, a gear-wheel, E, secured to each of said wheels, shaft b, secured to the frame and provided with gears c and d to engage the gears E and F, a rod, g, journaled in the frame and connected with the sliding shaft b, and a pawl, i, to engage the ratchet-wheel H, arranged substantially as shown and described, whereby the machine is adapted to be used as a tedder or rake at will.

4. In a combined tedder and rake, the combination, with a frame, of a shaft or axle loosely mounted therein and provided with rake-teeth, wheels supporting said frame and adapted to impart motion to said shaft at will, a clutch for connecting and disconnecting the shaft and wheels, a locking device for holding said shaft at rest, and connections, substantially such as shown and described, for simultaneously operating the clutch and the locking device.

350,208. SPRING-HINGE. David Neher, Morris, Ill. Filed July 6, 1886. (No model.)



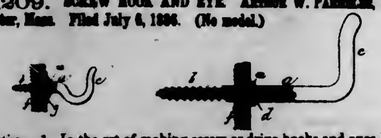
Claim.—1. In spring-hinges, the combination of leaves of suitable form pivotally connected together, a spring coiled around the axis of such leaves and having one of its ends attached to a fixed part of the hinge and its other end attached to a revolable part of the hinge, by which its coils may be tightened and its tension increased, each revolable part being provided with teeth inclined on one side, an auxiliary spring located outside of the axis of the hinge, and a clutch connected there-

with and movable against or from the tension of the spring, engaging at one side with the teeth on the revolvable piece of the hinge, and movable by the inclined sides of the teeth out of and by the spring into the notches or spaces between such teeth, substantially as described.

2. In spring-hinges, the combination of leaves of suitable form pivotally connected together, a spring coiled around the axis of such leaves, inclosed in a case or barrel, and having one of its ends attached to a fixed part of the hinge and its other end attached to a revolvable part of the hinge, by which its coils may be tightened and its tension increased, such revolvable part being provided with teeth inclined on one side, an auxiliary spring located outside of the axis of the hinge, and a clutch connected therewith and movable against or from the tension of the spring, engaging at one side with the teeth on the revolvable piece of the hinge, and movable by the inclined sides of the teeth out of and by the spring into the notches or spaces between such teeth, substantially as described.

3. In spring-hinges, the combination of leaves of suitable form pivotally connected together, a spring coiled around the axis of such leaves and having one of its ends attached to a fixed part of the hinge and its other end attached to a revolvable part of the hinge, by which its coils may be tightened and its tension increased, such revolvable part being provided with teeth inclined on one side, a coiled spring mounted on a pintle outside of the axis of the hinge, and a clutch mounted on such pintle and movable thereon against or from the tension of the spring, engaging at one side with the teeth of the revolvable piece of the hinge, and movable by the inclined sides of the teeth out of and by the spring into the notches or spaces between such teeth, substantially as described.

350,209. SCREW HOOK AND EYE. Arthur W. Parmelee, Worcester, Mass. Filed July 6, 1886. (No model.)



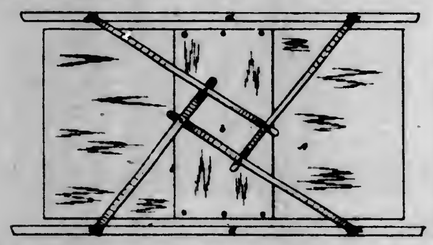
Claim.—1. In the art of making screw or drive hooks and eyes having a stop-ring or base thereon, the method of forming the screw or drive end and hook or eye in one part, and the stop-ring or base by forming a groove or recess around the body of the hook or eye and fitting and fastening therein a suitable ring or washer, substantially as shown and described.

2. In a screw or drive hook or eye, the combination of the screw or drive end and hook or eye made in one part, with a stop-ring or base made by forming a groove or recess around the body of said hook or eye and fitting and fastening therein a suitable ring or washer, substantially as shown and described.

3. In a screw or drive hook or eye, the combination of the screw or drive end and hook or eye made in one part, with a stop-ring or base made by forming a groove or recess around the body of said hook or eye and fitting and fastening therein a suitable ring or washer, and one or more washers or base-pieces interposed between said stop-ring or base and the part to which the hook or eye is attached, substantially as shown and described.

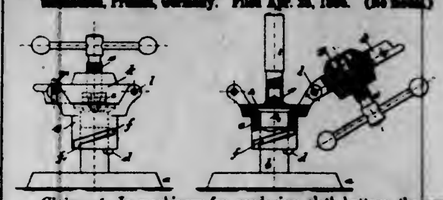
4. The combination of a screw or drive hook or eye made in one part, and having a stop-ring or base made by forming a groove or recess around the body of said hook or eye and fitting and fastening therein a suitable ring or washer, with one or more washers or base-pieces interposed between said stop-ring or base and the part to which the hook or eye is attached, substantially as shown and described.

350,210. CARRIAGE-SPRING. Samuel W. Patton, Edward B. Gurnee, and William N. Fee Gerald, Newark, N. J. Filed Aug. 14, 1885. (No model.)



Claim.—In a vehicle, the combination, with the body and bars *d d* thereof, of springs *c c*, attached to said bars at their outer extremities and having their inner ends all interlaced, forming a truss-like structure, and also forming a series of separated bearings, the downward pressure on any given bearing being distributed throughout the series, substantially as set forth.

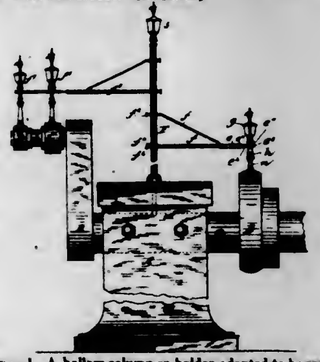
350,211. BUTTON-MACHINE. Carl Arnost Pfenning, Button-Einlassen, Prussia, Germany. Filed Apr. 28, 1886. (No model.)



Claim.—1. In machinery for producing cloth buttons, the combination of a core, *b*, foot-plate *a*, pin *d*, tube *c*, and slot *f f'*, with the cover *k*, adapted to be placed over the orifice of the tube *c*, containing a cylindrical recess of somewhat smaller diameter than the diameter of the interior of the tube *c*, and adapted to form thereby the rim *g* above the tube *c*, together with the pressing-spindle *s*, adapted to move vertically and centrally with regard to the said rim *g*, and to bend down the rim of the tube *c* of the button, the whole substantially as described and illustrated.

2. The cover *k*, containing the vertical pressing-spindle *s*, and provided also with the rim *g*, substantially as and for the purpose described.

350,212. DROP-FEED LUBRICATOR. William P. Phillips, Revere, Mass. Filed Feb. 3, 1886. (No model.)



Claim.—1. A hollow column or holder adapted to be secured to the shaft-support of an engine, and having an oil-cup, as specified, to permit oil to flow through said column to the bearing-surfaces of the shaft, and further provided with a bracket or arm made adjustable thereon to extend over and support an oil-cup above an eccentric or other movable shaft connection, as and for the purpose set forth.

2. An oil-cup provided at its lower end with a drip-nozzle, *h*, having the rounded bottom *k*, provided with an opening or slit, *m*, as and for the purpose set forth.

3. An oil-cup provided at its lower end with the vertically-movable drip-nozzle *h*, having a slit, *m*, in its bottom, as and for the purpose set forth.

4. An oil-cup provided at its lower end with the drip-nozzle *h*, having a slit, *m*, in its bottom, as and for the purpose set forth.

350,213. DERRICK. George Rounds, Vallejo, Cal. Filed May 12, 1886. (No model.)

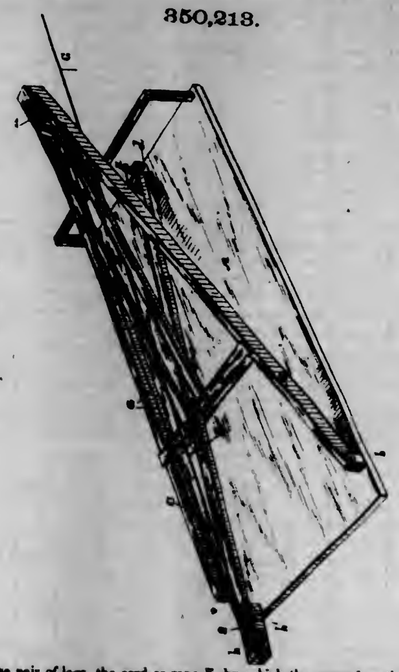
Claim.—1. In a derrick, a pair of legs hinged at their feet to the bed and united at their tops, in combination with a single leg pivoted at its foot to the bed, and having its head playing and guided between the pair of legs, and a block-and-tackle mechanism secured to the heads of the legs, whereby the legs are elevated, substantially as described.

2. In a derrick, the pair of legs B C, hinged at their feet to the bed and united at their tops, and the parallel spaced guide-bars E, carried by said pair of legs, in combination with the single leg D, hinged at its base to the bed, and having its head playing and guided between the bars E of the pair of legs and a block-and-tackle mechanism for lifting said legs, substantially as described.

3. In a derrick, the pair of legs B C, hinged at their feet to the bed and united at their tops, the parallel spaced guide-bars E, carried by said legs, and the cross-bar *e* between the legs, in combination with the single leg D, hinged at its foot to the bed, and having its head playing and guided between the bars and limited by the cross-bar, and block-and-tackle mechanism for elevating said legs, substantially as described.

4. In a derrick, the pair of legs B C, hinged at their feet to the bed and united at their tops, in combination with the single leg D, hinged at its foot to the bed and having its head playing between and guided

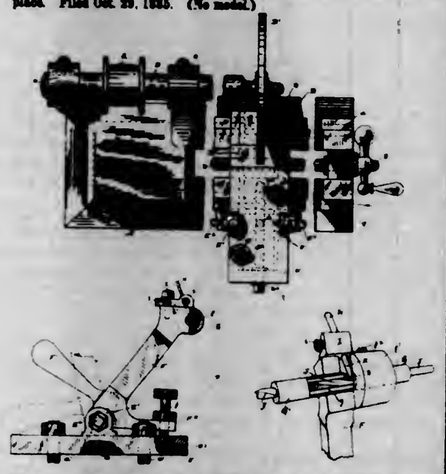
350,213.



by the pair of legs, the cord or rope F, by which the upward motion of the single leg is limited, and the block-and-tackle mechanism for elevating the legs, substantially as described.

5. In a derrick, the pair of legs B C, hinged at their feet to the bed and united at their tops, the parallel spaced guide-bars E on said legs, and the cross-bar *e* between them, in combination with the single leg D, hinged at its feet to the bed, and having its head playing and guided between the bars and limited by the cross-bar *e*, the cord or rope F, limiting the upward movement of the single leg, the hoisting-rope G of the tackle mechanism, and the blocks and guide-pulley in the heads of the legs, all arranged and adapted to operate substantially as herein described.

350,214. MACHINE FOR CLEARING TWIST DRILLS. Sumner G. Ryder, Cleveland, Ohio, assignor to the Standard Tool Company, same place. Filed Oct. 29, 1885. (No model.)



Claim.—1. In a machine for clearing twist-drills, the combination, with a drill-stock connected to the carriage by a pivotal joint, a drill-holder detachably and adjustably secured in said stock by a set-screw, of a guiding-pin adjustably connected with said stock, the parts being arranged substantially as set forth.

2. The combination, with the pivoted drill-stock F, provided with a cylindrical hub, of a drill-holder or bushing detachably secured in the hub of said drill-stock, said drill-holder having a notch or recess opposite the emery-wheel, the parts being arranged substantially as set forth.

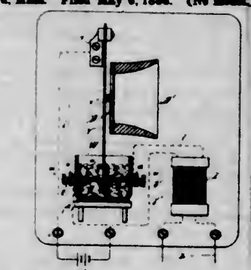
3. The combination, with the pivoted stock F and drill-holder G, of a guide-pin for engaging the spiral of the drill, and mechanism, substantially as indicated, for adjusting said guide-pin and holding the pin rigidly to its engagement with the drill, substantially as set forth.

4. In a drill-clearing machine provided with a swinging drill-stock, the combination, with said drill-stock having a cylindrical hub connected therewith, interchangeable bushings for said hub, each bushing having a bore to fit respectively different-sized drills, of a guide-pin for engaging the spiral groove of the drill and adjustably connected with the drill-stock, and means, substantially as described, for rigidly holding the guide-pin to its work, and an emery-wheel to revolve toward the cutting-edge of drill, substantially as set forth.

5. In a drill-clearing machine provided with a swinging drill-stock, the combination, with said drill-stock having a cylindrical hub connected therewith, interchangeable bushings for said hub, each bushing having a bore to fit respectively different-sized drills, of a guide-pin, the latter having a curved end for engaging the spiral groove of the drill and adjustably connected with the drill-stock, and means, substantially as described, for rigidly holding the guide-pin to its work, and an emery-wheel to revolve toward the cutting-edge of drill, substantially as set forth.

6. In drill-clearing machines, the combination, with a drill-stock, the same being pivoted to a carriage, of mechanism, substantially as described, for elevating or depressing the work, the parts being arranged substantially as set forth.

350,215. TELEPHONE-TRANSMITTER. Frederick G. Sargent, Westford, Mass. Filed May 6, 1886. (No model.)



Claim.—1. The combination of a generator of electricity, a single conductor connected to one pole thereof, two separate conductors or branches connected to the other pole thereof and terminating in a liquid having a different degree of conductivity or resistance from said branches, and a conducting-vibrator connected to said first-named conductor and adapted to be vibrated in said liquid by the impact of sound-waves, to vary the distance inversely to each other from the terminals of said branches to said vibrator, and thereby to cause currents of oppositely-varying intensities in said branches, as and for the purpose specified.

2. A telephonic transmitter consisting of a conducting-vibrator adapted to be vibrated by sound-waves and to be connected to one pole of a generator of electricity by a single conductor, a liquid in which said vibrator vibrates, adapted to be connected to the other pole of said generator by two separate conductors or branches, having a different degree of conductivity from said liquid and having their terminals in said liquid, in order that the distances between said vibrator and the terminals of said branches may be varied inversely to each other, to cause currents of oppositely-varying intensities in said branches by the vibration of said vibrator, as and for the purpose specified.

3. A telephonic transmitter consisting of a conducting-vibrator adapted to be vibrated by sound-waves and to be connected to one pole of generator of electricity by a single conductor, a liquid in which said vibrator vibrates, adapted to be connected to the other pole of said generator by two separate conductors or branches, having a different degree of conductivity from said liquid and having their terminals in said liquid, in order that the distances between said vibrator and the terminals of said branches may be varied inversely to each other to cause currents of oppositely-varying intensities in said branches by the vibration of said vibrator, in combination with a main line and an induction-coil, the primary coil of which is in one of said last-named conductors, and the secondary coil of which is in said main line, whereby the variation of intensity in the induced current over the main line will correspond with the vibrations of said vibrator, as and for the purpose specified.

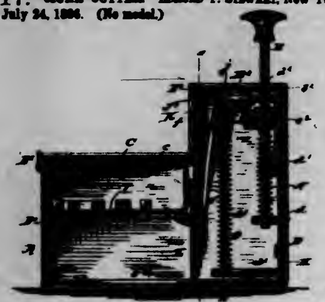
350,216. HARNESS. James Stanley, Newark, N. J. Filed Dec. 31, 1885. (No model.)

Claim.—The rubber crupper-loop and a box-loop combined in one integral piece of rubber, substantially as set forth.

350,216.



350,217. CIGAR-CUTTER. Edmund P. Stewart, New York, N. Y. Filed July 24, 1886. (No model.)



Claim.—1. The combination, with the plunger of a cigar-cutter and with means for partly rotating it, of a block-holding plate-frame carrying a cutting device, an arm carried by the plunger and engaging and disengaging said frame, and a spring, O, for holding the plate in a normal elevated position independent of the plunger, as set forth.

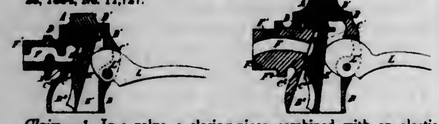
2. The combination, with a box or case having a pane, C, apertures *f*, and an inclined lug, *d'*, of a frame, J, carrying a cutting device and carrying a block-plate arranged under said pane, a plunger carrying a two-armed lever, one arm of which engages the frame J and the other the lug *d'*, and springs, as set forth.

3. The combination, with the box having pane C, slotted diaphragm L, lug *d'*, and apertures *f*, of the frame J, carrying plate I and cutting device, the plunger E, having a two-armed lever, *e e' e²*, and the springs N O, as set forth.

350,218. BLEACHING COMPOUND. Charles Toppan, Salem, Mass. Filed May 15, 1886. (No specimens.)

Claim.—The above-described bleaching compound, consisting of expressed oil of mustard-seed, paraffine, caustic soda, tallow-soap, sulphate of soda, and water, as set forth.

350,219. VALVE. Herbert Trott, Battersea, County of Surrey, England. Filed Jan. 27, 1885. (No model.) Patented in England Aug. 28, 1884, No. 11,727.

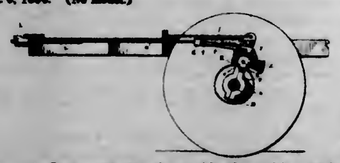


Claim.—1. In a valve, a closing-piece, combined with an elastic pad adapted to fit against the valve-seat, such pad having a cupped or dished face and fitted into an undercut recess in the closing-piece, and having its beveled edges projecting beyond such closing-piece, as set forth.

2. In a valve, the following-named described devices, arranged and operating as set forth, to wit: the suspended closing valve-piece E, normally hanging off from its inclined seat in the case, the flat sliding piece D, in which this piece E is hung, and the inclined valve-seat F² in the case, and a device, as described, serving to force the valve against the seat.

3. The described valve, consisting of the following features, viz: the casing B, having the removable cap A, the suspended closing valve-piece E, normally hanging off from its inclined seat in the case, the flat sliding piece D, in which this piece E is hung, the inclined valve-seat F², and the fluid-passage F, all arranged as set forth.

350,220. CAR-STARTER. William H. Vail, Cleveland, Ohio. Filed Mar. 6, 1886. (No model.)



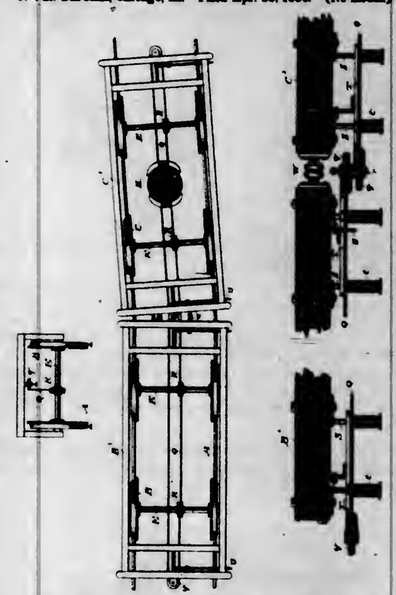
Claim.—1. In a car-starter, the combination, with a ratchet-wheel mounted on the car-axle, a lever and pawl for operating the same, a draw-bar connected with the lever, and a spring for moving the draw-bar rearward, of a tilting plate and lugs for controlling the pawl, a link operated from the draw-bar for actuating the tilting plate, a cam for lifting the link and freeing the pawl, and a slot in the lever giving lost motion to the draw-bar, the parts being arranged substantially as set forth.

2. In a car-starter, the combination, with a ratchet-wheel, a forked lever, pawl, and draw-bar, arranged substantially as described, of a slot widthwise of the lever, a pin connected with the draw-bar attachment operating in said slot, giving lost motion to the draw-bar, and a tilting plate pivoted to the pawl-lever and operated from the draw-bar, arranged to engage the pawl with the ratchet-wheel before the pawl-lever is drawn forward, substantially as set forth.

3. In a car-starter, the combination, with a ratchet-wheel, pawl, and lever, a draw-bar for operating the lever, and a slot in the lever to give lost motion to the draw-bar, the parts being arranged substantially as described, of a chain or suitable device, forming a stop to limit the rearward movement of the pawl-lever, substantially as set forth.

4. In a car-starter, the combination, with a ratchet-wheel, pawl, lever, draw-bar, and attachments, arranged substantially as described, of a tilting plate for operating the pawl, a link connected with the draw-bar for operating the tilting plate, the latter having a lug operating in a slot of the link, and a notch connected with the said slot for engaging the lug of the tilting plate, the parts being arranged substantially as set forth.

350,221. POWER-CONNECTION FOR RAILWAY-TRAINS. Charles J. Van Depoele, Chicago, Ill. Filed Apr. 23, 1886. (No model.)



Claim.—1. In a system of electric railways, the combination, with two or more cars, of a power-transmitting cable mounted under each car, a positive yielding connection between each section of the power-transmitting devices, and mechanical connections between the cable and the axes of the supporting-wheels, as set forth.

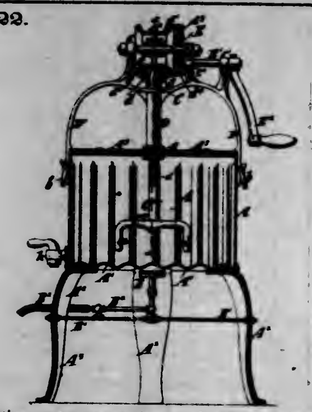
2. In a system of electric railways, the combination, with two or more cars, of a power-transmitting cable under each car, a positive vertically-yielding connection between each section of the cable, mechanical connections between the cable and the axles of the supporting-wheels, and means, as described, for imparting rotary motion to one section of the power-transmitting devices, substantially as set forth.

3. In a system of electric railways, the combination of two or more cars, vertically-yielding pulleys at each end of said cars, coupling-pins adapted to pass through the axes thereof, and thereby rotatively unite the pulleys of adjacent cars, suitable endless cables extending between the pulleys on each car, and connections, as described, between the endless cable and the axles of the supporting-wheels, as set forth.

350,222. STIRRING AND BEATING MACHINE. Victor Vert, New York, N. Y. Filed Oct. 26, 1885. (No model.)

Claim.—1. The combination, with a tub or vat and a stirrer or beater shaft, C, arranged therein, of a bevel-pinion, *d*, on said shaft, a second shaft, E, arranged transversely to the shaft C, two reversely-set bevel-gear sectors, *d'*, secured on the shaft E and engaging alternately with the pinion *d*, to drive the stirrer or beater shaft C alternately in

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reverse directions, and a cross portion extending between the sectors *d'* and rigidly connecting them independently of the shaft E, whereby the proper relation of the sectors to each other is insured irrespective of the devices which may be employed to secure the sectors to the shaft E, substantially as herein described.

2. The combination, with a tub or vat and a stirrer or beater shaft arranged therein, of a bevel-pinion on said shaft, a second shaft arranged transversely to the first, reversely-set bevel-gear sectors on the second shaft engaging alternately with the pinion, a spur-gear on the second shaft, and a driving-shaft provided with a pinion gearing into the said spur-gear, substantially as herein described.

3. The combination, with the tub or vat and the stirrer or beater shaft C, of the pinion *d* on said shaft, the transverse shaft E, and a metallic shell or casting on the transverse shaft, comprising reversely-set bevel-gear sectors *d'*, engaging alternately with the pinion *d*, and an intermediate pulley portion, d^3, substantially as herein described.

4. The combination, with the tub or vat and the stirrer or beater shaft C, of the pinion *d*, the transverse shaft E, and a metallic shell or casting on the transverse shaft, comprising reversely-set bevel-gear sectors *d'*, engaging alternately with the pinion *d*, and an internal spur-gear, d^3, and a driving-shaft, E', provided with a pinion, d^3, engaging with said spur-gear, substantially as herein described.

5. The combination, with a tub or vat and a stirrer or beater shaft provided with a bevel-pinion, of a transverse shaft and bevel-gear sectors set reversely thereon, so as to engage with opposite sides of the pinion alternately, and a frame comprising a central sleeve, D, and arms D', extending outward and downward from the upper part of the sleeve, and the bearing c for the transverse shaft, extending upward from the arms D', all being formed in the same integral casting, substantially as herein described.

6. The combination, with a tub or vat, of a stirrer or beater shaft arranged therein and provided with a bevel-pinion, a transverse shaft provided with reversely-set gear-sectors engaging alternately with the pinion, and a cross-bar on the stirrer or beater shaft having on opposite sides of the shaft downwardly-extending arms or prongs *a*, which are inclined in reverse directions to the perpendicular, whereby said arms or prongs will act alternately to lift and depress the contents of the tub or vat as the stirrer or beater shaft is rotated in reverse directions, substantially as herein described.

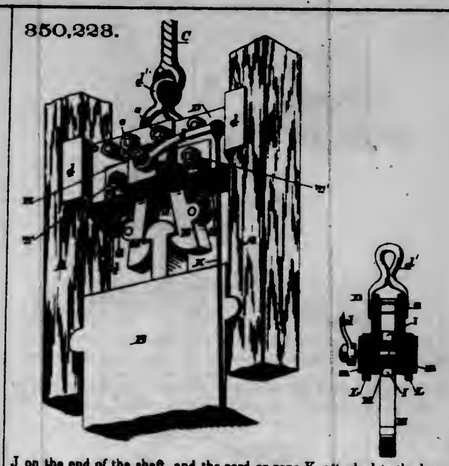
7. The combination, with a tub or vat and a stirrer or beater shaft arranged therein and provided with a bevel-pinion and a bearing wherein the shaft may be turned, and which prevents vertical movement of the shaft, of a cross-bar sliding on the shaft and provided with downwardly-projecting arms or prongs, a retaining-spring for holding the cross-bar in an elevated position by frictional engagement with it, and a transverse shaft provided with reversely-set gear-sectors engaging alternately with said pinion, substantially as herein described.

350,223. NIPPERS FOR PILE-DRIVERS. Henry von der Wulbeck, Arcata, Cal. Filed June 7, 1886. (No model.)

Claim.—1. In nippers for pile-drivers, the spring-actuated pivoted opposing jaws or hooks E, in combination with a pivoted cam or lever-arm in the same head or frame with the jaws or hooks and between them, whereby said jaws or hooks may be disengaged from the weight, substantially as described.

2. In nippers for pile-drivers, the spring-actuated pivoted opposing jaws or hooks E, in combination with the shaft H, passing between the jaws or hooks, the lever-arm or cam I on said shaft and lying between the jaws or hooks, whereby upon the movement of the shaft said arm or cam bears against both jaws or hooks and separates them, the lever

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J on the end of the shaft, and the cord or rope K, attached to the lever, whereby it is operated, substantially as described.

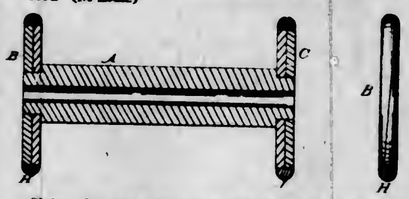
3. In nippers for pile-drivers, the pivoted opposing jaws or hooks E, the rods F, pivoted to the backs of the jaws or hooks, and their upper ends guided by fixed sockets *f*, and the springs G upon said rods and operating to hold the jaws or hooks normally closed, in combination with the shaft H, the lever-arm or cam I on the shaft and between the opposing jaws or hooks, and adapted to separate them, the lever J on the end of the shaft, and the rope or cord K, attached to the lever, substantially as described.

4. Nippers for pile-drivers, consisting of the head D, the opposing jaws or hooks E between the sides of the head and pivoted at their upper ends therein, the rods F, pivoted to the backs of the jaws or hooks E, the sockets *f* in the head for guiding the upper ends of the rods, the springs G on the rods, whereby the jaws or hooks are held normally closed, the shaft H, journaled in the head between the jaws or hooks, the lever-arm or cam I on the shaft and adapted to separate the jaws or hooks, the lever J on the end of the shaft, and the rope or cord K, attached to said lever, all arranged and adapted to operate substantially as described.

5. The head D of pile-driver nippers, having the opposing jaws or hooks E, in combination with the cushions L on the lower edge of the head, substantially as described.

6. Nippers for pile-drivers, consisting of the head D, the opposing jaws or hooks E, pivoted in said head, the rods F, pivoted to the jaws or hooks and having their upper end guided by fixed sockets, the spring G on the rods, the shaft H, the lever-arm or cam I on said shaft and operating to separate the jaws or hooks, the lever J on the shaft, the rope or cord K, attached to the lever, the brackets M, having sockets *m*, the bolts *m'*, by which the brackets are secured to the head, said bolts acting as stops to limit the separation of the jaws or hooks, and the cushions L in the sockets of the brackets M, and held in place by the shaft H, substantially as described.

350,224. SPOOL. Oscar E. Watt, Springfield, Vt. Filed Apr. 19, 1884. (No model.)

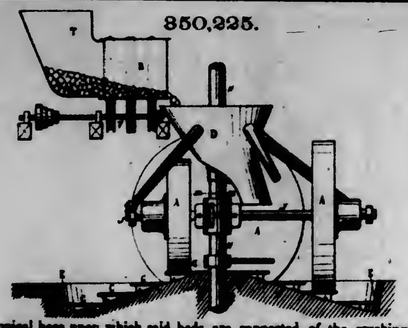


Claim.—In combination with a spool having heads or flanges provided with threaded peripheries, tires formed of strips of wood made into complete rings, substantially as herein described, and threaded internally to engage the threaded flanges, all for the object set forth.

350,225. PULVERIZING-MILL. Frederic Warnevmen, St. Denis, Seine, France. Filed June 1, 1885. (No model.) Patented in France Dec. 11, 1879, No. 123,849; in England June 26, 1882, No. 3,015; in Belgium Nov. 30, 1882, No. 63,236, and in Germany Sept. 23, 1885, No. 33,867.

Claim.—The combination, with the annular beds arranged stepwise, and having openings for the escape of the crushed material, and

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the conical base upon which said beds are supported, of the crushing-rollers, and shafts by which they are moved, substantially as specified.

350,226. BUCKLE. William W. Youmans, Caldwell, Kans., assignor of one-half to Edward P. Wright, same place. Filed May 19, 1886. (No model.)



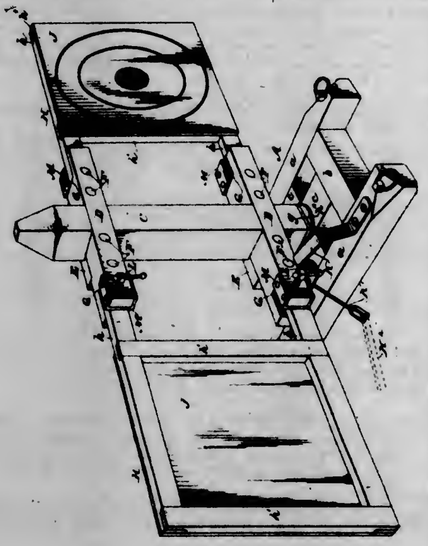
Claim.—The herein-described tongueless buckle, comprising the two pivoted frames A C and cross-bar D, connecting the two frames together, the frame C being of a size corresponding with the inner area of the frame A, so that normally the two frames can lie one within the other, but when the strap is applied and passed between the frames the thickness of the strap, when added to the frame C, will cause the end cross-bars of both frames to coact in binding the interposed strap at any point of its length without the use of tongues or the like, the strap being secured to the cross-bar D, as set forth.

350,227. REVOLVING TARGET. William H. Adams, Fort McIntosh, Laredo, Tex., assignor to himself and George Young Rhind, same place. Filed Apr. 8, 1886. (No model.)

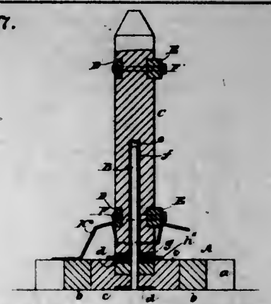
Claim.—1. In a target, the combination, with the revolving post C and arms D thereon, of the detachable target-frames H, carried by said arms, substantially as for the purposes set forth.

2. The base A, provided with the vertical spindle B, and the post C, held upon the spindle and provided with the slotted arms D, and screws L, in combination with the detachable target-frames H, secured to said arms by the screws L, substantially as and for the purposes set forth.

3. The base A, provided with a vertical spindle, B, and having secured to it the spring-locking device K, in combination with the post C, placed upon the spindle B, the horizontal arms D, attached to the



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post, and the separate target-frames H, adapted to be secured to the arms D, the locking device K being arranged to engage with the lower arm, D, substantially as and for the purposes set forth.

350,228. CLASP. Benjamin H. Bissell, Le Roy, Lake County, Ohio. Filed May 25, 1886. (No model.)



Claim.—In a clasp, the combination, with plates pivoted together and adapted to grasp and hold the material, one of said plates having a bail integral therewith, and the other plate having a tongue inclined and offset, as shown, and extending through the opening in the bail, of the ring operating between the tongue and bail, substantially as set forth.

350,229. YELLOW COLORING-MATTER. Fritz Bender, Mühlheim, Hesse, Germany, assignor to A. Leonhardt & Co., same place. Filed July 27, 1886. (No specimens.)

Claim.—1. The production of a yellow coloring-matter by treating the soda salt of a paranitrotoluol sulpho acid by caustic soda-lye, reducing the so-obtained red product of condensation into a hardly-soluble amido-sulpho acid, diazotizing the latter, and combining the diazo product with a mixture of phenol and its carbon acids, or only with the one or the other component of said mixture in an alkaline solution.

2. The yellow coloring-matter herein described, having the properties to be a brown powder which dissolves easily in cold water with an orange color, the solution being colored red by ammonia or soda-lye and precipitated with a black-blue color by hydrochloric acid, the said coloring-matter having, further, the property of being soluble in concentrated sulphuric acid with a brilliant violet color, and to be fixed on cotton, without any mordant, with a brilliant yellow shade.

350,230. RED COLORING-MATTER. Fritz Bender, Mühlheim, Hesse, Germany, assignor to A. Leonhardt & Co., same place. Filed July 27, 1886. (No specimens.)

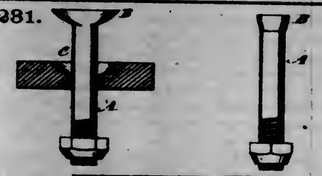
Claim.—1. The production of a red coloring-matter by treating the soda salt of a paranitrotoluol mono-sulpho acid by caustic soda-lye, reducing the so-obtained red product of condensation into a hardly-soluble amido-sulpho acid, diazotizing the latter, and combining the obtained diazo product with a mixture of hydrochloric salt of betanaphthylamine and a sodium salt of betanaphthylamine sulpho-acid, or only with the one or the other component of said mixture.

2. The red coloring-matter herein described, having the properties to be a dark-brown red powder which dissolves in water with an intensive purple color, and in concentrated sulphuric acid with a beautiful blue color, the watery solution, when treated with hydrochloric acid, giving a blue precipitate, and the said coloring-matter having, further, the property of being fixable on cotton without any mordant, giving a purple-like color.

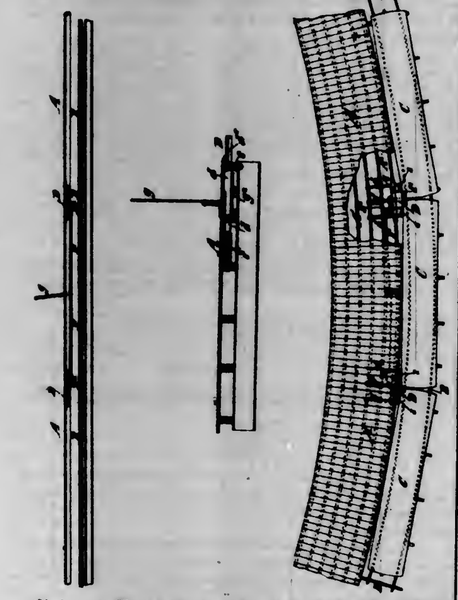
350,231. BOLT. Henry A. Brown, Toledo, Ohio. Filed Jan. 12, 1886. (No model.)

Claim.—A round bolt threaded at one end to receive a nut, and formed at its opposite end with an oblong convex shoulderless head, substantially as set forth.

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350,232. MOVABLE PLATFORM FOR RAILWAY-STATIONS, &c. Matthew C. Caldwell, Brooklyn, N. Y. Filed Feb. 12, 1886. (No model.)



Claim.—1. The combination, with a fixed platform, of a supplemental platform arranged beneath the fixed platform, and movable inward and outward relatively thereto, substantially as herein described.

2. The combination, with a curved station-platform and a curved railway-track adjacent thereto, of a supplemental platform movable inward and outward relatively to the station-platform for bridging the space between the station-platform and the platform of a car, substantially as herein described.

3. The combination, with a fixed platform, of a supplemental platform movable inward and outward relatively to the fixed platform, and a lever and connections whereby said supplemental platform may be operated, substantially as herein described.

4. The combination, with a fixed platform, of a supplemental platform movable inward and outward relatively to the fixed platform, and a spring for projecting the movable platform beyond the fixed platform, substantially as herein described.

5. The combination, with a fixed and curved station-platform and a curved railway-track, of a supplemental platform movable inward and outward relatively to the fixed platform, and rods or bars supporting the supplemental platform and guided in the stringers or floor-beams of the stationary platform, substantially as herein described.

6. The combination, with a fixed and curved station-platform and a curved railway-track adjacent thereto, of a number of supplemental platforms, movable toward and from the fixed platform for bridging over the space between the station-platform and the car-platforms, and a hand-lever and connections whereby the supplemental platforms may be operated, substantially as herein described.

350,233. COTTON-PLANTER. Elbert W. Dunn, Jackson, Ga. Filed June 29, 1886. (No model.)

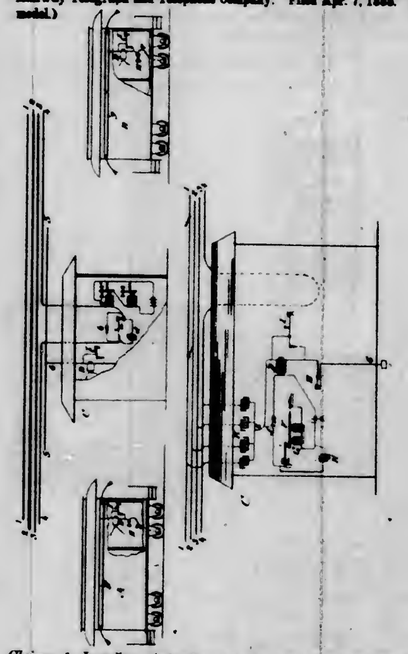
Claim.—A cotton-seed or other planter provided with a rotary cylindrical hopper tapering from its center toward its ends, and provided with inwardly-inclined discharge-openings, a central partition dividing the hopper into two compartments, and cut away opposite each discharge-opening to form chutes thereto, and an adjustable gage-band to

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close or regulate the size of the discharge-openings, substantially as and for the purpose set forth.

350,234. SYSTEM OF RAILWAY SIGNALING. Thomas A. Edison, Menlo Park, N. J., and Ezra T. Gilliland, Boston, Mass., assignors to the Railway Telegraph and Telephone Company. Filed Apr. 7, 1885. (No model.)



Claim.—1. In railway inductive signaling apparatus, the combination, with one or more telegraph-wires and their instruments, of a train having railway signaling, transmitting, and receiving instruments operating to transmit and receive signals produced by induction impulses, and acting inductively upon and from the telegraph wire or wires, a station having transmitting and receiving instruments for such induction railway signals, and shunts around the telegraph-keys to maintain a closed line-circuit for the induction railway-signals, substantially as set forth.

2. In railway inductive signaling apparatus, the combination, with one or more telegraph-wires and their instruments, of a train having railway signaling, transmitting, and receiving instruments operating to transmit and receive signals produced by induction impulses, and acting inductively upon and from the telegraph wire or wires, a station having transmitting and receiving instruments for such induction railway-signals, and condenser-shunts around the telegraph-keys to maintain a closed line-circuit for the induction railway-signals, substantially as set forth.

3. In railway inductive signaling apparatus, the combination, with several telegraph-wires and their instruments, of a train having railway signaling, transmitting, and receiving instruments operating to transmit and receive signals produced by induction impulses and acting inductively upon and from the telegraph-wires collectively, a station having transmitting and receiving instruments for such induction railway-signals, and shunts around the telegraph-keys to maintain a closed line-circuit for the induction railway-signals, substantially as set forth.

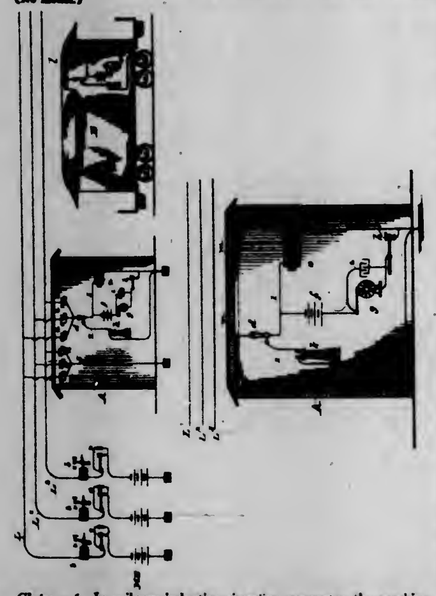
4. In railway inductive signaling apparatus, the combination, with several telegraph-wires and their instruments, of a train having railway signaling, transmitting, and receiving instruments operating to transmit and receive signals produced by induction impulses, and acting inductively upon and from the telegraph-wires collectively, a station having transmitting and receiving instruments for such induction railway-signals, and condenser-shunts around the telegraph-keys to maintain a closed line-circuit for the induction railway-signals, substantially as set forth.

5. In railway inductive signaling apparatus, the combination, with several telegraph-wires and their instruments, of trains and stations having railway signaling-instruments operating inductively upon and from such telegraph-wires collectively, and condensers in shunts around the telegraph-keys, substantially as set forth.

6. In railway inductive signaling apparatus, the combination, with several telegraph-wires and their instruments, of trains and stations having railway signaling-instruments connected in multiple arc with such telegraph-wires by condensing-surfaces, and condensers in shunts around the telegraph-keys, substantially as set forth.

7. The combination, with the series of telegraph wires or circuits used for ordinary purposes, of a series of condensers connected individually with one set of poles to said wires, and having their other or opposite poles joined together and connected to the apparatus at the fixed station of a railway-telegraph, substantially as set forth.

350,235. RAILWAY TELEGRAPHY. Thomas A. Edison, Menlo Park, N. J., and Iiram T. Gilliland, Boston, Mass. Filed Jan. 13, 1886. (No model.)



Claim.—1. In railway inductive signaling apparatus, the combination, with a number of telegraph-wires and their instruments, of a train having railway signaling, transmitting, and receiving instruments operating to transmit and receive signals produced by induction impulses, and acting inductively upon and from the telegraph-wires collectively, and a station having transmitting and receiving instruments for such induction railway-signals, substantially as set forth.

2. In railway inductive signaling apparatus, the combination, with a number of telegraph-wires and their instruments, of a train having railway signaling, transmitting, and receiving instruments operating to transmit and receive signals produced by induction impulses, and acting inductively upon and from the telegraph-wires collectively, and a station having transmitting and receiving instruments for such induction railway-signals, also acting inductively upon and from the telegraph-wires collectively, substantially as set forth.

3. In railway inductive signaling apparatus, the combination, with the line therefor composed of one or more telegraph-wires having ordinary Morse instruments at a terminal office beyond the railway signaling office, of a ground-connection from such telegraph wire or wires between the terminal telegraph-instruments and the railway-station signaling apparatus, such ground-connection acting to shunt for the railway-signals the breaks formed by the Morse keys at the terminal telegraph-office, substantially as set forth.

4. In railway inductive signaling apparatus, the combination, with the line therefor composed of one or more telegraph-wires having ordinary Morse instruments at a terminal office beyond the railway signaling office, of a condenser, ground-connection from such telegraph wire or wires between the terminal telegraph-instruments and the railway-station signaling apparatus, such ground-connection acting to shunt for the railway-signals the breaks formed by the Morse keys at the terminal telegraph-office, substantially as set forth.

5. In a railway inductive signaling apparatus, the combination, for transmitting signals, of a magnet, a shunt around such magnet, including a battery, a revolving circuit-breaker and a key, and a condenser shunting such circuit-breaker, substantially as set forth.

350,236. Construction of Cars for Track-Laying. Erastus B. Ermons, Washington, Iowa. Filed June 24, 1886. (No model.)

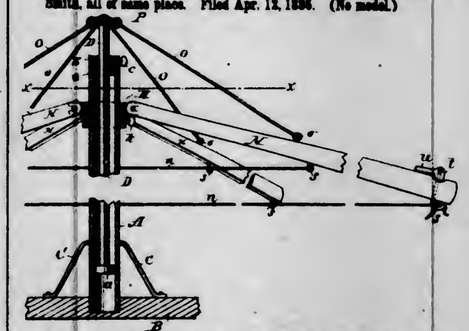


Claim.—1. The combination, with a car provided with rollers, of a platform provided with tracks and mounted on the rollers of the car, and means for securing the platform on the car, substantially as herein shown and described.

2. The combination, with two cars, each provided with spring-pressed coupling-hooks, of a movable platform, and an arm on the said platform for disengaging the coupling-hooks, substantially as herein shown and described.

3. The combination, with two cars, each of which is provided with a spring-pressed coupling-hook and a fixed coupling-hook, the spring-pressed hook being provided with a flange, of a platform provided with rails which ride on wheels carried by the cars, said platform being provided with an arm, 7, substantially as described.

350,237. Clothes-Drier. Joseph V. Fleek, Lebanon, Ky., assignor to himself, James W. Appling, John A. Elliott, and Charles A. Smith, all of same place. Filed Apr. 12, 1886. (No model.)



Claim.—1. The combination, with a hollow supporting-standard, of a vertically-adjustable rod or pipe extending through the upper end of the standard, a plate loosely mounted on top of the said vertically-adjustable rod, a sleeve or runner loosely mounted on the supporting-standard, outward-extending arms pivoted at their inner ends to the said sleeve or runner and provided at their outer ends with line-holding devices, and rods connected to the loose plate on top of the vertically-adjustable rod and to the said outward-extending arms, substantially as set forth.

2. In a clothes-drier, the combination, with a flanged collar, E, of a central rod or pipe having a bushing, *a*, runner H, having a set-screw, *k*, and carrying arms N N, suspending or brace rods O O, and a plate, P, loosely mounted on the upper end of the adjustable rod or pipe D, substantially as described.

3. The combination, with a clothes-drier, substantially as described, of clamping-hooks *z*, eccentrics *t*, engaged with said hooks and having handles *u*, substantially as described.

350,238. Tackle-Block. George A. Ford, Cleveland, Ohio. Filed Apr. 5, 1886. (No model.)



Claim.—1. In a metal tackle-block, a cheek-piece comprising one face of the block and made of a single piece of metal, having substantially flat side and inwardly-projecting rim, substantially as set forth.

2. In a metal tackle-block, cheek-pieces each comprising one face of the block, and having substantially flat sides with inwardly-projecting rims forming broad surfaces along the edges of the cheeks, the inner edges of the rims being curved inward beyond the edge or periphery of the sheave, substantially as set forth.

3. In a metal tackle-block, cheek-pieces having substantially flat sides with inwardly-projecting rims, said rims being cut away at the ends of the cheek-pieces to form seats for the blockings that separate the cheeks, substantially as set forth.

4. In a metal tackle-block, the combination, with metal cheek-pieces having flat sides and inwardly-projecting rims, substantially as described, of anti-friction rolls located inside the cheek-pieces, substantially as set forth.

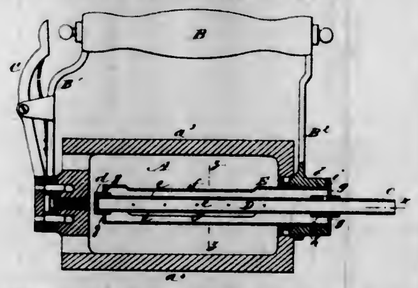
5. In a metal tackle-block, the combination, with cheek-pieces having inwardly-projecting rims forming chambers, of anti-friction rolls for supporting the sheave-spindle, said rolls being located in the chambers of the respective cheek-pieces, substantially as set forth.

6. In metal tackle-blocks, the combination, with chambered cheek-pieces, substantially as described, of blockings to separate the cheeks, a draft-strap made to embrace the sheave-spindle, and friction-rolls located in the chamber of the cheek-pieces, the trunnions of said rolls being respectively journaled in the cheeks and draft-strap, the parts being arranged substantially as set forth.

7. The combination, with cheek-pieces arranged substantially as described, and having mortises a^2, of the blocks E and D, the latter having notches *d* to span the draft-strap, and lugs d' to engage the mortises a^2, the parts being arranged substantially as set forth.

8. In a metal tackle-block, the combination, with cheek-pieces, draft-strap, blockings, and friction-rolls, arranged substantially as indicated, of a center piece and sheaves forming a double-sheave block, and a center draft-strap having a center friction-roll, the trunnions of the latter being journaled in the inner draft-strap, substantially as set forth.

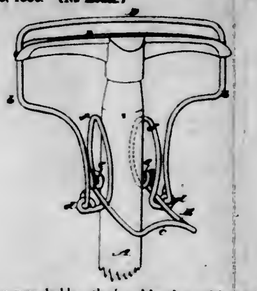
350,239. Gas-Heating Attachment for Reversible Sad-Irons. Henry C. Fox, Evansville, Ind., assignor to the Fox Sad-Iron Co., New York, N. Y. Filed Nov. 10, 1885. (No model.)



Claim.—1. The combination, with the handles B B' B^3, the lower end of the arm B^3 having a sleeve, *b*, and the hollow body A, journaled on the inner end of the sleeve *b* and to the lower end of the arm B', of the air-supply tube E, projecting into the hollow body through the sleeve *b*, and provided with longitudinally-arranged apertures, and with inward-extending projections *g* at its ends, and the perforated gas-pipe D, closed at its inner end and centered within the tube E by the projections *g g*, substantially as set forth.

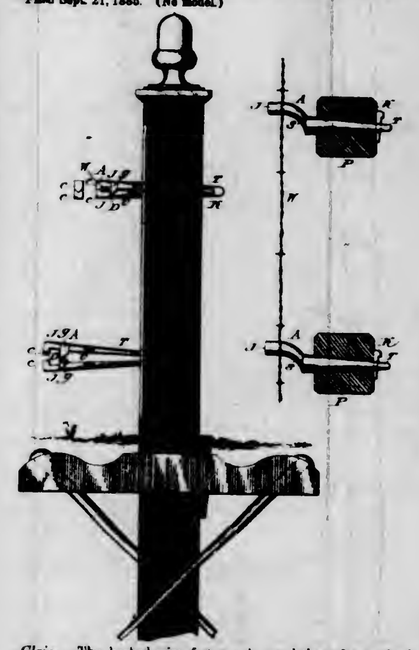
2. A reversible sad-iron consisting of the handle B B' B^3, the arm B^3 having the sleeve *b*, notched on its outer end, the hollow body A, journaled on the inner end of the sleeve *b* and to the lower end of the arm B', the tube E, extending into the hollow body through the sleeve *b*, and provided with the longitudinally-arranged apertures, the inward-extending projections *g*, and the outward-extending projection *i*, entering the notch in sleeve *b*, the gas-pipe D, closed at its inner end and centered in the tube E by the projections *g*, and the set-screw *s*, passing through the sleeve *b* and the tube E, to prevent longitudinal movement of the gas-pipe, substantially as set forth.

350,240. Mop-Holder. George W. Fuller, Westmoreland, N. Y. Filed Feb. 15, 1886. (No model.)



Claim.—In a mop-holder, the combination, with the handle A, having side trunnions, *e e*, and with the adjustable bail D, of the eccentric spring-lever E, constructed, substantially as shown and described, of or from a piece of spring-wire coiled around the trunnions and engaging with the bail for operation in relation with the bail and handle, substantially as specified.

350,241. Wire-Fastener. Henry A. Graeter, Wooster, Ohio. Filed Sept. 21, 1885. (No model.)

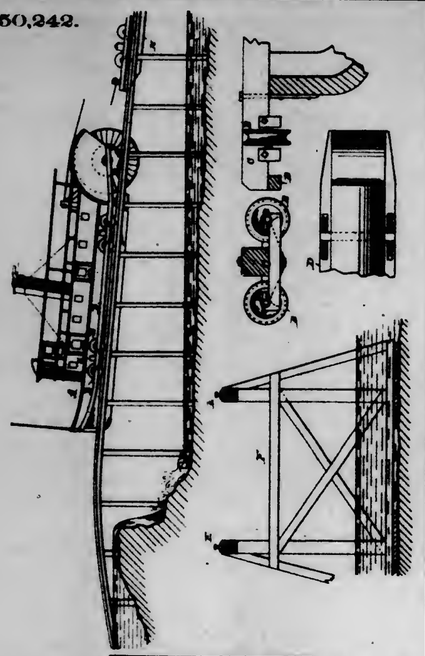


Claim.—The barbed-wire fastener A, consisting of opposite jaws, J, having teeth, the bent shank *s*, and tapered tang T, said jaws, shank, and tang divided longitudinally by the slot *v*, and united at the point of the tang to receive the key *k*, substantially as shown and described, and for the purpose specified.

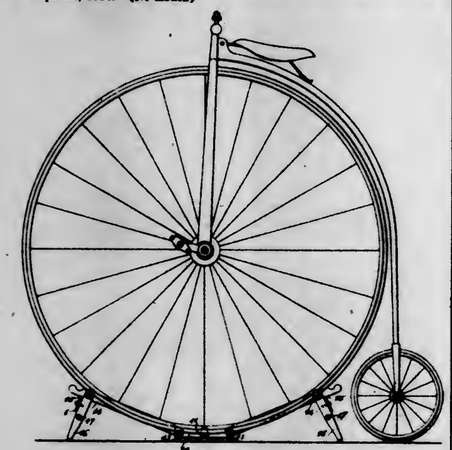
350,242. Apparatus for Carrying Vessels over Obstructions. Wilhelm A. Gröndahl, Portland, Oreg. Filed Mar. 20, 1886. (No model.)

Claim.—In transporting vessels, the combination, with a vessel, of trucks comprising timbers projecting from the sides of the vessel, to the outer ends of which timbers are applied guard-rails, and wheels suspended from said timbers inside of said guard-rails, substantially as shown and described, and for the purpose set forth.

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350,243. BICYCLE-STAND. Albert W. Gump, Dayton, Ohio. Filed Apr. 12, 1886. (No model.)



Claim.—1. A bicycle-stand consisting of main supporting-strips carrying a recessed cross-bar, outwardly-extending legs that are pivotally connected to the main supporting-strips, and braces or legs arranged to support the outer ends of the main legs, substantially as described.

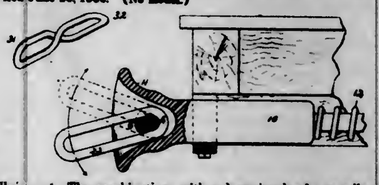
2. In a bicycle-stand, the combination, with the main body of the stand, of pivotally-connected legs, the ends of which carry recessed cross-strips 15, and short supporting braces or legs carried by tap-bolts by which the strips 15 are supported, substantially as described.

3. In a bicycle-stand, the combination, with the main body of the stand, that is provided with strips 9, of pivotally-connected legs 14, short braces or legs 16, pivotally connected to the extending legs 14, adjustable stops 5, carried by the legs 16, and recessed strips, as 15 and 11, substantially as described.

4. The combination, with the main body of a bicycle-stand, of pivotally-connected legs formed with recesses 20, short braces or legs pivotally connected to the extending ends of the main legs, and a recessed cross-strip, as 15, substantially as described.

5. As a new article of manufacture, a bicycle-stand embodying the following elements: main-side strips, 10, cross-strips 11, recessed at 12, strips 9, carried by the strips 10, legs 14, pivotally connected to the ends of the strips 10, stays 13, carried by the strips 10, short folding legs 16, pivotally connected to the extending ends of the legs 14 and provided with stops 5, and strips 15, formed with recesses 3, said strips being carried by tap-bolts which pass through the legs 14 and serve as pivotal supports for the legs 16, substantially as described.

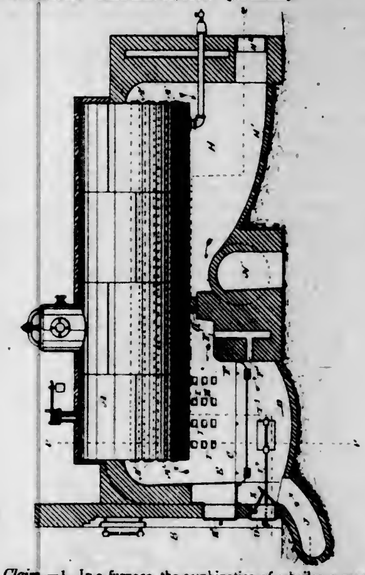
350,244. CAR-COUPLING. Charles R. Harris, Philadelphia, Pa. Filed June 26, 1886. (No model.)



Claim.—1. The combination, with a draw-head, of a coupling-pin, a handle provided with a stop and connected to the pin, a cylinder formed with a longitudinal slot in which the stop on the handle rides, a spring arranged within the cylinder and in connection with the handle and its pin, and a fixed stop arranged to be engaged by the stop on the handle, substantially as described.

2. The combination, with a draw-head, its bar, and the draw-bar spring, of a coupling-pin provided with the lug 5, a spiral spring arranged in connection with the pin, and a rigidly-mounted stop, substantially as described.

350,245. FURNACE FOR STEAM-BOILERS. George Hasbrouck, St. Louis, Mo. Filed Mar. 25, 1886. (No model.)



Claim.—1. In a furnace, the combination of a boiler, a combustion-chamber, and a partition-wall, with a hot-air chamber, a channel, a mixing apparatus, and a return-flue, substantially as herein shown and described.

2. In a furnace, the combination of a boiler, a combustion-chamber, an ash-pit, and a partition-wall, with a hot-air chamber, a channel, a mixing apparatus, and a return-flue, substantially as herein shown and described.

3. In a furnace, the combination of a boiler, a combustion-chamber, an ash-pit, and a partition-wall, with a hot-air chamber, a channel, a chimney, a mixing apparatus, and a return-flue, substantially as herein shown and described.

4. In a furnace, the combination of a boiler, a combustion-chamber, an ash-pit, a bridge-wall, and a partition-wall, with a hot-air chamber, a channel, a chimney, a mixing apparatus, and a return-flue, substantially as herein shown and described.

5. In a furnace, the combination of a boiler, a combustion-chamber, an ash-pit, a bridge-wall provided with flues, a partition-wall dividing the furnace into two main compartments, and side passages which connect the ash-pit and the combustion-chamber, with a hot-air chamber, a channel, a chimney, a mixing apparatus, and a return-flue, substantially as herein shown and described.

6. In a furnace, the combination of a boiler, a combustion-chamber, an ash-pit, and grate-bars, with the bridge-wall provided with flues which connect the ash-pit with the combustion-chamber from the rear, and a partition-wall, substantially as herein shown and described.

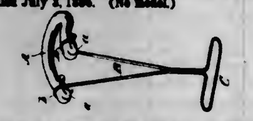
7. In a furnace, the combination of a boiler, combustion-chamber, an ash-pit, and grate-bars, with side passages leading from the ash-pit to the combustion-chamber, a bridge-wall having flues leading from the ash-pit to the combustion-chamber, and a partition-wall, substantially as herein shown and described.

8. In a furnace, the combination of a hot-air chamber with a channel and a mixing apparatus provided with a fan, a steam-inlet, and a cold-air inlet, and connected with a return-flue entering the ash-pit, substantially as herein shown and described.

9. In a furnace, the combination of a hot-air chamber, a transverse channel, and a mixing apparatus, with a chimney having a central shaft, side passages, and air-inlet doors, substantially as herein shown and described.

10. In a furnace, the combination of a hot-air chamber, a transverse channel provided with a damper, and a mixing apparatus, with a chimney having a central shaft, side passages, and air-inlet doors, substantially as herein shown and described.

350,246. UTERINE SUPPORTER. Martha F. Hayden, Athol Centre, Mass. Filed July 3, 1886. (No model.)



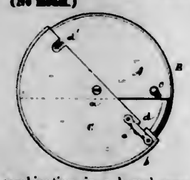
Claim.—1. A uterine supporter made with a semicircular or open cord or head-piece formed of soft tubular india-rubber or other elastic substance, substantially as described, for the purposes set forth.

2. A uterine supporter made with a semicircular or open cord or head-piece formed of soft tubular india-rubber or other elastic substance and a wire attached to the ends of the head-piece, substantially as described, for the purposes set forth.

3. The combination, in a uterine supporter, of an elastic tube or cord, A, doubled over at the ends, as at *a a*, and a wire, B, looped at *b b* around these doubled ends, substantially as shown and described.

4. The combination, in a uterine supporter, of an elastic tube or cord, A, and a wire, B, secured to the ends of the cord, and provided with a loop, C, for attachment of external fastenings, substantially as shown and described.

350,247. BARREL-COVER. William W. Hodsden, Smithfield, Va. Filed May 7, 1886. (No model.)



Claim.—1. The combination, in a barrel-cover, of the stationary part A, provided with the hoop B, adapted to receive the end of the barrel, and having the stop-pin *c*, projecting from the upper face thereof, and the movable part C, having notches *d d'*, and the downwardly-projecting rim *b*, substantially as herein shown and described.

2. The combination, in a barrel-cover, of the stationary part A, provided with the hoop B, adapted to receive the end of the barrel, and having the stop-pin *c* projecting from the upper face thereof, the movable part C, having notches *d d'*, and the downwardly-projecting rim *b*, and the handle *s*, substantially as herein shown and described.

350,248. PIANO-FORTE. Louis J. Hoeffner, Boston, Mass.; Mary T. Hoeffner administratrix of said Louis J. Hoeffner, deceased. Filed Jan. 10, 1885. (No model.)



Claim.—1. In combination with a piano-forte provided with a sounding-board, frame, and strings of the usual construction and arrangement, a sounding-board having strings thereon removably attached at the under side or at the rear of the frame supporting said usual sounding-board, substantially as specified, and for the purposes set forth.

2. A sounding-board provided with strings upon both sides thereof applied to and in combination with a piano-forte provided with a sounding-board, frame, and strings of the usual construction and arrangement, substantially as described, and for the purpose set forth.

350,249. SWORD-CANE. Ephrim Holman, Sandy, Utah. Filed Feb. 27, 1886. (No model.)

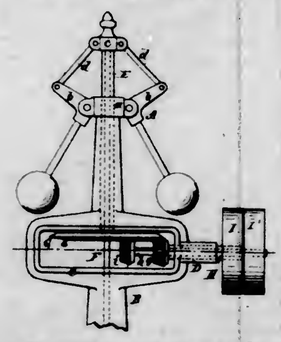


Claim.—1. The combination, with a cane-head and a tubular extension, A', projecting therefrom and having near the lower end an internal shoulder, of the weapon or rod B, fixed in the head and projecting beyond the tubular extension, the tubular stem C, of smaller diameter than the extension A', and sliding within the same, and provided at the upper end with an external shoulder, which, in connection with the shoulder in the tubular extension, limits the outward movement of the stem, and a spring, D, bearing at one end on the head and at the other end on the tubular stem, and serving to project the stem and shield the weapon or rod, substantially as herein described.

2. The combination, with the cane-head having the recess or socket a^2 and the tubular extension A', of the weapon or rod B, the tubular sliding stem C, and the spring seated in the recess or socket a^2 and bearing on the sliding stem, substantially as herein described.

3. The combination, with the cane-head and its tubular extension, of the weapon or rod fixed in the head, the tubular stem sliding in the said extension and having at the end a tip perforated for the passage of the weapon or rod, and a removable cap applied over the perforated tip to cover the point of the weapon, substantially as herein described.

350,250. GOVERNOR-CONNECTION. Robert J. Hotchkiss, Dewittville, N. Y. Filed Mar. 13, 1886. (No model.)

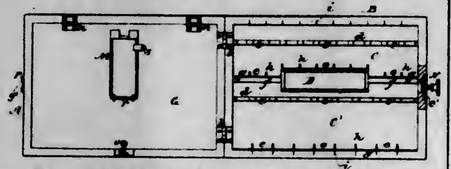


Claim.—1. The combination, with the governor-shaft, of a toothed wheel having two or more series of teeth of different diameters, pinions for engaging the teeth, and means for imparting motion from the engine

to one or the other of the pinions, substantially as herein shown and described.

2. The combination, with the driving-shaft of an engine-governor, of the bevel-wheel G, provided with two series of teeth, *e f*, the sleeve H, shaft A, pinions *g i*, and the pulleys I I', substantially as herein shown and described.

350,251. MEDICINE-CHEST. Terry J. Hutton, Fergus Falls, Minn. Filed Apr. 2, 1886. (No model.)



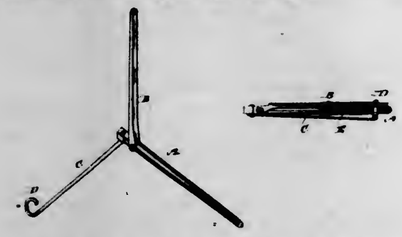
Claim.—1. In a medicine-chest composed of upper and lower case-sections, A B, hinged together, as described, the central compartment, D, in the lower section, and longitudinal partitions *f*, provided, respectively, with open-sided pockets *e* on their upper surfaces, in combination with the upper and lower compartments, C C', for vials of different sizes, the longitudinal partitions *d d*, having recesses *c c* in them, and the open-sided pockets *e* along the lower inner margins of said sections, the whole being arranged essentially as shown and described.

2. In a medicine-chest provided with open-sided pockets *e*, for reception of the lower ends of vials, the combination, with the chest or case sections, of the metal stripe *g*, cut or punched and bent to form wings *h*, constituting the sides of said pockets, essentially as described.

3. The combination, with the sections A B of the chest, hinged together at one end, of the lid G, hinged to one side of the upper section, A, and the leg-support M, pivoted to the exterior of said lid, substantially as and for the purpose herein set forth.

4. In a medicine-chest having upper and lower hinged sections, A B, the hinged lid G, provided on its inner face with top and bottom guides or rests, *a a'*, and cleats *c' c²*, for retention of a hand-book on said lid, in combination with the pivoted leg-support M on the exterior of said lid, essentially as specified.

350,252. HAIR-CRIMPER. Dina Jordan and Rudolph Jordan, New York, N. Y. Filed Apr. 11, 1885. (No model.)



Claim.—1. A hair-curling pin consisting of two shanks pivoted at one end and connected by a spring-clasp at the opposite end, the face of one shank having a groove and the face of the other fitting in said groove, substantially as set forth.

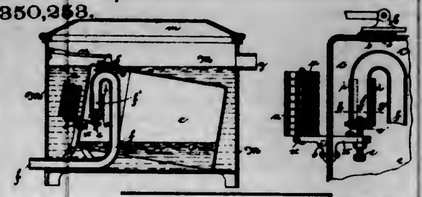
2. In a hair-crimper, the combination, with a wooden, rubber, or celluloid rod, of a metal strip pivoted to the rod at one end and being circular in cross-section, and of a rod or wire pivoted to the rod at the same end at which said strip is pivoted, said rod or wire being provided at its free end with a hook for locking the recessed strip on the wooden or rubber rod, substantially as herein shown and described.

3. In a hair-crimper, the combination, with the rod A, of wood, hard rubber, or analogous material, of the grooved or recessed metal strip B, pivoted to the rod A, and of the rod or wire C, pivoted to the rod A at the same end at which the strip B is pivoted, the rod C swinging in a plane at right angles to the plane in which the strip B swings, substantially as herein shown and described.

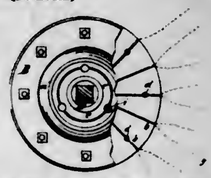
350,253. STEAM-TRAP. Rudolf Kuhlo, Elberfeld, Prussia, Germany. Filed Feb. 24, 1886. (No model.) Patented in Germany May 12, 1886, No. 33,319; in England July 16, 1885, No. 8,615, and in Belgium Dec. 14, 1885, No. 71,223.

Claim.—In steam-traps, the combination of a steam-tube, *f*, which runs into the vessel M and has its open tube end *f'* bent downward, with a valve, *v*, which is movable toward the said open tube end *f'*, and can open and shut it as necessary, and a rotating bell-float, *c*, which is suspended in the vessel M and has an arm, *x*, which closes the valve *v*.

350,253.



350,254. WHEEL-HUB. Andrew W. Lane, Janesville, Cal. Filed Mar. 12, 1886. (No model.)

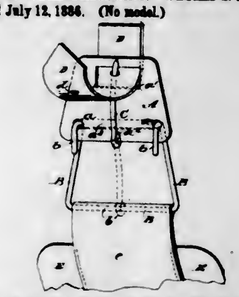


Claim.—1. The hub A, having conical sockets *f h* at its opposite ends, the box C, formed with the collar *e* resting in the socket *f*, the conical collar *g*, formed of a series of longitudinally-divided sections, and the bolts *i*—one for each section of the collar—extending longitudinally through the hub into the said sections, substantially as set forth.

2. The hub A, having conical sockets *f h* at its opposite ends, the box C, formed with the collar *e* resting in the socket *f*, the outer face of the collar having grooves registering with grooves in the wall of the said socket *f*, the collar at the opposite end of the box in the socket *h*, and bolts extending through the grooves in the collar *e* and socket into the opposite collar, substantially as set forth.

3. The hub A, formed in two sections, each having a flange, B, connected by bolts *d*, conical sockets *f h*, the box C, having a collar, *e*, in the socket *f*, longitudinal apertures between the socket and collar, the sectional collar *g* in the socket *h*, and the bolts *i*, passed through the said apertures and hub into the sections of the collar *g*, whereby the bolts *i* will assist in holding the hub-sections and collars together and also prevent the box from turning in the socket *f*, substantially as set forth.

350,255. SADDLE-FASTENING. Winfield S. Lapham, Clements, Colo. Filed July 12, 1886. (No model.)



Claim.—1. In a saddle-fastening, the combination, with a plate, A, having holes *a a* and slot *a'*, and adapted to receive the saddle-strap, of a frame, B, having hooks *b b*, adapted to the holes *a a* of plate A, and adapted to receive the girth-strap, and a tongue, C, hinged to the buckle plate or frame and adapted to engage the saddle-strap, substantially as herein set forth.

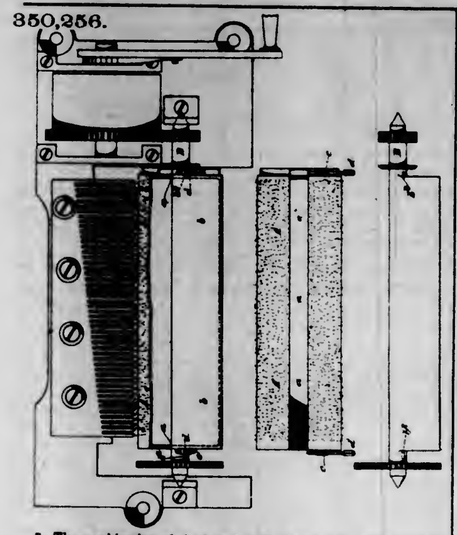
2. In a saddle-fastening, the combination, with a buckle-plate, A, having holes *a a*, and a slot, *a'*, of the saddle-strap D, passed through the slot *a'*, a buckle-frame, B, having hooks *b b* passed through the holes *a a* in plate A, a tongue, C, hinged to the plate A or frame B, and adapted to engage holes in the saddle-strap, and the girth E, permanently attached to the buckle-frame B, substantially as described, for the purposes set forth.

350,256. MUSIC-BOX. Albert A. Lathelier, London, England, assignor to himself and George Frederick Boutter, same place. Filed Aug. 25, 1885. (No model.) Patented in England June 21, 1886, No. 8,196.

Claim.—1. In a musical box or like musical instrument, a barrel provided with a longitudinal gap in its side to facilitate its removal from and replacement on its shaft or axle, substantially as set forth.

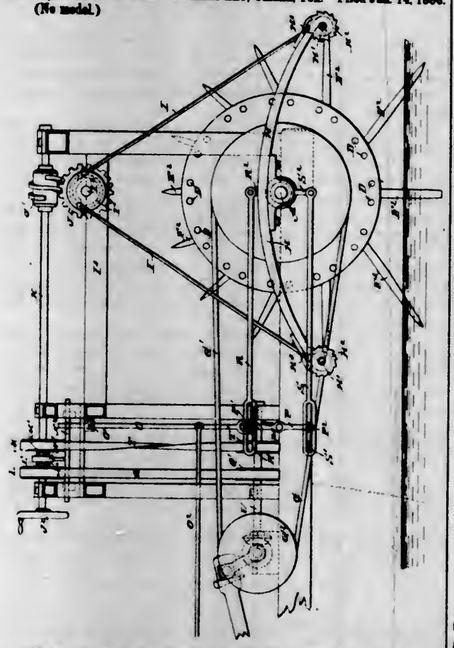
2. The combination of the barrel A of a musical box or like musical instrument, having a gap, *a*, in its side, with a shaft or axle having a guide or filling piece, *b*, adapted to said gap, substantially as set forth.

350,256.



3. The combination of the barrel A, having a gap, *a*, with a shaft or axle and means for fastening the barrel to the shaft or axle, substantially as specified.

350,257. MOTOR. William Lay, Omaha, Tex. Filed Jan. 14, 1886. (No model.)



Claim.—1. In a motor, the combination, with a crank-shaft, of blades or wings mounted to revolve on the crank part of the shaft, disks mounted to revolve on the shaft at the ends of the crank-rods uniting the disks and guiding the wings, the springs H on the ends of the shaft, mechanism for raising or lowering either end of the said spring, and mechanism for revolving the disks, substantially as herein shown and described.

2. In a motor, the combination, with a crank-shaft, of paddles or wings mounted to revolve on the crank part of the shaft, disks mounted to revolve on the shaft at the ends of the crank part, guides for the paddles or wings on the disks, the springs H on the ends of the shaft, the cables or chains I, secured on the ends of the springs and passed over pulleys, mechanism for revolving the said pulleys from the main driving-shaft, and mechanism for revolving the disks, substantially as herein shown and described.

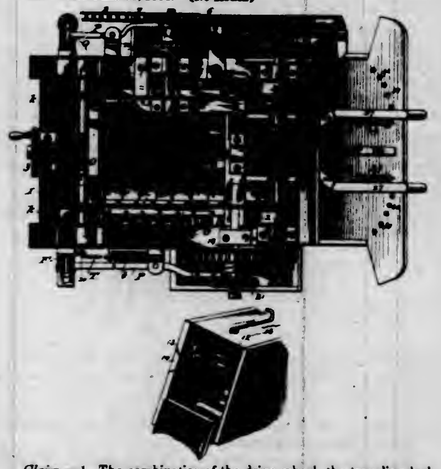
3. In a motor, the combination, with a crank-shaft, of paddles or wings mounted to revolve on the crank part, disks mounted to revolve on the shaft at the ends of the crank, the springs H on the ends of the shaft, the cables or chains I, secured on the ends of the springs H and passed over the pulleys, mechanism for revolving the said pulleys from the main driving-shaft, a belt-shifting device for said driving mechanism, which belt-shifting device is operated from the crank-shaft, and mechanism for revolving the disks, substantially as herein shown and described.

4. In a motor, the combination, with the crank-shaft A B, of paddles or wings mounted to revolve on the crank part, the disks C, mounted to revolve on the end parts of the shaft, and having guides for the paddles or wings, the springs H on the ends of the shaft A, the shafts H' on the ends of the springs H, the ratchet-wheels H² on said shafts, the pawls H³, engaged with said ratchet-wheels, the cables or chains I, secured on the shafts H', the pulleys I', over which the said cables or chains are passed, mechanism for revolving said pulleys, and mechanism for revolving the disks, substantially as herein shown and described.

5. In a motor, the combination, with the crank-shaft A B, of paddles or wings on the crank part of the shaft, disks on the shaft at the ends of the crank, guides for the paddles or wings on the disk, mechanism for revolving the disks, the springs H on the ends of the shaft, the cables or chains I, the pulleys I' on the shaft I², the worm-wheel J on the shaft I², the shaft K, the worm J' on the same, the pulleys L and M, mounted loosely on the shaft K, and having clutch-collars, the clutch-sleeve N, and the pulleys Q' T' on a shaft driven from the main shaft, substantially as herein shown and described.

6. In a motor, the combination, with the crank-shaft A B, of paddles or wings mounted to revolve on the same, the disks C, mounted to revolve on the shaft at the ends of the crank, guides for paddles on said disks, the springs H on the ends of the shaft, the pulleys I' on the shaft I², the cables or chains I, the worm-wheel J on the shaft I², the shaft K, the worm J' on the same, the pulleys L and M, mounted loosely on the shaft K, and having clutch-collars, the clutch-sleeve N, the sliding bar N², the levers O and P, bars R and S, and the arms R² and S² on the ends of the shaft A B, substantially as herein shown and described.

350,258. FERTILIZER-DISTRIBUTER. Peyton A. Lee, Comhatta, La. Filed June 11, 1886. (No model.)



Claim.—1. The combination of the drive-wheel, the traveling bed, the feed-screw engaging said bed, the shaft J, geared with said screw, and intermediate gearing between said shaft and the drive-wheel, substantially as set forth.

2. The combination of the main frame, the traveling bed, the feed-screw journaled to the main frame, and a nut secured to the bed and fitted on the feed-screw, substantially as set forth.

3. The combination of the traveling bed, the feed-screw engaged therewith, the shaft J, geared with the feed-screw, and provided with guide-rollers I for the traveling bed, and means for operating the said shaft, substantially as set forth.

4. The combination of the framing, the traveling bed, a feed-screw journaled to the framing, a nut connecting said screw with the bed, and a housing extended between said screw and the bed, substantially as set forth.

5. The combination of the bed, the framing, the feed-screw, a shaft, J, geared with the feed-screw, a wheel, L, having concentric gear-rings *l*, a shaft having a pulley movable into mesh with any desired one of said rings, and means for driving said shaft, substantially as set forth.

6. The combination of the breaking-roll, the side pieces having an opening forming a bearing for said roll, and extended substantially as described, a block wedge-shaped in the direction of its length for closing the extension of said opening, and a fastening for said block, substantially as described.

7. The combination, with the framing having a rib, *r*, of the handle having a latch arranged to engage rib *r*, and a rock-shaft having a trip movable alongside rib *r*, whereby to release the latch, substantially as set forth.

8. The combination of the framing having a rib, *r*, the handle having a latch arranged to engage said rib, a rock-shaft having a trip movable alongside of said rib and provided with a crank-arm, and a rod connected with said crank-arm, substantially as set forth.

9. The combination of the framing having ribs *r*, the traveling bed, the screw for feeding said bed, the shaft, intermediate gearing connecting said shaft with the feed-screw, clutch mechanism and gearing connecting said shaft with the drive-wheel, the lever P, for operating said clutch mechanism, the handle I, connected with said lever, and the latch connected with said handle and arranged to engage the rib *r* of the framing, substantially as set forth.

10. The combination of the main frame, the shaft J, the feed-screw, the bed movable on ways in the main frame, pulleys 1, supported on shaft J and serving to direct the rear end of the traveling bed, gearing connecting the shaft J with the feed-screw, a nut connecting the feed-screw with the bed, and means whereby the shaft J may be revolved, substantially as set forth.

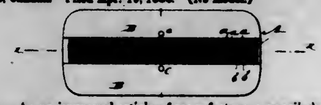
350,259. HUB-BAND. Solomon Mahen, Cincinnati, Ohio, assignor of one-half to William Prior King, Ludlow, Ky. Filed Mar. 30, 1886. (No model.)



Claim.—1. A hub-band having on its inner surface lugs with slots, in combination with an ornamental lining having lugs or prongs adapted to hold said lining securely in said hub-band, substantially as shown and described.

2. A hub-band, A, having on its inner surface lugs *a a a*, with slots *d d d*, in combination with an ornamental lining, B, having the cap *b*, adapted to fit over the outer edge of the hub-band A, the inward projection *b'*, having the lugs or prongs *b'' b'' b''*, adapted to fit into the slots *d d d* of the lugs *a a a*, and to be crimped on the back of said lugs, substantially as shown and described.

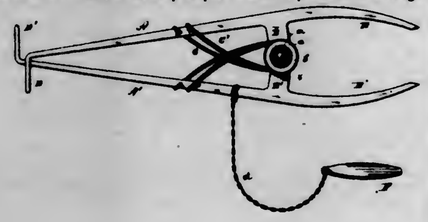
350,260. PENCIL-SHARPENER. William P. Harston, Toronto, Ontario, Canada. Filed Apr. 19, 1886. (No model.)

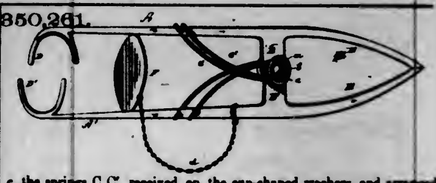


Claim.—As an improved article of manufacture, a pencil-sharpener consisting of a metal plate having a series of transverse bars bent at an angle to the plane of the plate, the edges of the said bars forming a series of cutting-edges on opposite sides of the said plate, as set forth.

350,261. ANIMAL-TRAP. Richard Mayhall, San Francisco, Cal. Filed May 27, 1886. (No model.)

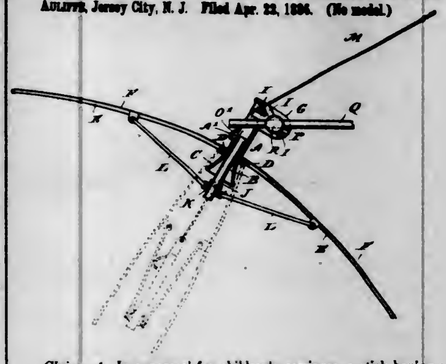
Claim.—In a trap, the combination, with the jaws A A', provided with the ears B B', pivoted to each other, and with curved arms D D' at their free ends, of the cup-shaped washers *b*, provided with flanges





c, the springs C C', received on the cup-shaped washers and arranged to force the jaws together, the rivet *a*, connecting the ears B B' and holding the washers *b* in position, the disk F, and the connecting-chain *d*, substantially as herein shown and described.

350,262. PARASOL FOR CHILDREN'S CARRIAGES. John McAuliffe, Jersey City, N. J. Filed Apr. 22, 1886. (No model.)



Claim.—1. In a parasol for children's carriages, a stick having a notched collar supporting the braces, in combination with a cord or chain attached to the upper end of the said stick and passing through a central aperture in the runner which supports the ribs, substantially as shown and described.

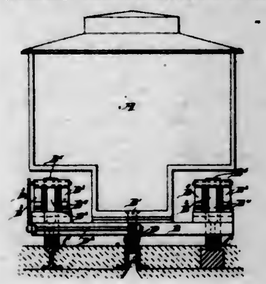
2. In a parasol for children's carriages, a stick having a notched collar supporting the braces, and a cord or chain attached to the upper end of the stick, in combination with a runner supporting the ribs and having a central aperture, through which passes the cord or chain, substantially as shown and described.

3. In a parasol for children's carriages, a stick having a notched collar supporting the braces, a cord or chain attached to the upper end of the stick, and a spring attached to the stick and having a catch, in combination with a runner supporting the ribs, having a central aperture, through which passes the cord or chain, and being provided with a slot which engages with the catch of the spring, substantially as shown and described.

4. In a parasol for children's carriages, the combination, with the parasol-supporting rod attached to the carriage, and a clamping device, of a runner having a notched collar supporting the ribs and provided with a flange having an aperture and radial grooves, substantially as shown and described.

5. In a parasol for children's carriages, the combination, with the parasol-supporting rod Q, attached to the carriage, of a clamping device, P, consisting of the bolt R, having the aperture R', the threaded bolt R', and the winged nut S, and the runner A, supporting the parasol-frame, and having a flange, G, provided with an aperture, H, and radial grooves I, substantially as shown and described.

350,263. TRAM-CAR. John Mehrens, Kyneton, Victoria. Filed Apr. 9, 1886. (No model.) Patented in Victoria Jan. 22, 1885, No. 3,944.



Claim.—1. In a tramway, the combination, substantially as described, of a track having flat top rails and a guide-groove between said rails, with a car-truck, flangeless wheels for said truck arranged to turn on vertical pivots, and a flangeless guide-wheel operating in the groove of the track, for the purpose specified.

2. In a tramway, the combination, substantially as described, of a track having flat top rails and a guide-groove between said rails, with a car-truck, flangeless wheels for said truck arranged to turn on vertical pivots, a flangeless guide-wheel operating in the groove of the track and turning on a vertical pivot, and means, such as described, for lifting the guide-wheel out of the guide-groove, for the purpose specified.

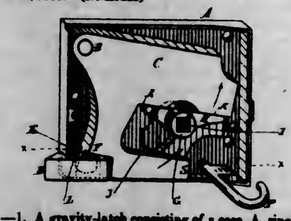
3. In a tram-car, the combination, with the car-body, of a wheel-frame having the bearings for the wheel-axles located above the frame and flooring of the car, substantially as described, for the purposes specified.

4. In a tram-car, the combination, with the car-body, of a wheel-frame pivoted to the under side thereof, and having the bearings for the wheel-axles located above the frame and floor of the car, substantially as and for the purpose specified.

5. In a tram-car, the combination, with the car-body and a wheel-frame pivoted to the under side thereof, and having the bearings for the wheel-axles located above the frame, of flangeless wheels, and a guide operating to maintain the wheels upon the rails, substantially as described.

6. In a tram-car, the combination, with the car-body, of a wheel-frame pivoted thereto, flangeless wheels mounted in said wheel-frame, a guide-wheel frame, a guide-wheel mounted therein and arranged to run in a groove or way in the track, and a lever pivoted in bearings on said wheel-frame, to which lever said guide-wheel frame is secured, substantially as described, for the purpose specified.

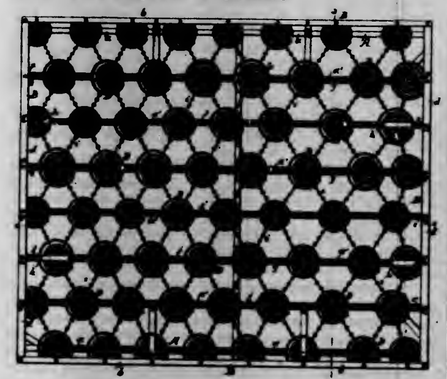
350,264. GRAVITY-LATCH. Dhan D. Merrill, Fond du Lac, Wis. Filed Nov. 17, 1885. (No model.)



Claim.—1. A gravity-latch consisting of a case, A, single tumbler C, latch-bolt D, and key N, the latch-bolt D to slide and the key N to rest upon the inner face of the lower side of the case, as and for the purpose herein set forth.

2. In a latch constructed, arranged, and operating substantially as herein described and shown, the incased key N, provided with an attachable and detachable shank, P, as and for the purpose set forth.

350,265. SPRING BED-BOTTOM. William A. Mosher, Philadelphia, Pa. Filed Apr. 19, 1886. (No model.)



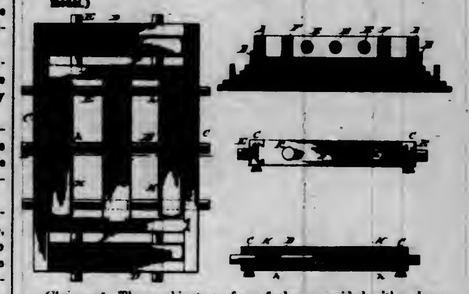
Claim.—1. The combination of the base-frame A, having continuous end strips *c*, capable of being folded at the center, with the top frame, B, connected to said base-frame, and having end strips *d*, each capable of being folded upon itself, all substantially as set forth.

2. The combination of the base-frame A, having hinged portions *c' c'*, the springs D, and the top frame, B, having flexible end strips *d*, capable of yielding when the said frame A is folded, all substantially as set forth.

3. The combination of the base-frame A, springs D, secured thereto, and the top frame, B, having flexible end strips, to which the upper portions of the end springs are secured, all substantially as specified.

4. The combination of the base-frame A, springs D, secured thereto, and the top frame, B, having side strips *b*, to which the upper portions of the side springs are secured, and flexible end strips to which the end springs are detachably secured, all substantially as described.

350,266. BURGLAR-PROOF SAFE. John W. Nesbit, Chicago, Ill., and Thomas M. Bernthall, Maryville, Mo. Filed Jan. 30, 1886. (No model.)



Claim.—1. The combination of a safe-door provided with a dovetail groove and a bolt-supporting frame provided with a dovetail rib fitted to said groove, substantially as set forth.

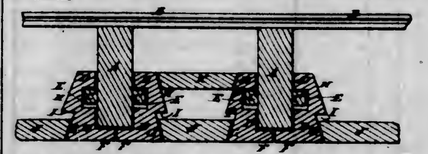
2. The combination, with the bolt-frame and the bolts E, movable therein and provided with dovetail mortises A, of the bolt-carrying bars fitting in said dovetail mortises, substantially as set forth.

3. The combination of the bolt-ribs having dovetail mortises opening at their inner sides, the cross-ribs having end tenons fitting the mortises of the bolt-ribs and movable therein to form their under sides, and also having mortises opening at their inner sides, and the central rib having end tenons fitting and movable into the mortises of the cross-ribs from the under side of the latter, substantially as set forth.

4. The combination of the door having a dovetail mortise, the bolt-frame having a dovetail rib fitted to and adjusted into said mortise, and a flange encircling said frame and detachably secured to the door, substantially as set forth.

5. The combination of the ribs C, having dovetail mortises opening at their inner faces, and the cross-ribs having their ends formed with dovetail tenons fitting said mortises and movable therein to from the inner sides of the ribs C, substantially as set forth.

350,267. FIRE-PROOF ATTACHMENT FOR WOODEN-BEAM CEILINGS. Dennis O'Connor, New York, N. Y. Filed Mar. 26, 1886. (No model.)



Claim.—1. A fire-proof attachment for wooden-beam ceilings, consisting of blocks D, provided with grooves E to receive supporting-bars, bottom flanges, F, to overlap the lower edges of the beams, inclines G, and shoulders I at the upper ends of the inclines, and the interposed keys J, having beveled edges, substantially as herein shown and described.

2. A fire-proof attachment for wooden-beam ceilings, consisting of blocks D, provided with the grooves E, the lower bottom flanges, F, the inclines G H, and the shoulder I between the said inclines and the interposed keys J K, substantially as herein shown and described.

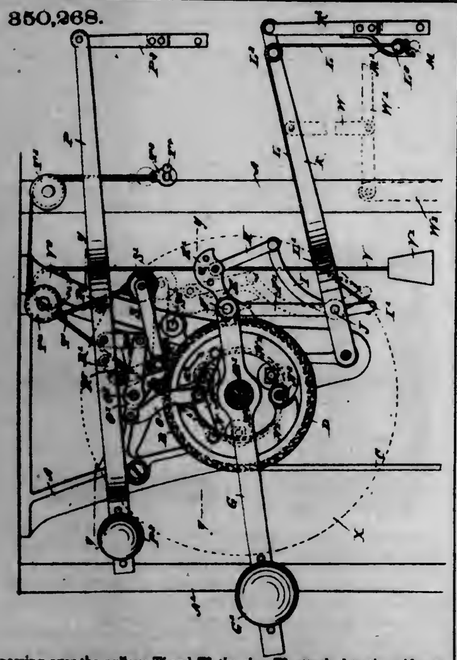
350,268. HOISTING-MACHINE. Frederick H. A. Peters, Detroit, Mich. Filed June 17, 1886. (No model.)

Claim.—1. In a hoisting-machine, the drum B, provided with the ratchet-teeth D, in combination with the pawls Q, the pawls E, and the hoisting-lever K, substantially as shown and described.

2. In a hoisting-machine, the hoisting-drum B, provided with the teeth D and means for operating it, in combination with the pawls Q and the weighted frame S, pivoted to the said pawls Q, substantially as shown and described.

3. In a hoisting-machine, the hoisting-drum B, provided with the teeth D, in combination with the pawls Q, the weighted frame S, pivoted to the said pawls Q, the rope T, attached to the said frame S and

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passing over the pulleys T' and T², the ring T³, attached to the said rope T and adapted to be connected with the stud T⁴, and the stop-pins S², substantially as shown and described.

4. In a hoisting-machine, the toothed hoisting-drum, the pawls Q, engaging the teeth thereof, the weighted frame S, attached to the said pawls Q, and the stop-pins S², in combination with the pawls E, having the curved ends E', and the hoisting-lever K, substantially as shown and described.

5. In a hoisting-machine, the hoisting-drum B, provided with the teeth D, in combination with the pawls E, fulcrumed on the rod F, secured to the balanced lever G, the forked frame I, connected by the link J with the said pawl E, the hoisting-lever K, and the rope L, provided with a locking device, substantially as shown and described.

6. In a hoisting-machine, the toothed hoisting-drum, balanced lever G, fulcrumed on the collar A³, the rod or stay F, the pawls E, fulcrumed on the said rod F, and the links F', in combination with the forked frame I, connected by the links H with the pawls E, the hoisting-lever K, connected by the links F' with the balanced lever G, and the rope L, attached to the forked frame I and provided with a locking device, substantially as shown and described.

7. In a hoisting-machine, the toothed hoisting-drum, the pawls E, engaging the teeth thereof and fulcrumed on the stay F of the balanced lever G, the forked frame I, connected by the links H with the pawls E and fulcrumed on the rod J of the balanced lever K, in combination with the rope L, secured to the end I' of the frame I and passing over the pulleys L' and L², the ball L³, attached to the said rope L, and the arm M, for locking said ball in position, substantially as shown and described.

8. In a hoisting-machine, the drum B, having recessed ends, in combination with the brake device N, connected by the link O with the lever O', and the balanced brake-arm P, connected by the link O² with the lever O', substantially as shown and described.

9. In a hoisting-machine, the drum B, having ratchet-teeth D, in combination with the balanced brake-arm P, the links R', each having a pin, R², the arms R, and the pawls Q, substantially as shown and described.

10. In a hoisting-machine, the drum B and the hoisting-rope C, in combination with the rope-wheel X, the pulley V², the rope V, passing over the pulley V², and the counter-weight V' on the said rope V, substantially as shown and described.

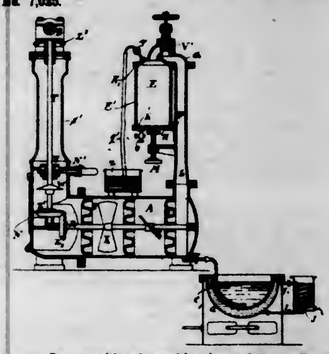
350,269. CAN. Ludwig Patterson, Chicago, Ill., assignor to the Chicago Novelty Tin Can Manufacturing Company, same place. Filed Jan. 18, 1886. (No model.)

Claim.—A can provided with a cover, D, having a groove, *d*, the side walls of which incline in a direction across the path of the rim *d'*, and bear on opposite sides of said rim, substantially as and for the purpose stated.

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350,270. VACUUM ICE-MAKING MACHINE. Enno Pfungst and Richard Pfungst, Berlin, Germany, assignors to the Internationaler Vakuum Eis-Maschinen Verein, same place. Filed July 10, 1886. (No model.) Patented in France Sept. 17, 1885, No. 171,219; in Germany Oct. 17, 1885, No. 36,055, and in Austria-Hungary Mar. 21, 1886, No. 42,420 and and No. 7,025.



Claim.—1. In a machine for making ice and for cooling fluids, the combination of a vertically or horizontally placed absorber, A, with the two-chamber vacuum-pump P P', firmly connected with the absorber, the ice-generator E, with its glass vessel E', and with a concentrator, C, for the evaporation of the diluted sulphuric acid, substantially as described, and for the purpose as set forth.

2. In an ice-making machine, the ice-generator E, consisting of the table or under lid, H, adjustable by means of a screw, M, and of the hollow glass cylinder E', in combination with valve V, waste-pipe S, and absorber A, substantially as specified.

3. In an ice-making machine, the combination of absorber A with the stirring apparatus consisting of shaft R, undulatory perforated stirring-plates Y, and intermediate wings or scoops, X, set in an inclined position to the common axle, and means for operating said axle, substantially as and for the purpose described.

4. In an ice-making machine, the longitudinally-undulatory absorbing-cylinder A, in combination with stirring apparatus Y X, shaft R, gearing Z' Z², shaft T, gear-wheels Z³ Z⁴, and shaft B, substantially as described.

5. In an ice-making machine, the combination of the pan C', for evaporating the received diluted sulphuric acid with the outer vessel, Q, containing a fluid bath the boiling-point of which is higher than that of the sulphuric acid to be concentrated and lower than the melting-point of the pan C', substantially as and for the purpose specified.

6. In an ice-making machine, the arrangement for maintaining a constant temperature of the fluid in the concentrator and for condensing and reconducting all vapors that may develop by the fluid bath.

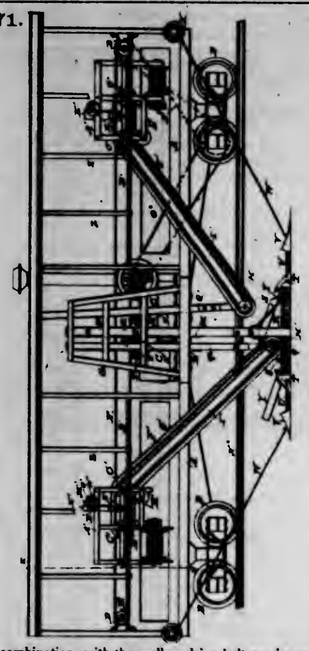
7. The combination of the pan C' and external vessel, Q, with the tubes L L¹ and surface-condenser J, substantially as specified.

350,271. DITCHING-MACHINE. John C. Sage, Gainesville, Ga. Filed Mar. 22, 1886. (No model.)

Claim.—1. The combination, with the vertically-adjustable cross-piece carrying the plows and having the hinged guide-boards arranged as described, of the movable carriages, the conveyer-frames hinged at their upper ends in the said carriages, and means, substantially as described, for adjusting their lower ends vertically, the flanged conveyer-belts arranged as described, and means for rotating the said conveyer-belts.

2. The combination of the central frame having the slotted cross-pieces, and the transverse adjusting-shafts carrying the pinions near their outer ends, the vertical plow-beam sliding in the said frame having the rack upon one side, and having at its lower end the cross-piece carrying the double plows, the cutters arranged in advance of the said plows and connected by the adjustable chains to the ends of the bars, the adjustable bars having the racks upon their sides sliding in the said central frame and pivotally connected at their lower ends to the lower ends of the main conveyer-frames, the guide-boards hinged, as described, to the rear of the double plows, the movable carriages, the main conveyer-frames hinged at their upper ends in the said carriages, and the flanged conveyer-belts arranged substantially as described.

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3. The combination, with the endless drive-belt passing around the pulleys located at each end of the car and receiving motion from the engine, and the adjustable carriages having each two shafts around which the upper portion of its conveyer-belt passes, the inner ends of the said shafts being provided with the wheels, which extend within the endless drive-belt, as described, and the vertically-adjustable rods supported in the said carriages and having journaled near their lower ends the two rollers between which the upper portion of the drive-belt passes, substantially as described, for the purpose set forth.

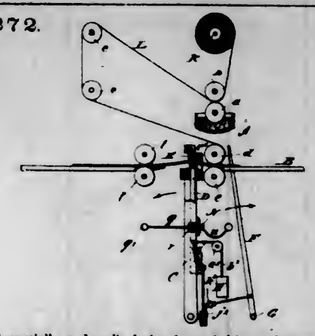
4. The combination, with the carriages each having the two shafts around which the upper portion of its conveyer-belt passes, the inner ends of the said shafts being provided with the wheels, which receive motion from the drive-belt, as described, and one of the said shafts being extended across the car and provided with a supporting-roller at its inner extremity, of the carriage-shaft extending across the car and provided at its inner end with a supporting-roller, the auxiliary conveyer-belt frame having the slotted end adjustably supported by the said carriage and having pivotally secured to it, near its other end, the lower ends of the vertical adjustable rods having racks formed on one of their sides, and the movable bearing-blocks having the adjusting shaft and pinion and supported on the extended portion of the shaft of the carriage and the independent carriage-shaft, as described, and means, substantially as described, for revolving the auxiliary conveyer-belt from the extended shaft of the carriage.

5. The combination, with the movable carriage, of the shaft extending across the car and having the supporting-roller on its inner end, and adapted to be rotated, as described, of the independent carriage-shaft extending across the car and having the supporting-roller on its inner end, the auxiliary conveyer-belt frame having the slotted end adjustably supported by the said carriage, and having pivotally secured to it, near its other end, the lower ends of the vertical adjustable rods having the racks formed on one of their sides, the movable bearing-blocks having the adjustable shaft and pinion and supported on the extended portion of the carriage-shaft and the independent carriage-shaft, the grooved roller mounted upon the said extended shaft, the grooved rollers, one of which is journaled upon the side of the frame of the auxiliary conveyer, while the other is secured to the projecting end of the shaft at the slotted end of the said conveyer-frame, the cable, round in cross-section, passing around the grooved roller on the extended shaft of the carriage, under two small grooved rollers journaled in the frame of the carriage, and around the grooved rollers of the conveyer-belt frame, and the auxiliary flanged conveyer-belt, all constructed and arranged to operate in the manner and for the purpose shown and set forth.

350,272. STRAW-BOARD-LINING MACHINE. Arnold W. Schlehte, New York, N. Y. Filed Apr. 3, 1886. (No model.)

Claim.—1. In a straw-board-lining machine, the combination, with a paste-distributing apparatus and pressing-rolls, of a web-severing mech-

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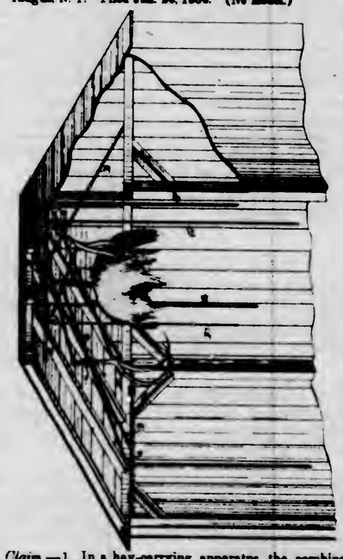
anism, substantially as described, that is carried by a yieldingly-mounted frame arranged in front of the pressing-rolls, substantially as described.

2. In a straw-board-lining machine, the combination, with a web and board associating mechanism, substantially as described, of a pivotally mounted frame, C, a sliding frame, D, carrying a web-severing knife, E, movable stops *s*, a weight, H, connected to the pivotally-mounted frame, a lever, and connections whereby the knife-carrying frame may be depressed, substantially as described.

3. In a straw-board-lining machine, the combination, with a web and straw-board associating mechanism, of a pivotally-mounted frame and its weight H, a sliding frame, D, carried by the pivotally-mounted frame, a knife, E, carried by the frame D, stops *s s*, carried by the upper links of toggle-levers M, a connecting-link, N, and a cord, *p*, substantially as described.

4. In a straw-board-lining machine, the combination, with a web and straw-board associating mechanism, of a frame pivotally mounted behind the associating-rolls and normally held against said rolls by a weight, H, a sliding frame mounted on said pivotally-mounted frame, a knife, E, carried by the sliding frame, stops *s*, carried by the upper links of toggle-levers M, the lower links of said toggle-levers being connected to a cross-bar of the pivotally-mounted frame, cords *p* and *q*, arranged substantially as described, a cord, *j*', and lever F, all substantially as described.

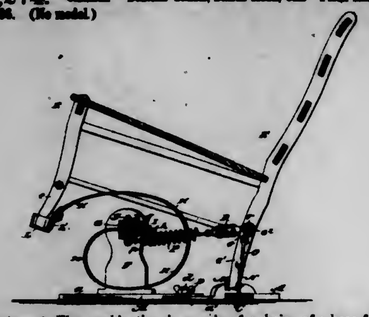
350,273. HAY-CARRYING APPARATUS. Ira L. Sherman, Cattaraugus, N. Y. Filed Jan. 26, 1886. (No model.)



Claim.—1. In a hay-carrying apparatus, the combination, with a main track extending lengthwise of the barn or hay-mow, of side tracks and carrying apparatus thereon for conveying the hay laterally from the said main track, substantially as set forth.

2. In a hay-carrying apparatus, the combination, with the main track, of side tracks extending transversely to the said main track, forks or hooks adapted to run on said side tracks, ropes for engaging the said forks or hooks with the hay lifted by the elevator, and ropes for disengaging the said forks or hooks from the hay, substantially as set forth.

350,274. CHAIR. Daniel Smith, Santa Rosa, Cal. Filed Mar. 19, 1886. (No model.)



Claim.—1. The combination, in a rocker for chairs, of a base-frame having sockets to receive the rear legs of a chair, and springs supported at one end on the base-frame, and provided at the other end with sockets to receive the front legs of a chair, substantially as herein set forth.

2. The combination, in a rocker for chairs, of a base-frame having sockets to receive the rear legs of a chair, springs supported at one end on the base-frame, and provided at the other end with sockets to receive the front legs of a chair, and hoop or strap connections from the rear part of the chair to the base-frame, substantially as herein set forth.

3. The combination, in a rocker for chairs, of a base-frame having sockets to receive the rear legs of the chair, springs supported at one end on the base-frame, and provided at the other end with sockets to receive the front legs of the chair, and a spring connected to the base-frame and to the chair, to ease the rocking movement and prevent backward overturning of the chair, substantially as set forth.

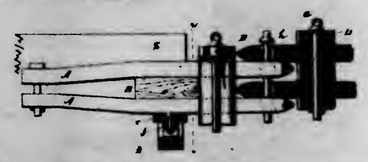
4. The combination, in a rocker for chairs, of a base-frame consisting of connected bars A B C, adjustable as to length, standards F F on bars A B, a bar, G, connected to these standards, sockets M M on bars A B, springs H, connected at their ends A to bar G, and sockets L on the free ends A' of the springs, substantially as herein set forth.

5. The combination, in a rocker for chairs, of a base-frame, sockets M M therein, springs H, clamped adjustably at their ends A to the base-frame, and sockets L on the free ends A' of the springs, substantially as herein set forth.

6. The combination, in a rocker for chairs, of a base-frame, A B C F G, sockets M M therein, springs H, clamped at one end to the frame-bar G, sockets L at the free ends of the springs, and a spring, P connected to bar G, and a turn-buckle, R, connected to the spring and to the rear part of the chair, substantially as herein set forth.

7. The combination, in a rocker for chairs, of a base-frame consisting of bars A B C, standards F, and cross-bar G, sockets M M on bars A B, springs H, connected to bar G, sockets L on the free ends of the springs, connections, as at N O, between the base-frame and chair, and a spring, P, also connecting the base-frame and chair, substantially as herein shown and described, and for the purposes set forth.

350,275. CAR-COUPLING. Henry A. Spencer, El Moro, Colo. Filed June 30, 1886. (No model.)



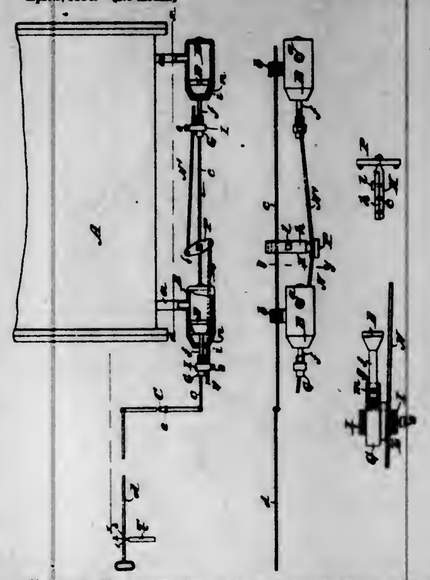
Claim.—1. In a car-coupling, the combination, with a detachable concave-faced buffer-block, D, of parallel bars A, attached thereto by a pin, C, provided with spaced tapering ends extending beyond the buffer-block, substantially as shown and described, and for the purpose herein set forth.

2. In a car-coupling, the combination, with two parallel bars, A, having their outer ends tapered, and provided with a rear spacing-block, B, of a detachable concave-faced buffer-block, D, provided with a central integral spacing-block, substantially as shown and described, and for the purpose herein set forth.

3. The combination, with the parallel projecting bars A, provided with a rear spacing-block, B, and a detachable concave-faced buffer-block, D, held upon said bars by a pin, C, of the supporting-yoke H, carrier e, spring f, and guide-pins i, substantially as shown and described, and for the purpose herein set forth.

4. In a car-coupling, the detachable concave-faced buffer-block D, provided with an upper and lower opening to receive the draw-bars A, a central integral spacing-block, and a vertical aperture to receive the pin C, together with apertured projections for extra coupling-pins, substantially as shown and described, and for the purpose herein set forth.

350,276. CYLINDER-COCK. William Sharpe, Mallorny, Ill. Filed Apr. 8, 1886. (No model.)



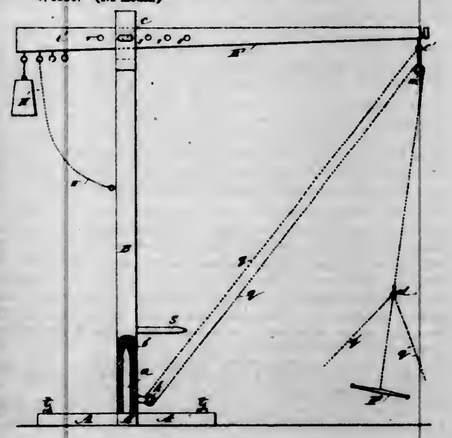
Claim.—1. The combination, with two valve-chambers and their valve-plugs, of a rocker carried by an arm that is secured to a sliding rod, and connections between the rocker and valve-stems, substantially as described.

2. The combination, with two valve-chambers and their valve-plugs, said plugs being provided with stems, cylinders G, in which the valve-stems are seated, clamps I, connecting-rods N N', a rocker, P, an arm, H, a sliding rod, c, a lever, C, and a connecting-rod, d, substantially as described.

3. The combination, with two valve-chambers and their valve-plugs, of cylinders G, in which the stems of the valves are seated, clamps I, rods N N', a rocker, P, carried by an arm, H, a rod, c, to which the arm H is clamped, a lever, C, a connecting-rod, d, formed with notches, and a stop, T, substantially as described.

4. The combination, with a cylinder, of two valve-chambers in connection with the ends of said cylinder, and provided with outlets, plugs closing the said outlets and having outwardly-extending stems, a longitudinally-movable rod, a rocker carried by said rod, and connections between the ends of said rocker and the plug-stems, as set forth.

350,277. TETHER. James H. Taylor, Greenville, S. C. Filed Nov. 7, 1885. (No model.)



Claim.—1. The combination, with the standard B, having a pulley, k, at its base, a cross-arm at the top of the standard, and a weight and pulley supported from opposite ends of the said arm, of a cord, q, secured to the said cross-arm and passed around pulley k and through the pulley supported from the cross-arm, the weight acting on the cord to draw it taut, substantially as set forth.

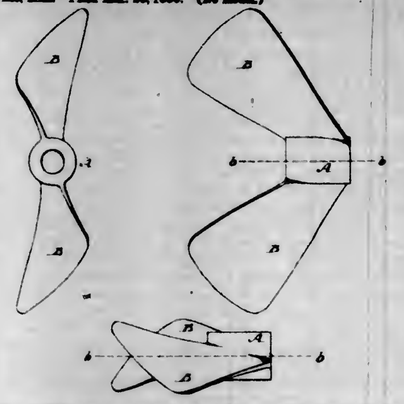
2. The combination, with the revolving standard, of a swinging arm weighted at one end and a tether-rope, secured to the unweighted end of the swinging arm, passing about a pulley located near the base of the standard and over a pulley carried by the unweighted end of the swinging arm, substantially as described.

3. The combination, with the standard B, arm E, formed with holes o o, and carrying weight H', of a rope, q, secured to the unweighted end of the arm E and passing about the pulleys k and m', substantially as described.

4. The combination, with the standard B, arm E, and weight H', of a rope, q, secured to the unweighted end of the arm E and passing about the pulleys k and m', and having a swivel-ring, d, secured to its end, substantially as described.

5. The combination, with the standard B, arm E, weight H', and a rope, q, secured to the unweighted end of the arm E and passing about the pulleys k and m', of a swivel-ring, d, and a pole, F, substantially as described.

350,278. SCREW-PROPELLER. Cushworth P. Whitehill, Woodville, Miss. Filed Mar. 25, 1886. (No model.)



Claim.—The screw-propeller or propelling-wheel having its blades, of suitable pitch, set inclining in the direction of their length relatively to the axial line of the shaft of the wheel and forwardly in the direction of the motion ahead produced by the propeller, the plane of which inclination of said blade crosses the said axial line of the wheel-shaft, substantially as and for the purpose set forth.

350,279. ELECTRIC WATER-LEVEL INDICATOR. Charles H. Wickersham, Pottstown, Pa. Filed May 12, 1886. (No model.)

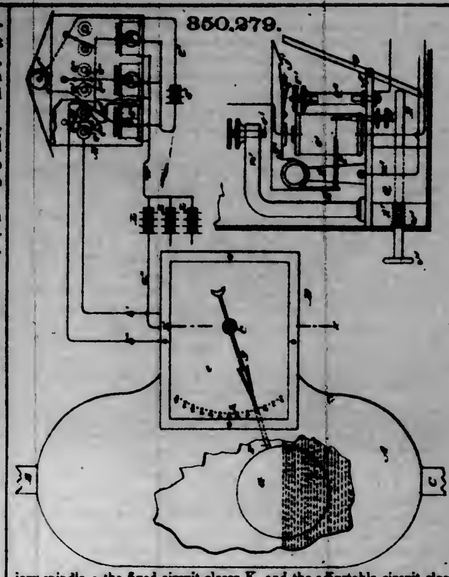
Claim.—1. The combination, with the float-spindle E, of the auxiliary spindle c, the mercurial circuit-closers K K', the arm i, secured to the spindle c and provided with the curved bar j, the arm i', placed loosely on the spindle c and adjustable along the bar j, the flexible conductors q q' t t', and means, substantially as herein described, for indicating an electric contact formed by either of the circuit-closers K K', as specified.

2. The combination, with the float G and spindle E, of the auxiliary spindle c, the arm i, fixed to the spindle c, and provided with the curved apertured bar j, the arm i', placed loosely on the spindle c and adjustable along the curved bar j, the circuit-closers K K', carried by the arms i i', the index g and graduated scale A, and an electric annunciator connected with the circuit-closers K K', substantially as herein shown and described.

3. In a water-level indicator for steam-boilers, the combination, with the relay-magnet e' and armature-lever g', provided with the catch j', of the contact-spring l'', the contact-screw r', and the lever O, for holding the spring l'' out of contact with the screw r', substantially as herein shown and described.

4. In a water-level indicator for steam-boilers, the combination, with the relay-magnet e', and armature-lever g', provided with the catch j, of the contact-spring l'', the contact-screw r', the lever O, for holding the spring l'' out of contact with the screw r', and the spring-acted push-rod P, for operating the lever O, substantially as herein shown and described.

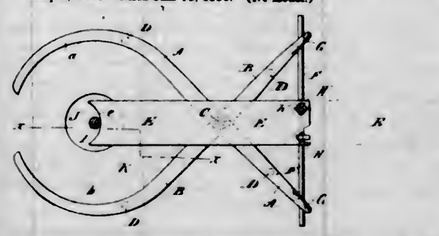
5. The combination, with the float G and spindle E, of the auxiliary spindle c, the fixed circuit-closer K, and the adjustable circuit-closer K' carried thereby, the annunciator-magnets c' c'', the annunciator-needle d', the relay-magnet e', the armature-lever g', and contact-spring l'', carried thereby, contact-screw r', the electric bell f', and the electrical conductors connecting the bell, relay and annunciator magnets, and the local and main batteries, substantially as herein shown and described.



350,280. PAIL-EAR. George S. Wise, Alexander, N. Y. Filed Mar. 11, 1886. (No model.)

Claim.—The herein-described pail-ear, consisting of the apertured plate A, the apertured ear b, punched from the plate, and the arm or knee support c, formed of the metal from which the ear b is punched, and bent over at approximately right angles to the plate, as set forth.

350,281. TREE AND POST SUPPORTER. Mina Wrightman, Harper, Kans. Filed Jan. 15, 1886. (No model.)



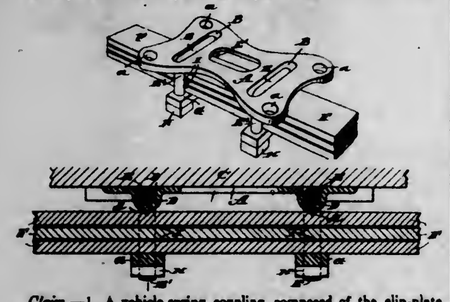
Claim.—1. A tree and post supporter comprising a pair of arms, A B, pivoted together at C, and provided with pins D, substantially as and for the purposes set forth.

2. In a tree and post supporter, the combination, with a pair of arms, A B, pivoted together at C, and provided with pins D, of a bar,

F, held by the arms, and a brace, E, held by the bar and adapted to support the tree or post when the arms A B are opened and made fast to the ground, substantially as herein set forth.

2. In a tree and post supporter, the combination, with a pair of arms, A B, pivoted together at C, and provided with pins D and with eyes G G, of a bar, F, held in the eyes, and a brace, E, held pivotally to the bar by eyebolts H, substantially as shown and described, and for the purposes set forth.

350,282. VEHICLE-SPRING COUPLING. Frederick W. Webster, Brooklyn, N. Y. Filed Apr. 3, 1886. (No model.)



Claim.—1. A vehicle-spring coupling composed of the clip-plate A, having elongated countersinks B and corresponding beads, D, the clips E, received in the countersinks B and embracing the spring, the yokes G, and the clamping-nuts H, substantially as specified.

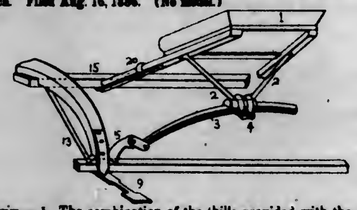
2. The combination, with the vehicle-body, of the clip-plate A, having elongated countersinks B, beads D, and pointed studs *d*, the clips E, received in the countersinks B, the spring-plates F, embraced by the clip-arms E' and separated by the leaves I, the yokes G, and the nuts H, substantially as shown and described.

350,283. PROTECTOR FOR WASH-BOARDS. Elbert E. Alderman, Portville, N. Y. Filed May 17, 1886. (Model.)



Claim.—In a wash-board protector, the combination, with the base B, having the groove E, of the protector A, resting in said groove, and the hinges D and springs C, connecting said base and protector, substantially as described.

350,284. TWO-WHEELED VEHICLE. John Anderson, Jackson, Mich. Filed Aug. 16, 1886. (No model.)



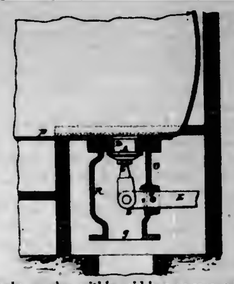
Claim.—1. The combination of the thills provided with the screw-shanks 7, the foot-piece 9, nuts 8, and a hanger or goose-neck for supporting the spring above the axle, substantially as shown and described.

2. The combination of a spring-support, 5, having a base provided with a concave surface, and a clip having its surface convex to fit the concavity of the base of the spring-support, substantially as shown and described.

3. The combination of the spring 17, having an eye, 18, turned in the end thereof, the clip 20, screw 21, and L-shaped staple 19, constituting a fastening for the arms 22, substantially as shown and described.

350,285. SAFETY-VALVE. Joseph Baker, Edmond Fauvel, and Paul Chalon, Paris, France. Filed June 25, 1886. (No model.) Patented in France Nov. 18, 1885, No. 172,363, and in Belgium Nov. 18, 1885, No. 70,901.

Claim.—1. The combination of the box or case having openings at opposite ends for communication with the boiler and with the discharge-



passage respectively, a valve within said box or case, a lever and counter-weight for applying suitable pressure to said valves, and a link loosely jointed to said lever within said case or box and having a pointed end bearing against said valve, said box or case having a hollow or depression opposite the end of said lever, as set forth.

2. The combination, with a boiler, of a tubular connection or union, a valve box or case connected therewith, an inclosed valve adapted, when the pressure in the boiler exceeds the determined limit, to open and discharge all the water therefrom, a link bearing on the head of said valve and being loosely jointed to a lever carrying a counter-weight, and being also inclined to the horizontal, so as to readily fall over when the valve is opened, substantially as described.

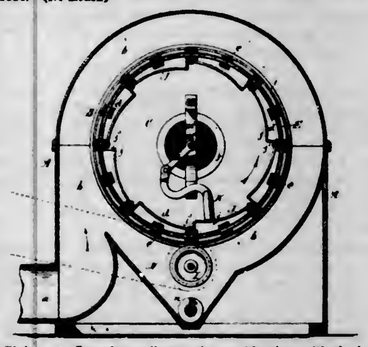
3. The combination of the valve having a concave head, the link having a rounded point bearing thereon and being loosely jointed to its support, and means for applying pressure to said valve through said link, substantially as described.

4. The combination, with a boiler, of the safety-valve applied to the upper part of the same and so held to its seat that when once removed it will not return to close the valve-orifice, and a pipe or tube descending from the valve-orifice to the lower part of the boiler, so that when the valve is opened by excessive pressure the water will be discharged through said pipe, substantially as described.

5. The combination of the valve adapted, when opened, to fall permanently away from its seat, the box or case inclosing said valve and having an opening for communicating with the boiler, and on the opposite side a discharge-opening, and means for preventing the valve from falling into and closing said discharge-opening, substantially as described.

6. The combination of the valve, the valve-box, the link bearing on said valve and holding it in place, the lever to which said link is jointed passing through an opening in said box and carrying on its outer end a counterweight, and a washer or plate for making a tight joint where the lever passes through the box, substantially as described.

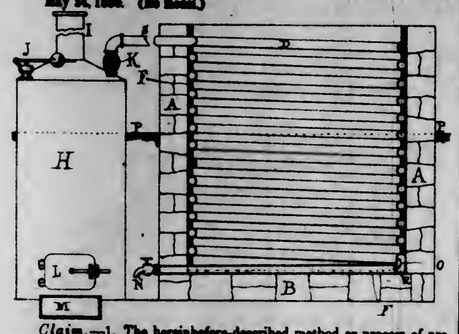
350,286. DUST-COLLECTOR. Gottlieb Bieler, Buffalo, N. Y., assignor of one-half to Mary M. McSherry, same place. Filed May 22, 1886. (No model.)



Claim.—1. In a dust-collector, the combination, with the inclosing-casing A, provided with an inlet-spout, *a*, for the dust-laden air, of a revolving drum composed of two heads, C C, provided with central air-escape pipes, *f*, longitudinal ribs *d*, secured to the heads C, a covering, E, applied to the outer sides of the ribs *d*, and strips *s*, applied to the outer side of the covering and secured to the heads C, substantially as set forth.

2. In a dust-collector, the combination, with the inclosing-case A, provided with an inlet-spout, *a*, for the dust-laden air, of a separating-drum composed of heads C C, provided with central air-discharges *f*, longitudinal ribs *d*, secured to said heads, and a covering, E, composed of two layers, *p*, of gauze, and an intermediate layer, *q*, of unwoven cotton, secured together by seams *r*, substantially as set forth.

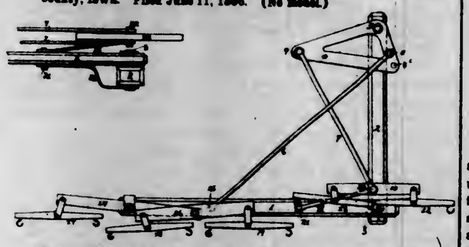
350,287. Method of and Apparatus for Preserving Green Food. William H. Blakeman, Jr., New York, N. Y. Filed May 24, 1886. (No model.)



Claim.—1. The hereinbefore-described method or process of preserving green food or fodder crops, consisting in storing the same in pits or silos under pressure, and subjecting the same to artificial heat, substantially as described, at a temperature above that which would be generated by their fermentative processes, whereby such foods are retained in their succulent condition at their normal feeding value, substantially as and for the purposes set forth.

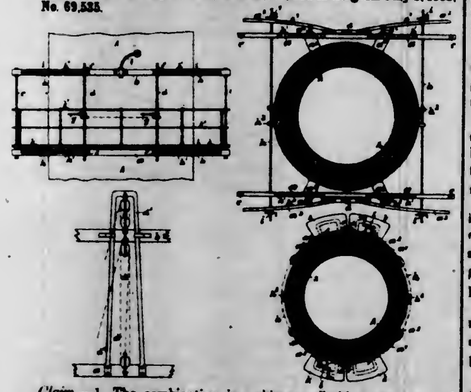
2. A pit or silo for the preservation of ensilage, constructed with pipes or passages, substantially as described, for applying artificial heat to said silo, whereby its contents may be preserved from destructive fermentative processes, substantially as and for the purposes set forth.

350,288. Draft-Equalizer. Chas A. Brown, Lincoln, Grundy County, Iowa. Filed June 11, 1886. (No model.)



Claim.—The combination, with a system of equalizing-whiffletrees, of the front and rear levers, 1 and 4, the rods 6 and 7, pivoted thereto, as described, and the rod 11, pivoted at its outer end to the rod 7 and whiffletree 10, and at its inner end to the lever 1 at a point intermediate of the pivots 3 and 15, substantially as set forth.

350,289. Apparatus for Climbing Chimneys, &c. James Brown, Liverpool, County of Lancaster, assignor of two-thirds to Thomas Andrew Porter, Bootle, and John Howard, Liverpool, England. Filed Mar. 23, 1886. (No model.) Patented in England Mar. 17, 1885, No. 3,435; in France July 7, 1885, No. 169,997, and in Belgium July 8, 1885, No. 69,535.



Claim.—1. The combination, in a chimney-climbing apparatus, of a clamping device, *a*, with a clamping device, *b*, having adjusting-screws *d*, and a platform, *k*, substantially as set forth.

2. In a clamping device for climbing chimneys, the combination of the side pieces, *a*, screw-rods *h*, screw-nuts *i*, blocks a^3, blocks a^4, and levers a^5, all substantially as set forth, for the purposes specified.

3. In a climbing apparatus, the combination of an upper clamping device, *b*, and a lower clamping device, *a*, operated by clamping-screws *h*, and extension and contraction screws *d*, substantially as set forth.

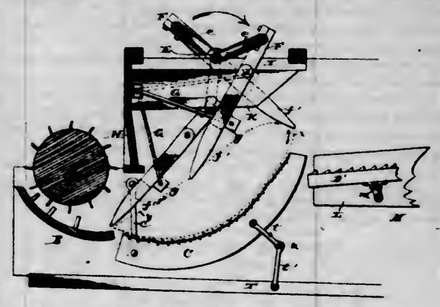
4. In a chimney-climbing apparatus, the combination of a plurality of clamping devices, and means, substantially as described, for causing the same alternately to approach and recede from each other with a progressive motion, for the purpose specified.

5. In a chimney-climbing apparatus, a plurality of clamping devices, and a rigid standard, combined with means for causing said clamping devices to alternately approach and recede from each other with a progressive motion, substantially as described.

6. In a chimney-climbing apparatus, the combination, in a clamping device employed therein, of adjustable bearing-blocks and side bars to which they are attached, substantially as described.

7. In a chimney-climbing apparatus, the combination of bearing-blocks, levers pivoted thereto, a frame to which said levers are attached, and means of applying power to the long ends of said levers to cause the bearing-blocks to hug the chimney, substantially as described.

350,290. Thrashing-Machine. Constantin G. Case, Battle Creek, Mich. Filed Feb. 12, 1886. (No model.)



Claim.—1. In a thrasher, the combination, with thrashing devices, a grate to receive the straw, a crank-shaft, and guiding-arm, of a fork mounted on the shaft and connected to the arm and adapted to force the straw away from the thrashing devices, the above parts being relatively adapted and arranged, substantially as described, to give the fork an extended plunge movement substantially in a straight line to engage the straw, a curvilinear movement while forcing the straw to the rear, a movement directly away from the straw to release it, and a slightly curved movement from thence to the beginning of said plunge movement, substantially as set forth.

2. In a thrasher, the combination, with a frame-work, a thrasher-cylinder, a crank-shaft, and fork mounted on said crank-shaft, of an arm arranged to guide the free end of the fork under the cylinder in an extended straight plunge to engage the straw, substantially as set forth.

3. In a thrasher, the combination, with a thrashing-cylinder and a curved straw-guide leading rearwardly therefrom, of one or more straw-carrying forks suspended from a crank-shaft over the curved guide, and links or connecting-arms attached to the thrasher-frame, and to the fork-heads below their connections with the shaft, substantially as set forth.

4. In a thrasher, the combination, with a thrashing-cylinder, and straw-carrying forks located in the rear of the cylinder, of a concave grate located below the straw-carrying forks, and devices for vibrating said grate, substantially as set forth.

5. In a thrasher, the combination, with a thrashing-cylinder and a straw-carrying fork located in the rear of the cylinder, of a concave grate located at the rear of the cylinder below the fork, hangers for supporting the grate, and devices, substantially as described, for vibrating the grate, substantially as set forth.

6. In a thrasher, the combination, with a thrashing-cylinder, a grate located behind the cylinder, and a guard-board located behind the cylinder and over or approximately over the front end of the grate, of a crank-shaft, a fork located behind the guard-board, and an arm arranged to guide the free end of the fork under the cylinder in an extended straight plunge, substantially as set forth.

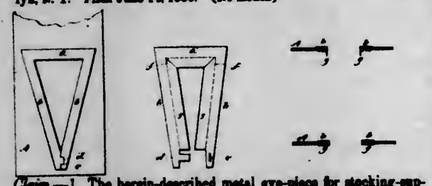
7. In a thrasher, the combination, with a frame and a cylinder mounted thereon, of a shaker-carrier mounted at one end on a crank-shaft, and a jointed arm, the sections of which are connected to and support the other end of the shaking-carrier, substantially as set forth.

8. In a thrasher, the combination, with a vibrating carrier and a crank-shaft supporting one end of said carrier, of a jointed arm adapted to support the other end of the vibrating carrier, one of the arm-sections being secured at one of its ends to a rigid support and between its ends

to the vibrating carrier, and the other arm-section being secured to the carrier at its end, substantially as set forth.

9. In a thrasher, the combination of a supporting-frame, a shaker-carrier, a crank-shaft supporting it at one end and a jointed arm supporting the other end of said shaker-carrier, one of said arm-sections being secured at one of its ends to a rigid support and between its ends to the vibrating carrier, and the other arm-section being secured to the carrier at its end, the parts being arranged substantially as described, whereby the rise of the end of the carrier so attached will be less than its horizontal throw, substantially as set forth.

350,291. STOCKING-SUPPORTER. Charles H. Chadwick, Brooklyn, N. Y. Filed June 14, 1886. (No model.)



Claim.—1. The herein-described metal eye-piece for stocking-supporters, consisting of two legs connected across the top, the said legs and top having a flange formed upon their inner edge of greater depth than the width of the narrower part of the opening in the finished article, the opening between said legs contracting from the top downward to a point where the two legs meet, and the two legs secured together at the said meeting-point, substantially as described.

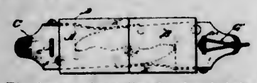
2. A metal eye-piece for stocking-supporters, consisting of two legs connected at their upper ends, the legs having each a flange upon their inner edge, and turned from one side, the one leg constructed with a tongue on its inner edge near the lower end, and the other leg with a corresponding slot, the lower ends of the legs brought together, and the said tongue turned through the said slot to secure the said lower ends together, the opening between the legs contracting from the upper end downward, substantially as described.

350,292. PIANO-FORTE. Charles F. Chickering, New York, N. Y. Filed July 26, 1886. (No model.)



Claim.—In a piano-forte, the combination of the agraffe-support piece separate from the string-sustaining metallic frame with such frame, provided with an abutment or bar to extend over and rest upon the upper ends of the agraffes, all being substantially and for the purpose as set forth.

350,293. ELECTRIC-BELL CORD. Harry R. Cox, Cincinnati, Ohio. Filed May 1, 1886. (No model.)



Claim.—1. The improved coupling for electric-bell cords, herein described, composed of two members, which are duplicates of each other, each being provided with a central insulating-block having a projecting tongue with a waved or corrugated surface, *c'''*, two metallic plates, C C', of similar shape, one upon each side thereof, and two springs, E E', hard-soldered to the edges of said plates, whereby the corrugated tongues of the two members are held together, bringing the edges of the plates C C' into close contact to complete the connection, as set forth.

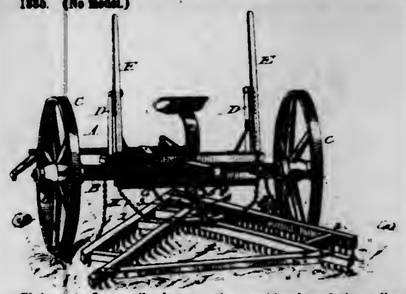
2. The member A, consisting of two metallic side pieces, C C', each having perforated ears *c*, cleats *c'*, and flanges *c''*, two springs, E E', and two hard-wood or rubber side pieces, D D', secured to the pieces C C', and a central insulator, F, as set forth.

3. In combination with the two parallel wires of an electric-bell cord, a coupling, each member thereof consisting of two side pieces, C C', constructed as described, two side pieces, D D', and springs E E', secured thereto, and a central separating-insulator, F, the contact-surfaces of the metallic side pieces C C' being correspondingly curved, as at *c'''* as set forth.

350,294. ELECTRIC BATTERY. Harry R. Cox, Cincinnati, Ohio. Filed May 3, 1886. (No specimens.)

Claim.—A battery element having its exciting-fluid thickened to the consistency of jelly by gelatine, or its equivalent, so as to admit of fermentation, and thereby assist in the action of the exciting-fluid.

350,295. HARROW. Riley Cox, Boise City, Idaho. Filed Jan. 8, 1885. (No model.)



Claim.—1. In a sulky-harrow, the combination of the sulky provided with a frame extended forwardly and inclined downward from its axle, the harrow, the connections between said harrow and frame, and means for elevating said harrow with relation to its sulky, substantially as set forth.

2. A harrow comprising a section having its front end bar or beam arranged at an angle to its length, and a second section having its front beam or bar arranged at an angle to its length and lapped against the inner side bar of the first section, and having its outer side bar extended forward and lapped against the front bar or beam of the first section, and a hinge-connection between said sections, substantially as set forth.

3. A harrow formed with two sections fitted and hinged together, one of said sections having its front beam arranged at an angle to the line of draft, and the other section being provided with a beam extended forward and lapped in front of the other section, substantially as set forth.

350,296. UTILIZATION OF THE RESIDUAL LIQUIDS FROM BATTERIES. Lucien A. W. Desruelles, Paris, France. Filed Apr. 21, 1886. (No specimens.)

Claim.—1. The mode herein described of utilizing the residual liquids from bichromate and other powerful batteries, said mode consisting in mixing an acid-proof and porous substance with the said residual liquids and drying the paste thus produced to form a substance for charging batteries for telegraphic lines and other uses.

2. As a new material for charging batteries, the herein-described substance consisting of the residual liquids from bichromate and other powerful batteries, mixed with acid-proof and porous material, substantially as specified.

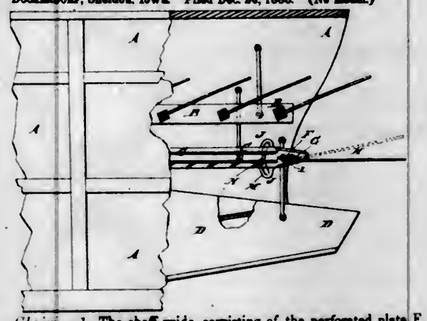
3. The herein-described substance for charging batteries, said substance consisting of kieselguhr mixed with residual liquids from bichromate or other powerful batteries.

350,297. PROTECTIVE COATING FOR THE ELECTRODES OF BATTERIES. Lucien A. W. Desruelles, Paris, France. Filed Apr. 21, 1886. (No specimens.)

Claim.—1. The herein-described compound for coating battery-electrodes, said compound consisting of a fatty substance mixed with mercury.

2. A soluble electrode for a battery having a protective coating composed of a mixture of a fatty substance and mercury.

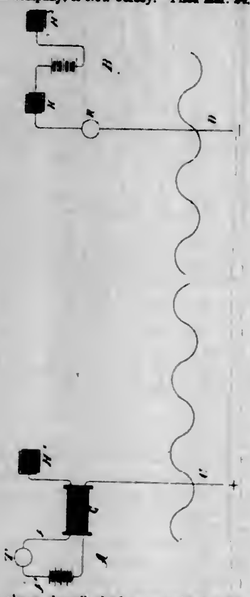
350,298. CHAFF-GUIDE FOR GRAIN-SEPARATORS. Daniel O. Doderdorf, Sheldon, Iowa. Filed Dec. 26, 1885. (No model.)



Claim.—1. The chaff-guide consisting of the perforated plate F, concave upon the upper side and convex upon the lower side, the plate G, having a perforated flange on its forward edge, the fingers H, having hooks upon their rear ends interlocking with plates F, and means for detachably securing said plates together, whereby fingers can be readily taken out or put in, as set forth.

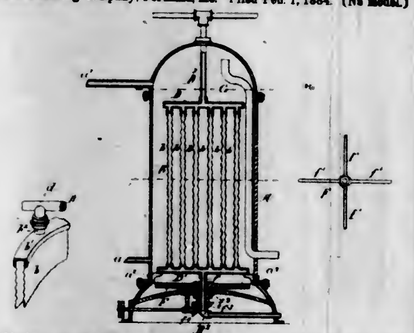
2. The combination of the journal E, the chaff-guide F G H, the crank-arm J, having an eye formed with a short slot, K, and the pin L, substantially as herein shown and described, whereby the said journal will have a little play in the said eye, as set forth.

350,299. MODE OF ELECTRIC COMMUNICATION. Amos E. Dolbear, Somerville, Mass., assignor, by mesne assignments, to the Dolbear Electric Telephone Company, of New Jersey. Filed Mar. 24, 1882. (No model.)



Claim.—The art above described of communicating by electricity, consisting in first establishing a positive potential at one ground and a negative at another; secondly, varying the potential of one ground by means of transmitting apparatus, whereby the potential of the other ground is varied; and, lastly, operating receiving apparatus by the potential so varied, all substantially as described.

350,300. FEED-WATER HEATER. Thomas W. Duffy, Boston, Mass., assignor, by direct and mesne assignments, to the Wainwright Manufacturing Company, Portland, Me. Filed Feb. 1, 1884. (No model.)



Claim.—1. In a heater or like apparatus, a series of concentric annular chambers closed at each end by suitable rings and connected together at each end, and with a source of supply and exhaust by a cross-pipe, D D', all set forth.

2. In combination with an apparatus for heating water, consisting of a water-chamber provided with a suitable inlet and outlet, and suitable means of supplying heat to said water, a special educt connected with said water-heating chambers above the water-line, as set forth.

3. In combination with an apparatus for heating water, consisting of a water-chamber provided with a suitable inlet and outlet, and the special educt above the water-line, together with suitable means of supplying heat, the agitator F, whereby the mass of water may be broken and kept in a violent circulation, all as set forth.

4. In an apparatus for heating water, provided with a suitable inlet and outlet, and means for supplying heat, the combination of an agitator, whereby the mass of water may be broken up, and a special educt above the water-line, whereby any steam or gas thrown off from the water may be conveyed away, all as set forth.

350,301. FABRIC FOR CARRIAGE-TOPS. Dewendre R. Faulkner, Cortland, N. Y. Filed May 29, 1886. (Specimens.)

Claim.—As an improved article of manufacture, a covering for carriage-tops, consisting of buckram secured to the outer material and an inner layer of paper by adhesive substance, said paper being waterproofed on its inner side and covered by the lining of the top, substantially as and for the purpose set forth.

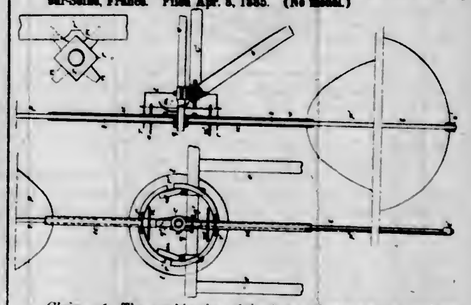
350,302. CASTER. Alexander C. Franke, Newark, N. J., assignor to Jacob Lagowitz, same place. Filed Jan. 23, 1886. (No model.)



Claim.—1. In combination with a trunk or box, A, a socket, *a*, therein, a perforated plate covering said socket, a caster having its shank or stem extending upward through the plate, an arm projecting radially from said shank or stem, and a roller carried by said arm and bearing upon the upper face of plate B.

2. The herein-described caster, consisting of plate B, shank *c*, extending through said plate, sheath or casing D, carried by said shank below plate B, arm E, carried by said shank above the plate, and roller *d*, mounted loosely upon said arm and adapted to bear upon the upper face of the plate.

350,303. DIRIGIBLE AEROSTAT. Augustin H. Hahon, Boulogne-sur-Seine, France. Filed Apr. 8, 1885. (No model.)

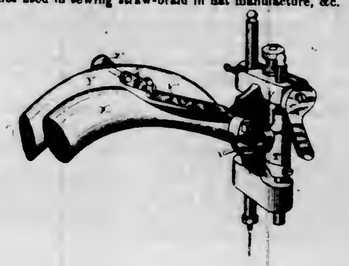


Claim.—1. The combination of the frame of an aerostat carrying a ring, *l*, having cams and notches, with a rotating shaft having swiveled blades *p p'*, provided with star-wheels and squares to engage with the said cams and notches to give two quarter-turns to the blades on each revolution of the shaft, all substantially as set forth.

2. The combination of the frame of an aerostat and propeller-shaft having swiveled blades carrying star-wheels and squares, with an adjustable ring, *l*, mounted on the frame, and having cams and notches to act on the said star-wheels and squares, all substantially as specified.

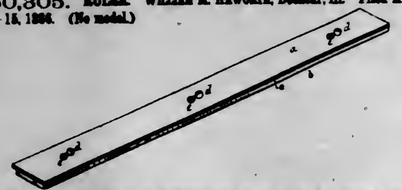
350,304. PRESSER-FOOT-LIFTING MECHANISM. Charles F. Harlow and Edwin E. Angell, Malden, assignors to the Globe Sewing-Machine Company, Boston, Mass. Filed Oct. 12, 1885. (No model.)

Brief.—The dog and knob are connected by a stem passing through the needle-lever, there being sufficient friction to hold the knob and dog in any adjusted position. The construction is particularly designed for machines used in sewing straw-braid in hat manufacture, &c.



Claim.—The combination, with the presser-bar O and the sleeve T, having the projection or arm T' and the lug W, of the spring U, pressing on said arm or projection, the presser-bar-operating lever V V', the stationary arm X, to which said lever is pivoted, the vibrating needle-lever, and the dog Z, pivoted to the latter and adapted to be moved into or out of engagement with the said presser-bar-operating lever, substantially as set forth.

350,305. RULER. William M. Haworth, Deantry, Ill. Filed Apr. 15, 1886. (No model.)



Claim.—1. In rulers, in combination, plate *a*, having slots *c*, strip *b*, having screws or pins *d*, and an intervening blotting-pad, *c*, as and for the purpose set forth.

2. A ruler composed of an upper plate, a strip with its front edge set back from the front edge of the plate, and an intervening blotting-pad extending rearwardly to form a writing-blotter, as and for the purpose set forth.

350,306. TOOTH-BRUSH. Jas. Heath, Richmond, Va. Filed July 9, 1886. (No model.)



Claim.—1. A rotary tooth-brush consisting of a holder-frame, a skeleton guard hinged thereto, the said parts adapted to hold and furnish bearings for a revolvable brush, a handle operating with the said brush and provided with a spiral guide, a slide adapted to operate with the said guide by a rectilinear reciprocating motion, whereby a whirling motion is imparted to the brush, substantially as set forth.

2. In a rotary tooth-brush, the combination, with a receptacle and a skeleton guard hinged thereto, each provided with handles, of a revolvable brush journaled in the receptacle, and a handle for operating the brush, substantially as set forth.

3. In a rotary brush, the combination, with an elongated receptacle provided at either end with a notch forming bearings for a revolvable brush, and on one side with a guard adapted to swing over the receptacle, holding the brush on its bearings, of a handle provided with a spiral guide and a slide thereon loosely mounted and adapted to operate longitudinally with the guide in imparting motion to the brush, substantially as set forth.

4. In a rotary tooth-brush, the combination, with a brush suitably journaled in an open-faced holder-frame, of a handle rigidly secured to an end of the brush, and provided with a spiral groove extending longitudinally therein, and a slide provided with a leg adapted to register with the groove and by its motion operate the brush, substantially as set forth.

350,307. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. Emil Schmidt, Union, N. J., assignor to himself and Adolf Stapfer, same place. Filed Nov. 5, 1885. (No model.)

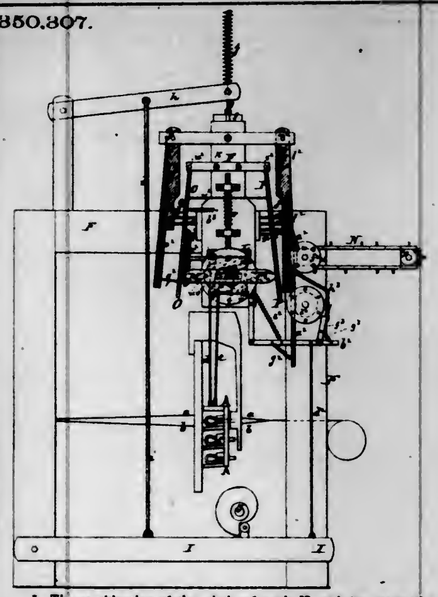
Claim.—1. The combination of the chain of cards N with the hangers f^3 o^3, rod n^3, link q^3, lever r^3, rod s^3, having the loop s^2, hook H, spring *l*, hook G, shaft E, and mechanism, substantially as described, for moving said hooks G and H up and down, as specified.

2. The combination of the chain of cards N with the hangers f^3 o^3, link p^3, lever r^3, rod s^3, having loop s^2, rod n^3, hanger i^3, rod t^3, having loop t^2, and with the hooks G and H, spring *l*, shaft E, and mechanism, substantially as described, for moving said hooks G and H, as specified.

3. The combination of the rack A, containing three or more shuttles, with the straps *d* *e*, shaft E, swivel-block *e*, fork *v*, slide M, and pin *u*, and with mechanism, substantially as described, for turning said shaft and moving said slide, as set forth.

4. The combination of the chain of cards N with the hangers f^3 and g^3, rod n^3, lever Q, link x^3, hangers O P, rod w^3, slide M, pin *u*, fork *v*, swivel-block *e*, shaft E, and with mechanism, substantially as described, for turning said shaft, as specified.

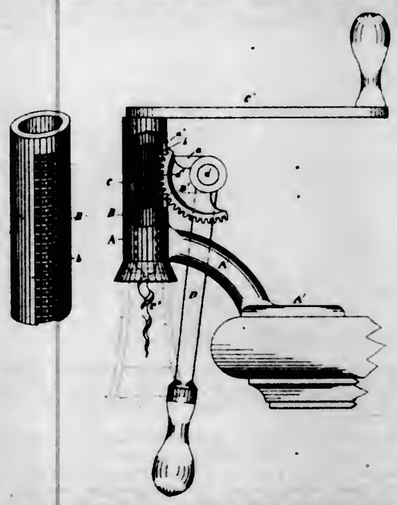
350,307.



5. The combination of the chain of cards N and its supporting-drums *w* and *x*, and ratchet-wheel, with the actuating-hook a^3, cam d^3, pins e^3, pawl f^3, yoke h^3, and hanger h^3, and mechanism, substantially as described, for moving the hook a^3 up and down, and for moving the pawl f^3 as specified.

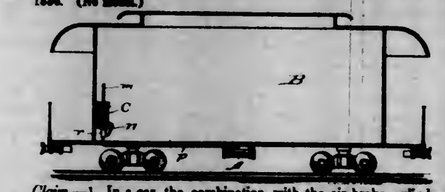
6. The combination of the chain of cards N with the wheel f^3, hook a^3, cam d^3, pins e^3, pawl f^3, yoke h^3, hanger h^3, springs g^3 g^3, lever b^3, spring c^3, strap d^3, lever I, cam-shaft J, rod *i*, lever *h*, spring *j*, slide *f*, hangers g^3 and l^3, rod s^3, lever Q, link x^3, connected hangers O P, rod w^3, slide M, pin *u*, fork *v*, swivel-block *e*, shaft E, said shaft having the prismatic portion *o*, the rods *m* and the rods *p*, hooks G H, spring *l*, hangers o^3 and j^3, rods n^3 s^3 t^3, hanger i^3, lever r^3, link q^3, straps *d* *e*, and rack A, containing a series of shuttles, as specified.

350,308. CORK-PULLER. John A. Hurley, Erie, Pa., assignor to the F. P. Adams Co., same place. Filed June 26, 1886. (No model.)



Claim.—In a cork-puller, the combination, substantially as herein set forth, of the barrel A, having therein the slot *a'*, the plunger B, fitting in said barrel and having on its surface opposite said slot a series of rack-teeth, *b*, sunk in its surface, the lever D, fulcrumed near said slot *a'* and having thereon a segment-gear, D', which enters said slot and meshes with the rack-teeth on said plunger, the cork-screw stem C, journaled in said plunger, and the cranks C', connected with said stem and seated on said plunger.

350,309. AUTOMATIC AIR-PRESSURE REGULATOR FOR CAR-VENTILATORS. Henry R. Jacobs, Fond du Lac, Wis. Filed July 26, 1886. (No model.)



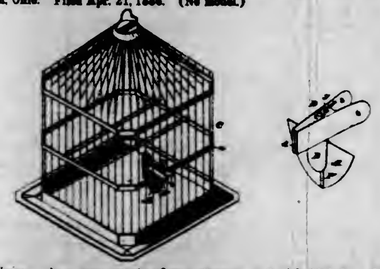
Claim.—1. In a car, the combination, with the air-brake cylinder A and ventilating means, substantially as described, of a cylinder, C, controllably communicating with the cylinder A and having a communication, *m*, for connection with such ventilating means, substantially as and for the purpose set forth.

2. In a car, the combination, with the air-brake cylinder A and ventilating means, substantially as described, of a cylinder, C, controllably communicating automatically with the cylinder A and having a communication, *m*, for connection with such ventilating means, substantially as and for the purpose set forth.

3. In a car, the combination, with the air-brake cylinder A and ventilating means, substantially as described, of a cylinder, C, having a tubular extension, *r*, communicating with it, and a diaphragm, D, secured within the cylinder to cover the same internally between the points of communication of the cylinder C and extension *r*, a tubular connection, *p*, between the cylinder A and extension *r* of smaller bore than the extension *r* and affording a valve-seat at its connection therewith, a valve, E, connected with the diaphragm and normally against the said valve-seat, and a tubular communication, *m*, for connection with such ventilating means, substantially as and for the purpose set forth.

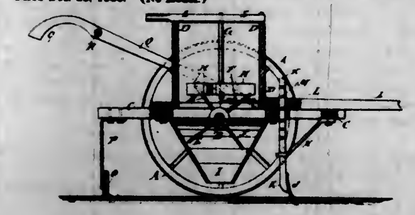
4. In a car, the combination, with the air-brake cylinder A and ventilating means, substantially as described, of a cylinder, C, having a tubular extension, *r*, a diaphragm, D, secured around its edge within the cylinder to cover the same internally over the mouth of the extension *r*, an external tube, *n*, affording communication of the extension *r* with the cylinder C above the diaphragm D, a tubular connection, *p*, between the cylinder A and extension *r* of smaller bore than the extension and affording a valve-seat at its connection therewith, a valve, E, upon a stem, *o*, secured to the center of the diaphragm to maintain the valve normally against the said valve-seat, and a tube, *m*, leading from the cylinder C, for connection thereof with said ventilating means, substantially as and for the purpose set forth.

350,310. FOOD-HOLDER FOR BIRD-CAGES. John W. Klett, Canton, Ohio. Filed Apr. 21, 1886. (No model.)



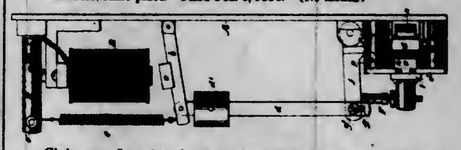
Claim.—As a new article of manufacture, a food-holder for a bird-cage having a plate, A, provided with a hook, B, supporting-pin F, spring E, and clamping-jaws D, substantially as described, and for the purpose set forth.

350,311. COTTON-PLANTER. Talman P. Lowry, Bryan, Tex. Filed Dec. 23, 1885. (No model.)



Claim.—In a cotton-seed planter, the combination, with the frame C, the wheels A, the axle B, provided with the fingers E, and the spout I, attached to the under side of the said frame, of the hopper D, having a slot in its bottom decreasing in width from its forward to its rear end, plates F, adjustably secured to the bottom of the hopper, the vertical shaft G, journaled in the hopper, and the horizontal arms H on the said shaft, substantially as herein shown and described.

350,312. DOOR-CATCH ADAPTED TO BE OPERATED BY ELECTRICITY. William H. Haberland, Brooklyn, N. Y., assignor to Tucker & Baxter, same place. Filed Feb. 2, 1886. (No model.)



Claim.—1. In a door-catch adapted to be released electrically by percussion, a spring-bolt, G, provided with stop *p*, trigger *f*, rod *d*, and armature *c*, in combination with a suitable magnet and battery adapted to actuate the armature, substantially as described and shown.

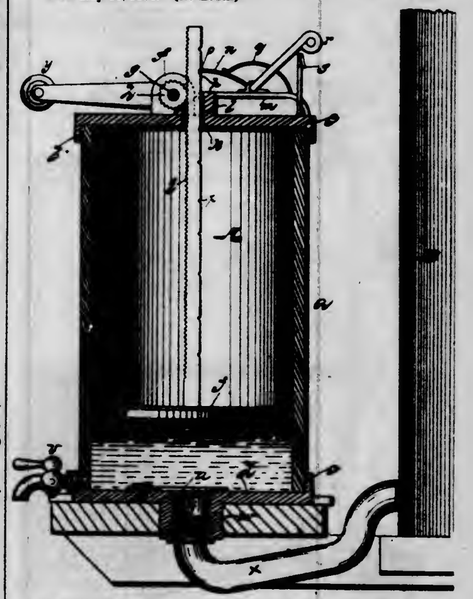
2. In a door-catch adapted to be released electrically by percussion, a suitable support, as A, angled portions *g g*, and friction-rollers *r r*, in combination with a spring-bolt, G', provided with the stop *p'* and trigger *f*, substantially as described and shown.

3. In a door-catch adapted to be operated electrically by percussion, a spring-bolt, G, strips *i i*, and friction-wheels *n n'*, in combination with the friction-wheels *l l* and *m m'*, arranged substantially as described and shown.

4. The percussive releasing device described, consisting of a bolt with a stop, as *p'*, and a suitable magnet, in combination with an armature, *c*, carrying a rod, as *d'*, adjusted relative to the stop *p'* to operate upon the same after the armature has traversed a part of its path toward the magnet, substantially as described and shown.

5. A door-catch consisting of a spring-bolt, G, provided with stop *p*, trigger *f*, rod *d*, and armature *c*, in combination with a magnet, B, a suitable battery and its connections, and a thermostat interposed in the circuit and adapted to close the circuit and actuate the armature at a determined degree of temperature, substantially as described and shown.

350,313. MEASURING-VESSEL. Lemuel D. Miller, Collamer, Pa. Filed May 15, 1886. (No model.)



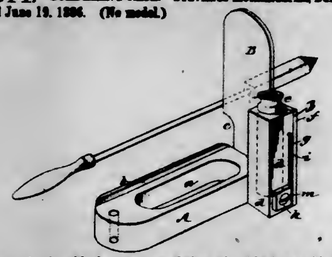
Claim.—1. The measuring-vessel described, consisting of the body portion having the upper and lower screw-threads, the bottom plate having female threads, and threaded opening provided with the valve, and the outlet-faucet secured to said bottom, the cap-plate having the central opening and bearings, the crank-shaft provided with the pinion, the rack-bar engaging said pinion and provided with the plunger, and the

spring-pawl adapted to engage the notches in said rack-bar, as shown and described.

2. In a measuring-vessel, the combination, with the vessel A, constructed as described, of the rack-bar having the graduating-marks, the crank-shaft, pinion, and spring-pawl, substantially as described.

350,314. SOLDERING-CASE. Sylvanus Morrissman, Buffalo, N. Y.

Filed June 19, 1886. (No model.)



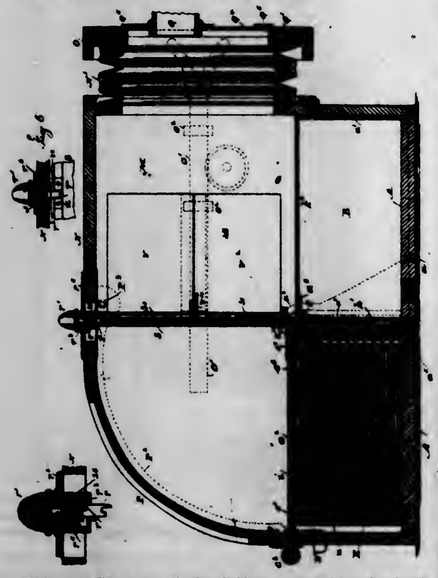
Claim.—1. A soldering-case consisting of a block provided with a solder-holding compartment, a groove for receiving the handle of a soldering-iron, and a cover pivoted to the block at one end and carrying a casing for an acid-bottle, substantially as and for the purposes herein set forth.

2. A soldering-case constructed with a block having a compartment therein to hold solder and a groove extending its length along the side on top to receive a soldering-iron, in combination with a spring-actuated lid carrying and inclosing an acid-bottle, the lid and inclosed bottle adapted to assume a vertical position when opened, substantially in the manner and for the purposes herein set forth.

3. A soldering-case adapted to hang up when not in use, consisting of a block, A, having compartment *a* and groove *b*, a lid, B, a casing, d_1 attached to said lid and inclosing the acid-bottle, and a spring adapted to hold the lid B in the open or closed position, substantially in the manner and for the purposes herein set forth.

4. In a soldering-case, the block A, having compartment *a* and groove *b*, the lid B, pivoted to the said block, and the casing *d*, attached to said lid, in combination with the spring *g*, fastened at one end to said casing *d*, bearing upon the pin *i*, and forming a contact at its lower end with the plate *m*, secured in position by the pivot-screw *k*, substantially in the manner and for the purposes herein set forth.

350,315. PORTABLE PHOTOGRAPHIC CAMERA. Scotto C. Nash, Harrisburg, Pa. Filed Jan. 2, 1886. (No model.)



Claim.—1. The range of plate-holders connected together by the belt of flexible material, in combination with the polygonal axle for removing the same, the pins c^3 in the plate-holders, and the metallic support c^5 and guide-piece c^4, between which each pins are sustained, substantially as set forth.

2. A range of plate-holders connected together by a belt, and a frame and a focusing-glass at the end of the range of plate-holders, in combination with the polygonal axle, the camera and the box for receiving the plate-holders, and a movable lid to inclose the sensitized plates, substantially as set forth.

3. The range of plate-holders and the focusing-glass connected to a belt of flexible material, and a cover also connected to the same belt, in combination with the polygonal axle to move such belt, a partition below such axle, and the receptacle for such plates, and the camera-box, substantially as set forth.

4. The combination, with the polygonal axle and the partition below the same, of the range of plate-holders, the connecting belt of flexible material, the pins upon the plate-holders, the plates with slots for such pins, and the bracket-pieces on the end covers or frames, to aid in supporting the pile of moving plate-holders, substantially as set forth.

5. The camera-box having a bellows extension and a front frame for supporting the lens-holder, in combination with the racks of flexible sheet metal and connected to the front frame, and the knobs and wheels for moving the same and allowing a lateral swinging adjustment for the lens-holder, substantially as set forth.

6. The combination, with the lens-holder and camera-box having an end frame, *o*, of a septum-plate, Q, having a central opening and capable of being adjusted laterally in slides upon the frame *o*, and a disk covering the opening and to which the lens-holder is attached eccentrically, and supports for connecting the disk to the septum and allowing it to be revolved to vary the position of the lens-holder to the septum, substantially as specified.

7. The combination, with the sectional shields within the camera-box and their tubular and solid axis, of spring-arms attached to the respective axes, and segmentally-slotted plates beneath which the spring-arms are moved, substantially as set forth.

8. The combination, with sectional shields, of the follower-strips and the springs to actuate the same, for the purposes and as specified.

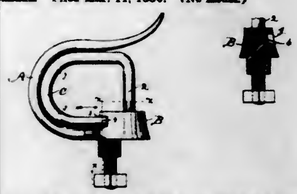
9. The combination, with the belt, plate-holders, and the axis for moving the same, of a forked stop and a movable plate for supporting the same, and by which such stop can be adjusted to incline the focusing glass and plate more or less, substantially as specified.

10. The plate-holders, each having a closed back and spring, in combination with the nibs c^6 on the frame, and the spring c^7, that acts against the edge of the plate, and the nibs on such spring, as set forth.

11. The combination, with the belt of plate-holders and the axle for moving the same, of a count-wheel and a wheel on the axle to move the same, a stationary nut upon the camera-box, around which the count-wheel revolves, a movable dial in front of the stationary nut and the count-wheel, and a clamp for holding the dial firmly against the stationary nut, substantially as specified.

12. The combination, with the camera, of the flexible cover attached to the front frame, O, of the camera, and having an opening for the lens-tube and a flap to cover and secure the cap of the lens-holder, substantially as set forth.

350,316. HARNESS-HOOK. John H. O'Donnell, Winnipeg, Manitoba, Canada. Filed Mar. 11, 1886. (No model.)



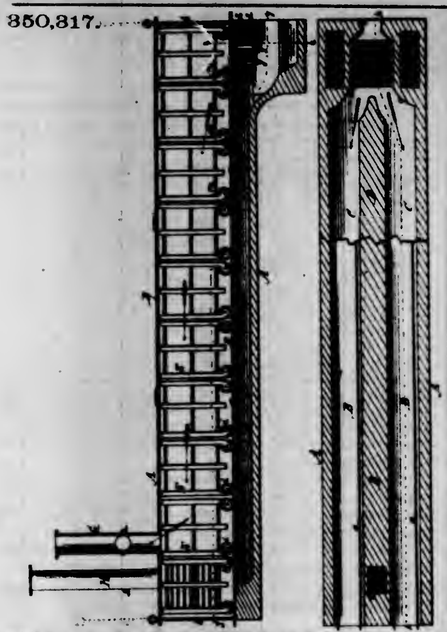
Claim.—1. The hook, substantially as described, comprising the hook proper and the latch-hook or open link pivotally supported at one end, and having its other end bent into hook-like form conforming approximately to the hook proper and adapted to turn laterally to coincide therewith, substantially as set forth.

2. The combination, with the base or support provided with the hook proper, of the latch-hook or open link having its shank pivoted to the base or support and its curved portion formed to coincide with and movable into and out of the hook proper, substantially as set forth.

3. As an improved article of manufacture, a harness-hook consisting of the base plate or support, having at its forward end the lateral notch, as described, the hook proper, and the latch-hook or open link having its shank pivoted to the support and its curved portion formed to coincide with the hook proper, and having its point movable into and out of the lateral notch in the support, substantially as and for the purposes specified.

350,317. KILN FOR DRYING BRICK. Clark D. Page, Rochester, N. Y. Filed Mar. 8, 1884. (No model.)

Claim.—1. A drying-kiln constructed with the four passages B B



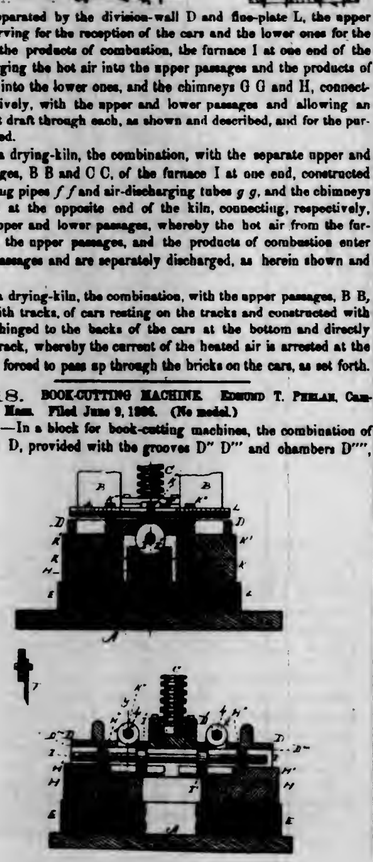
and C C, separated by the division-wall D and flue-plate L, the upper passages serving for the reception of the cars and the lower ones for the passage of the products of combustion, the furnace I at one end of the kiln discharging the hot air into the upper passages and the products of combustion into the lower ones, and the chimneys G G and H, connecting, respectively, with the upper and lower passages and allowing an independent draft through each, as shown and described, and for the purpose specified.

2. In a drying-kiln, the combination, with the separate upper and lower passages, B B and C C, of the furnace I at one end, constructed with radiating pipes *f f* and air-discharging tubes *g g*, and the chimneys G G and H at the opposite end of the kiln, connecting, respectively, with the upper and lower passages, whereby the hot air from the furnace enters the upper passages, and the products of combustion enter the lower passages and are separately discharged, as herein shown and described.

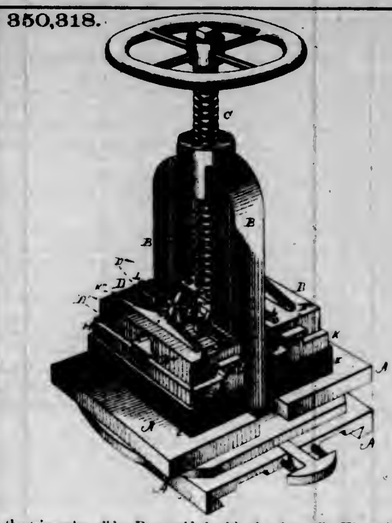
3. In a drying-kiln, the combination, with the upper passages, B B, provided with tracks, of cars resting on the tracks and constructed with flaps *m m*, hinged to the backs of the cars at the bottom and directly above the track, whereby the current of the heated air is arrested at the bottom and forced to pass up through the bricks on the cars, as set forth.

350,318. BOOK-CUTTING MACHINE. Edmund T. Phelan, Cambridge, Mass. Filed June 9, 1886. (No model.)

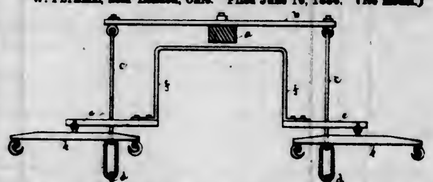
Claim.—In a block for book-cutting machines, the combination of the portion D, provided with the grooves D″ D‴ and chambers D⁗, the triangular slides H, provided with the dovetails H′, uprights H″, and right-and-left screw I, and the triangular slides K, provided with the dovetails K′, uprights K″, and right-and-left screws L, substantially as and for the purpose described.



350,318. [duplicate]

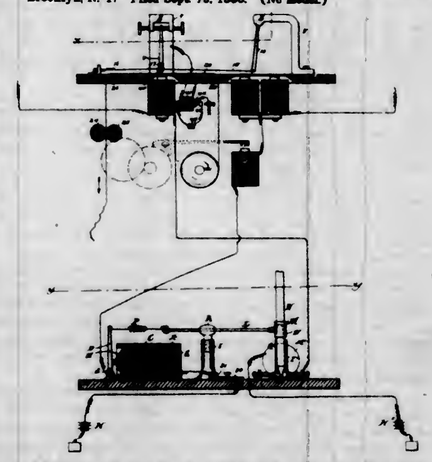


350,319. HITCHING ATTACHMENT FOR CULTIVATORS. George W. Plybell, near London, Ohio. Filed June 16, 1886. (No model.)



Claim.—In a hitching attachment for corn-cultivators, the combination, with tongue cross-bar *b* and draft-pendants *c*, of the connected hitch-bars *e*, being rigidly secured on their rear side to the pendants *c*, and having a single-tree connection on their front side near their outer ends, substantially as and for the purpose specified.

350,320. AUTOGRAPHIC TELEGRAPHY. James H. Robertson, Brooklyn, N. Y. Filed Sept. 18, 1885. (No model.)



Claim.—1. The combination, with a stylus or holder moved by the hand of the operator, of a pile of carbon disks included in an electric circuit, and connections between said holder and pile so arranged that the movements of the former may cause a variation of pressure on said pile,

and, in consequence, a variation in the resistance of the circuit and the strength of the current, substantially as described.

2. In the transmitting-instrument of an autographic telegraph, the combination, with a pile of carbon disks, of a lever arranged to exert a pressure on the same, a stylus or holder pivoted so as to move freely in a lateral direction and adapted to be held and moved by the hand of the operator, and connections between said lever and holder so arranged that the movements of the stylus will cause a variation of pressure on said pile, substantially as described.

3. The combination, with a pile of carbon disks, of a lever arranged to exert a pressure on the same, a stylus or holder, and a sliding rod and spring, substantially as described.

4. The combination, with two piles of carbon disks, of a stylus or holder pivoted to move freely in any lateral direction and adapted to be held and moved by the hand of the operator, and connections between said holder and piles so arranged that the movements of the stylus will cause a variation of pressure on said piles, substantially as described.

5. The combination, with two piles of carbon disks, of two levers arranged to exert a pressure on the same, a stylus or holder, and connections between said levers and holder, substantially as described.

6. The combination, with two piles of carbon disks, of two levers arranged to exert a pressure on the same, a stylus or holder, two sliding rods connected with said holder, and two springs connecting said rods and levers, substantially as described.

7. The combination, with two piles of carbon disks, of two levers arranged to exert a pressure on the same, a stylus or holder, two sliding rods pivoted to said holder and arranged to slide in pivoted bearings at substantially right angles to each other, and springs connecting said rods and levers, substantially as described.

8. The combination, with the electro-magnets of the receiving-instrument, of a stylus or holder moved by the hand of the operator, two piles of carbon disks included in the circuits with said electro-magnets, and connections between said holder and piles so arranged that the movements of the former may cause a variation of pressure on said piles, and, in consequence, a variation in the resistance of the circuits and the strength of the current, substantially as described.

9. The combination of the receiving-stylus with an electro-magnet and a depending armature arranged with its end facing said magnet and pivoted to swing over the same, substantially as described.

10. The combination of the receiving-stylus with an electro-magnet and a polarized armature pivoted to swing over and from one pole to the other of the said electro-magnet, the latter being arranged below the free end of said armature, substantially as described.

11. The combination of the receiving-stylus with an electro-magnet, a permanently-magnetized standard, an armature polarized by induction from said standard and pivoted to swing over and from one pole to the other of said electro-magnet, the latter being arranged below the free end of said armature, substantially as described.

12. The combination of the receiving-stylus with two electro-magnets arranged below the free ends of their armatures, two armatures pivoted to swing at right angles to each other over said magnets and connected with the said stylus, and retractile springs acting in opposition to the force of said magnets, substantially as described.

13. The combination of the receiving-stylus with two electro-magnets, two polarized armatures pivoted to swing over said magnets from one pole to the other thereof and connected with said stylus, and retractile springs acting in opposition to the force of said magnets, substantially as described.

14. The combination of the receiving-stylus with two electro-magnets, two depending armatures pivoted to swing at right angles to each other over said magnets, one of said armatures carrying said stylus and the other connected thereto, and retractile springs acting in opposition to the force of said magnets, substantially as described.

15. The combination of the receiving-stylus with two electro-magnets, two polarized armatures pivoted to swing over the same from one pole to the other thereof, one of said armatures carrying said stylus and the other connected thereto, and retractile springs acting in opposition to the force of said magnets, substantially as described.

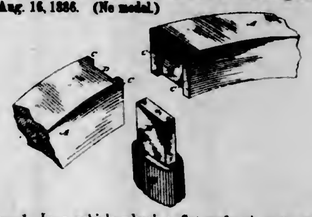
16. The combination of the receiving-stylus with an electro-magnet and armature connected to and moved by said armature, a conducting-plate arranged below the same and at such distance from the point thereof as to permit the passage of chemically-prepared paper between said plate and stylus without contact of the latter with said paper, and an induction-coil provided with a circuit-breaker and connected with said plate and stylus, substantially as described.

17. The combination, with two electro-magnets and two armatures arranged to swing at right angles to each other, of a stylus connected with said armatures, a conducting-plate located below said stylus and at such a distance therefrom that chemically-prepared paper may pass between said plate and stylus without coming in contact with the latter, and an induction-coil provided with a circuit-breaker and connected with said plate and stylus, substantially as described.

18. The combination, with an electro-magnet and an armature carrying the receiving-stylus and pivoted to move above the surface of chemically-prepared paper without contact with the same, of a conducting-plate arranged below said stylus and paper, and an induction-coil and circuit-breaker, substantially as described.

19. The combination, with two electro-magnets, their armatures, and a receiving-stylus connected therewith, of a conducting-plate located below said stylus, a strip of chemically-prepared paper arranged to pass between said stylus and plate, and an induction-coil and circuit-breaker, substantially as described.

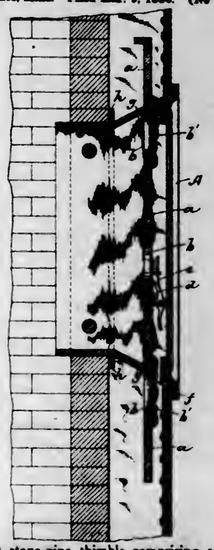
350,321. VEHICLE-WHEEL. Horace Sague, Poughkeepsie, N. Y. Filed Aug. 16, 1886. (No model.)



Claim.—1. In a vehicle-wheel, a flat-surfaced rectangular transversely-elongated tenon at the end of a spoke, in combination with a corresponding flat-surfaced recess in the felly, substantially as and for the purposes described.

2. In a vehicle-wheel, the combination, at the points of union of the parts of a felly, of the flat-surfaced rectangular transversely-elongated tenon at the outer end of a spoke, and the felly parts provided with corresponding flat-surfaced recesses, and the rectangular projecting lips on either side of each recess, all for the purpose of presenting flat surfaces in every part of the joint, as and for the purposes described.

350,322. ADJUSTABLE THIMBLE FOR STOVE-PIPES. Joseph Sales, Lawrence, Mass. Filed Mar. 9, 1886. (No model.)

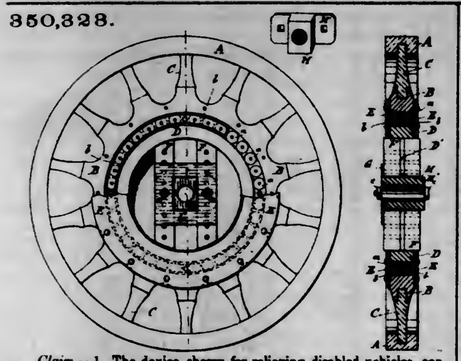


Claim.—1. A stove-pipe thimble comprising a casing formed to act as a spark and smoke tight conduit between the outer surface of the wall or chimney and the interior of the same, said casing being provided with a molding on the front thereof to rest in contact with the face-plastering, and ways in the rear of said molding and face-plastering, and an adjustable slide movable in said ways and provided with a hole for receiving the pipe, as and for the purposes hereinbefore set forth.

2. A stove-pipe thimble comprising a casing formed to act as a spark and smoke tight conduit between the outer surface of the wall or chimney and the interior of the same, and provided with ways, a plate formed with ratchet-teeth, and a hole for receiving the pipe movable in said ways, and a pawl pivoted to the frame and adapted to engage said ratchet-teeth, as and for the purposes hereinbefore set forth.

350,323. METHOD OF AND APPLIANCE FOR RELIEVING TRUCKS. Emil Schuhardt, New York, assignor of one-half to Charles A. Tucker, Islip, N. Y. Filed June 29, 1885. (No model.)

350,328.



Claim.—1. The device shown for relieving disabled vehicles, consisting of an axle-tree terminating in a suitable adjusting device, and an independent spindle adapted to be supported thereby, in combination with a suitable relief-wheel, as Fig. 1, substantially as described.

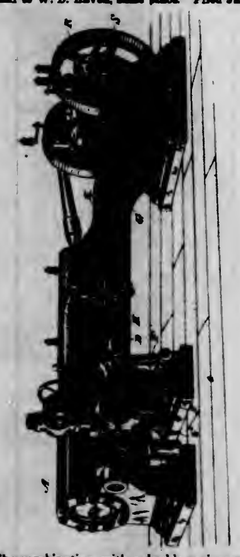
2. An axle-tree terminating in a suitable adjusting device, in combination with an independent spindle adapted to be supported by such device on varying planes relative to such axle-tree, substantially as described.

3. An auxiliary axle consisting of the axle-tree I, having ratchet-bar I', ratchet-bar J, carrying the spindle K, and a suitable device adapted to adjust the same and hold them in position, substantially as described.

4. A relief-wheel consisting of a tread with suitable inner bearings, and an inner wheel adapted to operate in such bearings, such inner wheel provided with suitable supports, F F, in combination with an axle-box, H, substantially as described and shown.

5. A relief-wheel consisting of an outer wheel, A B, and an inner wheel, D, provided with supports F F, adapted to receive the ends of several independent axle-trees, substantially as described and shown.

350,324. CUT-OFF VALVE. Francis Schumann, Trenton, N. J., assignor of one-half to W. D. Haven, same place. Filed Jan. 8, 1886. (No model.)



Claim.—1. The combination, with a double reciprocating and oscillating valve having its two parts provided with ports, whereby it is adapted to operate at both ends of the cylinder, said parts being connected and oscillating together, of means for reciprocating the same, a bell-crank lever, a rod connecting said lever with the valve to oscillate the latter, and an eccentric-rod for oscillating the lever, substantially as set forth.

2. The combination, with a double reciprocating and oscillating valve having its two parts provided with ports, whereby it is adapted to operate as a valve at both ends of the cylinder, of means for reciprocating the same, a sliding rod at right angles to the valve and engaging therewith to oscillate the same, ways for guiding the rod, and a bell-crank lever for reciprocating the rod, said rod and valve having a sliding engagement which permits the reciprocation of the valve, substantially as set forth.

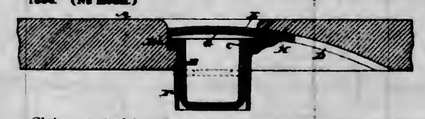
3. The combination, with a reciprocating and oscillating valve, of a bell-crank lever, a rod connecting said lever positively with the valve to oscillate the same in each direction, and an eccentric-rod for oscillating the lever, substantially as set forth.

4. The combination, with a reciprocating and oscillating valve, of means for reciprocating the same, a sliding rod at right angles to the valve and engaging therewith to oscillate the same, a horizontally-sliding plate, e^3, mounted in the rod, and a bell-crank lever for reciprocating the rod, said lever being pivoted to the plate e^3, substantially as set forth.

5. The bell-crank lever and its rod, in combination with the valve-reciprocating pitman or eccentric-rod, constructed and arranged as shown, for imparting an oscillating and longitudinal movement to the valve, substantially as described.

6. The combination, with the valve, of the steam-chest having ports, as described, and the valve-stem, together with its eccentric-rod, a rod, and a bell-crank lever having one arm connected to said rod and the other to the valve-stem, substantially as described.

350,325. INK-WELL. William Shriver and William H. Peard, Philadelphia, Pa.; said Shriver assignor to said Peard. Filed Feb. 27, 1886. (No model.)



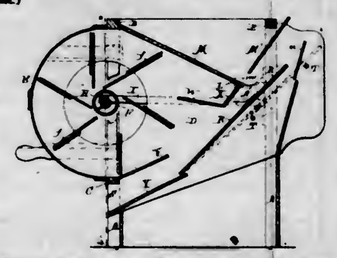
Claim.—1. An ink-well provided with a sliding cover, in combination with a frame or stand having within the same a recess adapted to receive the said cover and to conceal the same from view, substantially as described.

2. An ink-well with a sliding cover having grooves on the under face thereof, in combination with a support, A, having a recess and guides for the cover, and a guard with a lug, H, substantially as described.

3. An ink-well provided with a flange, a stand having a recess in the body of the same and an opening through which the ink-well is inserted, a shoulder on which said ink-well rests, and grooves in the stand, in which the cover slides, a sliding cover with a groove on its under face, and a lug attached to the stand and operating in said groove, all substantially as described.

4. An ink-well with a cover having a groove on the under face thereof, extending to near the ends, forming stops, a lug working in said groove, a guard for the ink-well, to which said lug is attached, a stand having a recess, and the guides for the sliding cover, combined and operating substantially as described.

350,326. MACHINE FOR CLEANING PEANUTS. Hiram M. Smith, Richmond, Va. Filed Feb. 19, 1885. Renewed July 13, 1886. (No model.)



Claim.—1. In a separator, the combination of the hopper, the reciprocating bar L, the teeth or fingers carried by said bar, each consisting of the short portion s' below the bar, the short portion n^3, passing upward through the bar, and having its end bent to lie on the top of the bar, as at n^3, and the longer part, n, passing through the bar and bent to form the finger N, which lies below the opening from the hopper, and mechanism for reciprocating the bar, substantially as set forth.

2. In a separator, the combination of a hopper, feeder, rock-arms which support the feeder, and a wedge-shaped block, P, situated between the feeder and one of its supporting rocking arms, whereby the feeder is inclined relatively to its supporting-arms, and means for reciprocating the feeder, substantially as set forth.

3. In a separator, the combination of the casing, the hopper, the rocking arms, the reciprocating bar L, supported at its ends upon the rocking arms, the wedge-shaped block P, situated between one of the rocking arms and the reciprocating bar, it being provided with a pin, p,

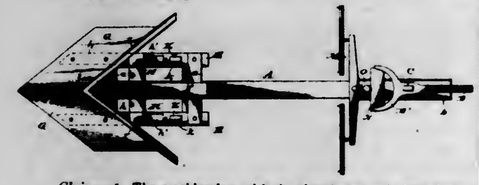
which enters a hole in the rocking arm, and means for reciprocating the bar, substantially as set forth.

4. In a separator, the combination of the casing, the feed-hopper, the fan, a deflecting-board mounted between the side walls of the casing in rear of the fan and below the opening *m* from the hopper, and being loosely placed between the side walls of the casing, whereby it may be longitudinally adjusted in the direction of its length and vertically adjusted toward and from the feed-opening *m*, and the notted screw-rod T, passing through the machine and adapted to draw the casing-walls against the edges of the deflector-board, to hold it in place after adjustment, said rod being placed at the limit of vertical adjustment of the said board, substantially as set forth.

5. In a separator, the combination of the casing, the fan, the feed-hopper, and a deflecting-board situated in rear of the fan and below the feed-opening from the hopper, it being composed of two parts, R R', hinged together, the two parts being capable of separate adjustment, substantially as set forth.

6. In a separator, the combination of the casing, the fan, the hopper, and adjustable deflecting wind-board situated below the hopper and formed of two parts hinged together, and the tail wind-board *u*, substantially as set forth.

350,327. SNOW-PLOW. Peter Stauffer, Lima, Ind. Filed Oct. 24, 1885. (No model.)



Claim.—1. The combination, with the plow-beam and plow-shovel secured to the front end of the beam, of a guide attached to the rear of the beam and means for attaching the draft horse or horses to the plow-beam, whereby they are allowed to travel in the rear of the plow-shovel, substantially as set forth.

2. The combination, with the plow-beam extending rearwardly from the plow, the plow-shovel-supporting frame secured to the front end, and the draft attachments secured near the rear end, of the runners for supporting the front end and the pivoted guide-runner for supporting the rear end, substantially as set forth.

3. In a snow-plow, the combination, with the front supports or runners, of a beam secured to said supports or runners in vertical adjustment, a single ground support or runner supporting the rear end of said beam, a lever for turning said single ground-support, and a plow-shovel secured to the front end of the beam, substantially as set forth.

4. In a snow-plow, the combination, with the front runners or supports, a beam, and a plow-shovel consisting, essentially, of the lower rearwardly-slanting flaring section and the upper vertical-faced wedge-shaped section, of means for attaching the draft horse or horses to the beam behind the plow-shovel, substantially as set forth.

5. The combination, with the plow-beam having a plow-shovel-supporting frame secured to its front end, and a driver's platform and supporting-standard secured near its rear end, of a pair of runners for supporting the front end of the beam, a guide-runner for supporting the rear end of beam, and means for attaching the draft horse or horses in the rear of the plow-shovel, substantially as set forth.

6. The combination, with a beam, a snow-plow attached to the front end thereof, and a single ground-support pivoted to the rear end of said beam, of devices located between the single ground-support and the plow for the attachment of the team or other power, substantially as set forth.

7. The combination, with a snow-plow supported on runners or wheels, of forwardly-extending wings attached to the runners for steadying the plow, substantially as set forth.

8. In a snow-plow, the combination, with the front runners or supporters, a beam secured thereto, and a guide attached to the rear end of the beam, of the snow-shovel secured to the front end of the beam, and consisting, essentially, of a lower rearwardly-slanting flaring section and an upper vertical-faced wedge-shaped section, the ends of the latter projecting beyond the ends of the lower section, substantially as set forth.

9. A snow-plow adapted to be steered by a single ground-support pivotally secured at the rear end of the beam and operated by a lever, the latter being forked or bifurcated at its front end, substantially as set forth.

10. In a snow-plow, the combination, with supports, a plow-beam mounted thereon, and a plow secured to said beam, of a platform secured to the beam and the standard O, located in front of the platform, substantially as set forth.

11. The combination, with a beam and a snow-plow secured thereto, of a single ground-support pivotally secured to the rear end of the plow-beam, a lever for operating said support, and the standard O, substantially as set forth.

350,328. MULTICHARGE SPORTING-RIFLE. Frederick Toussbusser, Chicago, Ill. Filed May 12, 1886. (No model.)



Claim.—1. A breech-loading fire-arm having a central bore and a series of circumferential bores arranged around the central bore, in combination with a firing-rod and hammer for discharging the central bore alone, a series of firing-pins for the circumferential bores, and a hammer common to all of said pins, substantially as set forth.

2. In a breech-loading fire-arm, the barrel having a central bore, a firing-rod therefor, and a hammer for operating said rod, a series of circumferential bores, firing-pins therefor, a hammer common to all of said firing-pins, and means, substantially as described, for operating the two hammers together or separately, as desired.

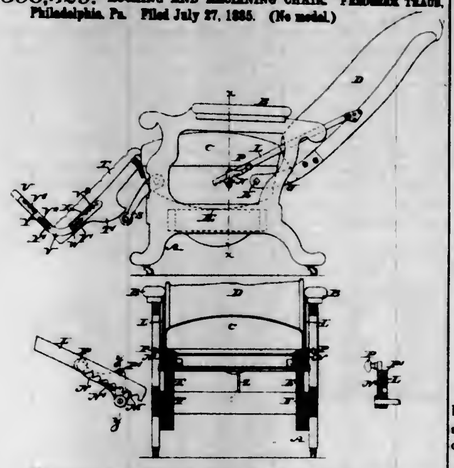
3. In a breech-loading fire-arm, the combination, with a barrel, A, having a series of circumferential bores, 2, and firing-pins therefor, of a hammer, 24, common to all of said pins, a spring, 33, for throwing said hammer against said pins, and devices, substantially as described, for cocking and releasing said hammer, as set forth.

4. In a breech-loading fire-arm, the combination, with the barrel A, having a central bore, 1, and a firing-rod, 26, therefor, independent hammer 56, for firing said rod, and a cocking-trigger, 63, therefor, of a series of circumferential bores, 2, having firing-pins, a hammer, 24, common to all of said pins, a spring, 33, for throwing said hammer against the pins, a cocking-lever, 35, and trigger 53, and connections, substantially as described, for operating said hammers, as set forth.

5. The combination, with the circumferential bores 2 in the barrel A, of the recoil firing-pins 30, a hammer, 24, common to all of said pins, a volute spring, 33, for throwing the hammer against the pins, and means, substantially as described, for cocking and releasing said hammer, as and for the purpose set forth.

6. The combination, with the barrel A, having bores 1 and 2, firing-rod 26 for bore 1, tube 25, in which said rod works, and hammer 56, for firing said rod, of firing-pins 30 for bores 2, hammer 24, common to all of said pins, and volute spring 33, for throwing the said hammer against the pins, as set forth.

350,329. ROCKING AND RECLINING CHAIR. Frederick Traub, Philadelphia, Pa. Filed July 27, 1885. (No model.)



Claim.—1. A combined rocking and reclining chair consisting of a base with arm-rests and an adjustable back pivotally connected with the seat portion, the said back and seat being independent of the arm-rests, and the said seat having rockers resting on the shoulders of said base, substantially as described.

2. The seat C, having a back adjustably secured thereto, in combination with pivoted levers connected with said back and operating a leg-support attached to the frame of said seat, rockers attached to said seat and resting on an independent frame, the arm L, the dog N, and a foot-rest attached to said leg-support, substantially as described.

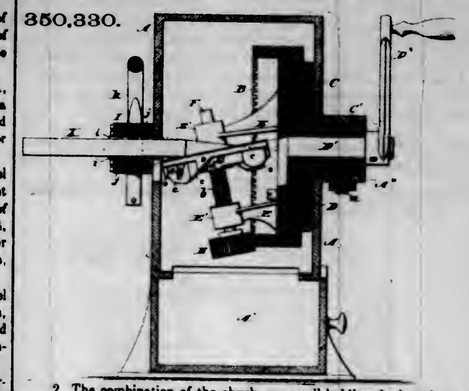
3. The frame A and arm-rests B, in combination with seat C, having rockers E resting on said frame, a back pivotally attached to a seat-frame and having a fastening device, substantially as described, a series of levers connected with said back and operating a lifter, a leg-support pivotally attached to the seat-frame and having a cam on its under side, and a foot-rest attached to the leg-support, all of said parts being arranged and combined substantially as and for the purpose set forth.

4. In a combined rocking and reclining chair, the leg-support T, pivoted to the seat and having on its under side the cam T', in combination with the lifter S, connected by cranks Q^2 Q and arm Q' to the back D, substantially as and for the purpose set forth.

350,330. PENCIL-SHARPENER. Andrew S. Vendor, Brooklyn, assignor to the Eagle Pencil Company, New York, N. Y. Filed Aug. 9, 1886. (No model.)

Claim.—1. In a pencil-sharpening machine, a rotating cutter or sharpener movable to and from the pencil to be sharpened, in combination with spring mechanism whereby said cutter is held against or pressed toward the pencil with yielding pressure, as and for the purpose hereinbefore set forth.

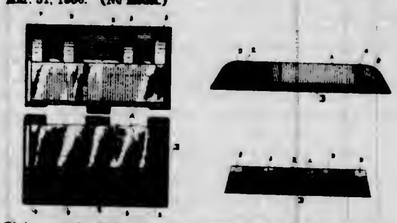
350,330.



2. The combination of the chuck or pencil-holding device, the rotating cutter-head shaft having its axis of rotation inclined to the axis of the chuck, the cutter-head driven by and movable lengthwise upon said shaft, and the spring whereby the cutter-head is held with yielding pressure against the pencil or article to be operated on, substantially as for the purposes set forth.

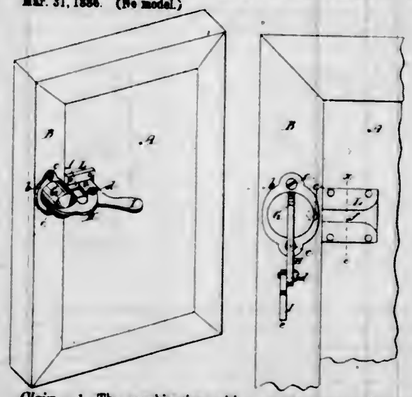
3. The combination of the stationary circular rack, the supporting plate or frame having its axis of rotation coincident with the center of said rack, the inclined cutter-head shaft carried by said frame and provided with a pinion meshing with said rack, the cutter-head carried by and movable lengthwise of said shaft, the cutter-head-supporting spring, and the pencil chuck or holder, substantially as and for the purposes hereinbefore set forth.

350,331. FIRE-LINING. George Wellhouse, Akron, Ohio. Filed Mar. 31, 1886. (No model.)



Claim.—A fire-lining consisting, essentially, of a fire-brick having beveled edges diverging outward, and a metal lining cast upon the outer surface of the brick, and formed with fingers overlapping opposite edges of the brick, substantially as set forth.

350,332. DOOR-SECURER. James E. White, Malden, Mass. Filed Mar. 31, 1886. (No model.)

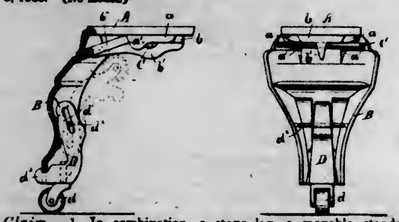


Claim.—1. The combination, with a post or support, D, adapted to be attached to the door frame or casing, of an arm, H, swiveling on said support, and the cam-lever I, pivoted to the arm H and adapted to exert a pressure upon the door to fasten and tighten the same, the arm and cam-lever being adapted to swing down out of the way when the lever is released to unfasten the door, substantially as set forth.

2. In a door-fastener, the combination of the post D, having a screw-thread, the arm H, having a threaded head, G, adapted to turn or swivel upon said post, whereby its distance from the door-frame may be adjusted, the cam-lever I, pivoted to the arm H, and the bearing-plate L, for receiving the pressure of the cam-lever, all constructed to operate substantially in the manner and for the purpose described.

3. The combination, with the swiveling arm H and cam-lever I, of the bearing-plate L, having a groove, *f*, for receiving the end of the cam-lever and retaining it in place upon the plate, substantially as set forth.

350,333. STOVE. Leonard A. White, Taunton, Mass. Filed Mar. 3, 1885. (No model.)



Claim.—1. In combination, a stove-leg, a movable standard mounted upon said leg, a caster secured upon the lower end of said standard, and a bearing upon the lower end of said standard for the lower end of said leg, said standard adjustable, whereby the same may rest under the lower end of said leg and its caster rest on the floor, or the lower end of said leg may rest on the floor.

2. In combination, a detachable stove-leg, and a standard having a sliding bearing on said leg, and provided at the lower end with a caster and with a bearing for the foot of said leg, said standard adjustable on said sliding bearing, whereby the same may rest with its lower end under said foot and its caster rest on the floor, or said foot may rest on the floor.

3. In combination, a detachable stove-leg, an approximately L-shaped standard having the end of the upper arm provided with an extended slot, a fixed pin secured upon the inside of said leg, and said slot traveling thereon, the lower arm of said standard provided with a caster and the end of said arm having a bearing thereon for the foot of said leg, said standard adjustable on said pin, whereby the standard may rest with the lower end under said foot and its caster on the floor, or said standard may be inverted on its pin and said foot rest on the floor.

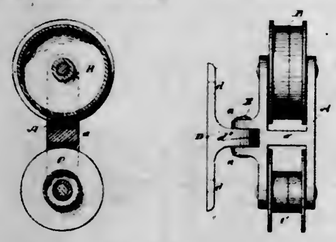
4. In combination, a stove-leg and the standard D, provided with the slot d' and the pin d^2, for mounting the standard, as described.

5. In combination, a stove-leg and the standard D, provided with the caster *d* and having the slot d' and the pin d^2, for the purpose described.

6. In combination, a detachable stove-leg and the standard D, provided with the caster *d*, and with slot d' and pin d^2, substantially as and for the purpose described.

7. The combination, with the leg B, provided with the extension *b*, the rib b', the incline b^2, and the pin C, of the standard D, bearing the caster *d*, and provided with the slot d', extension d^2, and the pin d^3, substantially as described.

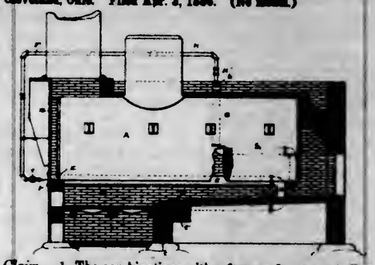
350,334. ROLLER-GATE HINGE. Peter M. Wolf, Plymouth, Wis. Filed May 23, 1886. (No model.)



Claim.—1. The H-shaped casting hinged on one side to a plate for attachment to a gate-post, and having the large roller B with narrow flanges journaled between its upper arms, and the small roller C with wide flanges journaled between its lower arms, substantially as shown and described, and for the purpose set forth.

2. A gate-hinge consisting of the hinge-plate secured to the gate-post and provided with the projecting lug d', the H-shaped casting provided with lugs *a*, the hinge-pin connecting the said lugs, the large roller having narrow flanges journaled between the upper arms of the said casting, and the small roller having wide flanges journaled in the lower arms of the said casting, substantially as set forth.

350,335. SMOKE-CONSUMING FURNACE. Alexander Tonner, Cleveland, Ohio. Filed Apr. 3, 1886. (No model.)



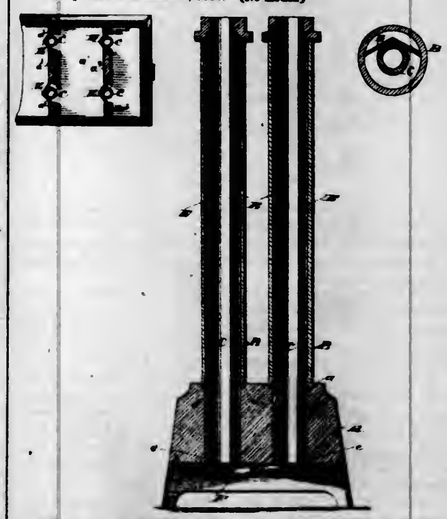
Claim.—1. The combination, with a furnace for steam-boilers and a distributing-chamber located in the bridge-wall, the casing thereof having a suitable perforated surface, of metal air-ducts leading through the fire-box and discharging into the distributing-chamber, and dampers for closing the air-ducts, the latter being arranged and operated on the so-called "generator system," substantially as set forth.

2. The combination, with a furnace for steam-generators, and metal air-ducts leading through the fire-box and discharging into a distributing-chamber located in the bridge-wall, of dampers for the air-ducts, said dampers being connected for closing one air-duct with the same operation that opens the other air-duct, the parts being arranged substantially as set forth.

3. The combination, with a furnace for steam-generators, a distributing-chamber located in the bridge-wall, air-ducts leading through the fire-box to the distributing-chamber, and connected dampers for simultaneously opening one air-duct and closing the other air-duct, of steam-pipes and suitable valves for discharging steam-jets into the respective air-ducts, the parts being arranged substantially as set forth.

4. The combination, with a furnace for steam-generators, with air-ducts, distributing-chamber, and valves arranged on the so-called "regenerative system," substantially as shown, of an air-tube leading under the rear end of the boiler, said air-tube being perforated adjacent to the boiler, and having a steam-pipe for discharging a steam-jet into the outer end of said air-tube, the parts being arranged substantially as set forth.

350,336. RADIATOR. Joseph Askins, Lima, Ohio. Filed Apr. 29, 1884. Renewed Mar. 19, 1886. (No model.)



Claim.—1. In a radiator, the combination, with a base having a steam-chamber and an air-chamber, of air pipes or tubes secured to the floor of the steam-chamber and communicating with the air-chamber, a steam-pipe surrounding each air-pipe and secured to the roof or upper plate of the steam-chamber and communicating with said chamber, diaphragms located within the spaces between the steam and air pipes, and extending from near the top of said pipes to the bottom of the steam-chamber, and ribs or walls located within the steam-chamber, the said ribs or walls and the diaphragms dividing the steam-chamber into a series of compartments, substantially as set forth.

2. In a radiator, the combination, with the base provided with a steam-chamber and an air-chamber the floor of which is detachable, and provided with air-ducts and a valve, as described, of the air-tubes, the steam-tubes, the diaphragms, and the ribs or walls a^2 a^3, all of the above parts arranged as described.

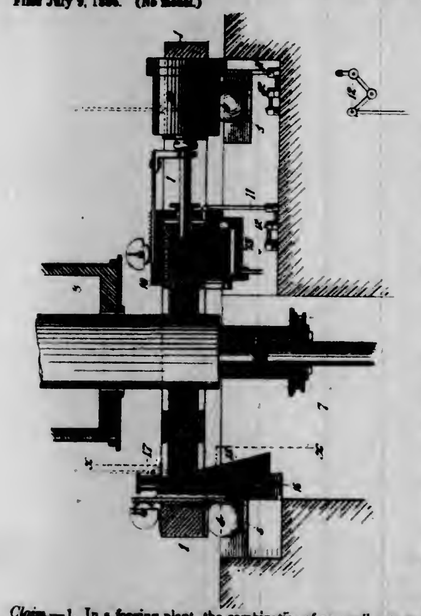
350,337. HEATING APPARATUS. R. Heaps Rabbe, Philadelphia, Pa. Filed Mar. 15, 1886. (No model.)



Claim.—1. A heating apparatus having two outlet-pipes leading therefrom, the upper one having a damper therein, two horizontal or approximately horizontal radiators located one above the other and connected at their ends by elbows, the lower outlet-pipe leading into the lower radiator and the upper outlet-pipe leading into the upper radiator, and a discharge-pipe leading from the upper radiator, all substantially as described.

2. The furnace A, having outlet-pipes B and C, the said pipe B having a damper therein, the horizontal radiators or drums D′ D^2, located one above the other, the drum D′ being connected with the outlet-pipe B, and the drum D^2 with the outlet-pipe C, the elbows D^3, connecting said drums D′ D^2, the discharge-pipe F, connected to the drum D′, dust-pipes G, connected to the elbows D^3 and having caps G′ on open ends outside of the walls of the furnace, all combined and arranged substantially as described.

350,338. FORGING APPARATUS. Ralph Rabaley, Pittsburg, Pa. Filed July 9, 1886. (No model.)

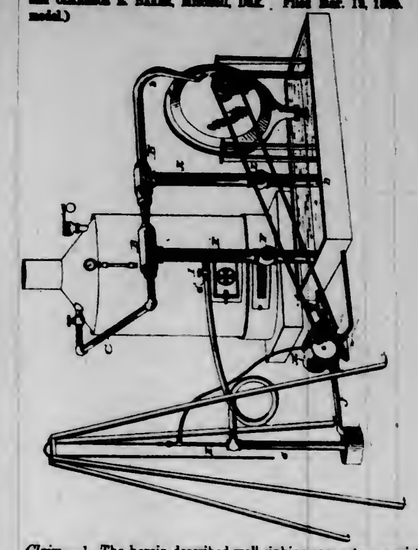


Claim.—1. In a forging plant, the combination of an anvil, a hammer, and a frame carrying the anvil and hammer, the frame being adjustable in relation to the article being forged, substantially as set forth.

2. In an apparatus for forging, the combination of an adjustable anvil, a hammer, and a movable frame carrying the anvil and hammer, the hammer being movable in the frame toward and from the anvil, substantially as set forth.

3. In an apparatus for forging, the combination of an anvil, a hammer, and a frame mounted on friction-balls and carrying the anvil and hammer, the hammer being movable in the frame toward and from the anvil, substantially as set forth.

350,339. APPARATUS FOR SINKING WELLS. Moses C. Baker and Clarence E. Baker, Mitchell, Dak. Filed Mar. 19, 1886. (No model.)



Claim.—1. The herein described well-sinking apparatus, consisting of a reservoir or generator containing fluid under pressure, an injector connected with said reservoir, a boring-rod, a pipe surrounding said rod and communicating with the injector, a tank containing liquid, a pipe connecting the injector with the tank, a second pipe connecting the tank with the well, a wheel provided with blades or buckets and arranged to receive the liquid thrown from the injector, and a boring device actuated by said wheel.

2. The herein-described apparatus for sinking wells, consisting of a generator or reservoir, an injector, B, communicating therewith, a nozzle, B′, tank D, pipes E K, connecting the tank with the injector and nozzle, wheel A, pipe G, connected with pipe E and extending down into the well, pipe J, connecting the well and tank, and cocks arranged in the several pipes, as explained, whereby liquid may be caused to travel through the tank and injector only, through said parts and against the wheel, and through the bored shaft or well.

3. In combination with a generator or reservoir, an injector connected therewith, a pipe extending from a well or shaft in progress of boring to the injector, a motor arranged to be operated by the liquid raised and projected by the injector, and a pipe or conductor arranged to convey the waste liquid from the motor back to the well or shaft, whereby the liquid is caused to actuate the motor and to carry off the cuttings, sand, &c., from the well or shaft.

4. In combination with a well, shaft, or other boring, a pipe arranged to deliver water thereto, a second pipe communicating with the shaft or boring and serving to conduct water and sediment therefrom, a jet nozzle or injector connected with said second pipe, and a reservoir containing fluid under pressure communicating with and supplying said nozzle or injector, whereby a continuous flow of water to and from the shaft or boring may be secured.

5. In combination with motor A, injector B, having changeable nipple *c*, and nozzle B′, having changeable nipple *a*.

350,340. HOOF-TRIMMING TOOL. Delos T. Barber, Gustavus, Ohio. Filed Feb. 16, 1886. (No model.)

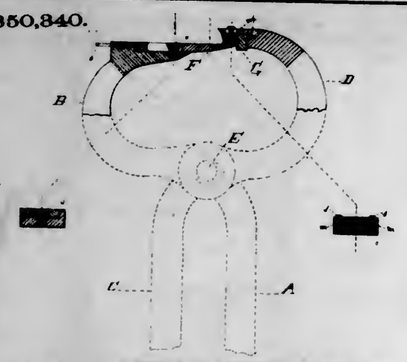
Claim.—1. In a hoof-cutting tool, the combination, with jaw B, provided with knife F, having a straight cutting-edge, of jaw D, provided with shear-blade *i*, having a concave cutting-edge, substantially as set forth.

2. In a hoof-trimming tool, the combination, with straight-cutting-edged knife F, located on jaw B, of concave and beveled shear-block A and concaved-edge shear-blade *i*, located on jaw D, the concave dimensions of said blade and said block substantially tallying with each other, substantially as set forth.

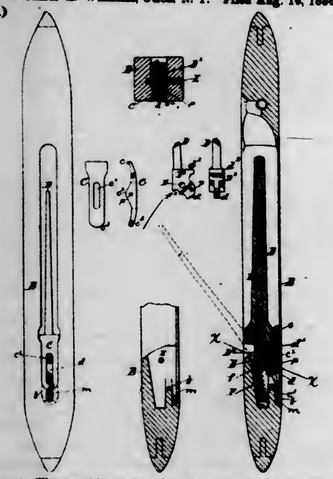
3. The combination, with jaw D, of blade *i* and screws *j*, which maintain said blade at different positions in a plane at right angles to the cutting-plane of said blade, substantially as set forth.

4. The combination, with jaw D, provided with beveled shear-block A at its extremity, of blade *i*, located rearward of said shear-block, and anvil-block G, located in rear of said blade, substantially as set forth.

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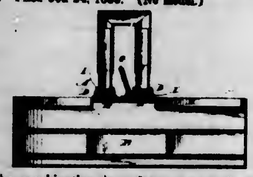
350,341. LOOM-SHUTTLE. John A. Bergan, Holden, Mass., assignor to James H. Williams, Utica, N. Y. Filed Aug. 16, 1886. (No model.)



Claim.—1. The combination of the shuttle-body provided with the grooves *b*, the spindle having the tongue *d* on its head, and the slotted catch C, pivoted to said tongue at *p*, with its tail fitted to slide in the groove *b* and confined therein by overhanging lips, substantially as shown and described.

2. The combination of the body B, having the grooves *b*, the spindle D, having the head D', fitted with the recess *f'*, rearwardly and downwardly projecting tongue *d*, and downwardly-projecting lug *d'*, the catch C, having the flange *c*, central slot *c'*, and ears *c*³, pivoted to said tongue at *p*, with its tail confined in said groove, the fulcrum-pin, and spring F, with the bearing-piece *f*, engaging the recess *f'* on the spindle-head, as shown, and hereinbefore described.

350,342. HAND AND FOOT WARMER. Henry A. Burdley, Manchester, Ohio. Filed Oct. 24, 1885. (No model.)



Claim.—The combination, in a foot-warmer, of a vessel for the reception of a warming medium, having two openings in its top, a neck secured in each opening, a tube secured in each neck, and a bail-shaped tube upon said two tubes, as shown and described.

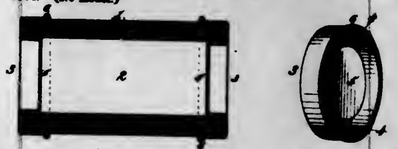
350,343. MEANS FOR PACKING SHEET-METAL ROOFING. Benjamin F. Caldwell, Wheeling, W. Va. Filed Mar. 16, 1886. (No model.)

Claim.—As a means for securing a cylindrical roll of sheet-metal roofing, the metallic strip S, having a wired edge, with the ends of the wire projecting beyond each end of the strip and adapted to be secured



or tied together, substantially in the manner and for the purpose described.

350,344. DEVICE FOR PACKING AND PROTECTING SHEET METAL. Benjamin F. Caldwell, Wheeling, W. Va. Filed Mar. 16, 1886. (No model.)

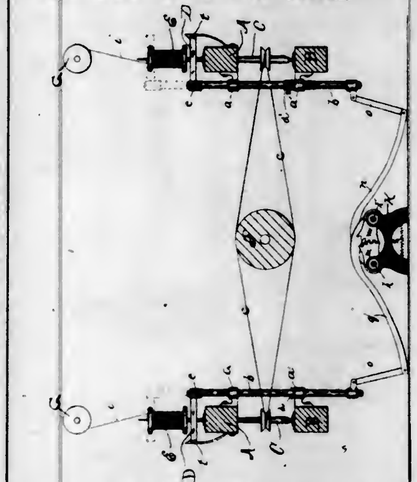


Claim.—1. As an article of manufacture, a sheet of metal rolled into a hollow expansible cylinder and having at each end a sheet-metal cap, 3, provided with the annular channel 4, in which the end of the cylinder is secured, substantially as described.

2. As an article of manufacture, a sheet or sheets of metal rolled into a hollow expansible cylinder and having at each end a cap, 3, provided with a depressed central portion, 5, fitting within the hollow part of the cylinder, and with an annular channel, 4, receiving the ends of the cylinder, substantially as described.

3. A cap for protecting the end of a hollow roll of sheet metal having the annular channel 4 to receive the end of the roll and the centrally-depressed portion 5 to enter and bear against the interior of the roll, said depressed portion having its wall parallel to the outer wall of the annular channel, whereby the two walls bear squarely upon the inner and outer surfaces of the sheet-metal roll, substantially as described.

350,345. KINK-PREVENTER FOR SILK-SPINNING MACHINERY. Joseph A. Chapman, Norwich, Conn., assignor of one-third to Thomas E. Ryan, same place. Filed June 16, 1884. (No model.)



Claim.—1. In combination with the spindle and spool of a spinning-frame, a ring of plush or other yielding material arranged to entirely surround and engage lightly the flange at the delivery end of said spool, the strand of silk passing upward between the plush and said spool, all substantially as and for the purpose specified.

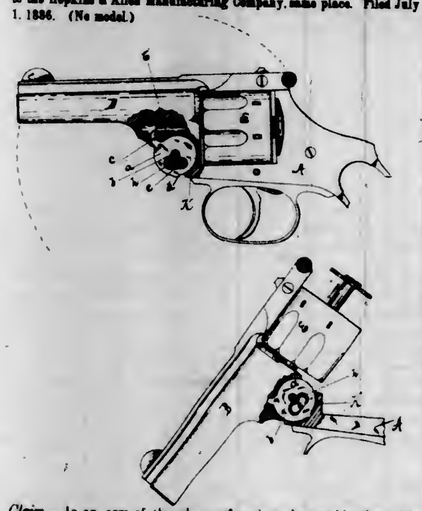
2. In combination with the spindle and spool of a spinning-frame, a ring of plush or other yielding material arranged to entirely surround and engage the flange at the delivery end of the spool, and means, substantially as described, for elevating and depressing the ring of yielding material, all substantially as set forth.

3. In combination with the spindle and spool of a spinning-frame, a ring of plush or other yielding material, the rail *s*, the rods *b*, supporting the latter, and means, substantially as described, for automatically forcing the rods upwardly, substantially as set forth.

4. The combination with the spindle and spool of a spinning-frame,

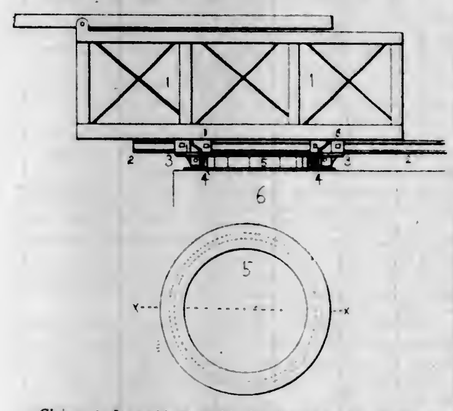
of vertically-movable rods, a rail supported at the upper ends thereof, pieces attached to the rail and having openings, rings of plush or like material in said openings, means, substantially as described, for elevating and depressing said rings, and a spring-latch, substantially as set forth.

350,346. REVOLVER. Geo. W. Cilley, Norwich, Conn., assignor to the Hopkins & Allen Manufacturing Company, same place. Filed July 1, 1886. (No model.)



Claim.—In an arm of the class referred to, in combination with the ejector-stem, a laterally-movable lifter provided with a recess, *e*, leading into the pivot-hole, as described, and a bow-spring (conforming in shape with the said recess) whose central portion engages the lifter-pivot, substantially as and for the object specified.

350,347. PILE-DRIVER. William L. Clements, Bay City, Mich. Filed Mar. 22, 1886. (No model.)



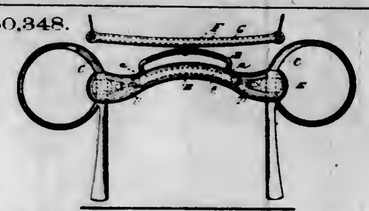
Claim.—1. In combination with the channel-bar of a pile-driver, a circle of I-beam iron, a chair bolted to the channel-bar and having depending flanges extending down on each side of the I-beam, and two rollers having beveled faces to fit the flanges of the I-beam set opposite each other on shafts journaled in the depending flanges of said chair, substantially as shown and described.

2. The combination of the channel-bar 2, chair 8, having flanges 3 3, I-beam 5, rollers 4 4, and shafts 7 7, substantially as shown and described.

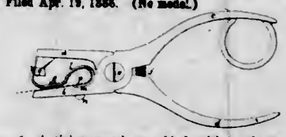
350,348. BRIDLE-BIT. Edward N. Crane, Newark, N. J., assignor to Crane & Co., same place. Filed Dec. 31, 1885. (No model.)

Claim.—The mouth-bit having a core covered with rubber and consisting of a central portion carrying a metal bar or eye and end sections composed of chains, in combination with a check-bit attached to the bar or eye, substantially as described.

350,348.



350,349. TICKET-PUNCH. Luther O. Crocker, East Braintree, Mass. Filed Apr. 19, 1886. (No model.)



Claim.—1. A ticket-punch provided with a clearer bow-shaped, substantially as represented, in its rear part, and having such part secured to one of the jaws of said punch.

2. A ticket-punch provided with a clearer bow-shaped, substantially as represented, in its rear part, and having the lower portion of such part inserted and fastened in a recess in one of the jaws of said punch, so as to cover the rear or lower end of the said clearer and bring the upper surface of the jaw flush with that of the said lower portion of the bow of the clearer, all being essentially as set forth.

350,350. CORK-EXTRACTOR. William E. Crump, Jr., Sealy, Tex. Filed July 22, 1886. (No model.)



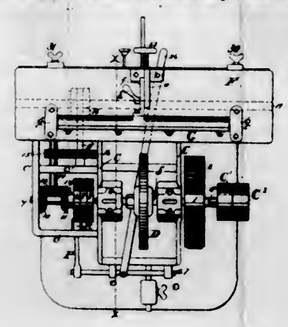
Claim.—The combination, with the side-slitted cork, of the doubled-wire extractor having loop ends engaging the slits of the cork and extending beyond the same and the securing-wire passing through said loop ends and around the shoulder of the bottle-neck, substantially as specified.

350,351. GRINDING-MACHINE. Frederik Danner, Home City, and Thomas P. Egan, Cincinnati, assignors to the Egan Company, Cincinnati, Ohio. Filed Jan. 22, 1885. (No model.)

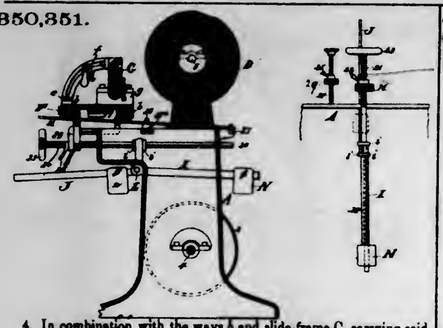
Claim.—1. The combination, in a grinding-machine, of the frame A, having gains B, the adjustable slides C, fitting in said gains, extensions *c c'*, and ways *b*, connected to said slides, reversing-gears 10, 11, and 13, supported in said extensions, and the connected driving mechanism, substantially as described.

2. The combination, with the frame A and adjustable slides C, mounted thereon, of the driving and reversing mechanism mounted upon and moved with said frame, and consisting of the gears 10 and 11, the interposed gear meshing with said gears, and the tight pulleys 6 and 8 and loose pulley 7, the former for operating the driving-gears alternately, while the latter serves as an idler, substantially as described.

3. The combination, with the extension H, of table C, having ways *b*, the shaft 20, an adjusting screw and nut connecting said shaft and extension, and weighted arms I J, substantially as described.



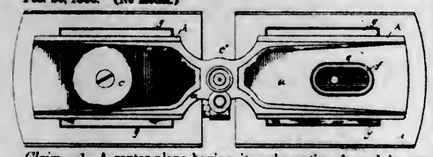
350,351.



4. In combination with the ways b and slide-frame C, carrying said ways, the adjusting-rod 20, the weighted arms I J, engaging said rod, and the set-screw 24, resting against the frame A, to limit the inward movement of the ways, substantially as specified.

5. In combination with the adjusting-shaft 20, the weighted levers I J, adapted to engage and hold the shaft 20 in its desired fixed position without lost motion, substantially as specified.

350,352. ROUTER-PLANE. John L. De Huff, Reading, Mass. Filed Feb. 20, 1886. (No model.)



Claim.—1. A router-plane having its sole portion formed in two parts, one or both of said parts being adjustable longitudinally on the stock to and from the side or sides of the planer-iron or cutting-tool, as set forth.

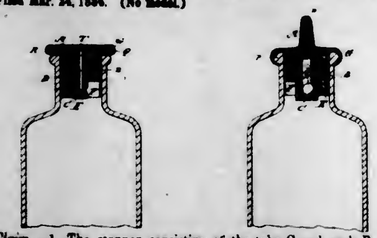
2. A router-plane provided with a planer-iron or cutting-tool adjustable vertically therein, and having its sole portion formed in two parts longitudinally adjustable on both sides of the planer-iron or cutting-tool, as set forth.

3. The router-plane having flanges h h', formed on its lower surface, and sectional sole portions a, having ribs g formed on their upper surfaces, said flanges h being adapted to move on ways on said ribs, and means for clamping or securing said sole portions to the stock at any desired position on both sides of the planer-iron or cutting-tool, as set forth.

4. A router-plane having its sole portion formed in two parts, slots formed in the stock proper, studs or rods secured to the upper surface of said sectional sole parts and projecting through said slots, means for securing the handles of the planer to said studs and at the same time adjusting the sole parts at any desired point on the stock on one or both sides of the planer-iron or cutting-tool, as set forth.

5. The combination, with the stock provided with the chamber i and lugs j, having the holes k and l formed therein, of the rod m, traveler p, provided with the split clamp portion q, having ears n, the clamping-bolt in said ears, and the cutting-iron d, as set forth.

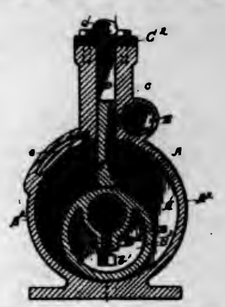
350,353. BOTTLE-STOPPER. Frederick J. Deverall, Brooklyn, assignor to the Deverall Manufacturing Company, New York, N. Y. Filed Mar. 24, 1886. (No model.)



Claim.—1. The stopper consisting of the tube C and cork B, the latter having a recess, F, in its bottom, and the former the outlet-passage D, aperture E on its side, stop G, and an air-vent communicating with the outlet-passage, substantially as and for the purposes set forth.

2. The stopper consisting of the tube C and cork B, the latter having a recess, F, in its bottom, and the former the outlet-passage D, aperture E on its side, and stop G, the outer edges of which are turned under the outwardly-projecting shoulder around the mouth of the receptacle, substantially as shown and described.

350,354. ROTARY ENGINE. Henry B. Dierdorff, Columbus, Ohio, assignor to Joseph A. Jeffrey, same place. Filed Dec. 14, 1885. (No model.)



Claim.—1. In a rotary engine, the combination of the cylinder, a rotary piston therein, a sliding abutment or valve, a chamber wherein steam is introduced to cushion the abutment or valve, and means, substantially as described, for admitting steam to and retaining it in said chamber, whereby the abutment or valve is permitted to vary the steam-pressure in said chamber, substantially as set forth.

2. In a rotary engine, the combination of the cylinder, the piston therein, the valve-holder, the valve or abutment fitting steam-tight therein, and a duct or passage separate from the inlet-passage and communicating with the live steam, and also with the chamber in the valve-holder above the abutment or valve, substantially as set forth.

3. In a rotary engine, the combination of the cylinder, the piston therein, a sliding abutment or valve, a chamber wherein steam is introduced to cushion the abutment or valve, and a reduced port or steam-passage connecting said chamber with the live steam, whereby steam is admitted to said chamber for cushioning the abutment or valve, said chamber being tight at points other than that of said port, substantially as set forth.

4. The herein-described sliding valve, recessed upon the steam-receiving side, and having the webs or flanges c' and c^2, substantially as and for the purposes set forth.

5. The combination of the cylinder, the piston therein, the valve-holder, and the valve C, recessed upon the steam-receiving face and formed with the flanges c', and the top flange or wall, c^2, fitted tightly to the chamber of the valve-holder and provided with an aperture, c^3, substantially as set forth.

6. The combination of the cylinder, the piston, the sliding valve, the valve-holder open at the upper end, the closing-cap C^2, provided with an aperture, and the screw d, substantially as set forth.

7. In a rotary engine, the herein-described valve provided with an aperture, c', to admit steam to the upper part of the valve holder or chest to cushion said valve, substantially as set forth.

8. In a rotary engine, the combination, with the valve holder or chest having the steam-pipe E communicating with one side, of the valve C, recessed and provided with one or more holes to admit steam to the valve holder or chest above the valve to cushion the valve, substantially as set forth.

9. In a rotary engine, the combination, with the cylinder and the piston-shaft, of a piston adjustable around the shaft and relative to the wall of the cylinder, substantially as set forth.

10. The combination of the cylinder, the sliding valve, the piston provided with an aperture, and the rotating shaft to which the piston is fastened and with which it rotates, passing through said aperture and having its axis of rotation eccentric to the aperture in the piston, substantially as set forth.

11. The combination of the cylinder, the valve, and the rotating shaft provided with an eccentric enlargement, to which the piston is rigidly fastened, substantially as set forth.

12. The combination of the cylinder, the valve, the piston-shaft rotating in the cylinder, the eccentrically-arranged piston rotating with the shaft, and means, substantially as described, for adjusting the point of contact of the piston with the cylinder nearer to or farther from the axis of rotation of the shaft, whereby the degree of eccentricity of the piston may be varied, substantially as set forth.

13. The combination of the cylinder, the sliding valve, the piston-shaft provided with an eccentric enlargement, the piston provided with an eccentrically-arranged aperture, in which is arranged the eccentric enlargement upon the shaft to which the piston is secured, and means, substantially as described, for adjusting the piston upon the eccentric portion of the shaft, substantially as set forth.

14. In a rotary engine, the herein-described casting having the rear wall, A', the peripheral wall A^3 of the cylinder, the steam-receptacle E, and the four vertical walls of the valve-holder, all formed integrally, substantially as set forth.

15. In a rotary engine, the herein-described casting, consisting of the rear wall, A', the inwardly-opening box a for the end of a shaft, and the peripheral wall A^3, all formed integrally, substantially as set forth.

350,355. INSULATING-COUPLING FOR COMBINED ELECTRIC-LIGHT AND GAS FIXTURES. Charles S. Forsyth, Philadelphia, Pa. Filed July 8, 1886. (No model.)

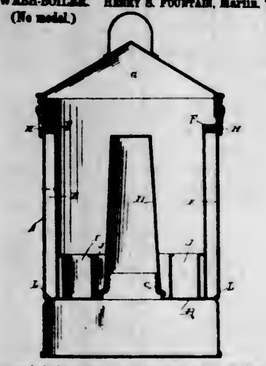


Claim.—1. The combination, with the nut A, having a flaring recess, A', of the insulating-box C, having inclined sides, and the member D, having head d^2, with similarly-inclined sides, substantially as shown and described.

2. The combination of nut A, having central recess, A', insulating-box C, having the form of a truncated pyramid, member D, having head d^2, which fits in said box, and cap B, substantially as shown and described.

3. An insulating-coupling for combined gas and electric-light fixtures, comprising a nut, A, a cap, B, a member, D, which fits in said nut, and a box, C, of insulating material, having inclined sides fitted in said nut and receiving the head of the member D, substantially as shown and described.

350,356. WASH-BOILER. Henry S. Fountain, Marlin, Tex. Filed May 17, 1886. (No model.)



Claim.—In a wash-boiler, the combination of a boiler having a partition at its lower end slightly above the bottom formed with a screw-threaded neck at its center, a perforated tube fitting with its lower end upon the neck and having its upper end closed, and a number of perforated triangular tubes upon the side of the boiler provided with stoppers at their upper ends and extending from the partition in the lower end of the boiler, and a rack consisting of rings connected at their upper edges by cross-pieces, as and for the purpose shown and set forth.

350,357. WIRE-NAIL MACHINE. Thaddeus Fowler, Shelton, assignor of one-half to Thomas B. De Forest, Birmingham, Conn. Filed June 5, 1886. (No model.)

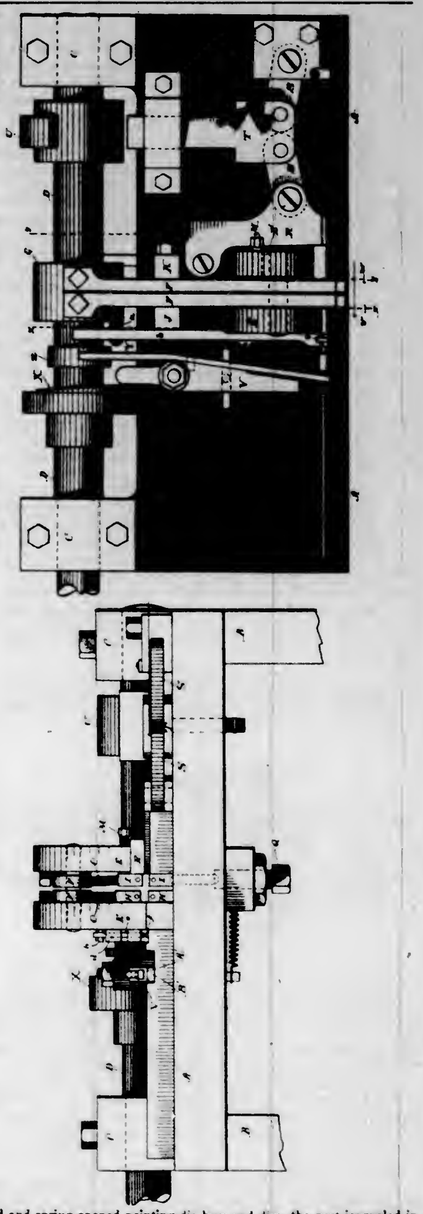
Claim.—1. The combination, in a machine of the character described, with a driving-shaft and cam thereon, of a pair of grasping-die bars and dies mounted upon the bed-plate, and a lever engaging with the main cam and operating to close said dies, a pair of pointing-die bars and dies alongside the grasping-dies and similarly operated, and means, as described, whereby the pointing-dies may be given a lateral movement against the grasping-dies, substantially as set forth.

2. The combination, with the main shaft and the cam G, secured thereon, of the levers pivoted between standards mounted upon the bed-plate and actuated as to their rear ends by said cam, the grasping-die bars and dies arranged beneath one of the levers and opening in a vertical direction only, the pointing-die bars and dies arranged beneath the other lever and both opening vertically and adapted to swing laterally, the links through which power is transmitted from the levers to the die-bars, and means—as, for instance, a toggle-joint, follower, and cam—for imparting to the pointing-die bars their lateral movement, substantially as set forth.

3. The combination, with the bed of the machine, of the pivoted and spring-opened grasping-die bars and dies arranged thereon, the pivoted and spring-opened pointing-die bars and dies, the post journaled in the bed-plate, to which the pointing-dies are pivoted, and the spring-actuated bar, whereby the dies and posts are normally controlled as to their position, the cam-actuated pivoted levers, the links interposed between the latter and the die-bars, the supporting-link arranged within the bed-plate and the block, toggle-levers, follower, and cam, whereby the dies are closed longitudinally of the wire, substantially as set forth.

4. The combination, with the main shaft, of the feeding mechanism composed of the following elements: the face-cam on the main shaft, the pivoted and tranversely-oscillating lever operated by said cam and spring-actuated against the same, the grasping-lever fulcrumed to the side of last-named lever and carried thereby, and the cam on the main shaft, whereby the grasping-lever is caused to act, substantially as specified.

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5. The combination, with the bed-plate, of the grasping-die bars pivoted at their rear ends and adapted to open vertically, the pointing-die bars, also pivoted at their rear ends, the post journaled in the bed-plate, to which the bars last-named are secured, the spring-actuated bar attached to and operating the post, means, as described, whereby both pairs of dies may be closed vertically, and additional means whereby the pointing-die bars may be closed against the grasping-die bars, substantially as specified.

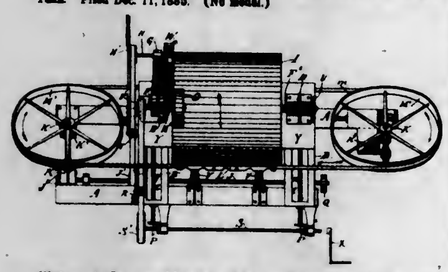
6. The combination, in a wire-nail machine, of a pair of standards mounted upon the bed, a pair of pivoted grasping-die bars and dies, and a pair of pointing-die bars and dies arranged between the standards, levers fulcrumed to the standards and adapted to close the die-bars vertically together, a cam whereby the levers are caused to operate, and means, as described, whereby the two pairs of dies may be closed laterally together for the swaging of the nail-head, substantially as specified.

7. The combination of the pair of grasping-die bars arranged upon the bed-plate and adapted to open vertically, the pair of pointing-die bars arranged beside the grasping-die bars, the spring-actuated post journaled in the bed-plate, and to which the pointing-die bars are secured, the standards, and the levers pivoted to said standards, whereby both pairs of dies are closed, and the toggle-joint, follower, and cam on the main shaft, whereby the pointing-die bars are swung upon their post against the grasping-die bars, substantially as set forth.

8. The combination, with the grasping and pointing dies and the means whereby they are actuated, of the vertically-reciprocating trimmer, the block against which it acts, the pivoted lever whereby it is carried, and the roller on the main cam, whereby the movement is imparted to the lever, substantially as set forth.

9. The combination, with the bed-plate, of the standards mounted thereon, the grasping and pointing die bars and their levers arranged between the standards, and the cam on the main shaft engaging the levers, the means whereby lateral movement is communicated to the pointing-die bars, the laterally-reciprocating and cam-actuated feed-lever, and the grasping-lever fulcrumed at the side thereof, the trimmer arranged in ways at the side of one of the standards, the lever whereby it is reciprocated, and the block against which said trimmer cuts, and the cam and roller on the main shaft, whereby the feeding and trimming devices are operated, all arranged as described, and for the purpose set forth.

350,358. MACHINE FOR MAKING EXCELSIOR AND MATERIAL FOR WOOD PULP FOR PAPER-MAKING. John E. Goodwin, Memphis, Tenn. Filed Dec. 11, 1885. (No model.)



Claim.—1. In a machine for making excelsior or material for wood pulp and kindred products from wood fiber, the combination of a saw which has its line of motion at right angles to the line of motion of a lathe designed to bold the wood, and the mechanism for operating the saw and lathe, substantially as and for the purposes set forth.

2. In a machine for making excelsior material for wood pulp and kindred products from the fiber of wood, the combination of a frame, guideways therefor running transversely of said frame, of a lathe and a bed-plate therefor on a screw actuating said bed-plate, and a saw adapted to run at right angles to the line of motion of the lathe, substantially as described and set forth.

3. In a machine for making excelsior material for wood pulp and kindred products from the fiber of wood, the combination of a frame, such as described, a band-saw or its equivalent, a lathe, substantially as described, designed to have its line of motion at right angles with the line of motion of the saw, and the mechanism for operating the same, substantially as set forth, and in the manner described.

4. The combination of a frame, as described, upright brackets D, guideways C, saw in pulleys M', lathe, as described, with its mechanism for revolving the same, in combination with the saw, for the purposes and in the manner set forth, and the friction-pulley O with its intermediate gear-wheels, H², yoke W, and arm G.

5. In a machine for producing excelsior and paper-making pulp from the fiber of wood, the combination of a frame, a lathe, substantially as described, a band-saw, and mechanism, substantially as described, for operating the same in connection with the lathe, as set forth.

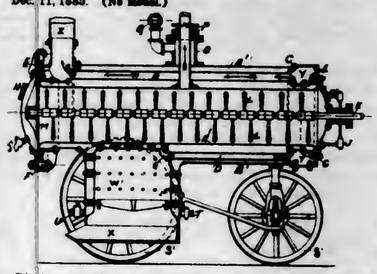
350,359. ATTACHMENT FOR CIGAR-HOLDERS AND PIPE-STEMS. Wilhelm B. Haas, Paris, France. Filed June 10, 1886. (No model.) Patented in France Dec. 26, 1885, No. 173,163, and in England Mar. 12, 1886, No. 569.



Claim.—1. An attachment for cigar-holders and pipe-stems, consisting of the annulus or ring, having attached front and rear feet, substantially as and for the purpose described.

2. A cigar-holder provided with a ring, *a*, adapted to slip over the holder, and having attached front and rear feet, *b b'*, for holding the mouth-piece and the lighted end of a cigar from contact with a table or other surface on which the holder may be placed, substantially as described.

350,360. VACUUM-PAN. Charles Harriman, Yonkers, N. Y. Filed Dec. 11, 1885. (No model.)

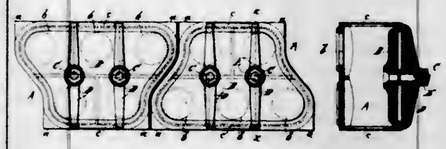


Claim.—1. In a vacuum-pan, the horizontal tubes placed in the water-jacket or boiler B, substantially as and for the purposes specified and set forth.

2. In a vacuum-pan, the combination of the horizontal water-jacket or boiler B, with tubes or flues D, man-hole O, cover and gland P, with furnace W, and fire-box W', substantially as and for the purpose described and set forth.

3. In a vacuum-pan, with water-jacket or boiler, the combination of the cast-iron ends E, the hinged cover F, and stationary cover G, for closing the vacuum-chamber, substantially as described, for the purpose set forth.

350,361. HEADER FOR STEAM-BOILERS. James Hartley, Brooklyn, N. Y., assignor to the Pioneer Iron Works, same place. Filed Apr. 2, 1886. (No model.)



Claim.—The herein-described header for sectional boilers, the same consisting of a box wider on one edge than the other, having a single front opening, through which the ends of all the tubes may be reached, and provided with a single plate or cover seated upon the interior of the front of the box, said cover arranged to be inserted through the front of the box and provided with a suitable yoke or yokes bearing upon the exterior of the box and a bolt or bolts, substantially as shown and explained.

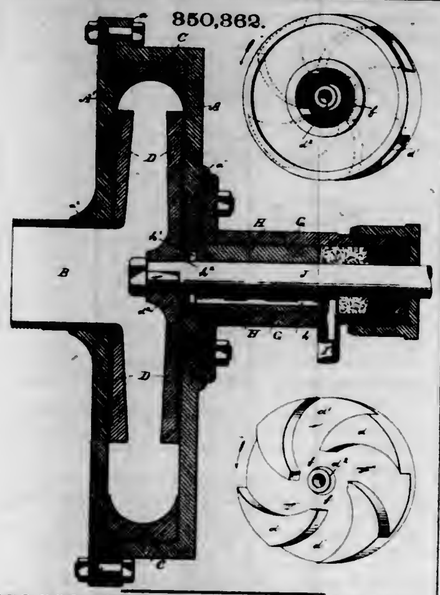
350,362. CENTRIFUGAL PUMP. Eli J. Hawley, Manchester, Vt. Filed Apr. 17, 1886. (No model.)

Claim.—1. In a centrifugal pump, the combination, with the casing, of a removable annular metallic concave-faced lining surrounding the space in which the piston works, for the purpose set forth.

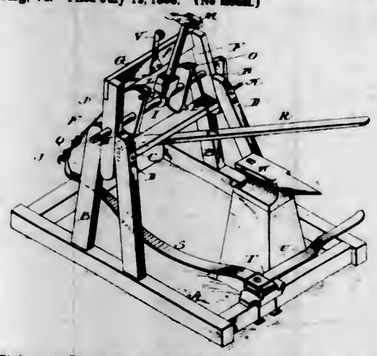
2. In a centrifugal pump, the combination, with the casing, of a removable annular lining surrounding the space in which the piston works, the inner face of the lining being concave, the concavity gradually deepening toward the outlet, as set forth.

3. The combination, with the casing and a removable annular lining concave on its inner face and surrounding the space in which the piston works, of a piston having solid arms and water-ways between the arms, the outer ends of the arms being farther apart than the inner ends, and the water-ways having a less depth at their outer ends than at their inner ends, substantially as described, and for the purpose stated.

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350,363. FOOT-POWER HAMMER. Reuben Headen, Christiansburg, Va. Filed July 19, 1886. (No model.)

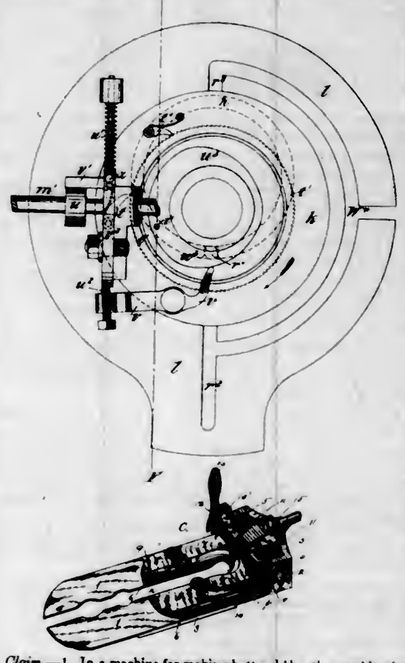


Claim.—1. In a foot-power hammer, the combination of an upright frame having transverse bearings in its side pieces, a rock-shaft journaled in the bearings and provided with semicircular grooved disks and with a socket for the reception of the hammer, a foot-lever or treadle pivoted with one end upon the rear end piece of the base-frame, and having a cord or chain secured to its middle and passed over one semicircular disk secured to one end of it, a flat slightly-curved spring secured to the forward end piece of the base-frame, and having a cord or rope attached to its free end and passed over the other semicircular disk secured at the end of the same, and a flat slightly-curved spring secured at a right angle to the other spring and its free end extending under the free end of the foot-lever, as and for the purpose shown and set forth.

2. In a foot-power hammer, the combination of a rectangular base-frame having two pairs of slightly-converging uprights secured to its side pieces, a frame having its converging side pieces secured adjustably by series of perforations between the ends of the uprights upon detachable bolts, and having transverse bearings in the said side pieces, a rock-shaft journaled in the bearings and having a socket at its middle and two semicircular grooved disks secured at both sides of the socket, and provided with a removable crank, a hammer fitting with its handle in the socket, a flat upright spring secured to the middle of the top piece of the adjustable frame, and having a concave curved upper portion for the handle of the hammer, a foot-lever or treadle pivoted at one end upon the rear end piece of the base-frame, and having a cord or chain secured to its middle and passing over one of the semicircular disks secured to one end of the same, a flat slightly-curved spring secured at one end to the forward end piece of the base-frame, and having a cord or chain secured to its free end and passing over the other semicircular disk and secured to its end, and a flat slightly-curved spring secured at a right angle to the rigid end of the other spring, and having its free end extending under the free end of the treadle, as and for the purpose shown and set forth.

350,364. MACHINE FOR MAKING BUTTON-HOLES. Arthur Helwig, London, County of Middlesex, England, assignor to Julius Hoffnagel, same place. Filed Dec. 1, 1883. (Model.) Patented in England Dec. 15, 1881, No. 5,493; in France July 16, 1883, No. 156,566, and in Belgium July 17, 1883, No. 62,045.

Brief.—The clip or holder that carries the material is worked by means of a cam or eccentric whose axis is in the line of the sewing-needle, a central stud or pivot allowing the needle to pass through, and about which stud the clip turns. A die or cutter may be operated by a screw supported on a bracket or frame. A pawl actuates the eccentric. Its stroke may be varied.

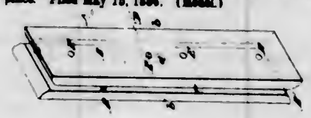


Claim.—1. In a machine for making button-holes, the combination, with sewing mechanism for sewing the edges of a button-hole and a traveling clip or holder, of the die or cutter *a*, operating-screw *d*, cutter-block *b*, arm *f*, with flanged rod or pin f^3, and catch *g*, all as described and shown.

2. In a machine for making button-holes, the combination, with the clip or holder *c*, that holds and carries the material to be operated upon, of an eccentric-strap, *h*, a spring-catch, i v^2, and a rotating eccentric, *k*, with holes or recesses into which said spring-catch is capable of being pressed, so as to cause said clip or holder *c* to be accurately moved while forming the larger or pear-shaped end of the button-hole, substantially as described.

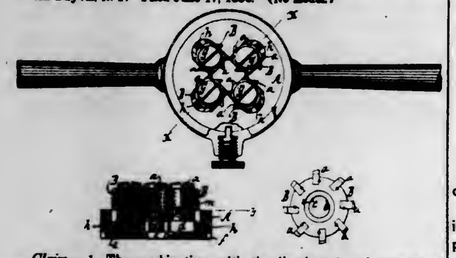
3. In a machine for making button-holes, the combination, with a clip or holder for carrying the material to be operated upon, of mechanism for governing the movements of the clip, consisting of an eccentric, as *k*, provided with a toothed wheel, as *l'*, an eccentric-strap, as *h*, with which a stud on the clip engages, a cam, as u^2, a bent lever, as *v*, a slide, as v^2, carrying a pawl for engagement with the toothed wheel, and mechanism, substantially as described, for actuating the slide.

350,365. INSULATING-CLAMP FOR ELECTRIC WIRES. John W. Holdsworth, St. Louis, Mo., assignor of one-half to Robert Dodsworth, same place. Filed May 15, 1886. (Model.)



Claim.—The insulating-clamp for wires, constructed, as herein described, of two jaws or members, B B, nearly separated by a kerf, C, and connected only by a contracted post or bond, D, leaving three or more corners disconnected and free, so as to afford independent flexibility to the various parts of the clamp and adapt it to hold or release the various wires separately, as explained.

350,366. DIE FOR CUTTING SCREWS. George Holstein, Spuyten Duyvil, N. Y. Filed June 17, 1886. (No model.)



Claim.—1. The combination, with the die-plate A and a series of radially-adjustable slides, *s*, of the tubular hubs B, each having a series of available cutting-edges, and the screws *g*, passing through the hubs and tapped into the adjustable slides, substantially as described.

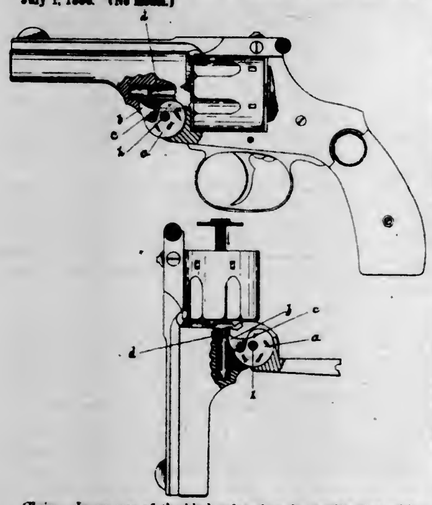
2. The combination, with a hub for cutting screw-threads on bolts, said hub being provided with two or more available cutting-edges, of the ratchet-teeth *i*, formed on said hub, the ratchet-teeth *j*, and a die-plate, A, carrying the ratchet-teeth *j*, substantially as described.

3. The combination, with a hub for cutting screw-threads on bolts, said hub being provided with two or more available cutting-edges, of the bushing *b*, ratchet-teeth *i*, formed on said bushing, the ratchet-teeth, *j*, and a die-plate, A, carrying the ratchet-teeth *j*, substantially as described

4. The combination, with a die-plate, A, of three or more hubs, B, each of which is provided with two or more available cutting-edges, and means, substantially as described, for radially adjusting all the hubs on said die-plate, substantially as described.

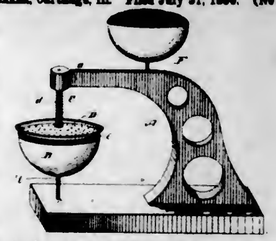
5. The combination, with a die-plate, A, of two or more cutting-hubs, B, each of which is provided with two or more available cutting-edges, of the bushing *b*, ratchet-teeth *i*, formed on said bushing, the guide-block *d*, ratchet-teeth *j*, formed in said guide-block and adapted to engage the teeth *i* of the slide *s*, removable connections between said slide, the cutting-hub, the bushing, and the guide-block, and the adjusting-screw A, substantially as described.

350,367. REVOLVER. Chas. W. Hopkins, Norwich, Conn. Filed July 1, 1886. (No model.)



Claim.—In an arm of the kind referred to, in combination with a frame having a rigid hinge-leaf with a spring-pressed pawl pivoted therein, substantially as described, a barrel formed with companion leaves adapted to engage said frame-section, and a longitudinally-movable ejector-rod located within the barrel and adapted to engage the said pawl in the act of breaking down the barrel, as described, and for the object specified.

350,368. SPONGE-HOLDER AND ENVELOPE-MOISTENER. Geo T. Hubbaker, Carthage, Ill. Filed July 31, 1886. (No model.)



Claim.—1. A sponge-cup supported on a vertical axis on which it can revolve, substantially as and for the purpose set forth.

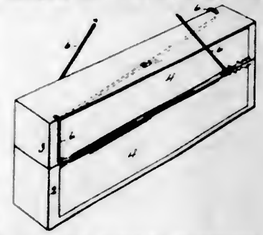
2. The combination, with a revolving sponge-cup, of a plate bearing against the surface of the sponge, substantially as and for the purpose set forth.

3. The combination, with a revolving sponge-cup, of a revolving plate bearing against the surface of the sponge, the axes of the plate and sponge-cup being in line with each other, substantially as and for the purpose set forth.

4. The combination, with a sponge-cup revolving on a vertical axis, of a spring-pressed plate resting on the sponge, and also revolving on a vertical axis, substantially as and for the purpose set forth.

5. The combination, with the revolving sponge-cup, of the perforated concave plate, substantially as and for the purpose set forth.

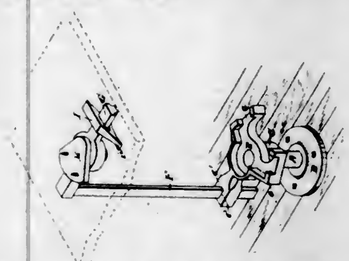
350,369. DEVICE FOR DETACHING BOX-COVERS. James C. Ingersoll, Springfield, Mass. Filed May 24, 1886. (No model.)



Claim.—1. As means for severing the connecting-strip which temporarily secures the cover of a box to the latter, and for lifting the cover from the box, a cord attached to said cover and having a direct connection with the latter, near each end thereof, forming a loop between the ends of the cover, portions of which loop are cemented under said connecting-strip on each side of the box, the central portion thereof passing diagonally over said cover, substantially as set forth.

2. As means for severing the connecting-strip which temporarily secures the cover of a box to the latter, and for lifting the cover from the box, a cord attached to said cover and having a direct connection with the latter, near each end and near the opposite edges thereof, forming a loop between the ends of the cover, portions of which loop are cemented under said connecting-strip on each side of the box, the central portion thereof passing diagonally over said cover, substantially as set forth.

350,370. BARREL-SWING. William E. Kinsey, Bluffton, Ind. Filed June 30, 1886. (No model.)



Claim.—1. In combination with the spindle A, the barrel-rest E, pivoted thereon, the collar C, for adjusting the rest vertically, the plate H, having stud or pivot *h*, the arm G, pivoted on the stud, and the bar F, connecting the arm G and barrel-rest on one side of their pivot-points, as set forth.

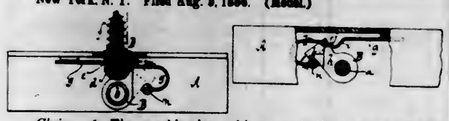
2. In combination with the pivoted barrel-rest E, the pivoted arm G, located above the barrel-rest, and the dog or detent I, sliding on the arm G and adapted to be held at various points of said arm, as set forth.

3. In combination with the pivoted barrel-rest E, the pivoted arm G above the barrel-rest and carrying the dog or detent, and the arm F, connecting the arm G and barrel-rest on one side of the pivot-points thereof, as set forth.

4. The combination of the pivoted barrel-rest, having the opening e^3, and the pivoted arm G above the barrel-rest, having the depending bar F, entering the opening e^3, the barrel-rest being vertically adjustable, substantially as described.

5. The combination, in a barrel-swing, of the pivoted arm G, having the ratchet-teeth *g*, and the sliding dog I, engaging with the said teeth, for the purpose set forth, substantially as described.

350,371. LOCK FOR BOXES, TRUNKS, &c. Sebastian Landgraf, New York, N. Y. Filed Aug. 5, 1886. (Model.)



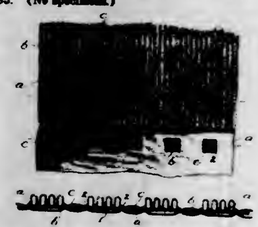
Claim.—1. The combination, with a catch, D, of the oscillating tumbler B, provided with the hook *c*, to engage the catch within the lock-case, and having a side shoulder, *h*, and a spring, *g*, having a bend to engage said shoulder, substantially as and for the purpose described.

2. The combination, with the catch D, of the oscillating tumbler B, the hook *c*, projecting from said tumbler and adapted to engage said catch, the shoulder *h*, formed on said tumbler, and the spring *g*, having a bend formed by the branches *i j*, adapted to engage said shoulder, substantially as described.

3. The combination, with the catch D, of the oscillating tumbler B, the hook *c*, projecting from said tumbler and adapted to engage with the catch, the shoulder *h*, formed on the tumbler, and having inclined sides *k* and *l*, and the spring *g*, having a bend adapted to engage said inclined sides of the shoulder *h*, substantially as described.

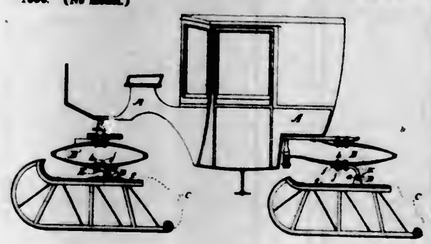
4. The combination, with the catch D, of the oscillating tumbler B, the hook *c*, projecting from said tumbler and constructed to abut against the lock-plate when in the locking position, the shoulder *h*, formed on the tumbler, and having inclined sides *k* and *l*, the spring *g*, having a bend constructed to engage said inclined sides of the shoulder *h*, and the spring-supporting stud *s*, forming a stop for the tumbler, substantially as described.

350,372. TERRY-CLOTH. Frank Leake, Philadelphia, Pa. Filed May 20, 1885. (No specimens.)



Claim.—A terry fabric having a series of spaces in its surface, and a series of threads, *b*, carried underneath the body of the fabric, as at 1, and up over the surface of the body, as at 2, at the point where the described spaces occur in the terry-surface, thereby forming a stitched spot, as at *c*, substantially as described.

350,373. SLEIGH. Joseph Le Compte, Troy, N. Y. Filed Apr. 16, 1886. (No model.)



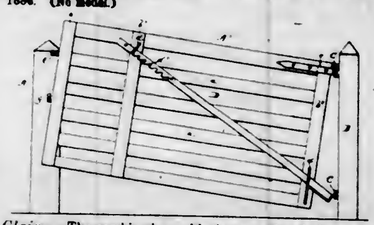
Claim.—1. In a sleigh, the body provided with leaf or elliptic supporting-springs, in combination with a bob provided with shackles, each of which shackles is composed of a part, D, firmly and rigidly secured to the bob, and a part, E, hinged at *a* to part D, and provided with a longitudinally-projecting arm or arms to which a longitudinally-arranged body-supporting spring is firmly secured by means of clips, substantially as shown and described.

2. In a sleigh, the body provided with leaf or elliptic supporting-springs, in combination with a bob provided with shackles composed of parts D, firmly and rigidly secured to the raves of the bob, and the parts E, hinged at *a* to part D, and provided with forwardly-projecting arms *f*, connected by means of bar *g*, having thereupon secured by means of clips a body-supporting spring or springs of a vehicle, substantially as shown and described.

3. In a sleigh, the body A, provided with leaf or elliptic supporting-springs B and B′ or B″, in combination with front and rear bobs, C, each of which bobs is provided with shackles composed of parts D, firmly and rigidly secured to the raves of the bob, and the parts E, forming hinged joints *a* with parts D, and having forwardly-projecting arms *f*, the arms *f* of shackles on rear bob having springs B secured thereupon, and the arms *f* of shackles on forward bob being connected by bar *g*, having secured thereupon the spring B′ or B″, by means of clips *b*, substantially as shown and set forth.

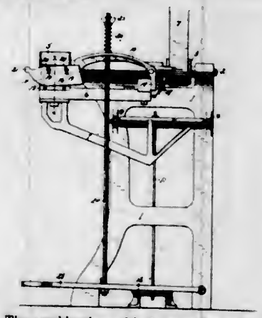
4. A sleigh-bob provided with shackles, each of which shackles is composed of a part, D, firmly and rigidly secured to the bob, and a part, E, hinged at *a* to part D, and provided with the forwardly-projecting arm *f*, shaped and adapted to have secured thereupon a longitudinally-arranged leaf or elliptic body-supporting spring of a vehicle, or the end portion of a spring-sustaining connecting-bar *g* of a vehicle, substantially as shown and described.

350,374. GATE. John E. Little, Princeton, Ind. Filed June 21, 1886. (No model.)



Claim.—The combination, with the post B and the pintles C, of the oblique beam extending through the loops *d*, and having a series of oblique notches adapted to engage the upper loop, the gate and beam being provided with hinged sections looped around the pintles, respectively, substantially as specified.

350,375. HAT-POUNCING MACHINE. D. Gaylord Murphy, Fishkill-on-the-Hudson, N. Y., and Frank J. Murphy, Danbury, Conn. Filed Apr. 14, 1886. (No model.)



Claim.—1. The combination, with the pouncing-roller and rest, and the arm, rock-shaft, rod 11, and treadle 12, by which it is controlled, of a pivoted lever, 15, guide 16, treadle 23, and rod 24, as described, and for the purpose set forth.

2. In a hat-pouncing machine, the combination, with the rest and mechanism for controlling it, as treadle 12, the rock-shaft, &c., of treadle 23, extending across treadle 12 and resting thereon, whereby the rest may be controlled while the operator sits at the end of the machine.

3. In a hat-pouncing machine, the rest having standard 14 and lever 15 pivoted therein, in combination with guide 16, adjustably secured to said lever.

4. The rest having standard 14 and lever 15 pivoted in said standard, and having arm 18, in combination with a guide having slots 19

and extensions 22 and bolts 20, by which it is secured to the lever at any desired angle.

5. The pivoted lever and the adjustable guide secured thereto, in combination with treadle 23, rod 24, passing through the lever, spring 26, bearing thereon, and a thumb-screw for regulating the pressure of the spring upon the lever.

6. The pivoted lever, the adjustable guide secured thereto, and the rest, in combination with treadle 12 and connections, and treadle 23, whose rod 24 engages the pivoted lever, whereby the rest may be raised and the guide lowered by pressing on treadle 23.

7. Treadles 12 and 23 and connections, in combination with the rest, pivoted lever, adjustable guide, and springs 17 and 26, combined as described, and for the purpose set forth.

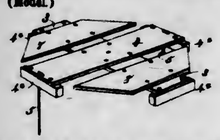
350,376. BASKET-COVER. Joshua H. Marvil, Laurel, Del. Filed Aug. 19, 1886. (No model.)



Claim.—1. A cover for fruit-baskets, comprising an octagonal border-frame, one or more slats extending across said border-frame, and blocks running parallel with four alternate sides of said border-frame and secured to the under side thereof, substantially as described.

2. A cover for fruit-baskets, consisting of two pairs of parallel slats having mitered ends and secured together to form an octagonal frame, one or more cross-slats, the corner-blocks, and fastening-wires extending from two diametrically-opposite corner-blocks, substantially as described.

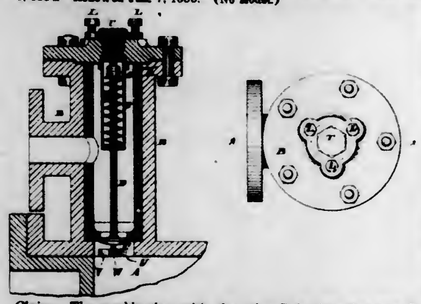
350,377. BASKET-COVER. Joshua H. Marvil, Laurel, Del. Filed Aug. 19, 1886. (Model.)



Claim.—1. A cover for fruit-baskets, consisting of the lower and upper slats, 3 and 4, crossing each other and centrally joined together, a block, 4°, attached to each end of said slats, and the short slats 7 and 8, having oblique ends and secured between their ends to the lower slat, substantially as described.

2. A cover for fruit-baskets, consisting of the crossed centrally-secured top and bottom slats having end blocks, the fastening wires or devices secured to the blocks of the upper slat, and the short slats having oblique ends secured to said lower slat, substantially as described.

350,378. GAS-PUMP. Charles G. Mayer, Nauvoo, Ill. Filed Nov. 8, 1884. Renewed Jan. 7, 1886. (No model.)

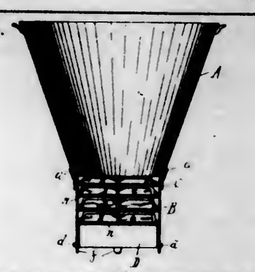


Claim.—The combination, with the valve C, having the stem D, and the housing B for said valve and stem, of the tube N, screwed into a threaded aperture through the end plate of said housing, the nut O on said stem, the spring interposed between said nut and the end of the tube, and the screw-plug T, closing the aperture through the housing, substantially as and for the purposes set forth.

350,379. MILK-STRAINER. James A. McPherson, Brunswick, N. Y. Filed Apr. 7, 1886. (No model.)

Claim.—1. The base-ring D, having spout-support *d* on the outside of its lower edge, combined with a spout, B, strainer S, and supporting-ring C, as shown and described.

2. The combination of base-ring D, provided with spout-support *d*, a spout, B, funnel A, supporting-ring C, provided with an inner



beveled surface, *b*, and a strainer, S, substantially as described, and for the purposes set forth.

3. In a milk-strainer having a funnel-shaped mouth, the metallic ring C, surrounding the spout and funnel at their line of junction, and provided with the funnel-protecting arms *a*, substantially as described, and for the purposes set forth.

350,380. HEADSTALL FOR STOCK. Francis M. Medling, Rutherford Depot, Tenn. Filed Mar. 6, 1886. (No model.)



Claim.—The headstall consisting of the head-strap *a*, throat-strap *b*, and two side straps, *f*, having a common connection on each side with the head and throat straps and the chin-strap and nose-strap *d*, having also a common connection with side straps, *f*, the face-strap *e*, connected to the two side straps *f f*, and the bar B, with spring C and points *p*, connected to the straps *e* and *d*, substantially as shown and described.

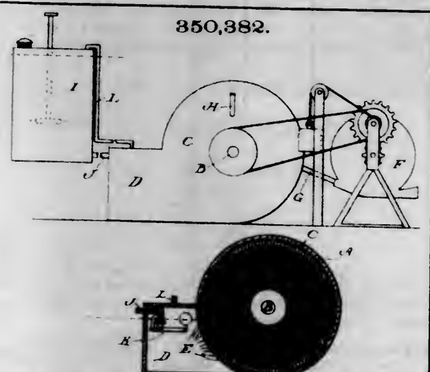
350,381. AUTOMATIC FIRE-ALARM. Adam Meisenheimer, Milwaukee, Wis. Filed May 3, 1886. (No model.)



Claim.—1. In an automatic fire-alarm, the combination of a post formed of a strip of metal bent to form a doubled lip and two diverging lips, and having the diverging lips secured to the face of the block, and having contact with one wire of a circuit, a post connected to the other wire of the circuit and having a serrated edge, a spring, the upper edge of which is cut away to form a notch, secured in one post and having a platinum facing near its outer end for coming in contact with the serrated edge of the post, and a fusible link having one eye upon the free end of the spring and one eye upon a stud, and holding the free end of the spring away from the serrated post, as and for the purpose shown and set forth.

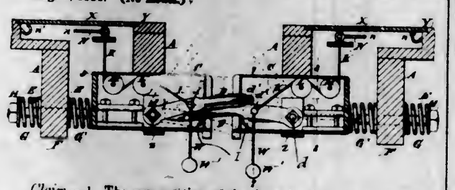
2. In an automatic fire-alarm, the combination of a block having binding posts or screws, and having two insulated wires passing from the posts or screws through the block, two posts connected with said wires, a spring secured at one end to one of said posts and having a platinum facing near its outer end, and a shoulder formed upon the upper edge near the free end, a stud projecting from the face of the block, a link consisting of a doubled eye fitting upon the stud and a flat eye upon the free end of the spring, having its shank secured between the shanks of the doubled eye with easily-fusible solder, and a perforated cover fitting upon the block, as and for the purpose shown and set forth.

350,382. CARBURETOR. James D. Merritt, Brooklyn, N. Y., assignor to Civilion Foss, Bridgeport, Conn. Filed Nov. 25, 1885. (No model.)



Claim.—In a carbureting apparatus, the combination, with the drum having reticulated sides and loosely packed with absorbent material, of a feed-box adjoining or connected with the drum-casing and separated therefrom by a perforated partition, a supply-tank located in a higher plane than that of the said box, and having outlet-pipe extending from the bottom thereof into the box, float-valve at the mouth of said pipe, and an air-vent pipe leading from the tank to the box above the liquid-level, substantially as shown and described.

350,383. CAR-COUPLING. Wencel Milkko, St. Louis, Mo. Filed Aug. 7, 1886. (No model.)



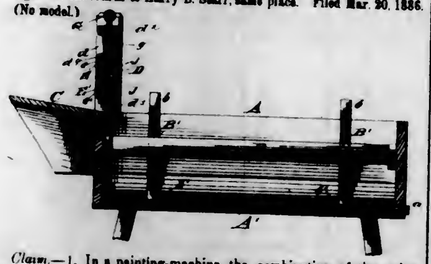
Claim.—1. The combination of the draw-head C, the draw-bar E, having a hook, I, located within the draw-head, and a link, D, hinged to the draw-bar and projecting beyond the draw-head, substantially as shown and described.

2. The combination of the draw-head C, the draw-bar E, having a hook, I, the pulleys L and M within the draw-head, a link, D, hinged to the draw-bar, and a chain, K, connected to the link within the draw-head, extending over the pulley L, under the pulley M, and provided with a device for operating the cord, substantially as described.

3. The combination of a draw-head, a draw-bar having a hook, a link hinged to the draw-bar, having studs d^2, suspension device W, having a weight, W', and a lifting-chain secured to the link, substantially as shown and described.

4. The combination of link D, chain K, arm N, shaft O, handle P, arm P', chain R, and levers S and U, substantially as set forth.

350,384. PAINTING-MACHINE. Amos K. Merritt, Alton, Ill., assignor of one-fourth to Harry B. Shaff, same place. Filed Mar. 20, 1886. (No model.)

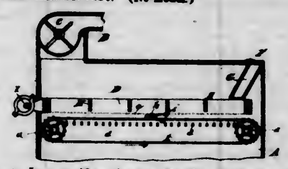


Claim.—1. In a painting-machine, the combination of the paint-trough having the semi-cylindrical bottom, the shaft rotating thereon, the toothed disks secured to the shaft, the wires passing below said disks concentric therewith, and the adjustable brushes attached to the frame of the machine.

2. In a painting-machine, the combination of the frame of the machine, the paint-receptacle capable of attachment thereto, the bar d^6, adjustable upon the frame D by means of a spring and adjusting-screw, the brush secured to said bar d^6, and the draining-board secured to the lower part of the frame D, substantially as specified.

3. The painting-machine composed of the main frame provided with the trough A', the inclined table C, the frame D, secured to the main frame at the junction of the paint-trough and inclined table, the detachable brushes E E', provided with the fenders J J, the pivoted spring-controlled side brushes, K, the shaft rotating in the paint-trough, the toothed disks thereon, the detachable paint-receptacle, and the detachable draining-board, all constructed and arranged substantially as and for the purposes specified.

350,385. MIDDLINGS-PURIFIER. Udolpho H. Odell, Dayton, Ohio. Filed Mar. 25, 1886. (No model.)

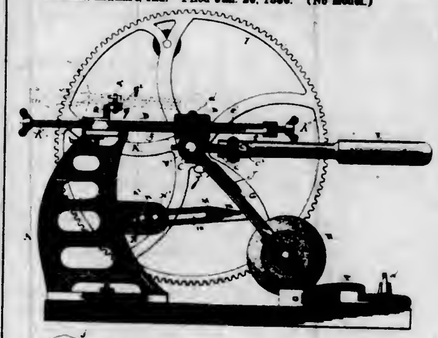


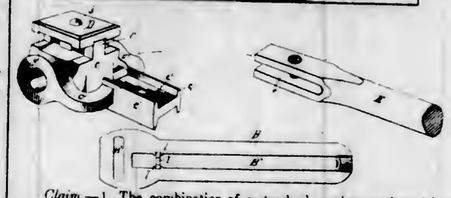
Claim.—1. In a purifier, the combination, with an agitating-riddle having a separating-cloth, of the frame *s*, having a series of stops, *d*, an endless belt provided with a cross-bar, *h*, and a series of flexible knockers attached to said bar, substantially as described.

2. In a purifier, the combination of a riddle, an endless belt provided with a cross-bar, a series of knockers connected to said cross-bar, and a series of stops, substantially as described.

3. In combination with the riddle of a purifier or separator, a series of slats, *d*, a traveling belt, and a series of rebounding knockers, *i*, arranged to travel between the riddle-cloth and the slats, whereby the knockers are made to strike intermittently against the cloth, substantially as specified.

350,386. HARVESTER-SICKLE-GRINDING MACHINE. James N. Parker, Elkhart, Ind. Filed Jan. 26, 1886. (No model.)





Claim.—1. The combination of a standard, a plate projected in a horizontal plane therefrom, a reciprocating cross-head mounted on the plate, set-screws projecting lengthwise of and in opposite directions from each end of the plate to regulate the movement of the cross-head, a grinding-roller, supporting-frame therefor carried by the cross-head, and mechanism to drive said roller, substantially as described, and for the purpose specified.

2. The combination of a standard, a plate transversely slotted at one end, and having a lateral adjustment on the standard, to which it is secured by bolts passing through the slotted end, a cross-head traversing on the plate, a grinding-roller, supporting-frame therefor carried by the cross-head, and mechanism for imparting a rotary movement to the grinding-roller, substantially as set forth.

3. The combination of the standard, a plate projected horizontally therefrom, a transverse bar secured to the plate, a cross-head invertibly secured to the plate, a grinding-roller, supporting-frame therefor pivotally supported by the cross-head, and having its free end engaging with the transverse bar and held in position thereby, substantially as shown and described.

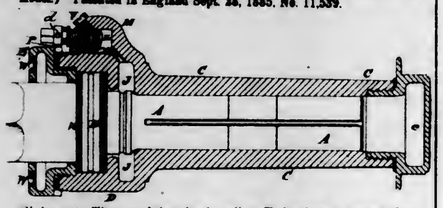
4. The combination of a plate, a cross-head, a grinding-roller, supporting-frame therefor hinged to the cross-head, and a spring secured at one end to the cross-head, and having its free end projected within the path of the frame to contact therewith and keep the roller to its work, substantially as set forth.

5. The combination of a plate, a cross-head traversing thereon, a grinding-roller, supporting-frame therefor hinged to the cross-head, and a guard located within the path of movement of the cross-head to contact with the frame and prevent its dropping when nearing the end of its stroke, substantially as and for the purpose specified.

6. The combination of the standard, a plate projected horizontally therefrom, a cross-head traversing on the plate, adjustable stops to limit the movement of the cross-head, a guard adjustably secured to the standard, a grinding-roller, and a supporting-frame therefor hinged to the cross-head and adapted to contact with the guard near the end of its backward movement, substantially as and for the purpose set forth.

7. The combination of the standard, a plate extended horizontally therefrom, a cross-head traversing on the plate, a swinging frame carrying a grinding-roller and supported by the cross-head, a slotted guard secured to the standard by a bolt passing through the slot in the guard, and a second bolt passing through the slot and a vertical slot in the standard to pivotally adjust the guard about the first bolt, as and for the purposes set forth.

350,387. BACK COLLAR FOR AXLE-BOXES. Ebenezer Partridge, Birmingham, County of Warwick, England. Filed July 19, 1886. (No model.) Patented in England Sept. 23, 1885. No. 11,539.



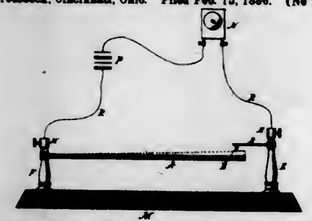
Claim.—1. The revolving back collar, E, having a grease-chamber, I, notches U, and projections T, and adapted to be attached to the back end of an axle-box, substantially as described.

2. The revolving back collar, E, having a removable section, F, said parts being provided with grease-chamber I, projections T, and notches U, substantially as and for the purpose described.

3. The combination of the axle-box C, axle-collar B, back collar, E, screw-bolt L, sliding plate P, and guide-pin Q, substantially as described.

4. The combination of an axle-box, C, having a recessed back face, an axle-collar, B, washer K, revolving back collar, E, having alternating notches and projections, and the sliding plate P, and screw-bolt L, substantially as described.

350,388. DETECTOR FOR MARSH AND OTHER HYDROCARBON GASES. Nelson W. Perry, Norwood, assignor of one-half to Herman John Groesbeck, Cincinnati, Ohio. Filed Feb. 15, 1886. (No model.)



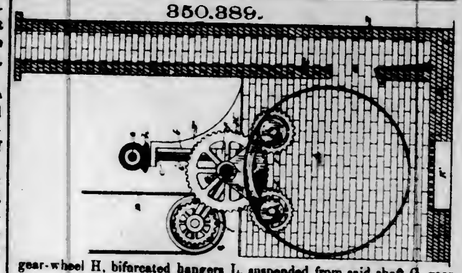
Claim.—In a detector of fire-damp and other dangerous hydrocarbon gases, the combination of an open electro-circuit, a substance that occludes said gases, so placed in relation to said circuit as to close it by reason of said occlusion or reduction, and an alarm bell or signal, substantially as described.

350,389. TIRE-HEATING FURNACE. Hosl C. Pierce, Homer, N. Y. Filed July 23, 1886. (No model.)

Claim.—1. A set of two bearing-cylinders for a vehicle-tire fixed upon small shafts, which also carry small gear-wheels connecting or meshing with a larger gear-wheel fixed upon a shaft suspended upon the walls of a tire-heating furnace, as and for the purpose set forth.

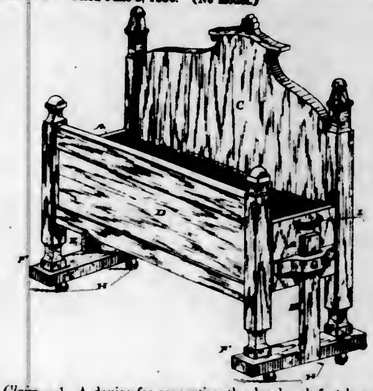
2. The combination, with a tire-heating furnace provided with upright bearing-walls, substantially as described, of upright elevating-screws *b*, secured in suitable fixed bearings and provided with gear-wheels *h*, shaft *e*, provided with gear-wheels *g* and crank *g'*, elevating-blocks *f*, shaft G, means, substantially as described, for driving said shaft,

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gear-wheel H, bifurcated hangers L, suspended from said shaft G, gear-wheels I, meshing with gear-wheel H, and bearing-cylinders *n*, all arranged as and for the purpose set forth.

350,390. FURNITURE-SUPPORT. Charles M. Plum, San Francisco, Cal. Filed June 2, 1886. (No model.)

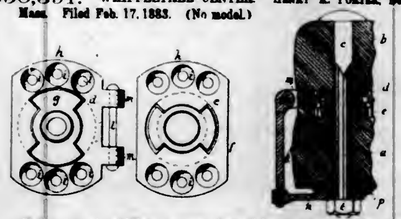


Claim.—1. A device for supporting the head and foot board of a bedstead in vertical position when not in practical use, comprising the independent plates A, having the fixed hooks B, said plate being only of a width sufficient to retain the head and foot boards out of contact with each other, substantially as herein described.

2. The furniture-support composed of the plate A, with the hooks B, the socket G, in combination with the vertical standard, over which the socket slides, and the supporting-base mounted upon casters, substantially as herein described.

3. A device for supporting the head and foot board of a bedstead in vertical position when not in practical use, consisting of a base mounted upon casters or wheels, having a standard projecting upwardly therefrom, in combination with a narrow board or plate having a socket upon one side fitted to slide upon the standard, and having hooks or projections from opposite edges engaging corresponding sockets in the head and foot board, substantially as herein described.

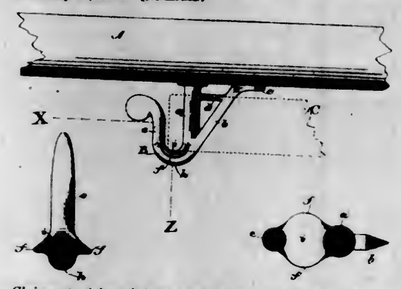
350,391. WHIFFLETREE-CENTER. Henry K. Porter, Boston, Mass. Filed Feb. 17, 1883. (No model.)



Claim.—1. A whiffletree-center formed in two parts, with a central passage, coincident in both, to receive the pivotal bolt *c*, in combination with the bail consisting of parts *k' n*, loosely connected together, and with one part pivotally connected to one half of the center and the other part formed with an eye or perforated end to receive said pivotal bolt *c*, substantially as specified.

2. An interlocking whiffletree-center having the parallel edges *f* and the ends *h*, formed parallel, or nearly so, with the wall of the interior cavity, whereby space is provided for the insertion of the securing bolts or screws at any desired point between said parallel edges, substantially as specified.

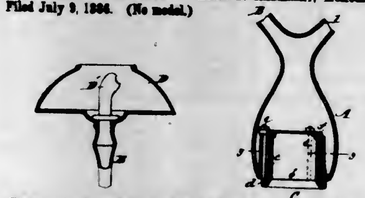
350,392. BREECHING-HOOK. Henry K. Porter, Boston, Mass. Filed May 12, 1886. (No model.)



Claim.—1. A breech-hook having the wings *f* formed thereon, substantially as described.

2. A breech-hook formed with a broadened flattened surface, *i*, at the curve *h*, to serve as a bearing for the breeching-strap, substantially as specified.

350,393. STETHOSCOPE. Louis D. Radenbery, McKeesport, Pa. Filed July 9, 1886. (No model.)



Claim.—1. A stethoscope having its cup made of soft rubber, essentially as and for the purposes herein set forth.

2. A stethoscope having its cup and stem or tube connected with said cup made of soft rubber and in a single piece, substantially as described.

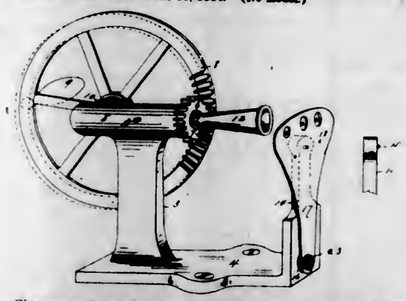
3. In instruments for diagnostic purposes, the combination, with a stethoscope having its cup or cup and stem made of soft rubber, of a tambourine or drum applied to said cup, essentially as specified.

4. In an instrument for diagnostic purposes, the combination, with a stethoscope-cup made of soft rubber, of a tambourine or drum inserted in said cup, and having a dam or diaphragm of vulcanized caoutchouc, substantially as described.

5. The tambourine or drum C, composed of the membrane *b*, rings clamping said membrane to its place, and adjusting bolts or screws for regulating the tension of the membrane, in combination with the cup A of a stethoscope adapted to receive said tambourine or drum within it, essentially as specified.

6. In an instrument for diagnostic purposes, the combination, with a stethoscope-cup and its tube or stem, of ear-pieces composed of one or more soft-rubber ear-muffs and one or more hard-rubber canicalas or ear-tubes, substantially as described.

350,394. PENCIL-SHARPENING MACHINE. David F. Ramsey, Florence, Mass. Filed June 10, 1886. (No model.)



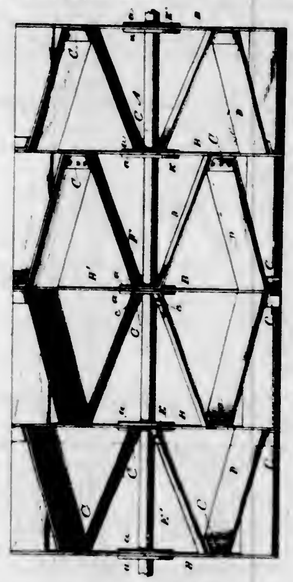
Claim.—1. A pencil-sharpening machine consisting of the standard 3, having the hollow head 5, provided with the laterally-projecting stud 10, the pin 13, passing through the side of said head, the arbor 6, having an annular groove therein and a tapered socket in one end, the pinion 7, secured on said arbor, the gear-wheel hung on said stud and engaging with said pinion, the pencil-sharpener 12, having a shank entering the end of said arbor, and the pencil-guiding plate 17, pivoted to swing opposite the end of said pencil-sharpener and having suitable guide-holes therein, combined and operating substantially as set forth.

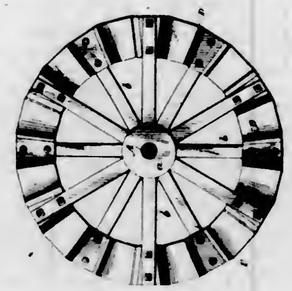
2. A pencil-sharpening machine consisting of the standard 3, having the hollow head 5, provided with the laterally-projecting stud 10, the pin 13, passing through the side of said head, the arbor 6, having an annular groove therein and a tapered socket in one end, the pinion 7, secured on said arbor, the gear-wheel hung on said stud and engaging with said pinion, the pencil-sharpener 12, having a shank entering the end of said arbor, the standard 14, having the projection 15 and the boss 16 thereon, and the pencil-guiding plate 17, pivoted against the face of the latter and having indentations therein to engage with said projection 15 and the perforations 2, combined and operating substantially as set forth.

3. In combination, the arbor 6, having the pinion 7 thereon, and having a perforated end, the gear 8, engaging with said pinion, the pencil-sharpener having a shank entering said arbor, the standard 14, having the projection 15 thereon, and the guide-plate 17, provided with guide-holes 2, secured by one end to said standard and having indentations therein to engage with said projection 15, and having its free end capable of a flexible movement toward and from said standard, substantially as set forth.

350,395. PADDLE-WHEEL. James W. Reed, Pittsburg, Pa. Filed Apr. 15, 1886. (No model.)

Claim.—The combination, in a paddle-wheel adapted to be applied at the stern of a vessel, of a central shaft having secured thereto a series of hubs, E, E', and F, the center hub, F, and the end hubs, E', having a less number of spokes than the intermediate hubs, E, tapered angle-plates C, with converging flanges secured to the ends of the spokes and paddles D, attached to the flanges of said angle-plates, so that the sides of the paddles will converge toward the central shaft, while the edges are parallel therewith, the parts being organized substantially as shown, and for the purpose set forth.

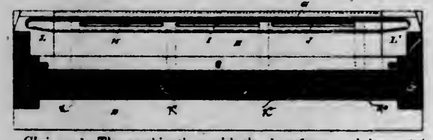




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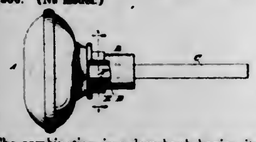
350,396. CARPET AND WEATHER STRIP COMBINED. Perry F. Reynolds, King City, Mo., assignor of two-thirds to George W. Lawson and Jacob E. Kessler, same place. Filed Apr. 27, 1886. (No model.)



Claim.—1. The combination, with the door-frame and door, of the shouldered end pieces, the transversely-grooved inclined intermediate ribs, the bottom plate provided with the upturned flange along its inner edge and secured to the lower faces of the inclined ribs, and the top plate provided with the front incline, and the rear incline and the longitudinal gutter located between said inclines and provided with slots in its bottom, substantially as specified.

2. The combination, with the door-frame, door, shouldered end pieces, inclined ribs, and the bottom plate and top plate, of the iron slat secured to the end pieces in front of the lower edge of the door, substantially as specified.

350,397. KNOB ATTACHMENT. John Schade, Stamford, Conn. Filed Jan. 9, 1886. (No model.)



Claim.—1. The combination, in a door-knob having its shank provided with a spindle-seat having a cam-seat at one side thereof, of the spindle and the cam-bolt F, substantially as specified.

2. The combination, with a door-knob having a spindle-seat formed with a cam-seat at the outside thereof, of the spindle and the cam-bolt F, secured in its seat by turning the metal of the shank upon the cam-bolt, substantially as specified.

350,398. HAT-COVER AND NECK-SHIELD. Benjamin Shunk, Jacksonville, Fla. Filed July 6, 1886. (No model.)



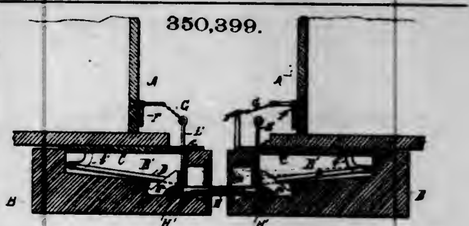
Claim.—A covering for head-wear consisting of an inner and an outer layer of textile fabric and an intermediate layer of asbestas, in combination with a neck-shield composed of a like material.

350,399. CAR-COUPLING. John B. Stone, Matherton, and John Pressnecon, Pewamo, Mich. Filed June 4, 1886. (No model.)

Claim.—1. The combination, with the draw-head B, having a recess, B', of the latch D, provided with pivots D^2 at its rear end, a cross-piece, D', at its forward end, and the coupling-pin E, projecting above and below the cross-piece D', substantially as set forth.

2. The combination, with the draw-head B, having a recess, B', and bearings b', of the latch D within the recess, and provided with cross-piece D', pivots D^2, passing through the bearings b', arms D^3, extending forward and upward from the pivots D^2 at the outside of the draw-head, and connected by the apertured cross-piece D^4, and the pin E, extending down through the said aperture, substantially as set forth.

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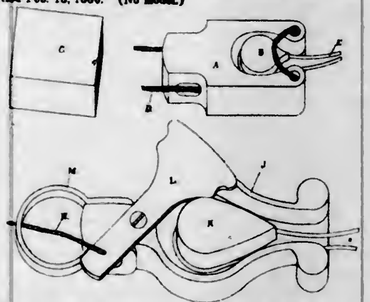
3. The combination, with the draw-head having the recess B', and the shouldered recess b in the bottom thereof, and the coupling-pin, of the link H, having cross-pieces H', having inclined projections at its opposite ends terminating in the lugs H^4, adapted to engage said shouldered recess, substantially as set forth.

4. The combination, with the draw-head B, having the recess B' open at its top, the open bearings b', leading from the upper edges of the side walls of the said recess, the latch D, having pivots in said bearings, and the coupling-pin, of the cover C, closing the recess B, and bearings b', and provided with aperture c for the coupling-pin, substantially as set forth.

5. The combination, with the draw-head B, having recess B', having bearings b' in its side walls and shouldered recess b in its bottom, of the latch D within the recess B', and provided with pivots D^2 and cross-piece D', the coupling-pin E, extending above and below the said cross-piece, the link H, having end cross-pieces H', inclined projections H^3, forming vertical shoulders H^3 and terminating in the lugs H^4, and means for operating the latch and pin, substantially as and for the purpose set forth.

6. The link H, formed with the end cross-pieces H', the inclined projections H^3 at its opposite ends, forming shoulders H^3, and terminating in the lugs H^4 H^4, substantially as set forth.

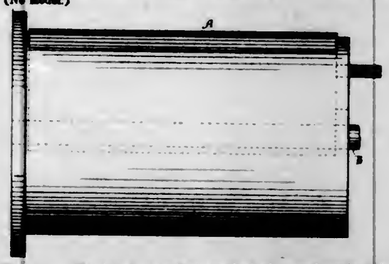
350,400. REIN-HOLDER. Lucius S. Tambling, San Francisco, Cal. Filed Feb. 13, 1886. (No model.)



Claim.—1. The combination, with the rein-holding block having an opening, of the spring-actuated clamp-block located in said opening and adapted to receive the reins and the rope, for the purpose set forth.

2. The combination, with the rein-holding block having an opening, of the clamp-block located therein, and the pivoted lever L, as set forth.

350,401. MANUFACTURE OF VULCANIZED FIBER AND LIKE MATERIAL. Franklin Taylor, Wilmington, Del. Filed May 1, 1886. (No model.)



Claim.—1. The herein-described method of manufacturing sheets of vulcanized fiber, which consists in forming the fiber upon a mold or cylinder, then collapsing said mold or cylinder in order to loosen the fiber thereon, and then removing the fiber and subjecting it to the finishing operation.

2. The herein-described method of manufacturing vulcanized fiber, which consists in forming the fiber upon a mold or cylinder, removing the fiber therefrom in the form of an endless tube, subjecting such tube to the finishing operation or operations, then drying it upon a suitable former, and then cutting it so as to form a flat sheet or sheets.

350,402. BUNG. Frazier Tussey, Cincinnati, Ohio. Filed Aug. 23, 1886. (No model.)

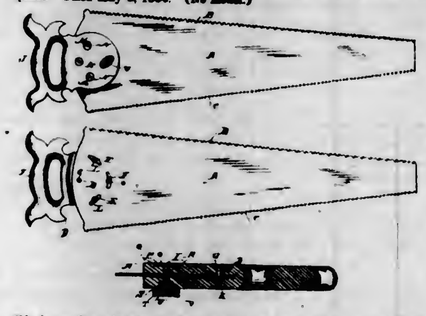


Claim.—1. A bung having an annular incision extending partially through it to afford a plug, which latter is traversed by a bore closed at one end with a web, whereby said bung admits two different-sized air-vents, substantially as herein described.

2. A bung having upper and lower annular incisions extending partially through it to afford a pair of plugs, each of which is traversed by a bore separated by a web, whereby said bung admits two different-sized air-vents, substantially as herein described.

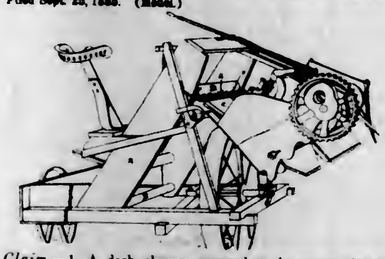
3. A bung having upper and lower annular incisions extending partially through it to afford a pair of plugs, traversed by a single bore proceeding from the bottom of said bung and closed at top by a web, the upper surface of the latter being countersunk, for the purpose described.

350,403. HANDSAW. Thomas Van Ostrand, Kinsley, Kans., assignor of two-thirds to Frank A. Coffman and Adam Telfer, both of same place. Filed May 3, 1886. (No model.)



Claim.—In a handsaw, the combination of a blade having different teeth at its edges and formed with a pivotal perforation in the center line of the blade, and with a concentric slot in a line with it, and formed with concentric segmental slots at the sides of the perforation, a handle having its lips formed with perforations for the admission of bolts for the perforation and slots, a pivotal bolt and two other nutted and headed bolts fitting in the perforations for the pivotal perforation of the blade and the guide-slots of the blade, a bolt fitting into a countersink at one lip of the handle, and having its threaded portion projecting through a metallic-lined perforation in the other lip, a washer inserted in the said perforation around the bolt bearing with its inner end against the saw-blade, and a thumb-nut having a sleeve upon its inner side formed with a threaded bore, and fitting upon the bolt and inside of the lined perforation bearing against the washer, as and for the purpose shown and set forth.

350,404. GRAIN-BINDER. William N. Whiteley, Springfield, Ohio. Filed Sept. 25, 1885. (Model.)



Claim.—1. A deck-cleaner arranged at the upper edge of the binder-receptacle and between the receptacle-deck and the elevating-belts, and having a transverse reciprocation thereto for the purpose of agitating the grain and moving the clogging straws crosswise and freeing them from the belt, as set forth.

2. A deck-cleaner provided with a serrated surface, or with an equivalent thereof, arranged between the elevating-belts and the binder-receptacle, and having a movement transverse to that of the elevating-belts, in combination with a fixed holding-surface lying across the line of movement of the belts for the purpose of holding the straws lying lengthwise, that the deck-cleaner may move in one direction without carrying the cross straws with it, substantially as shown and described, and for the purpose specified.

3. A deck-cleaner between the elevating-belts and deck of the binder-receptacle, constructed with teeth or other equivalent devices, and having a reciprocating movement imparted to it for the purpose of moving forward the straw that is drawn down between elevating-belts and upper edge of the binder-receptacle, in combination with a rake or other suitable mechanism at the forward end of the receptacle that will draw down or clear away the straw that is moved forward by the deck-cleaner, substantially as shown and described, and for the purpose specified.

350,405. RUBEFACIENT MEDICAL REMEDY. Frank H. Wyeth, Philadelphia, Pa. Filed Mar. 25, 1886. (No specimens.)

Claim.—1. A solid mass or conical stick containing capsicum and paraffine, substantially as described.

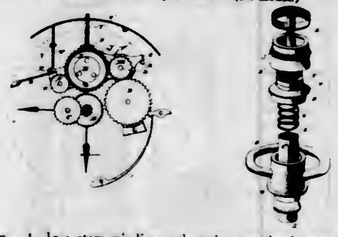
2. A composition containing capsicum, a suitable excipient, and menthol, as and for the purposes set forth.

350,406. MEDICINE-HOLDER. Frank H. Wyeth, Philadelphia, Pa. Filed Mar. 25, 1886. (No model.)



Claim.—A holder designed to contain solidified medicine adapted for external use, consisting of the base or holder having the handle integral therewith, the two being stamped from a single piece of sheet metal, and the inclosing-cap stamped from sheet metal and inclosing the medicine and a portion of the holder, substantially as described.

350,407. STEM WINDING AND SETTING WATCH. Abraham M. Yeakel, Perkasie, Pa. Filed May 3, 1886. (No model.)



Claim.—1. In a stem winding and setting watch, the combination of a yoke having a cogged wheel or ring at its pivotal point meshing with a pinion upon a winding-stem, and having a winding-wheel at one end meshing with the central wheel or ring and with a wheel upon the mainspring-arbor, and a cog-wheel for setting the hands at the other end meshing with the central wheel or ring, a spring bearing upward upon the setting end of the yoke, a case-spring having a perforation near its end for the passage of the setting-stem, a setting-stem or key-pipe having a cap at its upper end and fitting in a socket or upon a tap of the upper end of the inner stem, and having a flange or collar bearing against the outer side of the case-spring, and a pin projecting with its outer end through the side of the inside casing and bearing with that end against the end of the case-spring, and having its inner end bent outward and bearing against the setting end of the yoke, as and for the purpose shown and set forth.

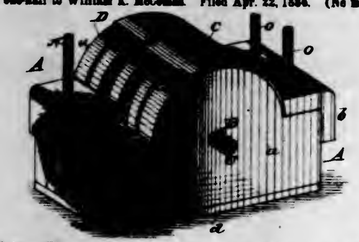
2. In a hunting-case stem-winding watch, the combination of a setting mechanism having an upwardly-projecting pin and winding mechanism having an upwardly-projecting revolving stem, a case-spring having a perforation near the free end and having that end split longitudinally, having the upper portion cut off immediately beyond the perforation and provided with an upwardly-projecting latch-lip, and the lower portion extending beyond the upper portion, bearing against the reciprocating pin, and being stiffer than the upper portion, and a winding and setting stem or key-pipe having its inner end fitted to the stem and having a shoulder or flange bearing against the outer side of the lower portion of the spring, as and for the purpose shown and set forth.

3. The combination of a watch-pendant having its upper end reduced and provided with a removable collar or flange, a swivel-ring fit-

ting and turning upon the reduced portion of the pendant having a reduced upper portion screw-threaded and bearing against the collar or flange and having a downwardly-projecting lip sliding upon the pendant, and a cap having a stem projecting through the pendant and having the inner side of its downwardly-projecting flange screw-threaded and fitting upon the threaded upper portion of the swivel-ring, as and for the purpose shown and set forth.

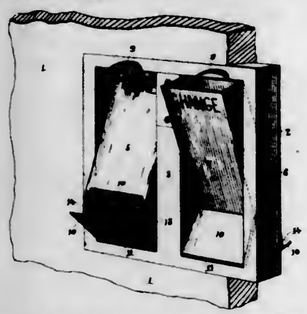
4. The combination of a watch-pendant having its upper end reduced and provided with a removable collar or flange, and having an annular recess around the lower end of the reduced portion, a swivel-ring having an upper reduced and screw-threaded portion and having a lip sliding upon the outside of the pendant having the upper end bearing against the collar or flange, a coiled spring resting in the annular recess and bearing against the lower recessed end of the swivel-ring, and a cap having a stem passing through the pendant and having the inner side of its downwardly-projecting flange screw-threaded and fitting upon the threaded upper portion of the swivel-ring, as and for the purpose shown and set forth.

350,408. ROTARY ENGINE. Samuel Ayr. Burden, Kans., assignor of one-half to William K. McComas. Filed Apr. 22, 1886. (No model.)



Claim.—The combination, with the casing and shaft, and the drum formed with peripheral stops, as described, of the slides recessed to form steam-spaces *i* and heads *j*, and a cross-bar, K, substantially as described.

350,409. CHANGE-GATE. John M. Bishop, Washington, D. C. Filed May 20, 1886. (No model.)



Claim.—1. A change-gate consisting of a tube supported so as to oscillate on a horizontal axis, and a flap or door supported at the lower end of said tube, and adapted to be turned down by the oscillation of said tube to afford a shelf for supporting the money or tickets, substantially as set forth.

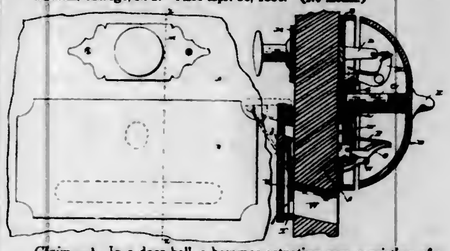
2. In a change-gate, the combination of two tubes for delivering money or tickets, mounted so as to oscillate on horizontal axes, and connected so as to move simultaneously in opposite directions, substantially as set forth.

3. In a change-gate, the combination of a frame, a tube mounted therein so as to oscillate on a horizontal axis, flaps or doors hinged to said frame at each side of said tube, and projections on said tube for operating said flaps or doors, substantially as set forth.

4. In a change-gate, the combination of a frame, a tube mounted so as to oscillate therein, flaps or doors hinged to said frame at each side of said tube, projections on said tube for operating said flaps or doors, and springs for returning said flaps or doors to normal position, substantially as set forth.

5. In a change-gate, the combination of a frame, tubes mounted so as to oscillate therein and having slots in their sides, a rock-shaft also mounted in said frame and having crank-arms, pins on the crank-arms engaging in said slots, flaps or doors hinged to said frame, and projections on said tubes for operating said flaps or doors, substantially as set forth.

350,410. COMBINED LETTER-BOX AND DOOR-BELL. Joseph B. Brooks, Oswego, N. Y. Filed Apr. 30, 1886. (No model.)



Claim.—1. In a door-bell, a hammer actuating cam consisting of a metallic plate having an oblong central perforation and laterally-projecting spurs, one of said spurs provided with teeth formed on its outer end, substantially as shown and described.

2. The combination of a bell-pull, a gong, a bell-plate provided with an aperture for said bell-pull, a post projecting from said plate, a bell-crank pivoted to the side of said post, a hammer-actuating cam having an oblong central perforation and provided with laterally-projecting spurs, a hammer-carrying bar provided with a projection for engaging one spur of said cam, and a spring connecting said bar to another spur of said cam, substantially as shown and described.

3. The combination of a door-plate hinged at one edge, a wire connected thereto, a gong, a bell-plate, a post projecting from said plate, a bell-crank pivoted to said post, a hammer-actuating cam provided with laterally-projecting spurs, one of which has teeth formed at its outer end, a hammer-carrying bar, and a spring connecting said bar to one spur of said cam, substantially as described and set forth.

4. The combination of a bell-pull, a door-plate hinged at one edge, a gong, a bell-plate, two posts projecting therefrom, a bell-crank pivoted to each post, one hammer-actuating cam having four laterally-projecting spurs, one provided with teeth at its outer end, another with adjusting-pins projecting from its face, a hammer-carrying bar, and one spring connecting said bar with the pin-carrying spur of the cam, substantially as described and set forth.

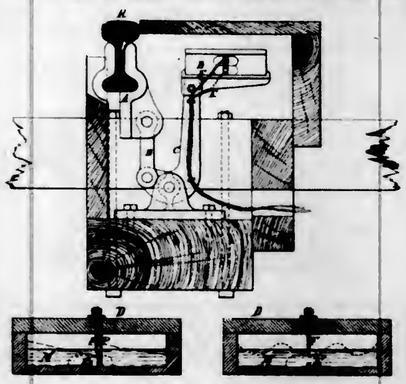
5. In a door-bell, a hammer-carrying bar having an S-shaped wire at one end, a pin projecting obliquely from the face of the bar at the other end, and a projection upon the side of said bar for engaging the hammer-actuating cam, substantially as shown and described.

6. In a door-bell, an oblong-headed post projecting from the bell-plate, in combination with a hammer-carrying bar provided with an oblong perforation, by which it is pivoted to said post, substantially as described and set forth.

7. The combination of a plate-frame, a door-plate hinged to the upper edge of said frame, sliding stays, a door-bell, and a wire connecting the door-plate with the interior mechanism of said bell, substantially as described and set forth.

8. The combination of a frame provided with cross-pieces cut away on their under sides, a door-plate hinged to said frame and having perforated lugs formed upon its back, U-shaped wires pivoted in said lugs and forming sliding stays, a door-bell, and a wire having one end pivoted in a lug upon said plate and the other connected with said bell, substantially as described and set forth.

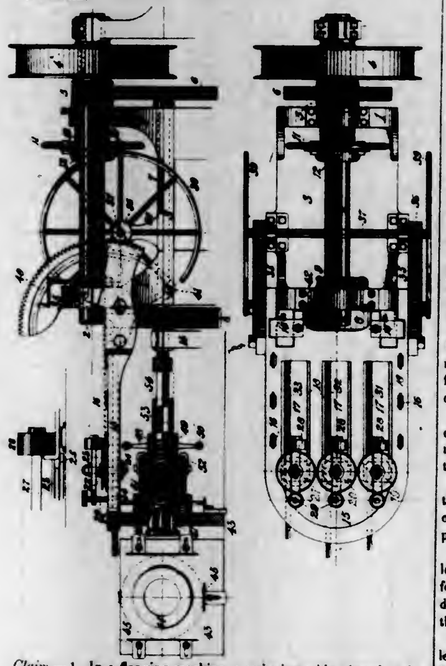
350,411. AUTOMATIC CIRCUIT-CLOSER FOR RAILWAY-SIGNALS. William Bock, Kilburn, County of Middlesex, England. Filed Dec. 21, 1885. (No model.) Patented in England July 6, 1885, No. 8,171.



Claim.—1. An electrical-contact apparatus consisting of a longitudinally-reciprocating box containing mercury and contact-wires, the upper one of which is central and coupled to a railway-rail, said box being reciprocated through the coupling by the depression of the rail to produce waves of the mercury for making and breaking contact with one of the wires, substantially as described.

2. The combination, with a railway-rail, of a box containing mercury and contact-wires, the upper one of which is central, a support coupling the box to the rail and operated by the depression of the latter to longitudinally reciprocate the box and produce waves of the mercury for making and breaking contact with one of the wires, substantially as described.

350,412. FLANGING-MACHINE. Robert A. Carter, Pittsburg, Pa., assignor of one-half to James M. Bailey, same place. Filed June 2, 1886. (No model.)



Claim.—1. In a flanging-machine, a swinging table, slotted as described, in combination with one or more movable blocks located in said slots and one or more guide-rolls mounted on said blocks, substantially as set forth.

2. In a flanging-machine, a swinging table, slotted as described, in combination with one or more movable blocks located in said slots, one or more guide-rolls mounted on said blocks, and pressure-rolls also attached to said blocks, substantially as set forth.

3. In a flanging-machine, a swinging table, in combination with toothed segments secured to the table and provided with circular grooves, and lugs secured to or formed on a stationary part of the machine, substantially as set forth.

4. In a flanging-machine, the combination of the vertical bed-plate 43, a flanging-head secured to a threaded shaft, a nut carrying an annular clamp mounted on said shaft, the shaft 7 of the lower roll, 8, and a sliding coupling connecting the shaft 7 and the threaded shaft, substantially as set forth.

5. In a flanging-machine, a table slotted as described, in combination with a block located in said slot, a clamping and cutting device secured to said block, and the hollow roll 2, provided with a suitable chuck, substantially as set forth.

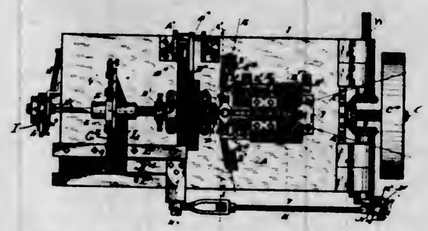
6. In a flanging-machine, a table slotted as described, in combination with the blocks 19 and 20, located in said slots, a tail-stock and a tool-rest mounted on said blocks, and the roll 2, provided with a suitable chuck, substantially as set forth.

7. In a flanging-machine, the combination of a table slotted as described, blocks 19 and 20, located in said slots, a tail-stock and a tool-rest mounted on said blocks, a threaded shaft engaging the block 19, gearing connecting the threaded shaft and the shaft 7, and the roll 2, provided with a suitable chuck, substantially as set forth.

8. In a flanging-machine, a swinging table having half-journals, as described, in combination with segments secured to the table and provided with circular grooves, and lugs secured to a stationary part of the machine, substantially as set forth.

9. In a flanging-machine, the combination of the bed-plate 43, having an opening therethrough, and lateral and vertical centering-guides, substantially as set forth.

350,413. BARB-WIRE MACHINE. Louis J. Cornelius and Henry G. Sachleben, St. Louis, Mo. Filed Mar. 17, 1886. (No model.)



Claim.—1. In a barb-wire machine, mechanism for forming the barbs upon the strand-wires, in combination with mechanism on both sides of such barb-forming mechanism for alternately grasping and holding the strand-wires, substantially as set forth.

2. In a barb-wire machine, the combination of mechanism for holding the strand-wires, mechanism for forming the barbs upon the strand-wires, and a feeder provided with clamps for grasping the strand-wires and moving them forward, and means for releasing the holding mechanism from the strand-wires as they are grasped by the feeder, substantially as set forth.

3. In a barb-wire machine, a holder provided with clamps, barb-forming mechanism, and a feeder provided with clamps, and several means for alternately operating the clamps of the holder and of the feeder, whereby the strand-wires are intermittingly fed through the machine, substantially as described.

4. In a barb-wire machine, a holder consisting of a tube, B', and clamps B^3, one of the clamps being moved to grasp the strand-wires by means of arms on a rock-shaft and a cam on the main shaft, substantially as and for the purpose set forth.

5. In a barb-wire machine, a feeder consisting of a tube and clamps, the clamps being operated to grasp the strand-wires by means of bell-crank levers and a cam on an operating-shaft, substantially as and for the purpose set forth.

6. In a barb-wire machine, a feeder consisting of clamps, bell-crank levers adapted to operate said clamps to grasp the strand-wires, a cam for operating said levers, and a separate mechanism, substantially as described, for moving the feeder longitudinally while the clamps hold the wires, substantially as described.

7. In a barb-wire machine, a feeder consisting of clamps, bell-crank levers adapted to operate said clamps to grasp the strand-wires, a cam for operating said levers, and mechanism for moving the feeder longitudinally, consisting of a pitman, N, connected at one end to the moving base of the feeder and at the opposite end adjustably to a crank-arm, M, whereby the movement of the feeder may be regulated, substantially as described.

8. In a barb-wire machine, the combination of a sliding head carrying the tube G and cam G^3, sleeve H', secured to the head carrying cam H, non-circular shaft H^3, over which the sleeve fits, arm H^5 on the shaft, and cam I on the operating-shaft, for the purpose of closing the clamps of the feeder, substantially as described.

9. In a barb-wire machine, mechanism for forming the barbs upon the strand-wires, consisting of a spindle to which the formers are secured, an elongated pinion on said spindle, an operating-rack meshing into the spindle, a bell-crank lever connected to the spindle, and a cam on the main shaft of the machine for operating the lever to reciprocate the spindle, substantially as and for the purpose set forth.

10. In a barb-wire machine, the combination of the stationary knives, movable knives, sliding head to which the movable knives are secured, pivoted lever X, and mechanism consisting of the pin Y' and cam Y, for operating the lever, substantially as and for the purpose set forth.

11. In a barb-wire machine, the combination of the mechanism for feeding the barb-wires, consisting of bell-crank levers provided with tubes and clamps on their upper ends to hold the wires, and a sliding block at their lower ends with which they are connected by bolts passing through slots, and a cam on the operating-shaft for moving the block, as set forth.

12. In a barb-wire machine, a fixed immovable holder having clamps and means for intermittingly operating the clamps to grasp the strand-wires, in combination with mechanism for forming the barbs upon the wires, substantially as set forth.

350,414. CONVERTIBLE TABLE, LOUNGE, AND DESK. Daniel Crowley, Boston, Mass. Filed Nov. 6, 1885. (No model.)



Claim.—1. In a convertible table and lounge, the frame J, constituting the center of the seat and capable of being turned upside down, the leaves R and S, forming a portion of the table-top, the racks D, and standards A, as shown and described.

2. In a convertible table and lounge, the reversible frame J, in combination with the perforated plates *j*, a spring-latch, *a*, and thumb-screw *b* at the upper end of the rack D, as and for the purpose set forth.

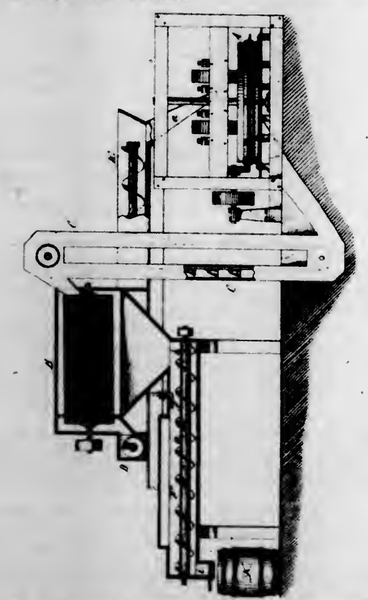
3. In a convertible lounge and table, the leaf R, upholstered on one side to form the back V of the lounge, in combination with the frame J, upholstered on one side to form the seat Q, and the leaf S, folded underneath the frame J, as and for the purpose set forth.

4. In a convertible table and lounge, the leaf S, forming one of the leaves of the table, in combination with and hinged to the frame J, so as to enable it to be folded underneath the said frame when used as a lounge, as set forth.

5. In a convertible table, lounge, and desk, the combination, with the table-top K and leaf R, of a beveled sliding support, T', when the article is used as a desk, as shown and described.

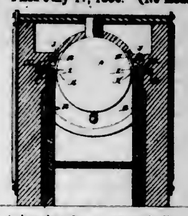
6. A convertible lounge, table, and desk consisting of the reversible frame J, hung to the upper ends of racks D, and upholstered on one side, and having a solid bottom, K, on the opposite side to form a part of the top of a table, the back R, forming one of the leaves of the table, the leaf S, also forming one of the leaves of the table and capable of being folded under the frame J when not in use, the rack D, and socketed standards A, connected together by bars B, gear-wheels E F, and rod G, all as and for the purpose set forth.

350,415. HYDRAULIC CEMENT. Uriah Cummings, Buffalo, N. Y. Filed July 3, 1885. (No model.)



Claim.—The herein-described process of hydrating hydraulic lime or cement, which consists in exposing the pulverized calcined product while in motion or agitation to the action of an atmosphere of steam, substantially as set forth.

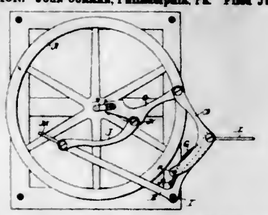
350,416. BRACKET FOR STEAM-BOILERS. Thomas Cunningham, Chelsea, Mass. Filed July 17, 1886. (No model.)



Claim.—1. A bracket for a steam-boiler, consisting of a curved portion for fastening to the boiler-shell and a detachable toe having means for securing it to the rounded portion and having a flat under side, as and for the purpose shown and set forth.

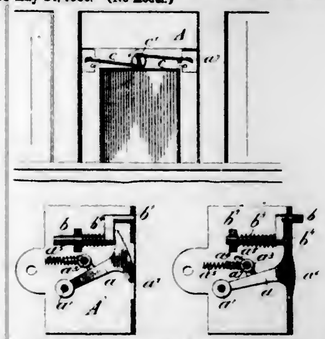
2. In a bracket for steam-boilers, the combination of a curved portion having upwardly-converging ribs upon its back, and having rivet-holes, with a toe having its inner end shaped to fit between the converging ribs, the lower portion of the curved portion projecting below the under side of the toe, forming a lip, as and for the purpose shown and set forth.

350,417. DEVICE FOR PASSING THE DEAD-CENTERS OF A CRANK-MOTION. John Curran, Philadelphia, Pa. Filed June 19, 1886. (No model.)



Claim.—The combination, with a crank, of the arm C, link D, bell-crank E, spring G, and link J, all arranged and operating substantially as and for the purposes set forth.

350,418. CAR-WINDOW LOCK. Martin A. Cutter, Galveston, Tex. Filed May 24, 1886. (No model.)



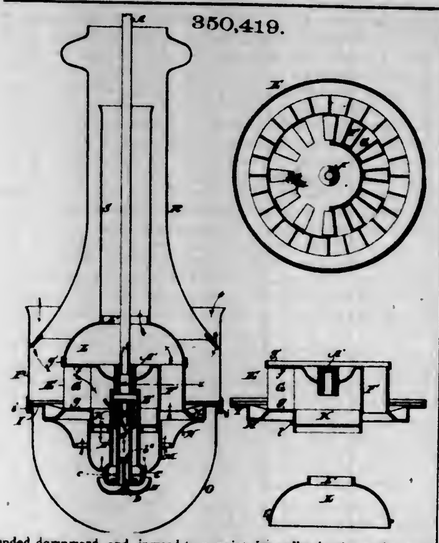
Claim.—1. As an improvement in car-window locks, the sliding crank-shaped spring-actuated bolt *b* for locking the window, in combination with the oscillating cam *a*, acting upon the bolt to unlock it, said cam having a lateral arm with a spring-guide hinged thereto, a spring surrounding the guide, and means for swinging the cam and thus retracting the bolt, all arranged and operating substantially as specified.

2. In a car-window lock, the bolt and cam support thrown outward by springs, in combination with the annular handle, and connections for withdrawing the bolt and cam arranged and operating in the manner shown and described.

350,419. GAS-LAMP. William de St. Laurent, London, England. Filed July 3, 1886. (No model.) Patented in France July 21, 1885, No. 170,347.

Claim.—A gas-lamp composed of a central gas-conduit, a burner having separate gas and air passages, and provided at its lower end with radial gas-outlets, a concentric series of inner and outer radial air-chambers surrounding the upper part of said burner, each alternate chamber being closed to the exterior air and the remainder open to the atmosphere, a heating-cone attached to the shell of said chambers and extended downward and inward to a point immediately above the gas-outlets, an annular imperforate reflector surrounding the heating-cone, an air-deflector suspended from within the central air-passage of the burner and extended upward to a point just below the gas-outlets, a close-fitting globe, a combustion-dome above the radial air-chambers, an inner chimney communicating with said dome, an outer chimney, and an inclosing-shell having a closed bottom, the upper part of said shell being arranged around the base of the outer chimney with an intermediate air-passage, substantially as described.

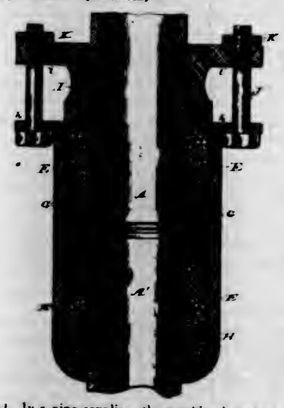
350,419.



350,420. STAPLE-DRIVING IMPLEMENT. John W. Dillon, Cattlettsburg, Ky. Filed Feb. 3, 1886. (No model.)

Claim.—A staple-driving device consisting of a body having a recess in its end to receive and hold the staple, and a groove cut transverse and at right angles to said recess and having the sides of said recessed end converging to approximate the contour of the lower edge of the staple-receiving recess, forming a chisel-shaped edge, substantially as and for the purpose set forth.

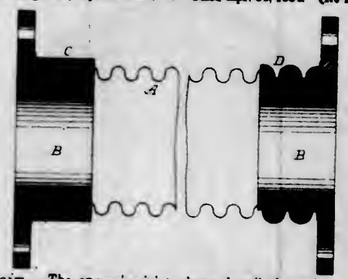
350,421. PIPE-COUPLING. Solomon R. Dresser, Bradford, Pa. Filed July 13, 1885. (No model.)



Claim.—1. In a pipe-coupling, the combination of an elastic packing with a follower bearing against one end of it and a loose ring in contact with the other end, said ring being exposed to the action of the steam or liquid within the pipes, substantially as set forth.

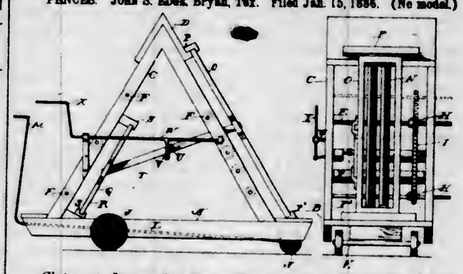
2. In combination with sleeve C and pipes A A', having their joint inclosed in said sleeve, a packing within said sleeve on one side of said joint, a ring fastened to the end of one of said pipes, and a loose ring bearing against said packing recessed to allow for the expansion and contraction of the pipes, leaving space between it and said fixed ring for the action of the steam on said movable ring, substantially as set forth.

350,422. EXPANSION-JOINT. Thomas W. Duffy, Medford, Mass., assignor, by direct and mesne assignments, to the Wainwright Manufacturing Company, Portland, Me. Filed Apr. 30, 1884. (No model.)



Claim.—The expansion-joint above described, consisting of the spirally-corrugated metallic tube A, provided at each end with a flanged hub, B, screw-threaded about its exterior, as shown, and adapted to screw into the end of said tube and fit into its corrugations, and the collar provided with screw-threads about its interior adapted to fit into the threads about the exterior of said tube, all as set forth.

350,423. MACHINE FOR BUILDING AND REROLLING WIRE FENCES. John S. Edes, Bryan, Tex. Filed Jan. 15, 1886. (No model.)



Claim.—1. In a machine for rerolling wire fences, the combination of the inclined rollers, having their frame adjustable laterally in ways, with the rearwardly-projecting lever, whereby the wire passing between said rollers can be evenly wound, substantially as described.

2. The combination of the upright triangular frame C, having forwardly the inclined rollers N journaled within the adjustable frame O, and the rearward-inclined rollers Q within an adjustable frame, R, through which the wire passes to the spools, substantially as herein set forth.

3. The combination of the base-frame A, the triangular frame C, supported thereon, the transverse rollers E, having thereon the spools F, the rollers N and Q, journaled, respectively, in the frames O and R, the ways P, P', and S, for the lateral adjustment of said frames, and the lever W, all in the manner and for the purposes described.

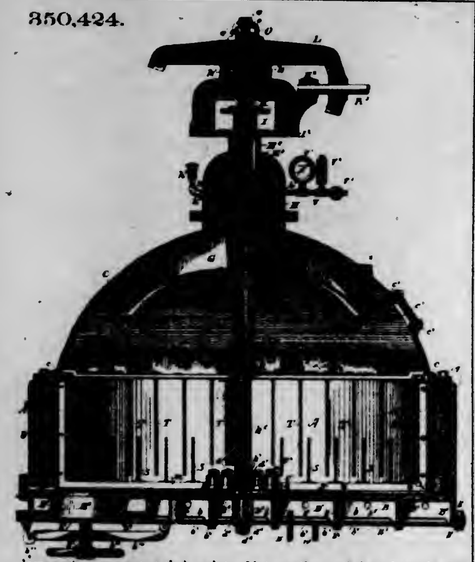
350,424. VACUUM-PAN. Arthur B. Frenzel, New York, N. Y., assignor of one-third to C. H. Delamater & Co., same place. Filed Sept. 10, 1884. Renewed Apr. 17, 1886. (No model.)

Claim.—1. In a vacuum-pan provided with a jacket-space, the vertical partition extending across and dividing the jacket-space on one side of the pan, the steam-supply pipe entering the jacket on one side of the partition, and the discharge-pipe tapped into the space on the other side of the partition, all in combination, substantially as and for the purpose described.

2. The vacuum-pan provided with a jacket-space surrounding it, divided on one side by a vertical partition, with a steam-pipe entering the jacket-space at or near its top on one side of the partition, and with a discharge-pipe for drawing off the contents of the jacket-space situated on the other side of the partition at or near the bottom of the jacket, substantially as and for the purpose described.

3. The flat vacuum-pan bottom cast with a series of intersecting vertical flanges formed with openings through them, cut away on their

350,424.



lower edges, except at their points of intersection, and there formed with downwardly-extending screw-studs, in combination with the boiler-iron plate fastened at its edge to a downwardly-extending rib or flange around the edge of the pan-bottom, and provided with openings to allow of the passage of the screw-studs, and nuts on the studs bearing against the lower side of the plate, substantially as shown and described.

4. The cylindrical vacuum-pan provided with a jacket around its sides, a flat horizontal bottom, and a jacket-space below that independent of the jacket-space around the sides of the pan, in combination with means for admitting steam to and drawing it off from such jackets continuously, substantially as and for the purpose described.

5. In combination with the stopper adapted to close the discharge-opening from the pan, the lever pivoted below at one side of the opening and adapted to be swung up to extend across the same, the hand-screw tapped through the lever and at its upper end swiveled in the stopper, and the hook adapted to engage and hold up the free end of the lever, substantially as shown and described.

6. As a means of seating and holding a stopper in place, the lever pivoted on one side of the opening to be stopped and adapted to be swung across such opening, in combination with the pivoted hook or latch for engaging and holding the outer end of the lever when it is so swung across the opening, and the screw tapped through the lever and carrying the stopper swiveled upon its end, substantially as shown and described.

7. In combination with the pan-bottom having the central downward projection and the central opening passing down through the bottom and projection and enlarged at its upper end, the centering-pin for the stirrer-shaft fitting into the opening, provided with a collar or flange fitting the enlarged upper end thereof, and screw-threaded at its lower end, and a nut on this threaded end, substantially as shown and described.

8. In combination with the pan-bottom having cast upon it the downward central projection and provided with a central opening extending down through it and the projection, the opening at its upper end being enlarged, the stirrer-shaft centering-pin provided with a collar or flange fitting the upper end of the opening, and having its shank extending down through the projection and the bottom plate, and the nut on the lower end of the pin bearing against the lower side of this plate, substantially as shown and described.

9. In a vacuum-pan, the vertical stirrer-shaft supported at or near its upper end by suitable anti-friction bearings, in combination with means for raising or lowering the shaft with reference to such bearings, substantially as shown and described.

10. In a vacuum-pan, in combination with the horizontal gear-wheel supported and rotating on suitable anti-friction bearings, the vertical stirrer-shaft extending at its upper end up through the wheel, means for causing the shaft to revolve with the wheel, and adjustable means for supporting the shaft from such wheel, substantially as and for the purpose described.

11. In combination with the gear-wheel supported upon suitable bearings, the vertical stirrer-shaft extending up into or through the central opening in the wheel, means for keying the wheel and shaft together, the inverted-cup-shaped piece resting upon the upper face of the wheel, and the screw-bolt extending down through this piece and tapped into the end of the shaft, substantially as and for the purpose described.

12. In combination with the horizontal gear-wheel supported in its rotation on suitable bearings, the stirrer-shaft passing at its upper end up through a central opening in the wheel, a removable key fitting in corresponding longitudinal grooves in the shaft and side of the gear-wheel opening, the inverted-cup-shaped piece resting on the upper face of the wheel and extending over the upper end of the shaft, provided with an opening to allow of removal or insertion of the key in place, and the screw having its head supported by the upper face of the cup-shaped piece, and its shank extending down through such piece and tapped into the shaft, substantially as and for the purpose set forth.

13. In a vacuum-pan provided with a hood separated from the pan from which the vapors are drawn off, the stirrer-shaft consisting of the solid upper and lower portions, and the tubular or hollow portion extending from the pan up into the hood, provided with openings through its walls at or near its upper and lower ends, substantially as and for the purpose described.

14. In a vacuum-pan which is provided with a hood from which the vapors are drawn off by suitable means, the stirrer-shaft consisting of the hollow portion extending from the upper portion of the pan up into the hood, provided with openings at or near its lower end and in the portion within the hood, and of the upper and lower solid portions, the latter carrying the stirrers, and the former having attached to it the driving-gear, substantially as and for the purpose described.

15. The stirrer-shaft consisting of the upper solid portion, suitably journaled and supported, and provided with gearing or means for driving it, the lower solid portion carrying the stirrer-arms, and the middle hollow or tubular portion screwed onto the ends of the other portions, extending from the upper part of the pan up through the top into the hood, and provided at or near its upper and lower ends with openings through its walls, substantially as and for the purpose described.

16. In combination with the pan having the beam or bar extending transversely across its upper portion, the dome-shaped top, and the hood on top of the dome and separated from the interior of the latter, the stirrer-shaft consisting of the solid upper portion journaled in and supported from the top of the dome, the tubular portion screwed onto the lower end of such upper portion, extending down through an opening in the top of the dome to a point just above the beam within said dome, and provided at or near its upper and lower ends with series of openings, and the lower solid portion screwed into the lower end of this tube passing down through a bearing in the beam, and carrying on its lower end the stirrers, substantially as shown and described.

17. In a vacuum-pan, in combination with the rotary stirrer-shaft, a scraper adapted to scrape the shaft above the stirrer-arms, substantially as shown and described.

18. In a vacuum-pan, in combination with the rotary stirrer-shaft, a fixed scraper-blade adapted to scrape and clear the shaft above the stirrers as it revolves, substantially as shown and described.

19. In a vacuum-pan, in combination with the rotary stirrer-shaft rotating in a bearing in a beam extending across the upper portion of the pan proper, the stationary scraper-blade attached at its upper end to the beam and extending down along the shaft, so as to clear it of adhering material, substantially as shown and described.

20. In a vacuum-pan, in combination with the shaft carrying the stirrer-arms, provided on their forward sides with suitable scraper-blades, the supplemental scraper-blade adapted to scrape the pan-bottom within the circle of travel of the inner ends of the blades on the arms, substantially as and for the purpose described.

21. In combination with the stirrer-shaft carrying on its lower end the bar forming the stirrer-arms, the scraper-blades on the forward sides of these arms for scraping up the material from the pan-bottom, the adjustable stirrer-blade carried on the bottom of the bar and adapted to scrape up and stir the material lying on the middle portion of the pan-bottom out of the reach of the inner ends of the main scraper-blades, substantially as shown and described.

22. In a vacuum-pan, in combination with the stirrer-shaft and the scraper-bar attached to the lower end thereof, the short scraper-blade for scraping the middle of the pan-bottom, having a shank entering a socket in the bar, and the set-screw adapted to fasten it there, substantially as and for the purpose described.

23. In combination with the cylindrical pan, the stirrer-shaft, the arms carried thereby extending out over and close to the pan-bottom and then upward close to the pan-sides, the adjustable scraping-blades fastened to the forward sides of the horizontal and vertical portions of the arms, substantially as and for the purpose described.

24. In combination with the cylindrical pan, the stirrer-shaft carrying arms extending out over and close to the pan-bottom, provided with adjustable scraper-blades on their forward sides, and with series of upright stirrer-blades on their upper sides, substantially as shown and described.

25. In combination with the arm extending out horizontally over the pan-bottom and then vertically close to the pan-side, the separate adjustable blades attached to the horizontal and vertical portions of the arm, respectively, substantially as shown and described.

26. In combination with the horizontal and vertical portions of the stirrer-arm, the separate adjustable blades, with their adjacent ends beveled or mitered, attached thereto by bolts or screws passing through enlarged holes in the blades, so that said blades can be adjusted to bring them nearer to or farther from the bottom and side, and to preserve the sharp corner at the point of contact of the ends of the blades, substantially as and for the purpose described.

27. In a vacuum-pan, a revolving stirrer-arm provided with a series of stirrer-blades projecting from the arm and adapted to be adjusted to vary the angles of the blades with reference to the circles of their revolution, substantially as and for the purpose described.

28. In combination with the revolving stirrer-arm, one or more blades or bars projecting from the arm in a direction substantially at right angles to the plane of revolution, attached at one end to the arm, so that they can be turned to adjust the blade or blades so that the sides thereof will stand at any desired angle with reference to the circle of travel, substantially as and for the purpose described.

29. In combination with the stirrer-arm, the vertical stirrer blades or bars attached at their lower ends to the bar by means allowing of their being turned and adjusted axially, substantially as and for the purpose described.

30. In combination with the stirrer-arms, the vertical stirrer blades or bars having their lower ends screw-threaded and tapped into the stirrer-arms, and set-screws tapped into the arms and engaging the screw ends of the blades or bars, substantially as and for the purpose described.

31. In combination with the stirrer-arms of a vacuum-pan, the upright stirrer blades or bars screwed at their lower ends into the arms, the soft-metal washers between the upper faces of the arms and the lower ends of the blades or bars, and set-screws adapted to engage the screw ends of the blades in the arms, substantially as and for the purpose set forth.

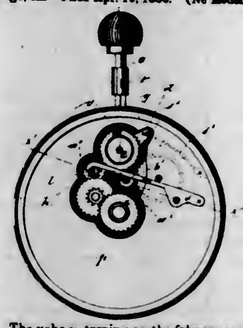
32. In a vacuum-pan, the bar or beam extending across the upper portion of the pan, provided with downwardly-extending bars or blades made axially adjustable, substantially as and for the purpose described.

33. In a vacuum-pan, in combination with the bar or beam extending across the pan, the downwardly-extending stationary bars having the central reduced screw-threaded portion at their upper ends tapped into the bar or beam, and set-screws adapted to engage these threaded upper ends, to prevent the blades or bars from turning when adjusted axially, substantially as and for the purpose described.

34. In a vacuum-pan, in combination with the stirrer-arms provided with series of upright arms attached to the arms at their lower ends, so as to be axially adjustable, the stationary bar across the upper portion of the pan, provided with downwardly-projecting axially-adjustable blades or bars, so situated as to be between the circles of travel of the blades or bars on the revolving arms, substantially as and for the purpose described.

35. In combination with the stirrer-shaft, the gear-wheel attached to its upper end, having on its lower side around the shaft a hub whose lower face is beveled upward and outward, the cup on the stationary frame having its bottom beveled or sloping outward and downward from the shaft-opening through said bottom, and the conical anti-friction rollers in the cup supporting the beveled hub of the wheel, substantially as and for the purpose described.

350,425. STEM WINDING AND SETTING WATCH. Bernard Frank, Chicago, Ill. Filed Apr. 19, 1886. (No model.)

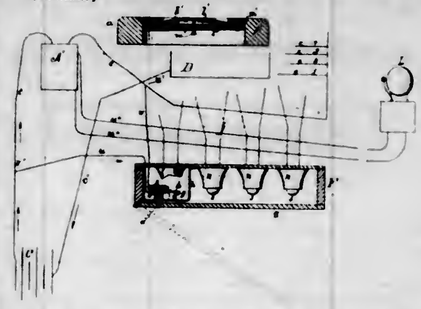


Claim.—1. The yoke y, turning on the fulcrum on which the crown-wheel w turns, and having pin a or its equivalent thereon extending in and by the side of a groove in the winding-bar, substantially as and for the purpose specified.

2. The yoke y, turning on the fulcrum on which the crown-wheel w rotates, and having cone b' or its equivalent on one end thereof, and also having pin a thereon, or its equivalent, extending in and by the side of a groove in the winding-bar, substantially as described, and for the purpose specified.

3. The yoke y, turning on the same fulcrum on which the crown-wheel w rotates, and having cone b' or its equivalent on one end thereof, and pin a or its equivalent thereon, extending in and by the side of a groove in the winding-bar, in combination with spring-lever s, secured on one end to plate p, and at the other end engaging with the hub of wheel w', and the said lever s having point i or its equivalent thereon, all substantially as described, and for the purpose set forth.

350,426. AUTOMATIC ELECTRIC FIRE-ALARM SYSTEM. Joseph W. Frost and Stephen D. Lake, Rochester, N. Y. Filed Dec. 12, 1885. (No model.)



Claim.—1. In an electric alarm system, the combination of the circuit-wires u v, the plate h, attached to one of said wires, the insulated block g, to which said plate is secured, the frame b, which supports said block, the push-pin d, which makes electrical connection between the other wire and said plate, the spring o, which moves said push-pin to effect such connection, and the inclosure F, having a cover, G, the opening of which leaves said spring free to act as stated.

2. In an electric alarm system, an inclosure, F, containing wires u v, respectively connected with a battery-wire, c, at points on opposite sides of the signal-box of said system, test-buttons n, connected, respectively, with different sections or parts of said system by current-conductors, and a push-pin or movable holder, d, for the wire v, and a cover for said inclosure, in combination with a holder for said wire u and generating-battery, said wires u v being connected or disconnected by the holder d, substantially as and for the purpose set forth.

3. In combination with the battery and current wires of an automatic electric alarm system, a signal-sending device having a system of clock-work, H, provided with a break-wheel, K, and co-operating circuit-breaker z, and a second system of clock-work, O, provided with a moving part, S, constituting a detent for the escapement of said clock-work H, a detent for the escapement of said clock-work O, and magnet to move said last-named detent, substantially as described and shown.

4. In combination with the battery and current wires of an automatic electric alarm system, a signal-sending device having a system of clock-work, H, provided with a break-wheel, K, and co-operating circuit-breaker z, and a second system of clock-work, O, provided with a turning disk, S, constituting a detent for the escapement of said clock-work H, said disk having a peripheral notch, p, serving to release said escapement as the disk moves around, substantially as shown and described.

5 In combination with the battery and current wires of an automatic electric alarm system, a signal-sending device having a system of clock-work, H, and a second system of clock-work, O, provided with a turning disk, S, constituting a detent for the escapement of said clock-work H, said disk having a projecting pin, a', magnet T, and wires l^2 and c, the latter being formed with a spring-terminal, l^3, arranged to be struck by said pin a', and moved for opening the circuit which includes magnet T, substantially as and for the purpose set forth.

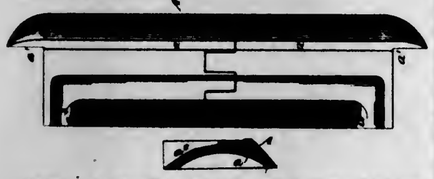
6. In combination with the battery and circuit wires of an electric alarm system, a device for sending signals having a system of clock-work, H, provided with break-wheel and co-operating circuit-breaker, and a second system of clock-work, O, provided with a disk, S, constituting a detent for the escapement of said clock-work H, said disk having a peripheral notch, p, serving to release said escapement as the said disk moves around, and a stop, c', for the disk, serving to hold said notch p opposite said escapement, substantially as and for the purpose specified.

7. In combination with the battery and circuit wires of an electric alarm system, a device for sending signals having a system of clock-work, H, provided with break-wheel and co-operating circuit-breaker, and a second system of clock-work, O, provided with a disk, S, constituting a detent for the escapement of said clock-work H, said disk hav-

ing a peripheral notch, *p*, serving to release said escapement as the disk moves around, and an indicator, g^3, for the disk, substantially as and for the purpose set forth.

8. In combination with the battery and current wires of an electric alarm system, an inclosure, F, containing wires *u v*, connected with one of the main battery-wires at different points thereon, test-buttons *n*, connected, respectively, with different sections of said system, a push-pin, *d*, holding the wire *v*, a holder for the wire *u*, a cover for said inclosure serving by its movements to operate said push-pin to connect or disconnect said wires *u v*, and line-wires u^2, connected with said battery-wire between the points at which said wires *u v* join said battery-wire, substantially as described and shown.

350,427. DOOR-SILL. Leonard C. Gillett, Brownsdale, Minn. Filed Mar. 25, 1886. (No model.)

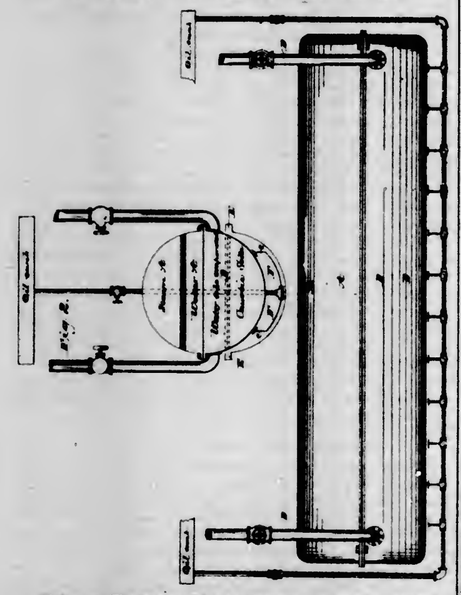


Claim.—1. A door-sill having on the outer part thereof the transverse bevel a^2 and raised corners with diagonal bevels a^3 a^3, as and for the purpose set forth.

2. A door-sill made in two parts connected by a tongue-and-groove joint, as and for the purpose specified.

3. A door-sill having the groove *a*, projections *a'*, bevel a^2, and diagonal inclines a^3, all constructed and arranged substantially as shown and described.

350,428. SODA-MOTOR. Arnold J. Grafenstatt and William Twenden, Minneapolis, Minn. Filed May 21, 1886. (No model.)



Claim.—1. The process of the continuous generation of power by the use of caustic soda or equivalent, which consists in applying said caustic soda or equivalent in a heated condition to the boiler within an inclosing-case, and regenerating and reheating said caustic soda or equivalent, when desired, by applying heat to the exterior of said inclosing-case, substantially as described.

2. The novel process herein disclosed for producing and utilizing power, consisting in (*a*) raising caustic soda or other equivalent chemicals to a high initial temperature and evaporating the moisture from the same by means of oil, gas, gasoline, spirits, or petroleum burned directly underneath the reservoir containing said soda; (*b*) applying the heat from the caustic soda to the steam-generator; (*c*) applying the steam thus produced through the ordinary engine; (*d*) absorbing the exhaust-steam from the engine into the caustic soda up to the point of supercharge; (*e*) the reconcentration of the soda and restoration of initial temperature whenever required by step (*a*) without removal of the soda from the boiler.

3. The combination of a combustion-chamber containing a series of jets for the burning of oil, gas, gasoline, spirits, or petroleum, a boiler containing caustic soda or other equivalent chemicals, and a steam generator or boiler containing water, said caustic-soda boiler being placed intermediate the jets and the steam-boiler and in immediate contact with each, substantially as described, for the purpose set forth.

4. Means, substantially as described, for applying heat to a soda-boiler when in working position on a soda-motor, in combination with means for allowing the escape of the evaporated moisture from the soda-boiler, for the purpose set forth.

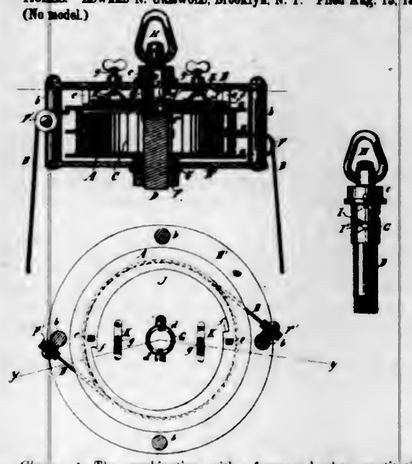
5. Means, substantially as described, for applying heat to a soda-boiler when in working position on the soda-motor, in combination with means for allowing the escape of the evaporated moisture from the soda-boiler, and means for controlling the supply of heat and the escape of the moisture, for the purpose set forth.

6. A series of tubes provided with jets, means for supplying oil or gas to the same, a soda-boiler in working position on a soda-motor, and escape-pipes for the evaporated moisture, all in combination, for the purpose set forth.

7. A series of tubes provided with jets, means for supplying oil or gas to the same, a soda-boiler in working position on a soda-motor, escape-pipes for the evaporated moisture, and means for controlling the supply of oil and gas and the escape of the evaporated moisture, in combination, for the purpose set forth.

8. A series of tubes provided with jets, means for supplying oil or gas to the same, a soda-boiler in working position on a soda-motor, escape-pipes for the evaporated moisture, means for controlling the supply of oil and the escape of the evaporated moisture, a combustion-chamber underneath the soda-boiler provided with means for supplying the air necessary for combustion, all in combination, substantially as described, for the purpose set forth.

350,429. SUSPENSION DEVICE FOR LAMPS AND OTHER ARTICLES. Edward N. Grenwold, Brooklyn, N. Y. Filed Aug. 15, 1885. (No model.)

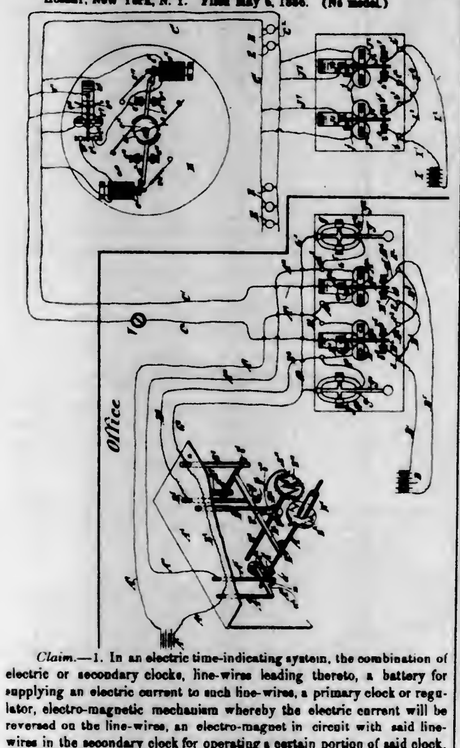


Claim.—1. The combination, with a frame and arbor constituting the fixed portion of the machine, of a spring-drum mounted on said arbor, cords or chains wound upon said drum and passing to the article to be suspended, a plate in contact with the drum and in close proximity to a part of the fixed portion of the machine, said plate and fixed portion being provided, the one with a wedge or cam and the other with a projection acting in conjunction with said wedge or cam, and stops projecting from the fixed portion of the machine engaging said plate, substantially as specified.

2. The combination, with a frame and arbor constituting the fixed portion of the machine, of a spring-drum mounted on said arbor, cords or chains wound upon said drum and passing to the lamp or other article to be suspended, a plate surrounding the arbor and in contact with the drum, said plate and fixed portion being provided, the one with a wedge or cam and the other with a projection acting in conjunction with said wedge or cam, and stops projecting from the fixed portion of the machine engaging said plate, substantially as specified.

3. The combination, with a frame and arbor constituting the fixed portion of the machine, of a spring-drum mounted on said arbor, cords or chains wound upon said drum and passing to the article to be suspended, a plate in contact with the drum and in close proximity to a part of the fixed portion of the machine, said plate and fixed portion being provided, the one with a wedge or cam formed by a slot or groove and the other with a projection acting in conjunction with said wedge or cam, and stops projecting from the fixed portion of the machine engaging said plate, substantially as specified.

350,430. ELECTRIC TIME-INDICATING SYSTEM. Charles A. Hussey, New York, N. Y. Filed May 6, 1886. (No model.)

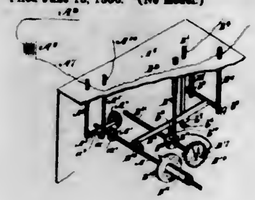


Claim.—1. In an electric time-indicating system, the combination of electric or secondary clocks, line-wires leading thereto, a battery for supplying an electric current to such line-wires, a primary clock or regulator, electro-magnetic mechanism whereby the electric current will be reversed on the line-wires, an electro-magnet in circuit with said line-wires in the secondary clock for operating a certain portion of said clock, and another electro-magnet also in circuit with said line-wires in the secondary clock for operating another portion of the secondary clock, substantially as specified.

2. In an electric time-indicating system, the combination of electric or secondary clocks, line-wires leading thereto, a battery for supplying an electric current to such line-wires, a primary clock or regulator, electro-magnetic mechanism whereby the electric current will be reversed on the line-wires, electro-magnets in the secondary clocks for operating different parts of the clocks, and a circuit-changing device whereby when the current is reversed the electro-magnets in the secondary clocks will be alternately magnetized, substantially as specified.

3. In an electric time-indicating system, the combination of electric or secondary clocks, line-wires leading thereto, a battery for supplying an electric current to such line-wires, a primary clock or regulator whereby the electric current will be reversed on the line-wires, electro-magnets in said secondary clocks for operating different parts of the electric or secondary clocks, and keys and connections whereby provision is afforded for setting the secondary or electric clocks, substantially as specified.

350,431. PRIMARY ELECTRIC CLOCK. Charles A. Hussey, New York, N. Y. Filed June 18, 1886. (No model.)

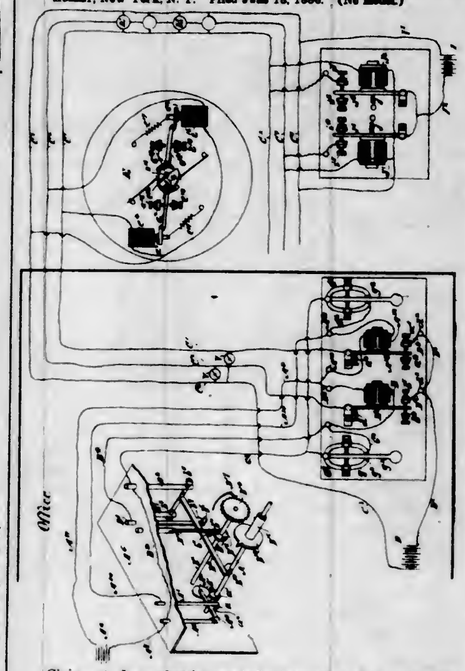


Claim.—1. In a primary clock or regulator, the combination of the rod A^4, the rod A^5, having an adjustable contact-piece, the swinging arm A^6, provided with a wheel, A^8, said swinging arm being fulcrumed at one end, and having a contact-piece between the fulcrum and said wheel, and a shaft, A, provided with a notched wheel, A', substantially as specified.

2. In a primary clock or regulator, the combination of the rod B^9, swinging arm B^8, rod B^{10}, shaft B^{11}, wheel B^{13}, wheel B^{14}, wheel B^{16} on the shaft B^{16}, and cam or eccentric B^{15} on the shaft A, substantially as specified.

3. In a primary clock or regulator, the combination of rod A^4, swinging arm A^6, rod A^5, rod B^9, swinging arm B^8, and mechanism for operating the swinging arms A^6 B^8.

350,432. ELECTRIC TIME-INDICATING SYSTEM. Charles A. Hussey, New York, N. Y. Filed June 18, 1886. (No model.)



Claim.—1. In an electric time-indicating system, the combination of a primary clock or regulator having two circuit-closing mechanisms, line-wires adapted to form two circuits, and electric or secondary clocks severally having two electro-magnetic mechanisms for operating different parts, substantially as specified.

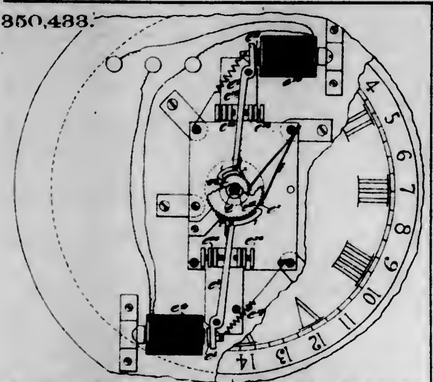
2. In an electric time-indicating system, the combination of a primary clock or regulator having two circuit-closing mechanisms, line-wires adapted to form two circuits, electro-magnets having their armatures connected with certain of the line-wires, a main battery for supplying electricity to the line-wires and connected at one pole with contact-pieces, against which the said armatures will be vibrated when the said electro-magnets are energized, and connected at the other pole to one of the line-wires which is not connected with the armatures, and local-circuit wires connected to the coils or wires of the electro-magnets and extending to circuit-closing mechanism in the primary clock or regulator, substantially as specified.

3. In an electric time-indicating system, the combination of a primary clock or regulator having two circuit mechanisms, line-wires adapted to form two circuits, a main battery, a supplemental battery, and electro-magnetic mechanism for connecting the supplemental battery with either of the two circuits, as circumstances may require, substantially as specified.

350,433. SECONDARY ELECTRIC CLOCK. Charles A. Hussey, New York, N. Y. Filed June 18, 1886. (No model.)

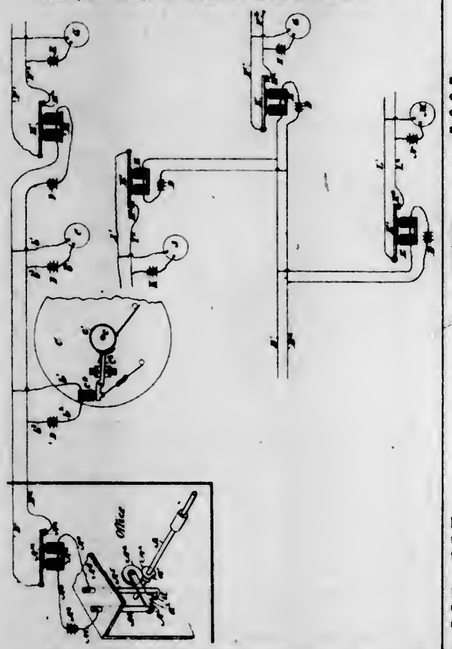
Claim.—In an electric or secondary clock, the combination of a minute-shaft, an hour-shaft surrounding said minute-shaft, a train for transmitting motion to the hour-shaft from the minute-shaft, a tubular calendar-shaft surrounding the minute-shaft but otherwise independent of it, a pawl-lever and an electro-magnet for operating the minute-shaft,

350,433.



and another pawl-lever and electro-magnet for operating the calendar-shaft, the said shafts all being concentric, and the pawl-levers and electro-magnets being arranged on opposite sides of them, substantially as specified.

350,434. ELECTRIC TIME-INDICATING SYSTEM. CHARLES A HERSEY, New York, N. Y. Filed June 28, 1886. (No model.)

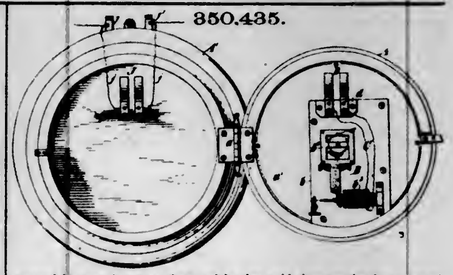


Claim.—1. In an electric time-indicating system, the combination of a regulator or mechanical clock, a main circuit controlled by said regulator and composed of a number of sections, secondary or electric clocks, and a battery for each connected together in these sections, and electro-magnetic closers arranged in the sections from which others extend, substantially as specified.

2. In an electric time-indicating system, the combination of a regulator or mechanical clock, a main circuit controlled by said regulator and composed of a number of sections, secondary or electric clocks, and a battery for each connected together in multiple arc in said sections, and electro-magnetic closers arranged in the sections from which others extend, substantially as specified.

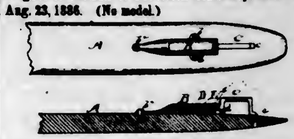
350,435. CASE FOR SECONDARY ELECTRIC CLOCKS. CHARLES A. HERSEY, New York, N. Y. Filed July 1, 1886. (No model.)

Claim.—In an electric clock, the combination, with time mechanism, of a case composed of two portions hinged together, a time-dial



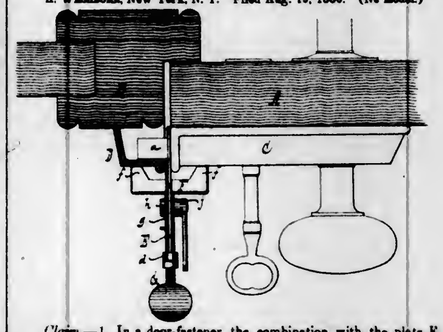
secured in one of said portions and having said time mechanism secured to it, contact-pieces in said portion, also supported by the dial, contact-pieces in the other portion of the case so arranged that when said case is closed the contact-pieces will be brought together, and conducting-wires, substantially as specified.

350,436. WHIFFLETREE-HOOK. GEORGE W. KIMBERLEY, Cleveland, assignor of one-half to Frederick Kimberley, North Olmsted, Ohio. Filed Aug. 23, 1886. (No model.)



Claim.—The case B, having the ears *b b*, and provided with the shoulder or wall *a*, in combination with a hook, C, pivoted in said case outside of said wall, and the spring D and rod E, connected with and operating in said case, as shown and described, and for the purpose specified.

350,437. DOOR-SECURER. FREDERICK C. KIRCHNER and WILLIAM H. WASHBURN, New York, N. Y. Filed Aug. 19, 1886. (No model.)

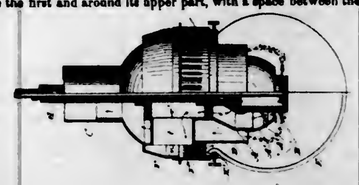


Claim.—1. In a door-fastener, the combination, with the plate E, having an opening, *b*, for the passage of the lock-bolt, of the clamp F, movably attached to said plate, and means, substantially as described, for actuating said clamp, substantially as set forth.

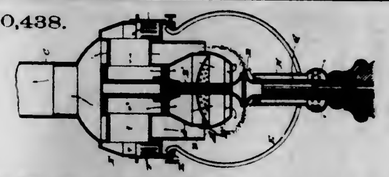
2. The combination, with the plate E, having an opening, *b*, for the passage of the lock-bolt, and a slot, *c*, of the clamp F, constructed to slide in said slot, and the screw G, adapted to act on said clamp, substantially as described.

350,438. REGENERATIVE GAS-LAMP. CHARLES M. LUNGREN, New York, N. Y., assignor, by mesne assignments, to the Siemens-Lungren Company. Filed Sept. 5, 1884. (No model.)

Claim.—1. The combination of a burner, a flame plate or deflector arranged above the burner-tip and in close proximity to the burner, a second deflector independent of the outer shell or casing of the lamp, above the first and around its upper part, with a space between the same



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and the flame-plate, the said space forming an opening or passage for the escaping products of combustion, substantially as specified.

2. The combination of an annular burner having an air-passage through it, a flame plate or deflector above the burner-tip and in close proximity to the burner, and a second deflector independent of the outer shell or casing of the lamp, above the first and around its upper part, with a space between the same and the flame-plate, the said space forming the opening or passage for the escaping products of combustion.

3. The combination of an annular burner having an air-passage through it and a deflecting button or disk beneath it, a flame plate or deflector surrounding the burner and above its tip, and a second deflector independent of the outer shell or casing of the lamp, above or around the upper part of the flame-plate, with a space between it and the latter deflector, the said space forming the opening or passage for the escaping products of combustion.

4. The combination of a burner and an inclosing-globe with a flame plate or deflector located above the burner-tip, a second deflector independent of the outer shell or casing of the lamp, arranged above the first or around the upper part of the flame-plate, with a space between the same and the flame-plate for the escaping products of combustion, an air-passage leading from the outer air and opening just above the orifice of the burner, and an air-passage leading to and opening just below the orifice of the burner, substantially as specified.

5. The combination of a burner and inclosing-globe with a flame plate or deflector located above the burner-tip, a second deflector arranged above the first or around its upper part, with a space between the same and the flame-plate for the escape of the products of combustion, an air-passage leading from the outer air and opening just above the orifice of the burner, an air-passage leading to and opening just below the orifice of the burner, and an air-passage leading to and opening within the globe at or near its top, substantially as specified.

6. The combination of an annular burner having a deflecting button or disk below it, an inclosing-globe with a flame plate or deflector located above the burner-tip, a deflector arranged above the flame-plate or around its upper part, with a space between it and the flame-plate for the escape of the products of combustion, an air-passage leading from the outer air and opening just below the orifices of the burner, an air-passage leading to and opening just beneath the orifices of the burner, and an air-passage leading to and opening within the globe at or near its top, substantially as specified.

7. The combination, in a regenerative gas-burner, of a regenerator, a flame plate or deflector arranged above the burner-tip, a passage for the escaping products of combustion, an air-inlet passage, the outer wall of which forms a division between the two passages, and which wall is formed by the upwardly-directed flame-deflector, and a wall or flange extending downwardly from the regenerator, and an inclosing-globe, substantially as set forth.

8. The combination of a downwardly-directed gas-burner, a flame plate or deflector arranged above the burner-tip, a passage for the flames and escaping products of combustion arranged above the burner-tip, the walls of which extend down into the body of the inclosing-globe, an air-inlet passage, and an inclosing-globe, substantially as set forth.

9. The combination of a downwardly-directed gas-burner, a flame plate or deflector arranged above the burner-tip, a passage for the escaping products of combustion whose walls extend down into the body of the inclosing-globe, an air-inlet passage whose outer wall forms a division between the same and the passage for the escaping products of combustion, and an inclosing-globe, substantially as set forth.

10. The combination of a downwardly-directed gas-burner, a flame plate or deflector arranged above the burner-tip, a passage for the flames and escaping products of combustion, whose walls extend down into the body of the inclosing-globe, an air-inlet passage whose outer wall forms a division between the same and the passage for the flames and escaping products of combustion, and which wall is composed of the upwardly-directed burner-tip, a flange extending downwardly from the body of the lamp, and an inclosing-globe, substantially as set forth.

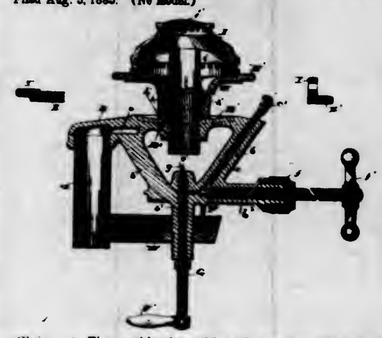
11. In a regenerative gas-burner, a regenerator or central body-piece containing horizontal and vertical passages for the admission of air and the escape of products of combustion, respectively, a depending burner-tube, an outside perforated wall or casing, and an inclosing-globe, substantially as set forth.

12. The combination, in a regenerative gas-lamp, of a regenerator or central body-piece, a depending burner-tube, passages for the incoming air, and flues for the escaping products of combustion, a flame-plate surrounding the burner and the said air-passages, and a second flame plate or deflector above and surrounding the first, and also surrounding the escape-flues, and an inclosing-globe, substantially as and for the purpose described.

13. The combination of a gas-burner, an air-chamber located above the burner-tip and communicating at its upper end with an air-conduit leading to it from the outer air across the escape-flue, the lower end of said air-tube forming or having attached to it a flame plate or deflector, an inclosing-globe, and an escape-flue, the lower end of which surrounds the upper part of the air-chamber and extends down into the body of the globe, terminating at or near the upper edge of the flame plate or deflector, substantially as and for the purpose described.

14. The combination of an annular inverted gas-burner having an air-passage through it, an air-chamber surrounding the burner, the upper end of said air-chamber communicating with an air-conduit leading to it from the outer air across the escape-flue, the lower end of said air-chamber forming or having attached to it a flame plate or deflector, an inclosing-globe, and an escape-flue, the lower end of which surrounds the upper part of the air-chamber and extends down into the body of the inclosing-globe, terminating at or near the upper edge of the flame plate or deflector, substantially as and for the purpose specified.

350,439. VAPOR-BURNER. FORDYCE A. LYMAN, Cleveland, Ohio. Filed Aug. 5, 1885. (No model.)



Claim.—1. The combination, with the hollow arm and disk, formed integral, the latter having a concave upper surface and a drip-hole, of burner located above the disk, a commingling-tube extending through the disk and terminating in the burner, and a conduit leading from the hollow arm to a point below and directly underneath the lower end of the commingling-tube, substantially as set forth.

2. The combination, with the hollow arm B and disk, formed integral, the latter having a concave upper surface, of the commingling-tube passing through the disk, the cone surrounding the upper portion of the tube and having legs or supports which rest on the concave surface of the disk, the vertical jet-orifices formed in the bottom of the cone, and a conduit leading from the hollow arm to a point directly underneath the lower end of the commingling-tube, substantially as set forth.

3. The combination, with a generator having a drip-opening extending through same, a cone seated on said generator and provided with jet-orifices in the bottom thereof, a burner-cap, and a lighting-cup located in a position to receive the oil from the drip-opening, of a commingling-tube terminating inside of the burner cap and a conduit leading from the generator to a point below the lower end of the commingling-tube, substantially as set forth.

350,440. STEAM-BOILER. JOSEPH A. MUNFORD, Hantsport, Nova Scotia, Canada. Filed July 24, 1886. (No model.) Patented in Canada May 6, 1886, No. 23,989.



Claim.—1. The combination, with the boiler-casing, inclined as shown, of the tapering fire-chamber and the horizontal tubular flues communicating therewith, substantially as described.

2. The combination, with the boiler-casing, inclined as shown, of the fire-chamber, the horizontal tubular flues communicating therewith,

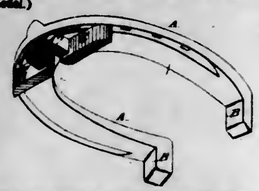
and the blow-off cock located at the lowest point of the boiler, substantially as described.

3. The combination, with the boiler-casing, inclined as shown, of the tapering fire-chamber, the horizontal tubular flues communicating therewith, the front plate or casting having the fuel and ash doors therein, and the horizontal fuel-support or grate in the tapering fire-chamber, its forward end being supported by the front plate or casting, substantially as described.

4. The combination, with the boiler-casing, inclined as shown, of the fire-chamber secured withio the same, having its upper side substantially horizontal, and its lower side inclined and substantially parallel with the wall of the boiler, and the horizontal tubular flues communicating with the fire-chamber, substantially as described.

5. The combination, with the boiler-casing, inclined as shown, of the fire-chamber secured within the same, having its upper side substantially horizontal, and its lower side inclined and substantially parallel with the wall of the boiler, the horizontal tubular flues communicating with the fire-chamber, and the blow-off cock located at the lowest point of the boiler, substantially as described.

350,441. HORSESHOE. John Myers, St. Louis, Mo. Filed Dec. 21, 1885. (No model.)



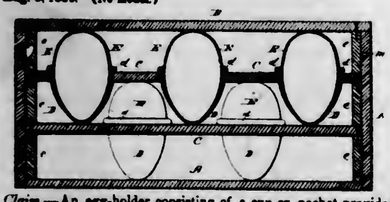
Claim.—1. The combination, with a horseshoe, of a calk formed in two parts with an intervening space and a lateral projection joining the adjacent ends of said parts, substantially as set forth.

2. The combination, with a horseshoe, of a calk having a lateral enlargement or projection from one side thereof, said enlargement being of a width less than the length of the calk proper, and the wearing-surfaces of said calk and enlargement being flush or nearly so, substantially as and for the purposes set forth.

3. The combination, with the horseshoe A, of the calk C, having on the front side thereof a lateral enlargement or projection, the under surfaces of said calk and projection being flush, substantially as and for the purposes set forth.

4. The combination, with the horseshoe A, of the calk C, formed in two parts placed end to end with an intervening space and the lateral projection C', of U shape, joining the adjacent ends of said part C, as and for the purposes set forth.

350,442. EGG-CASE. Sinclair D. G. Niles, Trigonia, Tenn. Filed Aug. 3, 1886. (No model.)



Claim.—An egg-holder consisting of a cup or pocket provided at its rim with an outwardly-extending supporting-flange, and a molded or pressed supporting-cap adapted to set over an egg, with its rim between the egg and the cup, substantially as and for the purpose specified.

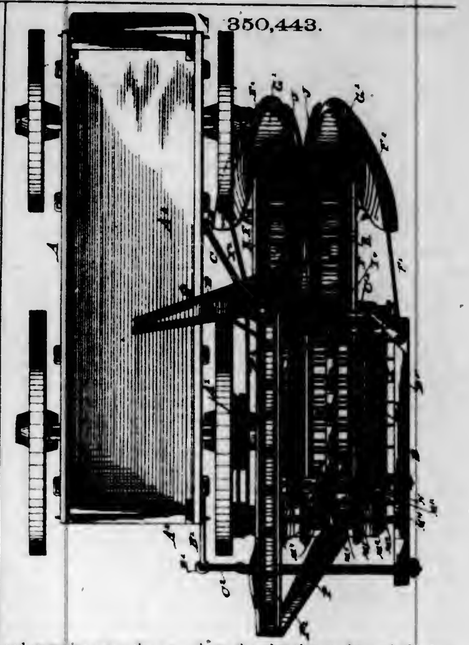
350,443. CORN-HARVESTER ATTACHMENT FOR WAGONS. Albert D. Osgood, Plymouth, Nebr. Filed Sept. 10, 1886. (No model.)

Claim.—1. The combination, with the attachment-frame having the supporting-wheel at one side, the crib, and the horizontal carrier in the bottom of the crib, of the double elevator with the elevating-shoes and plucking-arms, the guide-trough connecting the elevator and crib, the elevating-carrier and elevating-chute, and the husking-blades and stemming and silking saw, substantially as specified.

2. The combination, with the double elevator, the plucking-arms, crib, and horizontal carrier, of the rotary shafts provided with husking-blades separated by spools, the pivoted clamping-guides, and the stemming and silking saw, substantially as set forth.

3. The combination, with the attachment-frame, crib, horizontal carrier, and husking-blades, of the sheet-metal guard beneath the horizontal carrier and husking-blades, as set forth.

4. The combination, with the double elevator having the lifting-plows at the front ends thereof, of the plucking-arms, the trough for conveying the ears to the crib, the crib, the cutting-blades, the silking

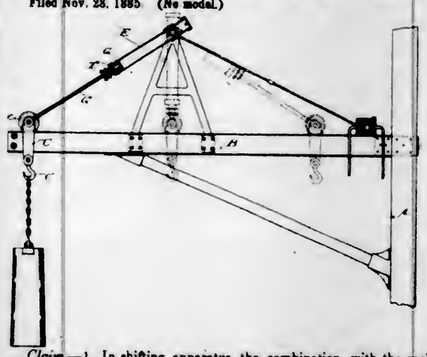


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and stemming saws, the rear chute, the elevating-carrier, and the delivery-chute at the upper end of the latter, as set forth.

5. The combination, with the horizontal carrier and husking blades, of the silking and stemming saw and the clamp-guide in rear of the latter, substantially as specified.

350,444. SHIFTING APPARATUS. John A. Potter, Chicago, Ill. Filed Nov. 28, 1885. (No model.)



Claim.—1. In shifting apparatus, the combination, with the oscillating cylinder and the supply and discharge pipes therefor, of the valve mechanism to control said pipes, the reciprocating piston, and the traveling carrier operated thereby, substantially as described.

2. In shifting apparatus, the combination, with the oscillating cylinder having trunnion-valves and supply and discharge pipes leading therefrom, of the controlling-valve mechanism for said pipes, the operating-piston, and the traveling carrier, substantially as described.

3. In shifting apparatus, the combination, with the oscillating cylinder and with the supply and discharge pipes therefor, of the valve mechanism to control said pipes, the reciprocating piston, the traveling carriage, and the ways to sustain the same, substantially as described.

4. In shifting apparatus, the combination, with the oscillating cylinder having trunnion-valves and supply and discharge pipes leading therefrom, of the controlling-valve mechanism for said pipes, the operating-piston, the traveling carriage, and the ways to sustain the same, substantially as described.

5. In shifting apparatus, the combination, with the crane-gib, of the oscillating cylinder supported therefrom, the supply and discharge pipes therefor, the valve mechanism to control said pipes, the reciprocating

piston, and the traveling carriage sustained by said gib, substantially as described.

6. In shifting apparatus, the combination, with the crane-gib and with the oscillating cylinder supported therefrom, and having suitable trunnion-valves and supply and discharge pipes therefor, of the valve mechanism to control said pipes, the reciprocating piston, and the traveling carriage sustained by said crane-gib, substantially as described.

7. In shifting apparatus, the combination, with the mast A and gib B, of the trolley C, the standards D, the oscillating cylinder E, supported therefrom and having trunnion-valves e^3 e^3, the supply and discharge pipes e^4 e^5, the controlling-valve, the conduits e^6 e^7 e^8 e^9, and the piston-rod G G', substantially as described.

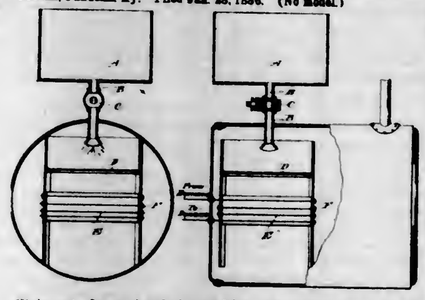
8. The combination, with the oscillating cylinder and its trunnion-valves, of the supplemental cylinder mounted upon said main cylinder and in communication with said valves, the piston-rod for said supplemental cylinder, and the cam-like inclines to contact with said rod, substantially as described.

9. In shifting apparatus, the combination, with the traveling carriage, the ways therefor, the piston-rod, the oscillating cylinder and its trunnion-valves, of the supplemental cylinder mounted upon said main oscillating cylinder and in communication by conduits h^3 h^4 with the valves thereof, the piston-rod h of said supplemental cylinder having the rollers h', and the cam-plates h^5 h^6, substantially as described.

10. The combination, with the oscillating cylinder having trunnion-valves and supply and discharge pipes leading therefrom, of the valve mechanism to control said pipes, and the companion conduits communicating with the trunnion-valves and with the opposite ends of the cylinder, respectively, substantially as described.

11. The combination, with the oscillating cylinder having trunnion-valves and suitable supply and discharge orifices therefor, of the companion conduits communicating with the trunnion-valves and with the opposite ends of the cylinder, respectively, substantially as described.

350,445. APPARATUS FOR VAPORIZING LIQUIDS. Ephraim B. Potter, Paducah, Ky. Filed Jan. 23, 1886. (No model.)



Claim.—1. In an electrical vaporizing apparatus, a non-combustible frame having an electrical conductor crossing the same in horizontal planes in directions at right angles to each other in different planes, substantially as specified.

2. In an electrical vaporizing apparatus, a non-combustible frame having an electrical conductor crossing the same in horizontal planes in directions at right angles to each other in different planes, and arranged under the center of squares formed by the conductor in the plane above, whereby said squares gradually diminish the vertical spaces between the wires of the whole series, substantially as specified.

3. In an electrical vaporizing apparatus, a non-combustible frame provided with an electrical conductor arranged as described, in combination with a superimposed perforated plate, substantially as specified.

4. In an electrical vaporizing apparatus, the combination of a water-tank provided with a discharge-pipe terminating in a rose or spraying device, a perforated plate, and an electrical conductor arranged to cross itself to form fine meshes, whereby water delivered from the tank in spray form is again distributed in a finer spray upon the heated conductors to be vaporized, substantially as specified.

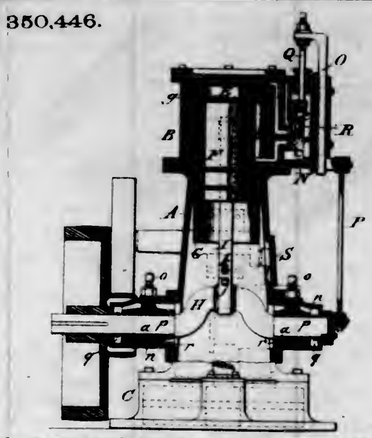
5. In an electrical vaporizing apparatus, the combination of a water-tank provided with a discharge-pipe terminating in a rose or spraying device, a perforated plate, and an electrical conductor arranged to cross itself to form fine meshes, and a vapor receiving and distributing receptacle or boiler, whereby the vapor may be applied to practical use as a motive power, substantially as specified.

350,446. COMPOUND STEAM-ENGINE. John Richards, San Francisco, Cal. Filed May 13, 1886. (No model.)

Claim.—1. In a steam-engine, the hollow sole-plate or condensing-chamber provided with a series of diaphragms secured alternately to the top and bottom walls, substantially as and for the purposes described.

2. In a double-acting steam-engine, the combination of the exhaust-

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pipe, the water-supply, the hollow sole-plate or condensing-chamber provided with a series of diaphragms secured alternately to the top and bottom walls, and the pump for removing the water, substantially as shown and described.

3. In a double-acting steam-engine, the combination of the main frame, the differential cylinder mounted thereon, the trunk-piston, the slide valve and ports, the exhaust-pipe, the water-supply, and the hollow sole-plate or condensing-chamber provided with a series of diaphragms secured alternately to the top and bottom walls, substantially as described.

4. In a steam-engine, the combination of the main inclosing-frame A, the cylinder B, having a downwardly-extending sleeve, G, the piston E, working in the cylinder and having a trunk, F, working in the sleeve, the crank-shaft H, connecting-rod I properly secured to the piston and the shaft, together with suitable adjusting mechanism for the rod, all arranged as described.

5. In a steam-engine, the main inclosing-case A, provided with shaft-bearings a a, inclosed within flanged shells n n, having screws o o adjustable from outside the casing and having also oil-channels q and r, substantially as described.

6. In a double-acting steam-engine, the main inclosing-casing A, having a removable door, S, and containing the shaft H, journaled in bearings a a, inclosed by shells n n and held in place by externally-adjustable screws o o, said casing A being located directly over the sole-plate C, and in combination with a differential cylinder mounted on the casing, substantially as shown and described.

7. In a steam-engine, the combination, with the main frame, the cylinder, the piston, crank-shaft, and connections, of the exhaust-pipe for the steam, the water-supply, the chambered condenser forming the base of the engine provided with a series of diaphragms secured alternately to the top and bottom walls, and the outflow-pump for the water, substantially as described.

350,447. OIL-CAN. John M. Riley, Newark, N. J. Filed July 19, 1886. (No model.)

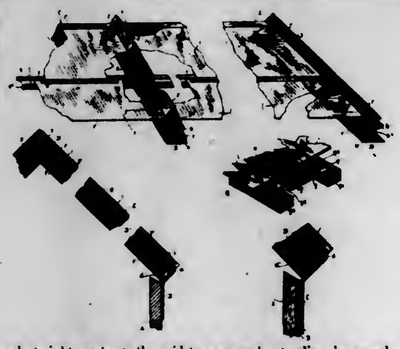


Claim.—The improved oil-can having the body made with its lower portion cylindrical, and terminating in an edge upon which the can rests, and having secured to its inner surface above said edge the flexible metallic bottom B, formed with an annular flange, and the supplementary metallic bottom C, having an annular flange and a central flanged orifice, said bottoms being attached by their flanges to the body of the can, as shown and described.

350,448. FRAME-WORK FOR SKYLIGHTS. Charles W. Strand, Cleveland, Ohio. Filed Mar. 10, 1886. (No model.)

Claim.—1. The combination, with rafters of solid metal bars rolled in the form in section of an inverted double T, of anchors, the same having tongues secured to the web of the rafters, the body of the anchors

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arranged at right angles to the said tongues and extending down and secured to the skylight-curb, substantially as set forth.

2. The combination, with the anchors D, of the apron E, the latter having a groove, *e'*, adapted to fit the upper end of the anchor, said apron extending under the glass and extending down the outside of the curb, substantially as set forth.

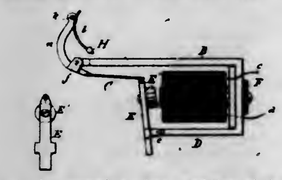
3. The combination, with rafters B, having slots *c*, of an angle-iron inserted in the slots of the rafters and arranged to form a cross-tie and ridges for the skylight, substantially as set forth.

4. The combination, with rafters and angle-irons, arranged substantially as described, of a cap, C', substantially as set forth.

5. The combination, with rafters, angle-irons at the sides, and caps above the angle-irons and glass, of caps J, secured to the rafters and extending over the edges of the glass and over the ends of the caps C', substantially as set forth.

6. The combination, with the rafters B, of the cross-bars G and apron H, arranged substantially as set forth.

350,449. ANNUNCIATOR. Charles A. Tucker, Islip, assignor to Tucker & Baxter, Brooklyn, N. Y. Filed July 9, 1885. (No model.)



Claim.—1. An annunciator-drop consisting of the magnet D, frame B, drop C, having arm *a*, attached to its upper edge, and pivotally balanced to the upper arm of the frame B, in combination with the armature-carrier E, pivotally balanced to the lower arm of the frame B in the path of the drop C, substantially as described and shown.

2. The annunciator-drop C, provided with arm *a*, attached to the middle of its upper edge, and pivotally balanced to the arm of the frame B, in combination with a suitable support to uphold said drop at its free edge, such support pivotally balanced to the lower arm of the frame B, and a suitable magnet to withdraw such support, substantially as described and shown.

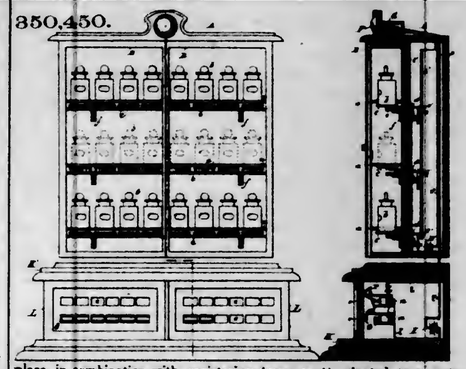
3. An annunciator provided with drops C, supported by arms *a*, pivotally balanced to the upper arm of the magnet-frame B, such arms having pins *k*, in combination with the rod H, carrying spurs *b*, adapted to engage with the pins *k* and reset the drops when upset by rotating the rod H, substantially as described and shown.

4. An electrical annunciator provided with drops C, supported by arms *a*, pivotally balanced on the upper arms of the frames B, magnets D, with suitable battery-connections, armature E', and armature-carrier E, pivotally balanced to the lower arm of the frame B in the path of the drops, and an electrical connection from the frames B to one pole of a battery, and an alarm signal device interposed in the circuit and adapted to be operated by closing the same, in combination with the rod H, connected to the other pole of the battery, and adapted to close the circuit and operate the alarm by contact with the arm *a* when one of the drops is upset, substantially as described and shown.

350,450. CASE FOR MEDICINE-BOTTLES. Charles A. Tucker, Islip, assignor to Tucker & Baxter, Brooklyn, N. Y. Filed Jan. 13, 1886. (No model.)

Claim.—1. A receptacle for bottles, having an electric alarm, rests for the bottles provided with movable parts adapted to be held out of circuit-closing position by the bottles when in place and to operate to close the circuit and sound the alarm when a bottle is removed from its

350,450.



place, in combination with registering-drops, as O, adapted to operate when a bottle is removed, substantially as described and shown.

2. In a receptacle for holding bottles, the circuit-closer consisting of the bottle-support *c* and arm *c'*, provided with suitable supports to hold them in position, in combination with rods *i i*, having suitable connections adapted to incorporate them in an electrical circuit, substantially as described.

3. The case A, provided with circuit-breakers adapted to close the circuit and sound an alarm when a bottle is removed, in combination with a suitable registering device electrically connected with each circuit-breaker and adapted to indicate at the registering device the particular bottle which has been removed, substantially as described and shown.

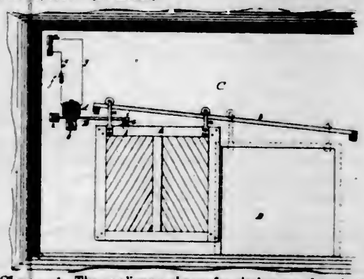
4. In a receptacle for holding bottles and registering the bottles which are removed therefrom, the registering device shown, consisting of a magnet-support, M, magnet *p*, armature *p'*, drop O, and their connections, the drops O having arranged upon them the names of the contents of the bottles, in combination with suitable circuit breaking and closing devices operated by removing and replacing the bottles, substantially as described and shown.

5. A receptacle for holding bottles, consisting of a case, as A, provided with bottle-rests and suitable circuit-breaking devices adapted to close the circuit and sound an alarm when a bottle is removed, in combination with a suitable case, as K, provided with registering devices having the names of the contents of the bottles displayed thereon, such registering devices electrically connected with the circuit-breakers and adapted to disclose the name of the contents of each bottle when such bottle is removed from its place, substantially as described and shown.

6. In a receptacle for holding bottles and registering the bottles removed therefrom, a case, as A, containing circuit closing and breaking devices adapted to be operated by removing and replacing the bottles, in combination with suitable indicators adapted to indicate what bottles have been removed, and provided with a device for resetting the indicators, substantially as described and shown.

7. In a receptacle for holding bottles, provided with suitable circuit closing and breaking devices adapted to be operated by removing and replacing the bottles, a registering device adapted to indicate the bottles which have been removed, in combination with a suitable resetting device, as the lever *v*, and its connections adapted to operate the registering device and reset the indicators automatically by closing the door of the receptacle, substantially as described and shown.

350,451. APPLIANCE FOR CLOSING OPENINGS IN BUILDINGS AUTOMATICALLY. Charles A. Tucker, Islip, N. Y., assignor to Charles R. Heiden, Newark, N. J., and Tucker & Baxter, Brooklyn, N. Y. Filed Jan. 23, 1886. (No model.)



Claim.—1. The appliances shown for closing openings in buildings by electricity, consisting of suitable closing-doors, adapted to close their

openings automatically when free, a suitable detent, as *c*, and catch *i*, to retain the same in position open, in combination with an armature, *d'*, magnet *d*, battery *f* and its connections, to form an electrical circuit, and a thermostat, as *e*, interposed in said circuit and adapted to close the same at a determined degree of temperature, substantially as described and shown.

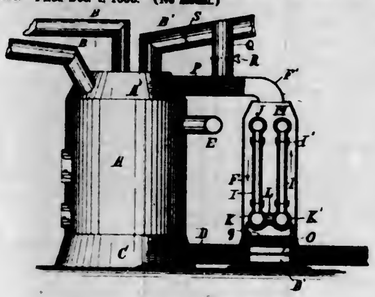
2. In appliances for closing openings in buildings by electricity, a closing-door adapted to move across its opening automatically when free, having a detaining device, a suitable catch to engage with such detaining device and retain the door in position open, and an armature adapted to actuate the catch and withdraw the same, in combination with suitable magnets to operate such armature, the magnets arranged in an electrical circuit adapted to be closed by a suitable thermostat, substantially as described.

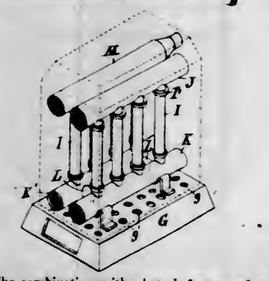
3. In appliances for closing openings in buildings by electricity, the combination of the detent *c*, provided with friction-rollers *j*, pivoted catch-bar D, and adjusting-screw *h*, substantially as described.

4. In appliances for closing openings in buildings by electricity, the combination of the door F, swinging arm *p*, cord *o*, bolt *l*, staple *m*, pulleys *q q r*, weight I, and a suitable catch, to support the weight in position, with a releasing mechanism operated by an electro-magnet and adapted to release the weight to draw the door F across its opening, substantially as described and shown.

5. In appliances for closing openings in buildings by electricity, a series of closing-doors adapted to move across their openings automatically when free, such doors provided with suitable detents and catches to engage with such detents and hold the doors open, and armatures to actuate the catches and release the closing-doors, in combination with a series of magnets arranged to attract such armatures, electrically connected with each other and with the poles of a battery, and a series of thermostats adjusted to close the circuit at determined degrees of temperature, and electrically connected with each other and with the other pole of the battery and with the magnet-wires, and adapted to complete the circuit and excite all the magnets in the series when the circuit is closed by any one of such thermostats, substantially as described and shown.

350,452. AIR-HEATING-FURNACE RADIATOR. Charles P. Zimerman, Newark, N. J., assignor of one-half to Isaac P. Brown, Jr., same place. Filed Dec. 4, 1885. (No model.)





Claim.—1. The combination, with a hot-air furnace, of an auxiliary air-chamber containing vertical collared earthenware pipes having headers connected together at one end of said pipes and disconnected at their opposite ends, the smoke-pipe from the furnace being connected with both of said disconnected headers, and a damper being inserted in the smoke-pipe between its connections to said headers, so as when closed to direct the smoke and gases through the radiating-pipes, as and for the purpose set forth.

2. The combination, with a hot-air furnace, of a discharge-pipe, B', an auxiliary air-chamber supplied with cold air and containing radiating-pipes connected with the smoke-pipe of the furnace, and the air-chamber being provided with a discharge-pipe leading to the top of the furnace, a damper, P, in said discharge-pipe F', a connection, Q, to the register-pipe B', and a damper, R, in such connection, as and for the purpose set forth.

3. The combination, with the furnace A, an auxiliary air-chamber, F, containing radiating-pipes connected with the smoke-pipe of the furnace, of the cold-air pipe D, supplying the base of the furnace, the duct D', supplying the base of the air-chamber, the damper O in the said duct, and a discharge pipe from the top of the air-chamber, as and for the purpose set forth.

350,453. MACHINE FOR SEWING ON BUTTONS. Joseph S. Collins, Philadelphia, Pa., assignor, by direct and mesne assignments, of two-thirds to John G. Ulmer and John H. Johnson, both of same place. Filed Nov. 14, 1885. (No model.)

Brief.—The buttons to be sewed by the machine on fabrics may be either lasting or shank buttons. When the required number of stitches have been made, the machine is automatically stopped, and the needle-bar is left in a raised position with the needle out of the fabric.



Claim.—1. The combination, with a sewing-machine, of a holder or device for holding a button and fabric or material while being stitched together, said holder consisting of a vertical plate, disk, or stock having a socketed or recessed face and a slot for the passage of the fabric and button projection or shank, substantially as shown and described.

2. The combination, with a sewing-machine, of a button and fabric or material holder or device for holding a button while being stitched together, said holder consisting of a vertical plate, disk, or stock having a recess or socket on its face, a slot for the passage of the fabric and button projection or shank, and a slot or groove on its back for the passage of the needle, substantially as shown and described.

3. The combination, with the stitch-forming devices of a sewing-machine and a bed-piece, of a slide fitted to move on said bed-piece, a vertical button-holder adapted and arranged to hold a button on its edge, or vertically, and having a slot or groove for the passage of the sewing-machine needle, and means, substantially as described, for imparting an intermittent reciprocating movement to said slide and holder, as set forth.

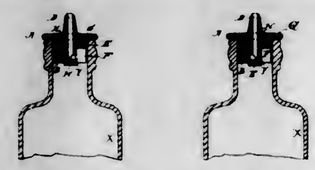
4. The combination, with the main shaft and stitch-forming mechanism of a sewing-machine, of means for automatically stopping the machine when a predetermined number of stitches has been made, said means comprising the following parts: a main shaft by which motion is communicated to said stitch-forming mechanism, a fast and a loose pulley on said shaft, a slide having a retracting-spring for moving it in one direction, a belt-shifter and a brake connected to said slide, a detent for holding said slide against the action of the slide-spring, a ratchet-wheel having pins or studs which successively contact with a projection on said detent, a pawl which engages with said ratchet and imparts a step-by-step movement thereto, an eccentric on the main shaft, and a strap on said eccentric connected to said pawl, said parts being constructed and combined for operation, substantially as shown and described.

5. The combination, with the main shaft having fast and loose pulleys and the stitch-forming mechanism of a sewing-machine, of a slide carrying a belt-shifter and a brake, and a spring for moving said slide to shift the belt and bring the brake into contact with the pulley, said spring having means for adjusting its tension to adapt the brake to stop the machine at varying speeds, with the needle elevated, substantially as set forth.

6. The combination, with the main shaft and stitch-forming mechanism of a sewing-machine, of a fast and a loose pulley on said shaft, a slide, a belt-shifter, and a brake on said slide, a spring for moving said slide, a detent for holding said slide against the action of said spring, and means, operating substantially as described, for automatically releasing the slide to cause it to move under the influence of the spring, substantially as set forth.

7. The combination, with the stitch-forming mechanism of a sewing-machine, of a device for holding fabric and material and a button while being stitched together, said device consisting of a vertical or upright disk with a socketed face and a slotted back located between the needle and co-operating part of the stitching mechanism, whereby the needle in its movement passes through the fabric above and below the shank or projection of the button, substantially as shown and described.

350,454. STOPPER. Frederick J. Deverall, Brooklyn, assignor to the Deverall Manufacturing Company, New York, N. Y. Filed May 7, 1886. (No model.)



Claim.—1. As an article of manufacture, the stopper herein shown and described, consisting of the cork B, centrally apertured at Y, and laterally recessed at its inner end, as at F, and the integral white-metal casting N, consisting of the tube E and flange G, the latter being intermediate said tube and completely covering said cork and a portion of the upper edges of the bottle, and its edges serving as a means by which it may be turned, the lower part of the tube E being flangeless and closed at its lower end, and provided with a lateral opening, H, substantially as shown and described.

2. The integral metal casting N, consisting of the tube E and intermediate covering-flange, G, bearing an indicating-character, the tube E being closed at its lower end and provided with a lateral opening, F, combined with the cork having aperture Y and recess H, and with an indicating-character on the neck of the bottle in line with said recess, substantially as and for the purposes set forth.

350,455. PROCESS OF TREATING FUR. William E. Doubleday, New York, N. Y. Filed Mar. 2, 1886. (No specimens.)

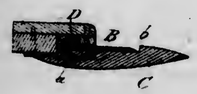
Claim.—1. As an improvement in the art of treating fur, first subjecting the skin and adhering fur fibers to the action of a bath, and subsequently detaching the fur fibers from the skin, substantially as set forth.

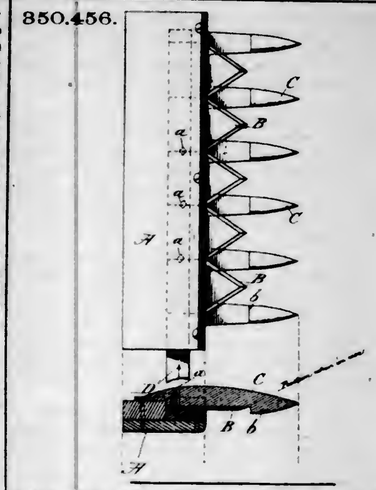
2. As an improvement in the art of treating fur, first subjecting the skin and adhering fur fibers to the action of a bath, which changes the color of the fur fibers and changes the texture of the skin, and subsequently subjecting the material to the action of a machine, which further reduces the skin to small fragments and detaches the fur fibers therefrom, substantially as set forth.

3. The process of removing the skin from the fur by subjecting them to the action of hot water, and then separating the water, with skin in solution, from the fur, substantially as set forth.

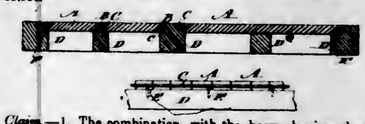
350,456. CUTTING APPARATUS FOR MOWERS AND REAPERS. Thomas J. Forshee, Brownsburg, Ind. Filed June 27, 1885. (No model.)

Claim.—In a mower or reaper, a cutting mechanism consisting of the rectangularly-grooved finger-bar A, the open guard-fingers C C, provided with oil-holes *a a*, and having projecting portions *b*, and the knife-bar D, carrying cutting-knives B B, beveled on the lower edge, said bar fitting and sliding closely within the groove of the finger-bar, substantially as shown and described.





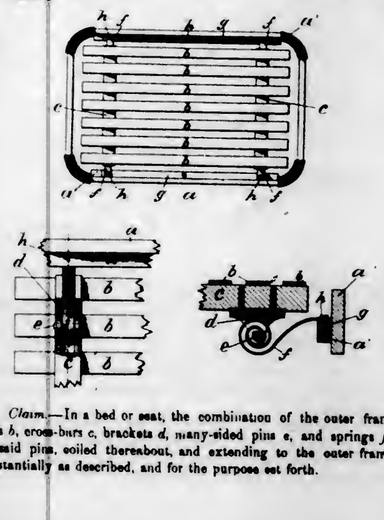
350,457. PARQUET-FLOORING. Emile F. Guerin, Paris, France. Filed Feb. 20, 1886. (No model.) Patented in England Apr. 15, 1884, No. 6,288; in Belgium Apr. 30, 1884, No. 65,001; in France July 29, 1884, No. 163,533, and in Austria-Hungary Nov. 22, 1884, No. 52,873 and No. 53,952.



Claim.—1. The combination, with the beams having shoulders or reduced at their upper edges and grooves in their sides, of the boards having in the ends grooves, and the plates fitting in the grooves of said beams and boards, said boards resting upon the shoulders of said beams, substantially as and for the purpose set forth.

2. The combination, with the intermediate and side beams, the side beams having shoulders or reduced at their upper edges and grooves in their sides, of the boards having grooves in their ends, and the plates entering the grooves in, and uniting the abutting ends of, said boards, and entering grooves in the other ends of said boards and the beams, said boards resting upon the intermediate beam at their abutting ends and upon the shoulders of the side beams at their opposite ends, substantially as and for the purpose set forth.

350,458. BED. William R. Hartigan, Burlington, assignor of one-half to William H. Goodwin, Canton, Conn. Filed Mar. 5, 1886. (No model.)



Claim.—In a bed or seat, the combination of the outer frame, *a*, slats *b*, cross-bars *c*, brackets *d*, many-sided pins *e*, and springs *f*, fast to said pins, coiled thereabout, and extending to the outer frame, all substantially as described, and for the purpose set forth.

350,459. SUBSTITUTE FOR INDIA-RUBBER, CAOUTCHOUC, &c. Albert Kissel, Frankfort-on-the-Main, Germany, assignor to the Adamanta Manufacturing Company, Boston, Mass. Filed June 1, 1886. (No specimens.) Patented in France May 12, 1884, No. 162,066, and in England Apr. 9, 1886, No. 4,918.

Claim.—1. As an improved article of manufacture, a substitute for caoutchouc, gutta-percha, &c., consisting of hardened resin and balsams of the class referred to and oil and sulphur, compounded together substantially as described.

2. The art or method of combining hardened resin and balsams of the class referred to with oil and sulphur, whereby a substitute for caoutchouc, gutta-percha, and similar substances is formed, substantially as described.

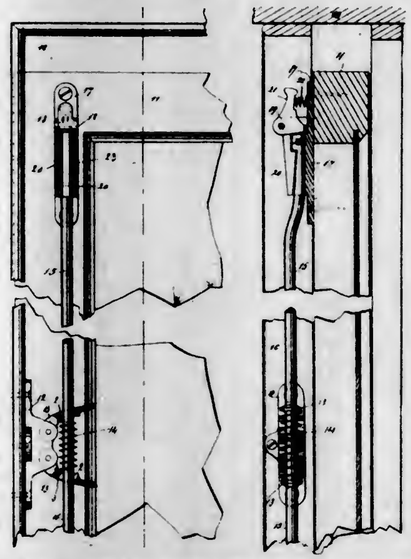
3. The art or method of manufacturing a substitute for caoutchouc, gutta-percha, and similar substances, which consists in dissolving in oil hardened resins and balsams of the class referred to; second, adding to the solution so formed a second solution composed of sulphur and oil, and, lastly, heating the mixed solutions, as and for the purpose set forth.

4. The art or method of manufacturing a substitute for caoutchouc, gutta-percha, and similar substances, which consists in dissolving in oil hardened resins and balsams of the class referred to; second, adding to the solution so formed a second solution composed of sulphur and oil; third, adding sulphur to the mixed solutions, and, lastly, heating the entire mass, as and for the purpose set forth.

5. The art or method of manufacturing a substitute for caoutchouc, gutta-percha, and similar substances, which consists in hardening resins and balsams of the class referred to by means of caustic lime or other caustic alkaline earth; second, dissolving the said hardened resin or balsam in oil; third, adding to the solution so formed a second solution composed of sulphur and oil, and thereafter heating the combined solutions, substantially as described.

6. The art or method of manufacturing a substitute for caoutchouc, gutta-percha, and similar substances, which consists in hardening resins and balsams of the class referred to by means of caustic lime or other caustic alkaline earth; second, dissolving the said hardened resin or balsam in oil; third, adding to the solution so formed a second solution composed of sulphur and oil; fourth, adding sulphur to the mixed solutions, and, lastly, heating the entire mass, as and for the purpose set forth.

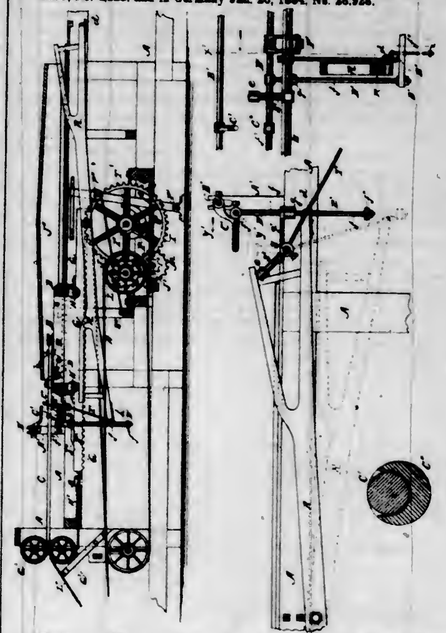
350,460. SASH-LOCK. James G. Leslie, Oregon, Ill. Filed Aug. 9 1886. (No model.)



Claim.—1. A sash-lock consisting, essentially, of pivotally-mounted arms formed with apertures 2, a spring, 14, arranged between the arms, a rod, 15, formed with a shoulder, 16, and a bracket carrying a locking-dog, 19, substantially as shown and described.

2. In a sash-lock, the combination, with a bracket, 12, of pivotally-mounted arms 13, formed with apertures 2, a spring, 14, arranged between the arms 13, a rod, 15, formed with a shoulder, 16, a bracket, 17, a pivotally-mounted locking-dog, and a spring, 22, substantially as described.

350,461. MACHINE FOR TURNING BAGS. Samuel T. Lockwood, Chicago, Ill., assignor to D. J. Whiting, same place. Filed May 23, 1883. Renewed Mar. 26, 1884. (No model.) Patented in England Sept. 21, 1883, No. 4,523, and in Germany Jan. 20, 1884, No. 28,928.



Claim.—1. The combination of the fingers C' C' with the fingers C'' C'', the latter being adapted to receive the fingers C' C', and one set of the said fingers being movable with relation to the other, supports for the said fingers, and means for moving one set of the said fingers with relation to the other, substantially as and for the purposes specified.

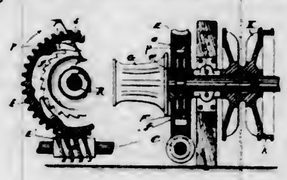
2. The combination, substantially as specified, of the laterally-yielding bow-shaped and reciprocating arms C C, the arms S' S', and the fingers C' and C'', with means for reciprocating and contracting the arms C C for operating the arms S' S', supports for the said fingers, and means for moving one set of the said fingers with relation to the other, for the purposes set forth.

3. The combination of the pivoted and expansible bag-reversing arms C C, diverging from their forward or free ends rearward, and then being contracted or converging, with means for contracting, expanding, and reciprocating the said arms, and with means for holding open the mouth of a bag, substantially as and for the purposes specified.

4. The combination, substantially as specified, of the bag-reversing arms C C, the tilting or pivoted arms S' S', and the bag-holding fingers C' C'', with means for operating the arms C C and S' S', supports for the said fingers, and means for moving one set of the said fingers with relation to the other, for the purposes set forth.

5. The combination of the bag-supporting table J'', a holder for holding the bags open, consisting of the separable fingers C' and C'' and supports for the same, one set of fingers being grooved to receive the other set, the reciprocating, yielding, and bow-shaped reversing-arms C C, means for drawing the said arms together yieldingly, means for reciprocating them, and the tilting arms S' S', with the tilting-lever R, and means for operating it, and means for operating the fingers C'' C'' and S' S' from said lever, all adapted for operation in connection with each other, substantially as and for the purposes specified.

350,462. SHIP-WINDLASS. Joseph P. Manton, Providence, R. I., assignor to Edgarton Bynner, Brooklyn, N. Y. Filed Jan. 15, 1885. (No model.)

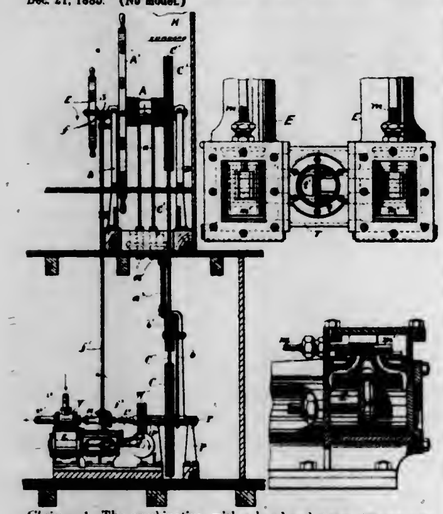


Claim.—1. In a ship's windlass, the combination, with a ratchet-wheel rigidly secured to the windlass-shaft, of a chambered or hollow worm gear-wheel loosely mounted on said shaft, spring-actuated pawls pivoted to and working in said wheel, a cap or plate removably secured to and forming one side and hub of the worm-wheel, a worm, and means whereby said worm and its wheel are operated, all constructed and arranged substantially as shown and set forth.

2. The loosely-mounted hollow gear-wheel having a removable side and spring-actuated pawls pivoted to the interior of said wheel, in combination with a rigidly-secured ratchet-wheel arranged in the gear-wheel and a driving-shaft having said wheels mounted thereon, substantially as set forth.

3. In a manual or steam power windlass, the combination, with the windlass having a hollow worm-wheel loosely mounted on the windlass-shaft, a ratchet-wheel secured to the said shaft inside the worm-wheel and connected with the latter by means of self-acting pawls, of a steam-winch or donkey-engine mounted in a housing located abaft the windlass, a suitably-mounted driving-shaft, C, arranged fore-and-aft, having a worm secured thereon engaging said worm-wheel, and gearing whereby the shaft C is actuated at right angles, or nearly so, with the driving-shaft of said donkey-engine, substantially as shown and set forth.

350,463. STEAM STEERING APPARATUS. Joseph P. Manton, Providence, R. I., assignor to Edgarton Bynner, Brooklyn, N. Y. Filed Dec. 21, 1885. (No model.)



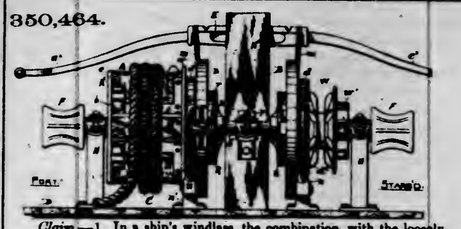
Claim.—1. The combination, with a hand and steam steering-gear, of the screw-threaded driving-shaft P, a nut mounted on said screw having the reversing-valve directly connected therewith, a suitably-mounted bushing adapted to revolve said nut, and means, substantially as shown and described, for operating the bushing, as set forth.

2. The steering-drum A, provided with a hand-wheel, A', and wheel a^3, bearings supporting the drum and shaft, one or more engines or motors, E, screw-threaded driving-shaft P, actuated by means of said engines, gear-wheel W, and score-wheel C, mounted on the driving-shaft, in combination with the reversing-valve V^2, trick-wheel E^2, and means, substantially as shown and described, for operating said valve, the whole arranged whereby a band or flexible connection, C', is adapted to transmit power from the engines to the steering-drum, as and for the purpose set forth.

3. In a hand and steam steering apparatus, the combination, with the screw-threaded driving-shaft and nut N, mounted thereon, having the reversing-valve V^2 connected directly therewith, of the mounted bushing D, adapted to operate said nut by means of a trick-wheel, E^2, substantially as shown and hereinbefore set forth.

4. In a hand and steam steering apparatus, the combination, with the drum A, engines E, and shaft P, arranged to drive said drum, of a hollow tie, T, connecting the engines, a reversing-valve, V^2, mounted in a casing secured to said tie, a nut, N, connected with said valve, adapted to be moved endwise by means of the shaft P, and mechanism, substantially as shown and described, in connection with said nut, by means of which the steersman is enabled to operate the valve V^2 independently of the rotation of the shaft P, as set forth.

350,464. SHIP-WINDLASS. Joseph P. Manton, Providence, R. I., assignor to Edgarton Bynner, Brooklyn, N. Y. Filed Jan. 8, 1886. (No model.)



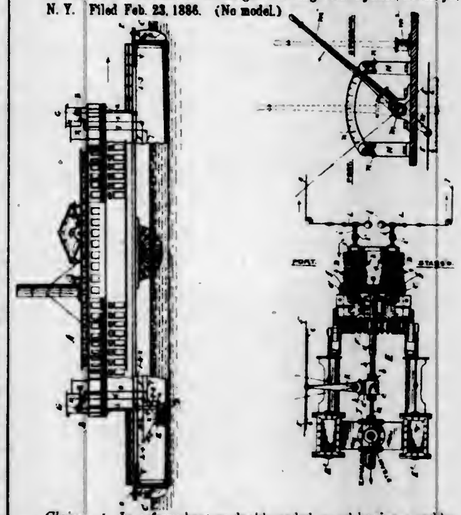
Claim.—1. In a ship's windlass, the combination, with the loosely-mounted drum having longitudinally-arranged projecting ribs removably secured thereto, adapted to receive the cable, and means for controlling the cable in running out, of a driving-head firmly secured to the windlass-shaft, and means, substantially as shown and described, for locking the drum to the driving-head, for the purpose set forth.

2. The improved drum hereinbefore described, consisting of the end flanges connected or integrally united by means of the center hub and its ribs, and a series of projecting wooden ribs fitted radially around said hub to form longitudinal welts, which are retained in position by means of bolts, substantially as shown, the whole arranged and adapted for use as and for the purpose set forth.

3. In a ship's windlass, the drum A, hereinbefore described, loosely mounted on the driving-shaft, having the metallic hub A^3, end flanges, A' a^2, sockets *b*, and wooden ribs *a*, fitted and secured longitudinally of the drum, in combination with the rigidly-secured driving-head provided with means for locking it to the drum, substantially as described, and for the purpose set forth.

4. The windlass hereinbefore described, consisting of the main shaft S, driving-heads B, secured to said shaft, a wild-cat, W, having sockets formed therein, loosely mounted on the shaft, and means for locking the wild-cat to its driving-head, the drum A, provided with longitudinal ribs *a*, and sockets *b*, loosely mounted on said shaft, means for locking the drum to its driving-head, and means for imparting a rotary motion to the windlass, the whole combined, arranged, and mounted in bearings secured to the bitts, all substantially as shown and set forth.

350,465. STEERING MACHINERY FOR FERRY-BOATS. Joseph P. Manton, Providence, R. I., assignor to Edgarton Bynner, Brooklyn, N. Y. Filed Feb. 23, 1886. (No model.)



Claim.—1. In a ferry-boat or double-ended vessel having a rudder at each end thereof, a motor or engine, two suitably-mounted drum-shafts, a gear-wheel secured to each shaft, a steering-drum, D, loosely mounted on each shaft, located at the rear of and actuated by said motor, a friction-head, lever, and connections for frictionally locking said drums and gear-wheels together, and mechanism, consisting of a flexible connection, a lever, a screw-threaded bushing mounted on a driven shaft, and a nut actuated by said lever and shaft for opening and closing the reversing-valve of the motor or engine, in combination with two pilot-houses, each having a suitably-mounted hand lever or wheel adapted to operate the said reversing-valve lever, and an arm and flexible connections for actuating the said locking-lever of the corresponding steering-drum, D, the whole constructed and arranged whereby the steersman is enabled to control the movement of the rudder, substantially as shown, and hereinbefore set forth.

2. In a ferry-boat or double-ended vessel having a rudder and a suitably mounted and connected hand-steering drum at each end thereof, the combination therewith of the power-driving mechanism herein described, consisting, essentially, of the motor E, having loosely-mounted steering-drums connected to each rudder, means, substantially as shown, for locking the drums D to the driving-wheels *e'*, a lever, K, &c., for operating the reversing-valve of the engines, and levers M R, mounted in each pilot-house, connected, respectively, to said reversing-valve lever K, and the drums and locking device for operating the same, the whole constructed and arranged whereby the steersman is enabled to control the movement of the rudder from each pilot-house, as desired.

3. The combination, with the reversing-valve mechanism of a steam steering-engine adapted to independently operate the two rudders of a ferry-boat, of a bar or lever mounted in each pilot-house, a frame in which the lever is pivoted, two stops for limiting the angular movement of the free end of the lever, and ropes or flexible connections secured to the other arm of the lever, and the reversing-valve mechanism, substantially as shown, and for the purpose hereinbefore set forth.

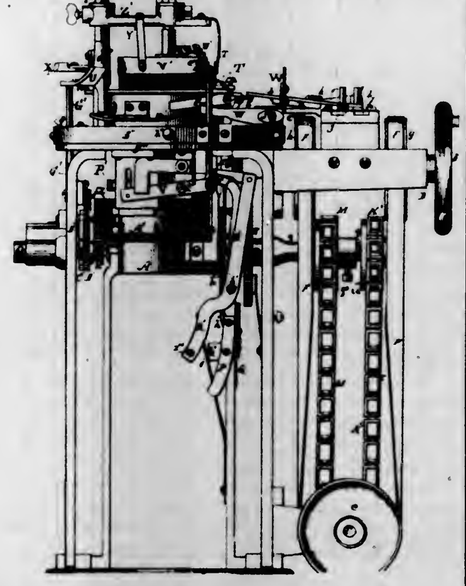
4. The combination, with a hand steering-drum, G, mounted in each pilot-house of a ferry-boat, rudders C C, and ropes 1 2, connecting said drums and rudders, of the motor or engine E, two loosely-mounted steering-drums, D D, actuated by said motor, wire ropes 3 4, leading from said drums D to the respective rudders, mechanism, substantially as shown and described, for locking and unlocking the drums D to and from the driving-gears *e'*, connections 7 8, for actuating said mechanism, a lever or rod, R, mounted in each pilot-house for operating the connections 7 8, a valve-reversing mechanism for the engines, provided with the lever K, a lever or trick-wheel, M, suitably mounted in each pilot-house, and wire ropes 5 6, connecting the respective levers M M with the lever K, the whole constructed and arranged substantially as shown, and for the purpose hereinbefore set forth.

5. In a ferry-boat provided with two rudders, C C, pilot-houses B B, and hand steering-drums G G, the combination, with the engines or motors E', means for controlling the same, and the two suitably-mounted gears *e'*, driven by said engines, of two loosely-mounted steering-drums, D, means for locking said drums to the gears *e'*, and steering-ropes 3 4, connecting the drums D to the respective rudders, constructed and arranged substantially as shown and set forth.

6. The combination, with a steering-engine, the reversing-valve, and lever for actuating said valve, of the lever M, frame N, in which the latter lever is pivoted, stops *n n*, mounted in said frame for limiting the vibratory movement of the lever M, and wire ropes connecting the lower end of the lever M and the said valve-lever, substantially as shown, and hereinbefore described.

7. The combination, with the frame N, stops *n n*, adjustably mounted in said frame, and graduated arc *n'*, of the lever M, pivoted to the frame, and ropes connecting the short arm of the lever and the reversing-valve lever of a steam steering-engine, all constructed and arranged substantially as shown, and for the purpose set forth.

350,466. CIRCULAR-KNITTING MACHINE. William H. Pepper and Albert T. L. Davis, Lake Village, N. H., assignors to Joseph A. Burleigh, same place. Filed June 19, 1885. (No model.)



Claim.—1. The combination of the revolving cam-cylinder B, having a tappet, *m*, thereon, a stop-lever, L, slide I, lever K, clutch part G, pulley *g*, driving-shaft D, gearing for driving the cam-cylinder from the shaft D, belt F, and power-shaft C, whereby the machine is stopped by the action of the cam-cylinder, for the purpose herein set forth.

2. The combination of the revolving cam-cylinder B, having a tappet, *m*, thereon, stop-lever L, slide I, lever K, clutch part G, pulley *g*, driving-shaft D, gearing for driving the cam-cylinder from the shaft D, belt F, power-shaft C, pattern-chain M, mechanism for actuating the pattern-chain, and mechanism, substantially as described, connecting the pattern-chain and lever, whereby the said lever is moved into the pathway of the cam-cylinder tappet, for automatically stopping the machine, substantially as described.

3. The combination of the stop-lever L, pivoted block *n* on which the stop-lever rests and is raised and lowered, pattern-chain M, mechanism for actuating the pattern-chain, lever *x*, actuated by the pattern-chain, plate *t*, lifted by the said lever *x* and arm *a'*, between the plate *t* and block *n*, the whole constituting mechanism for raising the stop-lever by the pattern-chain, substantially as herein specified.

4. The combination of the power-shaft C, driving-shaft D, connecting-belt F, pulleys *e f* on the shaft C, pulleys *g h* on the driving-shaft driven in opposite directions by the belt-clutch parts G H, for the respective pulleys, slides I J, and levers K K, for operating the respective clutches, levers L R, for moving the respective slides revolving cam-cylinder B, gearing for revolving the cam-cylinder from the shaft D, and double-ended tappet S on the cam-cylinder, adapted to act alternately on the levers in opposite movements, whereby the motion of the cam-cylinder is automatically reversed at every turn thereof, substantially as described.

5. The combination of the clutch-operating slides I J, having slots *i i*, reversed in position, coupling cross-bar *p'*, attached to one of the slides, and spring-plate *z* on the cross-bar carrying a coupling-pin, *q'*, adapted to drop or be forced into a coupling hole or notch, *s'*, in the other slide, whereby the slides may be coupled together for moving simultaneously, substantially as described.

6. The combination of the needle-cylinder, needles *a a*, needle-lifter N, and mechanism consisting of the slide O, levers P P, and cam-lever Q, whereby the needle-lifter is first moved to place it in position to engage the butts of the needles, then upward to raise the needles, then downward to draw down the needles, and then outward away from the needles, for the purpose herein specified.

7. The combination, with the needle-lifter N, of the extension-plates *w''' w'''* and means, consisting of the levers R' R', for extending and retracting the same, for the purpose herein specified.

8. The combination, with the levers L R, cam-cylinder, means for revolving the same, and tappet S, of mechanism consisting of the lever *x*, sliding rod *b'''*, arm *c''*, lever W', the pattern-chain M, and means for actuating the pattern-chain M, whereby the said levers L R at the proper time are automatically brought into and raised above the pathway of the tappet, for the purpose herein specified.

9. The combination of the tracker-pins T T, cam U, means for supporting the said cam, and means consisting of the cams *e'' e''*, and connecting-band *f'*, for moving the tracker-pins into and out of the pathway of the cam, for the purpose herein specified.

10. The combination of the tracker-pins T T, retracting-levers W W, cam X, and means for supporting the cam, for the purpose herein specified.

11. The combination of the lifters Y Y, circular racks A' B', connecting-gear Z, ratchet-wheels C' D', actuating pawls E' F', and means for actuating the said pawls, substantially as and for the purpose herein specified.

12. The combination, with the pawls E' F', means for actuating the said pawls, slide-plates H' I', pattern-chain K', means for actuating the said chain, cam-slides L' M', and mechanism consisting of the connecting-rod N', lever *o'*, and lever J', whereby the movements of the slide-plates are automatically controlled, for the purpose herein specified.

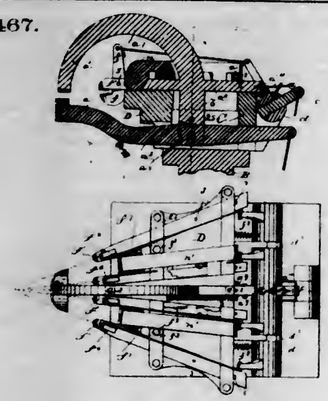
13. The combination of a needle-lifter, N, provided with extensions for lifting a variable number of needles out of action at one time, and means for operating said lifter with single needle-lifters Y Y, and means, substantially as described, for supporting and operating said lifters Y Y, whereby lateral movements may be imparted thereto to adapt them in position to the variable number of needles by the lifter N, for the purpose herein specified.

14. The disk or plate S', provided with the projection *b''''* and shoulders *c''''*, substantially as herein specified, in combination with the needle-cylinder and needles, for the purpose set forth.

350,467. MACHINE FOR STRETCHING UPPERS. Albert F. Preston, Boston, Mass., assignor to the Preston Machine Company, same place. Filed Feb. 15, 1886. (No model.)

Claim.—1. In a machine for stretching the upper of a boot or shoe, the movable clamp to grasp and hold the upper at a point some distance from its edge, combined with a series of grippers to grip the upper at the edge, and means, substantially as described, for moving both the up-

350,467.



per-holding clamp and grippers rearwardly, but for different distances, substantially as described.

2. In a machine for stretching the upper of a boot or shoe, the clamp to grasp and hold the upper at a point some distance from its edge, combined with a series of grippers arranged diagonally with relation to each other, as described, to grip the upper at the edge, and means, substantially as described, for simultaneously moving both the upper-holding clamp and grippers rearwardly, but for different respective distances, all as set forth.

3. In a machine for stretching the upper of a boot or shoe, the movable clamp to grasp and hold the upper at a point some distance from its edge, the series of diagonally-moving grippers to grasp the upper at the edge, and means, substantially as described, for simultaneously moving the said upper-holding clamp and grippers rearwardly, but for different respective distances, combined with a series of hammers constructed and arranged, substantially as described, to beat the said upper when the grippers are in their rearward position, all substantially as and for the purpose set forth.

4. In a machine for stretching the upper of a boot or shoe, the sliding jaw a' and pivoted jaw a, the diagonally-arranged sliding jaws f', and pivoted jaw f, combined with rock-shafts, arms projecting therefrom in different directions, link a^{10}, and rods f'', respectively connecting the upper-holding jaws a a' and the jaws f f' with said arms, and means, substantially as described, for operating said rock-shaft, all substantially as described.

5. In a machine for stretching the upper of a boot or shoe, the upper-holding clamp a a' and grippers f f', and means, substantially as described, for moving them, combined with a series of hammers, and means, substantially as described, for automatically raising and dropping said hammers as the grippers are moved, and the anvil-blocks n^3, all substantially as described.

6. In a machine for stretching the upper of a boot or shoe, the upper holding clamp a a', the grippers consisting of the pivoted jaw f and the sliding jaw f, said grippers being arranged diagonally, as described, and being of varying lengths, whereby the acting faces of the grippers may lie in a line substantially parallel with the upper-holding clamp in their normal position, but to gradually assume an arc of a circle as they are moved, combined with a rock-shaft, and means, substantially as described, connecting said grippers with the rock-shaft, whereby they are simultaneously moved, all substantially as described.

7. In a machine for stretching the upper of a boot or shoe, the yielding or movable clamp to grasp and hold the upper at a point some distance from its edge, combined with a series of grippers to grip the upper at the edge, and means, substantially as described, for moving said grippers rearwardly, substantially as described.

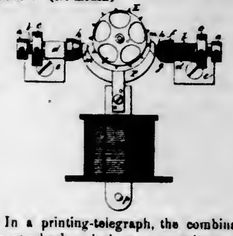
8. In a machine for stretching the upper of a boot or shoe, the yielding or movable clamp to grasp and hold the upper at a point some distance from its edge, combined with a series of grippers arranged diagonally with relation to each other, as described, to grip the upper at the edge, and means, substantially as described, for moving said grippers rearwardly, all as set forth.

350,468. MANUFACTURE OF NAPHTHOL-CARBONIC ALKALINE SALTS. RUDOLF SCHMITT and CARL KOLBE, Dresden, Saxony, Germany, assignors to Dr. F. Von Heyden, Nachfolger, Radebeul, near Dresden, Saxony, Germany. Filed July 9, 1886. (No specimens.) Patented in Germany Sept. 19, 1884, No. 31,240, and in England May 19, 1885, No. 6,134.

Claim.—1. The process for the manufacture of naphthol-carbonic alkaline salts by the action of dry carbonic acid at atmospheric temperature, either without pressure or under pressure in conjunction with a cooling process, upon naphthol alkaline salts, and converting the dry naphthol-carbonic alkaline salts thus obtained into alpha or beta carbo-naphthol-acid alkaline salts by heating in air-tight apparatus to from about 120° to 140° centigrade, substantially as hereinbefore described.

2. The process for the direct production of carbonaphthol-acid salts by the reaction of carbonic acid upon the alkaline salts of alpha or beta naphthol under pressure at a temperature of 120° to 145° centigrade, substantially as herein described.

350,469. PRINTING-TELEGRAPH. D. BRYON SCOTT, Brooklyn, N. Y., assignor to the Western Union Telegraph Company of New York. Filed May 24, 1886. (No model.)

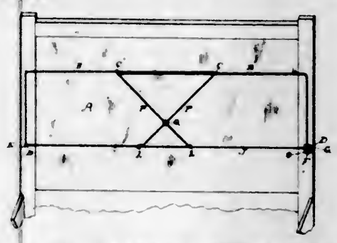


Claim.—1. In a printing-telegraph, the combination of a type-wheel, an escapement-wheel, a clock-motor or other suitable apparatus for driving the type-wheel shaft, an escapement-anchor, an electro-magnet controlling said anchor, and limiting-buffers formed of sole-leather or other equivalent tenacious and non-resonant material, as and for the purpose described.

2. In a printing-telegraph, the combination of escapement apparatus consisting of escapement-pallets and limiting-buffers formed of sole-leather and a cup-shaped holder, as and for the purpose described.

3. In a printing-telegraph, an escapement-wheel, E, escapement-pallets P, having contact-pieces *m*, and limiting-buffers formed of sole-leather *h*, holder *f*, set-screw *b*, and brackets *e*, substantially as described.

350,470. PILLOW-SHAM HOLDER AND LIFTER. SAMUEL A. SOUTHER and JOSEPH M. TAYLOR, Los Angeles, Cal. Filed Feb. 1, 1886. (No model.)



Claim.—1. In a pillow-sham holder, substantially such as described, the combination of the bedstead, a frame extending thereacross, the loop E and elongated loop F thereon, and the hook-eyes D, whereby the holder is adapted to be locked and unlocked in its upright position by lowering and raising one side of the frame, and whereby the locking device is adapted to be conveniently changed from one side of the bedstead to the other.

2. The improved means for securing pillow-sham-holder frames to bedsteads, consisting, as set forth, of screw-hooks or eyes screwed to the the bedstead, eyes or loops attached to the frame of the holder, and the strip of tape looped around the hooks or eyes and extending between them, as specified, all in combination with each other and with the bed and the frame of the holder, substantially as set forth.

3. In a pillow-sham holder, the improved device for locking the frame in an upright position, consisting of the combination of a frame pivotally secured to the bedstead by one of its sides, an elongated loop, F, at the other side of the frame, and a hook-eye passing through the loop F and secured to the bedstead, all being in combination with each other and the bedstead, as set forth.

4. The combination in a pillow-sham holder, of the elongated loop F, attached by one end to the frame of the holder, the securing-hook D, attached to the bedstead, and the spring G O, arranged substantially as set forth, whereby force applied to the frame to lower the shams when the holder is in its upright position will cause the loop to be elevated, thus automatically releasing the arm and allowing it to fall.

5. The pillow-sham holder, consisting of the two wires bent to form a frame consisting of the arms B B', loops C C', arms P P', and eyes E, L L, and F, the looped ring Q, connecting-tape J, and hook D, all in combination, substantially as set forth.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

BLADES *v.* RAND, MCNALLY & CO.

Decided March 22, 1886.

1. TICKET-CASES.
   Letters Patent No. 86,277, of January 26, 1869, to Frank Brewster, and No. 145,398, of December 9, 1873, to Leonard J. Blades, construed, and *held* limited to the special devices which they describe and claim, and not infringed.
2. PATENTS CANNOT SUPPLEMENT EACH OTHER.
   These two patents cannot support or supplement each other. They are each for combinations, and the question is whether the defendants use the combination shown in each, and not whether parts in each combination can be found in each patent.
3. ACQUIESCENCE IN REJECTION OF APPLICATION, EFFECT OF.
   Where a patentee, having made broad claims in his application, which were rejected, accepted claims for a combination of the parts shown, he must be limited to his specific device.
4. ASSIGNEE BOUND BY APPLICANT'S ACTIONS.
   The action of an applicant for a patent in accepting restricted claims is part of the law of the patent, and controls the assignee as well as the original patentee.
5. REFERENCE TO REJECTED APPLICATION.
   Although the broad claims of this application were rejected on a reference to a rejected application, in accordance with the then practice of the Patent Office, which practice was soon afterward overruled by the Supreme Court, *held* that the applicant having acquiesced and taken a limited claim must now be confined to the claim he accepted.

Messrs. Offield & Towle for the complainant.
Messrs. Gridley & Fletcher for the defendants.

BLODGETT, *J.*:

This suit is brought to restrain the alleged infringement of Patent No. 86,277, granted January 26, 1869, to Frank Brewster for an improvement in railroad ticket cases, and Patent No. 145,398, granted December 9, 1873, to Leonard J. Blades for an improvement in ticket-cases, and for an accounting.

The Brewster patent is for a case containing any desired number of ticket-drawers or pigeon-holes for holding the tickets for the requisite number of stations, these drawers being so constructed that each is complete in itself, and easily taken from or replaced in the case. The rear ends of these drawers are raised so as to incline the drawer toward the front of the case, and the tickets are placed in the drawer, either upon the end or edge, so as to present the face of the ticket to the front of the case. In the front end of the side pieces of these drawers are narrow strips of metal or other suitable material, against which the ends or edges of the tickets rest, so as to keep them in place, and at the same time allow the face of the front ticket to be plainly seen from the front of the case. The upper ends of these strips are also bent over on the upper edge of the drawer, and a small slot cut in the angle only wide enough to allow the withdrawal of a single ticket at one time, and this withdrawal must be by pushing the ticket upward instead of downward. Behind the tickets is a follower, arranged with a rod and spring, so as to keep the tickets in the drawer pressed firmly against the front strips. The object in setting these drawers at an incline is stated to be to give room for the drawing of the tickets over the tops of the drawers. The patentee disclaims the older devices "for the prevention of the withdrawal of more than one ticket at once where the tickets present an end-edge front, and are withdrawn from the bottom." The patent contains but one claim, which is:

The combination of the drawer *c*, having upon its front edges the metallic strips *f*, slotted as described, the rod *i*, having attached thereto a follower for pressing forward the tickets, and the springs *jj*, all constructed and arranged and operating substantially as set forth.

As to the Blades patent, it is stated in the specifications that the invention is for an improvement in the class of railway ticket holders in which the slides or drawers are provided with spring-guided followers for pressing the tickets forward into position to be seized and drawn out. He says:

I employ a follower actuated by gravity, thereby economising space and securing other advantages, and so construct and arrange the slides and their containing-case that the tickets may be drawn downward and then out of the slide-compartments, and the slides themselves also drawn forward and suspended in a vertical position for refilling with tickets, as will be hereinafter more fully described.

The description of his device shows an outer case, constructed with upright sides, upon the inside of which uprights he cuts grooves inclining upward from the front toward the rear. He then forms the drawers or slides, the bottoms of which extend laterally, forming flanges which fit into these grooves. There may be any number of these drawers, and each drawer is divided by vertical partitions into as many compartments as may be wanted. The tickets are to be placed on edge or end in the drawers, so as to present a front face, and small stops of wood or metal are fixed to the partitions to prevent the tickets from sliding out of the front ends of the slides or drawers; but each compartment is left sufficiently open to show the face of the ticket, and a slot is left between these stops and the bottom of the drawer large enough for a single ticket to be withdrawn at a time, and the tickets are drawn downward instead of upward, as in the Brewster case. The pitch or inclination of the drawers is such as to incline the bundle of tickets by its own gravity down against the front ends of the drawer, and a metal follower is placed behind the tickets, which, by its weight, keeps the tickets upright and presses them firmly against the front strip of the drawers. The drawers are kept in

the groove by resting against a stud driven in the front part of the groove, and a lug or hook is placed at the rear end of the drawers; and, for the purpose of replacing the tickets, the forward ends of the drawers are lifted over the stud and the drawers slid downward until the lug at the rear end catches on the studs in the front end of the groove, when the drawer will be suspended nearly vertically, and in a convenient position for refilling them with tickets. The claims of this patent are—

1. A series of ticket-holding slides, *c*, arranged in inclined ways in a case, *a*, and having strips *e* applied vertically, or nearly so, to the front edge of the partitions *d*, so as to leave a space, *g*, at the bottom, and the gravitating follower-blocks *f*, all combined as shown and described.
2. The combination of the ticket-holding slide *c*, having lugs or projections *k* at the rear side, with the case *a*, having grooves *a* and studs *i* combined, as shown and described, whereby the slides may be drawn forward and suspended vertically to be filled, as specified.

The defendants make and sell a case in which ticket-holding drawers are set into a case inclined so that the rear end is much higher than the front, and so arranged as to show the face of the tickets, and with a follower actuated by its own gravity behind the tickets for the purpose of keeping the tickets upright and pressing them to the front, the front having narrow vertical strips which prevent the tickets from falling or passing out through the front end of the drawers, and with a slot formed by these front strips and the bottom for withdrawing a single ticket at one time by a downward motion.

The defenses are (1) that the patents are void for want of patentable novelty; (2) if not void for want of novelty they are limited by the state of the art to the special devices shown, and when so limited defendants do not infringe.

Before discussing these questions raised by the defense, I will say that I do not see how these patents can support or supplement each other. They are each for combinations, and the question is whether the defendants use the combination shown in each, and not whether parts of each combination can be found in each patent. The proof also shows that the Brewster case, as described in his patent, has never gone into public use. The large space required for its separate drawers, the provisions for the withdrawal of the tickets by an upward instead of a downward movement, and the defects in the practical working of the follower and spring for pressing the tickets to the front form when all taken together such objections to its use as have prevented its acceptance and adoption as a practical ticket-case.

The evidence shows that in May, 1854, the executors of Thomas Edmondson obtained a patent for a railway ticket-case in which the tickets were placed in nearly vertical tubes, the rear ends of which were raised so as to incline the tickets as they lie flat in the tube somewhat toward the front of the case; and while these pigeon-holes or "tubes," as they are called in the patent, have an opening in the front, I do not think it can be fairly said that it was a part of the design of the structure to show the face of the ticket through this opening, and the tickets were withdrawn from the bottoms of the tubes by pulling them forward. The proof shows that this case went into extensive use in this country, and has so nearly filled the public want that although the Blades case and the defendant's case are deemed substantial improvements, especially where business calls for a rapid sale of tickets, it still holds its place as a useful device.

Following the Edmondson patent came, in February, 1856, the Apperly patent, and in May, 1856, the Conkling patent, and in January, 1862, the Duffield patent, all of which showed drawers or tubes for holding the tickets flatwise and withdrawing them singly from the bottom. Each of these also showed a device by means of a weight or spring to press the tickets firmly against the bottom, so as to insure their ready withdrawal; and the Duffield patent shows the drawers inclined toward the front, but no device for showing the face of the ticket and withdrawing it from the front instead of the bottom is shown in the proofs until the Brewster patent.

The proof shows that in the application for his patent Brewster claimed—

1. A ticket-case having movable apartments or drawers *c*, with springs *j*, &c.
2. I claim a ticket-case which presents the ticket front face, in combination with a spring or device for forcing said tickets forward, as shown, &c.
3. I claim the inclined apartments, as shown.
4. I claim the slot *g*, in the upper part of and at the angle of the strip *f*, through which to draw the tickets upward, &c.

The application with these claims was rejected, and Brewster then amended his application, and accepted the single claim which appears in the patent. This claim is for the construction of the drawer *c*, having upon its front edges the metallic strips *f*, slotted as described, the rod *i* having attached thereto a follower for pressing forward the tickets, and the springs *j j*, all constructed, arranged, and operating, &c. It seems to me that this patentee having, in the first instance, made broad claims which were rejected, and then accepted a mere claim for a combination of parts shown, must be limited to the specific device. The proof shows that his first application was rejected on a reference to a rejected application shown in the files of the Patent Office, which practice of the Office was soon afterward overruled by the Supreme Court; but this applicant acquiesced and took a limited claim, and must now be confined to the claim he accepted. This combination includes the rod *i*, having attached thereto a follower, and the springs *j j*, and this seems to me to limit him to a spring-follower, and he cannot cover in this claim a follower operating by its own gravity, although he says "other styles of springs" may be used, and "the same results may be accomplished with a weight and roller" because he had claimed in his first application, broadly, "a spring or device for forcing said tickets forward, as and for the purpose specified," and then abandoned that broad claim and taken one which confines him to the specific arrangement shown; and having also made broad claims for showing the front face of the tickets and for the inclined apartments, and those claims having been denied, he has, by accepting the restricted claim, abandoned the extension of his claim by construction so as to cover what was in terms refused him, and his action in this matter is part of the law of the patent and controls the assignee as well as the original patentee.

As was said by the Supreme Court, speaking by Mr. Justice Bradley, in *Keystone Bridge Co.* v. *Phœnix Iron Co.*, 95 U. S., 274:

Here, again, the patentees clearly confine themselves to wide and thin bars. They claim the use in truss-bridges of such bars when the ends are upset and widened in the manner described. It is plain, therefore, that the defendant company, which does not make said bars at all, but round or cylindrical bars, does not infringe this claim of the patent. When a claim is so explicit, the courts cannot enlarge or alter it. * * * When the terms of a claim in a patent are clear and distinct (as they always should be) the patentee in a suit brought upon the patent is bound by it. * * As patents are procured ex parte, the public is not bound by them, but the patentees are; and the latter cannot show that their invention is broader than the terms of their claim, or, if broader, they must be held to have surrendered the surplus to the public.

If the defendant's inclined tubes and drawers are the equivalents of the drawer *c* of the Brewster patent, they are not used in combination with a follower rod and spring, such as Brewster limits himself to; nor are they used in connection with the metallic strips *f*, slotted as described in Brewster's patent. Without further discussion, then, I feel compelled to find that the defendants do not infringe the Brewster patent. While defendants' case is organized like Brewster's, so as to show the front face of the ticket, and with a device for pressing the ticket forward, still the limitations of Brewster's patent require the use of the entire combination which he covers by his claims, and as the defendants do not use the entire combination, I feel compelled under the proofs and the law applicable thereto to find that defendants do not infringe the Brewster patent.

The proof shows that Blades, in the application for his patent, claimed—

1. A ticket-holder, *c*, having an inclined bottom and front strip, *e*, combined with the forwardly-inclined loose sliding block *f*, as and for the purpose described.
2. One or more ticket holding and distributing drawers, sliding obliquely in the case *a*, as and for the purpose set forth.

The patent with these claims was rejected, the examiner reporting:

All the patentable features in this case are shown in the patent of Frank Brewster.

The application was thereupon amended by erasing the second claim; and an argument was filed insisting that the inclined block, pressing by its gravity upon the tickets so as to hold them together, is not the equivalent of the follower-rod and spring used for the same purpose by Brewster, and that, as Brewster's patent was for his specific means, Blades was entitled to a patent for his means for pressing the ticket in front. Thereupon the examiner reported as follows:

A follower in a ticket-case connected by a spring is considered an equivalent to a follower connected by gravity, and no patentable difference is perceived;

and thereupon Blades amended his application by erasing the first claims applied for and taking the two claims now shown in the patent.

The second claim of this Blades patent is for a combination of the ticket-holding slides *c*, having lugs or projections *k* at the rear side with the case *a*, having the groove *a* and studs *i*, combined as shown as described, whereby the slides may be drawn forward and suspended vertically to be filled as specified. As the defendant's ticket-case shows no lugs like the lugs *k* upon the Blades drawer at the rear, and no grooves in the sides of the case, and no studs, and no arrangement of parts whereby the slides may be drawn forward and suspended vertically, I am very clear that this claim is not infringed by the defendants' case. It will be noticed that in his first application Blades claimed a ticket-holder having an inclined bottom and front strips combined with his gravity follower or pressure. His patent with this claim was rejected, and he finally took as the first claim of his patent—

1. A series of ticket-holding slides, *c*, arranged in inclined ways in the case *a*, and having strips *e*, applied vertically, or nearly so, to the front edge of the partition, and the gravity-follower.

In view of what was done in the Patent Office, I have no doubt but Blades must be limited to his ticket-holding slides, moving in the groove *a*, upon the flanges *c*, and held in place by the stud *i*. In other words, the Patent Office allowed him a patent upon just what his claim described, and no more, and he accepted his patent upon those terms. It is clear from Blades's specification that he considered the

lug *k*, and the stud *i*, each operating in connection with the groove *a*, permitting the suspension of the drawers in a vertical position to be refilled with tickets,

as an important feature of his device, for he not only covers it specifically by the second claim of his patent, but he says in his specifications that he so constructs and arranges the slides and their containing-case that the slides themselves may be drawn forward and suspended in a vertical position for refilling with tickets, and by the terms of the first claim the slides must move in the groove *a*. Taking, then, his action in connection with the Patent Office and the obvious double purpose of his grooves and flanges, as indicated by the two claims which he took, there can be no doubt that he must be confined to a case with grooves in which the drawers provided with flanges slide, and with such an arrangement of parts as that the drawers may be suspended vertically upon the front of the case.

The defendants' device, as already described, consists of a series of tubes arranged and inclined side by side in tiers, with a gravity-follower, and each tube or slide may be removed by itself. There is no groove *a*, and there are no flanges to the drawers or tubes. There are no studs to hold the drawers in place, and no lugs at the rear of the drawers by which they can be vertically suspended. In fact, the defendants' tubes are suspended, rather than slid, into the defendants' case, being held in the rear by a hook, and their forward ends resting upon a cross-piece, so as to hold them at an acute angle in the case. The difference between the cases is not wide, but it must be remembered that this field had been quite fully passed over and occupied by other inventors before Blades entered it. In fact, there seems to me to have been very litte room for the exercise of inventive talent after the production of the Edmondson case in the modification of an Edmondson case into a Blades case, although considerable time elapsed before the Blades case was brought out. The Edmondson tubes or drawers were fixed and stationary in the case. The bottoms of his tubes were inclined toward the front, and the tickets were to be withdrawn from the bottom through a slot. About all that Brewster or Blades did was to modify the Edmondson case by setting the tubes at a more acute angle, so that the face of the tickets could be read from the front of the case, and apply force, either by a spring or weight, to press the tickets to the front, and make a slight change in the slot, through which the tickets should be withdrawn by a downward movement. The Brewster case seems to have been an ordinary case, with pigeon-holes so arranged that each of the drawers which he describes can be passed into one of the pigeon-holes and there held in an inclined position. The fronts of the drawers, from the fact that they were so held, formed a series of steps upon the front of the case, so that when Blades came in with his device for a patent the Patent Office told him that all he had done had been anticipated by Brewster—that is, Brewster had shown an inclined slide holding a front-face ticket in a slot, by which the ticket could be withdrawn, and a spring to press the ticket to the

front; and he was also told that there was no patentable difference between using the weight and a spring for the purpose of pressing the ticket to the front. Apperly, Conkling, and Duffield had already shown weights or springs for the purpose of pressing the tickets to the front, from which they would be delivered, and this was the object, and the sole object, of the spring in Brewster's and the weight in Blades's. It therefore seems to me no hardship to hold Blades, and those operating under his patent, to the specific devices covered by it, which was all the Patent Office evidently intended to allow him; and, confining him to his device, the defendants evidently do not infringe.

The bill is therefore dismissed for want of equity.

U. S. Circuit Court—Western District of Pennsylvania

KIRK *v.* DU BOIS.

Decided August 24, 1886.

ON DEMURRER.

Kirk filed his bill for infringement against Du Bois, with the usual allegations and prayers. Before any decree Du Bois died, leaving an executor. Kirk then filed a bill of revivor against the executor, who demurred upon the ground that, as by the death of Du Bois the prayer of the original bill could not be granted, the court ceased to have jurisdiction of the controversy and the suit could not be revived for any purpose.

1. JURISDICTION ONCE ATTACHED NOT SEVERED BY DEATH OF DEFENDANT.

Where the jurisdiction of the court in an injunction bill has attached, it cannot be ousted in consequence of subsequent events which would preclude the grant of an injunction, but the right will remain of a decree for an account of profits and damages.

2. PRACTICE IN CASE OF DEATH OF DEFENDANT BEFORE DECREE.

A bill of revivor is the proper remedy for preserving and continuing an original suit, under the circumstances.

3. SURVIVAL OF SUITS AS TO PROFITS AND DAMAGES.

Suits for profits and damages for infringement of patents are not extinguished by the death of the infringer.

Messrs. Bakewell & Kerr for the complainant.

Mr. George A. Jenks and *Mr. T. H. B. Patterson* for the defendant.

Before MCKENNAN, *C. J.*, and ACHESON, *J.*

MCKENNAN, *C. J.*:

Arthur Kirk, the complainant, filed a bill in equity in this court against John Du Bois, who was duly served with a subpœna requiring him to appear and answer said bill. The bill is founded upon a patent for an improvement in the structure of dams, and alleges that the complainant is the owner of it; that the respondent has infringed it; that large profits have accrued to him, and large damages and loss to the complainant by reason thereof, and, therefore, praying for an account of said profits and an ascertainment of said damages, and a decree for their payment and for an injunction against further infringement. Before any decree, interlocutory or final, in the case, John Du Bois died, leaving a will of which John E. Du Bois was appointed executor. Thereupon the complainant filed a bill of revivor against John E. Du Bois to revive and continue the suit against him as the personal representative of the deceased respondent. To that bill John E. Du Bois has demurred, alleging that as by the death of John Du Bois the prayer of the bill cannot be granted, the jurisdiction of the court is lost, and the suit cannot be revived for any purpose; and this is the question for determination.

The researches of counsel have supplied us with only one case which by the similitude of some of its features to the case in hand apparently sustains the position of the respondent. It is the case of *Draper* v. *Hudson*, (6 Fisher, 327.) It was a bill in equity upon letters patent in which an injunction and discovery and an account were prayed for. The defendant died before final hearing, and this fact was stated upon the record; but it does not appear that any proceeding was taken to revive the suit against his personal representative. As a general rule the right to an account of profits in patent cases is incident to the right to an injunction, and "where the title to the principal relief, which is the proper subject of a suit in equity—an injunction and discovery—fails, the incident right to an account fails also." (*Root* v. *The Railway Company*, 105 U. S., 189.) But it does not follow that where the jurisdiction of the court in an injunction bill has attached it is entirely ousted by the subsequent happening of an event which precludes the exercise of the power to grant an injunction. On the contrary, patent bills are frequently retained by the circuit courts after the expiration of the term of the patents, when an injunction against infringement could not be granted, and equity touching accountability for profits and damages and the protection of the patentee's rights has been administered according to such methods as might be appropriate to the circumstances. Much stronger is the reason for preserving the jurisdiction of the court where its alleged loss results from a mere change of the relation of the respondent to the suit—as by his death—and not because of any failure of the complainant in any of the grounds on which he invoked the intervention of the court. Hence, in *The Consolidated Valve Company* v. *The Crosby Valve Company*, (113 U. S., 159,) which involved two bills upon two patents, in one of which the patent expired before final decree, the Supreme Court remanded the cause with instructions to enter a decree sustaining the validity of the patents involved, decreeing infringement and an account of profits and damages as prayed for, and to grant a perpetual injunction against infringement of the patent which had not expired.

In view then of this decree, any further argument in support of the power of the court to decree an account of profits and damages, when the right to grant an injunction against infringement has been lost, is unnecessary; nor does the death of the respondent afford any stronger foothold for the demurrer. That fact does not determine the suit if the cause of action survives. It is so expressly provided by section 31 of the judiciary act of 1789, and the court is authorized to hear and determine the cause and to proceed to judgment therein for or against the executor or administrator, as the case may be. And a bill of revivor is the proper method of preserving and continuing the original suit. (*Clark, administrator*, v. *Matthewson*, 12 Pet. R., 164.) Does the cause of action here then survive? The suit is brought for a decree against the respondent for profits accruing to him and damages resulting to the complainant by the former's infringement of the latter's patent rights. As was said by Mr. Justice Strong in *Mowry* v. *Whitney* (14 Wall., 620) they are—

compensation for the injury the patentee has sustained from the invasion of his rights. They are the measure of his damages. Though called "profits" they are really damages, and are unliquidated until the decree is made.

Ascertainable by a definite measure, there can then be no doubt that they are not extinguished by the death of the wrong-doer. He is still liable for them through his estate, which can be reached by a continued prosecution of the suit against his personal representative.

The demurrer is therefore overruled, and the executor is ordered to answer the bill within thirty days.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

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Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

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Patents	437—No. 350,471 to No. 350,907,	inclusive.
Designs	13—No. 16,928 to No. 16,940,	inclusive.
Trade-Marks	21—No. 13,711 to No. 13,731,	inclusive.
Labels	9—No. 4,987 to No. 4,995,	inclusive.
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Kentucky	4	....	Virginia	1	....
Louisiana	1	....	West Virginia	1	....
Maine	1	....	Wisconsin	3	1
Maryland	5	1	Wyoming Territory	1	....
Massachusetts	59	4	United States Army	....	....
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Minnesota	3	1			
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Belgium	1	....	Mexico	....	....
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Central America	....	....	Sweden	....	....
Colombia, U. S. of	....	....	Switzerland	....	....
Cuba	....	....	West Indies	....	....
Denmark	....	....			
Egypt	....	....	Total to citizens of foreign countries	21	1
England	7	....			
France	2	1			

DESIGNS.

16,928.—SOAP.—*Samuel Coleman Adler*, Philadelphia, Pa. Application filed August 30, 1886. Serial No. 212,264. Term of patent 7 years.

16,929 to 16,931, inclusive.—COOKING-STOVE.—*James W. Dwyer*, St. Louis, Mo. Applications filed June 14, 1886. Serial Nos. 205,146 to 205,148, inclusive. Term of patents 7 years.

16,932.—FRINGE.—*George F. Hensel*, Philadelphia, Pa. Application filed June 7, 1886. Serial No. 204,428. Term of patent 14 years.

16,933.—HOOD.—*Isidor Hermann*, New York, N. Y., assignor to *Rosalie Hermann*, same place. Application filed June 16, 1886. Serial No. 205,382. Term of patent 3½ years.

16,934.—TABLE VESSEL OR DISH.—*Jesse H. Lippincott*, Swissvale, Pa. Application filed April 8, 1886. Serial No. 198,311. Term of patent 14 years.

16,935.—STOVE.—*John F. Martens*, Cincinnati, Ohio, assignor to *Redway & Burton*, same place. Application filed March 15, 1886. Serial No. 195,360. Term of patent 3½ years.

16,936.—WALL-PAPER.—*William N. Peak*, Brooklyn, N. Y. Application filed August 20, 1886. Serial No. 211,457. Term of patent 3½ years.

16,937.—STOVE.—*Charles William Allen*, Deer Park, Ontario, Canada. Application filed August 19, 1886. Serial No. 211,353. Term of patent 7 years. Patented in Canada August 3, 1886, Design No. 4.

16,938.—CLOCK-CASE AND CALENDAR.—*Walter Chauncey Camp*, New York, N. Y., assignor to *The New Haven Clock Company*, New Haven, Conn. Application filed July 21, 1886. Serial No. 208,695. Term of patent 7 years.

16,939.—RAIL FOR FENCE-PANELS.—*Alonzo J. Griffin*, Wilkes-Barré, Pa. Application filed April 14, 1886. Serial No. 198,881. Term of patent 3½ years.

16,940.—STOVE.—*Hurley G. Smith*, Philadelphia, assignor to *The Danville Stove and Manufacturing Company*, Danville, Pa. Application filed August 30, 1886. Serial No. 212,262. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,711.—HEALTHFUL BEVERAGE AND NERVE-STIMULANT.—*Bay State Pharmacal Co.*, Fitchburg, Mass. Application filed July 27, 1886. Used since May 1, 1886.

"The representation of spears of barley-oats placed on opposite sides of a central field, the words 'AVENA NERVE FOOD,' displayed between the said branches, the picture of a still and worm directly above said words, and the words 'BAY STATE PHARMACAL CO., FITCHBURG, MASS.,' on an annular band inclosing said still and worm."

13,712.—OINTMENT.—*Charles Bond*, Buffalo, N. Y. Application filed September 2, 1886. Used since January, 1881.

"The word 'EXPRESS.'"

13,713.—TOILET-SOAP.—*J. W. Campion & Co.*, Philadelphia, Pa. Application filed September 9, 1886. Used since September 6, 1886.

"The word 'ALTHENE.'"

13,714.—BORDEAUX RED (CLARET) OR WHITE WINES AND COGNAC BRANDIES.—*Dubos Frères*, Bordeaux, France. Application filed May 22, 1886. Used since 1865.

"The representation of three five-pointed stars."

13,715.—REMEDY FOR INDIGESTION.—*O. H. Graves & Sons*, Boston, Mass. Application filed September 6, 1886. Used since February 18, 1886.

"The words 'DR. WOODBURY'S ANTIDOTE' and the representation of a foul anchor."

13,716.—PRESERVATIVES OF CIDER, FRUITS, AND OTHER FERMENTABLE SUBSTANCES.—*William D. Harnist*, Edwardsville, Ill. Application filed August 30, 1886. Used since September 6, 1885.

"The word 'FERMENTAZIONE.'"

13,717.—MEDICINE-CHESTS.—*Terry John Hutton*, Fergus Falls, Minn. Application filed September 3, 1886. Used since August 1, 1886.

"The representation of a person borne on a stretcher to a dwelling, and the words 'THE FAMILY EMERGENCY MEDICINE CHEST' combined therewith."

13,718.—SQUARE AND UPRIGHT PIANOS.—*The John Church Company*, Cincinnati, Ohio. Application filed August 30, 1886. Used since June 15, 1886.

"The word 'HARVARD.'"

13,719.—CERTAIN NAMED MEDICAL REMEDIES.—*Charles Kuhlmann*, Omaha, Nebr. Application filed June 1, 1886. Used since August 1, 1885.

"Blue parallelograms imposed upon a red parallelogram, and a white and yellow cross imposed upon both, with the words 'SCANDINAVIAN MEDICINES' on the longer arms of the cross."

13,720.—PREPARATION FOR BEAUTIFYING THE SKIN.—*I. J. Mack & Co.*, San Francisco, Cal. Application filed December 28, 1885. Used since December, 1865.

"The words 'CIRCASSIAN BLOOM' and the picture or figure of a female, and a partially-inclosing wreath of leaves or flowers."

13,721.—POULTRY MEDICINE.—*Eugene T. Marchison* and *William J. Rogers*, Terrell, Tex. Application filed August 23, 1886. Used since April, 1885.

"The representation of a crowing cock and the letters 'P. P. P.'"

13,722.—MEDICINE FOR THE CURE OF NEURALGIA, RHEUMATISM, AND MALARIA.—*Julia A. Myers*, Baltimore, Md. Application filed August 23, 1886. Used since March 1, 1876.

"The word 'SALVATOR,' in common letters around the top of the representation of a horseshoe, three nails upon each side of the shoe, and an upright bottle in the center."

13,723.—REFINED PETROLEUM FOR ILLUMINATING PURPOSES.—*Ocean Oil Company*, New York, N. Y. Application filed September 9, 1886. Used since April 3, 1886.

"The word 'DAW-DROP.'"

13,724.—CANNED FRUITS AND VEGETABLES.—*Read, Murdoch & Fischer*, Chicago, Ill. Application filed August 7, 1886. Used since July 1, 1886.

"The picture of a reindeer's head and the word 'REINDEER.'"

13,725.—COLIC-CURE, CONDITION-POWDERS, LINIMENT, AND HOOF-OINTMENT.—*Charles U. Saunders*, Port Richmond, N. Y. Application filed September 4, 1886. Used since July 1, 1886.

"The words 'WILD WEST.'"

13,726.—SHOE-BLACKING.—*Sunshine Blacking Company*, Providence, R. I. Application filed July 16, 1886. Used since June 1, 1886.

"The representation of a man's face on the disk of the sun."

13,727.—KID GLOVES.—*M. R. Truefitt*, Brooklyn, N. Y. Application filed August 23, 1886. Used since November, 1884.

"The fac-simile signature of 'M. R. TRUEFITT.'"

13,728.—LARD.—*W. J. Wilcox & Co.*, New York, N. Y. Application filed August 26, 1886. Used since August 1, 1876.

"The representation of a black star."

13,729.—LARD.—*W. J. Wilcox & Co.*, New York, N. Y. Application filed August 26, 1886. Used since June 20, 1886.

"The representation of an elephant."

13,730.—WATCHES, WATCH-CASES, AND ALL THE PARTS OF WATCHES AND WATCH-MOVEMENTS.—*American Waltham Watch Company*, Waltham, Mass. Application filed September 11, 1886. Used since September 6, 1886.

"The word 'WALTHAM' and the face of a watch represented in and upon the middle of the letter 'W' of the said word."

13,731.—WIRE BANDS OR BALE-TIES.—*Kilmer Manufacturing Company*, Schenectady, N. Y. Application filed July 19, 1886. Used since August 1, 1886.

"The picture of an arrow bale-tie manufactured by us, severed at its middle, and arranged in the form of the letter X."

LABELS.

4,987.—Title: "ENGLISH SPAVIN LINIMENT."—*Elliott Detchon*, Crawfordsville, Ind. Application filed September 16, 1886.

4,988.—Title: "H. W. KING & CO'S HEALTH BEVERAGE."—*H. W. King*, Indianapolis, Ind. Application filed September 15, 1886.

4,989.—Title: "PERMANENT PHOTO CRAYON." (FOR PHOTOGRAPHS.) *Theo. C. Marceau*, Cincinnati, Ohio. Application filed September 16, 1886.

4,990.—Title: "FISH'S SOVEREIGN REMEDY FOR PILES."—*William H. Murphy*, Philadelphia, Pa. Application filed July 22, 1886.

4,991.—Title: "WHITMAN'S PURE COCOA."—*Stephen F. Whitman & Son*, Philadelphia, Pa. Application filed February 26, 1886.

4,992.—Title: "SCHOOL SEWING SYSTEM BOX."—*Louise J. Kirkwood*, New York, N. Y. Application filed September 16, 1886.

4,993.—Title: "AMERICAN MAROON CRACKER." (FOR FIRE CRACKERS.)—*Cornelius E. Masten*, Boston, and *Benjamin T. Wells*, Newton, Mass. Application filed July 29, 1886.

4,994.—Title: "FOORMAN'S STOCK REMEDY, MANUFACTURED BY ELI FOORMAN, EATON, IND."—*Eli Foorman*, Eaton, Ind. Application filed September 20, 1886.

4,995.—Title: "MCMILLEN'S WHITE PINE COUGH CORDIAL."—*M. W. McMillen*, Milwaukee, Wis. Application filed September 20, 1886.

DISCLAIMER.

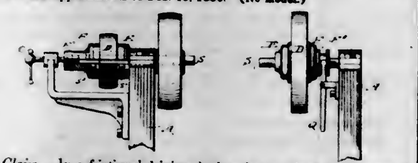
229,783.—*Joseph C. White*, New York, N. Y. IMPROVEMENT IN STORE-SERVICE APPARATUS. Patent dated July 6, 1880. Disclaimer filed October 1, 1886, by the assignee, *The Lamson Cash Railway Company*, Boston, Mass.

Enters its disclaimer to so much or such part of the invention set forth in said letters patent and included in the scope of the general language of the second claim thereof as may include the combination of counters, desk, ways, and carriers, and appliances whereby each carrier is automatically driven along its way from the counter to the desk and from the desk back to said counter, except when the appliances recited in said second claim are restricted to appliances whereby the carriers of the counters are all automatically driven along one way each from its counter to the desk and automatically arrested there, and along another way from the desk back to the counters from which they were sent, and each automatically arrested only at the counter from which it was sent, intending hereby to restrict the scope of the said second claim to the combination of counters, desk, ways, and carriers, and appliances whereby the carriers of the counters are all automatically driven along one way each from its counter to the desk and automatically arrested there, and along another way from the desk back to the counters from which they were sent, and each automatically arrested only at the counter from which it was sent, substantially as set forth in the descriptive part of the specification of said patent, which precedes the claims thereof.

PATENTS

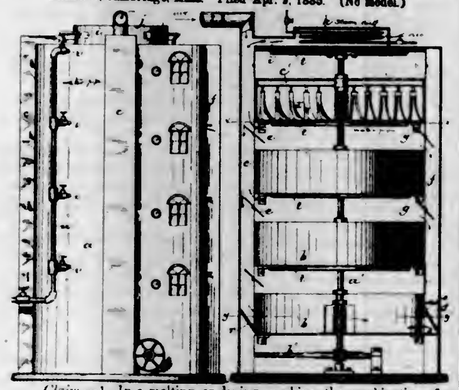
GRANTED OCT. 12, 1886.

350,471. FRICTIONAL DRIVING DEVICE. JACOB BACHMAN, Stony Run, Pa. Original application, No. 164,436, filed May 5, 1885. Divided and this application filed Feb. 19, 1886. (No model.)



Claim.—In a frictional driving device, the combination of a central wheel, D, upon the shaft between the disks E and F, the disk E, the disk F, and the pin S², substantially as shown and described, and for the purpose set forth.

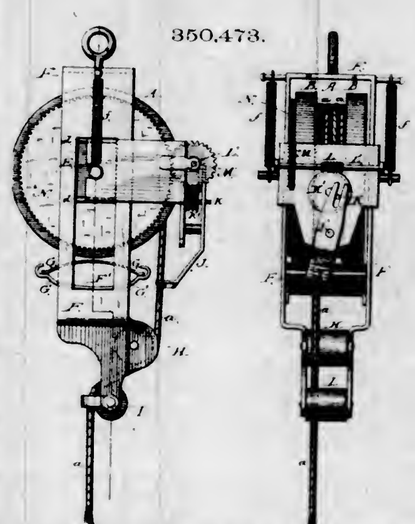
350,472. APPARATUS FOR MALTING AND DRYING. JOSEPH F. BALDWIN, Cambridge, Mass. Filed Apr. 9, 1885. (No model.)



Claim.—1. In a malting or drying machine, the combination of a casing, a series of fixed floors dividing the casing up into a series of independent compartments, a discharge for each compartment located at each side of the center, for delivering the grain to the compartment below, an air-induction flue or flues communicating with each of said compartments at one side of the same, and an air-eduction flue or flues communicating with the compartments at the other side of the same, covers adapted to close and open said induction and eduction openings, and water spraying pipes located in said compartments, substantially as set forth.

2. The combination, in a malting and drying machine, of a casing provided with chambers separated by intervening floors, having apertures to permit the grain in one chamber to pass to another, air induction and eduction flues on opposite sides of the casing, communicating with each of the chambers, and means, substantially as described, for forcing air into the induction-flue, of valves for closing communication between the eduction and induction flues and the chambers above the lowest, whereby the entire pressure of the air will pass through the latter to force the grain out of the same, as set forth.

350,473. FIRE ESCAPE. JOSEPH BIEN, New York, N. Y. Filed Feb. 4, 1886. (No model.)



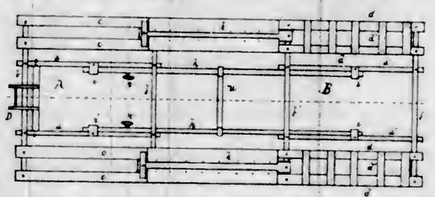
Claim.—1. In a friction fire-escape, the drum A, cord *a*, casings B, and springs *b*, in combination with the springs *f*, and friction-spring G, all constructed to operate substantially as and for the purpose set forth.

2. In a friction fire-escape, the drum A, cord *a*, casing B, and springs *b*, *f*, and G, in combination with the slotted frame F, the loose collar C, washer D, and guide-plate E, all constructed and arranged to operate substantially as and for the purpose herein set forth.

3. In a friction fire-escape, a device for feeding the winding-cord regularly to the drum, as herein described, and consisting, essentially, of a bifurcated and pivoted arm, J, the pinion K', carrying the pin K, the worm-gear L on the shaft L', and the toothed wheels M and N, substantially as set forth.

4. In a friction fire-escape, the drum A and casing B, carrying the cog-wheel N, in combination with the cog-wheel M, shaft L', worm-gear L, pinion K', provided with a pin, K, and pivoted arm J, all constructed and arranged substantially as and for the purpose set forth.

350,474. HAY-RACK. ALBERT L. BINGHAM, Elyria, Ohio. Filed May 15, 1886. (No model.)

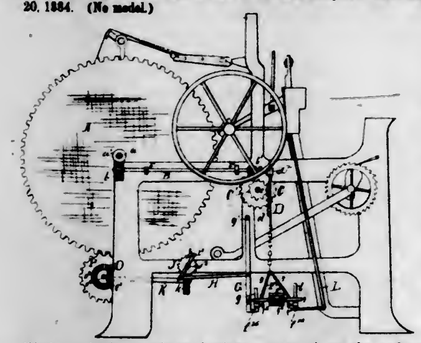


Claim.—1. In a hay-rack, the combination of the sections A and B, provided with the supports *a''* and *a'''*, respectively, and connected with each other by the separate detached and adjustable bars *h h*, so constructed as to slide inside of the side pieces, *a a* and *a' a'*, of each section, respectively, and independently of each other, all as above set forth, and substantially as described.

2. In combination with the sections A and B, the side boards K K, each of sufficient width to extend from the outside edge of the sections to the inside edge of the inner side board, *c*, and provided with a

thumb-screw, *s*, and cleats for securing the front ends at any desired point, all as above set forth, and substantially as described.

350,475. LET-OFF MOTION FOR LOOMS. Robert Brown, Springfield, Me., assignor of one-half to John B. Gordon, same place. Filed Aug. 20, 1884. (No model.)



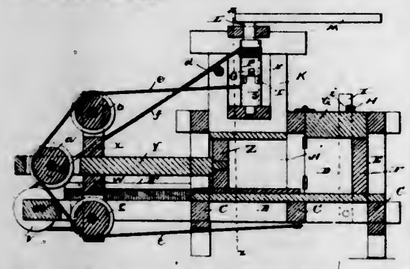
Claim.—1. A warp-beam having a worm, a', on the gudgeon thereof, combined with a movable traverse, F, rack D, cog-wheels C C', the shaft *c*, and shaft B, having a worm, b^2, and cog-wheel *b*, substantially as and for the purpose set forth.

2. A let-off motion for looms, comprising a lathe-sword, a vibrating lever, a movable traverse, a ratchet-wheel, J, a rod, H, lever i^2, catch *i*, shaft *j*, which has a worm, j^2, shaft K, having the cog-wheels *k* $(k^2$, shaft a^4, having wheels a^2 P, a warp-beam having a toothed flange, A, and a worm, a', on the gudgeon thereof, shaft B, having cog-wheels *b* and worm b^2, wheels C C', shaft *c*, and rack D, substantially as and for the purpose set forth.

3. A let-off motion for looms, composed of a lathe-sword having a slotted piece, M, a traverse, F, a lever, G, a rod, H, ratchet J, lever i^2, having a catch, *i*, ratchet-shaft having a worm, j^2, wheels *k* P, and beveled gears a^2 a^3, shafts K a^4, a warp-beam having a toothed flange, A, and a worm, a', on its gudgeon, shaft B, having wheel *b* and worm b^2, shaft *c*, having cogs C C', and rack D, all substantially as shown and described.

4. The combination of a warp-beam having a toothed flange and a worm, a', on the gudgeon thereof, a horizontal shaft having a cog-wheel, *b*, and worm b^2, a shaft, *c*, having cog-wheels C C', a rack, D, and attached traverse F, and a lathe-sword with a lever, a rod, a ratchet-wheel, catch, and lever carrying said catch, a shaft having a worm, shafts having wheels and bevel-gear, substantially as shown and described.

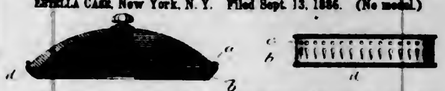
350,476. HAY-PRESS. William H. Bryant, Clarksville, Tex. Filed May 11, 1886. (No model.)



Claim.—1. The combination, in a baling-press, of the frame having the pulley V, the follower having the pulleys, and the shaft L, having the loose drums P and S, means for locking either of the said drums to the said shaft, the rope *e*, attached to the drum S and passing over the pulley with which the follower is provided, and secured to an immovable object, and the rope *f*, attached to the drum P, passed over the pulley V and attached to the follower, substantially as described.

2. The combination, in a baling-press, of the press-box and the frame having the guides B', the pulley V, attached to the frame, the follower having the cross-head working in the guides and carrying the pulleys *b a c*, the shaft L, having the loose drums P and S, and detent or arm for locking either of the said drums to the said shaft, the rope *e*, attached to the drum S and passing over the pulleys *b*, *a*, and *c*, and having its inner end attached to the frame, and the rope *f*, attached to the drum P, passing over the pulley V and having its inner end attached to the follower, substantially as described.

350,477. RUBBER SOUND-DEADENER AND PACKING-BAND. Estella Case, New York, N. Y. Filed Sept. 13, 1886. (No model.)



Claim.—1. As an article of manufacture, a flat rubber band having its central portion provided with incisions, whereby the edges of the band will possess greater contractile force than the center, as and for the purpose set forth.

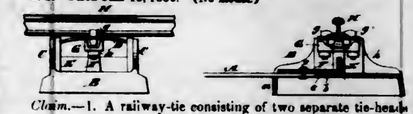
2. As an article of manufacture, a flat rubber band having its edges rolled or hemmed, and having its central portions formed with incisions, as and for the purpose set forth.

3. As an article of manufacture, a flat rubber band having two rows of incisions, with a broad space between the rows, as and for the purpose set forth.

4. As an article of manufacture, a flat rubber band with elongated incisions running across the band, as and for the purpose set forth.

5. As an article of manufacture, a flat rubber band with rolled or hemmed edges, and having its central portions provided with two rows of incisions with a broad plain portion between, and one row of the incisions elongated, as and for the purposes set forth.

350,478. RAILROAD TIE OR SUPPORT. John K. Clark, Buffalo, N. Y. Filed Jan. 15, 1886. (No model.)



Claim.—1. A railway-tie consisting of two separate tie-heads connected by a tie-plate, and each head comprising a bottom wall formed with two vertical walls, an elastic metallic plate having its ends supported by the upper ends of said walls, and locking devices on the plate for clamping the base of the rail directly upon said plate, substantially as described.

2. A railway-tie support consisting of a base-plate formed at opposite sides with vertical walls, an elastic metallic plate having its ends supported by the upper ends of the walls, a central bracing-support for said plate connected with the base-plate intermediate its side walls, and devices for clamping the rail upon the plate, substantially as described.

3. A railway-tie consisting of two separate tie-heads connected by a tie-plate, and each head comprising a base-plate formed with opposite side walls, and provided between the latter with an attached standard carrying a bearing-block, and an elastic metallic plate having its ends supported by said walls and centrally connected with the bearing-block, substantially as described.

4. A railway-tie consisting of two separate tie-heads having end recesses and a tie-plate entering said recesses and rigidly riveted or bolted to the bottom wall of the head, each tie-head comprising its bottom wall, two opposite vertical side walls, a bearing-block between the latter, and an elastic plate having its ends supported by the upper ends of the vertical walls, and devices on the plate for clamping the bases of the rails thereupon, substantially as described.

5. The combination, with a railroad-tie having a metallic tie-head or rail-support provided with standards, of an elastic metallic plate adapted to furnish a yielding bearing for the track-rail, a metallic bearing-block supported beneath said elastic plate, and bolts passed through said plate and block, substantially as described.

6. The combination, with a railroad-tie having metallic tie-heads or rail-supports provided with standards projecting from the center and from the front and rear side of each tie-head, of a bearing-block mounted on each center standard, a pin passed through each center standard above said blocks, elastic metallic plates supported by said standards and blocks, and bolts passed through the said plates and blocks, and having spike-heads adapted to clamp the rail-flanges, substantially as described.

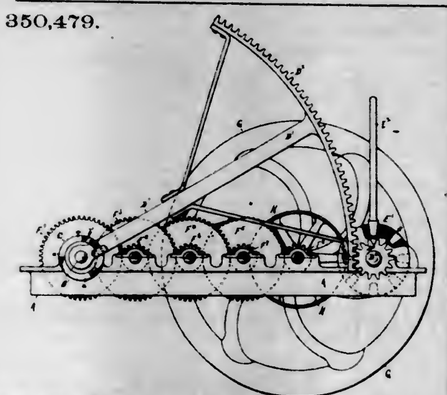
7. The combination of a connecting cross-tie, detachable tie-heads, elastic metallic plates supported on the tie-heads and adapted to furnish a yielding bearing for the track-rails, bearing-blocks supported beneath said elastic plates, and spike-headed bolts passed through the bearing-blocks and elastic plates and adapted to secure the track-rails to said plates, substantially as described.

8. A metallic railroad-tie and rail-support comprising the tie-plate A, the recessed tie-heads B, having walls *a*, provided with openings *d*, for passage of the tie-plate ends, said tie-heads being also provided with standards C C and F, the elastic metallic plates D, bearing-blocks G, and spike-headed bolts *g g*, substantially as described.

350,479. MECHANICAL MOVEMENT. Engel Clement, St. Paul, Minn., assignor of one-half to Peter Reckinger, same place. Filed Jan. 12, 1886. (No model.)

Claim.—The combination of the driving-shaft B', disk C, secured

350,479.



to the said shaft, and provided with ratchet-teeth *a a*, oscillating lever or levers D', pivoted on the said shaft, and provided with pawls b' b^3, adapted to engage with the said ratchet-teeth, means for oscillating the said lever or levers, motion-receiving shaft B^2, having a wheel or wheels thereon, and a train of gearing connecting the said shafts B' B^2, substantially as and for the purpose herein specified.

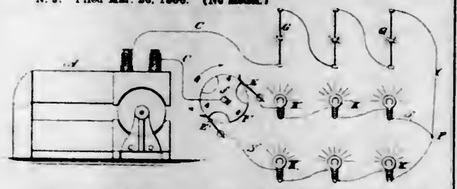
350,480. MATERIAL FOR DECORATING WALLS AND OTHER SURFACES. Marlborough Conrath, North Audley Street, County of Middlesex, England. Filed Mar. 30, 1886. (Specimens.) Patented in England Jan. 27, 1886, No. 1,239.

Claim.—As a new article of manufacture, a material for decorating walls and other surfaces, consisting of thin kamptulicon having brown or other stiff paper cemented to its backing of texture, and the whole embossed, substantially as herein described.

350,481. METHOD OF MAKING COUNTERPART EMBOSSING-ROLLERS. Marlborough Conrath, North Audley Street, County of Middlesex, England. Filed Mar. 30, 1886. (No specimens.) Patented in England Jan. 27, 1886, No. 1,240.

Claim.—The method of making a counterpart embossing-roller by subjecting a heated roller covered with plastic vulcanite powdered with sulphur to the pressure of an embossed roller revolving with it until the vulcanite becomes impressed with the design, embedding the roller thus prepared in plaster-of-paris in a casing, subjecting the whole to heat until the vulcanite becomes hardened, and finally clearing the roller from the plaster-of-paris, substantially as herein described.

350,482. ELECTRIC-LIGHTING SYSTEM. Philip Diehl, Elizabeth, N. J. Filed Mar. 26, 1886. (No model.)



Claim.—1. A system of electrical distribution consisting of a branched main circuit charged by a source of continuous current, and including translating devices in its undivided portion or portions, the primaries of inductoriums included in the branches, translating devices in the secondary circuits of the inductoriums, and circuit-controllers for diverting the main current through the branches in succession, substantially as described.

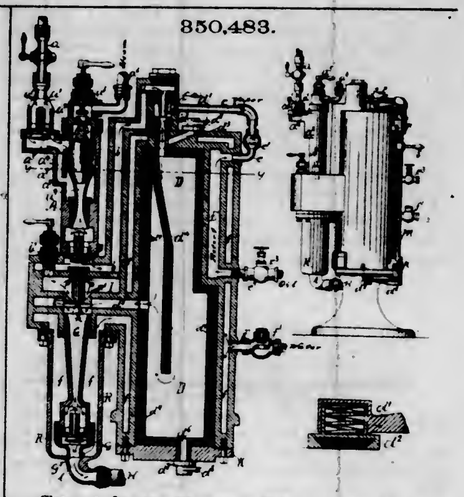
2. In a system of electrical distribution, a branched main circuit charged by a source of continuous current, translating devices fed directly by the undivided stem, and translating devices fed inductively by the branches, substantially as described.

3. An electric-lighting system comprising a primary circuit branched, as described, and charged by a generator of a continuous current, an electric lamp or lamps adapted to be operated by a continuous current of one direction in the undivided stem, a lamp or lamps adapted to be operated by alternating currents fed inductively by the branches, and a circuit-controller for diverting the main current through the branches in succession, substantially as set forth.

350,483. STEAM-GENERATOR. Norman Eaton, Woburn, Mass. Filed June 28, 1886. (No model.)

Brief.—Injects a mixture of gases, produced by the combustion of petroleum and air, water, and steam, into the water of a boiler.

350,483.



Claim.—1. In a steam-generator in which a combustion take place under pressure, a furnace wherein the combustion is confined, an inlet through which water is forced into direct contact with the products of the said combustion as they leave the furnace, and a throat, G, combined with valves that guard the inlet and the outlet of the said furnace, whereby its gaseous products are compelled to eject themselves through the said throat and are prevented from returning thereto, substantially as described.

2. In a steam-generator in which a combustion takes place under pressure, the furnace D, throat G, water-inlet *i*, and valves that compel the gases of the said furnace to eject themselves through the said throat and prevent them from returning thereto, combined with the injector A, consisting of the following elements: case A, throat a^2, steam-nozzle a^7, and check-valve a^3, substantially as described.

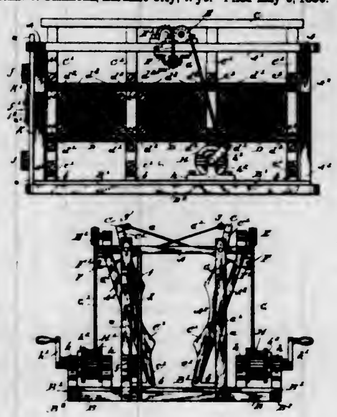
3. The furnace D, provided with a lining of refractory material, combined with throat G, water-inlet *i*, and valves that compel the gases of the said furnace to eject themselves through the said throat and prevent them from returning thereto, substantially as described.

4. The furnace D, provided with vents d^2 d^3, and vent-valves d^4 d^7, combined with throat G, water-inlet *i*, and valves that compel the gases of the said furnace to eject themselves through the said throat and prevent them from returning thereto, substantially as described.

5. The furnace D, combined with the retort E, throat G, water-inlet *i*, and valves that compel the gases of the said furnace to ejeot themselves through the said throat and prevent them from returning thereto, substantially as described.

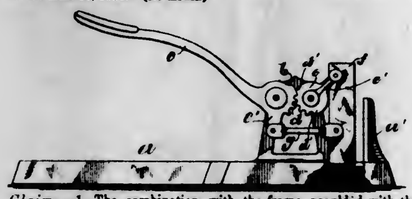
6. The furnace D, throat G, valves that compel the gases of the said furnace to eject themselves through the said throat and prevent them from returning thereto, combined with the water-jacket *f*, substantially as described.

350,484. CHUTE FOR BRANDING CATTLE AND HORSES. Nathan C. Gillmore, Laramie City, Wyo. Filed May 6, 1886. (No model.)



Claim.—The combination of two oppositely-inclined frames fixed to a platform, two oppositely-inclined frames hinged to the platform between the fixed frames, and provided with doors, as shown, the rollers fixed to the horizontal beams of the stationary frames, the windlasses fixed to the platform at opposite sides of the structure, and the ropes connecting the windlasses with the adjustable frames over and under the rollers fixed to the horizontal beams of the stationary frames, all arranged to operate as and for the purpose set forth.

350,485. TOBACCO-CUTTER. ELMER E. GROVE, Springfield, Ohio. Filed Mar. 10, 1886. (No model.)

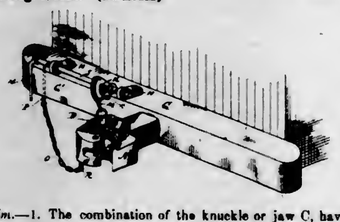


Claim.—1. The combination, with the frame provided with the standard, of the handle pivoted thereon, said handle being provided at its inner end with teeth adapted to engage the segment pivoted in said frame, a knife pivoted to said segment, and a link extending from said knife to a lug on said handle, substantially as and for the purpose set forth.

2. The combination, with the main frame and the cutting-knife, of the handle pivoted to said frame, a segmental arm connected at its outer end to the knife and adapted at its inner end to engage with a series of teeth on said handle, and a link connecting said knife and handle, whereby said knife is adapted to be moved longitudinally, and at the same time forced against a portion of the frame, substantially as set forth.

3. The combination, with the base *a*, having the upright standard *a'* and side pieces, *b b'*, thereon, of the handle *c*, pivoted between said side pieces, and the vertical reciprocating knife connected to said handle by the segmental arm *e* and link *g*, substantially as and for the purpose set forth.

350,486. CAR-COUPLING. SAMUEL H. HARRINGTON, Columbus, Ohio. Filed Aug. 9, 1886. (No model.)



Claim.—1. The combination of the knuckle or jaw C, having an arm, C', formed as specified, and the coupler-body A, having a perforation, E, in its upper face, whereby a straight pin of the dimensions of an ordinary coupler-pin may be introduced to serve as a latch-pin, substantially as shown and described.

2. The combination of the knuckle or jaw C, having an arm, C', formed as specified, and the coupler-body A, having a perforation, E, in its upper face, and a smaller perforation, E', in its lower face, whereby it is adapted to receive a special pin, D D', or a straight pin of the dimensions of an ordinary coupler-pin may be introduced to serve as a latch-pin, substantially as shown and described.

3. The combination of the knuckle C C', formed substantially as described, the coupler-body A, having a recess, B, and perforations E E', and the pin D, having a guide rod or pin, D', all substantially as and for the purpose specified.

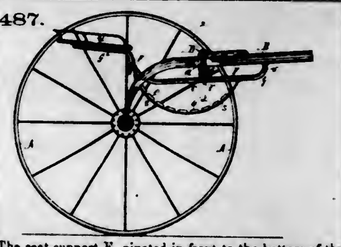
4. In combination with a coupler having a movable jaw or knuckle, substantially as specified, a chain, O, attached directly to said jaw at one end and to or near the corner of the car at its other end, as described, so as to afford a means of opening the jaw and of retaining it in its open position.

5. In combination with an actuating-shaft and lever, J and N, journaled on the car-body, the cam K, having a slotted bearing, K^3, and engaging with the shaft J by means of a pin, L, the chain M, secured to the cam, and a latch-pin, D, all substantially as and for the purpose shown and described.

350,487. ROAD-CART. IRA V. HEBER, Kalamazoo, Mich. Filed July 12, 1886. (No model.)

Claim.—1. The seat-supporting bar F, made straight from the bend *f* to the bend *f'*, and re-enforced at *c*, to adapt it to be used as described.

350,487.



2. The seat-support F, pivoted in front to the bottom of the shafts, and in the rear thereof suspended from the cross-spring *a* by the links *r* and clips *t*, as shown and described.

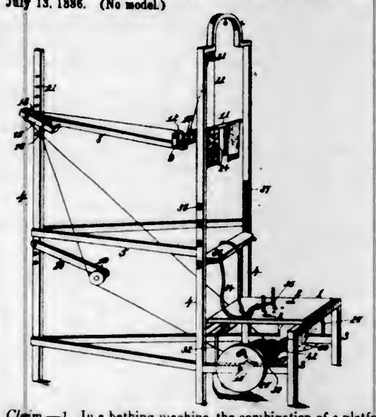
350,488. LATH-STRIP. CHAS. P. JACOBS, Indianapolis, Ind. Filed Jan. 25, 1886. (No model.)



Claim.—1. The sheathing-lath *b*, one portion thicker than the other, the lower end of the thin portion cut away so as to leave an opening or groove between it and the next lath-strip, substantially as described.

2. A series of lath-pieces, their upper portion thicker than the lower, the latter cut away so as to form a groove or opening between one lath-strip and the one below it to allow for the expansion and contraction of the material behind the thicker portion of the other, these pieces nailed to studding, the whole forming a wall or ceiling to receive plastering, substantially as described.

350,489. BATHING-MACHINE. JACK W. JAMES, Cuba, Texas. Filed July 13, 1886. (No model.)



Claim.—1. In a bathing-machine, the combination of a platform, an upright frame at the rear of said platform, an adjustable pivoted arm, 8, projecting forward from the rear upright of said frame, a rotary shaft, 10, carried by said arm and adapted to support a brush or towel, means for actuating said rotary shaft, and a cord and pulley for oscillating the supporting-arm of said shaft, substantially as described.

2. The combination of a platform, a douche or shower device suspended above the platform, a fan-blower having a bifurcated air-discharge pipe provided with a cock, a flexible tube communicating with said pipe between the cock and fan, and a perfume or disinfectant receptacle, also communicating with the air-discharge pipe of the fan, substantially as described.

3. The combination of a slotted platform, a power-shaft journaled beneath said platform and provided with pulleys and fly-wheels, rods attached to said shaft and projecting through the platform, a horizontal shaft supported in a hanger beneath said platform and provided with bevel-gears, said shaft having a pulley belted to a pulley on the power-shaft, and a pair of cylindrical rotary brushes arranged in a vertical position above the platform, and having shafts provided with bevel-gears meshing with the gears on the horizontal shaft, substantially as described.

4. The combination, with the vertical rotary brushes 46, of the open-sided box 48, packed with absorbent material, and having at the top a tank, 47, provided with perforated bottom, and the semi-cylindrical box 49, substantially as described.

5. The combination, with a horizontal rotary shaft for carrying a brush or towels, of a vertical rotary shaft having a brush and towels attached thereto for applying friction to the body of a bather, substantially as described.

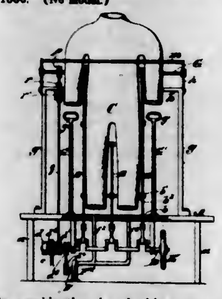
6. The combination, with a slotted platform and a power-shaft journaled beneath said platform and provided with fly-wheels and pulleys, as described, of a stationary metallic frame or body casing secured to said platform and provided internally with a series of rotary brushes and externally with cogged gearing connected with said brushes and with the power-shaft, substantially as described.

7. The combination, with the metallic casing 55, having tubular bearings 57, of the rotary brushes 56, having hollow shanks 60, the brush-rod 61, detachably secured to said hollow brush-shank, the tubular shaft 58, having flanged end 59, and the gear 63, having a hollow shank, 62, detachably secured to the shafts 58 and 61, whereby the brushes 56 are adjusted longitudinally, substantially as described.

8. The combination, with the slotted platform 1 and power-shaft 18, having pulleys 69 and rods 26, of the stationary metallic frame 55, having a hinged door in its front, arm-openings 74 in each side, and a series of internal rotary brushes, 56, actuated by gears 63, 64, and 65, driven by pulleys 68 and by belting from the power-shaft, substantially as described.

9. The combination, with a bathing apparatus, of the blower-fan 31, air-pipe 32, and a perfume or disinfectant receptacle, 76, communicating with said air-pipe and filled with an absorbent material for the perfume or disinfectant, substantially as described.

350,490. BATHING APPARATUS. JACK W. JAMES, Cuba, Texas. Filed Mar. 10, 1886. (No model.)



Claim.—1. The combination, in a bathing apparatus, of a flexible garment for incasing the body of the bather, provided with a lining of sponge, with rods for supporting the garment along its length and mechanism for reciprocating the rods to move the garment in contact with the body of the bather, substantially as described.

2. In a bathing apparatus, a rotary shaft having a towel detachably secured thereto, substantially as described.

3. The combination, in a bathing apparatus, of a flexible garment for incasing the body of a bather, rods extending along the length of the garment and connected therewith at different points, a crank-shaft connected with the rods, and means for operating said shaft, substantially as described.

4. In a bathing apparatus, the combination of a loose-fitting bathing-garment, a crank-shaft and connections for moving said garment in frictional contact with the bather's body, and a rotary shaft having a towel secured thereto for applying a succession of blows to the body, substantially as described.

5. In a bathing apparatus, the combination of the platform A, the crank-shaft D, the bathing-garment C, rods B, for connecting said garment and crank-shaft, and the driving-shaft F, geared with said crank-shaft, substantially as described.

6. In a bathing apparatus, the combination of the platform A, having standards *g g*, connected by cross-bar *h*, the pivoted spring-stripe *k k*, connected at their forward ends by cross-bar *m*, the rotary shaft G, supported by the spring-stripe *k k* and carrying a towel, *n*, and means for actuating said shaft, substantially as described.

7. In a bathing apparatus, the combination of a douche or shower, a loose-fitting sponge-lined bathing-garment, adapted to be automatically moved in frictional contact with the body, and a rotary shaft carrying a towel to deliver a succession of blows on the body, substantially as described.

8. In a bathing apparatus, the combination of a douche or shower, a loose-fitting sponge-lined bathing-garment, a fan having air-ducts leading to each leg of said garment, and mechanism for moving said garment in frictional contact with the body, substantially as described.

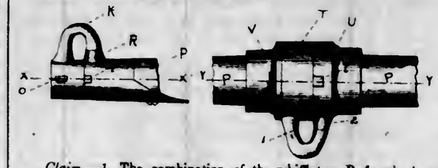
9. In a bathing apparatus, the combination of a douche or shower, a loose-fitting sponge-lined bathing-garment, a rotary crank-shaft, and rods for connecting the bathing-garment to the arms of said shaft, substantially as described.

350,491. BUTTON OR OTHER ANALOGOUS ARTICLE. JOHN C. W. JEFFERYS, Hargrave Park Road, Holloway, County of Middlesex, England. Filed Feb. 15, 1886. (No model.) Patented in England June 22, 1885, No. 7,574.



Claim.—In a button or other analogous article, the combination, with the central pillar and foot-plate, of the laterally-movable head provided with means, substantially as shown and described, whereby the pillar and foot-plate are placed in eccentric position relative to the head and returned into a locked central position, all substantially as set forth.

350,492. WHIFFLETREE-HOOK. JOSEPH R. JOHNSON, Rockford, Mich. Filed July 6, 1886. (No model.)

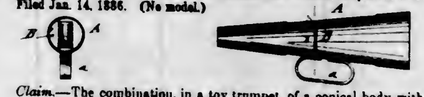


Claim.—1. The combination of the whiffletree P, ferrule A, provided with the slots C and D, and lug R, the button *r*, spring S, cylinder F, ferrule J, provided with hook K and slot M, and key O, all constructed substantially as and for the purpose described.

2. The following parts in combination: ferrules A and J, spring S, button *r*, and key O, all constructed as described.

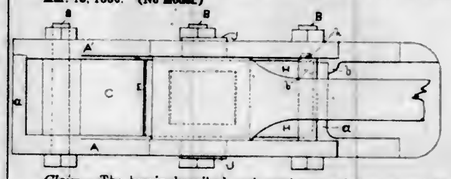
3. The combination of whiffletree P, ferrule V, ferrule T, provided with hook 1, and ferrule U, provided with lug 2, all constructed substantially as described.

350,493. TOY TRUMPET. WILLIAM JÜRGENMANN, Stapleton, N. Y. Filed Jan. 14, 1886. (No model.)



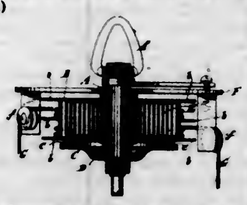
Claim.—The combination, in a toy trumpet, of a conical body with a circular plate carrying the reed, said plate being wedged transversely within the body of the trumpet, substantially as set forth.

350,494. ROCK-CRUSHER. JOEL B. LOW, San Francisco, Cal. Filed Mar. 13, 1886. (No model.)



Claim.—The herein-described rock-crusher, consisting, essentially, of the casing A A', provided with the transverse plate *a'*, stationary jaw C, moving jaw F, having brace-piece H, lever I, provided with trunnions J, engaging with the upper part of the jaw F, the whole being arranged and operating substantially as and for the purpose described.

350,495. SUSPENDING DEVICE FOR LAMPS, &c. CHARLES H. LYMAN, Ansonia, Conn., assignor to the Ansonia Brass and Copper Company and Wolcott A. Hull, both of New York, N. Y. Filed Dec. 28, 1885. (No model.)



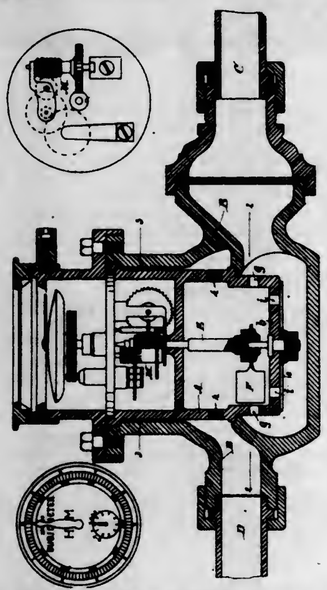
Claim.—1. In a suspension device, the combination of an arbor, a rotary drum mounted on the arbor, a counterbalance-spring, a brake supported by the arbor beneath an end of the drum, a frame loosely mounted upon the arbor and supported by the drum, and provided with guides over which pass cords or chains from the drum to an article which they suspend, the said arbor and frame being provided the one with a guide and

the other a projection engaging the same, whereby the rotation of the frame is prevented, substantially as specified.

2. In a suspending device, the combination of an arbor, a rotary drum mounted on the arbor, a counterbalance-spring, a brake supported by the arbor beneath an end of the drum, a spring arranged between the brake and the adjacent end of the drum, a frame loosely mounted upon the arbor and supported by the drum, and provided with guides over which pass cords or chains from the drum to an article to be suspended, the said arbor and frame being provided the one with a guide and the other a projection engaging the same, whereby the rotation of the frame is prevented, substantially as specified.

3. In a suspending device, the combination of the arbor A, drum B, brake C, spring E, frame F, provided with guides *f*, and the cords or chains G, substantially as specified.

350,496. **ROTARY WATER-METER.** Heinrich Meinecke, Breslau, Germany. Filed Mar. 2, 1886. (No model.) Patented in Germany Sept. 11, 1877, No. 1,343; in Austria-Hungary Dec. 31, 1877, No. 30,364 and No. 3,080; in Russia Oct. 10/22, 1883, No. 7,846, and in Italy Jan. 14, 1885, No. 16.



Claim.—In combination with the chamber A of a water-meter, provided with holes *i i* through its bottom *b*, the segmental disk-plate *e*, as and for the purpose described.

350,497. **MANUFACTURE OF PYROXYLINE.** George M. Mowbray, North Adams, Mass., assignor to the American Zylonite Company, New York, N. Y. Filed Jan. 27, 1886. (No specimens.)

Claim.—As an improvement in the art of manufacturing nitro-cellulose, the within-described process of restoring the spent acid of the nitrating bath in strength and bulk without precipitation and analysis by fortifying and adding to the drained spent acid of a previous nitration a mixture of concentrated sulphuric and nitric acids, in the manner and about in the proportions herein set forth.

350,498. **MANUFACTURE OF PYROXYLINE.** George M. Mowbray, North Adams, Mass., assignor to the American Zylonite Company, New York, N. Y. Filed Jan. 27, 1886. (No model.)

Claim.—1. In the manufacture of pyroxyline, the use of steeled cast-iron pots for holding the mixed acids in which the cellulose is immersed during the process of conversion.

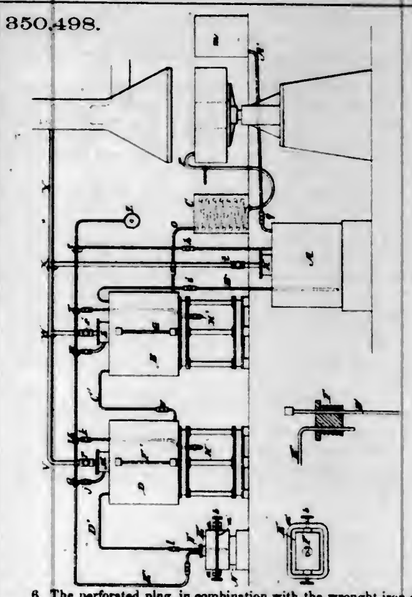
2. The use of homogeneous metal, otherwise called "Bessemer process steel," plates for tanks to serve as containing-vessels for the mixed acids used in the process of converting cellulose into nitro-cellulose.

3. The use of homogeneous metal, otherwise called "Bessemer process steel," plates for receiving-tanks and storage-tanks of the mixed concentrated and spent acids used in the process of converting cellulose into nitro-cellulose.

4. The combination of a spent-acid tank, a building-up-acid tank, and a concentrating-acid tank with a temperature-regulating coil.

5. The elliptic ring with head-blocks and adjusting-screw, in combination with wrought-iron drum, substantially as described.

350,498.



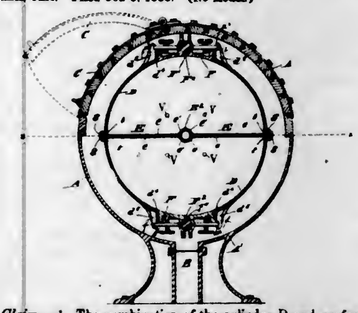
6. The perforated plug, in combination with the wrought-iron drum and the compressed-air inlet and liquid-outlet, substantially as described.

350,499. **MEDICINE-SPOON.** William R. Nott, Newark, N. J. Filed July 10, 1886. (No model.)



Claim.—A spoon-bowl having a shank to which a corkscrew is hinged or pivoted at one end, substantially as and for the purposes described.

350,500. **STEAM WASHING-MACHINE.** William Prior, Cincinnati, Ohio. Filed Oct. 8, 1885. (No model.)



Claim.—1. The combination of the cylinder D and perforated diaphragm E, provided with perforated steam and water inlet conduit, substantially as and for the purposes specified.

2. The combination of the cylinder D and the perforated diaphragm E, and the centrally-located conduit E^2, formed integral with diaphragm E, perforated on both sides, substantially as and for the purposes set forth.

3. The cylinder D, made in two parts or portions, having flanges S, and the perforated diaphragm E, secured between the said parts or portions, substantially as and for the purposes specified.

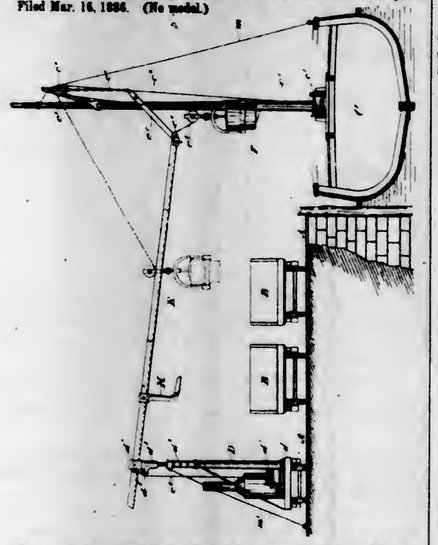
4. In a washing-machine, the combination of the outer shell, A, and the rotatable inner cylinder, D, having journals and diaphragm, and journal-bearings *a a'*, and hollow journal d^3, and swivel-joint and pipe K, and branch pipes L and M, substantially as and for the purposes specified.

5. In a washing-machine, the inner shell, D, having journals and provided with perforated diaphragm E, and central conduit, E^2, having perforations in its sides, one of said journals having an axial perforation or conduit connecting with the conduit E^2, substantially as and for the purposes specified.

6. The combination of shell A, having door and journal-bearings *a a' a a'*, and cylinder D, having perforated diaphragm, and conduit E^2, and doors and journals *d* and d^2, the latter being perforated, and swivel-joint I, pipe K, branch pipes L and M, and cocks *m* and e^2, substantially as and for the purposes set forth.

7. The combination of the cylinder D, having perforated diaphragm, doors, and valves, shell A, provided with door C, and hollow base A', and wasteway B, located within the hollow base, substantially as and for the purposes specified.

350,501. **APPARATUS FOR LOADING VESSELS.** Geo. W. Prior, Baltimore, Md., assignor of one-third to Joseph R. Ford, same place. Filed Mar. 16, 1886. (No model.)



Claim.—1. In a loading or discharging apparatus, a track-beam, E, forming an inclined plane with its receiving end lower than the other, in combination with a carriage impelled by the rope from the windlass, forming an inclined plane behind the carriage, and changing its angle of inclination as the carriage is impelled upon the track.

2. In a loading or discharging apparatus, the carriage, substantially as herein shown and described, provided with the sheave I^2, the wheels I^3, and the hook I^4.

350,502. **SHAVING-BRUSH.** George D. Pusser, Somerville, Mass. Filed June 26, 1886. (No model.)



Claim.—As a new or improved article of manufacture, a brush, substantially as represented, composed of a metallic and flanged ferrule, as described, a mass of bristles inserted in and cemented in each ferrule at its smaller end, a handle inserted and fastened in each ferrule at its larger end, and a cord wound spirally about each ferrule and covered with size or varnish, all being essentially as specified.

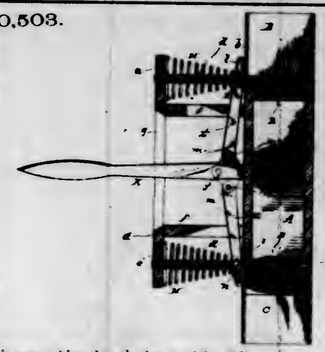
350,503. **GRAIN-MEASURING DEVICE.** William J. Richards, Bridgeville, Del. Filed Apr. 29, 1886. (No model.)

Claim.—1. In a grain-measuring device, the combination, with the grain-receptacle, of a pair of spring-actuated sliding doors or gates, and a single vibrating lever connected with each door or gate, and adapted to open either door or gate while the other remains closed, substantially as set forth.

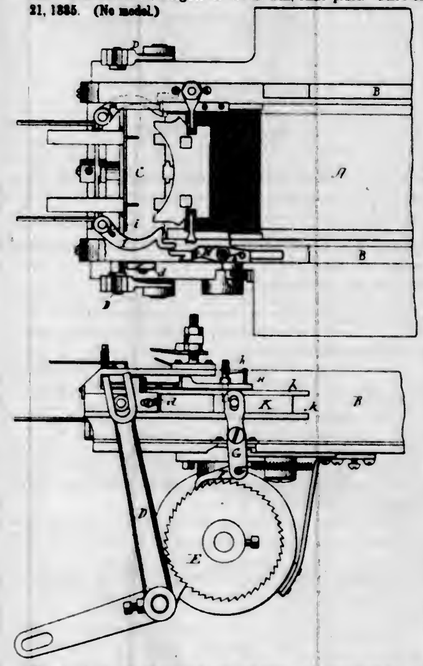
2. In a grain-measuring device, a vibrating gate-operating lever having gate-operating arms hinged thereto, and a gate loosely connected to each operating-arm, substantially as set forth.

3. In a grain-measuring device, the combination, with the operating-lever pivotally secured to the grain-receptacle, and the shouldered operating-arms hinged to the lever, of the sliding gates and the springs secured on the gate-operating rods and adapted to close the gates, substantially as set forth.

350,503.



350,504. **ENVELOPE-COUNTING MACHINERY.** Abram A. Rebstar, Worcester, Mass., assignor to W. H. Hill, same place. Filed May 21, 1885. (No model.)

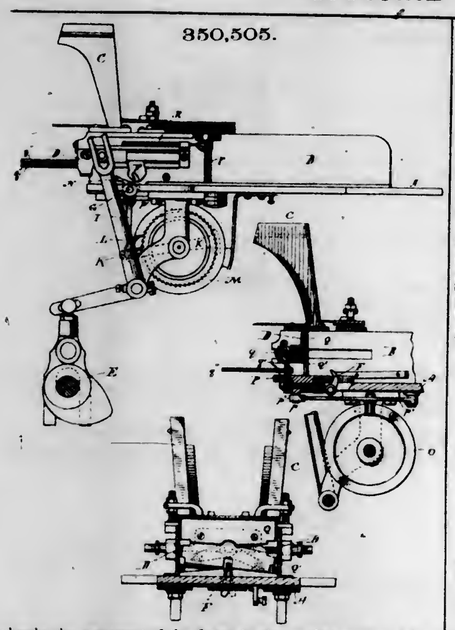


Claim.—In an envelope-counting machine, the combination, with the counting-wheel and its pawl and pawl-actuating lever, and with the pusher, of a toe-piece connected with the said lever, as described, and lying normally outside the path of the pusher, and a finger lying normally within the path of the envelope and adapted to be moved by the passing envelope outwardly and against the toe-piece, whereby the latter is brought into engagement with the pusher to actuate the pawl-lever and pawl.

350,505. **MACHINE FOR COUNTING AND PACKING ENVELOPES.** Abram A. Rebstar, Worcester, Mass., assignor to W. H. Hill, same place. Filed Mar. 12, 1885. (No model.)

Claim.—1. In an envelope-counting machine, the combination, with the envelope-forwarding mechanism and the mechanism which actuates the counting-wheel, all substantially as described, of a finger lying normally within the line of travel of the envelope, and a projection connected with the mechanism which actuates the counting-wheel, and lying normally outside the line of travel of the envelope-forwarding mechanism, the said finger and the said projection being connected together by a suitable connection, substantially as herein set forth

350,505.



whereby the movement of the finger by the passing envelope brings the projection into position to be acted upon by the envelope-forwarding mechanism.

2. In an envelope-counting machine, the combination, with the envelope-forwarding mechanism, the counting-wheel, and its operating mechanism, all substantially as described, of the finger F, shaft G, and projection N, all substantially as herein set forth.

3. In an envelope counting and sorting machine, the combination, with the counting-wheel and its shaft, of a two-part cam-wheel, O O, carried upon the said shaft and in splined or adjustable connection therewith, all substantially as set forth.

4. In an envelope counting and sorting machine, the combination of the two-part cam-wheel O O, stud p'', lever p', pivoted standard p, and tilting table P.

5. In an envelope counting and sorting machine having a tilting table, the double pusher-plate Q Q', herein described, it consisting of an upper part, Q, rigidly attached to the slide or carriage, and a lower part, Q', centrally pivoted thereon, whereby the said lower part is free to rock or change its angle, so as to coincide with the double incline of the tilting table.

6. In an envelope counting and sorting machine, the combination of the double pusher-plate Q Q', shaft q, yoke q', rods q'', and tilting table P.

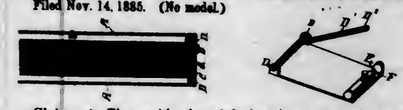
350,506. CULTIVATOR. Nicholas Rossy, Walnut, Ill. Filed June 29, 1886. (No model.)



Claim.—1. In a cultivator, the combination, with the beam and standards, of the horizontal knives D D, arranged in pairs to run beneath the surface, the pulverizers G on frame J K, connected to and vertically adjustable on said standards by the clip L and grip M, substantially as shown and described.

2. The combination, with a cultivator, of the pulverizers G, clip L, provided with slots f, grip M, attached to standard B, and bolts g, whereby the gang of pulverizers are rendered adjustable in relation to the standard B, substantially as shown, and for the purpose described.

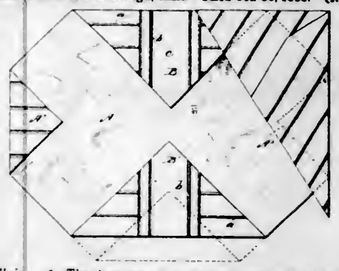
350,507. NEWSPAPER-FILE. William Schulz, San Francisco, Cal. Filed Nov. 14, 1885. (No model.)



Claim.—1. The combination of the boards or covers of a newspaper or other file, the stiff center piece, B, the plates C, secured thereon and provided with arms D', pivoted in the lugs D, and the spring-bolts E, adapted to lock said pivoted arms, substantially as shown and described.

2. A newspaper or other file the boards or covers of which are united by a center piece having affixed to it the locks to receive the staples inserted in the papers, one of said boards having measuring-cleats provided with staple-receiving dies secured upon it in line with said locks, whereby the staples are gaged in position for insertion in the papers

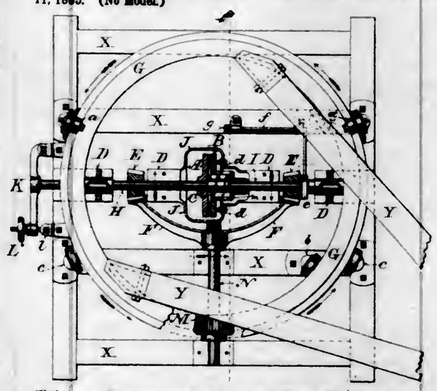
350,508. BOOK-COVER PROTECTOR. Charles W. Stiff and Joseph Watrous, Foxborough, Mass. Filed Oct. 30, 1885. (No model.)



Claim.—1. The book-cover protector composed of the blank A, formed with four folding corners, two of which fold upon the central back portion and sides of the cover, and pocket corner-pieces to fit over the corners of the book-cover and folded portion of said blank, substantially as described.

2. The corner-pieces for a book-cover protector formed of the blank C, having the portions E and D folded along the lines 1, 2, and 3, respectively, and one portion secured to the other, substantially as described.

350,509. GRINDING-MILL. Herbert F. Stone, Appleton, Wis., assignor to the Appleton Manufacturing Company, same place. Filed Feb. 11, 1885. (No model.)



Claim.—1. The combination, in a grinding-mill, of the burr A, arbor H, the burr B, having hollow hub m, with lateral openings, arbor I, feed-worm C, mounted upon arbor H and projecting into hollow hub m, and the casing J, having the contracted portion, substantially as and for the purposes set forth.

2. In a grinding-mill, the combination of the burr A and the burr B, the latter having a central opening and a hub with openings communicating with the opening in its face, arbors I and H, worm C, secured to the latter and projecting into the central opening in burr B, casing J, inclosing said burrs and hub m, and a hopper, O, communicating with said casing J adjacent to the openings in hub m, substantially as and for the purposes set forth.

3. In a grinding-mill, the combination of the burrs A and B, means for forcing the feed between said burrs, arbors H and I, provided with

gears E E, and driving-gear F, meshing with both of said gears E E, substantially as and for the purposes set forth.

4. In a grinding-mill, the combination of the burrs A and B, arbors H and I, gears E E on said arbors, gear F, meshing with gears E E, master-wheel G, gear M, and shaft N, upon which said gears F and M are mounted, substantially as and for the purposes set forth.

5. In a grinding-mill, the combination of the oppositely-rotating arbors H I and burrs A and B, the burr B being formed with a central opening, and the hub m having lateral openings, feed-worm C, secured to the arbor H and projecting into the said central opening in burr B, casing J, inclosing said burrs and hub, hopper O, opening into said casing adjacent to hub m, regulating-slides p, and reciprocating agitator s, substantially as and for the purposes set forth.

6. In a grinding-mill, the combination of the yoke P, furnished with bearings D D, arbors H and I, mounted therein and provided with gears E E, burrs A B, gear F, meshing with gears E E, and casing J, inclosing said burrs and supported upon yoke P, substantially as and for the purposes set forth.

7. The combination, in a grinding-mill, of the burrs A and B, the latter having a hollow hub, m, arbors H and I, worm C, by which the feed is forced between said burrs, casing J, dividing-ring d, separating the space within said casing about the hub m from that about said burrs, substantially as and for the purposes set forth.

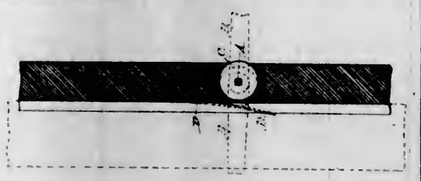
350,510. STEAM AND WATER GAGE. Robert Stretch, Chicago, Ill. Filed May 12, 1886. (No model.)



Claim.—1. In a steam and water gage, a coupling having a stop-cock placed therein, with ways in said coupling and stop-cock, forming when open a straight way for the passage of water into one end of the glass tube used in said gage, in combination with steam-pipes forming a way into the other end of said glass tube, said steamway being opened and closed in the movement of said stop-cock by a groove or depression on the periphery of the same, all substantially as described, and for the purpose set forth.

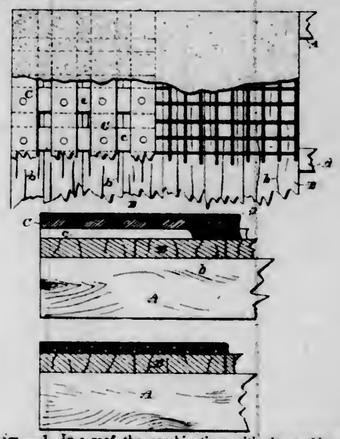
2. In a steam and water gage, the combination of coupling A, having ways a a a' a'' a''', with stop-cock E, having ways e e' e'', glass tube X, and pipes C and D, all substantially as described, and for the purpose set forth.

350,511. SASH-HOLDER. Joseph E. Tott, Exira, Iowa. Filed Mar. 24, 1886. (Model.)



Claim.—In a sash holder and lock, the combination of the crank B and escutcheon E with the shaft A, cam C, adjustable on shaft A, metallic friction-plate D, and spring-catch F, all as substantially set forth and described.

350,512. ROOF. Marshall Turley, Council Bluffs, Iowa. Filed Dec. 22, 1885. (No model.)



Claim.—1. In a roof, the combination, with the roof-boards and an intermediate open-work layer rigidly secured to the roof-boards, one series of strips of the open-work layer being arranged transversely to the roof-boards, of a covering or layer of plastic material adapted to fill the meshes of the open-work layer and form a smooth outside surface.

2. In a roof, the combination, with the roof-boards provided with manifold cracks, splits, or joints of an intermediate open-work layer, one series of strips forming the open-work layer being secured to the roof-boards transversely to the cracks, splits, or joints, substantially as set forth.

3. In a roof, the combination, with the roof-boards and the flat strips rigidly secured thereto in the positions shown, of a covering or layer of plastic material adapted to fill the spaces between the strips and form a smooth outside surface.

4. In a roof, roof-boards provided with numerous splits or cracks, for the purpose substantially as set forth.

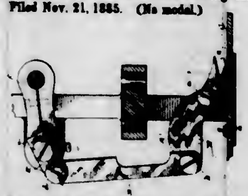
350,513. MICROMETER-CALIPERS. Albert L. Washburn, Boston, Mass., assignor to William H. Wilkinson, same place. Filed Jan. 21, 1886. (No model.)



Claim.—1. In a micrometer, a frame having a nut and index, in combination with the measuring-screw fitted to turn in said nut, and having a plain portion at its outer end, the sleeve fitted to said plain portion to partially rotate in a given position thereon, and fastening mechanism to fasten the sleeve on the screw at such points as to compensate for wear, substantially as described, and for the purpose specified.

2. In a micrometer, the combination of the sleeve having a grooved neck, a friction-spring coiled about said neck, and the operating handle or ring connected by one end to said spring, while the other end of the spring is in frictional contact with the neck of the sleeve, substantially as described, and for the purpose specified.

350,514. TRIMMER FOR SEWING-MACHINES. Ruel W. Whitney, Cleveland, Ohio, assignor to the White Sewing Machine Company, same place. Filed Nov. 21, 1885. (No model.)



Claim.—1. The mechanism for operating the vibrating blade of a trimming attachment for a sewing-machine, consisting of a rod pivotally

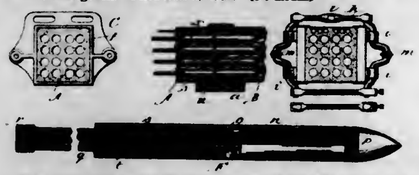
and directly connected at one end with said blade back of its pivot, and pivotally and directly connected at the other end with an arm projecting from a rock-shaft of the machine, substantially as shown and described.

2. The combination, with the needle-bar-operating rock-shaft of a sewing-machine and with the vibratory blade of a trimming attachment arranged thereon, of a rod pivotally and directly secured to said blade back of its pivot, and to an arm projecting from the end of said shaft, substantially as specified.

3. The combination of a fixed blade mounted upon a machine, a vibratory blade pivoted to the fixed blade and to a connecting-rod, and a connecting-rod pivoted to an arm mounted on the needle-bar-operating rock-shaft and projecting to an opposite side of said shaft from that at which the needle-bar-operating arm is arranged, whereby the blade is operated when the needle is depressed, substantially as specified.

4. The combination, with a sewing-machine, of shears for trimming the fabric, said shears consisting of a stationary blade bent below the the cutting-edge at right angles, said lateral portion being detachably secured to the under side of the cloth-plate, and a vibratory blade operated by means of a connecting-rod and rock-arm, the latter being secured to the rock-shaft that operates the needle-bar, substantially as set forth.

350,515. UNDERGROUND ELECTRIC CABLE. Bernhette Williams, Chicago, Ill. Filed Dec. 2, 1885. (No model.)



Claim.—1. A clamping device adapted to be applied to one section of a conduit, in combination with a device adapted to engage with one end of another section of a conduit, and connecting-chains, substantially as and for the purpose specified.

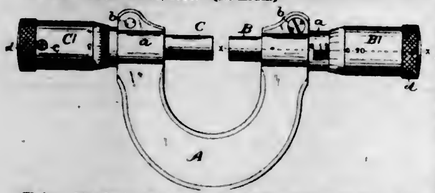
2. A clamping device consisting of block D, combined with crank-rod *j*, supported in bearings, and rods *k*, substantially as and for the purpose specified.

3. The blocks D, crank-rod *j*, and rods *k*, in combination with a device, C, adapted to engage with the end of a section of pipe, and connecting-chains, substantially as and for the purposes specified.

4. The method herein described of cooling hot cement at the joints of electric conduits and forming continuous passages at such joints by the use of a tube or hollow rod filled with or adapted to receive a cooling-fluid, substantially as specified.

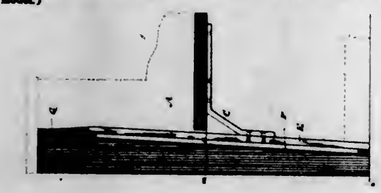
5. The hollow device F, adapted to be filled with water, one part being double, thus forming an air-space, *f*, substantially as and for the purpose specified.

350,516. MICROMETER-CALIPERS. William H. Wilkinson, Boston, Mass. Filed Jan. 21, 1886. (No model.)



Claim.—The duplex micrometer herein described, consisting, essentially, of a frame, two measuring systems or scales, and two opposing measuring-screws, the inner ends of which screws are each adapted, when set at zero, to serve, respectively, as the anvil for the opposite screw, substantially as described, and for the purpose specified.

350,517. PIANO-KEY-BED SUPPORT. Frank L. Wing, Brooklyn, assignor to Charles U. Wing, New York, N. Y. Filed May 1, 1885. (No model.)

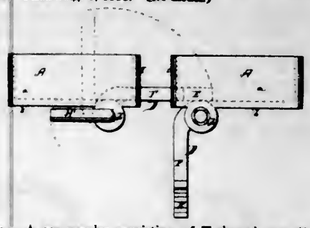


Claim.—1. In a piano-forte, one or more brackets, arms, or equivalent supports, as C or C″, projecting from the interior framing of the instrument at the end thereof and at any angle, and adapted to support the key-bed D in a horizontal position firmly and independently of the upright portions of the outer case, substantially as described.

2. In a piano-forte, one or more brackets, arms, or equivalent supports, as C, attached to any portion of the interior framing of the instrument, as described, and extending beyond the front frames of the case, for the purpose of supporting the forward portion of the key-bed firmly in a horizontal position and independently of the upright portions of the outer case, substantially as described.

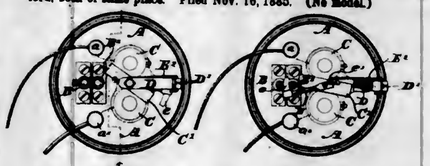
3. The herein-described musical-instrument frame, consisting of sheet metal bent or pressed into curved corrugations, as and for the purposes set forth.

350,518. CAR-COUPLING. Joseph Wood, Red Bank, and Marlon S. Drake, Newark, assignors to Sophia Wood, Red Bank, N. J., and said Drake. Filed Aug. 5, 1885. (No model.)



Claim.—A car-coupler consisting of T-shaped arm F and car *d*, swung and arranged to operate under the buffer-head or box A by means of rod B, so that the T-shaped arm F, when not in use, hangs under said buffer-head, substantially as described, and for the purpose specified.

350,519. CUT-OUT FOR ELECTRIC LAMPS. Leonidas G. Woolley, Indianapolis, Ind., assignor to Henry H. McGaffey and Chester Bradford, both of same place. Filed Nov. 16, 1885. (No model.)



Claim.—1. The combination, with an electric lamp, of an electro-magnet set in a shunt-circuit connected therewith, a pivot-shaft bearing the armature of said electro-magnet and a bridge-piece, and a spring connected with said bridge-piece, said several parts being arranged and operating substantially as set forth.

2. The combination of the rods or wires B B′, helices C, frame D, carrying spring D′, a pivot-shaft, E′, mounted in bearings in said frame, carrying an armature and the bridge-piece, and a connecting-rod connecting said bridge-piece and said spring, substantially as set forth.

3. The combination of the main circuit of an electric lamp, a shunt-circuit, helices of high resistance in said shunt-circuit, a pivot-shaft carrying the armature to said helices, and a bridge-piece, said armature being set in such relation to said helices that when said helices are energized by the current being forced through them they will operate through said armature to turn said pivot-shaft and said bridge-piece, and bridge the rods or wires of the main circuit, thus cutting out or short-circuiting the lamp, substantially as set forth.

350,520. KNIFE FOR WOOD-WORKING MACHINERY. Joseph B. Wood, Chicago, Ill., assignor of two-thirds to Charles W. Tremain and William B. Reese, both of same place. Filed Mar. 16, 1886. (No model.)



Claim.—As a new article of manufacture, a wood-working knife having formed in its blade a rounded groove or concaved chamfer, the same being situated on the side opposite the basil, as set forth.

350,521. MUSICAL TOY. Nathaniel B. Baldwin, Hyde Park, Ill. Filed Oct. 14, 1885. (No model.)

Claim.—1. A sound-producing toy composed of a body, A, having a throat or passage, *a*, and an extensible reed or membrane arranged therein and adapted to have its tension adjusted by hand, essentially as herein described, and for the purpose set forth.

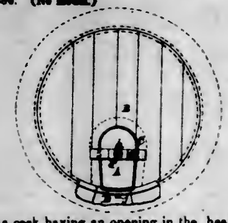
350,521.



2. A sound-producing toy composed of a body, A, having throat or passage *a*, recess *a′*, and passage *a²*, in combination with the reed or membrane B, one end of which is fixed, and the other end, *b*, adapted to be grasped by the hand, as herein described, and for the purpose set forth.

3. A sound-producing toy having the reed B fixed at one end and loose at the other, and provided with the curved recess C at its back, as and for the purpose set forth.

350,522. BREWER'S CHIP-CASK. Henry Blatner, Boston, Mass. Filed Jan. 16, 1886. (No model.)



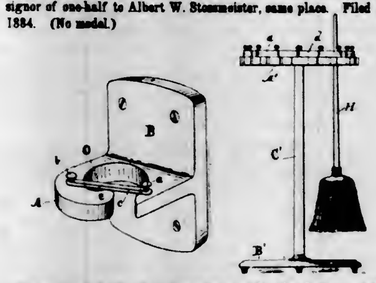
Claim.—1. In a cask having an opening in the head extending to the stave or staves, a metallic frame for said opening, consisting of two pieces, C and D, fixed to the head and to the stave or staves, substantially as set forth.

2. In a chip-cask, and in combination with the head and door therein provided with a lip, *i*, a metallic piece, D, let into the stave or staves, and provided with a groove, *h*, substantially as and for the purposes set forth.

3. In a chip-cask, a metallic piece, D, let into the stave or staves at the circumference of the head, provided with an opening or a hole, *j*, substantially as and for the purpose specified.

4. In a chip-cask, and in combination with a door for an opening in the head of the cask extending to the stave or staves, a metallic bushing, C, fixed in the head, and a metallic piece, D, at the bottom of said opening, said bushing and piece being fitted to said door, substantially as specified.

350,523. BROOM-HOLDER. Abram M. Bodley, Newport, Ky., assignor of one-half to Albert W. Stemmeister, same place. Filed Dec. 6, 1884. (No model.)



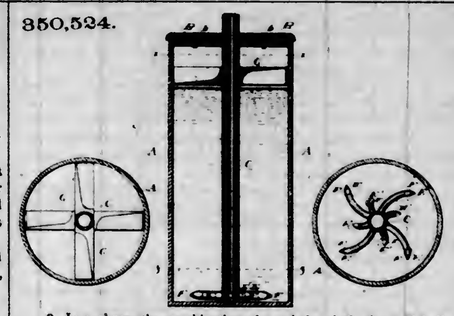
Claim.—1. A holder for suspending handled implements, consisting substantially of a horizontal overhanging shelf suitably supported, having in its outer edge one or more open recesses adapted to receive the handles of the implements, combined with elastic bands or cords held across the said recesses, whereby the insertion of the handle displaces the band and causes it to hold the handles in the recesses by elastic tension, substantially as set forth.

2. The improved display-holder for handled implements, embodying the supporting-base B′, standard C′, and rotating shelf A′, provided with recesses O and elastic bands *c*, secured across said openings, in combination, substantially as and for the purpose set forth.

350,524. CHURN. Matthias S. Bowser, Lima, Ohio. Filed Oct. 17, 1884. (No model.)

Claim.—1. In a churn, the combination of a tubular shaft having an inlet-opening for the air, the dasher consisting of the radial distributing-tubes carried by the shaft and in communication therewith, and the nipples provided with the outlet-openings, fitted on the free ends of the distributing-tubes, substantially as described.

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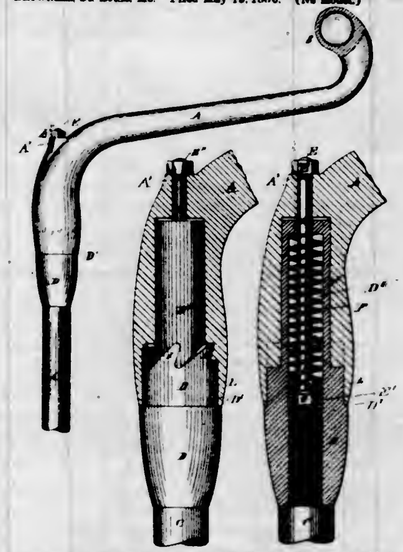
2. In a churn, the combination of a tubular shaft, the radial distributing-tubes carried by the shaft and in communication therewith, and a flexible tapered nipple detachably fitted upon the free end of each distributing-tube, and having a longitudinal incision at its contracted end, substantially as described.

3. In a churn, the combination of a tubular shaft, the radial curved tubes E E′, carried by the shaft near its lower end and opening into the same, the tubes being made of different lengths, and the shorter tubes being arranged between the longer tubes, and the tapered flexible nipples fitted on the free end of each tube, and having a longitudinal incision, substantially as described.

4. In a churn, the combination of a tubular shaft, the distributing-tubes carried thereby near its lower end, the flexible nipples fitted on the free ends of the tubes, and each having an opening, and a butter-gatherer carried by the shaft above the tubes and rotating therewith, said gatherer having the radial recessed arms, substantially as described.

5. In a churn, the body provided with a removable cover having the ventilating-tubes, in combination with a tubular shaft, the distributing-tubes carried thereby near its lower end, the flexible nipples fitted on the free ends of the tubes, and a butter-gatherer, also carried by the shaft above the tubes, substantially as described, and for the purpose set forth.

350,525. BRAKE-HANDLE FOR STREET-CARS. Frederick B. Brownell, St. Louis, Mo. Filed May 15, 1886. (No model.)



Claim.—1. The combination, with the handle A, provided with ratchet-teeth, and the brake-shaft C, of the sleeve D, secured to the shaft C, and having the socket D″, ratchet-teeth to engage the ratchet-teeth on the handle, a spring, F, and connection between the handle and sleeve, substantially as shown and described, for the purpose set forth.

2. In combination with the handle provided with ratchet-teeth and the brake-shaft C, the sleeve provided with a socket, D″, and ratchet-teeth to engage the teeth on the handle, connecting-bolt, and spring, arranged and operating substantially as and for the purpose set forth.

3. In combination with the handle provided with rearwardly-in-

clined ratchet-teeth and the brake-shaft, the sleeve provided with forwardly-inclined ratchet-teeth to engage and interlock with the teeth on the handle, bolt connecting the handle to the sleeve, and spring surrounding the bolt, substantially as and for the purpose set forth.

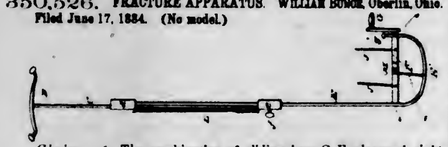
4. In combination with the handle having rearwardly-inclined ratchet-teeth, the sleeve having forwardly-inclined ratchet-teeth to engage and interlock with the teeth on the handle, substantially as set forth.

5. In combination with the rearwardly-inclined ratchet-teeth secured to the brake-shaft, the forwardly-inclined ratchet-teeth secured to the operating-lever, substantially as described.

6. In combination with the handle provided with ratchet-teeth, the sleeve provided with a socket, D″, ratchet-teeth to engage the teeth on the handle, and spring-connection between the handle and sleeve, substantially as and for the purpose set forth.

7. A brake-handle consisting of a sleeve, D, formed with an annular shoulder, D′, teeth I, and socket D″, having spring-chamber D‴, the handle proper, A, formed with socket L, and teeth J within the socket L, the bolt E, having the head E′, and nut E″, and a spring, F, substantially as described.

350,526. FRACTURE APPARATUS. William Bunce, Oberlin, Ohio. Filed June 17, 1884. (No model.)



Claim.—1. The combination of sliding bars C E, sleeve *d*, rigid with bar E, sleeve *e*, set-screw *f*, threaded through a perforation in bar C, and having end bearing against bar E, spindle F, journaled in angular bar end, E′, and cords J, substantially as set forth.

2. The combination, with bars C and E, sliding in sleeves *d* and *e*, and connecting elastic device L, of spindle F, journaled in end E′ of bar E, and provided with cords J J, crank G, and set-screw *g*, substantially as set forth.

3. The combination, with bar E and spindle F, provided with cords J J, of spring M, attached to said spindle, and provided with arm *m*, whose free end engages with arm E′, substantially as set forth.

4. In an adjuster for the purposes specified, the combination of arm B, rods C and E, elastic connection L, spindle F, spring M, with arm *m*, and cords J J, substantially as set forth.

350,527. CAR-COUPLING. John W. Carley, Thornton, Tex. Filed Apr. 5, 1886. (No model.)



Claim.—1. In a car-coupler, the combination of the headed pin, spring-jaws, and lock, consisting of a hinged lever and plate provided with pins which engage with the said spring-jaws when lowered, substantially as set forth.

2. In a car-coupler, the combination of the headed pin, hinged jaws, and lock, consisting of a hinged lever and plate provided with pins, the lever having projections for opening the jaws when the lock is raised, as set forth.

3. In a car-coupler, the combination of the headed pin, hinged jaws, and lock, consisting of a lever and plate hinged to the lever, the lever and plate being provided with lugs for limiting the movement of said plate relatively to said lever, substantially as set forth.

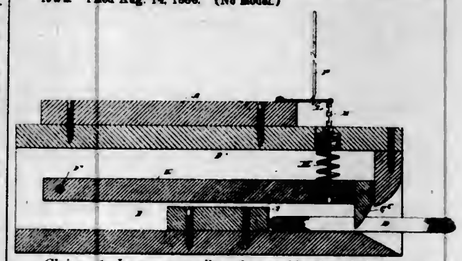
4. In a car-coupler, in combination with the hinged jaws, drawbars provided with a pin-hole, K, operating substantially as and for the purpose set forth, the jaws acting to support the pin until forced apart by the link, a hinged lever, a plate pivoted to said lever, said pin being attached to said plate, and an operating chain or rod connected to said plate for raising said pin, as shown and described.

350,528. DRAW-BRIDGE, TURN-TABLE, &c. Theodore Cooper, New York, N. Y. Filed Mar. 19, 1886. (No model.)



Claim.—In combination with a swing-bridge, turn-table, or similar rotating structure, a base-casting provided with a central guide-shaft, and having a coned track at or near its periphery, and a nest of coned wheels on said track having their top surfaces lying in a horizontal plane and held truly radial by fixed axles secured to inner and outer guide-rings, as *d e*, all combined and arranged beneath said structure, whereby all suspension devices may be dispensed with, and girders carried on top, substantially as and for the purposes set forth.

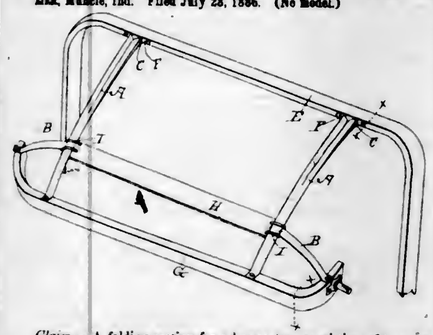
350,529. CAR-COUPLING. Thomas E. Cornell, Jr., Mount Ayr, Iowa. Filed Aug. 14, 1886. (No model.)



Claim.—1. In a car-coupling, the combination of the draw-head having the shoulder I on its lower side at a distance from its mouth, and the jaw E, pivoted in the draw-head, and having a depending lip, G, at its free end, adapted to bear normally on the lower side of the draw-head, the said lip being inclined on its outer side, substantially as described.

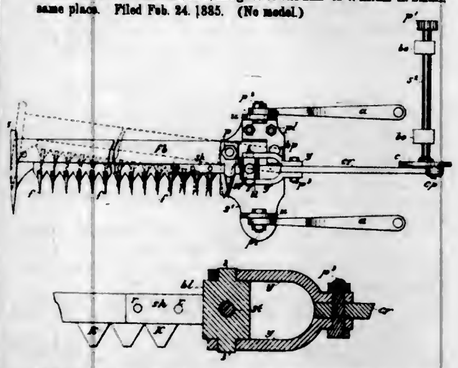
2. In a car-coupling, the combination of the draw-head having the shoulder I on its lower side, the jaw E, pivoted in the draw-head, and having the depending lip at its free end, the spring bearing downwardly on the jaw, and the rock-shaft having the arm connected to the jaw, substantially as described.

350,530. FOLDING SECTION FOR BUGGY-TOPS. George W. Crozier, Muncie, Ind. Filed July 23, 1886. (No model.)



Claim.—A folding section for a buggy-top, consisting of two metal arms, A, having short side braces, B, brace H, and bow G, the said section hinged to the bow E by a flat part of a hinge pivoted to the arm at C and bent up back of the bow at D, all as shown.

350,531. CUTTER-BAR CONNECTION FOR MOWERS. William H. De Vault, Martinsville, Ind., assignor of one-half to William H. Small, same place. Filed Feb. 24, 1885. (No model.)



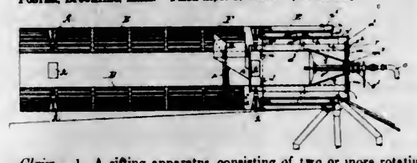
Claim.—1. A mower provided with an inner shoe, said shoe being pivoted to the mower by horizontal pivots, a finger-bar pivoted to the shoe by a vertical pivot, a cutter-bar provided near its inner end with a tapering stud, a block fitting over said stud and provided with journals, and a yoke having bearings for said journals and connected with the crank-rod, substantially as and for the purpose set forth.

2. In a mower, a finger-bar pivoted to the inner shoe at a point near its inner end, and secured to the shoe itself by means of a wooden pin of such strength as to yield before other parts under greater resistance than ordinary use incurs, the finger-bar connected to the crank by means of a joint formed by the tapering stud *st*, block *bl*, having journals 3, movable in bearings on the yoke-arms *y*, the latter connected with the crank-rod, and this to the driving mechanism, all combined, substantially as described.

3. The finger-bar *fb*, the knives *k*, sliding in the fingers *f*, the shank *sh*, bolted to the cutter-bar, the stud *st* on such shank, the block *bl*, having journals 3, yoke-arms *y*, providing bearings for said journals 3, crank-rod *cr*, connected at its outer end with such yoke and at its inner end to the driving mechanism, the shoe *s′*, pivoted to arms *a*, these arms in turn secured to the frame-work of the machine, the finger-bar *fb*, pivoted at *p*, and secured by pin *bp* to said shoe *s′*, all combined, substantially as described.

4. A mower provided with an inner shoe pivoted to the mower by horizontal pivots and carrying a finger-bar pivoted to swing horizontally, and a frangible locking-pin, and a cutter-bar connected to the crank-rod by a universal joint, substantially as and for the purpose set forth.

350,532. APPARATUS FOR SIFTING SUGAR. Charles H. W. Foster, Brooklina, Mass. Filed Apr. 1, 1886. (No model.)



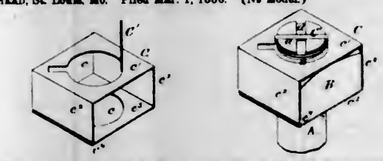
Claim.—1. A sifting apparatus consisting of two or more rotating drums of different mesh placed within each other and having the discharging ends lower than the receiving ends, substantially as described and shown.

2. The combination, in a sifting apparatus, of two or more concentrically-placed rotating drums of different mesh, with a stationary hopper mounted on the axis of rotation of the drums, substantially as set forth.

3. The combination, with the granulator-cylinder E, of two or more rotating drums placed one within the other and within the lower end of the cylinder, the supports for said drums being secured at their inner ends to braces on the cylinder, and at their outer or lower ends to arms radiating from a hub centered on the axis of rotation of the cylinder E, substantially as set forth.

4. The combination, with the rotating granulator-cylinder E, of the concentrically-set drums secured within the lower or discharge end thereof, the stationary hopper B, suspended on the axis of rotation of said cylinder and within the same, and the flange S, secured to and projecting within the cylinder, whereby the sugar is retained at the lower end of the drying portion of the cylinder, and is thereby carried up and dropped into the hopper, substantially as set forth.

350,538. NUT-LOCK. Benjamin N. Freeman and Stanley E. Whitehead, St. Louis, Mo. Filed Mar. 1, 1886. (No model.)

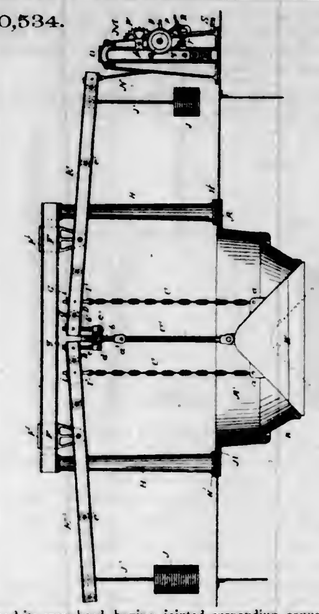


Claim.—1. In a nut-lock, the combination, with a shell surrounding the nut, and having an opening at top and bottom for the passage of the bolt, of a tongue formed on said shell at the edge of said top opening, and a groove in the end of the bolt, adapted to receive said tongue when bent down therein, substantially as and for the purpose set forth.

2. As a new article of manufacture, a nut-lock consisting of a shell for embracing the nut, having a perforation through its top for the passage of the bolt, and a tongue projecting from the margin of said perforation and adapted to be bent over the end of the bolt, substantially as set forth.

350,534. APPARATUS FOR CHARGING BLAST-FURNACES. Josiah M. Gettel, Lebanon, Henry C. Grittinger, Cornwall, and John H. Killinger, Lebanon, Pa.; said Grittinger and Killinger assignors to said Gettel. Filed May 7, 1886. (No model.)

Claim.—1. The combination of the charging-hopper, the charging-bell, the two supporting-levers, the suspending-chains, the suspending-rod, and its cross-head, having jointed suspending connection with the supporting-levers, substantially as and for the purpose set forth.



2. The combination of the charging-hopper, the charging-bell, the suspending-rod, its cross-head, the link-rods pivoted thereto, the supporting-levers, the cross-head pivots thereof for the link-rods, the suspending-chains at opposite sides of the suspending-rod connected at their lower ends with the charging-bell, the link-rods to which the upper ends of the chains are connected, and the cross-head pivots by which the chains are connected with the supporting-levers, substantially as and for the purpose set forth.

3. The combination of the pair of supporting-levers, their counterbalance-weights, the winch by connection with which the controlling-lever of the pair of supporting-levers is actuated, the charging-hopper, the charging-bell, the suspending-rod, its cross-head having jointed suspending connection with the supporting-levers, and the suspending-chains at opposite sides of the suspending-rod, and having connection at their opposite ends with the supporting-levers and the charging-bell, substantially as and for the purpose set forth.

4. The combination of the supporting-levers, each composed of side beams beams separated from each other and braced together, the cross-beam above the supporting-levers, its supporting-posts passing up between the side beams of the supporting-levers, the seat-ring to which the posts are secured at their bases, and the fulcrum-brackets for the supporting-levers secured to the cross-beam and projecting at their lower ends between the side beams of the supporting-levers, substantially as and for the purpose set forth.

350,535. DOOR-SPRING. Ratcliffe Hicks, New York, N. Y., assignor to the Canfield Rubber Company, Bridgeport, Conn. Filed Aug. 17, 1886. (No model.)



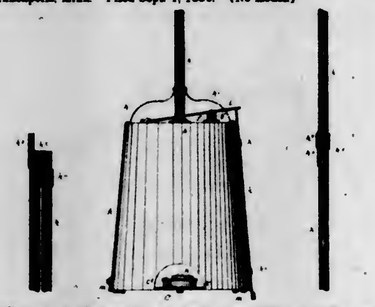
Claim.—1. In a door-closer, the combination, with washers or securing-heads, an elastic rod or band having its ends passed through contracted openings formed in said washers or securing-heads, and means for locking the washers on the rod or band, of ferrules adapted to surround the ends of the elastic rod or band and lock the washers or securing-heads to the securing-brackets, substantially as set forth.

2. In a door-closer, the combination, with a securing-washer, an elastic rod or band having its end drawn through an opening in said securing-washer, and provided with a band on the end drawn through the washer, of a ferrule adapted to conceal the bound end of the elastic rod or band and secure the washer to a pivotal bolt on the bracket, substantially as set forth.

3. The door-closer consisting, essentially, of the elastic rod or band having its ends secured in washers, substantially as described, the fer-

rules having their adjacent ends upset and their opposite ends plugged, and the securing-brackets with their pivotal bolts or rivets adapted to secure the ferruled ends of the elastic rod or band to the brackets, the whole constructed and arranged substantially as set forth.

350,536. **DEVICE FOR CLEANING CISTERNS.** John B. Kibler, Minneapolis, Minn. Filed Sept. 1, 1886. (No model.)

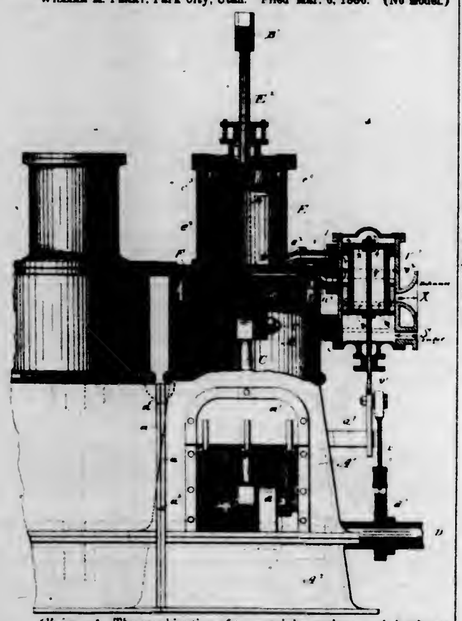


Claim.—1. A cistern-cleaning device comprising a hollow vessel having a fixed cover and hinged bottom and a handle, valves in the cover and bottom, and a slide-rod for lifting the upper valve when the vessel is set on its base, substantially as set forth.

2. In a device for cleaning cisterns, in combination, a hollow vessel having a fixed cover and a hinged bottom, and openings in said cover and bottom, valves for said openings, a hinged bar attached to the cover-valve, and a sliding rod for lifting said rod and cover-valve when said vessel is placed on its base, substantially as set forth.

3. In combination, the vessel A, having cover B and bottom C, openings in said cover and bottom, the valves *g* and *n*, the hinged bar *i*, the sliding rod K, loops *m*, and jointed handle *h*, substantially as and for the purpose set forth.

350,537. **COMPOUND STEAM-ENGINE.** George C. Kidder and William M. Ferry, Park City, Utah. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination of two upright engines, each having a frame and high and low pressure cylinders, as described, said frames being united laterally, steam-tight, and provided with a communicating opening, and the engines being connected within said frame to a common shaft by diametrically-opposite cranks, substantially as set forth.

2. The combination of a high-pressure cylinder and piston, a low-pressure cylinder and piston, and a valve-case and a single hollow cylindrical balanced steam-valve for controlling the admission and exhaust of steam to both cylinders, having ports, as described, whereby the live steam is cut off from both cylinders, while the steam-charged end of the high-pressure cylinder is placed in communication with the other cylinder, substantially as set forth.

3. The combination of a high-pressure cylinder and piston and a low-pressure cylinder and piston, said pistons working together, a steam-duct connecting the low-pressure cylinder with the outer end of the high-pressure cylinder, a duct between the low-pressure cylinder and the inner end of the high-pressure cylinder, and a valve for opening and closing the latter duct, substantially as set forth.

4. The combination of a high-pressure cylinder and piston and a low-pressure cylinder and piston, said pistons working together, and a steam-duct connecting the low-pressure cylinder with the high-pressure cylinder on the corresponding side of the piston, the high-pressure cylinder also having relief-passages from the high-pressure side of its piston to the side with which the said duct communicates, which passages are opened when the piston is near the end of its stroke, substantially as set forth.

5. The combination of two cylinders and pistons, connected and working together, and a steam-duct, whereby the high-pressure cylinder is provided with an exhaust into the low-pressure cylinder and its piston is balanced in the body of steam which operates upon the low-pressure piston, substantially as set forth.

6. The combination, with the two cylinders and the pistons of unequal area, connected and working together, one of the pistons being balanced in the low-pressure steam, while the latter acts upon the low-pressure piston, of an exhaust-steam duct, steam-ports, and a valve, all substantially as described, to act alternately by high and low pressure, as set forth.

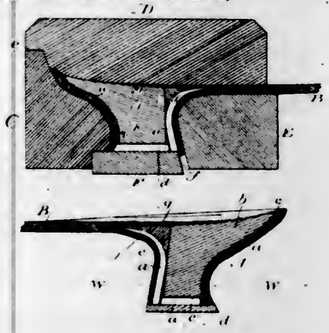
7. The combination, with the two cylinders, connected as shown, of the valve-case and the interposed fitting I i, as and for the purposes described.

350,538. **TRACK FOR BARN-DOOR HANGERS.** John H. Lawrence, Sterling, Ill. Filed June 16, 1886. (No model.)



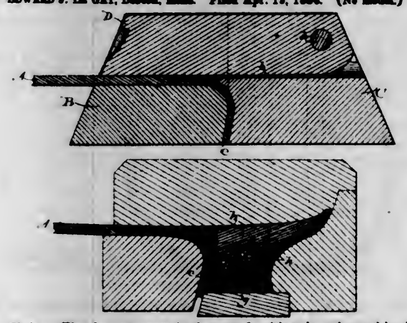
Claim.—In a barn-door track, the combination of the integral bracket G set edgewise and having its side J lower at its outer extremity so as to permit the passage of the door, and having its ends H and K bent at right angles with its central portion to form seats for attachment to the rail and building, respectively, and the track A, formed of four integral equidistant longitudinal ribs, B, C, D, and E, the outer end, K, of the bracket G being projected under the rib C and suitably attached to the rib E, whereby the outer end of said bracket can be projected between the door and its supporting-roller, and said bracket be in position to exert its greatest strength, substantially as shown, and for the purpose described.

350,539. **COMBINED SOLE AND HEEL.** Edward J. Le Gay, Boston, Mass. Filed Jan. 15, 1885. (No model.)



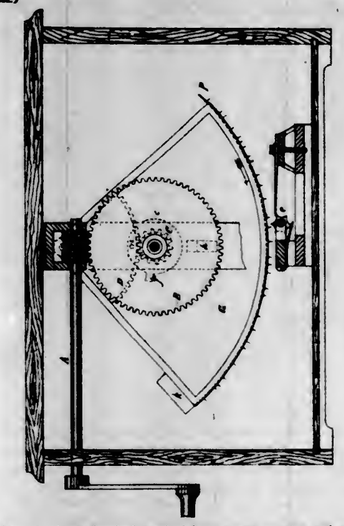
Claim.—As an improved article of manufacture, a sole and heel having one leaf or portion of the partly-divided sole attached to the breast of the heel and the other to the top thereof, and permanently secured together preparatory to incorporation in the boot or shoe, substantially as specified.

350,540. **UNITING THE SOLE AND HEEL OF BOOTS OR SHOES.** Edward J. Le Gay, Boston, Mass. Filed Apr. 19, 1886. (No model.)



Claim.—That improvement in the art of uniting the soles and heels of boots and shoes which consists in uniting the two parts of the sole, divided at its heel portion, respectively, with the breast and top of the heel by coating the abutting faces with an adhesive cement and subjecting them to pressure in a conforming mold until sufficiently dried or hardened, substantially as specified.

350,541. **MECHANICAL MUSICAL INSTRUMENT.** Oskar P. Loehmann, Gohlis, Leipsic, Saxony, Germany. Filed May 21, 1886. (No model.)

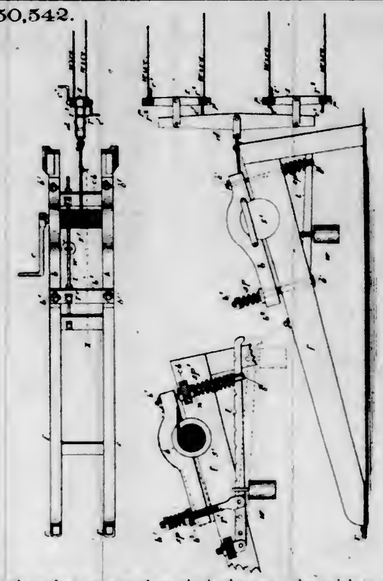


Claim.—1. A mechanical musical instrument constructed substantially as above described, with reference to the drawings, in which is suspended a detachable sheet of music provided with projections—such as pins, or staples and pins, or with holes or slits—for operating the music-producing mechanism of the instrument.

2. In the musical instrument or apparatus referred to in claim 1, the automatic disengaging mechanism, consisting in the combination of disk *c*, connecting-pin *i*, projection *f*, and wedge *h*, which comes into operation at the end of each section of sheet-music, and allows the frame carrying the music-sheet to move into its original position, substantially as set forth.

350,542. **TENSION DEVICE FOR WIRE-FENCE MACHINES.** Samuel C. Love and Francis M. Love, Shelbyville, Ind. Filed Apr. 19, 1886. (No model.)

Claim.—1. In a tension device for a wire-fence machine, a supporting-frame adapted to be secured to the ground, carrying a spool having the boldback-chain coiled around it provided with a crank for revolving the same, and clamped by means of the boxings *b*, and secured over one or both ends of the axle, such boxings connected with bolts upon which wire springs are coiled, and which carry nuts for increasing the pressure upon the springs, so as to clamp the boxings upon the periphery of the axle, substantially as shown and described.



2. In a tension device for wire-fence machines, a supporting-frame carrying a spool to receive the boldback-rope, with one or more brakes adapted to press upon the windlass, so as to retard its revolution, a lever carried beneath the frame and connected by suitable mechanism to such brakes, with means—such as a weight or compressible spring—to force down the lever so as to bring a pressure upon the brakes, substantially as described.

3. In a tension device for wire-fence machines, the supporting-frame *f*, the spool *s'*, for carrying the boldback-chain, the boxings *b*, adapted to bear upon the periphery of the spool and connected in the rear to the frame-work by bolts carrying coiled springs whose compression forces the boxings upon the spool so as to retard its revolution, the lever *l*, carrying a weight and connected by suitable rods to the boxings *b*, all combined substantially as described.

4. In a tension device for wire-fence machines, the double-tree *d*, connected by a clevis to a boldback-rope wound upon a windlss, the single-trees *s*, connected to the double-tree and carrying ratchet-spools r^2 on either end, substantially as described.

5. A pair of ratchet-spools mounted upon a common axle and having a movement independent of each other, adapted to carry the wires which lead to a field-fence machine, the ratchets connected to the single-trees of a double-tree, which is held in place by a boldback-rope, connected with a tension device of a fence-machine, substantially as shown and described.

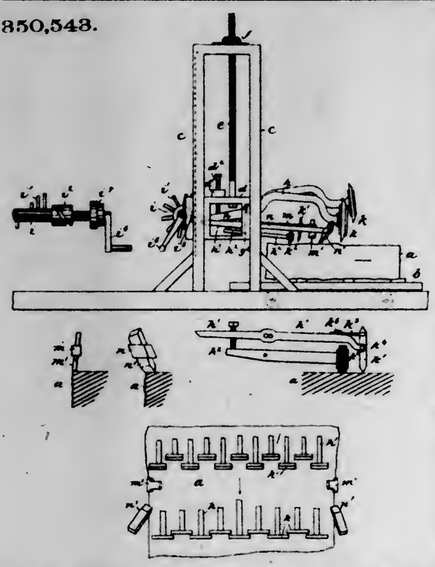
6. The double ratchet-spool herein described, consisting of a pair of spools mounted upon a common axle, the inner flange of each spool forming a ratchet whose teeth engage with pawls pivoted above such ratchet, the whole carried upon a single or double tree, substantially as described.

7. In a tension device for wire-fence machines, the supporting-frame *f*, carrying the spool *s'*, whose enlarged ends have bearings in the frame-work below, the boxings *b*, connected with the frame-work and adapted to act as a friction-brake for the peripheries of these drums, with means—such as a spring or weight—upon a suitable lever carried beneath the frame for clamping the boxings *b* down upon such drum, in combination with an equalizing double-tree carrying single-trees provided with spools having ratchets at each end moving independent of each other, and carrying the end of the wire which leads to the fence-machine, all combined substantially as described.

350,543. **STONE-DRESSING MACHINE.** Jonathan Mann, Milton, Mass. Filed Mar. 1, 1886. (No model.)

Claim.—1. A stone-dressing machine comprising a movable carriage or platform for the stone, and a series of stone-cutting tools and pivoted carrying-arms therefor, and an actuating-shaft for rocking the said arms and causing the tools to strike the surface of the stone, the said tools being arranged in different lines across the surface of the stone, and the carrying-arms of one line or series of tools arching over another line or series of tools, substantially as described.

350,543.



2. In a stone-dressing machine, a movable bed or carriage for the stone, and series of pivoted tool-carrying arms and actuating-shaft therefor, one of the said arms being provided with a set which acts on the edge of the stone parallel with its line of movement, and another of the said arms being provided with a chisel arranged to act on the surface of the stone across the edge made by the set, the said chisel being inclined to the surface of the stone, substantially as and for the purpose described.

3. The combination of the vertically-adjustable cross-head with a series of stone-cutting tools and carrying-arms therefor pivoted in the said cross-head, and the actuating-shaft provided with projections that engage said arms, having its bearings in the said cross-head, and a series of stops, d^3, which engage the tool-carrying arms, by means of which stops the movement of the tools toward the stone may be limited, and by which stops a portion of the tool-carrying arms are held beyond the reach of the projections of the actuating-shaft, substantially as described.

4. The combination of the upright *c* and cross-head *d*, vertically adjustable therein, with a series of tools and actuating-shaft therefor on the said cross-head, and the cam on said shaft, and projection i^3 co-operating therewith movable in a spline or groove in the upright, substantially as and for the purpose described.

5. The combination of the upright and cross-head vertically adjustable therein, provided with a series of pivot-sockets and removable pivots, with a series of tools and shanks therefor mounted on said pivots, and the actuating-shaft provided with projections corresponding in position to said pivot-sockets, substantially as described.

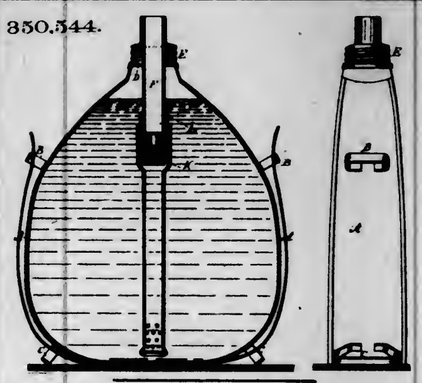
6. In a stone-dressing machine, a movable bed or carriage for the stone, and a series of pivoted tool-carrying arms, and an actuating-shaft for vibrating the same, and a series of cutting-tools that act on the face of the stone to cut the same to a level surface, carried by a portion of said arms, and a set or tool, *w'*, having a flat-striking face with its edge parallel with the line of movement of the stone in feeding, carried by one of the said arms and located at the edge of the stone, the said tool acting to remove portions from the side of the stone beyond the edge of the tool, for the purpose of straightening the upper edge of the surface of the stone that is dressed by the other tools, substantially as described.

7. In a stone-dressing machine, a movable bed or carriage for the stone, and series of pivoted tool-carrying arms and actuating-shaft therefor, one of the said arms being provided with a chisel arranged to act on the surface of the stone near the edge, the shank in the said chisel being mounted on a pivot that is inclined to the surface of the stone, substantially as and for the purpose described.

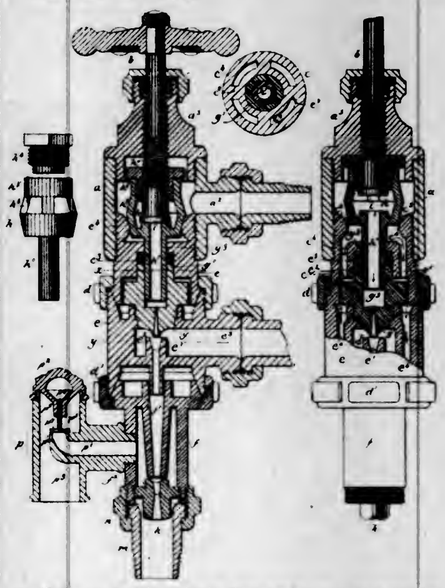
350,544. CANTEEN. James McKeever, New York, and Timothy W. McKeever, Brooklyn, N. Y. Filed Jan. 12, 1886. (No model.)

Claim.—The combination, with the canteen having a screw-neck, of a screw-cap, and a tube passing through the screw-cap and soldered thereto, a filter and case, and a rubber tube between the filter and the case and around the suction-tube, substantially as specified.

350,544.



350,545. INJECTOR. William T. Hemenway, Cambridge, Mass. Filed Sept. 7, 1885. (Model.)



Claim.—1. An injector having three nozzles and a steam-chamber, the first nozzle being provided with a passage, and the steam-chamber having a passage forming a continuation thereof, and other passages leading to the third nozzle, and a seat above the said passages combined with a secondary valve co-operating with the said seat, and having a tubular extension working in the passage of the first nozzles and its continuation, and a main valve controlling the flow of steam through the said tubular extension and operating to move the secondary valve with relation to its seat, substantially as described.

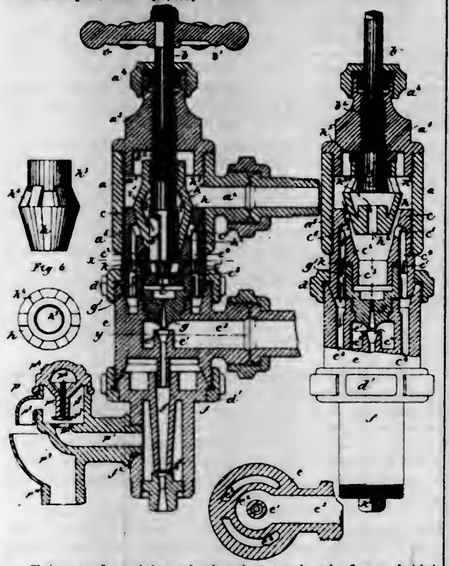
2. An injector having three nozzles and a steam-chamber having an internal recessed portion and passages around the same, the first nozzle having an extension entering the said recessed portion, combined with a secondary valve having a tubular extension entering a passage formed partly in the recessed portion of the steam-chamber and partly in the first nozzle, and packing compressed around the said extension between the first nozzle and recessed portion of the steam-chamber, and the main valve controlling the flow of steam through the tubular extension of the secondary valve and operating the said secondary valve, substantially as described.

3. An injector having three nozzles, the first and third for the actuating-fluid and the second receiving the liquid to be forced, the said injector having a casting containing a water-chamber and having the second nozzle made integral therewith, the base of the said nozzle extending into the water-chamber, and the said casting having an outer shell surrounding the said water-chamber and second nozzle, which latter terminates within the length of the said shell, substantially as and for the purpose described.

4. In an injector having three nozzles, a secondary valve controlling the flow of the actuating-fluid to the third or foremost of said nozzles, and a main valve having a threaded stem controlling the flow of fluid to the first or rearmost of said nozzles, combined with a nut connected with the secondary valve encircling the valve-stem, and adapted to be engaged by a shoulder thereon, the said nut having a thread of opposite hand or inclination to that of the valve-stem, whereby the rotation of the latter when the shoulder is engaged with the said nut tends to turn the latter into its socket, substantially as described.

5. In an injector, the combination of an overflow-chamber or shell surrounding the mouth of the discharge-tube of the injector, with an auxiliary overflow-chamber attached to the said shell, provided with a passage leading from the said shell and terminating in a valve-seat, and a chamber surrounding said valve-seat and extending above and below the same, and a cap inclosing the upper end of the said chamber and provided with a guide, and a valve having a stem operating in the said guide, the liquid passing the said valve escaping at the lower end of the said outer chamber, substantially as described.

350,546. INJECTOR. William T. Hemenway, Cambridge, Mass. Filed Sept. 7, 1885. (Model.)

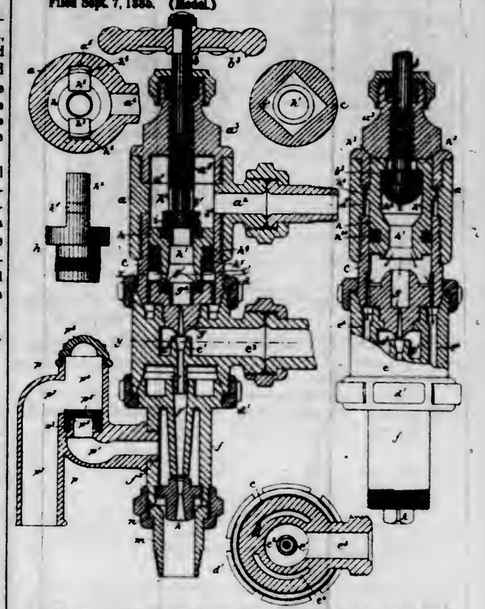


Claim.—1. In an injector having three nozzles, the first and third of which receive the steam or actuating fluid, and the intermediate one of which receives the liquid to be forced, a steam-chamber having an internal passage communicating with the first nozzle, and a passage communicating with the third nozzle, and lateral ports connecting said passages, combined with a secondary valve seating in the internal passage, which controls the flow of fluid through the lateral ports to the third nozzle, and is provided with an internal passage leading to the first nozzle, and a main valve controlling the flow of fluid to the first nozzle and engaging and operating the secondary valve, substantially as described.

2. An injector comprising three nozzles, the first nozzle having a tubular recess at its base, combined with a steam-chamber having a projection entering the said recess, and packing interposed between the base of the first nozzle and the steam-chamber, which latter is provided with an internal passage leading to the first nozzle, and a surrounding passage leading to the third nozzle, and lateral ports connecting said passages, a secondary valve seating to said internal passage and controlling the flow of fluid through the said ports, and itself provided with a passage leading to the first nozzle, and a main valve controlling the flow of fluid to the first nozzle and engaging and operating the secondary valve, substantially as described.

3. In an injector, a main overflow-chamber surrounding the mouth of the discharge-tube, combined with an external auxiliary overflow-chamber having a passage communicating with the main overflow-chamber terminating in a valve-seat, a valve-chamber and valve above the said seat, said valve-chamber being provided with a lateral outlet opening into the atmosphere, and a discharge-passage below the mouth of the said outlet, substantially as described.

350,547. INJECTOR. William T. Hemenway, Cambridge, Mass. Filed Sept. 7, 1885. (Model.)



Claim.—1. An injector having three nozzles and a passage around the first and second leading to the third, combined with a cylindrical steam-chamber communicating with the first and third nozzles, and piston therein provided with a longitudinal passage and co-operating with a seat around the mouth or inlet of the said first nozzle, and a valve seating on said piston controlling the flow of fluid through the passage thereof, and adapted in its movement from its seat to engage the said piston and remove it from its seat, permitting fluid to pass through the passage of said piston and around the first nozzle to the third nozzle, substantially as described.

2. An injector having three nozzles and a steam-chamber communicating with the first and third, provided with a bonnet having an internally-threaded passage, combined with a secondary valve controlling the flow of fluid from the steam-chamber to the third nozzle, and a main valve co-operating therewith, controlling the flow of fluid to the first nozzle, the said secondary valve being provided with arms fitting within the bonnet of the steam-chamber, and having projections to be engaged by the main valve, substantially as described.

3. In an injector, the combination, with a main overflow-chamber provided with a lateral opening, of an auxiliary or external overflow-chamber having a passage communicating with the interior of the main or usual overflow-chamber, terminating in a raised valve-seat having an annular recess around it, a valve-chamber above the said valve-seat, and a cup-shaped valve therein, the edges of which enter the annular recess around the valve-seat, and a lateral discharge-passage from said valve-chamber, substantially as described.

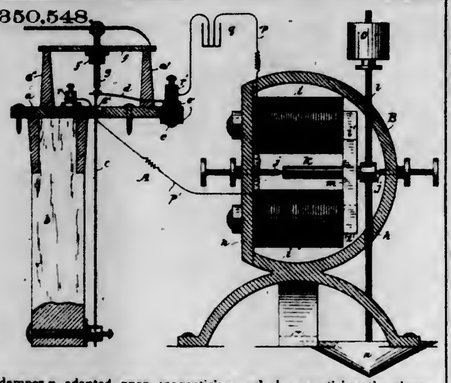
4. An injector having three nozzles and a steam-chamber communicating with the first and third, provided with a lateral steam-inlet and with longitudinal guide-grooves, combined with a main and secondary valve controlling the flow of steam to the first and third nozzles, respectively, the said secondary valve being provided with arms having projections entering the guide-grooves of the steam-chamber and other projections to be engaged by the main valve, substantially as described.

350,548. UNIVERSAL ELECTRIC DAMPER AND FIRE-ALARM. Edward A. Morley, Lee, Mass. Filed Feb. 8, 1886. (No model.)

Claim.—1. In an apparatus, substantially as described, for regulating the temperature of rooms and other inclosures, the plate or frame *a*, provided at one side with the extension *b* and the expanding rod *c*, combined with the dial-plate and an adjustable screw passing therethrough, having its lower end in the line of expansion of the rod *c*, and the upper end provided with an index-finger, substantially as and for the purposes set forth.

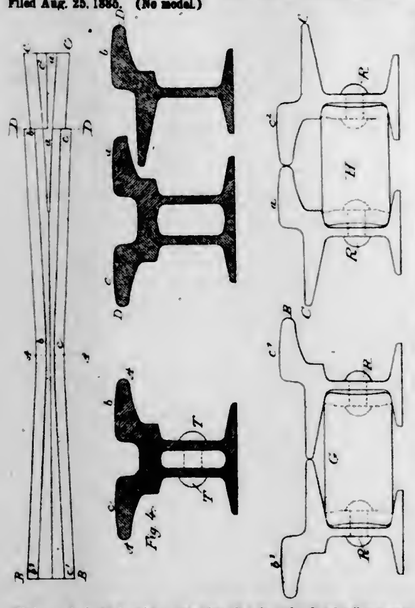
2. In an apparatus for regulating the temperature of inclosures, substantially as described, the combination of the frame *h*, electro-magnets secured therein, the arbor *k*, provided with oscillating armature and lever journaled in said frame, the said lever being provided with the

350,548.



damper *n*, adapted, upon magnetizing and demagnetizing the electro-magnets, to open and close an opening for the admission of fresh air, substantially as set forth

350,549. RAILROAD-FROG. Arthur J. Moxham, Johnstown, Pa. Filed Aug. 25, 1885. (No model.)



Claim.—A frog, forming a crossing for the wheels of railway-cars, composed of rolled side-bearing girder-rails provided with level side trams, the heads of the rails performing at the same time the province of head and guard, the webs of said rails being secured together by rivets or bolts with or without interposed chocks, and the divergent ends of said rails secured to the rails of the track, substantially as and for the purpose set forth.

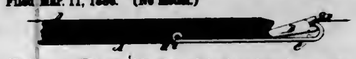
350,550. COMPOSITION OF MATTER TO BE USED FOR PREVENTING DISCOLORATION OF BURNED BRICK, &c. William W. Nixon, Wilkes-Barré, Pa. Filed May 25, 1886. (No specimens.)

Claim.—1. The herein-described composition of matter, to be used for preventing discoloration of bricks, terra-cotta, and stone, and for preserving bricks, terra-cotta, stone, and wood, consisting of linseed-oil, petroleum, refined, turpentine, creosote, extracts of coal-tar, paraffine, and beeswax.

2. The herein-described method of preventing discoloration of bricks, terra-cotta, and stone, and for preserving bricks, terra-cotta, stone, and wood, the same consisting in applying to the bricks, terra-cotta, stone, and wood linseed-oil, petroleum, refined, turpentine, creosote, extracts of coal-tar, paraffine, and beeswax, to protect the surface of the material, substantially as described.

3. The herein-described method of preventing discoloration of bricks, terra-cotta, and stone, the same consisting in applying to the bricks or other material a cleaning compound of muriatic acid and water, then applying a composition of linseed-oil, petroleum, refined, turpentine, creosote, extracts of coal-tar, paraffine, and beeswax, to protect the surface of the material, substantially as set forth.

350,551. BOSOM-BOARD. George E. Palmer, Cedar Rapids, Iowa. Filed Mar. 11, 1886. (No model.)

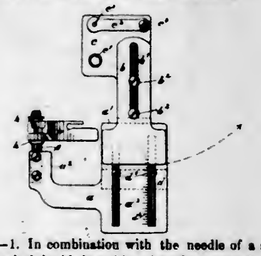


Claim.—1. The combination of the board A, having the longitudinal grooves *d* on the under side and the groove *e* in the end, the bail C, pivoted within said longitudinal grooves, and the removable clamp B, having the flaring groove *a*, all constructed, arranged, and adapted to operate substantially as and for the purpose set forth.

2. The combination of the removable clamp B, having the flaring groove *a*, the slightly-flexible bail C, adapted to swing below the bottom of the board, as specified, and the board A, having the end groove, *e*, substantially as and for the purpose set forth.

350,552. PLAITING ATTACHMENT FOR SEWING-MACHINES. Christopher B. Parmlee, Chicago, Ill., assignor of one-half to Benjamin Lindsawer, same place. Filed Feb. 1, 1886. (No model.)

Brief.—The blade, having a gage for regulating the width of the plait, is hinged by an arm to the presser-foot. An adjustable overlapping blade is secured by screws to a block, that is attached by a pin to the bed-plate, so that it may be turned into position for use, or out of position. The blades may thus be readily moved out of the way from the front of the needle when not required in plaiting.



Claim.—1. In combination with the needle of a sewing-machine, a plaiter formed of the blade *a*, hinged to the presser-foot, and having an adjustable edge, *a'*, projecting beyond the line of stitching, and an overlapping and adjustable blade, *b*, substantially as specified.

2. In combination with the needle of a sewing-machine, a plaiter formed of the blade *a*, hinged to the presser-foot, and having an edge, *a'*, projecting beyond the line of stitching, and an overlapping blade, *b*, and gage *d*, substantially as specified.

3. In combination with a sewing-machine, a plaiter formed of a hinged and longitudinally-adjustable blade, *a*, and a hinged and longitudinally-adjustable blade, *b*, attached to a block, *c*, arranged to pass the cloth under the blade *a* and around its edge *a'*, over the blade *a*, and under the overlapping blade *b*, and around its outer edge back over the blade *b*, so as to cause the needle to pass through three thicknesses of cloth, substantially as specified.

4. In combination with the needle of a sewing-machine, a plaiter formed of the hinged and adjustable blade *a*, attached to the presser-foot, and having an edge, *a'*, extending beyond the line of stitching, a block, *c*, carrying an adjustable blade, *b*, and a gage for regulating the width of the plait, substantially as specified

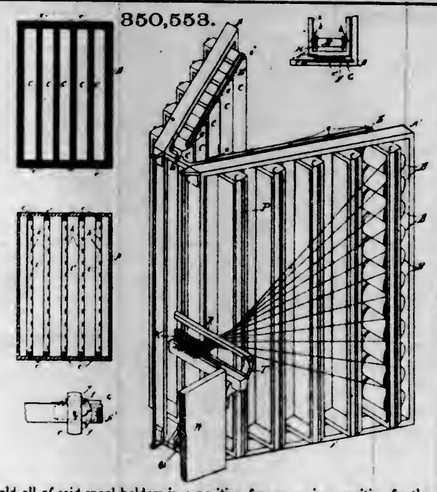
350,553. CREEL FOR WARPING, BEAMING, AND OTHER MACHINES. Frank H. Patrick, South Hadley, assignor of one-half to Thomas C. Entwistle, Lowell, Mass. Filed July 3, 1885. (No model.)

Claim.—1. The combination of a creel-frame with spool-holders adapted to be rotated about their vertical axes within said frame, and to be supported thereby, as and for the purpose specified.

2. The combination of a creel-frame with spool-holders adapted to be rotated about their vertical axes, and to be supported by said creel-frame, and to hold spools in a suitable position for the yarn to be drawn therefrom or at will in a position at about right angles to said first-named position, as and for the purpose specified.

3. The combination of a creel-frame with spool-holders adapted to be supported by and to be rotated around their vertical axes within said frame, said spool-holders being connected to each other by a rigid strip pivoted to their ends, one of said spool-holders having a plate secured thereto in the plane of rotation of said last-named holder, said plate being provided with two holes arranged at about ninety degrees distance from each other, and a spring secured to said creel-frame and provided with a pin adapted to enter either of said holes in said plate, and to

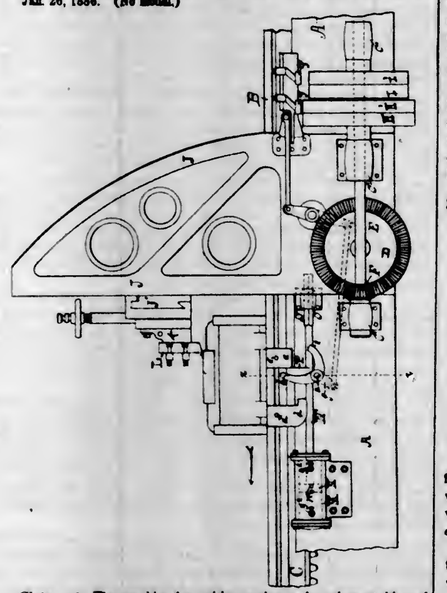
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hold all of said spool-holders in a position for use, or in a position for the ready removal of spools from said holders, as and for the purpose specified.

4. The combination of a creel-frame formed in two rectangular sections hinged together at their adjacent edges, the top and bottom of said rectangular sections being provided with holes, with a series of rectangular spool-frames provided with pivots at their upper and lower ends adapted to enter the holes in said sections, and provided also with slots, as herein described, adapted to receive and support horizontal spindles, substantially as described, and for the purpose specified.

350,554. PLANING-MACHINE CUSHIONING DEVICE. Franklin Phillips, Newark, N. J., assignor of three-fourths to Edward L. Phillips, George H. Phillips, and William E. Phillips, all of same place. Filed Jan. 26, 1886. (No model.)



Claim.—1. The combination, with a reciprocating planer-table and two dogs secured adjustably thereto and operated to actuate the reversing mechanism, of a cushion device actuated by one of said dogs, and thereby operated before the end of the stroke, be the same longer or shorter, substantially as shown and described.

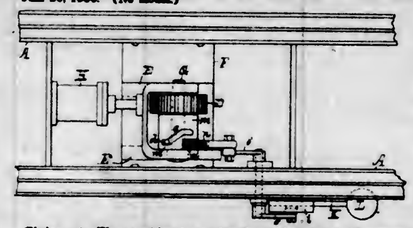
2. The combination, with a moving table and stationary bed, of a sliding carriage movable upon the bed, adjustable dogs upon the table to shift the carriage, and a cushion mechanism applied to the carriage and operated by the longitudinal movement of the latter, substantially as described.

3. The combination, with a planer-table, of dogs *d* and *e*, attached to the table, toes actuated by the dogs to reverse the table-driving mechanism at opposite ends of the stroke, and a cushion device actuated by one or both of the dogs in advance of the reversing mechanism, as and for the purpose set forth.

4. The combination, with a planer-table, of dogs *d* and *e*, attached to the table, toes actuated by the dogs to reverse the table-driving mechanism at opposite ends of the stroke, and a cushion device having a lug or arm projected in the path of the dog at one side of the reversing-toe, substantially as shown and described.

5. The combination, with a planer-table, of dogs *d* and *e*, attached to the table, toes actuated by the dogs to reverse the table-driving mechanism at opposite ends of the stroke, and a cushion device actuated by one or both of the dogs in advance of the reversing mechanism, and means for adjusting the resistance of the cushion when actuated by the dog, substantially as shown and described.

350,555. PLANER-TABLE-CUSHIONING DEVICE. Franklin Phillips, Newark, N. J., assignor of three-fourths to Edward L. Phillips, George H. Phillips, and William E. Phillips, all of same place. Filed Jan. 26, 1886. (No model.)

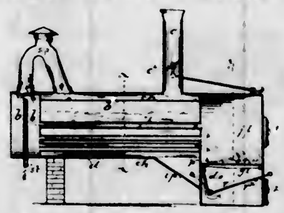


Claim.—1. The combination, with the table, of a yielding cushion, a sliding carriage for operating the same, a disk adapted to rotate upon the said carriage, means connected with the table for rotating the disk, and a clutch upon the carriage for arresting the rotations of the disk, as and for the purpose set forth.

2. The combination, with the table, of a yielding cushion, a sliding carriage for operating the same, a disk adapted to rotate upon the said carriage, means connected with the table for rotating the disk, a clutch for arresting the rotations of the disk, and a clutch-shifter actuated by the table at given points in its stroke, as and for the purpose set forth.

3. The combination, with the table, of a yielding cushion, a sliding carriage for operating the same, a disk adapted to rotate upon the said carriage, means connected with the table for rotating the disk, clutch mechanism movable with the carriage for arresting the rotations of the disk, one or more adjustable dogs upon the table, and means operated by the dogs for actuating the clutch, as and for the purpose set forth.

350,556. SMOKE-CONSUMER. John M. Pitcher, Sugar Creek, Hancock County, Ind. Filed Dec. 16, 1885. (No model.)

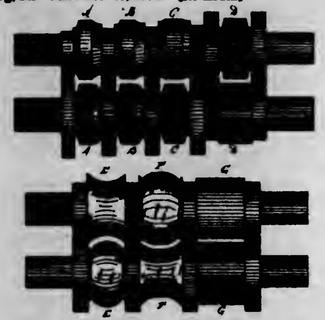


Claim.—1. A device for conducting smoke from the smoke-box of furnaces through the fire-box, consisting of an inclosing-jacket to envelope the boiler, having an outlet to the smoke-stack, a communication with the smoke-box, and also with the ash-pan, in combination with door *do* and damper *c'*, substantially as set forth.

2. In a smoke-consumer where an inclosing-jacket for enveloping the boiler is employed, an inclosing-jacket a portion of the under side of which is made to form an inclined plane, *ip*, for conducting ashes and cinders from the chamber formed by the inclosing-jacket and the outside of the boiler to the ash-pan, substantially as set forth.

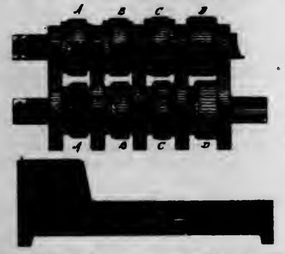
3. In combination with a smoke-consumer consisting of an inclosing-jacket, *d*, forming with the outside of a boiler, *b*, the chamber *ch*, communicating with smoke-stack *c*, also with smoke-box *b* through spark-arrester *sp*, and with fire-box *fb* through door *do* and grate-bars *gb*, the damper *c'*, co-operating with door *do* to regulate the amount of smoke passed through the fire-box, substantially as set forth.

350,557. ROLLING OLD RAILS TO FLAT PLATES. Jacob Reese, Pittsburg, Pa. Filed Feb. 18, 1886. (No model.)



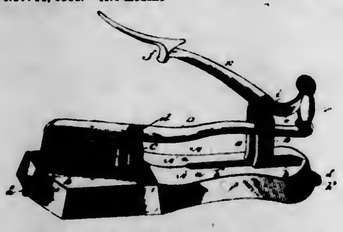
Claim.—A pair of rolls having passes, the first of said passes conforming nearly to the shape of a rail, another to the shape of a channel-bar, and the intervening ones shaped substantially as described, jointly with a further pair of rolls having passes, the last of which has the shape of a flat bar, and the preceding ones shaped substantially as described.

350,558. ROLLING OLD RAILS TO STREET-RAILS. Jacob Reese, Pittsburg, Pa. Filed Feb. 18, 1886. (No model.)



Claim.—A pair of rolls having passes, the first of which approximates to a double-T shape, and the last to the cross-section of a street-car rail, and the intervening passes to shapes substantially as described.

350,559. TOBACCO-CUTTER. John Rieb, Painter Creek, Ohio. Filed Nov. 11, 1885. (No model.)

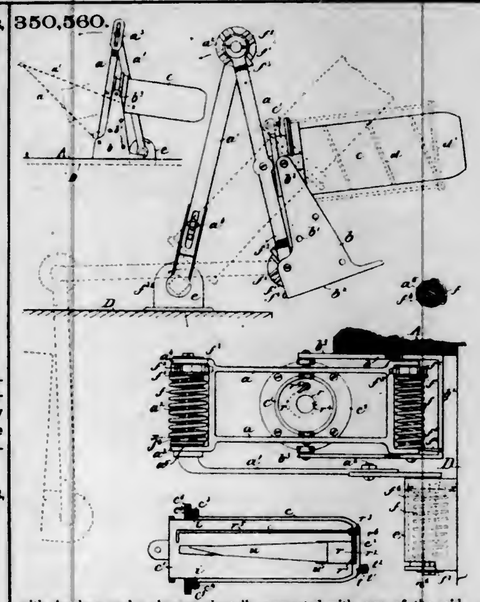


Claim.—A tobacco-cutter comprising a slotted base made in two longitudinal sections and having standards B C, formed integral therewith, a cutter-bar having a blade pivoted to the standard B and arranged between the standards C, a lever pivoted to the standard C and having a bent arm, a link, F, pivotally connected to the cutter-bar and lever-arm, and the lugs G, arranged on opposite sides of the cutting-blade in proximity to the curved heel thereof, substantially as described.

350,560. DOOR-CHECK. James W. Ring, Boston, Mass. Filed May 12, 1886. (Model.)

Claim.—1. A pneumatic door-checking device comprising an air-chamber having an open mouth provided with packing, combined with a plunger having a working fit in the said packing and connecting devices for said air-chamber and plunger, by which they may be connected with the door-frame and door for the purpose of controlling the movement of the latter, substantially as described.

2. In a door closing and checking apparatus, the combination of the bracket to be fastened to the door-frame and an air-chamber pivotally connected therewith with a pair of arms pivotally connected together, and one pivotally connected with the said bracket and the other



with the door, and a plunger pivotally connected with one of the said arms and working in the said air-chamber, substantially as described.

3. In a door-closing apparatus, the combination of a bracket to be fastened to the door-frame with a pair of arms pivotally connected together, and one pivotally connected with the said bracket and the other with the door, and a helical spring coaxial with the joint of the arm and bracket, acting on said arm, substantially as described.

4. The combination of the air-chamber closed at one end and open and provided with packing at its other end with a plunger having a working fit in said packing and a passage into said chamber, and a valve controlling said passage and made movable laterally with relation to the said passage for the purpose of wholly uncovering the said passage when desired, substantially as and for the purpose described.

5. A pneumatic door-check comprising an air-chamber having an open mouth provided with packing, combined with a plunger having a working fit in said packing, a passage for admitting air to said chamber and valve controlling said passage, and an alarm-instrument operated by the air flowing into the chamber, substantially as described.

6. In a pneumatic door-check, an air-chamber and plunger co-operating therewith, cushioned by the air in said chamber, and a passage for admitting air to said chamber, combined with a valve co-operating with the seat about said passage, being movable toward and from said seat, and also movable laterally with relation thereto, and a vent-notch the size of which is regulated by the lateral movement of the valve with relation to its seat, substantially as described.

7. In a door-closing apparatus, an arm pivotally connected with the door-frame and a second arm pivotally connected with the door and to the first-mentioned arm, combined with a pneumatic checking device co-operating with the said arms and means for adjusting one of said arms relative to the other for the purpose of accommodating said arms to the door-frame and door, substantially as described.

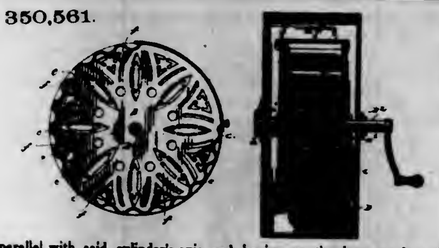
8. In a door-closing apparatus, the combination of a pair of jointed arms, one connected with the door and the other with the door-frame, and a pneumatic checking device co-operating therewith, with a helical spring coaxial with one of the pivot-joints of said arms and an adjusting-hub connected with one end of said spring and provided with a number of radial sockets, and a projection entering one of said sockets for the purpose of transmitting the force of the spring to one member of the joint, substantially as described.

9. In a door-closing apparatus, the combination of a bracket to be fastened to the door-frame with a pair of arms pivotally connected together, and one pivotally connected with the said bracket and the other with the door, and a helical spring coaxial with the joint of the arm and bracket, acting on said arm, and a helical spring coaxial with the pivotal joint of said arms, substantially as described.

350,561. WASHING-MACHINE. Ebet Ridge and Joseph A. Ridge, Marion, Mo. Filed July 9, 1885. (No model.)

Claim.—1. In a washing-machine, the receptacle for clothes, cylindrical in form, having its band corrugated and pierced with long slots

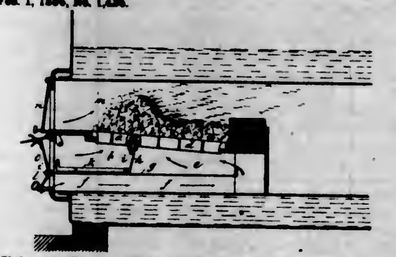
350,561.



parallel with said cylinder's axis, and having on the inner surface of said band offsets *f*, in combination with disks forming heads to said cylinder, reticulated with radial openings, extending between the edging of said band and the collars of the journal of said receptacle, and a suitable opening and door for same, substantially as set forth.

2. The combination, with the cylindrical rotary clothes-receptacle, corrugated and formed with long rectangular slots in its band, and having its disks pierced with radial openings, as set forth, of the box A *a*, as and for the purpose specified.

350,562. SMOKE-CONSUMING FURNACE. Hermann Rössler, Berlin, Germany. Filed Feb. 17, 1886. (No model.) Patented in Germany Oct. 10, 1886, No. 35,444, and Feb. 12, 1886, No. 36,619, and in England Feb. 1, 1886, No. 1,436.

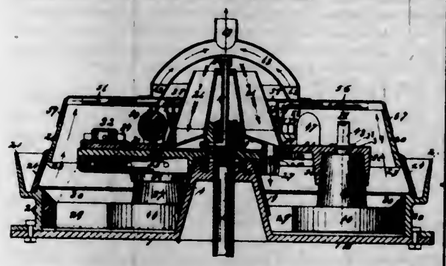


Claim.—1. The combination of the grate *a d*, composed of two or more parts, with the chambers or compartments *b c*, for supplying air to the fuel on the said grate *a d*, the said compartments or chambers *b c* being separated from each other by a movable flap or partition, *h*, substantially as described in the foregoing specification and shown in the accompanying drawings.

2. The combination, with the chamber *b*, provided with a suitable flap or slide, of the air-supply chamber *a*, which is supplied with air through an appropriately-arranged canal or flue, the inlet port or opening of which can be regulated, substantially as set forth.

3. The combination of the chambers or compartments *b* and *c* with the fire or combustion space or chamber *m*, the door of which is formed as a flap, substantially as described in the foregoing specification and shown in the accompanying drawings.

350,563. MACHINE FOR REDUCING ORES. Alson M. Rouse, Boulder, Colo. Filed Nov. 11, 1885. (No model.)



Claim.—1. The combination, with the crushing-roller 37, having a central perforation and an offset or shoulder, substantially as described, of the arm 31, having a perforation, 33, a hollow arbor, 39, having the perforations 42 and the enlarged flange, the screw 43, engaging said arbor and having the enlarged head bearing upon the arm 31, and the plug 41, closing the lower end of the perforation through the roller, as and for the purpose set forth.

2. The combination, with the perforated arm 31, having the downwardly-projecting bosses 35 and 36, forming an annular groove between them, of the crushing-roller 37, having the bearing-flange 38 occupying said annular groove, the central perforation and the offset or shoulder, the arbor 39, having the enlarged flange engaging said offset or shoulder, and the screw 43, supporting said arbor, as set forth.

3. The combination, with the perforated arm 31 and the crushing-roller having a central perforation, of the arbor 39, open from end to end and having the perforations 42, and the plugs 41 and 43, closing the respective ends of the arbor 39, substantially as set forth.

4. The combination, with the casing and the horizontal die-ring 29, of the horizontal disk 12, the arm 31, hinged upon a vertical axis to said disk, and the crushing-roller 37, having a vertical axis projecting downwardly from the under side of said arm 31, substantially as set forth.

5. The combination, with the casing, horizontal die-ring, and the crushing-roller having a vertical axis, of the horizontal working-disk having the cut-away portion for the passage of said vertical axis, and the arm carrying the axis of the crushing-roll, hinged upon a vertical axis to the upper side of said disk, as set forth.

6. The combination, with the casing, die-ring, horizontal working-disk 12, and the arm 31, hinged thereto upon a vertical axis, of the crushing-roller 37, its axis projecting perpendicularly from the under side of said arm 31, and a spring exerting its force outwardly against said arm, as set forth.

7. The combination, with the casing, the die-ring, the working-disk, a plurality of arms hinged thereto, and the crushing-rollers, of a spring engaging at its respective ends with two of said arms, whereby the crushing-rollers are forced outwardly, as set forth.

8. The combination, with the casing, die-ring, horizontal working-disk, a plurality of arms hinged thereto upon vertical axes, and the crushing-rollers having vertical axes carried by said arms, of springs, each engaging at its respective ends with two of said arms, whereby their free extremities are moved outwardly, as set forth.

9. The combination, with the casing, die-ring, horizontal working-disk, a series of arms (more than two) hinged thereto, and the crushing-rollers, of springs, each bearing at its respective extremities against the two adjacent arms, whereby all of the arms of the series are connected and the tension of all of the springs equalized, substantially as set forth.

10. In an ore-crusher substantially as herein described, the combination, with the casing, the die-ring, the working-disk 12, the arms 31, hinged thereto, and the crushing-rollers carried by said arms, of the rod 50, bearing at one extremity against one of said arms, and the compression-spring 54, surrounding and bearing at one end against said rod, and at the other against another of the arms, 31, substantially as set forth.

11. The combination, with the casing, the die-ring, the disk 12, the arms 31, hinged thereto, and the crushing-rollers carried by said arms, of the lug 47 on one of said arms, and the lug 48 on the other, the rod 50, extending from one of said lugs to the other, and the compression-spring 54, surrounding said rod and pressing in opposite directions against said lugs, substantially as set forth.

12. The combination, with the casing, the die-ring, the working-disk, and the arms 31, hinged thereto, of the lug 47 on one of said arms, having the socket 49, the lug 48 on the other of said arms, having the perforation 52, the rod 50, passing through said perforation and bearing at one extremity in said socket, the nut 53 on said rod, and the spring 54, surrounding said rod, and bearing at its respective extremities against said nut 53, and lug 48, as and for the purposes set forth.

13. In an ore-crusher substantially as herein described, the combination, with the casing, the die-ring, the crushing-rollers, the working-disk, and the hopper carried thereby, of the trough carried by said hopper, the liquid contained in said trough, the hood having a central aperture for the passage of said hopper, and the flange dipping into said liquid, and an exhaust-pipe communicating with the interior of the machine.

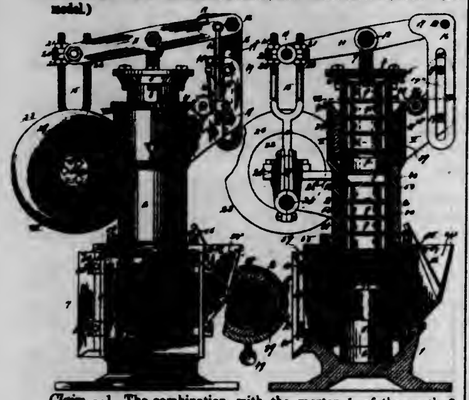
14. In an ore-crusher substantially as herein described, the combination, with the casing, of a hood covering the top thereof and having an aperture therethrough, a hopper-spout projecting through said aperture, and a liquid seal between said hopper-spout and hood, substantially as set forth.

15. In an ore-crusher, the combination, with the machine, a hood covering the same, a hopper projecting through said hood, and a liquid joint between said hood and hopper, of the branch pipes 61, communicating with the machine beneath the hood, the annular chamber 62, with which said pipes communicate, and the exhaust-pipe 63, communicating with said chamber 62, substantially as set forth.

16. The combination, with the casing, die-ring, and base-plate having the raised and perforated center, substantially as described, of the working-disk bearing upon said raised center, the crushing-rollers carried by said disk, and the working-shaft extending through said perforation and carrying said disk, substantially as set forth.

17. The combination, with the casing, die-ring, the base-plate having the raised center, the working-disk bearing thereon, and the crushing-rollers carried by said disk, of the annular flange extending downward from the under side of the working-disk and surrounding the raised portion of the base, for the purposes set forth.

350,564. MACHINE FOR PULVERIZING ORES AND OTHER MATERIALS. Albert H. Rouse, Boulder, Colo. Filed Nov. 11, 1885. (No model.)



Claim.—1. The combination, with the mortar 1, of the pestle 3, having the longitudinal groove 40, the cylinder 2, having the annular grooves 50, and the water-feed, substantially as and for the purposes set forth.

2. The combination, with the pestle 3, of the working-lever 11, formed of parallel bars, as described, means for connecting said pestle and lever, the fulcrum-block 16, having the projection 17, and the mechanism for operating said lever, as set forth.

3. The combination, with the mortar, the working-lever, the stamp-pestle, and the sleeve 38, surrounding the same, of the spline and groove connecting them, as described, gearing for rotating said sleeve, and connection between said gearing and the working-lever, for the purpose set forth.

4. The combination of the mortar, the working-lever, the stamp-pestle 3, the sleeve 38, surrounding the same, the spline and groove connecting them, as described, the worm-wheel 41 on said sleeve 38, the worm-screw 42, engaging therewith, the ratchet-wheel 44, and the pawl 45, depending from the working-lever, as set forth.

5. The balance-wheel having a hub composed of a fixed disk, 31, adjustable disk 32, adjusting-screws 34, engaging the disks together, the rim 29, having web 30, and suitable friction-packing between the disks and web 30, for the purpose set forth.

6. The combination of lever 11, fulcrum-block 16, with extension 17, crank 25, balance belt-wheels 23, connecting-rod 15, lever piston-rod 7, piston 8, springs 9, pestle 3, cylinder 2, and mortar 1, substantially as set forth.

7. The combination of the operating-piston 7 8 and the pestle 3, having a chamber containing the piston-head, and springs above and below the piston-head, with space for lost motion between the piston-head and the springs, substantially as set forth.

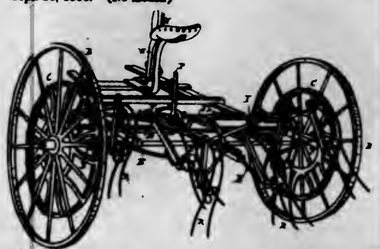
350,565. BREECH-LOADING MAGAZINE-PISTOL. Charles J. Schoening, Ravenswood, Ill. Filed Mar. 8, 1886. (No model.)



Claim.—1. The combination, in a breech-loading repeating-pistol, of the fixed barrel B, having the opening *b* in its top, and one or more slots, *g g*, in the sides thereof, a sliding barrel arranged within the fixed barrel and open at both ends, and having thereon a deep depending arm, a retracting-spring in operative connection with the said arm, a cartridge-feeder in the magazine, and a shell-clasp entering the said slots, substantially as and for the purposes specified.

2. The combination, in a breech-loading repeating-pistol, of a magazine in the butt or stock, a cartridge-feeder in the said magazine, a door in the side of the said magazine, a sliding supplemental barrel open at both ends and having thereon a depending arm, a retracting-spring in operative connection with the said arm, a trigger device for operating the said barrel, a clasp for grasping the cartridge-shell and opening for releasing the cartridge-shell, and one or more fixed percussion-nibs, all arranged with relation to each other substantially as and for the purposes specified.

350,566. HAY-TEDDER. Pratt A. Spicer, Marshall, Mich. Filed Sept. 16, 1885. (No model.)



Claim.—1. In a hay-tedder, the combination of the forks arranged in groups, a sliding bar for each group, and radius-bars pivotally secured to the stales of the forks and to the said sliding bars, with the means, substantially as described, for simultaneously adjusting said bars for regulating the lift or stroke of the tedder-forks, substantially as described.

2. In a hay-tedder, the combination of the forks R and their stales, said forks being arranged in groups, and each group carried by an independent crank-shaft, with the sliding bars L, one for each group of forks, the radius-bars K, pivotally connected with said bars and stales, and means, substantially as described, for simultaneously adjusting said bars for regulating the lift or stroke of the tedder-forks, as set forth.

3. In a hay-tedder, the combination of the fork-stales J', forks R, and radial links S, substantially as and for the purposes set forth.

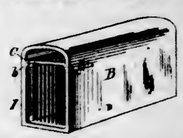
4. In a hay-tedder, the combination of the fork-stales J', forks R, radial links S, and spools R', substantially as and for the perposes set forth.

5. In a hay-tedder, the combination of the fork-stales J', forks R, radial links S, spools R', and check-spring S', substantially as and for the purpose described.

6. In a hay-tedder, the combination, with the frame F and its accessories and the thill-frame, of the levers W Y, the former of which is pivoted to one of said frames and connected to the other, provided with a pin, *e*, and the spring-latch plate X, provided with a series of holes adapted to engage with such pin *e* and retain its lever in its adjusted position, substantially as specified.

7. In a hay-tedder, the combination, with the radial links S, spool R', and fork R, of the stop W' on said spool, substantially as and for the purpose specified.

350,567. PROCESS OF AND APPARATUS FOR BAKING OR FIRING COMPOUNDS OF PLASTIC MATERIAL, &c. John L. Stewart and Jas. L. Hastings, Philadelphia, Pa. Filed Jan. 9, 1886. (No model.)



Claim.—1. The process of baking or firing articles of earthy or mineral compounds, which consists in suspending them from suitable supports and subjecting them to a high heat in a furnace or gas-flame.

2. The process of baking or firing slender tubes or rods of plastic earthy or mineral compounds, which consists in suspending them at one end, out of contact with each other, from a suitable support and subjecting them to a high heat.

3. The process of baking or firing slender tubes or rods of an earthy or mineral compound containing a flux, which consists in suspending them at one end from a suitable support in a chamber, in the presence of a substance or compound that will take up the volatile matter of the flux, and subjecting them to a high heat in a furnace, gas-flame, heated products, or other gaseous media.

4 The process of baking or firing tubes or rods composed of an earthy or mineral compound containing a fluoride flux, which consists in suspending them at one end from a suitable support in the presence of a substance having an affinity for fluorine, as silica or lime, and subjecting them to a high heat, as and for the purpose described.

5. The process of baking or firing tubes or rods of an earthy or mineral compound, which consists in suspending them from a suitable support out of contact with each other, and subjecting them to a high heat and afterward tempering them in a hydrogen, water, or other gas flame.

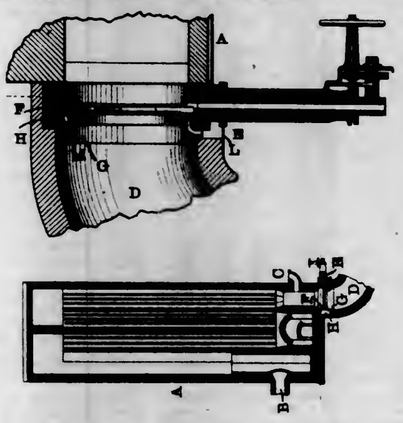
6. As an article of manufacture, slender tubes or hollow strips of an incandescing earthy or mineral compound suitable for incandescent illumination under the action of a gas-flame or other source of heat.

7. A muffle or crucible provided with ledges or lugs at or near its top, in combination with means for suspending rods or tubes of plastic material in such muffle or crucible.

8. A muffle or crucible provided with ledges or lugs near its top and holes for ventilation, in combination with a perforated suspending-plate for holding rods or tubes to be baked or fired.

9. In combination with a furnace, a muffle or crucible having supports at or near its top, and a perforated suspending-plate for holding rods or tubes to be baked or fired, as and for the purpose described.

350,568. VALVE FOR HOT-BLAST OVENS. Victor O. Strobel, Philadelphia, Pa. Filed Mar. 29, 1886. (No model.)



Claim.—1. In a chimney-blast for hot-blast stoves, a metallic valve-body connected to the shell of the stove and provided with an outwardly-projecting male portion, and a masonry chimney-flue encircling and surrounding said male portion of the valve-body, combined substantially as and for the purpose set forth.

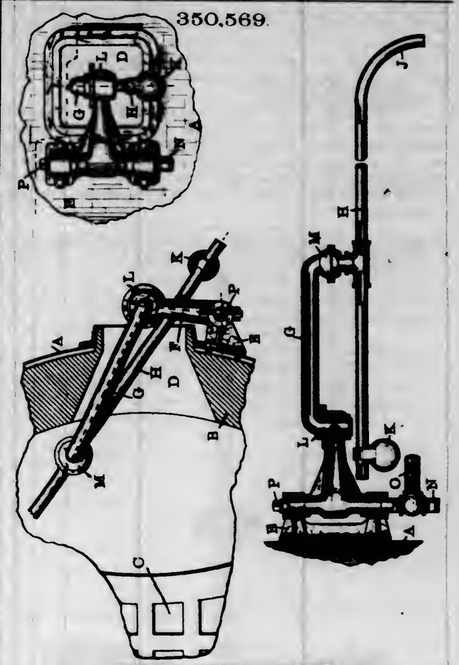
2. In a chimney-valve for hot-blast stoves, a valve-body disposed in the chimney-flue, a chamber surrounding the valve-body exteriorly, an opening from the atmosphere to such chamber, and an opening leading from such chamber to the chimney-flue, combined substantially as and for the purpose set forth.

3. In a chimney-valve for hot-blast stoves, a valve-body connected to the stove, a chimney-flue connected to the stove and engaging the valve-body by a slip-joint, a chamber surrounding the valve-body exteriorly, an opening leading from the atmosphere to said chamber, and an opening leading from the chamber to the chimney-flue, combined substantially as and for the purpose set forth.

4. In chimney-valves for hot-blast stoves, a chimney-flue, a valve arranged therein and disposed horizontally with the nose-cap of its body projecting outward, and a dust-valve arranged in the outer projection of the nose-cap, combined substantially as and for the purpose set forth.

5. In chimney-valves for hot-blast stoves, a valve-body, a valve-seat fitted therein, provided with a cooling-channel, a hollow valve, and a cooling-passage exterior to the valve-body, combined substantially as and for the purpose set forth.

350,569. CLEANING APPARATUS FOR HOT-BLAST OVENS. Victor O. Strobel, Philadelphia, Pa. Filed Apr. 30, 1886. (No model.)



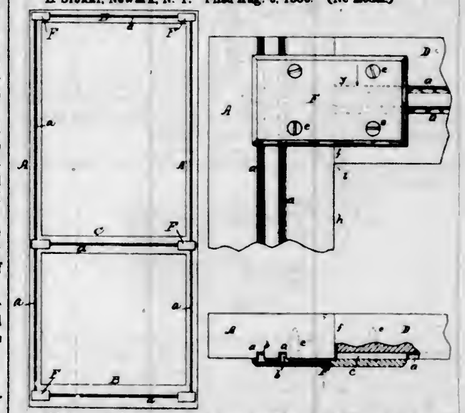
Claim.—1. The combination, substantially as set forth, with a hot-blast stove having a cleaning-opening and a support thereat, of a crane-arm articulated to such support and adapted to have its free end adjusted to and from said opening, and a cleaning-pipe connected with and supported by the free end of said crane-arm.

2. The combination, substantially as set forth, with a hot-blast stove having a cleaning-opening and a support thereat, of a crane-arm articulated to such support and adapted to have its free end adjusted to and from said opening, a limb articulated to the free end of said crane-arm, and a cleaning-pipe articulated to the free end of said limb.

3. The combination, substantially as set forth, with a hot-blast stove having a cleaning-opening and a support thereat, of a cleaning-pipe connected articulately with such support, and with a source of supply of fluid at an intermediate point in the length of said pipe, and having its outer free end counterbalanced and adapted to serve as a handle for the manipulation of the pipe.

4. The combination, substantially as set forth, with a hot-blast stove having a cleaning-opening, of supporting-bracket E, hollow crane-arm F, hollow limb G, cleaning-pipe H, joints L and M, and pipe N.

350,570. FRAME FOR DOOR AND WINDOW OPENINGS. John E. Stuart, Newark, N. Y. Filed Aug. 6, 1886. (No model.)



Claim.—A door or window frame composed of stiles and rails each formed with a longitudinal groove or grooves, in combination with fastening-plates for said stiles and rails, each provided with transverse and longitudinal ribs corresponding in number to said grooves, said longitudinal ribs of each plate being separated from said transverse ribs by a space, *g*, equal in width to the distance between a groove and the side of the stile, as described.

350,571. GATE. Henry O. Thomas, Fremont, Nebr. Filed Feb. 6, 1886. (No model.)

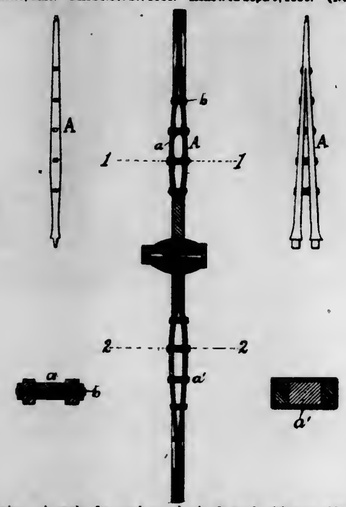


Claim.—1. In a gate, the combination, with the posts A A', of wires C, connected with the post A, the bar D' at the free ends of the

wires, link *e*, pivoted to the post A' and holding the lower end of the bar D', link *d'*, connected to the upper end of said bar, lever F, attached to the link *d'*, the inclined supporting-bar H, hinged at the lower end to the post A, wire H', connecting the bar H to the post A, and wire *h'*, connecting the outer or upper end of the bar H to the wires C, as set forth.

2. The combination, with the post A, of the wires C, connected thereto, the bar D', attached to the outer free ends of the wires, the inclined supporting-bar H, hinged at its lower end to the post A, the wire G, connecting the bar H at an intermediate point to the wires C of the fence, the wire *h'*, connecting the outer or upper end of the bar H to the wires C, and the wire H', connecting the said bar to the post A, as set forth.

350,572. SPOKE FOR VEHICLE-WHEELS. Samuel Toomey, Canal Dover, Ohio. Filed Nov. 27, 1885. Renewed Sept. 9, 1886. (No model.)



Claim.—A spoke for carriage-wheels, formed with two sides separated and spread apart for a portion of its length, and provided with cross-struts between the separated sides, whereby a trussed spoke is made, substantially as and for the purpose herein specified.

350,573. LOCK. Charles R. Uhlmann, Peoria, Ill. Filed July 24, 1886. (No model.)



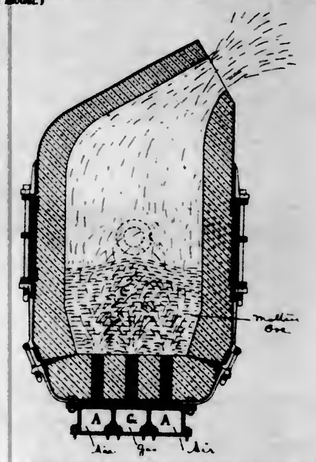
Claim.—1. In a lock, the combination, with the case and the bolt, of the securing-block A, having the face C and the depression C', and means for securing said block, whereby the lock-key can be firmly held and the key-hole tightly closed, for the purpose set forth.

2. In a lock, the combination, with the lock-case and the bolt, of the securing-block movable upon the lower rim of the case and having the slot A^2 therein, the button E, having its stem extend up into said slot, and provided with projections engaging, when depressed, with portions of the case, and the spiral spring S, mounted on the upper part of said stem and abutting against the upper wall of said slot, for the purpose specified.

3. In a lock, the combination, with the lock-case having the centrally-contracted slot F in the lower rim thereof, of the bolt, the securing-block movable upon said rim and the stem vertically movable in said securing-block and having the shoulders E^3, adapted to engage the slot, substantially as and for the purpose set forth.

4. In a lock, the combination, with the lock-case and the bolt, the lower rim of the case having the centrally-contracted slot F, of the securing-block A, having the sloping face C and depression C', and the vertical transverse slot A^2 of the button E, having the stem E', provided with the shoulder E^3, said stem extending through said slot F up into said slot A^2, the cross-pin E^4, for preventing the withdrawal of said stem, and the spiral spring S, mounted upon the upper portion of said stem and abutting against the upper wall of the slot A^2, substantially as and for the purpose set forth.

350,574. ART OF REDUCING UNSMELTED OR PARTLY-SMELTED ORE. Jacob T. Wadewright, Allegheny, Pa. Filed Jan. 27, 1886. (No model.)



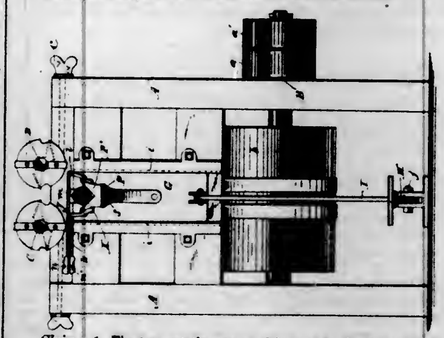
Claim.—1. In the art of reducing unsmelted or partly-smelted ore, the improvement which consists in providing a molten bath charged with ore, and passing both air and gaseous or volatile fuel in separate but simultaneous blasts into the molten matter, whereby the air and fuel are preheated and then burned below or near the charge, substantially as set forth.

2. In the art of reducing unsmelted or partly-smelted ore, the improved process which consists in providing a molten bath, subsequently charging it with ore, passing air and gaseous or volatile fuel in separate but simultaneous blasts into the molten matter, whereby the air and fuel are preheated and then burned below or near the surface of the bath and near the charge, substantially as set forth.

3. In the art of reducing unsmelted or partly-smelted ore, the improved process which consists in providing a molten bath, subsequently charging it with ore, passing air into the molten matter, whereby the air is preheated, and supplying gas to be burned at or near the surface of the bath and below or in the presence of the charge, substantially as set forth.

4. In the art of reducing unsmelted or partly-smelted ore, the improved process which consists in providing a molten bath, subsequently charging it with ore, passing gaseous or volatile fuel into the molten matter, whereby this fuel is preheated, and supplying air to produce combustion below or in the presence of the charge, substantially as described.

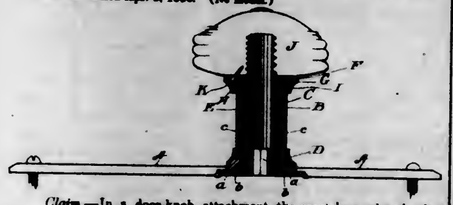
350,575. MACHINE FOR DOVETAILING BALUSTERS. B. Frank T. Bell, Washington, D. C. Filed Mar. 17, 1886. (No model.)



Claim.—1. The two rotating power-driven cutter-heads provided with cutters for forming the shoulder and tongue of the dovetail, in combination with the vertically-sliding centering-cradle F, formed, as described, to center the baluster between the two cutters, and the treadle whereby said cradle is lifted in the direction to carry the end of the baluster up between the cutters, as and for the purposes specified.

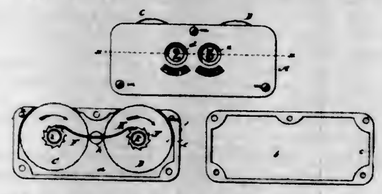
2. The combination of the two rotating cutter-heads for forming the shoulder and tongue of the dovetail, the vertically-sliding centering-cradle F, the treadle for lifting the same, and the hinged presser or holder J, these parts being constructed and arranged for joint operation as shown and described.

350,576. KNOB ATTACHMENT. Warren R. Bebee, Bridgeport, Conn. Filed Apr. 5, 1886. (No model.)



Claim.—In a door-knob attachment, the escutcheon-plate having formed integral therewith or secured thereto an outwardly-projecting sleeve, the latter being shouldered at its rear end, in combination with the knob-shank having flange at its rear extremity adapted to fit snugly against said shoulder, and threaded at its outer portion, and provided with a lug at the base of said thread, independent ring having annular notched recess, and the knob adapted to be screwed on the shank against the ring, substantially as shown and specified.

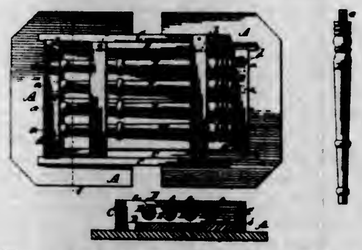
350,577. GAME-COUNTER. William B. Carpenter, Newark, N. J., assignor to the Celluloid Novelty Company, New York, N. Y. Filed May 17, 1886. (No model.)



Claim.—1. A counter or indicator constructed with a sectional casing formed with two openings, of two ratchet-disks inclosed within said sectional casing, of three posts or bearings formed integral with one of the sections of the casing, on two of which bearings are mounted said disks, and a spring mounted on the other of said bearings, the two ends of which spring engage with said disks, substantially as set forth.

2. A counter consisting of the casing A, constructed in two sections, *a b*, the said section *a* being provided with the openings *d e*, and formed with the bearings *h i k*, the disks C D, formed with the ratchets, and the spring E, the above parts being constructed and arranged to operate in the manner and for the purpose set forth.

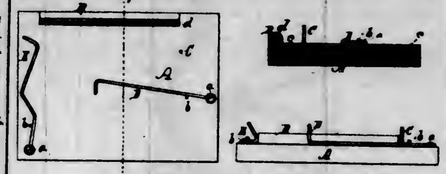
350,578. TABLE. Morton E. Converse, Winchendon, Mass. Filed Feb. 3, 1886. (No model.)



Claim.—1. A table constructed with detachable legs E E, and with frame-rails D B, provided with sockets *a a* in their inner sides, for the reception of the ends of the legs in packing, substantially as and for the purpose herein specified.

2. An extension-table constructed with detachable leaves B B and legs E E, sliding side rails, C C, and end rails, D D, provided with sockets *a a*, for receiving the ends of the detached legs, whereby the detached leaves and legs may be packed and securely held within the frame, substantially as herein specified.

350,579. CLAMP. Morton E. Converse, Winchendon, Mass. Filed Feb. 26, 1886. (No model.)

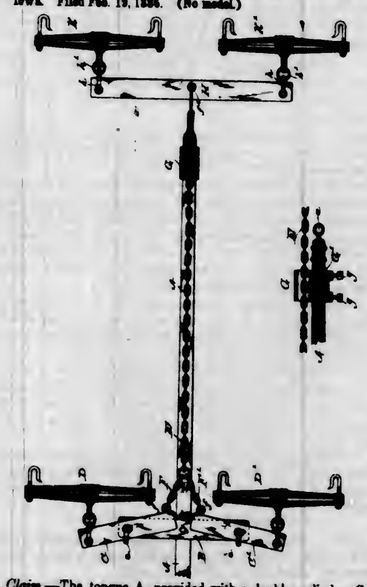


Claim.—1. In a gluing-clamp, the combination of the base A, covered with sheet metal, the guide-holder B, faced with sheet metal, the fixed end holder, C, and the counter spring-holders D E, placed, respectively, opposite to the holders B C, and pressing in directions at right angles to each other, whereby pressure is produced upon all sides of the box, substantially as and for the purpose herein specified.

2. The combination of the base A, long stationary guide-holder B, against which one side of each article glued is placed, stationary holder C, against which an end or side of the article adjacent to the first or guide side is placed, and counter spring-holders D E, respectively opposite to the holders B C, and bearing against the remaining sides of the article, substantially as herein set forth.

3. The combination of the base A, the long stationary guide-holder B, rounded or sloped on its face, against which one side of the article glued is placed, the stationary holder C, against which an end or side of the article adjacent to the first or guide side is placed, and counter spring-holders D E, having outwardly and upwardly inclined bearing parts, located, respectively, opposite to the holders B C, and bearing against the remaining sides of the article, substantially as and for the purpose herein specified.

350,580. DRAFT-EQUALIZER. Alexander Curtis, Evergreen, Iowa. Filed Feb. 19, 1886. (No model.)



Claim.—The tongue A, provided with a double cylinder, G G', in combination with the double-tree B, provided with pivotally-connected bars and whiffletrees, chains F, F', and E, double-tree H, and whiffletrees K K', all arranged to operate as described, for the purpose set forth.

350,581. SWINGING SUPPORT. Charles W. Cutler, Guy's Mills, Pa. Filed July 10, 1886. (No model.)

Claim.—1. The combination, with the standard A and its pivotal supports, of the collar E, carrying the arms *e*, and screwed adjustably upon said standard, substantially as set forth.

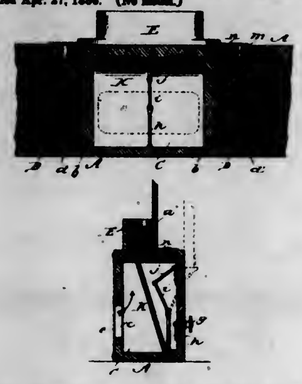
2. The combination of the fixed supports having the projecting studs, the tubular standard fitted at its lower end over the stud of the lower support, an adjustable tubular section, *a'*, connected to the upper

350,581.



end of the standard, and having the stud of the upper fixed support fitted therein, and a sleeve, E, carried by the standard and having the arms, as set forth.

350,582. WINDOW-VENTILATOR. John P. Dobbey, Englewood, Ill. Filed Apr. 27, 1886. (No model.)



Claim.—1. In a window-ventilator, the chamber C, with nozzle E, diaphragm K, opening *c*, and trap-door F, all substantially as described, for the purpose specified.

2. In a window-ventilator, the chamber C, diaphragm K, the wall of said chamber C being provided with an opening, *c*, communicating with the exterior atmosphere, and an inward opening closed or regulated by a door or gate, all substantially as and for the purpose set forth.

3. A window-ventilator arranged within the lower sash-bar and consisting of chambers D, having an exterior opening, *d*, and a smaller interior opening, *m*, substantially as set forth.

4. A window-ventilator arranged within the lower sash-bar and consisting of chambers D, having an exterior screen-covered opening, *d*, and a smaller interior opening, *m*, provided with covers *n*, substantially as set forth.

5. The combination, with the lower sash bar or stile of a window-sash, of a ventilator secured in said lower sash bar or stile, consisting of chamber C, with nozzle E, diaphragm K, opening *c*, and door F, having toggle-joint *h i j*, all constructed and arranged substantially as described, to operate as specified.

6. A window-ventilator consisting of chamber C, with nozzle E, diaphragm *k*, opening *c*, and door F, in combination with chambers D, having openings *d* and *m*, the whole being constructed and arranged substantially as set forth.

350,583. BICYCLE. Charles E. Duryea, St. Louis, assignor of two-thirds to Gerrit H. Ten Brook, St. Louis, and Charles D. Moody, Webster Groves, Mo. Filed July 13, 1885. (No model.)

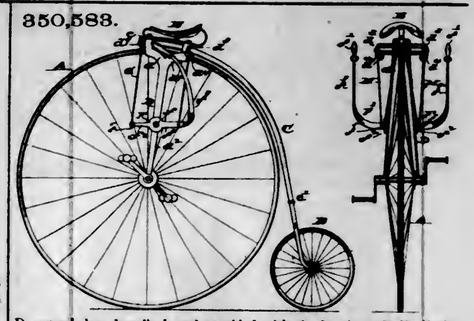
Claim.—1. A bicycle having the guiding-levers F F′, pivoted to the bicycle-fork and provided with the projections f^3 f^3, and combined with the ropes G and H, as and for the purpose described.

2. The combination, in a bicycle in which the large wheel is at the front, of the wheel A, the fork D, straddling the wheel and widened at its upper end in the direction of the plane of the wheel into branches *d d′*, and the saddle attached to said branches and directly over said fork, substantially as described.

3. The combination, in a bicycle, of the wheel A, the fork D, extended at its upper end in the direction of the plane of said wheel and also laterally from each side of the wheel, to provide bearings at the rear of the pivotal point of the backbone for turning the wheel A, substantially as described.

4. The combination of the wheels A B, the backbone C, the fork

350,583.



D, extended as described, and provided with the bearings d^4 d^{44} d^5, the saddle E, the levers F F′, and the cords G H, substantially as described.

5. The combination of the wheels A B, the backbone C, the fork D, extended as described, and provided with the bearings d^4 d^{44}, the saddle E, the levers F F′, and the cord H, substantially as described.

6. A bicycle whose saddle is placed over the longitudinal axis of the main part of the fork, and moves with the fork and forward large wheel and swings laterally on the backbone, substantially as described.

7. In a bicycle having the large wheel at the front, a fork straddling the wheel having at its upper end branches *d d′*, extended in the direction of the plane of the wheel, respectively, forward and backward of the longitudinal axis of the main part of said fork, substantially as and for the purposes described.

8. A bicycle whose fork at its upper end is extended laterally to provide bearings at each side of the wheel over which ties are carried to the backbone, substantially as described.

9. A bicycle having its saddle attached to the upper end of its fork, and having levers F F′, pivoted to the fork at each side thereof and combined with the backbone C, as and for the purposes set forth.

10. The combination of the wheel A, the fork D, the bearing d^3, the levers F F′, extended at f^3 f^3, and the cords G and H, and the backbone C, substantially as described.

11. The combination, in a bicycle, of the fork D, having the slot d^7, with the backbone C, substantially as described.

350,584. METHOD OF MAKING ISOCHRONAL HAIR-SPRINGS. Charles E. Fritts, New York, N. Y. Filed Mar. 26, 1884. (No model.)



Claim.—1. That improvement in making isochronal hair-springs which consists in bending or winding the spring-wire into a spiral form, then forming upon the outer end an over-coil in the same plane as the other coils, giving said over-coil the form or curvature required for securing isochronal action in the conditions for which the spring is intended, holding the spring in said form, and giving it the proper hardness, temper, or set while so held in its final form.

2. That improvement in the art of making hair-springs isochronal which consists in forming upon the spring an over-coil in the same plane as the other coils, and giving it the predetermined isochronous form or curvature, which will secure for the spring an isochronal action.

3. That improvement in the art of making hair-springs isochronal which consists in forming upon the spring an over-coil in the same plane as the other coils, but reversed in direction, and giving it an isochronous form or curvature.

4. That improvement in the art of making isochronal hair-springs which consists in having the outer portion formed in a terminal curve in an opposite direction, but in the same plane as the rest of the spring.

5. That improvement in the art of making hair-springs which consists in making the spring with a reversed over-coil and terminal curve.

6. In a box or device for use in making isochronal hair-springs, a mold or templet having a configuration suitable for giving the desired shape to a terminal curve in the same plane as the rest of the spring, and adapted for holding it in said shape while giving the spring the proper hardness, temper, or set.

7. A box for use in making hair-springs, having a cavity for the spiral portion and a templet for forming the terminal curve in the same plane.

8. A box or device for use in making hair-springs, having a cavity for forming the spiral portion, a mold or templet for giving the required shape to the outer coil and terminal curve in the same plane as the spiral portion, and a cover for confining the spring in its position.

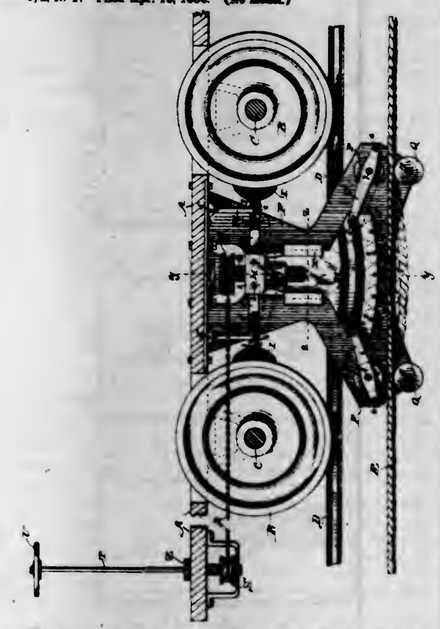
9. A device for use in making hair-springs, consisting of a box having a cavity for the spiral portion and a templet for forming the terminal curve in the same plane as the spiral portion, a cover for confining the spring, and a winding-arbor, substantially as set forth.

10. That improvement in the art of making isochronal hair-springs which consists in rolling a part of the spring-wire in spiral form, then forming the remainder into a suitable over-coil and terminal curve in the same plane as the rest of the spring, and giving the entire spring the desired hardness, temper, or set uniformly from end to end while held in its final form.

11. That improvement in the art of making isochronal hair-springs which consists in having the body of the spring and the isochronizing over-coil and terminal curve in the same plane.

12. That improvement in the art of making isochronal hair-springs which consists in making the spring in two spirals, one outside of the other and reversed in direction, connected by a bend in the spring, the whole being in one piece, and both spirals formed in the same plane.

350,585. CABLE-GRIPPING DEVICE. Joseph A. Goldstein, Brooklyn, N. Y. Filed Apr. 15, 1886. (No model.)



Claim.—1. In a cable-gripping device, the rollers N, journaled in a curvilinear line upon the sector-head of a propellible carrier, M, substantially as described.

2. In a cable-gripping device, a bracket, F, attached to a truck-bottom, provided with open ways X X, within which a carrier, M, is free to slide, in combination with a carrier having a sector-head upon which are journaled in a curvilinear line a series of sheaves, N, as and for the purpose intended, substantially as set forth and described.

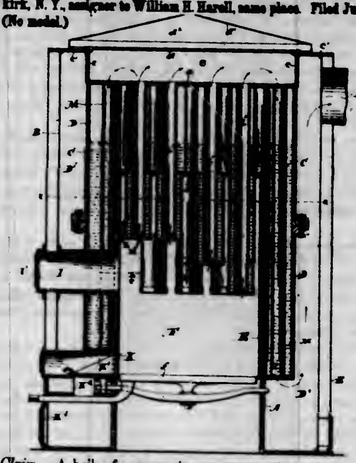
3. In a cable-gripping device, a propellible carrier having upon either side at or near the lower end thereof, pivoted levers O, upon which are journaled one or more grip-rollers, P, in combination with opposite pivoted grip-rollers, Q, substantially as described.

4. In a cable-gripping device, a propellible grip-carrier provided with pivoted gripping-sheaves, in combination with brake-levers J J, pivotally linked to the carriage-truck and pivoted to a common cross-beam, said brake-levers adapted to be brought into action by the same mechanism that operates said carrier, as and for the purpose intended, substantially as described.

5. In a cable-gripping device, a propellible carrier, M, upon which are journaled a series of grip-sheaves, N, said carrier-head having upon its either side levers O, pivotally connected at their respective ends to said carrier and to fixed carriage attachments, said levers having pivoted thereto grip-sheaves P, adapted to be swung into position to grip the cable, in combination with opposite pivoted grip-sheaves, Q, as and for the purpose intended, substantially as described.

6. In a cable-gripping apparatus, the brake-lever bar H, carrying at its either end a pivotally-connected brake-shoe lever, said bar having a central screw-threaded bore, in combination with a common screw, G, passing through said bore and the bore of the boss Y of a propellible carrier, M, whereby both the brake-lever bar and carrier are simultaneously lifted forward and backward, as and for the purpose intended, substantially as described.

350,586. PORTABLE STEAM-BOILER. Richard Harell, Dunkirk, N. Y., assignor to William H. Harell, same place. Filed July 1, 1886. (No model.)

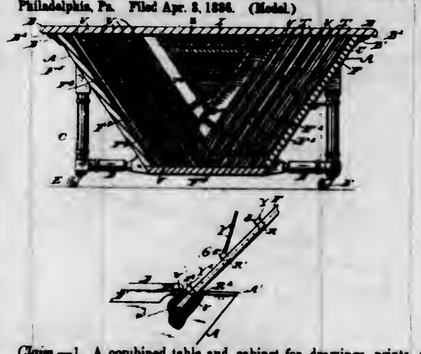


Claim.—A boiler for generating steam, provided with a water-leg surrounding the combustion-chamber, drop-tubes extending down into the combustion-chamber, and direct flues extending up through the drop-tubes and boiler, in combination with a chamber on top of the boiler, communicating with the direct flues, and indirect flues communicating with said chamber and extending down through the water-leg, all arranged and operating substantially as shown and described.

350,587. PROCESS OF MANUFACTURING STEEL. James Henderson, Bellefonte, Pa. Filed July 17, 1885. (No specimens.)

Claim.—The process of manufacturing steel or homogeneous malleable iron from phosphoric cast-iron, consisting of the continuous process of dephosphorizing and decarbonizing crude iron and removing the red-short quality, substantially as before described, by first treating the molten crude iron with oxide of iron to remove the phosphorus; second, removing the slag containing the phosphorus as soon as decarbonization commences, and, third, decarbonizing the dephosphorized iron by means of an oxidizing reagent and also adding manganese to the metal, the entire process of dephosphorizing and decarbonizing being effected without removing the iron from the furnace.

350,588. CABINET FOR PRINTS, BOOKS, &c. Isaac W. Heysinger, Philadelphia, Pa. Filed Apr. 8, 1886. (Model.)



Claim.—1. A combined table and cabinet for drawings, prints, or books, consisting of a case, A, having inclosed sides, a series of inclined receptacles or drawers, F F′, opening upward within the said case A, in combination with the removable table-cover B, constructed to protect the upper ends of the said receptacles or be removed to expose the same, substantially as described.

2. In combination with the case A, longitudinally sliding and guided cover B, and series of inclined drawers F F′ F^2, the transversely-adjustable board I, together with the diagonally-opposite locking-lugs B^3 B^4, the whole constructed to operate substantially as described.

3. The combination, with a table case or cabinet, A, having a removable and adjustable cover, B, and a series of drawers opening upward upon the same general level, of the hand-holds T, for operating the same, substantially as described.

4. A cabinet for holding and exhibiting pictures, consisting of a table provided with a longitudinally sliding and guided cover and an inclosed case beneath the same opening upward, and provided with a series of inclined slides or drawers adapted to contain pictures, and to be successively drawn upward when the said cover has been partially removed, said drawers being held open by stops or catches, so as to exhibit the pictures contained therein, the same being protected from injury by the said sliding cover when the same is in place, substantially as described.

5. In a case or cabinet, the double series of oppositely-inclined slides or drawers F F' F² F³ F⁴ F⁵ F⁶ F⁷, the said drawers sliding between guide-strips U U, and provided with catches R, R', or R², adapted to engage with the frame of the case A and secure the said drawers in an open or partially-open position, substantially as and for the purposes described.

6. In a case or cabinet, the guide-strips U U, the series of inclined drawers F F' F² F³, the cross-strips S, S', or S², the locking-catches R R', the side strips, F, having abutment W at the lower end thereof to impinge against the rear side of the guide-strips U in front, and abutment R², to bear against the strip U behind, so as to support the said drawer in an open position, substantially as described.

7. The case or cabinet for prints, &c., consisting of a removable cover, B, a series of inclined drawers or receptacles, F F' F², contained in an inclosed case, A, beneath the said cover B and opening upward upon the same general level, in combination with supporting-legs at the ends of the said case A, provided with trunnions between which the said case is pivoted by the opposite pins or supports, O O, and the stops A², and bolt or catch L, the whole constructed to operate substantially as and for the purposes set forth.

8. In combination with the case A, sliding and guided cover B, upwardly-inclined slides or drawers F F' F², &c., trunnions O O, supports C C, and connecting bar or bars M, the guard-rails P P, substantially as described.

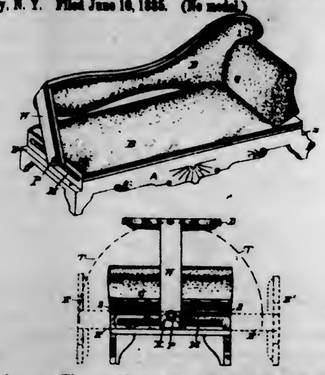
9. In combination with the case A and inclined slides or drawers F F' F², the transverse divisions S S' S² and the catches R R' R², adapted to support the said drawers at different elevations, substantially as described.

10. In combination with the case A and one or more inclined slides or drawers, F, having cross-bars S S', the flexibly-hinged flaps Y, substantially as and for the purpose described.

11. A table case or cabinet consisting of case A, legs C C, longitudinally sliding and guided cover B, double series of oppositely-inclined slides or drawers F F' F² F³ F⁴ F⁷, and the board I or drawer H, interposed between the said double series of slides in the case A and moving transversely thereto, substantially as described.

12. In combination with the case A, sliding and guided cover B, having lugs B³ B⁴, adapted to engage against the ends of a transverse locking-bar, the locking-board I, constructed to be pushed in at either side of the case A flush with the same, to give clearance for the lug B³ or B⁴, and to be drawn out at one side to form a supplementary desk or table, substantially as described.

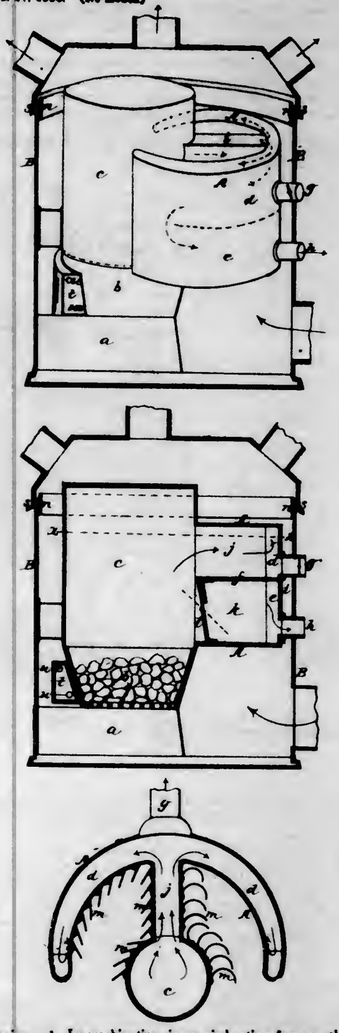
350,589. LOUNGE. Daniel T. Holland and William J. Doran; Troy, N. Y. Filed June 16, 1885. (No model.)



Claim.—1. The combination of a sofa or lounge provided in its ends with the transverse slots having the bends at or near their middle, the swinging arms, the binding-screws working in the arms and fitting in the slots to retain the arms against movement when desired, and a back carried by the arms, the binding-screws being located on the opposite side of the bend in the slot to the back when the latter is adjusted against the lounge, substantially as described, for the purpose set forth.

2. The combination of a lounge or sofa having the slots in its ends and the ledges located below the slots, the swinging arms adapted to rest on the ledges and conceal the slots, the binding-screws working in the arms and fitting in the slots to connect the arms to the lounge or sofa, and a back carried by the arms, substantially as described, for the purpose set forth.

350,590. HOT-AIR FURNACE. Otheb S. Hood, Corning, N. Y. Filed Feb. 17, 1886. (No model.)



Claim.—1. In combination, in an air-heating furnace, the inclosing-case, the fire-pot, and combustion-dome, the latter being arranged eccentrically to said case, and the radiator arranged eccentric to said fire-pot, the wings arranged in groups in vertical relation, lapping each other upon the wall of the combustion-dome within the space formed by the eccentric relation of said radiator and combustion-dome, whereby to obtain partial wall-heating closures with an unobstructed cold-air draft, as shown and described.

2. In combination, in an air-heating furnace, the combustion-chamber dome, the supplemental radiator and its connecting cross-flues, the walls of the dome, the radiator, and their connecting cross-flue, supplemented by vertically-arranged plates lapping each other, as shown, and for the purpose specified.

3. The combination of the furnace inclosing case, the fire-pot, and the combustion-dome with a radiator partially surrounding the latter, increasing in area from its ends to its middle, and having a cross draft-flue, *j*, flaring to its connection with said radiator, substantially as described, for the purpose specified.

4. The combination of the furnace-inclosing case, the fire-pot, and the combustion-dome with the radiator A, having the flues *d e j k*, arranged as shown, the latter flue, *k*, having a self-acting pivoted weighted damper, *l*, as shown, and for the purpose described.

5. The combination of the furnace-inclosing case, the fire-pot, and the combustion-dome c with the radiator having the direct top draft-flue *j*, the lower cross-flue, *k*, and the crescent flues *d a*, having separate exit-pipes *g h*, the said lower cross-flue, *k*, having the self-closing damper *l*, and the top exit-pipe, *g*, having a damper whereby to direct the draft into the lower crescent flue, *a*, substantially as described.

6. The combination, with a radiator divided into an upper and a lower flue provided with a direct and an indirect draft, and a combustion-dome opening into said divided flues, of a pivoted damper arranged within the lower flue at its opening into the combustion-dome, automatically closed by its weight, substantially as described, for the purpose specified.

7. In combination with a heating-furnace, the supplemental radiator, of semicircular form, divided into an upper and a lower chamber having a cross-flue, a direct and an indirect draft, and having a greater area at the middle draft-connections than at its ends, substantially as described, for the purpose specified.

350,591. CHECK-ROWER FOR CORN-PLANTERS. Chapin S. Howard, Monroe, Linn County, Iowa. Filed Mar. 24, 1886. (No model.)



Claim.—1. In a check-row attachment for corn-planters, the guard-iron C, having openings at each end for the passage of the check-wire, and one side hollowed to correspond with the periphery of the sprocket-wheel B, and set close to said sprocket-wheel, whereby the wire is prevented from disengaging from said wheel at any point, and the limit of the stroke of the wheel is determined, substantially as and for the purpose set forth.

2. In a check-row attachment for corn-planters, the combination of the described guard-iron C, sprocket-wheel B, mounted and in relation to the guard-iron, as specified, and a pinion, K, one-half the revolution of which corresponds with that portion of the revolution of the sprocket-wheel made in passing between the point of engagement with the button of the check-wire and the point of disengagement, as determined by the guard-iron, substantially as set forth.

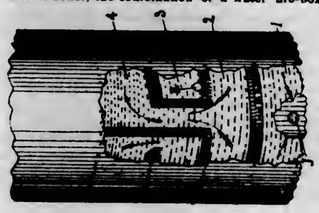
3. The combination of the wire-guide and guard-iron C, having bell-mouthed rings at the ends with an opening therein to receive the wire, the guide-lugs D D, the inner horn of which extends up to or above the opening in the ring to prevent the escape of the wire, and the sprocket-wheel, all substantially as and for the purpose set forth.

4. In a check-row attachment for corn-planters, the check-wire composed of hooked links *b b*, the spherical ball or button *c*, having the offset slot corresponding with the extreme width of the wire loop, and the pin *i*, whereby the loops may be inserted in the button endwise from opposite directions, and are held in position by the pin in front and the offset at the back of the loop, substantially as specified.

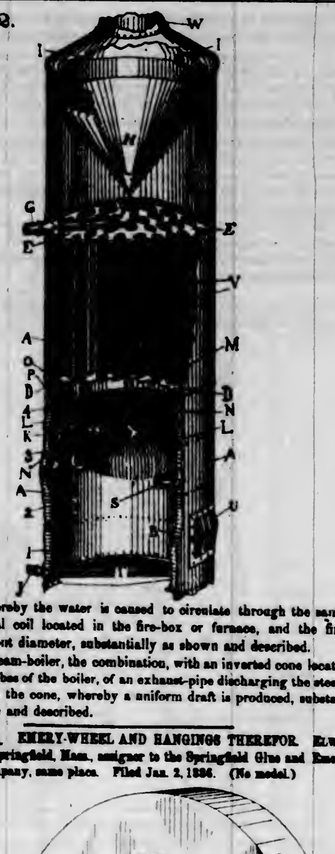
350,592. BOILER. Erasmus V. Hutchens, Evansville, Ind. Filed Mar. 6, 1886. (No model.)

Claim.—1. In a steam-boiler, the combination of a water fire-box having partitions, whereby the water is caused to circulate through the same, with the spiral coils located in the fire-box or furnace.

2. In a steam-boiler, the combination of a water fire-box having



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partitions, whereby the water is caused to circulate through the same, with the spiral coil located in the fire-box or furnace, and the fire-tubes of different diameter, substantially as shown and described.

3. In a steam-boiler, the combination, with an inverted cone located over the fire-tubes of the boiler, of an exhaust-pipe discharging the steam on the apex of the cone, whereby a uniform draft is produced, substantially as shown and described.

350,593. EMERY-WHEEL AND HANGINGS THEREFOR. Elwin R. Hyde, Springfield, Mass., assignor to the Springfield Glue and Emery Wheel Company, same place. Filed Jan. 2, 1886. (No model.)

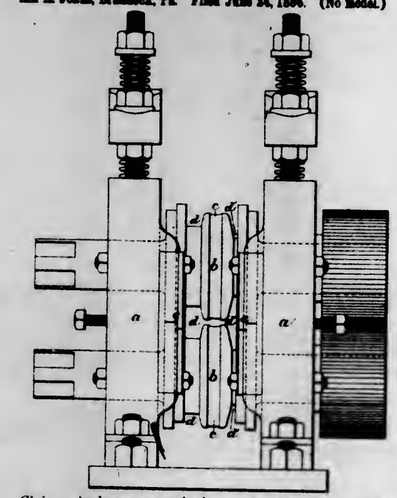
Claim.—1. An emery-wheel shaft having a flange fixed thereon whose inner face is inclined to the axis of said shaft, and has projections thereon to enter corresponding sockets in the emery-wheel, and a loose flange having a like face form and projections thereon to said first-named flange, combined with an emery-wheel, substantially as described, having a groove on each side thereof to receive the borders of said flanges, and sockets at the bases of said grooves to receive said projections on

the flanges, and means, substantially as described, for securing said loose flange against the side of said wheel, substantially as set forth.

2. An emery-wheel shaft having a flange fixed thereon whose inner face is inclined to the axis of said shaft, and has projections thereon of unequal length and degree of projection to enter corresponding sockets in the emery-wheel, and a loose flange having a like face form and projections thereon to said first-named flange, combined with an emery-wheel, substantially as described, having a groove on each side thereof to receive the borders of said flanges, and sockets at the bases of said grooves to receive said projections on the flanges, and means, substantially as described, for securing said loose flange against the side of said wheel, substantially as set forth.

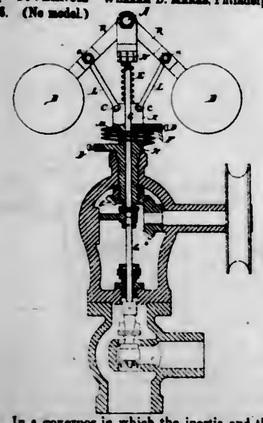
3. An emery-wheel having a central opening, *m*, in the borders of which, on each side of the wheel, are formed grooves to receive clamp-flanges, the bases of said grooves being in planes inclined to the sides of the wheel, substantially as set forth.

350,594. ART OF MANUFACTURING RAILROAD-RAILS. William R. Jones, Braddock, Pa. Filed June 24, 1886. (No model.)



Claim.—An improvement in the art of making railroad-rails, which consists in straightening up carcened rails by passing them between rolls having tongues which conform in shape to the desired shape of the sides of the rail, and are adapted to engage the inner opposite sides of the head and flange of the rail to be straightened, and having spaces at the sides of the tongue for the passage of the head and flange of the rail, one or both of which spaces is or are of larger area than the cross-section of the part or parts of the rail which passes therethrough, to permit straightening up of the rail without having formative action on the head or flange thereof, substantially as and for the purposes described.

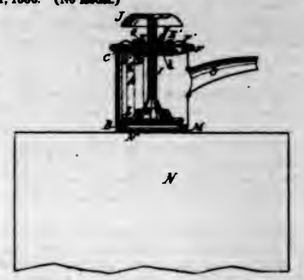
350,595. GOVERNOR. William D. Marks, Philadelphia, Pa. Filed Apr. 9, 1886. (No model.)



Claim.—1. In a governor in which the inertia and the centrifugal force of a revolving pendulum are conjointly used to control the valve, the combination of the pendulum, the spindle, and the springs, substantially as shown and described.

2. The combination of spindle G, nut K, hub H, arms R R, balls B B, links L L, arms D D', spring F, and spring E, all substantially as and for the purposes set forth.

350,596. FAUCET. Riverius Marsh, New Brunswick, N. J. Filed Feb. 11, 1886. (No model.)

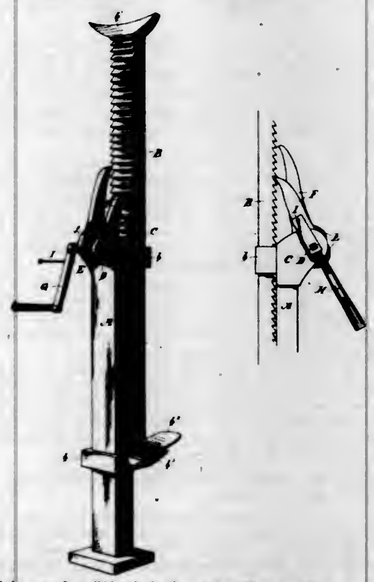


Claim.—1. In a faucet, the body A, having spout O, inward flange B at the bottom and circling flange C at the top, shell D, shell E, nut H, valve-rod I, and valve L, substantially as described.

2. In a faucet, the shells D and E, air-chamber F', nut H, vent G, valve-rod I, and valve L, in combination with the body A, spout O, flange B, packing M, and valve-seat N', substantially as shown and described.

3. In a faucet, the combination of the following parts: the body A, having spout O, inward flange B at the bottom and circling flange C at the top, shells D and E, air-chamber F', nut H, vent G, valve screw-rod I, having thumb-piece J on one end and head K on the other end, valve L, packing M, and flange and valve-seat N', all constructed and arranged substantially as shown and described.

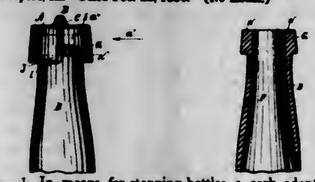
350,597. LIFTING-JACK. Melvin C. Meeker, Occidental, Cal. Filed May 17, 1886. (No model.)



Claim.—1. In a lifting-jack, the ratchet-lifting bar B, in combination with the actuating-pawls F, placed side by side in parallel planes, the oppositely-located eccentrics or cams E, on which the pawls are mounted, a handle for operating the shaft, and the removable pin I in the handle, adapted to be passed behind the pawls and disengage them, substantially as described.

2. In a lifting-jack, the standard A, having bracket C on its top, and the ratchet-lifting bar B, guided by said standard, in combination with the shaft D, mounted in the bracket, the oppositely-located eccentrics or cams E on the shaft, the actuating-pawls F, engaging the ratchet-lifting bar, and mounted on the eccentrics or cams, and the removable pin I, by which the pawls are thrown from their engagement with the ratchet-bar, substantially as described.

350,598. BOTTLE-STOPPER. Edgar H. Morgan and Charles Morgan, Freeport, Ill. Filed Feb. 23, 1886. (No model.)

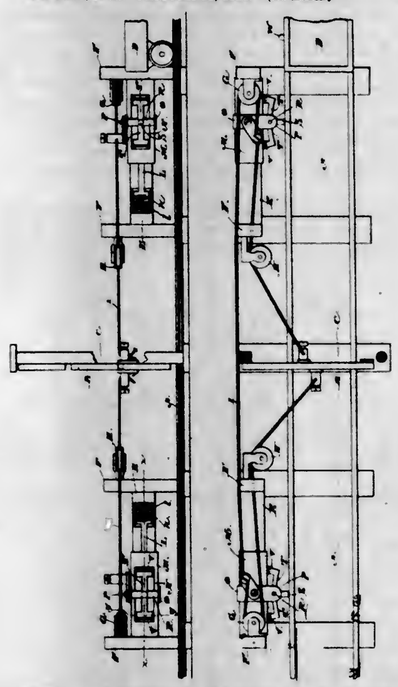


Claim.—1. In means for stopping bottles, a cork adapted to the neck of the bottle, a cup inverted over said cork and the bottle-neck, diametrically-opposite arms revolubly attached to said cup and adapted to engage suitable projections upon the exterior of said bottle-neck, said cup extending below said projections and adapted to receive the ends of said arms and to permit only tangential displacement thereof.

2. In combination with the neck of a bottle and a cork adapted thereto, the cap A, provided with notches K in its margin, and bearing revolubly inwardly and laterally bent arms C *m* I, said arms being adapted by their inwardly-bent portions to engage a shoulder upon the bottle-neck and by their laterally-bent ends to be retained by the edges of the cap, substantially as set forth.

3. The grooved neck having a shoulder, the elastic stopper, the cap A, having notches K in its dependent flange, the arms C, having inwardly-bent portions *m* and laterally-bent ends I, all combined and operating substantially as shown and described.

350,599. SHUTTER OR DOOR FOR MINES. George W. Nation, What Cheer, Iowa. Filed June 10, 1886. (No model.)



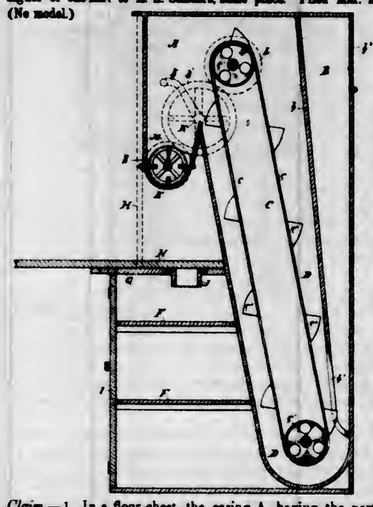
Claim.—1. The combination, with the door, of the operating-cord I, attached to opposite sides thereof and guided upon suitable palleys or sheaves, and the sliding blocks M on opposite sides of the doorway, attached to the operating-cord and having the tappet-arms projecting from the said blocks in the path of the cars, whereby the latter strike the said tappet-arms and move the blocks when approaching the door from either direction, for the purpose set forth, substantially as described.

2. The combination of the door, the operating-cord I, attached to opposite sides thereof and guided upon suitable palleys, with the beams or guides E, the sliding blocks M thereon and attached to the cord, the rock-shafts attached to the said sliding blocks and having the tappet-arms S, and means to incline the said tappet-arms to disengage the car when the block reaches either end of its path, substantially as described.

3. The combination, with the door, of the sliding blocks M, connected thereto, the guideways E for the sliding blocks, having the recesses K at each end of the path of the blocks, and the rock-shafts R, journaled to the sliding blocks and having the tappet-arms S, and the bearing-arms T, to engage the faces of the guides or beams E and enter the openings K at each end thereof, for the purpose set forth, substantially as described.

4. The combination, with the door, of the sliding block M, connected thereto, the guideways E, for the sliding blocks, having the recesses K at each end of the path of the blocks, and the rock-shafts R, journaled to the sliding blocks and having the tappet-arms S, and the bearing-arms T, to engage the faces of the guides or beams E and enter the openings K at each end thereof, and the springs L, bearing in the recesses K, substantially as described.

350,600. FLOUR-CHEST. Joseph Chessbrough, Middletown, Cal., assignor of one-half to R. H. Sanders, same place. Filed Mar. 23, 1886. (No model.)



Claim.—1. In a flour-chest, the casing A, having the partition *b*, forming a flour-compartment at its back, the series of shelves at the lower front portion, and the board H, adapted to close the front of the casing when not in use, substantially as described.

2. In a flour-chest, the casing A, having a ledge, G, in combination with a removable bread-board for closing the front of said casing, and a drawer mounted in the ledge G, substantially as described.

3. In a flour-chest, the flour-compartment B, having a discharge-aperture, *b'*, at its base, the sifter E above, and the intervening endless traveling elevator C, the buckets c^3 of which receive successively the flour from compartment B and deliver it above into the sifter, substantially as described.

4. In a flour-chest, the casing A, having a spout, S, in front, the vertically-arranged flour-compartment B in the back of the casing, and having a discharge-aperture, *b'*, at its base, and the sifter E, hinged to the spout, and having a rotating stirrer, *s*, in combination with the intervening endless traveling elevator C, having buckets c^3, which receive successively the flour from compartment B and deliver it to the sifter, substantially as described.

5. In a flour-chest, the casing A, the flour-compartment B in its back, having discharge *b'*, the sifter E in the upper front portion of the casing, and the removable board H for closing the front portion of the casing, in combination with the endless traveling elevator C within the casing, having buckets c^3, which receive successively the flour from compartment B and deliver it above to the sifter, substantially as described.

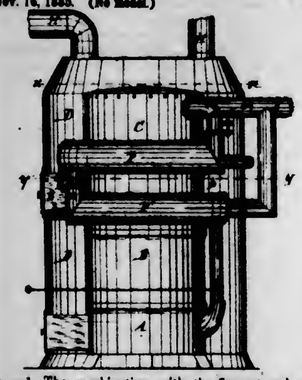
6. In a flour-chest, the casing A, the vertically-arranged compartment B in its back, having a discharge, *b'*, at its base, the sifter E in the upper front portion of the casing, and the removable board H at the front of the casing, in combination with the endless traveling elevator C, consisting of the belts *c* and buckets c^3, and means by which said elevator is operated, consisting of the crank-shaft K, the gear *k'* on said shaft, the pinion L, with which it meshes, and the sheaves *c'*, over which the belts pass, substantially as described.

7. In a flour-chest, the casing A, the vertically-arranged flour-compartment B at its back, having a bottom discharge, *b'*, the sifter E

in its upper front portion, having a stirrer, *e*, and the board H at the front of the casing, in combination with the endless traveling elevator C, having buckets c^3, as described, and the means for operating the stirrer *e*, consisting of the crank-shaft K, having gear *k'*, and the pinion M on the shaft of the stirrer, substantially as described.

8. A flour-chest comprising the casing A, the sloping flour-compartment B, vertically arranged at the back of the casing and having a bottom discharge, *b'*, the spout S in the front of the casing, the sifter E, hinged to the spout and having a stirrer, *e*, the endless elevator C, mounted on suitable sheaves and having buckets c^3, and the means for driving the elevator and the stirrer of the sifter, consisting of the crank-shaft K, gear *k'*, and pinions L M, all constructed and arranged substantially as herein described.

350,601. HOT-AIR FURNACE. John F. Pease, Syracuse, N. Y. Filed Nov. 16, 1885. (No model.)



Claim —1. The combination, with the fire-pot and combustion-chamber, of segmental radiators extending around the exterior of the combustion-chamber and terminating at opposite sides of the latter, one of said radiators communicating at its ends with the combustion-chamber, and the other radiator communicating at its ends with the first radiator, and an exit-flue connected with the last radiator, substantially as set forth.

2. The combination, with the fire-pot and combustion-chamber, of two radiators surrounding the combustion-chamber, one of said radiators communicating with the combustion-chamber at one side of the circumference thereof, the other radiator communicating with the first radiator at the opposite side of the circumference of the combustion-chamber, a direct exit-flue extended from the combustion-chamber, an indirect exit-flue extended from the second radiator to the direct exit-flue, and a damper in one of said exit-flues, substantially as set forth and shown.

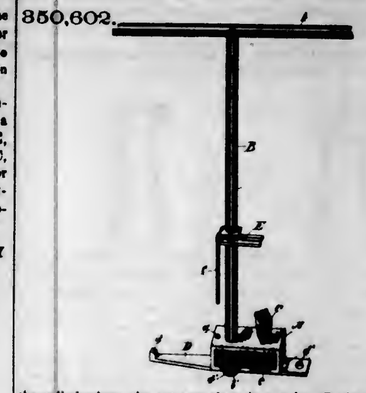
3. In combination with the combustion-chamber and inclosing-casing, two radiators arranged one above the other and surrounding the combustion-chamber, one of said radiators extending around the front of the combustion-chamber and communicating with the same at the rear, and the other radiator extending around the rear of the combustion-chamber and communicating with the first of said radiators at the front and provided with an exit-flue at the rear, substantially as described and shown.

4. In combination with the combustion-chamber C and casing D, the pipe P, extending around the front portion of the combustion-chamber and terminating at the rear of said chamber, and provided thereat with the pipes *a a*, extending to the upper part of the combustion-chamber, the pipe P', arranged below the pipe P, and extending around the rear portion of the combustion-chamber, pipes *a' a'*, connecting the pipe P' with the pipe P at the front of the combustion-chamber, cleaning-flues *c c*, extending from the ends of the pipes P P' through the casing outward, and the exit-flue F', connected to the rear portion of the pipe P', all combined substantially as described and shown.

350,602. WRENCH. William J. Pullian, Chico, Cal., assignor of one-half to Allen Henry and A. H. Barley, both of same place. Filed Mar. 9, 1886. (No model.)

Claim.—1. In a wrench for adjusting the nuts on the teeth of a thrashing-cylinder, the combination of the stock A, for entering the cylinder, the handled shank B, pivoted in the stock and extending outwardly between the cylinder-bars, the nut-engaging piece or jaw C, pivoted in the stock, the gears between said jaw and the shank B and housed in the stock, a clamp on the stock for engaging the bars of the cylinder and holding said stock steady, and a jaw on the shank B for engaging and holding the cylinder-tooth, substantially as described.

2. In a wrench for adjusting the nuts on the teeth of a thrashing-cylinder, the combination of the stock A, for entering the cylinder, the handled shank B, pivoted in the stock and extending outwardly between

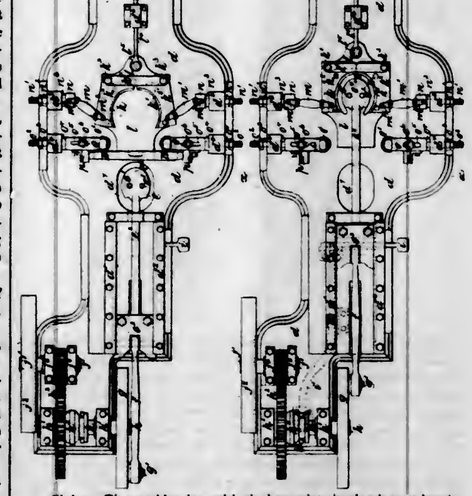


the cylinder-bars, the nut-engaging piece or jaw C, pivoted in the stock, gearing between the shank and said jaw, and the longitudinally-adjustable clamp-arm D, secured to the stock for engaging the cylinder-bars, substantially as and for the purpose herein described.

3. In a wrench for adjusting the nuts on the teeth of a thrashing-cylinder, the combination of the stock A, having a socket or hole, *a*, the handled shank B, pivoted in the stock, the nut-engaging piece or jaw C, pivoted in the stock, gearing between said jaw and the shank B, and the adjustable forked jaw or holder E, fitted on the shank for engaging the cylinder-tooth, and having an arm, *e*, entering the hole *a* in the stock, substantially as herein described.

4. A wrench for adjusting the nuts on the teeth of a thrashing-cylinder, comprising the stock A, for entering the cylinder, the handled shank B, pivoted in the stock and extending outwardly between the cylinder-bars, the socketed piece or jaw C, pivoted in the stock and engaging the nut from within, the pinions or gears *b' c* in the stock and upon the shank B and jaw C, respectively, the longitudinally-adjustable clamp-arm D on the stock for engaging the cylinder-bars, and the adjustable forked jaw or holder E on the shank B, for engaging the cylinder-tooth, and having an arm, *e*, engaging a socket or hole in the stock, all arranged and adapted to operate substantially as herein described.

350,603. HORSESHOE-MACHINE. Frederick A. Rob, London, England, assignor to Donald W. Dickson, same place. Filed Dec. 16, 1885. (No model.) Patented in England July 1, 1885, No. 8,001.



Claim.—The combination, with the base-plate having lugs or brackets a^3, of the former *e* and mechanism for imparting reciprocating mo-

tion thereto, the adjustable blocks *o*, having threaded extensions, the rollers mounted in said blocks, the adjusting-washers on the threaded extensions, and the pivoted dies *k k'*, substantially as herein described.

2. The combination, with a suitable base-plate, of the pivoted dies *k k'*, the adjustable blocks *n o*, the adjusting-washers, a link-connection between the base-plate and the blocks *n*, and the former *e* and operative mechanism, substantially as herein described.

3. The combination, with the former *e* and means for imparting reciprocating motion thereto, of the dies *k k'*, the holders k^2, pivoted to the sliding plate *l*, the links *m m'*, and the adjustable blocks *n*, substantially as and for the purpose set forth.

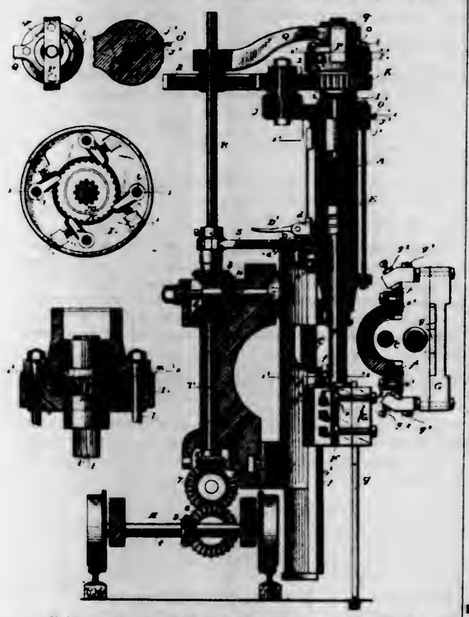
4. The combination, with the sliding plate carrying the dies *k k'* and the pivoted holders k^2, of the weight *l'*, attached to the said plate by a cord or chain passing over a pulley, substantially as and for the purpose set forth.

5. The combination of the drop-dies formed with the groove or recess A' and the projection B', substantially as and for the purpose set forth.

6. The drop-die A, having a groove or recess, A', and the die B, having a projection, B', in combination with a forked lever, C, and the rods D, substantially as herein described.

350,604. STONE-CHANNELING MACHINE. William L. Saunders, New York, N. Y. Filed Apr. 6, 1886. (No model.)

Brief.—Improvement on his patent, No. 299,093, of May 20, 1884.



Claim.—1. In a stone-channeling machine, the combination, with the piston of the drilling-engine, of a spirally-formed or rifle bar fixed to the upper end of the piston, substantially as shown and described.

2. In a stone-channeling machine, the combination, with a drilling-engine, a carriage therefor, and suitable mechanism for imparting motion thereto, of a rifle-bar secured to the upper end of the piston and extending through the back head of the drilling-engine, and connections between the rifle-bar and the carriage-actuating mechanism, whereby the reciprocations of the piston and rifle-bar are communicated to the gearing for propelling the carriage, substantially as shown and described.

3. The combination of a drilling-engine and carriage therefor, a frame mounted upon said carriage, a shell adjustably mounted upon the frame and provided with a feed-screw, upon which the drilling-engine is vertically adjusted, a beveled pinion secured to the upper end of the feed-screw, and a pivoted hinged lever provided with a tooth for engaging the pinion and operating the feed-screw, substantially as shown and described.

4. The combination of a drilling-engine, a carriage for supporting said engine and moving it in the direction of the cut, a frame secured to the carriage, a shell radially adjustable upon the frame and provided with a feed-screw, upon which the drilling-engine is vertically adjusted, a beveled pinion secured to the upper end of the feed-screw, and a pivoted hinged lever provided with a tooth for engaging the pinion, and pivoted upon the upper end of the feed-screw, and laterally moving thereon for operating said screw, substantially as shown and described.

5. In a stone-channeling machine, the combination, with a drilling-engine, of a suitable support, a feed-screw secured within said support and connected to the drilling-engine and provided at its free end with a beveled gear, D, and operating-lever D', provided with a tooth, *d*, engaging the pinion, and a pivoted support, *d*, within which said lever is hinged, whereby it is adapted to engage the pinion from either direction, substantially as shown and described.

6. The combination of a gang of drills, a detachable clamp in which said drills are secured, a cross-head to which the clamp is rigidly attached, said cross-head being provided with adjustable gibs, fixed guides, and means, as described, for reciprocating the cross-head and drills.

7. In a stone-channeling machine, the combination of a drilling-engine and support therefor, provided with vertical guides, a cross-head to which the piston-rod is directly attached at about its center, and which is provided with adjustable gibs located at its rear side and working in said guides, and a detachable clamp carrying the drills and secured to the front side of the cross-head, substantially as shown and described.

8. In a stone-channeling machine, the combination, with a gang of drills, of a piston to which said gang is attached, mechanism for imparting reciprocating motion thereto, a spirally-formed or rifle bar fixed to the upper end of said piston, a nut corresponding with the bar and mounted within a rotating head located in the path of the reciprocating rifle-bar, the guide-arm, annular head-guide, and yoke P, and suitable train of gearing extending therefrom to the wheels of the truck upon which the structure is supported, substantially as described.

9. In a stone-channeling machine, the combination, with a suitable drilling-engine, a gang of drills secured thereto and operated thereby, and a train of gearing connected to the piston of said engine and to the wheels of its supports for propelling it therealong in the direction of the cut, of a yoke, P, guide *q*, and arm O, for supporting and connecting the upper portion of said train of gearing and the drilling-engine, substantially as described.

350,605. FORK. Theodore Schmitz, New York, N. Y. Filed Feb. 26, 1886. (No model.)



Claim.—1. A metallic fork the handle and tines of which are re-enforced, respectively, by a wire shank having enlarged and flattened ends and by a metallic frame having as many pointed prongs as there are tines, substantially as set forth.

2. A metallic fork the handle and tines of which are re-enforced, respectively, by a wire shank having enlarged and flattened ends and by a metallic frame having as many pointed prongs as there are tines, the lower end of the shank being extended into the recessed head of the re-enforcing frame of the tines, substantially as set forth.

350,606. VALVE FOR STEAM-ENGINES. James Smith, Dresden N. Y. Filed July 7, 1886. (No model.)

Claim.—1. The combination of the valve-sleeve having the valves L and M, and the cut-off valve sleeve or arm N, independently movable in the valve-sleeve for a suitable distance, and provided with the cut-off valves O and P, substantially as described.

2. The combination of the steam-chest having the induction and exhaust ports and the arch-plate H with the valve-sleeve K, having the valves L and M, and the cut-off-valve sleeve N, independently movable in the valve-sleeve for a suitable distance, and provided with the cut-off valves O and P, substantially as described.

3. The combination of the steam-chest having the induction and exhaust ports and the arch-plate H with the valve-sleeve K, having the valves L and M, adjustable toward or from each other on the said sleeve, and the cut-off-valve sleeve N, passing through the sleeve K, and independently movable therein for a slight distance, the said sleeve N having the cut-off valves O and P near its opposite extremity and on the outer sides of the valves, the said cut-off valves being adjustable on the cut-off-valve sleeve toward or from each other, substantially as described.

4. The combination of the steam-chest having the induction and exhaust ports and the arch-plate H with the sleeve K, having the valves

L and M, the sleeve N, passing through the sleeve K and independently movable therein for a slight distance, the cut-off valves O and P, attached to the sleeve N, and the rod R, extending through the sleeve N, independently movable therein for a suitable distance and connected to the sleeve K, whereby the said sleeve K and the rod R may be moved together independently of the sleeve N, substantially as described.

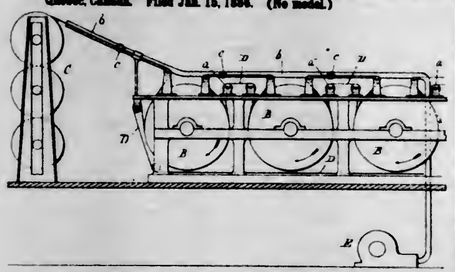
5. The combination of the steam-chest having the induction and exhaust ports and the arch-plate H with the valve-sleeve K, having the right and left-hand screw-threads, the valves L and M, secured on the said sleeve, the cut-off-valve sleeve N, extending through the sleeve K, and having the right and left hand threads n' and n, and the slots n^2 and n^3, the cut-off valves secured on the threaded portions of the sleeve N, the rod R, passing through the said sleeve, and the pins working in the slots n^2 and n^3, extending through the rod R and bearing against the ends of the sleeve K, substantially as described.

6. The combination of the steam-chest having the induction and exhaust ports, and the arch-plate, with the valve stem or rod having the valves L and M, and the cut-off valves O and P, which work under the arch-plate and bear directly upon the bottom plate of the steam-chest, substantially as described.

7. The combination of the steam-chest having the induction and exhaust ports, and the arch-plate, with the valve stem or rod having the valves L and M, and the cut-off valves O and P, which work under the arch-plate and bear directly upon the bottom plate of the steam-chest, the said valves and cut-off valves being adjustable on the valve stem or rod toward and from each other, substantially as described.

350,607. PAPER-MAKING MACHINE.

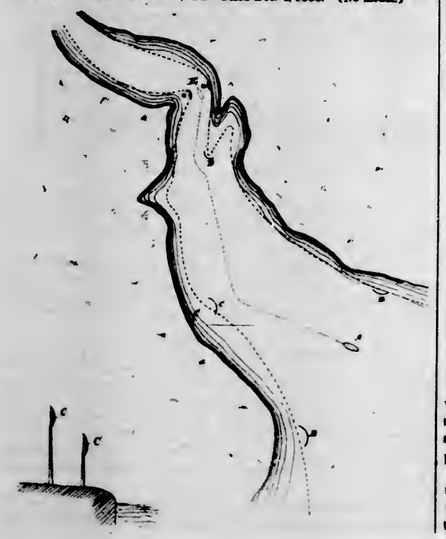
Richard Smith, Sherbrooke, Quebec, Canada. Filed Jan. 15, 1886. (No model.)



Claim.—The method, substantially as herein described, of cooling a continuously-traveling endless paper web during its passage around the driers and prior to its passage between the calender-rolls, which consists in delivering a series of cool-air currents continuously but transversely of the path of travel of the paper web, substantially as and for the purposes herein set forth and explained.

350,608. METHOD OF NAVIGATING IN FOGGY WEATHER.

Frank D. Torrr, Baltimore, Md. Filed Dec. 4, 1885. (No model.)



Claim.—1. The herein-described improved method for facilitating the navigation of shallow coast or inland waters at night or during a fog, which consists in, first, establishing a series of sound-reflecting and signal stations at predetermined points; second, locating their position upon a chart of the particular locality; and, third, causing a sound-producing device to be operated upon the vessel in a manner to produce an echo or series of echoes by reflection from the signal-stations, whereby the observer is enabled to ascertain his proximity to any given signal-station, and by reference to the chart can determine his position and proper course to be sailed.

2. The herein-described method of navigating narrow or tortuous channels, which consists in locating sound-reflectors upon opposite sides and equidistant from the center of the channel, operating a sound-producer upon the vessel and determining the course to be sailed by reference to the successive echoes as observed upon the said vessel and produced by the said reflectors, as set forth.

3. As an improvement in the art of navigating shallow coast or inland waters, the employment of a series of sound-reflectors or echo-signal stations located at predetermined intervals, and a sound-producer upon the vessel, and ascertaining the position of said vessel with respect to said station or stations through the medium of the echo-signals so produced, as and for the purpose set forth.

4. In a system for navigating shallow coast or inland waters, the employment of a series of stations composed of sound-reflectors located at predetermined points for producing echo-signals, each of said stations being adapted to produce a characteristic echo-signal, whereby each station can be located by means of its echo as received upon a passing vessel, substantially as described.

350,609. FASTENING FOR KNOB-SPINDLES.

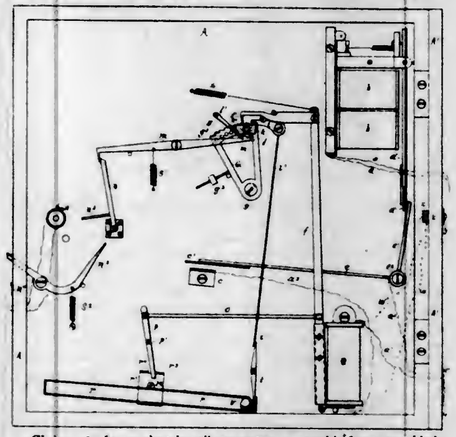
Charles E. Whittlesey, New Haven, Conn. Filed Aug. 25, 1886. (No model.)



Claim.—In combination, the spindle A, reduced in thickness where the fastener bears upon it, the rosette C, having the slot *s*, a fastener having guides *r* and slot *t*, the pin *a*, secured in the fastener and adapted to operate in slot *e*, the knob *h*, fastened on the pin, and a spring located in a recess in said knob and adapted to press the fastener against the rosette, all combined substantially in the manner and for the purpose described.

350,610. AUTOMATIC TELEPHONE-CALL.

Charles F. Willis, Fergus Falls, Minn., assignor of one-half to Alva H. Kirk, same place. Filed June 30, 1886. (Model.)



Claim.—1. In an electric-call apparatus, a movable frame provided with notches, a pawl actuated by an electro-magnet for engaging said notches to move the frame, a pivoted piece carried with said frame and arranged to be depressed by said pawl, and mechanism operated by said pivoted piece to ring a bell.

2. The combination, in an electric-call apparatus, of an electro-magnet, a pivoted frame, notches thereon, a pawl actuated by said electro-magnet for engaging said notches to turn the frame, a piece pivoted to said frame and provided with a projecting portion coincident with one of said notches, means for retracting said frame when released from said pawl, and mechanism for ringing a bell arranged to be set in operation by the return movement of said pivoted piece, substantially as described.

3. In combination, in an electric-call mechanism, an electro-magnet, a pivoted segmental frame, notches on the periphery thereof, a lever operated by said electro-magnet, a reciprocating pawl connected to said lever for engaging said notches, a stationary pivoted pawl for holding the frame, a button pivoted on the side of said frame and arranged to have one end depressed by the action of the reciprocating pawl in one only of said notches, means for retracting said pivoted pawl from the notches and for releasing said frame, substantially as and for the purpose set forth.

4. The combination, for the purpose set forth, of a notched segmental frame, a button pivoted to said frame, a pawl for moving said frame and depressing said button, and means for elevating the depressed portion of said button by the forward movement of said frame after the button has been depressed, substantially as set forth.

5. In combination, in an electric-call apparatus, a pivoted frame, notches thereon, a lever actuated by an electro-magnet, a reciprocating pawl connected therewith for moving said frame, a stationary pivoted pawl for holding said frame, a button pivoted at the side of said frame and arranged to be depressed by the action of the reciprocating pawl in one of said notches, means for releasing said pivoted pawl from the notches, and mechanism to be operated by the return movement of said button to ring an electric bell and to elevate said button to its normal position, substantially as set forth.

6. In combination, in an electric-call mechanism, a pivoted frame, notches thereon, a lever actuated by an electro-magnet, a reciprocating pawl operated thereby, a pivoted pawl for holding said frame, a button pivoted at the side of said frame and arranged to be depressed by the action of said pawl in one only of said notches, and a fixed surface for elevating the depressed portion of the button when moved beyond the point at which it was depressed, substantially as and for the purpose set forth.

7. In combination, in an electric-call apparatus, an electro-magnet, a lever actuated thereby, a reciprocating pawl connected to said lever, a segment-rack engaged thereby, a pivoted pawl for holding said rack when free from said reciprocating pawl, a pivoted hollow frame, a ball therein, a lever connected to the lever of said reciprocating pawl for rocking said frame, and a lever for releasing said pivoted pawl from the rack by the return movement of said ball, substantially as set forth.

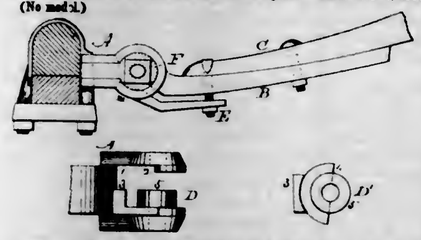
8. In combination with a segment-rack and pawls for moving and holding the same, a hollow rocking frame, a rolling ball within said frame, levers for tilting said frame while the reciprocating pawl is moving said rack, and a lever operated by the return movement of said ball to disengage the holding-pawl when the reciprocating pawl has ceased to operate the rack, substantially as set forth.

9. In a telephone-call, electro-magnets connected to the telephone-wire, an independent electro-magnet and a battery therefor, means for completing the circuit in said independent magnet and battery by the operation of said first-named magnets, a segment-rack operated by said independent magnet, a button connected to said rack and arranged to ring an electric bell, substantially as set forth.

10. In an electric-call apparatus, a reciprocating pawl, a ratchet-wheel or rack operated therewith, a pivoted button carried with said wheel or rack, a projection on said button whereby an end of the button may be depressed by the entry of said pawl into one only of the notches of said wheel, a weight for retracting said wheel or rack, and mechanism arranged to be operated to ring a bell by the pressure of the depressed portion of said button in performing its return movement and for simultaneously elevating said button to its normal position, substantially as set forth.

350,611. THILL-COUPLING.

James O. Altick, Dayton, Ohio, assignor of one-half to Daniel Weaver, same place. Filed Mch. 1, 1886. (No model.)

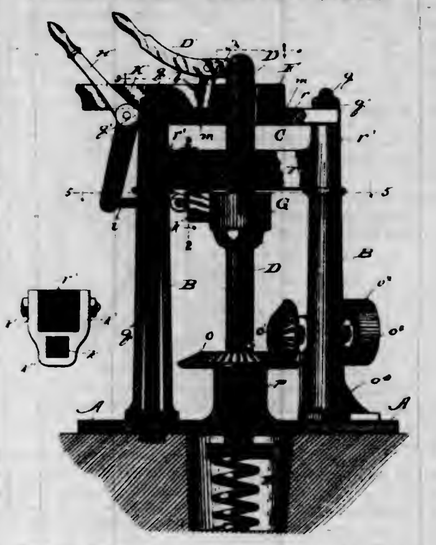


Claim.—1. A clip for thill-couplings, having shoulders on the inside of the ears and an inclined face at the intersection of the ears with the band, the bearing-blocks with inclines adapted to said clip, and bosses for a pivot, in combination with a thill-iron, substantially as set forth.

2. The combination of the thill-coupling clip A, the bearing-blocks D D', and the adjustable thill-iron B, substantially as set forth.

350,612. MACHINE FOR COILING BARS OF METAL.

James J. Anderson, Chicago, Ill., assignor of one-half to Asa G. Pettibone and A. H. Mulliken, both of same place. Filed Feb. 9, 1886. (No model.)



Claim.—1. In a coiling-machine, the combination, with the base, of a rotary shaft, a supporting-table surrounding the shaft, and a form upon the shaft, substantially as described.

2. In a coiling-machine, the combination, with the base, of a yielding rotary shaft, an annular supporting-table surrounding the shaft, and a form upon the shaft to fit within the opening in the supporting-table, substantially as described.

3. In a coiling-machine, the combination, with the base A, of a rotary shaft, a supporting-table surrounding the shaft, a form upon the shaft, and a yielding presser-roll upon the table to operate with the form, substantially as described.

4. In a coiling-machine, the combination, with the base A, of a rotary shaft, D, a supporting-table, C, surrounding the shaft, and a notched form, F, upon the shaft, substantially as described.

5. In a coiling-machine, the combination, with the base A, of a yielding rotary shaft, D, an annular supporting-table, C, surrounding the shaft, and a notched form, F, upon the shaft, substantially as described.

6. In a coiling-machine, the combination, with the base A, of a rotary shaft, D, a spring, E, supporting the shaft to render it yielding, an annular supporting-table, C, surrounding the shaft, a form, F, upon the shaft to fit within the opening in the supporting-table, and means, substantially as described, for depressing the shaft against the resistance of the spring, substantially as set forth.

7. In a coiling-machine, the combination, with the base A, of a rotary shaft, D, a spring, E, supporting the shaft to render it yielding, an annular supporting-table, C, surrounding the shaft, a notched form, F, upon the shaft to fit within the opening in the supporting-table, means, substantially as described, for depressing the shaft against the resistance of the spring, and means, substantially as described, for wedging the end of a bar to be coiled in the notch of the form, substantially as set forth.

8. In a coiling-machine, the combination, with the base A, of a rotary shaft, D, a spring, E, supporting the shaft to render it yielding, an annular supporting-table, C, surrounding the shaft, a form, F, upon the shaft to fit within the opening of the supporting-table, a cam, G, upon the shaft below the supporting-table, and a wedge, *k*, connected with a lever, H, and actuated by the lever to engage with the cam and depress the shaft against the resistance of the spring, substantially as described.

9. In a coiling-machine, the combination, with the base A, of a rotary shaft, D, a spring, E, supporting the shaft to render it yielding, an annular supporting-table, C, surrounding the shaft, a notched form, F, upon the shaft to fit within the opening of the supporting-table, a cam, G, upon the shaft below the supporting-table, a wedge, *k*, a lever, H, connected with the wedge, and by which the wedge is operated to engage with the cam and depress the shaft against the resistance of the

spring, a wedge, *l*, to enter the notch in the form, and a lever, D', fulcrumed to the shaft, and to which the wedge *l* is loosely pivoted, substantially as described.

10. A machine for coiling bar metal, comprising in combination a base, A, supporting standards B *g*, a rotary shaft, D, a spring, E, supporting the shaft to render it yielding, an annular supporting-table, C, surrounding the shaft and carried by the standards, a notched form, F, upon the shaft to fit within the opening of the supporting-table, a yielding presser-roll, I, upon the table to operate with the form in coiling the bar, a cam, G, upon the shaft below the supporting-table, a wedge, *k*, a lever, H, connected with the wedge, and by which the wedge is actuated to engage with the cam and depress the shaft against the resistance of the spring E, a wedge, *l*, to enter the notch in the form, and a lever, D', fulcrumed to the shaft, and to which the wedge *l* is loosely pivoted, the whole being constructed and arranged to operate substantially as described.

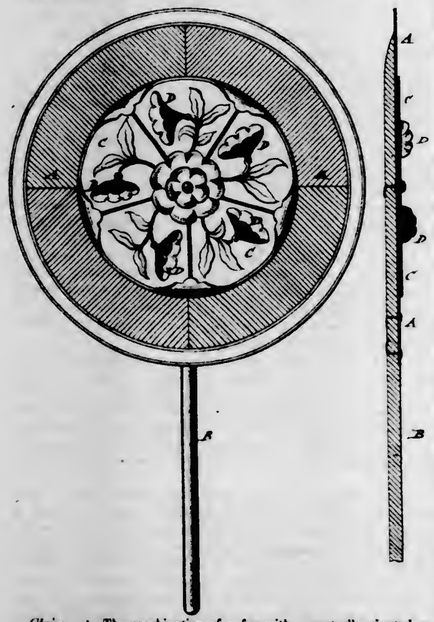
350,613. **BENCH-PLANE.** FRANK M. BAILEY, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Mar. 23, 1886. (No model.)



Claim.—1. In a bench-plane, the combination of the cutting-bit *a*, the holding cap or clamp A, and the adjusting-lever pivoted thereto and having its operating-handle on the upper front side of said holding cap or clamp, substantially as described, and for the purpose specified.

2. In a bench-plane, the adjusting angle-lever *c*, having one arm for connecting with the cutting-bit projected through the holding cap or clamp A and pivoted thereto, and the two arms *d d*, extending in opposite directions from the main arm upon the upper front side of the cap, to serve as operating-handles, substantially as described, and for the purpose specified.

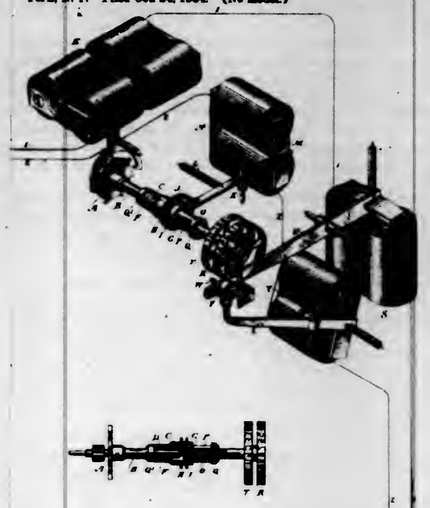
350,614. **FAN.** LORENZ EISEL, New York, N. Y. Filed June 9, 1886. (No model.)



Claim.—1. The combination of a fan with a centrally-pivoted rotary disk having projecting cups or buckets on its face, substantially as set forth.

2. The combination, with a fan, of a centrally-pivoted rotary disk having projecting cups or buckets arranged on the face thereof equidistant from each other, said cups opening in the same direction, substantially as set forth.

350,615. **PRINTING-TELEGRAPH.** CHARLES L. BUCKINGHAM, New York, N. Y. Filed Oct. 24, 1884. (No model.)



Claim.—1. The combination of escapement-wheel A and shaft B, sleeve F, type-wheel shaft O, and electro-magnet N, for moving said sleeve longitudinally to rotate the type-wheel, substantially as and for the purpose set forth.

2. In a printing-telegraph, the combination of an escapement electro-magnet in one line, and an escapement for effecting a step-by-step rotation of two characters at each step, and devices, substantially as described, controlled by an electro-magnet in a second main line, for rotating the type-wheel the space of one character.

3. In a printing-telegraph, the combination of the main line including an escapement and an impression electro-magnet, a second main line including two electro-magnets, one to determine from which of two alternate sets of characters impressions shall be taken, and the other to determine from which of two wheels impressions shall be taken.

4. In a printing-telegraph, an escapement controlled by one line for rotating the type-wheels the space of two characters at a step, and a second main line and two electro-magnets therein for determining which of four characters upon the two type-wheels shall be printed after each vibration of the escapement, as and for the purpose set forth.

5. The combination of type-wheel shaft O, having a spiral groove, P, or its equivalent, hollow sleeve F, having a lug, G, or its equivalent at one end, and a groove, D, at its other end, escapement-shaft B, having a feather, C, and escapement-wheel A, having one-half as many teeth as there are characters on the type-wheel.

6. In a printing-telegraph transmitter, a main-line pulsator for operating the type-wheels by one line, four transmitting-keys, all of which arrest the main-line pulsator in the same position to take the impressions at the receiving-instrument, and a pole-changing device, and means for increasing the current in the second main line, the same being operated by said transmitting-keys, substantially as described.

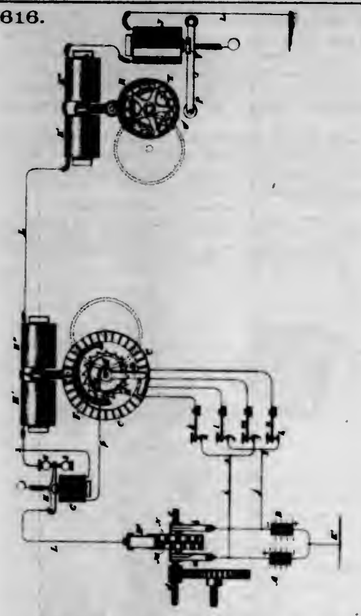
7. In a printing-telegraph transmitter, the combination of a series of stop-magnets, *c m*, for arresting arm *h*, separate local branch circuits completed through each stop-magnet, said branches including transmitting-keys and a pole-changing magnet, *r*, and short-circuiting magnet *t*, arranged to reverse, increase, or to both reverse and increase, the current of line 2, substantially as described.

350,616. **PRINTING-TELEGRAPH.** CHARLES L. BUCKINGHAM, New York, N. Y. Filed Mar. 6, 1886. (No model.)

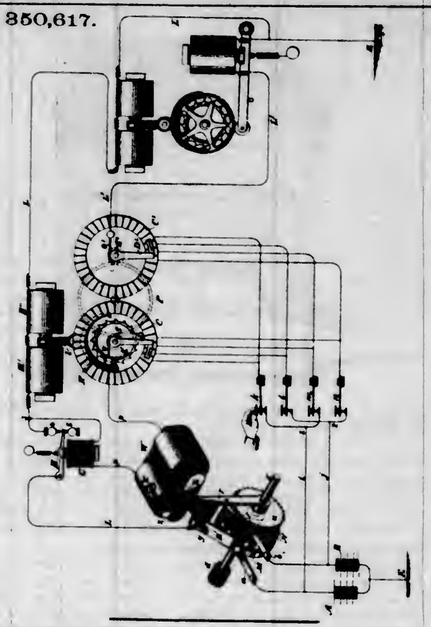
Claim.—1. In a printing-telegraph system, the combination of a constantly-rotating pulsator, a main line including the pulsator, type-wheel magnets, and printing-magnets, and a transmitter for sending a continuous current over the main line independent of the constantly-rotating pulsator, for the purpose of holding the type-wheels at rest for any desired period during the continued rotation of said pulsator.

2. In a printing-telegraph system, the combination of a constantly-rotating pulsator, a circuit including said pulsator, the type-wheel and printing electro-magnets, and a battery or batteries, a normally-open branch around the pulsator for joining the battery or batteries with the circuit, a sunflower arrangement whose arm may be arrested, and transmitting-keys, the whole being so arranged that a continuous current

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may be transmitted to line and the type-wheels arrested during any desired period while the constantly-rotating pulsator continues in motion.

3. In a printing-telegraph system, the combination of a constantly-rotating pulsator, a battery or batteries, a series of transmitting-keys, a sunflower arrangement, an electro-magnet for effecting or controlling the rotation of the sunflower-arm, and branch circuits around the pulsator, substantially as described, which are normally open at the transmitting-keys and sunflower-strips, as and for the purpose described.

4. In a printing-telegraph system, a sunflower device whose arm rotates in unison with the type-wheel of the receiving-instrument, a series of branches connecting the sunflower-strips with the transmitting-keys, a conductor or conductors joining the anvils of the transmitting-keys with the battery or batteries connected to the constantly-rotating pulsator, and an electro-magnetic switch for breaking the pulsator-circuit when a circuit from said battery or batteries is completed through a transmitting-key and a sunflower-connection, substantially as described.

5. In a transmitter for a printing-telegraph system, a branch circuit which is normally open at the transmitting-keys and at the sunflower device, and which is closed upon depressing a transmitting-key when the sunflower-arm is in contact with a corresponding strip, an electro-magnet in said normally-open branch circuit, a constantly-rotating pulsator, a switch controlled by the electro-magnet in said normally-open branch circuit for breaking and closing the pulsator-circuit, an electro-magnet for controlling the rotation of the sunflower-arm, and an electro-magnet or electro-magnets for controlling the operation of the receiving-instruments, substantially as described.

6. In a printing-telegraph system, a constantly-rotating pulsator, a transmitting-battery, a branch circuit or circuits and transmitting-keys, and a sunflower device or its equivalent for constantly connecting the transmitting-battery in circuit upon the depression of transmitting-keys.

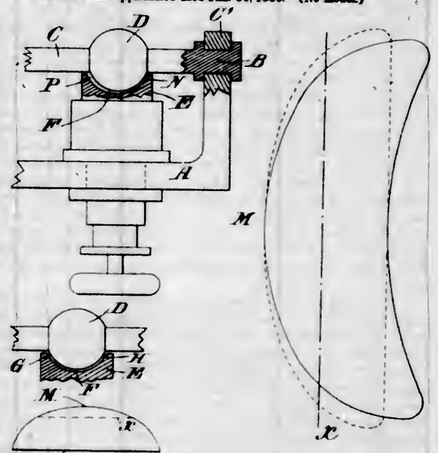
7. In a printing-telegraph transmitter, a constantly-rotating pulsator, a movable contact-spring, B', and means, substantially as described, whereby said spring may move in the direction of rotation of the pulsator upon directing impulses from said pulsator over the main line, as and for the purpose described.

350,617. **PRINTING-TELEGRAPH TRANSMITTER.** CHARLES L. BUCKINGHAM, New York, N. Y. Filed Mar. 6, 1886. (No model.)

Claim.—1. In a printing-telegraph system, a constantly-rotating pulsator, two main lines, one for controlling the type-wheels and the other the printing apparatus, and two sunflower devices, in combination with transmitting-keys for constantly connecting the transmitting-battery with the two circuits, as and for the purpose described.

2. In a printing-telegraph system, the combination of a constantly-rotating pulsator, two main-line circuits, two sunflower devices controlled by a single electro-magnet, H' H'', and transmitting-keys, with their electrical connections, as and for the purpose described.

350,618. **HEEL-COUNTER.** LOUIS COTÉ, St. Hyacinthe, Quebec, Canada. Original application filed June 29, 1885, Serial No. 170,125. Divided and this application filed Jan. 30, 1886. (No model.)



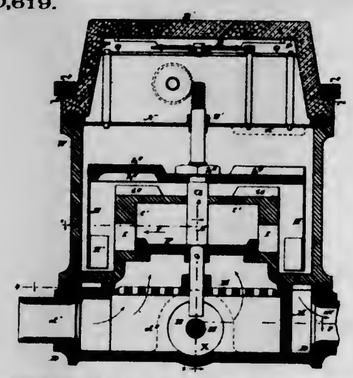
Claim.—As an improved article of manufacture, a boot or shoe heel counter, substantially as shown, having its upper part, or that part of it lying between the upper edge, M, and line *x*, permanently compressed and extended, substantially as described, for the purposes set forth.

350,619. **ROTARY WATER-METER.** ROBT. CREUZBAUR, Brooklyn, N. Y. Filed Sept. 7, 1885. (No model.)

Claim.—1. In a water-meter, the combination of a cylindrical valve-chamber having ports in its cylindrical wall, a weighted valve arranged in said chamber to be lifted by the water on its way to said ports and acting to uncover the latter as it lifts, and a rotating measuring-wheel pivoted on an axis concentric with the axis of said valve-chamber and arranged with its vanes outside of said chamber in position to receive the impact of the water issuing from said ports, substantially as set forth.

2. In a water-meter, the combination of a valve-chamber having ports through its walls, a valve in said chamber arranged to be lifted by the water on its way to said ports and to uncover the latter as it lifts, and a rotating measuring-wheel receiving the impact of the water issu-

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ing from said ports and connected to said valve and rising and falling therewith, substantially as set forth.

3. In a water-meter, the combination of a cylindrical valve-chamber with tangential ports, a rotary valve in said chamber arranged to be lifted by the water on its way to said ports and to uncover the latter as it lifts, and a rotating measuring-wheel receiving the impact of the water issuing from said ports and connected rigidly to said valve, whereby the valve is caused to rotate with the wheel and the wheel is caused to rise and fall with the valve, substantially as set forth.

4. The combination of a cylindrical valve-chamber having outlet-ports through its lateral wall, a weighted valve arranged in said chamber to be lifted by the water on its way to said ports and acting to uncover the latter as it lifts, and a rotating measuring-wheel arranged to receive the impact of the water issuing from said ports, the said ports being conformed with a varying pitch, as described, the portion first uncovered being of greater inclination than the portion thereof last uncovered by said valve.

5. The combination of a cylindrical valve-chamber having outlet-ports through its lateral wall, a weighted valve arranged in said chamber to be lifted by the water on its way to said ports and acting to uncover the latter as it lifts, and a rotating measuring-wheel arranged to receive the impact of the water issuing from said ports, the said ports being constructed with varying widths on their inner ends, the portions first uncovered being narrower than the portions last uncovered, substantially as described, whereby the valve is lifted proportionally higher at the commencement of the flow than with a subsequent increase in the flow.

6. The combination of a cylindrical valve-chamber having outlet-ports through its lateral wall, a weighted valve arranged in said chamber to be lifted by the water on its way to said ports and acting to uncover the latter as it lifts, and a rotating measuring-wheel arranged to receive the impact of the water issuing from said ports, the said ports being formed with varying transverse widths at their delivery ends, as shown.

7. In a rotary water-meter, the combination, with the ports and rotary wheel, of a valve arranged to resist the passage of water to the ports and sustaining the rotary wheel, whereby the valve and wheel rise and fall in proportion to the volume of water passing through, and current-resisting wings attached to the rotating wheel and to a stationary part opposite thereto, substantially as described, whereby as the movement of the wheel up or down brings these wings into closer proximity their reciprocal resistance is increased and the wheel is retarded proportionately in order to correct its indication.

8. In a water-meter, the combination of cylindrical valve-chamber A, having ports I I through its wall, a valve, F, in said chamber which is lifted by the water in its passage to said ports, a rotary spindle, G, connected to said valve and deriving motion therefrom, a rotary measuring-wheel, H, arranged to receive the impact of the water issuing from said ports connected to said spindle and imparting rotary motion thereto, a worm on said spindle, a worm-wheel in mesh therewith, and a counting or indicating mechanism arranged to be driven by said worm-wheel, substantially as set forth.

9. In a rotary water-meter, a glass register-cover having dial-marks, in combination with a pointer revolving beneath and in contact with the glass, substantially as set forth.

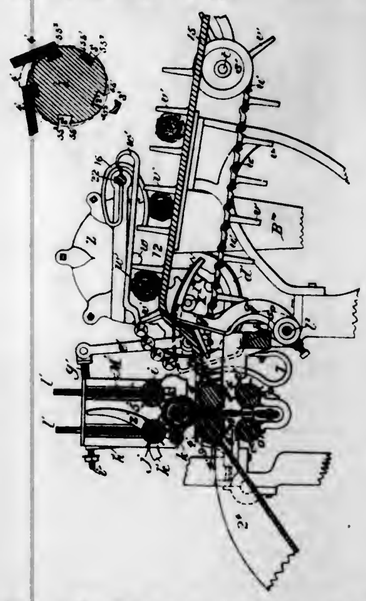
10. In a water-meter, the combination of a base-piece, D, embodying the water-inlet chamber and formed with cleansing-openings, a cylindrical valve-chamber, A, opening from said inlet-chamber, a strainer, E, between said chambers, and a valve, F, in the chamber A, with its spindle G having a bearing in said strainer, substantially as set forth.

11. The combination, with the inlet-chamber, the valve-chamber, the ports leading therefrom, the weighted valve adapted to move over said ports, and the rotating wheel, of the strainer E, interposed between the inlet-chamber and the valve-chamber, substantially as set forth.

12. In a water-meter, the combination, with the base or shell containing the measuring mechanism, of a cap-shaped glass cap-piece, R', clamped thereto with a packed joint and forming a chamber exterior to said shell for inclosing the counting mechanism, substantially as set forth.

13. In a rotary water-meter, a base-piece, D, embodying the inlet and outlet nozzles, a middle piece, W, embodying a wheel-chamber, and a cap-piece, the whole held together by pivoted swinging bolts Y, arranged substantially as described.

350,620. CORN-HUSKING MACHINE. Perley D. Cummings, Portland, Me., assignor to the Maine Corn-Husking Machine Company, same place. Filed May 2, 1883. (No model.)



Claim.—1. The combination of the table 15, sprocket-wheels *s' r'*, chains *u'*, provided with fingers *v'*, and springs *w'*, conforming to the line of the table and provided with the rollers *z'''*, substantially as described.

2. The combination of the table 15, sprocket-wheels *s' r'*, chains *u'*, provided with fingers *v'*, springs *w'*, conforming to the line of the table and provided with the rollers *z'''*, and arms *q'*, operated substantially as described.

3. The combination of the arms *q'*, shaft *l*, arm *p'*, arm *o'*, with yoke *p'''*, shaft *x*, and cam *n'*, substantially as described, for the purposes set forth.

4. The combination of the nippers 3 4 with the rollers *i*, *j*, and *k*, as described.

5. The combination of the arms *q'*, table 15, nippers 3 4, and rollers *i*, *j*, and *k*, all operated as described, for the purposes set forth.

6. The combination of the base or body 1, having the grooves 2^2 2^3, pieces 3' 3', and elastic fingers 4' 4', as described.

7. In combination with a rotary device for removing the husks from corn, the rollers *i*, *j*, and *k*, frame 5', provided with slots 6', springs M', bifurcated lever *z'*, right-angled rod *k'*, sleeve *f''*, with arm *h'*, rod *i'*, spring *g''*, arm *o'*, and cam *d''*, substantially as described.

8. The combination, in a machine for husking corn, of the rotary nippers 9 and 10 and the cleaning devices *c' c'''*, arranged beneath said nippers for freeing them from husks and silks, substantially as described.

9. In a machine for husking corn, the combination of the nippers 9 and 10, the rollers *i*, *j*, and *k*, and frame 5', formed with slots 6', with mechanism for holding down the roller *k* and raising the same, substantially as described.

10. The combination of the pulley *a*, shaft *n*, pulley *b*, shaft *f*, pulley *d*, shaft *e*, pulley *c*, pulley *a'''*, shafts *g* and *r*, pulleys *t* and *u*, rollers *s*, 10', and *v*, shaft *w*, pulley *x''*, pinion *a''*, gear 18, sprocket-wheel *r'*, endless chain 19, sprocket-wheel 17, and shaft *x*, substantially as described.

350,621. GALVANIC-BATTERY CELL. Lud Dembgen, New York, N.Y. Filed Nov. 21, 1885. (No model.)



Claim.—1. The combination of the non-conducting cylinder A, open at both ends, the soft-rubber stoppers B B', fitted to said ends, the zinc rod D, secured to project from one of the stoppers, B, and the carbon cylinder E, secured to project from the opposite stopper, B', whereby the zinc rod is encircled by the carbon cylinder when the two stoppers are both inserted within the cylinder A, substantially in the manner and for the purpose herein set forth.

2. The combination, with a rubber stopper closing the open end of a battery-cell, of a cylinder of carbon united to the stopper by a platinum wire carried through the rubber from one edge of the cylinder to a central plate or button on the opposite face of the stopper, substantially in the manner and for the purpose herein set forth.

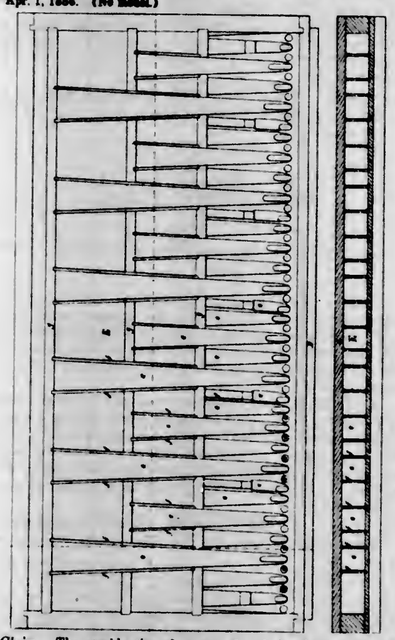
350,622. CUFF-HOLDER. Clara Frank, New York, N. Y., assignor to herself and Emil Gutmann, same place. Filed July 22, 1886. (No model.)



Claim.—1. A pin for cuffs and analogous articles of dress, having the main body B^2 B^3 curved, and the part B' having a short bend in the opposite direction, in combination with a head, A, of large area, arranged to serve as herein specified.

2. In a pin for cuffs or analogous articles of dress, the swell B^2, tapered in both directions, in combination with a body having the bend B' and curves B^2 B^3 in the opposite direction, and with the head A, arranged for joint operation, substantially as herein specified.

350,623. REED-ORGAN. Jas. B. Hamilton, Worcester, Mass. Filed Apr. 1, 1886. (No model.)

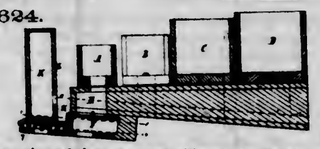


Claim.—The combination of a range of reed-chambers open at their front ends and there provided with a closing valve or cover, as described, with a series of channels leading from such reed-chambers to several ranges of holes formed in a board over such channels and varying in size or diameter, substantially as and for the purpose as specified.

350,624. REED-ORGAN. Jas. B. Hamilton, Worcester, Mass., assignor to the Hamilton Vocalion Organ Manufacturing Company, same place. Filed July 8, 1886. (No model.)

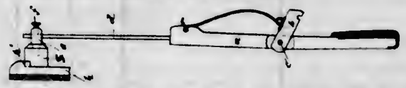
Claim.—In combination with a range of reed-chambers open at

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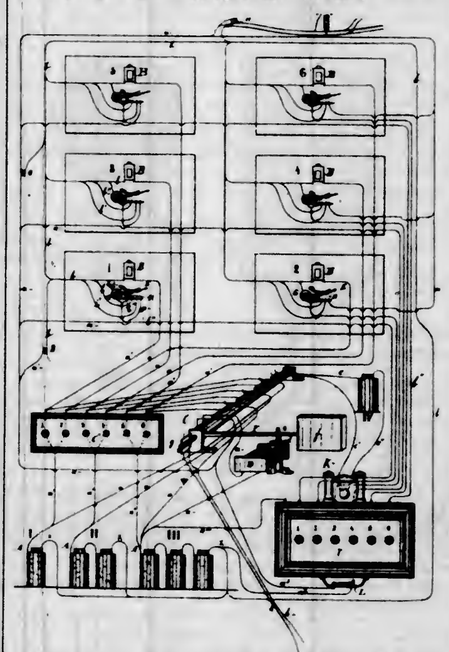
their front ends, and there provided with a closing flap or valve or devices, and with a series of passages or channels leading from such chambers and a phalanx or several ranges of pipes extending over and communicating with such passages, an auxiliary series of reed-chambers disposed in front of and below the mouths of the front set of reed-chambers and open at their front ends, and there provided with closing devices or a flap or door, as described, such auxiliary set of reed-chambers having a set of pipes, or their equivalent, arranged over and opening out of them, and so connected to the bank on which they are placed as to be readily removable from the front of the first set of reed-chambers, as explained.

350,625. DAMPER FOR UPRIGHT PIANOS. Joseph Herrburger, Paris, France. Filed June 4, 1886. (No model.)



Claim.—The combination of head A, having hook A', curved at its inner edge, with cylindrical block *g*, and with perforated stud *e* and clamp-screw *f*, substantially as specified.

350,626. HOTEL CALL, FIRE-ALARM, AND INDICATOR. Albert T. Hess and Hans A. Stoltenberg, Des Moines, Iowa; said Stoltenberg assignor to said Hess. Filed Sept. 5, 1883. (No model.)



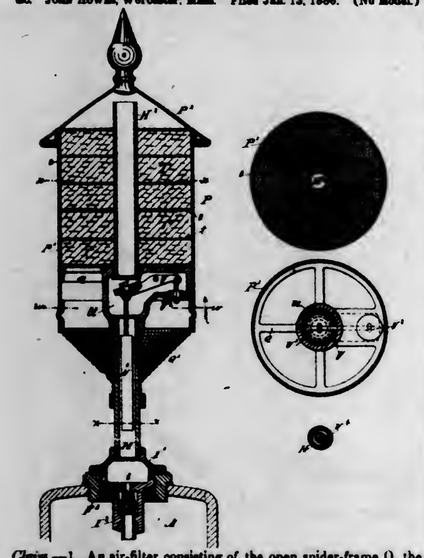
Claim.—1. An alarm system for buildings, consisting of a number of circuits extending from a central station or office in the building to various sub-stations or rooms therein, said circuits including each a call-bell located at the sub-station, and being all normally open at the central station, a revoluble circuit-closer provided with a normally-restrained operating arm or lever, said circuit-closer being located at the central station and common to all the bell-circuits, separate circuits extending from each of the sub-stations to the central station, said latter circuits being normally open at the sub-stations and provided with circuit-closers thereat, and an electric tripping device included in the latter circuits and located at the central station for bringing into action the central-office cir-

cuit-closer, said tripping device consisting of an electro-magnet provided with an armature and catch, substantially as described.

2. An alarm system for buildings, consisting of a number of circuits extending from a central station or office in the building to various sub-stations or rooms therein, said circuits including each a call-bell located at the sub-station, and being all normally open at the central station, a revolvable circuit-closer provided with a normally-restrained operating arm or lever, said circuit-closer being located at the central office and common to all the bell-circuits, separate circuits extending from each of the sub-stations to the central station, said latter circuits being normally open at the sub-stations and provided with thermostatic circuit-closers thereat, and an electric tripping device included in the latter circuits and located at the central station for bringing into action the central-office circuit-closer, said tripping device consisting of an electro-magnet provided with an armature and catch, substantially as described.

3. An alarm system for buildings, consisting of a number of circuits extending from the various sub-stations to a central station or office, said circuits being normally open at the sub-stations and provided with circuit-closers thereat, an annunciator included in the various circuits, a main signaling-circuit extending from the central station to an engine-house and normally open at two places, a circuit-closer for one of said breaks having an electric tripping device included in the sub-station circuit, a circuit-closer for the second of breaks having a tripping device operated by the electric tripper, and branch signaling-circuits leading from the annunciator to the engine-house, said branch circuits being also normally open at two places, the various annunciator-shields closing one series of said breaks and the second main signaling circuit-closer closing the other, substantially as described.

350,627. AIR-FILTERING APPARATUS FOR TANKS, CISTERNS, &c. John Howes, Worcester, Mass. Filed Jan. 13, 1886. (No model.)



Claim.—1. An air-filter consisting of the open spider-frame Q, the close-capped cylinder open at the bottom and supported on said spider-frame, the air-exit pipe H' H, leading downward from the upper interior part of said cylinder, the wire-gauze disks *t* and fibrous filling T within the cylinder, and the wire-gauze or perforated guard Q' at the bottom of said cylinder, said parts being constructed and combined substantially as and for the purposes set forth.

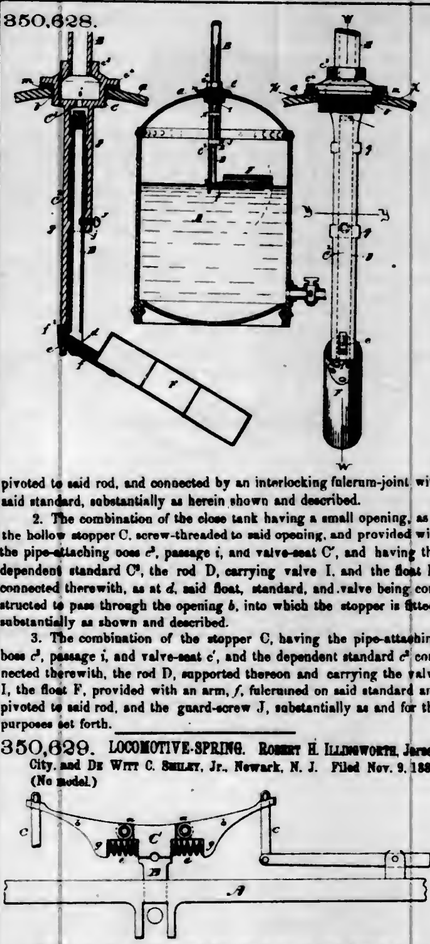
2. An air-filtering apparatus for storage-tanks provided with an automatic cut-off valve and side issue-passage between the filtering substance and delivery-pipe, to prevent reverse flow through said filter, substantially as set forth.

3. The combination, with the air-pipe H, cylinder P', and air-filtering material T, of the valves *o' v²*, lever V, and float-body V^4, substantially as and for the purpose set forth.

350,628. FLOAT-AND-VALVE MECHANISM FOR TANKS. John Bowen, Worcester, Mass. Filed Mar. 8, 1886. (No model.)

Claim.—1. The flanged stopper C, having the passage *i* through it, and the dependent guiding-standard C^3 on the under side thereof, combined with the rod D, reciprocative through guides *g* on said standard, and carrying the valve I, for controlling said passage, and the cylindrical float F, adapted for operating said valve-rod by an arm, *f*, that is

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pivoted to said rod, and connected by an interlocking fulcrum-joint with said standard, substantially as herein shown and described.

2. The combination of the close tank having a small opening, as *b*, the hollow stopper C, screw-threaded to said opening, and provided with the pipe-attaching boss c^3, passage *i*, and valve-seat C', and having the dependent standard C^3, the rod D, carrying valve I, and the float F, connected therewith, as at *d*, said float, standard, and valve being constructed to pass through the opening *b*, into which the stopper is fitted, substantially as shown and described.

3. The combination of the stopper C, having the pipe-attaching boss c^3, passage *i*, and valve-seat *c'*, and the dependent standard c^3 connected therewith, the rod D, supported thereon and carrying the valve I, the float F, provided with an arm, *f*, fulcrumed on said standard and pivoted to said rod, and the guard-screw J, substantially as and for the purposes set forth.

350,629. LOCOMOTIVE-SPRING. Robert H. Illingworth, Jersey City, and De Witt C. Smiley, Jr., Newark, N. J. Filed Nov. 9, 1885. (No model.)

Claim.—1. In combination with the frame A and hangers *c* of a locomotive, the central bearing-block, the oppositely-extending arms pivoted thereon, and horizontally-arranged springs separated by said block, said springs having their bearings on or between the sides of said block and depending bearings of said arms, substantially as and for the purposes set forth.

2. The improved spring herein shown and described, combining therein a central bearing-block, C, having pivotal bearings *a a* and side spring bearings or seats, *d d*, oppositely-extending arms *b b*, pivoted on said bearings *a a* and provided with depending bearings *g g*, and horizontal springs *e e*, separated by the central block and arranged between said block and depending bearings, all substantially as and for the purposes set forth.

350,630. LOCOMOTIVE-SPRING. Robert H. Illingworth and De Witt C. Smiley, Jr., Jersey City, N. J. Filed Feb. 23, 1886. (No model.)



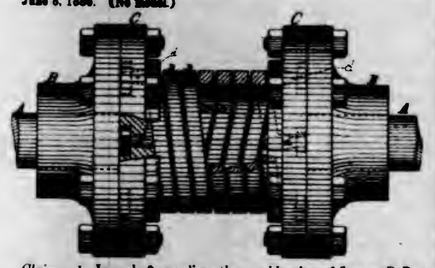
Claim.—1. The improved spring for vehicles, consisting, essentially, of a center block having pivotal bearings, spring-arms *f f*, having projections *g' g'*, springs f^3 f^3, and a block or piece, *h*, all said parts being arranged and combined substantially as and for the purposes set forth.

2. In a spring, a center block, independent bearing-arms *f f*, which

take the weight of the locomotive-boiler, &c., spiral springs, and pivoted plates *e e*, all arranged and adapted to operate substantially as set forth.

3. In combination with the locomotive-frame *a*, having the saddle *a'*, equalizing-bars *c*, and hangers *b*, the center block, *d*, resting on said saddle and having independent bearings *d'* and side bearings, d^2, the arms *f f*, pivoted on said block and taking the weight at their outer extremities from the said hangers *b*, and having depending bearings f^2, plates *e e*, pivoted on said bearings d^2, and spiral springs arranged between said plates and the depending bearings, all said parts being arranged and combined substantially as set forth.

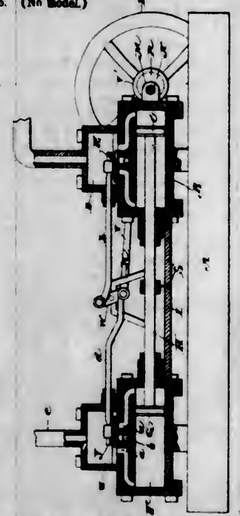
350,631. SHAFT-COUPLING. Thomas Leaman, Erie, Pa. Filed June 8, 1886. (No model.)



Claim.—1. In a shaft-coupling, the combination of flanges B B on the shaft-sections, flanges C C, bolted to said flanges B B, and oppositely-coiled springs D D', one within the other, as shown, and attached to said flanges C C, so as to resist both longitudinal and torsional strains, substantially as set forth.

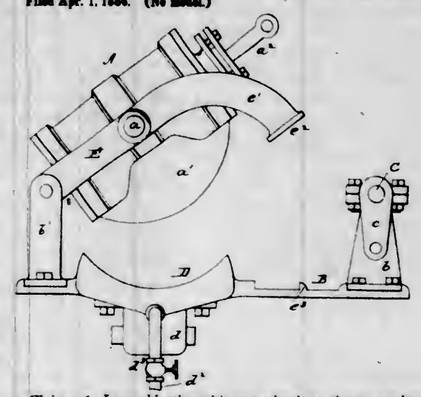
2. In a shaft-coupling, the combination of oppositely-coiled springs D D', one within the other, and having their ends bent to lie parallel with their axes, and screw-threaded to receive nuts thereon, and flanges C C, having sunken seats *c*, and perforations *c'*, for receiving the ends of said springs, substantially as and for the purposes set forth.

350,632. STEAM-PUMP. John T. Leftwich, Greensburg, Ky. Filed June 16, 1886. (No model.)



Claim.—The combination, with the steam-engine, the pump-cylinder F, and the frame connecting the opposing heads of the steam and pump cylinders, of the piston G in the pump-cylinder, the rod H, connecting the said piston to the steam-piston, the cross-head attached to the rod H, the shaft N, having the crank-wheel O and the eccentric R, the pitman U, connecting the cross-head to the crank-wheel, the standard K, secured to the frame between the cylinders, the rock-shaft T in the said standard, the rock-arm V at one end of the said shaft and connected to the eccentric by the rod V' and strap V^2, and the double-ended rock-arm W on the inner end of the shaft T, one end of the said arm being attached to the steam cut-off valve by the rod X, and the other end thereof being attached to the valve Y of the pump by the rod *d*, the cylinder F having the inlet-channel *a* and the outlet-channel *b*, the inner ends of the said channels being covered by the said valve Y, substantially as described.

350,633. OSCILLATING ENGINE. Yost Lusk, Philadelphia, Pa. Filed Apr. 1, 1886. (No model.)



Claim.—1. In combination with an engine base-plate, a stationary steam-chest on the base-plate and having a curved upper side, a cylinder having side trunnions, and a lower block or projection having a curved under side fitting upon the curved side of the stationary steam-chest, and a frame having bearings for the cylinder-trunnions, which frame is pivoted at one end to the base-plate and has its other end resting upon the base-plate, substantially as set forth.

2. The combination of an engine base-plate, a curved frame, E, pivoted at one end to the base-plate and having its other end resting upon and bolted to the base-plate, an oscillating cylinder having trunnions supported in frame E, piston-rod a^2, crank *c*, and driving-shaft C and steam-chest D on said base-plate, substantially as set forth.

3. An oscillating cylinder having a piston-and-crank connection with a driving-shaft, a steam-chest with curved upper side fitting a curved side on said cylinder, two separate sets of steam and exhaust ports in said chest, and two separate sets of ports in the cylinder adapted to reversely take and exhaust steam, as and for the purpose set forth.

4. The combination of stationary steam-chest D, having two sets of separate steam and exhaust ports, separate steam-pipes having a valve or cut-off for each set of said ports, and an oscillating cylinder having two sets of ports adapted to take and exhaust steam reversely, as and for the purpose set forth.

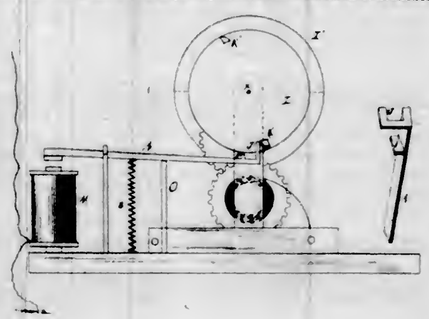
5. An oscillating engine having steam chest and ports, combined with separate ports F, having varying area in cross-section throughout a portion of their length, substantially as set forth.

6. In an oscillating cylinder, the ports F, composed of two limbs of different area in cross-section, and arranged for operation substantially as shown and described.

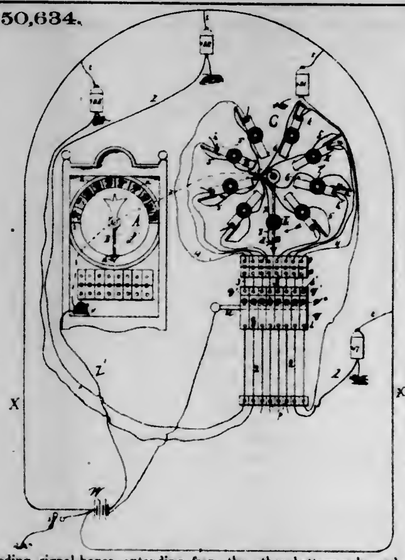
350,634. SIGNALING APPARATUS FOR POLICE-TELEGRAPHS. Lewis H. McCullough, Richmond, Ind., assignor to the Richmond Fire Alarm Company, same place. Filed Jan. 19, 1886. (No model.)

Claim.—1. In a police-telegraph system, the combination, with a battery at a central station having an open ground connected with one pole and a switch in the said ground, a series of signal-boxes connected with the other pole, each having a normally-closed ground and an electro-magnetic signal therein, of means whereby the signal in any desired box can be operated, to the exclusion of the rest, substantially as and for the purpose set forth.

2. In a police-telegraph system, the combination of a battery at a central station having an open ground connected with one pole and a switch in said ground, a multiple key connected with a series of branches,



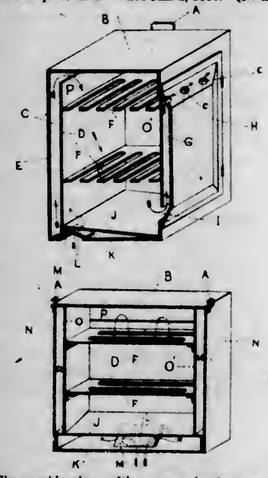
350,634.



including signal-boxes, extending from the other battery-pole, and an electro-magnetic annunciator in each signal-box, provided with suitable stops, whereby any given annunciator can be operated at will, substantially as and for the purpose set forth.

3. The combination, with an electric battery and a series of signal-boxes in multiple arc between the poles thereof, of a receiving-instrument, and of an open-circuit transmitter in each signal-box, and a receiving-instrument and a series of closed-circuit transmitters at a central station, substantially as and for the purpose set forth.

350,635. OVEN FOR OIL, GAS, OR GASOLINE STOVES. William Miller, Grand Rapids, Mich. Filed Jan. 2, 1886. (No model.)

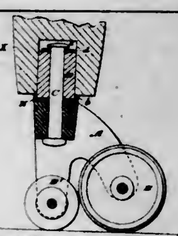


Claim.—The combination, with an oven having an opening in its bottom, of an imperforate obliquely-bent deflector, M, over said opening, a removable false bottom resting on the bottom of the oven at one end and bent to form side flanges for supporting the other end above the bottom, said false bottom being turned upwardly at one end to form a back flue open at its upper end, the door having a flue open at its upper and lower ends, and the false sides resting on the false bottom and supporting the shelves, as set forth.

350,636. FURNITURE-CASTER. Daniel C. Otis, New York, N. Y. Filed Jan. 9, 1886. (No model.)

Claim.—1. As an improved article of manufacture, a caster having rotatively mounted on its metal spindle a hub made of wood or other

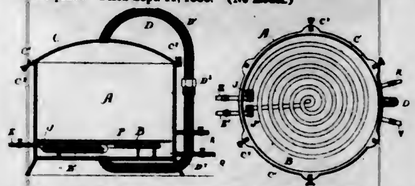
350,636.



like firm material, as specified, the said spindle being provided with a stop at its end to prevent it from escaping from the hub, as set forth.

2. As an improved article of manufacture, a caster having on its metal spindle a rotatively-mounted hub made of wood or other similar non-metallic substance, which hub is retained in place on the spindle, as described, and is provided with a metallic flanged washer, E, on its end adjacent to the caster-frame, substantially as described.

350,637. STEAM COOKING AND RENOVATING APPARATUS. James F. Parrish, Peoria, Ill., assignor of one-half to Frank B. Bradley, same place. Filed Sept. 11, 1885. (No model.)



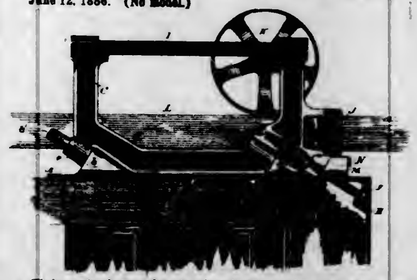
Claim.—1. In a steam cooking and renovating utensil, the combination, with the receptacle, of the coiled steam-pipe having its ends brought near together at the side of the receptacle, and pipes entering the receptacle and pivoted to the ends of the coil, substantially as described, for the purpose specified.

2. The combination, with the receptacle A, of the coil of pipe B, having its ends brought near together, the pipe extremities entering said receptacle, and the joints J J', uniting the same to the ends of said coil as and for the purpose set forth.

3. The combination, with the receptacle A and its removable cover, of the pipe formed in two parts loosely coupled together, as set forth, and having the upper portion secured to and opening through said cover, and the lower portion secured to and opening through the bottom of the receptacle, whereby said cover can be turned about upon said coupling of the pipe as upon a pivot, substantially as set forth.

4. The combination, with the receptacle and its cover, of the sections D' D² of pipe connected to the cover and bottom of said receptacle, the touching ends of said sections being formed with spherical surfaces, and the union-joint D², coupling said ends, as described.

350,638. DOOR-HANGER. Edward T. Prindle, Aurora, Ill. Filed June 12, 1886. (No model.)



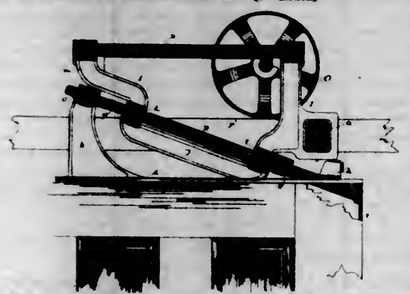
Claim.—1. A top plate for door-hangers adapted to be secured by screws to the unmortised top of a door and having on its upper side at or near each end and parallel with each other an inclined cylindrical bolt or pin for receiving thereon a tubular portion of a yoke, all as set forth.

2. The door-hanger yoke C, having at its lower side the inclined parallel tubular sockets, one near each end, and provided with the rider-bar 1, substantially as set forth.

3. In combination with the top plate, A, having the parallel and inclined bolts projecting upward therefrom, as set forth, the yoke C, as formed with the upwardly-inclined part *d* and provided at or near each end with the parallel and inclined sockets, as set forth, adapted to fit such bolts, substantially as set forth.

4. In combination, the plate A and its parallel inclined bolts *b'*, a yoke having the corresponding inclined parallel sockets *c c*, and the inclined adjusting-screw F, parallel with the bolts and sockets, all substantially as shown and described.

350,639. DOOR-HANGER. Edward T. Prindle and Frederick C. Baird, Aurora, Ill. Filed June 12, 1886. (No model.)



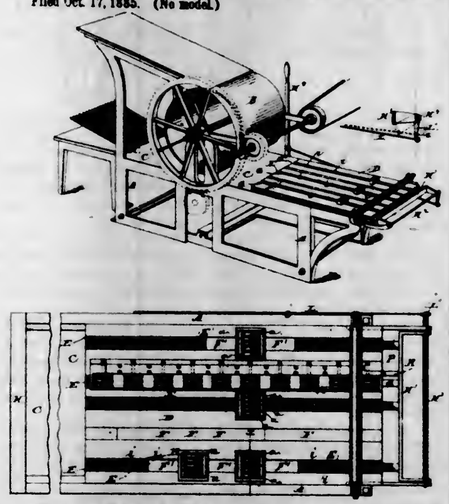
Claim.—1. The top plate as made with the high upright, *b*, at one end, with the low upright, *c*, near its other end, and with an opening through this end, such uprights having inclined tubular bearings in line with each other and with such opening, as and for the purposes described.

2. A yoke for door-hangers having below its rider-bar the two inclined tubular sockets *k l*, one near each of its ends, one of them being internally threaded, and both of them being in the same inclined line, as set forth.

3. In combination with the top plate having the two inclined tubular sockets *c c*, as set forth, the yoke having the two inclined tubular sockets *k l*, one of which is threaded, the yoke being adapted to be placed with its said two sockets between the bearings *c c*, and to be connected to and in line therewith, and means for connecting and adjusting the plate and yoke relatively to each other, all substantially as set forth.

4. In combination, the top plate, A, having the high and low uprights with inclined tubular bearings, as described, and with an opening at one end therein, a yoke having a straight rider-bar, N, and provided with the two inclined tubular sockets *k l*, adapted to occupy the open space between the uprights *b* and *c*, and the adjusting-rod D, provided with a threaded portion, *g*, adapted for the interior thread in socket *k*, said rod serving to hold and adjust the yoke, as set forth.

350,640. CONSECUTIVE-NUMBERING MACHINE. James H. Reinhardt, Memphis, Tenn., assignor of one-half to Joseph Wetter same place. Filed Oct. 17, 1885. (No model.)



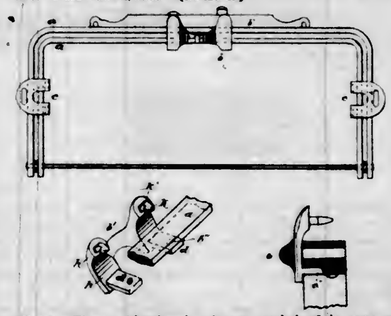
Claim.—1. The combination, with the frame and traveling bed of a cylinder printing-machine, a movable bar or strip fitted to play lengthwise in a groove in said bed and project from either end thereof, and a stop on the frame operating to force the bar inward as the bed completes its movement, of a numbering-machine comprising several sets of numbering-wheels actuated by a swinging pawl-frame and mounted upon the bed, a pin projecting from the movable bar to engage said swinging frame, an extended lateral type-plate fixed upon edge of the numbering-machine carrying type in register with each set of numbering-wheels, an extended movable type-plate notched transversely upon its under side and riding upon counterpart notches in the bottom of a recess between the fixed type-plate and the numbering-wheels, and which projects parallel with the movable bar or strip to engage simultaneously therewith the stop on the frame, and a catch for confining the movable type-plate when forced inward by contact with the stop to bring its type into register and line of print with those on the fixed plate and numbering-wheels, substantially in the manner and for the purpose herein set forth.

2. The combination, with the traveling bed of a cylinder printing-machine, and with a movable bar and strip fitted to play longitudinally within and project at either end from a groove in said bed, a numbering-head fixed upon the bed over the groove, a swinging pawl-frame actuating the numbering-wheels in the head, and a pin projecting from the movable bar or strip to engage the pawl-frame, of a movable stop mounted upon the frame of the machine at one end of the travel of the bed, and a lever actuating said stop to move it into and out of line of engagement with the movable bar or strip carried by the bed, substantially in the manner and for the purpose herein set forth.

3. The combination, with the traveling bed of a cylinder printing-machine, a movable actuating bar or strip fitted to play lengthwise in a groove in said bed and to project beyond the ends thereof, and one or more numbering-heads mounted upon the bed over the bar to be actuated by its movement, of sectional covering-plates F' F', fitting in the groove above the movable bar and flush with the face of the bed, to permit the placing of type and furniture around the numbering-head without interfering with the movement of said bar, substantially in the manner and for the purpose herein set forth.

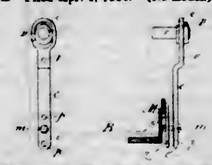
4. The combination, in a numbering-head, of five or more parallel sets of numbering-wheels, a single swinging pawl-frame actuating each and every set of wheels, a type-plate fixed upon the lateral edge of the casing of the head and bearing numeral types to register in line of print with those upon each set of type-wheels, a second parallel movable type-plate fitted in a recess between said fixed type-plate and the wheel, bearing ciphers arranged to be brought by a longitudinal movement of the plate into and out of register and line of print with the numerals upon the fixed type-plate, and which is formed with a continuous series of transverse longitudinally-beveled notches on its under side to ride upon counterpart notches within the recess, and a catch automatically engaging and confining said movable type-plate when brought into line of print with the fixed type-plate, substantially in the manner and for the purpose herein set forth.

350,641. BAG OR SATCHEL FRAME. William Römer, Newark, N. J. Filed Feb. 24, 1885. (No model.)



Claim.—The combination, in a bag or satchel, of the outer and inner jaws, the outer jaw being provided with the lock *b*, and the inner jaw having riveted to the under side thereof the catch *b'*, having the plate *h*, notched and wedge-shaped tongues *k*, and attaching-lugs *d*, substantially as set forth.

350,642. CORN-SHELLER. Adam F. Root and Christian B. Myers, Mount Joy, Pa. Filed Apr. 1, 1886. (No model.)

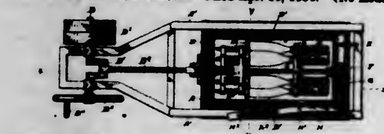


Claim.—1. The combination, in a corn-sheller, of the frame, the cylinder-shaft, and an eccentric attached to the end of said shaft, with a

lever pivoted to the frame and actuated by the said eccentric, a pan for receiving the grain, a plate attached to the pan, the plate and the lower end of the lever being provided with corresponding series of bolt-holes, and a bolt for connecting the plate and lever, substantially as specified.

2. The combination, in a corn-sheller, of the frame, the cylinder-shaft, and an eccentric attached to the end of said shaft, with a lever pivoted to the frame and actuated by the said eccentric, the lower end of the lever being provided with a series of bolt-holes, a pan for receiving and delivering the grain, and a bolt passing through one of the bolt-holes and securing the lever to the pan, for the purpose specified.

350,643. BOTTLE-WASHER. Charles Singer, Jr., Emil Singer, and Henry Singer, Peoria, Ill. Filed Apr. 10, 1886. (No model.)



Claim.—1. In a bottle-washer, the combination, with a horizontally-movable frame and mechanism for its reciprocation, of an interior frame centrally pivoted to the reciprocating frame, a lock for rigidly connecting said frames, a shaft mounted on said interior frame, a series of reservoirs connected to said shaft, and chucks for holding the bottles in communication with said reservoirs, substantially as set forth, for the purpose specified.

2. The combination of a shaft, a ratchet-wheel mounted fast thereon, the obliquely-slotted lever, a pawl connected to said lever and engaging with said ratchet-wheel, a reciprocating frame supporting said shaft and lever, and a fixed pin entering said slot, whereby the reciprocation of said frame can rotate said shaft.

3. In a bottle-washer, the combination of the reciprocating frame, the interior frame centrally pivoted thereto, the lock for rigidly connecting said frames, the shaft mounted on said interior frame, the ratchet-wheel fast on said shaft, the obliquely-slotted lever and its pawl for rotating said shaft by engagement with said ratchet-wheel, a pin projecting from a fixed point into said slot, the reservoirs connected with said shaft, and the chucks for holding the bottles in communication with said reservoirs, substantially as and for the purpose specified.

4. In a bottle-washer, the reciprocating frame, the interior frame pivoted thereto, the lock for rigidly connecting said frames, the shaft mounted on said interior frame, the ratchet-wheel fast on said shaft, the operating-lever for rotating said shaft, the disk mounted on said shaft, the reservoirs projecting from said disk parallel to said shaft, and the chucks for holding the bottles in communication with said reservoirs, substantially as and for the purpose set forth.

350,644. TRANSMITTER AND SOUNDER. George W. Stewart, New York, N. Y., assignor of one-half to Stephen J. Cox, same place. Filed Feb. 3, 1886. (No model.)



Claim.—1. The combination of a magnet-casing, an electro-magnet situated within the same near one end, a sounding-diaphragm adjustably secured within the opposite end, and a spindle carrying collars and an armature, and extending from the diaphragm to the core of the electro-magnet, substantially in the manner and for the purposes herein specified.

2. A transmitter and receiver for telegraphic messages, consisting of a sounding-diaphragm, a spindle depressed by the finger in sending, or by the attraction of the magnetic current in receiving, and automatically retracted, and an electro-magnet provided with a supplemental wire, and with posts, screws, and a switch, as described, for directing the current through the supplemental wire and the core in sending, and through the coil in receiving, substantially as shown and described.

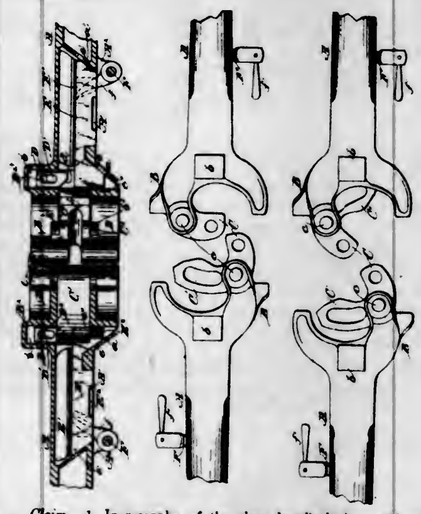
3. The combination, with an electro-magnet and its casing, of an adjustable diaphragm and a spindle provided with touch-button, armature, and collars, one end of said spindle passing through the diaphragm, while the other end enters the recessed core of the electro-magnet, and said collars being situated on opposite sides of the diaphragm with the distance between them variable to regulate the loudness of the click, substantially as shown and described.

4. The combination of the casing A, adjustable diaphragm D, the spindle *b*, provided with button E, armature F, collars *c c*, and a spring for returning the spindle to its normal condition when depressed, the electro-magnet spool having core C, and wire coil B, the upper end of said spool having a screw, *d*, and the lower end being furnished with a post, G, connecting with one end of the coil, a screw, *g*, connecting with the other end of the coil, and the post H, connecting with screw *d* by a wire, *a*, and the switch I, substantially as represented and set forth.

5. A telegraphic instrument arranged to serve as a sounder and as a transmitter, and consisting of the following essential elements: an adjustable sounding-diaphragm, a spindle having a button adjustably secured to the upper end, adjustable collars for striking the diaphragm, and an armature, an electro-magnet provided with a core in contact with the spindle, a screw, *d*, which the armature intermittently touches, the post G, post H, and screw *g*, and wire *a*, with connections as described, and the switch I, adapted to connect post G and the magnet-core for directing the current in sending the message, and adapted to connect post H and screw *g* in receiving a message, substantially as shown and described.

6. The combination of the casing A, adjustable diaphragm D, spindle *b*, having button E, collars *c c*, armature F, and retracting-spring, and an electro-magnet having a recessed core which contains the lower end of the spindle and its retracting-spring, having also a screw, *d*, on the upper end, a post, G, post H, screw *g*, and switch I on the lower end, and a connecting-wire, *a*, arranged and operating as shown and set forth.

350,645. CAR-COUPLING. William H. Thurmond, Forsyth, Ga., assignor to the Thurmond Car Coupling Company. Filed July 28, 1886. (No model.)



Claim.—1. In a coupler of the class described, the combination, with the coupling-hook arranged to oscillate or swing on a vertical pivot, of a thrust-bar provided in its front end with a notch or recess facing the shank of the hook, said thrust-bar having a motion across the plane of oscillation of the shank of the hook, and a locking-block for the thrust-bar provided with two inclines or beveled faces, and moving in a vertical plane, substantially as and for the purpose specified.

2. In a coupler of the class described, the combination, with the coupling-hook, of a block for holding the devices that lock the hook out of engagement therewith, said block having two of its faces beveled or provided with inclined bearing-surfaces, substantially as described, for the purpose specified.

3. In a coupler of the class described, the combination, with the coupling-hook, of a block for holding the devices that lock the hook out of engagement therewith, said block having two of its faces beveled or provided with inclined bearing-surfaces, one of said surfaces being formed at a greater angle than the other, substantially as described, for the purpose specified.

4. In a coupler of the class described, the combination, with the draw-bar, the gravital thrust-bar, and a shaft for operating said thrust-bar, of the gravital block D, substantially as and for the purpose specified.

5. In a coupler of the class described, the combination, with the draw-bar provided in its under side with an opening or hand-hole, of the thrust-bar E, arranged in said draw-bar, substantially as and for the purpose specified.

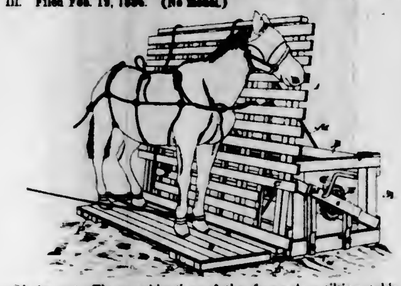
6. In a coupler of the class described, the combination of the draw-bar provided with a longitudinal slot in its under side and a shaft mounted in bearings depending from the under side of the bar, and carrying

a radial arm projecting through the slot into said draw-bar, with a coupling-hook arranged to oscillate or swing on a vertical pivot on said draw-bar, a thrust-bar provided with a longitudinal slot for the reception of the radial arm of the said shaft and having a motion across the plane of oscillation of the shank of the hook, and a locking-block for the thrust-bar having a motion in a vertical plane, substantially as and for the purpose specified.

7. The combination, with the coupling-hook C and the thrust-bar E, of the gravital block D, provided with the beveled faces *d* and *d'*, substantially as described, and for the purposes specified.

8. The combination, with the draw-bar A, having a slot in its under side, and the thrust-bar E, having a longitudinal slot, E', of the shaft F, pivoted underneath the draw-bar and carrying a radial arm, *f*, that projects through slot A' into slot E' of the thrust-bar, substantially as and for the purpose specified.

350,646. VETERINARY-TABLE. Lansing C. Tuffant, Jacksonville, Ill. Filed Feb. 19, 1886. (No model.)

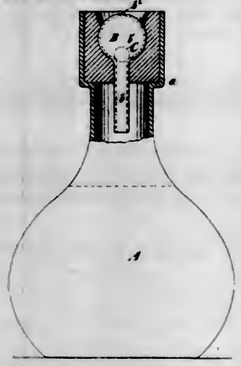


Claim.—1. The combination of the frame A, a tilting table or frame, I, hinged thereto, the roller C, having the ropes coiled thereon, the ends of said ropes extending from the roller in opposite directions and attached to opposite sides of the tilting table, and means for rotating the roller C to tilt the table, substantially as described.

2. The combination of the frame A, having the rollers B, C, and D, the spur-wheels E, secured to the ends of the roller C, and the crank-shafts G, having the spur-pinions F, meshing with the wheels E, a tilting table or frame, I, hinged near its center to the upper front corner of the frame A, and the coiled ropes on the roller C, having their ends passed under the rollers B and D and attached to the opposite edges of the tilting table, for the purpose set forth, substantially as described.

3. The combination of the frame A, the table I, hinged to said frame, means for tilting said table, and the laterally-movable platform, for the purpose set forth, substantially as described.

350,647. HAND-GRENADE EXTINGUISHER. Robert H. C. Valentine, New York, N. Y., assignor of one-half to Elbridge G. Rideout, same place. Filed Jan. 5, 1886. (No model.)



Claim.—The combination, with a fire-extinguishing vessel made of frangible material and having a shouldered mouth portion, of stopping material in said mouth portion, a glass vent comprising a tubular portion, and externally-spherical portion surmounting said tubular portion and embedded in said stopping material, and a ball-valve arranged in the spherical portion of the vent and normally closing the upper end of the tubular portion, substantially as specified.

350,648. SAFETY CUT-OUT FOR ELECTRIC CIRCUITS. Edwin R. Whitney, Manchester, N. H., assignor to the Forsaith Electrical Machine Company, same place. Filed Feb. 9, 1886. (No model.)

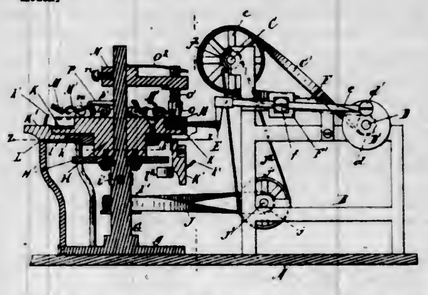
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Claim.—1. A safety cut-out for electric circuits, consisting of a wire or strip resting loosely in hangers or standards, and a spring bearing against said wire or strip and acting to bend and throw same out of its bearings when softened by an excess of current, said wire or strip and spring being normally in circuit, substantially as and for the purpose specified.

2. In an automatic safety cut-out, the combination, with a block or bed, of hangers or standards having slots or bearings therein, a wire or strip of copper or equivalent material having its ends resting in said bearings, and a spring pressing when in tension upon said wire or strip, and adapted to bend and throw same out when the latter is softened by excess of current, substantially as and for the purpose specified.

350,649. MACHINE FOR COMBING AND MIXING BRISTLES, &c. George E. Willett, Englewood, Ill. Filed Dec. 12, 1885. (No model.)



Claim.—1. In a machine for combing bristles, the revolving table provided with holding plates or jaws to receive and hold the bristles and present them successively to the action of the comb, substantially as and for the purposes set forth.

2. In a machine for combing bristles, &c., the combination, with the comb, of a revolving table provided with holding plates or jaws to receive and hold the bristles and present them successively to the action of the comb, and means for operating the comb, substantially as set forth.

3. In a machine for combing bristles, &c., the revolving table provided with a series of bed-plates to receive the bristles, and holding-plates to hold the bristles in place upon the bed-plates, substantially as and for the purposes specified.

4. The combination, with the revolving table provided with bed-plates to receive the bristles, of holding-plates hinged to the table above the bed-plates, and a cam-guide to raise and lower the holding-plates, substantially as and for the purposes specified.

5. The combination, with the revolving table and its bed-plates, of the hinged holding-plates and their operating-cam, and pressure-rollers arranged to bear on the holding-plates, substantially as and for the purposes specified.

6. The combination, with the revolving table and the holding-plates hinged thereto, of the pressure-rollers O, having stems O', the adjustable arm N, through which the said stems pass, and the springs O^3, substantially as and for the purposes specified.

7. The combination, with the revolving table, of the bed-plates consisting of a fixed portion, K, and a hinged portion, K', and a cam-guide to operate the said hinged portion, substantially as and for the purposes specified.

8. The combination, with the revolving table provided with the holding-plates M, and a cam-guide to operate the same, of the bed-plates consisting of a fixed portion, K, and a hinged portion, K', and a cam-guide to operate the said hinged portion, substantially as and for the purposes specified.

9. The combination, with the table provided with suitable bed-plates and recesses, of the holding-plates provided with projecting lugs to fit within the recesses, substantially as and for the purposes specified.

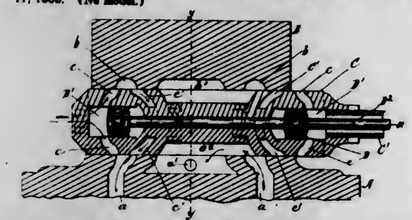
10. The combination, with the hinged portions K' of the bed-plates, of the outwardly-bent arms *k'*, attached thereto, substantially as and for the purposes specified.

11. The combination, with the comb-actuating shaft and its crank, of the comb-bar provided at one extremity with a comb and connected to the crank at its other extremity, and a sliding block mounted on a

suitable slide or way, to which block the comb-bar is pivoted at a point between its extremities, substantially as specified.

12. The combination, with the comb-bar and its actuating-crank, of the sliding block, to which the comb-bar is pivoted, the said block being mounted on a way arranged at a height equal to or slightly above the highest point reached by the crank, substantially as and for the purposes specified.

350,650. VALVE. EDWIN F. WILLIAMS, Chicago, Ill. Filed Dec. 17, 1885. (No model.)



Claim.—1. In a slide-valve for steam-engines, the combination, with a valve-seat and its steam and exhaust channels, of the pressure-plate provided with corresponding channels, the main valve provided with duplicate ports at each end, and the cut-off valve arranged within the main valve, substantially as and for the purposes specified.

2. The combination, with the valve-seat and pressure-plate provided with steam-channels, as described, of the main valve provided with ports *c* and *c'* at each end, and the cut-off valve D, arranged within the main valve and adapted to close the ports *c* alternately, substantially as and for the purposes specified.

3. The combination, with the valve-seat A, provided with steam-channels *a* and exhaust-passage *a'*, of the pressure-plate provided with channels *b* and *b'*, the main valve provided at each end with ports *c* and *c'*, and central passage, c^2, and the cut-off valve D, arranged within the spaces D' in the main valve, substantially as and for the purposes specified.

350,651. HAT-VENTILATOR. JACOB BARCH, East New York, N. Y. Filed Jan. 7, 1886. (No model.)



Claim.—In a hat-ventilator, the combination, with the button A, having an annular screw-threaded shank, *a*, and a cavity, B, formed in said button and shank and communicating centrally with the interior of the hat, said cavity being provided with radial air-passages C C', of a nut, D, to engage the threaded shank, substantially as described.

350,652. CALCIMINE COMPOUND. HENRY F. BIRKENDEFER, Bloomville, Ohio. Filed Jan. 23, 1886. (No specimens.)

Claim.—The herein-described calcimining compound consisting of slaked lime, white glue, sulphate of zinc, salt, gum-arabic, ultramarine blue, and bismuth, mixed in about the proportions set forth.

350,653. MAKING GELATINE PRINTING-ROLLS. EDWIN P. BENJAMIN, Minetto, assignor of one-half to the Minetto Shade Cloth Company, Oswego, N. Y. Filed Nov. 20, 1885. (No model.)

Claim.—1. The method of forming printing-rolls, consisting in molding gelatine on a flexible sheet to form a plate thereon, then drawing the sheet tightly around a tubular shell or core until the side edges of the plate are brought together, and finally cementing said edges, substantially as set forth.

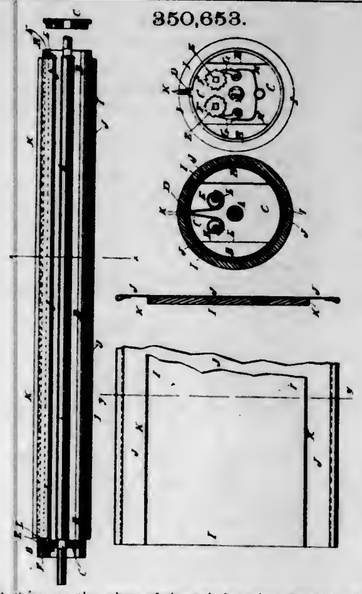
2. A core for printing-rolls, consisting of a longitudinally-slotted shell, end plates or cross-bars thereon, a central shaft, and two longitudinally-slotted tubular shafts journaled in the end plates below the slot in the shell, substantially as set forth.

3. A core for printing-rolls, consisting of a longitudinally-slotted shell, end plates or cross-bars therein having lugs engaging the slot in the shell, a central shaft, the two longitudinally-slotted tubular shafts journaled in the end plates below the slot in the shell, the ratchets on the ends of said tubular shafts, and pawls on the end plate engaging the ratchets, substantially as set forth.

4. The covering in printing-rolls herein shown and described, the same consisting in a sheet of flexible material having a gelatine plate thereon between its side edges, the said edges having hems thereon, substantially as set forth.

5. The covering for printing-rolls herein shown and described, the same consisting in a sheet of flexible material having hems on its side edges, a gelatine plate on the sheet intermediate of its hemmed edges,

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and felt strips on the edges of the gelatine plate parallel with said hemmed edges, substantially as set forth.

6. The combination, with the tubular longitudinally-slotted shell having end plates or cross-bars, and rotary shafts journaled in the end plates or cross-bars, of a flexible sheet having a gelatine plate thereon between its side edges, the projecting ends of the sheet extending through the slot of the shell into engagement with the rotary shafts, whereby, when the said shafts are rotated, the edges of the gelatine plate may be brought together, substantially as set forth.

7. The combination, with the longitudinally-slotted shell B, having cross-pieces or end plates, C, the central shaft, A, the tubular slotted shafts E E, journaled in the cross-pieces C, and means for locking the said shafts from rotation in one direction, of the flexible sheet J, having hems on its side edges and a gelatine plate, I, the hemmed ends of the sheet extending through the slot in shell B into the tubular shafts, and the rods L in the hems within the tubular shafts, substantially as set forth.

350,654. MAKING MATRICES FOR PRINTING-ROLLERS. EDWIN P. BENJAMIN, Minetto, assignor of one-half to the Minetto Shade Cloth Company, Oswego, N. Y. Filed Feb. 5, 1886. (No model.)

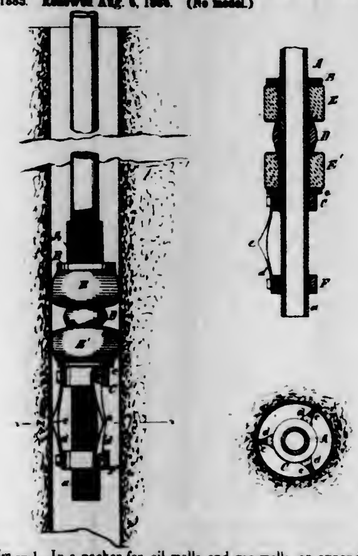


Claim.—1. The process for making matrices for printing-rollers, which consists in placing a properly-prepared plate capable of being softened and rendered pliable by heat inside a cylinder, softening said plate by the application of heat, shaping it to the inner surface of said cylinder, and then setting the said plate by cooling it, substantially as set forth.

2. The process for making matrices for printing-rollers, which consists in mixing gutta-percha and plumbago, and then passing the mixture, when warm, between two rollers to reduce it to a plate, then imprinting the pattern upon one side of the plate by placing it between two plates in a hydraulic press, then planing the smooth side of the plate to give the said plate a uniform thickness, then warming the plate, bending it into the form of a hollow cylinder and placing it in a cylindrical case placed in a larger cylindrical case, then filling the space between the two cases with warm water to soften the gutta-percha, then placing a cylindrical rubber bag within the gutta-percha cylinder and applying an air-pressure to force the gutta-percha cylinder against the

inner surface of the inner case and give it a true cylindrical form, then replacing the warm water with cold water to set the gutta-percha, and then removing the rubber bag and withdrawing the matrix from the case, all substantially as described.

350,655. PACKER FOR OIL-WELLS. JOHN D. BROOKS, Kane, assignor to himself, and F. J. Clemmenger, South Oil City, Pa. Filed Nov. 19, 1885. Renewed Aug. 6, 1886. (No model.)



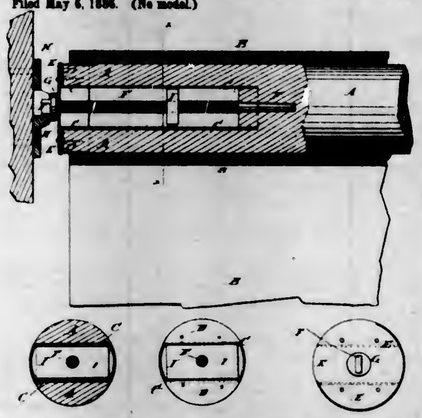
Claim.—1. In a packer for oil-wells and gas-wells, an expanding-cone formed of glass, substantially as herein specified.

2. In a packer for oil-wells and gas-wells, the combination, with a tube-section having upon one end a right-hand thread and upon the other a left-hand thread, of the collar B, elastic rings E E', the double-cone D, and means for forcing the elastic rings upon the double cone, as herein specified.

3. In a packer for oil-wells and gas-wells, the combination of the tube A, having a right-hand thread on one end and a left-hand thread on the other end, a collar, B, elastic rings E E', the double cone D, the nut C, springs *d*, provided with projections *e*, and a collar, F, substantially as herein shown and described.

4. As an improved article of manufacture, a packer for oil-wells, formed of the tube A, provided with right and left hand threads, the collar B, elastic rings E E', double glass cone D, nut C, collar F, springs *d*, provided with projections *e*, and the washer *c*, substantially as herein shown and described.

350,656. SPRING-ROLLER. CHARLES E. BROOKS, Brooklyn, N. Y. Filed May 6, 1886. (No model.)



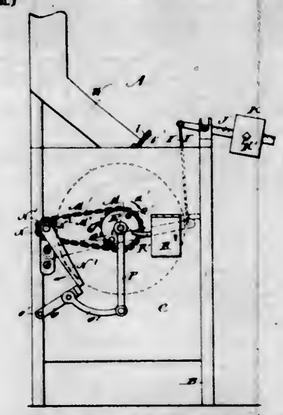
Claim.—In a window-shade roller, the combination, with the slotted roller fitted with a case, of the fixed screw with one end journaled in the roller and its other end held fixedly in a bracket, the nut arranged upon said screw within said case, and the cap fitted upon one end of the roller, substantially as and for the purpose set forth.

350,657. AUGER. SIMEON BURD, Bradenville, Pa. Filed May 1 1886. (No model.)



Claim.—An improved auger comprising a thimble or sleeve, F, having the aligned slots *f* in opposite sides, an auger having a flattened perforated shank which passes through the slots of the thimble, and the projecting shoulders *a'*, that bear against the outer side of the thimble, the handle-sections C D, having the tenons fitting in opposite ends of the thimble, a threaded nut, *g*, secured rigidly to one of the handle-sections and at the inner end of a longitudinal recess or passage therein, and a threaded pin, *d*, secured rigidly to and rotating with the other handle-section when the latter is turned, said pin passing through the aperture of the auger-shank and fitting in the threaded nut, substantially as described, for the purpose set forth.

350,658. AUTOMATIC GRAIN WEIGHING AND REGISTERING APPARATUS. CURTIS L. BURGESS, Westhall, Ill. Filed Apr. 6, 1886. (No model.)



Claim.—1. In a weighing and registering apparatus, the combination of a cylinder having two compartments and trunnions, pivoted arms supporting the cylinder, and a weighing-beam connected with the pivoted arms with a sprocket-wheel provided with two pins on its face, and a lever operated by the pins on the sprocket-wheel and connected with the registering device, substantially as shown and described.

2. In a weighing and registering apparatus, the combination of a cylinder having two compartments, trunnions attached to the same, pivoted arms supporting the cylinder, and a weighing beam connected to the pivoted arms with two sprocket-wheels connected with each other by a chain, an arm adjustable on the shaft of the smaller sprocket-wheel, an arm pivoted to the main frame, and an arm fulcrumed on one of the trunnions of the cylinder and connected to the aforesaid arm by a link, substantially as shown and described.

3. In a weighing and registering apparatus, the cylinder F, having the trunnions E and E', the pivoted arms D, the weighing-beam J, provided with the weight K, and connected with the arms D by a link, I, in combination with the cam S, having the two teeth S' and S^2, the pivoted arm T, the slide V^2, connected to the lever V, attached to a link, U, and the chute W, having the central partition, W', substantially as shown and described.

4. In a grain weighing and registering apparatus, the cylinder F, provided with the trunnions E and E', the arms D, and the weighing-beam J, provided with the weight K, and connected with the arms D by means of the link I, in combination with the sprocket-wheel M, the sprocket-wheel N, connected by a chain, M', with the sprocket-wheel

M, the shaft N, the arm N^3, the pivoted arm O, and the arm P, fulcrumed on the trunnion E, and connected to the pivoted arm O by a link, O^3, substantially as shown and described.

5. In a grain weighing and registering apparatus, the cylinder F, having the trunnions E and E', the arms D, the weighing-beam J, provided with the weight K, and connected with the arms D by a link, I, and a stop, L, in combination with the sprocket-wheel M, the pins Q and Q', and the lever R', operating the registering apparatus R, substantially as shown and described.

6. In a grain weighing and registering apparatus, the cylinder F, provided with the trunnions E and E', the sprocket-wheel M, the chain M', the sprocket-wheel N, mounted on the shaft N', and the arm N^2, adjustable by a set-screw on the shaft N', in combination with the arm P, the link O^3, and the pivoted arm O, substantially as shown and described.

7. In a grain weighing and registering apparatus, the cylinder F, provided with the trunnions E and E', and the cam S, having the teeth S' and S^2, in combination with the lever T, the link U, the lever V, the slide V^2, connected with the lever V by the links V', and the chute W, provided with the central partition, W', having a sharp inner edge, W^2, substantially as shown and described.

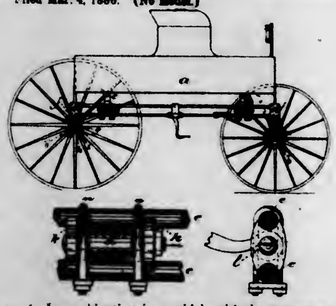
350,659. SASH CENTER OR PIVOT. Jacob Capron, New York N. Y. Filed Mar. 29, 1886. (No model.)



Claim.—1. The sash-pivot consisting of the part A, with annular bearing-flange and central stud, and the part B, with annular bearing-recess and central opening, as described.

2. The disk-plates with annular flange and recess having the extended bearing-arms *b c*.

350,660. VEHICLE-SPRING. William J. Conroy, Liberty Corner, N. J. Filed Mar. 4, 1886. (No model.)



Claim.—1. In combination, in a vehicle with the transverse springs, the rods *e e*, shackles *f*, piece *k*, bolt *m*, and clips *n*, all arranged and combined substantially as and for the purposes set forth.

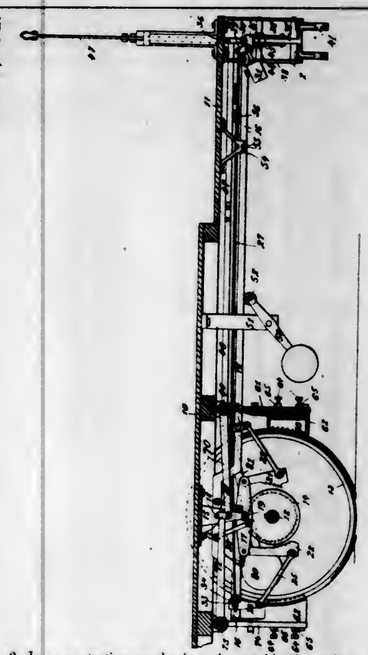
2. In a vehicle, the combination, with the transverse and side springs, of a piece, *k*, having upper and lower grooves or recesses to receive the said side springs, a bolt to receive the transverse springs, and suitable clips to keep the side springs in the said grooves or recesses, substantially as set forth.

3. In combination, in a vehicle with the body *a*, axles *b*, bolsters *c*, and transverse springs supporting said bolsters, side springs, *e*, longitudinally straight and of equal diameter vertically and horizontally, and having their ends secured to said axles, substantially as and for the purposes set forth.

350,661. CAR STARTER AND BRAKE. Thomas Cox and Thomas Cox, Jr., Gloster, Mass. Filed June 14, 1886. (No model.)

Claim.—1. In a car-starting mechanism, the combination, with a toothed wheel arranged to be rigidly connected to the axle, of clutches arranged to be thrown into engagement with the wheel; and a mechanism, substantially as described, whereby, after the clutches have been thrown into engagement with the wheel, one of them will be elevated and the other depressed, substantially as described.

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2. In a car-starting mechanism, the combination, with a toothed wheel carried by the axle, of a beam-lever carrying clutches, a mechanism, substantially as described, for throwing the clutches into engagement with the toothed wheel, a lever, 16, links 20, connecting the lever 16 and the beam-lever, and a mechanism, substantially as described, whereby the forward end of the lever 16 may be depressed, as and for the purpose stated.

3. The combination, with a shaft or axle carrying a toothed wheel, of a beam-lever carrying clutches, a main lever carrying a rocker and a sliding block that are connected by links with the clutches, connecting-rods extending from the sliding block to the rocker, and from the rocker to a bell-crank lever that is pivoted to the main lever, links connecting the main lever and the beam-lever, and an operating mechanism, substantially as described.

4. In a car-starting mechanism, the combination of the following elements: toothed wheel carried by the axle, clutches 21 22, carried by a beam-lever, 17, links connecting said beam-lever with a main lever, 16, a mechanism for throwing the clutches into engagement with the toothed wheel, and an operating mechanism consisting of a lever, 47, mounted on a shaft, 43, an arm, 44, also mounted on said shaft and formed with a shoulder, 5, a lever, 37, carrying a weight, 41, connected to the arm 44 by a link, 48, a latch, 36, formed with a curved face, 3, and provided with an arm, 39, and a stop, 4, all substantially as described, and for the purpose stated.

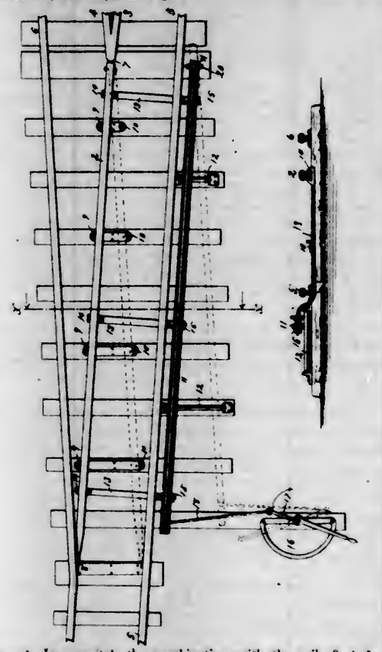
5. In a car-starting mechanism, the combination, with a toothed wheel carried by the axle, of a beam-lever carrying clutches 21 and 22, a link, 23, connecting the clutch 21 with a rocker, 24, said rocker, a connecting-rod, 27, bell-crank lever 28, link 25, sliding box 26, and a rod, 32, extending from the box to the rocker 24, a lever, 16, connecting-links 20, extending from the main lever to the beam-lever 17, a manipulating-lever, 47, mounted on a shaft, 43, an arm, 44, mounted on said shaft and formed with a shoulder, 5, a lever, 37, provided with a weight, 41, connecting-link 48, latch 36, formed with a stop, 4, and an inclined face, 3, and having an arm, 39, said latch being arranged to engage with the extending ends of the levers 28 and 16, substantially as described.

6. The combination, with a lever, 47, of an arm, 45, formed with a shoulder, 6, a rock-shaft, 60, a lever, 67, connected to the arm 45, and a braking attachment carried by the rock-shaft, substantially as described.

7. In a car-braking mechanism, the combination, with a lever, 47, of an arm, 45, formed with a shoulder, 6, a lever, 67, rigidly connected to a rock-shaft, 60, arms 61, carrying brake-boxes 62, brake-shoes 63, mounted in said boxes, arms 70, extending to the rear from the rock-shaft 60 and rigidly connected thereto, a rock-shaft, 73, provided with arms 72, which overlap the arms 70, and arms 74, extending downward from the rock-shaft 73, carrying brake-shoes, substantially as described.

8. The combination, with a rock-shaft, of an arm, 61, carrying a brake-box, 62, a brake-shoe, 63, adjustably mounted in said box, and an operating mechanism, substantially as described.

350,662. FROGLESS SWITCH. Abraham Culp, Mount Carmel, Pa. Filed June 24, 1886. (No model.)

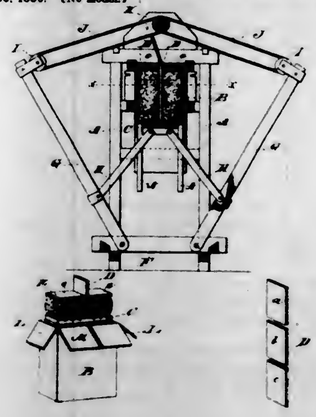


Claim.—1. In a switch, the combination, with the rails 3, 4, 5, and 6, of the switch-rail 2, having its end abutting against the ends of the rails 3 and 4, the rail 11, outside of the rail 5 of the main track, the tie-rods 13, connecting the rails 2 and 11, an operating-lever, 17, and a rod, 18, connecting the lever to the rail 11, substantially as herein shown and described.

2. In a switch, the combination with the rails 3, 4, 5, and 6, the meeting ends of the rails 3 and 4 being united, as described, of a switch-rail, 2, a rail, 11, supported by rollers 12, rods 13, engaging with the rails 11 and 2, a switch-stand and its lever, and a connecting-rod extending from the lever of the switch-stand to the rail 11, substantially as described.

3. The combination, with the switch-rail, of two series of stops, as 9 and 10, rods 13, formed with jaws 14, which engage with the switching-rail, a rail, 11, to which the rods 13 are secured, a loop, 20, rollers 12, and a switch-throwing mechanism, substantially as described.

350,663. HAY-PRESS. Burwell J. Curry, Huntsville, Ala. Filed Jan. 30, 1886. (No model.)



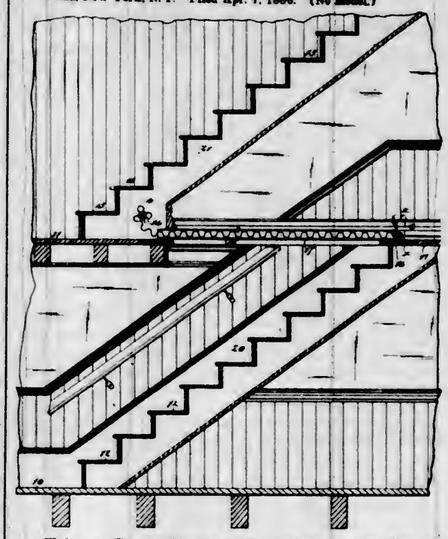
Claim.—1. The combination of the reciprocating follower, the press-box having its inner opposite sides grooved, the vertical sectional partition sliding in said grooves, and whose sections are severally removable during the ascent of the follower, and the slotted upper platen, all arranged to operate substantially as shown and described.

2. The combination, with the actuating mechanism consisting of levers G G, levers H H, rope J, and drum K, of the rigid slotted platen E, the press-box B, the reciprocating platen, to which levers H H are secured, and the vertical sectional partition D, whose sections protrude through the slot in the platen E during the ascent of the follower, so as to be severally removable, substantially as shown, and for the purposes set forth.

3. In a hay or other press, the chamber B and two-part platen E, in combination with the follower C and sectional partition D, whose sections are severally removable from the press during the ascent of the follower, substantially as shown and described.

4. In a hay-press, the combination of the rigid platen E, having parts *e e* and an intervening slot, the press-box B, the follower C, and the partition D, having sections *a b c*, substantially as shown and described.

350,664. FIRE-PROOF SHUTTER FOR STAIRWAYS. Henry Dalk, New York, N. Y. Filed Apr. 7, 1886. (No model.)



Claim.—1. The combination, with a well-opening in a floor of a building, of a shutter normally housed beneath the stairs and arranged to slide across the well-opening, substantially as described.

2. The combination, with a well-opening in the floor of a building, of a corrugated metallic shutter, one end of which is fixed to a shaft mounted in a housing beneath the stairs, while the other end is fixed to a strip carrying bolts that are arranged to engage with sockets located as described.

3. The combination, with a well-opening in the floor of a building, of a corrugated metallic shutter mounted on a shaft, 14, ways 17, strip 16, to which the extending end of the shutter is secured, bolts 9, and a handle or stop, 5, substantially as described.

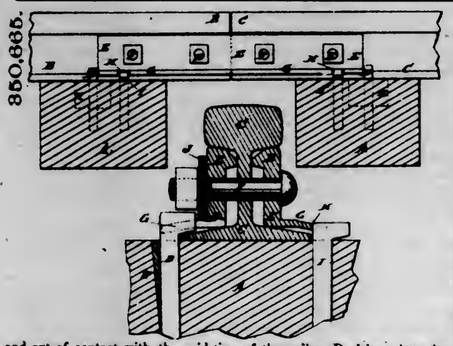
350,665. FISH-PLATE FOR RAILROAD-RAILS. Thos. A. Davies, New York, N. Y. Filed Jan. 15, 1886. (No model.)

Claim.—1. A fish-plate having a flange upon its lower edge projecting outwardly above and beyond the base-flange of a railroad-rail, and out of contact with the ties, and provided with recesses in its outer edge, the said recesses being constructed to receive the heads of the fastening-spikes, substantially as herein shown and described.

2. The combination, with the ties A, the rails B C, and the bolts F, of the fish-plates E, having upon their lower edges flanges G, projecting outwardly above and beyond the base-flanges of the rails, and out of contact with the ties, and provided with recesses H, extending nearly the width of the flanges, and the fastening-spikes I, driven through the said recesses into the ties, substantially as herein shown and described.

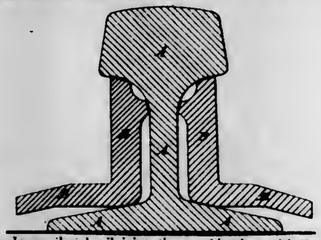
3. The combination, with the ties A, the rails B C, the bolts F, and the fish-plates E, having upon their lower edges flanges G, projecting outward farther than the base-flanges of the said rails, and in such a direction as to be above the said base-flanges of the rails and the ties,

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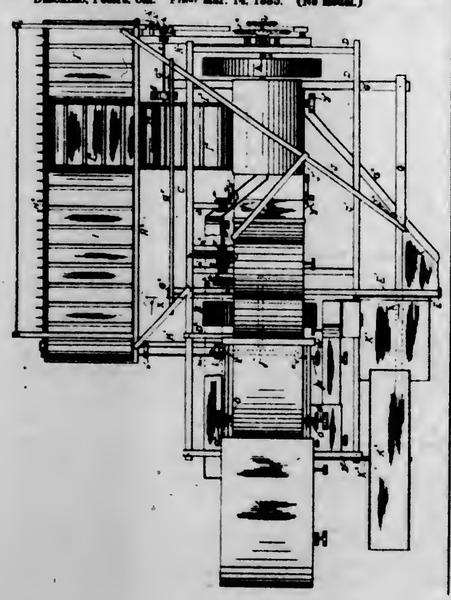
and out of contact with the said ties, of the spikes D, driven into the ties in contact with the edges of the base-flanges of the rails, and in contact with the ends of the flanges of the fish-plates, substantially as herein shown and described, whereby the said rails will be held securely from longitudinal and lateral movement, as set forth.

350,666. RAILROAD-RAIL JOINT. Thomas A. Davies, New York, N. Y. Filed Mar. 24, 1886. (No model.)



Claim.—In a railroad-rail joint, the combination, with the rail A, having its bearings for the upper parts of the fish-plates cylindrical surfaces, of the fish-plates B, having their upper bearings cylindrical surfaces, and their middle lower portions out of contact with the web of the rail, substantially as herein shown and described, whereby the contact of the bearing-surfaces of the said upper parts of the fish-plates with the corresponding bearing-surfaces of the rail will be unaffected by the movements of the said fish-plates in taking up wear, as set forth.

350,667. COMBINED HARVESTER AND THRASHER. Joseph P. Descalso, Petaca, Cal. Filed Mar. 14, 1885. (No model.)



Claim.—1. A frame adapted for a combined heading and thrashing machine, consisting of the transverse beams C C', longitudinal beams D D', attached at right-hand ends of beams C C', longitudinal beams D^2 D^3, attached at the left hand of the center of beams C C', and beam D^4, attached at left-hand ends of the beams C C', in combination with suitable supporting and driving wheels, A B, substantially as described.

2. In a combined header and thrasher, the combination of the beams D^2 and D^4, attached, as shown, to the frame, the pole E, hinged to beam D^2, the supporting and tiller wheel F at its rear beam, G', hinged to the beam D, and beam G, attached at the rear end of said beam G' and also to tongue E, substantially as specified.

3. In a combined header and thrasher, the combination of the pole E, hinged to the beam D^2 of the frame, the beam G', hinged to beam D, beam G, attached to the pole E, and beam G' at right angles thereto, tiller-wheel F at the rear end of said pole, hollow post F^2, attached to said pole, a crank-shaft passing through said hollow post, and link F', connecting said crank-shaft and the tiller-wheel and passing over guide *f*, substantially as shown and described.

4. In a combined header and thrasher, the combination of the pole E, attached, as shown, to beam D^2 of the frame, post F^2 and E^4, lever E^2, engaging with said post E^4, beam E', rigidly attached to rear end of beam D^2, and the link connecting the lever E^2 and beam E', substantially as shown and described.

5. The pushing-frame of the machine, consisting of the pole E, attached to beam D^2, the beam G', attached to beam D, the cross-beam G, and the diagonal brace G^2, the tiller-wheel F at the rear of pole E, and its controlling mechanism consisting of the rod F', guides *f*, post F^2, attached to pole E, and handle F^3, connected by means of its shaft and cranks to rod F', all substantially as specified.

6 In a combined header and thrasher, the combination of the pushing-frame, constructed as described, and attached to the main frame, as shown, the posts G^3 G^4, attached at their feet to the pole E and beam G', respectively, cross-beam G^5, connecting said posts, and the lever for adjusting the header-frame, substantially as shown and described.

7. In a combined header and thrasher, the combination of pole E, platform K, beams G G^3, post F^2, the crank-shaft having handle F^3, post E^4, lever E^2, engaging with said post, beam G^3, post J^2, attached to said beam, and lever J, engaging with said post, substantially as set forth.

8. In a combined header and thrasher, the combination of the beams G G', pole E, the platform K', and platform K^2, located at the left hand of K' and hinged to the rear end of beam D^4, substantially as set forth.

9. In a combined header and thrasher, the combination of a frame composed of the transverse beams C C', longitudinal beams D D' D^2 D^3 D^4, pushing-pole E, and its frame-supporting wheel F, forwardly-extending beams H H', the header-beam H^2, connected thereto, the cutting apparatus and its actuating mechanism, the supporting and driving wheels, and connecting gearing consisting of the axles *a*, wheel *b*, wheel *c*, wheel *d*, shaft *e*, pulley *g*, gear *h*, pinion *h'*, shaft *i*, shaft *j*, wheel *k*, pinion *l*, shaft *m*, gear *k'*, pinion *o*, shaft *p*, wheel *o'*, wheel *r*, pinion *s*, shaft *t*, wheel *u*, pinion *v*, shaft *w*, pinion *x*, pinion *y*, shaft *y'*, pulley y^3, and pulley y^3, all substantially as described.

10. The combination, in a header and thrasher, of the main frame, a conveyer-frame pivoted to the axles of the conveying and driving wheels, the actuating mechanism, the levers J J', mounted on a frame composed of posts G^3 G^4, and cross-beams G^2, said levers extending rearwardly therefrom and engaging with post J^2 on beam G^3, and chains connecting the front ends of said levers to beam H^2, substantially as described.

11. In a combined header and thrasher, the combination of the post G^3, attached to the forward end of pole E, the post G^4, attached to the forward end of beam G', cross-beam G^2 at their tops, levers J J', strapped together and fulcrumed on said beam, attaching-chains at their forward ends, beam H^2, post J^2, seated on beam G^3, the beam G', and pole E, flexibly attached to main frame of the thrasher, all substantially as set forth.

12. In a combined header and thrasher, the combination of the pole E, secured at its front end to beam D^2, supporting tiller-wheel F at the rear end of said pole, lever E', rigidly attached to beam D^2, posts E^3 E^4, lever E^2, flexibly attached to post E^3, engaging with post E^4, and flexible connection with the rear end of beam E', all as shown and set forth.

350,668. ELECTRIC MOTOR. Philip Diehl, Elizabeth, N. J. Filed July 9, 1886. (No model.)

Claim.—1. An armature for an electric motor, consisting of a sectional or divided ring, each of the sections of the body of the said ring having a hub portion provided with an opening for the reception of the shaft by which the sections of the armature are held together, substantially and set forth.

2. An armature for an electric motor, consisting of a sectional or divided ring, the sections of which are adapted to be held together by a central shaft, substantially as set forth.

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3. The combination, with the armature ring or core sections C, having hub-pieces L, with central openings, of the shaft D, fitting in the said openings, and serving to hold the said ring or core sections together, substantially as set forth.

4. The combination, with the frame A and the field-magnets B, secured thereto, of the divided-ring armature, consisting of sections having hub portions provided with openings, and the shaft by which the said sections are held together, substantially as set forth.

5. A commutator consisting of a non-conducting body having radial end flanges, said body having a series of longitudinal holes passing through the said flanges, a series of metallic sections or pieces fitting in said holes and having flattened outer faces between said flanges, and a series of radial set-screws passing through one of said flanges, and serving to secure the said commutator-sections in place, substantially as set forth.

350,669. PROCESS OF EXTRACTING METALS FROM ORES. Frederic M. Endlich and Nicholas H. Muhlenberg, Lake Valley, N. Mex. Filed Jan. 8, 1886. (No specimens.)

Claim.—1. The process of converting the metallic bases contained in ores and metallurgical products into chloridized compounds, which consists in adding to the ores or metallurgical products chlorine water containing common salt and soluble metallic chlorides—such as the chlorides of copper and iron—in sufficient quantity and repeatedly or continuously until the metals to be extracted have been converted into chlorides, substantially as specified.

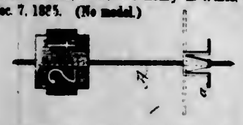
2. The process of converting the metallic bases contained in ores and metallurgical products into chloridized compounds, which consists in adding to the ores or metallurgical products chlorine water containing soluble metallic chlorides—such as the chlorides of copper and iron—in sufficient quantity or continuously or repeatedly until the metals to be extracted have been converted into chlorides, substantially as specified.

350,670. PROCESS OF SEPARATING PRODUCTS OF LIXIVIATION AND SIMILAR COMPOUNDS. Frederic M. Endlich and Nicolas H. Muhlenberg, Lake Valley, N. Mex. Filed Jan. 23, 1886. (No specimens.)

Claim.—1. In the process of lixiviating or leaching ores, the method of bringing into solution metals other than silver contained in the sulphides precipitated from the leaching solution, which consists in adding chlorine water to such precipitated sulphides and heating the same, whereby the sulphides are rapidly converted into chlorides, the soluble metallic chlorides go into solution, while the insoluble chloride of silver is obtained as a precipitate, substantially as described.

2. In the process of lixiviating ores by hyposulphite solution, the method of separating lead and copper from silver and obtaining them in an available form, which consists in treating the precipitate obtained from the hyposulphite solution by alkaline sulphides with chlorine water, whereby insoluble silver chloride and soluble chlorides of the other metals are obtained, separating the latter from the silver chloride, and adding to the solution of soluble chlorides sulphuric acid, whereby insoluble lead sulphate is precipitated and soluble copper sulphate is formed, which two salts are then separated, substantially as described.

350,671. METHOD OF MAKING SPINDLES FOR TIME-PIECE DIALS. Martin V. B. Etheridge, Boston, Mass., assignor of two-thirds to John Swaan, New York, N. Y., and Henry E. Waite, West Newton, Mass. Filed Dec. 7, 1885. (No model.)

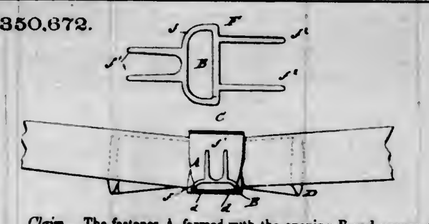


Claim.—1. The herein-described method of making spindles for time-piece dials, which consists in providing rods with plastic numeral blocks molded thereon, and also with turnstiles punched from sheet metal bent into the required shape and attached thereto, substantially as shown and described.

2. The herein-described method of making spindles for time-piece dials, which consists in molding upon a rod plastic blocks having raised figures on the surface of said blocks, substantially as and for the purpose described.

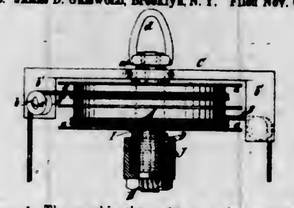
350,672. NECKTIE-FASTENER. James Fenner, New York, N. Y. Filed July 26, 1886. (No model.)

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Claim.—The fastener A, formed with the opening B and prongs *f* *f'*, in combination with the strip C, passed through the fastener and secured to the tie, substantially as and for the purposes described.

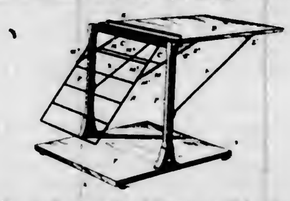
350,673. SUSPENSION DEVICE FOR LAMPS AND OTHER ARTICLES. James D. Grewold, Brooklyn, N. Y. Filed Nov. 6, 1885. (No model.)



Claim.—1. The combination, with an arbor, of a spring-drum mounted on said arbor, cords or chains wound upon the drum and passing over guides on a movable part of the machine to the article to be suspended, a coil-spring constituting a brake, supported at one end by a fixed portion of the machine and at the other by a movable part of the machine, and a part for receiving the action of the brake, said brake being varied in size diametrically when the cords or chains are pulled downwardly, so that it will bind upon said part for receiving its action, substantially as specified.

2. The combination, with an arbor, of a spring-drum mounted on said arbor, cords or chains wound upon the drum and passing over guides to the article to be suspended, a frame surrounding the drum upon which said guides are mounted, and a coil-spring constituting a brake secured at one end to the arbor, at the upper end of the latter, and at the other end to said frame, extending about said drum, or an extension thereof, and sustaining said drum and the frame, substantially as specified.

350,674. SHADE AND PAPER EXHIBITOR. James M. Hadley, Peoria, Ill. Filed Feb. 5, 1886. (No model.)



Claim.—1. In a sample-exhibitor, a holding-table and a display-apron joined and adapted to be revolved upon a horizontal axis and supported at the required angles, substantially as and for the purposes set forth.

2. The combination, in a sample-exhibitor, of a frame, a holding-table hinged to said frame so as to be capable of being revolved in a vertical plane, means for securing said table in a horizontal position, a display-apron similarly hinged, and means for securing the same at desired angles of inclination, substantially as and for the purpose specified.

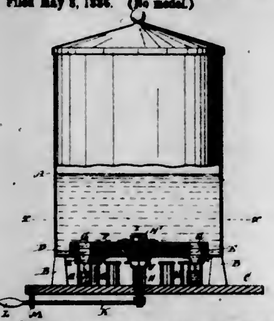
3. In a sample-exhibitor, the frame consisting of the floor F, posts P, and cross-bar C, having grooves C', in combination with the holding-table B, having the eyes D, loosely gripping the cross-bar in said grooves, the display-apron A, having the ends of its side rods looped about the cross-bar in said grooves, and the brace-rods for supporting said apron and table, substantially as and for the purpose specified.

4. The floor F, having casters, the posts P, and the cross-bar C, in combination with the holding-table B, hinged to the cross-bar, the brace-rods L, pivoted to said posts, the legs L', projecting from the said table for engaging with said brace-rods, the display-apron A, hinged to said cross-bar, and the terminally-notched brace-rods M, pivoted to said table and adapted to support said apron, substantially as specified, for the purposes set forth.

5. In a sample-exhibitor, the floor F, posts P, and cross-bar C, in combination with the holding-table hinged to said cross-bar and having

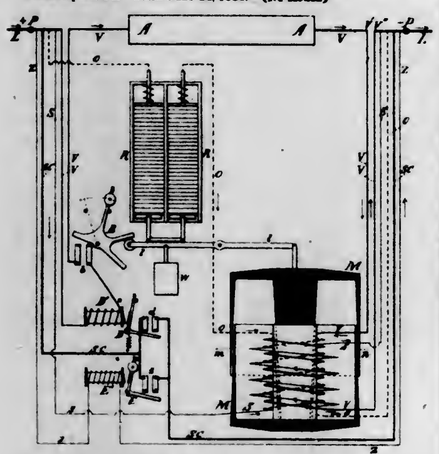
means for supporting it, and the display-apron A, hinged to said crossbar and having means for its angular support, for the purposes specified.

350,675. **FILLING APPARATUS.** Thos. H. Hathaway, New Bedford, Mass. Filed May 8, 1886. (No model.)



Claim.—In a filling apparatus, the receptacle A, the plate D, having apertures E, and the funnels or spouts N, in combination with the plate F, having apertures G, the bolt H, the nut J, and the arm K, moving between the stop-pins M', substantially as shown and described.

350,676. **CONSTANT-POTENTIAL REGULATOR.** Carl Hering, Philadelphia, Pa. Filed June 24, 1886. (No model.)



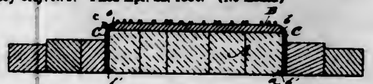
Claim.—1. A regulator for maintaining the potential at two points of a circuit constant, consisting, essentially, of the following elements in combination: an adjustable overflow-resistance, an electro-motive device for varying the same, and two circuits for conjointly actuating the electro-motive device, one of which is a high-resistance circuit between the poles of the regulator, and the other the shunt-circuit, which includes the variable overflow-resistance.

2. A regulator for maintaining constant the potential at the two poles of an electro-receptive device in a line-circuit, and consisting, essentially, of the following elements in combination: an adjustable resistance of carbon or other solid material for variably shunting the electro-receptive device, an electro-motive device for varying this resistance by compressing it, a circuit connected to the two poles of the regulator for shunting the superfluous current around the electro-receptive device, and a circuit or circuits shunting the electro-receptive device (or the equivalent circuit—namely, the circuit through the electro-receptive device itself) for actuating the electro-motive device.

3. In a regulator for maintaining constant the potential at the two poles of an electro-receptive device in a line-circuit, the combination of a continuously-variable resistance of carbon or other solid substance connected as a shunt to the electro-receptive device for leading off the superfluous current, an electro-motive device for operating this variable resistance, and a circuit or circuits for actuating this electro-motive device, shunting the electro-receptive device, and in which the current varies on variations of the potential or current of the electro-receptive device.

4. An electro-motive device for varying an adjustable overflow-resistance, which shunts an electro-receptive device, substantially as and for the purpose described, consisting, essentially, of movable magnetic parts and two coils operating the same conjointly and shunting the electro-receptive device, one connected directly to the poles of the electro-receptive device for detecting changes of potential, and the other connected in series with the variable overflow-resistance, substantially as and for the purpose described.

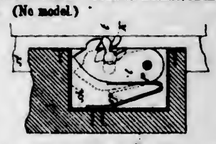
350,677. **PRINTING-PLATE HOLDER.** Marshall J. Hosmer, Jersey City, N. J. Filed Apr. 22, 1886. (No model.)



Claim.—1. The combination, with the bevel-edged printing-plate B, of the block A, having the beveled corners *a*, and the clamping-plates C, having inclined lips *b b'* on opposite edges thereof, and provided with adjusting-screws *c*, substantially as herein shown and described.

2. As an improved article of manufacture, a holder for printing-plates formed of a plate, C, having inclined lips *b b'* on opposite edges thereof, one of which lips is provided with an adjusting-screw, substantially as herein shown and described.

350,678. **SASH-LOCK.** John R. Hussey, Indianapolis, Ind. Filed July 14, 1886. (No model.)

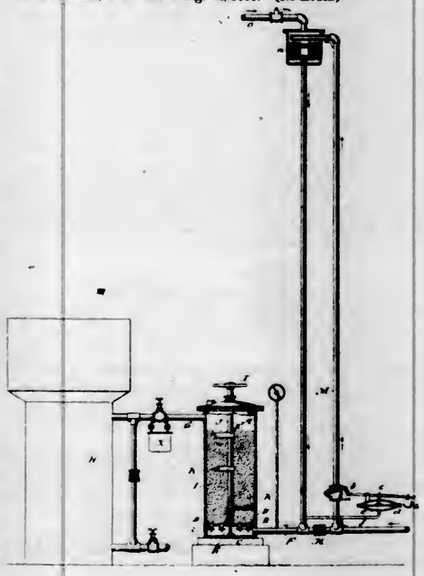


Claim.—1. The sash-lock composed of a latch, *l*, pivoted in an opening in the sash and having an upper lip to engage with a catch fixed in the casing, and a trigger, *t*, pivoted in the body of the latch, substantially as described.

2. A locking device composed of a pivoted latch, *l*, having a projecting lip to engage with a catch on the window-casing and carrying a trigger, *t*, pivoted in the body of the latch, a pressure-spring, *sp*, secured between the side of the casing and the back of the latch, a sash, *s*, into which the locking device is let, and a catch, *k*, fastened to the window-casing, all combined substantially as described.

3. A locking device composed of a pivoted latch, *l*, having a projecting lip to its upper portion, squared to form a shoulder carrying a trigger, *t*, pivoted in the body of the latch, a pressure-spring, *sp*, back of the latch, one or more upper catches, *k*, to engage with the latch to hold the sash, when raised, a lower stop, *k'*, having a rounded upper and a flat under side, to engage with the squared shoulder of the latch to lock the same securely when the sash is closed, with means for unlocking the same, all combined substantially as described.

350,679. **APPARATUS FOR PURIFYING WATER.** John W. Hyatt, Newark, N. J. Filed Aug. 24, 1885. (No model.)



Claim.—1. For use in purifying water, a vessel inclosing a bed of comminuted metallic iron and ground emery or other inert substance, and constructed with a false bottom, on which the bed rests, said bottom being provided with a series of protected inlets and a water-supply pipe leading into the vessel between the bottoms, substantially as set forth.

2. For use in purifying water, a vessel having a supply and delivery, a false bottom above the supply containing a series of inlets, a bed upon the false bottom composed, essentially, of comminuted metallic iron, and an agitator located within the bed, substantially as set forth.

3. A vessel having a supply and delivery and containing a bed the essential element of which is comminuted metallic iron, combined with an aerating device in connection with the supply, substantially as set forth.

4. A vessel having inlet and outlet pipes and inclosing a bed the essential element of which is comminuted metallic iron, combined with a filter and with an aerating device, substantially as set forth.

5. A vessel having an inlet and outlet and inclosing a bed the essential element of which is comminuted metallic iron, combined with a stand-pipe connected with the inlet and an air-pipe opening into the stand-pipe, whereby the water is automatically charged with air while passing through said pipe, substantially as set forth.

6. A vessel having an inlet and an outlet and inclosing a bed the essential element of which is comminuted metallic iron, combined with an aerating device and a water-pressure regulator, substantially as set forth.

7. A vessel having an inlet and an outlet and inclosing a bed the essential element of which is comminuted metallic iron, combined with a filter, an aerating device, and a water-pressure regulator, substantially as set forth.

8. The vessel containing a bed of comminuted or granular material and having a supply and delivery, combined with the stand-pipe, the inlet branch of which contains a valve connected with a diaphragm-stem, and the outlet branch is in communication with the lower side of the diaphragm, substantially as set forth.

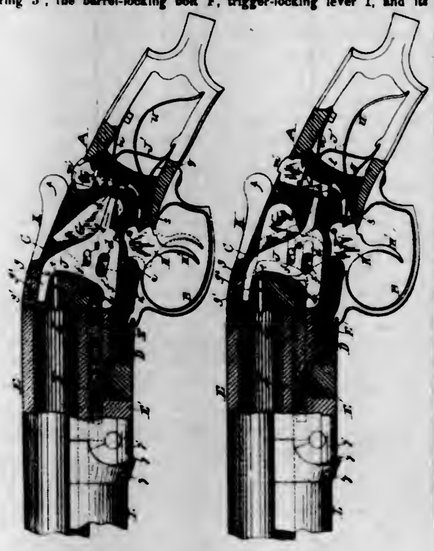
9. A vessel having an inlet and an outlet and inclosing a bed the essential element of which is comminuted metallic iron, combined with the aerating device, an agitator within said device, and a water-regulating valve, substantially as set forth.

350,680. **COAGULANT FOR PURIFYING WATER.** John W. Hyatt, Newark, N. J., assignor to the Newark Filtering Company, same place. Filed Feb. 26, 1885. Renewed Sept. 3, 1886. (No specimens.)

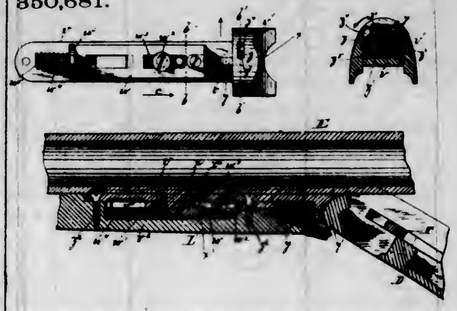
Claim.—As an article of manufacture for use in processes of clarifying water, a solidified body of coagulant, consisting, essentially, of alum and a less soluble material, as rosin, said body, excepting one end thereof, which is left fully exposed, being coated on its outer surface with a water-proof covering, the extent of the exposed surface which is to be acted on by the inflowing stream thereby always remaining the same until the body is disintegrated, substantially as set forth.

350,681. **FIRE-ARM.** Iver Johnson and Andrew Fyrberg, Worcester, Mass.; said Fyrberg assignor to said Johnson. Filed July 7, 1886. (No model.)

Claim.—1. The top lever, K, in combination with the plate J, its spring J', the barrel-locking bolt F, trigger-locking lever I, and its



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spring *n*, the top lever being hinged to the bridge and to plate J, and said plate arranged to slide forward and back at one side of the hammer, also being hinged to the barrel-locking bolt and provided with a rear projecting arm, whereby said bolt and the trigger-locking lever may be respectively drawn and forced back to unlock the barrel and lock the trigger by the operation of swinging out the top lever, substantially as shown and described.

2. The top lever, K, in combination with the plate J, its spring J', the barrel-locking bolt F, trigger-locking lever I, its spring *n*, trigger H, its spring *g*, hammer G, and its spring *u*, the top lever being hinged to the bridge and to plate J, and said plate arranged to slide forward and back at one side of the hammer, also being hinged to the barrel-locking bolt and provided with a rear projecting arm, as well as the slots *f f'*, the hammer being provided with a pin, *e*, fitting in the slot *f*, and with a shoulder or notch for the trigger to engage with, and said trigger being provided with a projection adapted to catch in the notch aforesaid, also with a rear projecting arm adapted to bear upon the bottom of the locking-lever I, whereby when the top lever is swung out the barrel is unlocked, the hammer is cocked, and the trigger is locked, the barrel being subsequently relocked by allowing the top lever to be sprung in again, leaving the hammer cocked and the trigger locked until the bottom of the locking-lever is swung forward and the trigger is pulled in firing, substantially as shown and described.

3. The top lever, K, in combination with the plate J, its spring J', hammer G, its spring *u*, trigger H, its spring *g*, trigger-locking lever I and its spring *n*, the top lever being hinged to the bridge and to plate J, and said plate arranged to slide forward and back at one side of the hammer, and provided with a rear projecting arm and slots *f f'*, the hammer being provided with a pin, *e*, fitted in the slot *f*, and with a shoulder or notch for the trigger to engage with, and said trigger being provided with a projection adapted to catch in the notch aforesaid, also with a rear projecting arm adapted to bear upon the bottom of the locking-lever I, whereby when the top lever is swung out the hammer is cocked and the trigger is locked, said top lever being sprung back into its normal position after said cocking and locking operations, substantially as shown and described.

4. The top lever, K, in combination with the plate J, its spring J', trigger H, its spring *g*, trigger-locking lever I, and its spring *n*, the top lever being hinged to the bridge and to plate J, and said plate arranged to slide forward and back at one side of the hammer, and provided with a rear projecting arm, the trigger also having a rear projecting arm, whereby when the top lever is swung out said trigger is locked, said top lever being sprung back into its normal position after said locking operation, substantially as shown and described.

5. The plate J, arranged at one side of hammer G, and having the arms *g h* thereof connected with the top lever, K, and barrel-locking bolt F, respectively, also provided with the rear projecting arm, *k*, and slots *f f'*, in combination with said top lever, K, hinged to the bridge of the fire-arm at *i*, hammer G, pivoted at *d*, and provided with the holding-notch *r'* and pin *e*, trigger H, pivoted at *p* and provided with the projection *r* and rear projecting arm, *s*, the usual barrel-locking lever F, trigger-locking lever I, pivoted at *m* and provided with the pin *t*, bearing part *o* and milled part *m'*, the various springs described for operating said parts and for supporting them in position, substantially as and for the purposes set forth.

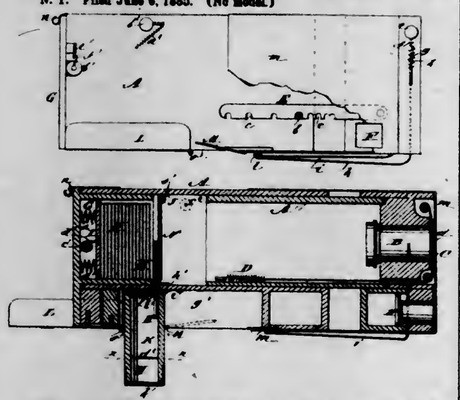
6. In a fire-arm, the combination of the barrel E, having the notched projection *x*, the front stock, I, having the plate *v* and head *v'*, and forehand D, having the notch *y'* in the under side of its forward end, with a locking device consisting of the bar or bolt *w*, fitted to slide longitudinally in suitable ways in the front stock, and provided with a suitable spring, w^4, for exerting a forward pressure thereon, also with a holding part adapted to engage with the notched projection *x* on the barrel when thus sprung forward, and with a spring, *y*, at its rear end, having a hook adapted to catch in the notch *y'* of the forehand when said spring *y* is moved back of said notch, and is allowed to spring up

against said forehand, and lever z, pivoted at z' in the head o' of the stock, and having a shoulder, z^2, for holding the spring y out of the notch y' when required, also a spring, z^3, for forcing the lever forward into position to receive and hold the spring y upon its shoulder, and the milled projecting part z^4, for operating the lever to release spring y, so that its hook may engage with and hold in the notch y', substantially as shown and described.

7. The combination of the hooked spring y on the rear end of the slide-bar or bolt w of stock L, with lever z, pivoted at z' in the head o' of said stock, and having the shoulder z^2, for holding said spring y out of its notch y' in the forehand, also provided with the spring z^3, for keeping said shoulder under the spring y until forced from under the same by hand, and with a projecting part or lever, by means of which to turn said lever z to release the spring y when required, so that it may engage with its notch y', as aforesaid, substantially as set forth.

8. In a fire-arm, a front-stock locking device consisting of a bar or bolt arranged and fitted to slide longitudinally in suitable ways in said front stock, and provided with means for imparting a forward longitudinal pressure thereto, also provided with a holding part adapted to interlock with a notched projection on the under side of the barrel when said bar or bolt is sprung forward, and with a hooked spring at its rear end adapted to catch and hold in a notch formed in the under side of the forward end of the forehand when allowed to spring up against the latter, and means for holding and releasing said hooked spring, consisting of a spring-lever pivoted in the head or base end of the front stock, having a shoulder against which the hooked spring bears to prevent it from engaging with its notch in the forehand until the proper time arrives for such connection, and also provided with a projecting arm projecting through a slot beyond the outer surface of the front stock, whereby said lever may be operated to release the hooked spring aforesaid, so that it may spring up into its notch and be connected with the forehand, all constructed and arranged to be operated to lock and unlock the front stock to and from the arm, substantially as shown and described.

350,682. PHOTOGRAPHIC CAMERA. John S. Johnston, New York, N. Y. Filed June 6, 1885. (No model.)



Claim.—1. In a photographic camera having a repeating action, as described, the combination, with the rear plate-holding reservoir, G, the open central frame, J, a shutter adapted to expose and close the opening in said frame, and the negative-receiving reservoir or receptacle arranged below the front end portion of the plate-holding reservoir G, and in communication therewith by a forward passage, i', of the spring-follower I within the reservoir G, whereby the plates are automatically and successively forced and fed up to their place against the open-centered frame, substantially as specified.

2. The combination, with the camera-case, of the plate-holding primary reservoir G, the follower I, the springs a', for automatically forcing up or forward said follower, means, substantially as described, for drawing back the follower, the open-centered frame J, the shutter N, and the hinged or swinging secondary lower reservoir, K, in communication, when swung down or out, by a passage, i', with camera-case in rear of the frame J, substantially as and for the purposes herein set forth.

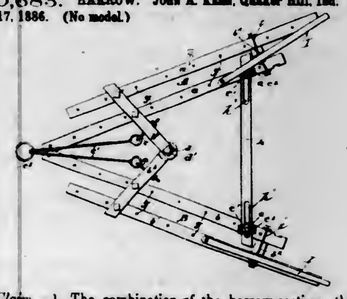
3. The sliding sections A A' of the camera-case, the front one of which is provided with a lens-tube, B, and a front shutter exposing and closing the opening to said lens, in combination with the primary plate-holding reservoir G in the rear section of said case, the spring-follower I, and the hinged or swinging lower negative-holding reservoir, K, in communication by a plate-passage, i', with the rear case-section, essentially as described.

4. The case-section A and secondary swinging reservoir K, provided with a communicating passage, i', in combination with the primary reservoir G, the open-centered frame J, the flexible covering l', and the lower closing-slide, L, substantially as specified.

5. The flexible coverings l' m' n', in combination with the hinged or swinging reservoir K and the case-section A, having a plate opening or passage, i', between them, essentially as described.

6. The combination, with the case-section A, having a chamber, g', of the negative-holding reservoir K, adjustable in relation with said chamber, as described, and one or more spring-holders for retaining the negatives at rest within said reservoir, substantially as specified.

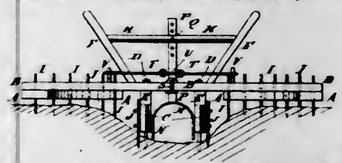
350,683. HARROW. John A. Kerr, Quaker Hill, Ind. Filed June 17, 1886. (No model.)



Claim.—1. The combination of the harrow-sections, the intermediate coupling-arms carried by the sections at one end and jointed together at their meeting ends, the straps or loops carried by the sections at their rear ends, a coupling bar or link intermediate of the rear ends of the harrow-sections and fitted in the straps thereof, and the vertical bolts for detachably connecting the bar or link to the sections, substantially as described.

2. The combination of the harrow-sections loosely coupled together at their rear ends, the jointed arms carried by the sections near their front ends, and the connected draft-links attached to the arms on opposite sides of the line of draft through the harrow, substantially as described, for the purpose set forth.

350,684. COMBINED HARROW AND CULTIVATOR. David Keller, Willis, Kans. Filed May 25, 1886. (No model.)



Claim.—1. A combined harrow and cultivator, consisting of diverging side bars connected by cross-bars, harrow-teeth projecting below said side and cross bars, and longitudinal central parallel bars having teeth projecting below the said teeth on the side and cross bars to work the ground between the ridges, substantially as set forth.

2. In a combined harrow and cultivator, the combination, with the inclined side bars, A, and the cross-bars B, provided with harrow-teeth I, and the handles F H, and cross-bar G, of the parallel bars C, the fastening-bolts D, the bars or blocks E, connected with the said parallel bars and cross-bars, and the teeth J, substantially as herein shown and described, whereby the ridges and furrows of listed plants can be readily cultivated, as set forth.

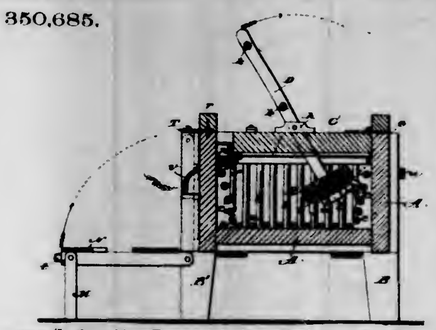
3. In a combined harrow and cultivator, the combination, with the inclined side bars, A, the cross-bars B, the parallel bars C, the harrow-teeth I J, and the handles F H, of the beams and cultivator-teeth L M and the fender N, substantially as herein shown and described, whereby the shoulders of the ridges will be plowed down and the plants protected from the soil, as set forth.

4. The combined harrow and cultivator herein shown and described, comprising the diverging side bars having harrow-teeth, the longitudinal central bars having harrow-teeth, the cross-bars, cultivator-teeth on the rear cross-bar, the handles connected by cross-piece, the fender formed of a ∩-shaped plate pivoted to the rear ends of the central bars between the cultivator-teeth, and a vertical adjustable rod connected to the rear end of the fender and secured adjustably to the handle cross-piece, substantially as set forth.

350,685. WASHING-MACHINE. Henry Kramer, Grant Park, Ill. Filed Jan. 9, 1886. (No model.)

Claim.—1. In a washing-machine, the combination, with a tub provided with horizontal strips a and c and vertical strips b, and having

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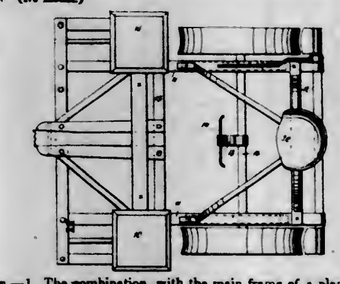


a cover, C, of a rubber, E, carried by levers D, that are pivotally connected to said cover, substantially as described.

2. In a washing-machine, the combination, with a tub, A, provided with horizontal strips a and c and vertical strips b, and having a cover, C, hinged to one end thereof, of a pounder, E, provided with pins m, n, and o, said pounder being carried by levers D D, that are connected by bars k and pivotally mounted in blocks carried by the said cover C, substantially as described.

3. As a new article of manufacture, a washing-machine provided with horizontal strips a and c and vertical strips b, a cover, C, levers D, carrying pounder E, and a soap-box, p, substantially as described.

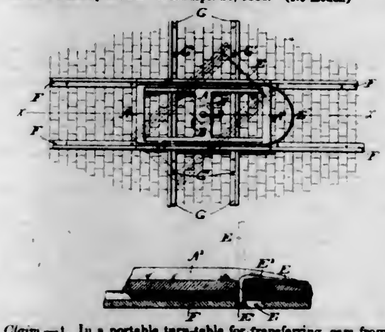
350,686. PLANTER. William Lewis, Dawn, Mo. Filed Aug. 28, 1886. (No model.)



Claim.—1. The combination, with the main frame of a planter, of strips 15, rigidly connected to the axle and hinged to the frame at points behind the axle, and a lever, 18, also rigidly connected to the axle, substantially as described.

2. The combination, with the axle 16, of the clips 17, arms 15, hinged to the longitudinal timbers of the main frame of the planter at 14, and a lever, 18, rigidly connected to the axle, substantially as described.

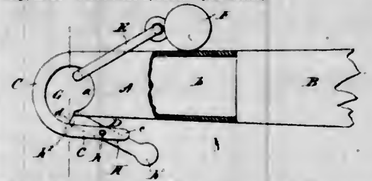
350,687. PORTABLE SWITCH FOR TRAMWAYS. George F. Lower, Philadelphia, Pa. Filed Apr. 30, 1886. (No model.)



Claim.—1. In a portable turn-table for transferring cars from one railway-track to another crossing railway-track, the combination of parallel rails having inclined ends with a central pivot removably inserted in a step or bearing, and the locking device arranged to engage in the turn-table alternately in the rails of either track, substantially as shown, and for the purpose set forth.

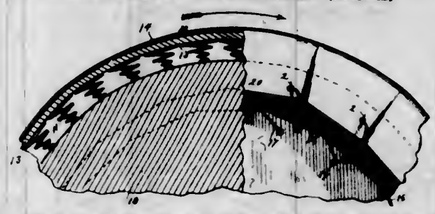
2. The combination, in an apparatus for transferring cars to and from railways having tracks intersecting each other in the same plane, a central step or bearing permanently located in the center of the intersection, and a pivot fitted removably therein, and bearing a portable turn table having inclined ends, adapted to raise the wheels of the cars from and lower them to the rails of the permanent tracks, with the locking device arranged to engage in the turn-table with the rails thereof, connected alternately with the rails of either track, substantially as shown, and for the purpose set forth.

350,688. NECK-YOKE COUPLING. Jacob B. Lowman, Virginia City, Mont. Filed June 2, 1886. (No model.)



Claim.—The combination, in a neck-yoke coupling, of a socket or body piece, A, provided with a concaved forward end, as at a, a hook, C, connected thereto and extending below the socket, thereby providing a slot, D, and a latch attached to hook C and normally closing the slot D, substantially as described, for the purposes set forth.

350,689. SANDPAPERING AND POLISHING MACHINE. Thomas B. Marshall, Sidney, Ohio. Filed June 26, 1886. (No model.)



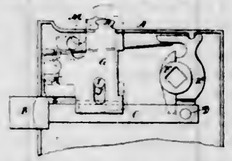
Claim.—1. The combination, with a wheel, of springs secured to the peripheral face thereof, a band of felt resting upon the springs, and a strip of canvas resting upon the felt, and means for securing the canvas to the wheel, substantially as herein shown and described.

2. The combination, with a wheel, of springs secured to the peripheral face thereof, felting 13, arranged upon the springs, sacking 14, held to the wheel by hooks 17, and an outer layer of sand-paper or cloth held to the sacking by proper connecting devices, substantially as described.

350,690. INSECTICIDE. Rebecca McKee, New York, N. Y. Filed June 23, 1886. (No specimens.)

Claim.—The herein-described composition of matter to be used as an insect-destroyer, consisting of naphtha or benzine, pulverized alum, borax, gum-camphor, oil of pennyroyal, oil of sassafras, and alkaneted oil, substantially in the proportions specified.

350,691. REVERSIBLE LATCH. Charles H. Montgomery, Bradford, Conn. Filed Aug. 30, 1886. (No model.)

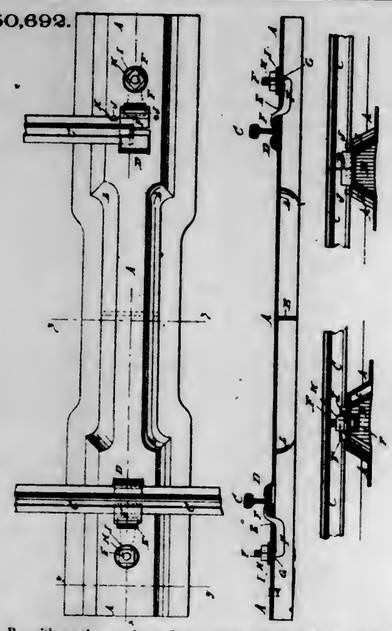


Claim.—In a reversible latch in which the tail of the bolt is removably hung upon a lateral projecting stud on the knob-slide or lever, the combination, with said latch-bolt, of the slide G, constructed with a slot, J, and arranged upon the fixed stud I, the said slide extending through a slot in the case, and with a forward extension, K, the said slide adapted both for up-and-down movement and for oscillating movement in a plane parallel with the look-case, the latch-bolt constructed with a shoulder corresponding to the forward projection on the slide, substantially as and for the purpose described.

350,692. COMBINED STEEL TIE, RAIL-FASTENING, &c. Theodore L. Mumford and Hugh Moore, Mauch Chunk, Pa. Filed Mar. 4, 1886. (No model.)

Claim.—1. A steel tie, A, made, substantially as herein shown and described, with a flat top, inclined sides, and laterally-projecting flanges at the lower edges of its inclined sides, and provided with a cross-parti-

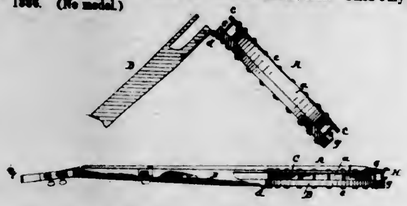
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sion, B, with stationary jaws D, to receive the base-flanges of rails, and with apertures E G, to receive lever-clamps for holding the other base-flanges of the rails, as set forth.

2. The combination, with the steel tie A, having stationary jaws D and apertures E G, and the rails C, of the lever-clamps F, inserted in the said apertures, and held upon the rail-flanges by nuts H, substantially as herein shown and described, whereby the rails will be securely fastened to the said tie, as set forth.

350,693. BANJO. Frank R. Mosher, Akron, Ohio. Filed July 12, 1886. (No model.)



Claim.—1. In a banjo-head, the combination, with a metallic hoop, of a wood ring having in its upper face an annular channel, in which the lower edge of said hoop rests, and a metallic ring surrounding its upper edge, said metallic and wood rings being united by a series of bolts outside of said hoop, substantially as shown, and for the purpose specified.

2. The combination, with a banjo-head, of a neck having its inner end conformed to fit the outer projecting portions of said head and united therewith by a hinge, substantially as and for the purpose hereinbefore set forth.

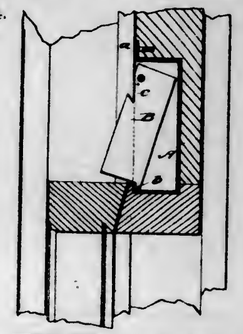
3. The combination, with a banjo-head consisting of a hoop retained between a lower and upper ring united by bolts outside of said hoop, of a neck having its inner end conformed to fit the outer edges of said rings, hinged to one of said rings, and cut away opposite the space between said rings for a portion of its length, substantially as shown, and for the purpose specified.

4. The combination, in the head A, with the tail-piece G and post g, of the open link H, all constructed and arranged substantially as shown, and for the purpose specified.

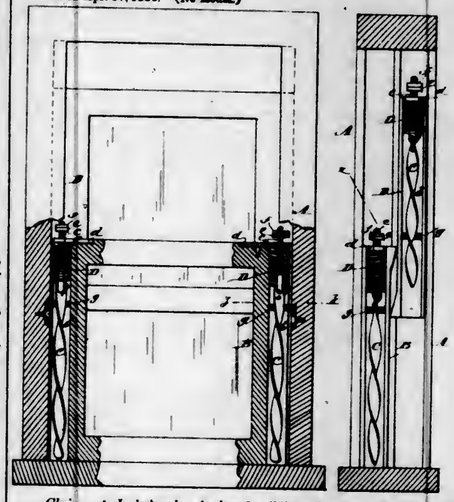
350,694. SASH-LOCK. Charles E. Nicholas, Toledo, Ohio. Filed Feb. 12, 1886. (No model.)

Claim.—In a sash-lock, the combination, with the casing A, of the trapezoidal tongue B, pivoted therein and provided with the spur *b* and a notch, *c*, substantially as herein shown and described.

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350,695. SASH-BALANCE. William S. Patten, Portsmouth, Ohio. Filed Apr. 17, 1886. (No model.)



Claim.—1. In balancing devices for sliding window-sashes, the combination, with the sash and window-frame, of the irregularly-twisted blades C, the springs D, and the threaded eye-plate *g*, substantially as specified.

2. The combination, with the window-frame A and either laterally-grooved sash B, of the fixed threaded eye-plate *g* and keepers *d*, the irregularly-twisted blades C, the springs D, the adjusting-screws *c*, and the nuts *e f*, essentially as and for the purposes herein set forth.

350,696. DRAW-BRIDGE GATE. Reuben Quatterman and Herbert R. Ellsworth, Moline, Kans. Filed June 21, 1886. (No model.)

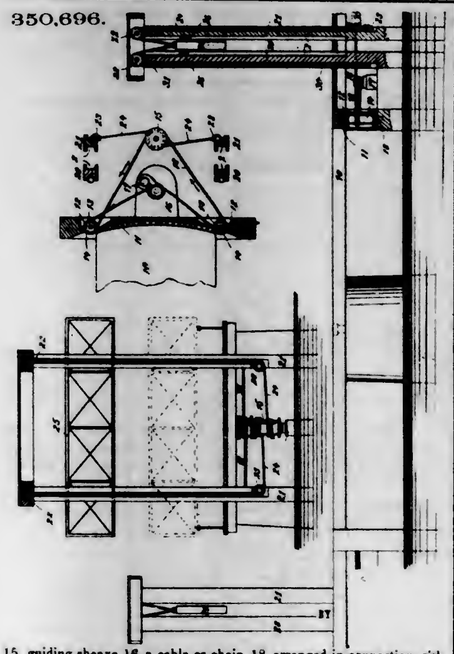
Claim.—1. The combination, with a bridge provided with a rack, 11, of pinions mounted on the bulk-head, drums carried by the shafts supporting the pinions, a double drum, and a cable or chain passing around said double drum, and the drums arranged in connection with the pinions, the chain being crossed at one of the pinion-drums, substantially as described.

2. The combination, with a draw-bridge provided with a rack, 11, of pinions 12, carried by shafts 13, drums 14, carried by said shafts, a drum, 15, a sheave, 16, and a cable or chain, 18, which passes about the drum 15 and the drums 14, and is crossed at one of the drums 14, whereby, irrespective of the movement of the bridge in opening, the drum 15 will always be moved in the same direction, substantially as described.

3. The combination, with a bridge provided with a circular rack, 11 of pinions 12, arranged to be engaged by said rack, drums 14, controlled by said pinions, a drum, 15, guiding-sheave 16, an endless cable or chain, 18, passing about the drums 15 and 14 and being crossed at one of the said drums 14, a gate, 25, and cables or chains 24, extending from said gate over guiding-sheaves carried by properly-arranged standards to opposite sides of the drum 15, substantially as described.

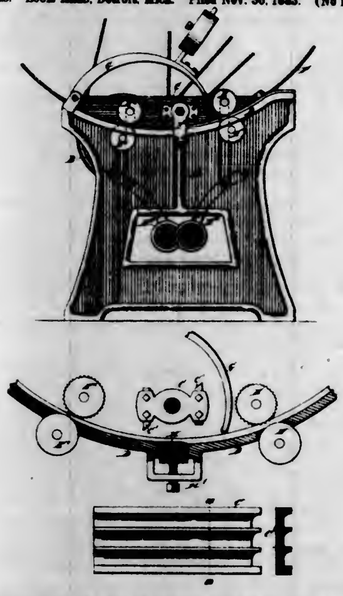
4. The combination, with a bridge provided with a rack, 11, of pinions 12, drums 14, arranged in connection with said pinions, a drum,

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15, guiding-sheave 16, a cable or chain, 18, arranged in connection with the drums 15 and 14 and crossed in front of one of the drums 14, a gate, 25, mounted between standards 20 and 21, and provided with guiding-rollers 26, cables or chains 24, connected to the gate and passing over sheaves 22 and 23 to opposite sides of the drum 15, weights 30, connected to the gate 25 by ropes or chains 31, which pass over sheaves 32, substantially as described.

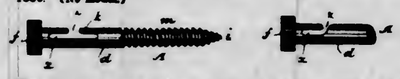
350,697. MACHINE FOR CUTTING HEAD-LININGS FOR BARRELS. Louis Reed, Detroit, Mich. Filed Nov. 30, 1883. (No model.)



Claim.—1. In a machine for forming head-linings, &c., from a strip of wood at a single operation, the combination of the cutter-head and cutters C', formed substantially as set forth, and a table and adjustable bearing-block of Babbitt metal or its equivalent, arranged to operate in conjunction to entirely cut away the intermediate portion of the wood, substantially as set forth.

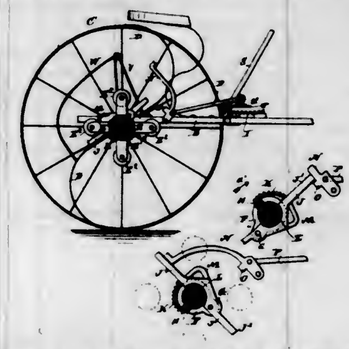
2. In combination with the ribbed cutters, a table of which the surface immediately under the cutters is adjustable, so that it may be raised above the plane of the table, and having that portion which receives the stuff to be cut lower than that portion which supports the strips after they have been formed by cutting away the residue of the wood, substantially as set forth.

350,698. WIRE FENCE. Benjamin Scarles, Clinton, Mass., assignor to the Clinton Wire Cloth Company, same place. Filed June 23, 1886. (No model.)



Claim.—A fastener for the wires of wire fences, the body of which is provided at one end with a head, at the other with a screw, and intermediately between said head and screw with a longitudinal slot, and with a lateral opening communicating with said slot, substantially as described.

350,699. HORSE HAY-RAKE. George K. Schauer, Osborn, Ohio. Filed Dec. 18, 1885. (No model.)



Claim.—1. A vehicle-rake having the wheels loosely mounted on the axles, the tines secured on the axle, a frame carrying rollers fixed on one wheel, and a lever pivoted on a fixed piece on the axle and provided with a cam projection, and operating mechanism whereby said cam is thrown into and out of the path of said rollers, all combined substantially as herein shown and described.

2. In a rake, the combination, with an axle or shaft on which tines are secured, of wheels mounted loosely on the ends of the axle, a frame on the hub of one wheel, which frame carries rollers, a disk secured on the axle adjacent to said frame, a lever pivoted on said disk, and a spring for pressing the lever from the disk, and operating mechanism for holding said lever against the spring out of the path of said rollers, substantially as herein shown and described.

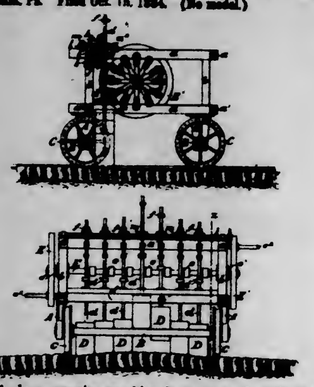
3. In a rake, the combination, with an axle on which tines are secured, of wheels mounted loosely on the ends of the axle, a frame on the hub of one of the wheels and carrying rollers, a disk on the axle, a lever pivoted on the disk, a spring for pressing the lever from the disk, and of a pivoted arm for locking the lever on the disk in different positions, substantially as herein shown and described.

4. In a rake, the combination, with an axle on which tines are secured, of wheels mounted loosely on the axle, the frame E on one wheel, the rollers E^2 on the frame, the disk F on the axle, the lever J, pivoted on the same, a spring for pressing the lever from the disk, and of the pivoted arm N, provided with the lug O, substantially as herein shown and described.

5. In a rake, the combination, with an axle on which tines are secured, of wheels mounted loosely on said axle, a frame on the hub of one of the wheels, rollers on said frame, a disk fixed on the axle, a lever provided with a cam projection pivoted on the disk, a spring for pressing the lever from the disk, and of a pivoted arm for locking said lever in place, substantially as herein shown and described.

6. In a rake, the combination, with the axle carrying tines, of wheels mounted loosely on the axle, a frame on one wheel, rollers on the frame, a disk on the axle, the lever J, pivoted to the disk and provided with a cam projection, the arm N, for locking the lever J in place, and of a crank-shaft on the frame of the rake connected with the arm N and provided with devices for operating it, substantially as herein shown and described.

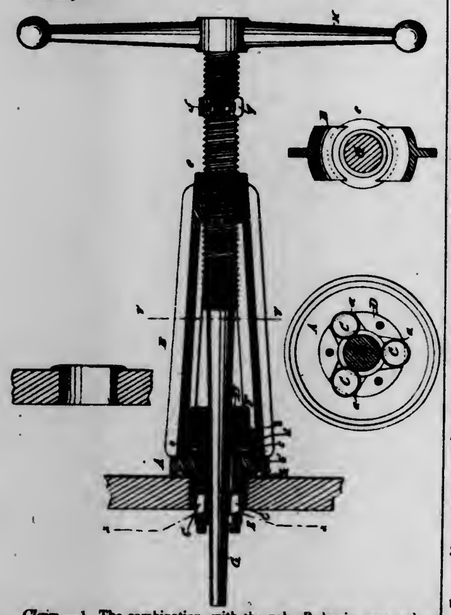
350,700. RAMMER FOR STREET-PAVING. JOHN G. SCHMIDT, Philadelphia, Pa. Filed Oct. 18, 1884. (No model.)



Claim.—1. In a ramming-machine for street-paving, the combination, with the rammer D, provided with rod *d*, having adjustable collar *f* and tappet *d'* thereon, of the shaft E and double-arm lifters *e*, so arranged that each rammer delivers two blows each revolution of the shaft E, substantially as described.

2. In a ramming-machine for street-paving, the combination, with the rammer D, provided with working-rod *d*, having adjustable collar *f* and tappet *d'* thereon, of the lever *h*, fulcrum *i*, rock-shaft *l*, cam *m*, springs *g k*, and sliding stop *j*, all arranged substantially as and for the purposes described.

350,701. TUBE-EXPANDER. WILLIAM SCHOENDELEN, WILLIAM KLEIN, and AUGUST SCHOENDELEN, Davenport, Iowa. Filed Nov. 30, 1885. (Model.)



Claim.—1. The combination, with the yoke B, having one end, *c*, provided with a longitudinal screw-threaded aperture, and a circular head, A, at the opposite end, provided with an aperture in alignment with that in the end *c*, of sleeve D, projecting through the head A into the yoke and having a longitudinal aperture, the rollers C, and an external shoulder abutting against the outer face of the head A, the collar F on the sleeve within the yoke, a ring, *d*, between the collar F and the inner face of the head A, a series of loose rollers or balls, *c*, in the space between the collar, ring, and head, and the tapering shaft G, screw-threaded to engage the end *c*, substantially as set forth.

2. The combination, with the yoke B, having the circular head A at one end formed with a series of penetrating teeth on its forward edge, and the internally-threaded opposite end, *c*, of the shouldered sleeve D, extending through the circular head and provided with the roller C and the retaining-collar F, and the tapering threaded shaft G, substantially as set forth.

350,702. CORKSCREW. WILLIAM SCHOLLHORN, New Haven, Conn. Filed May 10, 1886. (No model.)



Claim.—In a corkscrew having a handle across the shank of the screw at right angles thereto, the combination therewith of a stopper made from flexible material and attached to one end of the said handle, substantially as described.

350,703. NECKTIE-FASTENER. FREDERICK STANDISH, Shelton, Conn. Filed July 23, 1886. (No model.)



Claim.—1. A necktie-fastening comprising a clasp held to the tie and having opposite yielding hooks, *d' d'*, and a stud provided with holes e^3 e^3, to which the clasp-hooks are adapted, substantially as described, for the purposes set forth.

2. A necktie-fastening comprising a clasp held to the tie and made of elastic wire, and with opposite normally expanding or separating arms having hooks *d' d'* at their extremities, and a stud provided with holes e^3 e^3, to which the clasp-hooks are adapted, substantially as described, for the purposes set forth.

3. A necktie-fastening comprising an elastic clasp, D, held to the tie and formed with opposite normally expanding or separating arms having hooks *d' d'* at their extremities and lateral projections d^2 d^2, and a stud, E, provided with holes e^3 e^3, to which the clasp-hooks are adapted, substantially as described, for the purposes set forth.

4. The combination, with a necktie having a back plate, B, provided with a slot, *b*, of a clasp, D, having opposite arms carrying hooks *d' d'* at their extremities, said hooks passing through the slot *b* of plate B, fastenings holding the clasp to said plate, and a stud, E, having holes e^3 e^3, to which the clasp-hooks are adapted, substantially as shown and described.

5. As an improved article of manufacture, the necktie-fastening clasp D, made of elastic wire and with a coil, *d*, opposite arms provided with hooks *d' d'* at their extremities, and with intermediate lateral projections, d^2 d^2, and adapted to a suitable button, substantially as shown and described.

6. As an improved article of manufacture, the necktie-fastening stud E, formed with a head, *e*, shank *e'*, and a back yoke, e^3, having opposite holes, e^3 e^3, and adapted to a suitable clasp on a necktie, substantially as shown and described.

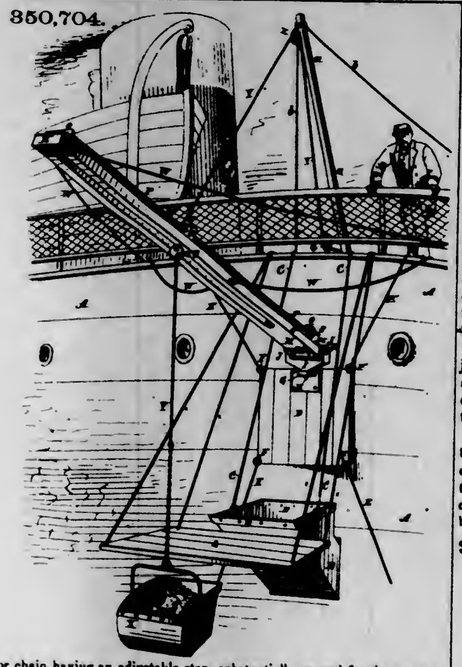
350,704. FREIGHT-HANDLING MECHANISM. DREW STEVENS, Liverpool, England. Filed June 3, 1886. (No model.)

Claim.—1. A freight-handling mechanism for vessels, containing the following elements, namely: a boom supported at one end on the vessel and jointed to swing vertically and laterally therefrom, a pulley-wheel and devices for longitudinally adjusting the pulley on said boom, a hoisting-rope, the latter passing over the adjustable pulley, to lift and swing in the cargo, and guy-ropes to steady the boom, all in combination, as herein shown and described.

2. The longitudinally-slotted boom carrying the parallel screws having actuating mechanism, in combination with the pulley, with its axis supported in nuts traveling upon said screws, substantially as and for the purpose set forth.

3. The longitudinally-slotted boom carrying the parallel screws having actuating mechanism, in combination with the pulley with its axis supported in nuts traveling upon said screws, and the hoisting rope

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or chain having an adjustable stop, substantially as and for the purpose specified.

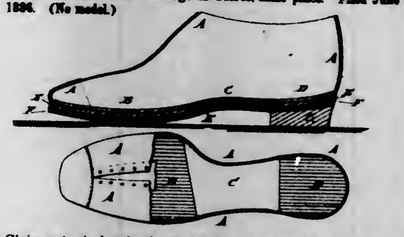
4. The combination, with the skid having upon its one side, at the upper edge, a socket or eye, of the boom and its pivot-supporting bracket or bar, having a central pivot entering the eye or socket of said skid, substantially as and for the purpose described.

5. The combination, with the boom and its pivotal pin and bracket or bar, of the spring connected to said bracket or bar and pin, substantially as and for the purpose specified.

6. The combination, with the adjustable skid, of the boom and its pivot-supporting bracket or bar having a pivotal connection with said skid, substantially as and for the purpose specified.

7. In a freight-handling mechanism for vessels, the combination, with the boom N, coupling-bar I, and rod K, of the spring L and means for supporting the coupling or pivotal bar, substantially as and for the purposes specified.

350,705. BICYCLE-SHOE. THOMAS J. STRICKLAND, Randolph, Mass., assignor to himself and George L. Pierce, same place. Filed June 15, 1886. (No model.)



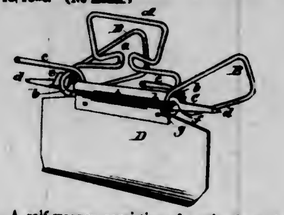
Claim.—1. A shoe having its insole composed of the end pieces, B D, and the intermediate or shank portion, C, of greater flexibility than the said end pieces, substantially as described.

2. As an improved article of manufacture, a shoe having an inner sole composed of the end pieces, B D, and the intermediate or shank portion, C, of greater flexibility than the said end pieces, and an outer sole composed of the inner layer, E, and the outer layer, F, of greater flexibility than the inner layer, as set forth.

350,706. COMPOSITION FOR TANNING. MARY SUTHERLAND, Diamond, Mo. Filed Dec. 19, 1885. (Specimens.)

Claim.—The herein-described composition of matter to be used in tanning hides, which consists of water, extract of cockle-burr, terra-japonica, extract of hemlock, and commercial sulphuric acid, substantially in the proportions specified.

350,707. CALF-WEANER. WILLIAM H. TYLER, David City, Nebr. Filed July 13, 1886. (No model.)

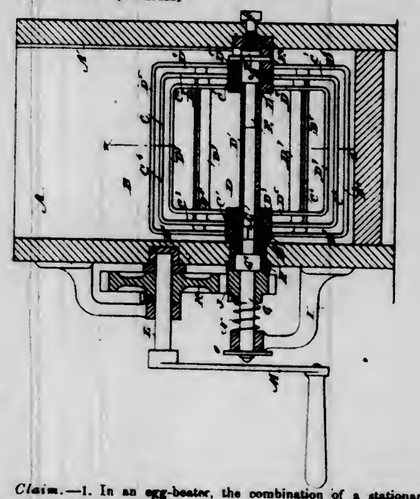


Claim.—1. A calf-weaner consisting of a wire frame formed with inwardly-projecting loops *a* for insertion in the animal's nostrils, the eyes *b*, and rearwardly-projecting side guard-loops, B, the bar C, secured in the eyes *b*, and the apron D, suspended from the said bar, substantially as herein shown and described.

2. In a calf-weaner, the frame A, formed with the inwardly-projecting loops *a*, the eyes *b*, the rearwardly-projecting guard-loops B, and the forwardly-projecting arms *c*, in combination with the bar C, secured in the said eyes, and the apron suspended from the bar, substantially as herein shown and described.

3. As an improved article of manufacture, a calf-weaner formed of the wire frame A, having loops *a*, eyes *b*, side loops, B, and projecting ends *c*, the cross-bar C, provided with the lug *e*, and eye *f*, inserted in the eyes *b* of the frame A, the apron D, provided with the eye *h*, received on the bar C, and the spring-key *g*, inserted in the eye *f* of the bar C, substantially as shown and described.

350,708. EGG-BEATER. WM. VERKINS, Jersey City, N. J. Filed Mar. 11, 1886. (No model.)



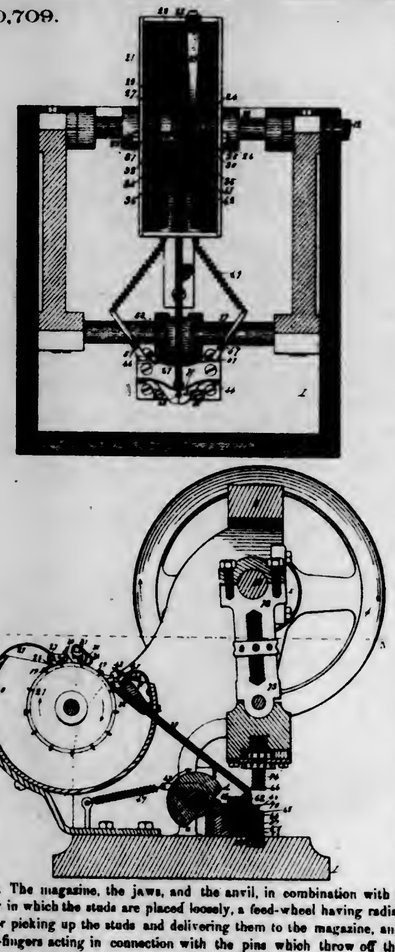
Claim.—1. In an egg-beater, the combination of a stationary frame, a spindle supporting the said frame, and a keeper on which rests the square outer end of the said spindle with a revolving double frame, and a shaft which supports the said double frame on one end, the other end being supported by the said spindle, substantially as shown and described.

2. In an egg-beater, the combination of a stationary frame, a spindle supporting the said frame, a keeper on which rests the outer end of the said spindle, and a revolving double frame supported on one end by the square end of the driving-shaft, and on the other end by the said spindle, with a driving-shaft provided with a pinion meshing into a cog-wheel mounted on a shaft provided with a crank-arm, a spring coiled on the driving-shaft, and a plate or button attached to the outer end of the driving-shaft, substantially as shown and described.

350,709. MACHINE FOR FEEDING AND SETTING STUDS. JULES WEISSER, Bridgeport, Conn., assignor to the Hitz & Benins Manufacturing Company. Filed July 3, 1886. (No model.)

Claim.—1. In a machine for setting studs, rivets, &c., a hopper in which the studs are placed loosely, a feed-wheel having radial pins in pairs, which pick up the studs, and a magazine which receives them, in combination with jaws actuated by a cam, and springs, substantially as described, by which the studs are grasped and carried forward, and a hammer and anvil by which they are set while held in the jaws.

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2. The magazine, the jaws, and the anvil, in combination with a hopper in which the studs are placed loosely, a feed-wheel having radial pins for picking up the studs and delivering them to the magazine, and spring-fingers acting in connection with the pins which throw off the studs when not picked up in the proper manner.

3. The hopper and feed-wheel, in combination with a magazine, wheel 41, pivoted therein to guide the studs, and tube 39, which forms a continuation of the magazine.

4. The hopper and the feed-wheel having pins 23 projecting radially from its periphery in pairs, in combination with the magazine, wheel 41, pivoted therein, and having pairs of arms which receive the studs and guide them into the magazine, and a spring, 43, which holds said wheel against movement except as it carries forward a stud.

5. The hopper, the magazine, and the feed-wheel having pins 23, which pick up the studs in the hopper, in combination with pivoted fingers, substantially as described, which engage the periphery of the feed-wheel, and means, substantially as described, whereby said fingers are caused to throw off the studs when not properly picked up by the pins.

6. The hopper, the magazine, and the feed-wheel having pins 23 and a groove, 22, in its periphery, in combination with pointed fingers, substantially as described, which engage said groove, and means, substantially as described, operating in connection with said fingers, whereby the studs are thrown off from the periphery when not properly picked up by the pins.

7. The hopper, magazine, and feed-wheel having pins 23, in combination with pivoted arm 24, carrying pins 27 and 30, finger 28, carried by pin 27, and spring 29, which holds said finger in operative position.

8. The hopper, magazine, and feed-wheel having pins 23 and groove 22, in combination with pins 27 and 30 and a downwardly-projecting finger, 28, carried by pin 27, pins 27 and 30 being so arranged relatively to the pins 23 upon the feed-wheel that finger 28 is lifted up by one pair of pins as its point approaches the next pair, whereby the point of the finger is caused to pass over the head of a stud in proper position or to lift a stud out if not in proper position.

9. The hopper, magazine, and feed-wheel having radial pins 23, in combination with a finger, 34, carried by a sleeve, 33, and a spring, 36, whereby said finger is kept in engagement with the periphery of the wheel, the point of said finger being so curved that it will pass over the head of a stud in proper position, and will pass under a stud not in proper position and throw it off.

10. The hopper, magazine, and feed-wheel having radial pins 23, in combination with sleeve 33, spring 36, and a finger, 35, carried by said sleeve, which extends down as far as the periphery of the feed-wheel, but slightly at one side of the groove, whereby pins lying crosswise are thrown off.

11. The hopper, magazine, and feed-wheel, in combination with spring-fingers 28, 34, and 35, which engage the studs picked up by the feed-wheel, said fingers being so constructed and arranged as to pass over the heads of studs properly picked up and to throw off all studs not properly picked up.

12. The hopper, magazine, and feed-wheel having groove 22 and pins 23, in combination with arm 24, carried by loose sleeve 25, and having pins 27 and 30, and a finger, 28, carried by pin 27, which engages said groove, but is raised out at the instant each pair of pins 23 engages pin 30.

13. The hopper, magazine, and feed-wheel having pins 23, in combination with pivoted arm 24, finger 28, spring 29, and pin 30, which is adapted to engage pins 23 to raise finger 28, as and for the purpose set forth.

14. The hopper, feed-wheel having pins 23 and groove 22, finger 28, which engages said groove, and means, substantially as described, for operating said finger, in combination with the magazine, which receives the pins, and tube 39, which conducts them away.

15. The hopper and feed-wheel having groove 22 and pins 23, in combination with finger 28, means, substantially as described, for operating said finger, the magazine, and guide-wheel 41, pivoted therein.

16. The hopper, feed-wheel, magazine, and tube, in combination with slide 45, means, substantially as described, whereby it is reciprocated, and jaws 48.

17. The tube and block 62, having notch 70, in combination with jaws having recesses 63, slide 45, by which the jaws are carried, cam 18, and springs 49, by which the slide is reciprocated and the jaws opened and closed.

18. The slide having stump 46, and the jaws and clamping-arms carried by said slide, in combination with cam 18 and springs 49, as and for the purpose set forth.

19. The slide, the clamping-arms pivoted thereto and carrying the jaws, and springs 49, connected to said clamping-arms and to the bed of the machine, in combination with a cam, 18, the periphery of which engages said slide to impart reciprocatory motion, and whose opposite faces are engaged by the clamping-arms to open and close the jaws.

20. The slide, clamping-arms pivoted thereto, the jaws made integral with the arms, and spring projections 51 upon said arms, in combination with springs 49 and cam 18, as described, and for the purpose set forth.

21. The tube and block 62, in combination with spring-actuated sleeve 56, beveled arm 59, projecting from said sleeve, and clamping-arms which carry the jaws, and are provided with curved projections 67, which engage the beveled arm and force the sleeve down as the jaws move forward, as and for the purpose set forth.

22. Supply-tube 39 and slide 45, carrying the jaws and clamping-arms, in combination with cam 18 and springs 49, whereby the slide and jaws are operated, and an anvil and hammer, substantially as described.

23. The supply-tube and slide having recess 69, and spring-arms carrying the jaws pivoted thereto, in combination with cam 18 and springs 49, which control the movements of the slide and jaws, guide-block 62, and the spring-actuated sleeve which supports the studs until they are grasped by the jaws.

24. The combination, with the slide and clamping-arms having curved projections 67, and the jaws, of a spring-actuated sleeve, 56, having a beveled arm, 59, adapted to engage projections 67, whereby said sleeve is forced down out of the way as each stud is carried forward by the jaws.

25. The slide having plate 68, with depending sleeve 76, rod 55, carrying spring-actuated sleeve 56, and beveled arm 59, projecting from said sleeve, in combination with cam 18, clamping-arms pivoted to the slide, and the jaws carried thereby.

26. Guide-block 62, having notch 70, and spring 71, whose ends rest in front of said notch, in combination with spring-actuated sleeve 56, the slide, and the jaws carried thereby.

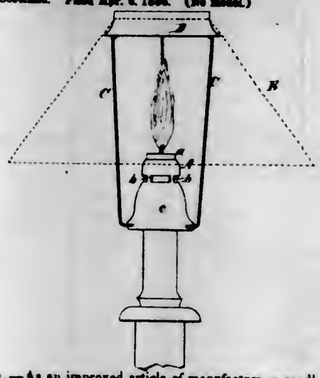
27. The combination, with devices for automatically feeding the studs, of a pair of jaws carried by a slide, an anvil, and mechanism—for example, cam 18 and springs 49—whereby the slide is actuated and the jaws are caused to grasp each stud and carry it forward to the anvil.

28. The combination, in a stud feeding and setting machine, of a conveying-tube, 39, an anvil, jaws carried by a slide, and mechanism—for example, cam 18 and springs 49—whereby the slide is actuated and the jaws are caused to seize each stud and carry it forward to the anvil.

29. The combination, with devices, substantially as described, for automatically feeding the studs, of guide-block 62, which receives the studs and is provided with a notch, 70, spring-actuated sleeve 56, and springs 71, whereby the studs are held in position to be grasped.

30. The combination, with automatic feeding devices, jaws carried by a slide, and mechanism for actuating said jaws and slide, of a spring-actuated sleeve whose upper end serves as a cup to receive the studs, and which is provided with a beveled arm adapted to be engaged by projections 67 to force said sleeve down out of the way when the jaws move forward with the stud.

350,710. CANDLE ATTACHMENT. George Weyer, Northview, Elgin, Scotland. Filed Apr. 6, 1886. (No model.)



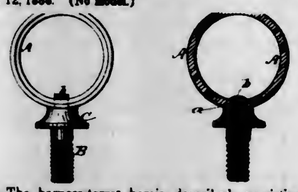
Claim.—As an improved article of manufacture, a candle attachment formed of a dome-shaped cap, A, weight-casing c, and bars *b*, connecting the cap and weight-casing, an annular weight, B, of material such as lead, having low conductivity for heat, cast in or fitted to the casing c, the wire standards C, secured to the lower part of the weight-casing c, and the flaring ring D, secured to the upper ends of the wire standards C and adapted to support the candle-shade, substantially as shown and described.

350,711. Inhaler. Edwin B. Adams, Springfield, Mass. Filed Oct. 14, 1885. (No model.)



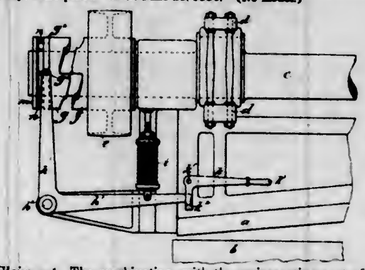
Claim.—An inhaler for medicated vapors, consisting, essentially, of a cylindrical shell or casing, *a*, having an opening leading to the exhaling-chamber, and provided with a face-piece or hood, *k*, an end partition, *c*, arranged across the casing and formed with valve-openings, a partition, *b*, arranged between the end partition and the open end of the casing, and formed with an opening provided with a perforated cover, *o*, a radially-arranged partition, *d*, between the said partitions *b c*, to form the chambers *g h*, a valve, *e*, to close the opening in the partition *c* to the chamber *h* from without, and a valve, *f*, to close the opening to the chamber *g* from within, substantially as described.

350,712. Harness-Terret. Thos. S. Alexander, Meriden, Conn. Filed Mar. 12, 1886. (No model.)



Claim.—The harness-terret herein described, consisting of two parts, the plain ring having the opening *a*, and the attaching part having the integral screw-shank B, the pin *b*, and the intermediate shoulder C, the two parts being united by upsetting the pin *b* after it is passed through the opening, as specified.

350,713. Clutching Device for Metal-Shears. Reade W. Bailey, Pittsburg, Pa., assignor to the Robinson-Rea Manufacturing Company, same place. Filed June 22, 1886. (No model.)

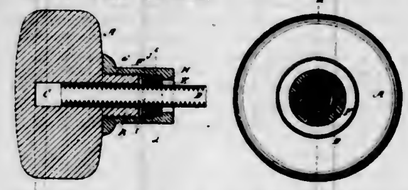


Claim.—1. The combination, with the reciprocating part of a machine and a clutch connected therewith so as to be disjoined automatically by movement thereof, whereby the driving mechanism of the said reciprocating part is thrown out of gear, of mechanical devices loosely connecting the clutch with said reciprocating part, so that part of the motion thereof shall not operate the clutch, and mechanism connected with the clutch and arranged to acquire potential energy of less force than the frictional resistance of the clutch during the loose motion of the reciprocating part, and to react on the clutch when the frictional resistance of the clutch is diminished, substantially as and for the purposes described.

2. The combination, with the reciprocating part of a machine and a clutch connected therewith so as to be disjoined automatically by movement thereof, whereby the driving mechanism of said reciprocating part is thrown out of gear, of a lever connecting the clutch and said reciprocating part and a spring interposed between the clutch and the lever, substantially as and for the purposes described.

3. The combination, with the reciprocating part of a machine and a clutch connected therewith so as to be disjoined automatically by movement thereof, whereby the driving mechanism of said reciprocating part is thrown out of gear, of a ring or collar mounted on the clutch and movable loosely thereon, a spring interposed between the ring and the clutch, and a lever connecting the ring with the said reciprocating part, substantially as and for the purposes described.

350,714. Knob Attachment. Joseph Bardsley, Newark, N. J. Filed June 1, 1886. (No model.)



Claim.—In combination with the door-knob containing the plain-sided recess C, and having an externally-threaded shank, B, the threaded spindle entering said recess, the internally-threaded stop E on the spindle, and the internally-threaded coupling-sleeve F, which at one end engages the knob-shank and firmly impinges the knob, and at the other incloses the stop and has an inwardly-projecting shoulder, H, in contact with said stop, substantially as shown and described.

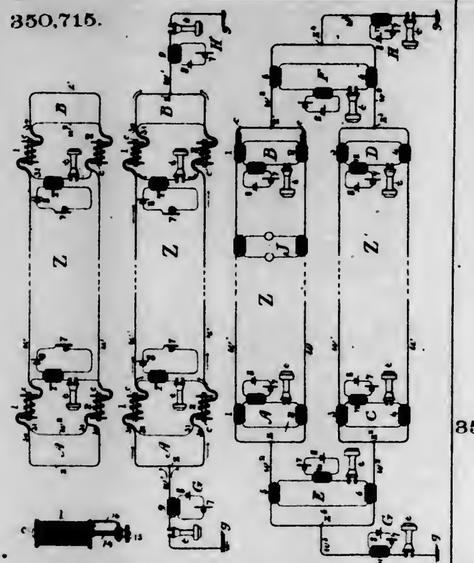
350,715. Telephone-Circuit. John A. Barrett, Brooklyn, assignor to the American Telephone and Telegraph Company, New York, N. Y. Filed July 19, 1886. (No model.)

Claim.—1. The combination, with a metallic or double-wire main circuit, of local circuits at two or more stations located upon the said main circuit, the said local circuits including telephone-instruments, and being connected with the main circuit by means of induction-coils, substantially as specified herein.

2. The combination, substantially as hereinbefore described, of a metallic or double-line main circuit and local telephone-circuits at the stations located upon the said main circuit, each of the said local circuits including telephones, and being connected with the said main circuit by means of induction-coils, one of the said coils being included in the outgoing and the other in the incoming line-wire of the said metallic circuit.

3. The combination, at a telephone-station, of a metallic or double-wire main circuit, a local circuit including telephones, and two induction-coils, one wire of both of the said induction-coils being included in the said local circuit, and the other wire of the said coils being included one in each line-wire of the double-wire circuit, as and for the purposes set forth.

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4. The combination, in a system of telephonic communication, of a metallic or double parallel-line circuit extending between two or more stations, of local circuits, including telephone apparatus, connected by means of induction-coils with both sides of the said double-line main circuit, and earth branches, including telephones, connected with the said metallic circuits at the terminal stations thereof and at a point between the said induction-coils, whereby the stations inductively connected with the double-line circuit may be enabled to communicate with one another to the exclusion of the earth-branch stations, and vice versa, as hereinbefore described.

5. In a system of telephonic communication, a metallic or double parallel-line main circuit, a series of local circuits, each including telephones, induction-coils, two for each local circuit, connecting the said local circuits with both sides of the main circuit, one wire of each coil of a pair being included in the local circuit, and the remaining wire of the two coils being interposed, one in each line of the metallic circuit, and earth-branch circuits, with telephones included therein, united to the said metallic circuits at the terminal stations thereof and at a point substantially equidistant from both induction-coils, substantially as and for the purposes hereinbefore described.

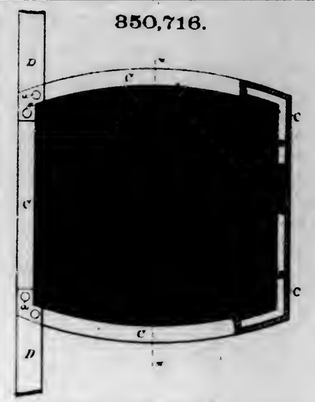
6. The combination, substantially as hereinbefore described, of a main metallic or double-line circuit, a series of local circuits, each including telephones, and each connected by means of induction-coils with both sides of the double-line circuit, earth branches connected with the said metallic circuit at the termini thereof and at a point thereof between the said induction-coils, and adjusting devices whereby the inductive power of the said coils may be varied, so that currents passing between the earth branches may be accurately balanced in the two induction-coils, and so that their effect upon the local-circuit receiving-instruments may be neutral.

7. The combination, in a system of telephonic communication, of a metallic or double parallel-line circuit, earth branches, including telephone apparatus, connected with the metallic circuit at both termini, a series of local circuits including telephones, and a pair of induction-coils for each local circuit, whereby the said local circuits are inductively connected with both sides of the metallic circuit, as herein described, the said induction-coils having their two wires wound together being of approximately equal resistance and inductive power, and being provided with adjustable cores, whereby communication may be individually maintained between the several local-circuit instruments and between the earth-branch instruments, substantially as set forth.

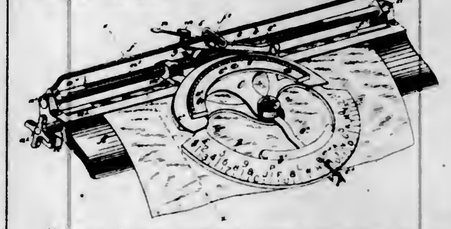
350,716. BLINDER FOR BRIDLES. William W. Beach, New York N. Y., assignor to David R. Hoyt, Brooklyn, N. Y., and Randolph M. Stalls, Plainfield, N. J. Filed June 27, 1884. (No model.)

Claim.—The combination, with the foraminated piece or sheet A and its circumferential sheet-metal rim B, folded and compressed thereon, as described, of the outer layer or thickness, C, of celluloid or equivalent plastic material, all substantially as and for the purpose herein set forth.

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350,717. TYPE-WRITING MACHINE. John Bekker, Boston, Mass., assignor to the World Type Writer Company, Portland, Me. Filed Jan. 20, 1886. (No model.)



Claim.—1. In a type-writer, the movable index-plate, the type-carrying segment pivoted thereon, and the operating-lever for moving the type-carrying segment, combined with an independent printing-lever pivoted to the index-plate and constructed and arranged to bear upon the type-segment to print when depressed, substantially as described.

2. In a type-writer, the movable index plate, the type-carrying segment pivoted thereon, and the operating-lever for moving the type-carrying segment, combined with a printing-lever pivoted to the index-plate, a lug, c^3, and an adjusting-stop, m, carried by said printing-lever, all substantially as and for the purpose set forth.

3. In a type-writer, the feed-bar and movable index-plate mounted thereon, combined with the pivoted printing-lever and rocking lever for operating said printing-lever, the axial centers of the pivots of said printing-lever and rocking lever being at right angles with relation to each other, so that the printing-lever may be parallel with and move back and forth upon the rocking lever, all substantially as described.

4. In a type-writer, the feed-roll and guard, combined with the feed-bar, and movable index-plate mounted to move laterally and to rotate on said feed-bar and normally bearing upon said guard, said index-plate being constructed and arranged to support the printing mechanism and its co-operating parts, all substantially as described.

5. In a type-writer, the index-plate and type-carrying segment pivoted thereon, and the centering device mounted upon said type-carrying segment and having a series of holes, 4, combined with the printing-lever having the centering-pin 5, to enter the said holes 4, all as set forth.

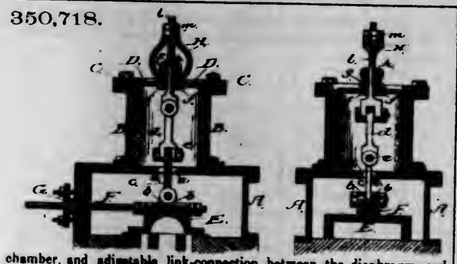
6. In a type-writer, the movable index-plate, and the type-carrying segment pivoted thereon, combined with the pivoted printing-lever, the feed-dog, and feed-bar, the spring-plate n, attached to said pivoted printing-lever, and a limiting-stop for the said plate n, all substantially as described.

7. In a type-writer, the movable index-plate, and inking pads or cushions, and the type-segment to be brought in contact with the inking pads or cushions, combined with the pivoted printing-lever, and the springs c^4 c^4, to bear upon the type-segment as the printing-lever is depressed, substantially as described.

350,718. BALANCED SLIDE-VALVE. William I. Beeth, Orange, Tex., assignor of one-half to D. Morrison, same place. Filed June 23, 1886. (No model.)

Claim.—1. The steam-chest, a valve sliding therein, and a chamber above the steam-chest and in communication therewith, in combination with a frame, H, and a diaphragm, D, mounted on top of the

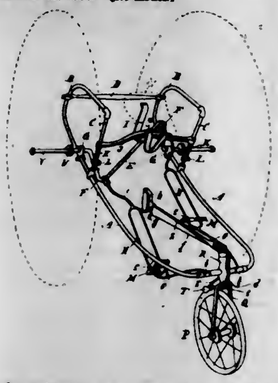
350,718.



chamber, and adjustable link-connection between the diaphragm and valve, whereby the latter may have longitudinal and lateral adjustment, substantially as described.

2. The steam-chest, a valve sliding therein, a chamber on top of the steam-chest, and a diaphragm in the top of the chamber and secured by a cap or plate, in combination with a frame, H, having a packing-box and gland, an adjustable threaded stem or bolt passing through the frame, and the double-link connection between the said stem and valve, substantially as described.

350,719. VELOCIPEDE. David Black, Toledo, Ohio, assignor of three-fourths to Isaac N. Humphrey and John T. Greer, both of same place. Filed Feb. 25, 1886. (No model.)



Claim.—1. In a tricycle, a pedal-movement consisting of bifurcated pedal-levers provided with knuckle-joints at or near their center, which form the pivots for the pedals, which pedals work between the bifurcations of said levers, said pedal-levers being journaled at one end to the cranks and at the other to the frame, substantially as described.

2. In a tricycle, the combination of the frame forming a continuous front and side rail, of the double-throw crank-axle journaled in bearings clipped to the side rails, and having the cranks formed near said bearings and connected by a straight portion of the axle, of the pedal-levers provided with knuckle-joints and journaled at one end to the cranks and at the other to the frame, and of the bends i in said pedal-levers, all arranged substantially as and for the purposes described.

3. In a tricycle, a supporting-frame forming a continuous rail on the front and sides, and provided with upward return-bends terminating in vertical standards, which are secured to the side rails, combined with the cross-bar J, sliding on said standards, and the springs R on said standards beneath said cross-bars, substantially as specified.

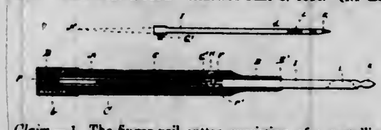
4. In a tricycle, the combination of a supporting-frame forming a continuous rail in front and on the sides, and having an upward return-bend terminating in vertical standards C, in combination with the cross-bar J, guided upon said standards, substantially as described.

5. In a tricycle, the combination of a supporting-frame consisting of a continuous rail forming the side rails and front rail, of the cross-coupling R in the front rail, of the bar D, connecting the return-bends B, and of the double-throw crank-axle E, running in bearings G, clipped to the side rails, and extended parallel with said side rails, as shown, to bring the cranks in proximity to said rails, all arranged substantially as described.

6. In a tricycle, in combination, the standards C, the cross-bar J, the coil-springs K, the double-curved spring-bar I, saddled upon the cross-bar J, and the seat H, all arranged substantially as described.

7. In a tricycle, in combination, the seat H, the double-curved spring-bar I, saddled upon the cross-bar J, the cross-bar J, the coil-springs K, the set-collar L, and the standard C of the frame, all arranged substantially as described.

350,720. FINGER-NAIL CUTTER. George H. Coates, Worcester, Mass. Filed June 4, 1884. Renewed June 3, 1886. (No model.)



Claim.—1. The finger-nail cutter consisting of a metallic bar or blade having a slit or mortise extending through the bar, with the end walls of the slit or mortise forming an acute angle with one side of the bar or blade, so as to form cutting-edges, said end walls being curved for the purpose of forming sharp cutting-edges on one side and reducing the length of the mortise on the other side of the blade, as and for the purpose set forth.

2. The combination, with a hollow shell or case forming a handle, of a metallic bar or blade sliding therein and having a mortise or slit extending through said bar, one or both ends of said slot making an acute angle with one side of said bar or blade and forming a cutting-edge, said ends of the slit being curved, as and for the purpose set forth.

3. The finger-nail cutter consisting of a blade having file-teeth formed upon its flat sides, and having a slit or mortise extending through said blade from one plane side or edge to the other, the end walls being curved, as described, and forming acute angles with one of the plane surfaces of the blade, as and for the purpose set forth.

4. The combination, with a shell or case having on its interior surface an incline or tapering section, of a split elastic tube sliding in said shell or case, with its split end flaring to fit the tapering section of the shell, a spring acting on the sliding tube to draw its flaring end against the inclined surface of the shell, thereby contracting the diameter of the tube, and a sliding bar or blade carrying a nail-cutter, as and for the purpose set forth.

5. The combination, with a shell or case having an interior incline or tapered section, of a sliding split tube having an exterior incline or tapered section fitting the tapered section in the shell, and having a slot, E, and a lug or bar, H, extending across said slot, and a sliding blade, I, carrying a nail-cutter, and having a pin, G', entering the slot E, as and for the purpose set forth.

6. The combination, with a split elastic tube having a slot, E, with a circular enlargement, G, of a sliding blade, I, pin G', entering the slot E, and means for compressing the split elastic tube and contracting the slot E upon the pin G', as and for the purpose set forth.

7. The combination, with the shell A, sliding split elastic tube C, and blade I, held in the tube C, substantially as described, of the cap D, having slot P, to allow the end of the blade to pass through the cap, as and for the purpose set forth.

350,721. SPECULUM. William D. Cooper, Wayne, Mich. Filed May 25, 1885. (No model.)



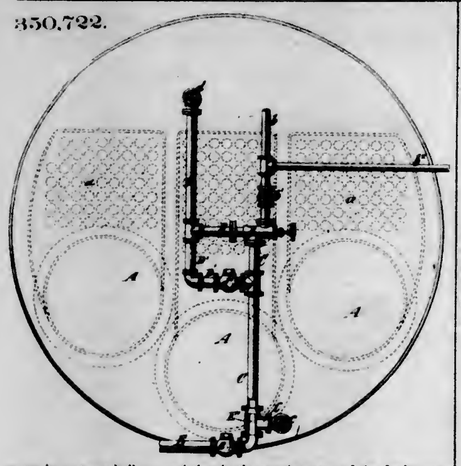
Claim.—The combination, with the hollow handle G, ferrule F, and nut E within said ferrule, of the yokes L, the levers B C, having the ends of their shanks pivotally connected with said yokes, and the lever A, having threaded shank D, engaging the nut E in the handle, and guides for the upper ends of said shanks, substantially as described.

350,722. METHOD OF CIRCULATING WATER IN BOILERS. William Crabb, Brooklyn, N. Y. Filed Mar. 24, 1885. (No model.)

Claim.—1. The improvement in the method of producing the circulation of water in a steam-boiler having internal furnaces, consisting in withdrawing water from the bottom of the boiler by an injecting current of feed-water, in mingling together the feed-water and the water so taken from the bottom of the boiler, and in discharging the mingled feed-water and the water taken from the bottom of the boiler, without further subjecting them to the heat of the fire in the furnaces, into the upper part of the boiler, substantially as and for the purpose herein described.

2. The improvement in the method of producing the circulation of

350,722.



water in a steam-boiler, consisting in the employment of the feed-water as an injecting-current, whereby a flow of water is induced from one part of the boiler outward to the exterior of the boiler, in mingling the feed-water with the water so taken from the boiler, and in the employment of an injecting-current of steam, whereby the mingled feed-water and the water from the boiler are heated and discharged together into another part of the boiler, substantially as and for the purpose herein described.

350,723. VELOCIPEDE. William E. Crandall, New York, N. Y. Filed Aug. 31, 1886. (No model.)

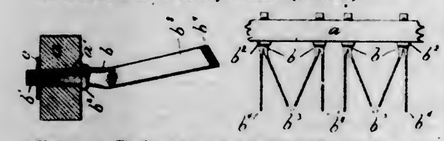


Claim.—1. In a velocipede, the combination of the reach B with the steering-post A, which is hinged thereto, and with the head or enlargement *b* on the steering-post, said head having projection *d*, that overlaps the front end of the reach, as specified.

2. The head or enlargement *b*, having grooves *f f*, combined with the uprights *e e* of the steering-post, that are let into said grooves, as set forth.

3. The diverging springs F F, having their ends turned up and toward each other, in combination with the seat E and reach B of a velocipede, as set forth.

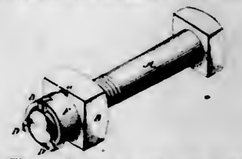
350,724. HARROW OR CULTIVATOR TOOTH. Thomas E. Davis, Hartford, Conn. Filed May 19, 1886. (No model.)



Claim.—1. The herein-described harrow-tooth, consisting, essentially, of a pivoting shank, *b'*, and a plurality of blades formed therewith, having their cutting-edges extending at an angle or angles therefrom and at angles to each other, substantially as described.

2. In combination with the frame of a harrow or similar farm implement, the herein-described harrow-teeth, each consisting, essentially, of a pivoting shank, *b'*, and a plurality of blades formed therewith and having their cutting-edges extending at an angle or angles therefrom and at angles to each other, substantially as described.

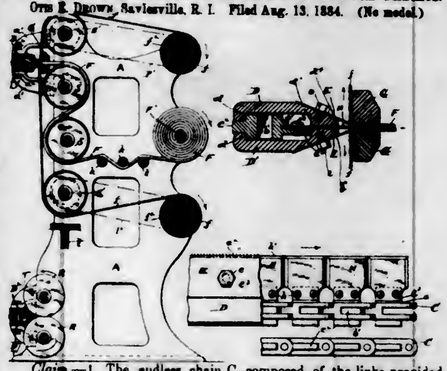
350,725. RETAINER FOR NUTS AND OTHER PORTIONS OF MACHINERY. Con Driscoll, Anaconda, Mont. Filed July 2, 1886. (No model.)



Claim.—1. The combination of a bolt with a soft-metal strip laid longitudinally on the bolt and confined by an outer ring, whereby said strip is caused to engage with the teeth or other projections of the bolt, all substantially as specified.

2. The combination of the bolt, the confining-ring, and a soft-metal strip interposed between said ring and the bolt and having an upturned end or head, forming an end bearing, all substantially as specified.

350,726. MACHINE FOR CUTTING DOUBLE PILED FABRICS. Otis R. Brown, Saylesville, R. I. Filed Aug. 13, 1884. (No model.)



Claim.—1. The endless chain C, composed of the links provided with lugs or wings c^2 c^3, and the plates or cutters H, secured to the said lugs c^2, and having the spaces *b'* in said links, substantially as shown, and for the purpose set forth.

2. The combination, with the supporting or main frame A, stationary guides D D', and means, substantially as described, for adjustably securing said guides to the frame A, of top and bottom comb-plates, E, and means, substantially as described, whereby the comb-plates are adjustably secured to the said guides, as and for the purpose hereinbefore set forth.

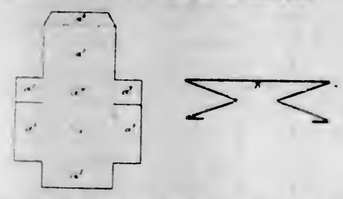
3. The frame A, the cutter-carrying chain C, wheels B B', shafts T T', guides D D', upper and lower comb-plates, E, means whereby the comb-plates are adjustably secured to the guides, top and bottom brackets, *a'*, substantially as described, and means whereby the said brackets are adjustably secured to the frame A, in combination with stretchers S S, each having cams s^2, guide-wheels s^3, bars *z*, and wheels s^4, connected with said bars, upper and lower friction-rolls, *s'*, means, substantially as shown and described, for driving said stretchers and rolls, consisting of the shaft t^2, gears t^3 *i*, and the guides G, secured to the frame A, the whole arranged as described, whereby both surfaces of the fabric F in running over said stretchers are smoothed and expanded laterally before passing between the guides G to the traveling cutters H, as hereinbefore set forth.

4. The stretchers S S, mounted one over the other in the frame A, each having cams s^2, guide-wheels s^3, wheels s^4, and bars *z*, and means, substantially as described, for operating the same, in combination with the guides G, secured to said frame A, friction-rolls *s'*, and means, substantially as described, for operating the same, the cutter-carrying chain C, wheels B B', upper and lower guides, D D', the frame A, brackets *a'*, means whereby said brackets are adjustably secured to the frame, comb-plates E, and means whereby the comb-plates are adjustably secured to the guides D D', the whole arranged substantially as shown, and for the purpose set forth.

5. The combination, with the cutter-carrying chain C, wheels B B', and means, substantially as shown and described, for adjustably securing the wheel B' in position, of two grinding or sharpening wheels, R, frames M M', standard L L', means, substantially as described and shown, for driving the wheels R in opposite directions and adjusting the frames M M', the upper and lower guides, D^2, frame A, brackets *r*, and means whereby said brackets are adjustably secured to the frame, said chain passing freely between the said guides, so that the cutting-edges of the knives H pass between the oppositely-revolving sharpening-rolls, substantially as shown, and for the purpose set forth.

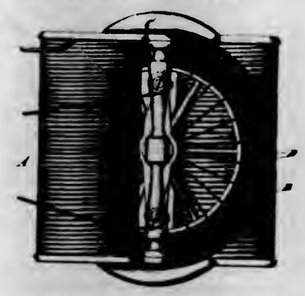
6. The combination, substantially as hereinbefore set forth, of the cutter-carrying chain C, guides D D', frame A, brackets *a'*, means for adjustably securing said brackets to the frame, comb-plates E, means for securing the comb-plates to the guides D D', the sprocket-wheel B, shaft T, having the said wheel secured thereto, wheel B', shaft T', carrying said wheel B', bearing T^4, means whereby said bearing is adjustably secured to the frame A, two geared stretchers, S S, substantially as described, over which the fabric F passes before being cut, guides G, secured to the frame A, between which the said fabric is presented to the cutters, upper and lower driven friction-rolls, *s'*, over which the cut webs *f* are carried, mechanism, substantially as described, for driving said stretchers and rolls, upper and lower grinding-rolls, R R, frames M M', standard L L', means whereby the frames M M' are adjusted, means for adjusting the standard L L' on the frame A, guides D^2, brackets *r*, means for adjustably securing the guides D^2 to the brackets *r*, means whereby said brackets are adjustably secured to the frame A, arbors *w*, carrying each a pulley, *w'*, and mounted in said frames M M', an idler-pulley, w^2, means for supporting said pulley, and means, consisting of the driven shaft *u*, pulley u^2, and belt u^3, whereby the pulleys *w'* are acted upon to drive the grinding-rolls, the whole constructed and arranged substantially as shown and described.

350,727. FOLDING PAPER BOX. Charles W. Elliott, Moncton, New Brunswick, Canada. Filed Apr. 8, 1886. (No model.)



Claim.—The folding box A, in combination with band B, substantially as and for the purpose set forth.

350,728. ELECTRIC MOTOR OR GENERATOR. Frank E. Fisher, Detroit, Mich. Filed Apr. 30, 1886. (No model.)



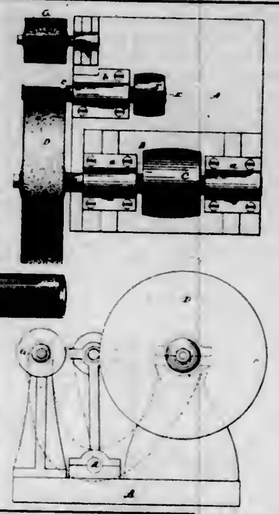
Claim.—1. An electric motor or machine consisting of two field-magnets connected by iron pole-pieces at their ends, an armature located and adapted to revolve in a plane between the planes of the field-magnets respectively, and diametrically between said pole-pieces, one of said field-magnets being located upon one side of the armature in advance of its axle, the other upon the other side of the armature and back of its axle, a series of bobbins on said armature connected into a single circuit, and said circuit adjacent to each bobbin being also connected with the commutator-segments, substantially as described.

2. An electric motor or machine consisting of two field-magnets connected by iron pole-pieces at their ends, an armature located and adapted to revolve in a plane between the planes of the field-magnets respectively, and diametrically between said pole-pieces, one of said magnets located upon one side of the axle of the armature and the other magnet located in advance of the same upon the other side of the axle of the armature and beyond the plane of revolution of the armature, substantially as described.

350,729. METHOD OF FINISHING CARTRIDGE-SHELLS. Herbert E. Fowler, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Jan. 9, 1886. (No model.)

Claim.—The herein-described method of finishing cartridge-shells, which consists first in giving to the surface of the shell a fine smooth finish, and then subjecting the surface of the shell, while rapidly revolving, to a fibrous working-surface, substantially as described.

350,729.



350,730. NEEDLE-HOLDER ATTACHMENT FOR SEWING-MACHINES. William L. Frost, Springfield, Ohio. Filed Feb. 25, 1886. (No model.)

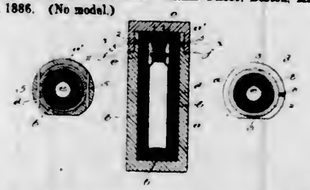
Brief.—The needle may be turned from its normal position to an angular position for greater convenience in threading.



Claim.—1. The combination, with the needle-bar and the needle-holding device adapted to turn to different angular positions, as described, of the spring-catch *f*, inclosed in the lower part of said bar and provided with a double-beveled portion adapted to engage a V-shaped notch in the movable part of the holder, and a square portion adapted to engage a straight notch in the immovable part of the bar, substantially as set forth.

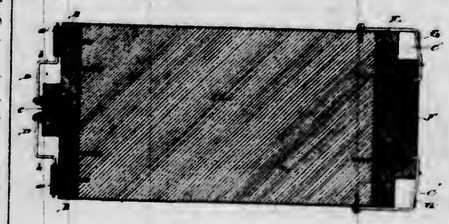
2. The combination, with the needle-bar, of the head *e* on the lower end thereof, the disk *d*, having a trunnion, *d'*, notch f^1, and lug d^2, and the spring-catch *f* in said head, said catch being provided at one end with the beveled portion f^2 and straight portion f^3, substantially as and for the purpose set forth.

350,731. BOTTLE-HOLDER. Stiles Frost, Boston, Mass. Filed Jan. 15, 1886. (No model.)



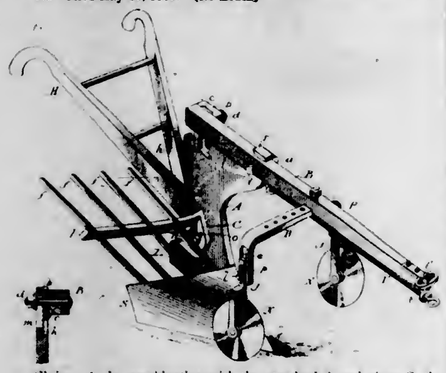
Claim.—In a bottle-holder, the case having a thick lining of bibulous paper, the cover of the case having a bibulous stopper to enter the space in the bibulous lining, substantially as described.

350,732. BOSOM-BOARD. Levi Funk, Waynesburg, Pa. Filed Mar. 10, 1886. (No model.)



Claim.—The board A, having a block, C, provided at its upper end, and narrow strips or cleats *a* at the ends of the board on each side of the block, in combination with the spring pressers or clamps D, formed of a single piece of wire bent or doubled at the center to form the two parallel arms, which are shouldered or bent upward, as at *b*, said arms being provided with eyes at their inner ends, which eyes are aligned with each other and pivoted to the block C, to allow the swinging of the clamps at right angles to the faces of the board, and the other or loop end of the clamps fitting around the cleats *a*, to hold the shirt over the same, for the purpose set forth.

350,733. POTATO-DIGGER. William T. Garrett, Johnsontown, Va. Filed May 26, 1886. (No model.)



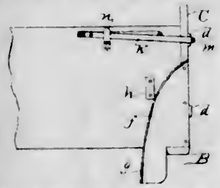
Claim.—1. In combination with the standard A and share S, the adjustable screen consisting of the backwardly-inclined rods *f*, having their front ends secured to the share S, and their rear portion supported on the adjustable bar I for changing the inclination of the screen, substantially as set forth.

2. In combination with the beam B, the yoke D, adapted to carry a rolling colter at each side, substantially as shown and described.

3. In combination with the beam B, the laterally-adjustable yoke D, having at each end a pendent arm, *p*, adapted to receive and hold the colter supports or holders J, substantially as and for the purpose set forth.

4. In combination with a plow or similar implement, the two colters N, each being arranged to be adjusted vertically independent of the other, substantially as set forth.

350,734. END-GATE FOR WAGONS. Harrison W. Gary, Plum Creek, Nebr. Filed Feb. 16, 1886. (No model.)

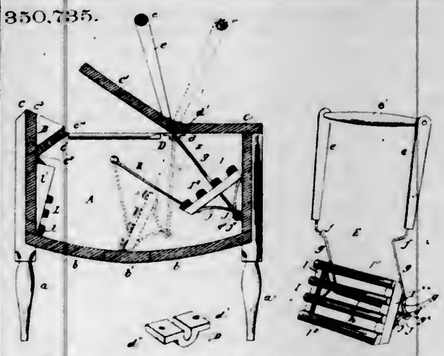


Claim.—1. The locking device and support for a wagon end-gate, consisting of the jointed and pivoted braces *k*, and the spring-clasps *n*, in combination with a wagon-box and an end-gate, substantially as shown and described, to operate in the manner stated.

2. An end-gate for wagon-boxes, having triangular-shaped skirt-pieces fixed to its ends and lower portion to project inward to overlap the sides of a wagon-box, and projections at the free corners of said pieces, jointed braces pivoted to the top portion and ends of the gate and also to the outside faces and top corner portions of the sides of a box, stops fixed to the outside faces of the sides of the box to engage the projections on the ends of skirt-pieces fixed to the ends of the gate, and clasps fixed to the same sides to engage the jointed braces, to operate in the manner set forth, for the purposes specified.

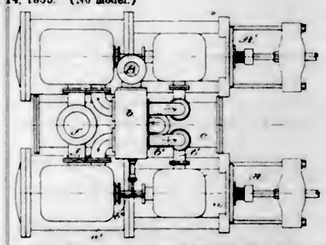
3. A wagon-box having side-boards A, and a fixed cleat, B, stops *h*, and clasps *n*, fixed to the said side-boards, and end-gate C, having fixed cleats *d*, and fixed skirt-pieces *f g*, and jointed braces *k*, pivoted to the sides of the box and the ends of the gate, constructed, arranged, and combined to operate in the manner set forth, for the purposes stated.

350,735. WASHING-MACHINE. David W. George, Milton, Iowa. Filed Mar 11, 1886. (No model.)



Claim.—In a washing-machine, the combination of a suds-box, a rigid inclined rubber therein, a bail journaled in the said suds-box, a swinging rubber having the supports pivotally mounted on the bail, and the links pivoted to the suds-box at a point between the rigid rubber and the journals of the swinging rubber, and to the lower free edge of the swinging rubber, for elevating the lower end thereof in its retrograde movement, substantially as described.

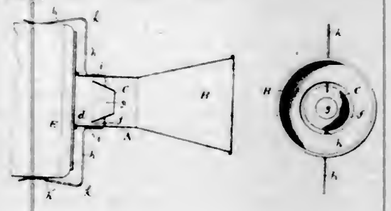
350,736. STEAM-ENGINE. Albert F. Hall, Boston, Mass. Filed Dec. 14, 1885. (No model.)



Claim.—1. A duplex compound direct-acting steam pumping-engine comprising two small or high-pressure and two large or low-pressure cylinders, a main steam-inlet passage, and the main exhaust-passage, combined with connecting-passages between the said cylinders and the main inlet and exhaust passages and the single controlling-valve governing the said passages, which valve in one position connects the exhaust of the high-pressure with the inlet-passage of the low-pressure cylinders, and in another position connects the inlet-passages of the low-pressure cylinders with the main inlet for the engine, and disconnects the exhaust-passages from the high-pressure cylinders from the inlet to the low-pressure cylinders and connects them with the main exhaust-passage, substantially as described.

2. The combination, with a duplex compound direct-acting steam-engine comprising two high-pressure and two low-pressure cylinders, of a chest receiving the actuating-fluid at full pressure and communicating with the inlet to the high-pressure cylinders, the said chest having a valve-seat with three ports and three independent chambers below them, and a slide-valve which may cover or uncover one of the end ports, and may connect the middle port with the one at either side of it, the chamber below the middle port receiving the exhaust from the high-pressure cylinders, and the chamber at one side of it being connected with the inlet to the low-pressure cylinders, and the chamber at the other side of it being connected with the main exhaust-passage to the engine, substantially as described.

350,737. TELEPHONE-TRUMPET. Edward L. Hall, Baltimore, Md., assignor to Louis Nelke, same place. Filed Mar. 3, 1886. (No model.)



Claim.—1. A trumpet for attachment to telephone-transmitters, comprising a tube with a flaring mouth, and a sound-wave divider having a central passage-way, *g*, and secured in the tube, and forming an annular passage-way, *f*, as set forth.

2. A trumpet for attachment to telephone-transmitters, comprising a tube with a flaring mouth, and a sound-wave divider having a ring shape and tapering like a frustum of a cone, and secured in the tube, as set forth.

3. A trumpet for attachment to telephone-transmitters, comprising a tube with a flaring mouth, and a ring-shaped sound-wave divider forming an annular passage-way, *f*, and two attached wires whose inner ends pass through the side of the tube and hold the said divider, while the outer ends serve as a clamp to grasp the transmitter-box, as set forth.

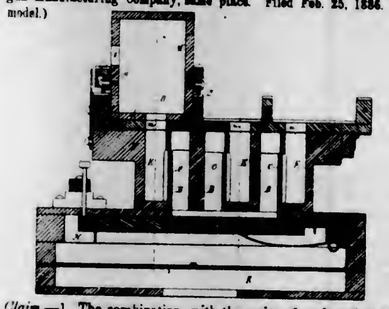
350,738. LOCK. Ephraim Hamburg, Detroit, Mich., assignor of one-half to Carl H. Michell, same place. Filed July 29, 1886. (No model.)



Claim.—1. The combination, with the latch A, having notch *c*, of the spring-pressed tumbler C, having lip *e* engaging said notch, and the key D, formed with projection *d*, substantially as and for the purpose specified.

2. In a lock, the case consisting of the front, cap, and top plates, the latter provided with slot *h*, combined with the latch pivoted on the stud B, and having a disk, E, and notch *c*, the spring-pressed pivoted tumbler C, having bevel-lip *e*, and the key D, formed with projection *d*, all arranged for joint operation, as set forth.

350,739. REED-ORGAN. James B. Hamilton, Worcester, Mass., assignor, by direct and mesne assignments, to the Hamilton Vocalion Organ Manufacturing Company, same place. Filed Feb. 25, 1886. (No model.)



Claim.—1. The combination, with the series of reeds and their induction and eduction passages and the valve or valves thereof, of the closure-board provided with an orifice extending through it over the upper end of each of such eduction-passages, and of the series of mouths arranged upon such closure-board and having eduction-openings in their bottoms, all being substantially as described.

2. The combination of the air-drum or tone-augmenter, substantially as described, arranged below the valves, with the series of reeds and their induction and eduction passages and the valve or valves thereof, and with the closure-board and the series of mouths arranged on such board and with it provided with openings, as specified.

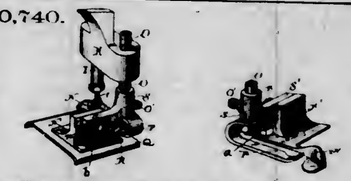
3. The combination, with the closure-board and the series of mouths applied to the reeds and their induction and eduction passages, as described, of means of pressing such mouths upon the said board, such means, as specified, consisting of the friction-rollers, the guide-rails, and the pressure-bars and their screws and springs, all arranged and applied essentially as set forth.

4. The combination, with the closure-board applied to the reed-passages block, of the series of rails or ribs extending upward from and arranged upon such board, essentially as described.

350,740. COMBINED ADJUSTABLE PRESSER-FOOT AND GAGE FOR SEWING-MACHINES. Charles F. Harlow and Edwin E. Angell, Malden, assignors to the Globe Sewing Machine Company, Boston, Mass. Filed Oct. 10, 1885. (No model.)

Brief.—The device is especially adapted for use in machines for sewing straw braid in the manufacture of hats, &c.

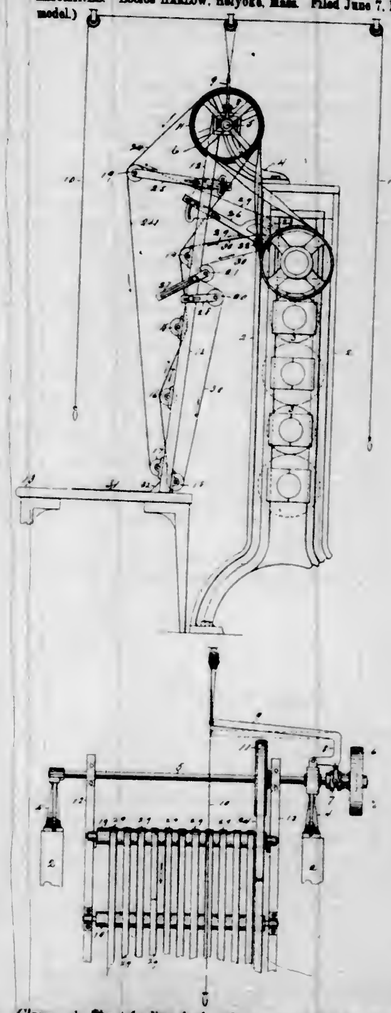
Claim.—1. The combination, with a sleeve fitted to embrace a presser-bar and provided with a laterally-extending arm, of the block N', adapted to serve as a supplemental presser-foot and having a longitudinally-sliding connection with said arm, a gage, N, movable with said



block, and devices for securing said block and sleeve in place after adjustment, substantially as set forth.

2. The combination, with the presser-bar O and the presser-foot P, of the block or supplemental presser-foot N', carrying the gage N, the vertically-adjustable sleeve S, having the laterally-extending arm S', with which the said block or foot has a rib-and-groove sliding connection, and the set-screws O' and R, for securing said sleeve and block or foot in place after adjustment, substantially as set forth

350,741. SHEET-FEEDING DEVICE FOR PAPER-CALENDERING MACHINES. Lucius Harlow, Holyoke, Mass. Filed June 7, 1886. (No model.)



Claim.—1. Sheet-feeding devices for paper-calendering machines, consisting of a frame, 12, supported at the side of the latter in nearly a vertical position, a series of tape-guiding rolls, substantially as described, hung transversely on said frame, two series of sheet-carrying tapes applied to said rolls and running face to face, combined with the calender-

ing-machine, a shaft having a driving-pulley thereon, and a belt having an engagement with said pulley and with several of said rolls, a loose clutch-pulley running on said shaft by engagement with the calendering-machine, a clutch located on said shaft to engage with said pulley, and a clutch-operating lever and shipper-cords, substantially as described.

2. In combination, a paper-calendering machine, the shaft 5, hung thereon, the loose clutch-pulley 6, rotating on said shaft by suitable connection with said machine, the clutch 7, having a sliding engagement with said shaft at the side of said clutch-pulley, the pivoted elbow-lever 8, engaging with said clutch and having the lever 9 rigidly attached thereto, and means, substantially as described, for operating the latter, the frame 12, the two series of sheet-carrying tapes 29 and 30, a series of rolls on said frame over which the latter ran face to face, and a belt, 24, connecting said shaft 5 with certain of said rolls, substantially as set forth.

350,742. SAW-MILL CARRIAGE. Edward Heyde, East Saginaw, Mich. Filed May 10, 1886. (No model.)



Claim.—1. In a feed mechanism for saw-mill carriages, the combination of a rotating drum, of a saw-mill carriage having extensions or outriggers upon the ends secured to the frame diagonally thereto, as shown, and of two ropes having their outer ends secured to the ends of said extensions or outriggers and their inner ends secured to the rotating drum, substantially as described.

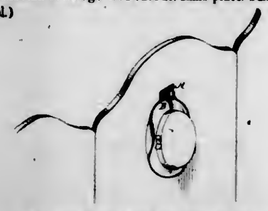
2. In a feed mechanism for saw-mill carriages wherein the reciprocating motion of the carriage is produced by a rotating drum and rope-connection between the drum and carriage, outriggers or extensions secured to the ends of the carriage-frame, and extending diagonally lengthwise of the frame in the same line, as a means for obtaining the required travel of the carriage by direct rope-connection between the drum and the carriage, substantially as described.

3. In a feed mechanism for saw-mill carriages, the combination of the carriage, the outriggers secured to the ends thereof diagonally to the length thereof, the rotating drum, and the ropes E F, secured to the ends of the outriggers and to the rotating drum, substantially as described.

4. In combination with the saw-carriage and its feed mechanism, the outriggers G H, secured to the saw-carriage, and adjustable laterally thereon, for the purpose of adjusting the angularity of the ropes, substantially as described.

5. The combination, with the carriage A, ways B, and spirally-grooved drum D, of the outriggers G H, pivotally secured to the carriage-frame at their inner ends, the pulleys *f* at their outer ends, the bolts *c*, passed through the outriggers and slots in the carriage-frame, and the ropes E F, having their inner ends secured to the drum D and their outer ends to the outer ends of the outriggers, substantially as and for the purpose specified.

350,743. HAT-HOLDER. Charles Higbee, Philadelphia, Pa., assignor of one-half to George W. Donohue, same place. Filed Oct. 30, 1885. (No model.)



Claim.—1. The herein-described hat-holding device, consisting of a plate having a longitudinal opening and a spring retaining-lever within said opening, substantially flush with the surface of the plate.

2. The combination of the plate with a spring retaining-lever pivoted to the plate in an opening in the face of the same, the lever being substantially flush with the face of the plate, as set forth.

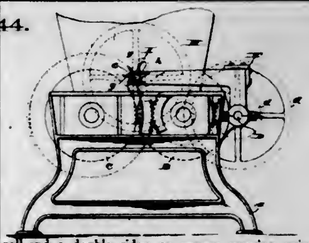
3. The combination of the plate with a retaining-lever having a button, F, and pivoted in an opening in the face of the plate, and substantially flush with the latter, as set forth.

4. The combination of the plate with the retaining-lever pivoted in an opening in the plate, and substantially flush therewith, and a spring acting on said lever, substantially as specified.

350,744. CLAY-PULVERIZING ROLLER AND ATTACHMENT. H. R. Hopkins, Willoughby, Ohio, assignor to James W. Penfield and Raymond C. Penfield, both of same place. Filed Dec. 9, 1885. (No model.)

Claim.—1. In clay-pulverizing apparatus, the combination, with rolls intergeared to revolve two to one, of a single spiral groove or ridge

350,744.



on the fast roll and a double ridge or groove running spirally on the slow roll, said grooves or ridges being arranged right and left handed on the respective rolls, substantially as set forth.

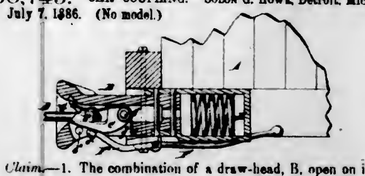
2. In clay-pulverizing apparatus, the combination, with rolls intergeared so as to revolve two to one, of a single spiral ridge or groove on the fast roll and two spiral ridges or grooves on the slow roll, said ridges or grooves being arranged right and left handed on the respective rolls, and made of such form in cross-section that the ridges of one roll will mesh with the ridges of the other roll, substantially as set forth.

3. The combination, with clay-pulverizing rolls, of a hopper, a revolving breaker and feeder operating in the hopper, said breaker and feeder being mounted on a swinging frame that is pivoted to the driving-shaft, and suitable mechanism for transmitting power from the driving-shaft to the breaker and feeder, the parts being arranged substantially as set forth.

4. The combination, with clay-pulverizing rolls and a revolving breaker and feeder mounted on a swinging frame, of a hopper having slots for the passage of the trunnions of the breaker and feeder, and plates mounted on said trunnions and arranged to close the slot in the hopper, the parts being arranged substantially as set forth.

5. The combination, with clay-pulverizing rolls, a hopper, and a revolving breaker and feeder mounted on a swinging frame and operating in the hopper, of segmental boxes extending from the hopper and located in position to receive the trunnions of the breaker and feeder when the latter are in their depressed position, substantially as set forth.

350,745. CAR-COUPLING. Solon G. Howe, Detroit, Mich. Filed July 7, 1886. (No model.)



Claim.—1. The combination of a draw-head, B, open on its under side, a hook, C, pivoted at its rear end in the draw-head, a transverse operating-bar, F, extended to either side or the top of car, and having a forwardly-projecting arm, F^3, and a loose connection, substantially such as described, between the extremity of said arm and the hook.

2. The combination, with a draw-bar open on its under side, of a hook pivotally engaged therein, a weighted rock-bar extended to either side or top of the car and engaged with said hook, and a fastening device to hold said bar in a given position, substantially as described.

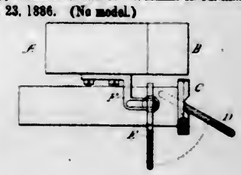
3. The combination of a draw-head, B, open on its under side, a hook, C, pivoted at its rear end within the draw-head, and a transverse rock-bar extended to either side of the top of the car, and provided with a forwardly-projecting arm, F^3, loosely connected with the pivoted hook and with a bent rearward-projecting weighted arm to automatically swing the hook into the draw-head, substantially as described.

4. A draw-bar open on its under side, having in combination therewith a hook pivotally engaged therein, said draw-bar constructed with an orifice, b^3, substantially as and for the purpose described.

5. A draw-bar constructed with an orifice, b^3, adjacent to the rear of a coupling-link engaged therein, substantially as and for the purpose described.

6. The combination, with a draw-bar, of a spring engaged therein to bear upon the link, said spring bent to form a double thickness at its end, and a downwardly-projecting guide-flange, *g'*, substantially as described.

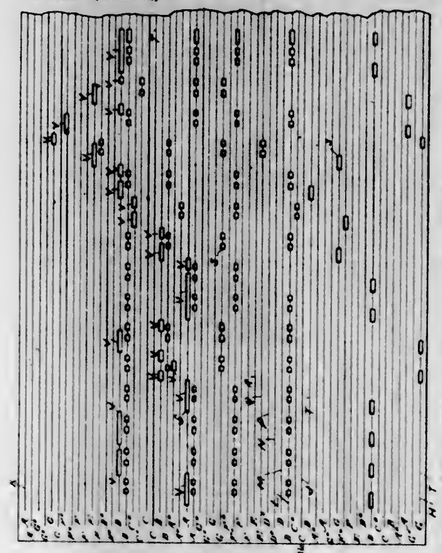
350,746. CAR-COUPLING. William R. Jenkins, Jr., Bellefonte, Pa. Filed Feb. 23, 1886. (No model.)



Claim.—1. In a car-coupler, the combination of the bent lifting-bar E, for guiding the link, the slotted hangers F F, for supporting said bar, and the collars E' E', secured on said bar between its bent portion and the hangers, substantially as and for the purposes set forth.

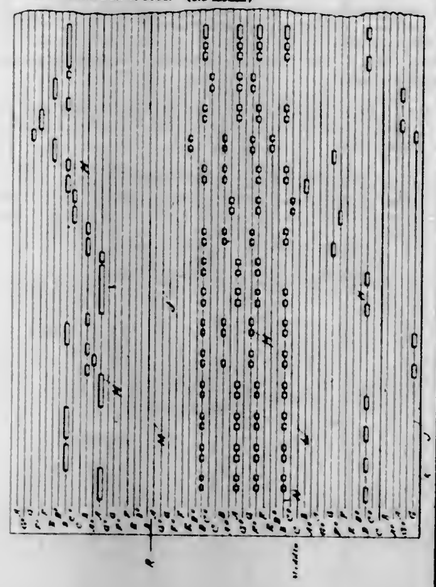
2. In a car coupler, the combination of the lifting-bar E, made in a single continuous piece, with a T-handle at each end and a bent portion at the center, a pair of slotted hangers, F F, and a pair of collars secured to said bar on the inside of the hangers, substantially as described.

350,747. PERFORATED MUSIC-SHEET FOR MECHANICAL MUSICAL INSTRUMENTS. George B. Kelly, Boston, Mass. Filed Dec. 5, 1885. (No model.)



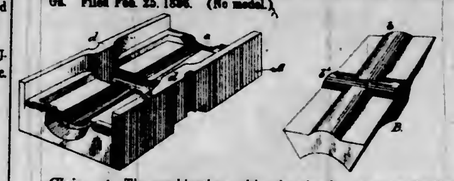
Claim.—A perforated music-sheet for a mechanical musical instrument, having the upper or treble notes or perforations of its scale doubled or trebled, &c., or arranged by twos or threes, &c., for the purpose specified.

350,748. PERFORATED MUSIC-SHEET. George B. Kelly, Boston, Mass. Filed Dec. 7, 1885. (No model.)



Claim.—A perforated music-sheet for a mechanical musical instrument, having its upper or treble notes or perforations duplicated or triplicated, &c., and arranged above or below the regular scale of the music-sheet, for the purpose specified.

350,749. JOURNAL-BEARING. George M. Kendrick, Cartersville, Ga. Filed Feb. 25, 1886. (No model.)

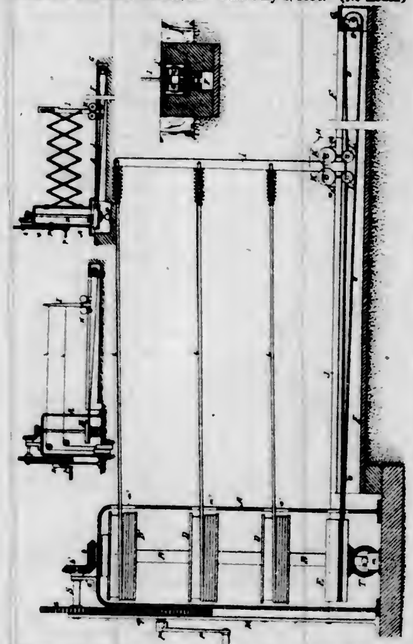


Claim.—1. The combination, with a bearing having a longitudinal and a cross rib on its back of a support provided with corresponding longitudinal and cross grooves, substantially as and for the purpose set forth.

2. The combination of a bearing and support provided with coacting longitudinal and cross ribs and grooves to prevent longitudinal and lateral displacement, said cross-ribs being projected to form a fulcrum about which the bearing rocks, substantially as and for the purpose specified.

3. The combination, with a box and a wedge having longitudinal and cross grooves, of a bearing provided with corresponding longitudinal and cross ribs and adapted to rock on the cross-ribs, as and for the purpose set forth.

350,750. RAILROAD-CROSSING GATE. Charles C. Kleckner and Joseph R. T. Coates, Chester, Pa. Filed July 2, 1886. (No model.)

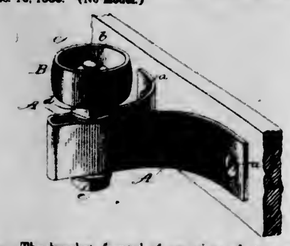


Claim.—1. The combination of the fixed standard at one side of the roadway, a movable stanchion having a truck, guards connected to the movable stanchion and fixed standard and capable of contraction and expansion, a slotted conduit crossing the roadway and having top plates forming guides for the truck, and mechanism contained in said conduit for projecting and retracting the movable stanchion, the latter being connected directly to said operating mechanism, all substantially as specified.

2. The combination of the fixed standard at one side of the roadway, a movable stanchion having a supporting-truck, guards connecting the movable stanchion to the fixed standard and capable of expansion and contraction, a conduit crossing the roadway, an endless rope or band connected to the movable stanchion and contained within said conduit, and pulleys for supporting and driving said rope or band, all substantially as specified.

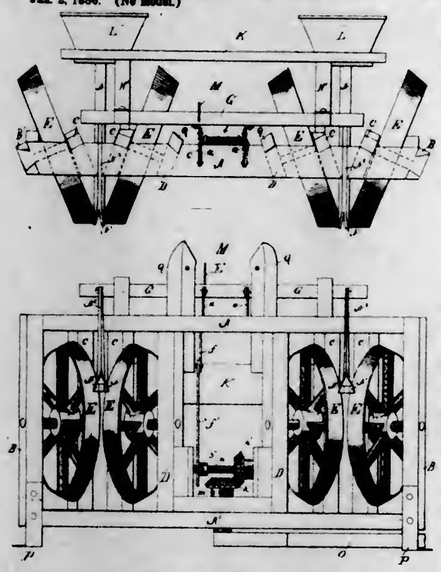
3. The combination of the fixed standard at one side of the roadway, a movable stanchion having a supporting-truck, a shaft contained within the fixed standard and having a series of drums, flexible guards wound on said drums and connected to the movable stanchion, and mechanism, substantially as described, whereby the stanchion is projected or retracted by the turning of the drum-shaft, all substantially as specified.

350,751. STAY-ROLLER. William J. Lane, Poughkeepsie, N. Y. Filed Dec. 10, 1885. (No model.)



Claim.—The bracket formed of one piece of strap metal bent at the middle, and having arms parallel for a short distance from the outer end, and then diverging, in combination with the roller, the bolt, and means for clamping the bolt to the edges of the parallel arms, substantially as described.

350,752. CORN-PLANTER. George Landis, La Salle, Ill. Filed Jan. 2, 1886. (No model.)



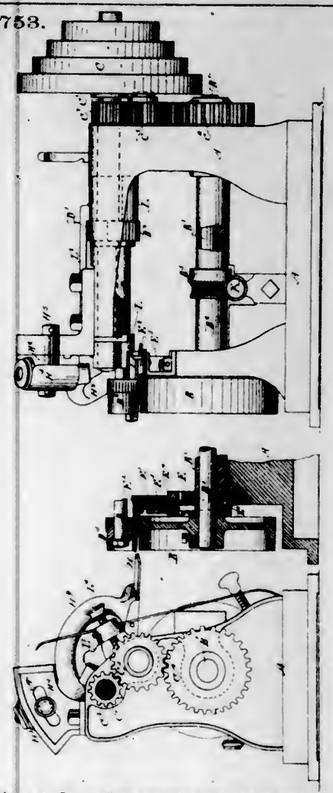
Claim.—1. The combination, in a corn-planter, and with the frame-work thereof, of wheels therefor, such wheels placed in inclines, and provided with beveled rims, as set forth.

2. The combination, in a corn-planter, and with the frame thereof, of four wheels therefor, such wheels placed abreast and in pairs, each wheel being placed on an incline, and each provided with a beveled rim, as set forth.

3. The combination, in a corn-planter, and with the frame thereof, of wheels therefor, such wheels placed in pairs, each on an incline, and each provided with a beveled rim, and a grain-discharge spout located between each pair of wheels, as set forth.

4. An improved discharging-leg for corn-planters, consisting of two parts riveted together, each part being cast with one half of a shoe, one part being also cast with one part of the runner, and the other part having the remaining part of the runner secured removably thereto, and each part of the shoe formed at its lower edge with a flaring part, as set forth.

350,753. LEATHER-SKIVING MACHINE. R. Austin Latham, East Bridgewater, Mass., assignor to the Carver Cotton-Gin Company, same place. Filed June 24, 1886. (No model.)

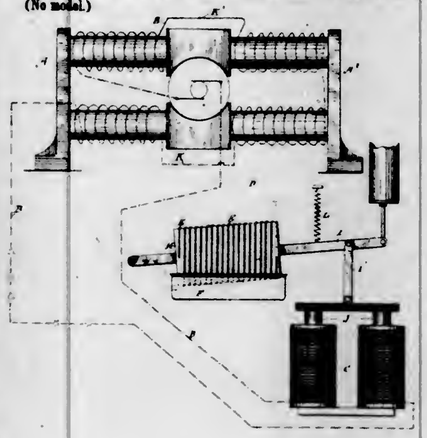


Claim.—1. In a skiving-machine, the combination of the feed-wheels B D^2 and the knife H with the arm H^2 and the housing H^3, all operating together substantially as described, and for the purpose set forth.

2. In a skiving-machine, the combination of the lower feed-wheel, B, and shaft B' with the eccentric quill B^2 and worm-gear B^3 K, all operating together substantially as described, and for the purpose set forth.

3. In a skiving-machine, the combination of the eccentric quill B^2, having a cam-slot, E^3, with the block E, and gage E' E^2, and lower feed-wheel, B, all operating together substantially as described, and for the purpose set forth.

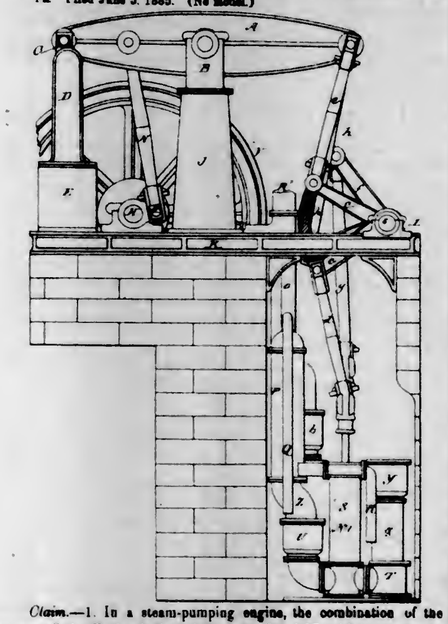
350,754. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. Osborn P. Loomis and Henry W. Cooley, Lynn, Mass. Filed Dec. 7, 1885. (No model.)



Claim.—1. In a dynamo-electric generator, the combination of field-magnets and a variable resistance located in a shunt to one of said field-magnets, substantially as and for the purpose specified.

2. In a dynamo-electric machine, the combination of field-magnets, a main or working circuit, solenoids in said circuits, a shunt-circuit to one of said field-magnets, a helical coil in said shunt-circuit, a bath of mercury located beneath said coils and in circuit with one or more of said coils, a pivoted support for said coils, and gearing connecting said support and the cores of said solenoids, substantially as and for the purpose set forth.

350,755. STEAM-PUMPING ENGINE. Joseph L. Lowry, Pittsburg, Pa. Filed June 5, 1885. (No model.)

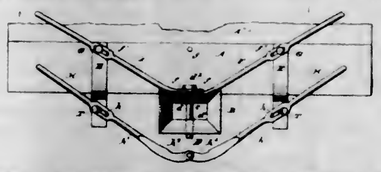


Claim.—1. In a steam-pumping engine, the combination of the steam-cylinder E, the single-acting pumps S and W, with leverage-connections consisting of the quadrants c and *f*, and their connecting-rods *d e g h*, having such relation to each other and to said leverage as to transmit the least force to the pumps when the steam-pressure is greatest, and to increase said force proportionally as the pressure of the steam decreases during expansion, and the condenser, also connected to said pumps, substantially as herein set forth.

2. In a steam-pumping engine, the combination of the steam-cylinder E and its connections, a single-acting pump adapted to force water during the forward stroke, a single-acting pump adapted to force water during the return-stroke, and the quadrants *c* and *f*, connected to the said pumps, substantially as described and shown, and for the purpose set forth.

3. In a steam-pumping engine, the combination of the steam-cylinder E, the pumps S and W, and the leverage-connections interposed between the said steam-cylinder and pumps, consisting of bell-cranks *k i* and *m o*, in which the arms are of unequal length, substantially as set forth.

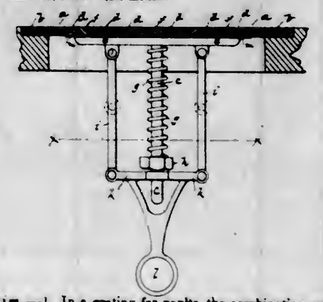
350,756. CAR-COUPLING. Lemuel Mact, Independence, Kans. Filed July 22, 1886. (No model.)



Claim.—1. The combination, with the draw-bar, the draw-head, the bolsters E, secured to the draw-bar, and the link C, of the levers H H', pivoted together at their inner ends and provided with the slots *h*, the notch h^2 on the lever H, and the bolts I, by which the levers H H' are pivoted on the bolsters E, substantially as specified.

2. The combination, with the draw-bar A, the draw-head B, stop-bar *g*, the link C, and pin D, of the levers F and H H', and bolts G and I, all constructed and arranged substantially as specified.

350,757. COAL-VAULT GRATING. Ella Maratta, Pittsburg, Pa. Filed May 29, 1886. (No model.)



Claim.—1. In a grating for vaults, the combination consisting of the parallel bars *d*, attached together and constructed to fit neatly in the openings of the grating *a*, the vertical post *c*, secured to the grating *a*, the spiral spring *g*, and nut *h*, and a means whereby the movable bars *d* may be removed from the openings formed in the grating *a* and revolved in such a manner as to prevent the same from entering the said openings.

2. In a grating such as described, the combination consisting of the parallel bars *d*, secured together and constructed to fit neatly in the openings of the grating *a*, the vertical post *c*, secured at the center of the grating *a*, the spiral spring *g*, and nut *h*, the rods *i*, cross-bar *k*, and handle *l*, substantially as set forth.

3. In a grating such as described, the combination of the grating *a*, the movable bars *d*, constructed to fit neatly in openings of the grating *a*, and a number of circular pieces of glass, *n*, secured in the bars *d* or *f*, whereby light may be admitted to vault over which the grating is placed.

4. A grating for vaults, the parallel openings of which are constructed with tapering sides, forming an opening greater at the base than at the top, in combination with a series of parallel bars having a corresponding taper and secured together by one or more cross-bars, and a means whereby the movable bars may be withdrawn or placed in position and revolved at right angles to their former position.

5. A grating for vaults, in combination with the movable bars *d*, provided with an outwardly-projecting flange, *m*, the vertical post *c*, nut *h*, spiral spring *g*, the rods *i*, cross-piece *k*, and handle *l*, substantially as and for the purpose set forth.

350,758. WASHING-MACHINE. Earl S. McCallister and William Hoagland, Elgin, Ill., assignors, by mesne assignments, to said McCallister, and James B. Lane and Robert P. Lane, both of Rockford, Ill. Filed Aug. 31, 1885. (No model.)

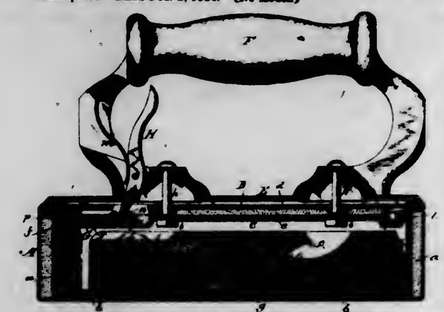


Claim.—1. In a washing-machine, a revolving receptacle provided with a pipe extending radially in the receptacle, said pipe opening at one end at the center of said receptacle and at the other end in the periphery thereof, in combination with a hood projecting partly over the said peripheral openings, substantially as described.

2. In a washing-machine, a revolving receptacle provided with a perforated axial pipe and pipes opening therein, and opening at their outer ends in the ends of the receptacle, and hoods projecting partially over said outer ends, substantially as described.

3. In a washing-machine, a revolving receptacle having a series of peripheral perforations in said receptacle, and a corresponding series of hoods projecting partially over said perforations, whereby water and steam are forced into the receptacle through said perforations, in combination with a perforated axial pipe, radial pipes connected therewith and opening on the periphery and ends of said receptacle, and hoods projecting partially over said openings, whereby water and steam are forced into and discharged through the perforations in the said axial pipe into the receptacle, substantially as described.

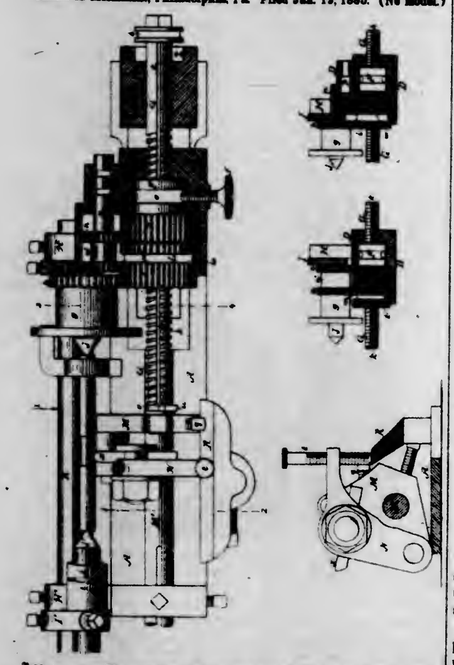
350,759. SMOOTHING AND POLISHING IRON. Joseph R. McFall, Oakaloosa, Iowa, assignor, by mesne assignments, to Georgia L. McFall, same place. Filed Feb. 2, 1886. (No model.)



Claim.—1. The combination, with the hollow body, of a removable core forming a chamber between its lower face and the upper side of the bottom of the body, gradually diminishing in thickness or height in every direction from a central point of the core, as and for the purpose set forth.

2. The combination, with the hollow body and top or cover, of a core having a concaved lower face supported within the body, leaving a space between it and the top, bottom, sides, and ends of the body, the space between the upper side of the bottom of the body and the concaved face of the core gradually diminishing toward the ends and sides of the body, substantially as set forth.

350,760. COMBINED VISE, LATHE, AND DRILLING-MACHINE. James R. McMillan, Philadelphia, Pa. Filed Jan. 19, 1885. (No model.)



Claim.—1. The combination of the bearing D, forming the movable jaw of a vise, a tool or tool-carrier, and feed-gear, comprising the screw-shaft G of the vise, the nut F, with spur-wheel secured thereto, a spur-wheel keyed to the screw-shaft and having more or less teeth than said wheel on the nut, and a pinion gearing into said spur-wheel, all substantially as specified.

2. The combination of the bearing D, forming the movable jaw of a vise, a tool or tool-carrier, and feed-gear, comprising the screw-shaft G of the vise, the nut F, with spur-wheel *s*, a pinion, *i*, turning with the screw-shaft and having the same number of teeth as said wheel *s*, the wheel *m*, also turning with the shaft and having more or less teeth than the wheel *s*, and a pinion, *n*, whereby the wheel *s* may be geared either to the pinion *i* or to the wheel *m*, all substantially as set forth.

3. The combination of the bearing D, the lathe-centers, the tool or tool-carrier, the screw-shaft G, the nut F, with spur-wheel *s*, the spur-wheel *m*, and pinion *i*, the pinion *n*, and the face-plate sleeve *g*, having a spur-wheel, *h*, gearing into the pinion *i*, all substantially as specified.

4. The combination of the lathe-centers and a feed-screw adapted to a nut on the fixed frame with the slide-plate M, connected to the end of said feed-screw, the guide-bar M′, the rest R, and the tool-carrying arm pivoted to the slide-plate and having a set-screw bearing upon said rest, all substantially as specified.

5. The combination of the lathe-centers, the feed-screw having a groove near the end, and the slide-rest having a latch-lever adapted to engage with said grooved end of the screw, all substantially as specified.

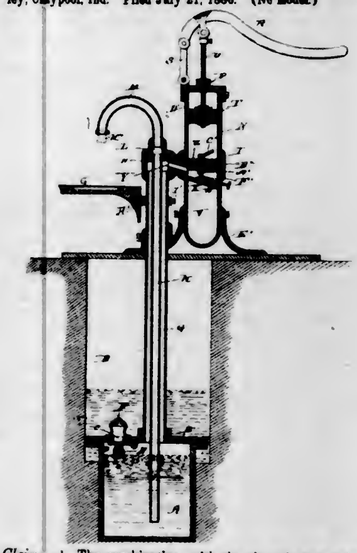
6. The combination of the frame A, the clamp-plate P, having a block, Q, with worm *y*′, a tubular projection, S, with worm-wheel *y*, and a locking device, all substantially as specified.

7. The combination of the frame A, the clamp-plate P, having a block, Q, the tubular projection S, the recessed plate V, and the cam-disk W, as specified.

8. The combination of the main frame, the lathe-centers, and face-plate sleeve, the operating-shaft G, and gearing whereby the face-plate can be driven therefrom, the rod K, and the arms I I′, carrying the lathe-centers and hung to said rod, whereby said centers can be thrown down out of the way and the face-plate thrown out of gear, all substantially as specified.

9. The combination of the main frame, the lathe-centers, and face-plate sleeve, the operating-shaft G, and gearing for driving the face-plate therefrom, the rod K, adjustable in respect to the main frame, and the arms I I′, carrying the lathe-centers and hung to said rod, so that said centers can be thrown down out of the way and the face-plate thrown out of gear, all substantially as specified.

350,761. PUMP. Elijah Neff, Rochester, assignor to Worthie Shipley, Claypool, Ind. Filed July 21, 1886. (No model.)



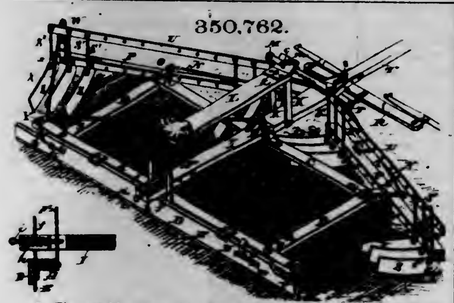
Claim.—1. The combination, with the air and water tubes, of the section I, having passages Y, Z, and B^2, and the valves A′ and C′, and the pump-cylinder N and its piston, piston-rod, and handle, the whole arranged to operate substantially as specified.

2. The combination of the vessel A, air-tube G, section I and its passages and valves, with the pump-cylinder, air-cylinder, and inclined perforated diaphragm and slide-valve, the whole arranged to operate substantially in the manner specified.

350,762. COMBINED PULVERIZER, CULTIVATOR, AND ROAD-SCRAPER. Allen Neutaigner, Mendota, Ill. Filed Apr. 2, 1886. (No model.)

Claim.—1. The combination, with the main frame, of a vertical standard centrally secured to the rear of said frame, and having a series of perforations, a tongue pivotally connected to the front of the frame and transversely extended across the latter, and a suitable bolt operatively secured to the rear end of the tongue to engage the perforations in the standard, according to the adjustment of said tongue, as set forth.

350,762.



2. The combination, with the main frame, of a vertical standard centrally secured to the rear of said frame and having a series of perforations, a tongue pivotally connected to the front of the frame and transversely extended across the latter, a housing secured to the rear end of said tongue, and a spring-bolt operative in the housing to engage the perforations in the standard, as set forth.

3. The combination, with the main frame, of a tongue adjustable thereon, a scraper secured to the rear of said frame, and a clearing-plate loosely connected to said scraper, as set forth.

4. The smoothing board or scraper hinged to the rear cross-piece of the main frame and provided with a vibratory clearing-plate, in combination with perforated curved plates secured to the side bars of said main frame and passed through openings in the smoothing-board and clearing-plate, suitable hooks or stops pivotally connected to said smoothing-board and adapted to engage the perforations in the curved plates, and a short tongue pivoted to the front cross-piece of the main frame, as set forth.

5. The main frame consisting of front and rear cross-pieces united by side bars, an adjustable smoothing-board hinged to the rear cross-piece and provided with a vibratory clearing-plate, and a short tongue pivoted to the front cross-piece, in combination with a pivotal seat-board supported by a standard secured to said tongue near its front end, as set forth.

6. The short tongue pivoted to the front cross-piece of the main frame, and a seat-board elevated above said tongue and provided at its forward end with a slotted plate, in combination with a rack-lever extended through the tongue and connected at its lower end with suitable rods, that are in turn connected to elbows pivotally operative in suitable socket-plates secured to the main frame at the meeting-points of the side bars and front cross-piece, and the knife-bars, also connected to the elbows, as set forth.

7. The short tongue I, elevated seat-board L, having the plate *k*, provided with angular slot *m*, and the knife-bars P, having elbow-connection with the main frame, in combination with the rack-lever M, rods N, and wedge-shaped plates *p p*, pivotally connected to the forward end of the tongue, as set forth.

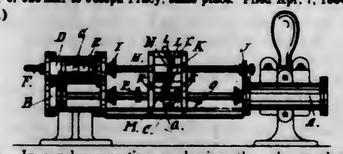
8. The knife-bars P, each consisting of two overlapping flanged sections, the top section laterally adjustable on the lower one, and having its flange *t* formed with a series of perforations, and said lower bar provided with a perforated vertical upright, in combination with the knives S, having hook-shaped forward ends, *w*, and arms S′, provided with lugs *x*, adapted to be bolted to the perforated flange *t* of said lower knife-bar section, and a horizontal perforated bar pivotally connected to the several knife-arms, as set forth.

9. The knife-bars P, consisting of two overlapping flanged sections, the lower sections provided with perforated uprights W, in combination with the angular rods X, pivotal plates Y, and elbows O, pivotally connected to the main frame, as set forth.

10. The combination, with the main frame, of the adjustable socket-plates *n n*′, bolted thereto, the elbows O, having their vertical portions pivotally operative in said socket-plates and their horizontal portions designed as hangers or axles, and the angular stay-rods X, as set forth.

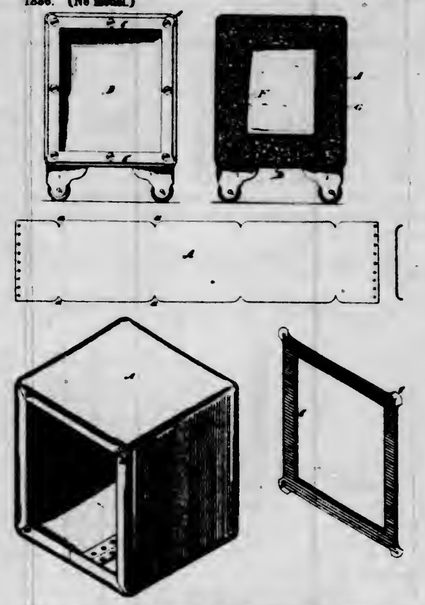
11. The combination, with the frame, of the pivotally-connected short tongue I, elbows O, smoothing-board or scraper D, and the detachably-connected pole T, as set forth.

350,763. STEAM-PUMP. Henry J. Oliver, San Francisco, Cal., assignor of one-half to Joseph Pracy, same place. Filed Apr. 7, 1886. (No model.)



Claim.—In a valve-operating mechanism, the valve-moving gear herein described, consisting, essentially, of the standing frame K, vertical levers L and M, supported thereon, spring N, slotted valve-rod H, and piston-rod O, with collars P P, arranged and operating substantially as set forth.

350,764. SAFE. David O. Paine, Detroit, Mich. Filed Aug. 10, 1886. (No model.)



Claim.—1. A safe in which the top, bottom, and two sides are formed of a single sheet of metal with its front and rear edges mitered and bent inward into or substantially into the plane of the front and back of the safe, substantially as and for the purpose described.

2. In a safe, a single sheet of metal having front and rear mitered edges and bent to form the two sides, top, and bottom of the safe, and with its front and rear edges bent inwardly, the extremities of the plate riveted together or to a re-enforcing plate, thus constituting the top, bottom, two sides, and all the twelve edges of the safe, substantially as described.

3. In a safe, a single sheet of metal having front and rear mitered edges and bent to form the two sides, top, and bottom of the safe, and with its front and rear edges bent inwardly, in combination with skeleton frames at the front and rear secured to the inwardly-turned edges, a plate adapted to close the opening in the frame at the rear of the safe, and a door adapted to close the opening in the frame at the front of the safe, substantially as described.

4. In a safe, a single sheet of metal bent to constitute the two sides, top, and bottom of the safe, with its front and rear edges mitered at the corners and bent inward, and re-enforcing plates riveted thereto beneath the mitered opening, substantially as and for the purpose described.

5. In a safe, a single sheet of metal having front and rear mitered edges and bent to form the two sides, top, and bottom of the safe, its front and rear edges bent inward, as described, in combination with skeleton frames C, having ears *c*, projecting out and covering the miter joints at the corners, substantially as and for the purpose described.

6. A fire-proof safe consisting of a single sheet of metal having front and rear mitered edges and bent to form the two sides, top, and bottom of the safe, skeleton frames C at the front and rear, an interior shell, a door-jamb, with the usual filling of fire-proof material, a closing-plate, D, at the back, to which the rear skeleton frame is attached, and a fire-proof door in front, substantially as and for the purpose described.

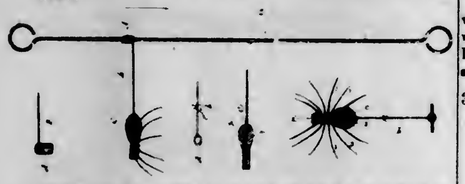
7. A fire-proof safe consisting of a single sheet of metal having front and rear mitered edges and bent to form the two sides, top, and bottom of the safe, and with its front and rear edges bent inwardly, said bends being all rounded so as to form twelve rounded edges to the same, in connection with front and rear skeleton frames, C, an interior shell, and fire-proof filling, and provided with a closing-plate at the rear and a door in front, substantially as described.

350,765. PAINT. John H. Palmer, West New Brighton, N. Y. Filed Feb. 26, 1886. (Specimens.)

Claim.—The herein-described composition of matter constituting a paint consisting of the residuum of linseed-oil resulting from the purifi-

cation of such oil, combined with linseed-oil, in proportions substantially as specified.

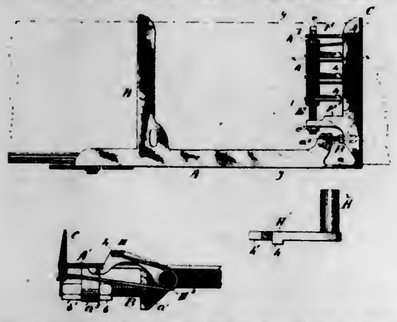
350,766. TOY. William D. C. Pattison, Boston, assignor of one-half to George E. Rogers, Winchester, Mass. Filed June 1, 1886. (No model.)



Claim.—1. A toy consisting of a rod, an arm having a sleeve at one end adapted to slide upon said rod, and a figure or object supported by said arm, as set forth.

2. A toy figure consisting of a body made in two sections glued together and rubber strips placed between said sections, as set forth

350,767. CARRIAGE FOR SHINGLE-SAWING MACHINES. Willis J. Perkins, Grand Rapids, Mich. Filed Mar. 12, 1886. (No model.)



Claim.—1. A shingle-saw carriage having its frame of suitable form, and having a slightly-flexible section joining the edge frame with the butt-stop frame, which stands at an angle thereto, substantially as set forth.

2. A shingle-saw-carriage frame composed of suitable form having an arm at an angle to the edge frame, and having an adjusting fastening by which the angle of the arm may be regulated with relation to the edge frame, substantially as set forth.

3. The combination, with the supporting-slideway of a sawing-machine, of a shingle-carriage frame of suitable form having an arm at an angle to the side bar of the carriage, a flexible section between the side and the arm, and an adjusting-screw connecting the side bar and angle-arm, as set forth.

4. The combination, with the frame and butt-plate of a shingle-sawing machine, of a depressible gage having a determined relation to the operating edge of the carriage and to the butt-plate, as set forth.

5. The combination, with the shingle-saw carriage, of a series of depressible gages and a single longitudinally-adjustable support for all the gages, so that the gages may be adjusted simultaneously, substantially as described.

6. The combination, with the saw-carriage, of a longitudinally adjustable shaft supported thereon, a series of sleeved gages on said shaft, and a series of springs by which said gages are held in elevated position, as set forth.

7. The combination, with a shingle-saw carriage, of a longitudinally-adjustable shaft parallel to the plane of the surface of said carriage, a gage having a sleeve which may oscillate on said shaft, and a coiled spring surrounding said sleeve, by which said gage is held upward, substantially as described.

8. The skeleton frame of a shingle-saw carriage composed of a single piece having a side bar and two end bars at nearly a right angle to the side bar, one of the bars being connected to the main frame by a slightly-flexible section, as set forth.

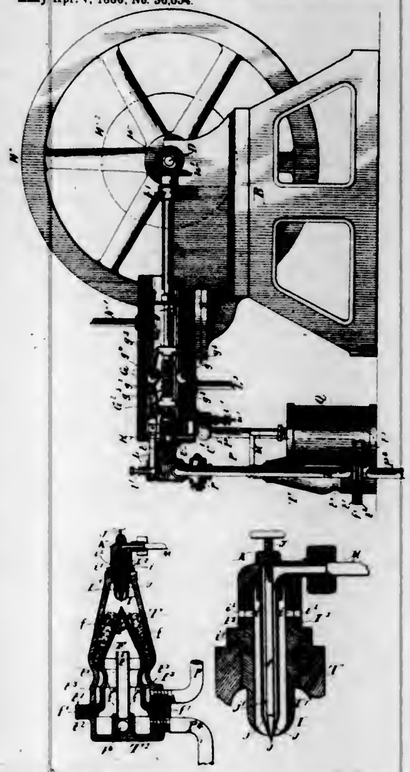
350,768. INSIDE CALIPER. Walter E. Pettengill, Peterborough, N. H. Filed June 14, 1886. (No model.)



Claim.—1. The improved caliper, substantially as described, consisting of the two clasps A and A', their arched connection or handle B, two socketed cylinders, C and C', their pointed rods D and D', and the milled head E and its two screws F, all arranged and applied essentially as set forth.

2. The two clasps A and A', connected, arranged, slotted lengthwise, and provided with clamping-screws *d*, as set forth, in combination with the socketed cylinders C and C', and with the two reversed screws F and their operative head E, arranged with each other and such clasps, substantially as represented.

350,769. PETROLEUM AND GAS MOTOR. Gaston Ragot and Guillaume Smyers, Brussels, Belgium, assignors to the Société Anonyme des Moteurs Inexplosibles au Pétrole Ordinaire et au Gaz, same place. Filed July 2, 1886. (No model.) Patented in Belgium June 6, 1885, No. 69,187; in France Dec. 10, 1885, No. 172,833; in Norway Dec. 31, 1885; in Austria-Hungary Mar. 4, 1886, No. 36,364 and No. 4,230, and in Germany Apr. 7, 1886, No. 36,054.



Claim.—1. The combination, with a gas or vapor engine, of a vaporizer provided with a vaporizing-chamber and a heater, respectively connected with the admission and exhaust of the engine, and an injector connected with the volatile-liquid supply and the vaporizing-chamber, and operated from and controlled by the movements of the piston, substantially as and for the purpose specified.

2. The combination, with a gas or vapor engine, of a vaporizer composed of an outer conical casing and an inner hollow conical heater, the two forming between them a vaporizing-chamber, connections between said chamber and heater with the admission and exhaust of the engine, respectively, and a connection between the vaporizing-chamber and the source of supply of volatile liquid, substantially as and for the purpose specified.

3. The combination, with a gas or vapor engine, of a vaporizer composed of two hollow cones of different dimensions arranged concentrically one within the other and forming between them a vaporizing-chamber, the throats of said cones having a contracted or nartower portion to impart to the chamber a vertical undulation, passages for connecting said chamber below and above its undulatory portion, respectively, with the admission-valve casing and the source of supply of volatile liquid, and a passage for connecting the inner cone with the exhaust-valve casing, substantially as and for the purpose specified.

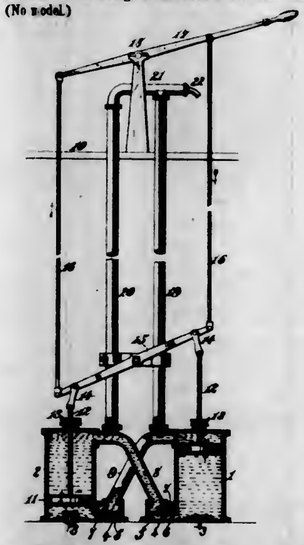
4. The combination, with a gas or vapor engine, of a vaporizer composed of two hollow conical casings arranged concentrically one within the other, the conical portion of the inner casing being formed on much greater angles than the corresponding portion of the outer casing, the throats of said cones differing but slightly in diameter and having an annular inwardly bent or contracted portion, whereby a chamber of comparatively small area and having a vertical undulation at the base is formed between the two cones, connections between the chamber, the source of supply of volatile liquid, and the admission-valve casing of the engine, and means for heating the inner cone, substantially as and for the purpose specified.

5. The combination, with a gas or vapor engine, of a vaporizer composed of two hollow conical casings arranged concentrically one within the other, the conical portion of the inner casing being formed on much greater angles than the corresponding portion of the outer casing, the throats of said cones differing but slightly in diameter and having an annular inwardly bent or contracted portion, whereby a chamber of comparatively small area and having a vertical undulation at the base is formed between the two cones, an injector for injecting a volatile liquid into said chamber above the inner cone, a connection between the chamber below its undulatory portion with the admission-valve casing of the engine, and means for heating the inner cone, substantially as and for the purpose specified.

6. A vaporizer for vaporizing volatile liquids, composed of a heating-chamber and a vaporizing-chamber surrounding the same, of an injector arranged axially within the vaporizing-chamber above the heating-chamber, consisting of a hollow conical casing provided with adjustable air-admission ports, an injector-tube arranged axially within said casing, the two forming between them an air-chamber, a regulating-spindle arranged axially within the injector-tube, the two forming between them a fluid-chamber, a connection between the latter chamber and the source of supply of liquid to be vaporized, and a suction-pipe for drawing the vapors from the vaporizing-chamber and producing a partial vacuum therein, substantially as and for the purpose specified.

7. A vaporizer for vaporizing volatile liquids, composed of a heater, a vaporizing-chamber surrounding the heater, the lower portion of which chamber is contracted or of comparatively small area, in combination with a heat-conducting filling arranged loosely in the vaporizing-chamber around the heater and above the contracted portion of said chamber, a vapor-chamber formed below the filling, and a spraying-chamber above said filling, an atomizer for atomizing or spraying the volatile liquid admitted into the vaporizing-chamber, and an eduction-pipe connected with the chamber below the filling for drawing off the vapors, substantially as and for the purpose specified.

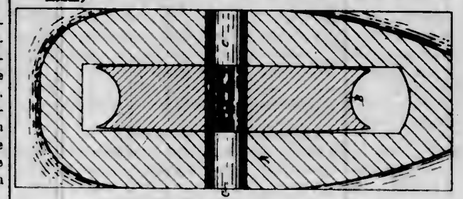
350,770. DOUBLE-ACTING PUMP. Haley S. Ramsey, Comanche, assignor of one-half to George D. Streater, Waco, Tex. Filed Aug. 10, 1886. (No model.)



Claim.—1. The combination, in a balanced pump, of the two submerged cylinders closed at the top and having valved lower ends and each containing a piston, the piston-rods for the pistons, means, substantially such as described, for reciprocating the pistons in opposite directions, the two independent stationary stand-pipes of equal proportion, both located between the piston-rods and connected at their upper ends by a tube having a discharge-nozzle, the stationary crossing tubes interposed between cylinders having no communication with each other and respectively connecting the lower end of one cylinder with the upper end of the other cylinder, and the valves arranged, respectively, at the lower ends of the crossing tubes, substantially as and for the purpose described.

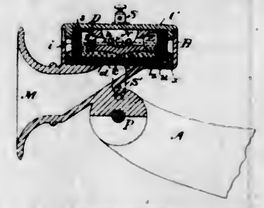
2. A balanced pump consisting of the following elements, to wit: the two cylinders closed at the top and having valved lower ends and each containing a piston, the piston-rods for the pistons, the walking-beam, the links connecting the extremities of the latter with the piston-rods, the operating-handle pivoted intermediate its ends, the rods connecting the walking-beam with said handle, the two stationary stand-pipes of equal proportion, both located between the piston-rods and connected at their upper ends by a tube having a discharge-nozzle, the two stationary crossing tubes interposed between the cylinders having no communication with each other and respectively connecting the lower end of one cylinder with the upper end of the other cylinder, and the valves arranged, respectively, at the lower ends of the crossing tubes, substantially as described.

350,771. TACKLE-BLOCK. Elisha Robbins, Worcester, Mass., assignor to Henry C. W. Robbins, same place. Filed May 21, 1886. (No model.)



Claim.—In a pulley-block, the combination of the block, the sheave, pin C, having the circumferential groove or recess of the width of the sheave, and the anti-friction rollers encircling the reduced portion of the pin and filling the groove flush with the periphery of the pin, the anti-friction rollers forming the bearing of the sheave, all substantially as described.

350,772. TELEPHONE-TRANSMITTER. George L. Roberts, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed June 7, 1886. (No model.)



Claim.—1. In a telephone-transmitter, a pendent stationary electrode having its operative face in the conformation of an inverted conoid with curved sides, substantially as described.

2. In a telephone-transmitter of the class hereinbefore specified, a pendent back electrode provided with an operative surface in the form of a conoid with concave sides.

3. In a telephone-transmitter of that class wherein a horizontally-supported diaphragm sustains a resistance-varying medium of finely-divided conducting material, a complementary or back electrode having its operative surface in the form of a disk with an inverted concave conoid projecting from the center thereof toward the diaphragm or movable electrode, substantially as hereinbefore set forth.

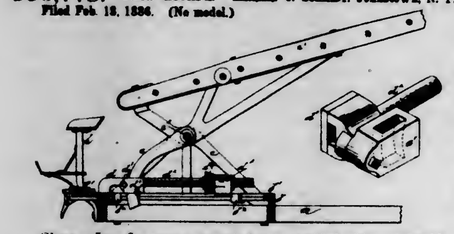
4. In a telephone-transmitter having a horizontal diaphragm and a mass of granulated conducting material resting thereon, a complementary or back electrode, consisting of a pendant having an imperforate disk-shaped face, the center whereof is a cone or conoid projecting toward the diaphragm, and having concave sides, the curve of which is continued in a depression concentric with the apex, and rising toward the edge of the disk-shaped surface, substantially as described herein, and shown in profile in Fig. 4.

5. An electrode for telephone-transmitters of the general class herein shown and described, comprising a pendant hanging from the upper part of the inclosing-cell, the operative face of which is generally in the form of a disk, having an inverted conoidal concave-sided central apex, a concentric concavity surrounding the same, and a flattened concentric space at the extreme edge of the disk.

6. The combination, in a telephone-transmitter, of a containing-cell with non-conducting side walls, a diaphragm or vibratory plate sup-

porting or constituting the movable electrode, a complementary pendent electrode hanging from the roof of said containing-cell, and having its lower face formed as a concave disk with a central inverted cone projecting therefrom toward the diaphragm, and a mass of granulated or finely-divided conducting material resting upon the said diaphragm and surrounding the operative portion of the pendent electrode, as specified herein.

350,773. FIRE-ESCAPE. Herman C. Schmidt, Johnstown, N. Y. Filed Feb. 18, 1886. (No model.)



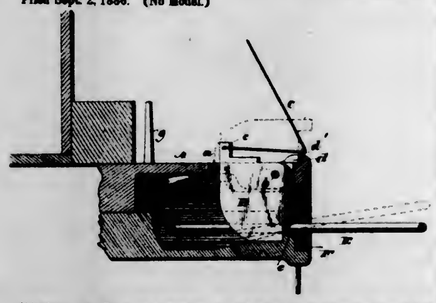
Claim.—In a fire-escape, a truck-frame provided with a turn-table, an extension-ladder mounted on trunnions thereon, and a rigid arm projecting from the trunnion-shaft, in combination with a screw-shaft secured to a sliding head-block, a second block pivoted to the first, through which said arm passes, a revolving screw-sleeve journaled on the turn-table surrounding the screw-shaft and provided with a pinion, and an operating-shaft geared to said pinion and extended to the side of the truck, substantially as and for the purpose set forth.

350,774. TRIMMING. Carl Seel, Barmen, Prussia, Germany. Filed Feb. 27, 1886. (No model.) Patented in England Nov. 17, 1885, No. 14,066.



Claim.—A dress-trimming composed of a series of buttons, each having a substantially-flat back provided with a flat projecting eye or loop, which is eccentric to the button, in combination with a tape or band extending through the eyes of said buttons, as shown, to hold the same in a row, one overlapping the other.

350,775. CAR-COUPLING. Andrew J. Shipman, Hardinsville, Ill. Filed Sept. 2, 1886. (No model.)



Claim.—1. In a car-coupler, the combination, with a draw-head constructed substantially as shown, of a latch, B, pivoted within a slot in the upper portion of the draw-head, bars *f f*, vertically adjustable within guides, and provided with a cross-bar, F, and a pivoted plate, G, secured within the rear portion of the draw-head and provided exteriorly with an operating-lever, the parts being organized substantially as shown, and for the purpose set forth.

2. In combination with a car-coupler provided at its upper end with a longitudinal slot, *a*, and a latch, B, pivoted within said slot and provided with portions adapted to abut against an upwardly-projecting portion, *d*, of the draw-head, and when elevated to rest upon a shoulder, *d*, an operating-cord, C, guide-bars *f f*, carrying cross-bar F, and a pivoted plate or block, G, located within the rear portion of the recess in the draw-head and provided with an operating-lever, the parts being organized substantially as shown, and for the purpose set forth.

350,776. BUTTON. Madison D. Shipman, De Kalb, Ill. Filed Nov. 22, 1885. (No model.)



Claim.—1. The combination, in a separable button, of the cap A, the perforated tube B, and the spiral spring having its upper end coiled around and closely embracing said tube and its end entering the perforation therein, with a stud having a notch or groove adapted to receive the end of said spring, substantially as described.

2. The combination, in a separable button, of a cap, A, a fastener, as C, and a tube, B, inclosed in said cap, with its apex extending toward the top of said cap, and having a base adapted to deflect the fastener when the two are forced together, substantially as described.

3. The combination, in a separable button, of a cap, A, a perforated tube inclosed in said cap and having corrugated base *b*, provided with the inturned flange, and a fastener, as C, adapted to expand into the recess in the base, substantially as described.

4. The combination, in a separable button, of a fastener, as C, a tube, B, having a base the inner part of which is inclined upward and adapted to deflect the fastener when the two are forced together, and a cap constructed to inclose the tube and the deflected end of the fastener, substantially as described.

5. The combination, with an apertured tube, a spring encircling said tube with its end resting in the aperture therein, and a notched stud adapted to engage with said spring, of an unlocking device, substantially as described, for disengaging said spring from the stud, substantially as described.

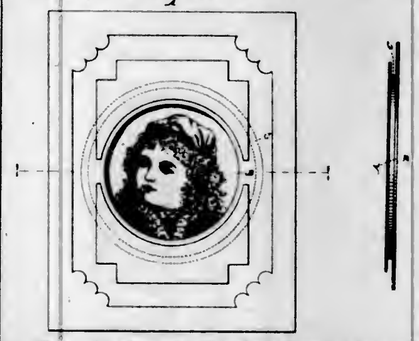
6. The combination, with an apertured tube, a spring encircling the same with its end resting in the aperture therein, and a notched stud adapted to engage with said spring, of a bifurcated unlocking-plate adapted to disengage the spring from the stud, substantially as described.

7. The combination, with a separable button having a notched stud and a spring catching into the same, of a bifurcated plate having spurs or projections adapted to disengage the spring from the stud, substantially as and for the purpose specified.

8. The combination, in a separable button, and as a means of securing one member thereof to the material, of a hollow stud and a slit washer having a central aperture, and the slit portion raised and adapted to be closed around said stud by pressure, substantially as described.

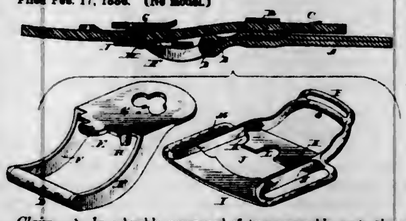
9. The process of permanently securing a portion of one member of a button to another portion thereof, which consists in inserting said portion through a washer having its central portion raised, and then closing the inner edges of the washer around the inserted part by forcibly flattening the washer, substantially as described.

350,777. PICTURE-MAT. John D. Simmons and James O. Hall, St. Louis, Mo. Filed Feb. 24, 1886. (No model.)



Claim.—As an improved article of manufacture, a picture-mat having a narrow strip, C, arranged on its rear side around the opening and at a distance from the edge of said opening, so as to be invisible from the face of the mat, substantially as specified.

350,778. TRACE-BUCKLE. Howard T. Simons, Cambridge, Ohio. Filed Feb. 17, 1886. (No model.)



Claim.—1. In a buckle composed of two separable parts, the combination of one portion, having curved side bars and a straight end piece, and an end plate having an inwardly-projecting lug, with the other portion having an aperture for the passage of the end plate and the ends of the curved side pieces, and having a notch in the outer side of its aperture for the reception of the projecting lug, and having a bail curved slightly up at its outer end, as and for the purpose shown and set forth.

2. In a buckle composed of two parts, the combination of a tag portion having its end bar adapted to be secured to the tag, and having outwardly-curved side pieces and an end plate at their rear ends provided with an inwardly-projecting lug, with a locking portion having an aperture for the passage of the end plate and formed with notches at the sides for the curved side pieces of the tag portion, and with a notch in its rear side to receive the end of the lug, and having wide bails at its upper and lower sides, and an outwardly-curved bail at its rear end, formed with a bail upon its end piece, as and for the purpose shown and set forth.

350,779. OIL-CUP. Joseph Sladden, Lawrence, Mass. Filed Apr. 26, 1886. (No model.)

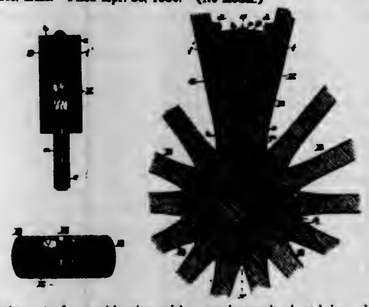


Claim.—1. The combination of an oil-cup provided with a tubular discharge-stem rigidly connected thereto and arranged with its end in contact with and freely movable to and from a shaft or journal to be lubricated, a spring for pressing said oil-cup and stem toward said shaft or journal, and a stationary abutment to take the thrust of said spring, substantially as described.

2. The combination of the casing C, provided with the threaded tubular shank *a* and the cap *b*, the oil-cup D, having the tubular discharge-stem *c* rigidly connected thereto, and the spring *e*, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

3. The combination of an oil-cup provided with a tubular discharge-stem integral therewith, a supporting and guiding socket, to which said tubular discharge-stem is loosely fitted, with its end in contact with a shaft or bearing to be lubricated, and freely movable to and from the same, and a packing of absorbent material fitting the passage from said oil-cup to the shaft, substantially as described.

350,780. CARRIAGE-AXLE LUBRICATOR. Joseph Sladden, Lawrence, Mass. Filed Apr. 26, 1886. (No model.)



Claim.—1. In combination with a carriage-wheel and its axle, an oil-cup located between two of the spokes of said wheel, and provided with a tubular discharge-stem fitted loosely to a bearing in the hub of said wheel, with its end in contact with the periphery of the axle and freely movable to and from the same, a bar connecting said spokes outside of said oil-cup, and a spring interposed between said oil-cup and bar, substantially as described.

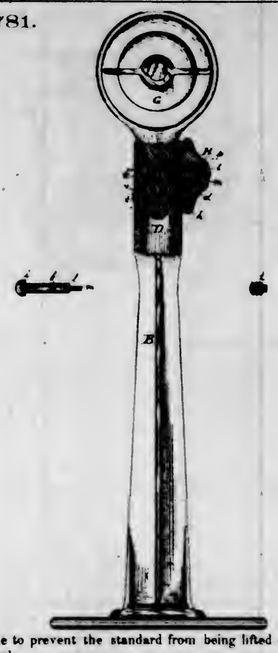
2. In combination with a carriage-wheel and its axle, a casing or metallic chamber fitted to the angle between two spokes, near the hub, and to the transverse curves of the sides of said spokes, and provided with a tubular shank set in the hub, an oil-cup within said casing and provided with a tubular discharge-stem fitted to a bearing in the hub of the casing, with its end resting upon the periphery of the axle, a bar connecting said spokes and closing the outer end of said casing, and a spring interposed between said bar and the oil-cup.

350,781. UMBRELLA-SUPPORT. James T. Smith, New York, N. Y. Filed Aug. 13, 1886. (No model.)

Claim.—1. A finger-piece having rigidly secured thereto a pin, *b*, provided with a shouldered head, *i*, substantially as and for the purpose described.

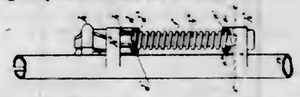
2. In combination with the standard E, provided with the countersunk recesses and the bottom groove, *s*, the socket D, in which said standard rests, the pin *b*, to engage with said recesses for preventing the standard E from rotating, and the fixed screw-pin *t*, engaging with said groove to prevent the standard from being lifted out, substantially as described.

350,781.



350,782. SPEEDER-FLIER. John A. V. Smith, Manchester, N. H. Filed Apr. 4, 1884. (No model.)

Brief.—The object of the construction is to prevent the breaking of the spring away from the hub and foot-piece.

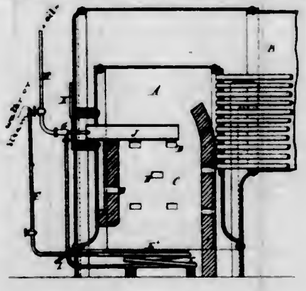


Claim.—1. The flier-body, its presser, and the presser-rod having a pin, *h'*, combined with the notched hub *d* and the foot-piece *e*, having the projections 2, the spring having its end coils soldered in recesses in the said sleeve or hub and foot-piece, and the bearings h^3 h^4, all constructed and arranged substantially as described.

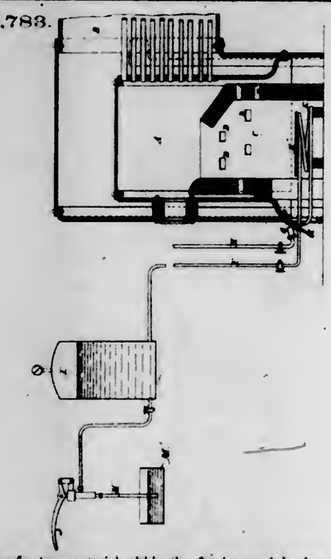
2. The flier-body, its presser, the rod h^3, bearings for it, pin *h'*, and the notched hub having its lower end shaped to engage and hold one end of the wire spring, combined with the said spring and a foot provided with a downward projection, 2, to enter a corresponding recess in the bearing h^4, the said foot being made as described, to sustain one coil of the spring, substantially as described.

350,783. APPARATUS FOR THE COMBUSTION OF LIQUID HYDROCARBONS. Percy Tarbutt, London, County of Middlesex, England. Filed Jan. 20, 1886. (No model.) Patented in England May 6, 1885, No. 5,599; in France Jan. 7, 1886, No. 173,395; in Belgium Jan. 8, 1886, No. 71,539; in Italy June 30, 1886, XXXIX. 347, and in India July 9, 1886, No. 798.

Claim.—1. The combination, in an apparatus for the combustion of liquid hydrocarbons, of the fire-box A, the combustion-chamber C,



350,783.



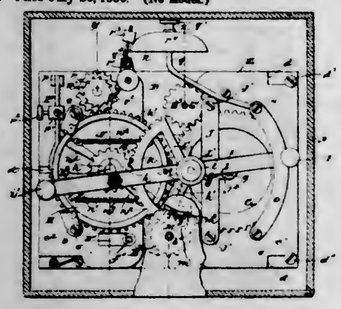
built of refractory material within the fire-box and having its vertical walls provided with a series of lateral openings, D, the heating-coil E in the lower part of the refractory combustion-chamber, the horizontally-slidable refractory shield-plate E', arranged directly over the coil, the injector G, and the supply-pipes F and H, having cocks or valves for the supply of water or steam and hydrocarbon liquid and air, substantially as described.

2. The combination, in an apparatus for the combustion of liquid hydrocarbons, of a fire-box, A, having a combustion-chamber, C, the heating-coil E in the base of the combustion-chamber, the horizontally-slidable refractory shield-plate E', arranged directly over the coil, the injector G, and the supply-pipes F and H, having cocks or valves for the supply of water or steam and hydrocarbon liquid and air, substantially as described.

3. The combination, in an apparatus for the combustion of liquid hydrocarbons, of a combustion-chamber, C, a hydrocarbon-supply pipe, H, an injector, G, connected with the latter, a coil, E, in the lower part of the combustion-chamber and connected at one end with the injector, a closed tank, L, a pipe, F, connecting the latter with the other end of the said coil, and a pump, M, communicating with a water-supply and with the tank, for forcing water into the tank to compress the air therein and by such compression to force the water in the tank to and through the heating-coil into the injector, substantially as and for the purposes described.

4. The combination, in an apparatus for the combustion of liquid hydrocarbons, of the fire-box A, the combustion-chamber C, built of refractory material within the fire-box and having lateral openings D, the heating-coil E in the lower part of the combustion-chamber, the horizontally-sliding shield-plate E', the injector G, the hydrocarbon-supply pipe H, the closed tank L, the pipe F, connecting the tank with the coil, and a pump, M, for forcing water into the tank to compress the air therein and thereby force the water from the tank to the coil, substantially as described.

350,784. STATION-INDICATOR. Edwin R. Thurman, Nashville, Tenn. Filed July 26, 1886. (No model.)



Claim.—1. In a station-indicator, the combination of the drums or spools, a shifting plate arranged to one side of the drums, the driving-wheels geared together and alternately engaged with or geared to one of the feed-drums, a swinging lever carried by the plate, and clutch mechanism connected with and actuated by the swinging lever for feeding the driving-wheels, substantially as described, for the purpose set forth.

2. In a station-indicator, the combination of the drums or spools, a traveling ribbon supported thereon, a shifting plate arranged to one side of the drums, the driving-wheels carried by the plate and geared together, a swinging lever supported on the shifting plate and arranged out of line with the drive-wheels, mechanism intermediate of the lever and one of the driving-wheels for operating the latter, and alarm mechanism actuated simultaneously with the driving-wheels, substantially as described.

3. In a station-indicator, the combination of the drums or spools, a traveling ribbon supported thereon, a drive-wheel geared to one of the drums, a swinging lever arranged to one side of the drive-wheel, a toothed segment connected with the swinging lever and actuated thereby, and clutch mechanism geared to the segment for rotating the drive-wheel, substantially as described, for the purpose set forth.

4. In a station-indicator, the combination of the drums or spools, a traveling ribbon, a driving-wheel geared to one of the drums, a swinging lever arranged to one side of the drive-wheel, a toothed segment connected to the lever and actuated simultaneously therewith, clutch mechanism geared to the segment for actuating the drive-wheel, a spring for returning the lever and segment to their normal position and releasing the clutch mechanism from the drive-wheel, and the alarm mechanism actuated by the drive-wheel, substantially as described, for the purpose set forth.

5. In a station-indicator, the combination of the drums or spools, a drive-wheel geared to one of the drums, a swinging lever, a segment connected to the lever, arranged to one side of the drive-wheel and actuated thereby, clutch mechanism geared to and controlled by the segment and adapted to rotate the drive-wheel, alarm mechanism geared to the drive-wheel, a spring connected with the lever for returning the same and the segment to their normal positions and simultaneously release the clutch mechanism, and a fixed arm, M, having the stop-pin arranged in the path of the segment for limiting the movement thereof, substantially as described.

6. In a station-indicator, the combination of the drums or spools, a traveling-ribbon thereon, a shifting plate arranged to one side of the drums and ribbon, the geared driving-wheels carried by the plate and geared alternately with one of the said feed-drums, alarm mechanism actuated by one of the drive-wheels simultaneously with the feeding of the traveling ribbon, a swinging lever, and clutch mechanism intermediate of the lever and one of the driving-wheels, substantially as described, for the purpose set forth.

7. In a station-indicator, the combination of a swinging lever, a segment actuated simultaneously therewith, a spring for returning the lever and segment to their normal conditions when a pull upon the lever is released, clutch mechanism geared with the segment and actuated thereby, a drive-wheel rotated by the clutch mechanism, the drums, and a ribbon, substantially as described, for the purpose set forth.

8. In a station-indicator, the combination of the drums, a drive-wheel geared to one of the drums, a traveling ribbon, a swinging lever arranged out of line with the drive-wheel, a segment actuated simultaneously with the lever, and clutch mechanism geared to the segment and arranged to engage the drive-wheel, and comprising the central disk, the rigid arms, the swinging arms, and the spring, substantially as described, for the purpose set forth.

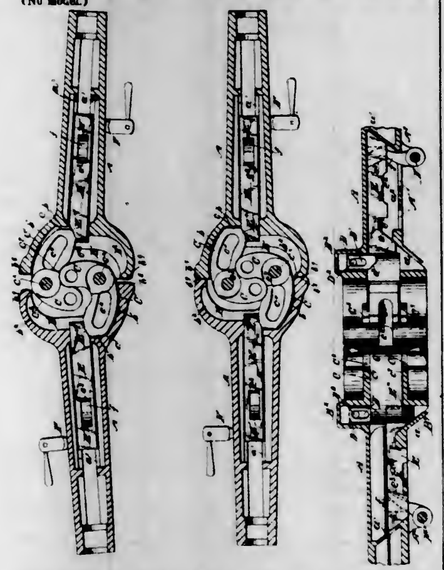
9. In a station-indicator, the combination of the drums or spools, a traveling ribbon, a shifting plate, the geared drive-wheels carried by the plate arranged to one side of drums and ribbon, a swinging lever, a segment actuated simultaneously with the lever, a spring for returning the lever and segment to their normal conditions, and clutch mechanism geared to the segment and having the spring-actuated swinging arms adapted to bind against one of the drive-wheels when the segment is actuated to feed the said driving-wheel, and released therefrom upon the retrograde movement of the segment, substantially as described, for the purpose set forth.

10. In a station-indicator, the combination of the drums, the traveling ribbon, a shifting plate arranged to one side of the drums and ribbon, the driving-wheels carried thereby and geared together, a swinging lever, a segment actuated simultaneously therewith, an adjustable arm for limiting and varying the stroke of the segment and lever, clutch mechanism intermediate of the segment and one of the drive-wheels, and alarm mechanism actuated simultaneously with the movement of the ribbon, substantially as described, for the purpose set forth.

11. In a station-indicator, the combination of the drums, a traveling ribbon thereon, the shifting plate, the driving-wheels carried thereby, a rotary cam or tumbler bearing against the shifting plate arranged to one side of the drums and ribbon, for moving the latter, a swinging lever pivoted on the plate, the segmental guides for the lever, and clutch mechanism intermediate of the lever and one of the drive-wheels for rotating the latter, substantially as described, for the purpose set forth.

12. In a station-indicator, the combination of the drums, a traveling ribbon thereon, the shifting plate, a swinging lever carried thereby, the driving-wheels geared together and carried by the plate arranged to one side of the drums and ribbon, clutch mechanism intermediate of the lever and one of the drive-wheels, and alarm mechanism comprising the gear-wheel having a ratchet, an oscillating block having an arm and the bell-hammer, and a bell supported on a standard, substantially as described, for the purpose set forth.

350,785. CAR-COUPLING. William H. Thurmond, Forsyth, Ga., assignor to the Thurmond Car Coupling Company. Filed July 28, 1886. (No model.)



Claim.—1. A draw-bar for automatic couplers, consisting of a draw-head, B, and the hollow draw-bar A, having longitudinal ribs or webs on its inner surface and a slot in its under side intersected by a cross-piece or bridge, a^2, bearing-lugs A^2, formed on opposite sides of the rear end of the slot, inclined bearing-surfaces or webs a' at said rear end of the slot, an inclined bearing-surface, a, forming the rear wall of a transverse slot in the under side of the draw-bar and between it and the draw-head, the hollow boss or projection B^3, the curvilinear jaws B^5 B^7, bearing-lugs B^4, projecting from one of said jaws, a recess or cavity, B', formed between the jaws, abutments b' b^2 b^3, and the cavities B^4 B^4 and B^3 B^6, substantially as and for the purpose specified.

2. In a coupler of the class described, the combination, with the draw-head B, provided with a hollow boss, B^3, projecting from the upper face thereof, said boss being closed at top, and a pin extending transversely through the boss, of the gravital block D, hung from said pin within the boss, substantially as and for the purpose specified.

3. In a coupler of the class described, the combination of the draw bar having a longitudinal slot in its under side intersected by a cross piece or bridge, a^2, with the thrust-bar E, having in its under side a recess, e^2, substantially as described, for the purpose specified.

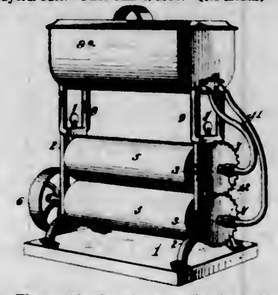
4. In a coupler of the class described, the combination, with the coupling-hook arranged to oscillate or swing on a vertical pivot and a thrust or locking bar having its forward end facing the shank of the hook beveled or provided with an inclined bearing-surface, said thrust-bar having a motion across the plane of rotation of said hook-shank, of a locking-block for the thrust-bar having a vertical motion, substantially as and for the purpose specified.

5. The herein-described coupling-hook, having a slot, c^4, in its shank, substantially as and for the purpose specified.

6. The herein-described coupling-hook, having the perforated and longitudinally-recessed hook portion C^2 and a shank, C', slotted longitudinally and terminating in a square vertical face, c, substantially as and for the purpose specified.

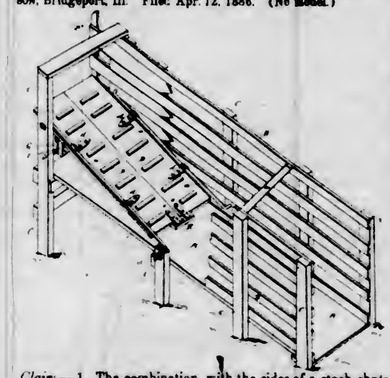
7. The herein-described coupling-hook, having the perforated and longitudinally-recessed hook portion C^2 and a shank, C', nearly rectilinear throughout its length and terminating in an attenuated square vertical face, c, said hook having a cavity, c^3, in its front face extending along a portion of the shank and a longitudinal vertical slot, c^4, in the said shank, substantially as and for the purpose specified.

350,786. PRESSING AND DAMPENING MACHINE. Daniel Walters, Dayton, Ohio. Filed Jan. 6, 1886. (No model.)



Claim.—The combination of a supporting base-plate, the standards rising therefrom, the perforated cloth-covered pressing and dampening cylinders geared together at one end and journaled in the standards to revolve in superficial contact, the water-tank supported by the standards above the cylinders, and two valved pipes connecting the tank with the end of the cylinders by union-couplings, substantially as shown and described.

350,787. STOCK-CHUTE. Benjamin F. Watson and Mark H. Watson, Bridgeport, Ill. Filed Apr. 12, 1886. (No model.)



Claim.—1. The combination, with the sides of a stock-chute, of the rods *a a*, secured to said sides, and the doors D D, hinged to said rods and having an endwise adjustment thereon so as to form a supplemental bottom, when lowered, for making connection to the deck of a car, substantially as specified.

2. The combination, with the stock-chute having permanent sides B, of the adjustable extension sides F and the adjustable platform G, substantially as shown and described.

3. The combination, with the hinged doors D D, the bottom of the chute, and the permanent sides B, and adjustable sides F, of the adjustable platform G, the loops I I, and the rod *i*, the whole arranged substantially as specified.

4. The combination, with a stock-chute having sides B, of the rods *a*, the doors D, hinged to and having an endwise adjustment upon the rods *a*, and the adjustable support or platform G, substantially as described.

5. The combination, with a stock-chute having permanent sides B and inclined bottom A, of the rods *a*, the doors D, hinged to and having an endwise adjustment upon the rods *a*, and the adjustable support or platform G, the said doors D being provided with catches or plates *e* to engage with cleats *m* on the sides of the chute, substantially as described.

6. The combination, in a stock-chute, of the doors D, rods *a*, upon which the said doors are hinged, and the adjustable shelf G, provided with means, substantially as described, for holding it in a vertical position, as herein set forth.

350,788. KEY-BOARD FOR MUSICAL INSTRUMENTS. Worthington T. Weir, Chicago, Ill. Filed May 19, 1885. (No model.)

Claim.—1. The combination, with the bars D' and D^2, of the false keys d^3, suspended by their ends from said bars, substantially as shown, and for the purposes set forth.

2. The combination, with the board A and bars D' D^2, of the false keys d^3, said false keys being suspended by their ends from said bars, substantially as shown, and for the purposes set forth.

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3. The combination, with the frame D of a transposition key-board, of detachable supporting-blocks F, designed to support the frame D on a piano key-board, substantially as herein shown and set forth.

4. The combination, with the frame D of a transposition key-board, of supporting-blocks F, having their front ends higher than their rear ends, substantially as shown, and for the purposes set forth.

5. The combination, with the frame D, of the blocks F and clamp or button F'

6. In a key-board for musical instruments, the slots A^5 and movable blocks A^4, for supporting the third and sixth keys, substantially as shown and described.

7. In a musical instrument, a key-board having banks or rows, as herein shown, and movable sections in said banks for supporting the third and sixth keys, substantially as shown and described.

8. In a key-board for musical instruments, the combination, with the movable blocks A^4, of the rod C, substantially as shown and described.

9. The combination, with a key-board for musical instruments, of a rod or shaft, C, carrying key-supports A^5 on both sides, substantially as shown and described.

10. The combination, with a key-board having a plurality of banks or rows of keys, of the rod C, deflected from a direct line, so as to extend into two banks or rows and support the third and sixth keys within their respective rows, substantially as and for the purposes specified.

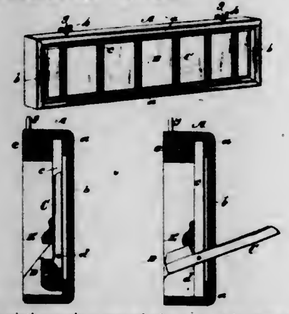
11. The blocks A^4, having grooves c' resting in slots A, having the channels C^3, in combination with the rod C, substantially as shown and described.

12. The key-board A, keys a, and key a^1, lying in the channel a^6, substantially as shown and described.

13. In a key-board having only the keys of the major or minor scale, as herein described, holes placed in the half-steps on each side of said keys to receive keys for accidentals, substantially as shown and described.

14. A key-board having a series of permanent keys for the notes of the major or minor scale, and removable keys for the accidental notes, substantially as shown and described.

350,789. COAT AND HAT RACK. Felix Whitwood, Wheeling, W. Va. Filed Jan. 20, 1886. (No model.)



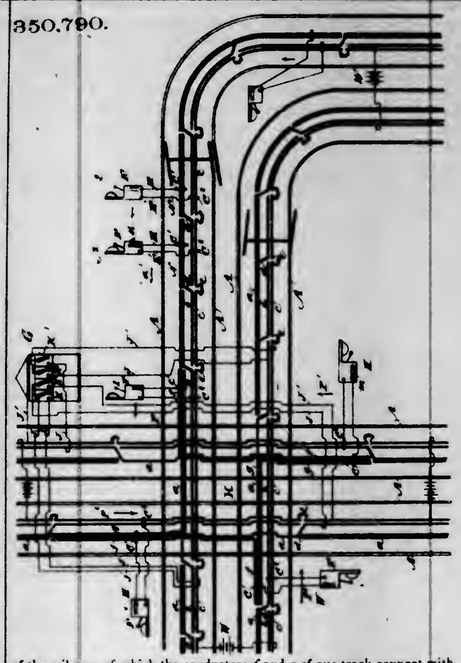
Claim.—A clothes-rack composed of a rectangular frame or casing consisting of the rabbeted moldings *a a* and *b b*, the panels B B, secured in said frame and interspaced to form vertical parallel slots *c c*, the vertically-swinging arms C C, pivoted directly in said slots and provided with weighted lower ends, and a stop-bar, E, located transversely at the rear of the panels and above the arm-pivots, whereby said pivoted arms are held in an inclined position only when unfolded and in use, and automatically assume a vertical position within their respective slots and flush with the adjacent panels when the suspended articles are removed, substantially as described.

350,790. RAILWAY-SIGNAL. Pierson J. Wheel, Green Point, N. Y. Filed Mar. 24, 1886. (No model.)

Claim.—1. In an electric signal for a block system for railways, a string-piece provided with three conductors, *a*, *b*, and *c*, for every block or section of the track, of which the conductor *a* connects with the conductor *b* at the end of every section, and of which the conductor *c* of one section is connected with the corresponding conductor *c* of the following section by a resistance-coil, substantially as shown and described.

2. In an electric signal for a block system for railways, a string-piece provided with five conductors, *a*, *b*, *c*, *f*, and *g*, at every crossing

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of the railway, of which the conductors *f* and *g* of one track connect with the corresponding conductors *f* and *g* of the crossing-track, substantially as shown and described.

3. In an electric signal for a block system for railways, the combination of a string-piece provided with three conductors, *a*, *b*, and *c*, for every block or section of the track, of which the conductor *a* is connected at the end of every section by the connection *d* with the conductor *b*, and of which the conductor *c* at the end of every section is connected with the corresponding conductor *c* of the following section by a resistance-coil, *e*, with a contact-wheel attached to the locomotive and provided with two tires insulated from each other, and an alarm in the cab of the locomotive electrically connected with the tires of the said contact-wheel, substantially as shown and described.

4. In an electric signal for a block system for railways, the combination of a string-piece provided with three conductors, *a*, *b*, and *c*, for every block or section of track, of which the conductor *a* is connected at the end of every section with its corresponding conductor, *c*, of the following section by a resistance-coil, *e*, with a contact-wheel attached to the locomotive and provided with two tires insulated from each other, an alarm in the cab of the locomotive electrically connected with the tires of the contact-wheel, and a switch between the electrical connections of the alarm and the contact-wheel, substantially as shown and described.

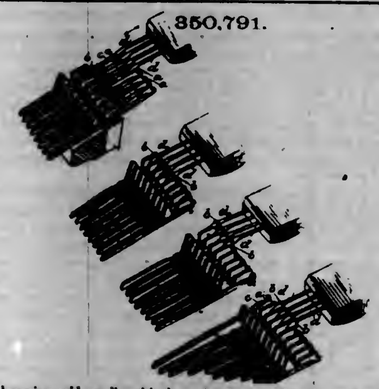
5. In an electric signal for a block system for railways, the combination of a string-piece, B, provided with five conductors, *a*, *b*, *c*, *f*, and *g*, at every crossing of the railway, with a string-piece, B, provided with three conductors, *a*, *b*, and *c*, of which the conductor *a* is connected by the conductor *d* with the conductor *b* of the crossing, and the conductor *c* is connected with the conductor *c* of the crossing by a resistance-coil, *e*, substantially as shown and described.

6. In an electric signal for a block system for railways, the wires J and J', and the switches K, K', K^2, and K^3, connecting, respectively, with the said wires, in combination with a string-piece for each track at a crossing, said string-piece being provided with the conductors *a*, *b*, and *c*, of which conductors *b* and *c* connect, respectively, with the said wires J and J', substantially as described.

350,791. METHOD OF OPERATING THE NEEDLES AND TRANSFER-POINTS IN LATCH-NEEDLE KNITTING-MACHINES FOR SHAPING FABRICS. Frank Wilcomb, San Francisco, Cal. Filed May 5, 1885. (No model.)

Claim.—An improved method of operating the needles and transfer-points in latch-needle knitting-machines, consisting in first advancing the needle from which the loop is to be taken until the loop is on the latch; second, in advancing the point to engage with the needle; third, in drawing back the needle with the point until the loop is on the point; fourth, in shifting the transfer-point into mesh with another needle, and

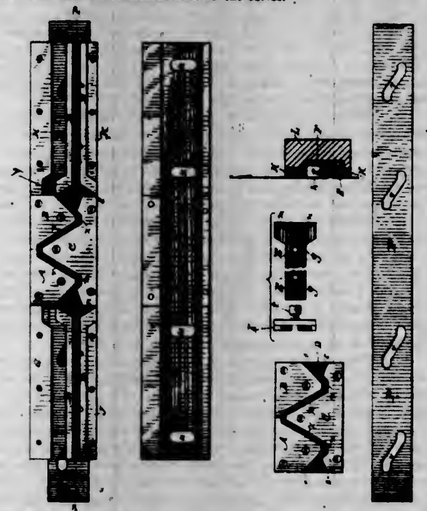
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then advancing said needle with the point far enough to leave the loop on the needle, all substantially as described.

350,792. NEEDLE-OPERATING CAM FOR KNITTING-MACHINES. Frank Wilcomb, San Francisco, Cal. Filed Dec. 30, 1885. (No model.)

Brief.—The object of the invention is to afford means whereby the needles can be moved backward or forward simultaneously, in order that the fabric may be pushed backward on the needles to enable stitches to be removed from certain needles of the series.



Claim.—1. The combination, in a knitting-machine, with the stitch-cams having enlarged mouths, of the longitudinal cams E E, having straight grooves, as shown, also having enlarged mouths, and mechanism for operating the cams E E, whereby the needles may be moved forward or backward simultaneously, substantially as described.

2. The combination, with a slide-bar, L, of the stitch-cams A B C, having grooves X X, formed with enlarged mouths *o*, the plate D, the slide-cam F, and the cap-pieces, and the longitudinal grooved cams E E, having enlarged mouths *m n* adjoining the mouths of the grooves X X, all substantially as described.

350,793. KNITTING-MACHINE. Frank Wilcomb, San Francisco, Cal. Filed Feb. 26, 1886. (No model.)



Claim.—1. In a knitting-machine, the combination of a series of needles, and mechanism for raising the inactive needles above the plane of the operating-needles, with a thread-carrier having the delivery end thereof adapted, substantially as described, to pass under the inactive needles, substantially as described.

2. The thread guide or carrier E, constructed substantially as described, whereby a portion of the series of needles are permitted to be elevated above the delivery-point of the carrier, said carrier having a flat surface along the under side of its beak to cover the hooks and hold open the latches of the needles, and a tunnel through said beak adapted to receive and protect the thread while delivering the same to the needles, as set forth.

3. The thread guide or carrier E, constructed substantially as described, whereby a portion of the series of needles are permitted to be elevated above the delivery-point of the carrier, the beak of said carrier having a flat surface along its under side and provided with a thin beveled edge adapted to open the latches, and a suitable tunnel to receive and protect the thread while delivering the same to the needles, as set forth.

4. The described thread-carrier formed with a return-beak, as described, and having a beak provided with a flat surface along its under side, said beak having a thin beveled edge adapted to open the latches, and a tunnel for the passage of the thread, said tunnel terminating in an open-mouthed channel, substantially as described.

350,794. MOVABLE CAM FOR STRAIGHT-KNITTING MACHINES. Frank Wilcomb, San Francisco, Cal. Filed Apr. 1, 1886. (No model.)

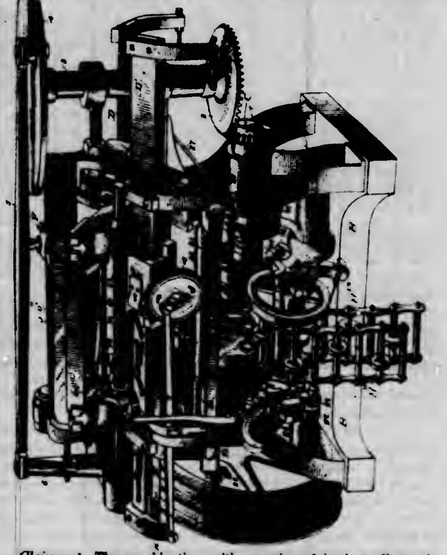
Brief.—The circular plate on which the cams are supported relieves the latter from friction and the cap-plates protect the edges of the cams.



Claim.—1. In combination with the slide-bar of a knitting-machine, a circular plate, F, mounted on the axis R, having a rotary or oscillating movement thereon, the stitch-cams A B, the central cam, E, all attached to the said circular plate, and cap-plates for retaining said circular plate in place, all substantially as described.

2. The stitch-cams A B and center cam, E, and a rotary plate, F, to which the said cams are attached, in combination with a socket-plate, G, cap-pieces *h k l m n*, a slide-cam, C, stud *d*, and a slide-bar, X X, substantially as and for the purpose described.

350,795. STRAIGHT-KNITTING MACHINE. Frank Wilcomb, San Francisco, Cal. Filed July 3, 1886. (No model.)



Claim.—1. The combination, with a series of latch-needles and transfer-points, of mechanism, substantially as described, for advancing the needles through the loops until the loops are between the rivets and the ends of the latches and for returning the same to their normal position, and mechanism for advancing and withdrawing the transfer-points simultaneously or in unison with the advancing or retracting movements of the needles, to effect the transfer of the loops from the needles to the points and from the points to the needles, and for shifting the points laterally, all substantially as described.

2. The combination of two parallel rows of latch-needles, means for operating the same for the purpose of knitting, and mechanism, substantially as described, for imparting a forward and backward movement to the needles to facilitate the transfer of stitches with transfer-points, mechanism, substantially as described, for imparting a forward and backward movement to the said points in unison with the movement of the needles, and a lateral movement to effect the shifting of the stitches, and pattern devices, substantially as described, for controlling the movements of the parts, all operating to actuate the needles and points to effect the transfer of stitches independently of but simultaneously with the operation of the mechanism for operating the needles for knitting, substantially as and for the purpose set forth.

3. The combination, with a row of needles of a straight-latch-needle knitting-machine, mechanism for actuating the same for the purpose of knitting, and the main driving-shaft, of mechanism, substantially as described, by which the needles are operated forward and backward to facilitate the transfer of stitches, arranged to follow the knitting movements, pattern mechanism for controlling the operation of the said mechanism for operating the needles forward and backward, transfer-points, mechanism, substantially as described, whereby the same are operated from the main driving-shaft and caused to move in unison with the needles, and devices, substantially as described, under the control of the pattern mechanism, whereby the shifting mechanism is operated automatically and simultaneously with the knitting movements, substantially as described.

4. The combination, with the row of needles of a straight-latch-needle knitting-machine, the mechanism for operating the same for the purpose of knitting, and the main driving-shaft, of mechanism, substantially as described, for operating the needles forward and backward to facilitate the transfer of stitches, arranged to follow the ordinary knitting movement and connected to the main driving-shaft, a pattern mechanism for controlling the operation of the said mechanism for moving the needles forward and backward, transfer-points, mechanism, substantially as described, for causing them to move forward and backward in unison with the needles and laterally to shift the stitches, said mechanism being connected, substantially as described, with the main driving-shaft, and controlled also by the pattern mechanism, and mechanism, substantially as described, for throwing the empty needles out of work, whereby the shaping mechanism is operated automatically without interrupting the operation of the knitting mechanism, substantially as described.

5. The combination, with the two rows of needles of a straight-latch-needle knitting-machine, the mechanism for operating the same for the purpose of knitting, and the main driving-shaft, of an independent operating mechanism, for each row of needles, consisting of mechanism, substantially as described, by which the needles are operated forward and backward to facilitate the transfer of stitches, arranged to follow the ordinary needle movements, and connected to the main driving-shaft, a pattern mechanism, substantially as described, controlling the action of the said operating mechanisms, independent sets of transfer-points for each row of needles, and independent sets of operating mechanisms, substantially as described, connected with the main driving-shaft and controlled independently by the pattern mechanism for moving said points forward and backward in unison with the needles, and laterally to shift the stitches, all substantially as described.

6. The combination, with the row of needles of a straight-latch-needle knitting-machine, the means for operating the same for the purpose of knitting, and the main driving-shaft, of operating mechanism, substantially as described, for operating the needles forward and back to facilitate the transfer of stitches, connected independently with the main driving-shaft and arranged to follow the knitting movement, and constructed to advance the needles to a point where the loops rest upon the open latches, transfer-points connected with the main driving-shaft, mechanism, substantially as described, for moving said points forward and backward in unison with the needles, and laterally to shift the stitches, and a pattern mechanism controlling the operation of the transferring mechanism, all substantially as described.

7. The combination, with a row of needles of a straight-latch-needle knitting-machine, of mechanism, substantially as described, for operating the needles backward and forward to facilitate the transfer of stitches, a transfer point or points, a point-carrier arranged to slide forward and backward approximately in the plane of the row of needles, mechanism for moving said carrier backward and forward, mechanism, substantially as described, for depressing the point or points for engagement with the needles, mechanism, substantially as described, for automatically moving the points laterally upon the frame by which they are carried, and pattern mechanism, substantially as described, for controlling the operation of the parts, all substantially as described.

8. The combination, with a row of needles of a straight-latch-needle knitting-machine, of mechanism, substantially as described, for operating the needles to transfer the loops, the transfer-point, a point-carrier which is arranged to slide forward and backward approximately in the plane of the row of needles, mechanism for moving said carrier forward and backward, mechanism, substantially as described, for depressing the points for engagement with the needles, and a pawl-and-slide rack mechanism for automatically moving the points laterally from needle to needle in either direction at the will of the operator, substantially as described.

9. The combination, with the needles and the slide-bar and needle-cam of a straight-latch-needle knitting-machine, of a longitudinally-grooved cam having a flaring mouth adapted to receive the heels of the needles, mechanism, substantially as described, for moving it forward and backward, and transfer-points to effect the transfer of stitches, substantially as described.

10. The combination, with the needles and the slide-bar and needle-cam of a straight-latch-needle knitting-machine, of a longitudinally-grooved cam, having a flaring mouth, and adapted to receive the heels of the needles, mechanism for moving it forward and backward to facilitate the transfer of stitches, consisting of a sliding plate having suitable inclined slots, studs connected with the grooved cam, a gear, a link by which said gear is connected to the slide, a rack, and means, substantially as described, by which said rack is thrown into engagement with the gear at the proper time, substantially as described.

11. The combination, with the longitudinally-grooved cam, its studs, the slide which moves the longitudinally-grooved cam, a gear connected to said slide by a pitman, the sliding bar, a rack, 20, having lateral movement into and out of engagement with the gear, and means for holding the gear from turning when not in engagement with the rack, a lever adapted to be operated by the main driving mechanism, means for connecting said rack with said lever, the main driving mechanism, a pattern-chain, and means controlled by the pattern-chain for causing the said driving mechanism to act upon the lever, all substantially as described.

12. The combination, with the slide-bar, the longitudinally-grooved cam, and the needles, of the lever 31, an intermediate mechanism, substantially as described, between this lever and the grooved cam, a point-carrier, the levers 64 and 73, intermediate mechanism, substantially as described, whereby said point-carrier is operated from said levers, the driving-shaft, cams 45, 82, and 76, a spline to which said cams are connected, and a pattern mechanism, whereby said cams may be thrown into range with the levers, substantially as described.

13. The combination, with the two rows of needles, the described mechanism for operating the needles to facilitate the transfer of the loops, of transfer-points for each row and levers and intermediate devices, substantially as described, for operating the same in unison with the movement of the needles, the main driving-shaft, two independent sets of cams, an independent movable spline to which each set of cams is connected, a pattern mechanism, and mechanism, substantially as described, operated by the pattern mechanism, for moving these cams on the main shaft into range with the levers for operating the transfer-points, and means for returning the cams to their normal position, substantially as described.

14. The combination, with the lever 35, and the movable roller connected thereto, of the lever 41, having a spur, 49, intermediate connections, substantially as described, between said lever and the roller upon the lever 35 and the pattern-chain, substantially as described.

15. The combination, with the series of latch-needles, the grooved transfer-cam, means, substantially as described, for operating the same, and the ordinary needle-operating mechanism, of a point-carrier having forward and backward movement substantially parallel with the needle, and carrying points adapted to move laterally on the point-carrier, the main driving-shaft, mechanism, substantially as described, driven from the main shaft, for causing the carrier to move forward and backward, mechanism, substantially as described, for moving the points laterally, also connected with the main driving-shaft, and a pattern mechanism, substantially as described, for controlling the operation of the mechanism for operating the points and point-carrier, all substantially as described.

16. The combination, with the series of latch-needles, the grooved transfer-cam, means for operating said cam, substantially as described, and the ordinary needle-operating mechanism, of a point-carrier having forward and backward movement substantially parallel with the needles, and transfer-points adapted to move laterally on the point-carrier, the main driving-shaft, mechanism, substantially as described, driven from the main driving-shaft, for causing the carrier to move forward and backward, mechanism, substantially as described, for moving the points laterally, also connected with the main driving-shaft, mechanism, substantially as described, for depressing the points for bringing them into engagement with the needles, also connected with the main driving-shaft, and the pattern mechanism for controlling the operation of the mechanism for operating the points and point-carrier, substantially as described.

17. The combination, with the points and the point-carrier and its guideways, of the pinions meshing with racks upon the carrier, the lever 33, provided with rack 72 and with the anti-friction roller 75, and the cam 76, substantially as described.

18. The points and point-block, the point-carrier, a sliding rack on the point-carrier, and a pawl connected with the point-block adapted to engage with said rack, in combination with a push-pin, a movable frame carrying said push-pin, the slide-bars, said frame being adapted to be moved by the slide-bars near the end of their movement, and means for returning the frame and the rack, substantially as described.

19. The points and point-block, the point-carrier, the sliding rack 66 on the point-carrier, a pawl connected with the point-block, adapted to engage therewith, a second sliding rack, 112, with reversing connections, substantially as described, between the racks 66 and 112, and the pawl 115 on the point-block, in combination with a push-pin, a movable frame carrying said push-pin, the slide-bars, said movable frame being adapted to be moved by the slide-bars near the end of their movement, and means for returning the frame and the sliding rack, substantially as described.

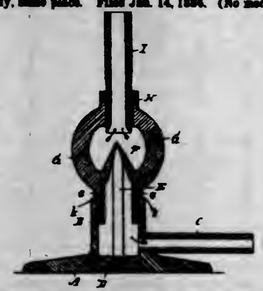
20. A slide having a finger, 101, and a rack upon its face, in combination with a pawl, 102, a sliding-bar, 103, having a lug adapted to be moved by the spur of a plate, 107, spring 199, plate 107, and the cam-slide, substantially as described.

21. A sliding bar having finger 101, and two racks set reversely to each other, in combination with the pawls 102 and 116, means, substantially as described, for connecting said pawls, the sliding rod 103, provided with a lug and adapted to be moved by the plate 107, spring-plate 109, plate 107, and the cam slide-bar, all substantially as described.

22. In combination with the slide-bar carrying the finger 101 and formed with a rack, the pawl, the sliding rod formed with the lug and carrying said pawl, the spring 199, the sliding plate 107, having a spur and held in place by frictional contact, the cam slide-bar, the elongated grooved cam, means to move the same, and the screw set in the elongated grooved cam and projecting through the slot to strike the plate 107, all substantially as described.

23. The combination, with a spindle having a reversible thread-guide on its lower end, of a sleeve surrounding the spindle and having an inclined slot therein, a stud set in the spindle and projecting into the inclined slot in the sleeve surrounding the spindle, a stud set in the sleeve, and mechanism, substantially as described, to operate upon this stud, for giving the sleeve vertical movement at the end of the stroke, substantially as described.

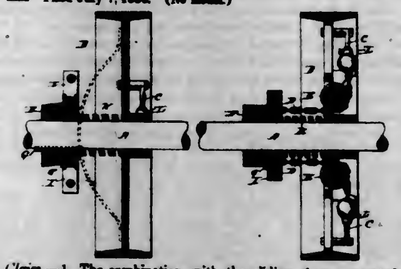
350,796. LABORATORY-BURNER. Henry Allender and Alexander T. Henderson, Detroit, Mich., assignors to the Combination Gas Machine Company, same place. Filed Jan. 14, 1886. (No model.)



Claim.—1. The combination, with the base provided with stationary needle-valve, of the jet-tube F, vertically adjustable on said base, and provided with conical aperture controlled by said valve, the arms G and threaded collar H, formed integral with said tube, and the mixing-tube I, vertically adjustable in said collar, and constructed to close the upper end of the jet-tube when desired, substantially as and for the purpose specified.

2. The combination, with the base A, provided with internally-threaded stud B, and stationary needle-valve E, located centrally in said stud, of the jet-tube F, having conical aperture controlled by said valve, externally threaded to engage the thread of the stud, and provided with annular recess *b* and shoulder *a*, and the packing in said recess, all substantially as shown and described, and for the purpose specified.

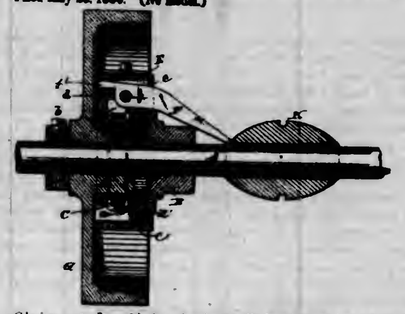
350,797. GOVERNOR FOR ENGINES. William Arnot, Selma, Ala. Filed July 7, 1886. (No model.)



Claim.—1. The combination, with the sliding sleeve mounted on the main shaft, and the annulus secured thereto, and strap, of the fly-wheel and its pulleys, the chains connected to the annulus, and the weighted levers pivoted to the fly-wheel, the whole arranged to operate substantially in the manner specified.

2. The combination, with the main shaft, of the sliding sleeve and annulus, the strap mounted thereon, the fly-wheel, and mechanism for operating the sleeve, and the spring interposed between the sleeve and fly-wheel for holding the parts in normal position, substantially as specified.

350,798. Friction-Clutch. Henry Barnes, Hyde Park, Mass. Filed May 28, 1886. (No model.)



Claim.—1. In a friction-clutch, a split band or spring adapted to extend two or more times around a hub or shaft, and having a pair of operating-lugs formed integral therewith, substantially as set forth.

2. In a friction-clutch, the combination, with a false hub adapted to receive the hub of a loose pulley, and provided with recesses communicating with the hub-receiving chamber, of a split band or spring provided with a pair of lugs adapted to enter the said recesses and be locked therein, substantially as set forth.

3. In a friction-clutch, the combination, with a false hub provided with a hub-receiving chamber, and having a clutch-operating lever pivotally secured in a skeleton lug formed thereon, of a split band or spring having a lug at or near one end adapted to engage the said lever, and a lug at or near the opposite end adapted to enter a recess in the false hub, substantially as set forth.

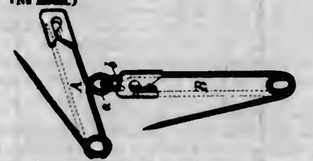
4. In a friction-clutch, the combination, with a false hub provided with a hub-receiving chamber and a recess communicating with the chamber, adapted to receive a lug on the split band or spring, of a set screw or bolt extending through the wall of the recess and adapted to adjust the lug within the recess, and hence the tension of the spring, substantially as set forth.

5. The combination, with the false hub and means for securing it to the shaft, and the loose pulley having a hub adapted to enter the chamber formed in the false hub, of the split band or spring having a beveled or rounded faced lug formed at or near one end, and an operating-lug formed at or near the opposite end, and an operating-lever adapted to engage the beveled-faced lug, the whole constructed and arranged substantially as set forth.

6. In a friction-clutch, a spring-band consisting, essentially, of a series of connected split rings provided with operating-lugs and adapted to grip and release a pulley, substantially as set forth.

7. In a friction-clutch, a spring-band consisting, essentially, of a series of connected split rings gradually increasing in strength, and provided with operating-lugs at their free ends, the said spring-band adapted to grip and release a pulley, substantially as set forth.

350,799. Safety-Pin. John Batty, Salem, Mass. Filed Jan. 15, 1886. (No model.)



Claim.—As a new article of manufacture, a diaper support and retainer consisting of the safety-shield pin A, having the eye *a* centrally on its stationary bar, and the safety-shield pin B, having the eye *b* loosely connected with said central eye, substantially as described.

350,800. Chimney-Cowl. Thomas J. Bradshaw, Detroit, Mich., assignor to Putnam & Wineman, same place. Filed Feb. 18, 1886. (No model.)

Claim.—1. In a chimney cowl or ventilator, the combination, with the base-section, of the lower frustum, *a*, provided with discharge-openings, a supporting-frame and outer frustum supported on said frame with

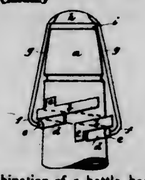
350,800.



its smaller end downward, a top frustum supported on said frame with its smaller end uppermost and its lower end supported by brackets within the top of the outer frustum, and an inner frustum supported upon said frame with its smaller end downward, said lower end provided with a discharge-opening and a discharge-channel communicating therewith, all arranged substantially as and in the manner described.

2. The combination, with the lower section, of a supporting-framework, an inner inverted frustum, E, located above the center of said lower section, provided with a discharge-opening and a discharge-channel communicating therewith, a top frustum engaged upon said frame and extended above said inner frustum, and leaving a space between it and the outer edge of the frustum E nearly or quite equivalent to the full capacity of the lower section, and an exterior inverted frustum provided with a discharge-opening outside the base of the top frustum and extended downward below and about the top of the base-section, substantially as and in the manner described.

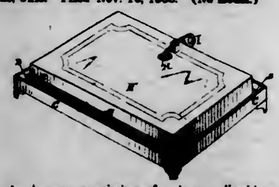
350,801. BOTTLE-STOPPER. Curtis W. Buffum, Pittsburg, Pa. Filed June 19, 1886. (Model.)



Claim.—1. The combination of a bottle having its neck provided with a projecting spiral thread, having an upward and a downward lug, *c*, thereon, a plain metallic band having boss-journals, and adapted to move up and down on the said thread and be stopped by the said lugs, and the bail journaled in the said collar and carrying a stopper, substantially as specified.

2. The combination of the sectional band *k*, having a thread formed about the same, and a means for securing the sections about the neck of a bottle, the bent wire *g*, having attached thereto the cap or stopper *h*, and metallic band *d*, as and for the purpose described.

350,802. BLOTTER-CASE FOR COPYING-PRESSES. John W. Calland, Toledo, Ohio. Filed Nov. 16, 1885. (No model.)



Claim.—1. A case consisting of a box, a liquid-receptacle surrounding the box, a cover adapted to rest within the liquid-receptacle, an air-valve in the cover, and a handle on the cover, adapted to unseat said valve upon lifting the cover, all in combination, as set forth.

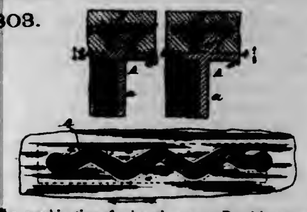
2. A case for holding dampened blotters for copying-presses, consisting of two pans, one within the other, in combination with a water-seal between the two and a cover resting between the said two pans within the water-seal, for the purpose set forth.

3. In a blotter-case, an outer pan and an inner pan resting within the former, with lugs arranged between the two, whereby a space for liquid is provided, all in combination with a cover, the edge of which rests within the space between the sides of the blotter-case.

4. A cover for a blotter-case, having a pivoted lever located thereon, carrying a catch or handle at one end and a valve at the other, whereby the raising of the catch will open the valve, as set forth.

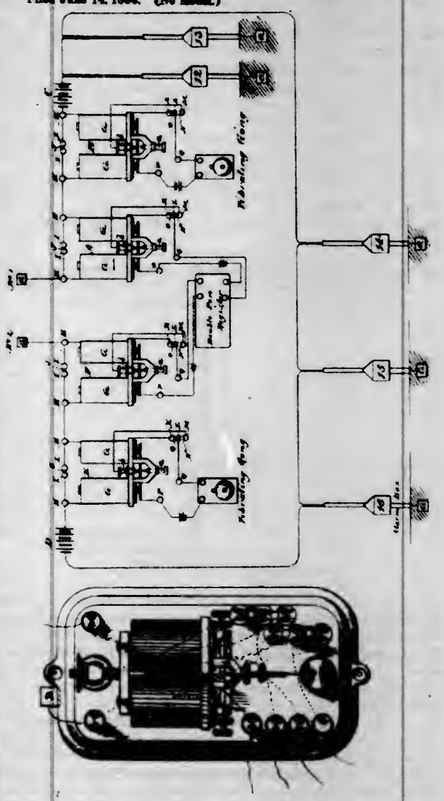
350,803. SCHOOL FURNITURE. Jacob C. Cameron, St. Louis, Mo. Filed Apr. 3, 1886. (No model.)

Claim.—1. The combination of board or part B, having zigzag grooves *b* and the zigzag rib *d'*, having side lips, d^2, all inclining to one end of the rib, substantially as set forth



2. The combination of a board or part, B, with an undercut zigzag groove and a zigzag rib, with side lips engaging in the enlarged inner part of the groove, for the purpose set forth.

350,804. FIRE-ALARM-TELEGRAPH SYSTEM. Sidney A. Chase, Evart, Mich., assignor of one-half to William R. Hayes, same place. Filed June 14, 1886. (No model.)



Claim.—1. As an improvement in fire-alarm-telegraph systems, a closed earth-circuit connecting the fire-alarm signal-boxes with the central office in two directions, two relay electro-magnets, and two separate coacting main-line batteries located upon and near each end of the main line at said office, the coils of said relays receiving the main-line current, each relay having a metallic yoke provided with an uninsulated contact-screw for the armature to bear against when released from the magnets, and an insulated contact-screw for the armature to bear against when attracted by the magnets, three metallic disks having, respectively, wire connections with the yoke and a binding-post and with the insulated contact-screw, a binding-post having wire connections to the armature, and a metallic plug for connecting either of the disks at the end of the series with the central disk, substantially as shown and described.

2. In a fire-alarm-telegraph system, the combination of a number of signal-boxes having suitable main-line wires connecting the signal-boxes in two directions to relays at the central office, each relay having a metallic yoke provided with an insulated contact-screw for the armature to bear against when attracted by the magnets, a series of three disks at each relay, having apertures between them, and having, respectively, wire connections with the yoke and a binding-post and with the insulated contact-screw, a binding-post having wire connections to the armature, and a metallic plug for connecting either of the disks at the ends of the series with the central disk, two electro-magnetic vibrating gongs connected, one in an open local circuit of each of two relays, and one double-pen register connected in the open local circuits of the other two relays, each open local circuit provided with the necessary battery, substantially as and for the purpose set forth.

3. In a fire-alarm-telegraph system, the combination of four relay electro-magnets located in a closed earth-circuit at a central office, having the usual metallic yoke, the two contact-screws, one of which is in direct contact with the metallic yoke, while the other passes through an insulated aperture in said yoke, and the armature arranged to come in contact with the insulated contact-screw when attracted by the relay electro-magnet, and to come in contact with the uninsulated contact-screw when the main-line current is broken, two electro-magnetic vibrating gongs, and one double-pen register connected with the open local circuits of said relays and adapted to be operated by them, substantially as described and set forth.

4. In a fire-alarm-telegraph system, the combination of two-relay electro-magnets upon the main-line circuit, having the usual metallic yoke, the two contact-screws, one of which is in direct contact with the metallic yoke, while the other passes through an insulated aperture in said yoke, and the armature arranged to come in contact with the insulated contact-screw when attracted by the relay electro-magnet, and to come in contact with the uninsulated contact-screw when the main-line circuit is broken, each relay having two series of three disks each, suitable apertures between the several disks of each series, metallic plugs, a disk at one end of each series having a wire leading to the uninsulated contact-screw, wires leading from the opposite end disks to the metallic yoke, wires leading from the central disks to two binding-posts, one of which receives the wire of one local circuit of one relay, while the other receives the wire of another local circuit of the same relay, and wires leading from the armature to two binding-posts, one of which receives the remaining wire of the first local circuit, while the other receives the remaining wire of the other local circuit, the former circuits each having an electro-mechanical gong connected therein, and the latter circuits each having, respectively, one side of a double-pen register connected therein, substantially as and for the purpose set forth.

5. In a fire-alarm-telegraph system, the combination of two or more relay electro-magnets upon the main-line circuit, the coils of which receive the main-line current, two metallic disks, one of which has wire connection to one of the main-line binding-posts and the other has wire connection to the other one of the two binding-posts, a metallic plug adapted to fit between the disks and to cut out the coils of the relay electro-magnets, which have the usual metallic yoke, the two contact-screws, one of which is in direct contact with the metallic yoke, while the other passes through an insulated aperture in said yoke, and the armature arranged to come in contact with the insulated contact-screw when attracted by the magnets, and to come in contact with the uninsulated contact-screw when the main-line current is broken, each relay having two series of three disks each, metallic plugs to close circuit between said disks, a disk at one end of each series having a wire leading to said insulated contact-screw, wires leading from the opposite end disks of the series to the metallic yoke, wires leading from the central disks to two binding-posts, one of which posts receives the wire of a local circuit, while the other post receives the wire of another local circuit, and wires leading from the armature to two binding-posts, one of which receives the remaining wire of one local circuit, while the other receives the remaining wire of the other local circuit, substantially as and for the purpose described and set forth.

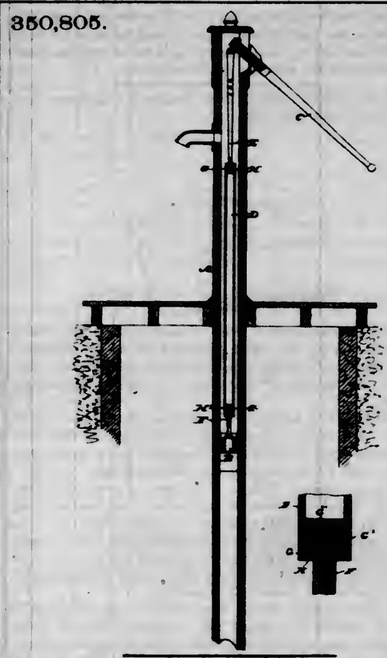
6. In combination with the crank of a fire-alarm signal-box, mechanism adapted to repeat the number of the signal-box a different number of times, according to the point or lug upon the face of the box to which the crank is turned before releasing it, a shouldered plug fitting with its reduced end in the perforations of the lugs, and an outer casing or box having a door at a distance from the end of the lowest lug equal to the length of the shouldered portion of the plug, substantially as described and set forth.

7. In a fire-alarm signal-box, the combination, with a plain shouldered plug, of a series of externally-screw-threaded lugs, each provided with a smooth axial perforation extending partially therethrough, said lugs fitting into screw-threaded perforations in the top of said box, as and for the purpose set forth.

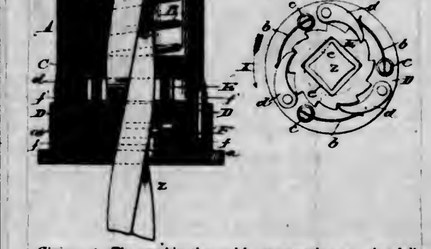
350,805. PUMP. Matthias M. Crew, Williamstown, N. J. Filed Apr. 11, 1885. (No model.)

Claim.—A pump having an air-tight floating valve-rod, D, consisting of a tube with plates G' within the same near the ends, forming sockets G, the wooden plugs H, fitted in said sockets, the connections E F, entering said plugs, and the fastenings driven through the sides of the sockets, the plugs, and connections, the several parts being combined and operating substantially as and for the purpose set forth.

350,805.



350,806. EXTENSION GAS-CHANDELIER. Bartholomew Churchill, New York, N. Y., assignor to the Travis & Murray Manufacturing Company, same place. Filed Oct. 16, 1885. (No model.)



Claim.—1. The combination, with an extension gas-chandelier, of the ratchet-case constructed with disks C D, ratchet-wheel *c*, pawls *d d d*, posts *c c c*, springs *b b b*, and sliding rod Z, substantially as herein described, and for the purposes set forth.

2. The combination, with an extension gas-chandelier, of the ratchet-case constructed with disks C D, ratchet-wheel *a*, pawls *d d d*, posts *c c c*, springs *b b b*, sliding rod Z, the friction-box *a*, having grooves *f'*, and the washer F, provided with projections or lugs *f*, registering with and sliding in said grooves, the whole co-operating in the manner and for the purpose herein shown and described.

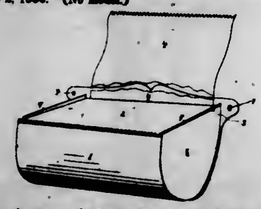
350,807. HAT AND COAT HOOK. William R. Clark, Schoolcraft, Mich., assignor of one-half to W. C. Kohl, same place. Filed Dec. 19, 1885. (No model.)



Claim.—The metallic strip A, curved in opposite directions at its upper and lower ends, the metallic strip forming the clasp F integral with the upper curved end of said strip A, and curved inwardly at its

lower end at about the center of and abutting against said latter strip, and the bracket also rigid with said upper end and having a pin (or its equivalent) passed through an aperture therein for securing the device in position, substantially as shown and described.

350,808. PAPER-RECEPTACLE. Darwin R. Cole, Meriden, N. H. Filed June 3, 1886. (No model.)



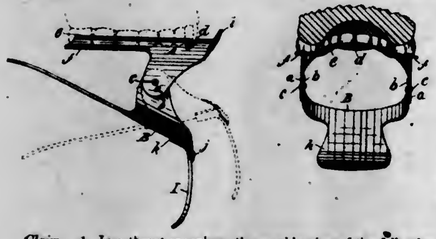
Claim.—1. A receptacle for a roll of paper, having a hinged cover provided with a cutting-edge and a passage or exit for the paper sheet near a side opposite the cutting-edge, whereby the paper can be drawn out over the cover and severed by a downward movement, substantially as set forth.

2. A receptacle for paper, having a cover extending near to but not touching the back, said cover when closed extending slightly over or beyond the front wall of the receptacle and adapted to rest on said wall, and provided with a cutting-edge, substantially as set forth.

3. A paper-receptacle having a hinged cover provided with a cutting-edge, the hinge being formed of the material of the cover bent back upon itself and around a wire, which extends through the walls of the box and placed a short distance from the back, whereby, when the cover is raised, a wide space is provided for the insertion of the end of the paper sheet, and when closed down the paper may be drawn over the bent edge of the cover, substantially as set forth.

4. A paper-receptacle having an unobstructed and plain back to allow it to be fastened to a vertical wall, a cover provided with a cutting-edge, and an exit for paper at the side of the cover opposite the cutting-edge and adjacent to the back, substantially as set forth.

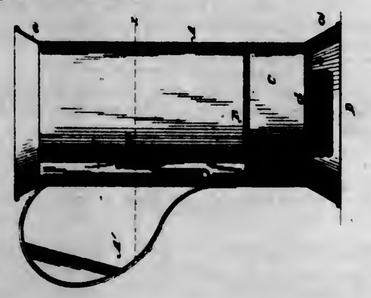
350,809. SPECULUM FOR THE THROAT. James J. Cole, Indianapolis, and Thomas A. Cole, Greenwood, Ind. Filed Apr. 1, 1886. (Model.)



Claim.—1. In a throat-speculum, the combination of the following elements, namely: an upper curved plate having side wings adapted to engage the molar teeth of an upper jaw, and a lower curved plate extended to form a tongue-spatula and pivoted to said upper plate, said plates being arranged to co-operate substantially as and for the purpose specified.

2. In a throat-speculum, the combination, with a pair of curved plates arranged to form together a hollow support for the jaws, of the side wings, *f f*, arranged substantially as and for the purpose specified.

350,810. LIQUID-MEASURE. John S. Cole, Hookset, N. H. Filed May 13, 1886. (No model.)

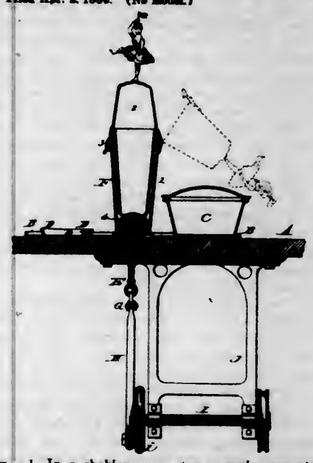


Claim.—1. In a portable measuring-vessel, a cylindrical body portion, A, provided with a transverse partition, B, which forms, with the body and bottom portions, a compartment, C, a tube or passage-way, E, which extends from the partition B to near the upper edge of the body portion, said tube being provided with an opening, F, which is located between the partition B and the upper edge of the tube, substantially as shown.

2. In a measuring device, a body portion or vessel, A, provided with a transverse portion, B, a tube or passage-way, E, extending upwardly therefrom, an opening in the wall of said passage-way, and a spring-bar located within the passage-way and provided with a stopper adapted to close said opening, the parts being combined substantially as shown, and for the purpose set forth.

3. In a measuring device, a receptacle, A, provided with a bottom having a screw-threaded cap, D, secured thereto, a transverse partition secured to the sides of the vessel above the bottom, and a tube or passage-way, E, secured above the bottom to the sides of the vessel, and provided with an opening, F, a spring-bar located within said passage-way, and provided with a stopper for closing the opening F, and the handle *g*, the parts being organized substantially as shown.

350,811. SHAKING APPARATUS. Charles Collier, Dexter Town, Ga. Filed Apr. 2, 1886. (No model.)



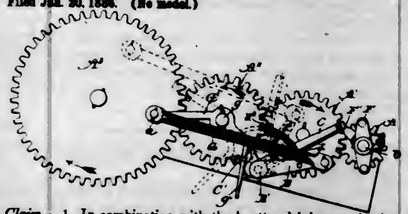
Claim.—1. In a shaking apparatus, a carrier comprising a lower section, a cover-section, and a cushion arranged to bear between the lower section and the bottom of a glass, whereby to force the mouth of said glass snugly against the cover, substantially as set forth.

2. The combination, in a shaking apparatus, of the frame or plate having an opening, the plunger-rod, movable, and having a spiral bearing in said opening, and provided with a glass-carrier, substantially as set forth.

3. In a shaking apparatus having a reciprocating carrier, a tray having a central opening for the passage of said carrier, and provided with a series of receptacles or compartments, substantially as set forth.

4. The combination, in a shaking apparatus, of the carrier having a plunger-rod, the framing having guides therefor, the crank-shaft, and the pitman connected with said shaft, and having a universal joint with the plunger-rod, whereby the latter is free to rotate, substantially as set forth.

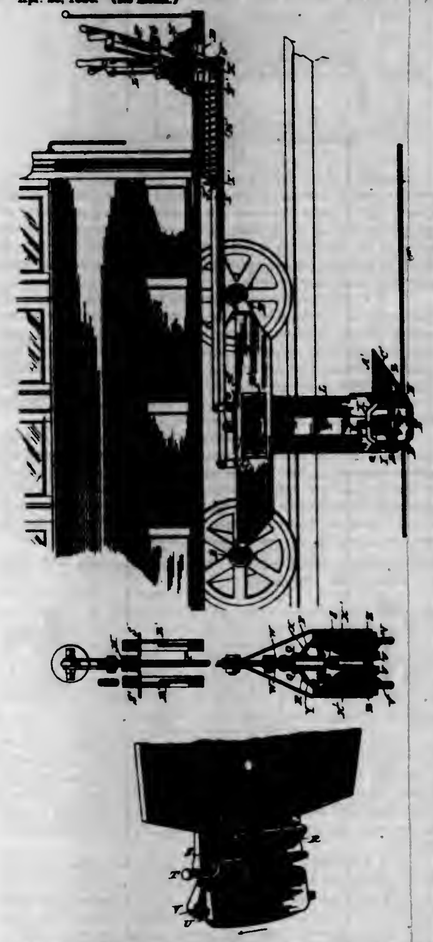
350,812. GRAIN-BINDING HARVESTER. Orvelle Cooley, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed Jan. 20, 1886. (No model.)



Claim.—1. In combination with the knotter-driving mechanism of a self-binding harvester, the supplemental locking-dog G', the laterally-projecting pivotal stud *g*, the pin *a*, and arm C', all arranged and operating substantially as described, and for the purpose herein set forth.

2. The combination, in a self-binding harvester, of the supplemental locking-dog G', the tail-piece *g'*, the pivot-stud *g*, pin *a*, arm C', and locking-lever C, all arranged and operating substantially as described, and for the purpose herein set forth.

350,813. CABLE-GRIP. Thomas O. Cooper, Wilmington, Del. Filed Apr. 22, 1886. (No model.)



Claim.—1. The combination of the parallel vertical bars connected at their upper ends by the cross-pieces, the central bar sliding between the said bars, the operating-lever connected by the pitman and bell-crank with the upper end of the said central bar, the curved clamping-frames having the clamping-jaws at their lower ends and hinged together by the bolt or rod passing through the lower ends of the parallel side bars, and the hinge-plates connecting the upper ends of the clamping-frames with the lower end of the central sliding bar, as and for the purpose set forth.

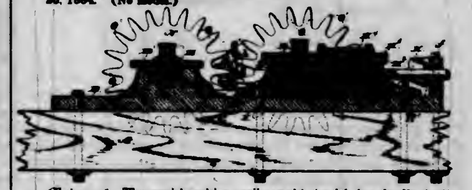
2. The combination of the parallel vertical bars connected at their upper ends by the cross-pieces, the central bar sliding between the said bars, the pivoted hand-lever having means for securing it in its adjusted position, and having the transverse pivot-bolt in its lower bifurcated end, the bell-crank pivoted in the upper ends of the pivoted links, and pivoted at its rear lower end to the upper end of the central bar and at its upper end to the rear end of the pitman, the pitman pivoted at its rear end to the upper arm of the said bell-crank, and having at its forward end the longitudinal slot sliding on the pivot-bolt in the lower end of the hand-lever, the coiled spring encircling the pitman between a stop-disk near its rear end and the forward disk secured to the lower end of the hand-lever, the curved clamping-frames having the clamping-jaws at their lower ends and hinged together by the rod passing through the lower ends of the parallel side bars, the hinge-plates connecting the upper ends of the clamping-frames with the lower end of the central sliding bar, the frame pivotally connected by the pivoted links to the lower portion of the said central bar, the side pieces secured to the said frame and having journaled in their lower curved edges the anti-friction rollers and pivoted at their forward extended ends in a cap-piece rigidly secured to the two parallel side bars, the lower edges of the side pieces extending normally down below the sides of this cap-piece, all constructed, combined, and arranged to operate in the manner and for the purpose herein shown and described.

3. The combination, with the clamping-jaws, of the side pieces having the seats formed on their inner sides, against which the said jaws rest when in their closed position, substantially as set forth.

4. The combination, with the clamping-frames and the frame having the side pieces, of the cap having the inclosed upper sides and rigidly secured to the parallel side bars, as and for the purpose shown and described.

5. The combination, with the three parallel bars supporting and operating the clamping-jaws, of the pivoted bell-crank connected through the pivoted link with the guide-frame, and pivotally connected at its forward lower end to the cross-pieces connecting the upper ends of the parallel side bars, the pivoted hand-lever having the spring-catch engaging with the inclined teeth of a segmental rack, and the pitman pivotally connecting the lower end of this lever with the upper end of the said bell-crank, and the elliptical springs arranged as described, as and for the purpose shown and described.

350,814. COAL-BREAKER. Berkley R. Coxe, Drifton, Pa. Filed Oct. 20, 1884. (No model.)



Claim.—1. The coal-breaking roll provided with longitudinal ribs having their outer portions beveled to form edges, and their main portions or supporting parts made parallel or nearly parallel to radial planes through the edges of the ribs, substantially as and for the purpose described.

2. The coal-breaking roll of cast-iron, provided with longitudinal ribs having their outer parts beveled to form edges, and chilled, and the main or supporting parts of unchilled iron, and with sides substantially parallel to radial planes through the edges of the respective ribs, substantially as and for the purpose described.

3. In combination with means for rotating them at the same speed, the two rolls having longitudinal ribs so arranged that the ribs on one come opposite the spaces between the ribs on the other, and having the spaces between the ribs of such depth that as a rib on one roll comes opposite a space on the other the distance from the edge of such rib to the bottom of the space is greater than the distance from such edge to the edge of either of the ribs inclosing such space, substantially as and for the purpose described.

4. In combination with the two rolls of equal diameter provided with longitudinal ribs so arranged that the ribs on one roll come opposite the spaces between the ribs on the other, and having the spaces between the ribs of such depths that as a rib on one roll comes opposite a space on the other the distance between the edge of the rib and the bottom of the space is greater than the distance from each rib-edge to the edges of the ribs inclosing the space, the shafts of the rolls set so that the arcs of travel of the ribs on the two rolls will not intersect, and means for causing the shafts to rotate at the same speed, substantially as and for the purpose described.

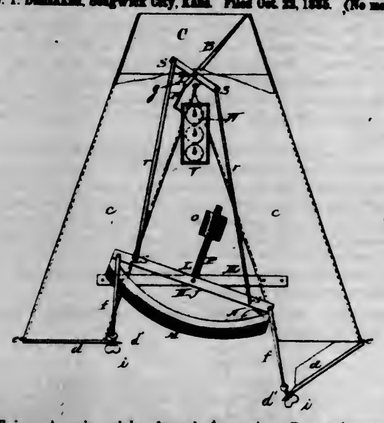
350,815. BURNER FOR GAS. Edward L. Dawes and August Haarlander, Allegheny, Pa. Filed Dec. 7, 1885. (No model.)



Claim.—The improved burner for natural gas, adapted for use in stoves, fire-places, and furnaces, and consisting of the two cast-iron sections A' A^2, the section A' being flanged at *b*, and both sections secured together by bolts passing through said flange, said section A' being of

an inverted cup or dish shape, having openings *d* in its top for the escape of gas, while the section A^1 is in the shape of a flat plate, having cast integral therewith the tapering air-tubes B, which rise through and above the openings *d*, and having the threaded boss C, for the connection of the gas-supply tube, substantially as described.

350,816. AUTOMATIC GRAIN WEIGHER AND REGISTER. John J. T. Dunkirk, Sedgwick City, Kans. Filed Oct. 23, 1885. (No model.)



Claim.—A grain-weigher formed of a receiver, C, two chambers, *c c*, connected therewith, a door, B, on a shaft, *q*, exit-doors *d d*, hinged at *e e*, projections *d' d'*, thumb-screws *i i*, pivoted rods *f f*, balance-beam H, having the beam-center J on the cross-bar K, grooved track M, ball N, threaded stem P, threaded weight O, pivoted rods *r r*, and beam T, fixed to the shaft *q*, as described.

350,817. METHOD OF DISCLOSING OBSTACLES TO NAVIGATION. Frank D. Torrs, Baltimore, Md. Filed Nov. 16, 1885. (No model.)



Claim.—1. The method herein set forth of detecting the direction of invisible obstacles to navigation, which consists in producing a sound at the observer's station, the echo of which from any obstacle is caught and reflected at a known angle to the ear of the observer.

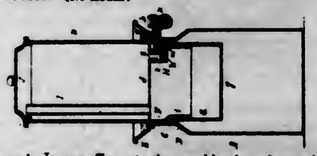
2. The method herein set forth of detecting distant and invisible objects upon navigable waters, which consists in producing a sound upon a vessel or in a known locality, reflecting it and ascertaining the direction of a body which returns said produced sound to the vessel, substantially as described.

3. The method of ascertaining the direction of an object dangerous to the navigation of vessels, which consists in receiving a sound upon said vessel and deflecting it according to well-known angles into receivers, substantially as described.

4. The method of detecting distant and invisible objects dangerous to the navigation of a vessel, which consists in receiving a sound upon said vessel, deflecting it according to well-known angles within a sound-protected location, and thereby ascertaining the direction of the obstruction, substantially as described.

5. The method herein set forth of disclosing obstacles to navigation, which consists in reflecting at a known angle or angles before being heard sounds received on board of a vessel, and thereby ascertaining the direction of said obstacle.

350,818. COFFEE-POT. Augustus H. Dubs, New Orleans, La. Filed May 20, 1886. (No model.)

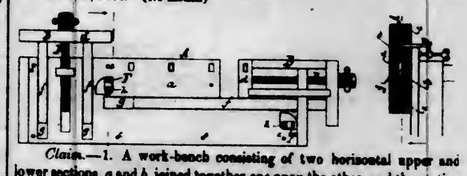


Claim.—1. In a coffee-pot, the combination of a main body or vessel, a heating-reservoir having an enlarged bottom extended to form a fuel-trough around it, the under side of which forms a support for the reservoir on the top of the main vessel, a flange depending from the bottom of the reservoir to fit within the main vessel and reduced in diameter in its lower portion, and a coffee-chamber suspended therefrom, as and for the purpose set forth.

2. In a coffee-pot, the combination of a main body reduced in diameter at its upper end and having a notch in one side thereof, a heating-reservoir having its bottom covering and resting on the top of the main body, and extending beyond the sides of the reservoir to form a fuel-trough, a coffee-chamber depending from the bottom, a tube depending from the bottom of the reservoir and communicating with the coffee-chamber, and a stop-cock having its handle extending outward through the notch, as and for the purpose set forth.

3. In a coffee-pot, the combination, with the main body reduced in diameter at its upper end, of a heating-reservoir thereon provided with a bottom extended to form a fuel-trough around it, and a flange extending from its under side and reduced in diameter at its lower end with a cup-shaped coffee-chamber suspended therefrom, a depending discharge-tube, and a stop-cock to open and close it, and a tube extending within the reservoir to vent the chamber below, as and for the purpose set forth.

350,819. WORK-BENCH. Ernst Enns, New York, N. Y. Filed June 10, 1886. (No model.)



Claim.—1. A work-bench consisting of two horizontal upper and lower sections, *a* and *b*, joined together one upon the other, and the section *a* provided with guide-grooves *g*, a vise-head, *d*, having attached guide-pieces *f*, fitting said guide-grooves, means for operating the vise-head, and clamps connected with the lower bench-section for detachably connecting the bench in a fixed position to the edge of a table, substantially as described.

2. A work-bench consisting of two horizontal sections, *a* and *b*, joined together one upon the other, and the section *a* provided in its inner face with guide-grooves *g*, a vise-head, *d*, having attached guide-pieces *f*, fitting said grooves, with their under surfaces flush with the inner surface of the grooved section and bearing against the inner surface of the other section, and means for operating the vise-head, substantially as described.

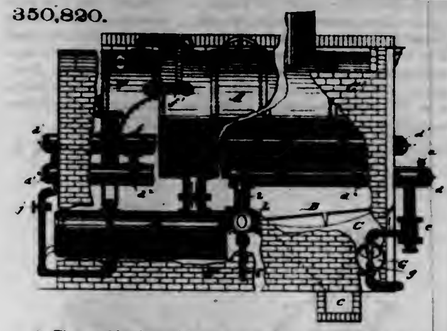
3. A work-bench consisting of the two horizontal sections *a* and *b*, joined together one upon the other, and the section *b* provided with slots *i*, and the clamps F, extending through the said slots and pivoted at their inner ends to the inner surface of said slotted section, said clamps serving to clamp the bench in a fixed position directly upon a table, and as stops to prevent endwise and sidewise movements of the bench, substantially as described.

4. In a work-bench, the combination, with the main section *a*, vise-head *d*, guide-pieces *f*, projecting from said vise-head, guide-grooves *g*, formed in said main section, the bottom section, *b*, and means for operating the vises, of the clamps F, secured to the inner surface of said bottom section, the slots *i*, for passage of said clamps, and a pivotal connection between said clamps and the bottom section, substantially as described.

350,820. FEED-WATER HEATER FOR STEAM-BOILERS. William M. Ferry, Park City, Utah. Filed June 9, 1886. (No model.)

Claim.—1. The combination, with a steam-boiler, of a feed-water heater, circulating-pipes between the heater and boiler, and a check valve or valves in said pipes, the heater extending through both end walls of the furnace, and being provided with openings for cleaning the same, and said parts being constructed and arranged substantially as described.

350,820.



2. The combination, with a steam-boiler, of a feed-water heater communicating at one end with the upper part of the boiler, and at the other end with the lower part, and valves in said communications, the heater extending through both end walls of the furnace, and being provided with openings for cleaning, substantially as set forth.

3. The combination, with a steam-boiler, of a feed-water heater communicating at one end with the upper part of the boiler, and at the other end with the lower part, a check-valve to prevent egress from the boiler in the first communication, a check-valve to prevent ingress to the boiler in the second communication, and means for positively closing the second valve, substantially as set forth.

4. The combination, with a steam-boiler and the furnace-walls, of a feed-water heater consisting of a vertical series of pipes arranged beside the boiler and within said walls, water-ducts *d* from the lower pipe to the one above it, and situated intermediately between the ends of said pipes, a water-connection between the upper pipe and the upper part of the boiler, and a water-connection between the lower pipe and the lower part of the boiler, substantially as set forth.

5. The combination, with a steam-boiler and the furnace-walls, of a feed-water heater, consisting of a vertical series of pipes arranged beside the boiler and within said walls, water-ducts *d* from the lower pipe to the one above it, a water-connection between the upper pipe and the upper part of the boiler, and a water-connection between the lower pipe and the lower part of the boiler, the said pipes being provided at their ends with the removable plates *d'*, substantially as set forth.

6. The combination, with the steam-boiler and the heating and circulating pipes, of the water-back F, in line with the upper part of the boiler, having a steam-space in its upper part above the water-line, and on a level with the steam-space of the boiler, and connections between the water-back, pipes, and boiler, substantially as set forth.

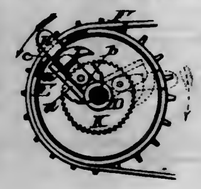
7. The combination, with a steam-boiler, of a feed-water heater in two parts, one on each side of the boiler, and a transverse heating and circulating chamber or pipe, situated immediately back of the furnace and in the path of the products of combustion, communicating with both of said parts, substantially as set forth.

8. The combination, with a steam-boiler, of a feed-water heater in two parts, one on each side of the boiler, a transverse heating and circulating pipe, situated immediately back of the furnace and in the path of the products of combustion, communicating with and below said parts, and a blow-off pipe leading from said transverse pipe, substantially as set forth.

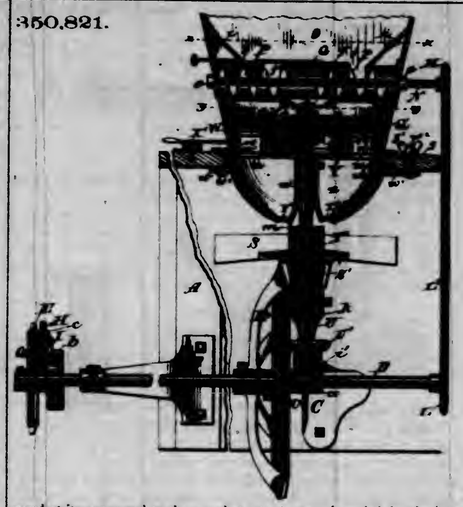
9. The combination, with a steam-boiler, of a feed-water heater, consisting of two parts, one on each side of the boiler, supported at their ends, and a transverse heating and circulating pipe communicating with and supporting said parts between their ends, substantially as set forth

350,821. SEED-SOWER. Martin S. Field, Racine, Wis. Filed July 29, 1886. (No model.)

Claim.—1. In a seeding-machine, the main shaft thereof provided with a loose sprocket-wheel arranged to be operatively connected to the driving-power, and having its inner face provided with a recessed projection, in combination with an offsetted and flanged arm, also loose on the main shaft, another arm pivotally united at its lower end to the former arm, and so-



350,821.



cured at its upper end to the sprocket-wheel, a pawl carried by the latter arm, and a ratchet-wheel keyed to said main shaft, substantially as and for the purpose set forth.

2. In a seeding-machine, the main shaft thereof provided with a loose sprocket-wheel arranged to be operatively connected to the driving-power, and having its inner face provided with a recessed projection, in combination with an offsetted and flanged arm, also loose on the main shaft, another arm pivotally united at its lower end to the former arm, and having its upper end engaged with the projection on the sprocket-wheel, a pawl carried by the latter arm, and a ratchet-wheel keyed to said main shaft, substantially as and for the purpose set forth.

3. In a seeding-machine, a removable sleeve interposed between the revolving vertical shaft and the horizontal distributer, and means, substantially as described, for rotating said shaft and distributer, as set forth.

4. In a seeding-machine, a rectangular tapering hopper provided with a circular extension that incloses the seed-pockets and an interior housing having inlet-openings in its top and a central outlet-opening in its bottom, in combination with a double conveyer operative in the housing, and means, substantially as described, for rotating said conveyer, as set forth.

5. In a seeding-machine, a rectangular tapering hopper provided with a circular extension that incloses the seed-pockets, an interior housing having inlet-openings in its top and a central outlet-opening in its bottom, an adjustable slide for the former openings, and inclined plates that lead down from the ends of the hopper to said inlet-openings, in combination with a double conveyer operative within the housing, and means, substantially as described, for rotating said conveyer, as set forth.

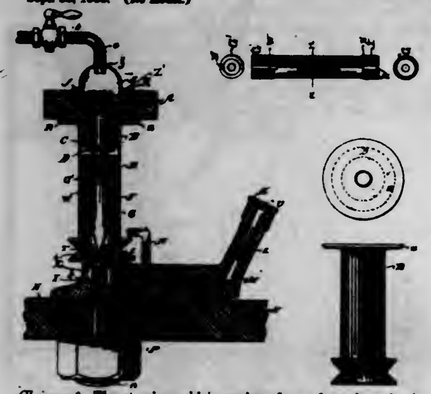
6. In a seeding-machine, a fixed annulus provided with inwardly projecting right-angular wings, and an adjustable shell, also provided with right-angular wings extended in a direction opposite those of the former, said parts arranged one above the other and forming a series of seed-passages, in combination with rotating top and bottom cut-offs, arranged to close certain of the seed-passages while the others in the series are opened, and means, substantially as described, for operating said cut-offs, as set forth.

7. In a seeding-machine, a fixed annulus provided with inwardly-projecting right-angular wings, a loose shell provided with right-angular wings extended in a direction opposite those of the former and having a web between two of its wings, to which is secured an adjusting-lever, said parts arranged one above the other and forming a series of seed-passages, in combination with a rotating top cut-off consisting of a transverse arm terminating in segment-plates, a rotating bottom cut-off consisting of a disk provided with diametrically-opposed openings that register with the central part of the segment-plates, and means, substantially as described, for operating said cut-offs, as set forth.

8. In a seeding-machine, a cup-shaped delivery-shell located below the feed mechanism and centrally divided into two compartments, each compartment having an escape-opening in its bottom, substantially as and for the purpose set forth.

9. In a seeding-machine, a cup-shaped delivery-shell adjustably secured to the supporting-frame immediately below the feed mechanism and divided into two equal compartments, each of the latter having an escape-opening in its bottom, substantially as and for the purpose set forth.

350,822. ATOMIZER. Charles H. Peirce, Lowell, Mass. Filed Sept. 28, 1885. (No model.)



Claim.—1. The atomizer which consists of a perforated cap having a flaring top that is provided with an inlet in its center, the porous atomizing-body A, a means for supporting and rotating the said cap and the said porous body in conjunction with each other, and a means of feeding a liquid into the said cap, substantially as described, and for the purpose specified.

2. The atomizer which consists of a perforated cap having a flaring top, an inlet in the middle of the said top, and a disk upon its exterior surface, the porous atomizing-body A, a means of supporting and rotating the said cap and the said porous body in conjunction with each other, and a means of feeding a liquid into the said inlet, substantially as described, and for the purpose set forth.

3. The atomizer which consists of a perforated cap having a flaring top, an inlet in the middle of the said top, and a disk upon its exterior surface, the porous atomizing-body A, a means of supporting and rotating the said cap and the said porous body in conjunction with each other, and an adjustable means of feeding a liquid into the said inlet, substantially as described, and for the purpose specified.

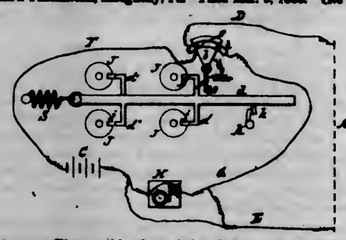
4. The porous atomizing-body A, in combination with a means of supporting and rotating the same and a means of feeding a liquid to the said body, substantially as described, and for the purpose specified.

5. The atomizer which consists of a perforated cap having a flaring top that is provided with an inlet in its center, the porous atomizing-body A, a means of supporting and rotating the said cap and the said atomizing-body in conjunction with each other, and an adjustable means of feeding water into the said inlet, substantially as described, and for the purpose set forth.

6. The porous atomizing-body A, in combination with a means of supporting and rotating the same and an adjustable means of feeding a liquid to the said body, substantially as described, and for the purpose set forth.

7. The atomizer which consists of a perforated cap having a flaring top and an inlet in the middle of the said top, a journal and a support for the same, a pulley connected to the said journal, a means of feeding a liquid into the said cap, and a means of atomizing the said liquid, substantially as described, and for the purpose specified.

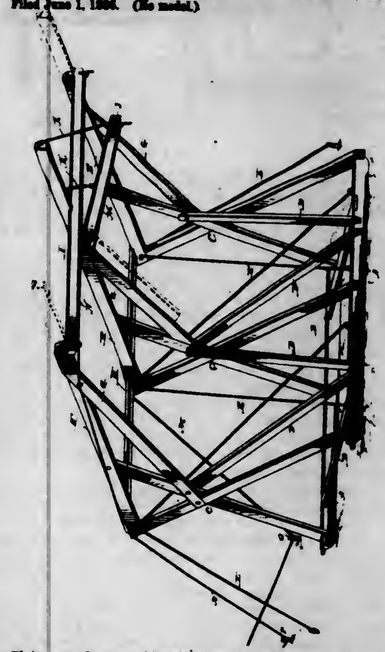
350,823. APPARATUS FOR PROTECTING SAFES AND VAULTS. Joseph Fleischmann, Allegheny, Pa. Filed Mar. 9, 1886. (No model.)



Claim.—1. The combination of the sliding bolt *d*, provided with arms *d'*, the notched cylinders adapted to operate as described, a retracting-spring for the bolt, a pin, *h*, thereon for a key, the pin *e*, the spring-actuated switch, the plate *g*, electrically connected to a generator, C, the post A, its electrical connection with the alarm, and the electrical connection of the latter with said generator, all as described and shown.

2. The combination, with the insulated cage A and its swinging door provided with a sliding bolt having a retracting-spring and an arm, *e*, of the spring-actuated switch, the plate *g*, electrically connected to a generator, C, the post A, electrically connected with an alarm, the electrical connection of the latter with the generator and the electrical connections of said cage with the wire G, leading from post *h* to the alarm, and the wire leading from the alarm to the generator, and also with the wires D F, leading through the switch-plate *g* to this generator, all substantially as described.

350,824. STACKING-DERRICK. Abram Gallagher, Moda, Ill. Filed June 1, 1886. (No model.)



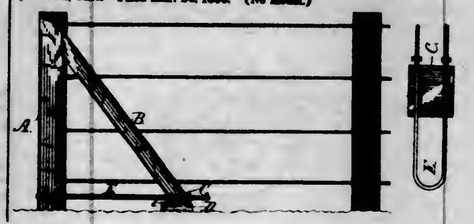
Claim.—1. In a stacking-derrick, the combination of a sled, X-shaped trusses having one upper prong of each longer than the other, braces and stays from said trusses to said sled, top rails, braces from said rails to said trusses, a tie-beam across one end of said rails and adapted to act as or form a means of attachment for a runway, and means for operating an elevator upon said runway.

2. In a stacking-derrick, the combination of a sled, X-shaped trusses, braces and stays, inclined top rails, the middle one of which is longer than the others, a yard hinged and jinked to said rail and adapted to act as or form a means of attachment for a runway, and means for operating an elevator upon said runway.

3. In a stacking-derrick, the combination of a sled, an X-shaped truss, braces and stays from said truss to said sled, an inclined top rail, a yard secured in a horizontal position to said rail and adapted to act as a runway, and means for operating an elevator upon said runway.

4. In a stacking-derrick, the combination of a sled, X-shaped trusses, braces from one of the runners of said sled to the front part of said trusses, stays from said runner to the back part of said trusses, top rails projecting beyond the front prongs of said trusses, braces from said rails to the trusses, hooks secured to the projecting ends of said rails tie-beams, guys, and means for operating a horse-fork from each of said hooks.

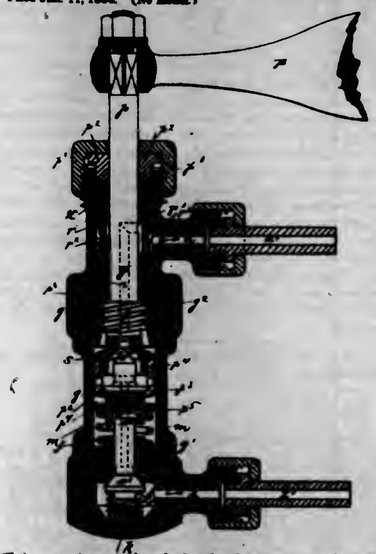
350,825. WIRE-FENCE SUPPORTER. William C. Gholson, Cincinnati, Ohio. Filed Mar. 24, 1886. (No model.)



Claim.—1. In combination with a fence-post, a brace, a brace-rod passed around the post, and a plate set against the brace, through which plate the said rod is passed, and means whereby the rod is adjusted to support and hold the post in position, substantially as described.

2. A fence-post support consisting of the adjustable brace-rod, in combination with the brace, the angle-plate C, and the means for adjusting the rod to the plate, substantially as described.

350,826. DEVICE FOR MEASURING FLUIDS UNDER PRESSURE. Reinhard Hasselbusch, Borbeck-Ritterhausen, Prussia, Germany. Filed Jan. 11, 1886. (No model.)



Claim.—1. A measuring device for fluids under pressure, having both its inlet and outlet valves closing in the direction of the pressure of the fluid, and the outlet-duct from the outlet-valve formed by a tube or duct in the operating-valve stem, substantially as described.

2. A measuring device for fluids under pressure having spring-actuated inlet and outlet valves arranged to be opened and closed in the same direction to each other, and actuated or opened by a single tubular valve-rod which forms the eduction-duct from the outlet-valve, substantially as described.

3. A measuring device for fluids under pressure, having spring-actuated inlet and outlet valves, arranged to be opened and closed in the same direction to each other and in the same direction of the pressure of the finid, in combination with a tubular valve-rod attached to the outlet-valve, and through which it discharges, substantially as described.

4. A measuring device for fluids, having its inlet and outlet valves assembled on a common operating-spindle made in the form of a tube through which the outlet-valve discharges, substantially as described.

5. A measuring device for fluids, provided with spring-actuated inlet and outlet valves assembled on a common operating tubular spindle through which they discharge, the whole being arranged so that the said tubular spindle shall operate the said valves at different times, closing the outlet-valve before opening the inlet-valve, substantially as described.

6. A measuring device for fluids, provided with spring-actuated inlet and outlet valves assembled on a common operating tubular spindle, which also acts as an outlet-pipe from the outlet-valve, the whole being arranged so that the said spindle shall operate the said valves at different times, closing the inlet-valve before opening the outlet-valve, substantially as shown and described.

7. A measuring device for fluids, having its inlet and outlet valves assembled on a common operating-spindle, the lower end of the said spindle forming the seat for the outlet-valve, substantially as and for the purpose set forth.

8. A measuring device for fluids, having its inlet and outlet valves assembled on a common operating-spindle, said spindle being apertured for the passage of the fluids, and its lower end forming the seat for the outlet-valve, substantially as shown and described.

9. A measuring device for fluids, consisting of a measuring-chamber provided with suitable inlet and outlet ways, an inlet and an outlet valve assembled on a common tubular operating-spindle which forms the discharge-pipe from the outlet-valve, and a stuffing-box for said spindle, substantially as described.

10. A measuring device for fluids, consisting of a measuring-chamber which is provided with suitable inlet and outlet ways controlled by inlet and outlet valves which are assembled on a common operating-spindle, said spindle being apertured for the passage of the fluids, substantially as described.

11. A measuring device for fluids, consisting of a measuring-chamber provided with suitable inlet and outlet ways, and with inlet and outlet valves, said valves being assembled on a common operating-spindle which is apertured for the passage of the fluids, and which is adapted to conduct the said fluids after they shall have been measured to and discharge them into the eduction-pipe, substantially as shown and described.

12. In a measuring device for fluids, a hollow operating-spindle attached to both the inlet and outlet valves so as to move them as required, and apertured for the passage of the fluids, and arranged to discharge into the eduction-pipe of the measuring device, said spindle being surrounded by a suitable stuffing-box and packed above and below its discharge-outlet to prevent leakage, substantially as shown and described.

13. In a measuring device for fluids, a hollow operating-spindle attached to and operating both the inlet and the outlet valves and apertured for the passage of the fluids, and surrounded by a suitable stuffing-box, and packed above and below its discharge-outlet, said packings being retained in place and away from the discharge-outlet of the spindle by a packing ring or sleeve, substantially as described and set forth.

14. In a measuring device for fluids, the combination of an operating-spindle apertured for the passage of the fluids and attached to the inlet and outlet valves of the apparatus, a stuffing-box for said spindle, the packing in which is placed above and below the discharge-outlet of the spindle, and a packing ring or sleeve which surrounds the spindle and separates the packing above and below said discharge-outlet, said ring or sleeve having openings for the passage of the fluids, substantially as described.

15. In a measuring device for fluids, the combination of the operating-spindle, as *p*, attached to both the inlet and the outlet valves, apertured, as at *y w*, packings, as *x x*, and a ring or sleeves, as *r'*, the whole being so arranged that the fluids as measured shall be conveyed through said spindle, which discharges into the said ring or sleeve, which in turn discharges into the eduction-pipe of the device, substantially as and for the purpose set forth.

16. Within the shell of a measuring device, the combination of a measuring-chamber, inlet and outlet valves and their operating-springs, an operating valve rod or spindle apertured for the passage of the fluid, and a stuffing-box for the said rod or spindle, substantially as described and set forth.

17. In a measuring and dividing apparatus for measuring and discharging small quantities of a fluid under pressure, a measuring-chamber fitted with inlet and outlet valves and attached to a common operating-spindle, through an axial opening in which the measured fluid is discharged, and with the said valves attached to the said rod so as to open and close in the same direction, as described and set forth.

18. The inlet and outlet valves attached to a common operating-rod, which is chambered to form the outlet from the outlet-valve, and loosely connected therewith, and provided with actuating-springs which act in concert with the pressure of the fluid to be measured, and at the same time as the movement of the operating-rod occurs, so as to move the said valves and in different times, the one opening or closing before the opening or closing of the other, and vice versa, substantially as described.

19. The valves *v* and *v'*, arranged in combination with the measuring chamber *m* and the actuating-springs *f* and *f'*, so that the combined action of the said springs and the pressure of the fluid to be measured act together to move the said valves, as described.

350,827. NUT-LOCK. William S. Harris, Arlington, assignor of one-half to W. P. Turk, Bardwell, Ky. Filed Nov. 12, 1885. (No model.)

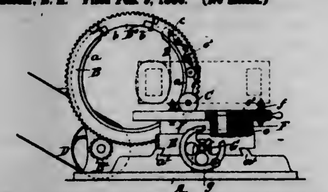


Claim.—1. In a nut-lock, the combination of the rails, the fish-plates, the through-bolts, the laterally-movable plate supported on two adjacent bolts, the springs for normally pressing the plate away from the rails, the nuts fitted on the bolts and bearing on the plates to retain the latter on the bolts, and the nut-locking arms pivoted on and carried by the laterally-movable plate, whereby when the nuts are adjusted the spring-pressed plate and the nut-locking arms will be also adjusted to adapt the arms to firmly engage the nuts, substantially as described.

2. In a nut-lock, the combination of the rails, the fish-plates, the through-bolts, a plate, G, supported on two adjacent bolts and movable thereon laterally of the rails, the coiled springs F, encircling the bolts and bearing against the fish-plates and the laterally-movable plate, the

sleeves I, inclosing the springs and bolts, the nuts D, bearing against the plate G to retain the same on the bolts, and the locking-arms H, carried by the laterally-movable plate and pivoted on a pin, A, common to both arms, and further provided with the enlarged notched ends *h'*, substantially as described.

350,828. MACHINE FOR WINDING ARMATURES. LUMAN B. JONES, Bedford, assignor to the Forsaith Electrical Machine Company, Manchester, N. H. Filed Feb. 9, 1886. (No model.)

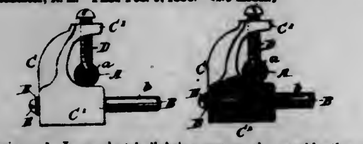


Claim.—1. A machine for winding wire upon armature-cores, consisting of an annular spur-wheel carrying a spool and having part of its periphery removable, and a platform capable of being rotated in a plane at right angles to the plane of revolution of said spur-wheel, and means for revolving said spur-wheel and moving said platform laterally, substantially as and for the purpose set forth.

2. In a machine for winding wire upon armature-cores, the combination, with the bed-plate A, having a driving-shaft journaled therein, carved arms or extensions *a a*, and ways *a' a'*, of annular gear B, having removable section B^2, and carrying a spool and tension devices, table or frame E and platform F, movably attached thereto, and screwed shaft G, all substantially as and for the purpose specified.

3. In a machine for winding armatures, the combination, with the movable ring or platform F, of pins *f*, for holding the armature-core thereon, substantially as described.

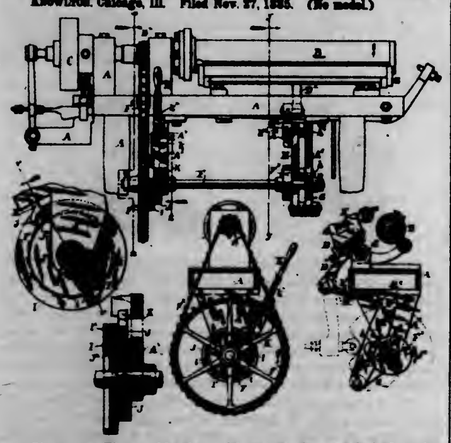
350,829. JUNCTION-CLAMP FOR ELECTRIC WIRES. LUMAN B. JONES, Bedford, assignor to the Forsaith Electrical Machine Company, Manchester, N. H. Filed Feb. 9, 1886. (No model.)



Claim.—1. In an electric-lighting system, the combination, with main and branch wires, of a clamp of conductive material to which branch wire is connected, and a screw passing through each clamp and in electrical contact with main wire which is otherwise insulated from clamp, all substantially as herein set forth.

2. The junction-clamp for electric wires herein described, consisting of the foot C, having screw E, and perforated to hold one of the wires, arm C^2, and pointed screw D, serving to hold and form contact with the other wire, all being made of conductive material, substantially as described.

350,830. MACHINE FOR MAKING PAPER TUBES. MARK D. KNOWLTON, Chicago, Ill. Filed Nov. 27, 1885. (No model.)



Claim.—1. The combination, with the rotating mandrel of a tube-machine and knife-bar movable toward and from the mandrel, of a shaft having interruptible driving-connection with rotating parts which drive the mandrel, and connections, substantially as described, between the shaft and the knife-bar, whereby the latter is carried into working position during the rotation of the mandrel.

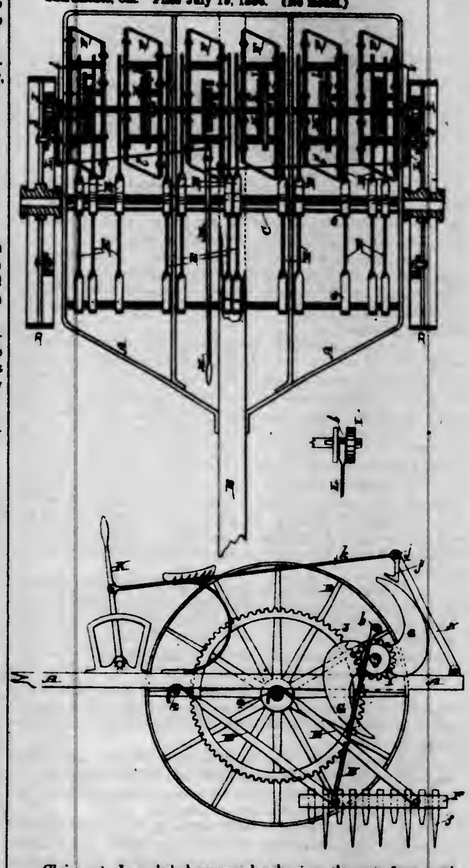
2. The combination, with the mandrel and knife-bar movable toward and from the said mandrel, of a counter-shaft provided with a cam, actuating-connections between the cam and knife-bar, a shaft driving the mandrel, and connections between said shaft and the counter-shaft embracing a clutch for giving interrupted motion to the counter-shaft, substantially as described.

3. The combination, with the mandrel and knife-bar movable toward and from the said mandrel, of a counter-shaft provided with a cam, adjustable acting connections between the cam and knife-bar, a shaft driving the mandrel, and interruptible driving-connections between said shaft and the counter-shaft, substantially as described.

4. The combination, with a rotating tube-forming mandrel and knife-bar movable toward and from the said mandrel, of a rotating volute cam, interruptible driving mechanisms giving the cam a slower speed than the mandrel, and connections between the cam and knife-bar actuating the latter from the former, substantially as and for the purposes set forth.

5. The combination, with the mandrel and a knife-bar movable toward and from the said mandrel, and rotating mandrel-driving shaft, of a counter-shaft carrying a volute cam, a loose wheel on the counter-shaft driven from the mandrel-shaft and at slower speed than the mandrel, a clutch connecting the loose wheel with the counter-shaft, a stop constructed to disengage the clutch and stop the shaft at the termination of one revolution thereof, and connections between the cam and knife-bar actuating the latter from the former, substantially as and for the purposes set forth.

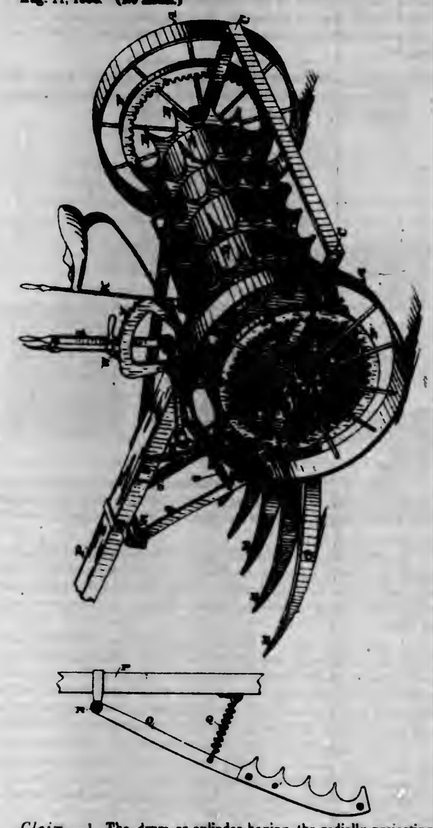
350,831. CLOD CHOPPER AND PULVERIZER. DAVID LUBIN, Sacramento, Cal. Filed July 19, 1886. (No model.)



Claim.—1. In a clod chopper and pulverizer, the main frame and its wheels, in combination with the tooth-carrying arms, bars, or links E, pivoted to said frame, the shaft *g*, geared to the wheels and having cams G, the links H, having pins A, operated by said cams for the elevation of the tooth-carrying bars, arms, or links E, and the means for hanging said bars, arms, or links up, consisting of the pivoted arms N, the cross-shaft *j*, carried thereby, the gravitating hooks *j'*, adapted to engage the pins A, the lever K, and the connecting-rod *k*, all arranged and adapted to operate substantially as herein described.

2. In a clod chopper and pulverizer, the main frame having wheels with gears J, the pivoted arms, bars, or links E, carrying teeth, and the links H, secured thereto, and having pins A, in combination with the longitudinally-sliding shaft *g*, having cams G impinging under said pins, the fast pinion I on one end of the shaft, and the feathered pinion I on its other end, the pivoted clutch-levers L, the pivoted operating-lever M, and connecting-rods *l'*, whereby the cam-shaft is thrown into and out of gear with the wheels and its cams out of or into engagement with the pins A, substantially as herein described.

350,832. CLOD-CRUSHER. DAVID LUBIN, Sacramento, Cal. Filed Aug. 11, 1886. (No model.)



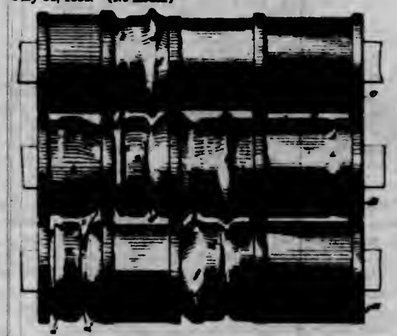
Claim.—1. The drum or cylinder having the radially-projecting arms or points, and mechanism by which it is rotated, and a series of arms or lifters and bars extending within the periphery of the cylinder, between the rear ends of which the projecting points pass, substantially as herein described.

2. The cylinder having the points projecting radially from its surface mounted upon a frame, with bearing-wheels and intermediate gearing by which the cylinder is caused to rotate, arms or lifters by which the clods or lumps are raised from the surface and carried upward and backward to a point where they are struck and pulverized by the teeth of the cylinder, in combination with the engaging-clutches and an operating-lever, whereby the cylinder may be started or stopped, substantially as herein described.

3. A rotating cylinder having the radially-projecting teeth or points, the series of arms or lifters, the forward ends or points of which travel upon the surface of the ground, the rear ends extending backward, and corrugated bars between the points of the radially-projecting teeth, in combination with links by which the rear ends of the bars are suspended, and a spring connected with the links, substantially as and for the purpose herein described.

4. The cylinder having the radially-projecting arms or teeth, the frame, bearing-wheels, and gearing by which the cylinder is caused to rotate, a series of arms or lifters by which the lumps or clods are raised or carried upward and backward, and bars between which the projecting points or teeth of the cylinder pass so as to crush the clods, and an elastic suspending device for the bars, in combination with a lever and mechanism whereby the points of the lifting-arms may be raised clear of the surface, substantially as herein described.

350,833. ROLLS FOR REDUCING OLD RAILS. SIDNEY MCCLOUD, Hamilton, Ontario, Canada, assignor of one-half to Charles E. Doolittle, as trustee for the Ontario Rolling Mill Company, same place. Filed July 31, 1885. (No model.)



Claim.—1. In a machine for reducing railroad-rails, a pair of rolls, the one roll having a shallow groove in which one side of the head of a rail is compressed, and the other roll having an annular rib or projection for grooving the opposite side of the head of the rail, substantially as set forth.

2. In a machine for reducing railroad-rails, a set of rolls provided with shallow grooves wider than the head of the rail for compressing said head and permitting it to expand laterally while being compressed, and with ribs for grooving said head, substantially as set forth.

3. In a machine for reducing railroad-rails, a pair of rolls, one of which is provided with a shallow groove, in which the head of the rail is compressed, and the other roll provided with an inclined portion for bending outward one side of the head which has been previously grooved, substantially as set forth.

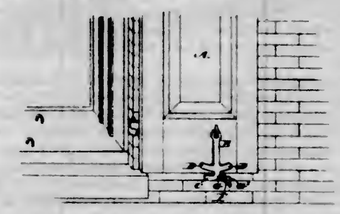
4. In a machine for reducing railroad-rails, a pair of rolls, one of which is provided with a groove, in which one portion of the flange is compressed, and the companion roll provided with a rib for grooving the rail opposite the portion of the flange being compressed, substantially as set forth.

5. In a machine for reducing railroad-rails, a set of rolls having projections for firmly grasping the web of the rails, and constructed to compress the head, allowing it to expand laterally, and having a rib for grooving the said head, substantially as set forth.

6. In a machine for reducing railroad-rails, a set of rolls having grooves, ribs, and inclined portions, substantially as described, for compressing and grooving the head portion of the rail, and for bending and grooving the flange, substantially as set forth.

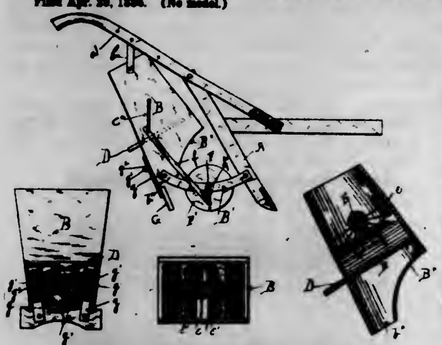
7. In a machine for reducing old rails, a set of rolls having grooves and ribs, substantially as described, for compressing one side of the head portion and one side of the flange portion, and for grooving the other side of the head portion and the other side of the flange portion, substantially as set forth.

350,834. SHUTTER-FASTENER. WILLIAM MCCONNELL, Philadelphia, Pa. Filed Sept. 9, 1886. (No model.)



Claim.—A shutter-fastener consisting of a depending bar freely secured to the shutter and a catch formed of a bar having a pointed head with shoulders G G' on opposite sides of the back thereof, substantially as described.

350,835. SEED-PLANTING AND FERTILIZER-DISTRIBUTING ATTACHMENT FOR HAND-PLOWS. Henry P. Kelly, Valdosta, Ga. Filed Apr. 29, 1886. (No model.)

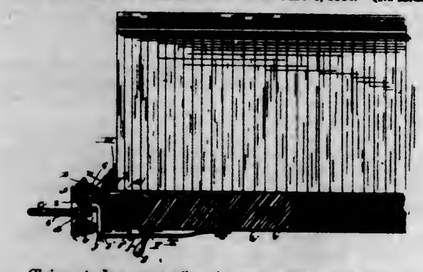


Claim.—1. In a seed and fertilizer distributer for plows, the combination of a box, as B, having the hangers or straps *b b* for attaching it to the plow-handles, and the braces B' for securing it to the lower part of the standard, the rounded cheeks or bottom C C, placed in said box, having a space, *c'*, between them, the slide or feed-regulator D, extending through the back of the box beneath said cheeks or bottom, and means, substantially as described, for stirring and feeding the seed or fertilizer in the box, as set forth.

2. In a seed or fertilizer distributer for attachment to plows, the combination, with box B, having the curved braces B' securing the bottom thereof to the lower part of the standard, the cheeks C C, and slide D, located in the body thereof, of the stirring-shaft E, having the lines of stirring-arms, crank e^a on shaft E outside of box, shaft F, mounted in the curved braces B', wheel F^a on shaft F between said braces, crank f^a on shaft F, and link *f*, connecting cranks f^a and e^a, all substantially as and for the purpose set forth.

3. In a seed and fertilizer distributer, the combination, with the box B, having the braces B' for securing it to the base of the standard, and the straps *b b* for securing it to the handles of the plow, and provided with the cheeks or bottom C C at a suitable point in its body, of a stirring-shaft, E, having the stirrers, a wheel, F^a, and shaft F, held in the braces B', and connections to the shaft E, and the adjustable covering-board G, secured on the rear of the box in the manner and for the purpose set forth.

350,836. CAR-COUPLING. William A. Mitchell, Lawrence, assignor of one-half to J. A. Simpson, Turrell, and W. H. Brooks, J. T. Airhart, and T. J. Grister, Lawrence, Texas. Filed June 8, 1886. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head, of the link-adjuster having a pendent beak and the link-chamber having a cavity immediately below said beak, substantially as and for the purpose stated.

2. The combination, with the draw-head, of the link-adjuster having a pendent beak provided with a groove or recess, the link or bar secured in said recess or groove, and the bar connected to the draw-head and to said link or bar, substantially as shown and described.

3. In a car-coupling, the combination, with the draw-head, of the link-adjuster, with its pendent beak portion projecting into the link-chamber, and the bar connected to the draw-head, acting downwardly and connected by a link or bar to said link-adjuster, substantially as shown and described.

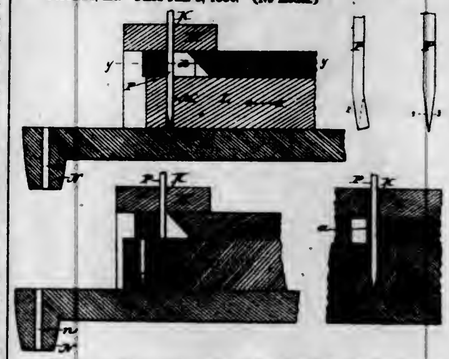
4. In a car-coupling, the combination, with the draw-head, of the link-adjuster having its beak projecting into the link-chamber, the bar connected to the draw-head and acting downwardly upon and connected by a link or bar to the said link-adjuster, and the rod having a cam, bail, or crank adapted to act upon said bar, substantially as shown and described.

5. The combination, with the draw-head, of the coupling-elevating yoke having side arms, the longitudinal plates or bars, the cross-bar passed through said draw-head, and to which said plates or bars are connected, and the rod or lever connected to links of said yoke, substantially as shown and described.

6. In a car-coupling, the combination, with the draw-head, of the coupling-pin-elevating yoke having a centrally-apertured upper cross-bar, and its side arms connected to longitudinal bars connected to a cross-bar at the rear end of the draw-head, the links pivoted to said longitudinal bars, and the rod or lever having fixed arms pivoted at their outer ends to the upper ends of said links, which rod or lever is provided with a stop bearing upon a spring fastened to the end of the car, substantially as shown and described.

7. The combination, with the draw-head and the pin-elevating yoke having links connected to the longitudinal bars thereof, of the rod or lever having a stop or projection, the spring plate or holder, and the fixed arms connected to said lever and links, substantially as shown and described.

350,837. MACHINE FOR POINTING WIRE NAILS. Arthur Newton, Boston, Mass., assignor to the Newton & Hibbard Machine Company, Portland, Me. Filed Jan. 5, 1886. (No model.)



Claim.—1. The combination of a fixed guide for a nail-wire, a reciprocating cutter, as *c*, and a reciprocating block or die, whereby the wire is bent diagonally across the plane in which the edge of the cutter moves, as set forth.

2. The combination of a fixed guide for a nail-wire, a reciprocating cutter, as *c*, a reciprocating bending block or die, whereby the wire is bent diagonally across the plane in which the edge of the cutter moves, and means, substantially as described, for severing the wire transversely, as set forth.

3. The combination of a fixed wire-guide, a movable block, as *a*, which alternately stands behind and is withdrawn from the wire in said guide, a cutting-slide, L, which co-operates with the block *a* in severing a nail from the main wire, a bending-die which bends the ends of the main wire after the nail is severed therefrom, and a cutter attached to said slide, whereby the bent portion of the wire is trimmed, as set forth.

4. The casing H, bar *o*, and knife or cutter *c*, in combination with the slide L and means for feeding the wire, substantially as described, the arrangement being such that the knife trims off a portion of the wire before it is fed into the slide L, by which it is severed and carried under the driver.

350,838. KNIFE CLEANING AND SCOURING APPARATUS. Theodore B. Osborne, Plainfield, N. J. Filed Apr. 21, 1886. (No model.)

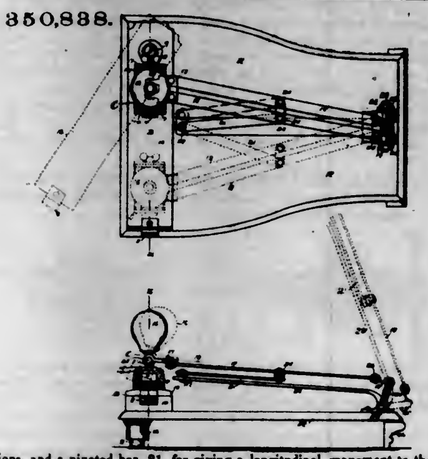
Claim.—1. The combination, with the scouring-head C, arranged to be reciprocated along the knife-blade or other article to be scoured, of a pivoted bar, 18, arranged to hold and guide the head during its reciprocations, said bar having a longitudinal movement, whereby the head is guided in a straight line, substantially as described.

2. The combination, with the scouring-head C, arranged to be reciprocated along the knife-blade or other article to be scoured, of the pivoted parallel bars 18, arranged to hold and guide the head during its reciprocations, substantially as described.

3. The combination, with the scouring-head C, arranged to be reciprocated along the knife-blade or other article to be scoured, of the pivoted parallel bars 18, arranged to hold and guide the head during its reciprocations, said bars having a longitudinal movement, whereby the head is guided in a straight line, substantially as described.

4. The combination, with the scouring-head C, arranged to be reciprocated along the knife-blade or other article to be scoured, of a pivoted bar, 18, arranged to hold and guide the head during its reciprocations, and a pivoted bar, 21, for giving a longitudinal movement to the bar 18, substantially as described.

350,838.



5. The combination, with the scouring-head C, arranged to be reciprocated along the knife-blade or other article to be scoured, of the pivoted parallel bars 18, arranged to hold and guide the head during its reciprocations, and the pivoted bar 21, for giving a longitudinal movement to the bars 18, substantially as described.

6. The combination, with the scouring-head C, arranged to be reciprocated along the knife-blade or other article to be scoured, of a pivoted bar, 18, arranged to hold and guide the head during its reciprocations, the pivoted bar 21, for giving a longitudinal movement to the bar 18, and the hinged bar 23, whereby the head is guided in a straight line during its reciprocations and is permitted to have a vertical movement, substantially as described.

7. The combination, with the scouring-head C, arranged to be reciprocated along the knife-blade or other article to be scoured, of the pivoted parallel bars 18, arranged to hold and guide the head during its reciprocations, the pivoted bar 21, for giving a longitudinal movement to the bars 18, and the hinged bar 23, whereby the head is guided in a straight line during its reciprocations, is prevented from turning on its axis, and is permitted to have a vertical movement, substantially as described.

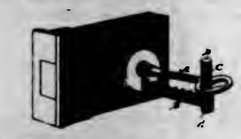
8. The combination, with the reciprocating scouring-head C, pivoted so as to oscillate in a vertical plane, of a pivoted bar, 18, arranged to hold and guide the head during its reciprocations, said bar having a longitudinal movement, and being hinged, whereby the head is guided in a straight line during its reciprocations, and is permitted to have a vertical movement, substantially as described.

9. The combination, with the reciprocating scouring-head C, pivoted so as to oscillate in a vertical plane, of the pivoted parallel bars 18, arranged to hold and guide the head during its reciprocations, said bars having a longitudinal movement and being hinged, whereby the head is guided in a straight line during its reciprocations, is prevented from turning on its axis, and is permitted to have a vertical movement, substantially as described.

10. The combination, with the reciprocating scouring-head C, and the pivoted bars for holding and guiding the head, of the knife-rest B, containing a receptacle for the scouring material, substantially as described.

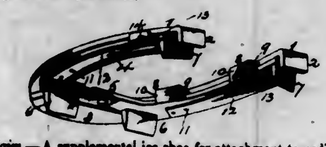
11. The combination, with the reciprocating scouring-head C, and the pivoted bars for holding and guiding the same, of the removable pad 7, substantially as described.

350,839. KEY-FASTENER. Darius T. Phillips, Chicago, Ill. Filed June 12, 1886. (No model.)



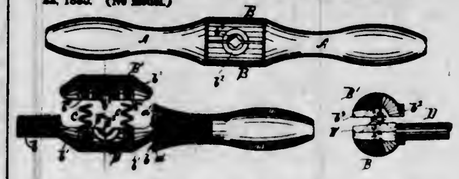
Claim.—In a key-fastener, the combination, with a notched bar adapted to be inserted into the key-hole, of a hollow tube having a slot in its lower end for the reception of said bar and adapted to engage the handle of the key, a bolt located in the tube adapted for engagement with the notches in the bar, a spring operating upon the bolt, and a thumb-screw removably secured to the bolt, whereby when said fastener is applied to the key upon the outside of a door the thumb-screw may be removed, substantially as and for the purpose set forth.

350,840. HORSESHOE. Philip Pitton, Cincinnati, Ohio. Filed Aug. 4, 1886. (No model.)



Claim.—A supplemental ice-shoe for attachment to ordinary horse-shoes, consisting of a pair of hinged bars having toe and heel calks, hook-shaped lugs on the inner edges of said bars to embrace and grip the inner edges and top face of the shoe, and a pair of plate-strings secured at their inner or front ends to said bars and each having an outwardly and upwardly extending lip to embrace and grip the outer edges of the hinged bars and main shoe, substantially as and for the purpose set forth.

350,841. AUGER-HANDLE. William H. F. Radenhyder, Oil City, Pa., assignor of one-half to James W. Plimpton, same place. Filed Dec. 22, 1885. (No model.)

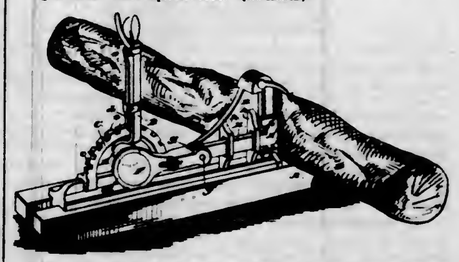


Claim.—1. In an auger-handle, the combination, with the end pieces or handles, A A, of a clamp located between said end pieces and operated thereby, which is provided with jaws which are formed to receive the squared head of the auger-stem and embrace the neck below the head, and thereby hold the auger against both torsional and longitudinal movement.

2. In an auger-handle, the combination, substantially as herein shown, of the auger-stem clamp B B', with screw-threaded shanks *b b* and sloping shoulders *b' b'*, and the handles A A, screwing onto the shanks *b b*, and embracing said sloping shoulders *b' b'* with their flaring mouths *a' a'*.

3. In an auger-handle, the combination, substantially as herein shown, of the handles A A, having internal screw-threads, *a a*, and flaring mouths *a' a'*, with the clamping-section, consisting of the jaws B B', having sloping shoulders *b' b'* at their ends, screw-shanks *b b* at the ends of the jaws B', notches b^3 b^3 on the jaw-faces, spring-seating lugs b^4 within the jaw-cavities, and the contained springs C C.

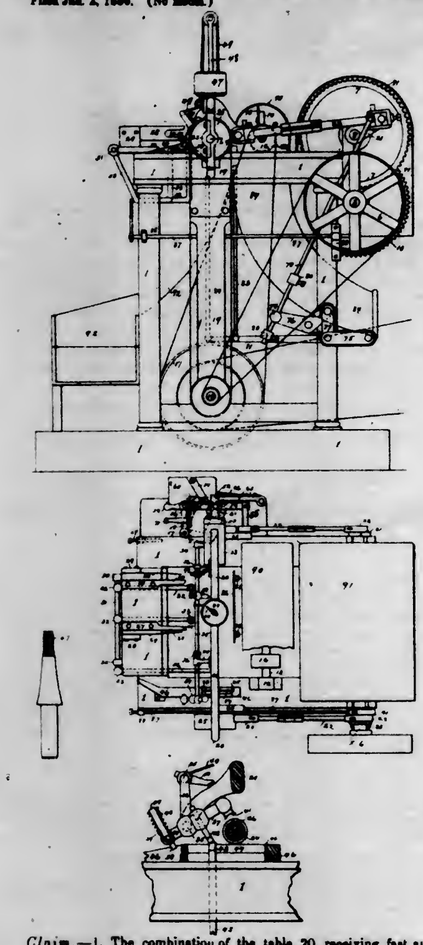
350,842. SAW-MILL ATTACHMENT. Henry W. Roberts, Cheboygan, Mich. Filed Apr. 23, 1886. (No model.)



Claim.—1. In an irregular log-adjusting device, the combination, with the knee, of an eccentrically-operated jointed bar having a head-piece formed therewith, said lever sliding in supporting-brackets, a hand-lever engaging with an adjusting sector and with the wrist-pin of the eccentric, operating said jointed bar, and the bracket-bearing supporting the said wrist-pin, substantially as described.

2. In an irregular log-adjusting device, the combination, with the knee B, of a jointed bar consisting of the two parts G and H, the eccentric F, to which one end of the part G is secured, the head-piece H' on the forward end of the portion H of said lever, a lever, D, engaging with an adjusting toothed sector, C, and having its lower end secured to the wrist-pin *e* of said eccentric F, and means of supporting the several parts, substantially as described.

350,843. MACHINE FOR MANUFACTURING INSULATOR-PINS FOR TELEGRAPHIC PURPOSES. Charles Rogers, Allegheny, Pa. Filed Jan. 2, 1886. (No model.)



Claim.—1. The combination of the table 20, receiving fast and slow movements by the means described and sustained by vertical arms 19, the two parallel rests arranged at the front of the frame between two broad flat springs for gripping the ends of the blanks, the two arms 32, serving as points of adjustment for the blanks, the rocking shaft 31, bearing these arms, and also an angular arm, 33, a horizontally-moving table, 20, bearing the shaft 24, carrying screw-threading devices and also an endwise-movable gripping and centering device for the blanks, and adapted, as described, for actuating the arms 32 and 33, and also the threading-tool, and devices for giving endwise movements to the threading-tool shaft, substantially as described.

2. The combination of a rocking shaft, 35, bearing the threading-tool and the oblique piece 31 and actuated by a weight and cord, the spring-actuated rod 38 on said piece, the bent guide 46, fixed to the main frame, adapted to act on and give endwise return movement to the threading-tool shaft, the projection 41 on the piece 37, adapted to follow the thread-former 26, and a horizontally-moving carriage, 20, bearing the latter and the blank-holding devices, substantially as described.

3. In a machine for making insulator-pins with threaded ends, the combination, with a horizontally-moving table suspended by vertical arms, of adjustable pitmen receiving motion from a main shaft through the medium of a train of circular and elliptical gears and cranks, the spring-clamping arms at the front of said table for moving the blanks forward, the gripping and centering devices arranged between said arms and the rotary cutters, and threading devices similarly arranged, substantially as described.

4. The combination, with the reciprocating horizontal table 20, bearing the devices described, of a bell-crank, 61, pivoted to the top of the main frame and connected by a link to the lever 54, and provided with a short pin, 63, adapted at times to engage with a catch on a lever, 65, acted on by a spring, and an adjustable screw, 93, also adapted to press against an inclined edge of lever 65, a trigger, 68, notched at 67, and provided with a spring, 70, and adjustable stop 69, the hook 58, pivoted to lever 61, the ratchet-bar 59, and the endwise-movable rod provided with a centering-point for the blanks, all substantially as described.

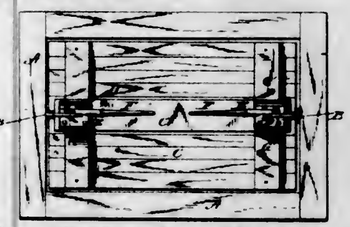
350,844. AIR-VALVE FOR RADIATORS. Edward K. Rollins, Scranton, Pa., assignor of one-half to Alexander E. Hunt, same place. Filed Mar. 30, 1886. (No model.)



Claim.—1. The combination, with a steam-radiator, of an air-valve provided with an escape-passage which is helical for a portion of its length, substantially as and for the purpose described.

2. An air-valve comprising a valve-seat body, A, having an inner screw-thread, a valve-body, B, having a valve-surface, b', and shank with outer screw-thread, a helical air-passage between said screw-threads, and an air-duct, as b^2 b^3, connected with the helical passage, substantially as and for the purpose described.

350,845. SILO-PRESS. Elmore W. Ross, Springfield, Ohio. Filed June 11, 1886. (No model.)



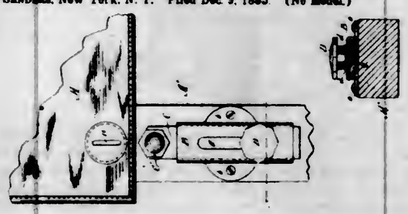
Claim.—1. In a silo or ensilage press, the combination, with the platen, of a lever-socket piece or pawl-block pivoted to a standard secured thereto, and having a pawl on either side of the pivot of said socket-piece or pawl-block, a rack secured to the side wall of the press, and a lever for operating said socket-piece or pawl-block, substantially as described.

2. In a silo or ensilage press, the vertical racks applied to the side walls of the press and provided with teeth on their inner adjacent faces, the platen provided with a lever pivoted thereto inside of the racks, and the pawls pivoted to said lever and adapted to engage said racks, in combination with a retaining-pawl pivoted to the upper face of the platen and adapted to engage the same rack with the pawls on the lever, substantially as described.

3. In a silo or ensilage press, the combination, with the platen, of a lever pivoted to a standard secured to the upper side of the platen, the pawls pivoted to said lever in such manner that one or the other will act to depress the platen when the lever is vibrated in either direction, and the retaining-pawl pivoted to the same standard to which said lever is pivoted, all of said pawls being arranged to operate upon the same rack, substantially as and for the purpose described.

4. In a silo or ensilage press, the combination, with a platen provided with a standard secured to the upper side thereof, and the retaining-pawl pivoted to said standard, of a lever, also pivoted to said standard and provided with the pawls for engaging the rack, substantially as described.

350,846. CARRIAGE-CURTAIN FASTENING. Henry Le Fevre Sanders, New York, N. Y. Filed Dec. 9, 1885. (No model.)

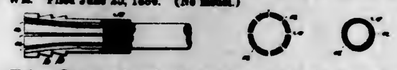


Claim.—1. As a new and improved article of manufacture, a carriage-curtain fastening consisting of the receiving-bar provided with a fastening and having an opening, c, formed through it, a case fitted to receive and permit the longitudinal movement of the bar, and a clamp threaded into opening c, substantially as set forth.

2. The combination of the case B, provided with slot b', the fastening-bar movable longitudinally in said case and provided with a button, C', and a clamp whereby to secure the bar to the case in any desired adjustment, and having a part projected through slot b', substantially as set forth.

3. The improved carriage-curtain fastening herein described, consisting of the socketed case B, having slot b', the fastening-bar C, having button C' and opening c, and the clamping-screw turned through slot b' and threaded into opening c, and having its shoulder d bearing upon the case on opposite sides of slot b', substantially as set forth.

350,847. GUN-CLEANER. Clarence A. Sherman, Stevens Point, Wis. Filed June 25, 1886. (No model.)



Claim.—In a gun-barrel wiper or cleaner, a ferrule or cylindrical clamp having a series of longitudinal slits dividing one end thereof into a series of segments, the outer surfaces of which are provided with a series of circumferential ribs or ridges of normally-increasing diameter, the opposite end of the clamp having means for securing a handle thereto, as and for the purpose set forth.

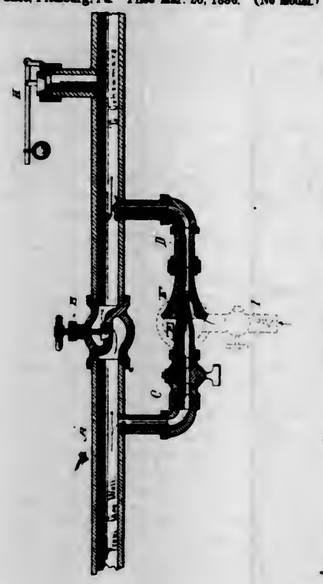
350,848. INDEX. Milton R. Smith, Helton, Kans. Filed Nov. 30, 1885. (No model.)



Claim.—1. A base or back for a tablet, provided at its upper part with an upwardly-inclined and horizontal rack and its lower part with a perforated piece parallel with said rack, and combined with pages or tablets having pivots fixed to the upper and lower inner edge of each.

2. The base A, having the rack B across it, provided with slots b, and a piece, C, at the opposite end parallel to said rack, perforated at c and combined with the tablets D, marked as described, and having pivots d d', substantially as described.

350,849. APPARATUS FOR MIXING ATMOSPHERIC AIR WITH NATURAL GAS. William Siebe, West Elizabeth, assignor of one-half to John H. Sase, Pittsburg, Pa. Filed Mar. 20, 1886. (No model.)



Claim.—1. The combination of a gas-main provided with a regulating-valve, a pipe leading from said main upon each side of said valve, with means, substantially as described, for automatically mixing air with the gas which passes through them, as shown and described.

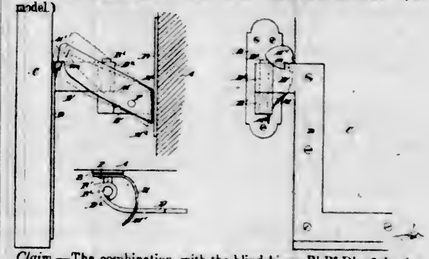
2. The combination of a gas-main provided with a regulating-valve, a pipe leading from said main upon each side of said valve, the end of one of said pipes being provided with a funnel-shaped mouth, and the end of the other pipe with a nozzle or injector which projects slightly into said mouth, and a check-valve secured upon the end of one of said pipes within said main, as shown and described.

350,850. CLAMP FOR FLEXIBLE TUBES. Charles A. Tatum, New York, N. Y., assignor to Whitall, Tatum & Co., same place. Filed Feb. 12, 1886. (No model.)



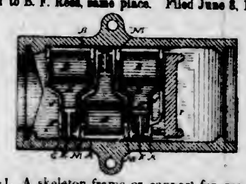
Claim.—The clamp A, composed of the arms a b, perforated spring-connection c, bulge f on arm b, perforated projection d, and handle e, and recess m on arm a, all arranged to allow the free end g of the arm b to constitute a catch, together with and on the handle e, as described.

350,851. LOCK-HINGE. Oliver H. Taylor, Brooklyn, assignor to Benjamin C. Anderson, New York, N. Y. Filed Mar. 25, 1886. (No model.)



Claim.—The combination, with the blind-hinge B' B^2 D', of the dog M, pivoted to the part B', and having an arm, M', formed in an arc having the pintle B^2 for a center, and provided with an engaging-notch, m, and means for holding said dog against an upward movement sufficient to disengage the two parts of the hinge when the dog is in operation, as set forth.

350,852. CAR-AXLE BOX. James Timms, Columbus, Ohio, assignor of one-half to B. F. Rees, same place. Filed June 8, 1886. (No model.)



Claim.—1. A skeleton frame or support for use in a car-axle box, provided with the lugs C and recesses D at their opposite ends, substantially as set forth.

2. A skeleton roller frame or support for use in a car-axle box, having the large recess, L, at one end and the hook E and smaller recess, G, at the other end, with or without the partition F, substantially as set forth.

3. A skeleton roller frame or support for use in a car-axle box, having the large recess, L, and lugs or stays M at one end and the hook E and smaller recess, G, at the other end, with or without the partition F, substantially as set forth.

4. The combination of three skeleton frames nested together firmly by means of lugs and flanges, and carrying the three rollers and their springs, substantially as set forth.

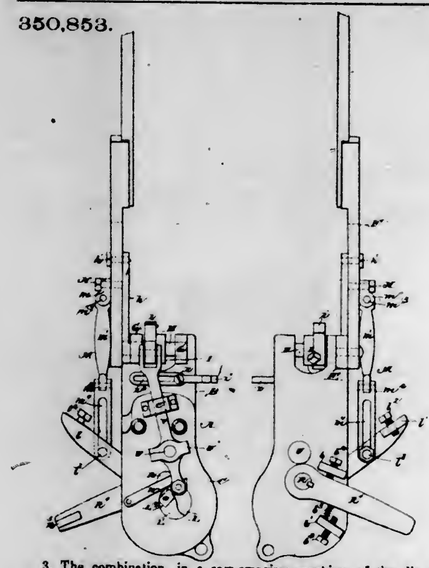
5. The combination, with a nest of skeleton frames, of the end bearing provided with a downward projection, O, and the lug or stay N on the outer skeleton frame, substantially as set forth.

350,853. SAW-SWAGING DEVICE. Philip R. Ward, Quincy, Ill. Filed Mar. 3, 1886. (No model.)

Claim.—1. The combination, in a saw-swaging machine, of the revoluble die-head carrying the die and the rock-shaft R, having the mandrel, substantially as described.

2. The combination, in a saw-swaging machine, of the die and the rock-shaft R, having the adjustable mandrel, substantially as described.

350,853.



3. The combination, in a saw-swaging machine, of the die, the rock-shaft having the adjustable mandrel, and the key for moving the mandrel in or out from the rock-shaft, substantially as described.

4. The combination, in a saw-swaging machine, of the mandrel, the revoluble die-head carrying the die, and having the stop *a*, for the purpose set forth, substantially as described.

5. The combination, in a saw-swaging machine, of the mandrel, the revoluble die-head having the die, and the adjustable stop-plate *a*, substantially as described.

6. The combination, in a saw-swaging machine, of the mandrel, the revoluble die-head carrying the die, the slotted adjustable stop-plate *a*, and the set-screw passing through the said slotted stop-plate to secure the latter to the die-head, substantially as described.

7. The combination, in a saw-swaging machine, of the rock-shaft R, carrying the mandrel, and the revoluble die-head carrying the die, the latter being provided with the convex portion *o* and the plain portion *o'*, substantially as described.

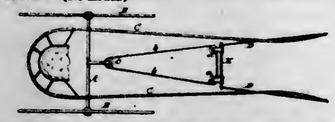
8. The combination, in a saw-swaging machine, of the rock-shaft R, having the mandrel and the lever R^4, and the revoluble die-head having the die, and the arm or lever *l*, substantially as described.

9. The combination, in a saw-swaging machine, of the rock-shaft R, having the mandrel and the lever R^4, and the revoluble die-head having the die and the arm or lever *l*, the said arm having the tappet for striking the lever R^4, to cause the said lever R^4 and the lever *l* to move simultaneously during a portion of the movement of the lever *l*, substantially as described.

10. The combination, in a saw-swaging machine, of the die, the rock-shaft having the mandrel, the clamp-studs T and T', for securing the saw-tooth in place between the die and the mandrel, and means for operating the said clamping-studs and the die and the mandrel, substantially as described.

11. The combination, in a saw-swaging machine, of the revoluble die-head having the die and the tappet-arm *l*, the rock-shaft R, having the mandrel and the arm R^4, the stud T, secured to the frame, the hand-lever F, the slotted connecting-rod connecting the said hand-lever with the arm *l*, the rock-shaft H, having the arm A connected to the hand-lever and the cam I, and the pivoted lever V, bearing on the said cam, and having the stud T' opposing the stud T, whereby when the hand-lever is moved the studs T and T' first clamp the saw in place, and the die and mandrel are then operated on the tooth to swage the latter, substantially as described.

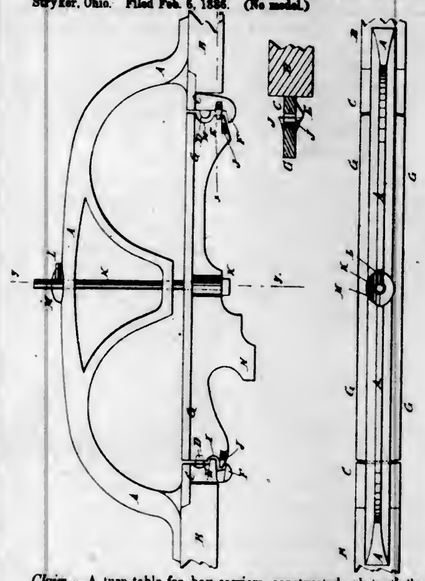
350,854. HARNESS. JOHN H. WHITAKER, Davenport, Iowa. Filed Feb. 23, 1886. (No model.)



Claim.—1. The harness herein described, consisting of lines and means, substantially as described, whereby the latter are extended between the horse's hind legs, the said lines having bearing-surfaces, and also means, substantially as described, whereby the latter are adapted to move longitudinally or with the horse's leg when in contact with it, substantially as and for the purpose described.

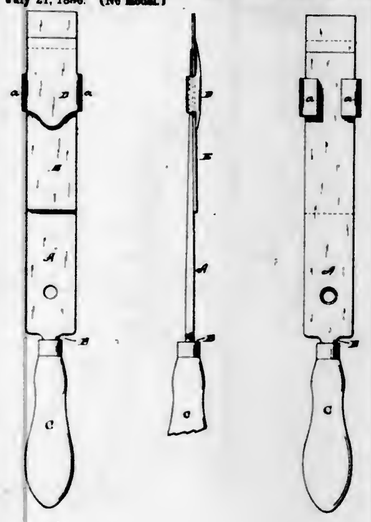
2. The harness herein described, consisting of lines and means, substantially as described, whereby the latter are extended between the horse's hind legs, the said lines being constructed in the form of one or more endless belts, combined with distending-palleys, substantially as and for the purpose described.

350,855. TURN-TABLE FOR HAY-CARRIERS. EDWIN WOODWARD, Stryker, Ohio. Filed Feb. 6, 1886. (No model.)



Claim.—A turn-table for hay-carriers, constructed substantially as herein shown and described, and consisting of the arched truss A, provided with arms C, having lugs D E and flanges F, and with a double incline, M, at its top, the track-section G fitting between the said arms C and provided with end recesses, H I, and flanges J, and with a stop, N, and the pivoting-pin K, having at its upper end a pin, L, projecting at one side, whereby the track-section will be turned through a half-revolution by a draft-strain upon the carrier standing upon the said track-section, as set forth.

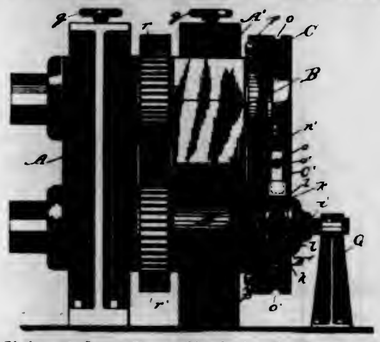
350,856. SCRAPING-TOOL. JAMES WEBSTER, Torrington, Conn. Filed July 21, 1886. (No model.)



Claim.—1. A scraper-holder formed of a bar of uniform width diminished in thickness toward the end, and a clamp adapted to embrace the bar and hold the scraper-bit in the position of use, substantially as shown and described.

2. As an improved article of manufacture, a scraping-tool formed of a bar, A, provided with a tang, B, and diminished in thickness from the tang toward the opposite end, the handle C, received on the tang, the clamp D, provided with carved ends and arms *a*, embracing the bar A, and the bit E, adjustably held between the clamp D and bar A, substantially as shown and described.

350,857. MACHINE FOR ROLLING CAR-COUPLING PINS. JAMES J. ANDERSON, Chicago, Ill., assignor of one-half to Asa G. Pettibone and A. H. Mullikin, both of same place. Filed Jan. 26, 1886. (No model.)



Claim.—1. In a rolling-machine having die-rolls supported on spindles, the combination, with a grooved die-roll, C', in the groove of the same, of reciprocating sockets D^2, and dies D', removably contained in the sockets, substantially as and for the purpose set forth.

2. In a rolling-machine, the combination, with the spindles B B', of a grooved roll, C, having in the groove stationary swage, pointing, and severing dies, and a grooved roll, C', having in the groove stationary swage and reciprocating pointing and severing dies, whereby a coupling-pin may be formed from a metal bar by first heading it, then pointing it, and, lastly, severing it while forming the head for a succeeding pin upon the bar, substantially as described.

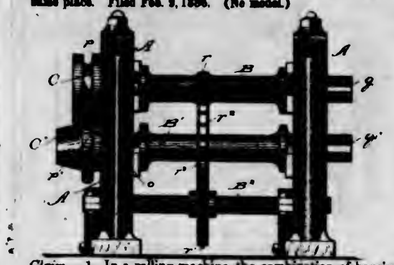
3. In a rolling-machine, the combination of housings A A', in close proximity to each other, spindles B B', to be rotated toward each other and projecting toward adjacent ends slightly beyond a housing, a grooved roll, C, detachably secured upon the projecting end of the spindle B, and having in the groove stationary swage, pointing, and severing dies, and a grooved roll, C', detachably secured upon the projecting end of the spindle B', and having in the groove stationary swage and reciprocating pointing and severing dies, whereby the rolls are rigidly maintained in their normally-relative operative positions, and a coupling-pin may be formed from a metal bar by first heading it, then pointing it, and, lastly, severing it while forming the head for a succeeding pin upon the bar, substantially as described.

4. In a rolling-machine, the combination, with the spindles B B' of an annular grooved and recessed roll, C, having in the groove stationary swage, pointing, and severing dies, an annular grooved and recessed roll, C', having in the groove stationary swage and reciprocating pointing and severing dies, whereby a coupling-pin may be formed from a metal bar by first heading it, then pointing it, and, lastly, severing it while forming the head for a succeeding pin upon the bar, and a cam, F, to sustain and reciprocate the pointing and severing dies in the roll C', substantially as described.

5. In a rolling-machine, the combination of housings A A', in close proximity to each other, spindles B B', to be rotated toward each other and projecting toward adjacent ends slightly beyond a housing, an annular grooved and recessed roll, C, detachably secured upon the projecting end of the spindle B, and having in the groove stationary swage, pointing, and severing dies, an annular grooved and recessed roll, C', detachably secured upon the projecting end of the spindle B', and having in the groove stationary swage and reciprocating pointing and severing dies, and a stationary cam, F, to sustain and reciprocate the pointing and severing dies in the roll C', whereby the rolls are rigidly maintained in their normally-relative operative positions, and a coupling-pin may be formed from a metal bar by first heading it, then pointing it, and, lastly, severing it while forming the head for a succeeding pin upon the bar, substantially as described.

6. In a rolling-machine, the combination of housings A A', in close proximity to each other, spindles B B', to be rotated toward each other and projecting toward adjacent ends slightly beyond the housing, an annular grooved and recessed roll, C, detachably secured upon the projecting end of the spindle B, and having in the groove stationary swage, pointing, and severing dies, an annular grooved and recessed roll, C', detachably secured upon the projecting end of the spindle B', and having in the groove stationary swage and reciprocating and removably-adjustable pointing and severing dies, and a stationary cam, F, upon a rigid shaft supported at one extremity by the spindle B', and operating to sustain and reciprocate the pointing and severing dies in the roll C', substantially as and for the purpose set forth.

350,858. ROLLING MACHINERY. JAMES J. ANDERSON, Chicago, Ill., assignor of one-half to Asa G. Pettibone and A. H. Mullikin, both of same place. Filed Feb. 9, 1886. (No model.)



Claim.—1. In a rolling-machine, the combination of housings A, a rotary spindle, B, a roll, C, on the spindle B, without a housing, A, an oscillating spindle, B', a roll, C', on the spindle B', without a housing, A, adjacent to the roll C, and means, substantially as described, for oscillating the spindle B', substantially as set forth.

2. In a rolling-machine, the combination of housings A, a stationary rotary spindle, B, a roll, C, on the spindle B, without a housing, A, a rotary spindle, B', adjusted toward one end in its housing by means of a ball-joint, D, and oscillatory within its housing toward its opposite end, a roll, C', on the spindle B', without a housing, A, adjacent to the roll C, and means, substantially as described, for oscillating the spindle B', substantially as set forth.

3. In a rolling-machine, the combination of housings A, a stationary rotary spindle, B, a grooved roll, C, on the spindle B, without a housing, A, an oscillatory spindle, B', a roll, C', on the spindle B', without a housing, A, adjacent to the roll C and tapering toward its outer extremity, and provided with a collar, *p'*, to operate with the groove in the roll C, and means, substantially as described, for oscillating the spindle B', substantially as set forth.

4. In a rolling-machine, the combination of housings A, a rotary spindle, B, a roll, C, on the spindle B, without a housing, A, an oscillatory spindle, B', a roll, C', on the spindle B', without a housing, A, adjacent to the roll C, a rotary spindle, B^2, and a cam, E, on the spindle B^2 within a housing adjacent to the free end of the spindle B', to oscillate the spindle B', substantially as and for the purpose set forth.

5. In a rolling-machine, the combination of housings A, a stationary rotary spindle, B, a grooved roll, C, on the spindle B, without a housing, A, a rotary spindle, B', adjusted toward one end in its housing by means of a ball-joint, and oscillatory within its housing toward its opposite end, a roll, C', on the spindle B', without a housing, A, below the roll C, and tapering toward its outer extremity, and provided with a collar, *p'*, to operate with the groove in the roll C, a rotary spindle, B^2, below the spindle B', a cam, E, on the spindle B^2 within a housing adjacent to the free end of the spindle B', to oscillate the same, and suitable gearing to rotate the spindle B^2 once to a given greater number of revolutions of the spindles B and B', substantially as described.

350,859. MACHINE FOR MAKING CAR-COUPLING LINKS. JAMES J. ANDERSON, Chicago, Ill., assignor of one-half to Asa G. Pettibone and A. H. Mullikin, both of same place. Filed Feb. 9, 1886. (No model.)

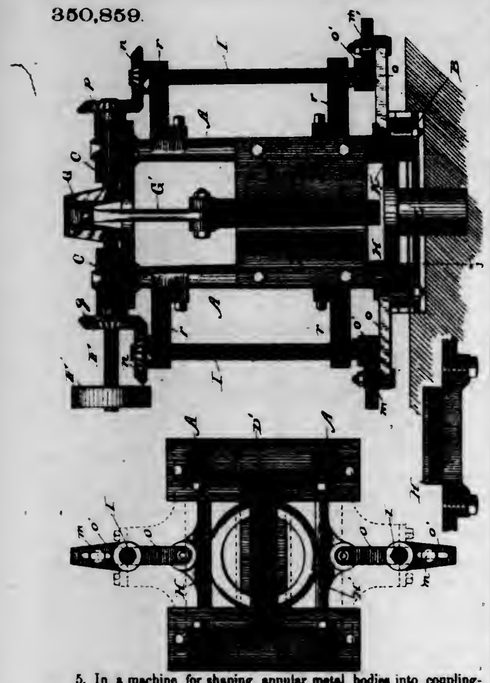
Claim.—1. In a machine for shaping annular metal bodies into coupling-links, the combination, with the frame of the machine and the driving-shaft F, of the flattened and tapered mandrel E, substantially as and for the purpose set forth.

2. In a machine for shaping annular metal bodies into coupling-links, the combination, with the frame of the machine, the driving-shaft, and the laterally-reciprocating compressor-dies, of the flattened and tapered mandrel E, substantially as and for the purpose set forth.

3. In a machine for shaping annular metal bodies into coupling-links, the combination, with the frame of the machine, the driving-shaft, and the laterally-reciprocating compressor-dies, grooved in their inner surfaces, of the flattened and tapered mandrel E and guides for the mandrel, substantially as and for the purpose set forth.

4. In a machine for shaping annular metal bodies into coupling-links, the combination, with the frame of the machine, of a strengthening-rib, L, for the base, affording a seat for the ring, a driving-shaft, F, a vertically-reciprocating mandrel, E, guides for the mandrel, and laterally-reciprocating compressor-dies H H', substantially as described.

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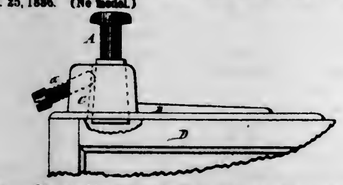


5. In a machine for shaping annular metal bodies into coupling-links, the combination, with the frame of the machine, of a horizontal driving-shaft, F, beveled gear-wheels *q p*, and a crank, G, on the driving-shaft, a mandrel, E, reciprocated by the crank G, vertical shafts I, having at their upper extremities beveled gear-wheels *n* in mesh with the gear-wheels *q p*, compressor-dies H H', eccentrically connected with the shafts I, and reciprocated laterally by the rotation of the shafts I, substantially as described.

6. In a machine for shaping annular metal bodies into coupling-links, the combination, with the frame of the machine, of a horizontal driving-shaft, F, beveled gear-wheels *q p*, and a crank, G, on the driving-shaft, a mandrel, E, reciprocated by the crank G, guides D D' for the mandrel, vertical shafts I, having at their upper extremities beveled gear-wheels *n* in mesh with the gear-wheels *q p*, compressor-dies H H', grooved longitudinally on their inner surfaces, and cranks *o o'*, connecting the shafts I and compressor-dies, substantially as described.

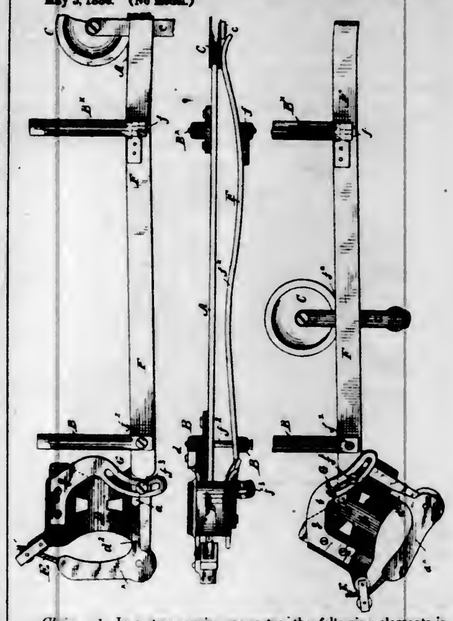
7. A machine for shaping annular metal bodies into coupling-links, comprising, in combination, a base, B, having a strengthening-rib, L, forming a seat for the ring, pillars A, supporting a table, C, and provided with extensions *r*, a horizontal driving-shaft, F, supported by the table C, beveled gear-wheels *q p*, and a crank, G, on the driving-shaft, a mandrel, E, reciprocated by the crank G, guides D D' for the mandrel, vertical shafts I, supported in the extensions *r*, and having at their upper extremities beveled gear-wheels *n* in mesh with the gear-wheels *q p*, grooved compressor-dies H H' on the base B, and cranks *o o'*, adjustably connecting the compressor-dies with the shafts I, whereby the said dies are reciprocated laterally by the rotary movement of the shafts I, the whole being constructed and arranged to operate substantially as described.

350,860. DOOR-HANGER. John J. Baldwin, Syracuse, N. Y. Filed Jan. 25, 1886. (No model.)



Claim.—The combination, with the door-hanger, of a plate adapted to be secured upon the top edge of the door, an upwardly-tapering socket attached to said plate, a coupling-pin suspended from the hanger, and having its lower end tapered upwardly and inserted in the aforesaid socket, and a set-screw entering the socket to bind the aforesaid coupling-pin therein, substantially as set forth.

350,861. STORE-SERVICE APPARATUS. Isidore Binet, Philadelphia, Pa., assignor to the Transit Apparatus Company, same place. Filed May 5, 1886. (No model.)



Claim.—1. In a store-service apparatus, the following elements in combination: a track, a pivoted carrier-receiver, a horizontally-moving arrester-bar adapted to be deflected toward or from the track, and a device connected with the receiver for occasioning the movement of said arrester-bar, substantially as set forth.

2. In a store-service apparatus, the following elements in combination: a track, a pivoted carrier-receiver, a horizontally-moving pivoted arrester-bar adapted as to either of its ends to be deflected toward or from the track, so as to block or permit the movement of the carrier both in advance of and beyond its pivot, and a cam device moving with the receiver to occasion the deflection of the said arrester-bar, substantially as set forth.

3. In a store-service apparatus, the following elements in combination: a track, a pivoted carrier-receiver, a horizontally-moving pivoted arrester-bar so formed as to present a stop on each side of its pivot, and a cam device fixedly connected with the receiver, and having a sliding connection or traveling union with said arrester-bar, for occasioning the movement of the latter, substantially as set forth.

4. In a store-service apparatus, the following elements in combination: a track, a pivoted carrier-receiver, a horizontally-moving doubly-curved pivoted arrester-bar adapted to be deflected toward or from the track, and a cam device fixedly connected with the receiver and having a sliding connection or traveling union with said arrester-bar for occasioning the movement of the latter, substantially as set forth.

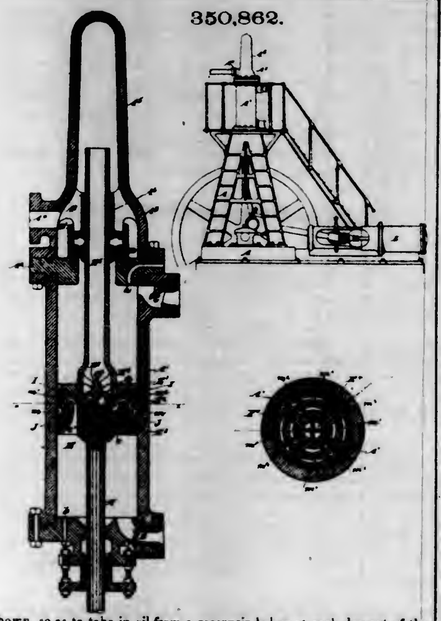
5. In a store-service apparatus, the following elements in combination: a track, a pivoted carrier-receiver, a horizontally-moving pivoted arrester-bar adapted to be deflected about its pivot toward or from the track, a slotted camway connected with the receiver, and a headed lug connected with the arrester-bar and engaged with the slot of the camway, substantially as set forth.

6. In a store-service apparatus, a pivoted carrier-receiver having no track-bar, but provided with a detent having a heel, in combination with a track, the terminal extremity of which is provided with a horizontal foot which extends into the receiver in alignment with the heel of the detent, and serves as a track-bar to said receiver when the latter is elevated, substantially as set forth.

350,862. GAS-COMPRESSOR. William Bowers, New York, N. Y., assignor to Sarah E. Bowers, same place. Filed Nov. 20, 1885. (No model.)

Claim.—1. In a double-acting gas-compressor having an upright cylinder, A', and a piston, E, having two packings, I and J, and an annular oil-reservoir, *m*, between them, the passages *e' m'*, arranged as

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shown, so as to take in oil from a reservoir below at each descent of the piston, and thereby supply the reservoir *m*, as herein specified.

2. In such gas-compressor, the piston E, having the passages *e' m' m²*, arranged as shown relatively to each other and to the annular reservoir *m* and discharge-chamber *e*, so as to afford a clear space for the escape of gas through the passage *m²*, while the oil is received through the passages *e' m'*, all substantially as and for the purposes herein specified.

3. The double-acting gas-compressor described, having a piston, E, with the chamber *e*, as shown, in combination with the cylinder A', and with the piston-rod H and its head H', allowed to move to a limited extent in said chamber, and with the tubular extension E² and valves D and G, arranged for joint operation as herein specified.

350,863. BRAND-STAMP. Alfred H. Bryant, Covington, Ky. Filed Feb. 23, 1886. (No model.)

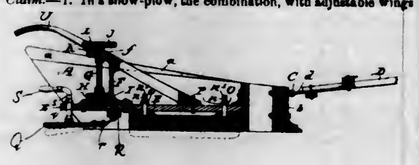


Claim.—1. In combination with the detachable arms A B, pivoted together at one end and provided with tongue C on the inside face, the letter-blocks provided with corresponding grooves to fit between the arms A B, substantially as specified.

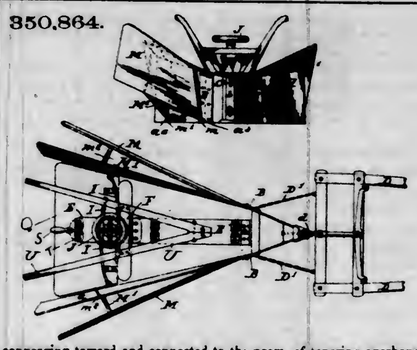
2. The combination of the hinged arms A B and letter-blocks E, said parts being tongued and grooved, whereby the letter-blocks are held in place when said arms are fastened together, substantially as described.

350,864. PLOW. Beauman Butler, St. Johnsbury Centre, assignor of one-half to C. T. Brigham, St. Johnsbury, Vt. Filed Apr. 20, 1886. (No model.)

Claim.—1. In a snow-plow, the combination, with adjustable wings



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converging toward and connected to the prow, of tapering overhanging projections on the top and extending partly down the rear end thereof, and suitable adjusting mechanism, substantially as described, for expanding or contracting the rear end of said wings, as and for the purpose set forth.

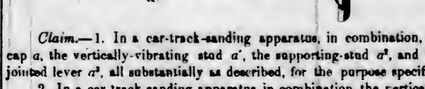
2. The combination, with adjustable wings and the prow, of a central longitudinal beam, suitable wing-adjusting mechanism mounted thereon, and an adjustable center-board connected thereto, all constructed and operating substantially in the manner and for the purpose described.

3. The combination, with adjustable wings and the prow, of a central longitudinal beam, suitable adjusting mechanism mounted thereon, and an adjustable center-board, and adjustable smoothing-board connected thereto, all constructed and operating substantially in the manner and for the purpose described.

4. In a snow-plow, the combination, with the prow, of adjustable wings having tapering overhanging projections on the top and extending partly down their rear ends, suitable adjusting mechanism, and means, substantially as described, for evening off and packing the snow embankments obliquely on either side, as set forth.

5. The combination, with the adjustable wings, of the attachable wings adapted to prevent the higher snow from falling back in the tracks of the plow, as set forth.

350,865. APPARATUS FOR SANDING CAR-TRACKS. Warren T. Butler, Chelsea, and George H. Hathaway, Boston, Mass. Filed July 3, 1886. (No model.)

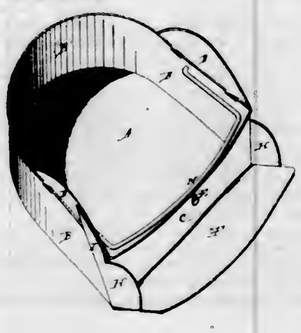


Claim.—1. In a car-track-sanding apparatus, in combination, the cap *a*, the vertically-vibrating stud *a'*, the supporting-stud *a²*, and the jointed lever *a³*, all substantially as described, for the purpose specified.

2. In a car-track-sanding apparatus, in combination, the vertically-vibrating stud *a'*, the supporting-stud *a²*, and the jointed lever *a³*, all substantially as described, for the purpose specified.

3. In a car-track-sanding apparatus, in combination, an oscillating gate which forms one side of a sand-hopper, a lever, *a³*, a supporting-stud, *a²*, and a vertically-vibrating stud, *a'*, all substantially as described.

350,866. ASH-PAN. Sarah J. Byers, Lafayette, Ind. Filed Feb. 20, 1886. (No model.)



Claim.—1. The combination, with the sides of an ash-pan, of wings pivotally secured to the said sides, and means for supporting said wings in raised position, substantially as described.

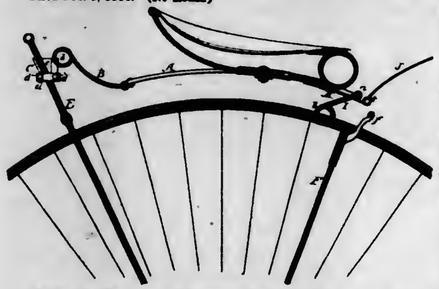
2. The combination, with an ash-pan, of wings having a hinged connection with the sides of the ash-pan, and a front end having a hinged connection with the pan, and provided with arms extending backward on each side of the pan and engaging the side wings, substantially as described.

3. The combination, with the ash-pan, of a plate having a hinged connection therewith, and provided with arms extending backward on each side of the pan, and a stop to limit the outward swinging movement of the plate, substantially as described.

350,867. **REMEDY FOR KIDNEY DISEASES.** Frank E. Chadwick, Rochester, N. Y., assignor to the F. E. C. Medicine Company, same place. Filed Apr. 23, 1886. (No specimens.)

Claim.—The herein-described remedy for kidney diseases, consisting of motherwort, barberry-leaf, couch-grass, winter-green, water, and gin, prepared in the proportions and manner specified.

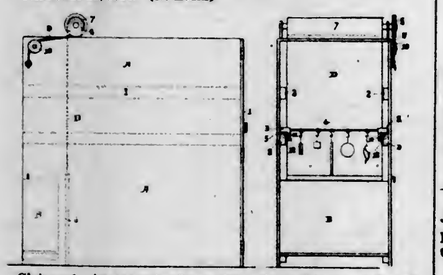
350,868. **SADDLE-SPRING FOR BICYCLES.** Luther S. Copper, Cleveland, Ohio, assignor of one-half to Frank W. Bowler, same place. Filed Feb. 5, 1886. (No model.)



Claim.—1. The clamp C, consisting of two leaves, c c, provided with sockets *e e* and joined together by the expanding screw and nuts c^3 c^3, and secured to the supporting-rods E with the bolt D, in combination with the loop B of the bar A, substantially as specified.

2. The combination, with the bar A, of a mud-guard, G, consisting of a plate, K, attached by means of a hinge-joint to a sliding rod, J, fixed to slide in suitable bearings on said bar A and provided with a tension-spring, *s*, bearing on a notched head, *t*, for holding and retaining the said plate in position, substantially as described.

350,869. **APPARATUS FOR JAPANNING.** Frederick Crane, Summit, assignor to the Frederick Crane Chemical Company, Springfield, N. J. Filed June 26, 1886. (No model.)



Claim.—1. An apparatus for use in coating articles, consisting of a chamber into which the articles may be introduced at one point and from which they may be removed at another, supports which permit the articles to be moved through the chamber, and a vat or receiver in the chamber at the point of introduction of the articles and below the supports therefor, which vat or receiver receives the drainage or surplus liquid from the newly-dipped articles, substantially as described.

2. The combination, with a chamber open at the ends and a dipping-vat at the front end, of the ledges or their specified substitute on the sides of said chamber, the carriages or blocks running on said ledges or the substitute therefor, and the rods upheld by the carriages, substantially as described.

3. An apparatus comprising the draining and drying chamber, the supports extending through the said chamber, the vat in said chamber at the point of introduction of the articles, and the heater in the drying part of the chamber, substantially as described.

4. The combination, with the draining and drying chamber, the supports in the said chamber, and the vat, of the movable screen for cutting off the drying portion of the chamber from the part containing the vat, substantially as described.

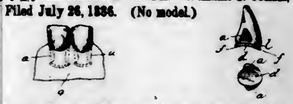
5. An apparatus composed of a draining and drying chamber, supports which permit the articles to be moved through said chamber, a dipping-vat in the front part of said chamber, a heater in the rear part, and a movable screen for cutting off the drying from the dipping and draining part of the chambers, substantially as described.

350,870. **DRUM-HEAD STRAINER.** Edwin J. Curley, Havanswood, Ill. Filed Nov. 7, 1885. (No model.)



Claim.—A drum-straining device consisting of the rod A, having the projection B, in combination with the hooks C and D, counterbored to cover such projection, and the key G, having the angular notch H, all substantially as set forth.

350,871. **ARTIFICIAL TOOTH.** Walter S. Curtis, West Randolph, Vt. Filed July 26, 1886. (No model.)

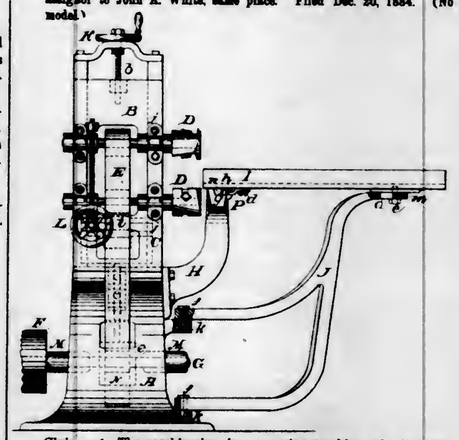


Claim.—1. In an artificial tooth, means for attaching it to a plastic base or gum, consisting of indentures formed in the side thereof, in combination with a projecting rim, substantially as described.

2. In an artificial tooth, and in combination, the unbroken base *d* and the flange or rim *f*, substantially as and for the purpose set forth.

3. In an artificial tooth, a recess or indenture formed in the side thereof above the edge of the base, whereby a shoulder is formed, substantially as shown.

350,872. **TENONING-MACHINE.** Abe L. Cobeman, Concord, N. H., assignor to John A. White, same place. Filed Dec. 20, 1884. (No model.)



Claim.—1. The combination, in a tenoning-machine, of a bracket, J, one end supported by lugs *k k* secured to base A, and oscillating on pins or arbors *f f*, passing through the said lugs, the other end supporting the reciprocating table I, substantially as described.

2. In a tenoning-machine, the combination of the reciprocating table having a casting, P, secured to the under side and adapted to the groove *g*, parallel with the top of support H, substantially as specified and shown.

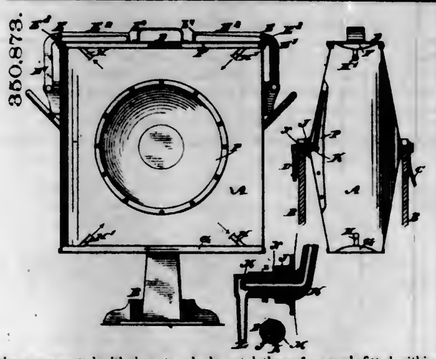
350,873. **WASHING-MACHINE.** Frederick Dodd, Philadelphia, Pa. Filed July 17, 1885. (No model.)

Claim.—1. A washing-machine having a fastening device consisting of the arms E', pivoted to lugs on the side of the body of the machine, and arms E^2, pivoted to arms E' and provided with legs E^3 at their pivotal ends and legs E^4 at the outer ends, both legs E^3 and E^4 being adapted to rest or bear on the said lid, substantially as and for the purpose set forth.

2. A washing-machine having a body mounted on a frame and adapted to rotate, the said body being provided with channels G and F, having spouts H and H', substantially as and for the purpose set forth.

3. In a washing-machine, a discharge-pipe passing through a rotary

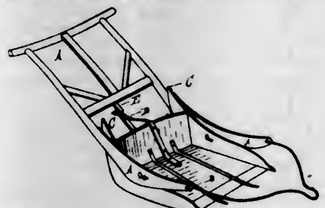
350,873.



sleeve connected with the rotary body or tub thereof, a nozzle fitted within said sleeve and detachably connected with said pipe, and a spring within the sleeve bearing against the nozzle and sleeve, whereby the inner end of the discharge-pipe is held tightly against the sleeve, substantially as and for the purpose set forth.

4. A rotary body or tub, a hollow journal or sleeve attached thereto, a discharge-pipe, a detachable discharge-nozzle partly inclosing the same and inclosed by said sleeve, a pin connecting said pipe and nozzle, and a spring pressing the inner portion of the discharge-pipe against the sleeve, substantially as described.

350,874. **REVOLVING SCRAPER.** James Dobaw, Inkster, Mich., assignor of two-thirds to F. E. Coleman and Geo. Reynold, both of same place. Filed Dec. 3, 1885. (No model.)



Claim.—The combination, with the frame A, of the scraper B, pivoted thereto, the rear ends of the side bars of said scraper terminating in sharpened projections C, the catch D, rigidly secured to the back and bottom of said scraper, and the spring-detent E, secured to the handle of said frame and provided with the rod F, all constructed, arranged, and operating substantially as and for the purpose specified.

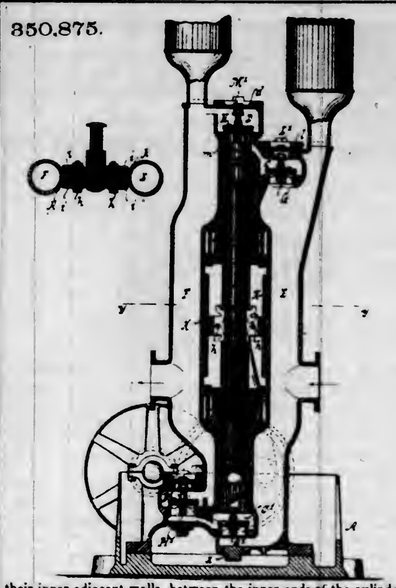
350,875. **DOUBLE-ACTING PUMP.** Thomas Dyson, New York, N. Y. Filed Jan. 15, 1886. (No model.)

Claim.—1. The combination, in a double-acting pump, of a supporting-frame, A, two cylinders, B B', arranged in line and carried by the frame, and each provided at its outer end with a valve-chamber containing a valve in line with the bore of the cylinder, one of which valves is positively operated, the suction and discharge channels E and F, extending, respectively, along the opposite sides of both cylinders and provided at their inner adjacent walls, between the inner ends of the cylinders, with parallel guides K, a cross-head, J, movable on said guides between the cylinders and channels, a plunger, I, extending into both cylinders and connected with the cross-head, and a driving-shaft connected with said cross-head, substantially as described.

2. The combination, in a double-acting pump, of a supporting-frame, A, two cylinders, B B', arranged in line on said frame, and each provided at its outer end with a valve-chamber containing a valve in line with the bore of the cylinder, and with a laterally-projecting valve-chamber containing a valve, one of the valves in line with the cylinder-bore being positively operated, the suction and discharge channels E and F, extending, respectively, along the opposite sides of both cylinders and provided at their inner adjacent walls, between the inner ends of the cylinders, with parallel guides K K, a cross-head movable on said guides between the cylinders and channels, a plunger, I, extending into both cylinders and connected with the cross-head, and a driving-shaft connected with the cross-head, substantially as described.

3. The combination, in a double-acting pump, of a frame, A, two cylinders, B B', arranged in line on said frame, and each provided at its outer end with a valve-chamber and valve in line with the bore of the cylinder, the suction and discharge channels E and F, extending, respectively, along the opposite sides of both cylinders and provided at

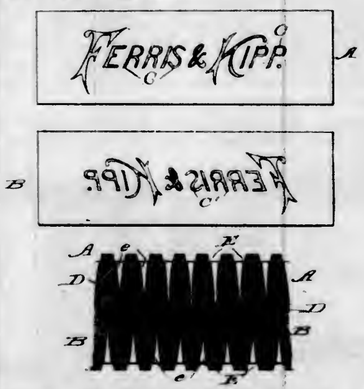
350,875.



their inner adjacent walls, between the inner ends of the cylinders, with parallel guides K K, a plunger, I, extending into both cylinders and provided centrally with a recess, *g*, the cross-head J, composed of two sections clamped upon the plunger and entering said recess and movable on the guides between the cylinders and channels, and a driving-shaft connected with the cross-head, substantially as described.

4. The combination, in a double-acting force-pump, of a frame, A, two cylinders, B B', arranged in line on said frame, and each provided at its outer end with a valve-chamber and valve in line with the bore of the cylinder, and with a laterally-extending valve-chamber containing a valve, the suction and discharge channels E and F, extending, respectively, along the opposite sides of both cylinders and provided at their inner adjacent walls, between the inner ends of the cylinders, with parallel guides K K, a plunger, I, extending into both cylinders and provided centrally with a recess, *g*, a cross-head, J, composed of two sections clamped to the plunger and entering the recess, said sections moving on the edges of the guides, plates *i*, secured, respectively, to the sections of the cross-head and overlapping the opposite sides of the guides, and a driving-shaft connected with the cross-head, substantially as described.

350,876. **EMBOSSING PLATE OR DIE.** John H. Ferris and Chas. M. Kipp, Chicago, Ill., assignors of one-half to J. C. McCann, same place. Filed Dec. 26, 1885. (No model.)



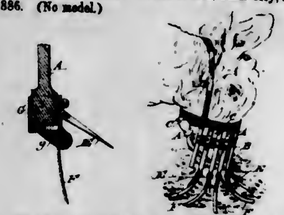
Claim.—1. The combination, with embossing plates or dies, of bolts *e e'*, and grooves E E' on the back thereof connecting said bolts, and to the edges of the plates or dies, substantially as described.

2. In embossing plates or dies, the combination, with holes pass-

ing through said plates, of grooves connecting said holes, and to the edges of said plates, substantially as described.

3. In embossing plates or dies, the combination of holes through said plates and of a larger diameter a portion of the way, with grooves connecting said holes, and to the edges of the plates, substantially as described, and for the purpose set forth.

350,877. CALF-WEANER. Cyrus J. Fox, Falls City, Nebr. Filed July 10, 1886. (No model.)



Claim.—1. The improved calf-weaner herein described, comprising a nose-band, C, a connection, B, the head-band D, and the bars A, arranged in series and in close relation, whereby to form an inclosure over the lower portion of the face of the animal, the said bars being secured at their upper ends to the band C, and depending thence parallel to each other and secured between their ends to the connection B, substantially as set forth.

2. The combination, in a calf-weaner, of a nose-band, C, a head-band, a series of pendent parallel bars secured at their upper ends to the nose-band and arranged in close relation, and the connection B, secured to and connecting said bars midway their ends, the said connection B and band C being formed of flexible or pliable material, whereby they, with the bars, may conform to the shape of the animal's head, substantially as set forth.

3. The combination, with the pendent bars, of the extensions connected with the lower ends of said bars, and hinged substantially as set forth.

4. As a new and improved article of manufacture, an attachment for calf-weaners, consisting of a ferrule provided with a prong, and a plate hinged or pivoted to said ferrule, substantially as set forth.

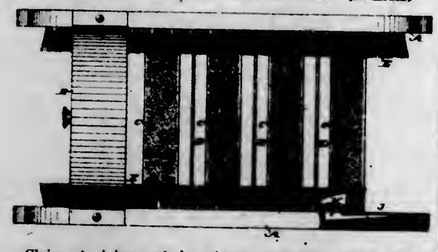
5. The combination, in a calf-weaner, of the headstall, the pendent bars, the connecting-strap joining said bars, the ferrules fitted on the lower ends of said bars and provided with prongs, and the extension-plates pivoted to said ferrules, substantially as set forth.

350,878. HAMMOCK. John K. Fox, McKeesport, Pa. Filed Sept. 19, 1885. (No model.)



Claim.—An improved convertible swing and hammock, consisting, essentially, of the links *c c'*, having the straight bar *h h*, provided at its ends with eyes, as shown, the net-work having the cords *b*, connecting the same with the straight bars of the links, the longitudinal cords *d d''*, secured at one end to the eyes of the link *c'* and their opposite ends passed through the eyes of the opposite link, the perforated blocks *e e*, having the said cords passed through one of their perforations and the free ends of the said cords passed through and adjustably secured to the opposite or outer perforation of the blocks, whereby the net or body may be shortened longitudinally and one of the links adapted to serve as and for the purposes specified.

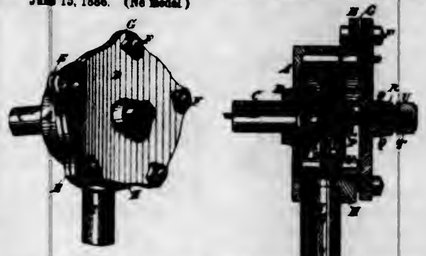
350,879. FOOT-WIPER OR BOOT AND SHOE CLEANER. William O. Frettag, Philadelphia, Pa. Filed Jan. 7, 1886. (No model.)



Claim.—1. A boot and shoe cleaner comprising a top brush, side brushes, and a series of bottom brushes, with intermediate scrapers, having open spaces or passages between said scrapers and brushes, all substantially as and for the purpose set forth.

2. A boot and shoe cleaner consisting of an arched top brush, B, secured to the side pieces, A, the side brushes, E, the series of bottom brushes, C, and scrapers D, secured at their ends to the sill K, and having open spaces between the said brushes and scrapers, the drawer F below said brushes, scrapers, and open spaces, all combined and arranged substantially as described.

350,880. STEAM-TRAP. Edward E. Gold, New York, N. Y. Filed June 15, 1886. (No model.)



Claim.—1. The combination, with the external case or body of the steam-trap, the valve K, containing volatile liquid, and adjusting-screw R, of a valve-seat, N, provided with a face of elastic material or composition, P, such face being arranged to bear directly and flatly against the side of the hollow valve K when the latter closes upon said face, substantially as and for the purpose herein set forth.

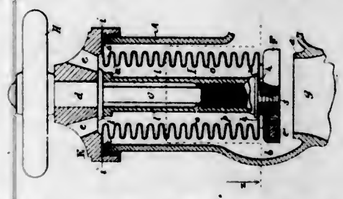
2. The combination, with the body of a steam-trap, a hollow valve, K, containing volatile liquid, valve-seat N, and adjusting-screw R, of a disk or cap of non-metallic elastic material or composition, P', attached to said screw for protecting the rear valve-face of said valve from abrasion, substantially as and for the purposes herein set forth.

3. The combination of the body of the trap, valve K, containing volatile liquid L, valve-seat N, provided with the annular valve-face P, of non-metallic elastic material or composition, and the set-screw R, armed with non-metallic elastic material P' at its inner end, substantially as and for the purposes herein set forth.

4. The combination of the body of the trap, valve K, containing volatile liquid L, valve-seat N, provided with the valve-face P, of non-metallic elastic material or composition, the set-screw R, inserted through the bonnet D of said body, the shallow cup S, formed on or attached to the inner end of said set-screw, and the disk of non-metallic elastic material or composition inserted in said cup, substantially as and for the purpose herein specified.

5. The combination of the body of the trap, valve K, containing volatile liquid L, valve-seat N, provided with the valve-face P, of non-metallic elastic material or composition, the set-screw R, inserted through the bonnet D of said body, the shallow cup S, formed on or attached to the inner end of said set-screw, the disk of non-metallic elastic material or composition inserted in said cup, and the combined jam-nut or screw-cap U, fitted to the outwardly-projecting end of said set-screw, substantially as and for the purpose herein set forth.

350,881. DEVICE FOR OPERATING VALVES. George H. Graham and John A. Creelman, Rochester, N. Y. Filed Oct. 26, 1885. (No model.)

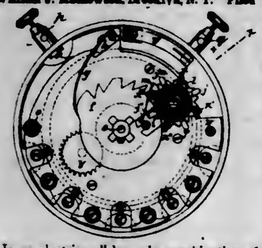


Claim.—1. In combination with the globe of a globe-valve formed with a valve-seat, a yielding cup resting in the space within said globe, a holder, E, for the cup, a stem for said cup joined by means of a sleeve or holder, *l*, to the inner end or bottom thereof, having a bearing in said holder, E, a hand-wheel for said stem, and a valve for said seat secured to the cup, the said holder E being formed with air-passages *e*, substantially as described and shown.

2. In combination with the globe of a globe-valve formed with a valve-seat, a yielding cup resting in the space within said globe, a cap or holder for the cup, a threaded stem for said cup having a bearing in said cap and provided with a collar to bear against said cap, a threaded sleeve to hold said stem secured to said cup, a valve for said valve-seat secured to the sleeve, a stop for the contractive movements of said cup, and a hand-wheel for the stem, substantially as shown and set forth.

3. In combination with a globe of a globe-valve formed with a valve-seat, a transversely-corrugated cap resting in the space within said globe, a holder, E, for the cap secured to said globe, a threaded stem for said cap, a threaded holder, *l*, for said stem formed with a collar or shoulder to rest against the inner end surface of said cap, said holder *l* being formed with a part, *s*, piercing the end of the cap, a valve for the valve-seat secured to said part *s* and having a bearing against the outer end surface of the cap, and a hand-wheel for the stem, substantially as shown and described.

350,882. MULTIPLE CALL-BOX. Charles Herrmann, New York, assignor to William J. Matheuson, Brooklyn, N. Y. Filed July 3, 1885. (No model.)



Claim.—1. In an electric call-box, the combination of a drum free to revolve on its axis, grooves cut in the periphery of said drum on a line diagonal with its axis, pins traveling in said grooves to revolve said drum in one direction, and a spring attached to said drum to revolve it in the opposite direction, said spring being wound up by the revolution of said drum under the actuating control of said pins, substantially as described.

2. In an electric call-box, the combination, with the line-circuit through said box, of a wheel bearing a series of prongs severally formed of conducting and non-conducting material, free to revolve on its axis and traveling in a path set with a series of stops, capable of being withdrawn therefrom, and posts, said stops and posts being formed, severally, of conducting and non-conducting material, substantially as described, for the purpose specified.

3. In an electric call-box, the combination, with the line-circuit through said box, of a wheel cut with notches to transmit a determinate signal, means for revolving said break-wheel, an auxiliary wheel carried by and having a bearing on said break-wheel eccentric to its axis, and means for making and breaking contact through said auxiliary wheel to transmit a variable signal, substantially as described.

4. In an electric call-box, the combination, with the line-circuit through said box, of a wheel having a bearing on a break-wheel eccentric to its axis, bearing a series of conducting and non-conducting spurs with means for closing the line-circuit through said wheel, substantially as described.

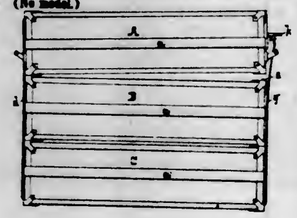
5. In an electric call-box, the combination, with the line-circuit through said box, of a series of conducting and non-conducting posts separated by intervening spaces and set in the path of a traveling contact-piece, substantially as described.

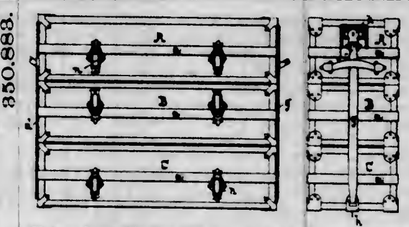
6. In an electric call-box, the combination, with the line-circuit through said box, of a drum, a series of pins moving in cam-bearings on said drum, by means of which the same is revolved, and a traveling contact-piece carried by said drum, substantially as described.

7. In an electric call-box, the combination, with line-circuit through said box, of a series of conducting and non-conducting posts separated by intervening spaces and set in the path of a traveling contact-piece consisting of a wheel revolving on its axis and carried by a traveling arm, substantially as described.

8. In an electric call-box, the combination, with the line-circuit through said box, of a series of conducting and non-conducting posts separated by intervening spaces and set in the path of a traveling contact-piece consisting of a wheel provided with conducting and non-conducting spurs revolving on an axis carried by a traveling arm, substantially as described.

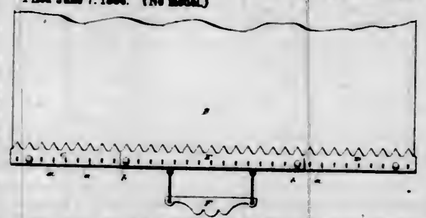
350,883. SECTIONAL TRUNK. Booker T. M. Hubley, Baltimore, Md., assignor of one-half to Thomas G. Patterson, same place. Filed June 24, 1886. (No model.)





Claim.—In combination with the sections A, B, and C, having the slotted plates *f* and *h*, the straps *d* and *g*, and a lock having a hinged hasp adapted to engaged with one end of the said strap *g*, substantially as specified.

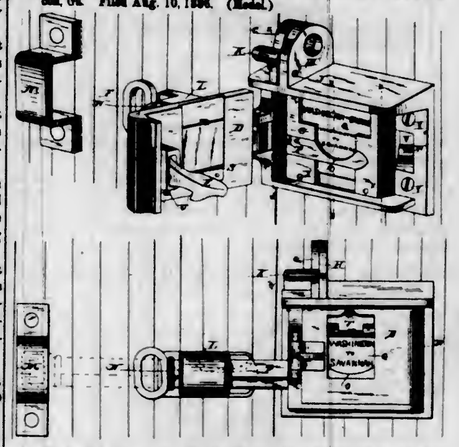
350,884. WINDOW-SHADE BAR. Theophilus R. Hyde, Jr., Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed June 7, 1886. (No model.)



Claim.—1. A window-shade bar consisting of two end portions, C D, made from sheet metal doubled into U shape, and so as to receive the edge of the shade between the two sides, combined with a central portion, E, doubled to embrace the end portions, C D, and the said portions constructed with a series of perforations, by which they may be adjustably secured together and secured to the shade, substantially as described.

2. A window-shade bar consisting of the two end portions, C D, made from sheet metal doubled into U shape, and so as to receive the edge of the shade between the two sides, combined with a central portion, E, doubled in like manner into U shape, and so as to embrace the end portions, C D, the said three portions perforated as a means for securing the parts together and all to the shade, combined with a pull hung to the said central portion, E, substantially as described.

350,885. SEAL-LOCK. Jesse Jordan and Increase C. Plant, Macon, Ga. Filed Aug. 10, 1886. (Model.)



Claim.—1. In a lock for car-doors, the combination of the lock-casing secured to the car-door, a catch within said casing, and a sliding bolt provided with an eye and a lug at one end, a guide secured to the side of the car, and a stop to limit the withdrawal of said bolt.

2. In a seal-lock, the combination of the back plate, the front plate provided with a catch-recess having a stop therein, a sliding bolt provided with a notch in its upper edge, and a gravity-catch provided with a recess in one side and with a finger-piece near its upper end.

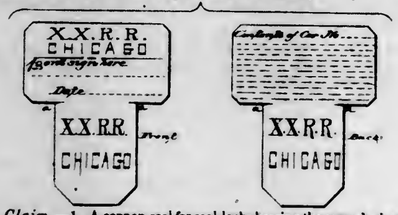
3. In a seal-lock provided with a door, the combination of the

back plate, the front plate provided with a T-shaped recess for the reception of a T-shaped seal, and with a longitudinal bolt-passage, a sliding bolt provided with a vertical slot near its inner end, and a catch adapted to engage said bolt.

4. The combination, in a seal-lock provided with a sliding slotted bolt, a catch connecting with said bolt, and a door, of a front plate formed with a seal-recess, and a plate provided with a toothed flange and secured to said door so that the flange projects into said recess.

5. The combination, in a seal-lock provided with a door, and a back plate having a rearwardly-projecting tube containing a cross-piece, of an automatic catch pivoted in a housing on the back of said door, and a regulating-screw turned through the lower side of said housing.

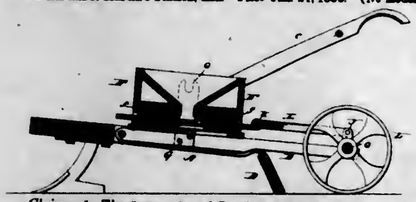
350,886. SEAL FOR SEAL-LOCKS. JESSE JORDAN and DEKRAME C. PLANT, Macon, Ga. Filed Aug. 13, 1886. (No model.)



Claim.—1. A coupon-seal for seal-locks bearing the same device or characters upon both sides of that portion which is exposed to view through the lock-window, and bearing upon that part or coupon which is hidden by the lock and remains permanently therein any desired information concerning the contents of the car upon which the seal is used.

2. A coupon-seal for seal-locks, bearing the name of a railroad and the name of a station, together with any other suitable matter or device, upon both sides of that portion of the seal which is to be destroyed, and bearing upon the coupon, or that portion of the seal which is not intended to be destroyed, any suitable directions or other printed matter relating to the contents of the car, and having suitable spaces or blanks to be signed or otherwise marked by the person by whom the car is opened, or by whom a seal is deposited in the lock.

350,887. COMBINED CORN AND COTTON PLANTER. WARREN F. KENNEDY, Martin's Station, Ala. Filed Jan. 21, 1886. (No model.)



Claim.—1. The frames A and D, hinged together as represented, the frame D carrying a seed-slide-actuating mechanism and provided with slotted standards G G, adapted to hold and carry seed-boxes for distributing different kinds of seed, substantially as set forth.

2. The combination, with the frame A, of the frame D, hinged to the said frame A and carrying the standards G, the seed-slide and its actuating mechanism, and the seed-box F, which is secured between the standards G, and is provided with the adjustable weights or cut-offs *f*, substantially as herein specified.

350,888. SMOKE AND CINDER DEFLECTOR FOR CARS. CHAS T. LUTHY, Peoria, Ill. Filed Apr. 15, 1886. (No model.)



Claim.—1. The combination, with the smoke-stack, of the loosely-held deflector and means for shifting the same, whereby the smoke and other products of combustion issuing from said smoke-stack are forced by the counter-current of air to either side of the engine and outside of the influence of the accompanying air envelope.

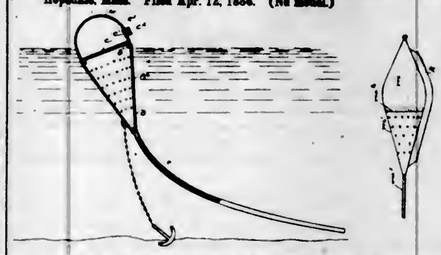
2. The combination, with the locomotive-engine and its smoke-stack, of the hood fixed to said stack, the deflector-conduit loosely connected to said hood, and means for shifting said deflector-conduit, for the purpose set forth.

3. The combination, with the locomotive-engine and its smoke-stack, of the hood fixed to the smoke-stack, the deflector-conduit swiveled to the rear end of said hood, the rocker-shaft rigidly connected to said deflector-conduit, and the lever for operating said shaft and conduit.

4. The combination, with the locomotive-engine and its smoke-stack, of the tapering hood B, fixed to said stack, partly over and to the rear thereof, the deflector-conduit loosely attached to said hood and projecting obliquely therefrom, and means for shifting said deflector-conduit, for the purpose specified.

5. The combination, with a locomotive-engine and its smoke-stack, of the hood B, fixed to the smoke-stack, the deflector-conduit A, swiveled to said hood, the rock-shaft C, rigidly connected to said conduit and extending rearwardly therefrom, the operating-lever D on said shaft, and the lock E, for holding the lever, shaft, and conduit in a desired position, substantially as set forth.

350,889. APPARATUS FOR DISTRIBUTING OIL ON SEAS. F. D. MONTAGUE, Milford, assignor of one-half to George Draper & Sons, Hopedale, Mass. Filed Apr. 12, 1886. (No model.)



Claim.—1. In an apparatus for distributing oil over the surface of water, a floating distributer consisting of a case containing two compartments, one of which serves as the buoyant chamber, while the other is perforated and receives and distributes the oil, combined with a supply-tube by which said perforated compartment receives oil, substantially as described.

2. In an apparatus for distributing oil over the surface of water, the floating distributer having buoyant and oil-distributing compartments, combined with the supply-tube connected with the oil-distributing compartment, through which oil is caused to flow, substantially as described.

3. In an apparatus for distributing oil over the surface of water, the floating distributer having buoyant and oil-distributing compartments, combined with the supply-tube connected with the oil-distributing compartment and anchor, substantially as described.

4. In an apparatus for distributing oil over the surface of water, the distributer consisting of two shells joined together, and a division-wall located at their junction, one of the said shells having a valve to control the passage thereto, while the other shell is perforated, combined with a supply-tube connected with the perforated shell or compartment, all substantially as described.

5. In an apparatus for distributing oil over the surface of water, the floating distributer having buoyant and oil-distributing compartments, combined with the supply-tube connected with the oil-distributing compartment and keel, substantially as described.

350,890. CAR BRAKE AND STARTER. JAMES F. MORRILL, Camden, N. J., and CURTIS TILTON, Philadelphia, Pa., assignors to the Automatic Car Brake Starter and Propeller Company, Camden, N. J. Filed Mar. 15, 1886. (No model.)

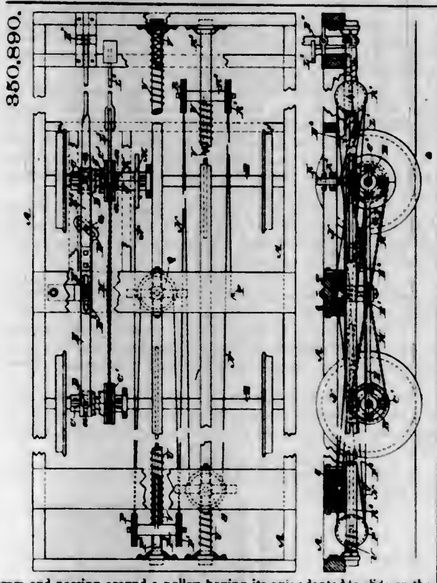
Claim.—1. A car brake and starter having clutches, an endless belt or chain, a drum, and a cord which is adapted to be wound on said drum and passed around a pulley whose shaft has bearing against it, a spring which is compressed when the cord is wound on the drum, and its power thus stored for subsequently starting the car, substantially in the manner described.

2. A car brake and starter having clutch mechanism for the axles, a pivoted lever for operating said mechanism, and a sliding lever for operating the pivoted lever, said levers being connected, whereby the pivoted lever receives lateral motions, substantially as and for the purpose set forth.

3. In a car brake and a starter, clutch operating mechanism, consisting of pivoted and sliding levers which are connected by means of a stud or roller, and a diagonally-extending guide, whereby lateral motions are imparted to the pivoted lever, substantially as described.

4. In a car brake and starter, clutch mechanism, a drum adapted to be connected with said mechanism, a cord adapted to be wound on said drum and passing around a pulley having its axis adapted to slide on the truck, and a spring bearing against said axis, substantially as and for the purpose set forth.

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5. In a car brake and starter, clutch mechanism, a crossed chain or belt passed around the pulleys of said clutches, and a pawl which engages with said belt and controls the same, substantially as described.

6. In a car brake and starter, a brake-shoe connected with a movable support, and a pawl mounted on said support, in combination with a clutch-pulley, a drum connected with said pulley, a cord or chain adapted to be wound on said drum, and a spring which exerts its power on said cord, substantially as described.

7. In a car brake and starter, a cord or chain, and a drum on which the same may be wound, in combination with a pulley around which said cord passes, a movable axle supporting said pulley, and a spring bearing against said axle, substantially as described.

8. In a car brake and starter, a spring, a cord or chain and winding mechanism, a clutch mechanism, a crossed chain or belt passed around the pulleys of said clutches, and a pawl and brake-shoe, said pawl and shoe being connected with a support, substantially as described, whereby the pawl engages with said chain and causes the shoe to bear against one of the pulleys, and the winding mechanism is controlled, as stated.

9. Clutch mechanism and operating-levers thereof, in combination with a drum, pulleys having sliding axes, springs bearing against said axes and a cord which is adapted at one end to be wound on said drum, is passed zigzag around said pulleys, and is secured at the other end to the car-truck, substantially as described.

350,891. WATER STREET STOP-COCK BOX. AMOS W. MORGAN, Buffalo, N. Y. Filed Mar. 12, 1885. (No model.)

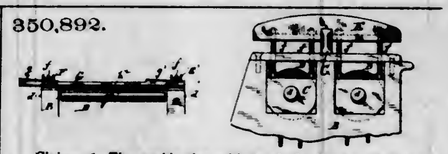


Claim.—1. In a street water and gas box, in combination with a round pipe, the rectangular top or cover D, having the shoulder *j*, the cover proper, *m*, the bottom *p*, with one or more ing-openings, *r*, therein, and the lugs *s s* on the entering round pipe, all arranged and operating substantially as and for the purpose specified.

2. In double or telescopic street water and gas boxes, the tube A', having the long vertical stop or stops *a*, and segments *b b*, formed thereon, in combination with the inner tube, B, having the segmental rings or lugs *b' b'*, as and for the purpose specified.

3. In combination with the pipe B, having the bottom segmental ring, *g*, the base C, having the long neck *d*, provided with vertical lugs *e e*, substantially as and for the purpose specified.

350,892. WOOD-PLANING MACHINE. GILBERT S. MYERS, Philadelphia, Pa., assignor to Goodall & Waters, same place. Filed Mar. 2, 1886. (No model.)

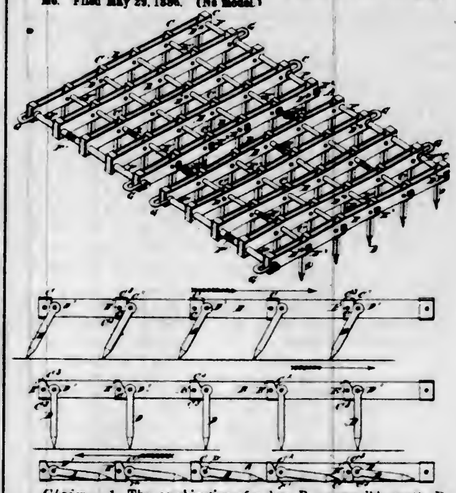


Claim.—1. The combination, with the feed-rolls, of a planing-machine having vertically-movable bearings, of a double-incline or double-wedge slide and a lever connected therewith for producing a movement of said slide, substantially as shown and described.

2. The combination, with the vertically-movable bearings of the feed-rolls of a planing-machine, of yokes connecting said bearings, a double-incline slide or wedge passing beneath said yokes, and a lever connected with said slide, whereby a vibration or swinging motion of the lever in one direction will move the slide longitudinally and elevate the feed-rolls, a reverse movement of the lever permitting said rolls to descend, substantially as shown and described.

3. The combination, with the vertically-movable feed-rolls of a planing-machine, of a slide or wedge, G, having two inclines, *g g'*, and projections or pendants g^2 g^3, and a lever, H, fulcramed on the machine, one of the arms of said lever passing between said projections, and the other arm extending beyond the frame of the machine, substantially as shown and described.

350,893. REVERSIBLE HARROW. WILLIAM S. PATE, Jonesburg, Mo. Filed May 29, 1886. (No model.)



Claim.—1. The combination of a bar, B, a reversible tooth, D, having a circular head pivoted thereto, and a block, C, located on one side of the tooth, having a vertical face, C', inclined face C^2, and recess C^4 between the faces, the recess being occupied by the circular head, substantially as described.

2. The combination of twin bars B, a block, C, having vertical face C', recess C^4, inclined face C^2, and flanges C^3, means by which the block is secured from longitudinal movement between the bars, and a reversible tooth, D, having a circular head pivoted to the bars and occupying the recess on one side of the block, substantially as described.

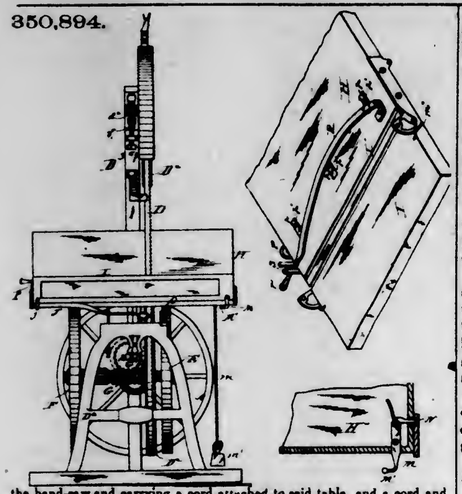
3. A harrow consisting of twin bars B, rods E, having sleeves E', rods F, having sleeves F', blocks C, having vertical faces C', recesses C^4, and inclined faces C^2, secured between the bars, and reversible teeth D, located on one side of the blocks, having circular heads and pivoted between the bars, substantially as described.

350,894. BAND SAWING-MACHINE. GEORGE PUHL and ADOLPH MERTES, Allegheny, Pa.; said Mertes assignor to John Lippincott, Baltimore, Md. Filed Aug. 4, 1885. (No model.)

Claim.—1. In a machine for slicing meat, the combination, with a band-saw and a reciprocating table, of a power-shaft through which motion is imparted to said band-saw, a supplementary shaft carrying the lower band-saw pulley, a drum-shaft carrying a loose drum, and a worm-wheel gearing with a worm on said pulley-shaft, a rope connecting said drum with said table, and a clutch or connecting mechanism whereby said worm-wheel and drum may be connected and disconnected, all constructed and arranged substantially as shown and described.

2. In a machine for slicing meat, the combination, with a band-saw and a reciprocating table, of a pulley operated from the driving-shaft of

350,894.

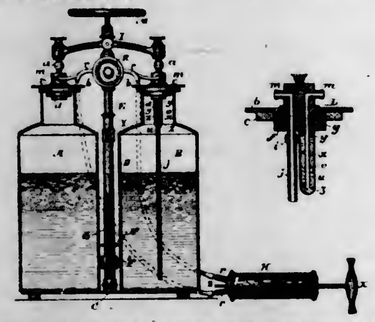


the band-saw and carrying a cord attached to said table, and a cord and weight also attached to said table, substantially as described, whereby the latter will be reciprocated, as set forth.

3. In a machine for slicing meat, the combination, with the reciprocating table H, and the leaf I, hinged thereto and carrying the finger *j*, of the curved rail J, secured to the frame of the machine and adapted to raise said hinged leaf as the table is moved in one direction, substantially as described.

4. In a machine for slicing meat, the combination, with the reciprocating table H, the leaf I, hinged thereto and provided with the finger *j*, attached to said leaf adjacent to its inner or lower edge and near one end thereof, and the guard-rail J, secured to the frame of the machine, of the spring-latch M, attached to said leaf and provided with the finger M′, projecting below the bottom of the table, and the stop *o* upon the frame of the machine, said parts being constructed and operating substantially as described.

350,895. SURGICAL ASPIRATOR, &c. Armand E. A. Ruault, Paris, France. Filed Jan. 20, 1886. (No model.) Patented in France Dec. 18, 1885, No. 160,362.



Claim.—1. A combined exhausting and injecting apparatus consisting of a pair of bottles, a single conveying-tube, a pump, and a controlling-valve common to said bottles, tube, and pump, substantially as described.

2. A surgical apparatus capacitated to act as an exhauster and an injector, the same consisting of a suction and an injecting bottle, a single controlling-valve, as R, carrying a conveying-tube, as *t*, and a pump, as H, and connections between said tube and the bottles and between the bottles and the pump, all controlled by said valve, substantially as described.

3. The combination, with a suction and an injecting bottle, each having a stopper provided with channels, a conveying-tube, as *t*, and a pump and connections between said channels and the conveying-tube and pump, of a controlling-valve interposed between the channels of the stoppers, conveying-tube, and the pump, whereby either bottle is put into communication with the pump, either bottle is put into communication with the conveying-tube, and either bottle is put into communication with both the conveying-tube and the pump, substantially as described.

4. The combination, with a pair of bottles having stoppers, of a rod, E, provided with a beam, I, that is connected with both stoppers, whereby the said rod will simultaneously raise or lower said stoppers to close or open the mouths of said bottles, substantially as described.

5. The combination, with a pair of bottles having stoppers provided with channels *f g*, of a rod, E, provided with a beam, I, that is connected with both stoppers, and a controlling-valve, also carried by said rod and having connections with said channels, whereby the said rod will simultaneously raise or lower said stoppers to close or open the mouths of said bottles without disconnecting the valve from the channels, substantially as described.

6. The combination, with a pair of bottles having stoppers connected together by a beam, as I, of a rod, as E, connected to said beam and provided with a hold-down lever, F, engaged by a nut of screw-threaded rod G, substantially as described.

7. The combination, with a single conveying-tube, *t*, and a pair of stoppers for closing the mouths of a pair of bottles, and having channels therein, of a controlling-valve having an orifice for the tube and an orifice for each channel of the stoppers, and for a pump and a valve-plug having orifices, channels, and recess controlling communication between said conveying-tube, channels in the stoppers, and the pump, substantially as described.

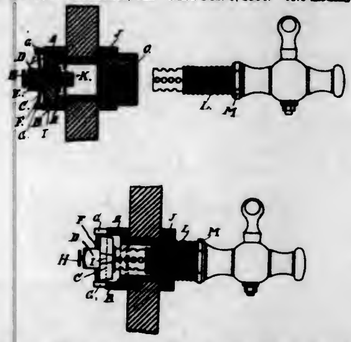
8. The combination, with the induction-channel of the stopper L, of a filter consisting of the open tube *v* and closed tube *x*, having air-orifices near its upper end and filled with antiseptic wadding, substantially as described.

350,896. SHUTTER-WORKER. Hiram Ruddell, Atlanta, Ga. Filed Aug. 9, 1884. (No model.)



Claim.—The combination, in a shutter-worker, of a bar, D, having a series of notches, a series of links pivotally connected by vertical pins, each link being provided at each end with a beveled shoulder adapted to form a bearing for the like shoulders of the adjacent links, so that said links will present a rigid connection between the bar D and shutter, the end link of the series being adapted for attachment to the shutter, a projection engaging said bar D, and a horizontal pivot connecting one of the links, *d*′, with the bar D, substantially as set forth.

350,897. TAP AND FAUCET. Robert W. Shaw and Charles D. V. Davis, San Francisco, Cal. Filed Feb. 8, 1886. (No model.)

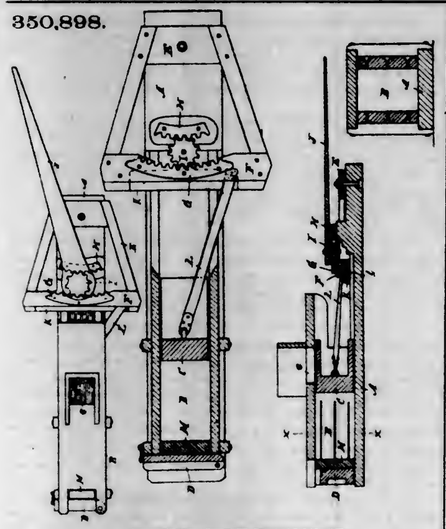


Claim.—The combination of the tapering plug or valve having its seat in a countersunk depression in the head of the tap, the flat spring, the set-screw, and the screw-threaded faucet with its collar provided with pins and operating within the bushing of the tap to open and close the valve in the end of the tap, substantially as and for the purpose shown and described.

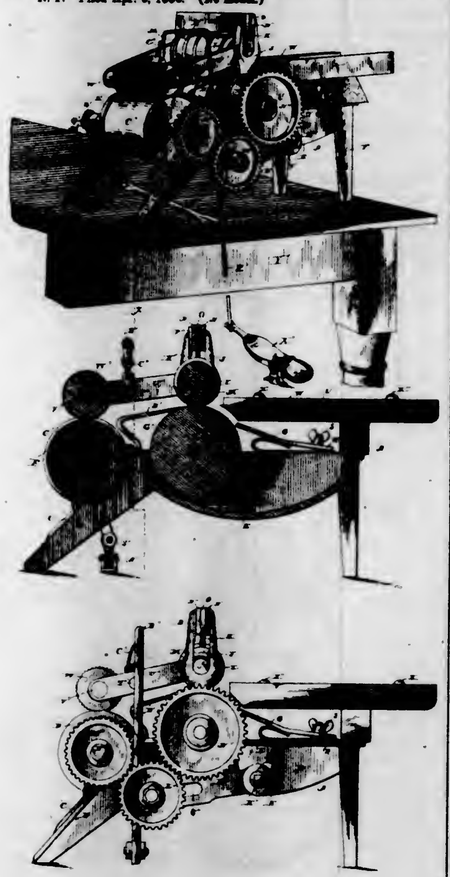
350,898. HAY-PRESS. Abijah Simpson, Lenox, Mich. Filed May 10, 1886. (No model.)

Claim.—In a hay-press, the combination of the chamber B, a plunger, C, with the connecting-rod L, oscillating frame E, segmental racks G H, pinion I, lever J, and guide cross-bar K, substantially as described.

350,898.



350,899. LABELING-MACHINE. Frank X. Spitznagel, Buffalo, N. Y. Filed Apr. 6, 1886. (No model.)



Claim.—1. In a machine for pasting labels, the combination of a paste-receptacle formed with bearings upon its edges having uprights formed with longitudinal slots open at the upper ends, a pasting-roller journaled in the bearings, a roller having peripheral ribs upon its face, and having its trunnions journaled and sliding in the slots, and two clamping plates or bars having a flexible scraping-strip between them, and secured with their ends in the open ends of the slots by means of wedges, as and for the purpose shown and set forth.

2. In a machine for pasting labels, the combination of a paste-receptacle having bearings in its sides, a pasting-roller journaled in the bearings and having its lower portion immersed in the paste and formed with peripheral grooves in its face, a scraper having its edge projecting near the edge of the roller and having springs and screws for adjusting it, a feed-table having its end projecting toward the upper portion of the pasting-roller, a roller journaled with its trunnions in movable bearings above the roller and having peripheral ribs upon its face, a scraper secured above this roller, and spring-fingers placed in an inclined position toward the roller, with their ends bearing in the grooves at the upper side of the roller, as and for the purpose shown and set forth.

3. In a machine for pasting labels, the combination, with a peripherally-grooved pasting-roller and spring-fingers bearing with their ends in the grooves of the roller standing in an inclined position toward the roller, of disks for clamping the article to be labeled having their trunnions parallel with the pasting-roller, and a roller journaled in movable bearings above the upper portions of the said disks parallel with the trunnions of the disks, as and for the purpose shown and set forth.

4. In a machine for pasting labels, the combination, with a peripherally-grooved pasting-roller and spring-fingers bearing with their ends in the grooves of the roller and standing in an inclined position toward the roller, of a disk having its trunnion journaled in a bearing at one side of the machine-frame, and having the said trunnion parallel with the pasting-roller, a bearing at the opposite side of the frame and concentric with the bearing for the trunnion of the disk and formed with an outwardly-projecting sleeve having a narrow aperture at its outer end, a disk concentric with the other disk and having a trunnion formed with a reduced outer portion and journaled in the bearing having the reduced portion projecting out through the aperture at the end of the sleeve, a spring interposed between the shoulder of the trunnion and the end of the sleeve, a roller journaled in movable bearings above the disks, and a lever secured to the outer end of the reduced portion of the trunnion and connected to a suitable treadle, as and for the purpose shown and set forth.

5. In a machine for pasting labels, the combination, with a pair of clamping-disks for holding the article to be labeled, of a shaft journaled at its ends in movable bearings, and a number of corrugated roller-sections secured upon the shaft, as and for the purpose shown and set forth.

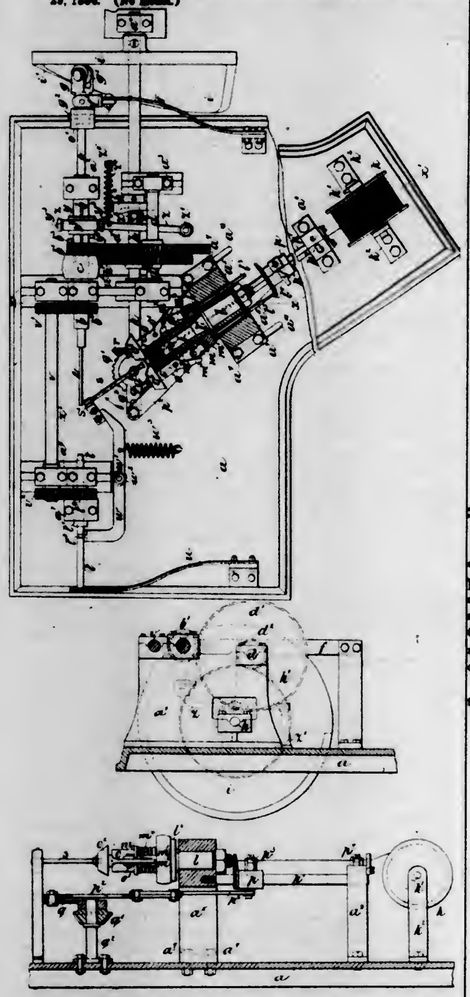
6. In a machine for pasting labels, the combination of a frame having a paste-receptacle and formed with two forwardly-inclined legs having longitudinal ribs upon their forward faces, a paste-roller journaled in bearings in the sides of the paste-receptacle and formed with a cog-wheel at the end of one of its trunnions, bearings parallel to the bearings of the roller and having their longitudinally-grooved bases secured adjustably upon the ribbed legs by means of screws, disks for clamping the article to be labeled and having their trunnions journaled in the bearings, and having a cog-wheel upon the trunnion at the side at which the pasting-roller has its cog-wheel, an arm secured at its rear end upon a nutted clamping-bolt rocking adjustably upon the same and having a longitudinal slot in its forward end, and a shouldered stud secured adjustably with its inner reduced and screw-threaded nutted end in the slot and provided with a pinion upon its outer end meshing with the cog-wheels, as and for the purpose shown and set forth.

7. In a machine for pasting labels, the combination of a pasting-roller having peripheral grooves, spring-fingers having their ends engaging the grooves in the roller and placed obliquely toward the roller, a disk having an outwardly-projecting trunnion journaled in a bearing parallel to the pasting-roller, a disk opposite the other disk and concentric with the same and having its trunnion formed with an outer reduced portion bearing with its shoulder against a spring in its bearing and having the reduced end projecting outside of the bearing, a pair of arms pivoted at their rear ends above the bearings of the pasting-roller and having a rod connecting their outer portions, a roller journaled with its trunnions in bearings in the outer ends of the arms, an elbow-lever pivoted at its elbow under the shouldered trunnion and having its upwardly-projecting arm secured with its upper end to the outer end of the shouldered trunnion and having its horizontal arm projecting transversely under the machine, a rod having the end of the horizontal arm pivoted to it and having its upper end bent inward and connected to the cross-rod connecting the pivoted roller-bearing arms, and a treadle having its end pivoted to the lower end of the rod, as and for the purpose shown and set forth.

8. In a machine for pasting labels, the combination of a frame having a pasting-roller journaled in it, and having spring-fingers for conveying the labels forward from the roller and formed with forwardly-in-

clined legs having longitudinal ribs upon the forward sides, and a series of screw-threaded perforations each, bearings having their bases longitudinally grooved and having screws fitting in the screw-threaded perforations, and disks for holding the articles to be labeled, having outwardly-projecting trunnions journaled in the bearings parallel to the trunnions of the pasting-roller, as and for the purpose shown and set forth.

350,900. MACHINE FOR MAKING HAIR-PINS. GEORGE A. SPRATT, ALBERT S. SPRATT, and HENRY J. SPRATT, London, England. Filed May 29, 1886. (No model.)



Claim.—1. In a machine for the manufacture of hair-pins, the combination of means for cutting and pointing the wire to form blanks or pieces of suitable length, a mandrel, and means for spirally winding or coiling said blanks or pieces upon said mandrel, substantially as and for the purpose set forth.

2. In a machine for the manufacture of hair-pins, the combination of means for intermittently feeding the wire from a reel or drum, means for cutting and pointing said wire to form blanks or pieces of suitable length, a mandrel, and means for spirally winding or coiling said blanks or pieces upon said mandrel, substantially as and for the purpose set forth.

3. In a machine for the manufacture of hair-pins, the combination, with the mandrel e, of the hollow shaft b, the driving-pulley c, the shaft h, connected by toothed gearing with said pulley, the cams h^2 i, fixed on said shaft h, the clutch y and its operating-lever z, and the springs f z^4, all substantially as and for the purposes set forth.

4. In a machine for the manufacture of hair-pins, the combination, with the mandrel e and means for operating the same, and the reel or drum k, of the sliding sleeve p, provided with the catch p^2, and the crank q, connected with said sleeve and operated by the shaft h through the medium of bevel-pinions, all substantially as and for the purposes set forth.

5. In a machine for the manufacture of hair-pins, the combination, with the mandrel e and means for operating the same, the reel k, and the sliding sleeve p and means for imparting reciprocating motion thereto, of the tubular shaft l, sleeve m, pulley m', carrying rollers m^2, levers o, cutters o^2, and ring or collar l^2, provided with pins or rods l^3, one of which has an extension, l^4, all substantially as and for the purposes set forth.

6. In a machine for the manufacture of hair-pins, the combination, with the mandrel e and means for operating the same, the reel k, means for intermittently feeding the wire therefrom to said mandrel, and means for cutting and pointing said wire, of the tube s and bracket or support s', substantially as and for the purposes set forth.

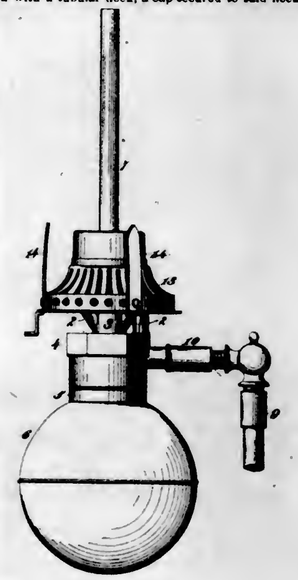
7. In a machine for the manufacture of hair-pins, the combination, with the mandrel e and means for operating the same, the reel k, means for intermittently feeding the wire therefrom to said mandrel, and means for cutting and pointing said wire, of the rod or spindle t, fitted to slide in the hollow shaft t', and operated through the medium of the shaft b, pinions b^2 v', shaft v, and pinions v^2 t^2, and means for holding said rod or spindle out of contact with said mandrel until the wire has been fed or moved forward, and for automatically releasing it and pressing it into contact with said mandrel to grip the end of said wire, all substantially as and for the purposes set forth.

8. In a machine for the manufacture of hair-pins, the combination, with the mandrel e and means for operating the same, the reel k, means operated by the crank q for intermittently feeding the wire from said reel to said mandrel, and means for cutting and pointing said wire, of the rod or spindle t, fitted to slide to and fro in the hollow shaft t', means for imparting motion from the shaft b to said rod or spindle, the spring u, and the lever w, acted upon by the spring w^3, and adapted to engage with said rod or spindle and to be released therefrom by said crank, all substantially as and for the purposes set forth.

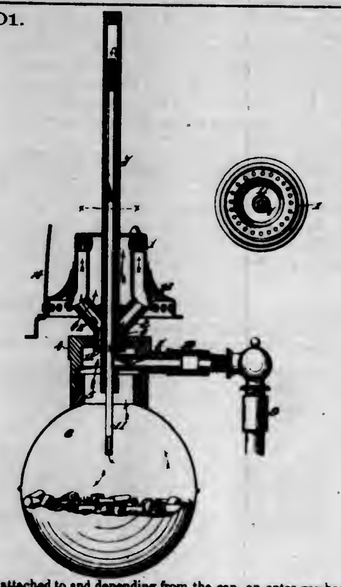
350,901. CARBURETOR FOR ARGAND GAS-BURNERS. FREDERICK B. STRUNK, Pittsburg, Pa. Filed Apr. 22, 1886. (No model.)

Claim.—1. The combination of the Argand gas-burner having gas-entrance tubes provided with a tubular neck, a hydrocarbon-vessel depending from said neck, an outer gas-heating tube closed at both ends and extending through the neck, but separated therefrom to provide a surrounding space open to the vessel, said tube rising above the burner-tip, a gas-supply connected with the lower portion of the heating-tube, and a gas-inlet tube open at both ends and extending from the hydrocarbon-vessel through the gas-heating tube, substantially as described.

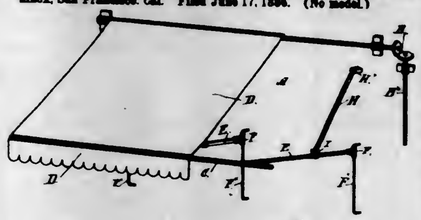
2. The combination of an Argand gas-burner having gas-entrance tubes provided with a tubular neck, a cap secured to said neck, a hydrocarbon-vessel attached to and depending from the cap, an outer gas-heating tube closed at both ends and passing from the cap to a point above the burner-tip, a gas-supply pipe connected with the lower portion of the gas-heating tube, and a gas-inlet tube open at both ends and communicating at one end with the upper part of the heating-tube and at the other end with the hydrocarbon-vessel, substantially as described.

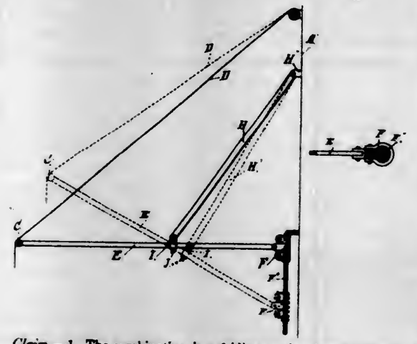


350,901.



350,902. AWNING-FRAME. BERNARD TOULOUSE and JOHN DELORIEUX, San Francisco, Cal. Filed June 17, 1886. (No model.)





Claim.—1. The combination, in a folding awning-frame constructed and operating substantially as herein described, of the diagonal strengthening and supporting levers H, pivotally connected to the structure or building and to the cross-bars of the frame, and made adjustable on the cross-bars by the socketed nuts and set-screws, in the manner specified.

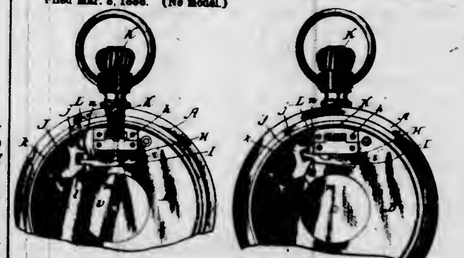
2. In an awning-frame, the inner ends of the cross-bars E, pivotally connected to the sleeves, and provided with friction-rollers operating upon vertical rods or brackets attached to the structure or building, in combination with the diagonal supporting-levers H, constructed, arranged, and operating in the manner specified.

350,903. WATCH-PLATE. ALBERT TROLLER, Rockford, Ill., assignor to the Rockford Watch Company, same place. Filed Mar. 8, 1886. (No model.)



Claim.—In a full-plate watch, the combination, with the bottom plate, A, of a thick top plate, B, recessed on its under side to receive parts of the movement, and provided with recesses in its upper side extending only partially through the same, to receive the escape-wheel and pallet, which are held in place by separate bridges secured in recesses in said top plate, the said top plate being supported directly on and secured directly to the bottom plate, substantially as described.

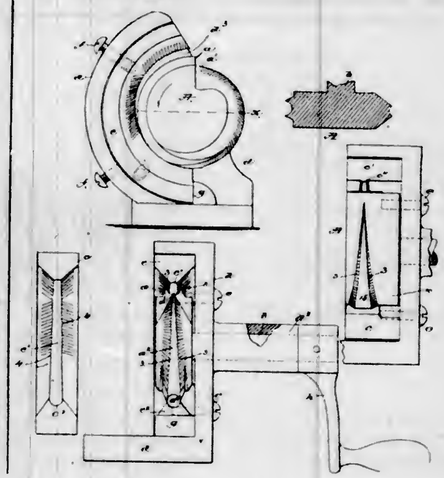
350,904. STEM WINDING AND SETTING WATCH. ALBERT TROLLER, Rockford, Ill., assignor to the Rockford Watch Company, same place. Filed Mar. 8, 1886. (No model.)



Claim.—1. In a stem winding and setting watch, the combination of a pin, H, adapted and arranged to be acted on by a stem-key, a pivoted shifting-bar, I, a locking-bar, J, a spring to act upon the locking-bar, and a yoke provided with a pin which passes through a slot in the plate B, and is arranged so that it can be acted on by the bar J, substantially as and for the purposes specified.

2. In a stem winding and setting watch, the combination of a locking-bar, J, which acts on the yoke C, and a lever, L, for the purpose of holding the locking-bar J permanently out of action when desired, whereby the same watch-movement is adapted to be used either in a pendant-set case or in an exclusively lever-set case, substantially as specified.

350,905. MACHINE FOR ROLLING SPHERICAL AND CYLINDRICAL ARTICLES. HORACE WYMAN, Worcester, Mass. Filed July 15, 1886. (No model.)

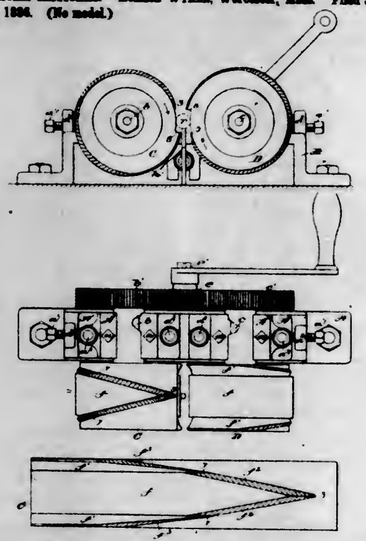


Claim.—1. In a machine for rolling metal for the production of spherical or other surfaces cylindrical or circular in cross-section, a die-roll having forming-surfaces and diverging reducing and spreading surfaces, combined with a co-operating concaved die having forming-surfaces and diverging reducing and spreading surfaces, substantially as described.

2. In a machine for rolling metal for the production of spherical or other surfaces cylindrical or circular in cross-section, a die-roll having forming-surfaces and diverging reducing and spreading surfaces, and milled or scored to constitute a feeding-surface, combined with a co-operating concave die having forming-surfaces and diverging reducing and spreading surfaces, substantially as described.

3. In a machine for rolling metal for the production of spherical or other surfaces cylindrical or circular in cross-section, a die-roll having forming-surfaces and diverging reducing and spreading surfaces, and milled or scored to constitute a feeding-surface, combined with a co-operating concaved die having forming-surfaces and diverging reducing and spreading surfaces, and with means, substantially as described, for adjusting the said concaved die, the combination being and operating substantially as described.

350,906. MACHINE FOR ROLLING SPHERICAL AND CYLINDRICAL ARTICLES. Horace Wyman, Worcester, Mass. Filed July 20, 1886. (No model.)

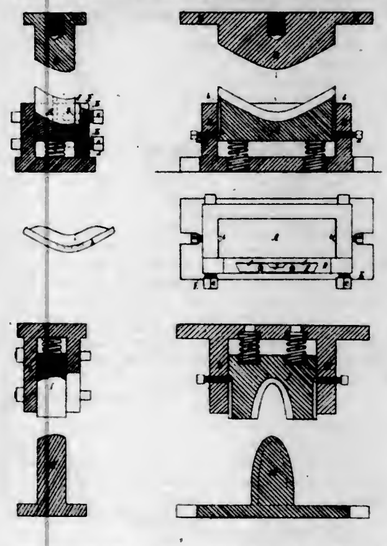


Claim.—1. Two die-rolls provided with forming and diverging reducing and spreading surfaces, and two parallel shafts carrying the said die-rolls, combined with each other and with gearing to rotate the said die-rolls in the same direction, to operate substantially as described.

2. Two die-rolls provided with forming and diverging reducing and spreading surfaces, and two parallel shafts carrying the said die-rolls, combined with each other and with gearing to rotate the said die-rolls in the same direction, and with an intermediate rest to support the bar or blank being acted upon by the die-rolls, the said die-rolls rotating the said rest, substantially as described.

3. Two rotating die-rolls mounted on shafts parallel each to the other, and provided with forming-surfaces and with diverging reducing and spreading surfaces scored or milled to aid in rotating the rod or blank being acted upon, combined with each other and with gearing to drive the said die-rolls in the same direction at the same surface-speed, the like apices of the diverging reducing and spreading surfaces meeting the rod or blank at opposite sides at substantially the same time.

350,907. HEEL-STIFFENER MACHINE. William Johnson Young, Lynn, Mass., assignor, by mesne assignments, to William J. Young and Elmer W. Sampson, same place. Filed July 19, 1886. (No model.)



Claim.—The counter-machine herein described for partially shaping a shoe-stiffener, such machine consisting of the female die, its supporting springs and frame, the lip-turner and its springs, the gage, and the male die, all being arranged and to operate essentially as represented.

NORRIS PETERS PHOTO LITH. WASHINGTON

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

Ex Parte Gaboury.

Decided July 31, 1886.

1. Where an application has passed to issue on request of and in the shape desired by applicant, in the absence of any showing that any damage, irreparable or otherwise, may result from a refusal to withdraw the same for further amendment such withdrawal will not ordinarily be allowed.
2. "The bare fact that one application is pending when another is filed [by the same applicant and for the same invention] and when it is reached for action constitutes no reason for the refusal or rejection of the second case."
3. After one application which describes and claims a particular invention or a particular feature has been patented or passed to issue no other application describing and claiming the same invention or feature should be passed.

Petition.

Application of Joseph A. Gaboury, filed March 22, 1886.

Messrs. Anderson & Smith for the applicant.

Montgomery, *Commissioner:*

A glance at the papers in this case discloses that the application was filed March 22, 1886. An Office letter was written June 4 requiring the title of the invention to be changed. Six days later such title was changed, and two days thereafter (June 12) the case was passed to issue. During all this time the case contained but a single claim. July 14 instant application comes to the Office with a petition asking that the case be withdrawn from issue for the purpose of various amendments, and among them the addition of three further claims. This petition was sent to the principal examiner for report and recommendation, and such examiner recommended that the petition should be refused. Thereupon the case was put on the docket for hearing in the usual way, and applicant notified.

There is no showing of any injury, irreparable or otherwise, which might result to applicant from a denial of this petition. Indeed, in view of the doctrine announced in *Smith* v. *Goodyear, &c., Company*, (93 U. S., p. 486,) it is difficult to see what serious injury could result therefrom. The examiner therefore did right in recommending the refusal of the same. Applicant is of course at liberty to file a new application. On the argument of this petition, upon the suggestion that he was so at liberty to file such new application, counsel for applicant expressed the apprehension that he would be met by a reference to the present application. For the purpose of avoiding any difficulty on that score the present application will be withdrawn from the issue upon the filing of the new one.

If applicant sees fit to file a second application, it is very clear to me that the fact, if it be a fact, that he has an application pending in which he describes and claims the same or a part of the same invention will constitute no reason why the second application should not be allowed. For instance, suppose A files an application for a patent in which he describes and claims a certain invention. Suppose some slight informality is discovered in the application which is required to be amended, and while this requirement is pending A files a second application in which he claims precisely the same invention. The last application is in proper form and no correction is necessary. I know of no reason why he has not a right to have such second application acted upon when reached, and the pendency of the first one would certainly constitute no bar to the allowance of the second. Undoubtedly where it is discovered that the same person has two or more pending applications in which the same invention is described and claimed, or where some particular feature is described and claimed in both applications, it would be well for the examiner to call the attention of the applicant to such fact, to the end that, if applicant chooses to do so, a correction may be made; but the bare fact that one application is pending when another is filed, and when it is reached for action, constitutes no reason for the refusal or rejection of the second case. Of course after one application describing and claiming a particular feature has been patented or passed to issue it is very plain that thereafter no other application describing and claiming the same feature should be passed.

Ex parte Thurmond.

Decided October 4, 1886.

Petition.

1. After all the claims of an application have been twice rejected on the same references and with no material amendment intervening, applicant has no *right* to again amend without showing good and sufficient cause therefor, together with the reason why he did not earlier propose his amendment.
2. After two such rejections, in the absence of any showing or claim that applicant would be deprived of any substantial right by being required to file a new application, he cannot ordinarily be permitted to amend.

Application of William H. Thurmond, No. 151,102, filed December 24, 1884.

Mr. Henry Orth for the applicant.

Montgomery, *Commissioner:*

I need not review the facts in this case further than to recite that applicant was rejected on the 8th day of December last; that he amended January 16th last;

was again rejected five days later; three days thereafter he again amended; on February 8th was again rejected; again amended March 5th, and was once more and *finally* rejected on the 9th day of March, 1886. The rejection of February 8th and of March 9th, respectively, were on identical references. On the 23d of April he was advised that the examiner must decline to reopen the case. His attention was called to Rule 67, which provides in substance that after such action on his claims as entitles an applicant to an appeal to the board amendments will not be allowed unless good and sufficient cause therefor is shown, together with the reasons why such amendments were not presented earlier. Nothing thereafter was done by applicant until August 17th, when he proposed still another amendment. On the following day he was advised by Office letter that, having shown no reason for not having earlier presented his amendment, the case could not be reopened. Three days later he asked for a reconsideration of this action of the examiner in refusing to reopen the case, and on the following day he was informed that such action was repeated, whereupon and on the 3d instant he presented to the Commissioner a petition asking that "the amended claims filed August 16th last be admitted and considered on their merits." They were not accompanied by any showing of "cause" for thus presenting such amendment, or of the "reasons" why they were not earlier presented.

In his petition to the Commissioner applicant explains that "if an appeal to the Board of Examiners-in-Chief became absolutely necessary, he preferred to make that appeal on such amended claims of August 16th. When such amended claims were offered, however, the case had been twice rejected on the same references, and with no material amendment intervening. It was therefore in condition to be appealed to the board. Applicant had no *right* to amend then without making a showing of good and sufficient cause therefor, together with the reason why he did not earlier propose his amendment. His case was once rejected; he was furnished with the references. With a full understanding of them he asks for and obtains a reconsideration of the case, and is again rejected upon the same references. He certainly should have amended his claims before asking for such reconsideration, so that he would have been willing to appeal in case it became necessary.

The rule very clearly intends that an applicant shall not wait until he has been rejected twice before putting his claims in condition to be appealed in case of a second rejection, and an intention on his part to prosecute the case further. The rule does *not* intend that applicant shall amend as often and as many times as he pleases simply because his claims are not limited or shaped so that he is willing to risk an appeal. Applicant writes that he has attempted to and, in his judgment, has shown conclusively that his case as amended by the proposed amendment of August 16th would not be met by the references cited, and that the invention as so amended would be patentable. It hardly need be said that this is not such a reason as is contemplated by the rule. The rule has reference to a case, among others, like the following: An applicant's claims are rejected. Applicant himself is absent or sick or unable to confer with his attorney. There are urgent reasons for expedition. The attorney, in perfect good faith and after careful examination, asks a reconsideration and second action. The second action is had and the claims are again rejected. At once thereafter the attorney confers with his client in relation to an appeal, and ascertains that he has mistaken or failed to understand an important part of the invention, or something of that character. He then comes back to the Office and asks, notwithstanding the two rejections, that he be permitted to amend so as to fairly exhibit his true invention as applicant intended, and so that the references cited may be fairly avoided. Upon making a showing of these facts or some similar facts, or of something equally meritorious and blameless, he would undoubtedly be allowed to amend, notwithstanding the two rejections. No such case, however, is exhibited here.

In the absence of any showing, and in the absence of any claim that applicant would be deprived of any substantial right by being required to file a new application, his petition must be denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Western District of Pennsylvania.

THE PENNSYLVANIA DIAMOND DRILL COMPANY *v.* SIMPSON *et al.*

Decided August 30, 1886.

1. PRIORITY OF INVENTION.
The patents of Ball and Case, No. 247,872, dated October 4, 1881, and No. 248,982, dated November 1, 1881, are for inventions made by them prior to similar inventions made by Allison, and described in his Patent No. 261,978, dated August 1, 1882.

2. PRIORITY OF INVENTION, WHAT CONSTITUTES.
Allison, in 1870, conceived of the invention described in his patent of 1882, and made rough sketches of the same, one of which is preserved, but made no model, and did not consider the invention worth putting into a permanent form, and has never since made the machine and applied for his patent, at the instance of his assignee, after Ball and Case had applied promptly after invention and had obtained patents and had put the patented article on the market. *Held* that under these circumstances Ball and Case were prior inventors.

3. CONCEPTION, UNLESS FOLLOWED SEASONABLY BY PRACTICAL STEPS, IS NOT INVENTION.
A mere conception not seasonably followed by some practical step counts for nothing as against a subsequent independent inventor, who, having complied with the patent laws, has obtained his patent.

4. SUPINENESS IS NOT REWARDED BY THE LAW.
One who has conceived of a new device and proceeded so far as to embody it in rough sketches, or even in finished drawings, cannot there stop and yet hold that field of invention against all comers for a period of twelve years.

5. PLEADING.
It was sufficient to raise the question of priority of invention for defendants in their answer to deny that Allison was the original and first inventor, and to justify under the prior patents of Ball and Case without alleging an abandonment by Allison.

6. EVIDENCE OF FACT OF INVENTION.
In an interference proceeding in 1873, upon a different invention of the same general character, Allison had testified to making the invention here in question; but this testimony did not constitute invention any more than did the previous sketches.

7. Letters Patent No. 147,492, granted to G. Frisbee, February 17, 1874, for core-lifters, declared valid and infringed by defendants.

8. INFRINGEMENT, WHAT CONSTITUTES.
Where the claim of the Frisbee patent was for the combination of an annular core-lifter and a tube with an inner tapering recess, and the patent described a loose elastic cut ring within a tapering recess in a boring-tube, and the defendants used a loose solid unelastic ring in a cylindrical recess in a boring-tube, but this ring had four dependent springs with jaws, which engaged with inclines at the lower end of the recess, and the purpose and mode of operation of the two devices were similar, the difference in the construction was not material, and the claim was infringed.

9. PRACTICE WHERE SUIT FAILS IN PART.
Where the suit fails upon one patent and prevails upon another the complainant is entitled to a decree; but the costs are the subject of equitable consideration by the court.

Mr. G. G. Frelinghuysen, Mr. William Bakewell, and *Mr. E. G. Thompson* for the complainant.
Mr. E. T. Rice for the defendants.

ACHESON, *J.:*

This bill of complaint as it now stands charges the defendants with the infringement of two patents—viz., Letters Patent No. 261,978, for an improvement in rotary drills, granted to Robert Allison, August 1, 1882, on an application filed May 4, 1882, and Letters Patent No. 147,492, for an improvement in core-lifters for annular rock-drills, granted to Gideon Frisbee, February 17, 1874—of which patents the plaintiff is assignee.

1. That the improvement which is the subject-matter of this Allison patent is of patentable novelty is not controverted, and for the purposes of the case will be assumed. The proofs disclose the use by the defendants of prospecting-drills manufactured by the Sullivan Machine Company and equipped with a single-cylinder hydraulic feed device, constructed under two patents granted to Albert Ball and George F. Case, one dated October 4, 1881, No. 247,872, and the other dated November 1, 1881, No. 248,982, issued on applications made August 8, 1881. And the further fact appears that the invention described in and embraced by the Allison patent is also described in and covered by the Ball and Case patents. In the view, then, I take of this branch of the case, the controlling question is one of rightful priority of invention as between the Allison patent on the one hand and the Ball and Case patents on the other. And notwithstanding the criticisms indulged in by the plaintiff's counsel upon the frame of the answer, that question is, I think, distinctly raised thereby, for it expressly denies that Allison was the first and original inventor of the improvement in rotary drills here involved, and it sets up the prior patents of Ball and Case in justification of the defendants' use of the device. True the answer does not allege abandonment; but then the defendants do not rely on the statutory defense of abandonment to the public. Lawful priority for the Ball and Case patents is what is asserted; and that the answer was understood by the plaintiff as so averring is not doubtful, for, as part of its case in chief, proofs were introduced to carry back Allison's invention to a date anterior to the applications of Ball and Case. These proofs, it must be conceded, established that, as early as the year 1870, Allison had conceived the idea of the invention set forth in his patent of 1882, and also two other kindred improvements in the same class and kind of machinery. One of these latter improvements was a single-cylinder machine for drilling short holes, and the other was a two-cylinder hydraulic feed mechanism for revolving drills. For the last-mentioned mechanism Allison obtained Letters Patent No. 145,775, dated December 23, 1873, after a decision in his favor in an interference declared between him and Brodie and Wheeler. In that interference proceeding Allison, on March 19, 1873, made a deposition in which (although the issue only involved the two-cylinder hydraulic feed device) he mentioned his conception of the two other devices, producing a drawing, now on exhibit in this case, of his single cylinder device for drilling short holes. And then, referring to the particular device now in dispute, he testified that he had conceived the idea of such invention, which he described in his deposition as "a single-cylinder machine with a hollow piston-rod, through which the drill passed, for drilling deep holes." The evidence now adduced shows that in the year 1870 Allison made rough sketches of this device—some pencil sketches and some with chalk on a drawing-board—none of which however were preserved; but he made no model thereof, and he never made the device itself. Beyond his rough sketches he advanced not a step. He did nothing to put his invention in a fixed and practical form. Indeed, in his testimony here he states that he did not originally consider the invention of consequence enough to reduce it to a more permanent shape. He did not apply for a patent until many months after Ball and Case had made the device and obtained their letters patent and the market was being supplied with machines equipped with the patent device; and even then his application was made at the solicitation of the plaintiff, the assignee of his patent of 1873, and because the value of that patent was involved. According to my apprehension of the proofs the device in question is quite distinct from the single-cylinder machine for drilling short holes already mentioned as one of the three kindred inventions of which Allison had conceived in the year 1870; but, at any rate, all that Allison is shown to have done with respect to that invention was to embody it in the drawing now in evidence. His statement as to a model thereof having been used in the interference issue is qualified and much weakened by his cross-examination. There are no satisfactory proofs of the existence of such model, and it is certain that no such machine for drilling short holes was ever made by him. Under the proofs Ball and Case undoubtedly must be taken to have been original and independent inventors of the device in controversy. Nothing whatever to the contrary appears. The suggestion that by reason of their mere casual knowledge of the Allison patent of 1873 they must be deemed to have had constructive notice of the contents of Allison's deposition taken in the interference issue between him and Brodie and Wheeler is wholly untenable. Ball and Case were entire strangers to that controversy. They never had any sort of interest in or connection with the patent of 1873, and there was no occasion or reason for inquiry on their part. After completing their invention, Ball and Case were prompt to apply for letters patent, and by the Sullivan Machine Company, their assignee, were commendably diligent in furnishing the public with machines equipped with the device. As against the Ball and Case patents, then, will the law adjudge priority of invention to Allison? The answer is not doubtful under the authorities. In a race of diligence between two independent inventors he who has first perfected and adapted the invention to actual use is entitled

to the patent. (*Agawam Company* v. *Jordan*, 7 Wall., 583; *Whiteley* v. *Swayne*, Id., 78.) Here Allison, it would seem, was the first to conceive the invention; but mere conception which is not seasonably followed by some practical step counts for nothing as against a subsequent independent inventor who, having complied with the patent laws, has obtained the patent. It would indeed be a strange perversion of the purpose of the patent laws if one who had conceived of a new device and proceeded so far as to embody it in rough sketches, or even in finished drawings, could there stop and yet hold that field of invention against all comers for a period of twelve years. The law does not so reward supineness. Hence, in *Reeves* v. *The Keystone Bridge Co.* (5 Fisher, 456, 463) Judge McKennan declared the established rule to be

that illustrative drawings of conceived ideas do not constitute an invention, and that, unless they are followed up by a seasonable observance of the requirements of the patent laws, they can have no effect upon a subsequently-granted patent to another.

And this principle was enforced by Mr. Justice Matthews in the more recent case of *Detroit Lubricator Manufacturing Co.* v. *Renchard*, (9 Fed. Rep., 293,) although the antedating drawing there exhibited a perfect machine in all its parts.

I cannot see that Allison's interference deposition can influence the result here. The interference issue, as we have seen, only related to and affected the right to the invention for which the patent of 1873 was granted, and Allison's sworn statement concerning his other conceived ideas no more constituted invention within the meaning of the patent laws than did his previous sketches. In an earlier contest for priority that deposition might have proved valuable as fixing the date of his conception; but by his long-continued inaction he lost whatever inchoate right he once may have had. As respects the Allison patent, therefore, the plaintiff's bill must fail.

2. We pass now to a consideration of the other branch of the case, and here the only question is whether infringement has been shown. The Frisbee invention consists in a combination of an exterior pipe or ring constructed with a tapering recess in its inner surface and a ring or annular wedge inserted in that recess, and which, as the drill advances, slides over the core, but is wedged against it by the withdrawal of the drill. The specification describes an annular core lifter consisting of a cut ring of steel sprung into the recess, this ring being tapered outside to fit the recess and having projections on its inner surface between which the ring is filed thin so as to be elastic, the projections having small pieces of bort or carbon set in their faces to prevent them from being worn by the work. The described operation is this, viz: As the bit excavates the rock and the core enters the core-lifter the latter first becomes stationary on the core, and is then forced over it by the shoulder of the recess, the exterior pipe or tubular rod revolving round the core-lifter till the required depth is reached. When the drill-rod is withdrawn, the core-lifter is forced toward the small end of the recess, clamping the core more firmly as the pipe or tube recedes until it detaches the core from the solid rock. The specification states that, instead of the thin ring with projections, an annular wedge may be used, made in two pieces, fitting the tapered recess; but this form of core-lifter is not illustrated by the drawings or further explained. The claim of the patent is in these words:

The combination, operating substantially as described, of an annular core-lifter and a tube or ring constructed with a tapering recess in its inner surface.

Without pausing to point out the marked distinctions between this invention and all previously known core-extractors, I content myself with simply saying that the Frisbee invention is one of decided originality, and the patent well deserves to be so construed as to afford to the inventor and his assignee the amplest protection against devices which, however greatly differing in form, yet copy the principle of the invention or its mode of operation. No reason here exists for limiting the patent to the particularly described form of grasping device, for the claim is not for any specified form, but for the combination of an annular core-lifter and a tube or ring constructed with a tapering recess in its inner surface, "operating substantially as described." The defendants' core-lifting device complained of consists of a solid ring of metal provided with four depending springs or grasping-jaws arranged in an annular position and equidistant. This ring, with its depending springs or jaws, is placed in a recess formed in the tubing just above the drill-head. Between the annular shoulder at the upper end of this recess and a lower shoulder formed by the top of the drill-head the recess is cylindrical; but from this lower shoulder downward, for the distance of about one-half inch, the interior of the drill head gradually decreases in diameter or is tapered in its inner surface. During the work of boring the depending springs or jaws hug the core, but permit it to pass through them, the ring being pressed up under the upper shoulder of the said recess, and the diameter of the cylindrical recess being somewhat greater than that of the core-barrel above it and of the drill-head below it, the tubing can revolve round the core-lifter; but when the desired depth is reached and the drill-rod is withdrawn the ring descends and its springs or jaws are forced into the tapered part of the recess and are wedged tightly against the core, clasping it more firmly as the drill-rod is drawn upward, until the core is broken off. Now, while it cannot be gainsaid that to the eye these two described core-lifting devices present some striking dissimilarities, yet, in my judgment, the differences are in matters of form and not of substance. Both act upon the same principle in substantially the same way and produce the same result. There is evidence showing that the designer of the defendants' core-lifter had first made a study of Frisbee's invention. The changes he has effected doubtless display some ingenuity, but they are, I think, colorable and unavailing. I need scarcely add that the plaintiff, having shown infringement by the defendants of the Frisbee patent, will not fail of relief on this bill, because as to the other patent sued on the conclusion of the court is favorable to the defendants. (*Matthews* v. *La Lance & Grosjean Manufacturing Company*, 17 O. G., 1284.) There must, however, be some equitable apportionment of the costs of suit, which can be settled when the decree is signed.

Let a decree be drawn by counsel,

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 37—No. 3. TUESDAY, OCTOBER 19, 1886. PRICE—$5 per year.

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Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth.....$10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 190 pp.—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Issue of October 19, 1886.

Patents	443—No. 350,906 to No. 351,350	inclusive.
Designs	6—No. 16,941 to No. 16,946,	inclusive.
Trade-Marks	20—No. 13,732 to No. 13,751,	inclusive.
Labels	8—No. 4,996 to No. 5,003	inclusive.
Reissues	3—No. 10,771 to No. 10,773,	inclusive.
Total issue	480	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nebraska	2	....
Arizona Territory	....	....	Nevada	....	....
Arkansas	4	....	New Hampshire	3	....
California	11	....	New Jersey	20	....
Colorado	3	....	New Mexico Territ'y	....	....
Connecticut	13	....	New York	87	9
Dakota Territory	....	....	North Carolina	....	....
Delaware	2	....	Ohio	30	2
District of Columbia	4	1	Oregon	2	....
Florida	2	....	Pennsylvania	35	2
Georgia	6	1	Rhode Island	6	....
Idaho Territory	....	....	South Carolina	1	....
Illinois	32	1	Tennessee	2	....
Indiana	18	....	Texas	4	....
Indian Territory	....	....	Utah Territory	....	....
Iowa	8	....	Vermont	3	....
Kansas	8	....	Virginia	3	1
Kentucky	8	....	Washington Territ'y	2	....
Louisiana	2	....	West Virginia	2	....
Maine	....	....	Wisconsin	9	....
Maryland	3	1	Wyoming Territory	....	....
Massachusetts	45	6	United States Army	....	....
Michigan	10	....	United States Navy	....	....
Minnesota	6	....			
Mississippi	1	....	Total to citizens of the United States	413	25
Missouri	12	1			
Montana Territory	3	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	....	....	Germany	6	....
Austria-Hungary	3	....	Ireland	1	....
Barbadoes	....	....	Italy	1	....
Belgium	1	....	Mexico	....	....
Brazil	....	....	Netherlands	....	....
British Columbia	....	....	Norway	1	....
Canada	4	....	Russia	....	....
Central America	....	....	Scotland	....	....
Colombia, U. S. of	....	....	Spain	....	....
Cuba	....	....	Switzerland	1	....
Denmark	....	....	Victoria	1	....
Ecuador	....	....			
England	15	2	Total to citizens of foreign countries	36	3
France	2	1			

DESIGNS.

16,941.—DISH OR TABLE-WARE.—*Melvin L. Blackburn*, Bellaire, Ohio, assignor to *The Bellaire Goblet Company*, same place. Application filed July 12, 1886. Serial No. 207,844. Term of patent 3½ years.

16,942 to 16,944, inclusive.—GLOVE OR MITT.—*Oliver T. Jennings*, Brooklyn, N. Y., assignor to *A. G. Jennings & Sons*, same place. Applications filed September 9, 1886. Serial Nos. 213,169 to 213,171, inclusive. Term of patents 7 years.

16,945.—ROCKING-CHAIR.—*James J. McElroy* and *Alvin D. Fancher*, Binghamton, N. Y. Application filed November 9, 1885. Serial No. 182,312. Term of patent 3½ years.

16,946.—FONT OF PRINTING-TYPE.—*Carl Schraubstadter, Jr.*, St. Louis, Mo. Application filed February 10, 1886. Serial No. 191,519. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,732.—CIGARS.—*Frederick Becker*, Baltimore, Md. Application filed September 10, 1886. Used since September, 1886.

"The words 'IRISH PATRIOTS.'"

13,733.—CALL-BELLS AND ALARMS FOR HOUSE-DOORS.—*Nahum Judson Busby*, Maplewood, Mass. Application filed September 4, 1886. Used since May 1, 1882.

"The representation of a bee-hive with the words 'EUREKA BY' above and the letters 'G. B. P.' below it."

13,734.—FANCY FLOUR.—*John N. Dunn & Co.*, Atlanta, Ga. Application filed August 28, 1886. Used since January, 1870.

"The words 'WHITE ROSE.'"

13,735.—LAGER-BEER.—*A. Finck & Son*, New York, N. Y. Application filed May 6, 1886. Used since January, 1881.

"The words 'ENTERPRISE BREWERY,' arranged in close proximity to a tablet having an anchor inscribed thereon."

13,736.—SHOTGUNS.—*Hermann Boker & Co.*, New York, N. Y. Application filed September 3, 1886. Used since July 1, 1886.
"The letters 'X L.'"

13,737.—PERFUMERY.—*L. Marchandise*, Paris, France. Application filed September 18, 1886. Used since July, 1884.
"The word 'COSMYDOR' and the symbol of a shield showing a winged quadruped."

13,738.—WHITE-METAL TABLE-WARE.—*The Potosi Silver Company*, Birmingham, England. Application filed August 25, 1886. Used since 1872.
"The representation of a shield bearing a spread eagle."

13,739.—WHITE-METAL TABLE-WARE.—*The Potosi Silver Company*, Birmingham, England. Application filed September 21, 1886. Used since 1864.
"The representation of a fork and spoon arranged crosswise of each other, and an eagle with wings outspread at their point of intersection."

13,740.—CATARRH REMEDY.—*William M. Quirk*, Binghamton, N. Y. Application filed September 18, 1886. Used since January 1, 1886.
"The figure of a cat accompanied by the letter 'R.'"

13,741.—SMOKING AND CHEWING TOBACCO, CIGARS, AND CIGARETTES. *The Solidarity Co-operative Cigar Factory*, New York, N. Y. Application filed September 9, 1886. Used since September 1, 1886.
"The word 'SOLIDARITY.'"

13,742.—MEDICINAL PREPARATION FOR THE CURE OF INDIGESTION, DYSPEPSIA, AND OTHER NAMED AILMENTS.—*William R. Warner*, Philadelphia, Pa. Application filed September 18, 1886. Used since March, 1877.
"The word 'INOLUVIN.'"

13,743.—CORSETS.—*Worcester Corset Co.*, Worcester, Mass. Application filed August 21, 1886. Used since August, 1881.
"The letters 'W. C. C.'"

13,744.—NUNS' VEILING.—*Abegg, Dasnitor & Co.*, New York, N. Y. Application filed September 24, 1886. Used since August 25, 1886.
"The word 'GALLIA,' the representation of the head and shoulders of a nun draped, and a church-bell."

13,745.—PERFUMERY, COSMETICS, SACHET-POWDERS, DENTIFRICES, AND HAIR-DRESSINGS.—*E. D. Baldwin & Co.*, Chicago, Ill. Application filed June 21, 1886. Used since March 20, 1886.
"The words 'PEACH BLOW.'"

13,746.—LUBRICATING-OIL.—*William H. Compton*, Cleveland, Ohio. Application filed September 6, 1886. Used since September 1, 1886.
"The word 'DYNAMO.'"

13,747.—LAUNDRY AND OTHER SOAP.—*Empire Soap Company*, St. Louis, Mo. Application filed February 11, 1886. Used since December 23, 1885.
"A tin tag in the form of a horseshoe."

13,748.—COFFEE.—*Samuel B. Shapleigh & Co.*, Boston, Mass. Application filed August 30, 1886. Used since October 2, 1884.
"The character '£' and the word 'STERLING.'"

13,749.—LIGHT COTTON CLOTH.—*The Turner's Falls Cotton Mills*, Turner's Falls, Mass. Application filed September 14, 1886. Used since December 12, 1885.
"The word 'ROYAL,' the word 'CIRCASSIAN,' and a figure representing a Circassian maiden."

13,750.—LIGHT-WEIGHT COTTON GOODS.—*The Turner's Falls Cotton Mills*, Turner's Falls, Mass. Application filed September 14, 1886. Used since December 12, 1885.
"The word 'EGYPTIAN' and the representation of a maiden with characteristic Egyptian apparel."

13,751.—LARD.—*W. J. Wilcox & Co.*, New York, N. Y. Application filed August 26, 1886. Used since May 20, 1886.
"The representation of a triangle of solid color."

LABELS.

4,996.—Title: "BLANCHARD'S INFALLIBLE PECTORAL COMPOUND." *William T. Baldes*, Washington, D. C. Application filed September 23, 1886.

4,997.—Title: "CIDER PRESERVATIVE."—*Inman Brothers*, Akron, Ohio. Application filed August 21, 1886.

4,998.—Title: "CHINESE CIGARETTES."—*William S. Kimball & Co.*, Rochester, N. Y. Application filed September 22, 1886.

4,999.—Title: "MARION." (FOR CIGARS.)—*Krug Bros.*, Richmond, Va. Application filed September 23, 1886.

5,000.—Title: "DR BROWN'S SARSAPARILLA TONIC."—*Schoneberger Bros.*, New York, N. Y. Application filed September 23, 1886.

5,001.—Title: "INOLUVIN, PREPARED FROM THE VENTRICULUS CALLOSUS GALLINACEUS."—*William R. Warner*, Philadelphia, Pa. Application filed August 30, 1886. (Trade-Mark Registered.)

5,002.—Title: "ESTES' IMPROVED PAINTERS SMALT."—*E. B. Estes & Sons*, New York, N. Y. Application filed September 24, 1886.

5,003.—Title: "WAVERLY SCHOOL SHOE."—*Bemis & Fletcher*, Worcester, Mass. Application filed November 23, 1885. (Trade-Mark Registered.)

PATENT LAW OF TASMANIA.—No. 2.

AN ACT to make provision for the mutual protection of patents for inventions and trade-marks granted or registered in Tasmania or the United Kingdom.

Passed October 20, 1884.

Whereas by section 104 of the act of the Imperial Parliament to amend and consolidate the law relating to patents for inventions, registration of designs and of trade-marks, known as the "Patents, Designs, and Trade-Marks Act, 1883," provision is made whereby it is rendered lawful for her Majesty, where it is made to appear that the legislature of any British possession has made satisfactory provision for the protection of inventions, designs, and trade-marks patented or registered in England, by order in Council to apply the provisions of section 103 of the said act, with such variations or additions, if any, as to her Majesty in Council may seem fit to such British possession:

And whereas it is expedient that the legislature of Tasmania should make such provision as aforesaid,

Be it therefore enacted by his Excellency the Governor of Tasmania, by and with the advice and consent of the Legislative Council and House of Assembly in Parliament assembled, as follows:

1. In this act "the said acts" mean "the patent law act" and "the merchandise marks act, 1864."

2. (1.) Any person who has applied for protection for any invention or trade-mark in the United Kingdom shall be entitled to a patent for his invention, or to registration of his trade-mark, (as the case may be,) under the said acts, in priority to other applicants; and such patent or registration shall have the same date as the date of the protection obtained in the United Kingdom: *Provided*, That his application is made, in the case of a patent, within seven months, and in the case of a trade-mark within four months, from his applying for protection in the United Kingdom: *Provided*, That nothing in this section contained shall entitle the patentee or proprietor of a trade-mark to recover damages for infringements happening prior to the date of the actual acceptance of his complete specification or the actual registration of his trade-mark in Tasmania, as the case may be.

(2.) The publication in Tasmania during the respective periods aforesaid of any description of the invention, or the use therein during such periods of the invention, or the use therein during such periods of the trade-mark, shall not invalidate the patent which may be granted for the invention or the registration of the trade-mark.

(3.) The application for the grant of a patent or the registration of a trade-mark under this act must be made in the same manner as an ordinary application under the said acts, and shall be subject to the payment of the same fees: *Provided*, That in the case of trade-marks any trade-mark the registration of which has been duly applied for in the United Kingdom may be registered under the merchandise marks act, 1864.

3. This act shall not come into operation until her Majesty shall, by order in Council, apply the provisions of section 103 of the patents, designs, and trade-marks act, 1883, to Tasmania, with such variations or additions, if any, as to her Majesty in Council may seem fit; but this act shall thereafter come into operation as soon as such order in Council shall have been publicly made known in the colony.

PATENTS

GRANTED OCT. 19, 1886.

350,908. COUNTERSUNK HOLE IN METAL ARTICLES. SAMUEL L. ALLEN, Cinnaminson, N. J. Filed May 27, 1886. (No model.)



Claim.—A metallic plate or article provided with a countersunk hole, the walls of which extend out into a tubular sleeve formed at right angles to the plate and integral therewith, as set forth.

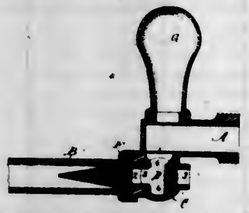
350,909. EAVES-TROUGH HANGER. WILSON C. BERGEN, Canton, Ohio. Filed Mar. 24, 1886. (No model.)



Claim.—1. The hanger B, formed of a single piece of sheet metal, having the grasp *b*, the bent or beveled portions *c*, and the hook or grasp *d*, for receiving the outwardly-formed lip *a'*, substantially as and for the purpose specified.

2. The hanger B, formed of a single piece of sheet metal, having the grasp *b*, provided with the ribs *c c*, the bent or beveled portion *a*, and the hook or grasp *d*, for receiving the outwardly-formed lip *a'*, substantially as and for the purpose specified.

350,910. FEED-WATER CLEANER. JAMES T. BRYANT, Richmond, Va. Filed Feb. 9, 1886. (No model.)



Claim.—1. In combination with the injector feed-pipe, the water-inlet pipe, and connections between such pipes, a conical screen arranged within and forming a partition across the injector feed-pipe, the said screen being arranged with its direction of length in line with that of the feed-pipe, whereby when the injector is pulled back the steam therefrom will act equally on all parts of the screen, substantially as set forth.

2. The combination of the water-inlet pipe, the injector feed-pipe, the cock having ports 2 and 3 arranged in line with each other and with the injector feed-pipe, and the screen located across and forming a diaphragm or partition in the injector feed-pipe, substantially as set forth.

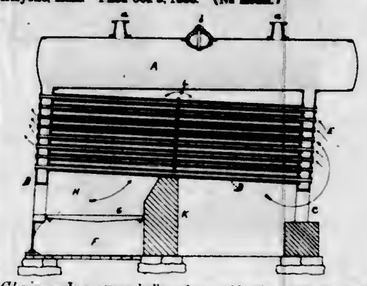
3. The combination, with the pipe B and the adjacent pipe or section having a threaded nipple, of the conical screen having a radial flange fitting between said pipe and section, and a nut swiveled on pipe B and threaded onto the threaded nipple, substantially as set forth.

350,911. COMPOSITION OF MATTER TO BE USED FOR JOURNAL-BOXES. FRANCIS J. COBURN and ELLEN M. DEAN, Denver, Colo. Filed Oct. 1, 1885. Renewed Sept. 9, 1886. (No specimens.)

Claim.—1. The composition for journal-boxes herein described, consisting of asbestus, plumbago, mica, talc, soapstone, carbonate of soda, litharge, mineral magnesia, and a cementing substance, substantially as described, and in about the proportions mentioned.

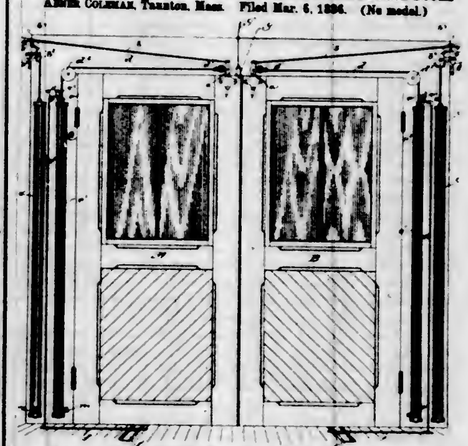
2. The journal-boxes herein described, consisting of asbestus, plumbago, mica, talc, soapstone, carbonate of soda, litharge, mineral magnesia, and a cementing substance, properly mixed, pressed into shape, and then baked, as set forth.

350,912. STEAM-BOILER. DAVID F. COSHLAN and THOMAS H. SEARS, Holyoke, Mass. Filed Oct. 2, 1885. (No model.)



Claim.—In a steam-boiler, the combination, with the cylindrical boiler or drum A, provided with front and rear water-legs, B and C, communicating therewith, the rear leg, C, having feet *c*, which communicate with said legs, between which is a central passage for the products of combustion, of the inclined tubes D, opening into said water-legs, the inclined tubes E, arranged centrally in the said tube D, and passing entirely through the said water-legs, and the central bridge-plate, L, for diverting the products of combustion upward, substantially as set forth.

350,913. MECHANISM FOR OPERATING ENGINE-HOUSE DOORS. ABNER COLEMAN, Taunton, Mass. Filed Mar. 6, 1886. (No model.)



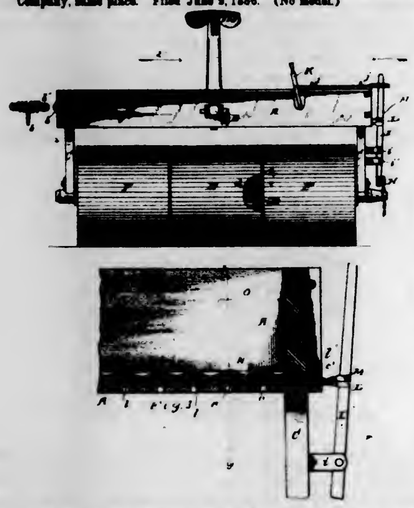
Claim.—1. The combination, with a door having a cord attached thereto and fixed pulleys over which the cord passes, of a weight attached

to the free end of the cord or chain, and following in a pneumatic tube, whereby the door will be opened or closed automatically, all substantially as described.

2. The combination, with a door having cords or chains *b d* attached thereto and fixed pulleys over which the said cords pass, combined with a weight suspended from the end of the cord *b* and the pneumatic tube *c'*, in which the said weight follows, the small weight *e*, attached to the end of the cord *d*, the automatically-controlled weight e^3, and pneumatic tube *e'*, in which the said weight follows, substantially as described.

3. The combination, with a door, of a cord or chain attached thereto, a fixed pulley over which the said cord passes, a weight, e^3, and a pneumatic tube, *e'*, in which the said weight follows, the latch e^4, releasing the said weight, and means, substantially as described, controlled by the weight of the engine, for controlling the said latch e^4, all as set forth.

350,914. COMBINED LAND-ROLLER AND SEEDER. Amasa Corbin, Jr., Gouverneur, N. Y., assignor to the St. Lawrence Manufacturing Company, same place. Filed June 9, 1886. (No model.)



Claim.—1. The combination, with the seed-box having the upper surface of its bottom board grooved and provided with holes *a a*, of the removable gathering-strip N, provided with holes *n n*, and means for securing the gathering-strip in position, whereby there is formed a recess for the reception of the metal plate L, substantially as set forth.

2. The combination, with the seed-box having a groove in the upper face of its bottom board, of the removable gathering-strip N, provided with a longitudinal groove, *n'*, in its lower face, and with the holes *n n*, and means for holding the gathering-strip in position, whereby there is formed a recess for the distributer M, substantially as set forth.

3. The combination, with the seed-box having a groove in the upper face of its bottom board and provided with holes *a a*, of the gathering-strip N, provided with a longitudinal groove, *n'*, in its lower face, and with the holes *n n* and means for holding the gathering-strip in position with its lower face a short distance above the bottom of the groove in the bottom board, whereby there is formed a recess for the metal strip L and the distributer M above the metal strip, substantially as set forth.

4. The combination, with the seed-box, of the distributer arranged in a groove in the bottom of the seed-box and projecting beyond both ends of the seed-box, the cam-wheel, the lever I, with its lower end engaging with the inner face of the cam-wheel and pivotally connected with the distributer, and the spring arranged outside of the seed-box and connected with the distributer, and operating to press the lower end of lever I into contact with the cam-plate, substantially as set forth.

5. The combination, with the seed-box, of the distributer arranged in a groove in the bottom of the seed-box and projecting beyond both ends of the seed-box, the cam-wheel, the lever I, with its lower end engaging with the inner face of the cam-wheel and pivotally connected with the distributer, the spring arranged outside of the seed-box and connected with the distributer, and operating to press the lower end of lever I into contact with the cam-plate, the slotted link J, and lever adapted to thrust outward the upper end of the lever I, substantially as set forth.

6. The combination, with the seed-box having a groove to receive the metal plate and the distributer, of the lever I, pivoted to one end of the distributer, the cam-plate, the returning-spring at the opposite end of the distributer, and the metal plate, also connected to the lever I, whereby the spring operates to move the metal plate in one direction, and the cam-plate operates to move it in the opposite direction, substantially as set forth.

7. The combination, with the feed-box, of the lever I, the metal plate L, the pin *l'*, and the distributer above the metal plate, substantially as set forth.

8. The combination, with the feed-box and the distributer, of the lever, the cam-wheel, the axle, the central drum-section, E, attached to the axle, and the outer sections mounted loosely upon the axle, substantially as set forth.

9. The combination of a central section keyed to the axle, outer drum-sections mounted loosely on the axle, a seed-distributer, and mechanism connecting the distributer with the axle, whereby motion is communicated from the central drum-section to the distributer, substantially as set forth.

350,915. CUFF-BUTTON. John Costello, Attleborough, Mass., assignor of one-half to Clarence L. Watson and Fred A. Newell, both of same place. Filed July 6, 1886. (No model.)



Claim.—1. In a detachable button, the combination, with a slotted back plate, the spring connected therewith, and the bars or pintles, of the arms loosely mounted on said bars or pintles, and provided with hooked ends, each latter having a stop adapted to engage the back plate, for limiting the movement of the arm in one direction, and two elongated flat faces which are engaged by the spring to retain the arm in a locked or unlocked position, substantially as set forth.

2. In a detachable button, the combination, with the back plate having parallel slots separated by a thin partition, the spring connected to the back plate, and the bars or pintles located on opposite sides of the longitudinal center of the back plate, with their inner ends resting on or integral with the partition separating the slots and spanning their respective slots, of the arms provided with hooked ends, substantially as set forth.

350,916. STEREOTYPE-PLATE HOLDER. Luther C. Crowell, Brooklyn, N. Y. Filed Feb. 6, 1886. (No model.)



Claim.—1. The combination, with the form-cylinder, of the clips 21 and the band or bands 23, having the cam projections 15, substantially as described.

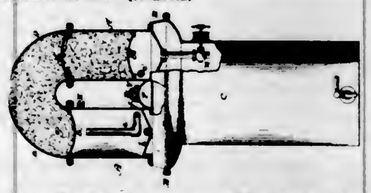
2. The combination, with the form-cylinder, of the clips 21, held against the plate or plates by a yielding pressure, and the band or bands 23, having the cam projections 15, substantially as described.

3. The combination, with the form-cylinder, of the clips 21, having the springs 12, and the band or bands 23, having the cam projections 15, substantially as described.

4. The combination, with the form-cylinder, of the clips 21, held against the plate or plates with a yielding pressure, as by the spring portions 5, and having springs 12, and the band or bands 23, having the cam projections 15, substantially as described.

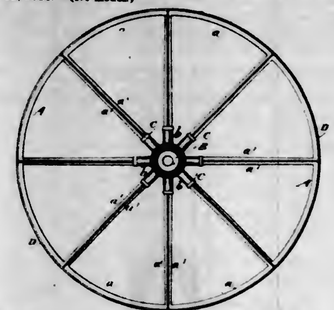
5. The combination, with the form-cylinder, of the clips 21, the band or bands 23, having the cam projections 15 and the rack or racks 18, and the pinion or pinions 17, engaging with the racks, substantially as described.

350,917. WATER-FILTER. William D. Cummings, Pittsburg, Pa. Filed Feb. 25, 1886. (No model.)



Claim.—In a filter, the combination of the cylinders A A', arch D, pipes c J, provided with the cock E, dome F, provided with a valve, and the reservoir C, substantially as shown and described.

350,918. VEHICLE-WHEEL. Charles G. Deming, Leeds, N. Y. Filed Aug. 18, 1886. (No model.)



Claim.—The combination of the compound spoke and felly sections A, the fingered hub B, the rings C, and the tire D, to make up the wheel described.

350,919. LINING FOR CONVERTERS AND FURNACES. William L. Dudley, Covington, Ky., assignor of one-half to James P. Witherow, Pittsburg, Pa. Filed Aug. 27, 1885. (No specimens.)

Claim.—1. A neutral lining for furnaces, converters, and other vessels in which molten iron is treated, consisting of aluminium oxide, oxide of iron, and fire-clay, substantially as and for the purposes described.

2. A neutral lining for furnaces, converters, &c., consisting of aluminium oxide, oxide of iron, fire-clay, and carbonaceous matter, substantially as and for the purposes described.

350,920. LINING FOR CONVERTERS AND FURNACES. William L. Dudley, Covington, Ky., assignor of one-half to James P. Witherow, Pittsburg, Pa. Filed Aug. 27, 1885. (No specimens.)

Claim.—A lining for furnaces, converters, and other vessels in which molten iron is treated, consisting of a compound of chrome iron ore and about ten per cent. of fire-clay and carbonaceous material, substantially as and for the purposes described.

350,921. LINING FOR CONVERTERS AND FURNACES. William L. Dudley, Covington, Ky., assignor of one-half to James P. Witherow, Pittsburg, Pa. Filed Aug. 27, 1885. (No specimens.)

Claim.—A neutral lining for furnaces, converters, and other vessels in which molten iron is treated, consisting of aluminium oxide and about ten per cent. of viscid carbonaceous material.

350,922. LINING FOR CONVERTERS AND FURNACES. William L. Dudley, Covington, Ky., assignor of one-half to James P. Witherow, Pittsburg, Pa. Filed Aug. 27, 1885. (No specimens.)

Claim.—A lining for furnaces, converters, and other vessels in which molten iron is treated, consisting of about one part of aluminium oxide and about two parts of chrome or titanium iron ore, substantially as and for the purposes described.

350,923. CAR-TRUCK. Daniel W. Eaner, Constableville, N. Y. Filed May 4, 1886. (No model.)

Claim.—1. The combination, with a truck secured rigidly to the car-frame, of wheels placed at opposite sides of each rail and mounted at an angle to the rails, movably connected with the truck, and adapted to change their positions with respect to the truck to accommodate themselves to curvatures.

2. The combination, with a car-truck, of wheels placed at opposite sides of each rail and mounted at an angle thereto, and connected with the trucks so as to vary their position with respect thereto.

3. The combination, with a car-truck, of wheels mounted in pairs, one of each pair being placed at opposite sides of each rail and connected with the truck so as to change their position with respect thereto.

4. The combination, with the truck-beam, of a yoke which embraces the beam and is pivotally connected therewith, and provided with spindles at its opposite sides and placed at an angle to each other, and wheels mounted upon said spindles and standing at an angle to each other.

5. The combination, with a car-frame, of a truck provided with wheels placed at an angle to the rail, the truck having its side beams connected to the outer portions of the frame.

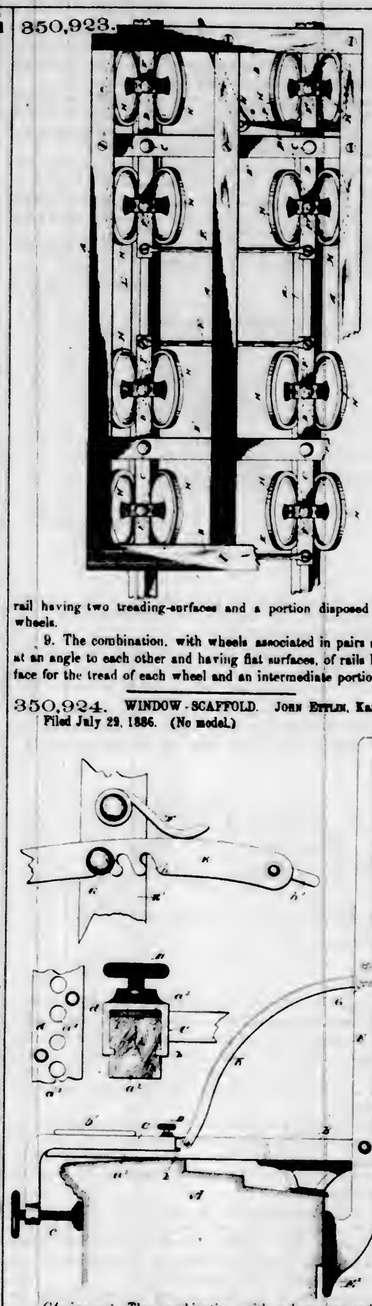
6. The combination, with a car-frame, of a truck provided with wheels placed at an angle to the rail, the truck having its side beams pivotally connected with the frame and with each other.

7. The combination, with a car-frame, of the truck, the outer beams of which are pivotally connected with said frame, and truck-wheels mounted at an angle to the rails and adapted to have a movement independently of the truck.

8. The combination, with the wheels mounted at an angle, of a rail having two treading-surfaces and a portion disposed between the wheels.

9. The combination, with wheels associated in pairs and mounted at an angle to each other and having flat surfaces, of rails having a surface for the tread of each wheel and an intermediate portion.

350,924. WINDOW-SCAFFOLD. John Eitlin, Kansas City, Mo. Filed July 29, 1886. (No model.)



Claim.—1. The combination, with a base, one end of which is adapted to bear against the wall below the inner edge of the sill, of a tilting back, the lower edge of which engages the outer face of the wall or sill below the lower edge of the latter, and devices for locking the tilting back in position.

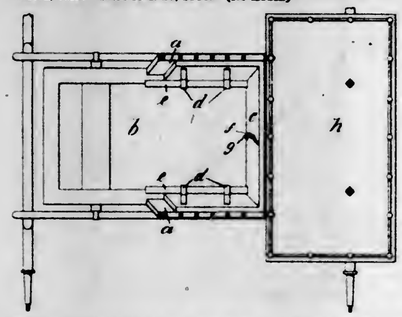
2. The combination, with an extensible base, one edge of which is adapted to engage the wall below the inner edge of the sill, of a tilting back, the lower edge of which engages the sill or wall below the base, and devices for locking the back in an upright position.

3. The combination, with a base, clamps secured to the inner edge thereof, and brackets secured to the lower face of said base, of the tilting back, the lower edge of which engages the outer face of the wall below the base, and devices for locking the back in an upright position.

4. The combination, with a base having grooved end pieces, the sliding sections, thumb-screws for locking the sliding pieces to the end pieces, and the clamping-screws, of the tilting back extending below the base and devices for locking the back in an upright position.

5. The combination, with a base having devices for locking one edge thereof to the sill, of the tilting back, the lower edge of which is arranged to engage the wall below the sill, and having pins and springs, and the arms having teeth for engaging the pins, substantially as set forth.

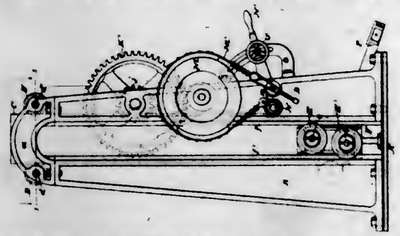
350,925. WAGON. Alson H. Fancher and Emery W. Fancher, Canton, Conn. Filed Mar. 27, 1886. (No model.)



Claim.—1. In combination, the wagon-body *a b*, sliding body-section *c*, and the attachable and detachable rack A, all substantially as described, and for the purpose set forth.

2. In combination, the wagon-body *a b*, the sliding body-section *c*, and the rack A, supported in part from the rear axle and in part from the side bars, all substantially as described, and for the purpose set forth.

350,926. WINCH. Jonah M. Gettel, Lebanon, Henry C. Griffinger, Cornwall, and John H. Killinger, Lebanon, Pa.; said Grittinger and Killinger assignors to said Gettel. Filed July 14, 1886. (No model.)



Claim.—1. The combination of the frame having the guideway-flanges and the roller-receiving spaces in opposite sides, the slide mounted within the frame and provided with the cross-head and guideway-flanges, the guide-rollers carried by the frame, and the guide-rollers carried by the cross-head of the slide and of diameter less than the width of their receiving-spaces in the sides of the frame, substantially as and for the purpose set forth.

2. The combination of the frame, the reciprocating hollow slide, the headed buffer-rod secured to the frame and extending into the slide, and the buffer-spring supported by and moving with the slide and loosely embracing and moving endwise of the buffer-rod, substantially as and for the purpose set forth.

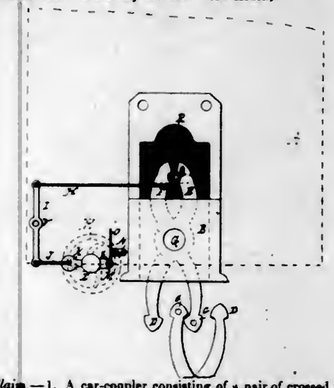
3. The combination of the base, the four uprights secured in pairs thereto with the roller-receiving spaces between them, the top sections by which the uprights of the respective pairs are united, and the tie-rods passing through the top sections and uniting the opposite sides of the frame, substantially as and for the purpose set forth.

4. The combination of the frame having guideway-flanges, the slide mounted in the frame and provided with the cross-head, guideway-flanges, and rack, the guide-rollers of the frame, the guide-rollers of the cross-head of the slide, the driving-shaft, the shaft geared therewith, and the pinion engaging the rack of the slide, substantially as and for the purpose set forth.

5. The combination of the frame, the reciprocating slide provided with the rack, the driving-shaft, the shaft geared therewith, the pinion engaging the rack of the slide, the brake mechanism, and the detent devices therefor, substantially as and for the purpose set forth.

6. The combination of the frame having guideway-flanges, the slide mounted in the frame and provided with the cross-head, guideway-flanges, and rack, the guide-rollers of the frame, the guide-rollers of the cross-head of the slide, the driving-shaft, the shaft geared therewith and with the rack of the slide, the brake mechanism, and the detent devices therefor, substantially as and for the purpose set forth.

350,927. CAR-COUPLING. John J. Griffin and Joseph Thomas, Detroit, Mich. Filed May 17, 1886. (No model.)



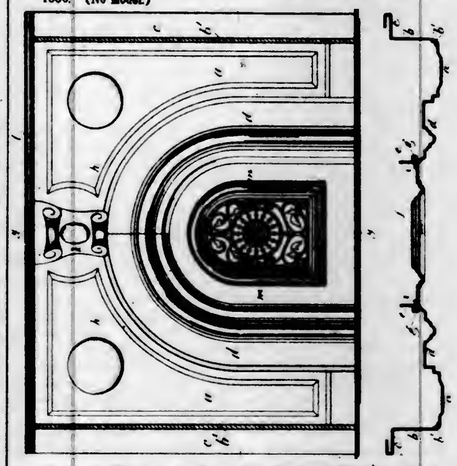
Claim.—1. A car-coupler consisting of a pair of crossed levers, the forward end of each of which terminates in an arrow-head, a spring attached to said levers and holding them together, and a pin fastened between the levers and preventing either from following the other when they are forced apart.

2. In combination with a car-coupler of the kind herein described, a linkage connecting one lever of the pair to the brake-staff adapted to spread the jaws of the coupler when the brake-staff is revolved.

3. In combination with a car-coupler of the kind herein described and the brake-staff mounted upon the car, a loose sleeve mounted upon the brake-staff, having a radial slot therein which receives a pin inserted in the brake staff, and a system of linkages from said loose sleeve to one lever of the coupler.

4. In combination with a coupler of the kind herein described, a loose lever mounted upon a brake-staff, and a system of linkages connecting the sleeve with one lever of the coupler, the lever O and connecting-rods S and M, by which the said sleeve is locked upon the brake-staff, substantially as and for the purposes described.

350,928. MANTEL. John Graver, Brooklyn, N. Y. Filed Jan. 25, 1886. (No model.)



Claim.—1. The sheet-metal mantel having the profile piece, pilaster, and wall-plates at each side in one piece of sheet metal stamped up to a shape in dies, and having stiffening ribs or coves, substantially as set forth.

2. The sheet-metal mantel having panels, ribs, or coves pressed into the same, and the two halves setting into each other at the center of the frieze and attached together, and having an ornament over the joint at such central portion, as set forth.

3. The mantel-front having at each side a pilaster, *a*, and a profile-piece, *b*, in one piece of sheet metal, with corrugations *b'* at the edges, substantially as set forth.

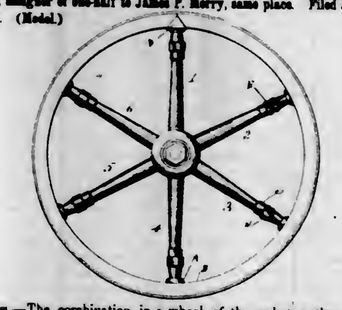
4. The sheet-metal mantel-front having the pilaster and frieze portions in one and pressed up with stiffening ribs and coves, substantially as set forth.

5. The sheet-metal mantel-front having pilasters and frieze and a backwardly-bent flange at the top edge, in combination with the sheet-metal mantel-shelf, substantially as set forth.

6. The sheet-metal mantel-front having pilaster and frieze and jamb in one piece at each side of the fire-place, substantially as set forth.

7. The sheet-metal mantel-shelf having a downwardly-rolled edge at the front and a flange at the back, substantially as set forth.

350,929. Vehicle-Wheel. Miles M. Gray, Eureka Springs, Ark., assignor of one-half to James P. Merry, same place. Filed July 1, 1886. (Model.)



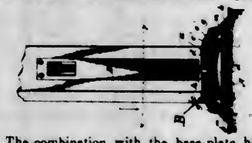
Claim.—The combination, in a wheel, of the socket *a*, the cap C, having a nut, collar, and tenon, and the flanged triangular metallic block D, all operating in unison for the expansion of the wheel by turning the cap C, substantially as set forth.

350,930. Pencil-Sharpener. John M. Griffith, Philadelphia, Pa. Filed Oct. 24, 1885. (No model.)



Claim.—As an article of manufacture, a pencil-sharpener consisting of a rectangular piece of steel with broken unfinished ends, corrugated upon one surface, and embedded in and having its ends and side edges covered by the flanges B^2 of an integral sheet-metal backing and handle having strengthening corrugations B^3 B^3 and rounded edges B^4, substantially as shown and described.

350,931. Air and Water Tight Threshold for Doors. Hans A. Holst, Helena, Mont. Filed June 2, 1886. (No model.)



Claim.—1. The combination, with the base-plate having inclined sides, of a rubber block having rounded upper face and concave lower face, held in said base-plate and formed with longitudinal channels *c c'*, substantially as and for the purpose specified.

2. The combination, with a base-plate and rubber block secured therein, of a metal strip provided with a socket to receive the end of the securing-bolt, substantially as described.

3. The combination, with the base-plate having inclined sides and a rubber block held in said base-plate, of a metal strip placed transversely over said block and secured to said inclined sides, and formed with a socket to receive the end of the securing-bolt, substantially as described.

350,932. Exercising-Machine. John M. Keating, Philadelphia, Pa. Filed Apr. 21, 1886. (No model.)

Claim.—1. The combination, to form an exercising apparatus, of a frame-work, a body-sling connected with said frame-work, spring-bars, cords connected with said spring-bars and provided with devices for engaging the hands, and elastic or extensible cords provided with devices engaging the feet, substantially as set forth.

2. In combination with the frame-work, cords provided with slip-pers or foot-rings, and tubular flexible sheaths for said cords, substantially as set forth.

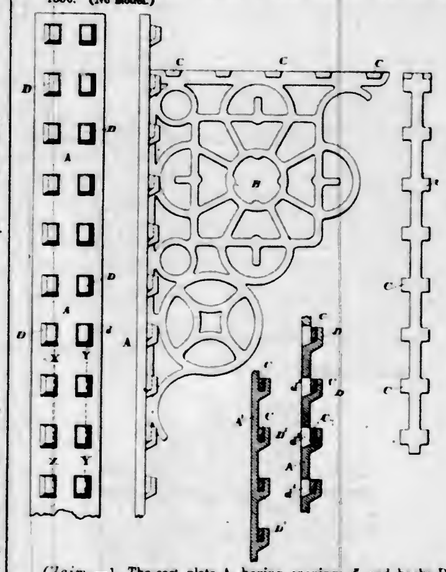
3. In combination with the frame-work, spring-bars, cords connected with said spring-bars and provided with devices for engaging the hands, and a slip-ring encircling both spring-bars, substantially as set forth.

350,933. Churn. John H. King and John L. Mills, Liberty Centre, Ind. Filed July 22, 1886. (No model.)



Claim.—The combination, with the churn-body and its cover, of the frame B, having plate *b'*, guide-piece *b²*, and bracket E, with socket *e*, of the gear-wheel C, gear-pinion D, having grooved arms *d'*, the tube F, having the spiral slot, the arm H, and the dasher-rod G, attached to the tube F, substantially as specified.

350,934. Bracket. August W. Koch, Peoria, Ill. Filed Jan. 30, 1886. (No model.)



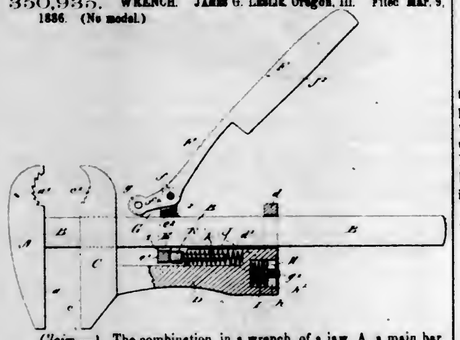
Claim.—1. The cast plate A, having openings *d'*, and hooks D, with webs *d*, substantially as and for the purposes specified.

2. The bracket B, provided at each edge with vertical row of teeth C, in combination with the plate A, provided with the two vertical rows of hooks D, with their free ends pointing upward, each of the hooks D of one row arranged for the reception of the teeth of the corresponding row of teeth on the bracket, substantially as and for the purposes specified.

3. The bracket B, having two sides of unequal length, each side provided with teeth, and the plate A, provided with hooks for engage-

ment with the teeth of the bracket, substantially as and for the purposes specified.

350,935. **WRENCH.** James G. Leslie, Oregon, Ill. Filed Mar. 9, 1886. (No model.)



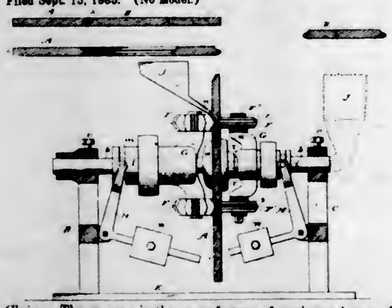
Claim.—1. The combination, in a wrench, of a jaw, A, a main bar, B, to which jaw A is fixed, a movable jaw, C, having a shank, D, and fitted on bar B, a tilting grip-plate, E, placed loosely on and adapted to bite the bar B, a locking-lever, F, pivoted at *f* to plate E and extended beyond the plate in a short arm, *f'*, and links G, pivoted at *g'* to the arm *f'* of lever F and at *g'* to the shank D, substantially as and for the purposes herein set forth.

2. The combination, in a wrench, of a jaw, A, a main bar, B, to which jaw A is fixed, a movable jaw, C, having a shank, D, and fitted on bar B, a tilting grip-plate, E, placed loosely on and adapted to bite the bar B, a spring device, as at J K, fitted in the shank D and adapted to force forward the inner bar, *e'*, of plate E, a locking-lever, F, pivoted at *f* to the plate E and extended beyond the plate in a short arm, *f'*, and links G, pivoted at *g* to the arm *f'* of lever F and at *g'* to the shank D, substantially as and for the purposes herein set forth.

3. The combination, in a wrench, of a jaw, A, a main bar, B, to which jaw A is fixed, a movable jaw, C, having a shank, D, and fitted on bar B, a tilting grip-plate, E, placed loosely on and adapted to fit the bar B, a locking-lever, F, pivoted at *f* to the plate E and extended beyond the plate in a short arm, *f'*, links G, pivoted at *g* to the arm *f'* of lever F and at *g'* to the shank D, said pivot *g'* passing through slots *d'* of the shank, and a yielding support, as at H I, fitted in the shank and adapted to be compressed by the pivot-pin *g'* as the lever F is brought to locking position, substantially as herein set forth.

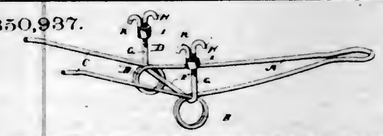
4. The combination, in a wrench, of a jaw, A, a main bar, B, to which jaw A is fixed, a movable jaw, C, having a shank, D, and fitted on bar B, a tilting grip-plate, E, placed loosely on and adapted to bite the bar B, a spring device, as at J K, fitted in the shank D and adapted to force forward the inner bar, *e'*, of plate E, a locking-lever, F, pivoted at *f* to plate E and extended beyond the plate in a short arm, *f'*, links G, pivoted at *g* to the arm *f'* of lever F and at *g'* to the shank D, said pivot *g'* passing through slots *d'* of the shank, and a yielding support, as at H I, fitted in the shank and adapted to be compressed by the pin *g'* as the lever F is brought to locking position, substantially as and for purposes herein set forth.

350,936. **DRESSING STONE.** James W. Maloy, Boston, Mass. Filed Sept. 15, 1885. (No model.)



Claim.—The process in the manufacture of wash-stand tops, &c., consisting in cutting a circular or other shaped section from a slab, and, simultaneously with said cutting, forming ornamental edges on the slab-sections, substantially as described.

350,937. **WAGON-TONGUE SUPPORT.** Elijah McCoy, Pittsburg, Kans. Filed Aug. 9, 1886. (No model.)



Claim.—The combination of the hounds having the transverse rod *e*, the tongue, the rod or bolt *d*, pivoting the tongue to the hounds, the support having the forward-extending arm A, the springs B, and the rearward-extending arms C, the said support having its front end bearing under the tongue and its arm C bearing under the rod *e*, and the keeper D, having the yoke F attached to the springs, and the vertical arms G, having the hooks engaging with the rod or bolt *d*, on which the tongue is pivoted, for the purpose set forth, substantially as described.

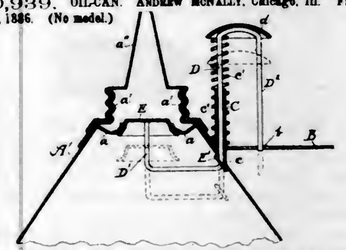
350,938. **WHIFFLETREE.** Robert C. McKindley, Magnolia, Ark. Filed July 13, 1886. (No model.)



Claim.—1. A whiffletree, as described, having a frieze-iron secured on its rear part, the perforated arms 5, bent arm 7, pivoted between said arms 5, and bent plate or half-collar 8, secured to the bent end of said arm 7, its outer end being flush with the end of the said pole, its inner end exactly meeting and fitting against the outer end of said collar 4, substantially as shown and described.

2. A whiffletree consisting of the pole A, the half-collar or bent plate secured in the middle of and to the front face of said pole, and having the eye 2 and link 3, swiveled in said eye, as described, the frieze-iron secured on either end of said pole, consisting of the collar 4, having on its rear part the perforated arms 5, bent arm 7, pivoted between said arms 5, and bent plate or half-collar 8, secured to the bent end of said arm 7, its outer end being flush with the end of said pole, and its inner end exactly meeting and fitting against the outer end of said pole, substantially as shown and described.

350,939. **OIL-CAN.** Andrew McNally, Chicago, Ill. Filed Aug. 7, 1886. (No model.)

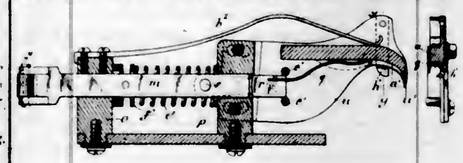


Claim.—An oil-can having an interior valve-seat, *a*, in combination with the rod D, having extensions D' D'', the latter extending downwardly through a perforation in the handle, tube C, made larger than the rod, spring *c'*, and valves E E', constructed and arranged substantially as described, and for the purposes set forth.

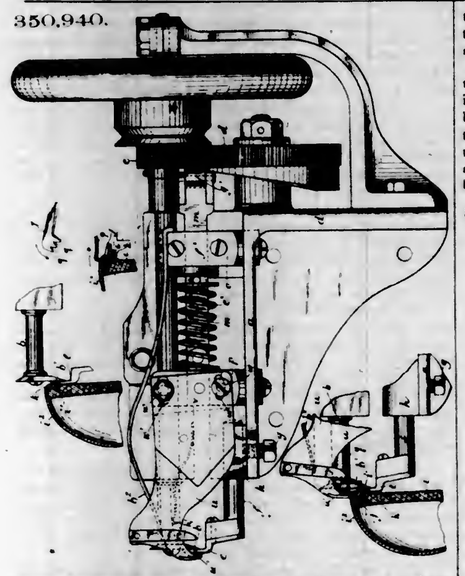
350,940. **TACK-PULLING AND SOLE-TRIMMING MACHINE FOR BOOTS OR SHOES.** James N. Moulton, Haverhill, Mass. Filed Feb. 8, 1886. (No model.)

Claim.—1. The combination of a fixed lip or rest, a claw and means, substantially as described, to move it toward and from a boot or shoe bearing against said lip or rest, and an oscillatory arm formed to guide the reciprocating claw downwardly during its outward movement, and having a device, substantially as described, to automatically engage with and guide the claw during the first part of its backward movement, all constructed and adapted to operate as set forth.

2. The combination of a fixed lip or rest, a claw and means, substantially as described, to move it toward and from a boot or shoe bearing against said lip or rest, an oscillatory arm formed to guide the reciprocating claw downwardly during its outward movement, and provided with a device to automatically engage with and guide the claw during the first part of its backward movement, and a spring whereby said arm is pressed toward the fixed lip or rest, as set forth.



350,940.



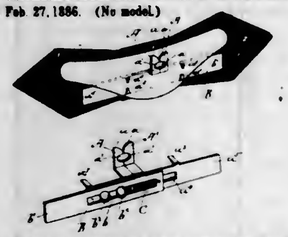
3. The combination of a fixed lip or rest, a rod fitted to slide in fixed guides, means, substantially as described, to reciprocate said rod, a block or holder pivoted to said rod, a flexible spring-claw attached to said block or holder, and an oscillatory arm pivoted to a fixed support and engaged, as described, with said pivoted block or holder to oscillate the latter, said arm being formed to guide the claw downwardly during its outward movement, and provided with a device to automatically engage and guide the claw during the first part of its backward movement, as set forth.

4. The combination, in an organized machine, of a trimming mechanism having a rotary arbor and a trimmer thereon, a fixed lip or rest co-operating with said trimmer and serving as a bearing for a boot or shoe, a claw and means, substantially as described, to move it toward and from a boot or shoe bearing against said lip or rest, an oscillatory arm formed to guide the reciprocating claw downwardly during its outward movement, and having a device to automatically engage with and guide the claw during the first part of its backward movement, as set forth.

350,941. **COVERING FOR STEAM-PIPES.** Patrick J. Murphy, Pawtucket, R. I. Filed July 26, 1886. (Model.)

Claim.—The herein-described composition of matter to be used for covering steam-pipes to prevent the radiation of heat therefrom, consisting of water, glucose, and fine sifted ashes, in the proportions and compounded and applied substantially as hereinbefore specified.

350,942. **NECKTIE-FASTENER.** Sewell H. Noyes, Newburyport, Mass. Filed Feb. 27, 1886. (No model.)

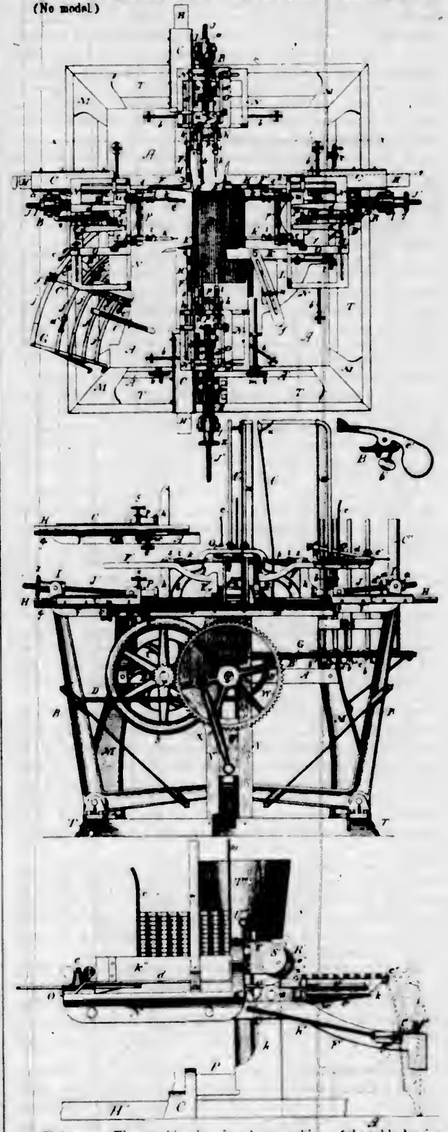


Claim.—1. A necktie fastener or clasp comprising the fixed or stationary plate a^2, having the stationary jaw A and extension a^3, with the movable plate B, having the jaw A' and the extension *b'*, and secured to the fixed plate to slide thereon, and a spring for drawing the two jaws together, substantially as described.

2. The combination of the fixed plate, having the slot a^4, the jaws A, and the extension a^3, with the movable plate B, having the jaw A', the slot *b*, and the extension *b'*, and a spring, C, held within the slots of the two plates, connecting the two plates together, substantially as described.

3. The combination of a necktie having a shield or back, the stationary plate a^2, having a jaw, A, arranged to extend through a hole cut in the shield or back, devices for fastening the stationary plate to the back, and an extension of said plate to or very nearly to the side edge of the shield or back, with the movable plate B, having a jaw, A', arranged to extend through said hole in the shield, a spring for closing the jaw, and an extension, *b'*, extending to or very nearly to the side edge of the back or shield, all substantially as described.

350,943. **MACHINE FOR GLUING AND PUTTING BOXES TOGETHER.** George Richardson, Milwaukee, Wis., assignor by direct and mesne assignments, to Fred A. Cary, same place. Filed Aug. 4, 1883. (No model.)



Claim.—1. The combination, in a box-machine, of the table having guideways thereon, bell-crank levers pivoted to the frame of the machine opposite said guideways, cross-heads adjustably connected to one arm of

said levers so as to move on said table, and driving-pitmen connected to the other arms of said levers, substantially as described.

2. The combination, with the box-machine table having a central aperture and guideways leading thereto, bell-crank levers connected to the cross-heads, and operative pitmen also connected to the cross-heads, of a vertically-movable table below said aperture in the main table, and mechanism for raising said table, substantially as described.

3. The main table having aperture therein, the rising table placed underneath said aperture, a lever connected to said table by connections, substantially as described, and a cam for oscillating said lever so as to lift the movable table, all combined and arranged substantially as described.

4. The table having central aperture, the rising-and-falling table beneath said aperture, and suitable mechanism, substantially as described, for operating the same, the chute G, and a swinging arm adapted, as described, to convey a box-bottom from said chute to the rising-and-falling table, all combined in a box-machine, substantially as set forth.

5. The main table having central aperture, the rising-and-falling table beneath said aperture, the chute having curved ways leading toward said rising-and-falling table, the swinging arm having fingers projecting between said ways, and operating mechanism, substantially as described, to move the table and swinging arm, all combined in a box-machine, substantially as described.

6. The main table having central aperture, the rising-and-falling table beneath said aperture, vertical guideways for the last-mentioned table, a standard supporting the table, a connecting-rod pivoted to said standard and provided with an adjusting-screw, a lever connected to said rod, and a cam for operating said lever, all combined and arranged in a box-machine, substantially as stated.

7. The curved chute, the swinging arm provided with mechanism for carrying the box portions along said chute, and the rising-and-falling table at the end of said chute, combined with the main table, the rack thereon, and mechanism, substantially as described, for conveying a side piece from said rack to the aperture in the table, together with suitable driving mechanism, substantially as described, whereby a box-bottom is conveyed from the chute and a side piece from the rack to be joined together at the central portion of the machine, substantially as stated.

8. In a box-machine, a curved chute having curved slots in its bottom, a swinging arm operating, as described, under said chute, and having fingers projecting through said slots, and mechanism, substantially as described, for operating said arm, whereby a portion of the box may be conveyed from the chute to a position ready for subsequent operation, the described elements being combined substantially as stated.

9. In a box-machine, the curved chute composed of bars, as described, the swinging arm beneath said chute, and suitable driving mechanism therefor, and counterbalanced fingers on said swinging arm, projecting between said bars, all combined substantially as stated.

10. The curved chute composed of bars, as described, the swinging arm beneath said chute, having fingers which extend up between the bars, and a rack placed above said chute to contain the box-bottoms, all combined and arranged in a box-machine, substantially as stated.

11. The rack, as C', for the box-bottoms, adjustable in size by mechanism, substantially as described, the curved chute beneath said rack, the swinging arm having projections which extend through slots in the bottom of the chute, and operating mechanism for said arm, all combined in a box-machine, substantially as stated.

12. The two end levers B B and mechanism, substantially as described, connected thereto, for manipulating the box-ends, the side levers, B B, and similar mechanism for manipulating the box-sides, all the levers being pivoted to the frame and actuated by pitmen or equivalent connections, as shown, the reciprocating cross-head, as U, and connections, substantially as described, from the levers to the cross-head, all combined, substantially as described, so that the reciprocation of the cross-head will advance all the box-sides simultaneously, substantially as set forth.

13. The machine-table, the side-conveying cross-heads arranged thereon at right angles to each other, the bell-crank levers similarly arranged, so as to be simultaneously moved by the driving-connections, and screw-rods having nuts thereon, substantially as described, connecting the cross-heads with the bell-crank levers, all combined in a box-machine, substantially as and for the purpose stated.

14. The machine-table, the cross-heads arranged at right angles thereon, and having mechanism attached thereto for the manipulation of the box-sides, the bell-crank levers pivoted at right angles to each other and operated by suitable mechanism, substantially as described, and the screw-rods J', pivoted to the cross-heads and working in swiveled bearings in the levers, all combined substantially as set forth.

15. The machine-table having central aperture, the cross-heads arranged at right angles to each other upon ways on said table, screw-rods pivoted to the cross-heads, bell-crank levers pivoted as described in the frame of the machine, and mechanism to operate the same, and swiveled bearings on said levers to which the screw-rods are connected by set-nuts, all the elements combined and arranged substantially as set forth.

16. A box-machine table slotted as described, cross-heads and reciprocating mechanism therefor, adjustable ways, as H' H', having tongues which extend through the slots in the table, hand-screws which engage said tongues to move the ways, and set-screws for securing the same in position, all combined and arranged substantially as stated.

17. The combination, with a box-machine table having central aperture, of corner-pieces, as E E', &c., having acute angles which are toward the center of the table, and adjusting mechanism, substantially as described, whereby the location of certain of the corner-pieces may be changed with reference to the fixed corner-piece and to each other, substantially as set forth.

18. A box-machine table having central aperture, a fixed corner-piece, E, having its acute angle in proximity to said aperture, as described, corner-pieces E' E', having their acute angles toward said aperture, and each adjustable in one direction, and corner-piece E'', having its acute angle toward the aperture and being adjustable in two directions, all in combination, substantially as set forth.

19. In combination with a box-machine table having central aperture, as described, the adjustable corner-piece E'', arranged with its acute angle toward said aperture, the bar K, which supports said piece, provided with a way upon which said bar is adapted to slide at right angles to the side of said aperture, said plate being adapted to slide in a way in said table parallel to the side of said aperture, hand-screws seated on the table and adapted to move said plate and bar, as described, and a screw-clamp for retaining the corner and its supporting parts in position, all substantially as set forth.

20. A box-machine table, a reciprocating cross-head thereon provided with standards, arms, as *k*, pivoted to supports on said standard, a crank-extension connected with said arms, and an inclined way or track on which said crank rides, whereby the arms are moved from a horizontal to a vertical position as the cross-head moves forward, all the parts being combined substantially as set forth.

21. A box-machine table, four reciprocating cross-heads arranged thereon at right angles to each other, mechanism for reciprocating the same, pivoted arms on each cross-head, and mechanism, substantially as described, to operate said arms, whereby four box-sections may be taken from the sides of the table in a horizontal position and brought together in vertical position at the middle of table, all the elements being combined and arranged for joint operation substantially as set forth.

22. A box-machine table, a reciprocating cross-head thereon, arms, as *k k'*, pivoted to supports on said standards, mechanism, substantially as described, for swinging said arms from a horizontal to a vertical position, and spring-catches on said arms, whereby a box-section may be clasped to said arms, all combined substantially as set forth.

23. A box-machine table, a reciprocating cross-head thereon, arms, as *k k'*, pivoted to extension on said cross-head, mechanism, substantially as described, by which said arms are brought from the horizontal to vertical position as the cross-head advances, spring-dogs, as *x' x'*, upon the upper face of the arms, and terminal hooks, as *e'' e''*, whereby the box-section may be grasped by the opposite edges taken from a superposed rack and held to said arms, all the elements in combination substantially as stated.

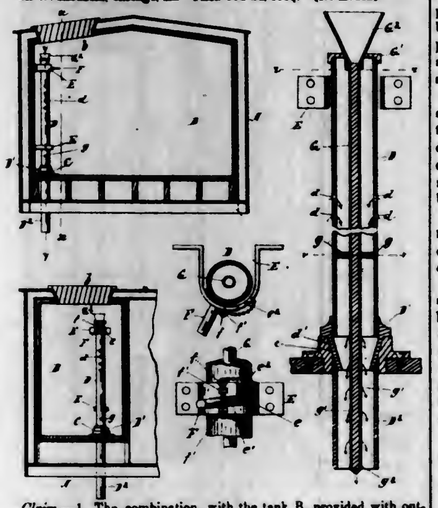
24. A box-machine table having reciprocating cross-head thereon, pivoted arms connected to said cross-head, and mechanism, substantially as described, to bring the arms from a horizontal to a vertical position as the cross-head moves forward, and gluing devices, substantially as described, whereby glue is applied to the ends of the sections during the forward movement of the cross-head, all in combination, substantially as stated.

25. A box-machine table, four reciprocating cross-heads thereon, pivoted arms connected to each cross-head, as described, mechanism, substantially as described, whereby the arms are brought from horizontal to vertical position as the cross-heads near the middle of the table, superposed racks for containing box-sections for each cross-head, and gluing devices, substantially as described, whereby glue is applied to the ends of the box-sections as the cross-head advances, all in combination, substantially as stated.

26. A box-machine table having reciprocating cross-heads thereon, arms pivoted to said cross-heads, mechanism, substantially as described, to bring said arms from horizontal to vertical position as the cross-head moves forward, and stops, substantially as described, extending in front of the path of movement of said arms, whereby if the catches on the arms fail to hold the box-section thereto the stop may serve such purpose, the above elements in combination, substantially as stated.

27. A box-machine table having central aperture, four reciprocating cross-heads arranged, as described, with reference to said aperture, arms pivoted to said cross-heads, and mechanism for bringing said arms from a horizontal to a vertical position as the cross-head moves forward, gluing apparatus arranged, as described, to apply glue to the ends of each box-section, a reciprocating table which is adapted to rise into the main-table aperture, and operating mechanism, substantially as described, whereby the box-sections are assembled and pressed together, all in combination, substantially as stated.

350,944. OVERFLOW-PIPE FOR REFRIGERATOR-TANKS. Duncan W. Reedman, Chicago, Ill. Filed Oct. 24, 1885. (No model.)



Claim.—1. The combination, with the tank B, provided with outlet C, having beveled seat *c*, of the removable overflow-pipe D, having beveled extension *d'* to fit within the said seat, substantially as and for the purposes specified.

2. The combination, with the overflow-pipe D, provided with pin F, of the bracket E, provided with slot *e* and locking-pin *f*, substantially as and for the purposes specified.

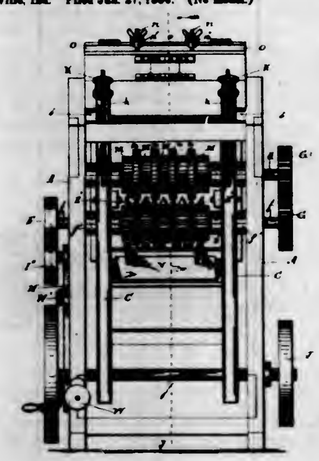
3. The combination, with the refrigerator-tank provided with an outlet-orifice having a beveled seat, of the overflow-pipe having a beveled extremity to fit said seat and a pin, F, and the bracket E, having slot *e*, with vertical portion *e²* and inclined portion *e'*, and a locking-pin, *f*, substantially as and for the purposes specified.

4. The combination, with the overflow-pipe of a refrigerator-tank, of a second pipe arranged within the overflow-pipe and provided with apertures at its lower end, substantially as and for the purposes specified.

5. The combination, with the pipe D, of the pipe G, supported therein by means of the screws *g* and cap G', and provided with apertures *g'* at its lower extremity, substantially as and for the purposes specified.

6. The combination, with the overflow-pipe D, of the pipe G, arranged therein and provided at its upper end with a funnel, G², or other means for filling the same, and having its lower ends threaded to receive a suitable filling pipe or tube, substantially as and for the purposes specified.

350,945. MACHINE FOR SPLITTING GRAIN. Charles W. Roth, Evansville, Ind. Filed Jan. 27, 1886. (No model.)



Claim.—1. The combination, in a machine for splitting wheat, with the frame having a cross-bar provided with lugs, the adjustable rod supported by the lugs, the links flexibly connected to the rods, the shaker-board connected to the links, the lever pivoted to the shaker-board, the pieces carried by the lever, and means to support the board at the end adjacent to the said pieces, of the rollers having, respectively, flat and sharp annuli, and mounted in proximity to said pieces.

2. The combination, with the rollers, of the shaker-board, adjustable devices for supporting the same, the rods pivoted to the sides of the shaker-board, and adjustably connected therewith at one of their ends, the oscillating arms, to which the other ends of the said rods are connected, the pieces pivoted to the shaker-board, and the lever connected with them, and adjustably connected at its free end to the said board.

3. In a machine for splitting wheat, the combination, with two rollers mounted in proximity, one constructed with flat annuli, and the other with sharp annuli, of a feeding-hopper, a shaker-board, and pieces extending from the said board between the annuli of the rollers.

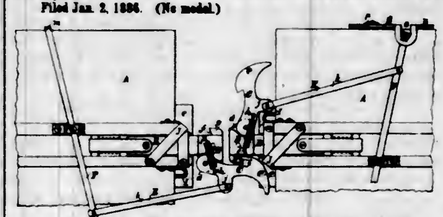
4. The combination, in a machine for splitting wheat, with a frame and a box secured thereto, a shaker-board suspended within the said box, and provided with longitudinal directing-ribs, pieces forming a continuation of said ribs pivotally connected with said board, and the lever connected with the said pieces, and adjustably connected with the board, of a feeding-hopper located at one end of said board, and provided with means to regulate and adjust the quantity of the feed, and two rollers having, respectively, flat and sharp annuli, and mechanism to operate operate said rollers.

5. The shaker-board L', having guides E, pieces E', and lever S, adjustably attached to the bottom of said shaker-board L', in combination with rollers D and D', having annuli m, and annular grooves M between said annuli, as described, and for the purposes set forth.

6. In a machine for splitting wheat, the combination, with the rollers having annular grooves, the oscillating arms in which the rollers are mounted, and the shaft upon which the said oscillating arms are mounted, of the shaker-board suspended at one end, and having guide-ribs, and the pieces which enter the annular grooves of said rollers.

7. In a machine for splitting wheat, the combination, with the main frame, the oscillating arms, the shaft upon which they are mounted, the shaft having a pulley, and eccentrics engaging with the free ends of the oscillating arms, and the grain-rollers, each having shafts which fit bearings carried by said oscillating arms.

350,946. CAR-COUPLING. Benjamin F. Sanders, Boston, Mass. Filed Jan. 2, 1886. (No model.)



Claim.—1. In a car-coupling, the combination, with a draw-bar, of a hook, C, pivoted at the side of the draw-bar, and a spiral spring, D, fastened to the hook and to the draw-bar, and so located with reference to the pivot of the hook that it will be swung across said pivot when the hook is swung from one to the other of its forward or backward positions, and hence will hold the hook in either of said positions, substantially as and for the purposes set forth.

2. The combination of the hook C, pivoted to the draw-bar, and having an arm, *j*, connecting-rod E, and levers F and G, the lever G being pivoted on the side of the car and bent at the lower end to form a recess, *o*, and a vertical handle, *n*, and the lever F being pivoted under the car and formed at one end to work in said recess and bent at the other end to form a vertical handle, *m*, substantially as described.

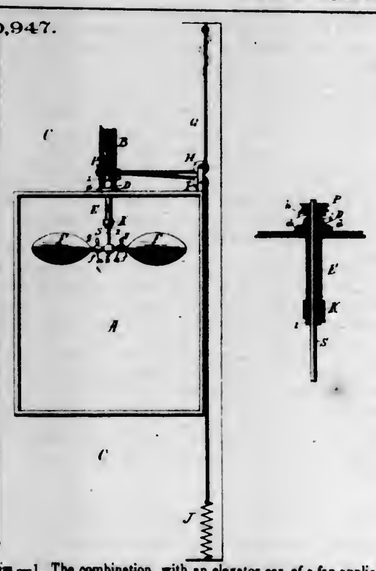
3. In a car-coupling, the combination of a draw-bar, a hook, C, pivoted at the side of the draw-bar, a connecting-rod, E, and a lever, F, pivoted under the car, about midway, and located transverse to the car, substantially as and for the purposes specified.

4. The combination of a draw-bar, a hook, C, pivoted thereto, a connecting-rod, E, a lever, F, pivoted under the car, and a lever, G, pivoted about midway on the side of the car, substantially as and for the purposes set forth.

5. In a car-coupling, in combination with a draw-bar and a hook pivoted at the side thereof, the vertical inclined brace J, substantially as and for the purpose set forth.

350,947. FAN ATTACHMENT FOR ELEVATOR-CARS. Francis Samse, Washington, D. C., assignor of one-half to Bernard T. McCartney, same place. Filed June 2, 1886. (No model.)

350,947.



Claim.—1. The combination, with an elevator-car, of a fan applied to said car, cord suspended at top and bottom of the elevator-shaft, and suitable connections whereby the fan is automatically operated by the movement of said car as it passes up and down the elevator-shaft.

2. The combination, with an elevator-car, of a fan applied to said car, a cord suspended from top to bottom of the elevator-shaft for operating said fan, and a suitable tension applied to one or both ends of said cord, substantially as and for the purposes described and shown.

3. The combination, with an elevator-car, of a fan applied to said car, a cord suspended from top to bottom of the elevator-shaft for operating said fan, and suitable guide-pulleys for said cord, for the purposes specified.

4. The combination, with the fan-shaft S, of the sleeve E, depending from the roof of the elevator-car, bearing D, secured upon said roof, stuffing-box K at the lower end of the sleeve, and collars 1 2, secured at each extremity of the fan-shaft, substantially as described and shown, for the purposes specified.

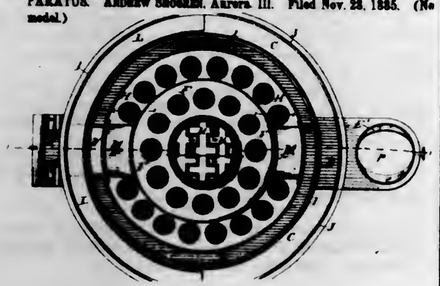
5. The combination, with an elevator-car, of a fan, fan-shaft having a driving-pulley thereon, cord for operating said fan secured at the top and bottom of the elevator-shaft, guide-pulleys for the cord, and suitable tension at one or both ends of said cord, substantially as described and shown, for the purposes specified.

350,948. PENCIL. Theodor O. L. Schrader, New York, N. Y. Filed June 15, 1886. (No model.)

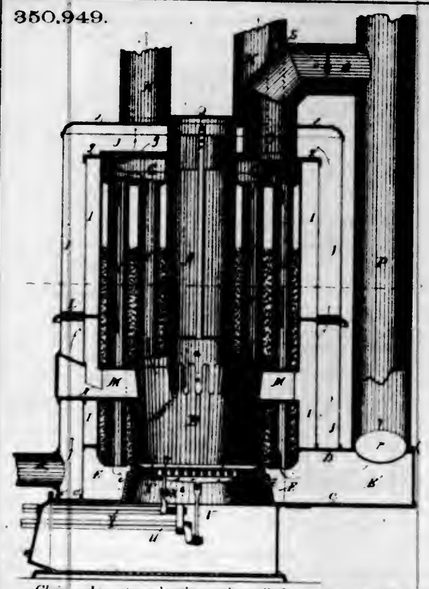


Claim.—The combination, in a pencil, of the sheath A, having projecting jaws *b*, with the sliding tube C, of less diameter than sheath A, fixed tube *a*, of substantially the same diameter as the sheath A, and spring *d*, the said spring being confined by the tube *a* and surrounding the tube C, the end of the sheath A serving as an abutment, as specified.

350,949. COMBINED STEAM-HEATING AND VENTILATING APPARATUS. Andrew Shogren, Aurora, Ill. Filed Nov. 23, 1885. (No model.)

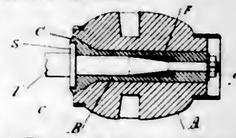


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Claim.—In a steam-heating and ventilating apparatus, the combination of an upright tubular boiler having a central fuel-magazine and fire-pot and suitable smoke-passages, an inner surrounding jacket forming with said boiler a heat-reservoir, a transverse flue or flues communicating with said reservoir and said fire-pot, and an outer surrounding jacket provided with an opening to admit atmospheric air, and outlet-pipes for said air when heated, substantially as described.

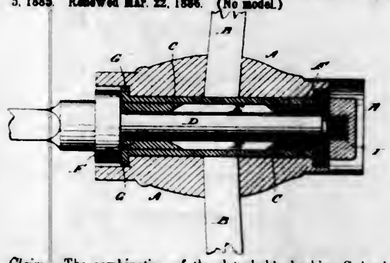
350,950. AXLE AND BOX FOR WHEELS. Louis Steinberger, New York, N. Y., assignor of one-third to Joseph O'Connor, same place. Filed Feb. 2, 1886. (No model.)



Claim.—1. The combination, with an axle-box whose inner surface consists of two straight bearing-surfaces of different diameters, the larger one being of greater length than the smaller one, of the axle I, having two bearing-surfaces of different diameters and being gradually tapering from the larger to the smaller bearing, whereby a space for the lubricating material is formed, so that the lubricant will always be in a plane with and will readily flow to the bearing-surface of the axle, as set forth.

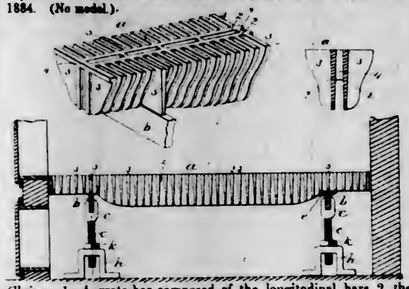
2. An axle-box for wheels, having formed on its inner end an annular shoulder or projection extending beyond the hub, and forming a recess to receive the collar of the axle, the outer surface of the said shoulder being beveled to deflect the mud, dust, &c., falling thereon, and prevent the entrance of the same to the bearing-surfaces, as set forth.

350,951. SELF-LUBRICATING HUB. Louis Steinberger, New York, N. Y., assignor of one-third to Joseph O'Connor, same place. Filed June 5, 1885. Renewed Mar. 22, 1886. (No model.)



Claim.—The combination of the detachable bushing C, having a flange, G, at one end to bear against a shoulder on the inner end of the hub, and a screw-thread on the inner surface of its opposite end, a detachable bearing, F, having a screw-thread thereon to engage with the screw-thread on the bushing C, and a flange to bear against a shoulder on the outer end of the hub, substantially as shown and described, whereby the two flanges are drawn snugly against the shoulders on the hub, as set forth.

350,952. GRATE. Sidney Smith, Cambridge, Mass. Filed Jan. 23, 1884. (No model.)



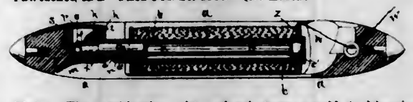
Claim.—1. A grate-bar composed of the longitudinal bars 2, the lateral wings 3, formed as described, and the lateral wings 5, having extended lower edges combined with bearing-bars supporting the wings 5, as set forth.

2. The combination, with the series of grate-bars having lateral wings 5, of the bearing-bars set on the walls of the fire-box, and provided with shoulders near said walls, whereby the series of bars are confined laterally, and the outer bars of the series are prevented from coming in contact with the walls, as set forth.

3. The combination, with the grate-bars and the bearing-bars supporting the same, of the clasps *c*, supporting the central portions of the bearing-bars, and means for vertically adjusting said clasps to adapt them to the bearing-bars, as set forth.

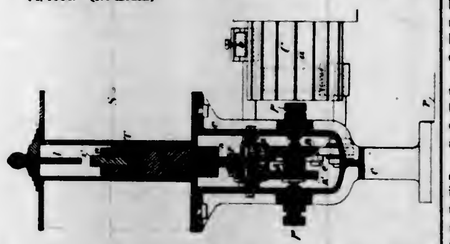
4. The combination of a series of grate-bars and two or more bearing-bars engaged with the grate-bars, as described, so as to hold said bars laterally and the outer bars from contact with the walls of the fire-box, one of said bearing-bars being also engaged with said grate-bars, as described, so as to prevent bodily longitudinal movement thereof.

350,953. LOOM-SHUTTLE. Thomas Sutcliffe and John Marshall, Pawtucket, R. I. Filed Feb. 20, 1886. (No model.)



Claim.—The combination, with a shuttle-frame provided with spindle-rests *n o*, and having a receding wall, *y*, of a longitudinally-perforated lever hinged in one end of said frame, and having a transverse groove, *e'*, in its under side, and also having a laterally-extending arm, *m*, for engagement with wall *y* when the lever is down, a spring for holding the lever down, and a bobbin-spindle, one end of which is adapted to be passed through the lever, and in which are formed transverse grooves *f e*, one of said grooves engaging with the under side of rest *o*, and the other groove registering with groove *e'* in the lever and engaging with the top of rest *n*, substantially as described.

350,954. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. Nikola Tesla, Smiljan Lika, Austria-Hungary, assignor to the Tesla Electric Light and Manufacturing Company, Rahway, N. J. Filed Jan 14, 1886. (No model.)



Claim.—1. The combination, with the main and auxiliary brushes, of two brush-holders, an axis fastened to one of the brush-holders, supporting-screws for the same, a support for the other brush-holder surrounding the axis, a solenoid, a core for the same, and links connecting the core to the respective brush-holders, substantially as set forth.

2. The combination, with the brushes, brush-holders, and the axis upon which the brush-holders swing, of a solenoid and core, connections from the same to the brush-holders, and an adjusting-screw to limit the movements of the core, substantially as set forth.

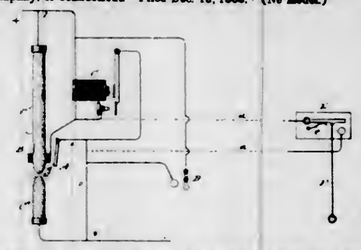
3. The combination, with the brush-holders and their axes, of a solenoid and core, and a connection from the core to the brush-holders, and an iron screw at the inner end of the core to adjust the action of the magnetism on the core, substantially as set forth.

4. The combination, with the brushes, the brush-holders and their axes, of a solenoid and core, and connections to move the brush-holders, and a dash-pot provided with a valve, substantially as described, to diminish the speed of movement of the core in one direction more than the other, substantially as set forth.

5. The combination, with the brushes, the brush-holders and their axes, of a solenoid and core, and connections to move the brush-holders, and a dash-pot to diminish the speed of movement of the core, substantially as set forth.

6. The combination, with the brush-holders and the solenoid and core, of links connecting to the holders, and a screw to adjust the position of the core in relation to the solenoid, substantially as set forth.

350,955. CUT-OUT APPARATUS FOR ELECTRIC LAMPS. Elihu Thomson, New Britain, Conn., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Dec. 18, 1883. (No model.)



Claim.—1. The combination, with an electric lamp, of a branch or safety circuit, a magnet in said branch or safety circuit, a circuit-closer acted upon in opposite directions by said magnet, and a suitable retractor, so as to be held closed by the attraction of said magnet and to be opened by the falling away of the magnet's armature under the influence of the retractor when the magnet loses its power, and a switch for completing a shunt around said magnet, whereby the safety circuit may be opened.

2. The combination, with an electric lamp, of a branch or shunt circuit around the lamp, an electro-magnet in said shunt for holding the same closed, and a supplemental hand-switch connected with said magnet for closing the circuit through the same, whereby the same may be energized to close the shunt-contacts.

3. The combination, with an electric lamp, of a conductor placed near the arc and connected with one side of the lamp, as described, whereby an abnormal lengthening of the arc current will flow across the space between an electrode and said conductor, and a circuit containing devices whereby a safety or shunt or branch may be closed around the lamp upon the closing of said circuit through the conductor by an abnormally long arc, as and for the purpose described.

4. The combination, in an electric lamp, of a conductor, which is placed near the arc and closes the safety-circuit of a switching device when the arc is transferred thereto, and means for moving said conductor correspondingly with the shifting in position of the arc by consumption of the electrodes, so that the conductor may be kept in the same position with relation to the arc.

5. The combination, with safety-switch appliances in an electric-arc lamp, of a conductor in continued proximity to the electric arc and connected with one side of the lamp, as described, whereby on abnormal lengthening of the arc a current will flow from one electrode to said conductor across the space between them.

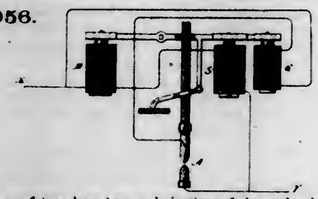
6. The combination, with an electric lamp, of a conductor placed near the arc, and a safety-shunt or branch-circuit closer controlled by the action of the current passing across the space between said conductor and a lamp-electrode upon the formation of an abnormally long arc.

7. The combination, with the movable and fixed electrodes, of a support for a device to be carried in continued proximity to the arc, and interposed controlling mechanism interposed between said support and the movable electrode, proportioned in the manner described to permit the support to move at a rate corresponding to the shifting in position of the arc by consumption of the fixed and movable electrodes.

350,956. AUTOMATIC COMPENSATOR FOR MAGNETS. Elihu Thomson, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Aug. 11, 1884. (No model.)

Claim.—1. The combination, with the feed-regulating helix of an

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electric lamp, of two branches or derivations of the main circuit containing, respectively, materials whose changes of resistance for given changes of temperature are different, and a compensating-magnet coil for assisting or opposing the action of the regulating-helix, so as to compensate for the changes of power of the same with changes of temperature, said compensating-coil acting on a difference in the ratio of flow of current in the said branches on a change of temperature affecting the same.

2. The combination, with the feed-regulating helix for an electric-arc lamp, of a compensating-magnet coil placed in a branch to a portion of the circuit containing material whose changes of resistance for a given change of temperature are different from those occurring in the branch of the said magnet-coils, so that a variation of resistance for a given change of temperature will disturb the ratio in which the current flows through said coil and the portion of circuit to which it forms a branch, as and for the purpose described.

3. The combination, with a feed-regulating helix, of a magnet-coil assisting or opposing the action of the same, as the case may be, and two branches or derivations of the main circuit, one containing said magnet-coils and the other a material whose specific resistance rises unequally with the resistance of the branch containing the coils for a given change of temperature.

4. The combination, in an electric-arc lamp, of a derived-circuit helix, a compensating main-circuit helix, and a resistance in a branch around the same, one of the derivations of the circuit containing said helix, and resistance embracing a material whose resistance does not materially change with an increase of temperature.

5. The combination, with the direct and derived circuit coils in an electric lamp, of a constant resistance in a branch around the former, said resistance constituting a magnet-coil which assists the derived-circuit coil in its feed-controlling action.

6. The combination, in an electric-arc lamp, of a feed-regulating magnet in a derived circuit around the arc, and a branch around a portion of the main circuit, said branch forming a shunt of approximately-constant resistance around a resistance which varies in amount with an increase of temperature.

7. The combination, substantially as described, of a regulating-magnet in a main circuit, a regulating-magnet in a branch, and a compensating-coil of approximately constant resistance for different temperatures in a branch around the main-circuit magnet.

8. The combination, with a magnet wound with wire, whose resistance changes with changes of temperature, of a second magnetizing-coil formed of a material whose resistance is approximately constant under changes of temperature, and a branch around said magnet-coil, containing a resistance that varies with changes of temperature, as and for the purpose described.

9. The combination, with a derived-circuit magnet, of a second magnetizing-helix, of German silver or its equivalent, as described, placed in the main circuit, and a branch around said helix, having a resistance that increases with a change of temperature.

10. The combination, in a device for compensating for changes of a magnet's strength caused by changes in the temperature of its coils, of two branches in the circuit to said magnet, said branches differing from one another in their change of resistance under similar changes of temperature, and one of them containing a magnet-coil acting in combination with the magnet whose changes of resistance are to be compensated, as and for the purpose described.

11. The combination, with a derived-circuit electro-magnet, of two branches or derivations of the main circuit, containing, respectively, materials whose change of resistance for given changes of temperature is different, and a magnet-coil for producing an assisting or opposing action commensurate with the change in the ratio of flow in the two branches so as to compensate for the changes of resistance in the coils of said derived-circuit electro-magnet.

350,957. ELECTRO-MAGNET. Elihu Thomson, Lynn, Mass. Filed Feb. 1, 1886. (No model.)



Claim.—1. The combination, with an electro-magnet, of a reciprocating armature having a rounded face and moving transversely to the axes of the cores, a frame sustaining said armature and pivoted at or near the yoke of the magnet, the poles of the magnet being formed, as described, with a curve gradually approaching the line of swing of the armature and gradually becoming more nearly but not quite parallel thereto, as and for the purpose described.

2. A magnet-pole having a series of elevations or projections, arranged as described, for the purpose of locating the position of the armature and securing a step-by-step action of the same.

3. The combination, with an electro-magnet whose attracting polar surfaces of core and armature approach to or recede from one another during movement to an extent less than the maximum movement of the translation of the parts, of a pole-surface having a series of attracting projections for giving a step-by-step movement to the armature, as and for the purpose described.

4. In an electro-magnet having a substantially uniform pull upon its armature through its range of movement, an attracting-surface having systematically-formed attracting projections, arranged as described, to give a step-by-step movement of the parts, while at the same time serving to hold them in equilibrium in the various positions corresponding to the said elevations and depressions.

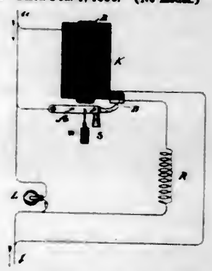
5. The combination, with an electro-magnet having its parts properly mounted to permit the core and armature to gradually approach, as described, of a pole-surface having a series of attracting projections, as and for the purpose set forth.

6. The combination of an electro-magnet having a curved polar face, an armature mounted so as to gradually approach said core, and a series of attracting projections systematically disposed on the attracting-surfaces of core or armature, as set forth.

7. The combination, with an electro-magnet, of a series of attracting projections systematically disposed, as described, and of progressively less magnitude, as and for the purpose described.

8. The combination, with an electro-magnet, of a series of attracting projections systematically disposed, as described, whereby the moving parts may be caused to move step by step or to assume certain definite positions throughout the range of movement, depending upon the location of the several projections of the series.

350,958. DISTRIBUTION OF ELECTRIC CURRENTS. Elihu Thomson, Lynn, Mass. Filed Feb. 1, 1886. (No model.)



Claim.—1. The combination, with an electro-magnet, controlling switch-contacts connected to the circuit of said magnet, of a closed conducting band or casing around the core of the magnet, whereby the sensitiveness of the same to quick impulses may be retarded, and whereby also the tendency of the magnet to vibrate the contacts automatically through the changes in the power of the magnet produced by the opening or the closing of the contacts may be lessened.

2. An electric switch-controlling magnet having its armature and retractor therefor adjusted to permit the armature to remain in an attracted or an unattracted position with a normal strength of the magnet, and provided with a retarding band or conductor, B.

3. The combination, with an incandescent lamp or other translating device, of a switch-controlling magnet in derived circuit thereto, an artificial resistance in a branch around said lamp controlled by said switch, and a retarding conducting-band or conductor around the magnet.

4. The combination, with an incandescent lamp or other translating device, of a derived-circuit magnet and armature therefor adjusted to remain either in attracted or unattracted position when said magnet is normally energized, an artificial resistance, R, in a normally-open branch around the lamp, a switch controlled by the magnet for throwing said resistance into circuit upon increase of resistance in the lamp branch, and a closed conducting-band, of copper or other material, applied to the magnet for retarding the action of the switching appliances, as and for the purpose described.

5. The combination, with two or more translating devices, of a derived circuit around the same containing an electro-magnet, two or more electric switches operated by said magnet, and resistances controlled by said switches and placed, respectively, in normally-open branch connections around the several translating devices, as and for the purpose described.

6. The combination, with an electro-magnet having a multiple core, of armatures for the several individual core portions, and switches controlled by said armatures, as and for the purpose described.

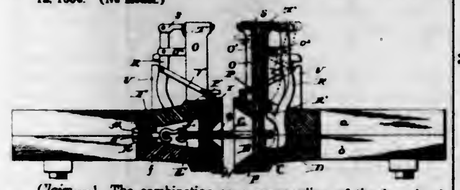
7. The combination of an electro-magnet having several core portions and placed in derived circuit to the portion of circuit containing the work, two or more switches controlled by said electro-magnet, and artificial resistances, one for each switch, said resistances being in normally-open branches around the portion of circuit containing the working-resistances, as and for the purpose described.

8. The combination, with a group of incandescent lamps or other translating devices arranged in multiple arc, of an electro-magnet in a derived circuit of high resistance around said group, and provided with two or more armatures and artificial resistances in separate normally-open branches around the group of lamps or other translating devices.

9. The combination, with an incandescent lamp, of two electro-magnetically-controlled switches, a circuit to the lamp governed by one of said switches, and a branch circuit controlled by the other switch and closed simultaneously with the opening of the circuit to the lamp, as and for the purpose described.

10. The combination, with an incandescent electric lamp, of an electro-magnet in a derived circuit thereto, two sets of switch-contacts controlled thereby, a branch or circuit leading to the lamp and normally closed by one of said sets, and a normally-open branch around the lamp containing an artificial resistance and controlled by the other of said sets.

350,959. CAR-COUPLING. James J. Throckmorton, St. Tammany, Va., assignor of one-half to Altamont H. Bracey, same place. Filed Aug. 12, 1886. (No model.)



Claim.—1. The combination, in a car-coupling, of the draw-head having the vertical standard O, forming the guideway for the vertical coupling-pin P, and the spring-actuated latching-arm having the stud R', adapted to engage the coupling-pin and look it when raised, the said latching-arm extending downwardly in the mouth of the draw-head in the path of the coupling-link, whereby when the latter enters the draw-head the latching-arm is tripped and the coupling-pin is automatically released, for the purpose set forth, substantially as described.

2. The combination of the draw-head with the draw-link, the draft-rod longitudinally movable and connected to the draft-link, and the extensile spring K on the draw-rod, for the purpose set forth, substantially as described.

350,960. BRICK-MOLD. Stephen W. Underhill, Croton Point, N. Y. Filed Sept. 2, 1885. (No model.)



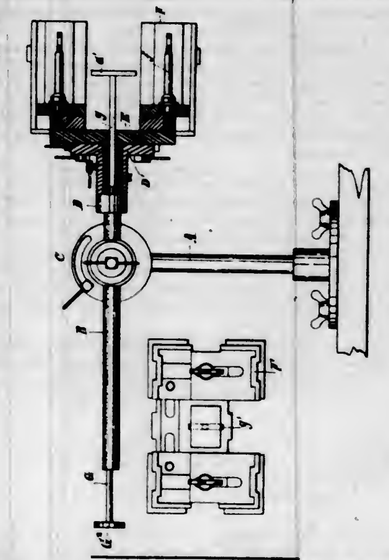
Claim.—A brick-mold composed of side pieces with end and division pieces slightly narrower than said side pieces, thus leaving narrow vent-spaces under the division and end pieces, while flush with the side pieces at the top, in combination with a fixed back piece under each division of the mold, each back piece extending partly under an end and division piece or two division-pieces, whereby the immediate entrances of the vents to the molds are in a horizontal and not in a vertical direction, substantially as shown and described.

350,961. BOX-FORMER. Merrick F. Wilson, Chicago, assignor of one-half to Charles R. Steele and V. Clarence Price, both of Waukegan, Ill. Filed May 15, 1885. (No model.)

Claim.—1. The combination, with a box-former consisting of a revoluble head upon which the former proper is mounted, and a stem upon which the revoluble head is mounted, of the stripper extending through the stem and capable of rotation therein and connected to the former proper, so as to rotate therewith, substantially as and for the purposes specified.

2. The combination, with the stem B, the revoluble head D, and base-plate E, adjustably mounted to said head, and provided with slot g', of the stripper G, having head G' attached to a round rod extending through the said stem, and having its upper portion squared at g, to fit between the walls of the slot g', substantially as and for the purposes specified.

350,961.



350,962. VIOLIN. Maurice W. White, Somerville, Mass., assignor of one-half to George W. Ross, same place. Filed Nov. 9, 1885. (No model.)

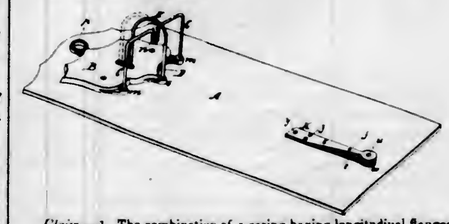


Claim.—1. The combination, with the body of a stringed instrument, the tail-piece, and cord, by means of which the tail-piece is attached to the said body, of a peg entering the body of the instrument, to which the said cord is attached, and an interposed projection or shoulder rising substantially at right angles therefrom, over which the cord passes and upon which it bears when drawn taut, the said projection or shoulder being of sufficient height to free the face of the instrument from contact with the cord, substantially as described.

2. The combination, with the body of a stringed instrument, its tail-piece and cord, of a peg and an interposed projection or shoulder rising therefrom, over which the cord passes and upon which it bears when drawn taut, and a chin rest or support secured to the said projection or shoulder, thereby preventing either the cord or chin rest or support from coming in contact with the face of the instrument, substantially as described.

3. The combination, with the body of a stringed instrument, its tail piece and cord, of a peg having a squared shank, and an interposed projection or shoulder rising therefrom, over and upon which the cord bears, substantially as described.

350,963. PAPER-FILE. Henry C. Yerrs and Charles Seybold, Cincinnati, Ohio, assignors to the Globe Files Company, same place. Filed June 23, 1886. (No model.)



Claim.—1. The combination of a casing having longitudinal flanges and a slotted plate sliding longitudinally between said flanges, elastically bearing against the same laterally, and bearing the upright transfer-wire, substantially as described.

2. A casing having parallel flanges and a slot between said flanges, in combination with a curved transfer-wire projecting through said slot, and a sliding plate upon which said transfer-wire is mounted, fitting between said flanges, made for a portion of its length slightly broader than

the space between said flanges, and having slits whereby it can yield to fit between said flanges, substantially as described.

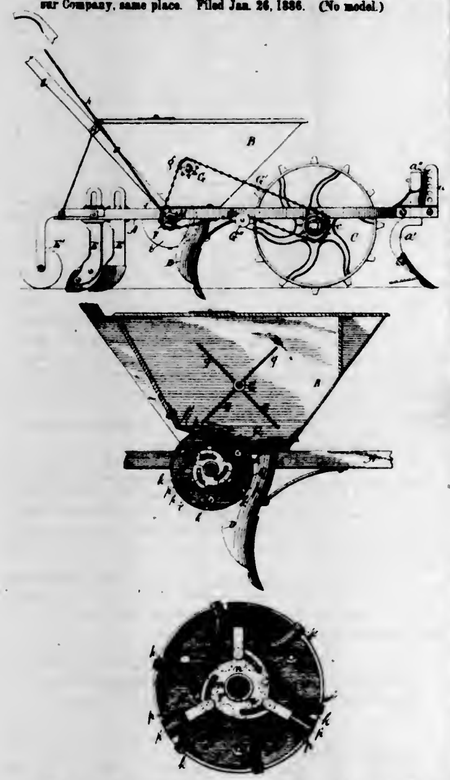
3. In combination with a tablet, a casing mounted thereon, having a slot for the reception of the transfer-wire, and flanges on each side of said slot substantially parallel therewith, a slotted sliding plate mounted between said flanges and bearing elastically against the same, and an intermediate plate fitting between said flanges and interposed between the sliding plate and the tablet upon which the same is mounted, substantially as described.

4. In combination with the transfer-wire of a paper-file, a guard-wire mounted on the pedestal thereof, and extending between the transfer-wire and the permanent upright post, and having a notch through which the point of the transfer-wire may slide, and in which it may be received in its retracted position, for the purpose described.

5. The combination of the tablet, the casing having flanges upon its under side, the notches in said flanges, the slotted sliding plate mounted between said flanges, and the intermediate plate fitting between said flanges and having lateral lugs fitting into said notches, substantially as and for the purpose described.

350,964. COMBINED CORN AND COTTON PLANTER.

James W. Atkinson and Charles E. Whyte, Moline, Ill., assignors to Deere & Mansur Company, same place. Filed Jan. 26, 1886. (No model.)



Claim.—1. In a seed-planter, in combination, a dropping-cylinder having a series of seed-cups in its periphery, sliding seed-cup bottoms, and an adjustable plate having segment-slots with which the sliding seed-cup bottoms are connected, and whereby they receive a positive motion in both directions toward and from the center of the dropping-cylinder, to adjust the depth of the seed-cups or entirely close them, substantially as and for the purpose specified.

2. In a seed-planter, a cylinder, I, having seed-cups *p*, sliding bottoms *p'*, having stud-pins, and adjustable plates *m*, having segment-slots *n*, in which said stud-pins are seated, substantially as and for the purpose specified.

3. In a seed-planter, a cylinder, I, having seed-cups *p*, sliding bottoms *p'*, having stud-pins, plate *m*, having lug *m'*, and segment-slots *n*, in which said stud-pins are seated, collar m^4, having recess m''', and shaft F, substantially as and for the purpose specified.

4. In a combined corn-planter and cotton-planter, in combination with a dropping-cylinder, a series of adjustable teeth or fingers that can be extended simultaneously beyond the periphery of said cylinder for dropping cotton-seed, and can be simultaneously retracted within the cylinder to render them inoperative, and a series of seed-cups in said cylinder having sliding bottoms, which can be simultaneously moved to adjust the capacities of the seed-cups and to entirely close them, substantially as and for the purpose specified.

5. In combination, in a seed-dropping cylinder, the teeth *j'*, adjustable by means of a plate, to which they are hinged, and the seed-cups with bottoms adjustable by means of a plate with segmental slots, substantially as and for the purpose specified.

6. In a combined cotton-seed planter and corn-planter, a dropping-cylinder provided with cotton-seed-dropping teeth and corn-dropping seed-cups with adjustable bottoms, and means whereby the cotton-seed-dropping teeth may be made inoperative while the cylinder is dropping corn, and the corn-dropping seed-cups closed while the cylinder is dropping cotton-seed, substantially as specified.

7. In combination with the drive-wheel, furrow-openers, covering-shovels, chain belt, and sprocket-wheels *f*, *g*, and *e*, the cylinder I, provided with corn-dropping and cotton-seed-dropping devices, and the stirrers G *g*, substantially as and for the purpose specified.

8. In combination with the cylinder I, provided with adjustable teeth *j'* and adjustable seed-cup bottoms, and hood L, with opening *l*, the adjustable cover *l'*, substantially as and for the purpose specified.

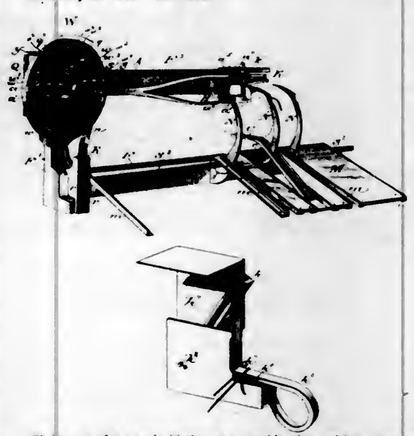
9. In combination, the cylinder I, provided with adjustable teeth *j'* and adjustable seed-cup bottoms, and the substitutive cut-offs K Q, substantially as and for the purpose specified.

10. In a combined cotton-seed planter and corn-planter, a rotating dropping-cylinder having adjustable teeth *j'* for dropping cotton-seed, and adapted to close the openings in which they slide while the cylinder is used in dropping corn, and having seed-cups with adjustable bottoms adapted, further, to close the corn-seed cups while the cylinder is in use in dropping cotton-seed, substantially as and for the purpose specified.

11. In a combined cotton-seed planter and corn-planter, in combination, a cylinder, I, having seed-cups *p*, with bottoms *p'*, adjustable by means of a plate, *m*, having segment-slots *n*, the teeth *j'*, adjustable by means of a plate, J, to which they are hinged, substantially as and for the purpose specified.

350,965. GRAIN-BINDER.

Henry D. W. Bailey, Canton, Ohio. Filed July 30, 1883. (No model.)



Claim.—1. In a grain-binder, the combination, with a constantly-revolving binder-actuating cam-wheel having an annular groove, a cam-groove, and a spring-pressed switch having a roller on its heel and adapted to open one groove and close the other, so as to direct the knotter-operating bar into one or the other groove, of a finger operated by a trip and adapted to be moved into the path of the roller on the switch, substantially as and for the purpose set forth.

2. The combination, with a knotter and a cord-holder, of a reciprocating actuating-bar, A, bifurcated at one of its ends, one prong being provided with a pin, a^2, for operating the cord-holder, a rack, a^3, for operating the knotter, and a delay-surface, a^5, to hold the knotter stationary while the knife and stripper are in operation, and the other prong with a knife, a^2, to sever the cord, and a stripper, a^3, to remove the loop from the knotter, substantially as set forth.

3. A cord-holder, H, consisting of a main or body portion, h', having a flange, h^3, the spring-arm h^2, having the holding-jaw h^4, the whole adapted to hold the cord, substantially as described and set forth.

4. The combination of a shaft, a binder-arm, two or more packer-arms secured to said shaft, and means, substantially as described, whereby it is adapted to be operated constantly during the accumulation of the sheaf, substantially as set forth.

5. The combination of the frame supporting the binder mechanism, the case D, the breast-plate O, and the tying mechanism, the breast-plate secured to and supported by the case, substantially as described.

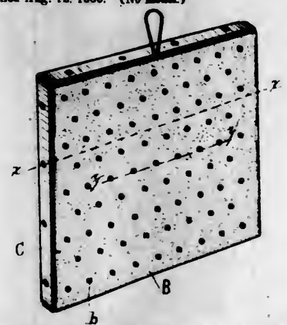
6. The combination, with the cam-wheel, the cord-holder, and the knotter, of a reciprocating bar having on one of its ends a roller adapted to the grooves of the cam-wheel, the other end being bifurcated, and one prong provided with a pin to operate the cord-holder, a rack to rotate the knotter, and a delay-surface to hold the knotter stationary while the knife and stripper are in operation, the other prong with a knife to sever the cord and a stripper to remove the loop from the knotter, substantially as described and set forth.

7. The combination, with the horizontal arm F^2 and the spring-metal frame h', constructed substantially as described, of the cord-holder resting on the bottom of said frame, and consisting, essentially, of a main or body portion having a flange, h^4, the latter adapted to assist the cord-holding jaw in holding the cord, and the spring-arm having a cord-holding jaw, h^4, substantially as and for the purpose set forth.

8. The combination, with a cord-knotter and a cord-holder, of a cam-wheel and a bifurcated bar, reciprocated thereby, one prong of which is provided with a lug or pin for operating the cord-holder and with a rack-bar for operating the knotter, and the other prong with a cord-cutter and a stripper, substantially as set forth.

350,966. SAD-IRON CLEANER.

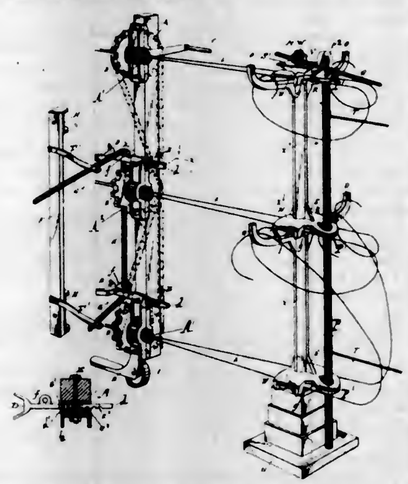
Mary H. Barnes, Binghamton, N. Y. Filed Aug. 12, 1885. (No model.)



Claim.—In combination with the body A, of wood, the layer of polishing preparation and the covering-sheet of perforated sand-paper.

350,967. FENCE-MACHINE.

Conrad F. Bartling, Greenville, Ohio. Filed Dec. 18, 1885. (No model.)



Claim.—1. In a portable fencing-machine, the combination, with the post A, provided with a foot at its lower end for a slat to rest upon, and also with rotary twisters, of the adjustable bifurcated slat-spacers, and the shifting bar F, provided with angular plates H and connected by arms to vibrating lever-arms sustained by said spacers, substantially as described.

2. The adjustable spacers D, notched as described, and confined by means of the bearing-plates of the twisters and a bolt passed through these plates and through the post A, substantially as described.

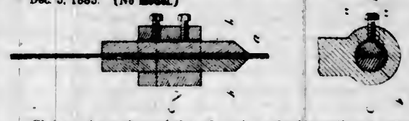
3. The combination of the bar W, sustained by a pedestal and provided with a nut on its upper end, the hollow sections X X', provided with horns, bearing-surfaces, and knife-edges, the notched guides N, and the plate S', for the purpose of clamping the fence-wires, substantially as described.

4. The combination, with the post W and its wire-clamping sections, as described, of the windlass P, guided by eyes on the guides N, provided with a lever at its upper end, and also with an arresting-rack for this lever, substantially as and for the purposes described.

5. A portable fencing-machine consisting of the following elements in combination: the post A, provided with rotative twisters, a rolling support, and a slat-supporting shoe, the adjustable spacers, the shifting bar F, connected by arms to vibrating arms sustained by said spacers, the vertically-supported shaft provided with clamping devices for the fence-wires, as described, and the windlass P, its loosely-attached hand-lever, and the engaging teeth therefor, all constructed and adapted to operate substantially in the manner specified.

350,968. PUNCH.

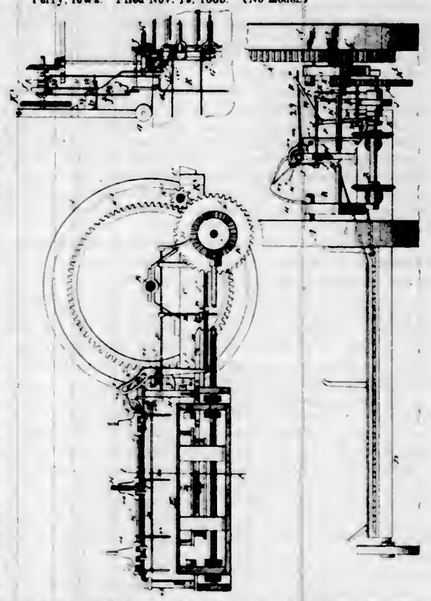
Malthan B. Blackmer, Plymouth, Mass. Filed Dec. 5, 1885. (No model.)



Claim.—A punch consisting of a rod, *a*, of uniform diameter, formed to act as a punch at any portion of its length, two jaws having grooved faces embracing the rod, a holder for said jaws, and a set screw or screws which hold the jaws and rod and permit said rod to be adjusted to compensate for wear thereof, as set forth.

350,969. SELF-BINDING HARVESTER.

George W. Blakesley, Perry, Iowa. Filed Nov. 19, 1885. (No model.)



Claim.—1. In a self-binding harvester, the combination of binding-table E, posts H^2, rising therefrom at each end, a shaft, H^3, journaled in the said posts above the table, a curved needle, H, secured at one end upon the said shaft, an arm, H^4, projecting from the shaft, the curved cam-lever J, to engage the arm H^4, the pendent arm J^2, the rock-shaft J', journaled in fixed attachments of the frame and carrying the cam-lever J and arm J^2, the cam J^3, loosely mounted on a shaft, K, driven from the driving-gear of the machine, and means for intermittently connecting the said cam with the said shaft, and a rod, J^4, connecting the arm J^2 with the cam J^3, substantially as shown and described.

2. The combination of a needle, H, a shaft, H^3, therefor, journaled

in bearings, an arm, H^4, projecting radially from the shaft, a curved cam-lever, J, to engage the arm H^4, a rock-shaft, J', to carry the cam-lever, journaled in attachments of the frame at right angles to the shaft H^3, and means for intermittently rocking the shaft J, substantially as shown and described.

3. The combination of a binding-table, a crown-wheel pivoted to the under side thereof and provided with a circle of ratchet-teeth, 80, a spring-jawed clamp, I', astride the scalloped edge of the said crown-wheel and secured to the table, a slide-bar, 90, and means for intermittently reciprocating the same longitudinally, a pin, 89, projecting from the slide-bar, a lever, 87, pivoted midway to the table, and having a slot, 88, in one end to engage the pin 89, and a pawl, 83, pivoted midway its length to the other end, the said pawl provided with a roller, 84, in its rear end, and adapted to engage its forward end with the said ratchet-teeth 80, a plate, 85, pivoted at one end to the table, and a spring, 86, secured to the table to press the plate 85 against the roller 84, substantially as shown and described.

4. The combination of the crown-wheel I, provided with the ratchet-wheel 80, the detent 81, and spring 82, the pivoted lever 87 and means for oscillating the same, the pawl 83, pivoted midway its length to the said lever, to engage at one end the said ratchet-wheel, and provided with a roller, 84, at the other end, the plate 85, pivoted at one end to engage the said roller along its other or free end, and a spring, 86, actuating the plate to follow the motions of and press constantly upon the said roller, substantially as shown and described.

5. The combination of the cam K' and means for revolving the same, a binding-table, E, the knotter-frame 52, depending from the said table, a looper comprising a head, 74, and means for engaging the twine, a shaft, 63, journaled in the pendent frame 52, a spur-wheel, 70, on the said shaft, and a rack, 51, engaging the said spur-wheel, fitted to slide in the pendent frame, and connected by hinged rod 50 with the said cam, substantially as shown and described.

6. The combination, with a binder-table, E, a knotter-frame, 52, depending therefrom, a knotter, substantially as described, journaled in the said frame, a pinion, 70, on the knotter-shaft, a crown-wheel, I, provided with a ratchet-wheel, 80, and journaled to the lower side of the said table, a spring saddle or clamp, I', engaging the scalloped edge of the crown-wheel and secured to the table, a rack-bar, 51, engaging the knotter-pinion 70, and connected with reciprocating mechanism, a slide-bar, 90, rigidly secured to the rack-bar 51, and a spring-pawl, 83, engaging the ratchet-wheel 80 and connected with the slide-bar 90, substantially as shown and described.

7. The combination of the knotter-frame 52, the knotter described, having the hollow slotted shaft 63, with the jaw 75, and rack and stem 64, the grooved ring 61, loosely fitted thereon, the pin 62, connecting the said rack and ring, the forked lever 56, pivoted to the said frame and engaging the ring 61, the shoe 55, pivoted to the side of the lever and having oppositely-wedging ends, and the ledge 54, also having oppositely-wedging ends, a bar, 51, carrying the ledge 54 in a path to engage the shoe 55, and means for reciprocating the bar, substantially as shown and described.

8. The combination of the sliding bar 51, the ledge 54, depending therefrom, the pivoted lever 56, having the flanges 60 on one side, and the shoe 55, pivoted to swing between the said flanges.

9. The combination of the sliding bar 51, the ledge 54, depending therefrom, the pivoted lever 56, having the flanges 60, the shoe 55, pivoted between the flanges upon a pin extending through one arm of the lever 56, a pin, 58, projecting laterally from the said pivot-pin, and a spring, 59, secured at one end to the lever 56, and acting at the other end on the pin 58, substantially as shown and described.

10. The combination of the needle-shaft H^3 and its supports, the rock-shaft 107, journaled in projections 105 on the needle-shaft, and provided with the curved arm 106 and a series of arms, 108, the spring 109, acting to raise the arms 108, the reciprocating bar 51, the lever 103 pivoted midway to a fixed stud, d, also pivoted at one end to the bar 51, and a curved bar, 104, pivoted to the other end of the lever 103, to engage the end of arm 106, substantially as shown and described.

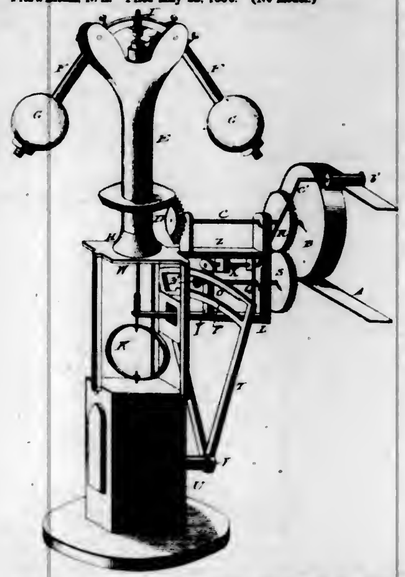
11. The combination of the reciprocating bar 90, having lugs 92, the blade 93, pivoted between the said lugs to swing sidewise out of its path, and the spring 94, secured to the bar 90 and acting on the blade to restore it to a vertical position, substantially as shown and described.

12. The combination of a binding-table having two portions, E and 99, connected by hinges 100, and a hinge-rod, 98, secured to the one portion of the table, a spring, 102, around the rod and pressing its ends against the under sides of the said two portions of the table, a shouldered collar, e, fixed upon the hinge-rod, an arm, 97, loosely mounted on the said rod and provided with a shoulder to engage the said shouldered collar, and with an anti-friction roller, 101, and a curved wedge-shaped plate, 96, mounted on the slide-rod 90 by means of the depending post 91 and lateral arm 95, substantially as shown and described.

13. The combination of the table, made in two parts, hinged together as described, and having the hinge-rod 78 fixed to the free portion of the table, and the spring 102 on the said rod, the shouldered collar e, fixed on the said rod, the arm 97, hung upon the said rod to swing upward freely, and provided with a shoulder to engage the said shouldered collar in its downward motion, and the curved plate 96, mounted on reciprocating mechanism, to move in the path to engage the said arm 97, substantially as shown and described.

14. The combination, with the constantly-revolving shaft, of the cam J^3, the clutch K', adapted to engage therewith, the rock-shaft 31 and means whereby the increase of the gavel will rock it, the shifter-arm 35, hung rigidly to the said shaft 31, to engage the clutch K', the arm 33, rigidly hung midway upon the rock-shaft 31, the latch 34, adapted to catch the arm 33, the rod J^4, connected with the cam J^3, and the stud 39, fixed to the rod J^4, to engage the latch 34, substantially as shown and described.

350,970. GOVERNOR FOR STEAM-ENGINES. Edwin N. Bowen, Fitzwilliam, N. H. Filed May 22, 1886. (No model.)



Claim.—1. The combination, in an engine-governor, of the revolving sleeve E, provided with arms F F, movable balls G G, with the spindle I, circular spring K, lever L, and vibrating gear N, all substantially as set forth.

2. In a steam-engine governor, the combination of the revolving sleeve E, provided with arms F F, balls G G, the collar J, spindle I, circular spring K, lever L, vibrating gear N, lever T, and throttle-valve U, all constructed substantially as and for the purposes specified.

3. In a steam-engine governor, the combination of the check-bolts a' a' a' a' in the arms F F with the oblique arms of the sleeve E, substantially as set forth.

4. In a steam-engine governor, the balls G G, having a screw-thread on the lower part of the bore through the center, so as to move said balls up or down on the arms F F, constructed as shown, for the purpose specified.

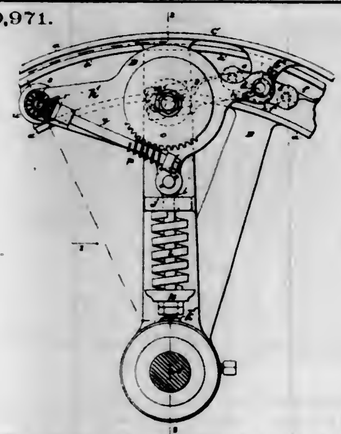
5. In a steam-engine governor, a shut-off attachment consisting of the cam Z, impingent on the post Y, shaft X, with the lever-elbow extension c', on the end of which is attached an anti-friction pulley, b', to run on the driving-belt of the governor, all constructed and operating substantially as and for the purpose set forth.

350,971. SPEED-REGULATOR. Andrew Campbell, Brooklyn, assignor to John and Edmund McLoughlin, New York, N. Y. Filed Mar. 22, 1884. Renewed Apr. 19, 1886. (No model.)

Claim.—1. In a speed-regulator wherein a centrifugally-actuated governor is employed to relieve the pressure of one frictional surface on the other, the friction-brake borne by the driver, in combination with means, substantially as described, for adjusting the pressure of said brake to the load, and for taking up the wear of the brake-shoes, substantially as set forth.

2. In a speed-regulator wherein a centrifugally-actuated governor is employed to relieve the pressure of one frictional surface on the other, the combination of a frictional brake or clamp and the automatically-actuated mechanism, substantially as herein described, for adjusting the pressure of the brake to the load, and for taking up the wear on the brake-shoes, substantially as set forth.

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3. The combination of the flanged driver, the driven pulley or part, the governor, with its limiting-stop k', the brake or clamp coupled to the governor-weight, as shown, the wheel u, mounted rotatively in the weight, and the mechanism, substantially as shown, whereby the rotation of wheel u is caused to act on the brake or clamp, all arranged to operate substantially as set forth.

4. The combination, with the driver and the driven pulley or part, of the weight D, hung on shaft d, its coupling-rod i, and spring l, a limiting-stop for the spring, the wheel u, mounted on the weight and adapted to roll on the flange a, the shaft d, and the eccentric sleeve d', all arranged substantially as shown, whereby the pressure of the wheel u on a is regulated, as described.

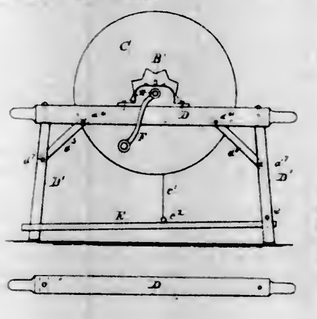
5. The combination of the brake shoe or shoes, the shaft d, arm e, arm g, shaft m, the crank and pin borne by said shaft m, the worm-wheel o, shaft t, wheel u, and mechanism, substantially as described, for connecting wheel u with wheel o, all arranged to operate as set forth, whereby rotation of wheel u acts on the brake, as set forth.

6. The combination, with the driver provided with two concentric flanges, a and a', of the pulley C, the governor-weight and its spring, the clamp or brake constructed substantially as shown and coupled to the governor-weight, as set forth, the wheel u, mounted on the weight and arranged between the flanges a and a', and the mechanism, substantially as described, whereby the rotation of said wheel u is caused to clamp and release the brake, substantially as set forth.

7. The combination, with the brake-shoes f and their metal holders, of the cross-arms e, provided with pins e', the shaft d, the grooved or slotted arm g, the crank-pin and crank n n', the headed shaft m, sleeve m', nut m'', and wheel o, secured to sleeve m', all constructed and arranged substantially as shown, in order that the shoes of the brake may be readily removed.

8. The combination, in a speed-regulator, of a clamp borne by the driven part, consisting of two shoes arranged to clamp on a flange on the driver, a spring borne by the driven part arranged to clamp by its tension the said shoes on the said flange, and a weight borne by the driven part and arranged to be moved outward by centrifugal force and to compress said spring and release said clamp, all substantially as set forth.

350,972. MECHANISM FOR HANGING AND CENTERING GRINDSTONES AND FRAMES THEREFOR. J. Morris Childs and Dewane B. Smith, Utica, N. Y., assignors to J. Morris Childs & Co., same place. Filed May 21, 1885. (Model.)



Claim.—1. The combination of two disks, each disk having a central perforation, the retaining-bolts for engaging and clamping the disk over the eye of the stone, the shaft with a fixed shoulder and a screw-threaded section, the locking device for engaging one of the disks and rigidly holding the shaft and stone, and the nut for retaining the stone and disk in contact with the fixed shoulder, substantially as described.

2. The combination, with the grindstone and shaft, of the fixed shoulder provided with projecting flange and grooves, a centering and clamping disk with central opening with lugs projecting into said opening, corresponding in number and size to the grooves in the shoulder, a second clamping-disk with central aperture, the two disks held in the eye of the stone by bolts and nuts, and the tapering nut for fitting the central opening in one of the disks and working on the screw-threaded section on the shaft, substantially as described.

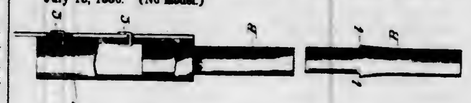
3. The combination, with the grindstone having a central eye, of two clamping-disks with central openings rigidly held on opposite sides of the stone over the eye by bolts and nuts, a locking device consisting of a fixed shoulder on the shaft with grooves and tongues for locking the shaft and disk, the tapering nut, and a screw-threaded section on the shaft, substantially as described, for the purposes stated.

4. The combination of a fixed shoulder on the shaft, two perforated clamping-disks centered and bolted over the eye of the stone, a locking device consisting of a fixed shoulder with grooves for receiving lugs in the opening of one of the disks, a tapering nut for fitting one of the disks, and a screw-threaded section on the shaft for receiving the nut and holding the stone and disk in contact with the fixed shoulder.

5. The combination, in the frame, of two parallel beams supported at each end on truss-legs, each set of legs formed of two bands of iron bent and riveted together, with braces attached to each set and to the parallel beams, substantially as described.

6. The combination of the perforated disk, the bolts and nuts for holding said disk to the stone, the fixed shoulder on the shaft, and means for locking the disk and shaft and holding the same in contact with the fixed shoulder.

350,973. FENCE-POST. Jeremiah Codner, Mosclova, Ohio. Filed July 15, 1886. (No model.)



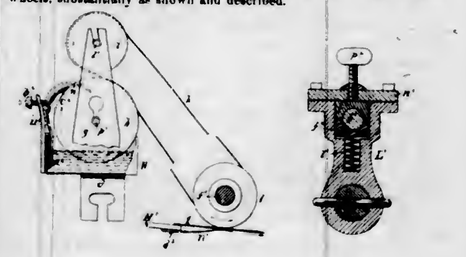
Claim.—1. The herein-described post, consisting of the upper part, A, tubular throughout its entire length, and the lower part, B, having lugs b, located at a distance from its upper end, which end is adapted to be inserted in the lower end of the upper part and have spaces between its sides and the sides of the upper part for the escape of moisture, substantially as for the purpose described.

2. The combination of the tubular part A, made of earthenware, the wooden strip secured to the side thereof, and the part B, having its upper end fitted in the lower end of the part A, and having spaces between its sides and the sides of said part A for the escape of moisture and provided with lugs b, which support the upper part, substantially as set forth.

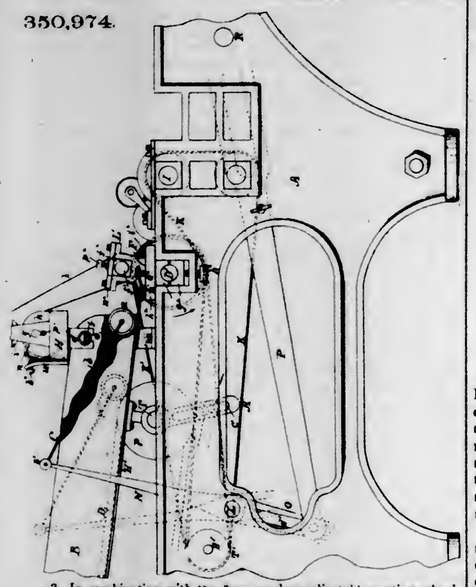
350,974. FEEDER AND PASTER FOR PAPER-BAG MACHINES. Henry R. Corkhill, Sr., Rochester, N. Y. Filed Sept. 2, 1885. (No model.)

Claim.—1. In a feeding device, a rotating cylinder and a contiguous contrary-rotating cylinder, said cylinders having continuous unbroken convex faces, in combination with reciprocating feeders a, substantially as shown and described.

2. In combination with vibrating arms of a feeding device for a paper-bag machine formed with rests s', a looped or U-shaped holder for the feed-wheels, having its extreme ends bent in contrary directions to enter said rests, a sleeve fitted to turn upon the middle section or part of said holder, provided with feed-wheels and ratchet, a pawl for said ratchet, and a holder for said pawl secured to said holder for the feed-wheels, substantially as shown and described.



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3. In combination with the frame and an adjustable pasting-wheel of a pasting device for a paper-bag machine, a flat spring secured to said frame and held to press the sheet of paper against said pasting-wheel, said spring being held to said frame by a pivot-bolt, so that it may be swung laterally or adjusted to the different positions assumed by said pasting-wheel in its adjustments, substantially as described.

4. In a feeding device for paper-bag-folding machines, conjointly-operating feed-rollers rotating in such directions that the part of the surface of the lower roller touching the paper sheets move contrary to the direction in which said sheets move, and the opposing face of the upper roller moves with said sheets, the surface of the latter roller moving more rapidly than the surface of the former roller, and being less in diameter than said lower roller, substantially as and for the purpose set forth.

5. The combination of a feeding device for paper-bag machines, of the feed-spout with carrier-belts therein, a frame with wheels for moving the sheets of paper, pawl and ratchet to influence the action of said wheels, and vibrating arms to reciprocate the frame, substantially as described.

6. In combination with the paper-feeding wheels of a folding and pasting machine, the holder for said wheels, and connected vibrating driving-arms, lifters for said wheels to raise them from the sheets of paper, substantially as described.

7. In combination with the shaft D′ and its roller F of a paper folding and pasting machine, a sleeve, c^3, with pulley C′, and gear F′, a shaft, f', and its roller G, with hangers L′, and pinion G′ for said gear, and driving-belt for said pulley, substantially as described.

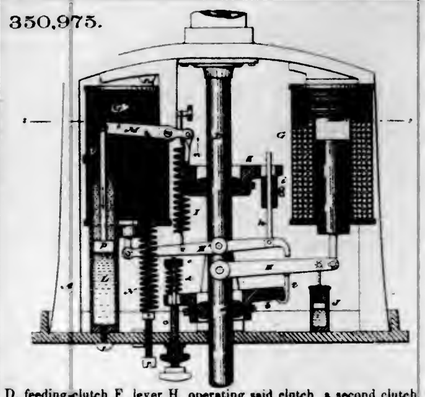
8. In combination with the shaft D′ of a paper folder and paster and a roller turning loosely thereon, a companion shaft with roller, said latter shaft being held in adjustable bearings in hangers or standards secured to said shaft D′, substantially as shown.

350,975. **ARC LAMP.** Elisha R. Cottrell, Pittsburg, Pa., assignor to the Electrical and Mechanical Developing Company, same place. Filed Apr. 27, 1885. (No model.)

Claim.—1. In an electric-arc lamp, the combination of the carbon-holding rod, the feeding-clutch engaging said rod, a solenoid or equivalent electro-motive device in the main circuit connected to said clutch and adapted to lift said clutch and rod, a solenoid or equivalent electro-motive device in the derived circuit, its mobile member having a movement independent of that in the main circuit, and adapted when excited by a derived current to exert a pressure tending to release said feeding-clutch, a second clutch engaging said rod, a retarding device connected to said second clutch and adapted to retard its descent, and connection between the mobile element of said derived-circuit electro-motive device and said second clutch, substantially as set forth, whereby on the diminution of the derived current said mobile element after ceasing to act on the feeding-clutch takes under the tail of the second clutch and feeds it upward.

2. In an electric-arc lamp, the combination of carbon-holding rod

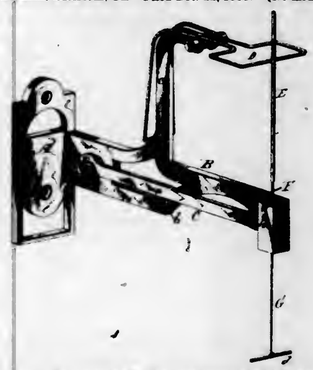
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D, feeding-clutch F, lever H, operating said clutch, a second clutch, K, engaging said rod, a retarding device to retard the descent of clutch K, a lever, H′, adapted when depressed to bear down on lever H to tend to release clutch F, and when elevated to rise free from lever H and lift the tail of clutch K, thereby feeding the latter upward, and electro-motive devices in the main and derived circuits, respectively, with their mobile elements connected, respectively, to levers H and H′, substantially as set forth.

3. In an electric-arc lamp, the combination of the carbon-holding rod D, the feeding-clutch F, the lever H, controlling it, the solenoid G or equivalent electro-motive device in the main circuit, with its mobile element connected to said lever, the lever H′, adapted to bear down against lever H or to rise free therefrom, the solenoid G′ or equivalent electro-motive device in the derived circuit, with its mobile element connected to said lever H′, the clutch K, a spring tending to lift said clutch, a retarding device adapted to retard the descent of said clutch, and a vertically-adjustable connection between the lever H′ and the tail of said clutch, substantially as set forth.

350,976. **DEVICE FOR STRINGING AND FILING PAPERS.** William E. Elam, Americus, Ga. Filed Dec. 22, 1885. (No model.)



Claim.—1. In a paper-clip, the combination, with a needle or wire, F, and means for supporting it, and with a tubular wire, E, of a stringing cord or wire, G, having a cross-bar, and secured to the eye of the needle, the whole arranged for joint operation as set forth.

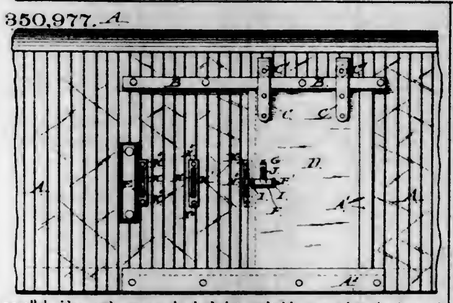
2. The combination, with the frame B and latch C, and with the needle F, held by such frame and latch with its point above and eye below, of the tubular wire E, arranged to operate over the point of the needle F, a spring-frame, D, and stringing wire or cord G, having cross-bar or stop d, the wire or cord being passed through the eye of the needle F, and the whole arranged for joint operation as set forth.

350,977. **CAR-DOOR FASTENER.** Henry A. Gehret, Reading, Pa., assignor of one-half to William F. Marks, same place. Filed Jan. 18, 1886. (No model.)

Claim.—1. In a car-door fastener, the combination, with a locking device composed of a body having a locking-arm at right angles thereto, and a slotted hasp formed integral therewith, of a series of keeper-plates secured to the face of the car, and adapted to be engaged by the arm of said locking device, substantially as and for the purpose set forth.

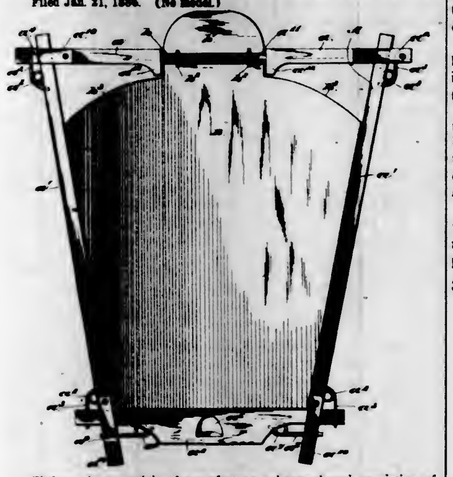
2. In a car-door fastener, a keeper-plate, K, having one or more

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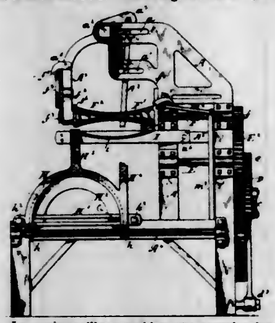
parallel sides, and concave-backed slots suitably secured to the face of the car-body, in combination with a staple and a fastener secured to the outer surface of the door, and composed of the body F, having arm H and slotted hasp G, substantially as shown, described, and for the purpose set forth.

350,978. **BOSOM-BOARD.** Joseph F. Gibbson, Wellington, Kans. Filed Jan. 21, 1886. (No model.)



Claim.—As an article of manufacture, a bosom-board consisting of a board portion proper formed with a neck portion having an inclosing yielding frame composed of two side bars and two cross-bars, the one cross-bar having two springs mounted therein engaging with the ends of the side bars, the other cross-bar being provided with a bearing to which the board proper is hinged, springs mounted on both ends of the side bars engaging with the slotted ends of the cross-bars, and metallic plates covering the several spring slots, substantially as and for the purposes described.

350,979. **MACHINE FOR MAKING SPIRAL WIRE SPRINGS.** Hiram S. Hall, Jamestown, N. Y. Filed Aug. 16, 1886. (No model.)



Claim.—1. In a wire-coiling machine, the combination of the gear C, its pitman-rod c, the segmental gear D, its internal arm, d, connected to the pitman-rod, the pinion e, meshing with the segmental gear, and the gear E^2 with the pinion f upon a shaft carrying a wire-coiling cone, substantially as described.

2. The combination of the gear C, having a laterally-projecting pin, C^3, the pitman-rod c, the segmental gear D, having recess d^3, the internal arm, d, connected to the pitman-rod and carrying the pivoted dog d', with the trip d^3, having two arms and gearing connected with a shaft carrying a wire-coiling cone, substantially as and for the purpose described.

3. The combination of the spring-forming cones with an arm pivoted above said cones, the pinion f^3, gear f^4, and spring f^5 upon said arm, the connecting-rod A^3, and cams to reciprocate the same, substantially as and for the purpose described.

4. The combination of a spring-forming cone having pins projecting from its small end, an arm pivoted above said cone and mounted upon said arm, a pinion carrying a plunger having its flat end adapted to enter between the pins upon said cone, the gear f^4, spring f^5, and means to reciprocate the arm, substantially as described.

5. The combination of spring-forming cones, the feed-carriage H, having vertical arm H^2, the horizontal arm H^4, pivoted thereto, the pendent rod h^2, finger h^3 at its lower end, and guide-plate I, having the groove i, substantially as and for the purpose described.

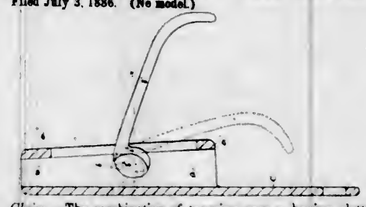
6. The combination of the spring-forming cones, the feed-carriage H, having vertical arm H^2, the horizontal arm h^4, and clamp K, with the finger h^3, and the guide-plate I, substantially as and for the purpose described.

7. The combination of the spring-forming cone, the feed-carriage having the vertical arm H^2 and finger h^3, with the guide-plate I, having one end adjustably connected to the frame, substantially as and for the purpose described.

8. The combination of a frame carrying means for intermittingly revolving a spring-forming cone, and an arm, A^3, pivoted to the latter having means for revolving another cone in the opposite direction from the first, with the cone F^2, having a pyramidal pin projecting from its small end, and the cone F′, having a corresponding recess, substantially as and for the purpose described.

9. The combination of a spring-forming cone, the feed-carriage, its vertical arm H^2, horizontal arm h^4, and clamp K, having two friction-rollers, and between them a clamping-screw, substantially as and for the purpose described.

350,980. **CLOTHES-LINE CLAMP.** George Juelch, Hoboken, N. J. Filed July 3, 1886. (No model.)



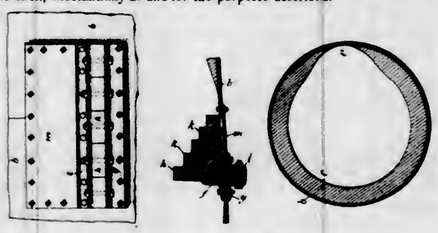
Claim.—The combination of tapering case a, having slotted front plate a', and arm c, with dog b, having cheek-pieces b^2, grooved central piece, b^3, and handle b', substantially as specified.

350,981. **PROCESS OF AND MEANS FOR REPAIRING FURNACE-LININGS.** Hugh Kennedy, Sharpsburg, Pa. Filed Apr. 3, 1886. (No model.)

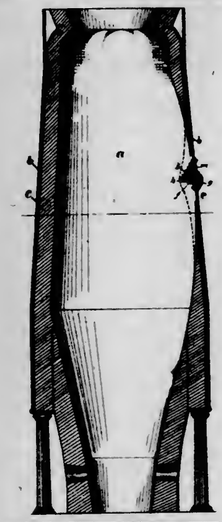
Claim.—1. The method of repairing blast-furnace walls, which consists in cutting out the thin part, building up the opening upon a foundation-tile, and fastening the outer end of the tile to the shell, whereby it is supported thereby, substantially as and for the purposes described.

2. In a blast-furnace, the combination of a tile inserted through the shell and supported thereby, with a portion of the wall built upon such tile as a foundation, substantially as and for the purposes described.

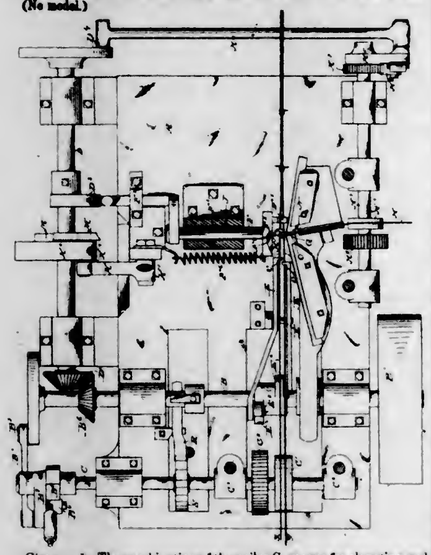
3. In a blast-furnace, the combination of the shell b, angle g, tile h, patch m, and angle i, whereby the tile is secured in and supported by the shell, substantially as and for the purposes described.



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350,982. **WIRE-BARBING MACHINE.** Ole O. Kittleson, Rock Falls, assignor to Charles H. Salisbury, De Kalb, Ill. Filed Mar. 29, 1886. (No model.)



Claim.—1. The combination of the coiler G, means for elevating and depressing such coiler, and means for causing the point of such coiler to perform a complete circle around the point of intersection of the strands *y y*, substantially as shown and described, and for the purpose named.

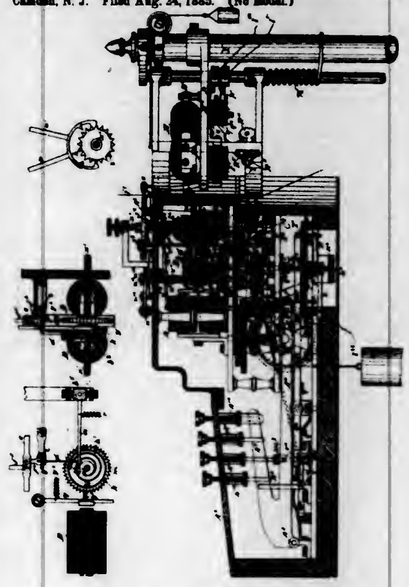
2. The combination of the coiler G, means for rotating and means for elevating and depressing the same, and the shaft F, provided with the stud F^6, devices for operating the shaft and the guides E E, and means, shown and described, for operating such guides, substantially as shown and described, and for the purpose described.

3. The combination of the coiler G, means for rotating such coiler, shaft F, provided with the stud F^6 and means for operating it, and guides E E and means for operating them to cross the strands, substantially as shown and described, and for the purpose mentioned.

4. The combination of the coiler G, means for rotating the same, guides E E, shaft F, provided with stud F^6, and means for operating the guides and the shaft and for intermittingly advancing the fence and barb wires, substantially as shown and described, and for the purpose described.

5. In a wire-barbing machine, the combination, substantially as shown and described, of the following elements, to wit: means for intermittingly feeding the fence and barb wires, means for separating and holding said fence-wires, means for alternately crossing such wires, the coiler G, adapted to coil the barb around the intersection of the strands, and means for severing such barb when coiled, for the purpose herein named.

350,983. **PRINTING-TELEGRAPH.** Jacob H. Lemille, Philadelphia, Pa., assignor to the International Printing Telegraph Company, Camden, N. J. Filed Aug. 24, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a battery, two electro-magnets in the circuit of said battery, the armature-levers of said electro-magnets carrying, respectively, anchor-pallets, the pallets on each lever controlling one of two escape-wheels secured to a shaft or sleeve thereon, the teeth in one escape-wheel alternating with the teeth in the other escape-wheel, and the armature-levers operated alternately and successively by pulsations over two conductors in the circuit of said battery, substantially as and for the purposes described.

2. The combination, substantially as hereinbefore set forth, of a battery, two electro-magnets in the circuit of said battery, the armature-levers of said electro-magnets carrying, respectively, double-wedge pallets, and two escape-wheels secured to the type-wheel shaft, the teeth of one escape-wheel alternating with the teeth of the other escape-wheel, and operating alternately and successively by pulsations over two conductors in the circuit of said battery, substantially as and for the purposes described.

3. The combination, substantially as hereinbefore set forth, of two escape-wheels rigidly secured to the type-wheel shaft, or a sleeve thereon, double pallets actuated by separate line-wires, and two escapement electro-magnets, the escapement electro-magnets being energized and demagnetized alternately and successively by pulsations over the respective conductors, and the teeth in the respective escape-wheels alternating, and so arranged as to cause the type-wheel to move continuously by intermittent steps the space of one character at each make and the space of one character at each break of the circuit in the respective lines, substantially as and for the purposes set forth.

4. In a printing-telegraph, two escapement electro-magnets with their armature-levers, pallets, and adjusting-springs, and a centrally-pivoted lever, to the ends of which the prolongations of said springs are secured, said lever being pivoted between two clamping-jaws, one of said jaws being rigidly attached to an adjusting-rod, and the other jaw being attached to a sleeve loose on said rod and engaging with the fixed jaw, a clamping-screw and key for said rod, and an adjusting-screw on said key, by the combined operation of which equal adjustment of the springs and levers is secured, substantially as described.

5. A compound or duplex relay provided with compound armatures secured to a centrally-pivoted lever linked to a relay-tongue, the relay-tongue carrying at one end a contact-point and an insulated post in close proximity thereto, said compound relay so organized as to vibrate its armatures without actuating the relay-tongue when energized alternately by alternate pulsations over the respective lines, and actuating both armatures and tongue when pulsations over the respective lines energize the electro-magnets simultaneously, substantially as described.

6. In a combined transmitting and receiving instrument, the combination, with a circuit-switch and its shaft, of commutators provided with circuit-springs, an arm on said shaft connected to a pivoted lever engaging in a movable clutch on the type-wheel shaft, an arm on the commutator-shaft supporting a stirrup around the unison-bow arm, and an arm on said shaft connected with a locking device for the unison-bow, all operating by the movement of the switch in one direction to change the electrical circuits to engage the sleeve carrying the scape-wheels, unison-spiral, and spacing-wheels, to release the unison bow and pin, and to effect the change from a transmitter to a receiver, and vice versa, substantially as and for the purposes described.

7. In a printing-telegraph, a vibrating segmental frame for holding the paper on which impressions are to be made, and a vertically-pivoted shaft, to which said vibrating segmental frame is attached, substantially as described.

8. As an improvement in printing-telegraphs, a segment of a cylinder or segmental frame secured to a vertical shaft pivoted to a fixed support, said segmental frame holding the paper on which impressions are to be made, and vibrating in a circular arc contiguous to the type-wheel, in combination with a helicoidal plane concentric with said segmental frame or cylindrical segment and secured to a fixed support, sliding pawls actuated by said plane and engaging in ratchet-wheels, and operating feed-wheels secured to the shafts of said ratchet-wheels for pressing the paper against rollers attached to said segmental frame, the whole operating by the recoil movement of the segmental frame to feed the paper vertically a space between two lines, substantially as described.

9. The combination, in a printing-telegraph, of a vibrating segmental frame, the ratchet and printing magnets, the magnets supported on a table secured to a fixed support, and the cylindrical segment swinging on a spindle supported thereby, a plane for feeding the paper vertically secured to said support, and ratchets, feed-rollers, dogs, and clutches secured to the vibrating cylindrical segment, for feeding the paper horizontally for spacing letters, and vertically for spacing between lines, substantially as described.

10. In a printing-telegraph receiver, circuit-springs, and interrupting insulations secured to a support contiguous to the movable paper-carrier, and circuit-springs secured to said paper-carrier, the latter springs arranged to maintain electrical contact with the former springs and insulations, or vice versa, during the forward movement of said carrier, and to traverse insulations during the reverse movement, and a battery-circuit in which said springs and insulations are included, a galvanometer in the same circuit as the transmitter to signal the return movement of said paper-carrier, substantially as described.

11. The combination, in a printing-telegraph, of a movable rack and a releasing device secured to a fixed support, consisting of the pivoted T-arm, with pins acting to engage and release a pawl and dog from said rack, a pin engaging in a latch to retain said T-arm when moved forward by a stop secured to the paper-carriage, and a spring to return said T-arm when the latch is released by a stop on said paper-carrier, substantially as and for the purposes described.

12. In a printing-telegraph, an adjustable spring secured to the top plate of the instrument by a pivoted stud adjustable through a slotted arm movable on a stud-pin on which is a clamping-nut, and all arranged as described, for adjusting said spring to its proper position, for the purposes set forth.

13. The combination, in a printing-telegraph, of a printing electro-magnet, with its armature and a hammer actuated thereby, a table in the interior of a vibrating segmental frame, and a vibrating segmental frame secured to a shaft held in bearings attached to a fixed support, substantially as and for the purposes described.

14. The combination, in a printing-telegraph, of a type-wheel and means for rotating the same, a centrally-pivoted vibrating segmental frame for supporting the paper adjacent to the periphery of said type-wheel, a battery, and an electro-magnet in the circuit of said battery, with means, substantially such as described, actuated thereby for feeding the paper by a vibratory step-by-step movement to space between letters in a horizontal line, an incline plane, and means, substantially such as described, actuated thereby during the reciprocating movement of said vibrating segmental frame to feed the paper vertically the space between lines, and an electro-magnet in said battery-circuit, with means, substantially such as described, for making impressions.

15. The combination, in an adjustable centrifugal governor, of a cross-arm loose on its shaft, supporting weighted arms embraced by a coiled spring and pivoted at their upper ends, said arms bearing at their lower weighted ends by centrifugal force against the interior of a circular rim, the cross-arms carrying adjustable springs to regulate the friction between the springs and the conical frictional hub secured to said shaft, and the adjusting-rod carrying a fork engaging in a grooved hub, attached to and supporting the cross-arm, to regulate the frictional bearing of the springs by the vertical movement of said cross-arm, substantially as and for the purposes set forth.

16. The combination, in a printing-telegraph, of an indicator-shaft carrying a revolving arm and contact-spring, a series of metallic pins so arranged as to arrest said arm at intervals corresponding with the characters on the type-wheel, arms for operating said metallic pins, a shaft with a type-wheel thereon, a centrifugal adjustable governor actuated from the type-wheel shaft, and printing and ratchet magnets in a local circuit closed by contact between said arms and pins, substantially as and for the purposes set forth.

17. The combination, in a printing-telegraph, of a battery, main-line circuit and interrupters included therein attached to the vibrating segmental frame of the receiver, means, substantially such as described, for maintaining and interrupting said circuit, operated by the vibrating segmental frame to maintain a closed circuit during the operation of printing, and to automatically break the circuit by the recoil movement of said vibrating segmental paper-carrier, indicating through a galvanometer in said circuit at the transmitter when the circuit is interrupted by the recoil movement of said vibrating segmental paper-carrier, whereby the vibrating segmental paper-carrier of the transmitter may be brought into unison with that of the receiver, and similar spacing and paragraphing maintained on both instruments, substantially as described.

18. The combination, with the indicator-plate seated in a recessed step secured to the bed-plate, of a detachable shaft bearing in the indicator-plate and upon a secondary step, said detachable shaft carrying a circuit-closing arm below said indicator-plate, the whole arranged for permitting the removal of the mechanical and electro-magnetic devices without disturbing said indicator-plate or lever-arms, substantially as described.

19. The combination, with the type-wheels of a printing-telegraph transmitter and receiver, of a vibrating segmental frame secured to a pivoted shaft, with means, such as described, for holding a sheet of paper in the interior of said segmental frame contiguous to the type-wheel, and an electro-magnet secured to a fixed support, with its armature, lever, pawl, dog, and spring, a ratchet secured to the segmental frame, a weight hung from and soliciting the segmental frame and ratchets, pawls, wheels, and rollers, the arm carrying the pawls riding over an incline plane and moved thereon by the force applied to the segmental frame, substantially as and for the purposes set forth.

20. The combination, with the indicator or type-wheel shaft of a combined instrument, of a scape wheel or wheels of a printing-telegraph receiver carried on a sleeve on said shaft and controlled by pallets vibrated by an electro magnet or magnets, whereby the scape-wheels and type-wheel are rotated in response to intermittent electrical pulsations from a transmitter, said scape-wheels being secured to a sleeve attachable to and detachable from said shaft by means of a clutch and actuated by the same driving mechanism that moves the type-wheel when used as a transmitter, and means, such as described, for changing the transmitter to a receiver, and vice versa.

21. The combination, in a printing-telegraph, of a unison-spiral on a loose sleeve on the type-wheel shaft, a unison-latch to arrest said spiral, and a compound relay in two separate lines of a battery-circuit, said relay operating, by means such as described, to release the unison-latch, substantially as and for the purposes set forth.

22. The combination, in a printing-telegraph, of a unison-spiral and letter-spacing wheel on a sleeve on the type-wheel shaft, and means, such as described, for securing said sleeve to said shaft, a unison-latch to arrest said spiral, a compound relay in two separate lines of a battery-circuit, said relay operating, by means such as described, to release the unison-latch, and a differential magnet in both lines, operating, by means such as described, to arrest the type-wheels, substantially as and for the purposes set forth.

23. As an improvement in printing-telegraphs, a differential relay in a double-line circuit, with a lever-arm and spring for holding the type-wheel during the printing, or while rotating the paper-carrier, when the unison-latch is released by currents sent simultaneously over both lines, said differential relay being rendered inert by double-line pulsations, substantially as and for the purposes set forth.

24. The combination, substantially as hereinbefore set forth, of a battery and two telegraphic main lines, two escapement electro-magnets, a compound or duplex relay for closing the paper-feeding and printing circuits, and a differential magnet included in the circuit of the main lines, or in a local circuit controlled by two neutral relays in the main lines, to lock the type-wheel of a receiver, automatic circuit-interrupters in the main lines, local batteries and circuits for both transmitter and receiver, the local circuit through the transmitter energizing the impression and paper-feeding magnets, and a relay which closes simultaneously the main-line circuits actuating the compound or duplex relay and differential magnet of the receiver, and closing, by means of the compound and duplex relay, the local circuit of the receiver through the impression and paper-feeding magnets.

25. The combination, substantially as hereinbefore set forth, of a battery and two telegraphic main lines, two escapement electro-magnets, a compound or duplex relay to close the paper-feeding and printing circuits, and a differential magnet included in the circuit of said main lines, or in a local circuit controlled by two neutral relays in the main lines, to lock the type-wheel of a receiver, and local batteries and cir-

cuits for both transmitter and receiver, the local circuit through the transmitter energizing the impression and paper-feeding magnets, and a relay which closes simultaneously the main-line circuits actuating the compound or duplex relay and differential magnet of the receiver, and closing, by means of the compound of duplex relay, the local circuit of the receiver through the impression and paper-feeding magnets, a key in the branch to the local circuit of transmitter for closing the main-line circuits simultaneously, thereby actuating the paper-feeding devices without making impressions, substantially as and for the purposes described.

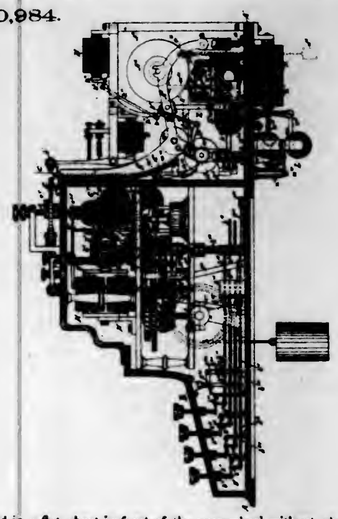
26. The combination, substantially as hereinbefore set forth, of a battery and two telegraphic main lines, two escapement-magnets, a compound or duplex relay to close the paper-feeding and printing circuits of a receiver and for releasing the unison-latch, a differential magnet included in the circuit of the main lines, or in a local circuit controlled by two neutral relays in the main lines, to lock the type-wheel of the receiver, automatic circuit-interrupters in the main lines, local batteries and circuits for both transmitter and receiver, the local battery and circuit through the transmitter energizing the impression and paper-feeding magnets, and a relay which closes simultaneously the main-line circuits actuating the compound or duplex relay and differential magnet of the receiver, and by means of the compound or duplex relay closing the local circuit of the receiver through the impression and paper-feeding magnets, a key in the branch to the local circuit of the transmitter for closing the main-line circuits simultaneously to actuate the paper-feeding devices without making impressions, and a unison-key to release the circuit-breaker, thereby causing alternate pulsations to be sent over the respective lines to bring the instruments to unison.

27. The combination, substantially as hereinbefore set forth, of a battery and two telegraphic main lines, two escapement-magnets, a compound or duplex relay to close the paper-feeding and printing circuits of a receiver and for releasing the unison-latch, a differential magnet included in the circuit of the main lines, or in a local circuit controlled by two neutral relays in the main lines, to lock the type-wheel of a receiver, automatic circuit-breakers in the main lines, local batteries and circuits for both transmitter and receiver, the local battery and circuit through the transmitter energizing the impression and paper-feeding magnets, and a relay which closes simultaneously the main-line circuits actuating the compound or duplex relay and differential magnet of the receiver, and by means of the compound or duplex relay closing the local circuit of the receiver through the impression and paper-feeding magnets, a key in the branch to a local circuit of the transmitter for closing the main-line circuits simultaneously to actuate the paper-feeding devices without making impressions, a unison-key to release the circuit-breaker, thereby causing alternate pulsations to be sent over the respective lines to bring the instruments to unison, and a releasing-key for unlocking the unison-bow of the transmitter and for closing the branch local circuit in the transmitter through a relay operating to send simultaneous pulsations to the compound or duplex relay of the receiver to disengage the unison-latch, substantially as and for the purposes described.

28. The combination, substantially as hereinbefore set forth, of a battery and two telegraphic main lines, two escapement-magnets, a compound or duplex relay, a differential magnet included in the circuit of the main lines, or in a local circuit controlled by two neutral relays in the main lines, local batteries and circuits for both the transmitter and receiver, the local battery and circuit through the transmitter energizing the impression and paper-feeding magnets, and a relay which closes simultaneously the main-line circuits actuating the compound or duplex relay and differential magnet of the receiver, and by means of the compound or duplex relay closing the local circuit of the receiver through the impression and paper-feeding magnets, a key in the branch to the local circuit of the transmitter for closing the main-line circuits simultaneously to actuate the paper-feeding devices without making impressions, a unison-key to release the circuit-breaker, thereby causing alternate pulsations to be sent over the respective lines to bring the instruments to unison, a releasing-key for unlocking the unison-bow of the transmitter and for closing the branch local circuit in the transmitter through a relay operating to send simultaneous pulsations to the compound or duplex relay of the receiver to disengage the unison-latch, circuit-springs in said branch circuit automatically breaking the same by the release of the unison-bow before motion is imparted to the main-line-circuit breaker, and means, such as described, for changing the circuits in a transmitter to the circuits in a receiver, and vice versa.

350,984. PRINTING-TELEGRAPH. Jacob H. Lemelle, Philadelphia, Pa., assignor to the International Printing Telegraph Company, Camden, N. J. Filed Oct. 16, 1885. (No model.)

Claim.—1. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage, wheels attached to said carriage and traveling over rails secured to a horizontal platform, a paper-roller held in bearings in the sides of said carriage, and feed-rollers journaled in the frame of said carriage below the plane of the type-wheel, said feed-rollers operating to feed the paper upward through vertical and lateral straight guides, the said guides being so arranged that the paper is presented in a flat sheet in front of the type-wheel without obstruction to the impressions, substantially as described.



2. In printing-telegraphs, a double switch, substantially as described, in each instrument, automatically operated by the recoil movement of a paper-carriage to interrupt the circuit through a compound relay employed to close the local circuit through a ratchet electro-magnet operating to advance the paper-carriage in each receiver, and an individualizing-circuit breaker, substantially as described, operating from any transmitter in the circuit to close the circuit in both transmitter and the receiver connected in the same main-line circuits around said automatic double switch, whereby the paper-carriages of a number of instruments connected in series are arrested at unison, substantially as and for the purposes set forth.

3. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage, wheels attached to said carriage and traveling over rails secured to a horizontal platform, a paper-roller held in bearings in the sides of said carriage, vertical and lateral straight guides secured to said carriage, feed-rollers journaled in the frame of said carriage below said guides, a spacing-rack attached to the lower part of said carriage, ratchets attached to said feed-rollers, clicks secured to the sides of said carriage for retaining said ratchets, and sliding arms movable vertically in supports secured to said carriage, carrying pawls engaging in said ratchets, all arranged substantially as and for the purposes set forth.

4. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage moving laterally in fixed supports and carrying the paper-roller, feed-rollers, and spacing-rack, ratchets attached to said feed-rollers, clicks secured to the frame of said carriage for retaining said ratchets, sliding arms movable in supports secured to said carriage and carrying pawls engaging in said ratchets, and a fixed incline plane engaging with said sliding arms, imparting thereto a vertically-reciprocating motion, substantially as and for the purposes set forth.

5. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage movable laterally in a horizontal plane on and between fixed supports, and carrying therewith the paper-roller, feed-rollers, and spacing-rack, ratchets attached to said feed-rollers, clicks secured to the frame of said carriage for retaining said ratchets, sliding arms movable in supports secured to said carriage and carrying pawls engaging in said ratchets, an incline plane attached to a fixed support engaging with said sliding arms, an automatic signaling-circuit interrupter, and a double-contact arm moving over the circuit-springs of said interrupter to maintain a closed circuit during the forward movement of said paper-carriage, and over the insulations of said interrupter during the retrograde movement of said carriage, substantially as and for the purposes set forth.

6. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage, wheels attached to said carriage and traveling over rails secured to a horizontal platform, a paper-roller held in bearings in the sides of said carriage, feed-rollers journaled in the frame of said carriage below the plane of the type-wheel, vertical and lateral guides secured to said carriage, a rack actuated by a pawl attached to a lever, its armature actuated by a ratchet electro-magnet in the same electrical circuit with a printing electro-magnet for moving said carriage step by step in one direction, and a spring or weight for returning said carriage in the opposite direction, substantially as described.

7. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage, wheels secured to said carriage and traveling over rails secured to a horizontal platform, a paper-roller held in bearings in the sides of said carriage, feed-rollers journaled in the frame of said carriage, vertical and lateral guides secured to said carriage, a spacing-rack attached to said carriage, ratchets attached to feed-rollers supported in the frame of said carriage, clicks secured to the sides of said carriage for retaining said ratchets, sliding arms movable in supports secured to said carriage and carrying pawls engaging in said ratchets, a printing-hammer and an electro-magnet attached to a fixed support, and a ratchet electro-magnet in the same electrical circuit with said printing electro-magnet, substantially as and for the purposes set forth.

8. The combination, in a printing-telegraph, of paper-guides attached to a carriage traveling laterally within fixed supports for presenting the paper in a flat sheet and directing it vertically in front of the type-wheel without obstruction to the impressions, an electro-magnet, lever-pawl, dog, and rack to feed the paper step by step to space between letters, and an incline plane, pawl-arms, pawl, and feed-rollers to feed the paper vertically to space between lines by the recoil movement of the paper-carriage during its excursion, substantially as hereinbefore set forth.

9. The combination, in a printing-telegraph, of a printing-hammer and an electro-magnet attached to a fixed support in rear of the paper, a local circuit and printing and ratchet electro-magnets included in said circuit and energized thereby, and an armature-lever carrying a pawl and retracting-spring to move the paper-carriage when the circuit is interrupted, substantially as and for the purposes set forth.

10. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage, wheels secured to said carriage and traveling over rails secured to a horizontal platform, an arm attached to said carriage and moving therewith, an automatic double switch, and two telegraphic lines connected thereto, said arm at a predetermined point in its excursion actuating said double switch, substantially as and for the purposes set forth.

11. The combination, in a printing-telegraph, of a laterally-traveling paper-carriage carrying an arm which, at a predetermined point in its excursion, automatically actuates a double switch, breaking the line-circuits through the escapement and differential electro-magnets, and the compound relay controlling the local circuit, means, such as described, for again closing the main-line circuits through said electro-magnets, and means, such as described, for energizing the printing electro-magnet and the ratchet electro-magnet moving said paper-carriage, substantially as and for the purposes set forth.

12. The combination, in a printing-telegraph, of a transversely-traveling paper-carriage moving over a fixed plane, said carriage carrying an arm which, at a predetermined point in its excursion, automatically breaks the main-line circuits through the escapement and differential electro-magnets and the compound relay controlling the local circuit through the printing electro-magnet and the ratchet electro-magnet actuating the paper-carriage, and means, such as described, for closing said circuits, one of said line-circuits passing in one direction through the coils of a differential electro-magnet and through one branch of an independent electro-magnet, and the other in a reverse direction through the coils of said differential electro-magnet and directly through the other branch of the independent electro-magnet, substantially as and for the purposes set forth.

13. In a printing-telegraph, the combination, with a transversely-traveling paper-carriage carrying a paper-roller, fixed rollers, and spacing-rack, of ratchets attached to said feed-rollers, clicks for holding said ratchets in position, sliding arms movable in supports attached to said carriage, a fixed incline plane engaging with said arms and imparting thereto a reciprocating motion, main-line-circuit contact springs and interrupters for signaling the movement of the paper and carriage, said carriage being moved step by step in one direction by a pawl attached to a lever, an electro-magnet attached to a fixed support actuating a lever through which moves freely a square or feathered shaft supported within the frame of the paper-carriage, and means, such as described, for feeding the paper step by step between lines, and an armature actuated by an electro-magnet secured to a fixed support and operating a releasing device for returning the carriage to its normal position by the action of a spring or weight, substantially as and for the purposes set forth.

14. In a printing-telegraph, the combination, with an individualizing device consisting of a shaft, ratchet, contact-spring, and a unison-fusee, of a differential electro-magnet, with its armature, lever, pawl, and retracting-spring for operating the ratchet of said individualizing device, and an electro-magnet with independent coils, with its armature, lever and retracting-spring for releasing the unison-fusee of said individualizing device, substantially as and for the purposes set forth.

15. The combination, in a printing-telegraph, of a differential electro-magnet, with its armature-lever and pawls for actuating ratchets, a circuit-breaker and unison-fusee on the ratchet-shaft, a pivoted unison-latch, and means, such as described, for releasing said unison-latch, substantially as and for the purposes set forth.

16. The combination, in a printing-telegraph, of a transversely traveling paper-carriage, wheels attached to said carriage and traveling over rails secured to a horizontal platform, a spacing-rack attached to said carriage, a ratchet electro-magnet supported upon said platform, with its armature-lever, pawl, and spring for moving said carriage step by step in one direction, and an automatic releasing device, as described, secured to said platform and operated by said paper-carriage, for permitting the retrograde movement of the same, substantially as and for the purposes set forth.

17. The character-rods of a printing-telegraph transmitter in several horizontal series radiating from the center of and equidistant from one another around an indicator shaft and segment, and arranged in series vertically above each other, the number of rods in each horizontal series corresponding with the series of openings in the indicator-segment, and the entire number of character-rods, including the unison-rod, corresponding with the divisions on the type-wheel, substantially as and for the purposes set forth.

18. The combination, with the radial character-rods, of a printing-telegraph transmitter arranged in series vertically and horizontally, and susceptible of a reciprocating longitudinal movement, a metallic hub insulated from the indicator-shaft, metallic arms radiating from said hub at determinate angles and at heights, respectively, corresponding with the character-rods, and impinging against said rods when longitudinally advanced, and an insulated metallic spring bearing on said hub, substantially as and for the purposes set forth.

19. The combination, in a printing-telegraph transmitter, of character-rods radiating from an indicator-shaft and arranged in series one above the other, the rods in each series equal to and corresponding with the series of openings in said indicator-segment and divisions on the type-wheel, a segmental perforated indicator-segment concentric with the indicator-shaft, and insulated arms on said shaft, arranged radially therefrom and in such positions as to impinge against said series of character-rods when longitudinally advanced, substantially as and for the purposes set forth.

20. The character-rods of a printing-telegraph transmitter, radiating from the center of and equidistant from one another around an indicator-shaft and arranged in series above each other, each series equal in number to the openings corresponding therewith in the indicator-segment and the entire number of openings equal to the divisions on the type-wheel, in combination with the bell-crank levers hinged to supporting-steps of character key-stems impinging against said bell-crank levers for advancing said rods horizontally, pins for limiting the forward movements of said rods, and springs for withdrawing said arms, substantially as described.

21. The character-rods of a printing-telegraph transmitter, radiating from an indicator-shaft, arranged in series corresponding with the number of openings in the indicator-segment, in combination with a unison-rod having an insulated contact of levers and pins operating to withdraw said unison-rod by the advance of any character-rod, and vice versa, substantially as described.

22. The combination, in a printing-telegraph, of two telegraph main lines, an automatic double switch for breaking the main lines and closing branches thereof through a differential electro-magnet actuating the individualizing circuit-closer, an independent-coil electro-magnet, and a circuit-breaker for signaling included in said main lines, substantially as and for the purposes set forth.

23. The combination, in a printing-telegraph, of a differential electro-magnet with its armature-lever and pawl, a click and ratchet for revolving the circuit-breaker, the circuit-breaker and contact being adjustable on its shaft, and contact-springs for closing the circuit around the break in the main lines at the automatic circuit-breaker, substantially as and for the purposes set forth.

24. The combination, in a unison-stop, of a fusee on a revolving shaft, a unison latch and pin susceptible of vertical and lateral motion, and bearing on the spiral in said fusee, springs for soliciting the latch vertically and laterally, an armature-lever, retracting-spring, and tripping-lever, and an electro-magnet with independent coils for releasing the unison-latch, substantially as and for the purposes set forth.

25. The combination, in a printing-telegraph, of a local battery, ratchet and printing electro-magnets, and a relay in the circuit of said battery, said circuit being closed by contact between the revolving arms and character-rods, and a duplicating-key with its contacts normally closed in said circuit, substantially as and for the purposes set forth.

26. The combination, in a printing-telegraph, of a relay in the printing-circuit, of a transmitter energized by said circuit, with its armature-lever and contact-springs for simultaneously closing the main-line circuits, and a compound relay in a receiver energized by said circuits, substantially as and for the purposes set forth.

27. The combination, in a printing-telegraph, of a battery and two telegraphic main lines connecting the transmitting-instrument with the receiving-instrument, with local batteries and circuits for both instruments, commutators for changing said line and local circuits, a loose sleeve on the type-wheel shaft carrying scape-wheels, a unison-spiral, spacing-wheel, and a clutch for connecting said sleeve with the type-wheel shaft, thereby combining the actuating parts of a receiver with

the same train of gearing, and motive power employed for operating a transmitter, substantially as and for the purposes set forth.

28. The combination, in a printing-telegraph, of a battery, two telegraphic main lines connecting the transmitting-instrument with the receiving-instrument, local batteries and circuits for both instruments, commutators, such as described, for changing the line and local circuits, means, such as described, for combining the actuating parts of a receiver with the same train of gearing, and motive power employed for operating a transmitter, and the local circuit of the transmitting-instrument closed by contact of the arms of the indicator-segment with any of the series of uninsulated character-rods of said segment advanced endwise and broken by the withdrawal thereof, substantially as and for the purposes set forth.

29. The combination, in a printing-telegraph, of a battery, two main lines for connecting a series of transmitters and receivers, local batteries and circuits for the transmitters and receivers, commutators, such as described, for changing the line and local circuits, means, such as described, for combining the actuating parts of a receiver with the same train of gearing, and motive power employed for operating a transmitter, the local circuit of a transmitter closed by contact of revolving arms with uninsulated character-rods projected through an indicator-segment and broken by the withdrawal thereof, and the local circuit of a receiver closed by an electro-magnet responding to double-line impulses, substantially as described.

30. The combination, in a printing-telegraph, of a battery, two main lines, local batteries and circuits for transmitters and receivers, commutators, such as described, for changing the line and local circuits, means, such as described, for combining the actuating parts of a receiver with the same train of gearing, and motive power employed for operating a transmitter, the local circuit of a receiver closed by an electro-magnet responding to double-line impulses, the escapement, differential, and compound relay electro-magnets of a receiver responding to alternate impulses in the main lines, said compound relay attracting both armatures, and the differential electro-magnet inert by simultaneous pulsations over both lines, substantially as and for the purposes set forth.

31. The combination, in a printing-telegraph, of a battery and two main lines for connecting the transmitter and receiver, local batteries and circuits for the transmitter and receiver, commutators, such as described, for changing the line and local circuits, means, such as described, for combining the actuating parts of a receiver with the same train of gearing, and motive power employed for operating a transmitter, the local circuit of a receiver closed by an electro-magnet responding to double-line impulses, the escapement, differential, and compound relay electro-magnets of a receiver responding to alternate impulses over the main lines, said compound relay attracting both armatures by simultaneous pulsations, and the differential electro-magnet inert by simultaneous pulsations over both lines, and a relay in a local circuit of a transmitter with contacts to close the main lines simultaneously, substantially as and for the purposes set forth.

32. The combination, in a printing-telegraph, of a battery and two main lines for connecting the transmitter and receiver, local batteries and circuits for the transmitter and receiver, commutators, such as described, for changing the line and local circuits, means, such as described, for combining the actuating parts of a receiver with the same train of gearing, and motive power employed for operating a transmitter, the local circuit of a receiver closed by an electro-magnet responding to double-line impulses, the escapement, differential, and compound relay electro-magnets of a receiver responding to alternate impulses over the main lines, said compound relay attracting both armatures by simultaneous pulsations, and the differential electro-magnet inert by simultaneous pulsations over both lines, a relay in a local circuit of a transmitter with contacts to close the main lines simultaneously, a dial with a revolving individualizing circuit-breaker in a branch of the main lines of a transmitter, a key in a branch of the main lines of a transmitter to close both lines simultaneously, and keys in other branch circuits of a transmitter to close either main line, substantially as and for the purposes set forth.

33. The combination, in a printing-telegraph, of a battery, two main lines for connecting the transmitter and receiver, local batteries and circuits, commutators, such as described, for changing the line and local circuits, means, such as described, for combining the actuating parts of a receiver with the same train of gearing, and motive power employed for operating a transmitter, and a differential electro-magnet in both a transmitter and a receiver to revolve a circuit-closing device, substantially as and for the purposes set forth.

34. The combination, in a printing-telegraph, of a battery, two main lines, local batteries and circuits, commutators, such as described, for changing the line and local circuits, a differential electro-magnet in the transmitter and receiver to revolve a circuit-closer, and an electro-magnet with independent coils, and means, such as described, actuated thereby to release a unison-latch, substantially as and for the purposes set forth.

35. The combination, in a printing-telegraph, of a battery and two main lines, local batteries and circuits, a differential electro-magnet and an independent-coil electro-magnet in said circuits, a circuit-closer, and means, such as described, for revolving the shaft carrying the circuit-closer, a unison-fusee on said shaft, and means, substantially such as described, for locking the same at unison with the revolving circuit-locker at the zero-point of its dial, substantially as and for the purposes set forth.

36. The combination, in a printing-telegraph, of a battery and two main lines, local batteries and circuits, a differential electro-magnet and an independent-coil electro-magnet in said circuits, and means, substantially such as described, for actuating the same, an automatic double switch operated by the paper-carriage in its retrograde movement, breaking the main-line circuits through the compound relay, escapement, and differential electro-magnets, and closing the branch circuits around the same through the differential and independent-coil electro-magnets that actuate the rotary branch-circuit closer and release the unison-latch, a circuit-closing device, and means, such as described, for revolving the shaft carrying the circuit-closer and unison-fusee, and means, such as described, for locking the same at unison with an insulation on the circuit-breaker corresponding with zero on its dial, substantially as and for the purposes set forth.

37. The combination, in a printing-telegraph, of a battery and two telegraphic main lines, local batteries and circuits, a differential electro-magnet and an independent-coil electro-magnet in said circuits, and means, substantially such as described, for actuating the same, a circuit-closing device, and means, such as described, for revolving the shaft carrying the circuit-closer, a unison-fusee, and means, such as described, for locking and releasing the same at unison with the revolving circuit-breaker in a transmitter, and an automatic switch operated by the paper-carriage in its retrograde movement, breaking the main line circuits in the transmitter and through the compound relay, escapement, and differential electro-magnets of the receiver, and closing the branch circuits through the differential and independent-coil electro-magnets, the main-line circuits being again closed by branch lines connecting the springs brought into electrical contact by the revolving circuit-closer, substantially as set forth.

38. The combination, in a printing-telegraph, of a battery, two telegraphic main lines, a transversely-traveling paper-carriage moving in a horizontal plane, circuit-springs in said main lines attached to said carriage, and straight circuit-springs and insulations secured to said plane to maintain closed circuits in said main lines during the forward movement of the paper-carriage, and to interrupt the circuits in said main lines during the retrograde movement of said carriage, substantially as and for the purposes set forth.

39. The combination, in a printing-telegraph, of a battery, two telegraphic main lines, circuit-breakers at the transmitter, an electro-magnet in a local circuit of the transmitter operating a double switch to close both lines when the printing-circuit of the transmitter is closed, and an individualizing circuit-closer at the transmitter and receiver in the main lines, substantially as and for the purposes set forth.

40. The combination, in a printing-telegraph, of a battery and two main lines, circuit-breakers at the transmitter, an electro-magnet in a local circuit of the transmitter operating a double switch to close both main lines, an individualizing circuit-closer at the transmitter and receiver in the main lines, and an automatic switch which by the movement of the paper-carriage breaks the main lines and closes a branch of said main lines, substantially as and for the purposes set forth.

41. The combination, in a printing-telegraph, of a battery and two main lines, circuit-breakers at the transmitter, an electro-magnet in a local circuit of the transmitter operating a double switch to close both main lines, an individualizing circuit-closer at the transmitter and receiver in the main lines, a unison device for said circuit-closer, and an automatic switch by which the movement of the transversely-traveling paper-carriage breaks the main lines and closes branch circuits of said main lines, substantially as and for the purposes set forth.

42. The combination, in a printing-telegraph, of a battery and two main lines, circuit-breakers at the transmitter, an electro-magnet in a local circuit, operating by means, such as described, for closing both main lines, an individualizing circuit-closer at the transmitter and receiver in the main lines, an automatic circuit-breaker which by the movement of the paper-carriage breaks the main line and closes branch circuits thereof, and circuit-springs in contact with the circuit-closers included in a branch circuit to close the break in said main lines, substantially as and for the purposes set forth.

43. The combination, in a printing-telegraph, of a battery, two telegraphic main lines, circuit-breakers at the transmitter, an electro-magnet in a local circuit for actuating a double switch to close both main lines, an individualizing circuit-closer at the transmitter and receiver in the main line, a unison device and circuit-closer operated through single-line pulsation and released through simultaneous pulsations over both lines, a circuit-breaker and indicating-dial, and a double-line key in branch circuits of the main lines at the transmitter, substantially as and for the purposes set forth.

44. The combination, in a printing-telegraph, of a battery and two main lines, a branch of the main lines normally open in the transmitter connected to the main lines of the receiver at a point beyond where they are broken by the commutators, and passing through an electro-magnet responding only to prolonged impulses, said electro-magnet secured to the supports carrying the paper-carriage, its armature-lever being connected to the shaft on which is pivoted the arm for automatically releasing the pawl and dog from the rack moving the paper-carriage, substantially as and for the purposes set forth.

45. The combination, in a printing-telegraph, of a battery and two telegraphic main lines, a branch of the main-line circuits normally open in the transmitter connected to the main lines of the receiver at a point beyond where they are broken by the commutator S, an electro-magnet in one of the main-line circuits, the armature-lever of said electro-magnet being connected to the shaft on which is pivoted the T arm for automatically releasing the pawl and dog from the rack moving the paper-carriage, and a key, b^8, in said branch circuit to send prolonged impulses to energize said electro-magnet, and operating to release the paper-carriages in both the transmitter and receiver at any point in their excursions, substantially as and for the purposes set forth.

46. The combination, in a printing-telegraph, of a battery and two telegraphic main lines, a branch of the main lines normally open in the transmitter connected to the main lines of the receiver at a point beyond where they are broken by the commutators, and passing through an electro-magnet secured to supports carrying the paper-carriage, said electro-magnet being energized by sending prolonged impulses by a key in said circuit, its armature actuating a lever through which a square or feathered shaft pivoted on the paper-carriage freely moves, and arms attached to the ends of said shaft-carrying pawls engaging the ratchet-wheels of the feed-rollers and operating when a key is depressed to feed the paper on both transmitter and receiver at any point in the excursion of the respective paper-carriages, substantially as and for the purposes set forth.

47. The combination, in a printing-telegraph, of the electro-magnet K, secured to the platform carrying the paper-carriage, the armature-lever K^4, linked to the arm K^5, held laterally and sliding freely without revolving on its shaft, said shaft being secured between bearings supported on the paper-carriage, arms k^6, and pawls k^7 on said shaft for feeding the paper at any point in its excursion, substantially as and for the purposes set forth.

48. The combination, in a printing-telegraph, of the electro-magnet L, secured to the platform supporting the paper-carriage, the armature L', lever a^{27}, arm a^{28}, shaft a^{29}, and automatic releasing device a^{19}, substantially as and for the purposes set forth.

49. The combination, in a printing-telegraph, of a unison device consisting of a fusee, u^6, a latch, u^4, springs u^{25} u^{24}, magnets Y Y', with its armature u^{26}, bent lever u^7, and retracting-spring u^{27}, substantially as and for the purposes set forth.

50. The combination, in a printing-telegraph, of a circuit-closing device consisting of the differential magnet X X', with its armature u^{16}, lever u^5, and spring u^{23}, and the pawl u^{12}, ratchet-wheel u^{10}, dog u^{39}, circuit-closing contacts u^{17} u^{18}, and circuit-springs u, u', u^1, and u^3, substantially as and for the purposes set forth.

51. The combination, in a printing-telegraph, with an automatic circuit-switch, such as described, operated by the recoil movement of the paper-carriage to break the main-line circuits and to close a branch circuit, of a transversely-traveling paper-carriage, by the forward movement of which the automatic circuit-switch breaks the branch circuit and closes the main line, substantially as and for the purposes set forth.

52. The combination, in a printing-telegraph, of a battery and two main lines, an indexed dial with its circuit-breaker in one line, a circuit-closer and differential electro-magnet in said line, a branch circuit of said lines closed by an automatic switch, whereby the original main lines are broken, and means, substantially such as described, for revolving said circuit-closer to restore the main lines around the switch without restoring the original main lines or breaking the branch circuit, substantially as and for the purposes set forth.

53. The combination, in a printing-telegraph, of a battery and two main lines, an indexed dial with its circuit-breaker in one line, a differential electro-magnet and an independent-coil electro-magnet in branches of the main lines, and an automatic double switch, whereby the course of the original main lines is changed from the escapement, compound relay, and differential electro-magnets of a receiver to said differential electro-magnet operating to revolve a circuit-closer to restore the main lines around said double switch without restoring the original main lines through the same or breaking the branch circuits thereof, and said electro-magnet with independent coils in said branch circuits operating to release the unison-latch of said circuit-closer, substantially as and for the purposes set forth.

54. The combination, in a printing-telegraph, of the insulated circuit-springs z^3 z^3, the metallic bearings z^4 z^4 in electrical connection therewith, the insulations z z', supported on the transversely-traveling paper-carriage A^6, and the insulated bearing-springs z^5 z^6, secured to the platform A', substantially as and for the purposes set forth.

55. The combination, in a printing-telegraph, of a battery and two main lines, an individualizing circuit-breaker, W, in a branch of the main-line circuits normally open in the transmitter, the differential electro-magnets on the transmitter and receiver, one of the coils of each of said electro-magnets being brought into circuit with the circuit-breaker W through the operation of an automatic switch, and a circuit-closer revolved by said electro-magnets, substantially as and for the purposes set forth.

56. The combination, in a printing-telegraph, of a battery and two main lines, differential and independent-coil electro-magnets included in branch circuits of said main lines, and an individualizing circuit-closer operated by said electro-magnets, substantially as and for the purposes set forth.

57. The combination, in a printing-telegraph, of a battery and two telegraphic main lines, a double-line-circuit-closing key, b^{40}, normally open in branches of said main lines, and an automatic double switch, O, for connecting the main lines to other branch circuits and the electro-magnets X Y, included in the latter branch circuits, substantially as and for the purposes set forth.

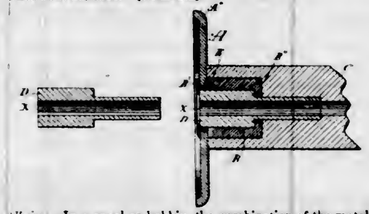
58. The combination, in a printing-telegraph, of an incline plane, a^{10}, having a projecting flange, a^{11}, fitting loosely into a notch, a^{12}, the arms a^{13}, attached to a sliding dog, a^{14}, causing a vertical reciprocating movement of the paper-carriage without the intervention of springs, substantially as described.

59. The combination, with a printing-telegraph, of an automatic device for releasing the paper-carriage, consisting of a pivoted arm, a^{19}, pins a^{20} a^{21} a^{22}, spring-latch a^{24}, and arms a^{26} a^{27}, rigidly secured to the paper-carriage A^4, substantially as described.

60. The combination, in a printing-telegraph, of a battery and two main lines, a key, b^1, normally open in a transmitter in a branch of the main lines connected to one of the main lines beyond the commutator S, the electro-magnet L in the circuit of said main line, and the armature-lever of said electro-magnet connected to an automatic releasing device, as described, said electro-magnet, when energized by prolonged pulsations through the depression of said key, operating to release the paper-carriage at any point in its excursion, substantially as described.

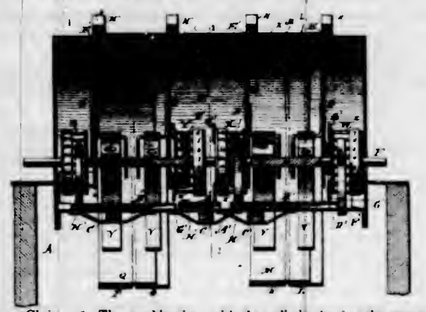
61. The combination, in a printing-telegraph, of a battery and two main lines, a key, b^2, normally open in a transmitter in a branch of the main lines, connected to one of the main lines beyond the commutator S, the electro-magnet K in the circuit of said main line, and with its armature-lever, link, shaft, and pawls, said electro-magnet, when energized by prolonged pulsations through said key, operating to feed the paper step to step to space between lines at any point in its excursion, substantially as described.

350,985. SPOOL OR BOBBIN. Frank M. Marcy, Worcester, Mass. Filed June 21, 1886. (No model.)



Claim.—In a spool or bobbin, the combination of the metallic head A, having the lip A'', the metallic tube B, having the shoulder E and flanges B' and B'', the wooden plug D, and the wooden barrel C, all substantially as shown and described.

350,986. CASE-REGISTER. William C. McGill, Washington, D. C. Filed June 19, 1886. (Model.)



Claim.—1. The combination, with the cylinder having the numerals marked thereon, and the inner cylinder secured therein and having

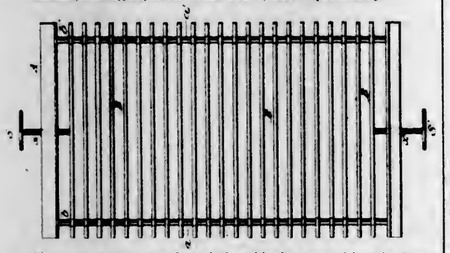
the naughts marked on its projecting portion opposite to said numerals, of the cylinder having the numerals marked thereon extending over the projecting portion of the inner cylinder, and having the opening in its lower front side, the two said outer cylinders bearing to each other the relation of tens and units, as described.

2. The combination, with the sliding drawer, of the spring-actuated sliding frame carrying the locking-plate, and having the spring-arms provided with the beveled points, the shafts, and the frame-pieces carrying the cylinders, said cylinders having the series of apertures opposite their several handles, substantially as described.

3. The combination, with the sliding drawer having the upwardly-projecting plate, of the spring-actuated sliding frame carrying the locking-plate, and having the spring-arms provided with the beveled points, the shafts, the indicating or registering drums loosely mounted on the said shaft, having each the numerals and the projecting lugs, arranged as set forth, the spring-actuated hinged plates carrying the spring-pawls, the spring-pawl secured to the cross-piece, and the spring-actuated frame-pieces carrying the inner and outer cylinders, the spring-pawls, and having the series of apertures opposite their several handles.

4. In combination with a cash-receptacle, two or more registering-drums, two or more cylinders having numbers on their outer surfaces corresponding to the numbers on the drums, an opening being provided in the outer frame for the purpose of showing the amount registered, with a handle opposite each number to operate the same, substantially as set forth.

350,987. APPARATUS FOR PAINTING SHINGLES. Clifford I. Millard, Burlington, Iowa. Filed Feb. 4, 1886. (No model.)

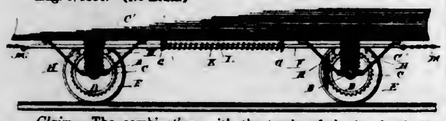


Claim.—An apparatus for painting shingles, comprising the frame A, having side bars, *a* and *a'*, the cross-bars B B, and the screws S and S', substantially as and for the purpose herein described.

350,988. BITTERS. John H. Owings, Deer Lodge City, Mont. Filed June 8, 1886. (No specimens.)

Claim.—The within-described bitters, having as ingredients dried orange-peel, gentian-root, Virginia snake-root, Oregon grape-root, blue flag, (calamus,) coriander-seed, cardamon-seed, cinnamon-bark, alcohol, and simple sirup, in about the proportion specified, for the purposes set forth.

350,989. CAR-STARTER. Harry C. Perot, Natchitoches, La. Filed Aug. 9, 1886. (No model.)



Claim.—The combination, with the truck, of the longitudinally-movable bars having the pawls and stops secured thereto, the hangers G, coiled spring K, having its ends abutting the said hangers, the pin L, secured to and centrally located on the bar F midway in the spring, and the cogged wheels D, substantially as described, and for the purposes set forth.

350,990. BICYCLE-STAND. Andrew J. Philbrick, Beverly, Mass., assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Apr. 28, 1886. (No model.)



Claim.—1. A bicycle-stand constructed with two laterally-folding fore-and-aft parts and a thwart-piece, essentially as set forth.

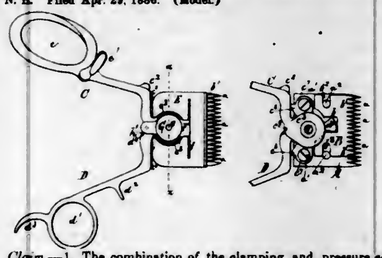
2. A bicycle-stand constructed with two laterally-folding fore-and-aft parts and a thwart-piece, the latter being looped at each end about one prong of each fore-and-aft part, so as to hold them in any adjusted position, essentially as set forth.

3. A bicycle-stand constructed with parts for a separating-base and device in the base for holding a wheel laterally at one point, and two devices for holding the wheel laterally at two other points above the plane of the first point, one or both of said two devices being adjustable fore and aft in or upon the rest of the stand, so as to hold wheels of different sizes in a vertical position, essentially as set forth.

4. A bicycle-stand constructed with parts for a separating-base, and device for holding the handle-bars of a bicycle, and a device for holding the perch of a bicycle, one or both of these devices being adjustable fore and aft in or upon the rest of the stand, so as to hold bicycles of different sizes in an inverted position, essentially as set forth.

5. A bicycle-stand constructed with four fore-and-aft side pieces, four supports on the ground, and a thwart-piece, constructed, arranged, and combined so as to hold adjustably bicycles of different sizes, essentially as set forth.

350,991. HAIR-CLIPPING MACHINE. Joseph K. Priest, Nashua, N. H. Filed Apr. 29, 1886. (Model.)



Claim.—1. The combination of the clamping and pressure screw-bolt *g*, fastened to and projecting up from the stationary cutter-plate A, the slotted nut g^3, and the concave or conical washer g^2, with the movable cutter-plate B, presser-plate E, bridge-spring plate F, and stationary cutter-plate A, substantially as and for the purpose described.

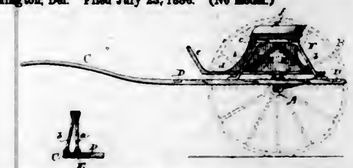
2. The handle C, provided with the housing c^3, having the flanges c', annular chamber c^4 for the spring H, and tubular bearing c^4, all fastened to the stationary cutter-plate A, in combination with the movable handle D, having a tubular bearing, d^3, with horizontal flat portion *d*, upon which the tubular bearing c^4 bears, substantially as described.

3. The combination, with the handle C, of the housing c^3, comprising chamber c^3, tubular bearing c^4, and outer slot, c^5, the handle D, having notch d^3, and the spring H, having upper end, A, and lower end, *h'*, substantially as and for the purpose described.

4. The combination of the housings c^3, forming a tubular bearing, c^4, for the tubular bearing d^3, and the chamber c^3 for the spring H, the handle D, having the tubular bearing d^3, which is open at both its lower and upper ends, and is provided with the flat portion *d*, the cutter-plates A and B, screw-bolt *g*, extended up through and above the bearing d^3, the presser-plate E, the bridge-spring F, and a suitable pressure device applied on the bolt *g*, substantially as described, and for the purpose set forth.

5. In a hair-clipping machine, the combination of the presser-plate E, having flanges e e^3, ledges s', and opening e^3, the handle C, having lugs c', with projections c^5, and the housing c^3, having chamber c^3 for the spring H, substantially as and for the purpose described.

350,992. TWO-WHEELED VEHICLE. Watson F. Quinby, Wilmington, Del. Filed July 23, 1886. (No model.)



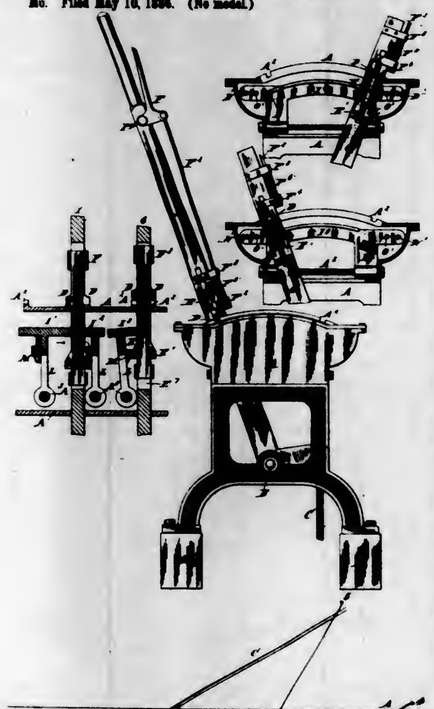
Claim.—1. Upright frames on each side of a vehicle, in combination with the vehicle-body suspended therefrom by coiled springs, said springs being connected to the frames on either side at a single point, substantially as set forth.

2. The axle of a vehicle, the shafts secured rigidly thereto, and upright frames supported by and upon said shafts, in combination with the vehicle-body suspended from said upright frames, said springs being connected to the frames on either side at a single point, substantially as set forth.

3. The axle of a vehicle, the shafts rigidly secured thereto, longitudinal bars parallel with and close to said shafts, and upright frames supported by said shafts and longitudinal bars, each frame consisting of vertically-extending strips attached to said shafts and bars, and a cross horizontal strip connecting the vertical strips, in combination with the vehicle-body suspended from said horizontal strips, substantially as set forth.

4. The axle and shafts of a vehicle, upright frames supported by said shafts, and a vehicle-body suspended from a single point on each upright frame by coiled springs, in combination with a back check-strap connected to the axle and to the rear of the vehicle-body, substantially as set forth.

350,993. INTERLOCKING SYSTEM. Eugene J. Rebillon, Moberly, Mo. Filed May 10, 1886. (No model.)

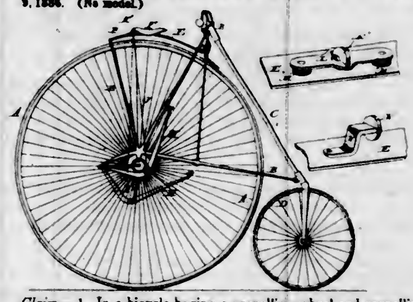


Claim.—1. In an interlocking system, the combination, with the operating-levers, of the oscillating locking-bars notched, substantially as described, and bearing against adjacent faces of two of said levers, and the sliding blocks secured to said levers for moving said locking-bars, substantially as set forth.

2. The combination, with the levers 6 and 4, of the locking-bar I^5, engaging the lever 6, for holding it normally at "danger," means for moving said locking-bar when said lever is to be moved to "safety," the locking-bar I^4 held by the lever 6 against movement until the said lever is moved to "safety," the lever 4 held against movement by the locking-bar I^4, and means for moving said locking-bar when said lever is free to move, substantially as set forth.

3. In an interlocking system, the combination of the levers 1, 2, 3, 4, 5, and 6, movable locking-bars, and connecting-rods N' O', provided with collars, substantially as shown and described, for the purpose set forth.

350,994. VELOCIPEDE. Willard G. Rich, Rochester, N. Y., assignor to the H. B. Smith Machine Company, Smithville, N. J. Filed Feb. 9, 1886. (No model.)



Claim.—1. In a bicycle having a propelling-wheel and propelling-levers connected therewith by clutch mechanism, an intermediate cord, J, and a yielding or spring-supported pulley to sustain said cord, substantially as described.

2. The combination of a propelling-wheel, two clutch mechanisms acting to turn the same in a forward direction, foot-levers connected to said clutches by flexible connection from one of said clutch mechanisms to the other, a pulley to sustain said connection, and a spring-support for said pulley.

3. In a bicycle of the type herein described, the combination of the main frame, the main wheel, the two clutch mechanisms on opposite sides of said wheel, the foot-levers connected to said clutch mechanisms, the seat-supporting spring, the pulley mounted upon a yielding portion of said spring, and a flexible connection, J, extended over said pulley to the respective clutch mechanisms.

4. In a vehicle, the combination, with the propelling-wheel and two driving-drums connected with said wheel by automatic clutching devices, of two foot-levers connected with said clutches to turn them in a forward direction, and a yielding connection operating, as described, through the drums or directly upon the levers to effect the elevation of each lever as the other is depressed.

5. The combination of the rotating drum and pulley, connected, as described, by intermediate pawls and ratchet-teeth, the plate L, connected with the pawls by a slot and pin, and the stationary spring M, bearing against the face of said plate, as described.

6. In combination with the driving-drum having projections to engage the straps I and J, the plate *g*, secured by the screw *h*, and acting to confine both cords in position.

7. The driving-drum and foot-lever, the cord I, doubled upon itself and secured together, in combination with means, substantially as described, for connecting the same to the drum and lever, respectively.

8. The combination of the drum, its actuating-lever, the cord doubled upon itself and attached at its ends to the drum, and the stirrup *k*, secured to the lever and provided at its upper end with the bearing-surface seated within the loop or bight of the cord.

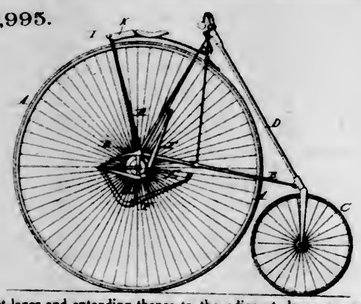
9. In combination with the lever and the cord I, the intermediate connection consisting of the stirrup *k* and the reversible stirrup *n*, pivoted to the lever, as described and shown.

10. In combination with the peripherally-curved drum and the cords applied thereto, the stationary shield or casing inclosing the drum, provided with an opening for the passage of the cord, as described.

350,995. VELOCIPEDE. Willard G. Rich, Rochester, N. Y., assignor to the H. B. Smith Machine Company, Smithville, N. J. Filed Oct. 17, 1885. Renewed Sept. 13, 1886. (No model.)

Claim.—1. In a bicycle or similar vehicle, the combination, substantially as shown, of the driving-wheel, the two driving-drums connected therewith by clutch mechanism, the flexible cord or connection H, passing over an intermediate pulley and attached at its two ends to the respective drums midway between their edges, the foot-levers arranged one adjacent to each drum, and two cords, G, connected with

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each foot-lever and extending thence to the adjacent drum on opposite sides of the cord H, whereby side strains upon the drums are prevented and their tendency to tip sidewise avoided.

2. In a bicycle, the combination of the wheeled driving-drums E, each provided with three peripheral grooves, the connecting-cord H, passed over an intermediate pulley and seated in the middle grooves of the drums, the foot-levers, and the cords G, extending two from each lever to the outer grooves of the adjacent drum.

3. In combination with the driving-drum and the foot-lever for operating the same, the operating-cord G, doubled upon itself and secured to the plate *a*, connecting the cord at its middle with the drum, whereby the cord is secured in position and its two ends separated to admit the intermediate cord.

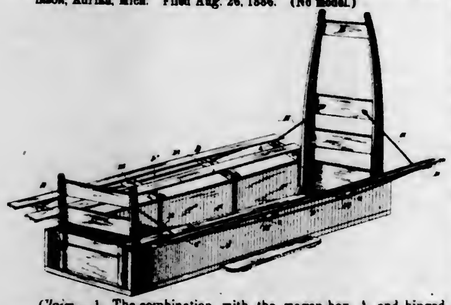
4. In combination with the independently-revolving internally-toothed drum, the pulley G, having peripheral notches therein, the toothed driving-dogs carried thereby, the ring connected to the dogs, and the frictional devices applied to the drum and acting upon the ring, substantially as shown.

5. In combination with the driving-drum D, toothed internally, the internal driving-pulley G, provided with peripheral notches, and the toothed dogs secured in said notches by a sliding connection and adapted to slide into and out of engagement with the teeth of the drum, as described.

6. In combination with the drum, the movable dogs to engage the same, and the ring to control the dogs, the friction-plate *l*, the spiral springs *m*, and the external nut to confine said springs.

7. In combination with the movable dogs and their connecting-ring, the latch *o*, whereby the dogs may be held out of engagement.

350,996. COMBINED STOCK AND HAY RACK. Murray L. Robinson, Adrian, Mich. Filed Aug. 26, 1886. (No model.)



Claim.—1. The combination, with the wagon-box A and hinged side racks, D D, of the end ladders or racks, B C, provided with the hook-rods H H, all constructed and arranged substantially as shown and described, whereby said hook-rods can be adjusted to secure the side racks in either a vertical or inclined position.

2. The combination, with the wagon-box A and the side racks, D D, provided with the truss-braces F F, of the end ladders or racks, B C, provided with the hook-rods H H, all constructed and arranged substantially as shown and described.

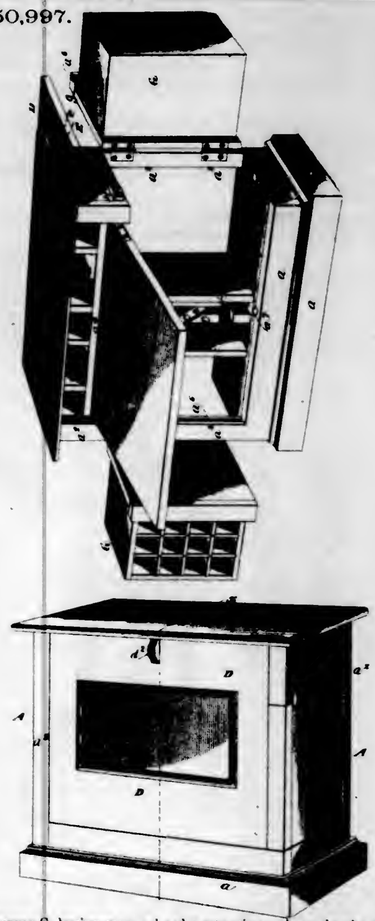
350,997. DESK. Amos Sanders, North Vernon, Ind. Filed May 11, 1886. (No model.)

Claim.—1. A double desk having two pigeon-hole boxes pivoted diagonally opposite to each other, and one facing on either side in opposite direction from the other, as shown and described.

2. In a desk, the loose leaf D and shelf-board a^4, in combination with intermediate pivoted connecting-straps E E, as shown and described.

3. The combination, with a leaf, D, connected by end-pivoted straps with the edge of board a^4, and provided with the bottom pin, *d*, of

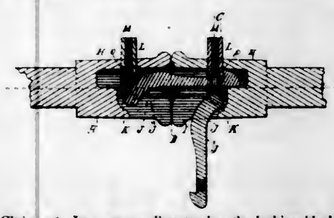
350,997.



the crane C, having arms *c c'* and a retracting-spring, whereby the leaf as it is raised will automatically throw out its own support in the manner described.

4. The combination, with the desk-body and cranes C C, of an intermediate spring, C', secured to each and retracting them in the manner specified.

350,998. CAR-COUPLING. William Sheridon, Toledo, Ohio. Filed Mar. 6, 1886. (No model.)



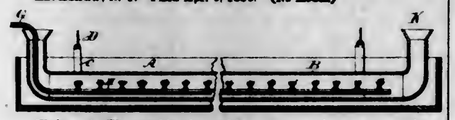
Claim.—1. In a car-coupling having the locking-block L, case H, and hook J, the bifurcation I, in which the hook J is pivoted, substantially as shown, and for the purpose described.

2. In combination with the case H, having the bifurcation I and locking-block L, the hook J, pivoted in and adapted to swing within the said bifurcation, and substantially as shown, and for the purpose specified.

3. In combination with the case H, having the bifurcation I, in which the hook J is pivoted, the locking-block L, and adapted to engage with the hook J, substantially as shown, and for the purpose specified.

4. A pair of car-couplings having the cases H H, locking-blocks L L, or either of them, and bifurcations I I, in which bifurcations are pivoted the interchangeable hooks J' or J J, said mechanism being adapted to lock and to be locked together by the use of one hook J and one locking-block L, each hook J and each locking-block L so in use being located in an opposite case, H, another hook J, and another locking-block L, if such are allowed to remain in the cases H H, or either of them, being in such positions that they will remain out of use, passive, and out of the way of all other members of said coupling before named while they are in use, substantially as shown and described.

350,999. EVAPORATING-PAN FOR SALT, &c. George H. Smith, Haverstraw, N. Y. Filed Apr. 6, 1886. (No model.)



Claim.—1. The combination, with an evaporating pan or grainer, of a submerged combustion-pipe therein, a gas-pipe within said combustion-pipe, and a gas-supply pipe leading to the same, substantially as described.

2. The combination, with an evaporating pan or grainer, of a submerged combustion-pipe therein, the same being of greater diameter in vertical than in lateral direction, and having a gas-pipe within said oval combustion-pipe, and a gas-supply pipe leading to said gas-pipe, as set forth.

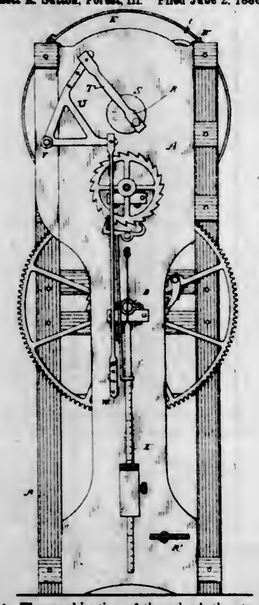
3. The combination, with an evaporating pan or grainer, of a removable combustion-pipe within the same and mechanism by which the combustion-pipe may be lifted out of the pan or grainer, substantially as described.

4. The combination, with an evaporating pan or grainer, of a combustion-tube therein, a gas-pipe within the combustion-tube, and a flexible supply-pipe leading to the gas-pipe, as set forth.

5. The combination, with a salt-evaporating pan or grainer, of a combustion-tube within the same, a gas-pipe within said combustion-tube, a flexible or jointed gas-supply pipe leading thereto, and a lifting mechanism by which the combustion-tube may be lifted from the pan.

6. The combination, with a salt-evaporating pan, of a combustion-pipe within the same, having a chimney leading above the surface of the brine in the pan, a gas-burner pipe within the combustion-pipe, and a gas-supply pipe leading from outside the pan to said gas-pipe, as set forth.

351,000. MOTOR. Obedian Smith, Bloomington, assignor of one-half to Emmett R. Sutton, Forest, Ill. Filed June 2, 1886. (No model.)

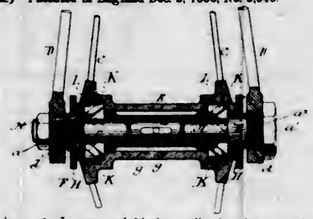


Claim.—1. The combination of the wheel, the stops thereon, the loaded buckets loosely connected to the rim or body of the wheel and pivoted to the hub, and the springs, substantially as set forth.

2. In combination with the wheel having stops, the buckets pivoted to the hub, and limited in oscillating movement by the stops, the bucket-springs, the inclined bucket-partitions, and the loose balls in the buckets, substantially as set forth.

3. In combination with a wheel, the buckets pivoted to the hub, and provided with springs at the hub, and with stops at the rim, the ends of the buckets being curved, the buckets containing balls, and the curved ends serving to make the motion of the balls gradual, except at the moment of tilting the buckets by the action of the springs, substantially as set forth.

351,001. ANTI-FRICTION BEARING FOR VELOCIPEDES. John K. Starley, Coventry, County of Warwick, England, assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Aug. 9, 1886. (No model.) Patented in England Dec. 3, 1880, No. 5,046.



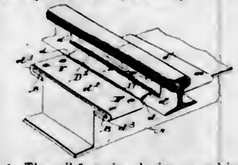
Claim.—1. In an anti-friction roller-bearing, a series of prolate spheroidal rollers or disks, with their axes inclined to the axis of the shaft or axle, essentially as set forth.

2. In an anti-friction roller-bearing, a series of prolate spheroidal rollers with their axes inclined to the axis of the wheel, and another series of similar rollers with their axes similarly inclined, but in an opposite direction, and placed alternately between the rollers of the other series, essentially as set forth.

3. In anti-friction bearing, the combination of bearing-surfaces in box and axle, substantially perpendicular to and parallel with the axis of the shaft or axle, one or more of said perpendicular surfaces being adjustable, and one or more series of prolate spheroidal rollers having their axes inclined at an angle with the axis of the shaft or axle, essentially as set forth.

4. The combination, in an anti-friction bearing, of a rectangular cylindrical recess in a hub or bearing-box, a rectangular cylindrical recess on an axle or between sleeves thereon, a cap threaded in the hub or box, and a sleeve threaded on the axle, two rows of opposingly-inclined and alternately-placed roller-disks and their connecting parts, constructed and combined to operate essentially as set forth.

351,002. RAILROAD TIE AND CHAIR. Alfred T. Stevens, Perry, Mich. Filed Apr. 26, 1886. (No model.)



Claim.—1. The rail-fastening device comprising the plate D, bent to form the base-plate d^2, having the lips or catches d^3 at its ends to engage the flanged edges of the tie, the lip D', to embrace the base of the rail, and the vertical plate D^2, to bear against the shank of the rail, substantially as described.

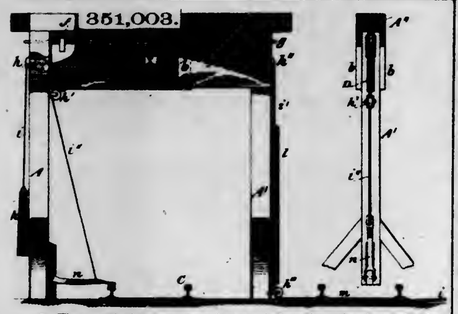
2. The plates D, having the bases d^2, provided with the lips or catches d^3 at their ends, the lips D', and the vertical plates D^2, for the purposes set forth, in combination with the tie having the flanges B, and the rail or rails secured between the lips D' and plates D^2 of the plates D, substantially as described.

351,003. SEMAPHORE. Roderick G. Stowe, Boston, Ga. Filed June 3, 1886. (No model.)

Claim.—1. The vertical support, cross-beam, and casing, the latter having open spaces, as described, combined with a sliding semaphore or board having different divisions or colors adapted to be displayed at said spaces, substantially as set forth.



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2. The vertical posts, cross-beam, and casing, the latter having spaces and being open at the bottom, as described, combined with a semaphore or board having different divisions or colors to be displayed at said spaces, and adapted to slide within and be protected by the casing, substantially as set forth.

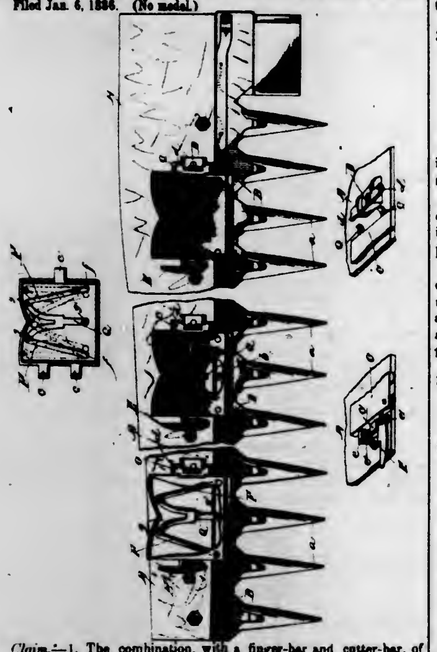
3. The vertical posts, cross-beam, and casing, the latter having spaces, as described, combined with a cross-rod, and a semaphore or board having sheaves resting upon said rod and adapted to slide within said casing, said semaphore or board having different divisions or colors to be displayed at said spaces, substantially as set forth.

4. The vertical posts, cross-beam, and casing, the latter having spaces, as described, combined with a cross-rod, a semaphore or board having sheaves and adapted to slide on said rod, and cords, sheaves, and a weight for operating said board, said semaphore or board having different divisions or colors to be displayed at said spaces, substantially as set forth.

5. The combination of vertical posts, cross-beam, casing having spaces, as described, sliding semaphore or board, and lanterns, said semaphore or board having different divisions or colors to be displayed at said spaces, substantially as set forth.

6. The vertical support, cross-beam, and casing, the latter having open spaces, as described, combined with a sliding semaphore or board having different divisions or colors adapted to be displayed at said spaces, and with a lever arranged to rest over one rail of the track, and a connection between it and the semaphore, substantially as set forth.

351,004. HARVESTER-CUTTER. Leonard Study, McPaul, Iowa. Filed Jan. 6, 1886. (No model.)

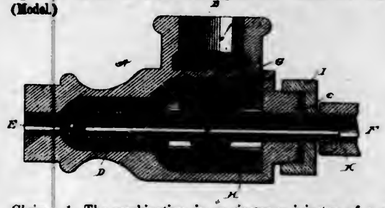


Claim.—1. The combination, with a finger-bar and cutter-bar, of a pair of rods or bars pivoted on the finger-bar, and a link pivotally connecting the two and pivoted to the cutter-bar, whereby the cutter-bar is steadied in its longitudinal movement and the abrasion between its rear edge and the front edge of the finger-bar reduced, substantially as and for the purposes set forth.

2. The combination of the finger-bar, the cutter-bar, a case removably secured to the finger-bar and overhanging and bearing upon the cutter-bar to hold it close upon the finger-bar, a pair of bars or rods, each pivotally connected at one end to the case, and a link uniting the free ends of the bars and pivotally connected with the cutter-bar, substantially as shown and described.

3. The combination, with the finger and cutter bars, the pair of rods and a link pivotally connected at one end with the adjacent ends of the rods, of a case inclosing the rods and link, provided with lugs *c* and the log *c'*, the casting D, having lugs to engage lugs *c*, and a catch to contact with lug *c'*, whereby the bars, link, and cutter-bar are removably held in place, substantially as set forth.

351,005. EJECTOR OR INJECTOR. Hannon P. Tenant, Dublin, assignor to Horace R. Allen, Indianapolis, Ind. Filed Mar. 10, 1886. (Model.)

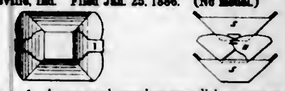


Claim.—1. The combination, in an ejector or injector, of a casing provided with an inlet, a pipe through which the fluid under pressure passes through the casing at right angles to the inlet, and a bridge formed upon the inlet in such manner as to divide the current of fluid entering the inlet-opening, substantially as described.

2. The combination, in an ejector or injector, of the casing provided with the inlet-opening, the steam-pipe provided with a reduced end, and the bridge formed upon the inlet at the point at which the liquid impinges, the steam-pipe passing through the casing at right angles to the inlet-opening, substantially as described.

3. The combination, in an ejector or injector, of a casing provided with suitable inlet and outlet, a steam-pipe passing through the casing at right angles to the inlet, a chamber surrounding the steam-pipe, and a bridge formed upon the inlet, all arranged substantially as described, to prevent unnecessary agitation of the fluid to be injected or ejected.

351,006. PACKING WOODEN DISHES. Evert M. Thompson, Evansville, Ind. Filed Jan. 25, 1886. (No model.)



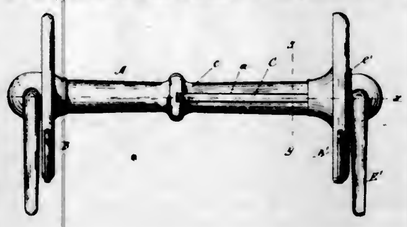
Claim.—1. A seasoned wood-veneer dish, square at the bottom and in all horizontal cross-sections, and having inclined sides and ends, substantially as and for the purposes set forth.

2. A seasoned wood-veneer dish, square at the bottom and in all other horizontal cross-sections, and having inclined sides and ends, all inclined at the same angle to the bottom, substantially as and for the purposes set forth.

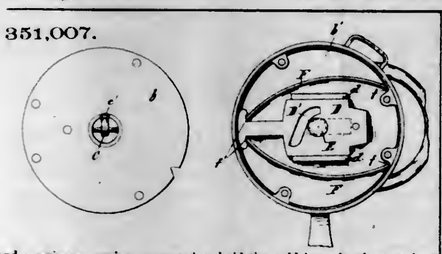
3. A package containing a plurality of seasoned wood-veneer dishes, each square at the bottom and at all other horizontal cross-sections, and nested compactly with the grain of each dish crossing the grain of the adjacent dish, inclosed in a wrapper of paper or other flexible material, and bound inside or outside the wrapper with wire or twine, substantially as and for the purposes described.

351,007. BRIDLE-BIT. Arvin C. Tredner, Syracuse, N. Y., assignor of one-half to Jerome W. Millington, Chicago, Ill. Filed Jan. 23, 1886. (No model.)

Claim.—1. In a bridle-bit, the combination, with the bit proper, of the lever pivoted thereto and connected to and operated by the reins,



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and a spring or springs arranged to hold the said lever in place against the pull of the reins, substantially as and for the purposes specified.

2. In a bridle-bit, the combination, with the bit proper, of the lever pivoted thereto, and the cam-slotted sliding plate connected to the rein, substantially as and for the purposes specified.

3. In a bridle-bit, the combination, with the bit proper, of the lever pivoted thereto, the sliding plate connected to the rein and provided with a cam-slot with which the lever engages, and a spring or springs to thrust said plate forward, substantially as and for the purposes specified.

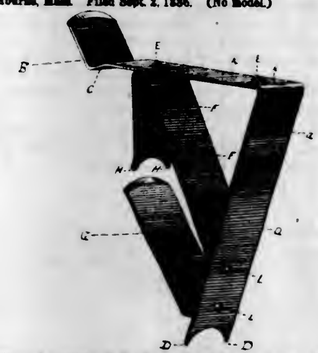
4. The combination, with the bit proper and pivoted lever, of the hollow cheek-guard, and the cam-slotted sliding plate and its springs arranged within the cheek-guard, substantially as and for the purposes specified.

5. The combination, with the sliding plate D and the springs, of the cheek-guard made in two separable parts to inclose the same, and provided with guides *d* and slot *e*, and the post E, secured to the plate and provided with washer *e'*, substantially as and for the purposes specified.

6. The combination, with the slotted bit, of the lever pivoted within the slot, mechanism connecting the said lever and the reins, and a spring or springs arranged to hold the lever normally within the slot, substantially as and for the purposes specified.

7. In a bridle-bit, the combination, with the cheek-guard provided with seats *f*, of the sliding plate provided with seats *f'*, and a series of flat springs, F, arranged in said seats, substantially as and for the purposes specified.

351,008. ROOFING OR STAGING BRACKET. Henry K. Tolman, Shelburne, Mass. Filed Sept. 2, 1886. (No model.)



Claim.—An article of the form described, consisting of the outside frame, A, having the projection B and the shoulder C, also the spurs D D, and the spur E, connected with the inside frame, F, having the spurs H H, and the projection G, all combined and operating together, substantially as described, and for the purpose specified.

351,009. CLUTCH MECHANISM. Frank M. Waters, Springfield, Ohio, assignor to John H. Thomas, same place. Filed July 3, 1886. (No model.)



Claim.—1. In a clutch, the combination, with a pinion having offsets at one end thereof, with inclines between them, of a shaft having a seat therein, and a key fitted to play in said seat, and having a fluke which extends from each side thereof, and which stands in the path of the offsets when the pinion is rotated in one direction and out of that path in the other direction.

2. In a clutch, the combination, with a pinion having a recess in one end and offsets projecting into the recess, of a shaft having a seat therein, and a key fitted loosely to the seat and having a curved fluke extending from each side thereof into the recess and between the offsets and the shaft, and adapted to engage the pinion in one direction and not in the other.

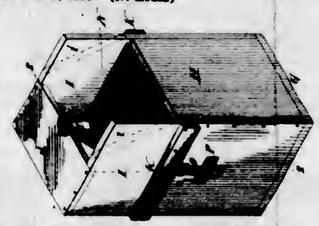
3. In a clutch, the combination, with a pinion having a recess in one end, a series of offsets projecting into it and having incline surfaces between them, of a shaft having a seat, and a key tapered toward its inner edge and loosely fitted to the seat, and provided with a curved fluke which extends from each side thereof into the recess and between the shaft and the offsets, and adapted to engage the offsets when the pinion is rotated in one direction, and not to engage them when rotated in the other direction.

4. A key for a clutch, constructed with a curved fluke which extends from each side thereof.

5. A key for a clutch, consisting of a bar reduced in thickness toward the inner edge thereof, and provided with a curved fluke which extends from each side thereof.

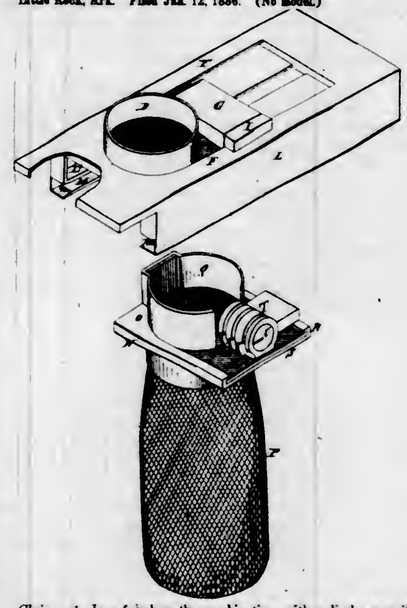
6. In a clutch, the combination, with a pinion having offsets at one end thereof, of a shaft and a key in engaging contact, and a fluke carried by the key and constructed to engage the offsets when the pinion revolves in one direction and not to engage them when it revolves in the other direction.

351,010. SHIPPING-CAN. Frederik Westerbeek, St. Louis, Mo. Filed Dec. 26, 1885. (No model.)



Claim.—The combination, with a can having a top, nozzle, and hand-hold on the top at the rear of the nozzle, of a case consisting of a flat bottom, G, front and rear pieces, H H', extending to the shoulders of the can, side pieces, I I, extending upward flush with the nozzle, top piece, J, let in flush with the tops of the side pieces, and a handle on the rear piece of the case, substantially as set forth.

351,011. FARE-BOX. John R. Wherry and Herbert H. Rottaken, Little Rock, Ark. Filed Jan. 12, 1886. (No model.)



Claim.—1. In a fare-box, the combination, with a discharge-orifice having a valve and a lock-bolt for securing it, and a removable recepta-

cle having a valve closing its mouth, of a lock secured to said receptacle, and having tumblers or wings adapted to lock or release both valves simultaneously, as set forth, and a key secured irremovably to the box.

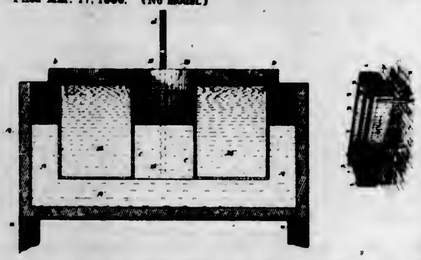
2. The combination, with the discharge-hopper, the bottom L, the valve E, closing said hopper, and the lock-bolt for holding said valve in closed position, of the removable receptacle, the lock secured thereto and having the tumblers or wings for disengaging said lock-bolt, and the irremovable key bearing and adapted to slide in a socket in the bottom L, substantially as and for the purposes set forth.

3. The combination, with a fare-box having a discharge-hopper and an irremovable key turning in a bearing in the bottom of the box, of a removable receptacle having a valve closing its mouth and a lock for securing said valve, guides for supporting said receptacle beneath the hopper of the box, whereby the key may be inserted in the lock and a stop for preventing the withdrawal of the key while the valve is unlocked or open, as set forth.

4. The combination, in a fare-box for cars, of discharge-opening closed by a lock-valve, E G, with a key fixed in the box, and a removable receptacle, P, with mouth Q, having a lock-valve, R T, constructed to be operated by the key, wings V and W upon the lock T, and bolt and tumbler-bars H and J of the lock G, substantially as and for the purpose set forth.

5. The fare-box having the discharge-hopper, the bottom L, having the guides M, the valve E, having the lock-bolt, substantially as described, the irremovable key having the elongated cylindrical shank and the spline Y, and the key-hole-bearing socket confining the movement of said key, in combination with the removable receptacle having the plate S, the valve R, and the lock T, having the wings W and V, all constructed and arranged to operate substantially as set forth.

351,012. CREAM-TEMPERING VAT. John Wilhelm, Wooster, Ohio. Filed Mar. 17, 1886. (No model.)

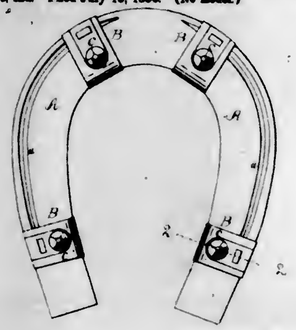


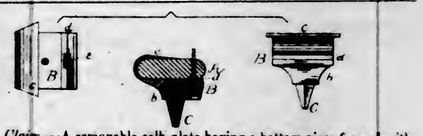
Claim.—1. In a cream-tempering apparatus, the combination, with a tank and a vat suspended therein and having a water-space in the body thereof in open relation with the water-space around the vat, of gates for dividing the interior of the vat into compartments, substantially as set forth.

2. In a cream-tempering vat, the combination, with a tank and a vat located therein, the latter having a centrally-located well in open communication with the water-space surrounding the vat, of gateways secured to the side of the vat and the side of the well, respectively, and gates for dividing the vat into compartments.

3. In a cream-tempering vat, the combination, with a water-tank and a vat located therein, the latter having a centrally-located well in open communication with the water-space surrounding the vat, of the gateways secured to the side of the well and side of the vat, respectively, each gateway having a cork filling, against which the gate rests, and gates for dividing the vat into compartments, substantially as set forth.

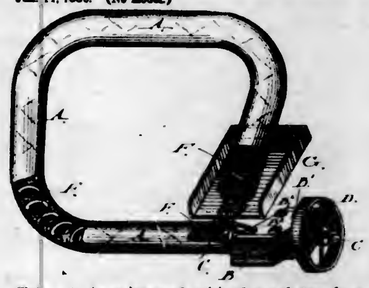
351,013. CALK-PLATE FOR HORSESHOES. John J. Wilhelm, Cedar Grove, Ind. Filed July 15, 1886. (No model.)





Claim.—A removable calk-plate having a bottom piece formed with a projecting ridge which fits in the bottom nail-crease of the shoe, and with an aperture or nail-hole, whereby the calk-plate can be fastened to the shoe, said calk-plate having also an upwardly-extending overhanging retaining-lip, c, in combination with a calk removably secured to said bottom piece, said calk being so secured that it can be removed from the calk-plate without detaching the latter from the shoe, substantially as set forth.

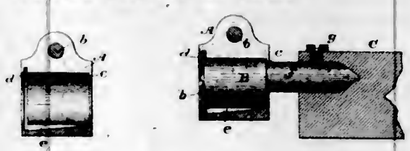
351,014. CONVEYER. Aaron Wheeler, Brunersville, Pa. Filed Jan. 11, 1886. (No model.)



Claim.—1. As an improved article of manufacture for transportation of materials adapted thereto, a continuous bar or wire coil of suitable metal, constructed with a differential pitch at curves in its inclosing-case, and with a uniform pitch of coil at all other points intermediate thereto, in combination with a short driving-shaft having pulley D, and a collar, E, to which one end of said coil is secured, substantially as and for the purpose set forth.

2. As an improved article of manufacture for transportation of materials adapted thereto, a coil of suitable metal of a differential pitch at respective points, and of a uniform pitch between the same, in combination with a case adapted to receive the same, carried from the receptive to the discharge point in an unbroken straight or curved course, or combination of the same, whereby the articles transported may be delivered at right angles with the line of departure or returned to the same point with but one driving-shaft and single connection with the motor, substantially as and for the purpose set forth.

351,015. JOURNAL-BOX. James B. Allfree, Cumberland, Md., assignor of one-half to Robert Shriver and Harrison Swartzwelder, both of same place. Filed June 23, 1886. (No model.)



Claim.—1. The combination, with an eccentric journal and means for operating the same, of a split journal-box having an annular interior chamber at one end and a longitudinal oil-groove in its bottom, substantially as described.

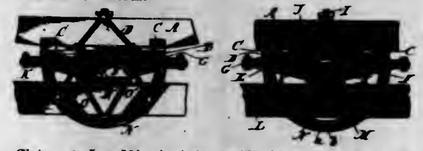
2. The combination, with a journal-box having an annular interior groove at one end and a groove in its bottom, of an eccentric journal arranged so that its outer edge or end is extended past the inner wall and about opposite the middle of said annular groove, and means for adjusting the same, substantially as described.

3. The combination, with a journal-box having an annular flange, c, at one end, and an annular interior groove at the other, and provided with a groove in its bottom, of an eccentric journal and means for adjusting the same horizontally and to variable degrees of eccentricity, substantially as described.

4. The combination of the journal-box having an annular interior groove at one end and a longitudinal groove in its bottom, the drive-shaft bored to one side of its geometric center, and an eccentric journal fitting in such bore, having means for adjustment, substantially as shown and described.

5. The combination, with the split journal-box, constructed as described, and having screw *b*, and formed with extension *h*, of the eccentric journal or cam B, having stem *f*, the drive-shaft, and the set-screw *g*, all as shown and set forth.

351,016. FIFTH-WHEEL FOR VEHICLES. Albert C. Ahrs, Chicago, Ill., assignor of one-half to J. H. Shepard, same place. Filed Mar. 12, 1886. (No model.)



Claim.—1. In a fifth-wheel, the combination of bolster A and ring-plate B with intermediate corbels, C, and spider-brace D, substantially as set forth.

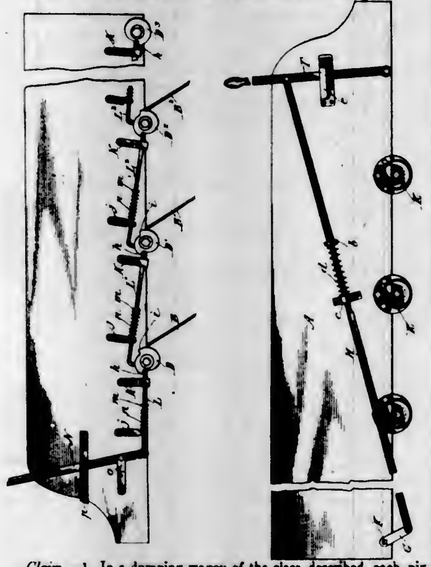
2. In a fifth-wheel, the combination, with bolster A, having ring-plate B, of sand-board E and bounds F, having ring-plate G, and of center-plates J and H and king-bolt I, all substantially as set forth.

3. In a fifth-wheel, the combination, with bolster A, sand-board E, bounds F, intermediate ring-plates, B and G, and king-bolt I, of axle-tree L, with saddle-plate M, and of pending arch-plates N, secured under the ring-plate G and embracing the axle-tree L, substantially as and for the purpose set forth.

4. In a fifth-wheel for vehicles, the combination, with the lower ring-plate, G, secured upon sand-board E and bounds F, of axle-tree L, having saddle-plate M, and of two pending arch-plates, N, secured under plate G at each side of axle-tree L, and connected below such axle-tree by a thimble and bolt, substantially as described, for the purpose specified.

5. In a fifth-wheel, the combination, with the sand-board E, bounds F, and ring-plate G, of pending arch-plates N, secured under ring-plate G, to embrace the axle-tree, and being suitably connected below such axle-tree, and of bars O, connecting and bracing such arch-plates N, with the bounds F, substantially as set forth.

351,017. DUMPING-WAGON. Albert C. Ahrs, Chicago, Ill., assignor to J. H. Shepard, same place. Filed Mar. 12, 1886. (No model.)



Claim.—1. In a dumping-wagon of the class described, each pivotal section provided with a spring, substantially as and for the purpose set forth.

2. In a dumping-wagon of the class described, each pivotal section provided with a spring for raising such section, with a cam and spring bolt for locking each section on its pending position, and with a lever for releasing the sections to be elevated in the successive order reverse to their successive order of dumping, substantially as and for the purpose set forth.

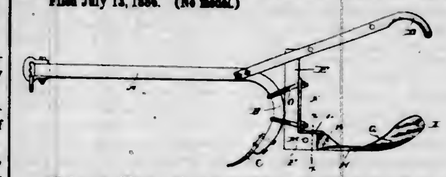
3. In a dumping-wagon of the class described, the combination, with the section pivot-shafts C, of springs E, substantially as and for the purpose set forth.

4. In a dumping-wagon of the class described, the combination, with the section pivot-shafts C and springs E and adjusting-plates J, substantially as and for the purpose set forth.

5. In a dumping-wagon of the class described, the combination, with shafts C and springs E, of cams D, spring-bolts L, and lever N, all substantially as set forth, to operate as specified.

6. In a dumping-wagon of the class described, the combination, with shafts C and springs E, of cams D, having shoulders A and i, of spring-bolts L, having hook-shaped heads, and of lever N, all substantially as set forth, to operate as specified.

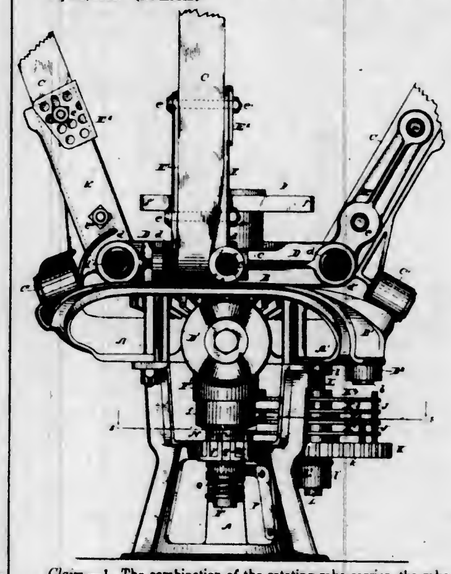
351,018. COTTON-SCRAPER. Wesley H. Rabham, Glen Rose, Tex. Filed July 13, 1886. (No model.)



Claim.—1. The combination, with the standard E, having the rearward-extending arm F at its lower end, of the cotton-scraper having the rearwardly and outwardly extending wing H, having the upturned broadened blade I at its rear end and the vertical portion K at its front, adapted to bear against one side of the arm F, and having the flange L to bear against the upper edge of the said arm, substantially as described.

2. The combination, with the cultivating-plow, of the vertical standard E, having the horizontal rearwardly-extending arm F at its lower end, the cotton-scraper attached to the said arm and extending rearwardly and outwardly therefrom, and having the upturned curved broadened rear end forming the blade I, and the clip-bolts O and clamping-plate N, to secure the standard E to the plow-standard and permit the said standard E to be vertically adjusted, substantially as described.

351,019. HARVESTER RAKE AND REEL. Frederick G. Becker, Brockport, N. Y., assignor to D. S. Morgan & Company, same place. Filed Sept. 3, 1885. (No model.)



Claim.—1. The combination of the rotating rake-carrier, the rake-arms jointed thereto, and the rotating rake-stop supported between the rake-arms above the rake-carrier, and having arms projecting toward the rake-arms, substantially as and for the purpose set forth.

2. The combination of the rotating rake-carrier, the rake-arms jointed thereto, the rotating rake-shaft, and the rotating stop removably secured upon the rake-shaft for limiting upward movement of the rake-arms, substantially as set forth.

3. The combination, substantially as set forth, of the cam-gate, the tripper having connection therewith, the rotating tripper-actuating mechanism, the rake-driving mechanism, the pinion having clutch-connection with and driven by the rake-driving mechanism for operating the tripper-actuating mechanism, the clutch-controller, and the stop engaging

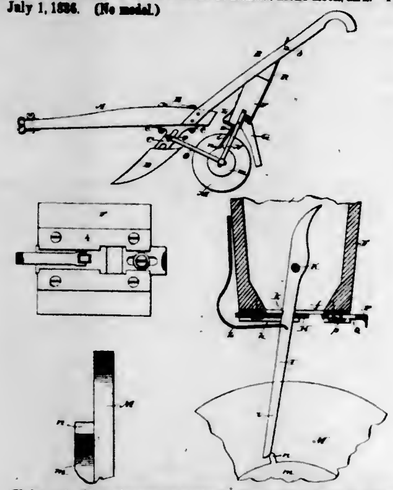
said pinion when actuated by the clutch-controller, for the purpose set forth.

4. The combination, substantially as set forth, of the cam-gate, the tripper, the rotating tripper-actuating mechanism, the rake-shaft, the pinion provided with stop-engaging grooves, having clutch-connection with the rake-shaft and gearing with the tripper-actuating mechanism, the clutch-controller, and the fixed stop engaging the pinion-grooves when this pinion is actuated by the clutch-controller, for the purpose described.

5. The combination of the cam-gate, the tripper having adjustable supporting-connection therewith, the rotating tappet-carriers having the peripheral notches, the toothed tappet-carrier, the shaft with which the tappet-carriers rotate, driving mechanism for rotating the tappet-carriers and clutch mechanism for throwing the tappet-carriers out of action, substantially as and for the purpose set forth.

6. The combination of the cam-gate, the tripper having adjustable supporting-connections therewith, the rotating tappet-carriers having the peripheral notches, the toothed tappet-carrier, the shaft with which the tappet-carriers rotate, the rake-shaft, the driving-pinion thereon for actuating the tappet-carriers, the clutch connecting the driving-pinion with the rake-shaft, the clutch-controller, and the stop engaging the driving-pinion when actuated by the clutch-controller, substantially as and for the purpose set forth.

351,020. PLANTER. Pinckney P. Benson, Little Rock, Ark. Filed July 1, 1886. (No model.)



Claim.—1. In a planter, the combination, with a hopper provided with a spring-actuated sliding door at the bottom and a door-operating lever adapted to be actuated by a ground-wheel, of an adjustable slide forming one edge of the seed-opening and adapted to determine the size of the opening made by the sliding door, substantially as set forth.

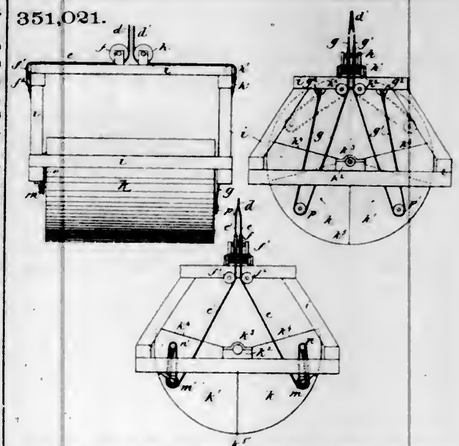
2. In a planter, the combination, with a hopper and a ground-wheel journaled in a pair of arms depending from the hopper, of the sliding door at the bottom of the hopper, the door-operating lever pivotally secured within the hopper, and the adjustable slide provided with an elongated slot for the reception of a set-screw, substantially as set forth.

3. In a planter, the combination, with the ground-wheel provided with a circular projection on its side and one or more pins or lugs set in the periphery of the circular projection, of the hopper, the arms connecting the ground-wheel and the hopper, the arms or braces connecting the ground-wheel and the plow, and the standard or standards connecting the hopper and the cross-brace between the handles, the whole constructed and arranged substantially as set forth.

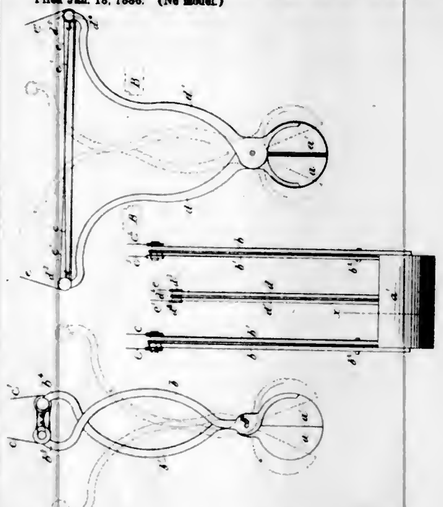
351,021. HOISTING AND CONVEYING APPARATUS. Albert Bettsley, Boston, Mass. Filed Jan. 18, 1886. (No model.)

Claim.—1. In a hoisting apparatus, a bucket consisting of two pivoted shells, combined with a supporting-frame wholly outside the said shells, and two hoisting-ropes, one passing to either end of the said frame, and pulleys connected with the said frame and with the shells at either end thereof, co-operating with the said ropes, as described, whereby a force applied to one of the said ropes tends with increased power to close the bucket into the material to be hoisted, and power applied to the other rope tends to open the bucket, substantially as described.

2. The bucket-supporting frame and hinged shells or half-buckets supported thereon, combined with the hoisting and bucket-closing rope, having two branches and guide-pulleys therefor, whereby it is guided from a point over the middle of the frame to one end thereof, and pulleys connected with the frame and with the ends of the shells, over which the said branches of the closing-rope pass, whereby a force applied to the said rope tends with increased power to close the said half-buckets downward into the material to be hoisted, substantially as described.



351,022. HOISTING APPARATUS. Albert Bettsley, Boston, Mass. Filed Jan. 18, 1886. (No model.)

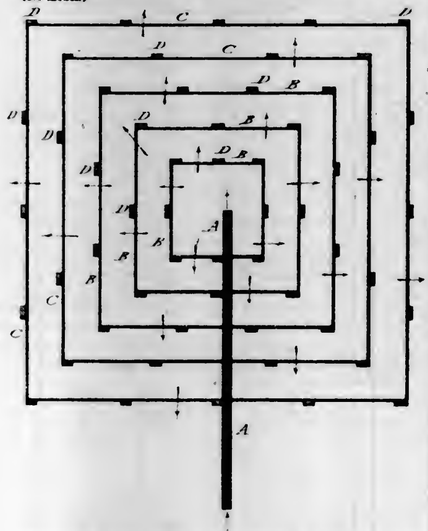


Claim.—1. In a hoisting apparatus, a bucket or receptacle composed of two members pivoted together, and each provided with two sets of arms extending upward from the bucket, and arranged with the extremities of one set of arms most widely separated and the other set of arms closest together when the bucket is closed, and the reverse, and hoisting-cords connected with each set of arms, as described, whereby the strain on either hoisting-cord tends to draw the ends of the corresponding set of arms toward one another, substantially as and for the purpose set forth.

2. A hoisting apparatus consisting of a bucket or receptacle composed of two parts hinged together, and having connected with it arms extending above the bucket, the said arms crossing one another in the portion between the bucket and their extremities, which extremities are nearest together when the bucket is closed, and hoisting-cords connected with the said arms with the tendency to draw them together, substantially as described.

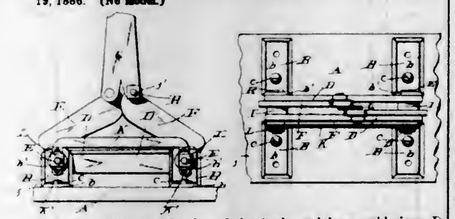
3. The combination of the two half-buckets pivoted together, with arms extending upward from said buckets, and having their extremities most widely separated when the bucket is closed, the portion of the said arms between their extremities and the bucket being bent toward one another, and the extremities being connected with hoisting-cords having a tendency to draw them together and open the bucket, substantially as described.

351,023. DUST-COLLECTOR. Benjamin A. Davis, Bermuda Ochre Works, assignor to George Davis, Petersburg, Va. Filed May 7, 1886. (No model.)



Claim.—The within-described dust-collector, consisting of a series of vertical cloth partitions arranged in rectangular form, one within the other, and having spaces between them, in combination with a blast-pipe leading into the space inclosed by the inner rectangular partition, substantially as described.

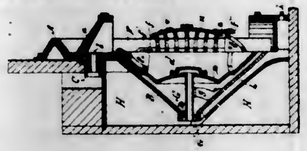
351,024. BLACKSMITH'S SHEARS. John W. Devero, Corning, Kans., assignor of one-half to George H. Johnson, same place. Filed July 19, 1886. (No model.)



Claim.—1. The combination of the horizontal immovable jaws D with the pivoted jaws F, having their outer sides bearing against the opposing inner sides of the jaws D, and the hand-lever having its lower end pivoted between the inner ends of the jaws F, whereby either of the said jaws may be caused to close against one of the jaws D by swinging the hand-lever in either direction, substantially as described.

2. The combination of the horizontal immovable jaws D, the jaws F, having their outer ends pivoted between the ends of the jaws D, the outer side of each of the jaws F bearing against the opposing inner side of one of the jaws D, the inner ends of the jaws F approaching each other, the hand-lever having its lower end pivoted to the inner end of the jaws F by means of bolts H, and the gage K, secured on the outer side of one of the jaws D, and vertically adjustable, substantially as described.

351,025. FIRE-PLACE HEATER. Elijah F. Dunaway, Covington, Ky. Filed Oct. 23, 1884. (No model.)



Claim.—1. The combination, substantially as specified, of the revolving fire-basket consisting of the back D, front E, and pivoted gates F F, the pivot projecting from the back D, and the double bearings back of the fire-basket for the pivot, to support the fire-basket and admit of its being revolved.

2. In combination with a grate constructed to revolve on horizontal bearings, the back B, heating-chamber H, inlet A', and hollow pivot G, whereby heated air is introduced into the fire-chamber, substantially as and for the purpose set forth.

3. The combination, with the main frame of a fire-place heater having a back, D, and horizontal bearings, of a grate-front, E, secured to said back, and gates F, pivoted upon opposite sides of said horizontal bearings, the said back being provided with recesses, and said gates being pivoted on horizontal pivots, substantially as before set forth.

4. The combination, substantially as specified, of the revolving grate or fire-basket D E, the hollow pivot G, the gates pivoted upon opposite sides of the pivot G, the said back D having a perforated cap, *d*, and the front E being provided with latches to retain the gates F closed when the fire-basket is revolved and the gate is on the bottom.

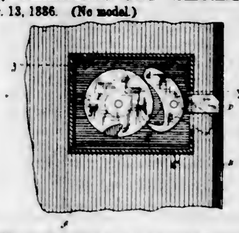
5. The combination, substantially as specified, of the back B with the back D, cap B^3, chamber H', the tube G, perforated to receive heated air from chamber H', the caps *d* and g^3, and bolt g^3, to secure the parts together, the front E, and pivoted gates F.

6. In a fire-place having a revolving fire-basket, such as described, the combination, substantially as specified, of chamber H, having flue *h*, and register A', and cap C, with the back B, open at the cone end, and the hollow pivot G, communicating with the chamber H, and the fire-basket.

7. In a grate revolving on horizontal pivots, as described, the combination of the back D, having slotted lugs *f* secured to its flange, and the grate E, with the gates F, having pivots to enter said slotted lugs, hooks f^3 to engage the flange of the back D when the gate is thrown open, and to be engaged by latches *e* when the gates are closed, substantially as specified.

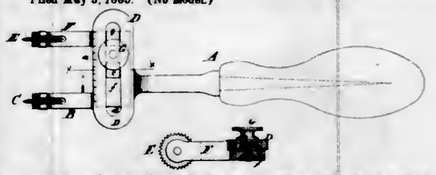
8. The combination, with the main frame of a fire-place heater having a back and horizontal bearings, of a front secured to said back, and gates pivoted on horizontal pivots to the front upon opposite sides of the horizontal bearings, substantially as before set forth.

351,026. PERMUTATION-LOCK. Max Frankel, Greenport, N. Y. Filed Mar. 13, 1886. (No model.)



Claim.—The combination, in a permutation-lock, of the tumblers F, having notches *f*, the pivoted bolt D, provided with the arm *d*, and hooked arm *d'*, adapted to enter said notches when the same are brought in line and hold the tumblers in the unlocked position, the said arms *d* and *d'* serving to dog the bolt against unlocking, substantially as shown and described.

351,027. TRACING-WHEEL. Elisabeth C. Gifford, Brooklyn, N. Y. Filed May 5, 1885. (No model.)

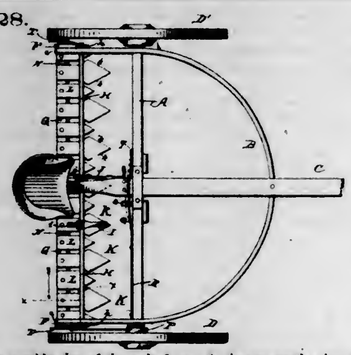


Claim.—In a tracing-tool, the combination, with the handle A, wheel C, and wheel-bearing B, and with the transverse plate D, having slot *d*, of the wheel E and its bearing F, provided with the lateral extension *f*, having projections *b c*, to slide in the said slot, and means, as G, for clamping the said parts *f* D together.

351,028. GANG-HOE. Franklin T. Gilbert, Walla Walla, Wash., assignor to Orley Hull, same place. Filed Nov. 12, 1885. (No model.)

Claim.—1. A gang-hoe comprising a main frame, a hoe-supporting bar, uprights connecting such bar with the main frame, and adjustable connections between said uprights and the main frame, whereby the hoe-bar may be set to and held at any suitable position into or out of the ground, substantially as set forth.

351,028.



2. The combination of the main frame, the hoe-supporting bar, the uprights connecting the latter with the main frame, and housings for the lower ends of the uprights, substantially as set forth.

3. The combination of the hoe-bar, the hoes supported thereon and having their adjacent edges formed in lines approximately parallel to each other and at an incline to the direction of movement, and a sickle-bar having cutting-blades arranged in rear of the inclined edges of the hoes, substantially as set forth.

4. The combination of the hoe-supporting bar, the uprights extended therefrom, and the main frame having depending arms provided at their lower ends with guides for the uprights, substantially as and for the purposes specified.

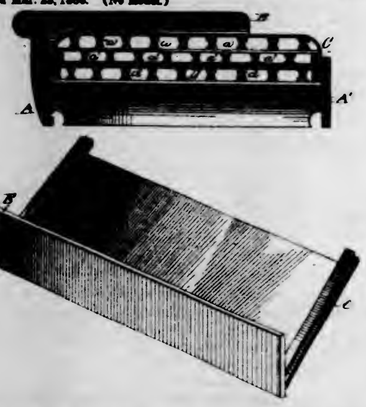
5. The combination of the hoe-supporting bar, the hoes secured thereto, the sickle-bar, the lever O, pivoted between its ends and having its lower end connected with the sickle-bar, a spring arranged to engage the lever O, and the hub P, having an arm, *p*, whereby to engage the lever O, substantially as set forth.

6. In a gang-hoe, the combination, with the supporting-bar, of a number of hoes secured to said bar and having their forward ends bent or deflected laterally, whereby the cutting-edge of one hoe will lap the cutting-edge of the adjacent hoe, substantially as set forth.

7. A gang-hoe having a hoe bar or support provided with a number of hoes arranged in a common plane and having the cutting-edge of one hoe lapping the cutting-edge of the adjacent hoe, said cutting-edges being arranged at angles to the hoe-bar, substantially as set forth.

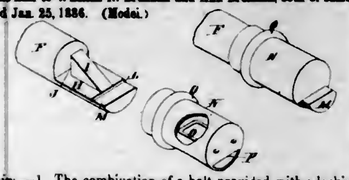
8. In a gang-hoe, a supporting-bar provided with a number of hoes having their forward ends bent or deflected laterally and arranged in series on opposite sides of the center, the hoes on opposite sides of the center being deflected toward the same, the deflected portions of said hoes lapping the cutting-edges of the adjacent hoes, substantially as shown and described.

351,029. SOFA-BEDSTEAD. August Haralson and Gustav R. Anderson, Minneapolis, Minn.; said Anderson assignor to said Haralson. Filed Mar. 23, 1886. (No model.)



Claim.—In a sofa-bedstead, the combination of the upper mattress containing two sets of springs, *a a'*, the lower mattress, D, the drawer E, provided with slides *e*, sliding in grooves on the inner side of the end pieces, A A, and extending through openings in the back piece, for supporting it when closed, as and for the purpose described.

351,030. SEAL-LOCK. Michael C. Harney, St. Louis, Mo., assignor of one-half to William N. Brennan and Ann Brennan, both of same place. Filed Jan. 25, 1886. (Model.)



Claim.—1. The combination of a bolt provided with a locking projection and a seal consisting of a sleeve provided with a loop to engage over the projection on the bolt, substantially as shown and described.

2. A bolt having a reduced end and lip, in combination with a seal consisting of a sleeve provided with a loop and an opening to receive the lip on the bolt, substantially as shown and described.

3. The combination of a bolt having a reduced end, inclined projection on the reduced end of the bolt, sleeve having a protuberance, Q, and spring-loop secured to the outer end of the seal, substantially as set forth.

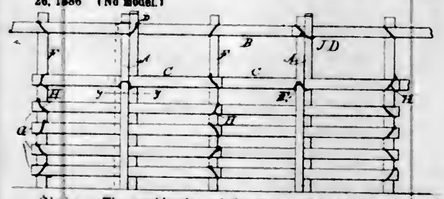
4. The combination of the bolt having a reduced end, provided with a lip, M, inclined projection on the reduced end, and seal consisting of a sleeve having a protuberance, Q, and closed end provided with an opening, P, and a spring-loop secured to the end, all substantially as and for the purpose set forth.

351,031. BLANKET OR SIMILAR ARTICLE. Robert G. Henry, Waterbury, Conn. Filed June 23, 1886. (No model.)



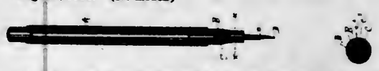
Claim.—As an improved manufacture, a blanket or similar article provided with two or more hanging devices arranged centrally thereof, two of the said devices being at or near the opposite edges of the said article, whereby the said hanging devices are adapted for use in evenly folding as well as in suspending the article to which they are attached, substantially as set forth.

351,032. FENCE. James E. Hinkle, Todd's Point, Ky. Filed May 26, 1886. (No model.)



Claim.—The combination of the crossed stakes A, the riders B, overlapping each other between the said stakes, a loop, D, binding the said riders and stakes together, the upper panel-rails, C, resting their middles upward in the lower fork of the stakes A, the wires E, binding the stakes across below the rails C, and the posts F, each bound rigidly to the lap of overlapping panels, and also bound to the middles of the said riders, substantially as shown and described.

351,033. FOUNTAIN-PEN. John Holland, Cincinnati, Ohio. Filed Aug. 23, 1886. (No model.)

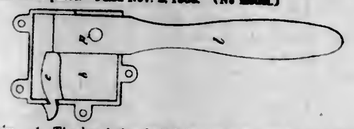


Claim.—1. A pen holder and feeder for fountain-pens, consisting of a cylindrical plug cut away upon one side to provide an ink-duct, slotted transversely to receive and hold the pen-point, and having a slotted longitudinal tongue extending from its transversely-slotted end to bear upon the upper side of the pen, in combination with a tubular handle to receive the cylindrical part of said holder, substantially as shown and described.

2. In combination with a hollow pen-handle, the cylindrical holder

C, having a slotted extension to bear upon the upper side of the pen-point, and having the duct for the passage of ink from the reservoir diminished at its inner end, substantially as shown and described.

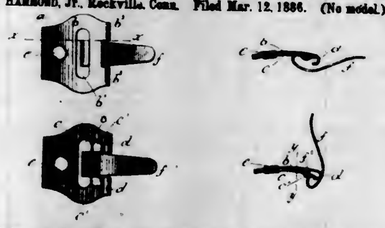
351,034. LOCKING-LEG FOR RED-LOUNGES. William H. Johnson and Oscar B. Johnson, Indianapolis, Ind., assignors to William F. Kuhn, same place. Filed Nov. 2, 1885. (No model.)



Claim.—1. The leg *l*, the shell *b*, having the pivot *p*, on which the leg rotates, the gravity-catch *c*, provided with a contracted neck and fitting in a slot formed in the shell-flange, such catch adapted to rise and fall upon its neck, so as to lock or unlock the leg by the force of its gravity when the lounge-frame is opened or closed, all combined substantially as described.

2. The shell *b*, having a pivot, *p*, on the inside, the leg *l*, adapted to rotate upon such pivot, the gravity-catch *c*, provided with a contracted neck and fitted in a notch formed in the shell-flange and adapted to lock or unlock the leg automatically by its own gravity when the lounge-frame to which the leg is secured is opened or closed, and the folding lounge-frame composed of the two parts *f* and *f'*, all combined substantially as described.

351,035. SHOE-CLASP. Theodore P. King, Westport, and Joseph C. Hammond, Jr., Rockville, Conn. Filed Mar. 12, 1886. (No model.)



Claim.—1. In a shoe-clasp, in combination with a tongue-plate, *a*, composed of the spring-plate *c*, and the top plate, *b*, having the stop *d*, with pivot-sockets formed between the parts, the hook-shaped tongue *f*, pivoted between the plates and having a cam, f^2, co-operating with the bar b^2 in opening and closing the tongue, all substantially as described.

2. In combination with the top plate, *b*, having the bar b^2 and arms b^3, terminating in the stops *d*, the spring-plate *c*, with its forward end lying adjacent to the stop, and a hook-shaped tongue, *f*, pivoted between the plates and bearing a cam, f^2, all substantially as described.

351,036. CABLE-RAILWAY GRIP. David B. Anders, Philadelphia, Pa. Filed Apr. 19, 1886. (No model.)

Claim.—1. The grip-supporting sleeve adapted to move vertically upon a guide or plates suspended from the car, substantially as described, and for the purpose specified.

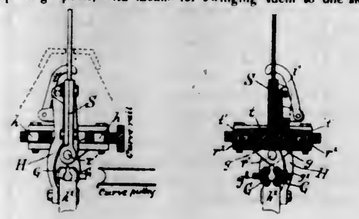
2. The combination of the sleeve S, gripping-jaws G, plates *p*, and bar *l*, substantially as described, and for the purpose specified.

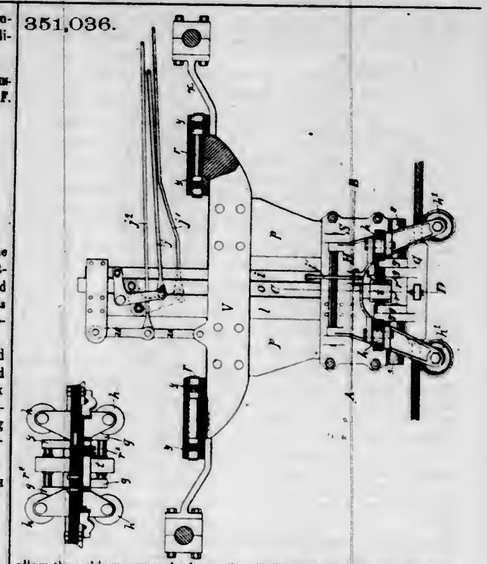
3. The combination of the sleeve S, plates *p*, bar *l*, jaws G, with arms *g*, cross-head *t*, and bar *o*, substantially as described.

4. The combination of the sleeve S, plates *p*, bar *l*, and means to raise and lower the same, jaws G, with arms *g*, cross-head *t*, bar *o*, and means to raise and lower the same, substantially as described, and for the purpose specified.

5. In a cable-railway grip, the combination of the gripping-jaws G, with arms *g*, cross-head *t*, pins r^3, bar *o*, sleeve S, swinging piece H, and spools h^3, substantially as described, and for the purpose specified.

6. In a gripping device for rope or cable railways, the combination of a sleeve carrying gripping-jaws, with means to operate the same, cable-supporting spools, with means for swinging them to one side to

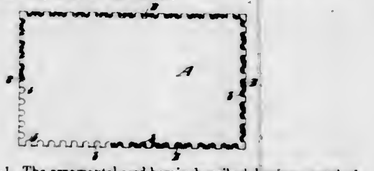




allow the cable to enter the jaws, the whole adapted to move vertically on guide-plates suspended from the car, substantially as described.

7. In a grip for cable-railways, the combination of the sleeve S, plates *p*, bar *l*, with means for raising and lowering the same, jaws G, pins r^3, cross-head *t*, bar *o*, with means to operate the same, swinging piece H, spools h^3, wheels *h*, link i^5, and bar *i*, with means for operating the same, substantially as described, and for the purpose specified.

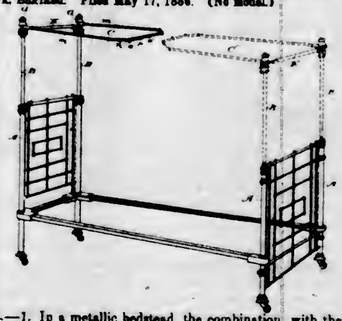
351,037. ORNAMENTAL CARD. Henry C. Bainbridge, Brooklyn, N. Y. Filed May 1, 1886. (No model.)



Claim.—1. The ornamental card herein described, having a notched edge and a band or fabric rove through the notches, substantially as herein set forth.

2. The ornamental card herein described, having a notched edge and a band or fabric of chenille with wire warp rove through the notches, substantially as herein set forth.

351,038. METALLIC BEDSTEAD. Henry Beuttell, Halifax, County of York, England. Filed May 17, 1886. (No model.)



Claim.—1. In a metallic bedstead, the combination, with the telescopic pillars, of a canopy consisting of a U-shaped frame with its ends entering the upper ends of said pillars, adapted to slide down into the same, and hinged in order to be turned down horizontally when drawn out of said pillars, substantially as set forth.

2. In a metallic bedstead, the combination of hollow pillars, telescopic pillars sliding therein, a canopy consisting of a U-shaped frame

with its ends entering said sliding pillars, and hinged to enable the canopy to be turned down horizontally when drawn out of said pillars, substantially as set forth.

3. In a metallic bedstead, the combination, with the telescopic pillars, of a canopy with its ends entering and sliding in the upper ends of said pillars, abutting stops upon the ends of said canopy and within said pillars to prevent the entire withdrawal of said canopy, and hinges in said canopy, whereby when the canopy is drawn out until arrested by said stops it may be turned down horizontally and will rest on the top of the pillars, substantially as set forth.

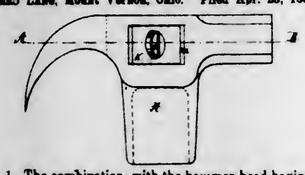
4. In a metallic bedstead, the combination, with the telescopic pillars, of a canopy made of parts hinged together, with its opposite ends entering the upper ends of said pillars and separable into two sections, substantially as set forth, whereby when said sections are separated one section may be lowered into one pillar and the other may be lowered into the other pillar.

5. In a metallic bedstead, the combination, with telescopic pillars B B, having screw-threaded upper ends formed with notches *v v*, of a canopy, C, with its ends entering said pillars, hinged at *f f*, and adapted to turn down into said notches, substantially as set forth.

6. In a metallic bedstead, the combination, with telescopic pillars B B, having screw-threaded upper ends formed with notches *v v*, of a canopy, C, with its ends entering said pillars, hinged at *f f*, and adapted to turn down into said notches, and knobs G G, adapted to screw on the tops of said pillars above said canopy, substantially as set forth.

7. In a metallic bedstead, the combination of hollow pillars A A, telescopic pillars B B sliding therein, cross-bar E, connecting the tops of pillars B B, hinged canopy C, with its ends entered into said pillars B B, and curtain-rods *i* and *j*, pivoted to said cross-bar, substantially as set forth.

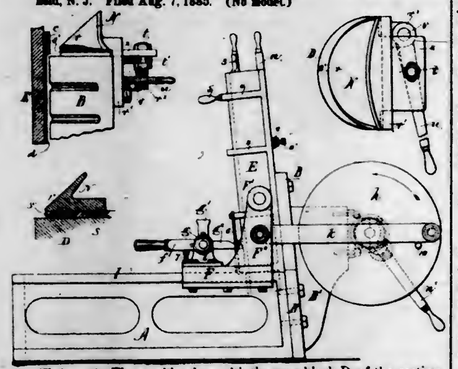
351,039. COMBINED HAMMER AND PLANER. Charles F. Brent and Alfred Lang, Mount Vernon, Ohio. Filed Apr. 23, 1886. (No model.)



Claim.—1. The combination, with the hammer-head having a planing-throat formed therethrough and provided with a tang projecting from a side thereof for the reception of the handle, of a planing-bit located in said throat, substantially as and for the purpose described.

2. As an improved article of manufacture, a combined hammer and plane consisting of the hammer-head having a claw at one end, a planing-throat of the usual construction formed through its sides for the reception of the plane-bit, and a tang for securing the handle thereto projected from one side at right angles to the planing-throat, substantially as shown and described.

351,040. STEREOTYPE-CASTING MACHINE. John Brooks, Plainfield, N. J. Filed Aug. 7, 1885. (No model.)



Claim.—1. The combination, with the core-block D, of the casting-box E, and mechanism, substantially as specified, for supporting the same, the side bars, *a a'*, provided with pins 1, entering holes in the casting-box, the end plate *b* and its bolts 2, the end plate *c* and handles 3, the bars *a a'* and plates *b c* being undercut to receive the edges of the paper matrix, substantially as specified.

2. The core-block D and casting-box E, mounted upon trunnions, and their bearings and the sliding carriage F, in combination with a handle, 5, for swinging the casting-box, a rest, *g'*, a catch, g^3, and a slotted plate, 6, to lock the casting-box in an upright position, and a handle, *f*, by which said catch g^3 is operated, substantially as specified.

3. The core-block D and casting-box E, in combination with the sliding carriages F, trunnions F' and their bearings, standards F^3, standards *e*, shaft *e'*, handles *f*, hub *g*, rest *g'*, catch g^3, and the slotted plate 6, and handle 5, substantially as specified.

4. The core-block D and the stationary frame to which it is connected, and the casting-box E, having trunnions, in combination with the sliding carriages having bearings for the trunnions, and the disks *h h'*, shaft *i*, links *k k'*, ratchet-wheels *l l'*, pawls *m m'*, hub *n*, and lever *n'*, substantially as specified.

5. The combination, in a stereotype-plate casting-machine, of a core-block bolted to the frame of the machine and maintained in an almost perpendicular position, a casting-box adapted to receive the paper matrix, and provided with trunnions at the sides thereof, and sliding bearings for the same and adapted to being turned up almost perpendicularly and placed against the core-block for casting and to being turned down horizontally for the removal of the stereotype-plate, substantially as specified.

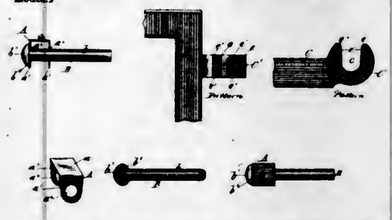
6. The core-block D and casting-box E, and the trunnions, bearings, and sliding carriages for the same, in combination with the disks *h h'*, shaft *i*, and links *k k'*, and a lever by which the said parts are operated, substantially as specified.

7. The casting-box E and core-block D, in combination with the head-piece N, the sliding cutter-plate *s*, the bolt *t*, link *t'*, the pin *u*, and lever *u* for separating the surplus metal from the edge of the stereotype-plate, substantially as specified.

8. The combination, with the casting-box E, the side bars, *a a'*, and end plates for holding the matrix, of the core-block D, the bar *o*, and adjusting-screws *o'*, substantially as set forth.

9. The combination, in a stereotype-casting machine, with the core-block, casting-box, and gage for the end of the stereotype-plate, of a head-piece upon the core-block, a cutter for removing the surplus metal from the edge of the stereotpye-plate, and mechanism, substantially as specified, for giving motion to the cutter, substantially as set forth.

351,041. MEANS FOR FORMING HINGES IN CAST-METAL PLATES. Norman Burdick, Albany, N. Y. Filed Apr. 17, 1886. (No model.)



Claim.—1. The pin B, provided with shoulder b^2, and the sheet-metal hood A, holding said pin, whereby said pin will be suitably adjusted in relation to a hinge-knuckle pattern by the edge margins of the several portions of the hood holding with shouldered seats made at the edges of the recess in the hinge-knuckle pattern, and will be supported within the mold when the pattern is withdrawn from the sand, substantially as and for the purposes set forth.

2. The combination, with the shoulder-seats *e e'* at the respective edges of a recess made within the hinge-knuckle pattern, of the pin B, provided with shoulder b^2, and the hood A, having correspondence with said shoulder-seats and holding said pin, substantially as and for the purposes set forth.

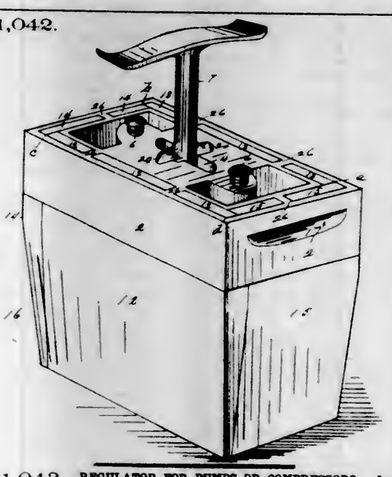
351,042. BUTTER MOLD AND STAMP. Henry I. Carver, Ludlow, Mass. Filed July 19, 1886. (No model.)

Claim.—1. A box for a butter-stamp, consisting of a metallic frame, 2, having transverse openings therethrough, and of side and end pieces of wood or of analogous material, said pieces having one end thereof entering said transverse openings in the frame, and secured thereto, substantially as set forth.

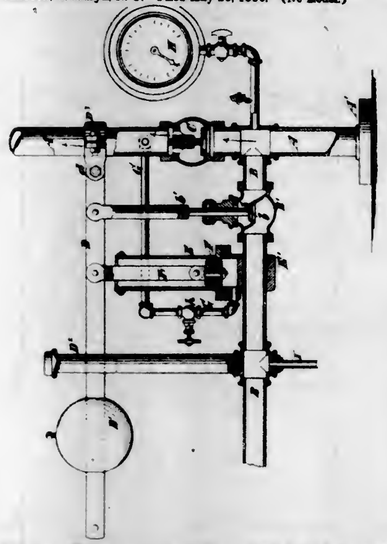
2. A butter-stamp consisting of a metallic frame, 2, having sides and ends of wood or analogous material secured thereto, forming an open-ended box, a stamp adapted to be moved within the latter, having a screw-threaded socket thereon, a stamp-handle passing through said frame, and having a screw-threaded end entering said socket, and two screws passing through said frame and adjustable in the direction of their length toward and from said stamp, substantially as set forth.

3. In combination, the stamp-box having the slot 4 in the frame thereof and the two adjustable screws 6 in the latter, the stamp 17, having the screw-threaded socket 19 thereon, the stamp-handle 7, screwed to fit the latter, and having the lateral stops 20 thereon, and the spring 21, substantially as set forth.

351,042.



351,043. REGULATOR FOR PUMPS OR COMPRESSORS. James Clayton, Brooklyn, N. Y. Filed May 26, 1886. (No model.)

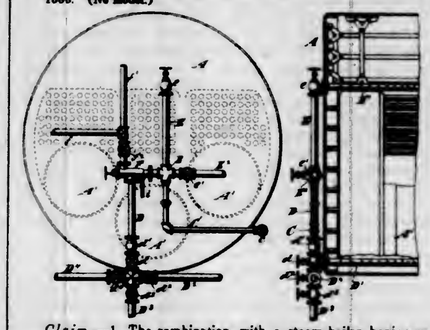


Claim.—1. The combination, with a pipe for the delivery of fluid under pressure from a pump or compressor, and an outlet therefrom provided with a puppet-valve held to its seat by fluid-pressure, the said pipe being provided with a check-valve beyond said outlet, of a weight also holding the outlet-valve to its seat, and a motor to be operated on by the compressed fluid delivered through said pipe and acting upon the weight in a direction to raise it and open said outlet-valve, substantially as herein described.

2. The combination, with a pipe for the delivery of fluid under pressure from a pump or compressor, and which is provided with a check-valve, of an outlet below or inward of the check-valve, provided with a downwardly-closing puppet-valve held to its seat by fluid-pressure, a weighted lever loading the valve, and a motor supplied with fluid under pressure from a point beyond or above the check-valve, and acting to lift said lever and open the outlet-valve, substantially as herein described.

3. The combination, with the delivery-pipe A, provided with a check-valve, C, of the outlet-pipe B, open to the atmosphere, leading from the pipe A below the check-valve, and provided with the downwardly-closing puppet-valve *b*, the weighted lever D, loading said outlet-valve *b*, the motor-cylinder E, receiving fluid under pressure from a point beyond the check-valve, and the motor plunger or piston F, acting on said lever to lift it and open the outlet-valve *b*, substantially as herein described.

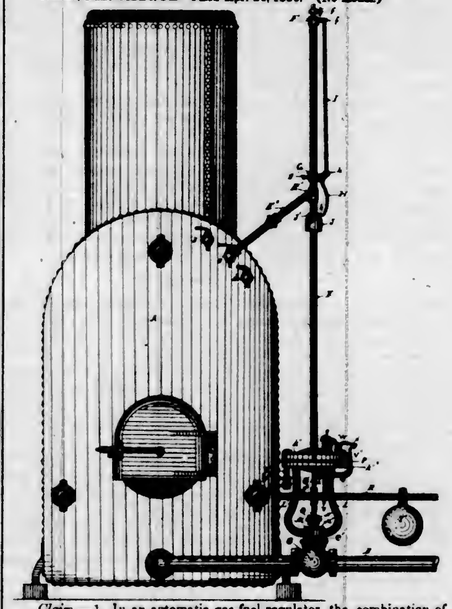
351,044. APPARATUS FOR PRODUCING CIRCULATION IN STEAM-BOILERS. William Crane, Brooklyn, N. Y. Filed July 15, 1886. (No model.)



Claim.—1. The combination, with a steam-boiler having an internal furnace, of an injector through the nozzle of which feed-water is supplied, and which is connected by a suction-pipe with the lower portion of the boiler and by a delivery-pipe with the upper portion of the boiler, and a check-valve in the suction-pipe between the injector and the boiler and opening outward from the boiler, substantially as herein described.

2. The combination, with a steam-boiler having an internal furnace, and a steam-injector for supplying feed-water thereto, of a second injector, with the nozzle of which the delivery-pipe from the first injector is connected, and which is itself connected by a suction-pipe with the lower portion of the boiler and by a delivery-pipe with the upper portion of the boiler, substantially as herein described.

351,045. AUTOMATIC GAS-FUEL REGULATOR. Frederic C. Gilfillan, Duke Centre, Pa. Filed Apr. 26, 1886. (No model.)



Claim.—1. In an automatic gas-fuel regulator, the combination of a pipe through which pressure is communicated to a diaphragm which acts upon a valve-stem with a lever and weight so fulcrumed as to act on said valve-stem against the pressure of the diaphragm to regulate the supply of gas passing the valve, and also co-operate with the diaphragm in closing the valve for entirely shutting off the flow of gas, substantially as set forth.

2. In an automatic gas-fuel regulator, the combination of a pipe communicating with the water in a steam-boiler at the low-water line thereof, having an expansion-pipe connected therewith provided with lever mechanism for sustaining a weight and dropping it when steam enters and expands said pipe, and a pipe communicating with a dia-

phragm-chamber, the diaphragm of which operates on the stem of a valve in the gas-fuel-supply pipe of said boiler, with a lever mechanism connected to and actuating the valve against the pressure on the diaphragm, substantially as and for the purpose set forth.

3. In an automatic gas-fuel regulator, the combination of a pipe communicating with the water in a steam-boiler and with a pressure-chamber having a diaphragm therein, and also with an expansion pipe provided with lever mechanism for sustaining a weight and dropping it when steam enters and expands said expansion-pipe, with the valve in the gas-fuel-supply pipe of the boiler, the stem of which valve is acted upon by said diaphragm to close the valve, and a lever and weight thereon adapted to act upon said valve against the force exerted by the pressure on the diaphragm and coact with said diaphragm in regulating the supply of gas passing into the fire-box of the boiler, said lever and weight being provided with a fulcrum so arranged as to be dropped down by the action of the steam on said expansion-pipe and the action of the lever and weight on the valve reversed, substantially as and for the purpose set forth.

4. In an automatic gas-fuel regulator, the combination, with a lever and weight connected with the stem of a shut-off valve in a gas-supply pipe, of a removable fulcrum adapted to be dropped down, whereby the action of the lever and weight upon the valve is reversed, substantially as and for the purpose set forth.

5. In an automatic gas-fuel regulator, the combination, with a water-pressure pipe communicating with the water in a steam-boiler and with a diaphragm-chamber, the diaphragm of which is connected with the stem of the valve in the gas-fuel-supply pipe of said boiler, and an expansion-pipe and mechanism attached thereto for sustaining a weight and dropping it when the steam expands the pipe, of a lever connected to the valve-stem, the fulcrum of which is suspended upon a lever held up by a catch adapted to be released by the dropping of said weight, substantially as and for the purpose set forth.

6. The combination, in an automatic gas-fuel regulator, of the pipes E^2 and E, the weight J, and lever mechanism I H, with the lever-catch W, lever V V', fulcrum-stirrup U, and lever R, substantially as and for the purpose set forth.

7. The combination, in an automatic gas-fuel regulator, of the valve O, valve-stem Q Q', disk P^2 thereon, diaphragm P, and water-supply pipe E E^2, weight J, and mechanism, substantially as shown and described, for operating said weight, with the lever R, connected to the valve-stem Q' at R', stirrup-fulcrum U, lever V V', and lever-catch W, substantially as and for the purpose set forth.

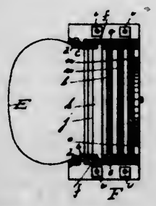
8. The combination, in an automatic gas-fuel regulator, of the lever R, the removable fulcrum U, and the adjustable stop-sleeve Y with the valve-stem Q', substantially as and for the purpose set forth.

9. In an automatic gas-fuel regulator, the combination of the diaphragm P, adapted to close the valve O by pressure thereon, with the lever R, the weight T, operating on the valve-rod Q to open the valve O against the pressure of the diaphragm P for regulating the flow of gas, and the removable fulcrum U and its sustaining mechanism V V' W, adapted to drop the fulcrum U and reverse the action of the lever R upon the valve O, substantially as and for the purpose set forth.

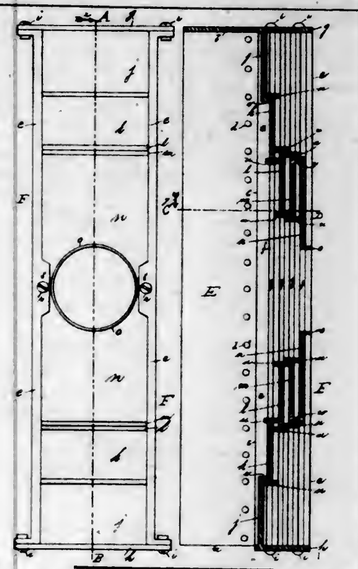
351,046. ADJUSTABLE COLLAR ATTACHMENT FOR STOVES. Herbert R. Graves, Fitchburg, Mass. Filed Jan. 9, 1886. (No model.)

Claim.—1. An adjustable collar attachment for stoves, composed of the two side pieces, *e e*, each provided with two or more parallel grooves, *f f*, extending lengthwise therein, for the purpose stated, in combination with two or more pairs of sliding plates located in said grooves in succession, and adapted to move up or down therein, and an adjustable slide provided with a collar, all constructed and operated substantially as set forth.

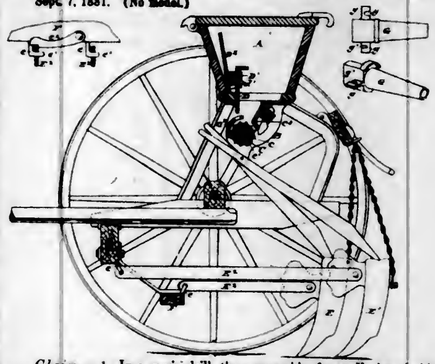
2. In an adjustable collar attachment for stoves, the combination, with the side pieces, *e e*, each provided with two or more parallel grooves, *f f*, extending lengthwise therein, for the purpose stated, and the stationary divisions *j j* at the top and bottom thereof, of two or more sets of movable slides, *k k*, *l l* and *m m*, located in said grooves in succession, and the adjustable sliding collar-piece *n*, all adapted to be moved up or down, and means for holding said collar-piece when adjusted, substantially as set forth.



351,046.



351,047. GRAIN-DRILL. Philip M. Gundlach, Belleville, Ill. Filed Sept. 7, 1881. (No model.)

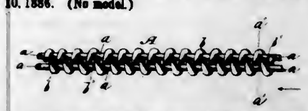


Claim.—1. In a grain-drill, the removable frame F, detachably secured to the main frame of a grain-drill, and provided with a series of supplementary flukes to lie between the main flukes of the drill, essentially as and for the purpose set forth.

2. In a grain-drill, the combination of the drag-bar E^2 with the half hooks or staples *e* and locking-latch e^2, substantially as described, and for the purpose set forth.

3. The thimble-skein G, having attaching-lugs *g*, provided with open-ended slots *g'*, as described, and for the purpose set forth.

351,048. BOX-BAND. Charles S. Hall, Worcester, Mass. Filed Feb. 10, 1886. (No model.)

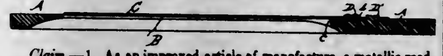


Claim.—1. A wire band for strapping boxes, cases, and similar merchandise-packages, the same consisting of two main wires arranged parallel to each other, crimped or corrugated, and fastened at a short distance apart by means of another and preferably smaller wire interwoven back and forth over and under first one and then the other of said main wires in such a manner as to form interstices between the loops of said fastening-wire, whereby the strap or band may be fastened in position, substantially as shown and described.

2. The combination, with a box, case, bale, or similar merchandise-package, of a wire strap or band consisting of two main wires arranged

parallel to each other, crimped or corrugated, and fastened at a short distance apart by means of another and preferably smaller wire interwoven back and forth over and under first one and then the other of said main wires in such a manner as to form interstices between the loops of said fastening-wire, the strap or band being secured in position by means or nails or other suitable fastenings passed through said interstices, substantially as and for the purpose set forth.

351,049. REED FOR MUSICAL INSTRUMENTS. Andrew H. Hamond, Worcester, Mass. Filed Apr. 21, 1886. (No model.)



Claim.—1. As an improved article of manufacture, a metallic reed-plate having a depression upon its upper surface, and extending back from the rear end of the slot, in which the free end of the reed-tongue vibrates as far as or beyond the rivet nearest the said slot, said depression being slightly below the plane surface of the reed-plate, substantially as and for the purpose stated,

2. As an improved article of manufacture, a metallic reed-plate having a depression in its upper surface slightly below the plane surface of the reed-plate, and extending back from the rear end of the slot, in which the free end of the reed-tongue vibrates, the central portion of said depression extending back as far as the rivet nearest the said slot, and the side portions of said depression beyond the line of said rivet, substantially as set forth.

3. As an improved article of manufacture, a metallic reed-plate having a depression therein upon its upper surface extending back from the rear end of the slot in which the free end of the reed-tongue vibrates beyond the line of the rivet nearest said slot, the portion immediately around said rivet being slightly depressed below the plane surface of the reed-plate, substantially as set forth.

4. A metallic reed-plate, A, having the depression c upon its upper surface extending back from the rear end of the slot B, with the side portions, C', extending back farther than the central portion, C'', for the purpose stated, substantially as set forth.

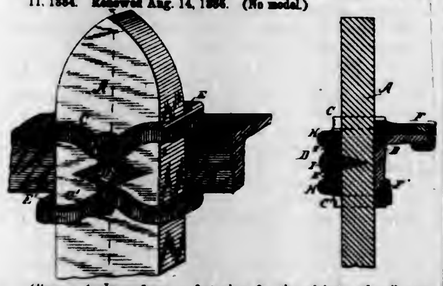
5. The combination, with the reed-plate A, having the depression c therein upon its upper surface, the side portions, C', extending back farther than the central portion, C'', of the reed-tongue B, and rivets D D', substantially as set forth.

6. A metallic reed-plate, E, having a depression, *e*, therein upon its upper surface, extending back from the rear end of the slot F to a point beyond the line where the rivet nearest the slot F enters the reed-tongue to secure the same in place upon the reed-plate, substantially as set forth, and for the purpose stated.

7. The combination, with the reed-plate E, having a depression, *e*, therein upon its upper surface, extending back from the rear end of the slot F beyond the point where the rivet nearest said slot F enters the reed-tongue to secure the same to the reed-plate, of the reed-tongue G and rivet or rivets H and H', substantially as set forth

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351,050. FENCE. Christian Hanika, Springfield, Ohio. Filed July 11, 1884. Renewed Aug. 14, 1886. (No model.)



Claim.—1. In a fence, a fastening for the picket and rail, comprising the links C C', encircling the pickets, as described, and having hook-shaped projections, one of which hooks over and the other under the supporting-rail in a line central to the picket to form a pivotal connection between the picket and rail to allow adjustment, and a locking-plate to engage the links C C' and picket to secure the parts together, substantially as described.

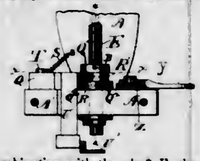
2. In a fence having wooden pickets and metallic rails, and connecting-links having loops to encircle the picket, and projecting hooked arms to engage the rail above and below, as shown and described, the combination, with the connecting-links and pickets, of the locking-plates D, having a central spike-shaped projection to be driven into the picket between the connecting-links, and having arms or lugs to engage with the links to secure them together and in position upon the picket, substantially as described.

3. In a fence having wooden pickets and metallic rails, a connection therefor, comprising the links C C', looped at one end to encircle the picket, and having hook-shaped projections at the other end, one to hook over and the other under the rail, and a locking-plate having the spike G at one side to be driven into the picket between the links C C', the arms or lugs H, to engage the links, and the central projection, I, to keep the links separated and from being displaced, substantially as described.

4. The locking-plate D, for attaching the ornaments and pickets of combination-fences—i. e., fences having wooden pickets and metallic supporting-rails—together, consisting of a main body having the projecting arms H integral therewith, a central projecting spike, G, extending out at right angles to the main body on one side, and a central projection, I, on the opposite side, to be used for the purpose and substantially as described.

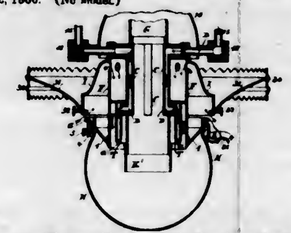
5. The combination, in a fence having wooden pickets, of a metallic supporting-rail having notches cut into the side opposite the side against which the picket bears, and connecting-links having loops at one end to engage the picket, and centrally-projecting hooked arms to hook over and under the rail and engage with the notches therein, which notches prevent horizontal displacement of the hooked arm, a locking-plate having arms to engage with the links being secured to the opposite side of the picket, all substantially as described.

351,051. FEEDING MECHANISM FOR SEWING-MACHINES. Chas. F. Harlow and Edwin E. Angell, Malden, assignors to the Globe Sewing Machine Company, Boston, Mass. Filed Oct. 14, 1885. (No model.)



Claim.—In combination with the shaft E, the oppositely-arranged cams R and R' carried thereby, and the feed-bar having a vertical offset-shoulder, against which the cam R' acts, and having also a yoke, the horizontal inner faces of which closely embrace the cam R, with sufficient space between the vertical or end walls of said yoke to permit said bar to move horizontally on said cam R, combined with a retracting-spring and feed-regulating lever, substantially as set forth.

351,052. GAS-BURNER. George Hathorne, New York, N. Y. Filed Mar. 12, 1886. (No model.)

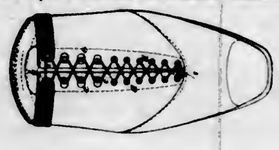


Claim.—1. The combination, with the depending annular gas-burner T, cylinder E', of refractory material, and the escape-chimney for the products of combustion to pass through the annular burner, of the conical air-shield I, and the cylinder F, with which such shield I is connected at its upper end, and the reflector 31, formed as an inverted cone, and supported at its inner edge by projections upon the base of the air-shield I, and the globe H, substantially as specified.

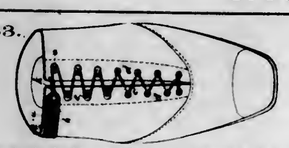
2. The combination, with the depending annular gas-burner and the chimney within the same, of the inverted conical reflector 1 around the burner, the glass globe and its supporting-ring around said reflector 1, the shield I, the inverted conical reflector 31, and the band 30, of reflecting metal, around the outside of and supported by the reflector 31, substantially as set forth.

351,053. SHOE-FASTENING. John T. Honeycutt, New Brunswick, N. J. Filed Aug. 2, 1886. (No model.)

Claim.—The combination, with the shoe and the buttons or hooks attached to the same, and the lace for drawing the parts together, of an elastic at the upper part of the shoe, and a hook or attachment upon the

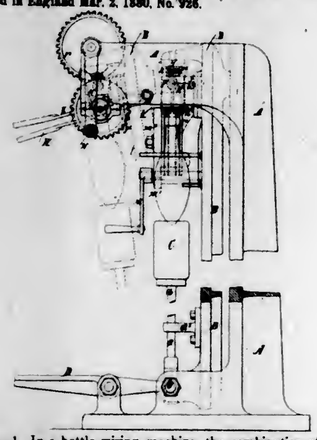


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free end of such elastic for receiving and tightening the lace, substantially as and for the purposes set forth.

351,054. MACHINE FOR WIRING BOTTLES. Robert L. Howard, Luton, County of Bedford, England. Filed May 5, 1884. (No model.) Patented in England Mar. 2, 1880, No. 926.



Claim.—1. In a bottle-wiring machine, the combination of rollers for feeding and guides for guiding the wires, a treadle, and means for raising and bringing the bottle against a stop, so that two wires are over the cork and one at each side of the bottle-neck, means for cutting off the wires upon one side, and means, substantially as specified, for nipping and twisting the wires together at both ends.

2. A bottle-wiring machine consisting, essentially, of means for feeding the wires through a guide-plate over the cork and alongside the bottle-neck, in combination with a rest for the bottle, a rocking lever and rod connecting with the rest for raising the bottle against a yielding block and fixed stop, shearing-plates for cutting off the wires, pinchers for collecting and nipping the wires, and spindles for twisting the wires together, substantially as set forth.

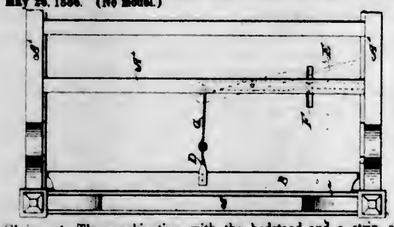
3. In a bottle-wiring machine, a movable shearing-plate, E, having holes for guiding the wires, the sliding block F, pivot A^2, and projection e^4, for operating said plate when the bottle is raised, in combination with a stationary blade, *g*, for shearing off the wires, substantially as set forth.

4. In a bottle-wiring machine, the bottle-rest C, in combination with a yielding block, F, and fixed stop H, nippers *h h'*, for gathering the wires, and means, substantially as specified, for cutting them off, substantially as set forth.

5. In a bottle-wiring machine, the twister-clamp K, in combination with spindles *k k'*, in halves, and having intermediate spaces at *i* for receiving the wires, gears and a handle for rotating such spindles, and the springs i^3 and i^3, substantially as set forth.

6. In a bottle-wiring machine, the pair of nippers *h h'*, having a pivot, h^3, and inclined upper ends, in combination with the conical fixed stop H, for closing the opposite ends of the nippers, and collecting and holding the wires near their ends, substantially as set forth.

351,055. BEDSTEAD. Stephen M. Hubbell, Carland, Mich. Filed May 26, 1886. (No model.)



Claim.—1. The combination, with the bedstead and a strip, of a fastening-bar eccentrically journaled at its ends between the side rails near said strip, and means for actuating said bar to clamp the bedclothes between it and the strip, substantially as and for the purpose described.

2. The combination, with the side rails of a bedstead having a series of corresponding openings on the inner sides, of a fastening-bar journaled between the rails in a corresponding pair of openings, and means for actuating said bar, substantially as and for the purpose described.

3. The combination, with the side rails of a bedstead, of plates having a series of coincident openings fastened to the inner sides of the rails, the clamping-bar journaled between the rails in a corresponding pair of openings in the plates, and means for actuating said bar, substantially as described.

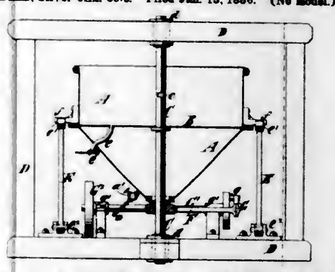
4. In a bedstead, the combination of the fastening-bar journaled between the side rails, a lever depending therefrom, a hand-lever pivoted to one of the slats, a notched bar, and a rod connecting the ends of the two levers, substantially as and for the purpose set forth.

5. In a bedstead, the combination of the foot-board having a strip fastened thereon, a fastening-bar journaled between the side rails and acting in opposition to the strip, a bell-crank lever depending from the bar, a hand-lever pivoted to one of the slats and extending within convenient reach, a notched bar, and a link connecting the two levers, substantially as shown, and for the purposes described.

351,056. PRODUCTION OF BETANAPHTHOL-DISULPHO-ACIDS. Fritz Kröger, Fürstenberg, assignor to the Leipziger Anilin Fabrik, Beyer & Kegel, Lindenau, Germany. Filed May 26, 1884. (Specimens.) Patented in Germany Apr. 19, 1884, No. 33,916, and in England May 1, 1884, No. 7,097.

Claim.—The process of producing betanaphthol-disulpho acid, which consists in heating the concentrated sulphuric acid above the melting-point of the betanaphthol and maintaining the temperature after inserting the betanaphthol at 125° to 145° centigrade during four to five hours, and of separating the thus-obtained betanaphthol-disulpho acid by treating its acid or neutral soda or lime salts in aqueous solution with common salt, substantially as described.

351,057. ORE CONCENTRATOR AND SEPARATOR. Charles T. Litchfield, Silver Cliff, Colo. Filed Jan. 13, 1886. (No model.)



Claim.—1. The combination, with a vessel having fixed within it a laterally-extending partition or sieve, and a shaft and connections for imparting to the vessel, with its partition or sieve, an oscillating motion about the axis of the vessel, of a water-inlet pipe and a discharge for fine ore, both connected with the vessel below the partition or sieve, and an overflow for water and gangue or waste material, arranged above the partition or sieve, substantially as herein described.

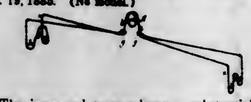
2. The combination, with a vessel having a laterally-extending perforated partition or sieve, and a shaft and connections for imparting to it an oscillating motion about its axis and an upward and downward motion, of a water-inlet pipe and a discharge for fine ore, both connected with the vessel below the partition or sieve, and an overflow for water and gangue or waste material, arranged above the partition or sieve, substantially as herein described.

3. The combination, with a vessel having a laterally-extending perforated partition or sieve, and provided with a water-inlet, a discharge for fine ore, and a water-overflow, as described, of bearers projecting from the sides of the vessel, arms or hangers pivoted at their one end and provided at their opposite end with seats for the bearers, an arm attached to and projecting rigidly from the vessel, and a shaft and connections between it and said rigid arm, whereby an oscillating motion is imparted to the vessel, substantially as herein described.

4. The combination, with a vessel having a laterally-extending perforated partition or sieve, and having an inverted conical form below the sieve, of a water-inlet and a discharge for fine ore, as described, an upright hollow shaft or pipe provided above the sieve with an overflow-opening for water and gangue or waste material, and a shaft and connections whereby an oscillating motion is imparted to the vessel, substantially as herein described.

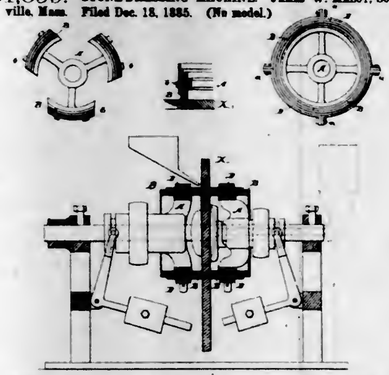
5. The combination, with the vessel A, having the perforated partition or sieve, and having a water-inlet, a discharge for fine ore, and a water-overflow, as described, of the bearers *f*, projecting from the vessel, the arms E, pivoted at their lower ends and having at their upper ends seats *s'* for said bearers, the arm F, projecting from the vessel, and a shaft and connections between it and said arm for imparting an oscillating motion to said vessel, substantially as herein described.

351,058. TROUSER-HANGER. John C. MacDonald, Boston, Mass. Filed Sept. 19, 1885. (No model.)



Claim.—The improved trouser-hanger, substantially as described, composed of a piece of wire bent at its middle to form an eye and extended in opposite directions therefrom to form branches, and having each of such branches bent or arched to enable one of them to button or catch upon the front suspender-buttons, and the other to button or catch upon the rear suspender-buttons of the garment or trousers, all being essentially as represented.

351,059. STONE-DRESSING MACHINE. James W. Maloy, Somerville, Mass. Filed Dec. 18, 1885. (No model.)



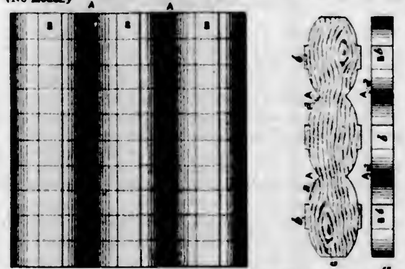
Claim.—1. The cutter-head having one more curved bearings, in combination with one or more independent cutters, each cutter consisting of a series of curved cutting-blades clamped to and independently adjustable on said bearings, said blades projecting at right angles to the plane of rotation, substantially as described.

2. The cutter-head, in combination with a series of similar bent rigid cutting-blades secured thereto at right angles to the plane of rotation, the edge of one blade projecting beyond those of the others, substantially as described.

3. The combination, with a cutter-head, of a series of independently-adjustable curved rigid blades arranged at right angles to the plane of rotation, and one inclosing the other, the edges forming a cutting-face, substantially as described.

4. The combination, with a cutter-head, of a series of curved adjustable rigid blades, one adjacent to the other, substantially as described, and set with their cutting-edges in different planes of projection, substantially as and for the purpose set forth.

351,060. PROCESS OF MAKING OPEN-WORK ORNAMENTAL PANELS. Frederick Mankey, Williamsport, Pa. Filed Aug. 25, 1885. (No model.)



Claim.—1. The hereinbefore-described process of making ornamental open-work panels, which consists in, first, producing upon the material a series of alternating channels and ridges transverse to the grain; second, dividing said material into strips at right angles to the direction of said channels; and, third, securing the said strips together with their channeled and rigid edges in juxtaposition, substantially as described.

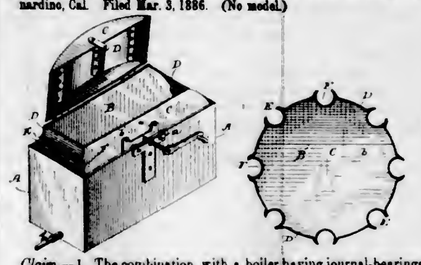
2. The hereinbefore-described process of making ornamental open-work panels, which consists in, first, producing upon the material a series of alternating channels and ridges transverse to the grain; second, dividing said material into strips at right angles to the direction of said channels; third, molding or ornamenting the front face or faces of said strips; and, fourth, securing said strips together with their channeled and rigid edges in juxtaposition, substantially as described.

351,061. PROCESS OF MAKING VENEERS. Frederick Mankey, Williamsport, Pa. Filed May 10, 1886. (No model.)



Claim.—The hereinbefore described process of making veneers with solid projections running transversely to the grain, which consists in first surface cross-cutting a board with any desired pattern, and subsequently dividing said board lengthwise by cutting it in a plane parallel to the general direction of the ornamented surface, substantially as set forth.

351,062. WASHING-MACHINE. Benjamin F. Mathews, San Bernardino, Cal. Filed Mar. 3, 1886. (No model.)



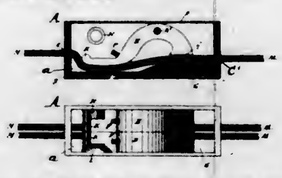
Claim.—1. The combination, with a boiler having journal-bearings, as described, of a drum supported in said bearings and provided with peripheral overshot buckets having curved converging flanges, substantially as specified.

2. The within-described rotative washing drum, consisting of sheets of metal having its circular side or periphery D bent to form buckets F, and curved flanges E, substantially as described.

3. The combination of the end walls having the external journals, the circular side or periphery having the buckets formed therein, and provided with the transverse perforations and external parallel flanges, and the hinged cover, all adapted to serve in a boiler, substantially as specified.

4. The washing-drum described, composed of metal strips bent to form the buckets F, and external flanges, E, said strips being united along their edges to the buckets by means of lapped and compressed joints *c*, forming external flanges on the buckets, substantially as described.

351,063. MAIL-BAG LOCK. John H. McCormick, New Orleans, La., assignor of one-half to William Meade Montgomery, same place. Filed Apr. 26, 1886. (No model.)



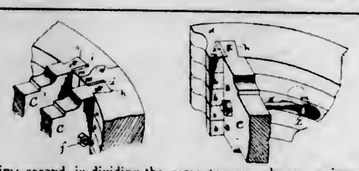
Claim.—1. A mail-bag lock consisting of a case having a pillow, G, and a depression, *a*, a key-hole, and perforations for the passage of a cord, in combination with curved levers provided with serrations, substantially as described.

2. The combination, in a mail-bag lock, of the case A, constructed with a tag-receptacle, a pillow, G, a depression, *a*, a key-hole and key-barrel cup, gripping-levers E E, fulcrumed at A', and provided with wards K K, studs F F, and serrated gripping ends, and the cord-apertures through the ends of the case, all constructed and adapted to operate substantially in the manner and for the purposes described.

351,064. WOODEN PULLEY. Charles McNeal, Mishawaka, Ind., assignor to Wallace H. Dodge, same place. Filed Apr. 2, 1886. (Model.)

Claim.—1. The mode or procedure in building a wooden split pulley herein described, which consists in first building the central part

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of said rim; second, in dividing the same transversely on an irregular line to make an interlocking joint; third, in adding a section to each edge of said central part and dividing the same with a straight saw, whereby the adjoining ends of the rim are provided with interlocking portions, as set forth.

2. A wooden split pulley provided with interlocking projections and recesses in the adjoining ends of the rim formed by dividing the same on a curved line, substantially as set forth.

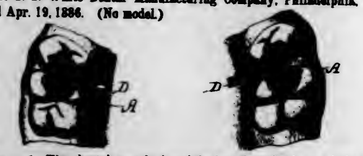
3. A pulley provided with an arm or spoke, C, having at its ends the wedging dovetailed tenons *g*, fitting in a dovetailed mortise, *h*, in the pulley-rim, and the fastening-wedges *i*, substantially as set forth.

4. A separable wooden pulley having its rim divided on an irregular line to form interlocking portions at adjoining ends, and having its spokes or arms at their outer ends embedded in the rim with dovetailed tenons and mortises, substantially as set forth.

5. A split pulley having a section, A, and the arm C, mortised into the same near its end, and provided with a stay-bolt, K, extending from said arm back to the pulley-rim at a distance from its end, substantially as set forth.

6. A split pulley having the rim A and the arm C, mortised into the same near its point of division, and provided with the stay-bolt K and the anchoring-pin L, inserted in the rim, as set forth.

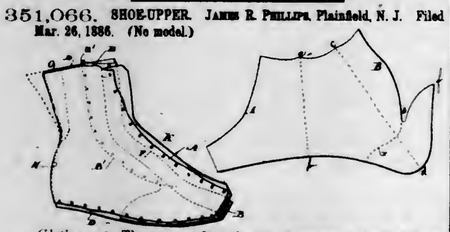
351,065. DENTAL MATRIX. William B. Miller, Altoona, assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Apr. 19, 1886. (No model.)



Claim.—1. The dental matrix hereinbefore described, consisting of two arms or portions fitted for insertion between the tooth to be filled and the adjacent tooth, substantially as described.

2. A duplex dental matrix, the opposite arms or members of which are of reverse curvilinear configuration to adapt them to engage the adjacent teeth between which the matrix is fitted, substantially as described.

351,066. SHOE-UPPER. James R. Phillips, Plainfield, N. J. Filed Mar. 26, 1886. (No model.)



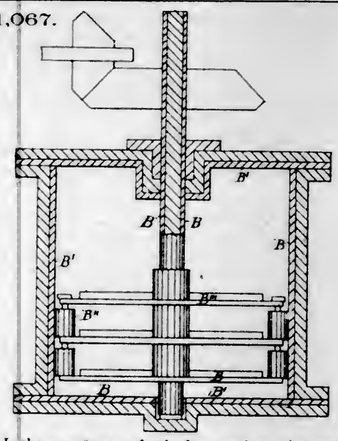
Claim.—1. The pattern for a boot or shoe upper, formed of one piece of leather and crimped on the lines *a b* and *c d*, the portion B forming the button-hole flap, and the portion A extending along at the side of the foot and forming the under lap, the vamp portion having one free corner or angle extending outward just below the flap and on the same side of the pattern to be joined to the under lap in the finished shoe, substantially as set forth.

2. The method herein specified of crimping a boot or shoe upper, consisting in crimping the instep portion upon the dotted line *c d* and tacking the flap B of the leather pattern to the last, crimping the back portion upon the line *a b*, and applying the movable clip-piece *k* over the instep portion of the last, and stretching and tacking the under lap portion, A, to the same, substantially as specified.

351,067. MACHINE FOR THE MANUFACTURE OF WOOD PULP. Goldsbury H. Pond, Rutland, Vt. Filed Dec. 12, 1885. (No model.)

Claim.—1. In the manufacture of wood pulp or other material, the lining of the roller pulp-machine, the digesters and other vessels made wholly or in part with a combination of metals composed of one hundred pounds copper, thirty-three and one-third pounds lead, ten pounds tin, and four pounds of antimony, melted and mixed together, forming a bronze, for the purposes substantially as herein set forth and described.

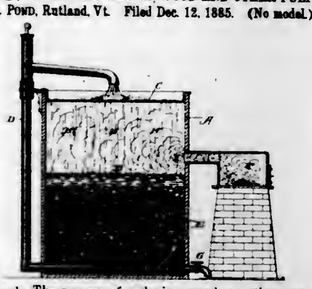
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2. In the manufacture of pulp from wood or other material, the rollers of the roller pulp-machine and their hangings, and other parts of the internal arrangement of digesters of wood for pulp or other machines or vessels made wholly or in part of a combination of metals composed of copper, one hundred pounds; lead, thirty-three and one-third pounds; tin, ten pounds, and antimony, four pounds, melted and mixed together, forming a bronze, for the purpose substantially as set forth.

3. In the process of manufacturing wood pulp or other material, the tanks and stop-cocks, tubes, measures, cans, and apparatus made either wholly or in part of a combination of metals composed of copper, lead, tin, and antimony, melted and mixed together to hold, handle, convey, measure, and transport acid or other chemicals in, as herein described.

351,068. MANUFACTURE OF WOOD AND OTHER PULP. Goldsbury H. Pond, Rutland, Vt. Filed Dec. 12, 1885. (No model.)



Claim.—1. The process of reducing wood or other materials to a pulp, consisting in subjecting them to the combined action of the rollers of a roller pulp-machine and sulphureted magnesia in a charge under heat and pressure, in the manner set forth.

2. A solvent for wood or other materials in the manufacture of pulp, consisting of sulphureted lime and magnesia chemically combined and applied in a charge under heat and pressure, substantially as set forth.

3. The process of reducing wood and other materials to a pulp, which consists in subjecting it in whole or in part to the action of a solvent of sulphureted magnesia and lime, substantially as set forth.

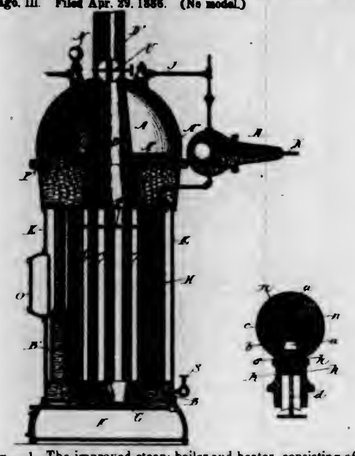
4. The process of making pulp from wood and other materials, consisting in subjecting them to the combined action of the rollers of a roller pulp-machine and sulphureted lime in a charge under heat and pressure, substantially as set forth.

5. The combination, in an apparatus for the manufacture of wood and other pulp, of the tank A, the pump D, and the distributer C, with the furnace F, for sulphureting lime, magnesia, and other chemicals and minerals in solution.

351,069. BLEACHING WOOD AND OTHER MATERIAL. Goldsbury H. Pond, Rutland, Vt. Filed Dec. 12, 1885. (No specimens.)

Claim.—The process of removing stains, tints, or discolorations from wood-pulp or other material in process of bleaching, the same consisting in a bath of sulphide of lime, decomposing the latter with sulphuric acid, thereby freeing the sulphurous acid and developing oxygen, which, in conjunction with the free sulphurous acid, cleanses and partially bleaches the pulp, substantially as set forth.

351,070. STEAM AND HOT-WATER BOILER. Charles B. Rice, Chicago, Ill. Filed Apr. 29, 1886. (No model.)



Claim.—1. The improved steam boiler and heater, consisting of the hollow ring-shaped casting B', water-front B, steam-dome A, consisting of two castings, and constructed with flanges A' A'' and packing P' P'', smoke-flue D, jacket E, door O, water-tubes C C, grate G, ash-box F, damper U, and supporting flame-deflector T, substantially as shown and described.

2. The improved steam boiler and heater, consisting of the hollow ring-shaped casting B, water-front B', steam-dome A, consisting of two castings, and constructed with flanges A' A'' and packing P' P'', smoke-flue D, jacket E, door O, water-tubes C C, grate G, ash-box F, damper U, supporting flame-deflector T, box R, containing automatic valve and float, and pipes J and H, in combination with safety and vacuum valve N, consisting of valve-weight *n*, plunger *c*, aperture *a*, and seat *e*, constructed and arranged substantially as described and shown.

3. The improved steam boiler or heater, consisting of hollow ring-shaped casting B, water-front B', steam-dome A, consisting of two castings and constructed with flanges A' A'' and packing P' P'', jacket E, door O, water-tubes C C, safety-valve N, grate G, ash-box F, damper *x*, placed at opening of pipe D', magazine-feed V, with its opening and cover *t*, and chimney D, in combination with pipe *g*, and box *y'*, with its diaphragm and lever operating the dampers *x* and *h*, substantially as described and set forth.

4. The improved hot-water heater or circulator, consisting of hollow ring-shaped casting B, water-front B', steam-dome A, consisting of two castings, and constructed with flanges A' A'' and packing, P' P'' tubes C C, jacket E, door O, grate G, ash-box F, smoke flue or chimney D, surrounding fuel-magazine V, fuel-door *t*, and damper *x*, all arranged and constructed substantially as described, and for the purpose specified.

351,071. ARTIFICIAL TOOTH-CROWN. Cassius M. Richmond, New York, N. Y. Filed June 8, 1886. (No model.)



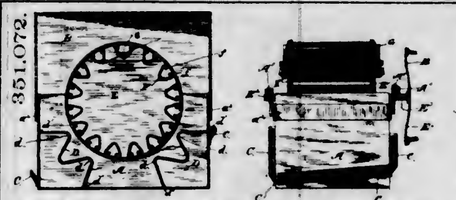
Claim.—1. The improved tooth-crown, having a metal band to fit the end of the tooth-root, the porcelain facing to close said band at front, and the solid metallic backing to close said band back of said facing, said metallic backing forming a solid union between said band and said porcelain facing, and united to a metallic connection embedded in said facing, substantially as described.

2. The combination, with the tooth-crown having a metallic backing with an opening therethrough, of an anchoring-pin having a plain shank passing through said opening into the tooth-root, and an enlarged rearwardly-bent head fitting and closing the opening in said crown and cemented thereto at the surface of said backing, substantially as described.

351,072. WASHING-MACHINE. William Scott, Evansville, Ind. Filed Jan. 15, 1885. (No model.)

Claim.—1. In a washing-machine, the combination, with a tank, A, of a cylinder journaled therein, and consisting of circular end plates

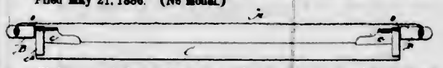
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and transverse rubbers V-shaped in cross-section, with their edges pointed outward, and connecting the said end plates near their peripheries, and set slightly apart, said cylinder presenting both an interior and exterior rubbing-surface, substantially as set forth.

2. In a washing-machine, the combination of the tank A, having internal rubbers, D, crimped from a sheet of metal having its upper and lower edges secured to the tank, whereby its central portion may yield, as described, and the cylinder consisting of circular end plates and transverse connecting-bars, substantially as set forth.

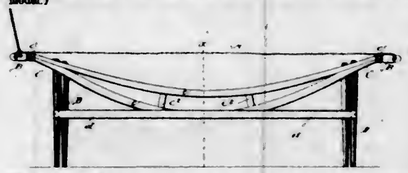
351,073. FRAME FOR WOVEN-WIRE MATTRESSES. William S. Seymour, Kenosha, Wis., assignor to Zalmon G. Simmons, same place. Filed May 21, 1886. (No model.)



Claim.—1. A frame for woven-wire mattresses, consisting of side rails and end rails, the side rails having enlargements or projections at each end extending upwardly and arranged with the ends at the point of enlargement abutting against the coincident edges of the end rails, and secured thereto by a pivotal connection, substantially as and for the purpose specified.

2. In a frame for woven-wire mattresses in which the end rails are supported normally above the side rails, the side rails arranged below and wholly between the coincident edges of the end rails, and connected to the end rail by a pivotal connection located eccentrically or to one side of the axis of the side rails, whereby the side rails may be folded, so as to lie flat in the same plane with the end rails, as specified.

351,074. FOLDING COT. William S. Seymour, Kenosha, Wis., assignor to Zalmon G. Simmons, same place. Filed May 21, 1886. (No model.)

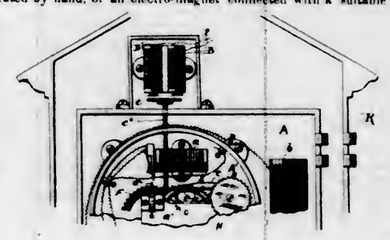


Claim.—A folding cot consisting of a web of elastic fabric attached to end rails, as B, in combination with the bows or side rails, C, provided with legs D, and swinging braces *d'*, said bows having their ends abutting against the coincident edges of the end rails, and being secured thereto by a pivotal connection, as and for the purpose specified.

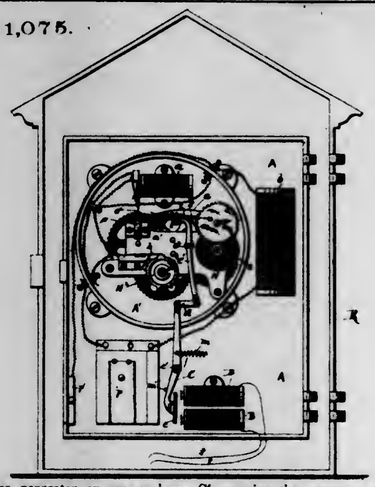
351,075. FIRE-ALARM APPARATUS. Eason L. Slocum, Pawtucket, R. I. Filed Nov. 18, 1885. (No model.)

Claim.—1. In a fire-alarm box or apparatus of the Gamewell or similar type having means for operating it by hand, as usual, the combination, with the detent-wheel and detent-lever thereof, of one or more electro-magnets, B, mounted within said box, connected with one or more local electric circuits, and a pivoted arm or lever having one end engaging said detent-lever, and the other end of the pivoted lever provided with an armature engaging said electro-magnets B while an alarm is being turned in through the agency of said local electric circuits, substantially as described, and for the purpose hereinbefore set forth.

2. The combination, with a fire-alarm box apparatus adapted to be operated by hand, of an electro-magnet connected with a suitable bat-



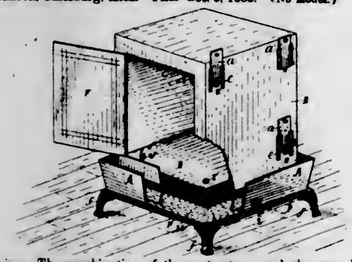
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tery or generator, an arm or lever, C', carrying the armature of said magnet, and means consisting of the pivoted supplemental or compound lever c', and the link d, for connecting said arm with the detent-lever of the fire-alarm mechanism, for the purpose hereinbefore set forth.

3. The combination, with the notched wheel K, and detent-lever E, having a projection, i, of a pivoted arm or lever carrying a roller, c^4, engaging said projection, and a suitably-connected electro-magnet, B, whose armature is carried by said pivoted arm, substantially as shown, and for the purpose hereinbefore set forth.

351,076. REFRIGERATOR-SAFE FOR BREAD, &c. Henry D. Streator, Galesburg, Mich. Filed Dec. 5, 1885. (No model.)



Claim.—The combination of the water-tray, and the case having the side door, the perforated fixed bottom above the lower edge of the case, and the ventilating-holes in the walls of the case, and the slides or equivalent means to close said openings, substantially as set forth.

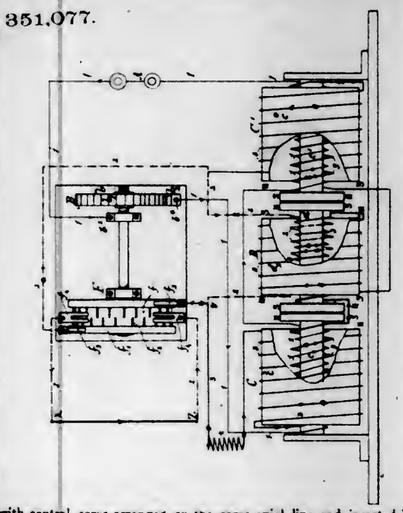
351,077. INDUCTION-COIL. Franz F. Stögermayr, Vienna, Austria-Hungary, assignor of one-half to Victor Glasmer, same place. Filed May 12, 1886. (No model.) Patented in France Mar. 30, 1886, No. 175,140, and in Belgium Mar. 30, 1886, No. 72,551.

Claim.—1. In an induction-coil, the combination of two end coils provided with central cores and inclosed in cylinders of magnetic material arranged on the same axial line and inserted in the circuit of a battery, a circuit-closer, also included in the said circuit, a coil, also provided with a central core and inclosed in a cylinder and interposed between the two end coils, and a circuit branching from the central coil and wound upon the three cylinders, so that they are rendered of different polarity to their respective central cores, and so that the effect of the primary current is intensified, substantially as set forth.

2. In an induction-coil, the combination of two end coils provided with central cores arranged on the same axial line and inserted in the circuit of a battery, a circuit-closer, also included in the said circuit, a coil, also provided with a central core and interposed between the two end coils, and a commutator for converting the alternating into a continuous current, and consisting of a disk of insulating material mounted on the circuit-closer shaft, two metallic rings provided with contact-fingers and connected to the terminals of the alternating current by springs, and two forked springs bearing upon the said fingers and connected to the terminals of the working-circuits, the circuit-closer and commutator being synchronous in action, substantially as set forth.

3. In an induction-coil, the combination of two end coils provided

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with central cores arranged on the same axial line and inserted in the circuit of a battery, a circuit-closer, also included in the said circuit, a coil, also provided with a central core and interposed between the two end coils, and a rheostat for automatically regulating the motion of the circuit-closer, and consisting of a solenoid provided with a core, and a metallic rod projecting into a vessel containing a liquid of low conductivity, through which the current must pass, the said solenoid-core and the rod being so connected that any increase in the attraction of the solenoid causes a corresponding increase in the resistance of the liquid, substantially as and for the purpose set forth.

4. The herein-described rheostat, which consists of the solenoid 8 and graduated glass tube e^3, having a metallic bottom and annular flange, e^7, in combination with the rod e^6, cap e^5, in which said rod is adjustable, the core e^4 of the solenoid, connected with the cap of the rod by means of a catgut cord, and the pulley e^2, substantially as and for the purpose set forth.

5. The herein-described commutator, consisting, essentially, of a rotatable disk of non-conducting material, and provided at opposite peripheral edges with metallic rings provided with metallic pins that project over the periphery of the disk, the pins of one ring lying in planes intermediate of those of the other ring, in combination with contact-springs connected with the terminals of an alternating electric circuit, and forked springs connected with the terminals of the working-circuit, the branches of the forks of which springs are arranged to alternately make and break contact with the pins projecting from the rings, and to cause one of said springs only to make contact with the pins of one of the rings at a time, substantially as and for the purpose set forth.

351,078. FENCING-MACHINE. George L. Sutton, Plattsville, Iowa, assignor of one-half to Joseph R. Standley, same place. Filed Aug. 13, 1886. (No model.)

Claim.—1. The combination, with the treble crank-shaft having the annular grooves, arranged as described, of the wire-clutches having the circular body portions and the end hooks.

2. The combination, with the base-piece and the upright having the arm at its upper end, of the treble crank-shaft having the angular grooves, arranged as described, and the wire-clutches having the circular body portions and the end hooks.

3. The combination, with the upright having the transverse apertures, of the tension-plates having the slots and apertures, arranged as described.

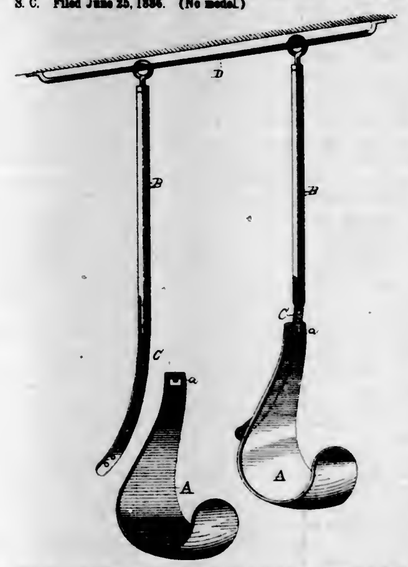
4. The combination, with the base-piece and the upright having the arm at its upper end, of the treble crank-shaft having the angular grooves, arranged as described, and the wire-clutches having the circular body portions and the end hooks, and the tension-plates having the transverse apertures and the slots leading thereto, and secured in the upright in the manner set forth, substantially as described.



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351,079. ARM-REST FOR DENTISTS. Benjamin H. Teague, Aiken, S. C. Filed June 25, 1886. (No model.)



Claim.—1. The combination of an arm-holder provided with a buckle, with a flexible strap having a suitable number of holes, whereby the holder or rest is suspended at a proper height and also rendered capable of adjusting itself to the position of the arm of the operator, as herein described.

2. The combination of the arm holder or rest A, provided with a buckle, a, the flexible strap C, provided with a suitable number of holes, the traveling pendent bar B, having at its upper end a ring or eyelet, and the suspended rod or wire D, as and for the purpose described.

351,080. MACHINE FOR CUTTING RAGS AND OTHER MATERIAL. Gustus W. D. Upton, Springfield, Mass. Filed Jan. 4, 1886 (No model.)

Claim.—1. In a rag-cutting machine, a cutting-roll, a, having a series of cutting-blades, b, in combination with a fixed blade or body to cut against, substantially as shown.

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2. In a rag-cutting machine, a cutting or shearing cylinder or roll composed of a frame-work, a, having a central shaft, A, and having shearing or cutting parts b, substantially as shown.

3. In a rag-cutting machine, a cylinder, a, having knives b, guide-springs c, a fixed knife or cutting-bed, d, and a means to feed the rags, all in combination, substantially as shown.

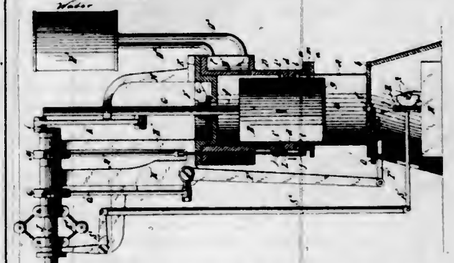
4. In a machine for treating paper-stock, a series of removable blades, b, arranged upon a revolving cylinder and adapted to cut the stock into small pieces, in combination with a cutting-bed and a means to feed the stock to the cutting-point, substantially as shown.

5. A rag-cutting machine having a cylinder provided with a series of short cutting or shearing parts upon its circumference, so disposed that by the action of the cutting or shearing edges upon the material it is separated into small pieces, substantially as shown.

6. In a rag-cutting machine, a cutting-bed and a revolving cylinder having triangular or diamond-shaped cutting-edges arranged upon its circumference, substantially as shown.

7. In a rag-cutting machine, a revolving cylinder, a, having cutting-blades b, in combination with a body to cut against, whereby the material is cut into small pieces, (instead of into strips, as heretofore,) substantially as set forth.

351,081. ATMOSPHERIC ENGINE. Charles W. Webb, Brooklyn, assignor of one-half to Charles Kraus, New York, N. Y. Filed July 3, 1886. (No model.)



Claim.—1. The combination, with the hot-air and condensing chambers in an atmospheric engine, and with a reciprocating displacing-piston moving within the two chambers and serving as a movable partition between them, of a flame-inlet port in the outer end of the hot-air chamber, a burner placed opposite said port, so that its flame and products of combustion may enter it directly, a communicating-passage connecting the proximate ends of the two chambers, valves controlling, respectively, the flame-inlet port and the communicating-passage, and actuated automatically by the movement of the engine, so that the communicating-passage shall be opened when the inlet-port is closed and closed when the inlet-port is opened, and an exhaust-valve connected with the condensing-chamber and opening automatically to permit an outward discharge of air therefrom when the communicating-passage is closed, all substantially in the manner and for the purpose herein set forth.

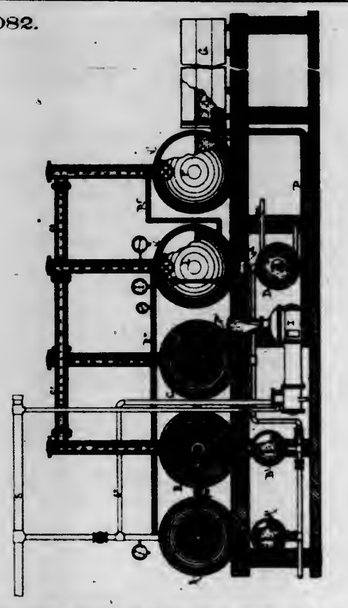
2. The combination, with the hot-air chamber in an atmospheric engine and its flame-inlet port, of a lamp-burner placed opposite said port, a wick-tube and wick in said lamp, a pivoted toothed segment controlling the wick, a lever-arm fitted to the segment, and a governor upon the engine actuating said lever, whereby the variable movement of the governor operates to raise or lower the lamp-wick, and thereby increase or decrease the flame supplied to the hot-air chamber, all substantially in the manner and for the purpose herein set forth.

3. The combination, with the hot-air chamber in an atmospheric engine, a flame-inlet port in the outer end of said chamber, and a communicating-passage between the proximate ends of the hot-air and condensing chambers, of a slide-valve governing the flame-inlet port, a separate slide-valve governing the communicating passage, a rotating shaft driven by the engine, and eccentrics upon said shaft connected, respectively, with the inlet-valve and the communicating-valve, whereby the inlet-port is positively closed as the communicating-passage is opened, and vice versa, substantially in the manner and for the purpose herein set forth.

351,082. MANUFACTURE OF SALT. Horace Williams, John L. Altenbern, and Louis R. Altenbern, Buffalo, N. Y. Filed Sept. 17, 1885. (No model.)

Claim.—1. The herein-described process of making salt, which consists of the successive steps in combination, as follows: first, circulat-

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ing the brine under treatment in a continuous current through a series of steam-heated heaters under hydraulic pressure, then into and through a series of closed evaporators, then into and through an open grainer exposed to the atmosphere, and then again flowing it from the grainer through the system, for the purpose described.

2. The herein-described continuous process of making salt, which consists of the successive steps in combination, as follows: first, heating the brine in tubular steam-heated heaters under hydraulic pressure; second, partly evaporating it in closed evaporators; third, partly evaporating it in open grainers exposed to the atmosphere; and, fourth, mechanically agitating the surface of the brine to cause the deposit of fine salt, the said steps co-operating in the manner as described.

3. The herein-described process of evaporating saline solutions, which consists of the cumulative heating of brine previously cooled by evaporation by steam of different and increasing ranges of temperature, produced in the evaporation from the brine passing through the closed evaporator, in the manner and for the purpose described.

4. The herein-described continuous process of evaporating saline solutions, which consists of heating brine in a closed heater under hydraulic pressure, then conducting it into a closed evaporator in which a pressure above the atmosphere is maintained, and in which a portion of its heat is abstracted, then conducting it into a closed evaporator in which atmospheric pressure is maintained and heat relatively is abstracted, and then conducting it into an open grainer, in which its final loss of heat and tension of vapor below atmospheric pressure is reached, and from which it is again and continuously circulated through the entire apparatus, in the manner and for the purpose described.

5. The herein-described process of evaporating saline solutions, which consists in heating the brine in closed heaters under pressure, then abstracting the sensible heat from it by evaporation in successive steps of reducing ranges of temperature, for the purpose of heating the cooled brine in successive steps of increasing temperatures produced by condensation of the steam arising from the evaporating brine, which is continuously circulated through the entire apparatus, as described.

6. The process of making salt from brine, which consists of heating the brine in tubular heaters under pressure without evaporation, then partly evaporating it in a closed evaporator, and then drawing off the impurities, in the manner and for the purpose described.

7. The process of making salt from brine, which consists of heating the brine in tubular heaters without evaporation, then draining off the impurities, and then evaporating in an open grainer or evaporator and returning in a continuous current to the heater, as described.

8. In the manufacture of fine salt brine, the process of regulating the size of the salt crystals, which consists in mechanically agitating the surface of the brine in an open grainer without the application of heated surfaces therein, said agitation being relatively different in different parts, and proportioned to heat of the brine therein, as described.

9. In the manufacture of pure fine salt from brine, the process herein described, which consists of depurating the salt by abstracting its impurities, then discharging it into an open evaporator in a heated condition, and then agitating it for the purpose of depositing the salt in minute crystals, as described.

10. In the manufacture of salt from brine, the process herein described, which consists of heating the brine in tubular heaters, then evaporating it in closed evaporators, then evaporating it in an open grainer, to the surface of which mechanical agitation is applied, in the manner and for the purpose described.

11. In the manufacture of salt from brine, the process herein described, which consists of circulating the brine through a tubular heater under hydraulic pressure, in which it is heated without evaporation, and in which its lime salts are deposited in a sandy condition, and then evaporating in an open grainer, as described.

12. The combination of the tubular heater A and the closed evaporator E with the open grainer F, in the manner and for the purpose described.

13. The combination of the heaters A B C with evaporators E F and grainers G H, in the manner and for the purpose described.

14. The combination of the tubular steam-heated heater A with pump I and open evaporator G, in the manner and for the purpose described.

15. The combination of the heaters A B C with evaporators E F, open grainers G H, and pump I, in the manner and for the purpose described.

16. The combination of the open grainer G with the agitators M M and the driving mechanism Q Q, in the manner and for the purpose described.

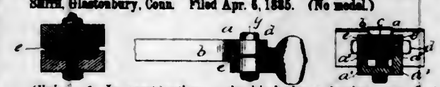
17. The combination of the tubular steam-heated heater A with the heater A^1, provided with connecting-pipes and regulating-valves, for the purpose of purifying the brine, as described.

18. The combination of the tubular steam-heater A, pump I, and open grainer G with the agitators therein, co-operating in the manner and for the purpose described.

19. In the manufacture of salt from brine, the process herein described, which consists of mechanically agitating the surface of the heated brine to form minute salt crystals, then abstracting the salt from the evaporating-vessel, and then separating it from the brine by centrifugal force, as described.

20. In the manufacture of salt from brine, the process herein described of purifying the brine by separating from it the sulphate and carbonate of lime held in solution by heating it to such a temperature (about 300°) as to deposit them, while under hydraulic pressure, on the tubes of the steam-heater in a hydrous condition, and then abstracting the deposits from the heater, in the manner and for the purpose described.

351,083. THILL-COUPLING. James B. Williams and Joseph P Smith, Glastonbury, Conn. Filed Apr. 6, 1885. (No model.)



Claim.—1. In combination, a shackle-body, *a*, having ears a^1 a^1, having curved recessed inner faces, thill-shank *b*, with eye *c*, having curved recessed sides, removable bearing-pieces *e*, having faces curved to correspond with the recessed faces located between said recessed faces of the shank and ears, and bolt *d*, all substantially as described.

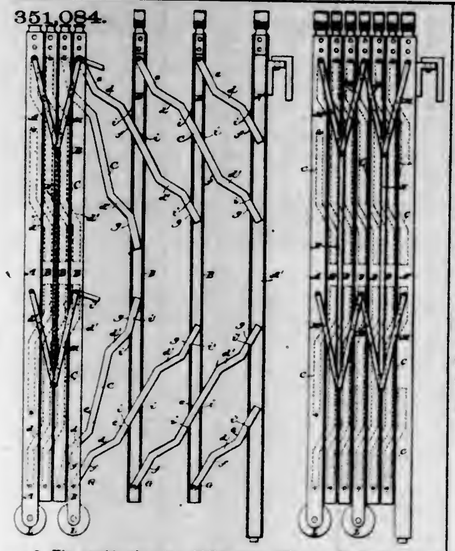
2. In combination, a shackle-body, a thill-shank, a removable spherical or spheroidal bearing seated in a corresponding recess formed in the adjacent faces of both shackle-body and shank of the thill, and means, substantially as described, for holding the parts together, as set forth.

3. In combination with the shackle parts having curved recessed bearing-faces, a removable perforated bearing-piece corresponding to and fitted in such recesses, and a bolt of smaller diameter than the hole in the bearing-piece passing therethrough and securing the shackle parts together, as and for the purpose set forth.

351,084. FOLDING GATE. Robert M. Wilson, Boston, Mass. Filed June 23, 1886. (No model.)

Claim.—1. A folding gate or grating constructed of a series of parallel movable pickets, each formed with a series of longitudinal slots or recesses therein, in combination with brace-bars pivoted, each at one end only, to the opposite ends of each picket, to extend thence, when the pickets are spread apart, diagonally with an inward inclination, each through a slot in the next picket and into a slot or recess in the third picket, said bars being severally formed with lateral offsets between the pickets, whereby when the pickets are closed together the brace-bars shall be brought into parallel lines with the pickets, and the first length of each between its pivot and first offset shall be inclosed within the slot in the picket to which it is pivoted, its second length between its first and second offsets shall project laterally into and through the slot in the second picket and be covered thereby, and its outer length beyond the second offset shall project laterally into and be covered by the slot in the third picket, all substantially in the manner and for the purpose herein set forth.

351,084.

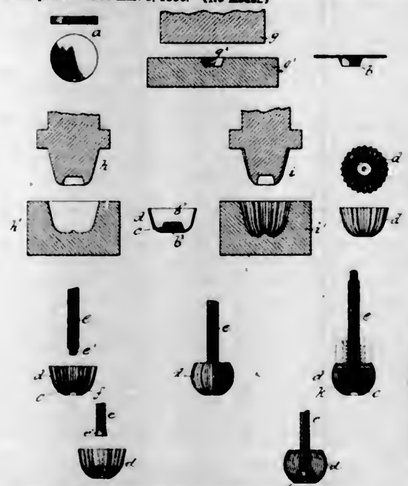


2. The combination, in a folding gate, with a longitudinally-slotted picket and with brace-bars pivoted to each end thereof and formed with offsets in its length to fold laterally against the picket and into a slot therein, of a second parallel picket longitudinally slotted to permit the brace-bars to pass laterally through the same, and a third parallel picket slotted to receive the ends of said intersecting brace-bars, substantially in the manner and for the purpose herein set forth.

3. The combination, with a tubular or longitudinally-recessed picket in a folding gate, of a block sliding lengthwise within said picket and a brace-bar pivoted to said sliding block, substantially in the manner and for the purpose herein set forth.

4. The combination, in a folding gate, of a series of longitudinally-slotted pickets, folding brace-bars pivoted to each end thereof and formed with offsets to permit the brace-bars to fold into the slotted pickets, and two tiers of transverse tie-bars coupled by connecting-bars, which are pivoted to the joints of the tie-bars, all substantially in the manner and for the purpose herein set forth.

351,085. MANUFACTURE OF WATCH-CROWNS. Charles H. Yarrington, Cheshire, Conn., assignor to the Cheshire Watch Company, same place. Filed Mar. 3, 1886. (No model.)

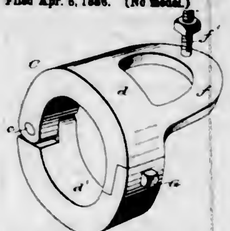


Claim.—1. The improvement in the art of making watch-crowns, which consists, first, in reducing the edges of a circular blank, leaving the center the full thickness of the blank to form a base at the center of the crown; secondly, in drawing out said edges and carving them upward to form the sides of said crown; thirdly, in corrugating the sides of the crown; fourthly, in drilling a hole in the base to receive the end of the winding-arbor, and, fifthly, in closing the metal of the base about the spindle end, whereby the crown is firmly secured upon the arbor, all substantially as described.

2. The improvement in the art of making watch-crowns, which consists in blanking out a disk of metal of suitable size, indenting it upon its under side, whereby a guide-mark is formed to aid in the subsequent process, reducing said blank at its edges, leaving the center to form a base, then drawing said edges, carving them upward and corrugating them, then drilling the base to receive the end of the winding-arbor, and, finally, closing the metal of the base upon the end of the winding-arbor, whereby the crown is firmly secured upon the arbor, all substantially as described.

3. The method of making watch-crowns, which consists in reducing the edge of a metal disk in dies, leaving the center to form a base, drawing, carving, and corrugating said edge, drilling the base to receive a locking device on the end of the winding-arbor, closing the metal of the base upon the arbor end, closing the edge of the crown inward, and then milling out the center to fit the watch-stem, all substantially as described.

351,086. RACK-COLLAR FOR THE TEMPERING-WHEELS OF PUG-MILLS. George S. Adams, James Roach, and Elmer A. Sherwood, Rondout, N. Y. Filed Apr. 6, 1886. (No model.)



Claim.—As a new and improved article of manufacture, the tempering-wheel collar C, made in sections *d* d^1, hinged together and adapted to be locked by the bolt *g*, the section *d* being formed with the bow *f*, substantially as and for the purposes set forth.

351,087. SPRAYING-NOZZLE. John Bean, Los Gatos, Cal. Filed May 21, 1886. (No model.)



Claim.—1. In a nozzle, the combination, with the passage thereof having the interior of the outlet portion differently curved on opposite sides to present convex walls, the general direction of said curves being longitudinal with the nozzle, of the plug having a discharge-passage enlarged at each end by a groove cut in the plug and extended to the passage, said plug being located near the curved portion.

2. In a nozzle, a plug having a single discharge-passage, and grooves formed in the body of the plug, one at either end of the passage, and respectively extending to the passage, whereby the ends of the passage are enlarged.

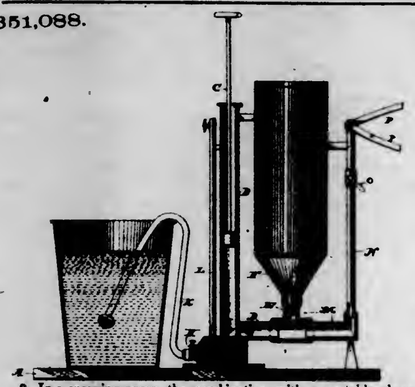
3. In a nozzle, the passage thereof in the outlet portion curved differently on opposite sides, and in such manner as to present convex walls within said portion, the general direction of the curves being longitudinal with the nozzle.

4. In a nozzle, the passage thereof curved on the opposite sides of the outlet portion in such a manner as to present convex walls within said portion, the general direction of the curves being longitudinal with the nozzle, and the opposite sides of the nozzle sharpened to present fine edges at the termination of the curved portions.

351,088. SPRAYING-PUMP. John Bean, Los Gatos, Cal. Filed July 8, 1886. (No model.)

Claim.—1. In a spraying-pump, the combination, with a portable charge-receptacle, of a cylinder having a plunger and connected to and communicating with that receptacle, an air-tube communicating with the open air and with the receptacle, and located between the cylinder and the liquid-inlet, a discharge-conduit having a cut-off and leading from the receptacle, and a valve between the air-pipe and the cylinder, and a valve between the latter and the receptacle.

351,088.



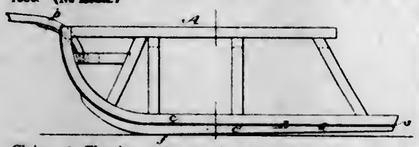
2. In a spraying-pump, the combination, with a portable charge-receptacle, of a cylinder having a plunger and communicating with that receptacle, an air-pipe communicating with the open air and with the receptacle, a valve between the air-pipe and the cylinder, and a valve between the cylinder and the receptacle, and a discharge-conduit leading from the receptacle and having a cock, the said pipe, cylinder, and conduit being located outside of the receptacle and portable with it.

3. In a spraying-pump, the combination, with a portable charge-receptacle, of a cylinder having a plunger and a passage between the receptacle and cylinder with which they connect, and a valve located in the passage between the cylinder and the receptacle, an air-pipe having a cock, and in communication with the open air and with the cylinder between it and the liquid-inlet, a liquid cut-off between said inlet and the air-pipe, and a valve between said pipe and the cylinder, whereby said and liquid may be simultaneously or separately introduced into the receptacle.

4. In a spraying-pump, the combination, with a portable charge-receptacle, of a cylinder having a plunger and connected to and communicating with that receptacle, a discharge-conduit leading from said receptacle and having a cut-off, and a siphon communicating with a supply-tank and with the receptacle to supply liquid, and an air-pipe to conduct air to the liquid, whereby air and liquid will be acted upon by the pump for the purpose of forcing them into the receptacle.

5. In a spraying-pump, the combination, with a portable charge-receptacle, a discharge conduit or passage leading from said receptacle, and having a cut-off, an air-supply, and a cylinder having a plunger and connected to and communicating with that receptacle, of a siphon communicating with a supply-tank and with the apparatus, whereby liquid is supplied.

351,089. SLEIGH. Samuel T. Brewer, Blair, Wis. Filed July 2, 1886. (No model.)



Claim.—1. The shoes or base portions of the runners of a sleigh or sled, made with shelving sides and of tapering width on their bottom surfaces, diminishing toward their rear ends, substantially as specified.

2. The shoes or base portions of the runners of a sleigh or sled, made with shelving sides and of tapering width on their bottom surfaces, diminishing toward their rear ends, and with their bottom surfaces inclining upward in a backward direction, essentially as described.

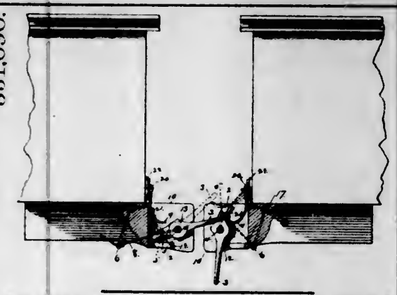
3. In a sleigh or sled, the combination, with its body and draft devices, of runners or shoes of diminishing width on their bottom surfaces in a rearward direction, and constructed to present sides which are askew to the line of draft of the sleigh or sled, substantially as specified.

351,090. CAR-COUPLING. Albert H. Boies, Hudson, Mich. Filed Aug. 19, 1886. (No model.)

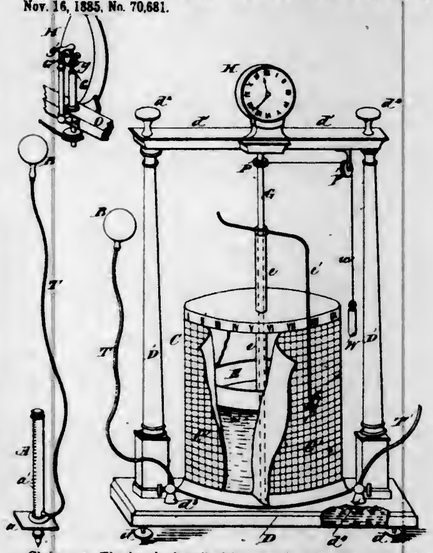
Claim.—1. The combination, with a vertically-slotted draw-head having a bridge, of a combined hook and link mounted pivotally within the draw-head, a shaft, 17, having arms 6 and crank-arms 30, and a flexible connection between the arms 6 and the pivotal shaft, substantially as described.

2. The combination, with a vertically-slotted draw-head, of a combined hook and link pivotally mounted thereon and operated from the side of the car, a shaft, 20, having a forked arm, 21, and crank-arms 30, substantially as described.

351,090.



351,091. BAROMETRICAL EVAPOROMETER. Antonio Bonino, Turin, Italy. Filed Sept. 4, 1886. (No model.) Patented in Belgium Nov. 16, 1885, No. 70,681.



Claim.—1. The herein described barometric apparatus, comprising a reservoir provided with means for indicating the level of the liquid therein, a closed porous evaporating-vessel, and a tubular connection between the two for the flow of the liquid from one to the other, substantially as and for the purpose specified.

2. The herein-described barometric apparatus, comprising a multiplicity of reservoirs connected in series, and provided with means for indicating the level of the liquid therein, the reservoir forming the initial of the series being open to the atmosphere, a closed porous evaporating-vessel, and a tubular connection between said vessel and the reservoir forming the terminal of the series, whereby the contents of all the reservoirs may empty into said evaporating-vessel, substantially as and for the purpose specified.

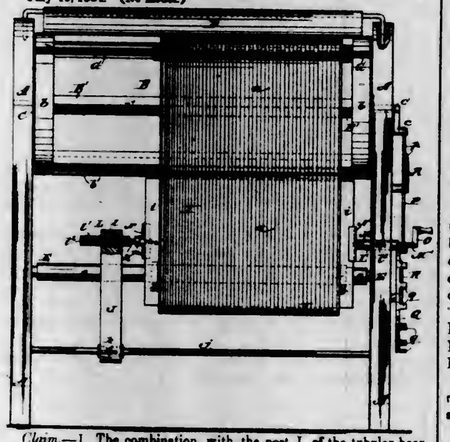
3. The herein-described barometric apparatus, comprising a closed reservoir, a float contained therein, a closed porous evaporating-vessel, a tubular connection between the reservoir and evaporating-vessel to conduct the liquid from one to the other, a marker or tracer connected with the float and operated to automatically mark the variations in the level of the liquid contained in the reservoir upon the surface of the latter, substantially as and for the purpose specified.

4. The herein-described barometric apparatus, comprising a closed cylindrical reservoir, a float contained therein, a closed porous evaporating-vessel, a tubular connection between the two to allow the liquid to flow from one to the other, a marker or tracer operating on the periphery of the reservoir connected and moving with the float, and a time mechanism operating to continuously present to the marker a fresh surface of the reservoir by rotating the same, as described, for the purpose specified.

5. The herein-described barometric apparatus, comprising a cylindrical revoluble reservoir, a float arranged therein, a closed porous evaporating-vessel, a tubular connection between the latter and the reservoir to allow the liquid to flow from one to the other, and a marker or tracer controlled in its movements by the reservoir and float, and operating to trace on the periphery of the reservoir the variations in the level of the liquid therein, substantially as and for the purpose specified.

6. The herein-described barometric apparatus, comprising a revolvable cylindrical reservoir having a peripheral subdivision of days and hours or fractions thereof, a strip of paper detachably secured to said reservoir subdivided into spaces by horizontal and vertical lines corresponding with the subdivisions on the reservoir, a float contained therein, a closed porous evaporating-vessel, a tubular connection between the latter and the reservoir to allow the liquid to flow from one to the other, a time mechanism for rotating the reservoir, and a marker or tracer controlled from the time mechanism and the float, and moving synchronously with both and over the paper on the cylinder, substantially as and for the purpose specified.

351,092. CLOTH-WINDER. Albert Brown, Mendocino, Cal. Filed July 19, 1884. (No model.)

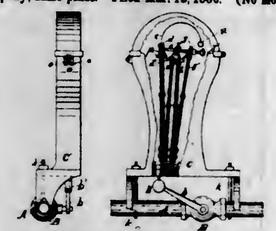


Claim.—1. The combination, with the post J, of the tubular bearing L, fitted to slide in the post, the loose spindle M in the bearing L, the thumb-screw *l*, and the spring *l'*, acting to force the spindle outward, substantially as shown and described.

2. The combination of the post and its supporting-rods, the tubular bearing fitted to slide in the post, the loose spindle in the bearing, the spring acting outwardly upon the spindle, and the thumb or holding screw, substantially as described.

3. The combination, with the spindle M M', provided with collars *m*, and square or angular ends *m'*, of the clamps N N', fitted on the spindles, the tubular bearing L, the spring *l'*, and the support for said bearing, substantially as shown and described.

351,093. AUTOMATIC CUT-OFF FOR WATER-PIPES. Walker G. Browne, Atlanta, Ga., assignor to the United States Automatic Water Cut-Off Company, same place. Filed Mar. 15, 1886. (No model.)



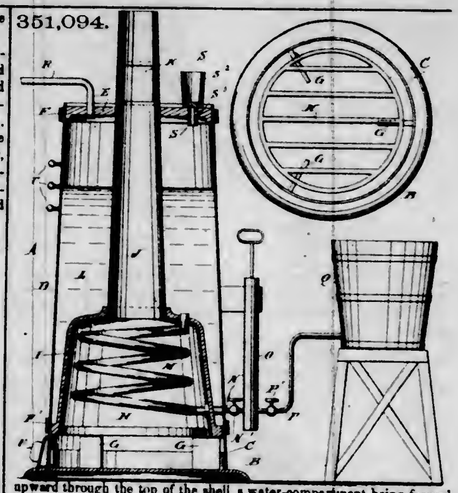
Claim.—1. In an automatic cut-off for water-pipes, the combination of the self-closing valve B with the compound plates *e e'* and *f f''*, hinged together, the supplemental compound plates *d d'* and *g g'*, the tape *t*, and sliding bolt S, all arranged and operating substantially as shown and described, for the purpose specified.

2. In a cut-off for water-pipes, the combination of the valve B, provided with an actuating-lever, with the tape *t* and bolt *s*, provided with an adjusting-nut, *n*, pressure-spring *s'*, and the compound plates supported and inclosed by the box-shaped support C, substantially as shown and described.

351,094. BOILER FOR STEAMING FOOD. Le Roy S. Bonker, Walton, Wis. Filed June 29, 1886. (No model.)

Claim.—1. The combination of the outer shell, the fire-box in the lower part of the same, and the chimney extending from the fire-box

351,094.



upward through the top of the shell, a water-compartment being formed by said parts and having a steam-pipe leading therefrom with the coil of pipe in the fire-box, one end of said pipe leading to the said water-compartment, and the opposite end extending out through the shell and connecting with a supply-pipe, substantially as set forth.

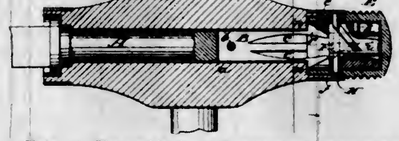
2. In a boiler, the combination of the compartment L, the fire-box I, the chimney J, having the inlet-door K, the grate H, and the base B, provided with the lugs G, with the coiled pipe M, the pipes N and P, the pump O, and the tank Q, substantially as shown and described.

3. In a boiler, the combination of the base B, provided with the rim C and the lugs G, with the shell D, the grate H, and the fire-box I, substantially as shown and described.

4. In a boiler, the shell D, the cover E, the base B, having the rim C and the lugs G, the rings F and F', and the draft-door U, in combination with the grate H, the fire-box I, the chimney J, opening into the said fire-box I, and the coiled pipe M, connecting the water-compartment L with a pump, substantially as shown and described.

5. In a boiler, the combination of the water-compartment L with the outlet-pipe R, and the safety-valve S, provided with the hollow stem S', having the aperture S², and the upper hollow part, S³, substantially as shown and described.

351,095. HUB-ATTACHING DEVICE. Walter A. Clark, Chicago, Ill. Filed Mar. 26, 1886. (No model.)



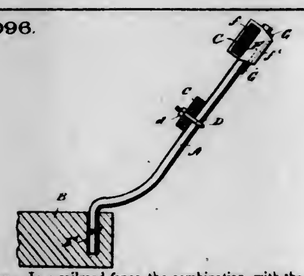
Claim.—1. The combination, with a slotted axle and a spring-catch held therein, of a hub-cap provided with a movable sleeve, and means for moving said sleeve longitudinally, substantially as described.

2. The combination, with an axle, of a plate secured within a slot formed at the end of the axle, and provided with spring-arms carrying catches formed with inclined or beveled faces, a hub-cap formed with transverse slots, and an inwardly-extending pin, a clamping-sleeve formed with diagonal slots, and a longitudinal slot in which the inwardly-projecting pin of the cap fits, and a bolt or screw passing through the transverse slots of the cap and the diagonal slots of the clamping-sleeve, substantially as described.

3. The combination, with an axle, of a plate secured within a slot formed in the end of the axle, and provided with spring-arms carrying catches formed with inclined or beveled faces, a hub-cap formed with transverse slots, and an inwardly-extending pin, a clamping-sleeve formed with diagonal slots, and a longitudinal slot in which the inwardly-projecting pin of the cap fits, a bolt or screw passing through the transverse slots of the cap and the diagonal slots of the sleeve, and a spring secured to the cap, and the retaining bolt or screw, substantially as described.

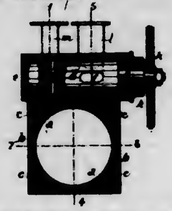
351,096. RAILROAD-FENCE. James A. Cooley, Knoxville, Tenn. Filed Nov. 10, 1885. (No model.)

351,096.



Claim.—In a railroad-fence, the combination, with the post A, having an inwardly and downwardly bent lower portion entering a socket in the tie, of the rails clipped to said post, substantially as and for the purpose set forth.

351,097. STEAM-ENGINE. Désiré F. A. Delaix, Paris, France. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination, with the cylinder having a partitioned jacket, of a valve provided with ports alternately connecting with ports opening into the said jacket, substantially as and for the purpose set forth.

2. The combination of a rotating or rocking plug or cock, *d*, provided with holes or ways *f* and *g*, placed at right angles to each other, a jacket, *b*, with a partition, *c*, connected with the valve by tubes or pipes *x t u v*, and a cylinder, *a*, provided with notches *q*, connecting the said cylinder with the jacket, the whole constructed and working substantially as and for the purposes set forth.

3. The combination of a rotating or locking plug or cock provided with holes or ways placed at right angles to each other, and a jacket provided with a partition and connected with the said holes or ways of the valve by tubes or pipes, substantially as set forth.

351,098. DAUBER FOR BLACKING-BRUSHES. Morland M. Dubeau, South Framingham, Mass. Filed Jan. 15, 1886. (No model.)



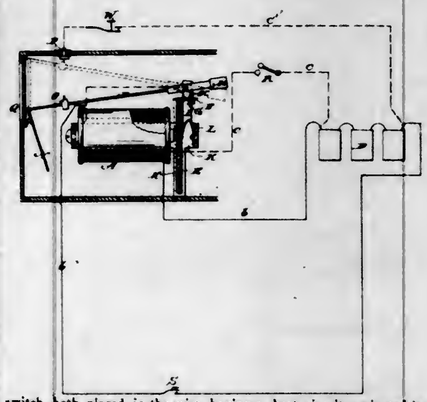
Claim.—A brush consisting of the block, the bristles around the block, the ferrule securing the bristles to the block, a bridle surrounding the ferrule and formed with the diagonal slot, and a pin projecting from the ferrule through the slot in the bridle, whereby by turning the bridle it will also move vertically over or away from the bristles according to the direction turned, substantially as set forth.

351,099. ANNUNCIATOR. Charles H. Dowden, Newark, N. J. Filed Jan. 16, 1886. (No model.)

Claim.—1. The combination, with an electro-magnet and its armature having a recessed lug, of a balanced lever having a signal-disk and a projecting pin placed in the recess of the armature-lug, with two separate electric wires connected with the electro-magnet, of which wires one is a long circuit, including the doors and windows, and the other a short circuit, which can be opened or closed by a switch, and provided with a push-button and a contact-point, substantially as herein shown and described.

2. The combination, with an electro-magnet and its armature, of two separate wires connected with the same, and of which wires one is a long circuit, including the doors and windows, and the other a short circuit for holding the signal-lever in a raised position, a push-button, a

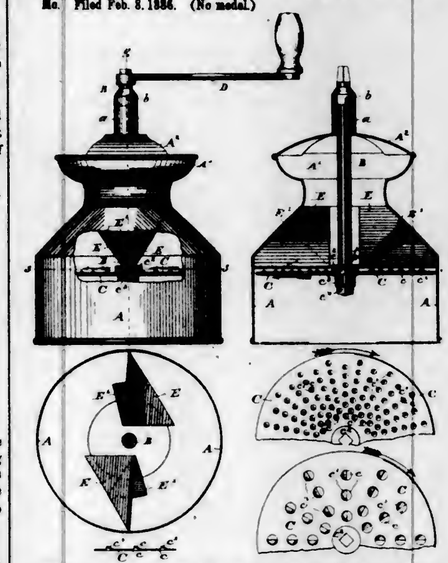
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switch, both placed in the wire having a short circuit, a pivoted lever operated by the armature, and a signal-disk on the lever, substantially as shown and described.

3. The combination, with an electro-magnet and its armature, of the spring L, acting on the armature, two electric line-wires connected with the magnet, and of which wires one is a long circuit carrying the doors and windows, and the other is a short circuit for holding the signal-lever in a raised position, a lever operated by the armature, and of a signal-disk on one end of the said lever, substantially as shown and described.

351,100. GRATING-MACHINE. Frederick W. Drosten, St. Louis, Mo. Filed Feb. 8, 1886. (No model.)

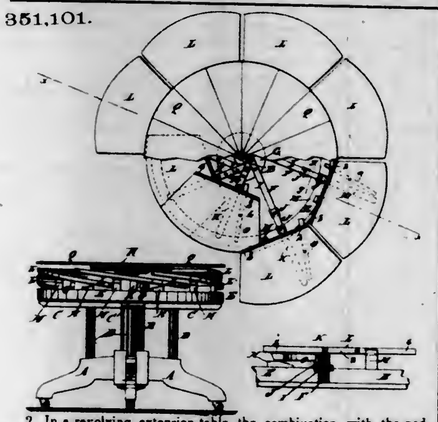


Claim.—The combination, in a grater, of the body A, having downwardly-inclined priamoidal flanges E E', bridge A^2, shaft B, grater-disk C, and means for securing said disk to the shaft, substantially as described, and for the purposes set forth.

351,101. REVOLVING EXTENSION-TABLE. David Fauber and W. H. Harry Fauber, Marshfield, Ind. Filed Apr. 20, 1886. (No model.)

Claim.—1. In a revolving extension-table, the combination, with the pedestal and the tangential bars, which tangential bars are secured upon a support around the pedestal and to the rim of the table, of the leaves secured upon sliding bars connected to clasps having L-shaped flanges engaging with plates or ledges secured upon and projecting at their side edges from the tangential bars, substantially as and for the purpose specified.

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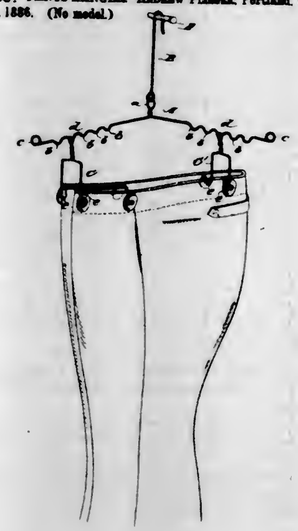
2. In a revolving extension-table, the combination, with the pedestal and the tangential bars, which tangential bars are secured upon a support around the pedestal and to the rim of the table, of the leaves secured upon sliding bars connected to clasps having L-shaped flanges engaging ledges or plates secured upon and projecting at their side edges from the tangential bars, said L-shaped flanges being longer on one side than the other, substantially as and for the purpose set forth.

3. In a revolving extension-table, the combination, with the rim E, connected with the pedestal by the bars F and plate G, and the leaves L, connected with the bars F by the bars K, clasps J, and plates I, of the shouldered stop-blocks M, the inclined blocks N, and the pivoted latches O, substantially as herein shown and described, whereby the leaves will be firmly supported when drawn out, and will be guided in their inward and outward movements, as set forth.

4. In a revolving extension-table, the combination, with the pedestal and the tangential bars, which tangential bars are secured upon a support around the pedestal and to the rim of the table, of the leaves secured upon sliding bars connected to clasps having L-shaped flanges engaging with ledges or plates secured upon and projecting at their side edges from the tangential bars, said leaves being secured to said sliding bars at one side of their centers, and the said L-shaped flanges being longer on one side than the other, substantially as and for the purpose set forth.

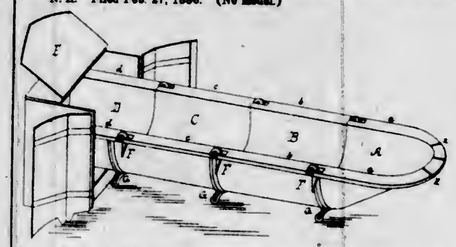
5 In a revolving extension-table, the combination, with the inner edges of the leaves L, having rounded edges, of the springs S, secured at their middle parts to the said inner edges, substantially as herein shown and described, whereby covers can be kept in place upon the said leaves, as set forth.

351,102. PANTS-HANGER. Andrew Flieger, Portland, Oreg. Filed Feb. 24, 1886. (No model.)



Claim.—The combination, with a wire, A, provided with a hook, B, and bent to form an eye, *a*, loops *b b*, and stops *c*, of two pairs of hooks, C C', consisting of wire bent to form eyes *d d*, and hooks *e e*, substantially as described.

351,103. SECTIONAL BATH-TUB. Mendell S. French, Nashua, N. H. Filed Feb. 27, 1886. (No model.)



Claim.—1. A bath-tub composed of two or more cross-sections, the ends of the said sections being adapted to interlock each with its adjacent section around the whole length of the end of the section, substantially as set forth.

2. A bath-tub composed of two or more cross-sections, the ends of the said sections being adapted for removably interlocking each with its adjacent section around the whole length of the end of the section, elastic packing suitably interposed between said interlocking portions, and a fastening device upon the end of the rave of each section, substantially as described, whereby any two adjacent sections may be united and locked rigidly in place.

3. A bath-tub composed of two or more cross-sections, each section having a groove or depression around the inside of the end edge of the section, said groove containing elastic packing, and an outwardly-projecting lip at the edge of the other end of the section, the said lip upon the end edge of one section being adapted to fit within the groove or depression around the opposite end of the adjacent section, and fastening devices for locking and retaining the sections rigidly together, substantially as and for the purpose herein set forth.

4. In a bath-tub composed of two or more cross-sections, a fastener pivoted in a slot or recess formed at or in the end of the rave of one of the sections, said fastener having its upper end bent in the form of a hook, said hook being adapted to engage with a catch formed at or upon the end of the rail of the adjacent section, and a shoulder formed upon the side of the lower portion of the fastener which engages underneath the end of the catch, and an upward projection upon the end of the said catch, substantially as and for the purpose herein described.

5. In a bath-tub composed of two or more cross-sections, which may be removably joined together at the ends of the sections, the said sections being adapted to slide one within another, a catch upon one end of the raves of each section, in combination with a fastener pivoted upon the opposite end of the rave, the fastener upon the end of one rave being adapted to engage with the catch upon the opposite end of the rave of the adjacent section, and a recess in the end of the rave behind the fastener, into which the said fastener is received when the sections are packed or slid together, substantially as and for the purpose herein set forth.

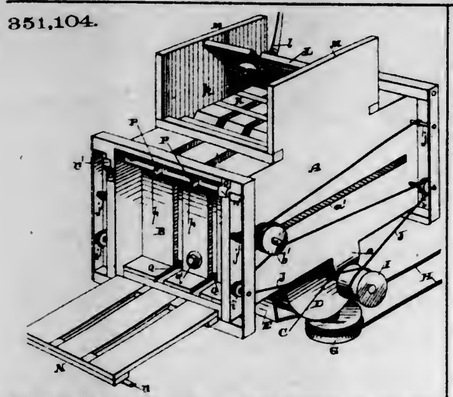
6. A bath-tub composed of two or more cross-sections having means for removably attaching one to another at the opposite ends thereof, the said sections being adapted to slide one within another, in combination with a flexible rave around the section forming the head-section of the tub, as and for the purpose described

351,104. HAY-PRESS. Eugene Gallagher, Bodie, Cal., assignor of one-half to Morten Anderson, same place. Filed July 14, 1886. (No model.)

Claim.—1. In a hay-press, the baling-chamber *a*, having door-controlled discharge-openings in each end, and a door-controlled feed-opening in its top, and the follower B, mounted within the chamber and having arms *b*, projecting through slots in the sides thereof, in combination with the means for reciprocating the follower, consisting of the endless rope H, to which the horses are hitched, the reversible drum G, on which the rope is secured, the drums I, guide-pulleys i, pulleys *b'* on the follower, and chains, ropes, or cables J, operated thereby, and a power-connection between the drum G and the drums I, substantially as herein described.

2. In a hay-press the baling-chamber *a*, having door-controlled discharge-openings in each end, and a door-controlled feed-opening in its top, and the follower B, mounted within the chamber and having arms *b*, projecting through slots in the sides thereof, in combination with the means for reciprocating the follower, consisting of the transverse shaft C under the press, having the drums I, and the two-part worm-wheel D, with its rollers *d*, the worm-shaft F, and the drum G on said

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shaft, the endless rope H, by which the drum is operated, and the chains, ropes, or cables J upon the drum I, and operating over pulleys *i* and *b'*, for moving the follower, all arranged and adapted to operate substantially as herein described.

3. In a hay-press, the baling-chamber *a*, having the discharge-doors at each end, and a reciprocating follower, B, in combination with the feed-door K in the top of the chamber, and the means for securing it, consisting of the hinged plate L, and the bent lever *l*, pivoted in said plate and bearing on the door, substantially as herein described.

4. In a hay-press, the baling-chamber *a*, having the discharge-doors at each end, and the reciprocating follower B within said chamber, in combination with the hinged feed-door K in the top of the chamber, the opposing hinged plate L, having the pivoted bent lever *l*, by which the door is secured, and the fixed side plates, M, whereby a feed-chamber is formed, communicating with the baling-chamber, substantially as herein described.

5. In a hay-press, the reciprocating follower B within the baling-chamber, in combination with the means for automatically placing the ropes or wires for tying, consisting of the oppositely-adjustable pins Q on the lower edges of the faces of the follower, and the arms P, secured to and projecting on each side of the top of the follower, substantially as herein described.

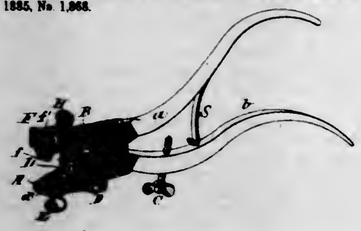
6. In a hay-press, the frame A, having the chamber *a*, the rope or wire carrying reels O, under the frame, and the reciprocating grooved follower B within the chamber, in combination with the means for placing the tying ropes or wires in position, consisting of the longitudinally-moving plate *q* in the base of the follower, the shaft *q'*, connected therewith, and by which it is operated, and the oppositely-arranged pins Q upon the plate, adapted to be projected into and withdrawn from the grooves of the follower, so that the ends of the tying rope or wire may be secured thereto, and the notched arms P on the top of the follower and projecting on each side thereof, substantially as herein described.

351,105. SYRINGE-BOTTLE. Norman S. Hamlin, Marysville, Cal. Filed June 30, 1886. (No model.)



Claim.—The syringe-bottle A, having closed ends and a neck projecting from one side having its end concaved, in combination with an elastic removable band covering and fitting the concaved open end of the neck and encircling the body of the bottle, as herein described.

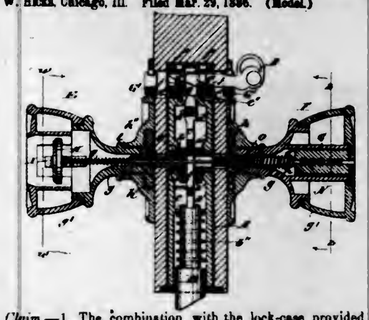
351,106. SAW-SET. Hans A. Hansen, Christiania, Norway. Filed Aug. 25, 1886. (No model.) Patented in Germany June 7, 1884, No. 30,433; in France July 19, 1884, No. 163,392; in Sweden July 21, 1884; in England July 25, 1884, No. 10,596; in Austria-Hungary Sept. 24, 1884, No. 35,968; in Norway Mar. 17, 1885, No. 1,903, and in Denmark Dec. 14, 1885, No. 1,868.



Claim.—1. In a plier saw-set, the combination, with two pivoted jaws, A B, provided, respectively, with an anvil and hammer, L L', of the gage-plate F, reversible and adjustable vertically on jaw B, substantially as and for the purpose specified.

2. In a plier saw-set, the combination, with the jaws A B, having handles *a b*, and anvil and hammer L L', respectively, of the adjusting-screw O, the gage-plate D and the gage-plate F, adjustable on jaws A B, respectively, said plates being arranged for operation, substantially as described, for the purpose specified.

351,107. COMBINED LOCK AND LATCH. Simeon J. Hess and John W. Hess, Chicago, Ill. Filed Mar. 29, 1886. (Model.)



Claim.—1. The combination, with the lock-case provided with a transverse cylindrical bearing at its rear end, and the bolt in the case having a rearward extension adapted to pass into the said bearing, of the cylindrical plug in the bearing having a transverse recess to receive the rear end or extension of the bolt, a longitudinal key-slot, spring-actuated locking-pins extending into the slot and through the plug into the wall of the cylindrical bearing, substantially as set forth.

2. The combination, with the lock-case, a bolt therein, a tumbler or yoke for operating the bolt and the inner and outer knobs, of a sectional spindle connecting the knobs and tumbler, the outer section being longitudinally movable independent of the tumbler and knob, and mechanism, substantially as described, extending from the inner knob to the said outer section of the spindle for moving said section away from the tumbler, whereby the outer knob may be disconnected from the bolt, and be thereby rendered inoperative, substantially as set forth.

3. The combination, with the lock-case, a bolt therein operating tumblers or yokes at opposite sides of the bolt, and the inner and outer knobs, of the spindle formed of two independent sections connecting the said tumblers and knobs, the outer section being longitudinally movable from the tumbler, mechanism extending from the inner knob to the said movable section for disengaging it from its tumbler, and a spring for returning said movable section to its normal position, substantially as set forth.

4. The combination, with a bolt and its case, of a plug, C, arranged within said case, said plug being formed with a recess, *e*, and with recesses in which pins *e' e'* are mounted, recesses *f'' f'''* being formed in the case and slots *f'* being formed in the pins, the pins being arranged in connection with springs *f*, substantially as described.

5. The combination, with a lock provided with a spring-actuated bolt and tumblers engaging lugs on said bolt, of an inner knob provided with an apertured bar engaging one of said tumblers, and with a push-pin extending through said bar and the lock-bolt, and means for holding said pin in the inner position, and of an outer knob provided with a spring-pressed sliding bar engaging with the other tumbler and bearing against the said push-pin, and with a sliding locking-cylinder having a shank bearing against the said sliding bar, substantially as described.

6. The combination, with a bolt and its case, the bolt being formed with a longitudinal slot, *c''*, of tumblers L L', a bar, *l*, formed with a central bore, a push-button, H, formed with a stem, *q*, bar *o*, and pin-cylinder G and its pins *s*, all parts being arranged substantially as described.

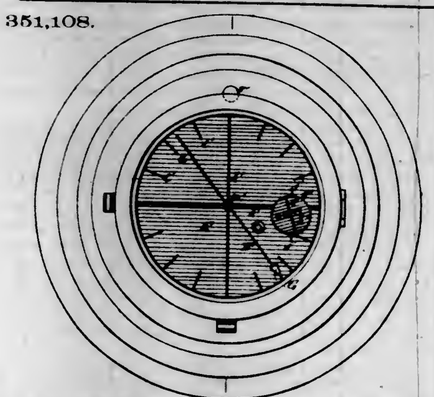
7. The combination, with a bolt and its case, of an outer knob having a section, *g*, and containing a pin-cylinder, G, formed to receive slotted pins *s*, a tumbler, L', and a bar, *o*, connecting said knob and bolt, substantially as described.

351,108. PHOTO-CHRONOGRAPH. John J. Higgins, New York, N. Y., assignor to E. & H. T. Anthony & Co., same place. Filed Feb. 12, 1886. (No model.)

Claim.—1. In a photo-chronograph, a light-reflecting plate and means for carrying it in a circular path, substantially as herein shown and described.

2. The combination, in a photo-chronograph, of the rotating arm F and the light-reflecting plate G, adjustably secured to the arm, substantially as herein shown and described.

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3. In a photo-chronograph, the combination, with the rotating arm F and light-reflecting plate G carried thereby, of the calibrating-wheel A', having a rotary motion bearing a fixed relation to the motion of the arm F, substantially as herein shown and described.

4. In a photo-chronograph, the combination, with the rotating arm F, having a light-reflecting surface, of the calibrating-wheel A', having a rotary motion bearing a fixed relation to the motion of the arm F, substantially as described.

5. In a photo-chronograph, the combination, with the revolving arm F, light-reflecting plate G carried thereby, of the calibrating-wheel A', and a sound mechanism operated substantially as herein shown and described.

6. The combination, with the rotating arm F and light-reflecting plate G carried thereby, of the graduated dial E, having a dark ground and light graduated lines formed thereon, substantially as herein shown and described.

7. In a photo-chronograph, the combination, with the arm F and light-reflecting plate G carried thereby, of a motor for imparting continuous rotary motion to the arm, substantially as herein shown and described.

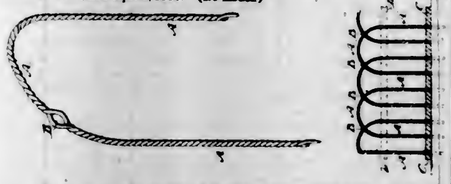
8. In a photo-chronograph, the combination, with the rotating arm F, light-reflecting plate G, and mechanism for rotating the arm F, of a brake mechanism for regulating the velocity of the motor, substantially as herein shown described.

9. The combination, with the light-reflecting plate G, arm F, and arbor *p*, carrying the same, of the lever *s*, having the angled end *t*, and the rod *v*, adapted to be pressed by the bezel when closed over the dial, substantially as and for the purpose specified.

10. In a photo-chronograph, the combination, with the motor provided with the wheels B C D, of arbors *a b c p i*, the pinions *b*, *q*, and *j*, carried by the arbors, the brake-wheel *k*, secured to the arbor *i*, the adjustable brake-spring *l*, the pin *f''*, projecting from the side of the brake-wheel, the bell-hammer *c'*, the bell *d'*, the calibrating-wheel A', the arm F, and light-reflecting plate G, carried thereby, substantially as herein shown and described.

11. The method of recording the time of exposure of a sensitive photographic plate, consisting in exposing a sensitive photographic plate to a light-reflecting plate revolving in front of a graduated dial at a known rate of revolution, developing the plate, and finally calculating the time of exposure by comparing the length of the image of the light-reflecting plate with the length of the path of the light-reflecting plate and the period of its revolution, substantially as herein shown and described.

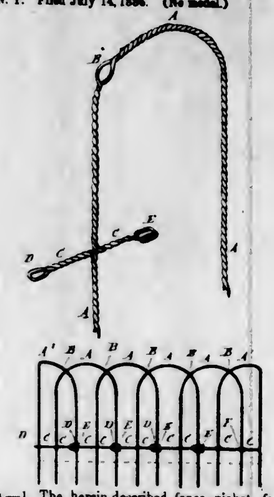
351,109. WIRE-FENCING PICKET. Joshua Horrocks, Brooklyn, N. Y. Filed Apr. 6, 1886. (No model.)



Claim.—1. The herein-described picket A, consisting of two or more strands of wire twisted together and bent into U shape, and provided with the eye B in its bend at one side of the center thereof, as and for the purpose specified.

2. The combination, in a fence, of a series of U-shaped pickets, A, provided with eyes B at one side of the center of their bends, each picket receiving through its eye the arm of the picket adjacent to said eye, and having its opposite arm passed through the eye of the adjacent picket on the opposite side, substantially as herein shown and described.

351,110. SELF-LOCKING WIRE-PICKET. Joshua Horrocks, Brooklyn, N. Y. Filed July 14, 1886. (No model.)



Claim.—1. The herein-described fence-picket, formed of two or more strands of wire twisted together, bent into U shape, provided with an eye in its bend at one side of the center thereof, and provided with arms at the opposite sides of the leg next the said eye, in the plane of the picket, and having a double eye in the end of one arm and a single eye in the end of the other arm, substantially as described, and for the purpose set forth.

2. In a fence, the combination of a series of U-shaped pickets, A, provided with eyes B at one side of the centers of their bends, and provided with arms C upon the opposite sides of the legs next the eyes B, in the plane of the pickets, and having a single eye at the end of one arm and a double eye at the end of the other arm, each picket having its rear leg passed through the eye of the preceding picket, and the eyes of the overlapped arms of the two preceding pickets, substantially as herein shown and described, whereby the said pickets will be strongly and firmly connected together, as set forth.

351,111. FINGER-EXERCISING DEVICE. Josef Kaspar, Washington, D. C. Filed Mar. 27, 1886. (No model.)



Claim.—1. The herein-described finger-exercising device, consisting, essentially, of a finger-board constructed with a series of alternate ridges and depressions, said depressions being of sufficient depth to place the fingers therein, so as to be held against longitudinal motion on said finger-board, substantially as and for the purposes specified.

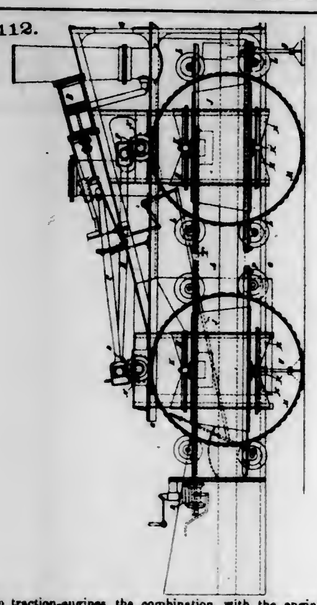
2. The herein-described finger-exercising device having substantially the form of a violin, the finger-board whereof is provided with a series of alternate ridges and depressions, said depressions being of sufficient depth to place the fingers therein, so as to be held against longitudinal motion on said finger-board, substantially as and for the purpose specified.

3. The herein-described finger-exercising device, consisting, essentially, of a finger-board having alternate ridges and depressions, said depressions being of sufficient depth to place the fingers therein so as to be held against longitudinal motion on said finger-board, in combination with a musical or chromatic scale applied to said finger-board, substantially as and for the purposes specified.

351,112. TRACTION-ENGINE. Viktor Kroh, Krumau, Bohemia, Austria-Hungary. Filed Jan. 25, 1886. (No model.)

Claim.—1. In traction-engines, the combination, with the engine, of driving and carrying rings or tires, from the outer periphery of which said engine is wholly supported, substantially as and for the purpose specified.

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2. In traction-engines, the combination, with the engine, of driving and carrying rings or tires and rolling bearings, from which the engine is supported, resting on the outer periphery of said rings, substantially as and for the purpose specified.

3. In traction-engines, the combination, with the engine, of elastic driving and carrying rings or tires, from the outer periphery of which said engine is wholly supported, substantially as and for the purpose specified.

4. In traction-engines, the combination, with the engine, of driving and carrying rings or tires, from the outer periphery of which said engine is wholly supported, and rolling braces applied to the outer periphery of the rings to brace the same, substantially as described, for the purpose specified.

5. In traction-engines, the combination, with the engine, of elastic driving and carrying rings or tires, from the outer periphery of which said engine is wholly supported, and revolable controlling braces applied to the said outer periphery of the elastic rings to brace the same and control the degree of elasticity thereof, substantially as and for the purpose specified.

6. In traction-engines, the combination, with the engine, of driving and carrying rings or tires, and revolable bearings for and driven by said engine, said revolable bearings resting and operating on the outer periphery of the rings to drive the same and support the engine therefrom, substantially as described, for the purpose specified.

7. In traction-engines, the combination, with the engine, of elastic driving and carrying rings or tires, and revolable bearings for and driven by said engine, said revolable bearings resting and operating on the outer periphery of the rings to drive the same and support the engine therefrom, substantially as described, for the purpose specified.

8. In traction-engines, the combination, with the engine, carrying and driving rings or tires, and revolable bearings for and driven by the engine, said revolable bearings resting and operating on the outer periphery of the rings to drive the same and support the engine therefrom, of rolling braces also applied to and operating on the outer periphery of the rings to brace the same, substantially as and for the purpose specified.

9. In traction-engines, the combination, with the engine, elastic carrying and driving rings or tires, and revolable bearings for and driven by the engine, said revolable bearings resting and operating on the outer periphery of the elastic rings to drive the same and support the engine therefrom, of rolling braces also applied to and operating on the outer periphery of the elastic rings to brace the same, substantially as and for the purpose specified.

10. In traction-engines, the combination, with the engine, of rings or tires provided with a groove in their outer periphery and rolling bearings connected with and supporting the engine, resting on said outer periphery of the rings and bearings in the grooves thereof, substantially as described, for the purpose specified.

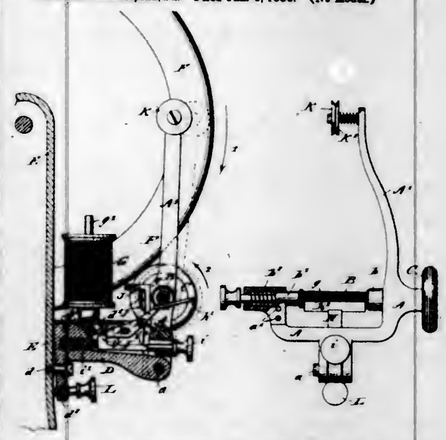
11. In traction-engines, the combination, with the engine and rings or tires provided with a groove in their outer periphery, from which periphery the engine is supported, of controlling and steering wheels or rollers supported from the engine and working in the grooves of the rings, connecting-links for connecting the supports for the steering-wheels on opposite sides of the engine, and gearing for rotating the said supports on their pivots to control the direction of travel of the supporting-rings, substantially as and for the purpose specified.

12. In traction-engines, the combination, with the engine supporting or driving rings or tires, from the outer periphery of which the engine is supported, said rings having a groove in their outer periphery provided with a series of holes or sockets, of supporting-wheels for the engine, connected therewith and driven thereby, said wheels being provided with teeth that engage the holes or sockets in the groove of the drive and supporting rings, substantially as and for the purpose specified.

13. In traction-engines, the combination, with the engine, supporting and drive rings or tires, and rolling bearings from which said engine is supported, resting on the outer periphery of said rings, of water-tanks supported on vertical pivots secured to the engine in proximity to the rings and controlling and guide wheels mounted on said tanks, and operating on the periphery of the rings, substantially as described, for the purpose specified.

14. In traction-engines, the combination of a boiler, an engine, a carrying-frame therefor, and a crank-shaft operated from the engine, and having its bearings in said carrying-frame, of rings or tires and wheels secured to the outer ends of the crank-shaft bearing, and operating on the outer periphery of said rings to drive the same and support the engine-frame therefrom, substantially as and for the purposes specified.

351,113. BOBBIN-WINDER FOR SEWING MACHINES. Henry Leyser, Philadelphia, Pa. Filed Jan. 6, 1886. (No model.)



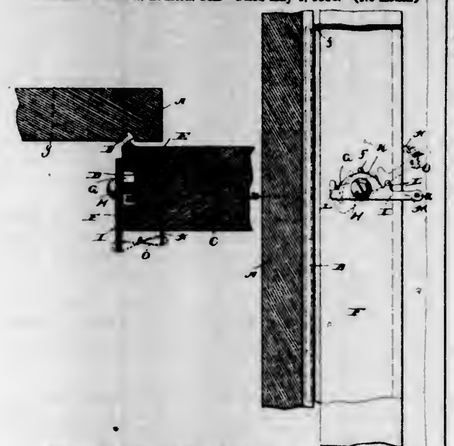
Claim.—1. The combination, in a bobbin-winder for sewing-machines, of the frame or lever A, carrying the friction-wheel C and bobbin-holding devices, the arm D, to which frame A is pivoted at *a*, the lever H, pivoted in arm D, and provided with a plate, *h'*, adapted to bear on the bobbin-thread, a spring, h^2, holding plate *h'* to the bobbin, and a rod, I, having a stop-lug, i^2, and shoulder i^3, and a spring forcing the rod I and frame A outward, substantially as herein set forth.

2. In bobbin-winders for sewing-machines, the combination, with the arm D, carrying the lever H and rod I, and the frame A, carrying the friction-wheel C and bobbin-holding devices, substantially as specified, of an attaching-screw, *d*, passing freely through the lug d^2 of arm D into the sewing-machine frame E, and a screw, L, threaded into lug d^2, and bearing against said frame E, substantially as and for the purposes herein set forth.

3. In bobbin-winders for sewing-machines, the frame or lever A, provided with holes, as at *a'*, at opposite faces, and near the opposite journals, which support the bobbin, in combination with a reversible thread-guide, J, and fastening pins or screws, substantially as described, for the purpose set forth.

4. The combination, in a bobbin-winder for sewing-machines, of the frame or lever A, carrying the friction-wheel C, and bobbin-holding devices, as at *b b'*, the arm D, to which frame A is pivoted at *a*, lever H, pivoted in arm D, and having a plate, *h'*, adapted to the bobbin-thread, a rod, I, having a stop-lug, i^2, and shoulder i^3, a spring forcing the rod I and frame A outward, a spool-post, *g'*, on arm D, an arm, A', on frame A, carrying a tension device, and fastening and adjusting screws *d* L, substantially as shown and described, and for the purposes herein set forth.

351,114. BOX-CAR-DOOR FASTENER AND SPARK-ARRESTER. Hubbard C. Lynch, Houston, Tex. Filed May 1, 1886. (No model.)



Claim.—1. In combination with the door, the screws H, extending therefrom, the strip F, provided with inclined slots G to receive the screws H, the lever I, pivoted on the screw outside the strip, stops L, provided on the lever, and projections *f''*, extending from the strips, and against which projections the stops L engage, as set forth.

2. In combination with the door, the screws H, extending therefrom, the strips F, having the inclined slots received on the screws, and provided with the projections *f''*, the lever I, pivoted on the screws H outside the strip, stops L on the lever to engage the projections *f''*, and means—such as cord—for locking the lever I, as set forth.

351,115. WITHDRAWN.

351,116. VENEER. Frederick Mankey, Williamsport, Pa. Filed Aug. 25, 1885. (No model.)

Claim.—As a new article of manufacture, a wood veneer having formed upon its surface and integral with its substance solid elevations or projections running transversely to the grain, substantially as described.

351,117. CENTER-BOARD FOR VESSELS. David McFall, New York, N. Y. Filed June 15, 1886. (No model.)

Claim.—1. In center-board rigs, the combination, with the vessel and center-board, of a yoke or plate on the vessel-keel, and provided with a longitudinal slot in its lower face, guide rods or pins held to the top of the center-board, guides on the vessel to receive and support said rods or pins, and chains connected to the rods or pins, and adapted to draw the center-board within the keel-yoke slot, substantially as described, for the purposes set forth.

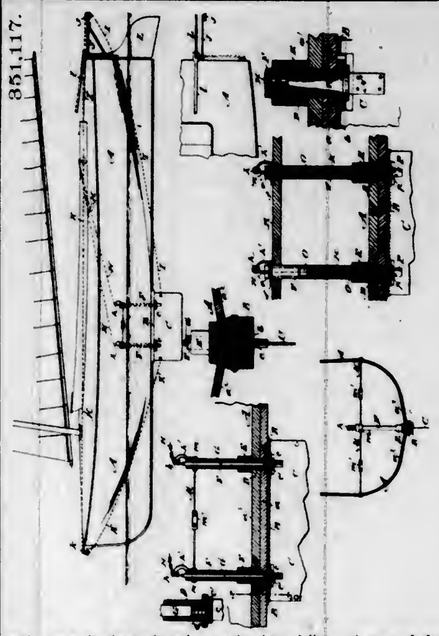
2. In center-board rigs, the combination, with the vessel A and center-board C, of hollow plugs D D, fitted in the vessel's keel, and provided with collars or shoulders *d* and screw-threaded at their upper ends, nuts or collars, as at E, screwed to plugs D above the keel, to clamp its timbers together and hold the plugs to place, rods or pins on the center-board entering the plugs D, and chains connected to said rods or pins and adapted for operation of the center-board, substantially as shown and described.

3. In center-board rigs, the combination, with the vessel A and center-board C, provided with screw-threaded stems *c c*, of rods G G, supported in guides on the vessel, and screwed at their lower ends to the stems *c c*, substantially as described, for the purposes set forth.

4. In center-board rigs, the combination, with the vessel A, and center-board C, having guide-rods G, of hollow plugs D, set in the vessel's keel, and provided with lower shoulders or collars, *d*, screw-collars E on plugs D, above the keel, tubes F, screwed to collars E as upper guides to the rods G, and chains H, connected to rods G and adapted for operation of the center-board, substantially as shown and described.

5. In center-board rigs, the combination, with a vessel, A, and center-board C, fitted with guide rods or pins, and tubular guides in the vessel for said rods or pins, of stay rods or braces M, connecting the guides to each other and to the vessel, substantially as shown and described.

351,117.



351,118. BICYCLE. Albert K. McMurray, Brooklyn, N. Y. Filed July 15, 1886. (No model.)

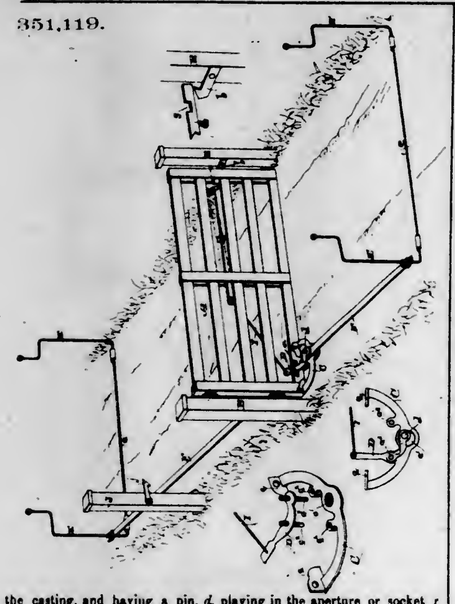
Claim.—In a bicycle, the combination, with the sleeve 11, which constitutes the hub of the main wheel of the machine, and is formed with toothed flanges 12, of a shaft, 13, carrying wheels 16 and ratchet-wheels 19, treadles 20, loosely mounted upon the shaft, pawls 2, carried by the treadles and arranged to engage with the ratchet-wheels, elastic bands leading from the treadles to the cross-bar of the machine, and gears 17 and 18, studded to the inner faces of the arms of the main fork of the machine, the gears 17 and 18 being arranged to intermesh with gears 16 and 12, substantially as described.

351,119. GATE. Melvin C. Messer, Occidental, Cal. Filed Apr. 15 1886. (Model.)

Claim.—1. The gate A, latch G, and the bearing-plate or casting C, adapted to be secured to the gate, and having a socket or aperture, *c'*, in combination with the bent latch-operating lever D, pivoted to the casting, and having a pin, *d*, playing in the socket or aperture, substantially as described.

2. The gate A and the latch G, carried thereby and adapted to move lengthwise to be released from the catch, in combination with the bearing-plate or casting C, secured to the gate near its hinge end, said casting having an aperture or socket, *c'*, the bent lever D, pivoted to

351,119.

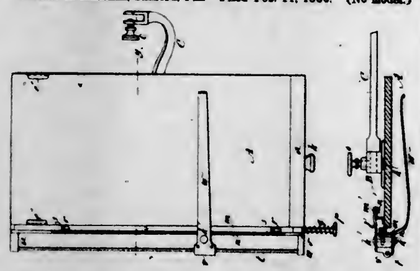


the casting, and having a pin, *d*, playing in the aperture or socket, *r* connection between one end of lever D and the latch, and a means connected with the other end of said lever for throwing it over to draw back the latch and open the gate, substantially as described.

3. The gate A and the sliding latch G, in combination with the bearing-plate or casting C, bolted to the bottom of the gate near its hinge end, said casting having an aperture or socket, *c'*, the bent lever D, pivoted on the casting, and having a pin, *d*, playing in the aperture or socket, the rod I, connecting one end of lever D with the latch, the pivoted lever E by the roadside, and the rod or bar F, connecting the lever E with the other end of lever D, substantially as described.

4. The gate A, the posts B and J, having catches *b j*, and the sliding latch G, having notch *g*, in combination with the bearing-plate or casting C, having an aperture, *c'*, the bent lever D, pivoted on the casting and having a pin, *d*, playing in the aperture, the rod I, connecting one end of the lever D with the latch, the pivoted lever E in the roadway, and the rod or bar F, connecting the lever E with the other end of lever D, all arranged and adapted to operate substantially as described.

351,120. COMBINED NOTE-BOOK HOLDER AND LINE-INDICATOR. Albert H. Merrill, Sanford, Fla. Filed Feb. 11, 1886. (No model.)

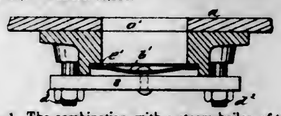


Claim.—1. In a note-book holder, the combination, with the board A, forming the body of the holder, of the case *d*, slides *e e'*, lever *h* links *i i'*, connecting the ends of the lever with the slides *e e'*, springs *j j'*, and the rod *k*, connected with the lever *h*, and extending through the lower end of the board A, substantially as herein shown and described.

2. The combination, with board A, of the rod *t*, the slide *v*, placed on the rod, the ratchet-bar *n*, the spring-acted pawl *c'*, the line-indicator *w*, the bar *l'*, connected to ratchet-bar *v*, and receiving bar *m'*, supported upon short standards *n' n'*, secured to the back of the board A, substantially as and for the purpose set forth.

3. The combination, in a note-book holder and line-indicator, of the board A, slides *e e'*, and means for operating the same, the ratchet-bar *n*, the rod *t*, slide *v*, provided with the pawl *c'*, and the line-indicator *w*, carried by the slide, substantially as herein shown and described.

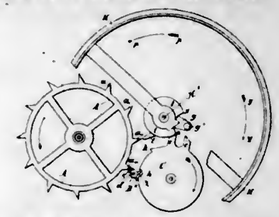
351,121. DEVICE FOR PREVENTING THE EXPLOSION OF STEAM-BOILERS. Bendix Meyer, Gleiwitz, Prussia, Germany. Filed Aug. 13, 1885. (No model.) Patented in England July 24, 1885, No. 8,956; in France July 24, 1885, No. 170,294; in Belgium July 24, 1885, No. 69,697; in Germany July 25, 1885, No. 34,768, and in Austria-Hungary Oct. 24, 1885, No. 27,738 and No. 55,159.



Claim.—1. The combination, with a steam-boiler, of the plate held fixedly over and covering an opening in the boiler, which plate is free to yield or flex at the edge or margin as it is subjected to a certain steam-pressure and remain flexed or bent thereat, substantially as and for the purpose set forth.

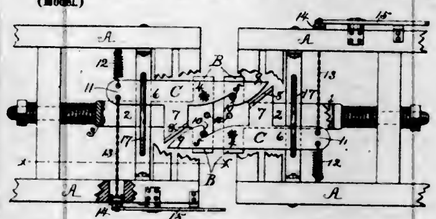
2. The combination, with a steam-boiler having an opening around which is disposed a neck, of the flexible plate, operating as described, held within said neck and around the edges of the opening, and connected at its center to a cross-bar bolted to the boiler, substantially as and for the purpose set forth.

351,122. CHRONOMETER-ESCAPEMENT. August E. Müller, Passau, Germany. Filed Apr. 29, 1886. (No model.) Patented in England June 6, 1884, No. 8,651; in Germany Dec. 9, 1884, No. 29,728, and in Austria-Hungary Jan. 22, 1886, No. 36,358 and No. 68,665.



Claim.—A chronometer-escapement consisting of the combination of scape-wheel A, with teeth *a a'*, &c., the arbor B, provided with tooth *z*, fingers *x x'*, and recess *d*, the ratch-wheel C, provided with forks *c c*, recess *h*, and tooth *k*, and the balance H, carrying on its arbor H' the plate *i*, pallet *l*, and pallet *g*, provided with pin *g'*, the whole being arranged to operate substantially in the manner and for the purpose described.

351,123. CAR-COUPLING. Lorenz Oberlander, Baldwinsville, N. Y., assignor of three-fourths to Jacob C. Kenyon, same place, and George L. Brown and Reuben J. Getz, Buffalo, N. Y. Filed Sept. 7, 1886. (No model.)

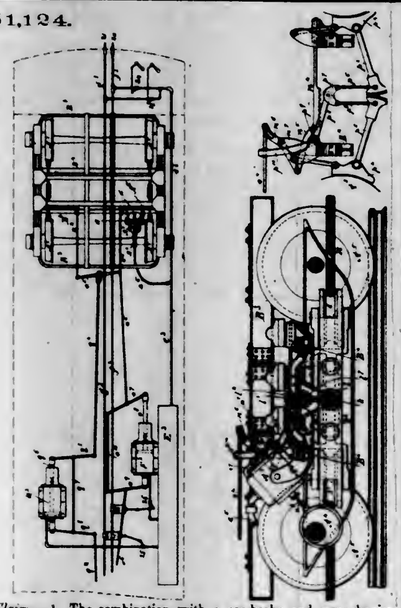


Claim.—1. A car-coupling consisting of the reciprocating couplers C, pivotally mounted in the bumpers and engaging with pins therein, and provided with an operating-lever connected to each coupler, in combination with the bumpers B and frames A, substantially as shown and described.

2. A car-coupling consisting of two couplers, C, each provided with a beveled hooked point, and a side arm provided with a head, 8, and pivotally mounted in the bumpers, and each connected to an operating-lever on the outside of the car, in combination with the bumpers B, provided with pins 4 and 5, mounted in the car-frames, substantially as shown and described.

351,124. MECHANISM FOR ACTUATING THE CLUTCH AND BRAKE IN CABLE RAILWAYS. John H. Pendleton, Brooklyn, and Cornelius Tiers, New York, N. Y., assignors by direct and mesne assignments, to themselves, Alexander H. Tiers, Robert I. Sloan, and Lincoln Moss, all of New York, N. Y., and Thomas Nast, Morristown, N. J. Filed Aug. 6, 1885. (No model.)

351,124.



Claim.—1. The combination, with a car-brake and a mechanism for gripping or releasing a traction-cable, of an air-reservoir, an air-cylinder, its piston, rod, and connections, substantially as specified, for releasing the grip and applying the brake to the wheels, and a second air-cylinder, its piston, rod, and connections for releasing the brake and applying the grip to the cable, substantially as specified.

2. The combination, with a traction cable and grip, of a car truck and wheels, an air-pump receiving its motion from the wheels, a reservoir into which the air is pumped, a cylinder, rod, and connections for actuating the gripping device, substantially as set forth.

3. The combination, with the car-truck, traction-cable, and gripping device, of an air-pump actuated by a connection to the car-wheels, a reservoir into which the air is pumped, a cylinder, and devices for actuating the grip for the cable by the air-pressure, and an automatic gage for stopping the pumping of the air when the maximum pressure is attained, substantially as set forth.

4. The combination, with the traction-cable and its gripping device, of a reservoir containing air under pressure, cylinders and pistons, rods, and connections for applying the grip and removing the brake and removing the grip and applying the brake, and cocks or valves, and air cylinders and pistons for actuating the same, and air pipes and cocks, substantially as specified, whereby the grip and the brake respectively are controlled whether in one or several cars, substantially as set forth.

5. The combination, with the traction-cable, grip for the same, and the cars and car-brakes, of two air-pipes extending the length of two or more cars, the coupling for connecting said pipes, a reservoir for containing compressed air, and cocks by means of which the compressed air is directed to the brake mechanism or to the grip mechanism at will, substantially as set forth.

6. The combination, with the grip mechanism and traction-cable, of the truck frame and wheels, the brake mechanism, and the lever, rack, and connections, substantially as specified, for releasing the grip and then applying the brake, and releasing the brake and then applying the grip, substantially as set forth.

7. The combination, with the car-wheels and brake and the grip mechanism for connecting the car to a traction-rope, of an air-reservoir, and mechanism actuated by the compressed air for applying the grip in grasping the traveling rope, and mechanism actuated by the compressed air for applying the brake when the grip is released, substantially as specified.

8. The combination, with grip mechanism for connecting the car to a traction-rope, of an air pump and reservoir, a connection to the axle of the car-wheels to drive the pump, and mechanism actuated by the compressed air for applying the grip in grasping the traveling rope, substantially as set forth.

9. The combination, with the car and wheels, of an air-pump receiving its motion from the wheels, a traction cable and grip, and mechanism for actuating the grip by the compressed air, substantially as specified.

351,125. PROCESS OF MANUFACTURING COLORED RELIEF-IMPRESSIONS ON SHEET METAL. Friedmann Priester and Otto Weidmann, Berlin, Germany. Filed Jan. 23, 1886. (No model.) Patented in England Jan. 2, 1886, No. 74, and in France Jan. 2, 1886, No. 173,294.

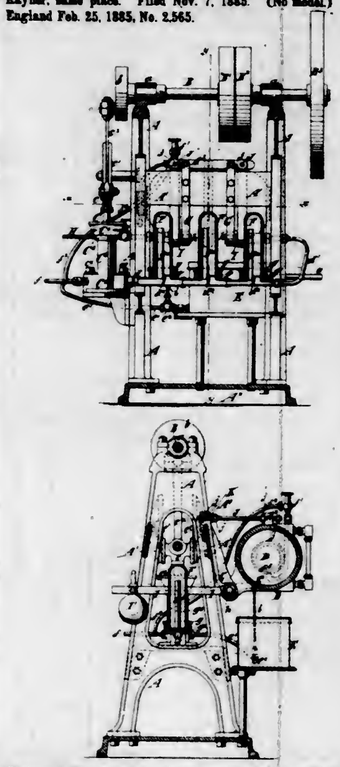


Claim.—1. The method of preparing sheet metal for receiving relief-impressions, which consists in coating the metal with an elastic isolating film, then drying the same, then applying a coating over the film to form a background, and finally applying the desired pattern, the sheet then being ready to be impressed, substantially as set forth.

2. The herein-described composition for forming an isolating film upon sheet metal that is to receive relief-impressions, comprising turpentine, benzine, copal-varnish, and caoutchouc dissolved in benzine, in about the proportions stated, substantially as set forth.

3. The herein-described composition for forming a background on sheet metal to be impressed, the same consisting in white lead or zinc oxide combined with turpentine and caoutchouc dissolved in benzine, in about the proportions stated, substantially as set forth.

351,126. APPARATUS FOR MAKING CARBONATED BEVERAGES. Harry Robertson, New York, N. Y., assignor of one-half to George W. Rayner, same place. Filed Nov. 7, 1885. (No model.) Patented in England Feb. 25, 1885, No. 2,565.



Claim.—1. In a carbonating apparatus, the combination, with a receiver mounted to vibrate slightly upward and downward, and a balancing device therefor, of a pump for delivering liquid to the receiver, a suction-pipe leading to the pump, a valve in the suction pipe, and a connection through which the valve will be closed on the downward movement of the receiver, resulting from an excess of liquid therein, and the supply of liquid to the pump be thereby stopped, substantially as herein described.

2. In a carbonating apparatus, the combination, with a receiver pivoted to swing in a vertical plane and having inlet and outlet passages concentric with its pivots, and balancing devices for the receiver, of a pump for delivering liquid to the receiver, and a discharge-pipe leading from the pump to the inlet-passage of the receiver, an outlet-pipe for drawing the liquid from the receiver communicating with its outlet-passage, a valve for controlling the supply of liquid to the pump, and a con-

nection whereby said valve will be closed on the downward movement of the receiver by reason of an excess of liquid therein, substantially as herein described.

3. In a carbonating apparatus, the combination, with a receiver pivoted to swing upward and downward, and balancing devices therefor, of adjustable stops for limiting the downward movement of the receiver, and a pump for supplying liquid to the receiver, substantially as herein described.

4. In a carbonating apparatus, the combination, with a receiver pivoted to swing upward and downward, and balancing devices therefor, of adjustable stops for limiting the falling movement of the receiver, spring cushions or buffers through which the stops set upon the receiver, and a pump for delivering liquid to the pivoted receiver, substantially as herein described.

5. In a carbonating apparatus, the combination, with a receiver and a pump for supplying liquid and gas thereinto, of a series of incorporator-vessels, F, an interrupted discharge-passage leading from the pump to the receiver and communicating with the bottom of each of the incorporator-vessels, and a pipe leading from the discharge-passage upward into each incorporator-vessel, the passage and pipes being of gradually-decreasing size from the inlet to the outlet end of the series, substantially as herein described.

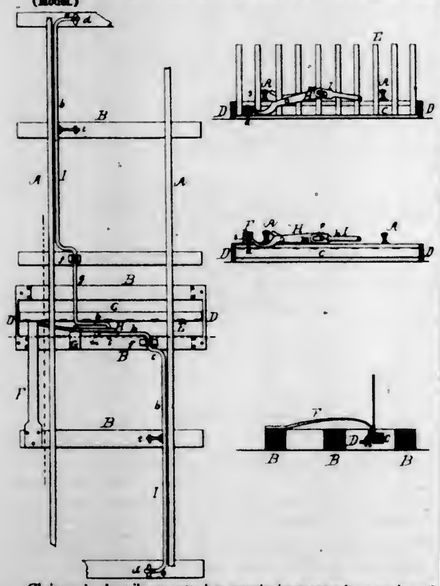
351,127. GIB AND KEY. John H. Robbins, St. Jos, Pa., assignor to himself and Alex L. Frazier, same place. Filed May 17, 1886. (No model.)



Claim.—1. The combination, with the key A, provided with an eye, B, upon one edge of its wider end, of the gib D, provided with the threaded shank C, received in the eye B, and provided with nuts *a b*, substantially as herein shown and described.

2. The key A, provided with the eye B and the stud *c*, in combination with a gib having a threaded shank passed through the eye of the key and provided with a nut, the slotted bar *d*, and the nut *e* on the stud *c*, substantially as herein shown and described.

351,128. RAILWAY-GATE. Jacob J. Roth, Patricksburg, assignor of one-half to Daniel Funk, Bowling Green, Ind. Filed June 10, 1886. (Model.)

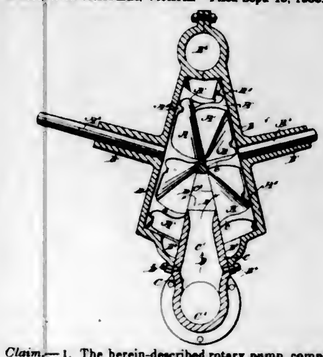


Claim.—1. A railway-gate bar rotatively mounted crosswise of the railway-track and beneath the rails, means for holding the gate-bar normally in position to interpose the gate across the track, and a lever pivoted between the rails and connected at one end to the gate-bar, in combination with operating-rods pivoted on either side of the gate within the rails, said rods having sections parallel with and adjacent to the rails, and in substantially the same plane as the tread-surface of the rails, and a crank on the end of each rod next the gate connected to the inner end of said lever, substantially as set forth.

2. A railway-gate bar rotatively mounted crosswise of the track and beneath the rails, and a curved arm, *a*, secured to said gate-bar in a plane at right angles to the bar, in combination with an operating-lever pivoted between the rails in a plane substantially parallel with the gate-bar, said lever having an eye which is engaged by said curved arm, substantially as set forth.

3. A railway-gate bar and an operating-lever connected thereto at its outer end, said lever having an aperture in its inner end, in combination with two rods acted upon by the flanges of the car-wheels, said rods having cranks, one of said cranks having a crank-pin passing through said aperture in said lever, and the other crank having an elongated slot which embraces said crank-pin, substantially as set forth.

351,129. ROTARY PUMP AND BLOWER. Hugo Saloso, Melbourne, assignor of one-half to John Drysdale and John Fraser, both of 131 King Street, West Melbourne, Victoria. Filed Sept. 15, 1885. (No model.)

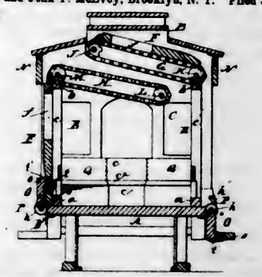


Claim.—1. The herein-described rotary pump, comprising the two-part casing B, each part having one-half of the outlet branch and of an air-chamber, B^7, formed therewith, and constructed to form a wedge-shaped space between them when assembled, the wedge-shaped piece C, having inlet branch C^2 and sector-shaped inlet-ports C^3 formed therewith, and conical winged or ribbed disks arranged to rotate on opposite sides of the wedge-shaped piece C, substantially as described, for the purpose specified.

2. The combination, substantially as herein described, of the two-part casing B, provided with tubular shaft-bearings and interior recesses, B^7, said parts being constructed to form a wedge-shaped space between them when assembled, the wedge-shaped piece C, having inlet branch formed thereon, and provided with sector-shaped inlet-ports C^3, arranged in said wedge-shaped space and dividing a portion of the interior of the casing into two chambers of like cross-sectional area, with the conical winged or ribbed disks A', having one side or face, *c*, constructed in the form of a bevel gear-tooth and arranged to rotate on opposite sides of the wedge-shaped piece C, for the purpose specified.

3. The combination of the two-part casing B, having outlet branch B^2 and interior recesses, B^7, and the wedge-shaped piece C, having inlet branch C^2, chamber or passage C', and sector-shaped inlet-ports C^3, with the conical revoluble disks A, having ribs or wings A', the face *c* of which has the form of a beveled gear-tooth, and provided with projecting snugs A^2, said disks being arranged to rotate on opposite sides of the wedge-shaped piece C, said parts being constructed, arranged, and operating substantially as described, for the purpose specified.

351,130. CONVERTIBLE STREET-CAR. Philip J. Smith, Long Island City, and John F. McEvoy, Brooklyn, N. Y. Filed July 29, 1886. (No model.)



Claim.—1. The body of the car constructed with the open side frames, E, of less height than the end walls of the car, in combination with the shafts K M, journaled at the upper edges of the open frames E, the shafts L J, journaled at opposite sides of the center of the car, the endless chains G H, and the side pieces, F, attached to the chains, substantially as and for the purposes set forth.

2. The panels N, hinged to the roof of the car, in combination with the side pieces, F, and frame for raising and lowering the same, substantially as described.

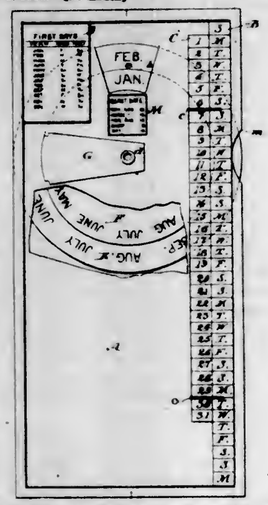
3. The side step, O, composed of the hinged boards *o o'*, the board *o* being attached to the shaft P, substantially as described.

4. The key S, formed with an eye and provided with a spring-pawl, S', having the side spurs, *s*, substantially as described.

5. The board *o* of the hinged step, provided with rests *t*, in combination with the board *o'*, provided with the rests *t'*, substantially as and for the purposes set forth.

6. The steps O, composed of the boards *o o'*, hinged together, the board *o* being attached to the car by a rod on which it is adapted to swing, substantially as described.

351,131. BREEDING-CALENDAR. John W. Snider, Fairland, Ind. Filed July 2, 1886. (No model.)



Claim.—1. In a calendar for indicating the periods of parturition or birth of stock, the date of supposed conception being known, the combination of a rotatable monthly calendar or disk having the names of the stock opposite the months marked upon it, a second rotatable monthly calendar or disk expressive of the periods of parturition, and means for engaging and disengaging said disks, and adapted to engage them at different points in their monthly divisions, essentially as and for the purposes herein set forth.

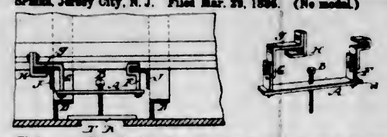
2. In a stock-breeding calendar, the combination, with the body A, of the calendar having an exposing-aperture, *b*, of the rotatable monthly calendar or disk E, having the names of the stock opposite the months marked upon it, the smaller concentric rotatable monthly calendar or disk, F, and means for disengaging said disks from each other, and adapted to engage them at different points in their monthly divisions, substantially as specified.

3. In a stock-breeding calendar, the rotatable monthly calendar or disk E, having apertures *f*, and the names of the stock opposite the months marked upon it, in combination with the lesser and concentric rotatable monthly calendar or disk F, provided with an engaging pin or stud, *g*, essentially as described.

4. In a stock-breeding calendar, the combination, with the rotatable monthly calendar or disk E, having apertures *f*, and the names of the stock opposite the months marked upon it, and the lesser and concentric rotatable monthly calendar or disk F, provided with an engaging pin or stud, *g*, of the slide H, adapted to lift the disk E from engagement with the disk F and to hold the latter from turning, substantially as and for the purposes specified.

5. In a stock-breeding calendar, the combination, with the body A, having an exposing-aperture, *b*, of the rotatable monthly calendar or disk E, having the names of the stock opposite the months marked upon it, the second rotatable monthly calendar or disk, F, adapted to engage with the disk E at different points in the monthly divisions on it, the adjustable blind or screen G, the fixed table B of weeks and days, and the sliding or adjustable table C of dates, substantially as shown and described.

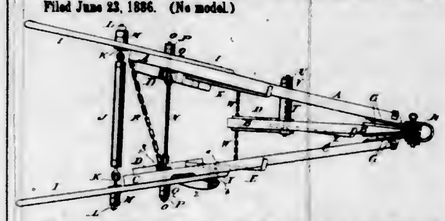
351,132. DEVICE FOR CLOSING APERTURES IN VESSELS. John Spiers, Jersey City, N. J. Filed Mar. 29, 1886. (No model.)



Claim.—1. The device for clamping a plate or covering over an opening in a vessel's hull, consisting of a bar, A, having a central screw-threaded aperture, a separate hook-bar, F, at one end of the bar, the angle-piece G at opposite end of the bar, the angle-piece H, bolted to the horizontal arm of the piece G, and forming in connection therewith a longitudinally-extending hook, and the screw B, passed through the screw-threaded aperture in the bar, substantially as set forth.

2. The device for clamping a plate or covering over an opening in a vessel's hull, consisting of a bar, A, having a central screw-threaded aperture, the bolt B, passed therethrough, the separate adjustable hook F on one end of the bar, and formed of two overlapped apertured plates, the adjustable two-part angle-plate G, secured to the opposite end of the plate, and the angle-plate H, secured to the horizontal arm of the plate G, and forming in connection therewith a longitudinally-extending book, substantially as set forth.

351,133. COMBINATION-PLOW. William H. Stanly, Quitman, Ga. Filed June 23, 1886. (No model.)



Claim.—1. The combination, with the outer beams, A C, and the inner short beam, B, connected loosely at their forward ends, of a removable and adjustable bar, T, connecting beam B with beam A, a chain, W, connected at its outer ends to the outer beams, and at or near its middle to the rear end of the middle beam, B, whereby, by removing the bar T, the chains will limit the downward adjustment of the middle plow below the outer plows, substantially as set forth.

2. The combination, with the outer beams, A C, and short central beam, B, pivoted together at their forward ends and having handles, of the bar T, secured to beam B, and having a bolt at its outer end passed through beam A, the slotted washers and the nut on said bolt, the bars J N, connecting the beams and handles, respectively, and having bolts pivotally secured on their ends, as shown, slotted washers and nuts on said bolts, and a chain, R, connected to one beam and to the plow-standard of the opposite beam for limiting the depth one plow is to extend below the other, the connection-bars J N and their bolts allowing some vertical play to the beams, substantially as set forth.

351,134. ELECTRIC TEMPERATURE-ALARM AND THERMOSTAT. William H. Strohlhaber, Geneva, N. Y. Filed Feb. 2, 1886. (No model.)

Brief.—The alarm and thermostat may be connected with an electro-magnetic damper-regulator for furnaces, incubators, greenhouses, &c.

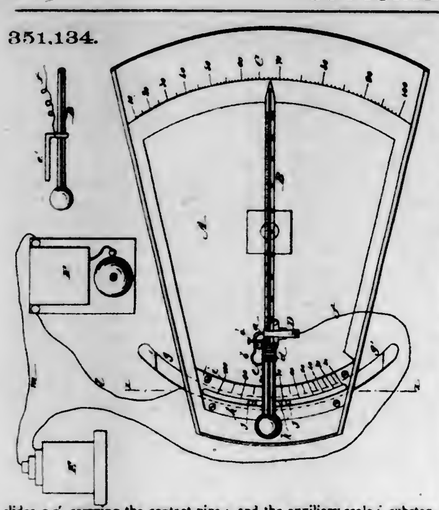
Claim.—1. The combination, with a balance-thermometer tube and its conductive fulcrum, of a sustaining case or frame supporting said fulcrum and having two sets of graduations, one upon each side of the fulcrum, and reading or progressing in opposite directions, a conducting-strip carried by the thermometer-tube and electrically connected to the fulcrum, and one or more adjustable contact-points supported by the frame or case and disposed in range of engagement with the electrical connection of the fulcrum, substantially as and for the purpose described.

2. The combination, with the casing A and balanced thermometer-tube B, of the metallic support D, fixed to the non-conducting back of the casing, the pivotal points *a*, attached to the thermometer-tube, the contact-strip *e* in electrical contact with the points *a* and support D, and one or more adjustable contact-pins, *j*, supported by the back of the thermometer-case, substantially as herein shown and described.

3. The combination, with the casing A and balanced mercury-tube B, of the metallic support D, the points *a*, the metallic strip *e*, in electrical communication with the points *a* and support D, the slides *g g'*, received in a groove in the back of the thermometer-case, and carrying contact-pins *j* on opposite sides of the thermometer-tube, substantially as herein shown and described.

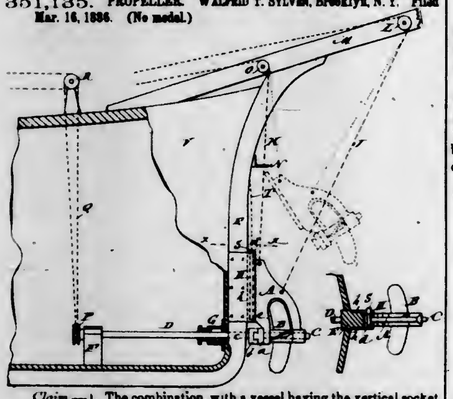
4. The combination, with the balanced mercury-tube B, metallic strip *e*, and electrical conductors connected therewith, of the adjustable

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slides $g\,g'$, carrying the contact-pins f, and the auxiliary scale i, substantially as herein shown and described.

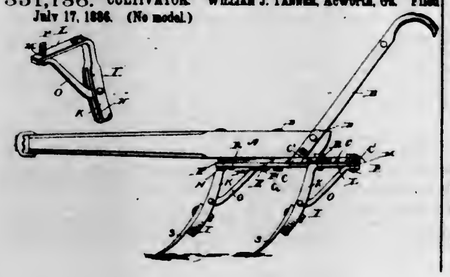
351,135. PROPELLER. Walfrid T. Sylvén, Brooklyn, N. Y. Filed Mar. 16, 1886. (No model.)



Claim.—1. The combination, with a vessel having the vertical socket H, and the shaft D below the socket, having the coupling-piece b, provided with a groove in vertical alignment with that of the socket, of the removable frame A, having its vertical inner edge provided with the head d, to engage the socket H, and the horizontal propeller-shaft C in the lower end of the frame, having a propeller and a coupling-piece, a, on its inner end, provided with a head-piece in vertical alignment with the head d, whereby when the head d enters the socket H the two sections of the coupling will also unite and connect the shafts, substantially as set forth.

2. The combination, with the vessel having the shaft D, the socket H above the shaft, and the stop N above the socket, of the frame A, the propeller and its shaft, and a coupling uniting the two shafts, substantially as set forth.

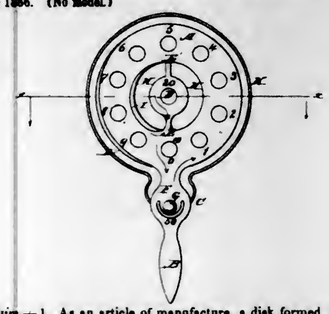
351,136. CULTIVATOR. William J. Tanner, Acworth, Ga. Filed July 17, 1886. (No model.)



Claim.—1. The cultivator-frame comprising the beam, the parallel bars C, the clamping-plate E, the bolts extending through the plough-beam, the bars C, and the plate E, in combination with the plow-feet comprising the curved standards K, having the horizontal rearwardly-extending arms or plates L, and the braces O, and the pivotal bolts connecting the plates or arms to the ends of the bars C.

2. The plow-feet comprising the curved standard K, having the horizontal rearwardly-extending arm or plate L, and the opening N in the standard for the attachment of the shovel, in combination with the brace O, having its lower end bolted in the opening N above the shovel, and its upper end connected to the rear end of the arm or plate L by a bolt, as set forth.

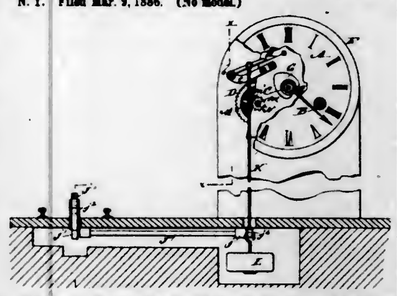
351,137. GAME. Claib E. Tramonell, Willmar, Minn. Filed July 16, 1886. (No model.)



Claim.—1. As an article of manufacture, a disk formed with a series of apertures located near its peripheral edge, and having a central aperture formed in a portion of the disk connected with the main portion of the disk by bridges E, substantially as described.

2. The combination, with a disk formed with apertures numbered consecutively, said apertures being located in close proximity to the peripheral edge of the disk, and having a central aperture formed in a portion of the disk that is connected with the main portion of the disk by bridges E, of a handle provided with a bail or loop, F, substantially as described.

351,138. RAILWAY TIME-SIGNAL. William J. Tripp, New York, N. Y. Filed Mar. 9, 1886. (No model.)



Claim.—1. A time-signal consisting of a stationary index or dial, A, a pointer, B, attached to a sleeve placed upon an arbor, mechanism for revolving the arbor, the heart-cam G, secured upon the sleeve, the pivoted arm H, and the rod K, connected with the arm, in combination with a head, j^3, arranged near the railway-track, to be depressed by the engine, and suitable intermediate mechanism for communicating the motion of the head j^3 to the rod K and arm H, substantially as and for the purposes described.

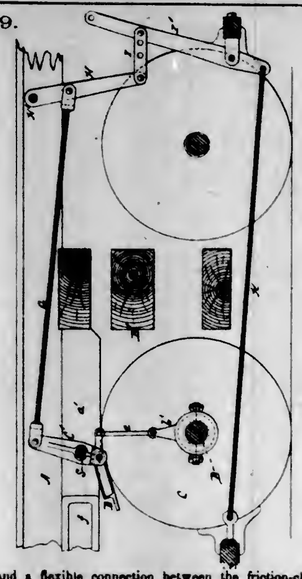
2. The combination of the arm H, the cam G, arbor C, sleeve E, motor D, dial A, pointer B, rod K, head j^3, and intermediate mechanism for communicating the motion of the head j^3 to the rod K, with the pawl m', attached to the rod K, and the ratchet N, attached to the spring-arbor of the motor, substantially as and for the purposes set forth.

351,139. AUTOMATIC CAR-BRAKE. Henry A. Wahlert, St. Louis, Mo., assignor to the American Brake Company, same place. Filed Jan 20, 1886. (No model.)

Claim.—1. In an automatic brake, the combination, with a push-bar or detent and a governor, of an interposed friction-clutch for applying the power of the governor to the detent, substantially as and for the purposes specified.

2. In an automatic brake, the combination of a push-bar or detent, a governor, a friction-clutch for applying the power of the governor to

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the detent, and a flexible connection between the friction-clutch and push-bar or detent, substantially as and for the purposes specified.

3. In an automatic brake, the combination of a movable draw-bar, a power-lever, one end of which extends above the draw-bar, and whose other end is provided with a push-bar or detent for engaging with the draw-bar, an intermediate power-lever having its fulcrum on the bed, and connections from the power-lever to the bed-lever, and from thence to the brake-levers, substantially as and for the purposes specified.

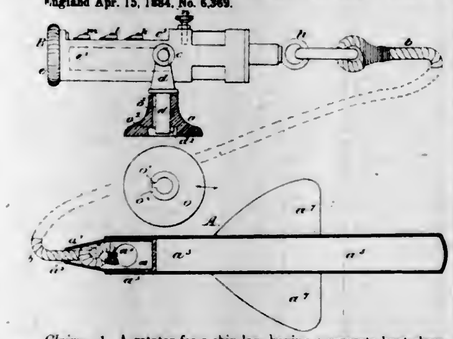
4. A friction-disk having a packing-chamber and lubricating-ports leading to the friction-face of the disk, substantially as and for purposes specified.

5. In a governor, the combination, with the governor-arms, of a sleeve which supports the arms and forms a bearing for the sliding disk and friction-clutch, substantially as and for the purposes specified.

6. In mechanism for actuating automatic brakes, the combination of an automatic governor, and a friction-clutch for transmitting the power of the governor, substantially as and for the purposes specified.

7. In an automatic brake mechanism, the combination of a movable draw-bar, a power-lever, and a push-bar or detent suspended from the power-lever below the draw-bar, substantially as and for the purposes specified.

351,140. SHIP'S LOG. Thomas F. Walker, Birmingham, County of Warwick, England. Filed June 23, 1885. (No model.) Patented in England Apr. 15, 1884, No. 6,369.



Claim.—1. A rotator for a ship-log, having a separate knot-chamber in its fore end, said chamber being open at its outer end for the admission of the end of the tow-rope, and having a side hole or holes, all substantially as and for the purposes set forth.

2. A rotator for a ship-log, having a separate knot-chamber in its fore end, said chamber being open at its outer end for the admission of the end of the tow-rope, and having a side hole or holes and an outer cover or casing, all substantially as and for the purposes set forth.

3. A rotator for a ship-log, having a separate knot-chamber in its fore end and loaded near the same, said chamber being open at its outer end for the admission of the end of the tow-rope, and having a side hole or holes, all substantially as and for the purposes set forth.

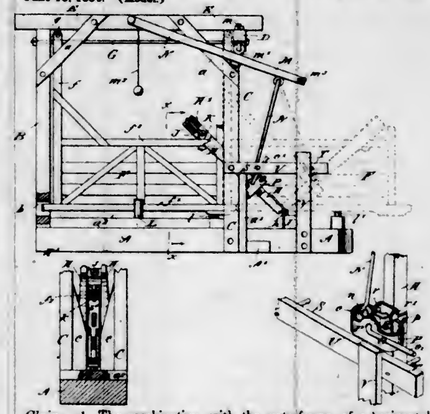
4. A rotator for a ship-log, having a separate knot-chamber in its fore end and loaded near the same, said chamber being open at its outer end for the admission of the end of the tow-rope, and having a side hole or holes, and an outer casing, all substantially as and for the purposes set forth.

5. In a ship-log apparatus having its registering mechanism on board, the combination of the registering-spindle j and the spindle-arms j', inclosed in the casing e, with the spindle and plate i g, the eccentric-pin g', and the anti-friction rollers f, inclosed in the casing c, said combination serving to allow of the partial or entire separation of the part e and its inclosed devices from the remainder of the apparatus without disturbing the same, all substantially as set forth.

6. In a ship-log apparatus, the combination of the gimbal and spindle d' d'', substantially as shown and described, the socket q, having the projection q^3, and the fixture p, with its hole p^2 and recess p', all combined and operating as shown and described.

7. In a ship-log apparatus, the combination of the crank or looped sling having sockets at one end, with the double-cased registering mechanism B e c, having transparent portions in the outer case, c, the inner casing containing the indicators, the trunnions v on said outer casing, and the bolding-screw n, the combination serving to facilitate inspection of the indicators, whether the log be run out from one or the other side of the ship, all substantially as set forth.

351,141. GATE. George W. Walters, Deer Lodge, Mont. Filed June 18, 1886. (Model.)



Claim.—1. The combination, with the gate-frame, of a horizontal guide-rod held thereby, the gate proper having an outer bar hung upon the guide-rod, and lifting-bars hinged at their lower ends to a ground-support and connected at their upper ends with the gate, and means for operating said bars, substantially as shown and described, whereby as the lifting-bars and gate are operated part of the weight of the gate will be borne by the overhead guide-rod, as set forth.

2. The combination, with the gate-frame, a horizontal rod, G, thereon, the gate F, having an outer bar, f, hung on rod G, lifting-bars H H, hinged at A to a ground-support and connected rigidly at their tops by a block, H', and suitable fastenings, overhead operating-levers M M, fulcramed to the gate-frame and extending one at each side of the gate over the roadway and connected at their inner ends, as at m^3, and a rod connecting the lifting-bars with the operating-levers, substantially as described, for the purposes set forth.

3. The combination, with the gate F and a lifting-bar, as at H, hinged to a ground-support attached at its upper end to the gate, and provided with stops r r', substantially as specified, and means for operating said bar, of a trip-arm, O, formed with a crank, o, and stem o', and journaled on the bar H, and trip-pins S T, positioned for contact of the trip-arm with them, substantially as described, for the purposes set forth.

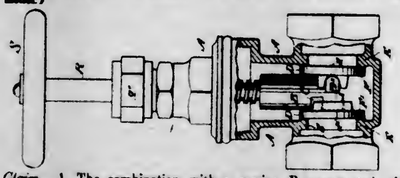
4. In combination, the gate F, a lifting-bar, as at H, hinged to a ground-support and attached at its upper end to the gate, and provided with stops r r', a trip-arm, O, having a crank, o, and stem o', and journaled on the bar H, trip-pins S T, positioned for contact of the arm O with them, and a pull-rod, N, connected to the cross-bar of the crank o and to operating-levers, substantially as described, for the purposes set forth.

5. A device for throwing a lifting and sliding gate past its dead-center of movement, combining a cranked trip-arm, a bar to which said

arm is journaled and by which the gate is directly moved, an operating-rod connected to the crank of said trip-arm, fixed trip-pins and stops applied to said gate-operating bar, said trip-arm having a stem for contact with the said pins, substantially as and for the purpose specified.

6. A device for throwing a lifting and sliding gate past its dead-center of movement, combining a cranked trip-arm having a stem, an operating-rod connected to the crank of said trip-arm, fixed trip-pins having contact with said stem, the gate operating or lifting bar having a yoke, in which bar and yoke the trip-arm is journaled, and stops applied to said lifting-bar, substantially as and for the purpose set forth.

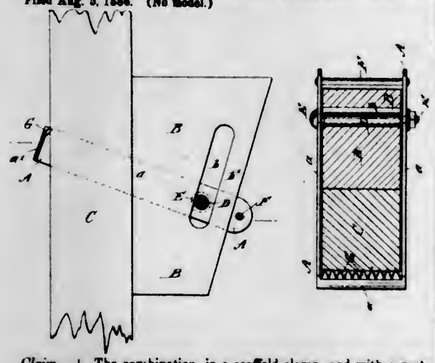
351,142. **VALVE.** Owen L. Whitman, Haydenville, Mass., assignor to himself and Chester B. Hosford, same place. Filed May 29, 1886. (No model.)



Claim.—1. The combination, with a carrier, B, constructed with lateral arms B' B', and recess C, forming a circular bearing, G, of gates D D', provided upon their rear sides with projections formed with recesses adapted to receive the arms B', and bearing G, substantially as described.

2. The carrier B, interiorly threaded to receive the stem of a valve, and provided with lateral projecting arms B' B' upon one side at the lower end thereof, and a rectangular recess, C, penetrating the shell of the carrier upon the other side, above said projecting arms, substantially as shown and described, and for the purpose herein set forth.

351,143. **SCAFFOLD-CLAMP.** Charles Whittingham, Toledo, Ohio. Filed Aug. 5, 1886. (No model.)



Claim.—1. The combination, in a scaffold-clamp, and with a post, C, of a yoke, A, provided with a cross-pin and roller, as at E D, and a block, B, having an inclined slot, *b*, through which the pin and roller pass, and said slot made wider than the diameter of the pin and roller, substantially as shown and described, whereby the pressure of the pin and roller on the clamp-block will come only at the inner wall of the slot *b*, as set forth.

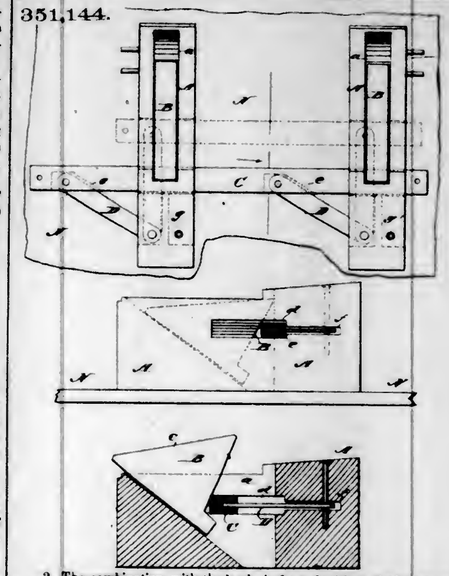
2. The combination, in a scaffold-clamp, and with a post, C, of a yoke, A, having spurs G on its cross-bar, and provided with a cross-pin and roller, as at E D, and a block, B, having an inclined slot, *b*, through which the pin and roller E D pass, and said slot made wider than the diameter of the pin and roller, substantially as described, for the purposes set forth.

3. The combination, in a scaffold-clamp, and with a post, C, of a yoke, A, having spurs G on its cross-bar, and tied or braced at its outer ends by a pin, F, and provided with a cross-pin and roller, as at E D, and a block, B, having an inclined slot, *b*, through which the pin and roller E D pass, and said slot made wider than the diameter of the pin and roller, substantially as shown and described.

351,144. **LOG-BUNK FOR SAW-MILLS.** Philo B. Williams, Butler, Ind. Filed Feb. 25, 1886. (No model.)

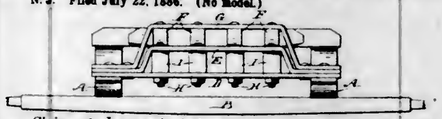
Claim.—1. The combination, with the bunk A, formed with vertical recesses *a*, having their lower faces inclined upward and outward, of blocks within said recesses, having their lower faces inclined to correspond with inclined faces of the recesses *a*, and having their upper faces inclined forward, and mechanism operating against the rear faces of the blocks to simultaneously force them up the inclined recesses *a*, substantially as set forth.

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2. The combination, with the bunk A, formed with vertical recesses *a*, inclined as described, of triangular blocks B within said recesses, and having forwardly-inclined upper faces, of a horizontal forwardly-moving bar, C, bearing against the rear faces of the blocks, and the horizontally-moving links D D, pivoted to the bunk and to the bar C, substantially as set forth.

351,145. **PLATFORM FOR TRUCKS.** Thomas Wright, Jersey City, N. J. Filed July 22, 1886. (No model.)



Claim.—1. In a truck-platform, the combination, with the bars F of the bent arch-bar E, connecting the side springs of the platform and supporting the ends of the bars F, substantially as described.

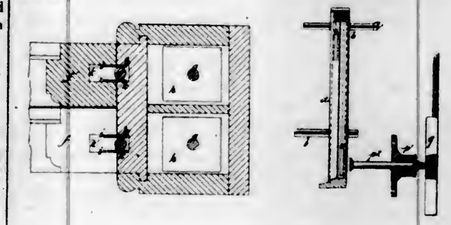
2. In a truck-platform, the combination, with the bars F, of the two arch-bars E G, between which the bars F are held, substantially as described.

3. The combination, with the arch-bar E, bolts H, bars F, and supporting-plate D, of the blocks I, placed upon the bolts H between the arch-bar and the plate D, substantially as described.

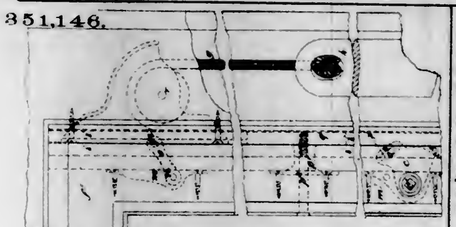
4. In a truck-platform, the two arch-bars E G, resting at their ends upon the plate D and springs A, in combination with the cross-bars F, held between the arch-bars, the blocks I, and the bolts H, the blocks being placed upon the bolts between the arch-bar E and plate D, substantially as described.

351,146. **CONVERTING WINDOW-SASHES INTO REVOLVING SASHES OR FAN-LIGHTS, &c.** Robert Adam, Southwark, County of Surrey, England. Filed Nov. 6, 1883. (No model.) Patented in England Mar. 3, 1881, No. 912.

Claim.—1. The combination, with a window-casing having groove *k*, and a cord-holder, *q*, working in said groove, of a window-sash pivoted in said cord-receiver and having groove *k'*, the movable guides *i i*, having pins c^2 c^2, and the pivoted cam *c*, having slot *p*, substantially as described.

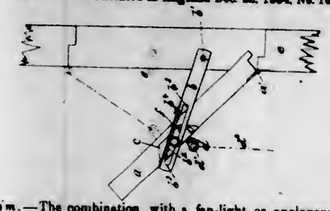


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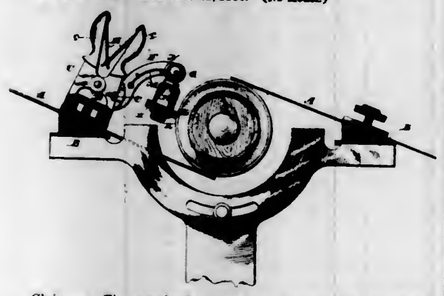
2. The combination, with a window-casing having groove *k*, and a cord-holder, *q*, working in said groove, of a window-sash pivoted in said cord-receiver and having groove *k'*, the movable guides *i i*, having pins c^2 c^2, the pivoted cam *c*, having slot *p*, the pins *n n'*, attached, respectively, to the window-sash and guides *i i*, and the link *o*, pivoted to pins *n n'*, substantially as described.

351,147. **DEVICE FOR OPERATING TRANSOME, SKYLIGHTS, &c.** Robert Adam, Southwark, County of Surrey, England. Filed Mar. 25, 1886. (No model.) Patented in England Dec. 22, 1884, No. 16,817.



Claim.—The combination, with a fan-light or analogous device, hinged as shown, of a link, *b*, pivoted at one end to the frame and having a slot at the other end, provided with the ratchet b^4 and closed end walls, b^3, the pawl *h*, for engaging the ratchet, a lever, *d*, for operating the pawl, and a case for the lever and pawl on the fan-light, substantially as described.

351,148. **LUBRICATOR FOR COMMUTATORS.** Thomas E. Adams, Cleveland, Ohio. Filed June 22, 1886. (No model.)



Claim.—1. The combination, with a brush-supporting device of a dynamo-electric machine, of a lubricator attached to said device and suspended in swinging adjustment, and provided with a porous feeding strip or block rigidly secured to the lubricator and adapted to feed the lubricant to the commutator, substantially as set forth.

2. In a lubricator for the commutator of a dynamo-electric machine, the combination, with a movable brush-support, of a lubricator attached to said support, whereby the relative position of the lubricator to the brush is maintained, substantially as set forth.

3. A lubricator suspended in swinging adjustment and provided with a spring-actuated clutch for securing it removably to a dynamo-electric machine, substantially as set forth.

4. A lubricator for the commutator of a dynamo-electric machine, yieldingly held in contact with the commutator, and provided with a reservoir adapted to contain a supply of lubricant, substantially as set forth.

5. A lubricator for the commutator of a dynamo-electric machine, having an adjustable feed, and provided with a spring-actuated clutch for removably securing it to a dynamo-electric machine, substantially as set forth.

6. In a lubricator for the commutator of a dynamo-electric machine, the combination, with a reservoir suspended in swinging adjustment, of a lubricator-transmitting medium and means adapted to regulate the passage of the lubricant through the medium, substantially as set forth.

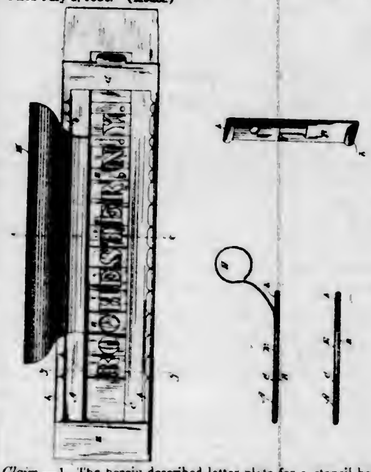
7. In a lubricator for the commutator of a dynamo-electric machine, the combination, with a reservoir suspended in swinging adjustment, of a lubricator-transmitting medium, and means for applying pressure to and removing it from the medium for the purpose of regulating the passage of the lubricant through the medium, substantially as set forth.

8. In a lubricator, the combination, with a reservoir and a porous feed-piece, of an auxiliary feed-piece adapted to protect the porous feed-piece from wear, substantially as set forth.

9. In a lubricator, the combination, with a pair of spring-actuated jaws, and an insulating-arm leading from one of the jaws toward the commutator, of a lubricant-receptacle hinged to the free end of the insulating-arm, substantially as set forth.

10. In a lubricator, the combination, with a suitable support, of a threaded bolt hinged to the free end of the support, a lubricant-receptacle attached to the bolt, and a lubricant-transmitting medium, substantially as set forth.

351,149. **STENCIL-FRAME.** George P. Bailey, Rochester, N. Y. Filed July 8, 1886. (Model.)



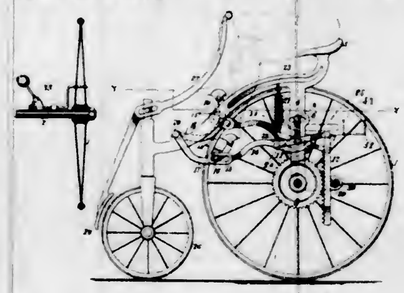
Claim.—1. The herein-described letter-plate for a stencil having a character cut or formed therein, and having its opposite ends bent backward so as to form raised flanges on one side of the plate, as and for the purpose set forth.

2. In a stencil, the combination, with the frame or holder, consisting of a rectangular plate, such as described, having a longitudinal opening, of the letter-plates having their ends turned backward so as to form flanges which are adapted to embrace the edges of the frame, as and for the purpose set forth.

3. In the herein-described stencil, the combination of the rectangular frame having a longitudinal opening and the permanent stop at one end, of the letter-plates having their ends turned back so as to form flanges and the follower for maintaining the assembled letter-plates in position, as set forth.

4. In a stencil, the combination, with the letter-plates, of a rack or holder, substantially as described, for keeping said plates assorted and in order when not in use, as set forth.

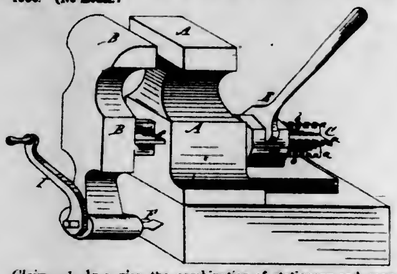
351,150. **VELOCIPEDE.** Hugh Baines, Toronto, Ontario, Canada. Filed Apr. 4, 1885. (No model.) Patented in England May 12, 1885, No. 5,827; in France May 12, 1885, No. 168,887; in Belgium May 12, 1885, No. 68,847; in Germany May 12, 1885, No. 34,432, and in Italy May 15, 1885, No. 18,346.



Claim.—1. In a tricycle or other vehicle, the combination of the driving wheel or wheels, the pinion gearing upon the axle or axles of the wheel or wheels, the rack or racks provided with movable teeth, and the operating-levers, as shown and described.

2. In a tricycle or other vehicle, the combination of the vehicle-frame, the operating lever or levers fulcrumed or swiveled adjustably within the frame, the rack or racks having movable teeth, the driving wheel or wheels, and the pinion gearing on the axle or axles of the said driving wheel or wheels, which gear with and are operated by the movable-teeth racks.

351,151. VISE. Robert Beachman, Lyons, N. Y. Filed Feb. 19, 1886. (No model.)

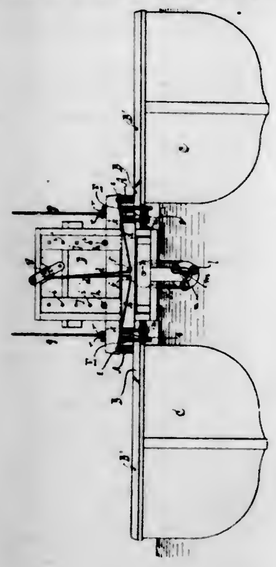


Claim.—1. In a vise, the combination of stationary and movable jaws, the movable jaw being constructed with an arm cast solid with it, said arm being flanged and provided with teeth on its edges, and the stationary jaw being provided with a corresponding slot, through which the arm runs, as shown and described, and for the purpose specified.

2. In a vise, the combination of stationary and movable jaws, the movable jaw provided with a flanged arm and extending below the arm, and provided with a drill in its lower end, as herein shown and described.

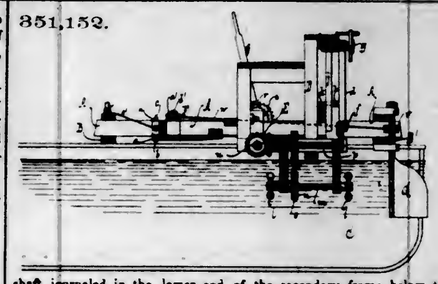
3. The combination, with the movable jaw provided with the flanged arm C, of the follower H and nut D, as shown and described, and for the purpose specified.

351,152. PROPELLER. Chas. Bernhard, New York, N. Y. Filed Apr. 1, 1886. (No model.)



Claim.—1. The combination of two boats, front and rear traverses connecting the latter, a main frame, a vertically-adjustable secondary frame located in the space between the two boats, and a revolving propeller-shaft journaled in the lower end of the secondary frame below the main frame and traverses, substantially as described.

2. The combination of two boats, front and rear traverses rigidly connecting the boats, a main frame connected with the traverses, a vertically-adjustable secondary frame carried by the main frame in the space between the boats and between the traverses, and a revolving propeller-

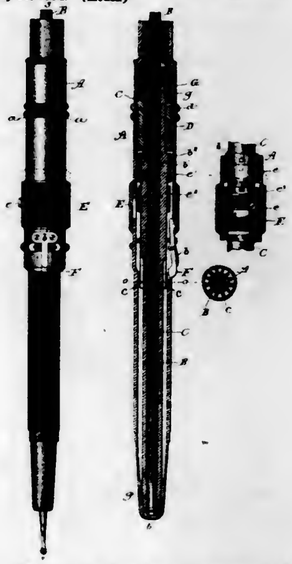


shaft journaled in the lower end of the secondary frame below the main frame and traverses, substantially as described.

3. The combination of two boats, front and rear traverses rigidly connecting the latter, a main frame mounted on the traverses, a vertically-adjustable secondary frame carried by the main frame, a revolving propeller-shaft journaled in the lower end of the secondary frame, a rudder journaled in the rear traverse between the two boats, and means for actuating the rudder, substantially as described.

4. The combination of two boats, a main frame connected with the adjacent sides of the boats, a vertically-movable secondary frame carried by the main frame in the space between the two boats, a windlass, *g*, arranged on and movable with the secondary frame, ropes or chains *d*, extending from the windlass and having their ends respectively secured to opposite sides of the main frame, and guides *f*, around which pass the ropes or chains in the passage to the main frame, substantially as described.

351,153. DENTAL DRILL. William S. Bigby, New York, N. Y. Filed July 14, 1884. (Model.)



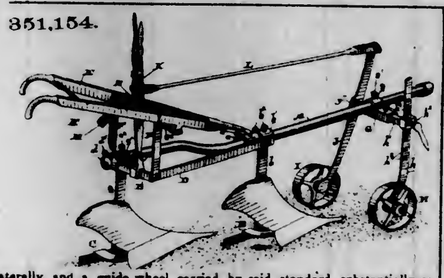
Claim.—1. The combination of an outer case, a hollow spindle fitted to revolve within the case, the sleeve E, with an internal groove, the dog F, spring *f*, and notches *c c* in the hollow spindle, all substantially as shown, for the purpose specified.

2. The combination of an outer case, a hollow spindle fitted to revolve within the case, a spindle within the hollow spindle and revolving with it, with a gripping device or spring-jaws upon one end of it, the collar b^2, attached to it by the pin b' and receiving a longitudinal movement by means of the toothed nut c', the toothed collar c^2, the sleeve E, dog F, and notches *c c* in the hollow spindle, all substantially as shown, for the purpose as specified.

351,154. PLOW. John A. Bils, Pleasanton, Cal. Filed June 23, 1886. (No model.)

Claim.—1. The plow-beam having a cross-bar, G, secured to its forward end, in combination with a standard at one side of the beam, an arm engaging the cross-bar and standard and adjusted vertically and

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laterally, and a guide-wheel carried by said standard, substantially as herein described.

2. In combination with a plow-beam, the bar G upon the forward end of the beam, said bar having a socketed end, the guide-wheel H, having a standard, A, and the arm A', vertically adjustable upon the standard and fitting the socketed end of the bar and adjustable therein, substantially as described

3. In a plow, the beam A and the plow-bottoms B C, secured to said beam, as described, in combination with the cross-bar G on the forward end of the beam and having a socketed end, the guide-wheel H, having standard A, the arm A', fitted upon said standard and in the socketed end of bar G, and set-screws by which the adjustments of the arm on the standard and in the bar are fixed, substantially as herein described.

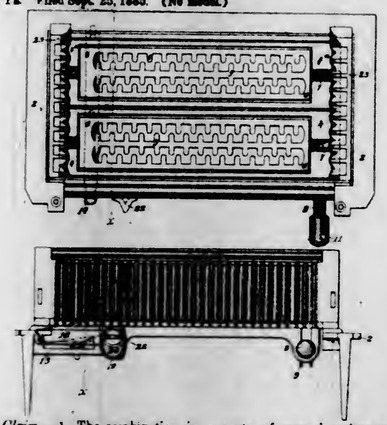
4. In a plow, the beam A, the plow-bottoms B C, secured thereto, and the cross-bar G, secured to the forward end of the beam and having a journal, *g''*, in combination with the lever J, mounted on said journal, the wheel I on the lower end of the lever, and means, substantially as described, for operating said lever to regulate the depth of the plows, as herein set forth.

5. In a plow, the laterally-bent arm A and the plow-bottoms B C, secured to the beam, as described, in combination with the wheels H and I at the forward end of the beam, a pivoted lever, J, upon which the wheel I is mounted, the cross-bar G at the front of the beam, the lever K, and the rod L, connecting said lever with the lever J, substantially as herein described.

6. In a plow, the laterally-bent beam A and the plow-bottoms B C, secured thereto, as described, in combination with the bar G, the vertically and laterally adjustable guide-wheel H on one side of the forward end of the beam, and the adjusting-wheel I on the other side of the beam for regulating the depth of the plows, substantially as described.

7. A plow comprising the laterally-bent arm A, the plows B C, the bent brace-bar D, the cross-bar G on the forward end of the beam, having a socketed end, the guide-wheel H, having standard A, and arm A', vertically adjustable on the standard and adjustable in the socketed end of the cross-bar, the wheel I, having lever J pivoted upon the other end of the cross-bar, the lever K, and the connecting-rod L, all constructed and arranged to operate substantially as herein described.

351,155. GRATE. Frank S. Bissell, Sterrett, Allegheny County, Pa. Filed Sept. 25, 1885. (No model.)



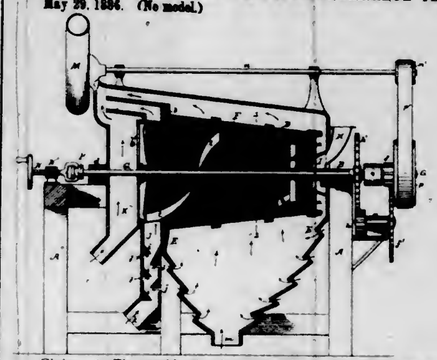
Claim.—1. The combination, in a grate, of several reciprocating frames, a crank-shaft connected with said frames, and frames carrying grate-bars pivotally mounted within said reciprocating frames, substantially as and for the purpose set forth.

2. The combination, in a grate, of several reciprocating frames, a crank-shaft connected with said frames, frames carrying grate-bars pivotally mounted within said reciprocating frames, and a movable tilting-bar extending transversely to the said tilting frames and connected therewith, substantially as and for the purpose specified.

3. The combination, in a grate of several reciprocating frames, a crank-shaft connected with said frame, frames carrying grate-bars pivotally mounted within said reciprocating frame, a movable tilting-bar extending transversely to said tilting frame and connected therewith, and a movable lever-latch engaging with the tilting-bar, substantially as and for the purpose specified.

4. The combination of a tilting grate or bottom, a tilting-bar, a movable lever-latch engaging with the tilting-bar, and a cam, 20, bearing against a yoke on said latch, substantially as and for the purpose specified.

351,156. GRAIN-CLEANER. Chas. R. Bonsot, Hazleton, Pa. Filed May 29, 1886. (No model.)



Claim.—1. The combination, in a grain-cleaner, of internal and external perforated and corrugated screens, rotating mechanism therefor, and means for feeding the grain into the space between the screens, all substantially as specified.

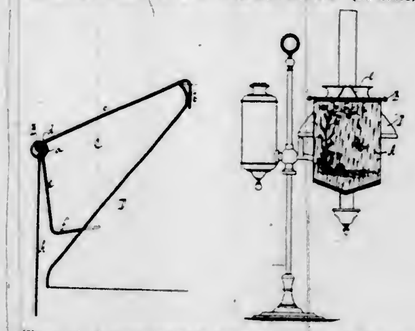
2. The combination of rotating mechanism and the grain-feeding devices with inner and outer corrugated and perforated conical screens, all substantially as specified.

3. The combination of the inner and outer corrugated and perforated conical screens with rotating mechanism therefor, and means for adjusting one of the screens longitudinally with respect to the other, all substantially as specified.

4. The combination of the internal and external corrugated and perforated screens, rotating mechanism, and feeding devices with exhausting mechanism, whereby the matter discharged from the end of the outer screen and the matter passing through the meshes of said screen are subjected to the action of air-currents, all substantially as specified.

5. The combination of the outer and inner corrugated and perforated screens with mechanism for rotating said screens in the same direction, but at different speeds, all substantially as specified.

351,157. SCREEN-HOLDER FOR LAMPS. Thomas C. Booth and Helen Embury, New York, N. Y. Filed Apr. 22, 1886. (No model.)

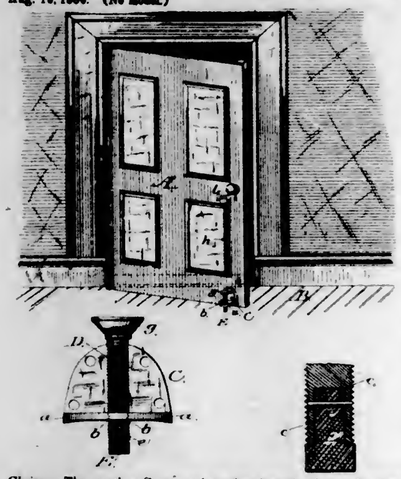


Claim.—1. A screen-holder for lamps, consisting of a single piece of material formed integral with the central hook, *b*, the divergent lateral arms *c c*, and the legs *e e*, and the horizontal bar B, connected to the divergent arms, and from which the screen is suspended, substantially as described.

2. A screen-holder for lamps, consisting of a single piece of material formed integral with the central hook, *b*, divergent arms *c c*, legs *e e*, and braces *f f*, and the horizontal bar B, connected with the arms, and from which the screen is suspended, substantially as described.

3. The combination of the single piece of material, formed with the central hook, *b*, divergent arms *c c*, and legs *e e*, with the horizontal bar B, connected with the arms, and the screen A, having rings *a*, suspending it from the bar, substantially as described.

351,158. **DOOR-CHECK.** Israel Bernheimer, Waterloo, Iowa. Filed Aug. 16, 1886. (No model.)



Claim.—The casting C, secured to the door, having a horizontal flange, *a*, and threaded perforation formed in said flange, in combination with a threaded bolt, D, engaging said perforation, and having a socket, *c*, formed in its lower end, an elastic cushion, E, seated within the socket, and a means, comprising the rod *h* and milled head *l*, for adjusting the bolt, substantially as herein described.

351,159. **RELIEF-VALVE.** Jacob Bridgel, New York, N. Y. Filed Apr. 15, 1886. (No model.)



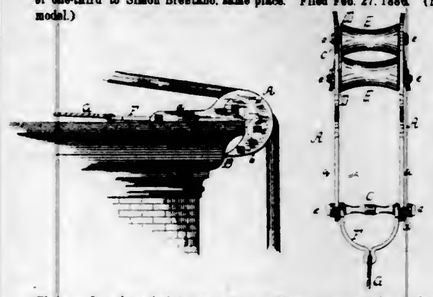
Claim.—1. A relief-valve combining in its structure the following elements, to wit: the casing A, having the externally-threaded shank *a*, an internal valve-chamber, B, and an outlet-channel, *b*, the plug A', detachably connected with the casing and having an inwardly-projecting valve-seat, E, and an inlet-channel, *b'*, the valve C, located in the valve-chamber and provided with the peripheral exit-ports *c'*, and a spring, F, acting to normally hold the valve away from the valve-seat of the plug, and thereby permit the fluid entering the inlet-channel of the plug to pass to the valve-chamber and through the outlet-channel of the casing, substantially as and for the purpose described.

2. A relief-valve combining in its structure the following elements, to wit: a casing, A, having an internal valve-chamber, B, and an outlet-channel, *b*, the plug A', having a screw-threaded connection with the casing and provided with an inlet-channel, *b'*, a recess, *f*, and an inwardly-projecting valve-seat, E, a valve, C, located in the valve-chamber and having the peripheral exit-ports *c'*, and a spring, F, located in the recess of the plug and acting to normally hold the valve away from said valve-seat, and thereby permit the fluid entering the inlet-channel of the plug to pass to the valve-chamber and through the outlet-channel of the casing, substantially as described.

3. A relief-valve combining in its structure the following elements, to wit: the casing A, having the externally-threaded shank *a*, an internal valve-chamber, B, and an outlet-channel, *b*, the plug A', detachably connected with the casing and having an inwardly-projecting valve-seat, E, and an inlet-channel, *b'*, the valve C, located in the valve-chamber and having a rigid disk, *c*, provided with peripheral exit-ports *c'*, a compressible disk, c^2, of a less diameter than the said rigid disk and secured thereupon, and a spring, F, acting to normally hold the valve away from the said valve-seat, substantially as and for the purposes described.

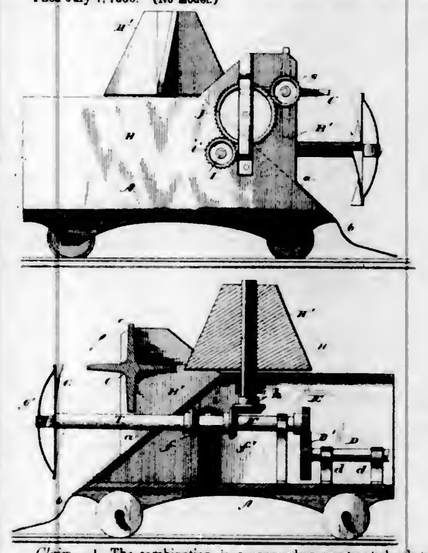
4. The herein-described valve, consisting of a disk, c^2, of compressible material, a metallic disk, *c*, larger in diameter than the disk c^2, having a peripheral series of exit-ports located beyond the outer circumference of the said disk c^2, the two disks being secured to each other, substantially as set forth.

351,160. **HOSE-HOIST.** John J. Brennan, New York, N. Y., assignor of one-third to Simon Brentano, same place. Filed Feb. 27, 1886. (No model.)



Claim.—In a hose-hoist, two plates or frames connected together, in combination with an anti-friction roller or rollers mounted between said plates, said plates or frames extending beyond the peripheries of said rollers, and being flared outward, substantially as set forth.

351,161. **SNOW-PLOW.** Richard Campbell, Spirit Lake, Iowa. Filed July 1, 1886. (No model.)



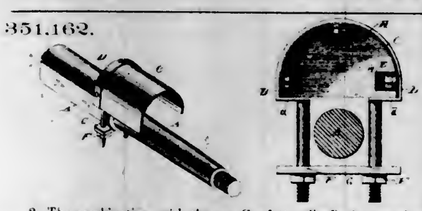
Claim.—1. The combination, in a snow-plow constructed substantially as described, of the car or truck having its front portion inclined, a scoop or shovel extending from said inclined portion over the tracks, a shaft, F, having a propeller-blade attached thereto, and a horizontally-flanged wheel located above said shaft and adapted to carry the snow in contact with a vertically-flanged wheel, substantially as shown, and for the purpose set forth.

2. In a snow-plow, a car mounted on wheels and provided with a front inclined portion and upwardly-projecting side pieces, B', shafts suitably journaled within the car and provided with rotating mechanism, a propeller-blade attached to the horizontal shaft F, which projects in front of said car, a horizontally-rotating flanged wheel, C, journaled to the side pieces, B', and a conical wheel, H', with flanges, attached to a vertical shaft which projects through the top of the car, the shafts being geared to each other, substantially as shown.

351,162. **SAND-BAND.** Jos. Cavanagh, Long Rapids, Mich. Filed Aug. 28, 1886. (No model.)

Claim.—1. In a sand-band, the combination, with the cap projecting over the hub, of a block of rubber interposed between it and the top side of the axle, and a clip securing the parts to the axle, substantially as set forth.

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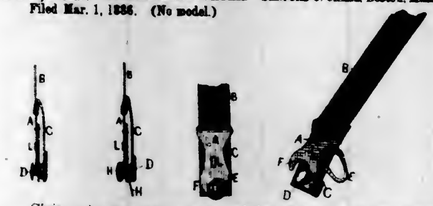
2. The combination, with the cap C, of the clip D, for securing it to the axle, the bolts and nuts E, for securing said cap and clip together, and the block H, interposed between the cap and the axle, having recesses *h* for the reception of nuts E, as set forth.

3. In a sand-band, the combination of a cap, a block interposed between the axle and cap and connected to the latter, and a clip straddling the cap and having the nuts for securing the clip and cap to the axle, substantially as described, for the purpose set forth.

4. In a sand-band, the combination of a cap, a block interposed between the axle and the cap and secured to the latter, and the clip D, straddling the cap and having the offsets *d* bearing against the lower sides of the block, and the nuts for securing the clip and cap to the axle, substantially as described, for the purpose set forth.

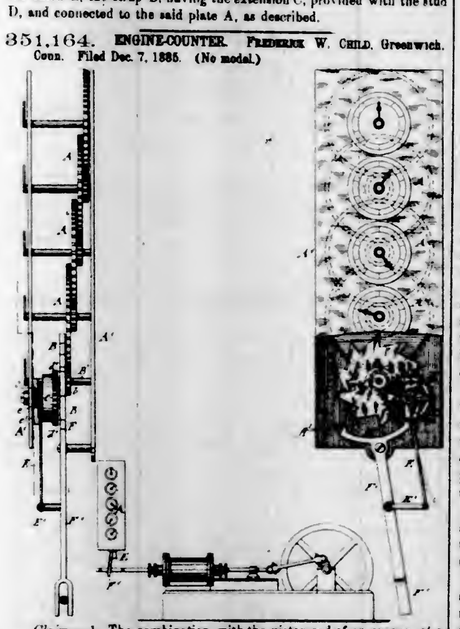
5. In a sand-band, the combination of a cap, the block interposed between the axle and the cap and having the recesses *h* in one side, the clip straddling the cap and having the nuts for securing the clip and cap to the axle, and the bolts and nuts housed within the recesses of the blocks and connecting the clip and cap together, substantially as described, for the purpose set forth.

351,163. **GARMENT-SUPPORTER.** Sanford C. Chase, Boston, Mass. Filed Mar. 1, 1886. (No model.)



Claim.—A garment-supporter consisting of the plate A, having the curved end F, and a loop or slot at the top, the pivoted loop E, having the catch L, the strap B, having the extension C, provided with the stud D, and connected to the said plate A, as described.

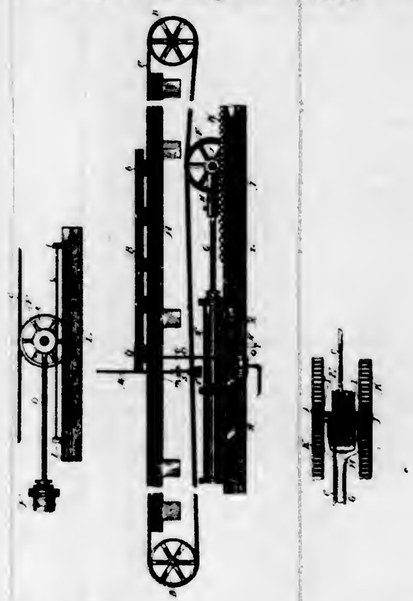
351,164. **ENGINE-COUNTER.** Frederick W. Child, Greenwich, Conn. Filed Dec. 7, 1885. (No model.)



Claim.—1. The combination, with the piston-rod of an engine, of a train of registering gear-wheels, a primary spur-wheel, an oscillating escapement actuated by said piston-rod, the strokes of which are to be counted, a spiral spring impelling said spur-wheel, and means, substantially as described, whereby said spring is automatically wound up by the escapement or directly by the engine or machine, substantially as set forth.

2. The combination, with the piston-rod of an engine, of a train of registering gear-wheels, a primary spur-wheel, an oscillating escapement actuated by said piston-rod, the strokes of which are to be counted, a coil-spring, a barrel for said spring, a gear-wheel and pinion for transmitting the power of the spring to the spur-wheel, a ratchet-wheel applied to the shaft of the spring-barrel, and an oscillating rod and pawl, by which the spring is intermittingly wound up again, substantially as set forth.

351,165. **FEED MECHANISM FOR SAW-MILL CARRIAGES.** Chas. E. Clark, Belmont, N. Y. Filed Aug. 31, 1885. (No model.)



Claim.—1. The combination of a saw-mill carriage, a frame supporting the same, a guide-sheave near each end of said frame, a drum reciprocating and revolving in opposite directions alternately, and a rope connected with the carriage and passing around the sheaves to the drum, with a cylinder, a piston and its rod working therein, and a straight rack, all arranged in substantially the same horizontal plane as the drum, and a pinion fast on the drum-shaft, meshing with the rack and revolving in opposite directions, and of smaller diameter than said drum, and arranged to cause the drum to wind the rope upon itself in opposite directions alternately, substantially as described.

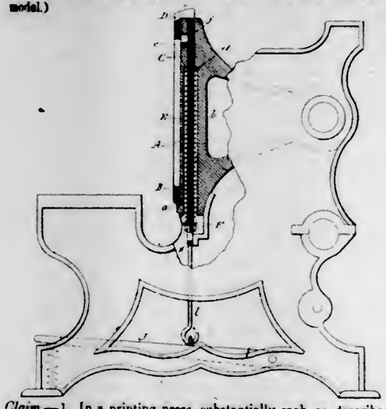
2. The combination of a saw-mill carriage, of a cylinder and piston, a pinion and a drum rigidly connected with each other and having the shaft on which they turn reciprocated in opposite directions by the motion of the piston, a rack into which said pinion meshes, and a rope wound in opposite directions alternately around said drum and connected to the carriage, substantially as described.

3. The combination, with a saw-mill carriage, of a cylinder, a piston and rod working therein, a yoke connected to the piston-rod, a drum rigidly attached to a shaft working in said yoke, two pinions fixedly mounted on the shaft of said drum, two racks arranged on opposite sides of the drum and meshing with said pinions, and a rope wound in opposite directions alternately around said drum and connected to the carriage, all substantially as described.

4. In a rope-feed saw-mill, the combination of a drum, a rack, and a pinion, with the guide for the rope arranged to hold said rope below the top of the drum to press the pinions down upon the rack, substantially as described.

5. In a rope-feed for saw-mills, the combination of a traveling drum, a rack, a pinion secured to the drum traveling over said rack, and a rope wound around said drum and connected to the carriage, with guide-sheaves for the rope which press the drum and pinion downward, substantially as described.

351,166. CHASE-SECURING DEVICE FOR PRINTING-MACHINES. Carroll A. Davis, Hartford, Conn., assignor to the Colts Patent Fire Arms Manufacturing Company, same place. Filed Jan. 21, 1886. (No model.)

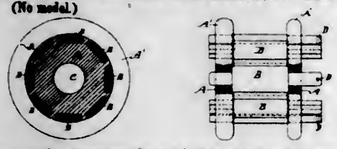


Claim.—1. In a printing-press, substantially such as described, in combination with the chase and bed, a spring-jaw arranged in an opening through the bed in a plane parallel with the chase, and a pedal below the bed in connection with said spring-jaw, substantially as described.

2. In a printing-press, substantially such as described, in combination with the chase and bed, a spring-jaw arranged in an opening through the bed in a plane parallel with the chase, the lever G H, the rod *l*, and the pedal J, arranged and connected substantially as described.

3. In a printing-press, substantially such as described, in combination with the bed constructed with a shoulder or rest for the chase near its lower edge, a spring-jaw above the bed, adapted to grasp upon the upper edge of the chase, a lever, G H, one arm in connection with said spring-jaw, and the pedal J at one side of the press in connection with said lever G H, substantially as described, and whereby the depression of the pedal will raise the said jaw from its grasping position.

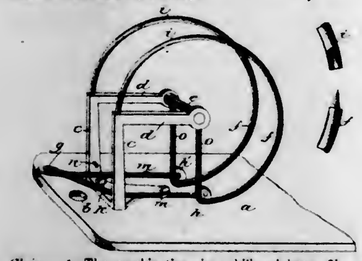
351,167. COMMUTATOR FOR DYNAMO-ELECTRIC MACHINES AND ELECTRIC MOTORS. Philip Diehl, Elizabeth, N. J. Filed July 9, 1886. (No model.)



Claim.—1. A commutator for an electric motor or a dynamo-electric machine, consisting of a body of hardened non-conducting plastic material and metallic sections partly embedded in and held in place by the said material, whereby the said sections are secured in working position without the use of special fastening devices, substantially as set forth.

2. A commutator consisting of metallic sections B, having central portions which are larger than their ends, and a body portion of hardened non-conducting plastic material, in which said sections B are partly embedded, and by which they are firmly held in place, substantially as set forth.

351,168. BILL AND LETTER FILE. Samuel H. Fish, Hinsdale, Ill. Filed Mar. 23, 1886. (No model.)



Claim.—1. The combination, in a bill and letter file, of curved needles rigidly attached to the same shaft, handle or pull-rod pivoted to each of said needles, for turning the same, fixed arms or hooks opposed to said needles, respectively, and stop mechanism carried upon said handle for holding the file closed, substantially as shown and described.

2. The combination, with the frame having the upright pieces and the horizontally-projecting bearings, of the shaft mounted on said bearings, the radially-projecting pieces *o o*, rigidly attached near the ends, respectively, of the shaft, the hooks or arms *i i*, secured to the upper portion of the frame, the needles *f f*, opposed to said arms, and a handle or pull-rod pivoted at *h h'*, to open and close the file, substantially as and for the purpose specified.

3. The combination, with the frame consisting of the bar *l*, upright pieces *c*, and bearings *d*, of the shaft mounted on said bearings, the needles attached rigidly to the shaft, the opposing wires or arms *i*, attached to said frame and provided with rockets corresponding to the needle-points, and the handle or pull-rod *g*, pivoted to said needles at *h h'*, and provided with stops or catches *k*, whereby the file may be opened and closed, and bills placed thereon may be examined or removed, substantially as and for the purpose specified.

4. The combination, in a bill-file, with the handle or pull-rod *g*, provided with catches *k* and *m*, of the needles *f*, to which said handle *g* is connected, the shaft to which the needles are attached, and a frame for supporting the shaft, substantially as and for the purpose specified.

5. The combination, with the curved needles and their opposing curved arms or hooks, of the central shaft to which said needles are attached, the handle or pull-rod pivoted to the needles, and the frame and stop mechanism, carried by the handle and operated thereby, whereby the file is opened and closed, and held closed and the motion of the needles limited, substantially as and for the purpose specified.

6. The combination, with the upright pieces *c c*, provided with pins *n*, for limiting the upward motion of lever *g*, of said lever *g*, provided with catches or stops *k k* and *m m*, said lever or pull-rod being pivoted at *h h'* to hooks or needles *f*, the shaft *e*, journaled to the frame and carrying said needles, and the curved arms *i i*, attached rigidly to the frame, and, with said needles, when closed, forming about three-fourths of the circumference of a circle, substantially as specified.

351,169. RAIL-JOINT. Clark Fisher, Trenton, N. J. Filed July 10, 1886. (No model.)



Claim.—1. The combination, to form a rail-joint, of a sole-piece, chair, or supporting flanged beam, rails the meeting extremities of which are correspondingly angularly cut, and the extremities of the bases of which are cut away, notched out, or otherwise shouldered, forelocks, and bolts holding said forelocks upon the rail-bases and passing through the notches or openings formed by cutting away, notching out, or shouldering off a portion of the rail-bases, and through the chair or beam, substantially as and for the purposes set forth.

2. The combination, to form a rail-joint, of the sole-piece A, the obliquely-cut rails B, having base-shoulders *b*, forelocks D, and bolts *c*, passing through the forelocks and the sole-piece, and through the notches or openings formed by the shoulder *b*, substantially as and for the purposes set forth.

3. The combination of two contiguous rail ends cut in a vertical plane not at right angles with the plane of the rail-stem, a sole-piece, chair, or beam supporting said rail ends by their bases resting upon it, two forelocks or side chocks, and vertical bolts passing through said rail-base, forelocks, and beam, the whole forming a rail-joint in a railroad-track, substantially as set forth.

351,170. WASHING-MACHINE. Henry E. Fogle, Cawker City, Kans. Filed Mar. 25, 1886. (No model.)

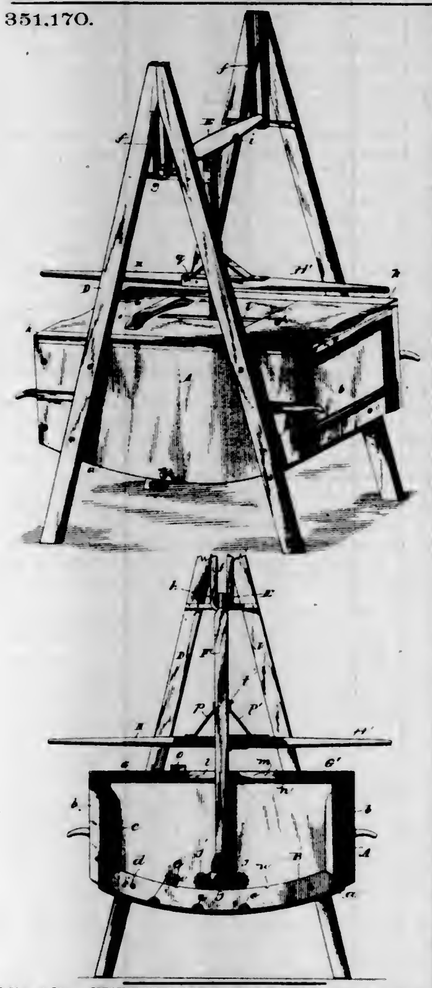
Claim.—1. In a washing-machine having a reciprocating rubber, the combination of a tub having a curved bottom and vertical end pieces, with strips C attached thereto, with a removable bed consisting of a series of curved bars, the ends of which lie between the vertical strips C, substantially as shown.

2. In a washing-machine having a reciprocating rubber which is operated by a bar which extends through the top of the tub, a sliding top, G, therefor, having a central stop, *l*, and a section, G', said top being held in place by beveled strips K K, substantially as shown.

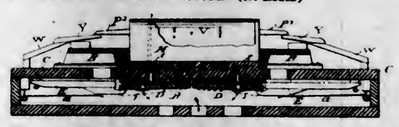
3. In a washing-machine, the tub A, provided with converging supports D D, which meet at a central point above the tub, depending loops *f f* attached thereto, in combination with a rubber attached to a bar, F, having a cross-bar E, with bearings which engage with the loops, and an operating-handle, H, substantially as shown, and for the purpose set forth.

4. The combination, in a washing-machine, of the tub, a bar, F, carrying rubber therefor and provided with a loop, *t*, and handle H', carrying a hooked strap for engaging said loop, substantially as set forth.

351,170.



351,171. MECHANICAL MUSICAL INSTRUMENT. Merritt Gally, New York, N. Y. Filed Dec. 23, 1884. (No model.)



Claim.—1. The grooved board bearing the tracker-range, and having passages therefrom, and also bearing the reeds and reed-valves, combined with a series of pneumatics which connect with the grooves in the board and also with the reed-valves.

2. The combination, with the reservoir-bellows, of a pump operated by crank and pitman, and the supplemental pump I, arranged substantially as specified.

3. The combination, with two reed-boards and valves for each board, of the recess in the valve-board between the reed-boards containing pneumatic motors for operating the valves.

4. The combination, with the grooved valve-board having inclosed grooves, of the tracker-range attached thereto, the inclosed grooves leading from the ducts of the tracker-range to the pneumatic motors.

5. The grooved board having air-passages and reed-apertures therein and tracker-range attached thereto, in combination with pneumatic motors in the wind-chest, connected with said passages and serving to operate the reed-valves, which are also in the wind-chest, a single board thus constituting the support for the entire system of reeds and valves, substantially as described.

6. The combination, with a grooved reed and valve board and a tracker-range placed transversely thereof, of a series of pneumatic motors on said board, each connected with its proper groove in the reed-board, and a line of reeds at each side of said board outside the pneumatics, substantially as described.

7. The combination, with the tracker-range, of the grooved board having diverging grooves.

8. The combination, with the tracker-range having diverging ducts, of the grooved board having diverging grooves.

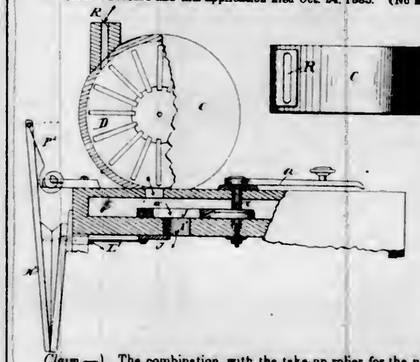
9. The combination, with the reservoir-bellows, of a pump arranged horizontally, connected with the reservoir, and a pump placed vertically at the end of the reservoir, with a crank and slotted pitman, said pitman attached to the horizontal bellows and operating the vertical bellows by means of a pin working in the slot.

10. The combination, with the swell or swells W and the pneumatic motor X, of the primary pneumatic Y, all attached to the reed-board, substantially as specified.

11. The combination, with the tracker-range, of a reed-board countersunk on the under side, the pneumatics inclosed in said countersunk portion, and the reed-valves pivoted directly to the board and bearing on said pneumatics, as set forth.

12. The combination, with the tracker-range, of a valve hinged thereon, a spring connected with the valve and range to lift said valve, and a projection on said valve to hold the same down until permitted to rise by a perforation in the sheet, as set forth.

351,172. MECHANICAL MUSICAL INSTRUMENT. Merritt Gally, New York, N. Y. Original application filed Apr. 23, 1885, Serial No. 163,190. Divided and this application filed Oct. 24, 1885. (No model.)



Claim.—1. The combination, with the take-up roller for the music-sheet, of a wind-motor, a valve for controlling the same, the valve-seat having its opening varying in width a different points to facilitate graduation of the movement of the motor.

2. The combination, with the take-up roller for the music-sheet, of a wind-motor, a valve for controlling the same, the valve-seat having its opening varying in width at different points, and the valve having an opening therethrough, substantially as specified.

3. The combination, with the wind-motor for the music-sheet of a mechanical musical instrument and its bellows, of a valve operated automatically by means of the air of the bellows to vary the supply of air for the motor in accordance with the variation of air-tension of the bellows.

4. The combination, with the wind-motor, of the windway and its valve and the automatic pneumatic motor N', substantially as and for the purpose specified.

5. The combination, with the sheet-winding roll, of a supplementary tape and a friction device bearing on the surface of said tape.

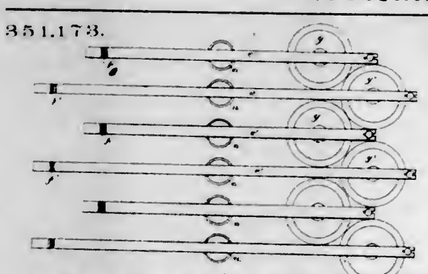
6. In combination with the sheet-winding mechanism of a mechanical musical instrument, a wind-wheel motor and a cylindrical casing inclosing the same, said casing having a port in its periphery elongated in the direction of the length of the cylinder, as set forth.

351,173. PNEUMATIC ACTION FOR MUSICAL INSTRUMENTS. Merritt Gally, New York, N. Y. Filed Mar. 17, 1886. (No model.)

Claim.—1. In a musical instrument, a series of pneumatic motors arranged in alternate order on one side of a series of air-passages provided with valves, in combination with valve-actuating levers, the fulcra of which are situated on the side of the series of valves opposite to that of the series of pneumatic motors.

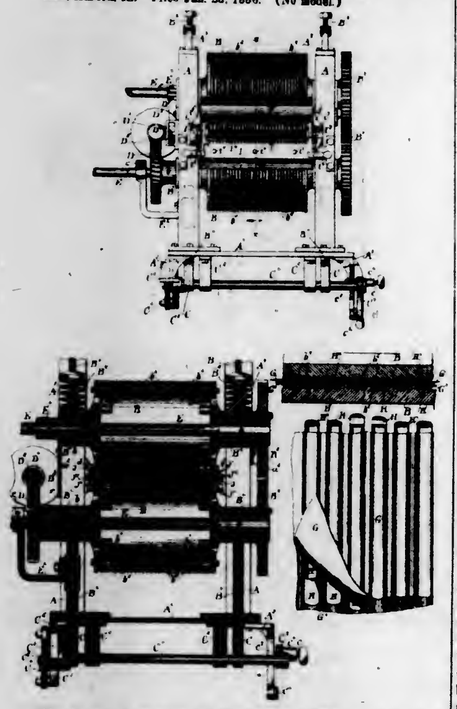
2. In a musical instrument, two series of pneumatic motors arranged in alternate order on one side of a series of valves, and valve-levers of different lengths connecting said motors with said valves, all in combination, substantially as set forth.

351,173.



3. Two lines or series of air-passages having valves and valve-actuating levers, each series of valves arranged to be operated by a series of pneumatic motors placed in alternate order and on one side of the series of valves, the two series of alternating motors arranged between the two series of valves, and the fulcra of the valve-actuating levers placed on the sides of the series of valves opposite that of the pneumatic motors.

351,174. MACHINE FOR MAKING CORSET-STIFFENING. Marshall Gardner, Aurora, Ill., assignor, by direct and mesne assignments, to James Stone, same place, Elizabeth Florsheim, Chicago, and Alice M Ball, Aurora, Ill. Filed Jan. 23, 1886. (No model.)



Claim.—1. A machine for making corset-stiffening of the kind which consists of a series of parallel stiffening-strips and layers of cloth uniting said strips, said machine comprising two opposing parts, means producing a pressure of one of said parts against the other part for forcing the layers of cloth into contact with each other between the strips, and means for heating one or both of said parts, one or both of said parts being provided with grooves forming openings or spaces to receive the stiffening-strips, substantially as described.

2. A machine for making corset-stiffening of the character described, comprising two revolving cylinders and means producing a pressure of one cylinder upon the other to force the parts of the stiffening together, one or both of said cylinders being provided with circumferential grooves forming openings or spaces for the strips, and means for heating the said cylinders, substantially as described.

3. A machine for making corset-stiffening of the character described, comprising two revolving cylinders and means producing a pressure of one of said cylinders upon the other for forcing the parts of the stiffening together, one or both of said cylinders being provided with circumferential grooves forming spaces or openings to receive the stiffening-strips, and a series of guides for directing a series of stiffening strips to the said grooves, arranged to bear on both the side or edges and the flat faces of the strips, whereby said strips are prevented from twisting, substantially as described.

4. An apparatus for making corset-stiffening, consisting of parallel stiffening-strips secured between two layers of cloth, said apparatus comprising two opposing parts and means producing pressure of one of said parts upon the other to force the elements of the stiffening into contact with each other, one or both of said opposing parts being grooved to receive the stiffening-strips, a pasting device for applying paste to one or both of the cloth layers, and means for heating one or both of said opposing parts of the apparatus, whereby the paste is dried while the cloth layers are held together by said opposing parts, substantially as described.

5. In an apparatus for making stiffening, the combination, with means operating to press a layer or layers of cloth into contact with a series of stiffening-strips, of a cutting device operating to sever the product longitudinally and a second cutting device operating to sever the said product transversely into pieces of desired lengths, substantially as described.

6. In an apparatus for making stiffening, the combination, with means operating to press a layer or layers of cloth into contact with a series of stiffening-strips, of a cutting device operating to sever the product longitudinally, a second cutting device operating to sever said product transversely, and adjustable means for controlling the operation of the last-mentioned cutting device, whereby pieces of different lengths may be cut from the continuous stiffening, substantially as described.

7. The combination, with two revolving grooved cylinders, B B and means for heating the cylinders, of stationary guards F F, for holding the layers of cloth from contact with the said cylinders until said layers are brought together between the said cylinders, substantially as described.

8. The combination, with two revolving grooved cylinders, B B, of a series of spring guide-fingers, I^2, provided with lateral wings or flanges i', substantially as described.

9. The combination, with two revolving grooved cylinders, B B, of the plate I', provided with a series of transverse guide-plates, i, a series of spring guide-fingers, I^2, provided with lateral flanges i', and a second series of spring guide-fingers, I^1, substantially as described.

10. The combination, with two revolving grooved cylinders, B B, of a series of spring guide-fingers, I^2, a rotatable bar, I^3, sustaining said guide-fingers I^2, and means for adjusting the angular position of the said bar, substantially as described.

11. The combination, with two revolving grooved cylinders, B B, of a plate, I', provided with vertical guides i, a series of spring guide-fingers, I^2, and a bar, I^3, sustaining said guide-fingers and supported upon the plate I, said plate being detachably secured to the machine-frame, whereby the plate and parts connecting therewith may be removed from the machine when desired, substantially as described.

12. The combination, with two revolving grooved cylinders, B B, provided with hollow trunnions b and vertically-movable bearings B', for the said trunnions, perforated gas-tubes E, extending through the said hollow trunnions into the interior of the cylinders, and arms or brackets E', sustaining said tubes from the said bearings, substantially as described.

13. The combination, with the machine-frame and two revolving grooved cylinders, B B, arranged one above the other, of vertically-movable bearings B' for the lower cylinder, supports B^4 for said bearings, a rock-shaft, C', provided with eccentrics C, engaged with said supports B^4, and a hand-lever attached to said rock-shaft for actuating the latter, and means for locking the said hand-lever when the lower cylinder is lifted, whereby the said lower cylinder may be raised and lowered, as desired, and held immovably in its elevated position, substantially as described.

14. The combination, with two pairs of revolving cylinders, of vertically-movable bearings B' for the lower cylinders, supports B^4 for the said bearings, rock-shafts C' C', provided with eccentrics C, engaged with the said supports B^4, a hand-lever attached to one of said rock-shafts, a locking device for the hand-lever, and operative connections between the said shafts, whereby one is rotated from the other, substantially as described.

15. The combination, with two revolving cylinders, B B, one of said cylinders being movable toward and from the other, so that said cylinders may be separated from each other when desired, of movable guard-plates J J', adapted to enter between the cylinders when the latter are apart, substantially as described.

16. The combination, with two pairs of revolving cylinders, B B, of two sets of guard-plates, J J', and sliding bars J^3, sustaining said guard-plates, said plates being arranged at the same distance apart as the pairs of cylinders, whereby when the cylinders are separated both sets of guide-plates may be interposed between the cylinders by moving said bars J^3, substantially as described.

17. The combination, with the frame of the machine and two grooved cylinders, B B, mounted therein, of a driving-shaft, D^2, provided with belt-pulleys D^3, a sleeve, D^4, affording bearings for said shaft and rotatably mounted upon the machine-frame, a worm upon the said driving-shaft, and a worm-wheel connected with one of said cylinders, engaged therewith, and a hand-lever, D^6, attached to the said sleeve D^4, whereby the worm and worm-wheel may be disengaged for stopping the movement of the cylinders, substantially as described.

18. In an apparatus for making corset-stiffening, a pasting device comprising two opposing pasting-rollers, means for supplying paste to said rollers, and means guiding two layers of cloth together between said rollers, whereby paste is applied to both the said layers simultaneously, substantially as described.

19. The combination, in an apparatus for making corset-stiffening, of two revolving grooved cylinders, B B, a pasting device comprising two opposing pasting-rollers, means guiding two layers of cloth together between said rollers, and guides, as L^4 L^5, located in position to separate the said layers after they have left the pasting-rollers and to direct said layers to the grooved cylinders B B, with their pasted surfaces adjacent to each other, substantially as described.

20. In an apparatus for making corset-stiffening, the combination, with two opposing pasting-rollers and means constructed to guide two layers of cloth together between said rollers, of revolving brush-rollers located at the exit side of the said pasting-rollers and acting upon the opposite sides of the two layers of cloth, substantially as described.

21. In an apparatus for manufacturing corset-stiffening, the combination, with a pair of revolving grooved cylinders, of a pasting device comprising two pasting-rollers located side by side and arranged for the passage of the layers of cloth between them, receptacles L^3 for the cloth, guide-rollers L^3 L^4, located above the pasting-rollers, for directing the cloth from the said receptacles to the latter, and guide-rollers L^5 L^6, located above the pasting device, whereby one of the layers of cloth is carried over or around the pasting device, and the pasted surfaces of both layers are brought together in passing between the cylinders, substantially as described.

22. In an apparatus for manufacturing stiffening, the combination, with two revolving grooved cylinders, B B, a device for severing longitudinally the product passing from the cylinders, located at the exit side of said cylinders, and consisting of a roller, O', provided with a series of narrow grooves, o^3, and a series of cutting-disks, O, mounted upon a shaft, O^2, and engaging with said grooves o^3, the cutting-disks and grooves being located in alignment with the spaces between the grooves of the cylinders B B, substantially as described.

23. The combination, with two revolving grooved cylinders, of a cutting device consisting of a roller, O', provided with a series of grooves, o^3, corresponding in position with the grooves of the cylinders B B, and with a second series of narrow grooves, o^4, a series of cutting-disks, O, and a shaft, O^2, sustaining said disks, substantially as described.

24. The combination, with two revolving grooved cylinders, of a cutting device consisting of a roller, O', provided with a series of grooves, o^3, a series of cutting-disks, O, and a shaft, O^2, sustaining the disks, said disks being connected with the shaft by a spline upon the shaft engaging grooves in the disks, allowing said disks to move freely longitudinally, but not to rotate upon said shaft, substantially as described.

25. The combination, in an apparatus for making stiffening, of a cutting device for severing the stiffening transversely, comprising a reciprocating knife and driving-connections for operating the knife, embracing a clutch device, and means for operating the clutch device at desired intervals, comprising a traveling belt provided with a series of studs or projections adapted to engage a movable part connected with the said clutch device, substantially as described.

26. The combination, in an apparatus for making stiffening, of a cutting device for severing the stiffening transversely, comprising a reciprocating knife, driving-connections for actuating the knife, embracing a clutch device, and means for operating said clutch device, comprising a traveling belt provided with a series of projections or studs adapted to engage a movable part connected with the clutch device, and pulleys supporting said belt, one of which is movable relatively to the other, substantially as described.

27. The combination, in an apparatus for making stiffening, of a cutting device for severing the stiffening with two revolving cylinders transversely, comprising a reciprocating knife and driving-connections for actuating the knife, comprising a clutch device, a pivoted lever, S, connected with and actuating said clutch device, a traveling belt, T, provided with studs or projections t, engaging the lever S, and two pulleys sustaining said belt, one of said pulleys being driven from one of the said cylinders, substantially as described.

28. In an apparatus for manufacturing stiffening, the combination, with two revolving cylinders, of a device for cutting the product passing from said cylinders transversely, comprising a stationary and a reciprocating knife, a shaft through the medium of which the reciprocating knife is actuated, a belt-pulley mounted to rotate freely upon the shaft, a clutch device of that kind constructed for automatic disengagement after a single rotation of the shaft connecting said pulley with the shaft, and means, substantially as described, operated by the grooved cylinders and constructed to actuate the said clutch device at desired intervals, substantially as described.

29. The combination, with two revolving cylinders, of a cutting device comprising a reciprocating knife and means for actuating the knife, comprising a clutch device, a pivoted lever, S, connected with and actuating said clutch device, a traveling belt, T, provided with studs t, and two pulleys sustaining said belt, the said lever S being provided with a projection or lug, s', longitudinally adjustable upon the lever, substantially as described.

30. An apparatus for making corset-stiffening and cutting the same into lengths by a continuous operation, said apparatus comprising means for applying an adhesive substance to a continuous strip or strips of cloth, means operating to press together the strip or strips of cloth, and a series of parallel stiffening-strips of bamboo or similar material, and means controlled by the movement of the pressing devices operating to cut the stiffening into short lengths.

31. An apparatus for making corset-stiffening and cutting the same into lengths by a continuous operation, said apparatus comprising means for applying an adhesive substance to a continuous strip or strips of cloth, means operating to press together the strip or strips of cloth and a series of parallel stiffening-strips of bamboo or similar material, and means operating to sever the stiffening longitudinally between the strips after the parts composing the stiffening have been secured together.

351,175. HARROW. James T. Hamilton, Omaha, Nebr. Filed Dec. 3, 1885. (No model.)



Claim.—In a harrow, the combination of the frame, of the teeth-carrying bars C and C', which are connected thereto, substantially as shown, and provided with hooks h, the upwardly-projecting forked arm I, attached to the center bar, a lever, H, having an eye secured to its end, and intermediate eyes, i', the parts being organized substantially as shown, and for the purpose set forth.

351,176. CHECK-ROWER FOR CORN-PLANTERS. George D. Haworth, Decatur, Ill. Filed July 6, 1886. (No model.)



Claim.—1. In check-rowers, a bifurcate lever having the outer portion of its bifurcations widened, and a detachable dog extending across the outer end of the lever, as and for the purpose set forth.

2. In check-rowers, a bifurcate lever having the outer portion of its bifurcations widened, and a dog extending across the outer end of the lever and having a limited amount of motion longitudinally thereon, as and for the purpose set forth.

3. In check-rowers, a bifurcate lever having the outer portion of its bifurcations widened, and a dog extending across the outer end of the lever and having a limited amount of motion longitudinally thereon, that portion of the dog traversing the bifurcation being rounded at its under surface, as and for the purpose set forth.

4. In check-rowers, the combination of a bifurcate lever having the outer portion of its bifurcations widened, and provided with a longitudinal slot crossing the bifurcation, and a dog having a limited amount of motion in the slot and extending across the outer end of the lever, as and for the purpose set forth

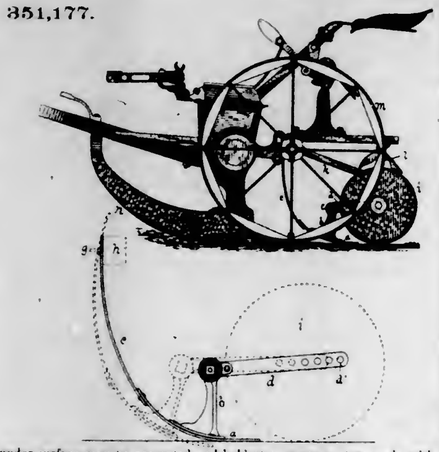
5. The combination, with the bifurcate lever a, having slot d, of a co-operating dog composed, essentially, of slotted bar e, guide-pin f, and projection g, having cleft i and rounded surface h, as and for the purpose set forth.

6. In check-rowers, the combination of a bifurcate lever having the outer portion of its bifurcations widened and one fork shortened, and a dog extending across the bifurcation of the lever and having motion longitudinally on said lever to an extent sufficient to slightly pass the termination of the short fork, as and for the purpose set forth.

351,177. CORN-PLANTER. George D. Haworth, Decatur, Ill. Filed July 6, 1886. (No model.)

Claim.—1. In corn-planters, a rearwardly-bifurcate covering-shoe having an approximately plane under surface, and means whereby said

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under surface may be presented and held at a greater or less angle with the surface of the ground.

2. In corn-planters, a rearwardly-bifurcate covering-shoe having an approximately plane under surface curving upwardly at its forward end, and means whereby the said shoe may be presented and held at a greater or less angle with the ground.

3. In corn-planters, a rearwardly-bifurcate shoe, a continuation of the front end of said shoe upwardly extended and adapted to be connected with the planter-frame in a longitudinally-adjustable manner, and an arm rigidly secured to the shoe and adapted to extend upwardly and backwardly from said shoe and connect with the rearward portion of the planter-frame, all in combination as and for the purpose set forth.

4. In corn-planters, in combination, a covering-shoe, a continuation of the front of said shoe extending upwardly and connecting with the planter-frame in a longitudinally-adjustable manner, a bracket on the shoe, and a bar having radial adjustment on the bracket and extending rearwardly to the planter-frame, with which it connects.

5. In corn-planters, in combination, a covering-shoe, a continuation of the front of said shoe extending upwardly to and connecting with the planter-frame in a longitudinally-adjustable manner, a bracket on the shoe having a head with a radially-corrugated face, a bar having a radially-corrugated face opposed to the face of the bracket, the said bar extending to the rear portion of the planter-frame, with which it is connected in a longitudinally-adjustable manner, and a bolt extending through the bracket-head and the opposing surface of the bar.

6. In corn-planters, in combination, a covering-shoe, a continuation of the front portion of the shoe extending upwardly and provided with a series of holes longitudinally arranged, a bracket on the shoe having a head with a radially-corrugated face, a bar extending rearwardly from the bracket, having a series of holes longitudinally arranged, and also having a radially-corrugated face in opposition to the face of the bracket, and a bolt extending through the bracket-head and the opposing surface of the bar.

7. In corn-planters, in combination, a covering-shoe, a continuation of the shoe extending upwardly and provided with a series of holes longitudinally arranged, a bracket on the shoe having a head provided with a radially-corrugated face, a bar provided with a series of holes longitudinally arranged and having a radially-corrugated face in opposition to the face of the bracket, washers with radially-corrugated faces interposed between the bar and the bracket, and a bolt extending through the bracket-head, bar, and washers.

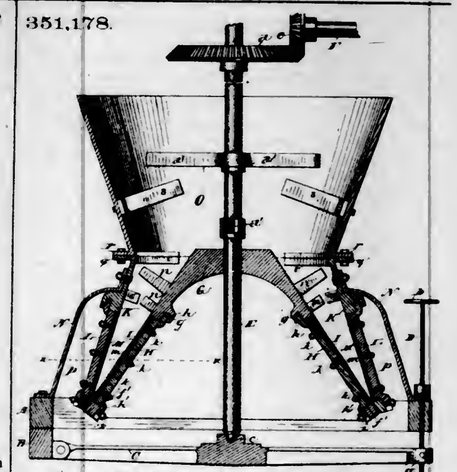
8. In corn-planters, in combination, axle *h*, having pin *g*, a bolt concentric with wheel *i*, shoe *a*, having continuation *c*, provided with holes *c'*, bracket *b*, having radially-corrugated faces, bar *d*, provided with holes *d'*, projection *e*, rigid with bar *d*, and provided with a radially-corrugated face, washers *s'*, having radially-corrugated faces, and bolt *f*, extending through the bracket-head, washers, and projection, as and for the purpose set forth.

9. In corn-covering mechanism, the combination of a rearwardly-bifurcate covering-shoe adapted to be presented and held at various angles with relation to the surface of the ground and a following-wheel.

10. In corn-covering mechanism, the combination of a rearwardly-bifurcate shoe adapted to be presented and held at various angles with relation to the ground and a laterally-adjustable following-wheel.

351,178. BARK-CUTTER. Byron Holbrook, Milwaukee, Wis., assignor of one-half to Jacob Cryderman, same place. Filed Dec. 5, 1885. (No model.)

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Claim.—1. In a bark-cutter, the combination of an outer shell, a series of knives suitably secured to the inner face of said outer shell, an inner shell provided with a series of slots that extend in the direction of its length, a corresponding series of knives suitably secured to the inner shell and having their cutting edges projected outwardly therefrom, and means for revolving said inner shell in a direction opposite to the cutting-edges of the knives on the outer shell, substantially as and for the purpose set forth.

2. In a bark-cutter, the combination of an outer shell provided with a series of slots that extend in the direction of its length, a corresponding series of knives suitably secured to said shell and their cutting-edges arranged to project inwardly therefrom, an inner shell also provided with a series of slots similar to those in the outer shell, a corresponding series of knives suitably secured to the latter shell and having their cutting-edges projected outwardly therefrom, and means for revolving this inner shell in a direction opposite to the cutting-edges of the knives on the outer shell, substantially as and for the purpose set forth.

3. In a bark-cutter, an outer shell provided with a series of slots that extend in the direction of its length, a corresponding series of removable plates secured to said outer shell, and a series of adjustable knives in turn secured to the plates, in combination with an inner shell also provided with slots similar to those in the outer shell, a corresponding series of plates secured to the inner shell, a series of adjustable knives in turn secured to the latter plates and arranged to have their cutting-edges in opposition to those of the knives on said outer shell, and means for revolving said inner shell, substantially as and for the purpose set forth.

4. In a bark-cutter, the combination, with means for reducing the bark, of an outer shell, a series of knives secured to said shell and having their cutting-edges arranged to project inwardly therefrom, an inner shell provided with a series of knives having their cutting-edges arranged to project outwardly therefrom, and means for revolving this inner shell in a direction opposite to the cutting-edges of the knives on the outer shell, substantially as and for the purpose set forth.

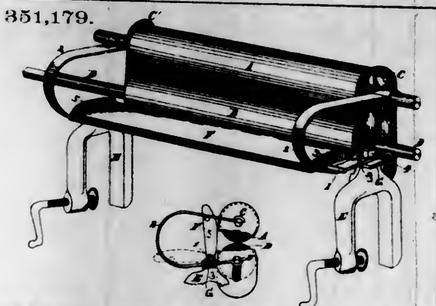
5. In a bark-cutter, an outer shell provided with a series of slots that extend in the direction of its length, a corresponding series of external pockets, a series of plates offset at their ends and secured to this outer shell, and a series of knives in turn adjustably secured to the plates, in combination with an inner shell provided with slots similar to those in the outer shell, internal pockets, a series of plates, also offset at their ends and secured to the inner shell, a series of knives in turn adjustably secured to these latter plates and arranged to have their cutting-edges in opposition to those of the knives on said outer shell, and means for revolving said inner shell, substantially as and for the purpose set forth.

6. A bark-cutter comprising a hopper provided with interior breaker-arms, a vertically-adjustable shaft, also provided with breaker-arms, an inner shell secured to the shaft and provided with exterior knives and breaker-arms, an outer shell provided with interior breaker-arms and knives, the latter arranged to have their cutting-edges in opposition to those of the knives on the said inner shell, a casing surrounding said outer shell, and a supporting-base, substantially as and for the purpose set forth.

351,179. CLOTHES-WRINGER. Henry C. Hopkins, Covington, Ky. Filed Nov. 20, 1885. (Model.)

Claim.—1. In combination with a clothes-wringer having springs 2, which press the rolls together, end plates pivoted upon the support

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1 of the wringer, between the ends of the springs, and provided with lugs which engage with and raise the upper members of said springs as the arms are swung upward, said arms having a rigid connection capable of serving as a support for the clothes as they are fed to the rolls, substantially as described.

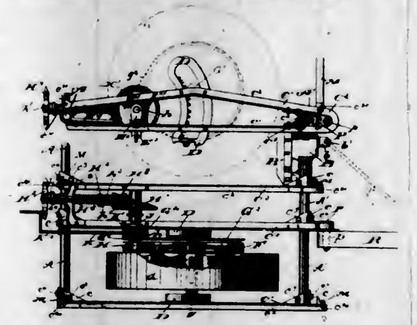
2. In combination with a clothes-wringer having the U-springs for compressing the rolls, the shelf F, pivoted to said springs, and provided with lugs I I, for spreading the same, substantially as specified.

351,180. EMERY-WHEEL FOR WET GRINDING. Frederick Kampfe, Richard Kampfe, and Otto Kampfe, Brooklyn, N. Y. Filed Mar. 12, 1886. (No model.)



Claim.—As an improved article of manufacture, an emery-wheel for wet grinding, composed of emery, molten sulphur, and pulverized chalk mixed, united, and molded, substantially as set forth.

351,181. HARVESTING-MACHINE. Herman N. Kennedy and Burr A. Kennedy, Chicago, Ill. Filed Oct. 19, 1885. (No model.)



Claim.—1. In combination with the tubular sills, the trusses forming the connection from front to rear between said sills, made of metal clasped around and pinched onto said tubular sills, and bolts passing through the walls of the tubular sills and through the embracing truss-irons at the bend, to force the tubular sills into the bend and increase the grasp of the latter on the sill.

2. In combination with the tubular sills, the truss-iron clasped around the sill and bolted thereto at the bend, the bolts passing through both branches of the clasping-iron inside the embraced sill.

3. In combination with the tubular sills, the trusses connecting them formed of the upper and lower bars and the connecting-clasps, said clasps bolted to the bars and bent around and pinched onto the sides and made wider than the bars throughout the portion which embraces the sills, whereby a more secure attachment to the sills is effected.

4. In combination with the tubular sills, the trusses connecting them formed of the upper and lower bars and the uniting-clasps, the upper bars flanged upward, and the upright posts bolted to such flanges.

5. In combination with the front sill, the truss C^2, comprising the upper and lower bars and their connecting-clasps, and having said bars extended forward beyond the front clasp to afford attachment for the pole.

6. In combination with the front sill, the truss C^2, comprising the upper and lower bars and the clasps connecting them, and having said bars extended forward beyond the front clasp, the pole-pivot block bolted between the said extended bars, the shoes secured to the inner end of the sill and provided with the lug in line with the block, and the pole pivoted on the block and having a brace extended to the lug.

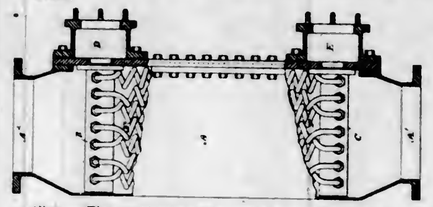
7. In combination with the front and rear sills, the trusses connecting them on the grain side of the wheel, composed of the upper and lower bars, and the gearing-frame constituting struts for the trusses.

8. The truss C^2, composed of the upper and lower bars having the inner segment and the gearing-frame as its struts.

9. In combination with the front and rear sills and the two inside trusses connecting the sills and composed of the upper and lower bars, the gearing-frame made integral and secured rigidly to both trusses and constituting a horizontal brace between the trusses.

10. In combination with the two inside trusses composed of the upper and lower bars, the gearing-frame made integral and formed as struts for both said trusses and as a brace between them.

351,182. FEED-WATER HEATER. John Kirkaldy, 40 West India Dock Road, County of Middlesex, England. Filed Dec. 15, 1885. (No model.)



Claim.—The combination of the casing provided with the inlet and the outlet, the trunk-tubes passing across the casing at opposite ends or sides thereof, the trunk tube or tubes at one side or end serving as the inlet, and the other tube or tubes as the outlet for the fluid to be cooled or heated, and the series of coiled tubes passing from both sides of the trunk tube or tubes at one side or end of the casing to both sides of the trunk tube or tubes at the other side or end of the casing, substantially as and for the purpose set forth.

351,183. FASTENING FOR SATCHELS, &c. George W. Lee, Edgbaston, near Birmingham, County of Warwick, England. Filed June 26, 1886. (No model.) Patented in England Mar. 21, 1885, No. 3,646; in Germany Aug. 12, 1885, No. 15,571, and in France Apr. 3, 1886, No. 162,553.

Claim.—1. The combination, with a bag or satchel having overlapping frame-pieces provided with slots which coincide when the bag is closed, of a handle pivotally secured upon the outside frame-piece, and provided with rigidly-attached ends adapted to project through the coinciding slots in the frame, and thereby lock the bag, substantially as described.

2. In a fastening device for a bag or satchel, the combination of the overlapping frame-pieces formed with slots which register when the

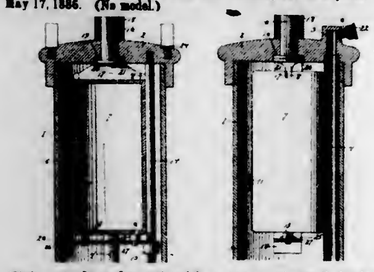
bag is closed, the slots in the inner frame having eyes at the end, with a handle pivotally secured to the outside frame and formed with extensions of its ends which project through the said slots, the said extensions having enlargements a^4 a^5, substantially as and for the purpose set forth.

351,184. PRODUCING ANHYDROUS ALUMINIUM CHLORIDE. Charles F. Mabery, Cleveland, Ohio, assignor to the Cowles Electric Smelting and Aluminum Company, same place. Filed Mar. 10, 1886. (No specimens.)

Claim.—1. The process or method herein described of producing anhydrous aluminium chloride, and consisting, essentially, first, in heating in a retort or suitable container aluminium alloy to about from 200° to 300° centigrade; second, passing hydrochloric-acid gas over the heated aluminium alloy, and condensing the vaporized aluminium chloride thus formed, substantially as set forth.

2. The process or method herein described of producing anhydrous aluminium chloride, and consisting, essentially, of passing hydrochloric-acid gas through an electric furnace where and during the time the metallic aluminium is being reduced from clay or other ores, substantially as set forth.

351,185. FIRE-EXTINGUISHER. Henry A. Mansfield, Bridgeport, Conn., assignor of one-half to Henry M. Harrington, same place. Filed May 17, 1886. (No model.)



Claim.—1. In a fire-extinguisher, a generating-cylinder having a discharge-pipe, and an operating-shaft having a cross-piece at its lower end, in combination with a chemical reservoir having a slot, 8, engaged by said cross-piece, an opening at its opposite end, and a rest provided with a valve adapted to engage said opening.

2. In a fire-extinguisher, a chemical reservoir having a slot, 8, at one end and an opening at its other end, in combination with a rest, whereby said reservoir is supported, and which is provided with a valve to engage said opening, and an operating-shaft having a cross-piece adapted to engage slot 8, whereby the reservoir may be turned to remove the opening from the valve.

3. In a fire-extinguisher, a rotating chemical reservoir having an opening, 9, at one end, in combination with a vertically-movable rest, whereby said reservoir is supported, and which is provided with a valve adapted to close said opening, a threaded rod, 14, which passes through said rest, and a nut upon said rod, whereby the valve is forced tightly against the reservoir after the latter has been turned into position.

4. In a fire-extinguisher, bracket 10 and rest 27, having valve 12, in combination with a chemical cylinder having an opening adapted to be closed by said valve, a slot, 8, and an operating-shaft having a cross-piece adapted to engage said slot.

5. In a fire-extinguisher, the cap having a recess, 19, packing, and an operating-shaft having a boss, whereby the packing is held in place, and a cross-piece, 17, in combination with rotating chemical reservoir having an opening, 9, and a slot across its top which is engaged by the cross-piece, whereby said reservoir may be turned to operate the device.

6. The operating-shaft having lever 18 and cross-piece 17, in combination with a rotating chemical reservoir having an opening, 9, and a slot, 8, which is engaged by said cross-piece, a rest for supporting the reservoir, and a spring, 24, which locks the lever in the closed position.

7. The operating-shaft having cross-piece 17, and the chemical reservoir having slot 8 and opening 9, in combination with a movable rest having a valve adapted to engage said opening, a threaded rod adapted to pass through said rest, and a nut engaging the rod, whereby the valve is pressed against the opening.

8. In a fire-extinguisher, a chemical reservoir made of vitreous material and provided with means for engagement, as a slot across its top, and with an opening in its bottom, near the sides, for the purpose set forth, in combination with a valve adapted to close said opening, and an operating device—for example, a lever—having a cross-piece to engage the slot, whereby the reservoir may be rotated to discharge its contents.

9. The generating-cylinder rest 27, having valve 12, and a discharge-tube having a strainer, 28, to prevent precipitated chemicals from entering the tube, in combination with chemical reservoir 7, having slot, 8 and operating-shaft 16, having cross-piece 17, whereby the reservoir is turned away from the valve.

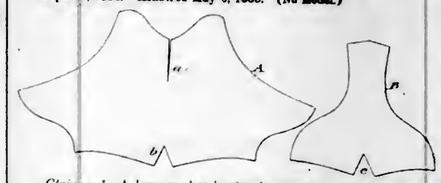
351,186. BOOT OR SHOE. Walter T. Martin, Danvers, Mass. Filed Sept. 25, 1884. (No model.)



Claim.—1. In a boot or shoe upper, the backing formed of a single piece, narrow at the ankle-joint and wide below, the said wide portion containing a V-shaped cut sewed up, substantially as described.

2. In a boot or shoe upper, the combination, with the quarters or side pieces, A and B, of the piece C, narrow at the ankle-joint and wide below, and contracted and shaped at the bottom, substantially as described.

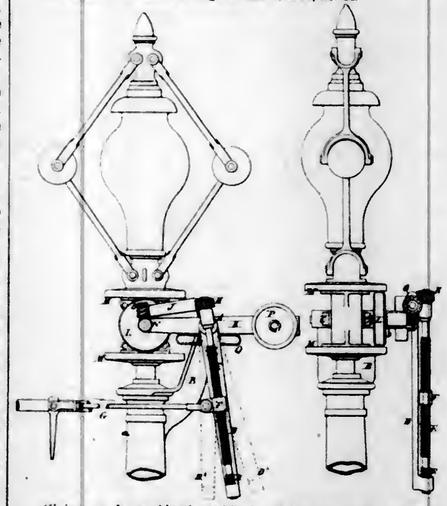
351,187. BOOT OR SHOE. Walter T. Martin, Danvers, Mass. Filed Sept. 25, 1884. Renewed May 6, 1885. (No model.)



Claim.—1. A boot or shoe having its quarters cut in one piece and spread or shaped at the top by a slit and flaring piece inserted therein, and contracted or shaped at the bottom by a V-shaped cut sewed up, substantially as described.

2. A boot or shoe having its quarters cut in one piece and spread to shape at the top by a slit and flaring piece inserted therein, and contracted to shape at the bottom by a V-shaped cut sewed up, the said flaring piece extending from the top to the bottom of the boot or shoe, and being in like manner contracted at the bottom by a V-shaped cut sewed up, all substantially as described.

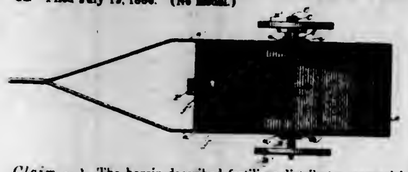
351,188. GOVERNOR FOR STEAM-ENGINES. Robert Matthews, Green Bank, Hyde, County of Chester, England. Filed June 29, 1886. (No model.) Patented in England Jan. 1, 1886, No. 44.



Claim.—1. In combination with the sliding sleeve of a governor, a lever carrying a screw-spindle, which is rotated in one direction or the other by a friction-roller situated between two flanges on the governor-sleeve, so that a screw-nut upon the said spindle connected to the valve-gear of the steam-engine, in being moved up or down upon the screw-spindle at the same time that the lever is moved by the governor, effects an increased action upon the valve-gear, substantially as herein described.

2. The combination, with the governor-sleeve provided with flanges M M, of the friction-roller L, carried by lever or bracket K, the lever D, moved by the governor-sleeve and carrying the screwed spindle E, which receives rotary motion in one direction or the other from the friction-roller L, and which carries a nut, F, connected to the valve-gear, substantially as and for the purposes herein described.

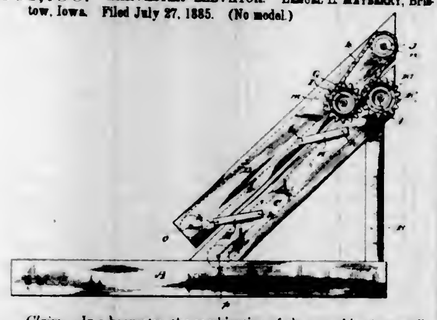
351,189. FERTILIZER-DISTRIBUTER. John A. Maxwell, Calvary, Ga. Filed July 19, 1886. (No model.)



Claim.—1. The herein-described fertilizer-distributer, comprising the vehicle having clamping-bars depending therefrom, the axle having the wheels secured thereon, the links or bails secured to said axle for the purpose stated, the agitator-wheel, and the inclined plates having the apertured hopper, substantially as shown and described.

2. The combination, with the vehicle, the axle, and carrying-wheels, of the link or bail secured to said axle and the oblong link connected to one end thereof, substantially as shown, and for the purpose specified.

351,190. HARVESTER-ELEVATOR. Lemuel L. Mayberry, Bristow, Iowa. Filed July 27, 1885. (No model.)



Claim.—In a harvester, the combination of the movable elevator D, having shafts at the top and bottom, respectively, the sprocket-wheels I and J, the chain *k*, and links or strips H H, with the main elevator C, having shafts at the top and bottom, respectively, the cog-wheel F, and sprocket-wheel E, all constructed and combined and operated in the manner and for the purposes set forth.

351,191. ELECTRIC CONDUCTOR. Edwin D. McCracken, Paterson, N. J. Filed Aug. 16, 1884. Renewed Aug. 19, 1886. (No model.)



Claim.—1. An electric conductor having an insulating-covering consisting of one or more spirally-wound and lapping strips of paper, and a vulcanized adhesive substance serving to secure the paper, substantially as herein described.

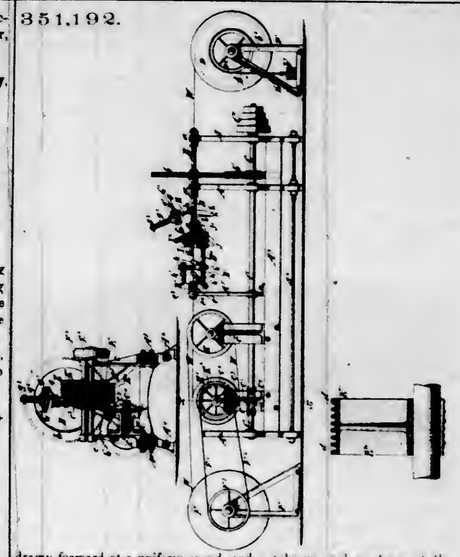
2. An electric conductor having a coating of non-vulcanizable material and a superposed insulating-covering consisting of spirally-wound and lapping strips of paper, and a vulcanized adhesive substance serving to secure the paper, substantially as herein described.

351,192. MACHINERY FOR COVERING ELECTRICAL CONDUCTORS. Edwin D. McCracken, Paterson, N. J. Filed Aug. 16, 1884. Renewed Aug. 19, 1886. (No model.)

Claim.—1. The combination, with a rotary spindle and mechanism connected therewith for spirally winding a covering-strip upon the wire, of a reel or drum from which the wire is taken, a pair of drums or wheels near the delivery end of the machine, over or around which the covered wire is passed back and forth, and one of which is positively rotated, whereby the covered wire is drawn forward at a uniform speed, and a take-up reel independent of the said pair of drums or wheels at the delivery end of the machine, substantially as and for the purpose herein described.

2. The combination, with a rotary spindle and mechanism connected therewith for spirally winding a covering-strip upon the wire, of a reel or drum from which the wire is taken, a pair of grooved drums or wheels, E E', around which the covered wire is passed, as described, and which increase in diameter from their receiving to their delivery sides, one of said drums being positively rotated, whereby the wire is

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drawn forward at a uniform speed, and a take-up reel or drum at the delivery end of the machine, substantially as herein described.

3. The combination, with a rotary spindle and a frame attached to and rotating with the spindle, of means for producing the travel of wire through the machine, mechanism for spirally winding a covering-strip upon the wire, and straightening fingers or dies attached to and revolving with the said frame and bearing on opposite sides of the wire, substantially as herein described.

4. The combination, with a rotary spindle and a frame attached to and rotating with the spindle and offset from the center of the spindle of mechanism for producing the travel of wire through the machine and for spirally winding thereon a covering-strip, and fingers or dies arranged transversely to the line of travel of wire, attached to and revolving with said frame and bearing on the covered wire, whereby the covering is condensed and consolidated, substantially as herein described.

5. The combination, with a rotary spindle and a frame attached to and rotating with the spindle, of mechanism for producing the travel of the wire through the machine and for spirally winding a covering-strip thereon, and fingers or dies *k*, adjustably secured to and rotating with the frame and bearing on the covered wire, and serving to condense or consolidate the covering, substantially as herein described.

6. The combination, with a rotary spindle and mechanism for producing the travel of the wire through the machine, of an arm projecting from said spindle and revolved with the spindle, the said arm being adapted to support a bobbin for a covering-strip, and devices, also attached to and rotating with said spindle, for applying adhesive substance to the covering-strip as it is unwound from the bobbin, substantially as herein described.

7. The combination, with the rotary spindle B, of the arm H, pivoted to the spindle and capable of adjustment at different angles thereto, tension devices on said arm for retarding the rotation of a bobbin journaled on the arm, and devices attached to and revolved with the spindle for applying adhesive substance to the covering-strip as it is unwound from the bobbin, substantially as herein described.

8. The combination, with a rotary spindle and mechanism for producing the travel of wire through the machine, of devices for supporting a bobbin which is revolved about the spindle, and a box or reservoir for adhesive substance, also revolved about the spindle, and having an outlet or delivery aperture, over or across which the covering-strip passes in its travel from the bobbin to the wire, substantially as herein described.

9. The combination, with a rotary spindle and mechanism for producing the travel of wire through the machine, of devices for supporting a bobbin which is revolved about the spindle, a box or reservoir for adhesive substance, having an outlet or delivery aperture, over or across which the covering-strip passes in its travel from the bobbin to the wire, and a bar or arm on which said box or reservoir is secured, and which is adjustably connected with the spindle, whereby provision is afforded for adjusting the box or reservoir to the line of travel of the covering-strip, substantially as herein described.

10. The combination, with the spindle B and mechanism for producing the travel of wire through the machine, of a bobbin-support projecting from the spindle and revolving about the same, the box or reser-

voir I for adhesive substance, the bar I^2, to which the said box is adjustably secured, and the arm I', to which said bar I^2 is adjustably secured, substantially as herein described.

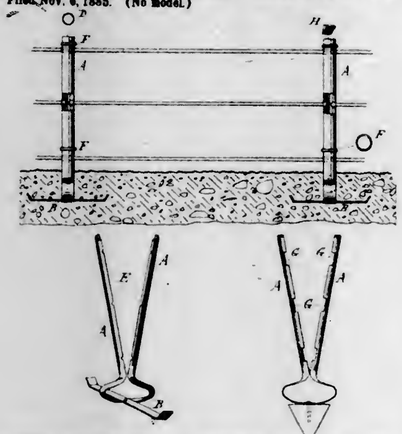
11. The combination, with a rotary spindle and mechanism for producing the travel of wire through the machine, of devices for supporting a bobbin of covering-strip and for applying adhesive substance to the strip, all revolving about the spindle, a bobbin of fine wire, also connected with and revolving about the spindle, and a tension device through which the fine wire is conducted, and from which it passes with the covering-strip to be wound spirally upon the conducting-wire, substantially as herein described.

351,193. UNDERGROUND ELECTRIC CONDUCTOR. Edwin D. McCracken, Paterson, N. J. Filed May 17, 1884. Renewed Aug. 19, 1886. (No model.)



Claim.—The combination, with tube-sections A A, laid with separated ends and composed of spirally-wound and superposed strips of vegetable paper, and a coupling-sleeve, B, connecting them, of conductor-sections C, arranged in the tube-sections and each having an insulation of spirally-wound strips of pure vegetable paper, the conductor-sections being joined between the tube-sections, and a filling of insulating material within the tube-sections and coupling sleeve, and in which the conductor-sections are embedded, substantially as herein described.

351,194. FENCE-POST. Samuel T. McDougall, Brooklyn, N. Y. Filed Nov. 6, 1885. (No model.)

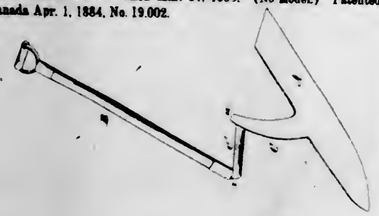


Claim.—A metallic fence-post consisting of two upright pieces of concave metal, having openings through the edges and united at the bottom by a bow or loop, and having a cross-piece attached to the bottom of the bow or loop at right angles thereto, said uprights being held together by rings or bands, substantially as shown and described.

351,195. LUBRICATING COMPOUND. David L. McKenzie, Winnipeg, Manitoba, Canada. Filed June 10, 1886. (No specimens.)

Claim.—The lubricating compound herein described, consisting of animal fat, mineral-oil refuse, slaked lime, and manganese, in or about the proportions named.

351,196. HAY-KNIFE. John McMillen, East Brantford, County of Brant, Ontario, Canada. Filed Mar. 31, 1886. (No model.) Patented in Canada Apr. 1, 1884, No. 19,002.



Claim.—1. In a hay, straw, or manure knife, the blade A, constructed in the form and angle as shown, and having the shank C attached about the center of it, and bent at right angles, as at *x a*, to form the foot-rest C' and stop *a*, and terminating in a handle, B, affixed to the same, substantially as and for the purpose specified.

2. In a hay, straw, or manure knife, the combination of the blade A, the shank C, foot-rest C', and handle B, substantially as and for the purpose specified.

351,197. MANUFACTURE OF GLASS SHOES OR SLIPPERS. John E. Miller, Pittsburg, Pa., assignor, by direct and mesne assignments, to George Duncan & Sons and Bryce Brothers, both of same place. Filed Apr. 7, 1886. (No model.)

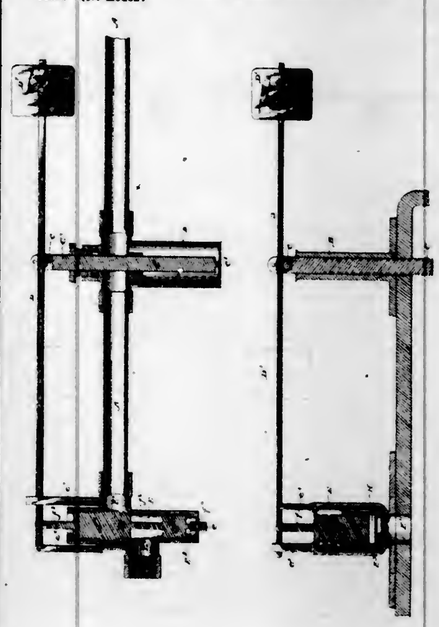


Claim.—1. The method hereinbefore described of making glass shoes or slippers, which consists in pressing a glass shoe or slipper with its vamp or upper separated, and then bending the separated portions of the vamp together, substantially as and for the purposes described.

2. The method hereinbefore described of making glass shoes or slippers, which consists in pressing a glass shoe or slipper with its vamp or upper separated, then inserting a last into the article so made under the vamp, and finally bending the separated portions of the vamp together over the last, substantially as and for the purposes described.

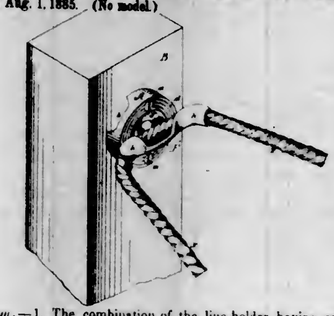
3. A hollow glass shoe or slipper whose vamp is open, as at *b*, substantially as and for the purposes described.

351,198. SAFETY-VALVE. Mauricio M. Monsanto, New York, N. Y., assignor to W. A. Ogden Hegeman, same place. Filed Jan. 23 1886. (No model.)



Claim.—The herein-described safety-valve, consisting of the combination, with the outlet-pipe, of the cylinder, the balanced valve, and the piston, each communicating with the fluid under pressure in a reservoir, and an operating-lever connecting the piston of the lever and the valve, the said lever being connected with an adjustable weight, whereby the degree of pressure necessary to operate the valve is regulated, substantially as described.

351,199. CLOTHES-LINE HOLDER. Archibald Montgomery, Philadelphia, Pa., assignor of one-half to Thomas J. Andrus, same place. Filed Aug. 1, 1885. (No model.)



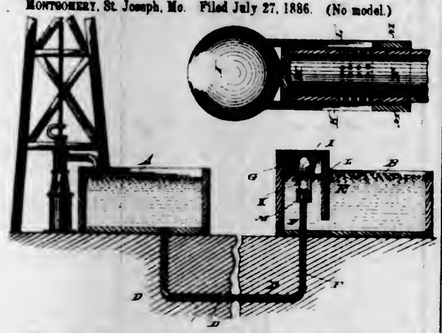
Claim.—1. The combination of the line-holder having opposite arms for the reception of the line, with the box A, to which said line-holder is centrally pivoted, the face of said box forming behind each arm of the holder a bearing for the rope concentric with the axis of the holder, all substantially as specified.

2. The combination of the line-holder having opposite arms, and central shank with T-head, the arms of which have rounded faces, with the box A, having segmental bearings for the arms of said T-head, whereby swinging movement of the line-holder in two directions is permitted, all substantially as specified.

3. The combination of the box A, having a slot, *f*, with the line-holder having opposite arms, *h h*, and shank with T-head *i*, all substantially as specified.

4. The combination of the holder having opposite arms and central T-headed shank, with the box having segmental bearings for the arms of said T-head, and provided with a side flange having recesses *b*, all substantially as set forth.

351,200. AUTOMATIC STOCK-WATERING TROUGH. Zachariah Montgomery, St. Joseph, Mo. Filed July 27, 1886. (No model.)

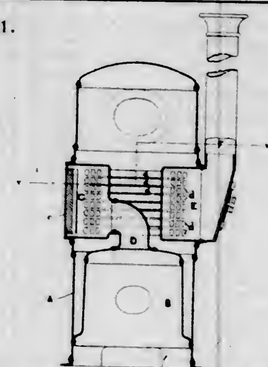


Claim.—1. The combination, with the trough provided with a partition, and an interspace between the bottom of the trough and the lower edge of the partition, of the pipe D, the vertical pipe provided with perforations around its closed upper end, and the float provided with the depending arms carrying a sleeve at their lower ends adapted to close and open the perforations in said pipe, substantially as specified.

2. In a stock-watering apparatus, the combination, with the trough B, tank A, and the pipe D, connecting the tank with the trough, of the pipe F, leading from the pipe D and through the bottom of the trough, and provided with perforations near its upper end, the ring M, loosely arranged around the said vertical pipe, the float, and arms connecting the float with the ring, and the compartment or housing in the trough for the float, substantially as specified.

351,201. STEAM-BOILER. James N. Paxman and Henry G. Plane, Colchester, County of Essex, England. Filed July 12, 1886. (No model.) Patented in England May 19, 1885, No. 6,110, and in Germany Dec. 14, 1885, No. 36,106.

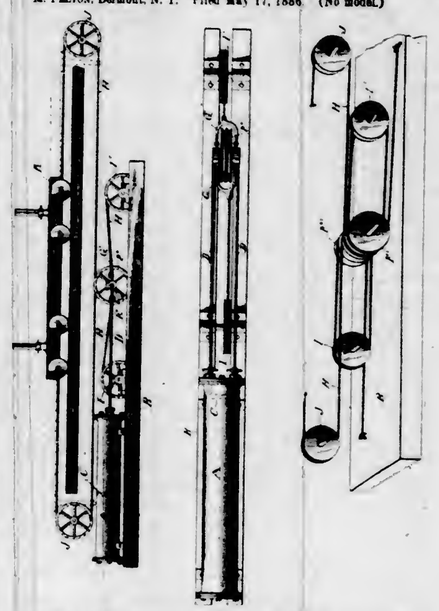
Claim.—1. In a vertical boiler having an outer shell and an internal fire-box, the combustion-chamber C, connected to the fire-box B by the flue D, and the smoke-box E, connected with the funnel F, and connected also each with the other by the circumferential tubes *d d*, all combined, arranged, and operating as and for the purpose hereinbefore set forth.



2. In a vertical boiler, the combination of the combustion-chamber C, the smoke-box E, and tubes *d d*, all arranged and operating specifically as and for the purpose hereinfore set forth.

3. In a vertical boiler, the tubes *d d*, of larger radius than the boiler-shell, in combination with the combustion-chamber C and the smoke-box E, whereby the tubes may be withdrawn or replaced, as and for the purpose hereinbefore set forth.

351,202. FEED MECHANISM FOR SAW-MILL CARRIAGES. Geo M. Pelton, Belmont, N. Y. Filed May 17, 1886. (No model.)



Claim.—1. The combination, with a saw-mill carriage, of a rope connected therewith and running from one end thereof and over a reciprocating sheave, then back over a sheave mounted in stationary bearings, and then return toward and moving with the reciprocating sheave, and having its end firmly fastened to some part of the apparatus, substantially as described.

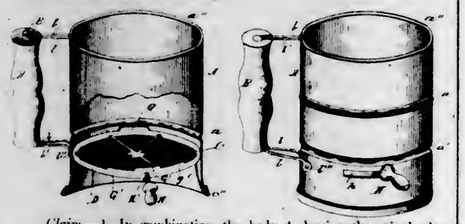
2. The combination, with a carriage, of a rope connected thereto and running in opposite directions therefrom, the opposite halves of which rope are arranged to pass over a reciprocating sheave in opposite directions, then around sheaves running in stationary bearings, and then return again toward and moving with the reciprocating sheave, and having their ends firmly fastened to some part of the apparatus, substantially as described.

3. The combination, with a carriage, of a rope connected therewith, the opposite halves of which are arranged to pass over the reciprocating sheaves in opposite directions, then around sheaves mounted in fixed bearings, and then back again toward the reciprocating sheave, and connected with the frame or bearings thereof, substantially as described.

4. The combination, with a carriage, of a cylinder and piston, a sheave connected with and reciprocated by the motion of the piston, two sheaves mounted in stationary bearings on opposite sides of the reciprocating sheave, and a rope connected to the carriage whose opposite halves are first passed around the reciprocating sheave in opposite directions, then around the sheaves mounted in stationary bearings, and their ends connected with the frame of the reciprocating sheave, substantially as described.

5. The combination, with the carriage K, a cylinder, A, piston C, having two piston-rods, D, forming a frame for a reciprocating sheave, F, revolving on a pin or axle, E, mounted in the ends of the piston-rods, and sheaves I I', mounted in stationary bearings on opposite sides of the reciprocating sheave, and one of them running between the piston-rods, of a rope, H, connected to the carriage, and having its opposite ends passed in contrary directions around the sheave F', then around the sheaves I I', and then toward and connected with the frame of the reciprocating sheave, substantially as described.

351,203. HOUSEHOLD SIFTER. Henry O. Reese, Baltimore, Md. Filed May 6, 1886. (No model.)



Claim.—1. In combination, the body A, having the wired edge, with ends *b b'* of the wire bent outward, then downward through the hand-hold, thence inward, and secured to the body A and hand-hold B, as set forth.

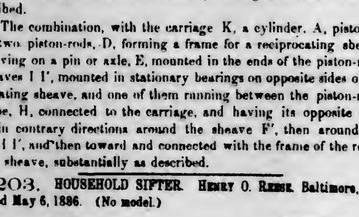
2. In combination, the body A, having rib *a'*, slot *h*, and the sieve, the tapering ring c, secured to the body A, the grate D E F, having lugs G G', the latter of which is provided with lateral extensions *g*, and the handle H, provided with spindle H', passing through the slot *h* and secured in the lug G', as set forth.

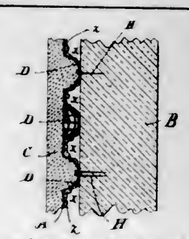
3. In combination, the body A, the tapering ring c, secured thereto at its bottom, and having at its top an inwardly-projecting annular flange, *c'*, the disk C', of perforated metal, resting upon and secured to said flange, and the grate D E F, resting on said perforated plate and provided with the handle H for reciprocating it thereon, as set forth.

351,204. TANNING PROCESS. James T. Reyne, Durant, Miss., assignor to himself and William Calvin Red, same place, and Joseph Peters, Fort Scott, Kans. Filed May 5, 1886. (No specimens.)

Claim.—My improvement in tanning and finishing hides, which consists in the following steps, to wit: first, soaking the hide in clear water; second, removing all gristly or flinty flesh; third, again soaking the hide in fresh water; fourth, beaming and liming; fifth, again soaking in fresh water; sixth, unhairing on a smooth flat table with a steel sleek; seventh, removing lime by thoroughly soaking in water and stoning; eighth, tanning with a mixture composed of water, gambier, salt, sulphuric acid, and saltpeter; ninth, beaming by hand or passing through pressure-rollers; tenth, immersing thoroughly in lye-water and using a light-edge currying-knife on flesh side and again placing in fresh water; eleventh, taking out the hides and hanging in the shade until dry, and treating to boiling-hot tanner's oil (fish-oil and beeswax) on grain side, and applying to the flesh side a boiling mixture of tar, tallow, and tanner's oil, (fish-oil and beeswax,) and finally coloring in the usual manner, substantially as above stated.

351,205. METALLIC LATHING. Benjamin Scarles, Clinton, Mass., assignor to the Clinton Wire Cloth Company, same place. Filed July 12, 1886. (No model.)

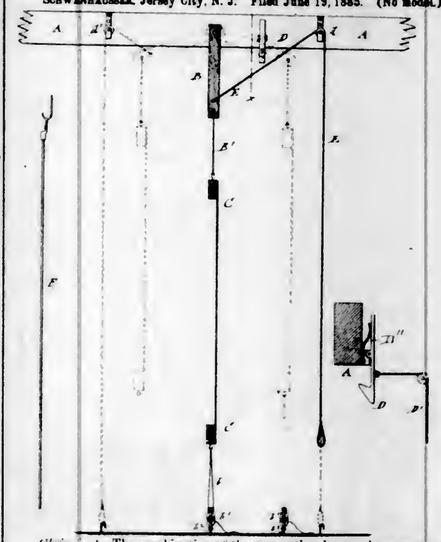




Claim.—1. As an improved article of manufacture, a metallic lathing consisting of a strip or web of wire cloth or netting provided with a series of raised projections or bosses, D, constructed and arranged substantially as set forth.

2. In combination with the wall B and staples H, the lathing A, provided with the bosses or projections D, constructed and arranged substantially as set forth.

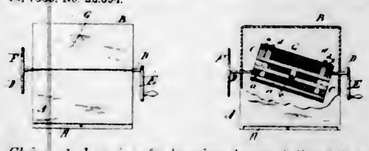
351,206. FRAME FOR MAKING SHADE-CLOTH. Frederick Schwanhausser, Jersey City, N. J. Filed June 19, 1885. (No model.)



Claim.—1. The combination of the supporting-beams, hangers pivoted to the beams, intermediate pivot-rods, a cloth-frame, spring-pressed hooks pivoted to the beams, and stretching-tackle connecting the lower part of the cloth-frame with the floor, substantially as set forth.

2. The combination of the supporting-beams, pivoted hangers, intermediate rods, a cloth-frame, pivoted and spring-pressed hooks, stretching-tackle connecting the floor with the lower part of the cloth-frame, cords attached to the hangers, and pulleys applied to the beams in front of and back of the hangers, substantially as set forth.

351,207. DRUGGIST'S SIEVE. Eliza E. Scott, Hamilton, Ontario, Canada. Filed Feb. 15, 1886. (No model.) Patented in Canada July 16, 1885, No. 22,094.

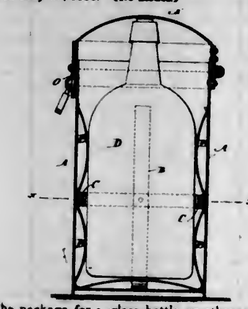


Claim.—1. In a sieve for druggists, the box A B and the cradle C, consisting of the end disks, the strips *a*, the buttons *c c*, the spindles D, and crank-handle E, in combination with the cylindrical sieve G, substantially as and for the purpose specified.

2. In a sieve for druggists, the cylindrical revolving sifter G, formed in two parts hinged together and provided with tongued and grooved ends *b b*, the catch *e*, and the handles *d d*, in combination with the eccentrically-revolving cradle C, provided with the spindles D D and crank E, and the box A B, all constructed substantially as described.

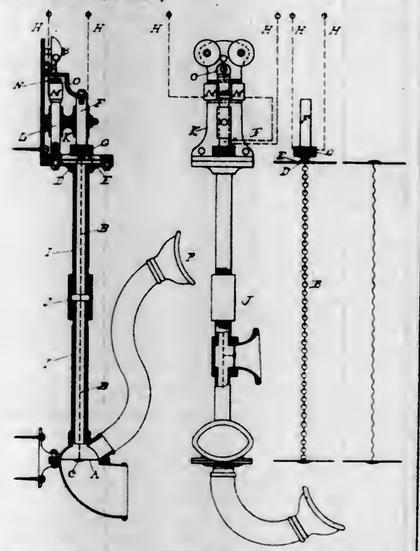
3. In a sieve for druggists, the combination of the box A B, provided with the sliding bottom H, with the cradle C and sifter G, substantially as and for the purpose specified.

351,208. SHIPPING-PACKAGE. Albert R. Searles, New York, N. Y. Filed July 19, 1886. (No model.)



Claim.—The package for a glass bottle or other vessel, composed of a metal case, wavy metal strips forming springs between the sides and bottom of the glass vessel and the metal case, and a metal band for connecting the springs together, so that they may be removed from the case, substantially as specified.

351,209. TELEPHONE. Paul Seiler, San Francisco, Cal. Filed Feb. 20, 1885. (No model.)



Claim.—The combination, with the tube B, having mouth and ear pieces, of the diaphragms arranged at each end of said tube, and connected substantially as described, and the magnet F, provided with the coils G, and arranged above the diaphragm E, substantially as set forth.

351,210. SIZING MATERIAL FOR PAPER-MAKERS' USE. Conrad Semper, Philadelphia, Pa., assignor to Harrison Brothers & Co., same place. Filed July 22, 1885. (No specimens.)

Claim.—1. The process described of manufacturing a neutral or basic porous material for paper-makers' use, and consisting, essentially, of sulphate of alumina and sulphate of zinc, or sulphate of alumina and sulphate of magnesia, substantially as set forth.

2. The process described of manufacturing from any aluminous material free from iron a neutral or basic porous sizing material for paper-makers' use, and consisting, essentially, of sulphate of alumina and sulphate of zinc, or of sulphate of alumina and sulphate of magnesia, substantially as set forth.

3. The process of manufacturing from any suitable aluminous material free from iron a neutral or basic porous sizing material for paper-makers' use, which process consists, essentially, in treating a solution of sulphate of alumina free from iron, either before or after the removal from said solution of any insoluble matter which may be contained therein, with oxide of zinc, or other suitable neutralizing material, and then adding to said solution in a sufficiently-concentrated condition, and after it has become sufficiently cool, bicarbonate of soda, substantially as set forth.

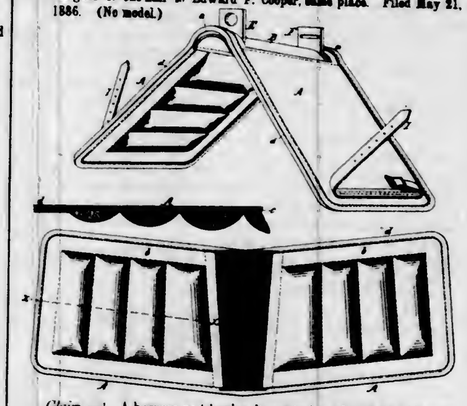
351,211. SIZING MATERIAL FOR PAPER-MAKERS' USE. Conrad Semper, Philadelphia, Pa., assignor to Harrison Brothers & Co., same place. Filed July 22, 1885. (No specimens.)

Claim.—1. The process described of manufacturing a white neutral or basic porous material for paper-makers' use, and consisting, essentially, of sulphate of alumina, sulphate of zinc, and ferrous sulphate, substantially as set forth.

2. The process of manufacturing from any ferruginous aluminous material a white neutral or basic porous sizing material for paper-makers' use, containing zinc and iron, substantially as set forth.

3. The process of manufacturing from any suitable ferruginous aluminous material a white neutral or basic porous sizing material, which process consists in treating a solution of sulphate of alumina containing iron with a reducing agent to convert ferric sulphate into ferrous sulphate, and in then treating said solution with oxide of zinc or other suitable neutralizing material to render it neutral or basic, and in removing insoluble matter from said solution, should it be present, to obtain a clear solution, and in adding to said solution in a sufficiently-concentrated condition, and after it has become sufficiently cool, bicarbonate of soda, substantially as set forth.

351,212. HARNESS-SADDLE PAD. Joseph Shaffer, Dayton, Ohio, assignor of one-half to Edward F. Cooper, same place. Filed May 21, 1886. (No model.)



Claim.—1. A harness-pad having its central portion at the ridge cut away, leaving the two sides connected by end portions, and having said cut-away portion filled in with a flexible material, which connects the two sides and serves to prevent galling, substantially as described.

2. An elastic harness-pad having its central portion at the ridge cut away, leaving the two sides connected by end portions, and having said cut-away portion filled in with elastic webbing, which connects the two sides and serves to prevent galling, and enables the pad to be adjusted to saddles of different shapes and sizes, substantially as described.

3. A harness-saddle pad provided on its under side with transverse pockets filled with flaxseed to form cushions, substantially as described, whereby the contact-surface is reduced and kept soft and flexible.

351,213. COMPOSITION FOR COATING VEGETABLE PRODUCTS. Charles H. Sharman, Allenby Road, Forest Hill, County of Kent, England. Filed June 1, 1886. (No specimens.) Patented in England July 23, 1885, No. 9,053.

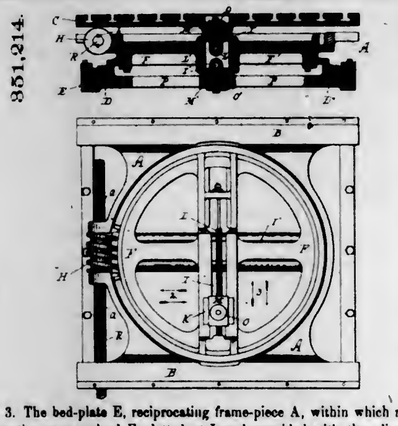
Claim.—The new composition for coating vegetable products for the purpose of preserving them, consisting of wax, eight parts; resin or gelatine, one part, and sulphur, one part, substantially as herein set forth.

351,214. CHANGEABLE WORK-SUPPORTING TABLE. James P. T. Slade, Manchester, County of Lancaster, England. Filed Sept. 2, 1886. (No model.) Patented in England Nov. 10, 1884, No. 14,788.

Claim.—1. In combination with a fixed bed-plate and a continuously-rotary toothed wheel slotted diametrically upon its upper and lower faces which engage two oppositely-disposed slides, the movable framework and the crown-slide moving thereon, but having motion of its own, both reciprocated by said slides, substantially as and for purposes herein described.

2. The mechanism for forming oval and circular figures, substantially as described, consisting of a grooved bed-plate, a movable frame-piece, the crown-slide reciprocating thereon, and the rotary wheel provided with the adjustable slides which engage with grooves in the bed-plate and crown-slide, all co-operating as herein set forth.

351,214.

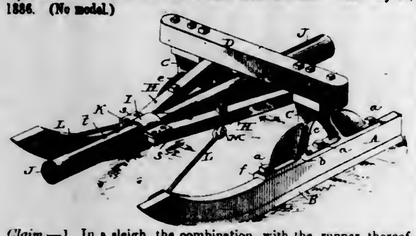


3. The bed-plate E, reciprocating frame-piece A, within which revolves the rotary wheel F, slotted at I, and provided with the adjustable slide K, in combination with the crown-slide C, reciprocated by said frame-piece A, while actuated and controlled in its own paths of travel by the groove S and slide K, all substantially as herein stated.

4. The combination, with the crown-slide actuated by a rotary wheel and moving upon and with the frame-piece A, of the rotary wheel F, mounted thereon, grooved at I', and provided with the adjustable slide K', and the bed-plate E, grooved at P, whereby reciprocations of the frame-piece A are produced and its travel limited, substantially as described.

5. In general combination, the crown-slide and bed-plate grooved at right angles one to the other, the frame-piece A, carrying said crown-slide and reciprocating transversely thereof, the shaft R, worm H, and the diametrically-slotted rotary wheel F, provided with rods L L', and the slides K K', adjustable thereon, the blocks M M', and slots I I', which co-operate with said slides to limit the reciprocations endwise, substantially as herein set forth and stated.

351,215. SLEIGH. George E. Sly, Glencoe, Minn. Filed July 29, 1886. (No model.)



Claim.—1. In a sleigh, the combination, with the runner thereof, of a shoe secured thereto, made wider at its bottom than at its top.

2. In combination with runner A and beam D, an A-shaped knee secured to the runner, a plate, E, secured to the beam, and a U-shaped bolt, F, pivotally connecting the beam and plate with the knee, the horizontal arm of the bolt resting in the angle formed in the upper end of the knee by the meeting of the two inclined standards *c c*, substantially as shown.

3. In combination with runner A and beam D, an A-shaped knee secured to the runner and provided with a rounded bearing-face, *d*, a plate, E, secured to the beam and provided with a socket to receive the bearing-face, and a U-shaped bolt, F, pivotally connecting the beam and plate with the knee, the horizontal arm of the bolt being concentric with the bearing-face and resting in the angle formed at the upper end of the knee by the meeting of the two inclined standards *c c*, substantially as shown.

4. In combination with runner A, knee C, provided with rounded top *d*, and lug *g*, beam D, and plate E, secured to the beam, pivotally connected to the knee and provided with socket *m*, as and for the purpose set forth.

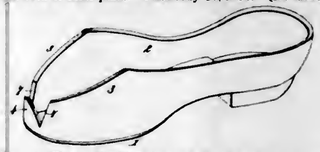
5. In combination with runner A, knee C, provided with recesses *h* at its upper end, a beam, D, a plate, E, provided with a concave face to fit upon the knee, and a pivot-bolt, F, connecting the knee and plate, all substantially as shown.

6. In a sled or sleigh, the knee C, provided with base-plate *b*, depending flange *f*, uprights *c c*, joined at their upper ends to form the curved bearing-face *d*, and webs *e*, connecting the uprights and the base-plate, substantially as shown.

7. In a sled, the skid-hook G, provided with arms *p* and *q*, and a connecting-web *r*, as and for the purpose set forth.

8. In a sled or sleigh, in combination with the beam D, the plate E, secured thereto and provided with an upright flange, *j*, skid-hook G, provided with arms *p* and *q*, and a bolt passing through the arm *q* and the flange *j*, as and for the purpose set forth.

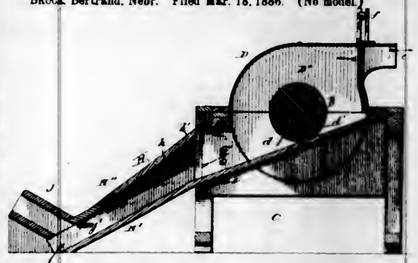
351,216. GLASS SLIPPER. Henry J. Smith, Pittsburg, Pa., assignor, by direct and mesne assignments, to Bryce Brothers and George Duncan & Sons, both of same place. Filed May 19, 1886. (No model.)



Claim.—1. The method herein set forth of forming ornamental glass slippers and similar articles, consisting in first pressing out the blank in a straight mold, and then heating and bending the vertical sides and separate toe-piece down upon a former, substantially as described.

2. The new article of manufacture described, consisting of an ornamental glass slipper formed in a single piece, the toe-piece and vertical sides of the upper being united, substantially as described.

351,217. GRAIN-SEPARATOR. Herman C. Smith and William M. Bruce, Bertrand, Nebr. Filed Mar. 18, 1886. (No model.)



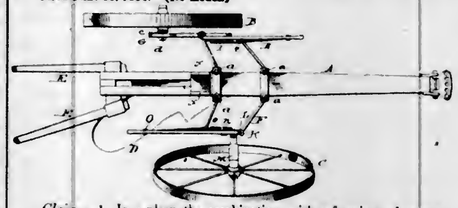
Claim.—1. In a grain-separator for removing smut from grain, the combination of the suction-fans, the downwardly-inclined receiving-spout, the upwardly-inclined suction-passage converging horizontally and expanding vertically from its receiving end, and the compartment between the fans, substantially as and for the purpose set forth.

2. In a grain-separator, a fan-casing having side compartments, D'', a central suction-compartment, D', fans located within the side compartments, a converging air-passage communicating with the center compartment, and a blast-regulator, substantially as set forth.

3. In a grain-separator, the combination of the fans, a fan-casing mounted on a suitable frame and divided into compartments D' D'' D'', communicating by openings *d' d''*, and an inclined air-passage connecting with the central compartment, D', and formed with the upward extension H, substantially as and for the purpose set forth.

4. In combination with a winnowing-machine and a vibrating delivery-board, A', an air-separator comprising a supporting-frame, a fan-casing, D, divided into three communicating compartments, fans located within the side compartments, a converging upwardly-inclined air-passage communicating with the central compartment, and a receiving-spout, J, substantially as set forth.

351,218. WHEEL-PLOW. Clarence A. Shaler, Fox Lake, Wis. Filed June 15, 1886. (No model.)



Claim.—1. In a plow, the combination, with a framing, of an arm, G, journaled thereon and slotted at its outer end, a land-wheel, B, an axle, *c*, for said wheel, adjustable within the slot, a nut, *d*, for clamping said axle in place, and a hand-lever journaled upon the frame separate from the arm for raising the latter.

2. In a wheeled plow, the combination, with a framing, of an arm journaled thereon, a land-wheel carried at the outer end of said arm, a hand-lever also journaled upon the frame, a sliding connection between the arm and the lever, and a spring bearing upon the arm and the lever, substantially as shown.

3. In combination with beam A, frame F, and arm G, wheel B, carried by said arm, lever H, provided with a locking device and with an arm, J, a rod or stem, *f*, secured to arm G and passing freely through the arm J, and a spring, *g*, encircling the stem *f*, substantially as shown and described.

4. In a wheeled plow, the combination, with a beam, of the framing F, constructed substantially as shown, and the hook-shaped bolts *a*, securing the framing to the beam, substantially as described

5. In a plow, the combination, with a beam, of the plow D, having standard P, the latter provided with hook *v*, eccentric slot *u*, and wooden pin *w*, and bolts *s t*, adapted to engage with the slot and hook, respectively.

6. In a plow, the combination, with a framing, of a guide, K, secured thereto and provided with flanges *i*, a plate, L, sliding upon the guide and provided with angular stud *j*, and the removable axle-socket M, all arranged substantially as shown.

7. In a plow, the combination, with a frame, of a plate, K, a slide, L, mounted therein, a wheel, C, carried by the slide, and an elbow-lever, O, pivoted to the frame and connected to the slide by means of the adjustable link or rod *r*.

8. In a plow, the combintion, with a frame, of plates K L, the latter provided with arm *j*, socket-piece M, provided with axle N and adjustable upon the arm *j*, as and for the purpose set forth.

9. In a plow, and in combination with a stud or arm, *j*, the removable socketed block M, provided with a socket to fit upon the arm *j*, with an inclined axle, N, and with a socket, *m*, in line with the axle, as and for the purpose set forth.

10. The socketed axle-block M, provided with angling axle N, and with two sockets, one in line with and the other at an angle to the axle.

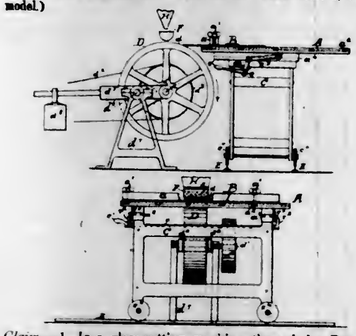
11. In a wheeled plow, the combination, with a beam, A, of a second beam, Q, pivoted at its rear end to the beam A, and a tongue, S, secured to the second beam, Q, substantially as shown.

12. In a wheeled plow, the combination, with the plow-beam A, and the beam Q, pivoted at its rear end to the beam A, of a lever, U, pivoted to beam Q in advance of its point of attachment to beam A, an arm projecting from said lever, a link, V, connecting the arm and the beam A, and a tongue, S, all combined and arranged to operate in substantially the manner described.

13. In a wheeled plow, the combination, with the beams A Q, arranged substantially as shown, of a lever, U, pivoted to beam Q, and connected to beam A by means of a link, V, an eye or loop, Y, formed upon the forward face of the lever U, and a hook, W, secured to beam Q and adapted to engage and hold the lever U when the same is tipped forward.

14. In combination with a plow-beam, a plow-standard, P, provided with a forwardly-extending hook, *v*, a bolt, *t*, passing through the beam and adapted to engage the hook, a slot, *u*, in the plow-standard eccentric to bolt *t*, and a bolt, *s*, passing through the beam and the slot, as and for the purpose set forth.

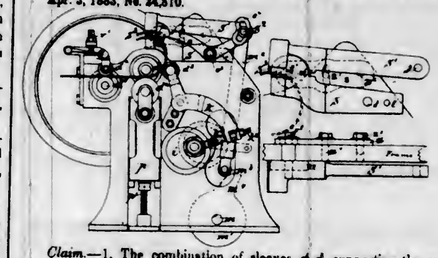
351,219. MACHINE FOR CUTTING GLASS. Minard M. Smith and Ferdinand Arnheiter, New York, N. Y. Filed Mar. 2, 1886. (No model.)



Claim.—1. In a glass-cutting machine, the grinder D, adjustable in an arc of a circle lying in a vertical plane, in combination with the level table A, moved in a horizontal plane by means of the handle *c*, lever c^3, and connection c^4 upon the slides a^4, the frame C, and rails E, substantially as and for the purposes shown and set forth.

2. In a glass-cutting machine, the combination of the adjustable grinder D, mounted on a horizontal shaft in the yoke d^4, the horizontally-adjustable table A, and the sieve F, which distributes the cutting medium uniformly over the grinding-surface of D, substantially as and for the purposes herein shown and described.

351,220. SPIRAL-SPRING-WINDING MACHINE. Heinrich Spühl, St. Fiden, Switzerland, assignor of one-half to Emil Denzler, Daren, Germany. Filed Dec. 17, 1885. (No model.) Patented in Germany Apr. 3, 1883, No. 24,810.



Claim.—1. The combination of sleeves c^4 c^5, supporting the ends of the shafts *a' c* and carrying gear-wheels c^2 c^3, and feeding-rollers *d* d^2 $d^\times$ *d'* with clutch *c'*, shaft *c*, lever *h*, and disk *g*, with raised part *g'*, fast on shaft *f*, and means for operating the shafts *c* and *f*, substantially as set forth.

2. In combination with the feeding-rollers *d* d^2 $d^\times$ *d'*, the roller d^2, journaled in the upper end of lever *k*, the movable flanged roller k^2 at the lower end of said lever *k*, and double cam *i* and shafts *f*, arranged to operate substantially as and for the purpose described.

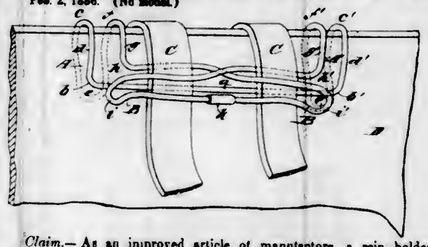
3. The combination of shaft *m*, carrying cam *m'*, with rod m^2, connected to lever *o* and arm *s'* of the shears, and means for operating the shaft *m*, substantially as and for the purpose specified.

4. The combination of the lever *k*, carrying roller d^2 and receiving reciprocating and lateral motion, with the rollers *d* d^2 $d^\times$ *d'*, all being so constructed that the roller d^2 bends the wire while the rollers *d* d^2 $d^\times$ *d'* feed the wire to said roller d^2, substantially as described.

5. The combination of the bending-roller d^2, feeding-rollers *d* d^2 $d^\times$ *d'*, clutch *c'*, lever *h*, disk *g*, with raised part *g'*, and arm *s'* of the shears, with changeable gearing connecting shafts *c* and *f*, and gearing *n n'*, connecting shaft *f* and *m*, all being arranged to operate in the manner described, and so constructed that clutch *c'* throws the feeding-rollers out of motion before and during the operation of the shears, substantially as specified.

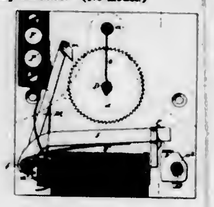
6. The combination of the arm *s'* of the shears, receiving motion from the cam *m'*, with the lever *o*, receiving motion from the same cam *m'*, and arranged to operate in the manner and for the purpose substantially as described.

351,221. REIN-HOLDER. William D. Taber, Rockville, R. I. Filed Feb. 2, 1886. (No model.)



Claim.—As an improved article of manufacture, a rein-holder formed of a piece of wire having a central portion, *a*, bent at its opposite ends, *b b'*, to form upward-extending arms *d d'*, then over and downward at *c c'*, then inward and upward at *e e'*, then backward and downward, as at *f f*, thus forming two loops to embrace the edge of the dash-board, the downward-extending arms *g g'* being bent inward toward the center of the portion *a*, and there crossed to form two rein-clamps, the wires being finally bent beyond their point of crossing, as at *i i'*, inward and connected, as at K, substantially as set forth.

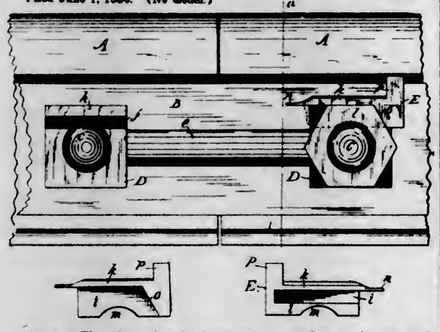
351,222. ELECTRICAL TIME-PIECE. Swain Thackara, Camden, N. J. Filed May 14, 1886. (No model.)



Claim.—1. An electric-clock actuator, comprising the ratchet-wheel, with an electro-magnet and armature-lever carrying a pivoted pawl having a beveled working-face to engage with the beveled working-faces of the teeth of the ratchet-wheel, substantially as described.

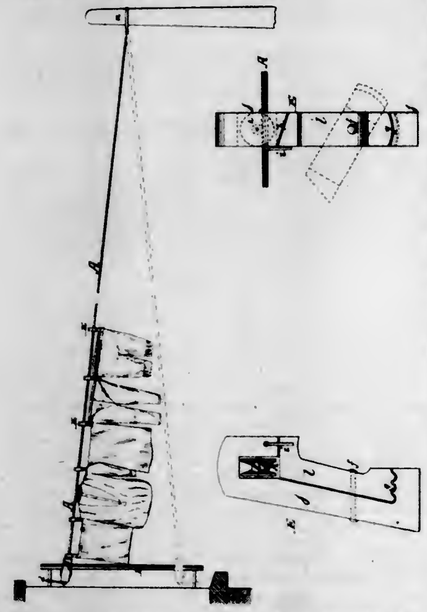
2. An electric-clock actuator, comprising an arbor and ratchet-wheel, with an adjacent electro-magnet lever, *f*, pivoted at the base of the magnet and having an arm, N, at an angle thereto, carrying a pivoted pawl to engage with the ratchet-wheel, all substantially as described.

351,223. **NUT-LOCK.** William H. Thompson, Indianapolis, Ind., assignor of one-half to Irving S. Gordon and William E. Kurtz, same place. Filed June 1, 1886. (No model.)



Claim.—The above-described nut-lock, consisting of the grooved rectangular washer having the thin portion *h*, the key E, having the central web, *i*, notch *m*, rib *j*, flange *k*, and lug *p*, all combined and arranged to co-operate with a bolt and nut, as and for the purpose specified.

351,224. **WASH-LINE AND CLAMP.** William Thiermann, New York, N. Y. Filed May 31, 1884. (No model.)

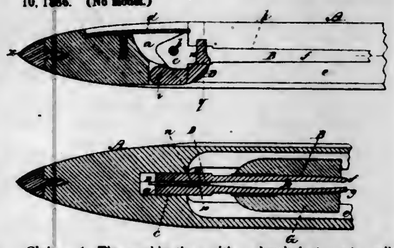


Claim.—1. A clothes pin or clamp composed of the piece *j*, carrying the roller *e*, of the piece *l*, pivoted thereto, said pieces *j l* forming the clamping-faces *g* and contact-faces *h*, and of the latch *i*, substantially as herein shown and described.

2. The combination of a clothes pin or clamp, E, having suspension-roller *e*, with the clothes-line A, fixed fastening *a*, and sliding fastening B *d*, substantially as herein shown and described.

3. A movable clothes-pin inclosing a suspension-roller, *s*, at the upper part for suspending it from a line, and made with a clamp, *g*, at the lower part, for holding the clothes, as specified.

351,225. **LOOM-SHUTTLE.** Jacob P. Terrell, Chelsea, assignor to Amos B. Taylor and George F. Pinkham, Wollaston, Mass. Filed Feb. 10, 1886. (No model.)



Claim.—1. The combination, with a shuttle-body and a split spindle pivoted therein, of a wedge, D, pivoted on a stationary pin, *i*, and rocking in an arc of a circle eccentric to that in which the spindle moves, and extending around in front of the heel of the spindle, and having a vertical portion extending up through the split of the spindle in a direction at right angles to its length, and adapted to remain permanently within said split and be moved backward and forward therein in the direction of the length of the spindle as it is rocked on its pivot-pin *i*, whereby the spindle is expanded as it is closed down into the shuttle and contracted as it is raised out of the same, substantially as set forth.

2. The combination, with the shuttle-body A and its pivoted split spindle B, of the rocking pivoted wedge D, extending around in front of the heel of the spindle and upward through the split *k*, and adapted to remain permanently within said split and be moved backward and forward therein in the direction of the length of the spindle as it is rocked on its pivot, and having a lip or projection, *m*, on that portion which extends above the spindle, whereby the wedge is prevented from dropping or working down out of the split as the spindle is raised on its pivot out of the shuttle, substantially as described.

3. The combination, with the shuttle-body A, of the pivoted spindle B, having a split, *k*, provided with an enlarged or recessed portion, *n*, and the wedge D, pivoted on a stationary pin, *i*, and rocking in the arc of a circle eccentric to that in which the spindle moves, and extending around in front of the heel of the spindle, and having a vertical portion extending up through the split of the spindle in a direction at right angles to its length, and adapted to remain permanently within said split and be moved backward into the said enlarged or recessed portion *n* of the same as the spindle is raised out of the shuttle, substantially as and for the purpose set forth.

351,226. **MANUFACTURE OF FELT HATS.** Charles Vero, Atherstone, County of Warwick, England, assignor of one-half to James Everitt, same place. Filed June 7, 1886. (No specimens.)

Claim.—1. A felt hat consisting of the independently-formed crown and brim, of different materials, united into one by felting them together, substantially as set forth.

2. A felt hat having a crown or upper part of fur or fine material and a brim of wool or coarser material, the two combined and forming one continuous felted fabric, substantially as set forth.

351,227. **STAIR-ROD SECURER.** David Walker, Newark, N. J. Filed Jan. 28, 1886. (Model.)



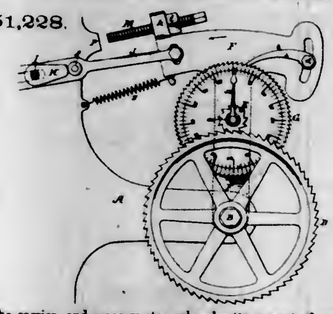
Claim.—1. In combination with the rod, a fastener, *d*, having the plate *e*, for holding the rod in place, said plate having recesses *h h*, to receive the edges of the carpet, substantially as set forth.

2. The cap-like lever for securing the end of a stair-rod to the stair case or way, which consists, essentially, of a metal piece having a longitudinal slot to receive a fulcrumal screw, bearings to engage the step and riser, and a quadrantal plate, *e*, to cover and conceal the end of the rod, the slot lying between the bearing for said rod and the bearings for said step and riser, the said lever being, thus adapted to move longitudinally on said fulcrum and step and riser to and from holding and covering engagement with the end of the said rod, substantially as set forth.

351,228. **MECHANICAL MOVEMENT.** George Walsh and Joseph Boothroyd, Philadelphia, Pa. Filed Mar. 4, 1886. (No model.)

Claim.—1. A mechanical movement in which are combined the following elements, namely: a toothed wheel, D, a carrier having a pinion gearing into said wheel D, a wheel connected to but of greater diameter than said pinion, a retainer, *b*, for said wheel, devices for operating the carrier, and a screw-stop whereby the extent of movement of the carrier is determined, all substantially as specified.

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2. A mechanical movement in which are combined the following elements, namely: a toothed wheel, D, a carrier having a driving-pinion gearing into said wheel, a second pinion serving as a retainer for the wheel D, wheels connected to but of greater diameter than the driving and retaining pinions, retainers *b b'* for said wheels, devices for operating the carrier, and a screw-stop whereby the extent of movement of the carrier is determined, all substantially as specified.

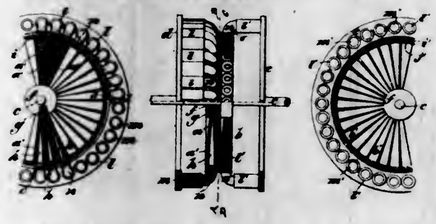
3. A mechanical movement in which are combined the following elements, namely: a toothed wheel, D, a carrier having a pinion gearing into said wheel D, a wheel connected to but of greater diameter than the pinion, a retainer, *b*, for said wheel, a carrier-operating device acting through the medium of a spring, and an adjustable stop for determining the extent of movement of the carrier, all substantially as specified.

4. A mechanical movement in which are combined the following elements, namely: a toothed wheel, D, a carrier having a pinion gearing into said wheel D, a wheel connected to but of greater diameter than said pinion, and having a graduated face, a retainer, *b*, for said wheel, a pointer moving with the carrier, and means for imparting to said carrier a movement of variable extent, all substantially as specified.

5. A mechanical movement in which are combined the following elements, namely: a toothed wheel, D, a carrier having a pinion gearing into said wheel D, a wheel connected to but of greater diameter than said pinion, a retainer, *b*, for said wheel, means for operating the carrier, and a stepped stop for determining the extent of movement of the carrier, all substantially as specified.

6. A mechanical movement in which are combined the following elements, namely: a screw-shaft having a toothed wheel, D, a carrier having a pinion gearing into said wheel D, a wheel connected to but of greater diameter than said pinion, a retainer, *b*, for said wheel, and means for imparting to the carrier a movement of variable extent, all substantially as specified.

351,229. **ELECTRIC MOTOR.** Hugo Walter, Cincinnati, Ohio. Filed Nov. 7, 1883. (No model.) Patented in Belgium Mar. 7, 1883, No. 60,672, and in France May 5, 1883, No. 155,290.



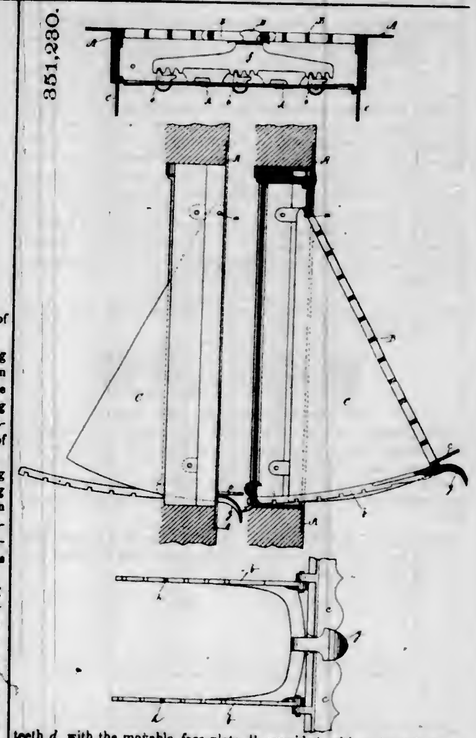
Claim.—In an electromotor or dynamo-machine, the combination of two sets of rotating magnets, carried by a single shaft and arranged with the magnets of one set opposite the spaces between the magnets of the other set, and two sets of fixed magnets, one for either set of rotating magnets, arranged at right angles thereto, and provided with necks or polar extensions so bent that the ends of the polar extremities are in close proximity and parallel to the polar extremities of the rotating magnets, substantially as described.

351,230. **HOT-AIR REGISTER.** John Warren, Boston, assignor to Herbert Barrows, trustee, Reading, Mass. Filed Apr. 28, 1886. (No model.)

Claim.—1. In a hot-air register, the combination, with the toothed frame A, of the face-plate B, provided with notched arms *b*, for the purposes and substantially as shown and described.

2. In a hot-air register, the combination of the frame A, having

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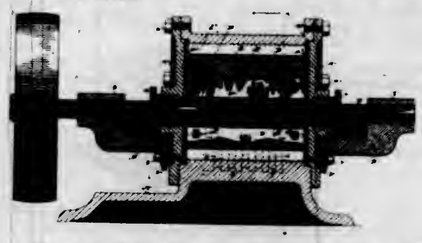


teeth *d*, with the movable face-plate B, provided with a latch having the hook *g*, and one or more notched arms, *b*, hinged to one end thereof, substantially as set forth.

3. In a hot-air register, the combination of the frame A with a face-plate, B, pivoted at the upper end to said frame, and having side wings, C, for the purposes and substantially as set forth.

4. In a hot-air register, the combination of the frame A with a movable face-plate, B, hinged at its upper end to said frame, and provided with a stationary shelf, *c*, at the lower end thereof, for the purposes and substantially as set forth.

351,231. **ROTARY ENGINE.** George A. Washburn, Medina, Ohio, assignor of one-fourth to Reuben W. Clark, same place. Filed July 3, 1886. (No model.)



Claim.—1. In a rotary engine, the combination, with a cylinder, piston-wheel, and the connected pistons, arranged substantially as indicated, of packing-blocks set in the piston-wheels lengthwise thereof, springs for pressing the packing outward, and screws, arranged as described, to limit the outer movement of the packing-blocks, substantially as set forth.

2. In a rotary engine, the combination, with a cylinder, piston-wheel, pistons arranged substantially as indicated, and a rod connecting the pistons, of anti-friction rolls connected with the piston, the parts being arranged substantially as described.

3. In a rotary engine, the combination, with one or more removable cylinder-heads, of soft-metal packing inserted in the counterbore of the cylinder between the head and bottom of the counterbore, bolts for tightening the heads and compressing the packing, and abutment-screws

secured to the heads and bearing against the ends of the cylinder for limiting the compression of the packing, the parts being arranged substantially as described.

4. In a rotary engine, the combination, with cylinder, cylinder-head, and engine-shaft, substantially as indicated, of brackets with boxes mounted thereon for supporting the shaft, elongated holes in the brackets for the passage of the securing-bolts, and set-screws bearing against the adjusting-bolts for adjusting the brackets to bring the piston-wheel in contact with the cylinder, the parts being arranged substantially as set forth.

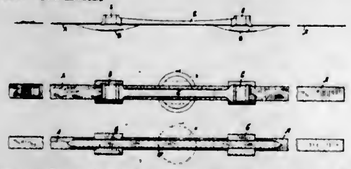
5. The combination, with a rotary engine, substantially as described, of a series of induction-ports arranged in line lengthwise of the cylinder, said ports leading into a governor-valve chamber, a hollow cylindrical governor-valve, the same having a series of annular external grooves corresponding with the ports, and holes through the side walls of the valve opening into said groove, the parts being arranged substantially as set forth.

351,232. CAR-WHEEL. Nathan Washburn, Allston, Mass. Filed June 24, 1886. (No model.)



Claim.—The improved railway-car wheel, substantially as described, consisting of a steel tire provided with a continuous dovetailed rib extending from its inner periphery, a metallic body cast in one entire piece against and welded to the tire and its rib in the process of casting the body, and a series of headed bolts going through the rim transversely and secured therein by nuts, or means substantially as set forth.

351,233. ELECTRIC BELT. Henry W. Watkins, Cleveland, Ohio, assignor to the Voltaic Electric Manufacturing Company. Filed Nov. 21, 1885. (No model.)



Claim.—1. In an electric belt, the combination, with a voltaic pile, a housing for said pile, said housing being made of non-conducting material, preferably of glass, and having lugs and depressed sides, substantially as described, of a metal plate, preferably of zinc, said plate being folded to embrace the belt and fitting between the lugs of the housings, said plate having depressed sides to correspond with the depressed sides of the housings, the parts being arranged substantially as described.

2. In an electric belt, the combination, with voltaic piles, housings for said piles, said housings having lugs and depressed sides, plates folded to embrace the belt, said plates having ears and depressed sides fitting between the lugs of the housings, of a metal plate for connecting the piles, said plate having shoulders for engaging the inner edges of the housings, and tongues for passing through the housings, said tongues being bent up around the outer edges of the housings, the parts being arranged substantially as described.

351,234. HEAD-CHAIR FOR RAILWAY-SWITCHES. Frederic C. Weber, Cincinnati, Ohio. Filed Mar. 16, 1886. (No model.)

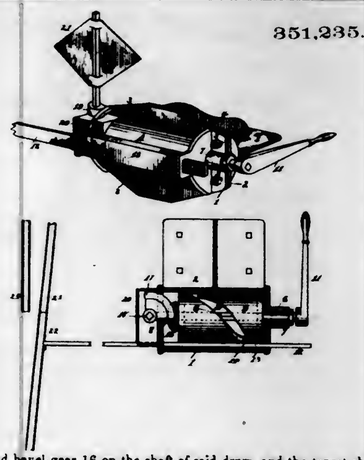


Claim.—1. A head-chair composed substantially of the base-plate A, to which is securely fastened the parts B C D E F, substantially as specified.

2. In a head-chair, the spacing-bar C, secured thereto by one or more of the middle lips, D, and the side lugs, B B, substantially as specified.

3. In a head-chair, the spacing-bar C, secured thereto by one or more of the middle lips, D, and the side lugs, B B, each provided with abutting shoulders and overhanging flanges, substantially as specified.

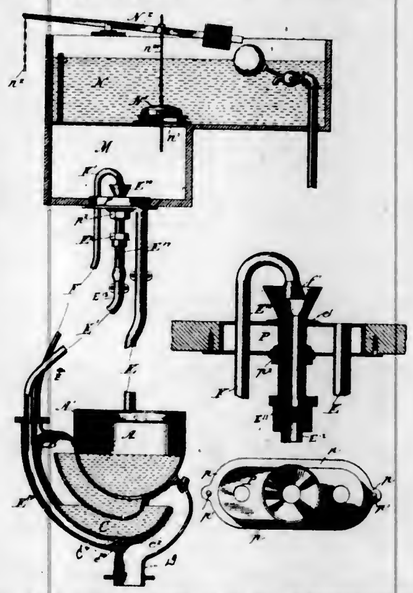
351,235. SWITCH-STAND. Frederic C. Weber, Cincinnati, Ohio. Filed June 26, 1886. (No model.)



Claim.—1. A switch-stand composed of a casing, A, having a housing, 13, at one side and a housing, 20, at one end, a bar, 12, provided with lug 14, said bar being passed through the side housing, 13, and connected at one end to the switch-rail, a spirally-grooved drum, 9, journaled in the casing and engaged with the lug 14 of bar 12, the lever 11 and bevel-gear 16 on the shaft of said drum, and the target-shaft 18, having a quadrant-gear, 17, located in the end housing, 20, and meshing with the gear on the drum-shaft, substantially as described.

2. A switch-stand composed of a casing, A, formed of two sections bolted together, one section having the recess 13 for the bar 12, and the separate compartment 20 for the signal, substantially as described.

351,236. WATER-CLOSET. Frank A. Wells, Chicago, Ill. Filed Nov. 16, 1885. (No model.)



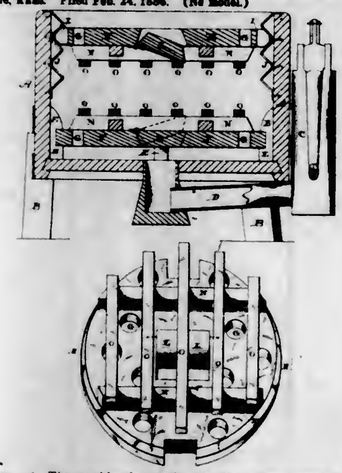
Claim.—1. In combination with the bowl, the siphonic evacuating-pipe and the trap between said pipe and the soil-pipe, the water-pipe E', discharging into the trap in the direction of the flow through the same toward the soil-pipe, and the air-pipe leading from the siphon into the water-pipe E', substantially as and for the purpose set forth.

2. In combination with the bowl and the siphonic evacuating-pipe, the service-box, the water-pipe E', leading therefrom and having the funnel-shaped mouth E^{10}, the air-pipe F, having its end protruded down into said funnel E^{10}, said funnel being adjustable vertically to vary at will the annular water-aperture therein around the mouth of the air-pipe F, substantially as set forth.

3. The block or shell P, in combination with the pipes E and F, adapted to be secured therein, and the pipe E', vertically adjustable therein and having its upper mouth encircling the inverted mouth of the pipe F, all constructed substantially as described, whereby the entire fitting may be applied to any plain service-box, for the purpose set forth.

4. In combination with the bowl and the service-box, the siphonic evacuating-pipe for the bowl and the discharge-pipe therefrom to the sewer, the water-pipe E', having its mouth in the service-box above the bottom and discharging into the discharge-pipe beyond the siphon, the air-pipe leading from the siphon into the said pipe E', and the flushing water-pipe E, having its receiving-mouth in the service-box below that of the pipe E', substantially as set forth.

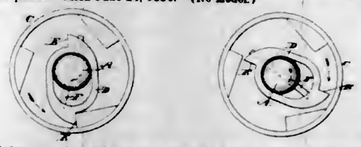
351,237. WASHING-MACHINE. Richard B. Wilkinson, Tonganoxie, Kans. Filed Feb. 24, 1886. (No model.)



Claim.—1. The combination of the tub, the pump connected thereto, and the two partitions placed in the tub, each one of the partitions being provided with perforations, and valves and a lattice-work upon its inner side, substantially as shown.

2. The combination of the tub, the pump connected thereto, suitable supports secured to the inner sides of the tub to hold the partitions in place, the two partitions provided with perforations and valves, cross-partitions for separating the holes, and the slats which are placed upon the cross-partitions, so as to keep the clothes out of contact with the partitions and valves, substantially as described.

351,238. PAWL-AND-RATCHET MECHANISM. Geo. M. Williams, Newark, Del., assignor to the W. L. Nassau Manufacturing Company, same place. Filed June 24, 1886. (No model.)

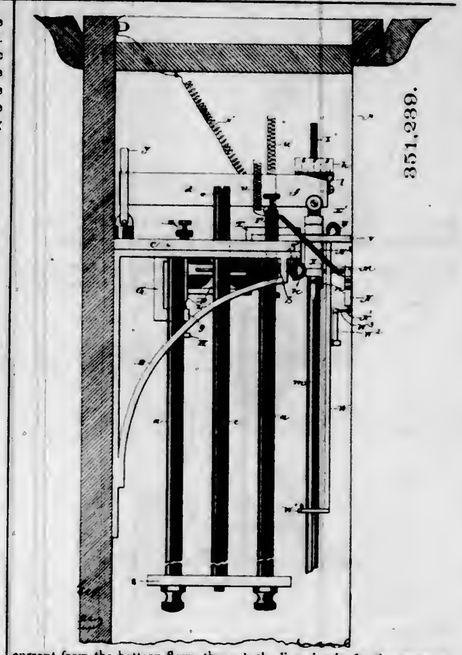


Claim.—1. A pawl having a toothed body freely encircling a shaft and provided with teeth at opposite ends, a pin fixed to the shaft, freely entering the body of the pawl, and a ratchet loosely mounted on said shaft, the body being yoke-shaped, having the opening of greater length than the diameter of the encircled shaft, whereby the yoke slides in opposite directions on said shaft and pin, all combined substantially as described.

2. A pawl having a yoke-shaped body freely encircling a shaft and provided with teeth at opposite ends, a pin connected with the shaft, freely entering the teeth of the pawl, and a ratchet loosely mounted on the shaft, the opening of said yoke-shaped body being of greater length than the diameter of the encircled shaft, combined and operating substantially as described.

351,239. PENDULUM FOR ELECTRIC CLOCKS. John J. Abell and Clarence B. Gifford, Colesburg, Ky. Filed Aug. 4, 1886. (No model.)

Claim.—1. The combination of the local circuit, including the battery, the electro-magnet, the armature having the contact-points, and the vibrating arm having the contact-spring between the contact-points and connected to the pendulum, and the line-circuit, including the electric clock or series of electric clocks, whereby when the pendulum swings in one direction the current from the battery flows through the local circuit, and when the pendulum swings in the contrary direction the



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current from the battery flows through the line-circuit, for the purposes set forth, substantially as described.

2. The combination, with the main circuit, including the electric clock, and local circuit, including the electro-magnet D, of the armature having the contact-points connected with the main and local circuits, and the vibrating arm included in one circuit and playing between the contact-points of the armature, to automatically make and break the main and local circuits alternately, for the purpose set forth, substantially as described.

3. The combination of the pendulum, the vibrating arm connected to the pendulum, the armature adapted to strike opposite sides of the vibrating arm to swing it and the pendulum, and the electro-magnet to attract the armature, substantially as described.

4. The combination of the pendulum, the vibrating arm connected thereto and having the spring W^2, the armature having the arms or stops to strike opposite sides of the said spring alternately, and the electro-magnet to attract the armature, substantially as described.

5. The combination of the vertical iron rods having the cross-bar at their lower ends, the brass rod supported on the cross-bar, the fulcrumed lever bearing on the brass rod, and the pendulum suspended from the said lever, substantially as described.

6. The combination of the plate C, the iron stirrup depending therefrom, the brass rod supported on the said stirrup, the lever connected to the brass rod and movable thereby, the screw x' in the said lever, the nut thereon, and the pendulum suspended from the screw, substantially as described.

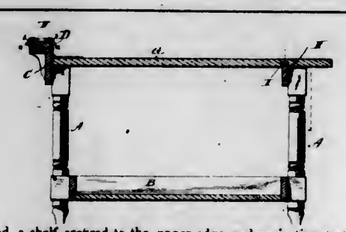
7. The combination of the plate C, the iron stirrup depending therefrom, the brass rod supported on the said stirrup, the lever connected to the brass rod and movable thereby, the screw x' in the said lever, the graduated nut thereon, and the pendulum suspended from the said screw, substantially as described.

8. The combination of the supporting-screw x', with the spring-leaf suspended from the screw and having the head provided with the inclined open slot, and the pendulum having the slot at the upper end of its rod to receive the head, and the transverse pin to enter the open slot therein, substantially as described.

9. The combination of the supporting-screw x', the leaf pivoted to the lower end thereof and suspended therefrom, the pendulum suspended from the leaf, and the clamp to prevent lateral vibration of the leaf, substantially as described.

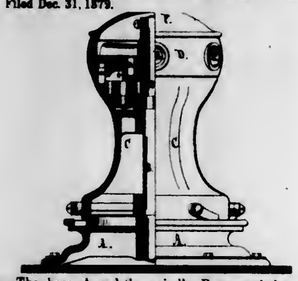
351,240. IRONING-TABLE. Annie E. Adair, Sulphur Springs, Tex. Filed Dec. 23, 1885. (No model.)

Claim.—The combination of the rigid supporting-frame of an ironing-table, a cross-piece secured to the outside of the upper ends of the supports at one end of the frame, so that its upper edge shall project above the supports, an ironing-board top hinged to one side of the cross-



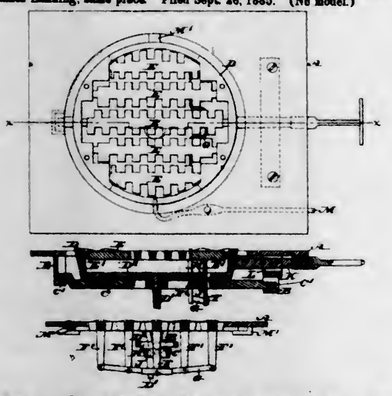
piece, and a shelf secured to the upper edge and projecting to the opposite side of said cross-piece, substantially as shown and described.

351,241. CAPSTAN. Frank Allen and Frank A. Grater, Providence, R. I., assignors to the American Ship Windlass Company, same place. Filed Dec. 31, 1879.



Claim.—The base A and the spindle B, secured thereto, in combination with the barrel C, having the ratchet-gears *b e*, the toothed rim *c*, and the central pinion, *f*, and bearings on said spindle, and the recessed head D, having the sockets E, the pawls *a*, fitting into said recesses, the oppositely-disposed pawls *d*, engaging the ratchet *e*, the idle-gears *g*, gearing into the pinion *f*, and the cap F, as and for the purposes stated.

351,242. GRATE. Samuel W. Alston, Philadelphia, Pa., assignor to James Lansing, same place. Filed Sept. 26, 1885. (No model.)



Claim.—1. In combination with a central supporting-bar, a frame pivotally mounted thereon, and having a lateral extension forming a handle, oscillating bars mounted on said frame and provided with arms, and links connecting said arms, one or more of the arms of the oscillating bars engaging the supporting-bar, whereby the said bars may be operated by the lateral movement of the frame, substantially as described.

2. A frame having grate-bars rotatingly mounted thereon, arms attached to said bars, a connecting-piece pivoted to said arms, a bed-plate, and a deflecting-piece mounted on said bed-plate, engaging one of said arms, substantially as described, whereby when the frame is moved the bars are carried with it and rotated or rocked thereon, as stated.

3. In a grate, a frame with rocking bars mounted thereon and provided with a pivot at the bottom thereof, in combination with a bed-plate, a bar furnishing a bearing for said pivot and sustained on said bed-plate, and devices connecting said rocking bars, consisting of arms attached to said rocking bars and links connected to said arms, one of said arms being in engagement with the said pivot-bearing bar, substantially as and for the purpose set forth.

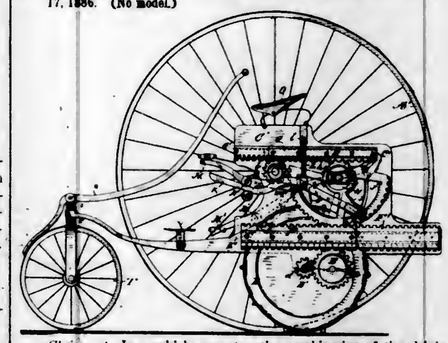
4. A grate having a rotary raking-frame, grate-bars rotatingly mounted on said frame, a slotted bar to which the frame is pivoted, a bed-plate sustaining said slotted bar, and arms connected with the grate-bars and with each other, one of said arms passing through said slotted bar and being deflected thereby, causing the rocking of the grate-bars when the frame is rotated or moved, substantially as described.

5. A rotatable frame carrying rocking bars and formed with a bottom bar, D^3, which is provided with a pivot, D', and a slot, H, the bar C, receiving said pivot and having a slot, J, the bed-plate A, with hangers B, supporting said bar C, arms F F', attached to the grate-bars and connected by a pivotal arm, G, one of said arms F F' passing through the slot J as a lateral deflector, substantially as stated.

6. A rotatable frame having rocking grate-bars with depending arms connected together, a slotted bar mounted on the bed-plate and pivotally supporting said frame, one of the depending bars or arms passing through said slot, a bed-plate with guide, and a catch, all substantially as and for the purpose set forth.

7. The bed-plate A, with hangers B and guide L, in combination with bar C, having slot J, the frame D, with pivot D', having bearing in bar C, the bars E, journaled in the frame D, the arms F F', connected by the arms G, said arm F passing through the slot J of the bar C, and the rod K, attached to the frame D, all substantially as and for the purpose set forth.

351,243. VELOCIPEDE. Hugh Baines, Brooklyn, N. Y. Filed Mar. 17, 1886. (No model.)



Claim.—1. In a vehicle or motor, the combination of the driving wheel or wheels, the frame supported on the wheels, the operating lever or levers hung in the frame, means of connection between the driver or drivers, and an intermediate fulcrum connected flexibly to the frame, whereby the power may be applied to the driving-wheels and the frame in equal or nearly equal proportions.

2. In combination with a vehicle, a rotary fulcrum and driver-wheel situated in the rear of the main wheels and connected with the operating mechanism of the vehicle, whereby it can be rotated in unison with the main wheels, as shown and described.

3. In combination with a vehicle, a rotary fulcrum and driver-wheel situated in the rear of the main wheels, provided with teeth on its periphery and connected with the operating mechanism of the vehicle, whereby it can be rotated in unison with the main wheels.

4. In combination with a vehicle, the rotary fulcrum and driver-wheel provided with pinion-gearing on its axle, the pinion-wheels journaled in the frame of the vehicle, the horizontally-moving racks gearing therewith, and the segments and operating-levers, all arranged substantially as and for the purposes set forth.

5. In combination with a vehicle, the segments journaled in sliding blocks in the main frame of the vehicle, connected to the treadle-levers and to the driving-wheels, and adapted to be operated by the former and to operate the latter, as set forth.

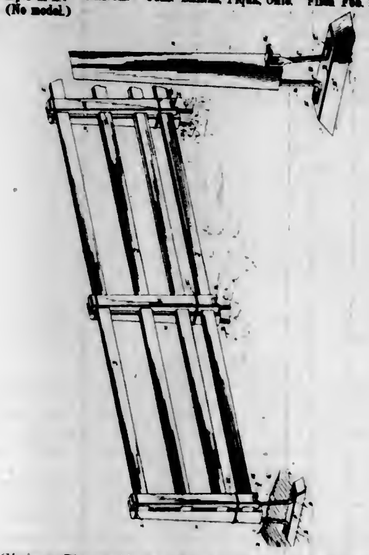
6. In combination with a vehicle, the segment-gearing journaled as described, and provided with springs for retracting them to their normal and operative position, the treadle-levers connected to the segments, the rack and pinion gearing, and the rotary fulcrum-driver, all adapted to operate substantially as shown and described.

7. In a vehicle, the segment-gearing and the treadle-levers, in combination with the horizontally-moving racks provided with the movable and solid teeth, the main drivers and the rotary fulcrum-driver, and the intermediate pinion-gearing, all adapted to operate substantially as described.

8. In a vehicle, the segment-gearing provided with the retracting-springs, the treadle-levers connected to and adapted to operate the segments, the depending rods swiveled to the main frame slightly in front of the axle of the rotary fulcrum-driver, in combination with said driver and the intermediate rack and pinion gearing.

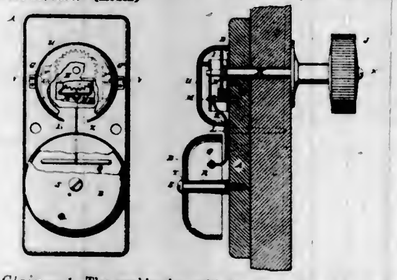
9. In combination with the vehicle hereinbefore described, the guide-wheel T, springs *s* and *s'*, and lever U.

351,244. FENCE. (No model.) John Raines, Piqua, Ohio. Filed Feb. 2, 1886.



Claim.—The combination of rails or boards with the within-described fence-post, consisting of a base-piece, a pair of iron legs, one of which has its upper end bent outwardly to form a shoulder, and a main upright part, a cleat notched at its lower end, resting upon said shoulder, and wire bands, substantially as described and set forth.

351,245. DOOR-BELL. Thomas M. Bales and Silas O. Leeson, Dublin, Ind.; said Bales assignor to Albert Southworth, same place. Filed June 23, 1886. (Model.)



Claim.—1. The combination, with the base or board having the bearing-plates supporting the knob, and the knob-spindle provided with the scape-wheel, and the pallet within the cap, having the striker-arm, with the hammer at its lower end connected to the pallet-shaft, the said pallet being in engagement with the scape-wheel, of the alarm-bell secured upon the outer end of the sleeve by a screw passed through the alarm-bell and sleeve into the base or board, substantially as specified.

2. In a door-bell, the combination, with the rotary knob and its shaft carrying a scape-wheel, of a pallet working on said scape-wheel and carrying rigidly secured thereto a striker-arm, and a bell within which the hammer end of the striker works, the whole supported in a base or bearing adapted to be attached to a door, substantially as specified.

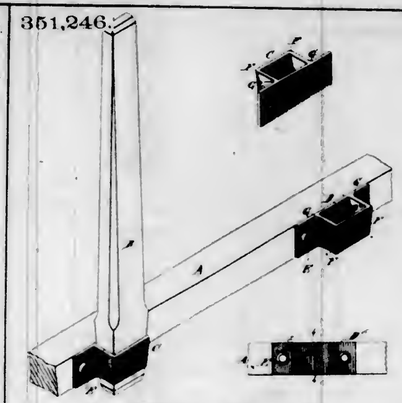
351,246. WAGON-STAKE POCKET. Herman H. Bothe, St. Louis, Mo. Filed Aug. 16, 1886. (No model.)

Claim.—1. A pocket for wagon-stakes, rectangular in cross-section, having a vertical back with extensions affording means of attachment to the wagon-body, and having its remaining portion—*i. e.*, the front and sides—inclined inwardly and tending to one common point, by which construction the stake may be held by wedging therein, it having no other support or supports, substantially as set forth.

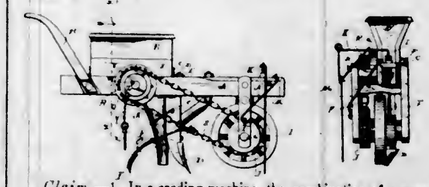
2. As a new article of manufacture, a pocket for wagon-stakes, having a tapering front, tapering sides, and a vertical back, substantially as and for the purpose set forth.

3. In combination with a pocket having a tapering front, tapering sides, and a vertical back, a shoulderless stake having a straight back, tapering sides, and a tapering front, substantially as set forth.

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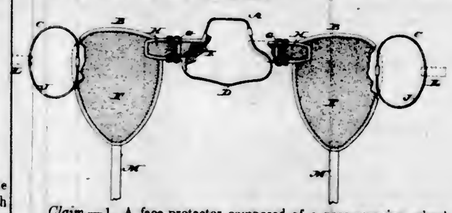
351,247. SEEDING-MACHINE. Theobald Braun, Athy, assignor of one-half to Adam Faik, Volcano, W. Va. Filed Mar. 29, 1886. (No model.)



Claim.—1. In a seeding-machine, the combination of a grooved shaft carrying the seed-disk, the washer Q, the sprocket-wheel R, the washer T, the removable key X, the pin Z, the ratchet-wheel O, and the pawl P, substantially as and for the purpose set forth.

2. In a seeding-machine, the combination of the beam A, provided with an obliquely-cut hole in the forward end, the rectangular block X', the rod K', rigidly secured in said block, the rod M', and the brace N', substantially as and for the purpose set forth.

351,248. FACE-PROTECTOR. Andrew L. Britton, Philadelphia, Pa. Filed Nov. 14, 1885. (No model.)



Claim.—1. A face-protector composed of a nose-covering, cheek-coverings, and ear-muffs, the said nose-covering and ear-muffs having a wire frame and fabric covering, the frame of the nose-covering being flexible and adapted to be conformed to the shape of the nose, the cheek-coverings being connected to the nose-covering by straps and buckles, and the ear-muffs being hinged to the cheek-coverings, all substantially as described.

2. A face-protector composed of the flexible frame D, with fabric covering E, cheek-coverings B, with chin-strap M, ear-muffs C, hinged to cheek-coverings B, and fastening-bands L, substantially as and for the purpose set forth.

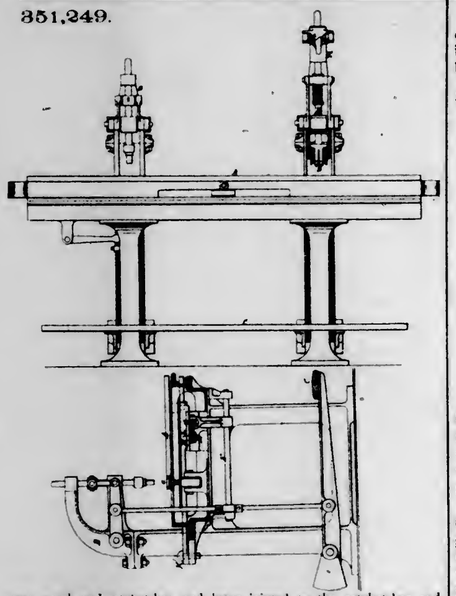
3. In a face-protector, the combination of a flexible nose-covering connected to cheek-coverings by straps and buckles, ear-muffs, a fastening-band, and a chin-strap, all substantially as described.

4. A face-protector having cheek-coverings connected to a nose-covering by means of straps and buckles, whereby the said cheek-coverings may be adjusted, substantially as described.

351,249. MACHINE FOR PRINTING AND CUTTING STEPPED INDEXES. Alexander S. Coghill, Rathmines, and John A. C. Ruttven, Sandymount, County of Dublin, Ireland. Filed June 1, 1885. (No model.) Patented in England Apr. 24, 1884, No. 6,777.

Claim.—1. In a machine for cutting and printing stepped indexes, the combination, with a sliding table, of a treadle, a vertically-guided cutting-stem, a vertically-guided printing-stem, a rocking shaft, with its

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arms, pawl, and ratchet-bar, and lever jointed to the ratchet-bar and adjustably jointed to the table, substantially as herein described.

2. For adjusting the advance of the table of a machine for cutting and printing stepped indexes, the combination, with the table A, of the ratchet-bar H, its pin *h*, the lever K, and the pin *k*, adjustable along slots of the lever K, and of the table A, substantially as described.

3. For alternating the colors printed by a machine for cutting and printing stepped indexes, the combination of the helically cam-slotted head E, the printing-stem R, its roller *e*, and the double-rowed type-wheel D with the double inking-segments L and rollers M, the gears *m*, and pawls *d*, substantially as described.

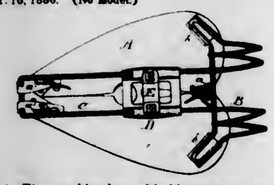
351,250. TELEPHONE-TRANSMITTER. William R. Cole, Detroit, Mich., assignor to himself, Frank G. Smith, and George W. Moore, trustees, all of same place. Filed Mar. 3, 1885. (No model.)



Claim.—1. In a telephone-transmitter, the combination, with the diaphragm, a yoke bridging the same, the trunnions pivotally supported by said yoke, and a permanent magnet supported by said trunnions, of a carbon, and screws for adjusting the pressure of the carbon upon the diaphragm, substantially as described.

2. In a telephone-transmitter, the combination, with the ring C, rubber ring B, diaphragm A on said ring B, and clamps holding said ring and diaphragm to the ring C, of the yoke bridging said diaphragm and provided with lugs *h*, trunnions *g*, journaled in said lugs, magnet F, supported by said trunnions, carbon J, and adjusting-screws K L, all substantially as and for the purposes specified.

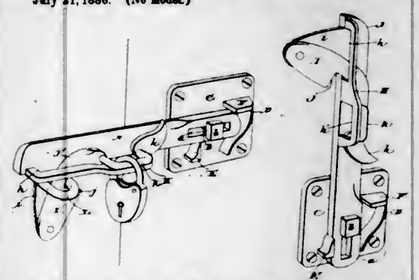
351,251. BICYCLE-SADDLE. Luther S. Copper, Cleveland, Ohio. Filed Mar. 10, 1886. (No model.)



Claim.—1. The combination, with bisected seat A, of the spring B, consisting of a wire bent in the form shown and attached to the rear corners of said seat A by means of flat hooks *b b*, and the spring C, curved upward to support the forward end of seat A, said springs being connected to and secured to backbone of the bicycle by clamp D, as shown and described.

2. The clamp D, consisting of frame or plate provided with sockets *d* or holes *d'* and hooks *d''*, and the under bar or plate, E, and bolts *e e*, in combination with the springs B and C, supporting the seat A, and the backbone of a bicycle, substantially as described.

351,252. HASP-LOCK. John S. Darr, Bloomingdale, Ind. Filed July 21, 1886. (No model.)



Claim.—1. The combination of a longitudinally-movable pivoted hasp, a guide arranged near the pivoted end of the hasp, and a stop arranged in close proximity to the guide to form an intermediate space, into which the pivoted end of the hasp is adapted to be fitted when it is inverted, and be thereby locked in place, substantially as described, for the purpose set forth.

2. The combination of a base-plate, a curved guide carried thereby, a stop arranged in close proximity to one of the terminal ends of the guide to form an intermediate space, and a slotted hasp pivoted to the base-plate and capable of longitudinal swinging movement to assume a vertical position and fit between the stop and the contiguous end of the guide, substantially as described, for the purpose set forth.

3. The combination of the hasp having the slotted end, a base-plate to be rigidly affixed to a door or other place, a pivot-pin passing through the slot of the hasp and affixed to the base-plate, a curved guide on the base-plate in rear of the hasp, and having its lower extremity extended forwardly of the rear end of the hasp when the latter is in a horizontal position, and the stop E and lug or stud F on the base-plate for limiting the play of the hasp, substantially as described.

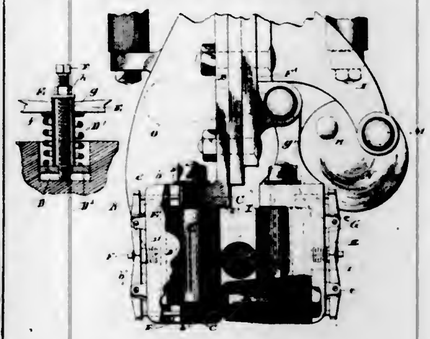
4. The combination of the hasp having a plate provided with the slots *h h'*, a latch pivoted on and carried by the hasp and having a shoulder, *j*, and a tongue, *j'*, which passes through the slot *h* of the plate, and a loop at the free end of the tongue adapted to rest on the upper side of the plate and align with the slot *h'* therein, to permit the padlock to be connected with the hasp and the loop, said loop being provided with a thumb-piece, substantially as and for the purpose described.

351,253. CARRIAGE-TOP ATTACHMENT. Homer J. Dennberger, Oxford, Mich. Filed Feb. 23, 1886. (No model.)



Claim.—The combination, with the frame-work of a carriage-top, of a hinged brace and a lever formed with a crank portion outside of the top, engaged with said brace, and a handle inside of the top to adjust the brace, substantially as described.

351,254. GRIP FOR CABLE RAILWAYS. Edward D. Dougherty, Philadelphia, Pa. Filed July 6, 1886. (No model.)



Claim.—1. In a grip for cable railways, the combination, with a jaw, of one or more movable bearings secured in said jaw, and a single spring for exerting a yielding pressure against the opposite ends of the movable bearing or bearings, substantially as set forth.

2. In a grip for cable railways, the combination, with a jaw, of one or more movable bearings secured in said jaw, a single spring for exerting a yielding pressure against the opposite ends of the movable bearing or bearings, and a screw for increasing or diminishing the tension of the spring, substantially as set forth.

3. In a grip for cable railways, the combination, with a jaw, of two movable bearings secured to said jaw, a single spring for exerting a yielding pressure against the opposite ends of said bearings, and a stationary bearing located between the movable bearings, substantially as set forth.

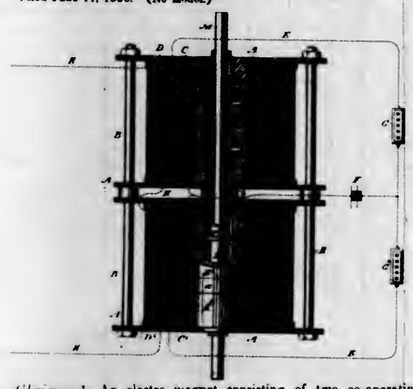
4. In a grip for cable railways, the combination, with a jaw and two movable or sliding rollers journaled therein, of the levers exerting a pressure against the ends of the rollers, and a spring bearing against the levers, substantially as set forth.

351,255. TEA OR COFFEE CUP. Butler Edgar, Espy, Pa., assignor of one-half to William Abbott, same place. Filed Jan. 2, 1886. (No model.)



Claim.—A cup having a handle, and provided with an arrester on each side thereof, substantially as shown and specified.

351,256. ELECTRO-MAGNET. Moses G. Farmer, New York, N. Y. Filed June 11, 1886. (No model.)



Claim.—1. An electro-magnet consisting of two co-operating helices, each composed of two parts or coils, in combination with stationary sectional cores and a series of connected armatures movable therein, as set forth.

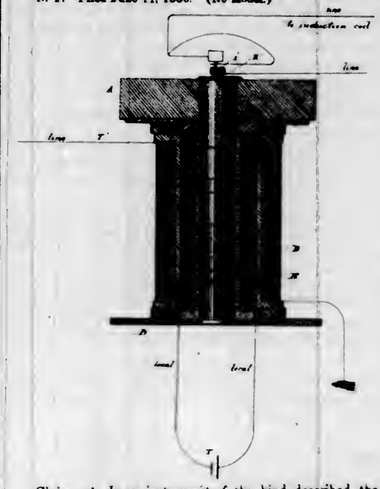
2. An electro-magnet consisting of two co-operating compound helices, in combination with stationary sectional cores and a series of armatures secured to a rod or tube and movable within the core-sections, as set forth.

3. The combination of two co-operating helices, each composed of a main and local coil, stationary sectional cores contained in said helices, and a series of armatures secured to a rod or tube, one armature in each core-section, so as to form a compound polarized magnet when energized by a current in the local coils, as set forth.

4. The combination of two co-operating helices, each consisting of a main and local coil, stationary sectional cores contained in the helices, the sections being separated by short spaces and magnetically insulated, and a series of cylindrical armatures secured to a rod or tube, and formed with a greater mass of iron at one end, and movable within the core-sections, as set forth.

5. The combination of two co-operating helices, each consisting of a main and local coil, stationary sectional cores contained in the helices, the sections being separated by short spaces and magnetically insulated, and a series of cylindric armatures secured to a rod or tube, and formed with flanges extending into the spaces between the core-sections, as and for the purpose set forth.

351,257. TELEPHONE-REPEATER. Moses G. Farmer, New York, N. Y. Filed June 11, 1886. (No model.)



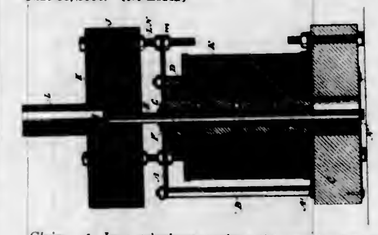
Claim.—1. In an instrument of the kind described, the combination, with electrical contacts or electrodes, of a series of armatures rigidly connected together and operating upon the contacts, and coils for imparting movement to the armatures, the contacts and coils being in independent circuits, as herein set forth.

2. The combination, with electrical contacts or electrodes, of a series of rigidly-connected armatures or cores, a local helix for magnetizing the cores, and a line-helix for imparting movement to them and through them to the electrodes, as set forth.

3. The combination, with the contacts or electrodes of a repeating-instrument, of a local magnetizing-helix and a line-helix, a stationary sectional core within the local helix, and a series of rigidly-connected armatures or cores in position to be operated upon by the sections of the stationary cores and operatively connected with the electrodes, as set forth.

4. In a telephone or similar repeater, the combination, with contacts or electrodes included in the secondary or independent circuit, of a local magnetizing-helix, a surrounding line-helix, a stationary sectional core within the local helix, and a series of armatures secured to a rod or tube connected to one of the electrodes, as herein set forth.

351,258. TELEPHONE. Moses G. Farmer, New York, N. Y. Filed June 11, 1886. (No model.)



Claim.—1. In a telephone-receiver, the combination, with a diaphragm, of several armatures in fixed relation to each other and rigidly connected to the diaphragm, a local coil for magnetizing the armatures, and a line-coil for imparting movement or vibrations to them, as herein set forth.

2. The combination, with a diaphragm, of a local magnetizing-helix and a line-helix, a stationary sectional core within the magnetizing-helix and armatures rigidly connected together and to the diaphragm and in position to be acted upon conjointly by the sectional core and the line-helix, as and for the purpose set forth.

3. In a telephone-receiver, the combination, with a diaphragm, of two concentric cores and helices, one of said cores being stationary and composed of a number of separated sections, the other core being rigidly attached to the diaphragm, and composed of independent armatures, as herein set forth.

4. The combination, with a diaphragm, of a local helix and stationary core composed of magnetically-insulated tubular sections, a series of armatures supported within said tubular sections and rigidly attached

to a rod or tube connected with the diaphragm, and a line or fine-wire coil surrounding the local coil, as and for the purpose set forth.

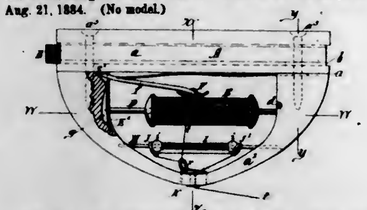
5. The combination, with two concentric coils, a stationary core composed of magnetically-insulated tubular sections, and a series of armatures within the tubular sections and rigidly connected to a light rod or tube, of an adjustable case or holder for a diaphragm, and a diaphragm secured therein and connected rigidly with the armature-supporting rod or tube, as set forth.

6. The combination, with the stationary core composed of the separated tubular sections and the movable core or series of armatures rigidly connected to a rod or tube, each armature being arranged within a corresponding section of core and having a greater mass at its upper end, of a diaphragm connected rigidly with the said rod or tube and coils surrounding the cores, as set forth.

7. In a receiving-telephone, the combination, with a diaphragm, of a rod or tube connected therewith and held in position by flexible straps secured to the stand or base of the telephone, a stationary core and a movable core, the latter of which is carried by the rod or tube, and coils or helices surrounding the cores, as herein set forth.

8. In a receiving-telephone, the combination, with a helix and a sectional stationary and sectional movable core, of a diaphragm connected rigidly with the movable core, and means for adjusting the diaphragm, as set forth.

351,259. SHUTTLE FOR TAPE-LOOMS. Levi W. Fifield, Worcester, Mass., assignor to the Knowles Loom Works, same place. Filed Aug. 21, 1884. (No model.)



Claim.—1. The combination, with the body A, composed of the parts *a a'*, arm *f*, and frictional presser F, of the spring F', having its end confined between the parts *a* and *a'* in a longitudinal groove, *f'*, and adapted for longitudinal adjustment, substantially as and for the purpose set forth.

2. The combination, with the shuttle-body formed in two parts, one of which is provided with the lateral groove *e'* and the overhanging lip *e*, of the friction presser-arm *f*, having its end bent at an angle and laid into said groove and confined by said lip, as set forth.

3. The combination of the bobbin-supporting spindle D, having an offset beveled head, with the shuttle-body provided with the bow having the undercut beveled groove *d* at one side for receiving said spindle-head and a recess, *g*, at the opposite side, and a spring located within said recess and furnished with a hollow or depression to receive and hold the point of said spindle, and a backward-turned end set into the frame, whereby said spring is retained in position, substantially as set forth.

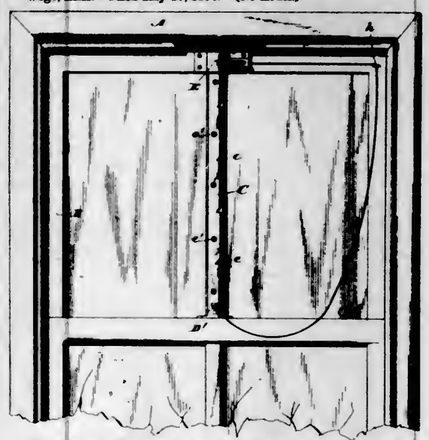
4. The combination, with the shuttle-frame provided with the bow *a'*, having the eye K, and the bobbin-supporting device, of the rod H, the guide-rings J J', slides *i i*, and spring I, mounted on said rod, and the guide-ring *r*, connected with the shuttle-frame, substantially as and for the purposes set forth.

351,260. DOOR-SILL. Ezra H. Foster, Fairmont, Minn. Filed July 3, 1886. (No model.)



Claim.—The improved door-sill herein described, having chambers 1 in its under face, divided by cross-ribs 2, provided with extensions *b* beyond its ends, and having its upper face formed with portions B, C, and D, a shoulder, 3, being formed at the juncture of portions C D, and the portion D being provided with end guard-ribs, *d*, substantially as set forth.

351,261. WINDOW CATCH AND LOCK. William T. Gilbert, Oswego, Kans. Filed May 27, 1886. (No model.)

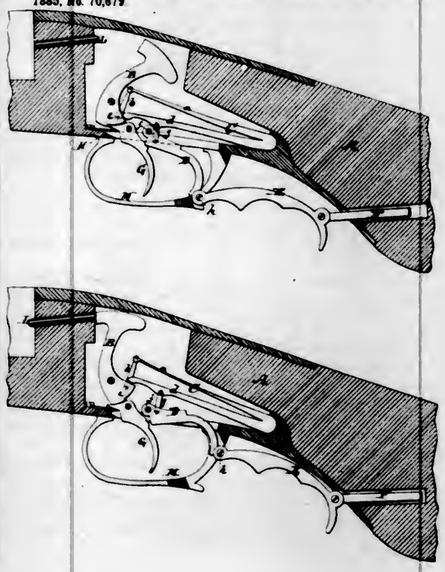


Claim.—1. The combination of a window-frame having a depending bar, C, with a serrated edge and a perforated central portion attached thereto, a spring-catch embracing said bar and attached to the upper edge of the upper sash, so as to engage with a serrated portion, and a spring-catch attached to the upper rail of the lower sash to engage with the perforated portion of said bar, whereby the sash-frame can be adjusted independent of each other, substantially as shown, and for the purpose set forth.

2. In combination with a window-frame, a depending bar having a slotted upper end, whereby it is attached to a plate secured to the window-frame, said bar having a serrated edge and central perforated portion, a plate, E, attached to the upper sash-frame, so as to embrace said bar, and provided with a spring-bolt, and a spring-catch, F, attached to the lower sash, substantially as shown, and for the purpose set forth.

3. In combination with a window-frame, a depending bar, C, secured thereto, and spring-catches attached to the upper and lower sashes and adapted to engage with perforations and serrations in said spring-bar, the sliding bolts of said spring-catches having attached thereto a flexible connection which passes through an eye, *h*, attached to the upper sash for operating the bolts, substantially as shown, and for the purpose set forth.

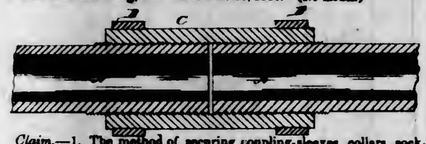
351,262. LOCK FOR FIRE-ARMS. Joseph Goltstein, Liege, Belgium. Filed Mar. 9, 1886. (No model.) Patented in Belgium Oct. 30, 1885, No. 70,679.



Claim.—1. The combination of the lever D with the spring *d* and trigger G, and hammer B, said spring being placed behind the hammer and over said lever, so that it will be strained by the action of the hand upon the lever D, as specified.

2. The combination of the hammer B with the link *b*, spring C, having two wings, *a d*, the link *b* joining the hammer to the wing *a*, lever D, connecting with the wing *d*, trigger G, hand-piece E on lever D, and guide-rod F on hand-piece E, all arranged so that the mainspring is strained by the action of the stronger portion of the hand on the hand-piece E, leaving the trigger-finger free to perform the lighter action of pulling the trigger.

351,263. METHOD OF AND MEANS FOR COUPLING PIPES. Jas. Hemphill, Pittsburg, Pa. Filed Feb. 16, 1886. (No model.)



Claim.—1. The method of securing coupling-sleeves, collars, sockets, or connecting-joints to the ends of conduits or tubes, which consists in shrinking upon said coupling-sleeves or other devices metallic rings, and thereby contracting the couplings upon the conduits or tubes, substantially as described.

2. The method of securing couplings to tubes, which consists in shrinking bands or rings of metal upon the exterior of said couplings after the insertion of the tubes or conduits.

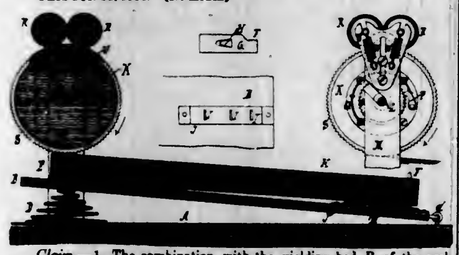
3. The combination, with a section or sections of tubing, of a coupling consisting of a sleeve or other device and an external ring or rings of metal shrunk thereon, substantially as described.

351,264. OYSTER-DREDGE. Charles W. Hoyt, New Haven, Conn. Filed June 28, 1886. (No model.)



Claim.—An oyster-dredge consisting of a dragging-frame combined with a receiver hinged thereto, the said receiver consisting of a frame and net-work forming the bottom of the receiver, and arranged upon runners below the bottom of the receiver, so as to support the said bottom above the bed, substantially as described.

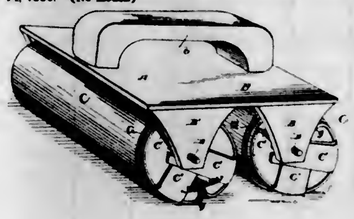
351,265. PRINTING-MACHINE. James T. Hoyt, New York, N. Y. Filed Feb. 13, 1886. (No model.)



Claim.—1. The combination, with the yielding bed B, of the awl F, the inking-rollers R, and the roller K, having frictional surfaces S and the printing-surface U, substantially as shown and described.

2. The yielding bed B, secured at its rear end by a hinge or hook to a platform, A, and provided with sockets I, one or more, the hook H, and awl F in the package of paper E, in combination with the roller K, having frictional surfaces S and the printing-surface U, substantially as shown and described.

351,266. BLOTTER. Albert S. Johnston, Sprague, Wash. Filed July 14, 1886. (No model.)

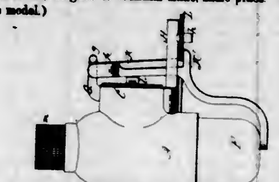


Claim.—1. A blotter having a roller journaled in suitable bearings provided therefor, and removable from the bearings, the roller being provided with radial arms or spokes and the lips or flanges, and the springs connected with the arms for normally forcing the lips toward each other to bind upon a pad, substantially as described.

2. As a new article of manufacture, a blotter comprising a frame having the hand-piece and the depending hangers, and the rollers journaled in the hangers and removable therefrom, each of the rollers being provided with the integral arms or spokes and the flanges or lips, and the coiled springs connected with the arms or spokes for normally drawing the lips together to bind upon the free edges of a pad which incloses the roller and is inserted between the lips thereof, substantially as described, for the purpose set forth.

3. A roller for blotters, comprising a shell having the lips and the radial arms or spokes through which the shaft or axle passes, two or more of the spokes having longitudinal open slots, substantially as described, for the purpose set forth.

351,267. AUTOMATIC FIRE-EXTINGUISHER. John Kane, Philadelphia, Pa., assignor to William Kane, same place. Filed Feb. 17, 1886. (No model.)



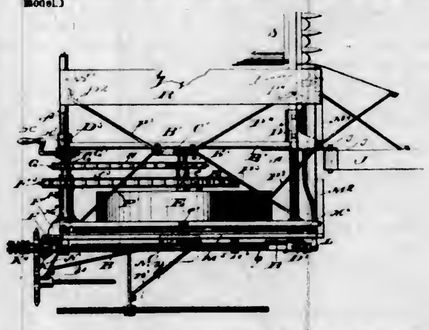
Claim.—1. The combination, in an automatic fire-extinguisher, of a valve-chest, a laterally-opening valve having a vertical seat, a vertical spindle, a rotary distributer-wheel on said spindle, and two intersecting or crossing levers, one of which bears directly against the valve-stem, the other crossing it and having one of its ends held by a fusible joint, substantially as shown and described.

2. The combination, with valve-chest A, having arms G and H, said arms G having transverse projections *g g*, and the arm H, having stud A, of lever K, having forked end *k k* and projection K', lever L, having hook *l*, arm I, and valve B, having projecting stem *b*, substantially as shown and described.

3. The combination, with valve-chest A, having a laterally-opening valve, of lever K, which bears against the stem of said valve, and a dust-cap supported by the end of said lever, substantially as shown and described.

4. In an automatic fire-extinguisher, the combination, with a valve-chest, of a distributer consisting of a rotating wheel having vanes whereby it is revolved, and having small holes between the vanes for the passage of water through said wheel, substantially as shown and described.

351,268. GRAIN-HARVESTER. Herman N. Kennedy, Burr A. Kennedy, and John F. Steward, Chicago, Ill. Filed Oct. 19, 1885. (No model.)



Claim.—1. In combination with the cylindrical frame-bar, the gear-wheel which communicates power from the drive-wheel to the operating mechanisms of the harvester, having said cylindrical frame-bar as its axle.

2. In combination with the cylindrical frame-bar extending horizontally across the vertical plane of the drive-wheel, the sickle crank-shaft at right angles to said frame-bar, a gear-wheel having said frame-bar as its axle, and a pinion on the sickle crank-shaft meshing with and driven by the gear-wheel on the frame-bar.

3. In combination with the drive-wheel and a power-communicating wheel rigid therewith, the frame sustained on a drive-wheel axle

having a horizontal cylindrical sill or main frame-bar extending across the vertical plane of the drive-wheel, two wheels formed integral, one inside and the other outside of the vertical plane of the drive-wheel, and having said horizontal cylindrical frame-sill as their axle, a shaft at right angles to the said cylindrical sill, and a pinion thereon, one of said integral wheels having motion communicated to it by the power-communicating wheel on the drive-wheel, and the other communicating motion to the said pinion and its shaft.

4. In combination with the outer truss and the cylindrical frame-bar secured to it, a main driving-pinion, K', and its shaft located in the vertical plane of the truss and the horizontal plane of the cylindrical frame-bar, and a gear-wheel, F, having the cylindrical frame-bar for its axle, meshing with and driving the pinion and its shaft, and having the bell-shaped web F', as and for the purpose set forth.

5. In combination with the drive-wheel loose on its axle, the sprocket-wheel rigid with the drive-wheel, the frame having a cylindrical sill, the segments rigid with the frame, the axle having the pinions rigid with it meshing in the segment-racks, the sprocket-wheel rigid with the axle, the sprocket-wheel having the cylindrical sill as its axle, and having the main gear rigid with it, the sprocket-wheel having the cylindrical sill as its axle, and having the worm-wheel rigid with it, an endless screw or worm-shaft journaled on the frame and engaging the worm-wheel, and the chains connecting, respectively, the last-named sprocket-wheel with the first-named, and the intermediately-named with each other, substantially as and for the purpose set forth.

6. In combination with the truss-bars and the cylindrical sills, the truss-clips having the sockets for the sills, the wings to secure the bars, and the bearings for the gearing, substantially as and for the purpose set forth.

7. In combination with the truss-bars and the cylindrical sills, and the frame-uprights, the truss-clips having the sockets for the sills, the wings to secure the bars, the wings to secure the frame-uprights, and the bearings for the gearing.

8. In combination with the front and rear sills, the truss-bars extending from front to rear, and the truss-clips provided with sockets for fastening the sills, and with wings in a plane at right angles to the sockets for securing the truss-bars, whereby the clips form rigid junctions between the sills and trusses.

9. In combination with the tubular front and rear sills and the upper and lower truss-bars, the truss-clips having tubular sockets to receive the sills bolted therein and suitable wings to attach the truss-bars by bolting thereto.

10. In combination with the front and rear sills, the truss-bars extending from front to rear, the uprights, and the truss-clips having the sockets wherein the sills are rigidly bolted, and the wings, respectively, whereto the truss-bars and the uprights are bolted, whereby said clips form the junctions between the sills, truss-bars, and uprights.

11. In combination with the tubular sills, the trusses having sockets near the ends to receive said sills and the segments near the middle to serve as struts, the braces secured to one of the segments and extending and secured to the sills, respectively, to prevent distortion of the frame by the tubular sills turning in their sockets.

12. In combination with the front and rear sills and the trusses extending from front to rear, having sockets in which the sills are rigidly secured, the uprights secured rigidly to the outer truss at its ends respectively, and rigidly joined at their upper part by a cross-bar, and the braces secured to the upper part of the uprights, respectively, and extending and secured to the strut of the inner truss.

13. In combination with the trusses, the front and rear sills and the outer uprights rigidly secured thereto, the cross-bar connecting said uprights, and the braces P^7, P^8, P^9, and P^4, joined to the upper part of the strut of the inner truss, and extending and secured, two of them to the outer uprights, respectively, and two of them to the sills, respectively.

14. In combination with the front and rear sills, rigidly connected, the outer uprights rigidly joined thereto, and the elevator-slide bearing-bars rigidly joined to the uprights and to the sills, respectively, and the elevator-rollers journaled in the slide bearing-bars, whereby the elevator mechanism is supported independent of the sheathing, substantially as set forth.

15. In combination with the front and rear sills, rigidly connected, the outer uprights rigidly joined thereto, and the slant-bars O^6 O^6, rigidly connected to the uprights and to the sills, respectively, whereby are formed a pair of upright triangular frames to support the elevator mechanism.

16. In combination with the front and rear sills, rigidly connected, the outer uprights rigidly joined thereto, the elevator-slide bearing-bars secured to the uprights and to the sills, respectively, the elevator rollers journaled in the slide bearing-bars, and the sheathing made of sheet metal secured to the outer surface of the slide bearing-bars.

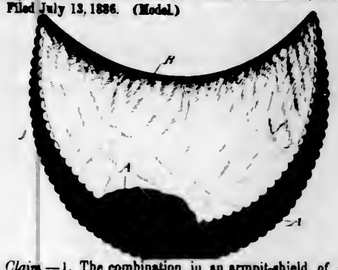
17. In combination with the front and rear sills, rigidly connected, the uprights M^1, M^2, M^3, and M^4, rigidly secured two to each sill, and the elevator-slide bearing-bars rigidly secured, two to the rear uprights and two to the front uprights, and the sheathing of sheet metal secured between the uprights and the slide bearing-bars, which are secured to them respectively.

18. In combination with the front and rear sills, the uprights M^3 M^4, made of metal bar and affording support and attachment for the elevator-slide bearing-bars, and bent horizontally inward from such attachment, and the seat-plank secured on said horizontal portions.

19. In combination with the sickle crank-shaft journaled outside the wheel and having the crank in front of the front sill, the front truss-clip, D^4, of the inner truss, having the pivot for the pole, and the aperture between said pivot and the front sill for the sickle crank-pitman.

20. In combination with the metallic rear sill and the under flooring of the conveyer-platform, the wooden plank 8', secured to the metallic sill and having the flooring secured to the lower edge, and serving as a hanger to connect the sill and the flooring, substantially as set forth.

351,269. ARMPIT-SHIELD. Isaac B. Kleinert, New York, N. Y. Filed July 13, 1886. (Model.)

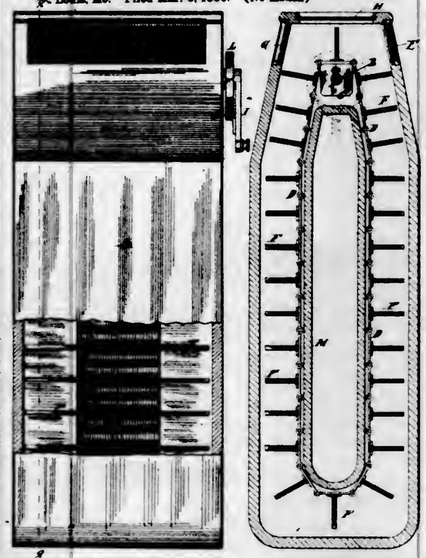


Claim.—1. The combination, in an armpit-shield, of a lining-section of rubber having a curved fold, and an outer seamless section of stockinet having a filling to hide the rubber and to prevent the shrinking of the stockinet, substantially as described.

2. The combination, in an armpit-shield, of an inner section of rubber and an outer section of textile fabric having an absorbing filling to protect the covering from the effects of the acid in the rubber, substantially as described.

3. The combination, in an armpit-shield, of a lining of rubber with a seamless covering of filled stockinet, the two being attached at the sides and loose at their other parts, substantially as described.

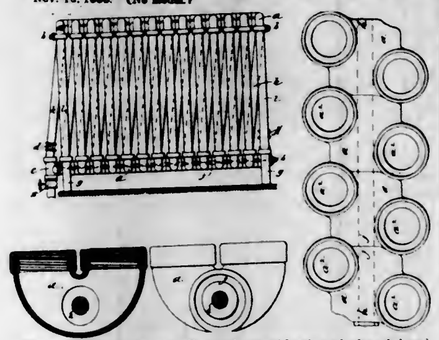
351,270. STREET AND STATION INDICATOR. Peter M. Kling, St. Louis, Mo. Filed Mar. 6, 1886. (No model.)



Claim.—1. In an an indicator, the combination, with a casing provided with observation-openings, of a single shaft journaled in the casing, a single hub thereon, a partition, and a belt provided with indicator-tablets and traveling over said hub and around said partition, being operated by said shaft, substantially as set forth.

2. In an indicator, the case provided with front and back openings, a single shaft provided with a single hub, a belt fitting upon the hub, and a partition around which the belt travels, substantially as and for the purpose set forth

351,271. STEAM-RADIATOR. Ezra F. Lander, Lancaster, Pa. Filed Nov. 16, 1885. (No model.)



Claim.—1. In a steam-radiator, the combination of pipes *k l* and elbows *a*, provided with lateral water-openings *h*, bolts passing loosely therethrough, and overflow-openings *i*, so arranged as to have the upper edge of the opening *h* substantially upon the same level as the bottom edge of the opening *i* in the bottom elbow, whereby the water of condensation in said coil seals the opening *h*, substantially as described.

2. In combination with a series of substantially vertical pipes, *l*, and slightly-inclined pipes *k*, the elbows *a* at the top and bottom ends of said pipes, receiving the ends of the pipes *l* at a right angle and the pipe *k* at an acute angle, and the T-connection *c* at one end, substantially as and for the purpose described.

3. In combination with a series of vertical and of slightly-inclined steam-pipes, a series of elbows, *a*, united together by bolts passing loosely through openings *h*, and having openings *i* upon a level higher than the top of the openings *h*, and provided with openings a^3, arranged on a staggered line, substantially as and for the purpose described.

351,272. METALLIC SWEAT-PAD FOR HORSE-COLLARS. Morgan F. Lasher, Champaign, Ill. Filed Feb. 16, 1886. (No model.)

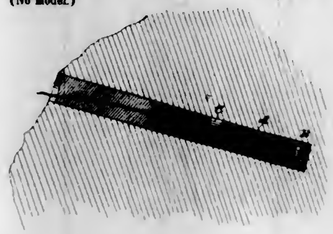


Claim.—1. The combination, with the pad, the roll, and the intermediate web of a horse-collar, of a shield formed with a semi-conical portion and a semicircular margin, substantially as described, adapted to leave an air or cooling space between the pad and the flap portion of said shield, substantially in the manner and for the purposes described.

2. A metallic shield for a horse-collar, consisting of a semi-conical portion, a semicircular margin terminated by a bracing perforated flange, and provided with opposed perforations for the fastening, substantially as and for the purposes described.

3. The within-described improved article of manufacture, consisting of a horse-collar shield formed of suitable material, having the general form of a semi-cone terminated by convex extensions and provided with a perforated flange, and provided with opposed perforations for the fastening, substantially as and for the purposes described.

351,273. BLASTING-PLUG. Heber F. Learnard, Fort Collins, Colo., assignor of one-half to Perry B. Learnard, same place. Filed June 10, 1886. (No model.)



Claim.—The improved plug for blasting purposes, adapted to be inserted in the lower or bottom portion of a drill-hole, said plug consisting of an imperforate washer, B, of elastic or flexible material, attached to the lower end of a stem, A, said stem having attached to its upper end a larger imperforate washer, C, said washer being of such a size as to completely fill the drill-hole and form an air-cushion beneath the charge, substantially as shown.

351,274. SPRING-BALANCE SCALE-PAN. Charles R. Maguire, Baltimore, Md. Filed Oct. 30, 1885. (No model.)



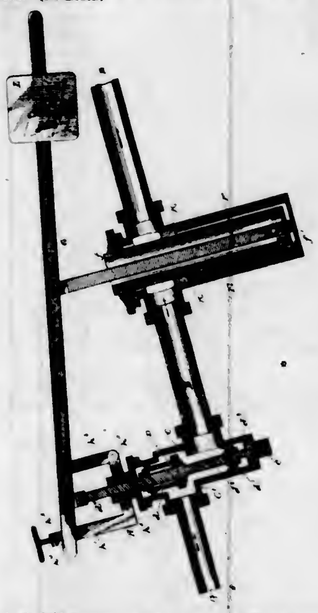
Claim.—The combination, with a spring-balance having a dial, pointer, and hanging scale-pan, A, of a receptacle, C, closed on all sides but one, and having the one open side in contact with the scale-pan and secured thereto, substantially as described, whereby to permit of the ready attachment or removal of the receptacle, for the purpose set forth.

351,275. GAS-PRESSURE REGULATOR. William H. Metcalf, New Haven, Conn. Filed Mar. 3, 1886. (No model.)



Claim.—The float-valve and graduating-chain, in combination with a tube in which the interior space gradually diminishes upward, substantially as described.

351,276. FLUID-PRESSURE REGULATOR. Mauricio M. Monsanto, New York, N. Y., assignor to W. A. Ogden Hageman, same place. Filed Jan. 23, 1886. (No model.)



Claim.—1. A fluid-pressure regulator consisting of the combination, with a pipe or conduit, of the cylinder placed within the pipe or conduit in such manner that fluid flowing through the same will pass through the cylinder, the piston placed in the cylinder, the valve-chamber, the balanced valve, and the pivoted lever connecting the piston-rod and the valve, substantially as described.

2. A fluid-pressure regulator consisting of the combination, with a conduit, of the cylinder placed within the conduit in such manner that

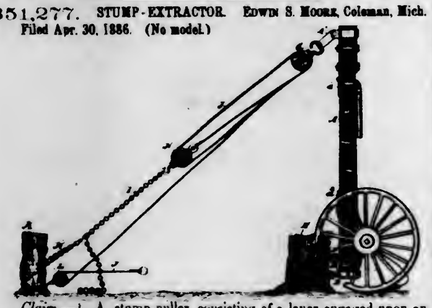
fluid flowing through the conduit will pass through the cylinder, the valve-chamber containing the balanced valve, and the pivoted lever provided with the adjustable weight and connecting the piston-rod and the valve, substantially as described.

3. A fluid-pressure regulator consisting of the combination, with a conduit, of the valve-chamber provided with the valve, and the frame H, consisting of the base portion, the arm A', having the right-angular portion, carrying the set-screw, and the pivoted arm A^2, the cylinder, piston, and the lever G, pivoted in the arm A^2 and connecting the piston and the valve, substantially as described.

4. A fluid-pressure regulator consisting of the combination, with a conduit, of the valve-chamber provided with the balanced valve and the frame, consisting of the frame H, the arm A', having the right-angular portion and the set-screw, and the pivoted arm A^2, the cylinder, the piston placed therein, and the lever provided with the adjustable weight and connecting the piston and the valve, substantially as described.

5. A fluid-pressure regulator consisting of the combination, with a conduit, of the valve-chamber provided with the balanced valve, the frame with set-screw, the pivoted arm, the piston in the cylinder connected by lever with the valve, the lever provided with adjustable weight and connecting the piston and the valve, whereby the pressure of one fluid, operating the piston within the cylinder, regulates the pressure to be exerted by another fluid passing through the valve, substantially as described.

351,277. STUMP-EXTRACTOR. Edwin S. Moore, Coleman, Mich. Filed Apr. 30, 1886. (No model.)



Claim.—1. A stump-puller consisting of a lever engaged upon an axle, said lever extended at its base beyond said axle and provided with a bait above its base, and with a fastening device below said bait, and in combination therewith a tackle engaged with the upper end of said lever, substantially as described.

2. A stump-puller consisting of a lever mounted upon an axle, and having in combination therewith multiple pulleys G and H, provided with a draft-cable engaged with the upper end of said lever and rove through said pulleys, a draft-pulley, L, located upon the lower end of said cable, said lever having a bait engaged therewith above the base, and a fastening device located below said bait, substantially as described.

3. A stump-puller consisting of the combination, with a truck, of a lever engaged on the axle of said truck and provided with a bait located above the base of said lever, and a fastening device located below said bait, a reversible clevis located at the upper end of said lever, multiple pulleys provided with a draft-cable and engaged with said clevis, and cables to connect one of said pulleys to an anchor-stump or its equivalent, all arranged to operate substantially as and in the manner described.

351,278. TUB-FASTENER. Solon E. Moore, Swanton, Vt., assignor to George W. Squires, same place. Filed Sept. 7, 1886. (No model.)



Claim.—1. A cover-fastener for shipping-tubs and the like, comprising a sheet-metal strip having turned-down corners, and securing tacks or nails seated in holes near the ends of said strips, substantially as specified.

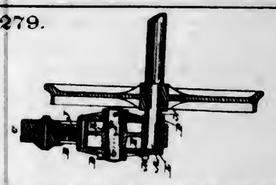
2. In a cover-fastener, the sheet-metal strip provided with tacks or nails and with the turned-down corners, substantially as specified.

351,279. JOURNAL-BEARING. James F. Morell, Camden, N. J. Filed June 18, 1886. (No model.)

Claim.—1. A journal-box having the journal of the car-axle supported therein and provided with rollers bearing against the same, a hanger supporting said box, and a spring or springs bearing against said box, all of said parts being combined substantially as described.

2. A hanger and a box therein and springs bearing against said box, in combination with rollers mounted on the box and bearing against the top and opposite sides of the journal, substantially as described.

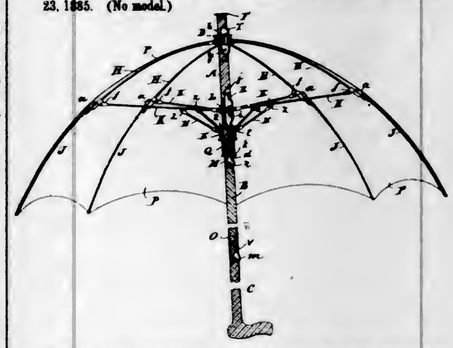
351,279.



3. The bearing-roller E, in combination with the box D and stationary axle F, the latter having a facing of anti-friction material, substantially as described.

4. The box D, having a cap, L, with a lining of anti-friction material, substantially as described.

351,280. UMBRELLA. John D. Nesbitt, Everett, Mass. Filed Nov. 23, 1885. (No model.)



Claim.—1. In an umbrella of the character described, the combination of the following instrumentalities, to wit: a staff, a handle detachably connected with said staff, a sleeve disposed near the upper end of said staff, a series of radially-arranged main ribs jointed to said sleeve, and provided with auxiliary ribs jointed to said main ribs and adapted to be folded, a series of main braces jointed at the outer ends to said main ribs and at their inner ends to a sleeve adapted to slide on the body of the staff, a spring-catch for the sleeve, to which the main braces are jointed, a series of auxiliary braces jointed at their outer ends to the main braces and at their inner ends to a sleeve adapted to slide on the staff, a sleeve disposed on the staff within the sleeve to which the auxiliary braces are jointed, and adapted to release the sleeve to which the main braces are jointed from its spring-catch, and a body or cover, substantially as described.

2. In an umbrella, the sleeve Q, in combination with the staff A, sleeve E, spring-catch R, and braces N K, substantially as set forth.

3. In an umbrella, the spring-catch R, provided with the depression i, in combination with the sleeve L, braces N K, sleeve E, and means for depressing said catch and releasing the sleeve L, substantially as described.

4. In an umbrella, the staff A and sleeve Q, sliding on said staff, in combination with the sleeve E, sliding upon but shorter than said sleeve Q, and braces connected with said sleeve E, as and for the purpose described.

5. In an umbrella, the staff A, provided with the flanged tip F, in combination with the spring-catch T, sleeve D, and rib H, substantially as described.

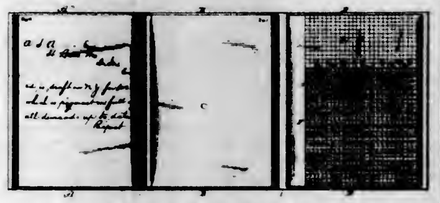
6. In an umbrella, the tube M, flattened at the side through which the spring-catch r protrudes, to enable the sleeve Q to pass over said spring without depressing it, substantially as set forth.

7. In an umbrella, a staff, a series of ribs pivoted at their upper ends to said staff, a series of main braces pivoted at their outer ends to said ribs and at their inner ends to a sleeve adapted to slide on the staff, said braces being approximately horizontal when the umbrella is open, and a series of auxiliary braces shorter than the main braces, pivoted at their outer ends to said main braces and at their inner ends to a sleeve adapted to slide on the staff, whereby the main braces can be folded either upwardly or downwardly to close the umbrella.

8. In an umbrella, a staff, a series of ribs pivoted at their upper ends to said staff, a series of main braces pivoted at their outer ends to said ribs and at their inner ends to a sleeve adapted to slide on the staff, said braces being approximately horizontal when the umbrella is open, and a series of auxiliary braces shorter than the main braces, pivoted at their outer ends to said main braces and at their inner ends to a sleeve adapted to slide on the staff below the sleeve to which the main braces are pivoted, whereby the main braces can be folded either upwardly or downwardly to close the umbrella.

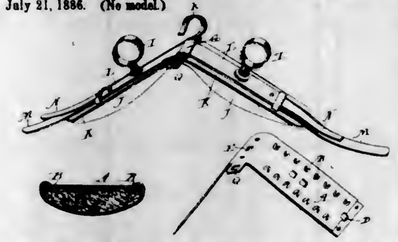
9. In an umbrella, a staff provided near its upper end with a spring-catch, a series of ribs pivoted at their upper ends to a sleeve adapted to be engaged by said spring-catch when the umbrella is open, a series of main braces pivoted at their outer ends to said ribs and at their inner ends to a sleeve adapted to slide on the staff, said braces being approximately horizontal when the umbrella is open, and a series of auxiliary braces shorter than the main braces, pivoted at their outer ends to said main braces and at their inner ends to a sleeve adapted to slide on the staff, whereby the main braces can be folded either upwardly or downwardly to close the umbrella.

351,281. INDEX. Thomas P. Patterson, St. Joseph, Mo. Filed Jan. 30, 1886. (No model.)



Claim.—An index consisting of rows of the same letters of the alphabet, which extend entirely across the page, and which letters are arranged in alphabetical order, so that every vertical row will form a complete alphabet, and lined spaces at the top of the page, upon which the number of the pages indexed are written, substantially as specified.

351,282. HARNESS-SADDLE. George Rank, Salem, Ohio. Filed July 21, 1886. (No model.)



Claim.—1. As a new article of manufacture, a harness-saddle tree having a series of inwardly-projecting spurs or teeth formed on or attached to its outer edge or edges, to be used as a means of fastening the pad or other leather parts to the tree, constructed and operating in the manner substantially as shown and described.

2. In a harness-saddle, the combination, with a cast-metal tree constructed as described, of the sheet-metal extension-pieces on its lower ends, constructed and operating in the manner and for the purpose substantially as shown and described.

3. In a harness-saddle, the combination, with a cast-metal tree constructed as described, and its sheet-metal extension-piece attached thereto, of the pad-leather or pad-casing hooked onto the spurs or teeth of the tree, in the manner substantially as shown and described.

4. In a harness-saddle, the combination, with a cast-metal tree constructed as described, of a jockey having a sheet-metal stiffener inserted between the jockey and its lining before stitching the same together, substantially as shown and described.

5. In a harness-saddle, the combination, with the cast-metal tree A, constructed as described, and the sheet-metal extension-pieces A', constructed as described, of the pads J, housing K, skirt M, jockey L, and thill-straps N, the combination being and operating in the manner substantially as shown and described.

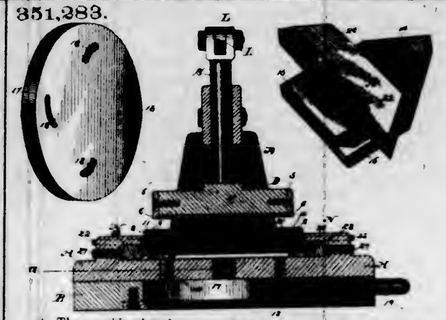
351,283. BLANK-CREASING MECHANISM. Francis H. Richards, Springfield, Mass., assignor of one-half to the Pratt & Whitney Company, Hartford, Conn. Filed Jan. 21, 1886. (No model.)

Claim.—1. The combination, in a creasing mechanism, of an upper die and a lower die, consisting of separate grooved sides pivotally supported and constructed to close toward the upper die by the movement thereof, substantially as described.

2. The combination, in a creasing mechanism, of an upper die, a lower die comprising separate parts, each yieldingly held substantially as described, said parts being respectively carried by movable heads, and mechanism, substantially as described, simultaneously operating said heads, substantially as described.

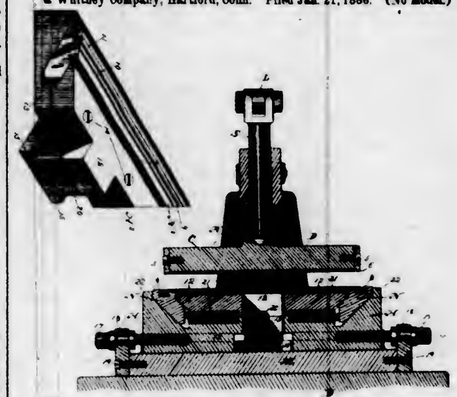
3. The combination, in a creasing mechanism, of an upper die, the wings N, having the respective grooved sides of the lower die, stops limiting the upward movement of said wings, and means, substantially as described, yieldingly upholding said wings, substantially as described.

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4. The combination, in a creasing mechanism, of an upper die, a part, as H, for carrying a section of the lower die, bar 28, means, substantially as described, holding and adjusting said bar, wing N, pivotally connected to said bar, and means, substantially as described, yieldingly upholding said wing, substantially as set forth.

351,284. MECHANISM FOR CREASING ENVELOPE-BLANKS. Francis H. Richards, Springfield, Mass., assignor of one-half to the Pratt & Whitney Company, Hartford, Conn. Filed Jan. 21, 1886. (No model.)

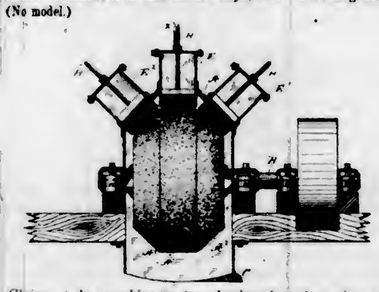


Claim.—1. The combination, in a creasing mechanism, of an upper die and a lower die consisting of separate grooved sides constructed to slide on an incline, substantially as described.

2. The combination, in a creasing mechanism, of an upper die and a lower die comprising separate parts, each yieldingly held, substantially as described, said parts being respectively carried by adjustable heads, substantially as described.

3. The combination, in a creasing mechanism, of an upper die, the inclined sides N, having the respective grooved sides of the lower die, stops limiting the upward movement of said slides, and means, substantially as described, yieldingly upholding said slides, substantially as described.

351,285. MACHINE FOR THE REDUCTION OF WOOD TO PAPER-PULP. Alexander H. Ritchie, Brooklyn, N. Y. Filed Aug. 25, 1885. (No model.)



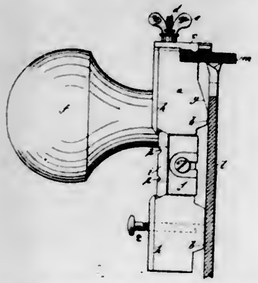
Claim.—1. In a machine for the reduction of wood to pulp, a grinder or grinding-wheel having three or more grinding-surfaces, as set forth, and shown.

2. In a machine for the reduction of wood to pulp, the wheel having grinding-surfaces on the periphery and on the beveled portions, as and for the purposes set forth.

3. The combination of a grinder and the hoppers or feed-boxes arranged in gangs or rows transversely of the aforesaid grinder.

4. The combination of the casing having one or more rows of hoppers or feed-boxes set into it, as described, and the grinding-wheel having a grinding-surface on its periphery and grinding-surfaces on its beveled portions, as shown and described.

351,286. DEVICE FOR JOINTING AND SETTING THE TEETH OF SAWS. Ross M. Sanford, Hobart, N. Y. Filed May 6, 1886. (No model.)



Claim.—1. The combination of stock *a*, handle *f*, file-clamp jaw *c*, and gage-ribs *b*, substantially as described.

2. The combination of stock *a*, handle *f*, adjustable file-clamp jaw and tooth-gage *c*, and the gage-ribs *b*, substantially as described.

3. The combination of stock *a*, handle *f*, adjustable file-clamp jaw and tooth-gage *c*, gage-ribs *b*, and the anvil-die *g*, substantially as described.

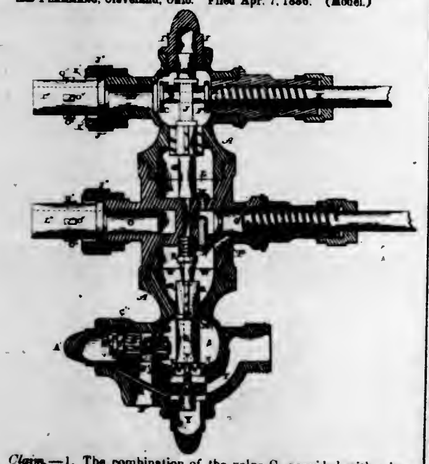
4. The combination of stock *a*, handle *f*, gage-flange *h*, and slotted clearer-tooth gage and file-guard flange *i*, substantially as described.

5. The combination of stock *a*, gage-flange *h*, and adjustable slotted clearer-tooth gage and file-guard flange *i*, substantially as described.

6. The clearer-tooth gage *i*, having the filing-creases *p*, substantially as described.

7. The combined implement comprising the stock *a*, handle *f*, file-clamp *c*, gage-ribs *b*, gage-flange *h*, and slotted clearer-tooth gage and file-guard flange *i*, substantially as described.

351,287. INJECTOR. Paul Schneider, Henry Trenkamp, and Nicolas Flammang, Cleveland, Ohio. Filed Apr. 7, 1886. (Model.)



Claim.—1. The combination of the valve G, provided with a loop or opening in its stem, with the valve-stem H, having a valve formed in its inner end to control the passing of steam, and provided with a cam, the stem H being made to pass through the loop, substantially as shown.

2. The combination of the stem H, provided with a stop, F, the cam E, and the valve C, with the valve G, having a loop or opening, J, in its stem, substantially as described.

3. In an injector, the combination of the force-tube K with the endwise-moving force-tube Q, made in two parts, so as to be adjustable in length, and which is provided with the two valves R, substantially as set forth.

4. In an injector, the combination of the force-tube K with the force-tube Q, which passes through the chamber S, and is provided with perforations for the escape of the water from the tube into the body of injector for the purpose of relieving the pressure of water in the tube Q, substantially as specified.

5. In an injector, the combination of the water-passage O, the lift-tubes M N, the force-tubes K Q, chambers W S, overflow-water passage Z, and the two valves G' H', substantially as shown.

6. In an injector, the combination of the water-passage, lift-tubes, the stationary and endwise-moving force-tubes, the chambers W S, the waste-valve H', and the overflow, whereby a constant flow of water can be kept up through the injector without its being forced into the boiler, substantially as described.

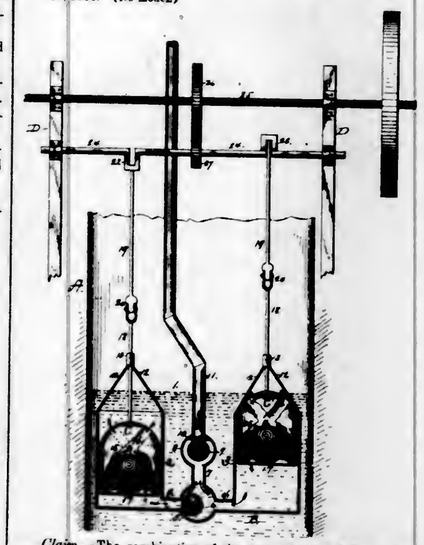
7. In an injector, the combination of the stationary force-tube, the water-passage, the lift-tubes, the two chambers W S, the endwise-moving force-tube provided with the valves R, and the inside counter-pressure relief-chamber and perforations U, with the waste-valve and overflow, substantially as set forth.

8. In an injector, the combination of the water-passage, the stationary force-tube, the lift-tubes, and the chambers W S, with the endwise-moving force-tube provided with the two valves R, and the ribs X, and the screw-plug, upon which the ribs rest and support the tube, substantially as specified.

9. In an injector, a force-tube which is composed of two or more parts, the outer ones of which are adjustable one upon the other and which are provided with valves, substantially as described.

10. The combination, with an injector, of nuts J'', provided with the slots K', the pipe L'', provided with the projections O'', the pipe having an enlarged head on its inner end, which forms a tight joint with one of the inlets, substantially as specified.

351,288. PUMP. John M. Sparks, Nacogdoches, Tex. Filed Feb. 13, 1886. (No model.)

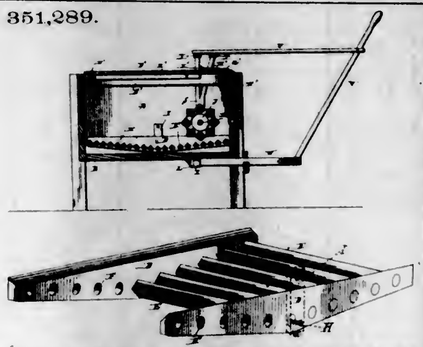


Claim.—The combination of the pump-buckets 2 3, connected by a water-pipe, 4, formed with a globe-valve chamber, 5, provided with a ball-valve, 6, to close the ports in alternation, the discharge-pipe 7, leading from the valve-chamber and formed with a globe-valve chamber, 8, having a stop-bar, 10, short of its delivery-port, the plungers C C', having plunger-rods arranged in a sleeve supported by rods projected from the sides of the buckets and formed with hemispheroidal valve-chambers 15 in the lower part, and water-ways 14, leading to said chambers, globe-valves 16, disposed in said chambers and held therein by keepers 17, and means, substantially as described, for reciprocating the plungers in alternation, substantially as described.

351,289. WASHING-MACHINE. Max F. E. Stadthueller, Castle Grove, Iowa. Filed Mar. 29, 1886. (No model.)

Claim.—1. In a washing-machine, the combination of two rubber-heads having countersunk centers, and having triangular shoulders upon their inner sides, square strips having their ends cut away from the inner sides and resting with the said ends in the shoulders and with the

351,289.

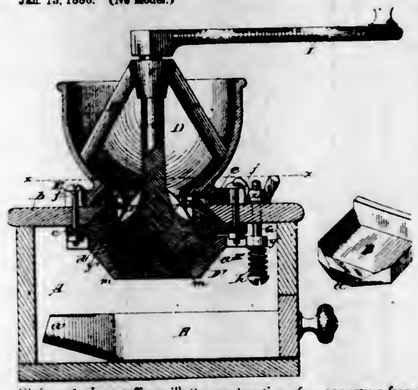


shoulders against the rims of the heads, and a shaft having smooth outer ends and passing through the centers of the heads, and provided with nuts upon screw-threaded portions inside of the smooth ends, the nuts resting in the countersunk portions, as and for the purpose shown and set forth.

2. In a washing-machine, the combination of a suds-box having a cross-piece at one end of its bottom provided with a notch in its upper edge having a perforation in the notch, a bulged strip of metal secured to the under side of the bottom of the suds-box, a rubber having an outwardly-projecting bar, a bar sliding in the bulged strip and in the notch, and having a perforation registering with the perforation in the notch, a pin for the perforations, and an operating-lever pivoted in the outer end of the sliding bar, and having the outer end of the bar of the rubber pivoted near its upper end, as and for the purpose shown and set forth.

3. In a washing-machine, the combination of a suds-box having two metallic strips secured to the inner sides of the side pieces near the upper edges and having a rocking slat-bottom, a lid having two longitudinal bars resting with its ends in notches in the end pieces of the suds-box and having a pivoted cover, and a rubber having a slat-roller journaled in the ends of arms sliding between the longitudinal bars of the lid and the strips of the side pieces of the suds-box, and connected by cross-pieces having means for reciprocating it, as and for the purpose shown and set forth.

351,290. COFFEE-MILL. Ferdinand Stahn, Milwaukee, Wis. Filed Jan. 13, 1886. (No model.)



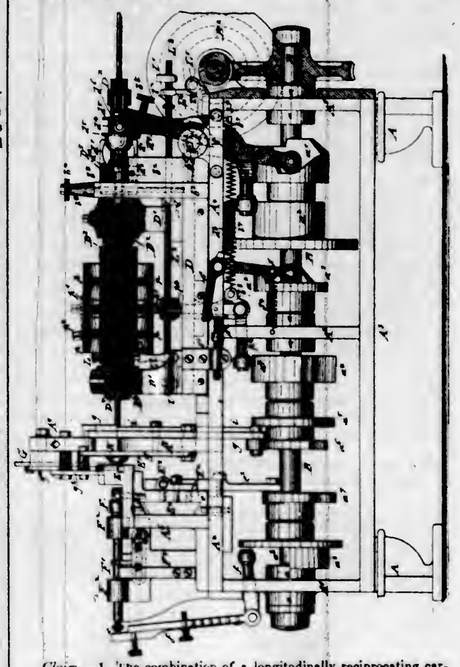
Claim.—1. In a coffee-mill, the combination of a supporting frame or box, an upper stationary grinding-shell, an adjustable and automatically-yielding lower grinding-shell, and an automatically-yielding grinding-nut, as set forth.

2. In a coffee-mill, the combination of a supporting frame or box provided with an opening in its top, an upper grinding-shell fitted in said opening and rigidly secured upon the under face of the frame or box-top, an adjustable and automatically-yielding lower grinding-shell, a double-beveled and serrated grinding-nut having a shank provided with a crank, and a hopper rigidly secured to said frame or box-top and having interior upwardly-extended braces that terminate in a loose bearing for the shank of the grinding-nut, as set forth.

3. In a coffee-mill, the combination of a supporting frame or box provided with an opening in its top, an upper grinding-shell fitted in said opening and secured to the under side of the frame or box-top and provided with a vertically-depending flange, a lower adjustable and automatically-yielding grinding-shell provided with a seat for the depending flange of the upper shell, a double beveled and serrated grinding-nut having a suitable loosely-hung shank, and a hopper secured to the upper side of said frame or box-top, as set forth.

4. In a coffee-mill, the combination of a supporting-frame, a suitable hopper and upper grinding-shell, both rigidly secured to the top of said frame or box, a double beveled and serrated loosely-hung grinding-nut, a lower grinding-shell having ears, adjusting-screws that pass through these ears and the frame or box-top, and spiral springs arranged on the screws to bear against the under side of said ears, as set forth.

351,291. METAL-SCREW MACHINE. Jakob Stehli, Hartford, Conn., assignor to the Hartford Machine Screw Company, same place. Filed Dec. 30, 1885. (No model.)



Claim.—1. The combination of a longitudinally-reciprocating carriage, a rotary mandrel supported by said carriage, a quill within said mandrel adapted to clamp the wire, and the reducing, threading, advance-cutting, and cutting-off mechanisms, substantially as set forth.

2. The combination of a carriage, means for reciprocating the same, a rotary mandrel supported by said carriage, a quill within said mandrel, mechanism for reciprocating said quill independently of the mandrel, a reducing-tool, a threading-die, an advance-cutter, a cutting-off tool, and mechanism for actuating said tools, substantially as set forth.

3. The combination of a longitudinally-reciprocating carriage, a rotary mandrel supported by the same, an independently-reciprocating quill within said mandrel, mechanism for rotating and reversing the mandrel, and the reducing, threading, advance-cutting, and cutting-off mechanisms, substantially as set forth.

4. The combination of a longitudinally-reciprocating carriage, a rotary hollow mandrel supported by said carriage, a wire-guiding quill within said mandrel adapted to reciprocate in said mandrel and independently therefrom, mechanisms for turning down, threading, advance-cutting, and cutting off the screw, jaws for clamping the wire after the screw has been cut off, and a longitudinal cam-shaft having cams for actuating said mechanisms, substantially as set forth.

5. The combination of the main shaft B, cam a', fulcrumed lever b, having set-screw b^4, carriage D, having a projecting nose, b', and mechanism for vertically adjusting the same, whereby the extent of motion of the carriage is regulated, substantially as set forth.

6. The combination of the rotary main shaft B, having cam a^2, and nose d^2, fulcrumed lever d^1, having a forked upper end, a rotary mandrel, D^2, a sliding sleeve, d^4 having curved hub and collar d^5, an interior quill, D^4, having a chuck, D^4, at one end and a shoulder, d^3, at the opposite end, and levers d', fulcrumed to a sleeve of the mandrel, and

having interior noses, d^3, engaging the shoulder d^2, so as to move the quill independently of the mandrel, substantially as set forth.

7. The combination of the longitudinal main shaft B, having cam a^3, a fulcrumed and spring-actuated stop-lever, s, and a reciprocating carriage, D, having an adjustable stop device, s^2, at one side thereof, substantially as set forth.

8. The combination of the longitudinal main shaft B, a cam, a^4, with the longitudinally-reciprocating carriage D, a mandrel, D^2, supported by the carriage, a fast pulley, p', and loose pulleys p on said mandrel, a fulcrumed lever, p^4, having belt-shifting devices at the upper end, and a belt and cross-belt, p^2 p^3, engaged by said belt-shifting device, so as to impart a rotary motion to the mandrel and reverse the same at the proper moment, substantially as set forth.

9. The combination of the main shaft B, having a cam, a^5, a fulcrumed lever, i, a movable wire-clamping jaw, I', at the upper end of the lever i, and a fixed jaw, I, supported on an upright standard, A^7, substantially as set forth.

10. The combination of the longitudinal main shaft B, cam a^7, fulcrumed lever e^2, an upright standard, A^6, laterally-reciprocating slide-plates E' H', spring E^6, reducing-tool F, and cutting-off tool H, supported by said slide-plates, and set-screws E^3 and E^5, substantially as set forth.

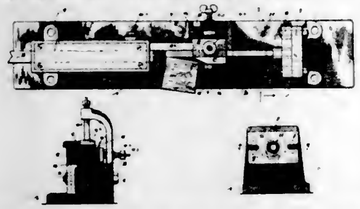
11. The combination of the main shaft B, adjustable slide-rod g, upright standard A^7, having slots g' and ways g^4, fulcrumed and slotted lever g^2, connecting-link g^3, and a laterally-adjustable advance cutter, G, guided in the ways g^4, substantially as set forth.

12. The combination of a longitudinally-reciprocating carriage having a mandrel supported on said carriage, an independently-reciprocating quill within said mandrel, mechanisms for reducing, threading, and cutting off the screw, and a stop-motion connecting the mandrel and quill with the clutch mechanism on the driving-shaft, so as to stop the motion of the machine whenever the end of the wire leaves the quill, substantially as set forth.

13. The combination of a reciprocating carriage, D, a mandrel, D^2, supported by said carriage, an interior independently-reciprocating quill, D^3, a drop-pin, L, passing through slots of the mandrel and quill, a spring-actuated lever, L', fulcrumed to the mandrel and engaging the drop-pin L, a longitudinal rod, L^3, having arms L^2 and l', a hinged arm, L^4, having a set-screw, l^3, and a transversely-guided and spring-actuated shaft, L^5, having cross-pin l^2 and lug l^7, the latter engaging the clutch of the driving-shaft, substantially as set forth.

351,292. MACHINE FOR MAKING DOWEL-PINS.

Clarence F. Stewart, Norwalk, Ohio. Filed May 24, 1886. (No model.)



Claim.—1. In a machine for making dowel-pins, the combination, with a finishing-die, a splitting-knife set substantially parallel with the axial line of the die, a suitable bed, and reciprocating plunger, of a guide-block, the same being notched to engage two sides of the blank, and springs, respectively, for pressing the guide-block toward the knife and toward the bed-plate, substantially as set forth.

2. In a machine for making dowel-pins, the combination with a bed-plate, a plunger mounted thereon, a splitting-knife, and notched guide-block yieldingly held in position, of a supporting-plate, a finishing-die secured thereto, and the flange integral with or rigidly secured to the bed-plate, the said plate and flange having respectively elongated holes at right angles to each other for the passage of the securing-bolts, substantially as set forth.

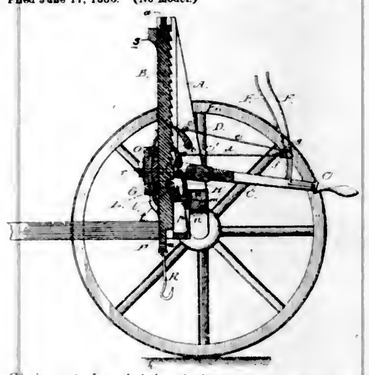
3. In a machine for making dowel-pins, the combination, with a bed-plate having recesses a and a', made on opposite sides of the plate, of a splitting-knife and arm, D, secured in the respective recesses, said knife being set substantially parallel with the axial line of the finishing-die, of a guide-block notched to engage the blank on two sides, said block being yieldingly held in position by springs that respectively press the guide-block downward and forward, the springs being adjustably supported from the said arm D, substantially as set forth.

4. The combination, with a bed-plate, a splitting-knife, a finishing-die, and a reciprocating plunger, of the block E, yieldingly secured to the bed-plate, and springs for pressing the block downward and laterally.

5 In a machine for making dowel-pins, the combination, with a finishing-die, a splitting-knife set substantially parallel with the axial line of the die, and a device for guiding the blank, of springs arranged to press the guiding device downward and forward, substantially as set forth.

351,293. HOISTING DEVICE.

Charles C. Stewart, Oneonta, N. Y. Filed June 17, 1886. (No model.)



Claim.—1. In a hoisting device, the main frame, the rack-bar sliding therein, and the pawls C and D and operating-levers, in combination with the brake-bar and eccentrics on the main lever, substantially as herein described.

2. In a hoisting device, the combination, with a frame, a rack-bar, and operating-lever, of a brake-bar, suitable eccentrics on the operating-lever, and the arms N, engaging the eccentrics, whereby the brake-bar is operated, substantially as herein described.

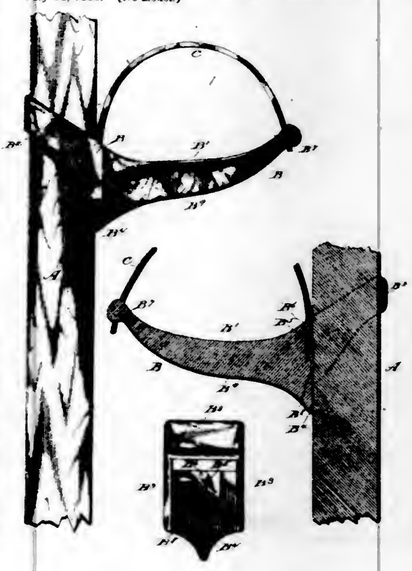
3. In a hoisting device, the combination, with a frame, a rack-bar sliding therein, and a lever having eccentrics upon its sides, of the arms N, engaging the eccentrics and provided with threaded ends, a brake-bar through which the threaded ends pass, securing-nuts for the arms, and a spring, the ends of which bear against the back of the rack-bar, substantially as herein described.

4. In a hoisting device, a frame, a rack-bar sliding therein, and an operating-lever, in combination with a dog, H, pivoted between the sides of the frame, a roller loosely supported in the end of said dog, and a second dog, M, pivoted in the short arm of the lever and adapted to engage a projection on the dog H, substantially as herein described.

5. In a hoisting device, a frame, a rack-bar sliding therein and provided with a groove or cavity, in combination with a dog, M, pivoted to the short arm of the lever, a dog, H, pivoted between the sides of the frame, a loosely-mounted roller seated in the face of the dog H and adapted to enter the groove or cavity in the bar, and a spring bearing against the lower end of the dog H, substantially as herein described.

351,294. STILT.

Orsemus G. Stillman, Hornellsville, N. Y. Filed July 31, 1886. (No model.)



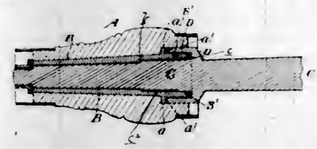
Claim.—1. A foot-rest for stilts comprising a foot-bearing portion, a clamping portion arranged at its rear end, a button or lug within said clamping portion, and a button or lug formed at the outer end of said rest, said button or lugs being adapted to retain a strap, substantially as specified.

2. The foot-rest B, having the bearing portion B', the clamping portion B^3 B^4, the longitudinal rib B^5, the transverse internal rib, B^6, and the buttons B^8 B^7, substantially as specified.

3. The combination of the foot-rest B, having the bearing portion B', the rib B^5, the clamping portion B^3 B^4, the internal transverse rib, B^6, the concavity B^9, and the lugs or buttons B^8 B^7, adapted to receive and retain a strap with the pole A, substantially as specified.

351,295. VEHICLE-AXLE.

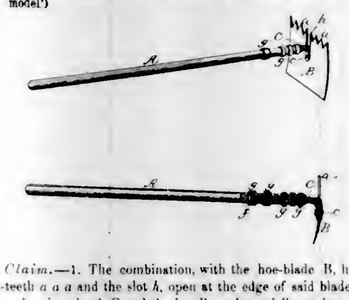
William I. Stillman, Watson, N. Y. Filed Aug. 3, 1886. (No model.)



Claim.—The combination, with the axle formed with dust-cup D and offset c', of the axle-box B, formed with offset b, and with external flange, a, forming a shoulder, a', against which the inner end of the dust-cup bears, substantially as shown and described, and for the purpose set forth.

351,296. COMBINED HOE AND RAKE.

Albert F. Stinson and John S. Sanders, Grand Junction, Tenn. Filed Feb. 17, 1886. (No model.)

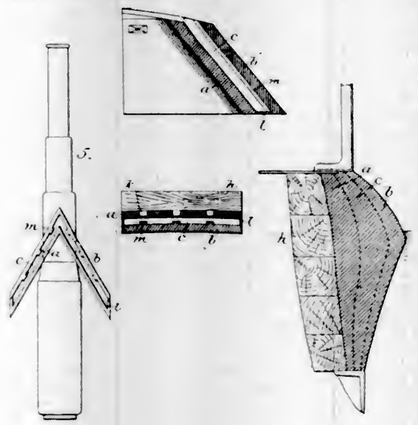


Claim.—1. The combination, with the hoe-blade B, having the rake-teeth a a a and the slot h, open at the edge of said blade, of two-part embracing-shank C and the handle, substantially as described.

2. The combination, with the blade B and shank C, consisting of two parts, b b, each having a bent end, b' b', and notches e e', as described, of a wedge, d, the fastening-bolt c, and the handle A, and shank on blade g, all constructed and arranged substantially as described.

351,297. COMPOUND STEEL ARMOR AND METHOD OF CONSTRUCTING THE SAME.

John A. Tobin, Washington, D. C. Filed Aug. 24, 1886. (No model.)

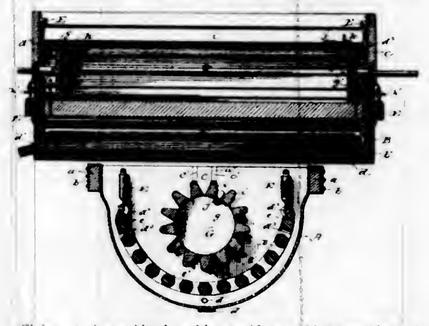


Claim.—1. A compound steel armor-plate composed of a cast-steel back plate, of homogeneous mild steel molded to the proper form, with an inside-finished face of any particular shape, a hard face-plate of cast-steel molded and cast to any specific form, the two plates being connected and formed into a solid compound plate by an intermediate layer of molten steel of medium tensile strength, substantially as set forth.

2. The process of making a compound cast-steel armor-plate, which consists in casting separately to any desired form a back plate of homogeneous mild steel and a hard-steel face-plate and uniting the two plates with molten steel of medium tensile strength, as described.

351,298. WASHING-MACHINE.

William H. T. Tomlin, Swedesborough, N. J. Filed Dec. 3, 1885. (No model.)



Claim.—1. In combination with a washing-machine, a rubbing-cylinder provided with disks upon which are secured a series of longitudinal bars, two bars, i i, rigidly attached to each other at their ends, so as to provide a space between said bars, so that they may have a spring movement toward each other, said bars being hinged to one of the disks, perforated ears secured to the other end of said bars, and a spring-bolt mounted in said ears and provided with a lug for the withdrawal of the bolt, and a perforation in the other disk to engage said bolt, substantially as set forth.

2. In a washing-machine, a tub or box made up of sheet metal, a skeletonized frame located at each end and consisting of horizontal and curved portions and central portion, b', and having ears b, in combination with braces a a and d, substantially as set forth.

3. In a washing-machine, the combination of a rubbing-cylinder having end disks with outwardly-bent portions, which are perforated for the reception of bolts for attaching slats thereto, said disks being provided centrally with outwardly-projecting shafts, substantially as shown, and for the purpose set forth.

4. In combination with a washing-machine constructed substantially as described, the sockets E, provided at one side with an end projecting portion for pivotally attaching the same to the tub, said sockets carrying spiral springs, and bars with eyes formed in their ends for attaching thereto the bottom frame of a washing-machine, substantially as shown, and for the purpose set forth.

5. In combination with a washing-machine having movable water-gates, sockets with end extensions at one side for pivotally attaching the same to the frame of a washing-machine, and a spring-bar having an eye formed in its end and a hook projecting therefrom, substantially as shown, and for the purpose set forth.

351,299. PREVENTION OF THE FORMATION OF MOLD AND WHITE FILM ON FERMENTABLE AND FERMENTED LIQUIDS.

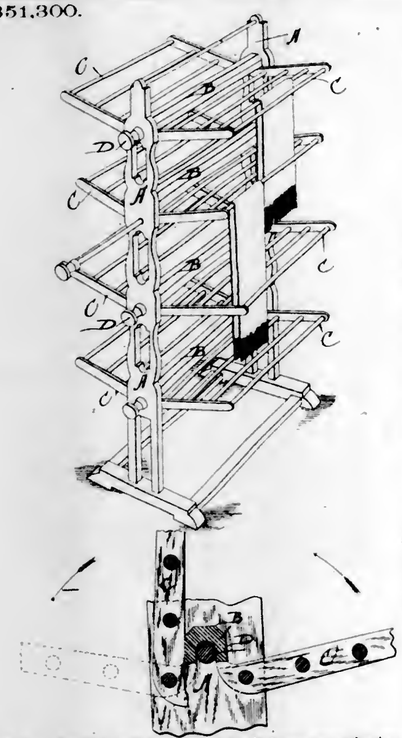
Johann P. A. Vollmar, Kempten, Hesse, Germany, assignor to Bernhard Budde, New York, N. Y. Filed May 27, 1886. (No specimens.) Patented in Germany May 11, 1884, No. 30,451.

Claim.—The process of preserving fermentable or fermenting liquids by applying thereto pills or spheres composed of a non-absorbent base, such as wax, and an antiseptic, such as sulphurous acid.

351,300. CLOTHES-DRIER.

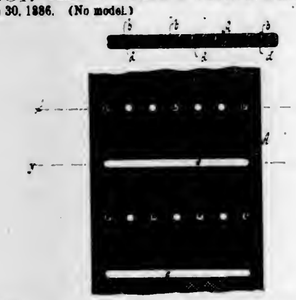
Henry Waterman, Bartlett, Ill. Filed Mar. 11, 1886. (No model.)

351,300.



Claim.—A clothes-drier consisting of a main frame, supporting-bars connecting the upright members of said frame, and clothes-holders pivotally attached to said upright members at their ends, opening outward when in use and folding up substantially into the frame when not in use, and having the rods of each holder opposite the spaces of its fellow holders, substantially as described.

351,301. BELTING. Abraham D. Westbrook, Trenton, N. J. Filed June 30, 1886. (No model.)



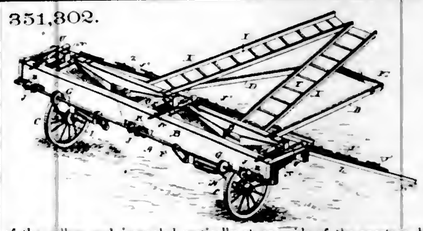
Claim.—1. A belt consisting of a series of layers of textile fabric united by a series of pointed tacks driven through the layers and clinched to form depressions in the under or working surface of the belt, each of said depressions being filled with a composition to preserve the continuity of the surface of the belt, substantially as described.

2. A belt composed of two or more layers of textile fabric united by rows of single tacks alternating with tack-strips, said tacks being driven through the layers and clinched, substantially as described.

351,302. MACHINE FOR GATHERING CORN. Granville G. Westerfield, Shelbyville, Ind. Filed Dec. 10, 1885. (No model.)

Claim.—1. In a machine for gathering ears of corn from the stalks, the combination of a pair of forwardly-tapering rollers, means for imparting revolving motion to the same, a pair of adjustable stripper-plates above the rollers, a crank shaft having a gear meshing with a gear upon one

351,302.

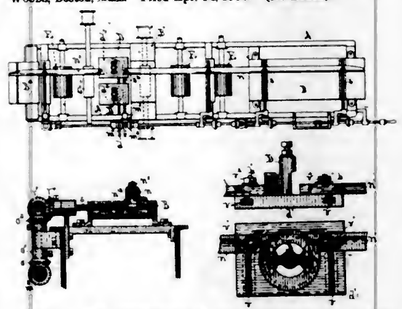


of the rollers and journaled vertically at one side of the aperture, between the plates, and an arm having a serrated edge and pivoted at one end to the crank, and sliding with its other end in a bearing, as and for the purpose shown and set forth.

2. In a machine for gathering corn from the stalks, the combination, with a pair of forwardly and downwardly inclined guide-brackets, rollers, and means for operating them, a shaft journaled upon the under side of the inner edge of one of the brackets and having bevel-gears at intervals, shafts journaled in bearings near the inner edge of the bracket, and having bevel-gears at their lower ends and cranks at their upper ends, said gears meshing with the gears upon the shaft, eyes pivoted at the outer edge of the bracket, and bars pivoted to the cranks and sliding in the pivoted eyes, as and for the purpose shown and set forth.

3. In a machine for gathering corn from the stalks, the combination of a pair of forwardly and downwardly inclined guide-brackets, cranks journaled at the inner edge of one arm, eyes pivoted at the outer edge of the said arm, bars pivoted to the cranks and sliding in the eyes, means for revolving the cranks, forwardly-tapering corrugated rollers journaled in pairs at the upper ends of the guide-arms, means for revolving the rollers, adjustable plates above the rollers, chutes extending laterally from the same, and conveyers extending forward and converging from the strippers, as and for the purpose shown and set forth.

351,303. PLANING AND MATCHING MACHINE. Solomon A. Woods, Boston, Mass. Filed Apr. 14, 1886. (No model.)



Claim.—1. The combination of longitudinal shaft *m*, attached to the frame below the bed of the machine, vertical shafts *o' o'*, extending upward from shaft *m*, longitudinal shaft *r'*, four screws, *s s s s*, guides *n n'*, and cutter-head D, adapted to be moved by said screws, said shafts and screws being geared together, and the latter adapted to be independently disconnected from the driving-gearing, substantially as described.

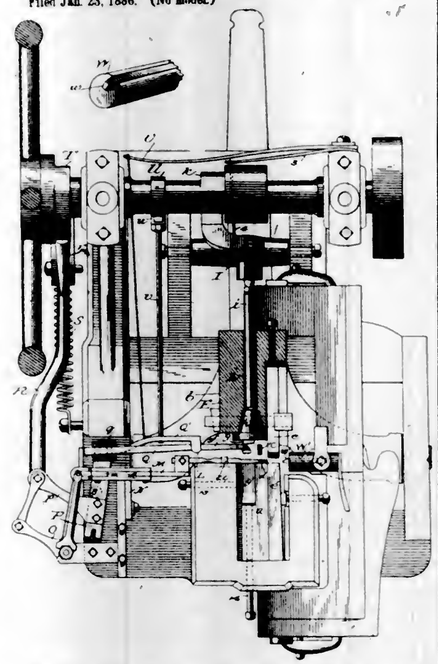
2. In a planing-machine, the combination of the screw *s*, provided with a traveling nut below the surface of the bed, the guide *n'*, attached to said traveling nut by a slot-and-bolt mechanism allowing it to be moved longitudinally, and the table *d'*, carrying cutter-head D, and attached to said guide near one end by the bolt, and the curved slot passing transversely of said guide and corresponding with the cutter-head, whereby the adjustment of the guide *n'* by screw *s* adjusts the end of the same to the cutter-head, substantially as described.

3. In a planing-machine, the combination of one or more screws, *s*, provided with traveling nuts n^{12} below the surface of the bed, the guide *n*, attached to said nut or nuts by a slot-and-bolt mechanism allowing it to be moved longitudinally, and provided with slot *v'*, the table *d'*, provided with curved T-shaped slot *v*, and the bolt *b'*, fitting said slot and connecting said guide and table together, and allowing the former to move across the latter transversely of the machine in a path parallel, or nearly so, to that of the cutter-head, substantially as described.

4. The combination of shaft *m*, screws *s s*, provided with traveling nuts, the guide *n* and cutter-head D, connected to said nuts, and the gear mechanisms connecting said shaft *m* and screws *s s*, and attached thereto by set-screws *e e*, whereby said shaft *m* is adapted to be detached from said guide or cutter-head, substantially as described.

5. In a planing-machine, the combination of two or more screws, *s s*, provided with traveling nuts n^{12} below the surface of the bed, the guides *n n'*, attached to said nuts by a slot-and-bolt mechanism allowing them to be moved longitudinally, and provided with slots *v' v'*, the table *d'*, provided with curved T-shaped slots *v v*, and the bolts *b' b'*, fitting said slots and connecting said guides and table together, and allowing the former to move across the latter transversely of the machine in a path parallel, or nearly so, to that of the cutter-head, substantially as described.

351,304. CUT-NAIL MACHINE. Jacob Altmeyer, Benwood, W. Va. Filed Jan. 23, 1886. (No model.)



Claim.—1. In a nail-machine, and in combination, substantially as described, gripping and pointing dies and a removable lip and their operating mechanism.

2. In combination with the stationary and movable knives and the gripping and pointing dies, a lip and nipper movable laterally to uncover the nail-blanks, substantially as described.

3. In combination, a stationary knife extending over its bed-piece, a removable lip adapted to fit underneath the projecting part of the stationary knife, mechanism for turning and holding the nail-blank under the lip, a pair of gripping-dies operating on the nail-blank near the head, mechanism for removing the lip, and a pair of pointing-dies, all substantially as described.

4. In the described machine, and in combination, stationary and movable knives, a removable lip and nipper, stationary dies, a movable gripping-die carried and fixed on the gripping-lever, and a pointing-die, with mechanism for imparting to said pointing-die an independent movement, whereby it is applied after the nipper and lip are removed, substantially as described.

5. In the described machine, a removable lip carried on a bar moving in a guideway, and a bell-crank lever, combined with a pivoted frame and nipper connected therewith, and operating mechanism whereby the nipper and lip are moved unequal distances, all substantially as described.

6. In combination with stationary and moving knives and with gripping-dies and pointing-dies, a nipper arranged to operate in the path of the moving pointing-die, and removable intermittingly therefrom to permit the pointing-die to be advanced after the nipper is removed, and mechanism for operating the specified parts, substantially as described.

7. The mandrel fitted to a place on the ordinary header and formed with grooves, and in combination with the header *w*, fitted to the groove and adapted to pass the face of the stationary die and forming the head, substantially as described.

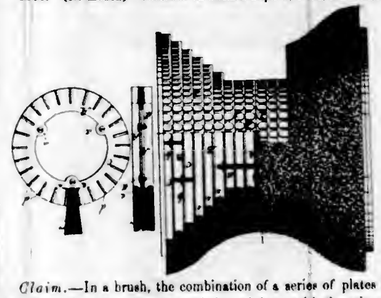
8. In the described machine, the frame P, carrying the pivoted block and nipper, in combination with an arm, 15, fixed on the frame of the machine and carrying the upper pivot for the frame P, said arm being formed with a hole for the upper pivot of the block, substantially as described.

351,305. RUBBER SHOE. William H. Amos, Akron, Ohio, assignor of one-half to Leroy R. Frank, same place. Filed Apr. 16, 1886. (No model.)



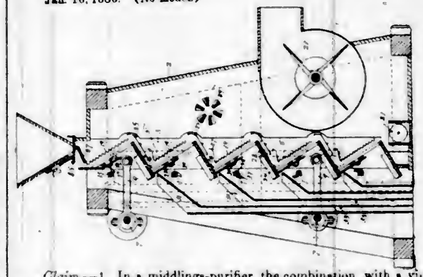
Claim.—In combination with a rubber overshoe, a corrugated strip of rubber attached at the inner upper face of the heel, substantially as shown, and for the purpose specified.

351,306. BRUSH. Pierre P. Audoye, Paris, France. Filed Oct. 27, 1885. (No model.) Patented in France Sept. 6, 1884, No. 164,149.



Claim.—In a brush, the combination of a series of plates having radial ribs *d d* on their faces near their periphery with the wires *e*, that rest against the inner ends of said ribs, and with the tufts C, substantially as herein shown and described.

351,307. MIDDLINGS-PURIFIER. Henry J. Brinkman, Minneapolis, Minn., assignor of two-fifths to Benjamin O'Neill, same place. Filed Jan. 16, 1886. (No model.)



Claim.—1. In a middlings-purifier, the combination, with a vibrating frame, of one or more inclined screens carried by said frame, and beater-plates arranged over but not in contact with said screens, as described, whereby the material is thrown against the beater-plates as it passes over said screens, for the purpose set forth.

2. The combination, with the vibrating frame and the series of inclined screens carried by said frame, of the corrugated plate arranged in said frame over said screens, and means for producing a current of air through said screens, substantially as described.

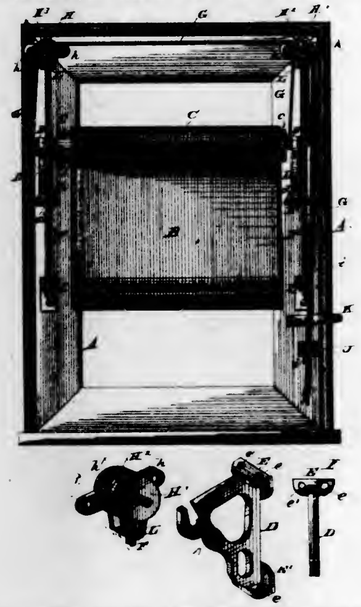
3. The combination, in a middlings-purifier, with the vertical frame supported upon hangers, and means for vibrating said frame, of the series of inclined screens carried by said frame, the corrugated plates secured to said frame over said screens, valves arranged below said plates, and means for producing a current of air through said screens, substantially as described.

4. The combination, in a middlings-purifier, with a vertical frame supported upon hangers, and means for vibrating said frame, of the series of inclined screens carried by said frame, a series of bumpers, 39, on said frame, a series of shafts, 35, and knockers 37, arranged at different angles on said shafts and adapted to engage said bumpers, for the purpose set forth.

5. The combination, in a middlings-purifier, of a vibrating frame, a series of inclined screens carried by said frame, a series of beater-plates

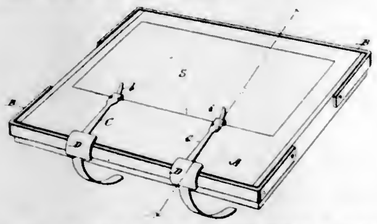
mounted in said frame over said screens, and means for producing a current of air through said screens, substantially as described

351,308. CURTAIN-FIXTURE. George Bull and William J. Vizey, Winfield, Kans., assignors to themselves and John D. Pryor, same place. Filed June 1, 1885. Renewed July 28, 1886. (No model.)



Claim.—The combination, with a window-frame, of parallel rods secured on opposite sides of the frame, and sliding roller-brackets each formed with an upper angle-plate, E, and a lower angle-plate, E', said angle-plates being perforated, as described, and projecting beyond the brackets on each side, so that the vertical portions of said plates will bear against the window-frame to steady the sliding movement of the brackets, substantially as described.

351,309. GAGE ATTACHMENT FOR PRINTING-PRESSES. Frederick F. Byington, Oakland, Cal. Filed Nov. 4, 1885. (Model.)



Claim.—The curved spring-bars C, made tapering, as shown and described, in combination with a holder, D, as and for the purpose described.

351,310. ROCK-DRILL. Horace J. Clark, Westfield, N. Y. Filed Mar. 27, 1886. (No model.)

Claim.—1. In a steam rock-drill, the combination of a fixed hollow piston with ports at the upper side of the head, a reciprocating cylinder carrying the drill, and a spring arranged to be compressed by an upward movement of the cylinder, substantially as specified.

2. In a steam rock-drill, a cylinder carrying the drill, a fixed piston and a piston-head, and a spring, and steam-conduits arranged to deliver steam at one side of the piston only, substantially as specified.

3. In a steam rock-drill, a cylinder carrying the drill and a fixed piston mounted in a frame-work, an interposed spring, and means for adjusting the pressure of the spring upon the cylinder, substantially as specified.

4. In a steam rock-drill, a cylinder carrying the drill and a fixed piston and head, a frame-work provided with bearings for the cylinder

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and carrying the fixed piston-rod, and an adjustable tappet projecting into the path of the cylinder, substantially as specified.

5. In a rock-drill, a reciprocating cylinder carrying the drill, a frame-work provided with bearings for the cylinder and carrying a fixed piston-head, and a hollow piston provided with ports above the head only, a spring arranged to bear upon the cylinder, and a tappet-rod provided with tappets projecting into the path of the cylinder and connected with a valve for controlling the supply and exhaust of steam, substantially as specified.

6. In a steam rock-drill, a frame provided with a valve-chest, and with a hollow piston communicating therewith, and having ports above the piston-head, and with supply and exhaust ports, the former arranged at the upper and the latter at the lower part of the valve-chest, said frame being provided at its lower end with leg-clamping lugs, substantially as specified.

7. In a steam rock-drill, a tappet-rod having a tappet mounted upon a screw-thread formed on the rod and having a pinion, in combination with the valve, its stem, and the rod connecting said stem with the tappet-rod, and with means for rotating the tappet-rod, substantially as specified.

8. In a steam rock-drill, a reciprocating cylinder carrying the drill and provided with ratchet-teeth upon its upper head, a ratchet-disk mounted upon said head and adapted to have slight longitudinal movement, and a cam bar or rod secured to the frame in which the cylinder is mounted, substantially as specified.

9. The combination of the cylinder A, the frame B, tappet-rod I, carrying the tappets I^5 J, the bar H, valve G, and the hollow piston C, having the ports C', and piston C^2, substantially as specified.

10. The combination of the frame B, the handle B^2, tappet-rod I, having the opening I', and the gear I^2, mounted on the handle, substantially as specified.

11. The combination of the cylinder-head A^2, the bolts Q, the collar E', the disk F, having the teeth F' and lugs F^2, and the cam-bar R, substantially as specified.

12. The combination of the frame B, piston C, sleeve D, nut D', and cylinder A, carrying the drill A', substantially as specified.

13. An anchor for steam rock-drills, comprising a foot-piece connected with the legs of a drill, and hooks mounted in the foot-piece and adapted to be drawn outwardly and adjustably secured, substantially as specified.

14. The combination of the foot-piece M', having the slots M^2, with the hooks N, nuts N', and binding-nuts N^2, substantially as specified.

15. The combination of the frame B, provided with the lugs B', of the bolt L and legs K, substantially as specified.

16. The open-ended tubular valve, in combination with the hollow piston-rod having ports only above the piston-head, and with an exterior tappet-rod having tappets projecting into the path of the cylinder, substantially as specified.

351,311. EXERCISING-MACHINE. Llewellyn W. Conkling, Chicago, Ill. Filed June 5, 1886. (No model.)

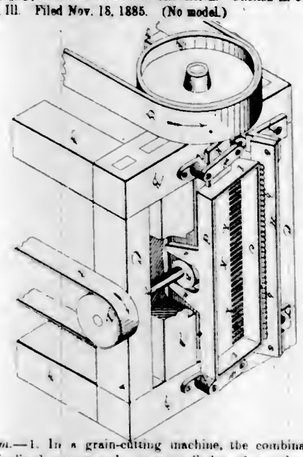


Claim.—1. In a bicycle training-machine, the combination, with the driving devices, of a revolving fan connected to and driven thereby, substantially as and for the purpose set forth.

2. In a bicycle training-machine, the combination, with a main driving-wheel, of a revolving fan-shaft journaled in an adjustable bearing and having frictional contact with the drive-wheel, whereby the fan is adjustable for wear, substantially as and for the purpose set forth.

3. In a bicycle training-machine, the combination, with a main frame provided with an adjustable seat-support, and a main driving-wheel provided with suitable operating-pedals, of a fan-shaft provided with one or more fan-blades, and a friction pinion or roll for contact with the drive-wheel, substantially as and for the purpose set forth.

351,312. GRAIN-CUTTING MACHINE. George H. Cormack, Rockford, Ill. Filed Nov. 18, 1885. (No model.)



Claim.—1. In a grain-cutting machine, the combination, with a series of inclined cutters and a rotary cylinder, of a reciprocating shoe formed with a series of grooves open at its lower front edge, substantially as described.

2. In a grain-cutting machine, the combination, with a series of inclined cutters and a rotary cylinder, of a reciprocating shoe curved on its under side, inclined forwardly, and formed with a series of grooves open at its front edge, substantially as described.

3. In a grain-cutting machine, the combination, with cutters and a rotary cylinder, of a laterally-reciprocating shoe formed with end guide-bars, guides to receive said bars, arms depending from the shoe, and a cam arranged between said arms, substantially as described.

4. In a grain-cutting machine, the combination, with a series of cutters and a rotary cylinder, of a laterally-reciprocating shoe formed with through grooves or openings, which are open at the lower front edge of the shoe, as described, arms depending from the shoe, and a cam arranged between said arms to impart the necessary lateral reciprocating movement to the shoe, substantially as described.

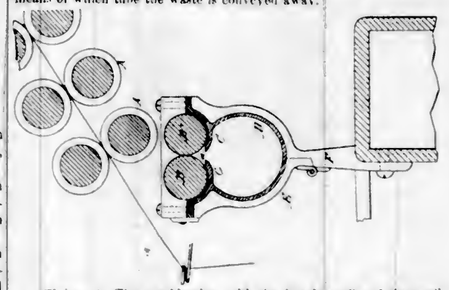
351,313. PRINTING-BLOCK. John R. Cummings and George W. Cummings, Chicago, Ill. Filed Mar. 2, 1886. (No model.)



Claim.—A printing-block provided with teeth or projections along its surface and at or near its upper edges, for holding a printing-plate thereto, substantially as described.

351,314. SCAVENGER MECHANISM FOR SPINNING AND DRAWING MACHINES. William A. Delmage, Lowell, Mass. Filed Nov. 20, 1885. (No model.)

Brief.—To collect the broken ends of yarn and waste and conduct them away from the drawing-rolls, one or more rolls capable of electrification are caused to revolve beneath the drawing-rolls. These electrified rolls collect the waste and deliver it to a tube placed immediately beneath and connected with an exhaust-fan and waste-collecting apparatus, by means of which tube the waste is conveyed away.

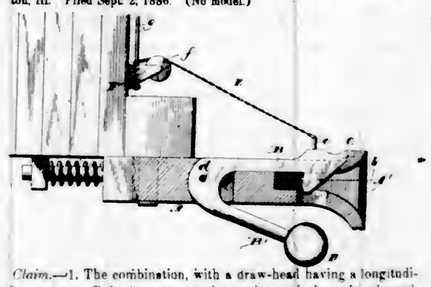


Claim.—1. The combination, with the drawing-rolls, of the auxiliary rolls and the slotted pneumatic tube, and means to produce a current of air through the tube and to rotate the auxiliary rolls from the drawing-rolls, said auxiliary rolls being disposed contiguously to the driving-rolls, and the tube having its slot arranged in alignment with a plane passing intermediately of the auxiliary rollers, substantially as shown and described, and for the purpose set forth.

2. The combination, with a pneumatic tube having a slot in one side thereof, of a roll formed wholly or in part of hard rubber or other material capable of electrification, a packing adapted to electrically excite said roll, and means for rotating said roll and for creating a current of air through said tube, substantially as and for the purpose set forth.

3. The combination, with a slotted pneumatic tube, D', and rolls G H, of packing-strips *b'*, attached to the edges of the pneumatic tube and bearing against the rolls, together with means for creating a current of air through the pneumatic tube and for rotating the rolls, as herein specified.

351,315. CAR-COUPLING. William Dunn and David A. Terry, Galton, Ill. Filed Sept. 2, 1886. (No model.)



Claim.—1. The combination, with a draw-head having a longitudinal slot, a recess, C, in its upper portion, and a vertical opening through which the gravity-latch passes, of a gravity-latch hook which is pivoted to the draw-head at its rear portion and provided with members B and B', the upper member having a depending portion with an inclined front edge and a rear vertical edge, the lower member carrying at its free end a weight, D, substantially as shown, and for the purpose set forth.

2. In a car-coupling, the combination, with the draw-head A, having a longitudinal recess for the reception of the upper member of the

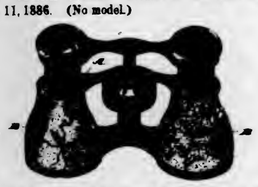
gravity-latch hook, and an opening having its rear portion curved, of a gravity-latch hook having members B B', pivotally attached to the draw-head and provided with a curved portion at its rear end, and at the front end of the member B with a depending hook, the latch being secured to the draw-head, so that the major portion can slide under the car, substantially as shown.

351,316. DUST-PAN. NEHEMIAH T. FOLSOM, Boston, Mass. Filed Feb. 1, 1886. (No model.)



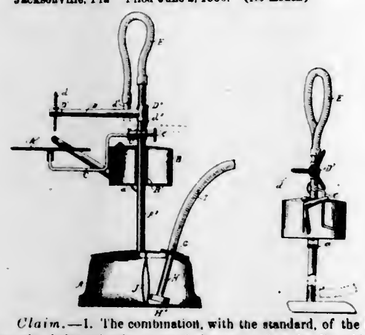
Claim.—The combination, with a dust-pan and handle therefor, of a hollow seamless boss struck up from a single piece of metal, so that its edges will present positive bearing portions for the bottom and rear surfaces of the pan and the under surface of the handle thereof, and integral flanges *c' c'*, substantially as set forth.

351,317. OPERA-GLASS. JOSEPH F. FRADLEY, New York, N. Y. Filed Aug. 11, 1886. (No model.)



Claim.—As a new article of manufacture, an opera-glass the barrels or body portion of which are constructed of single thick metallic tubes, the external and exposed portions of which are hand-chased to roughen and ornament the same, substantially as set forth.

351,318. COMBINED BLOW-PIPE AND LAMP. ALBERT C. FRIESIKE, Jacksonville, Fla. Filed June 2, 1886. (No model.)



Claim.—1. The combination, with the standard, of the lamp and blow-pipe independently mounted thereon, and each adjustably secured thereto independently of the other, substantially as and for the purposes described.

2. The combination, with the standard, of the lamp, blow-pipe, and work-holder independently mounted thereon, and each adjustably secured thereto independently of the other, substantially as described.

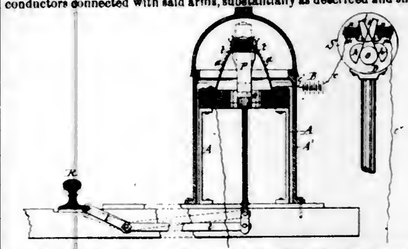
3. The combination, with the standard, of the lamp and work-holder independently mounted thereon and the revoluble table journaled upon the vertical end of work-holder, substantially as shown and described.

4. The combination, with the reservoir and the tubular standard, of the lamp, the blow-pipe, and a flexible connection between the blow-pipe and the standard.

5. The combination of the reservoir, the tubular standard, the lamp and blow-pipe mounted thereon, a flexible tube connecting the standard with the blow-pipe, and the inlet air-pipe having a deflector and a valve at its lower end, substantially as and for the purposes described.

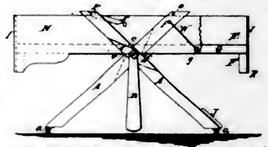
351,319. RAILROAD-SIGNAL. J. HARPER GIBSON, New York, N. Y., assignor to the American Railway Signal Company of Illinois. Filed Oct. 31, 1885. (No model.)

Claim.—1. The plunger P, having its head composed of a non-conductor of electricity and provided with the projection *t*, and the metallic band *b*, embracing the head of the plunger adjacent to the said projection, in combination with the flexible metallic arms *a a*, arranged around the plunger and maintained in contact with the head thereof, and electric conductors connected with said arms, substantially as described and shown.



2. In combination with the plunger P and flexible arm *a*, normally in contact with said plunger, the rod *r*, connected with the said arm for withdrawing the same from the plunger, substantially as set forth and shown.

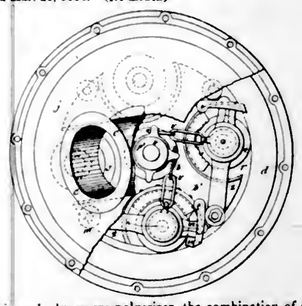
351,320. FOLDING BED. CHARLES W. GREEN, Chicago, Ill., assignor to Louisa E. Green, same place. Filed Feb. 26, 1886. (No model.)



Claim.—1. In folding beds, the two sets of cross-legs A A A A, pivoted centrally together and to the middle portions of the ends G of the mattress-frame by a single bolt, D L, at each end, constructed and attached as specified, in combination with a mattress-frame hung to swing to a vertical position between the legs and held in that position with the legs by means of the latch N, and the catch or hook W to hold the mattress-frame in a horizontal position, as specified.

2. The two sets of cross-legs A A A A, pivoted together and to the mattress-frame by bolts D L, in combination with the supports B B, hung to said bolts, as and for the purpose specified and shown.

351,321. ORE-PULVERIZER. EDWIN C. GRIFFIN, Brooklyn, N. Y. Filed Mar. 29, 1886. (No model.)



Claim.—1. In an ore-pulverizer, the combination of a circular die, a carrier mounted within the same, and formed with semicircular pockets in its periphery, arms secured to said carrier, and rollers fitting and rotating in said pockets and against the inner wall of said die by centrifugal force, substantially as described.

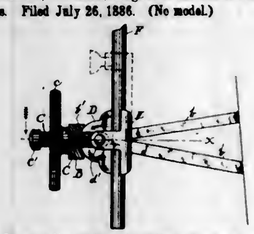
2. In an ore-pulverizer, the combination of a circular die, a carrier mounted within the same, adjustable guiding-arms secured to said carrier and having spindles projecting from the free ends thereof, and rollers journaled on said spindles, carrying said guiding-arms, and rotating against said die by centrifugal force, substantially as described.

3. In an ore-pulverizer, the combination of a circular die, a disk-carrier mounted within the same and having semicircular pockets in its periphery, provided with inclined bottoms open at their lower edges, and forming scoops, adjustable guiding-arms secured to said carrier at both ends, and having spindles projecting from the loose ends, and rollers journaled on said spindles, carrying said guiding-arms, and rotating against the die by centrifugal force, substantially as described.

4. In an ore-pulverizer, the combination of an inclosing-shell provided with a hopper and an exhaust-pipe, a circular die, a disk-carrier, adjustable arms secured to said carrier, rollers journaled on said arms and rotating against said die by centrifugal force, and an operating-shaft, substantially as described.

5. In an ore-pulverizer, the combination of an arm having a hollow head in the form of a downwardly-projecting hood, a spindle secured to said head, a hollow core, and a roller, constructed and arranged substantially as described.

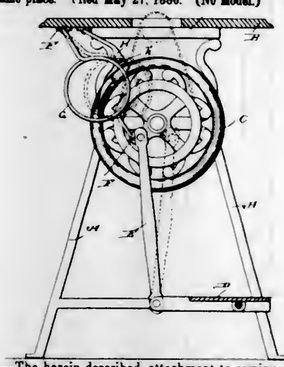
351,322. ROD-HOLDING CLAMP FOR CHILDREN'S CARRIAGES. NICOLA M. GUILLOW, Wakefield, assignor of one-half to Jehiel D. Guillow, Boston, Mass. Filed July 26, 1886. (No model.)



Claim.—1. In an adjustable rod-holding clamp for children's carriages, the combination of the bracket B, screw C, connected by a knuckle-joint to the part E, slotted block D, and nut *c*, substantially as and for the purposes set forth.

2. In a rod-holding clamp for children's carriages, the slotted semicircular block D and means for clamping the same against the rod, substantially as and for the purposes specified.

351,323. DEVICE FOR OVERCOMING DEAD-CENTERS. ROBERT E. L. HOLMES, St. Louis, Mo., assignor of one-half to Sylvester T. Johnston, same place. Filed May 27, 1886. (No model.)



Claim.—The herein-described attachment to sewing-machines and the like, comprising the spring G, having one or more coils or convolutions to be wound and unwound, one end of the spring being pivoted to a fixed part of the machine, while the other end is pivoted preferably to the pitman out of line with the crank-pin, the two ends of the spring being diametrically opposite each other, as set forth.

351,324. RAIL-JOINT. ROBERT V. JONES, Cleveland, Ohio. Filed June 24, 1886. (No model.)



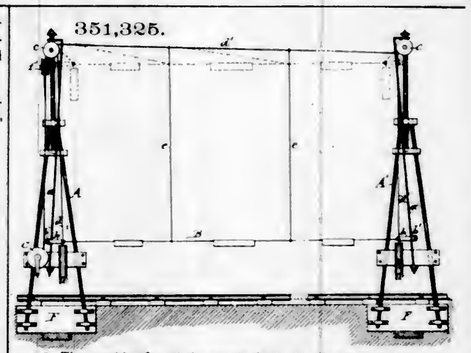
Claim.—1. The flanged fish-plate D, having lip or rib *d*, in combination with wedges E F and a chair, C, substantially as described, and for the purpose specified.

2. The combination, with two abutting rails, of the chair C, having parts C', C², and C³, the flanged fish-plate D, having lip *d* and lugs *l l*, and the wedges E F, for securing the rails together, substantially as and for the purpose specified.

351,325. GATE FOR RAILROAD-CROSSINGS. THOMAS H. KNOLLIN, Syracuse, N. Y. Filed July 25, 1885. (No model.)

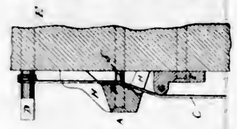
Claim.—1. A gate comprising two standards at opposite sides of the road, guides secured longitudinally on said standards and disposed with their lower ends inclining from the road, and a flexible barrier extended across the road and movably connected with the said guides, substantially as set forth

351,325.



2. The combination of the standards A A', divergent guides *a a*, slides *b b*, the flexible barrier B, extended across the road and connected to the slides, weights *w w*, pulleys *c c*, pivoted to the upper ends of the standards, cables or chains *d* and *d'*, extending from the slides over the pulleys and thence to one and the same side of the road, and the suspenders *e e*, connecting the cable or chain *d'* with the intermediate portion of the barrier B, substantially as described and shown.

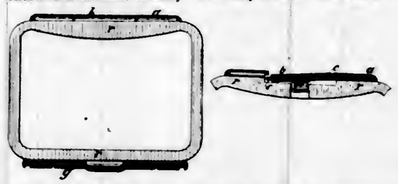
351,326. CAPODASTRO-BAR FOR PIANO-FRAMES. HENRY KRONGER, New York, N. Y. Filed Apr. 15, 1886. (No model.)



Claim.—1. In a piano, the combination, with a frame, of a capodastro-bar provided on its under side with a ridge against which the strings rest, and at suitable intervals with feet which rest directly on the surface of the frame, substantially as set forth.

2. The combination, with a piano, of a capodastro-bar provided on its under side with a ridge forming the bearing-surface for the strings, feet on the bar at suitable intervals, said feet resting directly on the face of the frame and provided with screw-holes, and screws passed through the holes in the feet and into the frame, substantially as set forth.

351,327. FASTENING FOR POCKET-BOOKS. HERMANN LEHMANN, Offenbach-on-the-Main, Germany. Filed May 3, 1886. (No model.)



Claim.—In a locking device for pocket-books and other analogous articles, the combination, with the frame, of the two tubes, a flexible rod inclosed in such tubes, and a locking-hook so arranged that by pressing down the rod the locking-hook will be released, substantially as and for the purpose specified.

351,328. BOOK-SEWING MACHINE. CHARLES A. LIES, New York, N. Y., assignor to the Sheridan Book-Binders Sewing Machine Company, same place. Filed Jan. 28, 1886. (No model.)

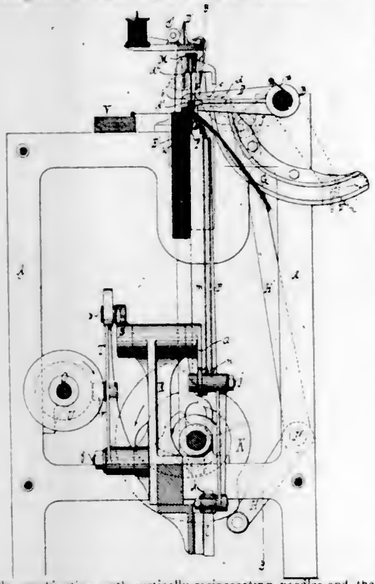
Claim.—1. In a sewing-machine for books, the combination, with the signature-carrier and the dies formed therein, of punches constructed to co-operate with said dies, substantially as shown and described.

2. The combination, with the punches having needle-eyes formed therein, of a signature-carrier made in two sections and having dies formed therein, and mechanism for opening and closing the same, substantially as shown and described.

3. The combination, with the sectional signature-carrier having the dies formed therein, of punches constructed to co-operate with said dies and having needle-eyes and thread-protecting grooves extending upward from the needle-eyes on both sides of the punches, substantially as shown and described.

4. The combination, with the sectional signature-carrier having the dies formed therein, of punches constructed to co-operate with said

dies and provided with needle-eyes formed in said needle-punches, and a reciprocating shuttle, substantially as shown and described.



5. The combination, with vertically-reciprocating needles and the reciprocating signature-carrier having openings for the passage of the needles, of a swinging lever having at its upper end an attached shuttle-carrier, a vertically-movable slide to which the lever is pivoted, and mechanism, substantially as described, for operating the lever and moving its upper end and the shuttle-carrier in a true horizontal line.

6. The combination, with the signature-carrier having the dies formed therein, of means, substantially as shown, for imparting to the signature-carrier a reciprocating motion, the stop-plate A', and the punches constructed to co-operate with the dies in the signature-carrier, substantially as shown and described.

7. The combination, with the sectional signature-carrier having the dies formed therein, of means, substantially as shown, for imparting to the signature-carrier a reciprocating motion, the stop-plate A', needle-punches constructed to co-operate with the dies in the signature-carrier, and a reciprocating shuttle, substantially as shown and described.

8. The combination, with the signature-carrier having the dies formed therein, of means, substantially as shown, for imparting to the signature-carrier a reciprocating motion, the stop-plate A', and the punches constructed to co-operate with the dies in the signature-carrier, the stop-plate being provided with guides for the punches, substantially as shown and described.

9. The combination, with the sectional signature-carrier having the dies formed therein, of means, substantially as shown, for imparting to the signature-carrier a reciprocating motion, the stop-plate A', having thread-guides b^3, needle-punches constructed to co-operate with the dies in the signature-carrier, and guides for the punches.

10. The combination, with the sectional signature-carrier having the openings g, forming dies, and provided with the longitudinal recess A^3, and vertical recesses a^3, forming needle-guards, which are open to said longitudinal recess, of needle-punches constructed to operate with said dies, a shuttle, and mechanism, substantially as described, for imparting to the same a reciprocating motion through said longitudinal recess.

11. The combination, with a signature-carrier and the gudgeons projecting from its sides, of reciprocating arms D, engaging said gudgeons, the arms c, firmly secured to said gudgeons, projections d, formed on said arms, and the cam G, constructed to engage said projections, substantially as shown and described.

12. The combination, with the signature-carrier, of the stop-plate, the latch constructed to retain the signature-carrier in its inner position, and the needle-bar arranged to release said latch, substantially as shown and described.

13. The combination, with the sectional signature-carrier, the dies formed therein, the needle-punches, the bar supporting said needle-punches, and the reciprocating shuttle, of the latch-plate c^2 and the arm b^3, extending from the movable wing F^2 of the signature-carrier, substantially as shown and described.

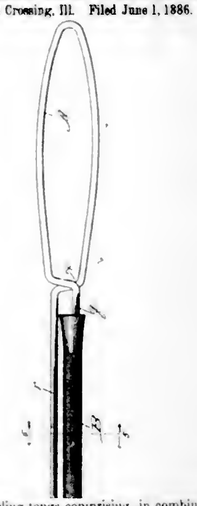
351,329. COMPOSITION FOR BLACKBOARDS. Alfred Lilley, Fremont, Ohio, assignor of two-thirds to Julius J. Mahle and Charles Pardoe, both of same place. Filed Mar. 2, 1886. (No specimens.)

Claim.—The herein-described blackboard composition, consisting of Portland cement, lamp-black or ivory-black, parting-sand, and powdered emery, in about the proportions specified, and for the purpose stated.

351,330. LINING FOR DIGESTERS. Arthur D. Little, Providence, R. I., assignor to John T. Wheelwright, Boston, Mass. Filed June 7, 1886. (No specimens.)

Claim.—A cast-iron digester the inner surface of which is coated with a glaze consisting of oxide of lead and borate of lead, substantially as described.

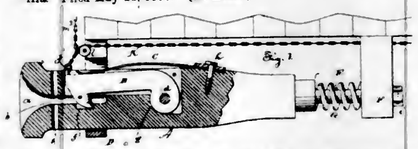
351,331. CURLING-TONGS. William Lonsdale and William H Lonsdale, Grand Crossing, Ill. Filed June 1, 1886. (No model.)



Claim.—1. Curling-tongs comprising, in combination, a handle, A, formed of springy metal, bent and crossed upon itself to produce a clamping-jaw, r, substantially equal in cross-section to the metal forming the handle, and a grooved clamping-jaw, B, greater in cross-section than the clamping-jaw r, parallel to it and fitting into its groove, whereby the device is formed without a joint, and the parallel clamping-jaws are movable equally throughout their entire lengths, substantially as described.

2. Curling-tongs comprising, in combination, a handle, A, formed of springy metal, bent and crossed upon itself to produce a clamping-jaw, r, equal in cross-section to the metal forming the handle, and an end, q, and a grooved clamping-jaw, B, secured upon the end q, and greater in cross-section than the clamping-jaw r, parallel to it and fitting into its groove, whereby the device is formed without a joint, and the parallel clamping-jaws are movable equally throughout their entire lengths, substantially as described.

351,332. AUTOMATIC CAR-COUPLING. Joseph D. Majors, Brigg's, Ala. Filed May 25, 1886. (No model.)



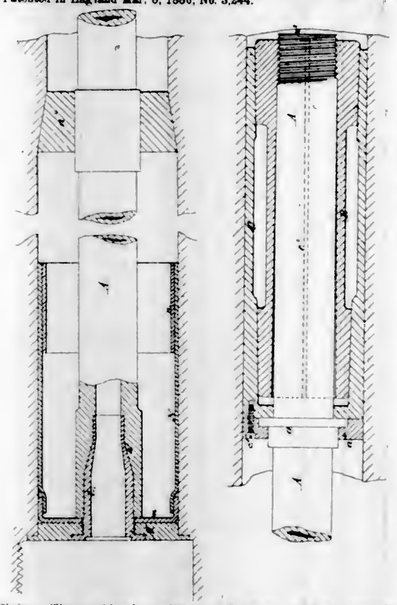
Claim.—1. In an automatic car-coupling, the combination, with the draw-bar A, provided with a recess, c, concave shoulder g, and link-receiving cavity b, of a catch, B, pivoted in the recess c, and provided with a beveled nib, e, concaved on its inner surface, and the spring C, secured to the draw-bar and arranged to press the catch B into engagement with the coupling-link, substantially as herein shown and described.

2. In an automatic car-coupling, the combination, with the spring-acted catch B, provided with the eye j, of the chain k, sheave l, chains m m', and levers n n', oppositely arranged with respect to each other, substantially as herein shown and described.

3. In an automatic car-coupling, the combination, with the spring-acted catch B, provided with the eye j, of the chain k, sheave l, chains m m', levers n n', oppositely arranged with respect to each other, the straps q q', and timbers o o', provided with notches p p' and recesses r, substantially as herein shown and described.

4. In an automatic car-coupling, the combination, with the draw-bar A, provided with the link-receiving cavity b, pin-hole s, and recesses c f, of the catch B, pivoted in the recess c, and provided with the beveled and concaved nib e, and the spring C, secured to the top of the draw-bar and bearing on the catch B, substantially as herein shown and described.

351,333. AUXILIARY BARREL FOR GUNS. Richard Morris, Blackheath, County of Kent, England. Filed June 29, 1886. (No model.) Patented in England Mar. 8, 1886, No. 3,244.



Claim.—The combination, with a small barrel, A, fixed centrally in the bore of a quick-firing machine-gun and constructed with the chamber a^3 at its breech end, of the tube N, fitted to the bore of the machine-gun, and through which the small barrel passes, and the block M, connected with the rear end of the said tube at the breech end of the machine-gun within the bore thereof, and provided with an attached projecting charging-tube, L, extending into the chamber in the breech of the small barrel, substantially as and for the purposes described.

351,334. AUXILIARY GUN-BARREL. Richard Morris, Blackheath, County of Kent, England. Filed June 29, 1886. (No model.) Patented in England Aug. 5, 1885, No. 9,356, and Nov. 2, 1885, No. 13,206.

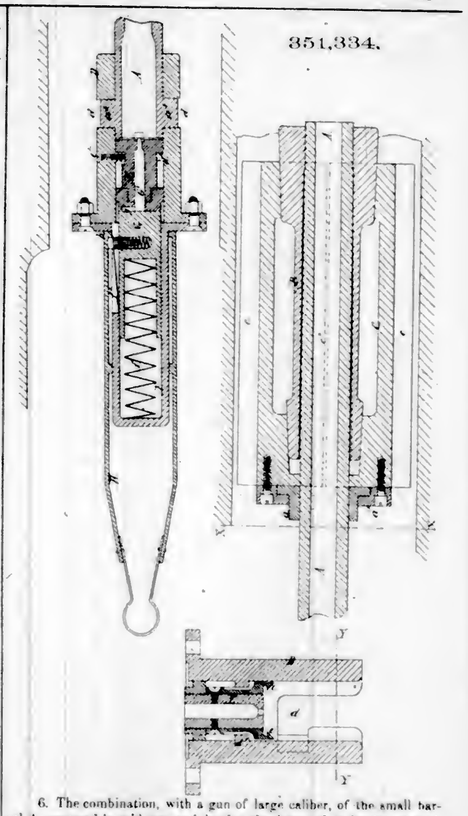
Claim.—1. The combination, with a gun of large caliber, of the interior barrel, A, held therein and provided at its breech end with lateral lugs or horns and firing devices, and the breech-sleeve D, having right-angled slots d, for engaging the horns or lugs, substantially as and for the purpose described.

2. The combination of the small barrel A, having the rigidly-attached collar a and a screw-thread, with the sleeve B, engaging the screw-thread and provided with conical bearings, the longitudinally-divided expansible casing C, having conical seats fitting the bearings of the sleeve, and the ring a', clamping the collar on the barrel to the end of the casing, substantially as described.

3. The combination, with the small barrel A, having the horns a^3 at its breech end, of the breech-sleeve D, having the right-angled slots or bayonet-catch notches d, detachably engaging the horns, and a sliding striker, G, substantially as described.

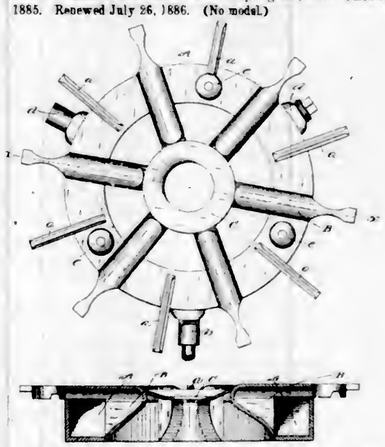
4. The combination, with the small barrel A, of the breech-sleeve D, detachably connected therewith, the piston E, slidable in the sleeve and having extractors e, the tube F, connected with the sleeve, and the sliding striker G, located in the tube, substantially as described.

5. The combination, with the small barrel A, having the horns a^3 at its breech end, of the breech-sleeve D, having the right-angled slots d, detachably engaging the horns, the piston E, slidable in the sleeve and having extractors e, the tube F, connected with the sleeve, and the striker G, located in the tube, substantially as described.



6. The combination, with a gun of large caliber, of the small barrel A, centered in said gun and having the horns a^3 at its breech end, the breech-sleeve D, having the right-angled slots d, detachably engaging the horns, the sliding striker G, and the sliding striking-rod K, substantially as described.

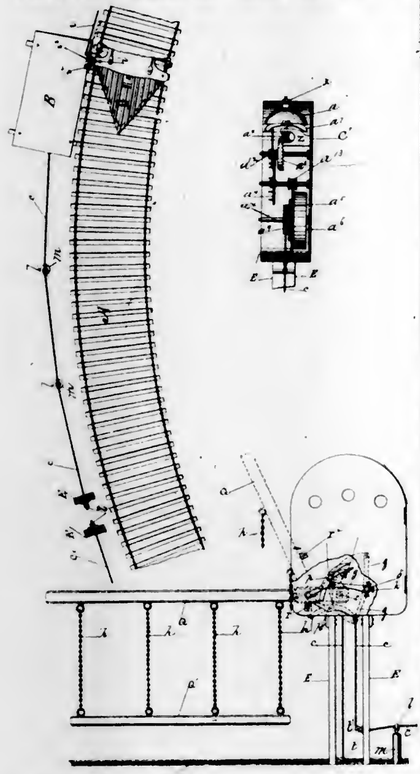
351,335. GAS AND GASOLINE WATER-HEATER AND GRATE. Jakob F. Munz and Frank R. Wells, Springfield, Ohio. Filed July 7, 1885. Renewed July 26, 1886. (No model.)



Claim.—1. In a combined grate and water-heater, the annular receptacle having the communicating radial chambers, said chambers being connected to a central ring and extended beyond the periphery of the said receptacle, substantially as and for the purpose set forth.

2. The combined grate and water-heater, comprising the annular chamber or reservoir, the central ring, the radial chambers between aforesaid chamber and ring, arms projecting beyond the annular chamber, and inlet and outlet nozzles, substantially as and for the purpose set forth.

351,336. SIGNAL-ALARM AND SAFETY-GATE FOR RAILWAY-CROSSINGS. Elwood C. Phillips, Richmond, Ind., assignor of one-half to Isaiah M. Brown, Cincinnati, Ohio. Filed July 3, 1886. (No model.)



Claim.—1. In combination with a railway-track and an engine thereon, the box or frame B, containing wheels n n^6, chain n', provided with lug n^5, the cable c, drum a^9, spur-wheel a^3, coil-spring and case a^8, pinion a^{13}, spur-wheel a^4, pinion a^{12}, crown-wheel a^2, pinion a^5, winged wheel a^7, arms a' and a^2, spring a^{10}, and bell a, constructed and operating substantially in the manner and for the purpose set forth.

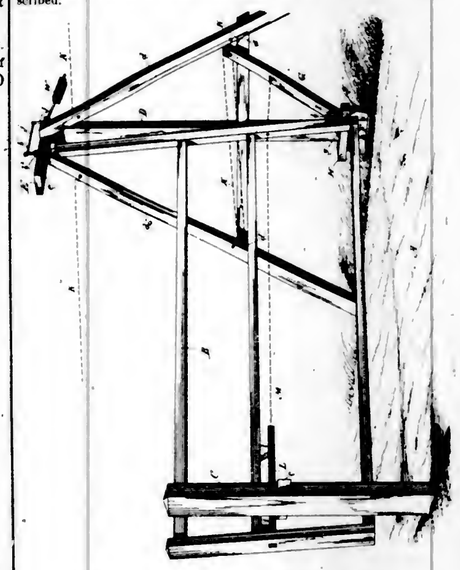
2. In combination with a railway-track and an engine thereon, the wheels n n^6, chain n', provided with lug n^5, cable c, drum a^9, coil-spring and case a^8, shaft a^{14}, lever-arm g, provided with friction-roller o, crescent arm p, trigger-arm s, shaft L, carrying bracket H′ and weight H and gate-bar G, in the manner and for the purpose substantially as herein set forth and described.

3. In an automatic gate for railway-crossings, the crescent arm p, trigger-arm s, lever-arm g, shaft L, and gate-arms G and G′, combined and operating in the manner and for the purpose described.

351,337. GATE. Charles E. Plumley, Byron, Cal. Filed May 15, 1886. (No model.)

Claim.—1. The gate B and a vertically-sliding horizontally-traveling hinge-connection at its upper end, in combination with the vertical lever G, fulcrumed at a point to one side of the gate, and a hinge-connection between said gate and the lever at a point above its fulcrum, whereby the movement of the lever raises the end of the gate and turns it out of line, substantially as herein described.

2. The gate B and a vertically-sliding and horizontally-traveling hinge-connection at its upper end, in combination with a vertical lever in the longitudinal vertical plane or line of the gate and fulcrumed at a point to one side of said plane or line, so as to move through an arc in a vertical plane, a hinge-connection between the gate in the plane of its length and the lever at a point above its fulcrum, and cords for turning the lever on its fulcrum, substantially as and for the purpose described.



3. The gate B, in combination with the lever G, having divergent legs g, on which it rests and on which it alternately fulcrums in its movement, and a hinge-connection between the gate and the lever, substantially as herein described.

4. The gate B and the post D, having a slotted arm, E, on its top, in combination with the lever G, having divergent legs g, on which it rests and on which it alternately fulcrums, a hinge-connection between the gate and the lever, and a vertically sliding and traveling hinge-connection between the top of the gate and the arm E of the post D, substantially as herein described.

5. The gate B and the post D, having a slotted arm, E, on its top, in combination with the lever G, having divergent legs g, on which it rests and alternately fulcrums, a hinge-connection between the gate and said lever, the hinge-pintle b' on the top of the gate playing in the slot of the arm E, the pivoted and weighted elbow-lever J on the post D, and the rod j, connecting said lever with the pintle b', substantially as herein described.

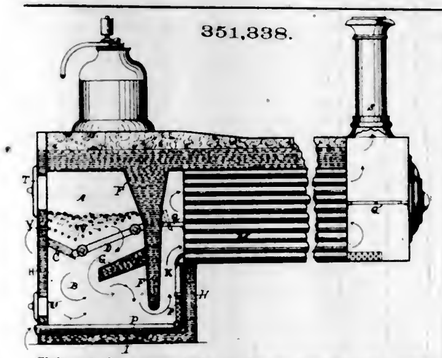
6. The gate B, the post D, having a slotted arm, E, on its top, the bearing F on the base of the post, and the guide H, in combination with the lever G, playing in said guide and having divergent legs g resting and alternately fulcruming in the bearing F, a hinge-connection between the gate and lever, the hinge-pintle b' on top of the gate playing in the slotted arm E, the pivoted weighted elbow-lever J, and the rod j, connecting said lever with the pintle b', substantially as described.

7. The gate B, the post D, having slotted arm E, and the braces d, in combination with the lever G, having divergent legs g, on which it alternately fulcrums, as described, a hinge-connection between the gate and lever, the pintle b' on top of the gate playing in the slot of the arm E, the pivoted weighted lever J, connected with said pintle, and the operating-cords K, secured to the braces and operating the lever G, substantially as herein described.

8. The gate B, the post C, having a catch, c, the post D, having a slotted top arm, E, the brace d, the bearing F on the base of the post, and the guide H, in combination with the lever G, playing in the guide and having divergent legs g, fulcruming alternately in the bearing F, a hinge-connection between the gate and lever, the pintle b' on the top of the gate, playing in the slotted arm E, the pivoted weighted lever J, connected with the pintle b', the cords K, for operating lever G, the suspended gravity-latch L on the gate, and the cord M, connecting it with lever G, all arranged and adapted to operate substantially as herein described.

351,338. STEAM-BOILER AND FURNACE. William S. Pope, Boston, and Howard De W. Sawyer, Revere, Mass., assignors to the Complete Combustion Company, Portland, Me. Filed May 19, 1886. (No model.)

351,338.



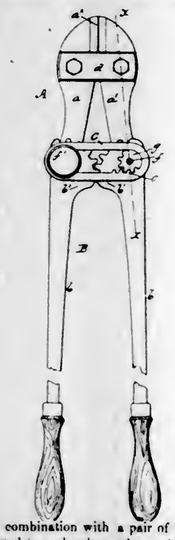
Claim.—1. In a steam-boiler or furnace provided with a water-grate, D, through which a downward draft is maintained, the fire-box A, having the fuel-door T above the grate, and the combustion-chamber B, having the man-hole or ash-door U in its front wall below the grate, in combination with the V-shaped or upwardly-diverging water-leg F F′, with its oblique deflecting portion G extending beneath the grate toward said door U, substantially as and for the purpose set forth.

2. The fire-box, the combustion-chamber and the depending unperforated water-leg F F′, in combination with the water-grate D, communicating with said water-leg, the fire-box having immediately above the grate a series of minute draft-openings, V, serving to admit numerous jets of fresh air into the body of fuel and below the upper surface thereof, substantially as and for the purpose set forth.

3. The fire-box and combustion-chamber separated by the water hearth and grate, in combination with the deflecting-barrier F F′ and the air-pipe P, perforated to deliver air in jets to the flue K, all arranged substantially as and for the purpose set forth.

4. In a steam-boiler, the fire-box, combustion-chamber, grate, and flue, in combination with the barrier F F′ and diaphragms Q Q′, serving to reverse the current through the tubular flues, substantially as and for the purpose set forth.

351,339. BOLT-CUTTER. Herbert S. Pullman, Rockville, assignor to the Billings & Spencer Company, Hartford, Conn. Filed Mar. 18, 1886. (No model.)

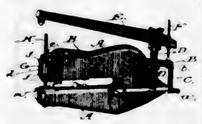


Claim.—1. In combination with a pair of cutter-levers, a pair of handle-levers connected to each other and to each cutter-lever by a single pin or pivot, and the link bearing a series of teeth in mesh with a toothed projection on each handle-lever head, all substantially as described, and for the purpose set forth.

2. In combination with the cutter-levers a a', pivotally connected to each other, the lever-handles b, each pivoted to one of the cutter-levers and having a cam formed on the inner edge of the broadened head, and bearing a lug with teeth in mesh with the teeth on the lever-connecting link C′, all substantially as described, and for the purpose set forth.

3. In combination, a pair, A, of cutter-levers bearing cutting-blades, a pair, B, of handle-levers with inward-facing similar cams bearing intermeshing teeth, and the laterally-projecting lugs with teeth in mesh with teeth on the link C′, the link, and the pivots f, each uniting the link and a cutter-lever and handle-lever, all substantially as described, and for the purpose set forth.

351,340. PUNCHING-MACHINE. Chester Roach, Minneapolis, Minn. Filed June 9, 1886. (No model.)



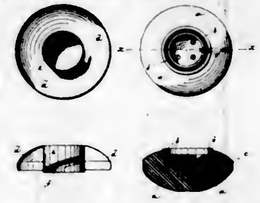
Claim.—1. In a punching-machine, the main frame A and operating-lever B, in combination with a standard, D, swiveled or otherwise secured to rotate upon the main frame, a lever, E, fulcrumed within the slotted upper end of the standard, a connection between the rear ends of the said levers, and a reciprocating plunger carrying the punching-tool, substantially as described.

2. In a punching-machine, the main frame and the levers B and E and connections, in combination with a reciprocating plunger mounted in said frame and having a threaded opening, and a punching-tool having a threaded shank adjusted within said opening, substantially as herein described.

3. In a punching-machine, the frame A, having grooves formed in its front portion, a reciprocating two-part plunger sliding within said grooves, and having a threaded semicircular groove, l, formed in each part, a punch passing through said plunger, and having a threaded shank engaging the threads in the grooves, whereby the punch is adjusted, and screws for securing the two parts of the plunger together, substantially as described.

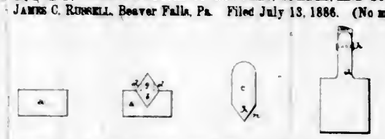
4. In a punching-machine, a main frame, in combination with a plunger formed in two sections, each section of which is provided with a semicircular threaded opening, and a punching-tool having a punching-face and an integral threaded shank engaging the threads in the grooves, whereby the tool is adjusted, substantially as described.

351,341. BUTTON. John R. Rowlands, Oneida, N. Y., assignor to Sands H. Goodwin, same place. Filed Mar. 20, 1886. (No model.)



Claim.—In a button provided with a removable cap, the combination of head a, having groove b and pin c, with the cap d, having flange e, that is provided with slot f, substantially as specified.

351,342. MANUFACTURE OF SHOVELS, SPADES, AND SCOOPS. James C. Russell, Beaver Falls, Pa. Filed July 13, 1886. (No model.)

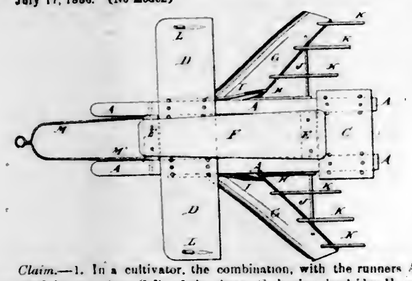


Claim.—1. The manner described of preparing blanks for shovels, spades, or scoops, by cutting them from slabs or bars of about twice the thickness the blades are to have when finished, and then forming one half of the socket in the blank and the other half by means of a strap, which is welded to the blank over the depression formed in its upper edge, and then drawing the straps which form the socket to the required length and form, substantially as described.

2. In the manufacture of blanks for shovels, spades, or scoops, the manner of drawing out the material of the blank to form the under part of the socket and a short strap, as described.

3. The forming of a socket by a depression in the blank, and a strap welded over the depression, leaving no outward trace of its attachment, substantially as described.

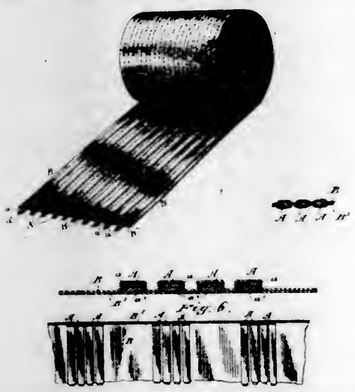
351,343. CULTIVATOR. James B. Scantlin, Fairview, Kans. Filed July 17, 1886. (No model.)



Claim.—1. In a cultivator, the combination, with the runners A, connected by cross-bars C D, of the shares G, having landsides H and colters I, and provided with separating-rods K, substantially as herein shown and described, whereby the trash at the sides of the rows will be cut, separated from the soil, and left upon the top of the ground, as set forth.

2. In a cultivator, the combination, with the runners A, the shares G, attached to the said runners, and the projecting ends of the cross-bar D, also attached to the said runners, of the rearwardly-inclined knives or colters L, substantially as herein shown and described, whereby the trash in the paths of the said shares is separated from the trash outside of the said paths, as set forth.

351,344. STIFFENING FOR CORSETS. James Stone and Marshall Gardner, Aurora, Ill., assignors, by direct and mesne assignments, to said Stone, Elizabeth Florsheim, Chicago, and Alice M. Ball, Aurora, Ill. Filed Oct. 29, 1884. (No model.)

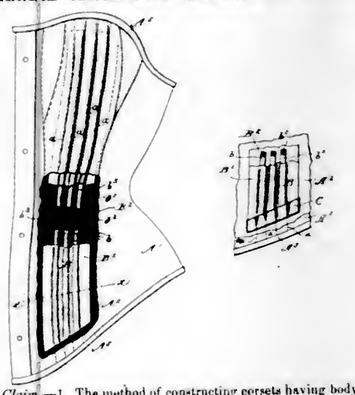


Claim.—1. The herein-described web of composite stiffening fabric for employment in the bodies of corsets, said fabric comprising two layers of cloth or other flexible material of continuous length, and a plurality of narrow bamboo strips placed parallel with each other between said layers, with spaces between said strips, in which spaces the inclosing fabrics are brought into contact with each other and there secured, the said spaces being of a width less than that of the stiffening-strips, substantially as set forth.

2. The herein-described web of composite stiffening fabric for employment in the bodies of corsets, the same comprising two layers of cloth or other flexible material of continuous length, and a plurality of narrow parallel bamboo strips placed between said layers and separated from each other by spaces narrower than the width of the strips, in which spaces the inclosing-layers are brought together and there secured to each other, each of said bamboo strips consisting of two layers or thicknesses of the bamboo or analogous stiffening material, substantially as set forth.

3. The herein-described web of composite stiffening fabric for employment in the bodies of corsets, the said web comprising two layers of cloth or other flexible material of continuous length and a plurality of narrow parallel bamboo strips placed between said layers and separated from each other by spaces narrower than the width of the strips, the inclosing-layers being brought together between the strips and there secured to each other, and elsewhere secured to the stiffening-strips by paste or glue, substantially as described.

351,345. METHOD OF CONSTRUCTING CORSETS. James Stone and Marshall Gardner, Aurora, Ill., assignors, by direct and mesne assignments, to said Stone, Elizabeth Florsheim, Chicago, and Alice M. Ball, Aurora, Ill. Filed Jan. 8, 1886. (No model.)

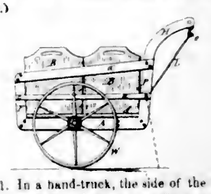


Claim.—1. The method of constructing corsets having body-stiffening strips of bamboo or analogous material, which consists in first forming a composite stiffening-web by connecting together a plurality of stiffening-strips arranged parallel with each other, with spaces between them, then cutting the stiffening-web to a length shorter than the height of the corset, then applying the said length or battery between the layers of cloth which form the body of the corset, with the ends thereof at a distance from the top and bottom margins of the said layers, and thereafter securing the battery and the several strips thereof in place by stitching through both layers of the corset and through the battery, between the stiffening-strips of the latter, substantially as described.

2. The method of constructing corsets having body-stiffening strips of bamboo or analogous material, which consists in first forming a composite stiffening-web by securing a series of parallel stiffening-strips to a layer or layers of flexible material, with spaces between said strips, then cutting the stiffening-web to a length shorter than the height of the corset, then applying the said length or battery between the layers of cloth which form the body of the corset, and thereafter securing the battery and the several strips thereof in place by stitching through both layers of the corset and through the battery, between the stiffening-strips of the latter, substantially as described.

3. The method of constructing corsets having body-stiffening strips of bamboo or analogous stiffening material, which consists in first forming a composite stiffening-web by securing a series of parallel stiffening-strips to a layer or layers of flexible material, with spaces between said strips, then cutting the stiffening-web to a length or battery shorter than the height of the corset, then covering the ends of the length or battery with a binding, then applying the said length or battery between the layers of cloth which form the body of the corset, and thereafter securing the length or battery in place by stitching through both layers of the corset and through the battery, between the stiffening-strips of the latter, substantially as described.

351,346. HAND-TRUCK. Daniel E. Trail, Oneida Castle, assignor of one-half to Frank J. Aubeuf, Oneida, New York. Filed Aug. 12, 1886. (No model.)

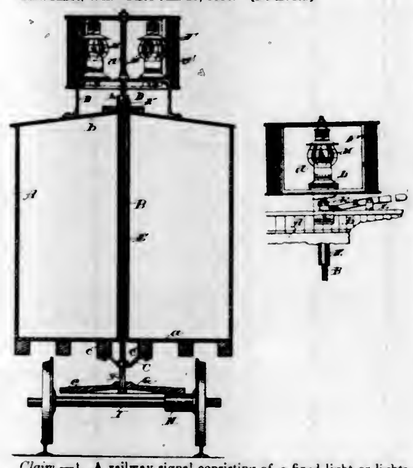


Claim.—1. In a hand-truck, the side of the frame composed of the sills A, corner-posts P P, and the rearwardly-extended arm H, all formed in one piece of a continuous bar of metal, and longitudinal rails secured to the upper parts of the corner-posts, substantially as described and shown.

2. The combination, with the truck-frame having its two sides each composed of the sill A, corner-posts P P, and rearwardly-extended arm H, formed of a continuous bar of metal, as shown, of the handle D, connecting the free ends of the two arms H H, and the leg L, pivoted to the rear end of the frame to swing vertically thereon, and adapted to rest intermediate its length against the rear end of the bottom of the frame, substantially as specified.

3. The combination, with the truck-frame having its two sides each composed of the sill A, corner-posts P P, and rearwardly-extended arm H, formed of a continuous bar of metal, as shown, of the handle D, connecting the free ends of the two arms H H, the roller r, pivoted at opposite ends to the posts P P, the leg L, attached to said roller, and the catch e, connected to the handle D, substantially as shown and described.

351,347. REVOLVING RAILWAY-SIGNAL. James K. Tremain, Milwaukee, Wis. Filed Jan. 29, 1886. (No model.)



Claim.—1. A railway-signal consisting of a fixed light or lights, a shell surrounding said light or lights and having its periphery provided with alternate open and closed spaces, a vertical shaft rigidly secured at its upper end to the shell, and a disk connected to the lower end of the shaft to come in frictional contact with a revolving medium, as set forth.

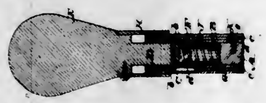
2. A railway-signal consisting of a fixed light or lights, a shell surrounding said light or lights and having its periphery provided with alternate open and closed spaces, a vertically-adjustable shaft rigidly secured at its upper end to the shell, and a disk loosely connected to the lower end of the shaft to have vertical play thereon, and arranged to come in frictional contact with a revolving medium, as set forth.

3. A railway-signal consisting of a fixed light or lights, a surrounding shell having openings upon its periphery and secured to the upper end of a vertical shaft that carries at its lower end a disk arranged to come in frictional contact with a revolving medium, in combination with a lever mechanism for bringing the disk in and out of contact with said revolving medium, as set forth.

4. In a railway-signal, a shell having alternate open and closed spaces upon its periphery and arranged to surround a fixed light or lights, in combination with a vertical shaft having its upper end rigidly connected to the shell and its lower end squared, a disk having a squared central opening adapted to fit the squared portion of the shaft, and a revolving medium designed to come in frictional contact with said disk, as set forth.

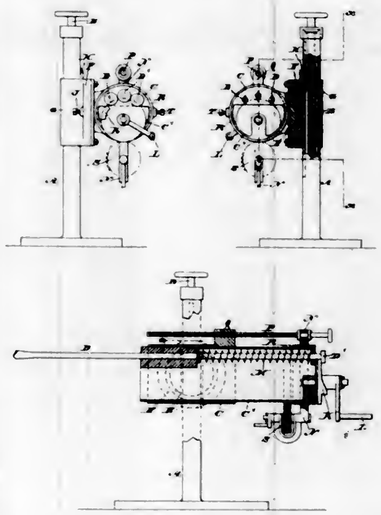
5. The combination, with a railway-car having a suitable bracket adapted to support a light or lights, of an adjustable vertical shaft carrying a shell provided with openings upon its periphery and adapted to surround said light or lights, a casing surrounding the shaft, a disk loosely connected to the lower end of said shaft, and a sleeve rigid upon one of the car-axles and arranged to come in frictional contact with the disk, as set forth.

351,348. STAMP-CANCELER. John H. G. Witt and Jacob J. F. Popp, Philadelphia, Pa.; said Popp assignor to said Witt. Filed Sept. 4, 1884. (No model.)



Claim.—A stamp-canceler composed of the head A, secured to the slotted cylinder B, the said cylinder having serrated edges, and the head A a serrated face, handle E, having stem D, provided with pin C, cylinder F, having vertical slot *d* and horizontal slot *e*, pin K, and spring J, all of said parts being arranged and combined substantially as and for the purpose set forth.

351,349. MINING-MACHINE. William A. Wright, Centreton, N. J., assignor to William M. Stewart, trustee, Philadelphia, Pa. Filed Apr. 23, 1886. (No model.)



Claim.—1. The cylinder C', having drills, in combination with inclosing-sleeve C, having side disk, E, in combination with the hollow standard A, having the screw B operating within the same, the sleeve G, with lug H, engaging the said screw B, and the disk F, formed on the side of sleeve G, the said disk E being rotatably connected with said disk F, all substantially as described.

2. A mining-machine having a cylinder with drills guided therein, a rotatable cam mounted on the end of said cylinder and adapted to withdraw said drill, and a spring within said cylinder, having one end secured to the cylinder and the other end secured to the drill, whereby the motion of the drill may be reversed, all of said parts being combined substantially as and for the purpose set forth.

3. In a mining-machine, the cylinder C', having reciprocating drills D, and sleeve C, with side disk, E, in combination with standard A, having the screw B inclosed therein, and the sleeve G, adapted to be operated by said screw B, and provided with disk F, said disk E being rotatably secured to said disk F, all substantially as described.

4. In a mining-machine, the cylinder C', having drills guided therein, and a rack, R, on the periphery thereof, and means, substantially as described, for reciprocating said drills, in combination with sleeve N, surrounding said cylinder at one end, the pinion S, mounted on said sleeve N and in engagement with said rack, and means, substantially as described, for rotating said pinion, all substantially as and for the purpose set forth.

5. In a mining-machine, the cylinder C', having rack R on the periphery thereof, and provided with drills, and means for reciprocating said drills, in combination with the sleeves N and C, the screw P, swiveled in the sleeve N and working in the lug Q of said sleeve C, the pinion S, journaled in an arm of the sleeve N and in engagement with the said rack, and means, substantially as described, for rotating the said pinion S, all substantially as and for the purpose set forth.

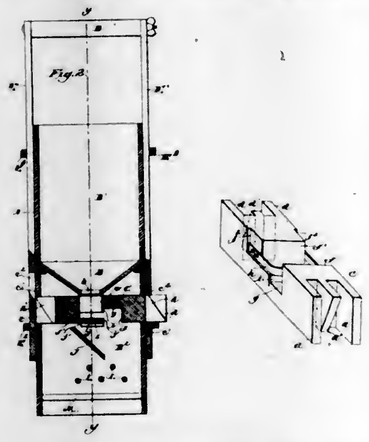
351,350. RUNNING-GEAR FOR VEHICLES. John Zeek Canby, Oreg., assignor of one-half to William Bloent, same place. Filed July 17, 1886. (No model.)

Claim.—1. In a running-gear for vehicles, the combination of the rearwardly-diverging reach having straps secured to its rear ends, having forked ends formed with perforations near the inwardly-bent ends, an axle formed by a straight lower bar and a curved upper bar, and bolts passing through the perforations in the forked straps and through the bars of the axle, the inwardly-bent ends of the forked straps bearing against the rear edge of the curved bar, as and for the purpose shown and set forth.

2. In a running-gear for vehicles, the combination, with the reach, forward axle, and king-bolt, of a fork whose shank is swiveled in the reach, and whose upper branch is provided with a cross-piece for the attachment of the forward spring, as herein specified.

REISSUES.

10,771. **FERTILIZER-DISTRIBUTER.** THOMAS L. ALLEN, East Windham, Me. Filed Aug. 6, 1886. Original No. 336,373, dated Feb. 16, 1886.



Claim.—1. The combination of a case having a hopper, a transverse slide arranged beneath the same, and vertically-moving handle-bars loosely mounted on the case and adapted to reciprocate the slide when they are moved up and down, substantially as described.

2. The combination of a case having a hopper, a reciprocating slide mounted in the case and arranged beneath the discharge-opening of the hopper-bottom, said slide having guide and cam arms at its ends, and slotted handle-bars alternately engaging the cam-arms of the slide to reciprocate the same, substantially as described.

3. The combination of a case having a hopper, a transversely-moving slide having limiting shoulders or stops, vertically-moving handle-bars to operate said slide, and a transverse stop-bar to limit the movement thereof, substantially as described.

4. The combination of a case having a hopper, a reciprocating slide having limiting-shoulders, vertically-moving handle-bars to operate the slide, and a reversible stop-bar to limit the movement of the slide and vary the quantity of material discharged, substantially as described.

5. The combination of a case having a hopper, a reciprocating slide, a removable band, A, secured thereto, vertically-moving handle-bars to operate the slide, and a stop-bar to limit the movements of the slide, substantially as described.

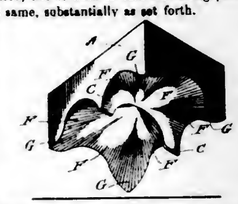
6. The combination of the case having a hopper, a reciprocating slide, handle-bars for operating the same, a removable band, A, secured to and surrounding the discharge-opening of the slide, and a reversible stop-bar adapted to limit the movement of the slide, substantially as described.

7. The combination of the case having a hopper, a horizontally-movable slide, vertically-movable handle-bars connected with the slide and adapted to reciprocate the same, a transverse bar for limiting the movement of the slide, an inclined dividing-board, located beneath the slide and supported on or near the middle of the case, and separating-bars arranged below the dividing-board, substantially as described.

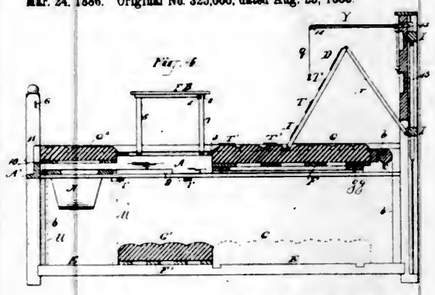
8. The combination, with the case having a hopper, a movable slide having an opening, and a detachable band, A, surrounding said opening, a reversible transverse bar for limiting the movement of the slide and having offsets at its ends, vertically-movable handle-bars for operating the slide, an inclined dividing-board, and separating-bars located below the dividing-board, substantially as described.

10,772. **DIE FOR MAKING SEAMLESS DRESS-SHIELDS.** ALVA J. HISCOTT, Bridgeport, Conn. Filed Aug. 2, 1886. Original No. 339,294, dated Apr. 6, 1886.

Claim.—As a new article of manufacture, a pair of dies for manufacturing seamless dress-shields, the male die having a crescent-formed shaper and the female die a corresponding depression, whereby the concavity is given to the upper edge of the shield, the dies having corresponding male and female corrugations and depressions which radiate from a common vertical center, whereby the cockles or wrinkles incident to the operation of the crescent shaper are taken up, and creasing thereby prevented, one or both of said dies being provided with means for heating the same, substantially as set forth.



10,773. **INVALID-BED.** ISAAC D. JOHNSON, Kennett Square, Pa. Filed Mar. 24, 1886. Original No. 325,000, dated Aug. 25, 1885.



Claim.—1. The combination of the side rails having the slots therein, the stretcher-straps provided with rigid clips on the ends thereof adapted to enter said slots, and the tension-regulating devices, consisting of the roller R, the pinion and worm, and means for rotating said worm, substantially as and for the purpose set forth.

2. In an invalid-bed, the combination, with a platform, such as E, and means for raising and lowering the same, of the mattress and supporting-cribs in independent sections adapted to be raised and lowered simultaneously, together with means for sustaining the forward section, when desired, so that the next section may descend with the said platform, while the forward section is sustained free from the latter, and thus prevented from descending with the platform, substantially as and for the purpose set forth.

3. The combination, with the invalid-bed, of the vertically-movable platform and the mattress-crib provided with sliding frames, adapted to engage with the shelf-rails for sustaining the ends of said sliding frame, substantially as specified.

4. In combination with the commode located at the foot of the bed, the pivoted sliding foot-board, substantially as and for the purpose specified.

5. The combination, with the mattresses and the vertically-movable supporting-platform, of the foot-board and its cleats, adapted to slide in grooves, whereby the foot-board may be moved longitudinally and brought to a horizontal position, substantially as and for the purposes specified.

6. The combination, with the convertible foot-board and table, of the straps S, pivoted to the sliding bars 2, and the stays 7, also pivoted to said bars and having hooks adapted to engage with eyes attached to the said foot-board or table, substantially as and for the purpose specified.

7. In combination with the commode located at the foot of the bed, the foot-rail cut away in front of the commode, and the hinged lid having a section secured thereto corresponding to the cut-away portion of the foot-rail, substantially as and for the purpose specified.

8. The combination of the pivoted head-section connected by the pivoted bars r to the sliding weighted frame in the rear of the head-board, the cord q, the fixed vertical bar 15, and the pivoted eccentric pawl d, having the cord q attached to its free end, together with the spring 16, all constructed and adapted to operate substantially as and for the purpose described.

9. In combination with the hinged head-section pivoted to the vertically-sliding frame I, and the operating-cord q, connected with said frame, substantially as described, of the weights W, with means for arresting the descent of the same at different heights or points, together with the weight-cords q', attached to said sliding frame, and provided, respectively, with sinkers, as S', the whole constructed and adapted to operate substantially as and for the purpose set forth.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE MORLEY.

Decided October 8, 1886.

1. An applicant for a patent who has duly empowered an attorney in fact to act for him in a case as his agent or attorney may ordinarily revoke such power at will.
2. The Commissioner of Patents has no right to refuse to recognize, receive, and act upon such revocation.
3. Such right to revoke is, in ordinary cases, absolute, and can only be denied in exceptional cases, as, for instance, where some interest is coupled or connected with the power of attorney.

PETITION.

Application of Edward A. Morley, No. 191,249, filed February 8, 1886.

Messrs. McKenna & Sims for the applicant.

MONTGOMERY, *Commissioner:*

This case was last amended on the 29th day of March, 1886. On the 3d day of April thereafter it was passed to issue. When the case was filed, it included the formal nomination of Messrs. McKenna & Sims as applicant's attorneys. On the 27th of September last applicant filed a paper in which he "revokes the power of attorney" so given to McKenna & Sims. This paper was referred to the examiner in the usual way for recommendation. Such recommendation has been received, and is as follows:

There seems to be no good reason for revoking the power of attorney in this case. The application is in the issue, and no work remains to be done thereon.

This adverse report was transmitted to the docket-clerk, who, in pursuance of the usual practice, put the matter of such revocation and report on the docket for hearing.

There seems to be a quite general misunderstanding in the Office in regard to these matters of revocation. Messrs. McKenna & Sims have been nominated by applicant as his attorneys *in fact*. They were thereby invested by applicant with certain powers as his agents and attorneys. Applicant now sees fit to revoke such power, to divest them thereof, and take it away. In other words, he declares that he no longer desires that they shall be empowered to act for him, and that such power heretofore granted is revoked, canceled, and annulled. I know of no authority on the part of the Patent Office to prevent such revocation. It seems to me very plain that an applicant may revoke or take back an agency or power of this character which he has previously conferred. Indeed, it is difficult to conceive a case, unless some interest or something of that character is coupled or connected with the grant, where the principal would not have this absolute legal right. If I should be called upon by an applicant to explain why his letters patent had been sent to his former attorneys, notwithstanding the fact that their power had been absolutely revoked and canceled, and of which fact the Office had been duly notified, it would be very difficult for me to give a satisfactory explanation. This subject is one of great perplexity and frequent recurrence. I am irresistibly led to the legal conclusion herein announced. Where the plain and unquestioned relation simply of principal and agent, or attorney in fact, and applicant exists, and there is nothing to indicate that such attorney in fact has any interest whatever in the subject-matter of the application, I know of no right or authority on the part of the Office to refuse to recognize the cancellation of the power theretofore given. The Office can only decline to recognize and act upon the same arbitrarily and without legal reason. I feel impelled, therefore, to direct that hereafter in all cases where an instrument purporting to revoke a power of attorney shall be received the following course shall be pursued: A time and place of hearing will be fixed by the docket-clerk and entered upon the docket, and notice thereof given to the parties interested, including in all cases applicant and the assignee, if there be one, and the attorneys sought to be deposed, and in case of substitution also the attorney sought to be substituted.

The revocation in this case will be recognized.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

WETHERELL v. KEITH *et al.*

Decided March 23, 1886.

1. EVIDENCE OF PRIOR USE.

In order to defeat a patent on the ground of prior use, such use must be established beyond reasonable doubt. (*Coffin v. Ogden*, 18 Wall., 120; *Washburn & Moen Manufacturing Company v. Haish*, 4 Fed. Rep., 900.)

2. SAME.

Where a witness testified to his use of a patented invention sixteen years before the time when he testified, and that he employed some ten persons in its manufacture, and yet could not tell the names of any of such persons, *held* that his testimony failed to make out a defense.

3. SAME.

Two witnesses testified in 1884 to seeing the patented device in use in 1864; but their testimony was indefinite and contradicted in many important particulars, and none of the alleged prior devices were produced. *Held* insufficient to defeat the patent.

4. CARPENTER—HOOP-SKIRTS.

Letters Patent No. 116,411, granted June 27, 1871, to Charles C. Carpenter for an improvement in hoop-skirts, sustained over the alleged prior use by Max Schwab, at Ottawa, Illinois, and that seen by Robert G. Lester and August Seligman in 1864.

Messrs. Coburn & Thacher for the complainant.

Messrs. Moses, Newman & Reed for the defendants.

BLODGETT, *J.:*

This is a bill for an injunction and accounting by reason of the alleged infringement of Letters Patent

No. 116,411, granted June 27, 1871, to Charles C. Carpenter, for an improvement in hoop-skirts, and duly assigned to complainant. The device covered by the patent is probably best described by the patentee himself in his specification. He says:

My invention is an improvement upon the skirt patented by Samuel Feberdy, November 30, 1858, in which the hoop or spring is continuous, and is wound spirally from the top to the bottom of the skirt; and also upon the hoop-skirt patented by William H. Towers, November 17, 1868, having an upper and a lower nest of hoops and an intervening space; and my said improvement consists in forming the lower nest of the skirt of the same wire which crosses spirally the space between the upper and the lower nests, and unites the two nests together; also in forming the lower portion of the bustle and front guards or fenders for the knees by a series of wires attached to and starting from the front of the waistband, and passing spirally around both sides of the skirt, interlacing with each other at the bustle, and terminating at the front of the waistband, by which improvements the following, among other desirable advantages, are obtained, viz: economy in the manufacture of the skirt; increased stiffness and supporting power by the interlacing at the back, near the top or waist; and front guards or fenders, to prevent the projection of the knees through and into the intervening space; and rendering the skirt more agreeable and convenient for the wearer.

* * * * * * * *

* * * The lower skirt or nest of hoops, 9 to 15, is formed by a single wire, 9, one end of which is attached to one of the front tapes, *b'*, of the bustle at *d*, and, continuing around spirally parallel with the continuous fender and bustle-wires 5, 6, 7, and 8, leaves the same at the front thereof, and forms, by continuous spiral revolutions, the lower nest, 9 to 15, separate and distinct from the upper, and yet connected to it by the same wire, 9, from which the lower nest is formed, thus obtaining a hoop-skirt having two nests, with the intervening wires forming a part of both nests, and holding the lower nest from swaying.

The patent also contains a disclaimer in the following words:

I am aware that one or more bracing-hoops, which extend from a point at or near the top of the skirt at the back to a point at or about the height of the knees of the wearer in front, have been patented by Charles E. Pratt, July, 1870, and I therefore do not claim such bracing-hoops as my invention.

The claims of this patent are as follows:

1. In a hoop-skirt having an upper and a lower nest of hoops with an intervening space, the lower or skirt nest thereof, formed by the same hoop, 9, which passes spirally through the space between the upper and the lower nests, and unites the two together without use of separate wires or fastenings, as described.

2. The lower portion of the bustle-nest and the knee-guards or fenders of the lower nest, formed by one and the same series of wires, 5, 6, 7, and 8, in the manner described.

3. The bustle and knee-guard wires crossed and interlaced at the back, for the purpose of increasing the strength and supporting power of the skirt at the back, as described.

4. In a hoop-skirt in which the lower nest is formed of a continuous wire, which also unites it with the bustle-nest, the combination therewith of the separate wires 5, 6, 7, and 8, crossed and interlaced at the bustle or back, and the knee-guards or fenders *g*, formed thereby, crossing the front space above the lower hoops, as described.

The fact of infringement is conceded, and the only defenses set up are want of patentable novelty and the public use for more than two years before this patent was applied for.

The witnesses by whom a prior use is attempted to be shown are Max Schwab, Robert G. Lester, and August Seligman. Schwab states that he made skirts constructed like the patent in Ottawa, Illinois, about sixteen years before the date of his deposition, his testimony having been taken in December, 1884; that he copied the skirts he so made from one he bought of a traveling man. He seems to have had a small store at Ottawa for about two years, but is unable to fix the date when he began and closed the business there, and says he employed about ten persons making such hoop-skirts, and yet can give the names of none of them. Lester and Seligman testified to seeing skirts in the market as early as 1864; but their testimony is indefinite. No skirts or patterns of skirts, or forms on which they were made, are produced, and both witnesses are contradicted in many important particulars by persons to whom they referred as being connected with them at the time they claimed to have seen the skirts in question. The proof also shows that both Schwab and Seligman are infringing the complainant's patent, and that Lester is in the employ of Seligman. The proof also shows that C. C. Carpenter & Co. began the manufacture of hoop-skirts of the structure shown in this patent in 1870, and put them quite extensively upon the market; and I think it is more than probable that these witnesses are all mistaken as to the time when they first saw these skirts on sale, and that they did not see them until Carpenter had commenced their manufacture, for which he subsequently obtained a patent in apt time.

Upon the whole, then, I come to the conclusion that the defendants' proof of prior use is not sufficiently clear and certain to establish such prior use before the date of Carpenter's invention. The rule as laid down in *Coffin* v. *Ogden* (18 Wall., 120) and *Washburn & Moen Manufacturing Company* v. *Haish* (4 Fed. Rep., 900) requires that the fact of prior use shall be established beyond reasonable doubt, and I cannot say that this is done by the proof in this case. I therefore find that the patent is valid, and that the defendants infringe, for which the complainant is entitled to damages, and a decree may be prepared accordingly.

U. S. Circuit Court—Southern District of New York.

ROEMER v. PEDDIE *et al.* SAME v. HEADLEY.

Decided June 3, 1886.

1. ROEMER—LOCKS FOR TRAVELING-BAGS.
   Letters Patent No. 195,233, granted to Roemer, for an improvement in lock and handle for traveling-bags, again declared valid.
2. LIMITATION OF CLAIMS BY ACQUIESCENCE IN ACTIONS OF THE PATENT OFFICE.
   The defendants use a form of lock-case which the complainant endeavored to cover by claims in his application upon which the patent in suit was granted, which claims were rejected by the Patent Office, and the rejection acquiesced in by complainant. *Held* that by this action of the complainant his claim must be limited to his particular form of lock, which is not used by defendant, who therefore does not infringe.

Mr. Sanford H. Steele for the orator.

Mr. J. E. Hindon Hyde for the defendants.

WHEELER, *J.*:

This patent was held valid in *Roemer* v. *Simon*, (20 Fed. Rep., 197.) No good reason for changing that conclusion has been made to appear, and it is followed now. The only question left is whether the defendants infringe. The improvement patented consists, essentially, in extending the sides of the lock-case to hold the handle-rings of traveling-bags. The bottom-plate of the lock had before been extended for that purpose. By the improvement the bottom plate could be dispensed with, and the side walls of the lock-case made both to inclose the lock and hold the handle-rings. The defendants use the same thing to hold the handle-rings, but place the lock above it, and do not use it for the side walls of the lock-case. It becomes by the use which they make of it an extended bottom plate to the lock, of an improved form. If this piece was patented and the patent is valid to cover it, the defendants do infringe. The file-wrapper and contents are made a part of the case. From them it appears that the orator in his application for this patent at first applied for a patent covering the combination of the lock-case with the handle-rings. His claim was rejected on a reference to Patent No. 177,020, granted to William Simon, which covered an extended bottom plate to the lock to hold the handles. The claim was amended and again rejected on the same reference, and was not granted until the specification was amended to dispense with an extended bottom plate to the lock, and the claim was confined to a lock-case with notched sides near its ends, to receive and hold the handle-rings. This piece which the defendants use was the same before as after these amendments. The Patent Office would not grant a patent for it generally in combination with the handle-rings, but only specifically when used for the sides of the lock-case and for the handle-rings. The orator accepted the patent narrowed in that manner, and cannot now be heard to claim that it is any more broad than that in its scope. He invented this particular form of lock case, and his patent is for that only, and it cannot be construed to cover anything else. (*Railway Co.* v. *Sayles*, 97 U. S., 554.) The defendants do not use his lock-case, but use an extended bottom plate like his lock-case. It has been argued ingeniously and with plausibility that the same thing is used under a merely different name; but this argument is not in reality well founded. The patent was for a lock-case, not only in name but in substance. The defendants do not use this lock-case. They evade the patent, not by a mere colorable, but by a substantial, evasion.

Let decrees be entered that the defendants do not infringe and that the bill be dismissed, with costs.

DECISIONS OF STATE COURTS.

Appellate Court—First District of Illinois.

WOLLENSAK, APPELLANT, v. BRIGGS, APPELLEE.

Decided June 23, 1886.

1. SPECIFIC PERFORMANCE.
   A court of equity will not attempt to enforce the specific performance of a contract to make an invention or build a machine embodying the same.
2. SAME.
   Courts of chancery will not entertain bills to compel the specific performance of contracts for personal services, especially where the services stipulated for require the exercise of mechanical skill, intellectual ability, or judgment.
3. SAME.
   Nor will a court of equity attempt to enforce the specific performance of a contract where it is impossible for it to specify or describe in its decree the particular thing to be done, or where, if it attempted to lay its mandate upon the defendant to proceed, it could never know with certainty whether its order was obeyed.
4. SAME.
   A contract by one to make an invention for another involves as a necessary element a complete disclosure and discovery of the invention to the latter, and, therefore, to compel such a disclosure would be in effect to enforce a specific performance of the contract, and on this ground a discovery was denied in this case.

BAILEY, *P. J.*:

It is manifest that the bill in this case, in its entire scope and purpose, is a bill to compel the specific performance by the defendant of certain contracts between him and the complainant. By these contracts the defendant undertook to produce and construct by his labor, skill, and inventive genius certain improved machinery for manufacturing speaking-tubes. Said machines, as the bill alleges, were to embrace and embody various new and useful improvements and inventions made and to be made by the defendant. No details or specifications are given in the contracts as to the form, material, structure, principle, or mode of operation of the proposed machines, all these matters being left wholly to the judgment and discretion of the defendant. Indeed it is difficult to see how it would have been possible to give any specifications and details of the machines, as some, and perhaps many, of them had as yet no existence in the minds of the contracting parties, but were to be invented and developed by the defendant by means of subsequent thought, study, and experiment.

There are at least two insuperable reasons why these contracts cannot be specifically enforced in equity. The first is that courts of chancery will not entertain bills to compel the specific performance of contracts for personal services. Especially is this true where the services stipulated for require the exercise of mechanical skill, intellectual ability, and the exercise of judgment. Although some cases may be found in the earlier reports holding contrary doctrine, the rule as we have stated it is now well settled. Among the various applications of the rule to be found in the reports the following may be noticed:

In *Baldwin* v. *The Society for the Diffusion of Useful Knowledge*, (9 Simons, 395,) by an agreement between the plaintiff and defendant the former, in consideration of certain payments to be made to him by the latter, was to have exclusive right of engraving and publishing a series of maps and drawings to be furnished to him from time to time by the latter. The court refused to restrain the defendant from acting in violation of the agreement, as it could not compel the defendant to furnish the drawings, and therefore could not decree the specific performance of the agreement.

In *Clark* v. *Price* (2 J. Wils. Ch., 157) the court refused to decree the specific performance of a contract by which the defendant agreed to compose and write reports of cases argued and determined in the court of exchequer to be published by the plaintiff. In pronouncing the decision the Lord Chancellor said:

> The only means of enforcing the execution of this agreement would be to take an order compelling Mr. Price to write reports for the plaintiff, which I have not the means of doing. If there be any remedy in this case, it is at law.

The same rule is applied to an agreement by a person to act at a theater. (*Kemble* v *Kean*, 6 Simons, 334; *Lumley* v. *Wagner*, 1 De Gex, Mc. & G., 604; *Hamblin* v. *Dinneford*, 2 Edwards Ch., 529.) In the case last cited the court says:

> The difficulty is how to compel specific performance. The court cannot oblige the defendant to go to the theater and there perform particular characters. Imprisonment for contempt would be the consequence of his refusal, and this would defeat the performance sought to be enforced.

See, also, *Ford* v. *Germon*, (6 Phila., 6.)

In *Stocker* v. *Wedderburn*, (3 Kay & John, 393,) the plaintiff, being the owner of certain letters patent, entered into a written agreement with other persons to form a joint stock company for the purpose of working the patents, he agreeing on his part to sell the patents to the company on certain terms, and take all requisite measures for obtaining patents in foreign countries, and to give his whole services to the company for two years, and to do his best to improve the

invention and to impart such improvements to the company; and it was held that the plaintiff could not obtain specific performance of this agreement against his copromoters, because, from the nature of his own part of the agreement, the court could not compel specific performance of it by him. See, also, *Webb* v. *England*, (29 Beavan, 44,) where the rule above stated is held to apply to a contract to work as an apprentice or to instruct as a master; and *Booth* v. *Pollard*, (4 Y. & C., 61,) where it is applied to a contract to work quarries or coal-mines. Another rule applicable to the specific performance of contracts to which courts of equity have uniformly adhered is that a bill for that purpose will not be maintained unless the contract sought to be enforced is certain and definite in its terms and in all its parts. (*Shenandoah Valley R. R. Co.* v. *Lewis*, 76 Va., 833; *Schmeling* v. *Kriesel*, 45 Wis., 325; *Nichols* v. *Williams*, 22 N. J. Eq., 63; *Colson* v. *Thompson*, 2 Wheat., 336; *Los Angeles, &c., Association* v. *Phillips*, 56 Cal., 539; *Bowman* v. *Cunningham*, 78 Ill., 48; 1 Story's Eq. Juris., sec. 767; Fry on Specific Performance, sec. 317, et seq., and authorities cited.)

The foregoing rule, especially in its application to a case like the present, is so well stated and discussed in *Blanchard* v. *D., L. & L. M. R. R. Co.* (31 Mich., 43) that we feel justified in quoting at length the following language from the opinion of the court:

> The jurisdiction of equity in specific performance proceeds on the supposition that the parties have not only agreed, as between themselves, upon every material matter, but that the matters so agreed on are of such a nature, and the subjects of enforcement so delineated or indicated, either directly or by reference to something else, or so raised to view by legitimate implication, that the court can and may collect, and in their proper relations, all essential elements, and proceed intelligently and practically in carrying into execution the very things agreed on and standing to be performed. If, however, it appears either that the things to be performed are in their nature incapable of execution by the court, or that needful specifications are omitted, or that material matters are left by the parties so obscure or undefined or so in want of details, or that the subjects of the agreement are so conflicting or incongruous that the court cannot say whether or not the minds of the parties met upon all essential particulars, or if they did, then cannot say exactly upon what substantial terms they agreed, or trace out any practical line where their minds met, the case is not one for specific performance. As the court does not make contracts for parties, so it never undertakes to supply material ingredients which they omit to mention and which cannot be legitimately considered as having been within their mutual contemplation. And where the party to perform is left by the agreement with an absolute discretion respecting material and substantial details, and these are therefore indeterminate and unincorporated until by his election they are developed, identified, and fixed as constituents of the transactions, the court cannot substitute its own discretion, and so by its own act perfect and round out the contract.

If a court of equity should attempt to order a specific execution of the contract in this case, it is manifest that insurmountable obstacles would immediately present themselves. It would be impossible for the court to specify or describe in its decree the machines to be constructed, their form, material, or structure, or if it attempted to lay its mandate upon the defendant to proceed with the invention and construction of the machines stipulated for, it could never know with certainty whether its order was obeyed. If it should attempt to take the execution of the contract into its own hands, it would be met with equal difficulties. Its officer charged with the performance of its decree would be powerless. The court would thus find itself unable either to compel the defendant to execute the contract or to cause it to be executed through any of the agencies by means of which courts of chancery ordinarily enforce their decrees. It is urged, however, by the counsel for the complainant that a portion of the relief sought—viz., that the defendant be required to show and exhibit to the complainant the plans and drawings of said machines heretofore prepared by him, and make disclosure and discovery to him of the principle and structure of the machines already built—is not in the nature of decreeing a specific performance of the contracts, and therefore does not come within the principles above discussed. In this we think counsel are mistaken. This particular measure of relief, with which it is now suggested that they may be content, seems to us clearly to be nothing less than a partial execution of the contracts. The defendant's undertaking was not merely to construct and deliver to the complainant certain machines, but to embody in such machines various improvements and inventions already made and yet to be made by him. Obviously the principal thing sought by the complainant and secured to him by the contracts was the defendant's improvements and inventions. The mere construction of two machines after their invention had been achieved was quite secondary and relatively of little importance. These improvements and inventions were to be assigned and transferred to the complainant, and such transfer and assignment involved as a necessary and principal element a complete disclosure and discovery to him of the principle and structure of the machines, so as to enable him to avail himself of said inventions and discoveries. Compelling the defendant to make the disclosure and discovery asked for, and to place in the complainant's hands the plans and drawings of the machines, would be giving him all the substantial and really valuable benefits of the contracts, and would be for all substantial and valuable purposes a specific execution of the contracts.

We do not perceive that the case is at all changed by the fact averred in the bill that the complainant on being shown the plans and drawings prepared by the defendant approved and was satisfied with the machines which they purported to represent, and so informed the defendant. While by the term of the contracts the complainant was not bound to pay the defendant the stipulated price until he approved, accepted, and was satisfied with the machines, the question after all is whether the machines built, or partially built, by the defendant, and of which he prepared plans and drawings, were really and in fact the machines contemplated by the contracts, for if they were not the plaintiff's approval imposed upon the defendant no obligation to deliver them to him. So far as the bill shows those machines when completed may have proved failures equally with the first one built, which did not seem to work. Unless they were capable of operating in the manner and of producing the results stipulated for they cannot be held to be the machines contemplated by the contract, and the complainant had no right to claim them. If, therefore, the court had undertaken to compel the defendant to make discovery of the principle and structure of the machines built, it would still have been uncertain whether the improvements and inventions thus disclosed were the ones contemplated by the contract. Under such circumstances a specific performance will never be awarded.

We are of the opinion that the demurrer to the bill was properly sustained, and the decree will therefore be affirmed. Decree affirmed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth $10 00

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Bound half-turkey	2 50
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Issue of October 26, 1886.

Patents	379	No. 351,351 to No. 351,729, inclusive.
Designs	18	No. 16,947 to No. 16,964, inclusive.
Trade-Marks	16	No. 13,752 to No. 13,767, inclusive.
Labels	4	No. 5,004 to No. 5,007, inclusive.
Reissues	2	No. 10,774 to No. 10,775, inclusive.
Total issue	419	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
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Louisiana	2		West Virginia	2	
Maine	3		Wisconsin	6	1
Maryland	2	1	Wyoming Territory		
Massachusetts	56		United States Army		
Michigan	10		United States Navy		
Minnesota	4				
Mississippi	1		Total to citizens of the United States	378	14
Missouri	9				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	5	
Austria-Hungary			Holland		
Belgium		1	Mexico		
Bohemia	1		New Zealand		
British Guiana			Roumania	1	
Canada	2		Russia	1	
Central America			Sweden		
Colombia, U. S. of			Switzerland		
Cuba			West Indies		
Denmark					
Egypt			Total to citizens of foreign countries	19	6
England	8	3			
France	1	2			

DESIGNS.

16,947.—BRACKET.—*George S. Barkentin*, New Haven, assignor to *P. & F. Corbin*, New Britain, Conn. Application filed May 24, 1886. Serial No. 203,080. Term of patent 7 years.

16,948.—HANDLE.—*William H. Berger*, Philadelphia, Pa. Application filed May 5, 1886. Serial No. 201,245. Term of patent 14 years.

16,949.—WASH-BASIN SLAB.—*William Bunting, Jr.*, Boston, Mass., assignor to *The Meyer-Sniffen Company*, (*Limited*,) New York, N. Y. Application filed August 25, 1886. Serial No. 211,867. Term of patent 14 years.

16,950.—LAMP-HOLDER.—*Samuel Clarke*, Childs Hill, county of Middlesex, England. Application filed July 12, 1886. Serial No. 207,847. Term of patent 14 years.

16,951.—CIGAR.—*Gottlieb D. Elges*, Clinton, Mo. Application filed August 30, 1886. Serial No. 212,263. Term of patent 3½ years.

16,952.—ORNAMENTATION OF GLASSWARE.—*George E. Hatch*, Brooklyn, N. Y., assignor to *Hatch & Co.*, same place. Application filed June 17, 1886. Serial No. 205,493. Term of patent 14 years.

16,953.—BADGE.—*James F. Kelly*, Brooklyn, N. Y. Application filed July 6, 1886. Serial No. 207,381. Term of patent 3½ years.

16,954.—SURFACE ORNAMENTATION.—*Frederick Mankey*, Williamsport, Pa. Application filed July 1, 1886. Serial No. 206,866. Term of patent 7 years.

16,955.—MOLDING.—*Frederick Mankey*, Williamsport, Pa. Application filed July 12, 1886. Serial No. 207,845. Term of patent 7 years.

16,956.—MOLDING.—*Frederick Mankey*, Williamsport, Pa. Application filed July 1, 1886. Serial No. 206,868. Term of patent 7 years.

16,957 and 16,958.—MOLDING.—*Frederick Mankey*, Williamsport, Pa. Applications filed July 1, 1886. Serial Nos. 206,874 and 206,875. Term of patents 7 years.

16,959.—CRUMB-TRAY.—*Henry L. Palmer*, Brooklyn, N. Y. Application filed September 3, 1886. Serial No. 212,643. Term of patent 14 years.

16,960.—CAKE OF SOAP.—*Solon Palmer*, New York, N. Y. Application filed September 14, 1886. Serial No. 213,538. Term of patent 14 years.

16,961 and 16,962.—WALL-PAPER.—*William N. Peak*, Brooklyn, N. Y. Applications filed August 20, 1886. Serial Nos. 211,455 and 211,456. Term of patents 3½ years.

16,963.—CRUMB-TRAY.—*Henry L. Palmer*, Brooklyn, N. Y. Application filed September 3, 1886. Serial No. 212,645. Term of patent 14 years.

16,964.—LAMP-BODY.—*Karl Müeller*, New York, N. Y., assignor to *Nicholas Müeller's Sons*, same place. Application filed September 9, 1886. Serial No. 213,168. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,752.—STEAM SIPHON-PUMPS AND INJECTING AND EJECTING PUMPS. *Blakeslee Manufacturing Company*, Du Quoin, Ill. Application filed September 2, 1886. Used since 1870.
"The word 'BLAKESLEE.'"

13,753.—BLACK AND OTHER DRESS SILKS.—*Darlington, Runk & Co.*, Philadelphia, Pa. Application filed September 22, 1886. Used since July 1, 1886.
"The word 'BRAGANCE.'"

13,754.—CERTAIN FAMILY MEDICINES NAMED.—*Charles A. Diamond*, Buffalo, N. Y. Application filed September 6, 1886. Used since July 26, 1886.
"A cruciform figure containing the letter 'D' and a fac-simile of the registrant's signature."

13,755.—STOVES, RANGES, HEATERS, AND FURNACES.—*Ely & Ramsay*, New York, N. Y. Application filed September 6, 1886. Used since January, 1879.
"The word 'ROSSMORE.'"

13,756.—VELVET RIBBONS.—*Giron Frères*, Saint-Etienne, France. Application filed September 18, 1886. Used since 1860.
"The letters 'G. F.,' a representation of the Cross of the Legion of Honor, and of eight prize medals."

13,757.—VELVET RIBBONS.—*Giron Frères*, Saint-Etienne, France. Application filed September 18, 1886. Used since 1860.
"The letters 'G. F.,' the words 'GIRON FRÈRES,' and a representation of the Cross of the Legion of Honor."

13,758.—SMOKING AND CHEWING TOBACCO, CIGARS, AND CIGARETTES.—*Benjamin F. Hanes*, Winston, N. C. Application filed July 26, 1886. Used since 1872.
"The words 'GOLDEN CHAIN,' with the representation of a chain."

13,759.—ROASTED COFFEE.—*H. C. Lowe*, La Crosse, Wis. Application filed August 7, 1886. Used since February 20, 1886.
"The letters 'A B C,' arranged to form a triangular figure, of which 'A' is the apex—as A, B C.'"

13,760.—CANNED CORN.—*McConnell, Clancey & Co.*, Schooley, Ohio. Application filed August 20, 1886. Used since January 1, 1886.
"The representation of a woman and of an ear of corn, the body or main portion of the figure being developed to present the appearance of an ear of corn."

13,761.—BARLEY-MALT WHISKY.—*M. & J. S. Perrine*, Philadelphia, Pa. Application filed June 19, 1886. Used since January, 1886.
"The representation of two crossed sheaves of barley in the form of the letter X, printed on a colored ground within an inclosed space."

13,762.—WHEAT-FLOUR.—*Reid, Murdoch & Fischer*, Chicago, Ill. Application filed September 24, 1886. Used since April 1, 1885.
"The word 'MONARCH.'"

13,763.—WHISKIES AND WINES.—*Sattler & Co.*, Baltimore, Md. Application filed September 16, 1886. Used since 1868.
"The words 'PICKWICK CLUB.'"

13,764.—OIL-CLOTH FOR WALL-COVERING.—*Storey Bros. & Co.*, Lancaster, county of Lancaster, England. Application filed November 4, 1885. Used since May 15, 1885.
"The word-symbol 'TECTO.'"

13,765.—CIGARS.—*Frederick Turner*, Philadelphia, Pa. Application filed September 3, 1886. Used since July 15, 1886.
"The representation of a cylinder and the letters 'K L,' one on each end of said cylinder."

13,766.—PHOTOGRAPHIC MATERIALS.—*Hortense Van Monckhoven*, Ghent, Belgium. Application filed May 12, 1886. Used since December 20, 1880.
"The letters 'D. V. M.'"

13,767.—STEEL AND IRON TUBES.—*Weldless Steel Tube Co.*, Birmingham, county of Warwick, England. Application filed July 3, 1886. Used since March, 1886.
"The letter 'W.'"

LABELS.

5,004.—Title: "BEACHAM'S COUGH PILLS."—*Thomas Beacham*, St. Helens, England. Application filed October 2, 1886.

5,005.—Title: "DICKEY," (FOR AN ARTICLE OF PERSONAL APPAREL.) *Downs & Finch*, New York, N. Y. Application filed September 15, 1886.

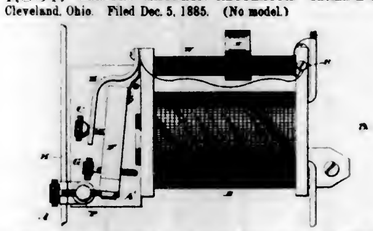
5,006.—Title: "TONIC PHOSPHATES PILLS."—*Hegeman & Company*, New York, N. Y. Application filed September 23, 1886.

5,007.—Title: "KIEFFER BROS. MANUFACTURERS" (FOR PACKAGES FOR STOVE REPAIRS.)—*Kieffer Bros.*, Syracuse, N. Y. Application filed September 11, 1886.

PATENTS

GRANTED OCT. 26, 1886.

351,351. ELECTRO-MAGNETIC REGULATOR. THOMAS E. ADAMS, Cleveland, Ohio. Filed Dec. 5, 1885. (No model.)



Claim.—1. The combination, with an electric circuit, a main magnet, and a relay or controller magnet included therein, of a shunt-circuit around the main magnet, a resistance in the shunt-circuit, and devices actuated or controlled by the controller-magnet for breaking the shunt-circuit, substantially as set forth.

2. The combination, with an electric circuit, a main magnet, and a relay or controller magnet included therein, of a shunt-circuit around the main magnet, an adjustable resistance in the shunt-circuit, and devices actuated or controlled by the controller-magnet for opening and closing the shunt-circuit, substantially as set forth.

3. The combination, with an electric circuit, having included therein a main magnet and devices connected therewith, whereby said magnet serves as a motor for controlling or regulating the current, and a relay or controller magnet included in the main circuit, of a shunt-circuit around the main magnet having an adjustable resistance included therein, and a circuit-breaker in the shunt-circuit operated and controlled by the controller-magnet, substantially as set forth.

4. The combination, with a main circuit and a magnet included therein, of an adjustable resistance composed of wire wound upon parallel rods, an elastic sliding connection for short-circuiting more or less of the work, and a circuit-breaker in the shunt-circuit controlled and actuated by the magnet, substantially as set forth.

5. An electro-magnet, its armature and stops, in combination with a resistance electrically connected with the armature, and arranged around the electro-magnet, substantially as set forth.

6. The combination, with an electro-magnet and circuit-breaker, of an adjustable resistance composed of parallel rods attached to the frame of the electro-magnet, wire wound upon said parallel rods, and an elastic sliding connection for short-circuiting more or less of the wire on the rods, substantially as set forth.

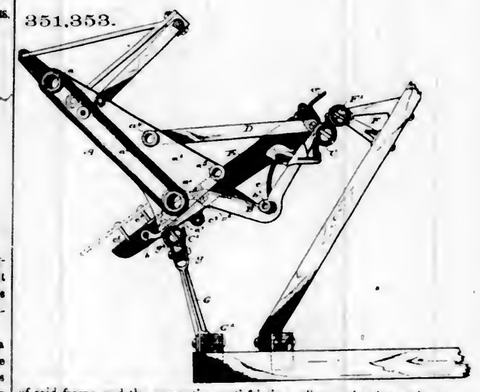
351,352. PROCESS OF FORMING OIL FROM TALLOW AND KEROSENE FOR LUBRICATING, &c. ALBEN ANDREWS, ALFRED ANDREWS, and DELBERT E. ANDREWS, Somerset, Belmont County, Ohio. Filed Feb. 23, 1886. (No specimens.)

Claim.—The described process, which consists in mixing one part of melted tallow with four parts of hot kerosene-oil and heating the mixture to the boiling-point, then pouring the liquid into a cooling-vessel and keeping it in violent agitation until it has given out all its sensible heat, when the tallow will not separate from the oil, substantially as set forth.

351,353. GRAIN-BINDER. WILLIAM R. BAKER and HENRY E. PRIDMORE, Chicago, Ill. Original application filed Sept. 29, 1884, Serial No. 144,247. Divided and this application filed Aug. 12, 1885. (No model.) Patented in England July 19, 1884, No. 10,330; in Victoria Oct. 2, 1884, No. 3,854; in New Zealand Nov. 20, 1884, No. 1,300, and in New South Wales Feb. 3, 1885, No. 1,008.

Claim.—1. The combination, substantially as hereinbefore set forth, with the binder-frame, of the supporting-bar carried upon the outside elevator-struts and having keepers for the upper or inner longitudinal bar

351,353.



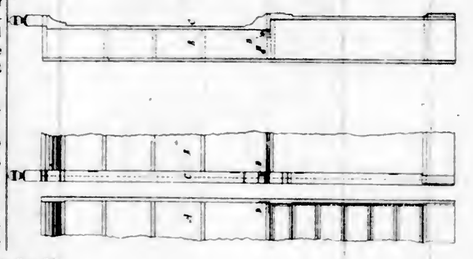
of said frame, and the supporting anti-friction rollers and yokes or keepers for the lower or outer bar of the frame borne by standards from the end sill.

2. The combination, substantially as hereinbefore set forth, of the metal post-frame, the metal transverse frame-bars bolted thereto, the tubular frame-bars secured near the opposite ends of the transverse bars, the tubular supporting-bar seated in and bolted to brackets upon the outside elevator-struts, and having guides or keepers which embrace the adjacent tubular frame-bar, and the metal standards upon the end sill of the harvester provided with grooved anti-friction rolls to receive the outside tubular frame-bar, and above said rolls with yokes or keepers to prevent lateral displacement of said bar.

3. The metal standards secured to the end sill and having anti-friction rolls for the support of the outer bar of the binder-frame, and yokes or keepers to prevent lateral displacement of said bar, combined with braces secured to ears integral with said standards and extending therefrom to said end sill.

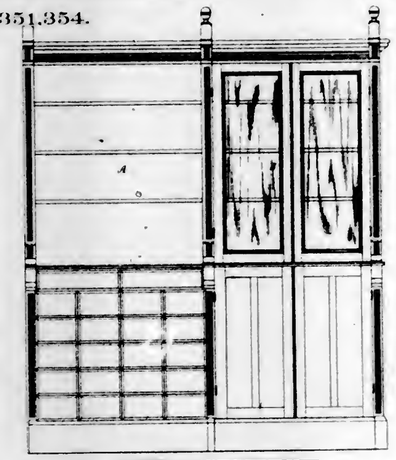
351,354. BOOK OR SHOW CASE. CHARLES H. BAMES, Cambridgeport, Mass. Filed June 7, 1886. (No model.)

Claim.—The combination of the two sections or book or show cases A and B, butting together at their two next adjacent ends, with the pilaster C fastened to one and extending from it over the other of them at the front of their joint or junction, the connecting-brackets D, their screw-bolt E, and nut F, and the adjusting-screw G, arranged with and applied to the sections, substantially as set forth.

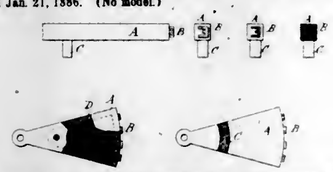


substantially as set forth, and for the uses and purposes mentioned.

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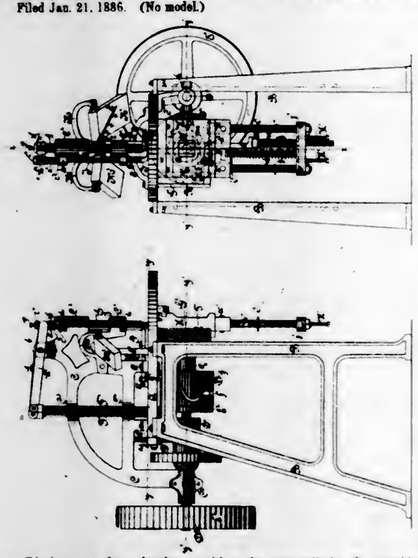


351,355. PRINTING-TYPE. Timothy Bigelow, Brooklyn, N. Y. Filed Jan. 21, 1886. (No model.)



Claim.—As a new article of manufacture, a printing-type constructed of porous material and varnished or glazed on its exterior, excepting its absorbent surface and its printing face or channel, and adapted to automatically feed its printing face or channel with ink or an equivalent printing-fluid by capillary attraction or pressure, substantially as described.

351,356. RIVETING-MACHINE. Oscar J. Brown, Madison, Wis. Filed Jan. 21, 1886. (No model.)



Claim.—1. In a riveting-machine, the cam-cylinder D, provided with the slot *f*, in combination with the pin a^3, extending from the lower guide-plate g', riveted to the burr-carrier O, and adapted to communicate to the latter a reciprocating motion when actuated by said cam-cylinder, substantially as set forth, and for the uses and purposes mentioned.

2. In a riveting-machine, the cam-cylinder D, provided with the slot *f* and branch slot *f'*, in combination with the pin a^3, extending from the lower guide-plate *g*, riveted to the rivet-carrier J, and adapted to communicate to the latter a reciprocating motion when actuated by said cam-cylinder, substantially as described, and for the uses and purposes set forth.

3. In a riveting-machine, the cam-cylinder D, provided with the eccentric-cam E^2, in combination with the plunger F', lever L', setting-tool I, and its presser-foot, all arranged to operate substantially as described.

4. In a riveting-machine, the cam-cylinder D, provided with the end slot, a^4, adapted to operate on the pin *a*, in combination with the plunger F, lever L, sleeve S, punch P, and anvil G, substantially as described, and for the purposes set forth.

5. In a riveting machine, the disk Q, provided with the crank-pin *k*, in combination with the guide G' and cross-head T, adapted to engage and compress the hammers *h h'* against the hammer-springs *j j*, all arranged to operate substantially as described, and for the uses and purposes mentioned.

6. In a riveting-machine, the combination of the disk Q, crank-pin *k*, cross-head T, provided with the slot *t*, lug *u*, and spurs *d' d²* with the dogs v^2, v^3, and u^3, by which means are provided for releasing successively the hammers *h'* and *h* from their engagement with the lug *u*, and afterward re-engaging the same on said lug *u* preparatory to compressing them for another blow, all arranged to operate substantially as described, and for the purposes set forth.

7. In a riveting-machine, the combination of the disk Q, crank-pin *k*, cross-head T, lug *u*, and spurs *d' d²* with the cam-cylinder D, provided with the slots *f f'* a^4 and the eccentric E^2, so that when the hammer-blows are struck the work is held in position by the presser-foot of the setting-tool I and the rivet by the anvil G, substantially as described.

8. In a riveting-machine, the combination of the burr-carrier O, adapted to reciprocate in the slot A^2, with the guide-plates g' g^2 and arm *m'*, substantially as described, and for the purposes set forth.

9. In a riveting-machine, the combination of the rivet-carrier J, adapted to reciprocate in the slot A', with the guide-plates *g* g^2, and spring-fingers *m m*, pivoted to the two rear uprights or ears *e' e'*, and extending forward freely between the front guides *e' e'*, substantially as described, and for the purposes set forth.

10. In a riveting-machine, the rivet-receiver I^2, provided with the pin *p'*, and the slot in its bottom adapted to hold the rivet in position to be seized and carried forward to the work by the jaws in the forward end of the spring-fingers *m*, substantially as described.

11. In a riveting-machine, the rivet-receiver I^2, provided with spring d^4 and central slot in lower front face, all arranged to operate substantially as described, and for the uses and purposes mentioned.

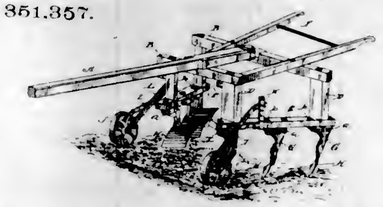
12. In a riveting-machine, a device consisting of two upright rectangular rods or hammers, their inner adjacent faces being adapted to slide freely over each other and their outer faces having flanges that engage in corresponding grooves or guides in the body of the hammer-case casting, the lower end of each hammer terminating in a foot that rests upon an upright coil-spring, secured, as described, between uprights in the lower part of the hammer-case frame, the rear face of each of said hammers having a transverse horizontal slot or notch, all as set forth, whereby a lug extending from a cross-head adapted to reciprocate in a vertical guide attached to the under side of the table, and operated by a crank-pin extending from the front face of a crank-disk at the forward end of the drive-shaft of said cam-cylinder, is adapted to engage in the said transverse hammer-slots, press the hammers down upon the respective spring-coils aforesaid, on which the foot of said hammers rests, preparatory to releasing each of said hammers in succession suddenly, and striking two successive blows, all as set forth, in combination with a device consisting of two radial spurs in different vertical planes on the periphery of said crank-disk, adapted to engage successively as said crank-disk revolves, with two corresponding spurs or dogs in different vertical planes, extending from an arm fastened to said hammer-case, whereby the latter is moved transversely so as to release successively the hammers engaged on said lug, as aforesaid, thus releasing the hammers and throwing them upward with sufficient force and accuracy to strike the rivet squarely on end and upset the same over the work and the burr, all as set forth.

351,357. CULTIVATOR. David V. Carhart, Hightstown, N. J., assignor of one-half to Thomas Peppler, same place. Filed Apr. 8, 1886. (No model.)

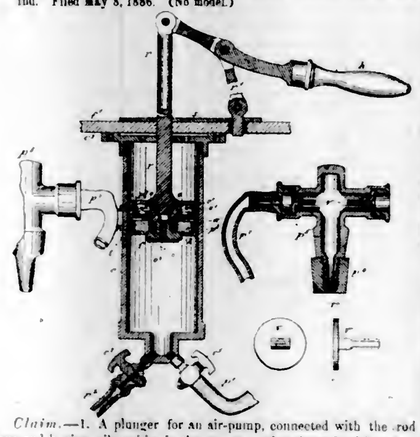
Claim.—1. The combination, with the frame having obliquely-set beams carrying obliquely-set shares, of the bifurcated adjusting levers, the wheels journaled in the bifurcated ends of the levers, and the brackets having the levers pivoted thereto and connecting the same with the frame parallel to the line of draft, substantially as described.

2. The lever I, provided with the wheel or roller *f*, in combination with the bracket L, having the lever pivoted thereto, the said bracket being constructed, substantially as shown, to hold the wheels parallel to the line of draft when applied to an obliquely-set beam, substantially as described.

351,357.



351,358. AIR-PUMP AND VENT. Thomas B. Carroll, Indianapolis, Ind. Filed May 8, 1886. (No model.)



Claim.—1. A plunger for an air-pump, connected with the rod above and having oil-cavities in the upper portion thereof, with outlets from such oil-cavities to the sides of the cylinder, and receptacles in the lower part of the plunger to receive an absorbent material carrying a lubricant for keeping the sides of the leather packing soft, all combined substantially as described.

2. The plunger-head *p'*, through which pass the oblique openings *o*, the plate p^3, provided with notches *n*, the expansion-ring *k*, the leather packing *l*, the fibrous material *w*, contained therein, and the bottom plate, 2, having a projecting boss threaded to enter a corresponding opening in the base of the plunger for uniting the parts together, and provided with the valve *f*, all combined substantially as described.

3. The double-armed plug herein described, containing the valves *v* having elastic necks and washer-heads, one in each arm of the plug, the removable collar p^4, connected with the tapering end of such plug, and an elastic pipe connecting one end of the plug with the cylinder of an air-pump, all combined substantially as described.

4. The plug p^5, having the removable collar p^4 connected to its lower end, and side arms inclosing the valves *v*, having a flexible neck and a washer-head, and a longitudinal opening throughout, one of these arms open at the end above the valve to receive air from the outside, the other connected by a suitable pipe to the cylinder of an air-pump and such air-pump, all combined substantially as described.

351,359. TIME-LOCK FOR TOY BANKS. Edward J. Colby, Chicago, Ill. Filed Feb. 23, 1886. (No model.)

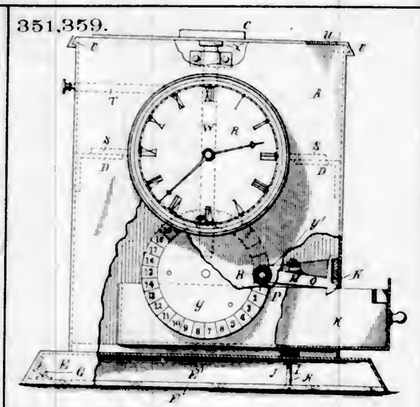
Claim.—1. In a bank-clock, a rotating disk operated by the clock mechanism and provided with a slot which at regular intervals uncovers the key-hole.

2. In a bank-clock, a circumferentially-numbered disk which at regular intervals rotates behind the key-hole and exhibits its numbers through the key-hole, and is provided with a slot which at stated intervals uncovers the key-hole to permit the insertion of the key.

3. In a bank-clock, the combination of an internally-locked money-receptacle with a rotating slotted disk which at regular intervals uncovers the key-hole to permit the insertion of the key to unlock the receptacle.

4. In a bank-clock, the combination of a case having a money-receptacle locked from within, and a key-hole which gives access to the inside lock, with a disk which covers the key-hole and is rotated by the clock mechanism, and has a slot which at regular intervals uncovers the key-hole.

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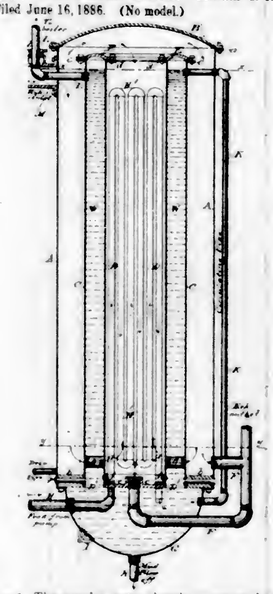


5. In a bank-clock, the combination of a case having a top rift, a front key-hole, and a lower money-drawer locked from within, with a disk which is rotated by the clock mechanism, has day-numbers about its circumference, and has in its circumference a slot which at regular intervals registers with the key-hole and permits the insertion of the key to unlock the drawer.

6. In a bank-clock, the combination of a case with a secondary bottom adapted to be permanently secured to some article of furniture and entirely inclosed within the walls of the case, and internally hinged and locked to the case.

7. In a bank-clock, the combination of an internally-locked money-receptacle with a clock-case and clock mechanism, and a key-hole cover which is operated by the clock mechanism, so as to uncover the key-hole at regular intervals.

351,360. FEED-WATER HEATER. Edward G. T. Colles, Chicago, Ill. Filed June 16, 1886. (No model.)



Claim.—1. The annular water-chamber connected to the mud-drum by an annular opening at its base and by a circulating-pipe with bottom and top, as and for the purpose set forth.

2. The combination of an annular water-chamber and a steam-jacket and central steam-chamber, connected at their tops and bottoms with a mud-drum, and a circulating-pipe, substantially as set forth.

3. The combination of a central steam-chamber containing a coil of pipe connected to the feed-water pipe and with the water in the mud-drum, and the annular water-chamber inclosed in the steam-jacket, as specified.

4. The combination of a central steam-chamber connected at its upper and lower ends with the steam-jacket and containing a coil of pipe communicating with the feed-water pipe and the water in the mud-drum, all arranged as and for the purpose set forth.

5. In a feed-water heater, the annular water-chamber connected to the mud-drum by annular opening D', the heating-coil, and feed-water pipe, arranged substantially as shown, in combination with the outlet-pipe L, passing through the steam-inlet pipe M, as and for the purpose herein specified.

6. The combination of an annular water-chamber surrounded substantially by steam, connected to the mud-drum by an annular opening, and inclosing a heating-coil arranged in the central steam-chamber communicating with the steam-jacket, all substantially as and for the purpose specified.

7. The combination of an annular water-chamber connected to the mud-drum, as shown, and forming the central steam-chamber communicating at top and bottom with the steam-jacket, and the inlet and outlet pipes, all arranged as set forth.

8. The combination, in a heater having an annular water-chamber surrounded substantially by steam, of the mud-drum connected to said chamber by annular opening D', and a circulating-pipe arranged to create a circulation of water and to remove the surface-scum, as herein specified.

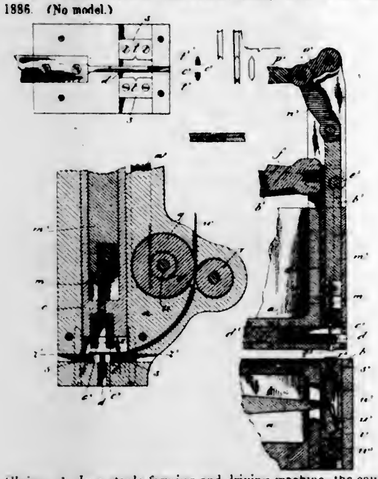
9. In a feed-water heater, an annular water-chamber forming a central steam-chamber, communicating at top and bottom with a steam-jacket having steam-inlet at its top and steam-outlet through its closed bottom *e*, secured by angle-iron band *f*, all substantially as set forth.

10. In a feed-water heater, the combination of a steam-jacket communicating at top and bottom with a central steam-chamber, and an annular water-chamber connected to the mud-drum, as shown, the heating-coil, the circulating-pipe, and the inlet and outlet pipes, all as specified.

11. A feed-water heater in which the feed-water enters into a heating-coil, passes into a mud-drum, and ascends in an annular water-chamber, whence it passes in a purified and heated state to the boiler, being heated in its passage by a central steam-chamber and a steam-jacket communicating with each other, substantially as and for the purpose set forth.

351,361. MACHINE FOR MAKING AND DRIVING STAPLES.

Joseph Coupal and Richard Stephenson, Quincy, Mass. Filed Aug. 16, 1886. (No model.)



Claim.—1. In a staple forming and driving machine, the combination of the notched or V-shaped male and female cutters or dies with the wire feeding and bending mechanism, as set forth.

2. In a staple forming and driving machine, the combination of the bending-fork and its slide, said fork having the V-shaped male dies or cutters, the fixed V-shaped female dies or cutters, the bending-arm, and the driver, as set forth.

3. In a staple forming and driving machine, the combination of the staple forming and driving mechanism, the throat t^2, through which the staples are driven, the movable clinching or upsetting anvil, and mechanism, substantially as described, for reciprocating said anvil, as set forth.

4. In a staple forming and driving machine, the combination of the staple forming and driving mechanism, the throat t^2, the work-supporting bed or table, the anvil movable in an opening in said table, and mechanism, substantially as described, for raising and lowering said anvil, as set forth.

5. The combination of the staple-forming mechanism, the driver, the cam *g'*, lever *q'*, and toggle-joint *n' o'*, whereby said driver is positively operated, the upsetting-anvil, and the means for positively reciprocating the latter, as set forth.

351,362. WATER-SPRINKLER.

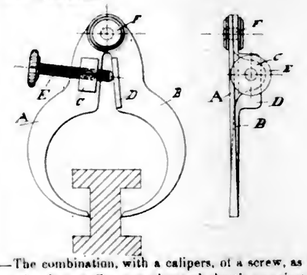
Stephen M. Crawford, Saranac, Mich. Filed July 9, 1886. (No model.)



Claim.—The herein shown and described sprinkler, consisting of the reservoir closed at one end, a removable brace and bail at the opposite end, a tube connected with the closed end, a two-part rose or spray nozzle secured to the lower end of the tube, braces interposed between the nozzle and reservoir, a guide-brace secured to the removable part, a valve, an operating-rod guided in its movements by working through the upper and lower guide-braces, and a spiral spring located on the rod and seated within the tube and confined between a stop projecting from the tube and a nut on the rod, said rod being provided with a handle at its upper end within convenient reach of the bail, substantially as and for the purpose described.

351,363. CALIPERS.

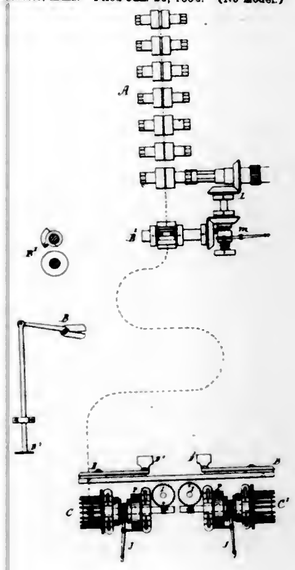
Karl P. Dahlstrom, Taunton, Mass. Filed May 8, 1886. (No model.)



Claim.—The combination, with a calipers, of a screw, as E, tapped into and through a lug, as C, on one leg and abutting against a projection on the other leg, substantially as and for the purposes set forth.

351,364. ART OF MAKING WIRE RODS.

Fred H. Daniels, Worcester, Mass. Filed Jan. 26, 1886. (No model.)

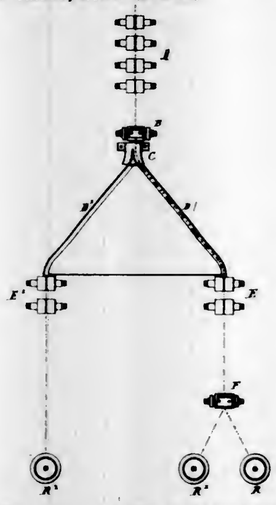


Claim.—1. The improvement in the art of making wire rods by continuous operation, which consists in rolling an extended rod from a large or heavy billet, cutting the produced rod into sections, and reeling into coils of convenient weight for handling, substantially as set forth.

2. The improvement in the art of making wire rods, which consists in rolling down a very large or heavy billet to form a long rod, automatically severing said rod into sections of convenient weight for handling, and separately reeling said sections to form coils, substantially as hereinbefore set forth.

351,365. ART OF MAKING WIRE RODS.

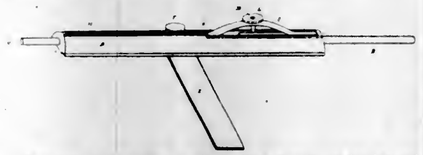
Fred H. Daniels, Worcester, Mass. Filed July 3, 1886. (No model.)



Claim.—The improvement in the art of making wire rods by continuous operation, which consists in rolling down a large or heavy billet to form an extended rod of a size somewhat larger than the finished size, severing the partially-reduced rod after it comes from the primary rolls into sections, alternately directing said sections to separate sets of finishing-rolls for completing the reduction thereof, then severing the finished rod into sections of convenient weight for handling, and separately coiling or reeling said sections, substantially as set forth.

351,366. DRAFTSMAN'S SECTION-RULER.

Frank W. Davenport, Providence, R. I. Filed Jan. 9, 1886. (No model.)



Claim.—1. A base-piece provided with a straight ratchet-bar and a sliding ruler, in combination with a pawl, said pawl moving the ruler forward by direct action upon the ratchet-bar.

2. A base-piece provided with a sliding ruler, a pawl and straight ratchet-bar for operating as a thumb-piece to move the ruler forward by direct action, and an adjustable stop for controlling the action of said thumb-piece.

3. A base-piece provided with a sliding ruler, a friction device for preventing too easy movement of said ruler, and a pawl and straight ratchet-bar for moving the ruler forward by direct action.

4. A base-piece provided with a sliding ruler, a friction device for preventing too easy movement of said ruler, a pawl and straight ratchet-bar acting as a thumb-piece to move the ruler forward by direct action, and an adjustable stop for controlling the action of said thumb-piece.

351,367. SYSTEM OF TELEPHONY AND TELEGRAPHY.

Charles Langdon-Davies, London, England. Filed July 13, 1885. (No model.) Patented in England Aug. 4, 1884, No. 10,990; in France June 10, 1885, No. 169,485; in Germany June 16, 1885, No. 35,657; in Belgium June 27, 1885, No. 69,419; in Italy June 30, 1885, No. 18,620; in Portugal July 8, 1885, No. 995; in East Indies July 16, 1885, No. 98; in Spain Dec. 7, 1885, No. 7,936; in Norway Dec. 31, 1885, and in Austria Jan. 16, 1886, No. 33,699.

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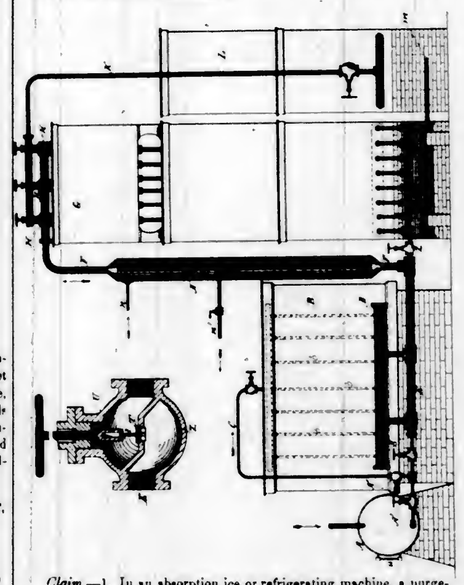


Claim.—1. The combination of two telegraphic line-wires and a bobbin on which two or more insulated wires are together wound, such line-wires being connected each with one extremity of one of the wires on the bobbin, the other ends of the bobbin-wires being unconnected, whereby without establishing metallic continuity between the line-wires telephonic or harmonic impulses are enabled freely to pass, substantially as described.

2. The combination of the bobbin on which two or more insulated wires are together wound, the line-wires connected each with one extremity of one of the wires on the bobbin, the other ends of the bobbin-wires being unconnected, and sound transmitting and receiving instruments connected in open circuit with the line-wires, whereby telephonic or harmonic impulses are enabled freely to pass, while disturbing currents are arrested or prevented, substantially as described.

351,368. ICE-MACHINE.

Francis V. De Coppet, Cincinnati, Ohio. Filed Jan. 20, 1886. (No model.)



Claim.—1. In an absorption ice or refrigerating machine, a purge-pipe so connected with the liquid-gas tank and the rich-liquor vase that all water or impurities in the liquid gas may be forced into the rich-liquor vase without passing through the refrigerating-coil.

2. In an ice-machine, a purge-pipe connected with and draining the refrigerating-coil, and emptying into the rich-liquor vase, substantially as and for the purpose described.

3. In an ice-machine, the check-valve T between the rich-liquor vase and the purge-pipe E, substantially as described.

4. In an ice-machine, the pipe F, conveying the expanded gas to the mixer H, and surrounded with the water-jacket N, substantially as described.

5. In an ice-machine, a manifold for collecting the water in the refrigerating-coil and discharging it by gravity into a pipe connected by suitable valves with the liquid-gas tank and the rich-liquor vase, substantially as and for the purpose specified.

6. In an ice-machine, a purge-pipe draining the refrigerating-coils and carrying any water or aqua-ammonia from them direct to the rich-liquor vase, substantially as described.

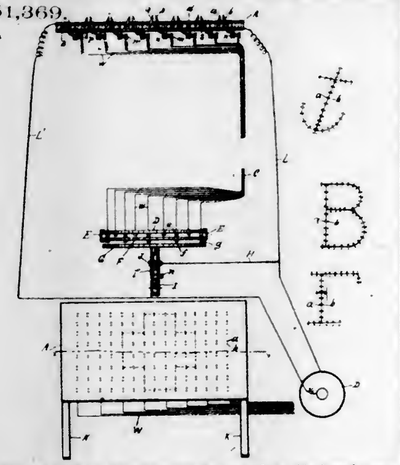
351,369. ELECTRIC-LIGHTING APPARATUS.

Arthur C. Ferguson, Saratoga Springs, N. Y. Filed Feb. 23, 1886. (No model.)

Claim.—1. A group of light-giving electrodes, in combination with automatic mechanism, substantially as described, for making and breaking electrical contact of the electrodes, and an interchangeable electrode selector-plate, substantially as described, for the purpose of arbitrarily selecting the electrodes to be acted upon by the light-giving electrical current.

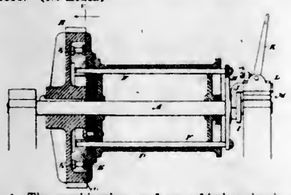
2. A group or series of light-giving electrodes arranged in pairs, one member of each pair being pivoted and provided with an armature,

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in combination with an electro-magnet for operating said pivoted member to make and break electrical contact between the members of the individual pairs, substantially as described, and for the purposes set forth.

351,370. FRICTION-CLUTCH. Otto Floer, Newark, N. J. Filed Oct. 30, 1885. (No model.)



Claim.—1. The combination, to form a friction-clutch, of a rotary part having an overhanging flange, a divided friction-ring within said flange, a rotary part connected to said ring, whereby both must rotate together, the axial shaft upon which said rotating parts are mounted, an expanding-pin arranged longitudinally along and parallel with said shaft, having a tapered or wedge-shaped end which enters between the divided parts of said friction-ring at right angles to the plane thereof, and adapted when thrust longitudinally toward the friction-ring to spread the sections thereof, and an operating-sleeve fixed to the opposite end of said pin and adapted to slide on said axial shaft, substantially as set forth.

2. The combination of a driving and a driven part, an annular flange formed upon one of said parts, a diametrically-divided friction-ring within said flange and connected to the other of said parts, whereby either part may be driven from the other, an axial shaft upon which said rotary parts are mounted, and an expander for said ring, consisting of two tapered pins arranged parallel with said shaft, and on diametrically-opposite sides thereof, with their ends entering between the divided parts of said ring and at right angles to the plane thereof, and an operating-sleeve sliding on said shaft and connected to both said pins, substantially as set forth.

3. A divided friction-ring for a friction-clutch formed with ribs *b l* and diagonal braces *c c*, substantially as and for the purposes set forth.

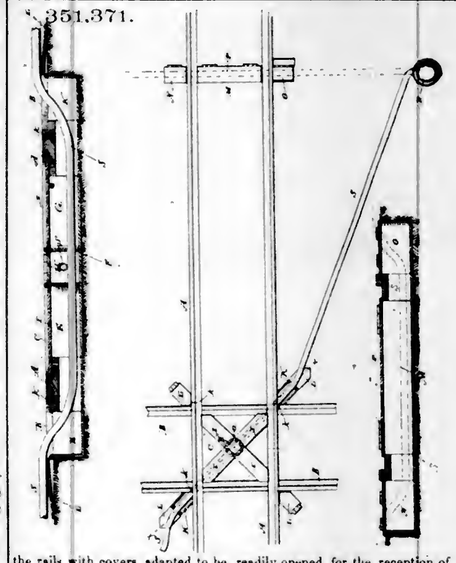
4. The combination of a rotating part having an annular flange, a divided friction-ring within said flange, another rotating part connected to and moving with said ring, an axial shaft upon which said rotating parts are mounted, an expanding-pin parallel with said shaft, having a tapered end entering between the divisions of said ring at right angles to the plane thereof, a sliding sleeve on said shaft secured to the opposite end of said pin, a slide mounted on a stationary part and moving parallel with the axis of said shaft and provided with a fork entering a groove in said sliding sleeve, and a hand-lever engaging and adapted to reciprocate said slide, substantially as set forth.

5. The combination of sleeve I, forked slide J, hand-lever K, frame L, plate *m*, and adjustable back-stop *n*, substantially as set forth.

351,371. HOSE-CONDUIT FOR RAILWAYS. Henry Geise, Philadelphia, Pa. Filed July 8, 1886. (No model.)

Claim.—1. The combination, with a railway-track, of a sunken box-conduit extending transversely across the track beneath the rails, the said conduit being provided at points between and on the outside of

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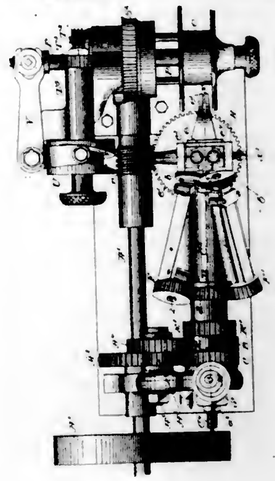
the rails with covers adapted to be readily opened for the reception of the hose and closed for the passage of teams, substantially as set forth.

2. In a hose-conduit for railways, an X-shaped box located between the rails in the square formed by the intersection of two railway-tracks and adapted to conduct the water-supply pipe beneath the surface of the track-bed, substantially as set forth.

3. In a hose-conduit for railways, the combination, with an X-shaped box located diagonally in the square formed by the intersection of two railway-tracks, the said box having covers secured thereon, of a series of supplementary boxes also provided with covers and located without the tracks and adjacent to the ends of the X-shaped box, substantially as set forth.

4. In a hose-conduit for railways, the combination, with an X-shaped box embedded diagonally within the square formed by intersecting tracks, the box being provided with a centrally-located cap and covers hinged thereto, and adapted to loosely cover the box, of four supplementary boxes located without the track and in the angles opposite the ends of the X-shaped box, the said boxes being also provided with covers, for the purpose substantially as described.

351,372. MACHINE FOR THREADING WIRE. Louis Goddu, Winchester, assignor to James W. Brooks, trustee, Cambridge, Mass. Filed June 8, 1885. (No model.)



Claim.—1. In a machine for threading wire, a tube or guide for the wire, and a pressure-roll revolving about the wire to indent a thread therein, the roll being set at the proper angle with relation to the axis of the wire to roll in the direction of the thread, combined with means, substantially as described, to automatically rotate the pressure-roller on its own axis at such a rate of speed as to roll upon the wire without causing twisting strain, substantially as described.

2. In a machine for threading wire, a rotary tube or hollow shaft through which the wire passes, and opposing pressure-rolls carried by and revolving with said shaft around the wire to indent the thread, the rolls being set at such an angle with each other and with the axis of the wire as to roll in the direction of the thread, combined with means, substantially as described, to automatically rotate the pressure-rollers upon their own axes at such a rate of speed as to roll upon the wire without causing twisting strains, substantially as and for the purpose described.

3. The combination, in a machine for threading wire by pressure, of two grooved pressure-rolls set at an angle to the wire and to each other, and a rotary hollow shaft having bearings for the pressure-roll shafts, the rolls being automatically revolved, by means substantially as described, with relation to the wire, and also at the same time rotated about their own axes, by means substantially as described, whereby the pressure-rolls are made to pass over the surface of the wire, substantially as described.

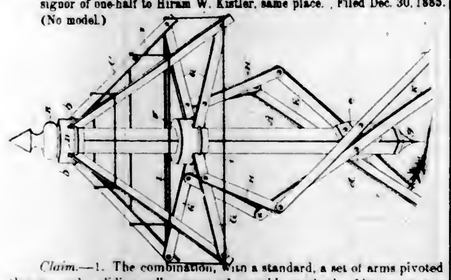
4. The combination, in a machine for threading wire by pressure, of shafts having grooved pressure-rollers set at an angle to the axis of the wire and to each other, and a rotating hollow shaft provided with bearings for the shafts carrying the pressure-rollers, the pressure-rollers being revolved with relation to the wire, and being rotated about their own axes during their revolution, whereby the pressure-rollers are made to roll over the surface of the wire, substantially as described.

5. The combination, in a machine for threading wire by pressure, of a nose to hold the wire to be acted upon, shafts having grooved pressure-rollers set at an angle to the axis of the wire and opposing each other, and a rotating hollow shaft provided with bearings for the shafts carrying the pressure-rollers, the pressure-rollers being revolved with relation to the wire, and being rotated about their own axes during their revolution, whereby the pressure-rollers are made to roll over the surface of the wire, substantially as described.

6. In a machine for threading wire, a nose to hold the wire to be acted upon, shafts having grooved pressure-rollers set at an angle to the axis of the wire and in opposition each to the other, and a rotating hollow shaft provided with bearings for the shafts carrying the pressure-rollers, the pressure-rollers being revolved with relation to the wire, and being rotated about their own axes during their revolution, whereby the pressure-rollers are made to roll over the surface of the wire, combined with rolls to act upon and move the wire longitudinally, substantially as described.

7. In a machine for threading wire, a nose to hold the wire to be acted upon, two shafts having grooved pressure-rollers set at an angle to the axis of the wire and in opposition each to the other, each pressure-roller supporting the wire at opposite sides, and a rotating hollow shaft provided with bearings for the shafts carrying the pressure-rollers, the pressure-rollers being revolved with relation to the wire, and being rotated about their own axes during their revolution, whereby the pressure-rollers are made to roll over the surface of the wire, combined with rolls to act upon and move the wire longitudinally, and with a spool and means to rotate it, to wind the said threaded wire upon the spool, substantially as described.

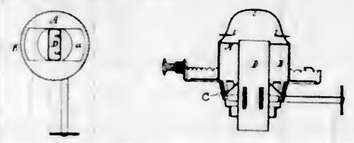
351,373. CLOTHES-RACK. David D. Gordon, Stroudsburg, Pa., assignor of one-half to Hiram W. Kistler, same place. Filed Dec. 30, 1885. (No model.)



Claim.—1. The combination, with a standard, a set of arms pivoted thereto, and a sliding collar mounted on said standard, of bars connecting the lower ends of the arms with the collar, and legs pivoted to the standard and connected to the bars, substantially as set forth.

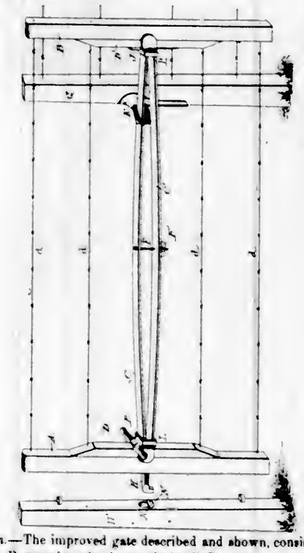
2. In a folding rack, the combination, with a standard, a cap secured thereto and provided with slots in its lower edge, a series of arms adapted to swing freely within the slots, and a wire embracing the cap and passing through the arms, of the sliding collar, the bars connecting the collar and lower ends of the arms, the legs pivoted to the standard, and the pieces connecting the legs and bars, substantially as set forth.

351,374. BURNER FOR LAMPS. Elias J. Hale, Foxcroft, Me. Filed Apr. 12, 1886. (No model.)



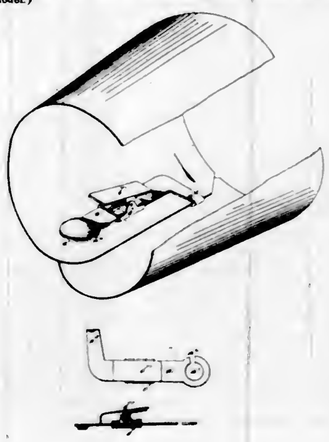
Claim.—A lamp-burner provided with the O-shaped deflector within said burner and formed with a single orifice, which is placed transversely to the wick-tube and near the top of said tube, in combination with the lips extending inwardly toward the edge of the wick-tube, and a revoluble cone around said deflector, substantially as described.

351,375. WIRE GATE. John F. Hanna, Momence, Ill. Filed Apr. 19, 1886. (No model.)



Claim.—The improved gate described and shown, consisting of the uprights A B, carrying the brace-blocks D D', nut and curved screw-bolt H, tongue-flanged sockets L L', wedge J, wires *d*, curved and flexible bars C C', bolt and thumb-nut F F', and link-banger E' E, attached to post G, all combined and arranged as set forth.

351,376. CUFF-HOLDER. William K. Herrington, Aurora, Ill., assignor of one-half to John R. Martin, same place. Filed Jan. 18, 1886. (No model.)

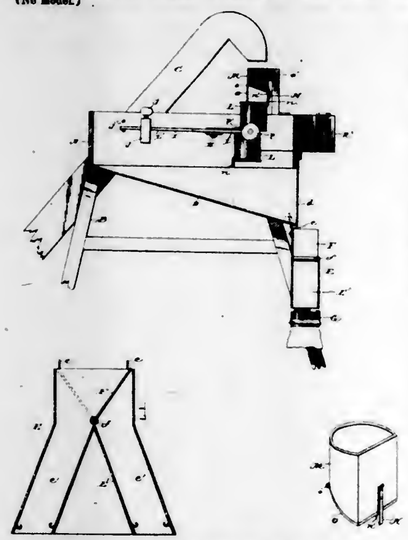


Claim.—1. In a cuff-holder, the combination, with a shank provided with a hook at one end and a loop at the other for engaging the cuff, of a spring-clip for attaching to the sleeve adjustable upon the shank to the desired position, substantially as and for the purpose set forth.

2. In a cuff-holder, the combination, with a shank having means, substantially as described, for engaging the cuff at two points, of a spring-clip adapted to slide on said shank, substantially as and for the purpose set forth.

3. The combination, with the shank *a*, having a loop, *a'*, open on one side, and a hook, a^2, of the slide *b* and its spring-clip *b'*, all constructed and arranged to operate substantially as and for the purpose set forth.

351,377. AUTOMATIC GRAIN-WEIGHING MACHINE. Carlton Hershey and Andrew Hershey, Allendale, Ill. Filed May 28, 1886. (No model.)



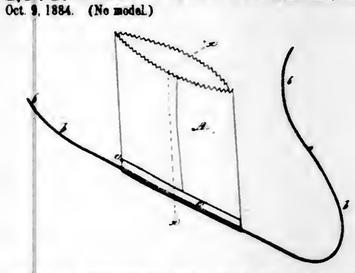
Claim.—1. In an automatic grain-weighing machine, the combination of a receiver, an oscillating scale-beam journaled in the receiver and having a regulating-weight at one end, a shaft journaled in the opposite end of the scale-beam and carried thereby, and having a pawl at one end and the cams or arms at the opposite end, the measuring-vessels carried by the shaft with their longitudinal axes out of line with each other, a pawl carried by the scale-beam and engaging the ratchet of the shaft, and registering mechanism arranged at one end of the shaft and having a toothed wheel adapted to be actuated by the arms of the shaft, substantially as described.

2. The combination, in an automatic grain-weighing machine, of a receiver, a scale-beam journaled therein, the rotary receptacles carried by the scale-beam and each having a detent projecting from its edge, a hopper arranged above the receptacles and having a swinging bottom arranged in the path of the said receptacles when opened, and a latch for retaining the swinging bottom in a closed position, substantially as described, for the purpose set forth.

3. In an automatic grain-weighing machine, the combination of a receiver having an inclined bottom and the outlet-opening, the scale-beam journaled therein, the rotary vessels carried by the beam, and a conducting-spout suspended from the receiver immediately beneath the discharge-opening therein and having the diverging independent passages, and the swinging cut-off located at the point of juncture of the passages, substantially as described, for the purpose set forth.

4. The combination of a receiver, an oscillating scale-beam journaled therein and having an adjustable weight, the bars for limiting the movement of the free end of the beam, a hopper suspended over the receiver and having a swinging bottom, and a latch for retaining the free end of the bottom in place, a rotating shaft journaled in the scale-beam and having the ratchet engaged by a pawl and the cams or arms, the registering device having a wheel, Q, actuated by the arms of the shaft, the measuring vessels or receptacles carried by the shaft and having their longitudinal axes arranged out of line with each other, and having the projecting detents, and a conducting-spout having the independent grain-passages and a swinging deflector adapted to deliver the grain from the receiver into either one of the passages of the spout, all arranged and combined substantially as as described.

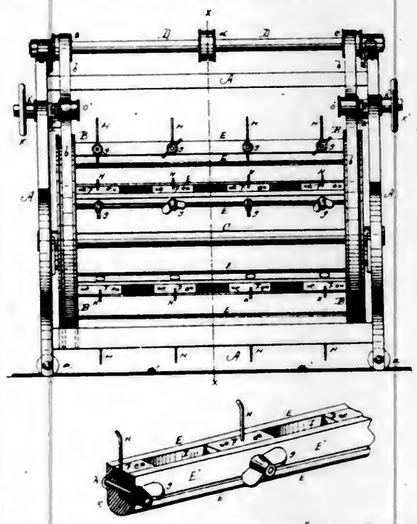
351,378. PAPER BAG. William P. Hill, Somerville, Mass. Filed Oct. 9, 1884. (No model.)



Claim.—The combination, with a paper bag, A, of a single piece of twine, cord, or tape, *b*, having a portion of its length inclosed within the pasted bottom fold or seam, *c*, and extending along the bottom of the bag, substantially in the manner and for the purpose set forth.

351,379. YARN-REEL. Erastus W. Horne, North Andover, Mass. Filed Mar. 29, 1886. (No model.)

Brief.—The bars of the reel are formed of a main portion and a detachable portion, each of which is provided with longitudinal beveled grooves. The slides carrying the pins or bolts are adapted to move longitudinally between the two portions of the bars, and are held in any position by thumb-screws. In order to stop the reel, brakes are provided worked by hand-wheels, which each have on their shafts three cams, two of which serve to loosen the driving-belt at the corresponding end of the reel, while the third applies the brake.



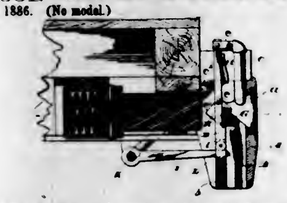
Claim.—1. In a yarn-reel, the combination of the bar E, consisting of the main portion and the detachable portion E', provided with the longitudinal beveled groove I, with the bolts h, thumb-pieces *g*, beveled perforated slides F, and pins H, substantially as and for the purpose described.

2. The combination of the frame A, shafts K, provided with the eccentrics *l*, *m*, and *n*, and wheels K', boxes or casings L, rings l' and m', provided with the bars N and O, having the wheels N' and O', and brakes P, provided with the openings P'', the reel having the wheels B, the belts *b*, pulleys *c*, and shaft D, all substantially as and for the purpose set forth.

351,380. MIXED PAINT. Otto Kall, Heidelberg, Baden, Germany. Filed June 25, 1883. (Specimens.) Patented in Germany Sept. 1, 1881, No. 18,307; in France Jan. 16, 1882, No. 146,869; in England Jan. 17, 1882, No. 239; in Belgium Jan. 18, 1882, No. 56,806; in Austria Mar. 10, 1882, No. 3,536, and in Hungary Mar. 10, 1882, No. 3,298.

Claim.—A base for coloring-matter, consisting of blood containing fibrine, slaked lime, permanganate of potash, and lavender, substantially as and in the proportions specified.

351,381. CAR-COUPLING. Sidney D. King, Pittston, Pa. Filed Aug. 28, 1886. (No model.)



Claim.—1. In a car-coupling, the combination, with a pin and a pin-operating bar located behind the pin, of a link-controller attached to the front face of the bar, and a device for moving the bar downwardly for the purpose of bringing the controller down into contact with the link, substantially as set forth.

2. In a car-coupling, the combination, with a coupling-pin and a pin-operating bar, and devices located below the draw-head for operating said bar, of a gravity pawl or dog pivotally secured to the pin-operating bar, adapted to lock the pin in released adjustment, substantially as set forth.

3. In a car-coupling, the combination, with a pin-operating bar and devices located below the draw-head for operating said bar, of a gravity-dog and link-controller attached to the bar and adapted to be operated by the movement of the bar, substantially as set forth.

4. In a car-coupling, the combination, with a draw-head provided with vertical openings, of a coupling-pin and pin-operating bar adapted to be reciprocated in said openings—one in each—and a gravity-dog pivoted to the pin-operating bar and located wholly within the draw-head, substantially as set forth.

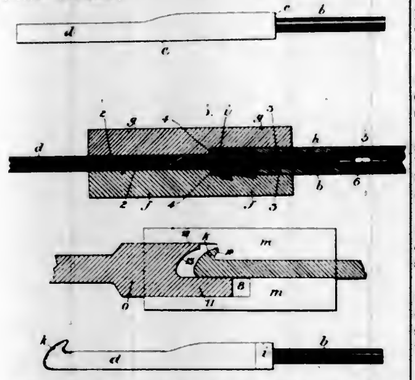
5. In a car-coupling, the combination, with a pin-operating bar adapted to be reciprocated in the draw-head, of a gravity-pawl pivoted to the bar and adapted to engage the draw-head, whereby it is positively swung forward when the bar is raised, substantially as set forth.

6. In a car-coupling, the combination, with a pin-operating bar seated in the draw-head, of a bar-operating lever located below the draw-bar, substantially as set forth.

7. The combination, with the draw-head and the coupling-pin and pin-operating bar locked together, of a lever entering the draw-head from below the draw-bar and removably attached to the pin-operating bar, substantially as set forth.

8. The combination, with the pin-operating bar, of a gravity-dog pivoted thereto, adapted to pass the link when the bar is raised and engage the link in its fall, thereby holding the pin in released adjustment with link in the draw-head, substantially as set forth.

351,382. MANUFACTURE OF DRAW-BARS. Milton Kirker, Pittsburg, Pa., assignor of one-half to Joseph D. Long, same place. Filed Aug. 2, 1886. (No model.)



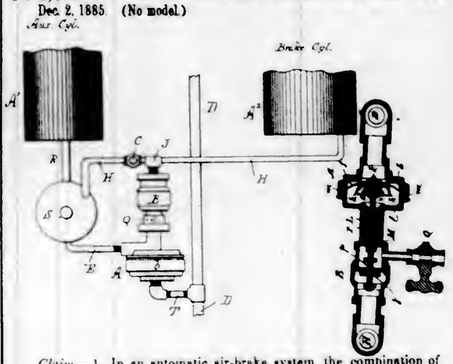
Claim.—1. An improvement in the art of making draw-bars, which consists in forming a pin on one end of the bar and then upsetting the bar at the base of the pin to form a boss or shoulder on the bar, substantially as and for the purposes described

2. The method of making draw-bars, which consists in forming a pin on one end of the bar, upsetting the bar at the base of the pin to form a boss or shoulder, and upsetting the other end of the bar to form a hook, substantially as and for the purposes described.

3. A pair of dies for use in the manufacture of draw-bars, having a matrix at one end capable of receiving a plunger, and a shallower recess at the rear of the matrix for receiving the body of the blank, in combination with a plunger perforated to work over the pin of the draw-bar, for upsetting the bar in the matrix to form a shoulder or boss at the base of the pin, substantially as and for the purposes described.

4. A pair of dies for use in the manufacture of draw-bars, having a recess for receiving the end of the draw-bar, and a matrix at the end of the recess provided with a forming-surface upon which to upset the bar to form a hook, in combination with a plunger having a concave end, by which the end of the bar is upset and formed into a hook upon the forming-surface of the die, substantially as and for the purposes described.

351,383. AIR-BRAKE. Sylvanus R. Kneeland, Boston, Mass. Filed Dec. 2, 1885. (No model.)



Claim.—1. In an automatic air-brake system, the combination of the vibrating diaphragm and the main valve operated thereby with a supplemental valve the stem of which is in contact with the stem of the main valve, but not connected thereto, substantially as shown.

2. In an air-brake for railway-cars of the character described, the combination of the following instrumentalities, to wit: a main valve, an auxiliary valve, a check-valve, and a stop-cock, the main valve being provided with an induction-pipe connecting it with the main pipe, with an eduction-pipe connecting it with the triple valve, and with a stem adapted to open the auxiliary valve, the check-valve being disposed between the triple valve and brake-cylinder and suitably connected therewith, the auxiliary valve disposed between the main valve and pipe connecting the triple valve and brake-cylinder and adapted to be opened by the stem of the main valve, and the stop-cock disposed between the main and auxiliary valves, substantially as described.

3. In an air-brake of the character described, the valves A *j* C, pipes D E H, and stop-cock Q, or a leakage-opening, combined and arranged to operate substantially as set forth.

4. In an air-brake of the character described, the valve-chamber B, provided with the valve *j*, and having a leak-opening or stop-cock, in combination with the valve-stem L and operative mechanism therefor, substantially as described.

5. In an air-brake of the character described, the valve A, provided with the pipes D E, valve-chamber B, provided with a leakage-opening or stop-cock, and pipe H, combined and arranged to operate substantially as set forth.

6. In an air-brake of the character described, a main valve and an auxiliary valve, the auxiliary valve being provided with a leakage-opening or stop-cock, and adapted to be opened by the main valve, in combination with pipes for properly connecting said valves with the main pipe, triple valve, and cylinder of the brake, substantially as described.

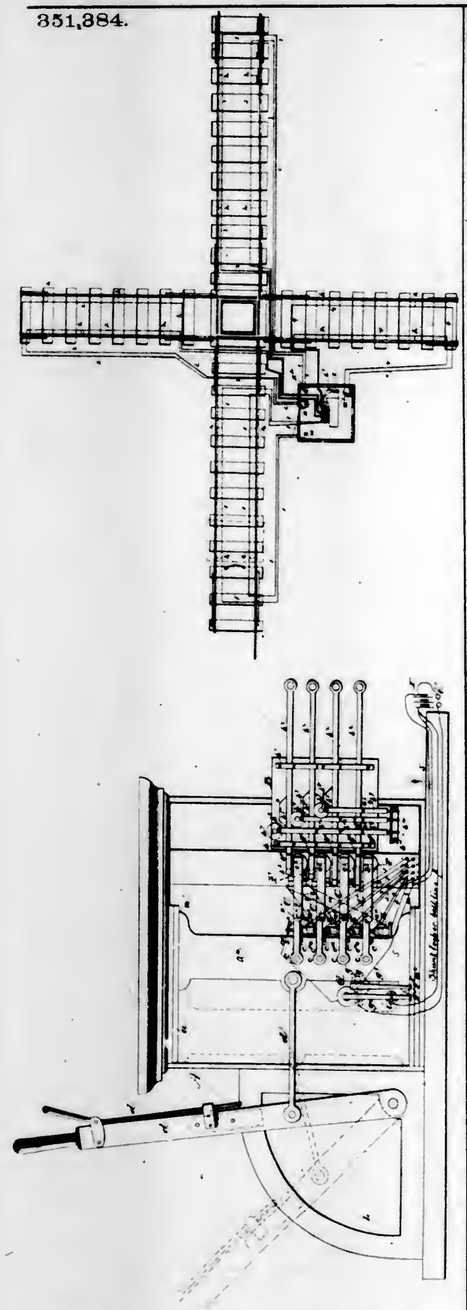
7. In a valve for air-brakes, the flexible diaphragm *f*, seat *r*, provided with the ducts *y*, screw *k*, nut *t*, stem L, spring *a*, disk *u*, and disks *d w*, provided with the ducts *z*, combined and arranged to operate substantially as set forth.

8. In a valve for air-brakes, the section *b*, provided with an induction-opening, the section *l*, provided with an eduction-opening, flexible diaphragm *f*, seat *r*, spring *a*, disk *u*, disks *w d*, provided with the ducts *z*, screw *k*, nut *t*, stem L, ways for said stem, and means for properly packing the same, combined and arranged to operate substantially as described.

351,384. ELECTRO-MECHANICAL SIGNAL APPARATUS. William W. Le Grande, Louisville, Ky., assignor to H. R. Dering, W. W. Dering, and T. H. Upperman, all of same place, and George E. Rockwell, Indianapolis, Ind. Filed Oct. 14, 1885. (No model.)

Claim.—1. In combination with a hand-lever and a vertically-arranged sliding bar adapted to be reciprocated thereby, a latch or pull-bar pivotally attached to said sliding bar and resting normally in a horizontal position and formed with an incline on its under edge and hooked free end, a pull-bar arranged to slide on bearings and having its outer end connected to the semaphore-strand, and free end formed to engage with the free end of the pivoted pull-bar, a normally-closed track-circuit, and an electro-magnet in said circuit having a pivoted armature

351,384.



on the under edge and hooked free end, a pull-bar having its outer end connected to the semaphore-strand, and its free end formed to engage with the free end of the pivoted pull-bar, a normally-closed track-circuit having an electro-magnet in said circuit, having a pivoted armature adapted and arranged to fall under the pivoted pull-bar when released from contact with the core of the electro-magnet, a normally-closed independent circuit having current through the armature of said electro-magnet, an electro-magnet in said independent circuit, and pivoted armatures on said last-named electro-magnet arranged to lock the sliding bar at the limit of its movement, substantially as described.

3. The combination, with a series of insulated sections of railway-track and a series of independent track-circuits laid thereto, an electro-magnet in each of said circuits, and a railway signaling apparatus, of an independent electric circuit having current through the armatures of all the electro-magnets in series and closed and opened thereby, and an electro-magnet in said independent circuit having armatures arranged to lock the apparatus in normal position and against return when drawn back, substantially as described.

4. The combination, with a railway signaling apparatus, a circuit, as 5, and battery, as 1, said circuit being broken and closed by the breaking and closing of any of the track-circuits, of an electro-magnet, G, disposed in circuit 5, having independent armature-bars g^2 g^3, pivotally supported on a rod, as g', to contact, respectively, with the cores of said electro-magnet above and below their axes, and throw their lower ends in opposite directions, and lock and unlock the apparatus, substantially as described.

5. The combination, with the casing, the sliding bar arranged therein, and a hand-lever adapted to reciprocate the sliding bar, of a series of pull-bars pivotally secured to the sliding bar and arranged to rest in a horizontal position, and formed with hooked ends, a series of pull-bars arranged to slide independent of each other in a horizontal plane, and have their free ends secured to the semaphore-strands, and formed with cam-blocks on their upper edges, except the lowest bar of the series, and having hooked ends to engage with the hooks on the pivoted pull-bars, a series of disks having bars pivotally suspended therefrom and arranged to operate as described, a series of normally-closed railway-circuits, an electro-magnet in each of said circuits, having armatures adapted and arranged to fall under the pivoted pull-bars when released from contact with the cores of the magnets, an independent electric circuit having normally a current through the armatures of all the electro-magnets in series, and an electro-magnet in said independent circuit having armatures arranged to lock and unlock the sliding bar, substantially as specified.

6. The combination, with the track-circuit, the electro-mechanical signal-actuating mechanism, and the independent local circuit having the interlocking mechanism mounted therein, of the shunt-circuit having currents through an armature-lever, of the interlocking device, and an audible signal interposed in the circuit, substantially as described.

7. In combination with the pull-bars of an electro-mechanical signal mechanism, an electro-magnet having an armature pivotally attached thereto and formed at its free end with a projection struck at right angles to the armature and disposed and arranged to drop down and lodge under the pull-bar when the electro-magnet is demagnetized, substantially as described, and for the purpose stated.

8. The combination, with the hand-lever and the vertical sliding bar arranged to be reciprocated by said lever, of a series of hooked pull-bars pivotally secured to the sliding bar and supported thereon in a horizontal position, a series of track-circuits having an electro-magnet in each circuit provided with pivoted armatures having projecting pieces arranged to fall under said pull-bars when the circuit is broken, a series of sliding pull-bars arranged to slide independently of each other in a horizontal plane, means, substantially as described, whereby the pull-bars below the one drawn are lifted up, an independent local circuit having mounted therein an electro-magnet the armatures of which are projected in the path of the sliding bar, and a series of circuit-closers in said independent local circuit having connecting-connection to all the electro-magnets in series, a single circuit-closer being operated by each of the sliding pull-bars, whereby the interlocking magnet is energized, and the armature-lever unlocked when two or more track-circuits are broken, substantially as specified.

9. The combination, with an electro-mechanical signal mechanism having a series of track-circuits and an interlocking circuit opened and closed by the opening and closing of the track-circuits, of a series of circuit-closers opened and closed by the movements of the pull-bars, and having circuit-conductors to the armatures of each of the electro-magnets in the track-circuits, whereby when two or more of the track-circuits are broken the circuit with the interlocking magnet shall be established, substantially as described.

10. The combination, in an electro-mechanical signal apparatus, of two or more semaphores, two or more pull-bars having connection to a single sliding bar, two or more electro-magnets having armatures arranged to fall under the pull-bars, and a single hand-lever connected to the sliding bar, substantially as described.

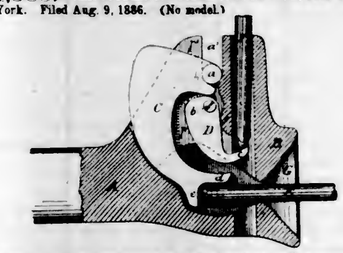
11. The combination, with an electro-mechanical signal mechanism, of a circuit-closer composed of a series of disks of non-conducting and

adapted and arranged to fall under the pivoted pull-bar when released from contact with the electro-magnet, substantially as described, and for the purpose specified.

2. In combination with a hand-lever and a sliding bar adapted to be reciprocated thereby, a pull-bar pivotally attached to the sliding bar and resting normally in a horizontal position and formed with an incline

conducting material, placed in alternation, an insulating-core centrally disposed therein, and an insulating-plate projected across the circumferential face thereof, a series of metal conductors mounted in independent relation on the conducting-disks, and flanges radially arranged on the side of said disk, substantially as described, and for the purpose stated.

351,385. CAR-COUPLING. Sylvanus D. Locke, Hoosick Falls, New York. Filed Aug. 9, 1886. (No model.)



Claim.—1. In a self-coupler, a table for temporarily supporting the pin when withdrawn from the link to uncouple, pivoted as to its upper end and swinging on a primary table that is pivoted or takes bearing in the draw-head, substantially as and for the purpose set forth.

2. In a self-coupler, a table for temporarily supporting the pin when withdrawn from the link to uncouple, pivoted on and combined with a primary table having a sliding pivot-bearing in the draw-head, substantially as and for the purpose set forth.

3. In a self-coupler, a primary table and a secondary table pivoted on the primary and adapted to hold the pin, as described, combined with a draw-head and a link, the combination operating so that the weight of the tables shall hold the link in a horizontal position ready for coupling, substantially as set forth.

4. In a self-coupler, a table adapted to hold the pin while the cars are uncoupled and to present the link horizontally for coupling, pivoted as to its top in a vertically-sliding bearing in the draw-head, substantially as and for the purpose described.

5. In a self-coupler, a table or other gravity-support for the link, adapted to hold the link horizontally, pivoted as to its top in a vertically-sliding bearing in the draw-head, so as to swing freely back and forth on its pivot, and to rise and fall on the same to adjust itself to the movements of the link when coupled, substantially as described.

6. In combination, the draw-head A B, the tables C D, the link E, and the pin F, substantially as and for the purpose set forth.

7. In a self-coupler, a gravity-support for holding the link horizontally, having a ledge or foot for primarily supporting the pin rigidly attached to said support, and a secondary table pivoted thereto, substantially as and for the purpose described.

8. In combination, in a self-coupler, a draw-head having a link-coupling device, a gravity-support holding the link horizontally, a pin loosely tenoned in a vertical mortise through the draw-head for shackling the link thereto, levers for withdrawing the pin from the link, a primary table fixed on the gravity-support for holding the pin until the link enters the draw-head, and a secondary table pivoted to the gravity-support for temporarily holding the pin after the levers have withdrawn it from the link, substantially as described.

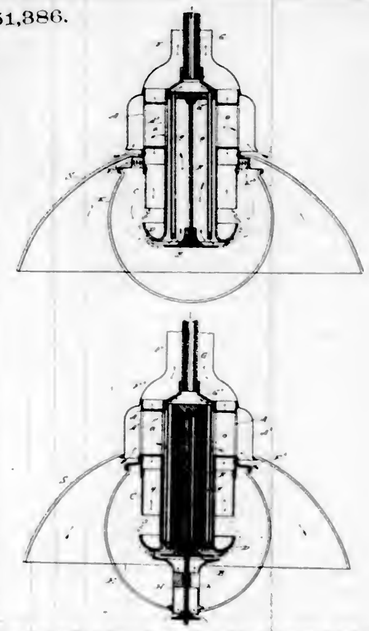
9. In combination, in a self-coupler, a draw-head having a link-coupling device, a gravity-support holding the link horizontally, a pin loosely tenoned in a vertical mortise through the draw-head for shackling the link thereto, levers for withdrawing the pin from the link, a stop to limit the movements of the lever, a primary table fixed on the gravity-support for holding the pin until the link enters the draw-head, and a secondary table pivoted to the gravity-support for temporarily holding the pin after the levers have withdrawn it from the link, substantially as described.

351,386. REGENERATIVE GAS-BURNER. Charles M. Lungren, New York, N. Y., assignor, by mesne assignments, to the Siemens Lungren Company. Filed June 26, 1884. (No model.)

Claim.—1. The combination of an inverted annular gas-burner, an air-chamber surrounding the burner and provided with vertical walls, said chamber having an inlet for air at its upper end and an outlet for air at its lower end, an escape-flue surrounding the air-chamber and provided with vertical walls, a flame-director formed by an outward and upward continuation of the outer wall of the air-chamber, terminating in line with the vertical wall of the escape-flue, leaving a horizontal passage for the flames and products of combustion between the end of said flame-director and the end of said escape-flue, and an inclosing-globe, substantially as and for the purpose described.

2. The combination of an inverted annular gas-burner, an air-chamber surrounding the burner and provided with vertical walls, said chamber being connected with the outer air at its upper end by passages which lead across the escape-flue, and provided with an outlet for air at its lower end, an escape-flue surrounding the air-chamber and provided

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with vertical walls, a flame-director formed by an outward and upward continuation of the outer wall of the air-chamber, terminating in line with the vertical wall of the escape-flue, leaving a horizontal passage for the flames and products of combustion between the end of said flame-director and the end of said escape-flue, and an inclosing-globe, substantially as and for the purpose described.

3. The combination of an inverted annular gas-burner, an air-chamber surrounding the burner and provided with vertical walls, said chamber having an inlet for air at its upper end and an outlet for air at its lower end, an escape-flue surrounding the air-chamber and provided with vertical walls, a flame-director formed by an outward and upward continuation of the outer wall of the air-chamber, terminating in line with the vertical wall of the escape-flue, leaving a horizontal passage for the flames and products of combustion between the end of said flame-director and the end of said escape-flue, an inclosing-globe, and air-inlets arranged between the outer edges of the globe and the escape-flue, substantially as and for the purpose described.

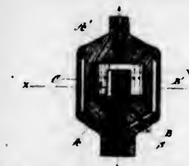
4. The combination of an inverted annular gas-burner having downwardly-directed orifices for the emission of gas at its lower end and a deflecting-button beneath its lower end, an air-chamber surrounding the burner, said chamber having an outlet for air at its lower end and connected at its upper end to an air-conduit leading to it from the outer air across the escape-flue, an escape-flue, the lower end of which surrounds the upper part of the air-chamber, an inclosing-globe, and air-inlets arranged between the outer edge of the globe and the escape-flue, substantially as specified.

5. The combination of an inverted annular gas-burner having downwardly-directed orifices for the emission of gas at its lower end, an air-chamber surrounding the burner, said chamber having attached to its lower end a flame-director springing from its extreme lower end and formed integral with the sides thereof, said chamber being connected at its upper end to an air-conduit leading to it from the outer air across the escape-flue, an escape-flue, the lower end of which surrounds the upper part of the air-chamber, an inclosing-globe, and air-inlets arranged between the outer edge of the globe and the escape-flue, substantially as specified.

6. The combination of an inverted annular gas-burner composed of a ring of tubes open at their lower ends for the emission of gas, an air-chamber surrounding the burner, said chamber having an outlet for air at its lower end and being connected at its upper end to an air-conduit leading to it from the outer air across the escape-flue, the lower end of which surrounds the upper part of the air-chamber, an inclosing-globe, and air-inlets arranged between the outer edge of the globe and the escape-flue, substantially as specified.

351,387. GAS-REGULATOR. Charles M Lungren, New York N. Y. Filed June 14, 1886. (No model.)

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Claim.—1. In a dry-gas regulator substantially such as described, the combination of a gas-chamber, an inlet thereto and an outlet therefrom, and a float or check having a gas-passage around its edge and arranged to move in the gas-chamber between the inlet and outlet in such relation to the two that as gas is admitted to chamber by the upward movement of the float the passage through which it can escape from the chamber is diminished, substantially as and for the purpose described.

2. In a gas-regulator, the combination of a gas-chamber, an inlet thereto and an outlet therefrom, and a float or check arranged to move in the gas-chamber between the inlet and outlet and in such relation to the two that as gas is admitted to the chamber by the upward movement of the float the exit-passage is diminished, and an adjustable passage leading from the gas inlet or space below the float to the space above the float, substantially as and for the purpose specified.

3. In a dry-gas regulator substantially such as described, the combination of a float-valve sustained by direct pressure of the gas beneath it, an exit-valve controlled by the position of the float and serving to pass less gas as the float rises in its chamber, and an inlet closed by the valve when in its lowest position.

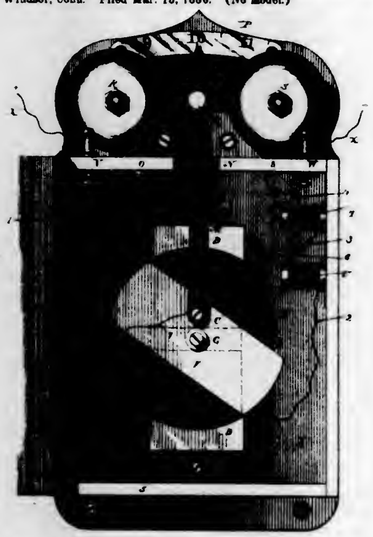
4. In a gas-regulator, the combination of a gas-chamber, a float sustained therein by the pressure of gas, an inlet to said chamber closed by the float when in its lowest position, an outlet or exit passage therefrom which is diminished by the upward movement of the float, and an adjustable by-pass connecting the passages or space beneath the valve with the space or passage above the same.

5. In a dry-gas regulator, the combination, with inlet and outlet openings, of a float controlling the same, and sustained by pressure of gas beneath it, and a gas-passage from the inlet to the outlet around the edge of the float, as and for the purpose described.

6. In a dry-gas regulator substantially such as described, a float-valve, a gas-chamber in which the float moves, and an inlet to said chamber closed when the float is in its lowest position.

7. In a dry-gas regulator, the combination, substantially as described, of a gas-chamber, a float moving in the same, so as when raised by pressure of gas to permit the access of gas to the surfaces of the float that are presented to the walls of the chamber, and an inlet-opening closed by the valve when in its lowest position.

351,388. ELECTRIC-CURRENT INDICATOR. Richard H. Mather, Windsor, Conn. Filed Mar. 15, 1886. (No model.)



Claim.—1. An electro-magnet wound with two independent helices, an armature pivoted between pole-pieces of said electro-magnet, a spring acting upon said armature, and a hammer which is mounted upon said armature, in combination with two gongs which are mounted upon opposite sides of said hammer, and with two resistance-coils which are at all times electrically connected in series with one of said helices, while the other of said helices is connected in parallel with one or the other, or neither, of said resistance-coils, according as said hammer is for the time being in contact with one or the other, or neither, of said gongs, substantially as and for the purpose specified.

2. A compound electro-magnet, a pivoted armature thereof provided with a spring and armed with a pointer, and an index-plate near said pointer, in combination with two gongs which are mounted within reach of said pointer, and with two resistance-coils which are connected in series with one of the helices of said electro-magnet, while the other of said helices is connected in parallel with one or other, or neither, of said resistance-coils, according as said pointer is for the time being in circuit with one or the other, or neither, of said gongs, substantially as and for the purpose specified.

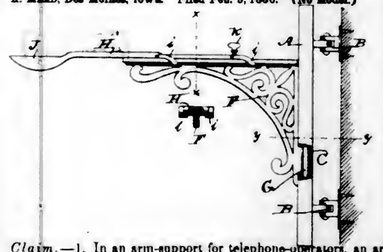
3. An electro-magnet having two independent helices, an armature pivoted within the magnetic field of said electro-magnet, a spring acting upon said armature, and a hammer actuated by said armature, in combination with alarm mechanism and with two resistance-coils which are connected in series with one of said helices, while the other of said helices is connected in parallel with one or the other of said resistance-coils whenever said hammer is carried to a predetermined limit in either direction, substantially as and for the purpose specified.

4. An electric indicator consisting of one or more gongs, a hammer for striking the same, and a compound electro-magnet having a pivoted armature actuating said hammer, in combination with two resistances which are connected in series with one of the helices of said electro-magnet, while the other of said helices is connected in parallel with one or the other of said resistances whenever said armature is moved to a predetermined limit in either direction, substantially as and for the purpose specified.

5. The gongs R and S, the resistance-coils T and U, and the hammer Q of pointer M, provided with spring L, in combination with armature F of a compound electro-magnet, and with electrical connections 1, 2, 3, 4, 5, 6, 7, and 8, substantially as and for the purpose specified.

6. A compound electro-magnet, an armature thereof, and a spring acting upon said armature, in combination with two resistances provided with suitable contacts and connections, whereby both of said resistances are at all times electrically connected in series with one of the helices of said electro-magnet, while the other of said helices is connected with one or the other, or neither, of said resistances, according as said armature is moved to a predetermined limit in one direction or in the other direction, or is not moved to that limit, substantially as and for the purpose specified.

351,389. ARM-SUPPORT FOR TELEPHONE-OPERATORS. Chester K. Mead, Des Moines, Iowa. Filed Feb. 5, 1886. (No model.)



Claim.—1. In an arm-support for telephone-operators, an arm or slide having an elbow-socket at its free end and an elongated concave or gutter in its top surface intersecting the elbow-socket, in combination with a bracket, for the purposes stated.

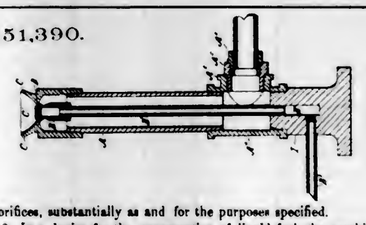
2. The arm-support for telephone-operators, consisting of a hinged bracket-support having a ratchet-faced edge to engage the ratchet-face of the bracket-support, and a horizontally-adjustable slide having an elbow-socket at its end and provided with hooks or open loops to engage the flanged horizontal top edge of the bracket, to operate in the manner set forth.

3. The tubular bracket-support A, having hinges B, a ratchet-face, C, and a continuous slot, D, a bracket having a flanged or T-shaped edge and a ratchet-face, G, and a slide, H, having an elbow-socket, J, constructed, arranged, and combined substantially as shown and described, to operate in the manner set forth.

351,390. DEVICE FOR THE CONSUMPTION OF LIQUID FUEL. Charles L. Mitchell, Covington, Ky. Filed Feb. 25, 1884. (No model.)

Claim.—1. In a liquid-fuel burner, the combination of the liquid-fuel orifices inclined outward toward their respective discharging-points, and spraying air or gas or vapor conduits inclined toward the central portion of the burner and crossing the exit-opening of the said liquid-

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fuel orifices, substantially as and for the purposes specified.

2. In a device for the consumption of liquid fuel, the combination of the burner having fuel-orifices E, inclined, as shown, and spraying air or gas or vapor conduits inclined, as shown, and passing to one side of the axial center of the burner, each orifice E meeting its respective conduit, substantially as and for the purposes specified.

3. In a liquid-fuel burner, the distinct and independent orifices for the liquid fuel from a fuel-chamber, and surrounding distinct and independent orifices for the air or gas or vapor from an annular chamber surrounding the fuel-chamber, the fuel-orifices and the air or gas orifices being oppositely inclined, substantially as and for the purposes specified.

4. In a liquid-fuel burner, a circle of distinct and independent inclined liquid-fuel orifices, surrounded by a circle of distinct and independent air, gas, or vapor orifices oppositely inclined to the fuel-orifices, substantially as and for the purposes specified.

5. In a liquid-fuel burner, a circle of distinct and independent liquid-fuel orifices inclined upward and outward from the center and surrounded by a circle of distinct and independent air, gas, or vapor conduits inclined upward and inward, each stream of liquid fuel meeting its stream of air, vapor, or gas, substantially as and for the purposes specified.

6. In a liquid-fuel burner, the combination of two or more fuel-orifices inclined upward and outward from the axis of the burner, and arranged around the said axis, and two or more spraying air or gas or vapor conduits inclined upward and inward to one side of the axis of the burner, each stream of liquid fuel being crossed by its respective stream of air, vapor, or gas, substantially as and for the purposes specified.

7. In a liquid-fuel burner, the annularly-arranged oil-jets externally directed outwardly against their respective inclined air-jets, substantially as and for the purposes set forth.

8. In a liquid-fuel burner, the combination of fuel orifices or conduits and air, gas, or vapor conduits, the said conduits converging and meeting immediately at the outside of the burner, and being both inclined at an angle to the peripheral or circular planes in which the mouths of the conduits are located, said planes being parallel to the longitudinal axis of the burner, substantially as and for the purposes specified.

9. In a device for the consumption of liquid fuel, the combination of the burner having fuel-orifices E, inclined, as shown, and spraying air, gas, or vapor conduits inclined, as shown, and passing to one side of the center of the burner, each orifice E meeting its respective conduit, and conduit H, extending beyond its orifice E in the form of a groove, the parts of the conduit H at one side of orifice E being inclined at one angle and the grooved part on the other side being inclined at another angle, substantially as and for the purposes specified.

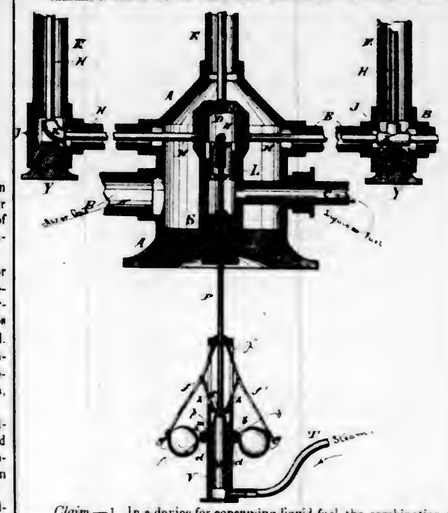
10. In a device for the consumption of liquid fuel, the burner-tip provided with liquid-fuel orifices E, inclined substantially as shown, and with spraying air, gas, or vapor conduits inclined substantially as shown, the conduits being in the form of grooves in the surface of the tip, in combination with the cap provided with flange G', arranged to meet the tip at the grooves, and provided with air, gas, or vapor space below, and at the flange each conduit meeting its respective orifices E, substantially as and for the purposes specified.

11. In a device for the consumption of liquid fuel, the burner-tip provided with liquid-fuel orifices E, inclined substantially as shown, and with spraying air or gas or vapor conduits inclined substantially as shown, the conduits being in the form of grooves in the surface of the tip, in combination with the cap provided with flange G', arranged to meet the tip at the grooves, and provided with air or gas space below at the flange, each conduit meeting its respective orifice E, the part of the groove below the orifice E being inclined at one angle and the part of the groove in the other side of said orifice being inclined at another angle, substantially as and for the purposes specified.

12. In a liquid-fuel burner, the combination of the burner-head having the fuel-orifices E, and the spraying air or gas conduits and cup-shaped flange C, surmounting the burner-head, substantially as and for the purposes specified.

13. The combination, in a liquid-fuel burner, of the central liquid-fuel feed-tube terminating in fuel-orifices, and the surrounding spraying air or gas or vapor feed-tube having space F, terminating above in spraying air or gas or vapor conduits located in the immediate vicinity of said fuel-orifices, and the supplemental air or gas or vapor conduits, located farther back from or lower down than the first-named conduits, substantially as and for the purposes specified.

351,391. DEVICE FOR THE CONDUCTION OF LIQUID FUEL. Charles L. Mitchell, Cincinnati, Ohio. Filed Jan. 16, 1885. (No model.)



Claim.—1. In a device for consuming liquid fuel, the combination of the liquid-fuel receiver D, provided with side fuel-discharge openings, H, and valve sliding in said receiver for successively shutting or opening the said fuel-discharge openings, substantially as and for the purposes specified.

2. In a device for consuming liquid fuel, the combination of the liquid-fuel receiver D, hollow valve having openings a a' a^2, the said fuel-receiver provided with side fuel-discharge openings, H, substantially as and for the purposes set forth.

3. In a device for consuming liquid fuel, the combination of the liquid-fuel receiver D, hollow valve having openings a a' a^2, the said fuel-receiver provided with side fuel-discharge openings, H, and surmounted by and connected to the fuel-discharge pipe of a liquid-fuel burner, substantially as and for the purposes set forth.

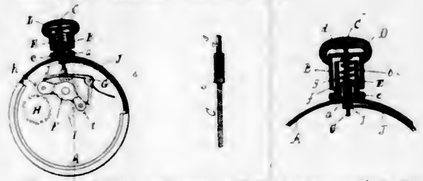
4. In a device for the consumption of liquid fuel, the combination of the air or gas or vapor reservoir A, communicating with delivery-pipe E, for delivering said air or gas or vapor to the burners, and the liquid-fuel reservoir D, located within the reservoir A, and communicating with the pipes H, for the delivery of the liquid fuel to the burners, each pipe H being within its respective companion pipe E, and valve working in reservoir D, substantially as and for the purposes set forth.

5. In a device for consuming liquid fuel, the combination of a reservoir, A, and reservoir D, and outlying burners whose air or gas or vapor pipes communicate with reservoir A, and whose fuel-openings communicate with reservoir D, and valve for regulating the supply of fuel to all of the burners, except one, the latter being inextinguishable, substantially as and for the purposes specified.

6. The inlet-pipe T, valve-chamber V, piston W, rod P, arms f f h h, spheres g, and valve L, provided with ports, as a a' a^2, and reservoir D, and pipes H, substantially as and for the purposes set forth.

7. The combination of reservoirs A and D, valve L, and pipes H E, substantially as and for the purposes specified.

351,392. PENDANT-STEM FOR WATCHES. Charles F. Morrill, Boston, Mass. Filed Jan. 11, 1886. (No model.)



Claim.—1. The combination, with the pendant, pendant-arbor, and crown, of the loose spring-actuated sleeve operating within and supported by the pendant, whereby all pressure is removed from the arbor while the latter remains in its normal position for winding, substantially as herein described.

2. The crown and winding arbor, in combination with the pendant B, the sleeve E within said pendant and surrounding said arbor, and a

spring forcing said sleeve against the bottom or inner end of the pendant, said spring and sleeve exerting normally no pressure on said arbor, but preventing the latter from being accidentally drawn back beyond a certain point, substantially as set forth.

3. In combination, the pendant, its loose spring-actuated sleeve, and the crown with its arbor, all operating, as herein described, to return the arbor automatically to its normal position after operating the hands, substantially as stated.

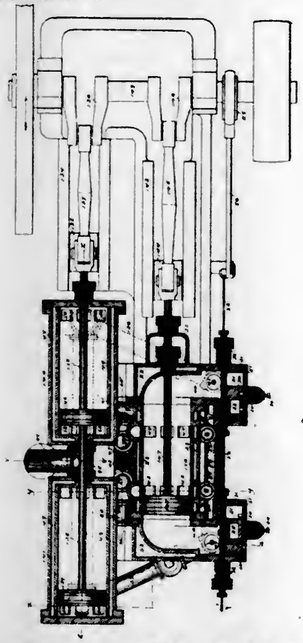
4. The combination, with a pendant inclosing a loose spring-actuated sleeve, a pendant winding and setting arbor, of the case-spring catch adapted to be actuated by said arbor, substantially as herein described.

5. A pendant winding and setting arbor provided with an enlarged portion, which shall engage a loose spring-actuated sleeve in the act of setting the hands, substantially as explained.

6. A pendant winding and setting arbor provided with a collar or enlarged portion, which shall normally remain free from pressure between a loose spring actuated sleeve and the case-spring, whereby it is compelled to return to its normal position in the event of endwise movement in either direction, substantially as explained.

7. A pendant-arbor composed of two parts, the inner extremity of one portion being enlarged and recessed to receive and permit retreat of the other, in combination with a spring in said recess for purposes explained.

351,393. **GAS-ENGINE.** Peter Murray, Jr., Newark, N. J., assignor to the Murray Motor Manufacturing Company, same place. Filed June 6, 1883. (No model.)



Claim.—1. The combination, with the power-cylinder having an exhaust-opening located in position to be uncovered by the piston as it arrives at the end of its stroke, of an exhaust-valve which is opened at the end of the stroke, a pump by which a partial vacuum is formed in the exhaust-pipe before the valve is opened, and a pump by which a portion of a fresh charge is compressed in the induction-pipe before the exhaust-valve is opened, whereby as soon as the exhaust-valve is opened, so as to reduce the pressure in the power-cylinder, the fresh charge will expand into the cylinder and drive the exhaust products before it out through the exhaust-opening, substantially as described.

2. The combination, with the power-cylinder having the exhaust-openings located in position to be uncovered by the power-piston as it arrives at the ends of its strokes in opposite directions, of exhaust-valves which are opened at the ends of the strokes, and a pump or pumps by which a partial vacuum is formed in the exhaust-pipes before the valves are opened, substantially as described.

3. The combination, with the power-cylinder having an exhaust opening controlled by an exhaust-valve which is opened at the end of the stroke, of a pump by which a partial vacuum is formed in the exhaust-pipe before the valve is opened, and a pump by which the charges are forced into the power-cylinder in front of the advancing piston upon its return-stroke, substantially as described.

4. The combination, with the power-cylinder having an exhaust-opening located in position to be uncovered by the piston as it arrives at the end of its stroke, of an exhaust-valve which is opened at the end of the stroke, a pump by which a partial vacuum is formed in the exhaust-pipe before the valve is opened, and a pump by which the charges are forced into the power-cylinder in front of the advancing piston upon its return-stroke, substantially as described.

5. The combination, with the power-cylinder having the exhaust-openings located in position to be uncovered by the power-piston as it arrives at the ends of its strokes in opposite directions, of exhaust-valves which are opened at the ends of the strokes, a pump or pumps by which a partial vacuum is formed in the exhaust-pipes before the valves are opened, and a pump or pumps by which the charges are forced into the power-cylinder in front of the advancing piston upon its return-stroke, substantially as described.

6. The combination, with the power-cylinder, of a double-acting pump, one end of which operates to form a partial vacuum for exhausting the products of combustion from the cylinder, while the other end operates to force the charges into the cylinder, substantially as described.

7. The combination, with the power-cylinder, of two double-acting pumps, one end of each pump operating to form partial vacuums for exhausting the products of combustion from the cylinder, while the other end of each pump operates to force the charges into the cylinder, substantially as described.

8. The combination, with the power-cylinder and a pump for compressing the charges into the cylinder, of an induction-pipe connecting the pump and cylinder and having the check-valves 41 42, whereby a portion of the charge is entrapped under pressure in the induction-pipe, and is permitted to expand into the cylinder to aid in expelling the products of the last explosion as soon as the exhaust is opened, substantially as described.

9. The combination, with the power-cylinder having an exhaust opening or openings, of an exhaust valve or valves which is or are opened as the power-piston arrives at the end of its stroke and is or are closed as the piston starts upon its return-stroke, a pump or pumps by which a partial vacuum is formed in the exhaust pipe or pipes before the exhaust valve or valves is or are opened, and a pump or pumps for compressing the charges into the power-cylinder in front of the advancing piston, substantially as described.

10. The combination, with the power-cylinder and the pump or pumps for compressing the charges into the cylinder, of the induction pipe or pipes 55 56 and valve or valves 41, and the check valve or valves 42, located between the induction valve or valves and the pump or pumps and opening toward the induction valve or valves, whereby a portion of the charge is entrapped in the induction-pipe under pressure and prevented from being drawn back into the pump upon its suction-stroke, substantially as described.

11. The combination, with the power-cylinder and the pump or pumps for compressing the charges into the cylinder, of the induction-pipes 55 56 and valves 41, the valves 42 between the induction-valves and the pump or pumps, and the pipe 54, connecting the induction-pipes between the valves 42 and the induction-valves, substantially as described.

12. The combination, with the power-cylinder and a pump for compressing the charges into the cylinder, of connections between the pump and cylinder by which the pump, after compressing the charge into one end of the cylinder during the last part of its stroke, forces a quantity of the explosive mixture into the other end of the cylinder to aid in expelling the products of combustion, substantially as described.

13. The combination, with the power-cylinder and a pump for compressing the charges into the cylinder, said pump being arranged to complete its stroke after the power-piston has completed its stroke, of connections between the pump and power-cylinder by which the pump, after compressing the charge into one end of the power-cylinder during the last part of its stroke, forces a quantity of the explosive mixture into the other end of the cylinder to aid in expelling the products of combustion, substantially as described.

14. The combination, with the mixing-chamber 99 and the pump for withdrawing the mixture from the chamber, of one or more loosely-mounted mixing-wheels having oblique vanes, whereby it or they is or are revolved by the current passing through the chamber, substantially as described.

15. The combination, with the mixing-chamber 99, of a plurality of mixing-wheels arranged to be revolved in different directions, substantially as described.

16. The combination, with the annular chamber 94, having the openings 2 and the central opening, 14, of the valve 93, arranged to close said openings, and the check-valve 95, substantially as described.

17. The combination, with a stationary igniting-burner located in a recess in the valve-chest, of a firing-valve having an explosion-chamber which is filled with an explosive mixture and communicates with the power-cylinder through a check-valve, and which is provided with a port through which it is brought into communication with the igniting-burner by the movement of the valve at the proper time to fire the charge, substantially as described.

18. The combination, with a firing-valve having an explosion-chamber which communicates with the power-cylinder through a check-valve, of connections, as the channels 7 8 and port 9, through which the chamber is brought into direct communication with the power-cylinder to be filled from the mixture therein as the valve is moved, substantially as described.

19. The combination, with a firing-valve having an explosion-chamber which communicates with the power-cylinder through a check-valve, of a pump, as 36, communicating with a gas-supply, and connections, as the duct 6, channel 1, and port 9, through which the chamber is brought into communication with the pump as the valve is moved, substantially as described.

20. The combination, with a stationary igniting-burner, of connections, as the channel 3 and duct 4 5, by which the burner is fed from the charge in the power-cylinder, substantially as described.

21. The combination, with a stationary igniting-burner fed by a mixture of gas and air and a stationary master-light, of a valve having a channel, as 18, by which the igniting-burner is brought into communication with the master-light as the valve is moved, substantially as described.

22. The combination, with a stationary igniting-burner, of connections, as the channel 3 and duct 4 5, by which the burner is fed from the charge in the power-cylinder, and a firing-valve by which the burner is brought into communication with the power-cylinder at the proper time to fire the charge, substantially as described.

23. The combination, with a stationary igniting-burner fed by a mixture of gas and air and a stationary master-light, of a valve by which the igniting-burner is brought into communication with the charge in the cylinder to explode it, and by which the burner is also brought into communication with the master-light to be relighted after each explosion, substantially as described.

24. The combination, with a stationary igniting-burner, of a firing-valve having an explosion-chamber which is brought into communication with the igniting-burner through the oblique port 9, substantially as described.

25. The combination, with the plate 51, forming the side of the valve-chest, and also the valve-seat, of the valve 30, arranged to be pressed to its seat by the charge in the power-cylinder, substantially as described.

26. The combination, with the cylinder or cylinders 36, provided with suction and force valves, of the valve-rod 32, forming a plunger or plungers for said cylinder or cylinders, substantially as described.

27. The combination, with the firing valve or valves 30, having the explosion chamber or chambers 22, of the cylinder or cylinders 36, communicating with said chamber or chambers, and the valve-rod 32, forming a plunger or plungers for said cylinder or cylinders, substantially as described.

28. In a gas-engine, the combination, with the power-cylinder, piston, and piston-rod, of the open trough 53, for containing a quantity of water to surround the rod and keep it properly cooled, and the two stuffing-boxes through which the rod passes, substantially as described.

351,394. **GAS-ENGINE.** Peter Murray, Jr., Newark, N. J., assignor to the Murray Motor Manufacturing Company, same place. Filed Apr. 2, 1884. (No model.)

Claim.—1. A mixing apparatus for a gas-engine, consisting of a number of ducts or channels which are arranged to intersect and cross each other, and through which the air and gas are caused to pass before they enter the cylinder of the engine, substantially as described.

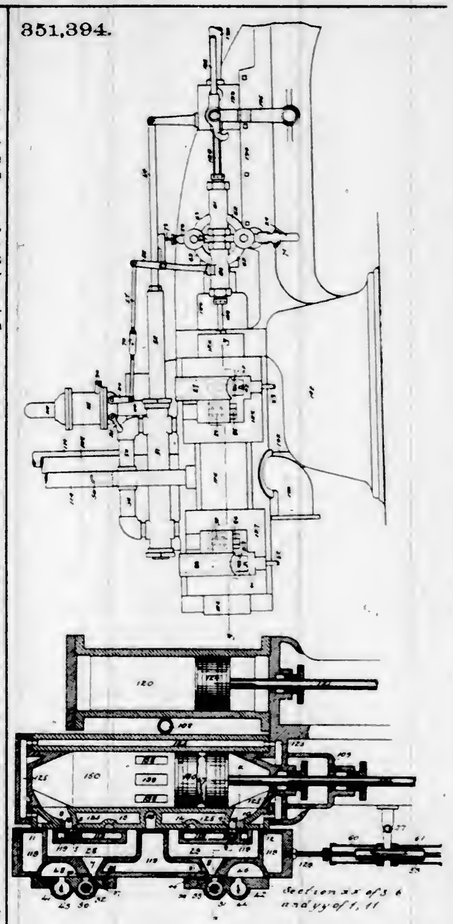
2. In a mixing apparatus for gas-engines, the combination, with the chamber 111, of the concentric tubes 3, having the spirally-arranged intersecting grooves or channels 2, substantially as described.

3. The combination, with the power-cylinder having its exhaust-outlet located in position to be uncovered by the power-piston as it arrives at the end of its stroke, of a pump for forcing the charges of the explosive mixture directly into the power-cylinder while the power-piston is making its stroke toward the end of the cylinder into which the charge is being forced, substantially as described.

4. The combination, with the power-cylinder having its exhaust-outlet located in position to be uncovered by the power-piston as it arrives at the end of its stroke, of a pump for forcing the charges of the explosive mixture directly into the power-cylinder while the power-piston is making its stroke toward the end of the cylinder into which the charge is being forced, the piston of the pump being arranged to complete its stroke in advance of the power-piston, substantially as described.

5. The combination, with the power-cylinder having its exhaust-outlet located in position to be uncovered by the power-piston as it arrives at the end of the stroke, of a pump for forcing the charges of the explosive mixtore directly into the power-cylinder while the power-piston is

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making its stroke toward the end of the cylinder into which the charge is being forced, the piston of the pump being arranged to complete its stroke in advance of the power-piston, and a valve for closing the induction-port at the same time that the pump-piston completes its stroke, substantially as described.

6. The combination, with the power-cylinder having induction-ports at its opposite ends and an exhaust-outlet at its middle, of a pump for forcing the charges of the explosive mixture directly into the power-cylinder while the power-piston is making its stroke toward the end of the cylinder into which the charge is being forced, substantially as described.

7. The combination, with the power-cylinder having induction-ports at its opposite ends and an exhaust-outlet at its middle, of a pump for forcing the charges of the explosive mixture directly into the power-cylinder while the power-piston is making its stroke toward the end of the cylinder into which the charge is being forced, the piston of the pump being arranged to complete its stroke in advance of the power-piston, substantially as described.

8. The combination, with the power-cylinder having induction-ports at its opposite ends and an exhaust-outlet at its middle, of a pump for forcing the charges of the explosive mixture directly into the power-cylinder while the power-piston is making its stroke toward the end of the cylinder into which the charge is being forced, the piston of the pump being arranged to complete its stroke in advance of the power-piston, and a valve for closing the induction-port at the same time that the pump-piston completes its stroke, substantially as described.

9. The combination, with the power-cylinder having an induction-port at its end and its exhaust-outlet in position to be uncovered by the power-piston as it arrives at the end of its stroke, of a pump for forcing the charges of the explosive mixture into the power-cylinder while the

power-piston is making its stroke toward the end of the cylinder into which the charge is being forced, the piston of the pump being set in advance of the power-piston, and a valve for opening the induction-port after the piston of the pump has commenced its stroke, and for closing the port at the same time that the pump completes its stroke, substantially as described.

10. The combination, with the power-cylinder having induction-ports at both ends and an exhaust-outlet at its middle, of a double-acting force-pump for charging said cylinder, the piston of said pump being set in advance of the piston of the power-cylinder, and a single positively-actuated valve for opening said induction-ports after the piston of the pump has commenced its stroke, and for closing said ports simultaneously with the completion of the stroke of said pump-piston, substantially as described.

11. The combination, with the power-cylinder having induction-ports at both ends and an exhaust-outlet at its middle, of a double-acting force-pump for charging said cylinder, the piston of said pump being set in advance of the piston of the power-cylinder, and a single valve arranged to open said ports after the piston of the pump has commenced its stroke, to close said ports simultaneously with the completion of the stroke of the pump-piston, and to fire the charge in the cylinder at or after the completion of the stroke of the power-piston, substantially as described.

12. In a gas-engine, the combination, with a power-cylinder and a double-acting power-piston, of a pump for forcing the charges of the explosive mixture into said cylinder, and a single exhaust-port or set of ports located at or near the middle of the length of the cylinder and uncontrolled by an exhaust-valve, through which the products of combustion are exhausted from both ends of the cylinder, substantially as described.

13. In a gas-engine, the combination, with a power-cylinder and stationary, permanent, and igniting burners, of a single valve provided with means for admitting a charge to the cylinder and confining the same therein, and with means for establishing communication between the permanent and igniting burners to light the latter, and for then establishing communication between the igniting-burner and the charge in the cylinder to fire the same, substantially as described.

14. In a gas-engine having a double-acting piston, and stationary, permanent, and igniting burners for each end of the cylinder, of a single valve provided with means for admitting the charges to the cylinder and confining them therein, and with means for establishing communication between the permanent and igniting burners to light the latter, and for establishing communication between the igniting-burners and the charges to fire them, substantially as described.

15. The combination, with the power-cylinder and an igniting-burner for firing the charges in the cylinder, of a valve having a duct or chamber through which the explosive mixture passes in entering the cylinder, and in which a portion of the mixture is confined when the induction-port is closed, a port controlled by a check-valve which communicates with the duct and cylinder, and a port which is brought into communication with the igniting-burner by the movement of the valve, substantially as described.

16. The combination, with the power-cylinder and an igniting-burner for firing the charges in the cylinder, of a valve having a duct or chamber through which the explosive mixture passes in entering the cylinder, and in which a portion of the mixture is confined when the induction-port is closed, a port controlled by a check-valve which communicates with the duct and cylinder, a port which is brought into communication with the igniting-burner by the movement of the valve, and means by which the igniting-burner is fed from the mixture confined in the duct until the firing takes place, substantially as described.

17. The combination, with the pump for forcing the charges into the power-cylinder, of the charging and firing valve for admitting, confining, and firing the charges in the cylinder, the valve being so constructed and timed that the induction-port will be opened to admit the charge to the cylinder at the time the valve is completing its stroke in one direction and commencing its stroke in the opposite direction, and that the charge will be fired before the valve completes its stroke after admitting the charge, and the pump-piston being so timed with relation to the valve that it will commence its stroke before the induction-port is opened and complete its stroke simultaneously with the closing of the induction-port, substantially as described.

18. In a gas-engine, the combination, with a power-cylinder, of means for supplying a quantity of steam to the same in advance of the charge of the explosive mixture, substantially as described.

19. In a gas-engine, the combination, with the power-cylinder having spaces 125 and a port or ports, 11 12, of the valve 126, having cavities 119, and a port or ports, 9 10, arranged substantially as described, and for the purposes set forth.

20. In a gas-engine, the combination, with the power-cylinder, of a valve having a duct through which the explosive mixture passes in charging the cylinder, and means by which said duct is filled with air previous to the passage of each charge of the explosive mixture through the same, substantially as described.

21. The combination, with the power-cylinder and stationary, permanent, and igniting burners, of a firing-valve constructed and operated to establish communication between the permanent and igniting burners to light the latter, and to then establish communication between the igniting-burner and the charge to fire it, and a check-valve for closing the firing-port as soon as the charge is fired, substantially as described.

22. In a gas-engine, an igniting-burner provided with a cup-shaped body, 34, arranged to surround and protect the flame, substantially as described.

23. In a gas-engine, an igniting-burner consisting of a cup-shaped body, 34, the bottom of which is provided with a hollow plug having an annular flange, 16, substantially as described.

24. The combination, with the power-piston having the circumferential groove or recess 47, of a port or ports formed in the cylinder through which water is admitted to said groove as the piston reciprocates, substantially as described.

25. The combination, with the power-cylinder having the ports 49, of the piston provided with the groove or recess 47, the water-pipe 50, cylinder 51, and plunger 52, substantially as described.

26. In a gas-engine, the combination, with a cock or valve for controlling the quantity or richness of the explosive mixture supplied to the power-cylinder, of the plunger 59, valve 72, and connections, substantially as described.

27. The combination, with the cock 20, for controlling the amount of gas admitted to the explosive mixture, of a governor for controlling said cock, whereby as the speed of the engine increases the amount of gas admitted to the mixture is decreased, and the valve 22, for controlling the openings through which the air and gas enter the mixing-chamber, substantially as described.

28. The combination, with the cock 20, for controlling the richness of the explosive mixture, of the plunger 59, valve 72, and connections, substantially as described.

29. The combination, with the cock 20, for controlling the richness of the explosive mixture, of the plunger 59 upon the valve-rod 129, the valve 72, and connections, substantially as described.

30. The combination, with a cock or valve for controlling the quantity or richness of the explosive mixture supplied to the power-cylinder, of the plunger 59 upon the valve-rod 129, the valve 72, and connections, substantially as described.

31. The combination, with a cock or valve for controlling the quantity or richness of the explosive mixture supplied to the power-cylinder, of the plunger 59 upon the valve-rod 129, the valve 72, cock 71, and connections, substantially as described.

32. The combination, with the power-cylinder, of a pump for supplying the explosive mixture to said cylinder, a tank, and connections between said cylinder, pump, and tank, by which the explosive mixture may be allowed to pass from the pump either directly to the power-cylinder or to the tank, and by which the cylinder may be supplied either from the pump or from the tank, substantially as described.

33. The combination, with the power-cylinder, the pump for supplying the explosive mixture thereto, and the tank 142, of the pipe 114, leading from the pump to the cylinder, the branch 108, leading to the tank, and the cock 56, for controlling said pipe and branch, substantially as described.

351,395. GAS-ENGINE. Peter Murray, Jr., Newark, N. J., assignor to the Murray Motor Manufacturing Company, same place. Filed Feb. 6, 1886. (No model.)

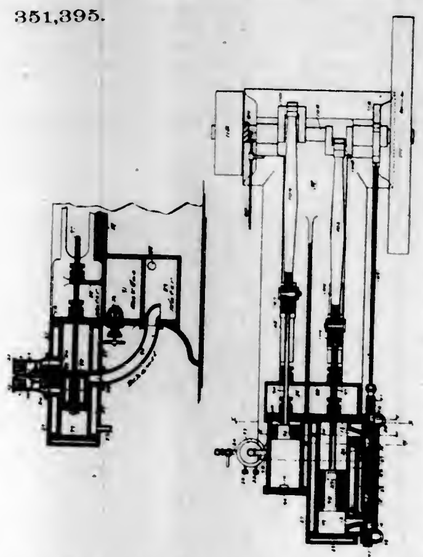
Claim.—1. The combination, with the power cylinder and piston, of a pump for charging the cylinder, having its piston arranged to complete its stroke in advance of the power-piston, and a positively-actuated charging-valve arranged to open the induction-port at the same time or after the exhaust-opening is opened, and to close the induction-port at the same time that the pump completes its stroke, substantially as described.

2. The combination, with the power cylinder and piston, of the exhaust-opening arranged to be uncovered by the power-piston as it arrives at the end of its stroke, a pump for charging the cylinder, having its piston arranged to complete its stroke in advance of the power-piston, and a positively-actuated charging-valve arranged to open the induction-port at the same time or after the exhaust-opening is opened, and to close the induction-port at the same time that the pump completes its stroke, substantially as described.

3. The combination, with the power cylinder and piston, of a positively-actuated charging and firing valve carrying an igniting-burner and arranged to open the induction-port to admit the charge, close the port to confine the charge in the cylinder, and then bring the igniting-burner into communication with the charge to fire it, substantially as described.

4. The combination, with the power cylinder and piston, of the exhaust-opening arranged to be uncovered by the power-piston as it arrives at the end of its stroke, and a charging and firing valve carrying an igniting-burner and arranged to open the induction-port to admit the charge at the same time or after the exhaust-opening is uncovered, close

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the port so that the charge will be confined in the cylinder and compressed by the power-piston upon its return-stroke, and then bring the igniting-burner into communication with the charge to fire it, substantially as described.

5. The combination, with the power cylinder and piston, of the exhaust-opening arranged to be uncovered by the power-piston as it arrives at the end of its stroke, and a charging and firing valve carrying an igniting-burner and having suitable ducts through which it is fed from the charge in the power-cylinder, and arranged to open the induction-port to admit the charge at the same time or after the exhaust-opening is uncovered, close the port so that the charge will be confined in the cylinder and compressed by the power-piston upon its return-stroke, and then bring the igniting-burner into communication with the charge to fire it, substantially as described.

6. The combination, with the power cylinder and piston, of a pump for charging the cylinder, having its piston arranged to complete its stroke in advance of the power-piston, and a positively-actuated charging and firing valve carrying an igniting-burner and arranged to open the induction-port at the same time or after the exhaust-opening is opened, close the port at the same time that the pump-piston completes its stroke, and then bring the igniting-burner into communication with the charge to fire it, substantially as described.

7. The combination, with the power cylinder and piston, of the exhaust-opening arranged to be uncovered by the power-piston as it arrives at the end of its stroke, a pump for charging the cylinder, having its piston arranged to complete its stroke in advance of the power-piston, and a positively-actuated charging and firing valve carrying an igniting-burner and arranged to open the induction-port at the same time or after the exhaust-opening is opened, close the port at the same time that the pump-piston completes its stroke, and to then bring the igniting-burner into communication with the charge to fire it, substantially as described.

8. The combination, with an igniting-burner fed through suitable ducts from the charge in the power-cylinder and a firing-valve for establishing communication between said burner and the charge to fire it, of a positively-actuated valve arranged to close the ducts through which the burner is fed at or about the time communication is established between the burner and the charge to fire it and to open said ducts after the exhaust is opened, substantially as described.

9. The combination, with a firing-valve carrying an igniting-burner which is fed through suitable ducts from the charge in the power-cylinder, and is arranged to be brought into communication with the charge in the cylinder to fire it, of a positively-actuated valve arranged to close the ducts through which the burner is fed at or about the time communication is established between the burner and the charge to fire it, and to open said ducts after the exhaust is opened, substantially as described.

10. The combination, with a stationary master-light and a firing-valve carrying an igniting-burner which is fed through suitable ducts from the charge in the cylinder, and is arranged to be brought into communication with the master-light to be lighted and into communication with the charge in the cylinder to fire it, of a positively-actuated valve arranged to close the ducts through which the burner is fed at or about the time communication is established between the burner and the charge to fire it, and to open said ducts after the exhaust is opened, substantially as described.

11. The combination, with an igniting-burner fed through suitable ducts from the charge in the power-cylinder and a charging and firing valve arranged to open the induction-port to admit the charge, close the port to confine the charge in the cylinder and allow it to be compressed by the piston and then establish communication between the burner and the charge to fire it, of a positively-actuated valve arranged to close the ducts through which the burner is fed at or about the time communication is established between the burner and the charge to fire it, and to open said ducts after the exhaust is opened, substantially as described.

12. The combination, with a stationary master-light and a charging and firing valve carrying an igniting-burner, which is fed through suitable ducts from the charge in the cylinder, said charging and firing valve being arranged to open the induction-port to admit the charge, close the port to confine the charge in the cylinder and allow it to be compressed by the piston and then bring the burner into communication with the charge to fire it, of a positively-actuated valve arranged to close the ducts through which the burner is fed at or about the time communication is established between the burner and the charge to fire it, and to open said ducts after the exhaust is opened, substantially as described.

13. In a gas-engine, an igniting-burner consisting of the tubular stem 18, through which the mixture for the burner passes, and the foraminous material 17, which is located within the tubular stem and a distance back from its end, whereby the flame of the burner is inclosed within and protected by the end of the tubular stem of the burner, substantially as described.

14. In a gas-engine, the combination, with an igniting-burner consisting of the tubular stem 18, through which the mixture for the burner passes, and the foraminous material 17, which is located within the tubular stem and a distance back from its end, whereby the flame of the burner is inclosed within and protected by the end of the tubular stem of the burner, of the port 7 and duct 8, arranged to be brought into communication with the charge in the power-cylinder and to direct the jet of the mixture issuing from the cylinder across the end of the tubular stem in which the flame of the burner is inclosed, substantially as described.

15. The method or process of hastening the combustion of the charges in a gas-engine, which consists in admitting or introducing a quantity of air into the cylinder of the engine after the charge has been fired and before the exhaust is opened, substantially as described.

16. The combination, with the power-cylinder and piston, of an air opening or port through which a quantity of air is admitted or introduced into the cylinder after the charge has been fired and before the exhaust is opened, substantially as described.

17. The combination, with the power cylinder and piston, of an air opening or port through which a quantity of air is admitted or introduced into the cylinder after the charge has been fired and before the exhaust is opened, and a valve for controlling said opening or port, substantially as described.

18. The combination, with the power cylinder and piston, of an air-chamber communicating with the cylinder and with the atmosphere, a valve for preventing the escape of the air from the chamber, and a valve arranged to open communication between the chamber and the cylinder after the charge has been fired and before the exhaust is opened, substantially as described.

19. The combination, with the power cylinder and piston, of an air opening or port arranged to be uncovered by the piston after the charge has been fired and before the exhaust is opened, and a valve for controlling said opening or port, substantially as described.

20. The combination, with the power cylinder and piston, of an air-chamber communicating with the atmosphere and also with the cylinder by an opening or port which is arranged to be uncovered by the power-piston after the charge has been fired and before the exhaust is opened, and a valve for preventing the escape of the air from the chamber, substantially as described.

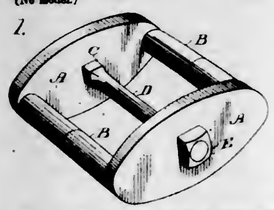
21. The combination, with the chamber 89, containing a body of water and provided with connections by which a flow of water is maintained through the chamber, of the exhaust-pipe 90, opening downward so as to deliver the exhaust products directly onto the surface of the body of water in the chamber, substantially as described.

22. In a gas-engine, the combination, with the oil-chamber 47, having the duct 26 communicating with the interior of the power-cylinder in position to be covered by the power-piston during a part of the stroke and to be opened to the cylinder during a part of the stroke, of the positively-actuated valve 26, for controlling said duct, said valve being arranged to close the duct when it is open to the cylinder and to open the duct when it is covered by the piston, substantially as described.

23. In a gas-engine, the combination, with the oil-chamber 47 having the duct 26 communicating with the interior of the power-cylinder in position to be covered by the power-piston during a part of the stroke and to be open to the cylinder during a part of the stroke, and the pipes

27, leading to the charging and firing valve, of the positively-actuated valve 28, for controlling said duct and pipes, said valve being arranged to close the duct when it is open to the cylinder and to open the duct when it is covered by the piston, substantially as described.

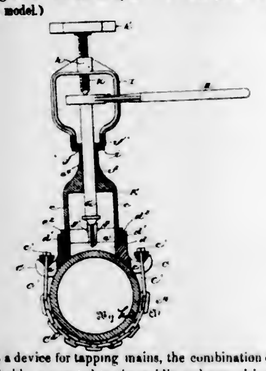
351,396. SPRING-HANGER. Denis J. Owen, Lynn, Pa. Filed Aug. 25, 1886. (No model.)



Claim.—1. The combination of the plates having solid inward projections and central perforations, as described, and a suitable bolt for securing them together, substantially as set forth.

2. The combination of the plates having inward projections and perforations arranged in the center of said plates, as described, and a bolt for securing the plates in position, as set forth.

351,397. DEVICE FOR TAPPING MAINS. Walter S. Payne, Fostoria, Ohio, assignor to Walter S. Payne & Co., same place. Filed June 23, 1886. (No model.)



Claim.—1. In a device for tapping mains, the combination of a saddle, a carrier detachably connected to the saddle and comprising the integral uprights *e*, and the neck e^4, having the longitudinal passage, a drill fitted loosely in the passage to rotate and move longitudinally freely therein, a yoke connected to the carrier, and a feed-screw fitted in the yoke and bearing on the drill, the parts being constructed substantially as described, for the purpose set forth.

2. In a device for tapping mains, the combination of a saddle having an opening, *d*, a carrier detachably connected to the saddle and comprising the parallel uprights *e*, and the neck e^4, formed of a single piece, the drill having a smooth exterior surface and fitted loosely in a longitudinal passage, *f*, of the carrier to rotate and move longitudinally therein, and provided with the conical threaded lower end and the longitudinal passages *g* in the periphery of said threaded end, a yoke connected to the carrier, and a feed-screw fitted in the yoke and bearing on the drill, the parts being constructed substantially as described, for the purpose set forth.

3. In a device for tapping mains, the combination of a saddle having the threaded ring, a carrier formed of a single piece and comprising a threaded ring to be connected with the saddle, the arms or standards, and the neck having the longitudinal passage, the yoke having a divided ring fitted on the neck of the carrier and carrying the feed-screw, the drill fitted in the passage of the carrier-neck and having its lower end tapered and threaded, said lower end of the drill being further provided with the inclined cutting-edges and the longitudinal channels, substantially as described, for the purpose set forth.

351,398. ARTIFICIAL EAR-DRUM. Hosea P. K. Peck, Brooklyn, N. Y., assignor to Freeman Hiscox, Newark, N. J. Filed Nov. 20, 1885. (No model.)



Claim.—1. The flexible skeleton collar *b*, or its equivalent, attached to the stem *c*, in combination with the perforated elastic disk or artificial membrane *a*, substantially as and for the purpose specified.

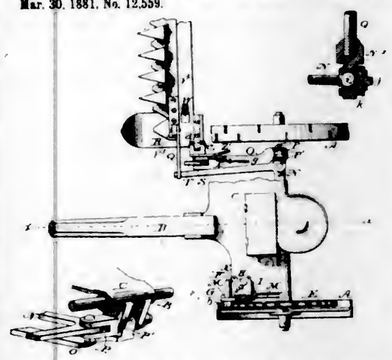
2. The expansible sectional tube A, provided with flexible holding-bars *i i*, in combination with the stem of an artificial ear-drum, substantially as specified.

351,399. CAR-COUPLING. Anson W. Phillips, Fairfield, N. Y. Filed Aug. 23, 1886. (No model.)



Claim.—The combination, with the draw-head provided with an inclined slot and a shoulder or rest curved on its forward face, of the sliding pin or hook having two arms arranged to move in the said slot, the forward arm having its forward face curved downwardly and inwardly, and adapted to operate in connection with the forward face of the rest and the link to guide said link and cause the said link to automatically lift the pin and couple the cars, substantially as specified.

351,400. REAPING AND MOWING MACHINE. George Pye, Ottawa, Canada. Filed Sept. 18, 1885. (No model.) Patented in Canada Mar. 30, 1881, No. 12,559.



Claim.—1. In a reaper or mowing-machine, the combination of cutter or knife bar V^3, elbow-lever N, provided with ball or head *i*, and link or pitman Q, having piece N^3, provided with a screw-threaded socket, screw-plug *j*, fitting into said socket, and nut *k*, all substantially as shown and described.

2. In a reaping or mowing machine substantially such as described, the combination of a wheeled frame, C, a thrust-bar, O, carried by and descending from the frame or axle and provided with a ground-wheel, T, a bolt, S, passing through the wheel and bar and provided with an enlarged head, and a finger-bar hinged or pivoted in said enlarged head, all substantially as shown, whereby the single bolt is caused to serve as a support for the finger-bar, on which the latter may be raised and lowered lengthwise and tipped laterally, and also as an axle for the wheel T.

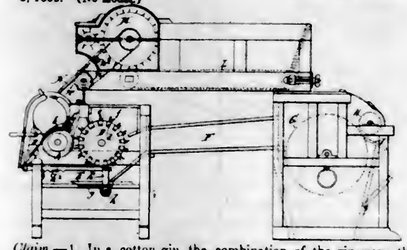
3. In a reaping or mowing machine substantially such as described and shown, the combination of a wheeled frame, a depending bar provided with a ground-wheel at its lower end, a bolt passing through said ground-wheel and through the depending bar, and provided with an enlarged head, a shoe and finger-bar pivotally attached to said head, and a lever attached to the bolt and serving to rock the same, and thereby vary the inclination of the shoe and its attached parts.

4. The combination of wheels A A and cam-wheel E, axle B, frame C, thrust-bar O, pivotally attached to the frame or axle, wheel T at the lower end of thrust-bar O, bolt S, shoe R, hinged to said bolt, and lever Z', attached to said bolt and provided with locking device V', and rack or sector X', attached to thrust-bar O, all substantially as described and shown.

5. The herein-described reaping or mowing machine, consisting of wheels A A and cam-wheel E, axle B, frame C, and tongue D, thrust-bar O, swivel-bolt P, supporting said bar, elbow-lever N, pivoted to said bolt-wheel T at the lower end of bar O, bolt S, passing through bar O, and wheel T, shoe R, carrying finger-bar V^3, and hinged to bolt S, cutter-bar V^3, connected with elbow-lever N by a link or pitman, Q, rocking lever G, provided with studs or rollers to bear upon wheel E, and link or pitman M, connecting the levers G and N.

6. The combination, in a reaping or mowing machine such as described, of a wheeled frame, a depending bar, a swivel-bolt forming a pivotal connection between the depending bar and the wheeled frame, a swivel-bolt passing through the lower end of the bar, a shoe pivoted to said bolt and carrying the finger-bar, a cutter-bar sliding upon the finger-bar, a link pivotally connected with the cutter-bar, and an elbow-lever supported by a pivotal connection with the swivel-bolt which supports the depending bar, and having one arm connected with the link of the cutter-bar by a universal joint and the other arm connected with a rocking lever actuated by a cam-wheel.

351,401. COTTON-GIN. Joseph Ralston, Brenham, Tex. Filed Aug. 3, 1885. (No model.)



Claim.—1. In a cotton-gin, the combination of the gin-saws, the recessed roller moving in the same direction as the saws, and the ribs placed between the saws and above the arbor or shaft thereof, the ribs having the inclined flanges mounted upon their upper surfaces, projecting above the saws and extending up to the roller, the ribs and roller operating upon the cotton at the point where the lint is separated from the seed, substantially as shown and described.

2. In a cotton-gin, the saws, the rollers, and the ribs provided with the inclined projections, combined and arranged for operation substantially as shown and described.

3. In a cotton-gin, the combination of the saws, revolving brush, adjustable mote-board arranged below the revolving brush and rack, pinion, and operating-lever projecting through to the front of the machine, all arranged substantially as set forth.

4. In a cotton-gin, the combination, with the operating parts of the machine, of the suction-pan, the air and dust pipe communicating with the casing of said fan and the branches leading from said pipe and connecting with the interior of the machine, the fan being driven by belt-connection with the brush-shaft of the machine, substantially in the manner and for the purposes set forth.

5. A cotton-gin comprising the gin-saws, the roller, the feeding-drum, the endless apron, the breaking-roller, the shaking-screen hinged below the feeding-drum, the eccentric or irregular wheel for operating said screen, and the belt connecting the shaft of the feeding-drum and that of the eccentric or irregular wheel, all the parts being connected and arranged for simultaneous operation, substantially as shown, and for the purposes set forth.

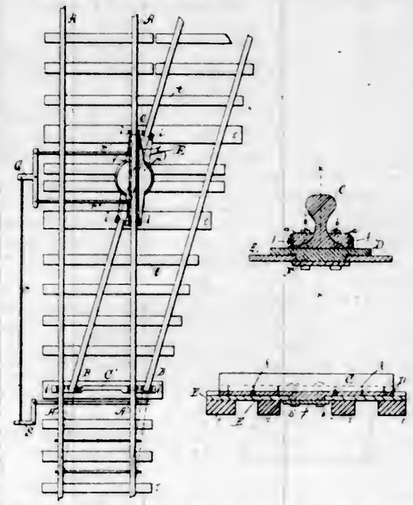
351,402. HAT-SWEAT. Franklin E. Randel, New York, N. Y. Filed Aug. 6, 1886. (No model.)



Claim.—1. The sweat leather or band provided with the free ends a' a^2, in combination with the supplemental piece *b*, secured to the hat at a point where the said ends meet, and the attaching means to fasten the two ends a' a^2 together, as set forth.

2. The combination, with a hat, cap, or similar article, of the band *a*, secured thereto so as to leave the free ends a' a^2, the supplemental piece *b*, secured to the hat, the hook *c*, and re-enforce piece *e* upon end a', and the holes a^3, and re-enforce *d*, secured to end a^2, substantially as set forth.

351,403. RAILWAY-CROSSING. Frank Robinson, Climax, Mich. Filed Apr. 14, 1886. (No model.)



Claim.—1. The plates *a a*, forming undercut ways for the flanges of rail C, and independently fastened to plate D, to allow the section-rail C to be easily detached, as set forth.

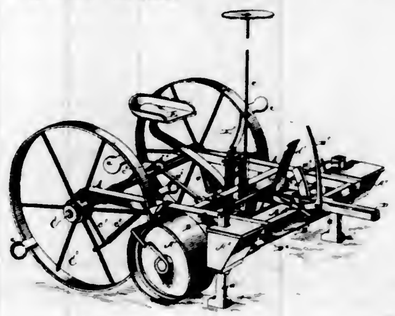
2. The plate D, having a central integral bottom, a fast plate, E, provided with a bearing for said pivot, and a bottom plate, F, overlapping plate E, in combination with the bolts *b*, carrying nuts at their upper ends, whereby the rail C and all its connections may be detachably but securely held, as set forth.

3. The combination of the plates D E F and undercut plates *a*, with bolts and nuts to support the rail-section C, as shown and described.

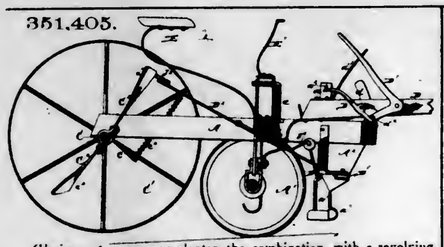
351,404. FOOD COMPOUND. Preston B. Rose, Ann Arbor, Mich. Filed Oct. 23, 1885. (Specimens.)

Claim.—The improved food product described herein, in dry or granular form, consisting of tank-waste incorporated with a farinaceous substance.

351,405. CORN-PLANTER. Henry Schoenfeld, Baraboo, Wis. Filed Aug. 11, 1885. (No model.)



351,405.



Claim.—1. In a corn-planter, the combination, with a revolving axle, of a marking-wheel thereon and a spring-connection between the axle and wheel, whereby the wheel is caused to move with the axle, but is free to have a slight independent movement controlled by said spring, substantially as and for the purpose set forth.

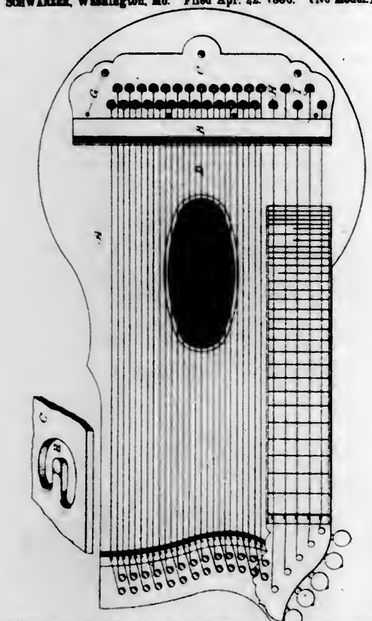
2. In a corn-planter, the combination, with a revolving axle provided with an arm rigidly secured thereto, of a marking-wheel loose upon the axle, engaging said arm, and also connected thereto by a spring, substantially as and for the purpose set forth.

3. In a corn-planter, a main frame carrying the seed-boxes on one end and the marking-wheels on the other, and provided with a vertically-sliding planting leg or shoe, in combination with a lever for depressing the front of the frame to lift the markers, and at the same time lifting the vertically-sliding leg, substantially as and for the purpose set forth.

4. In a corn-planter, the main frame A, provided with the marking-wheels on one end and the seed-boxes at the other, and the vertically-sliding planting legs and shoes *a a'*, in combination with the tongue D, hinged on the frame, and the levers D' D^2, one of which operates the frame and the other the shoes, substantially as and for the purpose set forth.

5. In a corn-planter, a pair of seed-boxes connected by a slide and a pair of vertically-sliding dropping legs and shoes connected across the machine, and each provided with a seed-receptacle in its lower end carried by a spring-actuated lever, in combination with a slide-operating lever provided with a double incline, and a cranked rock-shaft having an arm resting on said incline and connected to the dropping-levers, whereby the charge is dropped into the shoe, and thence to the ground, substantially as and for the purpose set forth.

351,406. STRING-HOLDER FOR MUSICAL INSTRUMENTS. Franz Schwarzer, Washington, Mo. Filed Apr. 22, 1886. (No model.)



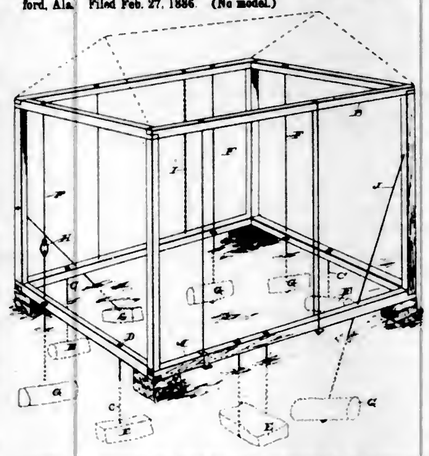
Claim.—1. A string-holder for musical instruments, consisting of a plate having a series of semicircular holes or perforations, each perforation forming a tongue, and means for securing said plate to the instrument.

2. A string-holder for musical instruments, consisting of a metallic plate having a series of semicircular perforations, each perforation forming a tongue which is even with the top and bottom of said plate, said plate and tongue being rounded at the point of contact with the strings, and means for securing said plate to the instrument.

3. The combination, with a musical instrument provided with strings having a loop at one end, of a plate having a series of semicircular perforations, forming tongues integral with the plate, and means for securing said plate to the instrument.

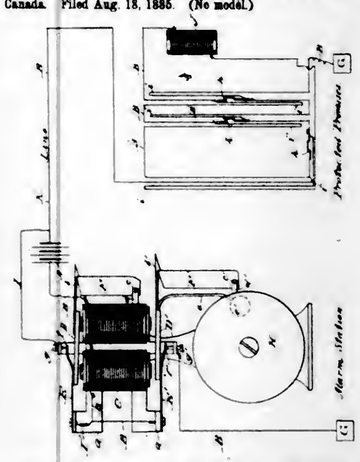
4. The combination, with the sound-board or top piece of a zither, of two transverse bars, a metallic plate, retaining-screws, and a series of strings, said plate being provided with a series of semicircular perforations, and one end of each of said strings being provided with a loop.

351,407. HOUSE CLAMP AND ANCHOR. Calvin H. Simmons, Munford, Ala. Filed Feb. 27, 1886. (No model.)



Claim.—In anchors for buildings, the combination of brace-rods extending from upper plates to sills, and connected to both, with rods extending from the sill to anchors, substantially as described.

351,408. BURGLAR-ALARM SYSTEM. Philip K. Stern, Toronto, Canada. Filed Aug. 13, 1885. (No model.)



Claim.—1. In a burglar-alarm system, the combination of a main closed circuit including a resistance medium and an electro-magnet having two armatures responsive to different strengths of current therein, a local circuit at the alarm-station, a signaling apparatus included in said local circuit, and a single battery for supplying the electric current to both the main and local circuits, as set forth.

2. In a burglar-alarm system, the combination of a main closed circuit extending from an alarm-station to a guarded structure, a local circuit including a signaling or indicating apparatus at the alarm-station, an electro-magnet in the main circuit, having armatures D and D', responsive to different strengths of current, as described, and an annunciator or indicator held by the armature D during the normal condition of the main circuit, and adapted to be released upon a decrease in or interruption of the current of said circuit, as and for the purposes set forth.

3. In a burglar-alarm system, the combination of a main closed circuit extending from an alarm-station to a guarded structure, a local circuit including a signaling or indicating apparatus at the alarm-station, an electro-magnet in the main circuit, having armatures D and D', responsive to different strengths of current, as described, and an annunciator or indicator held by the armature D' during the normal condition of the main circuit, and adapted to be released upon an increase of current in said circuit, as and for the purposes set forth.

4. In a burglar-alarm system, the combination of a main closed circuit extending from an alarm-station to a guarded structure, a local circuit including a signaling apparatus at the alarm-station, an electro-magnet in the main circuit, having armatures D and D', responsive to different strengths of current, as described, and annunciators held by the said armatures during the normal condition of the main circuit, and adapted to be released one upon a decrease in or interruption of the current and the other upon an increase of the current in said main circuit, as and for the purposes set forth.

5. In a burglar-alarm system, the combination of a main closed circuit extending from an alarm-station to a guarded structure, an electro-magnet included in said circuit, having armatures D and D', responsive to different strengths of current, as described, annunciators controlled by said armatures, and local circuits and signaling means at the alarm station, said local circuits being adapted to be closed by the said armatures and by the annunciators, as and for the purposes set forth.

6. The combination of a lock comprising a bolt and means for projecting and retracting it, devices for conducting a current of electricity through different paths, one or the other of which the said current is always traversing, and a switch mechanism connected to the lock mechanism and operated thereby during the projections and retractions of the locking-bolt, as and for the purposes set forth.

7. In a burglar-alarm system, the combination of a main closed circuit extending from an office to a protected premises, a lock at the protected premises, comprising a bolt and means for projecting and retracting it, devices for conducting a current of electricity through different paths, one or the other of which said current is always traversing, and a switch mechanism located within the lock-case and connected to and operated by the lock mechanism during the projections and retractions of the locking-bolt thereof, as and for the purposes set forth.

8. In a burglar-alarm system, the combination of a main circuit extending from an office to a protected premises, a permutation-lock at the protected premises, containing devices for conducting the current of electricity through different paths therein, one or the other of which paths the said current is always traversing, and a switch mechanism located within the lock-case and operated by the drop-bolt and tumblers of the lock mechanism, for turning the current of electricity from one path to another, according as the lock mechanism is operated, as set forth.

9. In a burglar-alarm system, the combination of a main circuit extending from an office to a protected premises, a lock at the protected premises through which said current is always passing, a local alarm-circuit at the protected premises running to points thereat through which access might be gained, and extending through the said lock, and a device in connection with the lock mechanism for establishing the local circuit, whereby an alarm at the protected premises only is given in case any window, door, &c., is open, as set forth.

10. In a burglar-alarm system, the combination of a main circuit extending from an office to a protected premises, a lock at the premises, containing devices for conducting the current through different paths therein, one or the other of which paths the said current is always traversing, a local normally-open alarm-circuit including a door or window at the protected premises and extending through the lock, a device in connection with the lock mechanism for closing the said local alarm-circuit, and a switch mechanism operated by the lock mechanism, for turning the current of the main line from one path to another upon the completion of the locking movements or operations, as set forth.

11. In a burglar-alarm system, the combination of a main closed circuit extending from an office to a protected premises, a lock at the latter, a resistance-coil located within the case of said lock, and conductors, also located within the lock-case, for connecting the resistance-coil in the said main closed circuit, as and for the purposes set forth.

12. In a burglar-alarm system, the combination, with a main circuit extending from an alarm-station to a protected premises, of a test-circuit at the protected premises and a signaling apparatus included in said circuit, whereby upon the closing up of the premises the occupant thereof may be informed as to whether any door, window, or other point through which access might be gained is open, as set forth.

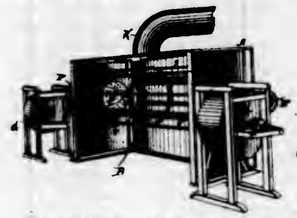
13. In a burglar-alarm system, the combination, with a main line extending from a central station to a guarded structure, a window, or screen, and a branch circuit at said structure, of a combined switch and fastener, whereby the window or screen may be switched off from the inside of the structure without giving an alarm at the station, and whereby the occupant of the premises is prevented from raising the window or screen without switching off the main line, thus avoiding giving a false alarm, as set forth.

14. In a burglar-alarm system, the combination, with a main line extending from a central office to a guarded structure, of a screen, a combined switch and fastener, a branch circuit, and a test-circuit at said structure, whereby when the screen is removed the test-circuit alarm is rung to indicate to the occupant an unprotected portion of the structure, but not the alarm located at the central office, as set forth.

15. In a burglar-alarm system such as described, the combination of a main line extending from a central office to a protected premises, a window, door, or other opening at the latter provided with contact devices, a wire screen included in said circuit and provided with contact devices to register with those at the window, door, or other opening, a branch circuit, and a switch and fastener, all as and for the purposes set forth.

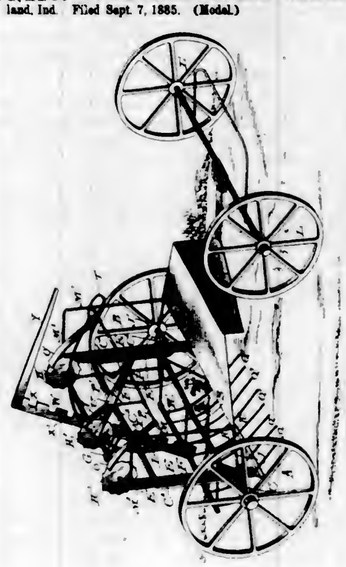
16. In a burglar-alarm system employing a resistance coil or medium, a conductor composed of strands of insulated wires knotted, braided, or twisted together, disposed throughout the premises at the points to be protected, and having one end of one of the wires connected to one end of the resistance-coil and one end of another of the wires connected to the other end of the resistance-coil, so as to include the latter in the circuit, whereby the current is caused to pass over one of the strands of the wires of the said conductor, then through the resistance-coil, and then over another strand of the said wires, as set forth.

351,409. TOBACCO-DRIER. Frederick Stiles, Binghamton, N. Y., assignor to Mary E. Stiles and David B. Cooke, both of same place. Filed Oct. 2, 1885. (No model.)



Claim.—The combination, with the casing A and the rotating drum B, of the blast-generators G, located at each end and communicating with the casing through perforated caps C, and the exhaust-pipe K, extending from the casing, the whole adapted to operate to force a current of air through the tobacco while being rotated, substantially as specified.

351,410. MANURE-CARRYING MACHINE. Charles Stubbs, Spiceland, Ind. Filed Sept. 7, 1885. (Model.)

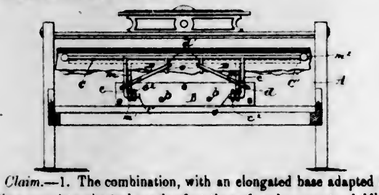


Claim.—1. The combination, in a manure-carrier, of the lifter and carrier R, having its tines Q Q′ Q^2 Q^2 Q^4, cross-bars R′ R^2, braces, and horizontal rod S, with wheels A B L L′, the axle with its spindles C′ C^3, uprights C^3 C^4, and transverse bar C^5, the two parallel separated bars E E′, forming slots F F′, pawls O O′ V, pawl-bearer U, chains I I′, windlass-axle G, ratchets H H′ H^3, rod P, lifters T and Y, notched bar W, the bars J J′, and uprights M M′, with arms M^2 M^3, all substantially as and for the purposes set forth.

2. The combination, in a manure-carrier, of the carrier R, the two parallel separated bars E E′, forming slots F F′, windlass-axle G, pawls O O′ V, ratchets H H′ H^3, pawl-bearer U, chains I I′, scoop Z, and notched bar W, substantially as and for the purposes set forth.

3. The combination, in a manure-carrier, of the tined carrier R, the two parallel separated bars E E′, forming slots F F′, platform K, cross-bars S and P, notched bar W, axles C and G, pawls O O′ V, pawl-bearer U, ratchets H H′ H^3, and chains I I′, substantially as and for the purposes set forth.

351,411. BEDCLOTHES-HOLDER. Henry O. Thomas, Fremont, Nebr. Filed Feb. 11, 1886. (No model.)



Claim.—1. The combination, with an elongated base adapted to be rigidly secured to the bed at the foot thereof, and supports rigidly secured to said base, of a holder-jaw, a movable holder-jaw, substantially as described, having depending arms, the latter being pivoted to the supports, and a bar engaging one of said arms for holding the movable jaw in closed adjustment, substantially as set forth.

2. In a bedclothes-holder, the combination, with a base, support secured thereto, and a pair of swinging jaws secured to said supports, of a foot shield or apron secured between the jaws, and means for holding the jaws closed.

3. In a bedclothes-holder, the combination, with a base, support secured thereto, and a pair of swinging jaws secured to said supports, of a locking device adapted to engage both jaws and hold them in locked position, substantially as set forth.

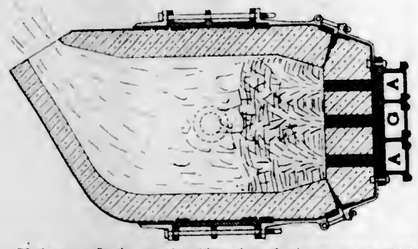
4. The bedclothes-holder consisting, essentially, of a pair of jaws, one being hinged to the bed and the other being hinged to its mate, and a pair of locking-bars loosely secured on the ends of the jaws, substantially as set forth.

5. The combination, with a base, of a pair of jaws, one hinged to the bed and the other hinged to its mate, and a locking-bar having an elongated eye adapted to embrace the corresponding parts of the two jaws and force and hold them together, substantially as set forth.

351,412. PROCESS OF OBTAINING AMMONIA AND ILLUMINATING GAS FROM TANK-WATERS. Joseph Van Ruymbeke, Chicago, Ill., assignor of one-half to William F. Jobbins, same place. Filed July 27, 1885. (No specimens.)

Claim.—The process of treating concentrated tank-waters by applying to them a degree of heat not exceeding about 500° Fahrenheit, and collecting the volatile products, whereby highly-illuminating and ammoniacal gases are obtained and the decomposition of valuable substances is avoided.

351,413. ART OF MAKING GLASS AND VITREOUS OR PORCELANEOUS PRODUCTS. Jacob T. Wainwright, Allegheny, Pa. Filed Aug. 20, 1886. (No model.)



Claim.—1. In the art of making glass, the improvement which consists in providing a molten bath charged with glass-making material, passing air and gaseous or volatile fuel in separate but simultaneous blasts into the molten matter, whereby the air and fuel are preheated and then burned below or near the surface of the bath and near the charge, substantially as set forth.

2. In the art of making glass, the improvement which consists in providing a molten bath charged with glass-making material, passing air into this molten matter, whereby the air is preheated, and supplying gas to be burned at or near the surface of the bath and below or in the presence of the charge, substantially as set forth.

3. In the art of making glass, the improvement which consists in providing a molten bath charged with glass-making material, passing gaseous or volatile fuel into the molten matter, whereby this fuel is preheated, and supplying air to produce combustion below or in the presence of the charge, substantially as described.

351,414. PIPE-COUPLING. William L. Warner, New Haven, Conn. Filed July 21, 1886. (No model.)

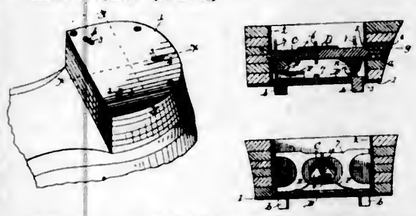


Claim.—1. In combination with the pipe having a flange or collar on its end, the elastic bushing surrounding the pipe and abutting against the collar thereon, the sleeve on the pipe having its end engaging the elastic bushing made conical to expand the end of the same while forcing the bushing against the collar, and means, substantially as described, for moving the sleeve along the pipe and holding it at any adjustment, substantially as and for the purpose set forth.

2. In a joint for coupling earthenware and metal pipes together, in combination with the exterior pipe, the inner pipe provided with a flange and externally threaded, the elastic cylinder or bushing surrounding the pipe, the sleeve on the pipe extending within the exterior pipe to engage the elastic bushing, and provided with a flange to engage the outer end of the exterior pipe, and a nut on the interior pipe engaging the outer end of the sleeve, substantially as and for the purpose described.

3. In combination with the exterior pipe, the interior pipe having a flange on its inner end, the elastic bushing around the pipe and against the flange, the sleeve on the pipe having the conical end engaging the bushing and provided with a flange engaging the outer end of the exterior pipe, and a nut screwed on the inner pipe engaging the outer end of the sleeve, substantially as and for the purpose specified.

351,415. ICE-CREEPER. Michael S. Weller, Charlestown, W. Va. Filed Feb. 20, 1886. (No model.)



Claim.—1. In an ice-creeper substantially as described, the combination of a pin-supporting plate adapted in use to be movably supported in the heel, whereby its pins may be projected out of or incased within the heel, and a shaft adapted to be journaled within the heel and provided with an eccentric arranged to engage the pin-support, whereby the pins of the latter may be thrown out of the heel, substantially as and for the purposes specified.

2. In an ice-creeper substantially as described, the combination, with a heel having a socket, of a pin-support movably supported in said socket and having a yoke, said yoke being extended, whereby to rest against the opposite walls of the socket and thereby guide the motion of the pin-support, and a shaft journaled within said heel and having an eccentric operating in said yoke, substantially as set forth.

3. In an ice-creeper, substantially as described, adapted for use within a socketed heel, the combination, with a pin-support, of a shaft, and an eccentric fitted removably to said shaft, whereby to facilitate the application of the shaft and eccentric to the heel, said eccentric being arranged to engage the pin-support, whereby to actuate the latter out of the heel, substantially as set forth.

4. In an ice-creeper, the combination, with the pin-carrying plate and the shaft having an eccentric whereby to operate said plate, of a spring whereby to secure such parts from rattling, substantially as set forth.

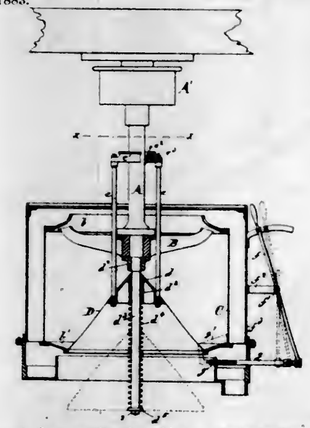
5. In combination with the pin-carrying plate and the eccentric-shaft having an angular point fitted to receive a key, a guard-plate fitted on and movable along the angular point of the shaft, and a spring whereby said guard-plate is held normally at or close to the extremity of such angular point, substantially as and for the purposes specified.

6. The combination, with the case having base-plate and tubular portion having bearings 5 and 6, the shaft consisting of the eccentric-box, and the shaft proper fitting into the latter and journaled in the bearings 5 and 6, and the pin-carrying plate provided with eccentric-yokes fitting the eccentrics of the shaft, substantially as set forth.

7. The improved ice-creeper herein described, consisting of the case A, having plate 1 and portion 2, the tube 4, the pin-carrying plate provided with yokes extended to form guides, the box having eccentrics fitted to engage the yokes, the shaft proper, the spring bearing between the pin-carrying plate and the shaft, the guard-plate fitted on the point of the shaft proper, and a spring supporting said guard-plate, substantially as set forth.

351,416. CENTRIFUGAL MACHINE. David M. Weston, Boston, Mass. Filed Apr. 12, 1886. (No model.)

Brief.—Improvement in the class of centrifugal machines described in Patents No. 302,612, dated July 29, 1884, and No. 275,875, dated April 17, 1883.



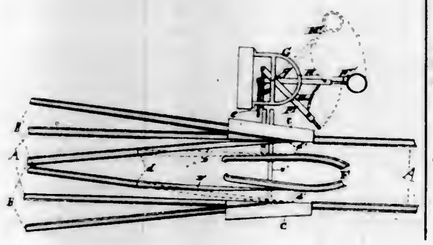
Claim.—1. In a centrifugal machine, a rotating basket open at its lower end, a valve to close the lower end of the basket by moving vertically upward into the said basket from below its lower end, and a guide for the said valve, combined with a spring to support the said valve, substantially as described.

2. In a centrifugal machine, a rotating basket open at its lower end, a valve to close the lower end of the basket by moving vertically from outside of and below the basket upward, combined with the rods and cross-head, and a locking device to keep the valve in elevated position, substantially as described.

3. In a centrifugal machine, a rotating basket open at its lower end, and the curb and the plow-shaft and plow, combined with means to move the plow-shaft and plow horizontally in one direction, to partially rotate it, and then move the plow and plow-shaft horizontally in the opposite direction to enter the basket above the rim *b′*, substantially as described.

4. In a centrifugal machine, a basket open at its lower end, the spindle A, and the spider attached to the rim *b* at the top of the basket, the guide-rod fixed to the under side of the spider, and the spring supported upon the said rod, combined with the valve to slide upon the said guide-rod, and with rods *e e*, the said valve when closing the bottom of the basket, being moved vertically from below the open lower end of and into the said basket, all substantially as described.

351,417. THREE-WAY SPLIT SWITCH. Thomas P. Whelan, Cleveland, Ohio, assignor of two-thirds to William Gearicty and Edwin S. Henry, both of same place. Filed Mar. 22, 1886. (No model.)

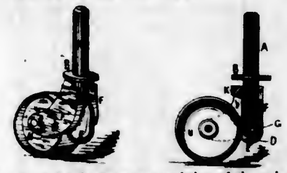


Claim.—1. In a three-way split switch, the combination, with frogs at the union of the side track and main tracks, arranged substantially as indicated, of split rails connected with the respective side tracks, levers, and connecting-rods for moving the split rails to and from the frogs, a link, chain, or suitable device for connecting the shifting-levers, and arranged substantially as described, by means of which but one split rail at a time can be moved against the frog.

2. In a three-way split switch, the combination, with a main track, side tracks, frogs, and guard-rails, arranged substantially as indicated, of so-called "split rails" connected with the respective side tracks, shifting-levers, and connecting-rods for moving the respective split rails, a link, chain, or suitable device for connecting the shifting-levers to limit the divergence of the split rail, substantially as set forth.

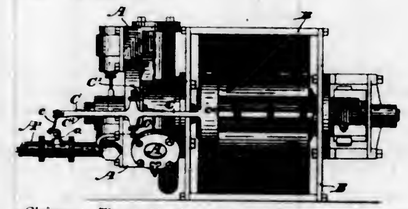
3. In a three-way switch, the combination, with a main track, side tracks, frogs, and split rails, arranged substantially as described, of shifting-levers and connecting-rods for the respective split rails, a link or chain for connecting the levers, and a two-way frame for supporting the levers, the parts being arranged substantially as described.

351,418. FURNITURE-CASTER. Charles A. Whitney, Waltham, Mass. Filed Sept. 25, 1885. (No model.)



Claim.—1. A furniture-caster consisting of the spindle A, having an annular groove, C, near the lower end, D, thereof, and a frame, F, provided with an interior rib, G, which enters said groove near the bearing E of the said spindle, and having wings L, between which the wheel H is journaled, whereby its periphery retains the said spindle in position when the caster is freed from pressure, as described.

351,419. SAFETY ATTACHMENT FOR DYNAMO-ELECTRIC MACHINES. Leonidas G. Woolley, Indianapolis, Ind., assignor to Henry H. McGaffey and Chester Bradford, both of same place. Filed Nov. 16, 1885. (No model.)

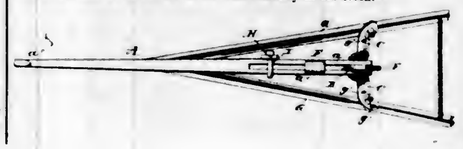


Claim.—1. The combination of a dynamo, an engine, its inlet-pipe, a valve located in said pipe, a pivoted bar connected with said valve at one end, and having an armature upon its other end, arranged to be operated upon by the field-magnet of the machine, as described, and a device operating reversely to the magnetic force which holds said armature against the dynamo, whereby when said force is interrupted said valve will be closed, substantially as set forth.

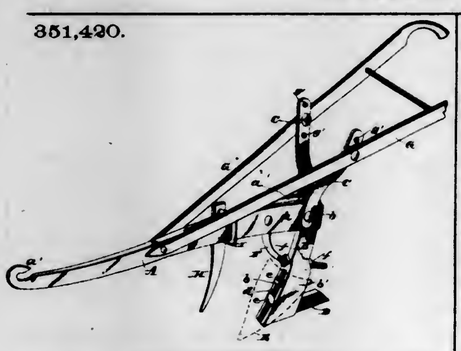
2. The combination of a dynamo, an engine, its steam-inlet pipe, a pivoted valve in said pipe, a crank-arm attached to the pivot of said valve, a bracket or standard, C′, a bar, C, pivoted in said standard, an armature, *c′*, on one end of said bar, arranged to be operated by the field-magnets of the dynamo, a link or rod, *c*, on its other end, connected to the crank on the pivot of the valve, and a spring operating reversely to the magnetic force of the field-magnets on said bar, substantially as set forth.

351,420. PLOW. Pinckney P. Benson, Little Rock, Ark. Filed May 1, 1886. (No model.)

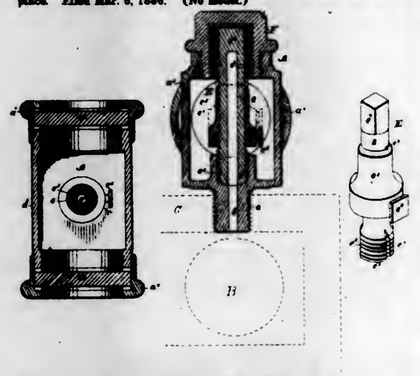
Claim.—In a plow, the combination, with a plow-beam bifurcated at its rear end, of the plow-standard pivotally secured between the branches of said beam, the curved brace pivoted to the beam, and the heel-piece secured to the standard, substantially as set forth.



351,420.



351,421. LUBRICATOR. Fred Bold, St. Louis, Mo., assignor of three-fourths to Thomas V. Thompson and George Bullock, both of same place. Filed Mar. 6, 1886. (No model.)



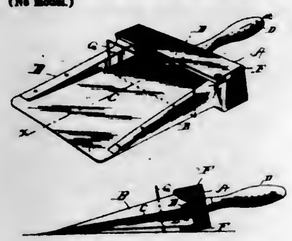
Claim.—The combination of the inclosed chamber A, having the perforated extension *a*, with the detachable and perforated stem *a*, and the adjustable sleeve a^3, provided with the set-screw a^4, substantially as described.

351,422. FENCE-WIRE STRETCHER. Edward Bolton, New York, N. Y. Filed Apr. 12, 1886. (No model.)



Claim.—In a wire-stretcher, the combination of the lever-arm A, straight from *a* to *b*, and tapered from *b* to *c*, provided with holes *f* and handles *p p*, the ratchet-wheel H, fastened to arm A, and operated by pawl *m* and lever *n*, and the steadying wire or chain W, all arranged substantially as described and illustrated, and for the purpose set forth.

351,423. DUST-PAN. Timothy D. Brown, Oakland, Cal. Filed Feb. 13, 1886. (No model.)



Claim.—1. A dust-pan provided with a head and sides projecting above and below the bottom, whereby it may be used either side upward, substantially as described.

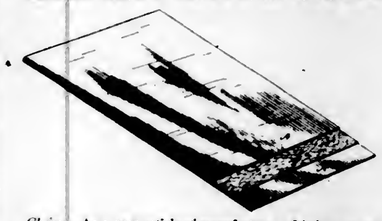
2. A dust-pan provided with the wooden head A and the sides B, constructed to receive a sheet-metal bottom, and the sides extending to near the front edge of said bottom to strengthen the same, substantially as described.

3. A reversible dust-pan provided with a bottom, and a bail extending upon both sides of said bottom and working vertically in guides on the frame, substantially as described.

4. A dust-pan provided with a substantially rectangular bail sliding through guides formed in the sides of the frame thereof, substantially as described.

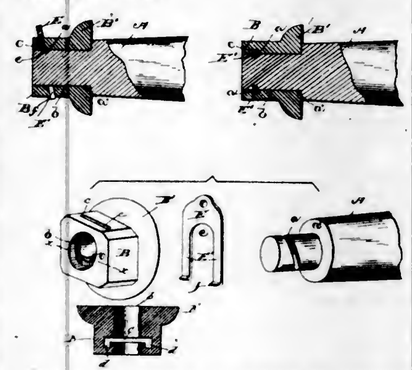
5. The combination, in a dust-pan, of the head A, sides B, bottom C, fitting in a groove in said head and sides, handle D, passing through said head, and the pin E, passing through said handle and bottom, substantially as described.

351,424. MOTH AND DISINFECTANT PAPER. William H. H. Childs, New York, N. Y. Filed Dec. 21, 1885. (No specimens.)



Claim.—As a new article of manufacture, a fabric composed of two or more layers of paper or other material, and an interposed layer of naphthaline, as set forth.

351,425. VEHICLE-AXLE. John Coleman, Lynchburg, Va. Filed June 11, 1886. (Model.)



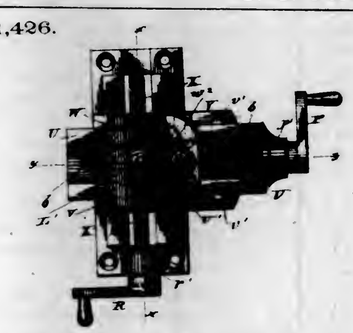
Claim.—The combination of an axle-spindle having a groove in its periphery, a nut fitted on the spindle and provided with a slot, *c*, which registers with the groove of the spindle, and the grooves *d*, opening into the slot *c*, and a locking-plate fitted in the slot *c* of the nut, and having the arms adapted to fit in the groove of and straddle the axle, the free ends of the arms of the locking-plate having the nibs or lugs, which ride in the grooves *d* of the nut, all combined and arranged substantially as and for the purpose herein described.

351,426. DEVICE FOR SHARPENING REAPER-KNIVES. Joseph F. Custard, Slatington, Pa., assignor of one-half to Joseph F. Hunsicker, same place. Filed Apr. 2, 1885. (Model.)

Claim.—1. The combination, with the beveled grindstone rotated by mechanism, substantially as described, of the supporting-block secured to the base-plate of the machine, the plate V, traveling in ways thereon, the frame traveling in ways upon a plate attached to the upper side of the plate V, and the clamp W, capable of adjustment at varying angles on the frame by means of the slot w^2 and screw w^3, and composed of the plates *w w'*, rendered adjustable in regard to each other by the screw L' and nut L.

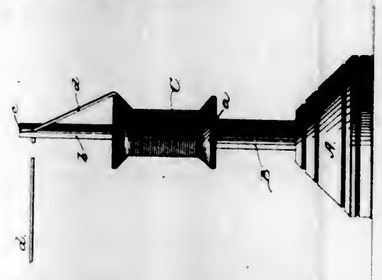
2. In combination with a suitably-arranged grindstone, the mechanism for holding the articles to be ground, consisting of a stationary bearing-block, X, having ways *x* for a sliding plate, V, and bearings for

351,426.



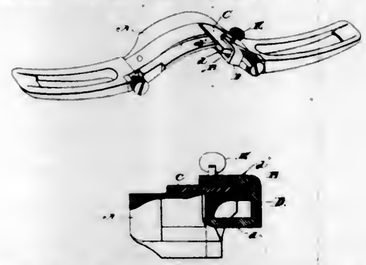
a screw, Q, engaging a projection, *v*, on said plate, a plate, U, adjustable at various angles on plate V by means of a pivot, *d*, and a screw, *o*, playing in a slot, *v'*, in plate V, and frame U', sliding in ways on plate U and controlled by a screw, *b*, and clamp W, composed of plates *w w'*, adjustable at various angles on frame U, and having the retaining-screw L' and nut L, all constructed and adapted to operate substantially as and for the purpose set forth.

351,427. SPOOL-HOLDER. Solomon Danelish, Philadelphia, Pa. Filed Aug. 11, 1886. (No model.)



Claim.—A combined spool-holder and thread-cutter, consisting of a metal base having a shouldered central projecting standard, with vertical V-shaped side-cutting lips at its outer end, adapted to pass through and loosely hold a threaded and centrally-perforated spool, substantially as shown.

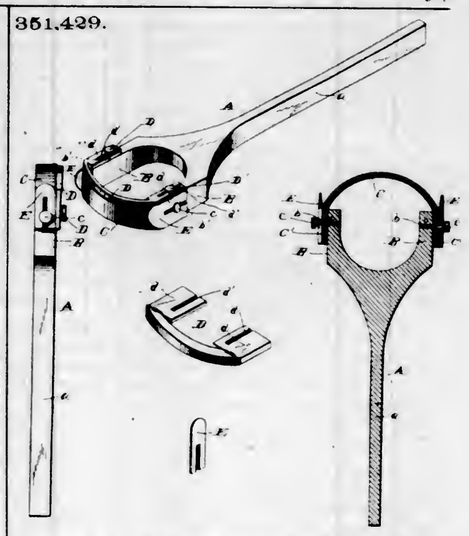
351,428. CONVERTIBLE HEEL AND SOLE SHAVE. Ernest B. Drummond, Massie's Mills, Va., assignor of one-half to J. T. Drummond, same place. Filed June 11, 1886. (No model.)



Claim.—In combination with the heel-shaving implement, comprising the two handles and intermediate cutting portion, the attachment for converting said implement into an edge or sole shave, said attachment consisting of a guide, C, provided with a flange, *c*, to catch around that edge of the cutting portion which is opposite the cutting-edge, and a clamp, D, clamping the flanged edge of the guide C and holding it to the cutting portion of the heel-shaver, and a binding-screw, E, for the clamp, as set forth.

351,429. SOLE AND HEEL SHAVING IMPLEMENT. Ernest B. Drummond and John T. Drummond, Massie's Mills, Va. Filed July 29, 1886. (No model.)

351,429.



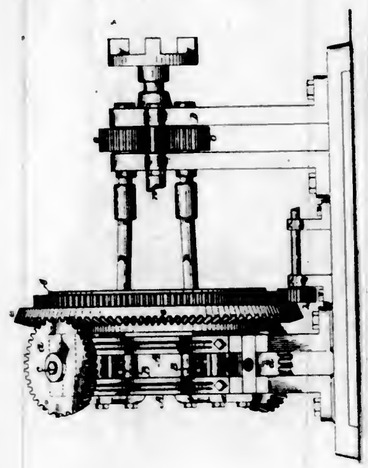
Claim.—1. A heel-shaving implement consisting of a shank having the bifurcated arms provided with the interiorly-threaded openings *b b'*, arranged at right angles to each other, the flanged slotted cutter fitted against the outer extremities of the arms to cause its slots to register with the openings *b* thereof, the main guide having its edge presented to the sharpened edge of the cutter, and the slotted flanges *d* bearing against the sides of the arms to cause the slots of the flanges to align with the openings *b'*, and the binding-screws *c* D', passing through the slotted flanges of the cutter and guide and entering the threaded openings to adjustably and detachably connect the cutter and guide to the arms of the shank, substantially as described.

2. The combination of a shank, a cutter, a main guide therefor, and the auxiliary guides connected to the shank and arranged at the ends of the cutter, substantially as described.

3. The combination of a shank, a detachable cutter, the removable guide connected to the shank, and the adjustable auxiliary guides arranged at the ends of the cutter, substantially as described.

4. The combination of a shank having the apertured arms B, the flanged cutter, the slotted main guide therefor, the slotted auxiliary guides arranged at the ends of the cutter, and the binding-screws, substantially as described, for the purpose set forth.

351,430. MACHINE FOR ROLLING CAR-WHEELS. Hervey W. Fowler, Chicago, Ill. Filed Oct. 16, 1885. (No model.)



Claim.—1. In a machine for rolling the treads of car-wheels, the

Claim.—1. The method of manufacturing cast-steel car-wheels,

tral wall, a^2, around a central hole, with a share-shaped blade, C, shaped

Claim.—That improvement in the art of fastening together scroll-

Claim.—1. In a machine for rolling the treads of car-wheels, the combination, substantially as hereinbefore described, of a set of circularly-arranged, positively-driven, and radially-adjustable rolls, each having flanges or collars for laterally embracing the rim of a car-wheel, and a rolling-face corresponding in contour with the flange and tread of a car-wheel, and screws for moving all of said rolls toward and from a common center.

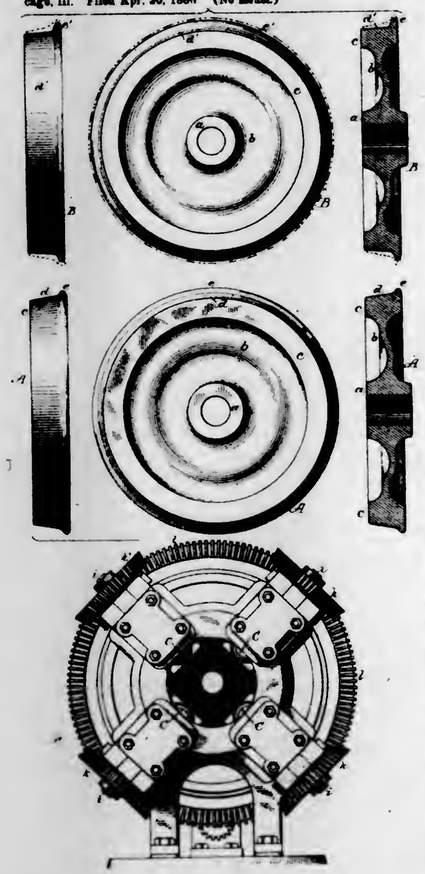
2. The combination, substantially as hereinbefore described, of a set of circularly-arranged and positively-driven rolls, each having a rolling-face corresponding in contour with the flange and tread of a car-wheel, the adjusting-screws, the gears on said screws, and the one controlling-gear meshing with all of the screw-gears.

3. The combination, substantially as hereinbefore described, of a set of oppositely-located, circularly-arranged, positively-driven, and radially-adjustable rolls, each having a rolling-face corresponding in contour with the flange and tread of a car-wheel, and a central guiding-spindle, whereby a car-wheel blank is centrally located while its rim is being operated upon and said blank revolved by said rolls.

4. The combination, substantially as hereinbefore described, of a set of positively-driven, circularly-arranged, and radially-adjustable rolls, each having a rolling-face corresponding in contour with the flange and tread of a car-wheel, and a detachable clamp for laterally supporting the web and internally supporting the rim of a car-wheel while its tread is engaged by said rolls.

5. In a machine for rolling car-wheels, the combination of a set of rolls positively driven, circularly arranged, radially adjustable, and each having a rolling-face corresponding to the tread and flange of a car-wheel, and flanges or collars for embracing the side edges of a car-wheel, substantially as described, and a housing for said rolls, which is open centrally for enabling a wheel-blank or car-wheel to be inserted and removed in a sidewise position.

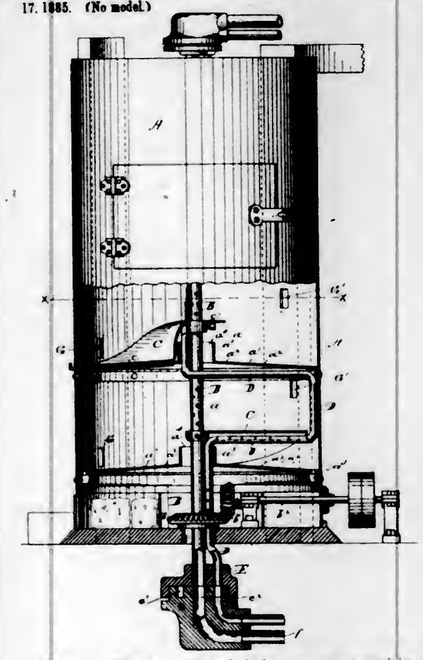
351,431. CAST-STEEL CAR-WHEEL. Hervey W. Fowler, Chicago, Ill. Filed Apr. 30, 1886. (No model.)



Claim.—1. The method of manufacturing cast-steel car-wheels, substantially as hereinbefore described, the same consisting, first, in casting a solid integral wheel-blank having a rudimentary flange, a hub and a web substantially complete as to dimensions and form, and a rim which at the tread and flange is larger in diameter than the finished wheel desired; and, secondly, in peripherally rolling the rim and concentrically reducing the diameter of said blank to the diameter desired in the finished wheel, and thereby evenly condensing the metal at the outer portion of the rim in radial and peripheral lines and developing the flange and hardening the tread of the wheel.

2. As an improved article of manufacture, an integral cast-steel car-wheel having its hub, its web, and the main portion of its rim composed of the metal in its normal soft and tough condition, and a flange and tread composed of metal which is hardened and condensed in radial and peripheral lines, substantially as described.

351,432. MALT-DRYING APPARATUS. John W. Free and James O. Brown, Boston, Mass.; said Brown assignor to said Free. Filed Aug. 17, 1885. (No model.)



Claim.—1. The improved malt-drying apparatus containing, in combination, the casing divided into superimposed chambers by perforated diaphragms a', pierced at the center, as shown at a^4, and having this central hole surrounded by the wall a^2, the said diaphragms a', and their central walls, a^4, and the lifting and separating plate C for each chamber, having an edge parallel with the diaphragm or floor thereof, and rising gradually back from that line, then ending abruptly and forming a traveling air-space in front of the back edge thereof, through which air can be drawn or forced through the falling grain, in combination with an air supply pipe or passage located beneath said plate, substantially as and for the purposes described.

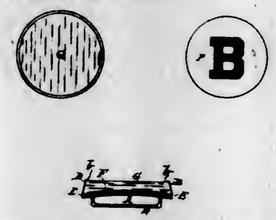
2. The revolving share-shaped blade C, broad at its outer edge and nearly triangular in plan, its forward edge, c, and upper surface, c', being in substantially parallel planes, and said upper surface, c', being of a substantially rectangular form, and provided with backwardly-projecting teeth c^2, while the forward part of the blade, between the upper surface, c', and the front edge, c, is of a slope lessening in steepness from center to circumference, whereby the malt is evenly distributed over the floor of the chamber when said share-shaped blade is revolved therein, and the entanglement of the rootlets broken up, substantially as described.

3. The combination, with a chamber, a, of the revolving stirring-plate c, and the revolving perforated pipe D, within said chamber and beneath the rear part of said plate C, substantially as described.

4. The combination, within a casing, A, of a series of superposed chambers, a, formed by diaphragms a', inclined downward from center to circumference, and perforated as described, and each having the central wall, a^2, around a central hole, with a share-shaped blade, C, shaped as described, and a perforated pipe, D, arranged beneath the rear of said blade C in each of said chambers a, said blades C and pipes D being revolved within said casing A by the shaft B, substantially as described.

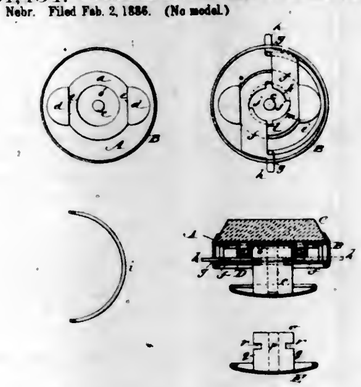
5. The combination of the shaft B, the pipe D, the bearing-piece E, having the hole e^3, and the annular channel e', all substantially as described.

351,433. HARNESS-TRIMMING. William F. Graham, Wakefield, R. I. Filed Dec. 27, 1882. (No model.)



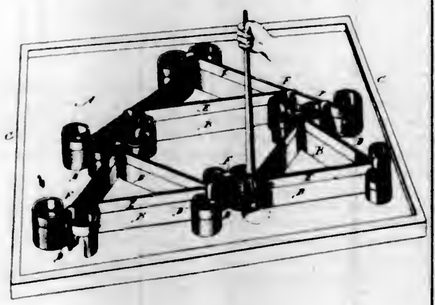
Claim.—The improved ornament for harness herein described, consisting of the annular back plate threaded on its outer edge and provided with loop H, the rosette or ornament F, placed thereon, the superposed lens or glass disk G, and the ring B, provided on its back edge with a thread to engage the thread of the back plate and on its front edge with a flange, b, to embrace and hold the glass G, as set forth.

351,434. SEPARABLE BUTTON. Albert H. Graves, Central City, Nebr. Filed Feb. 2, 1886. (No model.)



Claim.—The separable button consisting of the front plate having the apertured or slotted rim, the elevated annular ridge inclosing a circular depression and the central stud, the slotted bottom plate, the spring-pressed bolts having the thumb-piece, and each provided with an irregular notch, a circular portion, a right-angled portion, and a spirally-curved portion between the circular portion and notch, and the back having a tubular flanged shank provided in the side edges of its flanges with notches, substantially as set forth.

351,435. METHOD OF MAKING SCROLL-WORK. Frederick Haidsworth, Chicago, Ill. Filed Apr. 24, 1886. (No model.)



Claim.—That improvement in the art of fastening together scroll-work which consists in placing the scrolls on a frame elevated above the table or support, said table having spaces immediately under the points where the scrolls are to be secured together, then passing an open-ended loop having one arm thereof longer than the other over the scrolls at the points to be united, and then closing the open ends of the loop and tightly binding the scrolls by means of a suitable tool, all substantially as described.

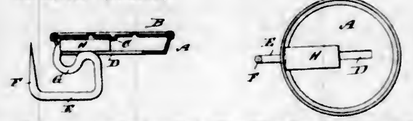
351,436. MANUFACTURE OF SCROLL-WORK. Frederick Haidsworth, Chicago, Ill. Filed Aug. 19, 1886. (No model.)



Claim.—1. In scroll-work, the combination of a band or circular piece, with the ends thereof abutting together, with one or more adjoining pieces and a loop placed over the abutting ends, substantially in the manner and for the purpose shown.

2. That improvement in the art of forming scroll-work made of bands or circular pieces and scrolls which consists in joining or fastening the abutting ends of the bands or circular pieces with one or more adjoining pieces by clasping the same with a loop and bringing the open ends of the loop together by the use of a properly-formed tool, substantially as shown and described.

351,437. BUTTON-FASTENER. Albert Hall, Brooklyn, N. Y. Filed Jan. 13, 1886. (No model.)



Claim.—1. A button provided with a sliding fastening-hook, which has its upturned pointed end adjacent to the under side of the button, substantially as herein shown and described.

2. A button provided with a sliding fastening-hook on its bottom, the said hook having one end turned up and pointed, which point is adjacent to the under side of the button, and the other end of the hook being provided with a widened part, to give the hook a good and firm bearing on the under side of the button, substantially as herein shown and described.

3. The combination, with a button provided in its bottom with a slot extending from the rim beyond the center, of a fastening-hook passed through said slot, and having a widened part formed on its inner end, which widened part is mounted to slide on the slotted bottom within the button, the outer end of the hook being turned up and pointed, substantially as herein shown and described.

4. The combination, with a button having a slot in its bottom extending from the rim beyond the center, and provided with a projection on the under side of the top plate at the center, of a fastening-hook passed through the slot in the bottom, and provided at its inner end with a widened part, which is mounted to slide between the top and bottom plates of the button, substantially as herein shown and described.

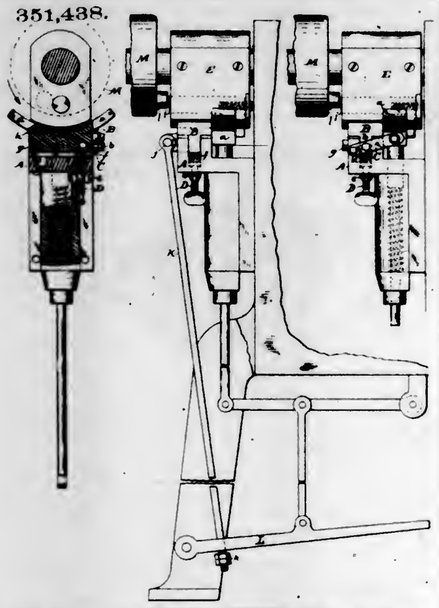
351,438. CLUTCH AND BRAKE FOR POWER-PRESSES. Homer S. Hitchcock, Meriden, Conn., assignor to Alanson H. Merriman, same place. Filed Apr. 29, 1886. (No model.)

Claim.—1. In a clutch-and-brake mechanism, the combination of a clutch-pin and tripping-latch with the dog having a projecting surface at a given side of the main shaft, and the frictional brake B, adapted to be brought into and out of position for engagement with said surface when the dog arrives at a given point in its revolution, substantially as described, and for the purpose specified.

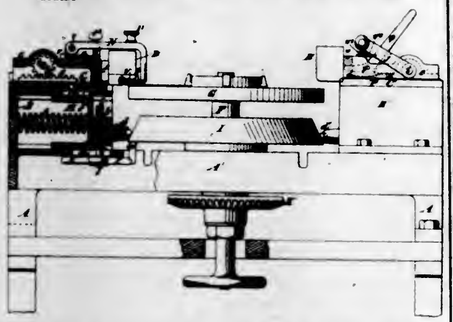
2. In a clutch-and-brake mechanism, the combination of a dog having a projecting surface at a given side of the main shaft, the frictional brake for engaging said surface of the dog, the clutch-pin, the tripping-latch, and mechanism for connecting said latch and brake with an operating-treadle to simultaneously withdraw the brake and tripping-latch from said dog and clutch-pin, respectively, substantially as described, and for the purpose specified.

3. In a power-press, the combination of the movable frictional brake B, acting in the recessed offset A, the setting-bolt D, and the spring f, with operating mechanism, substantially as described, and for the purpose specified.

351,438.



351,439. MACHINE FOR CURLING HAT-BRIMS. Edwin Hooper and Norman S. Kellogg, Brooklyn, N. Y. Filed Dec. 2, 1885. (No model.)



Claim.—1. The combination, with the reciprocating curling-iron carriage and the rotary table, of a cam of varying contour to rotate with said table, a follower connected with said carriage to be operated on by said cam, and mechanism for producing a gradual automatic movement of the follower on the varying contour of the cam, substantially as herein described, for producing the gradual picking up and turning in of the brim, as herein set forth.

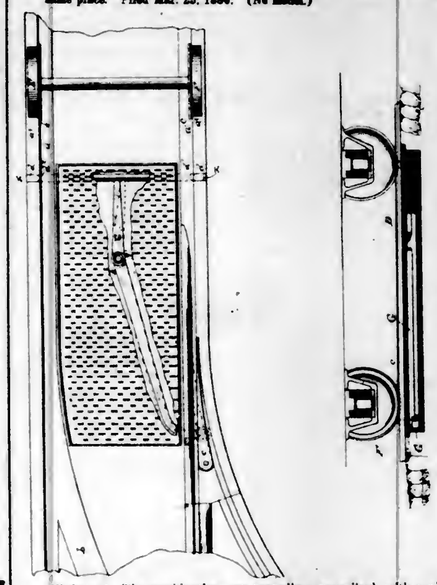
2. The combination, with the reciprocating curling-iron or pressing-iron carriage and the rotary table and its shaft, of a cam of varying contour on the said shaft, a follower movably attached to said carriage, a screw for moving said follower relatively to said carriage and to the said cam, and a wiper carried by said shaft for turning said screw, substantially as and for the purpose herein set forth.

3. The combination, with the curling-iron and its carriage, of the slide *q*, attached arm N, and curling-lip *p*, and the adjusting-screw *t*, and spring *u*, applied to said slide, substantially as herein described, for the purpose set forth.

4. The combination, with the pressing-iron carriage, of the pressing-iron fitted to move upward and downward relatively to said carriage, and a pressure-spring applied between said iron and carriage, substantially as herein described.

5. The combination, with the pressing-iron and its carriage of the lifting-lever Q, the locking-bolt w^3, and a connection, substantially as herein described, between said lever and bolt for withdrawing said bolt by the lifting-lever, substantially as herein set forth.

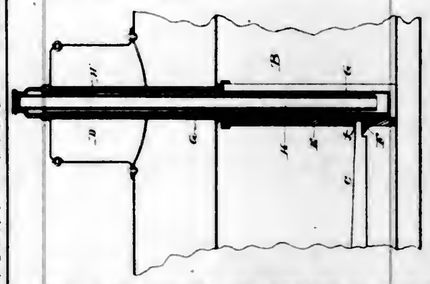
351,440. AUTOMATIC SWITCH FOR STREET-RAILWAYS. John Hope, Jr., Providence, R. I., assignor of one-half to William V. Dabell, same place. Filed Mar. 25, 1886. (No model.)



Claim.—1. The combination, substantially as described, with a pivoted switch-tongue, of a slide having a boss or projection arranged transversely in the line of that rail to which the switch-tongue is pivoted, and adapted to be moved outwardly from said rail by the flange of that wheel of a car approaching the switch which is nearest said switch-tongue, and a lever connected with the switch-tongue and adapted to be operated by the slide, for the purpose set forth.

2. The combination, substantially as described, with a pivoted switch-tongue located at the junction of a main and a side track, as specified, of a slide-bar arranged across the main track and having a projection or boss at each end, one or the other of which normally projects inwardly from the tread of the contiguous rail, as specified, and a pivoted lever connected with the switch-tongue and adapted to be operated by the slide-bar, for the purpose specified.

351,441. STEAM-BOILER. Edward Hubbe, Marion, Ohio. Filed June 28, 1886. (No model.)



Claim.—1. The combination, with a steam-boiler, of a steam-conduit extending down through the steam-dome, boiler, and fire-flue, at or near the inner ends of the grate-bars, and back through the boiler and dome, one end of said conduit being adapted to communicate with the steam in the dome and the opposite end with the place where it is to be used, substantially as set forth.

2. The combination, with a steam-boiler, of an inner and outer pipe extending down through the steam-dome, boiler, and fire-flue at the inner ends of the grate-bars, one of said pipes being adapted to take the steam from the steam-dome and the other to feed it for use, substantially as set forth.

3. In a steam-boiler, the combination, with a pedestal located centrally in the fire-flue at or near the inner end of the grate, of a steam-pipe leading from the steam-dome down through the steam-dome, boiler, and fire-flue, and upwardly through the same, said steam-pipe being located immediately in front of the pedestal, substantially as set forth.

4. In a steam-boiler, the combination, with a pedestal located centrally in the fire-flue at the inner end of the grate, of a superheating steam-pipe located at the front of the pedestal and adapted to be shielded from the direct action of the flames thereby, substantially as set forth.

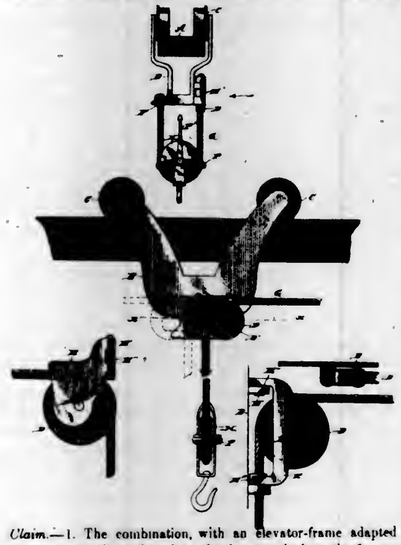
5. In a steam-boiler, a pedestal located at the inner end of the grate and extending to the top of the fire-flue, and adapted to part the flames and produce cross-currents of smoke, gases, and flame, substantially as set forth.

6. The combination, with the boiler, of the steam-conduit consisting, essentially, of an inner and an outer pipe located within an opening formed through the steam-dome and boiler and extending down through the fire-flue, and a pedestal or shield adapted to part the flames and turn them upon opposite sides of the steam-pipe, substantially as set forth.

7. In a return-flue boiler, the double superheater-pipe extending across the fire-flue, substantially as set forth.

8. In a steam-boiler, the combination, with the fire flue and grate, of the pedestal located centrally in the flue at the front of the grate and extending from a point below the grate to the top of the fire-flue, substantially as set forth.

351,442. HAY-ELEVATOR. Charles E. Hunt, Nathan B. Helm, and Henry L. Ferris, Harvard, Ill. Filed Mar. 15, 1886. (No model.)



Claim.—1. The combination, with an elevator-frame adapted to move along a suitable track and mechanism attached to the frame and adapted to lock it to the track, of a pulley attached to the side of the elevator-frame and normally parallel to the line of motion of the elevator, a rope passing over said pulley and having its end fastened to the elevator-frame at a point opposite the pulley, a fork-pulley hung on said rope between the end of the rope and the rope-supporting pulley, and a housing supported by the fork-pulley and provided with means for operating said locking mechanism, said fork-pulley and the part of the rope which supports it being approximately at right angles to the line of motion of the elevator on said track.

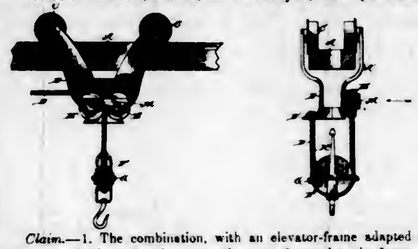
2. The combination, with an elevator-frame adapted to move along a suitable track, of a reversible pulley-frame hinged to the side of the elevator-frame, a pulley mounted in said frame, and an operating-rope passing over said pulley and having its end fastened to said elevator-frame at a point opposite the hinge which connects the pulley-frame and the elevator-frame, the part of the rope between its end and the supporting pulley being approximately at right axles to the line of motion of the elevator.

3. The combination, with an elevator-frame adapted to move along a suitable track, of a pulley-frame hinged to the side of the elevator-frame, a pulley mounted in said frame, an operating-rope passing over said pulley and having its end fastened to the elevator-frame at a point opposite said hinge, and a fork-pulley hung on the rope between its end and said rope-supporting pulley, said pulley and the loop of rope supporting it being transverse to the line of motion of the carrier, and the diameter of the fork-pulley being such that the sides of the loop are approximately parallel.

4. The combination, with the elevator-frame B, of the pulley-frame E, hinged to one side of the frame, the pulley D, mounted therein, the rope G, passing over said pulley and having its end fastened to the elevator-frame at a point opposite the hinge, the fork-pulley H, hung on the rope, the housing P, hung on the pulley and having a headed pin, P', and suitable locking mechanism fastened to the elevator-frame and adapted to co-operate with said pin, substantially as and for the purpose set forth.

5. The combination, with the elevator-frame B, of the pulley-frame E, and the pulley D, mounted in the pulley-frame, the frames B E being connected by two knuckle-joints, one above and one below the pulley, and the lower of said knuckle-joints being hollow for the passage of a rope resting on the pulley D, substantially as and for the purpose set forth.

351,443. HAY-ELEVATOR. Charles E. Hunt, Nathan B. Helm, and Henry L. Ferris, Harvard, Ill. Filed May 20, 1886. (No model.)

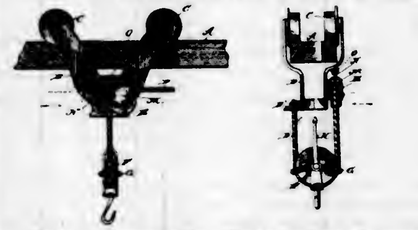


Claim.—1. The combination, with an elevator-frame adapted to move on a suitable track, of an operating-rope fastened to the frame at one side thereof and carried across beneath the frame in a plane at right angles to the line of the track, and two rope-supporting pulleys journaled to the frame on the side opposite the point of connection of the rope, said rope being carried upward between said pulleys, and said pulleys being symmetrical with reference to the plane of the rope, substantially as and for the purpose set forth.

2. The combination of the elevator-frame, the pulleys E E', journaled on one side thereof, the rope D, lying between said pulleys and carried thence across beneath the frame and fastened to the frame at a point opposite the space between the pulleys, and the fork-pulley F, suspended on the rope between the pulleys E E' and the end of the rope attached to the frame, substantially as and for the purpose set forth.

3. The combination of the track A and stop A', the frame B, having rollers C, the latching mechanism I K L, the pulleys E E', journaled on one side of the frame and lying in the same vertical plane, the rope D, passing between said pulleys and having one of its ends fastened to the frame on the side opposite the pulleys, the fork-pulley F, and housing G, having headed pin H, adapted to operate the latching mechanism, substantially as and for the purpose set forth.

351,444. HAY-ELEVATOR. Charles E. Hunt, Nathan B. Helm, and Henry L. Ferris, Harvard, Ill. Filed May 20, 1886. (No model.)



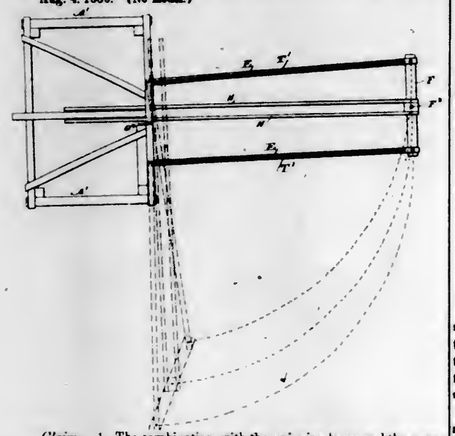
Claim.—1. The combination, with a carrier-frame, of a rope-supporting pulley and a suitable housing supporting the pulley and connected with the frame by a swiveled link, substantially as and for the purpose set forth.

2. The combination, with a carrier-frame, of an operating-rope fastened at one side of the frame and passing over a rope-supporting pulley mounted in a suitable housing, said housing being connected by a swiveled link with the carrier-frame at a point opposite the point of connection of the rope with the frame, substantially as and for the purpose set forth.

3. The combination of the carrier-frame, the operating-rope fastened to the frame at a point, B', on the side thereof, the rope-supporting pulley E and its housing M, and a swiveled link connecting the housing and frame, substantially as and for the purpose set forth.

4. The combination of the carrier-frame, the pulley E, housing M, swiveled link N, and hook O, and the rope D, fastened to the carrier-frame at a point opposite the hook O, and passing thence over the pulley E, substantially as and for the purpose set forth.

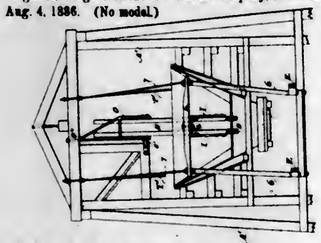
351,445. HOISTING APPARATUS. Charles W. Hunt, West New Brighton, assignor to the C. W. Hunt Company, New York, N. Y. Filed Aug. 4, 1886. (No model.)



Claim.—1. The combination, with the swinging boom and the cross-piece pivoted at the ends thereof, of the braces E and stays T', connected at their outer ends to the cross-piece and at their inner ends to the frame-work A', the respective stays and braces being in the same vertical plane, substantially as set forth.

2. The combination, with the boom, of the pivoted cross-piece and braces pivoted to the same, the pivots of the braces at the cross-piece being farther apart than the pivots at the other end of the braces, for causing the cross-piece to assume a slightly diagonal position, substantially as and for the purposes specified.

351,446. HOISTING APPARATUS. Charles W. Hunt, West New Brighton, assignor to the C. W. Hunt Company, New York, N. Y. Filed Aug. 4, 1886. (No model.)



Claim.—1. The combination, with the boom and its supporting frame-work, and the bearings upon which it swings, of the bow-iron I above the track, the yoke-bar 4, pivoted to the same, and the braces 6, substantially as set forth.

2. The combination, with the boom and the frame-work, and bearings supporting the same, of the bow-iron I above the boom, the yoke-bar 4, pivoted to the same, and the secondary stays 7, extending from the yoke-bar to the frame-work, substantially as set forth.

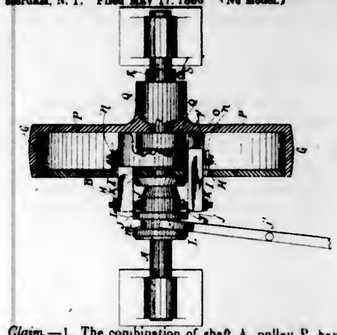
3. The combination, with the boom and its supporting frame-work, and the bearings upon which it swings, of the bow-iron I above the track, the yoke-bar 4, pivoted to the same, the braces 6, and secondary stays 7, connected at their respective ends to the yoke-bar and the frame-work, substantially as set forth.

4. The combination, with the boom and its supporting frame-work, and the bearings upon which the same swings, of the cross-bar F, braces E, stays T', connected at their respective ends to the cross-bar and the frame-work, the bow-iron I above and connecting the track-bars of the boom, and a connection from the same to the frame-work for supporting the boom near the middle thereof, substantially as set forth.

5. The combination, with the inclined boom, the frame-work for supporting the same, and the bearings upon which the boom swings, of the bow-iron I, connected to the boom, a yoke-bar pivoted to the same, and braces or stays connecting the ends of the yoke-bar with the frame-work, substantially as set forth.

6. The combination, with the boom, of the pivoted yoke-bar and braces pivoted to the same, the pivots of the braces at the yoke-bar being farther apart than the pivots at the other end of the braces, for causing the yoke-piece to assume a slightly diagonal position, substantially as and for the purposes specified.

351,447. FRICTION PULLEY OR CLUTCH. Horace Ingham, Amsterdam, N. Y. Filed May 17, 1886. (No model.)



Claim.—1. The combination of shaft A, pulley P, having friction-surface G, plate B, lever E, pivoted to the plate B and bent at substantially right angles to the said plate near the shaft A, and having friction-segments F, spring N, and shipper-block L, which engages with the bent end of the lever E externally of the plate B, substantially as set forth.

2. The combination of a shaft, A, pulley P, provided with friction-surface G, plate B, levers E, bent at substantially right angles near the shaft and pivotally supported on plate or support B, the bent ends of said levers being provided with adjustable set-bolts and bearing friction-segments on their ends, springs N, to retract the friction-segments, and a shipper-block sliding on the shaft, and which has a conical end adapted to pass between the bent ends of the levers E and engaging directly with the said set-bolts, substantially as set forth.

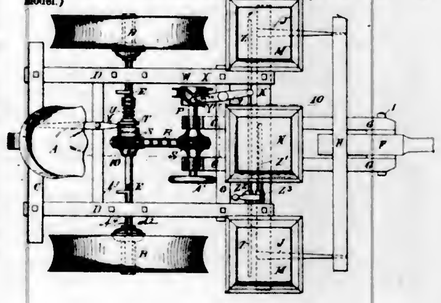
3. The combination of shaft A, pulley P, having friction-surface G, plate B, pivoted levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends at substantially right angles, and projecting through and beyond the plate B, and a conical shipper-block adapted to enter between the ends of the said levers outside of the plate B, substantially as set forth.

4. The combination of shaft A, pulley P, having friction-surface G, plate B, pivoted levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends, and which pass through and extend beyond the plate B and engage with a shipper-block externally of the said plate, the said shipper-block, and springs which automatically retract the friction-segments from the friction-surface when released from the action of the shipper-block, substantially as set forth.

5. The combination of shaft A, pulley P, having friction-surface G, plate B, levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends so as to pass through the plate B and project beyond the same, a conical shipper-block adapted to pass between the ends of the said levers externally of the plate B, and adjustable set-bolts in the ends of the said levers, which engage with the shipper-block, substantially as and for the purposes set forth.

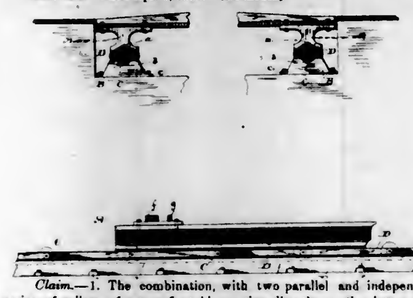
6. The combination of shaft A, pulley P, having friction-surface G, plate B, levers having friction-segments on their outer ends, said levers being pivoted to the plate B and bent at their inner ends so as to pass through the plate B and project beyond the same, and a shipper-block adapted to pass between the ends of the levers externally of the said plate, and provided with a straight surface, on which the ends of the levers or set-bolts rest and permanently hold the friction-segments in contact with the friction-surface, substantially as set forth.

351,448. CHECK-ROW CORN-PLANTER AND DRILL ATTACHMENT. Kendall Jackman, Genoa, Ill. Filed Aug. 28, 1886. (No model.)



Claim.—In a corn-planter, the combination of wheels B B, axle E, clutch T, with lever V, sprockets S and S, with link-chain R, shaft P, having the hand-wheel A' and the cam-grooved wheel W, the seed-boxes M M, the reciprocating shaker-rod Z, and lever and pin Y Y', and auxiliary dropping-box N, without a shoe, and the lever Z^2, to connect the two shaker-rods Z and Z', all combined as and for the purpose shown.

351,449. RAILWAY TRANSFER-TABLE. John N. Kaufhold, Cleveland, Ohio. Filed Apr. 9, 1885. (No model.)



Claim.—1. The combination, with two parallel and independent series of rollers, of a transfer-table resting directly on the latter, each said series consisting of a number of rollers positively coupled together at intervals, substantially as set forth.

2. The combination, with two independent parallel series of rollers, of a transfer-table resting near its two opposite sides directly on the latter, each roller series consisting of a number of rollers, roller-axles, and side rods connecting latter together, substantially as set forth.

3. The combination, with a transfer-table having a longitudinal groove and a longitudinally-grooved rail, of a series of rolling devices fitted in said double-grooved course, each rolling device having an axle, and a rod coupling the axle of one rolling device with the axle of the adjacent rolling device, substantially as set forth.

4. The combination, with a transfer-table having longitudinal grooves and longitudinally-grooved rails, of rollers fitted in said grooved ways and respectively provided with axle-arms, and side rods connecting the axle-arms of one roller with the axle-arms of the next succeeding roller, substantially as set forth.

5. The combination, with a transfer-table having a longitudinal groove and a longitudinally-grooved rail, of a series of coupled balls fitted in the above double-grooved course, each ball provided with two axle-arms respectively projecting horizontally from the central portion of its outer and inner sides, and a series of overlapping side rods fitted on said axle-arms, said axle-arms having free revolution in perforated bearings formed in the ends of each said side rod, substantially as set forth.

6. In a street-car-transferring apparatus, track-rails and guard-rails secured at their respective ends to supporting traveling devices, said rails and guards forming the sole lateral connections between such traveling devices, substantially as set forth.

7. In a street-car-transferring apparatus, track-rails secured at their respective ends on top of carrying-bars, and serving as lateral connections for such carrying-bars, two series of wheels supported, respectively, on tracks, each series arranged for a carrying-bar to ride thereon, substantially as set forth.

8. In a street-car-transferring apparatus, track-rails, and preferably guard-rails, secured at their respective ends on top of carrying-bars, and serving as the lateral connections for the carrying-bars, series of wheels supported, respectively, on tracks, and each series arranged to carry a carrying-bar, substantially as set forth.

9. In street-car-transferring apparatus, series of wheels operating, respectively, on tracks located, respectively, at either side of the apparatus, the axles of each set of wheels provided with connecting-bars, carrying-bars arranged to ride, respectively, on the respective series of wheels, said carrying-bars arranged to support track-rails suitable for receiving thereon street-car trucks, substantially as set forth.

10. The combination, with a transfer-table, of two series of rollers, each series consisting of a number of rollers positively coupled together at intervals, said table resting free on the rolling-faces of said rollers, substantially as set forth.

11. The combination, with a transfer-table, of two series of rollers, said two series independent of each other, and each series consisting of a number of rollers positively coupled together, with intervening spaces, said table resting directly and free on the rolling-faces of said rollers, substantially as set forth.

12. The combination, with two side pieces of a transfer-table and rails constituting the sole lateral connection of said side pieces together, of two parallel and independent series of rollers, on which rollers said two side pieces directly rest, each series consisting of a number of rollers positively coupled together at intervals, substantially as set forth.

13. The combination, with two side pieces of a transfer-table and rails constituting the sole lateral connection of said side pieces together, of two series of rollers, on the rolling-faces of which said side pieces rest free, substantially as set forth.

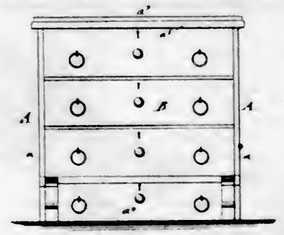
14. The combination, with two side pieces of a transfer-table and rails constituting the sole lateral connection of said side pieces together, of two parallel and independent series of rollers, each series of which consists of a number of rollers positively coupled together at intervals, said two side pieces resting directly on the rollers, and the transfer table having its sole vertical support by the bearing of said two side pieces on said two series of rollers, substantially as set forth.

15. The combination of two side pieces of a transfer-table and rails constituting the sole lateral connection of said side pieces together, of two series of rollers, each series consisting of a number of rollers positively coupled together at intervals, said two side pieces respectively resting free on the rolling-faces of said rollers, said transfer-table having its sole vertical bearing or support on said two side pieces, substantially as set forth.

16. The combination, with two side pieces of a transfer-table and rails constituting the sole lateral connection between said side pieces, of rollers on which the latter rest free, said table having its sole vertical bearing or support on said two side pieces, and having a clear space between the two, substantially as set forth.

17. The combination, with two side pieces of a transfer-table, of track-rails constituting the sole lateral connection between said side pieces, and said side pieces constituting the sole vertical bearing or support of said table, substantially as set forth.

351,450. BUREAU-BED. Anton Kulich, Brooklyn, N. Y., assignor to Charles Kulich, same place. Filed Mar. 12, 1886. (No model.)



Claim.—1. The combination of a supporting-casing having a front panel, a front wall hinged to the front panel and provided with raised guide-straps at the inner side, and folding head and foot sections, said head and foot sections being guided by said straps along the front wall, substantially as set forth.

2. The combination of a supporting-casing having a front panel, a front wall hinged to said front panel, raised guide-straps attached to the inner side of the front wall, legs hinged to recesses at the upper edge of the front wall, and folding head and foot sections, the head-section of which is guided on the straps of the front wall, substantially as set forth.

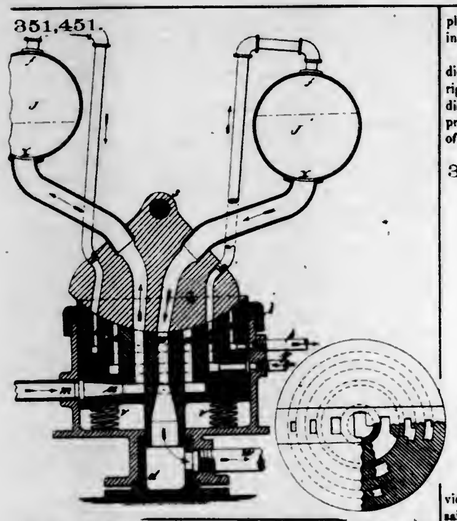
3. The combination of a supporting-casing having a front panel, a front wall hinged to said front panel, raised guide-straps and side rails at the inner side of the front wall, legs hinged to the recesses at the upper edge of the front wall and adapted to be placed at right angles to the front wall, at either side thereof, and folding head and foot sections, the head-section of which is guided on the front wall, so that both sections can be more conveniently stored away in the casing, substantially as set forth.

4. The combination of a supporting-casing formed of upright side walls, a transverse front panel, and a hinged top lid having a retaining lip or molding, a front wall hinged to the front panel, raised guide-straps and side rails attached to the inner side of the front wall, legs hinged to the recesses at the upper edge of the front wall, a head-section guided along the front wall, and a foot-section hinged to said head-section, the legs of the front wall extending below the frame of the foot-section, so as to support the same when in extended position, substantially as set forth.

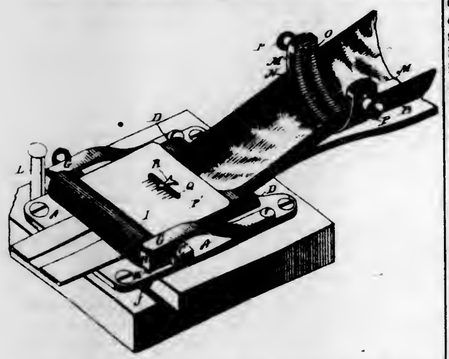
351,451. SELF-REGULATING BOILER-FEEDER. Charles A. Lockwood, Far Rockaway, assignor of one-third to George W. Lockwood, New York, N. Y. Filed Apr. 1, 1886. (No model.)

Claim.—In a self-regulating automatic trap and boiler-feeder, the combination of an oscillating valve having yielding bearings, and provided with steam and water ports, and rigidly-connected water-chambers located upon the opposite sides of and above the valve-trunnions, with a yielding chest or seat having steam and water ports that register alternately with the inlet and exit passages and with the corresponding ports in the valve, substantially as described.

351,451.



351,452. STRIP-FOLDING MACHINE. Daniel E. Marsh and Alexander Laubscher, Bridgeport, Conn. Filed May 22, 1886. (No model.)



Claim.—1. The combination, with the bed-plate, of the curved-faced and tapering folding-dies, their bar, and means whereby they are caused to travel backward and forward across the plate, the gage-plate arranged above the dies, and the strip and pointer moved by one of said dies, the spring-actuated presser-roll mounted at the forward end of the dies, and the lever and bar, whereby the roll may be lifted against the action of the springs, substantially as set forth.

2. The combination, with the bed-plate, of the dies arranged thereon and means whereby they may be adjusted, the spring-actuated presser-roller and means for lifting the same, and the curved and adjustable strip-guide provided with gages, as described, and whereby different widths of fabric may be accommodated, substantially as set forth.

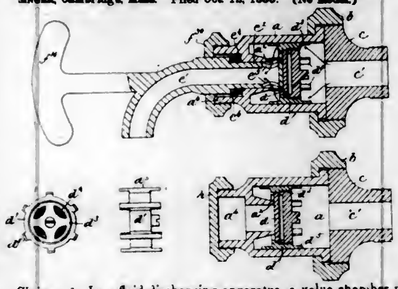
3. The combination, with the folding-dies adjustable to and from each other across the bed-plate, of the spring-actuated presser-roll, the bar beneath the plate engaging with the blocks in which said roll is journaled, and the pivoted lever whereby the bar and roll may be raised, substantially as set forth.

4. The combination of the bed-plate and the slotted extension thereon, the dies curved and tapered as to their operating-surfaces, the bar whereon they slide, and the right and left hand screw whereby they are adjusted to and from each other, the pointer receiving movement from one of the dies, and the graduated gage-plate whereon the pointer travels, the spring-actuated presser-roll and the bar and lever for raising the same, and the curved and adjustable strip-guide having gages, as described, and mounted on the extension of the bed-plate, all combined and adapted to operate substantially as and for the purpose herein set forth.

5. The combination, with the folding-dies and the presser-roll mounted in front of the same, of the curved strip-guide mounted upon the bed-plate and adjustable both toward and from the dies, and also adjustable in width for different widths of goods, substantially as specified.

6. The combination, with the bed-plate, of the curved and tapered dies mounted upon its surface, the bar whereon said dies travel, and the right and left hand screw whereby said dies are regulated as to their distance from the longitudinal center of the plate, the spring-actuated presser-roll, and the bar and lever whereby said roll may be lifted out of contact with the bed-plate, substantially as specified.

351,453. FLUID-DISCHARGING APPARATUS. William T. Messinger, Cambridge, Mass. Filed Oct. 12, 1885. (No model.)



Claim.—1. In a fluid-discharging apparatus, a valve-chamber provided with inlet and outlet openings, and a valve-seat surrounding the said outlet-opening and projecting into the valve-chamber, combined with a valve working in the said valve-chamber between the inlet and outlet openings thereof, the said valve consisting of a flexible disk and supporting-frame therefor, having guide-arms co-operating with the walls of the valve-chamber, the said disk being confined at its edges in the frame and having its entire surface exposed to the pressure of the fluid in the valve-chamber, and a movable faucet working in the outlet-opening of the valve-chamber, being disconnected from the valve, but engaging and unseating the same in its movement toward the valve-chamber, substantially as described.

2. The valve-chamber provided with inlet and outlet openings and a valve-seat surrounding the said outlet-opening and projecting into the valve-chamber, combined with a valve consisting of a flexible disk and supporting-frame therefor, having guide-arms co-operating with the walls of the chamber, the said disk being confined at its edges in the frame and having its entire surface exposed to the pressure of the fluid in the valve-chamber, and a movable faucet working in the outlet-opening of the valve-chamber, disconnected from the valve, but engaging and unseating the same in its movement toward the valve-chamber, and a handle-lever pivoted upon said faucet and connected by a link with the valve-chamber, substantially as described.

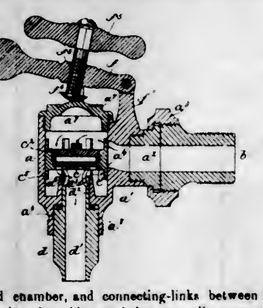
3. The valve-chamber provided with a valve-seat having a guide-passage therein, and the extension of the said chamber beyond the said valve-seat, combined with a valve movable in the said valve-chamber and guided wholly by the walls thereof, and a movable faucet working in the said extension and having a projecting portion of smaller diameter working in the guide-passage in the valve-seat, the said faucet being disconnected from said valve and movable independently thereof, but engaging and unseating the valve in its movement through the guide-passage, the shoulder at the end of the said projecting portion of the faucet constituting a stop, limiting the movement of the faucet toward the valve-chamber, substantially as described.

4. The combination of the main cylindrical valve-chamber *a*, provided at one end with an inwardly-projecting seat, a^2, having a guide-passage therethrough, and a coupling-piece, *c*, and coupling-nut connecting the chamber therewith, the said coupling-piece forming one end of the chamber and having an inlet thereto, combined with a valve consisting of a flexible diaphragm and supporting-ring therefor working in the said valve-chamber, and the movable faucet *e*, working in the guide-passage of the valve-seat, disconnected from the said valve and movable independently thereof, and an operating device connected with said movable faucet, substantially as set forth.

351,454. FLUID-DISCHARGING APPARATUS. William T. Messinger, Cambridge, Mass. Filed Oct. 12, 1885. (No model.)

Claim.—1. The combination of the following elements, namely: a cylindrical valve-chamber having a lateral inlet-opening and a raised seat integral with the casting, forming the chamber and projecting upward into the chamber from the lower end thereof, and having a guide-passage through it which constitutes the outlet for the valve-chamber, and the cap forming the upper end of the valve-chamber, a valve consisting of a flexible disk and holding-frame therefor working in the said valve-chamber lengthwise thereof and guided wholly by the walls of the said chamber, and a tubular valve-actuating device working in the guide-passage through the valve-seat disconnected from the valve, but engaging the same in its movement toward the valve-chamber, a pivoted arm

351,454.



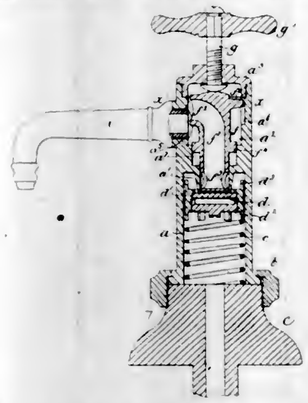
at the top of said chamber, and connecting-links between it and the valve-actuating device, the said arm being normally supported on the cap which closes the upper end of the valve-chamber, substantially as described.

2. The cylindrical valve-chamber having a lateral inlet-opening, and a raised seat integral with the piece forming the chamber projecting inward at the lower end of the said chamber coaxial therewith and having a guide-passage within it, and a removable cap for the upper end of the said chamber, combined with the valve, consisting of a flexible disk and frame confining the same at its edges provided with guide-arms having a working fit in the cylindrical chamber, and a tubular valve-actuating device working in the passage in the valve-seat and disconnected from the valve, substantially as described.

3. The cylindrical valve-chamber having a lateral inlet-opening, and a raised seat integral with the piece forming the chamber projecting inward at the lower end of the said chamber and having a guide-passage within it, and an extension of larger diameter than the said guide-passage external to the chamber, and a removable cap at the upper end of the said chamber, combined with the valve, consisting of a flexible disk and frame-work therefor guided wholly by the walls of the said chamber, and a tubular valve-actuating device working in the extension of the valve-chamber, and having a projection of reduced diameter working in the passage in the valve-seat, and operating devices for the said valve-actuating device, the valve-chamber, valve, and valve-actuating device having a common axis, substantially as described.

4. A cylindrical valve-chamber provided with a valve-seat and outlet-opening at the lower end thereof, and a valve movable in the said chamber coaxial therewith, and guided wholly by the walls of the said chamber, combined with a valve-actuating device external to the chamber operating in the outlet-opening thereof, a pivoted arm at the other end of the said chamber, links connecting it with the valve-actuating device, and a supporting device connected with the said arm and engaging the top of the valve-chamber, substantially as described.

351,455. FLUID-DISCHARGING APPARATUS. William T. Messinger, Cambridge, Mass. Filed Oct. 12, 1885. (No model.)



Claim.—1. A cylindrical valve-chamber and auxiliary chamber in line therewith having a stationary outlet-passage and a partition separating the said chambers provided with a valve-seat projecting from said partition into the valve-chamber, and having an opening within it connecting the said chambers, combined with a valve consisting of a flexible disk and supporting-frame therefor, having guide-arms co-operating with the walls of the valve-chamber, the said disk being confined at its edges in the said frame, and having its surface exposed to the pressure of the fluid in the valve-chamber, and a removable cap for the said auxiliary chamber, and a valve-operating device working therein, substantially as and for the purpose set forth.

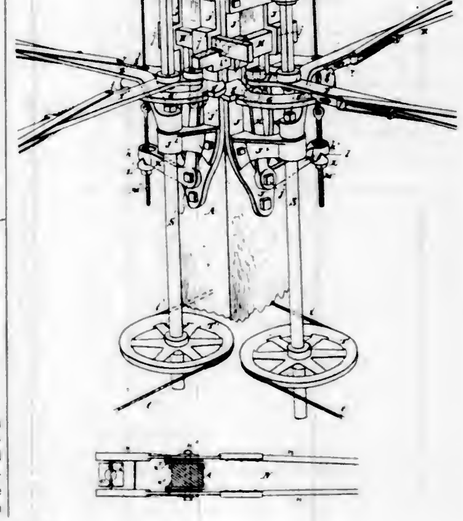
2. The cylindrical valve-chamber and auxiliary chamber made integral and in line therewith and partition separating the said chambers provided with a valve-seat projecting from the said partition into the valve-chamber, and having an opening within it connecting the said chambers, and a coupling-nut and base-piece connected thereby with the valve-chamber, forming one end of the valve-chamber, and having an inlet-passage thereto, combined with the valve working in said valve-chamber and free to move out from the said chamber when uncoupled from the base-piece, and the valve-actuating device longitudinally movable in the auxiliary chamber and opening in the valve-seat, substantially as described.

3. A valve-chamber provided with a valve-seat and outlet-opening therethrough, combined with a valve working in the said chamber between the inlet and outlet openings thereof, the said valve consisting of a flexible disk and supporting-frame therefor, having guide-arms co-operating with the walls of the valve-chamber, and a spring which presses it to its seat, and a valve-actuating device working in the outlet of the valve-chamber, disconnected from the valve, but engaging and unseating the same in its movement toward the valve-chamber, substantially as described.

4. A valve-chamber provided with a valve-seat and outlet-opening therethrough and an auxiliary chamber beyond the said opening, provided with a discharge-passage, combined with a valve operating in the said valve-chamber, and longitudinally-movable valve-actuating device inclosed in the said auxiliary chamber, provided with a tubular passage having a lateral orifice, and with a guide projection working in a groove in the auxiliary chamber, substantially as described.

5. A valve-chamber provided with a valve-seat and outlet-opening therethrough and an auxiliary chamber integral and in line with the said valve-chamber beyond the said opening, provided with a stationary discharge-passage, combined with a valve movable in the said valve-chamber, composed of a flexible disk and frame therefor, having guide-arms co-operating with the walls of the valve-chamber, the said disk being confined at its edges in the said frame, and having its surface exposed to the pressure of the fluid in the valve-chamber, and a removable cap for the said auxiliary chamber, and a valve-operating device working therein, substantially as and for the purpose set forth.

351,456. SIGNAL FOR RAILWAY-CROSSINGS. James McCrea, Allegheny City, Pa. Filed Apr. 10, 1886. (No model.)



Claim.—1. The combination, with a signal-post, of two signals, a sliding bolt for each, said bolts being each out of locking engagement with the other only when the signals are both in the normal or danger position, operating-levers pivotally connected with the bolts, and signal-actuating mechanism connected with the bolts, substantially as and for the purposes specified.

2. The combination, on a signal-post, of two sets of signal-actuating devices, each consisting of a lever, F, arranged to operate a swinging gate and a sliding bolt, substantially as described, a bell-crank lever arranged to actuate a signal and having one of its arms connected with the sliding bolt, the sliding bolts of each set being interlocked with each other, substantially as specified, so that any movement of one from the normal danger position locks the other and its actuating-lever to "danger."

3. In combination with a signal-post having an annular rim, G, secured thereon, a lever, F, having a catch, *f*, adapted to engage with notches *g g'* in the rim, and arranged to operate a point-signal, and a bent lever, R, provided with a catch, *r*, and passing through the annular rim to the head of the distance-signal shaft situated below the fulcrum of the lever F, substantially as and for the purpose specified.

4. In combination with a signal-post having notched annular rims G G', the interlocked sliding bolts H H', each connected with a signal upon the post, the actuating-levers F F', adapted to move the bolts and through them their connected signals, and the bent lever R R', passing through the rims G G', respectively, and arranged to actuate the distance-signals, substantially as and for the purpose specified.

5. In combination with a signal-post having notched annular rims G G', the interlocked sliding bolts H H', each connected with a signal upon the post, the actuating-levers F F', adapted to move the bolts and through them their connected signals, and at the same time to operate the swinging gates D D', and the bent levers R R', passing through the rims G G', respectively, and arranged to actuate the distance-signals, substantially as and for the purpose specified.

6. In combination with a bent lever, K, and mechanism for operating the same, the threaded rod M, connected to the signal-cord *m*, and the nut L, having knife-edge *l*, substantially as and for the purpose specified.

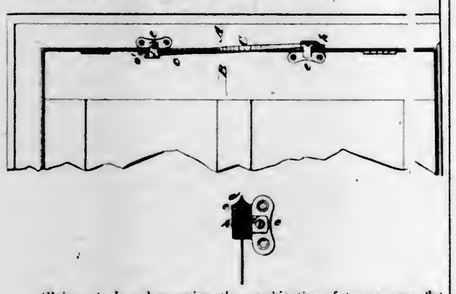
7. The combination, with the signal-post A, of the semaphore-signal consisting of double arms *n n'*, hinged at *n²* to the post, a swinging lantern, *o*, suspended between said arms, and red and plain lights P P', arranged in the arc of a circle of which the lantern-support is the center, so that the lantern will be opposite the red lights when the signal indicates "danger," and opposite the plain lights P' when the signal indicates "safety," substantially as specified.

8. The double semaphore-arm N, having two or more sets of openings P P', each arranged with respect to the point *n²*, from which its lantern is suspended, substantially as specified, so that the lanterns will be opposite the red lights P P when the signal indicates "danger," and opposite the plain lights P' P' when the signal assumes the angular position indicating "safety," and whereby the position of the signal-arm is indicated by the plane in which the lights appear, substantially as specified.

9. In combination with a signal-post and a semaphore-arm having a lug, *n²*, a stop consisting of a perforated rubber cushion, *n⁴*, perforated thimble *n⁵*, and retaining-screw *n⁶*, all substantially as and for the purpose specified.

10. In combination with a signal-post and signal-actuating and interlocking devices, substantially as described, the iron frame J, forming and sustaining the bearings of the interdependent actuating elements, as and for the purpose specified.

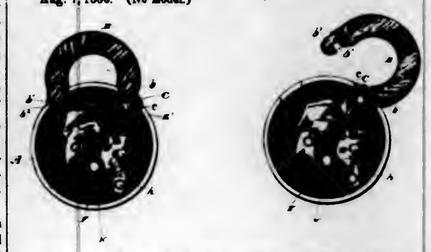
351,457. DOOR-SPRING. James McDonald and John P. Courtney, Brooklyn, N. Y. Filed Aug. 21, 1885. (No model.)



Claim.—1. In a door-spring, the combination of two or more flat springs with a device for fastening the ends thereof, consisting of a slotted pin with a recess so arranged as to permit the introduction of a pin or bar by which the springs are forced into the recess and locked thereby, substantially as described.

2. In a door-spring, consisting of two or more flat springs twisting spirally, a slotted pin to secure one end thereof, in combination with a clamp to bind the same, provided with a set-screw, whereby the tension of the spring may be adjusted, substantially as described.

351,458. PADLOCK. Frank W. Mix, New Britain, Conn. Filed Aug. 7, 1886. (No model.)



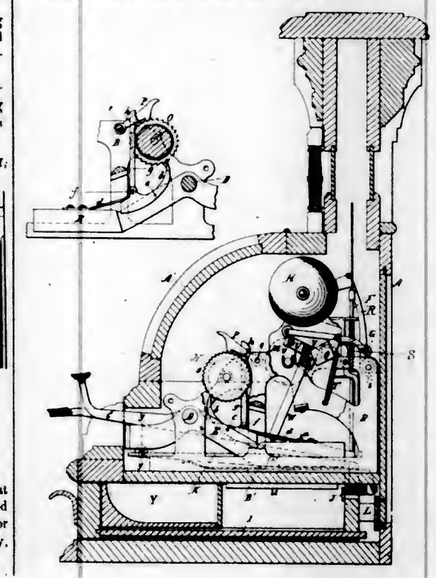
Claim.—1. In a padlock, the combination, with a spring-actuated locking-bolt pivotally secured to the casing, of a vibratory tumbler pivoted at its lower end and limited in its throw by a pin or stud located in an elongated closed slot formed transversely through the tumbler, a key-post located between the bolt and tumbler, and a key adapted to engage the tumbler above its pivotal point and engage the bolt below its pivotal point, substantially as set forth.

2. The padlock consisting, essentially, of the casing, the locking-bolt composed of one or more independent spring-actuated sections having the same general form, the tumbler pivoted at its lower end and composed of one or more spring-actuated sections having the same general form and limited in its or their throw or throws by a pin or stud located in an elongated closed slot formed transversely through the tumbler, and the spring-actuated hasp, the whole constructed substantially as set forth.

3. The combination, with a casing, hasp pivoted thereto and provided with a recess around the pivotal bolt, and a coiled spring located within said recess, one end of said spring being secured to the hasp and the other end to the pivotal bolt, of the spring-actuated locking-bolt having a projecting lug or tongue on its side opposite the free end of the hasp, a tumbler provided with a notch adapted to receive said lug or tongue, and a stud or pin adapted to limit the throw of the tumbler.

351,459. CASH INDICATOR AND RECORDER. Frank J. Patterson, Isaac P. Davis, and Al Herrman, Dayton, Ohio, assignors to the National Cash Register Company, same place. Filed Mar. 31, 1886. (No model.)

Brief.—The recording-rolls are readily removable from the case, as was shown by the exhibit in the case and originally described.



Claim.—1. The combination, in a cash indicator and recorder, of a case, a frame, E, horizontally pivoted therein, a series of keys each adapted when depressed to elevate the rear portion of said frame E, a feeding-roll containing a strip of recording material, a receiving-roll for said material and carrying a ratchet-wheel, an operating-pawl pivotally connected to the rear portion of said frame and having one end depressed so that the other end is in constant engagement with the ratchet-wheel, a detent-dog overriding said ratchet-wheel, and a link, *g*, connected to the depressed end of the pawl and having a link-head to engage the detent-dog when the latter is elevated, whereby the movement of the pawl with the frame E does not disengage the detent-dog, but the elevation of the latter effects both its disengagement and that of the pawl, substantially as set forth.

2. The combination, with the keys C, vibrating frame E, winding-roll N, and ratchet O, of the dog *b*, pivoted to the frame E, and held in engagement with the ratchet O by the spring *d*, or weight, the slotted dog P, the bar *g*, pivoted to the dog *b*, and inserted through the slot in the dog P, and the hook or stop A, the parts constructed and arranged in the manner and for the purpose specified.

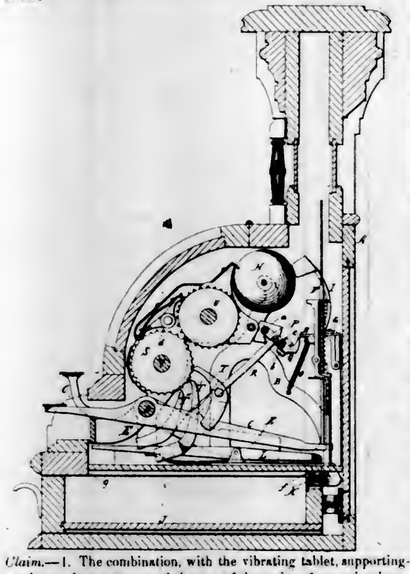
3. The combination, with the keys, the vibrating frame operated thereby, and the independently-pivoted wing and bell-hammer, of the arm U, carrying loosely-pivoted wiper-block V, contact-plates *n*, and bar W, the parts constructed and operating in the manner and for the purpose specified.

4. The combination, in a cash-register, of a series of centrally-pivoted keys, a series of vertical rods located at the rear of said keys and adapted to be elevated by the depression of the front portions thereof, indicating-tablets located on said rods, retaining-shoulders also mounted thereon, a transverse horizontal wing located at the rear of the machine and provided with a spring, and a projecting portion beveled on its under side, substantially as set forth.

5. The combination, in a cash-register, of a vibrating frame, E, mounted centrally upon horizontal pivots, a series of keys for depressing the front end of said vibrating frame, recording and indicating devices, a drawer, I, its projecting spring L, a locking-bolt adapted to be released by the vibration of the frame E, sliding till Y, and stop *u*, substantially as set forth.

6. The combination, with the case A and vibrating frame E, of the cylindrical screw-bolt *a'*, its casing C', pin *c'*, confined in a spiral groove, *b'*, in the bolt, tumblers *d'*, and spring *e'*, the parts constructed and arranged substantially as and for the purpose specified.

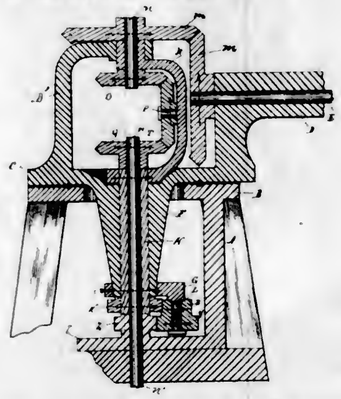
351,460. CASH REGISTER AND INDICATOR. Frank J. Patterson, Isaac P. Davis, and Al Herrman, Dayton, Ohio, assignors to the National Cash Register Company, same place. Filed Apr. 1, 1886. (No model.)



Claim.—1. The combination, with the vibrating tablet, supporting-wing, and gong-hammer secured thereto, of the series of operating-keys, a vibrating frame operated by depressing any of said keys, a vibrating arm, P, connected to and operated by said vibrating frame, and a wiper-block pivoted to said arm P, and a projecting plate, N, upon the wing, in close proximity to the wiper-block, whereby the upper play of the arm P causes the operation of the wing and sounding of the gong-hammer, and the return-stroke of the arm P brings back the wiper-block to its normal operating position, substantially as described.

2. The combination, in a cash-register, of a transverse shaft, a series of keys mounted thereon and representing various values, a registering-wheel provided with a progressive series of characters corresponding with those represented by the keys, and located immediately above the series of keys, a gear-wheel located on the wheel, and a dog located on each key and engaging said gear-wheel, the dog of each key being located at a distance from the shaft D, to insure a leverage sufficient to effect a rotation of the cylinder proportionate with the value of the particular key operated, the dogs of the several keys being bent so as to all engage the gear-wheel in the same vertical plane, substantially as set forth.

351,461. GEARING FOR WINDMILLS. George H. Pattison, Freeport, Ill. Filed Aug. 3, 1886. (No model.)



Claim.—1. In a gearing of the class described, the combination, with a plate adapted to be attached to the tower of a windmill, of a turn-table journaled in said plate, a wind-wheel shaft journaled in the turn-table, a planet-gear revolving with the turn-table and engaging with a gear fastened to the tower, a second planet-gear interposed between the wind-wheel shaft and the planet-gear revolving with the turn-table, gearing connecting the two planet-gears, and gearing connecting said second planet-gear with the wind-wheel shaft.

2. The combination, with the rotating turn-table of a windmill and a wind-wheel shaft journaled therein, of two independent vertical shafts, one of which is the power-transmitting shaft of the mill, gears connecting one of said vertical shafts directly with the wind-wheel shaft, a planet-gear interposed between said vertical shafts and connected therewith by suitable gears, a planet-gear revolving with the turn-table and engaging with a stationary gear fastened to the tower of the mill, and gears connecting said two planet-gears, substantially as and for the purpose set forth.

3. The combination, with the turn-table C, the wind-wheel shaft E, and the vertical shafts *n n'*, of gears connecting the shafts E *n*, a third vertical shaft, H, and a planet-gear revolving therewith and interposed between the shafts *n n'*, and a planet-gear revolving with the turn-table and engaging with two gears, one mounted on the shaft H and the other fastened to the tower of the windmill, or an attachment thereof.

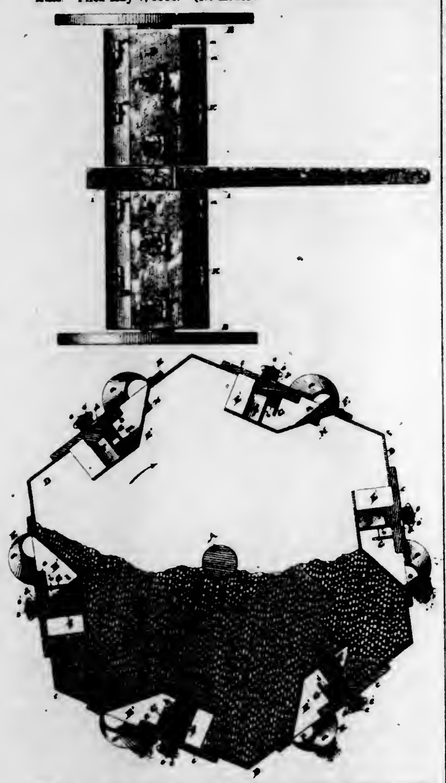
4. The combination of the turn-table C, the planet-gear *x y*, revolving therewith and engaging a stationary gear, Z, the planet-gear T, the wind-wheel shaft E, journaled in the turn-table, gearing connecting the planet-gear T with the wind-wheel shaft, and gearing connecting the planet-gears T *x y*, substantially as and for the purpose set forth.

5. The combination of the turn-table C, wind-wheel shaft E, and shafts *n n'*, the gears *m m'*, connecting the shafts E *n*, the gears O Q, and planet-gear T, connecting the shafts *n n'*, the planet-gear *x y*, revolving with the turn-table, the gear K, connecting the gear *x* with the support of the planet-gear T, and the gear Z, connecting the gear *y* with the tower of the windmill, substantially as and for the purpose set forth.

6. The combination, with the turn-table C, the wind-wheel shaft E, journaled therein, the stationary gear Z, and the planet-gear *x y*, supported by the turn-table and engaging the stationary gear Z, of gearing, substantially as shown and described, connecting the planet-gear with the wind-wheel shaft.

7. The combination, in a windmill-gearing of the class described, of a rotating turn-table and the shafts E *n n'* H, and gears *m m'* O T Q, and planet-gear *x y*, all supported by and revolving with the turn-table, substantially as and for the purpose set forth.

351,462. FERTILIZER-DISTRIBUTER. Henry O. Peabody, Boston Mass. Filed May 7, 1886. (No model.)



Claim.—1. In combination with a hollow revoluble fertilizer-holding drum, a device for receiving, measuring, and discharging the fertilizer, consisting of a measuring-receptacle set in an opening in the periphery of said drum and projecting inwardly therefrom, and provided with inlet-openings in opposite sides thereof contiguous to the inner surface of the peripheral casing of said drum, and with a ledge projecting inward from said casing a distance equal to about two-thirds of the radial depth of the measuring-receptacle, and two discharge-passages upon the exterior of said drum in the form of two frusto-conical semi-tubes with their smaller ends abutting each other and their inner sides communicating with the interior of the measuring-receptacle.

2. In combination with a revoluble hollow fertilizer-holding drum, the bucket E', having one end closed and inclined to the face of the drum to which it is secured, and the other end open, and having the two side openings, *i i*, the adjustable plunger F, the ledge G, and the frusto-conical semi-tubular passages *a* and *a'*, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

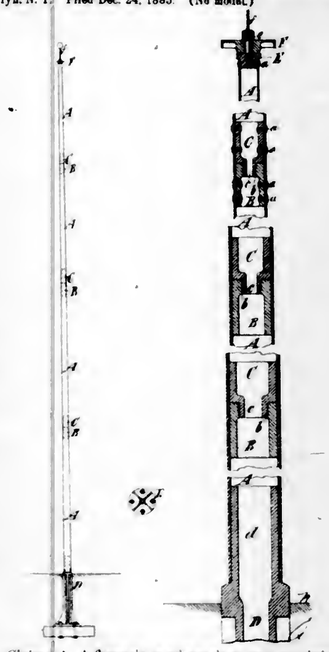
3. The combination of a revoluble hollow fertilizer-holding drum, the bucket E, provided with inlet-openings in opposite sides thereof contiguous to the inner surface of the peripheral casing of said drum, the ledge G, projecting into said bucket, as shown, the frusto-conical semi-tubular discharge-passages *a* and *a'*, and the concentrating ledges H H, secured to the inner surface of the drum, substantially as described.

4. The combination, in a fertilizer-distributer, of a hollow revoluble fertilizer-holding drum, a bucket or receiver partially divided near the middle of its length by an inwardly-projecting ledge or partition into two compartments, an inlet-orifice opening into said bucket or receiver at one side of said partition and contiguous to the inner surface of the casing of said drum, a passage leading from said receiver through said casing to the exterior thereof upon the other side of said partition, and a frusto-conical semi-tubular discharge-passage upon the exterior of said drum and covering said passage from the receiver through the casing of the drum.

5. In combination with a hollow revoluble fertilizer-holding drum, a bucket or receiver within said drum, constructed to receive and measure a quantity of the material to be discharged, and an opening through the peripheral casing of said drum, communicating with the interior of said bucket or receiver, and a covering for the discharge-opening through the casing of said drum in the form of a frusto-conical semi-tube, arranged with one of its sides parallel to the axis of revolution of said drum.

6. A hollow revoluble fertilizer-holding drum provided with a series of tortuous and valveless passages leading from the interior to the exterior thereof, with their discharge-openings in planes at right angles to the axis of said drum, in combination with a series of inclined ledges secured to and projecting inward from the inner surface of the peripheral casing of said drum in positions to guide the material contained in said drum into said tortuous passages at certain points in the revolution of the drum.

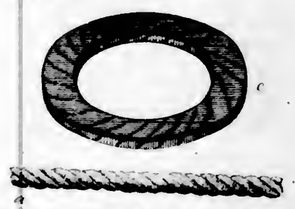
351,463. FLAG AND OTHER POLES, &c. William R. Pitt, Brooklyn, N. Y. Filed Dec. 24, 1885. (No model.)



Claim.—1. A flag-pole or other pole or spar, consisting of sections of taper metallic tubing, and coupling-pieces secured in the adjacent ends of the sections and secured together by male and female screw-threads, substantially as herein described.

2. A flag-pole or other pole or spar, consisting of sections of taper metallic tubing, and coupling-pieces inserted in the adjacent ends of the tubing-sections, and provided, respectively, with sockets *b*, having female screw-threads, and projections *c*, having male screw-threads, substantially as herein described.

351,464. ASBESTUS PACKING. Rufus N. Pratt, Hartford, Conn. Filed Mar. 3, 1886. (No model.)

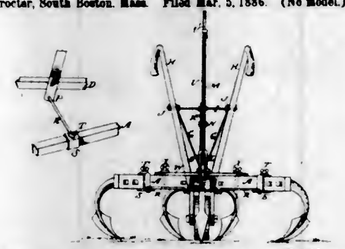


Claim.—1. As an improved article of manufacture, a rope or cord of fibrous asbestus soaked and coated with a compound of rubber and sulphur in a suitable vehicle, as naphtha, and further covered with plumbago or the like lubricant, all substantially as described.

2. The improved method of manufacturing asbestos packing, which consists in immersing a fibrous asbestus rope or cord in a solution of india-rubber and naphtha or the like vehicle containing sulphur, then removing the rope, wiping off the surplus, and coating the surface with plumbago, all substantially as described.

3. As an improved article of manufacture, a yarn, cord, or rope made of asbestus fiber, spun, twisted, or braided to shape, and treated by immersion in a cementing mixture of rubber, sulphur, and naphtha or the like vehicle, that permeates the mass and forms a compact and durable protection against wear, rendering it of greater density on the exterior than within the mass, and that also serves as an agent in vulcanizing, all substantially as described.

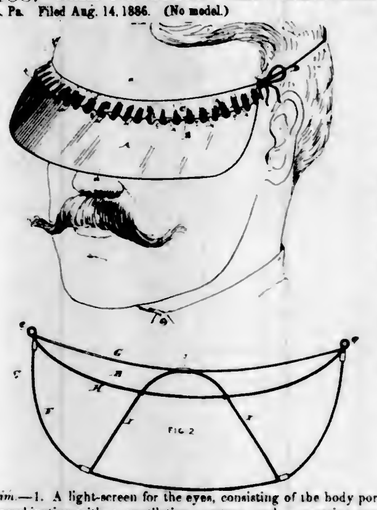
351,465. CULTIVATOR. John N. Procter, Norfolk, assignor of three-fourths to Charles H. Thompson & Co., Boston, and George Gardner Procter, South Boston, Mass. Filed Mar. 5, 1886. (No model.)



Claim.—1. In an improved cultivator, the bar K, bifurcated lever M, and rack L, in combination with slide E, rods R R, and adjustably-secured clasps S S, to increase and diminish the distance between the side frames, A A, substantially as shown and described.

2. In a cultivator, and in combination with a hand-adjusting lever, M, sustaining-bar K, elliptic rack L, slide F, rods R, and adjustable clasps S, the slotted screw-confined gage-bar E, operating in conjunction with the side frames, A A, substantially as and for the purpose specified.

351,466. SCREEN FOR THE EYES. James J. Robbins, Philadelphia, Pa. Filed Aug. 14, 1886. (No model.)



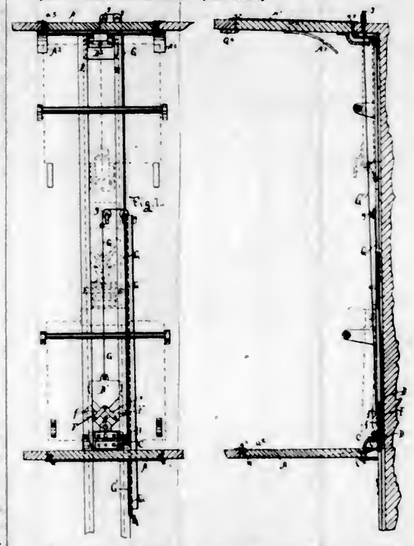
Claim.—1. A light-screen for the eyes, consisting of the body portion, in combination with a ventilating-aperture, and a covering over said aperture to shut out the light but allow free passage of air, substantially as and for the purpose specified.

2. A light-screen for the eyes, consisting of the body portion, in combination with a ventilating-aperture, and a corrugated covering over said aperture to shut out the light but allow free passage of air, substantially as and for the purpose specified.

3. A light-screen for the eyes, consisting of the body portion formed of a wire frame covered with silk or equivalent material, in combination with a ventilating-aperture, and a covering over said aperture to shut out the light but allow free passage of air, substantially as and for the purpose specified.

4. The combination of the wire frame E, consisting of wires F, H, and G, meeting at their ends, the covering J, covering the space between wires F and H, the ventilating passage-way B, formed between the wires H and G, and shield or covering C, loosely covering the passage-way B, substantially as and for the purpose specified.

351,467. HATCHWAY COVERING OR DOOR. James Schönberg, New York, N. Y., assignor of one-half to Edward Weston Hunt, same place. Filed Dec. 2, 1885. (No model.)



Claim.—1. A hatchway-door arranged to slide horizontally over a hatchway-opening by means of an operating-follower hinged to one of its sides, and provided with a locking-bar which automatically engages with a fixed support on the closing of the door, so as to automatically lock the door as soon as it is closed.

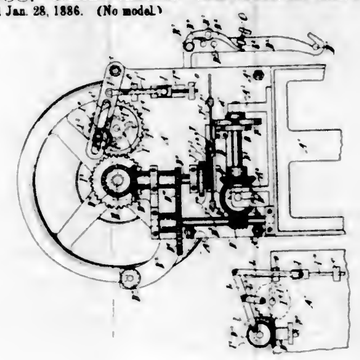
2. The combination of two or more hatchway-doors with one operating-rope leading from them through a closed housing or tubing into the office or other station from which the opening is alone controlled.

3. A vertically-sliding follower for operating a hatchway-door, consisting of two follower-bars, D D', arranged to slide up and down in suitable vertical ways, E, and coupled together by a pair of V-shaped links, F, pivoted together by the pin *f* at their intersection, and having short coupling-links *f'* *f²*, for connecting them to the upper follower-piece, D', so as to allow the upper ends of the link-pieces F to swing laterally outward as soon as they are released from tensional strain, thereby permitting their said upper ends to automatically engage in the locking-notches *e* on the way-pieces E, substantially as shown and described.

4. A door, A, coupled by a compound double-acting hinge, C C' C², to a vertically-sliding follower, D, so that the follower, by being moved up or down, may push or draw the said door into a horizontal position on suitable ways prepared to receive it in that position, or into a vertical position outside of its closed or horizontal position, substantially as described.

5. The compound hinge C C' C², in combination with the sliding hinged door A and the operating-follower D, substantially as described.

351,468. QUILTING-MACHINE. Louis Schultz, New York, N. Y. Filed Jan. 28, 1886. (No model.)

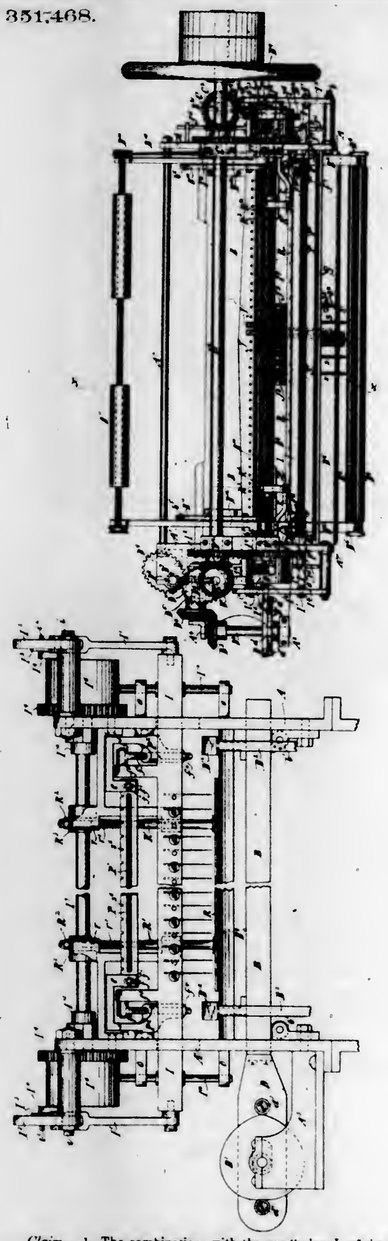


351,468

351,471. SHEET-DELIVERY APPARATUS FOR PRINTING-MA-

horizontally, a pin, 9, and arms *e' e²*, link *e³*, shaft *e'*, and mechanism,

351,468.



Claim.—1. The combination, with the needle-bar I, of the link I', lever I^2, block I^3, disk I^4, shaft I^5, upon which said disk is mounted, the gear-wheel I^{11}, also mounted on said shaft, the shell I^6, provided with the gear-wheel I^9, the shaft I^7, the sleeve I^{13}, the gear-wheel I^{10}, mounted on said sleeve, the shaft E, and the gear-wheel I^8, meshing with the gear-wheel I^9, substantially as specified.

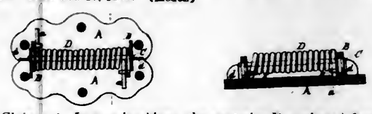
2. The combination, with the shaft E, of the gear-wheels D^{12} D^{13}, the shaft D^{11}, the elliptical gear-wheels D^{10} D^9, the shaft D^8, the worm D^7, the worm-wheel D^6, the shaft D^5, the gear-wheels D^3 D^4, the shaft D^2, the cam D', the rollers *d'*, and the carriage B, substantially as specified.

3. The combination, with a needle-bar, as I, of a rocking take-up bar, as P, over which the thread passes, levers, as P^2, and rods f^2, connected to the needle-bar and sliding in the levers P^2, substantially as specified.

4. The combination, with a needle-bar, as I, of a take-up bar, as P, provided with the rib P', levers, as P^2, and the rods f^2, substantially as specified.

5. The combination, with a needle-bar, as I, of a take-up bar, as P, provided with the slots *f'*, levers, as p^2, and bolts *f*, securing the take-up bar to the levers, substantially as and for the purpose specified.

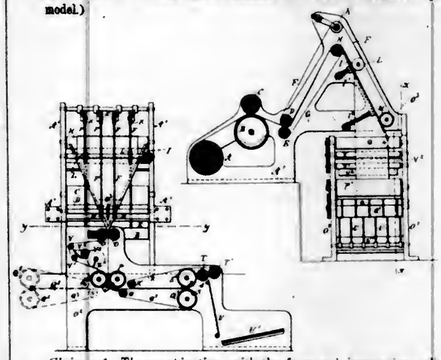
351,469. SPRING-HINGE. Augustus Schwenfurt, Philadelphia, Pa. Filed Oct. 17, 1885. (Model.)



Claim.—1. In a spring-hinge, the stud-pins E, projected from the faces of the inner knuckles or from the flaps, in combination with the resilient ends of the spring D, whereby said ends are retained in position bearing against the surfaces of the flaps, substantially in the manner herein described, for the purpose set forth.

2. In a spring-hinge, the flaps A, provided with lugs *d* upon their ends, bent at right angles, in combination with the pintle C and knuckles B, whereby said pintle is held in its connected position with said flaps, substantially in the manner and for the purpose herein shown and described.

351,470. MECHANISM FOR FOLDING AND DELIVERING PRINTED SHEETS. Walter Scott, Plainfield, N. J. Filed Oct. 26, 1885. (No model.)



Claim.—1. The combination, with the form and impression cylinders, the rollers and the delivery-tapes, of a triangular roller, I, placed at an inclination with the apex downwardly, a yielding support for the same, the rollers O O, between which the paper is passed, and the cutting-cylinders P P', for separating the sheet transversely, substantially as specified.

2. The combination, with the printing and impression cylinders and the delivery-rolls, of the inclined folder I, yielding supports for the same, and the pulleys L, around which the tapes pass for acting upon the web of paper, near the edges of the same, and the pulleys M, around which the tapes pass for acting upon the web of paper near the apex of the folder, substantially as set forth.

3. The combination, with the inclined triangular folder I, of the rollers O O, adjacent to the apex of the folder I, one or both of said rollers O having a peripheral depression in line with the apex of the folder, for the purposes and substantially as specified.

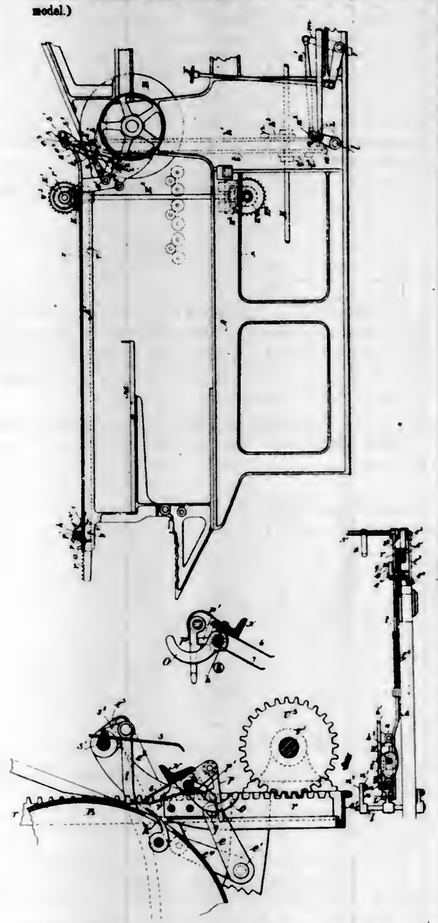
4. The combination, with the triangular-inclined folder and the rollers O O, of a paste-receptacle, V^2, revolving pasting-blade V^4, guide-rollers V V^3, and transverse cutting-cylinders P P', substantially as set forth.

5. The combination, with the triangular inclined folder I and the rollers O O, of the cutting-cylinders P P', for separating the sheet transversely, the belts Q^2 and R, rollers Q and R', cylinders Q' and S', delivery-rollers T T', and fly-frame U, substantially as specified

6. The combination, with the triangular inclined folder, of the rollers O O, for conveying along the doubled web of paper, the cutting-cylinders P P', for separating the sheets transversely, and a cutter for separating the web of paper longitudinally, substantially as set forth.

7. The combination, with the rollers O O and cutting-cylinders P P', of the tapes or belts Q^2 Q^3, passing off in opposite directions, and the pairs of rollers for such belts, substantially as set forth.

351,471. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. Walter Scott, Plainfield, N. J. Filed Oct. 28, 1885. (No model.)



Claim.—1. The combination, with the impression-cylinder and its grippers, of delivery-grippers, shaft for the same, a cross-bar and a rack for communicating motion to the delivery-grippers longitudinally of the press, a stop for opening the grippers, and a stop to cause the grippers to close, substantially as set forth.

2. In a cylinder printing-press, the combination, with the impression-cylinder and its grippers, of a swinging gripper-cam, a rod and cam for moving the same, a shaft and gage-fingers, a rod and cam for moving the same, a locking-sector for holding the respective rods, the foot-piece F, and the connections for moving the locking-sector, substantially as specified.

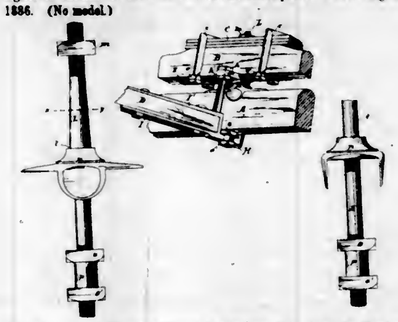
3. The combination, with the gage-fingers *s* and their shaft *s'*, of the impression-cylinder B and grippers, the delivery-grippers 6 and 7, and means for moving the same, and a latch for holding the grippers open, a movable stop, 9, and a connection from the said stop to the shaft of the gage-fingers, whereby the delivery-grippers are caused to remain open while the gage-fingers are in their normal position, substantially as set forth.

4. The combination, with the type-bed and stop-motion impression-cylinder, of delivery-grippers, a cross-bar and slides for the same, connecting-gearing from the type-bed to the slides, and mechanism, substantially as specified, for causing the delivery-grippers to close and draw the sheet over the impression-cylinder with the printed side upmost, and a sheet-delivery table over the type-bed, and means for opening the delivery-grippers, substantially as specified.

5. The combination, with the impression-cylinder and its grippers, of delivery-grippers and mechanism for moving the delivery-grippers horizontally, a pin, 9, and arms e e^2 e^3, link e^4, shaft e^5, and mechanism, substantially as specified, for connecting the arm e^4 with the foot-treadle F, so that the delivery-grippers are caused to remain open and inoperative until the impression-cylinder is brought into action, substantially as set forth.

6. The combination, with the impression-cylinder and a reciprocating type-bed, of delivery-grippers, the cross-bar, shaft, and toothed slides for supporting the same, and gearing, substantially as specified, and the toothed wheel E^3, for connecting the slides to the reciprocating bed, so that the delivery-grippers receive a positive motion from the reciprocating bed, substantially as set forth.

351,472. KING-BOLT. George W. Simmons, Youngstown, Ohio, assignor of one-half to Edward F. Thomas, same place. Filed Aug. 30 1886. (No model.)

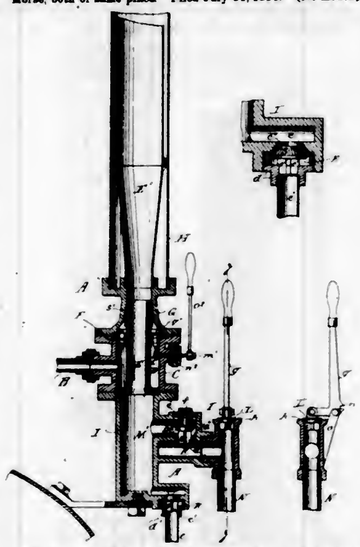


Claim.—1. A king-bolt which is stationary in the axle, the bolt having a shoulder and cap above the axle and provided with a sleeve-nut below the axle, constructed substantially as and for the purposes set forth.

2. A king-bolt which is stationary in the axle, having the surface above and below the axle threaded, and provided with a sleeve-nut below the axle and with trunnion cap or plate above the axle, substantially as and for the purposes set forth.

3. A king-bolt which is stationary in the axle, provided with a shoulder and an enlarged portion below the axle to serve the purpose of a pivot or trunnion, and a threaded portion above the axle-bed to be used in combination with a cap or plate resting on the top of the axle-bed, substantially as and for the purposes set forth.

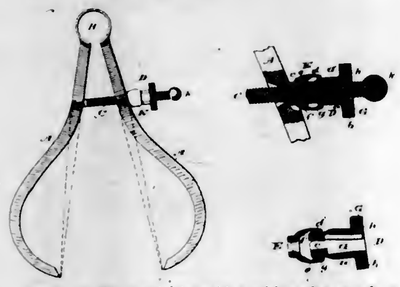
351,473. VACUUM RAILWAY-BRAKE. Renaldo Solano, Brooklyn, N. Y., assignor of two-thirds to John W. Howard and David R. Morse, both of same place. Filed July 31, 1886. (No model.)



Claim.—1. In a vacuum-brake apparatus, the combination of an ejector-nozzle and an annular graduating-valve and arranged around the nozzle to form an annular current, substantially as described.

2. In a vacuum-brake apparatus, the chamber M', located beneath the ejector-nozzle E, forming an unobstructed passage to the drip-valve *s*, and a separate communicating chamber containing a check-valve, M, substantially as described.

351,474. RAPIDLY-ADJUSTABLE NUT FOR CALIPERS AND DIVIDERS. Joshua Stevens and Oliver D. Warfield, Chicopee Falls, Mass., assignors to the J. Stevens Arms and Tool Company, same place. Filed June 12, 1886. (No model.)



Claim.—1. The combination, with a quick-motion nut, of a washer for closing it upon the screw connected to it, substantially as described, whereby it moves with the nut as the latter is slid along the screw.

2. The combination of a quick-motion nut with a washer for closing it upon the screw, and shoulders on said nut and washer, respectively, reciprocally engaging each other, whereby the washer is caused to move with the nut.

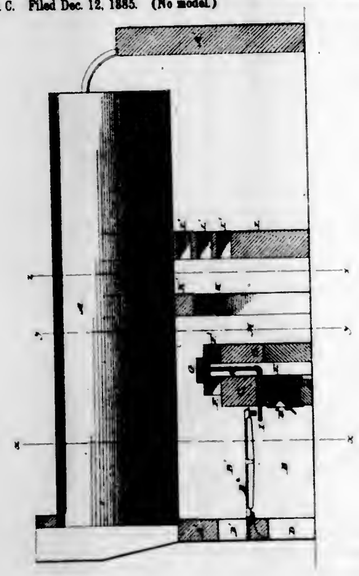
3. The combination of nut D, having shoulder or projection *d*, with washer E, having internal shoulder or flange, *g*, inclosing the end of the nut and engaging the shoulder *d* thereon, substantially as set forth.

4. The combination of a quick-motion nut with a washer for closing it upon the screw, inclosing its end, engaging a shoulder or projection thereon and inseparable therefrom while the nut is on the screw, substantially as set forth.

5. A washer for a quick-motion nut, formed to inclose the end thereof, and having an internal flange or shoulder, *g*, substantially as and for the purpose specified.

6. A quick-motion nut, D, consisting of a section, G, with a head at one end and a screw-thread at the other, and recessed along one side, with a jaw, G', pivoted to it at said head and filling said recess, in combination with a washer engaging the exterior of the section G and jaw G' at their threaded end, substantially as set forth.

351,475. STEAM-BOILER FURNACE. Levi Stevens, Washington, D. C. Filed Dec. 12, 1885. (No model.)



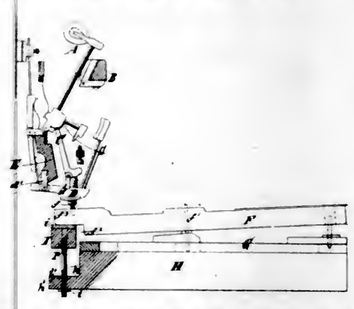
Claim.—The combination, in a furnace, of the fire-chamber and ash-pit, the hollow bridge-wall back of the same, the combustion-chamber formed in the rear of the bridge-wall by a transverse rear wall pierced with a series of eduction-flues in its upper portion, the hanging wall or deflecting-arch interposed between the bridge-wall and rear wall, the air-chamber formed within the hollow bridge-wall and provided with an induction-opening communicating with the ash-pit, and eduction-ports communicating with the fire-chamber and combustion-chamber near the top of the bridge-wall, means for controlling the supply of air to the hot-air chamber, and a superheater within the furnace, communicating by discharge-pipes with the ash-pit, all substantially in the manner and for the purpose herein set forth.

351,476. SKID. Julius Stromeyer, Philadelphia, Pa. Filed Apr. 17, 1886. (No model.)



Claim.—The combination of the sides or frame A A, connected by any suitable means, and provided with the tracks *a a*, the toothed rack B, extending the whole length of one of the sides A, the truck C, provided with suitable means for rolling along the tracks *a*, and secured in position by the braces *d* and *d'*, and the pawl or catch *b'*, pivoted to the brace *d'*, and engaging with the teeth in the rack B, substantially as and for the purpose described.

351,477. KEY-BOARD FOR MUSICAL INSTRUMENTS. Edward Strauch, New York, N. Y. Filed Aug. 3, 1886. (No model.)



Claim.—1. The combination, with the keys, key-frame, and key-bottom of a musical instrument, of a vertically-adjustable key-rest arranged beneath the keys at their back ends, and which limits the downward movement of the keys at the back ends, substantially as herein described.

2. The combination, with the keys of a musical instrument and a key-bottom having at the back a flange or lip projecting from its lower portion, of a key-rest supported from said flange or lip, substantially as herein described.

3. The combination, with the keys of a musical instrument and a key-bottom rabbeted at the back and upon its top, so as to form an integral flange projecting from its lower portion, of a key-rest for the back ends of the keys supported from said flange, substantially as herein described.

4. The combination, with the key-bottom of a musical instrument, of keys having at their rear ends projections from their upper portions, and a key-rest on which the rear ends of the keys are supported through said projections, substantially as herein described.

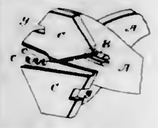
5. The combination, with the key-bottom of a musical instrument, of keys rabbeted from the under side at their rear ends, so as to form integral rearward projections from the upper portions of the keys, and a key-rest on which the rear ends of the keys are supported through said projections, substantially as herein described.

6. The combination, with the keys and key-bottom of a musical instrument, of a key-rest and supports whereby the key-rest is supported from and capable of vertical adjustment relatively to the key-bottom, substantially as herein described.

7. The combination, with the keys and key-bottom of a musical instrument, of a key-rest and screw-threaded posts supporting the key-rest from the key-bottom and adjustable to vary the height of the rest, substantially as herein described.

8. The combination, with the keys rabbeted at the rear end to form rearward projections from their upper portions, of a key-bottom rabbeted at the back to form a projecting lip or flange from its lower portion, a key-rest, and screws whereby the key-rest is adjustably supported from said lip or flange, substantially as herein described.

351,478. CUTTING-NIPPERS. Stephen Taft, Worcester County, Mass. Filed June 30, 1886. (No model.)



Claim.—1. In cutting-nippers, the jaws C C, at right angles to the handle, each jaw having a cutting-edge in diamond or angular form, whereby on either side a progressive or shear cut can be made, substantially as described.

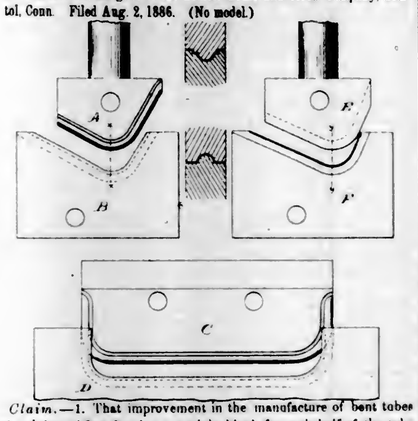
2. In cutting-nippers, in combination with the jaws C C, at right angles to the handles, each jaw having cutting-edges in angular form, the fulcrum-pin B, extended and forming a rest for end of the work.

3. In cutting-nippers having an extended fulcrum-pin, one jaw having an angular cutting-edge and the other provided with alternate grooves and angular cutting-edges, substantially as described.

4. The jaws C C at right angles with the handles, each having diamond-shaped cutting-edges, as described, and one provided with grooves in one edge and having a notch, G, whereby the wire coil can be suitably adapted to the notched cutting-edges to be cut at any point desired.

5. As an article of manufacture, the cutting-nippers herein described, consisting of a pair of cutting-jaws pivoted together by a fulcrum-pin which extends on each side, said jaws being at right angles with the handle and each notched in the side and having diamond or angular cutting-edges, the cutting-edge of one jaw notched, substantially as shown and described.

351,479. MANUFACTURE OF BENT METAL TUBES. Alvin Taplin, Forestville, assignor to the Bristol Brass and Clock Company, Bristol, Conn. Filed Aug. 2, 1886. (No model.)



Claim.—1. That improvement in the manufacture of bent tubes which consists of first forming a straight blank for each half of the tube and then striking said blanks to swage them into semicircular form in cross-section, and at the same time bending said straight blanks to give them the proper elbow-curve in side view, the dividing line between the two parts of the tube on both sides thereof following the course of the tube on its longitudinal axis, substantially as described, and for the purpose specified.

2. That improvement in the manufacture of bent tubes which consists of forming said tubes from two straight strips of sheet metal by first striking the elbow portions of said strips to give them their semicircular form in cross-section, and at the same time to curve the same, respectively, into the outer and inner halves of the elbows, then striking in a final die to complete the portion which extends from the elbow, substantially as described.

3. That improvement in the manufacture of bent tubes which consists of forming said tubes from two straight strips of sheet metal by first striking separately the respective ends of said strips, to give them their semicircular form in cross-section and their elbow-curve in side view, and then striking in a final die to give form to the portion between said elbows and perfect said elbows with reference to said middle portion, substantially as described.

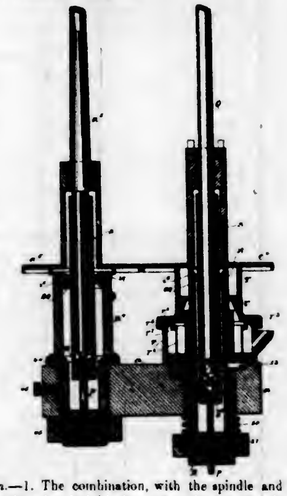
4. The herein-described dies for forming the elbow portion of bent tubes from strips of sheet metal, said dies having the semicircular form in cross-section, while they are divided mainly on a curved line corresponding to the curve of the tube, substantially as described, and for the purpose specified.

5. The herein-described dies for use in forming bent tubes from straight strips of sheet metal, said dies having the semicircular form in cross-section, while they are divided on a line which corresponds with the axial line of said tube, involving the curve at each end, substantially as described, and for the purpose specified.

6. As a new article of manufacture, the herein-described bent tube curved at its elbow portion and with a seam on both sides, which follows the longitudinal axis of the tube, substantially as described, and for the purpose specified.

351,480. SPINDLE SUPPORTING AND DRIVING DEVICE FOR SPINNING-MACHINES. Joseph E. Tynan, Paterson, N. J. Original application filed Oct. 10, 1883, Serial No. 108,581. Divided and this application filed May 12, 1884. (No model.)

Brief.—The bolster has a hemispherical bearing resting in a hemispherical recess in the upper end of the bolster-case, which is closed at its lower end. A spring-rod enters the lower end of the bolster and of the bolster-case, allowing a limited rocking movement. A friction-disk is secured to the spindle in line with the bearing, and is adapted to be driven by a frictional driving-disk.



Claim.—1. The combination, with the spindle and bolster-socket provided with a hemispherical recess at its upper end, and having a closed lower end, of a bolster having a hemispherical bearing entering said recess and resting therein, and a step for the spindle, and a vertical rod forming a spring passing into the bolster-socket and bolster, respectively, to allow a limited rocking movement of the bolster upon the hemispherical bearing, and a friction-disk around the spindle and in line with the center of the bearing, and a frictional driving-disk for the same, substantially as specified.

2. The combination, with the spindle, of a bolster, a bolster-socket, forming also an oil-cup, a screw-step, and a spring passing into the bottom of the bolster-socket and into an opening at the bottom of the bolster, substantially as set forth.

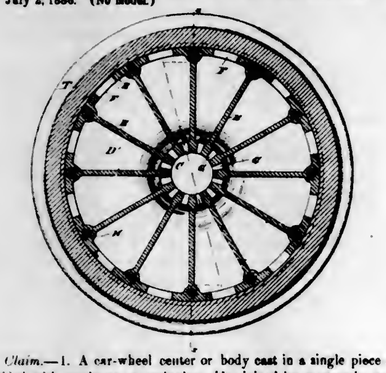
3. The combination, with the spindle, of a bolster having a hemispherical bearing around it and provided with a screw-step, and a bolster-socket having a hemispherical bearing, and a spring passing into the lower end of the bolster-socket and into an opening at the lower end of the bolster, substantially as set forth.

4. The combination, with a spindle, of a bolster having a hemispherical bearing, and a bolster-socket having a hemispherical recess for said bearing, a friction-disk in line with the center of said bearing, and a driving-pulley below the disk, and an adjacent spindle and driving-disk upon the same and in contact with the aforesaid friction-disk, substantially as set forth.

5. The combination, with a spindle, a bolster, and bolster-socket, of a loose pulley, the hub of which surrounds the bolster-socket, an oil-cup, and a cylindrical dam in said oil-cup, for the purposes and substantially as set forth.

6. The combination, with two spindles, of bolster-sockets having hemispherical recesses, bolsters having bearings fitting such recesses, yielding supports at the lower end of the bolsters, means, substantially as specified, for preventing the bolsters rotating, a driving-pulley surrounding the bolster-socket and attached to one spindle, a disk connected with the driving-pulley, and a disk upon the second spindle, with which the driving-disk comes into contact, such disks being in line, or near the centers of the hemispherical bearings, substantially as specified.

351,481. CAR-WHEEL. Reuhard N. Allen, Cleveland, Ohio. Filed July 3, 1886. (No model.)

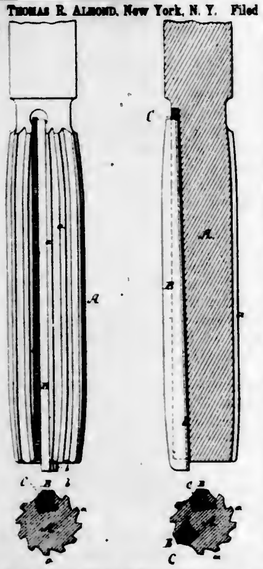


Claim.—1. A car-wheel center or body cast in a single piece and provided with continuous or unbroken sides joined by cross webs or ribs extending from the rim to the hub and dividing the interior into a series of radial chambers, substantially as and for the purpose described.

2. A car-wheel composed of a body or central part cast in a single piece and a tire, the body being provided with continuous or unbroken sides joined by cross webs or ribs extending from the rim to the hub and dividing the interior into a series of radial chambers, each having apertures extending through the rim, and the tire being fitted upon the rim of the body to cover its apertures and form a continuous metal thread, substantially as set forth.

3. The herein-described method of casting car-wheel bodies or centers having continuous or unbroken sides joined by cross webs or ribs extending from the rim to the hub and dividing the interior into a series of radial chambers, which consists in arranging in the casting mold cores corresponding with the radial chambers of the body and holding such cores in position during the casting by means of radial projections or core-prints, supported at one end of the core in the axle-space and at the other end beyond the rim-space of the mold, whereby the body is cast in one piece, and apertures for the removal of the cores from the cast body are provided through the rim and the hub, and the sides of the body are made continuous or unbroken.

351,482. REAMER. Thomas R. Almond, New York, N. Y. Filed Aug. 6, 1886. (No model.)

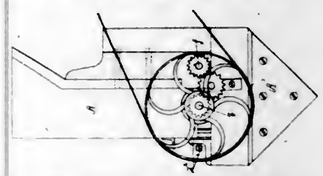


Claim.—1. The fluted reamer A, having stationary blades *a*, and adjustable blade B, said adjustable blade being substantially opposite certain of the stationary blades, as specified.

2. The reamer A, having stationary blades *a*, combined with the movable blade B, having guide-rib *b*, substantially as herein shown and described.

3. The reamer A, having stationary blades *a*, combined with the movable blade B, having guide-rib, and clamping device C, substantially as herein shown and described.

351,483. APPARATUS FOR DISTRIBUTING BRONZE OR OTHER POWDERS. John W. Baldwin, Boston, Mass., assignor to George A. Fullerton, same place. Filed May 19, 1886. (No model.)



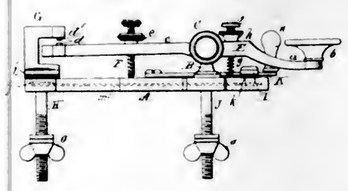
Claim.—1. The combination of hopper A with striker D and roll B, whose periphery is recessed, substantially as and for the purpose set forth.

2. In combination, the hopper A, the distributing-roll B, the striker D, and cleaning-brush F, substantially as described.

351,484. SOLUBLE LAUNDRY-BLUE. George W. Barlow, New York, N. Y. Filed Nov. 30, 1885. (Specimens.)

Claim.—The method herein specified of making laundry-blue, consisting in intimately mixing soluble blue-powder with glycerine in about the proportion of one part of glycerine to three of blue, and pressing the mass into balls or cakes, substantially as set forth.

351,485. TELEGRAPH-KEY. John M. Biggs, Louisville, Ky. Filed May 10, 1886. (No model.)



Claim.—1. In a telegraph-key, the base A, having its under surface recessed to receive the bar *m*, combined with the arm G, having a contact-point key-lever, the stud I, bar *m*, connecting stud I and arm G, and the circuit-closer, substantially as set forth.

2. In a telegraph-key, the combination of the key-lever E, provided with the long arm *e* and the short arm *a*, the adjusting-screw F, inserted in the longer arm, the adjusting-screw *f*, inserted in the shorter arm, the spring *g*, placed between the adjusting-screw *f* and the base, the base A, the arm G, having threaded stud H and secured to the base, but insulated therefrom, the contact-points *d* d^2, carried by the arm and the key-lever, the stud I, connected electrically with the arm G, insulated from the base A and supporting the circuit-closing contact-point *l*, and the circuit-closing key K, pivoted to the base A and adapted to engage the circuit-closing contact-point *l*, substantially as herein shown and described.

3. The combination of the base A, the key-lever pivotally supported thereon, the arm G, having threaded stud H and provided with a contact-point, and secured to but insulated from the base, substantially as set forth.

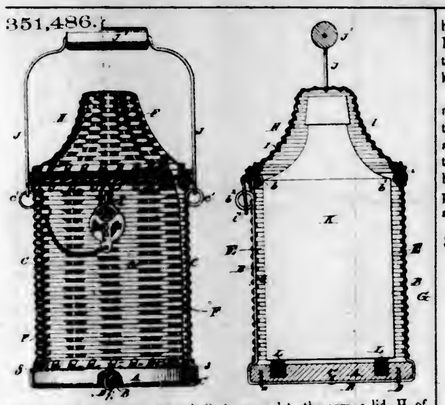
4. In a telegraph-key, the combination of the base, the key-lever, the arm G, provided with a contact-point and having a threaded stud, H, the stud I, having a contact, the bar *m*, connecting the studs H and I, and the circuit-closing switch pivoted to the base and movable into contact with the stud I, substantially as set forth.

351,486. WICKER CASE FOR BOTTLES. Anton Boeker, St. Louis, Mo. Filed Jan. 25, 1886. (Model.)

Claim.—1. A case consisting of a body, E, of wicker-work, bottom A, lid H, of wicker-work, wire B, threaded through the body and under the bottom, having a loop, b^3, near the top of the body, and eyes *b b'* turned over the body, wire I, threaded through the lid, having an eye, *i*, threaded through the eye *b'* and turned under the lid, and a loop, *i'*, receiving the loop b^3, substantially as shown and described.

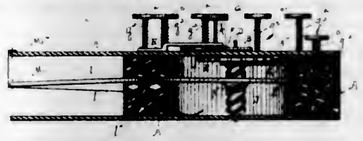
2. A case consisting of a body, E, of wicker-work, solid bottom A, wire B, threaded through the body and under the bottom, having a loop, b^3, near the top of the body, and eyes *b b'* turned over the body, wire C, at right angles to the wire B, threaded through the body and under the bottom, having ears *c' c'* formed therein near the top of the body, and

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eyes *c c* turned over the body, a bail, J, secured to the ears, a lid, H, of wicker-work, and a wire, I, threaded through the lid, having an eye, *i*, threaded through the eye *b'* and turned under the lid, and a loop, *i'*, receiving the loop b^3, substantially as shown and described.

351,487. ADDING-MACHINE. Frank A. Bonk, Lebanon, Ohio. Filed Dec. 14, 1885. (No model.)



Claim.—1. In an adding-machine, the combination, with a series of depressible keys marked with the units of numeration, of a part or disk against which said keys come in contact when depressed, a nut secured to said disk, a rotatable worm or screw over which the nut works, means, substantially as described, for registering or showing the number of added units, and connections, as described, from the worm to the said registering means.

2. In an adding-machine, the combination of the registering-wheel, a series of keys, a depressible nut operated by the keys, a rotatable screw on which the nut works, a radial arm secured to the screw and provided with a pawl, and means, substantially as described, upon which said pawl works, for operating the registering-wheel, as set forth.

3. In an adding-machine, the combination, with a series of spring keys or pins marked with the different units of numeration, a disk or wheel having an index for showing the sum of the added units of the depressed keys, a ratchet revolving with said disk or wheel, a screw revolving independently thereof, having an arm which bears the pawl for operating upon said ratchet, a nut set over the screw and depressed by the descent of the keys, thereby causing said screw to revolve to an amount coincident with the descent of the nut and keys, as set forth.

4. In an adding-machine, the combination of the screw J and the top plate, A, with the plate I, having springs I' I', and nut N, working on the screw J, keys for operating plate I, a registering-wheel, and connections, substantially as set forth, from screw J to said registering-wheel, substantially as set forth.

5. In an adding-machine, the rod or axis D, wheel B, with ten equal-spaced notches numbered from 0 to 9, and a ratchet-wheel, E, provided with ten equal-spaced projections, both fixed to the axis D, in combination with the screw J, loosely sleeved upon the rod D, the arm K, and the spring-pawl K', as described.

6. In an adding-machine, the combination, with the plate A, provided with nine holes, the nine keys arranged to work through the holes in plate A, with the spring-plate I, on which the said keys act, nut N, attached to plate I, and screw J, having arm K and pawl K', substantially as and for the purpose set forth.

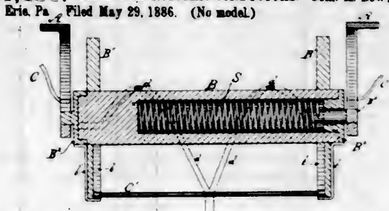
7. In an adding-machine, the combination of the plate I and nut N with screw J, the rod or axis D, keys *a*, and wheel B, and connections, substantially as described, from the screw J to said wheel B, substantially as described.

8. In an adding-machine, the arm K, having spring check or stop K'' to strike the stem of any key that is pushed down, and whereby part K'' is forced into the ratchet-wheel E, in front of a projection, E', just at the moment that the arm K strikes said key-stem, in combination with the series of keys having stems and a ratchet-wheel, as set forth.

9. In an adding-machine, the combination of keys *a*, top plate, A, having the stop-pin L projecting down from it, plate I, having springs I' I' and nut N, screw J, and arm K, whereby, after releasing keys, the arm is caused to return to the stop L and remain there until another key is struck.

10. In an adding-machine, the combination of top plate, A, having nine holes in a circle and keys therein, and two wheels on the face thereof arranged with the mechanism to register the sum of the figures added, with the rod or axis D, having a ratchet-wheel, E, attached thereto, and with the screw J, working on said axis, the said screw having an arm, K, provided with an operating-pawl and a stop-spring pawl, vertically-movable plate I, having nut N, working on screw J, all constructed and arranged to operate as and for the purpose set forth.

351,488. REEL FOR ELECTRIC CONDUCTORS. John M. Bowyer, Erie, Pa. Filed May 29, 1886. (No model.)



Claim.—1. In a reel for electrical conductors, the combination of a spring-actuated reel, hangers supporting said reel, conductors connecting hangers with the electrical device mounted on the object on which said reel is mounted, and electrical conductors attached to and winding on said reel, which are in metallic connection through the journals of said reel with the said hangers.

2. In a reel for electrical conductors, the combination, substantially as set forth, of the hangers A A, the spring-actuated drum B, supported by said hangers, the electrical conductors C C, connected with said hangers, the electrical conductors *d d*, connected with said reel, and means, substantially as shown, for establishing electrical communication between the conductors C C and the conductors *d d* through the journals of the reel.

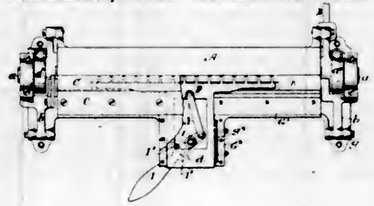
3. In a reel for electrical conductors, the combination, substantially as set forth, of the hangers A A, the conductors C C, connected with said hangers, the spring-actuated non-conductor or reel B B', having metallic journals seated in said hangers, the conductors *d d*, winding on said reel and connected conductively with said journals, the radial slots *b* in the flanges of said reel, metallic plates *b'*, closing the outer ends of said slots and extending to the metallic journals, and the metallic rods C', adjusted loosely within said slots, substantially as and for the purposes mentioned.

351,489. FEED-TROUGH. Andrew Boyles, Concordia, Kans. Filed Aug. 5, 1886. (No model.)



Claim.—The herein shown and described feed-trough, consisting of the following elements: the foot-pieces, the board longitudinally channeled, forming troughs and a median ridge, supported thereon, the cross-bars secured upon the board and dividing the troughs into independent compartments and extended outward on opposite sides, forming stalls, the hopper secured on the tops of the cross-bars, the discharge-spouts arranged between the cross-bars depending from the bottom of the hopper, and having their lower ends terminating directly above the ridge and extended about equidistant on opposite sides thereof, and the filling-blocks secured to the edges of the trough-board and located between the cross-bars, whereby the troughs are widened and the cross-bars steadied and prevented from lateral displacement.

351,490. MACHINE FOR FOLDING SHEET METAL. Charles Bromacher, Tarrytown, N. Y. Filed June 12, 1886. (No model.)



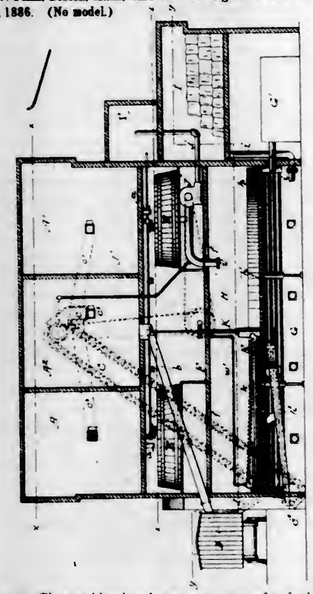
Claim.—1. In a machine for folding sheet metal, the combination, with a plate around the edge of which the sheet metal has to be folded, of a folding-bar, a clamp, a swinging frame by which the folding-bar and clamp are supported, and a yielding support for the frame, substantially as specified.

2. In a machine for folding sheet metal, the combination, with a plate around the edge of which sheet metal is to be folded, of a folding-bar, a clamp, a swinging frame by which the folding-bar and clamp are supported, another swinging frame forming a support for the first swinging frame, and a spring or springs for sustaining the last said swinging frame, substantially as specified.

3. In a machine for folding sheet metal, the combination, with a plate around the edge of which the sheet metal is to be folded, of a folding-bar, a clamp, a swinging frame by which the clamp is supported and in which the folding-bar is journaled, another swinging frame forming a support for the first swinging frame, screws for adjusting the last said swinging frame, and springs upon which these screws impinge, substantially as specified.

4. In a machine for folding sheet metal, the combination, with a gage provided with an extension constituting a guide, of a lever, a link connecting the lever and gage, and a lock for locking the lever in position to secure the gage, substantially as specified.

351,491. MACHINERY FOR MAKING MALT. James O. Brown and John W. Free, Boston, Mass.; said Brown assignor to said Free. Filed Mar. 1, 1886. (No model.)

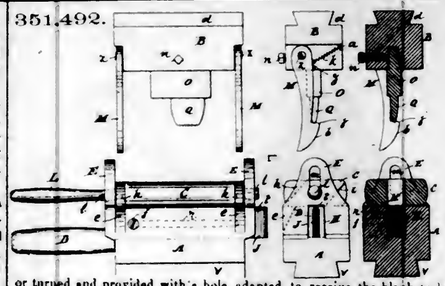


Claim.—1. The combination, in one apparatus, of a single elevator with two supply-chutes, A^3 *d*, delivering into one pocket, c^4, and with one pocket, c^3, delivering into two or more delivery-chutes, c' c^3 c^3, which delivery-chutes are on the highest level of the apparatus, with a series of elevated soaking-tubs, E, upon the middle floors of the apparatus, and with the couching-floor beneath said elevated soaking-tubs E, and with a sprouting or drying chamber, H, having combined therewith appropriate sources of supply for hot and cold air, and proper means for the circulation thereof through the chamber, and with a revolving stirring-blade, *k*, substantially as described.

2. The revolving stirring-blade *k*, placed upon an incline to the floor of the chamber H, and formed with teeth upon its back and upper edge, which teeth are curved upward and forward from the general slope of said blade *k*, substantially as and for the purposes described.

3. The combination of the elevator-pocket *c* with the malt-chamber A^3 and the grain-chambers A A' by the chutes c' c^3 c^3, and with the single elevator-belt C, single pocket c^4, grain-chutes *d*, and malt-chute h^3, substantially as and for the purpose described.

351,492. DIE FOR MAKING AXES. Andrew Beutle and Andrew Siegel, Hyde Park, Mass. Filed Mar. 29, 1886. (No model.)



Claim.—1. In a device for punching or forming the eye of an ax or similar article, the combination of the following instrumentalities, to wit: a bed-die provided with a stripper and a movable die provided with a punch and hook or hooks, the stripper being adapted to be revolved or turned and provided with a hole adapted to receive the blank to be punched, said hole conforming approximately in shape with the shape of the finished ax or other article, the hook or hooks adapted to engage the stripper as the movable die rises, and turn the stripper and blank, substantially as and for the purpose set forth.

2. In a device for punching or forming the eye of an ax or similar article, the combination of a bed-die provided with a stripper and a cutter and a movable die provided with a punch, a follower, and a hook or hooks, the stripper being adapted to be revolved or turned and provided with a hole adapted to receive the blank to be punched, said hole conforming approximately in shape with the shape of the finished ax or other article, the hook or hooks adapted to engage the stripper as the movable die rises, and turn the stripper and blank, the follower adapted to force the blank against the cutter and cut or form a groove or slot in its blade portion for receiving the steel, and the plunger adapted to expel the blank from the die after the eye has been punched and the groove formed for receiving the steel, substantially as described.

3. In a device for punching or forming the eye of an ax or similar article, the combination of a bed-die provided with a stripper, a cutter, and a plunger, and a movable die provided with a punch, a follower, and a hook or hooks, the stripper being adapted to be revolved or turned and provided with a hole adapted to receive the blank to be punched, said hole conforming approximately in shape with the shape of the finished ax or other article, the hook or hooks adapted to engage the stripper as the movable die rises, and turn the stripper and blank, the follower adapted to force the blank against the cutter and cut or form a groove or slot in its blade portion for receiving the steel, and the plunger adapted to expel the blank from the die after the eye has been punched and the groove formed for receiving the steel, substantially as described.

4. In a device for punching or forming the eye of an ax or similar article, the combination of the bed-die A, provided with the stripper C, having the hole N, and the movable die B, provided with the punch Q, said stripper being adapted to be revolved, substantially as set forth.

5. In a device for punching or forming the eye of an ax or similar article, the die B, provided with the punch Q and hooks M, in combination with the die A, provided with the stripper C, having the hole N, said stripper being adapted to be revolved by the hooks, substantially as described.

6. In a device for punching or forming the eye of an ax or similar article, the combination of the die A, provided with the groove H, the plunger D, provided with the cutter J, the stripper C, provided with the hole N, and the die B, provided with the punch Q and follower O, substantially as set forth.

7. In a device for punching or forming the eye of an ax or similar article, the combination of the die A, provided with the groove H, the plunger D, provided with the cutter J, the stripper C, provided with the hole N, and the die B, provided with the punch Q, follower O, and hooks M, substantially as described.

8. In a device for punching or forming the eye of an ax or similar article, a bed-die and a plunger, said plunger being provided with a cutter adapted to cut or form the slot or groove in the blank for receiving the steel, in combination with a follower adapted to force the blank against said cutter to form said groove, said plunger being also adapted to expel the blank from the die after the groove is formed, substantially as and for the purpose set forth.

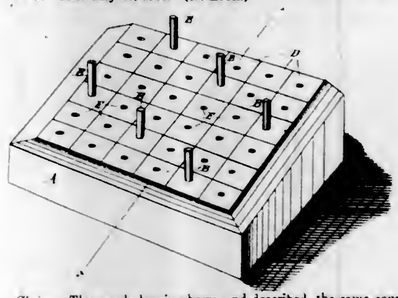
9. In a device for punching or forming the eye of an ax or similar article, the revolving stripper C, provided with the hole N and inclines *i h*, in combination with a bed-die, the die B, punch Q, and hooks M, substantially as described.

10. In a device for punching or forming the eye of an ax or similar article, the die A, provided with the sockets *e*, in combination with the revolving stripper C, die B, and hooks M, whereby said hooks are aided in engaging said stripper, substantially as set forth.

11. In a device for punching or forming the eye of an ax or similar article, the die A, provided with the groove H, plunger D, and revolving stripper C, having the hole N, in combination with the punch Q and follower O, said groove being wider than said hole, substantially as described.

12. The improved device herein described, the same consisting of the bed-die A, provided with the groove H and standards E, the plunger D, provided with the cutter J, and the die B, provided with the punch Q, follower O, hooks M, and springs *k*, combined and arranged substantially as described.

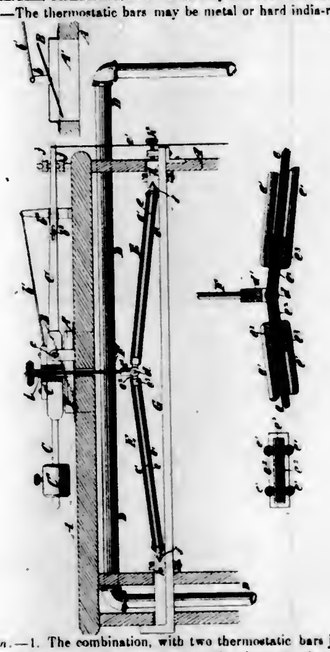
351,493. PUZZLE. Alexander W. Butterworth, Poughkeepsie, N. Y. Filed July 21, 1886. (No model.)



Claim.—The puzzle herein shown and described, the same consisting of a square block marked into thirty-six contiguous squares of equal size, and having a seat for pegs made in each square, substantially as described.

351,494. THERMOSTATIC REGULATOR FOR INCUBATORS. Jas W. Campbell, Germantown, N. Y. Filed May 21, 1886. (No model.)

Brief.—The thermostatic bars may be metal or hard india-rubber.



Claim.—1. The combination, with two thermostatic bars jointed together at the ends and inclined in opposite directions, of a base-piece or rigid support provided with bearings for the outer ends of the bars, one of said bearings being adjustable to vary the inclination of said bars, a balanced beam through which motion is to be transmitted, and a connection between the joint of the thermostatic bars and said beam, substantially as herein described.

2. The composite thermostatic bar herein described, consisting of a flat and thin strip or bar, and strengthening-rods arranged on opposite sides of and extending lengthwise of the strip to prevent its buckling, and having a sliding connection with the strip, so as not to interfere with its extension, substantially as herein set forth.

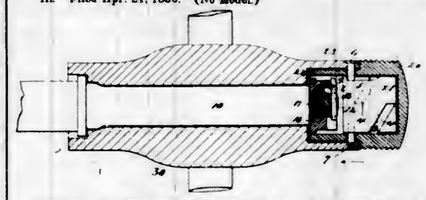
3. The composite thermostatic bar herein described, consisting of a comparatively thin strip, and strengthening-rods extending on opposite sides of and connected at one end with the strip, and a collar or band with which the opposite ends of the rods are connected, and which has a sliding connection with the strip, substantially as herein set forth.

4. The composite thermostatic bar herein described, consisting of the india-rubber strip or bar *e*, fitting a socket, e^2, at one end, and strengthening-rods e', extending on opposite sides of the strip or bar, and rigidly secured thereto at one end, and at the other end secured to the band or collar e^2, sliding upon the socket e^2, substantially as herein set forth.

5. The combination of composite bars jointed together at the end and inclined in opposite directions, each bar consisting of a thin strip having upon each side strengthening-rods which prevent buckling of the strip and have a sliding connection therewith, so as not to interfere with its extension, and a rod or connection whereby motion is transmitted from the joint between the bars, substantially as herein described.

6. The combination, with the thermostatic bars E and a coupling-piece, *d''*, to which they are pivoted at one end, of the beam C, which receives motion by the expansion of the bars, a rod, F, screwed into the coupling-piece *d''*, to provide for first adjustment, and the screw *i*, on which the end of the rod F bears, and which is adjustable in the beam to vary the temperature maintained by the thermostatic bars, substantially as herein described.

351,495. HUB-ATTACHING DEVICE. Walter A. Clark, Chicago, Ill. Filed Apr. 21, 1886. (No model.)

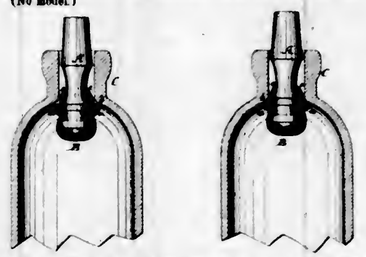


Claim.—1. The combination, with a cap, of a sleeve formed with diagonal and longitudinal slots, a pin fixed to the cap and passing through the diagonal slots of the sleeve, a second pin or bolt passing through the longitudinal slots in the sleeve and through transverse slots in the cap, and a nut arranged to engage with the threaded end of an axle and carrying a catch formed with a heel, 9, the sliding sleeve being arranged to engage with the nut, substantially as described.

2. The combination, with a cap formed with transverse slots 7, of a sliding sleeve formed with diagonal slots 4 and longitudinal slots 5, a pin, 3, fixed within the cap and passing through the diagonal slots of the sleeve, a second pin, 6, passing through the slots 7 and 5, a torsional spring, 8, a nut, 16, having a catch, 13, pivotally mounted in a slot formed in the head of the nut, the catch 13 being formed with an outwardly-extending heel, 9, and a spring, 2, arranged in connection with the catch, substantially as described.

3. The combination, with an axle formed with a slotted end, and its hub, of a nut formed with a catch arranged to enter said end, a sliding sleeve formed with longitudinal and diagonal slots, a cap within which the sleeve is arranged, a pin, 3, fixed to the cap and passing through the diagonal slots in the sleeve, a second pin, 6, fixed to the hub and passing through transverse slots formed in the cap and the longitudinal slots formed in the sleeve, and a torsional spring, 8, fixed to the cap, substantially as described.

351,496. BOTTLE-STOPPER. Joseph Conner, New York, N. Y., assignor to the firm of John Matthews, same place. Filed Mar. 13, 1886. (No model.)

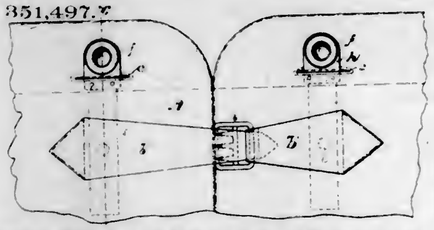


Claim.—The internal bottle-stopper consisting of the stem A and elastic packing B, which surrounds the lower end of said stem, and which has the flexible outwardly-extending peripheral flange *a* and the upwardly-projecting tubular portion *c* above said flange and around the stem, substantially as herein shown and described.

351,497. ELASTIC SUSPENDER-BUTTON FOR PANTS. Francis B. Curtis, East Orange, N. J. Filed June 25, 1886. (No model.)

Claim.—1. The combination, with men's pants perforated at or near the waistband, of suspender-buttons secured on elastic straps, which

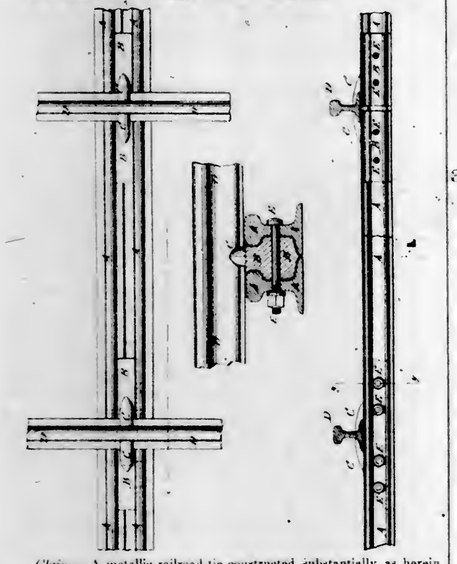
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latter are secured on the inner side of the garment and extend through the perforation to the outer side of the pants, substantially as set forth.

2. The combination, with an elastic strap, *d*, of a plate, *h*, button *f*, and pin or bar *g*, and rivets *n*, all said parts being arranged and combined and adapted to operate in connection with men's pants, substantially as and for the purposes set forth.

351,498. METALLIC RAILROAD-TIE. Ellery C. Davis, Crookston, Minn., assignor to himself, George Watson Lewis, and Milton Van Dyke, all of same place. Filed Apr. 13, 1886. (No model.)



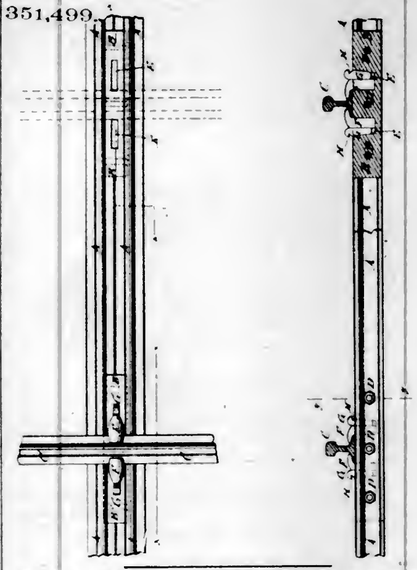
Claim.—A metallic railroad-tie constructed substantially as herein shown and described, and consisting of two parallel bars, A, having a channel between them, the blocks B, fitted into the said channel and provided with hook projections C, to fit upon the base-flanges of the rails, and the bolts E, securing the said blocks to the said bars, whereby railroad-rails can be readily secured to the said ties and will be held securely in place, as set forth.

351,499. METALLIC RAILROAD-TIE. Ellery C. Davis, Crookston, Minn., assignor to himself, George Watson Lewis, and Milton Van Dyke, all of same place. Filed April 13, 1886. (No model.)

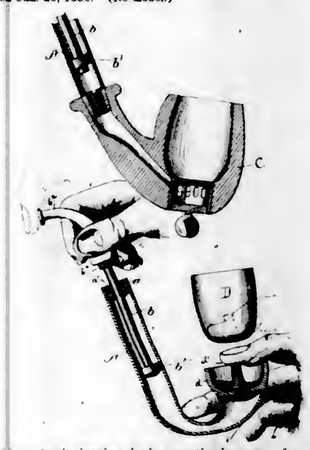
Claim.—1. The combination, with two parallel bars, of two recessed spacing-blocks secured between said bars, as specified, and spikes and wedges adapted to the recesses of the spacing-blocks, substantially as shown and described, and for the purposes set forth.

2. In a metallic railroad-tie, the combination, with the parallel bars A, of the blocks B, secured to and between the said bars by bolts D, and provided with pairs of recesses E, and the spikes F and keys G, driven into the said recesses, substantially as herein shown and described, whereby the said rails can be readily leveled when thrown out of level by the frost, and will be securely held in place, as set forth.





351,500. PIPE-CLEANING DEVICE. William H. Degges, Washington, D. C., assignor of three-fourths to Edward W. Creecy, same place. Filed Jan. 20, 1886. (No model.)



Claim.—1. A cleaning device constituting part of a tobacco-smoking implement, consisting of a stem a portion of which is in the form of a piston, whereby liquid may be drawn in and expelled for the purpose of cleansing, substantially as set forth.

2. A cleansing device constituting part of a tobacco-smoking implement, and consisting of a stem having an internal hollow portion provided with a piston, whereby passage for the smoke and means for sucking in and ejecting liquid are formed, substantially as described.

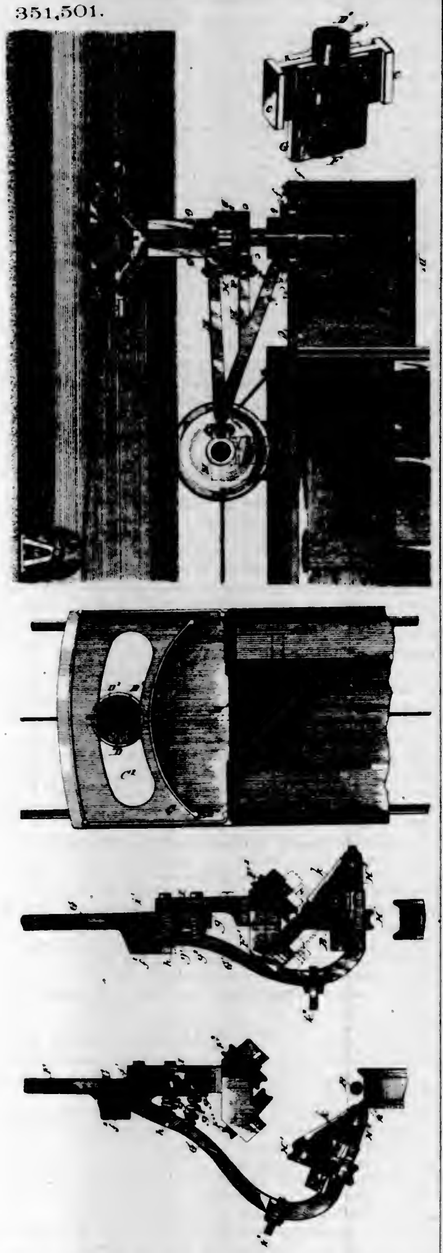
3. A cleaning device constituting part of a tobacco-smoking implement, and consisting of a stem provided with an internal hollow portion bearing a piston and having a mouth-piece formed with or attached thereto, substantially as described.

351,501. GRIPPING DEVICE FOR CABLE RAILWAYS. Fred G. Dieterich, Washington, D. C. Filed June 24, 1886. (No model.)

Claim.—1. A street-car having a curved slot in its front platform, in combination with a draft-bar connected to the front axle, and gripping devices fastened to the draft-bar and arranged to oscillate in said slot in the platform, substantially as shown and described.

2. A street-car having a curved slot in its front platform, and a guard-rail, C', beside it, in combination with a draft-bar connected to the front axle, and gripping devices connected to the draft-bar and arranged to oscillate in said slot, substantially as and for the purpose set forth.

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3. The laterally-adjustable capstan having gripping devices working centrally through the same, in combination with the car having a slot in its platform in which said capstan is guided, and draft-connections, substantially as shown and described.

4. The combination of the internally and externally threaded sleeve D', the concentric threaded shaft D^2, the internally-threaded and laterally-adjustable capstan, the shank-bars G G, carrying lower gripper-section and swiveled to the sleeve D', and the shank-bar F, carrying upper gripper-section and swiveled to the central screw-shaft, substantially as and for the purpose described.

5. The concentric screw-shaft and screw-sleeve, combined with the capstan and swiveled below, the one to the connections of the upper gripper-section and the other to the lower gripper-section, substantially as and for the purpose set forth.

6. The combination, with the capstan and the vertically-adjustable gripper mechanism, of a draft-bar connected to the axle of the car and jointed to both the capstan and gripper mechanism, substantially as shown and described.

7. The combination, with a gripper mechanism swiveling about a central vertical axis, of a draft-bar loosely connected to the same in rear of said vertical axis, substantially as shown and described.

8. The combination, with a gripper mechanism swiveling about a vertical central axis, of a draft-bar and a coupling-block connected loosely to the draft-bar by a vertical bolt and having a vertically-sliding connection with the gripping devices, substantially as and for the purpose set forth.

9. The coupling-block H, having an elongated horizontal slot, in combination with the bolt *d*, playing laterally therein, the draft-bar connected to said bolt, and the gripping devices having a vertical sliding adjustment in said block, substantially as shown and described.

10. The reversible gripper, swiveling about a vertical central axis and having the T-shaped flange c on both its front and rear edges, in combination with the grooved draft-block and draft-bar, as and for the purpose set forth and described.

11. The combination, with the laterally-swinging gripper-section, of the vertically-adjustable upper gripper-section and a single adjusting-bar operating upon them both successively by a single movement, substantially as described.

12. The combination, with the laterally-swinging lower gripper-section, of the vertically-adjustable upper gripper-section and a vertically-adjustable bar, F, connected directly to the upper gripper-section, and having bearing-surfaces adapted to strike and deflect the supports of the lower gripper-section, substantially as and for the purpose described.

13. The combination, with the bars G G, of the laterally-swinging bars G' G', carrying the lower gripper-section, one or more springs for holding the lower gripper-section away from the cable, and a vertically-adjustable bar, F, connected to the upper gripper-section, and provided with wings or bearing-surfaces f^2 f^3, adapted to bear against and deflect the bars of the lower gripper-section, as and for the purpose described.

14. The combination, with the bars G, having extension *g*, of the laterally-swinging bars G', hinged above the extension *g* and carrying the lower gripper-section, the spring *g'*, and the headed stop-bolt *h*, as and for the purpose herein described.

15. The combination, with an upper gripper-section, of a laterally-adjustable lower gripper-section, having a central carrying-pulley for the cable, and a pointed and inclined nose for lifting the cable, extending up to the periphery of the carrying-pulley, substantially as and for the purpose described.

16. The combination, with an upper gripper-section, of a laterally-adjustable lower gripper-section having a pointed and inclined nose, with a roller, *k*, arranged upon its inclined surface, as and for the purpose described.

17. The combination, with an upper gripper-section, of a laterally-adjustable lower gripper-section, having a roller, *k*, set about a vertical axis at the point of the nose, substantially as shown and described.

18. The lower gripper-section, having small grip-pulleys at its ends and a middle pulley of large diameter arranged to act alternately as a grip-pulley and as a carrying and supporting pulley for the cable when the car is starting, substantially as shown and described.

19. A cable-gripper consisting of two sections or jaws, the lower section having vertically-set pulleys, and the upper section obliquely-set pulleys, arranged upon opposite sides of the vertical pulleys of the lower section, as and for the purpose described.

20. A cable-gripper consisting of two sections or jaws, made adjustable from each other, the upper section being provided with pulleys that are arranged at different levels to come successively into bearing-contact with the cable to gradually start the car, substantially as shown and described.

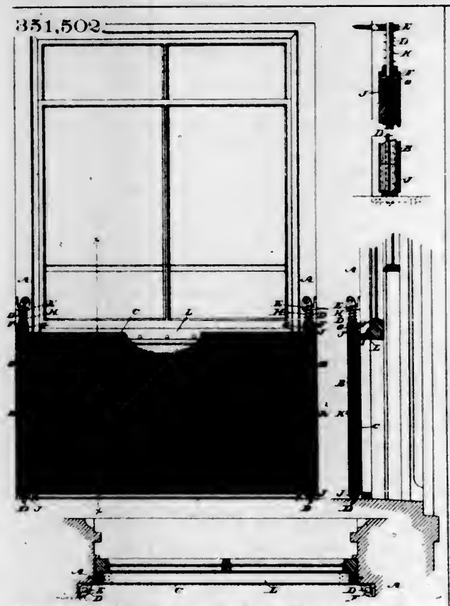
21. The combination, with the capstan and gripper, as described, of the bars K and K', jointed, respectively, to the front and rear axles, and the coupling-blocks H H, loosely connected to said bars and having a vertically-sliding connection with the grippers, substantially as shown and described.

22. The platform L, slotted as described, and disconnected from the car, in combination with the capstan and gripping mechanism playing therein, and the draft-bar connecting the same to the axle of the car, substantially as and for the purpose described.

351,502. INSECT-SCREEN. Tiberias Doogherty, Philadelphia, Pa., assignor of one-half to Henry J. Bergmann, same place. Filed Apr. 8, 1886. (No model.)

Claim.—1. The non-rotating shafts D, having ratchets F, secured so as to be non-rotary thereon, in combination with rollers B, adapted to

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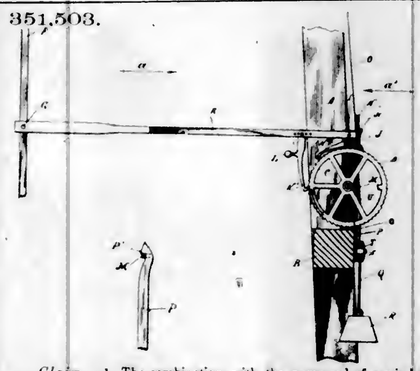
rotate on said shafts, and provided with the ratchets G, adapted for engagement with the ratchets F, and netting C, secured to said rollers, all substantially as and for the purpose set forth.

2. A roller having a non-rotating shaft passed freely through the same, a ratchet secured to said roller and rotating therewith, and a non-rotating ratchet fitted on said shaft so as to slide thereon and engage with the rotating ratchet, said parts being combined with netting attached to the roller, substantially as and for the purpose set forth.

3. The fixed bracket E, having an angular opening, in combination with the shaft D, having an angular upper end, the ratchet F, sliding on said shaft D, the ratchet G, detachably secured to the roller B, and the roller B, having netting C attached thereto, substantially as and for the purpose set forth.

4. Netting, in combination with a roller provided with a ratchet, a shaft passed freely through the roller and ratchet, a non-rotating ratchet fitted on said shaft and sliding thereon, a spring bearing against the latter ratchet, the two ratchets being in contact, substantially as and for the purpose set forth.

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Claim.—1. The combination, with the pump-rod of a windmill, the cord by means of which the wind-wheel of the mill may be drawn out of the wind, and a weight or its described equivalent connected with the cord and sufficient to draw the wind-wheel out of the wind, of a support for the weight independent of the cord, and mechanism connected with the pump-rod and adapted to release the weight from its support, whereby the motion of the pump-rod releases the weight, actuates the cord, and draws the wind-wheel out of the wind.

2. The combination, with the reciprocating pump-rod of a windmill, the cord by means of which the wind-wheel of the mill may be drawn out of the wind, and a weight or its described equivalent connected with cord and adapted to actuate the same, of a support for the weight independent of the cord, mechanism connected with the pump-rod and adapted to convert its reciprocal into rotary motion, and mechanism connected with the converting device and adapted to release the weight from its support, whereby the operation of the converting device releases the weight, actuates the cord, and draws the wind-wheel out of the wind.

3. The combination, with the reciprocating pump-rod of a windmill, the cord by means of which the wind-wheel of the mill may be drawn out of the wind, and a weight or its equivalent connected with the cord and adapted to actuate the same, of a support for the weight independent of the cord, a rotating ratchet-wheel, a pawl connected with the pump-rod and engaging with said ratchet-wheel, whereby the reciprocal motion of the pump-rod rotates the ratchet-wheel, and mechanism connected with and actuated by said ratchet-wheel, whereby a given rotation of the ratchet-wheel releases the weight from its support, and actuates the cord.

4. The combination, with the reciprocating pump-rod of a windmill, the cord by means of which the wind-wheel of the mill may be drawn out of the wind, and the weight or its described equivalent connected with the cord, and adapted to actuate the same, of a support for the weight independent of the cord, means connected with the pump-rod, and adapted to convert its reciprocal into rotary motion, and mechanism whereby the motion of said converting device may release said weight from its support, said releasing device being adjustable with reference to the point of support of said weight, whereby the amount of motion of said converting device required to release said weight may be varied at will.

5. The combination, with the reciprocating pump-rod of a windmill, the cord by means of which the wind-wheel of the mill may be drawn out of the wind, and a weight or its equivalent connected with the cord and adapted to actuate the same, of a support for the weight independent of the cord, a ratchet-wheel, a pawl connected with the pump-rod and engaging the ratchet-wheel, whereby the reciprocal motion of the pump-rod rotates the ratchet-wheel, and mechanism connected with the ratchet-wheel, whereby the rotation of the ratchet-wheel through a given angular space may release the weight from its support, the weight-releasing device being adjustable with reference to the point of support of the weight, whereby the amount of rotation of the ratchet-wheel required to release the weight may be varied at will.

6. The combination, in a mechanism for the purpose set forth, of a pawl-and-ratchet mechanism, or its equivalent, adapted to be connected with the pump-rod of a windmill, and to convert the reciprocal motion thereof into rotary motion, a weight adapted to be connected with and actuate the regulating-cord of the mill, a support for the weight, and mechanism whereby the motion of the pawl-and-ratchet device may release the weight from its support.

7. The combination, with the pump-rod of a windmill, the cord by means of which the wind-wheel of the mill may be drawn out of the wind, and a weight or its equivalent connected with the cord and adapted to actuate the same, of a support for the weight independent of the cord, a pawl-and-ratchet mechanism connected with the pump-rod, and adapted to convert the reciprocal motion thereof into rotary motion, a suitably-journaled shaft receiving rotary motion from said pawl-and-ratchet mechanism, and a tooth or projection rotating in unison with said shaft, and adapted after a given rotation of said shaft to reach the point of support of said weight and disengage the weight from its support.

8. The combination, with the pump-rod of a windmill, the cord by means whereof the wind-wheel of the mill may be drawn out of the wind, and a weight or its equivalent connected with and adapted to actuate the cord, of a support for the weight independent of the cord, a pawl-and-ratchet mechanism connected with the pump-rod and adapted to convert the reciprocal motion thereof into rotary motion, a suitably-journaled shaft receiving rotary motion from said pawl-and-ratchet mechanism, and a tooth or projection rotating with said shaft and adapted, after a given rotation of the shaft, to reach the point of support of the weight and to release the weight from its support, the distance between said tooth or projection being adjustable at will, whereby the amount of rotation of the shaft required to release the weight may be varied.

9. The combination, with the pump-rod of a windmill, the cord by means of which the wind-wheel may be drawn out of the wind, and a weight or spring attached to said cord and sufficient to draw the wind-wheel out of the wind, of means for supporting said weight or spring independently of said cord, a rotating wheel or plate provided with a tooth adapted to disengage said weight or spring from its support, and an intermediate pawl-and-ratchet mechanism, or its equivalent, connected with the pump-rod and the plate, whereby each stroke of the pump-rod shall rotate said plate through a given distance, and a given number of strokes of the rod shall rotate the plate from any given position to that position in which said tooth shall detach said weight or spring from its support and bring it to bear on said cord, and thus throw the wind-wheel out of the wind.

10. The combination, with the pump-rod of a windmill, the cord by which the wind-wheel may be drawn out of the wind, and a weight or spring attached to said cord and sufficient to draw the wind-wheel out of the wind, of means for supporting said weight or spring independently of said cord, a rotating dial adapted upon reaching a certain point in its rotation to disengage said weight or spring from its support, and an intermediate pawl-and-ratchet mechanism, or its equivalent, connected with the pump-rod and the dial, whereby a fixed number of strokes of the pump-rod rotates said dial through an angular space of three hundred and sixty degrees, and a proportionate number of strokes rotates it through the angular space indicated by one of the divisions on the dial.

11. The combination, with the pump-rod of a windmill, the cord by which the wind-wheel may be drawn out of the wind, and a weight or spring attached to said cord and sufficient to draw the wind-wheel out of the wind, of means of supporting said weight or spring independently of said cord, a rotating dial adapted on reaching a certain point in its rotation to disengage said weight or spring from its support, an intermediate pawl-and-ratchet mechanism, or its equivalent, connected with the pump-rod and the dial, whereby a certain number of strokes of the pump-rod rotates the dial through an angular space of three hundred and sixty degrees, and a proportionate number of strokes rotates it through one of the spaces on the dial, and means whereby said dial may be rotated independently of the pawl-and-ratchet mechanism, and thus set in any desired position.

12. The combination, with the pump-rod of a windmill, the cord by means of which the wind-wheel may be drawn out of the wind, and a weight or spring attached to said cord and sufficient to draw the wind-wheel out of the wind, of means for supporting said weight or spring independently of the cord, a rotating dial adapted on reaching a certain point in each rotation to detach said weight or spring from its support and bring it to bear on said cord, a rotating ratchet-wheel, a pawl engaging with said ratchet-wheel and connected with the pump-rod, whereby each stroke of the pump-rod rotates said ratchet-wheel through a given angular space, and means connecting said ratchet-wheel with said dial, whereby the rotation of the ratchet-wheel is communicated to the dial.

13. The combination of the ratchet-wheel D, the pawl K', engaging the ratchet-wheel, and the lever E, connecting the pawl with the pump-rod of a windmill, the weight-supporting hook P', and a support therefor, the dial H, provided with a tooth or lug adapted to disengage the hook from its support, and speed-varying mechanism connecting the ratchet-wheel and the dial, substantially as and for the purpose set forth.

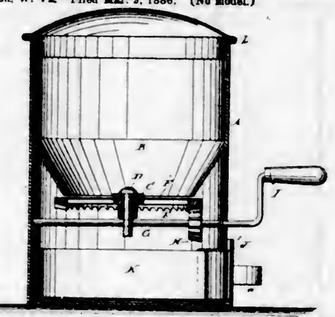
14. The combination, with the pump-rod F, of the shaft i', the ratchet-plate J, mounted rigidly thereon, and the dial H, mounted loosely thereon, the spring-pawl N, connecting the plate J and dial H, and a pawl-and-ratchet mechanism, or its equivalent, adapted to connect the shaft i' with the pump-rod, substantially as and for the purpose set forth.

15. The combination, with the pump-rod F of a windmill, the cord O, by means of which the wind-wheel of the mill may be drawn out of the wind, the pivoted lever T, to which the cord is fastened, the weight R, or its equivalent, attached to the lever, the hook P' and stationary lug M, supporting said lever, the shaft i', adapted, when rotated through a sufficient angular space, to disengage the hook from the lug, and a pawl-and-ratchet mechanism connecting the pump-rod and the shaft i', whereby the reciprocal motion of the pump-rod rotates the shaft i', substantially as and for the purpose set forth.

16. The combination, with the pump-rod F, of the lever E, receiving reciprocal motion from the pump-rod, the ratchet-wheel D and its shaft i, the pawl K', attached to the lever E and engaging the ratchet-wheel D, the worm V, formed on the shaft i, and the toothed wheel I, engaging with the worm, the ratchet-plate J, rotating with the wheel I, the dial H, and the spring-pawl N, connecting the plate J and the dial, substantially as and for the purpose set forth.

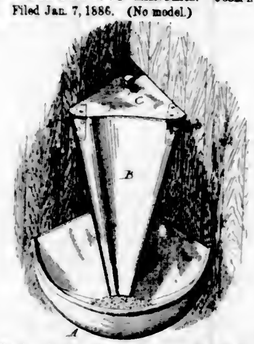
351,503. (Duplicate entry.)

351,504. FLOUR CHEST AND SIFTER. Hiram G. Filson, New Cumberland, W. Va. Filed Mar. 9, 1886. (No model.)



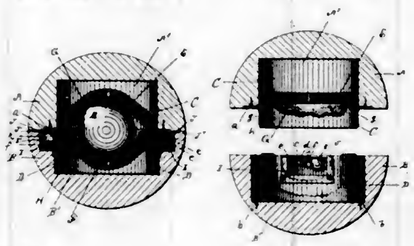
Claim.—A flour chest and sifter comprising the receptacle A, provided with the conical hopper B, the beveled wheel E, and sieve F, carried thereby, the cross-bar C, secured to the hopper and supporting the wheel E, the shaft G, provided with the crank I, and the pinion H, carried by the shaft G and engaging the wheel E, substantially as herein shown and described.

351,505. CHUTE FOR FEED-MANGERS. Joseph W. Fisher, New York, N. Y. Filed Jan. 7, 1886. (No model.)

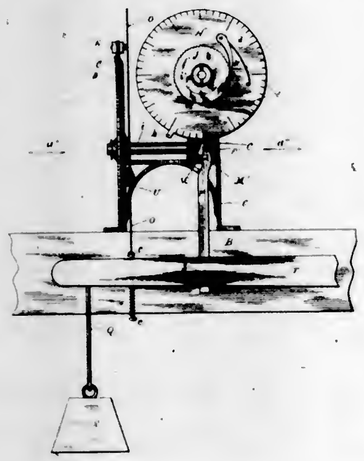


Claim.—The herein-described grain-chute for feed-troughs, consisting of the triangular plate B, having its edges constructed to fit against the wall or walls of the stall and of the feed-trough, and having its central front portion flattened or made slightly concave, substantially as shown, whereby it is adapted for use in connection with the ordinary feed-troughs already in use.

351,506. CASH-CARRIER. Joseph W. Flagg and Charles R. B. Claflin, Jr., Worcester, Mass.; said Claflin assignor to said Flagg. Filed May 27, 1886. (No model.)



351,508. WINDMILL-REGULATOR. Henry L. Ferris, Harvard, Ill. Filed Jan. 24, 1885. (No model.)



Claim.—1. In a cash-carrier, the combination, with the two hemispheres having recesses in each to receive the cash and springs placed in each recess to center the cash in the carrier, of a flexible expansible diaphragm attached at its edge to the hemisphere and resting on the cash-supporting spring, substantially as described.

2. In a cash-carrier, the combination, with the hemispheres having recesses therein to receive the cash, of helical springs attached by their outer coils to the hemispheres, said springs extending across the cash-holding recesses with their inner ends free, substantially as described.

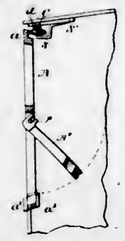
3. In a cash-carrier, the combination, with the hemispheres having cash-holding recesses, of helical springs attached by their outer coils to the hemispheres and extending across the cash-holding recesses, and flexible expansible diaphragms attached at their edges to the hemispheres and resting on said helical springs.

4. In a cash-carrier, the combination, with the two hemisheres, one of said hemispheres having a tube grooved on its outer surface, of a ball sliding in ways placed obliquely to said grooved tube, and an impelling-spring by which said ball is forced into said groove, as and for the purpose set forth.

5. In a cash-carrier, the combination, with the two hemispheres, one of said hemispheres having a tube grooved on its outer surface attached to the plane surface of the hemisphere and the opposite hemisphere having a recess to receive said grooved tube, of a ball adapted to engage the groove in said tube, a spring acting on said ball to force it forward, and an inclined surface along which said ball is moved by the spring and by which it is carried toward the grooved tube, as and for the purpose set forth.

6. In a cash-carrier, the combination, with the two hemispheres having recesses to receive the cash, of the tube C, ball K, springs *e e*, and inclined surface 1', as described.

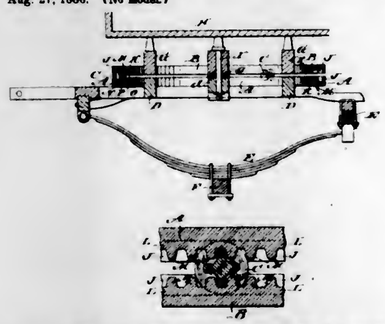
351,507. GRATE. Albert L. Goodenow, Utica, N. Y. Filed Apr. 25, 1884. (No model.)



Claim.—1. The combination, with the ash-pit base having dovetailed flanges on its inner walls, of the supporting-brackets fitted therein and the anti-friction rollers mounted on the brackets, and a grate mounted on said roller, substantially as and for the purpose set forth.

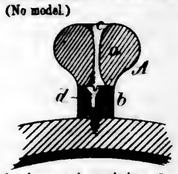
2. The combination, with the ash-pit having dovetailed flanges on its inner walls, of the supporting-brackets fitted thereto, anti-friction rollers mounted thereon to be rotated, and the collar on the bracket between the roll and the wall of the ash-pit for keeping the anti-friction rolls in place, and the grate mounted on said rolls, substantially as and for the purpose set forth.

351,508. FIFTH-WHEEL. Henry Hafker, New York, N. Y. Filed Aug. 27, 1886. (No model.)



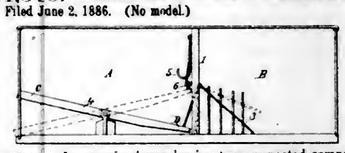
Claim.—The combination, in a fifth-wheel, with the upper and lower ring-plates formed with grooves in their adjacent faces, and opposite toothed ribs or racks within said grooves, of two disks running in said grooves and connected by the toothed shanks which engage the said racks, substantially as set forth.

351,509. FURNITURE-PAD. William H. Herts, Hazelton, Pa. Filed Jan. 5, 1886. (No model.)



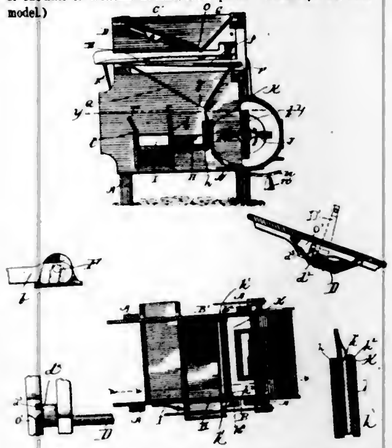
Claim.—The furniture-pad consisting of a soft-rubber top or outer portion and a hard-rubber base, the same being centrally apertured to receive a securing-screw or fastening, and a driver for driving the screw or fastening into the article to which the pad is to be attached, substantially as herein shown and described.

351,510. ANIMAL-TRAP. Charles A. Holland, Shoe Heel, N. C. Filed June 2, 1886. (No model.)



Claim.—In an animal-trap having two connected compartments, a pivoted gravity-platform mounted in the outer compartment and swinging down by the opening in the partition-wall, a stop on the bait-holder, which normally engages and holds the platform in its upper or set position, and a gate pivoted above the opening between the two sections of the trap, and having a projecting arm, which swings through such opening and engages the gravity-platform, retaining it in its lower position until released by the opening of the gate, all combined as set forth.

351,511. FANNING-MILL. John A. Ingram, Canton, Kans., assignor of one-half to William B. Kile, same place. Filed Apr. 24, 1886. (No model.)

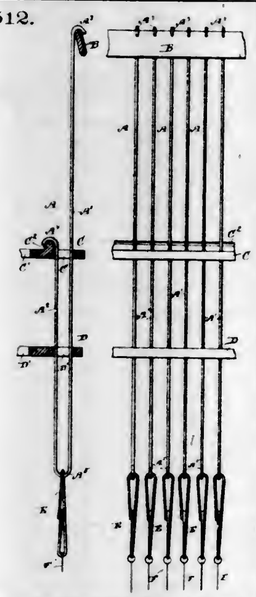


Claim.—1. The combination of the shaking screen, the hopper beneath said screen, having a discharge-opening, compartments located beneath the hopper in the rear of the discharge-opening, a slide for regulating the space between the opening in the bottom of the hopper and the front wall of the nearer compartment, a fan, and a fan-case having a hinged section provided with a graduated weighted arm secured thereto and projecting beyond its hinge, substantially as and for the purpose set forth.

2. A fanning-mill comprising a hopper, a shaking screen located beneath it, a second hopper, G, arranged beneath the screen and having a discharge-opening, a series of compartments located beneath the hopper G, in rear of its discharge-opening, and discharging at opposite sides of the machine, a fan located in front of the compartments, the slide for regulating the space between the openings in the bottom of hopper and the front wall of the nearer compartment, the rack-and-pinion shaft operating the cut-off, and the valves pivoted upon the tops of the rear walls of the compartments, as and for the purpose described.

351,512. JACQUARD MACHINE. James Jackson, Paterson, N. J. Filed Feb. 20, 1886. (No model.)

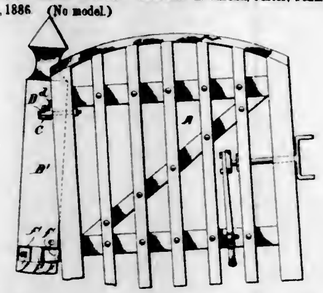
351,512.



Claim.—1. The combination, with the hooks A, of the detachable collets E, formed of spring-wires overlapped at their ends to receive between them the bends of the hooks, substantially as set forth.

2. The combination, with the hooks A and the threads F, having loops on their upper ends, of the detachable collets E, formed of twisted spring-wires, having their ends overlapped intermediate the ends of the collets to form openings through which the bends of the hooks and the loops of the thread may be passed, substantially as shown and described.

351,513. GATE-HINGE. Andrew E. Jenter, Jester, Tenn. Filed Aug. 9, 1886. (No model.)

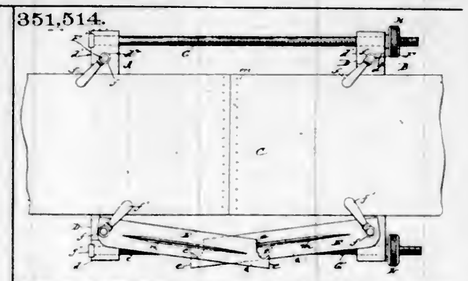


Claim.—The combination, with the gate-post and the gate hinged thereto at its upper end, of a casting having a raised portion and flanges extending laterally on each side of the raised portion, secured near the lower end of the post, and a plate fastened to the batten of the gate opposite the casting, and provided with arms to embrace the sides of the raised portion and engage with the flanges to prevent vertical displacement of the gate, substantially as and for the purposes set forth.

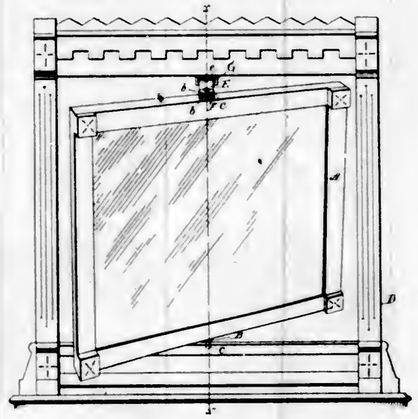
351,514. BELT-CLAMP. John W. P. Johnson, Gardiner, Me. Filed July 3, 1886. (No model.)

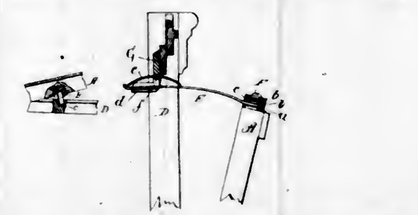
Claim.—In a belt-tightener, the clamps A B, each consisting of a lower section provided at its ends with the enlarged perforated lugs, one of said lugs having the inclined inner side, d^2, the threaded studs F F', affixed to the lower section and arranged in close proximity to the inner sides of the enlarged lugs thereof, the upper section permanently connected at one end to one of the studs, F', and having the inclined free end *e e'*, adapted to come in contact with the inclined side d^2 of one of the lugs and the stud F, and the binding-nuts fitted on the studs and having the integral handles, and adapted to impinge upon the upper section and clamp the sections upon one end of a belt, in combination with the threaded rods passing through and connecting the clamps, the threaded toothed nuts traveling on the rods, and the levers carrying the pawls for feeding the nuts, substantially as described, for the purpose set forth.

351,514.



351,515. MIRROR-FRAME. George Jones and Herman W. Trogner, Williamsport, Pa. Filed July 30, 1886. (No model.)





Claim.—1. The combination, with an outside supporting-frame, of a mirror-frame having its bottom bar loosely pivoted to the bottom bar of the outside frame, and a bar having one end pivoted to the top bar of the mirror-frame and held adjustably to slide on the upper bar of the outside frame, substantially as shown and described.

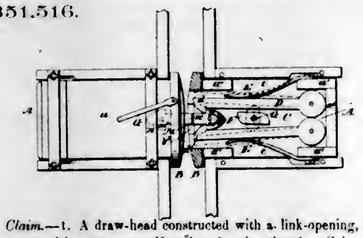
2. The combination, with the mirror-frame A and outside supporting-frame, D, of the curved bar E, pivotally connected with the mirror-frame A, and the casting G, adapted to receive the bar E, and provided with the spring *e*, substantially as shown and described.

3. The combination, with the mirror-frame A and outside supporting-frame, D, of the curved bar E, pivotally connected with the top of the mirror-frame, the casting G, provided with the inwardly-projecting lips *d* and stud *f*, the centrally-apertured spring *e*, received on the stud *f*, and the loose pivot formed of the pin C and socket B, substantially as shown and described,

4. The combination, with the mirror-frame A and outside supporting-frame, D, of the curved bar E, pivotally connected with the top of the mirror-frame, the casting G, provided with the inwardly-projecting lips *d* and stud *f*, the centrally-apertured spring *e*, received on the stud *f*, the metal washers *b b* and elastic washer *c*, and the loose pivot formed of the pin C and socket B, substantially as described.

351,516. CAR-COUPLING. John P. Ketteringham, Natchez, Miss., assignor to himself and Louis Botto, same place. Filed Sept. 2, 1886. (No model.)

351,516.

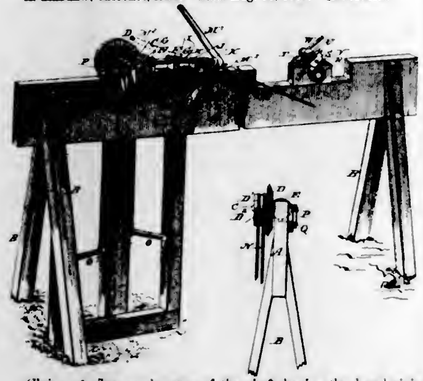


Claim.—1. A draw-head constructed with a link-opening, *b'*, having upper and lower recesses *b²*, and an interior chamber, C, having side recesses, *c*, and provided with pivoted coupling-bars D, having integral coupling-hooks *d*, the springs E, cam F, and an angular lever, G, adapted to operate said pivoted coupling-bars, substantially as shown and described, and for the purpose herein set forth.

2. The combination, with a draw-head constructed with a link-opening, *b'*, having recesses *b²*, and interior chamber, C, provided with side recesses, *c*, and coupling-bars D, pivoted in said chamber, the springs E, cam F, and angular lever G, together with means for operating said coupling-bars, of the link M, provided with arrow-heads *m*, having pin-holes *m²* therein, and central projections, *m'*, substantially as shown and described, and for the purposes herein set forth.

3. The link M, constructed with a square body having central projections, *m'*, upon two sides thereof in the same plane, together with arrow-headed ends *m*, having pin-holes *m²* therein, substantially as shown and described, and for the purposes herein set forth.

351,517. MACHINE FOR MAKING WIRE BALE-TIES. William A. Laidlaw, Cherokee, Kans. Filed Aug. 18, 1886. (No model.)



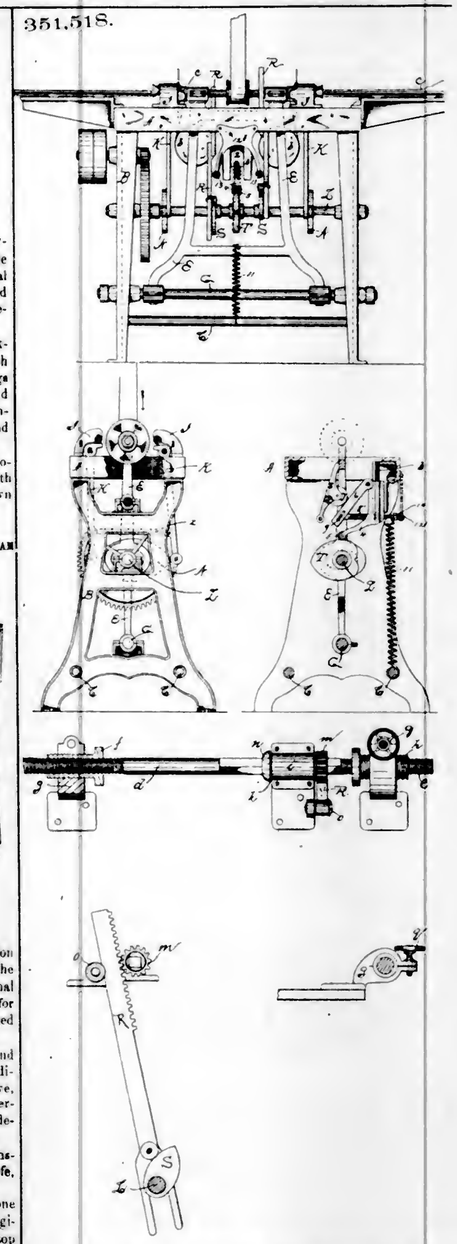
Claim.—1. The combination of the shaft having the bevel-pinion at one end and formed at its other end with the transverse notch and the longitudinal shoulders and projection, the block having the longitudinal top groove, the bevel-wheel, and means, substantially as described, for rotating the same in either direction, and the bifurcated lever, arranged as described, substantially as set forth.

2. The combination of the shaft having the bevel-pinion at one end and formed at its other end with the transverse notch and the longitudinal shoulders and projection, the block having the longitudinal top groove, the bevel-wheel having the hub formed with the annular groove, the operating-cords, and the treadles, and the bifurcated lever, arranged as described, and having the curved notches in its rear edges, as set forth.

3. The combination of the roller, the cam mounted on the transverse shaft and having the roughened curved face, the adjustable knife, and the lever for rotating the said transverse shaft.

4. The combination, with the shaft having the bevel-pinion at one end, and formed at its other end with the transverse notch and the longitudinal shoulders and projection, the block having the longitudinal top groove, the bevel-wheel having the hub formed with the annular groove, the operating-cords, and the tradles, and having at the end of its shaft the short arm engaging with the stop, and the bifurcated lever, arranged as described, and having the curved notches in its rear edges, of the roller, the cam mounted on the transverse shaft, and having the roughened curved face, the adjustable knife, and the lever for rotating the said transverse shaft, all constructed and arranged to operate in the manner and for the purpose herein set forth.

351,518. AUTOMATIC SAWING-OFF MACHINE. J. Henry Morrison, Norwich, Conn., assignor to the Allen Spool and Printing Company same place. Filed Nov. 20, 1885. (No model.)



Claim.—1. In combination with the oscillating frame E, having secured thereto the frame S, carrying pulley 7, a frame supported in suitable ways and capable of vertical movement, as described, means, substantially as described, for imparting a vertical reciprocating movement to said frame, a spring tension device for holding said frame in engagement with its operating mechanism, and an inclined plane hinged to said vertically-moving frame, adapted to engage pulley 7, and capable of adjustment to vary the inclination or angle, as described, and for the object specified.

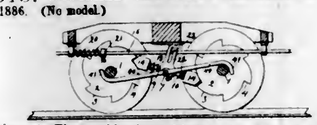
2. The shaft G, the oscillating frame E, carrying a saw-arbor and saws, as described, and having secured thereto frame S, carrying pulley 7, a frame capable of vertical reciprocating movement, and provided with an inclined plane which engages pulley 7, means, substantially as described, for moving said inclined plane up and down, and a spring tension device which acts to hold pulley 7 in engagement with said inclined plane, all being combined substantially as herein described, and for the purpose specified.

3. In combination with means, substantially as herein described, for feeding, holding, and sawing wooden rods, gage-rods *d e*, located between and in longitudinal alignment with the holding mechanisms, and supported at one end in threaded bearings, as described, a pinion having an angular central opening adapted to receive the correspondingly-shaped inner ends of said gage-rods, a rack adapted to engage said pinion, as described, and means, substantially as specified, for moving said rack longitudinally, for the object set forth.

4. In combination with means, substantially as described, for feeding, holding, and sawing wooden rods, gage-rods located between and in longitudinal alignment with the holding mechanism, and supported in threaded thimbles having independent means for longitudinal adjustment, as described, and means, as described, consisting of a pinion, *m*, rack R, and cam S, for operating said gage-rods, all being as and for the objects specified.

5. In combination with means, substantially as described, for feeding and holding wooden rods, pinion-gear *m*, having an elongated hub with square central hole, gage-rods *d e*, having one end squared to enter said square central hole, and the other end threaded, as described, stationary thimbles *f h*, in which said threaded rods may rotate and travel longitudinally, rack R, arranged to engage said pinion-gear, and a cam, S, on the driving-shaft, which at each revolution of said shaft engages and raises said rack, substantially as and for the objects set forth.

351,519. CAR-BRAKE. John Morrow, Philadelphia, Pa. Filed Aug. 28, 1886. (No model.)



Claim.—1. The combination, with the axles of a car having toothed wheels 2 secured thereon, of brake-blocks 9, provided with arms 10, springs 13, and brake-shoes 14, attached to transverse shafts 7, supported in hangers S beneath the car, together with means for operating said brake-block, substantially as shown and described, and for the purpose herein set forth.

2. The combination, with a longitudinal brake-rod, 16, provided with buffers 19 and pin 23, of brake-blocks 9, provided with arms 10, springs 13, and brake-shoes 14, fastened to the same shaft and supported beneath the forward truck, the one block 9 in line with the rod 16, provided also with a slotted projection, 22, adapted to engage the pin 23 on said rod, together with means for operating the brake rod and blocks, substantially as shown and described, and for the purpose herein set forth.

3. The combination, with the steam-cylinder 24, provided with steam-pipe 26, and piston-rod 27, having attached thereto a buffer, 28 of the brake-rod 16, provided with buffers 19 and a pin, 23, the brake-blocks 9 of the forward truck, 5, carrying arms 10, springs 13, and brake-shoes 14, the block in line with said rod, having also a slotted projection, 22, together with the shaft 7 and hangers 8, substantially as shown and described and for the purpose herein set forth.

4. In a car-brake, the combination, with the front and rear trucks having toothed wheels 2 secured to the axles thereof, of brake-blocks 9, provided with arms 10, springs 13, and brake-shoes 14, suspended beneath said trucks at opposite angles and operated in reverse directions, as herein described, whereby the brakes of the rear truck remain inactive when those of the forward truck are applied, substantially as shown and described, and for the purpose set forth.

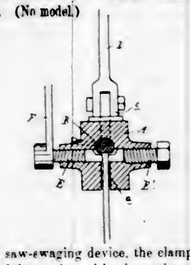
5. A brake block and shoe consisting of the block 9, provided with arms 10, projecting therefrom upon two sides in the same plane, and a spring, 13, encircling said arms, together with brake-shoes 14, provided with angular faces adapted to slide upon said arms 10, substantially as shown and described, and for the purpose herein set forth.

6. In a car-brake, the combination, with a steam-cylinder, 24, provided with steam-inlet pipe 26, and a piston-rod, 27, having attached thereto a buffer, 28, of the longitudinal brake-rod 16, supported beneath the forward and rear trucks by eyes 18, and provided with a spring, 20, and collar 21, substantially as shown and described, and for the purpose herein set forth.

7. In a car-brake, the combination, with the car-axles 1, carrying toothed wheels 2, of the shaft 7, carrying brake-blocks 9, supporting-shoes 14, and bars 40, having oppositely-bent ends 41, substantially as shown and described.

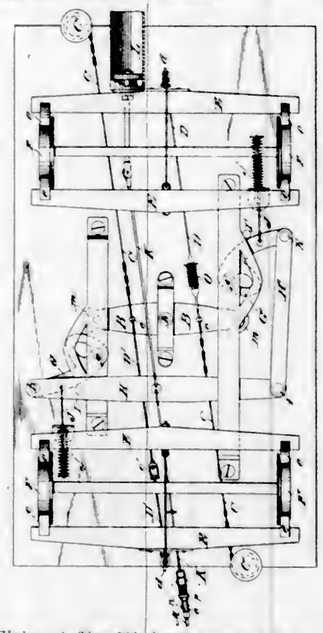
8. A car-brake consisting of a longitudinal rod, 16, suspended beneath the car, provided with a spring, 20, collar 21, and pin 23, a shaft, 7, supported in hangers beneath the forward truck, 5, carrying brake-blocks 9, provided with arms 10, springs 13, and brake-shoes 14, the block 9, in line with said rod, provided with a slotted projection, 22, together with a duplicate construction for the rear truck, 6, operated from the reverse side in an opposite direction, whereby the one set of brakes remain inactive when the other is employed, substantially as shown and described, and for the purpose herein set forth.

351,520. SAW-SWAGE. Bion H. Miller, Bay City, Mich. Filed Sept. 24, 1884. (No model.)



Claim.—In a saw-swaging device, the clamp-screws E E', tapped through the sides of the stock, and having reduced inner ends, substantially as and for the purposes specified.

351,521. STEAM CAR-BRAKE. Alexander S. Nadow, Springfield, Mass. Filed Sept. 2, 1886. (No model.)



Claim.—1. The within-described improved brake mechanism for railway-cars, consisting of a lever, B, hinged centrally at *b*, beneath the car-body, provided with connections D D' upon opposite sides of its hinge to the brake-bars E upon either side, and adapted to, through said connections, operate the brake-shoes *e* upon being vibrated, cam-levers G G', hinged upon opposite sides and upon opposite ends of lever B in the same plane, and adapted to be swung to swing said lever by contact therewith, stops I I', adapted, as shown and described, to hold the cam-levers G G' from movement in one direction, spring-connections *J j* from cam-levers G G', and adapted to bear said cam-levers against the stops I I', levers H H', hinged, respectively, at one of their ends to the cam-levers G G' and at their other ends to each other at i, and adapted, as shown, to cause a motion to lever H to bring one or the other of the cam-levers in operative contact with the lever B as said motion is imparted from one or the other end of the car, and connection K to lever H from the engine, all combined and operating as and for the purpose set forth.

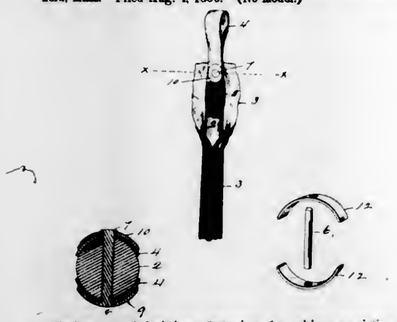
2. In car-brake mechanism, the combination, with a lever, B, adapted, through connections therefrom, to apply the brakes upon being swung, and with a swinging lever, H, directly connected with and re-

ceiving a motion from the engine, of a cam-lever, G, adapted to impart the movement of lever H to lever B, as shown and described, and of configuration adapting it to hold the lever B at the limit of its deflection, while permitting lever H to continue its movement in the same direction, as and for the purpose set forth.

3. In car-brake mechanism, the combination, with a centrally-pivoted lever, B, provided with connections upon each side of its pivot *b* to the brake-bars upon each side, and provided with connections C upon each side of its pivot to the drums C' C', by means of which the brake-bars are operated mannally, of means, as *o'*, in connection D', for adjusting the position of the lever B, in combination with spring-connection D, and connections C, adapted by their drums to be only taken up a determined distance, whereby the shoes *e* are prevented from being manually or by power applied beyond the limit of elasticity of spring O, as and for the purpose set forth.

4. The within-described improved snap-hook for car-brake connections, consisting of the hook M, side walls, *o*, hinge *n*, swinging clasp *p*, and a spring, *r*, arranged to bear the clasp over the recessed shank of the hook M within the walls *o*, all combined and arranged substantially as shown.

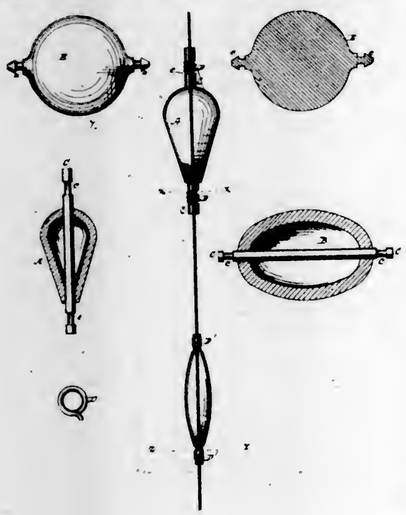
351,522. LASH-LOOP FASTENING. Erastus N. Parker, Springfield, Mass. Filed Aug. 4, 1886. (No model.)



Claim.—1. A lash-loop fastening for whips, consisting of a pin passing transversely through the end of the whip and through the ends of the loop, said pins having on the ends thereof curved washers, between which the end of the whip and said loop-ends are clamped, substantially as set forth.

2. A lash-loop fastening for whips, consisting of a rivet having a curved head, and a shank passing transversely through the end of the whip and through the ends of the loop, and a curved washer secured on the end of said rivet-shank, substantially as set forth.

351,523. FISHING-FLOAT AND CONNECTION THEREFOR. Ernest F. Pflueger, Akron, Ohio. Filed Nov. 30, 1885. (No model.)

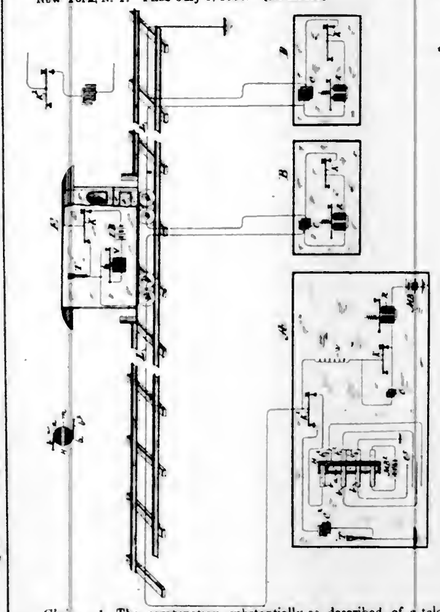


Claim.—1. A float for fishing lines and seines, having projecting from each end a steam having an annular groove, and a coiled spring resting in said groove and encircling said stem, substantially as described.

2. The combination, with a float composed of pressed pulp coated with a water-proof substance, of a stem secured in the axis thereof, the ends of which project beyond said float and are provided with annular grooves for line-fasteners, and elastic line-holding devices resting in said annular grooves, substantially as shown, and for the purpose specified.

3. An attachment for floats for fishing lines and seines, consisting of a coiled-wire fastener resting in an annular recess in the stem of said float and retained by its own elasticity, substantially as shown.

351,524. DUPLEXING RAILWAY-TELEGRAPHS. Lucius J. Phelps, New York, N. Y. Filed July 3, 1886. (No model.)



Claim.—1. The combination, substantially as described, of a telegraph line or circuit, L, provided with apparatus at two or more stations, connected into the direct circuit thereof, condensers shunting said apparatus, and vibration-signal apparatus composed of an accumulator, a generator, a rapidly-operating commutator or vibrator for connecting the accumulator alternately to the generator and to the line, and a transmitting-key controlling the electrical vibrations or pulsations from said accumulator.

2. The combination, with a telegraph line or circuit carried parallel to the path of a vehicle, of two or more stations provided with Morse telegraph apparatus connected into the direct circuit of the line, telegraph apparatus on the vehicle carried in inductive proximity to said line, as described, and at a station connected to said line a generator of electricity, a condenser, the commutator for alternately charging and discharging the condenser, and a key whereby vibration-signals may be put on the line to be taken up therefrom by induction from the vehicle.

3. The combination, substantially as described, of a condenser, a generator of electricity, a commutator for alternately connecting the condenser to the generator to receive a charge and to external circuit to permit it to discharge, and a key or transmitter controlling the circuit, as and for the purpose described.

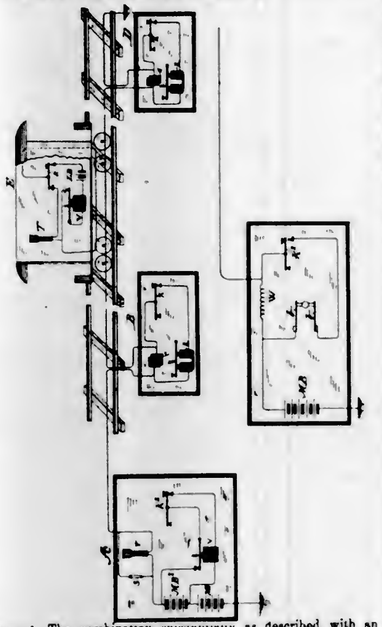
4. The combination, substantially as described, of a generator of electricity, a condenser having conducting surfaces and points for connecting the condenser in multiple arc to the generator, and having also conducting springs or surfaces for connecting the condenser to an external circuit, and a transmitter controlling such external circuit, for the purpose of sending messages by vibration-signals whose elementary portions are made up of a series of discharges from the condenser or accumulator.

5. The combination, substantially as described, with a telegraph line or circuit, L, of telegraph apparatus connected into the direct circuit thereof, a battery, M B, on such circuit, condensers in branches around the transmitters of the telegraph apparatus, a branch connection from said circuit leading to a condenser and commutator, by which the condenser alternately receives a charge from the generator of electricity and is permitted to discharge to the branch, and a key controlling the discharges of the condenser, as and for the purpose described.

6. The combination, substantially as described, of a line carried parallel to a vehicle, apparatus thereon for taking up pulsations or vibrations from the line by induction, a telephone connected with the circuit on the vehicle, and at a station connected with said line a condenser or accumulator, a generator of electricity, a rapidly-operating commutator for charging and discharging the condenser, and a transmitting-key whereby messages may be sent over the circuit by vibration-signals, and may be received upon the vehicle by induction from said circuit.

7. The combination, in a railway-telegraph apparatus, of a line, a vehicle carrying a receiver of vibration-signals, a station connected to the line and provided with a generator of electricity, the condenser or accumulator for rapidly and alternately connecting the condenser or accumulator to the battery and to the line, and a transmitter for controlling the electric discharges from the condenser or accumulator, as and for the purpose described.

351,525. DUPLEXING RAILWAY-TELEGRAPHS. Lucius J. Phelps, New York, N. Y. Filed July 3 1886. (No model.)

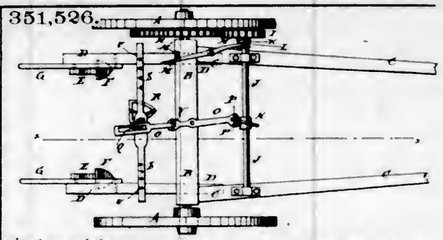


Claim.—1. The combination, substantially as described, with an ordinary telegraph-line, L, and a vehicle-carrying apparatus moving in inductive proximity thereto for transmitting and receiving signals by electrical induction, of two or more stations, B D, equipped with ordinary telegraph apparatus in the direct-line circuit L, a section of battery, M B', or its equivalent, as described, connected to said line, a vibrator, and a transmitting-key for controlling the electrical vibrations produced by the operation of the vibrator and the battery or its equivalent, as set forth.

2. The combination, substantially as described, of a line, L, carried parallel to the path of a vehicle, apparatus on the latter for sending and receiving messages by induction to and from the line, a battery, M B, charging the line-circuit, telegraph transmitting apparatus at two or more stations, B D, connected into the direct-line circuit, condensers shunting said apparatus, a supplemental battery or section of battery, or its equivalent, as described, at a station, A, a vibrator controlling the circuits of the same, and a transmitting-key, K, whereby vibration-signals may be sent to the vehicle over the line L, as and for the purpose described.

351,526. COTTON-CHOPPER. John R. Rector, Salado, Tex. Filed June 8, 1886. (No model.)

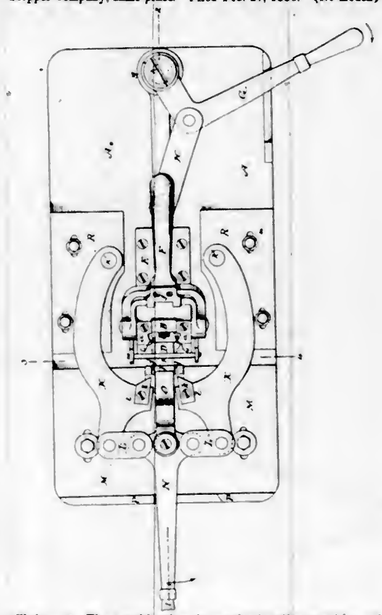
Claim.—1. The combination, with the wheels, axle, shafts, and plow-beams of a cultivator, of the gear-wheels H I, the shaft J, connected with the drive-wheel by the said gear-wheels, the cam-wheel N, attached to the said shaft, the lever O, connected with the said cam-wheel, the lever-handle Q, connected with the said lever and carrying the chopping-hoe, and the cross-bar S, carrying the said lever-handle and connected with the plow-beams, substantially as herein shown and described, whereby the said chopping-hoe will be vibrated by the advance of the machine and can be guided by guiding the plows, as set forth.



2. The combination, with a wheel-cultivator, of a bar adjustably pivoted to the plow-beams, a lever-handle adjustably pivoted to said bar and carrying a chopping-hoe, a shaft journaled on the thills, a cam on the said shaft, a jointed lever pivoted to the axle and engaging the cam and lever handle, and means for operating the said cam-shaft by the forward movement of the cultivator, substantially as herein shown and described.

3. The combination, with the wheels, axle, shafts, and plow-beams of a cultivator, of the bar S, pivoted to the plow-beams, the lever-handle Q, pivoted to the bar, the hoe R on the lower end of the lever-handle, the shaft J, the cam N on said shaft, the jointed lever O, having its forward end forked and its rear end slotted, the gear-wheels H I, the clutch K, the lever M, and the catch M', substantially as herein shown and described.

351,527. MACHINE FOR FORMING WIRE BAILS OF BOTTLE-STOPPERS. John G. Rehfuss, Philadelphia, Pa., assignor to the Joly Stopper Company, same place. Filed Feb. 27, 1886. (No model.)



Claim.—1. The combination, in a wire-bending machine, of a die or former, D, having the recess *d*, with a reciprocating plunger, B, having the projection *b* to bend the wire yoke, substantially as set forth.

2. The combination, in a wire-bending machine, of a former, D, having the recess *d*, with a reciprocating plunger, B, having a projection, *b*, to bend the yoke, and a bending-lever, F, substantially as set forth.

3. The combination, in a wire-bending machine, of a guide-block, A', having guide-pieces *a a*, with a former or die, D, and a reciprocating plunger, B, substantially as set forth.

4. The combination, in a wire-bending machine, of a former or die, D, having a recess, *d*, with a plunger, B, provided with a projection, *b*, and flanges *b'*, having inclined edges, substantially as set forth.

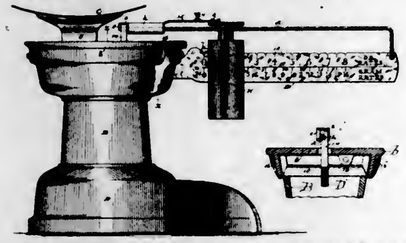
5. The combination, in a wire-bending machine, of a former or die, D, and reciprocating plunger B, with arms K K, having projections *k k*, and plate J, having slots, substantially as specified.

6. The combination, in a wire-bending machine, of a former, reciprocating plunger, and ejector, with a spring, O, substantially as set forth.

7. The combination, in a wire-bending machine, of a former, D, plunger B, arms K K, having projections, and a slotted plate, J, with lever N, and connecting-links L L, substantially as set forth.

8. The combination of a former, D, plunger B, arms K K, having projections, and connected lever N, with slotted plate J, and adjustable plates R and M, as and for the purpose specified.

351,528. SCALE FOR WEIGHING ACCORDING TO TWO STANDARDS. William W. Reynolds, Rutland, Vt. Filed May 26, 1886. (No model.)



Claim.—1. The combination, with the hollow standard B, and the beam D, having the knife-edge pivots 10 resting on bearings on said standard, of the cap-plate *b*, covering said standard, and having ears 16, forming end bearings for the pivots 10, substantially as described.

2. The combination, with the beam D and the poise H, of the auxiliary weight *h*, provided with connections by which it can be attached to and detached from the poise H, the weight *h* being so arranged that when in its innermost position its center of gravity will be in line vertically with the fulcrum-pivots of the beam, substantially as described.

3. The combination, with the beam D and the poise H, of the auxiliary weight *h*, arranged to move on a guide or rod attached to the beam D, and provided with connections by which it can be attached to and detached from the poise H, the weight *h* being so arranged that when in its innermost position its center of gravity will be in the same plane vertically with the fulcrum-pivots of the beam, substantially as described.

4. The combination, with the beam D and the poise H, of the auxiliary weight *h*, arranged to slide upon the rod *d*, located above the beam D, and provided with connections by which it can be attached to and detached from the poise H, the weight *h* being so arranged that when in its innermost position its center of gravity will be in the same plane vertically with the fulcrum-pivots of the beam, substantially as described.

5. The combination, with the beam D and poise H, of the auxiliary weight *h*, arranged to move upon a guide or rod attached to the beam D, and provided with connections by which it can be attached to and detached from the poise H, and also with a lip, 5, by which it can be secured in its innermost position, said weight being so arranged that when in its innermost position it will be in the same plane vertically with the fulcrum-pivots of the beam, substantially as described.

351,529. PENCIL-CLASP FOR WRITING-TABLETS. Arthur D. Schaeffer, Dayton, Ohio. Filed Mar. 25, 1885. (No model.)

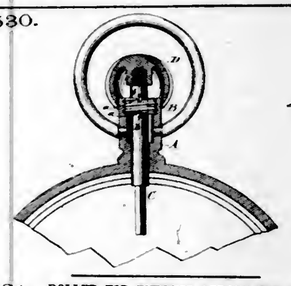


Claim.—In combination with a writing-tablet, a wire pencil-holder consisting of a single wire bent, as at *b'*, and having arms at each side of such bent portion, which bear upon and are secured to the back or cover of the tablet and extend outwardly therefrom, substantially as described.

351,530. PENDANT-STEM FOR WATCHES. Frederick W. Schimmel, Murray, Idaho. Filed Feb. 20, 1886. (No model.)

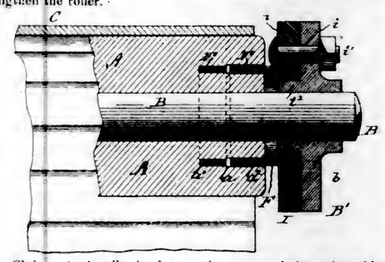
Claim.—The combination, with the internally-threaded pendant A and the stem C, provided with transverse pins *b b'*, of the threaded collar B, fitted to the pendant A and provided in opposite sides thereof with notches *a a'*, for receiving the pins *b b'*, substantially as herein shown and described.

351,530.



351,531. ROLLER FOR ENDLESS APRONS FOR CARDING-MACHINES &c. William Schofield, Philadelphia, Pa. Filed May 29, 1886. (No model.)

Brief.—The object of the construction is to prevent the accumulation of fiber around the journals of the rollers, and incidentally to strengthen the roller.



Claim.—1. A roller having annular recesses in its ends and interior clamping or strengthening bands, in combination with a frame or support having cups or guard-rings F entering said recesses, substantially as set forth.

2. A roller having end recesses, interior clamping-bands, and guard-rings adapted to said recesses, substantially as and for the purpose set forth.

3. The combination of rollers A, having gudgeons or journals B and end recesses, *a*, the roller-frame B', having bearings for said gudgeons, and adjustable bars I, having sleeves or guard-rings F, adapted to recesses *a*, substantially as set forth.

4. In combination with a roller having end journals and recesses, clamping-bands in said recesses, and a frame or support having cups or rings projecting into said recesses, substantially as set forth.

5. In combination with a roller having end recesses of different width in cross-section, clamping-bands in said recesses, and a frame or support having guard-rings for the ends of said rollers, substantially as set forth.

351,532. CAMERA OBSCURA. Frank Sharpe and Harry E. Blake, North Adams, Mass. Filed Oct. 14, 1885. (No model.)

Claim.—1. The combination, with the focusing-slide of the camera, of the exposed mirror and exposed picture-support, both carried by said slide and adjustable in common with it relatively to the lens of the camera, substantially as specified.

2. The combination, with the focusing-slide of the camera, of the exposed mirror and exposed picture-support, both carried by said slide and adjustable in angular relation with each other in front of the lens of the camera, substantially as specified.

3. The picture-support provided with a slotted arm, in combination with the focusing-slide and the mirror-support fitted to turn on said slide by a pivot or bolt arranged to pass therethrough and through the slot in the arm of the picture-support, and provided with a clamping nut or device, whereby both the picture-support and mirror are separately adjustable about a common center and are simultaneously clamped and released, and the distance of the picture-support from the mirror may be varied as required, essentially as specified.

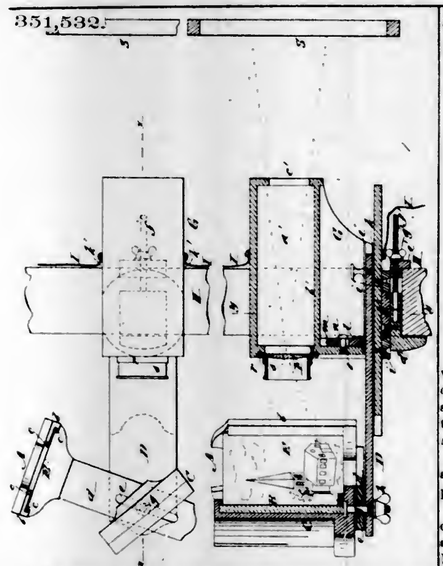
4. The combination, with a camera, of the adjustable picture-support E, provided with a series of opposite side grooves, c c, arranged the one pair in advance of the other and at different widths apart, substantially as and for the purpose specified.

5. The picture-support E, having dots or marks *f* on its face, arranged substantially as described, and for the purpose herein set forth.

6. The flexible packing *k*, in combination with the bottom of the camera-box and the focusing-slide D, essentially as described.

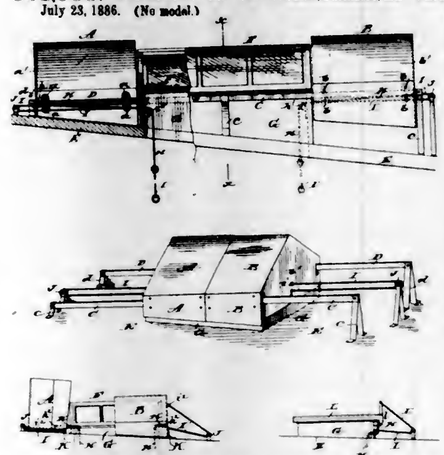
7. The slotted packing *l*, having a padded or flexible lower facing, in combination with the spring *m*, the screw *n*, the camera-box G, and the focusing-slide D, substantially as specified.

351,532.



8. The camera-box provided with a fixed clamping-jaw, *d'*, an adjustable clamping-jaw, *e'*, and a turn-table attachment applied to the fixed jaw and bottom of the box, and adapted to hold the box on said jaw and to provide for the swiveling of the box, essentially as described.

351,533. SKYLIGHT-COVER. Jas. W. Shaw, Baltimore, Md. Filed July 23, 1886. (No model.)

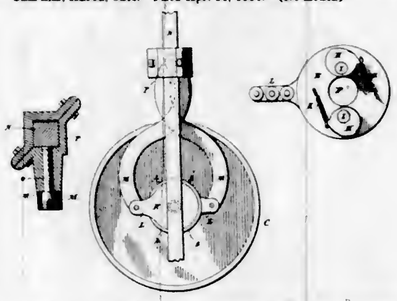


Claim.—1. The combination, with a skylight, of rails at opposite sides thereof, a cover inclosing the sides, ends, and top of the skylight-framing and having rollers embracing the said rails, substantially as set forth.

2. The combination, with the skylight, of supports at opposite sides thereof, rails on said supports, a sectional cover having rollers on the inner faces of its sides receiving the rails between them, the outer ends of the sections being apertured for the passage of the rails, and the operating-cords extending within the building, substantially as set forth.

3. The combination, with the skylight, of the supports *c d*, at opposite sides thereof, the rails C D on the supports, pulleys J, mounted on supports between the end supports, *c d*, the sections A B of the cover having apertures in their onter ends through which the rails pass, rollers *a b*, receiving the rails between them, pulleys *h' i'* on the inner end faces of the skylight, strands I, secured to the ends of the cover-sections, passed around pulleys J J and inward and over pulleys *i'*, and strands H, secured to the ends of the sections and extending inward and over the pulleys *h'*, substantially as set forth.

351,534. DEVICE FOR CONVERTING MOTION. Sylvander C. Shepard, Akron, Ohio. Filed Apr. 10, 1886. (No model.)

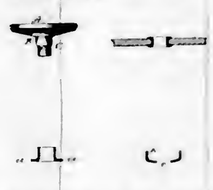


Claim.—1. In a device for converting motion, the combination, with the drum A, having recesses *a a'* on opposite sides, of the plates or heads E, secured at said sides, the pawls H, eccentrically pivoted to said plates and arranged to work in the recesses and engage the walls thereof, the bars M, secured to the arms L of said plates, and the reciprocating bar N, the whole arranged to operate substantially as specified.

2. The combination, with the reciprocating bar N, of the clamp secured to said bar, and the bars M, connected to the arms L of the plates E, substantially as and for the purposes specified.

3. The combination, with the drum A, recessed on opposite sides, of the plates E, having pawls H and arms L, the levers M, adjustably secured to said arms, and the adjustable clamp P and reciprocating bar N, the whole arranged to operate substantially as specified.

351,535. BUTTON-FASTENING. Alfred J. Shipley, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Aug. 9, 1886. (No model.)



Claim.—1. The combination of a button constructed with a tubular shank with an eyelet consisting of a tube the internal diameter of which corresponds to the external diameter of the shank of the button, the eyelet constructed with an annular flange, *a*, at one end, and the metal cap *b*, having a concentric opening, *c*, through it corresponding to the opening through the eyelet and to the end of the tubular shank of the button, the said cap closed over the flange of the eyelet, the eyelet set in the garment, and so as to bring the capped head upon the side opposite the botton, the tubular shank of the button extending through the eyelet and set down upon the cap aroond the said central opening therein, substantially as described.

2. The herein-described eyelet for button-fasteners, consisting of the tube having an annular flange, *a*, at one end, combined with a metal cap, *b*, having a concentric opening, *c*, through it, and the fabric disk *d*, having a like concentric opening, *e*, through it, the said fabric disk and cap closed upon the flange of the eyelet, with the openings *c* of the disk and *c* of the cap corresponding to the interior of the tubular body of the eyelet, substantially as described.

351,536. YARN SEPARATING AND WARPING MACHINE. Joseph Simoneau and Adelard Simoneau, Three Rivers, Mass. Filed Dec. 7, 1885. (No model.)

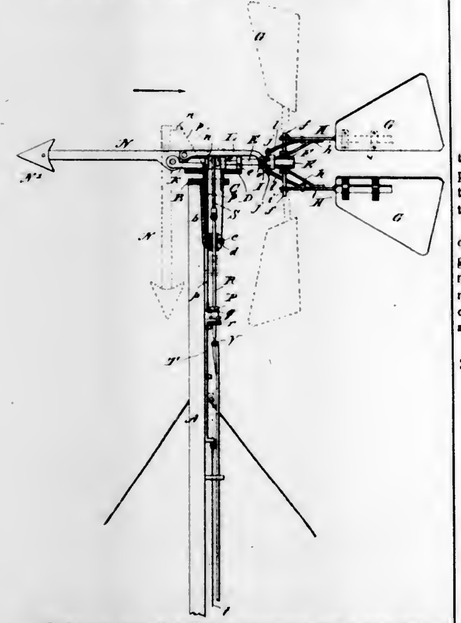
Brief.—The roller-frames which are carried by and are adjustable in a standard between the yarn-reel and warp-beam are provided with rollers, and are adjustable to and from each other and held in the adjusted position by set-screws.

Claim.—A yarn separating and warping machine consisting of the combination, with a yarn-reel and a warp-beam, *h*, of the standard B intermediately between said reel and beam, the roller-support *c'*, having the leg *e*, fitting the groove K in said standard, wherein it is adjustable vertically, the hand-screw S, temporarily connecting said leg to said standard, the roller-frames *d e f*, supported on said roller-support, and three rolls, one hung in each of said frames, and all parallel with said beam, over and under which rolls the warp-yarns pass as they are drawn from said reel, substantially as set forth.

351,536.



351,537. WINDMILL. Samuel S. Simpson, Clay Centre, Kans. Filed Mar. 26, 1886. (No model.)

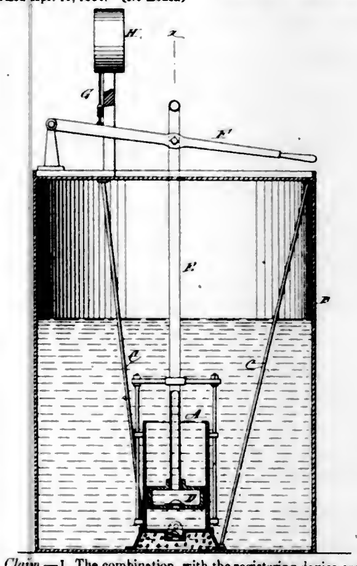


Claim.—1. In a windmill, the combination, with a crank-shaft, of a hub carrying radial arms, floats rigidly secured to arms that are pivotally connected to said radial arms, a sliding collar carrying pins, connecting-links extending from said pins to the float-arms, a lever, and a link extending from said lever to the pin-carrying sliding collar, substantially as described.

2. The combination, with a crank-shaft, of a hub carrying radial arms, floats that are rigidly secured to arms that are pivotally connected to the said radial arms, a sliding collar mounted on the crank-shaft and carrying pins, connecting-links *l*, extending from said pins to the float-arms, a weighted lever, N, a link, L, connecting the lever and the sliding collar, and an operating mechanism consisting, essentially, of a wire extending to the ground and having an interposed swivel-connection.

3. The combination, with the turn-table of a windmill and a shaft mounted thereon, of a hub mounted rigidly on the shaft and provided with radial arms, float-arms pivotally mounted on said radial arms, a sliding collar on said shaft, connections between said collar and the float-arms, and a weighted lever mounted on said turn-table and having its shorter end connected with the sliding collar, substantially as shown and described.

351,538. MEASURING-PUMP. William B. F. Sims, Corydon, Ind. Filed Apr. 19, 1886. (No model.)



Claim.—1. The combination, with the registering device comprising the dial-faced case inclosing a shaft carrying a pointer or index and a pinion geared to a pivoted segment, of the pump piston or head, the tube connected to said piston or head, and the handle connected to said tube and to the registering device, substantially as set forth.

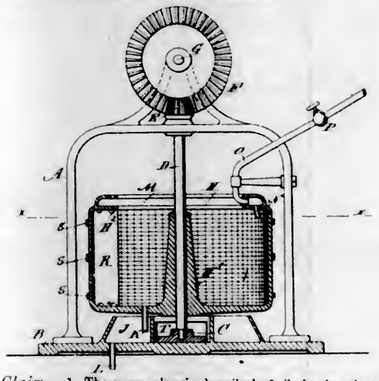
2. The combination, with the registering device comprising the dial-faced case inclosing a shaft carrying a pointer or index and a pinion geared to a pivoted segment, of the pump piston or head, the tube connected to said piston or head, the handle connected to said tube, the connecting-rod attached to the said handle, and the arm connected to said connecting-rod and to the shaft or axis of the said segment, substantially as and for the purpose set forth.

351,539. BAG-FASTENER. William K. Smith, Eaton Rapids, Mich. Filed May 29, 1886. (No model.)



Claim.—As a new article of manufacture, the herein-described bag-fastener, constructed from a single piece of spring-wire bent in the form of a ring, and provided with retaining-points at both ends of the wire, as set forth.

351,540. PROCESS OF EXTRACTING TANNIN FROM WOOD. Edouard Tavernier, Paris, France. Filed Sept. 17, 1885. (No model.) Patented in Germany Oct. 1, 1884, No. 254; in France Nov. 3, 1884, No. 165,140, and in Austria Jan. 1, 1885, No. 34,969.



Claim.—1. The process herein described of eliminating the heavier impurities of a tannin extract from the lighter and purer portion, which consists in separating the heavier impurities by centrifugal action and drawing off the purer and lighter liquid from a point nearer the center of rotation, substantially as set forth.

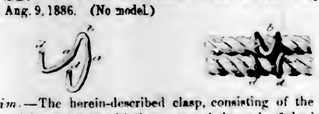
2. A centrifugal machine comprising a revoluble cylinder, provided with an inlet near its upper edge and an outlet in its bottom, near the center thereof, substantially as set forth.

3. A centrifugal machine comprising a revoluble cylinder having an annular chamber opening inward around its upper edge, a supply-pipe leading into said chamber, an outlet-pipe in the bottom of said chamber, leading into the upper part of the cylinder, and an outlet in the bottom of the cylinder, near the center thereof, substantially as set forth.

4. A centrifugal machine having a revolving cylinder, a chamber formed on said cylinder, and a pipe projecting into said chamber, substantially as herein shown and described.

5. In a centrifugal machine, the combination, with the cylinder H, of the outlet-pipe K and the annular box J below the revolving cylinder, substantially as herein shown and described.

351,541. ROPE-CLASP. Frank A. Thomas, Cedar Rapids, Iowa. Filed Aug. 9, 1886. (No model.)



Claim.—The herein-described clasp, consisting of the wire bent into substantially V shape, with the apex and the ends of the legs turned at right angles to the plane of the legs, all as shown and described, and adapted to be closed upon a rope, substantially as and for the purpose described.

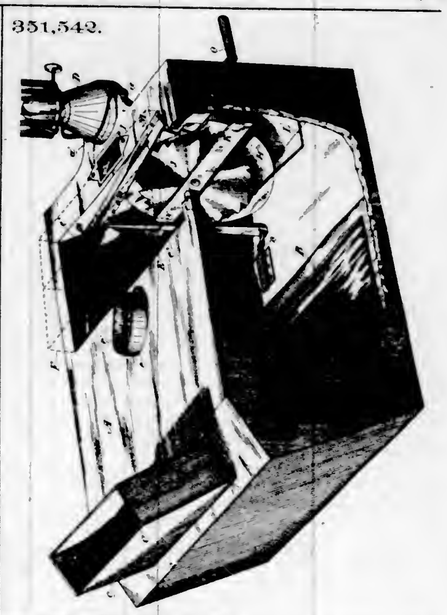
351,542. EGG-TESTER. William S. Vansant and Robert W. Cooke, Dixon, Cal. Filed Jan. 27, 1886. (Model.)

Claim.—1. The box or casing A, having a reflector, B, in its bottom, a sight-aperture, C, an aperture, E, for the reception of an egg-tray, and a circular flanged aperture, *e*, for the reception of a single egg in its top, in combination with a perforated or apertured egg-tray fitting in the aperture E in the top of the box, and a lamp, D, arranged to direct its light upon the eggs in the tray, substantially as herein described.

2. In combination with a box or casing having a reflector and a sight-aperture, as described, the egg-tray F, fitting an aperture in said box and having perforated sectional hinged bottoms *f*, swinging from a central line in a horizontal plane to a vertical plane, whereby the eggs, after being inspected, can be discharged into the packing-cases, substantially as herein described.

3. In combination with the box A, having the reflector B and a sight-aperture, C, the egg-tray F, fitted in said aperture and supported on cleats therein, said tray having perforated sectional hinged bottoms *f*, and the means by which said bottoms are operated to discharge the eggs into the packing-cases after being inspected, consisting of the pivoted lever G, connected by links or rods with the sectional hinged bottoms, substantially as herein described.

351,542.

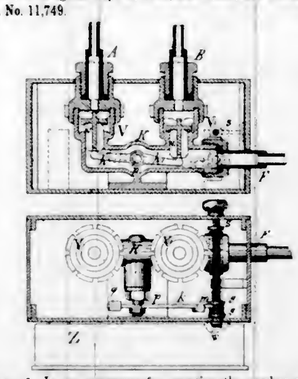


4. The box or casing A, having a mirror, B, in its bottom, a sight-aperture, C, and an aperture, E, for the reception of an egg-tray in its top, in combination with a removable egg-tray fitting said aperture and an enumerating device in the box, substantially as herein described.

5. The box A, having a mirror, B, in its bottom, a sight-aperture, C, and an aperture, E, in its top, and the removable egg-tray having tilting divided bottom fitting aperture E, in combination with a pivoted spring-actuated lever, M, in said aperture and on which the tray rests, and an enumerating device in the box, substantially as herein described.

6. An egg tester, counter, and packer, comprising the box or casing A, the mirror B in its bottom, the sight-aperture C, the aperture E, and the lamp D on its top, the egg-tray F, having perforated sectional hinged bottoms *f*, a lever for operating said bottoms to discharge the eggs, the spring-actuated lever M, and an enumerating device in the box, substantially as herein described.

351,543. REVOLUTION OR STROKE COUNTER. William Voit, Magdeburg, Prussia, Germany. Filed Oct. 1, 1885. (No model.) Patented in Germany June 5, 1885, No. 34,225; in France Aug. 16, 1885, No. 170,709; in Belgium Sept. 3, 1885, No. 70,115, and in England Oct. 2, 1885, No. 11,749.



Claim.—1. In an apparatus for counting the strokes of an engine, the combination, with an indicator or counter, of a chamber adapted to be connected to a pressure-cylinder, a valve or plunger working in said chamber and making a complete stroke at each movement, and intermediate mechanism for operating the indicator or counter from the valve or plunger, substantially as herein shown and described.

2. In an apparatus for counting the strokes of an engine, the combination, with an indicator or counter, of a chamber adapted to be connected to a pressure-cylinder on opposite sides of the piston, a valve or plunger working in the said chamber and making a complete stroke at each movement, a lever engaging the valve, and intermediate mechanism between the said lever and the counter whereby the counter will be operated by each movement of the plunger or valve, substantially as herein shown and described.

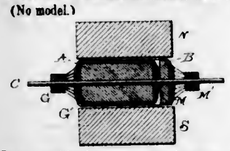
3. The combination, with a chamber provided with pipes for connecting it to opposite ends of a pressure-cylinder, of a valve or plunger, a rock-shaft provided with crank-arm at one end, and a lever on the said rock-shaft engaging the said valve or plunger, whereby provision is made for operating an indicator or counter by the movement of said valve or plunger, substantially as herein shown and described.

4. The combination of a chamber adapted to be connected to a pressure-cylinder on opposite sides of its piston and provided with an outlet-pipe, the valves or plungers *v v'*, the rock-shaft *p*, the lever *h h'*, and the crank-arm *k*, whereby provision is made for imparting the motion of the said valves or plungers to an indicator or counter for operating the same substantially as herein shown and described.

5. The combination, with the operating-shaft of an indicator and a chamber adapted to be connected to a steam or other cylinder on opposite sides of the piston, of a valve or plunger, a rock-shaft, a lever on the said rock-shaft engaging the valve or plunger, and a forked crank-arm on the rock-shaft engaging the shaft of the indicator, substantially as herein shown and described.

6. In an apparatus for counting the strokes of an engine, the combination, with the shaft *w* and the crank-arm *k*, of the sliding rod *s*, provided with the forked arms *g*, the crank *m*, fitted to slide on the said shaft *w*, and the rod *s'*, substantially as herein shown and described.

351,544. DYNAMO-ELECTRIC MACHINE. Henry E. Walter, Clifton, assignor of one-half to Charles Batchelor, New York, N. Y. Filed May 1, 1886. (No model.)



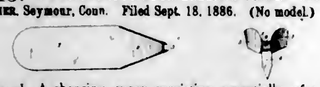
Claim.—1. In a combined generator and motor, the combination, with the armature, of separate generator and motor windings having equal and opposite magnetic displacement and self-induction, substantially as and for the purpose set forth.

2. In a combined generator and motor, the combination, with main and auxiliary armature-cores, of two windings, one over the main core only and the other over both cores, substantially as and for the purpose set forth.

3. In a combined generator and motor, the combination, with main and auxiliary cores, the latter being in a more intense magnetic field than the former, of two windings, one over the main core only and the other over both cores, substantially as set forth.

4. The combination, with a common field of force, of main and auxiliary armature-cores, the latter of greater diameter than the former, and two armature-windings, one over the main core only and the other over both cores, substantially as set forth.

351,545. CHARGING-SPOON FOR BRAZING TUBES. Charles W. Walther, Seymour, Conn. Filed Sept. 18, 1886. (No model.)



Claim.—1. A charging-spoon consisting, essentially, of a bottom and converging side pieces or lips by which the solder is held, and a depending point or guide by which the solder is conducted to the seam.

2. A charging-tube for brazing tubing, consisting of a bottom, a depending point or guide made separate therefrom and secured thereto, and side pieces or lips by which the solder is held until used.

3. In a charging-spoon, a bottom having a hardened point or guide, 4, a supporting-piece having side pieces, 3, and a loop or slide whereby the parts are held together in use.

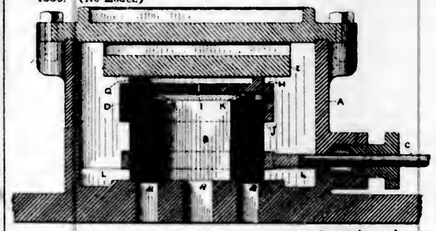
4. In a charging-spoon, a concave bottom and a point or gnide depending therefrom, in combination with a supporting-piece having side pieces or lips, and a loop or slide whereby the parts are held together.

351,546. METHOD OF PREPARING SOLDER FOR BRAZING. Charles W. Walther, Seymour, Conn. Filed Sept. 18, 1886. (No specimens.)

Claim.—1. The method of preparing solder for brazing, which consists in mixing suitable proportions of pulverized brass solder and pulverized burned borax, then pounding or grinding and working the two together until the borax will not set or harden, and the mixture is wholly free from lumps, adding water slowly to make a paste.

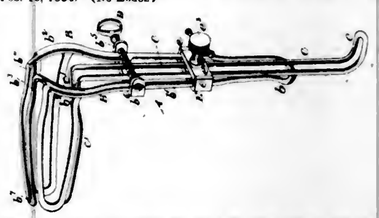
2. The method of preparing solder for brazing, which consists, first, in mixing suitable quantities of pulverized solder and pulverized burned borax together, then pounding or grinding and working the two together until the mixture is free from lumps, adding water slowly to form a paste, and then drying the moisture from the paste, whereby cakes are formed which will keep for any length of time, but will readily crumble and mix with water again, the paste being wholly free from lumps and having no tendency whatever to set or harden.

351,547. BALANCED SLIDE-VALVE. Richard Walton, Altoona, assignor of one-half to Henry Reed, Philadelphia, Pa. Filed Nov. 20, 1885. (No model.)



Claim.—The combination of a slide-valve and a telescoping cap, one of which envelops substantially the entire area of the other, the outer or enveloping member being provided with an exposed counter-surface commensurate with the area of its inclosing-rim, and both members being protected throughout the remainder of their respective top and bottom areas by contact with bearing-surfaces, substantially as and for the purposes specified.

351,548. SPECULUM. William S. Watson, Matteawan, N. Y. Filed Feb. 10, 1886. (No model.)



Claim.—1. In a speculum, the piece B, made elastic and one half adjustable laterally with respect to the other half, in combination with a piece, C, having blades *c' c'*, and longitudinally adjustable with respect to the piece B, whereby the blades on both pieces may be brought closer together or carried farther apart, as described.

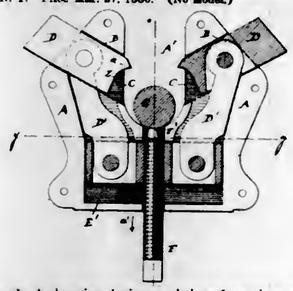
2. In a speculum, the front blades, *b² b⁴*, having a joint, *b⁷*, at the top, as shown and described.

351,549. COAT. John G. Weiner, New York, N. Y. Filed July 27, 1886. (No model.)



Claim.—A coat closed in front and open at the rear, and provided with pockets secured to the front and a shield covering the said pockets, substantially as described.

351,550. CLAMPING DEVICE. Chester A. Weller, Croton Landing, assignor to Charles C. Elger, Brooklyn, and William D. Elger, New York, N. Y. Filed Mar. 27, 1886. (No model.)



Claim.—1. A clamping device consisting of a casing provided with sliding jaws adapted to slide toward and from each other, a cross-piece connected by links with said jaws, and a screw passed through a screw-threaded aperture in the cross-piece, substantially as shown and described.

2. In a clamping device, the combination, with a casing having guide-grooves, of sliding jaws in said guide-grooves, a cross-piece, links connecting the cross-piece with the sliding jaws, and a screw passed through a screw-threaded aperture in the cross-piece, substantially as shown and described.

3. In a clamping device, the combination, with the casing having guide-grooves, of sliding jaws in said grooves, a cross-piece, links connected with the cross-piece, a screw passed through a threaded aperture of the cross-piece, which screw is mounted to move freely in the direction of its length with the cross-piece through which it is screwed in the casing, substantially as shown and described.

4. In a clamping device, the combination, with a casing having guide-grooves, of jaws mounted to slide in said grooves, a cross-piece, links connecting the cross-piece with the sliding jaws, a screw passing through a screw-threaded aperture in the cross-piece, and a head in which the inner end of the screw is mounted to turn, substantially as shown and described.

5. In a clamping device, the combination, with the casing, of sliding jaws in the same, a cross-piece, links connecting the cross-piece with the sliding jaws, a screw passed through a screw-threaded aperture in the cross-piece, and a handle on the casing, substantially as shown and described.

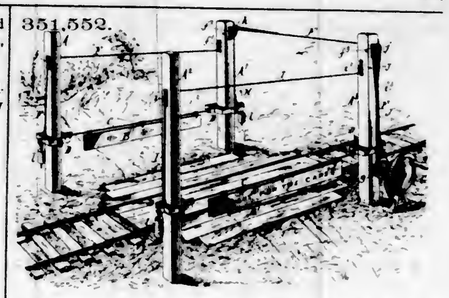
6. In a clamping device, the sliding jaw D, provided with a chisel-edged lip, *a*, and a curved recess, *b*, on the end, substantially as shown and described.

351,551. BARREL. Heinrich Wessel, Hamburg, Germany. Filed Sept. 3, 1886. (No model.) Patented in England May 14, 1886, No. 6,515.



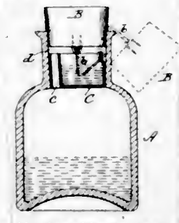
Claim.—The combination of the sheet-iron cylindrical body *m*, the wooden bottom *a*, cover *a'*, and metal strengthening-hoops *p p'*, inserted within the ends of the said body, the angle-irons *o o'*, inserted within said hoops, the rivets *e*, securing said angle-irons to said hoops, and the screws or nails *s s'*, for securing said angle-irons to the bottom and cover, all substantially as herein shown and described.

351,552. GATE FOR RAILWAY-CROSSINGS. Monroe Wilder, Buffalo, N. Y. Filed Mar. 10, 1886. (No model.)



Claim.—The combination, with two pairs of posts, A A', A² A², arranged on opposite sides of the track, of frames D, surrounding the posts, gates B B', attached to the frames D, a windlass, G, a main lifting-rope, F, attached to the windlass, branch ropes H I J, connecting the main lifting-rope with the frames D, and guide-pulleys *f*, *f'*, *f²*, *h*, *i*, *i'*, *f³*, and *j*, attached to the posts, substantially as set forth.

351,553. INK-BOTTLE. Bennet C. Wilson, Philadelphia, Pa. Filed Mar. 30, 1886. (No model.)

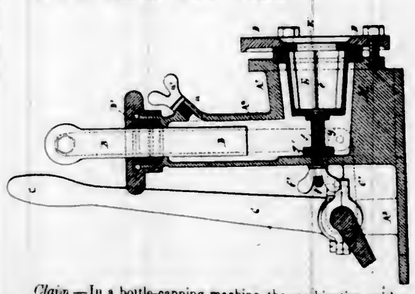


Claim.—1. In combination with a bottle or reservoir, a removable stopper, a cell or well separate from but attached to the stopper, located in the neck of the bottle below the stopper and having a closed bottom, and communication with the body or interior of the bottle, substantially as and for the purpose set forth.

2. In combination with a bottle or reservoir, a removable stopper, a cell or well located in the neck of the bottle below the stopper and having a closed bottom, a communication between the body or interior of the bottle and said cell or well, and a link-connection between the latter and the stopper, substantially as set forth.

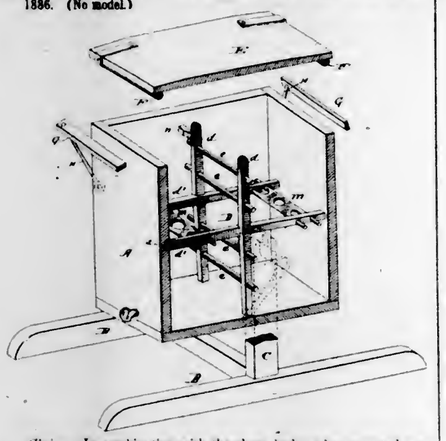
3. The combination of a bottle or reservoir, a removable stopper or cork, B, a cell, C, located in the neck of the reservoir below the stopper and having a closed bottom, and a channel or communicating opening, *c*, with the interior of the bottle, and a bent or V shape link, *b*, between stopper and cell, substantially as set forth.

351,554. BOTTLE-CAPPING MACHINE. Jacob F. Wittemann, New York, N. Y. Filed Feb. 27, 1886. (No model.)



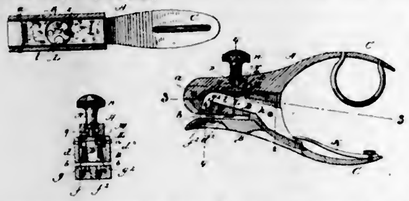
Claim.—In a bottle-capping machine, the combination, with a casing consisting of a horizontal lower part and a vertical upper part, of an elastic cap secured by a ring-shaped head within the horizontal part, a screw-rod attached to the closed end of the cap, and having an enlargement of much less diameter than said end and fitting into a recess of the said closed end, which screw-rod passes through the rear wall of the casing, an exterior thumb-nut on the end of said screw-rod, and a thimble mounted on the screw-rod between the closed end of the rubber cap and the side wall of the casing, substantially as shown and described.

351,555. CHURN. Jacob Wolf, Stillwater, Minn. Filed July 21, 1886. (No model.)



Claim.—In combination with the churn body or box mounted upon a suitable frame to enable it to be revolved, the churning-frame consisting of bars crossing at or near their center and connected together by dasher blades and rods, the ends of the horizontal bars at one side being tapered or rounded in order to enter recesses in the interior of the churn-body, and one of the vertical bars having pivoted to it near its top a locking-button adapted to bear against the inside of the churn-body and securely hold the frame therein, substantially as specified.

351,556. TICKET-PUNCH. Robert Woodman, Malden, Mass. Filed Feb. 23, 1886. (No model.)



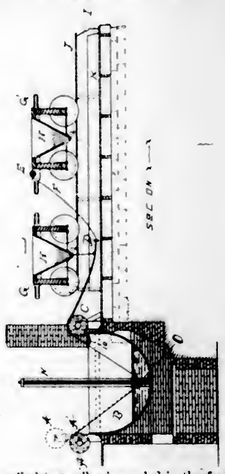
Claim.—1. In a punch for tickets, &c., two jointed arms or jaws, A B, and punching-dies, male and female, carried by the jaw B, the one die stationary and the other movable thereon, in combination with an abutment of the jaw A, adjustable thereon in relation to and for work on the movable die of jaw B in the operation of the punch, substantially as described, for the purposes specified.

2. In a punch for tickets, &c., two jointed arms or jaws, A B, and two sets of punching-dies, each set, male and female, carried by the jaw B, and one part of each set stationary, and the other parts each separately movable thereon, in combination with an abutment of the jaw A, adjustable thereon in relation to and for work on the movable dies of jaw B in the operation of the punch, substantially as described, for the purpose specified.

3. In a punch for tickets, &c., two jointed arms or jaws, A B, and punching-dies, male and female, carried by the jaw B, the one die stationary and the other movable thereon, in combination with a head, M, having an eccentric abutment, L, for work on said movable die, the head being lengthwise movable and rotatory on and adapted to be engaged with and disengaged from the jaw A, and all so as to adjust the abutment L in relation to said movable die, substantially as described, for the purposes specified.

4. In a punch for tickets, &c., two jointed arms or jaws, A B, and punching-dies, male and female, carried by the jaw B, in combination with a head, M, having an eccentric abutment, L, for work on said movable die, the head having holes *r*, and a concentric shouldered stem, N, received by a shouldered socket, *n*, of the jaw A, having a pin, *s*, to engage holes *r* of said head, substantially as described, for the purpose specified.

351,557. MACHINE FOR MAKING ROOFING. Robert T. Wray and James Thomson, Kansas City, Mo. Filed June 15, 1886. (No model.)



Claim.—1. A feeding device for roofing-machines, consisting of an eccentric roller journaled in the feed-opening of the hopper or bin that contains the sanding material, substantially as described.

2. The combination, with a bin or hopper for containing the sanding material, of a cylindrical roller journaled in the feed-opening of said hopper eccentrically, and a hand-crank or equivalent device for rotating the roller, and for the purpose of feeding the material past the roller, substantially as described.

3. The combination of the bin or hopper H, the roller 2, provided with journals 3, which are located away from the center of the roller, feather 4, formed upon or secured to the roller, and a hand-crank, such as 7, substantially as and for the purpose described.

4. The combination of the bin or hopper H, the roller 2, journaled eccentrically in said hopper, feather 4, secured to the roller, metal strip 5, located at one side of the feed-opening in the hopper, strip 6, located in the hopper above the roller and extending down near the outer surface thereof, and a hand-crank, 7, for operating the roller, substantially as and for the purpose described.

5. The combination, in a machine for making roofing, of a vat for containing tar or similar material, rollers for carrying webs of roofing-paper, located near the vat, a gate carrying a roller or rollers and located in the vat for depressing the material therein, a track or trough arranged upon the ground or floor at one side of the vat, a car arranged to travel upon said track, and carrying a bin or hopper for sanding the material as it issues from the vat, and another car arranged to travel upon the track behind the first-mentioned car, also arranged to sand the material, and to which the end of the material or fabric is secured, substantially as and for the purposes described.

6. The combination of the vat B, gate N, combined track and trough I, cars G and G', carrying hoppers H, mandrel E, carried by car G', and apron F, secured to the mandrel, substantially as and for the purpose described.

7. A combined track and trough for use in making roofing, the same consisting of bottom L, sides or track J, inclined side pieces, K, and outside braces, K', substantially as described.

8. The combination, in a roofing-machine, of a track arranged at some distance above the surface of the ground or floor, and adapted to form sides for a trough, in which the fabric or sanded material is to be deposited, and a car or cars carrying a hopper arranged to travel upon said track, substantially as shown and described.

9. In a roofing-machine, the clamp D, composed of a lower part, 11, provided with a tongue, 40, stirrup 13, rigidly attached to one end of said lower part, and upper part, 12, provided with groove 41, and a hinged or removable stirrup, 14, for clamping together the free ends of both parts, substantially as set forth.

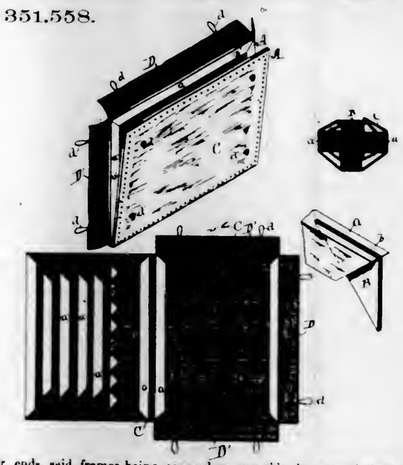
10. In a roofing-machine, the hollow mandrel E, composed of a main body, which is preferably tubular in form, removable journal 90, carrying lug *g'*, rigid journal-piece E'', carrying hand-crank E', and slot *g*, formed in one side of the tubular body, substantially as and for the purpose described.

351,558. PORTFOLIO. Edward C. Allen, Augusta, Me. Filed Apr. 17, 1886. (No model.)

Claim.—1. A portfolio composed of the following parts, namely: a body or cover of enamel cloth or analogous material, end pieces permanently attached thereto, prepared but unattached side pieces, and angle-pieces, all fitted for ready adjustment with each other and adapted to be inclosed and rolled up in said cover for transportation, substantially in the manner and for the purpose described.

2. A portfolio consisting of two independent stiffening-frames, each being composed of side pieces and end pieces suitably joined together at their ends, said frames being covered on one side by enamel cloth or other like material, and being practically hinged together at adjacent edges by said covering to form a portfolio, substantially as and for the purpose set forth.

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3. A portfolio consisting of a piece of enamel cloth or other analogous material, provided on one side with a pair of stiffening-frames, secured thereto side by side with an intervening space, and adapted to be folded to bring the frames into juxtaposition, substantially as described.

4. A portfolio consisting of a pair of stiffening or skeleton frames suitably connected or hinged together at adjacent edges, and each covered at one side with enamel cloth or other flexible material, and adapted to be folded to bring their sides into juxtaposition and provide a portfolio or case, substantially as described.

5. A portfolio constructed as described and comprising the following parts, namely: a body or cover of enamel cloth or other analogous material, and a stiffening-frame, of which the parallel sides are attached thereto, the remaining parts of said frame being prepared and unattached, all fitted for ready adjustment with each other, and adapted to be inclosed and rolled up in said cover for transportation, substantially as described.

351,559. CAR-STARTER. Robert T. P. Allen, Farmdale, Ky. Filed July 29, 1886. (No model.)

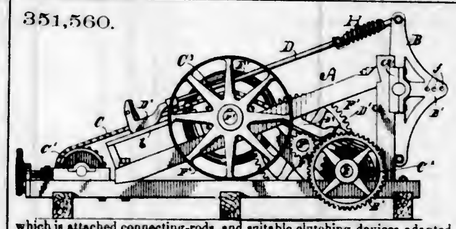


Claim.—1. The combination of the centrally-pivoted main lever, the hand lever, the drive-wheels having the cogged inner faces, the drums loosely mounted on the axles and formed at one end with the cogs, the twisted rope or chain, the spring, and the connecting rope or chain.

2. The combination of the centrally-pivoted main lever, the hand-lever, the drive-wheels having the cogged inner faces, the loosely-mounted drums having the cogs at one end and formed with the reduced and enlarged portions connected by the spiral grooves, the middle axle having the drums formed with the reduced and enlarged portions connected by the spiral grooves, the ratchet-wheel, and the spring-actuated pawl having the foot-pedal, the spring, the ropes or chains connecting the spring, and the middle and forward drums, as described, and the twisted rope or chain connecting the loosely-mounted drums together, all constructed, arranged, and combined substantially in the manner and for the purpose herein set forth.

351,560. DEVICE FOR CONVERTING MOTION. William P. Allen, Wyoming, assignor to the Little Giant Power Converter Company, Cincinnati, Ohio. Filed Mar. 15, 1886. (No model.)

Claim.—1. The combination, with an endless belt or chain passing over suitable supporting-wheels, of an oscillating beam to each end of which is attached connecting-rods, and suitable clutching devices adapted to engage said endless belt or chain at points between the said supporting-wheels and on the same side thereof, whereby a continuous motion of the endless belt is secured by the oscillating motion of said beam, substantially as and for the purpose set forth.



2. The combination, with the endless belt or chain passing over suitable supporting-wheels, the oscillating beam, and the connecting-rods attached to each end of said beam and adapted to engage with said endless belt or chain at a point between the supporting-wheels on the same side thereof, of a raising wheel between said supporting-wheels, adapted to raise the belt or chain between the points of engagement by said clutches, so that the movement of said clutches shall be substantially parallel with the direction of the chain, substantially as specified.

3. The combination, with the endless belt or chain passing over suitable supporting-wheels, and a raising-wheel between said supporting-wheels, of an oscillating beam, connecting-rods attached to said beam at either side of its center of oscillation, and clutching devices adapted to engage with said endless belt or chain at points between said raising-wheel and the respective supporting-wheels, substantially as and for the purpose set forth.

4. The combination, with the endless belt or chain passing over suitable supporting-wheels, and a raising-wheel between said supporting-wheels, adapted to elevate said chain at one side, of an oscillating beam, connecting-rods attached to said beam at each side of its center of oscillation, clutching devices on either side of said rods, adapted to engage with said chain when moving in a forward direction, and slides for supporting said clutching devices, substantially as and for the purpose set forth.

5. The combination on the main frame of the supporting-wheels at each end thereof, an endless chain passing over said supporting-wheels, a raising-wheel between said supporting-wheels adapted to elevate said chain, an oscillating beam journaled at its center on said frame, connecting-rods attached to said beam at each side of its center of oscillation, said connecting-rods being provided with suitable clutching devices adapted to engage the endless chain or belt, a train of gearing connected to one of said supporting-wheels, and an elastic connection between said beam and said supporting-wheels, substantially as and for the purpose set forth.

6. The combination, with the chain C, of the clutching devices having a pivoted pawl therein adapted to engage with the links of said chain, said pawl being notched out at its lower end, substantially as and for the purpose set forth.

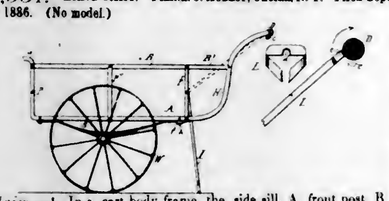
7. The combination, with the endless chain, suitable sprocket-wheels therefor, and the oscillating beam, of sleeves connected to said oscillating beam at either side of its center of oscillation, a spring on the outside of said sleeves, the connecting-rod adapted to engage at one end with the said endless chain, and at the other end to enter said sleeve, and a nut on said connecting-rod, to which the end of the spring is secured on said rod, substantially as and for the purpose as set forth.

8. The combination of the main frame, the supporting-wheels at each end thereof, the endless chain passing over said supporting-wheels, the oscillating beam at one end of said frame, connecting-rods attached to said oscillating beam at either side of its center of oscillation, clutching devices on the ends of said connecting-rods to engage said chain, a spring-connection between said beam and said connecting-rod, and means for transmitting power over one of said supporting-wheels to a fly-wheel shaft, on which is journaled a raising-wheel, C', substantially as and for the purpose as set forth.

9. The combination, with the main frame, the supporting-wheels thereon, the endless belt or chain passing over said supporting-wheels, the oscillating beam, connecting-rods attached thereto at either side of its center of oscillation, clutching mechanism on said connecting-rods to engage said chain, and means for varying the tension of said chain, substantially as and for the purpose as set forth.

10. The combination, with the main frame, the supporting-wheels thereon, an endless chain passing over said supporting-wheels, the raising-wheel between said supporting-wheels, adapted to elevate said chain, the oscillating beam, connecting-rods attached to said beam at each side of its center of oscillation, clutching devices on said connecting-rods adapted to engage said chain, one of said supporting-wheels being journaled in the sliding frame, and a hand-screw attached to said sliding frame, substantially as and for the purpose as set forth.

351,561. HAND-CART. Frank. J. Aubeuf, Oneida, N. Y. Filed Sept 2, 1886. (No model.)

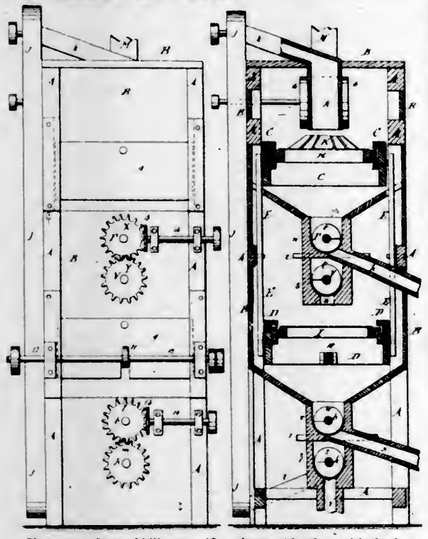


Claim.—1. In a cart-body frame, the side sill, A, front post, B, and the handle H, extending from the sill A rearward beyond the foot of the rear post, all formed of a continuous bar of metal, and the top rail, B, and brace B', formed of a continuous bar of metal, and secured at opposite ends, respectively, to the upper end of the front post and to the handle, substantially as shown and described.

2. In combination with the cart-body having handles extending rearward and upward therefrom, and the leg L, pivoted on said body, the roller D, pivoted on the handles, and the gripper c, attached to said roller and adapted to engage and release the foot of the leg by the rotation of the roller, substantially as described and shown.

3. In combination with the cart-body, axle, and the semi-elliptic spring s, the box *f*, secured to the body and having the end of the spring adapted to slide longitudinally therein, and the locking-pin *h*, inserted removably in coinciding holes through the box and inclosed portion of the spring, substantially as described and shown.

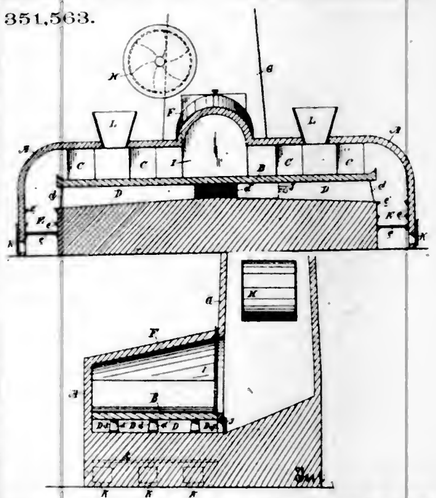
351,562. MIDDLINGS-PURIFIER. Ora L. Anderson, Pleasantville, Ind. Filed Mar. 9, 1886. (No model.)



Claim.—1. In a middlings-purifier, the combination, with the frame A, the casing B, and the feed-spout M, of the two suspended vibrating frames C D, the four sieves F G H I, carried by the said frames, the four pairs of conveyer-troughs, the two pairs of conveyer-snafts, carrying the four pairs of spiral flanges, the elevator carrying the coarse middlings from the lowest conveyer on one side to the upper sieve on the other side, the suction-fan, and a driving mechanism, substantially as herein shown and described.

2. A middlings-purifier comprising a vertical series of shaker-frames, two vertical series of sieves mounted therein, intermediate conveyer-troughs for each series, a feed-spout for one series, and an elevator leading from the conveyer below this series to the upper sieve of the opposite series, substantially as set forth.

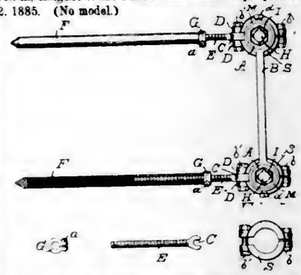
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ing, *d'*, between the center of the flue and the stack, a vertically-adjustable damper, I, controlling the former communication, and a sliding damper, J, controlling the latter communication, and the exhaust-fan H in said stack, substantially as herein described.

2. In an ore-roasting furnace, the combination of the horizontal hearth B, the underlying horizontal flue D, having a bottom inclining upwardly from each end toward the center, the fire-chambers E, communicating directly with the ends of both hearth and flue, the furnace-stack G, the exhaust-fan H in the stack, the damper I, controlling a communication between the center of the hearth and the stack, the damper J, controlling a communication between the center of the flue and the stack, and the vertically-adjustable valves or gates K in the ends of the furnace controlling the draft to the fire-chambers, substantially as herein described.

351,564. ADJUSTABLE ROCK-DRILL FRAME. Albert Ball, Claremont, N. H., assignor to the Sullivan Machine Company, same place. Filed Dec. 2, 1885. (No model.)



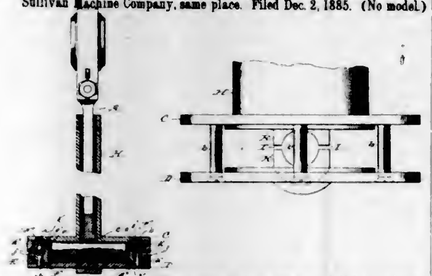
Claim.—1. In a drill-frame, the combination of the similar parallel standards, the links or braces of equal length connecting said standards and adjustable up and down upon the same, the collars adjustable up and down upon the standards, and the brace-rods having bifurcated ends to rest against the screws that bind the collars on the standards, substantially as described.

2. In a drill-frame, the combination of the similar parallel standards, the link-rods or braces of equal length connecting said standards and adjustable up and down thereon, the collars adjustable up and down on the standards, the screw *b'* to bind the said collars at any desired point on the standards, and the extensible braces having forked or bifurcated ends to rest upon the screw *b'*, substantially as described.

3. In a rock-drill frame, the combination of the similar parallel standards A, the end screws, H, the nuts I, and connecting-braces B, provided with the end rings, M, and set-screws *d*, to bind the rings on the standards, substantially as described.

4. In a drill-frame, the combination, with the similar parallel standards A and the adjustable connecting-braces B, of the collars S, provided with the binding-screw *b'*, the brace-rods, each composed of a pointed tubular part, F, and a threaded part, E, having a flattened and notched end, C, to rest against a screw, *b'*, and the binding nuts or collars G, each provided with a screw, *a*, substantially as described.

351,565. PISTON. Albert Ball, Claremont, N. H., assignor to the Sullivan Machine Company, same place. Filed Dec. 2, 1885. (No model.)



Claim.—1. A piston-head composed of two separated disks or plates connected by screws, so that one of said disks or plates has freedom of movement toward and away from the other, substantially as described.

2. The combination of a piston-head composed of two separated disks or plates, a series of screws connecting said plates or disks, a pin having bearings between said plates or disks, and a connecting-rod keyed to said pin, substantially as described.

3. The combination of a piston-head composed of two separated disks or plates adjustably connected by screws, a pin arranged in adjustable bearings between said disks or plates, and a connecting-rod keyed to said pin, substantially as described.

4. In combination, a piston-head made in two parts, C D, with an intermediate space, a connecting-rod, A, a pin, B, secured to said rod, bearings R R' for said pin, and the connecting-screws *b b b*, substantially as described.

5. In combination, the disks or plates C and D, their connecting-screws *b b*, the intermediate packing-rings, E E, the ring-holders F F, and their screws *a a*, substantially as described.

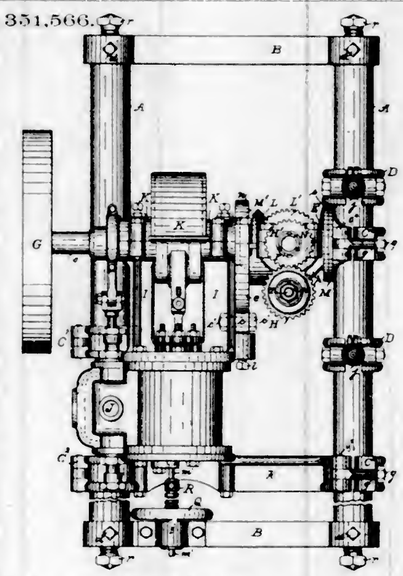
6. In a piston made in parts, the combination of a connecting-rod, a connecting-pin, adjustable bearings for said pin, and packing-ring holders F F, substantially as described.

7. The combination of the two disks or plates C D, and connecting-screws *b b*, the connecting-rod A, the pin B, the bearings R R', cast with said disks or plates, the packing-rings E E, and holders F F, substantially as described.

8. The combination of a piston-head made in two adjustably-connected parts, C and D, and with a hollow piston-rod, H, a connecting-rod, A, passing down through said rod H, a pin, B, at the end of said rod A between the two parts of the piston-head, and adjustable bearings R R' for said pin, substantially as described.

9. The combination of the two adjustably-connected disks or plates C and D, the intermediate packing-rings, E E, and the ring-holders F F, provided with the flanges *e* and *f*, combined with the rings, substantially as described.

351,566. ROCK-BORING MACHINE. Albert Ball, Claremont, N. H., assignor to the Sullivan Machine Company, same place. Filed Dec. 2, 1885. (No model.)



Claim.—1. In a rock-boring machine, the combination, with the parallel standards A A and the connecting-braces B B, of the boring mechanism, and the driving mechanism mounted upon and between said standards by means of two-part clamps C' C^2 C^3 C^4, each having one part made solid with those to be mounted and the other part hinged thereto, substantially as and for the purposes set forth.

2. In a rock-boring machine, the combination of the parallel standards A A, the brace-bars B, adjustable thereon, the brace-bar *k*, equal in length to the bars B and supporting the driving-cylinder, the clamp C^4, provided with the link *i*, swinging bolt *g* and pin g^2, and the clamps C', C^2, and C^3, all constructed and arranged substantially as described.

3. In a rock-boring machine, the combination, with the parallel standards, the cylinder-supporting frame and clamp C^4, of the spindle-frame *p*, the plates *e* and *s*, secured thereto, the trunnions of said frame the binding plate *c*, binding bolt and nut *c'*, and set-screw *l*, all constructed and arranged substantially as described.

4. In a rock-boring machine, the combination of the single-cylinder engine, the crank-shaft, piston, and piston-rod, and the bevel-gear L on the crank-shaft, with the boring mechanism, the clamp C^4, the spindle-frame *p*, plates *e c*, bolt and nut *c*, and set-screw *l*, all constructed and arranged substantially as described.

5. In a rock-boring machine, the combination, with the parallel standards A A and the connecting-braces B B and *k*, of the boring mechanism, the single-cylinder engine, the adjustable clamps C' C^2 C^3 C^4, for mounting said parts, and the hand-wheel Q, its hollow screw R, and center rod, *m'*, arranged between the bottom brace, B, and the brace *k*, for adjusting the machine up and down, substantially as described.

6. In a rock-boring machine, the combination, with the parallel standards A A, the braces B B, and the driving mechanism mounted upon and between said standards, of the swiveled spindle-frame *p*, carrying the boxes E E, the driving-quill F, journaled in said boxes, and the screw-spindle N, passing through said quill and adapted to carry the drill-rod on one end, substantially as and for the purposes set forth.

7. In a rock-boring machine, the combination, with the single-cylinder engine, the piston, piston-rod, crank-shaft, and bevel-gear L on said shaft, of the spindle-frame *p*, the driving-quill F, journaled in said frame, the bevel-gear L', friction-plates O O, intermediate friction balls and guard, P, arranged on said quill, and the screw-spindle N, passing through said quill and carrying the drill-rod on one end, substantially as described.

8. In a rock-boring machine, the combination, with the parallel standards A A and the driving mechanism mounted upon and between the same, of the spindle-frame *p*, carrying the boxes E E, the driving-quill F, journaled in said boxes and carrying the gear L', and the inclosed screw-spindle N, the parallel feed-shaft T, journaled in said spindle-frame, and the intermediate shaft-gearing, S S' and H H', substantially as described.

9. In a rock-boring machine, the combination, with the supporting-frame and the driving mechanism, of the spindle-frame *p*, the driving-quill F, mounted in said frame *p*, the screw-spindle N within said quill, the parallel feed-shaft T, provided with the collar *t*, the intermediate gearing, S S' and H H', and the spring-controlled latch U, pivoted in said spindle-frame and operating in connection with the collar *t*, substantially as and for the purposes set forth.

10. In a rock-boring machine, the combination, with the supporting-frame and the driving mechanism, of the spindle-frame *p*, the driving-quill F, mounted in said frame *p*, the screw-spindle N within said quill, the parallel feed-shaft T, the intermediate gearing, S S' and H H', and the adjustable friction-clutch H^2 on the outer end of said shaft, substantially as and for the purposes set forth.

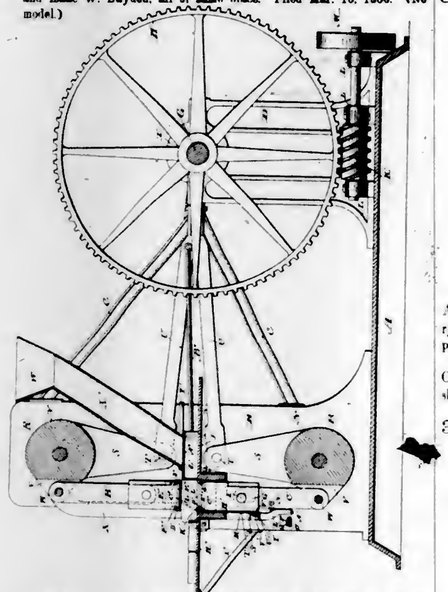
11. In a rock-boring machine, the combination, with the supporting-frame and the driving mechanism, of the spindle-frame *p*, the driving-quill F, mounted in said frame *p*, the screw-spindle N, within said quill, the parallel feed-shaft T, the intermediate gearing, S S' and H H', and the adjustable friction-clutch H^2 on the end of said shaft, comprising a spiral spring, and a screw-nut for adjusting and regulating the pressure of said spring, substantially as described.

12. In a rock-boring machine, the combination, with the driving-quill F and its drill-spindle N and gear H', of a feed-shaft, T, a loose gear, H, mounted upon said shaft, a fixed collar on one side and a movable collar on the other side of said gear, and a spring for pressing the latter against said gear, substantially as described.

13. In a rock-boring machine, the combination, with the drill-spindle and its driving-gear, of a feed-shaft, a loose gear mounted upon said shaft between two disks or plates, a fixed and a loose collar embracing said disks or plates, a spiral spring arranged within said movable collar, and an adjusting screw-nut, all mounted upon said shaft, substantially as and for the purposes set forth.

14. In a rock-boring machine, the combination, with the supporting-frame and the driving mechanism, of the spindle-frame *p*, the feed-shaft T, mounted therein and carrying the gears H and S', the driving-quill F, carrying the gear H', the inclosed screw-spindle N, carrying the nut-gear S, provided with pin *b*, and the bracket W', carrying the pivoted detent-lever W, substantially as and for the purposes set forth.

351,567. **DRY-PRESS-BRICK MACHINE.** Henry C. Barker, St. Joseph, Mo., assignor of three-fourths to Rufus K. Allen, Nathan D. Goff, and Isaac W. Hayden, all of same place. Filed Mar. 10, 1886. (No model.)



Claim —1. In a reciprocating machine for making bricks, the combination of a shaft having a cog-wheel upon its middle between its bearings, and having two disks upon its ends provided with registering wrist-pins, a worm having means for revolving it and engaging the cog-wheel, two levers pivoted, respectively, at the upper and lower end and operating the plungers, and pitmen pivoted to the free ends of the levers and to the wrist-pins, as and for the purpose shown and set forth.

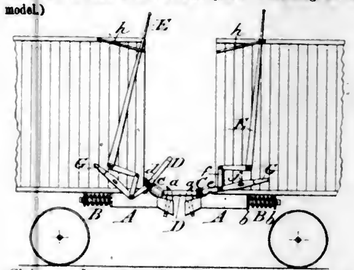
2. In a reciprocating machine for making bricks, the combination of the lower plunger having recesses in its lower portion provided with a transverse bolt, arms pivoted with their longitudinally-slotted upper ends upon the bolt and having means for forcing them upward, bars sliding at the sides of the plunger and having means for drawing them up when the plunger-operating arms are drawn down, and formed with inwardly-bulged lower portions and straight lower ends and connected above the bulged portions by a cross-bar, trip-blocks upon the side pieces of the frame for forcing the bulged portions of the bars out and for preventing the bars from swinging too far out, a bulge upon the forward face of the plunger having a curved notch extending from the lower edge to near the middle, and having a recess from above the middle of the bulge to the upper edge of the same, and a bolt passing through the middle of the cross-bar, and having jam-nuts at both sides of the cross-bar engaging the notch of the bulge, as and for the purpose shown and set forth.

3. In a reciprocating machine for making bricks, the combination of the lower plunger provided with a bulge upon its forward face, having a curved notch in the lower portion of its middle and a recess in the upper portion, two lift-bars having means for raising them and having their lower portions curved to form inward bulges and straight lower ends, oblong longitudinally-slotted blocks secured to the inner sides of the side pieces by means of nutted bolts one above the other, and with the upper blocks slightly to the rear of the lower blocks guiding the lower portions of the lifting-bars, and a cross-piece connecting the lower portions of the lifting-bars above the bulged portions, and having a bolt through its middle provided with jam-nuts at both sides of the cross-piece, as and for the purpose shown and set forth.

4. In a reciprocating machine for making bricks, the combination, with the molds, of an upper and a lower plunger, each having a recess in its outer end, a bell-crank lever above and below said plungers, an arm or link connecting each of the short arms of said levers with one of the plungers, a pair of lifting-rods, and a pitman connecting each of the long arms of said levers with the wrist-pins of the operating-shaft, substantially as and for the purpose set forth.

5. In a reciprocating machine for making bricks, the combination of a plunger having die portions formed with oblique recesses in the ends, having perforated lips in the wide portions of the recesses, with face-plates having their ends bolted to the lips, and having vent-holes in their ends registering with holes in the lips, as and for the purpose shown and set forth.

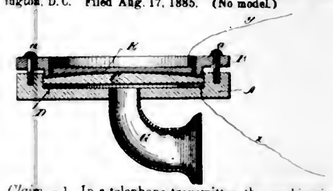
351,568. **CAR-COUPLING.** Elia Braudin, Muskegon, Mich., assignor of one-half to John Williams, same place. Filed Aug. 30, 1886. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head A, having a pin, *a*, with an inclined face, of the transverse rod C, carrying a link, and suitable means for actuating the rod to place the link in proper position, as herein set forth.

2. The combination of draw-head A, having pin *a*, horizontal rod C, with link D, levers *e e*, inclines *d d*, levers *f f*, bell-crank E, and slotted hand-levers G, all arranged to operate as specified.

351,569. **TELEPHONE-TRANSMITTER.** Emile Berliner, Washington, D. C. Filed Aug. 17, 1885. (No model.)



Claim.—1. In a telephone-transmitter, the combination of two carbon plates forming the electrodes of a variable contact, one of said plates resting by gravity upon the other, and one having a curved contact-surface, substantially as described.

2. In a battery-transmitter, the combination of two carbon plates having curved contact-surfaces, the first of which is fixed in position and forms one electrode of a variable contact, the second of which forms the complementary electrode, rests by its gravity upon the first, and is loose and free to vibrate.

3. In a battery-transmitter, the combination of two carbon plates forming the electrodes of a variable contact, the contact-surface of one being convex and that of the other concave.

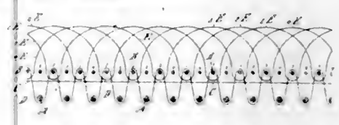
4. A battery-transmitter consisting of the combination of two carbon plates having curved contact-surfaces forming the electrodes of a variable contact, the arc of the concavity of one being greater than the arc of the convexity of the other.

5. In a telephone-transmitter, the combination of a carbon diaphragm with fixed edge, and a carbon plate resting loosely on said diaphragm.

6. In a telephone-transmitter, the combination of two carbon plates forming the electrodes of a variable contact, one of said plates having a curved contact-surface.

7. The combination, in a telephone-transmitter, of an inclosing-case in two sections, one of which is recessed and contains a metal ring, a carbon plate firmly held in position upon said ring by the second section of the case, and a carbon plate resting upon the first plate by gravity, but otherwise free to vibrate.

351,570. **ELASTIC FABRIC.** Joseph Bidmead, Bridgeport, Conn., assignor to the Bridgeport Elastic Web Company, same place. Filed June 3, 1884. (Specimens.)



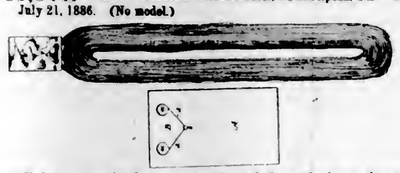
Claim.—1. As a new manufacture, an elastic fabric consisting of face and back wefts, face and binder warps, and rubber warps, the back-wefts being larger than the face-wefts, and there being twice as many face-wefts as back-wefts, so that the face-wefts and face-warps wholly conceal the binder-warps, substantially as described.

2. An elastic mock-terry fabric having a back formed of heavy wefts and binder-warps of one color, and a face formed of face-warps interwoven with face-wefts of another color, the face-wefts being smaller in size and double the number of the back-wefts, whereby the binder-warps are covered and the fabric perfectly balanced, substantially as described.

3. An elastic fabric consisting of face and back wefts, face and binder warps, and rubber threads or strands, the face warps and wefts being one color, and the back-wefts and binder-warps another color, the face-wefts being smaller in size and double the number of the back-wefts, and the face-warps being loosely thrown up, whereby the binder-warps are wholly covered, substantially as described.

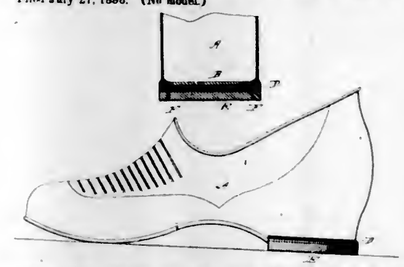
4. An elastic mock-terry fabric having a set of heavy back-wefts, a set of face-wefts smaller in size than the back-wefts and double their number, a set of face-warps interwoven with the face-wefts, and a set of binder-warps interwoven with the two sets of wefts, but wholly covered on the face of the fabric by the face warps and wefts, substantially as described.

351,571. **TAG.** Rudolph Blankenburg, Philadelphia, Pa. Filed July 21, 1886. (No model.)



Claim.—A tag having a tongue formed from the internal portion thereof, and provided with shoulders at the opposite ends of the base or shank of the tongue all substantially as specified.

351,572. **RUBBER SHOE.** Riley E. Cannon, Nicholasville, Ky. Filed July 27, 1886. (No model.)



Claim.—The combination, with a rubber shoe, of the leather welt, extending under the heel portion and around the lower edges of the sides thereof, and the lower leather sheet, the whole being secured together, substantially as and for the purposes specified.

351,573. **MANUFACTURE OF HORSESHOE-NAILS.** George J. Capewell, Cheshire Conn. Filed July 6, 1886. (No model.)



Claim.—1. The process or method of forming nail-heads, that consists in compressing the shouldered head-section endwise between socketed dies, one of which supports the blank by the shoulders and the other engages the outer end of the blank, all substantially as described.

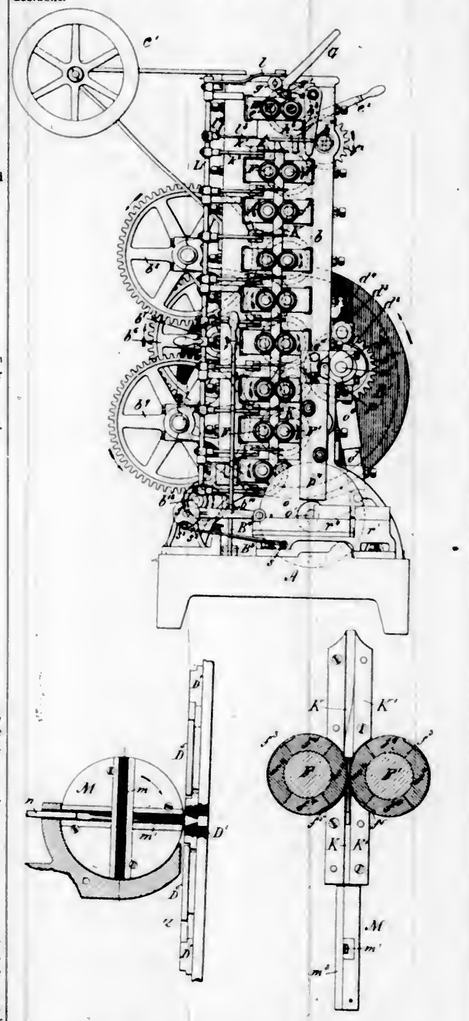
2. In making nails, the method of preventing the jamming of the nail-blank in the socket, which consists in forming on the lower end of the head-section of the blank shoulders with greater angle of slope, as referred to the axis of the blank, than the supporting-walls of the socket in the die, all substantially as described.

3. The nail-forming die *d*, having a socket, *e*, with the regular sloping wall *e'*, and an opposed wall, *e²*, of irregular slope, whereby a nail-blank is tipped sidewise in completing a head formed in the die, all substantially as described.

4. An improvement in the method or process of beveling the head of a nail in dies, which consists in supporting the nail-blank in a die with a socket having one wall of regular slope and the opposite wall of irregular slope, all substantially as described.

351,574. **HORSESHOE-NAIL MACHINE.** George J. Capewell, Cheshire, Conn. Filed July 15, 1886. (No model.)

Brief.—Nail-wire is introduced into the machine through a pair of straightening-rolls and is fed to a reciprocating cutter, which severs a blank. The latter is carried down by a twisted guide-trough through a series of forging-rollers, which successively reduce it to approximate shape. From the lower end of the guide the blank falls into a transfer-disk, which presents it successively to trimming, beveling, and beading dies. A series of automatic devices extending the whole length of the machine connect with a vertical shifting-rod for stopping the machine in case of accident.



Claim.—1. In a machine of the class described, the feed-rolls, roller-dies, the cut-off device located between them, with mechanism for operating the same, and devices for stopping the machine, combined with the slide *l*, located in or near the path of movement of the nail-blank, and means, substantially as described, connecting said slide with the devices for stopping the machine as and for the purpose set forth.

2. In a machine of the class described, the rotary switch-plate arranged to receive the nail-blanks from the guideway and having a plural number of independent crosswise channels, combined with the mechan-

ism for turning the switch-plate with an intermittent movement, all substantially as described.

3. The rotary heading-plate and devices for giving it an intermittent rotation, each step being an aliquot part of a circle, said devices consisting of a crank-arm on the heading-plate shaft bearing a spring-pawl, a ratchet-wheel and a detent-wheel fast to said shaft, detent-levers whereby said shaft is firmly held between its rotary movements, the telescoping pitman connecting the crank-arm and the driving mechanism, and the hooked arm whereby the pitman is extended, in combination with the within-described beveling, pointing, and heading dies arranged at intervals in the path of the nail-blanks held in the die-plate, all substantially as described.

4. The die-plate having an intermittent rotation and bearing a plural number of dies, each having a nail-holding and head-forming socket adapted to carry the nail-blank with its ends protruding from the plate, in combination with the beveling-dies, the trimming-dies with the scrap-clearer, the reciprocating complementary heading-die, and the push-out device and its described operating mechanism, all substantially as described.

5. In a machine for making horseshoe-nails, the rotary cam p, fast to a shaft of the operating mechanism, the beveling-lever p', with the knuckle p^2, the spring-retracted plunger p^3, bearing on its outer end one of the beveling-dies P, and the opposing base supporting the complementary die P', with the annular bevel, in combination with the rotary die-plate adapted to carry the nail-blanks with the ends protruding, and in the pauses between its movements present the nail-blank to the operation of the said beveling-dies, all substantially as described.

6. In a device for beveling the ends of horseshoe-nails, the beveling-dies consisting of a flat-faced die having a rotary adjustment on the plunger, and a complementary die having an annularly-beveled and countersunk surface and having a rotary adjustment on the base, all substantially as described.

7. In a machine of the within-described class, the heading-plate having an intermittent rotation and bearing dies adapted to present the ends of the nail-blanks to the trimming-dies, the point-trimming dies with the sliding scrap-clearing device, and the trimmer-slide and its described operating mechanism, all substantially as described.

8. In a machine of the within-described class, the butt-piece d^{12} and a reciprocating heading-die, d^{10}, combined with the die-plate o, having an intermittent rotation and bearing a sectional heading-die, D, with all its sections backed up against lateral movement by the substance of the plate, and also having a die-socket opening through the die to front and rear of the plate, all substantially as described.

9. In combination with the die-plate o, having an intermittent rotation and bearing a plural number of sectional heading-dies, D, the sliding wedge with beveled and projecting end, the complementary heading-die d^{10}, the spring-seated plunger d^{13}, the butt-piece, and the wedge-operating cam d^{14}, all substantially as described.

10. In a machine of the within-described class, the wire-straightening lever bearing the guide-rolls, the feed-rolls borne in the machine, and the swinging lever of the stop device held in contact with the wire of stock as it is fed into the machine, and adapted to swing across its path and stop the machine when the end of the wire is reached, all substantially as described.

11. In combination with the feed-rolls of the within-described machine, the spring-seated bearing-blocks, and the roll-separating device consisting of a wedge with its points located between the rolls and connected to a lever pivoted to the frame of the machine, all substantially as described.

12. In combination with the feed-rolls of the within-described machine, the rod-straightening lever bearing the guide-rolls on opposite sides of the path of the rod as it is fed into the machine, and the removable clamp device whereby the said lever is clamped in position for use, all substantially as described.

13. In combination with the feed-rolls of the nail-machine, the adjustable gage l, located in the path of the nail-rod, the cutters for severing a nail-blank from the rod, the cut-off lever, the wiper that operates the cut-off lever, the cut-off-lever latch, and the stop device, all substantially as described.

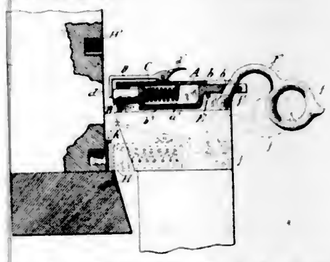
14. In combination with the cut-off device having a reciprocating live cutter, the slide-block l^2 in the path of the cutter, the connecting-rod l^3, the stop-finger l^4, and the rotary rod L of the stop mechanism, all substantially as described.

15. The combination of the guideway leading from pair to pair of roller-dies and formed between blocks, the outer one of which is removable, the spring-repressed stop-lever K, having one end in contact with the removable block K^2 and the other in contact with the stop-finger, fast to the rotary stop-rod L and the stop-finger, all substantially as described.

16. In combination with the removable block K^2, on the inner side of which a portion of the nail-guideway is formed, the stop-lever composed of the lever part k, overlapping the lever part k^3, and bearing a turn-button with its edge adapted to engage the outer edge of the lever part k^3, the spring k^2, and the stop-finger fast to the stop-rod L, all substantially as described.

17. In combination with the removable outer block, K^2, of the guideway, the spring-repressed lever k, and the indicator J, automatically displayed by the movement of the lever k when the nail-blanks become clogged in the guideway, all substantially as described.

351,575. SASH-FASTENER. Francis M. Case, Denver, Colo. Filed Sept. 2, 1886. (No model.)

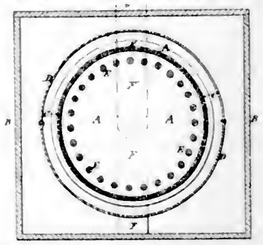


Claim.—1. The combination, with a bolt, of a dog, D, pivoted to the top of the case thereof, and constructed to drop over the end of the bolt, substantially as described.

2. The combination, with a bolt, as B, of a pivoted detaining-dog, as D, provided with a finger-piece, as d', for operating the dog, substantially as described.

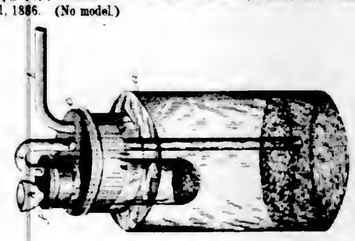
3. The combination, with the case A and bolt B, of the handle F, having locking-cam f' acting on the bolt B, substantially as described.

351,576. PROCESS OF EXTRACTING GOLD, &c., FROM ORES. Henry R. Cassel, London, County of Middlesex, England, assignor to the Cassel Gold Extracting Company, (Limited,) Glasgow, Scotland. Filed June 25, 1885. (No specimens.) Patented in England Aug. 9, 1883, No. 3,873; in France Feb. 9, 1884, No. 160,213; in Germany Mar. 14, 1884, No. 31,105; in Belgium Mar. 29, 1884, No. 64,667; in Victoria Apr. 29, 1884, No. 3,709; in New Zealand May 8, 1884, No. 1,110; in India July 16, 1884, No. 75; in Spain Aug. 8, 1884, No. 6,023; in New South Wales Aug. 29, 1884, No. 8,380; in Queensland Sept. 6, 1884, No. 7, page 183; in Austria-Hungary Sept. 20, 1884, No. 10,926 and No. 42,323, and in Canada Jan. 13, 1885, No. 20,877.



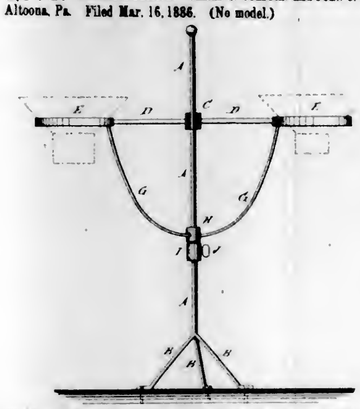
Claim.—The process of separating metals from ores or alloys, especially those of an anriferous character, which consists in charging the ore or alloy in a powdered condition into an anode-compartment, which is separated from the cathode-compartment by a porous partition composed of asbestus, which permits the passage of the current with the metals in solution, and retains the ores within the anode-compartment, said anode-compartment containing a chloride solution, agitating and subjecting the charge to nascent chlorine produced from said solution during the passage of the electric current, passing the solution of metals through the asbestus partition, and depositing the metals in solution at the cathode, substantially as described.

351,577. INHALER. Frank A. Chesebro, Boston, Mass. Filed June 21, 1886. (No model.)



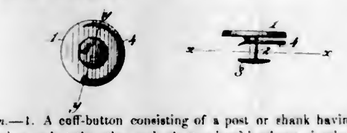
Claim.—An inhaler consisting of the main vessel or receptacle and its stopple, the acid-receptacle constructed as a single or separate part, and its stopple, said acid-vessel being extended through and seated in the stopple of the main vessel or receptacle, the air-inlet tube constructed as a separate or single straight stem or piece extending through the stopple of the acid-receptacle, and provided with a funnel as an integral part thereof at its upper end, the connecting-tube i, bent into U-form at its upper end, and having its shorter stem extended through the stopple of the acid-receptacle and its longer stem passed through the stopple of the main receptacle and into the medicated liquid therein, and the inhaling-tube having one end passed through the stopple of the main receptacle, as set forth.

351,578. FUNNEL-STAND. James S. Colburn and John C. Colburn, Altoona, Pa. Filed Mar. 16, 1886. (No model.)



Claim.—A funnel-stand constructed substantially as herein shown and described and consisting of the standard A, having legs B, the funnel-receiving rings E, the sleeves C H, placed upon the said standard, the radial rods D, the connecting-rods F, and the curved braces G, connecting the said rings with the standard and with each other, and the sleeve I and set-screw J, placed upon the said standard and supporting the said sleeves and their attachments, as set forth.

351,579. CUFF-BUTTON. Frederic Cook, New Orleans, La. Filed Aug. 10, 1886. (No model.)



Claim.—1. A cuff-button consisting of a post or shank having at one end a shoe and at the other end a button-head having a circular pin attached at one end to the inside thereof, and extending around the same in a plane parallel, or substantially so, with the inside of the button-head, substantially as described.

2. A cuff-button having the inner side of its head provided with an attached circular pin extending around said button-head, and by the rotation of the latter caused to penetrate and engage the sleeve of a dress or other garment, substantially as described.

351,580. AMALGAMATOR. Henry Cook, Philadelphia, Pa. Filed Jan. 12, 1886. (No model.)

Claim.—1. In an amalgamator, the receiver A, in combination with the cylinder E, having continuous spiral flanges from one end of the same to the other end thereof, said cylinder and flanges being of copper, and an outer spiral of iron connected to said inner spirals, and a mercury bath located below said outer spiral and below the level of the cylinder E, all substantially as described.

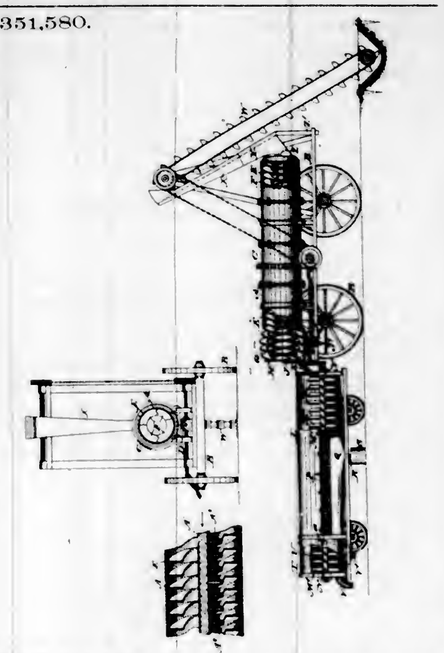
2. In an amalgamator, a receiver, in combination with a dust chamber or indicator, a rotary shaft journaled in both the receiver and dust-chamber and provided with vanes, a screen in said dust-chamber surrounding the vanes in said chamber, and a spout leading from the portion of the chamber outside of the said screen, all substantially as and for the purpose set forth.

3. A mercury-saver consisting of a stationary cylinder or receiver having within it a rotary beater, the lower portion of said cylinder being slotted, substantially as described.

4. A cylinder, L, having a slotted portion, P, and a trough, Q, below the same, with a discharge-opening, substantially as described.

5. In an amalgamator, the receiver L and chamber T, in combination with the shaft N, with vanes M', screen U, covering the vanes of the shaft in said dust-chamber, and spout V, all substantially as described.

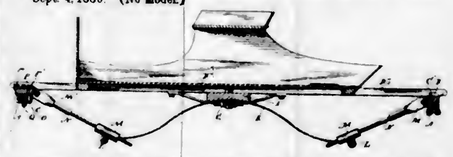
351,580.



6. In an amalgamator, the dust-chamber U, formed of hinged sections and provided with a beater inclosed in a screen, the portions of the chamber inside and outside of the screen having, respectively, outlet-spouts, substantially as and for the purpose set forth.

7. A rotary receiver with an interior spiral connected to an outer spiral, in combination with a mercury bath, into which said outer spiral dips, a slotted receiver in communication with said mercury bath, a trough located below said slotted receiver and provided with a dust-chamber, a beater common to said slotted receiver and dust-chamber, a screen in said dust-chamber inclosing the portion of said beater therein, and outlet-passages to said dust-chamber, all substantially as and for the purpose set forth.

351,581. VEHICLE-SPRING. Alfred J. Cooper, Duryea, Pa. Filed Sept. 4, 1886. (No model.)



Claim.—1. The combination, with the side bars, of the body pivoted thereto, the springs secured to the body, the coupling-blocks to which the ends of the springs are connected, and the bars or bolts, adjustable in said coupling-blocks and swiveled to their supports, substantially as described.

2. The combination, with the side bars, of the body, the iron secured to said body, extending transversely across it near the center thereof, on which the body is pivoted, the springs secured at or near the center of the body, and also to the head-block and rear axle, and the metal bearing-blocks secured at or near the middles of the side bars, and constituting bearings for said iron, substantially as described.

3. The combination, with the side bars, of the body pivoted at or near its middle to the side bars, the metal springs secured to the body, the coupling-blocks and the transverse bolts for securing the ends of the springs thereto, the adjustable screw-bolts, and the pivoted yokes to which they are swiveled, all substantially as described.

4. The combination, with the head-block and the front axle, of the plate on top of the head-block, the clip inclosing the axle and passing through the head-block, the nuts applied to said clip, and the king-bolt

passing through top plate, head-block, axle, and clip, substantially as described.

5. The combination, with the head-block and front axles, of the flanged plate on top of the head-block, having the ears for the attachment of the pivoted yoke of the spring-adjusting devices, the clip embracing the axle and passing through the head-block and top plate, the nuts on said clip, and the king-bolt, substantially as described.

351,582. FOUNTAIN-PEN. Alfred B. Davis, Philadelphia, Pa. Filed July 8, 1886. (No model.)



Claim.—1. A fountain-pen having a holder, and a glass reservoir inclosed in the holder, but detachable therefrom, substantially as set forth.

2. A fountain-pen comprising a holder and an ink-reservoir carrying the pen, the reservoir being inclosed within the holder, but detachable therefrom, substantially as set forth.

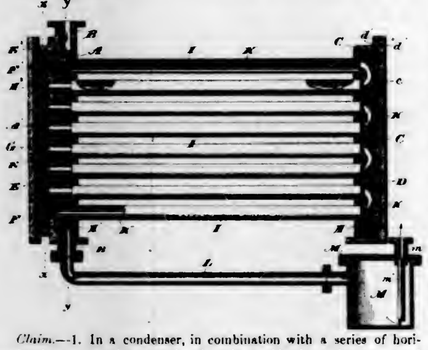
3. The combination of the holder and its inclosing-caps for the opposite ends with a detachable reservoir inclosed within the holder, but having at its upper end an enlargement, *a'*, as and for the purpose specified.

4. The combination of the holder, cap F, and ink-reservoir with a stopper, D, for the reservoir, and having an opening, *d*, adapted to be closed when the stopper is pushed inward.

5. A fountain-pen having an ink-reservoir provided with a stopper, and a piece of sponge or other porous material at its upper end.

6. A fountain-pen having an ink-reservoir provided with an enlargement, *a'*, containing a piece of sponge or other porous material near its upper end, substantially as and for the purpose set forth.

351,583. SURFACE-CONDENSER. Charles A. Dixon, Newburg, N. Y., assignor to Robert Whitehill, same place. Filed Apr. 29, 1886. (No model.)



Claim.—1. In a condenser, in combination with a series of horizontal tubes arranged one under the other, said tubes being connected alternately with the opposite ends of the succeeding lower tubes, an inlet for the cooling medium connected with the lower end of the series of tubes, the series of outer tubes surrounding such other tubes and correspondingly connected, and the inlet for the fluid to be cooled connected with the series of outer tubes at its upper end, substantially as and for the purpose described.

2. In a condenser, in combination with the two heads A and C, provided with transverse chambers, the tubes connecting such chambers, so that fluid flowing into the tubes at one end of the series will be caused to circulate throughout the whole series, and a series of tubes within such tubes, arranged so as to conduct a cooling medium throughout the extent of the outer tubes, substantially as and for the purpose specified.

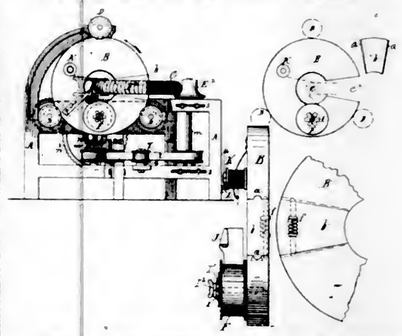
3. In combination with the heads A and C, provided with the transverse chambers, the series of tubes connecting the upper chambers in the heads, the series of tubes connecting the lower chambers in the heads, the series of tubes connecting each of the other chambers in head A with the chamber preceding it in the series of chambers in head C, the series of tubes connecting the corresponding chambers in the series in both heads, the head E having chambers corresponding with those on the head A, the tubes extending from these chambers through the lower tubes opening into the corresponding chambers in head A, and around back through the tubes opening into the next lower chamber in head A, inlet and outlet ports communicating with the upper and lower chambers in head A, and inlet and outlet ports or passages into and from the lower and upper chambers, respectively, in head E, substantially as and for the purpose set forth.

4. In combination with the condenser and means for conducting away the fluid condensed thereby, the reservoir and means for drawing off the contents thereof from near its bottom, substantially as and for the purpose described.

5. In combination with the reservoir for receiving the condensed fluid or liquid from the condenser, the discharge connection or nozzle and the pipe communicating therewith, extending down within the reservoir to a point near its bottom, substantially as and for the purpose specified.

6. In combination with the circulating-tubes of the condenser, the heads provided with partitions to form chambers and closing-plates for the heads, substantially as and for the purpose shown.

351,584. MACHINE FOR WRAPPING COILS OF BUNDLES OF WIRE. John A. Dixon, Worcester, Mass., assignor of one-half to Philip W. Moen, same place. Filed Sept. 17, 1885. (No model.)



Claim.—1. The combination of the annular carrier-wheel B, having a removable segment, *b*, secured therein by detachable lock devices, the peripheral friction-rolls D, supporting said carrier, a stud, I, and tension devices to hold and regulate a roll of wrapping fabric mounted on said carrier-wheel, guide-rolls adapted for supporting and advancing a circular bundle of wire, and means for imparting motion to said rolls, for the purpose set forth.

2. The combination of the carrier-wheel provided with supports for a roll of ribbon-formed wrapping fabric and a spool of binding-strand with the peripheral rolls D, supporting and imparting rotative action to said carrier-wheel, a series of flanged rolls adapted to guide and rotate a circular bundle of wire through said carrier, and means for imparting motion to said rolls, substantially as set forth.

3. The combination of the revoluble carrier-wheel having the detachable section with the stud for containing a spool of wrapping fabric mounted on said carrier, a folding device for turning the edge of the wrapping fabric as it passes from said spool, and means for supporting and revolving said carrier-wheel, substantially as set forth.

4. The combination of the revoluble carrier-wheel, provided with an opening, c^2, through its side, the removable section *b*, fitted thereto by tongues and grooves *a*, and the locking device *f*, substantially as shown and described.

5. The combination of the carrier-wheel B with the rolls D, the shaft *d*, the roll E, adjustable guiding-rolls E' E^2, shaft N, and gears *n* and n^2, as and for the purposes set forth.

6. The combination of the guide-rolls E E' E^2, carrier-wheel B, wrapper-spool stud I, folding device J, binding-spool stud K', and means for rotatively actuating said rolls and carrier-wheel, substantially as and for the purposes described.

351,585. CONDENSER. James B. Edmiston, Liverpool, County of Lancaster, England. Filed Dec. 29, 1885. (No model.) Patented in England Feb. 23, 1885, No. 2,422.

Claim.—1. In condensers, the combination, with the water-chamber *a*, having the inlet and outlet ports *d e*, of the series of annular condenser-compartments *k*, formed of exterior and interior walls, *f g*, the steam-inlet pipes *l*, the condensed-water-outlet pipes *m*, and the base *b*, forming a condensed-water reservoir, substantially as and for the purposes set forth.

2. In condensers, the combination of the water-chamber *a*, the series of annular condenser-compartments *k*, formed of the exterior and interior walls, *f g*, and the diaphragm-plates *n*, extending inwardly between the compartments, substantially as and for the purposes set forth.

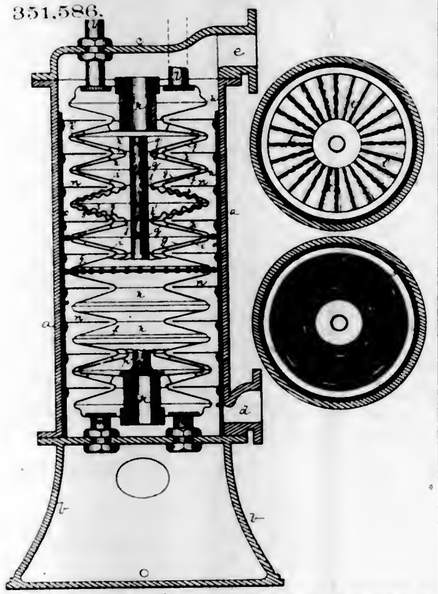
3. In condensers, the combination of the water-chamber *a* and the series of annular double-walled condenser-compartments *k* therein, the interior and exterior walls of said compartments being corrugated or fluted, substantially as and for the purposes set forth.

4. In condensers, the combination of the water-chamber *a*, the series of double-walled condenser-compartments *k* therein, and the water-pipe *p*, extending up into the interior water-space of the condenser and perforated at intervals, substantially as and for the purposes set forth.

5. In condensers, the combination of the water-chamber *a*, the series of double-walled condenser-compartments *k*, formed of exterior and interior walls, *f g*, and the tubes *r*, connecting said walls at the ends, substantially as and for the purposes set forth.

6. In condensers, the annular condenser-compartments *k*, formed of exterior and interior walls, *f g*, in combination with ferrules *i*, to hold said walls apart, substantially as set forth.

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351,586. EXTENSION CHAMFER-KNIFE. Denis Eisolt, Milwaukee, Wis. Filed May 18, 1886. (No model.)

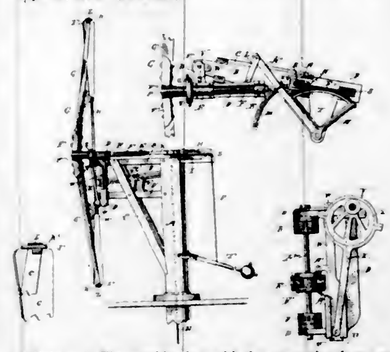


Claim.—1. In a hand-tool for chamfering barrels, kegs, &c., the combination of two extensible parts, one sliding upon the other, one of them carrying the blade, and both having handles, and a set-screw for holding the two parts rigidly in contact at any desired degree of extension, substantially as set forth.

2. In a hand-tool for chamfering barrels, kegs, &c., the combination of two extensible parts, one sliding upon the other, each consisting of two horizontal portions, at different levels united by integral oblique central portions, one part carrying a blade, and both having suitable handles, and the end of each extensible part farthest from its handle being provided with a loop to receive the other extensible part, with another loop secured to one part adjacent to the described oblique portion thereof and passing around the other part, and a set-screw passing through said loop and adapted to bear against the said other extensible part, substantially as set forth.

3. In a hand-tool for chamfering barrels, kegs, &c., the combination of two extensible parts, one sliding upon the other, and connected together by loops, one of said parts carrying the blade, and the other provided with a series of pivot-seats, and both provided with suitable handles, with a securing device for holding the two extensible parts rigidly in contact at any desired point, and a movable pivot adapted to be secured to either of the said seats, substantially as set forth.

351,587. WINDMILL. Franklin Fanning, St. Joseph, Mo. Filed Apr. 15, 1886. (No model.)



Claim.—1. The combination, with the supporting-frame mounted on the upper end of the hollow vertical shaft, of the frame pivoted thereto, the wind-wheel and its shaft journaled in bearings in said frame, the eccentric or cam and cam-rod, the sliding bar working in suitable guides, and the bifurcated walking-beam having lugs engaging a reciprocating drum mounted upon a vertical rod, substantially as and for the purposes specified.

2. The combination, with the supporting-frame, the frame pivoted thereto, and the segment and arm connected thereto by a link, of the guide whereby the movement of the parts may be regulated and the movement of the same limited, substantially as specified.

351,588. MECHANICAL-TELEPHONE SYSTEM. Moses G. Farmer, New York, N. Y. Filed June 23, 1886. (No model.)

Claim.—1. The combination, with two mechanical-telephone lines provided with couplings or mechanical connections for uniting the two lines, of means, substantially as described, for operating or controlling the couplings, and thereby bringing the lines into or out of operative relation with one another, as herein set forth.

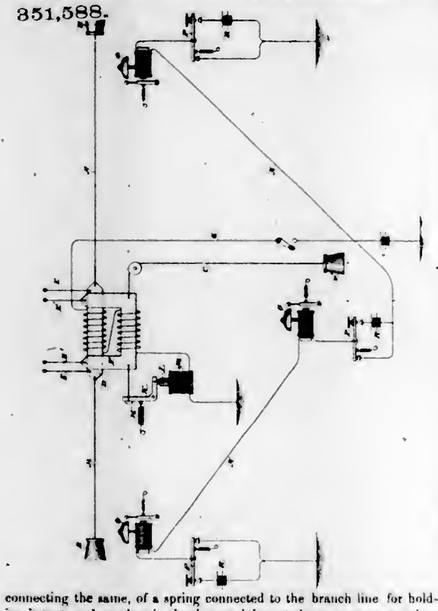
2. In a mechanical-telephone system, the combination, with a main line and one or more branch lines, of couplings or mechanical connections for uniting a branch line to the main line, and means, substantially as described, for controlling or operating the couplings, and thereby bringing the branch line into or out of operative relation with the main, as set forth.

3. In a mechanical-telephone system, the combination, with a main and branch lines, of a coupling or mechanical connection, the two parts of which are connected, respectively, to the two lines, an electric circuit, and devices therein adapted to be operated by the current and to control or operate the coupling, and thereby bring the two lines into or out of operative relation with each other, as set forth.

4. In a mechanical-telephone system, the combination, with a main and branch lines, of an armature inserted in one line and a magnet in the other and placed or suspended in proximity to one another, and an electric circuit for causing an attraction between the magnet and armature, whereby they are brought together and the lines thereby connected at will, as set forth.

5. In a mechanical-telephone system, the combination, with a main line and a branch line, and means for mechanically connecting and dis-

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connecting the same, of a spring connected to the branch line for holding it tant, and an electric circuit containing an electro-magnet or solenoid acting in opposition to the spring, and means for operating or controlling the connection between two lines, as set forth.

6. In a mechanical-telephone system, the combination, with a main line, of a branch line normally disconnected from the main, means for connecting the main and branch lines, an electric circuit extending from the terminals of the branch line to its point of connection with the main, and devices included therein for controlling or operating such connection, as set forth.

7. In a mechanical-telephone system, the combination, with a main line, of a branch line or lines normally disconnected from the main, means for connecting the main and branch lines, an electric circuit for each branch extending from the terminus thereof to the point of connection with the main, devices included therein for controlling or operating such connection, and an electric-signaling line running to all the telephones on the lines, as set forth.

351,589. SYSTEM OF ELECTRIC DISTRIBUTION. Lucien Gaulard and John D. Gibbs, County of Middlesex, England, assignors to George Westinghouse, Jr., Pittsburg, Pa. Filed Mar. 6, 1886. (No model.)

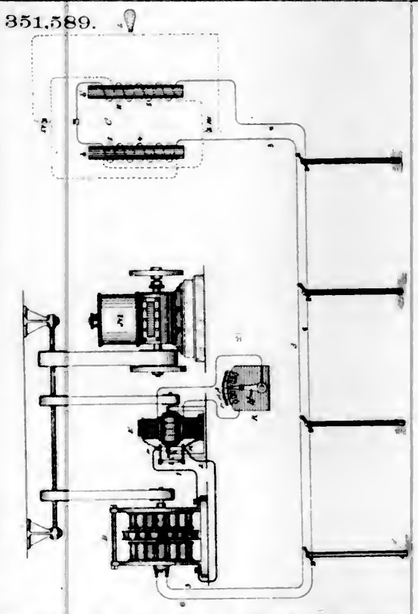
Claim.—1. The hereinbefore-described art or method of electrical distribution and conversion, which consists in establishing in a closed electric circuit a current of alternate and equal positive and negative potential, producing, by the influence of such current, an inductive field of alternate polarity, and thereby inducing, in translating devices situated in an independent closed circuit traversing such field, a similar alternating secondary current of greater quantity and less potential than the originating or producing current.

2. In a system of electrical distribution, an inductorium or converter in which the length of that portion of the conductor traversed by the primary current within the magnetic field created by itself exceeds the length within the same field of the conductor traversed by the secondary current, in combination with a dynamo-electric generator producing alternating electric currents or pulsations of equal potential and duration, and translating devices actuated by said secondary current.

3. In a system of electrical distribution, an inductorium or converter in which the resistance of that portion of the conductor traversed by the primary current within the magnetic field created by itself exceeds the resistance of that portion of the conductor traversed by the secondary current which lies within said field, in combination with a dynamo-electric generator producing alternating currents or pulsations of equal potential and duration, and translating devices actuated by said secondary current.

4. In a system of electrical distribution, a dynamo-electric machine organized for the production of alternate positive and negative currents equal to each other in potential and duration, in combination with the primary circuit of an inductorium or converter organized to induce in its secondary circuit alternating currents of lower potential and greater

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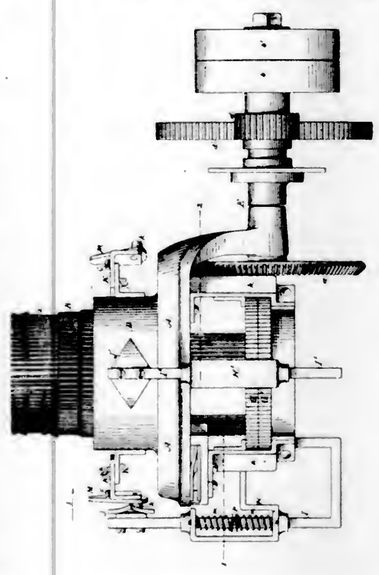


quantity than those of the primary circuit, and one or more translating devices actuated by said secondary currents.

5. In a system of electrical distribution, the combination of an inductorium or converter having its primary and secondary circuits constantly closed, a dynamo-electric generator for producing alternating currents of equal potential and duration included in said closed primary circuit, and one or more translating devices included in said closed secondary circuit, substantially as set forth.

351,590. CIRCULAR-KNITTING MACHINE. George H. Gilbert, Philadelphia, Pa. Filed Dec. 30, 1885. (No model.)

Brief.—The object is to provide circular-knitting machines of the type shown with an attachment whereby the picking of the needles in the operation of narrowing or widening is effected automatically.



Claim.—1. The combination of the cam-cylinder of the machine, the needle-cylinder having needles movable into or out of the range of the cam, picking-rods acting on the needles, racks carrying said rods, a pawl-carrier having pawls engaging the racks, and mechanism, substantially as described, for operating the cam-cylinder and pawl-carrier, and for reciprocating the picking-rods, all substantially as specified.

2. The combination of the cam-cylinder, the needle-cylinder and its movable needles, picking-rods having lugs for elevating and depressing the needles, racks carrying said picking-rods, springs whereby the rods are held normally in one position and are restored to this position after being elevated or depressed therefrom, and mechanism, substantially as described, for operating said cam-cylinder, racks, and rods, all substantially as specified.

3. The combination of the cam-cylinder, the needle-cylinder having movable needles, the picking-rods, racks carrying the same, springs for holding the rods in normal position, cams and projections engaging with each other to effect the elevation or depression of a rod on each reciprocation of the cam-cylinder, and mechanism, substantially as described, for operating the cam-cylinder and racks, all substantially as specified.

4. The combination of the cam-cylinder, the needle-cylinder having movable needles, the picking-rods and their supporting-springs, racks carrying said rods, double cams carried by the rods, levers carried by the cam-cylinder and having pins for acting upon the cams, means, as set forth, for adjusting said levers, and mechanism, substantially as described, for operating the cam-cylinder and racks, all substantially as specified.

5. The combination of the cam-cylinder, the needle-cylinder having movable needles, picking-rods, racks carrying the same, the pawl-carrier and its pawls, mechanism, substantially as described, for operating the cam-cylinder, picking-rods, and pawl-carrier, and means, substantially as set forth, whereby the pawls are adjusted on said carrier in order to effect a reversal of the direction of movement of the racks, all substantially as specified.

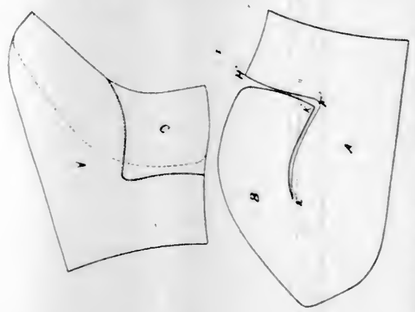
6. The combination of the cam-cylinder, the needle-cylinder and its movable needles, picking-rods, racks carrying the same, mechanism, substantially as described, for operating the cam-cylinder and rods, a pawl-carrier having pawls engaging with the racks, a lug on the cam-cylinder, and devices, substantially as set forth, whereby said lug is caused to act upon and move the pawl-carrier as the cam-cylinder reaches the limit of its movement in either direction, all substantially as specified.

7. The combination of the cam-cylinder, the needle-cylinder and its movable needles, picking-rods, racks carrying the same, a pawl-carrier having pawls engaging with said racks, a plate, S, a projection on the needle-cylinder for striking and moving said plate at each extremity of movement of the cylinder, means, substantially as specified, whereby the movement of the plate is transmitted to the pawl-carrier, and mechanism, substantially as set forth, for operating the cam-cylinder and picking-rods, all substantially as specified.

8. The combination of the cam-cylinder, the needle-cylinder having movable needles with bitted stems projecting below the cylinder, picking-rods for acting on the bits, racks carrying the rods, a pawl-carrier having pawls engaging with said racks, and mechanism, substantially as set forth, for operating the cam-cylinder, picking-rods, and pawl-carrier, all substantially as specified.

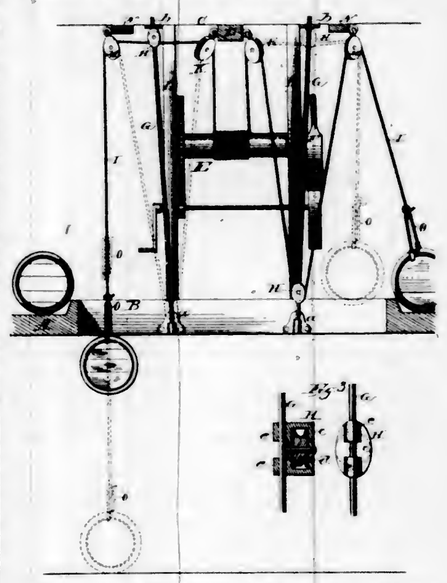
9. The within-described needle-picking attachment for knitting-machines, said attachment consisting of a frame carrying two racks, each provided with a spring-supported picking-rod, a pawl-carrier having pawls engaging with the racks, and cams and pins, by the engagement of which the picking-rods can be raised or lowered from their normal position, all substantially as specified.

351,591. SHOE. Charles H. H. Gilbert, Brockton, Mass. Filed May 6, 1886. (No model.)



Claim.—In a button boot or shoe, a quarter including the button-flap cut in one piece, the button-flap being whole or unpieced, having the opening H' F' E' K', for the admission of the insertion-piece C, substantially as described.

351,592. BARREL-LOWERING DEVICE. John W. Gillman, Milwaukee, Wis. Filed Aug. 5, 1886. (No model.)



Claim.—1. In a device for lowering barrels, a winch carrying a rope arranged to form two pennants that wind and unwind from opposite sides and have their free ends provided with slings, in combination with sheave-blocks suspended in pairs above the winch, and a weighted sliding block interposed between each pair of the suspended ones, the pennants being passed over said suspended blocks and under the sliding ones, substantially as and for the purpose set forth.

2. In a device for lowering barrels, a winch carrying a rope arranged to form two pennants that wind and unwind from opposite sides and have their free ends provided with slings, in combination with sheave-blocks suspended in pairs above the winch, inclined rods arranged in front of said winch and between the suspended blocks, and weighted sheave-blocks that slide on the rods, said pennants being passed over the suspended blocks and under the weighted ones, substantially as and for the purpose set forth.

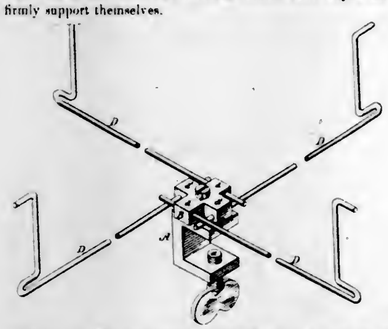
3. In a device for lowering barrels, a winch carrying a rope arranged to form two pennants that wind and unwind from opposite sides and have their free ends provided with slings, in combination with sheave-blocks suspended in pairs above the winch, removable inclined rods arranged in front of said winch and between the suspended blocks, and weighted sheave-blocks that slide on the rods, said pennants being passed over the suspended blocks and under the weighted ones, substantially as and for the purpose set forth.

4. In a device for lowering barrels, a winch carrying a rope arranged to form two pennants that wind and unwind from opposite sides and have their free ends provided with slings, sheave-blocks suspended in pairs above the winch, and guide-rods arranged in front of said winch and between the suspended blocks, in combination with sliding blocks each consisting of a weighted shell having a sheave journaled therein and its back provided with an eye or eyes to engage a corresponding guide-rod, said pennants being passed over the suspended blocks and under the weighted ones, substantially as and for the purpose set forth.

5. The combination, with a vessel, of a winch operative between decks and carrying a rope arranged to form two pennants that wind and unwind from opposite sides, sheave-blocks suspended in pairs above the winch, removable inclined rods having their lower ends fitted in sockets secured to the coamings around the hatchway of said vessel and their upper ends retained by stay-plates upon the under side on the upper deck, and weighted sheave-blocks interposed between each pair of the suspended blocks and arranged to travel on the inclined rods, said pennants being passed over said suspended and under the weighted ones, substantially as and for the purpose set forth.

351,593. **REEL.** S. Ashton Hand, Toughkenamon, Pa., assignor to the S. Ashton Hand Manufacturing Company, same place. Filed May 11, 1885. (No model.)

Brief.—The pivot-block of the reel is made of a single casting, and is provided with projecting arms having holes therethrough for carrying the arms of the reel. The holes are not all in the same horizontal plane, and the arms of the reel bind each other where they cross, so as to firmly support themselves.

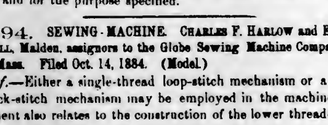


Claim.—1. The combination of the hub-block of the reel, having projecting arms and constructed for being centrally pivoted, with the arms D of the reel passing through and projecting beyond openings in the arms of the hub-block, said openings being in different planes, as described, whereby the projecting end of each arm D will overlap or underlap and bear firmly upon a projecting portion of an adjacent arm D, said arms D being thereby locked in position, all substantially as specified.

2. The combination of the pivot-pin, a clamp forming a support therefor, the hub-block of the reel carried by said pin, and having projecting arms, and the arms D of the reel passing through and projecting beyond the openings in the hub-block, said openings being in different planes, as and for the purpose specified.

351,594. **SEWING-MACHINE.** Charles F. Harlow and Edwin E. Angell, Malden, assignors to the Globe Sewing Machine Company, Boston, Mass. Filed Oct. 14, 1884. (Model.)

Brief.—Either a single-thread loop-stitch mechanism or a double-thread lock-stitch mechanism may be employed in the machine. The improvement also relates to the construction of the lower thread-holding mechanism.



Claim.—1. The combination of the shaft E, the stationary eccentric *a*, and rotary hook or spreader *b*, the shaft *d'*, journaled in the disk of the said hook or spreader *b* and provided with a crank-pin, d^2, the oscillating disk *e*, recessed to embrace said eccentric, and having also a slot for the engagement of said crank-pin, the stationary bobbin-case *h*, and the bobbin-supporter *i*, substantially as set forth.

2. The combination, with the shaft E, the stationary eccentric *a*, and the rotary hook or spreader *b*, of the shaft *d'*, journaled in the disk of the said hook or spreader and provided with the crank-pin d^2, the oscillating disk *e*, recessed to embrace said eccentric, and having also a slot for the engagement of the said crank-pin, the stationary bobbin-case *h*, and the bobbin-supporter *i*, open at its front side and having the flaring lips i', substantially as set forth.

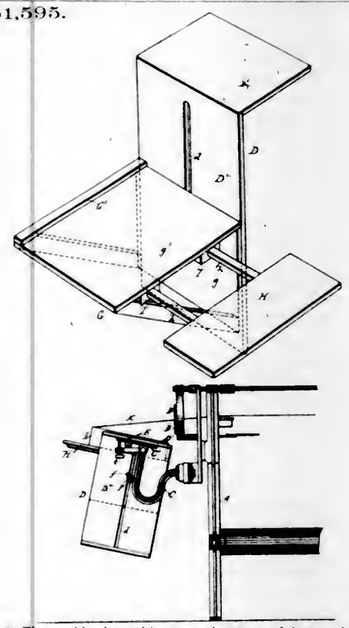
3. The combination, with the rotary hook or spreader *b*, the oscillating hook *d*, and their operating mechanism, of the stationary bobbin-case *h*, the bobbin-supporter *i*, open at its front and having the flaring lips i', the latch *l*, and the pivoted supporting-arm *j*, substantially as set forth.

4. The combination, with the rotary shaft E, having an axial perforation at its forward end, of the stem *m'*, fitting in said perforation, the eccentrics *n* and *o*, fixed with relation to the said stem, and the hook *p* and spreader *q*, pivoted at their lower ends and having openings to receive said eccentrics, substantially as set forth.

351,595. **PAPER-BOX TOP AND BOTTOM COVERING MACHINE.** Philip Hauck, Philadelphia, Pa. Filed June 10, 1886. (No model.)

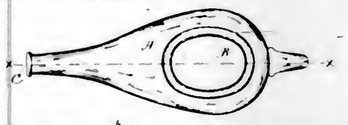
Claim.—1. The combination, with a machine or mechanism for labeling or papering the tops and bottoms of paper boxes, of a vertically-adjustable table therefor adapted and designed to support boxes and tops of various heights and kinds, substantially as shown and described.

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2. The combination, with a paper-box top and bottom labeling or papering machine, of a bracket, D, having a vertical slot, *d*, and a table, G, having a guard, G', said table being vertically adjustable on the bracket and held thereon by means of a bolt and nut, substantially as shown and described.

351,596. **NURSING-BOTTLE.** Henry C. Haven, Boston, Mass. Filed June 16, 1886. (No model.)



Claim.—The improved nursing-bottle herein described, having a flanged air-aperture provided with a compressible diaphragm having an air-inlet, and a separate feeding-outlet located at a different part of the bottle from the air-inlet, and formed to receive and hold an elastic nipple, substantially as described.

351,597. **TELEPHONE SYSTEM.** Nicholas C. Heissler, St. Petersburg, Russia. Filed July 23, 1886. (No model.)

Claim.—1. In a telephone system, the combination, with a single main line, of two sets of telephone-instruments and a polarized automatic switch for connecting either telephone with the central office, substantially as set forth.

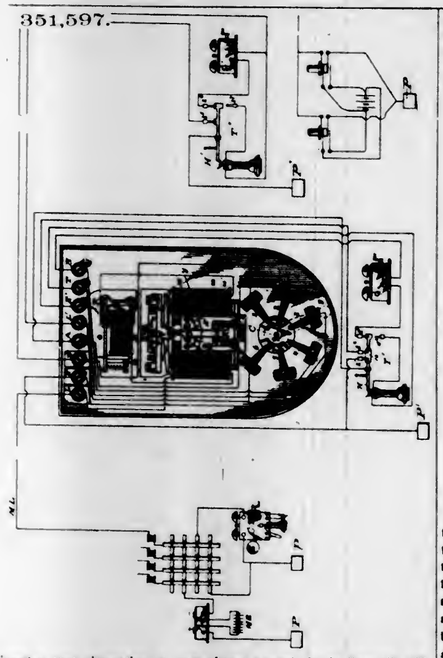
2. In a telephone system, the combination, with a single main line, of two sets of telephone-instruments, a polarized automatic switch for connecting either telephone with the central office, magneto-generator calls, and a differentiating-circuit neutralizing the alternating or intermittent call-currents at the automatic switch after the switch is set, substantially as set forth.

3. In a telephone system, the combination, with a single main line, of two sets of telephone-instruments, a polarized automatic switch for connecting either telephone with the central office, magneto-generator calls, a differentiating-circuit neutralizing the alternating or intermittent call-currents at the automatic switch after the switch is set, and a magnet opening the neutralizing-circuit to permit the setting of the switch by the alternating or intermittent call-currents, substantially as set forth.

4. A polarized switch provided with two sets of coils, one of which is in line and the other in a closed local circuit, such coils being proportioned so that alternating or intermittent currents in the line-coils will be neutralized in their magnetizing effect by the induced currents in the closed local circuit, substantially as set forth.

5. A polarized switch provided with two sets of coils, one of which is in line and the other in a closed local circuit, such coils being proportioned so that alternating or intermittent currents in the line-coils will be neutralized in their magnetizing effect by the induced currents in the closed local circuit, in combination with a magnet controlling said local circuit and opening it to permit alternating or intermittent currents to act on the polarized switch, substantially as set forth.

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6. In a telephone system, the combination, with a single line from central office, of a polarized switch having one set of coils in said line, two contacts made alternately by the armature of said switch, two telephones connected, respectively, with said contacts, whereby a prolonged current of positive or negative polarity from the central office will shift said switch to connect one or the other of the telephones with the central office, and a local neutralizing-circuit at said switch to permit alternating or intermittent call-currents to be sent through it without disturbing its position, substantially as set forth.

7. In a telephone system, the combination, with a single line from central office, of a polarized switch-magnet having one set of coils in said line, two springs alternately in contact with the armature of said switch-magnet, two stationary contacts made by said springs when not thrown off by the armature, two telephones connected with said springs, a normally-closed neutralizing-circuit at said switch, connected with one or both of said stationary contacts, and a magnet for opening said neutralizing-circuit and throwing it into circuit with a magneto telephone-call, whereby the switch will be automatically set by the call-currents, and will then permit such currents to pass without disturbing it further substantially as set forth.

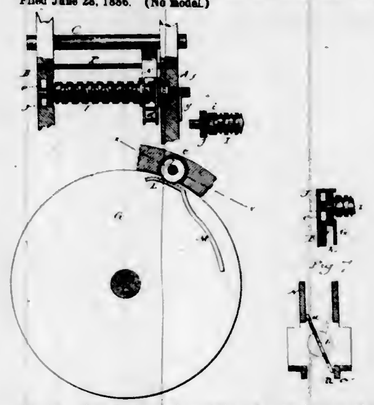
8. In a telephone system, the combination, with a central office, of a single line therefrom, two telephones connected therewith, and an automatic polarized directing-switch located at one of such telephones for connecting the telephones separately with the central office, substantially as set forth.

9. In a telephone system, the combination, with a central office, of a single line therefrom, two telephones connected therewith, an automatic polarized directing-switch located at one of such telephones for connecting the telephones separately with the central office, and connections from the automatic switch through the hook of one or of each telephone, for preventing interference by one telephone when the other is in use, substantially as set forth.

10. In a telephone system, the combination, with a central office, of a single line therefrom, two telephones connected therewith, an automatic polarized directing-switch located at one of such telephones for connecting the telephones separately with the central office, and a hand-switch at the same telephone for connecting said two telephones for communication between them, substantially as set forth.

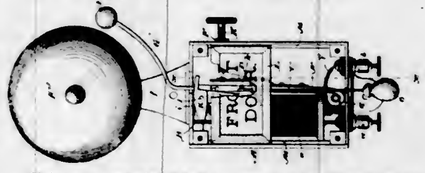
11. In a telephone system, the combination, with the central office and the single line therefrom, of the differentially-wound polarized switch-magnet M, the local magnet B, hand-switch C, telephone sets T' T'', and the connecting-circuits, constructed and arranged for operation substantially as set forth.

351,598. **FISHING-REEL.** Andrew B. Hendryx, New Haven, Conn. Filed June 28, 1886. (No model.)



Claim.—In a fishing-reel consisting of a spool arranged between two heads of a frame and provided with a crank for rotating the same, the combination therewith of a transverse shaft arranged across between the heads outside of the spool, and substantially parallel with the axis thereof, the said shaft constructed with a double or right and left hand screw-thread on its surface, the guide N, arranged upon said shaft and adapted to travel on said shaft back and forth between the two heads, the dog *a*, arranged in said guide and upon an axis at right angles to the axis of the shaft, and whereby said dog is permitted to turn and oscillate upon said axis, the said dog extending to the opposite sides of its own axis and upon corresponding sides of the said shaft, substantially as described.

351,599. **ELECTRIC VIBRATING CALL OR SIGNAL BELL.** Chas. Henzel, New York, N. Y. Filed Mar. 15, 1886. (No model.)



Claim.—1. In an electric-bell apparatus, the combination of a case inclosing and carrying the same and having an opening in one of its sides, the armature having the projecting stud, the pivoted latch engaging with the said stud, and the vertically-movable frame carrying the card, the said frame having the stud P for engaging with the latch, whereby when the armature is attracted the latch is moved out of engagement with the stud P and the frame carrying the card is released, for the purpose set forth, substantially as described.

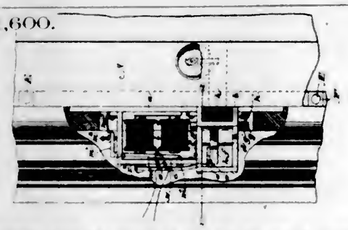
2. The combination, in an electric-bell apparatus, of the inclosing-case, having an opening in one of its sides, with the armature having the projecting stud *c*, the depending pivoted latch K, engaging the stud *c* and having the shoulder *k*, and the vertically-movable frame or annunciator having the stud P, to engage the shoulder of the pivoted latch when the annunciator or frame is raised, thereby supporting the same when elevated, whereby when the armature is attracted the latch is moved out of engagement with the stud P, and the frame or annunciator is released and permitted to descend, substantially as described.

351,600. **ELECTRICAL DOOR-OPENER.** Charles Henzel and William Wood, New York, N. Y. Filed Mar. 19, 1886. (No model.)

Claim.—1. The combination, in an electric door-opener, of the rotary detent, the electro-magnet, the movable locking-bar engaging with the detent, and the armature having the stud for locking the said bar, whereby when the armature is attracted the locking-bar is released and caused to release the detent, substantially as described.

2. The combination, in an electric door-opener, of the rotary detent, the electro-magnet, the armature having the stud *m'*, the lever N, bearing against the said stud when the armature is in its normal position, and the locking-bar *o*, connected to the lever N and engaging with the

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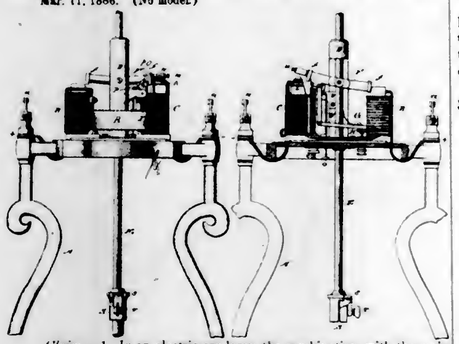
detent, whereby when the armature is attracted the lever N is released, thereby causing the locking-bar to release the detent, substantially as described.

3. The combination, in an electric door-opener, of the rotary detent having the arm *k*, the armature having the stud m^4, the lever N, bearing against the said stud when the armature is in its normal position, and the locking-bar *o*, connected to the lever N and engaging the detent, and having the arm o^2, bearing on the arm *k*, substantially as described.

4. In an electric door-opener, the combination of the rotary detent, the armature, the lever N, bearing against the armature when it is in its normal position, and the locking-bar *o*, connected to the lever N and engaging with the detent, substantially as described.

5. The combination, with the latching-bolt of a door, of the spring-actuated bolts E, bearing against the free edge of the door to normally force it open, the detent engaging with the latching-bolt, the electro-magnet, the armature, and means connecting the armature with the detent for locking the latter, whereby the door is opened by the bolts E when the armature is attracted and caused to release the detent, substantially as described.

351,601. ELECTRIC LAMP. Warren S. Hill, Boston, Mass. Filed Mar. 11, 1886. (No model.)



Claim.—1. In an electric-arc lamp, the combination, with the main and shunt magnets and cut-out terminals, of an armature-lever pivoted between said magnets, supporting the clutch and carrying a connecting-piece for the cut-out, and an adjustable device connected to said armature, whereby a practical balance of forces is obtained upon the armature when the lamp is in operative condition, and when the balance is disturbed the cut-out is operated, substantially as described.

2. In an electric-arc lamp, the combination, with the main and shunt magnets and the cut-out terminals, of a pivoted lever forming or carrying armatures for said magnets, and a connecting-piece for the cut-out, the clutch connected to said armature, and an adjustable spring acting in conjunction with the weight of the clutch, substantially as described.

3. In an electric-arc lamp, the combination, with the main and shunt magnets, of an armature-lever, cut-out terminals arranged upon the shunt-magnet, and a connecting-piece for the cut-out terminals carried by said armature-lever, substantially as described.

4. The combination, with the cut-out terminals, of a connecting-sleeve insulated from its support and loosely connected therewith, whereby a good bearing is obtained between the terminals and the sleeve, substantially as described.

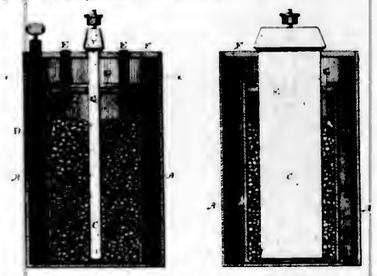
5. The combination, with the main and shunt magnets and armature-lever, of cut-out terminals arranged upon the shunt-magnet, and a connecting device attached to the end of the lever and adapted to engage the terminals, substantially as described.

6. The combination, with the main and shunt magnets and armature-lever, of cut-out terminals arranged upon the shunt-magnet, a connecting device attached to the end of the lever, and a spring to operate said lever, substantially as described.

7. In an electric-arc lamp, the combination, with the magnets and armature-lever, of the cut-out terminals and connector, and a catch to hold said connector away from said cut-out terminals, substantially as described.

8. In an electric-arc lamp, a carbon-holder having a clamp consisting of a rigid part and a movable part having parallel bearing-surfaces, the movable part being provided with an elongated pivot-slot, and a rigid arm projecting over the movable part and carrying a clamp-screw, whereby the carbon may be secured between the parallel bearing-surfaces of the clamp, substantially as described.

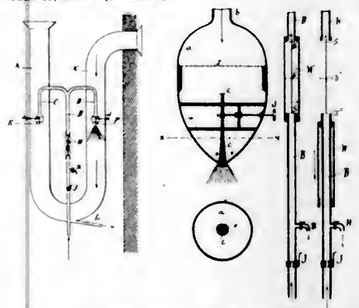
351,602. ELECTRIC BATTERY. Charles J. Hirlimann, New York, N. Y. Filed Apr. 7, 1886. (No model.)



Claim.—1. In an electric battery, the combination of an outer jar containing the battery-fluid, a porous cup, and negative and positive poles extending into said cup and jar, a sealed lid on the porous cup, and refractory tubes projecting through said lid some distance into the porous cup at their lower ends and above the fluid in the outer jar at their upper ends, substantially as set forth.

2. In an electric battery, the combination of an outer jar and a porous cup therein, both jar and cup having covers, substantially as described, electrodes placed in said jar and cup, and refractory tubes extending through the covers of both jar and cup and projecting some distance into the latter, substantially as set forth.

351,603. VENTILATOR. Johann Janka, Prague, Bohemia. Filed June 23, 1886. (No model.)



Claim.—1. In the water-supply pipe B of a spray-ventilator, the sleeve W, which can be slipped down, in combination with the wire sieves S S^1 S^2, arranged one above the other on a wire, *s*, inside the tube W, for the purpose of preventing any foreign matter from entering the spray-producer, substantially as specified.

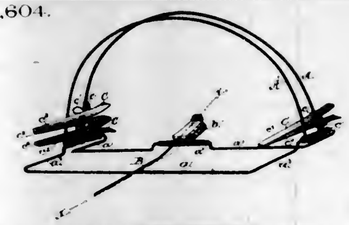
2. In combination, the pear-shaped vessel, the conical valve in the bottom thereof, having a rack formed on its stem, and a shaft extending through the side of the vessel, having on its inner end a pinion to engage the rack on the valve-stem and on its outer end a suitable handle, whereby the valve may be adjusted at will from the outside to increase or decrease the spray, as set forth.

3. In combination, the pipe B, having a cut-out section, a thimble, W, removably covering said section, the sieves in said thimble mounted on stem *s*, the cut-off valve *j*, below the sieves, and the cock H, between the sieves and the cut-off valve, for the purpose set forth.

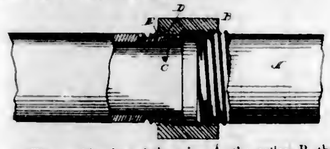
351,604. MUSIC-LEAF TURNER. Arthur Kemper, Bath-on-the-Hudson, N. Y. Filed Nov. 27, 1885. (No model.)

Claim.—In a music-leaf turner, the combination, with arch-pieces A and A', a cross-bar adapted to bear against the back of a book, and a spring centering-bar, B, of the grippers C, fitted to slide freely on the arch-piece A' and to engage with the leaves of said book, as and for the purpose specified.

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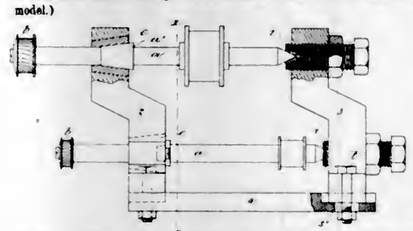


351,605. FLEXIBLE-JOINT PACKING. Hosea Kennedy, Rose Point, Pa. Filed Feb. 27, 1886. (No model.)



Claim.—The combination of the pipe A, the collar B, the male screw C, and female screw D, with the cylindrical or tubular and corrugated packing E, the whole arranged as and for the purpose substantially as herein set forth and described.

351,606. JOURNAL-BEARING. William Lahey, Stoneham, assignor of one-half to Thomas Lahey, Haverhill, Mass. Filed May 22, 1886. (No model.)



Claim.—1. The combination of the arms or supports 2 3, a removable bearing, *c*, in the arm 2, having a conical bore, a socketed screw, *i*, in the arm 3, and the shaft *a*, having a tapering enlargement, *a'*, fitting in the bearing *c*, and a tapered end fitting the socket in the screw *i*, the tapering enlargement being arranged with its base or larger end toward said screw, whereby when said screw is properly turned it presses said enlargement into its bearing, as set forth.

2. The combination of the head composed of the base 4 and the arms 2 3, the latter being adjustable on said base, the removable bearings *c* in the arm 2, the socketed screws *i* in the arm 3, and the shafts *a*, having tapered enlargements and tapered ends, fitting, respectively, the bearings *c* and socketed screws *i*, as set forth.

351,607. PROCESS OF MAKING FISH-GLUE. William N. Le Page, Gloucester, Mass. Filed Sept 11, 1886. (No specimens.)

Claim.—1. The described process of making liquid fish-glue, consisting in first desalting the skins with the scales thereon by chemical treatment in a solution of bisulphite of soda, subsequently treating them in a solution of sal-soda to remove all traces of salt, then boiling in a solution of borax for softening, deodorizing, and preserving purposes, then extracting and filtering the glue and evaporating it to suitable consistence, substantially as set forth.

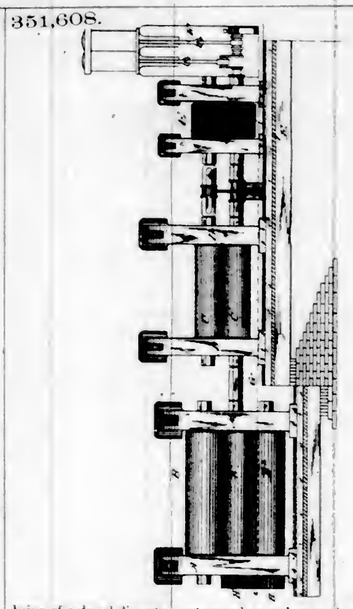
2. The described improvement in the method of making liquid fish-glue, consisting in chemically desalting, cleaning, and bleaching fish stock in solutions of soda salts, as described, then boiling it in water impregnated with borax, then expressing and filtering the glue, and afterward evaporating it through a vacuum-coil, substantially as set forth.

351,608. ROLLING-MILL. William J. Lewis, Pittsburg, Pa. Filed June 26, 1886. (No model.)

Claim.—1. In machines for rolling metal plates, the combination, with a reversing-engine, of a three-high set of rolls driven from said engine, the middle roll being of less diameter than the upper and lower rolls, said lower roll being geared with and serving merely to sustain the small roll, the upper and middle rolls constituting the working or reducing rolls only, substantially as described.

2. In machines for rolling metal plates or sheets, the combination, with reversible driving mechanism, of a three-high set of rolls, of which the upper and middle rolls constitute solely the reducing set, while the lower roll serves solely as a support for the middle roll, said middle roll

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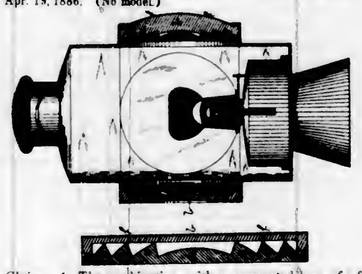
being of reduced diameter and geared to and operating the lower roll, the upper roll being run by friction, substantially as described.

3. In machinery for rolling metal plates or sheets, the combination, with suitable driving and reversing mechanism conveying power through the driving-pinion shaft of the roughing-rolls, of a three-high set of differential reducing-rolls arranged, substantially as described, so as to align the center roll with the said pinion-shaft and dispose of or locate the axis of the lower roll below the floor-line of the mill, substantially as described.

4. In rolling-mills or machinery for the reduction of metal plates or sheets, the combination, with the roughing-rolls, of a three-high set of reducing-rolls, comprising a center roll of smaller diameter than the upper and lower rolls, said center roll being geared with the lower roll, which constitutes its support merely, and being in alignment with and coupled to the lower and main pinion-shaft of the roughing-rolls, while said lower roll is located below the floor of the mill, substantially as described.

5. In machinery for rolling metal plates or sheets, the combination, with reversing driving mechanism, such as a reversing-engine, of a three-high set of rolls, wherein the middle roll and one of the outer rolls constitutes the working pair solely, while the other outer roll serves merely to support, sustain, or brace the center roll throughout its length, substantially as described.

351,609. SIGNAL-LENS. George A. Macbeth, Pittsburg, Pa. Filed Apr. 19, 1886. (No model.)



Claim.—1. The combination, with a corrugated lens, of a face-protector provided with an inner face having corrugations corresponding in position to those of the lens, and a smooth outer face, substantially as and for the purposes set forth.

2. The combination, with a corrugated lens, of a face-protector formed of glass having a different refracting power, and having corrugations corresponding in position to those of the lens, and a smooth outer face, substantially as and for the purposes set forth.

3. The combination, with the corrugated lens *a*, having the bearing face or faces *e* beyond the corrugated portion thereof, of the face-protector *b*, having the corresponding bearing face or faces *i* fitting against said bearing face or faces *e*, substantially as and for the purposes set forth.

4. The combination, with a corrugated lens having a bearing face or faces beyond the corrugated portion thereof, of a face-protector provided with an inner face having corrugations corresponding in position to those of the lens, and having a corresponding bearing face or faces fitting against the bearing face or faces of the lens, substantially as and for the purposes set forth.

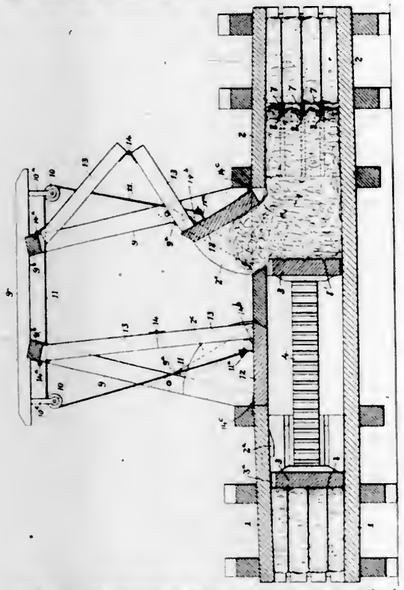
5. The combination, with the corrugated lens *a*, having the bearing face or faces *e* beyond the corrugated portion thereof, of the face-protector *b*, having the corresponding bearing face or faces *i* fitting against the face or faces *e*, and suitable sealing material between said bearing-faces, substantially as and for the purposes set forth.

6. The combination, with a corrugated lens, of a face-protector fitting against the lens having a smooth outer face and a supporting ring or band fitting around the edges of the lens and face-protector, substantially as and for the purposes set forth.

7. The combination, with a corrugated lens, of a face-protector provided with an inner face having corrugations corresponding in position to those of the lens, and a curved smooth outer face, substantially as and for the purposes set forth.

8. The combination, with a corrugated lens formed of colored glass, of a face-protector formed of colorless glass and fitting against the lens, substantially as and for the purposes set forth.

351,610. HAY OR COTTON PRESS. James L. Madden, Lewisport, Ky. Filed Aug. 24, 1885. (No model.)



Claim.—1. The combination of two horizontal press-boxes having openings at the top provided with doors and a frame over said doors, and toggle-bars between the doors and the top of the frame, substantially as set forth.

2. The combination of two horizontal press-boxes having openings at the top provided with doors, a frame over said doors, toggle-bars between the doors and the top of the frame, hangers depending from the top of the frame, and a rope or chain extending through the hangers and connecting the doors, substantially as set forth.

3. The combination, with press-boxes having openings at the top provided with doors, a frame consisting of stanchions 9, cross-beams 9^b, longitudinal beam 9^c, and stays 9^e, and the toggle-bars 13, substantially as set forth.

4. In combination with two doors for press-boxes and a rope or chain connecting same and supported as described, toggle-locking arms also connected to said doors, and arranged to operate substantially as set forth.

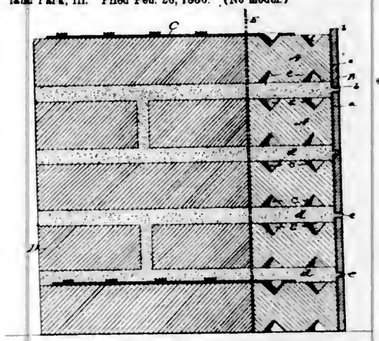
5. A cotton or hay press consisting of two horizontal press-boxes having openings at top provided with doors, a frame over the doors, toggle-arms connecting the doors and frame, a rack having followers, pivoted segment rack-block, and a handle secured to the block, substantially as set forth.

351,611. COMPOUND FOR INSULATING TELEGRAPH-WIRES, &c. Robert Alexander, Washington, D. C., assignor of one-half, by direct and mesne assignments, to Louis W. Sinsabaugh and the Barber Asphalt Paving Company, both of same place. Filed Sept. 20, 1886. (No specimens.)

Claim.—1. A compound for insulating telegraph wires and cables, consisting of asphaltum, residuum of petroleum or crude petroleum, mineral wool or glass-flock, and cement or carbonate of lime, in substantially the proportions set forth.

2. A compound for insulating telegraph-wires, in which glass-flock or mineral wool is the principal ingredient, said flock being treated to a hot bath of boracic acid previous to being mixed with the other ingredients forming the compound, as set forth.

351,612. BRICK FOR FACING WALLS. James C. Anderson, Highland Park, Ill. Filed Feb. 26, 1886. (No model.)

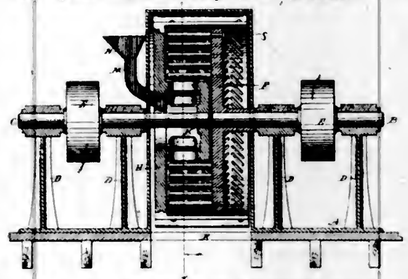


Claim.—1. A brick for the facing of walls, having a face-plate which extends beyond the edges of the main body of the brick, as set forth.

2. A brick having a face-plate extending beyond the edges of the main body of the brick, the rear side of said face-plate being covered with a layer of vitreous or acid-resisting material.

3. As an improvement in the construction of the front walls of buildings, the bricks A, provided with the projecting face-plates B, and bound to the rear walls, as described, in combination with the layer of vitreous material, *b*, and the joint *c*, made of an alkaline and acid-resisting cement, as set forth.

351,613. CLAY REDUCER AND PULVERIZER. James C. Anderson, Highland Park, Ill. Filed May 25, 1886. (No model.)



Claim.—1. A clay reducing and disintegrating machine of the character described, consisting of the rotating disk H, having a perforated central feed-chamber and peripheral screen, and the disk F, adapted to travel in a reverse direction to that of the disk H, as described, whereby the outer portion of the clay is caused to travel in a reverse direction to the inner body of the clay, and the clay reduced to a finely-divided condition by attrition or collision of the particles, as set forth.

2. In a clay-reducer, the disk H, provided with the perforated central hub, K, and the peripheral screen O, adapted to travel in one direction, in combination with the disk F, adapted to travel in a direction the reverse of the disk H, the disk F being provided with a series of arms, G, arranged close together in the outer edge of said disk, as set forth.

3. In a clay-reducer, the disk H, provided with the central perforated chamber, K, and the feed-spout adapted to project into said chamber, whereby the clay is fed into the central portion of the disks and projected toward the periphery of the disk by centrifugal force, as set forth.

4. In a clay reducer or pulverizer, the disk H, provided with the perforated chamber K and a screen surface secured to its periphery, which projects over the disk F, as set forth.

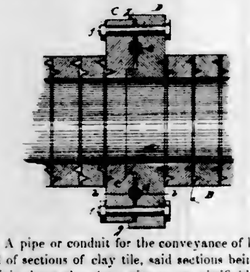
351,614. TILE FOR LINING WALLS, &c. James C. Anderson, Highland Park, Ill. Filed June 8, 1886. (No model.)



Claim.—1. A thin clay tile of uniform thickness and density, for the facings of interior walls, having one side ornamented with designs in relief or depression, the other portion or side of the tile being formed with cavities or raised portions to correspond with the designs on the other side of the tile, as set forth.

2. A wall or ceiling having its surface covered or ornamented with wafer-tiles made of clay in the manner described, said tiles having raised and depressed portions on both sides, as set forth.

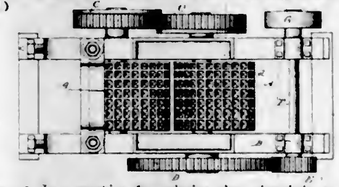
351,615. MANUFACTURE OF DRAIN OR IRRIGATING TILES. James C. Anderson, Highland Park, Ill. Filed June 16, 1886. (No model.)



Claim.—1. A pipe or conduit for the conveyance of liquids, gas, or steam, composed of sections of clay tile, said sections being made up of smaller sections joined together by a vitreous or vitrifiable material under heat, as set forth.

2. A pipe or conduit for the conveyance of liquids, gas, or steam, composed of sections of clay tile, said sections being made up of small tiles, with larger tiles forming the ends of the same, the end tiles being provided with suitable means for connecting the sections together, as set forth.

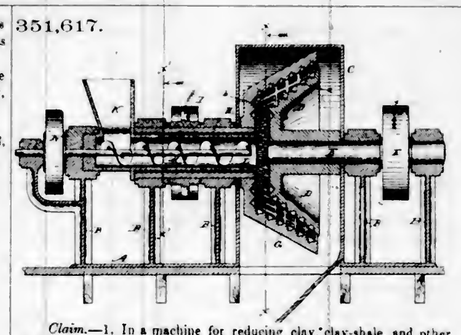
351,616. MACHINE FOR DISINTEGRATING CLAY, CLAY-SHALE, &c. James C. Anderson, Highland Park, Ill. Filed Aug. 5, 1886. (No model.)



Claim.—1. In a machine for reducing clay, clay-shale, or other material, the reducing-rolls of which are provided with cells or depressions in their periphery, the surfaces of which are arranged to travel at variable or different speeds, as described, whereby the material is held by the cells and the material rubbed together, as set forth.

2. In a machine for disintegrating clay, clay-shale, and other material, the elliptical reducing-rolls A, mounted eccentrically, as described, the peripheries of which are provided with cells or depressions for holding the material while the contiguous particles are being reduced by frictional contact, as set forth.

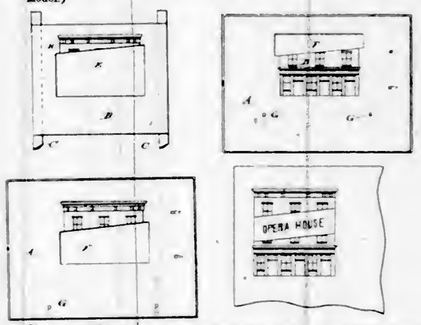
351,617. MACHINE FOR DISINTEGRATING CLAY, CLAY-SHALE, &c. James C. Anderson, Highland Park, Ill. Filed Aug. 6, 1886. (No model.)



Claim.—1. In a machine for reducing clay, clay-shale, and other material, the cones D G, having cells in their outer and inner surfaces, respectively, said cones being adapted to be driven in opposite directions and to receive the material through a central feed-opening, as described.

2. In a machine for reducing clay, clay-shale, and other material, the feed-hopper K, provided with the extension or tube L, in which the conveyer or feed-screw is located, in combination with the trunnion H and cones D G, whereby the rapid destruction of the trunnion is obviated, as set forth.

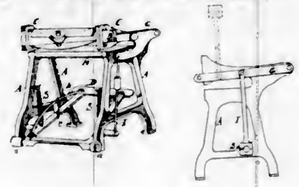
351,618. PRINTING. Major A. Bancroft, Blunt, Dak., assignor of one-half to Israel E. Youngblood, same place. Filed Mar. 26, 1886. (No model.)



Claim.—1. The improvement in the art of printing hereinbefore set forth, consisting, first, in cutting out that portion of the frisket which overlies the part of the form from which the first impression is to be taken, and cutting out so much of the tympan as underlies the part of the frisket covering the remainder of the form, and taking an impression on a sheet of paper; secondly, in arranging the frisket to cover so much of that part of the form first printed from as is not needed for the second impression, cutting out the tympan in the manner indicated above, gaging the paper in proper relation to the form, and taking the second impression; and, finally, in filling the space left between the two impressions with an impression from another form.

2. An improvement in the art of printing, consisting, first, in cutting out that portion of the frisket which overlies the part of the form from which the first impression is to be taken, and cutting out so much of the tympan as underlies the part of the frisket covering the remainder of the form, and taking an impression on a sheet of paper; secondly, in arranging the frisket so as to cover a portion of that part of the form first printed from, cutting out the tympan as indicated above, gaging the paper lower down on the tympan, and taking the second impression; and, finally, in filling the space left between the two impressions with an impression from another form.

351,619. METAL-SHEARING MACHINE. Charles A. Bertsch, Cambridge City, Ind. Filed Mar. 30, 1886. (No model.)



Claim.—1. In a shearing-machine, the combination of the arms G, hinged to the shear-stock and to the treadle at one end, and at the front ends to the frame by eccentric cranks, whereby the arms G move longitudinally and the shear-stock vertically as they are operated by the treadle D, substantially as specified.

2. In a shearing-machine, the arms G, hinged at their front ends to the frame, so as to move longitudinally, and bifurcated at the forward end, one of the forks being hinged to the pitmen and the other to the shear-stock, so as to allow metal to be inserted laterally between said forks, substantially as specified.

3. In combination with the arms C of a shearing-machine, the arched bridge-tree K, secured above the shears and provided with a boss, M, and a guide, O, for bracing the shear-stock, substantially as specified.

4. In combination with the arms C of the shearing-frame, the arched bridge-tree K, connected thereto by flanges *l* and curving over the shear-stock E, substantially as specified.

5. In combination with the bridge-tree K, the guide O, secured to the bridge-tree in rear of the shear-stock and projecting below the bridge-tree to serve as a guide for the shear, substantially as specified.

6. In combination with the shear-stock E, the driving-arms G, hinged below the center of said stock and hinged to the frame, so as to move longitudinally and draw the moving blade *h* against the stationary blade, substantially as specified.

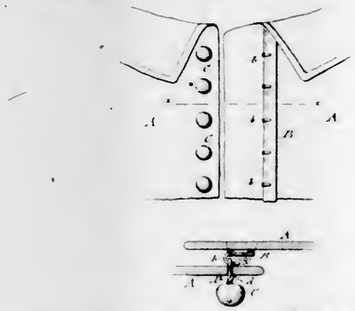
7. In combination with the shear-stock E, the flange *n*, attached to its rear side, and a guide, O, secured to the bridge-tree and projecting through said flange, substantially as specified.

8. In combination with the bridge-tree K and the shear-stock, the guide O, formed of two eccentric sections, *p p'*, substantially as and for the purpose specified.

9. In a shearing-machine, the arm G, hinged at its front end by an eccentric or longitudinally-moving joint, and its rear end hinged to the shear-stock and operated by depressing the arm and shear-stock, the former moving longitudinally and vertically and the latter moving perfectly plain, substantially as specified.

10. In combination with the treadle D of the shearing-machine, the truss-rods *b* and struts *c*, for supporting the treadle against the strain of the pitman I, substantially as specified.

351,620. FASTENING DEVICE FOR GARMENTS. Siegfried Blumenrohn, New York, N. Y. Filed Jan. 8, 1886. (No model.)



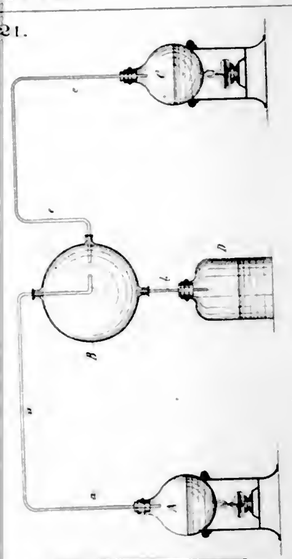
Claim.—In a fastening device for a lady's waist, the combination of a continuous steel attached to the underlapping edge of the waist, said steel being provided with upwardly-bent hooks, with buttons the shanks of which are passed through holes of the overlapping edge of the waist, and provided with eyes for engaging said hooks, and with additional eyes integral with the shank for attaching said buttons to the waist, substantially as set forth.

351,621. REMEDY FOR EXCESSIVE PERSPIRATION. Julius V. Brandau, Lichtenau, Hesse-Nassau, Prussia, Germany. Filed Apr. 14, 1886. (No specimens.) Patented in England Mar. 19, 1886, No. 3,913.

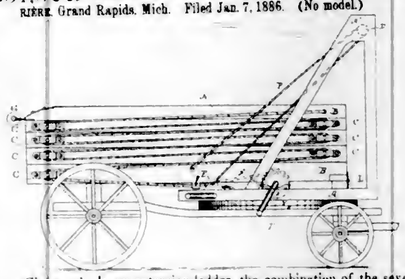
Claim.—1. The compound for preventing abnormal perspiration of the human body, consisting of chlorinated ether, composed of chlorine gas combined with butyric and acetic ethers, in combination with muriatic acid, alcohol, and glycerine, substantially as and for the purpose specified.

2. The process of producing a compound for preventing abnormal perspiration of the human body, consisting in combining butyric and acetic ethers and chlorine gas to form a liquid chemical product within a receptacle which contains a surplus of the said chlorine gas, and at the commencement of the operation is subjected, as described, to the direct action of the sunlight, and mixing the said liquid thus obtained with a mixture of concentrated muriatic acid, alcohol, and glycerine, substantially as and for the purpose specified.

351,621.



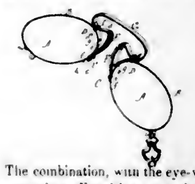
351,622. EXTENSION-LADDER. Michael Brochu and Louis Ladrière, Grand Rapids, Mich. Filed Jan. 7, 1886. (No model.)



Claim.—1. In an extension-ladder, the combination of the several sections of the ladder with each other and with the rope or cable N, for elevating the ladder, and the rope M, for retracting the same, both ropes wound in opposite directions upon and operated by the winch F, so that turning the winch in one way will elevate and in the other way will retract the ladder, substantially as described.

2. In an extension-ladder, the combination of the ladder, the winch F, the cables M and N, and the cleat *b*, said cleat having near its ends holes through which the cables N pass, and near its center a hole for the rope M, said holes serving as guides to keep the cables N and M wound separately and upon the proper portions of the winch F, substantially as described.

351,623. EYEGLASSES. Daniel V. Brown, Philadelphia, Pa., assignor to James W. Queen & Co., same place. Filed Apr. 30, 1886. (No model.)



Claim.—1. The combination, with the eye-wires B, having keepers C and D, of the nose-pieces F and bow or spring G, the lower ends of said pieces forming dowels which are inserted in the keepers C, and their upper ends entering and having liberty of movement in the keepers D, the nose-pieces being separated or disconnected from the bow or spring, substantially as shown and described.

2. The combination, with the eye-wires B, nose-pieces F, and bow or spring G, of the keepers D, having slots *d* for the reception of the upper ends of the nose-pieces, and slots *d'* for the passage of the ends of the bow or spring, substantially as shown and described.

3. The combination, with the eye-wires B, having keepers C and D and studs *e*, of the nose-pieces F and bow or spring G, said keepers D having two slots, *d* and *d'*, for the passage of the ends of the nose-pieces and bow or spring, the latter being curved to cause it to press against the eye-wires, and having openings in which said studs enter, substantially as shown and described.

351,624. CIRCULAR-KNITTING MACHINE. George C. Converse, Brookfield, Mass., assignor, by mesne assignments, to Lucy Converse, same place. Filed May 15, 1886. (No model.)

Brief.—The devices claimed are improvements upon the machine described in United States Letters Patent No. 339,046, the improvements relating to the needle lifting and dropping devices, to the construction and supporting means of the needle-dropping finger, and to a device for evening the shanks of the needles.



Claim.—1. The combination, with the needle-cylinder and needles, cam-cylinder A', provided with frame-pieces J J, hinged pieces K K, provided with projections *s s*, with flat springs *k k* secured thereto, of curved needle-dropper fingers K' K', provided with pivoted flat-sided ends *i*, and arranged to move back and forth on their pivots between cam-cylinder and needle-cylinder while in operation, substantially as and for the purposes set forth.

2. The combination, with the frame-pieces K K and loosely-pivoted curved needle-dropper fingers K' K', of the side cams, *u u*, substantially as and for the purposes set forth.

3. The combination, with the slotted pieces J J, adapted to be rigidly fastened to the outside of cam-cylinder A, and pieces K, having the tongues K^2, of springs *w w*, fastened at their lower ends to the pieces J J, with their upper and free ends standing between the ears J' J' and back of the tongues K^2, substantially as and for the purposes set forth.

4. The combination, with the needle-cylinder A' and yarn-guide M, hinged at 20 to the projection M^2, of the needle-shank or heel-evener N, substantially as and for the purposes set forth.

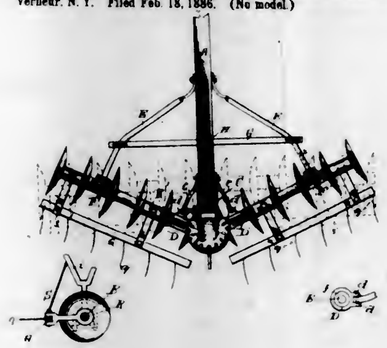
5. The combination, with the cam-cylinder A' and lifter-fingers C' and G, of hinged needle-guides C F and cam-pieces C^2 C^3 and their respective pins a a^2, for adjusting the latter, substantially as and for the purposes set forth.

6. The combination, with the stationary cam I and slotted cam-cylinder A', of hinged needle-guides C and F, provided with pins a a^2 and notched springs *b* and *e*, substantially as and for the purposes set forth.

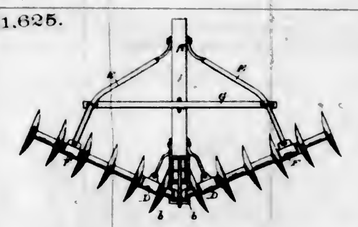
7. The combination, with needle-guide C, pin *a*, and needle-lifting finger C' and its spring *d*, of lever C^2, provided with pin c^2 and cam-piece C^3, substantially as and for the purposes set forth.

8. The combination, with needle-guide F, pin a^2, and needle-lifting finger G and its spring *f*, of lever F', provided with pin *e'*, and cam-piece C^4, provided with eccentric *g*, substantially as and for the purposes set forth.

351,625. DISK HARROW AND SEEDER. Amasa Corbin, Jr., Governeur, N. Y. Filed Feb. 18, 1886. (No model.)



351,625.



Claim.—1. In a disk-harrow, the combination of a pole, two disk-gangs, draft devices connecting the inner ends of the disk-gangs separately to the pole, draft devices connecting the outer ends of the disk-gangs separately to the pole, a pivoted seat-support connected at its lower end to the draft devices at the inner ends of the gang-axles, substantially as set forth.

2. In a disk-harrow, the combination of a pole, two independent disk-gangs having their inner ends disconnected from each other, flexible links connecting the inner ends of the disk-gangs with the pole, flexible links connecting the outer ends of the disk-gangs to the pole, and a seat-support pivoted to the pole and having its lower end connected to the inner pair of links, substantially as set forth.

3. In a disk-harrow, the combination of a pole, two disk-gangs connected to the pole so as to be drawn forward thereby, a pivoted seat-support, and devices connecting the lower end of the seat-support with the inner ends of the disk-gangs, substantially as set forth.

4. In a disk-harrow, the combination of a pole, disk gangs pivotally connected to the pole, a pivoted seat-support, and devices connecting the lower end of the seat-support with the disk-gangs, whereby when the harrow is drawn forward the backward thrust upon the disk-gangs is resisted by the weight of the driver, substantially as set forth.

5. In a disk-harrow, the combination of a pole, disk-gangs pivotally connected to the pole, a seat-support, and a foot-rest for the driver, supported upon the links which connect the disk-gang with the poles, substantially as set forth.

6. In a disk-harrow, the combination of a pole, two disk-gangs, links connecting the inner ends of the disk-gangs with the pole, links connecting the outer ends of the disk-gangs with the pole, a bar arranged below the pole and supported upon the outer pair of links, and a movable stop between the pole and the bar, substantially as set forth.

7. In a disk-harrow, the combination of a pole, two disk-gangs connecting the inner ends of the disk-gangs with the pole, links connecting the outer ends of the disk-gangs with the pole, a bar arranged below the pole and supported upon the outer pair of links, and an adjustable stop between the pole and the bar, substantially as set forth.

8. In a disk-harrow, the combination of the gang-axle, the disks, and the spacing-thimbles interposed between adjacent disks, each thimble being made in two parts, separable near the center of the thimble, and provided with the inward projecting flanges *f''*, substantially as set forth.

9. In a disk-harrow, spacing-thimbles interposed between adjacent disks, each thimble being made in two parts, in combination with a bearing formed of a single piece of metal mounted upon the central portions of the thimble, substantially as set forth.

10. In a disk-harrow, the combination of a pole, two independent disk-gangs having their inner ends disconnected from each other and free to move forward and back relatively to the pole, with a support interposed between the inner ends of the gangs and connected with the pole, and adapted to receive upon its opposite sides the endwise thrust of the disk-gangs, substantially as set forth

11. In a disk-harrow, the combination of a pole, adjustable disk-gangs pivotally connected to the pole, a pivoted seat-support connected at its lower end to the disk-gangs, and a locking mechanism connecting the pole with the seat-support to lock the inner ends of the gang against backward thrust, substantially as set forth.

12. In a disk-harrow, the combination of a pole, two disk-gangs pivotally connected with the pole, a disk or tooth arranged in rear of the inner ends of the disk-gangs and connected directly with the pole, so as to rise and fall therewith, substantially as set forth.

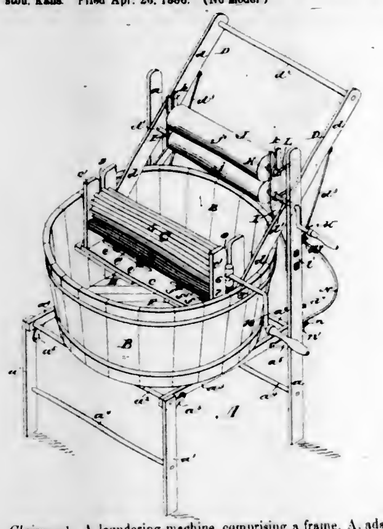
13. The combination, with the disk-gang, of the stationarily-attached carriers and the scrapers and scraper-bars, the latter being adapted to be rotated about its axis to different positions, substantially as set forth.

14. The combination, with the disk-gangs, of the scrapers and scraper-bars and the forked carriers, substantially as set forth.

15. The combination, with the disk-gang, of the scrapers and scraper-bars, and carriers provided with openings to permit the removal of the scraper-bars, substantially as set forth.

16. The combination, with the disk-gang, of the scrapers and scraper-bars, the laterally-projecting carriers, and braces to assist in supporting the scraper-bars, substantially as set forth.

351,626. LAUNDERING-MACHINE. Robert H. Cornett, Livingston, Kans. Filed Apr. 26, 1886. (No model.)

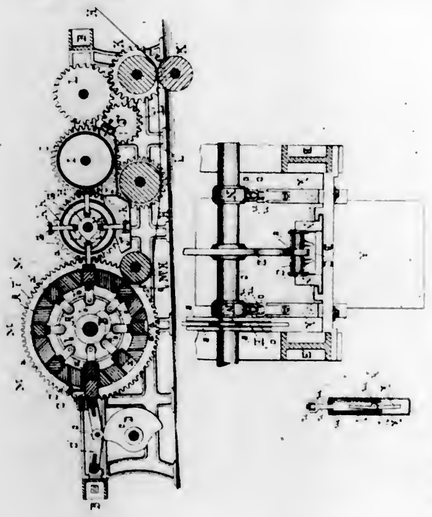


Claim.—1. A laundering-machine comprising a frame, A, adapted to support a clothes-holding tub, as at B, and having posts *a a*, a frame, as at D, pivoted in posts *a a*, a washer, as at C, attached to the lower end of the frame D, and adapted to be supported thereby in the tub B, and a wringer, J, comprising rollers *j j'* and springs L, and one of said rollers fixed to the pivot-shaft of the frame D, substantially as described, for the purpose set forth.

2. A laundering-machine comprising a frame, A, having posts *a a*, a frame, D, pivoted to said posts, a washer, C, held to the lower end of frame D, brackets I I, fixed to the posts *a a*, a wringer, J, supported in brackets I I, and comprising rollers *j j'* and springs drawing one roller toward the other, and the shaft *d'* of one roller being also the pivot-shaft of the frame D, substantially as described, for the purposes set forth.

3. In a laundering-machine, the combination, with the washer base-piece *c*, of adjustable clamp-plates E F, held thereto, and a right-and-left screw, G, engaging nuts fixed to said clamp-plates, substantially as herein set forth.

351,627. MACHINE FOR MAKING MATCH-BOXES. Charles J. Donnelly, Philadelphia, Pa. Filed June 10, 1884. Renewed June 26, 1886. (No model.)



Claim.—1. In a machine for making paper boxes, a hollow cylinder having an intermittent rotary movement, with rectangular openings in its surface, a central stationary shaft and cam situated centrally of the cylinder, blocks adapted to slide in the said openings and to be forced to the surface of the said cylinder by the action of the said cam, a reciprocating plunger to force notched, scored, and glued paper within the said openings and against the said blocks, and a knife having a movement in advance of the said plunger to sever from the paper strip the portion thereof which is to be forced into the openings in the said cylinder, all combined substantially as specified.

2. In a machine for making paper boxes, a hollow cylinder having an intermittent rotary movement, with rectangular openings in its surface, a stationary shaft and cam situated centrally of the cylinder, blocks adapted to slide in the said openings and to be forced to the surface of the said cylinder by the action of the said cam, a knife to sever a box-blank from a strip of paper or straw board fed to the said cylinder, a reciprocating plunger adapted to force the paper blank into one of the openings in the said cylinder and against a yielding block therein which ultimately discharges the box from the cylinder, notching and scoring devices to prepare the strip of paper fed to the cylinder, and gluing devices to apply glue to the said paper strip, substantially as specified.

3. In a machine for making paper boxes, a revoluble hollow cylinder having rectangular openings in its surface, a central stationary shaft, and cam situated centrally of the cylinder, blocks adapted to slide in the said openings and to be forced to the surface of the said cylinder by the action of the said cam, and a reciprocating plunger to force notched, scored, and glued paper within the said openings and against the said blocks, all combined substantially as specified.

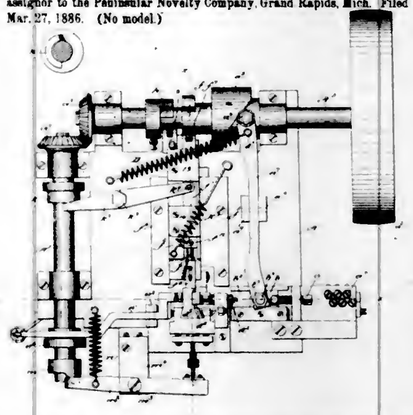
4. In a machine for making paper boxes, the combination of a revoluble cylinder having rectangular openings in its surface, a plunger adapted to enter successively the said openings, a toggle with retracting-springs connected with the said plunger, and a revoluble cam to straighten the said toggle, substantially as specified.

5. In a machine for making paper boxes, a hollow cylinder with box-openings in its surface, adapted to have an intermittent rotary movement, blocks in the said openings susceptible of a reciprocating motion, as described, a plunger to force the scored, notched, and glued paper into the said openings, combined with a revoluble gluing-drum carrying projecting gluing-blocks which are forced out and against the said scored and notched paper on the drum before the same reaches the plunger, substantially as specified.

6. In a machine for making paper boxes, a revoluble cylinder having rectangular openings in its surface, with a plunger adapted to enter successively the said openings, and mechanism to actuate it, combined with the gluing-drum G', having the reciprocating gluing-blocks *h*, stationary shaft, and fixed cam H, to effect the said reciprocating movement of the said blocks, and the glue-supply drum, with the glue-tray J, substantially as specified.

7. As means for turning in the notched ends of the box-blanks, the fingers *k'* and *l*, having toothed hubs combined with toothed racks *l'* and *m*, lever *n*, and means to effect an intermittent movement of the said lever at the proper time, substantially as specified.

351,628. STAPLE-MACHINE. George Doolittle, Bridgeport, Conn., assignor to the Peninsular Novelty Company, Grand Rapids, Mich. Filed Mar. 27, 1886. (No model.)

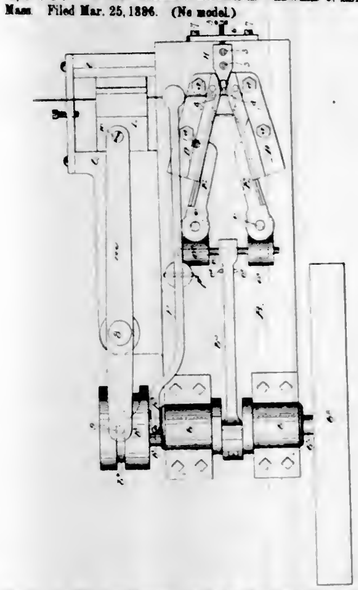


Claim.—1. In a staple-forming machine, the die having a concaved recess, two shoulders, and side walls leading from said shoulders, and provided with a rounded groove, combined with a former having a nose and shoulders, and with a former-carrier and means to reciprocate or operate said carrier automatically, said nose having a rounded groove, said grooves enabling the outer face of the staple and the inner or under side of the crown thereof to be made curved or oval in cross-section, substantially as described.

2. In a staple-forming machine, a die having a concaved recess, two shoulders, and side walls leading from said shoulders, a former having a nose and shoulders, a former-carrier, and means to reciprocate or operate said carrier automatically, combined with a guide for the wire, a cutter to sever the wire in the said guide, and feed mechanism to move the wire intermittingly, substantially as described.

3. In a staple-forming machine, feeding mechanism, substantially as described, to grasp and move the wire intermittingly, a wire-guide notched at its side, and a substantially V-shaped cutter to sever the said wire and oppositely bevel the adjacent ends, combined with a die and a former, substantially as described, to produce from the severed pieces of wire a shape substantially such as shown.

351,629. STAPLE-MAKING MACHINE. Edward O. Ely, Boston, Mass. Filed Mar. 25, 1886. (No model.)



Claim.—1. The combination, with wire-feed mechanism, as specified, and a staple-former, of two reciprocating converging carriers, provided with a cutter to sever a piece of wire from the strip fed by the wire-feed, wiping-surfaces to wipe or press the severed wire about the staple-former, and a pair of cutters operating in connection with the staple-former to sever the ends of the wire pressed about the staple-former, as and for the purpose set forth.

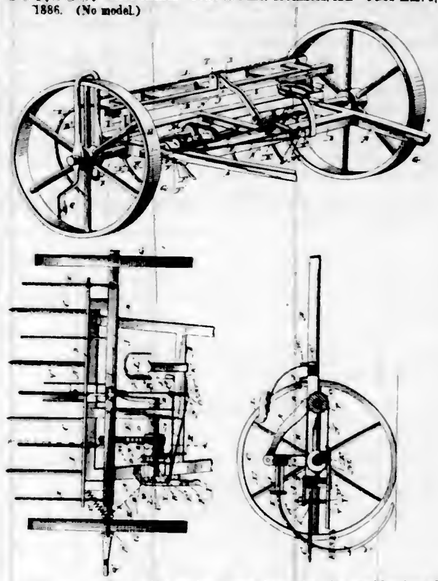
2. The combination, with wire-feed mechanism, as specified, and a staple-former, and a wire-clamp intermediate of said feed mechanism and staple-former, of two reciprocating converging carriers provided with a cutter to sever a piece of wire from the strip fed by the wire-feed, wiping-surfaces to wipe or press the severed wire about the staple-former, and a pair of cutters operating in connection with the staple-former to sever the ends of the wire pressed about the staple-former, as and for the purpose set forth.

3. The combination, with a pair of converging ways or studs and a staple-former arranged between said ways and adjacent to the point of convergence thereof, of a pair of reciprocating carriers adapted to slide in said ways, and provided with a wire-cutter to sever a piece of wire from the strip fed to the cutter, wiping-surfaces to wipe or press the severed wire about the staple-former, and a pair of cutters to cut the ends of the wire after it has been wiped about the staple-former, substantially as and for the purpose set forth.

4. The combination, with a crank-shaft provided with a connecting-rod having a cross-pin, and a pair of converging carrier-ways and a staple-former, of a pair of carriers sliding in said ways and provided with wire-cutters and wiping-surfaces, and a pair of blocks laterally-pivoted on the cross-rod and vertically-pivoted to the carriers, as and for the purpose set forth.

5. The converging carrier-ways provided with the wire orifices or tubes *g*, and the staple-former provided with the beveled surfaces *h*, combined with a pair of reciprocating converging carriers adapted to slide in said ways and provided with the two sets of wire-cutters, *j'* and *k*, and intermediate wiping-surfaces, as and for the purpose set forth.

351,630. HAY-RAKE. John H. Felt, Greenfield, Ind. Filed Mar. 9, 1886. (No model.)



Claim.—1. In a self-dumping horse hay-rake, the combination of a frame having transverse bearings, a notch in the upper portion of the inner face of the outer bearing, a shaft having a crank at one end connected to the rake-head and journaled in the bearings, a chain-wheel having connection with the axle of the rake-wheels, and having a number of ratchet-teeth upon its outer face, a half-clutch sliding upon and turning with the shaft and having a spring for forcing it onward and a lug projecting from its outer face, a bolt sliding in a transverse perforation and having a square head at its inner end fitting and sliding in the notch in the face of the bearing, and an arm bearing against the outer end of the bolt and having means for forcing it inward, as and for the purpose shown and set forth.

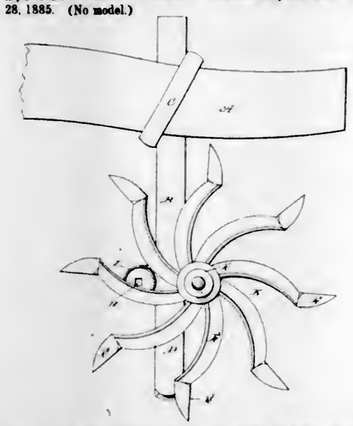
2. In a self-dumping horse hay-rake, the combination of a frame having transverse bearings, and having a notch in the upper portion of the inner face of the outer bearing, a shaft having a crank at its inner end connected to the rake-head and journaled in the bearings, the axle of the rake having a chain-wheel upon it, a chain-wheel upon the shaft having a chain connecting it to the wheel upon the axle, and having ratchet-teeth upon its outer face, a flanged half-clutch having ratchet-teeth upon its inner face and a lug upon its outer face, and sliding upon and turning with the shaft, a spring engaging the flange of the half-clutch with its outer end, forcing it outward, a bolt having its inner square head sliding in the notch, and having its outer end projecting ouside of the bearing, and an arm bearing against the outer end of this bolt, as and for the purpose shown and set forth.

3. In a self-dumping horse hay-rake, the combination of the thill-frame, the axle journaled at the rear end of the same and having a chain-wheel upon it, the rake pivoted upon the thill-frame, a bearing upon one thill having two diametrically-opposite notches in the upper and lower portions of its inner face, a trip-shaft journaled with its outer end in the said bearing and having a crank at its inner end, a connecting-rod between the crank and rake-head, a chain-wheel turning upon the shaft and having a chain passing over the wheel upon the axle and formed with ratchet-teeth upon its outer face, a flanged half-clutch turning with and sliding upon the shaft and having a lug upon its outer face registering with the crank, a spring engaging the flange of the half-clutch with its inner end and forcing it outward, a bolt sliding above the bearing and having its inner end provided with a square head fitting and sliding in the notch, an arm having its inner edge bearing against the outer end of bolt, and having a chain at its outer end, a treadle having the chain attached to an arm upon its shaft and journaled with the shaft upon the frame, and a lever pivoted upon the side of the thill and having its rear end provided with a bolt pivoted to it and sliding with its inner end into the lower notch, filling it up, and having means for holding the forward arm of the lever out, as and for the purpose shown and set forth.

4. In a self-dumping horse hay-rake, the combination, with the tripping mechanism, of a U-shaped frame pivoted near the lower ends upon the axle, straddling the wheel and having the lower end of the outer leg bent outward, and having the lower end of the inner leg connected to the tripping mechanism and provided with a spring secured to the upper portion of the inner leg and to the rear portion of the rake-frame, as and for the purpose shown and set forth.

5. In a self-dumping horse hay-rake, the combination, with the tripping mechanism, of the rake-frame having a rearwardly-projecting perforated lip, and having a downwardly-projecting stud, a flat bar having a longitudinal slot and sleeved upon the end of the stud, and having a cord connecting it to the trip mechanism, and a rod passing through the perforated lip and through the rear part of the bar and having a spring coiled around it between the lip and bar, as and for the purpose shown and set forth.

351,631. COLTER. William L. Gerard, Emporia, Kans. Filed Dec. 28, 1885. (No model.)



Claim.—1. The combination of the colter having the sharpened edges and the cross-bar G, extending beyond the said edges, with the walking-wheel, whereby the colter is rendered reversible, and the walking-wheel adapted to be journaled to either end of the bar G, substantially as described.

2. The combination of the colter having the sharpened edges and the cross-bar G, extending beyond the said edges and having the openings H, and the annular projecting rims I at its outer ends, with the walking-wheel having the reduced extensions on its hub to fit into the rims I and the bolt to secure the wheel to the cross-bar, substantially as described.

3. In combination with the colter B and cross-bar G, the walking-wheel having the curved arms beveled on their front sides, and the radial spurs at the outer ends of the said arms, the said spurs being sharpened to a point and having each the plane front side and the beveled sharpened rear side, substantially as described.

351,632. COMBINED SPEAR AND SOCKET FOR OIL-WELLS. John Gill, Knapp's Creek, N. Y. Filed Feb. 23, 1886. (No model.)



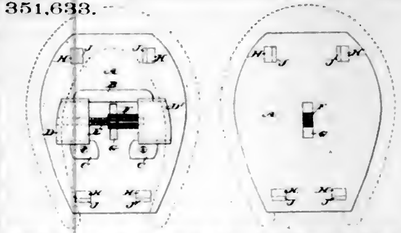
Claim.—1. A combined spear and socket for use in oil-wells, composed of two semicircular sections, which are united together at their upper ends, and which are made expansible at their lower ends, and which are provided with springs or sharp points upon their inner sides, and the wedge O, placed in the upper portion of the socket, substantially as shown and described.

2. A combined spear and socket provided with a wedge which is placed in between the upper ends of the two sections, substantially as set forth.

351,633. SNOW AND ICE GUARD FOR HORSES' HOOFS. Daniel Goff, Millville, N. J., assignor of three-fourths to Taylor Brothers, Camden, and James L. Smith, Millville, N. J., and William H. Melcher, Philadelphia, Pa. Filed Mar. 6, 1886. (No model.)

Claim.—1. The slotted plate A, having transverse lugs B C C, the latter, C C, being detachable, in combination with the blocks D D' and screw E, with head F, the said lugs B C C forming guides for the said blocks D D', and the said screw E operating in the threaded block D, and having its other end journaled in the block D', the head F bearing

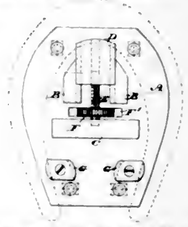
351,633.



against the same, all substantially as and for the purpose set forth.

2. A plate having transverse lugs attached thereto arranged in two parallel rows, in combination with two blocks fitted in said lugs so as to be guided thereby, one of said blocks having swiveled thereto the head of a screw, and the other block having a threaded opening and adapted to receive the said screw, and spurs secured in said plate, all substantially as and for the purpose set forth.

351,634. SNOW AND ICE GUARD FOR HORSES' HOOFS. Daniel Goff, Millville, N. J., assignor of three-fourths to Taylor Brothers, Camden, and James L. Smith, Millville, N. J., and William H. Melcher, Philadelphia, Pa. Filed Mar. 6, 1886. (No model.)

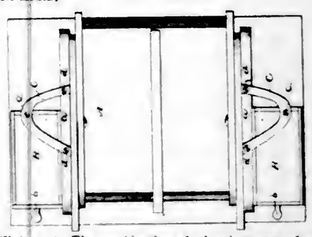


Claim.—1. The plate A, having the slot F', and provided with the lugs C and B B, in combination with the threaded block D and screw E, with head F, substantially as described.

2. A plate with lugs B C at a right angle to each other, a sliding block fitted to the lugs B, engaging with the toe portion of a shoe, a screw engaging with said block and stepped in the lug C, and blocks G, engaging with the heel portions of said shoe, substantially as and for the purpose set forth.

3. The plate A, with lugs C and B B, the latter, B B, being at right angles to the lug C, the threaded block D, fitted between said lugs B B, the screw E, with head F, having one end journaled in the block D, and the block G, adjustably attached to said plate A, and having inner and outer inclined faces, substantially as and for purpose set forth.

351,635. DRAWER ATTACHMENT FOR TABLES. Leslie H. Goodnow and Daniel W. Goodnow, East Sullivan, N. H. Filed June 29, 1886. (No model.)



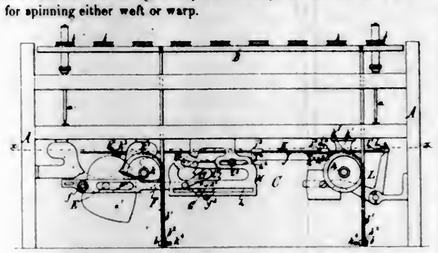
Claim.—1. The combination of a bracket made of spring metal and secured to a table beneath the top thereof, and a swinging drawer pivotally supported on the bracket between the same and the table-top, to be pressed against the said top by the bracket with sufficient force to be held or retained in any adjustment or position to which it may be turned, said drawer being adapted to be swung outwardly beyond the edges of the top, or concealed wholly beneath the top, substantially as described, for the purpose set forth.

2. A drawer attachment for work and other tables, consisting, essentially, of an elastic or yielding bracket substantially U shape, and secured at its free ends to a batten or other suitable support on a table-top beneath the same, and a drawer pivoted eccentrically to the arched or curved portion of the bracket, and arranged above the bracket and beneath the top, to be clamped or pressed against the top by the bracket,

the said drawer being adapted to be swung on its pivot beyond the edges of the top, to permit free access to its contents, or to be folded beneath and be concealed by the top, substantially as described, for the purpose set forth.

351,636. CONVERTIBLE WEFT AND WARP SPINNING FRAME. George A. Haas, Philadelphia, Pa., assignor to the Bridesburg Manufacturing Company, same place. Filed June 28, 1886. (No model.)

Brief.—There are provided in the mechanism for moving the ring-rails certain interchangeable parts whereby the machine may be used for spinning either weft or warp.



Claim.—1. A spinning-machine provided with a cam, c', sliding connecting-rod F, adjustable lever-arm G, means, substantially as described for adjusting said lever-arm, screw I, means, substantially as described, for rotating said screw, connecting-band i^3, guide-pulley g^4, nut i, sliding supporting-bars K, adjustable brace J, means, substantially as described, for adjusting the brace on its supports K with respect to the lever-arm G, ring-rails B, and ordinary intermediate connecting mechanism between the bars and said ring-rails, substantially as and for the purpose described.

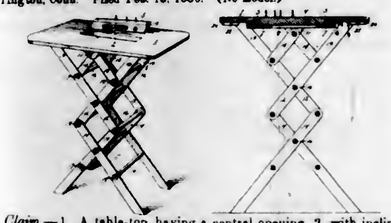
2. A spinning-machine provided with a cam, N, connecting-rod F', adjustable lever-arm G, means, substantially as described, for adjusting said lever-arm, screw M, means, substantially as described, for rotating said screw, roller m, nut m^2, sliding supporting-bars K, slotted brace J, made adjustable on its supports K, means, substantially as described, for adjusting the brace with respect to the lever-arm G, ring-rails B, and ordinary intermediate connecting mechanism between the bars K and said ring-rails, substantially as and for the purpose described.

3. The combination of a screw and nut, substantially as described, with the following parts of a spinning-frame, to wit: adjustable vibrating lever-arm G, supporting-bars K, having two sets of adjusting-holes k^2, brace J, having slot j^2, and screw-bolts j^4, and which is adjustable on its supporting-bars K in respect to lever-arm G, means described for connecting the nut of the screw with the brace J, ratchet and pawl, a cam, a connecting-rod leading from the cam to the said lever-arm, ring-rails B, and ordinary intermediate connecting mechanism between the bars K and said ring-rails, substantially as and for the purpose described.

4. The combination of the slotted brace J, having bolt-holes and bolts j^4, adjustable pivoted lever-arm G, means, substantially as described, for adjusting said lever-arm, screw I, having a handle, band i^3, pulley g^4, nut i, bars K, straps k^2, pulleys k, rail-rods b', rails B, slotted hangers H H', ratchet i^7, pawl i^2, cam-rod F, cam c', and shaft E, substantially as and for the purpose set forth.

5. The adjustable brace J, provided with a slot, j^2, and bolt-holes, in combination with the bars K, provided with two sets of holes, as k^2, bolts j^4, the pivoted lever-arm G, slotted hangers H H', screw M, having a handle, roller m, nut m^2, ratchet i^7, pawl i^2, cam N, connecting-rod F', shaft E, pulleys k, straps k^2, rail-rods b', and rails B, substantially as and for the purpose described.

351,637. FOLDING TABLE AND STOOL. Franklin B. Hills, Torrington, Conn. Filed Feb. 13, 1886. (No model.)



Claim.—1. A table-top having a central opening, 2, with inclined ends, and a support, 7, secured to its under side, and provided with an opening, 8, in combination with a block shaped to correspond with opening 2, one end of which is supported by the table-top and the other by support 7, and means, for example a bolt, whereby the block is held in place when the table is inverted.

2. The combination, with a table-top, of levers 10, pivoted thereto, and levers 12, pivoted to each other and to levers 10, and provided with extensions 19, upon which the table-top rests, and means, for example buttons 20, whereby said extensions are caused to support the table in operative position.

3. The table-top having buttons 20, connected by springs, brackets 11, and levers 10, pivoted thereto, in combination with levers 12, pivoted to each other and to levers 10, and provided with extensions 19, as and for the purpose set forth.

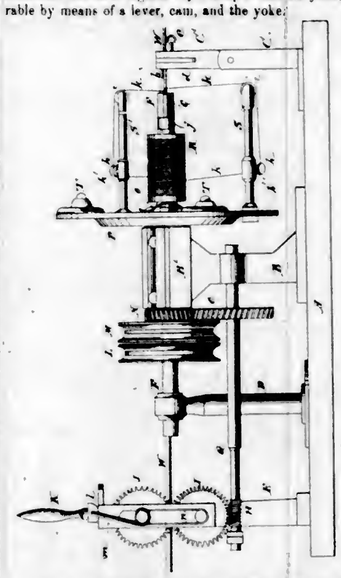
4. The table-top, turn-buttons 20, having notches 21, and springs 22, connecting said turn-buttons, in combination with levers 12, having extensions 19, upon which the top rests, and which are engaged by the buttons, and levers 10 and 14, pivoted as shown and described.

5. The table-top and levers 10 and 12, the latter having extensions 19, in combination with turn-buttons 20, pivoted within the line of the levers and having notches to engage the extensions, and springs 22, connecting each pair of buttons, and acting to throw them toward the extensions, and also when drawn outward, as a means of releasing the extensions, so that the table may be folded.

6. The table-top having openings 2, straight at the sides and inclined at the ends, as shown, and a support, 7, secured to its under side, in combination with a block shaped to correspond with said opening, and having recesses 5 at its ends and a cribbage-board on one side, and a bolt, 6, carried by the support and adapted to engage the recesses to lock the block in place.

351,638. MACHINE FOR WINDING BLADES OR CORDS. George R. Holden, Michigan City, Ind., assignor to the Warren Featherbone Company, Chicago, Ill. Filed Mar. 7, 1885. (No model.)

Brief.—Upon a standard are mounted two rotary hollow shafts carrying driving-pulleys, by which they are rotated in opposite directions. These hollow shafts also carry disks provided with spindles for a supply-spool and thread-guide and tension-regulating device. In front of the hollow shafts is a guide pivoted so as to be capable of being turned down out of the way, and in rear of said shafts drawing-rolls, said rolls being connected and held together by a strap or flexible yoke, and made separable by means of a lever, cam, and the yoke.



Claim.—1. The combination of the rotating hollow shaft F, the disk P', secured thereto and provided with the laterally-projecting parallel spindles Q' and S', for respectively carrying the thread-spool and guiding the thread, the rotating hollow shaft F', the disk P, secured thereto and provided with the laterally-projecting parallel spindles Q and S, for respectively carrying the thread-spool and guiding the thread, the guide *a b*, the feeding-wheels I J, and means for rotating said wheels, substantially as described.

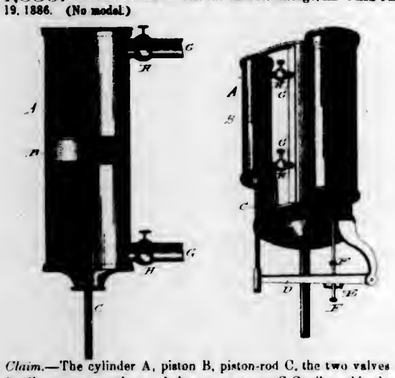
2. The disks P P', each having the attached spool-spindle and the thread-carrying arm provided with a wheel, i, at its outer end, in combination with the oppositely-rotating hollow shafts F' F, the guide *a b*, the feed-wheels I J, and means for rotating the latter, substantially as described.

3. The disks P P', each having the attached spool-spindle and the

thread-carrying arm provided with the wheels A' and i, in combination with the oppositely-rotating hollow shafts F F, the guide *a b*, the feed-wheels I J, and means for rotating the latter, substantially as described.

4. The combination, with the rotating hollow shafts F F' and thread-winding devices, of the slotted support E, the feed-wheels I and J, having their shafts journaled in and extending beyond the support, means for rotating the wheels, the springs *n*, connecting the journals of the wheels, the swinging lever K, having a cam, *l*, and the yoke *m*, connecting the lever and the shaft of the upper feed-wheel, substantially as described.

351,639. MOTOR-ENGINE. Albert Jacobs, Chicago, Ill. Filed July 19, 1886. (No model.)



Claim.—The cylinder A, piston B, piston-rod C, the two valves H H, of ordinary construction, and the two passages G G, all combined and operating as set forth.

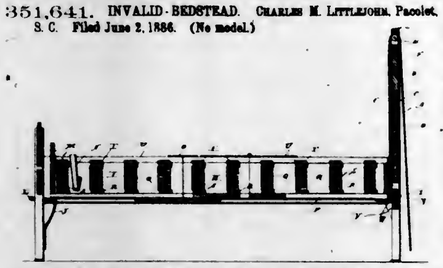
351,640. DEVICE FOR SUPPORTING PIPES. Charles E. Knapp, Honesdale, Pa. Filed May 21, 1886. (No model.)



Claim.—1. The combination, with the arc-shaped closely-fitting support having the hooks *b b* and a central attachment for a building, of a flexible band having hooked ends and forming a continuation of the arc of the main support, substantially as described.

2. A supporting device for round pipes, consisting of a part, A, having a central screw or rod, two curved arms having beveled or wedge-shaped hooked ends, and a flexible band having hooked ends engaging with the said beveled hooks, substantially as described.

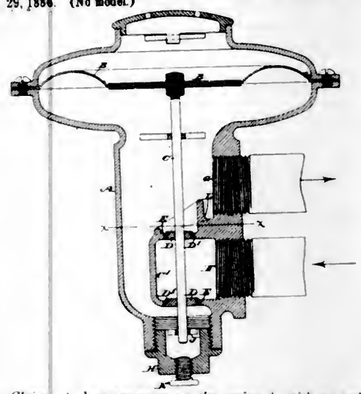
351,641. INVALID-BEDSTEAD. Charles M. Littlejohn, Pacolet, S. C. Filed June 2, 1886. (No model.)



Claim.—1. In an invalid-bedstead, the combination of an upwardly-swinging hinged head-piece, an extension having two downwardly-projecting lips upon its lower edge, clamping the upper edge of the head-board, and downwardly-projecting cleats secured to the rear side of the head-board, and a strap passing over a pulley in the upper end of the extension, and secured at one end to the head-piece and to the head-board at the other, as and for the purpose shown and set forth.

2. In an invalid-bedstead, the combination of a downwardly-swinging hinged foot-piece with flat springs secured at their lower ends to the legs of the bed-frame, and having their upper ends bent outward to form shoulders, and sliding through slots in the legs having rings or handles at the outer ends, as and for the purpose shown and set forth.

351,642. GOVERNOR FOR GAS. George E. Lockwood, Philadelphia, Pa., assignor to the Standard Heat and Light Company. Filed Mar 29, 1886. (No model.)

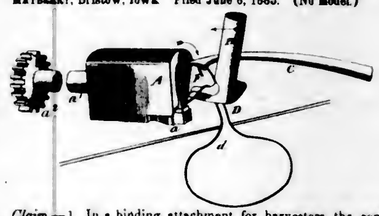


Claim.—1. In a gas-governor, the casing A, with an outlet, G, in combination with an inside inclined gutter adapted to convey the drip away from the outlet side of said casing to the lower portion of the same, substantially as described.

2. In a gas-governor, the casing with an outlet, G, in combination with the inclined gutter L, a valve-seat with a vertical wall, C', the cap H, and screw-plug K, said gutter inclining from the outlet side of the casing to said wall C', substantially as and for the purpose set forth.

3. In a gas-governor, the casing A, with inlet F, outlet G, the diaphragm B, with stem C, having valves D, an inner partition forming seats for said valves and provided with vertical wall C' and gutter L, the latter inclining from the outlet G to the vertical wall C', cap H, and screw-plug K, all arranged, combined, and operated substantially as described.

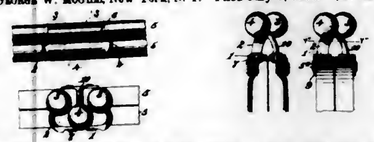
351,643. CORD-HOLDER FOR GRAIN-BINDERS. William W. Mayberry, Bristow, Iowa. Filed June 6, 1885. (No model.)



Claim.—1. In a binding attachment for harvesters, the combination of the twine-holder A, the knot-tyer B, the needle C, and the hook F, attached to the revolving cord-holder and operating to guide the cord into position for the knotter, as and for the purpose described.

2. In a grain-binder, the combination, with a revolving cord-holder, of a frame, L, having lugs K, with pins *k*, a fixed cam-faced block, M, having the depression *m*, the slide N, reduced at its rear end, the slotted holder-frame carrying spring *j*, and the slotted springs J J, substantially as and for the purpose described.

351,644. FASTENING FOR TRAVELING-BAGS, SATCHELS, &c. George W. McGill, New York, N. Y. Filed July 1, 1886. (No model.)



Claim.—1. A fastening for the hinged bows of a bag, satchel, or similar article, consisting of a plate having a single shank carrying a ball and a plate having each end formed into an elastic shank, 2, carrying a ball, said elastic shanks extending from the ends of the plate in opposite directions, substantially as described.

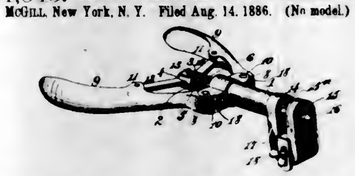
2. A fastening for the binged bows of a bag, satchel, or similar article, consisting of a plate having a single shank carrying a ball and a plate having each end formed into a laterally-curved elastic shank, 2, carrying a ball, said elastic shanks extending from the ends of the plate in opposite directions, and the curve of both being uniform and toward one longitudinal edge of the plate, substantially as described.

3. The combination, with the bows of a bag or similar article, of a metallic plate secured to one bow and formed at each end into an elastic shank carrying a ball, and bent upwardly and laterally with reference to the bows, with the two balls separated from each other, and a shank secured to the other bow, and having a single ball to pass between the two balls, substantially as described.

4. The combination, with the bows of a bag or other similar article, of a metallic plate clasped around the edge of one bow, and having at each end an elastic shank carrying a ball, said shanks extending from the ends of the clasped plate and bent upward and toward each other, with the two balls separated, and a shank on the other bow having a ball to pass between the two balls, substantially as described.

5. The combination, with the centrally-recessed bows of a bag or like frame, of a plate having a shank at each end carrying a ball, and a plate having a single shank carrying a ball, said plates clasped around within the recessed parts of the bows, substantially as described.

351,645. HAND-PUNCH FOR PERFORATING PAPER. George W McGill, New York, N. Y. Filed Aug. 14, 1886. (No model.)



Claim.—1. A hand-punch for punching holes in paper and other material, consisting of the body 1, having at its outer end the holding and stripping jaws 14 and 15, the latter having a clearing-orifice, 16, the punch-bar 2, having a punch, 2*, adapted to be retracted within the stripping-jaw to strip the punched material therefrom, the handles 9, pivoted to the inner end of the body, and the toggle-levers 12, pivoted, respectively, at one end to the handles and at the other end to the inner end of the punch-bar, substantially as described.

2. A hand-punch for punching holes in paper and other material, consisting of a body having at its outer end the holding and stripping jaws, the former having a clearing-orifice, the punch-bar having a punch at its outer end adapted to be retracted into the stripping-jaw to strip the punched material therefrom, the two handles pivoted to the inner end of the body, the toggle-levers pivoted, respectively, at one end to the handles and at the other end to the inner end of the punch-bar, and a spring on this punch-bar bearing against a shoulder thereupon and a shoulder on the body, for retracting the punch into the stripping-bar, substantially as described.

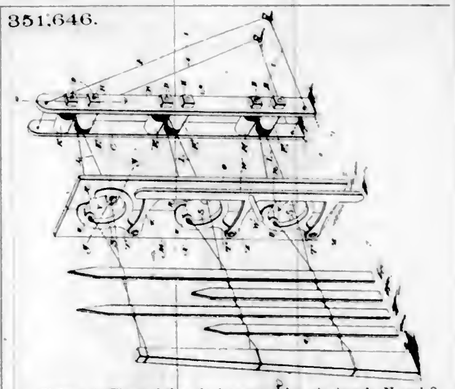
3. The combination, with the tube 1, its slotted jaw, and the punch-bar, of the pivoted handles, the toggle-levers pivoted, respectively, at one end to the handles and at the other end to the inner end of the punch-bar, and a spring encircling the inner end of the punch-bar and bearing against a shoulder thereupon and a shoulder on the tube, substantially as described.

4. The combination, with the tube 1, having at one end the holding and stripping jaws 14 and 15, of the punch-bar having a shouldered head at its inner end and a punch, 2*, at its outer end adapted to be retracted, the spring encircling the bar and entering the tube, the toggle-levers pivoted to the handles and to the shouldered head of the punch-bar, substantially as described.

5. The combination, with the tubular body having lugs 8, which are provided with shoulders 18, of the punch-bar, and the handles pivotally connected with the lugs and having shoulders which engage those upon the lugs 8, to limit the outward movement of the handles, and the toggle-levers being pivoted to the handles and to the punch-bar, preventing retraction of the punch-bar, substantially as described.

351,646. MACHINE FOR MAKING PICKET-FENCES. James A. Minnick, Elwood, Ind. Filed Sept. 4, 1886. (No model.)





Claim.—1. The twisting device comprising the boards N and O, having their inner edges secured together, and provided with the openings R, made in the meeting edges of the said boards, and the twisting-disks journaled in the said openings, and having the hooks or keepers V for the wires, and the handles T, by means of which the twisting-disks may be rotated, substantially as described.

2. The combination of the boards N and O, having the openings R made in their opposing inner edges, and secured together by the hooks or other suitable devices, the twisting-disks having the annular grooves to receive the inner edges of the openings R, and provided with the hooks or keepers V for the wires, and the arms T, and the bar W, having the arms Z Z attached to the arms T of the twisters, for the purpose set forth, substantially as described.

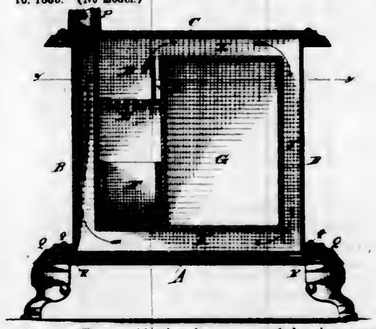
351,647. METALLIC SIDEWALK. George W. B. Neal, Farmer Village, N. Y., assignor of three-fourths to Ira C. Hall, Tina Morehouse, and Hugh Haney, all of same place. Filed July 9, 1886. (No model.)



Claim.—1. A metallic-pavement plate having tongues projecting from the under side of its sides, and having downwardly-extending flanges upon its ends, each of said flanges being cut away at one end underneath said plate, and projecting beyond the edge of the plate at the other end.

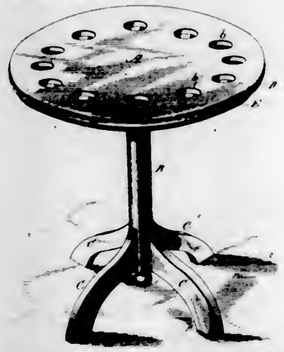
2. A sidewalk composed of a series of the above-described pavement-plates, each plate having the tongues upon its sides projecting underneath each adjoining plate, and having the tongues or projecting ends of its downwardly-projecting flanges engaging with the cut-away portion of the flanges of the adjoining plate.

351,648. STOVE. Albert S. Newby, Nashville, Tenn. Filed Aug. 10, 1885. (No model.)



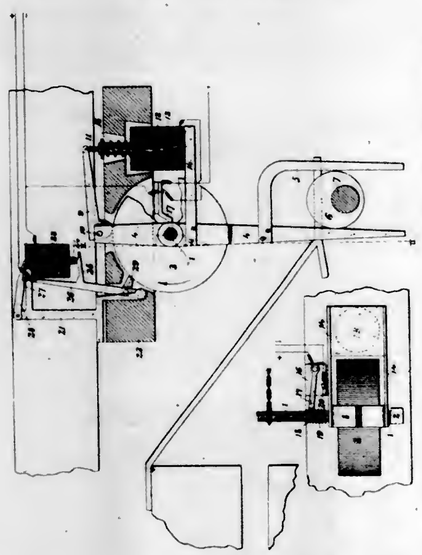
Claim.—The combination, in a stove, of the sheet-metal body having the outwardly-extending flanges at its upper and lower edges, the sheet-metal bottom secured to the lower flanges of the body, the cast-metal top secured to the upper flanges of the body, the base-molding secured to the lower flanges by the same rivets that unite the body to the bottom, the oven, fire-box, ash-box, and a continuous hot-air flue, substantially as specified.

351,649. SHOW STAND OR RACK. Oscar M. Newman, Milton, Fla. Filed Nov. 16, 1885. (No model.)



Claim.—In a show rack or stand, the combination, with two plates of suitable form having one or more openings through them, of spring-clamps having flat shanks held between the plates and curved extremities, said springs being arranged in sets of three and converging to a common center, the meeting ends thereof being arranged with relation to each other to form a triangular space between them, substantially as and for the purpose set forth.

351,650. ELECTRO-MAGNETIC CAR-BRAKE. Harvey S. Park, Henderson, Ky. Filed Feb. 11, 1886. (No model.)

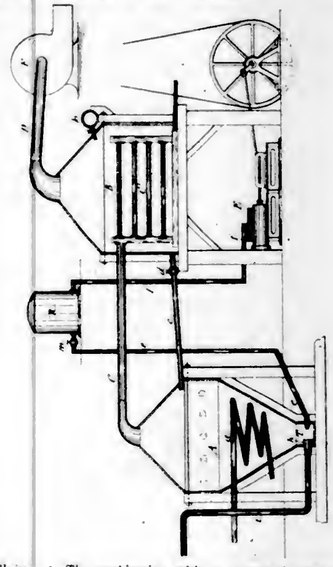


Claim.—1. In combination with a windlass to which the brake-chain is attached, a lever operated by an eccentric on the car-wheel axle, clamps carried by said lever, a solenoid or magnet, a movable core therefor connected to said clamp, and an electric circuit passing through said magnet or solenoid, substantially as and for the purposes set forth.

2. In combination with a brake-chain and windlass, a magnet or solenoid, and connections with the car-wheel axle operated by said magnet or solenoid, a circuit through said magnet or solenoid, and a cut-out operated by the brake-chain windlass, substantially as and for the purpose set forth.

3. In combination with a brake-chain windlass, a disk or cylinder thereon, and mechanism for operating said disk or cylinder from the car-wheel axle, a locking-lever having a projection normally bearing on said cylinder, and an electro-magnet or solenoid, armature, and circuit for releasing said locking-lever, substantially as set forth.

351,651. EVAPORATING APPARATUS. George A. Porter, Syracuse, N. Y. Filed Feb. 13, 1886. (No model.)



Claim.—1. The combination, with an evaporating-tank, of a discharge-pipe extended from the base of said tank, and an air-blast pipe projecting with its discharge end into the tank directly opposite the mouth of the discharge-pipe, substantially as and for the purpose set forth.

2. The combination of an evaporating-tank having its lower portion funnel-shaped and terminating in a trap, a discharge-pipe extended from the said trap, and an air-blast pipe projecting with its discharge end into the trap directly opposite the mouth of the discharge-pipe, substantially as described and shown.

3. The combination, with an evaporating-tank, of a trap at the base of said tank, a discharge-pipe tapping said trap, an air-compressing engine, a compressed-air reservoir connected with said engine, and a pipe extending from said reservoir into the aforesaid trap, substantially as described and shown.

351,652. STEAM-BOILER AND FURNACE. William S. Post, Boston, and Howard De W. Sawyer, Revere, Mass., assignors to the Complete Combustion Company, Portland, Me. Filed June 3, 1886. (No model.)

Claim.—1. The cylindrical boiler-shell A, having fixed within one end of it the fire-box B of a generally cylindrical form, but flattened at its top, as described, in combination with a depending water-leg secured to the top and sides of the fire-box, and with an oblique water-grate, substantially as set forth.

2. The boiler A and fire-pot B, with water-walls H between them, in combination with an oblique water-grate, a depending water-leg, and a series of stay-bolts, I, extending from front to rear of the water-leg, substantially as set forth.

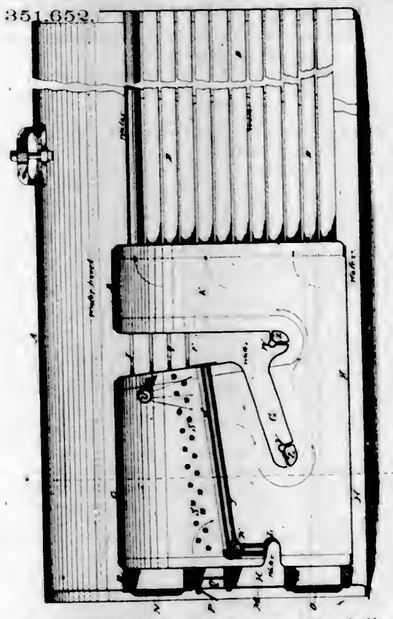
3. In a downdraft heating apparatus, a depending water-leg, in combination with a multiple water-grate consisting of two or more distinct series of independent water-tubes, among and between which the ignited gases and carbon pass downwardly, whereby the heated current comes transversely into contact with the tubes of the several series successively, for the purpose set forth.

4. The improved water-grate herein described, formed of two distinct series of parallel metallic tubes arranged in a zigzag relation to each other, so as to break joints, and having a free water-circulation through them, substantially as set forth.

5. The described multiple water-grate, consisting of the independent oblique tubes *j*, arranged in two or more distinct planes to alternate vertically with each other, and each provided with the bend or elbow K, substantially as set forth.

6. The shell A, fire-pot B, water-walls H, and water-leg F, with its foot G, in combination with the zigzag multiple water-grate extending obliquely across the fire-pot, with the tubes of its upper series arranged over the spaces between the tubes of the lower series, substantially as set forth.

351,652.



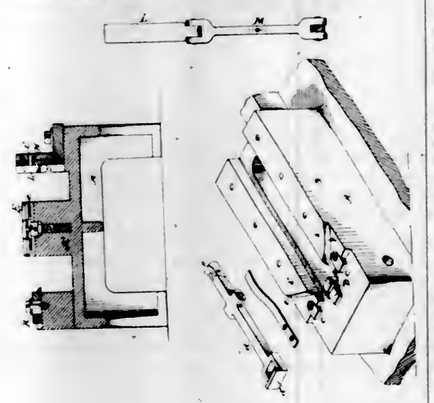
7. In a steam-boiler or furnace having water-walls each side of the fire-pot, and a downward draft, the depending water-leg, and a water-grate connected thereto, in combination with air-tubes T, extending rearwardly within the water-spaces H, and with a series of transverse tubes, S, opening from the air-tubes T into the fire-pot along the sides of the fuel, substantially as set forth.

8. In a steam-boiler or furnace, the combination of a water grate and depending water-leg, separating the fuel-chamber from the combustion-chamber, with a perforated air-pipe, U, above the grate, serving to introduce currents of fresh air at the rear of the fuel-chamber, substantially as set forth.

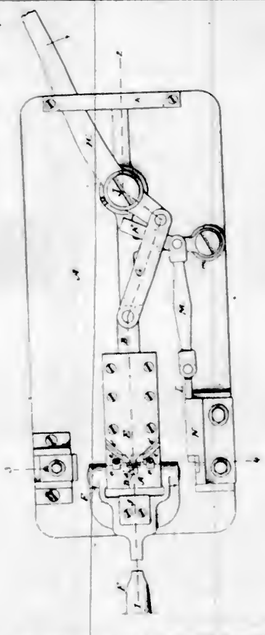
9. In a heating apparatus, the combination of a water-grate and depending water-leg, separating the fuel-chamber from the combustion-chamber, with one or more air-pipes, V W, introduced laterally through the foot of the water-leg below the grate, and with a series of short hollow bolts, Z, leading from said pipes into the combustion-chamber, substantially as set forth.

10. The combination of the boiler A, internal fire-box, B, depending water-leg F, and zigzag oblique water-grate J with the perforated door Q and unperforated door P, located at the foot of said grate, substantially as set forth.

351,653. MACHINE FOR FORMING WIRE BAILS FOR BOTTLE-STOPPERS. John G. Rehfuss, Philadelphia, Pa., assignor to the Joly Stopper Company, same place. Filed Feb. 27, 1886. (No model.)



351,653.



Claim.—1. The combination, in a wire-bending machine, of a die or former, D, with a reciprocating plunger, B, having a recess, *x*, and fingers *y y*, and a bending-lever, F, substantially as set forth.

2. The combination, in a wire-bending machine, of a guide-block, A', having beveled inclines *e*, a plunger, B, and a former, D, with a bending-lever, F, substantially as and for the purpose described.

3. The combination, in a wire-bending machine, of a slotted former and reciprocating plunger, B, with an ejector-lever, *d*, adapted to be operated by the plunger, substantially as set forth.

4. The combination, in a wire-bending machine, of a reciprocating plunger having a cam with a die or former, and an ejector-lever having a yielding projection, *p*, at its opposite end, to come in contact with said cam, substantially as set forth.

5. The combination, in a wire-bending machine, of a slotted die or former with an ejector-lever, *d*, having a cross-piece, *d'*, to enter the slot of the die or former, substantially as set forth.

6. The combination, in a wire-bending machine, of a guide-block, A', and overlapping guide-fingers e with die or former D and reciprocating plunger, substantially as specified.

7. The combination of the guide-block, die or former, and reciprocating plunger of a wire-bending machine with an operating-lever and an eccentrically-mounted pivot-pin adjustable to different positions, substantially as specified.

8. The combination, in a wire-bending machine, of a reciprocating plunger, B, and die or former D with a link, G, lever H, and an eccentrically-mounted pivot-pin adjustable on the base of the machine, substantially as set forth.

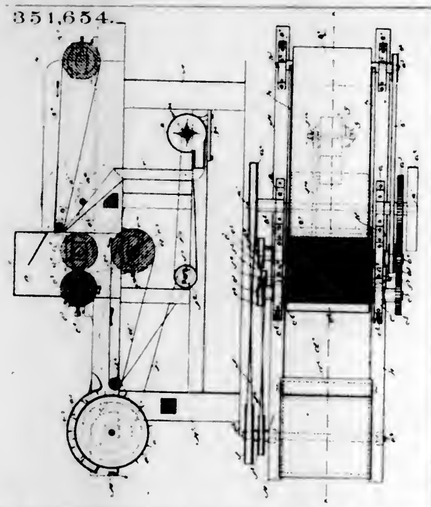
351,654. MACHINE FOR TREATING FEATHERS. Arthur C. Rich, Somerville, Mass. Filed May 12, 1886. (No model.)

Claim.—1. In a machine for treating feathers, an endless belt or apron upon which the feathers are deposited, one or more pairs of rollers or cylinders to crush the feathers carried forward by said belts, a receptacle or chamber located above said crushing-rollers, a blower to free the feathers from dust and force them into said chamber or receptacle, combined with an endless belt to receive the feathers from the crushing-rollers, substantially as described.

2. In a machine for treating feathers, an endless feeding apron or belt upon which the feathers are deposited, crushing rollers or cylinders to crush the feathers carried forward by said endless apron or belt, a second endless belt or apron to receive the feathers from the crushing rollers or cylinders, a revolving drum or cylinder having teeth, a shell or cover located above the said revolving drum or cylinder and provided with teeth to co-operate with the teeth of the said revolving cylinder, combined with means, substantially as described, to impart rotation to the different parts of the apparatus, as and for the purpose set forth.

3. In a machine for treating feathers, an endless feeding apron or

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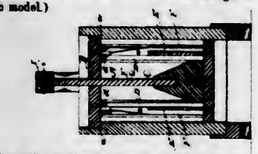


belt upon which the feathers are deposited, crushing rollers or cylinders, a revolving drum or cylinder having teeth, a stationary semi-cylindrical shell or cover located above the said revolving drum or cylinder and provided with teeth to co-operate with the teeth of the said revolving cylinder, combined with means, substantially as described, to impart rotation to the different parts of the apparatus, as and for the purpose set forth.

4. In a machine for treating feathers, an endless belt or apron upon which the feathers are deposited, one or more pairs of rollers or cylinders to crush the feathers carried forward by said belt, a receptacle or chamber located above said crushing-rollers, a blower to free the feathers from dust and force them into said chamber or receptacle, combined with an endless belt to receive the feathers from the crushing-rollers, and with means, substantially as described, to operate the parts of the apparatus, as and for the purpose set forth.

5. In a machine for treating feathers, an endless belt or apron upon which the feathers are deposited, one or more pairs of rollers or cylinders to crush the feathers carried forward by said belt, a receptacle or chamber located above said crushing-rollers, a blower to free the feathers from dust and force them into said chamber or receptacle, combined with an endless belt to receive the feathers from the crushing-rollers, a revolving drum or cylinder having teeth, a stationary shell or drum located above the said revolving drum or cylinder and provided with teeth to co-operate with the teeth of the said revolving cylinder, and with means, substantially as described, to operate the parts of the apparatus, as and for the purpose set forth.

351,655. CHURN. David Savage, Bloomsburg, Pa. Filed Apr. 29, 1886. (No model.)

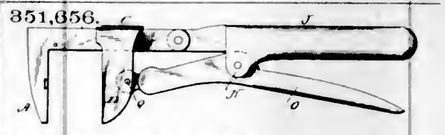


Claim.—In a churn, the combination of the body, the vertical strips D, secured to the body and arranged parallel and out of contact with each other to provide the intermediate grooves, *d*, the perforated partitions E, fitted in the said grooves and arranged near opposite sides of the body to provide the main and auxiliary compartments, a solid dasher working in the main compertment, and having the inclined or beveled upper side, and the notched corners *h* bearing against the cleats D, which serve to guide the dasher, and a pivoted lever connected to the dasher-staff for reciprocating the dasher, all arranged and combined substantially as described, for the purpose set forth.

351,656. WRENCH. Frank C. Sawhill, Midway, Pa. Filed Aug. 13, 1886. (Model.)

Claim.—1. In a wrench, the combination of a handle, a rigid jaw having a shank pivoted to the end of the handle, a movable jaw sliding upon the shank of the rigid jaw, and a slightly-bent lever pivoted with one end to the sliding jaw and pivoted at its bend to the side of the handle, the pivotal point of the sliding jaw and bent lever and that of

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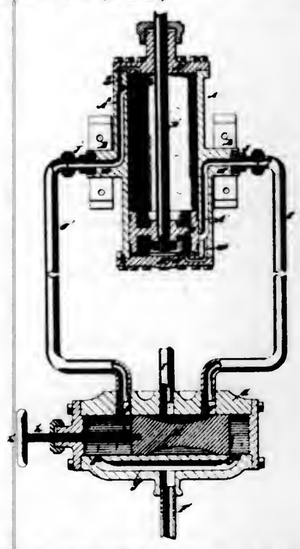
the rigid jaw and handle being in different transverse planes, as and for the purpose shown and set forth.

2. In a wrench, the combination of a handle having a longitudinal groove or recess and two perforated ears at the inner end of the groove, a rigid jaw having the inner end pivoted to the end of the handle, a movable jaw having a stirrup at its inner end sliding upon the shank of the rigid jaw, and having a slot or recess in its outer face, and a slightly-bent lever pivoted at the bend between the perforated ears, and having its handle end fitting in the groove of the handle, and having its outer end reduced and perforated, and pivoted in the slot or recess in the sliding jaw, as and for the purpose shown and set forth.

3. In a wrench, the combination of a rigid jaw having a longitudinal groove or recess in its shank, a movable jaw sliding upon the shank of the rigid jaw, and a jaw pivoted with its inner end in the groove at the rigid jaw and having its smooth face flush with the edges of the recess or groove, and having its inner face concave and serrated, as and for the purpose shown and set forth.

4. In a wrench, the combination of a handle, a rigid jaw having the end of its shank pivoted to the end of the handle and provided in its inner face with a longitudinal recess or groove, an auxiliary jaw pivoted with one end in the outer end of the groove and having its smooth side flush with the side of the shank and its inner face concave and serrated, a jaw sliding with its inner stirruped end upon the shank of the rigid jaw, and a slightly-bent lever pivoted at its bend upon the side of the handle and having one end pivoted to the sliding jaw, as and for the purpose shown and set forth.

351,657. STEAM-CYLINDER. Fredrick F. Schofield, Oscoda, Mich. Filed Mar. 1, 1886. (No model.)



Claim.—1. A steam-cylinder provided on opposite sides with steam-inlet pipes communicating with the interior of the cylinder at each end, distant from the cylinder-heads, and in combination therewith auxiliary steam-ports communicating with each end of the cylinder and having valves located directly in the cylinder-heads, substantially as and in the manner described.

2. An oscillating steam-cylinder journaled upon trunnions, said cylinder provided on opposite sides with steam-inlet ports communicating with the cylinder at each end, distant from the cylinder-heads, said ports communicating through said trunnions with steam-inlet pipes, and in combination therewith auxiliary steam-ports communicating with the ends of the cylinder and provided with valves located directly in the cylinder heads, substantially as and in the manner described.

3. A steam-cylinder provided with steam-inlet ports communicating with the interior of the cylinder at each end, distant from the cylinder-

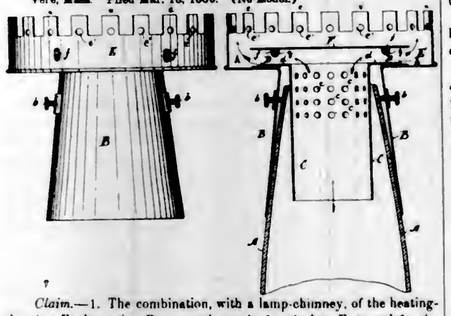
heads, having in combination therewith auxiliary steam-ports communicating with the ends of said cylinder and provided with controlling-valves located in the cylinder-heads, to control the admission of steam to either end of said steam-cylinder, substantially as described.

4. An oscillatory steam-cylinder provided with a piston-head, said cylinder constructed with inlet steam-ports communicating therewith at either end, distant from the adjacent cylinder-head, auxiliary steam-ports communicating with said ports and the ends of said cylinder, respectively, said auxiliary ports provided with controlling-valves located directly in the cylinder-heads, the construction being such that the piston-head may close off the steam from said channels and be cushioned upon the steam at the ends of the cylinder, substantially as described.

5. The combination, with a cylinder, of inlet-ports connecting with the interior of the cylinder on opposite sides and distant from the adjacent cylinder-head, steam-pipes communicating with said ports, a valve to control the admission of steam to either of said steam-pipes, and an exhaust-pipe communicating with said valve, the construction being such that steam admitted through one pipe may enter the cylinder and exhaust through the same pipe, substantially as and in the manner described.

6. The combination, with the cylinder A, having steam-ports A A' on opposite sides, said ports communicating with the interior of the cylinder at a point distant from each cylinder-head, and auxiliary ports a^1 a^2, provided with valves located directly in the cylinder-heads, of the piston D, the steam-pipes C C', and the valve-case G, communicating with said pipes and having valve H, inlet F, and exhaust I, substantially as described.

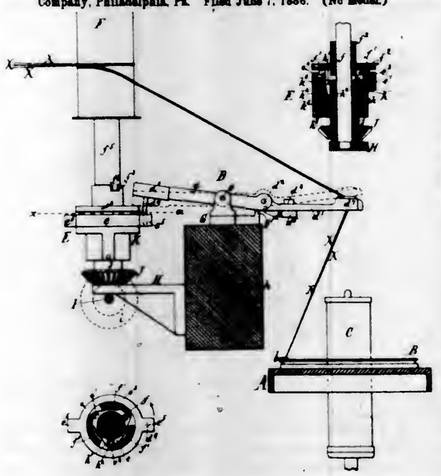
351,658. HEATING ATTACHMENT FOR LAMP-CHIMNEYS. Prentice Sargent, Cambridge, assignor of one-half to Thomas V. Sargent, Revere, Mass. Filed Mar. 18, 1886. (No model.)



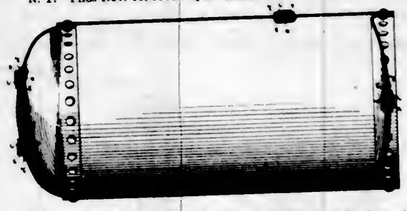
Claim.—1. The combination, with a lamp-chimney, of the heating-chamber E, the casing B, supporting-rods *f*, and plate F, as and for the purpose set forth.

2. The combination of the heating-chamber E, interior chamber, C, annular supporting-flange D, resting upon the bottom of chamber E, and the casing B, as shown and described.

351,659. STOP-MOTION MECHANISM FOR TWISTING-MACHINES. Edwin F. Shaw, Bridesburg, assignor to the Bridesburg Manufacturing Company, Philadelphia, Pa. Filed June 7, 1886. (No model.)



351,660. SPUT FOR BOILERS. Henry W. Shepard, Brooklyn, N. Y. Filed Nov. 19, 1885. (No model.)

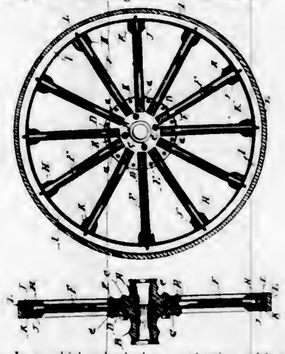


Claim.—1. A sput consisting of a malleable casting having a base-flange, *a*, a wall, *c*, a threaded opening, *b*, in said base and wall, and a lip, *d*, projecting from the base and standing off from the wall, substantially as described.

2. A spot having a base-flange, a central opening, and an adjacent lip, *d*, projecting from the flange at about right angles thereto, and beveled or inclined on one side, substantially as described.

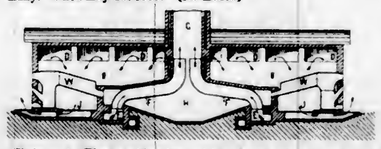
3. A sput consisting of a malleable casting having a base-flange, *a*, a wall, *c*, a threaded opening, *b*, in said base and wall, and a lip, *d*, projecting from the base and standing off from the wall, combined with a boiler, substantially as described.

351,661. VEHICLE-WHEEL. Henry Sieben and William F. Jacubzick, Omaha, Nebr. Filed Aug. 13, 1886. (No model.)



Claim.—In a vehicle-wheel, the combination, with the two parts A and B, which constitute the hub, and in which are formed the radiating sockets D, of the bolts C, arranged near the axis of the hub, the rivets E, arranged near the periphery of the same, the tubular spokes, and the shouldered plugs fitting into the inner ends of said spokes and bearing against the inner ends of said sockets.

351,662. DRYING-HOUSE. Paul Simons, Darmstadt, Hesse, Germany. Filed May 26, 1886. (No model.)



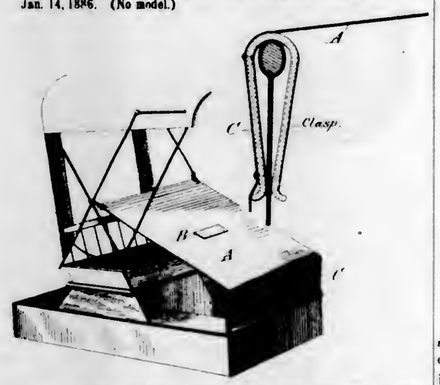
Claim.—1. The combination, with a drying-chamber, A, of a heating-chamber, B, provided with a stove, W, an air-distributing chamber, D, extending over the chamber A and communicating with the chambers A and B, chimney G, and means, substantially as described, of communication between the bottom of chamber A and the said chimney, substantially as and for the purposes set forth.

2. The combination, with the drying-chamber A, heating-chamber B, stove W, air-distributing chamber D, and chimney G, of the flue H and the channel E, extending from the chamber A to the chimney, a portion of said channel being formed by a pipe, F, conducted through the flue H, substantially as and for the purposes set forth.

3. The combination, with the drying-chamber A, heating-chamber B, stove W, air-distributing chamber D, chimney G, and channel E, of the valves *k* between the chambers A and D, and the valves R in channel E, substantially as specified.

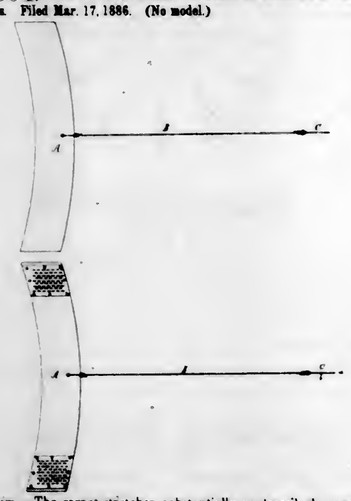
4. The combination, with a series of drying-chambers, A, of the heating-chambers B, the air-distributing chamber D, extending over the chambers A and communicating with the chambers A and B, chimney G, and means, substantially as described, of communication between the bottom of the chambers A and said chimney, substantially as and for the purposes set forth.

351,663. CARRIAGE-APRON. Philip H. Sharp, Pittston, Pa. Filed Jan. 14, 1886. (No model.)



Claim.—A carriage-apron secured to the lower ends of the outer arms of spring-clamps, and adapted to pass thence up and over the dash-rail and be secured to the carriage-bows, all being substantially as herein shown and described.

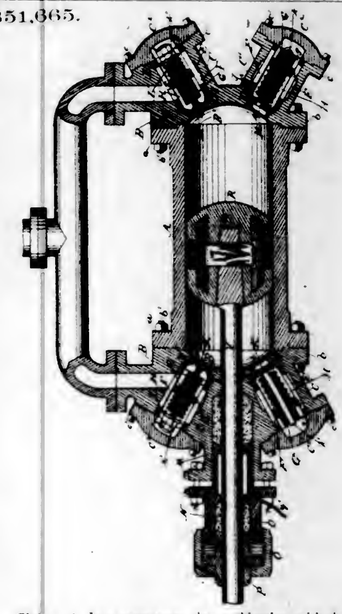
351,664. CARPET-STRETCHER. Herbert M. Small, Baldwinsville, Mass. Filed Mar. 17, 1886. (No model.)



Claim.—The carpet-stretcher, substantially as described, consisting of the bar provided with points or card clothing projecting from it near its ends only, and of the hook and the chain or cord connecting each hook and bar at the middle of the latter, all being arranged essentially as represented.

351,665. CYLINDER FOR AIR AND GAS COMPRESSORS. August Snyder, Allegheny, Pa. Original application filed Apr. 27, 1885, Serial No. 163,845. Divided and this application filed Aug. 28, 1885. (No model.)

351,665.



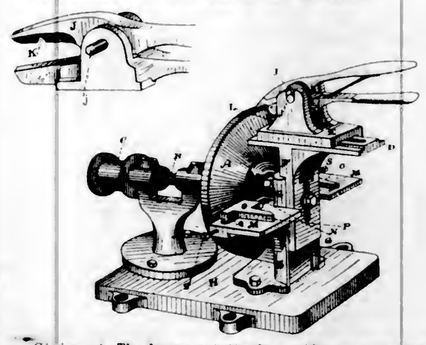
Claim.—1. In a compressor, the combination, with the cylinder, of a valve-pocket having a central opening for the reception of a valve-cage, said opening being of even bore from its outer end to a point near its junction with the cylinder, where it is conical, and the said cage being formed to fit in said pocket, its lower end being conical, to correspond with the conical portion of the pocket, substantially as described.

2. In a compressor, the combination, with a cylinder having spherical heads and valve-seats and valves fitted therein and correspondingly concaved on their ends, of a piston-head having spherical ends corresponding in shape to the cylinder-heads, substantially as described.

3. In a compressor, the combination, with the pocket C, the cage composed of the concentric cylindrical portions F G, the flange *f*, and the removable disb-shaped valve-seat I, of the valve K and the spiral spring L', placed in the annular space H, and bearing against the flange *f*, all constructed and arranged substantially as described.

4. In a compressor, the combination, with the cylinder and the piston-rod, of the piston R, having a smooth forward end, a central piston-rod cavity opening to the rear only, and a wedge or key passing through said piston-rod, substantially as described.

351,666. DEVICE FOR GRINDING SAW-BITS. Nathan W. Spaulding, San Francisco, Cal. Filed June 18, 1885. (No model.)



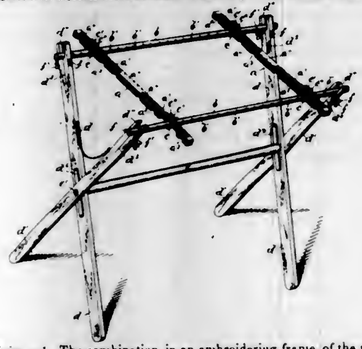
Claim.—1. The forceps or holder for saw-bits, consisting of the lower plain jaw and the upper V-shaped jaw, having a transverse groove and the closing-spring, substantially as herein described.

2. A bit-holder consisting of the spring-actuated jaws, and having the journal or trunnion pins projecting from each side, in combination with a horizontal sliding standard having bearings for the journal-pins, and a grinding-wheel revolving in a plane at right angles with the movement of the standard, substantially as herein described.

3. A bit-holding forceps with journal-pins and supporting-standard, in which said pins may rest, and an adjusting screw or gage, upon which the front forceps may rest, in combination with a revolving grinding-wheel, substantially as herein described.

4. A device for gaging and centering saw-bits, consisting of horizontal tables extending to a point near the face of a revolving grinding-wheel, and having adjustable gages attached to them, in combination with a bit-holder fitted to rest against said gages, so as to bring the opposite edges of the bit alternately in contact with the edge of the revolving grinding-disk, substantially as herein described.

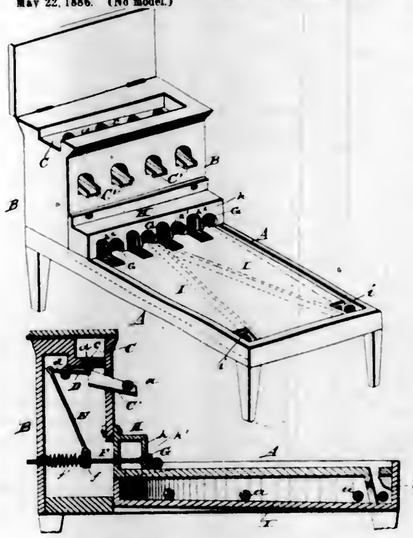
351,667. ADJUSTABLE EMBROIDERY FRAME AND STAND. Edmund B. Squier, Sharon, Mass. Filed May 14, 1886. (No model.)



Claim.—1. The combination, in an embroidering-frame, of the pairs of pivoted legs adjustably connected together, the end rods, *b b*, capable of rotating in bearings in the upper ends of the legs, the longitudinally-slotted cross-pieces *a a*, extending from one rod to the other, and having a series of notches, a^3, in their under sides for engaging said rods, and the eyebolts *c*, adapted to slide along the rods, and in the eyes of which the rods rotate, said eyebolts extending through the slots in the cross-pieces and provided with thumb-nuts *c''*, substantially as described.

2. The combination, in an embroidering-frame, of the end rods, *b b*, the longitudinally-slotted cross-pieces *a a*, extending from one rod to the other, and having a series of notches, a^3, in their under sides for engaging said rods and adjusting them to and from each other, the eyebolts *c*, adapted to slide along the length of the rods, and in the eyes of which the rods rotate, said eyebolts extending through the slot in the cross-pieces, and thumb-nuts *c''* on the eyebolts, for clamping the notched pieces in engagement with the rods, substantially as described.

351,668. GAME-TABLE. Charles L. Tilt, South Bend, Ind. Filed May 22, 1886. (No model.)

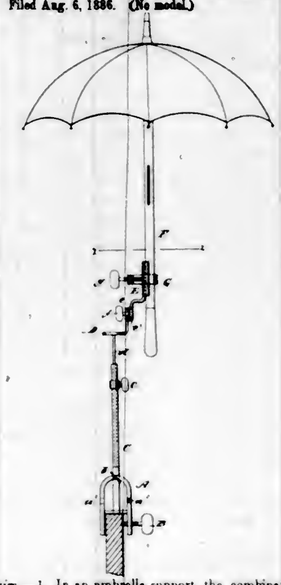


Claim.—1. In a game apparatus, the combination, with a suitable table, of a casing having a trough for holding a number of balls, provided with trapped openings, and means, substantially as described, for actuating any trap and permitting the escape of a ball through an opening upon the table, all substantially as described.

2. In a game apparatus, the combination, with a suitable table, the casing having a trough, C, provided with openings, hinged traps D, closing these openings, rods E, and spring-controlled collared rods F, having cup-shaped heads upon their outer front ends, whereby the traps D are opened when the rods are forced inward against the springs, all substantially as and for the purpose specified.

3. In a game apparatus, the combination of table A, provided with conducting-ways I and pockets i, with the casing B, provided with an inclined trough, C, having openings in its bottom, and hinged traps D, closing the openings in trough C, and having rearward arms *d*, rods E, hinged at their upper ends to arms *d* of traps D, and at their lower ends upon collars *f* of spring-controlled horizontally-movable rods F, having heads G, and casing H, having openings *h' h²*, all constructed and adapted to operate substantially as described.

351,669. UMBRELLA-SUPPORT. Hippolyte Tosso, New Orleans, La. Filed Aug. 6, 1886. (No model.)



Claim.—1. In an umbrella-support, the combination of the clamp A, provided with two series of holes, *a*, arranged at right angles with each other, the tube C, provided with the binding-screw *e*, the rod *d*, inserted in the tube, the right-angled arm D, secured to the rod *d* and provided with the serrated disk *e*, the arm E, having the serrated disk *e'* and set-screw *f*, and the clamp G, adapted to engage the umbrella-handle, substantially as specified.

2. The combination, with the hollow staff C of an umbrella-holder, of the clamp A, having two series of holes, *a a* and *a' a'*, for receiving the staff, substantially as specified.

351,670. THRASHING-MACHINE. Christian Tostenson, Oswego, N. Y., assignor to the Ames Iron Works, same place. Filed Jan. 25, 1886. (No model.)

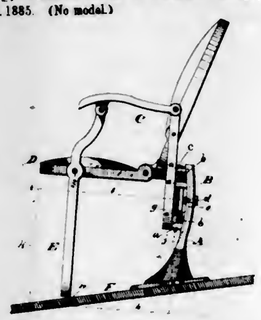


Claim.—1. The combination of the metallic concave frames C C, formed with the rearwardly-extended arms *c c*, and with the combined stops and re-enforcing ribs *d d* on said arms, the grate-frame A, pivoted on the arms *c c* near their junction with the frames C and under the stops *d d*, and a vertically-adjustable support for the rear portion of the frame A, all constructed and combined substantially as described and shown, for the purpose set forth.

2. In combination with the thrashing-cylinder and the rock-shafts *a a'*, provided with lugs *b b*, the metallic concave frames C C, formed with the hooks *e* and guards *f* at the front, and with the rearwardly-extended arms *c c*, and pivoted at the extremities of said arms, and the

grate-frame A, pivoted on the arms *c c* at their junction with the concave frames, and formed with the hooks *h* and guards *i*, all constructed and combined to positively adjust the grate at either end, substantially in the manner specified and shown.

351,671. CHAIR. George E. Underhill, Bridgeport, Conn. Filed Sept. 28, 1885. (No model.)



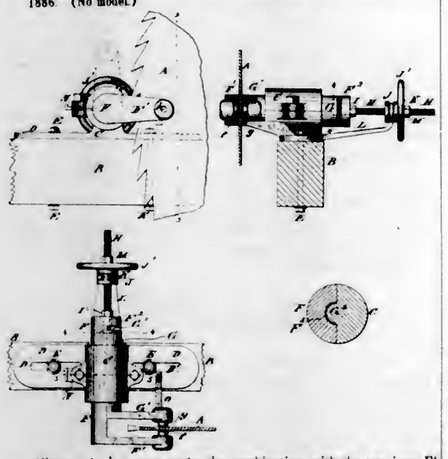
Claim.—1. As an improvement in chairs to compensate for the incline or pitch of floors, the combination, with an upright standard or base-piece fixed to the floor, one of its perpendicular sides having a curvilineal face, of an adjustable supporting frame or block, and means provided thereon to connect it with the seat or chair, said block having a curvilineal face to engage with the curvilineal face of the standard, and means provided to secure the same thereto, substantially as described.

2. As an improvement in chairs to compensate for the incline or pitch of the floor, the upright standard A, having the circular or curvilineal face *e* of the adjustable frame or block B, having circular face *f* to engage with the circular face of the standard, and means provided to secure said frame thereto, and means provided to secure said frame to the chair or seat, so that the seat may be brought to its true level, substantially as described and set forth.

3. The base-piece A, having corrugated circular recess *s*, adapted to engage and hold in position the chair-support B, having corrugated face *f*, and means provided on said support to connect the chair therewith, substantially as described and set forth.

4. The combination, with the single upright standard A, having circular face *e*, ribs *g*, elongated slot *l*, of the adjustable frame B, having circular face *f* to engage the circular face of the standard, bolt *d*, to secure the same thereto, lugs *a*, and bolt *c*, to secure said frame to the seat or chair, substantially as shown and set forth.

351,672. SAW-GUIDE. Samuel S. Vail, St. Louis, Mo., assignor to the Curtis & Co. Manufacturing Company, same place. Filed Mar. 1, 1886. (No model.)



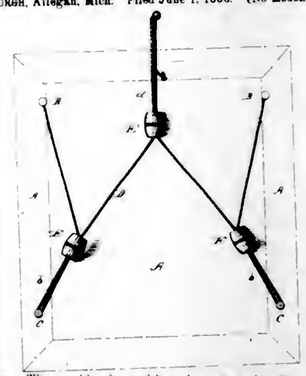
Claim.—1. In a saw guide, the combination, with the two jaws F' and G', of the two members F and G, to which said jaws are respectively secured, the outer surface of each of said members being formed on an arc and the two uniting to form a cylindrical shaft, the lug F^2, formed on the member F, and having the screw-threaded perforation, the screw H, passing through said lug, and the lug G^2, formed on the member G, against which the extremity of said screw bears, substantially as set forth.

2. In a saw-guide, the combination of the jaws, a cylindrical shaft to which they are secured, having a groove, *f'*, the two-part journal-box C, having a mortise between its meeting surfaces, the key N, fitting in said mortise and having an elongated slot or perforation, and the bolt by which the two parts of the journal-box are secured together passing through said slot, substantially as and for the purposes set forth.

3. In combination with the two jaws F' and G' and the two members F and G, to which they are respectively secured, of the screw H, tapped through a lug on one member and bearing upon the other, a hand-nut on said screw having a circumferential groove, a fork, K, engaging said groove, for confining the nut against movement, and a lock-nut on said screw for optionally locking said screw to the member F or to the hand-nut J, substantially as and for the purpose set forth.

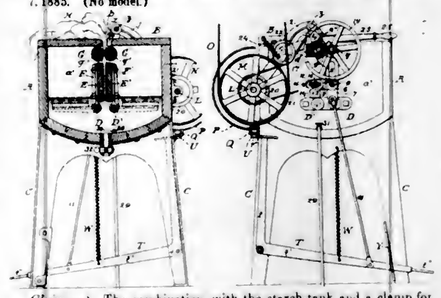
4. In combination, the jaws F' and G', the semi-cylindrical members F and G, having the groove F^3 and lug G^2, respectively, the lug F^2, secured to the member F, the screw H, tapped through said lug, and the hand-nut J, and the lock-nut M, for locking said nut to the screw, substantially as and for the purposes set forth.

351,673. DEVICE FOR HANGING PICTURE-FRAMES, &c. Henry Vosburgh, Allegan, Mich. Filed June 1, 1886. (No model.)



Claim.—The combination, with a picture or other frame, A, of the pins B C, secured to the back thereof, the cord D, secured to the upper pins or nails, B, and passing under and upward between the lower pins, C, and the perforated slides E F F, arranged to be moved over the loops of the cord to adjust the said frame, substantially as described.

351,674. STARCHING-MACHINE. Frank M. Watkins, Cincinnati, Ohio, assignor of one-half to John T. Weighell, same place. Filed Nov. 7, 1885. (No model.)



Claim.—1. The combination, with the starch-tank and a clamp for supporting therein the article to be starched, of the beaters or paddles E E', incapable of movement in the planes of their working-surfaces, and means for imparting thereto a to-and-fro motion, substantially as and for the purpose set forth.

2. In a starching-machine, the combination, with the tank and a clamp for supporting therein the article to be starched, of the beaters or paddles E E', rock-shafts D D', to which they are respectively secured, confined against lateral movement, and means for synchronously oscillating said shafts in opposite directions, substantially as set forth.

3. In a starching-machine, the combination, with the tank, the beaters, and the shaft to which said beaters are secured, journaled athwart the tank, of the driving-shaft, gearing connecting said driving-shaft and rock-shafts, a fast and loose pulley upon said driving-shaft, and a belt-shifter for shifting the belt from one to the other, substantially as set forth.

4. In a starching-machine, the combination, with the tank A and the beaters E E', of the relatively movable wringing-rollers G G' and means for bringing them together and moving them asunder, substantially as described.

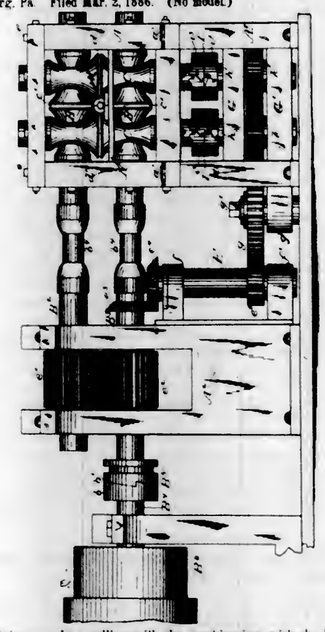
5. In a starching-machine, the tank, the beaters, and means for vibrating said beaters, the relatively movable wringer-rollers, and means for changing their distance asunder, in combination with a single treadle and connections between said treadle and the means for vibrating the beaters and moving the rollers, substantially as and for the purpose set forth.

6. In a starching-machine, the combination of beaters E E', shafts D D', carrying said beaters and journaled in and athwart the starch-tank, and having cranks *d d'*, match-gear crank-wheels J J', rods I I', connecting said crank-wheels with cranks *d d'*, and means for optionally rotating said crank-wheels, substantially as and for the purpose explained.

7. In a starching-machine, the combination of beaters E E', journaled in the starch-tank, means for optionally vibrating said beaters, roller G, in fixed bearings and having optional connection with the driving-power, roller G', movable to and from the roller G, and cog-wheels 26 and 27, secured to the respective rollers G G', and adapted to intermesh when said rollers are brought into close proximity, substantially as and for the purpose set forth.

8. In a starching-machine, the combination of stationary driving-roller G, driven roller G', journal-boxes *g''*, swinging frames Z, rock-shaft *z*, arms 3 4, the latter having slot 5, recesses 17, secured to said arms 3 4 and receiving and guiding the boxes *q''*, springs 18, holding said boxes forward in recesses 17, bent lever 6, having adjustable fulcrum 10, and stud or roller 9, engaging in slots 5, treadle T, and rod 11, connecting the treadle and lever 6, substantially as and for the purposes specified.

351,675. WIRE-ROD-ROLLING MILL. Benjamin Weaver, Pittsburg, Pa. Filed Mar. 2, 1886. (No model.)



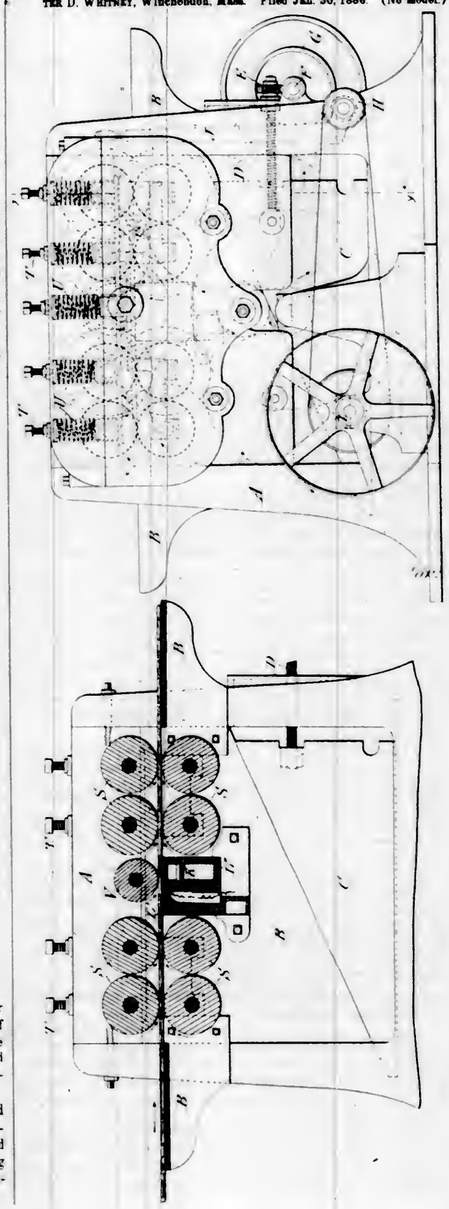
Claim.—1. In a rolling-mill, the combination, with the housing for two pairs of rolls, one pair being vertical and the other horizontal, of separate housing for the driving mechanism of one of said pairs, the housing for the said driving mechanism being constructed and adapted to serve as a base for and being separable from the roll-housing, substantially as described.

2. In a rolling-mill comprising vertical and horizontal rolls and their driving mechanism, the combination, with the shafts of the vertical rolls, disks secured thereto, and pins passing through holes in said disks, of clutch disks or members secured to the shafts of the driving mechanism and adapted to engage with said pins, substantially as described.

3. In a rolling-mill, the combination of the rolls thereof and a guide made in two sections, each of such sections being separately hinged upon a rest-bar, whereby said guide may be adjusted to accommodate rods or bars of different dimensions, substantially as described.

4. In a rolling-mill, the combination, with the rolls B B' C C', of the driving-gear for the rolls C C', attached thereto by clutches I, said clutches being composed each of two disks and a connecting-pin, whereby said rolls C C' are automatically uncoupled from their driving-gear by the action of the rod passing between them and the rolls B B' and automatically coupled to their driving-gear when said rod has passed through both of said pairs of rolls, substantially as described.

351,676. MACHINE FOR SMOOTHING WOOD SURFACES. Baxter D. Whitney, Winchendon, Mass. Filed Jan. 30, 1886. (No model.)

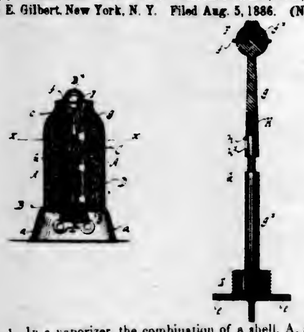


Claim.—1. In a smoothing-machine, the combination of the tool-stock consisting of the parts L' and L'', vertically adjustable with respect to each other, having a cutting-blade, K, adjustable by means of the screws P, and the clamping-plate M, adjustable by means of the screws Q and R, all arranged substantially in the manner and for the purpose specified.

2. In a smoothing-machine, the combination, with the adjustable cutting-tool K, having a tool-stock consisting of the parts L' and L'', vertically adjustable with respect to each other, of an equalizing pressure-roll, V, or other equivalent pressure device, arranged directly over the cutting-tool, substantially as specified and shown.

3. In a smoothing-machine, the combination of the vertically-adjustable table B, the sliding inclined planes C C, screws D D, spiral wheels E E, worm-shaft F, and friction-wheels G and H, arranged and operated by lever J substantially as and for the purpose shown and described.

351,677. INHALER. Theodore B. Wilcox, Newark, N. J., assignor to Frank E. Gilbert, New York, N. Y. Filed Aug. 5, 1886. (No model.)



Claim.—1. In a vaporizer, the combination of a shell, A, an internal cylinder, an absorbent packing surrounding the cylinder, openings in the shell registering with the cylinder, stoppers fitted to said openings, and a connection between said stoppers for simultaneously moving both stoppers to open or close their respective openings, substantially as shown and described.

2. In a vaporizer, the combination of a shell, A, an internal cylinder, an absorbent packing surrounding the cylinder, openings in the shell registering with the cylinder, stoppers E F, controlling said openings, and a sectional shank connecting the stoppers, substantially as shown and described.

3. The combination, with an atomizer comprising a shell, A, having end openings, B B', and an internal cylinder, c, of the two end stoppers, E and F, a connecting-shank composed of two sections, *g g'*, and a spring, H, interposed between the said sections, substantially as described.

4. The combination, with an atomizer comprising a shell, A, having end openings, B B', and an internal cylinder, c, of the two stoppers E and F, a connecting-shank composed of two sections, *g g'*, one having a socket into which the other extends, a spring, H, located in the socketed section, and a pin-and-slot connection between said sections, substantially as described.

5. The combination, with an atomizer comprising a shell, A, having a top opening, B', an internal cylinder, c, a removable and replaceable bottom, *b**, for the shell, having a central opening, B, two stoppers, E and F, adapted to the said top opening, B', and the opening in the removable and replaceable bottom, and a shank connecting the stoppers for simultaneously opening and closing both stoppers, substantially as described.

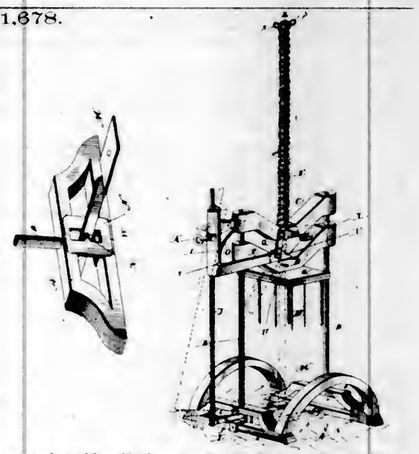
6. In a vaporizer, the combination of a shell, A, having an opening at one end, an internal perforated cylinder, an absorbent packing surrounding the cylinder, a removable bottom for the shell, a threaded opening in said bottom, and two stoppers, E and F, connected by a shank for operating both stoppers to open and close both said openings, one stopper having a thread engaging the thread in the bottom of the shell, substantially as shown and described.

351,678. ANIMAL-TRAP. Frank J. Williams, Macy, Ind. Filed June 7, 1886. (No model.)

Claim.—1. In an animal-trap, the combination of a frame, a plate moving on the guide-rods of the same, having spikes projecting from its under side and an actuating-rod from its upper side, a spring around said actuating-rod, a bail having loops at its ends secured to the top of said spring, a set-screw in the cross-piece of said frame, and means for setting and springing said trap.

2. In an animal-trap, the combination of a frame having a spring-actuated spiked plate moving therein, a trip-lever pivoted to the cross-piece of said frame, one end of which engages with said plate, a trip-rod pivoted to the top of said frame, a spring secured to the top of said

351,678.

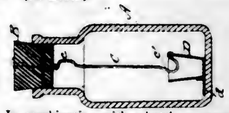


frame, engaging with said trip-rod, and a treadle secured to the lower end of said rod.

3. In an animal-trap, the combination of a frame having a spring-actuated spiked plate moving therein, a trip-lever pivotally secured to the cross-piece and engaging with said plate, a sleeve pivoted to the top of said frame having a set-screw at one side, a trip-rod in said sleeve, and means for operating said trip-rod.

4. In an animal-trap, the combination of a frame having a movable impaling device and a trip-lever, a trip-rod pivoted to the top of said frame, a treadle pivoted to the lower end of said rod, a pin projecting from the stem of said treadle, and a setting-plate having a strip or lug at one side which engages with said pin.

351,679. INK-BOTTLE. Bennet C. Wilson, Philadelphia, Pa. Filed Mar. 30, 1886. (No model.)



Claim.—1. In combination with a bottle or reservoir, a removable stopper, and a wire attached to and supported by said stopper only, and having at its lower end a dipper and means for holding it upon the edge of the bottle-mouth when raised thereto, substantially as set forth.

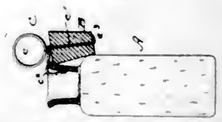
2. In combination with a bottle or reservoir, a removable stopper, and a wire, C, fastened at one end to the stopper and having at its lower end a jointed or loose dipper provided with a lip, *a*, substantially as and for the purpose set forth.

3. In combination with a bottle or reservoir, a removable stopper, a wire, C, made of jointed sections attached to the stopper, and a dipper secured to the lower end of wire C, substantially as and for the purpose set forth.

4. In combination with a bottle or reservoir, a removable stopper, a wire, C, attached at one end to the stopper, a dipper, D, secured to the lower end of wire C, and a bend, *c'*, in said wire for embracing or catching the edge of the mouth of the bottle to hold the dipper in the bottle-neck when its stopper is removed, substantially as set forth.

5. In combination with a bottle and its stopper, a wire, C, attached to the stopper and having bends *c* and *c'*, and a dipper, D, substantially as and for the purpose set forth.

351,680. CORK-HOLDER. Bennet C. Wilson, Philadelphia, Pa. Filed Mar. 30, 1886. (No model.)

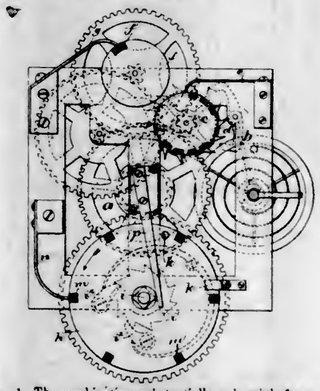


Claim.—1. A bottle-stopper having a hook attachment, as and for the purpose set forth.

2. A bottle-stopper having a ring or handle, *c*, and hook *c²*, as and for the purpose set forth

3. A holder attachment for bottle-stoppers, composed of a ring, *c*, fastening end *c'*, and hook or lip *c²*, substantially as set forth.

351,681. ELECTRIC TIME-DETECTOR. John C. Wilson, Boston, Mass. Filed May 12, 1884. (No model.)



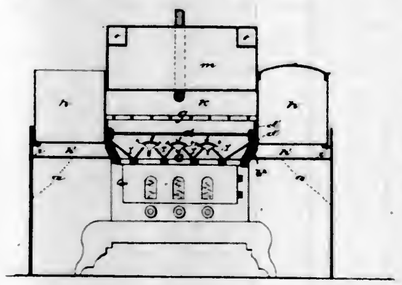
Claim.—1. The combination, substantially as hereinbefore set forth, of a clock or motor, a signal-transmitting device constructed and arranged to send a determinate signal characteristic of its locality, actuated by said motor, and a controlling device moved forward by said motor, and backward or restored to its normal condition by an operator, said controlling device being constructed and arranged to cause the signal-transmitting device to operate after being moved forward by the motor a predetermined interval of time unless previously moved backward or restored to its normal condition by an operator.

2. The clock or motor comprising a train of wheel-work, one of the arbors of which is provided with a break-wheel for producing a series of interruptions in an electric current, combined with another wheel carried by another arbor controlling the same circuit and limiting the period of operation of the break-wheel, and a controlling device operatively connected with the winding-arbor of the clock and controlling the break wheel circuit, said controlling device being constructed and arranged to retain the break-wheel inoperative for a definite period of time while moved forward by the actuating member of the motor, but to change the circuit and render the break-wheel operative after the predetermined period has elapsed, unless the winding-arbor is rotated to wind the motor, and thereby move the controlling device backward or restoring it to its normal position, substantially as described.

3. The combination, substantially as hereinbefore set forth, of a clock or motor, a signal-transmitting device constructed and arranged to send a signal characteristic of its locality, a shunt-circuit for the said signal-transmitting device, and a circuit-controller for the said shunt-circuit, normally retaining the signal-transmitting device inoperative, but constructed and arranged to be moved forward by the actuating member of the motor and to change the condition of the circuit after a definite period of time has elapsed, and also capable of being moved backward or restored to its normal condition at any time prior to changing the condition of the circuit, to thereby continually render the signal-transmitting device inoperative.

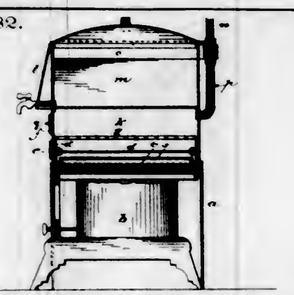
4. A signal-transmitting device and controlling device therefor operated by the actuating member of a clock or motor, combined with a circuit-controlling device operated by the key of the said motor, whereby the transmitting device is rendered inoperative while the motor is being wound, substantially as described.

351,682. OIL-STOVE. Samuel Armstrong, Newark, N. J., assignor of one-half to John Stanard, same place. Filed July 13, 1885. (No model.)



37 O. G.—28

351,682.



Claim.—1. The combination, with a frame having a chamber, of a lamp therein, a passage for the products of combustion from the lamp, and a perforated receptacle for charcoal or similar material located in such passage, the walls of said passage having an opening beyond the charcoal-receptacle to afford access thereto of a cooking utensil, substantially as described.

2. The combination, with a stove-frame, of a lamp, walls forming a passage for the products of combustion, an ash-receptacle located above the lamp, and provided with passages therethrough for the flame or heat, a perforated receptacle for charcoal above the ash-receptacle, and a chamber formed by the walls of the passage for the reception of a cooking utensil, as set forth.

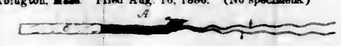
3. The combination, with the main frame of the stove having an opening in its top, and provided with supports for cooking utensils, of a lamp located in or beneath said opening, an ash-receptacle provided with passages therethrough for the flame or heat arranged above the lamp, and a perforated receptacle for charcoal above the ash-receptacle, substantially as described.

4. In combination, an oil-lamp, a frame, walls forming a chamber, K, provided with an opening for the insertion of the food-receptacle, and a flue for the passage of the products of combustion, a hood or curtain connected with the wall forming the chamber *k*, and projecting over the opening through which the food-receptacle is passed, the said hood or curtain forming, in connection with the said wall, a chamber, and a flue or flues connecting said chamber and the main exit-flue, substantially as described.

5. The combination, with an oil-stove provided with a charcoal-receptacle, of the ash-receptacle arranged below said charcoal-receptacle, both of said receptacles being above the oil-burner of said stove, the ash-receptacle consisting of a series of pan-like bars arranged apart, and shields or fenders arranged over the spaces between said bars, substantially as and for the purpose set forth.

6. The herein-described improvement in the process of cooking, consisting in interposing between the flame or source of heat and the substance to be cooked a layer of inflammable material to burn out or absorb odoriferous products of combustion arising from the flame, as herein set forth.

351,683. WAXED END OR THREAD. William B. Arnold, North Abington, Mass. Filed Aug. 16, 1886. (No specimens.)



Claim.—1. The improved manufacture of waxed sewing-thread, substantially as described, composed of one or more corrugated metallic wire or wires and one or more strands of flax or a fibrous vegetable or animal material intertwisted, and a covering of shoe-maker's wax applied thereto, all being for use as set forth.

2. A sewing-thread composed of one or more corrugated metallic wire or wires and one or more strands of flax or a fibrous vegetable or animal material intertwisted together, all essentially as set forth.

351,684. CULTIVATOR. Robert H. Avery and Leonard B. Berrien, Peoria, Ill., assignors to the Avery Planter Company, same place. Filed Aug. 21, 1885. (No model.)

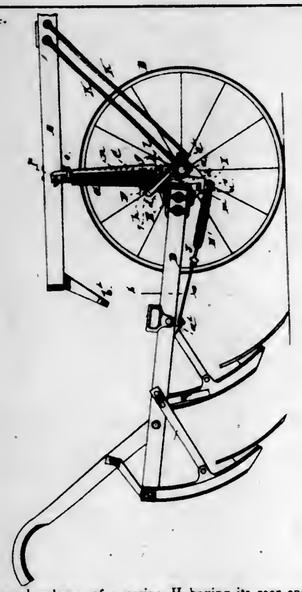
Claim.—1. A pivoted or journaled lever, F, provided with two arms or projections, *l m*, one extending forward, the other rearward, in combination with a shovel-beam, substantially as and for the purposes specified.

2. In a cultivator, a lever arranged to act on the beam, in combination with a spring, G, connected at one end with the lever and at its other end with a rod or bar, through which the spring acts on the same lever, substantially as and for the purpose specified.

3. In a cultivator, the combination of a shovel-beam, a pivoted or journaled lever, F, provided with two arms, one extending forward and the other rearward, a spring, G, and a rod or bar, *n*, substantially as and for the purposes specified.

4. In a cultivator, the combination, with the shovel-beam and ver-

351,684.



tical pivot of the plow-beam, of a spring, H, having its rear end connected with the shovel-beam, and its forward end connected at one side of the center of said beam to a hook on the vertical pivot of the plow-beam, substantially as and for the purpose specified.

5. The combination, with the beam D and bar I, formed with hook *u*, and secured to the part *d*, of the spring H, connected at one end to the hook of bar I, and the notched piece J, connecting said beam and spring, substantially as described.

6. The combination of a lever, F, mounted upon the part *a*, and provided with a coupling-pin, *g*, a shovel-beam provided with a projection with which said pin will engage, and a spring to act on said lever, substantially as specified.

7. A lever, F, having opposite arms *l m*, in combination with bar *w*, spring G, and a shovel-beam, substantially as and for the purpose specified.

8. A lever, F, in combination with a rod, *n*, guide *o*, a spring, G, and a shovel-beam, substantially as and for the purposes specified.

351,685. STEAMER. Leonard Bannerlin, Massillon, Ohio. Filed May 17, 1886. (No model.)



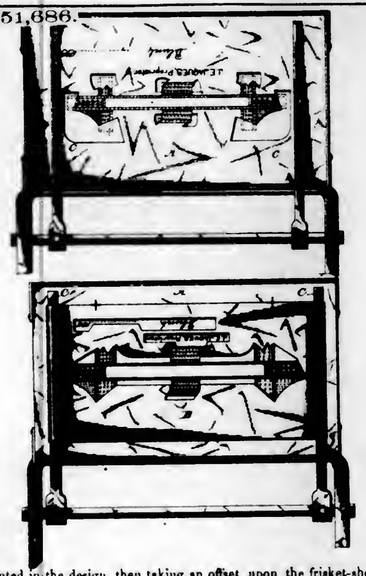
Claim.—1. The combination of an outer vessel having an inclined spout, a handle, and a pipe, A^3, outwardly issuing from said vessel, and provided with a vertical socket, A^5, with an inner vessel, and a pipe, C, entering said vertical socket, and its extremity extending through a perforated disk covering the bottom of the inner vessel, substantially as described.

2. The combination of an outer vessel having an inclined spout, and a pipe, A^3, issuing therefrom, and provided with a vertical socket, A^5, with an inner vessel having a shelf, *b*, around it, and a pipe, C, having its lower end extending through a perforated disk and its upper end extending over the edge of the inner vessel, substantially as and for the purpose described.

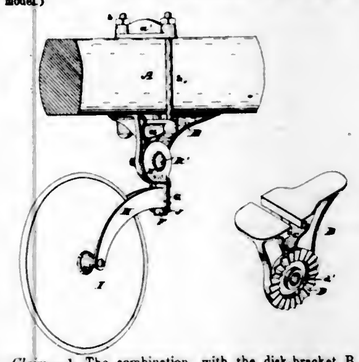
351,686. PRINTING. Major A. Bancroft, Burt, Dak., assignor of one-half to Israel E. Youngblood, same place. Filed Aug. 11, 1886. (No model.)

Claim.—The improved method of printing herein described, consisting in first taking an impression of the form upon the tympan, then cutting out such portions of the impression on the tympan as are not to be printed in the design, then taking an offset upon the frisket-sheet from the design on the tympan, then cutting out the offset on the frisket-sheet, and finally taking an impression on the sheet to be printed, substantially as described.

351,686.



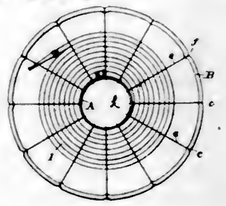
351,687. ROLLING COLTER. Thomas C. Belding, Canton, Ohio, assignor to Thomas C. Snyder, same place. Filed Aug. 5, 1886. (No model.)



Claim.—1. The combination, with the disk-bracket B, provided with the shoulders *c c*, of the cross-bar *a* and the clamping-bolts, the corrugated disks D and E, colter-stem F, and clamping-bolt K, substantially as and for the purpose specified.

2. The combination, with the bracket B, of the disks D and E, provided with the rings *d'* and K, the lugs or stops *g*, and the recesses *f* in the eye G of the colter-arms, substantially as and for the purpose specified.

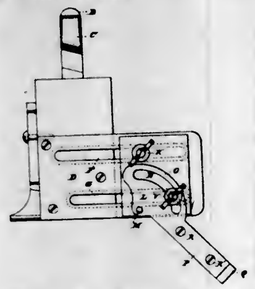
351,688. HOSE-REEL. Victor H. Buschman, Baltimore, Md. Filed Feb 23, 1886. (No model.)



Claim.—1. A hose-reel comprising a winding-drum, A, two hoops, B, having such relative position as to nearly touch each other, and spring-wires *e*, connecting the winding-drum and said hoops, whereby the hoops may move or yield to and from each other, and the hose, wound on the drum in a volute coil of single breadth, will be confined or retained by the two hoops approaching each other, as set forth.

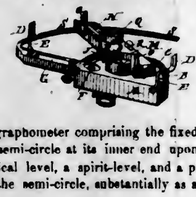
2. A hose-reel having a ring-shaped band, A, provided with a row of holes, *d*, close to each edge, two hoops, and spring-wires *e*, passed through the holes in the said band and connected with the hoops, as set forth.

351,689. RABBET-PLANE. William H. Buswell, Manson, Iowa. Filed May 6, 1886. (No model.)



Claim.—The improved rabbet-plane described, consisting of the stock A, the plates D E, having the parallel longitudinal slots and secured to the opposite ends of the stock in a plane relatively at right angles to the face thereof, the sliding rectangular plates J, held in sliding engagement with the said end plates by the transverse screws and nuts I K, the gage-bar, the plates R, having a semicircular slot, the thumb-nut working therein, an arm, P, for attachment to the ends of the said gage-bar, and their lower inner portions pivoted to a like point of the sliding end plates, substantially as specified.

351,690. FIELD-GRAPHOMETER. Antonie Costescoo, Jassy, Roumania. Filed Nov. 12, 1884. (No model.) Patented in France Apr. 3, 1883, No. 154,649; in Belgium Apr. 7, 1883, No. 61,012; in Germany Mar. 5, 1884, No. 29,359; in Austria-Hungary Mar. 6, 1884, No. 9,293/954 and No. 22,385/875, and in Italy Apr. 1, 1884, 16,675, XVIII, and 138, XXXIII.



Claim.—1. A graphometer comprising the fixed alidade, mounted eccentrically to the semi-circle at its inner end upon a universal joint, and having a spherical level, a spirit-level, and a plumb-line pending from the center of the semi-circle, substantially as and for the purpose shown and set forth.

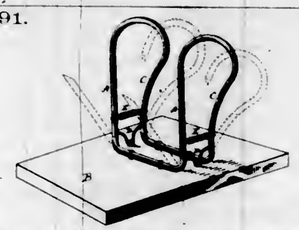
2. In a graphometer, the fixed alidade having a graduated semi-circle extending from its straight-edge and provided with a rack at its periphery, in combination with the quadrant extending from the end of the said fixed alidade concentrically with the semi-circle, and the movable alidade mounted concentrically with the semi-circle and having a pinion engaging the rack upon the periphery of the latter, substantially as and for the purpose set forth.

3. In a graphometer, the combination of the fixed alidade, the graduated semi-circle extending from the straight-edge of the latter, and the movable alidade having a vernier beveled to a feather-edge and registering with the scale of the semi-circle, and a magnifying-glass arranged above the said vernier, substantially as and for the purpose set forth.

4. As an improvement in graphometers, the herein-described device comprising a body or fixed alidade, and having a spherical level and a spirit-level, a laterally-extending graduated semicircular plate having a rack at its periphery and mounted eccentrically upon a ball-and-socket joint, a compass secured centrally upon the semicircular plate, a plumb-line pending from the center of the said plate, a tape-measure, and a movable alidade having a vernier registering with the scale of the semi-circle, a magnifying-glass arranged above the said vernier, and a quadrant extending from the end of the fixed alidade and read by the point of the movable alidade, substantially as set forth.

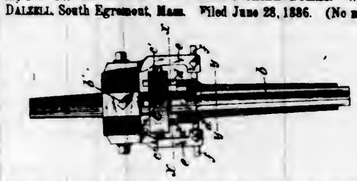
351,691. PAPER-FILE. J. Parx Crosby, New York, N. Y. Filed July 19, 1886. (No model.)

351,691.



Claim.—In a paper-file, the combination of the base B, the straight wire A, hinged to the base, a second wire, C, also hinged to the base, the axis of the hinges of the respective wires being parallel and adapted to permit either wire to be turned upon its hinge, one from the other, the said wire C longer than the wire A, its upper end bent in a plane at right angles to the axis of the hinge, over, toward, and down to meet the upper end of the straight wire A, the meeting ends of the said two wires beveled so as to overlap each other, and so that the curved upper end of the wire C stands above the end of the straight wire A, a stop against which the said wires will rest when in their closed or normal position, and a spring to yieldingly support the said two wires against their respective stops and hold their ends in contact, substantially as described.

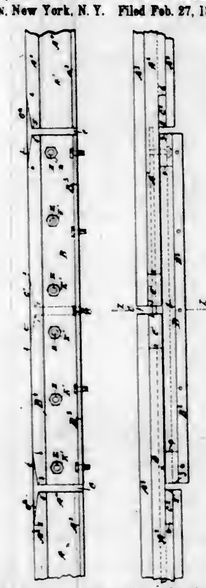
351,692. MACHINE FOR WORKING AXLE-BOXES. William C. Dalzell, South Egremont, Mass. Filed June 28, 1886. (No model.)



Claim.—1. In combination, the interior reamer or boring-tool *b*, boring-head *a*, tool-holders *e*, and tools *f*, for working on the exterior of the box, all substantially as described, and for the purpose set forth.

2. In combination, the reamer or boring-tool *b*, the tools *d*, the boring-head *a*, the tool-holders *e*, and the tools *f*, substantially as described, and for the purpose set forth.

351,693. PERMANENT WAY OF RAILROADS. Albert C. de Barbaran, New York, N. Y. Filed Feb. 27, 1886. (No model.)



Claim.—1. A permanent way for railroads, composed of a series of rails having the bearing-surfaces of their heads cut away or inclined, as described, at each end of each section and connected together by inter-

mediate bridging-pieces, also having inclined or cut-away ends bridged by the rails they connect, substantially as and for the purpose described.

2. The combination, with a pair of rails formed with bearing-surfaces having cut-away or inclined portions at each end, of a bridging and connecting piece, B, substantially as and for the purpose described.

3. The combination, with recesses or depressions formed, as described, in the subsidiary bridging-pieces employed in conjunction with a railroad-track, of a bearing-surface arranged by the side of said recesses or depressions, the said bearing-surface being on a level with the bearing-surface of the track, substantially as shown and described.

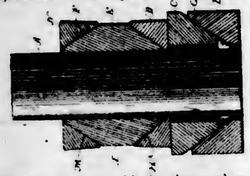
351,694. DISPLAYING DEVICE FOR PRIMARY SCHOLARS. JAS DU SHANE, South Bend, Ind. Filed May 3, 1886. (No model.)



Claim.—1. In an educational device, the combination, with a suitable case, and a piece, B, removably secured therein at an angle, substantially as described, of the strips C, hinged at their lower ends upon the piece B, each having on its faces large lesson-characters to be shown to the scholars, and small indicating-characters showing the design upon the next succeeding strip, so that when one strip is lowered the teacher can tell by the indicating-character on the lowered strip what is exhibited to the scholars on the next succeeding one, all substantially in the manner and for the purpose specified.

2. In an educational device, the combination, with a suitable case or box, and a removable piece, B, secured therein at an angle by means of an eye-piece, *b'*, and pin *b²*, as described, of a number of strips, C, hinged at their inner ends upon the piece B, and bearing on their faces large figures or designs to be seen by the scholars, and small indicating figures or designs for the teacher, all substantially as specified.

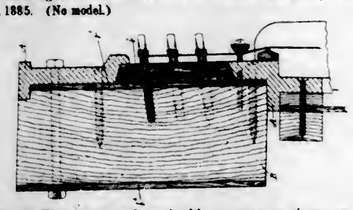
351,695. PISTON-ROD AND VALVE-STEM PACKING. BYRON E. FOSS, Indianapolis, Ind. Filed July 24, 1886. (No model.)



Claim.—1. The combination, with the piston-rod or valve-stem, of the sectional metal ring B, the sectional elastic ring E, and the solid rings C D F, having the plain and beveled faces, substantially as specified.

2. The combination, with the piston-rod, of the solid and sectional metal rings and the sectional elastic ring, said rings being provided with beveled and plain faces and fitted upon the piston-rod within the stuffing-box, substantially as specified.

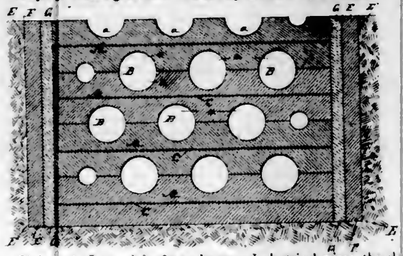
351,696. METALLIC FRAME FOR PIANOS. JOSEPH GRAMER, Boston, Mass., assignor of one-half to Orrin A. Kimball, same place. Filed Dec. 7, 1885. (No model.)



Claim.—1. The frame A, formed with a recess, as shown, to receive a pin-block, *b*, projecting from the wrest-plank B, as set forth.

2. In combination, wrest-plank B, with its projecting pin-block *b*, and recessed frame A, substantially as set forth.

351,697. UNDERGROUND CONDUIT FOR ELECTRIC WIRES. F. V. GREENE, New York, N. Y.; assignor to the Barber Asphalt Paving Company, Washington, D. C. Filed July 28, 1886. (No model.)

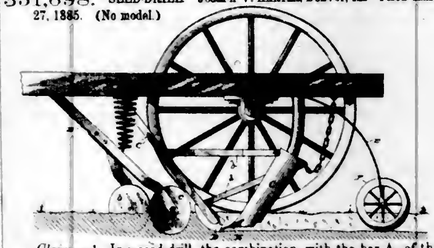


Claim.—1. In conduits for underground electrical wires, the slabs, blocks, or other wire or cable holding forms of concrete, having wire-netting embedded therein, as set forth.

2. In a condnit for underground electrical wires, the slabs A, provided with the wire-netting C, and plates D and D', arranged as described, whereby the induced currents are carried off, as set forth.

3. A conduit for underground telegraph wires or cables composed of a series of grooved slabs laid as described, in combination with the plank or partition F and filling G, as set forth.

351,698. SEED-DRILL. JOSEPH V. HARTER, Denver, Ill. Filed Mar. 27, 1885. (No model.)



Claim.—1. In a seed-drill, the combination, with the bar A, of the cutting-disks mounted at an angle to each other and to the line of draft, the drill-tooth provided with the shovel, and the wheel mounted in rear of the tooth, all substantially as described.

2. In a seed-drill, the combination, with the beam A, of the cutting-disks, arranged as described, the drill-tooth provided with the frame carrying the cutter, and also provided with the shovel, and the wheel mounted in rear of the shoe.

351,699. REVERSING-GEAR FOR DYNAMO-ELECTRIC MACHINES. EDWARD J. HOUGHTON, Peckham, County of Surrey, and THOMAS M. COLLET, Great Winchester Street, County of Middlesex, England. Filed Aug. 25, 1885. (No model.) Patented in England Nov. 26, 1884, No. 15,597, and in France July 9, 1885, No. 170,055.

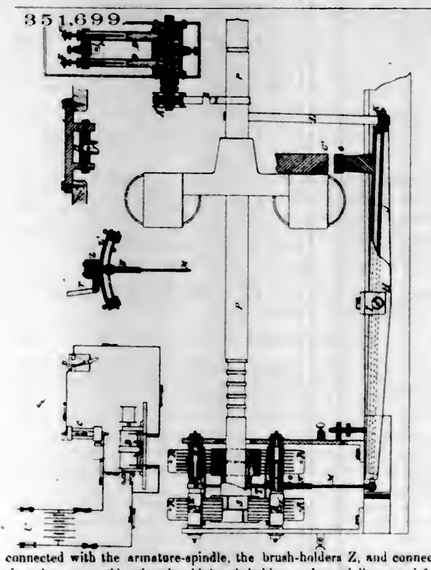
Claim.—1. In an electrical generator, a contact apparatus consisting of a screw or worm, A, contained in a vessel, C, charged with mercury or other conducting-fluid, and having two vertical tubes, D, provided with contact-screws E at their upper end, the said screw A being rotated by the electrical machine, so that when this attains a certain speed the liquid in rising in the one or the other of the tubes will make contact with the screw, substantially as and for the purposes herein described.

2. In an electrical generator arranged to run in both directions, the combination, with the commutator-brushes, of reversing apparatus, consisting of a pivoted lever, H, carrying at one end an armature, G, attracted by the poles G' of the field-magnets of the machine, the brush-holders Z, a rod, J, connected at one end with the brush-holders and at the other end to the armature-spindle, whereby on the commencement of the rotation the spindle first moves said rod J into position for bringing one set of brushes into contact, after which the lever H, by attraction, causes the rod to bring said brushes into contact, substantially as described.

3. The combination, with the spindle and its armature, of the field-magnets G^2, the pivoted lever H, carrying the armature G at one end, the rod J, having a cross-head at one end, the strap I, passing around the armature-spindle and having its ends connected with said cross-bar, the brush-holders Z, having the curved arms O and arms Z', and the connecting-rod M N, substantially as described.

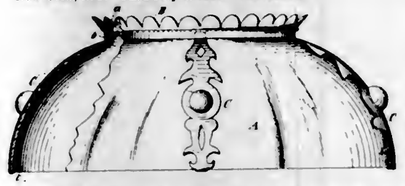
4. The combination of the vessel C for the conducting-fluid, having vertical tubes D, provided with contact-screws E, the worm or screw A in said vessel, the armature-spindle connected with the worm or screw, the field-magnets G^2, the lever H, carrying the armature G, the rod J,

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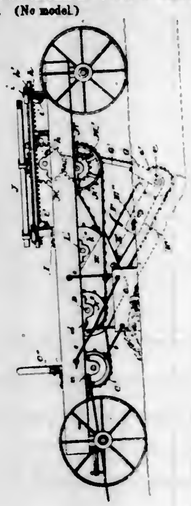
connected with the armature-spindle, the brush-holders Z, and connections between said rod and said brush-holders, substantially as and for the purposes described.

351,700. ORNAMENT FOR LAMP-SHADES. WOLCOTT A. HULL, New York, N. Y. Filed July 2, 1886. (No model.)

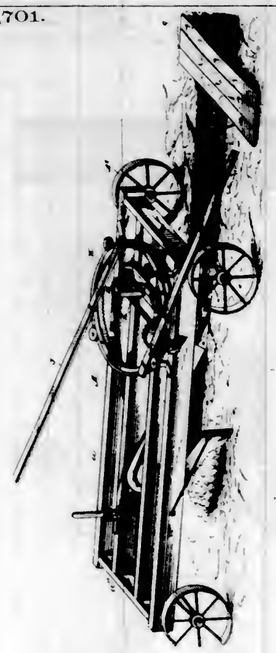


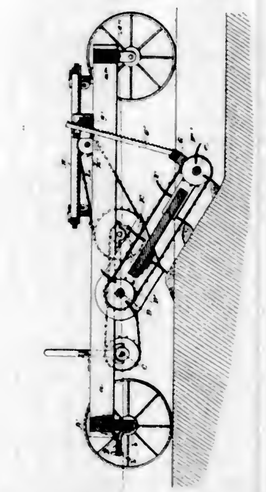
Claim.—The combination, with a shade, of a crown around the upper part of the shade and ornaments secured with the crown on the shade, and provided with hooks that engage the lower edge of the shade, substantially as specified.

351,701. DITCHING-MACHINE. JAMES W. HUMPHREYS, Iroquois, Ill. Filed Jan. 28, 1886. (No model.)



351,701.



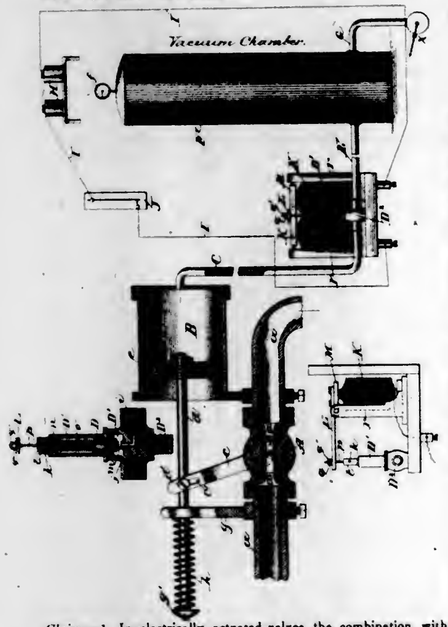


Claim.—1. In a ditching-machine, an endless excavating-chain provided with shovels mounted on a pivoted frame, said frame having side pieces and means for vertically adjusting the same, scrapers connected to the main frame adjacent to the side pieces of the excavating-chain, substantially as shown, and for the purpose set forth.

2. In combination with the ditching-machine constructed substantially as described, an endless excavator consisting of side pieces, E, which are pivotally attached to the supporting-frame, a central bar, E', secured thereto, and extensible end pieces or plates, E'', and parallel endless belts connected to each other by cross-pieces having curved shovels connected thereto, substantially as shown, and for the purpose set forth.

3. In a ditching-machine mounted on supporting-wheels, a main frame provided with the semicircular perforated plate, in combination with the axle *b*, having a similar plate secured thereto, and a locking-pin, substantially as shown, and for the purpose set forth.

351,702. ELECTRIC VALVE. Warren S. Johnson, Whitewater, assignor to the Johnson Electric Service Company, Milwaukee, Wis. Filed July 6, 1885. (No model.)



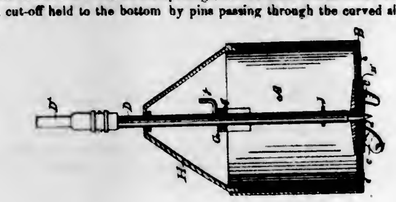
Claim.—1. In electrically-actuated valves, the combination, with a main valve, of an exhaustion-chamber whose movable wall operates said valve when the air is withdrawn from said chamber, a vacuum-chamber connected therewith, an electrically-actuated secondary valve arranged to control the passage of air from the exhaustion-chamber to the vacuum-chamber, an electric circuit, and a thermostatic circuit-closing device, whereby the closing of the electric circuit operates the said secondary valve, substantially as set forth.

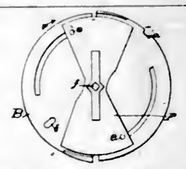
2. In electrically-actuated valves, the combination, with a main valve, of an exhaustion-chamber whose movable wall operates said valve when the air is withdrawn from said chamber, a vacuum-chamber connected therewith, an electrically-actuated secondary valve arranged at an intermediate point between the exhaustion-chamber and the vacuum-chamber, and adapted to admit the passage of air from the exhaustion-chamber to the vacuum-chamber, as well as from the outside atmosphere to the exhaustion-chamber, an electric circuit, and a thermostatic circuit-closing device, whereby the closing of the electric circuit operates the said secondary valve, substantially as set forth.

3. In electrically-actuated valves, the combination of a steam or other passage provided with suitable ports, a main valve adapted to control said ports and having a slotted arm connected thereto, an exhaustion-chamber, a piston-head moving therein and connected to a piston-rod having a pin working in the slotted arm, a retracting-spring arranged upon said piston-rod, a vacuum-chamber connected to the exhaustion-chamber, an electrically-actuated secondary valve adapted for controlling the passage of air from the exhaustion-chamber to the vacuum-chamber and from the outside atmosphere to the exhaustion-chamber, an electric circuit, and a thermostat in said circuit, substantially as set forth.

351,703. EARTH-AUGER. John Junghauer and Gilbert J. Sheilstad, Jackson, Minn. Filed Jan. 12, 1886. (No model.)

Claim.—The combination of the shell, the bottom having openings, hits secured to a side of the openings, curved slots formed in the bottom, a cut-off held to the bottom by pins passing through the curved slots, a





re-enforcing piece secured to the center of the cut-off and having an angular opening formed therein concentric with the center of the curved slots, and a shaft having an angular end to engage the opening in the re-enforcing piece, whereby the cut-off is moved to close the openings in the bottom when turned in one direction, and uncover the same when turned in a reverse direction, substantially as specified.

351,704. CONDUCTOR FOR TELEPHONES. Adolphus A. Knudson, Brooklyn, N. Y. Filed Oct. 12, 1885. (No model.)



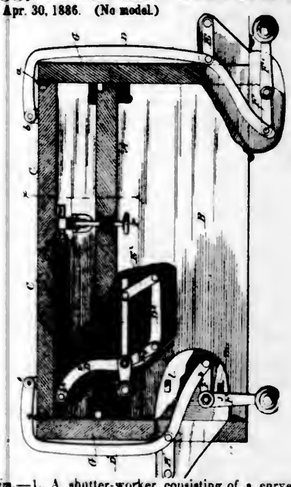
Claim.—1. A conductor for telephones, consisting of two or more wires of the same material differing in their sizes and degrees of hardness.

2. A conductor for telephones, consisting of two or more wires of the same material differing in their degrees of hardness.

3. A conductor for telephones, consisting of two or more wires of the same material differing in their degrees of hardness and covered with an insulating or water-proof material.

4. A telegraph or telephone cable composed of two or more wires of the same metal differing in their sizes and degrees of hardness.

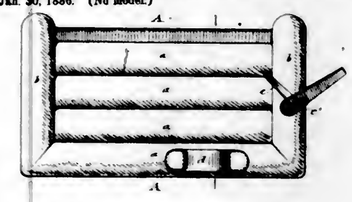
351,705. SHUTTER-WORKER. Thomas N. Lupton, Winchester, Va. Filed Apr. 30, 1886. (No model.)



Claim.—1. A shutter-worker consisting of a curved parallel-motioned bar, combined with and jointed to a swinging link, a crank-arm of the same length as the link, and a handle for working the bar, substantially as shown and described.

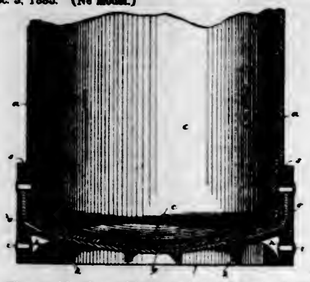
2. The combination, with a shutter, of a curved parallel-motioned bar jointed to the shutter, a link of the same length as the distance from the axis of the shutter to the joint of bar D, the said link being jointed at one end to the bar and at its other end to a fixed center, and a pivoted crank-arm of the same length as the link, jointed to the bar and provided with a handle, substantially as shown and described.

351,706. SADDLE-PAD. Andreas Müller, Homestead, Pa. Filed Jan. 30, 1886. (No model.)



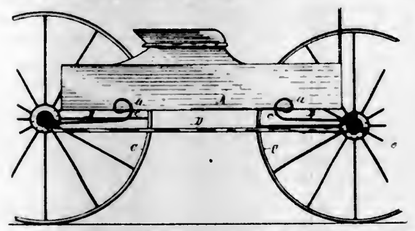
Claim.—A saddle-pad having two padded end ribs and two separate series of padded ribs extending between the end ribs on opposite sides of the saddle, and a plain or unpadded portion between the separate series of cylindrical ribs, said pad being provided with short straps e, provided with knotted ends e', substantially as described.

351,707. BOTTOM FOR VESSELS. Charles S. Müller, Brooklyn, assignor to the Iron Clad Manufacturing Company, New York, N. Y. Filed Dec. 3, 1885. (No model.)



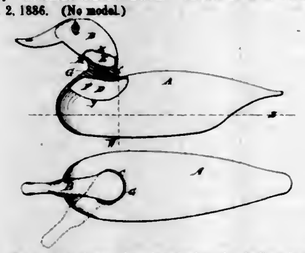
Claim.—The combination, with the body of a vessel, of a hoop secured to the same by rivets, with an intervening space between the body and hoop, a bottom proper, with its peripheral edge in the space between the hoop and body and secured by solder applied in such space and sweated, and the bottom-support attached to the hoop close up against the bottom, substantially as described.

351,708. CARRIAGE-SPRING. Nelson A. Newton, Kalamazoo, Mich. Filed Aug. 7, 1886. (No model.)



Claim.—The spring B, bent so as to form the coil-spring a, the torsion-spring B', and the arm u, for attachment to the wagon-body.

351,709. RUBBER DECOY-DUCK. George H. Nye, Chicago, Ill. Filed Feb. 2, 1886. (No model.)



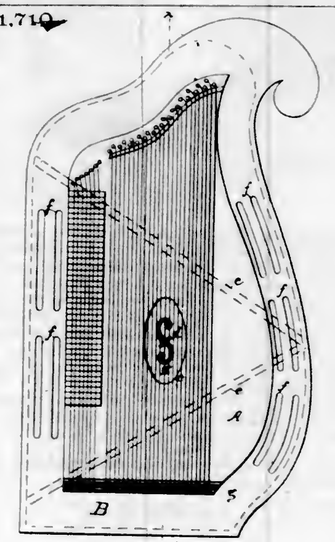
Claim.—In rubber decoy hunting-ducks, the hollow body part A, provided with the flat seat G, in combination with the adjustable hollow head B, which is connected with the body by the hollow tube D, the head B being provided with a perforation, M, which communicates with the hollow body A by means of the hollow tube D, as and for the purpose specified.

351,710. ZITHER. Gerhias Oswald, Chicago, Ill. Filed Aug 10, 1886. (No model.)

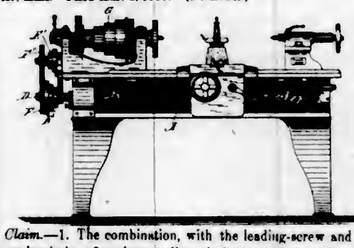
Claim.—1. A zither formed of the chamber A and resonant-chamber B, projecting beyond the chamber A, and having a bottom, g, which forms the top of the chamber B, and which is provided with an opening, d, and the chamber A with an opening, c, substantially as specified.

2. A zither formed of the two chambers A and B, of which the under one, B, projects beyond the upper one, A, and is provided with openings f in said projecting part through the board g, and is also provided with an opening, d, through the board g, under the opening c of the chamber A, substantially as specified.

351,710. [illegible]



351,711. METAL TURNING-LATHE. Albert M. Powell, Worcester, Mass. Filed Mar. 2, 1886. (No model.)



Claim.—1. The combination, with the leading-screw and feed-rod of a turning-lathe, of an intermediate shaft operated through connecting mechanism by the live-spindle, said intermediate shaft having a gear adapted to engage gears on either the leading-screw or the feed-rod, as may be required, as described.

2. The combination, with the leading-screw and feed-rod of a turning-lathe, of an intermediate shaft journaled in bearings between said screw and feed-rod, and receiving rotary motion from the live-spindle through a system of gears variable in size, and commonly known as "change-gears," said intermediate shaft having a gear adapted to engage gears on either the leading-screw or feed-rod, as described.

3. The combination, with the leading screw and feed-rod of a turning-lathe, of sliding pinions having a spline-connection with said screw and rod, and an actuating-gear driven through connecting mechanism with the live-spindle and adapted to engage either of the pinions on said screw or rod, as described.

4. The combination, with the feed-rod of a metal turning-lathe, having a pinion capable of sliding on said rod and connected therewith by a spline, of a pulley running on a fixed bearing attached to the bed of the lathe and carrying an attached gear engaging the sliding pinion on the feed-rod, said pulley being driven by the live-spindle of the lathe through connecting mechanism, as described.

351,712. COMBINATION GARDEN-TOOL. John W. Power, Carthage, Ind., assignor of one-half to Freemont Porter, same place. Filed June 6, 1885. (No model.)

Claim.—1. The combination of the adjustable hoes, consisting of the curved arms having the upward projections at their rear ends, and the blades having the beveled edges, the lower metallic plate, the upper plate connected to the handle and provided with the recesses, and the screw having the binding-nut, all constructed and arranged to operate in the manner set forth.

2. The combination of the adjustable hoes, consisting of the curved arms, the rear ends of which are corrugated on their lower side and provided with the upward projection, and the blades having the beveled

351,712.

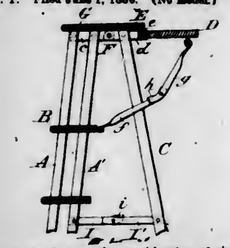


edges, the lower metallic plate having the corrugations on its upper side, the upper plate connected to the handle and provided with the recesses, and the screw having the binding-nut, all constructed and arranged to operate in the manner and for the purpose shown and set forth.

3. The combination of the adjustable hoes, consisting of the curved arms having the upward projections at their rear ends, and the blades having the beveled edges, the lower semicircular metallic plate having an upwardly-projecting flange upon its curved edge, the upper plate connected to the handle and provided with the recesses, and the screw having the binding-nut, substantially as set forth.

4. The combination of the handle having a tang, the rake having the short metallic handle provided with the screw-threaded aperture, and the screw having the binding-nut, substantially as set forth.

351,713. STEP-LADDER. Peter H. Pursel and William W. Kelsoner, Ithaca, N. Y. Filed June 1, 1886. (No model.)



Claim.—1. In a step-ladder, the combination of the front portion, the rear portion, the bucket-shelf, and the hinges connecting these three elements, said hinges consisting of two metallic strips pivoted to each other and to the bucket-shelf, and secured rigidly, the one to the front portion of the frame and the other to the rear portion, substantially as described.

2. The combination, with a step-ladder, of a bucket-shelf and a bracing device for the same, which consists of two curved and interpivoted arms, one of which is hinged to the said shelf and the other to one of the steps, substantially in the manner shown and set forth.

3. The combination, with a step-ladder consisting of hinged front and rear portions, of a bucket-shelf, D, pivotally connected with the stripe *d* of the hinges F by pins *e*, and upheld by a bracing-connection with the front portion of the ladder, consisting of the twisted and pivoted arms *f* and *g*, one of which is provided with a lug, *h*, substantially as and for the purpose set forth.

4. The combination of the front portion of a step-ladder frame, the rear portion of the same, the hinges F, for connecting said parts, consisting of the pivoted stripe *c* and *d*, secured the one to the front portion and the other to the rear portion, the shelf D, pivoted to the stripe *d* by pins *e*, and mechanism for upholding said arms, consisting of the pivoted arms *f* and *g*, secured the one to the front part and the other to the shelf, substantially as shown and set forth.

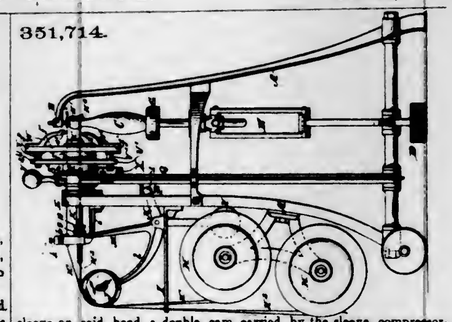
5. The combination, with a step-ladder, of a bucket-shelf pivoted to the rear part thereof and upheld by a bracing-connection with the front portion, consisting of two curved interpivoted arms hinged to a step and to the shelf, respectively, and one of them being provided with a lug to keep the arms in proper place when extended, substantially as specified and shown.

351,714. MACHINE FOR WIRING CORKS IN BOTTLES. Frederic G. Riley, London, England. Filed Dec. 27, 1884. (No model.) Patented in England June 18, 1883, No. 3,018.

Claim.—1. The combination, in a machine for wiring corks in bottles, of a vertically-movable bottle-support, a supporting-frame having an abutment for the cork to bear against, a horizontally-moving pusher-head, radially-movable and rotating compression-arms for gathering and twisting the wires, and cams for compressing said arms, substantially as described.

2. The combination, in a machine for wiring corks in bottles, of a vertically-movable bottle-support, a supporting-frame having an abutment for the cork to bear against, a stationary tubular head, a rotating

351,714.



sleeve on said head, a double cam carried by the sleeve, compressor-arms moved radially and rotated by the cams, and a reciprocating pusher-head in the tubular head, substantially as described.

3. The combination, in a machine for wiring corks in bottles, of a supporting-frame, wire-reels carried thereon, a tubular head, a reciprocating pusher-head in said tubular head, radially movable and rotating compressor-arms for gathering, twisting, and severing the wires, and mechanism for actuating the parts, substantially as described.

4. The combination, in a machine for wiring corks in bottles, of a supporting-frame having a stationary tubular head, a bottle-support, wire-reels carried by the frame, a sliding pusher-head in the tubular head, an oscillating lever carrying guide-rollers and connected with the pusher-head, and rotating and radially-movable compressor-arms for gathering, twisting, and severing the wires, substantially as described.

5. The combination, in a machine for wiring corks in bottles, of a tubular head, wire-reels, the wires of which extend through said head, a reciprocating pusher-head in the tubular head, compressor-arms carried by the tubular head, and means for radially moving and rotating the arms to gather, twist, and sever the wires, substantially as described.

6. The combination, in a machine for wiring corks in bottles, of a supporting-frame having a tubular head through which the wires extend, a sliding pusher located in said tubular head, an oscillating lever carrying guides for the wire and connected with the pusher and provided with a short arm, means for acting on said short arm to oscillate the lever and move the pusher, and radially moving and rotating compressor-arms for gathering, twisting, and severing the wires, substantially as described.

7. The combination, in a machine for wiring corks in bottles, of a tubular head through which the wires extend, a reciprocating pusher in said head, and radially moving and rotating compressor-arms for gathering, twisting, and severing the wires, substantially as described.

8. The combination, in a machine for wiring corks in bottles, of a tubular head through which the wires extend, a reciprocating pusher in said head, a sleeve loose on the head and having a double cam, compressor-arms connected with the cams, a pinion on the tubular head clutched to the sleeve, and a transverse traversing arm having a rack engaging the pinion to rotate the sleeve and cause the compressor-arms to move radially and rotate for gathering, twisting, and severing the wires, substantially as described.

9. The combination, in a machine for wiring corks in bottles, of compressor-arms W W', and rotating cams connected with said arms and acting to radially move and rotate them for gathering, twisting, and severing the cork-holding wires, substantially as described.

10. The combination, in a machine for wiring corks in bottles, of the tubular head having two pairs of holes, the upper pair being nearer together than the lower pair, the wires passing through said holes to form an open cage for receiving the cork, and radially moving and rotating compressor-arms for gathering and twisting the wires, substantially as described.

351,715. DUST-TRUNK FOR COTTON-CLEANING. Benjamin Robinson, Lowell, Mass., assignor of one-half to Stephen N. Bourne, Manchester, N. H. Filed May 7, 1886. (No model.)

Brief.—Immediately beneath the grating is a series of separate dust-receptacles which have movable bottoms opening downward into a permanent dirt-receiving chamber, preferably air-tight. Each separate receptacle can thus be emptied during the process of cleaning without permitting the dust to be drawn back into the trunk.

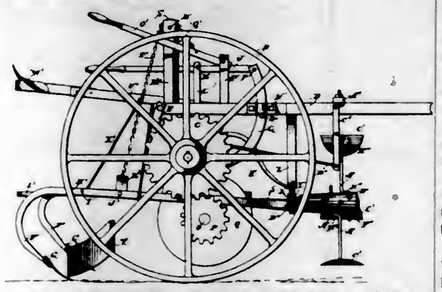


Claim.—1. A trunk for cleaning cotton or analogous operation, consisting of a passage for the material to be cleaned, having a grating at its bottom, a series of separate dust-receptacles below the said grating, and movable bottoms for said dust-receptacles, and a dirt-receiving chamber below said dust-receptacles, substantially as described.

2. A trunk for cleaning cotton or analogous operation, consisting of a passage for the material to be cleaned, having a grating at its bottom, a series of separate dust-receptacles below the said grating and movable bottoms for said dust-receptacles, and a dirt-receiving chamber below said dust-receptacles, and actuating devices outside of the trunk for the bottoms of the dust-receptacles, substantially as described.

3. A trunk for cleaning cotton or analogous operation, consisting of a passage for the material to be cleaned, having a grating at its bottom, a series of separate dust-receptacles below the said grating and movable bottoms for said dust-receptacles, and a tight chamber below the said dust-receptacles, the said lower chamber forming a continuous passage below the dust-receptacles, and gates for closing the ends of the said passage or chamber, substantially as described.

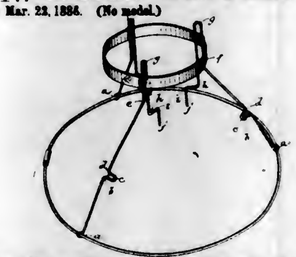
351,716. CULTIVATOR. Captain J. Robson, Evergreen, Ala. Filed June 1, 1886. (No model.)



Claim.—1. In a combined cotton chopper and cultivator, the combination of a frame, a downwardly-projecting bar pivotally secured to each side, having a bearing at its lower end, a geared shaft in said bearings, a curved bar secured to each of said bearings at its lower end, a lever secured to the upper end of each of said curved bars, and a rotary chopper secured to said frame, having a pinion upon one end engaging with said geared shaft.

2. In a combined cotton chopper and cultivator having a pair of double-shovel cultivator-beams, a foot-lever pivoted to each of said beams, a chain secured to each of said beams, a bar adjustably secured at one end to each of said chains and at the other to said foot-levers, and a pair of hand-levers for operating said chains.

351,717. SHADE-HOLDER. Frederik A. Stearns, Boston, Mass. Filed Mar. 22, 1886. (No model.)

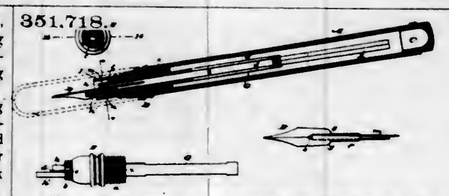


Claim.—The combination, in the form of a truss, of three or more wires, each having a hook, *h i j*, to be inserted in the top of the supporting shade or globe, and other bends, *g* and *e*, and the loop *d c b*, with the bands or rings *a a a*, *f*, and *f'* to support lamp-shades from the top of a globe or shade, all substantially as described, and for the purposes set forth.

351,718. FOUNTAIN-PEN. William W. Stewart, Brooklyn, N. Y. Filed Mar. 5, 1886. (No model.)



351,718.



Claim.—1. A fountain-pen constructed with a duct or passage extending down from the ink-reservoir, with the shank or heel of the pen arranged to divide such duct or passage, whereby ink or air may pass up or down along the shank of the pen, substantially as set forth.

2. A fountain-pen constructed with a duct or passage extending down from the ink-reservoir, and a longitudinal slit for the pen entering such duct or passage, whereby when the pen is inverted in said slit its shank divides the duct or passage, substantially as set forth.

3. A fountain-pen constructed with an ink-reservoir in the holder and with a cylindrical bore extending through the nozzle into the reservoir, and the heel of the pen entering said bore and dividing it into two semi-cylindrical ducts, the opposed surfaces of which are respectively the absorbent surface of the wall of the bore and the polished metallic surface of the pen, substantially as set forth.

4. A fountain-pen constructed with a holder, A, a nozzle, B, a tube, G, projecting into the holder and having a bore, *c*, through said tube and extending down through the nozzle, and a longitudinal slit, *d*, for the pen intersecting said bore, whereby when the pen is inserted in said slit its shank divides the ink duct or passage formed by said bore, substantially as set forth.

5. A fountain-pen constructed with a holder, A, a nozzle, B, an ink-duct extending from the reservoir in the holder down through said nozzle to the pen, and a reversible gutter, *h'*, leading down on top of or underneath the pen, substantially as set forth.

6. In a fountain-pen, the ink-duct intersected by a slit for the pen, whereby the insertion of the pen divides the duct, and the nose of the pen formed with a long gutter, *h'*, and a short gutter, *h*, extending on opposite sides of the pen, substantially as set forth.

7. In a fountain-pen, the construction of the nose with a slit for the pen, thereby forming two gutters for conducting the ink to opposite sides of the pen, and a small hole or vent, *l*, through the wall of one of said gutters, as described.

8. In a fountain-pen, the combination, with the holder, nozzle, and ink-duct, of the tubular extension or protecting-jacket F, inclosing the pen and forming a chamber or recess, I, within it around the pen, and provided with ventilating-holes *n n*, substantially as described.

9. In a fountain-pen, the combination, with the slitted or divided nose, of a pen-nib entering the slit therein and constructed with its shank *f* of reduced width, forming shoulders *g g*, substantially as shown.

10. In a fountain-pen wherein the ink-duct is divided by the insertion of the pen, the combination, with the pen and holder, of a doubled wire or strand, *m*, with its bend passed through a hole in the pen, and its legs extending into the duct, substantially as set forth.

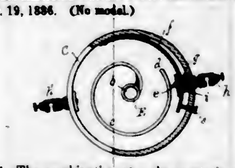
11. A fountain-pen provided with a capillary-bar, L, of stiff absorbent material, fixed rigidly in place in the interior of the ink-reservoir, substantially as set forth.

12. A cover, E, for a fountain-pen, provided in its interior with capillary interstices for attracting and holding fluid that may condense therein, substantially as set forth.

13. A cover, E, for a fountain-pen, provided with a ring, J, inserted in it and forming capillary interstices for attracting and holding fluid, substantially as set forth.

14. A fountain-pen provided with a tube, G, extending into the ink-reservoir and serving as a duct to convey ink down to the pen, combined with a capillary-bar, L, of stiff absorbent material, fixed to the end of said tube and extending beyond the same into the upper part of the reservoir, substantially as set forth.

351,719. THERMOSTAT. Lawson B. Stone, Marblehead, Mass., assignor to the American Automatic Fire Alarm Association, Portland, Me. Filed Apr. 19, 1886. (No model.)



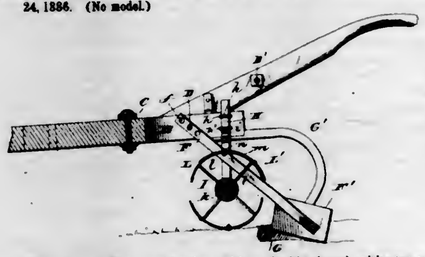
Claim.—1. The combination of a thermostatic spring and the circuit of which it forms one terminal with another spring, the other terminal of said circuit attached to said spring, and an adjusting-screw bearing against one of said springs and regulating the distance of said ter-

minals from each other.

2. In combination with post E and case C, the Bourdon spring *c*, attached to said post, a spring, *f*, attached to said case, a contact, *e*, carried by the latter spring, and an adjusting-screw, *s*, acting against spring *f*, substantially as set forth.

3. A Bourdon spring, *c*, an adjustable terminal, *e*, opposed thereto, an insulating-sleeve surrounding said terminal, a spring to which said sleeve is attached, and an adjusting-screw acting against the latter spring to adjust the terminal, substantially as set forth.

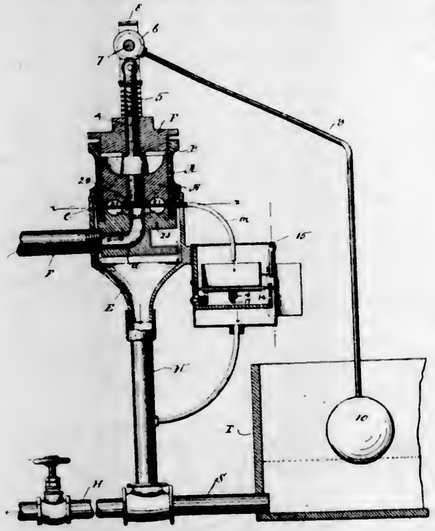
351,720. CULTIVATOR. John R. Suter, Conway, Ark. Filed June 24, 1886. (No model.)



Claim.—1. The combination, with a double-shovel cultivator or plow, of a rotary wheel provided with segmental plates L, which are rigidly attached to the hub thereof, correspondingly-curved plates L', with slots and attaching means for securing them adjustably above the plates L, said wheel adapted to operate in front of the cultivating-shovels, and devices for vertically adjusting said rotary wheel to raise or lower said shovels, substantially as shown, and for the purpose set forth.

2. The combination, in a double-shovel cultivator provided with fenders, as shown, of a vertically-adjustable cultivator-wheel, consisting of a hub provided with spokes, to which rigid segmental plates are attached, adjustable plates secured above the same, and supporting means or bars H, being provided at their lower ends with eyes for the reception of a transverse shaft which passes through the hub and beyond said eyes, substantially as shown, and for the purpose set forth.

351,721. PROPORTIONAL WATER-METER. Daniel A. Sutherland, Lynn, Mass. Filed Feb. 1, 1886. (No model.)



Claim.—1. The combination of the distributer A, having induction and eduction ports, the follower N, adapted to reciprocate vertically within the distributer A to open and close the eduction-ports, a spring, 5, adapted to keep said ports normally open, and automatic mechanism for operating the said follower to close the said ports, substantially as described.

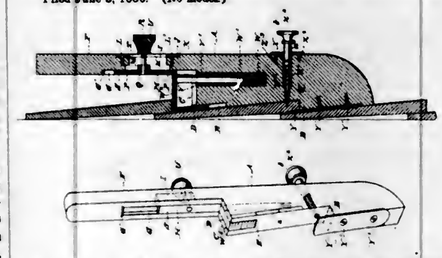
2. The combination of the distributer A, the follower N, and described means consisting of spring 5, float 10, tank T, and connecting mechanisms for effecting the movement of the follower N to open and close the ports of the distributer, substantially as described.

3. The combination of the induction-pipe F, the distributer A, having eduction-ports, the follower N, adapted to operate to open and close said eduction-ports, and the elastic cushion 20, substantially as described.

4. In combination with the distributer having interior chamber and ports, substantially as described, the follower located in said chamber and having grooved chamber 21, substantially as described.

5. In an organized mechanism of substantially the construction described, and in combination, a device for distributing fluid, having an induction-port for receiving fluid and eduction-ports for discharging fluid, a supply-pipe connecting with the induction-port and a delivery-pipe communicating with all but one of the eduction-ports, a measuring device communicating with the one eduction-port and adapted to measure the fluid discharged therefrom, a tank communicating with the delivery-pipe and adapted to receive fluid therefrom, mechanism for opening and closing the ports of the distributing device or for shutting it off altogether, said means being in communication with the water in the tank and adapted to be set in motion by the rising and falling of this water, substantially as described.

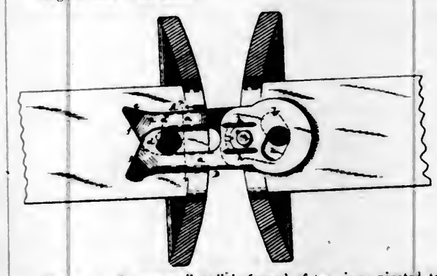
351,722. SIDING-GAGE. William E. Trueblood, Maryville, Mo. Filed June 3, 1886. (No model.)



Claim.—1. The combination, with the shouldered and grooved body having the spring-pressed rod seated in a longitudinal bore in the upper shoulder of the body, of the angular slide, the screw passed through the slot in the upper narrow portion of the body, and the milled nut on the projecting end of said screw, substantially as specified.

2. The combination, with the shouldered gage-body and the angle-slide with screw and thumb-nut, of the spring-pressed rod seated in the body of the gage and bearing against the under face of the horizontal portion of the angle-slide, substantially as specified.

351,723. CAR-COUPLING LINK. David Tufts, Pittsburg, Pa. Filed Aug. 20, 1886. (No model.)



Claim.—1. A car-coupling link formed of two jaws pivoted together and having hooks at the ends, said hooks fitting past each other and having straight inner edges inclined backwardly from the bodies of the jaws to the points, substantially as and for the purposes set forth.

2. A car-coupling link formed of two jaws pivoted together and having hooks at or near the forward ends and fitting past each other, the faces of said hooks adjacent to each other being rounded off toward the point to prevent them from striking against each other as they close around the pin, substantially as set forth.

3. A car-coupling link formed of two hooked jaws pivoted together and provided with rear extensions beyond the pivotal point thereof, these rear extensions having cross-slots therein to receive the pin by which the link is connected to the draw-head, substantially as set forth.

4. A car-coupling link formed of two hooked jaws pivoted together and having rear extensions beyond the pivotal point thereof, said rear extensions having inclosed cross-slots therein, substantially as and for the purposes set forth.

5. A car-coupling link formed of two hooked jaws pivoted together and provided with rear extensions beyond the pivotal point thereof, said rear extensions having cross-slots formed therein, and said slots extending diagonally forward toward the sides of the rear extensions, substantially as and for the purposes set forth.

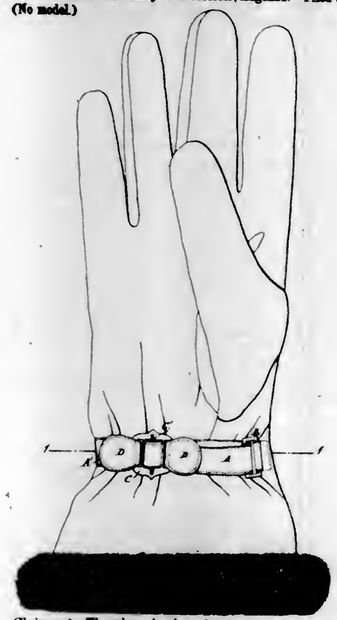
6. A car-coupling link formed of two hooked jaws pivoted together and provided with longitudinal ribs on each side of the pivot thereof, substantially as and for the purposes set forth.

7. A car-coupling link formed of two hooked jaws pivoted together, one of said jaws being provided with an arc groove in front of the said pivot, and the other with a lug fitting within said groove, substantially as and for the purposes set forth.

8. A car-coupling link formed of two jaws pivoted together and provided with hooks fitting past each other, said jaws having shoulders against which the hooks fit and of substantially the height of said hooks, and the top and bottom faces of the jaws tapering from said hooks and shoulders toward the forward ends of the jaws, substantially as and for the purposes set forth.

9. A car-coupling link formed of two jaws pivoted together and having arms provided with hooks at or near the forward ends thereof and shoulders against which said hooks fit, the bodies of the arms being gradually increased in thickness from the bodies of the jaws to said shoulders, substantially as and for the purposes set forth.

351,724. GLOVE AND GLOVE-FASTENING. Henry Urwick, St. Dunstans, Malvern, County of Worcester, England. Filed June 15, 1886. (No model.)



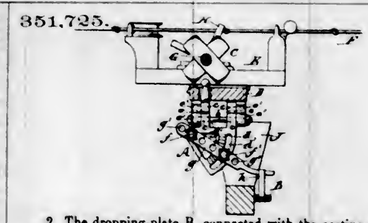
Claim.—1. The glove having the non-elastic undivided wrist and provided with the adjusting-band connecting the opposite sides of the wrist, and the slide by which to adjust the band to vary the distance between the opposite sides of the wrist, substantially as and for the purpose set forth.

2. The combination, with the glove having the non-elastic undivided wrist, of the adjusting-band secured at one end to one side of the wrist, the loop or eye secured to the opposite side of the wrist, and through which the band passes, the adjusting-slide through which the band passes in crossing the wrist to the loop or eye and to which one end of the band is secured, and the tabs secured to the slide, substantially as and for the purpose set forth.

351,725. CHECK-ROW ATTACHMENT FOR CORN-PLANTERS. John K. Voorhees, Pella, Iowa. Filed Nov. 24, 1885. Renewed Sept. 29, 1886. (No model.)

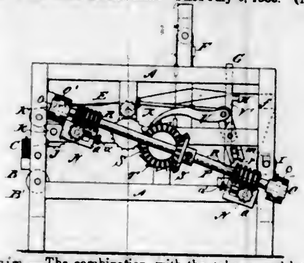
Claim.—1. In a check-rower, the plate *d*, having the vertical legs apertured at *c*, to receive a pivot-bolt, *b*, the plate having a curved slot, *d'*, extending therethrough at right angles to the direction of the apertures *c*, the apertured arm *g g'*, pivoted to the plate *d* at *f*, and the bolt *f'*, passed through the bar and the curved slot *d'*, substantially as set forth.

351,725.



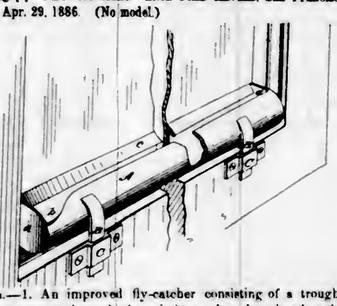
2. The dropping-plate B, connected with the casting *d* by the arm *g*, in combination with the casting *d*, vertically-adjustable pin *b*, and cam C, for reciprocating the casting *d* upon the pin *b*, substantially as and for the purposes set forth.

351,726. TAKE-UP AND LET-OFF MECHANISM FOR LOOMS. Matthew C. Williams, Adams, Mass. Filed July 6, 1885. (No model.)



Claim.—The combination, with the take-up and let-off rollers K L, pinions J on the ends of the said rollers, and the lay G, of the shafts M', the pinions M N, the shaft P, the worms R, the shaft Y, the bevel-wheels S S', the ratchet-wheel T, the lever V, and the pawl U, substantially as herein shown and described.

351,727. FLY-CATCHER. Zach Fred Xevers, San Francisco, Cal. Filed Apr. 29, 1886. (No model.)



Claim.—1. An improved fly-catcher consisting of a trough constructed to rest upon the sash of a window and against the glass thereof, and devices for securing the same in position, substantially as described.

2. A fly-catcher formed of the trough A, open at the top, provided with the notch *b*, and having closed ends *a*, the tongues B, secured to the side of the trough, and clips C, for receiving the tongues, combined and arranged substantially as herein shown and described.

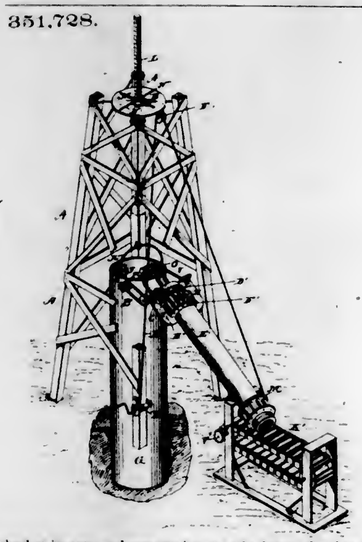
3. As an improved article of manufacture, a fly-catcher consisting of a trough constructed to fit against the glass of window, and provided with tongues for securing it in position, and with an inclined strip secured to the rear side and projecting downward into the trough, as set forth.

351,728. APPARATUS FOR MINING AND AMALGAMATING GOLD. Casper Zimmerman, Tomah, Wis. Filed Apr. 16, 1886. (No model.)

Claim.—1. In an apparatus for mining and amalgamating gold, the combination of a derrick, a vertical tube suspended from said derrick, a bucket-elevator within the tube, said tube being large enough to permit a man to work within it around the elevator, a revolving tube for receiving the contents of the elevator, provided with means for raising or lowering its inclined outer end, an amalgamator-tube within the revolving tube, and a conveyer for carrying the dirt from the end of the inclined tube, as and for the purpose set forth.

2. In an apparatus for mining and amalgamating gold, the combination of a large vertical tube having an elevator within it, and having a sprocket-wheel upon the end of the upper elevator-shaft, a short shaft journaled in a bracket at the upper end of the tube, and having a sprocket-

351,728.



wheel at its outer end connected to the wheel upon the elevator-shaft by a chain, and having a pinion upon its inner end, an annular frame hinged upon the short shaft and upon a bracket upon the upper end of the tube, and having longitudinal anti-friction rollers, an annular frame having longitudinal anti-friction rollers and supported by a rope or chain from above the upper annular frame, a tube revolving within the annular frames having a flange bearing against the upper end of the lower frame, and having its upper end projecting around a discharge-spout of the vertical tube, and provided at the upper end with a crown-rim engaging the pinion and at the lower end with laterally-projecting pins, a cap having an inwardly-projecting flange at its lower end and fitting upon the lower end of the tube, and having L-shaped slots in its upper end fitting upon the pins, and a copper tube having its inner side coated with quicksilver, as and for the purpose shown and set forth.

3. In an apparatus for mining and amalgamating gold, the combination of a derrick having a plate supported at its upper end formed with a perforation, a vertical large tube provided with a ladder within it and with an elevator, and having a hinged bail at its upper end, a screw having its lower hooked end engaging the bail and having its upper threaded portion passing through the perforation in the plate of the derrick, and a nut fitting upon the screw above the plate and having means for turning it, as and for the purpose shown and set forth.

4. In an apparatus for mining and amalgamating gold, the combination of a derrick having a plate supported at its upper end and formed with a perforation, a vertical large tube having a ladder and an elevator within it, and provided with a hinged bail at its upper end, a screw having its lower hooked end engaging the bail, and having its upper end passing through the perforated plate at the top of the derrick, and provided with a nut above the plate having means for turning it, an inclined revolving conveyer-tube having an interior copper tube coated interiorly with quicksilver, a windlass upon one leg of the derrick having a rope or chain passing from it over a pulley at the top of the derrick and secured to the outer end of the conveyer-tube, and an endless conveyer at the end of the inclined conveyer-tube, as and for the purpose shown and set forth.

851,729. INCUBATOR. Clarence L. Wells, Quincy, Ill., assignor of one-half to Raphael E. Lotten, same place. Filed Mar. 5, 1886. (No model.)



Claim.—1. In an incubator, the tray-section provided with trays and with outlets 3 below such trays, combined with a heater-flue leading into such section, and a plate extended above the discharge end of said flue, substantially as set forth.

2. In an incubator, the combination of the heater-section, the brooder arranged thereon, the tray-section arranged upon the brooder, and an air passage or flue extended between the heater and tray sections and through the brooder, substantially as set forth.

3. In an incubator, the combination of the heating device, the drum S, provided with outlet-flue *x* and inlet-tube *u*, the false bottom having opening *r* and outlet *i*, and the tray section or support, substantially as set forth.

4. In an incubator, a tray having a central opening, and an upwardly-extended shield surrounding the said opening, substantially as set forth.

5. An egg-tray having a central opening and a wire-netting bottom, and having such bottom extended upwardly at the center, forming a tubular shield surrounding the opening, substantially as set forth.

6. The combination of the heater-section, the tray-section, the tube or flue leading from the heater-section into the tray-section, and a plate, *x*, extended above the tray and over the discharge end of the flue, substantially as set forth.

REISSUES.

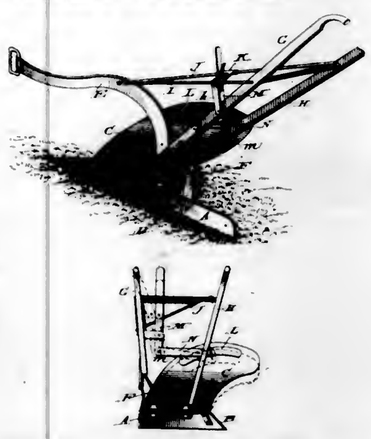
10,774. COFFIN. Nicholas Rappleyea and William A. Sparks, Rochester, N. Y. Filed Sept. 22, 1886. Original No. 347,739, dated Aug. 17, 1886.



Claim.—1. In a burial-casket, the combination of plates C, provided with slots wide at their outer ends and narrow at their inner ends located crosswise of the casket, and plates D, provided with tongues having upturned hooks at their outer ends located crosswise of the lid, said tongues entering the wide part of the slots and centering to the narrow part to bring the locking-catch in line with its socket when the lid is closed, and serving as hangers to hold the lid from disengagement when the lid is opened, as herein shown and described.

2. In a burial-casket, the combination of plates provided with slots located crosswise of the casket, and other plates provided with tongues having upturned hooks at their outer ends located crosswise of the lid, said tongues entering said slots and serving as hangers to hold the lid from disengagement when the lid is opened, substantially as described.

10,775. PLOW. Artemas Rolow, Cherokee, Iowa. Filed Aug. 28, 1886. Original No. 345,992, dated July 20, 1886.



Claim.—The combination, with the adjustable mold-board and the handles G H, the former being provided with a bracket, *m*, of the beam, the brace-rods I J, the rack K, mounted on the rods J J, provided with an extension leading to and united with handle G, the lever pivoted to the bracket *m* and arranged to engage rack K, and a link connecting said lever and the mold-board, all substantially as and for the purposes specified.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the District of Columbia, Sitting in General Term.

Kirk v. Commissioner of Patents and Secretary of the Interior.

Decided October 18, 1886.

It appearing from the bill that an application for patent was filed in the Patent Office in 1874 and definitively refused by decision of the Commissioner in 1875; that no appeal therefrom to the Supreme Court of the District was taken, but that various efforts for the review and reversal of said decision were made from time to time; that in 1885 another application was filed in the Patent Office, which was again rejected for the same cause; that from said last refusal no appeal was taken, but in 1886 a bill in equity under section 4915 Revised Statutes was filed in the Supreme Court of the District of Columbia, the Secretary of the Interior being joined with the Commissioner of Patents as a party defendant. On demurrer to the bill it was *held*—

1. That an applicant for patent is not in an *ex parte* case entitled to the redress by bill in equity until he has exhausted the remedy by appeal provided in section 4911 Revised Statutes.
2. That this application for patent was constructively abandoned in 1877 under section 4894 Revised Statutes, because the various efforts to procure a reversal of the decision of 1875 and the application filed in 1885 were irregular and illegal proceedings, not contemplated by said section.
3. That the Secretary of the Interior may not be made a party defendant to the bill.

Messrs. Ellis & Johns and *Mr. R. H. Steele* for the complainant.

Mr. D. A. McKnight for the defendants.

The Chief Justice and Justices Cox and Merrick Sitting.

Merrick, *J.*:

The case of *Kirk* v. *The Commissioner of Patents and Secretary of the Interior* has been submitted upon briefs upon a demurrer to the bill, certified from the special term to be heard here in the first instance. The bill was filed against the Commissioner of Patents and the Secretary of the Interior for the purpose of obtaining a patent for certain claimed improvements in an invention alleged to have been made by one Samuel Strong, the complainant's assignor, which patent had been refused by the Commissioner of Patents in the year 1874, and finally refused, as it appears, in the year 1875. It was an *ex parte* application, and at various intervals from that time down to the year 1885 there were irregular applications to successive Commissioners to review the action of the preceding Commissioner, and finally there was another application of the same sort made by Samuel Strong in the year 1885, which application is upon its face said to be made "continuous." What the meaning of that is it is difficult to understand. But, however that may be, the impediments that are in the way of the complainant for relief in the mode he has chosen are insurmountable.

In the first place, it is quite apparent that according to the scheme of the patent law there are two classes of cases to which different remedies are applicable so far as the final action of the Commissioner is concerned. They are, first, the cases called "cases of interference," where the action of the Commissioner is final; and, secondly, the cases of *ex parte* applications, where his action is not final, but where an appeal lies to the Supreme Bench of the District of Columbia, by virtue of section 4911 Revised Statutes. After these respective remedies have been exhausted the patent law, in its supreme indulgence to the claims of inventors, by section 4915 of the Revised Statutes, allows a further proceeding by way of bill in equity. Now, it is manifest upon the reading of the entire statute, and especially section 4915, which thus gives the further redress, that the party must have exhausted before he applies for that ultimate redress each of the successive stages for the perfection of his application which are provided by law. So far as the interference is concerned the previous stages have been exhausted by the final refusal of the Commissioner; but so far as the *ex parte* application is concerned his redress is not exhausted until after he has taken an appeal from the decision of the Commissioner. Then only arises to him the right, which has arisen already in the interference case upon the decision of the Commissioner, to apply to a court of equity for relief by an original bill according to the terms of the said section. Now, in this particular case Strong's application, which was filed in 1874, was refused as far back as 1875—definitively refused. He did not appeal to the Supreme Court of the District of Columbia sitting in banc; neither has he appealed to that tribunal from any of the successive refusals of the disconnected applications which he afterward made. His assignee therefore stands without remedy for the grievance of which he complains by his bill in equity; but, further than this, he is entirely without any claim of redress for the reason that there was a definitive refusal of the application by the Commissioner of Patents as far back as 1875. It was clearly his duty, or that of his assignor, within the terms of the patent law and the policy of the patent law, to have taken some one of those steps which the law provides for him to take within two years thereafter, otherwise his application must be construed to have been abandoned, under section 4894 Revised Statutes, which is in these words:

All applications for patents shall be completed and prepared for examination within two years after the filing of the application; and in default thereof, or upon failure of the applicant to prosecute the same within two years after any action therein, of which notice shall have been given to the applicant, they shall be

regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

Now, we construe the definitive refusal of the Commissioner of Patents as far back as 1874 or 1875 to be the final action of the Patent Office, and these subsequent irregular proceedings which have been taken from time to time, crowned by the application of 1885, which is said in the peculiar phraseology of the bill to be a "continuous" application, are not actions taken in the Patent Office or in the court in the sense of the section to which I have adverted. The action designated there must be some legal action—some proper and appropriate action within the terms of the law for the preservation, maintenance, and obtention of the right. Now here, after the definitive action of 1875, there have been from time to time certain irregular, illegal, and unlicensed forms of application for the reversal of that action before the Commissioner of Patents, bringing the matter down to the year 1885—almost the entire period for which the party would have been entitled to a patent exhausted—and yet the assignee wants now, by application of the remedy by bill in equity, to revive and have efficacy given to this patent application as far back as the year 1877. The Court is of opinion that there is nothing in the law, there is nothing in the policy of the law, there is nothing in the principles of justice which would justify any such application of the provisions of section 4915.

There are other objections to the bill raised by the demurrer concerning certain matters of form which need not be adverted to further than to notice one—that is, that in no predicament (were the complainant properly in the court by bill in equity to press his demand) would it be proper to make the Secretary of the Interior a party to such a bill. It has long since been adjudicated, and the recent decision in *Hoe* v. *Butterworth* (3 Mackey, 229) touched emphatically on that subject—that the Secretary of the Interior has nothing whatsoever to do with the granting or refusal of a patent. While he is the presiding officer over the discipline of the Patent Office, he has no judicial function, so to speak, with regard to the granting of a patent. That belongs to the Commissioner of Patents. There is no appeal to the Secretary of the Interior in that regard, and therefore, he having no control over the granting of a patent further than to have his name affixed to the letters patent as a matter of form, he is in no sense, by proper form of proceeding, a party to such a bill in equity.

The demurrer must be sustained and the bill dismissed, with costs.

U. S. Circuit Court—Northern District of Illinois.

RACINE SEEDER COMPANY v. JOLIET WIRE CHECK ROWER COMPANY.

Decided April 5, 1886.

1. INFRINGEMENT MUST BE PROVED.

In a suit for infringement of the fourth claim of Letters Patent No. 76,903, of February 21, 1868, for a broadcast seeder, the only proof as to the kind of machine made by the defendant was the testimony of a witness that the defendant was making a seeding-machine with two feeding-holes and a disk. *Held*, "this proof does not make even a *prima facie* case of infringement without proof showing that the feeding-holes and disk in defendant's machine perform the same function as those covered by the fourth claim of the Floyd patent."

2. EQUITY JURISDICTION.

As this patent was within about two months of its expiration at the time the bill was filed, *held* that it was doubtful whether, under the rule in *Root* v. *Railway Company*, 105 (U. S., 189,) the court had jurisdiction in equity, and the bill was therefore dismissed without prejudice to a suit at law.

3. BARGAIN—WHAT IS EVIDENCE OF.

Where parties had met and discussed the subject of the purchase by one of a patent from the other, but the terms of purchase were not fixed in the personal interview, but were subsequently settled by interchange of letters between the parties, *held* that these letters were the evidence of what the bargain was.

4. ESTOPPEL.

A party who clothes another with the legal title to a patent, and relegates to the assignee the question as to who shall have the benefit of the purchase, is estopped to complain of fraud because another was not allowed to share in the benefit of such purchase.

5. ASSIGNMENT OF PATENT—CONVEYANCE BY RECORD OWNER VALID.

Where a party owning the title of record to a patent for over six months conveyed it for a valuable consideration to a corporation competent to purchase and hold it, and whose title was made a matter of record in the Patent Office, *held* that this title could not be attacked for fraud in the assignor to the corporation.

6. KNOWLEDGE OF ACT OF AGENT BINDS PRINCIPAL.

S. claimed that a bank had, against instructions, delivered a deed to a patent without payment of purchase money, instead of holding the deed as collateral to secure a note given in payment. It appeared that S. knew of the action of the bank, but took the note and discounted it. *Held* that S. could not be allowed, even against his immediate assignee, to treat the deed as having been obtained by such fraud as would vitiate it.

7. PERSONAL LICENSE UNDER A PATENT NOT ASSIGNABLE.

S. empowered H., by contract in writing, as his lawful attorney, to sell rights under a patent at prices to be approved by S. for the then unexpired term of the patent, and authorized H. to manufacture under the patent at a certain royalty, but reserved the power to revoke the contract in case H. should not faithfully perform his agreements under it. *Held* that the contract both as a power to sell and as a license was a merely personal one, and not transferable by H. except with the consent of S., and that when S. parted with his title to the patent he parted with his right to sanction or vivify any assignment from H.

BILL and cross-bill.

This was a bill to restrain infringement of two patents, one of which had about two months to run at the time the bill was filed. Defendant's answer denied infringement of one of the patents, and alleged that it was void for want of novelty, and admitted that the other patent was valid, and that defendant used it, but insisted that the title belonged to the defendant. Defendant also filed a cross-bill setting up its title to the latter patent, and praying that complainant's title might be set aside as fraudulent and void, as against complainant in the cross-bill, and that the complainant in the cross-bill might be adjudged the lawful owner of said patent, and entitled to an accounting from the complainant in the original bill for infringement of said patent. The facts concerning the title to the patent are stated in the opinion.

Mr. H. W. Wells and *Mr. J. T. Fish* for the complainant.

Mr. George S. House and *Messrs. Coburn & Thacher* for the defendant.

BLODGETT, *J.*:

The original bill in this case was filed to restrain the alleged infringement of Patent No. 76,903, granted February 21, 1868, to P. G. and E. C. Floyd, for a broadcast seeder, and Patent No. 136,107, granted February 18, 1873, to J. W. Strowbridge, for a seeding-machine, of which patents the complainant claims to be the owner. Infringement of only the fourth claim of the Floyd patent is insisted upon, and as to this patent defendant denies any infringement, and insists that the patent is void for want of novelty.

There is no proof in the record as to the kind of machine made by defendant, and no proof of infringement except that the witness Dorr testifies that the defendant is making a seeding-machine with two feeding holes and a disk. This proof does not make even a *prima facie* case of infringement, without proof showing that the feeding holes and disk in defendant's machine perform the same function as those covered by the fourth claim of the Floyd patent. I therefore feel compelled to find that there is no proof of infringement of the Floyd patent; but as the main controversy in the case is centered about the other patent, and as this patent was within about two months of its expiration at the time the bill was filed, leaving it doubtful under the rule in *Root* v. *Railway Co.*, (105 U. S. 189,) whether the court has jurisdiction in equity, I shall dismiss the bill without prejudice as to this patent, so that complainant, if it choose to do so, can bring its suit at law for infringement and damages.

As to the Strowbridge patent, the defendant, the Joliet Wire Check Rower Company, admits by its answer the validity of this patent, and that it is manufacturing machines in accordance therewith, but claims to be the owner of said patent, and has filed its cross-bill asserting its own title, and denying complainant's title thereto, and praying that complainant's title may be set aside and held to be fraudulent and void as against the complainant in the cross-bill, and that the complainant in the cross-bill may be adjudged the lawful owner of said patent, and entitled to an accounting from the complainant in the original bill for the infringement of said patent. Under the issues made by this cross-bill voluminous proofs have been taken and discussed by counsel. The controversy involves certain dealings between Clarence S. Strowbridge and O. F. Hartwell, and Strowbridge and C. W. Dorr, and Dorr and the complainant in the original bill, and the effect of those dealings upon the title to the patent. The facts as they appear in the proof seem to be that on August 24, 1881, Strowbridge was the owner of this patent, with the exception of the state of Massachusetts and some counties in New York, Michigan, and perhaps Iowa, and on said date he gave to Hartwell a contract in writing containing the elements of a power of attorney, and license, by which he empowered Hartwell, as his lawful attorney, to sell, transfer, and dispose of territory and shop rights to use said patent at prices to be approved by himself, (Strowbridge,) and to have and control the same for that purpose during the then unexpired term of the patent, for which Hartwell was to pay Strowbridge one-half of the proceeds of such sales, and Hartwell was also given the right to make and sell machines under the patent, for which he was to pay Strowbridge fifty cents for each machine so made and sold by him, with power reserved to Strowbridge to revoke the contract in case Hartwell should not faithfully perform his part thereof, or should not account for or pay over the money received by him, or in case Hartwell should discontinue said business or the manufacture of machines. At the time Hartwell obtained this contract Strowbridge resided in Cortland, New York, and Hartwell lived in Des Moines, Iowa, or soon after went there to reside; and about January, 1882, Hartwell entered into an arrangement with C. W. Dorr and Morton Mitchell by which they formed a corporation under the laws of Iowa, with a capital of one thousand five hundred dollars, called the "Des Moines Manufacturing Company," for the manufacture and sale of machines under the Strowbridge patent, each of the partners taking five hundred dollars of the capital stock of the company, and Hartwell assigning the contract between himself and Strowbridge to the company; and the company entered upon the business of manufacturing and selling machines made under this patent. Neither the contract between Strowbridge and Hartwell nor the assignment thereof from Hartwell to the Des Moines Manufacturing Company was ever recorded in the Patent Office. The Des Moines Manufacturing Company commenced the manufacture of seeders under the patent, and made and sold for the season of 1882 about one hundred and seventy-five machines, the royalty on which, under the Hartwell contract, amounted to eighty-seven dollars and fifty cents, which was payable on November 1, 1882. In June, 1882, Dorr visited Strowbridge at his home in Cortland, and had some conversation with him about the business of manufacturing machines under the patent, and about some other patents in connection with the business, and expressed a willingness to buy the patent from Strowbridge if they could agree upon terms. He introduced himself to Strowbridge as Hartwell's partner, and in talking about the purchase used the word "we" but no price or terms seem to have been mentioned, and certainly were not settled or agreed upon at that time. After Dorr returned to Des Moines he received a letter from Strowbridge, dated August 7, 1882, in which he says:

What is the prospect of our making a deal on the power machine? I expect to go to Florida the forepart of September, and if there is anything to be done would like to hear from you as soon as convenient.

To this Dorr replied by letter dated August 10, 1882:

I have just returned from my trip east, and will write you in a few days about the patent—as soon as we make up our minds what we can do.

And on September 6, 1882, Dorr writes Strowbridge:

We have thought the matter over a good deal, and have concluded to make you the following offer for the patent to the seeder: $500, (five hundred dollars,) to include the royalty due you this fall, which we will pay you as soon as due, and the balance July 1st, next. This is with the understanding that you furnish us an abstract of the title showing the title clear from the Government. Considering that ten of the fourteen years have expired, I think this is a good offer.

This letter was answered by Strowbridge under date October 18, 1882, in which he says:

We will accept your proposition and furnish all the required papers. It seems a very small amount as compared with what we have spent on the machine, but we need the money, and necessity is a stern master.

To this letter Dorr replied by letter, dated October 24, 1882:

Will consider the matter settled, and are ready to settle with you as soon as you get the papers, etc., which I trust will be all right. You can send the papers to the Valley Bank of this place, where I will pay the money, or you can send them direct to me, and I will remit direct to you.

On November 15, 1882, Strowbridge forwarded by mail to the Valley Bank of Des Moines an assignment of the patent, with a letter of instructions as follows:

Valley Bank, Des Moines, Iowa: Send you to-day an assignment of patent for C. W. Dorr, which you will please to deliver on receipt of $500, and remit the same, less your trouble, to me.

And on the same day Strowbridge wrote Dorr:

Received the papers from Washington yesterday and have had the assignment made to-day, and sent the same to the Valley Bank. Made papers to you, and you can do with them as you wish.

Considerable correspondence then passed between Strowbridge and Dorr, running from November, 1882, to March, 1883, in regard to certain defects found by Dorr in Strowbridge's title; but finally, on March 31, 1883, Dorr paid to the bank $87.50 in money and gave his note payable to Strowbridge, July 1 following, for $412.50, and the bank delivered the papers to Dorr and remitted the note and the money, less one dollar for charges, to Strowbridge. On the same day Dorr wrote Strowbridge:

I have this day paid to the Valley Bank $87.50, the amount due you on first payment. The balance you will see by reference to my proposition which you accepted was to be paid July 1st next, but it seems as though you overlooked this, as you asked them to collect it all. I have given a due-bill for the balance, as per the arrangement, which I trust will be satisfactory.

The remittance from the bank was acknowledged by Strowbridge by a postal card dated April 6, saying:

Your remittance of draft and note duly received. Thanks.

After the bank had received this acknowledgment from Strowbridge, and about the 12th of April, 1883, Dorr caused the deed from Strowbridge to himself to be recorded in the Patent Office. Strowbridge indorsed and negotiated the note at a bank in Cortland, and obtained the amount called for by the note, less the usual discount. About the time the note matured it was sent to the Valley Bank for collection, and payment refused by Dorr until Strowbridge should correct or explain satisfactorily some further alleged defects in his title, which Dorr claimed had come to his knowledge after the note was given. The president of the bank wrote to Strowbridge, in substance, that Dorr's paper was good, and that Dorr was only waiting for Strowbridge to fix his title. Several letters then passed between Dorr and Strowbridge in regard to the alleged defective title, and finally, under date of July 30, 1883, Strowbridge wrote to the president of the bank:

Have just written Dorr, but cannot see anything in his correspondence why you should not receive your pay from him. We certainly have no deal with him at present, and it is for you to get the money as soon as you can. We certainly must look to you, for our deal closed as soon as you delivered the papers. If we had wanted his note what object in sending the papers to you?

The correspondence between Dorr and Strowbridge in regard to the alleged difficulty in the title was continued for some months after this time, it being insisted by Dorr that a man named Bartholomew had asserted title to the patent for all the New England states, while Dorr claimed that he had bought with the understanding that this territory had not been sold, or only a very small portion of it. But no adjustment of the difficulty was reached and no further payment made by Dorr, but Strowbridge seems to have collected $100 from Bartholomew and credited it to Dorr on the note, and on November 12 he wrote Dorr, in substance, that the balance due was $314, which he thought was little enough for the patent.

During the spring of 1883 the Des Moines Manufacturing Company, or the firm of C W. Dorr & Co., composed of C. W. Dorr and Morton Mitchell, which seems to have managed the affairs of the company, sold about eight hundred machines, parts of which had been made for them by the firm of Freeman & Sons, of Racine, Wisconsin, and the business prospects had so much improved that they proposed to make five thousand machines for the market of 1884, and in the summer of 1883 a contract was made with Freeman & Sons to manufacture this number of machines. It is difficult to determine accurately from the testimony just who were the parties to this contract, but it seems to have been negotiated mainly and the terms settled by correspondence, some of the letters being signed by C. W. Dorr and others C. W. Dorr & Co., the final letter of July 14, 1883, in which the proposition of Freeman & Sons was accepted, being signed by Dorr only. But the proof also shows that both Dorr and Hartwell visited Racine during the summer of 1883 and conducted orally some negotiations connected with the contract. It also appears from the proof that Dorr, or the firm of C. W. Dorr & Co., mainly managed and controlled the business affairs of the Des Moines Manufacturing Company. In the early part of November, 1883, and after Freeman & Sons had made considerable progress toward the execution of their contract for five thousand machines, they became doubtful of the credit of Dorr, or Dorr & Co., and were unwilling to deliver the machines to them and take the risk of making collections from them, and proposed that a corporation should be formed under the laws of Wisconsin, with a capital stock of sixty thousand dollars, and that the patent should be conveyed to this company, and that the business of the manufacture of seeders under the patent, and the further execution of the contract for five thousand machines, should be conducted by such company. This proposal was accepted by Dorr, who seems to have managed the entire negotiation in his own name and without consulting Mitchell or Hartwell. The corporation was organized and thirty thousand dollars of the stock of the company was issued to Dorr in payment for the patent, and the patent duly assigned and transferred to the company, Mr. Stephen Freeman becoming the president, Dorr the treasurer, and Charles Freeman secretary of the company; and the remaining thirty thousand dollars of the capital stock of the company was issued to Stephen Freeman and his two sons, Charles and Michael, for which they gave their notes.

From the time the Racine Seeder Company was so organized the business of the manufacture and sale of seeders under said patent has been conducted in the name of this company, and the company, fearing some difficulty by reason of interference between the Floyd patent and the Strowbridge patent, purchased the former. After the organization of this seeder company the Des Moines Manufacturing Company ceased to make or sell machines, and Dorr purchased Mitchell's stock in the latter company, and offered to purchase the stock of Hartwell, and his offer was accepted by Hartwell, but the proposition was not consummated because Hartwell had pledged his stock and he was unable to deliver it. Subsequently Hartwell filed a bill in the circuit court of Polk county, Iowa, against the Des Moines Manufacturing Company and Dorr, charging Dorr with fraud in managing the affairs of said company, and asking the appointment of a receiver to wind up its affairs, and under the proceeding in that case a decree has been entered setting aside the assignment of the Hartwell contract from Hartwell to the company and transferring the contract back to Hartwell. After the assignment of the patent by Dorr to the Racine Seeder Company and the record of such assignment Hartwell, with the consent of Strowbridge, assigned his contract with Strowbridge to the complainant in the cross-bill, and on January 10, 1885, Strowbridge assigned and transferred to the complainant in the cross-bill the patent in question, together with all rights accruing to him thereunder, and authorized the complainant in the cross bill to prosecute any and all necessary actions in any courts to annul and set aside any and all transfers theretofore made of said patent.

It is claimed on the part of the complainant in the cross-bill that the assignment of the patent in question was obtained from Strowbridge by the false and fraudulent pretense on the part of Dorr that he was purchasing it for the joint interest of himself and Hartwell, when in fact he was making the purchase without the knowledge of Hartwell, and with intent to defraud him; that the assignment of the patent was sent to the Valley Bank with instructions not to deliver it until the five hundred dollars purchase money was paid, and that the bank, in violation of these instructions, delivered the assignment to Dorr without such payment, and that Dorr thus became possessed of the deed to the patent by his own fraud, and that the Racine Seeder Company is not the purchaser of the patent in good faith for value; but that the company was only organized to hold the patent and conduct the business of manufacturing under it as a mere convenience to enable Dorr and the Freemans to defraud Strowbridge, Hartwell, and the Des Moines Manufacturing Company.

As to the first proposition, that Dorr led Strowbridge to understand and believe that he was buying the patent for the joint account of himself and Hartwell, there is a conflict of evidence as to what was said between Dorr and the Strowbridges at the time of Dorr's visit to them in the summer of 1882, the testimony of the Strowbridges tending to show that Dorr claimed to be acting for Hartwell as well as himself, while Dorr testifies he did not so represent. I do not find it necessary for the purposes of this case to pass upon this conflicting proof, as it is enough to say that no bargain was made between Dorr and Strowbridge until after Dorr returned home to Des Moines, and the letters which passed between the parties are the evidence of what the bargain between them was. In Dorr's letters to Strowbridge he uses the words "we" and "our" as if more than himself were interested, and it is possible enough was said in the previous personal interviews and conversations to lead Strowbridge to infer that Hartwell was included in these words; but when the terms of purchase were finally agreed upon, and Strowbridge, by his letter of November 15, 1882, notified Dorr that he had sent the assignment to the Valley Bank, he said: "Made the papers to you, and you can do with them as you wish." Here seems to me to be a complete answer to all claim that Dorr was buying in the interest of Hartwell, as the entire question as to who should have the benefit of the purchase was relegated to Dorr to do as he chose with it. No suggestion was made that Hartwell was to be considered in the matter or his interest protected, and although Strowbridge and Hartwell were old friends, he was not notified or informed by Strowbridge of the sale of the patent, and no steps taken to give him to understand or inform him in any way that the conveyance had been made to Dorr; and it does not, as it seems to me, lie in the mouth of Strowbridge or any one claiming under him after these utterances to complain of fraud because Hartwell has not been allowed to share in the purchase of the patent. It must be remembered that Hartwell had at this time assigned his contract with Strowbridge to the Des Moines Manufacturing Company, although the proof does not show that Strowbridge had assented to such assignment or even knew of it; and I think it more probable that Strowbridge supposed or assumed that the manufacturing company was to be interested, if anybody, in the purchase, rather than Hartwell. But, however that may be, the unquestioned fact is that through all the correspondence between Strowbridge and Dorr about this purchase Hartwell's name is not mentioned as a party in interest, and Strowbridge, without instruction or request to do so from Dorr, makes the deed to Dorr alone.

As to the second point, it is quite clear that Dorr's offer of September 6, 1882, was to pay the royalty on the one hundred and seventy-five machines when due, which was the first of the following November, and the balance on July 1, 1883. The payment of the royalty was delayed until March 31, 1883, but when paid Strowbridge accepted it, and accepted the note due on the first of the next July. It is also, as I think, conclusively shown from the proof that Strowbridge knew from some source that the bank had delivered the deed of the patent to Dorr at or soon after the payment of the money and the signing of the note of March 31st, because Strowbridge's letter to the bank of July 30th clearly shows that he knew the deed had been delivered by the bank to Dorr, and he assumes that the bank had thereby made itself liable to pay the note. It is true that Mr. Strowbridge testifies that he had no knowledge that the deed had been delivered by the bank to Dorr until November; but this letter of July 30th seems to me unanswerable upon this question, and I have no doubt Strowbridge did know of the delivery of the deed to Dorr very soon after the fact occurred. By the delivery of the deed to Dorr he was clothed with all the evidence of title to the patent which Strowbridge could give him, and he (Strowbridge) must have understood and known, for he seems from the testimony and letters to have been an unusually intelligent and capable business man, that he had only Dorr's note to rely upon for payment of the balance of the purchase money due him. Strowbridge must have known, as I have said, that the deed had been delivered to Dorr, and yet he took no steps to recover it or prevent Dorr from making such use as he (Dorr) should see fit, and allowed Dorr to stand as the apparent owner until November, 1883, when Dorr conveyed the title to the Racine Seeder Company, and that company has held the title since that time. The fact that the Racine Seeder Company was organized for the purpose of taking the title to this patent, or with the understanding that it was to take the title to the patent, and from that time conduct the business of manufacturing under the patent, and that it paid for the patent by the issue of half its capital stock to Dorr, is no evidence of fraud or bad faith as against the seeder company. Having become a corporate entity, with power to contract debts and liabilities and to conduct business, this Racine Seeder Company stands in the same position that an individual would stand in who had purchased this patent from Dorr in good faith. It seems to me that even if the bank did disregard Strowbridge's instructions and deliver the deed without requiring the payment of purchase money, instead of holding the deed as collateral to Dorr's note,

Strowbridge knew of this action of the bank, and elected to take his chance of collecting the note from Dorr. In other words, he treated the note as payment as far as the delivery of the deed was concerned, and cannot be allowed, even as against Dorr, to treat the deed as having been obtained by such fraud as would vitiate it in Dorr's hands. It is possible that if, while the title remained in Dorr, Strowbridge had taken his steps to establish a vender's lien on the patent he might have done so; but he neglected to do this, and allowed Dorr to deal with the patent as its absolute and unconditional owner, and so dealing with it Dorr has conveyed it to a corporation competent to purchase and hold it, and that corporation has paid value for it in stock.

The proof shows that on August 16, 1883, Dorr wrote Strowbridge that nobody was responsible for the note but himself, and that if he (Strowbridge) would perfect the title he would pay the note; and the payment of the note and adjustment of the title was the subject of correspondence between them until two months before this litigation began, Dorr refusing to pay unless Strowbridge would first correct alleged defects in the title growing out of the Bartholomew claim to New England, and a disclosure that several counties in Iowa had been sold, of which, as was claimed, Strowbridge had not informed Dorr prior to the purchase, so that when in November, 1883, Freeman & Sons, not being content to trust Dorr and his associates, if they knew he had any, to the extent of the five thousand machines they had agreed to make, proposed that a corporation be formed and the patent conveyed to it, I can see no ground upon which Strowbridge can complain of fraud in the transaction, as he had allowed Dorr to hold the title to it without question as to its validity in his hands, and his only claim was that there was a balance of three hundred and fourteen dollars of purchase money yet due him, for which Dorr was personally liable, and which, for aught that appears, could have been collected by suit on the note. What title Strowbridge had seems to me to have been regularly and properly vested in the Racine Seeder Company, and that company's title made a matter of record in the Patent Office nearly two years before the complainant in the cross-bill obtained its conveyance from Strowbridge.

I come now to consider the question of the title of the complainant in the cross-bill as the assignee of the Hartwell contract with the consent of Strowbridge. By a decree of a competent court the Hartwell assignment to the Des Moines Manufacturing Company has been set aside, and he has been rehabilitated with the ownership of the contract, and this court cannot review that decree; but the Racine Seeder Company was not a party to the decree, and is not bound by it. Without discussing the question as to whether the contract between Strowbridge and Hartwell is a power of attorney coupled with an interest, and therefore not revocable except for some of the reasons provided for in the instrument itself, I am very clear that the contract, both as a power to sell and as a license, is a merely personal one, and not transferable by Hartwell except with the consent of Strowbridge. (Curt. Pat., section 198; *Brooks* v. *Byam*, 2 Story, 545; *Consolidated Fruit Jar Co.* v. *Whitney*, 1 Ban. & A., 356.) In view, then, of the nature of this contract, I am quite clear that when Strowbridge parted with his title to the subject-matter of the contract he parted with all right to sanction or vivify the assignment, or transfer of it from Hartwell to any one else; and conceding for the argument that the contract remained in force, and that the sale of the patent from Strowbridge to Dorr did not work a revocation of it, Hartwell could not sell territorial or shop rights, nor assign the right to manufacture, without the consent of the owner of the patent; and, holding as I do that Strowbridge's deed to Dorr was operative to transfer the title in the patent to Dorr, and that the deed from Dorr to the seeder company placed the title in the seeder company, it follows that no transfer of the contract by Hartwell was valid without the consent of the seeder company.

Much of the testimony and discussion has related to the charge that Dorr was guilty of bad faith toward the Des Moines Manufacturing Company and toward Hartwell and Mitchell, his associates in that company, in organizing the Racine Seeder Company, and transferring to it the business of the Des Moines Company and the Strowbridge patent; but these are questions which I deem wholly foreign to this case, and only proper to be considered in a suit by the Des Moines Company against Dorr or the Racine Company. If Dorr wronged the Des Moines Manufacturing Company or his associates, Hartwell and Mitchell, that wrong cannot aid the title which the Joliet Company now asserts by its cross-bill against the Racine Company. The Joliet Wire Check Rower Company must stand upon the title it got by the deed from Strowbridge and the assignment of the Hartwell contract, and as Strowbridge had no title when he made the deed to that company, and the transfer of the Hartwell contract is not approved or assented to by the Racine Company, it follows that the complainant in the cross-bill took no title from either of these sources.

A decree will be entered dismissing the cross-bill for want of equity, and dismissing so much of the original bill as relates to the Floyd patent without prejudice; and finding under the original bill that the Strowbridge patent is valid, and the title thereto is in the complainant, and that the defendant, the Joliet Wire Check Rower Company, has infringed the same, and that complainant is entitled to an accounting for profits and damages.

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Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 130 pp.—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

Issue of November 2, 1886.

Patents	377—	No. 351,730 to No. 352,106, inclusive.
Designs	11—	No. 16,965 to No. 16,975, inclusive.
Trade-Marks	17—	No. 13,768 to No. 13,784, inclusive.
Label	1—	No. 5,008.
Reissues	6—	No. 10,776 to No. 10,781, inclusive.
Total issue	412.	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	4	.....	Nebraska	4	.....
Arizona Territory	.....	.....	Nevada	.....	.....
Arkansas	.....	.....	New Hampshire	2	.....
California	8	.....	New Jersey	20	1
Colorado	2	.....	New Mexico Territ'y	.....	.....
Connecticut	15	1	New York	73	3
Dakota Territory	2	.....	North Carolina	.....	.....
Delaware	2	.....	Ohio	18	2
District of Columbia	3	.....	Oregon	1	.....
Florida	3	.....	Pennsylvania	37	1
Georgia	1	1	Rhode Island	2	.....
Idaho Territory	.....	.....	South Carolina	.....	.....
Illinois	26	2	Tennessee	1	.....
Indiana	11	1	Texas	7	.....
Indian Territory	.....	.....	Utah Territory	.....	.....
Iowa	6	.....	Vermont	2	.....
Kansas	5	.....	Virginia	2	.....
Kentucky	4	.....	Washington Territ'y	.....	.....
Louisiana	1	.....	West Virginia	.....	.....
Maine	2	.....	Wisconsin	5	.....
Maryland	6	.....	Wyoming Territory	.....	.....
Massachusetts	55	2	United States Army	.....	.....
Michigan	13	.....	United States Navy	.....	.....
Minnesota	5	.....			
Mississippi	.....	.....	Total to citizens of the United States	362	16
Missouri	14	1			
Montana Territory	.....	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	2	.....
Austria-Hungary	1	.....	Ireland	.....	.....
Barbadoes	.....	.....	Italy	.....	.....
Belgium	.....	.....	Mexico	.....	.....
Brazil	.....	.....	New South Wales	1	.....
British Columbia	.....	.....	Norway	.....	.....
Canada	11	.....	Russia	.....	.....
Central America	.....	.....	Scotland	.....	.....
Colombia, U. S. of	.....	.....	Spain	.....	.....
Cuba	.....	.....	Switzerland	.....	.....
Denmark	.....	.....	Victoria	.....	.....
Ecuador	.....	.....			
England	8	2	Total to citizens of foreign countries	26	2
France	3	.....			

DESIGNS.

16,965.—PICTURE OR LOOKING-GLASS FRAME.—*Benjamin S. Donahue*, Brooklyn, N. Y. Application filed August 17, 1886. Serial No. 211,166. Term of patent 3½ years.

16,966.—RUG.—*Matthew Hirst* and *Harry P. Robinson*, Philadelphia, Pa. Application filed September 20, 1886. Serial No. 214,102. Term of patent 3½ years.

16,967 to 16,971, inclusive.—OIL-CLOTH.—*Charles T. Meyer* and *Victor E. Meyer*, Bergen, N. J., assignors to *Edward C. Sampson*, New York, N. Y. Applications filed October 6, 1886. Serial Nos. 215,513 to 215,517, inclusive. Term of patent 3½ years.

16,972.—WATCH OR LOCKET CASE.—*Victor Nivois*, New York, N. Y. Application filed August 19, 1886. Serial No. 211,345. Term of patent 3½ years.

16,973.—WALL-PAPER.—*William N. Peak*, Brooklyn, N. Y. Application filed August 20, 1886. Serial No. 211,454. Term of patent 3½ years.

16,974.—CRUMB-TRAY.—*Henry L. Palmer*, Brooklyn, N. Y. Application filed September 3, 1886. Serial No. 212,644. Term of patent 14 years.

16,975.—BADGE.—*Walter H. Warner*, Springfield, Mass. Application filed August 14, 1886. Serial No. 210,958. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,768.—HEATING-FURNACES, COOKING-STOVES, AND RANGES.—*Highland Foundry Company*, Boston, Mass. Application filed January 28, 1886. Used since January 1, 1867.
"The word 'PEERLESS.'"

13,769.—PAPER-MAKERS' AND PRINTERS' FELTS AND FELT BOOTS AND SHOES.—*Huyck & Argersinger*, Albany, N. Y. Application filed May 27, 1886. Used since May, 1880.
"The word 'KENWOOD.'"

13,770.—PLUG-TOBACCO.—*P. Lorillard & Co.*, Jersey City, N. J. Application filed March 15, 1886. Used since March 1, 1886.
"The word 'ROSEWOOD.'"

13,771.—STRADDLE-ROW CULTIVATORS.—*Charles W. Post*, Springfield, Ill. Application filed July 13, 1886. Used since 1881.
"The words 'POST CAPITAL CITY.'"

12,772.—BUSTLES.—*Canfield Rubber Company*, Bridgeport, Conn. Application filed September 10, 1886. Used since August 1, 1886.
"The word 'JUDIC.'"

13,773.—CARRIAGES AND CARRIAGE-SPRINGS.—*James Harris Snodgrass*, Mifflinburg, Pa. Application filed July 24, 1886. Used since March, 1886.
"The word 'DERBY,' inclosed in a circular border or band."

13,774.—LIQUID SPECIFIC FOR HEART DISEASE.—*George T. Fry*, Atlanta, Ga. Application filed September 20, 1886. Used since September 8, 1886.
"The two capital letters 'V V,' one having on its arms the letters 'I N U M' and the other the letters 'I T Æ.'"

13,775.—LAMPS, LAMP-BURNERS, AND LAMP-CHIMNEYS.—*Charles Stanford Upton*, New York, N. Y. Application filed August 12, 1886. Used since July 1, 1886.
"The word 'NIAGARA' and radial lines forming a background on which the word is displayed."

13,776.—PERFUMERY, COSMETICS, SACHET-POWDERS, DENTIFRICES, AND HAIR-DRESSINGS.—*B. D. Baldwin & Co.*, Chicago, Ill. Application filed September 27, 1886. Used since March 1, 1884.
"The words 'QUEEN BESS.'"

13,777.—STAYS AND CORSETS.—*E. Izod & Son*, London, and Landport, county of Hants, England. Application filed September 20, 1886. Used since 1870.
"The emblem of an anchor."

13,778.—HAIR-INVIGORATORS.—*Albert L. Smith*, Palatine, Ill. Application filed September 24, 1886. Used since September 1, 1886.
"The word 'HIRSUTINE.'"

13,779.—BELT-PULLEYS.—*Dodge Manufacturing Company*, Mishawaka, Ind. Application filed October 2, 1886. Used since 1882.
"The word 'INDEPENDENCE.'"

13,780.—GLOVES AND MITTS.—*A. G. Jennings & Sons*, Brooklyn, N. Y. Application filed September 18, 1886. Used since August 1, 1886.
"The words 'THE MILANO.'"

13,781.—PLOWS.—*Brown Manly Plow Company*. Malta and Columbus, Ohio. Application filed September 16, 1886. Used since August 1, 1886.
"A Maltese cross connected with a circle and having the words 'MALTA, MALTA' printed crosswise on said cross."

13,782.—CEMENT COMMONLY KNOWN AS PORTLAND CEMENT.—*Knight, Bevan & Sturge*, London, England. Application filed May 26, 1886. Used since 1870.
"The word 'PYRAMID.'"

13,783.—INDIAN-CORN MEAL.—*Heffner & Co.*, Circleville, Ohio. Application filed July 16, 1886. Used since January 14, 1884.
"The word 'SAGAMORE.'"

13,784.—CORDWAINER'S THREAD COMPOSED IN PART OF METALLIC WIRE.—*William Bennett Arnold*, North Abington, Mass. Application filed September 20, 1886. Used since February 1, 1886.
"The word 'METALIN.'"

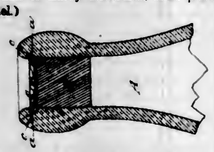
LABELS.

5,008.—Title: "KIRTLEYS APPETIZER." (FOR A MEDICINE.)—*William F. Kirtley*, Millard, Mo. Application filed September 24, 1886.

PATENTS

GRANTED NOV. 2, 1886.

351,730. **BOTTLE-STOPPER.** LEONARD ATWOOD, New York, N. Y., assignor of one-half to Harry Robertson, same place. Filed Mar. 13, 1885. (No model.)

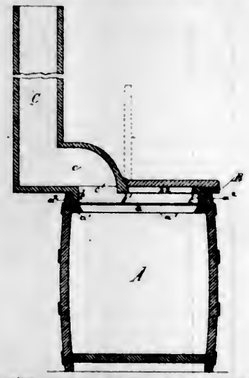


Claim.—1. The combination, with a bottle having in its mouth, near the top, a circumferential groove, of a cork fitting the mouth below the groove, and an expanding spring-follower, made separate from the cork and bearing upon the top of the cork and in the groove, and adapted to be forced into the bottle with the cork and to spring outward into the groove, substantially as and for the purpose herein described.

2. The combination, with a bottle having in its mouth, near the top, a circumferential groove, of a cork fitting the mouth below the groove, and an expanding spring-follower, made separate from the cork and bearing on the top of the cork and in the groove, and having a hole in it through which a corkscrew may be inserted, and which is forced into the bottle with the cork, substantially as and for the purpose herein described.

3. The combination, with a bottle having in its mouth, near the top, a circumferential groove, *a*, of a cork, B, and an expanding spring-follower, C, made of sheet metal and separate from the cork, and having radially-projecting points or ears *c*, engaging the groove *a*, substantially as and for the purpose herein described.

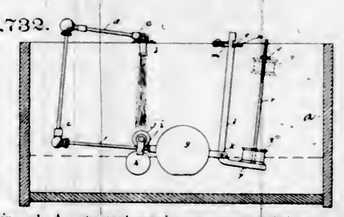
351,731. **MEANS FOR EFFECTING UPWARD DRAFT IN PRIVIES, COMMODES, &c.** PROSPER BARDON, Waco, Tex. Filed May 4, 1886. (No model.)



Claim.—In a privy, commode, or closet, the combination of a seat having an aperture about ten inches by seven inches in area, a ventilating draft-flue having a diameter of about six inches by six and one-half inches and a height of about ten feet, and a receptacle having a diameter of about twenty-two inches, the said relative proportions being followed accordingly as the size of the privy, commode, or closet is increased or decreased, substantially as and for the purpose described.

351,732. **WATER-SUPPLY APPARATUS FOR TANKS.** WALLACE H. BATE, Melrose, Mass. Filed Feb. 1, 1886. (No model.)

351,732.



Claim.—1. A water-tank-supply apparatus consisting of a nozzle, a ball compression-cock connected therewith, a rod connected at one end to said cock, an elbow-lever having one of its arms connected to the other end of said rod, a float connected to the other arm of said lever, and a weight adapted to move to and fro on said last-mentioned arm as said float is raised and lowered by the water in the tank, as set forth.

2. A water-tank-supply apparatus consisting of a nozzle, a ball compression-cock connected therewith, a float, a rod, and an elbow-lever connecting said float with said cock, a weight adapted to move to and fro on one of the arms of said lever as said float is raised and lowered in the tank, mechanism, substantially as described, for locking said float in its depressed position, and a supplemental float for operating upon said mechanism to automatically unlock or release said first-mentioned float from its depressed position as the tank fills with water, as set forth.

3. A water-tank-supply apparatus consisting of a nozzle, a ball compression-cock connected therewith, a float, a rod, and an elbow-lever connecting said float with said cock, a weight adapted to move to and fro on one of the arms of said lever as said float is raised and lowered in the tank, mechanism, substantially as described, for locking said float in its depressed position, and a supplemental float operating upon said mechanism as the water falls in the tank to automatically lock said first-mentioned float in its depressed position, and as the water rises and fills the tank to unlock or release it, as set forth.

4. The combination, with the cock *c*, float *g*, and rod and lever connecting said float with said cock, of the bell-crank lever *k*, connected to said first-mentioned lever and having one of its arms notched, as described, the slot *n*, rod *r*, secured to the end of the other arm of said lever, collar *s*, secured to said rod, and float *t*, as set forth.

5. The combination of the cock *c*, rod *d*, bell-crank lever *e*, weight *h*, adapted to move on one arm of said lever, float *g*, bell-crank lever *k*, notched as described, slot *n*, rod *r*, provided with the collar *s*, and float *t*, as set forth.

351,733. **ROAD-ENGINE.** HARRY H. BRIDENTHAL, Latrobe, Pa. Filed Apr. 14, 1886. (No model.)

Claim.—1. The combination, in a road-engine, of the crank K, rods *m m'*, levers *f f'*, arms *b b'*, sliding blocks *d d'*, rods *h h'*, pawls *e e'*, and the drive-wheel G, substantially as and for the purposes herein specified.

2. The combination of the vibrating arms *b b'*, blocks *d d'*, rods *h h'*, pawls *e e'*, rods *n n'*, and the lever D J, substantially as and for the purpose herein described.

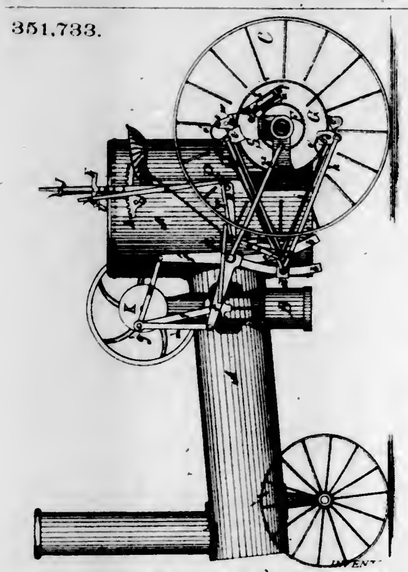
3. In combination with the pawls *e e'*, the rods *i i'*, springs *c c'*, levers *o o'*, and the rods *n n'*, substantially as and for the purposes herein specified.

4. The combination of the pawls *e e'*, rods *i i'*, levers *o o'*, rods *n n'*, levers D, J, and U, and the notched arc-piece E, substantially as and for the purposes herein specified.

5. In combination with the pawls *e e'* and the wheel G, the friction-rollers *w w'*, substantially as and for the purposes herein specified.

6. The combination of the equational gear, intermediate pinion, *u*, disk *v*, weighted contrifugal pawls *t t*, spring *y*, drive-wheel G, and the stops *i² i²*, substantially as and for the purposes herein specified.

351,733.

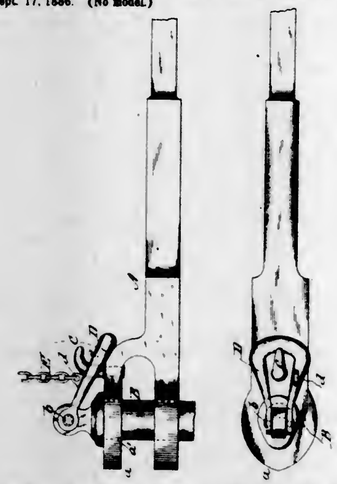


7. In combination with the pawls *t t* and the spring *y*, the adjustable pins o^2 o^2, substantially as and for the purposes set forth.

8. The combination of the equational gear F G *u*, gears r^3 r^4, spur-pinions *s s'*, shaft *x*, disks *v' r*^{3}, and the centrifugal pawls *t'*, substantially in the manner and for the purposes herein specified.

9. The combination of the lever-stud *a*, axle-bracket H, and the brace-rod h^3, substantially as and for the purposes herein specified.

351,734. CAR-COUPLING. JOHN A. BRILL, Philadelphia, Pa. Filed Sept. 17, 1886. (No model.)



Claim.—1. A draw-head having a coupling-pin, a stud back of the pin, and a link one end of which is pivoted to the head of the pin and the other fits or passes over said stud, substantially as set forth.

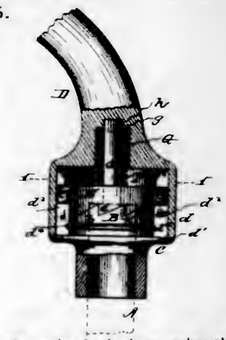
2. The combination of draw-head A, pin B, having pivoted link D, and stud C, substantially as shown and described.

3. In a draw-head having pin B and stud C, the link D, pivoted at one end to pin B, and having chain E, substantially as set forth.

351,735. BRAKE-ROD HANDLE. JOHN A. BRILL, Philadelphia, Pa. Filed Sept. 17, 1886. (No model.)

Claim.—1. A brake-rod having near its upper end a collar, a fixed ratchet-wheel of a diameter less than that of the collar, a loose ratchet-wheel of a diameter corresponding with that of the fixed ratchet, a

351,735.



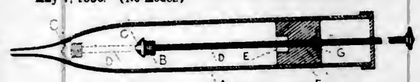
downwardly-acting spring for the loose ratchet-wheel, and a handle or wheel having a socket inclosing said ratchet-wheels and spring, a shoulder for the upper end of the spring to abut or act against, and a swiveled connection with said collar, substantially as set forth.

2. A brake-rod having a clutch-wheel, B, and collar C, a handle having socket *d* resting upon collar C and swiveled to wheel B, and a clutch-wheel, E, loose on the brake-rod and turning with the handle, substantially as set forth.

3. The combination of brake-rod A, having clutch-wheel B, provided with groove *b*, clutch-wheel E, loose on said rod and having spring-pressure devices, handle D, having socket *d*, swiveled to wheel B by means of pins d^2 entering clutch-wheel groove *b*, and devices for loosely connecting wheel E with handle D, substantially as set forth.

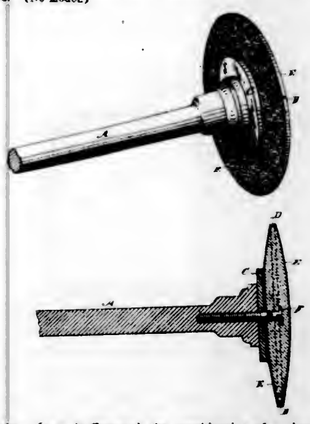
4. The handle D, having bearing *h*, recess G, and socket *d*, provided with vertical recesses d^2, in combination with rod A, having clutch-wheel B, swiveled to socket *d*, loose clutch-wheel E, having lugs *e*, fitting recesses d^2, and spring F, substantially as set forth.

351,736. SYRINGE. GEORGE H. BRINTON, Philadelphia, Pa. Filed May 7, 1886. (No model.)



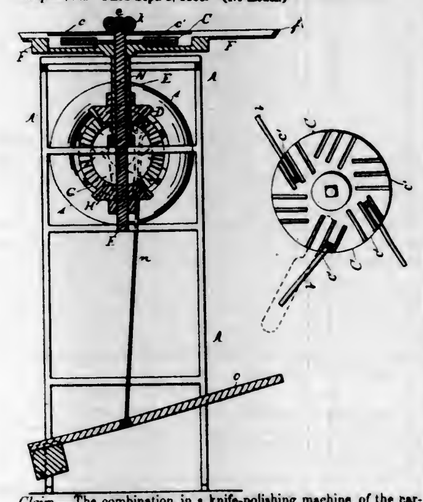
Claim.—In a syringe, the combination of the piston-rod D, a detachable head, F, provided with a screw-thread, E, and the cork or stopper C, provided with the screw-thread B, to engage the screw-thread E, said stopper C adapted to prevent the liquid from escaping at the tip end of the syringe, and said piston-head F adapted to prevent the liquid from escaping at the other end of the syringe, substantially as described.

351,737. REVOLVING PAD FOR CLEANING THE SOLES OF BOOTS OR SHOES. FRANK P. BUZZELL, Lynn, Mass. Filed Sept. 28, 1885. (No model.)



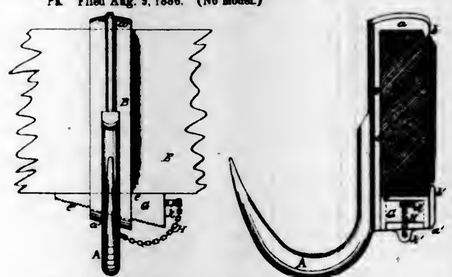
Claim.—In a buffing-pad, the combination of a circular piece of felt, D, two circular pieces of sand-paper, E E, one piece of sand-paper being attached to each side of the felt by glue, with a smaller circular piece of leather, all having a central hole for attachment to a revolving spindle, as set forth.

351,738. KNIFE-POLISHING MACHINE. SYLVESTER BYRNE, Philadelphia, Pa. Filed Sept. 3, 1885. (No model.)



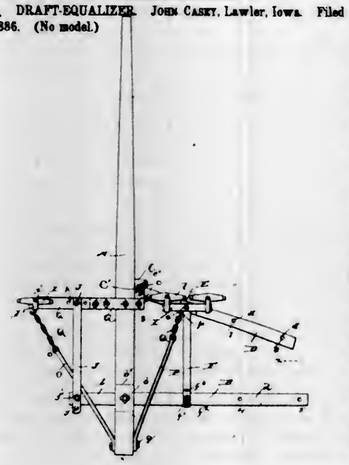
Claim.—The combination, in a knife-polishing machine, of the carrier-plate C, having tangential grooves *c'*, springs *b*, cap-plate *c*, thumb-nut *k*, and vertical shaft E, substantially as set forth.

351,739. MEAT-SUSPENDING HOOK. JAMES CAIRNS, Philadelphia, Pa. Filed Aug. 9, 1886. (No model.)



Claim.—The integral bracket-book A B, having clamping ends *a a'*, in combination with the wedge G, provided with serrated surfaces *e e'*, for attachment to the rail E, substantially in the manner herein shown and described.

351,740. DRAFT-EQUALIZER. JOHN CASEY, Lawler, Iowa. Filed July 22, 1886. (No model.)



Claim.—1. In a draft-equalizer, the combination of a swinging brace carried by the tongue, an adjustable support on the brace, to which the double and whiffle trees are connected, a pivoted lever carrying a single-tree arranged on the opposite side of the tongue to the brace, and the adjustable support thereon, the double-tree B, pivoted to the tongue, and the brace-straps intermediate of the double-tree B and the lever and brace, substantially as described, for the purpose set forth.

2. In a draft-equalizer, the combination of a swinging brace carried by the tongue, a support for the double-trees fitted on the brace and adjustable longitudinally thereof, a pivoted lever having a single-tree, and also carried by the tongue and arranged on the opposite side thereof to the brace, a double-tree, B, and the adjustable brace-straps F J, intermediate of the double-tree and the brace and lever, substantially as described, for the purpose set forth.

3. In a draft-equalizer, the combination of a brace-block affixed rigidly to the tongue, a swinging brace pivotally connected to the block, an adjustable support for the double-trees carried by the said brace, the pivoted lever arranged on the opposite side of the tongue to the brace and carrying a single-tree, the brace being arranged on a plane beneath that of the pivoted lever, and the adjustable support on the brace being arranged on substantially the same plane as the pivoted lever, whereby the whiffletrees on the lever and brace are located on the same horizontal plane, the double-tree B, pivoted to the draft-tongue, and the brace-straps F J, intermediate of the said double-tree and the pivoted lever and brace, substantially as described, for the purpose set forth.

4. In a draft-equalizer, the combination of a brace-block affixed rigidly to the tongue, the straps secured to the block or tongue, a lever, G, carrying a single-tree and pivoted to the straps by a through-bolt, a block, H, interposed between the inner extremity of the lever and the tongue and fitted between the straps, a brace pivoted to the brace-block and carrying a support for the double-tree, the double-tree B, pivoted to the tongue, and the intermediate brace-straps, substantially as described, for the purpose set forth.

5. In a draft-equalizer, the combination of a brace-block affixed to a tongue, a brace pivotally connected thereto, the straps affixed to the block or tongue, a lever pivoted to the straps and arranged on the opposite side of the tongue to the brace, a block fitted between the straps, the double-tree B, and the brace-straps, substantially as described.

6. In a draft-equalizer, the combination of a swinging brace, an adjustable support for the double-tree carried by the brace, a pivoted lever having a single-tree and arranged on the opposite side of the tongue to the brace, a double-tree, B, and the brace-straps F J, intermediate the double-tree, the lever, and the brace, the said brace-straps F J being arranged at an angle to or in an inclined position with relation to the tongue, substantially as described, for the purpose set forth.

7. In a draft-equalizer, the combination of a brace-block affixed rigidly to the tongue, a brace adjustably and pivotally connected to the brace-block, an adjustable support for the double-trees carried by the brace, a pivoted lever on the opposite side of the tongue to the brace and having a single-tree, the double-tree pivoted to the tongue in rear of the lever and brace, and the brace-straps intermediate of the double-tree B and the lever and brace, substantially as described, for the purpose set forth.

8. The combination of a swinging brace, a support for the double-trees fitted and adjustable longitudinally on the brace, a pivoted lever carrying a single-tree, a double-tree, B, the brace-straps F, connected to the support and the double-tree B, and the brace-straps intermediate of the pivoted lever and the double-tree, substantially as described.

9. The combination of a swinging brace, an adjustable support thereon for the double-tree, a pivoted lever carrying a single-tree, a double-tree, B, pivoted to the tongue at an intermediate point of its length, so that its ends 1 and 2, on opposite sides of the tongue, are of unequal lengths, the brace-straps F, arranged at an angle to the tongue and pivotally connected at one end to the support and adjustably connected at their other ends to the longer end, 2, of the double-tree B, and the brace-straps J, intermediate of the pivoted lever and the shorter end, 1, of the double-tree, substantially as described, for the purpose set forth.

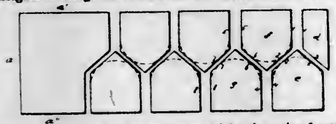
10. The combination of a swinging brace, an adjustable support thereon for the double-tree, a pivoted lever having a single-tree, a double-tree, B, pivoted to the tongue at an intermediate point of its length, so that its ends 1 and 2, on opposite sides of the tongue, are of unequal length, the brace-straps F, connected at one end to the support and adjustably and pivotally connected at its opposite end to the longer end, 2, of the double-tree B, and the brace-straps J, adjustably connected at one end to the pivoted lever between the ends of the latter and at their opposite ends to the shorter end, 1, of the double-tree B, the rear ends of the said brace-straps F J being detachably and adjustably connected to the ends of the double-tree B, so that the braces can be lengthened and shortened at will, substantially as described, for the purpose set forth.

11. The combination, in a draft-equalizer, of a swinging brace, an adjustable support thereon for the double-tree, a pivoted lever having a single-tree, a double-tree, B, pivoted to the tongue, the brace-straps, and the check-rod intermediate of the brace and tongue, substantially as described, for the purpose set forth.

12. The combination, in a draft-equalizer, of a swinging brace, an adjustable support thereon for the double-tree, a pivoted lever, G, having a single-tree, a double-tree, B, pivoted to the tongue, the brace-straps intermediate the double-tree and the lever and brace, and the check-rod connected at one end to the tongue and adjustably connected at its opposite end by an intermediate chain, Q, with the adjustable support, whereby the check-rod can be lengthened and shortened at will, substantially as described, for the purpose set forth.

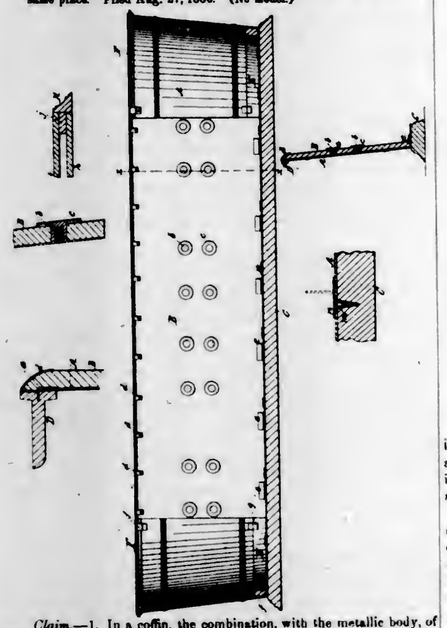
13. In a draft-equalizer, the combination of a brace-block affixed to the tongue, a brace adjustably and pivotally connected to the brace-block, a support for the double-tree adjustable longitudinally on the brace, the straps G', a lever pivoted on the straps and having a single-tree, the block fitted between the straps, a double-tree, B, pivoted to the tongue and having its ends of unequal length, the brace-straps F, intermediate of the support and the longer end of the double-tree, the brace-straps J, connecting the pivoted lever and the shorter end of the double-tree, and the check-rods secured to the tongue and adjustably connected to the support and the pivoted lever, substantially as described.

351,741. HEEL-LIFT CUTTER. SAMUEL A. COLLIERSON, Somerville, assignor to George James, Boston, Mass. Filed May 1, 1886. (No model.)



Claim.—In a device for cutting heel-lifts, the pair of cutting-knives A B, herein described, said knife A consisting, essentially, of a blade whose portion A'' is bent at an obtuse angle with the main portion A', and the frame A''', and said knife B being the reverse of said knife A, and consisting, essentially, of a blade whose portion B'' is bent at an obtuse angle with the main portion B', and the frame B''', substantially as and for the purpose set forth.

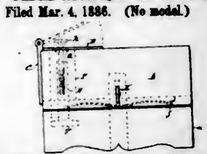
351,742. COFFIN. MARTIN H. CRANE and DANIEL M. JEWETT, Cincinnati, Ohio, assignors to the Crane & Breed Manufacturing Company, same place. Filed Aug. 27, 1886. (No model.)



Claim.—1. In a coffin, the combination, with the metallic body, of the wooden linings fitted to the inner sides thereof, extending from the top to the bottom of the body, and secured thereto by socketed lugs provided with retaining-washers, and serving as means for securing the handles, substantially as described.

2. The combination, with the metallic body A, of the flange D, united thereto by the strip *a*, the wooden linings B, secured by the stripe *d* and *e* and socketed handle-lugs *b*, the lining-stripe E F, and bottom C, the parts constructed and united substantially in the manner and for the purpose specified.

351,743. PEDAL ATTACHMENT FOR PIANOS. JOHN CRAY, Paramus, N. J. Filed Mar. 4, 1886. (No model.)



Claim.—1. An adjustable pedal attachment for pianos, consisting of a box or frame having hinged to slides attached to said box pedals, the free ends of said pedals being supported by posts moving freely in said frame, and provided with means for varying the length of said posts and of adjusting the position of said slides.

2. An adjustable pedal attachment for pianos, consisting of the box or frame A, in combination with the slides C, pedals D, frame F, sockets *f*, posts G, adjusting-screws H, substantially as described.

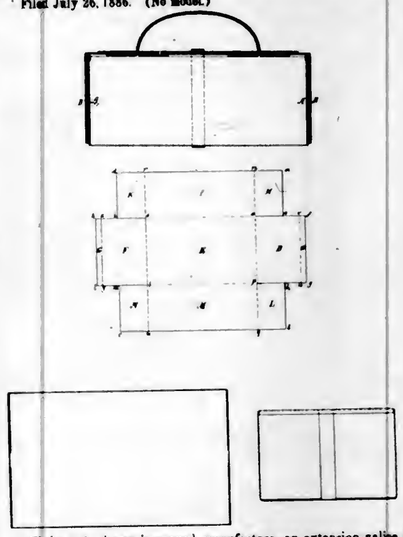
3. An adjustable pedal attachment for pianos, consisting of the box or frame A, in combination with the slides C, pedals D, frame F, sockets *f*, posts G, adjusting-screws H, and means for varying the height of the box A, substantially as described.

351,744. INHALER. HENRY D. COSHMAN, Three Rivers, Mich. Filed June 19, 1886. (No model.)



Claim.—As a new article of manufacture, an open or perforated cup-shaped stopper, slitted, scalloped, or notched around its margin, so as to be capable of pressing outward within a tube to hold it in place, substantially as set forth.

351,745. EXTENSION-VALISE. SAMUEL G. DARREN, Auburn, Me. Filed July 26, 1886. (No model.)



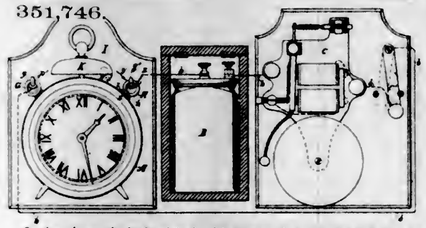
Claim.—1. As an improved manufacture, an extension-valise having its body as well as its cover consisting of an open box, composed of a piece of sheet material cruciform in shape and cut and folded, and having the parts folded on each other fastened together by cement or suitable means, so as to form the ends of the box, in manner as specified.

2. The valise cover or box, made of sheet material, cruciform in shape, and cut, folded, and bent, and having the parts folded on each other secured together by cement or other proper means, substantially as described, the wing portions of the cross being bent at a right angle to the intermediate portion, and also turned in and secured to end portions of the said intermediate portion, and parts of such intermediate portion being turned inwardly and lapped on and secured to the wings, as represented.

351,746. ELECTRIC ALARM-CLOCK. FRED E. DERRICK and SOLOMON C. BROTT, Lansingburg, N. Y. Filed Aug. 30, 1886. (No model.)

Claim.—1. An alarm-clock furnished with a stop for arresting the key or arm of the winding-shaft of the alarm mechanism in its running-down movement, and with two electric contacts, between which electric connection is established by the action of said key or arm when arrested by said stop, substantially as set forth.

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2. An alarm-clock furnished with a stop for arresting the key or arm on the winding-shaft of the alarm mechanism in running down, and with two electric contact-pieces of which one is moved and held in contact with the other by the key or arm as it is arrested by said stop, substantially as set forth.

3. An alarm-clock furnished with a stop for arresting the key or arm on the winding-shaft of the alarm mechanism as it runs down, and with two electric contacts of which one is on the winding-shaft, and is thereby moved and held in contact with the other contact-piece as the key or arm on the winding-shaft is arrested by said stop, substantially as described.

4. An alarm-clock furnished with a stop for arresting the key or arm on the winding-shaft of the alarm mechanism as it runs down, and with two electric contacts of which one consists of said stop and the other consists of the key or arm on the winding-shaft of the alarm mechanism, as set forth.

5. An alarm-clock having a metallic case and furnished with two electric contact-pieces, one on and carried by the winding-shaft of the alarm mechanism and in electric connection with the case and the other mounted on and insulated from the case, and so arranged that the contact-piece on the winding-shaft shall be thereby carried and held in contact with the insulated contact-piece, and thereby stopped as the winding-shaft runs down, substantially as set forth.

6. An alarm-clock having a metallic case, a key or arm on the winding-shaft of the alarm mechanism, a stop for arresting the key or arm and winding-shaft in running down, two conductor attachments mounted on the case, one in electric connection with the case and the other insulated therefrom, and two electric contact-pieces, of which one is in electric connection with the case and the other is secured to and in electric connection with the insulated conductor attachment, and between which contact-pieces electric connection is established by the action of said key or arm when arrested by said stop, substantially as described.

7. An alarm-clock having a case furnished with two metallic rings or hooks by which the clock can be suspended, and of which one is insulated from the other, and two electric contacts which are respectively in electric connection with the two rings or hooks, and between which two contacts electric connection is established by the action of the alarm mechanism, substantially as set forth.

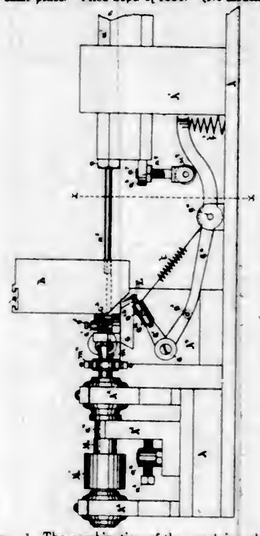
8. An alarm-clock having a key or arm on the winding-shaft of the alarm mechanism, a stop for arresting the key or arm in running down, two electric contact-pieces between which electric connection will be established by said key or arm when arrested by said stop, and said key, arm, or stop adjustable, so as to cause the winding-shaft with its said key or arm to be either arrested or not arrested by said stop, substantially as set forth.

9. An alarm apparatus embracing an electric source, an electro-magnetic alarm, an alarm-clock having a key or arm on the winding-shaft of the alarm mechanism, a stop by which the key or arm and winding-shaft will be arrested in running down, two electric contacts between which electric connection is established by the action of the key or arm when arrested by the stop, and electric conductors connecting the electric source, electro-magnetic alarms, and said two electric contacts, substantially as described.

10. An alarm apparatus embracing an electric source, an electric alarm, an alarm-clock having a key or arm on the winding-shaft of the alarm mechanism, a stop for arresting the key or arm in running down, two conductor attachments mounted on the case, one in electric connection with the case and the other insulated therefrom, two electric contacts, of which one is in electric connection with the case and the other is secured to and in electric connection with the insulated conductor attachment, and between which two contacts electric connection is established by the action of said key or arm when arrested by said stop, and electric conductors connecting the electric source, electric alarm, and said two conductor attachments, substantially as set forth.

11. An alarm apparatus embracing an alarm-clock having a case furnished with two metallic rings or hooks by which the clock can be suspended, and of which one is insulated from the other, and with two electric contacts which are respectively in electric connection with the two rings or hooks, and between which two contacts electric connection is established at a predetermined time by the action of the alarm mechanism of the clock, two insulated metallic pins or hooks from which the clock is detachably suspended by said rings or hooks on its case, an electric source, an electric alarm, and conductors connecting the electric source, electric alarm, and the two pins or hooks from which the clock is suspended, substantially as described.

351,747. CARTRIDGE-SHELL-TRIMMING MACHINE. CHARLES A. R. DIMON, Lowell, Mass., assignor to the United States Cartridge Company, same place. Filed Sept. 6, 1886. (No model.)



Claim.—1. The combination of the revolving shell-gripping clutch provided with the radially-moving blocks m^2 m^2, substantially conforming to the exterior of the shell on their inner faces, and mechanism for moving the same in and out, the cutting-off tool c^2, mounted on guideways and adapted to move past and in proximity to the face of said clutch transversely to the axis of rotation of the latter, and the reciprocating beveling-tool E, mounted upon a carrier, and adapted to enter the open end of the shell while the latter is held by the clutch and trim or bevel off the inner part of the edge thereof, substantially as described.

2. The combination of the revolving shell-gripping clutch provided with the radially-moving blocks m^2 m^2, substantially conforming to the exterior of the shell on their inner faces, and mechanism for moving the same in and out, the cutting-off tool c^2, mounted on guideways and adapted to move past and in proximity to the face of said clutch transversely to the axis of its rotation, the pivoted lever e', and the tool E, carried thereby, and adapted to enter the open end of the shell while the latter is held by the clutch and trim or bevel off the inner part of the edge thereof, substantially as described.

3. The combination of the revolving shell-gripping clutch having the radially-moving blocks m^2 m^2, of proper conformation to embrace and hold the shell, and mechanism for opening and closing the same, the reciprocating shell-carrying plunger a' a^2, the pivoted lever e', and the tool carried thereby and adapted to enter the open end of said shell after the plunger is withdrawn therefrom and trim or bevel off the inner part of the edge thereof, substantially as described.

4. The combination of the revolving shell-gripping clutch having the radially-moving blocks m^2 m^2, of proper conformation to embrace and hold the shell, and mechanism for opening and closing the same, the reciprocating shell-carrying plunger a' a^2, the tool E, the pivoted lever e', the pivoted lever e^2, connected to lever e', and the rod a^3, connected to the plunger, and adapted to move the tool E forward within the shell by contact with lever e^3 on the backward movement of the plunger, substantially as described.

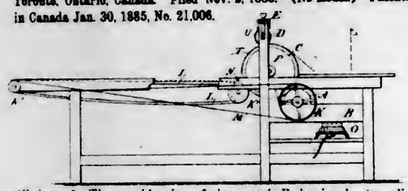
5. The combination of the revolving shell-gripping clutch having the radially-moving blocks m^2 m^2, of proper conformation to embrace the shell and hold it, and mechanism for opening and closing the same, the reciprocating shell-carrying plunger a' a^2, the tool E, the pivoted lever e', the pivoted lever e^2, connected to lever e', the rod a^3, connected to the plunger, and adapted to move the tool E forward within the shell by contact with lever e^3 on the backward movement of the plunger, and the retracting-spring t or t', connected to one of said levers, substantially as described.

6. The combination of the revolving shell-gripping clutch having the radially-moving blocks m^2 m^2, of proper conformation to embrace

and hold the shell, and mechanism for opening and closing the same, the reciprocating shell-carrying plunger a' a^3, the pivoted lever e', the tool E, carried thereby, and adapted to enter the open end of the shell after the plunger is withdrawn therefrom and trim or bevel off the inner part of the edge thereof, and the retracting-spring t, connected to said lever, substantially as described.

7. The metallic cartridge-shell s, formed and prepared for crimping upon the ballet, substantially as described—that is to say, with the inner part of the edge thereof at its open end trimmed or beveled off, substantially as described.

351,748. MACHINE FOR WAXING PAPER. ALLAN H. DUNCHAN, Toronto, Ontario, Canada. Filed Nov. 2, 1885. (No model.) Patented in Canada Jan. 30, 1885, No. 21,006.



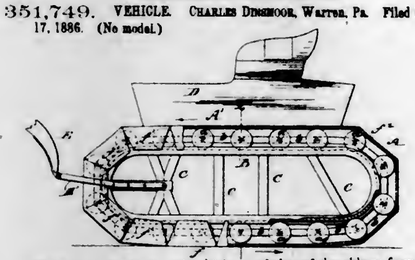
Claim.—1. The combination of the trough B, having heat applied thereto, the distributing-cylinder A, suitably driven, the heated cylinder C, driven by contact with the cylinder A, and the pressure roller or cylinder D, driven by contact with the cylinder C, and adapted for regulating the pressure, substantially as shown and described.

2. The combination of the trough B, distributing-cylinder A, heated cylinder C, driven by friction from cylinder A, the cloth cover T of said cylinder, the pressure-roller D, and cloth cover U of said cylinder, substantially as shown and described.

3. The combination of the cylinders A C D, cloth covers T and U, heater F, the separator N, rollers K' and K'', and the carrier L, substantially as shown and described.

4. The combination of the metallic cylinder C, ends P, screws S, and cloth cover T, substantially as shown and described.

351,749. VEHICLE. CHARLES DINSMOOR, Warren, Pa. Filed Feb. 17, 1886. (No model.)



Claim.—1. An improved vehicle consisting of the oblong frame B C, having guideways in its side pieces, a series of wheels, a, connected together by links b, guards A', hinged together to form a continuous chain, the body A, supported upon the frame between the endless track, and the tongue or thills E, connected to the said frame, substantially as herein shown and described.

2. In a vehicle, the combination, with the frame B C and a series of wheels, a, journaled in the connecting-links b, of a track consisting of a series of hinged links, f, each having beveled side flanges f' and a bottom plate, f^3, the said track inclosing the said wheels and moving the same by frictional contact, substantially as herein shown and described.

351,750. MACHINE FOR MAKING MATCHES. WILLIAM E. DOOLITTLE, West Haven, Conn. Filed Mar. 17, 1886. (No model.)

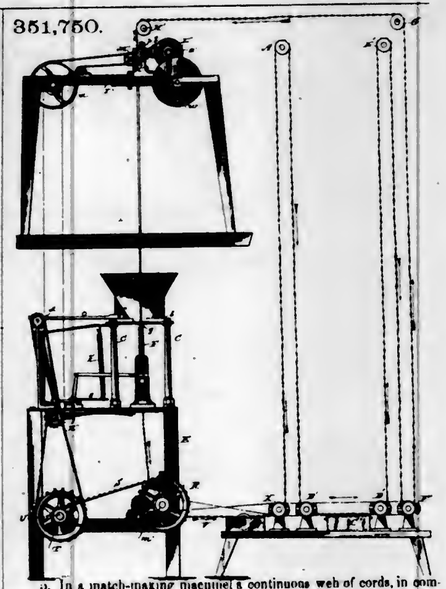
Claim.—1. The process of making matches, which consists in charging splints into a hopper, feeding them into position on cords, weaving the splints into the cords, conducting them through fulminates, drying, registering, and cutting the splints, unweaving the cords, and finally boxing the matches, substantially as described.

2. The process of making matches, which consists in charging splints into a hopper, feeding them through a channel, conducting them into position on cords by an air-blast, weaving the splints into the cords, treating them with fulminates, drying, registering, and cutting the splints, unweaving the cords, and finally boxing the matches consecutively and continuously, substantially as described.

3. In a match-making machine, a web or belt for carrying splints, in combination with a pipe supplying an air-blast for conveying said splints into position on the web or belt, substantially as described.

4. In a match-making machine, a continuous web of cords, in combination with a weaving and unweaving harness, substantially as described.

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5. In a match-making machine, a continuous web of cords, in combination with a splint-feeding device, a pipe for supplying an air-blast and a weaving and an unweaving harness, substantially as described.

6. In a match-making machine, the combination of a reciprocating hopper, a channel communicating with said hopper a reciprocating feeding-plate, continuous cords, a weaving-harness, a cutter, and an unweaving device, substantially as described.

7. In a match-making machine, a continuous web for carrying splints, in combination with a tension device operating upon the cords to keep them taut, substantially as described.

8. In a match-making machine, a continuous web of cords, a splint-feeding device, a weaving-harness, a series of web-feeding rolls, an unweaving-harness, and a tension device operating to keep the cords stretched, substantially as described.

9. In a match-making machine, a continuous web for carrying splints, in combination with a tension device consisting of a reciprocating arm or lever and weighted gripping-levers bearing upon the cords forming the web, substantially as described.

10. In a match-making machine, a continuous web for carrying splints, in combination with a tension device consisting of a bracket supporting weighted gripping-levers, a reciprocating lever projected between said gripping-levers, and a spring for retracting the reciprocating lever, substantially as described.

11. In a match-making machine, a splint-feeding device consisting of a channel communicating with a hopper, and a reciprocating plate carrying a spring-actuated auxiliary plate, in combination with an actuating mechanism for moving the plates, substantially as described.

12. In a match-making machine, a splint-feeding device consisting of a channel communicating with a hopper, a reciprocating plate, a passage communicating with an air-supply, and a web for carrying splints, substantially as described.

13. In a match-making machine, a splint-feeding device consisting of a plate having projecting arms, an auxiliary spring-actuated plate, and adjustable studs for regulating the stroke of the plate, in combination with depending arms for supporting splints, and an actuating mechanism for moving the plates in one direction and a spring for returning them, substantially as described.

14. In combination with a match-making machine, a weaving-harness consisting of rectangular frames having perforated projecting arms on opposite sides, continuous cords passing through said arms, and pitmen connecting the frames with a revolving shaft for reciprocating the frames and crossing the cords, substantially as described.

15. In a match-making machine, a registering device consisting of a slotted head, a vibrating lever having an inclined projection on one side extending into the slot in the head, and connected to a double-armed pawl or escapement engaging a toothed wheel, in combination with a belt or web carrying splints, substantially as described.

16. In a match-making machine, a slotted head, and a cutting-wheel secured to a revolving shaft attached to the side of said head and projecting into the slot at right angles thereto, in combination with a web carrying splints, substantially as described.

17. In a match-making machine, the combination of a slotted head, a cutting-wheel secured to a revolving shaft and projecting into the slot, a web carrying splints, and an unweaving-harness, substantially as described.

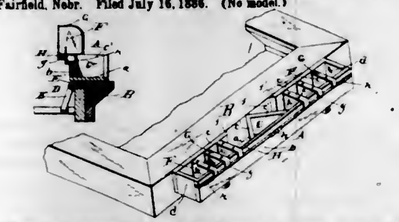
18. In a match-making machine, the combination of a slotted head, a vibrating lever operating an escapement engaging with a toothed wheel mounted upon a shaft which is geared to a shaft carrying a roller projecting through a table, a belt supporting boxes, a web carrying splints, a cutting device, and an unweaving-harness, substantially as described.

351,751. COMBINED SCREW HOLDER AND DRIVER. WILLIAM E. DOUGLAS, Columbia City, Ind. Filed Mar. 15, 1886. (No model.)



Claim.—The combination, with a screw-driver having fast rings D D^3 and intermediate loose band, E, provided with guide-loop F, of the screw-holder H, having loop J at one end and at the other the spring-jaws K K, all arranged and adapted to be used as described.

351,752. RECEPTACLE FOR POOL-BALLS. JULIUS M. DRAGOO, Fairfield, Nebr. Filed July 16, 1886. (No model.)



Claim.—A receptacle for pool-balls having a discharge-opening and supported directly on a pool-table, the said receptacle lying flush with or below the upper edges of the table when the game is in progress, and adapted to be adjusted upon the table to discharge all of the balls therein through the exit-opening, substantially as described, for the purpose set forth.

2. The combination of the supports secured directly to a pool or other table and a swinging receptacle normally resting on the supports and lying flush with the edges of the table, so as to be out of the way of the players, and adapted to be adjusted upon the upper edge of the table to discharge the balls contained therein upon the table, substantially as described.

3. The combination of the supports secured directly to a pool or other table, a swinging receptacle normally resting on the supports and lying flush with the edges of the table, and the links intermediate of the supports and the receptacle, substantially as described, for the purpose set forth.

4. The combination of the horizontal supports secured directly upon a pool or other table, a swinging receptacle resting on the supports and having a single discharge-opening for the free passage of the contents thereof upon the table when it is adjusted upon the latter, and the pivoted links intermediate of the outer edges of the receptacle and the inner ends of the supports, substantially as described, for the purpose set forth.

5. The combination of a swinging receptacle having a central discharge-opening and the inclined deflectors arranged at the middle of the receptacle, with their apex between the edges of the exit-opening thereof, substantially as described, for the purpose set forth.

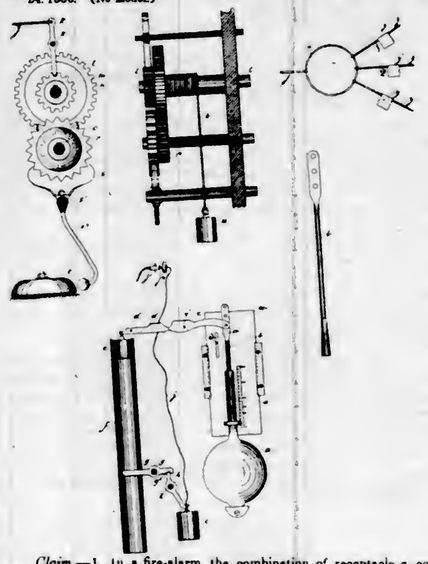
6. The combination of the swinging receptacle, the supports therefor, the links, and the independent partitions inclosed within the receptacle to provide a series of compartments, substantially as described, for the purpose set forth.

7. The combination of a swinging receptacle, the swinging partitions connected with the receptacle and inclosed within the latter to provide a series of isolated compartments, the supports for the receptacle, and the links, substantially as described, for the purpose set forth.

8. The combination of a swinging receptacle having a single exit-opening, an auxiliary receptacle inclosed within the swinging receptacle and having the walls thereof arranged at an angle to each other, with their apex intermediate of the edges of the exit-opening, and the adjustable partitions connected with the receptacle and inclosed within the latter to form a series of independent compartments, substantially as described, for the purpose set forth.

9. The combination of a swinging receptacle, A, having a central exit-opening, f, at one side, an auxiliary receptacle inclosed within the swinging receptacle and formed of two inclined walls, with their apex intermediate of the edges of the exit-opening f, a carrying-bar hinged to the swinging receptacle, the independent partitions supported on the carrying-bar and forming isolated compartments when inclosed within the swinging receptacle, the partitions nearest to the auxiliary receptacle within the swinging receptacle closing the space between the said auxiliary receptacle and the edges of the opening f, the supports D, secured to the pool or other table, and the links intermediate of the supports and the swinging receptacle, all arranged and adapted for service substantially as described, for the purpose set forth.

351,753. FIRE-ALARM. JOHN H. EARLES, Denver, Colo. Filed Apr. 24, 1886. (No model.)



Claim.—1. In a fire-alarm, the combination of receptacle a, containing mercury, said receptacle being provided with a neck, a', piston b, fashioned to work within neck a', lever c, provided with fulcrum c' and attached to piston b, as shown, lever d, provided with fulcrum d' and connected with lever c, as shown, weight e, hung upon lever c, lever g, provided with fulcrum g' and notch g^3, the outer extremity of said lever being placed directly beneath weight e, lever h, provided with fulcrum h' and connected with lever g, as shown, weight i, hung upon lever h, and wire j, attached to weight i at one extremity, the other extremity being connected with suitable mechanism for sounding the alarm, substantially as described.

2. In a fire-alarm, the combination of a motor consisting of a receptacle, a, containing mercury and provided with a neck or tube, a', piston b, fashioned to fit within said neck a', and provided with holes b' in its upper portion, lever c, provided with fulcrum c', and attached to piston b, as shown, lever d, provided with fulcrum d', and connected with lever c, as shown, weight e, hung upon lever d, lever g, provided with fulcrum g' and notch g^3, its outer arm being placed directly beneath weight e, lever h, provided with fulcrum h', and connected with lever g, as shown, weight i, hung upon lever h, and an alarm consisting of pawl k, to which is attached one extremity of wire j, as shown, ratchet-wheel n, connected with pawl k and working upon shaft l, gear-wheels m and p, working upon shafts l and o, respectively, escapement-wheel r, working upon shaft o, and escapement s, connected with said wheel r and working upon shaft s', said escapement being provided with hammer s^3 and gong t, substantially as described, and for the purpose set forth.

351,754. CAR-COUPLING. JOHN H. EARLES, Denver, Colo. Filed Aug. 21, 1886. (No model.)



Claim.—1. In a car-coupling, the combination of levers a, attached to car by bolts a', which form their fulcrums, said levers being provided with slots a^3, bolt c, pin b, trigger d, and a suitable draw-head, substantially as described, and for the purpose set forth.

2. In a car-coupling, the combination of levers *a*, provided with slots a^2 and a^4 and holes a^3, suitable fulcrums, *a'*, bolt *c*, pin *b*, and a suitable draw-head, substantially as described.

3. In a car-coupling, levers *a*, provided with slots a^2 and holes a^3, suitable fulcrums, *a'*, bolt *c*, pin *b*, a suitable draw-head, spring *g*, clasp *h*, and bar *f*, substantially as described.

351,755. BENCH-DOG. FRANK M. FAIRCHILD, West Derby, Vt. Filed June 11, 1886. (No model.)

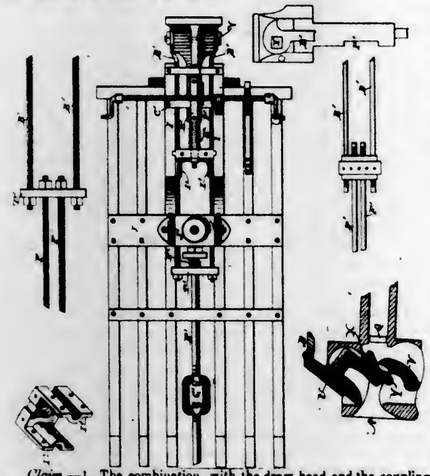


Claim.—1. In a bench-dog, the combination of a lever, an arm, B, connected to one end of the lever, and having a claw at one end arranged to engage the end of the table, an arm, C, connected to the lever intermediate of its ends, and also provided with a claw to engage the table, and a detent, F, affixed to the arm C near its free end and projecting beyond one side of the same, substantially as described, for the purpose set forth.

2. In a bench-dog, the combination of a lever, an arm, B, connected to one end of the lever, and having a claw arranged to engage the end of the table, an arm, C, also connected to the lever near its middle, and having a claw at its free end to engage the table, and a recessed shoulder near the middle, a stop affixed to the lever, arranged in the path of the shoulder on the arm C, and a detent affixed to the latter arm, substantially as described, for the purpose set forth.

3. In a bench-dog, the combination of a lever having a longitudinal slot, *a*, at one end, and a similar shorter slot, *d*, near its middle, the arms having the claws to engage the ends of the table, the pins passing through the slots of the lever and secured in the arms to connect the same to the lever, and a detent, F, projecting beyond one edge of one of the arms, substantially as described, for the purpose set forth.

351,756. CAR-COUPLING. GEORGE J. FERGUSON, Greenville, Tex. Filed Jan. 20, 1886. (No model.)



Claim.—1. The combination, with the draw-head and the coupling U, of the horizontal bolt Y, forming a support for the coupling when raised and tilted, and the independent outside draft-bars, B' B', secured to the draw-head by the extension of the bolt Y through the same, substantially as described.

2. The combination, with the draw-head and the horizontal bolt Y, of the independent outside draft-rods secured by said bolt, and having an enlarged or hooked projection bearing against lugs on the draw-bar for additional strength of connection, as described.

3. The combination, with the draw-head, its coupling U, and the lift-arm V, of the bent angle-shaped iron C, the chain D, lever-arm E, with staple G, the ball and arm F, the rod and chain K, the sheave M, and the weighted arm L at the top, forming an uncoupling-gear, as described.

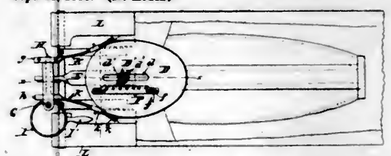
4. The combination, with the draw-head and its coupling U and the lift-arm V, of the bent angle-iron C, chain D, lever-arm E, with staple G, ball-arm F, rod and chain K, sheave M, and weighted arm L, and the angle-plate W on the same shaft with the arm E, and the spring W', bearing against said angle-plate, as described.

5. The combination of the draw-heads at the opposite ends of a car, the outside draft-bars, B' B', secured to said draw-heads and extending toward the middle of the car, and connections between the said draft-bars, forming a continuous draft-bar, substantially as shown and described.

6. The combination, with the timbers I and J of the car, and the spring-seated draw-bars, of the stirrup-shaped iron C', the abutment and guide block or casting I', the draft-rods B' B', the tarn-plate J', the continuous rod F', connected to rods B' B' by plate and spring, and having screw-link G', for adjusting the slack, substantially as shown and described.

7. The combination, with the timbers I I, of spring-seated draw-bar having recess P', the stirrup-shaped supporting-arm C', the guide-bar L', and the abutment and guide-block or casting, I', arranged between timbers I I, substantially as shown and described.

351,757. SHIRT BOSOM AND NECKBAND IRONER. CHARLES A. FULLER, Minneapolis, Minn., assignor, by direct and mesne assignments, to Frank R. Fuller and William H. Jacoby, both of same place. Filed Sept. 15, 1885. (No model.)



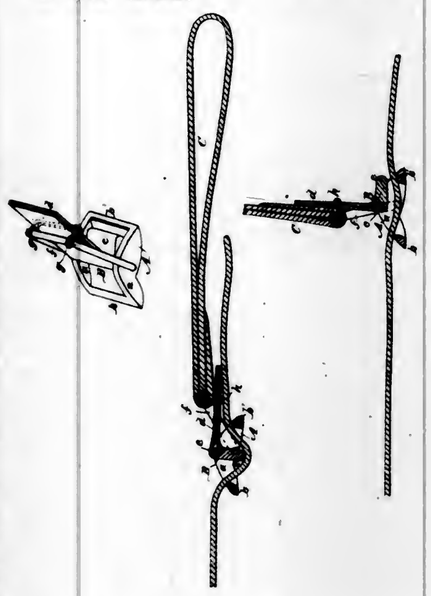
Claim.—1. The combination, with a supporting-base, of a bosom-board having a neckband block or shaper thereon, and a standard between said base and said board with a universal joint therein, as and for the purpose set forth.

2. The combination of the bosom-board B, the longitudinally-adjustable neckband-shaper D, sliding thereon, and clasps for holding the neckband upon said shaper, substantially as described, and for the purpose set forth.

3. The combination of the bosom-board B, the longitudinally-adjustable neckband-shaper D, sliding thereon, provided with the gage-plate F, and clasps for holding the neckband upon said shaper, substantially as described.

4. The combination, with the bosom-board B, of the sliding block D, means for clamping said block, the neckband-clasps K, the sliding plates G G H, having cross-bars *g* and *h*, projecting bar E, and eccentric I, all substantially as described.

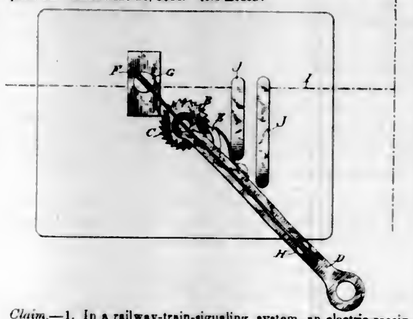
351,758. REIN-HOLDER. FRANK J. GIBBS, Philipsburg, Pa. Filed Mar. 17, 1886. (No model.)



Claim.—1. The combination, in a rein-holder, of the frame A, formed of end pieces, *a*, cross-bars *b b' c*, connecting the end pieces, the loop *f*, pivoted in the end pieces, *a*, the right-angled lever B, turning on the cross-bar *c*, and the stirrup *h*, connecting the loop *f* and the lever B, substantially as herein shown and described.

2. The combination, in a rein-holder, of the frame A, formed of end pieces, *a*, cross-bars *b b' c*, connecting the end pieces, the loop *f*, pivoted in the end pieces, *a*, the right-angled lever B, turning on the cross-bar *c*, the stirrup *h*, connecting the loop *f* and the lever B, and the leather loop C, resting on the loop *f*, substantially as herein shown and described.

351,759. TRAIN-SIGNAL SYSTEM. ERWIN S. GRAVER, Philadelphia, Pa. Filed June 29, 1886. (No model.)



Claim.—1. In a railway-train-signaling system, an electric-receiving apparatus located in the locomotive, in combination with magneto or dynamo electric generators, one on each car, and a circuit-closing device, forming also a lever for operating the generator, substantially as and for the purpose set forth.

2. In a railway-train-signaling system, a receiving apparatus located on the locomotive, in combination with a series of generators, one on every car, and a circuit-closing device operatively connected with each generator, the said circuit-closing device having attached to it a cord which runs through the car, substantially as and for the purpose set forth.

3. In a railway-train-signaling system, a signal-receiving apparatus on the locomotive, in combination with a series of generators located one on every car, and a circuit-closing lever carrying a pawl which engages with a ratchet-wheel on the shaft of the generator, substantially as and for the purpose set forth.

4. In a magneto train-signal, the combination, with a magneto-electric generator, of a ratchet-wheel fixed upon the shaft of said generator, a lever having a hole through which passes loosely said shaft, a ratchet upon said lever and gearing into said wheel, a rectilinear spring fixed at one end to a point adjacent to said shaft and at the other end connected with said lever, and an electric circuit having terminals adjacent to said lever, which is of conducting material and normally out of contact with said terminals.

5. In a magneto train-signal, the combination, with a generator-circuit and signal therein, of coupling in said circuit, consisting of two wedge-shaped terminals, each provided at the smaller end with a circular hole and a slot, and at the larger end with a projecting pin having a head or enlarged portion, the said pins fitting into said slots, substantially as and for the purpose described.

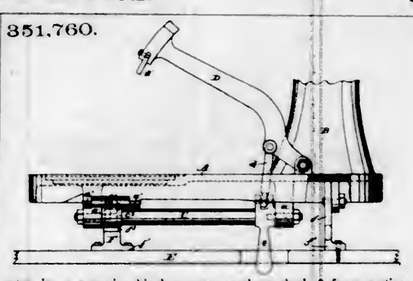
351,760. CUTTING MECHANISM FOR BUTTON-HOLE SEWING-MACHINES. JAMES G. GREENE, Elizabeth, N. J., assignor to the Singer Manufacturing Company of New Jersey. Filed Apr. 2, 1886. (No model.)

Brief.—The rock-shaft, connected by a link with a striking cutting-lever, is rigidly secured to the bed-plate, being supported by center screws passing through bangers depending from the bed-plate. By turning said shaft in the operation of cutting, its cam impinges against a cushioned block, thereby forcing the said shaft upward and slightly lifting the front side of the bed-plate from its supporting-post. The force of the blow is communicated to the cushioned block and the bed-plate relieved of the shock.

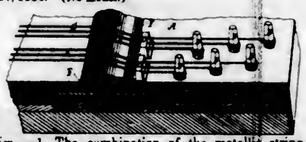
Claim.—1. In a button-hole sewing-machine, the combination, with the bed-plate thereof, a striking cutter-lever, a cutting-block, a cutter, and a rock-shaft by which the said cutter and block are operated, and which is connected with the said bed-plate, of a sustaining-block below the said bed-plate and beneath the forward end of the said rock-shaft, whereby when the said cutter is operated the force of the blow will be communicated to the said sustaining-block and the bed-plate relieved of the shock, as set forth.

2. In a button-hole sewing-machine, the combination, with the hinged bed-plate, a post for supporting the front side thereof, a striking cutter-lever, a cutting-block, a cutter, and a rock-shaft for operating said cutter and block, of a sustaining-block beneath the said bed-plate, and a cam on said rock-shaft adapted to impinge against said sustaining-block to lift the front side of the bed-plate from the said post when the cutter is operated, substantially as and for the purpose set forth.

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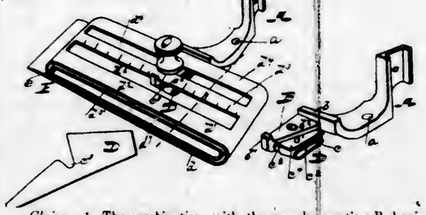
351,761. PIANO-FORTE. GEORGE M. GUILD, Boston, Mass. Filed Feb. 17, 1886. (No model.)



Claim.—1. The combination of the metallic string-frame and strings of a piano-forte, and the straining-pins and the metallic bridge of such strings, with a yielding cushion arranged on the said frame, between it and the bridge, and having the bridge borne upon it (the said cushion) by the strings, all being substantially as set forth.

2. The combination of the metallic string-frame and strings of a piano-forte, and the straining-pins, agraffes, and metallic bridge of such strings, with a yielding cushion arranged on the said frame, between it and the bridge, and having the latter borne upon it (the said cushion) by the strings, all being essentially as represented.

351,762. HEMMER FOR SEWING-MACHINES. BYRON M. GUNSTON, Oswego, N. Y. Filed Mar. 6, 1886. (Model.)



Claim.—1. The combination, with the angular portion B, having upturned ribs and a perforation, of a scroll or turner for the inner edge of the hem, having a tongue portion between its upper and lower tapered portion, and an upturned corner, c^4, said scroll being rigidly secured to the beveled edge of the portion B, substantially as described.

2. The combination of the angular ribbed and perforated portion B, and its scroll D, having an upturned corner, c^4, free open spaces on its right-hand side, and a notch, c^3, at its lower left-hand corner, the cloth-guide E, having rule-marks on one of its bars, a binding-screw, and a support on a sewing-machine for said devices, substantially as described.

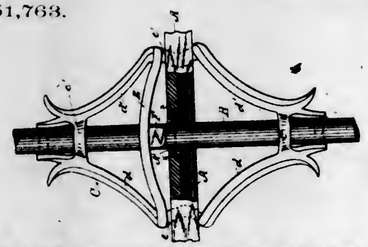
3. The combination of the angular portion B, formed with ribs *b b'*, the scroll portion D, constructed as described, with the upturned corner c^4, the slotted adjustable cloth-guide, also constructed as described, and the binding-screw C, substantially as specified.

4. The cloth-guide E, formed of a single piece, and consisting of the bottom portion, *d*, a top part, *d'*, slotted as described, a part, d^7, directly above the bottom portion, *d*, and a narrow tongue, d^8, curved at *e*, in combination with the ribbed angular portion B, having the scroll secured to it, and formed as described, and the binding-screw C, all constructed and adapted to operate substantially as specified.

351,763. METALLIC FENCE. CHRISTIAN HAMER, Springfield, Ohio. Filed May 8, 1886. (No model.)

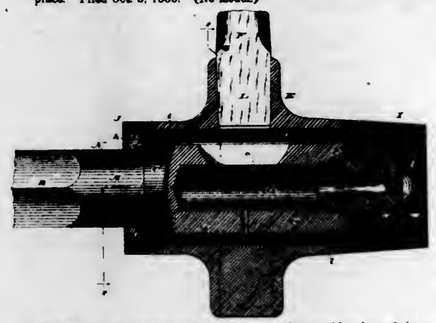
Claim.—In a rail-and-picket fastening for metallic fences, the locking device composed of the scroll or ornament having the bearings *e e'* to engage the side of the rail and the cross-bar E, extending the entire

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width of the scroll or ornament in close proximity to the face of the rail, and having the depending filling-piece to extend between the rail and picket in the opening A' in the rail, all arranged to operate substantially as described.

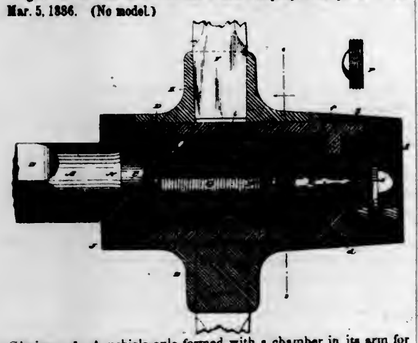
351,764. HUB FOR VEHICLE-WHEELS. J. NELSON HARRIS, New York, N. Y., assignor to the American Axle and Wheel Company, same place. Filed Oct. 3, 1885. (No model.)



Claim.—1. A vehicle-hub consisting of the combination of the tubular axle-box of gray-iron casting or equivalent rigid bearing metal, cylindrical upon its exterior, and a tubular mortise-ring of malleable metal, formed with mortises for the spokes, with its bore cylindrical and fitting the exterior of said box, and united directly thereto by being forced or shrunk thereon, whereby the two parts are intimately united in practically permanent manner, as described, and may be separated and replaced without disturbing the remainder of the wheel.

2. A vehicle-hub consisting of the combination of a tubular axle-box of gray-iron casting or equivalent rigid bearing metal, cylindrical upon its exterior, and a tubular mortise-ring of malleable metal, made shorter than said box, formed with mortises for the spokes, and with its bore cylindrical and a tight fit with the exterior of said box, and united directly to the latter by being shrunk or forced thereon, with the ends of the box projecting beyond the mortise-ring at one or both ends of the hub, substantially as set forth.

351,765. AXLE-LUBRICATOR. J. NELSON HARRIS, New York, N. Y., assignor to the American Axle and Wheel Company, same place. Filed Mar. 5, 1886. (No model.)



Claim.—1. A vehicle-axle formed with a chamber in its arm for containing a lubricant, and with a passage extending from said chamber to the exterior of the arm, in combination with a screw-propelled piston working in said chamber, and adapted, when advanced, to expel the lubricant onto the bearing-surface, substantially as set forth.

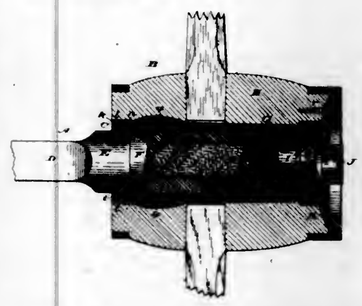
2. A vehicle-axle formed with a chamber in its arm for containing a lubricant, with a groove traversing its bearing-surface, and with a passage extending from said chamber to the exterior of the arm and entering said groove, in combination with a screw-propelled piston working in said chamber, and adapted, when advanced, to expel the lubricant through said passage and groove onto the bearing-surface, substantially as set forth.

3. A vehicle-axle formed with a chamber, G, in its arm for containing a lubricant, with a longitudinal groove, i, traversing its bearing-surface, and with a passage, A, extending from the inner end of said chamber to said groove at an angle, thereby directing the issuing lubricant toward the outer end of the arm, in combination with a screw-propelled piston, P, working in said chamber, substantially as set forth.

4. A vehicle-axle formed with a chamber, G, in its arm for containing a lubricant, with a passage extending thence to the exterior of the arm, in combination with a screw-propelled piston, P, working in said chamber, with a key for turning said piston, and with a plug, H, closing the end of the chamber, and formed with an axial hole, *j*, for the passage of the key, substantially as set forth.

5. A vehicle-axle formed with a chamber, G, in its arm for containing a lubricant, with a screw-thread traversing the wall of said chamber, and a passage leading from said chamber to the exterior of the arm, in combination with a piston, P, having screw-threads on its periphery, and adapted to screw into said chamber, substantially as set forth.

351,766. VEHICLE AXLE AND HUB. J. NELSON HARRIS, New York, N. Y., assignor to the American Axle and Wheel Company, same place. Filed Aug. 5, 1886. (No model.)



Claim.—1. A vehicle-axle having an enlarged arm and a cylindrical neck between the arm and bed of less diameter than the arm, and a sand-collar fixed on said neck, substantially as set forth.

2. An axle and a hub with a sand-collar fixed on the neck of the axle against the inner end of the hub-box, combined to form an annular grease-chamber at the junction of and bounded by said axle-box and sand-collar, substantially as set forth.

3. An axle having an enlarged arm and a neck of less diameter, a sand-collar fixed on said neck, and a hub with its box overhanging said arm and extending to said collar, whereby an annular grease-chamber is formed within the overhanging end of said box, substantially as set forth.

4. An axle having an enlarged arm and a neck of less diameter, a sand-collar on said neck with a flange projecting outwardly, and a hub with its box overhanging said arm, and with an annular groove formed in its inner end to receive said flange, substantially as set forth, whereby an annular grease-chamber is formed within the overhanging end of said box, with a tortuous annular passage leading thence to the exterior.

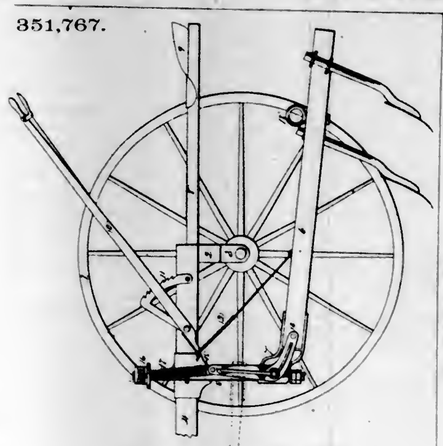
5. A hub consisting of a metal box, a wooden mortise-ring driven thereon, a flanged ring screwed on the outer end of said box against the wooden mortise-ring to hold the latter in place, a packing-washer in said ring against the end of the box, and an end cap screwing into said flanged ring against said washer, whereby the escape of oil is prevented, combined substantially as set forth.

351,767. CULTIVATOR. GEORGE P. HERRELING, Beloit, Wis., assignor to J. Thompson & Sons, (Limited,) same place. Filed Mar. 2, 1886. (No model.)

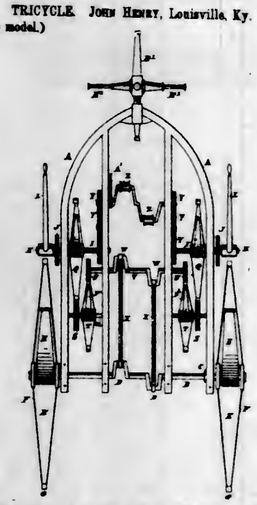
Claim.—1. The combination, with the shovel-beam and its pendant, of an angle-lever secured to the beam, a rod pivoted at one end to the upper end of the angle-lever, and having a free connection with an eye-bracket at the upper end of the pendant, and a spring surrounding said rod, substantially as described.

2. The combination, with the shovel-beam, of an angle-lever secured at one end to the beam and at its other end to a spring-supporting rod, an eye to receive the upper end of the rod, a spring surrounding the rod, and a lever and chain, substantially as described.

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351,768. TRICYCLE. JOHN HENRY, Louisville, Ky. Filed Feb. 19, 1886. (No model.)



Claim.—1. In a tricycle having wheels E, working loosely upon the axle-spindle, as above described, the scroll-springs H H between the spokes, with the inner ends secured to a permanent boss on the spindle and to the spokes of the wheel at the outer ends, substantially as described, and for the purpose set forth.

2. In a ratchet device for operating the machine, the combination of the ratchet-wheel J, lever N, pawls O and P, and arch-guide M, substantially as herein described, and for the purpose set forth.

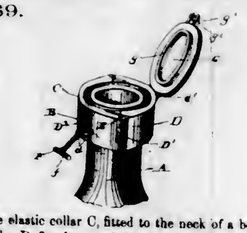
3. In a tricycle having a series of wheels for raising speed and accumulating power, the combination of the shafts I and R, the wheels Q and S and U and T, with the cranks W, pitmen X, and main axle I, substantially as described, and for the purpose set forth.

4. The combination of the wheels Y Y, adjustable treadle Z, with its eccentric boxes, and lever A', substantially as described, and for the purpose set forth.

351,769. BOTTLE-STOPPER. HERMAN HEITSCHEIT and JOHN BROWN, Council Bluffs, Iowa. Filed July 26, 1886. (No model.)

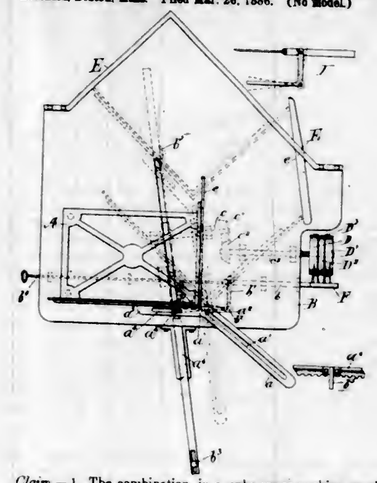
Claim.—1. The combination, with the bottle or jar having its neck provided with the projecting tenons, of the elastic collar fitted on the neck of the bottle or jar, and having the openings to receive the tenons, and the collar D, fitted over the elastic collar, and also provided with openings to receive the projecting ends of the tenons, the hinged cover, and the catch secured to the collar D, to lock the cover when closed, substantially as described.

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2. The elastic collar C, fitted to the neck of a bottle or jar, and the metallic collar D, fitted around the elastic collar and having its upper edge extended above the upper edge of the elastic collar, and the cover G, having its outer edge resting flat on the upper edge of the metallic collar, and a flange, *g*, depending from the cover, and adapted to fit in the space between the neck of the bottle and the metallic collar and rest upon the elastic collar, as set forth.

351,770. MACHINE FOR PACKING CUBE-SUGAR IN BOXES. FRANCIS C. HERSEY and HENRY D. WINTON, Wellesley, assignors to Hersey Brothers, Boston, Mass. Filed Mar. 26, 1886. (No model.)



Claim.—1. The combination, in a cube-sugar-packing machine, of a box-holder and means for automatically moving it to and from the collector, substantially as described.

2. In a cube-sugar-packing machine, a box-holder adapted to be moved automatically to the cube-collector, substantially as described.

3. The combination, in a cube-sugar-packing machine, of a box-holder, a collector, and means for moving the box-holder automatically from a position where it receives the sugar to the collector, substantially as described.

4. The combination of a table for supporting the box-holder and the collector, said box-holder, a rack carried thereby, an arm having a guiding recess or slot, a pin or stud, a^3, the plate a^2, having the slot a^4, and pin a^5, and a pinion adapted to engage said rack, substantially as described.

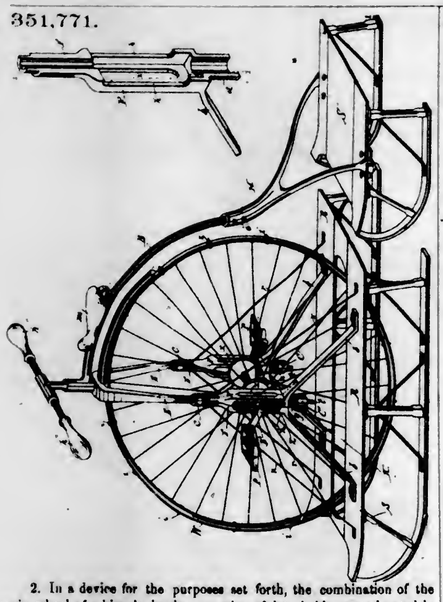
5. The combination of a table or support, a box-holder, a collector, devices for automatically moving the box-holder to the collector and for guiding it during said movement, and mechanism for stopping the movement of the operating mechanism at the end of the forward movement of the box, for the purposes described.

6. The combination of a table or support, a box-holder carried thereby, a collecting device, mechanism for automatically moving the box-holder to the collecting device, and devices for automatically stopping the action of said mechanism at the end of the backward or reverse movement of the box-holder, substantially as described.

351,771. ICE-VELOCIPEDE. GILES P. HILER, Grand Haven, Mich. Filed May 29, 1886. (No model.)

Claim.—1. In a device for the purpose set forth, the combination of the drive-wheel of a bicycle, the fork, the backbone, the sleigh detachably secured thereto, the coupling-standards, each consisting of two parts coupled together and attached to the arms of the fork and having their lower ends attached to the forward sleigh, the springs and devices for adjusting said springs, the handle for guiding and treadles for propelling said device, as and for the purposes set forth.

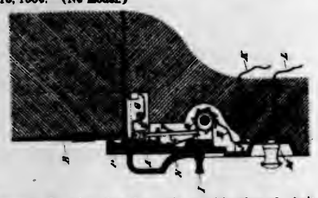
351,771.



2. In a device for the purposes set forth, the combination of the main wheel of a bicycle having a series of detachable spurs located in the concave of its periphery, the fork, the backbone, the sleigh attached to said backbone, the coupling-standards made in two parts with legs coupling said standards to the forward sleigh, the guide-stems anchored to the boxes B", the coiled wires encircling said stems, the cups screw-threaded to the necks of the standards, the caps C, and treadles for propelling said device.

3. In a device for the purposes set forth, the combination of the drive-wheel of a bicycle, the forks, its arms adapted to have vertical movement in the coupling-standards, the sleigh attached to the legs of said standards, the coupling securing said standards together, the coiled springs, the guide-rods and treadles for propelling said machine, the backbone, the seat mounted thereon, and the rear sleigh attached to the backbone, as and for the purposes specified.

351,772. BURGLAR-ALARM. JOHN W. HOFFMAN, Pullman, Ill. Filed Feb. 18, 1886. (No model.)



Claim.—1. In a burglar-alarm, the combination of a bolt, an alarm-circuit, a circuit-closer in the said circuit and located near the said bolt, means connected with the bolt for operating the circuit-closer when the bolt is withdrawn, a movable object retained in position by said bolt when pushed out, and means for returning the circuit-closer to its normal position, so placed as to be protected by said movable object and to be out of the reach of the burglar until the removal of the said object is effected, substantially as described and set forth.

2. In a burglar-alarm, the combination of the bolt A, the spring C, the ratchet-wheel D, the circuit-closing spring E, the plunger F, and the electrical circuit connected to the spring E and the ratchet-wheel D, substantially as described, and for the purpose set forth.

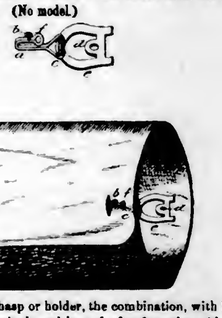
3. In a sleeping-car, the combination of a removable berth-partition, mechanism for retaining the same in position between the berths, an electric alarm-circuit, and an electrical make and break in said circuit controlled by said mechanism as the latter passes to and from its retaining position, substantially as described and shown.

4. In a sleeping-car, the combination of a movable berth-partition an alarm, a circuit therefor passing to the vicinity of the partition, an electric make and break with the partition, whereby movement of the partition cannot be effected without changing the electrical condition of said circuit, substantially as described and shown.

5. In a sleeping-car, the combination of a movable berth-partition, an alarm, a normally-open electrical circuit connected therewith, mechanism for retaining the partition in its place, a circuit-closer in the said alarm-circuit, means connected with the said mechanism for operating the circuit-closer as it passes from its retaining to its normal position, and means for opening the circuit-closer, substantially as shown and described.

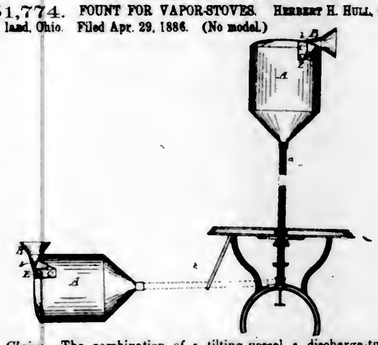
6. In a sleeping-car, the combination of a movable berth-partition, a bolt mounted in the frame-work of the car, which, when pushed out, serves to retain the said partition in position, an alarm-circuit, a circuit-closer in said circuit placed in the vicinity of said bolt and operated by it to close the alarm-circuit when the bolt is withdrawn from its retaining position, and means for returning the circuit-closer to its normal position, said means being so placed as to be protected from access by the said partition, until the same has been displaced, substantially as described and shown.

351,773. CUFF-HASP. JOHN W. HOLLINGSWORTH, Los Angeles, Cal. Filed Mar. 20, 1886. (No model.)



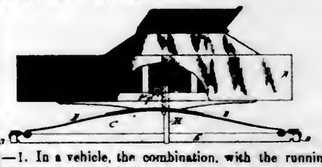
Claim.—In a cuff hasp or holder, the combination, with hook *a*, provided with a locking-knob, *b*, and loop *f*, of a face-piece hinged to said hook and provided with an apertare, *d*, to co-operate with the locking-knob, substantially as set forth.

351,774. FOUNT FOR VAPOR-STOVES. HERBERT H. HULL, Cleveland, Ohio. Filed Apr. 29, 1886. (No model.)



Claim.—The combination of a tilting vessel, a discharge-tube in the bottom thereof, a filling-neck opening through the side, a branch tube, through which the neck communicates with the vessel, a valve-seat in the end of said tube, and a ball-valve closing said tube when the vessel is upright and opening the vessel when tilted, substantially as described.

351,775. SPRING-VEHICLE. WILLIAM JOHNSTON, Menominee, Mich. Filed June 29, 1886. (No model.)



Claim.—1. In a vehicle, the combination, with the running-gear, a body, and the springs intermediate of the body and gear, of the vertically-disposed guide-bars arranged on opposite sides of the body and passing through the same, substantially as described, for the purpose set forth.

2. In a vehicle, the combination, with a body, the running-gear, and the intermediate springs, of the vertically-disposed guide-bars connected to the running-gear and passing through the body on opposite sides thereof, and the wheels in contact with the sides of the said guide-rods, substantially as described, for the purpose set forth.

3. In a vehicle, the combination, with a body, the running-gear, and the intermediate cushion-springs, of the vertically-disposed guide-rods carried by the running-gear and passing through the body within the vertical sides of the same, and the wheels arranged within the body and in contact with the sides of the same, substantially as described.

4. In a vehicle, the combination, with the running-gear, a body, and the intermediate springs, of the vertical guide-bars having the racks and connected to the running-gear, and passing through the body on opposite sides thereof, and the toothed or gear wheels, which mesh with the racks on the said bars, substantially as described.

5. In a vehicle, the combination, with a body, the running-gear thereof, and the intermediate springs, of the vertical guide-bars having the racks, and pivotally connected to the running-gear, and passing through the body, and a shaft journaled on the body and carrying the toothed wheels which mesh with the racks on the guide-bars, whereby when the body descends under the weight of its load the guide-bars will rotate the shafts and its wheels to maintain the body in a horizontal position, substantially as described.

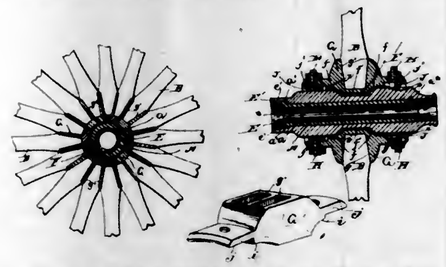
6. The combination, with the body, springs, and running-gear of a vehicle, of a shaft carrying rigid pinions and secured to the vehicle-body, and a corresponding number of racks secured to the running-gear, substantially as set forth.

7. The combination, with the body, springs, and running-gear of a vehicle, of the rack-bars H, shaft F, and pinions *f*, substantially as described.

8. The combination, with the running-gear and body of a vehicle, of guide-bars mounted in the running-gear and working through the body, as set forth.

9. The combination, with the two shafts F, having two pinions, *f*, on each side of the wagon-bottom, of the rack-bar H, having teeth on each side and engaging with both rack-bars, as set forth.

351,776. HUB. GEORGE W. JONES and FURNEY F. GREEN, Comanche, Tex. Filed June 9, 1886. (No model.)



Claim.—1. The combination of a hub having a seat on its periphery, the adjustable sections fitted on the seat of the hub and adapted to receive the spokes, the threaded studs affixed to the hub, and the adjustable nuts fitted on the studs and bearing against the adjustable sections, substantially as described, for the purpose set forth.

2. The combination with a hub provided with a seat on its periphery, and the independently adjustable sections for the reception of the spokes fitted on the hub and its seat, substantially as described.

3. The combination of a hub having a peripheral seat, the independently-adjustable sections fitted on the hub and the seat thereof, and having their opposing faces inclined or beveled, the threaded studs passing through the sections, and the rotary nuts for adjusting the sections, substantially as described.

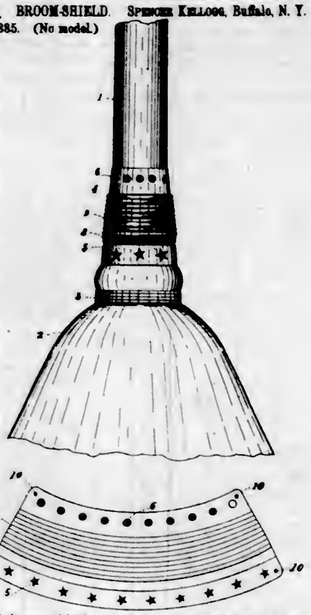
4. The combination of a hub having the peripheral seat and the threaded pins, the mortise-sections fitted on the hub, and the nuts for adjustably securing the sections on the pins, substantially as described.

5. The combination of a hub having the peripheral grooved seat, the mortise-sections having the tongue fitted in the seat, the threaded pins or studs passing through the mortise-sections, and the nuts fitted on the pins and bearing against the mortise-sections on opposite sides thereof, substantially as described.

6. The combination of the hub having the peripheral seat, the radial mortise-sections segmental in form and having the tongue fitted on the seat of the hub, the threaded pins, and the nuts, substantially as described.

7. The combination of the hub having the circumferential groove-seat intermediate of its ends, the radial segmental mortise-sections having the central tongue and the reduced edges, the threaded radial pins on the hub and passing through openings in the reduced edges of the mortise-sections, and the nuts I J on the pins and bearing against the mortise-sections, substantially as described.

351,777. BROOM-SHIELD. SPENCER KELLOGG, Buffalo, N. Y. Filed Dec. 16, 1885. (No model.)



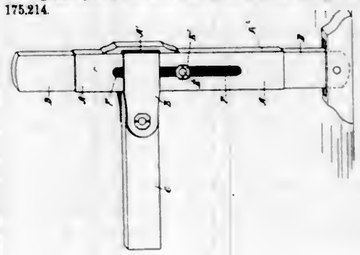
Claim.—A broom-shield consisting of a metallic blank having longitudinal ribs or corrugations 9, a series of perforations, 6, near the upper edge, a groove or recess for the reception of wire below the ribs, and a series of star-shaped perforations near the lower edge, with the raw edges of said perforations projecting inward, and adapted to bite into the straw of the broom and hold the shield in place, substantially as described.

351,778. BALMORAL-SHOE UPPER. PETER KELLY and JOSEPH KELLY, Hagersville, Ontario, Canada. Filed Mar. 5, 1886. (No model.)



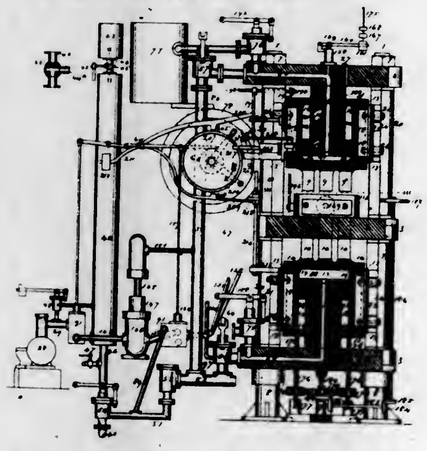
Claim.—As an improved article of manufacture, an upper for Balmoral shoes, cut in one piece in the form shown, with a V-shaped cut, B, in the upper part of the vamp D, and a diagonal slit, *a*, extending from the bottom of said V-shaped cut toward the front, and the curve *c d* on the upper end of the quarter C, to correspond to the curve *c f* on the vamp when bent over on the line E, the vamp being bent on the slit *a* and line *i i*, and the vamp and quarter adapted to be united on the inner side by stitching or rivets, and completed in the ordinary way, substantially as described.

351,779. SLIDING TUG-STRAP HOLDER FOR POWER-LOOMS. THOMAS KENDRAY, Sarnia, Ontario, Canada, assignor of one-half to George N. Matheson, same place. Filed Feb. 6, 1886. (No model.) Patented in Canada Mar. 9, 1886, No. 23,576; in England Mar. 18, 1886, No. 3,819; in Belgium Apr. 15, 1886, No. 72,636, and in France Aug. 10, 1886, No. 175,214.



Claim.—The combination, with the rod C, the tug-strap B, the picker-staff D, formed with an aperture, D', a securing-bolt, E, formed with an enlarged head, and nut E', of a slide, A, having a flange, A^2, a slot, A', to receive the tug-strap, and a vertical slot, F, for the reception of the securing-bolt, the slide being thereby rendered vertically adjustable, substantially as and for the purpose hereinbefore set forth.

351,780. BRICK-MACHINE. JULIUS J. KOCH and VALENTINE THEN, St. Louis, Mo. Filed Aug. 3, 1885. (No model.)



Claim.—1. In a brick-machine, the combination, with an open charger, of an independently-movable distributer supported within said charger, substantially as set forth.

2. In a brick-machine, the combination, with a charger open at top and bottom, of the distributing-bar 129, rods 130, supporting it within the charger, rock-shaft 132, having arm 131, to which said rods 130 are connected, and arm 134, operated by the movement of the die-cylinder, substantially as set forth.

3. The combination of the charger 113, bar 129, rods 130, arms 131 and 134, rock-shaft 132, a weighted bar, 135, passing between springs of the arm 134, and suspended on a cord coiled on the ratchet-wheel 140, and a dog, 141, released from the ratchet-wheel by the movement of the die-cylinder, for the purpose set forth.

4. The combination of the charger 113, bar 129, rods 130, arm 131, arm 134, composed of parallel springs, arm 133, roller 228, weighted bar 135, with suspending-cord 139, coiled on ratchet-wheel 140, and dog engaging the teeth of the ratchet-wheel and released therefrom by connection with the lower die-cylinder.

5. In a brick-machine, the combination, with a fixed plunger having an enlarged piston-head and a cylinder surrounding said piston-head and plunger, whereby a chamber is formed upon each side of said head, of ducts or passages through said plunger communicating with both chambers, and valves for controlling the ingress and egress of fluid to and from each of said chambers, substantially as set forth.

6. In a brick-machine, the combination, with a piston having a fixed plunger, of a cylinder consisting of a body open at both ends, a perforated head surrounding the plunger, and a head having the dies, substantially as set forth.

7. In a brick-machine, the combination, with the corner-standards and a movable cylinder carrying the dies, of the guide-wings projecting from said cylinder and bearing against said corner-standards, substantially as set forth.

8. The combination of cylinder-body 12, guide 22, guide-plate 23, and removable distance-piece 25, substantially as and for the purpose set forth.

9. The combination of a die-cylinder working on a fixed plunger, the said plunger having a head, as 17, separating the cylinder-space into two chambers, one having whole cylinder-area and the other of which is an annular chamber surrounding the body of the plunger.

10. The combination, with the hydraulic die-cylinder of a brick-press, of an eduction-passage from the water-chamber of the cylinder, and a device on the other die-cylinder of the press opening said valve when the cylinders have gained a given proximity.

11. An eduction-passage from the water-chamber of a hydraulic cylinder of a brick-machine, an upright cylinder with whose interior the eduction-passage communicates, a plunger working water-tight in said cylinder and connected to a weighted lever, and an alarm-bell which is sounded on the upward movement of the plunger.

12. The combination of a plunger working in an upright cylinder and connected to a weighted lever, bell-hammers actuated by said lever in its upward movement, and a series of weights taken up one after another by the lever in its ascent.

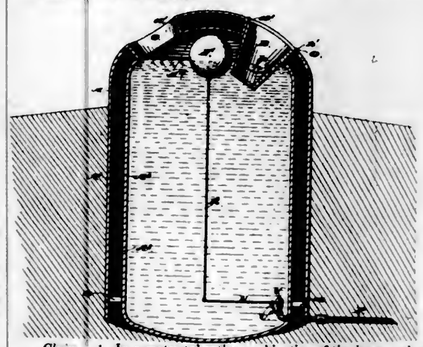
13. A cylinder, a plunger working in water-tight packing of the cylinder and connected to a weighted lever, with a series of weights supported in the ascending course of the lever, so as to be taken up one after another and by the lever as it ascends, and a catch-rod to each lever constructed to elevate and then release a bell-hammer as said weight ascends.

14. The combination, in a brick-machine, of a cam-shaft, operating-valves, and a water-wheel actuating said shaft when relieved from detents acting on wheel or arm on the cam-shaft.

15. In a brick-machine, the combination, with a cam-shaft and means for rotating it when not engaged, of a detent for engaging said shaft automatically actuated by the machine, whereby its rotation is alternately permitted and prevented at intervals, substantially as and for the purposes set forth.

16. The combination, with a shaft carrying valve-operating cams, of arms 201 and 202, and an arm oscillated with the movement of the charger and carrying a detent-ledge, 200, substantially as and for the purpose set forth.

351,781. WATER-TUBE. WESLEY KOONS, Solomon City, Kans. Filed June 26, 1886. (No model.)



Claim.—1. In a water-tube, the combination of the inner and outer walls having an air-compartment formed between them, a suitable automatically-operated water-supply, and removable drinking-buckets situated in openings in the top portion of the tube, substantially as described.

2. In a water-tube, the combination of the inner and outer walls having an air-compartment formed between them, the said outer wall extending downward to near the bottom of the inner wall and forming an opening for the passage of air, a suitable automatically-operated water-supply, and removable drinking-buckets having feed-apertures situated in openings in the top portion of the tube, substantially as described.

3. In a water-tube, an inner and outer wall, said inner wall being constructed as a closed compartment, and forming a reservoir having a dome-shaped top and bottom, the outer wall connected to the inner wall and open at its lower portion, and circular walls forming the openings for the reception of the buckets connecting the inner and outer walls, said walls having a space left between them for the circulation of air, substantially as described.

4. In a water-tube, the combination of the internal and external walls having an air-space formed between them, an automatically-operated water-supply adapted to feed water to the reservoir formed by the internal wall, removable drinking-buckets having apertures arranged at suitable distances above the bottoms thereof, and guards on the exterior surface of the dome adjacent to the flanges of the buckets, substantially as described.

351,782. PNEUMATIC GRAIN-ELEVATOR. JOSEPH LEWIS, South Evanston, Ill. Filed Feb. 13, 1886. (No model.)

Claim.—1. The combination, with the elevating-tube of a pneumatic grain-elevator, of the agitating feed-hopper, substantially as specified.

2. The combination of a blast-conduit, an agitating feed-hopper located at the end of said blast-conduit, and an elevating-tube, substantially as specified.

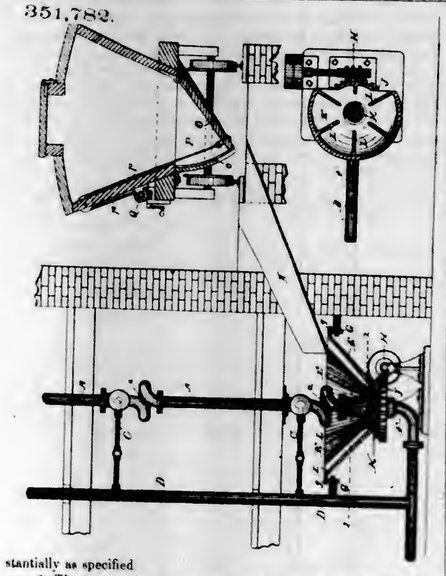
3. The combination, with the blast-conduit and the elevating-tube, of the hopper having internal ribs, and mechanism for rotating the hopper, substantially as specified.

4. In a pneumatic elevator, an elevating-tube having relays or bends formed therein, substantially as and for the purpose set forth.

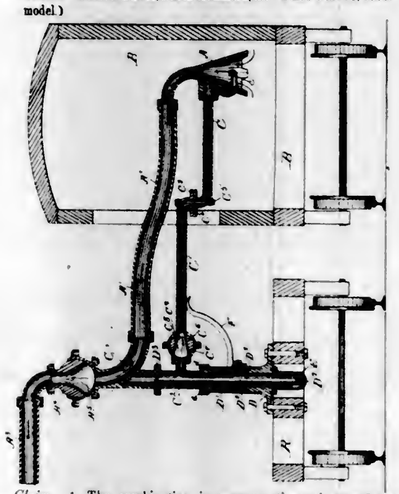
5. In a pneumatic elevator, the elevating-tube having relays or bends formed therein, in combination with auxiliary blast-supplying pipes, substantially as specified

6. The pneumatic elevator consisting of the agitating-hopper, the elevating-tube provided with relays or bends, and the blast-supplying conduit opening through the middle of the hopper, substantially as specified.

351,782.



351,783. PNEUMATIC APPARATUS FOR TRANSFERRING GRAIN. JOSEPH LEWIS, South Evanston, Ill. Filed Feb. 13, 1886. (No model.)



Claim.—1. The combination, in a pneumatic grain-transfer apparatus, of the grain-pipe A^6 A^7 and nozzle A, made of metal and connected by flexible joints, as set forth, with the air-pipe C c and its flexible or hose connections C^{30}, substantially as specified.

2. The combination, with the inlet-nozzle and the air-jet and their connecting-pipes, of the counterbalance-weight, substantially as specified.

3. The combination, with the inlet-nozzle and jet and their connecting-pipes, of the rotative post, to which said pipes are joined, substantially as specified.

4. The combination, with the inlet-nozzle and jet and their connecting-pipes, of the post to which said pipes are joined, said post forming part of the air-conduit supplying the jet, substantially as specified.

5. The combination, with the post, of the grain-pipe A^6 A^7, pivoted to the post at A^{30}, and the hose-section A^5, connecting said pipe to the discharge-pipe, substantially as specified.

6. The combination, with the car R, of the post supporting both grain and air pipes, as set forth, and an air-compressing engine connected to said air-pipes, substantially as specified.

7. The combination, with a rotative post, of the globe-jointed discharge-conduit, substantially as specified.

8. The post C^9, the grain-feed pipe, and the grain-discharge pipe communicating with said feed-pipe and joined to the post by a globe-joint, in combination with blast-producing apparatus, substantially as specified.

9. In a pneumatic transfer grain apparatus, a rigid horizontal grain or air pipe pivotally joined to its support, so as to swing up and down, and consisting of two or more flexibly-joined sections, in combination with a companion air or grain pipe, substantially as set forth.

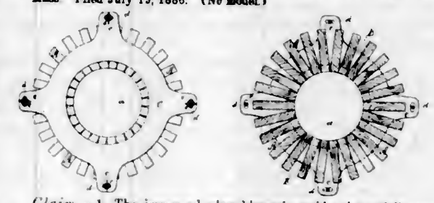
10. In a pneumatic transfer grain apparatus, a rigid horizontally-projecting grain or air pipe embodying one or more flexible joints, in combination with a flexible companion air or grain pipe supported by said rigid pipe, substantially as set forth.

11. In a pneumatic grain-transfer apparatus, a rigid horizontally-projecting grain or air pipe pivotally joined to its support, so as to be capable of up-and-down motion, and a companion air or grain pipe, in combination with a flexibly-joined inlet-nozzle and air-jet, substantially as set forth.

12. The grain-pipe shown, consisting of metal sections united by flexible joints, one of said joints being a horizontal face-flange joint to give horizontal movement, and another a globe-joint, substantially as set forth.

13. In pneumatic grain-transfer apparatus, the combination, with a rigid horizontal grain-pipe and its support, of the pendulous pipe A, suspended from said horizontal pipe by a globe-joint allowing it to swing in any direction, substantially as specified.

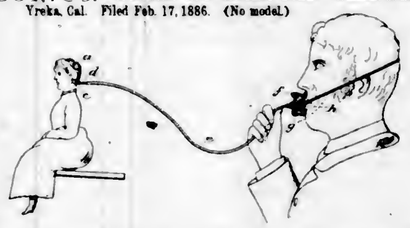
351,784. GLASS-BLOWER'S MOLD. GEORGE H. LOMAX, Somerville, Mass. Filed July 19, 1886. (No model.)



Claim.—1. The improved glass-blower's mold, substantially and for use as described, consisting of the two clamping-rings and their screw-bolts and nuts, and the series of boards meeting together at the sides of their inner edges and arranged in radial directions between the said rings, as set forth.

2. The improved glass-blower's mold, substantially and for use as described, consisting of the two clamping-rings, their screw-bolts and nuts, and the series of boards meeting together at the sides of their inner edges, and arranged in radial directions about and from a common axis or center, and having springs at their ends, to operate essentially as set forth.

351,785. SPEAKING AND SINGING DOLL. WILLIAM J. LYND, Yreka, Cal. Filed Feb. 17, 1886. (No model.)



Claim.—The combination, with a doll, of the section or trumpet-mouthed tube *b*, placed in the head of the doll and opening at its mouth, the tube *e*, having the hood or cover *f* for placing over the operator's mouth, the mouth-piece *h*, and securing-cord *g*, all substantially as and for the purpose set forth.

351,786. AUTOMATIC CAR-BRAKE. ALBERT P. MASSEY, Watertown, N. Y., assignor to the Eames Vacuum Brake Company, same place. Filed June 21, 1886. (No model.)

Claim.—1. In a car-brake operated by fluid-pressure, a valve actuated by two pistons or diaphragms connected to the valve at different angles, so that the effective leverage of one piston or diaphragm will decrease and the effective leverage of the other piston or diaphragm will

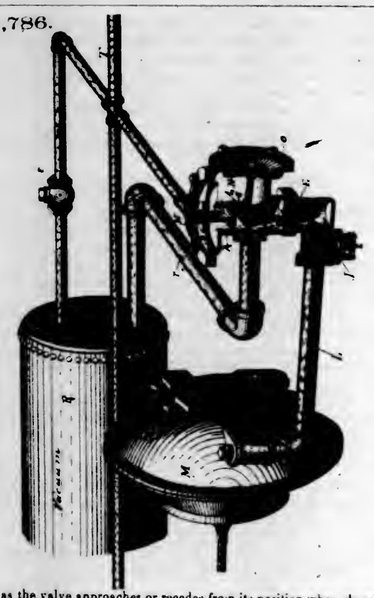
351,786.

Claim.—The combination of the body A, having the cars E arranged

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Claim.—1. The combination, with a lawn-mower having perforated

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increase as the valve approaches or recedes from its position when closed, substantially as set forth.

2. In a car-brake operated by fluid-pressure, the diaphragms D and H, in combination with the lever *g* and the fulcrum f^2, for actuating a valve regulating the flow of air to or from a brake cylinder or diaphragm.

3. In a car-brake operated by fluid-pressore, the diaphragms D and H, in combination with bell-crank G and fulcrum f^2, actuating a valve regulating the flow of air to or from a brake cylinder or diaphragm.

351,787. POCKET-KNIFE. GEORGE W. MILLER, Meriden, Conn. Filed Dec. 10, 1885. (No model.)

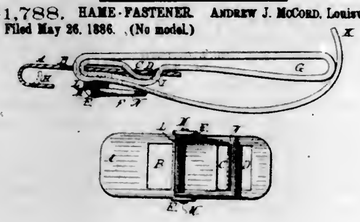


Claim.—1. In combination, in a double-ended knife, the handle formed of the side parts, *a*, the diagonal spring *d*, having a thin central portion between the two pins *e*, that support the spring between the side parts, the said pins extending but part way through the sides, and the blades *b* and c, pivoted to opposite ends of the handle by rivets *b'* and *c'*, respectively, and folding into the blade-sockets on the opposite edges of the handle, all substantially as described.

2. In a double-ended knife, the combination of the side parts, *a*, the blades *b c*, pivoted to the opposite ends of the handle and closing into sockets in opposite edges thereof, and the diagonal spring *d*, held crosswise between the blades, and having a yielding central part between the pins *e*, that form its supports, and having also rigid end parts beyond these pins, and the pins *e*, all substantially as described.

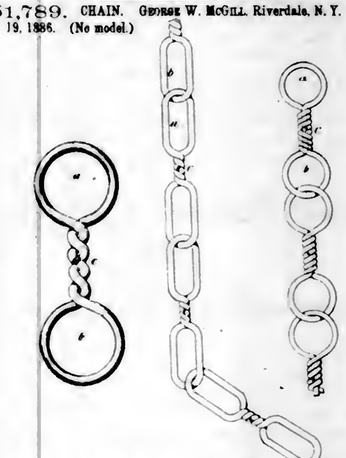
3. In a double-ended knife, in combination with the side parts, *a*, of the handle, the diagonal spring *d*, having its central portion only elastic, and two points of support beyond this yielding part, the pins *e*, that support the spring on the side parts of the handle, and the blades *b* and c, pivotally attached to opposite ends of the handle and closing into sockets on opposite edges of the handle, respectively, each blade having the kick or point of contact with the spring opposite one of the pins *e*, whereby a positive stop is formed, all substantially as described.

351,788. HAME-FASTENER. ANDREW J. MCCORD, Louisville, Ky. Filed May 26, 1886. (No model.)



Claim.—The combination of the body A, having the ears E arranged centrally thereof, and the tongue F, comprising the frame N, having its arms pivoted at M in the said ears E, and the cross-bar L, located to one side of the plane of the said frame N, and eccentric from the pivots M, the said body having the wide slot B at one side of the line of said ears, and the two narrow slots C and D at the other side of the said line of ears, whereby the body of the strap when placed in the three slots, as shown, will overlap its end I and hold the same, and whereby the tongue F will rigidly hold both ends of the strap when closed upon them, as specified.

351,789. CHAIN. GEORGE W. MCGILL, Riverdale, N. Y. Filed Jan. 19, 1886. (No model.)



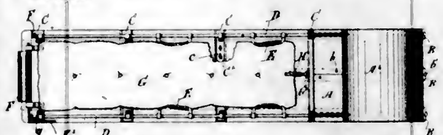
Claim.—1. A chain-link made of a single piece of wire, consisting of the eyes *a b* and the intermediate twisted neck, c, as set forth and shown.

2. A chain-link made of a single piece of wire bent to form the eyes *a b*, connected together by the central part of the wire blank, the ends of the wire terminating in a spiral twist around and with the central part of the wire connecting the eyes, as set forth and shown.

3. A chain-link made of a single piece of wire bent to form the eyes *a b*, connected together by the central part of the wire blank, each end of the wire terminating in a coil around the central part of the wire connecting the eyes, as set forth, and shown in Fig. 4.

4. The combination of two or more chain-links, each made of a single piece of wire, consisting of eyes *a b* and the intermediate twisted neck c, to form a chain, as set forth and shown.

351,790. TOBOGGAN. JAMES PATON, Montreal, Quebec, Canada. Filed Mar. 17, 1886. (No model.) Patented in Canada Jan. 19, 1886, No. 23,137.

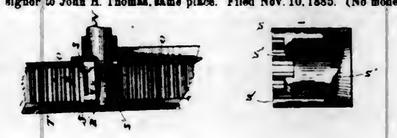


Claim.—1. A toboggan composed of the body or carrying part A, separate head A', and stripe B B B, connecting same, all as herein set forth.

2. In a toboggan, the combination, with the longitudinals, of crossbars secured thereto by screws passing up through slots in same, as and for the purposes set forth.

3. The cushion of a toboggan, secured thereto by rings passing over the rear ends of the side rods, and a strap passing through a ring attached to the front cross-bar to hold front end in place, all as herein set forth.

351,791. LAWN-MOWER. CHARLES H. PAXSON, Springfield, Ohio, assignor to John H. Thomas, same place. Filed Nov. 10, 1885. (No model.)



Claim.—1. The combination, with a lawn-mower having perforated lugs projecting from the upper rear portion of the frame, of a crate having at its rear end a rod to be adjustably connected with the mower-handle, and constructed of wire-netting, gradually increasing toward and to a point near the rear end, and provided with border-wires at the top and bottom and transverse stiffening-wires, the upper border-wires terminating in inwardly-projecting ends which fit said lugs.

2. In a lawn-mower, the combination, with the reel-shaft, of the clutch mechanism mounted thereon, the hub of the mechanism being constructed with a pinion-like periphery, the teeth of which extend to the inner face of the wheel of the machine.

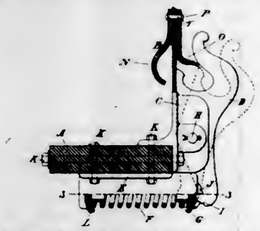
3. In a lawn-mower, a clutch-pinion having its teeth at one end projected beyond the clutch-surface.

351,792. BUTTON. CARL A. PFENNING, Barmen-Rittershausen, Prussia, Germany. Filed July 19, 1886. (No model.)



Claim.—The shank for buttons, consisting of the cylindrical ring c, with its upper rim bent outward, the stuff piece *l*, and the flanged cap *k*, the whole combined substantially as described and illustrated.

351,793. DRAW-HOOK FOR STREET-CARS. AUGUST RAPP, Pullman, assignor to George M. Pullman, Chicago, Ill. Filed Feb. 10, 1886. (No model.)

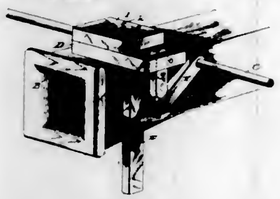


Claim.—1. In a street-car, the combination of a pivoted lever provided with a draft-hook at one end, a spring mounted between sliding head-blocks, and a guideway for said head-blocks, the rear end of said lever resting upon one of the head-blocks and tending to compress the spring under the draft-strain.

2. The combination of lever D, provided with a draft-hook, pivot H therefor, attached to the front of the car, guide-pieces E E, bolted to the bottom, and spring F and head-blocks L G therefor, moving between said guide-pieces, said spring receiving and equalizing the effect upon the car of the draft-strain, substantially as described and shown.

3. The combination, with a draft-hook, of a catch for closing the entrance to the same on the outside of the dash-board of the car, a handle inside of the dash-board, and a bolt passing through the dash-board and rigidly connected to both the catch and the handle, whereby the catch can be moved to and fro from the inside of the dash-board, substantially as described and shown.

351,794. CAR-COUPLING. WILLARD V. REED, Lowville, N. Y. Filed Sept. 15, 1886. (No model.)



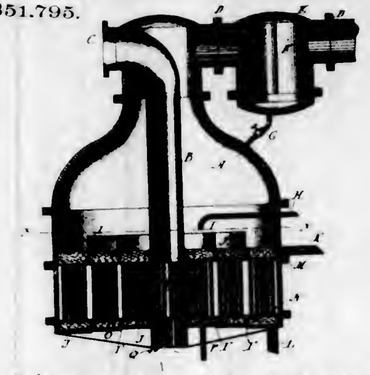
Claim.—1. The combination, with the draw-head, of the vertical bar E, working in guides therein, the plate D, carried by said bar, the coupling-pin carried by said plate, and means for raising and lowering said plate, substantially as described.

2. The combination, with the draw-head and the vertically-moving plate D, of the coupling-pin and a cap on said plate provided with a dog to engage the head of the pin, substantially as described.

351,795. VACUUM EVAPORATING APPARATUS. NATHANIEL B. RICE, Chicago, Ill. Filed Jan. 30, 1886. (No model.)

Claim.—1. In an evaporator, the combination, with the partition-plates I I', of the vertical tubes *a b*, arranged within the said partition-plates, substantially as described.

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2. In an evaporator, the combination, with the plates M and N, having a liquid-space above and below the same, respectively, of vertical tubes *a b*, whereby a vertical circulation of the contained fluid is produced, substantially as described.

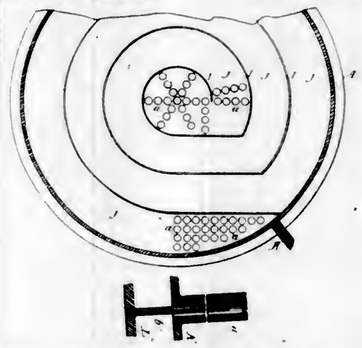
3. The plate O, having partitions I', forming the lower part of the channel, of an increasing depth toward the exit or discharge, substantially as specified.

4. The combination of a feed-tube with the circulating-channel J and an outlet-tube, whereby the liquid fed in is caused to traverse the evaporator to the point of discharge, substantially as specified.

5. The combination and arrangement of the shell A, feed-tube H, partitions I I', channeled base-plate O with the steam-tube B and liquid-tubes *b*, substantially as and for the purpose specified.

6. In an evaporator, the channel J, composed partly of tubes passing through a heating-space, substantially as specified.

351,796. EVAPORATOR. NATHANIEL B. RICE, Chicago, Ill. Filed Jan. 30, 1886. (No model.)



Claim.—1. The combination of the division plate or plates I with the plate K, whereby the liquid is caused to move and traverse the channel J, substantially as specified.

2. The combination, with the outer case or shell, A, of the feed-tube F, the continuous spiral channel J, beneath said feed-tube, and a discharge-pipe communicating with said channel, substantially as described.

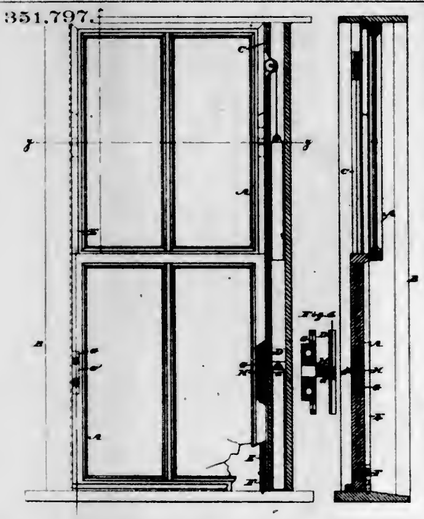
3. The combination, with the outer case, A, of the feed-tube F, the the continuous spiral channel J, the vertical heating-tubes *a*, arranged within said channel, the steam-tubes *b*, and plates M and L, substantially as described.

351,797. WINDOW-SASH. WALTER W. RICHARDS, Philadelphia, Pa. Filed Feb. 11, 1886. (No model.)

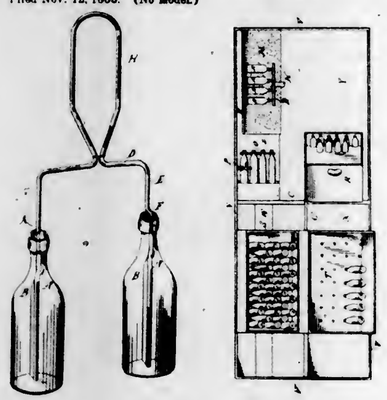
Claim.—1. The sash A, in combination with the plates G, having detachable front parts, G', and provided with sockets, the grooved casting D, with pivot H, and cords carrying weights, the cords being secured in the grooves of said casting D, all substantially as and for the purpose set forth.

2. The sash A, in combination with the plate G, having detachable front piece, G', and a horizontal socket, the grooved casting D, with pivot H and cross-piece *a*, and a cord having a weight attached thereto, all substantially as described.

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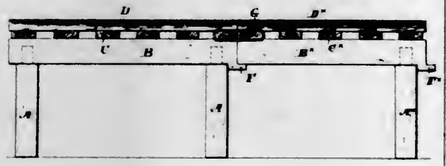
351,798. BOTTLE-CLEANER. ROBERT ROBINSON, Brooklyn, N. Y. Filed Nov. 12, 1885. (No model.)



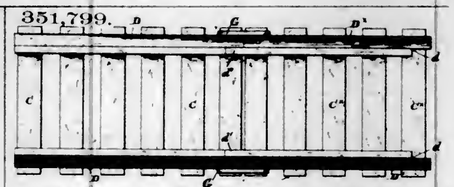
Claim.—1. The frame D, having dependent arms integral therewith, the said arms being bent torsionally at locations above their respective longitudinal centers, and adapted to hold thereon by frictional contact the blades B, formed as shown and described, in combination with such blades or planers, for the purpose specified.

2. The frame D, having dependent arms integral therewith, the said arms being bent torsionally at locations above their respective longitudinal centers, and adapted to hold thereon by frictional contact the blades B, formed as shown and described, and the blades or planers B, in combination with the board N, whose surface is covered with a suitable cleansing medium, whereby the cleaning of the bottles interiorly and exteriorly is simultaneously effected by the same manual operation, for the purpose set forth.

351,799. TOY RAILROAD. LOUIS HUELIUS, Philadelphia, Pa. Filed May 22, 1886. (No model.)



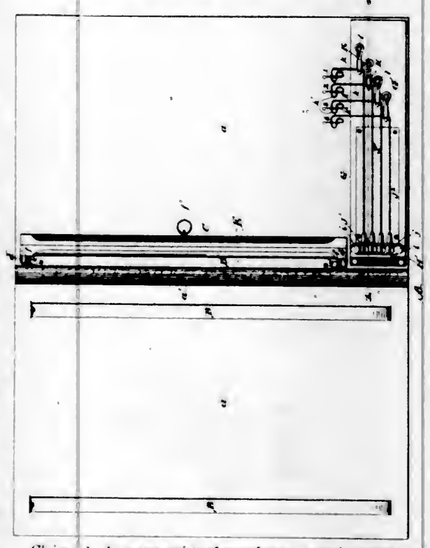
351,799.



Claim.—1. As an article of manufacture, a toy railroad composed of sections, each of which is formed of permanently-united rails, cross-ties, and stringers, the rail ends of each section, except the first, being at one end flanged and adapted to extend over and lie within a seat formed therefor in the meeting-rail ends of the preceding section and rest upon the end tie of said preceding section and their other ends, and one end of the rails of the first section being cut away to in turn receive the flanges of the rails of the next section, and temporary connection between adjoining sections being secured by gum bands applied thereto, substantially as set forth.

2. As an article of manufacture, a toy railroad composed of sections, each of which is formed of permanently-united rails, cross-ties, and stringers, the stringers being provided with mortises for the reception of tenon-provided pedestals, four of which pedestals may be applied to the first section of track and two to each succeeding section, the rail ends of each section, except the first, being at one end flanged and adapted to extend over and lie within a seat formed therefor in the meeting-rail ends of the preceding section and rest upon the end tie of said preceding section, and their other ends and one end of the rails of the first section being cut away to in turn receive the flanges of the rails of the next section, and temporary connection between adjoining sections being secured by gum bands applied thereto, substantially as set forth.

351,800. MUSIC-LEAF TURNER. JAMES R. SAYE, St. John, New Brunswick, Canada, assignor of one-third to George A. Knodell and Richard Rodgers, same place. Filed Mar. 20, 1886. (No model.)



Claim.—1. As a new article of manufacture, a music-portfolio consisting of the connected foldable leaves, a rigid strip carried by one of the leaves, a laterally-movable strip arranged parallel with the rigid strip, the bracket secured to the rigid strip for guiding the movable strip, and the springs interposed between lips of the brackets, and the movable strip to force the latter toward the rigid strip, substantially as described, for the purpose set forth.

2. In a music-portfolio, the foldable leaves having a rigid strip provided with guide-grooves, in combination with a laterally-movable strip, the brackets carried by the movable strip and having the studs and coiled springs encircling the studs, substantially as described.

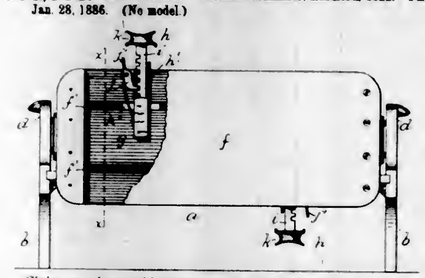
3. In a music-leaf turner, the combination of a series of pivoted swinging arms, each having a right-angled lip, *k*, arranged alongside of and out of contact with each other when the device is in use, a spring

connected to each arm, and an independent clamp for each arm arranged in line therewith to engage the end *k* and out of the path of the adjoining arms, substantially as described, for the purpose set forth.

4. The combination of a series of independent swinging arms, each having a grooved hub at one end and a right-angled lip, *k*, at its opposite end, a common shaft passing through the hubs of all the arms, the coiled retractile springs, the cords intermediate of the springs and hubs of the arms for actuating the latter, and an independent clamp for each arm arranged in line therewith to engage the lip *k* thereof and out of the path of the adjoining arms, substantially as described, for the purpose set forth.

5. A swinging carrying arm for leaf-turning devices, having a bent end or lip, *k*, formed into a loop, *k'*, and a binding-arm, *k²*, arranged transversely and to one side of the loop to clamp the leaf between the loop and arm, substantially as described, for the purpose set forth.

351,801. HEAD-REST. WILLIAM SCHILLING, Hartford, Conn. Filed Jan. 28, 1886. (No model.)



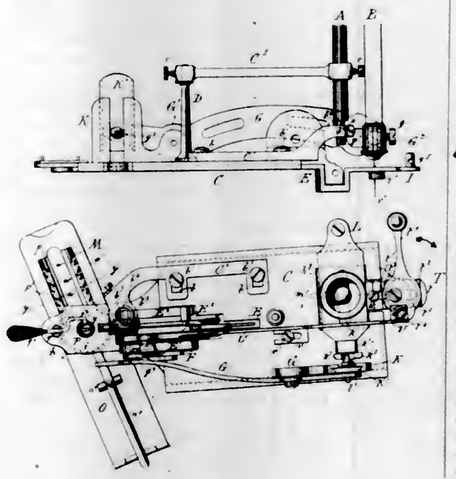
Claim.—1. In combination, a seat-back having a groove or mortise, *g*, a rest supported by and longitudinally adjustable in the groove and bearing a vertically-adjustable standard, *i*, and a spring clamp or latch, all substantially as described.

2. In combination, a seat-back, *f*, having the mortise or groove *g*, the laterally-adjustable rest *h*, held in the groove *g* by the lug h^2, projecting into the groove *f'*, and the standard *i*, borne in the body part *h'*, and having the cross-bar or head-rest *k*, all substantially as described.

3. In combination, a seat-back, *f*, having the mortise or groove *g*, the laterally-adjustable rest *h*, held in the groove *g* by the lug h^2, projecting into the groove *f'*, the standard *i*, borne in the body part *h'*, and having the cross-bar or head-rest *k*, and the spring latch or clamp *j*, all substantially as described.

351,802. BUTTON-HOLE ATTACHMENT FOR SEWING MACHINES. WILLIAM SCHOTT, New York, N. Y., assignor to the Schott Button Hole Attachment Company, of New York. Filed June 10, 1884. (Model.)

Brief.—The construction embraces an adjustable side bar for attaching it to the presser-bar of sewing-machine, a device for changing the speed or varying the motion of the form-plate, which latter is graduated on both sides of its opening, being provided with both lines and figures.



Claim.—1. In a button-hole attachment to a sewing-machine, and as a means for attaching a device to a sewing-machine, the side bar, C', having one end extended forward and upward and provided with a collar to form a guide and stop for the presser-bar and provided with slots, as shown, combined with the carrier-plate C, and set-screws passed through the said slots into the carrier-plate, substantially as and for the purpose specified.

2. In a button-hole attachment to a sewing-machine, the combination, with the form-plate and cloth-clamp, a worm adapted to engage in the button-hole form-plate to give motion thereto, and a toothed wheel and pinion geared together for transmitting motion unto said worm, and a feed-lever adapted to be connected with the needle-bar and to receive motion therefrom, of an elbow-lever and spring-actuated toothed pawl pivoted thereto, the former arranged to receive motion from the feed-lever and the latter arranged to receive motion from the elbow-lever and to transmit motion to the toothed wheel, all arranged and operating as set forth.

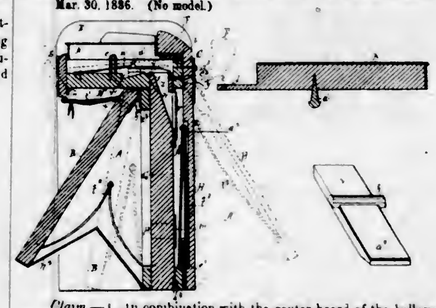
3. In a button-hole attachment to a sewing-machine, as a means for transmitting motion from the feed or needle bar operated lever to the mechanism operating the form-plate, the combination, with the cogged wheel E^3, of the slotted elbow-lever F on the shaft of said wheel, curved toothed pawl F', carried by said lever and provided with stud f^2 and shoulder f^3, and elbow-spring F^3, all arranged and operating substantially as herein shown and described.

4. In a button-hole attachment to a sewing-machine of the character herein described, and in combination with the face-grooved form-plate and its feeding mechanism, as a means for interrupting the movement of the mechanism transmitting motion to the form-plates, the adjusting-lever Q, provided with the spring r^2, constructed and arranged, substantially as herein shown and described, with its pointed end curved downward to rest on the form-plate, and with its slotted end curved upward and carrying an adjustable stud, s^2, as set forth.

5. In a button-hole attachment to a sewing-machine, constructed substantially as herein shown and described, as a means for holding down the material about a button-hole while the latter is being worked, the combination, with the reciprocating foot E, its sustaining-plate, and the form-plate and cloth-clamp, of a spring-actuated cylindrical presser-foot, as P, having a slot, *q*, in its convex bottom, and attached by handle q', pin q^2, lever q^4, and post q^3 to the front end of the attachment, as set forth.

6. In a button-hole attachment to a sewing-machine, constructed substantially as herein shown and described, as a means for arresting the feed of the form-plate, the combination, with the feeding mechanism thereof and with the barring device T, of the arm U, provided with slotted lug *v*, attached to said device, and having its free end curved upward in position to make contact with a portion of the feeding mechanism and interrupt its action at the will of the operator, as set forth.

351,803. REED-ORGAN. HENRY SCHWEISINGER, Detroit, Mich. Filed Mar. 30, 1886. (No model.)



Claim.—1. In combination with the center-board of the bellows of an organ, a series of valve-ports, Z, formed in said center-board, and a series of reeds mounted on said center-board over said valve-ports, and having the bellows and storage-chamber hinged to said center-board, with ports P and valves *m*, as and for the purposes specified.

2. In combination with the storage-chamber, the automatic swell hinged to the front of the crown-board and projecting over the front ends of the key K, and the mechanism connecting the said swell with the back of said chamber, with spring O attached, as specified.

3. In combination with the center-board of the bellows of an organ, the valve-ports formed therein, the reeds mounted on said board over said ports, the crown-board attached to said center-board at right angles, having the longitudinal channel *n* formed therein, the series of valves *v*, having the arms *f* located in said channel, said valves located over the upper ends of the valve-ports, and the series of springs anchored to the crown-board, their free ends pressing upon the rear ends of said valves, substantially as specified.

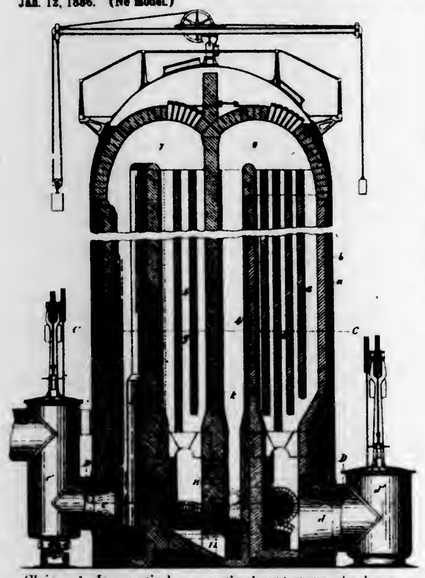
4. The combination of the center-board, the valve-ports Z, formed therein, the reeds mounted over said ports, the crown-board attached to the center-board, having the longitudinal channel and cut-out portion *v'*, the series of valves, the springs actuating said valves, the series of staples *s*, anchored to the crown-board, the series of keys located over said valves, and adjusting-screws engaging with said valves, substantially as set forth.

5. In combination with the center-board, the storage-chamber attached thereto, the crown-strip C, attached to the back H of said chamber, carrying a series of pins, *i*, the series of keys anchored to said pins, and the elbow-shaped fly hinged to the back of said chamber and adapted to fold over the reduced portion of the keys, as and for the purposes specified.

6. The valve *v*, having transverse arms *f* attached thereto, in combination with the crown-board having longitudinal channel and reduced portion *n*, the center-board G, having ports Z, and the series of springs *a*, mounted on said crown-board, their free ends pressing upon said valves, as and for the purposes described.

7. In combination with the crown-board, the series of guards *e*, anchored to said board, their upper ends located between the keys of the instrument, as and for the purposes specified.

351,804. HOT-BLAST STOVE. MINOR SCOVEL, Pittsburg, Pa. Filed Jan. 12, 1886. (No model.)



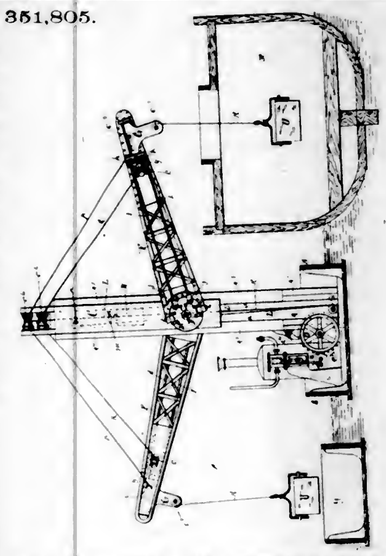
Claim.—1. In a vertical regenerative hot-blast stove having an initial combustion-chamber and vertical return-passages, a second combustion-chamber provided with gas and air inlets, arranged in one of the vertical passages, and separated from the waste-passages, substantially as and for the purposes described.

2. In a vertical regenerative hot-blast stove having an initial combustion-chamber and vertical return-passages, making a continuous run for the products of combustion from the combustion-chamber to the exit-point, the combination, with the vertical passages, of a separate combustion-chamber arranged in one of the uptake-passages, and communicating with the preceding downtake-passage at a point below the openings through which the waste products pass from such downtake-passage substantially as and for the purposes described.

3. A vertical regenerative hot-blast stove having one of its uptake-passages divided by vertical walls into separate chambers, one of which is provided with air and gas inlets to act as a combustion-chamber, and communicates with the preceding down-passage, and the others act as waste-flues and communicate with said down-passage at a point above that at which the first-named chamber communicates therewith, so that the waste products from such down-passage shall not enter said combustion-chamber, substantially as and for the purposes described.

351,805. HOISTING APPARATUS. FRANCIS SERVICE, Ebbw Vale County of Monmouth, England. Filed Apr. 27, 1886. (No model.) Patented in England Feb. 7, 1884, No. 2,382.

Claim.—1. In a crane or apparatus for hoisting, &c., the arms F F', in combination with the disks E E, attached to sliding plates or

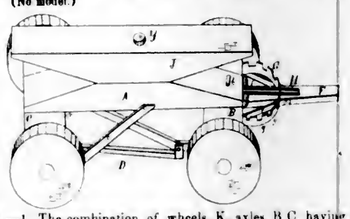


beams C C, and posts A A' A³ A⁴, substantially as and for the purpose set forth.

2. In a crane or apparatus for hoisting, &c., the small arms G G, in combination with crane-arms F F', and rods I I I I, with cranks J J, and cog-wheels *h h* and *g g*, substantially as and for the purpose set forth.

3. In a crane or apparatus for hoisting, &c., the sliding plates or beams C C and pivoted crane-arms, as described, in combination with the posts A A' A³ A⁴, substantially as and for the purpose set forth.

351,806. TRUCK FOR MOVING HOUSES. JOSEPH T. SHULTZ, Springfield, Mo., assignor of one-half to John R. Glass, same place. Filed July 9, 1886. (No model.)



Claim.—1. The combination of wheels K, axles B C, having a connecting-piece, A, with reaches D D², reach D² being secured to the axle B by means of a king-bolt, *b*, and a rocker, J, substantially as shown and described.

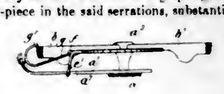
2. In a truck for moving houses, a tongue, F, having braces *f f*, and provided with a semicircle, G, having notches *g*, and a connecting-piece, A, having a hinged guide-rod, H, substantially as and for the purpose set forth.

3. In a truck for moving houses, the combination of wheels and axles, with reaches D D², connecting-piece A, having braces *c c*, king-bolt *b*, tongue F, having braces *f f*, semicircle G, having notches *g*, hinged guide-rod H, and rocker J, substantially as shown and described.

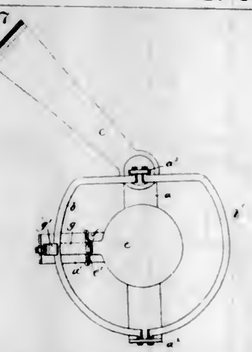
351,807. ANIMAL-TRAP. JOSEPH J. SKINNER, Boston, Mass. Filed Mar. 17, 1886. (No model.)

Claim.—1. The combination of the base-plate with the jaws pivoted thereon and their actuating-spring, and the trigger loosely connected with and having a sliding movement on the cross-piece of the base-plate and controlling the operation of the jaws, substantially as described.

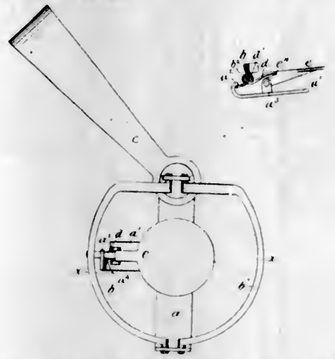
2. The base-plate having a cross-piece provided with serrations, combined with the jaws and their actuating-spring, and the trigger engaging the cross-piece in the said serrations, substantially as described.



351,807



351,808. ANIMAL-TRAP. JOSEPH J. SKINNER, Boston, Mass. Filed Mar. 17, 1886. (No model.)



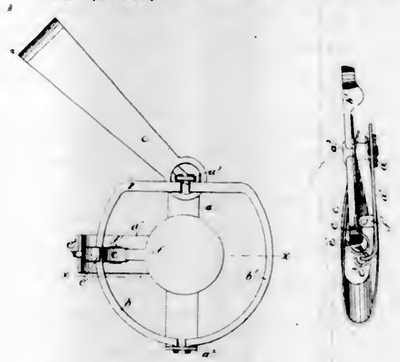
Claim.—1. In a trap, the combination of the jaws and their actuating-spring, with a dog attached to and movable with one of the said jaws, and a trigger co-operating therewith, substantially as described.

2. The base-plate or frame-work provided with a fulcrum, combined with the jaws pivoted on the said base-plate, their actuating-spring, the dog attached to and movable with one of the said jaws and co-operating with the said fulcrum, and the trigger co-operating with the said dog, substantially as described.

3. The jaw *b*, having a projection, *b²*, made integral therewith, combined with the dog connected with the jaw by means of the said projection, substantially as described.

4. The base-plate having the end of the cross-piece turned upward and provided with a lateral recess and finger above the said recess, constituting a fulcrum, combined with the jaw having a dog pivotally connected therewith and the trigger co-operating with the said dog, substantially as described.

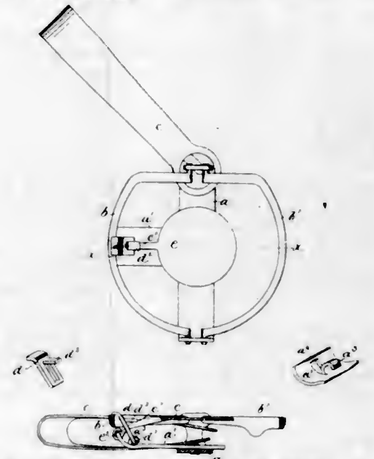
351,809. JAW-TRAP. JOSEPH J. SKINNER, Boston, Mass. Filed Mar. 17, 1886. (No model.)



Claim.—1. In a trap, the combination of the frame, pivoted jaws, and jaw-actuating spring, with a trigger and a dog pivoted upon the frame-work at a point more remote from the middle of the trap than the adjacent part of the open jaw, and provided with a finger engaging the jaw at the outer side thereof, the main portion of the dog extending from its pivot to the trigger beneath the jaw, which latter overlies the dog at a point between its pivot and trigger, whereby the dog engages the trigger with an upward pressure thereon, substantially as described.

2. The combination of the base-plate, including a cross-piece provided with an eye or opening, with the jaws and their actuating-spring, the trigger, and a dog composed of a piece of sheet metal having a strip or tongue cut from the body thereof and bent through the eye in the cross-piece, the said dog extending from the eye of the cross-piece to the trigger below the open jaw, and having an overhanging portion which engages the jaw, substantially as described.

351,810. ANIMAL-TRAP. JOSEPH J. SKINNER, Boston, Mass. Filed Mar. 17, 1886. (No model.)



Claim.—1. The combination of the jaws and their actuating-spring with a dog pivoted at a different level from that of its engaging-point with the jaw, and a trigger having its point of engagement with the dog substantially in the same vertical line with the pivotal point of the dog, whereby the latter presses horizontally on the trigger and moves along the shank of the trigger in releasing the jaw, substantially as described.

2. The combination of the jaws and their actuating-spring with the dog having an opening, and the trigger having its shank or stem extended through the opening of the dog and provided with an engaging-shoulder for the said dog, substantially as described.

3. The combination of the base-plate and jaws pivoted thereon, and their actuating-spring, with a trigger pivoted on the cross-piece of the base-plate, and dog co-operating therewith pivoted on the cross-piece of the base-plate between the pivot of the trigger and the middle of the trap, substantially as described.

4. The combination of the base-plate, including a cross-piece having an opening near its end and a tongue cut from it bent to form a pivot-loop, combined with a dog pivoted in said loop and provided with an opening, and a trigger having its shank or stem extended through the opening of the dog and pivoted in the opening of the cross-piece, substantially as described.

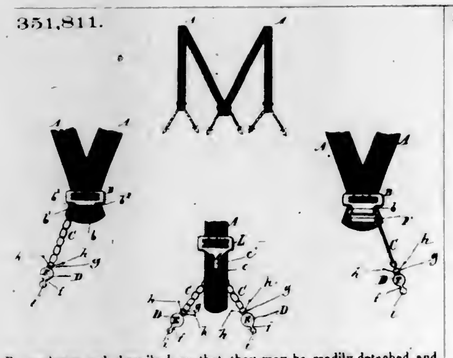
5. The combination of the base-plate, including a cross-piece, with the jaws and their actuating-spring and a trigger pivoted in the end of the cross-piece, and dog pivoted at an intermediate point in the cross-piece, substantially as described.

6. The combination of the jaws and their actuating-spring, with the dog pivoted on the frame-work of the trap, and a trigger having a shank pivoted or fulcrumed on the frame-work of the trap and co-operating with said dog, the dog extending from its pivot across the shank of the trigger, as described, whereby the part of the dog that is engaged with the trigger moves in a substantially horizontal direction lengthwise of the shank of the trigger in springing the trap, substantially as described.

351,811. SUSPENDERS AND SPRING BUTTON-FASTENER. CYRIL A. SMITH and ROBERT P. MARBLE, Attleborough, Mass. Filed May 5, 1886. (No model.)

Claim.—1. The improved suspenders, as described, having the shoulder-straps or webs A A crossed and secured diagonally in the buckle

351,811.



B, as shown and described, so that they may be readily detached and replaced by others, substantially as and for the purposes set forth.

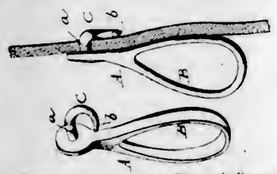
2. The combination, with a suspender-end, of the spring button-fastener D, consisting of the ring *g*, double loop E *i*, made from one piece of wire, having its free ends crossed diagonally and passed through the ring *g*, the ends terminating in the balls *h*, the large loop E being connected by the narrow neck *f* with the small loop *i*, substantially as set forth.

3. In an improved suspender, as before described, in combination with the webbing, of the buckle B, constructed as set forth, having the lower part formed by a flap, *b*, rolled tightly over a wire, *b'*, having at each of its ends an eye, *b²*, the chain or cord C, and the spring button-fastener D, all arranged substantially as set forth.

4. In an improved suspender, as above described, in combination with the webbing, of the front buckle, L, the cast-off c, the chain or cord C, and the spring button-fastener D, all arranged together, as set forth.

5. The improved suspenders, consisting of the spring button-fastener D, chains C, front buckle, L, substantially as described, shoulder-straps or webs A A, crossed diagonally through and secured in the rear tongue-buckle, B, in such manner that they may be readily detached and replaced by others, said buckle B, and chain or cord C, substantially as shown and described.

351,812. GAG-RUNNER. George L. Smith, Newark, N. J. Filed Aug. 6, 1886. (No model.)



Claim.—1. A gag-runner provided with a spirally-curved tongue, as C, substantially as shown.

2. A gag-runner provided with the laterally-curved tongue or hook C, parallel with the upper end of the gag-runner.

3. In combination with loop B, horizontal arm *a*, secured to the top thereof, and the curved hook C, secured to the arm, substantially as described, adapted to extend horizontally across the rear face of the strap.

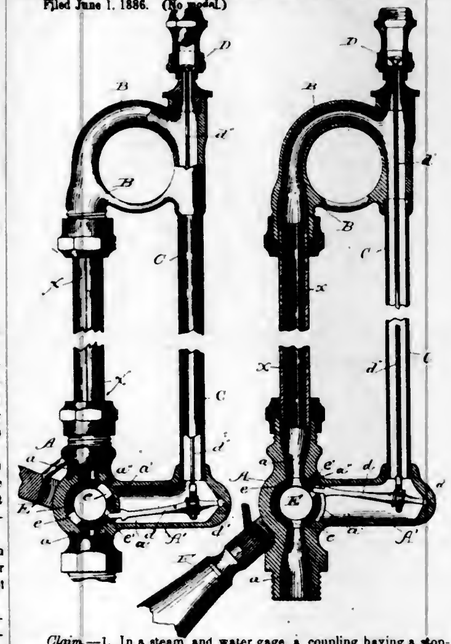
351,813. COMBINED LAND-ANCHOR AND LIGHTNING-CONDUCTOR FOR BUILDINGS. George Sitter, Pleasant Valley, Kans. Filed Apr. 8, 1886. (No model.)





Claim.—The land-anchor herein described, composed of the cone-shaped base with attached cable and sectional body linked or hinged together at their top ends, fitting upon and adapted to be expanded at their bottom ends only by said cone, for the purposes specified.

351,814. SAFETY WATER-GAGE. Robert Stretch, Chicago, Ill. Filed June 1, 1886. (No model.)



Claim.—1. In a steam and water gage, a coupling having a stop-cock placed therein, with ways in said coupling and stop-cock, forming, when open, a straight way for the passage of water into one end of the glass tube used in said gage, in combination with a coupling placed at the upper end of the glass tube and connected by said tube and by a pipe with the first-named coupling, a valve placed in said upper coupling connected to and operated by a lever, and said lever actuated by the said stop-cock, all substantially as described, and for the purpose set forth.

2. In a steam and water gage, the combination of coupling A, having ways *a a*, *a'*, and *a''*, with stop-cock E, having ways *e e* and *e'*, coupling B, valve D, connecting-rod *d''*, and lever *d*, all substantially as described, and for the purpose set forth.

351,815. WOOD BENDING AND DRYING MACHINE. Samuel Swartz, Buffalo, N. Y. Filed Apr. 27, 1886. (No model.)

Claim.—1. In a bending-machine, a male die and a female die movable toward and from each other, the former adapted to enter bodily within the latter when the dies are brought together, and each consisting of two parts, the two parts of each die being adjustable to and from each other, and provided with devices for holding them rigidly at any adjustment, substantially as described and shown, whereby the curvature of the article bent may be varied, as desired.

2. In a bending-machine, the combination of a male die and a female die, both capable of adjustment at either end alone, whereby the sides may be made to incline more or less relatively to each other.

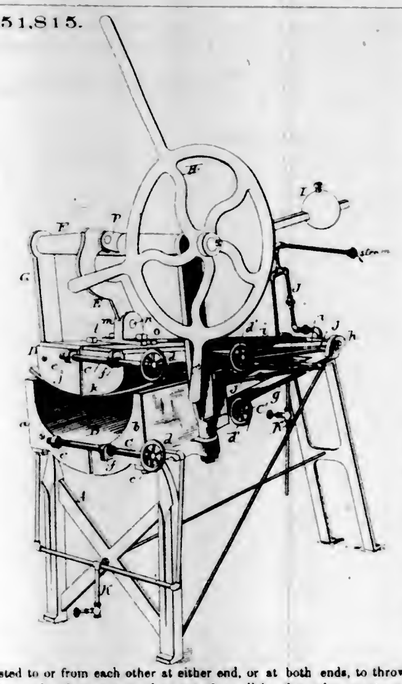
3. The herein-described wood-bending machine, consisting of a frame, a die composed of two parts, one rigidly and the other adjustably secured to said frame, a second die movable to and from the first and likewise made in two parts, adjustable one in relation to the other, and means, substantially such as described and shown, for moving one die to and from the other.

4. In a wood-bending machine, the combination of a female die and a male die, each composed of two parts, one part adjustable in relation to the other, means, substantially such as described and shown, for advancing and receding one die to and from the other, and steam-pipes communicating with the interior of either or both dies.

5. The combination, in a wood-bending machine, of a fixed die, B, a movable die, D, a rock-shaft, F, provided with a crank-arm, and a link, E, connecting the movable die and the crank-arm, said parts being arranged substantially as described and shown, whereby the two joints or connections of the link are caused to fall in line with the axis of the shaft when the movable die is advanced, and thereby to lock the movable die in position.

6. In a bending-machine, a die consisting of two parts placed side by side, and a screw-rod at each end connecting the two parts of the die, substantially as shown, whereby the two parts of the die may be

351,815.

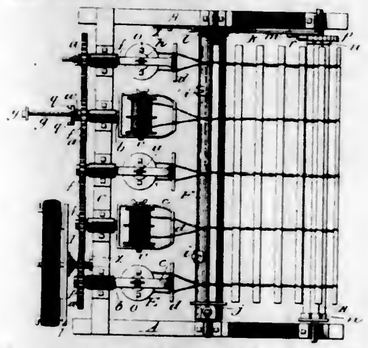


adjusted to or from each other at either end, or at both ends, to throw their opposing faces more or less out of parallel and to give greater or less taper to the exterior of the die.

7. In combination with a frame, A, dies B D, mounted therein, rock-shaft F, journaled in the frame, link E, connecting the rock-shaft and the die D, and hand-wheel H, secured to shaft F and provided with a counter-weight, I, the counter-weight and link being upon opposite sides of the rock-shaft, as and for the purpose set forth.

8. The herein-described wood bending and drying machine, consisting of a frame, a two-part die, B, mounted thereon, a second two-part die, D, hinged to the frame, standards secured to the frame, a shaft, F, journaled in said standards and provided with a crank-arm, a pitman or link, E, connecting the movable die and the crank-arm, and steam-pipes J, communicating with the interior of the dies.

351,816. MACHINE FOR MAKING WIRE FENCES. Elwood Thorne, Marlborough, Pa. Filed Apr. 14, 1886. (No model.)



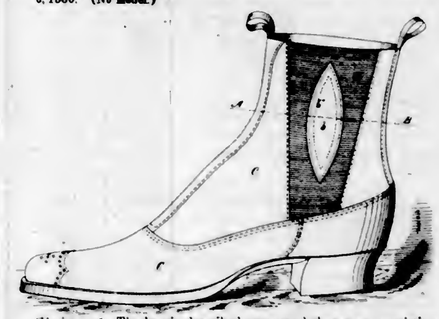
Claim.—1. In a fence-machine, a combined wire guiding and twisting spool-holder having a front bar with two cross-arms or projecting arms, *d d*, substantially as described.

2. In a fence-machine, a spool-frame having a single bearing and a front bar with projecting arms, spools E, secured within the spool-frame, and means for drawing the sides of the frame together to give the necessary tension on the spools, all substantially as and for the purpose set forth.

3. In a fence-machine, in combination with the spool-frames and twisting machinery, roller F, with adjustable projections, for the purpose of pressing the slats into the wires, and an adjustable stop to fix the position of the slats in the wires.

4. In a fence-machine, the combination, with the twisting and adjusting mechanism, of the winding-reel, consisting of bar H, reel-heads *n n*, ratchet *p*, lever *m*, and pawls *r* and *t*, connected with carrying and pressing roller F, as and for the purpose set forth.

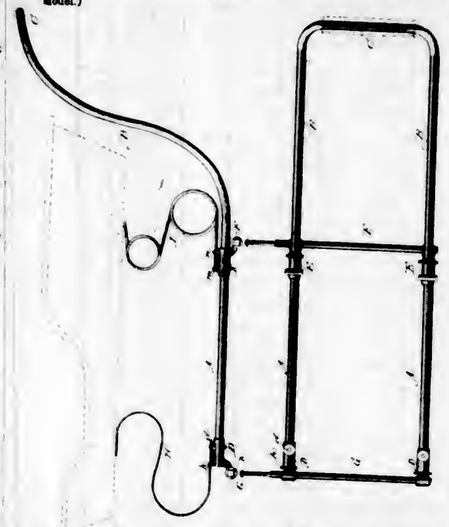
351,817. SHOE-GORE. James E. Treat, Boston, Mass. Filed Mar. 6, 1886. (No model.)



Claim.—1. The herein-described compound shoe-gore, consisting of the slitted elastic main gore *a* and central gore, *b*, secured to the expanded edges of the slit *a'* in the gore *a*, as and for the purpose set forth.

2. In a Congress boot, a compound shoe-gore consisting of the elastic main portion *a* and middle gore, *b*, united to the expanded edges of the slit in the main gore, substantially in a manner and for the purpose set forth.

351,818. CHILD'S CARRIAGE. Otto Uhlicker, Chicago, Ill., assignor to Adolph Shoeninger, same place. Filed Jan. 29, 1886. (No model.)



Claim.—1. The combination, with axles F G, of axle-reaches A, handle-reaches B, and handle C, the reaches and handle all formed of a single piece, as set forth.

2. The combination, with axles F G and sleeves E D, of axle-reaches A, handle-reaches B, and handle C, the reaches and the handle formed of a single piece, and the sleeves D E encircling the axles and axle-reaches, as set forth.

3. The combination, with axles F G and sleeves D E, encircling the axles, and suitable axle-reaches, of suitable springs and a carriage-body, the springs secured to the body and the sleeves, as set forth.

4. The combination, with an axle and a sleeve, E, the latter provided with tube *m* and notched bar *n*, of a spring and a carriage-body, as set forth.

351,819. CAR-SPRING. RICHARD VOSE, New York, N. Y. Filed Oct. 15, 1884. (No model.)



Claim.—1. The combination, with a cylindrical spiral coil, of a conical spiral coil of substantially the same length as said cylindrical coil, arranged within the same, whereby a spring is produced in which the conjoint action of a conical and a cylindrical spiral coil is secured during the entire range of movement of said spring, substantially as described.

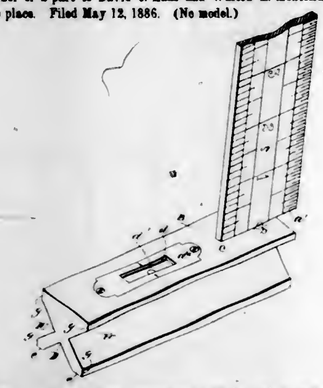
2. The combination, with the outer cylindrical coil, A, the inner conical coil, B, and the base-plate E, of the top plate or cap, D, provided with a depending flange projecting down between the upper ends of the coils, substantially as described.

3. The combination, with the outer cylindrical coil and the inner conical coil having its base constructed of a size to fit the interior of the cylindrical coil, of a base-plate upon which they both rest, and means for holding the base of said conical coil from lateral movement upon the base-plate, substantially as described.

4. The combination, with the outer cylindrical coil, A, and the inner conical coil, B, having its base constructed of a size to snugly fit the interior of the cylindrical coil, of the base-plate E, provided with the upwardly-projecting flange *b*, which passes up into the interior of the conical coil and prevents it from moving laterally upon the said base-plate, substantially as described.

5. The combination, with the outer cylindrical coil, A, the inner conical coil, B, having its base constructed of a size to fit the interior of the cylindrical coil, and the base-plate E, provided with the upwardly-projecting flange *b*, which enters the interior of the conical spring and holds it in place upon said base-plate, of the top plate or cap, D, provided with the depending flange *d*, which projects down between the upper ends of the outer and inner coils, substantially as described.

351,820. TRY-SQUARE. MATTHEW P. WARD, Mount Carmel, Pa., assignor of a part to David C. Haas and Walton H. Montelius, both of same place. Filed May 12, 1886. (No model.)



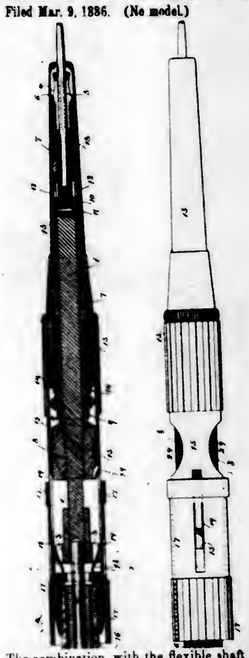
Claim.—1. A try-square comprising a blade, and a stock arranged and connected to the blade at right angles thereto, and provided with a longitudinal groove having its sides arranged at right angles to each other, substantially as described, for the purpose set forth.

2. As a new article of manufacture, a try-square comprising a blade and a right-angled stock, the blade being secured to one end of the stock so as to provide a projecting shoulder that lies at right angles to the end of the stock, substantially as described, for the purpose set forth.

3. As a new article of manufacture, a try-square comprising a blade, a stock secured thereto at right angles and having a longitudinal groove the sides of which are arranged at right angles to each other and beveled or inclined outwardly at their free edges, substantially as described.

4. As a new article of manufacture, a try-square comprising a blade having a tongue, *a*, and a shoulder, *a'*, and a stock having the straight try-face and a mortised end, in which the tongue of the blade is secured so as to lie flush with the end thereof, the said stock being further provided with longitudinal grooves having their sides arranged at right angles to each other and their outer edges inclined or flared outwardly, substantially as described.

351,821. DENTAL-ENGINE HAND-PIECE. ADOLPH WEBER, New York, N. Y. Filed Mar. 9, 1886. (No model.)



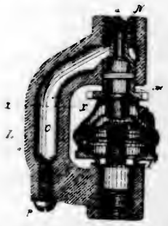
Claim.—1. The combination, with the flexible shaft and spindle, of a chuck having a parallel hole or bore and a tapering exterior, and longitudinal slots at the tapering portion and extending each way from the said tapering portion to form springs, and leaving the tube whole and without slots at both ends, substantially as set forth.

2. The combination, with the flexible shaft and spindle, of a separate spring-chuck removably attached to the spindle, and a tube around the chuck and spindle and acting at the forward end to close the chuck, substantially as set forth.

3. The combination, with the spindle and the tube surrounding the same, of a separate chuck, a pin to connect the chuck and spindle, there being a cross-hole through the tube to allow for the removal of the pin and the disconnecting of the chuck, substantially as set forth.

4. The combination, with the flexible shaft, the spindle and its crown, the tool-holding chuck, and a nut to move the parts endwise in clamping the tool, of a case and a tubular holder having one or more openings to give access to the nut, and a sliding crown-holder to cover the openings when moved in one direction and to hold one of the parts from turning when moved in the other direction, substantially as set forth.

351,822. YOKE FOR SUPPORTING GAS OR FLUID REGULATORS. MOSES G. WILDER, Philadelphia, Pa. Filed Apr. 6, 1886. (No model.)



Claim.—1. The combination of a fluid-regulator and the supporting yoke or clamp for the same, operating to allow the removal of the regulator for examination or other purposes without disturbing the joints of the inlet and outlet to said yoke, substantially as described.

2. An improved clamp or yoke for gas or fluid regulators, consisting of the threaded inlets and outlets for attachment to the delivery-pipe, clamping surfaces L' on yoke and on thimble M, and the threaded thimble M, for moving said surfaces to and from each other and into and out of contact with the regulator when required, substantially as described.

3. The cavity O in the side of the yoke-frame L, said cavity being connected with the upper gas-inlet in the yoke and serving as a trap for moisture or other impurities from the gas, and being furnished with a screw, P, or other convenient stopper, substantially as described.

4. The combination, with a gas or fluid regulator and its supporting-yoke furnished with a chamber, O, of the cap N, adapted to prevent dirt or drip from entering the regulator, the whole arranged and operating substantially as described.

5. The combination, in a yoke for supporting a gas or fluid regulator, of the thimbles M and *l*, gas-passages *i* and *j*, and cavity O and screw P, all substantially as and for the purposes set forth.

351,823. MEANS FOR SEALING JARS, &c. JOHN W. WILDER, Parkville, N. Y. Filed Apr. 21, 1886. (No model.)



Claim.—1. A bottle provided with a cavity at its side under its neck-band, in combination with a stopper-fastening having an operating-lever adapted to rest against the side of the bottle near the cavity, and a chain or other device connected to the lever and applicable to the cavity.

2. A bottle having a neck-band, and under and below said neck-band a cavity, in combination with a stopper-fastening constructed to have its lever rest against the side of the bottle, and a chain or other device connected to the lever and applied to and sealed within the cavity.

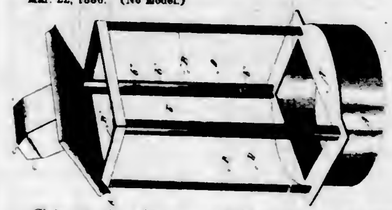
351,824. FRUIT-GATHERER. COLUMBIA L. YATES, Hammonton, N. J. Filed Jan. 2, 1886. (No model.)



Claim.—1. In a fruit-gatherer, the combination of a staff or handle, a receiver rigidly affixed to one end thereof, and having an open upper end, a rigid jaw, B, partially closing the upper open end of the receiver, and having the side cutting-edges and the closed upper end, *a*, extending over the jaw and the receiver, and forming a cutting-edge, a movable jaw, C, pivoted to the receiver at the open end of the latter, and having the side cutting-edges and the closed upper end, *a*, also forming a cutting-edge, and a rod for operating the movable jaw to cause the cutting-edges of the latter to come in contact with the cutting-edges of the rigid jaw and entirely close the open end of the receiver, substantially as described, for the purpose set forth.

2. The fruit-gatherer comprising the receiver, the rigid and movable jaws, the rod attached to the movable jaw, the operating-lever, the post or lug depending from the rear portion of the receiver, said post being bifurcated to provide pivots for the lever, a handle secured to the receiver, the operating-rod attached to the operating-lever and held from lateral displacement from the handle by staples or any suitable means, all the parts combined and operating for the purpose set forth.

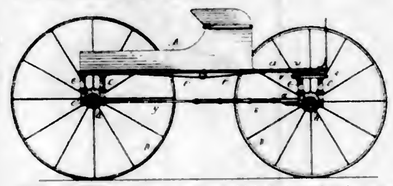
351,825. LAMP-CHIMNEY. JOHN T. BARROW, Chicago, Ill. Filed Mar. 22, 1886. (No model.)



Claim.—1. As an improvement in lamp-chimneys, the combination of the metal base A, plate A', uprights B, bars B', cap C, with slits c at the top, and transparent sections D, substantially as and for the purposes specified.

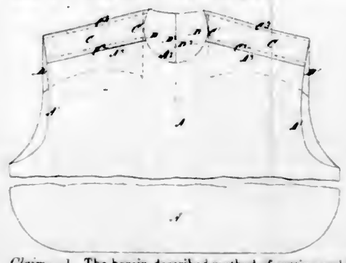
2. The combination of a lamp-chimney with a cap, as C, of sheet metal, having upwardly-projecting sides surrounding the air-passage at the top of the chimney, provided with slits c, as and for the purpose specified.

351,826. SPRING-VEHICLE. THOMAS R. BEVANS, Kalamazoo, Mich. Filed Apr. 15, 1886. (No model.)



Claim.—The combination of a vehicle-body and axle, an elliptical spring on each side of the axle, the top of the springs being secured to the body resting on them, and trussed spring-supports centrally secured on the under side of the axle, the free ends of said supports being secured to the lower bows of the springs, substantially as set forth.

351,827. METHOD OF MAKING SHIRTS. ALBERT BORCHARDT, Hoboken, N. J. Filed Mar. 22, 1886. (No model.)

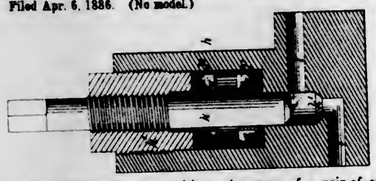


Claim.—1. The herein-described method of cutting and making the yoke of as part of the process of making shirts, which consists in cutting from the section of fabric between the front and back body-patterns a pattern having its opposite ends wider than the middle portions, then cutting such pattern transversely in the middle and turning each part, and finally sewing these parts together to form a yoke, as specified.

2. As part of the process of making shirts, the method herein described of cutting and making the yoke thereof, which consists in cutting from the section of fabric between the front and back body-patterns a pattern having its opposite ends wider than the middle portion, then cutting such pattern transversely in the middle, turning each part and lapping upon each other or turning over the ends, and finally sewing them together.

3. As a part of the process of making shirts, the method herein described, which consists in cutting a strip from each side of the front body-pattern to form the armholes, and afterward sewing or piecing the said strips to the straight upper or forward edges or the yoke and the edges of the front body-pieces on either side of the neck, as set forth.

351,828. ROD-PACKING. HENRY BUSHNELL, New Haven, Conn. Filed Apr. 6, 1886. (No model.)

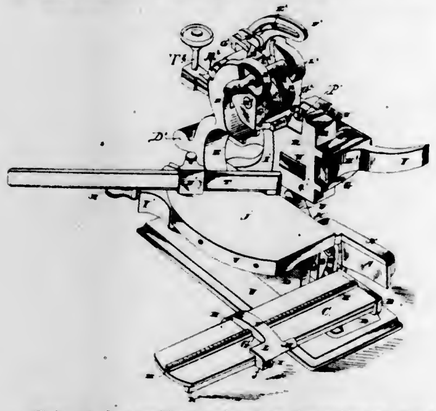


Claim.—The combination, with a valve-stem, of a pair of cupped collars, of leather or other flexible material, arranged face to face within the stuffing-box cavity around the valve-stem and filled with a thick and yielding composition or substance, all arranged substantially in the manner and for the purpose described.

351,829. TONIC. ISRAEL D. DAVIS, Stockton, Cal. Filed Feb. 10, 1886. (No specimens.)

Claim.—The herein-described medical compound as an invigorator, consisting of pure water, mandrake-root, spruce-pine leaves and twigs, dewberry root, pine gum, wild-peach leaves, poke-root, wormwood leaves and twigs, and prickly-ash bark, in the proportions specified.

351,830. COMBINED MACHINE FOR PRINTERS' USE. CLARK D. FISH, Ansonia, Conn. Filed Apr. 11, 1884. (Model.)



Claim.—1. In a machine for printers' use, the combination, with a lead and rule table and a pivoted lead and rule cutting knife, of a spring-actuated jointed lever connected to the cutting-knife, and an operating-lever, Y, pivoted in the frame of the machine, the parts being arranged substantially as described, whereby the motion of the lever Y actuates the lead and rule cutting mechanism, as set forth.

2. In a machine for printers' use, a reciprocating adjustable support for the mitering-knife, comprising a body, R', mounted upon a pivoted lever, and provided with the interior pivoted bearing, N', and adjusting-screw P', as set forth.

3. In a machine for printers' use, the pivoted support for the mitering-knife, comprising the body R', provided with the recess Q' and internal support for the knife, and having the ears G', and a lever, Y, having lips H', and embracing the body R' between the ears G', and pivoted in the frame of the machine, as set forth.

4. A machine for printers' use, having a mitering-knife mounted upon a concaved plate fulcrumed within the frame of the knife, and a screw for depressing the upper ends of the knife and plate to force the edge of the former against the upper wall of the slot in the frame through which it projects, substantially as set forth.

5. A machine for printers' use, having a mitering-table, the outer edge of which is provided with holes located at the points of the mitering angles, and a rest provided with a spring-actuated pin for engagement with the said holes, substantially as set forth.

6. A machine for printers' use, having a mitering-table, the outer edge of which is provided with holes located at the points of the mitering-angle, and a rest provided with a web and a depending concaved shoulder, in which a spring-actuated pin for engagement with the holes in the edge of the table is located, substantially as set forth.

7. A machine for printers' use, having an adjustable incurvator, constructed substantially as described, and provided with a lip projecting from its inner face and extending into a groove formed in the periphery of the feed-roller, by which the leads and rules are fed forward to the bending-face of the incurvator, substantially as set forth.

8. A machine for printers' use, having an incurvator and friction-roller, constructed and arranged substantially as shown and described, and a removable anti-friction roller, located as shown, substantially as set forth.

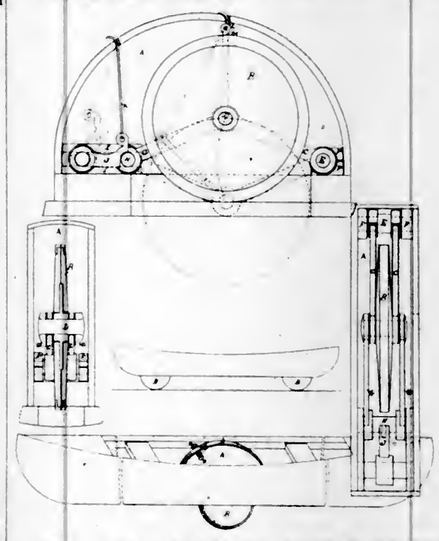
9. A combined machine for printers' use, having cutting, mitering, and incurvating mechanisms, and having a lever arranged and provided with means for operating each of the mechanisms, substantially as set forth.

10. A combined machine for printers' use, having cutting and mitering mechanisms, and a lever arranged and provided with means for operating each of the mechanisms, substantially as described.

11. A combined machine for printers' use, having cutting and incurvating mechanisms, and a lever arranged and provided with means for operating each of the mechanisms, substantially as described.

12. A combined machine for printers' use, having mitering and incurvating mechanisms, and a lever arranged and provided with means for operating each of the mechanisms, substantially as described.

351,831. CENTER-BOARD FOR VESSELS. ROBERT M. FRYER, Brooklyn, N. Y., assignor of one-half to Timothy O'Meara, same place. Filed Sept. 10, 1885. (No model.)



Claim.—1. In a boat, a well extending up into the body thereof and provided with a disk-like center-board pivoted therein and capable of vertical adjustment by any suitable means, whereby the said center-board may be utilized to sustain the boat as a vehicle while being moved on land, substantially as set forth.

2. In a boat having a disk-like revolving center-board vertically adjustable in a well or casing and provided with a double set of arms pivoted thereto at their inner ends and working from opposite centers, one of said arms being pivoted at its outer end to the well or casing and the other having its outer end moving freely in guides in said well or casing, substantially as described.

3. In a boat, a disk-like revolving center-board vertically adjustable in a well or casing and provided with a double set of arms pivoted thereto and to the well or casing, as described, and working from opposite centers, one of said arms being provided with a latch or pawl by which the said arm may be held in a fixed position, substantially as described.

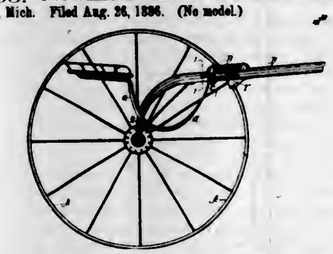
351,832. PEN-HOLDER. GUSTAVUS A. GOLDSMITH, New York, N. Y. Filed July 23, 1886. (No model.)



Claim.—1. The described method of constructing pen-holder tips, consisting in inserting the nib within the tip, and then by a single mechanical operation cutting out and interlocking portions of the tip and the nib, whereby the nib will be locked relative to the tip both inwardly and outwardly.

2. As a new article of manufacture, the herein-described pen-holder, consisting of handle C, tip A, nib B, the nib B and tip A being united to each other by inwardly-depressed portions D D, cut from both the tip and the nib, and running lengthwise thereof, and pointing in opposite directions, and a portion of the tip left between the said depressed portions and in substantially its original position, as set forth.

351,833. TWO-WHEELED VEHICLE. HENRY G. M. HOWARD, Kalamazoo, Mich. Filed Aug. 26, 1886. (No model.)



Claim.—1. In a two-wheeled vehicle, the spiral springs terminating the forward end of the body, anchored to the thills, and forming the only means of suspending the body, substantially as set forth.

2. The combination, with the thills, of a body or seat-bars terminating at the forward end in spiral springs parallel with the cross-bar and suspended from the thills, the free ends of the springs contacting with the thills, preventing them from rolling, substantially as set forth.

3. The combination of the body, terminating in spiral springs at the forward end, the thills provided with supports for the springs, and means for limiting the upward swing of the body, substantially as set forth.

4. The combination of the thills, the body provided with the spiral springs having the free ends, and the loose adjusting-blocks having a series of holes, substantially as set forth.

351,834. TELEGRAPH-KEY. MARION R. JENKINS, Browning, Mo. Filed Oct. 16, 1885. (No model.)



Claim.—1. In a telegraph-key, the combination, with each other, of the main and supplementary levers, connected and arranged, substantially as described, to alternately approach and recede from each other for making and breaking contact as the result of manipulation of the main lever.

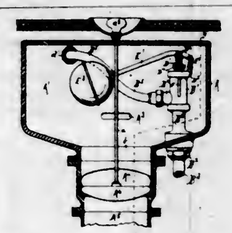
2. The combination, with the pivoted main lever and the supplementary lever, of a retracting-spring for said main lever, the arm projecting downward from about the fulcrum-line of said main lever, and loosely engaging, but insulated from, the supplementary lever at about the fulcrum-line of the latter, substantially as described.

3. The combination, with a main key-lever having one arm provided with a circuit-closing contact-point, of a contact-point mounted upon an elastic lever and arranged to come in contact with that of the main lever, for the purpose set forth.

4. The combination, with the main and supplementary levers, arranged and mechanically connected and supported substantially as described, of a circuit-closing link or hook attached to one of said levers and arranged to engage and disengage the other.

5. The combination, with the pivoted supplementary lever, of the pivoted main lever having a rotary non-conducting finger-knob and a curved metallic spring connected with said knob and arranged to be thereby swung into or out of engagement with the supplementary lever, so as to establish metallic connection between said levers, essentially as set forth.

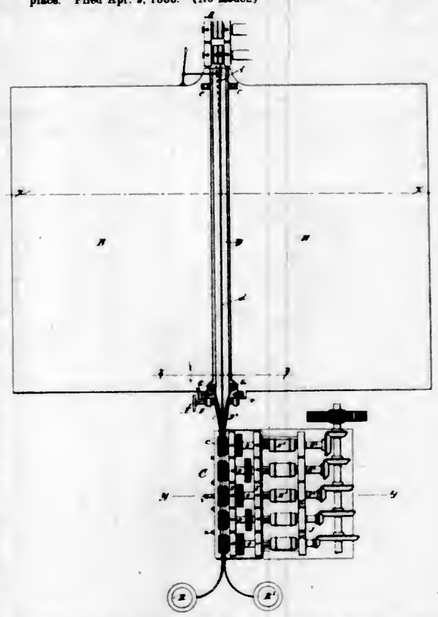
351,835. WATER-CLOSET FLUSHING-VALVE. FRANCIS W. KELLY, Minneapolis, Minn. Filed Mar. 30, 1886. (No model.)



Claim.—1. The combination of a valve-casing, B', inserted into the flush-tank A', and having a side branch, B^3, and inlet-pipe B^3 at its lower end, and with a valve-seat, c', below said side branch, a valve, c^2, adapted to be seated upon said valve-seat, and with a tubular stem, c^3, having a piston, c^4, adapted to fit the interior of said casing above said valve-seat and form an equalizing-chamber, B^4, in said casing, the pipe F, leading into the said equalizing-chamber, rod D', passing down through said tubular stem, and having valve D^2, adapted to be seated upon the lower end of said tubular valve-stem, and a float adapted to be raised and lowered by the rising and falling water in said tank to depress and elevate said rod D', and thus open and close said valve D^2 and permit the water to enter said equalizing-chamber and open said valve c^2, substantially as described, and for the purpose set forth.

2. The combination, with the tank A', having overflow g', of the valve-casing B', set into said tank and connected to the inlet-pipe B^3, side branch, B^4, leading from said valve-casing and connected to discharge-pipe B^5, valve-seat c' within said casing, valve c^2, adapted to be seated upon said valve-seat and having tubular stem c^3, passing upward through said casing, piston c^4 on the upper end of said tubular stem and fitting the interior of said casing, rod D', passing downward through said casing and tubular stem, and having valve D^2 on its lower end, adapted to be seated upon the lower end of said tubular stem, rod E', pivoted to the upper end of said rod D' and having float E^3, and pipe F, adapted to replenish said overflow, all operating substantially as described, and for the purpose specified.

351,836. WIRE-ROD-ROLLING MILL. EDWIN S. LENOX, Worcester, Mass., assignor to the Washburn & Moen Manufacturing Company, same place. Filed Apr. 9, 1885. (No model.)



Claim.—1. In an apparatus for rolling wire rods, the combination of a primary train of rolls, a double inclined platform or overfeed table, double parallel guideways, and a single supplemental or finishing train, the rolls of which are provided with a plurality of grooves, substantially as and for the purpose set forth.

2. In a wire-rod-rolling mill, a laterally-inclined table or platform for receiving the overfeed of the rod, located intermediately between series of reducing-rolls.

3. The combination, with a series of rod-reducing rolls, of a rod-conducting guide having a dividing partition, and a set of finishing-rolls adapted for simultaneously passing separate rods, substantially as and for the purpose set forth.

4. The combination, with a primary series of reducing-rolls and a secondary series of rolls, of an intermediately-located guideway having a dividing partition, and a contracted delivery-mouth adapted for leading two wire rods from the primary train and directing them into separate grooves of the following rolls or the supplementary train, substantially as set forth.

5. In an apparatus for making wire rods, the combination, with the reducing-rolls *a*, of a guide or conductor having a dividing partition, one end of which partition is made flexible and laterally movable, whereby it is adapted for adjustment to act at either side of the rod issuing the rolls for directing said rods to the right or left of said partition, substantially as set forth.

6. An apparatus for making wire rods comprising a primary series of rolls in which the rod is carried singly, a secondary or finishing train of rolls having a plurality of grooves, intermediate parallel guideways, and inclined tables for receiving the overfeed of the rods, said apparatus being constructed and arranged so that the end of a second rod may be led into the finishing-train before the latter portion of the first or preceding rod has passed from between rolls of said finishing-train.

7. The combination, with a primary train of reducing-rolls, a supplemental or finishing train of rolls, and an intermediately-located double inclined overfeed table, of a double parallel guideway or conductor laterally adjustable in relation to said table and the line of rolls, for the purpose set forth.

8. In combination with the rolls of the supplemental train, the housing-frame constructed, substantially as described, for supporting the journals of the several pairs or sets of rolls throughout the series, the same being bodily adjustable laterally, whereby the series can be simultaneously moved to the right or left, as and for the purpose set forth.

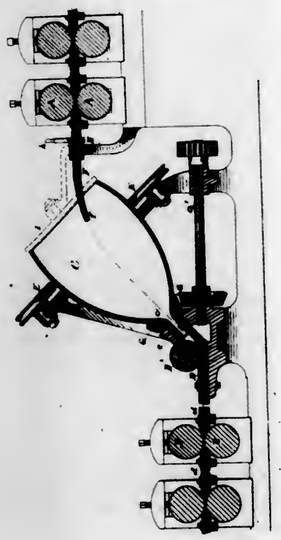
9. The combination, with laterally-adjustable roll-supporting housings and the stationary bed-frame in a rolling-mill, of the shaft *i i'*, and the toothed racks *J'*, arranged in the manner shown for effecting the adjustment of said housings, as set forth.

10. In a continuous wire-rolling mill, the combination, with reducing-rolls having a plurality of wire-forming grooves, of directing-guides *m*, adapted to carry two separate rods simultaneously, passing through said rolls and guides, substantially as set forth.

11. The combination, with the rolls in a wire-rolling mill, of the guide-standards M, laterally adjustable on their bed or supporting-frame, and the screw-shafts *n*, for effecting adjustment thereof, as set forth.

351,837. WIRE-ROD-ROLLING MILL.

EDWIN S. LENOX, Worcester, Mass., assignor to the Washburn & Moen Manufacturing Company, same place. Filed May 8, 1885. (No model.)



Claim.—1. The combination, with the rolls in a rolling-mill for making wire rods, of a receiver for containing the overfeed of the rod, comprehending a bowl or interior chamber within which the slack of the rod can be thrown into spiral coils, and tapering at its delivery end to an exit-passage, through which the rod can be withdrawn from said receiver while it is being fed into the same from the rolls of the mill, substantially as set forth.

2. In a plant for making wire rods, the combination, with rod-working rolls, of a receiver located between two sets of rolls and having a chamber through which the rod is passed on its way from one set of rolls to the other, and means for imparting rotative action, whereby the slack or overfeed of the rod within said chamber is caused to assume a spiral order as the rod is passing into and out of said receiver, substantially as set forth.

3. In a plant for making wire rods, the combination, with the working-rolls, of a revolvable receiver having a funnel-shaped opening, through which the rod can pass to the following-rolls while it is being fed into said receiver from the leading-rolls, substantially as and for the purpose set forth.

4. In a plant for making wire rods, the combination, with two sets of rod-working rolls, of an intermediately-located vessel or receiver having an exit-opening for the withdrawal of the rod at one end thereof and a revoluble delivery-guide for directing the rod into said receiver at the other end thereof as it issues from the leading set of rolls, substantially as set forth.

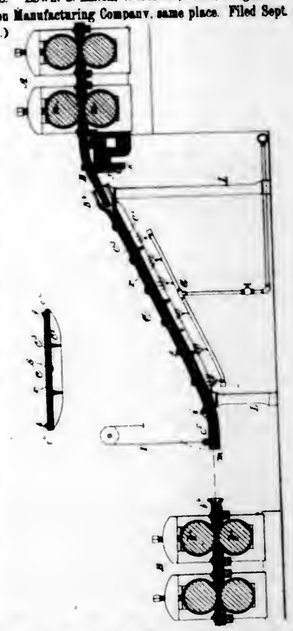
5. The combination, substantially as described, of two or more sets of rolls, a receiver for containing the overfeed, having a funnel-shaped passage for the exit of the rod, a rotatable curved or inclined guide for delivering the rod from one set of rolls to the interior of said receiver, and guides for directing the rod from the exit-passage of said receiver to the pass of the following set of rolls, whereby said rod may be automatically conducted through the apparatus, substantially as set forth.

6. The combination, substantially as described, of a set of reducing-rolls, a receiver for containing the overfeed of the wire rod, provided with an exit-passage through which to withdraw the rod while it is being fed thereto from the rolls, and a set of fin-repressing rolls disposed for acting upon the rod as it issues from said exit-passage, as set forth.

7. The combination, substantially as described, of the primary rolls A, the guide F, the receiver C, the guide D, and roll D', for the purposes set forth.

351,838. OVERFEED RECEIVER FOR WIRE-ROD-ROLLING MILLS.

EDWIN S. LENOX, Worcester, Mass., assignor to the Washburn & Moen Manufacturing Company, same place. Filed Sept. 17, 1885. (No model.)



Claim.—1. A receiver for containing the overfeed of the rod, having a broad shallow interior space inclosed above and below by plates disposed at such distance apart that the depth of the space is greater than once and less than twice the diameter of the rod to be entered therein, substantially as hereinbefore set forth.

2. A receiver for containing the overfeed of the rod, having a broad shallow interior space, as *r*, inclosed by plates disposed substantially parallel to each other, and between which a rod can be distributed in single loops, and having an entrance-opening, as *d d*, and a narrow exit-opening, as *m*, substantially as and for the purpose set forth.

3. The combination, in a mechanism for working hot-wire rods, of a receiver for containing the overfeed of the rod, having a broad shallow interior space inclosed above and below by plates disposed at a distance apart slightly greater than the diameter of the rod, and a swinging or vibrating guide moving in a plane coincident with the plane of the receiver-space for delivering the rod into said receiver in a series of loops, substantially as set forth.

4. The combination, substantially as hereinbefore described, of a primary set of rolls, a swinging guide, a receiver having a broad shallow receiving-space, as *r*, adapted for permitting lateral spread of the rod in loops while preventing the crossing of the rod, one part above another therein, and a narrow delivery-mouth from which the rod can be withdrawn while it is being fed into said receiving-space, as set forth.

5. The combination, substantially as hereinbefore described, of a primary set of rolls, a swinging guide, a receiver having a broad shallow receiving-space with an exit-passage, and a guide-channel, as S, formed in the bottom plate, for directing the advance end of the rod to said exit-passage, for the purpose set forth.

6. The combination, substantially as hereinbefore described, of a primary set of reducing-rolls, a supplemental set of reducing-rolls, an intermediate receiver having its inclosing-plates disposed at such distance apart as will accommodate the rod only in single-laid coils or loops, and a vibrating guide for delivering the rod to the space between said plates, for the purpose set forth.

7. The combination, substantially as hereinbefore described, of a stationary receiver having a broad shallow interior space, as *r*, a narrow delivery-opening, as *m*, and a set of feed-rolls, as F, located adjacent to said delivery-openings in position to seize the end of a rod as it issues therefrom, for the purpose set forth.

8. The combination, substantially as hereinbefore described, of a receiver having a broad shallow interior space, as *r*, tapering to a narrow delivery-passage, as *m*, a set of feed-rolls adjacent thereto, with the pass of said feed-rolls in line with said exit-passage, and a supplemental set of reducing-rolls, for the purpose set forth.

9. The combination, substantially as hereinbefore described, of a primary set of reducing-rolls, a broad and closed receiver having a shallow interior space, as *r*, tapering to a narrow exit-passage, as *m*, a tubular pivoted guide, one end of which is located to receive the rod as it issues from the primary rolls, and the other adapted to traverse the entrance-space of said receiver, a set of intermediate feed-rolls, and a supplemental set of reducing-rolls, for the purpose set forth.

10. The combination of the receiver C, having a broad shallow interior space, as *r*, adapted for containing a wire rod in the manner set forth, and a gas-supply pipe, G, for the purpose set forth.

11. The combination, with the receiver C, having the broad shallow interior space, *r*, tapering to the exit-passage *m*, of the hinged cap-plate above said passage, substantially as and for the purpose set forth.

351,839. APPARATUS FOR COILING WIRE RODS.

EDWIN S. LENOX, Worcester, Mass., assignor to the Washburn & Moen Manufacturing Company, same place. Filed Jan. 6, 1886. (No model.)

Claim.—1. The combination, substantially as described, of a stationary circular guard or cylinder open at its lower end, and a rotating guide, through which the rod is delivered against the inner surface of said guard, to form coils which drop from the guard in successive order, as set forth.

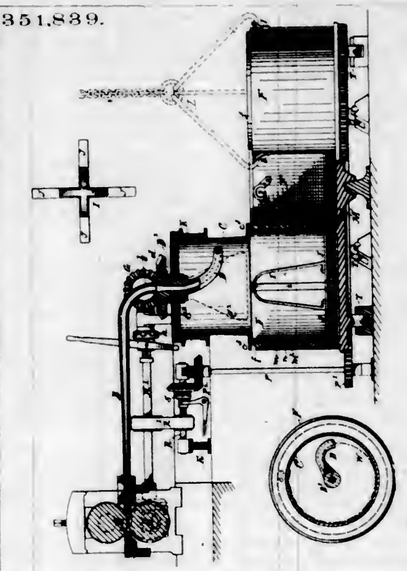
2. In apparatus for coiling hot wire rods, the combination of a rotating delivery-guide, a cylindrical guard surrounding said delivery-guide and open at its end, and a tub or receptacle of larger internal diameter than said guard thereunder, to receive the coils of rod as they fall from said cylinder, substantially as set forth.

3. In apparatus for coiling wire-rods, the combination, substantially as described, of a stationary guard-cylinder open at its lower end, a guide leading from the reducing-rolls thereto, a rotating delivery-guide within said cylinder, and a portable tub arranged beneath said cylinder, for the purposes set forth.

4. In apparatus for coiling wire rods, the combination, substantially as described, of a stationary guard-cylinder open at its lower end, a tubular guide leading thereto from the reducing-rolls, a delivery-guide rotating within said cylinder, a series of portable coil-receptacles or tubs, and a platform supporting said receptacles, arranged to successively carry them beneath said cylinder, for the purpose set forth.

5. The combination, with the reducing-rolls in a rod-rolling mill, of a stationary circular guard or cylinder, a delivering-guide rotating therein, a guide-pipe leading from the rolls thereto, a rod-receptacle, and a removable central frame for supporting the coils of rod, substantially as set forth.

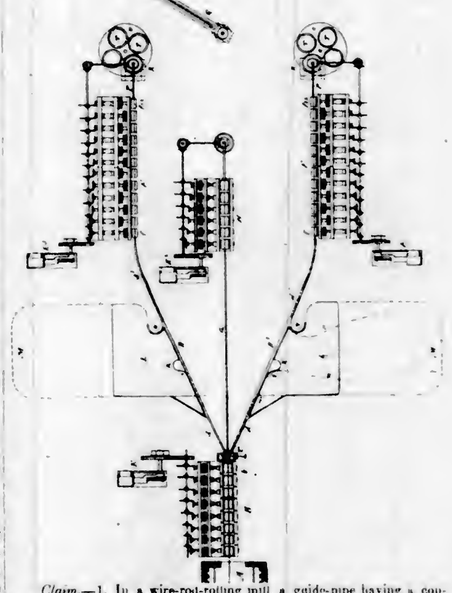
6. A portable rod receptacle or tub composed of a metal exterior and inner casing, with a lining or filling of refractory heat-resisting non-conducting material, and having its upper and lower rims adapted for stacking one upon another, for the purposes set forth.



7. The combination, with the guide D, cylinder C, and tub F, of larger diameter than said cylinder, of the outwardly-extended flange *c*', for the purpose set forth.

351,840. WIRE-ROD-ROLLING MILL.

EDWIN S. LENOX, Worcester, Mass., assignor to the Washburn & Moen Manufacturing Company, same place. Filed Jan. 6, 1886. (No model.)



Claim.—1. In a wire-rod-rolling mill, a guide-pipe having a conducting-channel throughout its length and a slot or opening in its side, through which the rod can loop out, and provided at a position between

the extremities of said slot with a device for deflecting the rod outward from said guide after the loop of overfeed has become sufficiently large to leave said conducting-channel, substantially as hereinbefore set forth.

2. In a rolling-mill for making wire rods, the combination, with primary and secondary reducing-rolls, of a guide-pipe having a side slot and provided with a deflecting device to direct the slack or overfeed of the rod outward from said guide in a single loop, substantially as set forth.

3. In a rolling-mill for making wire rods, the combination of a tubular guide having a slot in its side, a projecting deflecting-guard to throw the loop of the rod laterally away from the guide, and a fender for directing the rod again into the tubular guide, substantially as set forth.

4. The combination, substantially as described, of a primary train of reducing-rolls, a secondary train of reducing-rolls, an intermediately-located guiding-tube having a side slot, an inclined floor adjacent to the slotted portion of said guide, over which the overfeed falls, and a deflecting device at the side of said guide, by which the rod is directed outward along said floor, for the purpose set forth.

5. The combination, substantially as described, of the guiding-tube having a continuous bottom channel and an open slot in its side, the deflector having an overhanging cap, with its top surface projecting from the lower edge of the side slot on said guide, the curved fender at the termination of said slot in the guide, and the inclined floor adjacent thereto, for the purposes set forth.

6. The combination, substantially as described, of the primary train of rolls, the secondary train of rolls, the intermediate tubular guide having a slot in its side, and the inclined floor adjacent thereto and covered over to form a pocket or pit to receive the overfeed of the rod, for the purpose set forth.

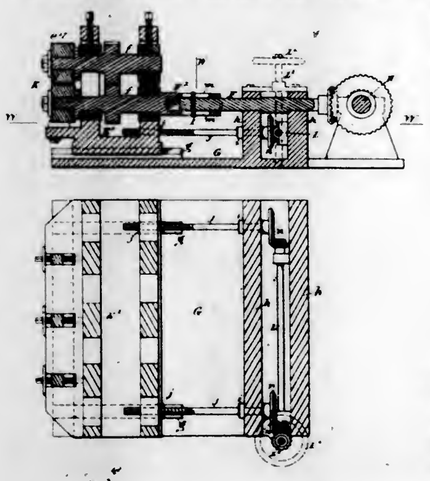
7. In combination with a rod-guiding conductor located between primary and secondary sets of reducing-rolls, a deflecting device having an overhanging cap, the top of which projects from the side of the guide-channel and forms a flush surface therewith, upon which the loop of the rod runs out to fall over the edge of said cap, and having a curved front that deflects the rod laterally from the guide after its loop has dropped beneath the projection of the head, substantially as set forth.

8. In a rod-rolling mill, the combination of a primary train of reducing-rolls, two secondary trains of reducing-rolls, right and left intermediate guides provided with side openings and deflecting devices, loop-receiving pockets having inclined floors, and automatical reeling mechanism adapted for coiling the finished rods into portable tubs, substantially as set forth.

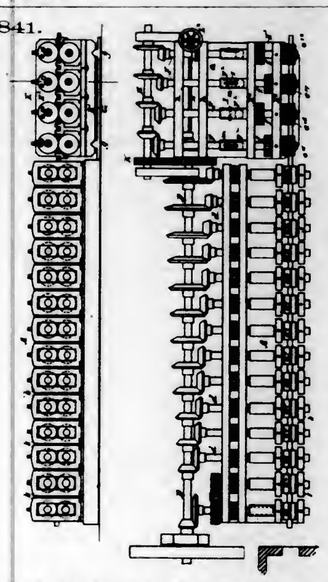
9. In a rod-rolling plant, the primary train of reducing-rolls B, two secondary or finishing trains, F F, an auxiliary set of rolls, H, supplemental to said primary train, guides D, D', and G, and a switch, C, substantially as and for the purposes set forth.

10. In a rod-rolling plant, the combination of the primary train B, secondary trains F F, auxiliary train H, guides D D', with deflectors and fenders N, covered inclined floors L, guide G, switch C, and guides and automatic reels, substantially as and for the purposes set forth.

351,841. ROLLING-MILL FOR MAKING WIRE RODS. EDWIN S LENOX, Worcester, Mass., assignor to the Washburn & Moen Manufacturing Company, of same place. Filed Feb. 23, 1886. (No model.)



351,841.



Claim.—1. A continuous rod-rolling mill having a series of rolls—viz., four to eight pairs—which work the smaller sections of the wire rod, mounted upon and detachably retained in connection with the overhanging ends of rotating shafts, which are supported in bearings or housings that are laterally adjustable in series, substantially as set forth.

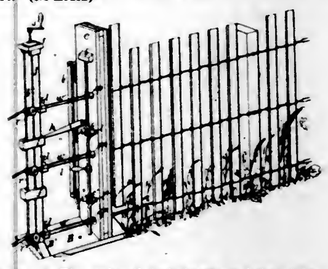
2. A wire-rod-rolling mill having a breaking-down section consisting of a series of double-journaled rolls, and a finishing-section consisting of a series of overhanging rolls, the two sections being disposed to operate in continuous order.

3. In a wire-rod-rolling mill, the combination, with the overhanging rolls, their operating-shafts, and the driving-gear shaft, of the telescoping sleeve having a slot, and the pin arranged through the shaft to project into said slot, and adapted to break or give way under abnormal strains, as hereinbefore set forth.

4. A continuous rolling-mill having the series of rolls which form the small sections of wire rod overhanging and mounted upon a carriage that is movable laterally upon the bed or platform upon which the driving-gear shafts are mounted.

5. The combination, with the laterally-movable carriage supporting the series of rolls which form the small sections of rod, of screw-shafts connecting the respective ends of said carriage with the stationary bed, and an operating-shaft and gearing for simultaneously rotating said screw-shafts, as hereinbefore described.

351,842. WIRE-FENCE MACHINE. SEYMOUR PIERCE, Dublin, Ind., assignor of one-third to Charles L. Hood, of same place. Filed Mar. 4, 1886. (No model.)



Claim.—1. The casing C, inclosing the twisting-pinions *p*, having bearings *s p* in the sides of such casing, the toothed sectors *s*, arranged to intermesh with the pinions *p*, the bar *b*, pivoted to the sectors *s*, and handle *h*, for operating the same, all combined substantially as described.

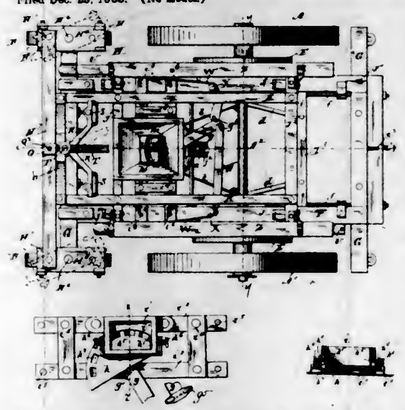
2. The casing C, carrying twisting mechanism and movable on the supporting-base B, the crank-rods *c*, connected by suitable links to the outside of such casing, and the lever *l*, for operating such crank-rod, all combined substantially as described.

3. The adjustable spacer *a*, having projections of different lengths, detachably connected to the side of the casing C, carrying twisting mechanism, substantially as described.

4. The casing C, inclosing the geared pinions *p*, and the toothed sectors *s* and their connected rods and levers for revolving the twisters for twisting the wire, the adjustable spacer *a*, detachably connected to one side of such casing, and the crank-rod *c* and its lever to the other for moving the casing out or in as desired, all combined substantially as described.

5. In a wire-fence machine, a series of twisters carrying the wires longitudinally through them, journaled in the sides of a casing which partly incloses toothed sectors engaging with the geared central portions of the twisters, a device connected to each of the sectors for operating them together, a lever-connection for moving such casing and its twisting mechanism in or out toward the fence-section under construction, and an upright standard carrying a clamping and adjustable tension mechanism for the wire, all combined substantially as described.

351,843. COTTON-PLANTER. JAMES K. P. SHELTON, Gaston, Ala. Filed Dec. 23, 1885. (No model.)



Claim.—1. The combination of the main frame, the seeding devices carried thereby, the driving-wheels, the steering-wheels, and the forked hangers H H', one on each side of one of the steering-wheels, and in the lower ends of which are mounted the wheel-shafts H², said hangers connecting the wheels with the main frame, substantially as set forth.

2. The combination of the main frame, the seeding devices carried thereby, the drive-wheel, the steering-wheels, and the forked hangers which support the wheels at their lower ends, the plates connecting the upper ends of the hangers, and the pivots passing through the plates between the ends of the hangers and connecting them with the main frame, substantially as set forth.

3. The combination of the main frame, the seeding devices carried thereby, the drive-wheels, the steering-wheels, the forked hangers which support the wheels at their lower ends, the plates *d*, connecting the upper forked ends of the hangers, the pivots connecting the plates with the main frame, the bar H⁷, connecting said plates, and means for moving said bar in order to turn the steering-wheels, substantially as set forth.

4. The combination of the main frame, the seeding devices carried thereby, the steering-wheels, the vertical shaft connected with the steering-wheels, by which the steering-wheels are turned, and the stirrups for the driver's feet carried by said shaft, substantially as set forth.

5. The combination of the main frame, the seeding devices carried thereby, the steering-wheels, the vertical shaft connected with the steering-wheels, the bar R, transverse to said shaft and connected thereto, and the stirrups S, carried by said bar upon opposite sides of the shaft, substantially as set forth.

6. The combination of the main frame, the seeding devices carried thereby, the steering-wheels devices, substantially as described, for moving said steering-wheels, and a driver's seat adjustable toward and from the steering devices, substantially as set forth.

7. The combination of the main frame, the seeding devices carried thereby, the steering-wheels, devices, substantially as described, for moving said steering-wheels, the longitudinal elastic bars, and the driver's seat supported on said elastic bars adjustably relatively to the steering devices, substantially as set forth.

8. In a seeding-machine, the combination of the main frame, the seeding devices carried thereby, and a supplemental removable frame supported upon the main frame and carrying a driver's seat, and devices whereby the seeding devices are operated, substantially as set forth.

9. The combination of the main frame, the seed-dropping devices carried thereby, a rectilineally-reciprocating rigid bar, devices carried by the wheel which directly engage with and move said bar, and a flexible strap which unites the bar with the seed-dropping devices, substantially as set forth.

10. The combination of the main frame, the seed-dropping devices carried thereby, two oppositely rectilineally-reciprocating rigid bars connected with the seed-dropping devices, and means carried by the wheels which directly reciprocate said bars alternately, substantially as set forth.

11. The combination of the main frame, the seed-dropping devices, a supplemental frame carried by the main frame, a rectilineally-reciprocating rigid bar carried by the supplemental frame, means carried by the wheels for imparting motion directly to said bar, and a connection between said bar and the seed-dropping devices, substantially as set forth.

12. The combination of the main frame having the longitudinal sills F F, the seed-dropping devices, a supplemental frame carried by the main frame, rectilineally-reciprocating bars carried by the supplemental frame and mounted by the side of the sills F of the main frame, means for reciprocating said bars, and connections between said bars and the seed-dropping devices, substantially as set forth.

13. In a seeding-machine, the combination of the supporting-frame having cross-bars, the seeding devices, the reciprocating bars connected by suitable devices with the seeding devices and mounted in recesses in said cross-bars, and stirrups *j*, which confine said bars in the recesses, substantially as set forth.

14. The combination of the main frame, the seed-dropping devices carried thereby, a reciprocating bar, a flexible strap connecting said bar with the seed-dropping devices, a socket, W³, carried by the bar and in which one end of the strap is inserted, and a clamping-piece which confines the strap in said socket, substantially as set forth.

15. In a seed-distributer, the combination of the seed-distributing plate, a receiving-box provided with openings for the outward passage of seed, springs which regulate the passage of seed through said openings, and means for adjusting said springs, whereby the amount of seed delivered may be varied, substantially as set forth.

16. The combination of the seed-box, the vibrating distributing-plate pivoted at *g'*, the lever *g*, attached to and projecting from the distributing-plate, the rectilineally-reciprocating bars U U, the straps X, connecting said bars with lever *g*, and means, substantially such as described, for alternately reciprocating said bars, as set forth.

17. The combination, with the main frame provided with pins or their equivalents, of the detachable frame adapted to be secured to the main frame by said pins, a seed-box attached to said detachable frame, and a distributing-plate also attached to said detachable frame, substantially as set forth.

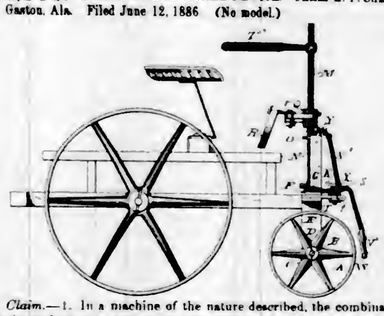
18. The combination, with the main frame, of the detachable frame supported upon the main frame and having the cross-bars I² I², the seed-box secured to one of said cross-bars, and the vibrating plate pivoted to the other cross-bar, substantially as set forth.

19. The combination of the main frame, the seed-box, the distributing-plate, a reciprocating bar which moves said plate and the hinged shield which covers said bar, substantially as set forth.

20. In a seeder, the herein-described opener, consisting of the press-bar *a*, formed from a single piece of metal having the front tapering edge, and having also in the top thereof a seed groove or passage, substantially as set forth.

21. In a seeding-machine, the herein-described opener, consisting of the press-bar *a*, and the wings *b*, seated in recesses therefor formed in the press-bar, the press-bar being formed with the upper backward-sloping front edge and the lower backward-sloping edge and a beveled bottom edge, substantially as set forth.

351,844. STEERING AND BRAKE DEVICE. JAMES K. P. SHELTON, Gaston, Ala. Filed June 12, 1886. (No model.)



Claim.—1. In a machine of the nature described, the combination, with the main frame, of the supporting-wheels, the steering-wheels, the hangers E E, independently pivoted to the cross-girt F near the opposite

sides of the machine, the steering-bar connecting the hangers, and means for operating the steering-bar to change the angles of the steering-wheels relative to the line of draft, substantially as set forth.

2. In a machine of the character described, the combination, with the main frame, of the girt F, the wheels A, the hangers E, the steering devices, and the brake devices supported on the steering devices, substantially as set forth.

3. The combination, with the main frame, of the girt F, the wheels A, the hangers E, the steering devices, the brake-blocks which engage with the steering-wheels, and means for operating the brakes, substantially as described.

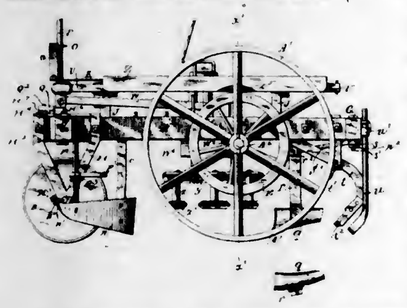
4. The combination, with the girt F, the wheels A, the independently-pivoted hangers E, and the steering-bar T, connecting the hangers of the shaft M, supported on girt F, and the arm S, connecting the shaft with the steering-bar, substantially as described.

5. In a machine of the nature described, the combination, with the main frame, of the steering-wheels, the vertical shaft M, connected with said wheels, arms Q Q, carried by shaft M and projecting on opposite sides thereof, and stirrups carried by said arms and adapted to receive the driver's feet, substantially as set forth.

6. In a machine of the nature described, the combination, with the main frame, of the steering-wheels, the steering-shaft M, the stirrups for the driver's feet connected with said shaft, and means for adjusting said stirrups around the shaft, substantially as set forth.

7. The combination, with the main frame having a short tongue, and the flexible or loosely-mounted draft devices extending forward from said tongue, of the steering-wheels, the means for guiding said wheels, and the brake-blocks which engage with said wheels, supported from the steering devices, substantially as set forth.

351,845. COTTON CHOPPER AND CULTIVATOR. James K. P. Shelton, Gaston, Ala. Filed June 17, 1886. (No model.)



Claim.—1. The combination of the supporting-frame, the chopping devices carried thereby, a rectilinearly-reciprocating rigid bar, devices carried by the wheels which directly engage with and move said bar, and a flexible connection uniting said bar with the chopping devices, substantially as set forth.

2. The combination of the supporting-frame, the chopping devices carried thereby, two rectilinearly-oppositely reciprocating bars connected with the chopping devices, and means carried by the wheels which directly reciprocate said bars alternately, substantially as set forth.

3. The combination of the supporting-frame, a supplemental removable top frame, the chopping devices carried by said removable frame, a rectilinearly-reciprocating rigid bar carried by the supplemental frame, means carried by the wheels for imparting motion directly to said bar, and a connection between said bar and the chopping devices, substantially as set forth.

4. The combination of the supporting-frame, having longitudinal sills, the chopping devices, a supplemental frame carried by the main frame, rectilinearly-reciprocating bars carried by the supplemental frame and mounted by the side of said sills, means for reciprocating said bars, and connections between said bars and the chopping devices, substantially as set forth.

5. The combination of the supporting-frame, vibrating shaft *v*, detachably supported on said frame, the chopping devices mounted on said shaft, and means for vibrating the shaft and chopping devices detachably connected therewith, substantially as set forth.

6. The combination of the supporting-frame, vibrating shaft *v*, the chopping devices carried by said shaft, double hook w^4, carried by the chopping devices, reciprocating bars on opposite sides of the machine alternately operated by the wheels, and flexible connections adapted to engage with said hook w^4 and unite the said bars and the chopping devices, substantially as set forth.

7. The combination of the supporting-frame, vibrating shaft *v*, the chopping devices carried thereby, double hook w^4, carried by the chopping devices, rectilinearly-reciprocating bars U U, supported upon opposite sides of the machine, devices carried by the wheels which alternately reciprocate said bars, and straps W W, one connecting each bar with the hook w^4, substantially as set forth.

8. The combination of the supporting-frame, the vibrating shaft *v*, socketed bars *w*, carried by said shaft, bars *x*, vertically adjustable in the sockets of bars *w*, and the chopping-blades carried by said bars, substantially as set forth.

9. The combination of the supporting-frame, the vibrating shaft *v*, vertical hanger-bars, the chopping-blades carried by said hanger-bars, a bar, w^3, connecting the hanger-bars, a hook, w^4, carried by bar w^3, and devices connected with said hook for reciprocating the choppers, substantially as set forth.

10. The combination of the supporting-frame, vibrating shaft *v*, vertical hanger-bars, plate *y*, connecting the lower ends of said hanger-bars and provided with a longitudinal slot, and chopper-blades adjustably supported in said slotted plate, whereby their distance apart may be regulated, substantially as set forth.

11. The combination of the supporting-frame, a vibrating chopper-frame carried thereby and having at its lower end a slotted plate, *y*, the chopper-blades, rods z^3, adjustably seated in said slotted plate and connecting therewith the chopping-blades, and tubular shanks surrounding rods z^3 and interposed between the plate *y* and the chopping-blades, substantially as set forth.

12. The combination of the supporting-frame, a vibrating chopper-frame carried thereby and supporting tubular shanks *z z*, the lower ends of which are concave, the chopping-blades concavo-convex in cross-section, and the rods z^3, passing through said shanks and adapted to draw the convex sides of the chopper-blades against the concave ends of the shanks, substantially as set forth.

13. The herein-described chopper-blade, concavo-convex in cross-section and having beveled corners, substantially as set forth.

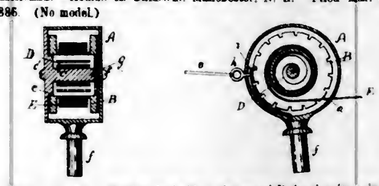
14. The combination of the supporting-frame, the swinging chopper-frame having the downward-projecting hanger-bars, and the transverse guide and brace carried by the supporting-frame, and in proximity to which said hanger-bars swing, substantially as set forth.

15. The combination of the supporting-frame, the swinging chopper-frame, and the elastic checks against which the chopper-frame swings and is arrested, substantially as set forth.

16. The combination of the supporting-frame, the scrapers N, bars *p*, which support the forward ends of the scrapers and are connected with the supporting-frame at their upper ends by eyes *p'*, and a connecting-piece, p^2, situated between the bars *p*, and having eyes through which the bars pass, the distance between the eyes in connecting-piece p^2 and the eyes *p'* being different, whereby the distance between the front ends of the scrapers may be varied by adjusting connecting-piece p^2 upon bars *p*, substantially as set forth.

17. The combination of the supporting-frame, the rear scrapers, *q*, hangers *r*, which support the scrapers, regulating-braces S', secured to said hangers and having the elongated slotted portions *s*, and bolts passing through said slotted portions *s* and engaging with the supporting-frame to hold the regulating-braces in position after the scrapers have been adjusted, substantially as set forth.

351,846. APPARATUS FOR OPERATING THE CHECK-REIN OF HARNESS. Rollin A. Baldwin, Manchester, N. H. Filed Mar. 24, 1886. (No model.)



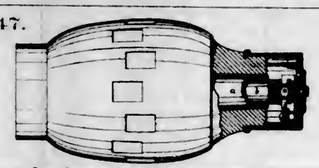
Claim.—1. In a check-rein holder, the spool B, having its enlarged ends or heads slotted across their edges for the purpose of receiving a pawl as a means of locking said spool, which is actuated from within by a coiled spring and has wound upon its outer surface a convenient tape or cord, connected through an opening in the outer casing with the check-rein, all substantially as shown.

2. In a check-rein holder, the spring-pawl having a projection through the casing, to which may be connected a strap or cord which extends within reach of the driver, preferably through loops fastened to one of the driving-reins, for the purpose shown and described.

3. The combination of the spool B, having slots in the edges of its heads, and actuated by the coiled spring D, and provided with the tape or cord E, and the spring-pawl *i*, carrying the connecting-ring *h*, and provided with a means of operating the same from the seat of a carriage, all substantially as described, and for the purpose set forth.

351,847. HUB-ATTACHING DEVICE. J. Williams Beal, Hanover, Mass. Filed July 6, 1886. (No model.)

351,847.

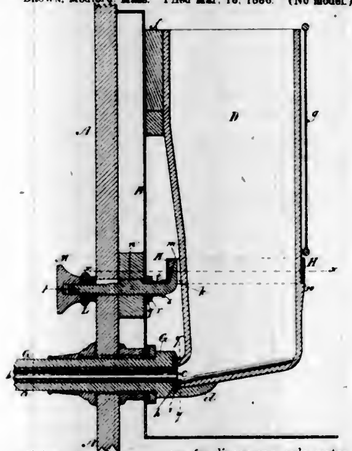


Claim.—1. In a device for attaching wheels to their axles, two semi-cylindrical jaws or clotches, *h h*, having semi-cylindrical cavities in the flat sides thereof, pivoted opposite to each other upon a circular plate in such a manner as shall bring the said flat sides together and thus form an annular ring between them, in combination with a cam to operate the same, and an axle fitted with a groove near its end to conform to and be engaged by the said annular ring, all for the purpose set forth and described.

2. In combination with a circular plate having jaws or clutches pivoted upon its surface so as to form an annular ring and operated by a cam, the cylindrical nut *c*, having a groove around and near its end and fitted with an internal screw-thread within its end, by means of which it may be screwed upon the end of any axle in place of the common nut, and thus provide a groove around the end of the axle to be engaged by the jaws or clutches *h h*, substantially as shown and specified.

3. In a cam to operate the jaws or clutches *h h*, the combination of a thumb-piece or latch hinged to the hub of said cam and a recess in the surface of the circular plate, into which the said thumb-piece or latch may be turned down and prevent the cam from turning, and thus lock the jaws or clutches *h h* together around the groove on the axle by means of the hooks on the ends of the said cam passing around the hubs on the ends of said jaws or clutches, all as shown and described.

351,848. APPARATUS FOR DISPENSING SODA-WATER. John Brown, Medford, Mass. Filed Mar. 18, 1886. (No model.)



Claim.—1. In an apparatus for dispensing soda-water, the combination, with a sirup-can and its gate or outlet, of a strap encircling said can, a bolt or rod detachably connected with said strap and extending through the outer casing of the apparatus, and one or more clamping-nuts, whereby the can is securely held with its nozzle against the inner end of the gate or outlet, substantially as herein described.

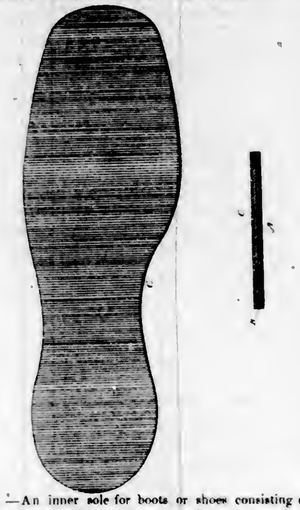
2. In an apparatus for dispensing soda-water, the combination, with the sirup-can D and its gate or outlet-pipe G, of the strap or holder H, extending around said can, the bolt or rod I, extending through the outer casing of the apparatus and connected with the holder H by a hook or projection, *m*, adapted to engage a socket, *k*, and a clamping nut or nuts applied to the end of said bolt on the outside of the apparatus, all operating substantially in the manner and for the purpose described.

3. In an apparatus for dispensing soda-water, the combination, with a clamping-bolt, I, having the hook or projection *m*, of the strap or holder H, extending around the can D and provided with a socket, *k*, having a central vertical portion, 15, and inclined sides 12, whereby the can is centered as the hook *m* enters the socket, substantially as set forth.

4. In an apparatus for dispensing soda-water, the combination, with the sirup-can D and its gate or outlet pipe G, of the strap or holder H, extending around said can and having a socket, *k*, the bolt I, extending through the casing of the apparatus and provided with a spline, *n*, and a wedge-shaped hook, *m*, adapted to fit said socket, the spring *t*, and the clamping-nut L, applied to the outer end of the bolt I, all operating substantially as and for the purpose described.

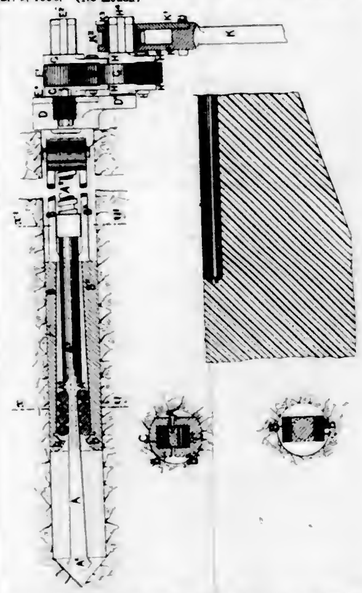
5. In an apparatus for dispensing soda-water, the combination, with a sirup-can having its outlet-nozzle on the front side, of the sirup-gate or outlet-pipe G, provided with a rest or projection, *d*, for supporting the can with its nozzle at the proper height to engage the inner end of the outlet-pipe, substantially as set forth.

351,849. INNER SOLE FOR BOOTS OR SHOES. Hiram Buckingham, Hartford, Conn. Filed Mar. 31, 1886. (No model.)



Claim.—An inner sole for boots or shoes consisting of a layer of burlap, two central layers of tarred roofing-paper, and a layer of felt, which will form the bottom lining of the boot or shoe, the burlap and tarred paper forming a combined material capable of holding either pegs or stitches in case the boots or shoes are manufactured either by pegging or stitching.

351,850. MINING WEDGE OR TOOL FOR BREAKING UP COAL, &c. Cuthbert Burnett, Hartlepool, County of Durham, England. Filed Mar. 9, 1886. (No model.)



Claim.—1. The inner jambing-bar having one long tapering portion, A, and shoulders $A^\times$ A° at the respective ends of the taper, in combination with the long tapering bars or feathers B $B^\times$, with shoul-

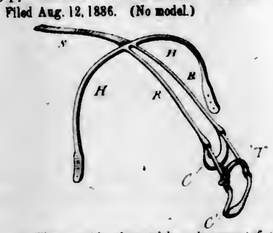
ders *b* and flange abutting against the face of the coal, and ranges of numerous anti-friction rollers in the spaces between the bars A and B B×, and confined by the shoulders A×, A⁹, and *b*, and means, substantially as specified, for moving the jambing-bar endwise and forcing the inclosing-bars apart, and, vice versa, allowing them to come together, substantially as set forth, whereby the required power is obtained and the splitting action concentrated and gradual, substantially as set forth.

2. The combination of an inner jambing-bar, A A' A², having shoulders A× A⁹, the inclosed channeled bars or feathers B and B×, with shoulders *b*, and the anti-friction rollers C, arranged in the intermediate tapering spaces, confined by the shoulders A×, A⁹, and *b*, the said feathers B B× being united to a flange, D, which rests against the face of the coal, and the screw A²ⁿ of the jambing-bar having a nut, E, with pawl-wheel E', and square E², for ratchet handle or lever, and provided with supplementary or slower purchase device, with square for ratchet handle or lever, substantially as set forth.

3. The combination, with an inner jambing-bar with screwed end and inclosing bars or feathers, with abutting shoulder or flange D, and rollers arranged in intermediate tapering spaces, of a nut, E, on said jambing-bars, with pawl-wheel E', and square E², for ratchet lever or handle, a supplementary purchase-fork, G, swiveling on said nut and provided with a pawl, and having an internal cam-surface, G', for a roller, H², to work against, which operates in conjunction with the boss of the lever H, on which it is mounted, said lever pivoting on a fulcrum, D', on the aforesaid flange D, and being provided with a square, H⁴, for ratchet lever or handle to work such supplementary or slower purchase-gear, substantially as set forth.

4. The combination, with an inner jambing-bar with screwed end and inclosing bars or feathers, with abutting shoulder or flange D, and rollers arranged in intermediate tapering spaces, of a nut, E, on said jambing-bar, and taper rollers between the flange D and the nut E, for diminishing the friction, substantially as set forth.

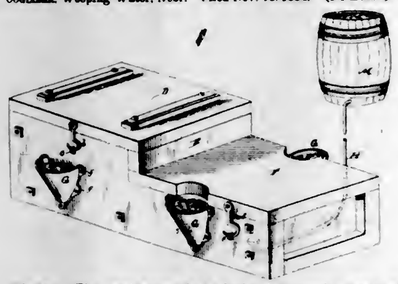
351,851. HARNESS ATTACHMENT. Joseph W. Cheney, Palmer, Mass. Filed Aug. 12, 1886. (No model.)



Claim.—1. The combination, with a harness, of the frame-work consisting of rods R R, the crupper C, the crupper-piece C', the strap T, and the hip-straps H H, or their described equivalents, the whole arranged and operating substantially as and for the purpose set forth.

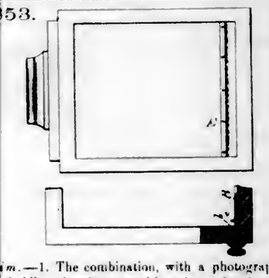
2. The combination, with a harness, of a frame-work consisting of rods R R, the crupper C and C' beneath the tail of the animal, a strap, T, passing over the tail, and rigid straps H H, or their described equivalent, for preventing rocking, substantially as set forth.

351,852. TROUGH FOR WATERING LIVE STOCK. Samuel W. Coehler, Weeping Water, Nebr. Filed Nov. 13, 1884. (No model.)



Claim.—The combination, in a device for watering stock, of a chamber provided with a lid, F, openings formed in the sides of said chamber, independent metallic troughs or receptacles secured over said openings and having their upper edges in a line with said lid, the latter being cut away adjacent to said trough, and the side portions being cut away to increase the capacity of said troughs, as and for the purposes specified.

351,853. PHOTOGRAPHER'S CAMERA ATTACHMENT. Frederick Collins, St. Joseph, Mich. Filed Jan. 5, 1886. (No model.)



Claim.—1. The combination, with a photographer's camera and means for holding therein a sensitive plate, of a brush adapted to be moved in front of and brush the sensitive plate.

2. The combination, with a photographer's camera and means for holding therein a sensitive plate, of a brush having a lateral reciprocal motion in front of said plate, and adapted to brush the face of the same within the camera.

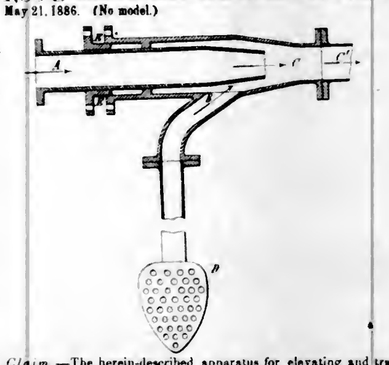
3. The combination, with a photographer's camera and means for holding therein a sensitive plate, of a reciprocal brush having an oscillatory motion, so that it will brush the plate when moving in one direction, and will escape it when the motion is reversed.

4. The combination, with a photographer's camera and means for holding therein a sensitive plate, of frame A, having grooves *a a* in the inner surfaces of the cross-pieces thereof, rod B, arm C, and brush E.

5. The combination, with a camera-frame, A, and means for holding therein a sensitive plate, of rod B, vertical arm C, sleeve D, loose on said arm, and having a stud, *c*, projecting from the lower end thereof, and posts *d* and *e*.

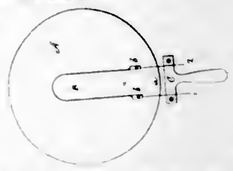
6. The combination, with a camera-frame, A, and means for holding therein a sensitive plate, of rod B, vertical arm C, sleeve D, loose on said arm, having a stud, *c*, and having a transverse segmental slot, *g*, and stops *d* and *e*, said arm C having a pin projecting laterally from it through the said slot *g* in sleeve C, as and for the purpose set forth.

351,854. GRAIN-CONVEYER. Henry Delhaye, Paris, France. Filed May 21, 1886. (No model.)



Claim.—The herein-described apparatus for elevating and transporting granular and pulverulent matters, consisting in the combination of the nozzle A, receiving-cone C, main pipe C', suction-pipe B, and rose D, the pipes A, B, and C' being rigidly united to the cone C, substantially as herein shown and described.

351,855. ELECTRIC LAMP. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Aug. 27, 1880. (No model.)

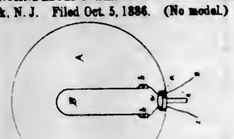


Claim.—1. In an incandescent electric lamp, the combination of an exhausted glass inclosing-globe and a carbon filament within the same secured to metallic wires, said globe being sealed directly upon said wires, substantially as set forth.

2. In an incandescent electric lamp, the combination of an exhausted glass inclosing-globe and a loop-shaped carbon filament within the same, having its ends secured to parallel metallic wires, said globe being sealed on one side thereof directly upon such wires, substantially as set forth.

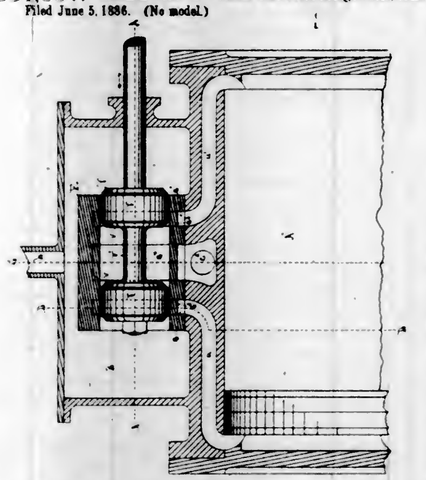
3. The method of manufacturing an incandescent electric lamp, consisting in attaching the carbon filament to the leading-in wires, inserting the same in a glass globe and sealing said globe directly upon said wires, substantially as set forth.

351,856. INCANDESCENT ELECTRIC LAMP. Thomas A. Edison, Llewellyn Park, N. J. Filed Oct. 5, 1886. (No model.)



Claim.—The incandescent electric lamp having, in combination, a glass inclosing-globe composed of the glass chamber and disk hermetically joined together, the incandescing conductor inclosed within such globe, and the metallic conductors leading to such incandescing conductor and passing through and sealed into the glass disk, substantially as set forth.

351,857. ENGINE-VALVE. James Ferguson, Bridgewater, Mass. Filed June 5, 1886. (No model.)



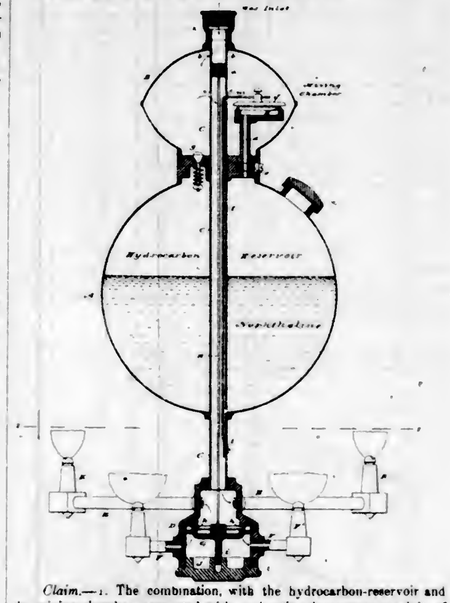
Claim.—1. The combination of the head *v* of the balanced valve V, the expansible packing-ring *r*, surrounding the same, provided with slot r^2, the segment r^3, covering the ends of said slot, the valve-cylinder E, provided with the steam-passage *e'*, surrounding the bore of the same and leading into steam-port *a'*, and having a bridging-strut, r^4, covering the slot r^2 in said packing-ring as it reciprocates across said steam-passage, substantially as described.

2. The combination of head *v* of balanced valve V, the expansible packing-ring *r*, the valve-cylinder E, provided with steam-passage *e'*, surrounding the bore of the same, and having one or more bridging-struts, r^4 r^4, across said steam-passage and in contact with said packing-ring formed of softer metal than the body of said cylinder, substantially as described.

3. The combination of the valve-cylinder, the head *v* of balanced valve V, the expansible packing-ring *r*, adapted to adjust itself automatically to the bore of the cylinder, and provided with a slot, r^2, through the same, and the segment r^3, formed with the flanges r' r', overlapping the ends of said slot and itself underlapping the ring *r* circumferentially beyond said flanges, with a steam-tight automatically-adjusting joint at one or both ends, substantially as described.

4. The combination of the valve-piston head provided with groove v^3, having flat radial opposite faces, the packing-ring *r*, adapted to adjust itself constantly and automatically to the bore of the valve-cylinder and provided with the transversely-divided flanges r' r', extending radially inward from the edges thereof, having their outer faces bearing against said radial faces of groove v^3, and the valve-cylinder E, having steam-passage *e* around and opening into the bore of the same internally, in position to be crossed by said packing-ring as it reciprocates back and forth, substantially as described.

351,858. CARBURETOR FOR ENRICHING GAS. Nicholas Finck, Elizabeth, N. J. Filed Apr. 19, 1886. (No model.)



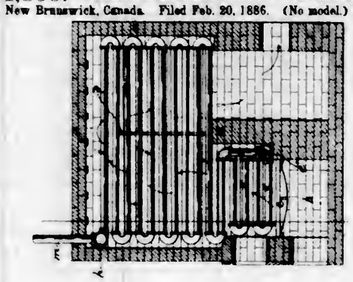
Claim.—1. The combination, with the hydrocarbon-reservoir and the mixing-chamber, connected with each other by a vapor-conduit, of a thermo-regulator and valve controlled thereby to regulate the quantity of vapor admitted to the mixing-chamber and a burner to heat the hydrocarbon-reservoir.

2. The combination, with the hydrocarbon-reservoir and the mixing-chamber, connected with each other by a vapor-conduit, of the tube C, which passes through the hydrocarbon-reservoir and supplies gas to the burners, the heating-burner, the valve for controlling the flow of vapor into the mixing-chamber, and its stem I, arranged in the pipe C, substantially as set forth.

3. The combination, with the hydrocarbon-reservoir, of the tube forming the gas-conduit, the chamber D on the lower end of said tube, and said chamber provided with a valve-seat, *h*, the valve G and its long slender stem H, arranged in said tube and fixed at its upper end, the branch pipe E, for the illuminating-burner, connected with chamber D above the valve-seat *h*, and the branch pipe F, for the heating-burner connected with chamber D below the valve-seat *h*, substantially as and for the purposes set forth.

4. In combination with the hydrocarbon-reservoir, the mixing-chamber connected therewith by a conduit or passage, and the said mixing-chamber provided with a gas-inlet from the service-pipe, and a gas-outlet to the heating-burner F', the gas-conduit leading thereto from the mixing-chamber, and a thermo-regulator in the nature of a valve and its rod operated by expansion and contraction, arranged between the mixing-chamber and the heating-burner, substantially as set forth.

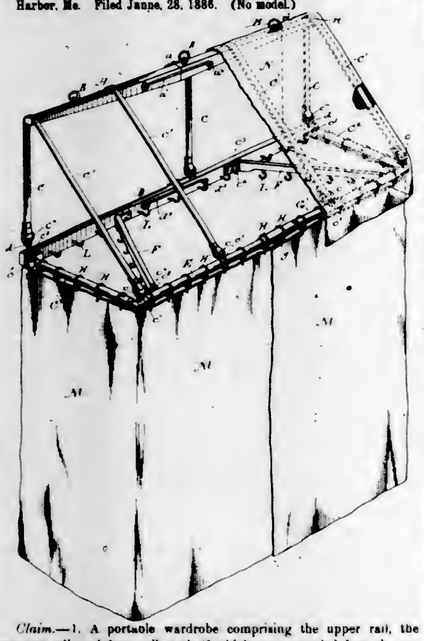
351,859. WATER-HEATING APPARATUS. John A. Fish, St. John, New Brunswick, Canada. Filed Feb. 20, 1886. (No model.)



Claim.—1. In a water-heating apparatus, the casing having the fire-box, grate, and bridge-wall, combined with the receiving-header extending across the casing at the front side of the bridge-wall and above the grate, the pipes *g g*, extending from said receiving-header along the sides of the fire-box and through the casing above the bridge-wall, the series of pipes *i*, extending upwardly from the receiving-pipe at the rear end of the fire-box, the series of pipes *j*, communicating with the vertical pipes, and extending over the fire-box and through the casing above the bridge-wall, the flow-header located in the upper part of the casing and communicating with the pipes *g j*, distributing-pipes extending from the flow-header, and return-pipes *n* and return-headers *o*, to return the water to the receiving-pipe, as set forth.

2. In a water-heating apparatus, the casing having the fire-box, grate, and bridge-wall, combined with the receiving-header extending across the casing at the front side of the bridge-wall and above the grate, the pipes *g g*, extending from said receiving-header along the sides of the fire-box and through the casing above the bridge-wall, the series of pipes *i*, extending upwardly from the receiving-pipe at the rear end of the fire-box, the series of pipes *j*, communicating with the vertical pipes, and extending over the fire-box and through the casing above the bridge-wall, the flow-header located in the upper part of the casing and communicating with the pipes *g j*, the diaphragm extending upwardly from the bridge-wall around the return-pipes, distributing-pipes extending from the flow-header, and return-pipes *n* and return-headers *o*, to return the water to the receiving-pipe, as set forth.

351,860. PORTABLE WARDROBE. Charles A. Glidden, Tenant's Harbor, Me. Filed June 28, 1886. (No model.)



Claim.—1. A portable wardrobe comprising the upper rail, the lower rear rail, and front rail, both of which are suspended from the upper rail, connected with each other and supporting a fabric which forms the front and ends of the wardrobe, and covered by a fabric or covering which forms the top thereof, substantially as described.

2. In a portable wardrobe, the frame comprising the upper rail, A, having eyes or other devices, B, by which it is secured in place, the rear or inner rail, D, suspended from the upper rail, the outer rail, E, suspended from the upper rail, and the stay rods or bars F, substantially as described.

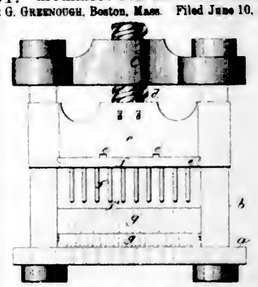
3. In a portable wardrobe, a frame having an upper rail provided with one or more hinges or joints, a lower inner rail adapted to be suspended therefrom and provided with one or more hinges or joints, and a lower rail adapted to be suspended from the upper rail, and provided with a hinge or joint and with hinged end pieces, substantially as described.

4. In a portable wardrobe, the combination of an upper rail, A, an inner lower rail, D, an outer rail, E, with the suspending-straps C C', stay-rods F, and end pieces, C², constructed to be detachable from each other, substantially as specified, as and for the purposes described.

5. In a portable wardrobe, comprising the upper rail or bar, A, the lower inner rail or bar, D, the lower outer rail or bar, E, both suspended from the upper rail by detachable straps, and the hooks L, carried by said lower inner rail and by the stay bars or rods, substantially as described.

6. The combination, in a portable wardrobe, of an upper bar or rail, two lower bars or rails suspended therefrom by detachable devices, a fabric to form the sides and ends of the wardrobe, carried by the lower outer bar or rail and end extensions therefrom, and a hood carried by the upper rail and adapted to extend over the top and ends of the frame to cover the same, substantially as described.

351,861. APPARATUS FOR RELOADING CARTRIDGE-SHELLS. George G. Greenough, Boston, Mass. Filed June 10, 1885. (No model.)



Claim.—1. In an apparatus for resizing, recapping, and reloading shells for fire-arms, the combination of a press with a series of adjustable plates provided, respectively, with a series of recesses for resizing the shells, punches *f f'*, for removing the caps, crimping-dies for crimping the edge of the shells, and bosses for seating the caps in place, substantially as set forth.

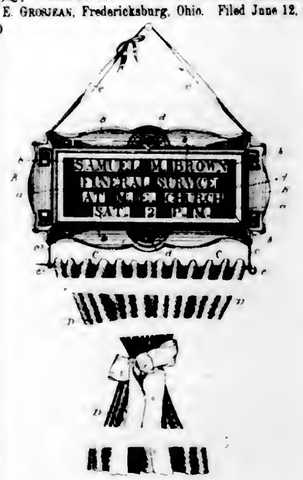
2. In combination with a press to co-operate with the same, the resizer-blocks *g g'*, formed of two plates removably connected together, and having a series of recesses conforming to the normal size of the shell, whereby a series of discharged shells may be simultaneously resized, as set forth.

3. In combination with the press and the resizing-plates carried thereby, the punch-plate *f*, having projecting therefrom a series of punches, *f'*, provided with ejecting-spurs *f²*, whereby a series of shells may be simultaneously decapped, as set forth.

4. In combination with the press and the carrier-block *g*, for retaining a series of shells, the capping-plate *l*, having a series of bosses on the face thereof in position, when in the press, to act upon and seat the caps in the series of shells held by the carrier-block *g*, as set forth.

5. In combination with a press which co-operates with the same, the shell-carrying section *g* of the resizing-block and the crimping-block *s*, fitted to the same and having a series of crimping-dies, whereby the shells are crimped around the balls when the shells are loaded, substantially as set forth.

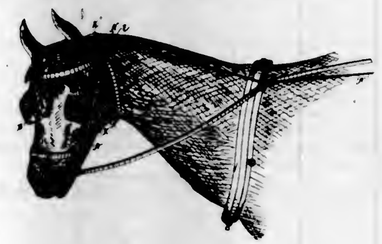
351,862. FUNERAL-ADVERTISING DEVICE OR ANNUNCIATOR. James E. Grojean, Fredericksburg, Ohio. Filed June 12, 1886. (No model.)

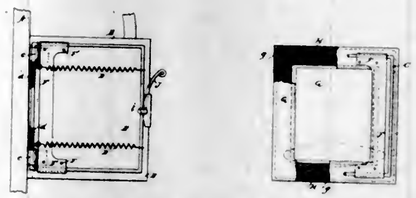


Claim.—1. A funeral-advertising device or annunciator consisting of a tablet provided with words or letters constituting the announcement, combined with a frame in which the said tablet is removably secured, said frame having at its top a suspending device, as a ribbon or cord, and at its lower part a crape-attaching rack.

2. The combination, with the grooved tablet A and the movable words or letters adapted to be slid into the grooves thereof, of the frame B, in which the said tablet is removably secured, the glass E, and the crape-attaching rack attached to the lower part of the said frame, and consisting of the bent and pointed wire C c c' and the hooked wire c² c², substantially as set forth.

351,863. BLINDERS FOR HORSES' BRIDLES. Alexander P. R. Hanes, Erie, Pa. Filed Mar. 31, 1886. (No model.)



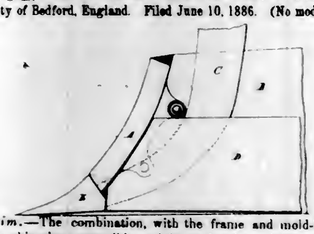


Claim.—1. The combination, with the stationary blinders on a horse's bridle, of vertically-hinged frames having thereon horizontally-sliding frames, and curved blinders vertically hinged to said sliding frames, and spiral springs for moving said sliding frames and the blinders hinged forward, catches in the stationary blinders adapted to retain said hinged frames and blinders back against the inside of the stationary blinders, and cords for releasing said catches, substantially as and for the purpose set forth.

2. In a horse's bridle, the combination, with the stationary blinders B, of the hinged frames C, the movable blinders G, the catches *i*, and the cords N and N', substantially as and for the purpose set forth.

3. In combination with the stationary blinders of a horse's bridle, movable blinders attached thereto and provided with spring-steel frames, constructed substantially as shown and described, and cushions on the lower edges of the movable blinders, substantially as and for the purpose set forth.

351,864. PLOW. James Howard and Henry W. Gibbs, Bedford, County of Bedford, England. Filed June 10, 1886. (No model.)

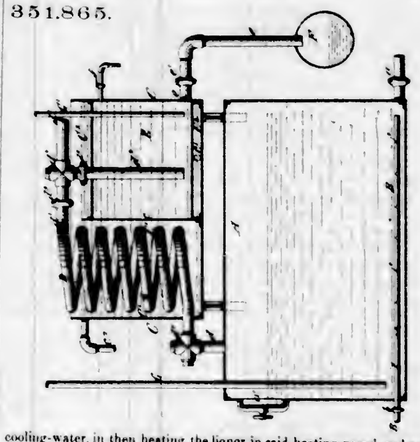


Claim.—The combination, with the frame and mold-board of a plow, of a shin-piece reversible end for end, substantially as herein described, for the purpose of presenting a fresh cutting-edge.

351,865. PROCESS OF CONCENTRATING AMMONIACAL LIQUOR. Charles W. Iddell, New York, N. Y. Filed Mar. 25, 1885. (No model.)

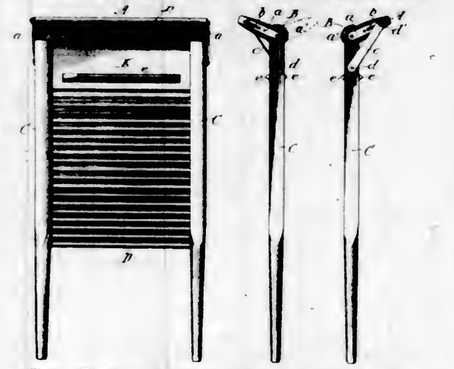
Claim.—The improvement in the method of concentrating the weak ammoniacal liquor of gas-works, consisting in supplying a suitable quantity of the weak liquor to a closed vessel, and also supplying a further quantity of the weak liquor to a receiving-vessel submerged in

351,865.



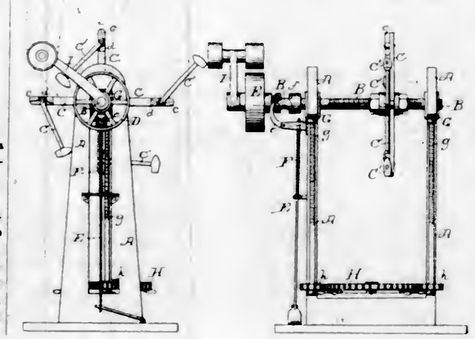
cooling-water, in then heating the liquor in said heating-vessel, and passing the ammonia vapor thus driven off through a cooling worm or coil above the heating-vessel, so that all aqueous vapor will be condensed and returned to the heating-vessel, and in finally introducing the ammonia vapor into the weak liquor in the receiving-vessel to increase the strength thereof, substantially as herein described.

351,866. WASH-BOARD. John S. Johnston, Alton, assignor to Pfanschmidt, Dodge & Co., Chicago, Ill. Filed Feb. 16, 1886. (No model.)



Claim.—The shield A, plates *a*, each having a slot, *b*, and brace-rods *c*, in combination with the bar B and side pieces, C, substantially as and for the purpose specified.

351,867. ROTARY HAMMER. Patrick J. Kearns, Chicago, Ill. Filed Aug. 4, 1886. (No model.)



Claim.—1. In a hammering-machine, the combination of the boss *b*, arms radiating therefrom, having stops *c*, as described, and the hammers C', pivoted at or near the extremities of said arms, as set forth.

2. The combination, in a hammering-machine, with the arms C, radiating from a boss, *b*, of hammers C', pivoted to said arms at a suitable point between stops *c* and *d*, projecting laterally from said arms.

3. The combination, with arms C, radiating from a common boss, and hammers C', pivoted at or near the extremities thereof, of shaft B and means for adjusting said hammers laterally.

4. The combination, with arms C, radiating from a common boss, and hammers C', pivoted at or near the extremities thereof, shaft B, and bearings thereof, of screws *g* and means for operating the same.

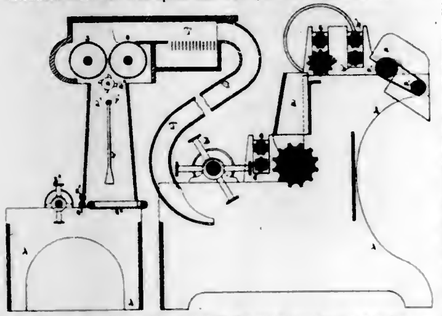
5. The combination, with arms C, radiating from a central boss, and hammers pivoted to said arms, of shaft B, means for operating the same, and standards A, in which said shaft is journaled.

6. The combination, with arms C, radiating from a central boss, and hammers pivoted at or near the extremities of said arms, of shaft B, means for operating the same, standards A, bearings G, in which said shaft is journaled, screws *g g*, pinions *h* on the lower ends thereof, and gear H.

7. The combination, with arms C, radiating from a central boss, hammers C', pivoted at or near the extremities of said arms, shaft B, pulley D, loose on said shaft, having elongated boss, the edges of which are serrated, boss *f*, designed to be engaged by said pulley-boss, shifter-lever *e*, connecting-rod E, treadle, and expansion-spring F, of standards A, bearing-blocks G, screws *g g*, pinion *h*, and gear H.

351,868. COTTON-OPENER. Richard Kitson, Lowell, Mass., assignor to the Kitson Machine Company, same place. Filed Apr. 7, 1884. (No model.)

Brief.—The gage-box, which is larger than usual, is provided with a swinging partition operated either by hand or by the accumulated fiber. The increased size of the box prevents the clogging of the condensers, &c., when the feed-apron below is stopped, and the swinging partition insures the regular delivery of the material in a lap of uniform thickness when the feed-apron and other parts are again started.



Claim.—1. In combination with the gage-box *d'*, the swinging partition *p*, adapted to obstruct either division of the gage-box and prevent passage of fiber therein, substantially as described.

2. The combination of the cotton-trunk T, screens *s s*, the gage-box *d'*, and the swinging partition *p*, substantially as described.

3. The combination of the gage-box *d'*, swinging partition *p*, apron e^4, and rolls e^2 e^3, substantially as described.

4. The combination of the trunk T, the gage-box *d'*, and the swinging partition *p*, substantially as described.

5. The combination of the gage-box *d'*, the swinging partition *p*, adapted to obstruct either division of the gage-box and prevent the passage of fiber therein, and the arm *m*, connected to the axis of the partition on the outside of the gage-box and adapted to move the partition, substantially as described.

351,869. INCANDESCENT LAMP. William P. Kookogey, Brooklyn, N. Y. Filed June 12, 1886. (No model.)



Claim.—1. A filament for incandescing electric lamps having its middle portion made broader than its ends and its ends made thicker than its middle portion, substantially as and for the purpose set forth.

2. The herein-described incandescing electric-light filament, consisting of crescent-shaped body *a* and thickened ends *b b*.

3. A carbonized paper filament for incandescing electric lamps having a thin and broad middle portion and narrow thickened ends.

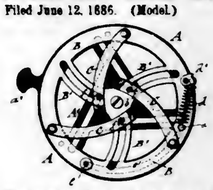
351,870. COMPOSITION TO ATTRACT DISSOLVED CRYSTALS. William Kornacher, Scranton, Pa. Filed Aug. 20, 1886. (No model.)



Claim.—1. The herein-described method of ornamenting with crystals, consisting of first producing a base of plastic, then embedding therein particles of the crystals, and lastly placing the prepared base in a solution of the crystals kindred to that contained in the base, substantially as and for the purpose described.

2. The herein-described method of producing ornaments having crystals formed thereon, which consists in first embedding in a plastic material particles of crystals, then molding the same into the desired shape and allowing it to become dry, and lastly placing it in a saturated solution of the salts kindred to that of the crystals contained therein, substantially as described.

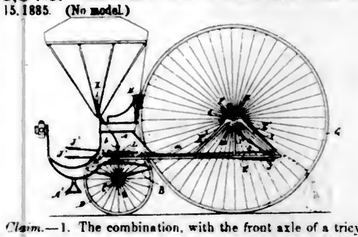
351,871. WATCH-MOVEMENT HOLDER. Michael J. Lampert, New York, N. Y. Filed June 12, 1886. (Model.)



Claim.—1. The combination of a lower ring-shaped frame having straight slotted arms extending from a point near the center to the circumference, a ring-shaped upper frame pivoted to the lower frame and provided with curved and slotted arms extending from the center to the circumference, arms pivoted to the circumference of the upper frame and provided with upright standards having jaws at the upper ends, and studs by which the pivoted arms are guided in the slotted arms of the upper and lower frames, substantially as set forth.

2. The combination of a lower ring-shaped frame having supporting-legs and straight slotted arms extending from the center to near the circumference, an upper frame having slotted arc-shaped arms extending from the center to the circumference of the same, a spring connected to the upper and lower frames, a clamping-screw for clamping the frames after adjustment, arms pivoted to the circumference of the upper frame and provided with upright standards having jaws, and screw-studs by which the pivoted arms are guided in the slotted arms of the ring-shaped frames, substantially as set forth.

351,872. VELOCIPEDE. Hosea W. Libbey, Boston, Mass. Filed June 15, 1885. (No model.)

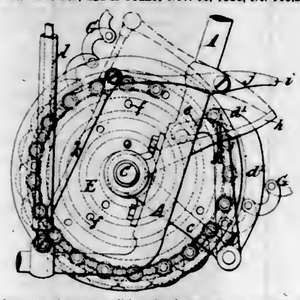


Claim.—1. The combination, with the front axle of a tricycle, of a carriage-body supported on springs thereon, guiding-levers having loops surrounding the ends of the axle, and having handles at the sides of the carriage-body and friction devices for retaining said handles in any set position, treadles above the floor of the carriage-body, a driving-wheel in rear of said body, and crank-connections from the treadles to the drive-wheel axle, all substantially as described.

2. In a tricycle, a carriage-body mounted above the front axle, a drive-wheel of larger diameter than the front wheels in rear of said body, and a seat in the carriage, the back of which seat forms a brake when pressed against the drive-wheel.

3. The combination, with the rod M, of the lever K, the inclosing-cylinder L, attached to said lever, and having screw-caps at each end, and the rubber filling within said cylinder, which, by the adjustment of the screw-caps, is made to bind more or less on rod M, as set forth.

351,873. SPEED AND POWER GEARING FOR VELOCIPEDES. Charles M. Linley and John Boss, Southwark, County of Surrey, assignors of one-half to George Grainger Tandy, Cedars Road, Clapham, England. Filed Aug. 18, 1886. (No model.) Patented in England Feb. 1, 1884, No. 2,547, and in France Nov. 10, 1885, No. 165,280.



Claim.—1. An expansible wheel or pulley, consisting, essentially, of a pair of volute-grooved disks, E E', and a short length of chain or band, *b*, the joint-pins of the chain or the carrying-pins of the band being prolonged to work in the grooves, substantially as herein shown and described.

2. In an expansible wheel or pulley, the combination of a pair of volute-grooved disks, as E E', and a short length of chain having prolonged joint-pins or a pinned band, as *b*, with means for holding the forward end of the chain or band against the rotation of the disks, whereby the chain or band is caused to expand or coil up, according to the direction in which the disks are rotated, substantially as herein shown and described.

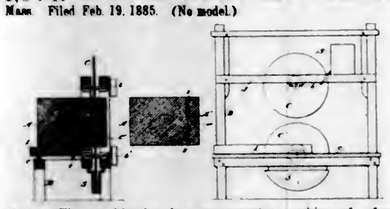
3. The combination of a pair of volute-grooved disks, as E E', mounted on an axle or shaft, and a short length of chain having prolonged joint-pins or a pinned band, as *b*, with an arm, *c*, mounted loosely on the same shaft, and an arm, *d'*, pivoted to the arm *c*, and to the forward end of the chain or band, substantially as and for the purpose set forth.

4. The combination of a pair of grooved disks mounted on an axle or shaft, a short length of chain having prolonged joint-pins or a pinned band, an arm, *c*, mounted loosely on said shaft, an arm, *d'*, pivoted to the arm *c*, and also to the front or outer end of the chain or band, with an arm, *d*, formed in one with the arm *d'*, and carrying on its under side a pin, *e*, arranged to enter a series of holes in the disk E, whereby the disks and chain or band are locked together, substantially as described.

5. The combination, with the arm *d*, having on its under side a pin, *e*, of a beveled bridge-piece, *g*, an arm, *h*, mounted loosely on an axle or shaft, C, and a stop, as *i*, suitably carried, so as to be thrown into and out of gear, whereby the pin *e* is drawn out of the holes *f* in the disk E, as and for the purpose set forth.

6. The combination of a pair of grooved disks, as E E', and a short length of chain having prolonged joint-pins, as *b*, with a driving-chain, as G, formed of flattened U-shaped links, the ends of which are pivoted together and arranged to enter the links of the chain *b*, substantially as described.

351,874. STONE-SAWING MACHINE. James W. Maloy, Boston, Mass. Filed Feb. 19, 1885. (No model.)

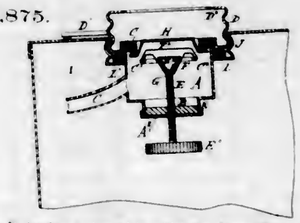


Claim.—The combination, in a stone-cutting machine, of a frame supporting two spindles, each carrying a thin-metal disk and arranged in the same plane, a carriage for supporting the block to be cut, and independent receptacles for supplying abrading material to each disk, substantially as described.

351,875. REVERSIBLE FAUCET. Riverius Marsh, New Brunswick, N. J. Filed Dec. 2, 1885. (Model.)

Claim.—1. The combination, with a can or vessel having a suitable threaded opening, of a faucet provided with a reversible screw, D, having a channel at one end, a packing-rim seat at both ends, and a projection, D', at the side, the faucet-body being secured in the channel, substantially as described.

2. In a reversible faucet, a shell, A, having an inward flange, C', a screw, D, having a channel in which the flange C' lies, and a packing, C^2, interposed between shell A and screw D, forming a fluid-tight but movable joint, the whole in combination, as set forth.

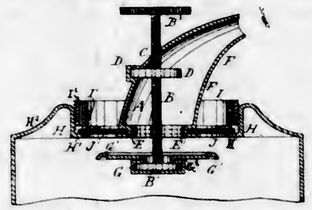


3. In a reversible faucet, the shell A, having vent A', screw-cap A^3, having nut B, nozzle C, valve-rod E, having thumb-piece E', head E^3, and metallic valve-shells F and F^3, in combination with shell H, reversible screw D, depressed screw J, and can I, substantially as described.

4. The reversible faucet, comprising the metallic valve, valve-rod E, the sealing-shell, and valve-seat H, in combination with the turning-shell A and reversible screw D, substantially as specified.

5. The sealing-shell and valve-seat H, in combination, in a faucet, with a shell, A, and reversible screw D, substantially as shown and described.

351,876. FAUCET. Riverius Marsh, New Brunswick, N. J. Filed Sept. 16, 1886. (No model.)

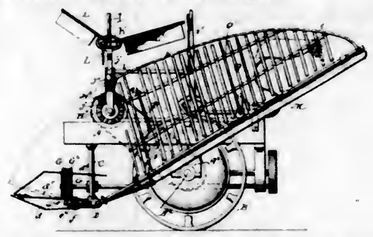


Claim.—1. In a faucet, the spout A, having a nut, D, and recess E, in combination with the packing J and screws H and I, substantially as described.

2. In a faucet, the spout A, having vent C, nut D, recesses D' and E, and packing J, in combination with the screws H and I, valve-rod B, and shell and valve G, as described.

3. In a faucet, the valve-rod B, having thumb-piece B^2 on the top and flat head B' at the bottom, said head surrounded by a shell, said shell forming a valve, in combination with the packing J and the screws H and I and spout A, substantially as shown and described.

351,877. CORN AND CANE HARVESTER. Hugh W. Matthews, Baltimore, Md. Filed Dec. 12, 1885. (No model.)



Claim.—1. In a corn and cane harvesting machine, an endless band-cutter having a straight or continuous serrated cutting-edge, in combination with fingers provided each with an independent guide for said band-cutter, substantially as described.

2. The combination, in a corn and cane harvester, of the fingers provided each with independent guides on their upper and lower sides or faces, and an endless band-cutter passing around said fingers and through said guides, substantially as described.

3. In a corn and cane harvester, the two endless band-cutters arranged to project on opposite sides of and to be operated from a single central driving-shaft, in combination with the fingers provided each with a guide for said endless cutters, substantially as and for the purpose described.

4. In a corn-harvester, the combination, with the guards or fingers provided with an independent guide, of a continuously-moving endless band-cutter and curved rods or fingers arranged to overhang the cutting-

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Claim.—1. In a hammering-machine, the combination of the boss *b*, arms radiating therefrom, having stops *c*, as described, and the hammers C', pivoted at or near the extremities of said arms, as set forth.

2. The combination, in a hammering-machine, with the arms C, radiating from a boss, *b*, of hammers C', pivoted to said arms at a suitable point between stops *c* and *d*, projecting laterally from said arms.

3. The combination, with arms C, radiating from a common boss, and hammers C', pivoted at or near the extremities thereof, of shaft B and means for adjusting said hammers laterally.

4. The combination, with arms C, radiating from a common boss, and hammers C', pivoted at or near the extremities thereof, shaft B, and bearings thereof, of screws *g* and means for operating the same.

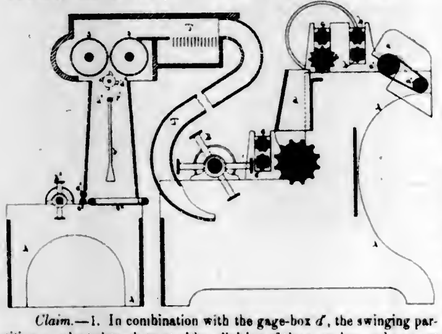
5. The combination, with arms C, radiating from a central boss, and hammers pivoted to said arms, of shaft B, means for operating the same, and standards A, in which said shaft is journaled.

6. The combination, with arms C, radiating from a central boss, and hammers pivoted at or near the extremities of said arms, of shaft B, means for operating the same, standards A, bearings G, in which said shaft is journaled, screws *g g*, pinions *h* on the lower ends thereof, and gear H.

7. The combination, with arms C, radiating from a central boss, hammers C', pivoted at or near the extremities of said arms, shaft B, pulley D, loose on said shaft, having elongated boss, the edges of which are serrated, boss *f*, designed to be engaged by said pulley-boss, shifter-lever *e*, connecting-rod E, treadle, and expansion-spring F, of standards A, bearing-blocks G, screws *g g*, pinion *h*, and gear H.

351,868. COTTON-OPENER. Richard Kitson, Lowell, Mass., assignor to the Kitson Machine Company, same place. Filed Apr. 7, 1884. (No model.)

Brief.—The gage-box, which is larger than usual, is provided with a swinging partition operated either by hand or by the accumulated fiber. The increased size of the box prevents the clogging of the condensers, &c., when the feed-apron below is stopped, and the swinging partition insures the regular delivery of the material in a lap of uniform thickness when the feed-apron and other parts are again started.



Claim.—1. In combination with the gage-box *d'*, the swinging partition *p*, adapted to obstruct either division of the gage-box and prevent passage of fiber therein, substantially as described.

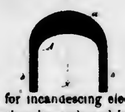
2. The combination of the cotton-trunk T, screens *s s*, the gage-box *d'*, and the swinging partition *p*, substantially as described.

3. The combination of the gage-box *d'*, swinging partition *p*, apron e^3, and rolls e^2 e^2, substantially as described.

4. The combination of the trunk T, the gage-box *d'*, and the swinging partition *p*, substantially as described.

5. The combination of the gage-box *d'*, the swinging partition *p*, adapted to obstruct either division of the gage-box and prevent the passage of fiber therein, and the arm *m*, connected to the axis of the partition on the outside of the gage-box and adapted to move the partition, substantially as described.

351,869. INCANDESCENT LAMP. William P. Kooecost, Brooklyn, N. Y. Filed June 12, 1886. (No model.)



Claim.—1. A filament for incandescing electric lamps having its middle portion made broader than its ends and its ends made thicker than its middle portion, substantially as and for the purpose set forth.

2. The herein-described incandescing electric-light filament, consisting of crescent-shaped body *a* and thickened ends *b b*.

3. A carbonized paper filament for incandescing electric lamps having a thin and broad middle portion and narrow thickened ends.

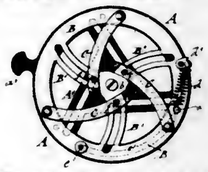
351,870. COMPOSITION TO ATTRACT DISSOLVED CRYSTALS. William Kornacher, Scranton, Pa. Filed Aug. 20, 1886. (No model.)



Claim.—1. The herein-described method of ornamenting with crystals, consisting of first producing a base of plastic, then embedding therein particles of the crystals, and lastly placing the prepared base in a solution of the crystals kindred to that contained in the base, substantially as and for the purpose described.

2. The herein-described method of producing ornaments having crystals formed thereon, which consists in first embedding in a plastic material particles of crystals, then molding the same into the desired shape and allowing it to become dry, and lastly placing it in a saturated solution of the salts kindred to that of the crystals contained therein, substantially as described.

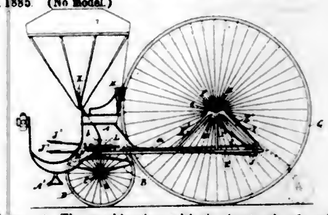
351,871. WATCH-MOVEMENT HOLDER. Michael J. Lampert, New York, N. Y. Filed June 12, 1886. (Model.)



Claim.—1. The combination of a lower ring-shaped frame having straight slotted arms extending from a point near the center to the circumference, a ring-shaped upper frame pivoted to the lower frame and provided with curved and slotted arms extending from the center to the circumference, arms pivoted to the circumference of the upper frame and provided with upright standards having jaws at the upper ends, and studs by which the pivoted arms are guided in the slotted arms of the upper and lower frames, substantially as set forth.

2. The combination of a lower ring-shaped frame having supporting-legs and straight slotted arms extending from the center to near the circumference, an upper frame having slotted arc-shaped arms extending from the center to the circumference of the same, a spring connected to the upper and lower frames, a clamping-screw for clamping the frames after adjustment, arms pivoted to the circumference of the upper frame and provided with upright standards having jaws, and screw-studs by which the pivoted arms are guided in the slotted arms of the ring-shaped frames, substantially as set forth.

351,872. VELOCIPEDE. Hosea W. Libsey, Boston, Mass. Filed June 15, 1885. (No model.)

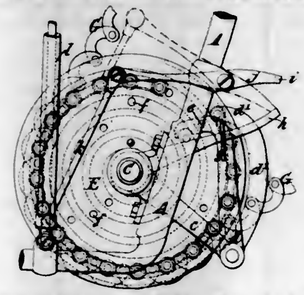


Claim.—1. The combination, with the front axle of a tricycle, of a carriage-body supported on springs thereon, guiding-levers having loops surrounding the ends of the axle, and having handles at the sides of the carriage-body and friction devices for retaining said handles in any set position, treadles above the floor of the carriage-body, a driving-wheel in rear of said body, and crank-connections from the treadles to the drive-wheel axle, all substantially as described.

2. In a tricycle, a carriage-body mounted above the front axle, a drive-wheel of larger diameter than the front wheels in rear of said body, and a seat in the carriage, the back of which seat forms a brake when pressed against the drive-wheel.

3. The combination, with the rod M, of the lever K, the inclosing-cylinder L, attached to said lever, and having screw-caps at each end, and the rubber filling within said cylinder, which, by the adjustment of the screw-caps, is made to bind more or less on rod M, as set forth.

351,873. SPEED AND POWER GEARING FOR VELOCIPEDES. Charles M. Linley and John Ross, Southwark, County of Surrey, assignors of one-half to George Grainger Tandy, Cedars Road, Clapham, England. Filed Aug. 18, 1886. (No model.) Patented in England Feb. 1, 1884, No. 2,547, and in France Nov. 10, 1885, No. 165,280



Claim.—1. An expansible wheel or pulley, consisting, essentially, of a pair of volute-grooved disks, E E', and a short length of chain or band, *b*, the joint-pins of the chain or the carrying-pins of the band being prolonged to work in the grooves, substantially as herein shown and described.

2. In an expansible wheel or pulley, the combination of a pair of volute-grooved disks, as E E', and a short length of chain having prolonged joint-pins or a pinned band, as *b*, with means for holding the forward end of the chain or band against the rotation of the disks, whereby the chain or band is caused to expand or coil up, according to the direction in which the disks are rotated, substantially as herein shown and described.

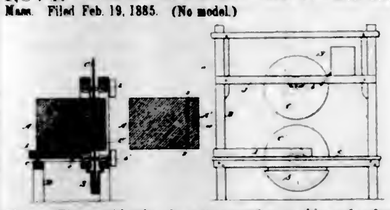
3. The combination of a pair of volute-grooved disks, as E E', mounted on an axle or shaft, and a short length of chain having prolonged joint-pins or a pinned band, as *b*, with an arm, *c*, mounted loosely on the same shaft, and an arm, *d'*, pivoted to the arm *c*, and to the forward end of the chain or band, substantially as and for the purpose set forth.

4. The combination of a pair of grooved disks mounted on an axle or shaft, a short length of chain having prolonged joint-pins or a pinned band, an arm, *c*, mounted loosely on said shaft, an arm, *d'*, pivoted to the arm *c*, and also to the front or outer end of the chain or band, with an arm, *d*, formed in one with the arm *d'*, and carrying on its under side a pin, *e*, arranged to enter a series of holes in the disk E, whereby the disks and chain or band are locked together, substantially as described.

5. The combination, with the arm *d*, having on its under side a pin, *e*, of a beveled bridge-piece, *g*, an arm, *h*, mounted loosely on an axle or shaft, C, and a stop, as *i*, suitably carried, so as to be thrown into and out of gear, whereby the pin *e* is drawn out of the holes *f* in the disk E, as and for the purpose set forth.

6. The combination of a pair of grooved disks, as E E', and a short length of chain having prolonged joint-pins, as *b*, with a driving-chain, as G, formed of flattened U-shaped links, the ends of which are pivoted together and arranged to enter the links of the chain *b*, substantially as described.

351,874. STONE-SAWING MACHINE. James W. Maloy, Boston, Mass. Filed Feb. 19, 1885. (No model.)

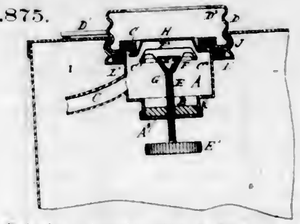


Claim.—The combination, in a stone-cutting machine, of a frame supporting two spindles, each carrying a thin-metal disk and arranged in the same plane, a carriage for supporting the block to be cut, and independent receptacles for supplying abrading material to each disk, substantially as described.

351,875. REVERSIBLE FAUCET. Riverius Marsh, New Brunswick, N. J. Filed Dec. 2, 1885. (Model.)

Claim.—1. The combination, with a can or vessel having a suitable threaded opening, of a faucet provided with a reversible screw, D, having a channel at one end, a packing-rim seat at both ends, and a projection, D', at the side, the faucet-body being seated in the channel, substantially as described.

2. In a reversible faucet, a shell, A, having an inward flange, C', a screw, D, having a channel in which the flange C' lies, and a packing, C^2, interposed between shell A and screw D, forming a fluid-tight but movable joint, the whole in combination, as set forth.

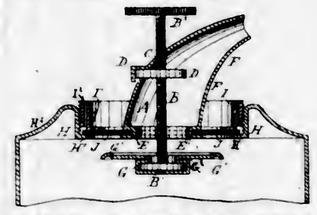


3. In a reversible faucet, the shell A, having vent A', screw-cap A^1, having nut B, nozzle C, valve-rod E, having thumb-piece E', head E^2, and metallic valve-shells F and F^1, in combination with shell H, reversible screw D, depressed screw J, and can I, substantially as described.

4. The reversible faucet, comprising the metallic valve, valve-rod E, the sealing-shell, and valve-seat H, in combination with the turning-shell A and reversible screw D, substantially as specified.

5. The sealing-shell and valve-seat H, in combination, in a faucet, with a shell, A, and reversible screw D, substantially as shown and described.

351,876. FAUCET. Riverius Marsh, New Brunswick, N. J. Filed Sept. 16, 1886. (No model.)

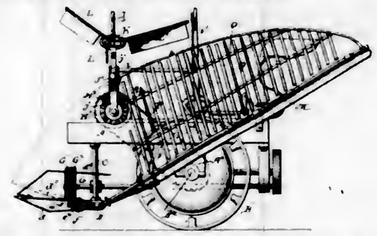


Claim.—1. In a faucet, the spout A, having a nut, D, and recess E, in combination with the packing J and screws H and I, substantially as described.

2. In a faucet, the spout A, having vent C, nut D, recesses D' and E, and packing J, in combination with the screws H and I, valve-rod B, and shell and valve G, as described.

3. In a faucet, the valve-rod B, having thumb-piece B^2 on the top and flat head B' at the bottom, said head surrounded by a shell, said shell forming a valve, in combination with the packing J and the screws H and I and spout A, substantially as shown and described.

351,877. CORN AND CANE HARVESTER. Hugh W. Matthews, Baltimore, Md. Filed Dec. 12, 1885. (No model.)



Claim.—1. In a corn and cane harvesting machine, an endless band-cutter having a straight or continuous serrated cutting-edge, in combination with fingers provided each with an independent guide for said band-cutter, substantially as described.

2. The combination, in a corn and cane harvester, of the fingers provided each with independent guides on their upper and lower sides or faces, and an endless band-cutter passing around said fingers and through said guides, substantially as described.

3. In a corn and cane harvester, the two endless band-cutters arranged to project on opposite sides of and to be operated from a single central driving-shaft, in combination with the fingers provided each with a guide for said endless cutters, substantially as and for the purpose described.

4. In a corn-harvester, the combination, with the guards or fingers provided with an independent guide, of a continuously-moving endless band-cutter and curved rods or fingers arranged to overhang the cutting-

edge of said hand-cutter for supporting the stalks against lateral deflection, substantially as described.

5. The upright reel-shafts provided with the adjustable disks having the vertical ribs on their upper faces arranged in pairs and forming, in connection with the disk to which they are applied, open-top sockets for the reel-arms, in combination with the reel-arms pivoted in said sockets, and the adjustable cams, all arranged and operating substantially as described.

6. The upright tubular reel-shaft standards pivoted on a shaft actuating the reel-shafts, in combination with the divided rod connecting said standards and the threaded sleeves for uniting and adjusting the parts of said divided rod, substantially as described.

7. The combination of the upright reel-standards, the dividing-rod connecting said standards, means, substantially as described, for adjusting, and the intermediate standard for supporting, said connecting-rod, substantially as described.

8. The combination of the reel-actuating shaft, the reel-standards pivoted thereon, the divided rod connecting said standards, the intermediate supporting-standard for said rod, and the adjusting-lever connected to said rod for adjusting the reels, substantially as described.

9. The dropper or dumping tray provided with the longitudinally-pivoted parts or sides N N', and the transversely-pivoted part or board located in front of the parts or sides N and N', substantially as described.

10. The dropper composed of the longitudinally hinged sides N and N', and the transversely-hinged board N^2, in front of said sides, in combination with the longitudinal rock-shaft provided with a lever-arm, and a flexible connection between said arm and the hinged dropper section or board N^2, substantially as described.

11. The pivoted sides N and N' of the dumping-tray bottom or flooring, provided with the rounded or beveled forward ends, in combination with the transverse V-shaped portion of said tray arranged in front of said sides, substantially as and for the purpose described.

12. The combination, with the longitudinally-divided dumping-tray, of the divided cut-off, consisting of the rods P and P', arranged at or near the front, above and on opposite sides of the divided tray and pivoted to the side fenders thereof, and connections between said rods and the tray-sections, whereby said parts are operated simultaneously in such manner that as the sections of the tray are dropped the cut-off rods will be raised to support the falling stalks in an inclined standing position, substantially as described.

13. The divided dumping-tray, having the longitudinal side shafts provided with logs or arms *p p*, in combination with the divided cut-off, consisting of pivoted rods P and P', arranged near the forward end of and above said dumping-tray, and connections between said cut-off rods and the arms *p p*, whereby, when the tray-sections are dropped to discharge their load, the cut-off rods will be raised to catch and uphold the falling stalks in an inclined standing position until the tray is again raised, substantially as described.

14. The combination, in a corn and cane harvester, of the dumping-tray having its flooring composed of side sections connected to longitudinal rock-shafts, and a hinged transverse section connected with and operated from the longitudinal shaft of a side section, substantially as described.

351,878. CUTTING APPARATUS FOR CORN AND CANE HARVESTERS. Hugh W. Matthews, Baltimore, Md. Filed Dec. 12, 1885. (No model.)



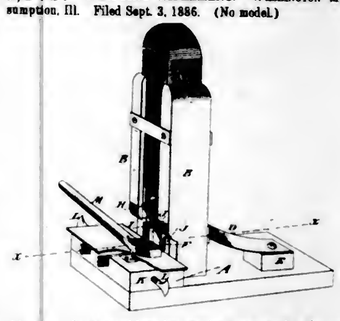
Claim.—1. In a corn-harvester, the combination, with the reciprocating knife-bar, of the pair of long cutter-sections *b* and *b'*, made tapering from their outer ends inward toward the center of the cutting-space, substantially as described.

2. The combination, with the reciprocating knife-bar, of the long tapering knife-sections *b* and *b'*, secured in pairs to the opposite ends of said bar and made tapering toward each other and the center of the cutting-spaces, substantially as described.

3. The knife-bar provided with the pair of long knife-sections *b* and *b'*, extending at their outer ends beyond and in combination with the deflecting-boards at the sides of the cutting-space, and made tapering from said ends inward toward the center of the cutting-space, substantially as described.

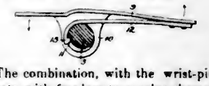
4. The combination, with the knife-bar, of the long tapering knife-sections *b* and *b'*, and the interposed short double beveled section b^2, arranged and operating substantially as described.

351,879. GRAFTING IMPLEMENT. Washington Maynard, Assumption, Ill. Filed Sept. 3, 1886. (No model.)



Claim.—In a machine for cutting root-grafts, the reciprocating plunger C, having the shoulder-knife F, the diagonal cutter G, and the end cutter, H, in combination with the guard-plate I, stop-plates J J, and lever M, all arranged substantially as and for the purpose set forth.

351,880. PEDAL FOR VELOCIPEDES. Nelson Merrill, New York, N. Y. Filed July 29, 1886. (No model.)

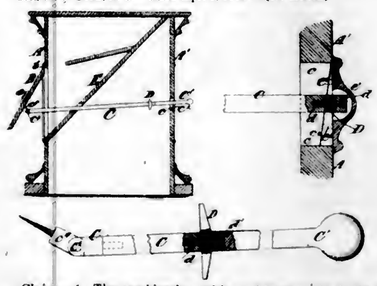


Claim.—1. The combination, with the wrist-pin of a crank, of a pedal pivoted thereto with freedom to revolve thereon in one direction only, substantially in the manner and for the purpose herein set forth.

2. The combination, with the wrist-pin of a crank, of a pedal pivoted thereto to revolve thereon freely in one direction, and means, substantially as herein described, for automatically preventing its reverse movement.

3. The combination, with the wrist-pin of a crank, of an extended pedal-plate pivoted to the wrist-pin and a spring-actuated hook attached to the pedal to engage a notch in the periphery of the wrist-pin when it is rotated in one direction, and prevent thereby a reversal of its movement, substantially in the manner and for the purpose herein set forth.

351,881. FASTENING FOR SECRET PANELS. Lambert A. J. Muller, New York, N. Y. Filed Apr. 1, 1886. (No model.)



Claim.—1. The combination, with a cabinet provided with a secret panel closing an opening in the side thereof, and a pivoted button whereby the panel is held closed, of a cap or escutcheon applied to the cabinet over the button and removable to afford access to the button, substantially as herein described.

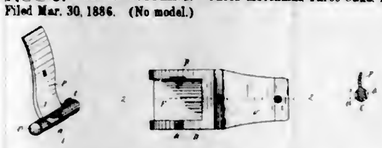
2. The combination, with a cabinet having at one side a secret panel, and having at the opposite side a removable escutcheon covering a slot in the cabinet, of a rod extending across the cabinet, attached at one end to the panel and at the other end provided with a button of a size to pass through the slot, and which, by turning, will be made to overlap the cabinet at the sides of the slot to hold the panel closed, substantially as herein described.

3. The combination, with a cabinet having at one side a secret panel, and having at the opposite side a slot and a seat for a button, inclined in opposite directions from the slot, of a removable escutcheon covering the slot and button-seat, and a rod attached at one end to the panel and provided at the opposite end with a button, which will pass through the slot, and by turning will act upon the said inclined seat to tighten the panel and hold it closed, substantially as herein described.

4. The combination, with a cabinet having an inclined partition or shelf and a panel at one side, hinged at the top and extending down to or near to the lower edge of the partition or shelf, the cabinet having at the opposite side a slot, of a rod attached at one end to the panel and provided at the other end with a button which may be passed through the slot and then turned to hold the panel closed, and a removable escutcheon on the side of the cabinet for covering the slot and button, substantially as herein described.

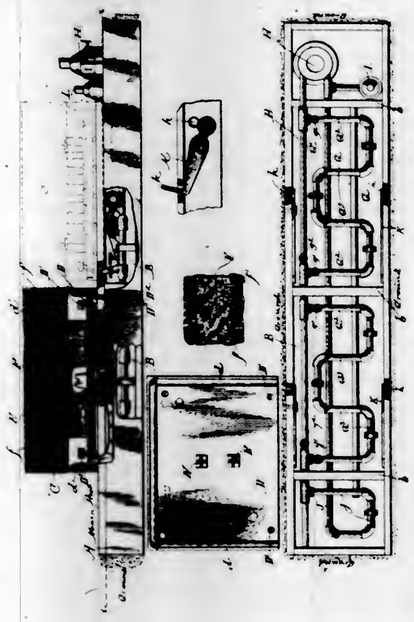
5. The combination, with the cabinet having at one side the panel B and at the other side the slot c, and removable cap or escutcheon c', of the rod C, provided with a button, D, and a detachable handle, C', which may be applied to the end of said rod, and is of a size to enter the slot, substantially as herein described.

351,882. THILL-COUPLING. Jacob Mutchler, Three Oaks, Mich. Filed Mar. 30, 1886. (No model.)



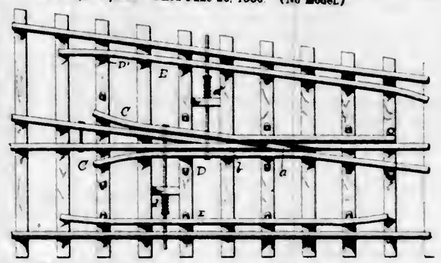
Claim.—In a thill-coupling consisting of the T-head having the mortised portion, and the bracket having the slot leading down into one of the bracket-holes, the combination of the T-head provided with the guide-bud, and the bracket having the guide-channel on the inner face of the wall opposite the slotted wall, the other bracket-hole having a communicating recess through which the guide-bud passes, substantially as set forth.

351,883. BROODER. Ezra S. Packard, Hammonton, N. J. Filed Sept. 2, 1886. (No model.)



Claim.—The combination of a continuous series of brooders having compartments formed beneath them, the heating-pipes located in said compartments, the air-passages leading therein, the valves for controlling the passages, the elevated platform, and means for raising and lowering it, substantially as and for the purpose described.

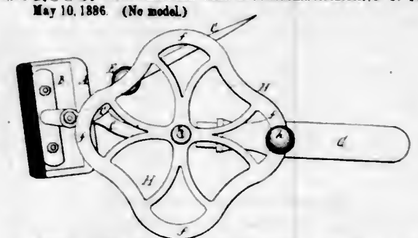
351,884. RAILROAD-FROG. John F. Penrod, Blairsville Intersection, Pa., assignor of one-half to William N. Hayes and Simon C. Young, both of same place. Filed June 26, 1886. (No model.)



Claim.—1. The combination, with the main and side track having the main rail grooved at the point of intersection, of a rail yieldingly held alongside the rail opposite the groove, substantially as and for the purpose set forth.

2. The combination, with the main and side tracks having the main rail grooved at the point of intersection, of two rails embracing the grooved rail and lapped alongside and yieldingly held close thereto, substantially as and for the purpose set forth.

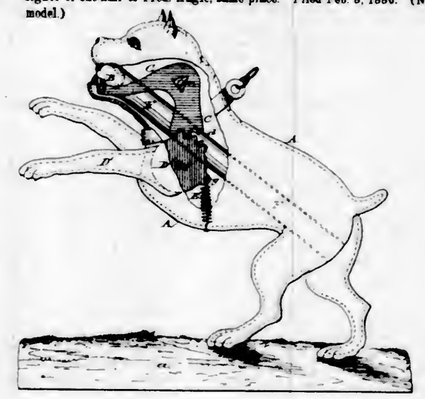
351,885. HAIR-CLIPPER. John M. Pfaudler, Rochester, N. Y. Filed May 10, 1886. (No model.)



Claim.—1. In a hair-clipper, the combination, with the bed-plate and cutter provided with shanks, whereby the device is held and operated, of two stationary bearings on said shanks, a cam-wheel attached to one bearing and a stud to the other, engaging with the cam-wheel, whereby several reciprocations can be given to the cutter by one turn of the cam-wheel, as set forth.

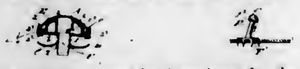
2. In a hair-clipper, the combination, with the shanks attached to the bed-plate and cutter, of sockets that slide on the shanks and are secured at any adjustment by set-screws, one socket having a stem for the fitting of a cam-wheel thereon and the other having a stud for fitting in the groove of the cam-wheel, as set forth.

351,886. CIGAR-CUTTER. George R. Pohl, Washington, D. C., assignor of one-half to Fred. Hugle, same place. Filed Feb. 8, 1886. (No model.)



Claim.—The cigar-cutter herein described, consisting of the frame A, provided with inclined tube F, pivoted bell-crank lever C, having cutting-knife B, and teeth *d*, meshing with teeth c on a segment-wheel, D, which is attached to lever D', and provided with a lug, *g*, for attachment of spring E, all arranged as and for the purpose specified.

351,887. SEPARABLE BUTTON FOR GLOVES. EUGENE PRINGLE, Gloversville, N. Y. Filed Dec. 29, 1885. (No model.)



Claim.—1. In a button for gloves, boots, &c., the combination, with a button-head having its bottom closing-piece, B, made with upturned flange *b* and downwardly-projected tube b^2, of the catching-spring D, composed of the ring portion *d*, which is supported by said flange, and catching-arm *d'*, supported on the upper horizontal surface of said closing-piece and over one side of the upper open end of the bore of said tube for operations with the stud, substantially as and for the purposes set forth.

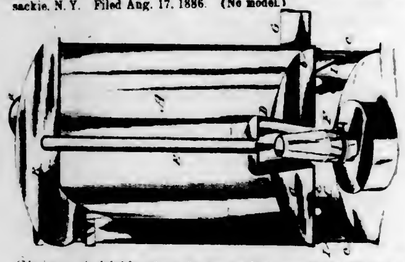
2. In a button for gloves, boots, &c., the combination, with head-shell A, bottom closing-piece B, and catch-spring D, of supporting device E, provided with notch e^4 and arranged between said pieces A and B, substantially as and for the purposes set forth.

3. In a button for gloves, boots, &c., the stud F, provided with an attaching-base, F', and having its stem *f* inclining upwardly and relatively toward or over the attaching-base and in a direction in opposition to the line of draft on said stud, substantially as and for the purposes set forth.

4. In a separable button having its head part A B provided with a stud-receiving opening, and a spring-catch which is arranged in relation to said opening, as above described, the combination therewith of stud F, provided with catching-head *f'*, and having its stem set in an inclined position in relation to its connected attaching-base F', substantially as and for the purposes and operations set forth.

5. In combination with a button composed of the head-shell A, bottom closing-piece, B, provided with a central opening, and a catch-spring arranged relatively over a side portion of said central opening, of stud F, made with and set relatively at one side or end of a base provided with an attaching device, substantially as and for the purposes set forth.

351,888. POULTRY DRINKING-FOUNTAIN. LELAND SMITH, Cox sackie, N. Y. Filed Aug. 17, 1886. (No model.)



Claim.—A drinking-fountain for poultry, provided with a closed top and bottom, said bottom being provided with legs or supports, and a tapering central heating-chamber extending up from the bottom and having a tube extending centrally through the tank and cover thereon, and a drinking-trough projecting from the side of the water-tank and communicating therewith through an opening for feeding the water thereto, substantially as and for the purpose set forth.

351,889. BOOT OR SHOE. JACOB J. SNYDER, Nashville, Tenn., assignor, by mesne assignments, to himself, and Samuel Pulsifer Carrick, Boston, Mass. Filed Mar. 24, 1886. (No model.)

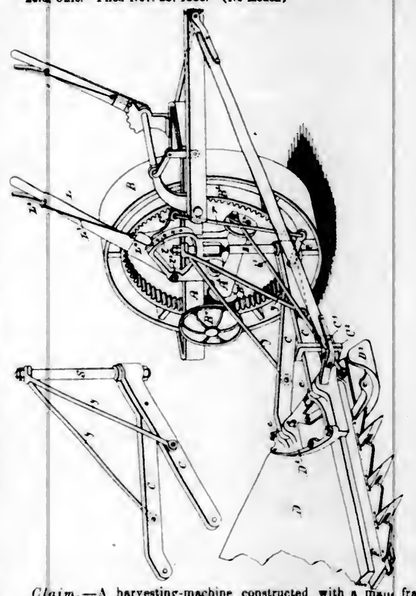


Claim.—In a boot, the vamp and front portion of the leg as composed of a piece, A, of leather or other suitable sheet material, slitted on the two curved lines *a b c* and on the two others, *b d*, essentially as represented, and moved apart on such lines, and of the two supplemental gores or pieces B and B', fitted to and covering the openings and stitched or secured to the piece A, all being substantially as represented.

351,890. COMPOUND FOR PREPARING STARCH OR FLOUR SIZE FOR YARN, TEXTILE, OR OTHER FABRICS. CHARLES N. WAITE, Medford, Mass. Filed Mar. 26, 1886. (No specimens.)

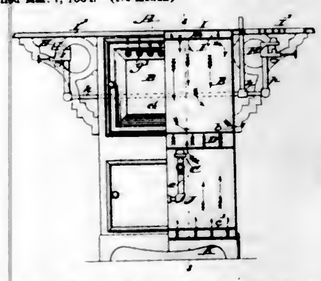
Claim.—An improved compound for neutralizing, dissolving, and softening starch or flour size, consisting of zinc oxide combined with an appropriate solvent, to which is added an appropriate softener, as set forth.

351,891. HARVESTING-MACHINE. WILLIAM N. WHITELEY, Springfield, Ohio. Filed Nov. 23, 1885. (No model.)



Claim.—A harvesting-machine constructed with a main frame having the main driving-wheel fixedly journaled thereon, and supporting the gearing which operates the knife and rake properly attached thereto, in combination with an intermediate supplemental frame attached to the main frame, but having a vertical adjustment independent of said main frame, and supporting and carrying the raking and reeling mechanisms, and to which the platform and cutting apparatus is flexibly connected, and the platform carrying the cutting apparatus and divider, being supported at the outer end by a carrying-wheel, while its inner end is hinged or jointed to the supplemental frame in such a manner that the platform and cutting apparatus may be folded to a vertical position for transportation, or returned to its horizontal position for cutting, and the said joint rendered rigid at will, all constructed and arranged substantially for the purposes shown and described.

351,892. STOVE. CHARLES F. WHORF, St. Louis, Mo., assignor of two-thirds to Charles A. Whorf and Fred E. Whorf, both of same place. Filed Mar. 7, 1884. (No model.)

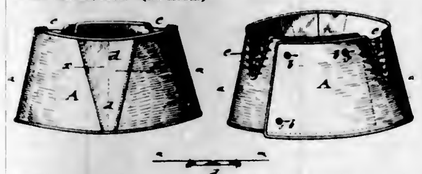


Claim.—1. The oven B, having the flues D E F *g* and the outlets *b b*, as and for the purposes described.

2. A gasoline or gas stove having the central oven, B, and the side extensions, I' I', and the burners C H H, said side extensions being in the plane of and extensions of the oven-top, and said oven having a flue leading from the burner C upward to beneath the oven-top, substantially as described.

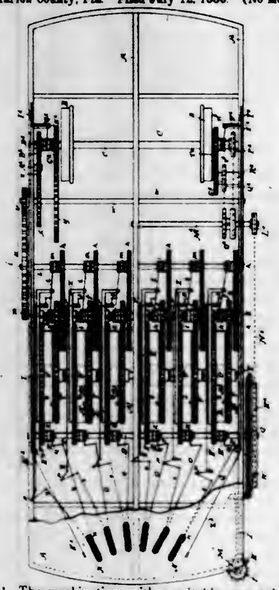
3. An oven having a flue at its rear communicating with the interior of the same at its top, and provided with a hollow door having apertures near its bottom upon the inside and apertures near the top on the outside, substantially as described.

351,893. ABDOMINAL PROTECTOR. LEVI J. WING, Brooklyn, N. Y. Filed Jan. 20, 1886. (No model.)



Claim.—An abdominal protector made of two sections, united at the back by a back seam and provided with overlapping portions at the front, means for connecting the said overlapping front portions and lacings at the upper parts of the sides, and an extra layer of fabric, wider at the upper end and narrower at the lower end, stitched to the back part across the back seam, substantially as set forth.

351,894. SPRING-MOTOR. WILLIAM M. WOODWARD, Sumterville, assignor of two-thirds to James H. Curry, Sumter County, and John L. Carney, Marion County, Fla. Filed July 12, 1886. (No model.)



Claim.—1. The combination, with a suitable supporting-frame, of shaft Y and a series of coiled springs and spring-winding wheels thereon, a spring-winding shaft, D, and pinions and clutch mechanisms thereon for winding up the springs, and a train of spring-driven gears and shafts, Z and *i*, with a series of clutch mechanisms thereon, whereby the springs may be singly or together wound and their power singly or together expended, substantially as set forth.

2. The combination, with a suitable supporting-frame, of shaft Y and a series of coiled springs and spring-winding wheels thereon, a spring-winding shaft, D, and pinions and clutch mechanisms thereon for winding up the springs, and a train of spring driving gears and shafts, Z and *i*, with a series of clutch mechanisms thereon, and gears connecting shaft *i* and axle C, and the clutch D^2 and its clutch shipping mechanism, substantially as set forth.

3. The combination, with a suitable supporting-frame, of shaft Y and a series of coiled springs and spring-winding wheels thereon, a spring-winding shaft, D, and pinions and clutch mechanisms thereon for winding up the springs, and a train of spring driving gears and shafts, Z and *i*, with a series of clutch mechanisms thereon, gears connecting shaft *i* and axle C, clutch D^2, and its clutch shipping mechanism, with the sprocket wheels, chains, and gears for winding up the springs by the motion of the car or mechanism, substantially as set forth.

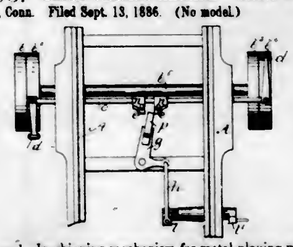
4. The combination, with shafts Y and Z, of spring-winding wheel R and its block X, having in its cavity ratchet-wheel *w* and spring-pawl *a*, substantially as set forth.

5. The combination, with spring-winding wheel R, having a curved slot, *d*, and its spring, of pivoted pawl *b*, pin c, and block X, provided with notches or ratchet-teeth *e*, substantially as set forth.

6. The combination, with the spring-winding wheel having the pin A^3, pivoted lever B^4, cord C^3, jointed lever D^3, having spring F^4, spring E^3, and toothed wheel H^3, with a dial and pointer, substantially as set forth.

7. The combination, with the spring-winding wheel having the pin A^3, pivoted lever B^3, cord C^3, jointed lever D^3, having spring F^3, spring E^3, toothed wheel H^3, with a dial and pointer, and spring-slide K^3, substantially as set forth.

351,895. METAL-PLANING MACHINE. GEORGE W. BEAN, New Haven, Conn. Filed Sept. 13, 1886. (No model.)

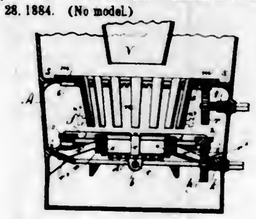


Claim.—1. In shipping mechanism for metal-planing machines, the combination, with a vibrating rock-arm pivoted on the planer-frame and actuated by the movement of the planer-dogs, of a pair of tripping-dogs secured upon the belt-shifter and having rectilinear movement, whereby they are released from engagement with the rock-arm at certain positions in the path of the point of the arm and disengaged from the action of the planer-bed, as and for the purpose specified.

2. In combination, the belt-shifter c, supported in bearings in the planer-bed and adapted to traverse in a rectilinear path, the tripping-dogs *e*, pivoted in their respective holders *n*, secured upon the belt-shifter, the rock-arm *g*, pivoted on the planer-frame and carrying an adjustable arm or extension adapted to engage the tripping-dogs, and means for vibrating the rock-arm by the motion of the planer-bed, substantially as specified.

3. In combination, the belt-shifter *c*, the tripping-dogs *e*, the holders *n*, the springs *f*, the rock-arm *g*, carrying the arm or extension *p*, the connecting-rod *h*, the rock-shaft *k*, the rock-arms *l l'*, and the planer-dogs *i*, all combined substantially in the manner and for the purpose specified.

351,896. GRATE FOR STOVES. CHARLES C. BOWMAN, Pittston, Pa. Filed Apr. 28, 1884. (No model.)



Claim.—1. The combination, with the hanging fire-pot, of the separate ring *f*, having radial bars and gear-teeth, and extending both within and outside of the hanging fire-pot to support the fuel, and a central dump-grate below the ring *f*, to dump the clinkers that accumulate in the middle of the fire, and the pinion *h*, substantially as set forth.

2. The combination, with the ring-grate *f*, having inner and outer rings, 2 and 3, and connecting-bars, of the ring *e*, means for connecting the ring *e* and ring *f*, the casing of the stove and the arms *e'*, for supporting the rings *e* and *f*, the pinion *h*, gearing into teeth on the under side of the ring *f*, and by which the same is rotated, and the central dump-grate, *d*, below the ring *f*, substantially as specified.

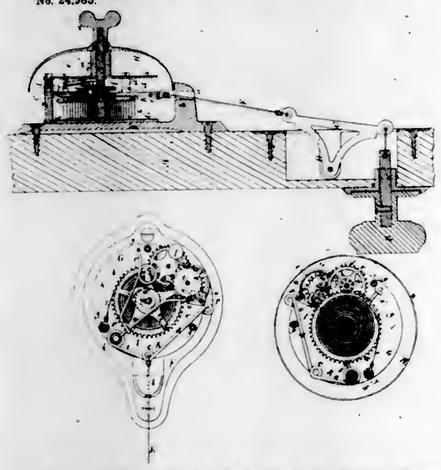
3. The combination, with the stationary ring *e* and its supports *e'*, of the ring *f*, having radial bars between the two rings 2 and 3, the guide-fingers 4, extending down within the ring *e*, and the pinion *h*, for revolving the ring *f*, and the central grate, *d*, below the ring *e*, substantially as specified.

351,897. **INSECTICIDE.** THOMAS J. BOYER, Dubois, Pa., assignor of three-fourths to Geo. D. Hamor, Emanuel Kuntz, and Allison M. Roscoe, all of same place. Filed July 1, 1886. (No specimens.)

Claim.—1. The herein-described insecticide, consisting of coal or gas tar, crude petroleum, oil of cedar, oil of pennyroyal, oil of sassafras, oil of citronella, creosote, carbolic acid, and sulphur, in about the proportions specified.

2. The herein-described insecticide, consisting of a porous substance impregnated with the compound composed of coal or gas tar, crude petroleum, oil of cedar, oil of pennyroyal, oil of sassafras, oil of citronella, creosote, carbolic acid, and sulphur, in about the proportions set forth.

351,898. **ALARM FOR DOORS.** NAHUM J. BUSBY, Maplewood, Mass. Filed Aug. 16, 1886. (No model.) Patented in Canada Sept. 21, 1886, No. 24,985.

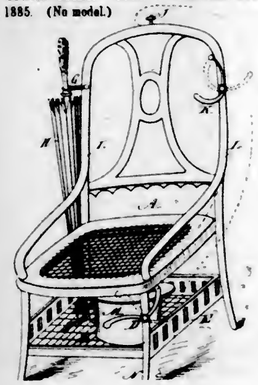


Claim.—1. The combination, with a bell and mechanism, substantially as described, for repeatedly sounding it, and with the operative wire provided with means of pulling it, as described, of the bent wire or take-up K, the frame G, having the shaft *k*, the hooked arm or catch *l*, both the take-up K and catch *l* being secured to the shaft *k*, and the scape-wheel of the bell-sounding apparatus having the stud *n*, with which the catch *l* engages, as set forth.

2. The combination of the bell and its sounding mechanism and the supporting-frame thereof, provided with bracket arranged with such frame, as represented, said bracket having the ear, as described, with the door-knob and actuating-wire, the latter passing through the ear and coiled about itself, as described.

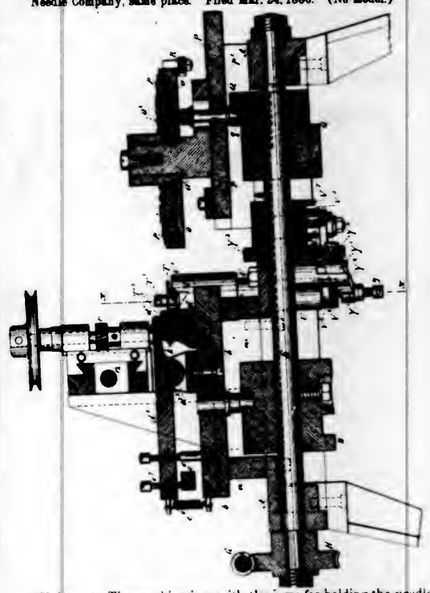
3. The bell and its sounding mechanism and its supporting-frame, and the bracket secured to the latter provided with the ear *b*, in combination with the take-up K, secured to such frame at the bell mechanism, the knob, and the actuating-wire, the latter passing through the ear *b* and connected to the take-up K, as set forth.

351,899. **OPERA-CHAIR.** JULIA A. CALLAHAN, Brooklyn, N. Y. Filed Oct. 21, 1885. (No model.)



Claim.—The combination, in a chair, of a garment knob or button, J, on the top of the chair-back, the hook or support K, pivoted to the side of the chair-back, and the hook or support M, pivoted to the chair near its lower end, substantially as set forth.

351,900. **MACHINE FOR GROOVING SEWING-MACHINE NEEDLES.** WILLIAM H. DATTON, Torrington, Conn., assignor to the Excelsior Needle Company, same place. Filed Mar. 24, 1886. (No model.)



Claim.—1. The combination, with the jaws for holding the needle-blank, and the cutters and mechanism for grooving the same, of a feed-wheel having radial notches and spring-fingers for holding the shanks of the needle-blanks, and a stud and sliding bed for sustaining and moving the feed-wheel, substantially as specified.

2. The combination, with the jaws for holding the needle-blank, and the cutters for grooving the same, of the secondary lever *d*, shaft 12, cam *d*, and adjusting-screws, substantially as set forth.

3. The combination, with the clamping-jaws for holding the needle-blank, and the cutters for grooving the same, of the driving-shaft F, bevel-gearing, worm-pinions, and wheels, the shaft 12, and mechanism for controlling the action of the cutters and the main shaft, the bed for supporting the holding-jaws, and a cam upon the main shaft for moving the bed and jaws endwise, substantially as specified.

4. The combination, with the holding-jaws and grooving-cutter, of a feed-wheel for supplying the needle-blanks, fingers for holding the shank of the needle-blank at the commencement of the grooving operation, and for withdrawing and delivering the needle-blank, and the mechanism, substantially as specified, for giving motion to the respective parts.

5. The combination, with the feed-wheel, of a supporting-stud, a sliding bed, a pawl, a link, a roller connected with the pawl, an incline for moving the pawl and turning the feed-wheel, and a guide parallel with the axis of the machine for allowing an endwise movement to be given to the sliding bed to pass the needle-blank into the holding-jaws without turning the feed-wheel, substantially as set forth.

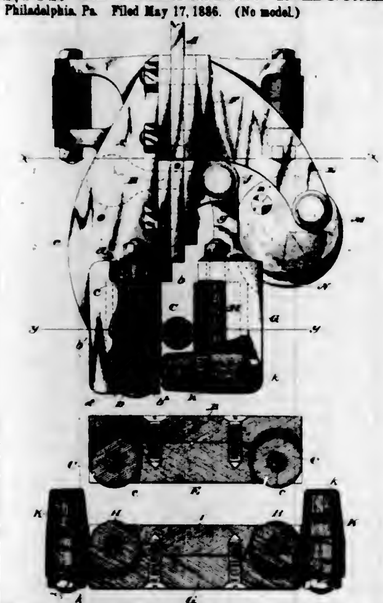
6. The combination, with the holding and delivery fingers T T', of a tubular stock to which such fingers are connected, a rod passing through the tubular stock for closing the fingers, and a cam and lever to act upon such rod, substantially as set forth.

7. The combination, with the holding and delivery fingers, of a cam and mechanism to close such fingers, a stock for supporting such fingers, a pinion on the stock, and a toothed sector and cams for turning the stock and swinging the fingers laterally, substantially as set forth.

8. The combination, with the holding and delivery fingers, of the tubular stock and jaw, the tubular stud for supporting the same, the tubular cam around the stud for raising and lowering the fingers, and mechanism, substantially as specified, for opening, closing, and swinging the fingers, as set forth.

9. The feed-wheel O, having a rim around its edge and radial grooves in the same, in combination with the spring-fingers at the grooves for holding the needle-blanks and the separate disk or flat rim within the feed-wheel, forming an abutment for the ends of the needle-blanks, substantially as set forth.

351,901. **GRIP FOR CABLE RAILWAYS.** EDWARD D. DOUGHERTY, Philadelphia, Pa. Filed May 17, 1886. (No model.)



Claim.—1. In a grip for cable railways, the combination, with a stationary jaw, of a movable jaw adapted to be swung away from the stationary jaw by a counter-weight, substantially as set forth.

2. In a grip for cable railways, the combination, with the hanger or grip-support and a stationary jaw secured to one side of the hanger or support, of a movable jaw hinged to the opposite side of the hanger or support, and a counter-weight attached to the upper part of the hinged jaw, substantially as set forth.

3. In a grip for cable railways, the combination, with a stationary jaw provided with upright rollers secured yieldingly thereto, of a swinging jaw provided with upright rollers secured yieldingly thereto, and with a pair of horizontal rollers secured to its lower edge, substantially as set forth.

4. In a grip for cable railways, the combination, with a gripping-jaw having upright rollers journaled in bearings secured thereto, of a removable wearing-plate secured to the face of said jaw between the upright rollers, substantially as set forth.

5. In a grip for cable railways, the combination, with the gripping-jaws having upright rollers journaled in yielding bearings, of soft-metal wearing plates or blocks removably secured to the jaws between the rollers, substantially as set forth.

6. The grip consisting, essentially, of the stationary jaw, with the upright rollers, and removable wearing-plate, the swinging jaw, with the upright rollers, removable wearing-plate, horizontal supporting-rollers, and counter-weight, and the cam or eccentric for closing the jaws, constructed and arranged substantially as set forth.

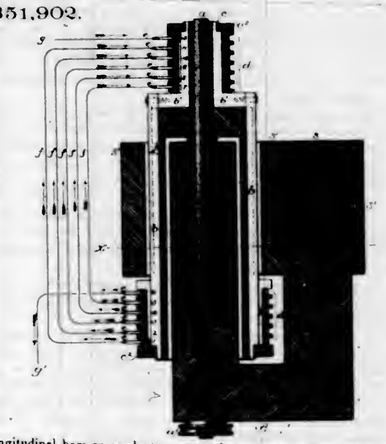
7. In a grip for cable railways, the combination, with a stationary jaw provided with the removable metallic wearing plate or block between two or more yielding rollers, of a movable jaw provided with the removable metallic wearing plate or block between two or more yielding rollers, said plates or blocks forming a gripping-surface for the cable when they are pressed against the same after the rollers recede, substantially as set forth.

351,902. **MAGNETO-ELECTRIC AND ELECTRO-MAGNETIC MACHINE.** RUDOLF ECKENSTEIN, Yonkers, N. Y. Filed May 14, 1883. (No model.)

Claim.—1. In an electro-magnetic or magneto-electric machine, the combination, substantially as hereinbefore described, of a stationary concentric magnet and two or more independent electric conductors which rotate across the radial magnetic lines of force between the poles of said stationary concentric magnet, substantially as described.

2. The combination, substantially as hereinbefore described, of the magnet having concentric pole-pieces affording an annular space or field of force and the revolving armature embodying a series of insulated

351,902.



longitudinal bars or conductors secured upon annular insulated supports mounted on an armature-shaft and revolving in said annular field of force.

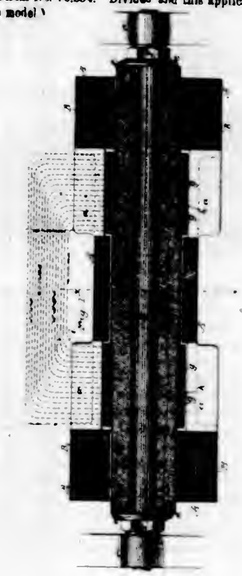
3. The combination, substantially as hereinbefore described, of the concentric pole-pieces, the revolving armature embodying the series of longitudinal bars or conductors, conducting-rings respectively connected in pairs with each bar, and outside stationary conductors for coupling any two or more of said bars in continuous circuit, as set forth.

4. The armature consisting of the combination of the shaft, the insulated cylindrical shell and hub, and the connected bars on said shell and hub, substantially as described.

5. The combination of the armature-shaft, the insulating-shell, the conducting-bars, and clamping-rings at each end of said bars for securing them to the shell, substantially as described.

6. A dynamo-electric machine having two concentric magnet-heads, a cylinder provided with a series of longitudinal conductors revolving between the magnet-heads, each of said conductors having each end thereof connected, respectively, with electrical contacts arranged at each end of the concentric magnet-heads and connected with each other, substantially as described, whereby the current in continuous circuit will traverse the several conductors on said cylinder rotating between the concentric magnet-heads, as set forth.

351,903. **MAGNETO-ELECTRIC AND ELECTRO-MAGNETIC MACHINE.** RUDOLF ECKENSTEIN, Yonkers, N. Y. Original application filed Nov. 8, 1882, Serial No. 76,234. Divided and this application filed Dec. 26, 1884. (No model.)



Claim.—1. In an electro-magnetic or magneto-electric machine, the combination, substantially as hereinbefore described, of a polarized mass of metal internally chambered and a rotative armature or generating element embodying magnetic metal polarized in the line of the armature-axis and constituting a portion of the magnetic circuit within said mass of polarized metal.

2. In an electro-magnetic or magneto-electric machine, the combination, substantially as hereinbefore described, of a polarized mass of metal internally chambered and a rotative armature embodying polarized metal which forms a portion of the magnetic circuit within said mass of metal, and also serves as an electric conductor.

3. In an electro-magnetic or magneto-electric machine, the combination, substantially as hereinbefore described, of a polarized mass of chambered metal, a rotative armature embodying magnetic metal, and one or more helices, each of which polarizes the outer mass of metal and also the metal in said armature.

4. In an electro-magnetic or magneto-electric machine, a rotating magnet polarized in the line of its axis, with a conductor attached thereto, and an inclosing-magnet, substantially as described.

5. In an electro-magnetic or magneto-electric machine, a rotating magnet polarized in the line of its axis with two or more conductors attached thereto and rotating therewith and connected in linear series.

6. In an electro-magnetic or magneto-electric machine, the combination of a rotating magnet polarized in the line of its axis, constituting an armature having two or more electric conductors connected in linear series, and an inclosing-magnet, substantially as described.

7. In an electro-magnetic or magneto-electric machine, a rotating compound magnet polarized in the line of its axis and acting as an armature, substantially as described.

8. In an electro-magnetic or magneto-electric machine, a rotating compound magnet polarized in the line of its axis and acting as an armature, and an inclosing-magnet, substantially as described.

9. In an electro-magnetic or magneto-electric machine, a rotating compound magnet the component parts of which are connected in linear series in an electric circuit, substantially as described.

10. In an electro-magnetic or magneto-electric machine, a rotating compound magnet the component parts of which are connected in linear series in an electric circuit, and an inclosing-magnet, substantially as described.

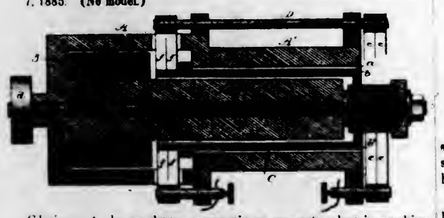
11. In an electro-magnetic or magneto-electric machine, a double magnet mounted upon or constituting a part of a rotating armature and polarized in the line of the armature-axis, substantially as described.

12. In an electro-magnetic or magneto-electric machine, a double magnet mounted upon or constituting a part of a rotating armature and an inclosing double magnet, substantially as described.

13. In an electro-magnetic or magneto-electric machine, an armature embodying a series of double-bar magnets, substantially as described.

14. In an electro-magnetic or magneto-electric machine, a double compound magnet serving as an armature, and a double inclosing-magnet, substantially as described.

351,904. **ELECTRO-MAGNETIC AND MAGNETO-ELECTRIC MACHINE.** RUDOLF EICKEMEYER, Yonkers, N. Y. Original application filed Nov. 8, 1882, Serial No. 76,234. Divided and this application filed Mar. 7, 1885. (No model.)

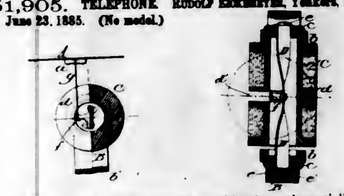


Claim.—1. In an electro-magnetic or magneto-electric machine embodying an armature carrying a series of independent electric conductors, an electric circuit which repeatedly traverses the armature from end to end in one direction, and alternately includes one and more than one of said conductors throughout its path on said armature, substantially as described.

2. In an electro-magnetic or magneto-electric machine, the combination, substantially as hereinbefore described, of a magnet affording an annular field of force, a revolving armature carrying a series of independent electric conductors, and a smaller series of outside stationary conductors provided with contact-pieces, each of which alternately engages electrically with one and then with two of said armature-conductors, whereby said armature-conductors are successively connected singly and in pairs in linear series, and a continuous circuit afforded.

3. In an electro-magnetic or magneto-electric machine, the combination, substantially as hereinbefore described, of an armature embodying a series of independent electric conductors extended into an armature-hub, and a series of outside stationary conductors provided with contact-pieces in successive engagement with said armature-conductors at the hub, for coupling them electrically with other conductors at the opposite end of the armature.

351,905. **TELEPHONE.** RUDOLF EICKEMEYER, Yonkers, N. Y. Filed June 23, 1885. (No model.)



Claim.—1. In a telephone, the combination, substantially as hereinbefore described, of a diaphragm, a helix, and bars under torsional tension within said helix and connected with said diaphragm, whereby the torsional force of said bars is reduced and resumed as a result of the magnetizing and demagnetizing effect upon said bars of electric currents applied to and cut from said helix, and the diaphragm thereby caused to vibrate, as set forth.

2. In a telephone, the combination, substantially as hereinbefore described, of a diaphragm, a helix, and a bar under torsional tension within said helix and connected with said diaphragm, whereby the torsional force of said bar is reduced and resumed as a result of the magnetizing and demagnetizing effect upon said bar of electric currents applied to and cut from said helix, and the vibration of the diaphragm thereby caused, as set forth.

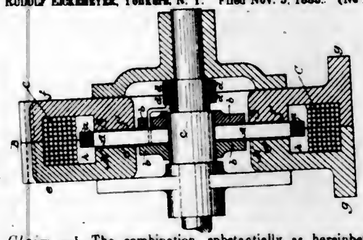
3. In a telephone, the combination, substantially as hereinbefore described, of a permanent magnet, a bar torsionally strained between the poles of said magnet, a helix surrounding the bar, and a diaphragm connected to and vibrated by said bar through its untwisting and twisting action.

4. The combination of the diaphragm, the flexible bar connected therewith, and end supports for said bar, which are adjustable with reference to each other, substantially as described, for varying the longitudinal strain upon said bar, as set forth.

5. The combination of the diaphragm, the flexible bar connected therewith, and end supports for the bar, which are rotatively adjustable, substantially as described, for varying the torsion of said bar, as set forth.

6. The combination of a diaphragm, permanent magnet, helix, and bar within said helix, connected to the diaphragm, and means for twisting said bar, substantially as described.

351,906. **DYNAMO-ELECTRIC MACHINE OR ELECTRIC MOTOR.** RUDOLF EICKEMEYER, Yonkers, N. Y. Filed Nov. 5, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of an armature embodying a zigzag conductor, an inclosing-shell having an annular series of cheeks or pole-faces, and an exciting-helix which polarizes all of said cheeks.

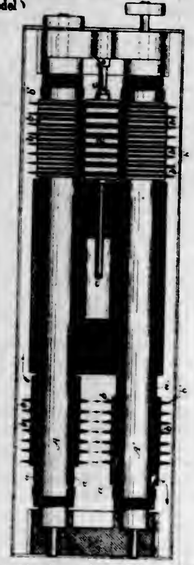
2. The combination, substantially as hereinbefore described, of a magnetic shell having a series of oppositely-located cheeks or pole-faces and an exciting-helix concentric with and polarizing all of said cheeks.

3. The combination, substantially as hereinbefore described, of a magnetic shell having a series of oppositely-located cheeks or pole-faces and an exciting-helix concentric with said pole-faces and housed within said shell.

4. The combination, substantially as hereinbefore described, of a main outer magnetic shell, an auxiliary inner shell, each provided with a series of oppositely-located cheeks or pole-faces, and an exciting-helix concentric with said cheeks within said main shell and peripherally surrounding the auxiliary shell.

5. The combination, substantially as hereinbefore described, of a magnetic shell having an annular series of oppositely-located cheeks or pole-faces, an armature embodying loops or arms composed of a continuous length of conducting metal, and an exciting-helix concentric with said armature and polarizing said cheeks or pole-faces.

351,907. **DEVICE FOR TAKING ELECTRIC CURRENTS FROM OR TO MOVING SURFACES.** RUDOLF EICKEMEYER, Yonkers, N. Y. Filed Dec. 3, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, of one or more disk-shaped electric conductors, a rotative shaft on which said conductors are mounted, and gearing by which said shaft and the brush-conductors are positively rotated.

2. The combination, substantially as hereinbefore described, of one or more disk-shaped electric conductors, a rotative shaft on which said conductors are mounted, gearing by which said shaft is positively driven, and a mercury-bath for lubricating each conductor.

3. A disk-shaped electric-brush conductor composed of a series of laminations or plates, each affording at or near its periphery a surface for electric contact in a plane substantially at right angles to the axis of said disk.

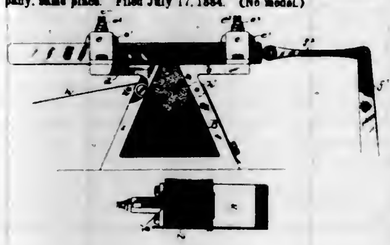
4. A disk-shaped electric-brush conductor composed of two series of laminations or plates, each plate affording at or near its periphery a surface for electric contact in a plane substantially at right angles to the axis of said disk, and having the contact-surfaces of the two series of plates coincident with each other, substantially as described, whereby a conductor with which said brush is to operate can be embraced between said two series of plates at or near their peripheries.

5. A disk-shaped electric-brush conductor composed of laminations or plates having an axial opening, a radial slit, and a portion thereof cut away on eccentric lines, substantially as described.

6. The combination, with a disk-shaped brush-conductor composed of laminations or plates and axially mounted, of a mercury-bath for lubricating said plates, substantially as described.

7. The combination, substantially as hereinbefore described, of a rotative shaft and one or more electric brushes mounted thereon, each composed of a series of laminations or plates massed together and affording a contact-surface in a plane substantially at right angles to the axis of the brush, whereby many or all of said plates may be successively engaged in lateral contact with a co-operating electric conductor.

351,908. **MACHINE FOR BUNCHING BRISTLES.** ALANSON C. EATABROOK, Florence, Mass., assignor to the Florence Manufacturing Company, same place. Filed July 17, 1884. (No model.)



351,908.



Claim.—1. In a bristle-bunching machine, the combination, substantially as hereinbefore described, of a bristle-hopper having tuft-bearing or notch-closing surfaces at both sides of its mouth and a reciprocating notched blade movable across said mouth in close contact with said surfaces and capable of gathering tufts of bristles while moving in both directions across the mouth of said hopper, whereby at each stroke of said blade it is enabled to gather and present a tuft of bristles first on one side and then the other side of said mouth.

2. In a bristle-bunching machine, the combination, substantially as hereinbefore described, of a bristle-hopper having at each side of its mouth a straight notch-closing or tuft-bearing surface and a straight longitudinally-reciprocating notched blade in close contact with said surfaces and adapted to gather tufts of bristles when moved in either direction across the mouth of the hopper, whereby at each stroke said blade is enabled to present a tuft of bristles at one or the other of said surfaces.

3. In a bristle-bunching machine, the combination of a bristle-hopper and the straight longitudinally-reciprocating blade, having a tuft-holding notch at right angles to its bearing-edge, substantially as described.

4. In a bristle-bunching machine, the combination, with a reciprocating notched blade, of a bristle-holding hopper located below said blade and from which the bristles are delivered upwardly to the blade and its notch, substantially as described.

5. In a bristle-bunching machine, the combination, with the notched blade, of a bristle-hopper having a contracted mouth below and crossed by said blade, substantially as and for the purposes specified.

6. In a bristle-bunching machine, the combination, with a reciprocating notched blade, of a flexible and contractible bristle-hopper having an open mouth crossed by said blade, substantially as described.

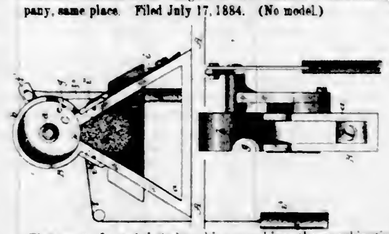
7. In a bristle-bunching machine, the combination, with a reciprocating notched blade, of a contractible bristle-hopper composed mainly of a band or belt of flexible material and having an open mouth crossed by said blade, substantially as described.

8. In a bristle-bunching machine, the combination, with a notched blade, of a flexible bristle-hopper and an agitator for intermittingly varying the pressure of the walls of the hopper against the bristles, substantially as described.

9. In a bristle-bunching machine, the combination, with the top plate, the hopper, the notched sliding blade and its slotted standards, of the gibs and their adjusting-screws, substantially as described, whereby the notched blade is adjusted with reference to the top plate, for the purposes specified.

10. In a bristle-bunching machine, the combination, with a notched blade and the bristle-hopper, of the frame B, having the interior space for the bristle-hopper, and the top plate co-operating with the blade for closing its notch and having an opening for the mouth of said hopper, substantially as described.

351,909. **MACHINE FOR BUNCHING BRISTLES.** ALANSON C. EATABROOK, Florence, Mass., assignor to the Florence Manufacturing Company, same place. Filed July 17, 1884. (No model.)



Claim.—1. In a bristle-bunching machine, the combination of a bristle-holding hopper and a circular blade having one or more radial tuft-notches and crossing and closing the mouth of the hopper, substantially as described.

2. In a bristle-bunching machine, the combination of a bristle-holding hopper and a circular blade crossing and closing the mouth of the hopper, and having one or more tuft-notches and organized within a head, substantially as described, for the delivering of tufts of bristles at different points in the machine, as set forth.

3. In a bristle-bunching machine, the combination of a notched circular blade and a flexible and contractible bristle-holding hopper having a contracted mouth crossed and closed by said blade, substantially as described.

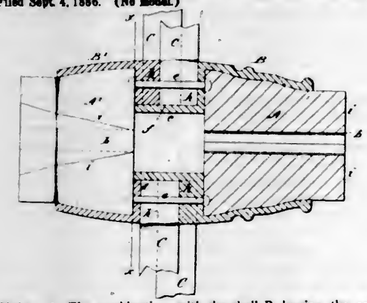
4. In a bristle-bunching machine, the combination of a bristle-holding hopper, an annular blade-head, and a notched circular blade which

is adjustable within the blade-head, substantially as described.

5. In a bristle-bunching machine, the combination of a notched circular blade and a bristle-holding hopper located beneath said blade, substantially as described.

6. In a bristle-bunching machine, the combination, with a circular notched, blade of the frame B, having the open base for the reception of the bristle-hopper, and the annular head for the reception of said blade, substantially as described.

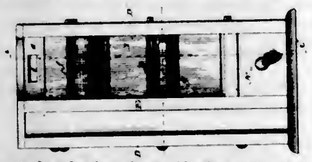
351,910. WHEEL-HUB. BONIFACE A. GRASSBERGER, Richmond, Va. Filed Sept. 4, 1886. (No model.)



Claim.—1. The combination, with the shell B, having the central tubular extension, *c*, on its inner end, and the projections *h*, of the section B', having the inner flange, *d*, having an aperture receiving the outer end of the extension *c*, and projections *h*, alternately with those on the shell B, and the bolts or rivets *e*, substantially as set forth.

2. The hub consisting of the sections B B', connected by a tubular inner flange or extension, and intermediate alternating projections, *h*, forming hub-receiving recesses, and the wooden hub-sections A A', substantially as set forth.

351,911. FARE-BOX. JOHN W. GREER, Austin, Tex., assignor of one-half to William H. Tobin, same place. Filed Mar. 4, 1886. (No model.)



Claim.—1. In a fare-box, the combination, with cylinder A, provided with a longitudinal slot more than half the diameter of said cylinder in depth, and weighted by means of a rotary weight secured to the shaft which forms the axis, to return said cylinder and keep it to normal position with the mouth of the slot downward, of the inclined parallel plates *b b'*, located, respectively, above and below said cylinder B, and means for operating said cylinder A, composed of segment *m*, arm *n*, and toothed wheel *j*, secured to the shaft of said cylinder, as and for the purpose set forth.

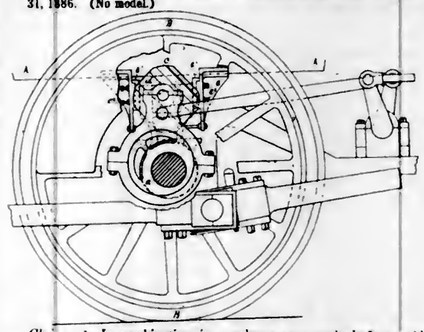
2. The combination, with cylinder B, provided with a longitudinal slot running through it the entire depth of its diameter and weighted by means of a rotary weight fixed to the shaft forming its axis to keep it in normal position with its mouths in a horizontal plane, of the inclined plates *b' b²*, respectively above and below said cylinder, and means for revolving said cylinder, composed of toothed segment *m'*, handle *n'*, and toothed wheel *j'*, fixed to the axis of said cylinder, as and for the purpose specified.

3. The combination, with cylinder A and glass plate *b*, of the bar *f*, located below and in close proximity to said plate, as and for the purpose set forth.

4. In a fare-box, the combination, with the revolving cylinders A B C, each provided with a slot, the first-named having its slot in the form of a pocket and located so as to receive the fares dropped by the passenger, the second located beneath the first to receive the fares after they have been reversed in the cylinder above, and the third located in the box which contains the drawer, and means consisting of the toothed segments, the wheels gearing therewith provided with weights, of the plates *b b' b²*, located, respectively, with reference to the said cylinders, as and for the purpose set forth.

5. The fare-box, substantially as described, provided with three weighted rotary cylinders journaled in suitable bearings at different elevations, with their axes out of vertical alignment, the upper being provided with a pocket to reverse fares, and the two lower ones having slots formed entirely through them to allow fares to gravitate to a final receptacle, substantially as set forth.

351,912. VALVE-GEAR FOR ENGINES. JOHN GRIEK, Minneapolis, Minn., assignor of one-half to George H. Eastman, same place. Filed July 31, 1886. (No model.)



Claim.—1. In combination, in a valve-gear, a rock-shaft, a guide and slide-block carried thereby, a shaft, an eccentric thereon connected to said slide-block, a standard boxed on said shaft, a curved way provided in said standard, and a roller-wheel in said way for raising or lowering said rock-shaft, substantially as set forth.

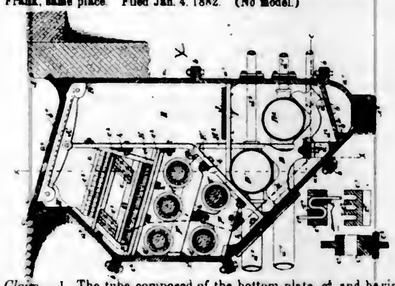
2. In combination, in a valve-gear, a rock-shaft, a guide and slide-block carried thereon, a shaft, a standard boxed thereon and provided with a sliding bearing for said rock-shaft, a curved way for a roller provided on said standard, and a roller therein having one of its bearings in said guide and the other in a casting attached thereto, substantially as and for the purpose set forth.

3. In a valve-gear, the combination, with a rock-shaft carrying a guide and slide-block, of a standard boxed on the main axle, a curved way therein, and a roller in said way operated by said rock-shaft, substantially as and for the purpose set forth.

4. In a valve-gear, the combination, with a guide carried by a rock-shaft and a slide operated by an eccentric on the main shaft, of the blocks *f* and *f'*, forming the way *w*, and the roller-wheel *o*, substantially as set forth.

5. The combination, with a valve-gear of substantially the construction shown and described, of a governor, an eccentric operated by said governor, and a rod connecting said eccentric with the rock-shaft levers, substantially as set forth.

351,913. PROTECTING UNDERGROUND WIRES AND PIPES. WORCESTER HADDOCK, Cincinnati, Ohio, assignor of one-half to Jacob Frank, same place. Filed Jan. 4, 1882. (No model.)



Claim.—1. The tube composed of the bottom plate, a^2, and having on one side the side plates, *a* and *a'*, top plate, a^3, and at the other side inclined plate a^1, vertical plate a^2, and inclined plate a^4, substantially as and for the purposes set forth.

2. A tube provided at its upper portion at one side with bracket B, and at the other side with plate a^2, provided with bracket B', and having at its top the plate a^3, extending from plate *a* to plate a^1, and the joists or bars A', supporting plate a^4, and connected at one end to plate *a* and at the other end to plate a^2, substantially as and for the purposes specified.

3. The combination of vertical side plate *a*, provided at its upper portion with brackets B, side plate a^2, provided with brackets B' and groove *c'*, and the top plate, a^3, provided with flange *c*, engaging groove *c'*, and the supporting bars or joists A', extending beneath top plate, a^3, from one side of the tube to the other, substantially as for the purposes set forth.

4. The combination of the tube X, constructed on one side with side plates, a^1 a^2 a^3, and top, substantially as described, and with inclined post E' and upright post E, substantially as and for the purposes specified.

5. The combination of the tube X, constructed on one side with side plates, a^1 a^2 a^3, and top, substantially as described, and with inclined post E' and upright posts E² and E, the post E' meeting said posts E² E at the junction, substantially as and for the purposes specified.

6. The combination of the tube X, constructed on one side with plates a^1 a^2 a^3, and having within it the upright posts E E², substantially as and for the purposes specified.

7. The tube provided with the bottom plate, a^2, concave, as shown, and provided with the ridge or flange b^2, and the false bottom *b'*, resting at one side on the ridge b^2 and at the other supported by the other side of said bottom plate, substantially as and for the purposes specified.

8. The tube provided with the bottom plate or channel, a^2, and provided with the ridge or flange b^2, and the false bottom *b'*, resting at one side on the ridge b^2 and at the other side formed in one piece with the side or wall *a'* and supported by the adjacent side of the plate or channel a^2, substantially as and for the purpose specified.

9. The tube X, having a concave bottom plate, a^2, provided with outlet tubes or openings A^1, and the false bottom extending across over said bottom a^2, substantially as and for the purposes specified.

10. The tube X, formed in sections whose line of union is substantially parallel to the length of the tube, and provided with the racks extending part away across the tube and supported at one end by the outer wall and at the other end connected to interior supports, substantially as and for the purposes specified.

11. The combination of tube X and interior support, E, and rack e^2, supported at one end by the tube and at other end by support E, substantially as and for the purposes specified.

12. The combination of tube X and support E' and rack F at one end supported on a lug of support E' and at the other end on the lug of vertical side a^2, and upright or side support, E, connected to the top or joists A', substantially as and for the purposes specified.

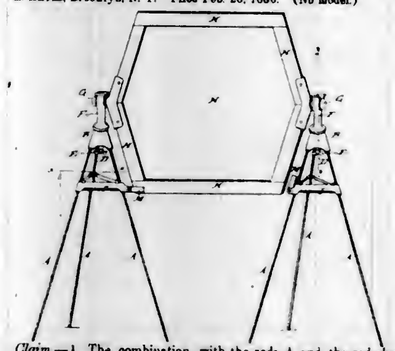
13. The tube X, constructed substantially as described, in combination with the rack D, said rack being provided with the shoes *d*, and support *d'*, substantially as and for the purposes specified.

14. In a tube, the side plates, *a* a^2, and the joists A', connecting the upper portions of said plates, and gutter-plate a^4, and elastic packing b^2, placed between the adjacent ends of plates a^2, substantially as and for the purposes specified.

15. The combination of the gutter-plates a^4 and the joists A', under side plates at and in the vicinity of their junction, and provided with flanges b^4, and the packing b^3, placed between the adjacent edges of said plates a^2, and joists A' and its flanges b^4, upheld in position, between and against said plates a^2, substantially as and for the purposes specified.

16. The combination of the curb A and the gutter-plate a^4, entering a notch in the face of the curb and supported by the plates *a* a^2 of the tube X, substantially as and for the purposes set forth.

351,914. COMBINED BLACKBOARD AND MAP SUPPORT. HENRY E. HAYES, Brooklyn, N. Y. Filed Feb. 20, 1886. (No model.)



Claim.—1. The combination, with the rods A and the rod-clamps B C D E, of the studs F, having half-bearings at their upper ends, substantially as herein shown and described, to receive gudgeons attached to the ends of a blackboard and support the said blackboard, as set forth.

2. The combination, with the rods A, the rod-clamps B C D E, and a blackboard, H, of the studs F, attached to the said clamps, and having half-bearings at their upper ends, and the gudgeons G, attached to the said blackboard and resting in the said half-bearings, substantially as herein shown and described, whereby the said blackboard will be firmly supported and can be readily reversed, as set forth.

3. In a combined map, chart, and blackboard support, the combination, with the rods A and the clamps B C D E, connecting the said rods, of the triangular band I, placed around the said rods, the triangular pan J, having grooved angles, and placed within the said band and between the said rods, and the screws K, having curved cross-heads and band-screws L, substantially as herein shown and described, whereby the said rods are strengthened in position and a receptacle is provided for crayons and blackboard-cleaners, as set forth.

4. The combination, with the rods A, the clamps B C D E, connecting the said rods, studs F, attached to the said clamps and carrying the blackboard, and the band I and pan J, clamped to the said rods, of the U-shaped clamps M, hinged to the said bands, substantially as herein shown and described, whereby the suspended blackboard can be held stationary, as set forth.

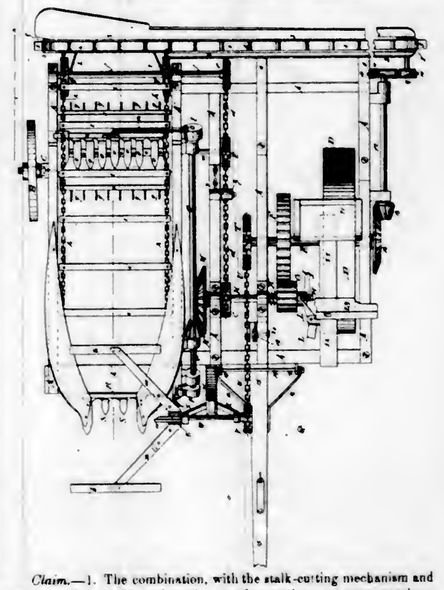
5. The combination, with the rods A, the clamps B C D E, connecting the said rods, and the studs F, attached to the said clamps and having longitudinal perforations, of the rods N, inserted in the said perforations and provided with hooks O at their upper ends, substantially as herein shown and described, whereby maps and charts can be readily suspended, as set forth.

351,915. HEEL-PROTECTOR. FRANK J. HERRICK, New Britain, Conn., assignor to Howard C. Noble, same place. Filed Apr. 21, 1886. (No model.)



Claim.—The round peripherally-corrugated heel-protector *a*, bearing on its under side the fluted nail *c*, substantially as described, and for the purposes set forth.

351,916. CORN HARVESTING AND HUSKING MACHINE. JOHN A. HILBERT, Carroll, Iowa. Filed June 3, 1885. (Model.)



Claim.—1. The combination, with the stalk-cutting mechanism and an open endless stalk-carrier, of a supplemental or ear-cutter mechanism in rear of the stalk-cutting mechanism, and adjacent to the under inner surface of the endless carrier, for severing the ears from the stalks, substantially as set forth.

2. The combination, in a corn harvesting and husking machine, with the stalk-cutting mechanism and an open endless stalk-carrier, of a supplemental or ear-cutter mechanism above and in rear of the said stalk-cutting mechanism and adjacent to the under inner surface of the endless carrier, a husk-stripping mechanism adjacent to the ear-cutters, and an ear-carrier in rear of the stripping mechanism, substantially as set forth.

3. The combination, in a corn harvesting and husking machine, with the stalk-cutting mechanism and an open endless stalk-carrier, of a supplemental or ear-cutter mechanism above and in rear of the stalk-cutting mechanism and adjacent to the under inner side of the said carrier, stripping-arms projecting rearward from said ear-cutter, a reel journaled below said arms and having teeth constructed to pass between

said stripping or husking fingers, and a carrier in rear of the reel to receive the husked ears from the said reel, substantially as set forth.

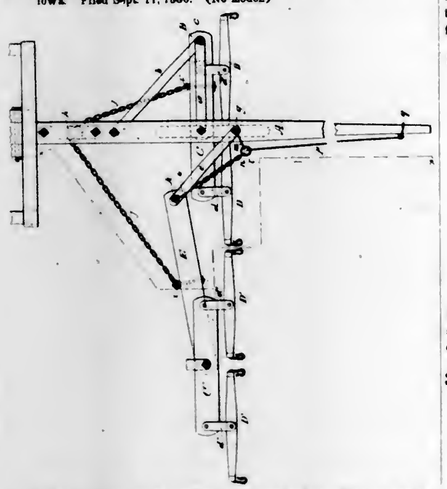
4. In a corn-husking machine, the combination, with the frame A A' and the stalk-carrier *h i*, of the guard-fingers *o*, having flanges *p*, and spring-arms *r*, provided with teeth *s*, the cutter-bar *n*, the reel *u v w x*, having teeth *y*, and a driving mechanism, substantially as herein shown and described, whereby the ears and husks are separated from the stalks and the ears from the husks, as set forth.

5. In a corn-husking machine, the combination, with the frame A A', the flanged guard-fingers *o*, having spring-arms *r*, provided with teeth *s*, the cutter-bar *n*, and the reel *u v w x*, having teeth *y*, of the chute 2, the inclined trough 3, the carrier 4 5, and a driving mechanism, substantially as herein shown and described, whereby the husked ears are carried from the machine and delivered into a wagon, as set forth.

6. In a corn-husking machine, the husking-fingers *o*, made, substantially as herein shown and described, with side flanges, *p*, and inclined spring-arms *r*, having points *s*, whereby the ears are held while being cut from their stems and are separated from the husks, as set forth.

7. The combination, with the frame having a driving mechanism and a gear-wheel, M, operated therefrom, of the endless open stalk-carrier *h i*, the stalk-cutter bar R, and its fingers S, adjacent to the forward end thereof, the butt-cutter bar *n* and its guard-fingers in rear of the stalk-cutter and adjacent to the under inner side of the stalk-carrier, the shaft O, having the pinion N, meshing with the gear-wheel M, and the cranks P *l* at its opposite ends, connected, respectively, to the stalk-cutter and the butt-cotter, substantially as set forth.

351,917. **DRAFT-EQUALIZER.** CHARLES F. HOLCK, Laporte City, Iowa. Filed Sept. 11, 1886. (No model.)



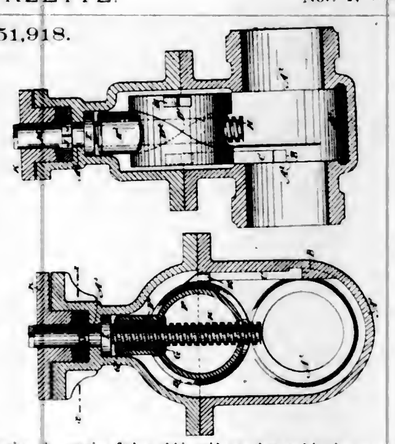
Claim.—1. In a draft-equalizer, the combination of the tongue A, provided with the bars *a b*, the equalizer B, pivoted at one end to the bars *a b*, the evener C, pivotally connected with the free end of the equalizer-bar B, the bars *e f*, connected with the tongue, the equalizer-bar E, pivoted between the bars *e f*, the evener C', carried by the free end of the equalizer-bar E, the chain *j*, connecting the equalizing-bars B E, the sheave *k*, for guiding the chain *j*, and the single-trees D D', connected with the eveners C C', substantially as described.

2. In a draft-equalizer, the combination of the tongue A, provided with the bars *a b*, the equalizer B, pivoted at one end to the bars *a b*, the evener C, pivotally connected with the free end of the equalizer-bar B, the bars *e f*, connected with the tongue, the equalizer-bar E, pivoted between the bars *e f*, the evener C', carried by the free end of the equalizer-bar E, the chain *j*, connecting the equalizing-bars B E, the sheave *k*, for guiding the chain *j*, the single-trees D D', connected with the eveners C C', the clevis *m*, chain *n*, clevis *o*, and rod *p*, substantially as described.

351,918. **GATE-VALVE.** WILLIAM JACKSON, Allegheny City, Pa., assignor to the Specialty Manufacturing Company, (Limited,) same place. Filed Mar. 15, 1886. (No model.)

Claim.—The combination, with the valve body or casing having guiding-recesses and lugs at the bottoms of said recesses and a screw-stem seated for rotation in said body or casing, of the two-part gate, consisting of two rings provided on their inner edges with a double screw-thread-like curve, and each having a lug moving in a recess of the valve body

351,918.



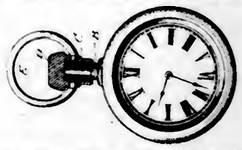
or casing, the nut-ring fitting within said gate-rings and having an angular collar, within which is fitted a nut working upon said screw or stem, whereby, upon the lugs of the valve-rings reaching the lugs at the bottoms of the recesses of the valve body or casing, and by continued movement of the screw or stem, the valve-rings will be revolved apart and their faces be packed tightly against their seats, substantially as set forth.

351,919. **STEM-WINDING DEVICE FOR WATCHES.** OLOF JOHANSON, New York, N. Y. Filed Feb. 26, 1886. (No model.)



Claim.—A key for stem-winding watches, constructed with a ring, D, and a U-shaped loop, E, bent three times at right angles laterally, substantially as herein shown and described, whereby it is adapted to receive and engage with the crown of a stem-winding watch, as set forth.

351,920. **STEM-WINDING DEVICE FOR WATCHES.** OLOF JOHANSON, New York, N. Y. Filed Feb. 26, 1886. (No model.)



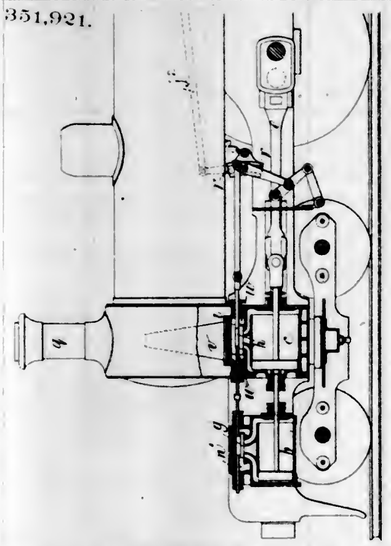
Claim.—A stem-winding watch constructed with the guard-ring E, attached to the rotary crown D, secured to the rotary shaft C, that operates the winding mechanism, substantially as herein shown and described, whereby the watch can be readily and quickly wound, as set forth.

351,921. **COMPOUND LOCOMOTIVE-ENGINE.** WILLIAM B. JOHNSON and JOHN A. JOHNSON, Wigan, County of Lancaster, England. Filed Jan. 15, 1886. (No model.)

Claim.—1. The combination, in a locomotive-engine, of four cylinders, two on each side of the engine, the high-pressure cylinders being fed directly from the boiler, each high-pressure cylinder exhausting by its own separate exhaust-pipe into the two steam-chests made common to the two low-pressure cylinders, the same being connected by a cross-pipe, the pistons both being on one rod, substantially as set forth.

2. The combination, in a locomotive-engine, of four cylinders, two high-pressure and two low-pressure, the high-pressure being fed directly from the boiler, each high-pressure cylinder having its separate exhaust-pipe leading into steam-chests common to both the low-pressure cylinders, the valves being operated by a valve-gear or link-motion, with a link to each cylinder, the pistons being coupled to the cranks and wheels, substantially as and for the purpose set forth.

351,921.



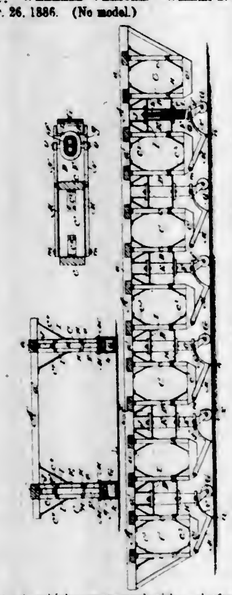
4. In a vehicle running-gear, the combination, with the platform, as at A, of telescoping tubes held thereto, wheels held to the lower tubes, and springs forcing the lower tubes and wheels downward, substantially as herein set forth.

5. A vehicle constructed with a platform, as at A, pendent frames C, connected thereto and separated to provide spaces, as at D, tubes E, having caps *e'*, and fixed in the spaces D, tubes F, fitted to slide in tubes E, a caster-wheel, G, beneath each tube F, a pin, K, holding wheel G to tube F, and passing loosely through the cap of the tube E, and a spring, L, placed within the telescoping tubes E F, substantially as herein set forth.

6. A vehicle constructed with a platform, as at A, pendent frames C, fixed thereto and separated to provide spaces, as at B, telescoping tubes E F, held to and between frames C, wheels, as at G, held to tubes F, springs, as at L, placed within the tubes E F, and guards, as at M, pivoted to frames C, and ranging downward and rearward toward the treads of the wheels, and connected, as at N O, to the tubes F, substantially as and for the purposes herein set forth.

7. In a vehicle running-gear, the combination, with a platform, A, pendent frames C, fixed thereto, telescoping tubes E F, wheels held to tubes F, and springs forcing said tubes and wheels downward, substantially as specified, of the braces H I J, securing the upper tubes, E, to the parts A C, substantially as herein set forth.

351,922. **WHEELED VEHICLE.** WILLIAM B. KELLY, St. Louis, Mo. Filed Mar. 26, 1886. (No model.)

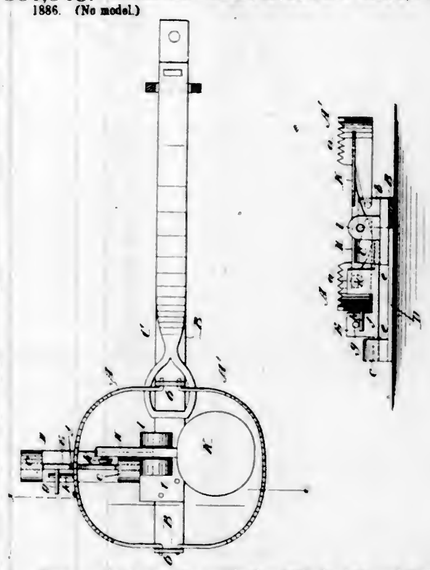


Claim.—1. A vehicle constructed with a platform, a series of independent caster-wheels arranged at and beneath opposite sides of the platform, and springs held to the platform and sustaining the load on the wheels, substantially as herein set forth.

2. A vehicle constructed with a platform, a series of independent wheels arranged at and beneath opposite sides of the platform, springs sustaining the load on the wheels, and yielding guards, as at M, connected to the platform and to the wheel-supports and ranging downward and rearward toward the treads of the wheels, substantially as herein set forth.

3. A vehicle constructed with a platform, a series of independent caster-wheels arranged at and beneath opposite sides of the platform, springs sustaining the load on the wheels, and yielding guards connected to the platform and to the wheel-supports and ranging downward and rearward toward the treads of the wheels, substantially as herein set forth.

351,923. **ANIMAL-TRAP.** JAMES KEMP, Delhi, N. Y. Filed Apr. 1, 1886. (No model.)



Claim.—1. In a trap, the combination, with the jaws and their spring, of a trapping-lever carrying a button, *k*, a rocking plate, E, carrying a pin, *g*, and a pin, *h*, carried by one of the jaws, substantially as described.

2. In a trap, the combination, with the jaws and their spring, of a trapping-lever, a rocking plate, E, normally opheld by the trapping-lever, and carrying a pin, *g*, and a pin, *h*, carried by one of the jaws, substantially as described.

351,924. **VALVE ATTACHMENT FOR HYDRANTS.** LYMAN G. KEYES, Armstrong, Kans. Filed July 7, 1886. (No model.)

Claim.—1. The combination, with a valve and its case, of a bushing provided with an external left-hand thread and internally threaded to receive the valve-case, a casting forming a water and air chamber, means for connecting said casting with the water-supply, and a ring carried by said casting, said ring being threaded to engage with the external thread of the bushing, substantially as described.

2. The combination, with a casting, 10, of a ring, 14, a bushing, 17, the ring and the bushing being provided, respectively, with external and internal left-hand threads, a valve-case carried by the bushing, a valve arranged within the case, a yielding packing-ring, 21, carried by the valve, and an operating mechanism, substantially as described.

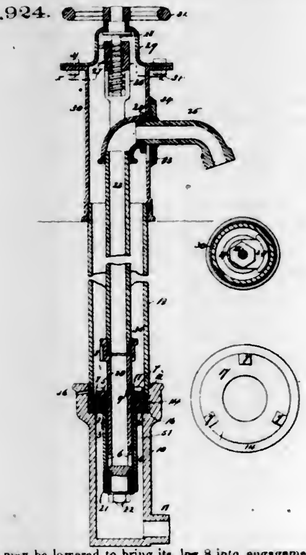
3. The combination, with a valve provided with a lug, S, of a bushing provided with lugs 7, a valve-case carried by the bushing, a ring, 14, with which the bushing engages, said ring being provided with an internal left-hand thread, and means, substantially as described, whereby

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Claim.—1. In a corn-planter, the combination, with the axle C,

of the hills, on both sides of the hills, to the drive-rod, means for moving

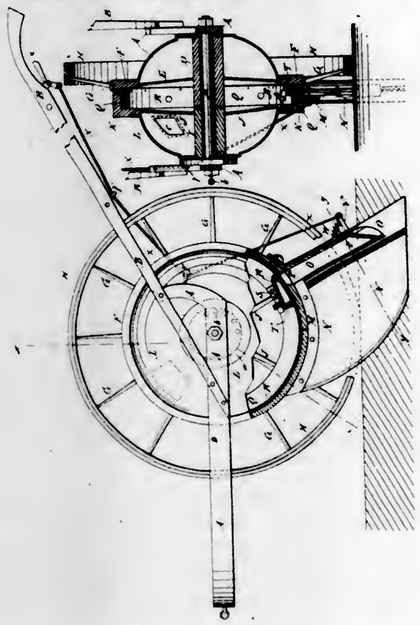
351,924.



the valve may be lowered to bring its lug 8 into engagement with one of the lugs 7, and then turned so as to disconnect the bushing from the ring 14, substantially as described, and for the purpose stated.

4. The combination, with a casting, 10, arranged for connection with a water-main, of a ring, 14, carried by the casting, a housing, 13, abutting against said ring, an upper section or housing, 30, provided with a slot, 33, a bushing, 17, provided with an external left-hand thread that engages with a corresponding thread formed on the ring 14, a valve-case, 4, connected to the bushing, a valve, 20, arranged within said case and provided with a lug, 8, lugs 7 being formed on the bushing, an elbow, 24, a spout, 25, detachably connected with said elbow, and a casting, 26, rigidly connected to the elbow and provided with a nut, 27, substantially as described.

351,925. CORN-PLANTER. ERNEST H. KORSMEYER, Evansville, Ind. Filed Feb. 12, 1886. (No model.)

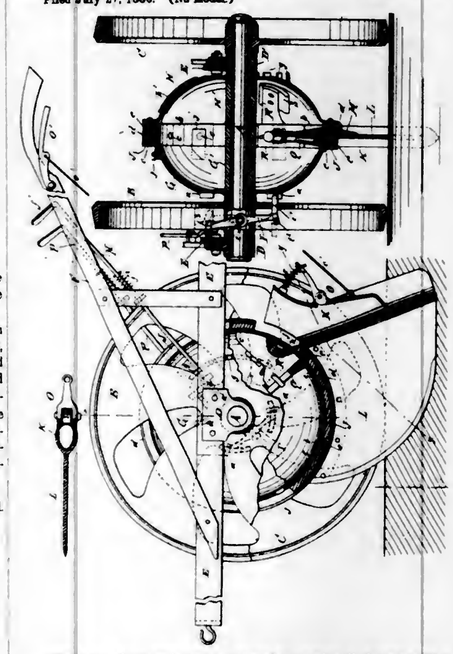


Claim.—1. In a corn-planter, the combination, with the axle C, the hub D, the spokes E G, and the rims F H, of the hub I, spokes J, rim K, band Q, and casing L, substantially as herein shown and described.

2. In a corn-planter, the combination, with the frame A, the handles B, and the axle C, of the hub D, spokes E G, and rims F H, the hub I, spokes J, and rim K, the band Q, having seed-receiving apertures, the casings L, attached to the hubs and rims, and the plate *a* and pin *b*, substantially as herein shown and described.

3. In a corn-planter, the combination, with the rim K, having flange M and aperture P, of the cutter N, having forked rear edge, and the tube O, substantially as herein shown and described, whereby a channel is opened in the ground and the seed is conducted into the channel, as set forth.

351,926. SEED-PLANTER. ERNEST H. KORSMEYER, Evansville, Ind. Filed July 27, 1886. (No model.)



Claim.—1. In a seed-planter, the hollow casting G, formed with a single flange, *b*, having numerous seed-apertures, *c*, formed in it, the casting H, forming one side of the seed-box and formed with a single opposite flange, *d*, overlapping the flange *b*, in combination with the ring J, placed between the flanges *b* and *d*, substantially as described.

2. The ring J, held between the flanges *b d* of the hollow castings G H, and pressed inward by the springs *e*, substantially as described.

3. The hollow casting G, having a flange provided with seed-apertures, in combination with the hollow casting H, provided upon the inside with a block, R, held upon a spring-support, substantially as described.

4. The hollow casting G, having an apertured flange, *b*, in combination with the casting H, cushion S, plate R', and block R, substantially as described.

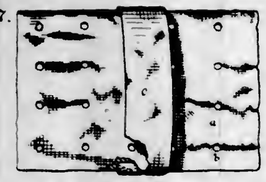
5. The casting G, provided with the lugs *a*, and placed loosely upon the axle, in combination with the wheel B, dog or lever I, and means, substantially as described, for operating the dog or lever I for engaging and disengaging the lugs *a*, substantially as and for the purposes set forth.

6. The casting H, placed loosely upon the axle formed with the lugs *g*, and provided with the knife L, in combination with a locking-rod for locking the casting, to cause the knife to enter the ground, substantially as described.

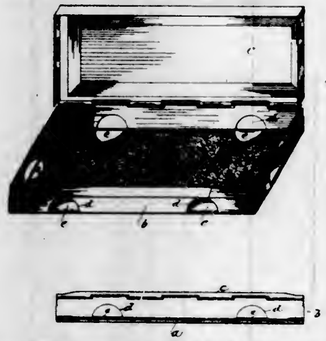
351,927. BATH-RUBBER. JOSEPH B. LAUGHTON, Brooklyn, N. Y. Filed Feb. 3, 1886. (No model.)

Claim.—The improved bath-rubber consisting of an integral pad of thick felt, having a reversible loop-strap attached to the edges, and also having perforations or cells, substantially as described.

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351,928. COLOR OR INK PAD. JOSEPH B. LAUGHTON, Brooklyn, N. Y. Filed May 6, 1886. (No model.)

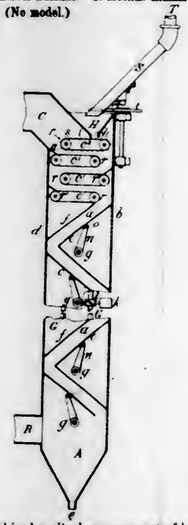


Claim.—1. The improved inking-pad for hand-stamps, consisting of a textile container charged or incorporated with ink or color-paste by compression, in combination with a superimposed textile feeder charged with a hygroscopic solvent, substantially as described.

2. The combination of an inclosing-case having a cover, and constructed with openings through the sides for the circulation of air laterally through the case, with an inking-pad for hand-stamps, consisting of a textile container charged or incorporated with ink or color-paste by compression, and a superposed feeder charged with a hygroscopic solvent, substantially as described.

3. The combined ink or color pad and an inclosing-case therefor having a cover, and constructed with openings through the sides, and having the pads secured by the lips cut for the openings, substantially as described.

351,929. BONE-BLACK DRIER. S. MORRIS LILLIE, Philadelphia, Pa. Filed June 16, 1886. (No model.)



Claim.—1. The within-described arrangement of bone-black revivifying kiln and drier, consisting of a drier located apart or at a distance from the kiln, conduits connecting the kiln with the drier and serving to lead the hot products of combustion, or hot air heated by the waste heat of the kiln, or both, from the kiln to the drier, and means for causing a flow of the same from the kiln through the conduits to and through the drier, substantially as and for the purpose specified.

2. The combination of a series of bone-black revivifying-kilns, a drier common to the kilns of the series, in which drier the waste heat of the said kilns is used in drying bone-black, mains or flues connecting the kilns with the said common drier and serving to conduct the hot products of combustion or air heated by the waste heat of the kilns, or both, from the kiln to the drier, and means for causing a flow of the heated air or gases from the kiln to and through the drier, substantially as specified.

3. The combination, with a series of bone-black kilns, of a surface-heater common to the series in which the hot products of combustion from the kilns are used in heating air, a char drier or driers in which the heated air is used in drying bone-black preparatory to its being passed through the kilns, conduits connecting the air-channels of the surface-heater with the driers, flues for the hot products of combustion leading from the kilns to the surface-heater, and means for effecting a flow of the products of combustion from the kilns to and through the surface-heater, and of the air heated by the surface from the latter to and through the drier or driers, substantially as set forth.

4. The within-described process of utilizing the waste heat of bone-black revivifying-kilns in a preliminary drying of the wet black, consisting in passing air or gases heated by the waste heat of the kilns over extended moving surfaces of the black in a direction opposite to that in which the black moves, so that the heated air or gases will meet progressively wetter portions of black as they become more and more laden with moisture, substantially as specified.

5. A char-drier consisting of the long vertical chamber A, containing oppositely-inclined or oppositely-moving shelves or belts c c', placed one above the other and arranged as described, means for introducing the wet black upon the upper shelf or belt, a discharge for the black below the lower shelf, an induction-main leading to the revivifying-kilns or surface-heater connected with the kilns and opening into the chamber A below the lower shelf or belt, air-eduction main at the top of the chamber above the upper shelf or belt, and means for causing a flow of heated air or gases from the kilns or surface-heater through the induction-main into and up through the chamber A, around the belts or inclined shelves and out of the eduction-main at the top of the chamber, substantially as specified.

6. In a char-drier constructed and operating substantially as described, the combination, with the inclined shelves *c*, of a tapping or other suitable mechanism for jarring or vibrating the shelves and agitating the black resting upon the same, substantially as specified.

7. In a char-drier constructed and operating substantially as described, the combination of the feeder-belt *c'*, and hopper H, above it, the hopper having a long more or less narrow discharge-opening at the bottom extending across the feeder-belt transversely to the direction of its motion, substantially as specified.

8. In a char-drier constructed and operating substantially as described, the ribs *s* on the surface of the feeder-belt working in combination with the lip or edge *i* of the hopper H, substantially as specified.

9. The combination, with the inclined shelves *c* of a char-drier constructed substantially as set forth, of the parallel plates *f*, forming with the shelves the confined zigzag passages, as specified.

10. In a sugar-refinery, a vertical shaft or chamber extending vertically through several stories of the refinery, means for delivering bone-black to be dried into the shaft at the upper end and permitting it to fall through the shaft, a discharge for the dried black at the bottom of the shaft, induction and eduction air-mains at the bottom and top of the shaft, respectively, and devices in the interior of the shaft for breaking the fall of the black and distributing and exposing it to currents of heated air which are made to pass upward through the shaft, substantially as specified.

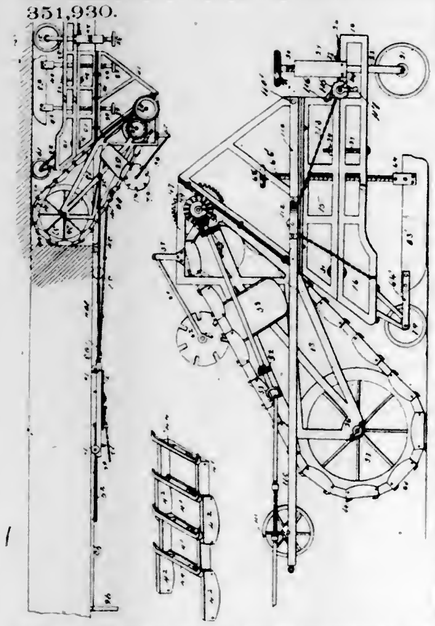
11. The combination, with a bone-black drier in which the black is dried by currents of air passed over or through the black, of a chamber or apparatus with which the eduction air-mains of the drier connect, and through which the air passes from the drier, and which operates to receive and retain the black-dust and grains of black carried from the drier by the currents of air, substantially as specified.

351,930. DITCHING-MACHINE. JAMES D. MCANLIS, Beaver Falls, Pa. Filed Feb. 27, 1886. (No model.)

Claim.—1. In a ditching-machine, the combination, with a laterally-adjustable pivoted supporting-frame, 16, mounted on wheels, of a supporting-frame section, 13, 14, and 15, pivoted at 31, carrying an endless elevator-belt, 40, substantially as shown, and for the purpose set forth.

2. The combination, with the frame mounted on wheels and having the forwardly-extended portion provided with the top plate, 35, of the wheels 37 and 39, mounted between the walls of said forwardly-extended portion, the belt 40, supported by said wheels and provided with cutters, and the mechanical connections, substantially as described, for driving said belt.

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3. A ditching-machine cutting and elevating belt composed of open frame-like links 41, connected by pivoted side pieces, 42, and provided with transverse cutters 44, substantially as described.

4. The combination, with the cutting and elevating belt 40, arranged as described, and having open or frame-like links, of the wheel 37, having its periphery arranged to carry and form a backing for said links, the top plate, 35, arranged above and inclined upwardly from said wheel, and one or more laterally-extending chutes or guides arranged adjacent to but below the level of the upper end of said top plate, substantially as described.

5. The combination, with the open-link elevating-belt 40, of the wheel 61, having radial slits 62, and suspended from standards 59 by arms 60, for the purpose set forth.

6. The combination, with the frame 16, having the pivoted laterally-adjustable upper portion, 13, 14, and 15, carrying the cutting and elevating belt, 40, of the rear supporting-wheel, 21, provided with straddle-piece 22, and adjustable to lateral inclination by plate 24, which is pivoted at 25, as described.

7. In a ditching-machine, the combination, with the frame carrying the cutting devices, and supported by forward and rear wheels, of the intermediate sled arranged to be raised or lowered at will, substantially as described.

8. In a ditching-machine, the combination, with the supporting-frame 13, 14, 15, and 16, and the cutting and elevating belt 40, wheels 37 and 39, and the extraneous-draft mechanism, as described, and the motive mechanism, as described, outside of the ditching-machine, and connected with its cutting and elevating mechanism for operating the same, as set forth.

9. The combination, with the frame mounted on wheels, and carrying the cutting and elevating belt, supported and arranged as described, of the draft-carriage connected with said frame, and provided with the windlass and cable, the motive devices for turning said windlass, and the intermediate shafting and gearing connecting said motive devices with the driving-wheel of said cutting and elevating belt, substantially as set forth.

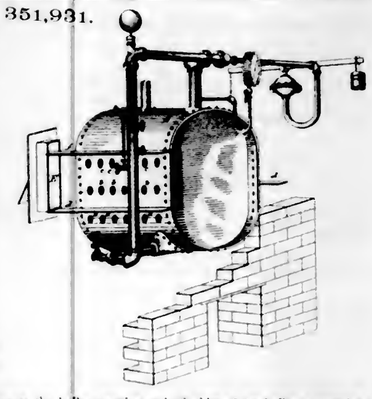
10. In a ditching-machine, the combination, with the supporting-frame, the tongue 110, provided with pulleys 112, of the shaft 114, provided with pawls and ratchet for operating chains 113, as shown and set forth, for the purpose described.

11. The combination of the sled 63, provided with screw-rod 66' and bracket 64 at one end for raising and lowering, and extensions 64', pivoted to the wheel 19, arranged as and for the purpose described.

351,931. STEAM-BOILER. JOHN H. MCCORMACK, Meriden, Conn. Filed July 19, 1886. (No model.)

Claim.—1. In a steam-boiler, substantially such as described, two or more series of tubes, each series arranged in horizontal planes transversely

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across the boiler opening on both sides of the boiler, a chamber surrounding said boiler and into which the fire-box opens, the said series of tubes each opening into the said chamber on opposite sides of the boiler, with longitudinal horizontal partitions in the chamber on each side of the boiler, the partition on one side being between the first two series of tubes and the next on the opposite side above the second of the series, and so on, substantially as described.

2. The combination of a steam-boiler having parallel sides, a chamber surrounding said boiler, a fire-box opening into said chamber upon one side of the boiler, two or more series of tubes, each series arranged in a horizontal plane and extending through the boiler from side to side and opening into the said chamber upon opposite sides, longitudinal horizontal partitions on opposite sides of the boiler, the first partition on one side being between the first and second series of tubes and the next on the opposite side between the second and third, and so on, with a door opening into said chamber and against said partitions, substantially as described.

3. The combination of a steam-boiler having parallel sides, a chamber surrounding said boiler, a fire-box opening into said chamber upon one side of the boiler, two or more series of tubes, each series arranged in a horizontal plane and extending through the boiler from side to side and opening into the said chamber upon opposite sides, longitudinal horizontal partitions on opposite sides of the boiler, the first partition on one side being between the first and second series of tubes and the next on the opposite side between the second and third, and so on, and a door upon one side of the chamber opening to the ends of the tubes, substantially as described.

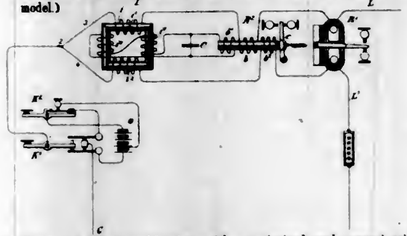
351,932. PICTURE-HANGER. DORA MITCHELL, Ottumwa, Iowa. Filed June 2, 1886. (No model.)



Claim.—1. A picture-hanger comprising a pole, a double-forked head-piece fixed to one end of the pole, and a spring-clamp fixed to the other end of the pole, substantially as described, for the purposes set forth.

2. A picture-hanger comprising a pole made in sections hinged together and provided with a fastening at the joint, and a double-forked head-piece fixed to one end of the pole and a spring-clamp fixed to the other end of the pole, substantially as herein set forth.

351,933. QUADRUPLEX TELEGRAPHY. JOHN M. MOFFATT, New York, and EDWARD BLAKESLEY, Brooklyn, N. Y. Filed July 3, 1886. (No model.)



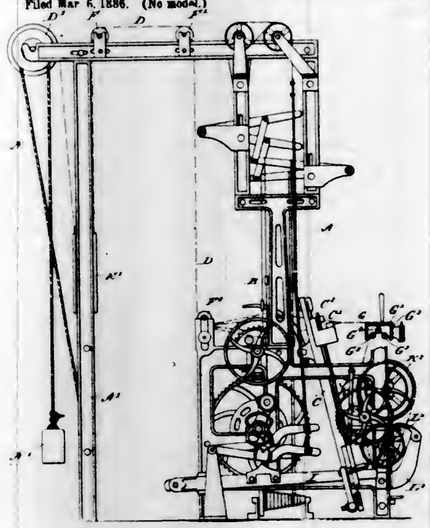
Claim.—1. The combination, with a polarized and neutral relay of a telegraph system and means for causing said instruments to respond to incoming and be silent to outgoing currents, of a supplemental coil applied to the neutral relay, an induction-coil having its primary wire connected in the main circuit and its secondary wire through said supplemental coil of the neutral relay, and a condenser having its respective plates connected to the terminals of the secondary coil.

2. The combination, with a polarized and a neutral relay, both of which are differentially wound, of a main and artificial line, respectively, including the opposing coils of said relays, an induction-coil having its primary wire included in the main and artificial lines, and a circuit for the secondary coil in which said supplemental coil is included, the connections being such as to cause the induced currents from the secondary coil to assist in the rapid discharge and recharge of the magnetism in the coils of the neutral relay at the instant of reversal.

3. The combination, with a main and artificial line, of a polarized and neutral relay, means for transmitting currents of alternating polarity and different strength upon said lines, and supplemental coils in said polarized and neutral relays, which supplemental coils are connected together.

4. The combination, with a main and artificial line, of a polarized and neutral relay, means for transmitting currents of alternating polarity and of different strength upon said lines, and supplemental coils in said polarized and neutral relays, which supplemental coils are connected together, and a condenser having its plates connected to the terminals of said supplemental coils

351,934. TAKE-UP AND LET-OFF MECHANISM FOR LOOMS FOR WEAVING BROAD SILK. JAMES NIGHTINGALE, Jr., New York, N. Y. Filed Mar 6, 1886. (No model.)

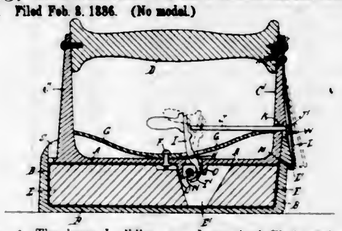


Claim.—1. The combination, with a loom-frame, the warp-beam, the heddles, and the lay; of the cloth-beam, mechanism for revolving the said cloth-beam from the lay, levers I, pivoted to the loom-frame, a roller, H', journaled in the ends of the levers I below the cloth-beam, and a lever, M', pivoted on the loom-frame and having one end, M^2, resting against the roller H', substantially as herein shown and described.

2. The combination, with a loom-frame, the warp-beam, the heddles, and the lay, of the cloth-beam, mechanism for revolving the said cloth-beam from the lay, levers I, pivoted to the loom-frame, a roller, H', journaled in the ends of the levers I below the cloth-beam, and angle-levers M M', pivoted to the loom-frame, their outer angular ends, M^2, resting against the roller H' and their inner ends overlapping, substantially as herein shown and described.

3. The combination, with a loom-frame, heddles, a lay, a cloth-beam, and a warp-beam, of a vertically-sliding frame, a roller journaled in the same, over which roller the warps are passed, levers pivoted to the loom-frame, a roller journaled in the ends of said levers below the cloth-beam, a pawl operated from the lay, a ratchet-wheel operated from the said pawl, gearing for operating the cloth-beam from the ratchet-wheel, an arm projecting upward from one of the levers in which the roller below the cloth-beam is journaled, and levers for raising the levers in which the roller below the cloth-beam is journaled, substantially as herein shown and described.

351,935. SMOOTHING-IRON. GEORGE G. OLDAKER, London, Ontario, Canada. Filed Feb. 8, 1886. (No model.)



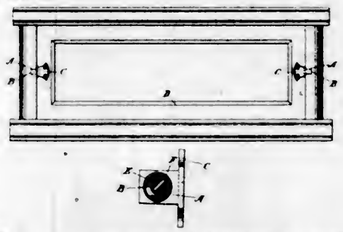
Claim.—1. The lever I, sliding arm J, standard C', formed with socket K, standard C, cover A, handle D, and spring L, formed with an angular end, L', in combination with the box B, formed with the notch M, substantially as shown and described, and for the purpose specified.

2. In a smoothing-iron, the lever I, formed with a curved end, I', and sliding arm J, in combination with a spring, L, formed with an angular end, L', handle D; box B, formed with notch M, and slug E, formed with a slot, E', and bar N, for the purpose of disengaging the handle from the box and engaging the handle with the slug simultaneously, so that both motions will be made with one movement of the hand, substantially as shown and described.

3. The box B, formed with a guide, V, in combination with the standard C', formed with a socket, W, substantially as shown and described, and for the purpose specified.

4. The cover A, formed with an angular flange, P, and square flanges T T, in combination with the box B, formed with flange S, in which the angular groove R and square recesses U U are formed, substantially as shown and described, and for the purpose specified.

351,936. PIVOTAL SUPPORT FOR SASHES. LOUIS PFINGST, Pullman, assignor to George M. Pullman, Chicago, Ill. Filed Jan. 21, 1886. (No model.)

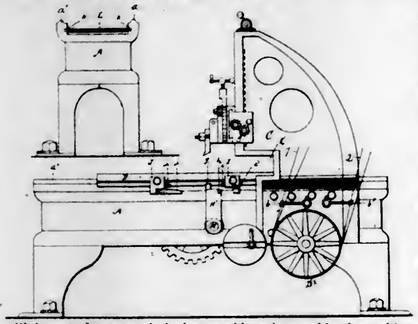


Claim.—1. In a sash-bearing, the combination of a pivotal extension, a socket therefor, and a spring of circular form attached to one of the said parts and bearing upon the other, substantially as described and shown.

2. In a sash-bearing, the combination of a pivotal extension, a socket therefor, and a spring of circular form attached to the pivotal extension and bearing outward upon the concave interior of the socket.

3. As a sash-bearing, the combination of plate C, bent at right angles and having projecting from it the pivotal extension B, in combination with a socket and a spring, substantially as described and shown.

351,937. METAL-PLANING MACHINE. LOCIUS W. POND, Worcester, Mass. Filed Jan. 26, 1886. (No model.)



Claim.—1. In a metal-planing machine, the combination, with a pair of rods provided with belt-eyes arranged to ship the driving-belts of the machine and adjustable dogs attached to the reciprocating table, of two independently-acting operating mechanisms, each connected with one of said rods and arranged to be actuated by said dogs, substantially as described, and for the purpose set forth.

2. The combination, with a vibrating arm attached to a sleeve journaled in the bed and actuated by the reciprocating table, and a vibrating arm attached to a shaft journaled in said sleeve and actuated by the reciprocating table, of shipping mechanisms operating said rocking sleeve and shaft, whereby the driving-belts are shifted, as described, and for the purpose set forth.

3. The combination, in a metal-planing machine, with independently-acting belt-shipping mechanisms actuated by dogs attached to the reciprocating table, of adjusting-screws carried by said dogs, whereby the time of contact with said shipping mechanisms may be varied, as described, and for the purpose set forth.

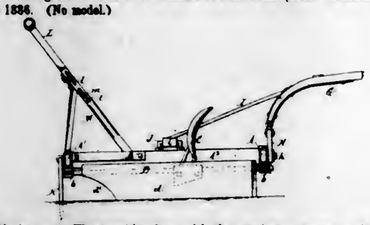
4. The combination, with vibrating arms G′ and H′, journaled in concentric bearings in the bed of the machine, the arm G′ having a spur, *g*, and the arm H′ having a spur, *h*, said arms having connected mechanism for actuating the belt-eyes and shipping the driving-belts, of dogs I and J adjustable on the reciprocating table, said dog I adapted to move the arm G′, and having a spur, *i*, adapted to move the arm H′, said dog J adapted to move the arm G′ and having a finger adapted to move the arm H′ in advance of the arm G′, as described, and for the purpose set forth.

5. In a metal-planing machine, the combination, with vibrating arms journaled in the bed of the machine and having connected belt-shipping mechanisms, substantially as described, of dogs adjustably attached to the reciprocating table and adapted to move said arms at different periods of time, as described, and for the purpose set forth.

6. In a metal-planing machine having two independently-acting belt-shipping mechanisms and actuating-dogs attached to the reciprocating table, the combination, with said dogs, of adjusting-screws whereby the relative movement of the belt-shipping mechanisms is varied, substantially as described.

7. In a metal-planing machine, the ways *a a′*, provided with grooves on their inner sides for the reception of a covering-plate, substantially as described.

351,938. FURROWER AND COVERER. JOHN REUTHER, Elma, N. Y., assignor of one-half to William Reuther, same place. Filed Aug. 4, 1886. (No model.)



Claim.—1. The combination, with the stationary frame and the horizontal shaft B, of the plow C and coverer D, arranged interchangeably on said shaft, substantially as set forth.

2. The combination, with the stationary frame and horizontal shaft B, of a plow, C, arranged on one side of said shaft, and a coverer, D, arranged on the opposite side thereof, substantially as set forth.

3. The combination, with the frame and horizontal shafts B B, made laterally adjustable on said frame, of the plows C C and coverers D D, arranged on opposite sides of said shafts, substantially as set forth.

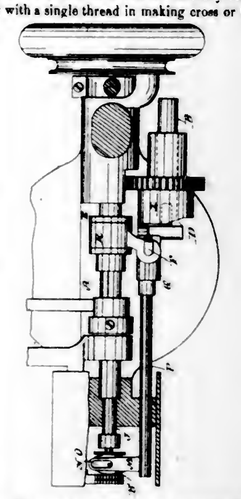
4. The combination, with the frame and horizontal shaft B, of the adjustable plow C and coverer D, arranged on opposite sides of said shaft, substantially as set forth.

5. The combination, with the stationary frame and shaft B, of a plow, C, and coverer D, arranged on opposite sides of said shaft, and means, substantially as described, whereby the shaft B is prevented from turning, substantially as set forth.

6. The combination, with the stationary frame A and shaft B, of a plow, C, and coverer D, secured to opposite sides of said shaft, and a locking-plate, F, adapted to engage in a recess formed in said coverer, substantially as set forth.

351,939. SEWING-MACHINE. OTTO L. SCHAFFER, New York, N. Y., assignor to John W. Aitken, same place. Filed Nov. 11, 1885. (No model.)

Brief.—The construction is designed as an improvement on that described in Patent No. 328,816, dated October 20, 1885, granted to the same party, the looper and the throat-plate having a single needle-slot, and the needle-bar and its needle are laterally reciprocated in unison for sewing with a single thread in making cross or binding stitching.

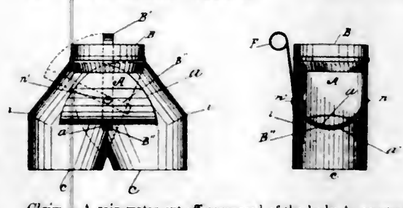


Claim.—1. In a sewing-machine, the combination, with the main shaft and the stitch-forming mechanism provided with a loose collar and means for sliding said collar, of a rod connected to the said collar and a slotted throat-plate on the said rod, substantially as herein shown and described.

2. In a sewing-machine, the combination, with the main shaft A and the stitch-forming mechanism provided with the sliding collar E and ring R, surrounding the collar, the shaft B, provided with the sleeve I, having the cam D, and means for operating the shaft B from the shaft A, of the rod P, connected to the ring R, and the throat-plate M, secured to the said rod and provided with the slot N, substantially as herein shown and described.

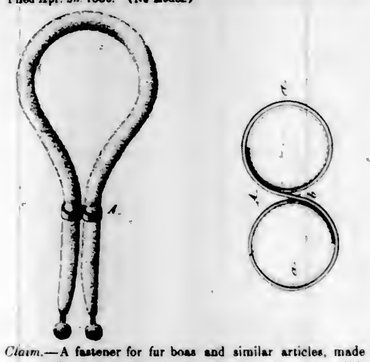
3. In a sewing-machine, the combination, with a stationary sewing-plate, a movable needle-bar, and a looper, of a reciprocating rod, a throat-plate secured to said rod, and means for operating the said looper and reciprocating rod, substantially as herein shown and described.

351,940. RAIN-WATER CUT-OFF. JOHN SEVERDING, Richmond, Ind. Filed Mar. 29, 1886. (No model.)



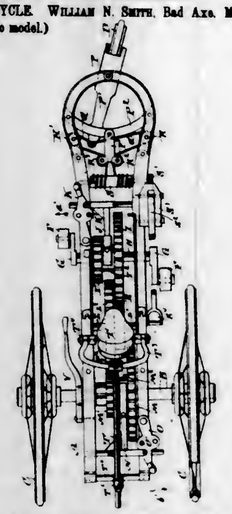
Claim.—A rain-water cut-off composed of the body A, constructed as described, the cut-off valve *a*, curved shaft B″, having handle-lever B′, axis-pin *n*′, ear D, and boss *h*, all combined and operating substantially in the manner and for the purpose herein set forth and described.

351,941. HOLDER FOR BOAS. SAMUEL SIMMONS, New York, N. Y. Filed Apr. 22, 1886. (No model.)



Claim.—A fastener for fur boas and similar articles, made of resilient material and provided with ring-shaped holders of equal size, bent in opposite direction to each other, the ends of said holders being located close to and at opposite sides of the middle connecting part, so as to overlap the same, substantially as set forth.

351,942. TRICYCLE. WILLIAM N. SMITH, Bad Axe, Mich. Filed Feb. 25, 1886. (No model.)



Claim.—1. In a tricycle, the treadles F, attached to the crank-arms G, fastened to the shaft H, the gear-wheels I and I′, connected with each other by a hub, I², the sliding frame J, and the lever K, in combination with the gear-wheels L′ and L², mounted on the shaft L, the gear-wheels M and M′, connected by the hub M², the sliding frame N, the locking-lever O, and the shaft B, carrying the driving-wheels C, substantially as herein shown and described.

2. In a tricycle, the frame A, provided with a train of gear-wheels, E, which are operated by the balanced treadles F, and which set in motion the main driving-wheels C, mounted on the shaft B, in combination with the steering-wheel D, operated by the rack S², meshing into the pinion S′, mounted on the drum S, which winds or unwinds alternately the ropes Q and Q′, attached to the arm P′, on the vertical part of which is mounted the steering-wheel D, substantially as herein shown and described.

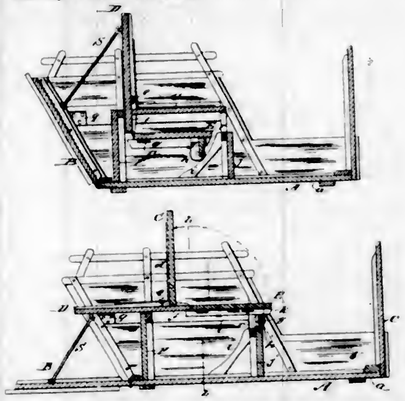
3. In a tricycle, the steering-wheel D, mounted on an arm, P, having an extension, P′, the ropes Q and Q′, pulleys R, R′, R², and R³, and the drum S, in combination with the rack S², sliding in a bearing, S³, and having a handle, S⁴, substantially as herein shown and described.

4. In a tricycle, the combination, with the main frame A, of the seat T, mounted on a bent arm, T′, adjustable in the bearings T² and T³, the bearing T² being pivotally attached to the swinging arm T⁴ and the bearing T³ being pivotally attached to the rear end of the frame A, substantially as herein shown and described.

5. In a tricycle, the combination of a train of gear-wheels with two gear-wheels, I and I′, connected to each other by a hub, I², and sliding on and rotating with a shaft, H, having the crank-arms G, on which are mounted the treadles F, with a sliding frame, J, and with the lever K, which can be locked on the main frame A, substantially as herein shown and described.

6. The gear-wheels M and M′, connected with each other by a hub, M², and sliding on and rotating with the shaft B, carrying the main driving-wheels, in combination with a shifting frame, N, and a lever, O, which can be locked in two positions on the frame A, substantially as herein shown and described.

351,943. VEHICLE-SEAT. JAMES STEELE, Guelph, Ontario, Canada. Filed Sept. 9, 1886. (No model.)

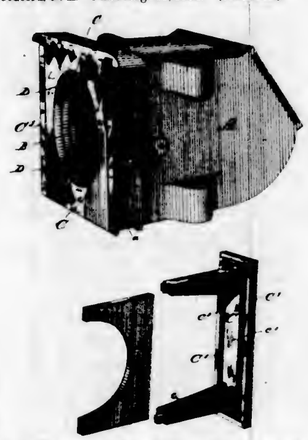


Claim.—1. The combination, with a pivoted seat-back and seat rigidly secured thereto, of an end-board hinged to the vehicle-body and rods connecting the seat-back and the hinged end-board to cause them to move together, substantially as described.

2. The combination, with the pivoted seat formed of a seat, C, and seat-back D, of an auxiliary seat E, hinged to an extension of the seat-back D, and means for guiding and supporting the auxiliary seat, substantially as described.

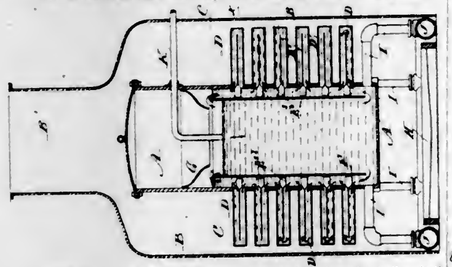
3. The combination, with the pivoted vehicle-seat formed of the seat C and seat-back D, rigidly secured together, of the hinged end-board B, rods *s*, connecting the end-board and the seat-back, the auxiliary seat E, provided with the rollers *h*, and hinged to an extension of the seat-back D, the curved inclined guides *i*, and the board *j*, substantially as described.

351,944. DUST-GUARD FOR CAR-AXLE BOXES. DAVID S. STINSON, Concord, N. H. Filed Aug. 11, 1884. (No model.)



Claim.—The combination, with the axle-box A, having a dust-guard chamber, and the slots *a*, somewhat longer than the flanges C′, of the said flanges C′, having groove *c*′, the frames C, attached to the flanges and provided with guide-grooves *c*, and the dust-guards D, having horizontal play in the said guide-grooves, as set forth.

351,945. STEAM-GENERATOR. HENRY STUTSMAN, East Portland, and DAVID COLE, Portland, Oreg. Filed July 19, 1886. (No model.)



Claim.—1. In a steam-generator, the combination of a boiler-shell with a closed cylinder supported above the grate-bars inside of the boiler-shell, an annular partition placed inside of said cylinder, and partitioned tubes extending radially from said cylinder between the latter and the boiler-shell, substantially as shown and described.

2. In a steam-generator, the combination of the boiler-shell B and the grate-bars H with the cylinder A, the pipes I, and the annular pipe J, which pipes I and J support said cylinder A, substantially as shown and described.

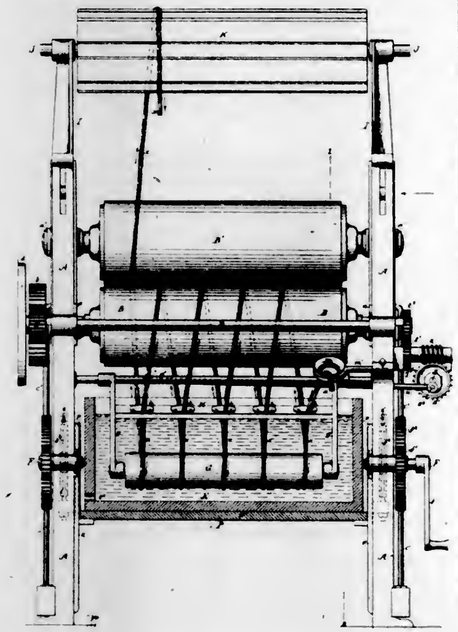
3. In a steam-generator, the combination of the cylinder A and the annular partition F with the radial tubes D and the partitions E, substantially as shown and described.

4. In a steam-generator, the combination of the cylinder A and the annular partition F with the radial tubes D and the partitions E, each having a curved outer end, E', and the rectangular inner end, E², substantially as shown and described.

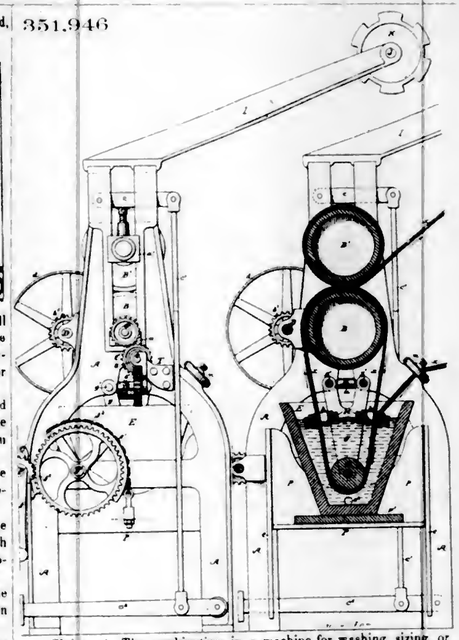
5. In a steam-generator, the combination of the cylinder A and the annular partition F with the curved flange G, substantially as shown and described.

6. In a steam-generator, the boiler-shell B, the grate-bars H, the circular pipe J, surrounding the said grate-bars H, and the angular pipes I, supporting the cylinder A, in combination with the cylinder A, the annular partition F, the tubes D, extending radially from the said cylinder A, and the curved flange G, substantially as shown and described.

351,946. MACHINE FOR WASHING, DYEING, OR SIZING WARPS. FREDERICK TURNBULL, Philadelphia, Pa. Filed July 6, 1886. (No model.)



351,946



Claim.—1. The combination, in a machine for washing, sizing, or dyeing warps, of the squeeze-rollers B B', the roller G, and the trough E, capable of being raised or lowered, all substantially as set forth.

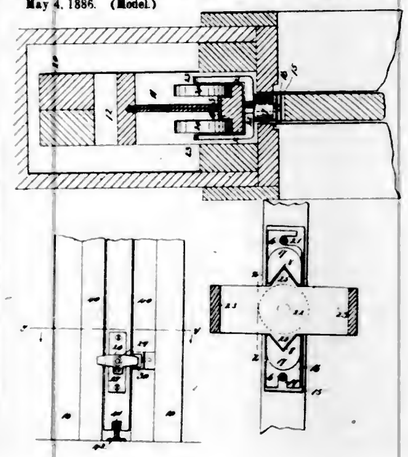
2. In a machine for washing, sizing, or dyeing warps, the combination of the frames A' A, the rollers B B', the trough E, the roller G, and the bearings *g g*, contained within the limits of the trough E, all substantially as set forth.

3. In a machine for washing, sizing, or dyeing warps, the combination of the rollers B B' with the roller G and opposite sets of eyes, *h*, all substantially as set forth.

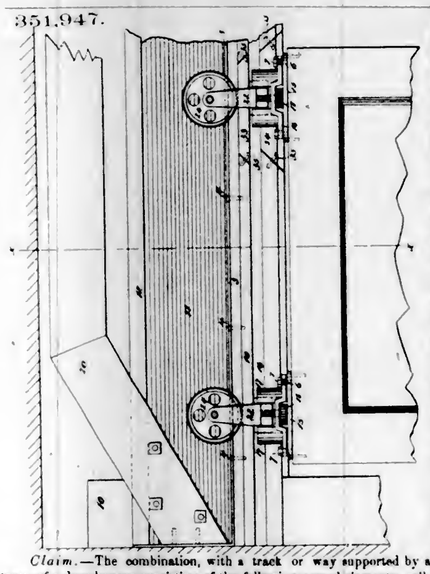
4. In a machine for washing, sizing, or dyeing warps, the combination of the frame A, squeezing-roller B, and roller G, guided platform P, trough E, segments f^3, chains *e'*, and mechanism for operating said segments, all substantially as specified.

5. In a machine for washing, sizing, or dyeing warps, the combination of the frame A, squeezing-rollers B B', hangers *g g*, roller G, bars H, having guiding-eyes, and mechanism for imparting a transverse reciprocating movement to the hangers and bars, all substantially as set forth.

351,947. DOOR-HANGER. WILLIAM C. WAHL, Buffalo, N. Y. Filed May 4, 1886. (Model.)

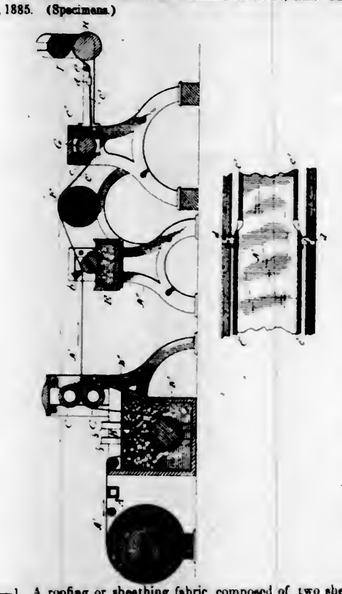


351,947.



Claim.—The combination, with a track or way supported by a truss, of a door-hanger consisting of the following-named elements: rollers 24, a bracket, 22, formed with projections 25, standards 17, formed with grooves 8, a plate, 16, from which said standards project, an adjusting-screw carried by the plate 16 and engaging with a threaded socket formed in the roller-supporting bracket, and a plate, 15, secured to the upper edge of the door and provided with bolts 6, that enter slots 19 and 21, formed in the plate 16, substantially as described.

351,948. ROOF, ROOFING FABRIC, AND MECHANISM FOR MANUFACTURING THE SAME. CYRUS M. WARREN, Brookline, Mass. Filed Nov. 30, 1885. (Specimens.)



Claim.—1. A roofing or sheathing fabric composed of two sheets of roofing paper or felt, one of said sheets being wider than the other and the edges of the wider sheet being turned over the edges of the narrower sheet, as set forth.

2. A roofing or sheathing fabric composed of heavy roofing paper or felt previously saturated with coal-tar, and a sheet of thin strong paper wider than the saturated sheet cemented to one side thereof with a layer of coal-tar pitch or other adhesive water-proof material, as set forth.

3. A roofing or sheathing fabric composed of a sheet of saturated felt, and a wider sheet of Manila rope paper somewhat wider than the felt sheet, the two sheets being joined together by a layer of coal-tar pitch, the edges of the Manila paper being folded over the edges of the felt sheet, as described, whereby the pitch is prevented from oozing out through the edges of the fabric, as set forth.

4. A machine for the manufacture of roofing fabric, consisting of a tank for saturating the felt, a pair of rolls for removing the excess of coal-tar from the felt, a roller revolving in a tank for coating one side of the felt with pitch, and a roll of thin dry paper wider than the roll of felt mounted in the path of the coated felt, so that it will be joined to the coated sheet of felt, and devices, substantially as described, for turning the edges of the wider sheet over onto the edges of the narrower sheet, as set forth.

5. In a machine for manufacturing roofing fabric, the blocks *d*, having the folding devices *d'*, adapted to receive and turn the edges of the sheet C' over onto the sheet of felt A', as set forth.

6. In a machine for manufacturing roofing fabric, the gage-bar *b*, in combination with the coating-roller D, as set forth.

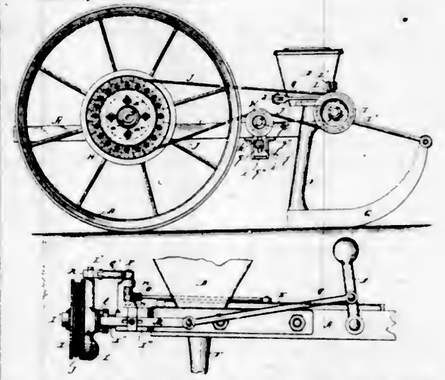
7. In a machine for manufacturing roofing or sheathing fabric, a guide bar or roller, *e*, in combination with a friction-roller, H, substantially as set forth.

8. In a machine for manufacturing roofing fabric, the guide bars or rollers *e e'*, in combination with the driving-roller G, substantially as set forth.

351,949. COMPOUND FOR TRANSFERRING DESIGNS TO SURFACES FROM PERFORATED PATTERNS. LILLIAN WHITEFIELD, Reading, Mass. Filed Aug. 23, 1886. (No specimens.)

Claim.—The herein-described liquid marking compound, consisting of benzine, naphtha, or turpentine, bronze-powder, kerosene-oil, and a suitable coloring substance, mixed together in about the proportions named, substantially as set forth.

351,950. SEED-DROPPER. ALFRED H. WIEDHOFFT, Lake View, Ill. Filed May 17, 1886. (No model.)



Claim.—1. The combination, in a seed-dropper, of an expansibly adjustable and detachable drive-wheel with a seed-slide and a gravity-clutch member, having a tripping-finger for actuating said seed-slide, and a pulley connected with and propelled by said drive-wheel and forming a counterpart of said clutch, whereby said tripping-finger may be caused to assume a given normal position with relation to the working parts of the machine when said clutch members are disengaged, substantially as and for the purposes set forth.

2. In combination with the seed-dropping mechanism of a corn-planter, the gravity-clutch member L', arranged to assume a vertical position when said clutch is released, substantially as and for the purposes set forth.

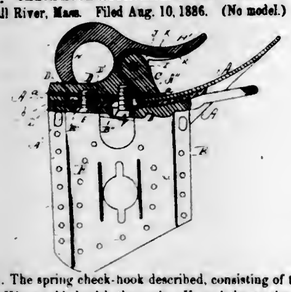
3. A seed-dropper in which the drive-wheel and seed-slide are in combination with an adjustable counterbalanced finger or trip device, substantially as and for the purposes specified.

4. The combination, in a seed-dropper, of the counterbalanced laterally-adjustable plate L, having thereon a finger, L', and a lug, *f'*, the wheel or pulley I, having therein a series of depressions, *f f*, the shaft I', and a pivoted lever in operative connection with the seed-slide, substantially as and for the purposes specified.

5. The combination, in a seed-dropper, of the wheel or pulley I, having therein a series of depressions, *f f*, the plate L, having thereon a finger, L', a lug, *f'*, and a grooved hub, the shaft I', passing freely through the said wheel and plate, a slide engaging the said hub and in

connection with an operative lever, the shaft I', the lever Q Q' R, the arm S, the spring T, and the slide E, substantially as and for the purposes specified.

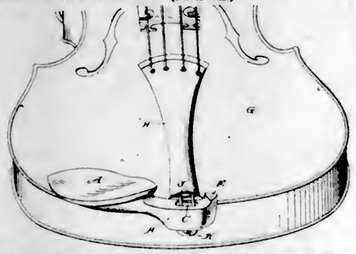
351,951. CHECK-HOOK ATTACHMENT FOR HARNESS. ALTON A. ALLEN, Fall River, Mass. Filed Aug. 10, 1886. (No model.)



Claim.—1. The spring check-hook described, consisting of the movable portion H H', provided with the spring K, and the stationary portion D C, provided with the projection D', for fitting into a corresponding perforation in the plate A, in combination with the plate A, provided with the perforations A' A'', and tree B, provided with the openings B' B'', and the screws E F, passing through said tree and plate into the check-hook and flush with the under surface of the tree, substantially as and for the purpose set forth.

2. The combination of the pivoted movable portion H H', provided with the curved chamber J for receiving the spring K, the stationary portion consisting of the seat D and post C, said seat being provided with the dropped projection D', the plate A, provided with the perforations A' A'', the tree B, provided with the openings B' B'', the short screw E, passing through the openings B' A' into said seat, and the long screw F, passing through the openings B'' A'' into said post, both said screws being flush with the under surface of the tree, substantially as and for the purpose described.

351,952. CHIN-REST FOR VIOLINS. WILLIAM V. ARTHUR, Oakland, Cal. Filed Nov. 23, 1885. (No model.)



Claim.—1. A chin-rest, A, for violins, having the neck B projecting from one end, the neck having a vertical string-receiving slot, C, at right angles to the upper surface of the rest, substantially as set forth.

2. The chin-rest A, having the extension B, provided with the longitudinal slot C, and the recess D in one side at the bottom of said slot, substantially as herein shown and described.

3. The chin-rest A, having the extension B, provided with the slot C, the recess D, and the lug E, substantially as herein shown and described.

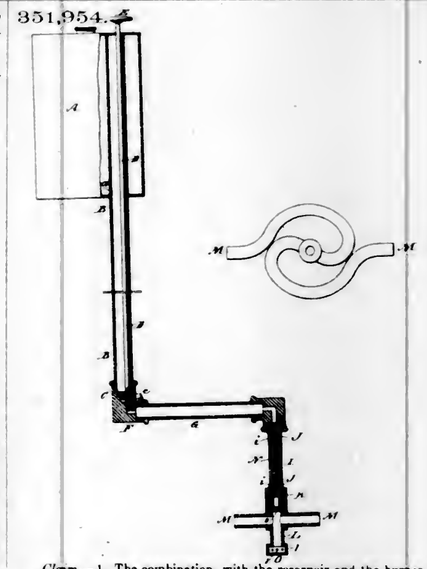
4. The combination, with the violin G, the tail-piece H, the tail-piece string J, and the button K, of the chin-rest A, having the slot C, the recess D, and the lug E, the string J being passed through the slot C, the button K passing into the recess D, and the lug E extending over the top plate of the violin, substantially as herein shown and described.

351,953. HALF-SOLE FOR BOOTS OR SHOES. DARIUS BANKS, Morrisville, Pa. Filed July 29, 1886. (No model.)



Claim.—The half-sole A, provided with the fastening-plate B, formed with inner and outer plates, a' a^2, to embrace the instep-sole, substantially as described.

351,954. HYDROCARBON-BURNER. WILLIAM BARRACLOUGH, Balmain, near Sydney, New South Wales. Filed Sept. 19, 1885. (No model.)

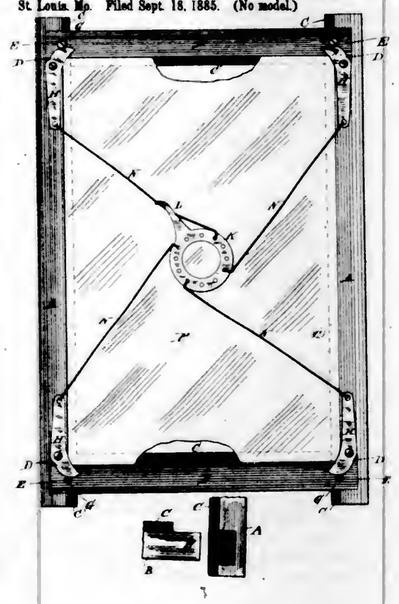


Claim.—1. The combination, with the reservoir and the burner, of the intermediate pipes or tubes, one being filled with glass and having screws inserted in its ends, said screws having grooves in their sides, substantially as and for the purpose set forth.

2. The combination, with the reservoir and the burner, of the intermediate pipes, one being filled with glass and having screws inserted into its ends, which screws are provided with grooves in their sides, and a nipple connecting with one end of the glass-filled pipe and having a reduced hole or passage through its one end, which connects with a second or mixing pipe of said intermediate pipes, substantially as and for the purpose specified.

3. The combination, with the burner and reservoir, of the intermediate pipes and the curved lateral tubes connected to the said intermediate pipes and arranged above said burner, substantially as and for the purpose set forth.

351,955. KNOCKDOWN PICTURE-FRAME. CHARLES O. BAXTER, St. Louis, Mo. Filed Sept. 18, 1885. (No model.)



Claim.—1. A knockdown picture-frame consisting of two opposite pieces connected together by a mount, and two opposite pieces provided with a tightening device by which the frame is held together, substantially as set forth.

2. A knockdown picture-frame consisting of end pieces, side pieces, mount connecting two opposite pieces, and a tightening device by which the pieces are held together, substantially as described.

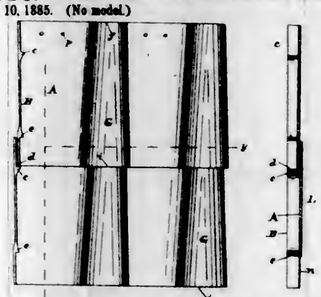
3. A knockdown picture-frame consisting of end pieces, side pieces, a mount connecting two opposite pieces, and a tightening device comprising pins or projections, levers, and means for causing the levers to bear on the pins for holding the parts together, substantially as described.

4. A picture-frame consisting of the end pieces provided with pins or projections, the side pieces provided with pivoted levers, and a tightening device, substantially as described.

5. A picture-frame consisting of the end pieces, a mount secured to the end pieces, pins or projections on said end pieces, side pieces, levers pivoted to the side pieces, and a tightening device, substantially as described.

6. The combination of the end pieces provided with pins, and a mount secured to the same, tenons formed upon the ends of said end pieces, side pieces having mortises to receive the tenons, levers pivoted to the side pieces, and tightening device, substantially as described.

351,956. ROOFING-TILE. EDWIN BENNETT, Baltimore, Md. Filed Dec. 10, 1885. (No model.)

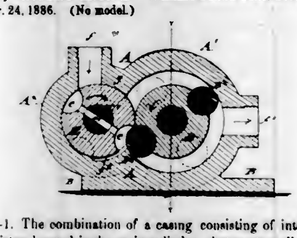


Claim.—1. A roofing-tile comprising a flat surface, A, having at one side an upright longitudinal flange, B, provided on its inner side, and near its lower end, with an offset, *s*, and at the other a convex-curved part, G, which terminates in a downward-pointing longitudinal edge, *h*, as set forth.

2. A roofing-tile comprising a flat surface, A, having at one side an upright longitudinal flange, B, provided on its inner side with a shoulder, *c*, to stop the next upper overlapping tile, and at the other a part which terminates in a downward-projecting longitudinal edge, *h*, as set forth.

3. A roofing-tile comprising a flat lower surface, L, having a gain or cut-away, *n*, at that part which will overlap a tile next below it, and a flat upper surface, A, having at one side an upright longitudinal flange, B, and at the other a part which terminates in a downward-projecting longitudinal edge, *h*, as set forth.

351,957. ROTARY ENGINE. WILLIAM BERRENBERG, Boston, Mass. Filed Mar. 24, 1886. (No model.)

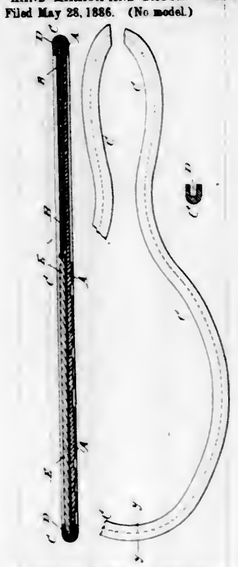


Claim.—1. The combination of a casing consisting of intersecting cylinders, a piston located in the main cylinder, abutments at diametrical points of the piston, segmental wings hinged to said abutments, a rotary valve having the same diameter as the piston, and provided with recesses at diametrically-opposite points fitting on the abutments and wings, and a diametrical steam-channel connecting said recesses, substantially as set forth.

2. The combination of a casing consisting of a larger main cylinder and a smaller steam-chest, and having an inlet-port and an exhaust-port, a piston located in the main cylinder, abutments at diametrical points of the piston, segmental wings hinged to said abutments, a rotary valve of the same size as the piston located in the valve-chest and provided with recesses corresponding to the projecting abutments and wings, a diametrical channel connecting the recesses of the slide-valve, and gearing by which rotary motion is transmitted from the main shaft to the shaft of the rotary valve, substantially as set forth.

3. The combination of a casing formed of a main cylinder and a smaller steam-chest, said steam-chest having a segmental recess at the lower part, a piston located in the main cylinder, abutments at diametrical points of the piston, segmental wings hinged to the abutments and provided with beveled under sides, a rotary valve in the steam-chest, having recesses fitting over the abutments and wings, a steam-supply channel connecting said recesses, substantially as set forth.

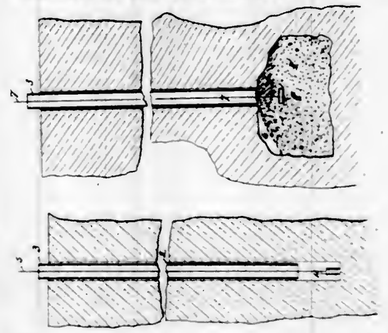
351,958. HAND MIRROR AND BRUSH. WILLIAM BOOTH, Leominster, Mass. Filed May 28, 1886. (No model.)



Claim.—1. An improved frame for hand mirrors or brushes, consisting of a back plate, a handle front plate on the handle-extension of the back plate, and a grooved band-frame surrounding the whole, substantially as herein shown and described.

2. In hand mirrors and brushes, the combination, with the plate E, of the back plate, A, the handle front plate, B, on the handle-extension of the back plate, and the band-frame C, grooved in its inner side to receive the edges of the plate or block, the back-plate, and the handle front, and surrounding the whole, substantially as herein shown and described.

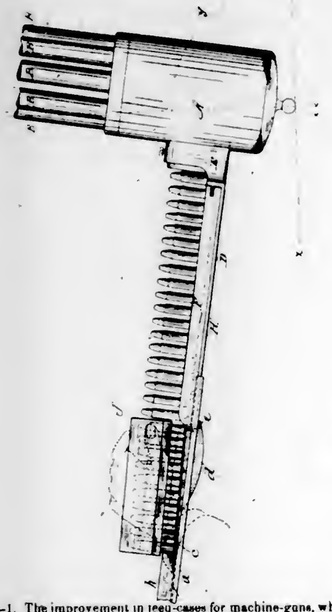
351,959. METHOD OF BLASTING EARTH. HENRY H. BOURNE, Manhattan, Kans. Filed July 16, 1886. (No model.)



Claim.—The herein-described method of blasting earth, which consists in boring a hole of proper depth, inserting a tube within said hole, exploding a cartridge beneath the lower end of the tube, filling the chamber caused by the explosion of the cartridge with a proper explosive, withdrawing the tube, and exploding the explosive, substantially as described.

351,960. CARTRIDGE-FEEDER FOR MACHINE-GUNS.

LUCIEN F. BRUCE, Springfield, Mass., assignor to the Gatling Gun Company, Hartford, Conn. Filed Dec. 7, 1885. (No model.)



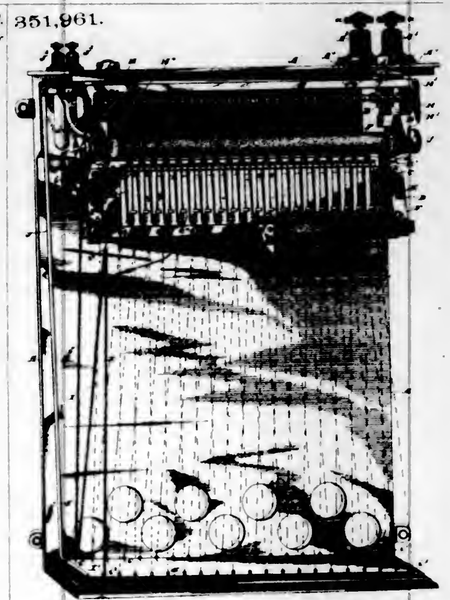
Claim.—1. The improvement in feed-cases for machine-guns, which consists of the combination, with the double-grooved cartridge-conductor, of a table extended beyond the end of said conductor a distance at least equal to the length of the service packing-case, said table having a rest at one side, substantially as described.

2. A cartridge-table for cartridge-feeders for machine-guns, consisting of a rectangular frame provided with a sliding connection, substantially as described, whereby said frame engages with the back H of the feeder, a flexible tongue having a groove in its lower end, secured by one end thereof to one end of the opening in said frame and capable of a vibratory movement in the latter, combined with the double-grooved conductor of said feeder, and the back thereof having a projection on its end to enter said groove in the tongue, substantially as set forth.

3. An extension cartridge-table for machine-gun feeders, consisting of a rectangular frame, substantially as described, having a lip, i, on each edge thereof for engagement with the back of the feeder, and the rib h thereon, combined with the tongue e, secured by one end to said frame, and having its opposite end engaging with said back, substantially as set forth.

351,961. AUTOMATIC ELECTRIC-CURRENT REGULATOR.

CHAS F. BRUSH, Cleveland, Ohio. Filed June 9, 1886. (No model.)



Claim.—1. The combination, with a series of resistances and a series of contacts connected therewith, of a translating device constructed and arranged to actuate said contacts and automatically and independently switch some or all of the resistances into an electrical circuit in multiple arc with each other, substantially as set forth.

2. The combination, with a series of resistances and a series of independently-movable contacts connected therewith, of a translating device for automatically and independently switching some or all of the resistances into an electrical circuit in multiple arc with each other, substantially as set forth.

3. The combination, with a series of resistances and a series of armatures connected therewith, of a translating device for automatically and independently actuating said armatures and switching some or all of the resistances into an electrical circuit in multiple arc with each other, substantially as set forth.

4. The combination, with a system or series of resistances and a system or series of armatures, each provided with a contact electrically connected with one of the resistances, of a main contact, and a translating device for automatically and independently actuating said armatures and switching some or all of the resistances into an electrical circuit in multiple arc with each other, substantially as set forth.

5. The combination, with an electro-magnet and a series of resistances, of a series of armatures adapted to be actuated by the electro-magnet and automatically switch some or all of the resistances into an electrical circuit in multiple arc with each other.

6. The combination, with a conductor forming a contact, of a series of independently-adjustable contacts and means for simultaneously adjusting the series, substantially as set forth.

7. The combination, with a series of armatures, each provided with a contact adapted to be fed to compensate for wear, of means for simultaneously adjusting the series of contacts, substantially as set forth.

8. The combination, with a series of resistances and a series of independently-movable carbon contacts electrically connected therewith, of a translating device for automatically and independently actuating said contacts and switching some or all of the resistances into an electrical circuit in multiple arc with each other, substantially as set forth.

9. The combination, with a series of resistances and a series of independently-movable carbon contacts electrically connected therewith, of a main carbon contact and a translating device for automatically and independently actuating the contacts of the series and switching some or all of the resistances into an electrical circuit in multiple arc with each other, substantially as set forth.

10. The combination, with a series of resistances and a series of independently-movable contacts electrically connected therewith, of an adjustable conductor forming a contact common to the series of contacts, substantially as set forth.

11. The combination, with an electro-magnet, (one or more,) of a series of armatures for actuating a series of contacts and means for simultaneously and equally varying the distance between the armatures and the electro-magnet, (one or more,) substantially as set forth.

12. The combination, with a series of contacts and devices for gripping or clamping each contact, of means for simultaneously releasing all of the contacts from their gripping or clamping mechanism, substantially as set forth.

13. The combination, with a series of contacts, of means for simultaneously adjusting and clamping all the contacts of the series.

14. The combination, with a series of contacts, of means for releasing all the contacts, means for imparting equal and simultaneous adjustment to all the contacts, and means for simultaneously clamping all the contacts, substantially as set forth.

15. The combination, with a series of independently-movable contacts, of a contact common to the series, constructed and adapted to be adjusted so as to present different surfaces to the action of the different contacts of the series.

16. The combination, with a series of resistances and contacts electrically connected therewith, of a translating device, and devices combined therewith, and the resistances for automatically and independently switching some or all of the resistances into an electrical circuit in multiple arc with each other on the increase of current strength in the circuit, including said translating device, substantially as set forth.

17. The combination, with a contact and an electro-magnet, of an armature and a contact supported thereby and means for feeding the movable contact to compensate for wear, said parts being constructed and arranged to either close the circuit by the direct engagement of the contacts or open the circuit by their separation, substantially as set forth.

18. The combination, with a carbon contact and an electro-magnet, of a series of armatures and a series of carbon contacts, and means for feeding the contacts of the series to compensate for wear, substantially as set forth.

19. The combination, with a main contact and an electro-magnet, of a series of contacts adapted to engage the main contact and devices for clamping, feeding, and releasing the movable contacts, substantially as set forth.

20. The combination, with an armature, of a contact-holder connected with the armature, a spring for feeding the contact, and a clamping device for retaining the contact in any desired adjustment, substantially as set forth.

21. The combination, with an electro-magnet included in the circuit of an electric generator and a series of resistances, of devices actuated by the electro-magnet for automatically and independently switching one or more of the resistances into a shunt-circuit in multiple arc with each other on the increase of strength of the current in the circuit including the electro-magnet, substantially as set forth.

22. The combination, with an electro-magnet included in the circuit of an electric generator and a series of resistances, of a series of armatures adapted to be actuated by the electro-magnet and automatically switch some or all of the resistances into a shunt-circuit in multiple arc with each other on the increase of the strength of the current in the circuit including the electro-magnet, substantially as set forth.

23. The combination, with an electro-magnet included in the main or working circuit of a dynamo-electric machine, of a series of resistances and means actuated by the electro-magnet for automatically and independently switching some or all of the resistances in multiple arc with each other into a shunt-circuit around the field-magnets of the dynamo-electric machine on an increase of current strength in the main or working circuit, substantially as set forth.

24. The combination, with a holder or support, of a contact bar or rod detachably secured in said holder and a spring for forcing the contact bar or rod outwardly from its holder, and a spring-actuated clamp connected with the holder and adapted to engage the contact bar or rod and secure it in any desired adjustment, substantially as set forth.

25. The combination, with an electro-magnet or solenoid and a series of armatures, of a main contact and a series of contacts, and means for simultaneously adjusting the series of armatures with relation to the electro-magnet, substantially as set forth.

26. The combination, with a rotary adjustable conductor constituting a main contact, and a series of independently-movable contact bars or rods, of a translating device included in an electrical circuit and means combined therewith for automatically and independently actuating some or all of said movable contacts, substantially as set forth.

27. The combination, with a rotary adjustable carbon bar or cylinder constituting a main contact and a series of independently-movable carbon rods constituting contacts, of a translating device and means combined therewith for automatically and independently actuating some or all of said movable contacts, substantially as set forth.

351,962. WALL-PAPER.

WILLIAM CAMPBELL, New York, N. Y. Filed July 21, 1886. (Specimens.)

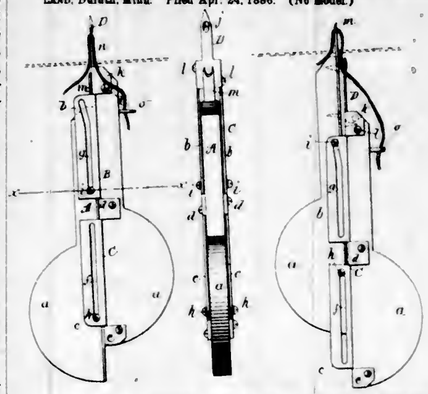


Claim.—1. As a new article of manufacture, wall-paper having a design or figure printed thereon, and having a continuous surface of flock of a single color, through which the design appears, substantially as described.

2. The method herein described of producing flock-surface paper, which consists in first printing the paper with a figure or design, then coating the entire surface with glue, and finally applying flock to the entire glue-coated surface, substantially as described.

351,963. FABRIC-TURFING IMPLEMENT.

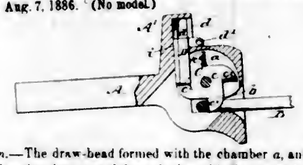
DAMAS M. CHAMBERLAND, Duluth, Minn. Filed Apr. 24, 1886. (No model.)



Claim.—The combination, with the bar A, having the loop-holder m, of the bar B, provided with the plate C, having the upper and lower attaching-ears, d e, and oppositely-projecting upper and lower guides, b c, in which the bar A is received, the guides c having parallel vertical slots f, and the guides b having parallel slots g, inclined outward at their upper ends, the screws h i, and the needle, substantially as set forth.

351,964. CAR-COUPLING.

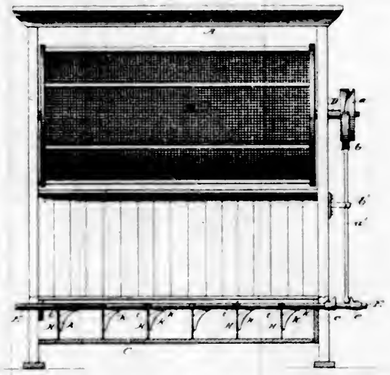
MILTON W. CODDINGTON, Rutherford, N. J. Filed Aug. 7, 1886. (No model.)



Claim.—The draw-head formed with the chamber a, and the throat b, below the chamber a, and formed also with the vertical cavity d, in combination with the star-cam C, journaled in the chamber a above the throat b, and the pin D, held in the vertical cavity d, substantially as shown and described.

351,965. CONVEYER.

JOB C. CONGER and GEORGE W. HENDERSON, Columbia, Mo. Filed July 9, 1886. (No model.)



Claim.—1. The combination, with a conveyer-box, of a shaft held to reciprocate therein, provided with a series of hinged flights having stops adapted to engage the shaft, substantially as shown and described, and for the purposes herein set forth.

2. The combination, with a conveyer-box, of a reciprocating shaft held in said box, and a series of hinged flights centrally recessed at the top and provided with a bracketed stop upon one face, substantially as shown and described, and for the purpose herein set forth.

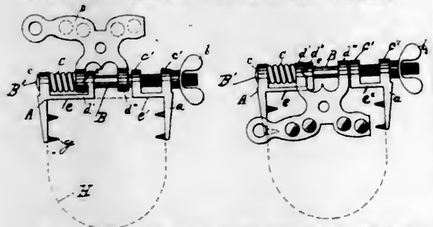
3. In a conveyer, a reversible flight constructed with a hinge-top centrally recessed, having a bracket supporting a stop attached to one face thereof, substantially as shown and described, and for the purposes herein set forth.

4. In a conveyer, the combination, with the reciprocating shaft E, held in the box C, of the flights H, having a central recess, *h*, and provided with a bracket, *k*, and stop *k'*, reversibly hinged to said shaft by pins *i i*, said flight being capable of movement in but one direction, substantially as shown and described, and for the purposes herein set forth.

5. In a conveyer, the combination, with the shaft E, held to reciprocate in the box C, having flights H hinged thereto within said box, and lugs *e*, attached to the outer end of said shaft, of the lever *a'*, pivoted to the offset *b'*, adapted to engage said lugs *e* at one end, and provided with a yoke, *b*, at its other, engaging a cam, *a*, substantially in the manner and for the purposes herein set forth.

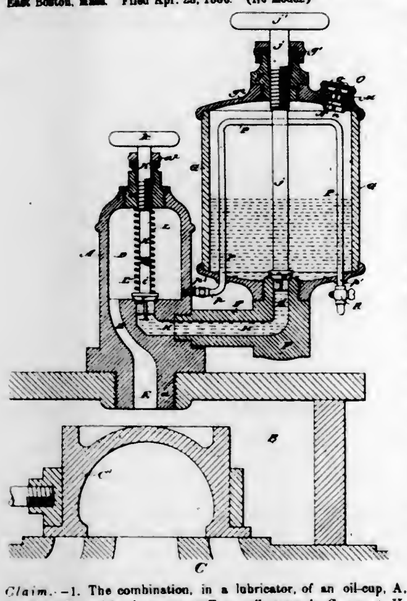
6. The combination, with the reciprocating shaft of a conveyer, and the shaft of a similar conveyer, arranged at an angle with the first conveyer, said shafts carrying upwardly-extending pins, of a slotted pivoted lever engaging the pins of said shaft, substantially as shown and described, and for the purposes herein set forth.

351,966. ICE-CREEPER. Herbert Cottrell, Newark, N. J., assignor to Louis A. Sayre, same place. Filed Nov. 23, 1885. (No model.)



Claim.—In a reversible ice-creeper, the combination, with the jaw A, having the plate *c*, with bearings *c* at its opposite ends, and an opposed jaw and clamp-rod for clamping the same upon the heel, of the projection *d''* upon the inside of the bearing *c*, the calk-plate provided with lugs *d'* and *d'''*, fitted to the rod B, the lug *d'*, having notches to fit the projection *d''*, and the spiral spring C, applied between the outer bearing *c* and the lug *d'*, the whole being arranged and operated as and for the purpose set forth.

351,967. LUBRICATOR. Thomas Davis and Henry H. McDonough, East Boston, Mass. Filed Apr. 23, 1886. (No model.)



Claim.—1. The combination, in a lubricator, of an oil-cup, A, chambered at D, and having a port, E, an oil-reservoir, G, a port, H, connecting cup A and reservoir G, a valve, I, on port H in chamber D, and a spring, L, normally closing said valve, substantially as described, for the purposes set forth.

2. The combination, with the oil-cup A, chambered at D, and having a port, E, and connected with an oil-reservoir, substantially as specified, of a valve, I, and a gage-spindle, K, substantially as described, for the purpose set forth.

3. The combination, with the oil-cup A, chambered at D, and having a port, E, and connected with an oil-reservoir, substantially as specified, of a valve, I, a gage-spindle, K, and a spring, L, substantially as described, for the purposes set forth.

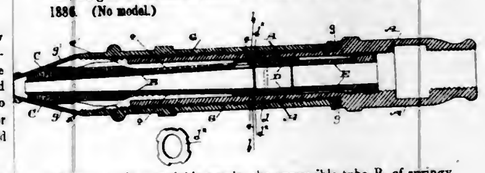
4. The combination, in a lubricator, of an oil-cup, A, adapted for connection to a steam-chest, and provided with a chamber, D, and port E, and an oil-reservoir, G, an oil-port, H, connecting chamber D with the reservoir, valves I J, adapted to port H in the cup A, and reservoir G, respectively, and a pipe, P, connected to the chamber D of cup A and ranging through the reservoir to heat the oil therein, substantially as herein set forth.

5. The combination, in a lubricator, of an oil-cup, A, having chamber D and port E, an oil-reservoir, G, a port, H, connecting said reservoir with the chamber D, of cup A, a valve, I, and a live-steam-circulating pipe opening into chamber D and ranging through the reservoir G, substantially as described, for the purposes set forth.

6. The combination, in a lubricator, of an oil-cup, A, having chamber D and port E, a reservoir, G, a port, H, a valve, I, a pipe, P, opening into chamber D and ranging through the reservoir G, and a cock, R, on said pipe, substantially as described, for the purposes set forth.

7. The combination, in a lubricator, and with the cup A, having chamber D and port E, an oil-reservoir, G, a port, H, connecting the cup and reservoir, and a valve, I, fitted on port H, and to be closed by steam-pressure and opened by exhaust from the cylinder, substantially as specified, of a vent and valve device, M N O, substantially as described, for the purpose set forth.

351,968. VARIABLE NOZZLE. Rodolphus F. Derrick, Oroville, Cal., assignor of one-third to Milton J. Green, same place. Filed Aug. 14, 1886. (No model.)



Claim.—1. In a variable nozzle, the expansible tube B, of springy sheet metal curved, having its loose edges overlapping and provided with the collar *b*, in combination with the segmental jaws C, encircling said tube and increasing or decreasing its diameter when pressure is withdrawn or applied, the hooks *c'* on said jaws, and the clutch-ring D, engaging said hooks, substantially as herein described.

2. In a variable nozzle, the expansible tube formed of a piece of curved springy sheet metal having its meeting edges overlapping, in combination with an exterior pipe, the segmental jaws C, and a pipe, A, having slots *a'* in its forward end, within which the jaws are seated, whereby they may be pressed upon the tube, substantially as herein described.

3. In a variable nozzle, the pipe A, having the slots *a'* and the expansible tube, in combination with the segmental jaws C, seated in said slots and embracing the tube, and the exterior pipe, G, screwed upon the pipe A, and having a conical point, whereby said jaws are pressed upon the tube, substantially as herein described.

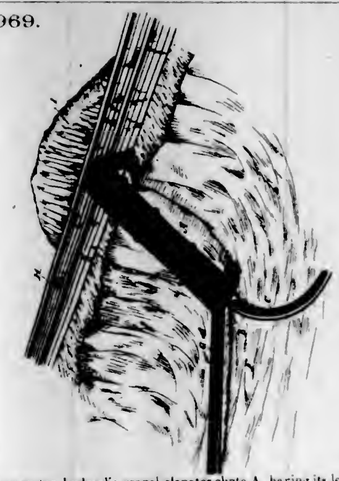
4. In a variable nozzle, the pipe A, having an internal grooved or notched flange or collar, *a*, and the expansible tube B, consisting of springy sheet metal, the loose edges or ends of which overlap, said tube having a flange, *b*, at its inner end engaging the flange or collar of the pipe A, in combination with the segmental jaws C, having shanks *c* seated in the pipe A, and with hooks *c'* on their ends, the grooved clutch-ring D, engaging said hooks, the gland-nut E, holding the clutch-ring to its place, and the exterior pipe, G, screwed upon the pipe A, and having a conical point, *g'*, in which the segmental jaws C are seated, all arranged and adapted to operate substantially as described.

351,969. HYDRAULIC GRAVEL-ELEVATOR. Lafayette Eastlick and William W. Eastlick, Oro Fino, Cal. Filed Apr. 15, 1886. (No model.)

Claim.—1. The open-top hydraulic gravel-elevator chute A, having its lower end in the workings and supplied therefrom and its upper end in communication with the main flume above, and a hydraulic nozzle receiving water under pressure and arranged at the base of the chute, so that the material is carried up the chute by the direct impact of the stream, substantially as herein described.

2. The open-top hydraulic gravel-elevator chute A, having its lower end in the workings and supplied therefrom, and its upper end in communication with the main flume above, and hydraulic nozzles receiving water under pressure and arranged in the bottom of the chute at different elevations, whereby the material is carried up the chute by successive direct impacts of the stream, substantially as herein described.

351,969.

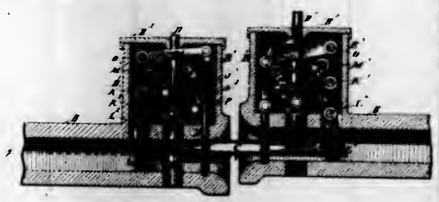


3. The open-top hydraulic gravel-elevator chute A, having its lower end in the workings and supplied therefrom and its upper end in communication with the main flume above, said chute having the separate blocks *a* as a lining for its walls, in combination with a hydraulic nozzle receiving water under pressure and arranged in the bottom of the chute, so that the material is carried up the chute by the direct impact of the stream, substantially as herein described.

4. The main flume H above, the feed-flume G in the workings below, and the branch pipe C, receiving water under pressure, in combination with the open-top elevator-chute A, having its lower end in communication with the feed-flume G and its upper end in communication with the main flume H, and the nozzle B on the branch pipe C, and entering the lower end of chute, so that the material is carried up the chute by the force of the stream from the nozzle, substantially as herein described.

5. The main flume H above, the feed-flume G in the workings below, and the branch pipes C and E, receiving water under pressure, in combination with the open-top elevator-chute A, having its lower end in communication with the feed-flume G and its upper end in communication with the main flume H, the nozzle B on the branch pipe C, entering the lower end of the chute, and the nozzle D on branch pipe E, entering the bottom of the chute at a point higher up, substantially as herein described.

351,970. CAR-COUPLING. Peter Frank, St. Louis, Mo. Filed Aug. 16, 1886. (No model.)



Claim.—1. In a car-coupling, the combination of the pin, collar engaging the pin, rock-shaft, connection between the rock-shaft and collar, and means for supporting the pin, the whole being constructed substantially as described, whereby when the pin is raised the collar may return to its normal position, leaving the pin suspended, substantially as set forth.

2. In a car-coupling, the combination of the pin, collar engaging the pin, rock-shaft, arms on the rock-shaft, links connecting the arms to the collar, and means for sustaining the pin, the whole being constructed substantially as described, whereby when the pin has been raised the collar may return to its normal position, leaving the pin suspended, substantially as set forth.

3. In a car-coupling, the combination of the pin, collar engaging the pin, rock-shaft, connection between the rock-shaft and collar, extension on the pin, lip or projection on the extension, and a dog for engaging the lip, the whole being arranged substantially as described, for the purpose set forth.

4. In a car-coupling, the combination of the pin having an extension provided with a lip or projection, collar engaging the pin, links secured to the collar, rock-shaft, arms on the rock-shaft to which said links are secured, and a dog for engaging the projection on the extension of the pin, the whole being arranged substantially as described, whereby the dog supports the pin after the collar has returned to its normal position, substantially as set forth.

5. In a car-coupling, the combination of the pin, collar surrounding the pin, rock-shaft, connection between the collar and rock-shaft, extension on the pin, lip or projection on the extension, dog for engaging the lip, rock-shaft to which the dog is secured, arms on the rock-shaft, links connecting the arms to arms secured to a second rock-shaft, cam on last-mentioned rock-shaft, and pivoted lever engaging said cam, substantially as and for the purpose set forth.

6. In a car-coupling, in combination with the coupling-link, pin having an extension provided with a lip, and mechanism for elevating the pin, constructed to return to its normal position while the pin remains elevated, a dog for engaging the lip on the extension of the pin, and mechanism through which the dog is operated by said link, substantially as set forth.

7. In a car-coupling, in combination with the pin having an extension provided with a lip and mechanism for raising the pin, a dog for engaging the lip on the extension of the pin, rock-shaft to which said dog is secured, arms secured to the rock-shaft, a second rock-shaft provided with arms, links connecting said arms, cam on last-mentioned rock-shaft, and pivoted lever engaging said cam, and acting in conjunction with the coupling-link to release the pin and allow it to fall into using position, substantially as set forth.

8. In a car-coupling, in combination with the pin provided with an extension having a lip and a dog for engaging the lip and holding the pin in an elevated position, rock-shaft to which the dog is secured, arms on the rock-shaft, projections on said arms, a stirrup or frame encircling the coupling-link, cross-bar on said stirrup for engaging the projections on the arms, and means for disengaging the projections from the cross-bar on the stirrup, consisting of a pivoted lever, cam, rock-shaft to which the cam is secured, and connection between the rock-shaft and arms having the projections, substantially as set forth.

9. In a car-coupling, in combination with the coupling-pin and coupling-link, the stirrup encircling the coupling-link and provided with a cross-bar on top, links connected to the stirrup, arms connected to the upper ends of the stirrup-links, rock-shaft to which the arms are secured, and by which they are operated to elevate the coupling-link, and a draw-bar provided with a groove, in which said stirrup fits and works, substantially as set forth.

10. In a car-coupling, in combination with a draw-bar having a groove in its throat, a coupling-pin and coupling-link, the stirrup fitting in the groove of the draw-bar encircling the coupling-link, and located entirely within the throat of the draw-bar a distance back from the face of the draw-head, and mechanism for operating the stirrup to elevate the coupling-link, substantially as and for the purpose set forth.

11. In a car-coupling, in combination with the coupling-link and coupling-pin, a stirrup encircling the coupling-link, provided with a cross-bar at top, links secured to the stirrup, arms secured to the upper end of the stirrup-links, rock-shaft to which the arms are secured, and by which they are operated to lift the stirrup, swinging arms provided with projections to engage the stirrup, rock-shaft to which the arms are connected, cam on the rock-shaft, and pivoted lever bearing against the cam, and which is operated by the coupling-link to release the stirrup and allow it to descend to its normal position, substantially as set forth.

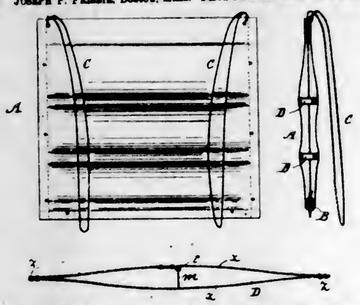
12. In a car-coupling, in combination with the coupling-pin, mechanism, substantially as described, for elevating the pin, and a housing secured to or formed upon the draw-bar for inclosing said mechanism, and in the sides of which the rock-shafts of said mechanism are journaled, substantially as and for the purpose set forth.

13. In a car-coupling, in combination with the coupling-pin and coupling-link, mechanism, substantially as described, for lifting and releasing the pin, mechanism, substantially as described, for raising the link, and the housing secured to or formed upon the draw-bar for inclosing said mechanism, and in the sides of which the rock-shafts of said lifting and releasing mechanism are journaled, substantially as and for the purpose set forth.

14. In a car-coupling, in combination with the coupling-pin, mechanism, substantially as described, for lifting the pin, mechanism, substantially as described, for releasing the pin automatically by the entrance of the link, mechanism, substantially as described, for lifting the coupling-link, mechanism, substantially as described, for releasing said link-lifting mechanism automatically by the entrance of the link, and draw-bars having contracted throats acting to prevent the link from entering the draw-bars too far, for the reasons specified.

15. In a car-coupling, in combination with the coupling, mechanism, substantially as described, for lifting the pin and then automatically returning to its original position, mechanism for lifting the coupling-link, substantially as described, and placed within the draw-bars and housing, both sets of mechanism placed as described and capable of acting automatically, separately or together, and all returning automatically to their normal position as soon as used, substantially as described.

351,971. APPARATUS FOR PREVENTING SHIPS FROM SINKING. Joseph F. Perrin, Boston, Mass. Filed June 9, 1886. (No model.)



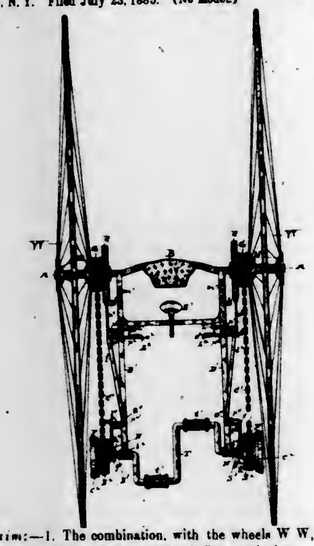
Claim.—1. In a device for preventing ships from sinking, the combination of the body or sack A, composed of canvas, the truss D, consisting of the bars *x*, joined at their ends and provided at the center with the hinged brace *m*, said truss being disposed within said body, and cords attached to said body for raising and lowering the same, substantially as described.

2. In a device for preventing ships from sinking, the combination of the body or sack A, composed of canvas and provided with the sinker B, disposed in the bottom thereof, the trusses D, consisting of the bars *x*, joined at their ends and provided at their centers with hinged braces *m*, said trusses being disposed within said body, and cords attached to said body for raising and lowering the same, substantially as set forth.

3. In a device for preventing ships from sinking, the combination of the body or sack A, composed of canvas, the trusses D, consisting of the bars *x*, joined at their ends and provided at their centers with hinged braces *m*, said trusses being disposed within said body, the sinker B, disposed in the bottom of said body, and the cords C, connected to said body, and also to said sinker, substantially as described.

4. The improved apparatus for preventing ships from sinking herein described, the same consisting of the body or sack A, composed of canvas, the trusses D, consisting of the bars *x*, joined at their ends and provided at their centers with hinged braces *m*, said trusses being disposed within said body, the sinker B, disposed within said body, and the cords C, constructed, combined, and arranged to operate substantially as set forth.

351,972. BICYCLE. John Gibbons, West Troy, and Charles D. Meneely, Albany, assignors to the Meneely Hardware Company, West Troy, N. Y. Filed July 23, 1885. (No model.)

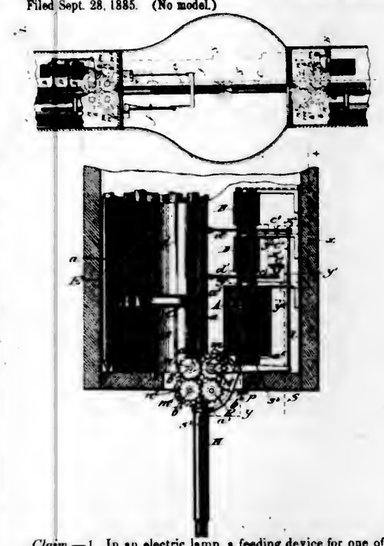


Claim.—1. The combination, with the wheels W W, each made with the grooves G, and the brake-wheels R upon the inner ends of their hubs, of the hangers D' D', each made with the bearings b^2, the treadle-crank shaft T, made with the treadles *t'*, said treadle-crank shaft having arranged thereon at each end outside of said treadles the sprocket-wheel S^2, friction-wheel F, and the spring S^2, the belt-chains C' C', the lever L', arranged upon each of said hangers, and the brakes B^2 B^2, each connected with one of said levers, all constructed and arranged to operate substantially in the manner and for the purposes set forth.

2. In a bicycle, the combination of the two wheels W W, of equal size, arranged side by side, and constructed with sprocket-grooves on the inner ends of their hubs, the axle A, made with the downcast seat S', the hangers D', made with the bearings b^2, the treadle-crank shaft T, made with the treadles *t'*, said shaft having arranged thereon at each end outside of the treadles the spring S^2, sprocket-wheel S^2, and the friction-wheel F, the belt-chains C' C', the levers L^2, made with the forked ends *y*, the lever-bars l^2, torn-lever $\bar{s}$, and shipper N, arranged to operate substantially as and for the purposes set forth.

3. In a bicycle, the combination of two wheels of equal size arranged side by side, and constructed with sprocket-grooves on the inner ends of their hubs, an axle provided with journals for said wheels, and a downcast seat, hangers at each side of said seat, constructed with bearings at their lower ends, a treadle-crank provided with foot-treadles, a friction-wheel at each end of said treadle-crank shaft constructed to turn with the latter, a sprocket-wheel arranged on said treadle-crank shaft to be operated by each of said friction-wheels, a spring arranged on said shaft at each side of said treadles between the latter and the friction-wheel, and a chain-belt connecting the sprocket-grooves of each of the hubs with one of said sprocket-wheels, substantially as shown and described.

351,973. ELECTRIC LAMP. Alenza T. Gifford, Hopedale, Mass. Filed Sept. 28, 1885. (No model.)



Claim.—1. In an electric lamp, a feeding device for one of the carbons, combined with an automatic feed-controlling device operated by the heat of the arc to stop the feed of said carbon when said arc arrives at a point near said thermal device, and operated by the decrease in heat of the arc to permit the said carbon to be fed when said arc has receded from said thermal device, substantially as described.

2. In an electric lamp, a feeding device for one carbon controlled by changes in current strength produced by changes in the arc-resistance, combined with a feeding device for the other carbon, and electro-magnet operating the said feeding device continuously while in circuit, a circuit-controlling device for the said magnet, and thermal device operated by the heat from the arc by which the said circuit-controlling device is operated, substantially as described.

3. In an electric lamp, the solenoid A in the main circuit, the feed-controlling magnet B and the feed-regulating magnet D in a shunt-circuit, the said shunt-magnets having armatures provided with terminals c' c^2 of circuit-closers, and co-operating with corresponding terminals, c^2 c^2, to operate substantially as described.

4. The carbon-holding case, pivoted rod, and pointers carried thereby, and a spring to turn said rod, combined with one or more pairs of feed-rolls, between which the carbon pencils are moved by the said pointers, and with cams or dog-shaped arms to spread apart said rolls, and with a train of gears to rotate said rolls to feed the carbon pencils, substantially as described.

5. In an electric lamp, the solenoid A, the feed-controlling magnet B, and the feed-regulating magnet D, combined with the arm b^4, and the clamping tube or guide connected therewith and inclosing the carbon pencil, the said tube firmly grasping the said carbon pencil, thereby securing good electrical contact between the tube and pencil, substantially as described.

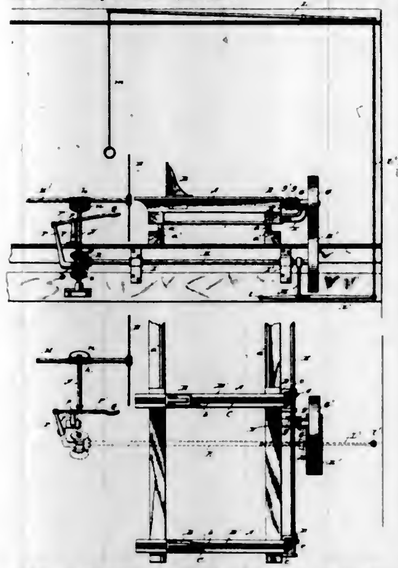
6. The carbon-holding case, pivoted rod, and pointers carried thereby, and a spring acting upon the said rod to move the carbon pencils into position to be engaged by feed-rolls, combined with a train of gears and feed-rolls, and cams or dog-shaped arms to spread apart the rolls, and a pivoted lever carrying a pawl, the said lever being connected to the armature of the feed-controlling magnet, to operate substantially as described.

7. In an electric lamp, the solenoid A, magnet D, its armature *d'*, and the magnet B and its armature *d*, combined with the link *l*, lever L, gears *b b'* b^2 b^2, arms a^2 a^2, and pawl *p*, to operate substantially as described.

8. In an electric lamp, the carbon-feeding rolls *b b'* and their boxes, combined with cams or dog-shaped arms to separate the said rolls for the entrance of a carbon, substantially as described.

9. In an electric lamp, the carbon-holding case, pivoted rod, and pointer carried thereby, and a spring to turn said rod, combined with the feed-rolls, the gearing to operate said rolls, cams or dog-shaped arms to move apart said rolls, and with a clamping-guide to receive the carbon pencils from said feed-rolls, substantially as described.

351,974. SAW-MILL SET-WORKS. Frank J. Gleason, Van Wert, Ohio. Filed May 28, 1886. (No model.)



Claim.—1. The combination, with the saw-arbor, the carriage carrying friction-wheel G', and a shaft parallel with the saw-arbor and deriving motion therefrom through intermediate connections, a friction-wheel on the outer end of said shaft, lever L, pivoted overhead, lever L', pivoted beneath the floor, link M, sleeved upon said shaft near its outer end, and connected with the lever L', the rod *l'*, and cord *m*, all substantially as described, and for the purpose set forth.

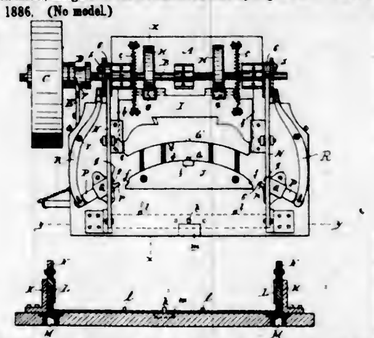
2. The combination, with the saw-arbor provided with worm *h*, and the saw-carriage provided with knees, of the shaft N, arranged substantially at right angles to said saw-arbor, and provided with worm-gear *n*, the shaft K, parallel with the saw-arbor, means for revolving said shaft from the shaft N in either direction at the will of the operator, and connections, substantially as described, between the shaft K and knees, substantially as set forth.

3. The combination, with the saw-arbor provided with worm *h*, the shaft N, arranged substantially at right angles thereto, and provided with worm-gear *n*, the shaft K, parallel with the saw-arbor, and carrying friction-wheel K', of the sleeve O on said shaft N, levers P P', for operating said sleeve, friction-wheel G' on the saw-carriage, and connections between said friction-wheel and the head-blocks, as set forth.

4. The combination, with a saw-arbor, knees, the saw-carriage carrying friction-wheel G', connections between said wheel and the knees, and the shaft K, parallel with the saw-arbor, and deriving motion therefrom through intermediate connections, of the friction-wheel K' on the outer end of said shaft, and the means, substantially as described, for raising said outer end of the shaft K, as and for the purposes specified.

5. The combination, with the saw-arbor, saw-carriage, and knees, of the shaft N, deriving motion from said saw-arbor, the shaft K, parallel with the saw-arbor, and carrying beveled pinion *k*, connections, substantially as described, between said shaft K and the knees, the sleeve O on the shaft N, and carrying reversely-inclined beveled pinions *o o'*, and the levers P P', for sliding said sleeve longitudinally on the shaft N, substantially as and for the purposes specified.

351,975. SPRING-MAKING MACHINE. Theodore Graether, Detroit, Mich., assignor to the Detroit Steel and Spring Works. Filed July 29, 1886. (No model.)



Claim.—1. In a spring bending and forming machine, the following elements combined: a table, a pair of movable formers operating in connection with apertures in the table to form initial bend of the eyes, a movable and a stationary former arranged to bend the spring, and a pair of movable formers operating in connection with the bending-formers to complete the eyes, all arranged and operating substantially as described.

2. In a spring bending and forming machine, the combination of the table A, the stationary former J, having the stud G and recess i, and the movable former I, all arranged to operate substantially as described.

3. In a spring bending and forming machine, the combination of the formers I J, arranged to clamp the spring, and having the cut-away corners *e f*, and the movable formers P, having the rounding recess *o*, and the cheeks *q p*, all arranged to operate substantially as described.

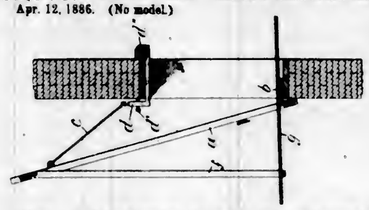
4. In a spring bending and forming machine, the combination of the table A, having the apertures M, and the movable formers L, all arranged to operate substantially as described.

5. In a spring bending and forming machine, the combination of the table A, having the studs *k l* and recess *m*, the vertically-movable formers L, and the apertures M in the table, all arranged to operate substantially as described.

6. In a spring bending and forming machine, the combination, with the formers P, I, and J, of the shaft B, cams S, levers R operated thereby, and cams H, said cams being partly eccentric and partly concentric, substantially as described.

7. In a spring bending and forming machine having the movable formers L, P, and I, substantially as described, the combination of the shaft B, having actuating-connections with said formers, the clutch D on said shaft, and the self-acting trip-lever E, substantially as and for the purposes described.

351,976. WINDOW-HOIST. Morris B. Hall, Essex, Conn. Filed Apr. 12, 1886. (No model.)



Claim.—1. In combination, the swing, the tackle-frame, and supports for attaching the tackle-frame to a window, all substantially as described, and for the purpose set forth.

2. In combination, the swing, the tackle-frame, the ledge-support, the upper support pivoted to the tackle-frame, and the clamp-hooks for the upper part of the window, all substantially as described, and for the purpose set forth.

351,977. WATCH-PENDANT BOW. JOHN R. HARE, Baltimore, Md. Filed May 17, 1886. (No model.)



Claim.—1. In combination with the bow of a watch-pendant, a stiffening bar or brace within the same extending practically from one end of the bow to the other, substantially as and for the purpose specified.

2. In combination with the bow of a watch-pendant, an upwardly-curved stiffening bar or brace secured within the bow and extending practically from one end of the same to the other, substantially as and for the purpose specified.

351,978. MANUFACTURE OF NUTS AND WASHERS. JOHN HARE, Wilmington, Del., assignor to the Morgan Nut Lock Washer Company, same place. Filed Aug. 12, 1886. (No model.)

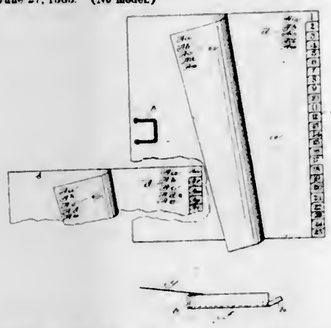


Claim.—1. The mode herein described of forming a locking-nut, said mode consisting in first rolling a bar having a rib or projection upon one face at or near the edge, and then punching the nut-blanks from said bar and threading the central openings of said blanks, all substantially as specified.

2. A lock-nut having a central threaded opening and projecting rib upon one face, two diametrically-opposite portions of the nut being without ribs, all substantially as specified.

3. A locking-nut consisting of a disk of circular form having a central threaded opening and projecting ribs upon one face on diametrically-opposite sides of the said central opening, the other portions of the nut being without ribs, all substantially as specified.

351,979. LETTER-FILE. ELROY N. HEATH, Wakefield, Mass. Filed June 27, 1885. (No model.)



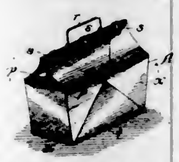
Claim.—1. The combination, with a box or holder having the lid *g* and a divisional index-table applied to the said lid *g*, each division of said index-table containing combinations or groups of letters and a numeral, of a body of loosely-bound stepped index-leaves corresponding in number with the divisions in the index-table and placed within the box or holder, each leaf having a numeral marked upon its stepped portion, and having combinations or groups of letters marked upon its face in proximity to the stepped portion which shall be a duplication of the combination or group of letters marked upon the particular division of the index-table to which its number corresponds, all substantially as described.

2. The combination, with the box or holder having a lid, *g*, and a divisional index-table, of a body of stepped index-leaves, each leaf having indices marked upon its face which shall be a duplication of a particular division of the index-table to which its number corresponds, and of indices marked upon its under side which shall be a duplication of the indices upon the face of the succeeding leaf, all substantially as described.

3. A file for filing letters, consisting of a body of stepped index-leaves, each leaf having upon its face indices and upon its under side a duplication of the indices marked upon the face of the succeeding page, the stepped portions each having upon their faces a duplication of the first combination or group of the indices marked upon the face of its leaf, all substantially as described.

351,980. PAPER RECEPTACLE. OLIVER H. HICKS, Chicago, Ill. Filed Aug. 9, 1886. (No model.)



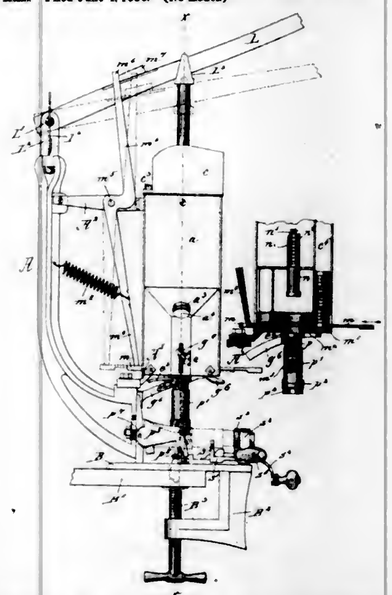


Claim.—1. A receptacle formed of a folded continuous sheet of paper, having the corners, formed in shaping, folded and secured upon the receptacle, clamping mechanism, substantially as described, at one side of the receptacle, and a handle at the opposite side of the same, substantially as and for the purpose set forth.

2. A receptacle formed of a folded integral sheet of paper, having the corners, formed in the shaping, folded upon the receptacle, clamps *s* at one side of the opening, and a handle, *r*, at the opposite side of the same, the clamps and handle securing the corners in place, substantially as and for the purpose set forth.

3. A receptacle formed of a folded integral sheet of paper, having the corners, formed in the shaping, folded toward each other on opposite sides of the receptacle, clamps *s* at one side of the opening, and a handle, *r*, at the opposite side of the same, the clamps and handle securing the corners in place, substantially as and for the purpose set forth.

351,981. CARTRIDGE-LOADING MACHINE. WALTER HILL, Easton, Mass. Filed June 4, 1886. (No model.)



Claim.—1. In a cartridge-loading machine, two ammunition-compartments, a general-delivery chute with which the are in communication, and valves controlling the passages to said chute, combined with the thumb-piece g^5, and the lever g^4, arranged below the said valves and adapted to be operated from the same side of the machine, the rods g^3 and g^4, for connecting said thumb-piece and lever with said valves, and the retracting-springs g^2, substantially as set forth.

2. In a cartridge-loading machine, two ammunition-compartments, a general delivery chute with which they are in communication, and valves controlling the passage to said chute, combined with a wad-receptacle having an inclined-guide portion, c^2, and wad-chute, into which the wads pass from the wad-receptacle, substantially as described.

3. In a cartridge-loading machine, the combination, with two ammunition-compartments, of a general-delivery chute with which said compartments communicate, and valves controlling the passage between said compartments and chute, said compartments being provided at their bottoms with delivery apertures or exits, as a^3 b^3, whereby they may be emptied, when desired, without using the said valves, substantially as set forth.

4. In a cartridge-loading machine, two ammunition-compartments, a general-delivery chute communicating therewith, and valves controlling the passages between said chute and compartments, combined with a wad-chute, a wad-carrying slide, a plunger, a lever for operating said plunger, and a second lever receiving movement from the plunger-operating lever and adapted to actuate the said wad-carrying slide, substantially as set forth.

5. In a cartridge-loading machine, two ammunition-compartments, a general-delivery chute communicating therewith, and valves controlling the passages between said chute and compartments, combined with a wad-chute, a wad-carrying slide below said chute, the plunger-operating lever L, having the guideway m^7, the standard to which said lever is pivoted, and the lever m^4, engaging the said wad-carrying slide and having the hooked end m^5, adapted to said guideway, substantially as set forth.

6. The horizontally-pivoted shell-holder p' p^2, arranged to be turned down or tipped over, as described, and the pivoted frame to which said shell-holder is attached, combined with a locking device, as the pivoted bar having engaging ends p^3 p^3, for holding said frame in an elevated position, substantially as set forth.

7. In a cartridge-loading machine, the ammunition chambers or compartments, general-delivery chute, valves, and plunger, combined with a wad-receptacle pivoted at the top of one of the ammunition-chambers and covering the opening therein, and a locking device for locking the said wad-receptacle in position to permit the wads to pass therefrom into the wad-chute, substantially as described.

8. In a cartridge-loading machine, the ammunition-chambers, general-delivery chute, valves, and plunger, combined with a wad-chute, wad-receptacle having an inclined bottom, and a wad-rest, L⁴, in which the box containing the wads may be placed, all substantially as described.

351,982. BARREL-VENT. FREDERICK HOPKINS, Chicago, Ill. Filed Aug. 30, 1886. (No model.)

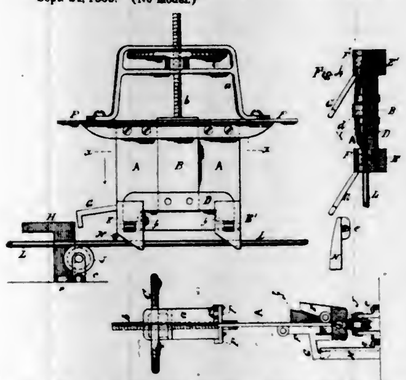


Claim.—1. The vent, substantially as herein described and shown, comprising the main tube, the valve-support adjustable into and out of the main tube and having an opening forming a valve-guide, the cap, the tubular valve movable longitudinally in the valve-support, and having openings 4 and 7, and having stop-flanges 6, substantially as set forth.

2. The combination of the carrier having a bowl-like cavity, B', in its upper end, and provided with an opening, 3, and a circular or annular recess, 8, and the valve having perforations 4 and 7, and movably supported in opening 3, said valve being provided with a flange, 6, movable into and out of the recess 8, all being constructed and arranged substantially as set forth.

3. The improved vent, substantially as herein described and shown, consisting of the main tube A', the valve-support B, threaded thereinto and having a bowl-like cavity, B', a recess, 8, and an opening, 3, the valve C, having openings 4 and 7, and provided with end flanges, 6 6, and the cap having opening *d* and threaded onto the valve-support B, substantially as set forth.

351,983. CABLE-GRIP. CHARLES A. HOWE, Philadelphia, Pa. Filed Sept. 24, 1885. (No model.)



Claim.—1. A cable-grip consisting of frame, slide, and wedges for working front and rear sets of independent-acting gripping-jaws, one jaw of each set only being under the control of the operator, the opposite jaws working alternately and automatically for releasing and recovering the propelling-cable of a moving car while crossing an intersecting cable by the continuous action of guide H on arms G during the operation, as described, and for the purpose set forth.

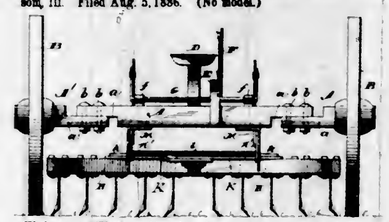
2. The tension-spring K, in combination with a cable-grip to regulate the strain on the cable while crossing intersecting cables, substantially as described, and for the purpose set forth.

3. The stationary guide H, in combination with the jaws, arms G, and spring K, substantially as set forth.

4. In a cable-grip, the combination, with the proper actuating mechanism and the stationary guide H, of arms G, tension-spring K, and two sets of alternate and automatically-working jaws, the wedges *f f*, cross-piece D, slide B, frame A, cross-frame P P, and wheel J, substantially as described, and for the purpose specified.

5. The semi-elliptical spring K, secured to the face of the frame A by the clamp *d*, in combination with the clamping-jaws F F' the resilient ends of the spring passing through the slots R, substantially in the manner herein described, for the purpose set forth.

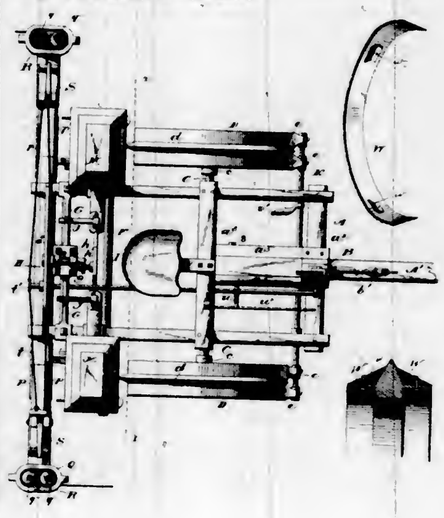
351,984. CULTIVATOR AND PULVERIZER. HENRY F. JONES, Ransom, Ill. Filed Aug. 5, 1886. (No model.)



Claim.—1. The combination, in a cultivator, of a laterally-adjustable axle carrying supporting-wheels H H, having cultivators attached to the under sides thereof, said bars being connected to each other at their forward ends by a clevis, bars J J, attached to the beams H, so that they can be adjustable one upon the other, and elevating and depressing means consisting of a crank-bar mounted on the axle, depending bars M, and rearwardly-extending bar K', which is adapted to slide upon a bar, *l*, which is secured to the axle by the depending bars L, the parts being combined and organized substantially as shown, and for the purpose set forth.

2. In a cultivator, the beams H, connected to each other at their forward ends by a clevis, H', through which passes bolts *h h*, for pivotally connecting the said pieces of frame to each other, bars K K, attached to the upper sides of the beams H, so that said bars can be adjusted upon each other, so as to expand or contract the rear ends of the beams, bars M and K, pivotally attached to the beams, the bars M being connected to a crank-bar having a lever, F, while the rearwardly-extending bar K' is pivotally attached to a bar, L, attached under the center portion of the axle, in combination with the laterally-adjustable axle having supporting-wheels, substantially as shown, and for the purpose set forth.

351,985. CHECK-ROW CORN-PLANTER. JOSEPH KLAR, Shelbyville, Ill. Filed June 17, 1886. (No model.)



351,985.



Claim.—1. In combination with the wheels D, a detachable tire or rim which is adapted to be attached over the horizontal projecting side portions of the supporting-wheels adjacent to the central projecting V-shaped portion thereof, substantially as shown

2. In combination with a check-row planter, a casting, Q, having pulleys *q q* attached thereto, a covering-frame, R, hinged to the casting at one end, and provided with a clamp at the opposite end, substantially as shown.

3. In a check-row planter, the open-sided supports having pivotally attached thereto angle-bars S, having bars *s*, springs for depressing said angle-bar and connections *t*, attached to a rock-shaft for elevating the same, substantially as shown.

4. In combination with the seed-slides K, having upwardly-projecting pins *k'*, the pivoted bars J', attached to an oscillating yoke, a wheel, H, with crank-shaft which rotates within said yoke, substantially as shown, and for the purpose set forth.

5. In combination with the reciprocating seed-slides having horizontal projecting portions O O extending from the rear edge thereof, and provided with irregular-shaped slots *o o* therein, a valve, O', provided at its upper end with an anti-friction roller, *o'*, which lies within the slots, said valve being pivoted within the seed-spout so as to form the rear wall thereof, substantially as shown, and for the purpose set forth.

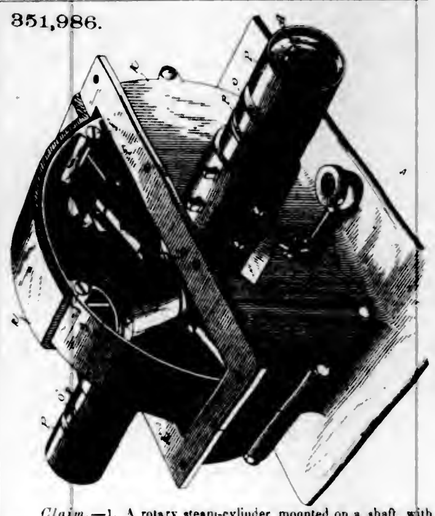
6. In a check-row seed-planter, an angular supporting-frame provided at its upper end with journals, a shaft, A, carrying at one end a grooved wheel, around which passes the check-row cord, crossed on the under side of the wheel, and at the other end a crank-arm, a yoke pivotally attached to the supporting-frame by means of arms J', each of said arms engaging with the independent seed-slides, so as to reciprocate the same when the wheel is rotated, substantially as shown.

7. In combination with the supporting-bars G, a grooved wheel, H, journaled thereon, the shaft A, having a crank-arm, A', and roller *i*, the yoke I with side projecting arms, *i''*, pivoted bars J', pivotally attached to the yoke, and provided at their lower ends with anti-friction rollers *j*, which engage with projecting pins attached to the seed-slides, substantially as shown, and for the purpose set forth.

8. An anchor-plate for the check-row cord of a corn-planter, consisting of a base-plate having an upwardly-projecting segmental portion, *y''*, a central circular opening, and pins for securing the base-plate to the ground, in combination with a lever which is adapted to be attached to the base-plate so that the end thereof can be swung onto each side of the base-plate, the end of said lever having an eye for attaching the check-row cord thereto, substantially as shown, and for the purpose set forth.

351,986. STEAM-ENGINE. William J. Lane, Poughkeepsie, N. Y., assignor of two-thirds to John Griffen Lane, Poughkeepsie, N. Y., and William Henry Field, Greenwich, Conn. Filed June 16, 1886. (No model.)

351,986.



Claim.—1. A rotary steam-cylinder mounted on a shaft, with a piston connected to another shaft out of line with but parallel to the cylinder-shaft, with suitable induction and exhaust passages, the cylinder and piston being inclosed in a steam-chamber connected with the exhaust, substantially as described.

2. A steam-cylinder mounted on a shaft at right angles thereto, with its piston connected to a wheel or arm mounted on a shaft out of line with the cylinder-shaft, said cylinder having suitable induction and exhaust passages with the cylinder and piston, with its connection with the wheel or arm being inclosed in the steam-chamber connected with the exhaust, substantially as described.

3. Two or more steam-cylinders mounted radially on the end of the shaft and arranged to balance each other, having pistons connected to a wheel or arms radially mounted on a shaft out of line with the cylinder-shaft, with suitable induction and exhaust passages, the cylinders and pistons, with their connections with the wheel or arms, being inclosed in a steam-chamber connected with the exhaust, substantially as described.

4. The cylinders mounted radially on the end of the shaft, with suitable induction-passages, the pistons, with their connections, and the wheel or radial arms, all inclosed in a steam-chamber, and an exhaust-passage arranged to discharge across the chamber, whereby the connection-joints and other working parts are lubricated, substantially as described.

5. Cylinders mounted upon the shaft, with their pistons and connections inclosed in the steam-chamber, and a steam-passage from the said chamber to the bearings of the shaft, substantially as described.

6. In combination with the shaft and its connections working in steam-chamber, the divided sleeve forming the immediate bearing-surface of the shaft, and the steam-passage leading thereto, all substantially as described.

7. In combination with the cylinder revolving upon the shaft within an inclosed steam-space, and having a piston and piston-connection jointed thereto, a steam-passage through the bottom of the piston, whereby the inner hinge-joint is lubricated, substantially as described.

8. In combination with the cylinder mounted on the shaft, and the wheel or arm on another shaft out of line with but parallel to the cylinder-shaft, the connection hinged directly to the piston and to the wheel or arm, whereby cross-heads are avoided.

9. The hollow piston, in combination with the revolving cylinder fixed to the shaft, and the piston-connection hinged to the bottom of the hollow piston, and at the outer end hinged to the wheel, the whole being inclosed in the steam-chamber, substantially as described.

10. The combination, with the cylinder mounted on the shaft in radial line thereto, of the hollow piston and the connection hinged to the bottom of the piston at its inner end, and at its outer end hinged directly to the wheel or radial arm mounted on a shaft out of line with the cylinder-shaft, substantially as described.

11. A link-connection pivoted to the cylinder at one end, and to the wheel at the other end, the link being in a plane parallel with the movement, whereby the cylinder and wheel part are kept in unison, substantially as described.

12. A compound engine consisting of large and small cylinders arranged radially on a shaft, with pistons and piston-connections from each piston hinged to a wheel or radial arms on another shaft out of line with the cylinder-shaft, with steam-induction passages to the smaller cylinder or cylinders, steam-passages from the exhaust of the smaller to the larger cylinders, and exhaust-passages from the larger, all substantially as described.

13. A cylindrical bearing divided longitudinally, inclosed in a rigid case or sleeve, and provided with a screw on either side at the center of its length, and also with steam-passages, for the purpose set forth.

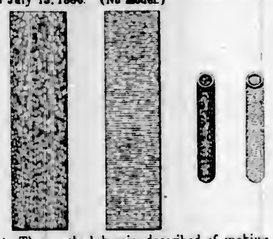
14. A cylindrical bearing divided longitudinally, inclosed in a rigid case or sleeve, and provided with a screw on either side, a screw midway circumferentially between said screws, and exhaust-steam passages along the shaft between the two parts of the bearing-surface, substantially as described.

15. The combination of revolving cylinders connected with a flat valve or port surface, also rotating, a corresponding stationary surface with curved ports therein, and springs to produce a yielding and limited pressure between said surfaces, as and for the purpose set forth.

16. In combination with a revolving flat valve-surface, a stationary flat valve-surface with elongated ports, and a cut-off valve adapted to change the length of the steam-port, as set forth.

17. In combination with a revolving flat valve-surface, a stationary flat valve-surface with elongated ports, and a cut-off valve operated by means of a screw to change the length of the steam-port, substantially as described.

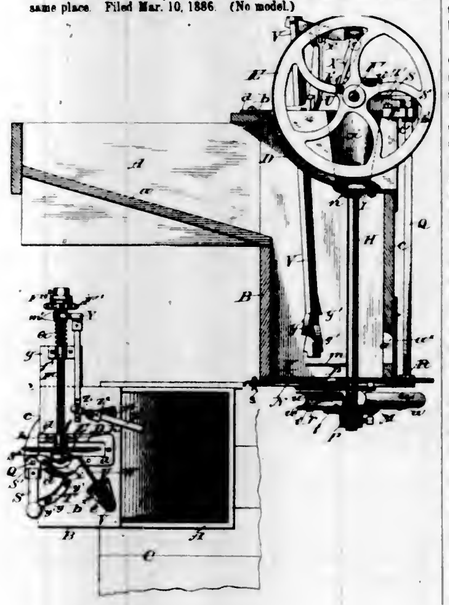
351,987. MANUFACTURE OF PIPE. Arthur W. Lewis, Bradford Pa. Filed July 13, 1886. (No model.)



Claim.—1. The method herein described of making metal pipes, consisting in shearing the skelp from the plate so that the grain of the metal will extend at an angle to its length, and then forming the skelp into a pipe in which the grain of the metal extends parallel with its circumference, substantially as described.

2. As a new article of manufacture, a metal pipe in which the grain of the metal extends parallel with its circumference, substantially as shown.

351,988. BROADCAST SEED-SOWER AND FERTILIZER-DISTRIBUTER. William W. Lord, Racine, Wis., assignor to S. Freeman & Sons, same place. Filed Mar. 10, 1886. (No model.)



Claim.—1. A broadcast sower having its hopper composed of a forward horizontal receiving-box adapted to be secured within a wagon-body, and a rear vertical depending delivery portion designed to extend out from said wagon-body and supports the operative elements of the device, as set forth.

2. A broadcast sower having its hopper composed of a forward horizontal portion provided with an inclined bottom, and adapted to be secured within a wagon-body, and a rear vertically-depending portion designed to extend out from said wagon-body, and having one of its sides, near the bottom thereof, provided with a covered opening, said vertical portion of the hopper also forming a support for the operative elements of the machine, as set forth.

3. A broadcast sower having the vertical portion thereof provided with a segmental shell forming a housing for the main gear-wheel and the pinion on the distributer-shaft, as set forth.

4. A broadcast sower provided with a shell having a continuous angular flange and adapted to fit within a cut-away portion at the upper rear end of the hopper, the main interior portion of the shell forming a housing for the main gear-wheel, and one side of said shell offset to form a housing for a pinion on the distributer-shaft, as set forth.

5. A broadcast sower having a segmental shell set in the upper rear end of the hopper and adapted to form a housing for the main gear-wheel and distributer-shaft pinion, the bottom of said shell provided with a perforation, and a plate adapted to be secured to the shell-bottom, and having its forward ends formed with a downward-extending bushing designed to fit the perforation in said shell-bottom and the reduced upper end of the distributer-shaft, as set forth.

6. A broadcast sower having the distributer thereof composed of overlapping irregular-shaped sections secured to a suitable hub, and one edge of each section curled up and over to form a semi-cylindrical face radial to the center of the distributer-shaft, as set forth.

7. A broadcast sower having the distributer thereof composed of overlapping irregular sheet-metal sections secured to a suitable hub, and one edge of each section curled up and over to form a semi-cylindrical face radial to the center of the distributer-shaft and extended beyond the straight edge of the adjacent underlapping part, as set forth.

8. A broadcast sower having the distributer thereof composed of overlapping irregular-shaped sections secured to a suitable hub, each section having one of its edges curled up and over to form a semi-cylindrical face radial to the center of the distributer shaft, with the greatest curl at the outermost point, as set forth.

9. A broadcast sower having a triangular cut-off plate provided with openings adapted to be brought in and out of register with the discharge-openings in the hopper-bottom and seed-plate, a vertical rod connected to said cut-off plate, and a shifting-lever in turn connected to the rod, in combination with a segmental rack adjustably secured to the hopper-top to engage the lever, as set forth.

10. A broadcast sower having a triangular cut-off plate pivotally connected to a vertical shifting-rod and provided with openings adapted to be brought in and out of register with the discharge-openings in the hopper-bottom and seed-plates, as set forth.

11. A broadcast sower having the shifting-lever for the cut-off rod composed of a spring-steel blade seated in a casting adapted to fit said rod, and said casting provided with a reduced portion adapted to fit a suitable bearing, as set forth.

12. A broadcast sower having the shifting-lever for the cut-off plate composed of a spring-steel blade provided with a depending lug and seated in a casting having a reduced portion adapted to fit the cut-off rod, and provided with lugs, in combination with a bracket designed as a bearing for the reduced portion of the lever and provided with recesses to admit the passage of the lugs on said reduced portion of the lever, and an adjustable rack adapted to engage the depending lug of the spring-blade, as set forth.

13. The combination, in a broadcast seed-sower, of a stationary hopper, a vertically-reciprocating plunger having projections *g'*, the driving-shaft, and connections through which the plunger is reciprocated by the driving-shaft, as set forth.

14. A broadcast sower provided with a plunger designed to operate within the hopper thereof, an arm connected at one end by a link and pin to the main gear-wheel of the machine, and an angular bracket forming a bearing for the arm and a guide for the plunger, as set forth.

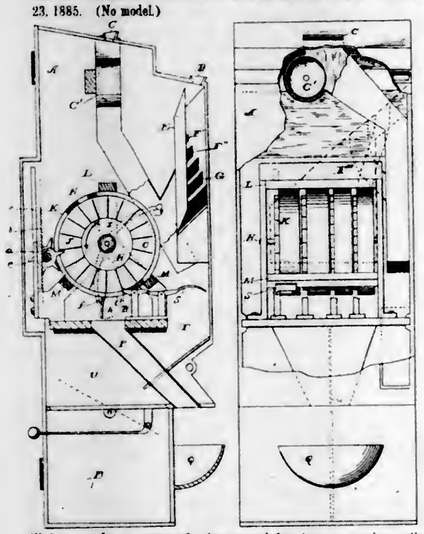
15. A broadcast sower having its hopper-top provided with an opening, an angular bracket adapted to be secured to the hopper-top, and also provided with an opening designed to register with the one in said top, and friction-rollers journaled in the bracket-opening, in combination with a plunger operative between the friction-rolls and depending into the hopper, an arm having a link-connection with the main gear-wheel and pivotally secured to the upper end of the plunger and bracket, as set forth.

16. A broadcast sower having an opening in its hopper-top, a right-angular bracket having an opening in its base adapted to register with the one in the hopper-top, and the upper end of the vertical portion of said bracket bifurcated to form bearings for the trunnions on an arm having one end thereof linked to the main gear-wheel, and friction-

rollers journaled in the opening of the bracket-base and designed as guides for a plunger pivoted to the suspended arm and depending into the hopper, as set forth.

17. In a broadcast sower, a clutch-faced sprocket-wheel loose on a driving-shaft and operatively connected to a spanner-arm, and a spring coiled about the shaft to automatically actuate said sprocket-wheel, whereby an automatic engagement is had with a fixed clutch on said shaft, in combination with a spring-steel lever adjustably united to the spanner-arm and designed to engage a suitable casting secured to the hopper-top, as set forth.

351,989. AUTOMATIC CHANGE AND FARE BOX. THOMAS MANGAN, New Orleans, La., and JOHN T. WILSON, Cincinnati, Ohio. Filed Nov. 23, 1885. (No model.)



Claim.—1. In an automatic change and fare box, a rotating cylinder having on a stationary shaft a central opening to receive a spiral spring coiled around the shaft, and secured thereto at one end and the other attached to the cylinder, so that when the spring is wound up it will cause the cylinder to rotate, the periphery being provided with a series of partitions forming apartments, the whole to rotate within a circumferential band, substantially as herein set forth.

2. In an automatic change and fare box, a cylinder provided centrally with a spiral spring, and so disposed as to rotate upon the shaft within a stationary circumferential band provided near the top with an opening for the introduction of change into the peripheral apartments of the opening below, for its discharge into a chute communicating with a receptacle on the outside of the box, substantially as herein set forth.

3. In an automatic change and fare box, a cylinder, as described, provided centrally with a coiled spring and rotating upon a shaft with a stationary circumferential band having a change-opening near the top, in combination with a chute or slide provided with a series of vertical openings of various sizes in horizontal cross-section corresponding with the different denominations of coin, so that when the coin is placed within the box it will slide over the smaller openings and be received by the opening corresponding in size with the coin, substantially as herein set forth.

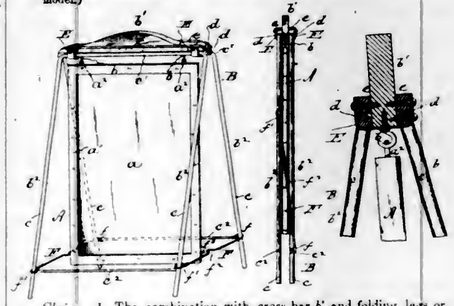
4. In an automatic change and fare box, a vertically-movable indicator operated upon and moved by the radial partitions of the rotatory coin-receiving cylinder, so that as said cylinder revolves in discharging coin its partitions will cause said indicator to move along the graduated scale, and thus show the exact amount of money discharged, all substantially as set forth.

5. The combination of the vertical cylinder provided centrally with a spiral spring for rotating the same, provided outwardly with a series of peripheral apartments, to receive therein the change through an opening in the upper part of the band and discharge the same through an opening beneath into the chute, with a stationary band and the lid and lever for closing up the opening in the lower part of the said band while filling the cylinder, substantially as herein set forth.

6. The combination of the vertical cylinder provided centrally with a spiral spring for rotating the same, provided outwardly with a series of peripheral apartments, to receive therein the change through an opening in the upper part of the band and discharge the same through an opening beneath into the chute, and the stationary band, with the wheel having a series of radiating arms so disposed as to engage with the successive partitions of the cylinder, and connecting with a vertical indicator along the scale to indicate the amount of change discharged, substantially as herein set forth.

7. The combination of the rotating cylinder having centrally the spiral spring and outwardly a series of peripheral apartments to receive therein the change, the stationary band having openings above and below, the star-wheel engaging with the cylinder, so as to operate the vertical indicator, with the train of levers, substantially as herein set forth.

351,990. SIGN. ROBERT MANSURE, Philadelphia, Pa., assignor of one-half to Benjamin F. Clark, same place. Filed Mar. 11, 1886. (No model.)



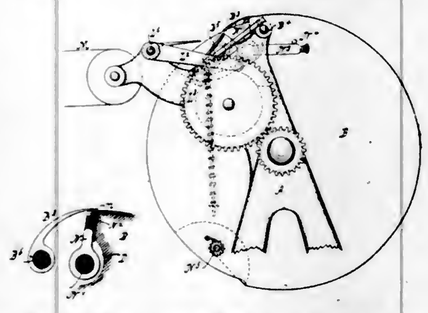
Claim.—1. The combination with cross-bar b' and folding legs or frames b^2, pivoted or hinged to said cross-bar, of a sign-board, A, secured to the cross-bar intermediately of the legs b^2, substantially as set forth.

2. A folding sign composed of a cross-bar, b', having hinged or pivoted frames b^2, board A, hinged or pivoted to said cross-bar, and locking devices for holding the frames b^2 in position when spread apart, substantially as set forth.

3. The combination of cross-bar b', folding frames or legs b^2 b^2, having side bars, F, provided with eyes f^2, and sign A, secured to cross-bar b' intermediately of the legs b^2, and having hooks f, for engagement with the eyes of side bars, F, substantially as and for the purpose set forth.

4. The combination of cross-bar b', legs or frames b^2, spring-hinged and yielding side bars, F, and sign A, placed between the legs or frames, substantially as shown and described.

351,991. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. CHARLES B. MAXSON, Westerly, R. I. Filed Dec. 29, 1885. (No model.)



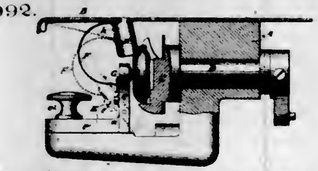
Claim.—1. The combination, with the impression-cylinder, the cylinder-grippers, and the clamping-support for the gripper-tips, of sheet-lifters, and of recesses formed in the clamping-support, substantially as shown and described.

2. The combination, with the impression-cylinder, the cylinder-grippers, and the tympan-fingers N, extending up flush, or nearly so, with the cylinder of sheet-lifters, and of recesses formed in the tympan-fingers.

351,992. BOBBIN INSERTING AND EJECTING ATTACHMENT FOR SEWING-MACHINES. CHARLES MIEHLING, New York, N. Y. Filed June 27, 1886. (Model.)

Brief.—A new bobbin may be inserted while the machine is running, the empty bobbin being ejected to give place thereto; or it may be inserted when the machine is at rest, the machine being started up to assist in ejecting the empty bobbin.

351,992.



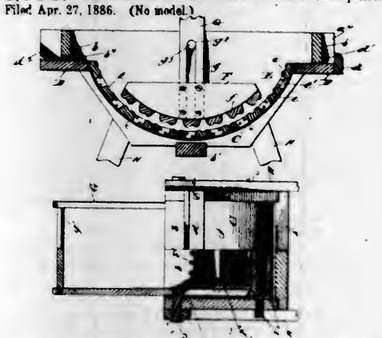
Claim.—1. In combination with the revolving hook C and the pivoted bobbin-holder e of a sewing-machine, the bobbin-funnel H, the pivoted bobbin-holder e, and holding-spring F, projecting into said funnel, whereby the introduction of a bobbin into the bobbin-funnel H causes the pivoted bobbin-holder e to fall, and its removal therefrom causes the said pivoted bobbin-holder e to spring up to place, substantially as and for the purposes set forth.

2. In combination with the revolving hook C and the pivoted bobbin-holder e of a sewing-machine, the slide B, the bobbin-funnel H, the pivoted bobbin-holder e, and holding-spring F, projecting into said funnel, substantially as and for the purposes set forth.

3. In combination with the revolving hook C and the pivoted bobbin-holder e of a sewing-machine, the bobbin-funnel H, having slot h, the pivoted bobbin-holder e, and holding-spring F, projecting through said slot into said funnel, substantially as and for the purposes set forth.

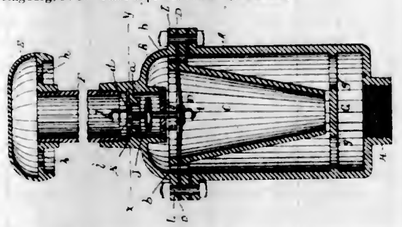
4. In combination with the revolving hook C and the pivoted bobbin-holder e of a sewing-machine, the slide B, having the slotted bobbin-funnel H, the pivoted bobbin-holder e, and holding-spring F, carried on said slide and projecting through the slot into said funnel, substantially as and for the purposes set forth.

351,993. WASHING-MACHINE. MERIT F. MITCHEL, Marquette, Wis. Filed Apr. 27, 1886. (No model.)



Claim.—In a washing-machine substantially such as shown and described, the sides a, having the bottom receiving-grooves e and offsets a^4, in combination with the bars D, strips b b^2, resting upon and intermediately of the edges of said bars D, and strips d d^2, as and for the purpose set forth.

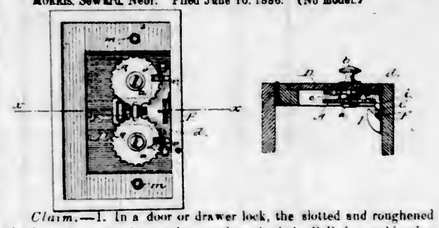
351,994. AIR-VALVE FOR WATER-PIPES. JOHN W. MOORE, Lansingburg, N. Y. Filed Sept. 22, 1885. (No model.)



Claim.—1. An inclosing-shell having an upper and lower opening, the upper opening being provided with an air-valve, in combination with an inclosed air-chamber opening at its lower end into said shell, and provided with means, substantially as shown and described, for actuating said air-valve, and an air duct or ducts leading around said air-chamber from one opening in said shell to the other, substantially as described, and for the purposes set forth.

2. In an air-valve for water-pipes, an inclosing-shell, A B, provided with a continuous air-passage through the same, in combination with an air-valve, J, stem I, flexible diaphragm D, and cylinder C, substantially as described, and for the purposes set forth.

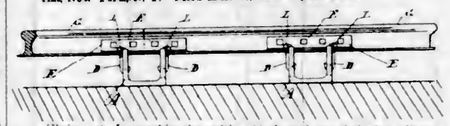
351,995. PERMUTATION-LOCK. JOHN H. MORRIS and THOMAS D. MORRIS, Seward, Nebr. Filed June 10, 1886. (No model.)



Claim.—1. In a door or drawer lock, the slotted and roughened wheels A A, mounted on and secured to the hubs B B, in combination with the plate D and sliding latch d, and a suitable catch, all constructed substantially as and for the purpose set forth.

2. The combination, with the wheels A A and a sliding latch having a loop, F, and projections e, of a catch, I, having a cam portion, i, whereby a slot, i', is formed between said cam portion and the main portion of the catch, substantially as herein described.

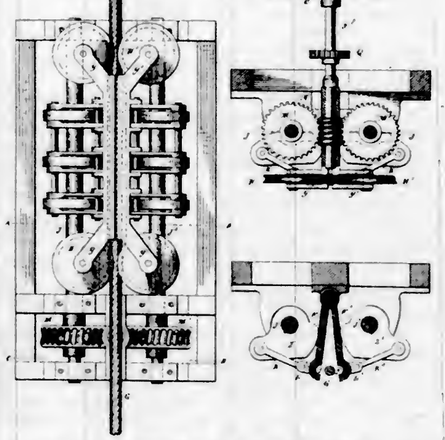
351,996. METAL TIE FOR RAILWAY-TRACKS. CHARLES NETTER, New York, N. Y. Filed Mar. 24, 1886. (No model.)



Claim.—1. In combination with a U-shaped metal tie for railways, having notches in the edge of its open sides to receive the base of the rails, and openings C, to receive the hooked ends of the bolts D, the fish-plates E, substantially as herein described.

2. In combination with a U-shaped metal tie for railways, provided with notches in the upper edges of its open sides to receive the base of the rails, the fish-plate E, extending beyond the edges of the base of the rails, and the hook-shaped bolts D, substantially as herein described and shown.

351,997. GRIPPER FOR CABLE RAILWAYS. THOMAS O'CONNELL, Brooklyn, N. Y. Filed Mar. 6, 1886. (No model.)

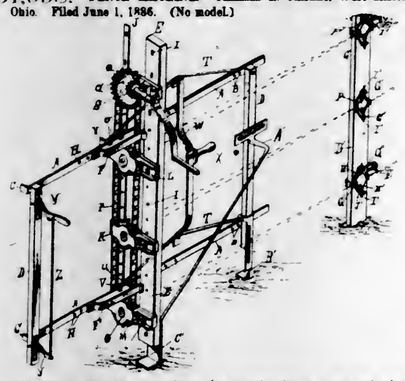


Claim.—1. In a gripping device for cable railways, the combination, with hinged gripping-plates, of means, substantially such as described, for exerting pressure thereon both centrally and at the outer free ends.

2. In a gripping device for cable railways, a pair of operating-shafts, each provided with one or more cams having a link or links attached thereto, in combination with gripping-plates provided with lugs for the attachment of the links, substantially as and for the purpose set forth.

3. In a gripping device for cable railways, the combination, with the shafts J J' and suitable worm-gear for operating the same, of the cams I I', links K K', lugs L L', and plates F F', the latter being provided with semicircular grooves $f f'$, substantially as and for the purpose set forth.

351,998. FENCE-MACHINE. Charles H. Ohnart, West Milton, Ohio. Filed June 1, 1886. (No model.)



Claim.—1. In a fence-machine, the combination of a top and a bottom bar, end pieces secured thereto, a beater upon each of said bars, toggles secured to each of said beaters and to the forward ends of said bars, a pressure-bar connecting said toggles, a vertical series of revolving twister-heads secured to the intermediate portion of said top and bottom bars, and means for securing the rear end of said machine to the fence.

2. In a fence-machine, the combination of a top and a bottom bar, the rear end of each of which is provided with a hook or stop, end pieces, a beater on each of said bars, a vertical series of revolving twister-heads, and means for disengaging said hooks or stops from the fence.

3. In a fence-machine, the combination of a top and a bottom bar, the rear end of each of which is provided with a hook or stop, end pieces, the rear one of which is provided with slots, a lever in each of said slots, one of which is provided with a handle, a rod connecting said levers, beaters on said top and bottom bars, and a series of revolving twister-heads.

4. In a fence-machine, the combination of a top and a bottom bar, each of which is provided with adjusting-holes at its front end and near its rear end, end pieces, a bracket having an eye at one end, and means for securing the other end in said adjusting-holes near the rear of said bars, an upright secured to said brackets, twister-heads secured to said upright, toggles adjustably secured to the front ends of said bars, beaters secured to said toggles, and means for securing the rear end of said machine to the fence.

5. In a fence-machine, the combination of a top and a bottom bar, end pieces, and an upright secured thereto, twister-head supports secured to said upright, a rod secured to the opposite ends of said supports, a revolving twister-head in each of said supports, beaters on said top and bottom bars, and means for securing the rear end of said machine to the fence.

6. In a fence-machine, the combination of a frame consisting of a top and a bottom bar and end pieces, and an adjustable foot-piece secured to one of said end pieces, said frame being provided with an upright carrying a series of twister-heads.

7. In a fence-machine, the combination of a frame, an upright having a vertical series of twister-heads, and a handle, the forward or upper end of which is slotted, said handle being secured to said upright and to one end of said frame.

8. In a fence-machine, the combination of a frame, an upright having a series of twister-head supports secured thereto, a twister-head in each of said supports, consisting of a sprocket-wheel with a hub or axle, said hub having longitudinal grooves in its sides and a square hole in its center, a bevel gear-wheel having perforations registering with said grooves, and a square lug upon one side, and a beveled pinion engaging with said beveled gear-wheel.

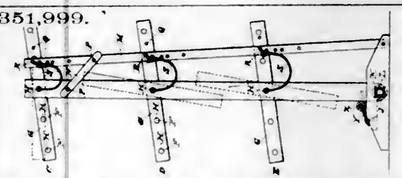
9. A tension-regulating device for fence-machines, consisting of a post or board, a series of plates secured to one side, each of said plates having an outwardly-projecting lug at each of its corners, and two slots, and bolts in two of said lugs, having a hook on their inner ends and an adjusting-nut on their outer ends.

351,999. FOLDING CLOTHES-BAR. Lorenzo Pearson Chapman, Kans. Filed Feb. 17, 1886. (No model.)

Claim.—1. The combination, with the uprights having the pivoted feet, the securing hooks and staples, and the connecting middle rods of the section-frames, having the end bars provided with holes for the locking-pins, of the pivoted adjusting-rod and link and the locking-pins, substantially as specified.

2. The combination, in a clothes-drier, of two connected uprights

351,999.



carrying the section-frames, a pivoted foot-block, and a bar detachably connecting the section-frame with the foot-block, substantially as specified.

352,000. CASE AND PACKAGE SEAL. Alexander D. Penfold, New York, N. Y. Filed July 27, 1886. (No model.)



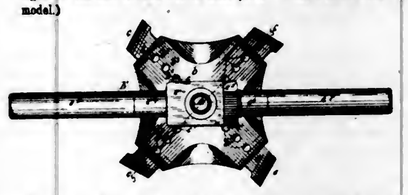
Claim.—1. A seal for cases, adapted to be driven in the wood over the joints of the same, having teeth projecting therefrom, which teeth are bent by said driving to prevent their withdrawal or to disfigure said case when withdrawn, and a number thereon, or cut therein, for designating the place where the goods were packed and shipped, whereby tampering with said case is made evident, and the shipping-place is also displayed at numerous places on said case.

2. A seal essentially such as described, adapted to be placed on a casing or box having thereon a dye soluble in water, whereby the exposure of such case to rain or water is indicated by a stain upon the wood of said case.

3. A seal for cases, having a flat rectangular top or other shape provided with downwardly-inclined end projections and at the side with downwardly-projecting teeth, the said projections and teeth integral with the said top, such as shown and described, and for the purpose herein set forth.

4. The combination, with a packing box or case, of a seal, A, provided with downwardly-inclined end projections, *a*, having the barbs *b'* cut therein, and terminal points *b*, and the downwardly-projecting teeth *d*, together with a designating-number stenciled thereon or stamped in the top surface of the said seal A, substantially as herein set forth, and for the purpose described.

352,001. EARTH-AUGER. Carl A. F. Peters, St. Louis, Mo., assignor of one-half to John Ledlie, same place. Filed Dec. 23, 1885. (No model.)



Claim.—1. An earth-auger having radially-adjustable blades held between clamping-plates attached to the stem, substantially as set forth.

2. The combination of the two plates *b* and *b'*, secured to the stem A, and blades C, having shanks secured between the plates, substantially as set forth.

3. The combination of curved blades C, with shanks *c*, extending inwardly from the concave sides of the blades, the holding-plates *b b'*, and the stem secured in a central hole of the plates, substantially as set forth.

4. The combination of the two plates *b* and *b'*, having curved bearings b^2, for the shanks of the blades C, the said blades and the stem A having a screw-threaded end, *a*, a shoulder, *a'*, and nut D, substantially as and for the purpose set forth.

5. The combination of the two plates *b b'*, having, respectively, concave and convex faces presented toward each other, with curved grooves or mortises b^2, for the reception of the curved blade-shanks *c*, substantially as set forth.

6. The combination of the plates *b* and *b'*, having grooves b^2 and pin-holes b^3, and the blades C, having curved shanks *c*, with steady-pins on the shanks constructed to enter the holes b^3, for the purpose set forth.

7. The combination of a stem, A, head B, consisting of the holding-plates *b b'*, with grooves b^2 and holes b^3, and the blades C, having shanks *c*, with steady-pins *c'*, substantially as and for the purpose set forth.

8. The combination, with the stem A, having pin-holes, and the handle composed of parts *e* and e^2 e^3, the latter, e^2 e^3, working within the former, and having an apertore, e^3, and pin e^4, substantially as and for the purpose set forth.

9. The combination of a stem, A, with holes a^3, handle with two parts, *e* and e^2, through which the stem passes, the part e^2 having an aperture, e^3, and pin e^4, and the parts having sockets e^5 e^7, for the reception of the parts e^6 of the handle, and the socket e^5 having a nut, e^8, screwing thereon, for the purpose set forth.

352,002. RAILROAD-TIE. Edward F. Reynolds, Bruce, Dak. Filed May 7, 1886. (No model.)

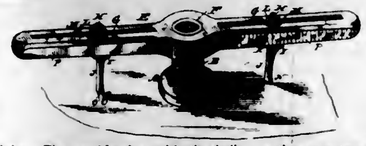


Claim.—1. The metallic railroad-tie herein described, having a central portion consisting of a series of V-shaped bends and upwardly-bent side pieces, *a*, the upper edges of which extend above the central portion of the tie and are provided with notches *b*, so as to prevent lateral movement of the rails thereon, substantially as shown, and for the purpose set forth.

2. The combination, in a metallic railroad-tie having a corrugated or angular central portion, of upwardly-extending side flanges, *a*, having notches *b*, the base of said notches being on a line with the body portion of the tie, one of the sides of said notches being angular, while the opposite side is vertical, and means pivoted adjacent to said notches for holding the rails in position.

3. The combination, in a metallic railroad-tie consisting of a central corrugated or bent portion, of upwardly-extending side flanges, *a*, having notches or recesses *b*, with angular sides *b'*, hooks *c*, pivotally attached to the side flanges so as to embrace the flange of the rail, and pivoted locking-dogs *d*, the parts being organized substantially as shown, and for the purpose set forth.

352,003. APPARATUS FOR CUTTING CIRCULAR WOODEN PLATES. Isaac M. Rhodes, Hancock, Mich. Filed May 28, 1886. (No model.)



Claim.—The combination, with the hollow stationary externally-threaded hub having a base formed with an aperture in alignment with the longitudinal central axis of the hub, and a removable wood-screw passed through said aperture, of a rotary cutter-bar having a screw-threaded aperture through which the hub passes, substantially as set forth.

352,004. SAW. Francis H. Richards, Springfield, Mass. Filed Jan. 21, 1886. (No model.)

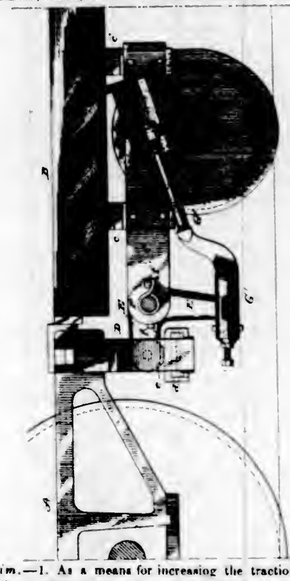


Claim.—1. The combination, in a saw, of a blade having a tooth-receiving socket, a saw-tooth in said socket and engaging with one side thereof, and a malleable pointed wedge set in engagement with said tooth and with the other side of said socket for locking said tooth in place.

2. The combination, in a saw, of a blade having a tooth-receiving socket which has on one side thereof the sections 2 and 3, a saw-tooth shaped to engage with said sections 2 and 3, and a malleable pointed wedge set in engagement with said tooth and the opposite side of said socket for locking the tooth in place.

3. The combination, in a saw, of a blade having a tooth-receiving socket, a saw-tooth set in said socket and engaging one side thereof, and a malleable pointed wedge engaging said tooth and the other side of said socket, said wedge being itself held in place by its bent point engaging with a part of the socket, which serves as a die for the bending of said point.

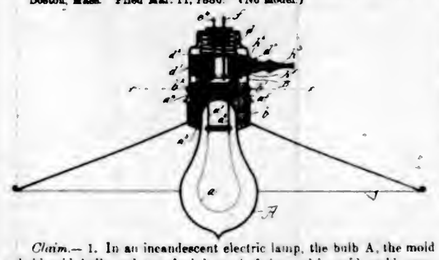
352,005. TRACTION-INCREASER FOR LOCOMOTIVES. Louis G Richardson, Toledo, Ohio. Filed Mar. 22, 1886. (No model.)



Claim.—1. As a means for increasing the traction of the drive-wheels of locomotives, the combination, with the tender, of the supporting-bar carrying the bell-crank lever, and operating-cylinder having its piston connected to the said lever, and the step secured to the under side of the cab, upon which the forward end of the bell-crank lever rests, substantially as described.

2. As a means for increasing the traction of the drive-wheels of a locomotive, the combination, with the tender, of the supporting-bar carrying the bell-crank lever, provided with the springs extending in opposite directions and bearing upon pins secured to the sides of the supporting-bar, and the step secured to the under side of the cab, upon which step the forward end of the bell-crank lever rests, substantially as described.

352,006. INCANDESCENT ELECTRIC LAMP. Frederick Schaefer, Boston, Mass. Filed Mar. 11, 1886. (No model.)

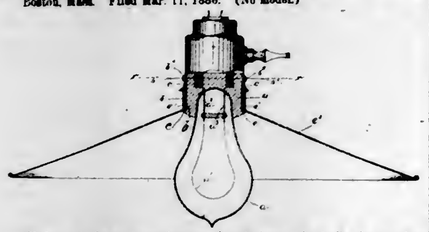


Claim.—1. In an incandescent electric lamp, the bulb A, the mold to hold said bulb, and terminal lugs a^4 a^5, incased in said mold, combined with the insulating-disk d^4, having contact-pieces e e' secured thereto, and provided with outwardly-turned flanges e^3, to be engaged by said lugs, to thereby prevent said lamp from being short-circuited, substantially as described.

2. In an incandescent electric lamp, the insulating-disk d^4, provided on one face with the metal ring f^3, upset as at f^4, and having contact-

pieces *e e'* secured to its opposite face, combined with the key *d*×, composed of a metal collar, *h'*, having insulation *h*, and with the screw *f'*, secured to the metal ring *f*², and by which the current is conducted to the line-wire, substantially as described.

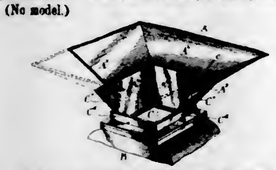
352,007. INCANDESCENT ELECTRIC LAMP. FREDERICK SCHAEFER, Boston, Mass. Filed Mar. 11, 1886. (No model.)



Claim.—1. In an incandescent electric lamp, the bulb, the mold to hold said bulb, the band surrounding said mold and provided at one end with a flange, and having a pin or pins at or near its other end, combined with the shade *e*², having the collar *e'*, provided with a groove or grooves, whereby said shade may be fitted to its seat on said flange, and with a holder having a groove in which said pin or pins are rotated to fasten said lamp to said holder, said holder securing said shade firmly upon said lamp, substantially as set forth.

2. In an incandescent lamp, the bulb, the mold to hold said bulb, the band surrounding said mold and provided at one end with a flange, *e*, and having pins *b*¹ *b*² at or near its other end, combined with the shade *e*², having the collar *e'*, provided with grooves *e*³ *e*⁴, whereby said shade may be fitted to its seat on the flange *e*, and with a holder having a groove in which said pins are rotated to fasten said lamp to said holder, said holder securing said shade firmly upon said lamp, substantially as described.

352,008. HOPPER. MARQUIS F. SEELEY, Fremont, Nebr. Filed Dec. 9, 1885. (No model.)



Claim.—1. A hopper provided with inclined side walls and having in its lower part, adjacent to its exit-opening, opposite vertical and inclined surfaces made continuous with the said inclined side walls, substantially as described.

2. A hopper provided at its part adjacent to its exit-opening with two vertical walls at contiguous sides of the opening and having inclined walls A³ A³, sloping to the exit-opening at the sides of the hopper opposite the said vertical walls, and walls A⁴ A⁴, terminating at their lower edges at the top margins of the said vertical walls, substantially as described.

3. The combination, with the wooden walls of a hopper, of a metal part, C, having two vertical side walls, C', substantially as described.

4. The combination, with the wooden walls of a hopper, of a metal part, C, consisting of a horizontal part, C², made square in plan, and two vertical side walls, C', substantially as described.

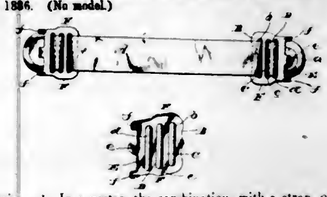
352,009. FOUNTAIN OR HYDRAULIC BRUSH. THOMAS F. SEERY, Boston, Mass. Filed Nov. 23, 1885. (No model.)



Claim.—1. The combination, with a brush, A, provided with perforations *a* and having a chamber or reservoir, D, of a tubular handle, E, having a water-passage through it, its said passage communicating with said chamber or reservoir, said handle E made in parts F and G and adapted to telescope one part, G, on the other part, F, a nut, *g*, screwing on part G and compressing a washer, *l*, against part F, substantially as described, for the purpose specified.

2. The combination of a brush-head provided with perforations *a* and having a chamber or reservoir, D, provided with a tubular handle portion, F, in communication therewith, which is made of the straight part F² and the curved part F³, joined by a collar or coupling, *t*, and stays or rods H, passing between and secured to said brush-head and said collar or coupling, substantially as described, for the purpose specified.

352,010. GARTER. CHRISTOPHER C. SHELBY, Paterson, N. J., assignor to the Canfield Rubber Company, Bridgeport, Conn. Filed Aug. 14, 1886. (No model.)



Claim.—1. In a garter, the combination, with a strap, of a pair of clasps adjustably secured one at each end of the strap, each clasp having inwardly-projecting rigid hooks adapted to engage the stocking, substantially as set forth.

2. A garter-clasp provided with a pair of hooks, the outer end of the clasp being extended beyond the hooks and turned up to afford a hold for the thumb and finger in releasing and adjusting it, substantially as set forth.

352,011. PORTABLE HOUSE. JAMES K. P. SHELTON, Gaston, Ala. Filed July 7, 1886. (No model.)



Claim.—1. The combination of the sills A A', bolted together at their ends, the wall-plates D, the studs B, the cross-pieces C C', the panels E, the end rafters, F G', the gable ends G, fitted between said rafters, the roof, and a comb, H, substantially as set forth.

2. The combination, in a portable house, of the end rafters, F G', the gables G between said rafters, and having the tenons c, and the end wall-plates having mortises *d*, substantially as set forth.

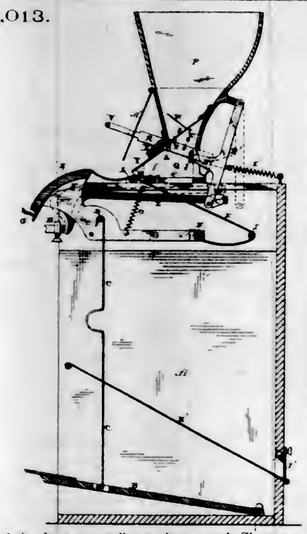
3. The hereinbefore-described portable house, consisting of the sills A A', the studs B, the cross-pieces C C', the panels E, end boards, M, the perforated wall-plates D, the rafters F G', the gable ends G, having the tenons c and opening P, the comb H, door K, small roof N, having the hooks *n*, the staples o, and a suitable roof, substantially as described.

4. The side walls for a portable house, consisting of the studs B, the cross-pieces C C', secured to the ends thereof, the panels E, secured to said studs, and the end boards, M, secured to the ends of said panels and adapted to embrace the end of the adjacent section at the corner of the house, substantially as described.

352,012. CIGAR-BUNCHING MACHINE. FREDERICK C. SMALSTIG, Allegheny City, Pa. Filed July 21, 1886. (No model.)

Claim.—1. The combination of the movable table, and a mechanism for moving it, with the levers which are pivoted at their front ends upon opposite sides of the table, suitable stops on the frame for the outer

352,013.



front ends of the levers to strike against, a rod, C', connected to the inner ends of the levers, a lever pivoted to the rear side of the hopper, and the sliding carriage, substantially as set forth.

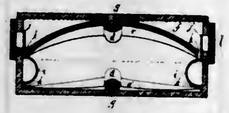
2. The combination of the hopper, the supports placed below the hopper and having inclined edges, with the carriage which moves back and forth between the hopper and the supports, the agitator pivoted to the carriage and extending into the hopper, and the knife or cut-off, also attached thereto, substantially as specified.

3. The combination of the hopper, the supports Q, having inclined edges, the sliding carriage, the agitator pivoted thereto and extending into the hopper, the knife or cut-off on the carriage, the receiver pivoted to the carriage, and the guide Y, substantially as shown.

4. The combination of the hopper, the supports Q, having inclined edges, the carriage R, lever D', pivoted to the hopper, for forcing the carried forward, a mechanism for operating the lever and carriage, and the springs for forcing the carriage backward when left free to move, substantially as set forth.

5. The carriage R, provided with a handle upon its front end, so as to be moved by hand independently of the other parts, in combination with the discharger X, pivoted upon the carriage, and the knife or cut-off rigidly secured to the carriage in the rear of the cut-off, substantially as specified.

352,013. SPRING. NORMAN E. SPAULDING, Brooklyn, N. Y. Filed Dec. 1, 1883. (No model.)



Claim.—1. The improved semi-elliptic spring-plate herein described, said plate being bent longitudinally convex and transversely concave on the outer side and having the transverse groove at the middle of the plate and in the concave and crowning side of the longitudinal bend, substantially as described.

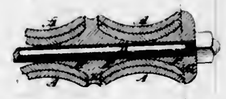
2. The improved spring-plate herein described, said plate being bent longitudinally and concaved transversely on the crowning side of the longitudinal bend, and also being grooved across the middle of the concave and crowning side, said concave being greatest at the middle and vanishing at the ends of the plate, substantially as herein set forth.

3. The combination, with a longitudinally-curved spring-plate transversely concaved on the crowning side and having a transverse groove across the middle of the crowning side, of a rest or bearing for the same, having a convex rib, *g*, adapted for fitting the groove across the concavity of the plate, substantially as described.

4. The curved bearer *i*, having end sections, *j*, forming bearing-angles *k* for the ends of the spring-plates *a*, in combination with said plates and the box *e f*, or equivalent supporting-band, substantially as described.

5. The improvement in graduated elliptic springs, consisting of plates bent longitudinally, concaved transversely, and grooved across the middle of the crowning side and arranged in greater number or with thicker plates on one side than the other, and with a support for the weaker side when compressed to its limit, substantially as described.

352,014. ELLIPTIC SPRING. NORMAN E. SPAULDING, Brooklyn, N. Y. Filed Apr. 24, 1882. Renewed May 19, 1884. (No model.)



Claim.—1. An elliptic spring the plates of which are of concavo-convex form in cross-section, and arranged with the convex sides of the plates facing the longitudinal axis of the ellipse, the parts of the plates of which the coils for the eyes for the connecting-bolts are formed being the same in form as the body of the plates, said form being extended uniformly throughout the plates, and the eyes for the connecting-bolts, substantially as described.

2. The combination of washers having conical hubs F with elliptic springs the eyes of which are formed of plates of concavo-convex form in cross-section, substantially as described.

3. The combination of washers G H, having flanges I, with the eyebolts and the bolt-eyes of elliptic springs, said flanges overlapping the edges of the coils of the plates forming the eyes, substantially as described.

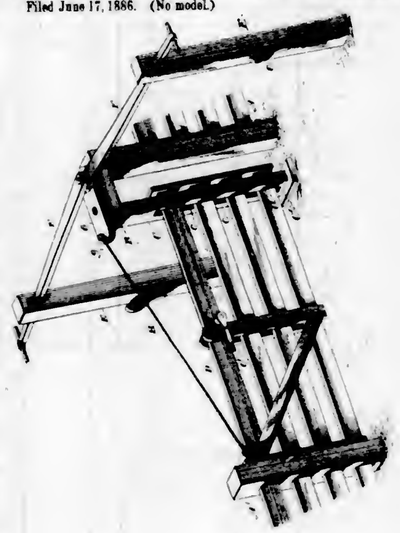
352,015. KEY-HOLE GUARD. AUSTIN K. SPENCER and CHARLES A. SMITH, Gloversville, N. Y. Filed Sept 29, 1886. (No model.)



Claim.—1. The combination of the lock-casing having lugs *f* and *f'* on the back plate and the lug *m* on one side, the bolt B, rabbeted at *e*, and having projection *d*, the spring C, the spindle *g*, journaled in the lock-casing, and having arms *h h'*, and the knob D, for rotating the spindle, all arranged substantially as shown and described.

2. The combination of the lock-casing having lugs *f* and *f'* on the back plate and the lug *m* on one side, the bolt B, having projection *d*, and rabbeted at *e*, the spring C, and actuating mechanism for the said bolt, substantially as described.

352,016. SWINGING GATE. JAMES L. TALSON, Petersburg, Ind. Filed June 17, 1886. (No model.)



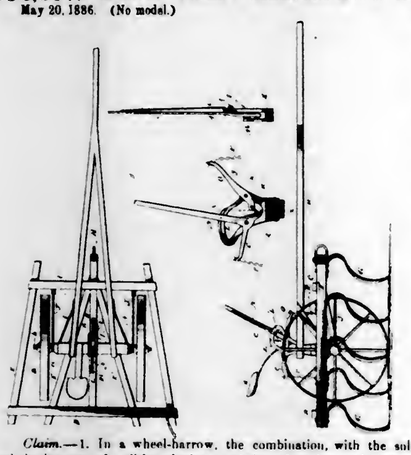
Claim.—1. In a swinging gate, the combination of the suitably-supported pivoted post C, said post being provided with a vertical slot and a bolt for attaching a gate thereto, a block, G, pivotally attached to a suitable support and provided at its forward end with a bar, H, which is attached to the front end of the gate, and operating-bars F F, attached to the rear end of said block, the parts being organized substantially as shown, and for the purpose set forth.

2. The combination, in a swinging gate, of a post, A, having a horizontally-projecting block, B, rigidly secured thereto, the pivotally-supported post C, having a gate attached thereto, block G, connected to the forward end of the gate by a bar, H, and operating-bars F, substantially as shown, and for the purpose set forth.

3. The combination, in a swinging gate, of a pivoted supporting-bar, C, having a central slot, a gate pivotally attached thereto at its lower end by means of a bolt, *d*, as shown, a pivoted block, G, attached above and to one side of the pivoted post C, said block being connected at its forward end to the gate by bar H, and operating-bars F F, attached to the rear portion of the block G, the parts being combined substantially as shown, and for the purpose set forth.

4. In a swinging gate, the combination of a vertical post, A, having a horizontally-projecting block, B, attached thereto, a pivoted post, C, having bearings in the block B, and a support, C', said post C having a vertical slot, c, within which the gate is pivoted at its lower end, so that its front end may be elevated, a pivoted block, G, attached to the upper side of the block B eccentrically with respect to the pivots of the post C, a bar, H, attached to the front end thereof and to the front end of the gate, and operating-bars F F, pivoted to the rear end of the block G, and supporting-posts E therefor, the parts being organized so that by pushing upon the handle-bar the block G will turn upon its pivot and elevate the front end of the gate, so that it will swing open, substantially as set forth.

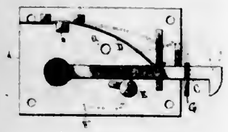
352,017. HARROW. William V. Walker, Moravia, N. Y. Filed May 20, 1886. (No model.)



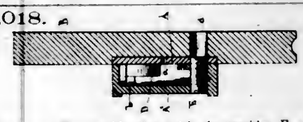
Claim.—1. In a wheel-harrow, the combination, with the sulky and the harrow, of a tilting device consisting of an inverted-T-shaped lever having a claw formed upon one arm, another lever connected thereto and having a claw formed upon one of its arms, a detent attached to the T-shaped lever, a suitable support for said levers, a rack-bar upon said support, and chains for connecting the harrow to said levers.

2. In a wheel-harrow, the combination, with the sulky and the harrow, of a plate with flanges upon its sides, a rack-bar formed upon one flange, levers pivoted between said flanges, one a T-shaped lever having one arm provided with a claw, the opposite one with a sector-gear, and the main one with an L-shaped lug, and a spring-detent, bent at its lower end, to work in a hole in said lever, the other lever having a claw at one end and a sector-gear at the other, and chains connecting said levers to the harrow.

352,018. SLIDING-DOOR LOCK. Charles J. Whitmore, De Witt, N. Y. Filed May 6, 1886. (No model.)



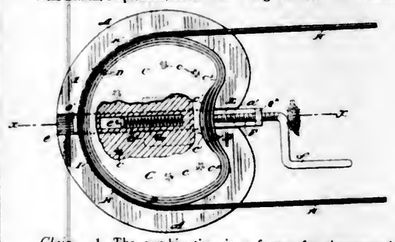
352,018.



Claim.—1. The combination, with the tumbler E, of the latch C, formed with notched arm H, adapted to engage said tumbler, and spring D, substantially as described.

2. The combination, with latch C, formed with the handle G, of the spring D and tumbler E, substantially as described.

352,019. FORMER FOR SHEET-METAL VESSELS. Charles A. Wilbraham, Poquonock, Conn. Filed Aug. 25, 1886. (No model.)



Claim.—1. The combination, in a former for sheet-metal vessels, of a bed-plate, a former-block held thereto, one or more gage-bands fitting over said block and each other, and a clamp adapted to hold the blank to the band or bands prior to bending the blank, substantially as shown and described.

2. The combination, in a former for sheet-metal vessels, of a bed-plate, a former-block held thereto and shaped at one part to the required bend of the blank, and formed marginally elsewhere to prevent turning of like-shaped bands placed around the block, and said bands and a clamp adapted to hold the blank to the block-bands prior to bending the blank, substantially as shown and described.

3. The combination, in a former for sheet-metal vessels, of a bed-plate, a former-block held thereto and shaped at one part of its margin to the required bend of the blank and formed marginally elsewhere with a recess, and like-shaped band or bands placed on the block, and a clamp device adapted to hold the metal blank to the band and press on the recessed or inbent portion of the band to simultaneously draw the band or bands tightly around the block to insure a true bend of the blank, substantially as shown and described.

4. The combination, in a former for sheet-metal vessels, of a bed-plate, A, grooved at *e*, a clamp-bar, E, fitted in said groove, a former-block, C, on bed A, and a screw, F, fitted in bar E, substantially as shown and described.

5. The combination, in a former for sheet-metal vessels, of a bed-plate, A, former-block C, one or more gage-bands, D, clamp-bar E, and screw F, substantially as shown and described.

6. The combination, in a former for sheet-metal vessels, of a bed-plate, A, former-block C, clamp-bar E, screw F, and a spring, G, substantially as shown and described.

352,020. STOCK-CAR. Benjamin F. Williams, Springville, N. Y. Filed July 24, 1886. (No model.)

Claim.—1. In a stock-car, a partition consisting of a frame having fixed bars, and bars pivoted to such frame and provided with plates extended from one of their edges and lapped alongside the fixed bars, substantially as set forth.

2. The combination, with a stock-car and a partition pivoted thereto and provided with fixed bars and pivoted bars, of a slide-rod connected with the pivoted bars and having transverse perforations and a swinging latch arranged to enter said perforations, substantially as set forth.

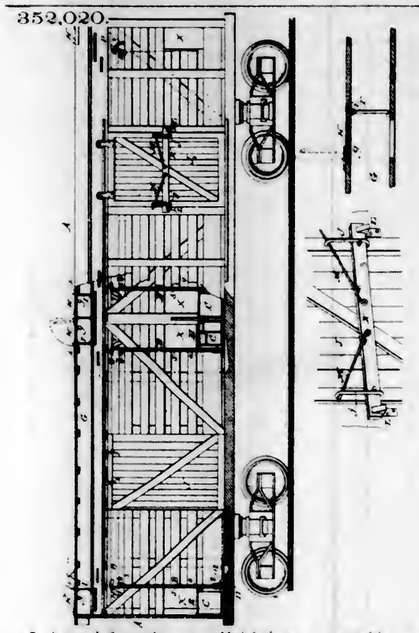
3. The combination of the partition, the slide-rod provided with a detachable extension and latch whereby to secure such extension, substantially as set forth.

4. The combination, substantially as set forth, of the pivoted partition consisting of a frame having fixed bars and pivoted bars, a slide-rod connected with the pivoted bars and having a detachable extension, and the latch swinging concentrically with the pivot of the partition and arranged to engage and secure the extension of the slide-rod, substantially as set forth.

5. In a stock-car, a trough having a cover divided longitudinally into sections and provided below each of said sections with a feed-compartment, substantially as set forth.

6. A trough for stock-cars provided with a movable feed-compartment in its upper portion and having a water-chamber below said compartment, the latter being movable from over the water-chamber, substantially as set forth.

352,020.



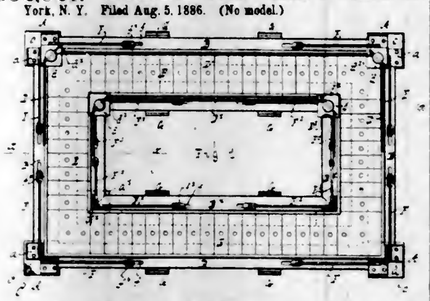
7. A trough for stock-cars provided in its upper part with a movable feed-compartment and having below such compartment a water-chamber, the latter being divided into a number of compartments, communication being formed between such compartments, whereby the water may circulate from one to the other thereof, substantially as set forth.

8. A stock-car having a hay loft or compartment in its upper end and an opening whereby the hay may discharge from said loft, combined with a gate whereby to control the discharge of the hay, substantially as set forth.

9. The combination, with the car having a hay-loft provided with a discharge-opening and an opening through which the hay may be supplied to said loft, of the door for closing said supply-opening and a gate connected with said door and arranged and adapted to control the discharge of the hay, substantially as set forth.

10. The combination, with the car, of the door having vertically-elongated staples near its side edges, the cross-bar held and movable vertically in said staples and having its ends extended beyond the side of the car, springs for operating said bar, and keepers supported on the car alongside the doorway and arranged and adapted to receive the said bar, substantially as set forth.

352,021. CLOTHES-LINE FRAME. Chester L. Williams, New York, N. Y. Filed Aug. 5, 1886. (No model.)



Claim.—1. A clothes-line frame consisting of two frames, one located within the other, and a path suspended between said frames, substantially as shown and described.

2. A clothes-line frame consisting of two frames, one located within the other, each frame composed of corner-posts, and girders secured to the posts, and a grating situated between the frames, and supported by the girders, substantially as shown and described.

3. A fire-proof clothes-line frame consisting of upright angle-iron corner-posts A A', having their lower ends provided with a socket, blocks or feet secured to the base and fitting said sockets, angle-iron girders B B', secured to the corner-posts, and a path, E, supported upon the girders, substantially as shown and described.

4. A fire-proof clothes-line frame consisting of upright angle-iron posts A A', having their lower ends split and bent outward to form foot-flanges, sockets secured to said foot-flanges, blocks or feet fastened to a base and fitting the sockets, angle-iron girders B B', secured to the corner-posts, the inclined braces F F' between the girders and the posts, and the path E, extending between the corner-posts and the girders, substantially as shown and described.

5. A fire-proof clothes-line frame consisting of upright corner-posts A A', secured to a base, the girders B B', secured to the posts A A', and the caps or tops fitting the upper ends of the posts, in combination with a grating supported upon the girders, substantially as shown and described.

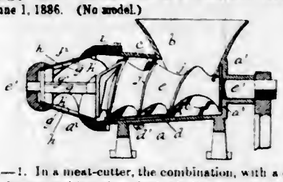
352,022. HAIR-CURLING DEVICE. Katie A. Williams, Providence, R. I. Filed July 19, 1886. (No model.)



Claim.—1. The hair-curling spool consisting of the barrel, the beads, and the holding spur or spurs, substantially as and for the purpose specified.

2. The combination of the spool provided with the holding spur or spurs with the retaining-band, substantially as described.

352,023. MEAT-CUTTER. Oliver D. Woodruff, Southington, Conn. Filed June 1, 1886. (No model.)



Claim.—1. In a meat-cutter, the combination, with a casing having interior ribs interrupted by a lengthwise knife secured within the casing, of a rotary feed-screw supported within the casing, and bearing knives that co-operate with openings in the casing at the outlet thereof, all substantially as described.

2. The combination of a casing made in two parts lengthwise, one part having an inlet and interior ribs and the other having an outlet, and a feed-screw supported within the casing having a conical head bearing lengthwise knives inclined to the axis of said head and co-operating with a perforated conical shell on the other part of the casing, all substantially as described.

3. The combination of a casing made in two parts lengthwise, the one part having an inlet and interior ribs, the other part being conical, and having holes whose edges form cutters when acted upon by knives within said part and adjustable on the other part, to bring the cutting-edges of the holes and internal knives together, and a rotary feed-screw supported within the casing, all substantially as described.

4. The combination of the part a', having an inlet and interior ribs, a conical part, a^2, threaded to fit upon the part a', a stop device secured to the casing and limiting the movement of one part upon the other, a grooved feed-screw having connected therewith a conical head that bears knives inclined to the axis of said head, and a perforated shell in the body part a^2, all substantially as described.

5. In a meat-cutter, the combination of the casing made in two parts lengthwise and having an inlet and outlet, the conical perforated shell in the outer part of the casing surrounding knives, and the feeding mechanism within the inlet part of the casing, all substantially as described.

6. The combination of a casing having inner ribs and an inlet and outlet, a rotary feed-screw having a groove of varying pitch from the hopper to the outlet end of the feed-screw, a conical head having the cam-groove, the inclined knives that bridge said cam-groove, and a cone-shaped perforated shell, the edges of the holes of which form cutters that co-operate with the knives that bridge said cam-groove, all substantially as described.

7. The combination of a casing having interior ribs and an inlet and outlet, a rotary feed-screw supported within the casing, and having a groove with a steeper surface on the side of the thread toward the outlet of the casing than on the side toward the inlet, and a conical head having a cam-groove, the inclined knives that bridge said groove, and a cone-shaped perforated shell with openings having cutting-edges, all substantially as described.

8. The combination of a casing made in two parts lengthwise, one part having an inlet and interior ribs and the other part being cone-shaped and bearing at the outlet peripheral knives, a rotary feed-screw

within one part of the casing, the conical head in the other part of said casing, and the inclined knives extending across the grooves of said head, all substantially as described.

9. The combination of a casing having an inlet and outlet and composed of two parts lengthwise, a rotary feed-screw supported within the casing and having a conical head, said feed-screw having a shoulder that by contact with the other part of the case prevents lengthwise play of the feed-screw, and inclined knives borne on the conical head at the end of the feed-screw, whose thread is carried out to connect its groove with the cam-groove of the head, all substantially as described.

10. The combination of the casing part a', having an inlet, b, interior ribs c, a lengthwise knive, d, for cutting the material into pieces preparatory to entering the cam-groove, conical part a^3, secured to the other part by a screw-thread, a stop device consisting of a pawl borne on one part of the casing and with its outer end opposed to the ratchet on the part a^3, a perforated conical shell in the part a^3, a rotary feed-screw supported in the casing and having a lengthwise groove, and a conical head having cam-groove and bearing inclined knives that bridge said groove and co-operate with the knife on the casing, all substantially as described.

11. The combination of a casing having an inlet and outlet end composed of two parts lengthwise, of a rotary feed-screw supported within the casing and fitting loosely in the conical part of the casing, and having a shoulder that by contact with the casing prevents lengthwise play of the feed-screw, the conical head at the end of said feed-screw, and inclined knives borne on the conical head, said knives having their cutting-edges slightly raised above the periphery of the conical head, all substantially as described.

12. In a meat-cutter, the combination of a feed-screw, a head rotated with said feed-screw and bearing peripheral knives, and a case having peripheral openings, substantially as described, and for the purpose specified.

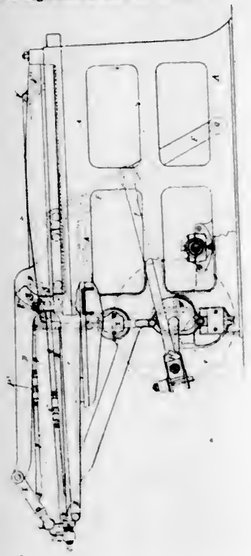
13. In a meat-cutter, the combination of a feed-screw, a head rotated with said screw and bearing peripheral knives, a case having peripheral openings, and the longitudinal knife affixed to the case, substantially as described, and for the purpose specified.

14. In a meat-cutter, the combination of a case having interior ribs composed of short inclined and longitudinal portions in the form of steps, substantially as shown, a feed-screw, and cutting mechanism at or beyond the end of the feed-screw, said feed-screw and ribs being adapted to feed the material to said cutting mechanism, substantially as described, and for the purpose specified.

15. In a meat-cutter, the combination of a feed-screw, a head rotated with said feed-screw and having a cam-groove which opens into the groove of the feed-screw, and peripheral knives bridging said cam-groove, substantially as described, and for the purpose specified.

352,024. MACHINE FOR STRETCHING HIDES OR SKINS.

PIERRE A. JESSON, Paris, France. Filed Sept. 18, 1886. (No model.) Patented in France Mar. 11, 1884, No. 142,758; in Germany Dec. 9, 1884, No. 33,014, and in England June 15, 1885, No. 7,268.

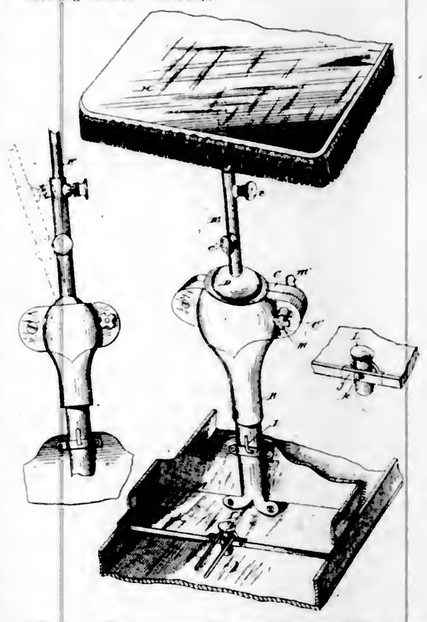


Claim.—1. In a machine for stretching hides or skins, the means for opening and closing the plier close to the point of operation, consisting of the joints K and M, the rods P and Q, and the crank-shafts R S, lodged in the body D of the plier, all combined and operated substantially as shown and described.

2. The combination of the arm T of the upper crank-shaft, R, with a parallel bar, V, applied to the frame by means of a sliding bush, U, substantially as shown and described, for the purpose of keeping the plier closed during the whole way in one direction and open during its return.

352,025. CARRIAGE-TOP.

FORTONATO C. ZANETTI, Bryan, Tex. Filed Aug. 12, 1886. (No model.)



Claim.—1. The combination of the seat A, provided with the upright standard B and the ball-and-socket joint, with the hollow upright or standard E and the vertical adjusted rod provided with the shoulder g on its bottom, substantially as described.

2. In an adjustable canopy of the character described, the combination of the upright standard, the ball-and-socket joint, and the hollow vertical upright post E, provided with the set-screw e', with the vertical adjustable rod provided with the shoulder g on its bottom, and a set-screw, e, for securing this vertical rod in its adjusted position, substantially as described.

3. The seat A, provided with the adjustable canopy and its adjuncts, with the adjustable-rein holder and means for locking the same in its elevated position, substantially as described.

4. In a canopy for carriages of the character described, the combination of the seat, the upright, and the vertical adjustable rod and the elastic arms f f, and the canopy secured to the said elastic arms, all constructed and combined to operate substantially as described.

352,026. LUBRICATOR.

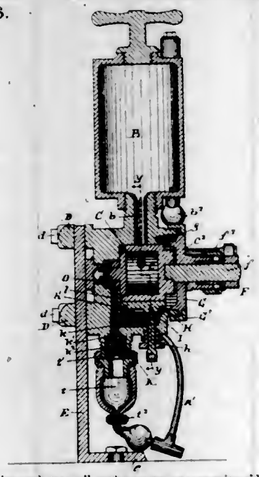
HIRAM ALLTON, Wilmington, Del., assignor of one-half to Joseph E. Hildreth, same place. Filed July 15, 1886. (No model.)

Claim.—1. In a lubricator, an oil-cylinder, in combination with an inclosing-casing having a fixed bearing on one side of the curved surface of the said cylinder and a movable bearing sustained by an elastic pressure opposite to the said fixed bearing on the other side of the cylinder, substantially as and for the purpose set forth.

2. In a lubricator, an oil-cylinder having an oil-port and a steam-port, in combination with a casing having adjacent oil inlet and outlet ports and a steam-port, said casing having a fixed bearing for the curved surface of the oil-cylinder on the side of the oil inlet and outlet ports and a movable bearing sustained by an elastic pressure opposite to the said fixed bearing on the other side of the cylinder, substantially as and for the purpose set forth.

3. In a lubricator, an oil-cylinder having an oil-port and a steam-port in opposite sides of its curved surface, in combination with a casing

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having an oil-inlet and two oil-outlet ports on opposite sides of the oil-inlet port and adjacent thereto, together with a movable spring-pressed shoe bearing on the curved surface of the cylinder opposite the oil-inlet, and thereby forming two oppositely-located steam-ports, substantially as and for the purposes set forth.

4. In a lubricator, an oil-measuring cylinder provided with a cam or tappet and having an oil-port and a steam-port, in combination with a casing having a steam-pipe and a discharge-pipe, and a valve in the steam-pipe opened by the movement of the said cam on the oil-cylinder, substantially as and for the purpose set forth.

5. In a lubricator, an oil-cylinder having oil and steam ports in its curved surface, in combination with a spring-pressed shoe forming a part of the bearing for the curved surface of the said cylinder, substantially as and for the purpose set forth.

6. In a lubricator, an oil-cylinder having oil and steam ports, in combination with a spring-pressed shoe forming the bearing for the cylinder on the side of the steam-port, and having the steam admitted from beneath the shoe, substantially as and for the purpose set forth.

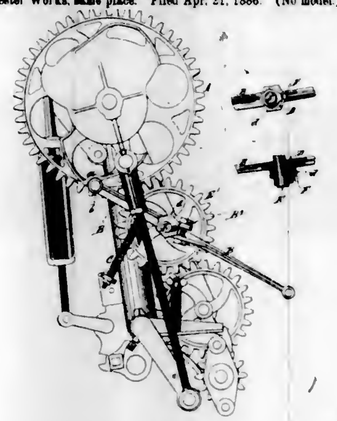
7. In a lubricator, an oil-cylinder having a cam, in combination with the steam-pipe having a valve controlled by the cam on the oil-cylinder, substantially as and for the purpose set forth.

8. In a lubricator, the oil-cylinder, in combination with the shoe, a spring beneath the shoe, and an adjustable screw-support for the shoe, substantially as and for the purpose set forth.

9. In a lubricator, the covering-plate having means for preventing it from turning and the stops L and R, in combination with the oil-cylinder, the operating-spindle connected to the oil-cylinder by a tongue and groove and passing through the said covering-plate, the coupling-ring, and the handle having a projection that engages with said stops, substantially as and for the purpose set forth.

352,027. ADJUSTABLE LOCKING DEVICE FOR GRAIN-BINDERS.

CHARLES A. ANDERSON, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed Apr. 21, 1886. (No model.)

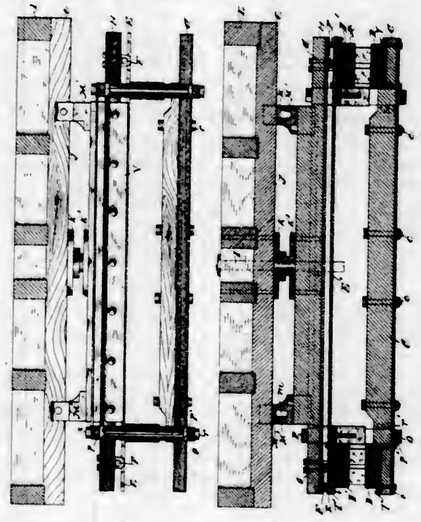


Claim.—1. A device for preventing any backward movement of the main gear of a binder at the end of the binding operation, consisting of a locking-arm mounted upon an adjustable eccentric bushing supported upon a fixed stud, and a fastening device for fastening the eccentric bushing, and thereby preserving the adjustment of the locking-arm relatively to the main gear of the binder.

2. The locking-arm B, the stud E, the adjustable eccentric bushing D, and a fastening device for fastening the eccentric bushing D in the required relation to the stud E and locking-arm B, in combination with the main gear A of the binder, substantially as described.

352,028. RAILWAY-CAR TRUCK.

HUGH BAIRD, Brooklyn, N. Y. Filed Mar. 29, 1886. (No model.)



Claim.—1. In a car-truck, an intermediate transom between the upper and lower transoms of the truck-frame proper, guided at its ends in the side frames of the truck, so as to have vertical movement only, and affording lateral movement to the upper transom, substantially as set forth.

2. A car-truck having within its own frame an upper and a lower transom, with an intermediate transom guided at its ends in the side frames of the truck, so as to confine it to vertical movement, while affording lateral movement to the upper transom, as explained.

3. A car-truck constructed with an intermediate transom between the upper and lower transoms of the truck-frame, and with bearing-rollers interposed between the upper and intermediate transoms, all of said parts being included within the truck-frame proper, substantially as and for the purposes set forth.

4. In a car-truck, the rollers resting on an intermediate transom and supporting the top transom, which rests and travels laterally on the rollers, said top transom being situated entirely within the truck-frame proper, and being secured from longitudinal movement in said truck-frame, as shown and described.

5. The combination, with a car-body, of a truck having an upper transom extending from one side of the truck to the other, capable of horizontal movement in the direction of its length, but incapable of movement lengthwise of the car, a king-bolt connecting the said upper transom to the body-bolster of the car, and an intermediate transom or support for the upper transom limited to vertical movement, while permitting the aforesaid horizontal movement of the upper transom, as explained.

6. In a car-truck, the combination of an intermediate transom constructed and arranged substantially as shown, and fastened to guides in said frame to secure it against lateral movement, and an upper transom extending from side to side of the truck-frame, and situated entirely within it, and capable of horizontal movement only in the direction of its length, for the purposes set forth.

7. The combination, in a car-truck, of the intermediate transom resting at its outer ends upon the springs, and the rollers resting on the intermediate transom and directly above the springs, with the upper transom resting at its outer ends upon the rollers, as shown and described.

8. In a car-truck, the combination, with the springs, and the intermediate transom supported at its extremities by said springs, of an

upper transom bearing at its ends upon rollers traveling on said intermediate transom directly over the springs, said upper transom being capable of sliding in the direction of its length, substantially as set forth.

9. In a car-truck, the combination, with the springs and an intermediate transom resting thereon at its ends, of an upper transom movable in the direction of its length, and rollers interposed between said upper and intermediate transoms, near their extremities, (over the springs,) whereby the intermediate transom is relieved of the weight of car, substantially as set forth.

10. In a truck for cars, an intermediate transom supported upon and secured at its outer ends to the springs, the upper transom connected by the king-bolt to the body-bolster of the car, and the rollers arranged parallel with the length of the car, and situated between the intermediate and upper transoms, to provide for the lateral movement of the car-body, substantially as shown and described.

11. The combination, with the car-body, of a truck having springs, an upper transom having endwise movement transversely to the car, stops limiting said endwise movement, means preventing the displacement of said transom lengthwise of the car, a king-bolt connecting it to the body-bolster of the car, and an intermediate transom or support for the upper transom, resting upon the springs and restricted to vertical movement, substantially as set forth.

12. The combination, with a car-body, of a truck having an intermediate transom resting on the springs and restricted to vertical movement, an upper transom resting on the intermediate transom, rollers interposed between the upper and intermediate transom, a king-bolt connecting the upper transom to the body-bolster of the car, guides permitting horizontal movement of the upper transom only in the direction of its length, and stops limiting such movement, substantially as set forth.

13. A truck for cars, having the springs set in line or nearly in line with the outside longitudinal sills of the car-body, the intermediate transom resting upon the springs, the rollers which rest and travel on the intermediate transom, and the upper transom which rests and travels upon the rollers.

14. In combination with a truck substantially as hereinbefore described, the springs arranged outside of the wheels and parallel with and in line or nearly in line with the outside longitudinal sills of the car-body, for the purpose of decreasing the roll motion of the car, the said springs being provided with guides on either or both sides to limit them to their vertical movement, as set forth.

15. In a car-truck having the springs arranged parallel to and in line or nearly in line with the outside longitudinal sills of the car-body, the intermediate transom secured to the top of the springs and having rollers arranged upon it and directly over the center of the springs, in combination with the upper transom having U-shaped bolts for holding the rollers in position, substantially as shown and described.

16. In a car-truck, the intermediate transom resting at its outer ends upon the springs, the columns which serve as guides for the intermediate transom and the springs, in combination with the rollers, the upper transom, and the stops attached to the said upper transom for the purpose of limiting the lateral movement of the car-body.

17. In a car-truck, the intermediate transom resting on the springs, the T-irons U, connecting the sides of the truck, the clamping-iron W, and the downwardly-extending arms *w w'*, for guarding the springs and guiding them and the ends of the intermediate transom in their vertical movement.

18. In a car-truck, the combination of the lower transom, the springs resting thereon, the columns R, and the arms *w w'*, for guarding and guiding the springs, the said springs being parallel with the sides of the car and in line or nearly in line with the outside sills thereof.

19. In a car-truck, the bottom transom, the springs resting thereon and situated in line or nearly in line with the outside longitudinal sills of the car-body, the inclosing-columns and arms for guarding and guiding them, and the intermediate transom attached to the springs, as shown and described.

20. In a car-truck, the bottom transom, the springs resting thereon and situated in line, or nearly so, with the outside longitudinal sills of the car-body, the intermediate transom resting on the springs, the columns and arms for guarding the springs and guiding them, and the intermediate transom ends vertically within the side frames, the rollers bearing on the intermediate transom ends, and the upper transom resting on the rollers, substantially as set forth.

21. The combination, in a car-truck, of the bottom transom, the arch and tie bars, the vertical columns R, the T-irons U, or their equivalents, for connecting the sides of the truck together, and the clamping-iron W and the downwardly-extending arms *w w'*, attached to the lower transom, as shown and described.

22. The combination, in a car-truck, of the bottom transom, the springs arranged parallel to and as far or nearly as far out as the sills of the car-body, the intermediate transom resting on the springs, the rollers resting on the intermediate transom, and the top transom resting on the rollers, as shown and described.

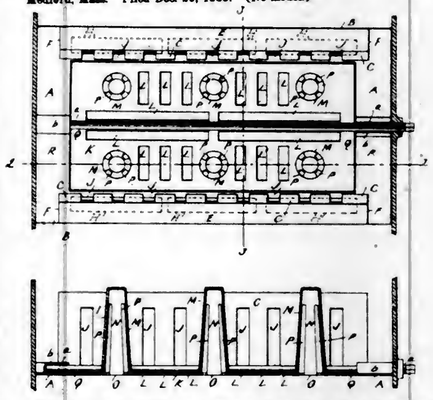
23. The combination, in a car-truck, of the bottom transom, the springs arranged parallel with the length of the car and at the extreme ends of the said transom, the intermediate transom resting on the springs, the rollers resting on the intermediate transom and directly above the springs, the upper transom resting on the rollers and provided with stops, as described, and the columns R, all arranged substantially as and for the purpose set forth.

24. The combination, in a car-truck, of the bottom transom, the springs arranged as shown and described, the intermediate transom, the rollers resting on the intermediate transom, the top transom resting on the rollers and provided with stops to limit its lateral movement, the columns R, and the T-irons U, or their equivalents, to connect the two sides of the truck together.

25. The combination, in a car-truck, of the bottom transom, the columns R, the T-irons U, for connecting the sides of the truck, the clamping-irons W and the downwardly-extending arms *w w'*, attached to the lower transom, the springs situated between the said arms and columns, the intermediate transom resting on the springs, the rollers, and the top transom, all arranged substantially as shown and described.

26. The combination, in a car-truck, of the bottom transom, the springs resting on said transom at its outer ends, the vertical arms for guarding and guiding the springs and supporting the ends of the lower transom, the clamping-irons W, and the T-irons, or their equivalents, for connecting the sides of the truck together, all arranged substantially as and for the purposes set forth.

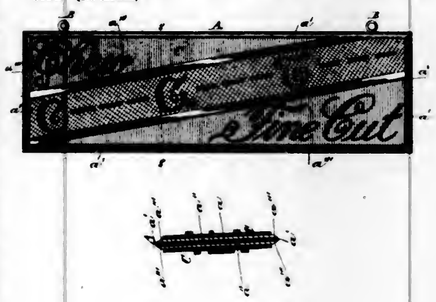
352,029. GRATE FOR STOVES, FURNACES, &c. DAVID E. BANGS, Medford, Mass. Filed Dec. 29, 1885. (No model.)



Claim.—1. The combination, with the rectangular frame A, having a chambered side wall or walls provided with elongated slots H and J, of the section K, fitting and swiveled within the frame A, and provided with a row of vertical tubes or pipes, M, on each side of the center thereof, and having the elongated slots in the sides and openings in the bottom, substantially as and for the purpose described.

2. The combination, with the rectangular frame A, having a chambered side wall or walls closed at the top and provided with elongated slots H and J, of the section K, fitting and swiveled within the frame A, and provided with a series of vertical tubes or pipes, M, situated close to the chambered wall, and having elongated slots opposite to and corresponding with the slots in the chambered wall, substantially as described.

352,030. SIGN. CHARLES O. BAXTER, St. Louis, Mo. Filed Aug. 26, 1884. (No model.)

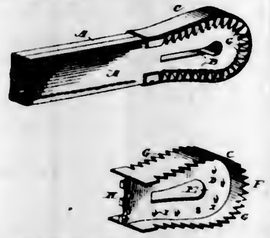


Claim.—1. A sign consisting of a wooden body, A, formed with rear piece, *a*, having rounded edges *a'*, and outer piece, *a''*, having rounded edges *a'''*, and a plate, C, having ornamental or fanciful designs cast integral with the plate, the grain of the pieces being crossed, substantially as described.

2. A sign consisting of a wooden body, A, having central piece, *a*, and outer pieces, *a'' a''*, and plates C C, each plate having ornamental or fanciful designs cast integral with the plate, the grain of the central piece being across the grain of the outer pieces, substantially as described.

3. A sign consisting of a wooden body, A, formed of a central piece having rounded edges *a'*, and outer pieces having edges *a'''* rounded toward the edges of the central piece, and plates C C, each plate having ornamental or fanciful designs cast integral with the plate, substantially as set forth.

352,031. TRACE-EYE. EDMUND C. BILGER, Carwensville, Pa. Filed Mar. 9, 1886. (No model.)



Claim.—1. The combination, with a trace or an analogous article, of a metal plate having a central perforation, and a metal strip secured perpendicularly by its longitudinal middle line to the outer edge of said plate, and extending along all but one end thereof, substantially as and for the purpose set forth.

2. The combination, with a trace or an analogous article, of a metallic plate having a central perforation, and tongues cut on one end and bent alternately to either side thereof, and a metallic strip secured perpendicularly by its longitudinal middle line to the outer edge of said plate, and extending along all but the tongued end, substantially as and for the purpose set forth.

3. The combination, with a trace or an analogous article, of a metallic plate having a central perforation, and a series of points struck up from the plate to project from either side thereof, and a metallic strip secured perpendicularly by its longitudinal middle line to the outer edge of said plate and extending along all but one end thereof, substantially as and for the purpose set forth.

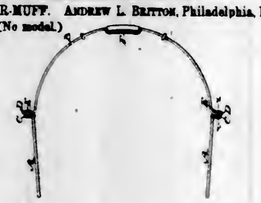
4. The combination, with the eye end of a trace, of a metallic plate having an oblong central perforation, and a metallic strip having serrations along each edge, secured perpendicularly by its longitudinal middle line to the outer edge of said plate and extending along all but one end thereof.

352,032. EAR-MUFF. ANDREW L. BRITTON, Philadelphia, Pa. Filed Apr. 13, 1886. (No model.)



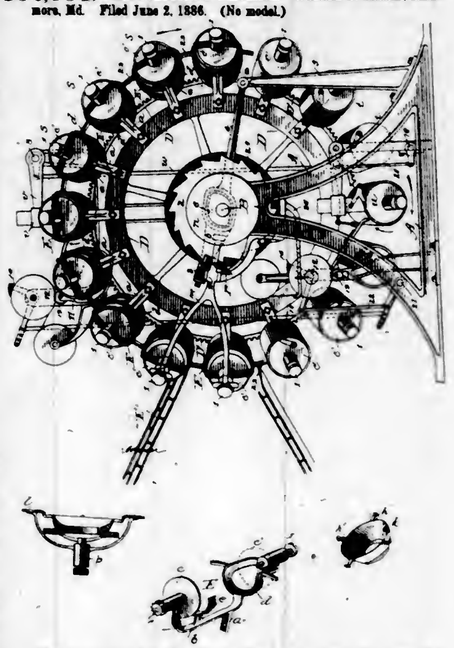
Claim.—In an ear-muff, the frame A, having a single ear, C, attached to the frame thereof, in combination with the head-piece B, having shoulder D, the end of said piece B passing through the ear C and headed, substantially as and for the purpose described.

352,033. EAR-MUFF. ANDREW L. BRITTON, Philadelphia, Pa. Filed Apr. 13, 1886. (No model.)



Claim.—A frame for an ear-muff, provided with the ear C, having an opening therein, in combination with the head-piece B, having an outwardly-bent portion with eye D therein, and the pin E, passing through the eye D and the opening in the ear C, all substantially as and for the purpose set forth.

352,034. CAN-SOLDERING MACHINE. WILLIAM D. BROOKS, Baltimore, Md. Filed June 2, 1886. (No model.)



Claim.—1. In a can-soldering machine, the combination, with the main shaft adapted to move continuously, of the vertically-arranged table adapted to move intermittingly, carrying the inclined can-holders, means for moving the table intermittingly, means for revolving the cans continuously, flame-tubes for heating the edges of the cans, and automatic mechanism for supplying the solder, substantially as described.

2. In a can-soldering machine, the combination, with the main shaft adapted to move continuously, of the vertically-arranged table carrying inclined can-holders, means for moving the table intermittingly, means for revolving the cans continuously, suitable solder devices, and means for supplying the solder, substantially as described.

3. In a can-soldering machine, the combination, with a continuously-revolving main shaft, of a table carrying can-holders and having an intermittent motion, the can-holders being arranged upon said table in an inclined position, means for rotating said cans continuously, and solder-stations arranged upon the machine, each supplied with a set of soldering devices, and means for supplying solder, whereby the cans at one inclination are acted upon by one set of soldering devices to solder one end of the can and at the opposite station, at another inclination, are acted upon by soldering devices to solder the other end of the can, substantially as described.

4. In a can-soldering machine, the combination, with the continuously-revolving main shaft, of a table carrying can-holders and having an intermittent motion, the can-holders being arranged in an inclined position, means for rotating the said cans continuously, means for supplying solder arranged at stations upon the machine, whereby the solder is supplied to one end of the can at one inclination thereof from one station and at the opposite end of the can, at another inclination thereof, from the other station, both ends of the can being thereby soldered in one revolution of the table, substantially as described.

5. In a can-soldering machine, the combination, with the main shaft, of a vertically-arranged table carrying inclined can-holders, means for revolving said cans continuously, flame-tubes for heating the cans before they reach the soldering-stations, solder-supplying devices arranged at points opposite to each other and upon different sides of the machine, adapted to feed solder directly against the heated edges of the can, and to different ends thereof, and mechanism connecting the two, whereby the action of the two sets of devices is simultaneous, substantially as described.

6. In a can-soldering machine, the combination, with a main shaft, of a table supporting can-holders in an inclined position, means for giving said table intermittent motion and for giving said cans a continuous motion, soldering devices, solder-feeding mechanism arranged opposite to each other, and mechanism for releasing the cans from the holders, whereby in the continuous movement of the machine the cans are received, soldered at both ends, and discharged, the soldering at each end being independent of the other, substantially as described.

7. In a can-soldering machine, the combination, with the main shaft, of the table carrying can-holders, said holders consisting of a bracket having a spring-actuated disk at one end, and a seat or disk at the opposite end, an arm, *s*, for supporting the can-body near one end, and a yoke, *d*, for supporting the can at the opposite end, substantially as described

8. In a can-soldering machine, the combination, with a main shaft, of a table carrying inclined can-holders, of the duplicate solder-stations, each supplied with a set of soldering devices and means for supplying solder, heating-tubes arranged in advance of said solder-stations, and cooling-stations arranged in rear thereof, substantially as described.

9. The combination, in a can-soldering machine, of the main shaft, a wheel having intermittent motion carrying can-holders, means for rotating said holders, and the soldering-iron having a limited vertical movement, said iron being connected by an arm to a rock-shaft, said rock-shaft being operated through a rod, *w*, by means of a cam on the main shaft, a soldering-iron arranged opposite to the first-named iron, and mechanism, substantially as described, between said iron and the rod *w*, whereby the action of the cam upon said rod operates simultaneously upon the two soldering-irons, substantially as described.

10. The combination, in a can-soldering machine, of a main shaft, a table carrying can-holders, means for rotating said holders, soldering-irons arranged opposite each other, and means for operating them simultaneously from one point, solder-feeding devices arranged in proximity to the soldering-irons both at the upper and lower part of the machine, and mechanism, substantially as described, operated by a cam on the main shaft, whereby the solder is fed to the cans simultaneously, substantially as described.

11. In a can-soldering machine, the combination, with a table carrying can-holders, of mechanism for allowing the cans to be discharged from the holder and to be received thereby, consisting of the pivoted lever *m*, having forked ends adapted to engage with cap-pieces 1 on the can-holders, the opposite end of said lever being acted upon by a cam on the main shaft, whereby the outer ends of the lever are thrown outward and the spring-clamping disks raised, substantially as described.

12. In a can-soldering machine, the combination, with a table carrying can-holders, of flame-stations and an automatic solder-feeding mechanism consisting of the drum 12, a disk, 13, having a roughened face, a gear mounted on the drum, a pinion on the disk meshing with the said gear, a pawl acting upon the teeth of the gear, and mechanism for moving the pawl, substantially as described.

13. In a can-soldering machine, and in combination therewith, a holder for the cans having a seat provided with the removable ring *g* and a removable seat, *k*, having toe-pieces *k'*, substantially as described.

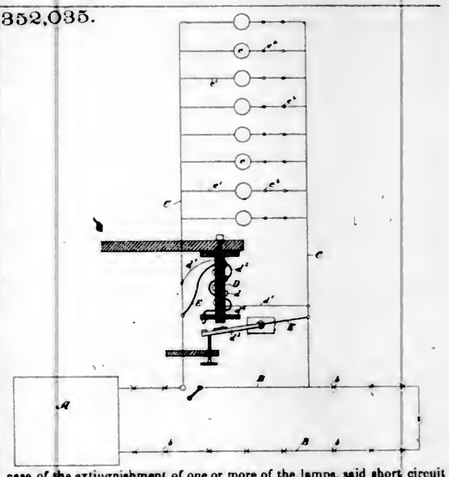
14. In a can-soldering machine having a table carrying can-holders, soldering mechanism, mechanism for feeding the solder to the cans, and a flame-tube having branches, one branch for directing a flame against the tool and the other for directing the flame against the can, substantially as described.

15. In a can-soldering machine, the combination of the table carrying the can-holders, provided with seats for the cans, a soldering-iron, mechanism for feeding the solder to the cans, a flame-tube having two branches, one for directing the flame against the tool and the other against the can-edges, and a ring or plate, *g*, upon the holder intermediate between the two branches of the flame-tube, substantially as and for the purpose set forth.

16. In combination with a soldering-machine, the table carrying can-holders, a soldering-iron, and solder-feeding mechanism consisting of means for drawing the solder from the reel, and a tube made in two parts hinged together for directing the solder to the seam of the can, the free end of the tube being connected by a link, with mechanism for lifting it to allow the passage of the can beneath it substantially as described.

17. In combination with a soldering-machine, a vertically-arranged table carrying inclined can-holders mounted thereon, flame-tubes for heating the edges of the cans, and mechanism for feeding the solder, consisting of automatic means for drawing the solder from the reel and a tube extending from the feeding-rolls to the periphery of the can, substantially as described.

352,035. ARC AND INCANDESCENT ELECTRIC LIGHTING. HAROLD P. BROWN, Chicago, Ill. Filed Aug. 7, 1885. (No model.)



Claim.—The combination, with a group of incandescent lamps in multiple arc, of a short circuit around said group, an electro-magnet having a coil included on a branch in multiple arc with the lamps, and a switch operated by said electro-magnet for closing said short circuit in case of the extinguishment of one or more of the lamps, said short circuit having included therein a helix for the purpose of keeping said short circuit closed, substantially as specified.

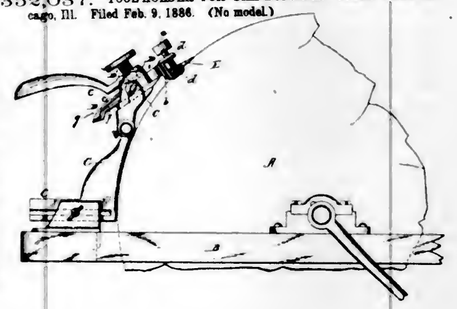
352,036. RECEPTACLE FOR STORING AND PRESERVING PAPERS. HENRY BROWN, Washington, D. C. Filed June 25, 1886. (No



Claim.—1. In a receptacle adapted to be used, as set forth, the combination of a box having a bottom provided with longitudinal strips with a series of hinged trays within the box, each of such trays having a longitudinal rib or strip placed inside the edge of the tray so as to leave a portion of the tray projecting on each side beyond said strip, substantially as described.

2. In a receptacle adapted to be used as set forth, the combination of a box, A, having an inclined false back, C, a series of trays, D, hinged to said back, having longitudinal raised ribs *d*, so mounted as to leave projecting ledges *d'* on each side thereof, suitable straps, d^2, for lifting the trays, and a hinged cover, B, substantially as described.

352,037. TOOL-HOLDER FOR GRINDSTONES. JOHN I. CARR, Chicago, Ill. Filed Feb. 9, 1886. (No model.)

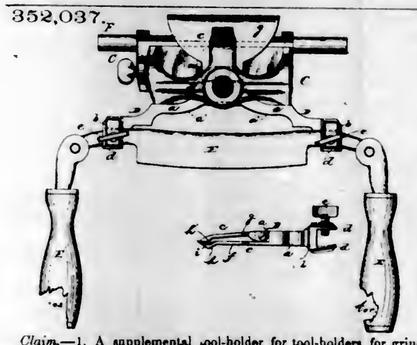


Claim.—1. A supplemental tool-holder for tool-holders for grindstones, the said supplemental holder having branching or diverging arms *a' a'*, adapted at or near their junction to be clamped by the tool-holder proper, and the outer end of each of the said arms having thereon a clamp for clamping the tool to be ground, and the said arm also having thereon a central clamp extending in an opposite direction from the said two clamps, substantially as and for the purposes specified.

2. A supplemental tool-holder for tool-holders for grindstones, the said supplemental holder having branching or diverging arms *a' a'*, the said arms having on their outer ends the clamps *b b*, having inclined lower jaws, and the said arms being also adapted to be clamped at or near their junction by the tool-holder proper, substantially as and for the purposes specified.

3. As a new article of manufacture, a supplemental tool-holder for tool-holders for grindstones, the said supplemental holder having therein two clamps arranged apart from each other upon a bar connecting them, and the said bar having thereon a central clasp, *c*, consisting of the fixed plate *f* and the hinged plate *g*, extending in the opposite direction from the said clamps, substantially as and for the purposes specified.

352,037.



Claim.—1. A supplemental tool-holder for tool-holders for grindstones, the said supplemental holder having branching or diverging arms *a' a'*, adapted at or near their junction to be clamped by the tool-holder proper, and the outer end of each of the said arms having thereon a clamp for clamping the tool to be ground, and the said arm also having thereon a central clamp extending in an opposite direction from the said two clamps, substantially as and for the purposes specified.

2. A supplemental tool-holder for tool-holders for grindstones, the said supplemental holder having branching or diverging arms *a' a'*, the said arms having on their outer ends the clamps *b b*, having inclined lower jaws, and the said arms being also adapted to be clamped at or near their junction by the tool-holder proper, substantially as and for the purposes specified.

3. As a new article of manufacture, a supplemental tool-holder for tool-holders for grindstones, the said supplemental holder having therein two clamps arranged apart from each other upon a bar connecting them, and the said bar having thereon a central clasp, *c*, consisting of the fixed plate *f* and the hinged plate *g*, extending in the opposite direction from the said clamps, substantially as and for the purposes specified.

352,038. HOSE-BRIDGE. DAVID F. CARROLL, Brooklyn, N. Y. Filed Jan. 16, 1886. (No model.)



Claim.—The hose-bridge, Fig. 1, having lugs B B, flanges D D, and ends A A, connected to main structure by hinges, as set forth.

352,039. HITCHING DEVICE. MICHAEL CARROLL, Plankinton, Dak. Filed Apr. 17, 1886. (No model.)

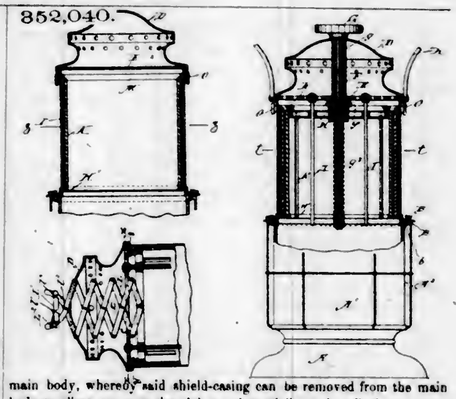


Claim.—1. In a hitching device, the plate A, having the arm C at one end, the slot B, parallel with the said arm, open on one side of said plate, the slot D, parallel with the slot B and open on the opposite side of the plate, the open slot E, parallel with the slots B and D and open on the same side with the slot B, and the guard-arm G, arranged above the outer end of the slot E, for the purpose set forth, substantially as described.

2. The plate A, having the arm C and the parallel slots B, D, and E, whose open ends alternate on opposite sides of the plate, and the bar F, provided with the guard-arm G, extending above the outer end of the slot E, in combination with the clevis or loop pivoted to the plate, substantially as described.

3. The combination of the plate A, having the arm C, the parallel slots B, D, and E, and guard-arm G, the clevis pivoted to the plate, and the threaded bolt K, provided with the eye *k*, through which the clevis passes, substantially as described.

352,040. SIGNAL-LANTERN. WILLIAM W. CLARK, Chicago, Ill., as signor of one-half to John C. Banks and Erwin J. Smith, both of same place. Filed Sept. 14, 1885. (No model.)



Claim.—1. In a signal-lantern, the combination, with the main body having a fixed globe, of a shield-casing mounted above said main body, a supplemental globe movably sustained within said shield-casing, and suitable catches for detachably connecting said shield-casing to the main body, whereby said shield-casing can be removed from the main body to allow access to the globes, substantially as described.

2. In a signal-lantern, the combination, with the main body, of the top rim, D, the shield-rim *c*, the screws or catches B, the shield-casing C, and the globe K within said shield-casing, substantially as described.

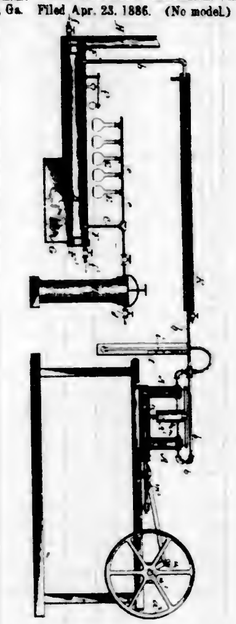
3. In a signal-lantern, the combination, with the main body, of a shield-casing, a supplemental globe movably sustained within said shield-casing, a support for said supplemental globe, a screw-threaded bar connected to said support, and a long screw for raising and lowering said globe, substantially as described.

4. In a signal-lantern, the combination, with the main body, of a shield-casing, a supplemental globe within said casing, suitable supports for said globe, a screw for raising and lowering said globe, and guide-rods, substantially as described.

5. In a signal-lantern, the combination, with the main body and the dome or top, of a shield-casing connected to the main body and the dome, a series of globes movably sustained within said shield-casing, and a long screw for operating the inner globe, extending through the top of the dome, substantially as described.

6. In a signal-lantern, the combination, with the main body and the dome or top, of a slotted shield-casing connected to the main body and the dome, a series of globes movably sustained within said shield-casing, a long screw for operating the inner globe, extending through the top of the dome, and screws or stops extending from the supports of the outer globe through the slots of the shield-casing, substantially as described.

352,041. REFRIGERATING-MACHINE. ALEXANDER CONACHER, Augusta, Ga. Filed Apr. 23, 1886. (No model.)



Claim.—1. The combination of a pump having two vertical cylinders, and between them a trap-cylinder connected therewith, and a lead-lined cylinder having inlet and outlet pipes, with a pipe uniting the latter cylinder to the pump, substantially as and for the purpose described.

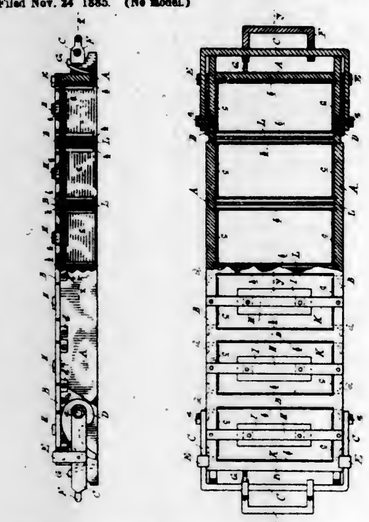
2. The combination of a pump, a lead-lined cylinder connected by a pipe with said pump, a water-holding jacket for said pipe, and a water-holding jacket for the lead-lined cylinder, with a furnace under the latter jacket, substantially as and for the purpose described.

3. The combination of a pump, a lead-lined cylinder, connected by a pipe with said pump, a water-holding cylinder inclosing the lead-lined cylinder, and a furnace under said water-cylinder, with a pipe leading from the top of the lead-lined cylinder, and a tank or water-holding vessel, substantially as described.

4. The combination of the two vertical cylinders A of a pump and the spring-valves in the top thereof with the walking-beam M and its pendent rods, substantially as described.

5. The combination of the two vertical cylinders A of a pump and the spring-valves in the top thereof with the walking-beam M, having the pendent rod M′ in its center, the rod M^2, parallel with the piston-rod, trippers m^3, pivoted to the rod M^2, and the piston-rod carrying the pin n^2, substantially as and for the purpose described.

352,042. BRICK-MOLD. THOMAS W. COREY, Grosse Pointe, Mich. Filed Nov. 24, 1885. (No model.)



Claim.—1. A brick-mold consisting of a series of compartments, each having removable plates on its sides and ends, and means, as specified, for locking said plates in place and for withdrawing them to permit the removal of the bricks, substantially as described.

2. A brick-mold consisting of a frame divided by partitions to form a series of compartments, removable side and end plates located within said compartments, a second frame lying on the first and connected with said removable side and end plates, and means for locking said parts together and for removing said plates with the second frame to allow the molds to be emptied, substantially as described.

3. The combination, with the frame A, having partitions L L and bottoms K K, of the frame B, the side plates, *b b*, and end plates, *c c*, secured to said frame B and removably located within the compartments of the frame A, and the cams D D, pivoted to said frame A and adapted to operate upon the frame B to remove the attached side and end plates prior to emptying the molds, substantially as described.

4. The combination, with the frame A, having a series of compartments, of the frame B, provided with attached plates *b b* and *c c*, removably located within said compartments, and the cams D D and bails C F, pivoted to the frame A and acting upon the frame B, whereby said frame B and attached plates are removed to empty the molds, substantially as described.

5. In combination with the frame A, a series of compartments provided with bottoms K, each having a portion thereof cut away, the frame B, bars H, secured to said frame, and blocks I, secured to said bars, substantially as shown and described.

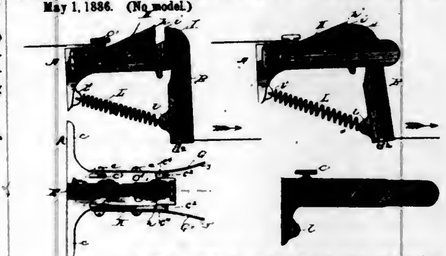
6. In combination with the frame A, having stationary beveled partitions L and bottoms K, the frame B, and the movable side plates, *b b*, and end plates, *c c*, resting against said partitions L and secured to said frame B, substantially as shown and described.

7. In combination with the frame B, the plates *c*, secured thereto and having thereon the lugs *l*, and the plates *b*, having notches therein to receive said lugs, the frame A, provided with a series of compartments to receive the plates *b c*, and means for securing and detaching said frames, substantially as shown and described.

8. In combination with the frame A, having the spring-catch G thereon, the frame B, bails C and cams D, pivoted to frame A, and the bails F, pivoted on bails C and engaging with spring-catches G, substantially as shown and described.

9. In combination with the stationary partitions L, the facings *f*, secured to the upper edge thereof and extending partially over the flanges on the plates *b*, substantially as shown and described.

352,043. CIRCUIT-CLOSER. HARRY B. COX, Cincinnati, Ohio. Filed May 1, 1886. (No model.)



Claim.—1. A circuit-closer for a double bell-cord, comprising a movable and a fixed member, each consisting of two metallic side plates, and an intervening insulating core or body, the plate on one side of one of the members having a projection, and the plate on the opposite side of the other member having a laterally-projecting foot adapted to be brought into contact with said projection by pulling upon the bell-cord, as set forth.

2. A circuit-closer having a movable and a stationary member pivoted together, each consisting of two insulated metallic plates, the plates on one side of the stationary member and the opposite side of the movable member having projections or contact-points, in combination with a spring connecting the plates on one side of each member, whereby the contact-points are normally held apart, as set forth.

3. The combination of the plate C, having an upward projection, H, attaching-flange *c*, and pin c^2, the plate C′, having a similar flange and pin, and the plate D′, having a laterally-projecting foot, l, and a hook, *d*, and the plate D, having a similar hook, with the double wires of an electric circuit connected with the plates C C′ D D′, substantially as herein set forth.

4. The combination of the plates C C′, intervening insulating material E, and pins c^2, formed on said plates, and the plates D D′, provided with hooks to engage said pins, with the double wires of an electric circuit connected with the various plates, substantially as set forth.

5. The combination of the plates C C′, insulated from each other, and having recesses c^4, pins c^3, and projecting spring-plates G G′, with flaring ends, and the insulated plates provided with hooks *d* to engage the pins c^3, substantially as herein set forth.

6. In combination, the stationary member consisting of plates C C′, each of which is provided with a perforated ear for the securing-screw, a cleat for the wire, a recessed end and a pivot, the plate C having a projection, H, and a lug to receive one end of a spring, the movable member consisting of two insulated plates, D D′, each of which has a hook to engage said pivots, and a cleat to which to secure the wires, the plate D having a lug to engage the spring, and the plate D′ having an overhanging foot, and the spiral spring by which the projection and foot are kept normally out of engagement, as set forth.

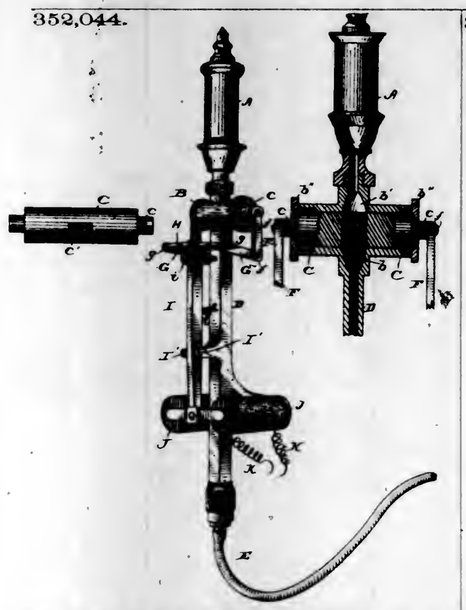
7. In combination, member A, having plates C C′, provided with recesses c^4, and pivots or pintles c^3, member B, having plates D D′, provided with hooks to engage said pivots, and springs G G′, secured to plates C C′, and having outwardly-flared ends *g g′*, for the purpose set forth.

352,044. ELECTRO-MECHANICAL WHISTLE. HARRY B. COX, Cincinnati, Ohio. Filed July 13, 1886. (No model.)

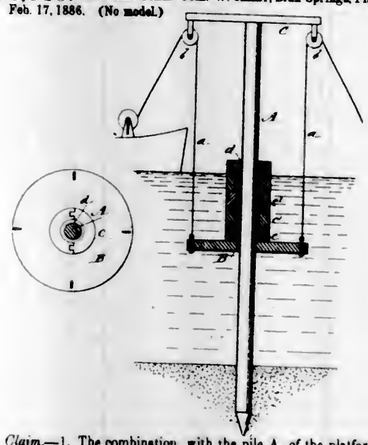
Claim.—1. In combination, a whistle, its valve having a suitable casing with elongated induction-passage and circular eduction-port, and a valve-plug with an opening corresponding in section with the induction-passage, as set forth.

2. The combination, with the whistle, the magnet, and its armature, of the valve having casing B, with the induction-passage *b*, elongated in section, and eduction-port circular and tapered, valve-plug having opening *c′*, corresponding with the induction-passage *b*, and ends *c c*, and the levers and rods connecting the valve-plug with the armature, as set forth.

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352,045. INCASED PILE. JOHN W. CRARY, Bluff Springs, Fla. Filed Feb. 17, 1886. (No model.)



Claim.—1. The combination, with the pile A, of the platform B, a casing of brick or analogous material resting on the platform, and means for supporting, raising, and lowering the platform, substantially as herein shown and described.

2. The combination, with the pile A, of the platform B, having a central aperture through which the pile passes, means for raising and lowering the platform on the pile, and the two-part circular section forming the casing resting on the platform and surrounding the pile, substantially as set forth.

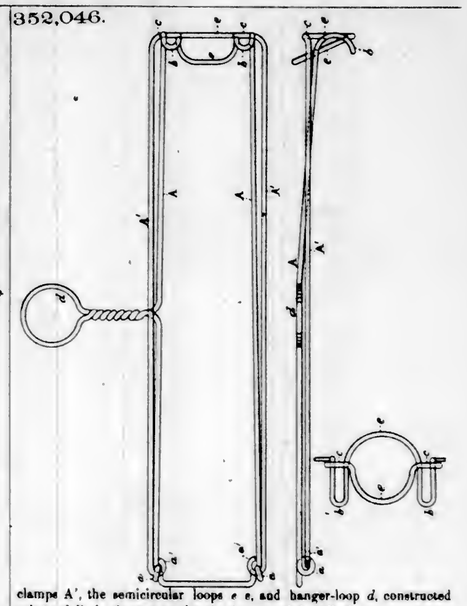
3. The combination, with a pile, A, to be incased, of the platform B, having a central aperture through which the pile passes, a cross-piece, C, on the pile, pulleys *b*, and ropes *a*, secured to the platform and passed up over the pulleys, substantially as set forth.

4. The combination, with the pile A, of the platform B, a casing of brick or analogous material, and a metallic cap, D, resting on the top of the pile and casing, substantially as herein shown and described.

352,046. TROUSER CLAMP AND HANGER. ROBERT CROMER, Philadelphia, Pa. Filed Mar. 15, 1886. (No model.)

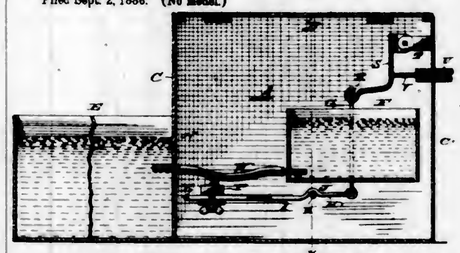
Claim.—A trouser clamp and hanger formed of the clamps A A′, hinged together at one end, the clamp being provided with resilient curved loops *b* for engagement within the portions c c of the end of the

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clamps A′, the semicircular loops *e e*, and hanger-loop *d*, constructed substantially in the manner herein shown and described.

352,047. STOCK-WATERER. JOHN M. DEWEY, Shell Rock, Iowa. Filed Sept. 2, 1886. (No model.)



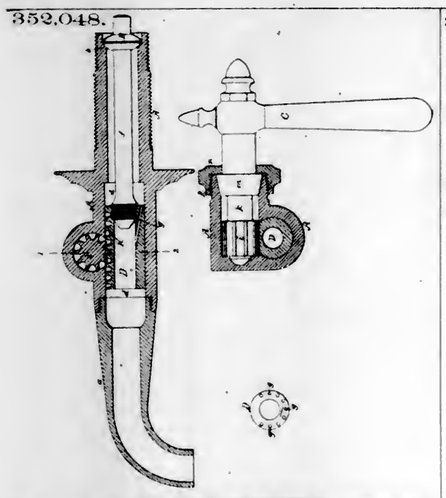
Claim.—The combination, with the main body portion provided with the hinged cover and the open drinking-receptacle separated from the main body portion by a vertical partition, of the feed-receptacle suspended through its bail from the lower end of the pivoted angle-lever, supported at its upper end in bearings projecting inwardly from the end wall of the main body portion, and provided with the stem-valve for closing the supply-pipe, and the weighted slotted lever fulcrumed on a transverse rod below the feed-receptacle and connected to the lower ends of the vertical arms of the bail of said feed-receptacle, and the flexible tube connecting the feed-receptacle with the drinking-receptacle, substantially as specified.

352,048. FAUCET. WILLIAM DOUGHERTY, Philadelphia, Pa. Filed Aug. 4, 1884. (No model.)

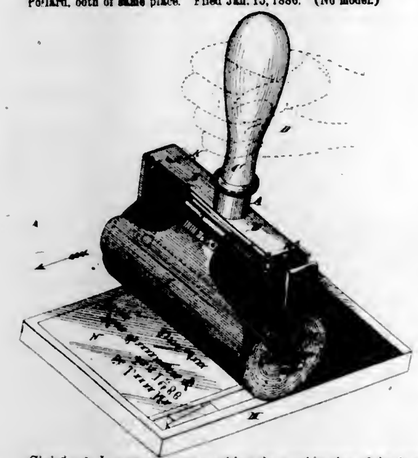
Claim.—1. The combination of the casing having a valve-seat at the inner end, a discharge-branch at the outer end, and a bore between the two, the valve and its stem, the hollow guide forming a passage for the liquid, said guide being connected to the valve-stem and fitted to and contained wholly within the bore of the casing between the valve and the discharge-branch, and operating-gearing acting on the outer periphery of the hollow guide, behind the front end of the same, and contained mainly within the casing, but having a stem projecting therefrom, all substantially as specified.

2. The combination of the valve-casing having a valve-seat at the inner end, a detachable discharge-branch at the front end, and a bore between the two, the valve adapted to the valve-seat at the inner end of the casing and having a projecting stem, and a hollow guide screwed onto the front end of said stem and adapted to the bore of the casing between the valve and the discharge-branch, whereby on detaching the discharge-branch the hollow guide can be removed from the casing without disturbing the valve, all substantially as specified.

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352,049. PROOF-TAKING ROLLER MACHINE. ARTHUR L. EASTIN, St. Louis, Mo., assignor of two-thirds to Alphonzo Whipple and John L. Pollard, both of same place. Filed Jan. 15, 1886. (No model.)



Claims.—1. In a proof-taking machine, the combination of the frame B, operating-handle C, main axle E, with bobbin-sleeve G, the shaft working in bearings F, with pendent arms B^2 of the frame arranged to carry the proof-sheet roll H and distribute the sheet over the face of the type and take proof-impressions therefrom, all substantially as described, and for the purpose set forth.

2. In a proof-taking machine, the combination of the frame, bobbin-sleeve for the proof-roll, with the axle on which it runs, with the knife-clamp I, and spiral springs I, on the axle J, all arranged to distribute the proof-sheet over the face of the type and take an impression thereof, substantially as and for the purpose set forth.

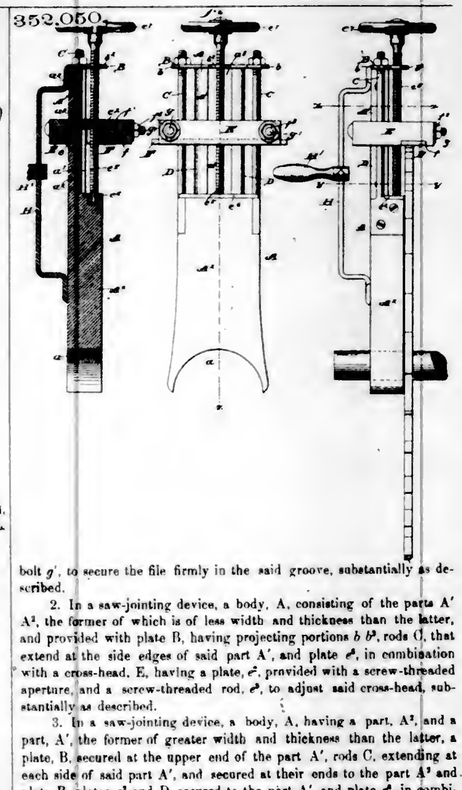
3. In a proof-taking machine, the combination of the frame with its axle, the bobbin-sleeve for the proof-roll running in the frame, with the knife arranged to clamp the roll and sever the proof-sheets when the impression is taken, substantially as described, and for the purpose set forth.

4. In a proof-taking machine, the combination of the frame and a spindle running in the frame, said spindle arranged to carry a proof-reel, unroll the proof-sheet, and impress it over the face of the type and take proof-impressions thereof, substantially as set forth.

352,050. SAW-JOINTING DEVICE. JAMES W. EDMONSON, Mendon, Ohio. Filed Mar. 31, 1886. (No model.)

Claim.—1. In a saw-jointing machine, the combination of the body A, the sliding cross-head E thereon, the said cross-head having the groove *f* on one side to receive the file, and the slit *f'* and clamping-

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bolt *g'*, to secure the file firmly in the said groove, substantially as described.

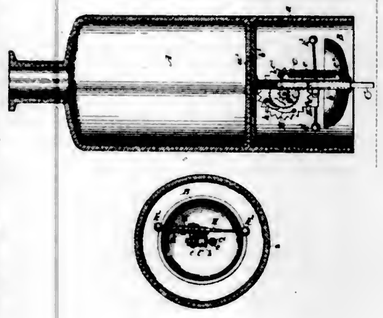
2. In a saw-jointing device, a body, A, consisting of the parts A' A^2, the former of which is of less width and thickness than the latter, and provided with plate B, having projecting portions *b* b^2, rods C, that extend at the side edges of said part A', and plate c^2, in combination with a cross-head, E, having a plate, c^3, provided with a screw-threaded aperture, and a screw-threaded rod, c^4, to adjust said cross-head, substantially as described.

3. In a saw-jointing device, a body, A, having a part, A^2, and a part, A', the former of greater width and thickness than the latter, a plate, B, secured at the upper end of the part A', rods C, extending at each side of said part A', and secured at their ends to the part A^2 and plate B, plates a^2 and D, secured to the part A', and plate c^2, in combination with a cross-head, E, having apertures to receive the part A' and rods C, grooved lower surface to receive a file, F, and plate c^3, having screw-threaded aperture to receive the rod c^4, substantially as described, for the purpose specified.

4. In a saw-jointing device, a cross-head, E, having a groove, *f*, formed in its lower surface to receive a file, F, slit *f'*, closed by bolt *g'*, to hold said file F in position, apertures *e e'*, and plate c^3, having screw-threaded aperture, in combination with a body, A, rods C, and screw-threaded adjusting-rod c^4, substantially as described.

5. In a saw-jointing machine, a body, A, having the parts A' A^2 of different widths and thickness, the former having a grooved front surface and strengthening-plates a^2 and D, and plate B, having projections *b* b^2, in combination with a cross-head, E, having a file, F, secured thereto, and file-securing slit *f'* and bolt *g'*, adjusting-rod c^4, having hand-wheel at its top, and guide-rods C, substantially as described.

352,051. ALARM FOR POISON-BOTTLES. MAX FULDA, New York, N. Y., assignor to Einbigler & Adler. Filed Nov. 21, 1885. (No model.)

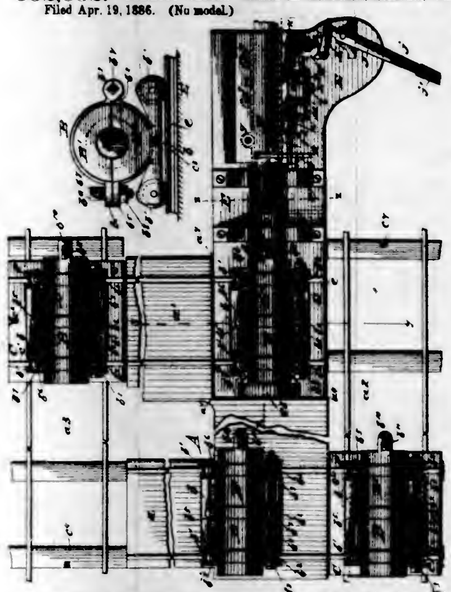


Claim.—1. The combination, substantially as hereinbefore set forth, of a bottle for containing poisonous substances, an alarm device attached to the bottle, a spring operating said device, a rod projecting below the bottom of said bottle, and a mechanical connection between said rod and spring for storing force in said spring when the rod is pressed upward by the weight of the bottle.

2. The combination, substantially as hereinbefore set forth, of a bottle, a bell attached thereto, a hammer for striking the bell, a toothed wheel for operating said hammer, a spring operating said toothed wheel, and a rod extending below the bottom of the bottle for putting the spring under tension and releasing it therefrom each time the bottle is set down and raised.

3. The combination, substantially as hereinbefore set forth, of a bottle, a bell carried beneath said bottle, a hammer for striking the bell, a hollow sleeve supporting said bell, a rod extending within said sleeve, a toothed portion upon said rod, a pinion gearing with said toothed portion, a toothed wheel arranged to be revolved by said toothed portion and pinion, to operate the bell-hammer when the toothed portion is moved in a given direction, a spring connected with the rod to move said pinion, and means for moving the rod to put the spring under tension.

352,052. TOBACCO-PRESS. PETER M. GUERRANT, Danville, Va. Filed Apr. 19, 1886. (No model.)



Claim.—1. In a tobacco-pressing machine, the combination of the forming-cylinders, the horizontal ways *a a'* a^2 a^3, the cars traveling on the ways a^2 a^3, the trucks supporting the forming-cylinders traveling on the ways *a a'* and resting on the sections *c'* of track on the cars, while the latter travel over the ways a^2 a^3, the abutment-block secured to the mechanism-supporting frame, and the compressing mechanism, constructed substantially as described.

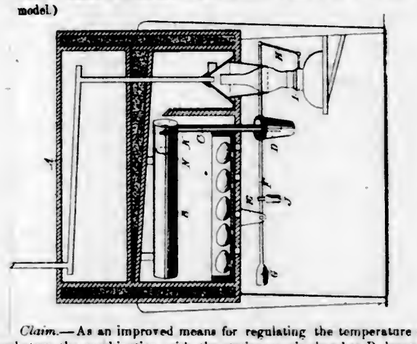
2. In a tobacco-pressing machine, the combination of the forming-cylinders, the horizontal ways *a a'* a^2 a^3, the cars traveling on the ways a^2 a^3, the trucks supporting the forming-cylinders traveling on the ways *a a'* and resting on the sections *c'* of track on the cars, while the latter travel over the ways a^2 a^3, the abutment-block secured to the mechanism-supporting frame, the charging-tube, the hinged follower-block, and the compressing mechanism, constructed substantially as described.

3. In a tobacco-pressing machine, the combination of the forming-cylinders provided with the slotted slugs b^{10}, the tapered key b^{11}, formed to drop into the slots and lock the front of the cylinders, the horizontal ways *a a'* a^2 a^3, the cars traveling on the ways a^2 a^3, the trucks *b*, each made or cast in one piece with the lower part of a forming-cylinder, traveling on the ways *a a'* and resting on the section *c'* of track on a car while the latter travels over the ways a^2 a^3, the abutment-block c^3, secured to the mechanism-supporting frame, the charging-tube, the hinged follower-block, the plunger-bar moving horizontally and having the notch *f'* in its end nearest the cylinders, and mechanism, substantially as described, to operate the plunger-bar.

4. The combination, with the mechanism, substantially as described, to move the plunger horizontally, the plunger-bar having the notch *f'*, and the abutment-block c^3, of the frame A, the horizontal ways *a a'* a^2 a^3, the cars C, traveling on the ways a^2 a^3, and provided with the track-sections *c'*, stop projections c^3, and notches c^4, to engage the stops c^4, secured to frame A, the trucks *b*, supporting the forming-cylinders, moving on the ways *a a'* and resting on the section of track on the cars while the latter travel over the ways a^2 a^3, the forming-cylinders B, made in two equal longitudinal sections, B' B^2, provided with the hinges formed by the lugs b^2 b^2 and rod b^4, the slotted locking-lugs b^5, keys b^6 b^7, nut b^8, slotted lugs b^{10}, key b^{11}, and flange b^{12}, and having one end beveled at b^9, the end plug, b^{13}, the hinged follower-block d^3, and the charging-tube D, having its end beveled to fit against the beveled end of a cylinder, substantially as described.

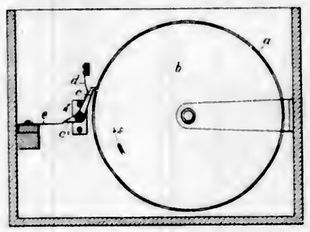
5. The combination, with the frame A, the horizontal ways, the cars traveling on the ways a^2 a^3, the forming-cylinders, the truck *b*, supporting the latter, traveling on the ways *a a'*, and resting on the sections of track on the cars, while the latter travel over the ways a^2 a^3, the abutment-block, the charging-tube, and the hinged follower-block, of the horizontal plunger-bar F, provided with the notch *f'*, rack f^2, and handle f^4, and moving in the casing G, the friction-rollers *g*, the vibrating lever-block H, having notch *h*, the links I I, lever J, actuating-pawl K, pivoted double-armed lever L, links M M', lever N, provided with pin *n'*, retaining-pawl O, spring L, and notched horizontal retaining-bar R, all constructed and arranged substantially as and for the purpose described.

352,053. TEMPERATURE-REGULATING DEVICE FOR INCUBATORS. JAMES M. HALSTED, Oakland, Cal. Filed July 9, 1884. (No model.)



Claim.—As an improved means for regulating the temperature of incubators, the combination, with the stationary air-chamber B, located within the egg-chamber of an incubator, and a pipe, C, communicating with the air-chamber and extending from the same out through the incubator, of the liquid-containing cup D, located outside of the incubator, so that the liquid therein will not be influenced by the heat of the incubator, the open outer end of the pipe C being immersed into the liquid of the said cup, a lever, F, connecting with the heat-controlling devices of the incubator, and secured to the cup, and counterbalancing-weights on the lever for the cup, as set forth.

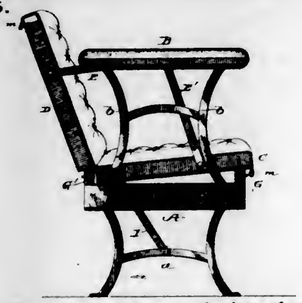
352,054. MECHANICAL MUSICAL INSTRUMENT. HEINRICH F. HAMBRUCH, Hamburg, Germany. Filed Feb. 17, 1886. (No model.)



Claim.—In a mechanical musical instrument, the combination of a continuously-revolving cylinder, a tune-sheet placed upon the cylinder and provided with a series of projections or perforations, the sounding-tongues *e*, a series of pivoted bell-crank levers interposed between the tune-sheet and the tongues, and the springs *d*, bearing on the bell-crank levers, so that they press against the revolving tune-sheet and strike the said tongues in opposite directions alternately.

352,055. CAR-SEAT. GEORGE HARVEY, Winnipeg, Manitoba, Canada. Filed Mar. 13, 1886. (No model.)

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Claim.—1. The combination, with a supporting-frame, of a seat and back hinged together at their meeting edges, blocks arranged at the front and rear of the supporting-frame and carrying catch-bolts to engage recesses in the seat and back, and bars E E', pivotally connected with the seat and back, and to the arm-rests of the supporting-frame, substantially as set forth.

2. In a car-seat, the combination, with a supporting-frame, of a seat and back, bars pivotally connecting the back and seat with the arm-rest of the frame, and a bar pivoted to the supporting-frame and adapted to engage a recess in the under side of the seat, as set forth.

3. In a car-seat, the combination, with a supporting-frame, of a seat and back hinged together at their meeting ends, bars pivotally connecting the seat and back with the arm-rest of the frame, and a bar pivoted to the frame and having a projection at its upper end to engage a recess on the under side of the seat, as set forth.

352,056. BEADING-TOOL. OSCAR E. HILDEBRAND, Norwich, Conn. Filed July 15, 1886. (No model.)

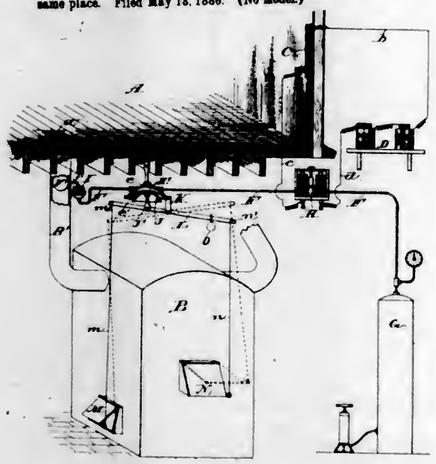


Claim.—1. In a beading-tool, in combination with two companion rods, a cutter adapted to be clamped between said rods, as described, and handles cored to slip over said rods to clamp the said cutters, all being substantially as herein specified.

2. In combination with two semicircular rods, a cutter adapted to be clamped between said rods, and handles cored to slip over said rods, as described, said handles being provided with clamping-screws, by which the several elements may be clamped together, for the purpose specified.

3. In combination with two companion rods, a cutter adapted to be clamped between said rods, as described, handles cored to slip over the ends of said rods and formed with gage-flanges at their inner ends, and thumb-screws or similar means for clamping the several parts together, substantially as herein set forth, and for the purpose specified.

352,057. TEMPERATURE-REGULATOR. WARREN S. JOHNSON, Milwaukee, Wis., assignor to the Johnson Electric Service Company same place. Filed May 18, 1886. (No model.)

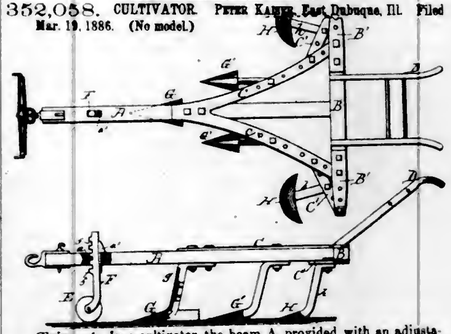


Claim.—1. In a temperature regulator, the combination of a thermostat situated in the apartment whose heat is to be regulated, with a furnace provided with a hot-air pipe leading to said apartment, and having draft and check doors connected to a lever operated by the contraction or expansion of an expansible chamber, said lever, said expansible chamber, a reservoir of fluid under pressure, a pipe leading therefrom to the expansible chamber, an electro-pneumatic valve located at a point on said pipe intermediate between the said expansible chamber and said reservoir, an electric battery, and an electric circuit connecting said battery with the valve and thermostat, substantially as and for the purpose set forth.

2. The combination, with the draft-doors of a furnace and the expansible diaphragm-chamber, which operates said doors by means of a fluid under pressure, of an electrically-actuated valve governing the fluid under pressure, a thermostat and electric generator in circuit with said valve, and a reservoir for the fluid under pressure, whereby the thermostat will operate the electric valve, and thus admit the fluid under pressure to and release it from the said expansible diaphragm-chamber, thereby controlling the drafts connected therewith, substantially as set forth.

3. In a heat-regulating apparatus, the combination of the following co-operative parts: first, a valve controlling the heat which directly warms an apartment, said valve being operated by a fluid under pressure; second, an expansible chamber which operates by means of fluid-pressure the drafts of a furnace supplying such heat; third, said furnace-drafts; fourth, an electrically-actuated valve which controls the fluid for operating both said valve on the heating-pipe and said furnace-drafts; and, lastly, a thermostat, electric battery, and reservoir containing the fluid under pressure, connected to said electrically-actuated valve, whereby the action of the thermostat controls the electric valve, and by its means, through the fluid under pressure, operates simultaneously both the valve on the heating-pipe and the drafts of the furnace, substantially as set forth.

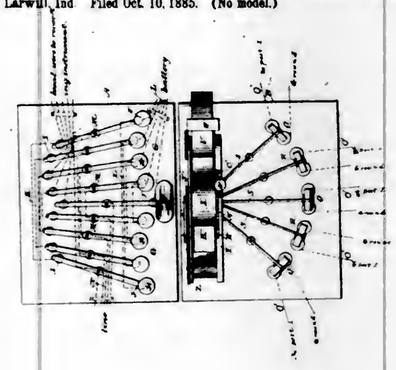
352,058. CULTIVATOR. PETER KAHLE, East Dubuque, Ill. Filed Mar. 19, 1886. (No model.)



Claim.—1. In a cultivator, the beam A, provided with an adjustable colter-wheel, E, the bar B, and the rods C, in combination with share G, removable extensions B', shares G', and knives H, whereby moldboards can be attached and the implement converted into a hiller, substantially as described.

2. In a cultivator, the combination of the beam A, provided with adjustable colter-wheel E, bar B, rods C, removable extensions B', plowshares G G', and the knives H, substantially as and for the purpose specified.

352,059. STENO-TELEGRAPH INSTRUMENT. WILLIAM A. KALER, Larwill, Ind. Filed Oct. 10, 1885. (No model.)



Claim.—1. In a steno-telegraph apparatus, a key-board having one central key and a number of keys arranged at both sides of the central key, all the posts of the keys at one side of the central key being connected by wires to the posts of the corresponding keys upon the other side of the central key, as and for the purpose shown and set forth.

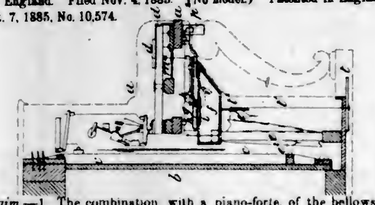
2. In a steno-telegraph apparatus, in combination with a number of type-bars, a paper-carrying device consisting of a paper-carrying roller having a ratchet-wheel at one end, a spring-pawl engaging the ratchet-wheel, a spring-cushioned vertically-sliding bar having a transverse bar at its lower end above the inner ends of the type-bars, and a spring-pawl attached to the transverse bar and engaging the ratchet-wheel upon the paper-carrying cylinder, as and for the purpose shown and set forth.

3. In a steno-telegraph apparatus, the combination of a number of type-bars with a paper-carrying device, and an inking-ribbon-carrying device consisting of a paper-carrying cylinder having a cog-wheel at its rear end, an arm pivoted to swing upon the shaft of the paper-carrying cylinder, a cog-wheel journaled at the outer end of the arm and meshing with the cog-wheel upon the paper-carrying cylinder, rollers having the ends of the ribbon wound upon them and provided with pinions at their ends, and alternately meshing with the cog-wheel upon the swinging arm, and a pinion interposed between the cog-wheel upon the swinging arm and one of the pinions upon the inking-ribbon-carrying rollers, as and for the purpose shown and set forth.

4. In a steno-telegraph apparatus, the combination of a number of type-bars with a paper-carrying cylinder, two uprights having a roll of paper journaled between them, a spring-arm pivoted between the two uprights and having an outwardly-projecting perforated arm and an inwardly-projecting spring-arm provided with a guide-bail for the paper strip, and with a roller at its outer end for forcing the paper strip against the paper-carrying roller, a set-screw passing through the perforated short arm of the spring-lever, and a spiral spring secured to the base of the device and to the lower end of the set-screw, as and for the purpose shown and set forth.

5. In a steno-telegraph apparatus, the combination of batteries at the ends of the line, key-boards at the ends of the line having the keys arranged similar to the stenograph-keys, and having the outer posts for the keys connected to the batteries, wires connected to the fulcrum-posts of the keys at both ends, and recording-instruments at the ends of the line, consisting of a number of magnets corresponding to the keys and having each one wire connected to the inner post of its corresponding key upon the key-board, and having each one wire connected to the battery ground-wire, a number of type-levers having type-heads at their inner ends and armatures at their outer ends supported above the magnets, and a paper and inking-ribbon-carrying device, as and for the purpose shown and set forth.

352,060. COMBINED ORGAN AND PIANO. ROBERT A. KEMP, London, England. Filed Nov. 4, 1885. (No model.) Patented in England Sept. 7, 1885, No. 10,574.



Claim.—1. The combination, with a piano-forte, of the bellows *e*, the air-chamber *f*, having the apertures *f' f²*, and the tremolo q^3, the reeds *g*, and the reed-cells *h*, the valves *i*, and springs *i'*, the plungers *k m*, and levers *l*, mounted upon the pivoted rail or table *n*, and means for raising and lowering the said rail or table to put the organ mechanism in or out of action, all substantially as and for the purpose set forth.

2. In a combined reed and string musical instrument, the combination of the sound-board *b*, the strings *c*, the air-chamber *f*, reed-cells *h*, reeds *g*, valves *i*, having springs *i'*, cranked levers *l*, plungers *k m*, and keys *d*, substantially as described.

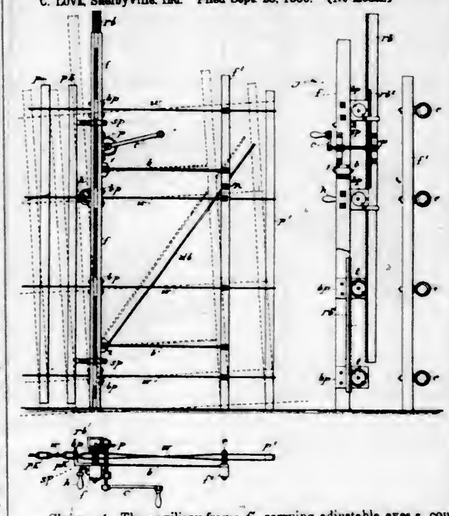
3. The combination, with the strings *c*, reeds *g*, air-chamber *f*, and valves *i*, of the table *n*, pivoted to the top of the air-chamber and provided with blocks *l'*, the levers *l*, plungers *k m*, and keys *d*, substantially as described.

4. The combination, with the strings *c*, reeds *g*, valves *i*, and keys *d*, of the table *n*, levers *o*, connecting rod or link o^3, forked knee-lever *p*, levers *l*, and plungers *k m*, substantially as described.

5. The combination of the bellows *e*, the air-chamber *f*, having apertures *f' f²*, the casing *q*, having an aperture, *q'*, the tremolo q^3, valve *r*, rod *r'*, and levers r^3 p^2, substantially as described.

6. The combination, with a piano-forte, of the bellows *e*, the air-chamber *f*, having the apertures *f' f²*, and the tremolo q^3, the reeds *g*, and reed-cells *h*, the valves *i*, and springs *i'*, the plungers *k m*, and levers *l*, mounted upon the pivoted rail or table *n*, and means for raising and lowering the said rail or table, all substantially as and for the purposes set forth.

352,061. WIRE-FENCE MACHINE. FRANCIS M. LOVE and SAMUEL C. LOVE, Shelbyville, Ind. Filed Sept. 28, 1886. (No model.)



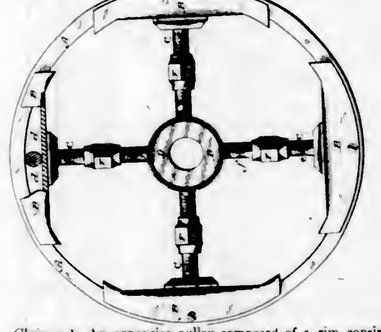
Claim.—1. The auxiliary frame *f'*, carrying adjustable eyes *e*, connected *o* the fence-machine by pivoting-braces and adjustable at different angles to such machine, substantially as described.

2. The fence-machine *f*, carrying twisters *t*, operated by crank *c*, whose pininn engages with the secondary rack-bar rb^3, connected with the movable rack-bar *rb'*, the teeth of the latter engaging the teeth of the twisters, the auxiliary frame *f'*, carrying adjustable eyes *e*, through which the fence-wires are passed, such frame connected to the machine by pivotal or adjustable braces, all combined substantially as described.

3. The eye-disk *e*, mounted in the ring, formed of separable parts *r r'* and detachably connected to the frame *f'*, substantially as described.

4. In a wire-fence machine, an auxiliary frame carrying removable and adjustable guides, through which the fence-wires are passed, such frame adjustably pivoted to the fence-machine, substantially as described.

352,062. EXPANSION-PULLEY. CHARLES F. MORSE, Randolph, assignor of one-half to Joseph D. Denison, West Randolph, Vt. Filed Feb. 9, 1886. (No model.)



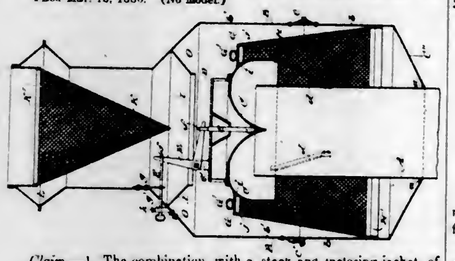
Claim.—1. An expansion-pulley composed of a rim consisting of a metallic coil supported upon shoes attached to the extremities of jointed spokes projecting from the hub, the two parts of the spokes being rigidly connected by right and left screws in coupling-boxes, by means of which the length of the spokes and the circumference of the pulley are correspondingly varied, substantially as shown, and for the purpose described.

2. In an expansion-pulley, the rim A, consisting of a coil of steel having tapering ends, in combination with the shoes B B, friction-roller E, jointed spokes C C, whose length can be varied by right and left screws in their coupling-boxes, and the hub D, substantially as and for the purpose set forth.

3. In combination with the coiled rim A of an expansion-pulley, the shoes B B, having sides *b b*, the spokes, hub, and friction-roller E, substantially as shown and described.

4. In an expansion-pulley, the hub D and rim, in combination with the jointed spokes C C, rigidly held by coupling-boxes provided with right and left screws, and the shoes B B, attached to their extremities having sides *b b*, and set-screws, substantially as described, and for the purpose set forth.

352,063. SPARK-ARRESTER. JOHN H. OPTENBERG, Oshkosh, Wis. Filed Mar. 13, 1886. (No model.)



Claim.—1. The combination, with a stack and inclosing-jacket, of a deflector having a movable central portion, an elbow-lever pivoted to a support above the deflector and having one of its arms connected to the said movable portion of the deflector, and sliding operating-rod connected to the other of the said elbow-lever and projecting through the jacket, substantially as herein shown and described.

2. The combination, with the stack and an inclosing-jacket formed with an inclined bottom, of a deflector connected to the stack, a screen supported by the deflector and extending downward and outward to meet the inner face of the jacket, a second deflector, I, a cone-shaped screen, and a trap, L, substantially as described.

3. The combination, with a stack and its inclosing-jacket, of a deflector supported by the stack, a screen formed of strips *p p'*, the edges of which are bent inward, as described, the strips being arranged to break joints, substantially as described.

4. The combination, with a stack and its jacket, of a deflector arranged above and supported by the stack, a screen, P, arranged about the deflector, and formed of strips *p p'*, the edges of said strips being bent inward, a deflector, I, and an inverted-cone-shaped screen, formed of strips *p p'*, the edges of which are bent outward, substantially as described.

5. The combination, with a stack, of a deflector supported by and arranged above said stack, said deflector being provided with a cover, C, having a stem, *e*, that is guided in a frame, D, a lever, E, and a manipulating-rod, F, all substantially as described.

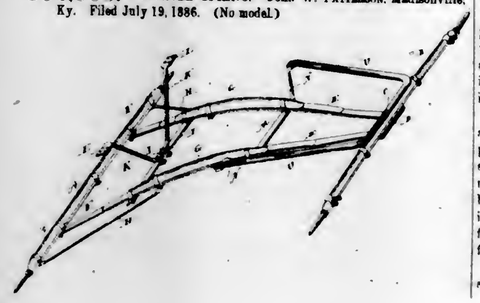
352,064. SHOE-STRING FASTENING. WILLIAM P. ORNE, Boston, Mass. Filed June 28, 1886. (No model.)



Claim.—1. The combination, with a cord or string for lacing a boot or shoe provided with a knot, stop, or button at or near one end, of a hook, H, having a tubular portion, J, adapted to fit over said cord or string, and secured from accidental detachment therefrom to engage with said knot, stop, or button, for the purpose specified.

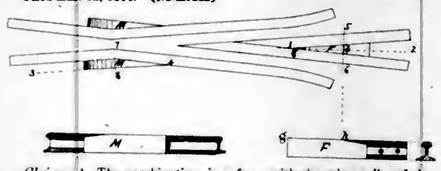
2. The combination, with a cord or string for lacing a boot or shoe provided with a stop or button, K, having a depression, *n*, at or near one end, of a hook, H, having a tubular portion, J, adapted to fit over said cord or string, and secured from accidental detachment therefrom to engage with said stop or button, for the purpose specified.

352,065. VEHICLE-SPRING. JOHN W. PATTERSON, Madisonville, Ky. Filed July 19, 1886. (No model.)



Claim.—In a running-gear for vehicles provided with side springs, the combination of a cross-bar secured to the forward portion of said springs, and having upwardly-diverging arms, a U-shaped spring secured to said arms and to the front axle, a cross-bar secured to the rear portions of said springs, and a bail secured to said rear cross-bar having upwardly-diverging legs.

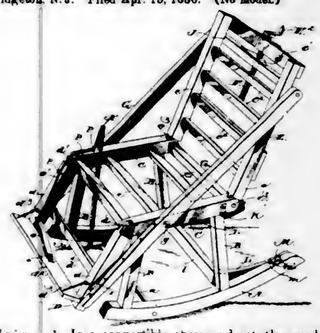
352,066. RAILWAY-FROG. THOMAS H. PERRY, Bloomington, Ill. Filed Mar. 12, 1886. (No model.)



Claim.—1. The combination, in a frog, with the wing-rails, of the re-enforcing blocks located on the sides of the same, substantially as set forth.

2. The combination, in a frog, with the wing-rails having the re-enforcing blocks, of the members *a a* and the filling-block between them, substantially as set forth.

352,067. CONVERTIBLE CHAIR AND COT. WILLIAM H. PHILLIPS, Bridgeton, N. J. Filed Apr. 15, 1886. (No model.)



Claim.—1. In a convertible chair and cot, the combination of a seat-frame, a foot-support pivoted to one end thereof, the back-support pivoted to the opposite end of said frame, the brace-rails pivoted to the sides of the seat-frame at an intermediate point of their length, an adjusting-screw connecting one end of the brace-rails and the back-support, and the brace-arms intermediate of the opposite ends of the brace-rails and the foot-support, whereby when the screw is rotated the brace-rails will be turned on their pivots to move the foot and back supports in opposite directions, substantially as described, for the purpose set forth.

2. In a convertible chair and cot, a seat-frame and an adjustable back-support pivoted to the one end of the seat-frame, in combination with an adjustable foot-support pivoted to the opposite end of the seat-frame, the brace-rails pivoted to the seat-frame, the foot-support being adjustable independently of the brace-rails by hand, and the brace-arms carried by the foot-support and bearing against the brace-rails to hold the foot-support in its adjusted position, substantially as described, for the purpose set forth.

3. In a convertible chair and cot, the combination of the frame, the pivoted foot and back supports, the pivoted longitudinal rails having an end rail, and an adjusting-screw connected to the end rails of the longitudinal rails and back-support, substantially as described.

4. In a convertible chair and cot, the combination of a frame, a pivoted foot-support, a pivoted back-support, the longitudinal rails pivoted to the frame and having an end rail on which is fitted and supported the side rails of the back-support, and an adjusting-screw working in bearings of the end rail and the pivoted back-support, for adjustably connecting said parts, substantially as described.

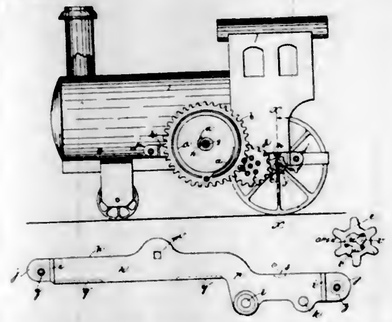
5. In a convertible chair and cot, the combination of the seat-frame, a foot-support pivoted to one end of the seat-frame and normally depending therefrom, a back-support pivoted to the opposite end of the seat-frame, the longitudinal rails pivoted to the seat-frame at an intermediate point of their length, and connected at their rear ends to the back-support and having the racks at their front ends, and the swinging braces carried by the foot-support and engaging the racks at their free ends to retain the foot-support at any desired angle to the seat-frame, substantially as described, for the purpose set forth.

6. In a convertible chair and cot, the combination of a seat-frame, a foot-support pivoted thereto at one end, a back-support pivoted to the opposite end of the seat-frame, the longitudinal side rails pivoted at an intermediate point of their length to the seat-frame and connected at their rear ends with the back-support and having the racks at their front ends, the slotted sheaths affixed to the front ends of the longitudinal rails and concealing the racks thereon, and the swinging brace-arms pivoted to the foot-support and having the enlarged free ends fitted in the slotted sheaths and engaging the racks of the longitudinal side rails, substantially as described, for the purpose set forth.

7. The combination of a frame having the rockers, a foot and back support, the longitudinal rails, a rod, N, guided on the frame, and a movable foot-piece or treadle supported on the foot-support and having a connection with the rod, substantially as described, for the purpose set forth.

8. In a convertible chair and cot, a seat-frame provided with the rockers and the adjustable seat and back supports, in combination with the folding braces L, pivoted to the rockers, and projecting beneath the same when adjusted to an upright position, and a swinging locking-plate carried by one of the rockers to lock the braces against movement, substantially as described, for the purpose set forth.

352,068. TOY MOTOR. CHARLES F. RITCHEL, Bridgeport, Conn., assignor to Johnston, Tallman & Co., New York, N. Y. Filed May 6, 1886. (No model.)



Claim.—1. The combination, with the bed-plate having the slot and clip-tongues, of the frame for the motor-pivots, composed of the plates having angular end flanges and terminal parallel riveting-ears, also side flanges and connecting-lugs, which side flanges are secured against the lower surface of the bed-plate by the clip-tongues bent around said connecting-lugs, the ear-flanges of the front end of the frame being secured on the upper surface of said bed-plate, substantially as described.

2. The frame for the motor-pivots, composed of the plates having angular end flanges with terminal parallel riveting-ears, also side flanges and connecting-lugs for securing it to the bed-plate, and also pivot-ears for the pivots and hind axle of the motor-train, in combination with the bed-plate having the slot and clip-tongues, said side flanges and connecting-lugs being secured against the lower surface of the bed-plate by the clip-tongues of said plate bent around the connecting-lugs, the ear-flanges of the front end of the frame being secured on the upper surface of said plate, and the spring and master-wheel pivots located above and the pivots of the winding-up post and the driving-axle below the plane of said flanges, and connecting-lugs, substantially as described.

3. In a spring-power-driving mechanism for driving toy carriages, the combination, with the transmitting-gear train and the carriage-axle, of the loose pinion on the axle gearing with said train, and having the eccentric roller-notches extending through the hub, the plane rollers located in said notches, the loose washer located on said axle, and the side plates of the frame, all constructed and arranged substantially as described.

4. In a spring-power-driving mechanism for carriages, the spring connected positively with the stationary pivot of the master-wheel, and also positively connected with said wheel, in combination with the transmitting-gear train having the winding-post arranged intermediately in the train to the master-wheel and the disconnecting-clutch, and with said clutch located intermediately to the winding-post and axle or other shaft to be drawn, substantially as described.

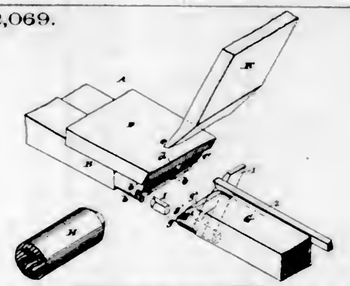
352,069. HORSESHOE-NAIL MACHINE. OLIVER ROBERTS, Belleville, Ill. Filed Dec. 26, 1884. (No model.)

Claim.—1. A nail-machine having two gripping-dies acting in conjunction to hold the blank for heading, and having, respectively, lips forming the bearing of the top and bottom edges of the blank.

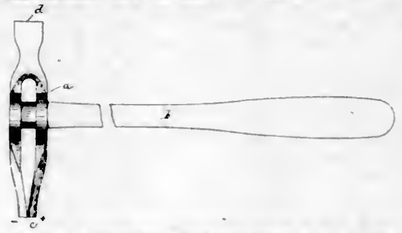
2. A nail-machine having gripping-dies with lips forming top and bottom bearing for the nail-blank and bevels upon the die-faces and lips to give form to the head upon the impingement of the header.

3. The combination of curve-edged knives, gripping-dies with bearing-lips, substantially as described, and a clearer, all substantially as set forth.

352,069.



352,070. MAGNETIC TACK-HAMMER. ARTHUR R. ROBERTSON, Somerville, Mass. Filed May 22, 1886. (No model.)

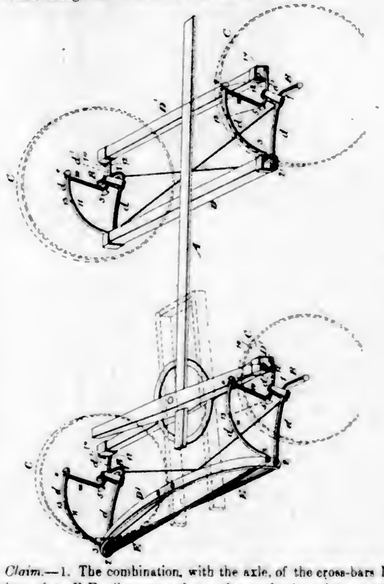


Claim.—1. A magnetized hammer-head having its body divided or bifurcated to constitute a substantial horseshoe-magnet, as set forth.

2. A magnetized hammer-head having its body divided or bifurcated for the greater portion of its length to constitute a substantial horseshoe-magnet in which the poles form one peen and the back or neutral end the other or another peen, as set forth.

3. A horseshoe-magnet constructed as a hammer-head, in which the poles of the magnet comprise the setting-peen and the back or neutral end constitutes the driving-peen, as set forth.

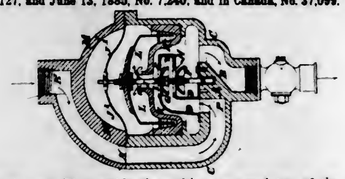
352,071. TORSION-SPRING FOR VEHICLES. BENJAMIN D. SHAW, Waterford, Washington County, Ohio, assignor of one-half to A. W. Hayward, Chicago, Ill. Filed June 29, 1886. (No model.)



Claim.—1. The combination, with the axle, of the cross-bars D D' and the springs E E, all connected together and adapted to operate in the manner described.

2. In a vehicle torsion-spring, the link 10, made movable along the arms 11 and 12 from 13 to 4 and from 5 to 14, to regulate the length and stiffness of the spring, as set forth.

352,072. GAS-REGULATOR. James Stott, London, England. Filed Aug. 19, 1886. (No model.) Patented in England May 23, 1884, No 8,127, and June 13, 1885, No. 7,240, and in Canada, No. 37,099.



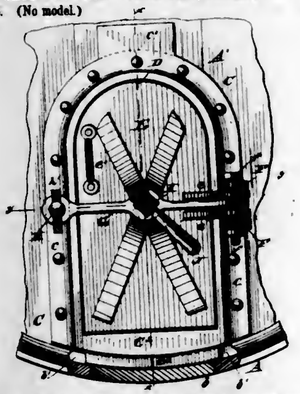
Claim.—1. The combination, with a gas-regulator, of the shiftable or adjustable valve-box D, for adapting the regulator to a down or up flow of gas to the burners, substantially as described.

2. The combination, with a gas-regulator having the side passage, N, of the reservoir K, the cup-float L, the valve-stem J, on which the float is mounted, the two valves on the valve-stem, and the shiftable or adjustable valve-box D, for adapting the regulator to a down or up flow of gas to the burners, substantially as described.

3. The combination, in a gas-regulator, of a valve-box, D, valve-stem J, having weights V V, reservoir K, cup-float L, and weights T, having arms U, carrying rollers S S, which act directly on the float, substantially as described.

4. The combination, in a gas-regulator, of a valve-box, D, having two valve-seats of the same diameter, with the valve-stem J and the two valves F G, of the same size, but of different shapes, and seating upon the said valve-seats, which are of the same diameter, substantially as described.

352,073. GATE FOR VATS. Frank Thau, Baltimore, Md. Filed Sept. 29, 1886. (No model.)



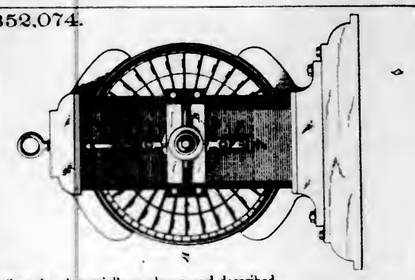
Claim.—1. In gates for vats, a gate-frame secured to the head of the vat over a man-hole in the said head adjacent to the lowest part of the chine thereof, and provided with a flange located inward from the front edge of its bottom rail, and extending downward into the lowest part of the chine-groove, with its lower edge curved so as to fit accurately within said groove, substantially as specified.

2. The combination, with a vat having a man-hole in its head adjacent to the lowest part of the chine, the head being cut away in such manner to form the man-hole that its edge does not enter the lowest part of the chine-groove, of the gate-frame secured to the head with its opening corresponding to the man-hole, and provided with a bottom rail fitting against the inner surface of the chine, and a flange entering and fitting within the lowest part of the chine-groove, and the gate hinged to the frame and secured tightly over the man-hole by means substantially as described.

3. The combination, with the vat A, having the chine *b*, provided with the usual groove, *b'*, and the head A', provided with the man-hole B, adjacent to the lowest part of the chine, of the frame C, provided with the bottom rail, C^2, fitting against the inner surface of the chine, the flange c^3, fitting into the lowest part of the chine-groove, and the projections c^3, secured by bolts to the inner surface of the vat, the gate hinged to the frame, and means, substantially as described, whereby the gate is secured strongly and tightly over the man-hole.

352,074. COMMUTATOR-BRUSH. Charles J. Van Depoele, Chicago, Ill. Filed Feb. 20, 1886. (No model.)

Claim.—1. A commutator-brush consisting of alternate layers or strips of copper and a non-metallic substance, said layers being all arranged transversely of the axis of the commutator-cylinder, and thereby interposing their minimum resistance to the passage of the current as collected, substantially as shown and described.



2. A commutator-brush consisting of alternate layers of thin sheet-copper or its described equivalent, and a comparatively refractory non-metallic substance, said layers being all arranged transversely of the axis of the commutator-cylinder, and thereby interposing their minimum resistance to the passage of the current as collected, substantially as shown and described.

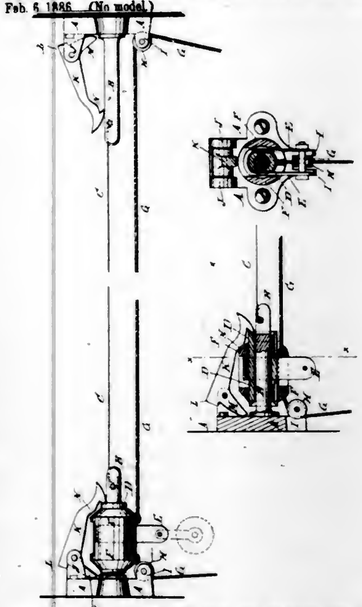
3. A commutator-brush consisting of alternate layers of thin sheet-copper and paper, said layers being all arranged transversely of the axis of the commutator-cylinder, and thereby interposing their minimum resistance to the passage of the current as collected, substantially as shown and described.

4. A commutator-brush consisting of alternate layers of thin copper or its described equivalent, and a comparatively refractory non-metallic substance coated with powdered soapstone, substantially as described.

5. A commutator-brush consisting of alternate layers of thin sheet-copper and paper coated with powdered soapstone, substantially as described.

6. The combination, with an electric motor or generator having suitable armature and rotating commutator-cylinder, of a commutator-brush therefor consisting of alternate layers or strips of thin sheet-copper and a comparatively refractory non-metallic substance, said layers being all arranged transversely of the axis of the commutator-cylinder, substantially as described.

352,075. HAY-CARRIER. Edwin Woodward, Stryker, Ohio. Filed Feb. 6, 1886. (No model.)



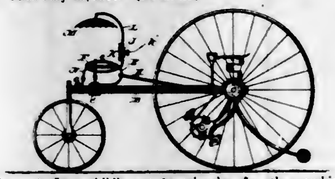
Claim.—1. The combination, with the horizontal stud, a sliding sleeve on the said stud, lugs projecting from said sleeve, an exterior slotted sleeve upon the first-mentioned sleeve, the lugs passing loosely through the said slots, of the pivoted hook extending lengthwise across the outer sleeve and engaging the end of the inner sleeve, whereby in the forward movement of the outer sleeve the hook will be disengaged from the inner sleeve, substantially as set forth.

2. A transferring mechanism for hay-carrier guide-pulleys, constructed substantially as herein shown and described, and consisting of the plates A, provided with studs B, connected by a wire, C, the interior sleeve, D, having its ends beveled upon the inner side and provided with lugs E to carry the guide-pulleys, the exterior sleeve, F, having its ends beveled upon the outer side and having a slot for the passage of the lugs E, the ropes G, attached to the exterior sleeve, F, and their pulleys H, and the hooks K, having projections L and prongs M upon their rear end and inclines N upon their lower sides, whereby the guide-pulley can be readily moved from one end of the barn to the other, as set forth.

3. The combination, with the stud B and hook K, provided with the prong M and incline N, of the interior sleeve, D, provided with lugs E, and the apertured sleeve F, having its ends beveled, substantially as shown and described, whereby the said hook will be thrown into engagement with and disengaged from the interior sleeve.

4. A transferring mechanism for hay-carriers, consisting of the plate A, carrying stud B, fitted to receive a connecting-wire, and provided with a pivoted hook, K, and a pulley, H, the sleeve D, provided with lugs E, and the apertured sleeve F, mounted on sleeve D, having its ends beveled and fitted for attachment of an operating-rope, all constructed and combined substantially as shown and described.

352,076. SEAT FOR TRICYCLES. John C. Zimmerman, Elmira, N. Y. Filed July 15, 1886. (No model.)



Claim.—1. In a child's seat for tricycles, &c., the combination, with the seat proper and supporting-springs therefor, of a clip, C, to which said springs are secured, said clip comprising a base, *c*, two downwardly-extending inwardly-curved jaws, *c'*, and a set-screw, c^3, passing through one of said jaws and adapted to impinge against the frame of the tricycle for securing the clip in place.

2. In a child's seat for tricycles, &c., the combination, with the seat proper and supporting-springs therefor, of a clip, C, to which said springs are secured, said clip comprising a base, *c*, two downwardly-extending inwardly-curved jaws, *c'*, said jaws gradually approaching each other throughout their lengths toward their front ends, whereby a tapering groove is formed between them, and a set-screw, c^3, passing through one of said jaws and adapted to impinge against the frame of the tricycle for securing the clip in place.

3. In a child's seat for tricycles, &c., the combination, with the seat proper and supporting-springs therefor, of a clip, C, to which said springs are secured, said clip comprising a base, *c*, two downwardly-extending inwardly-curved jaws, *c'*, and a set-screw, c^3, passing through one of said jaws and adapted to impinge against the frame of the tricycle for securing the clip in place, the inner end of said set-screw being reduced or pointed.

4. In a child's seat for tricycles, the combination, with a clip removably attached to the frame of the tricycle, of two springs secured to said clip, a seat and seat-back secured to said springs, and holding-straps G, attached to each side of said clip and to the upper bend or convolution of said springs, the upper or free ends of said straps being provided with a buckle and holes for fastening them together over the child's lap.

5. In a child's seat for tricycles, the combination, with a clip removably attached to the frame of the tricycle, of two springs secured to said clip, a seat and seat-back secured to said springs, and holding-straps G, attached to each side of said clip and to the upper bend or convolution of said springs, the upper or free ends of said straps being provided with a buckle and holes for fastening them together over the child's lap, said straps being longitudinally adjustable between their points of fastening to the clip and to the springs.

6. In a child's seat for tricycles, the combination, with a clip removably attached to the frame of the tricycle, springs secured to said clip, and a seat and seat-back secured to said springs, of steadying-straps H, connecting said springs and a stationary part of the tricycle for preventing a too great forward and back motion of the seat.

7. In a child's seat for tricycles, the combination, with a clip removably secured to the frame of the tricycle, of two springs, E, secured to said clip, said springs extending backward and upward from said clip, forming one forward convolution, the upper bows of which constitute the arms of the seat, and extending upward at their free ends, and a seat and seat-back secured to said springs.

8. In a child's seat for tricycles, the combination, with a clip removably secured to the frame of the tricycle, springs secured to said clip, and a seat secured to said springs, of a casting, J, provided with holes for receiving the upper or free ends of said springs, set-screws for holding said casting in place on said springs, and a seat-back bolted to said casting.

9. In a child's seat for tricycles, the combination, with a clip removably secured to the frame of the tricycle, springs secured to said clip, and a seat secured to said springs, of a casting, J, provided with holes for receiving the upper or free ends of said springs, set-screws for holding said casting in place on said springs, a seat-back bolted to said casting, said casting being also provided with another hole extending vertically through its center, a canopy-support, L, therein, a canopy, M, secured to the upper end of said support, and a set-screw, *k'*, for securing said support in position.

10. In a child's seat for tricycles, the combination, with a clip removably secured to the frame of the tricycle, of springs secured to said clip, a seat secured to said springs, and a foot-rest attached to the under side of said seat.

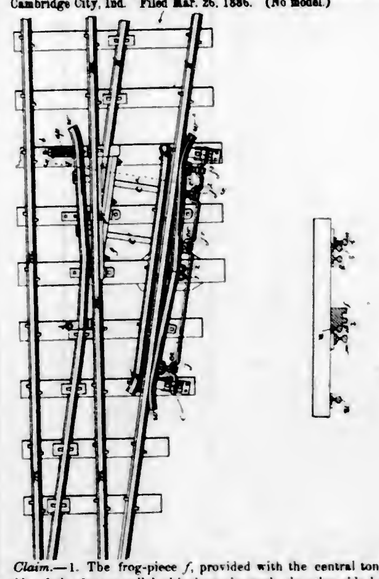
11. In a child's seat for tricycles, the combination, with a clip removably secured to the frame of the tricycle, of springs secured to said clip, a seat secured to said springs, and a foot-rest attached to the under side of said seat, said foot-rest comprising a metallic band, N, extending downwardly from the under front edge of said seat and provided with a number of holes, and a foot-rest properly bolted thereto through one of said holes.

352,077. CONVEYER-BUCKET. Henry W. Avery, Cleveland, Ohio, assignor of one-half to William C. Avery, same place. Filed July 3, 1886. (No model.)



Claim.—The combination, with the bucket or box having on the rear wall thereof the undercut rigid projections, of the elongated plates rigidly secured to the belt or chain, and provided with edges adapted to engage the projections on the bucket or box, for the purpose of removably securing the bucket or box to the belt or chain, substantially as set forth.

352,078. AUTOMATIC RAIL-FROG AND SWITCH. Casper Buhrer, Cambridge City, Ind. Filed Mar. 26, 1886. (No model.)



Claim.—1. The frog-piece *f*, provided with the central tongue, *t*, one side of the frog, parallel with the main track, the other side being at an acute angle thereto, the portion of the frog next the main rail cut away between the tongue and main rail, so that the offset will be level with the top of the main rail, the tongue and rail portion of the frog being elevated above the main rail, and the groove *gr* between the tongue and rail portion, substantially as and for the purposes described.

2. The frog-piece *f*, provided with the tongue *t*, and the outside rail portion elevated above the main track, the groove *gr*, to receive the flange of the car-wheel, and the siding-rails *s*, the inside one of which is elevated so that its end is on a level with the frog and above the main rails, all combined substantially as described.

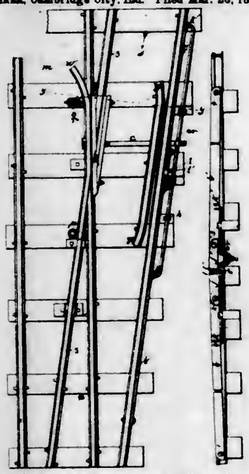
3. The frog-piece *f*, its tongue and rail portion elevated above the main-track rail, provided with an offset next the main-track rail, and the groove *gr* between the tongue and rail portion of the frog, the siding-rails *s*, main rails *m*, the wing-rail *w*, pivoted at 3, the wing-rails *w'* and w^2, pivoted at 1 and 2, and the crank-rod *cr*, with rods connecting the same to the several wing-rails, all combined substantially as described.

4. The continuous main rails *m*, the siding-rails *s*, the outside one of which is continuous, the inside one elevated from a short distance below its junction with the main rail and connecting with an elevated frog, so as to lift the wheel of the approaching car entirely over the main rail, a series of elevated wing-rails pivoted at one end and connected by suitable rods with a crank-rod, these wing-rails being so arranged with reference to the main and siding rails as to be thrown by either side of a car-wheel moving over the tracks, so as to leave the main track continuous at all times, and to form a practically continuous siding-rail, in combination with a spring mechanism connected with one or more sides of these wing-rails for throwing the wing-rails back into their normal position after the train has passed over the track, all combined substantially as described.

5. The continuous main-track rails *m*, the siding-rails *s*, one or both sides of the latter elevated near the junction with the main track, the frog *f*, whose tongue and rail portions are also elevated above the main track and adapted to connect with the elevated siding-rails, the pivoted wing-rails *w'* and w^2, connected to each other and to the reversible crank-rod *cr*, the spring mechanism *sp*, connected to the wing-rail *w*, for throwing the wing-rails back in the position they had before the train has passed over, and the guide-rail *g*, all combined substantially as described.

352,079. AUTOMATIC CONTINUOUS RAIL-FROG AND SWITCH.

CASPER BUHRER, Cambridge City, Ind. Filed Mar. 26, 1886. (No model.)



Claim.—1. An automatic continuous-rail mechanism composed of a curved wing-rail elevated above the main track and pivoted at one end along the side of such track, and connected to a crank-rod which is operated by one or more pressure-bars pivoted to the side of a switch or siding-rail, so that a train passing over such rail and bars will force said bars downward and operate the crank-rod, so as to throw the wing-rail in position for the siding or switch, all combined substantially as described.

2. The main track *m*, the side track, *s*, the inner rail of the siding elevated above the main track near its junction, the frog-piece *f*, bolted to the main track, so as to complete the junction of the siding with such main track, the wing-rail *w*, pivoted at *p* and connected by a rod, c, to the crank-rod *cr*, the spring mechanism *sp*, secured to the wing-rail, the pressure-bars *b* and *b'*, pivoted to the outer siding-rail and connected together by the joints *j* and *j'*, and adapted to operate upon projections *k* and *k'* of the crank-rod *cr*, all combined substantially as described.

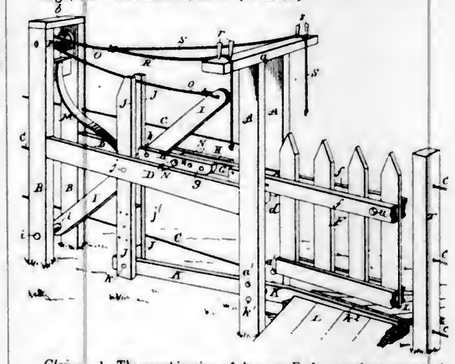
3. An automatic continuous-rail mechanism composed of a curved wing-rail elevated above the main track and pivoted at one end along the side of such track, connected to a crank-rod which is operated by one or more pressure-bars pivoted to one of the siding-rails, so that a train passing over such rail will force said bars downward and operate the crank-rod, so as to throw the wing-rail in position for the siding or switch, the spring mechanism *sp*, connected with the wing-rail *w*, for drawing the wing-rail back from the main track, the elevated frog-piece for completing the junction between the siding and the main track, and the guide-rail *g*, all combined substantially as described.

4. An automatic continuous-rail mechanism composed of a main track, side-track rails, the inner one elevated above the main track, an elevated curved wing-rail pivoted at one end along the side of such track and connected to a crank-rod which is operated by one or more pressure-bars pivoted to one of the siding-rails, so that a train passing over such rail will force said bars downward and operate the crank-rod, throwing the wing-rail in position for the siding or switch, and an elevated frog-piece bolted to the main track, completing the junction between the siding and main-track rail, all combined substantially as described.

5. A railway-track junction composed of main rails and siding-rails, the junction between the two formed by a frog, the tongue and track portion of which are elevated above the main rails, the siding-rails in either direction from such junction with the frog being also elevated above the main rail, decreasing from about the center each way to an ordinary level, a wing-rail pivoted to one side of the main-track rail and elevated above such rail, adapted to be thrown in line with the siding-rails by means of the pressure of the car-wheel upon the top of bars pivoted to the onter siding-rail, connected by a suitable crank-rod mechanism with the wing-rail, and a spring mechanism for throwing the wing-rail away from the main-track rail when the pressure upon such bars is released, all combined substantially as described.

6. A track mechanism composed of a pair of ordinary rails, one or more pressure-bars pivoted to one side of such rails, and a crank-rod connected to such pressure-bars, operated by the pressure of the car-wheel upon the top face of the pressure-bar, substantially as described.

352,080. GATE. HENRY P. BULLOCK and HENRY P. CAYCE, Jonesborough, Tex. Filed Mar. 11, 1886. (No model.)



Claim.—1. The combination of the gate F, front and rear posts, A B, lever K, pivoted between its ends to the lower ends of the front posts, a vertically-movable platform, L, in the gateway, adapted to operate the front end of the lever K, bars J, connected at the lower ends to the rear end of lever K, a forwardly-inclined lever, I, pivoted at its lower end to the lower ends of the rear posts and at *j* to the bars J, and links H, pivotally connecting the gate and the lever I above the point *j*, substantially as set forth.

2. The combination, with the gate F, forwardly-inclined lever I, having a pivotal connection therewith, vertical bars J, pivoted between their ends to the said lever, and links H, connecting the lever I to the gate above the point of connection with bars J, of the spring M, acting between the rear posts and the lever I, and means for moving the said lever and bars upward against the action of the spring, substantially as set forth.

3. The combination, with the gate F, front and rear posts, A B, forwardly-inclined lever I, pivoted at its lower end to the rear posts, and links H, connected to the inner end of the gate and to the lever I between its ends, of the cord O, connected to the upper end of lever I, the guide-pulley P at the upper ends of the rear posts, over which the cord passes, and cords R S, connected to the end of cord O, and pendent from a head-piece, *a*, on the front posts, substantially as set forth.

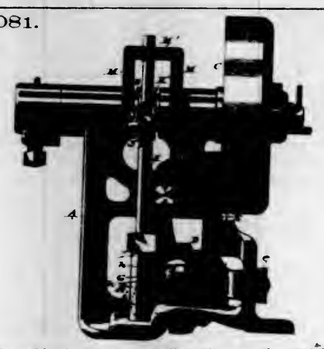
4. The combination, with the gate F, forwardly-inclined lever I, pivoted at its lower end to the rear gate-posts, and links H, pivoted to the rear end of the gate and to the lever between its ends, of a pin, N, passed through holes in the links H beyond their pivotal points and through a bar fixed to the rear end of the gate, substantially as set forth, whereby the gate will be lifted as it is opened.

352,081. CORD-HOLDER FOR GRAIN-BINDERS. ORVILLE COOLEY, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed Jan. 23, 1886. (No model.)

Claim.—1. The combination of the knotter-frame carrying the revolving shaft, the lug-ring mounted upon the knotter-operating shaft, the disk-operating rod having the projection J, the guide M', the shell G, dog H, the ratchet-pinion, and cord-holding disk, all arranged and operating substantially as described.

2. The combination of the knotter-shaft carrying the lug-ring, the

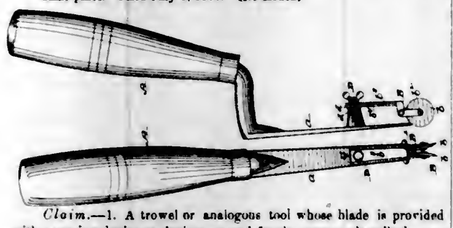
352,081.



disk-operating rod having the face-nut adjustably screw-threaded thereon, the rod-guiding plate M', and the shell G, provided with the dog H, the shell encircling the ratchet-pinion, the dog and shell being pivotally connected with the disk-operating rod, as shown, whereby an intermittent rotary movement is given the pinion at each reciprocation of the rod, for the purpose described, and substantially as herein set forth.

3. The combination of the cord-holding disk, the ratchet-pinion attached thereto, the shell encircling the pinion, the disk-operating rod pivotally connected to the shell at the lower end of the rod, the rod-guiding plate M', the nut J, adjustably screw-threaded upon the rod, and the nut-locking pin *j*, all these parts arranged and operating substantially as described.

352,082. TOOL FOR FINISHING JOINTS OF BRICK WALLS. ARTHUR E. CROSS, St. Louis, Mo., assignor of one-half to Benjamin F. Rex, same place. Filed July 9, 1886. (No model.)



Claim.—1. A trowel or analogous tool whose blade is provided with a scoring device or devices, as and for the purpose described.

2. A trowel or analogous tool having a scoring device adjustable laterally thereon, as and for the purpose described.

3. A trowel or analogous tool having a scoring device attached to an arm, which in turn is capable of being swung around upon the blade of the trowel or tool, as and for the purpose described.

4. The combination of the trowel A and the scoring device or devices B B', substantially as described.

5. The wheel or wheels *b b*, adjustable toward and from the blade *a*, as and for the purpose described.

352,083. FILE. GEORGE CURTIS, Whitney, Tex. Filed Mar. 9, 1886. (No model.)



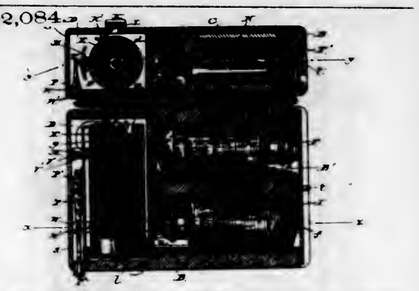
Claim.—1. A file having the teeth upon its faces so cut that they extend half-way across the faces, meeting at their inner ends at an angle, and having a longitudinal groove at the meeting ends of the teeth, as and for the purpose shown and set forth.

2. A file having its tang projecting rearwardly from one face above the other face of the file, as and for the purpose shown and set forth.

3. A file having a half-round convex face, with a tang projecting from one end of the said convex face above the same, as and for the purpose shown and set forth.

4. A file having an upwardly and rearwardly bent tang projecting from the end of its half-round face, as and for the purpose shown and set forth.

352,084. MEDICAL INDUCTION-COIL. LUIS DREICHER, New York N. Y. Filed Nov. 21, 1885. (No model.)



Claim.—1. The combination, with the induction-coil and rheotome in a Faradic machine, of a U-shaped electro-magnet constructed with parallel arms, of which one is elastic, the rigid arm being encircled by the induction-coil and the elastic arm made to extend parallel with the coil in proximity thereto, and to operate by its vibration as the contact-breaker of the rheotome, substantially in the manner and for the purpose herein set forth.

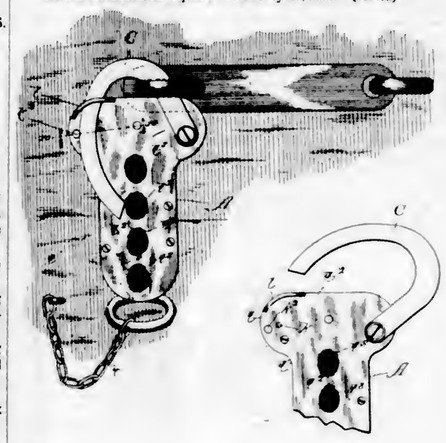
2. The combination, with the battery-cell C, induction-coil E, and vibrating armature M of an electro-magnetic machine, and with a metallic adjusting-lever, P, carrying the contact-point for its rheotome, of the metallic connecting-strip Q, fixed to the case of the machine to extend from beneath the lever P to one pole of said battery-cell, a metallic plate, W, traversed by the lever, and a screw, W', connecting the strip and plate and fitted with a head to project from the case and serve as a fastener for one end of an electrode, T, for the machine, substantially in the manner and for the purpose herein set forth.

3. The combination, with the battery induction-coil and rheotome in a Faradic machine, and with a case containing the same, of the detachable slotted metallic strips R R, a facing, T, of absorbent material fitted exteriorly upon each, wide-headed pins or screws secured to the case to project slightly therefrom and engage the slots in said strips R R, and thereby form a detachable fastening for the same, and electrical conductors connecting severally said pins or screws for the one strip with the positive pole and those for the other strip with the negative pole of the battery, substantially in the manner and for the purpose herein described.

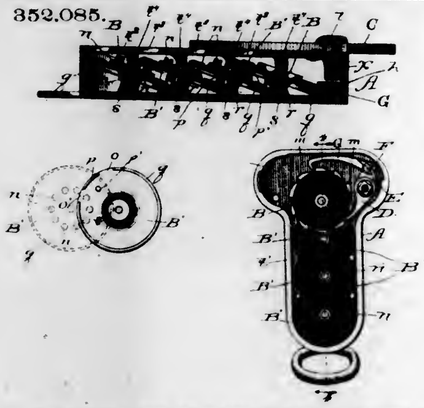
4. The combination, with the induction-coils in a Faradic machine, of a damper-coil encircling the induction-coil, and a metallic finger sliding over the damper-coil in contact with its convolutions upon a metallic conductor connected with one end of said damper-coil, whereby an independent metallic circuit of greater or less extent is closed around the induction-coil, substantially in the manner and for the purpose herein set forth.

5. The case A for an electro-magnetic machine, constructed in one piece having one or more cylindrical recesses, B B', for the battery-cells at one end, and a transverse compartment, D, for the induction-coil and rheotome at the other, in combination with a transparent cover, S, closing said compartment D, and a metallic plate, I, closing the receptacles B B', all substantially in the manner and for the purpose herein set forth.

352,085. LOCK. JOSEPH M. EDGAR, Kansas City, Mo., assignor to John Z. Rorabeck, same place. Filed July 29, 1886. (Model.)



352,085.



Claim.—1. In a safety lock or guard for freight-car doors and the like, the combination of registering mechanism comprising intermeshing rotary disks B and B', inclined in parallel planes to overlap each other, a catch to engage with the registering mechanism and actuate the same, and a bolt provided with an eccentric arm connected with the catch to actuate the latter by movement of the bolt, substantially as and for the purpose set forth.

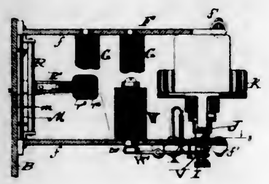
2. In a safety-lock or guard for freight-car doors and the like, the combination of registering mechanism comprising inclined numbered rotary disks B', overlapping each other, and provided on their under surfaces with flanges *q*, lips *p*, openings *o* and *o'*, and lugs *p'*, and on their upper sides with pins *n*, arranged in circles, and a disk, B, formed on its under side like the disks B', and provided with teeth *m*, and a bolt connected with the registering mechanism to actuate the same by movement of the bolt, substantially as and for the purpose set forth.

3. In a safety lock or guard for freight-car doors and the like, the combination, with the case A, having inclined lugs *s* on its base, and inclined lugs *t*⁴ on the covering-plate, provided with openings *t*³, of registering mechanism comprising inclined numbered rotary disks B B', inclined shafts *r*, extending from the lugs *s*, the disks overlapping each other and having on their under surfaces flanges *q*, lips *p*, openings *o* and *o'*, and lugs *p'*, pins *n*, arranged in circles on the upper sides of the disks B', and teeth *m* on the disk B, a catch, G, to engage with the teeth of the disk B and actuate the registering mechanism, and a bolt, C, provided with an eccentric arm, F, connected with the catch to actuate the latter by the movement of the bolt, substantially as and for the purpose set forth.

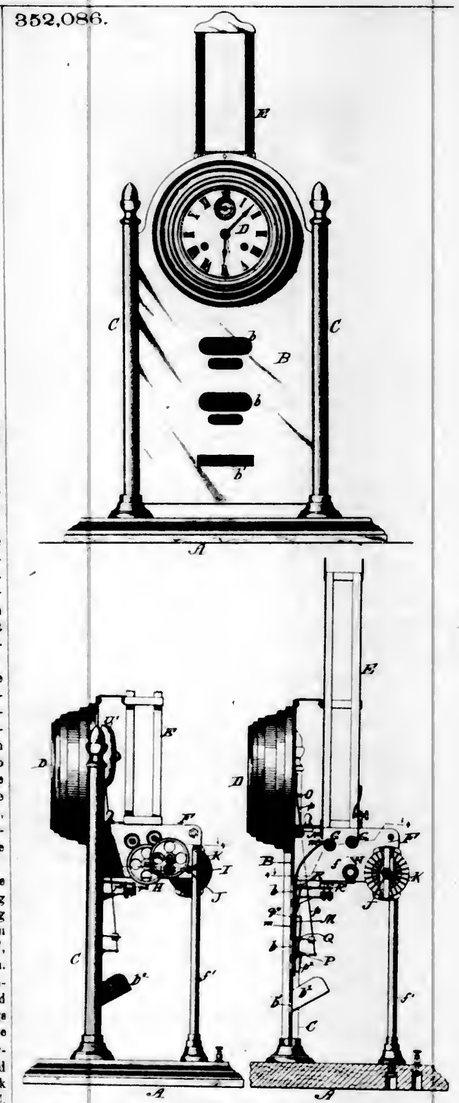
4. In a safety lock or guard for freight-car doors and the like, the combination of registering mechanism comprising inclined intermeshing rotary disks B B', and means for actuating said mechanism, comprising an arbor, C', a bolt, C, an eccentric arm, F, a pawl, D, a spring, E, on the arbor, having arms *h h'*, and a catch, G, connected with the arm F, to engage with the disk B, substantially as and for the purpose set forth.

5. A safety lock or guard for freight-car doors and the like, comprising in combination a case, A, having inclined lugs *s* on its base and inclined lugs *t*⁴ on the covering-plate, said plate provided with openings *t*³, numbered rotary disks B B' on inclined shafts *r*, extending from the lugs *s*, the disks overlapping each other and having on their under surfaces flanges *q*, lips *p*, openings *o* and *o'*, and lugs *p'*, pins *n*, arranged in circles on the upper sides of the disks B', and teeth *m* on the disk B, and means for actuating the disks, comprising an arbor, C', a bolt, C, an eccentric arm, F, a recessed pawl, D, a spring, E, on the arbor, having arms *h h'*, and a catch, G, connected with said arm F, to engage with the teeth *m* of the disk B, substantially as and for the purpose set forth.

352,086. ELECTRICAL TICKET-EXHIBITING MACHINE. HENRY J. ENNIS, Washington, D. C., assignor to John E. Talty, same place. Filed May 28, 1886. (No model.)



352,086.



Claim.—1. The combination, with a vertical ticket rack or box, of a roller-feeding mechanism located in the lower end and forming the bottom of said rack or box, consisting of two or more flexible-faced rollers revolving in different planes, as and for the purpose set forth.

2. The combination of a ticket-receptacle, ticket-feeding mechanism, a motor to drive said feed mechanism, and a clutch-connection between the motor and feed mechanism automatically operated by the action of the tickets in transit, as set forth.

3. The combination, in a ticket-exhibiting machine, of a ticket-feeding mechanism and a clutch connecting said mechanism with a prime motor, said clutch being automatically controlled by the operation of feeding the tickets, as set forth.

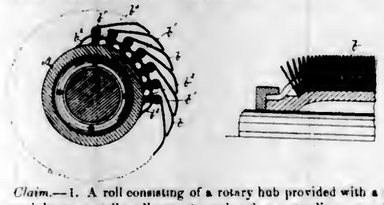
4. The combination, in an automatic ticket-exhibiting machine, of a ticket-feeding mechanism located under a ticket-receptacle, and an electric motor, with a clutch-connection between said motor and feed mechanism automatically controlled by an electro-magnet, and a battery operating both motor and magnet simultaneously, as set forth.

5. In an automatic ticket-exhibitor, the combination, with a ticket-receptacle, of a roller-feeding mechanism located below said ticket-receptacle and in contact with the lower or undermost ticket, and means, substantially as described for automatically controlling the feeding mechanism by the action of the fed tickets while falling by gravity when discharged from said feed mechanism, substantially as set forth.

6. In a ticket-exhibitor, the combination of a ticket-receptacle, the tickets within said receptacle, an electric motor, a feed mechanism for the ticket, and connections between said motor and feed mechanism to operate the feed and discharge the tickets, a clutch controlling said feed, a lever intermittently operated by the mechanism of a clock, and holding and releasing at intervals the tickets as they fall by gravity from the feed, as set forth.

7. The combination, in an automatic ticket-exhibitor, of a ticket-receptacle, a ticket within said receptacle, and a ticket-feeding mechanism, an electric motor having connections with said feed mechanism to operate the same, a clutch which controls said feed, a lever intermittently operated by the mechanism of a clock, means for arresting and releasing the tickets as they fall by gravity from the feed mechanism, and for connecting and disconnecting the clutch from the feed mechanism, said means being controlled by the intermittent action of said lever, as set forth.

352,087. ROLL FOR SOLE-BUFFING MACHINES. GEORGE A. FULLERTON, Boston, Mass., assignor to George H. P. Flagg, trustee, same place. Filed Feb. 23, 1883. (No model.)

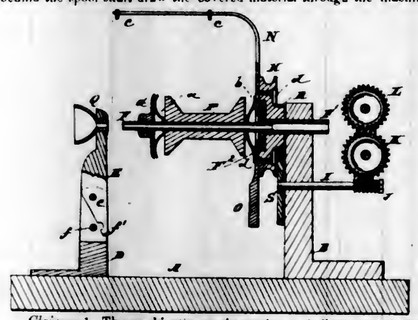


Claim.—1. A roll consisting of a rotary hub provided with a series of metal loops or coils adjacent to each other, extending around and bearing on the exterior circumference of said hub, substantially as set forth.

2. The combination of the roll and its journal, a series of rods, bent-wire springs strung on the rods, and caps, whereby the rods are secured at their ends to the roll, so that the bent-wire springs form a cushion, substantially as set forth.

352,088. MACHINE FOR WINDING FIBERS TO FORM STRANDS. GEORGE R. HOLDEN, Michigan City, Ind., assignor to the Warren Featherbone Company, Chicago, Ill. Filed Mar. 7, 1885. (No model.)

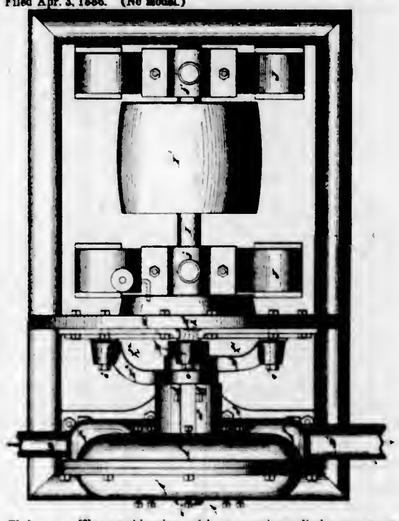
Brief.—The stationary hollow spool-shaft and tube are mounted in the standard, and over the said tube is loosely mounted the driving-pulley, having rigidly attached to it the winding-arm. Immediately in front of the spool-shaft is pivoted a guide so as to be capable of being turned down to allow the supply-spool to be removed. Drawing-rolls behind the spool-shaft draw the covered material through the machine.



Claim.—1. The combination of the stationary hollow spool-shaft F, the standard B, the stationary tube F', supported by the standard and having its inner end supporting the spool-shaft, and provided with a laterally-projecting collar, F², the rotating driving-wheel H, loosely mounted on the tube at one side of said collar, the winding-arm N at the opposite side of the collar, devices rigidly connecting the wheel and arm together, with the collar between them, a guide, Q, in advance of the spool-shaft, and the rotating feed-wheels K L, substantially as described.

2. The combination, with the hollow spool-shaft F and winding-arm N, of the standard D, having the attached stop-pin *f*, the post E, hinged between its ends to provide the pendent tail-piece *f'*, and the guide Q, secured to the upper end of the post, whereby the post and guide can be turned down below the spool-shaft, substantially as described.

352,089. ROTARY ENGINE. HENRY S. HOPPER, Detroit, Mich. Filed Apr. 3, 1886. (No model.)



Claim.—1. The combination, with an annular cylinder constructed with an outer piston-ring, of pistons located therein, said pistons engaged with concentric hubs, substantially as described.

2. An annular cylinder constructed with fixed and separable sections, one of said sections provided with a casing, a^3, and pistons located in the inner periphery of said cylinder, said pistons engaged with concentric disks, said disks provided with extended hubs, substantially as described.

3. An annular cylinder provided with inlet and exhaust ports, having, in combination therewith, pistons located in the inner periphery of the cylinder, said pistons engaged with concentric disks by connecting-arms *c c' c²*, substantially as described.

4. The combination, with an annular cylinder provided with inlet and exhaust ports, of pistons located in the inner periphery of the cylinder, concentric rotatable disks engaged with said pistons, said disks provided with crank-arms, substantially as described.

5. The combination, with an annular cylinder provided with inlet and exhaust ports, of pistons located in the inner periphery of the cylinder and engaged with concentric disks, and a guide-wheel engaged with said disks by intervening crank-arms, substantially as described.

6. The combination, with an annular cylinder provided with inlet and exhaust ports, of pistons located in the inner periphery of the cylinder and engaged with concentric disks, a wheel provided with guideways radiating from the center of said wheel and connected by crank-arms with said concentric disks, said arms working in said guideways, substantially as described.

7. The combination, with an annular cylinder provided with inlet and outlet ports, of pistons located in the inner periphery of the cylinder and having concentric disks engaged therewith, and an adjustable packing to engage said disks, substantially as described.

8. The combination, with pistons having concentric disks and concentric crank-arms, of a guide-wheel engaged with said crank-arms, the center of the circle described by said crank-arms and the center of said guide-wheel being upon a different line, substantially as described.

9. The combination, with rotatable pistons and their concentric disks, of a guide-wheel eccentrically connected with said disks, the construction being such that said pistons will operate with a different speed at different portions of their revolution, substantially as described.

10. The combination, with a guide-wheel provided with perforated guideways, and a flange, H³, of an oil-cup provided with a tube, *l*, leading to the flanged part of said wheel, the construction being such that oil will be communicated by centrifugal force to said guideways, substantially as described.

11. The combination, with a guide-wheel provided with perforations H³, and guideways *h h'* *h³*, of wrist-pins located in said guideways, the construction being such that said wrist-pins may be removed through said orifices in the guide-wheel, substantially as described.

12. The combination, with an annular cylinder provided with a casing, a^3, of pistons located in the inner periphery of the cylinder, concentric disks engaged with said pistons, said disks provided with hubs extended through the case a^3 of the cylinder, and wedge-shaped gibs and keys to tighten said hubs in said case, substantially as described.

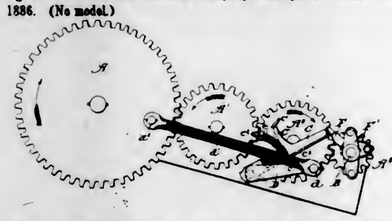
352,090. VELOCIPEDE. THOMAS HUBBER, Beeston, County of Nottingham, England. Filed Feb. 26, 1886. (No model.)



Claim.—1. The combination of the frame, the outer tube fixed thereto, the cam on the upper end of this tube, the tube rotating and sliding within the outer tube, the cam fixed on the upper end of the inner tube, the steering-handle, its stem projecting into and fixed to the inner tube, the compressed coiled spring thrusting upward against the lower end of the outer tube and downward against the lower end of the inner tube, the steering-wheel, its fork having the stem projecting into the inner tube and turning therewith and sliding therein, and the coiled spring within the inner tube and thrusting upward against it and downward upon the stem of the steering-wheel fork, all substantially as and for the purpose set forth.

2. A saddle-support for a tricycle or like vehicle, consisting of the combination of the base-plate, the blade-spring coiled at one end and jointed to one end of the base-plate, the bolt passing through the other ends of the base-plate and spring, and the coiled spring between the base-plate and blade-spring, substantially as set forth.

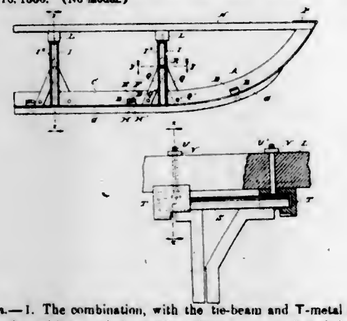
352,091. GRAIN-BINDER. HOMER JOHNSTON, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed Mar. 1, 1886. (No model.)



Claim.—1. The combination, with the binder-driving train and the driving-shaft of the binder provided with the usual clutch, of the trip-lever, the arm C', formed thereon, and the stud formed on one of the intermediate gear-wheels of the train, all arranged substantially as described, whereby the said arm and stud will come into engagement just before the engagement of the trip-lever and clutch-dog, substantially as set forth.

2. The combination, with the automatic binding mechanism of a harvester, of the arm C', the tripping-lever C, and the stop c' upon the wheel A', for the purpose of locking the binding mechanism out of engagement, substantially as described.

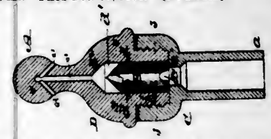
352,092. SLEIGH-RUNNER. EDWARD JORDAN, Ottawa, Ill. Filed Aug. 18, 1886. (No model.)



Claim.—1. The combination, with the tie-beam and T-metal runner, of the channel knee and channel knee-brace, connected at their upper ends by the half-round bar having projecting ends, and the metal open boxes with closed outer ends secured to the tie-beam by screw-bolts, substantially as specified.

2. In a sleigh, the combination, with the tie-bar and runners formed of T-iron, of the channel-metal knees, the knee-braces secured at one end to the vertical flange of the T-irons, and their opposite ends secured to the inner sides of the knees, as shown and described.

352,093. AIR-VENT FOR WATER-PIPES. JOHN C. KUPPERLE, St. Louis, Mo. Filed Dec. 17, 1885. (No model.)

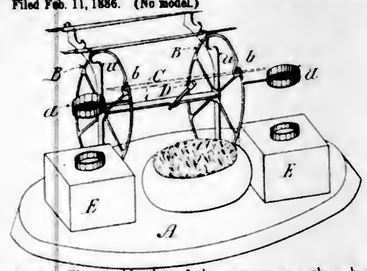


Claim.—An air-vent for water-pipes, having a vertical opening, a^3, a conical valve-seat, d^3, and a conical valve, said vertical opening extending up considerably beyond the upward limit of the valve, and two or more inclined openings, a^3 a^3, branching from said vertical opening, substantially as and for the purposes specified.

352,094. PROCESS OF CURING PORK. EDWARD J. J. LOOS, Paris, France. Filed Nov. 27, 1883. (No specimens.) Patented in France May 20, 1883, No. 149,061, and in Germany Dec. 12, 1882, No. 23,305, and May 7, 1883.

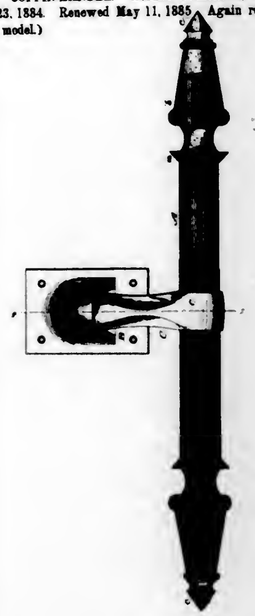
Claim.—The herein-described process of curing pork, which consists in subjecting the meat immediately after slaughtering to a boiling process for from two to six hours in a brine kept at a temperature sufficient to coagulate albumen, and of a density sufficient to float an egg, then subjecting it to a hot-air-drying process for about two hours.

352,095. INKSTAND. EDWARD W. MARSHALL, Philadelphia, Pa. Filed Feb. 11, 1886. (No model.)



Claim.—The combination of the supports *a a*, the wheels B, or segments thereof, having thereon the pen-holding notches *b*, the cover or covers *d*, said covers being detached from the ink-wells and integral with the tilting part of the rack, the connecting-axle C, and the screw-threaded adjustable balance-weight D, all arranged substantially as and for the purpose described.

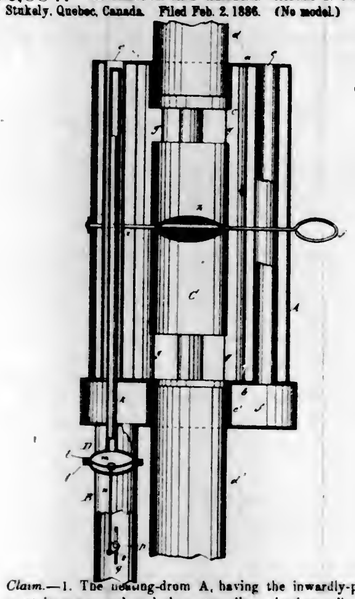
352,096. COFFIN-HANDLE. HUBERT W. MORGAN, Westfield, Mass. Filed Feb. 23, 1884. Renewed May 11, 1885. Again renewed Apr. 5, 1886. (No model.)



Claim.—1. A coffin-handle consisting of the cylindrical body A and one or more separate rings placed thereon and suitably disposed to impart the desired finish or style, as shown and described.

2. In a coffin-handle, a hinged supporting-arm for supporting the handle proper, having a loop, *c*, formed at its outer end by bending the metal back upon itself, the end of the bent portion being provided with a holding-lug, *c'*, which engages a recess, *c''*, in the body C, and the parts retained in proper position by a screw, *d*, which passes through the bent end into the body of the arm, as and for the purposes described.

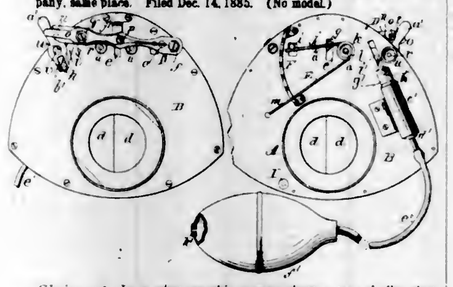
352,097. VENTILATOR AND HEATER. RODNEY S. OWEN, South Stukely, Quebec, Canada. Filed Feb. 2, 1886. (No model.)



Claim.—1. The heating-drum A, having the inwardly-projecting collar *c* at its upper end and the outwardly-projecting collar *c'* at its lower end, and provided with the annular chamber *f* around the collar *c'*, the air-flues *e*, extending lengthwise through the drum and communicating with the annular chamber, and the cold-air pipe communicating with the annular chamber *f*, substantially as herein shown and described.

2. The combination, with a drum provided with air-flues and a cold-air pipe, of a valve in the cold-air pipe, a pipe extending into one of the air-flues and having its upper end closed, a diaphragm in the lower end of the said pipe, and a connection between the diaphragm and the valve, substantially as herein shown and described.

352,098. SHUTTER FOR PHOTOGRAPHIC CAMERAS. CYRUS PROSCH, New York, N. Y., assignor to the Prosch Manufacturing Company, same place. Filed Dec. 14, 1885. (No model.)



Claim.—1. In a photographic-camera shutter, two similar shutters, C C', oppositely arranged with respect to each other and provided with trapezoidal openings *p*, with solid portions *c d*, opposite sides thereof, and having slots *h* formed radially with reference to the pivots of the shutters, and in the combination therewith of a pin, *g*, inserted in both slots and arranged to move the shutters in opposite directions, to effect the opening and closing of the aperture of the camera by the continued movement of the pin *h* in one direction, substantially as herein specified.

2. In a photographic-camera shutter, the combination of the casing B, apertured shutters C C', supported on pivots *a* in the casing and provided with slots *h*, arranged approximately at right angles with the arms of the shutters, in adjacent sides thereof, the lever D, provided with the pin *g*, projecting through the slot in the casing B and entering the slots *h* of the shutters, and means for moving the lever D, substantially as herein shown and described.

3. In a photographic-camera shutter, the combination of the casing B, shutters C C', pivoted therein and provided with slots *h*, the lever D, and pin *g*, projecting therefrom through the side of the casing B and into the slots *h* of the shutters, the shaft *v*, and triangular stud *w*, carried thereby, and means for turning the shaft *v*, substantially as herein shown and described.

4. In a photographic-camera shutter, the combination of the apertured and pivoted shutters C C', provided with slots *h*, the lever D, provided with a pin, *g*, projecting into the slots *h* of the shutter, the shaft *v*, and stud *w*, projecting from the end thereof, the adjustable spring E, the slotted lever *a'*, the pneumatic cylinder *c'*, and the piston *g'*, fitted thereto and provided with the stud *h'*, projecting into the slot of the lever *a'*, substantially as herein shown and described.

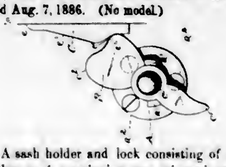
5. In a photographic-camera shutter, the casing B, the apertured and pivoted shutters C C', provided with the slots *h*, the lever D, provided with the pin *g*, projecting into the slots of the shutter, the lever having formed in the end thereof a notch, *n*, the adjustable spring *o*, carrying the stud *t*, the shaft *v*, and the triangular stud *w*, projecting from the end thereof, the adjustable spring E, and means for turning the shaft *v*, in combination, substantially as herein shown and described.

6. The combination, with a pneumatic cylinder, *c'*, of a camera-shutter, of the bulb *f'*, provided with the eyelet *k'*, for the expulsion of air to the bulb, substantially as herein shown and described.

7. The combination, with the camera-tube A, of the casing B, intersecting the tube, the shutters C C', pivoted in the casing and provided with the slots *h*, the lever D, having studs *g i*, the adjustable spring E, and means for holding and releasing the lever D, substantially as herein shown and described.

8. In a photographic-camera shutter, the combination of the tube A, the casing B, intersecting the tube, the apertured and pivoted shutters C C', provided with slots *h*, the lever D, pivoted to the casing B and carrying pins *g i*, the adjustable spring E, notched bar F, the adjustable spring *o*, provided with the stud *t*, the shaft *v*, and triangular stud *w*, projecting therefrom, the slotted lever *a'*, secured to the shaft *v*, the pneumatic cylinder *c'*, and piston *g'*, working thereon and provided with the pin *h'*, the flexible bulb *f'*, provided with the eyelet *k'*, and the tube *e'*, connecting the pneumatic cylinder *c'* and the bulb *f'*, substantially as herein specified.

352,099. SASH-FASTENER. EDWARD D. ROCKWELL, Jacksonville, Fla. Filed Aug. 7, 1886. (No model.)



Claim.—A sash holder and lock consisting of a base-plate having the stop-shoulders *a a'*, a swinging arm pivoted centrally to the base-plate, between the stop-shoulders thereof, and normally in contact therewith, and having an enlarged end, and a fixed stop, against which the ends of the swinging arm impinge, substantially as described, for the purpose set forth.

352,100. BRACKET FOR USE IN THE DRAPING OF WINDOWS. JOHN C. SPOFFORD, Boston, Mass. Filed Nov. 12, 1885. (No model.)



Claim.—1. As an article of manufacture, a plate adapted to be attached to a window-jamb and provided with a socket for the reception of an end of a curtain-pole, and a bearing for a shade-roller in a raised boss on its face, substantially as and for the purpose specified.

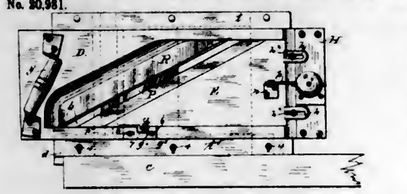
2. As an article of manufacture, a plate adapted to be attached to a window-jamb and provided with a socket for a curtain-pole, and bear-

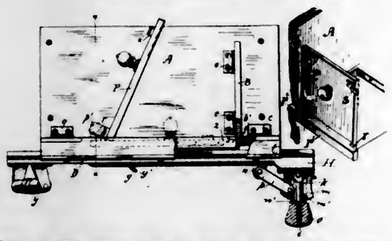
ings for two or more shade-rollers raised above its surface, substantially as and for the purpose set forth.

3. As an article of manufacture, a plate adapted to be fastened to a window-jamb and provided with a raised socket for the reception of a curtain-pole, one or more raised bearings for shade-rollers, and a spring adapted to engage the end of a curtain-pole inserted in the socket, substantially as and for the purpose described.

4. As a means for supporting a curtain-pole and shade-roller for a window, the plate provided with a socket for one end of the curtain-pole, and a bearing for one end of each shade-roller, in combination with the corresponding plate provided with a socket for the other end of the curtain-pole, and the spring to engage the end of the pole inserted in such socket, and with a raised bearing for the end of each shade-roller, each bearing being grooved or slouted to admit the passage of the shade-roller pivot into the journal-opening therefor, substantially as and for the purpose specified.

352,101. MEAT AND VEGETABLE SLICING MACHINE. CHARLES W. STEVENS, Beebe Plain, Quebec, Canada, assignor of one-half by mesne assignments, to Alonzo A. House, Bristol, Ohio. Filed Jan. 9, 1885. Renewed Sept. 15, 1886. (No model.) Patented in Canada Jan. 26, 1885, No. 20,981.





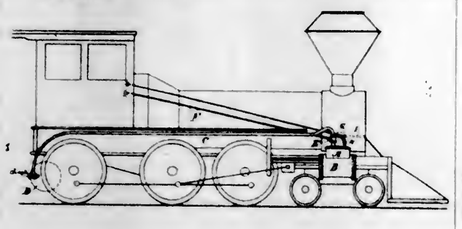
Claim.—1. The combination, in a slicing-machine, with a table, a connected vertical slide-frame having a knife-holder with knife, and a head-board hinged to the table, of a swinging gate provided with a post removably mounted in the table, as specified, and having a reduced portion at its upper end, and a stop attached to the top of said gate, whereby the gate may be moved into the slide-frame in close proximity to the knife, as specified.

2. The combination, with a knife-holder provided with a knife and L-shaped groove g^2, and the plate having an L-shaped slot, the elongated screw-slots, and the holding-screws passing through the screw-slots and into the knife-holder, of a gage-board provided at its smaller end with the wing g, having bent portion g', and mechanism at its larger end to move the gage-board in and out of the knife-holder, substantially as set forth.

3. The combination, with a knife-holder provided with a sector and a swinging screw-rod and retaining means to hold the screw-rod at various points to the sector, of a movable gage-board and a connecting-link, as and for the purpose specified.

4. The knife-holder provided with a knife and movable gage-board, combined with a sector mounted on the knife-holder, a pivoted plate provided with a screw-rod having a washer and adjusting-knob, and a pivoted connecting-link, all as set forth.

352,102. AIR-COMPRESSOR AND ATTACHMENT FOR LOCOMOTIVES. THOMAS P. SWEENEY, Sacramento, Cal. Filed Mar. 23, 1886. (No model.)



Claim.—1. The combination, with the steam chest or cylinder of a locomotive-engine, of the exhaust-pipes H, a hood, G, fitted to move over said pipes, the lever engaging and moving said hood, the pipe I, communicating with the exterior air and guiding the movements of the hood, and the pipe C, connecting the steam chest or cylinder with the air-reservoir, substantially as and for the purpose set forth.

2. The steam-chest A, the pipe C, and the valve E, in combination with the operating-rods F, the exhaust-pipes H, the hood G, fitted on top of said pipes, and engaged and operated by suitable levers, as shown, and a pipe, I, passing through the smoke-box into the exterior air and guiding the movements of the hood, all constructed and arranged to operate as herein described.

352,103. LOCKING DEVICE FOR BUCKLES. SIMON L. WALDMAN, Chelsea, Mass., assignor of one-half to John Webster, same place. Filed Sept. 1, 1886. (No model.)

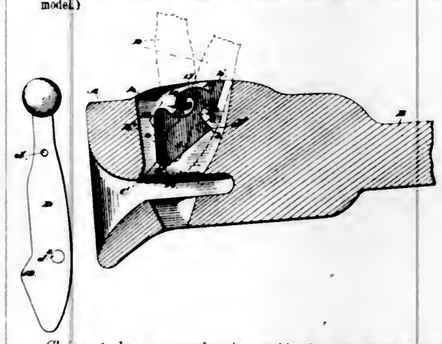


Claim.—1. In combination with a strap provided with a buckle, the clasp-sections removably disposed upon the strap, one at each end of the buckle, and locked by a connecting-link to prevent the buckle from being operated, substantially as stated.

2. A locking device for buckles, composed of a clasp-section, B, with its locking mechanism, and the clasp-section C, with its hasp f, adapted to unite the said clasp-sections and rest on the face of the buckle contained between the clasp-sections, as and for purposes herein stated.

3. The clasp-section B, provided with locking mechanism and the orifice e, in combination with the clasp-section C, its orifice e, and the hasp f, the said clasp-sections co-operating with a strap and buckle, substantially as set forth.

352,104. CAR-COUPLING. JOHN P. WILSON, Poughkeepsie, N. Y., assignor to Geraldine B. Wilson, same place. Filed Apr. 27, 1886. (No model.)



Claim.—1. In a car-coupler, the combination, with a draw-head having a vertical longitudinal slot therein, of a camway extending transversely from each side of the said vertical longitudinal slot, said camway having irregular walls with a rest formed in the upper portion and a projection in the rear portion thereof, a link-pin having wrist-pins engaging with the vertical longitudinal slot and the camway, and a horizontal link-recess, substantially as described, and for the purposes specified.

2. In a car-coupler, the combination, with a draw-head having a vertical longitudinal slot therein and a camway extending transversely from each side of said slot, of a flat coupling-pin engaging with said slot and camway and a cord secured near the top of said coupling-pin, passing down through staples on the outside of the draw-head, substantially as described.

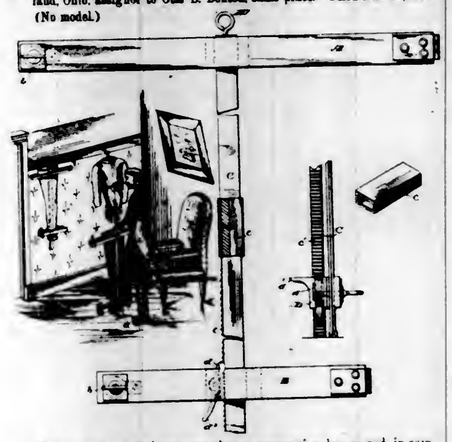
352,105. INDUCTION-COIL. KARL ZIPERNOWSKY, Buda-Pesth, MAXIMILIAN DÉRI Vienna, and OTTO TITUS BLÁTHY, Buda-Pesth, Austria-Hungary. Filed May 7, 1885. (No model.) Patented in Austria-Hungary Mar. 3, 1885; in France Apr. 21, 1885, No. 168,417; in Belgium Apr. 21, 1885, No. 68,583; in England Apr. 27, 1885, No. 5,201, and in Italy June 30, 1885, XXXVI, 154.



Claim.—1. An inductional transformer consisting of primary and secondary conductors wound or extending continuously in the same direction and having free terminals and an iron core or body closed upon itself and around said conductors, the core or body being formed of sections insulated from each other parallel to the lines of magnetic force, substantially as herein set forth.

2. An inductional transformer consisting of a closed hoop or ring-shaped iron core made of sections insulated from each other parallel to the lines of force and primary and secondary helices wound uniformly and continuously in the same direction on the core and having free terminals, substantially as herein set forth.

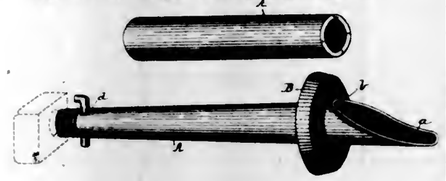
352,106. PANTALOONS-STRETCHER. CHARLES H. BENTON, Cleveland, Ohio, assignor to Otis B. Benton, same place. Filed Jan. 16, 1886. (No model.)



Claim.—In a pantaloons-stretcher, a connecting-bar or rod, in combination with two clamps, one secured rigidly to the bar at one end and the other mounted loosely thereon at the other end, pawl-and-ratchet mechanism for adjusting and holding the loose clamps on the bar, and a foot-rest on said clamp to depress it in stretching the trousers, substantially as set forth.

REISSUES.

10,776. PROCESS OF MAKING AXLE-SKEINS. ROBERT GRACEY, Pittsburg, Pa., assignor, by direct and mesne assignments, to Charles B. Gracey, William L. Gracey, (Catharine A. Gracey executrix of said Wm. L. Gracey, deceased,) and Robert S. Stephenson, all of Allegheny, Pa. Filed Oct. 7, 1886. Original No. 323,481, dated Oct. 20, 1885.



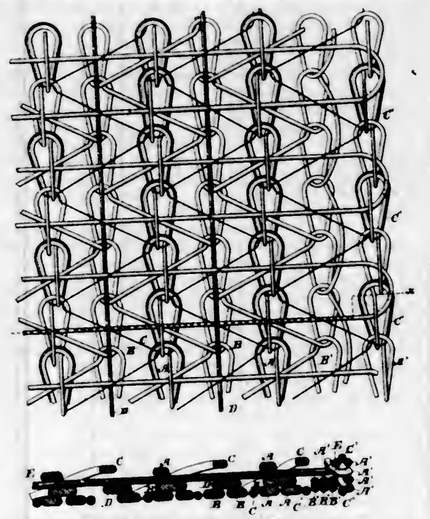
Claim.—1. The process herein described for forming axle-skeins, the same consisting, essentially, in placing a blank of tubular material whose inside diameter is about equal to the outside diameter of the axle between suitable dies, then swaging this blank, thereby elongating and reducing its diameter, then hammering its enlarged end to form a lip for securing it to the axle, and finally in shrinking on a washer and forming a perforation for the linchpin upon its reduced end, substantially as and for the purpose set forth.

2. As steps in the manufacture of axle-skeins, swaging between suitable dies a blank of tubular material, thereby elongating it and reducing its diameter, and then hammering its enlarged end to form a lip for securing the skein to the axle, substantially as set forth.

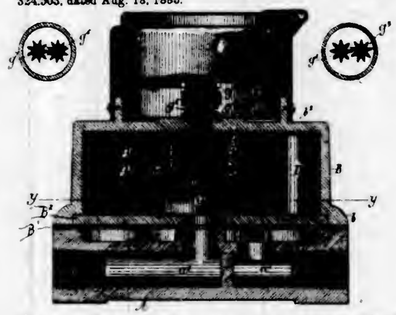
10,777. BELTING. BENJAMIN L. STOWE, Brooklyn, assignor to J. Van D. Reed, New York, N. Y. Filed Sept. 29, 1886. Original No. 321,154, dated June 30, 1885.

Claim.—1. A solid knit-fabric belt having incorporated therewith separate projecting knit-fabric edges, as and for the purposes hereinbefore set forth.

2. A solid knit selvaged fabric belt having incoporated therewith separate projecting knit-fabric edges external to the selvages, as and for the purposes hereinbefore set forth.



10,778. WATER-METER WITH REVOLVING PISTONS. JAMES A. TILDEN, Hyde Park, Mass., assignor, by mesne assignments, to the Hersey Meter Company, Portland, Me. Filed Sept. 30, 1886. Original No. 324,503, dated Aug. 18, 1885.



Claim.—1. A fluid-meter having a stationary piston-chamber with measuring-recesses opening therefrom, each separately provided with inlet and outlet ports, and having a movable piston fitted, as described, in said chamber, with lobes conforming to the chamber-recesses, each lobe entering and moving in but one recess, and adapted to be held and moved in contact with the walls thereof by hydraulic action, as specified, and having parallel stationary heads or plates, whereby end-pressure on the piston is relieved and weight of the moving parts is reduced, substantially as set forth.

2. A fluid-meter having a stationary piston-chamber with measuring-recesses opening therefrom, each separately provided with inlet and outlet ports, and having a movable piston fitted, as described, in said chamber, with lobes conforming to the chamber-recesses, each lobe entering and moving in but one recess, and adapted to be held and moved in contact with the walls thereof by hydraulic action, as specified, and having the opposed arrangement of the ports, whereby balanced valvular action is effected, substantially as set forth.

3. A fluid-meter having a stationary piston-chamber with measuring-recesses opening therefrom, each separately provided with inlet and outlet ports, a movable piston fitted, as described, in said chamber, with lobes conforming to the chamber-recesses, each lobe entering and moving in but one recess, and adapted to be held and moved in contact with the walls thereof by hydraulic action, as specified, parallel stationary heads or plates, whereby the weight of the piston is reduced and end-pressure thereon is relieved, and an opposed arrangement of the ports, whereby balanced valvular action is effected, substantially as described.

4. In a fluid-meter, the piston-chamber having measuring recesses or spaces forming a part thereof, a piston, F, having a projection or lobe entering each of said spaces or recesses, which projections or lobes are adapted to be brought successively into contact with the walls of said spaces or recesses and to be moved therein, and the contact maintained

during the discharge of the liquid from each space or recess by the direct pressure in the piston-chamber, as specified, a register, and devices connecting the piston with the register, all substantially as and for the purposes set forth.

5. In a fluid-meter, the piston-chamber having measuring spaces or recesses forming a part thereof, the stationary port-plate B^2, a distributing-chamber having an inlet, a', the passages or inlet-ports E in the said stationary port-plate B^2, connecting the distributing-chamber with the measuring spaces or recesses of the piston-chamber, and a piston having a separate or distinct lobe or projection, which enters each of said measuring spaces or recesses, and is operated or moved and its contact maintained by the excess of pressure, as herein set forth, all substantially as and for the purposes described.

6. In a fluid-meter, the combination of the distributing-chamber a^2, its inlet a', the piston-chamber D, having measuring recesses or spaces d, the uncontrolled ports or passages E, connecting the distributing-chamber a^2 with the recesses or spaces d, the outlet-ports E' E^2 and escape-passage connected therewith, and the piston F, having the lobes or projections f, one for each of the measuring spaces or recesses d, and operated or moved therein to maintain contact during the discharge of the liquid from each space or recess by the direct pressure in the piston-chamber, as specified, all substantially as described.

7. In a fluid-meter, the independent or separate base-section containing the inlet-passage a', the distributing-chamber a^2, and the outlet-passage a^3, with the independent or separate section B, containing the piston-chamber D, having the measuring recesses or spaces d, connected with the distributing-chamber and outlet-passage, as described, and the piston F, having a lobe or projection for each of said spaces or recesses, and the bolts for fastening the two sections of the meter together, all substantially as and for the purposes described.

8. The combination of the section A, having the distributing-chamber a^2, the section B, and the removable port-plate B^2, having the inlet-ports E and outlet-ports E'.

9. In a meter, the combination of the section A, having the distributing-chamber a^2, the section B, containing the measuring-chamber, the port-plate B^2, and the packing-ring B'

10. In a fluid-meter, as a means for communicating the motion of the piston to the register, the mechanism described, consisting of the stationary gear g^2, the revolving gears g' g^3, adapted to be revolved around the stationary gear by the piston, and the gear g^3 upon the connecting-spindle.

11. The combination of the piston F, the disk G, the drum or frame g^3, pivoted as described, to be revolved, and the differential gears inclosed within said drum or case.

12. The combination, in a fluid-meter, of the piston-chamber D, the piston F, the reducing mechanism or gearing for transmitting the motion of the piston to the registering device contained in a recess in the piston, and the registering mechanism, all substantially as and for the purposes described.

13. A fluid-meter having a piston-chamber with measuring-recesses opening therefrom, each separately provided with inlet and outlet ports, and having a piston fitted and moving as and for the purpose described, with lobes conforming to the chamber-recesses, and serving alternately and in successive order to valvularly control or open and close the outlets formed in the heads and piston.

10,779. CONVERTIBLE CHAIR. HENRY H. DE PEW, Maquoketa, Iowa. Filed May 18, 1885. Original No. 300,228, dated June 10, 1884.

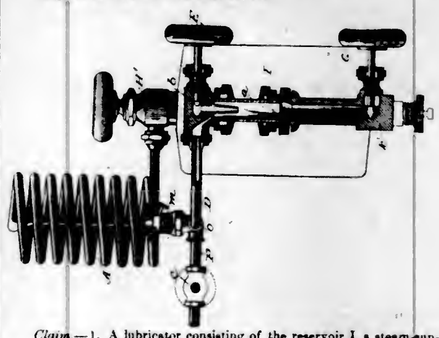


Claim.—1. In a convertible chair, the combination, with the seat having hinged thereto the back and foot-rest, of the arm-rests H, pivoted to the back, bars I, pivoted to the seat at or near their centers and to the arm-rests H at their upper ends, and connected at their lower ends to the foot-rest by bars J, constructed in two parts hinged together, substantially as described.

2. The combination of the base A, springs B, secured thereto and supporting the chair-seat near its rear end, and supporting-bars O O, attached to the chair-seat near its front end and to the side pieces of the frame A, substantially as and for the purposes specified.

3. The combination, with base A, having suitable supports, of the chair-seat pivoted to said supports, supporting-bars O, attached to said seat and having a cross-head, P, adapted to engage with a slotted plate, Q, on the base, and hinged lever R, mounted on the base and pivoted to the bars O, substantially as and for the purposes specified.

10,780. LUBRICATOR. PHILLIP L. SCHMITT, Quincy, Ill., assignor to the Peerless Oil Ejector Company, same place. Filed Sept. 28, 1886. Original No. 320,703, dated June 23, 1885.

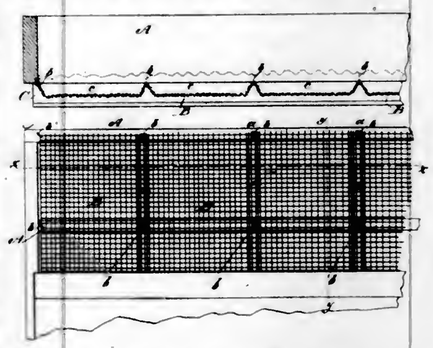


Claim.—1. A lubricator consisting of the reservoir I, a steam-supply pipe connected with a condensing-coil communicating with the reservoir, sight-feed tubes on each side of the reservoir, equalizing branch pipes D, extending from the main supply-pipe P to the caps of the sight-feed tubes, and direct connections between the sight-feed tubes and the parts to be lubricated, substantially as described.

2. In combination, the oil-reservoir of the lubricating-cup, the steam-supply pipe P and its lateral branches D, the sight-feed tubes arranged upon each side of the reservoir, a condensing-coil, and the check-valve m, placed in the said pipe A above the junction of the branches D with the pipe P, all substantially as described.

3. In combination with the reservoir of a lubricator-cup, the pipe P, and its branches D, the pipe A, extending upward from the junction of the pipes P and D, and terminating in a coil wound downward around the said pipe A and communicating with the reservoir at the top thereof, substantially as described.

10,781. METALLIC PLASTERING-SURFACE. JAMES STANLEY, New York, N. Y., assignor, by direct and mesne assignments, to the Stanley Corrugated Fireproof Lathing Company, of New York. Filed June 23, 1886. Original No. 290,133, dated Dec. 11, 1883.



Claim.—1. A metallic plastering-surface consisting of the wire-cloth B, corrugated or ribbed, and strengthened at the ribs or corrugations by extra strands or by rods, substantially as and for the purposes described.

2. The wire-cloth B, ribbed or corrugated, as shown at a, and attached to the joists or studding A by staples b or other fastening, the ribs a being arranged transverse to the joists or studding, substantially as described.

3. The combination, with beams, joists, or other equivalent supports of a building, of a flat strip or strips of corrugated wire-cloth applied without stretching, and arranged with the corrugations projecting toward the support and sealed to the support by plaster keyed through both the corrugated and uncorrugated portions, substantially as and for the purposes described.

N. PETERS, Photo-Lithographer, Washington, D. C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE VAILE.

Decided October 18, 1886.

1. "Where an amendment is proposed in cases capable of illustration by drawing or model, if such proposed amendment embodies something not found in the specification, drawing, or model, the principal examiner should refuse to enter or consider it." (*Ex parte Bennett*, 35 O. G., 1004.)
2. "In cases of such refusal applicant's remedy is by petition to the Commissioner." (Ib.)
3. "In case of such petition to the Commissioner, unless it be clearly apparent that the proposed amendment was improper, direction would be given that the examiner receive, enter, and incorporate the same, and then act upon the case as so amended." (Ib.)
4. When the case is so returned to the examiner and re-examined by him, if, in his opinion, such amendment "plainly and unmistakably" includes matter not found in the case as originally filed, he is at liberty to reject such amendment or amended claim without examining the merits of the invention.
5. If, however, the case as filed contained other claims not affected by the amendment, they should be examined upon the merits.
6. If, for instance, an applicant presents a case with a single claim and afterward seeks to amend by adding another claim, the amendment is refused because it involves a departure from the original invention. Upon direction by the Commissioner the examiner receives it, but rejects for the reason that it is plain and unmistakable to him that the new claim contains an invention not found in the case as originally filed. Applicant would notwithstanding have a right to ask for the examination of his original claim upon the merits.

ON petition.

PRESSES FOR FORMING OIL-CAKES.

Application of John H. Vaile, No. 131,514, filed May 14, 1884.

Messrs. Stem & Peck and *Mr. W. Paxton*, for the applicant.

MONTGOMERY, *Commissioner:*

When this application was filed it contained seven claims, and was accompanied by three sheets of drawings, illustrating figures 1 to 6, inclusive. March 25, 1885, applicant offered an amendment to his specification and claims which consisted of an erasure of his sixth claim and the addition of another claim. This was accompanied by three additional sheets of drawings, illustrating figures 7 to 10, inclusive. The examiner declined to receive this amendment for the reason that, in his opinion, the same involved "a departure from the original invention." After repetition of this action by the examiner applicant petitioned the Commissioner to direct that such amendment be received, incorporated into the case, and acted upon. Upon such petition, and on the 9th day of July last, the Commissioner directed such amendment to be received and the case as so amended to be acted upon. (MS. Vol. 31, page 147.) The examiner was directed, however, in case it should be plain to him that the amendment involved "a departure from the original invention," if it involved or contained a feature not shown or described in the specification or drawings when the case was originally filed, then he might "reject for that reason alone;" and, further, that in case he had "a reasonable doubt as to whether or not there be such *departure from the original invention*"—such want of identity—the merits should be examined and the references, if any, cited." Upon this direction the case went back to the principal examiner, who on the 16th of July advised applicant that "the application must be rejected because new matter was brought into the case by said amendment." On the 29th of July this action on the part of the examiner was repeated. Whereupon applicant petitions the Commissioner to direct that the case be examined upon its merits. In his answer to the petition the examiner declares that he had made a careful inspection of the case "to see whether the amendment included a departure from the original invention; that he became entirely convinced that the amendment plainly and unmistakably involved a departure from the original invention," and he therefore rejected the case without examining the merits of the various claims.

So far as the examiner's declination to examine the state of the art in connection with applicant's amended claim is concerned, inasmuch as he declares that such amendment contains a feature which was "clearly and unmistakably" not found in the application as filed, I think he was right and must be affirmed. He should, however, have examined the remainder of the claims—the unerased claims which were presented originally. Suppose, for instance, an applicant presents a case with a single claim. He afterward seeks to amend by adding another claim. The examiner declines to receive or act upon it for the reason that, in his opinion, "the amendment proposed embodies something not found in the specification, drawings, or model originally filed." (See *Ex parte Bennett*, 35 O. G., 1004.) The applicant comes to the Commissioner and seeks and obtains direction to the examiner to receive and act upon the amendment. The case then goes back to him for such action. It is "clear and unmistakable" to him that the new claim contains an invention not shown in the case as originally filed. He might and should reject such amended claim for that reason alone and without examining its merits. (Ibid.) Applicant would, however, have a right to ask for the examination of his original claim upon the merits, and if references were found which fairly met it, or any other good reason existed therefor, it would

be rejected. Whereupon, after repetition, applicant could appeal to the Board from the rejection of *both* his claims. Of course it need hardly be said that the *amended* claim might be rejected for the reason above mentioned and the original claim allowed. Again, it is very clear that a case might arise where the entire original invention as claimed should be eliminated and another one attempted to be substituted; or the incorporation of the amendment might so change the scope, features, and character of the entire invention as originally shown as to render it substantially a new, different and other invention. In such cases where the same is so "clear and unmistakable" no examination is necessary.

What has been said in this case, I think, indicates the course which should be pursued in the various classes of cases involving this question. In the present case the examiner will undoubtedly reject the amendment for the same reason upon which it has been once rejected by him. The remaining original claims will be examined—some may be rejected and some allowed. As to this I cannot, of course, anticipate.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Western District of Pennsylvania.

KELLER *et al. v.* STOLZENBACH *et al.*

Decided July 2, 1886.

1. INFRINGEMENT—LACHES AS A BAR TO AN ACCOUNT FOR PROFITS.
To a bill to restrain infringement of a patent the defendants by plea set up a claim of right to use the patented apparatus in question and the grounds thereof. The plaintiff having neglected for over two years to reply or set the plea down for hearing, the court, under equity rule 38, decreed that he was to be deemed to admit its truth and sufficiency, and that the bill be dismissed. The defendants were then suffered to continue to use the apparatus for nearly two years more before a second (the present) suit was brought to restrain them. *Held* that the court would not decree an account of profits, the defendants having acted under a *bona fide* claim of right, and there being on the other side acquiescence and inexcusable laches in seeking redress.

2. DAMAGES.
The proofs disclosing an established license-fee of one thousand dollars, *held, further*, that the amount of such fee was a just measure of compensation for the infringement.

Mr. D. F. Patterson for the complainants.
Mr. George H. Christy for the defendants.

ACHESON, *J.:*

If it be conceded that where a profit or saving is shown to have accrued to an infringer beyond the amount of the established license-fee for the use of the patented machine, the patentee, suing in equity for an account of profits, is not ordinarily to be limited to such fee, and assuming that the evidence discloses with sufficient clearness the number of bushels of sand treated by the patented apparatus on the dredging-boat Wharton McKnight, and the amount of the savings to the defendants thereby effected, it still remains to be considered whether the defendants are justly chargeable with profits in view of the exceptional circumstances of this case. In the first place, be it observed, the defendants were not wanton infringers. They acted under a *bona fide* claim of right to use the invention, based on the late partnership relations and dealings between the patentee, the plaintiff Keller, and the defendant Pfeil. It is true the decision of the court has been adverse to that claim, (20 Fed. Rep., 47;) but the question of right was fairly debatable, and the proofs left the defendants' integrity untouched. And then, in the second place, the plaintiffs' demands may well be moderated by reason of the laches imputable to them. The history of the case is this: The patented apparatus was put on the Wharton McKnight in the spring of 1879. Very shortly thereafter Keller brought suit in this court against Pfeil and his associates to restrain its use. To the bill the defendants filed a plea setting up Pfeil's claim of right to use the apparatus and the grounds thereof. The plaintiff failed to reply to the plea, and for a period of more than two years neglected to move in the cause or put it in a condition for further prosecution, and eventually, on May 10, 1881, after notice, and under the provisions of the thirty-eighth equity rule, the court adjudged and decreed that the plaintiff was to be deemed to have admitted the truth and sufficiency of the plea, and that the bill be dismissed. The defendants were then suffered to continue the use of the apparatus on the Wharton McKnight for a period of nearly two years before the present suit was brought, on April 9, 1883. Now, we have indeed decided that the decree dismissing the former bill for want of prosecution was no bar to this suit; but it by no means follows that it is to be without influence when we come to deal with the question of the extent of the relief which should be extended to the plaintiffs. The decree proceeded on the ground of the acknowledged truth and sufficiency of the plea implied by the plaintiff's inaction. The dismissal of his bill on this ground certainly left Keller in no better condition than he would have been if, with full knowledge of Pfeil's use of the patented apparatus on the Wharton McKnight under a claim of right, he had made no move by suit or otherwise to restrain him. Moreover, the dismissal of Keller's bill was followed by two years of acquiescence in the defendants' use of the invention on said boat. Thus the tendency of Keller's course of conduct during the space of nearly four years was directly to encourage the defendants in the continued use of the apparatus.

A court of equity always discountenances laches. Hence in *McLean* v. *Fleming* (96 U. S., 245) it was held that while the plaintiff was entitled to an injunction to restrain infringement of his trade-mark, yet, by reason of his long-continued acquiescence and unreasonable delay in seeking relief, he was not entitled to an account for profits. This principle was applied in *New York Grape Sugar Co.* v. *Buffalo Grape Sugar Co.* (24 Fed. Rep., 604) to a suit for the infringement of letters patent. In *Harrison* v. *Taylor* (11 Jur., (N. S.,) 408) a delay of less than a year in bringing suit to enjoin infringement of a trade-mark was adjudged to be good ground for refusing a decree for an account of profits. Furthermore, relief of this nature has sometimes been denied by a court of equity simply on the ground that the infringement was without fraudulent intent. (*McLean* v. *Fleming, supra; Moet* v. *Couston*, 33 Beav., 578; *Edelsten* v. *Edelsten*, 1 De Gex, J. & S., 185; *Merriam* v. *Smith*, 11 Fed. Rep., 588.) Now, in the present case we have not only inexcusable laches on the part of the plaintiffs, but also the element of entire good faith on the part of the defendants. The plaintiffs' claim, then, to profits is altogether destitute of equity.

It appears that as early as 1879 Keller began to grant licenses, and there is satisfactory evidence showing his fixed license-fee to be one thousand dollars for the use of his apparatus on one dredging-boat. Substantial justice, then, will be done by decreeing compensation to the plaintiffs on the basis of such license-fee, and in adopting this measure of relief we act in the spirit of the rule indicated in *Burdell* v. *Denig*, (92 U. S., 716.) And now, July 2, 1886, the plaintiffs' exception to the master's report is overruled, and the defendants' first and second exceptions thereto are sustained; and it is ordered that a decree be drawn in favor of the plaintiffs for one thousand dollars, with costs of suit.

U. S. Circuit Court—District of Massachusetts.

BALDWIN v. HAYNES.

Decided July 9, 1886.

1. COMBINATION OF OLD DEVICES—INVENTION.
Mangles having a large feed-roll surrounded by small polishing-rolls having differential speed being old, and mangles employing the large roll as a polishing-roll and small ones as feed-rolls, the latter having the same rate of speed, being also old, there was no invention in combining in a mangle a large roll for polishing and small feed-rolls having differential speed.

2. BALDWIN—MANGLES.
Letters Patent No. 253,661, of February 14, 1882, to Joseph F. Baldwin, for an improvement in mangles, are void for want of invention in the making of the device therein described.

Messrs. Livermore & Fish and *Mr. E. L. Champlin* for the complainant.
Mr. Enoch Cowen and *Mr. J. L. S. Roberts* for the defendant.

COLT, *J.:*

The defendant is charged with infringement of Letters Patent No. 253,661, dated February 14, 1882, granted to Joseph F. Baldwin, the complainant, for improvements in mangles. The invention consists of a mangle having a large heated smooth-faced polishing-roll, around which are several feed-rolls with elastic coverings, each of these feed-rolls having a greater surface velocity than that which precedes it. In former mangles the large roll was the feed-roll and the surrounding small rolls were for ironing or polishing. In these machines the fabrics were ironed only at the point of contact of the small rolls with the fabric. Baldwin's efforts were directed toward utilizing the large feed-roll in the old mangles as a polishing-surface, so as to have a continuous polishing-surface around the periphery of the large roll. In his first patent, dated June 11, 1878, we find for the first time the large roll used for the purpose of polishing, instead of feeding. The machine, however, constructed after this patent appears to have proved a failure. The difficulty was soon afterward overcome by simply giving a differential speed to the small rolls, by which means the fabric was prevented from wrinkling and was held down upon the surface of the large roll. This feature is covered by Baldwin's second patent. The only material difference between the first Baldwin patent, not now in controversy, and the second Baldwin patent, the subject-matter of this suit, lies in giving a differential speed to the small rolls. The serious question which meets us at the outset is whether this additional feature, incorporated into Baldwin's second patent, constitutes invention in view of the prior state of the art. The defendant has introduced the Smith patent of August 10, 1875, and the prior Leonard and Delavan House machines, in which we find a differential speed in the small rolls. To be sure these were the old class of machines, in which the large roll was the feed-roll. The important fact, however, remains, that giving differential speed to the small rolls was old at the time of Baldwin's second invention. To simply apply this old feature to the Baldwin mangle as constructed under his first patent would not, in our opinion, constitute invention, though the form of the result was somewhat different. The evidence goes to show that in experimenting with his first machine Baldwin speedily saw the remedy for the defect by the application of mechanism found in prior mangles. This did not involve the exercise of the inventive faculty. To persons skilled in the art the remedy would have suggested itself. This conclusion makes it unnecessary to consider the other questions raised.

Bill dismissed.

U. S. Circuit Court—District of Massachusetts.

CHURCH v. SPAULDING.

Decided July 9, 1886.

CHURCH—ORNAMENTAL CHAINS—INFRINGEMENT.
Letters Patent No. 230,745, of August 3, 1880, to Henry A. Church, for an ornamental chain composed of a series of rows of rings united together by passing connecting-wires through orifices in disks or washers forming part of or secured within the outside rings of each alternate row and securing the ends of the connecting-wires within the edge of such outside rings are valid, and infringed by the same combinations, notwithstanding the ends of the connecting-wires are twisted to secure them, instead of clinched, as described in the patent.

Mr. B. F. Thurston and *Mr. W. H. Thurston* for the complainant.
Mr. George D. Noyes for the defendant.

COLT, *J.:*

The defendant is charged with infringement of Letters Patent No. 230,745, dated August 3, 1880, granted to Henry A. Church, for improvement in ornamental chains. The invention relates to that class of chains known in the trade as "roller-chains." The characteristic feature of these chains is that the rings of metal are united together by passing connecting-wires through the orifices of the rings. Church's patent is for an improved manner of securing the rings or units together to form a chain. The outside rings of each alternate row are made with bottoms to them. Instead of making a ring with a bottom to it, the bottom may be separate and contained within the ring. This form of bottom is called a "washer" in the patent. These outside rings are cup shape, and two holes are punched in the bottoms. The legs of a wire staple pass through these holes and through the intermediate rings, the projecting legs of the staple being bent over upon the bottom of the outside ring, so that the staple cannot be pulled out.

Prior to the invention of Church solder was used in fastening the wire to the rings, or the wire straddled the adjacent links of the outside rows, and so projected beyond the edge of the chain. By dispensing with the use of solder and by confining the connecting-wire

within the edge of the outside rings Church made a better and more flexible chain. An inspection of the Dickinson, Clampitt, Davis, and Schewtz patents shows the use of solder, or a connecting-wire which projects beyond the edge of the chain proper. In none of these chains do we find any bottoms or washers in the outside rings.

The defendant's patented chain is an improvement on Church's. He uses a filling-disk or counter-cup arranged within the outside edge of the end rings, which hides the connecting-wire, thereby preventing the collection of dirt on the outside rings and improving the appearance of the chain. Aside from this improvement Spaulding has copied, in substance, the Church invention. The outer rings of his chain have bottoms to them. The legs of a staple pass through holes in the bottoms of these outside rings and through the intermediate rings in the manner described in the Church patent. The fact that the ends of the staple are twisted, instead of bent over, as in the Church chain, is a mere difference in detail. The first claim of the Church patent is as follows:

1. In an ornamental chain, the combination of a series of interlocking rows of rings or units with connecting devices concealed within such units and secured therein by their points being clinched, substantially as specified.

It is clear that the defendant's device infringes this claim.

The device of Church is new and useful. While the scope of his patent is a narrow one, we do not think it void for want of invention.

Decree for complainant.

U. S. Circuit Court--District of Massachusetts.

FROST *et al.* v. CHASE.

Decided July 9, 1886.

1. GREELY—SUSPENDERS.

Letters Patent No. 141,926, of August 19, 1873, to Benjamin J. Greely, for improvements in suspenders, construed, and *held* that if any invention is to be found in the patent it is in the form of the pin, which is the subject-matter of the first claim.

2. INFRINGEMENT.

The question whether there is any invention in the pin described in the Greely patent, in view of the state of the art, not decided, but *held* that this patent is limited to the form of the pin described, and when so limited not infringed by the defendant's construction.

Messrs. Livermore & Fish for the complainant.

Mr. C. C. Morgan for the defendant.

COLT, *J.*:

The defendant is charged with infringement of Letters Patent No. 141,926, dated August 19, 1873, and granted to Benjamin J. Greely, for improvements in suspenders. The specification states that the object of the invention is to furnish a suspender which can be readily attached to and detached from the waistband of skirts and adapted to support as many skirts as are usually worn. The patented fastening consists of a transverse loop through which the suspender runs, so as to allow its length to be adjusted as in an ordinary suspender; also, a hook suspended by its shank under the center of the loop, so as to insure the pull of the garment directly down on the strap. The point of the pin is engaged in a catch which holds it against the pull of the garment.

There are two claims in the patent: First, for the safety-pin, and, second, for the combination of the safety-pins with the suspender-straps.

If any invention is to be found in the patent, it is in the form of the pin, which is the subject-matter of the first claim. Whether, in view of the Stewart diaper-pin, patented August 16, 1870, and the Montleart and Tent pin, patented in England in 1863, there is any invention in the Greely pin, we do not deem it necessary to decide, because we are satisfied that these and other prior devices limit Greely to the form of pin described in his patent, and that the defendant does not infringe, because his pin is different. The Greely pin is formed of a single piece of wire. The exception in Fig. 5 of the patent is immaterial. The point of the pin is left exposed. The defendant's safety-pin consists of two pieces of wire connected by a metal plate. One piece of wire forms the loop through which the suspender-strap passes, the other forms the pin to which the garment is attached, and both are hinged to the plate, thus producing a double joint in the fastening device, and so allowing the point of the pin to be thrown far outward, so as easily to permit the attachment of additional skirts. A projecting piece on one side of the metal plate is bent over so as to form a shield completely covering the point of the pin. It is manifest that with such differences of construction between the two pins there can be no infringement. The combination of safety-pins with suspender-straps is old. If there is any novelty, therefore, in the second claim, it lies in the shape of the pin. As we think, however, the defendant's pin differs in construction, it follows that the second claim is not infringed. These conclusions render it unnecessary to consider the other points raised.

Bill dismissed.

U. S. Circuit Court---District of Minnesota.

MINNEAPOLIS HARVESTER WORKS (A CORPORATION) v. MCCORMICK HARVESTING MACHINE COMPANY (A CORPORATION.)

Decided September 6, 1886.

ON MOTION FOR PRELIMINARY INJUNCTION.

Complainant's bill was based upon a patent to Appleby, and defendant justified under a prior similar invention of Jewel, which had not been patented. On appeal to the Commissioner of Patents, in an interference between Appleby and Jewel, Appleby prevailed, and Jewel promptly filed a bill for a patent, under section 4915, which is now pending.

1. A JUDGMENT IN INTERFERENCE WHEN NOT CONCLUSIVE.

An interference proceeding in the Patent Office cannot be regarded as a judgment where the losing party does not acquiesce in the conclusion of the tribunal which decides the question in controversy.

2. PRACTICE WHERE DEFENDANT HAS A PENDING SUIT FOR A PATENT.

The fact that a suit by the defendant for a patent under section 4915 is pending will not affect complainant's right to a preliminary injunction, if entitled to it by the equities presented.

Mr. John R. Bennett for the complainant.

Messrs. Parkinson & Parkinson for the defendant.

NELSON, *J.*:

Motion is made for a preliminary injunction. A bill is filed by complainant charging that defendant is infringing Patent No. 262,883 by the manufacture of a cord-holder attached to grain-binders and forming a part thereof. The complainant is the assignee of Appleby by an instrument dated May 20, 1881, recorded the following June, and the patent sued on was granted to it as his assignee August 15, 1882.

The defendant is manufacturing the Appleby grain-binder with cord-holder attachment under patents of its own and an alleged paid-up shop-right secured from Appleby and his associates in title. The defendant company held a license obtained in 1880, which, as it is claimed, authorized the manufacture of this cord-holder; and this license was, in the spring of 1882, converted into a shop-right, under which it is now manufacturing the Appleby grain-binder with cord-holder, and it also claims to manufacture the cord-holder under an invention of one Jewell, owned by it.

The complainant in substance urges (1) that the license held by defendant did not include the cord-holder as a part of the Appleby machine authorized to be manufactured, and (2) that in an interference before the Patent Office between the parties to this cause, the complainant claiming under Appleby and the defendant under one Jewell, the question of priority was determined in favor of Appleby, and that by virtue of this action of the Patent Office it is entitled to a preliminary injunction. This decision of the Office being adverse to Jewell's claim, the defendant company forthwith filed a bill under section 4915 Revised Statutes of the United States, praying that a patent be granted to it upon the Jewell application.

I shall hold at this time, for the purposes of this motion and until further argument at the final hearing, that the license which resulted in a paid-up shop-right did not authorize the defendant to manufacture the Appleby binder with cord-holder as described, so that the only question presented on this motion is: Does the decision of the Patent Office in the interference case, under the circumstances disclosed, entitle the complainant to a preliminary injunction?

The complainant urges that the question is *res adjudicata*. I cannot agree to this. While acquiescence in the decision of the Patent Office in an interference case might, under some circumstances, raise a presumption of the validity of the patent and *prima facie* entitle the complainant to protection by injunction, it is far from *res adjudicata*. No court is bound by the decision of the Patent Office granting a patent when immediate steps are taken to test its validity in an action instituted for that purpose; and in an interference case, when the issue is decided, the rights of the defeated party are not prejudiced if he avail himself of the law which virtually transfers the controversy to the courts. The cases cited by the complainant's solicitor do not sustain the broad rule asserted by him. Should the facts clearly entitle the complainant to a preliminary injunction to prevent irreparable injury, or, in other respects, the pendency of a suit under section 4915, Revised Statutes of the United States, will not affect his right to it, and a court appealed to will examine the case for itself and withhold or grant a preliminary injunction according to the equities presented. In this case great doubt is expressed by the Commissioner of Patents of the correctness of the decision of the Board of Examiners, and well he might. The testimony of Appleby's witnesses is not so persuasive as to justify me in following the Commissioner's decision, and it is far from satisfactory. True, the testimony shows that Appleby, before Jewell's invention, stated his belief that such an operative machine described in this second claim of the patent as the cord-holder attachment could be made, yet it was the mere possibility of an invention of which he had only a vague conception.

I have fully examined the citation of cases to uphold the complainant's right to an injunction. They all, in which an injunction is granted, proceed upon the ground of acquiescence in the decision of the Patent Office.

In *Greenwood* v. *Bracher* (1 Fed. Rep., 856) the priority of invention was awarded the assignor of the complainant, and Bracher, failing to take an appeal, virtually acquiesced. In *Peck et al.* v. *Lindsay & Co.* (2 Fed. Rep., 688) the defendants, being privies to an interference case between Webb and one Shepard, were bound by the adjudication adverse to Webb, which he acquiesced in. All the other cited cases refer to this last decision as sustaining the rule announced therein, and the fact of acquiescence in the adjudication of the Patent Office must have existed in each one.

The patent held by complainant and the decision of the Patent Office in the interference do not make out a case for an injunction unless the *prima facie* right is fortified by a judicial decree, or judgment, or acquiescence, neither of which exist. There is a reasonable doubt, in my opinion, of Appleby's right as the first inventor, and it would be improper to grant an injunction at this time.

Preliminary injunction refused, and it is so ordered.

U. S. Circuit Court---Eastern District of Pennsylvania.

CONSOLIDATED MIDDLINGS PURIFIER COMPANY v. WOLF *et al.*

Decided October 7, 1886.

1. LICENSE WITHOUT CLAUSE OF FORFEITURE NOT FORFEITED BY NON-PAYMENT OF ROYALTY.

Where a license under patents gave the right to make and sell the patented article upon a certain royalty, to be paid at designated periods, the failure to pay such royalty does not forfeit the license, unless there is such a condition embodied in it.

2. BILL FOR INFRINGEMENT NOT MAINTAINABLE UNDER PATENT LAW FOR SUCH ROYALTY.

Upon failure to pay such royalty the licenser may sue for the same, but cannot maintain a bill in equity for the infringement of the patents, or maintain such a bill framed as a suit for infringement and for profits and damages.

3. BILL TO RECOVER SUCH ROYALTY NOT MAINTAINABLE UNDER GENERAL EQUITY JURISDICTIONS.

A suit for royalty on such a license is not dependent upon patent law, and is not within the general equitable jurisdiction of the court.

STATEMENT OF THE CASE.

The amended bill of complaint in this case sets forth, *inter alios*, the assignment to complainant by defendants (Wolf and Hamaker) of patents, Reissue No. 9,170, April 20, 1880, and No. 259,968, June 20, 1882, for middlings-purifiers, as part consideration for past infringement by defendants of certain other patents then owned by complainant. The bill further sets forth an agreement on the part of defendants to pay certain royalties on the middlings-purifiers thereafter to be made and sold by them, and that "the defendants further agreed to make monthly statements of their sales and furnish the names and addresses of the purchasers, the licensefees to accompany such statements, on receipt of which your orator was to make special licenses to the purchasers to use such machines, it being expressly agreed that the said contract or license should cover only the

right to manufacture, but did not cover the right to use, which should pass only by grant of special licenses and after payment of the stipulated royalty." The bill prayed that defendants might be enjoined from using, or vending to others to be used, the improvements named in the said Patent No. 259,968 and Reissue No. 9,170 "without thereafter first accounting for their sales of machines manufactured under their license aforesaid and paying the royalty due on each and every such machine."

Mr. Rodney Mason and *Mr. Henry P. Brown* for the complainant.

Mr. Charles Howson and *Mr. Hubert Howson* for the defendants.

BRADLEY, *J.*:

In the case of the *Consolidated Middlings Purifier Company* v. *Wolf et al.* we have considered the matter argued, and have come to the conclusion that the bill cannot be sustained. It is clearly founded on an allegation of infringement of the patent, and not on a claim for royalty under the license granted under the patent. As a bill for the infringement of the patent we think it cannot be sustained, that the license which was given authorized the defendants to make and sell the middlings-purifier machine and reserved the royalty to be paid on the manufacture and sale of the machines. The manufacture and sale of machines would naturally, if not necessarily, occur during the month, and of course the payment of the royalty was a subsequent matter, and depended on agreement, not a condition, to pay at the end of the month upon the return of the number of machines and the kind of machines manufactured and sold. This aspect of the license demonstrates that the license was an absolute license to manufacture and sell. Now, we are clearly of the opinion that under such a license the failure to pay the royalty stipulated and agreed to be paid does not forfeit the license unless some condition of forfeiture for non-payment be inserted in it, and that the power to manufacture and sell is not at an end, but that the licenser, the patentee, or person granting the license is left to his action for the royalty or rent, and cannot file a bill upon the patent as for an infringement. It is contended, however, that by a certain clause in the license the complainant may resort to the patent, on the ground that the parties defendant have acted outside of their license—not only manufacturing and selling machines, but granting the right to use them. The clause is as follows:

> Unless said Wolf and Hamaker elect to sell with license to use, which they may do on payment of the license-fee, which is in all cases a condition precedent.

All that the defendants have done, according to our view of the evidence in the case, is to manufacture and sell. If the sale of a machine thus manufactured and sold necessarily involves the right on the part of the purchaser to use it, (as it is possible it does,) then the clause to which I have referred may perhaps be repugnant to the grant to manufacture and sell; and it may be, therefore, that in order to stand it is to be construed merely as a covenant or agreement. At all events, all the defendants have done is to manufacture and sell, and that they have done in pursuance of their license. The consequences which result from such manufacture and sale, in giving to the purchaser possibly a right to use, are consequences for which the defendants are no more answerable than the complainants, who gave the license in the form in which it stands. We therefore think that there is nothing in the license itself or on its face which authorizes the complainant, under the circumstances of this case, to file a bill for the infringement of a patent.

The next question is whether the complainant may in this suit recover royalties under the license, it being shaped and framed as a suit for infringement of patent, for profits realized by defendants, and damages sustained by complainant. Without stopping to inquire whether a suit for royalty under a partial license may be joined with a suit for an infringement of patent for acts done outside of the license, we think that in this case the bill is so clearly based on the allegation of infringement, and the causes of action are so distinct from one another, that some claim should have been made in the bill for a decree under the license in order to enable the complainants to have a decree for the royalty; but we doubt whether that would have been sufficient. A suit for royalty on a license is a suit at common law, or, if in equity, it is a suit on general equity, not dependent at all upon the patent law, and not within the jurisdiction of the circuit court of the United States unless the parties are citizens of different States, so that if the suit as to the allegation of infringement of patent and the claim for damages and profits for that cause fails, and it remains simply a suit on the license for the royalty, the question arises whether the circuit court as a court of equity would have jurisdiction.

There is no difficulty about citizenship. The complainants are citizens of Michigan and the defendants are citizens of Pennsylvania. This court therefore would have jurisdiction of the case if an ordinary court of equity would have jurisdiction; but the Supreme Court of the United States, in the case of *Root* v. *The Railroad Company*, (105 U. S. Reps.,) has after much consideration held that a suit merely for an account of profits and damages on a license cannot be maintained in equity. There must be something more. There must be some equitable ground of relief in addition to the mere demand for an account of that kind.

The case referred to, although it was much considered, had escaped my recollection during the progress of the argument, and it is possible, if it had occurred to me, that we might have shortened the case. On an examination of the case and my present recollection of it and the discussion which led to the decision I am satisfied that the cause of action on the license is not within the equitable jurisdiction of the court, and therefore if there had been a prayer in this bill for relief on the license for a recovery of the royalty I do not think it could have been maintained. If that were all that was lacking, we perhaps ought to allow the complainants to amend their bill. Still, if it were amended I do not see how, under the decision in *Root* v. *The Railroad Company*, we could sustain the bill. The bill is therefore dismissed, without prejudice to the complainants as to any rights they may have under the license.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Attorneys.

DEPARTMENT OF THE INTERIOR,
Washington, November 3, 1886.

SIR: I am directed by the Secretary of the Interior to inform you that the order of the Department, dated April 24, 1878, disbarring Horace B. Monlton, of this city, from practice before this Department and the bureaus thereof has this day been rescinded.

Very respectfully,
GEO. M. LOCKWOOD,
Chief Clerk.

The Commissioner of Patents.

Order No. 375.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 1, 1886.

The following transfers are hereby directed: Sub-class "Earthworks" of Class 37, Excavating, from Division IV to Division XII. Sub-class "Track-raisers" of Class 57, Hoisting, from Division XII to Division IV.

A new class is ordered to be formed in Division IV, to be entitled "182, Sewerage," and the following sub-classes established therein:

CLASS 182.—SEWERAGE.

Systems.	Cleaning.
Man-holes and catch-basins.	Back-water and animal gates.
Flushing.	Construction.
Mechanical treatment.	

A new class is ordered to be formed in Division IV, to be entitled "183, Fire-Proof Buildings," and the following sub-classes established therein:

CLASS 183.—FIRE-PROOF BUILDINGS.

Metallic sidings and partitions.	Flooding.
Ceilings, floors, and partitions, non-metallic.	Cornices.
	Fire-proof roofs.
Floor-arches.	Columns and timber.

The title of Class 64, Journals and Bearings, is changed to *Journal-boxes, Pulleys, and Shafting*, and the following changes made therein:

Abolish sub-class "Anti-friction rollers," and organize sub-class *Journal-boxes, Roller-bearings.*

Abolish "Lubricators" and establish a new class, entitled:

CLASS 184.—LUBRICATORS.

Capillary attraction.	Liquefiers.
Condensation displacement.	Miscellaneous.
Force feed.	
Gravity feed—	
Automatic cut-off.	

The title of Class 74, Mechanical Powers, is changed to *Machine Elements*, and the following sub-classes abolished:

Changing speed.	Horse-power chains.
Clutch and brake.	Reversing mechanism.
Converting motion.	Transmitting power.

In the same class the following sub-classes are abolished:

Horse-powers.	Horse-power treads.
Horse-power equalizers.	Motors.

And a new class established, as follows:

CLASS 185.—MECHANICAL MOTORS.

Horse-powers—	Miscellaneous.
Equalizers,	Spring.
Treads.	Weight.
Manual.	

In Class 100, Presses, the following sub-classes are abolished:

Baling hay.	Bale-ejectors.

Change the title of sub-class "Cotton and hay" to *Baling*, and establish the following sub-classes:

Bale-box attachments.	Can-filling machines.
Rebounding plunger.	Silos.
Windlass.	

In Division XII the following sub-classes of Class 57, Hoisting, are abolished:

Elevator-brakes,	Elevators—
Retarders.	Counter-balance,
Elevators—	Jack-screws.
Alarm-indicators,	Tender-loaders.
Barrel,	

And the following established:

Safety devices.	Lifting-jacks—
Grain-conveyers—	Screw.
Pneumatic,	Loading and unloading—
Screw.	Burial apparatus,
Lifting-jacks—	Pilers,
Lever,	Shoveling devices.

In the same class "Warehouse-railways" is abolished and the following new class established:

CLASS 186—STORE-SERVICE.

Apparatus—	Carriers—
Gravity.	Miscellaneous,
Propulsion.	Wheeled.
Buffers.	Switches.
Carrier elevators and drops.	Ways.

ROBT. B. VANCE,
Acting Commissioner.

Issue of November 9, 1886.

Patents	400	No. 352,107 to No. 352,506, inclusive.
Designs	8	No. 16,976 to No. 16,983, inclusive.
Trade-Marks	13	No. 13,785 to No. 13,797, inclusive.
Labels	12	No. 5,009 to No. 5,020, inclusive.
Total issue	433	

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	5	.....
Austria-Hungary	.....	.....	Holland	.....	.....
Belgium	.....	.....	Mexico	.....	.....
Bohemia	.....	.....	Roumania	.....	.....
British Guiana	.....	.....	Nicaragua	2	.....
Canada	7	.....	Russia	.....	.....
Central America	.....	.....	Scotland	1	.....
Colombia, U. S. of	.....	.....	Switzerland	.....	.....
Cuba	.....	.....	West Indies	.....	.....
Denmark	.....	.....			
Egypt	.....	.....	Total to citizens of foreign countries	26	2
England	9	2			
France	2	.....			

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Montana Territory	2	.....
Arizona Territory	.....	.....	Nebraska	6	.....
Arkansas	3	.....	Nevada	.....	.....
California	9	.....	New Hampshire	1	.....
Colorado	1	.....	New Jersey	8	.....
Connecticut	12	1	New Mexico Territ'y	.....	.....
Dakota Territory	1	.....	New York	71	7
Delaware	.....	.....	North Carolina	1	.....
District of Columbia	5	.....	Ohio	28	.....
Florida	1	.....	Oregon	.....	1
Georgia	3	.....	Pennsylvania	55	5
Idaho Territory	.....	.....	Rhode Island	5	.....
Illinois	41	1	South Carolina	1	.....
Indian Territory	.....	.....	Tennessee	2	.....
Indiana	14	.....	Texas	8	.....
Iowa	7	.....	Utah Territory	.....	.....
Kansas	8	.....	Vermont	2	1
Kentucky	3	.....	Virginia	3	.....
Louisiana	2	.....	Washington Terr'y	1	.....
Maine	6	.....	West Virginia	.....	.....
Maryland	4	2	Wisconsin	4	.....
Massachusetts	36	2	United States Army	.....	.....
Michigan	7	.....	United States Navy	.....	.....
Minnesota	5	1			
Mississippi	.....	.....	Total to citizens of the United States	382	23
Missouri	15	2			

DESIGNS.

16,976 and 16,977.—SADDLE-TREE.—*Joseph Beran*, Newark, N. J. Applications filed August 20, 1886. Serial Nos. 211,442 and 211,443. Term of patents 14 years.

16,978.—WHISK-BROOM HOLDER.—*James H. Flinn*, Schenectady, N. Y. Application filed June 17, 1886. Serial No. 205,490. Term of patent 7 years.

16,979.—INSIDE WRAPPER FOR DRIED FRUIT.—*Frank S. Johnson*, San Francisco, Cal. Application filed September 7, 1886. Serial No. 212,946. Term of patent 14 years.

16,980.—HOUSING FOR SASH-PULLEYS.—*George Kühn*, St. Louis, Mo. Application filed October 1, 1886. Serial No. 215,109. Term of patent 14 years.

16,981.—RUG.—*Emma J. Lawrence*, Philadelphia, Pa., assignor to *The Hartley Carpet and Rug Company*, same place. Application filed August 19, 1886. Serial No. 211,347. Term of patent 3½ years.

16,982.—MAT.—*Amadee Spadone*, New York, N. Y. Application filed September 30, 1886. Serial No. 215,020. Term of patent 14 years.

16,983.—MATCH-BOX.—*August H. Wirz*, Wallingford, Pa. Application filed September 7, 1886. Serial No. 212,957. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,785.—KIDNEY AND LIVER CURE MEDICINES.—*Oliver Peck*, Oswego, N. Y. Application filed September 11, 1886. Used since July 30, 1886.

"The representation of three chain-links."

13,786.—MEDICINAL INVIGORATING TONIC.—*Homer Manly Rowell*, East Franklin, Vt. Application filed September 7, 1886. Used since May 1, 1886.

"An entablature and arch supported by two pairs of columns, a scroll passing horizontally across the front, midway of the height of the columns, and diverging pencils of rays behind the whole."

13,787.—HOG PRODUCTS.—*George Fowler & Co.*, Liverpool, county of Lancaster, England. Application filed April 6, 1886. Used since July 19, 1886.

"A representation of the Imperial Austrian eagle."

13,788.—DYSPEPSIA-TABLETS.—*Zachary T. Trout*, Girardville, Pa. Application filed September 20, 1886. Used since May 1, 1886.

"A monogram of the letters 'T D.'"

13,789.—RAZORS, SCISSORS, AND POCKET-KNIVES.—*McCoy & Sanders*, New York, N. Y. Application filed September 13, 1886. Used since June, 1886.

"The word 'MONARCH.'"

13,790.—COLORS FOR GLASS PAINTING, AND A POWDER IN THE NATURE OF FLOCK, CALLED "PLUSHETTE."—*Rufus H. Bragdon*, New York, N. Y. Application filed August 24, 1886. Used since November 1, 1885.

"The representation of a dragon."

13,791.—FIRE-PLACES AND OPEN GRATES.—*William H. Jackson & Co.*, New York, N. Y. Application filed July 9, 1885. Used since July, 1886.

"The representation of a room and its heating and ventilating devices with numerous arrows indicating currents of air, and three men with extended arms standing in the room, and the accompanying exclamations, 'PERFECT VENTILATION,' 'ALL HEAT SAVED,' 'NO COLD DRAUGHTS,' 'EVERY PART OF THE ROOM EQUALLY WARMED.'"

13,792.—COOKING-STOVES, RANGES, AND FURNACES.—*Co-Operative Foundry Company*, Rochester, N. Y. Application filed September 24, 1886. Used since June, 1882.

"The words 'RED CROSS.'"

13,793.—HOSIERY.—*Max Posnansky*, St. Louis, Mo. Application filed July 6, 1886. Used since 1880.

"The representations of the obverse and reverse sides of a Canadian half-penny.

13,794.—LIQUID VETERINARY LOTION.—*Richard Ord*, Darlington, County of Durham, England. Application filed February 11, 1886. Used since February 1, 1885.

"The word 'OSSIDINE.'"

13,795.—VIOLIN, BANJO, AND GUITAR STRINGS.—*Howard C. Barnes*, Boston, Mass. Application filed August 14, 1886. Used since August 1, 1885.

"The representation of a crowned lion standing and holding a bass-viol, mounted upon a representation of a part globe, across which appear the letters 'H. C. B.'"

13,796.—WHEAT-FLOUR.—*Columbia Mill Company*, Minneapolis, Minn. Application filed September 25, 1886. Used since May 28, 1883.

"The words 'GOLDEN ROD.'"

13,797.—LOTION FOR THE FACE AND HANDS.—*Stewart Healing Powder Company*, St. Louis, Mo., and New York, N. Y. Application filed September 20, 1886. Used since November 1, 1885.

"The words 'HEALING CREAM' and the red oval figure bearing the monogram 'H C S.'"

LABELS.

5,009.—Title: "SPECIALTY CANDY CO. ASSORTED BOX OF POPULAR COUGH CANDIES."—*Daniel B. Aitken*, Philadelphia, Pa. Application filed October 13, 1886.

5,010.—Title: "FRENCH FINISHING OIL AND LEATHER PRESERVER." *John Bensing*, Lebanon, Pa. Application filed October 5, 1886.

5,011.—Title: "BERRY'S POSITIVE SCALE REMOVER."—*Louis M. Berry*, Chicago, Ill. Application filed October 11, 1886.

5,012.—Title: "THE PLUMBERS' PURIFIER AND DISINFECTANT."—*John E. Cook*, Stamford, Conn. Application filed October 12, 1886.

5,013.—Title: "WE PROTECT OUR TRADE" (FOR CIGARS.)—*W. A. Conner*, Mechanicstown, Md. Application filed October 13, 1886.

5,014.—Title: "CHENILLE ART APPLIQUÉS" (FOR CHENILLE ORNAMENTS.)—*Samuel Green*, New York, N. Y. Application filed October 14, 1886.

5,015.—Title: "LEVULOSE FERRIDE," (FOR A MEDICAL PREPARATION OF IRON.)—*Graff & Dannenbaum*, Philadelphia, Pa. Application filed October 9, 1886.

5,016.—Title: "STITCHED CANVAS BELTING."—*The Chesapeake Belting Co.*, Baltimore, Md. Application filed October 15, 1886.

5,017.—Title: "DR. PERRY BICKNELL'S COUGH SYRUP."—*Eugene O. Utley*, New York, N. Y. Application filed October 7, 1886.

5,018.—Title: "THE OREGON PEACH BITTERS."—*Hilarius Klar*, Aumsville, Oreg. Application filed September 30, 1886.

5,019.—Title: "PERRINE'S PURE BARLEY MALT WHISKEY."—*M. & J. S. Perrine*, Philadelphia, Pa. Application filed June 16, 1886. (Trade-Mark Registered.)

5,020.—Title: "CLARK'S TOOTH ACHE CURE."—*Samuel P. Clark & Co.*, Attleborough, Mass. Application filed September 6, 1886.

PATENTS

GRANTED NOV. 9, 1886.

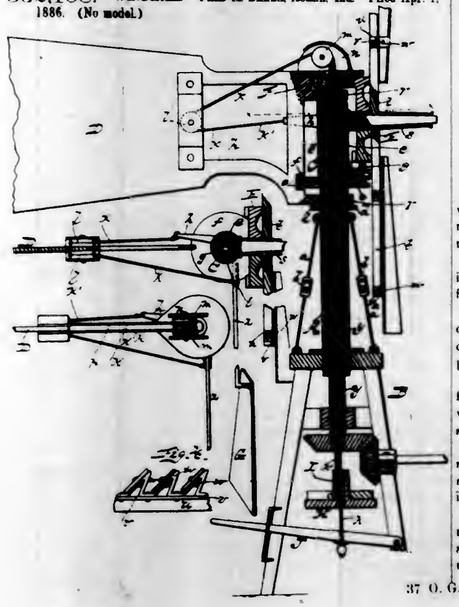
352,107. CORN AND COTTON SCRAPER. WILLIAM H. ADAMS, Wharton, assignor of one-half to James Littleton Davis, Wharton County, Tex. Filed May 19, 1886. (No model.)



Claim.—1. In a corn and cotton scraper, a foot-piece consisting of an outer or land side extending upward and turned inward at its top to form one side of a clevis, and an inner side integral therewith extending upward, forming a slot from its lower end, to within a short distance below the clevis portion, and turned outward to the landside and welded thereto, the upper end of the inner side being turned inward to form the bottom of the clevis, substantially as shown, and for the purpose set forth.

2. In a corn and cotton scraper, the combination, with a foot-piece adapted for attachment to the rear portion of the beam of a plow, and having a vertical slot from near its beam portion to its lower end, with a scraper curved substantially as described, and adjustably secured thereon, of a band adapted to be attached to the front portion of the beam, having one end of an adjusting-rod secured to its under side and the other end of the rod adapted to work in the slot of the foot-piece to adjust the scraper up and down, as described, and for the purpose set forth.

352,108. WINDMILL. FRED A. BAKER, Roann, Ind. Filed Apr. 1, 1886. (No model.)



Claim.—1. The combination, in a windmill, of the tower B, the tubular portion A, braced and flanged, as described, the flanged tubular casting C, bearing the arms *h i* and the axle of the wind-wheel, and also a roller, *g*, the cords *k k'*, leading from the said arms around pulleys on the vane D, over pulleys *m* on the frame of this vane, and attached to a weight, H, and lever J, the gearing which transmits rotation from the wind-wheel to the tubular shaft *y*, and the gearing at the lower end of this shaft, all as shown and described.

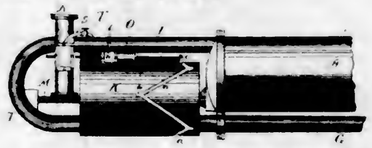
2. The combination, with the tower B, of the main tubular support A, flanged at *d c*, and also flanged near its lower end, the braces therefor provided with turn-buckles, the tubular casting C, armed as described and carrying a wheel which bears on flange *c*, the vane-frame journaled on the tube A, and a bracket supported upon an upper extension of the vane-frame and bearing pulleys for the ropes *k k'*, all constructed and adapted to operate substantially in the manner and for the purposes described.

352,109. NECKTIE-FASTENER. JOHN BALLOU, Somerville, Mass. Filed May 19, 1886. (No model.)



Claim.—A necktie-fastener consisting of a hook secured by an elastic connection to the shield, the elastic consisting of a loop secured to the lower end of the hook, the hight of the loop being passed through apertures in the shield and over the throat of the hook, all arranged as described, to permit of motion of the hook chiefly in a line transversely of the shield, substantially as and for the purpose shown.

352,110. REVOLVING PNEUMATIC CANNON. WALLACE A. BARTLETT, Washington, D. C., assignor to Washington G. Benedict, Boston, Mass. Filed Oct. 3, 1884. (No model.)



Claim.—1. A pneumatic gun provided with a gas-flask, and a revolving cylinder having a series of chambers arranged and adjusted with respect to the barrel to register in successive alignment therewith and rotated by the force of gas from said flask.

2. The combination, with the barrel of a gun, of a gas-flask, an interposed cylinder, and mechanism actuated by the pressure of the gas from the flask for rotating the cylinder on its axis.

3. A gas-flask, a supply-pipe leading therefrom, an operating-valve controlling the supply-pipe, a gun-barrel, and a revolving chambered cylinder, the chambers open at both ends, interposed between the supply-pipe and the gun-barrel.

4. The combination, with the flask, of a supply-pipe leading therefrom to a cylinder, a plunger-valve controlling said supply-pipe, a revolving chambered cylinder, and a gun-barrel, said cylinder between the supply-pipe and barrel, all relatively arranged substantially as described.

5. The combination, with the barrel of a gun, and a gas-flask, of a revolving cylinder between the same, and reciprocating mechanism actuated by the pressure of gas from the flask and turning the cylinder on its axis.

6. The combination, with the revolving cylinder of an arm, of a reciprocating rod operating on said cylinder to turn the same, and mechanism, substantially as described, actuated by gas-pressure operating the reciprocating rod, as set forth.

7. The combination, with the flask, supply-pipe, and barrel of a gas-pressure gun, of a revolving cylinder between the pipe and barrel, revolving mechanism for the cylinder, and operating mechanism for a valve in the supply-pipe, both operated by gas-pressure from the flask, all relatively arranged substantially as described.

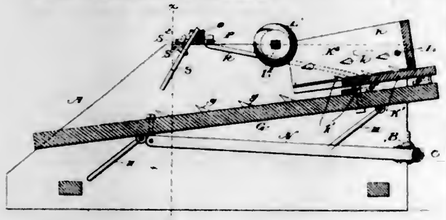
352,111. **FENCE-MACHINE.** Joshua H. Beavers, New Castle, assignor of one-half to Charles M. Reed, Fayette County, Ind. Filed Mar. 1, 1886. (Model.)



Claim.—1. The combination of the staff *a*, the arms *b b*, as herein described, the hands *c c*, the pivots *e e*, and the blocks *d d*, with the pivots *n n*.

2. The combination of the perpendicular frame-pieces *f f*, the base *g*, the stakes *h h*, the rollers *i i*, the journals *j j*, the crank *k*, the bolts *l l*, and the keys *m m*, all substantially as set forth and described, for the purposes herein named.

352,112. **BAND-CUTTER AND FEEDER.** Wm. A. Brady, Spencer, Iowa. Filed Mar. 27, 1886. (No model.)



Claim.—1. The combination, in a band-cutter and feeder for thrashing-machines, of the vertically-movable hopper having the independently longitudinally movable bottom, and the rotating cutter located at the discharge end of the hopper, whereby a sheaf thrown into the hopper will have its band presented to the rotating cutter and severed thereby, substantially as described.

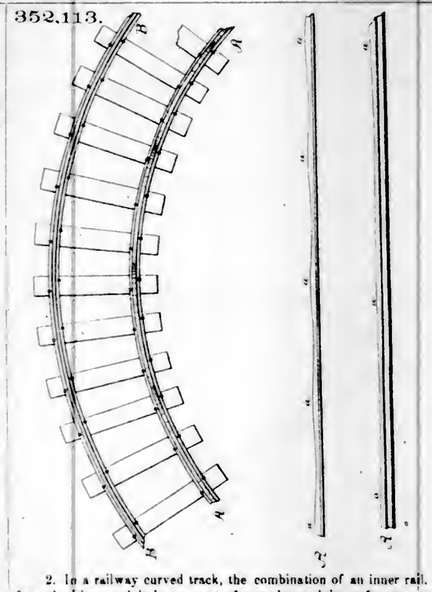
2. The combination of the case A, the movable feed-board G, the rocking links connecting the said feed-board to the case, the crank-shaft connected to the feed-board, whereby the latter is caused to move simultaneously back and forth and up and down, and the vertically-movable hopper having the independently-movable bottom K', rigidly attached to the feed-board, substantially as described.

3. The combination of the case A, the movable feed-board G, the hopper, the bail or rocking links L, connecting the hopper to the case, and the independently-movable bottom K' of the hopper attached to and moving with the feed-board, substantially as described.

352,113. **RAIL FOR RAILROAD-CURVES, &c.** Levi Brigham, Osseo, Minn. Filed Aug. 12, 1886. (No model.)

Claim.—1. A rail for the inside of railway-curves, formed with an undulating or sinuous upper surface, substantially as and for the purpose herein specified.

352,113.



2. In a railway curved track, the combination of an inner rail, A, formed with an undulating upper surface and a straight-surface outer rail, B, substantially as and for the purpose herein specified.

352,114. **EXTENSION-TABLE SLIDE.** Truman G. Bugbee, Chicago, Ill. Filed June 19, 1886. (No model.)

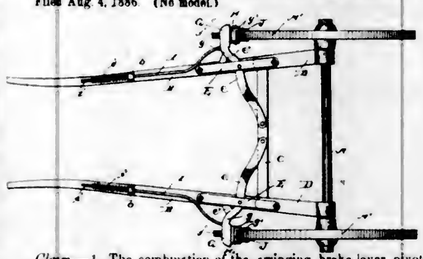


Claim.—1. An extension-table slide having an adjustable tongue secured thereto by a set-screw from the outer side of the slide, so that the same may be tightened or loosened at will, substantially as described.

2. An extension-table slide having in its outer side a recess containing a spring to be compressed by a set-screw extending through said spring and slide and into a tongue fitted in the groove of the slide, whereby said tongue is made adjustable, substantially as shown and described.

3. In an extension-table slide, the combination of the slide A, provided with the groove B in one side and the recess G in the opposite side, with the tongue D in said groove B and the spring F in said recess G, and the set-screw E, extending from the outside of said slide A through said spring and slide into the tongue D, whereby the tongue D is made elastic and adjustable, substantially as shown and described.

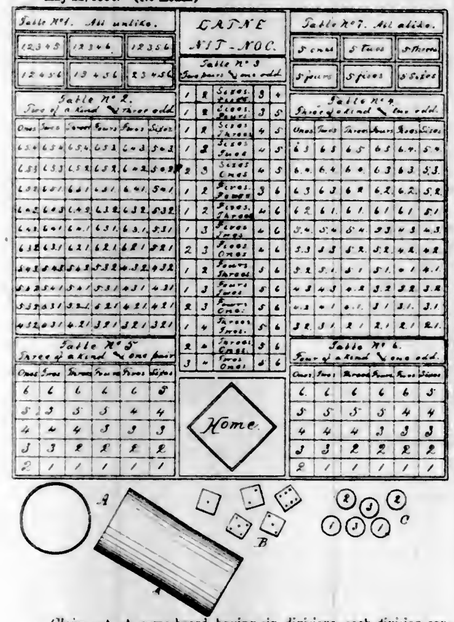
352,115. **VEHICLE-BRAKE.** Charles A. Burr, Rockdale, N. Y. Filed Aug. 4, 1886. (No model.)



Claim.—1. The combination of the swinging brake-lever pivoted to the thills, an endwise-moving rod connected to the brake-lever, the brake-shoe pivoted in the free end of the brake-lever and carrying a brake-block capable of upward movement thereon independently of the lever, and the curved spring attached at one end directly to the brake-lever and bearing downwardly at its free end upon the pivoted shoe, substantially as described, for the purpose set forth.

2. The combination of the strap E, having the braces *e e'* and post F, the lever G, pivoted upon said post, the block H, pivoted upon said arm and carrying the shoe J, the spring *j*, for holding said block in normal position, and the rod I, having the spring *i*, substantially as specified.

352,116. **GAME-BOARD.** Isaac A. Bush, Philadelphia, Pa. Filed May 22, 1886. (No model.)



Claim.—1. A game-board having six divisions, each division containing five different dice-numbers, and no two divisions having all its numbers alike, in combination with sets of three men, each numbered respectively 1, 2, and 3, the sets differing in color or shape, and five dice and cups, as herein described.

2. A game-board having sixty divisions, each division having two dice-numbers alike and three different, and no two divisions having their numbers alike, in combination with men and dice, as herein described.

3. A game-board having sixty divisions, each division having two pairs of dice-numbers and one odd number, in combination with men and dice, as herein set forth.

4. A game-board having sixty divisions, each division containing three dice-numbers alike and two unlike, in combination with men and dice, as herein set forth.

5. A game-board having thirty divisions, each division containing three dice-numbers of one kind and two of one other kind, in combination with men and dice, as herein described.

6. A game-board having thirty divisions, each division containing four dice-numbers of a kind and one different, in combination with men and dice, as herein described.

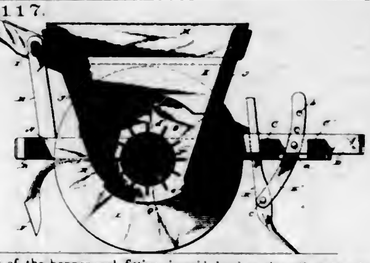
7. A game-board having six divisions, each containing five dice-numbers all alike, in combination with men and dice, as herein described.

8. A player's chart or board having seven numerical tables and one home-table, the said numerical tables having two hundred and fifty-two divisions, each division containing five dice-numbers, either singly, in twos, in threes, in fours, in fives, or in sixes, the said numbers being combined differently in each of the said divisions, for the purposes herein set forth.

9. The herein-described gaming-set, combining dice and cups with sets of three men, numbered 1, 2, and 3, respectively, each set differing in shape or color from the other sets, and a player's board containing seven numerical tables and one home-table, the numerical tables being divided into squares arranged in such order that the numbers placed at the side or end of a row or column of squares will indicate the numbers which should be considered as alike in those squares, substantially as herein set forth.

352,117. **SEED AND FERTILIZER DISTRIBUTER.** Edmond T. Camp, Villa Rica, Ga. Filed June 7, 1886. (No model.)

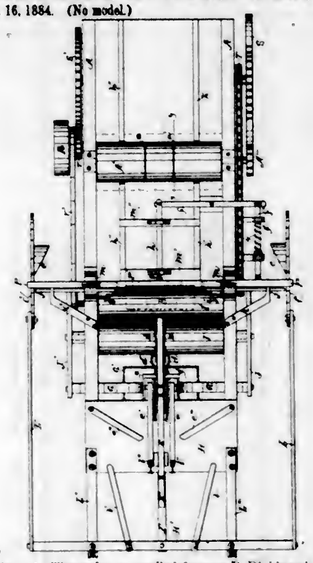
Claim.—1. The combination of the hopper, the boxing in the upper part, thereof, the main drive-wheel forming a movable side to the compartment of the hopper and fitting in said boxing, the adjustable slide for regulating the quantity of material to be distributed, and the disintegrating-roller in the lower part of the hopper, substantially as described.



2. The combination of the hopper, the boxing in the upper part thereof, the main drive-wheel dividing the hopper into two compartments, the adjustable bottom slides, the disintegrating-rollers, the movable partition in the upper part of the hopper, and the cover to one of the compartments, substantially as described.

3. The combination, with the hopper having the disintegrating-rollers, main drive-wheel dividing the hopper into two compartments, and adjustable slide-bottoms, of the colter in front of said wheel fitting loosely in a frame, the brace hinged at its lower end to the colter and secured to the bar by an adjusting-pin, and the coverers at the rear of the hopper, substantially as described.

352,118. **APPARATUS FOR MAKING SATCHEL-BOTTOM PAPER BAGS.** John N. Chadsey, Valatie, N. Y., assignor to E. Kendall, A. B. Gardenier, A. H. Farrar, and S. G. Chadsey, all of same place. Filed Aug. 16, 1884. (No model.)



Claim.—1. The spring-controlled formers D D', hinged to a traveling support, in combination with a paper-tube-retaining platform, slotted wheel C, connecting-link L, and a weight, W, substantially as described, and for the purposes set forth.

2. A spring-controlled paste-presser pivoted to a traveling support adapted to travel to and from the bottom folded end of a paper-bag tube, in combination with said support and actuating mechanisms, as slotted wheel C, connecting-link L, and weight W, substantially as and for the purposes set forth.

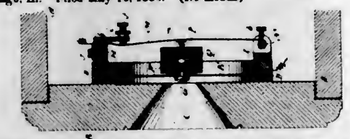
3. A paste-carrier provided with supporting-arms G, attached to pivoted levers J, in combination with revolving trips *v'* and *v'''*, paste-receptacle G', and a paste-presser, substantially as described, and for the purposes set forth.

4. Spring-controlled formers *i i'*, hinged to sliding spring-controlled supports, in combination with said supports, operating slide-bars *j j'*, and laterally-inclined trips *c c'*, adapted to engage said slide-bars and force said supports against their controlling-springs and afterward said hinged formers against their controlling-springs, to press them down upon and re-

tain in position the end folds of a paper-bag bottom, while serving as a guide in the formation of one or both of the bottom side folds, substantially as described.

5. A sectional forming-platform having one of its sections adapted to slide upon a fixed support and one end of the same in a position to have the walls of the projecting end folded against said platform, in combination with said support, a fold-former, and means for sliding said section, as eccentric wheel C, substantially as described

352,119. **TELEPHONE-TRANSMITTER.** WILLIAM H. COLLINS, Chicago, Ill. Filed May 10, 1886. (No model.)



Claim.—1. In a telephone, the vibratory diaphragm and electrodes or buttons, combined with the transverse bar-spring extending centrally across the diaphragm and held in blocks at the opposite sides thereof, means, substantially as described, for adjusting the tension of said spring, and a cone-shaped pin affixed to the said spring and entering a correspondingly-formed seat in one of the electrodes, substantially as and for the purposes set forth.

2. In a telephone, the vibratory diaphragm and electrodes or buttons, combined with the transverse bar-spring extending centrally across the diaphragm and sustaining one of the electrodes, and being secured at one of its ends on a rotating tension-adjusting pin secured in bearings at right angles to the line of the spring, substantially as and for the purposes set forth.

3. In a telephone, the vibratory diaphragm and electrodes, combined with the transverse spring extending centrally across the diaphragm and sustaining one electrode, one of the ends of the spring being secured to a rotary adjusting-pin mounted at right angles to it, and the other end thereof being firmly held and provided with an independent tension-screw, substantially as and for the purposes set forth.

352,120. **FLOOR-CLAMP.** CHARLES F. DEARTH, East Sangerville, Me., assignor of one-half to Albert E. Dearth, same place. Filed June 15, 1886. (No model.)



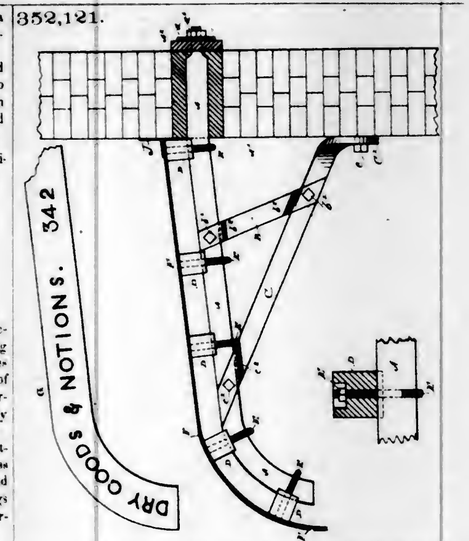
Claim.—1. The combination, in a flooring-clamp, of the sliding plate having the ratchet-teeth, the jointed arms engaging the said plate, the lever for operating the arm, and the pawl or stop pivoted to the frame, connected to the free end of the jointed engaging-arm, and having the arm a^3, by means of which the said pawl and jointed arm may be caused to disengage the ratchet-plate simultaneously, for the purpose set forth substantially as described.

2. The combination of the base-plate A, having the side arms, B, one of the said arms being provided with the segmental slot, the sliding rack-plate secured in the base-plate and having the head G at its outer end, the jointed arm pivoted to the rear end of the base-plate and engaging the teeth of the sliding plate, the front end of the said jointed arm having the head or log K', the bell-crank lever K, pivoted between the upper ends of the side arms, the link connecting the said lever to the jointed arm, and the stop or pawl N, pivoted between the side arms, engaging the teeth of the sliding plate, and having the rearward-extending arm n, provided with the projecting arm n^3, which extends through the segmental slot in one of the side arms, the log or head K' of the jointed arm engaging the upper side of the free end of the pivoted step or pawl, for the purpose set forth, substantially as described.

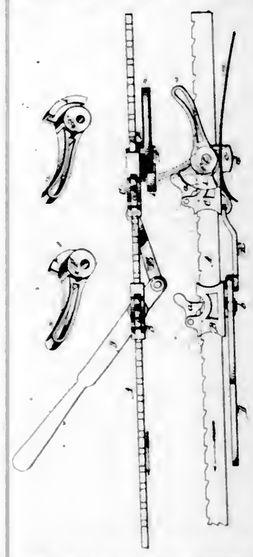
352,121. **AWNING.** ALEXANDER FERREL, Terrell, Tex. Filed July 31, 1886. (No model.)

Claim.—In an awning, the combination of the supports fixed to the building-wall in the manner shown, the main angular braces bolted to the building-wall at one end and to the awning-supports at the outer ends, and provided with flanged rests for the awning-supports, the braces bolted to the main angular braces and to the awning-supports, and provided with flanges adjacent to their ends for engaging the upper edge of the main braces and the lower edge of the awning-supports, the stringers transversely connected to the awning-supports, and the detachable hook-bolts for securing the stringers to the awning-supports, substantially as specified.

352,121.



352,122. **WIRE-STRETCHER.** HENRY L. FERRIS and NATHAN B. HELM, Harvard, Ill. Filed Jan. 8, 1886. (No model.)

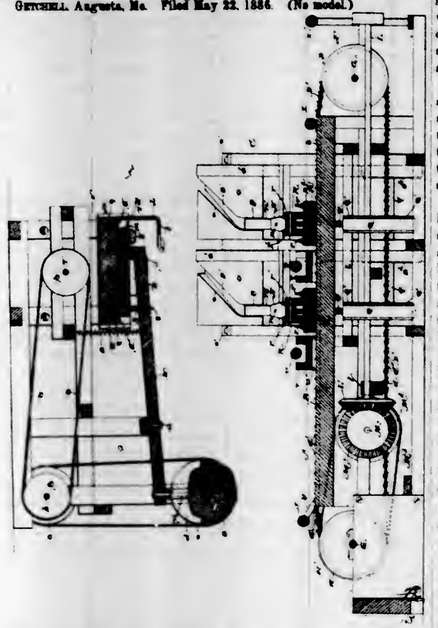


Claim.—1. In a wire-stretcher, the combination, with the sliding heads and the gripping devices secured on one of said heads, of a horizontal operating-lever fulcrumed upon a stud on the lower face of one of said heads and connected to the other head by a link, whereby the long arm of the lever may be arranged on either side of the anchor-bar before the stretching operation begins without changing the fulcrum-point, substantially as described.

2. The combination, with the sliding head provided with a lateral jaw to receive the wire, and with a flange, of an eccentric cam pivotally secured above said jaw, and provided with a flange to engage said lateral jaw and with a hook-flange to receive the flange of the jaw, substantially as described.

3. The combination, with the sliding head provided with a lateral jaw, with a stud-journal to receive a lever-cam, and with stop-studs, of the eccentric lever-cam provided with a stop-stud to engage the stops of the sliding head, substantially as described.

352,123. **MACHINE FOR PRINTING OIL-CLOTHS, &c.** FRED O. GETCHELL, Augusta, Me. Filed May 22, 1886. (No model.)



Claim.—1. In a machine for printing carpets, the combination of a traveling carrier, a supply hopper or trough, a swinging arm or lever capable of vertical movement and a lateral movement over the hopper, and a printing device carried by the said arm or lever to impress the work on the vertical movement of the arm and take its supply of coloring-matter from the hopper on the lateral movement of the arm, the traveling carrier being capable of an intermittent motion which takes place simultaneously with the withdrawal of the arm or lever and the printing device from the work, substantially as described, for the purpose set forth.

2. In a machine for printing carpets, the combination of a traveling carrier, the driving and idler drums therefor, a hopper, the swinging arm or lever carrying a printing device and capable of vertical and lateral movements to impress the work on the carrier and take its supply of coloring-matter from the hopper successively, a driving-shaft, and clutch mechanism intermediate of the driving-shaft and the driving-drums for rotating the latter and feeding the traveling carrier simultaneously with the lateral movement of the swinging arm or lever and its printing device toward the hopper, substantially as described, for the purpose set forth.

3. In a machine for printing carpets, the combination of an intermittently-fed carrier, a supply trough or hopper arranged above the carrier, and a swinging lever or arm carrying the printing device, and having a vertical movement to impress the work on the carrier and a lateral or swinging movement to take its supply of coloring-matter from the hopper, substantially as described.

4. In a machine for printing carpets, the combination of an intermittently-fed carrier, the delivery and receiving rollers thereto, the hopper arranged above and out of contact with the carrier, a swinging arm or lever having a vertical and lateral movement, and a spring-actuated printing device carried by the lever and pivoted thereto, substantially as described, for the purpose set forth.

5. In a machine for printing carpets, the combination of a traveling carrier, a swinging lever carrying the printing device, the driving and idler drums for supporting the carrier, and a continuously-rotated pulley capable of lateral movement during a part of each rotation thereof, to be successively engaged with and released from one of the carrier-drums to feed the carrier forward with an intermittent motion, substantially as described.

6. The combination of a traveling carrier, the driving-drums, one of which has a clutch-face, and a continuously-rotated pulley carrying a similar clutch-face and capable of lateral movement during a part of each rotation thereof to successively engage with and be released from the clutch-face of the drum, substantially as described, for the purpose set forth.

7. The combination of an intermittently-fed carrier, a series of swinging levers carrying the printing devices and capable of successive vertical and lateral movements, and supply-hoppers arranged to one side of the levers and their printing devices to deliver their contents to the said printing devices when they are elevated and moved above the same, substantially as described, for the purpose set forth.

8. In a machine for printing carpets, the combination of a hopper, a swinging lever carrying the printing device and capable of a vertical and lateral movement, and a traveling carrier having an intermittent motion that takes place during the lateral motion of the printing device to feed a fresh surface of work beneath the printing device to receive the impression at the succeeding stroke of the same, substantially as described.

9. In a machine for printing carpets, the combination of a trough having a conveying-roller, a swinging arm carrying the printing device and capable of a vertical movement to be successively depressed upon and elevated from the work, and also of a lateral movement over the hopper to bring the relief-surface of the printing device in contact with the roller, and a traveling carrier arranged beneath the printing device and fed with an intermittent motion that takes place simultaneously with the lateral movement of the lever and the printing device carried thereby, substantially as described, for the purpose set forth.

10. In a machine for printing carpets, the combination of a swinging lever, a carrier-plate having a platen and pivotally connected with the lever, a spring for depressing the rear end of the carrier-plate, a guide against which the pivoted end of the carrier-plate abuts during the elevation of the lever, and a hopper having a conveying-roller, substantially as described.

11. In a machine for printing carpets, the combination of a swinging lever, a carrier-plate pivoted thereto, a platen detachably connected to the carrier-plate, the spring bearing against the carrier-plate and the lever, the rollers carried by the carrier-plate, a guide having an arm against which the rollers impinge during the elevation of the plate, and a hopper having a conveying-roller, substantially as described.

12. The combination of a hopper having a conveying-roller, a swinging lever, a carrier-plate pivoted to the lever, a detachable platen connected to the carrier-plate by binding-screws, the friction-rollers journaled at the front edge of the carrier-plate, a guide-pin secured on the plate and passing through the lever, a spring bearing against the lever and carrier-plate, a spring, U, connected with the lever, and a vertical guide having an arm, t, against which the rollers impinge during the vertical movement of the lever and the carrier-plate, substantially as described, for the purpose set forth.

13. The combination of a traveling carrier, a pivoted swinging lever carrying the printing device and a friction-roller, and a cam-wheel having the circumferential serpentine groove into which the friction-roller of the lever projects, substantially as described, for the purpose set forth.

14. The combination of a carrier, a swinging pivoted lever carrying a printing device and the friction-roller, and a cam-wheel for actuating the lever and having the straight groove-section p, and the inclined groove-sections p' and p^2, arranged at an angle to and opening into each other and the groove p, substantially as described, for the purpose set forth.

15. The combination of the driving-shaft, a cam-wheel, O, having a serpentine groove, gearing intermediate of the cam-wheel and the driving-shaft for rotating the former, and a swinging lever carrying the printing device and a friction-roller extending into the groove of the wheel, substantially as described.

16. In a machine for printing carpets, the combination of a driving-shaft, a counter-shaft driven thereby, a continuously-rotated pulley driven by the counter-shaft and carrying a clutch-face, a cam upon which the pulley is mounted, and having a groove in which a pin of the pulley fits, and a driving-drum having a similar clutch-face, with which the pulley is adapted to be alternately engaged and released during a part of each of its revolutions, substantially as described.

17. The combination of a cam having a peripheral groove, with a lateral curved or inclined portion, as described, a pulley seated on the periphery of the cam, and carrying a projection which fits in the groove and actuates the pulley laterally when it rides in the lateral curved portion thereof, so that the clutch-face carried thereby is alternately engaged with and released from a driving-drum, substantially as described, for the purpose set forth.

18. The combination of a table having the longitudinal channels, the swinging arms carrying the printing devices, the retaining-brackets secured upon the table and having the rollers, and a traveling carrier working in the channels of the table, substantially as described, for the purpose set forth.

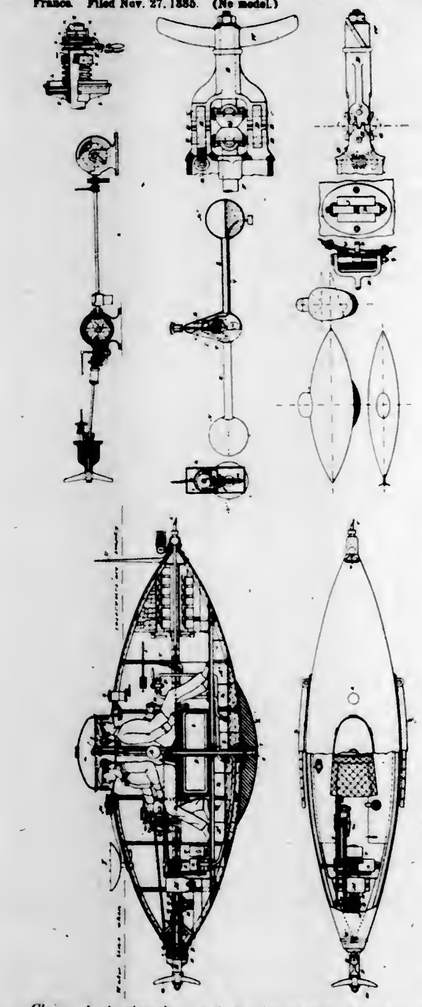
19. The combination of the table having the longitudinal channels, the driving and idler drums at the ends thereof, a traveling carrier working over the drums and in the channels of the table, the swinging arms carrying the printing devices, and the vertical brackets having the rollers projecting over the edges of the table for preventing the work on the carrier being elevated by the printing devices, substantially as described.

20. The combination of a table, a traveling carrier, the swinging

arms carrying the printing devices, and a hopper for each of the printing devices, and arranged to one side thereof and detachably secured on the table, substantially as described.

21. The combination of a table having the longitudinal channels, a traveling carrier working in the channels and having the projecting studs, the receiving and delivery rollers supported on the table, the driving and idler drums at opposite ends of the table for supporting the carrier, a hopper elevated above the traveling carrier and having the conveying-roller, a swinging arm carrying the printing device to impress the work on the carrier and take its supply of coloring-matter from the hopper, the cam-wheel O, for actuating the swinging arm, a driving-shaft, L, gearing intermediate of the driving-shaft and the cam-wheel O, a counter-shaft driven by the driving-shaft, a continuously-rotated pulley actuated by the counter-shaft and having a clutch-face, and a cam-wheel upon which the pulley is seated for forcing the same laterally and alternately engaging its clutch-face, and releasing it from a similar clutch-face on one of the driving-drums, the whole arranged and combined substantially as described, for the purpose set forth.

352,124. SUBMARINE TORPEDO-BOAT. Claude D. Goubet, Paris, France. Filed Nov. 27, 1885. (No model.)



Claim.—1. A submarine torpedo-boat having reservoirs at bow and stern containing a liquid, and means automatically controlled by a pendulum for transferring the liquid or a portion thereof from one reservoir to the other, in order to preserve the equilibrium of the boat.

2. A submarine torpedo-boat provided with reservoirs of liquid at its bow and stern, pipes connecting these reservoirs with a pump, mechanism, substantially as described, for operating said pump, a shifting mechanism for changing the motion of said pump, and a pendulum connected with said shifting mechanism, whereby said pendulum automatically controls the motion of said pump, substantially as set forth.

3. A submarine torpedo-boat provided with a water-reservoir in its bottom, a cock for admitting water to said reservoir to submerge the boat, a motor for expelling the water from said reservoir to permit the boat to rise, reservoirs at the bow and stern to contain a liquid, and means, automatically controlled by a pendulum, for transferring the liquid in whole or in part from one of these latter reservoirs to the other to trim the boat or preserve its equilibrium, as set forth.

4. A submarine torpedo-boat provided with a weight, X, carrying a nut, and a rotating bolt, *g*, extending down through the boat-bottom and screwed into said nut, said bolt having a head on its inner end, and a cone, 7, fitting into a seat, whereby the bolt is stopped from endwise movement, leakage is prevented, and the weight made detachable from inside the boat, as set forth.

5. The combination, with the propeller and its shaft, of the hinged frame in which said shaft is mounted, the motor-shaft, the universal joint which couples the two shafts, the hinging-links, toothed as shown, and the screw or worm which meshes with the teeth of one of the links, substantially as set forth.

6. A submarine torpedo-boat provided with housings *j*, mounted exteriorly on its sides and provided with packed bearings in which are mounted axes *q*, to which are secured the arms *o* of the oars, and the oars, with their hinging-forks *p*, attached to the exterior ends of said axes *q*, substantially as and for the purpose set forth.

7. A submarine torpedo-boat provided with a rotatively-mounted spindle arranged vertically in its roof, with a bayonet-fastening on its outer extremity whereby the torpedo is secured thereto, and means for rotating said spindle from inside the boat in order to release the torpedo therefrom, as set forth.

8. A submarine torpedo-boat provided with a lance, *s*, at its prow mounted to play through a ball-and-socket bearing in the prow of the boat, whereby the said lance may be protruded and vibrated laterally and vertically, and an electric lamp on the prow to illuminate the field in which said lance vibrates, substantially as and for the purposes set forth.

352,125. ACCELERATING PROJECTILES. James W. Grayson, Washington, D. C., assignor of one-half to George S. Prindle and Philip G. Russell, both of same place. Filed Sept. 21, 1883. Renewed Mar. 19, 1885. Again renewed Apr. 7, 1886. (No model.)



Claim.—1. In combination with a projectile, the series of chambered sections containing charges of explosive material and fitting the bore of the gun so closely as to prevent the passage of gases or fire from the charges by their sides, said sections being constructed with their heads separating the charges strong enough to withstand the force of the explosion of such charges, with their sides strong enough to protect the inclosed charges in front from being compressed between the section-heads as those in the rear are exploded, and with openings or passages for allowing the communication of fire through the section-heads from one charge to another successively from rear to the front of the series, substantially as and for the purpose set forth.

2. In combination with a projectile, the series of shell-sections containing the separate accelerating-charges of strength or rapidity of fire relatively increasing from the rear to the front of the series, said shell-sections being constructed with their sides strong enough to protect the contained charges from compression between the section-heads, and their heads strong enough to withstand the force of the explosion of the charges, and fitting closely within the bore of the gun, and provided with openings or passages to allow the communication of fire through the section-heads from charge to charge successively from the rear to to front of the series, substantially as and for the purpose set forth.

3. The series of chambered sections containing charges of explosive material, made of material strong and thick enough to withstand the force of the explosion of the charges within them without being shattered, and fitting closely the bore of the gun, in combination with the communicating-passages through the section-heads separating the charges, and means for regulating the transmission of fire through such passages from charge to charge successively from the rear to the front of the series, all so combined and arranged that the successive explosions of the charges will take place separately and at predetermined points along the gun, substantially as shown and described.

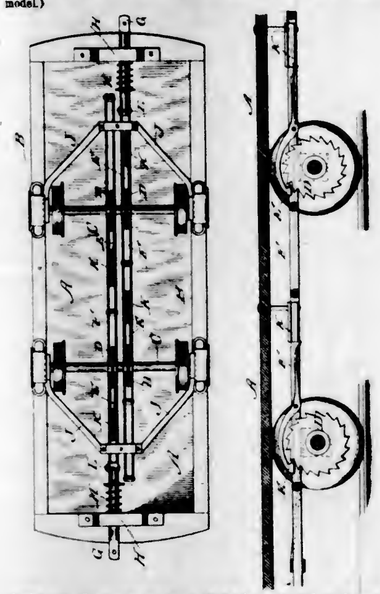
4. The series of cup-shaped shell-sections abutting against and attached to each other, made of material strong and thick enough to withstand the force of the explosion of the charges within them without being shattered, fitting closely the bore of the gun and provided with openings or passages for allowing the communication of the fire from the charge in each rear section to that in the one in front, all so combined and arranged that the successive explosions of the charges will take place at distinct intervals along the gun, and the explosion of each charge will drive forward the sections in front of it and the projectile with accelerated speed.

5. In combination with the projectile, the rear cup-shaped shell-section containing a slow-burning explosive, the similarly-shaped section or sections in front thereof, containing relatively quicker-burning or stronger explosive or explosives, the open-ended cylindrical shell at the front end of the series of sections containing a still more powerful explosive and at its front end holding the projectile, and communicating-passages through the section-heads between the charges, adapted to allow of the communication of fire from each charge to the one next in front of it and to retard or regulate the rapidity of such communication, substantially as shown and described.

6. The series of shell-sections containing charges of explosive and having their heads provided with fuse openings or passages communicating from one charge to another, in combination with the perforated caps covering such openings and serving to prevent direct blowing of the fire from one charge through the fuse-opening to the next charge, and also to strengthen and re-enforce the heads around the openings, substantially as and for the purpose set forth.

7. In combination with the series of accelerating-charges, the division-heads separating them, made strong enough to withstand the force of the explosions of the charges without breaking, fitting closely the bore of the gun, and provided with openings or passages to allow the transmission of fire from charge to charge successively from the rear to the front of the series, and means for holding the separating-heads apart, so as to prevent undue compression of the charges between them, substantially as and for the purpose described.

352,126. CAR-STARTER. George B. Haines, Chicago, Ill., assignor of one-half to Robert J. Gunning, same place. Filed Apr. 6, 1886. (No model.)



Claim.—1. In a car-starter, a starter-bar adapted to have a vertical and an endwise movement independent of the movements of the car proper, in combination with means for supporting and guiding the same, substantially as described.

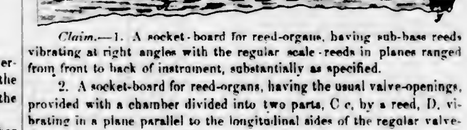
2. In a car-starter, the combination of a starter-bar and a draw-bar secured together by a universal joint in front of the car-axle, whereby the draw-bar may be moved freely up and down and sidewise, substantially as described.

3. In a car-starter, the combination of a starter-bar, guides for the starter-bar wherein the same moves, and braces or supports for such guides secured on the axles or axle-boxes, whereby the car-starter may be moved independently of the body of the car, substantially as described.

4. In a car-starter, the combination of a vertically-adjustable weight with the free end of a pivoted pawl, substantially as described.

5. The combination, with a car, of a draw-bar secured by a universal joint in front of the axle, permitting it to be moved vertically and laterally, substantially as described.

352,127. CAR-STARTER. George B. Haines, Chicago, Ill., assignor of one-half to Robert J. Gunning, same place. Filed May 1, 1886. (No model.)



Claim.—1. In a car-starter, the combination of a ratchet-wheel, a draw-bar capable of independent endwise movement, a pivoted pawl movable therewith and having a catch and a weighted end, and an inclined piece or way over which such weighted end moves and along which it is raised and lowered, substantially as described.

2. In a car-starter, the combination of a ratchet-wheel, a draw-bar capable of independent endwise movement, a pivoted pawl movable therewith and having a catch and a weighted end, a rod or extension forward of such weighted end, a spring or clamp adapted to receive such rod or extension when forced upward and to release it when forced downward, and an inclined piece or way over which the weighted end moves and along which it is raised and lowered, substantially as described.

352,128. CABINET-ORGAN. Jacob Hessler, Chicago, Ill. Filed June 2, 1884. (No model.)

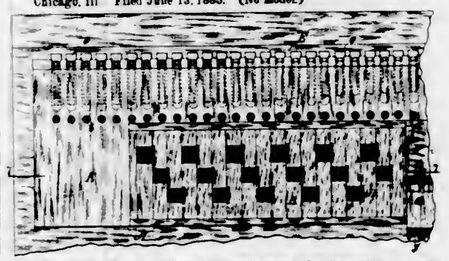


Claim.—1. The combination, in a cabinet-organ, of the sliding lid A', the valve B, and the devices connecting said lid and valve, substantially as specified.

2. In a cabinet-organ, the lid and its swinging frame C, in combination with the valve B and the devices connecting said frame to the valve, substantially as specified.

3. In a cabinet-organ, the combination, with a vertical swell-valve, B, of devices for opening and closing the same and the hook *d'*, for limiting the opening movement, substantially as specified.

352,129. SOCKET-BOARD FOR REED-ORGANS. Jacob Hessler, Chicago, Ill. Filed June 13, 1885. (No model.)



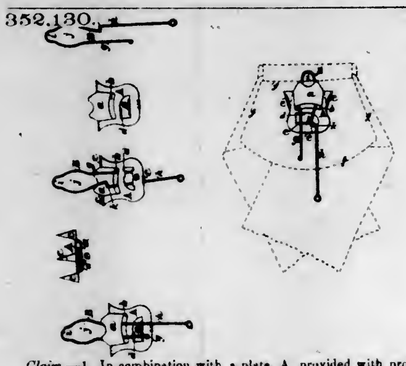
Claim.—1. A socket-board for reed-organs, having sub-bass reeds vibrating at right angles with the regular scale-reeds in planes ranged from front to back of instrument, substantially as specified.

2. A socket-board for reed-organs, having the usual valve-openings, provided with a chamber divided into two parts, C c, by a reed, D, vibrating in a plane parallel to the longitudinal sides of the regular valve-slots, substantially as specified.

3. A socket-board provided with a series of vertical valve-cells arranged in longitudinal rows from front to rear, wherein each successive cell is stepped aside laterally to communicate with the next valve-opening, and provided with reeds vibrating in planes parallel to the longitudinal sides of the valve-slots, substantially as specified.

352,130. NECKTIE-FASTENER. Boynton J. Higgins, Boston, Mass., assignor of one-half to Isaac H. Randall, same place. Filed Apr. 3, 1886. (No model.)

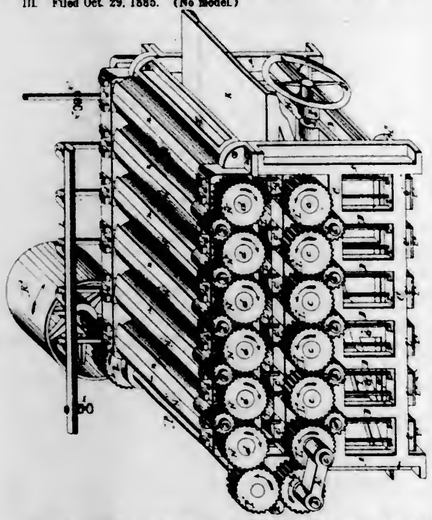
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Claim.—1. In combination with a plate, A, provided with projections *d* and *e*, having the openings therein specified, a clasp, B, having the two limbs *g* and *h*, forming the smaller loop or opening, *i*, and the larger opening, *j*, substantially as and for the purposes set forth.

2. In combination with the plate A, provided with the projections *d* and *e*, raised portion or guard *a*, and prongs *c*, the spring-wire or clasp B, having the two limbs *g* and *h*, forming the loop or smaller opening, *i*, and the larger opening, *j*, and provided with a hook, *k*, substantially as specified.

352,131. VENEERING-MACHINE. ANDREW C. JOHNSON, Rockford, Ill. Filed Oct. 29, 1885. (No model.)



Claim.—1. In a machine for applying veneering to a base, the combination, with a series of carrying-rollers, of compress-rollers, one or more of which are heated, while the remainder are chilled, substantially as described.

2. In a machine for applying veneering to a rigid base, the combination, with a series of adjustable carrying-rollers, of a series of compress-rollers heated and chilled respectively, substantially as described.

3. In a veneering-machine, the combination, with a series of heated and chilled compress-rollers, of a gear-train consisting of gear-wheels fixed to the rollers, and intermediate gear-wheels connecting the gear-wheels of the rollers, substantially as and for the purpose set forth.

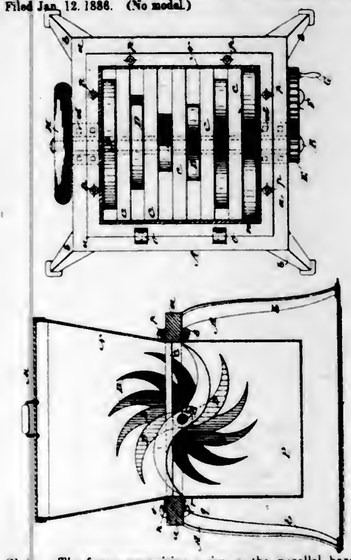
4. In a veneering-machine, the combination, with a series of carrying-rollers, of a series of hollow compress-rollers, and steam-pipes for heating one or more of said hollow rollers, and water-pipes for cooling the remainder of said hollow rollers, substantially as described.

5. The combination, in a veneering-machine, of a bed of carrying-rollers and a series of hollow compress-rollers and heating and cooling pipes, whereby the front compress roller or rollers will serve to melt the glue to hold the veneering, and the rear compress-rollers will chill and set the glue, substantially as described.

6. In a veneering-machine, the combination of a series of heated and chilled rollers having a gear-train connection, a driving-gear connecting with the gear-train of the rollers, a series of carrying-rollers having a gear-train connection, and an intermediate gear-wheel connecting the driving-gear with the gear-train of the carrying-rollers, said intermediate gear-wheel having a swinging journal support by yoke-connection with the driving-gear shaft and with the shaft of a carrying-roll, substantially as and for the purpose set forth.

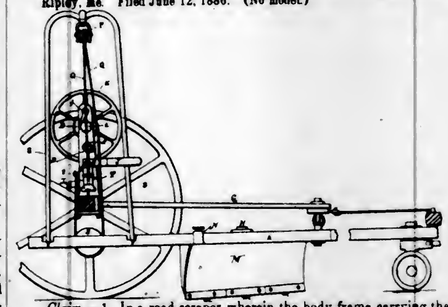
7. In a veneering-machine, the combination, with compress and carrying rollers, of holding-bolts connecting the roller-bearings with the supporting-frame, said holding-bolts made yielding in their connection with the compress-rollers, substantially as and for the purpose set forth.

352,132. VEGETABLE-MASHER. NILS JOHNSON, Superior, Wis. Filed Jan. 12, 1886. (No model.)



Claim.—The frame comprising a rim, *a*, the parallel bars *c c*, and upper and lower hooked lugs, *o q*, all cast in a single piece, in combination with the shaft B, having beaters projecting up between the bars *c c*, the upper and lower hoppers, N P, having flanges *n r*, which flanges on one edge engage the hooked lugs, and the thumb nuts or screws *p s*, securing the flanges at other points to the rim, substantially as set forth.

352,133. ATTACHMENT FOR ROAD-SCRAPERS. C. GEORGE JONES, Ripley, Me. Filed June 12, 1886. (No model.)



Claim.—1. In a road-scraper wherein the body-frame carrying the scraper proper is suspended from the axle, a device for holding down said body-frame, consisting of a pair of upright standards bearing upon and projecting upward from said frame on each side thereof, a pair of holding-down lines having attachments to the rear axle or the fixtures thereof at points below the tops of said standards, and passing over said standards near their tops in such manner as to hold said standards down upon said frame, and mechanism for actuating said holding-down lines, substantially as described.

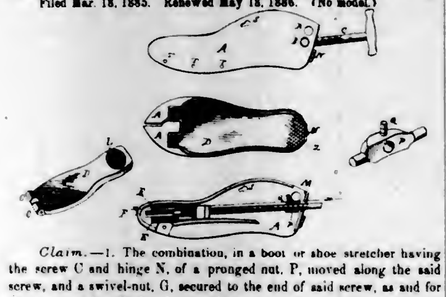
2. In a road-scraper wherein the body-frame carrying the scraper proper is adjustably suspended from the axle by suspension-lines attached at one end to windlasses having bearings in standards fixed upon said axle and at the other to convenient points upon said axle or the fixtures thereon, a device for holding down said body-frame, consisting of a pair of upright standards bearing upon and projecting upward from said frame on each side thereof, and a pair of holding-down lines having attachments at one end to the axle or the fixtures thereon at points below the tops of said upright standards, and at the other end attachments to said windlasses at points opposite the attachments of said suspension-lines, and passing over said upright standards near their tops in such manner as to hold said upright standards down upon said frame, substantially as described.

3. In a road-scraper wherein the body-frame carrying the scraper proper is adjustably suspended from the axle, the adjusting-hook C, guides *y z*, and winged nut R, in combination with the body-frame, the axle, the standard B, the windlass, the standard O, the holding-down line, and the suspension-line, substantially as described.

4. The herein-described holding-down device for road-scrapers, wherein the body-frame is adjustably suspended from the axle, consisting of the combination of the standard O, having pulley P, guide J, holding-down line Q, and windlass D, with the body-frame and scraper, the axle, the standard B, and the suspension-line, substantially as described.

5. The herein-described holding-down device for road-scrapers, wherein the body-frame is adjustably suspended from the axle, consisting of the combination of the standard O, having pulley P, guide J, holding-down line Q, windlass D, and adjusting-hook C, with the body-frame and scraper, the axle, the standard B, and the suspension-line, substantially as described.

352,134. BOOT OR SHOE STRETCHER. WILEY JONES, Norfolk, Va. Filed Mar. 18, 1885. Renewed May 18, 1886. (No model.)



Claim.—1. The combination, in a boot or shoe stretcher having the screw C and hinge N, of a pronged nut, P, moved along the said screw, and a swivel-nut, G, secured to the end of said screw, as and for the purposes described and set forth.

2. The combination, in a boot or shoe stretcher having the screw C and hinge N, of wheels J J and a nut, H, carrying the said wheels, as and for the purposes set forth and described.

3. In a boot or shoe stretcher, the parts A A, provided with the grooves E and sub-grooves F, forming a track for wheels J J, substantially as set forth.

4. The combination, in a boot or shoe stretcher having the screw C and hinge N, of side pieces, A A, provided with the lower orifices B, through which orifices oscillate the smooth prongs of nut P, all arranged substantially as shown and described.

5. The combination, in a boot or shoe stretcher having the screw C and hinge N, with the side pieces, of a bottom plate, D, provided with a cavity, L, and attached to one of the side pieces, all as shown and described.

6. The combination, in a boot or shoe stretcher having the screw C and hinge N, of the side pieces with an arm or arms, O, for securing the bottom plate to one of the side pieces, as and for the purposes described.

7. The combination, in a boot or shoe stretcher having the screw C and hinge N, with the parts A A, provided with upper orifices B, of nut P, and aperture M, in which oscillate the screw C, all arranged substantially as and for the purposes described.

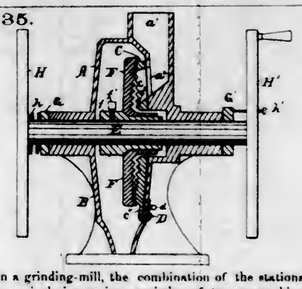
8. The combination, in a boot or shoe stretcher having the screw C, of a screw-threaded toe-pusher, I, and a heel-brace, R, said brace working detachably on the nut P by means of a screw-arm, Q, projected from the body of said nut, as and for the purposes described.

9. The combination, in a boot or shoe stretcher having the hinge N and screw C, of the parts A A, provided with the elongated slots S S, with the cap K, provided with the pins U U, substantially as shown and described.

352,135. GRINDING-MILL. JOSEPH R. KIDLEY, Chicago, Ill. Filed Mar. 4, 1886. (No model.)

Claim.—1. In a vertical-disk grinding-mill, a stationary grinding-disk having a feed-orifice above the center thereof, and a portion of said surface adjacent to said orifice and in that direction toward which the revolving disk moves cut away, and a raised rib extending partially aronnd the inner periphery of the disk and below said orifice and beveled portion, substantially as and for the purpose specified.

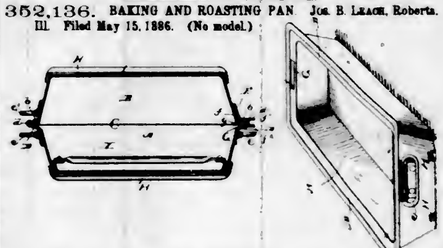
352,135.



2. In a grinding-mill, the combination of the stationary grinding-disk, and an inclosing-casing consisting of two parts hinged together, the line of division between said parts extending from near the center of the disk outward and upward to the periphery, with bolts for securing said disk to the lower part of the casing, one or more of said bolts passing through said casing and engaging with said disk at points above the center of said disk, the remaining bolts passing through the casing and engaging with said disk at points below its center, substantially as and for the purpose specified.

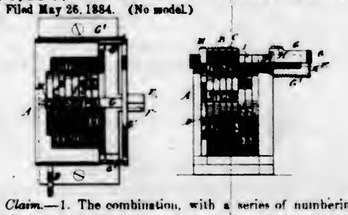
3. In a grinding-mill, the combination of the stationary grinding-disk, and an inclosing-casing in two parts, the lower part of which extends above the center of the disk near the circumference thereof, with bolts and set-screws which pass through said lower part of the casing and engage with said disk, substantially as and for the purpose set forth.

352,136. BAKING AND ROASTING PAN. JOS. B. LEACH, Roberta, Ill. Filed May 15, 1886. (No model.)



Claim.—As a new article of manufacture, a baking or roasting pan consisting of an upper and lower section of substantially uniform size and form, and detachably fitted together to form a cooking-chamber, the lower section of the pan having an outwardly-inclined wired flange, D, at its upper edge, and a slot, G, in the said flange at one end of the pan, and the upper section resting on the said flange within the wired edge thereof, and having a fixed keeper at its lower edge provided with the outwardly-extending arms *f f'*, one of which passes through the slot G, to connect the upper and lower sections of the pan, substantially as described.

352,137. NUMBERING DEVICE. HOMER LEE, New York, N. Y. Filed May 26, 1884. (No model.)



Claim.—1. The combination, with a series of numbering-disks of a numbering-head, of a carrier adapted to hold a printed character, and means, substantially as described, for altering the position of the same as each disk is brought into printing position, as set forth.

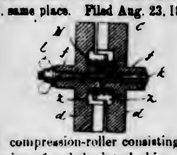
2. The combination, in a printing-head, of a series of disks, each having a transverse slot, a slide carrying a printing-character and guided to slide in said slot when in line therewith, and means, substantially as described, for carrying the slide out of each slot as the disk provided with said slot is brought into printing position.

3. The combination of the printing-disk having slots with beveled edges, a slide carrying a printing-character provided with a beveled edge, and a spring arranged to press the slide inward, substantially as described.

4. The combination, in a printing-head, of a series of notched disks, a guide, a slide in said guide carrying a printing-character, a guided cross-bar attached to said slide, and a spring, substantially as described.

352,138. COMPRESSION ROLLER FOR WIRE WARPING MA-

352,138. COMPRESSION-ROLLER FOR WIRE-WARPING MACHINES. ORANGE S. LEE, Clinton, Mass., assignor to the Clinton Wire Cloth Company, same place. Filed Aug. 23, 1886. (No model.)

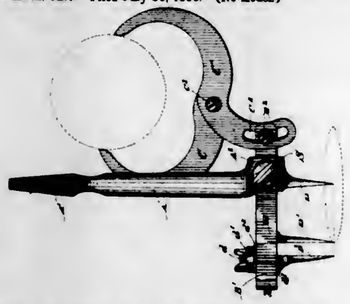


Claim.—1. A compression-roller consisting of the sections *d*, provided with the trunnions *f* and the interlocking serrations *c*, the spring N, interposed between said sections, and the bolt *k*, extending through said trunnions and provided on opposite ends with a head and a nut, respectively, substantially as described.

2. A compression-roller consisting of the sections *d*, provided with the trunnions *f*, the interior grooves, *z*, surrounding said trunnions, and the interlocking serrations *c*, the spring N, interposed between said sections, its ends resting within said grooves *z*, and the bolt *k*, extending through said trunnions and provided on opposite ends with a head and a nut, respectively, substantially as described.

3. The expansible roller C, provided with end trunnions, in combination with the rod D and the sleeve E, sliding thereon, and having arms *b*, provided with eyes, within which said trunnions are journaled, substantially as described.

352,139. WASHER OR GASKET CUTTER. JOHN LEUENBERGER, Camden, Ohio. Filed July 30, 1886. (No model.)



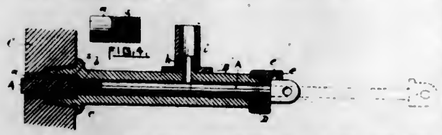
Claim.—1. In a washer or gasket cutter, the combination of main shank A, calipers C C', sliding bar B, and a graduating device or attachment, substantially as and for the purposes specified.

2. In a washer or gasket cutter, the combination of shank A, calipers C C', provided with graduating-slot C^2, sliding bar B, and screw B^2, substantially as and for the purposes specified.

3. In a washer or gasket cutter, the combination of shank A, calipers C C', provided with graduating-slot C^2, screw B^2, sliding bar B, knife D', screw S, and pointer D, substantially as and for the purposes specified.

4. In a washer or gasket cutter, the combination of shank A, calipers C C', provided with graduating-slot C^2, screw B^2, sliding bar B, slot B', knives D' D^2, screw S, and pointer D, substantially as and for the purposes specified.

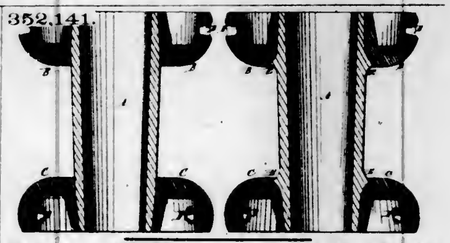
352,140. BEER-FAUCET. CHARLES B. LOCKE, Appenang, R. I. Filed Jan. 9, 1886. (No model.)



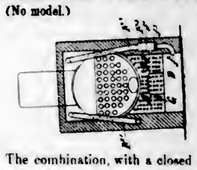
Claim.—In a beer-faucet, the combination, with the hollow body B, having an outlet near its center and an exteriorly and interiorly threaded inner end, of the tube *a*, threaded for a portion of its length and engaging the interior threads of the body, and the plunger A, located in the body B, and having the packing *b*, said plunger extending beyond the body B, substantially as set forth.

352,141. VEHICLE-WHEEL. JAMES MACPHAIL, Rockford, Ill. Filed Feb. 20, 1886. (No model.)

Claim.—A three-part hub consisting of thimble to receive the axle-arm, and having its ends produced in truncated-cone form, and annular ring-hub ends of substantially U shape in cross-section, the inner side of each hub end being tapered to fit upon the thimble, while the outer side of each end is perforated, substantially as described.



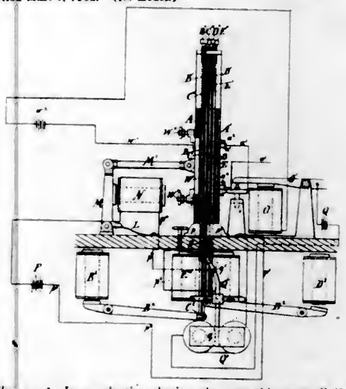
352,142. STEAM-BOILER. THOMAS MAIN, New York, N. Y. Filed Feb. 9, 1886. (No model.)



Claim.—1. The combination, with a closed boiler-furnace having above the grate a hollow front, the inner wall of which is perforated, of a system of air-pipes including an air-heater arranged in a connection or smoke-space of the boiler for delivering hot-air blast to the hollow furnace front and below the grate, substantially as herein described.

2. The combination, with the closed boiler-furnace having above the grate a hollow front, the inner wall of which is perforated, of a system of air-pipes including an air-heater arranged in a connection or smoke-space of the boiler for delivering hot-air blast to the hollow furnace-front and below the grate, and valves for separately controlling the admission of hot air to the hollow front and below the grate, substantially as herein described.

352,143. SELECTING DEVICE. JAMES E. MUNSON, New York, N. Y. Filed Mar. 6, 1882. (No model.)



Claim.—1. In a selecting device, the movable parts B C, having certain portions conducting and other portions non-conducting, in combination, with suitable means, substantially as set forth, for shifting their positions, and with electrical conductors a^2, arranged to receive the currents conducted through the several portions, substantially as and for the purposes herein specified.

2. In a selecting device having plates B C and suitable actuating means, substantially as set forth, for operating each independently, the springs B' C' and adjusting means B^3 C^3, combined and adapted to serve as herein specified.

3. The series of separately-movable plates B C, in combination with a like number of electro-magnets B^2 C^2, and with a single conducting-wire, *a'*, arranged to serve as herein specified.

4. The series of separately-movable plates B C, with their operating means B' C' B^2 C^2, in combination with each other, and with means M M', for compressing the plates together at intervals, as herein specified.

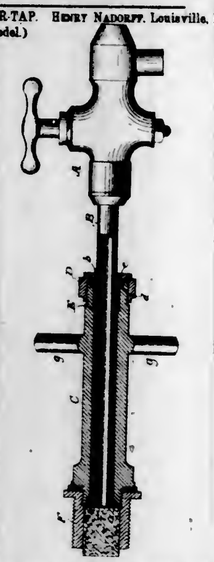
5. The circuit-breaking device *p*, capable of being actuated by any one or more of the plates B C on their descent, and controlling the local battery-circuit, in which are included the magnets N, actuating the movable pressing-piece W, in combination with said plates B C, piece W, magnets N, and suitable connections, substantially as set forth, between the armature of said magnets and said piece W, substantially as herein set forth.

6. The circuit-breaking device *p* in the circuit of the electro-magnets N, actuated by the plates B C, in combination with the circuit-breaking device Q^2 in the same circuit, and with the electro-magnet Q', controlling the latter, and with the circuit-breaker O' in the circuit of said magnet Q', operated by the signal-giving mechanism, all combined and arranged to release the pressure on the plates B C before they commence to move upward after every depression, substantially as herein specified.

7. The two circuit-breaking devices *p* Q^2, capable of engaging with each other when one is acted upon by the plates B C, while the other is attracted by the magnet Q', and of being held so engaged until the plates B C have begun to rise, in combination with said plates, means for depressing and elevating the same, electrically-controlled means for laterally compressing the same, magnet Q', and means for engaging the same controlled by the signal-giving mechanism, all substantially as and for the purposes herein specified.

8. In a selecting device operating through a series of plates and inducing the required selections by changing the combinations of the movements, the several selecting-plates B C D E, having the plugs *b c d e*, arranged as shown, so that a uniform number of the selecting-plates B C D E must be depressed in order to effect the operation at each movement, whereby uniform resistance to the battery at each movement is insured, as herein specified.

352,144. BEER-TAP. HENRY NADORFF, Louisville, Ky. Filed Apr. 13, 1886. (No model.)

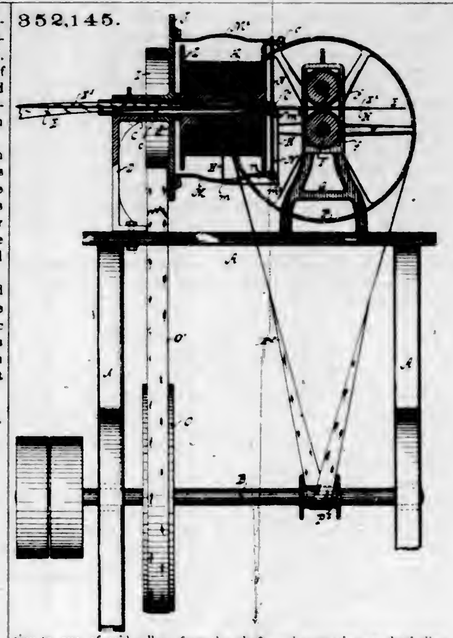


Claim.—The improved beer-tap herein-described, comprising the following elements: a sleeve having a wrench-seat and an externally-threaded extension internally beveled to form a seat and internally and externally threaded bung-bushing adapted for attachment to the said threaded reduced extension of the sleeve, a draft-tube open at its inner end, provided with a beveled follower and secured to a faucet at its outer end, said follower serving to expel the bung from its bushing and adapted to the seat in the inner end of the said sleeve, an annular flanged reducer fitted into the outer end of the latter, and a packing-gland screwed upon the outer end of this sleeve, all constructed and adapted to operate substantially in the manner and for the purposes specified.

352,145. MACHINE FOR MAKING MUFFLING-STRIPS FOR SLATES, &c. CHARLES NELSON, East New York, N. Y. Filed Jan. 7, 1886. (No model.)

Claim.—1. A machine for making muffling-strips for slates, combining in its structure the stationary splint-covering spindle interiorly cylindrical at one end and uniformly tapering to a rectangular cross-section at the other end, to provide a rectangular mouth for covering a flat wooden splint with a flexible material, the rotating feed-rollers for drawing the splint and its covering material through the spindle, and a rotary cord-winding frame loosely mounted on said spindle, substantially as described.

2. The combination, in a machine for making muffling-strips for slates, of the stationary splint-covering spindle interiorly cylindrical at one end and uniformly tapering toward the other end into a mouth rectangular in cross-section, for covering a flat splint with a flexible material, two rotating feed-rollers, a driving-shaft, means for imparting motion to one of said rollers from the shaft, and a rotating cord-winding frame loosely mounted on said spindle, substantially as described.

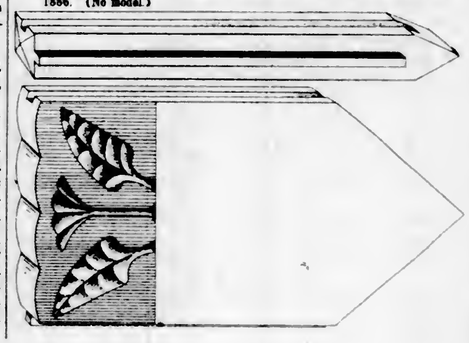


3. The combination, in a machine for making muffling-strips for slates, of the stationary splint-covering hollow spindle interiorly tapering into a mouth at one end, which is rectangular in cross-section, for covering a flat splint with a flexible material, two rotating rollers, between which the splint and its covering are grasped and by which they are drawn through the spindle, a pulley on the shaft of one of the rollers a driving-shaft, a belt connecting the shaft with said pulley for rotating the latter, and a rotating winding-frame loosely mounted on said spindle, substantially as described.

4. The combination, in a machine for making muffling-strips for slates, of the stationary splint-covering spindle uniformly tapering interiorly into a rectangular mouth at one end, for covering a flat splint with a flexible material, two rotating feed-rollers, a pulley on the shaft of one of said rolls, a cord-winding frame loosely mounted on the spindle and provided with a pulley, a driving-shaft, and two belts, respectively connecting the said shaft with the pulleys on the feed-roller and the winding-frame, substantially as described.

5. The combination of a stationary splint-covering spindle, two rotating rollers, arranged one above the other, between which the splint and its covering are grasped and by which they are continuously drawn through the spindle, a driving-shaft, a belt connecting the shaft with one of said rollers for rotating the latter, and a rotating winding-frame mounted on the spindle, substantially as described.

352,146. MOVABLE ARTIFICIAL BORDER FOR FLOWER-BEDS, GARDEN-PATHS, &c. WEBB M. OUNGST, Harlan, Iowa. Filed May 24 1886. (No model.)

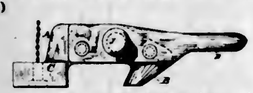


Claim.—1. As a new article of manufacture, a corner-piece for borders, composed of clay or metal, pointed at its lower end, and provided with a tongue and a groove that extend vertically and parallel, substantially as shown and described, for the purposes stated.

2. A border-section consisting of a plate made of clay or metal, pointed at its lower end, and provided with a tongue on one of its vertical edges and a corresponding groove in its opposite and parallel edge, for the purposes stated.

3. In a border for flower-beds, &c., the combination of a corner-piece having a pointed bottom and a vertical tongue, and a groove extending parallel with the tongue, and two movable border-sections, each pointed at its lower end, and provided with a tongue on one of its vertical edges and a groove in its other parallel edge, substantially as shown and described, for the purposes stated.

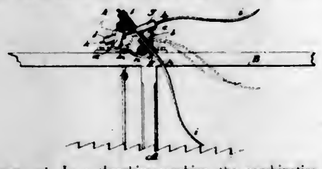
352,147. CAR-COUPLING LINK. FRANCIS W. PARSONS, Philadelphia, Pa., assignor to Winslow Warren, Dedham, Mass. Filed Aug. 23, 1886. (No model.)



Claim.—1. A railway coupling-link consisting of the section A, made in one piece, and forming the arm G, hook B, and counter-weight, in combination with the loop D, provided with trunnions attached to the arm and link, as described, and bolts or rivets E F, as and for the purpose herein set forth.

2. In a railway-car-coupling link, the section A, formed in one piece, consisting of an arm, G, hook and counter-weight, and a loop, D, secured to said section with the said arm between the loop by means of bolts or rivets, in combination with the trunnions and shank thereof, in the manner as described, and for the purpose specified.

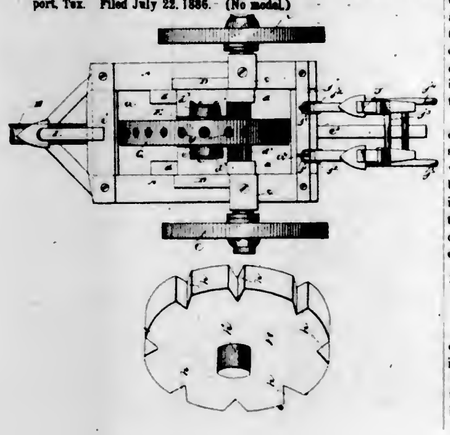
352,148. THRASHING-MACHINE. GEORGE L. PITTMAN, Belmont, Ohio. Filed Apr. 16, 1886. (No model.)



Claim.—1. In a thrashing-machine, the combination, with the straw-carrier A, of the shafts *a b*, geared together and each provided with the series of oppositely-extending cranks, the blocks *gl*, journaled on the wrists of the cranks of the respective shafts, and the fingers *h*, having their stems suitably connected to blocks *g* and passed through openings in blocks *l*, whereby the said stems are free to reciprocate in the blocks *l* when the machine is in operation, as set forth.

2. In a thrashing-machine, the combination, with the straw-carrier A, of the parallel shafts *a b*, geared together and provided with oppositely-extending cranks, and fingers attached to one of the cranks of each shaft, said shafts being arranged close together, so that their cranks describe intersecting circles, whereby when the shafts rotate the fingers are moved from a horizontal to nearly a vertical position, as set forth.

352,149. COTTON PLANTER AND CHOPPER. LEE P. PITTS, Deport, Tex. Filed July 22, 1886. (No model.)

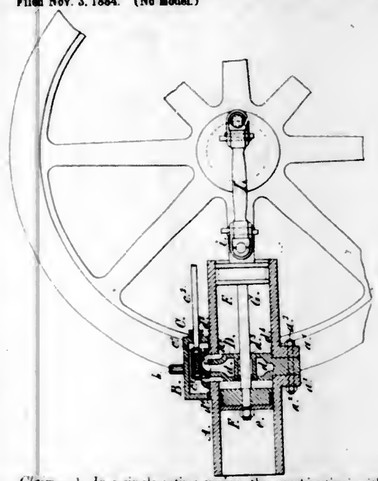


Claim.—1. The combination of a main frame, the wheels, the vertical guide-frame affixed to the carrying-frame, and the vertically-sliding idler-frame arranged to slide freely within the guide-frame, adapted to carry either the seed or chopping devices, and thereby permit the latter to accommodate themselves to unevenness in the soil, substantially as described, for the purpose set forth.

2. The combination of a main frame, the bearing-wheels, a vertical guide-frame affixed to the carrying-frame, an idler-frame arranged to slide freely within the guide-frame, and adapted to carry either the seed or chopping devices, to permit the latter to accommodate themselves to unevenness of the soil without hinderance, and a hand-lever pivoted to the carrying-frame and connected to the idler-frame for elevating the latter and the device carried thereby out of contact with the ground, substantially as described, for the purpose set forth.

3. The combination of a main frame, the carrying-wheels journaled thereon, a vertical guide-frame affixed to the main frame, an idler-frame fitted within the guide-frame and capable of free vertical movement therein, a hand-lever connected to the idler-frame for elevating the same, a chop-wheel journaled in the idler-frame and having the notched periphery, and the loosely-connected plow-standards depending from the main frame at the rear thereof and carrying the shovels, substantially as described, for the purpose set forth.

352,150. STEAM-ENGINE. GEORGE E. RIDER, Kansas City, Mo. Filed Nov. 3, 1884. (No model.)



Claim.—1. In a single-acting engine, the combination, with opposite cylinders open at one end, having suitable pistons, of a cylinder-head arranged between said cylinders and provided with a central transverse perforation or stuffing-box adapted to receive the piston-rod, and an annular exhaust-chamber in said cylinder-head around said stuffing-box, for the purpose specified.

2. In a single-acting engine, the combination, with opposite cylinders open at one end, of a cylinder-head arranged between said cylinders and the open ends of said opposite cylinders and provided with a central transverse perforation or stuffing-box adapted to receive the piston-rod of pistons on said rod and in said cylinders, and an annular exhaust-chamber in said cylinder-head around said stuffing-box, and ports extending through said cylinder upon opposite sides of said cylinder-head, for the purpose described.

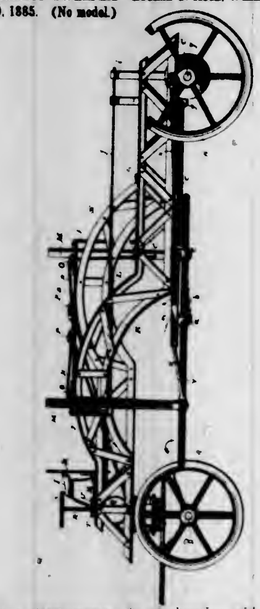
3. In a single-acting engine, the combination, with opposite cylinders open at one end, of a cylinder-head or partition arranged between said cylinders and the open ends of said opposite cylinders and provided with a suitable opening or port, a central transverse perforation or stuffing-box adapted to receive the piston-rod of pistons on said rod in said cylinders, and an annular exhaust-chamber in said cylinder-head or partition, and ports extending through said cylinder upon opposite sides of said cylinder-head, a steam-chest, and a slide-valve in said steam-chest adapted to reciprocate over the said ports, as described.

352,151. MEANS FOR OBTAINING GELATINE FROM THE HEADS OF FISHES. BENJAMIN ROBINSON, East Gloucester, Mass. Filed June 6, 1884. Renewed Apr. 24, 1886. (No specimens.)

Claim.—1. The improved process, substantially as described, for obtaining gelatine from the heads of fishes, it consisting in first subjecting them in a closed vessel or digester to the action of steam applied to the outer surface of such vessel, and subsequently expressing the gelatine from the heads and reducing it by evaporation of its normal moisture, in whole or in part, as set forth.

2. The new or improved article of manufacture, consisting of gelatine and an essence or essential oil, as described, and carbolic acid combined in or with the proportions, as set forth, while such gelatine is in a liquid state.

352,152. STREET-SWEEPER. EUGENE G. ROCK, Washington, D. C. Filed Aug. 19, 1885. (No model.)



Claim.—1. In a street-sweeper, the combination, with the main frame having arches, the sustaining-frame secured thereto above and below the arches, and the oblique brace and bar connecting with the broom-shaft, of the broom-shaft and the hangers carrying the broom-shaft and adjustably fitted to the sustaining-frame.

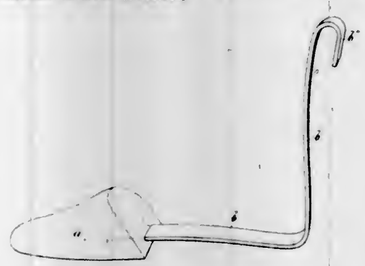
2. In a street-sweeper, the combination, with the main frame having arches, the sustaining-frame secured thereto above and below the arches, the oblique brace secured at the lower part of the frame, and the bar connecting it with the broom-shaft, of the broom-shaft, the hangers carrying the broom-shaft and adjustably connected with the sustaining-frame, and the ropes or chains and the drum for actuating the same.

3. In a street-sweeper, the combination, with the main frame of arched form, and the sustaining-frame secured thereto above and below the arched portion and consisting of end pieces, and upper and lower pieces, the upper pieces being provided with rollers, of the broom-shaft, connected to the sustaining-frame.

4. In a street-sweeper, the combination, with the broom-shaft, of a spiral broom-section secured thereto and extending beyond the end thereof, for the purpose of enlarging the area of the broom-sweeps at one passage of the machine.

5. In a street-sweeper, the combination, with the main frame, of the broom-shaft and the hangers which support said shaft, the independent drums and their operating-shafts, and the ropes or chains which connect the respective drums with the broom-shaft, whereby the broom may be adjusted at either end.

352,153. BOOT OR SHOE FORM. JOSIAH W. ROGERS, Beverly, Mass. Filed Mar. 13, 1886. (No model.)

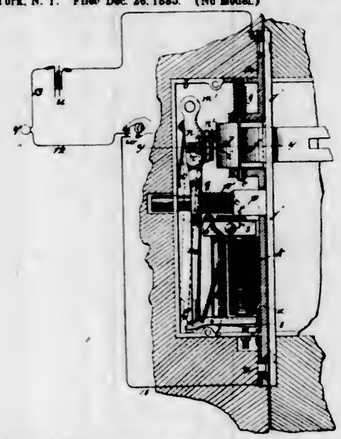


Claim.—1. The herein-described improved boot or shoe former, consisting of the yielding solid block *a*, shaped to conform to or nearly so to the toe or vamp portion of the last, and adapted to be introduced into the toe or vamp portion of a boot or shoe, as and for the purpose set forth.

2. The yielding vamp form *a*, combined with the metal bar or plate *b*, having rear portion, *b'*, adapted to rest against the interior of the rear portion of the upper of a boot or shoe, as herein set forth and described.

3. The yielding vamp form *a*, combined with the metal bar or plate *b*, having rear portion, *b'*, adapted to rest against the interior rear portion of the boot or shoe upper and terminating as a bend or hook, *b''*, as and for the purpose set forth and described.

352,154. ELECTRICAL DOOR-OPENER. DAVID ROUSSEAU, New York, N. Y. Filed Dec. 26, 1885. (No model.)



Claim.—1. In a door-opener, the combination, with the bolt-gate, of a detent-arm arranged to engage the same, a catch arranged to engage the detent-arm, a motor device arranged to actuate or release the catch, a spring arranged to throw the detent-arm into constant engagement with the gate and catch, a stronger spring arranged to move the detent-arm in the opposite direction, and a bolt or projection projecting in the path of the door and arranged to compress said spring when the door is closed, substantially as herein set forth.

2. In an electric door-opener, the combination, with the catch-block or bolt-gate, a detent-arm engaging the same, an armature-catch engaging the detent-arm, a spring arranged to move the detent-arm to engage the gate and catch, a stronger spring bearing in the opposite direction on the detent-arm and arranged to be compressed by the closing action of the door, and an electro-magnet arranged to release the armature-catch, substantially as shown and described.

3. In a door-opener, the combination, with a bolt-gate and a catch, *l'*, and a motor to operate said catch, of the intermediate detent-lever, *m*, arranged to engage the gate at or near its fulcrum, and to engage the catch at its tip, and disposed in a position tangential to or at right angles with the motion of the gate and the direction of engagement of the catch, substantially as and for the purpose set forth.

4. In a door-opener, the combination, with a rotary bolt-gate, *d*, with its constantly-closing spring *g* and engaging-point *i*, of a detent-lever, *m*, having the spring-pawl *n*, to engage said point, arranged and operating substantially as shown and described.

5. In a door-opener, the combination, with the bolt-gate having an engaging-point, *i*, of the detent-lever *m*, having the engaging-pawl *n*, with the electro-magnet *k*, or its equivalent, and its armature-catch *l l'*, arranged and operating substantially as shown and described.

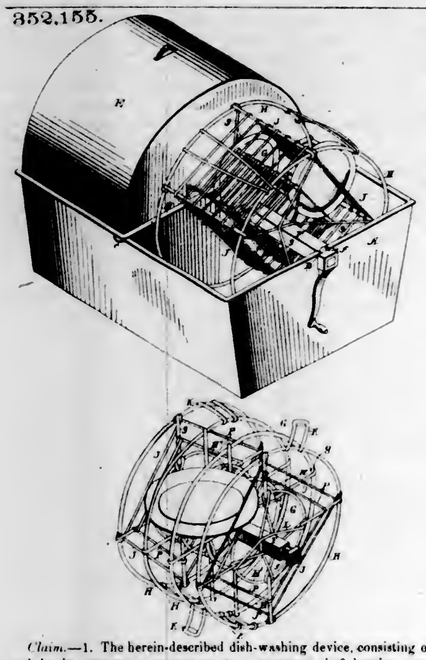
6. The combination, in a door-opener, with a bolt-gate, *d*, of the detent-lever *m*, catch *l l'*, magnet *k*, springs *o* and *q*, and bolt *p*, arranged and operating substantially as and for the purpose set forth.

7. The combination, in an electric door-opener, with the releasing-magnet *k*, controlling the release of the bolt-gate, of the contact-maker *r s*, a device actuating said contact-maker by the opening motion of the door, with the push-button *w*, battery *u*, and electric bell or indicator *y*, all in circuit with said magnet and contact-maker, substantially as shown and described.

8. In an electric door-opener, the combination of the bolt *p* and its contact-maker *r s* with the releasing-magnet *k*, push-button *w*, battery *u*, and electric bell or indicator *y*, circuited as shown and described, for the purpose set forth.

352,155. DISH-WASHER. CHARLES B. SAUNDERS, Columbia, Mo. Filed Aug. 6, 1884. (No model.)

352,155.

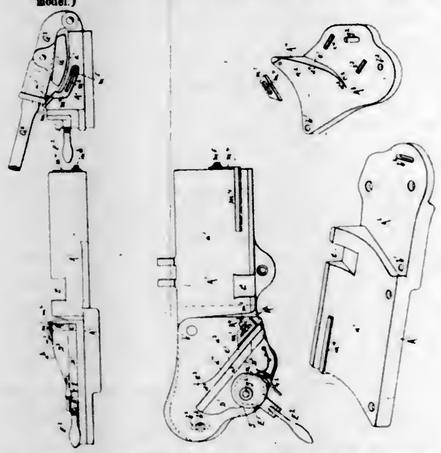


Claim.—1. The herein-described dish-washing device, consisting of a tank having two water-compartments, a transverse shaft bearing upon it, a wire cage or tray composed of radial arms secured to hoops at their outer ends, and transverse connecting-wires forming receptacles or racks to receive and hold dishes during the process of washing, and into which they are readily placed and from which they can be readily removed, substantially as described.

2. The rotary open wire cage composed of radial arms secured to hoops at their outer ends, and transverse connecting-wires forming racks or receptacles to receive and hold the dishes, into which they can be readily placed and from which they can be readily removed, substantially as described.

3. In a wire-dish-washing cage made of radial arms, exterior hoops and transverse connecting-wires, the hinged retaining-wires, substantially as described.

352,156. MACHINE FOR SETTING AND ADJUSTING PLOW-IRONS. EDWARD J. SAWYER, Perham, Minn. Filed Apr. 19, 1886. (No model.)



Claim.—1. A plowshare and landside setting and holding machine, consisting of a main base-frame, A', having the concave upper surface a' a^2, and angular side e', and an adjustable angular holding-jaw, D^2, substantially as set forth.

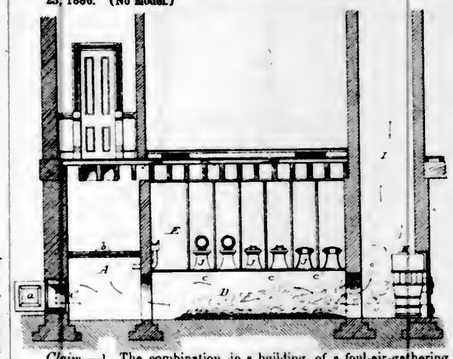
2. The combination of base-faame A', having concave upper surface, a', adjustable section A^3 A^4, having concave surface a^2, and angular side e', and an adjustable clamping-jaw, D^2, substantially as set forth.

3. The combination of base-frame A', having concave upper surfaces, a' a^2, adapted to fit the under surface of a plowshare, angular side e', for supporting a landside, adjustable jaw D' D^2, and presser-plate G', adapted to be forced down upon said concave surfaces, substantially as set forth.

4. The combination of base-frame A', having concave upper surfaces, a' a^2, adapted to fit the under surface of a plowshare, angular side e', for supporting a landside, adjustable jaw D' D^2, and adjustable gages m' m^4, substantially as set forth.

5. The combination of base-frame A', having concave upper surfaces a' a^2, adapted to fit the under surface of a plowshare, angular side e', for supporting a landside, clamping-jaw consisting of plate D', having cavity g', and side D^2, having concave upper surface, a^2, cam E', fitting said cavity, and adapted, when oscillated, to operate said clamping-jaw, substantially as set forth.

352,157. DRY CLOSET. ISAAC D. SHEAD, Toledo, Ohio. Filed Apr. 23, 1886. (No model.)



Claim.—1. The combination, in a building, of a foul-air-gathering room, A, provided with a door or doors, *b*, for cutting off communication with the rooms of the building, the vault D, connected to the ventilating-shaft I, and the direct air-inlet C, provided with a door, *a*, said parts being arranged to operate substantially as described, whereby the air for supplying the current through the vault can be taken from within or without the building at pleasure.

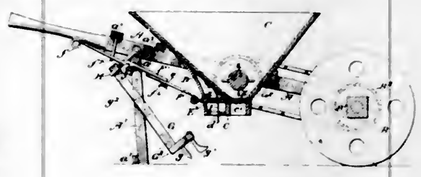
2. The combination, in a building, of a vault, D, for a dry closet, an air-inlet, C, at one end for the admission of air from the exterior of the building, an exhaust or ventilating shaft connected to the vault at its opposite end, and a fan, N, or equivalent means for creating a draft through the vault and shaft when the building is not heated, substantially as set forth.

3. In combination, the vault D, having an air-inlet, C, at one end for the admission of air from the exterior of the building, an exhaust or ventilating shaft, I, connected to the vault at its opposite end, and a furnace or heater, H, located within the shaft and having its doors arranged to be accessible from the exterior of the shaft, substantially as shown and described.

4. The vault D for a dry closet, covered with the metallic plates *c*, or equivalent fire-proof material, in combination with the metallic hopper J, having a wooden seat secured thereto and provided with the metallic cover G, having a flange, *l*, arranged to fit within the mouth of the hopper, substantially as and for the purpose set forth.

5. The hopper J, having the wooden seat *g* secured thereto, in combination with the metallic cover G, provided with the flange *l*, arranged to fit within the mouth of the hopper, substantially as and for the purpose set forth.

352,158. FERTILIZER-DISTRIBUTER. JOHN J. SNYDER, Jr., Flatbush, N. Y. Filed Mar. 2, 1886. (No model.)



Claim.—1. In a fertilizer-distributer, the combination of the hopper C, box C', slide-valve E, having the rod E^2, the spring I, and brace D, as and for the purpose described.

2. In a fertilizer-distributer, the combination of the adjusting-rod F, provided with a longitudinal slot, *e*, in its upper end and connected to the slide-valve E, and the rod F', having a screw-threaded end adjustable in said slot, and a nut, all as described, for the purpose of gaging the valve-opening.

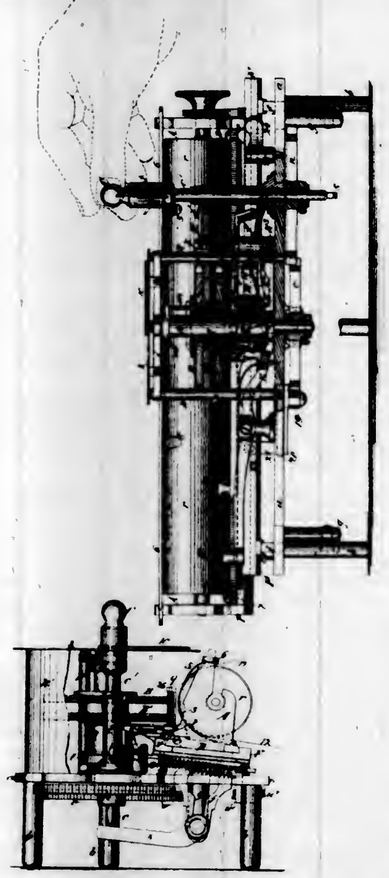
352,159. FASTENING FOR WIRE STRAPPING. ROBERT F. SPANGENBERG, New Orleans, La., assignor of one-fourth to Emile S. Ecuyer, same place. Filed Jan. 26, 1886. (No model.)



Claim.—1. The combination, with a box or other receptacle, of a band comprising a wire strand or cable having at each lapped end a bend in the shape of a shepherd's crook, and of staples, each embracing one lap and a portion of the crook of the other lap, substantially as described.

2. The combination, with a box or other receptacle, of a band comprising a wire strand or cable, having at each lapped end a bend in the shape of a shepherd's crook, and of staples, each embracing one lap, and the entire crook of the other lap at its neck, substantially as described.

352,160. TYPE-WRITING MACHINE. CHARLES SPIRO, New York N. Y. Filed Feb. 17, 1885. (No model.)



Claim.—1. The combination, with the reciprocating paper-carriage and the rotary type-wheel having stops of varying length corresponding to the width of the letters, of the feed devices consisting of the levers *y w*, spring *y'*, stop *w'*, and pawl *v*, stop *x'*, and spring y^2, with a rack on the carriage and an interposed obstructive connection between the pawl-lever and the stops on the type-wheel, arranged and operating substantially as set forth.

2. The combination, with the reciprocating carriage having a feed-rack, of the feed devices consisting of the finger-key E, pawl-lever *w*, pawl *v*, elbow-lever *y*, spring *y'*, stop *w'*, with the stop *x* and spring y^2, arranged and operating substantially as and for the purpose set forth.

3. In a type-writer, the combination, with the paper-carriage and its rack, of the spacing-key lever E, pawl-lever *w*, pawl *v*, and the hook or stop 18 on the lever E, to withdraw the pawl, substantially as and for the purpose set forth.

4. The combination, with the type-wheel having variable stops, and the sliding feed-carriage having a ratchet-rack, of the feed devices consisting of the levers *w y*, connected as described, the pawl *v*, with the stop-lever *z*, operated by the pawl-lever, and its pin *z'*, arranged to encounter the stops on the type-wheel, substantially as shown and described.

5. In a type-writer, the combination, with the type-wheel, of an inking device consisting of an inking-disk revolving against the rim of the type-wheel in a plane at right angles thereto, or nearly so, and pivoted on a hinged arm adapted to be swung out and overturned to permit reinking of the disk, substantially as set forth.

6. In a type-writer, the combination, with the type wheel or wheels, of a vibrating arm, *q*, extending radially from the axis of the wheel, an arm, 43, hinged on the end thereof, and a rotary ink-disk pivoted on said hinged arm and contacting with the rim of the type-wheel, substantially as and for the purpose set forth.

7. The combination, with a reciprocating paper-carriage and a rotary type-wheel, of the inking-disk 42, revolving against the rim of the wheel and carried on a radial vibrating arm radiating from the axis of the wheel and connected with the reciprocating carriage, substantially as set forth, whereby the ink-disk is swung partly around the wheels at each printing action.

8. The combination, with a type-wheel, of the vibrating inker-arm *q*, hinged arm 43, spring 44, and ink-disk 42, arranged and operating substantially as set forth.

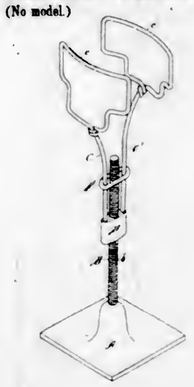
9. The combination, in a type-writer, with two type-wheels arranged to be shifted to or fro to bring either wheel into the printing-line, of an inking-disk fixed or mounted at the printing-line, and arranged to rotate flatwise against the rim of the wheel at this line in a position inclined thereto and with one edge in contact therewith, whereby the disk contacts only with the wheel which is at the printing-level, substantially as herein shown and described.

10. The combination, with the type-wheels B B' and their sliding hub *l*, having the bulge 48, of the vibrating inker-arm *q*, hinged arm 43, ink-disk 42, and the lever 45, engaged at one end with the hub and at the other with the hinged arm 43, substantially as and for the purpose set forth.

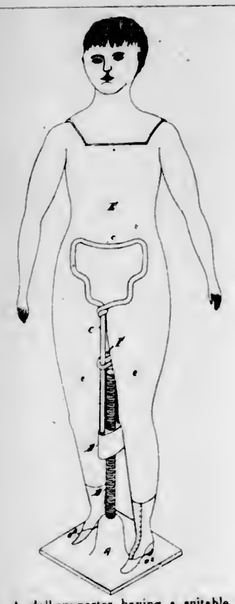
11. The combination, with the rotary type wheel and the reciprocating cradle F and its carriage A, of the vibrating inker-arm *q*, the ink-disk 42, carried thereby, and the operating-lever *j*, engaged with the inker-arm and cradle, and the spring 28, for retracting the lever, substantially as herein shown and described.

12. The combination, with the reciprocating carriage and the rotary type-wheel, of the toothed wheel *o*, the locking click-lever 19, the arm 21, and spring 20, arranged and operating substantially as set forth.

352,161. DOLL-SUPPORTER. ARTHUR STAPLES, Lowell, Mass. Filed Oct. 23, 1885. (No model.)



352,161.

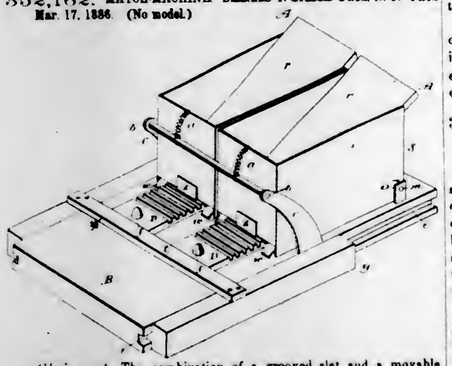


Claim.—1. A doll-supporter having a suitable base, a vertical standard supported thereon, a block embracing said standard and adjustable thereon, arms, each united at one end to said block, and clamping-jaws, each attached to the free end of one of said arms, said jaws being adapted to grasp the body of a doll and to hold the same in an erect position, as and for the purpose specified.

2. The combination of a suitable base, a vertical screw-threaded standard supported thereon, a block provided with a screw-threaded opening to receive and engage said standard, and arms supported by said block and provided with clamping-jaws adapted to grasp the body of a doll, as and for the purpose specified.

3. A doll-supporter having a suitable base, a vertical standard supported thereon, a block embracing said standard and adjustable thereon, arms, each united at one end to said block, clamping-jaws, each attached to the free end of one of said arms, and a ring surrounding said arms and adapted to be pushed upward on said arms to draw the same toward each other, and to cause said jaws to grasp the body of the doll and to hold the same in an erect position, as and for the purpose specified.

352,162. MATCH-MACHINE. Bernard T. Stieber, Utica, N. Y. Filed Mar. 17, 1886. (No model.)



Claim.—1. The combination of a grooved slat and a movable hopper so arranged as to lift from the slat and allow clogging substances to pass out and to automatically adjust itself into a proper position for filling, substantially as specified.

2. The combination of a slat-filling hopper and a slat-carrier mover or holder so arranged as to allow the slat to drop down and allow clogging substances to pass out, and to automatically adjust itself into a proper position for being filled, substantially as specified.

3. The combination of a grooved slat and the movable shelf *z*, so arranged as to lift from slat and allow clogging substances to pass out, and to automatically adjust itself into a proper position for filling the grooves of slats, substantially as specified.

4. The combination of a grooved slat, a hopper, and a pair of fingers or guides so arranged as to unload the slat of its splints while the slat is moving one way, and to allow splints to roll into the grooves of the slat and pass out from the hopper while the slat is moving in an opposite or nearly opposite direction, substantially as specified.

5. In combination with a grooved slat and a hopper, the wedge-shaped cut *h*, substantially as specified.

6. The combination of a grooved slat and a slat-carrier to carry the slat under the hopper, substantially as specified.

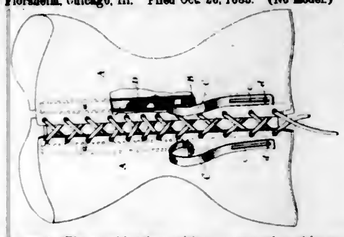
7. The combination of a grooved slat, a hopper, and a hopper-carrier, substantially as specified.

8. The combination of a movable hopper and the spring *a*, so arranged as to actuate the hopper and keep it in a proper position for doing its work, substantially as specified.

9. In combination with two or more grooved slat-filling hoppers, the means described for moving two or more grooved slats at the same time, substantially as specified.

10. In combination with two or more grooved slats, means for moving two or more hoppers at the same time, substantially as specified.

352,163. COMBINED CORSET AND SKIRT-SUPPORTER. James Stone, Aurora, assignor of two-thirds to Alice M. Ball, Aurora, and Elizabeth Florsheim, Chicago, Ill. Filed Oct. 26, 1885. (No model.)



Claim.—1. The combination, with a corset, of a skirt-supporter consisting of one or more outwardly bent or curved metal springs having sliding connection with the corset at their lower ends, and elastic connections uniting the upper ends of the said springs with the corset, substantially as described.

2. The combination, with a corset and the stiffening-strips thereof, of a skirt-supporter consisting of one or more bent metal springs provided with slots in their lower parts, said strips being provided with headed studs engaging the slots, whereby a sliding connection is formed between the lower parts of the springs and the corset, substantially as described.

3. The combination, with a corset, of a skirt-supporter consisting of one or more springs movably connected at their ends with the corset, and elastic straps sustaining the springs, attached at their lower ends to the said springs and at their upper ends to the corset, substantially as described.

4. The combination, with a corset and the stiffening-strips thereof, of a skirt-supporter consisting of one or more curved springs provided in their lower parts with longitudinal slots, headed studs upon the stiffening-strips engaging said slots, and elastic straps connecting the upper ends of the springs with the corset, substantially as described.

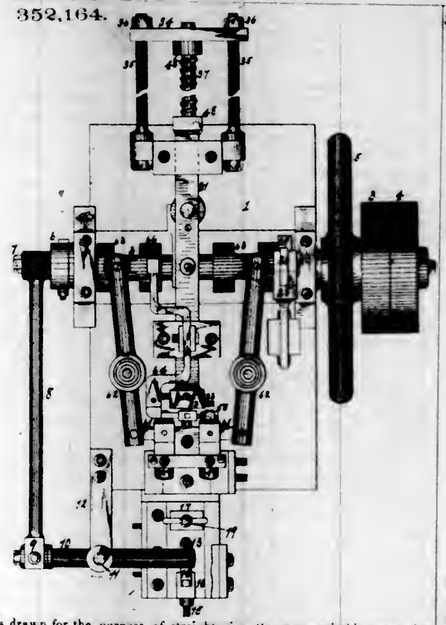
352,164. WIRE-NAIL MACHINE. William Taylor, Allegheny, assignor to Parshall D. Nicols, Sewickley, Pa. Filed Dec. 4, 1885. (No model.)

Claim.—1. In a wire-nail-making machine, the combination consisting of a device adapted to feed the wire into the machine, a pair of dies for holding the wire during the operation of forming a head thereon, a spring-actuated ram, and heading-punch therein, made adjustable by means of suitable transverse set-screws, whereby said punch may be shifted laterally or sidewise within the end of the heading-ram to strike the protruding wire, either on a straight line therewith or at an angle thereto, or otherwise, as the case may require.

2. In a wire-nail-making machine, the combination consisting of a gripping-die adapted to seize and hold the wire during the operation of forming a head thereon, a spring-actuated ram for staving a head on the wire, a reciprocating block or tablet supporting and carrying with it a pair of serrated rolls that in the backward movement of the tablet will roll over the wire and nick the same, and in a reverse movement of the tablet will be prevented from rotating, whereby they simply grasp the wire and feed it forward toward the heading-ram, and a pair of stationary grooved bars between which the wire is drawn on its way to the machine.

3. In a wire-nail-making machine, the combination consisting of fixed and stationary grooved bars, through or between which the wire

352,164.

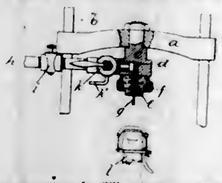


is drawn for the purpose of straightening the same, suitable means for feeding the wire into the machine, a pair of gripping-dies adapted to seize and hold the wire during the operation of forming a head thereon, a reciprocating ram for staving a head on the wire, and pointing-tools formed of two or more pieces held together within a suitable clamp or box.

4. In a nail-making machine, the combination consisting of a pivoted arm connected by a link to a crank or wrist attached to the main shaft, a feeding device made operable by the action of the free end of said arm, a screw and movable block by which the effect or stroke of the arm on the feeding mechanism may be regulated to increase or diminish the extent of feed, a pair of gripping-dies for seizing and holding the wire, a sliding ram for heading the same, and a separable tool for pointing the nails.

5. The combination consisting of an automatic wire-feeding device, a gripper for holding the wire during the operation of forming a head thereon, a sliding ram adapted to head the nails, and separable angular-edged tools for pointing the same.

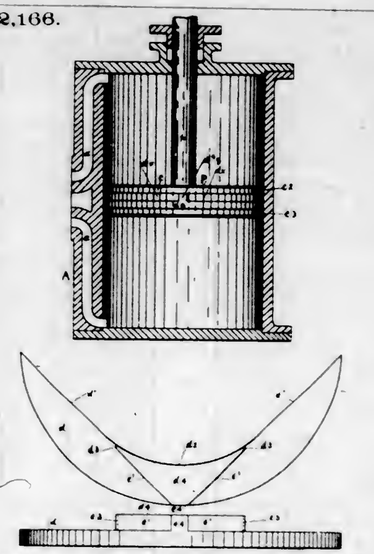
352,165. ATTACHMENT FOR BOTTLING-MACHINES. Frederick B. Thatcher, Bridgeport, Conn., assignor, by mesne assignments, to the Ætna Stopper Company, Pawtucket, R. I. Filed Jan. 17, 1884. (No model.)



Claim.—In an apparatus for filling bottles and other vessels to contain liquid under pressure, the combination, with a chambered head having an inlet and an outlet, the outlet being provided with a projecting stem to open an outwardly-closing valve in the vessel to be filled, the said projecting stem being slabbed off longitudinally to permit the passage thereby of liquid or gas, of a filling-tube connected with the inlet to said chambered head, provided with a stop-valve and a stop-and-vent valve, the said stop-and-vent valve being adapted to open the fluid-passage and close the air or gas vent, whereby the operation of permitting the escape of compressed gas from the vessel when partially filled, and the subsequent filling of the vessel with the liquid under pressure, may be performed substantially in the manner and for the purpose hereinbefore set forth.

352,166. PACKING FOR PISTONS. Thomas Tripp, East Stoughton Mass. Filed Mar. 17, 1886. (No model.)

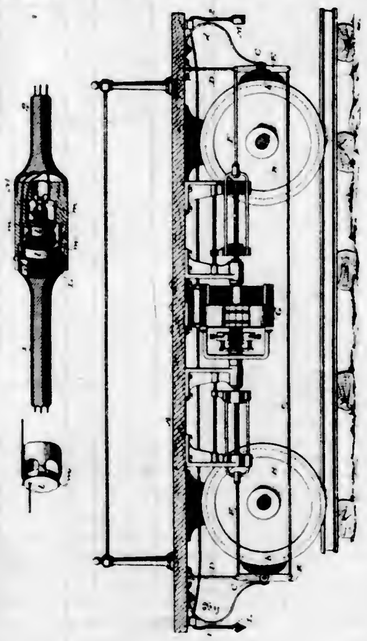
352,166.



Claim.—1. In combination with the piston P, four segments, *d*, arranged around its head and forming an expansible packing, each provided with a laterally-projecting part, d^3, extending under the ends of two adjacent segments, substantially as described.

2. The combination of the piston-head formed of flange c^2 and flange-follower c^3, four segments, *d*, arranged between the flanges and forming an expansible packing, each provided with a laterally-projecting part, d^3, extending under the ends of two adjacent segments, and the springs c^4 c^4 between the segments and the hub of the piston-head, substantially as described.

352,167. SYSTEM OF MOTORS FOR ELECTRIC RAILWAY-BRAKES. Charles J. Van Depoele, Chicago, Ill. Filed June 16, 1886. (No model.)



37 O. G.—37

Claim.—1. In an electric railway-braking system, the combination of a series of electric motors, braking mechanism connected thereto adapted to be actuated by said motors to apply or release the brakes, and electric circuits and connections, whereby all the motors may be simultaneously thrown into operation in the desired direction, substantially as shown and described.

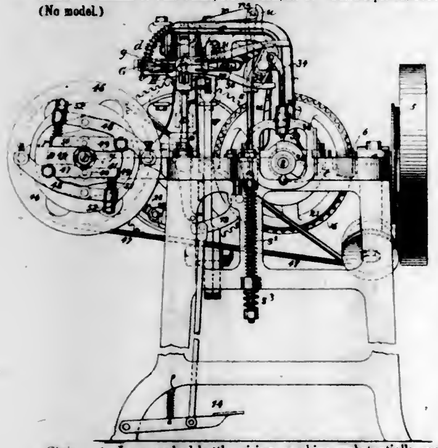
2. In an electric railway-braking system, the combination of a series of electric motors and mechanical connections between the motors and the brake mechanism for operating the same, a circuit extending throughout the train and including the field-magnets of the brake-actuating motors, a second circuit also extending throughout the train and including the armatures of said motors, and a current-reversing switch in said motor-circuit, whereby the direction of rotation of said armatures can be controlled from a single point.

3. In an electric railway-braking system, the combination, with suitable working-conductors, of the separable slip joint or coupling consisting of a part formed of a number of annular terminals assembled together and separated by suitable insulation, and a cup-shaped part adapted to receive the annular terminals and containing a corresponding number of annular springs fitting over said terminals, substantially as shown and described.

4. The combination of the cable I, the part L, consisting of annular terminals corresponding in number to the conductors in the cable, said terminals being of graduated sizes and separated by suitable insulation, and the part M, consisting of a cup-like portion containing annular springs corresponding in number to the said conductors and arranged to fit over and grasp the annular terminals of the part L, substantially as set forth.

5. The combination, with a car, of a motor mounted thereon, shafts extending from each end of the armature-shaft and oppositely screw-threaded, brake mechanism, substantially as described, and draft-rods extending from the brake mechanism to the opposite ends of the extended armature-shaft, whereby the rotation of the armature of the motor will draw or thrust on both ends of the brake system and apply or release the brakes in both directions simultaneously, as set forth.

352,168. MACHINE FOR WIRING THE CORKED NECKS OF BOTTLES. William C. Van Vliet, New York, N. Y. Filed Apr. 28, 1886. (No model.)



Claim.—1. In a corked-bottle-wiring machine, substantially such as set forth, the combination, with the rotary wiring-spindle and the rotary twisting-pliers mounted thereon, of two parallel wire guides or nostrils at the center of the pliers adapted to issue two wires in separate parallel strands over the top of the bottle-cork, substantially as herein set forth.

2. In a bottle-wiring machine, the combination, with a fixed socket to receive the neck of the bottle and nippers mounted in front of the same, of a rotary spindle and rotary pliers placed back of the same, a reel supplying four wires, wire-guides leading circumferentially to and through the tips of the plier-jaws, through which two of the wires are led to issue at the tips of the jaws, and two parallel wire guides or nostrils arranged at the center of the pliers, and adapted to guide and issue the two remaining wires in two separate parallel strands in a diametrical position relatively to the other wires, all said wires being twisted together at the tips of the plier-jaws, and held by the said nippers, substantially as and for the purpose herein set forth.

3. In a bottle-wiring machine, the combination, with a rotary spindle, of the rotary twisting-pliers formed with the head F, jaws G, and wire-guides arranged to guide two wires circumferentially around the jaws to issue at the tips, with the yielding or movable leader H, arranged at the center of the pliers, and having wire-guides arranged to issue wires diametrically between the jaws of the pliers, substantially as herein set forth.

4. In a bottle-wiring machine, the combination, with the spindle *e*, clutch-head K, and pliers F G, of the leader H, having the wire-guides *l*, and the sliding stem *q*, passing through the head of the pliers and having an elastic or spring abutment in the clutching-head, with a stop, 4, to limit its play in the clutch-head, and a stop, j^3, to engage the head of the pliers, substantially as shown and described.

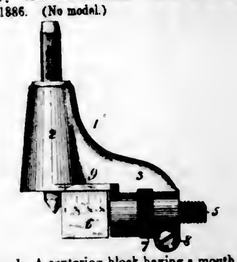
5. Means for bending the twisted ends of wires upon the necks of bottles, consisting of a socket into which the bottle-neck is placed, provided with projections over which the wires lie, with a rotary rolling or bending device arranged to revolve around the socket in the path of said wires, and to thereby bend the same over the projections against the neck of the bottle, substantially as set forth.

6. The combination, with the fixed head D, having the socket *y*, provided with the projecting points or springs 41, of the rotary head or pulley 46, carrying a radially-vibrating bending device or devices arranged to approach to and recede from the socket, substantially as set forth.

7. The combination, with the fixed head D, having the socket *y*, of projections or hooks 41 and cam *d'*, with the rotary head or pulley 46, carrying yielding bending devices, engaged with said cam and arranged to vibrate to and from said socket as the pulley revolves, substantially as shown and described.

8. The combination, with the fixed head D, with the socket *y*, hooks 42, and cam *d'*, of pulley 46, carrying the levers 48, engaged with said cam, bars 49, pivoted to said levers, and holding the rollers 50, and a yielding connection between said bars and levers, substantially as shown and described.

352,169. CENTERING-TOOL. Jas. N. Watts, Hartford, Conn. Filed Sept. 11, 1886. (No model.)



Claim.—1. A centering-block having a mouth in the form of a V-groove and provided with a screw-stem, in combination with a center-punch and a frame which is provided with two holes inclined toward each other at a right angle for the adjustment and guidance of said block and punch, respectively, substantially in the manner and for the purpose specified.

2. A frame and a center-punch which is movable through a hole in said frame, in combination with a centering-block having a mouth in the form of a V-groove and provided with a stem which is movable through another hole in said frame, and is adjustable therein by a nut and clamp, substantially in the manner and for the purpose specified.

3. In a centering-tool, a centering-block provided with a screw-stem, and having a mouth in the form of a straight groove whose width diminishes as its depth increases, substantially in the manner and for the purpose specified.

4. In a centering-tool, a centering-block provided with a screw-stem, a mouth in the form of a straight groove whose width diminishes as its depth increases, and a graduated scale indicating the capacity of said mouth at different depths, substantially in the manner and for the purpose specified.

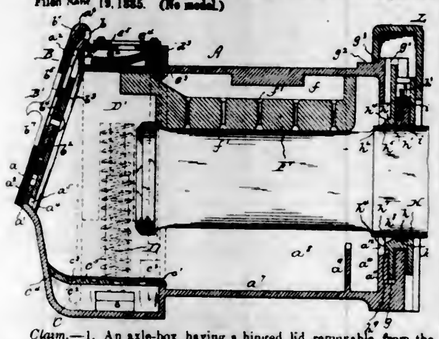
352,170. BLOTTING-PAD. Sigourney Walen, Cambridge, Mass., assignor, by mesne assignments, to Harriot H. Walen, same place. Filed Apr. 5, 1886. (No model.)



Claim.—1. A blotting-pad consisting of an inner core of two thicknesses of flexible material of suitable stiffness, connected together at either end, a continuous sheet of blotting-paper wound around said core, and two clamping-bands firmly securing said blotting-paper to said inner core at either end thereof and causing said core and the blotting-paper around it to assume an oval or substantially an oval form.

2. A blotting-pad consisting of an inner core made of two plates of flexible material of suitable stiffness, each folded upon itself and one inserted between the sides of the other with its open end contiguous to the closed end of that one, a continuous sheet of blotting-paper wound around said core, and two clamping-bands firmly securing said blotting-paper to said inner core at either end thereof and causing said core and the blotting-paper around it to assume substantially an oval form.

352,171. CAR-AXLE BOX. Henry A. Wendell, Philadelphia, Pa. Filed Sept. 19, 1885. (No model.)



Claim.—1. An axle-box having a hinged lid removable from the box and a sliding lock or fastening device having a hand-piece, b^3, projecting through the lid beyond its outer surface, substantially as shown and described.

2. An axle-box having an angular or inclined front face with keystone-shaped or downwardly-tapering opening, a lid removable from said box and having a locking slide-plate adapted to the rear side of said opening, having a hand-piece, b^3, and the locking-slide moving in the direction of the length of the lid, substantially as shown and described.

3. The combination, with axle-box A, having tapering opening *a*, of a lid, B, having inside slide, b^2, adapted to opening *a*, and provided with knob B', substantially as shown and described.

4. The combination, with axle-box A, having hooked lug a^4, inside grooves, a^2, and opening *a*, having flanges a^3 a^3, of lid B, having sliding knob B', and locking-plate b^2, adapted to said grooves and flanges, substantially as shown and described.

5. An axle-box having chamber C, located at the forward end of the box and below its bottom, a drain or drip cover, *c'*, for said chamber, and a pumping device located to one side of chamber C and having a lateral communication therewith, substantially as shown and described.

6. An axle-box having a bottom chamber, C, provided with a perforated cover and screen, substantially as shown and described.

7. An axle-box having at its front end a chamber, C, provided with inclined front end, and cover *c'*, having perforations c^3, grooves c^2, connecting said perforations, and screens c^4, substantially as shown, and for the purpose set forth.

8. In an axle-box, the chamber E, located above the top of the axle-box and having elevated gutter *e* and duct *e'*, leading to axle-journal bearing, in combination with an oil-pumping device having an outlet-pipe connecting with said gutter, substantially as shown and described.

9. In an axle-box, the covered chamber C and top chamber, E, having a gutter, *e*, and duct *e'*, leading to axle-journal bearing, in combination with a pumping device connecting said chambers, substantially as shown and described.

10. An axle-box having covered chamber C, oil-pumping device D, chamber E, having gutter *e*, ducts *e'* e^3, and wick e^4, substantially as and for the purpose set forth.

11. An axle-box having bottom chamber, C, communicating with a side vertical chamber, D', a top chamber, E, communicating with the axle-bearing, and a pumping device located in chamber D' and connecting chambers C and E, substantially as shown and described.

12. In an axle-box, the combination of bearing F, having at its upper part an open chamber, *f*, and bottom apertures, *f'*, a chamber, E, located above the top of the axle-box at its forward end and communicating with bearing-chamber *f*, and a pumping device arranged for operation, substantially as and for the purpose set forth.

13. A car-axle box having at its forward end and above the top of the box an oil-chamber, E, provided with an elevated gutter, *e*, and a duct, *e'*, located below gutter *e*, and having a wick, e^4, substantially as set forth.

14. An axle-box having chambers C and E, pumping device D, and oil-well a^6, having dam or bar a^5, substantially as shown and described.

15. In combination with a car-axle box having side chamber, D', a pump, D, having an inverted-U-shaped weight, d^6, on the piston or plunger rod and fitting said chamber, and a spring, d^7, between the weight and pump, substantially as shown and described.

16. An axle-box having a dust-shield, H, adapted to the rear end thereof, having sliding plate with spring *i'*, and a sliding cap or cover for said box and shield, substantially as shown and described.

17. An axle-box shield composed of a sliding or adjustable plate, I, fitting in a frame, *h*, having around the inner edge of its opening a flange the outer edge of upper half and the inner and outer edges of the lower half of which are inclined or beveled downwardly, substantially as shown and described.

18. The combination of a car-axle box having at its rear end a removable cap or cover, L, for its rear end, and a dust-shield composed of frame *h*, having side and bottom edge grooves and a sliding plate provided with pressure-spring and adapted to the axle, substantially as shown and described.

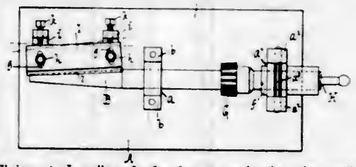
19. The combination, with a car-axle box having at its rear end a removable cap or cover, L, of a dust-shield having sliding plate or cover I, and spring *i'*, supporting-bar *m*, and spring *m'*, substantially as shown and described.

20. The combination of a car-axle box having grooves or projections around the outside of its rear end, a sliding or removable cap, L, adapted to said grooves or projections, and a dust-shield inclosed in said cap, substantially as set forth.

21. In combination with axle-box A, the sliding cap L and dust-shield H, substantially as shown and described.

22. In combination with axle-box A, the dust-shields H and H' and sliding cap L, substantially as shown and described.

352,172. ROLLER FOR FORMING TAPERED TUBES. Eberhard Wiesner, Baltimore, Md. Filed June 25, 1886. (No model.)

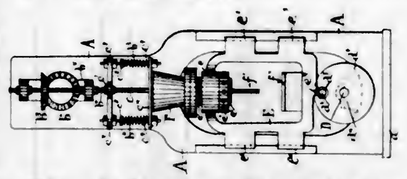


Claim.—1. In rollers for forming tapered tubes, the combination of the tapered rollers B and D, the curling-plate I, mechanism to adjust either or both ends of the plate to and from the rollers, and the pinions G, for the purpose set forth.

2. In rollers for forming tapered tubes, the combination of the tapered rollers B and D, the curling-plate I, and mechanism to adjust either or both ends of the plate I to and from the rollers, for the purpose specified.

3. The combination of the tapered rollers B and D, the curling-plate I, and the pinions G, arranged to operate the rollers in unison, as set forth.

352,173. FLOWER-POT MACHINE. Eberhard Wiesner, Baltimore, Md. Filed Aug. 7, 1886. (No model.)



Claim.—1. In a flower-pot machine, the combination of the revolving mold C, the reciprocating mold F, the crank-wheel d', and the yoke E, provided with the offset e^4, for the purpose set forth.

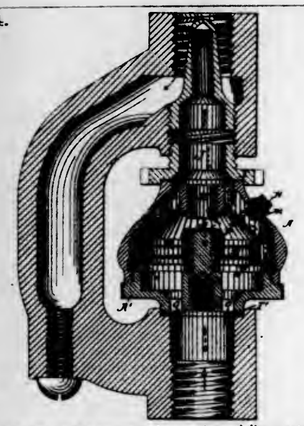
2. In a flower-pot machine, the combination of the revolving mold C, the reciprocating mold F, and the adjustable cope-plate c^4, consisting of the fixed arms c^3, the plate c^4, the bolts b^3, provided with the collars c^5, the springs c^6, and the lock-nut c^6, for the purpose set forth.

3. In a flower-pot machine, the combination of the crank or crank-wheel d', the inner mold, C, the yoke E, and the adjustable reciprocating mold F, provided with the threaded plug *e'*, and the lock-nut e^5, arranged to screw in and out of the said yoke E for adjustment, for the purpose set forth.

352,174. VOLUMETRIC GAS-REGULATOR. Moses G. Wilder, Philadelphia, Pa. Filed Apr. 6, 1886. (No model.)

Claim.—1. A volumetric gas-regulator consisting of an inner and an outer shell, the former being furnished with a hole and the latter with a regulating-screw, a disk and valve, a plate above said disk and within said inner shell and furnished with a hole at its center, and suitable passages for the inlet and outlet of the gas, the whole being adapted to

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govern ascending or descending currents of gas, substantially as set forth.

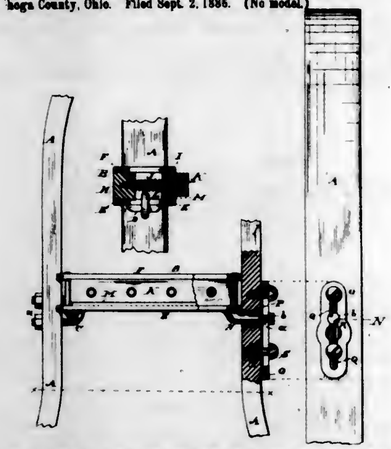
2. A volumetric gas-regulator consisting of an outer shell or case and an inner shell or case having an annular space between them into which the gas freely enters, the said inner shell being united to the said outer shell at its center, a disk and valve centrally guided and supported, and suitable passages for the inlet and outlet of the gas, substantially as set forth.

3. The herein-described device for regulating the amount of gas which enters the inner shell of a gas-regulator and is delivered to the burners, consisting of a hole in said inner shell and a regulating-screw and its thimble arranged, substantially as described, so that the thimble can be and is inserted into the outer shell from the inside and before the inner shell is put in place, substantially as set forth.

4. The combination of a volumetric or other fluid-regulator made with opposite plane faces upon the shell or case, and a yoke or clamp furnished with similar plane faces and adapted to hold said regulator in place, all substantially as set forth.

5. The combination, with the disk, valve, and case of a gas or fluid regulator, of a flat plate above said disk extending across and supported in said case, having in it holes of a size so regulated that rapid up and down movements of the disk are prevented, substantially as described.

352,175. ANIMAL-POKE. ABNER W. BISHOP, Middlebury, Cuyahoga County, Ohio. Filed Sept. 2, 1886. (No model.)

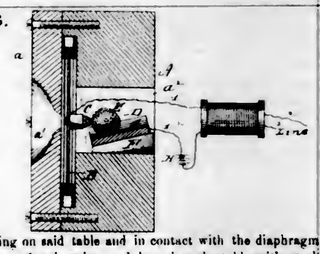


Claim.—The combination, with the poke-bow A and the guard B, hinged at one end thereof to one arm of the bow, and provided with a stem, N, at the opposite end, having a neck and collar to extend through the aperture P of the other arm of the bow, of the slotted plate O and spring T, arranged substantially as described, for the purpose set forth.

352,176. TELEPHONE-TRANSMITTER. JAMES W. BONTA, Philadelphia, Pa. Filed Mar. 11, 1886. (No model.)

Claim.—1. In a telephonic transmitter, the combination of a diaphragm, an electrode affixed thereto, an inclined table, a loose ball or

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electrode resting on said table and in contact with the diaphragm-electrode, and means for elevating and lowering the table without altering its inclination, substantially as shown and described.

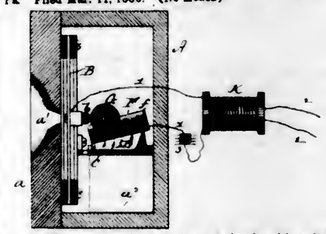
2. The combination, in a telephonic transmitter, of a fixed diaphragm-electrode, an inclined table, a loose or movable electrode upon said table, and an adjusting-wedge, substantially as shown and described.

3. The combination, in a telephonic transmitter, of a fixed diaphragm-electrode, C, ball or loose electrode E, plate or table D, and wedge F, substantially as shown and described.

4. A telephonic transmitter having fixed diaphragm-electrode C, ball E, carbon-table D, having groove *d*, and wedge F, substantially as set forth.

5. In a telephonic transmitter, the combination of a diaphragm, B, loose ball E, carbon-table D, and wedge F, substantially as set forth.

352,177. TELEPHONE-TRANSMITTER. JAMES W. BONTA, Philadelphia, Pa. Filed Mar. 11, 1886. (No model.)

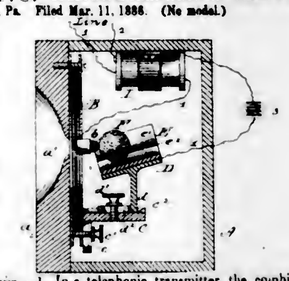


Claim.—1. The combination of a box, A, having hinged door *a*, a diaphragm having a fixed electrode and a platform secured to the door, a wedge resting upon the platform, a plate supported by the wedge, and loose ball or electrode upon said plate in contact with the diaphragm-electrode, substantially as shown and described.

2. The combination of case A, having check-piece a^2, hinged door *a*, diaphragm B, having electrode *b*, and platform C, secured to the door, wedge D, grooved plate F, and loose ball or electrode G, substantially as shown and described.

3. The combination of case A, having removable front *a*, diaphragm B, platform C, secured to the door, wedge D, carbon-plate F, and loose ball or electrode G, substantially as shown and described.

352,178. TELEPHONE-TRANSMITTER. JAMES W. BONTA, Philadelphia, Pa. Filed Mar. 11, 1886. (No model.)



Claim.—1. In a telephonic transmitter, the combination of a diaphragm having a fixed electrode, a vertically-sliding inclined platform or plate, and a loose ball or electrode resting on said plate in contact with the fixed electrode, substantially as shown and described.

2. The combination of a diaphragm having a fixed electrode, a loose or ball electrode, a vertical moving platform for the ball, and adjusting mechanism for vertically raising and lowering the ball and platform without varying the inclination of the latter, substantially as shown and described.

3. The combination, with case A, of diaphragm B, having a fixed electrode, *b*, the vertically-adjustable bracket C, adjustable platform D,

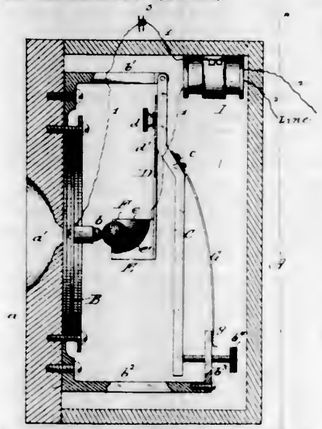
having carbon-plate and loose ball or electrode F, substantially as shown and described.

4. The combination of diaphragm B, having fixed electrode, the loose electrode F, and the grooved carbon-plate D, having two or more edges or tracks for contact with the ball, substantially as shown and described.

5. In a telephonic transmitter, the grooved carbon-plate having parallel tracks or edges, as and for the purpose set forth.

6. The combination of a diaphragm, a loose ball or electrode, an inclined table, E, and adjusting mechanism for raising and lowering the table without varying its inclination, substantially as set forth.

352,179. TELEPHONE-TRANSMITTER. JAMES W. BONTA, Philadelphia, Pa. Filed Mar. 11, 1886. (No model.)



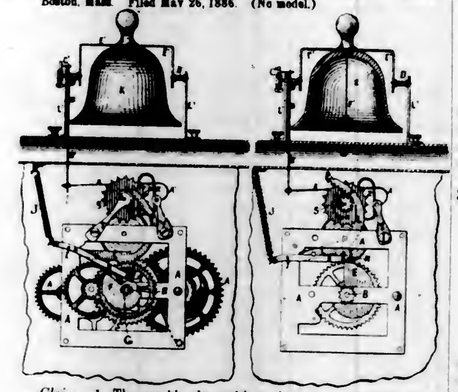
Claim.—1. In a telephonic transmitter, a diaphragm, a loose ball or electrode, and a block or plate having a curved or oval recess or chamber, *e*, substantially as shown and described

2. In a telephonic transmitter, a diaphragm, a loose ball or electrode, a block, E, having curved or oval chambers *e'*, and devices for raising and lowering block E, substantially as shown and described.

3. In a telephonic transmitter, a diaphragm, a loose ball or electrode, a block or table, E, having curved or oval chamber *e'*, and contact pressure tension devices for the electrodes, substantially as shown and described.

4. The combination of diaphragm B, loose ball or electrode F, block E, having chamber *e*, pivoted bar C, supporting-block E, spring G, and set-screw b^4, substantially as shown and described.

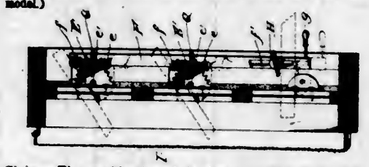
352,180. CLOCK STRIKING MECHANISM. GEORGE W. BURGESS, Boston, Mass. Filed May 26, 1886. (No model.)



Claim.—1. The combination, with a clock-movement, of a scroll-cam connected with the minute-hand axis, a step-cam connected with the hour-hand axis, and a pivoted lever having a bearing upon the said scroll-cam, and a pivoted stop-lever having a bearing upon the step-cam, a spiral spring connected with the short ends of said levers and actuated by means thereof, and an escapement and actuating mechanism, whereby the hours are indicated by ringing a bell, substantially as set forth.

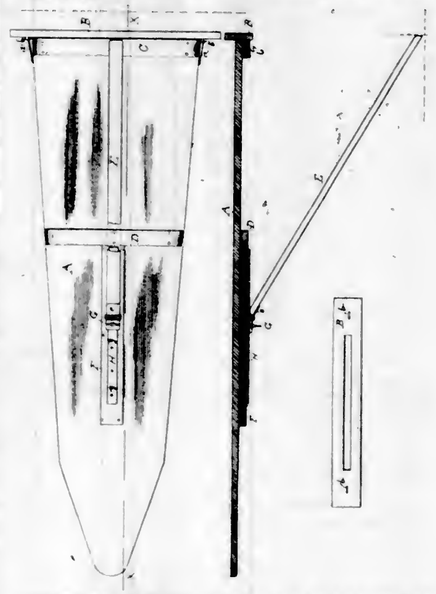
2. The combination, with the movement A, of the scroll-cam E, step-cam F, actuating-lever L, having a curved rack, P, lever H, spring J, pinion R, ratchet U, pawl V, escapement S Z, arm A', rod B', crank C', yoke-frame E', and swinging bell K, as described.

352,181. WINDOW. MARSHALL B. BURK, Prescott, assignor of one-half to George B. Baker, Dayton, Wash. Filed Aug. 24, 1886. (No model.)



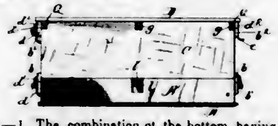
Claim.—The combination of the frame, a series of pivoted sashes, and an operating-rod for actuating the upper sashes of the series, the lower sash being disconnected and independently adjustable, substantially as and for the purpose described.

352,182. IRONING-BOARD. LESLIE M. DARROW, Stockton, Cal., assignor of one-half to Bernarde Gianelli, same place. Filed Mar. 5, 1886. (No model.)



Claim.—The combination of the board A, the bead-piece B, the hooks *a* and their staples *b*, the cross-cleats C and D, the longitudinal cleats F, the plate H, attached thereto and provided with a series of screw-threaded apertures, *g*, the hinge *e*, the set-screw G, and the brace-leg E, substantially as and for the purposes set forth.

352,183. FOLDING CRATE. DAVID E. EVANS, Venedocia, Ohio. Filed Aug. 20, 1886. (Model.)



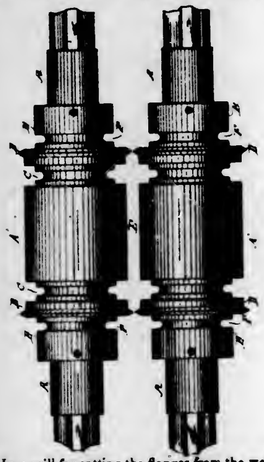
Claim.—1. The combination of the bottom having an upwardly-projecting rim, and cuts formed in the upper edges of its opposite side sections, and a partition having straps secured to its upper edge for embracing the sides, and adapted to lie in said cuts when the crate is folded, substantially as and for the purpose set forth.

2. The herein-described crate, consisting of the bottom, the ends having battens near the upper edge projecting on each side, the sides fitting against the edges of the ends and having the projecting ends of the battens bearing upon their end edges, straps secured to the upper edges of the end pieces and extending over, bent down upon, and embracing the

upper edges of the sides, and the cover secured at one end by hooks and eyes, and at the other end by a bent fastener fitted in a groove in the batten and turned under the same, substantially as set forth.

3. The herein shown and described folding crate, consisting of the bottom having an upwardly-projecting rim, the end pieces resting upon the end sections of the rim, battens secured to the proximate edges of the end pieces and rim-sections, hooks and eyes for securing the ends to the rim-sections, the sides, flanged plates (or battens of wood) secured to the lower inner corners of the sides and projecting within the rim, straps secured to the upper edges of the end pieces, and having their outer ends bent down over and embracing the upper edges of the sides, and the cover secured at one end by hooks and eyes, and at the other end by a bent fastener fitting a groove in a batten secured near the upper end of the end piece, and turned to engage the under side of it, substantially as set forth.

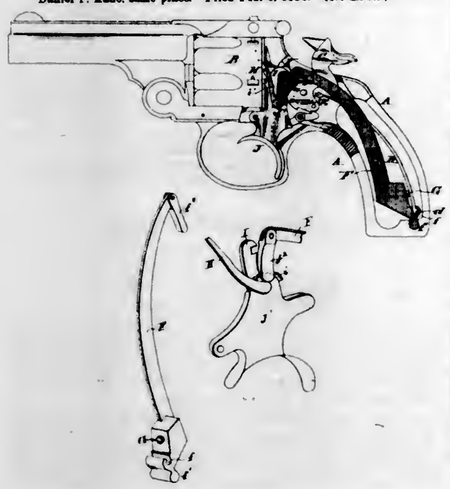
352,184. MACHINE FOR SEVERING THE FLANGES FROM I-BEAMS. William H. Graham, Pittsburg, Pa. Filed Dec. 22, 1885. (No model.)



Claim.—1. In a mill for cutting the flanges from the web of beams, the adjustable cutters D, the outer rings, B, having annular grooves F, to receive the flanges of said beams, the removable inner rings, C, and the shafts A, having rolls A' between said collars C, substantially as set forth.

2. In combination with shafts A, rolls A', and cutters D, the collars C, made in sections for convenience of removal and dovetailed into cutters D, for the purpose set forth.

352,185. REVOLVER. Henry Goodman, St. Louis, Mo., assignor to Daniel P. Kane, same place. Filed Feb. 6, 1886. (No model.)



Claim.—1. The combination, with the hammer, the trigger, and the cocking-pawl hinged to said trigger and adapted to engage said hammer, of the mainspring engaging said hammer, a lever acted upon by said mainspring, and a finger or push-piece carried by said lever and bearing against said cocking-pawl for holding it normally in engagement, as set forth.

2. The combination, with the hammer, the trigger, and the cylinder-pawl hinged thereto, of the mainspring engaging said hammer, a lever upon which said mainspring acts, and a finger or push-piece carried by said lever and bearing against said cylinder-pawl for holding it in working position, as set forth.

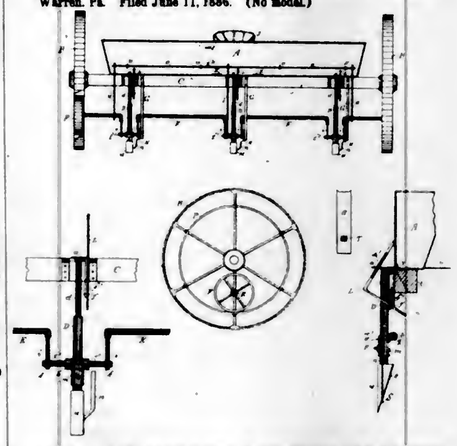
3. The combination, with the hammer and the trigger, of a mainspring engaging said hammer, and a lever upon which said mainspring acts, having a finger or push-piece hinged to the free extremity of said lever and engaging at its free extremity with said trigger for holding it normally in forward position, substantially as set forth.

4. The combination, with the hammer and the trigger having the cocking-pawl and the cylinder-pawl pivoted thereto, of a mainspring engaging said hammer, and a lever acted upon by said mainspring, having a finger or push-piece engaging said pawls and forcing them in opposite directions, substantially as set forth.

5. In a fire-arm, the combination, with the hammer, a mainspring engaging therewith, and a lever, substantially as and for the purpose described, fulcrumed within the stock, of a set-screw tapped into said lever and bearing against said mainspring for regulating the force exerted upon said lever and the hammer.

6. The combination, with the hammer C and the mainspring D, engaging therewith, of the lever F, for the purpose set forth, fulcrumed within the stock and engaged near its fulcrum by said mainspring, as described.

352,186. CORN AND SEED PLANTER. Charles C. Henderson, Warren, Pa. Filed June 11, 1886. (No modal.)



Claim.—1. In a seed-planter, the combination, with the driving-wheels provided with an internal circumferential flange, of pulley-wheels supported by and moving upon said flanges, said wheels actuating a shaft which imparts motion to the planting mechanism, as set forth.

2. In a seed-planter, the combination, with the internally-flanged driving-wheels and friction-pulleys supported by and moving thereon, of a crank-shaft provided with adjustable crank-arms, as set forth.

3. In a seed-planter, the combination, with the flanged driving-wheels, friction-pulleys, and crank-shaft having adjustable crank-arms, of seed-delivery tubes adjustably secured to said crank-arms, said tubes telescoping within each other, as set forth.

4. In a seed-planter, the combination, with the seed-reservoir and sliding valves in bottom thereof, of seed-delivery tubes, said tubes being of unequal diameter and moving one within the other, one part of said tubes being hinged to the axle, the other one adjustably secured to a crank-arm on the actuating-shaft, as set forth.

5. In a seed-planter, the combination, with the seed-reservoir and delivery-tubes, of a planting-shoe provided with a hinged door, said door having an arm projecting upward and adapted to engage with a shoe on a rod or strap adjustably secured to the shaft-bearings, whereby the door in said shoe is automatically opened and closed as the foot passes through the ground, substantially as set forth.

6. In a seed-planter, the combination, with the seed-box and delivery-tube, of a slide-valve in the seed-box, and a valve-puller secured to said valve and delivery-tube and pivotally secured to the seed-box, substantially as set forth.

7. In a seed-planter, the combination, with the seed-box and delivery-tubes, of the axle C, having front recesses to accommodate the backward movement of the delivery-tubes, as set forth.

8. In a seed-planter, the combination, with the seed-receptacle, delivery-tubes, and planting-feet provided with a door and arm extending upwardly therefrom, of a foot in the path of said arm, said foot being secured to an adjustable rod or strap attached to the shaft-bearings, whereby the movement of the delivery-tubes causes said arm to come in contact with said foot and open and close the doors, as set forth.

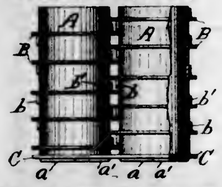
9. In a seed-planter, the combination, with the seed-receptacle, crank-shaft E, and its operating mechanism, of the shaft O, pivoted to the seed-box and provided with a hand-lever, the end rods secured thereto and to the crank-shaft, and the chains I, attached to shaft O, and the adjustable crank-arms, as set forth.

352,187. TIRE. John G. Hess, Emmittsburg, Md. Filed Sept. 8, 1886. (No modal.)



Claim.—A tire for vehicle-wheels, having its center depressed on the outer side and carved gradually upward toward the side edges, so as to form raised rounded ribs or flanges E on its outer working-surface, a groove or channel, G, provided on the inner side of the tire, and flanges F, projecting from the side edges of the tire in opposite directions to the flanges E, and made tapering in cross-section in curved lines, the outer edge or point of the flanges F being rounded, for the purpose set forth.

352,188. BOTTLE-WRAPPER. Mary A. L. Hine and Orrin S. Reed, Chicago, Ill. Filed Feb. 23, 1886. (No modal.)

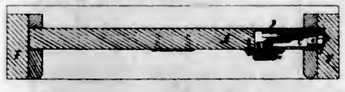


Claim.—1. In a bottle-wrapper, the combination, with an envelope or tube forming the wrapper proper, of a number of rings encircling the exterior surface of said wrapper, substantially as and for the purpose set forth.

2. In a bottle-wrapper, the combination, with the envelopes A, of one or more protecting rings, B, encircling said envelopes and arranged alternately thereon, whereby said rings overlap each other on adjacent wrappers in packing, and the removable diaphragm C, as described, and for the purpose set forth.

3. A bottle-wrapper consisting of a cylindrical envelope or tube, provided with lugs a a', and the rings B, provided with the lips b b', in combination with the diaphragm C, having the slots a^2, substantially as and for the purpose set forth.

352,189. SASH-FASTENER. Robert M. Hutchinson, Boston, Mass. Filed Sept. 30, 1886. (No model.)



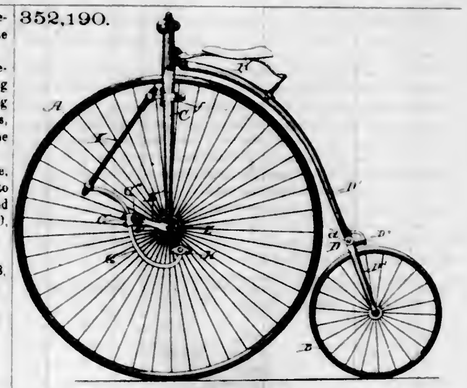
Claim.—The combination of the bar B, fixed in the window-frame F, and provided with the groove a, and the series of notches b, arranged, as represented, with the spring-latch C and its carrier D, and with the ball or button d and its confining-cap e, arranged with and applied to the sash A, substantially as set forth.

352,190. BICYCLE. Thomas B. Jeffery, Chicago, Ill. Filed Apr. 17, 1886. (No model.)

Claim —1. In combination, the axle-crank, the foot-lever, the swinging link, and the fork, the foot-lever being pivoted on the crank-wrist, the link connected to the foot-lever in front of the crank-wrist and to a pivot which is vertically adjustable on the fork, substantially as set forth.

2. In combination, the axle-crank, foot-lever, link, and fork, the link being pivoted to the fork and to the forward end of the foot-lever, said foot-lever being pivoted on the crank-wrist, the bearing of said wrist being adjustable at will intermediate the ends of the foot-lever, substantially as set forth.

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3. In combination, the axle-crank, foot-lever, link, and fork, the link being pivoted to the fork and to the forward end of the foot-lever, the foot-lever being pivoted on the crank-wrist concave upward in front of and downward in the rear of said pivot, and the length of the crank being adjustable at will, substantially as set forth.

4. In combination, the axle-crank, the foot-lever, the swinging link, and the fork, the foot-lever being pivoted on the crank-wrist, the bearing of the wrist being adjustable on the lever, and the link being connected to the forward end of the lever and to a pivot adjustable on the fork, substantially as set forth.

5. In combination, the axle-crank, the foot-lever pivoted on the crank-wrist, the bearing of the wrist being adjustable on the lever and the wrist being adjustable on the crank, and the link connected to the forward end of the foot-lever and to a pivot on the fork, substantially as set forth.

6. In combination, the axle-crank having the crank-wrist adjustable toward and from the axle, the foot-lever pivoted on the crank-wrist, and the link connecting the forward end of the foot-lever to a pivot adjustable on the fork, substantially as set forth.

7. In combination, the axle-crank having the crank-wrist adjustable toward and from the axle, the foot-lever pivoted on the crank-wrist, the bearing of the wrist being adjustable on the lever, and the link connecting the forward end of the lever to a pivot adjustable on the fork, substantially as set forth.

8. In combination with the crank, the foot-lever pivoted on the crank-wrist, and having at the forward end a lateral stud or wrist terminating in a ball, the fork having secured to it a similar stud, and the link having the spherical sockets or bearings for the balls, substantially as set forth.

9. In combination with the axle-crank, the foot-lever pivoted on the wrist, the link connected to the forward end of the lever and to a pivot on the fork, said connection being by ball-and-socket joints, of which the socket is in the link, and the bearing in said socket adjustable, to take up lost motion, in the direction of the length of the link, substantially as set forth.

10. In combination with the axle-crank and the link swinging from a pivot on the fork, the foot-lever pivoted at the forward end to the link and intermediate its ends to the crank-wrist, and having the pedal on the rear end, said foot-lever being curved concave upward between the pedal and the crank-wrist and convex upward between the crank-wrist and the link, substantially as set forth.

11. In combination with the axle-crank and the link swinging from a pivot on the fork, the foot-lever pivoted to the free end of the link and to the crank-wrist, and bent concave upward in front of and downward in rear of said pivot and formed oval in cross-section, the shorter diameter being horizontal, substantially as set forth.

12. In combination with the axle-crank and foot-lever, the clamp G', secured to the foot-lever, having the transverse threaded aperture g^{10}, and the journal-box for the crank-wrist exteriorly screw-threaded, and provided with a clamp-shoulder and screwed into said aperture in the clamp G', substantially as set forth.

13. In combination with the case G^2, having the threaded end, the wrist E^{10}, having the flange e^{10}, and the cap G^4, screwed to the end of the case, and apertured to admit the wrist and abutting against the flange e^{10}, substantially as set forth.

14. In combination with the case G^2, having threaded end, the adjustable taper bearing E^{11}, having the flange e^{11}, the cap G^{46}, screwed onto the end of the case, apertured for the wrist and abutting against the flange e^{11}, substantially as set forth.

15. In combination with the backbone terminating at the rear in a cross-bar, forming lateral gudgeons, the rear fork terminating above in a transverse cylindrical socket fitting the cross-bar of the backbone,

suitable center-pins to retain the cross-bar in the socket, and yielding stop to limit the flexure of the joint so constituted, substantially as set forth.

16. In combination with the backbone terminating in the cylindrical cross-bar centrally countersunk at the ends, and having above the cross-bar the overhanging stop D^{11}, the rear fork terminating in the cylindrical cup to receive the cylindrical cross-bar, and provided with the taper-pointed pivots d^4 d^5, screwed through its ends into the taper sunk ends of the cross-bar, and the spring D^3, interposed between the fork and the overhanging stop D^{11}, substantially as set forth.

17. In combination with the backbone-joint formed by the cross-head D^{10} in the socket d^{10}, the dust-cover comprising the semi-cylinder L, having the longitudinal slot L', with its edges folded over outward to form the hooks l' l', and the clasp L^2, having the edges folded to engage the hooks, substantially as set forth.

352,191. LANTERN-HANGER FOR BICYCLES. Thomas B. Jeffery, Chicago, Ill. Filed Apr. 17, 1886. (No model.)

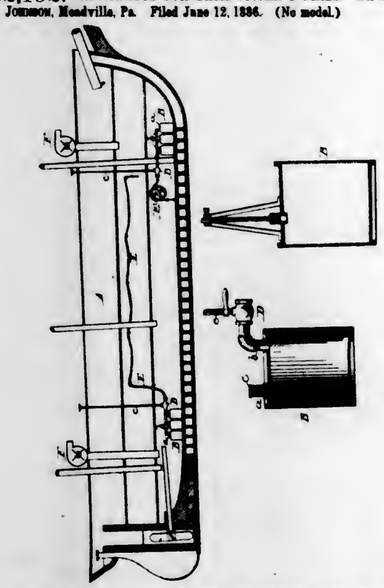


Claim.—1. In combination, substantially as set forth, the bracket A, provided with a clamp-screw, the slides having each a horizontal arm slotted to slide on the clamp-screw, and having extensions upward at their remote ends provided with bearings to receive the axle, whereby said slides, being laterally adjustable, are laterally stopped by the hub-shoulders.

2. In combination, substantially as set forth, the bracket having the vertical flange provided with a clamp-screw, the slides having each a vertical arm hooked at the upper end to engage the axle, and a horizontal arm slotted to slide on the clamp-screw, each of said horizontal arms having a projection entering the slot of the other slide.

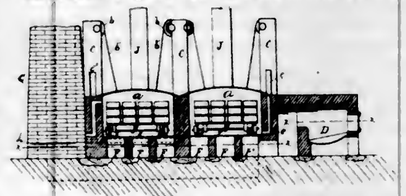
3. In combination, substantially as set forth, the bracket having the vertical flange provided at the lower part with the clamp-screw, and above said screw having the vertical slot, the slotted slides guided and clamped by the clamp-screw and having their vertical arms hooked at the upper end, and the lower bearing or bracket adjustable in the slot.

352,192. APPARATUS FOR EXTINGUISHING FIRES. Henry C. Johnson, Meadville, Pa. Filed June 12, 1886. (No model.)



Claim.—In combination with a vessel or building, a gas-holder provided with two outlets, a seal applied to one of said outlets and adapted to open the same at a predetermined temperature, a valve applied to the other, a flexible pipe or hose connected with the valve, and a fan or air-forcing device connecting with the chamber which receives the gas escaping from the gas-holder, all substantially as set forth.

352,193. KILN FOR DRYING BRICK, EARTHENWARE, &c. J. Ritner Kemp, Youngstown, Ohio. Filed Sept. 14, 1885. (No model.)



Claim.—1. A drying-kiln consisting of one or more tunnels or arches adapted to receive cars containing the material to be dried, a furnace located on the side of the arches, which communicates with flues moving the length of the arches, said flues being separated from the arch-chambers by means of a sheet-metal floor, as set forth.

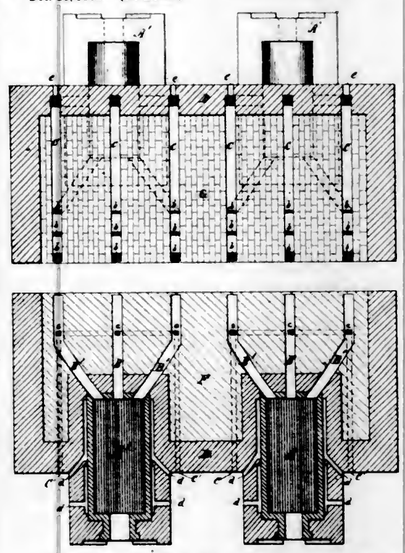
2. A kiln for drying brick and other material, the heating-flues of which are located in the bottom of the arches or tunnels said flues being separated from the tunnels by means of a floor of metal plates, whereby the heat is conducted or radiated to the articles to be dried without bringing said articles in contact with the fire and smoke, as set forth.

3. In a kiln for drying brick and other material, the furnace D, adapted to supply heat to two or more arches or tunnels, as described, said arches being provided with roofs and floors of metal plates, as set forth.

4. In kilns for dring brick and other material, the tunnels or arches of which are heated as described, said tunnels being provided with flues leading from the bottom thereof to the external air, whereby the moist air is forced out of the tunnels, as set forth.

5. In a kiln for drying brick and other material, the tunnels or arches of which are heated as described, the walls of said tunnels being provided with flues which enter at the top thereof and open into the external air at or near the bottom, as set forth.

352,194. BRICK-KILN. J. Ritner Kemp, Youngstown, Ohio. Filed Dec. 21, 1885. (No model.)

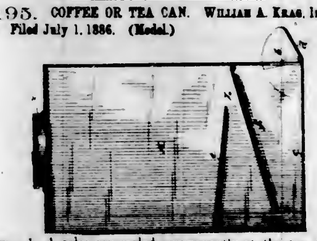


Claim.—1. In a brick-kiln, the furnaces A', located partly within and partly without the walls of the kiln, the rear ends of said furnaces being connected with the arches of the kiln by the flues B B', said flues being connected at the rear ends with air-supply flues, substantially as described, whereby the gases from the furnaces are burned near the center kiln, as set forth.

2. In a brick-kiln, the flues C, connecting with the combustion-chamber of the furnace and entering the arches of the kiln near the walls thereof, said flues being provided with air-ducts *c*, as described, whereby the gases entering the flues C are burned in the front portion of the kiln, as set forth.

3. In a kiln for burning brick and other articles, the furnace A', located partly within and partly without the walls of the kiln, the rear end of which is connected to the flues B B', said flues being supplied with air, as described, in combination with the flues C, leading from the center of the furnace, whereby the products of combustion are equally distributed in the arches from the walls to the center of the kiln, as set forth.

352,195. COFFEE OR TEA CAN. William A. Krag, Indianapolis, Ind. Filed July 1, 1886. (Model.)



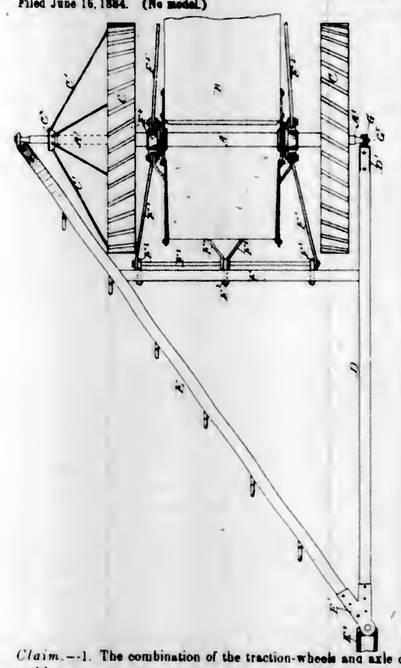
Claim.—1. A sales-can sealed permanently at the top, having an opening at the bottom, and provided with one or more partitions arranged within the body of the can, to permit the free passage of the contents of the can to the bottom-opening, but to obstruct the passage from the latter into the can, substantially as and for the purpose set forth.

2. A sales-can provided with a fixed partition and a movable flap, and having the top sealed, and a discharge-opening at the bottom, all arranged to permit a free passage for the contents to the discharge-opening, and to obstruct the passage in a reverse direction, substantially as described.

3. A sales-can provided with a contracted passage within the body of the can for the downward flow of the contents, with a lower discharge opening, and with a loose flap whereby the passage is closed when the can is inverted, substantially as described.

4. The sales-can having the body A, sealed at the top, and with an opening, *b*, at the lower front part, a fixed partition inclined downward toward the front without meeting the latter, and a loose partition or flap inclined from the front downward toward the back, substantially as described.

352,196. GANG-PLOW. Frank F. Landis, Waynesborough, Pa. Filed June 16, 1884. (No model.)



Claim.—1. The combination of the traction-wheels and axle of a motor with a gang-plow frame having diagonal and straight draft-beams, said beams extended to points outside of said traction-wheels upon a vertical plane passing through the axle of said motor, with gang-frame draft-bars pivotally connected to the gang-frame and to the axle, substantially as described.

2. The combination of the traction-wheels and axle of a motor with a gang-plow frame having its diagonal and straight draft-beams extended to points outside of said traction-wheels, with gang-frame draft-bars pivotally connected to the forward side of the gang-frame and to the axle, and having adjustable radius-bars F^3, connected to the motor, substantially as described.

3. The combination of an extended axle, a traction-wheel mounted thereon, and a series of braces arranged on the outside of the wheel and terminating in a collar mounted on the axle, whereby the axle is adapted and strengthened for operation in connection with the extended diagonal gang-beam, substantially as specified.

4. The combination, with a gang-plow frame comprising extended straight and diagonal draft-beams, of a motor having an extended axle, and having braces arranged on the outside of one of the wheels of the motor, substantially as specified.

5. The combination of a motor having an extended axle and braces arranged on the outside of one of its traction-wheels, with a gang-plow frame having an extended straight draft-beam, an extended diagonal draft-beam, and a transverse draft-beam, and with pivotally connecting draft-bars and suspension-links connecting the axle with the gang-frame, substantially as specified.

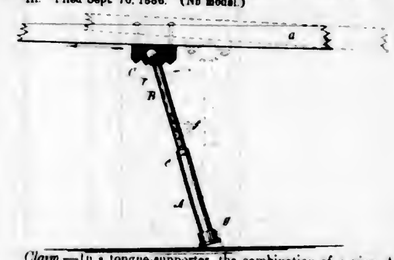
6. The gang-plow frame comprising the draft-beam D, the diagonal gang-beam E, connected as at E', and provided with a caster, as E^2, and having a transverse draft-beam, F, in combination with a motor, B, having an extended axle, A, the connecting-links G, and the draft-rods F', pivotally connected with the axle and secured to the draft-beam by the eyebolts F^2, and the rod F^3, substantially as shown and described.

7. The combination, with the draft and gang beam of a gang-plow and the axle of a motor, of the suspension-links G, having the bolts G', and provided with holes for the attachment of the beam to the link, secured to the axle on the outside of the driving-wheels of the motor, substantially as shown and described.

8. The combination of the axle A, the block G^2, and the link G, comprising the bolts G' and the nuts G^3, with the beam D or E, having the casting D', secured to the beam and adapted for connection with the link, substantially as shown and described.

9. The combination of a motor with a gang-plow frame having diagonal and straight draft-beams, said beams extended to and connected with the ends of the axle of the motor, and draft-bars pivotally connecting the frame and the motor, substantially as specified.

352,197. TONGUE-SUPPORT. William L. Landon, Jersey County, Ill. Filed Sept. 10, 1886. (No model.)



Claim.—In a tongue-supporter, the combination of a pipe, A, having a foot-block, *g*, and a pipe, B, adapted to slide longitudinally within said pipe and provided with a series of keyways, *f*, each adapted to coincide with a keyway in the outer pipe, so as to retain in position longitudinally, by means of a key inserted in said keyway, the inner pipe, the latter being connected with the tongue by a ball-and-socket joint, all constructed and adapted to operate substantially as and for the purpose set forth.

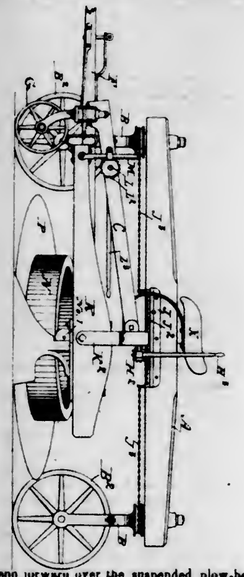
352,198. ROAD-GRADING MACHINE. Richard Long, Iowa City, Iowa. Filed Mar. 8, 1886. (No model.)

Claim.—1. The carriage-frame composed of the beam A, cross-piece A^2, the pivoted bearers B, carrying-wheels B^2, the hinged frame C^2, braces D D^2, the reach C, tongue F F^2, the caster-wheel G, and steering mechanism, for the purposes specified.

2. The shaft H, having a pinion on its inner end and a crank-handle at its opposite end, a sliding rack, J^2, ropes or chains J^3, and the sprocket-wheels B^3, arranged and combined with a tractable carriage, and adapted to direct the same, substantially as shown and described, for the purposes stated.

3. A tractable carriage composed of a straight beam having traction-wheels under its ends, a cross-piece extending laterally from the central part of the straight beam and having a plow suspended from its free end, a right-angled frame hinged to the opposite end of the cross-piece and carrying a rotating ground-carrier in an inclined position at the side of the suspended plow, a reach hinged to the free end of the

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cross-piece to extend forward over the suspended plow-beam, a tongue having a cross-piece journaled to the front end of the reach and pivoted to the front end of the right-angled frame and supported upon a caster-wheel, arranged and combined to operate in the manner set forth, for the purposes stated.

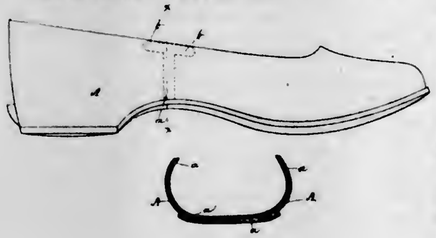
4. The carrier composed of the rim N, having flanges N^2 and N^3, the circular platform P, the hub P^4, and spokes P^5, supported upon rollers Nos. 1 and 2, for the purposes stated.

5. A rotating carrier having a circular platform extending outward from its bottom edge, and an annular flange extending inward from its top edge, in combination with an inclined frame hinged to a tractable carriage, and rollers carried by the incline frame to engage the annular flange at the opposite sides of the rim, one on the top surface and the other the bottom, to operate in the manner set forth, for the purposes stated.

6. The hinged frame C^9, the plate R, the roller-bearer R^1, the axle R^2, the rollers Nos. 1 and 2, and the rotating carrier composed of the rim N, having flanges N^2 and N^3, a circular platform, P, a hub, P^4, and spokes P^5, constructed, arranged, and combined to operate in the manner set forth.

7. A road-grading machine composed of the following elements, to wit: a rigid T-shaped or three-armed frame having traction-wheels swiveled to two of its corners, an auxiliary right-angled frame hinged to the center of the main frame, a reach hinged to the free end and lateral extension of the main frame, a pole or tongue journaled or pivoted to the front end of the reach and the front end of the auxiliary hinged frame, a caster-wheel under the front end of the reach and rear portion of the tongue, a plow suspended under the free end of the lateral extension of the main frame, mechanism for raising and lowering the plow, a rotating carrier suspended from the auxiliary hinged frame in an inclined position to allow its outer edge to engage the ground near the plow, a scraper to engage the top surface of the circular platform of the rotating carrier, and mechanism for steering the machine, to operate in the manner set forth.

352,199. RUBBER SHOE. WILLIAM A. MACLEOD, Boston, Mass. Filed Aug. 24, 1886. (No model.)



Claim.—1. An overshoe provided at its shank portion forward of its heel with a transverse spring extending from the sole portion upward to the tops of the sides of the shoe, or approximately so, substantially as and for the purpose set forth.

2. An overshoe provided at its shank portion with a transverse spring, *a*, concealed by the lining of the shoe, and having at its upper ends the longitudinal extension-pieces *b*, substantially as and for the purpose specified.

352,200. CIGAR-BOX. DANIEL E. POWERS, New York, N. Y., assignor to the Patent Paper Cigar Box Company, same place. Filed Sept. 7, 1886. (No model.)



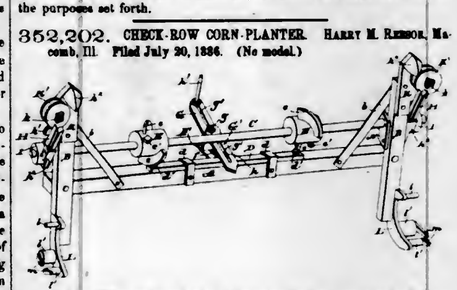
Claim.—The combination, in a cigar-box, of a rectangular main blank comprising a rectangular bottom section, and two end sections at each end folded upon each other and constituting double layers at each end, said end sections being folded at right angles to the bottom section, and two blanks constituting the sides of the box, the folded layers of the double ends being cemented together, substantially as described.

352,201. END-GATE FOR WAGONS. JOHN A. REED, Beatrice, Nebr. Filed Apr. 16, 1886. (No model.)



Claim.—The combination of the gate end B, as described, the hooks 12, secured to the outer face of the lower cross-piece, 8, slotted plates 4, secured to the bottom of the cross-piece 11 of the said box by means of bolts and nuts 5, cross-piece 11, secured to the bottom and rear end of said box, plates 14, secured to the upper end of gate B, plates 17, secured to said plates 14, bars 1, secured to the outer face of said box, hooks 3, secured to said bars, and turning buttons 2, pivoted in the upper end of said bars, all substantially as shown and described, and for the purposes set forth.

352,202. CHECK-ROW CORN-PLANTER. HARRY M. REESOR, Macomb, Ill. Filed July 20, 1886. (No model.)



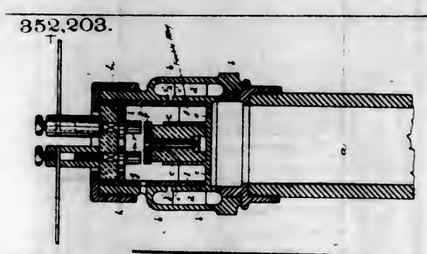
Claim.—The combination of a horizontal beam, a rotary shaft having the tappet-arms, the cams carried by the rotary shaft, a reciprocating bar, D, supported on the beam and having the rollers at its ends arranged in the path of the cams, and a projecting pin, *h*, at its middle, a slotted arm, F, affixed to the beam and having a pin, *g*, adjustably connected thereto, a slotted bar, G', pivoted centrally to the pin *g*, and having the pin *h* fitted in the slot in its inner end, and an adjustable pin, *h'*, fitted in the slot of the opposite end of the bar and adapted to connect the latter with the seed-slide, substantially as described, for the purpose set forth.

352,203. ELECTRIC SAFETY ATTACHMENT FOR STEAM-BOILERS. ROBERT REICHLING, Bernburg, Prussia, Germany. Filed Mar. 11, 1886. (No model.) Patented in Germany Feb. 10, 1885, No. 32,552.

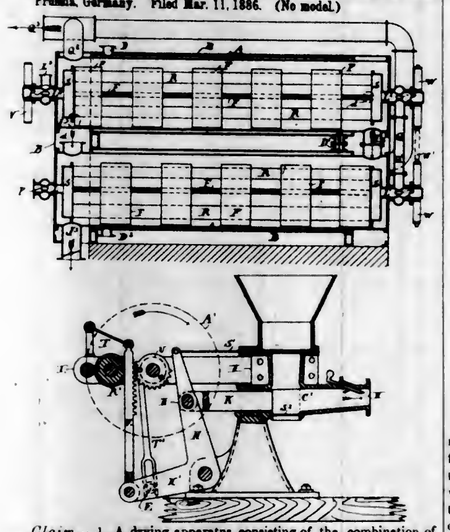
Claim.—1. The combination of valve-case *b* and valve *c*, having isolated plate *r*, with the fusible ring *f*, and with the case *g*, having poles *n p*, and secured to valve-case *b*, substantially as specified.

2. The combination of valve-case *b* and valve *c*, having plate *r*, with fusible ring *f*, case *g*, poles *n p*, and nut *h*, all being so constructed that a space, *d'*, is formed between the valve-case and the upper end of the valve, substantially as specified.

352,203.



352,204. DRYING APPARATUS. MATHIAS REULAND, Dortmund, Prussia, Germany. Filed Mar. 11, 1886. (No model.)

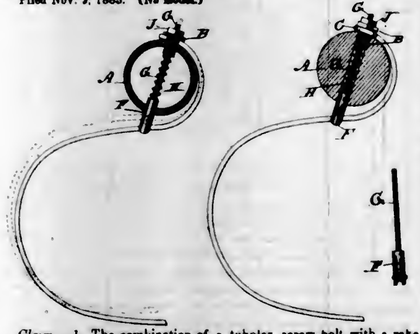


Claim.—1. A drying apparatus consisting of the combination of retorts A with the tubes R, end chambers, S, and hollow shaft L, with passages P, and enlarged casings M, surrounding the shaft L, substantially as and for the purpose described.

2. In a drying apparatus, a number of tubes, R, placed in a circle opposite each other, in combination with a series of scrapers, F, consisting of separate pieces placed loosely at an angle of about ninety degrees to each other between the tubes R, as and for the purpose specified.

3. In combination with the feeding-pipe J' of a drying apparatus, the feeding apparatus consisting of the combination of cylinder C' with shut-off slide S', piston K, double-armed lever H H', rack-lever Z, partially-cogged wheel G, and forked bar T', with stud E fast on the lever H', arranged to operate in the manner and for the purpose described.

352,205. HORSE HAY-RAKE. ALBERT K. ROBERTS, Norwalk, Ohio. Filed Nov. 9, 1885. (No model.)

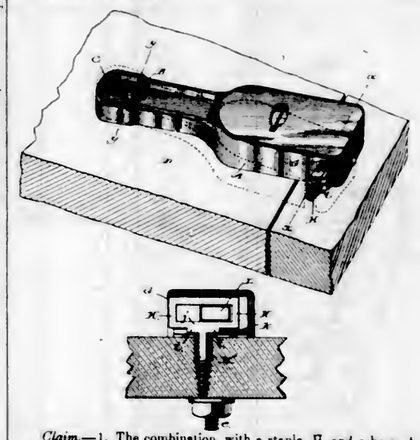


Claim.—1. The combination of a tubular screw-bolt with a rake-head having a transverse bore, a rake-tooth, and a tooth-support extended through the tubular bolt and the bore in the rake-head, for the purposes stated.

2. The combination of a rake-head having a transverse bore, a tubular bolt, a rake-tooth, a tooth-support extended through the tubular bolt and the bore in the rake-head and provided with a bearing at its lower end to engage a tooth, a shoulder at its central portion, and a screw-threaded top end, a nut on the said screw-threaded top end, and a spring resting upon the shoulder of the tooth-support, to operate in the manner set forth, for the purposes stated.

3. A rake-head having a transverse bore, a tubular bolt or bushing, B, a rake-tooth, a tooth-support, F G, extended through the tubular bolt and the bore in the rake-head, a spring, H, and a nut, J, arranged and combined substantially as shown and described, for the purposes stated.

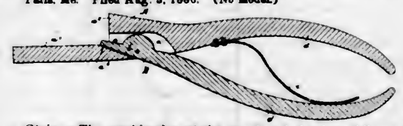
352,206. HASP-LOCK. JOSEPH H. SEED, Brooklyn, N. Y. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination, with a staple, H, and a hasp, A, carrying a lock-case upon its outer end to receive a locking mechanism, and formed with a slot, G, cut in its edge near its outer end to permit the hasp to slide laterally over the end of the staple H, and thereby bring the latter within a recess in the end of the hasp in position to be engaged by the lock-bolt, of a transverse plate, *k*, formed or secured across the end of the recess opposite said opening to pass under and engage the lower bar, *j*, of the eye of the staple when the hasp is closed over said staple, substantially in the manner and for the purpose herein set forth.

2. The combination, with a hasp, A, carrying a lock-case at its outer end to receive a locking mechanism, a recess in the outer end of the lock-case provided with a lateral opening or slot, G, in the edge of the case, and fitted with a transverse plate, *k*, formed or fitted across the recess at the end opposite said opening, of a staple, H, constructed with a rectangular eye, and an offset, *i*, under the inner bar, *j*, of the eye, whereby the transverse plate *k* may pass under said bar when the staple is inclosed by the recess in the outer end of the hasp, substantially in the manner and for the purpose herein set forth.

352,207. SAW-SETTING DEVICE. JOHN B. SYLVESTER, Blue Hill Falls, Me. Filed Aug. 3, 1886. (No model.)



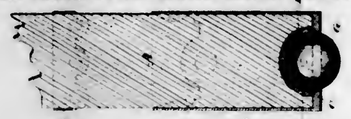
Claim.—The combination of the member A, having oblique slot *a* and extension a', with its depression a^2, of the member B, having tongue or set *b*, and the pivot *c*, substantially as and for the purpose described.

352,208. METHOD OF MAKING BOSOM-PADS. THOMAS P. TAYLOR, Bridgeport, Conn. Filed Mar. 2, 1886. (No model.)



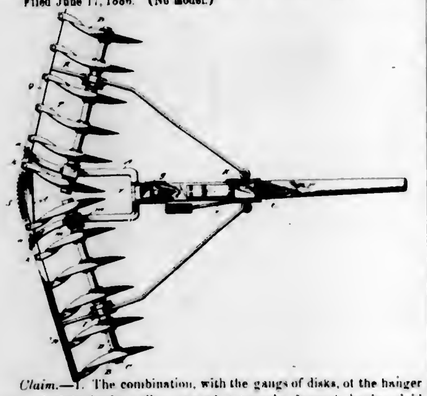
Claim.—The herein-described method of making bosom-pads, the same consisting in molding a frame-work to the desired form, then stretching an elastic textile cover smoothly over frame-work, and finally securing the cover while stretched to the edge of the frame-work, so that the stretched cover will strain the frame-work outward and cause the rounded portion to spring back after being pressed out of shape.

352,209. CASTER. JOEL F. TERRIL and WALLACE SIMONSON, Owosso, Mich. Filed Sept. 30, 1885. Renewed June 25, 1886. (No model.)



Claim.—The caster, consisting, essentially, of the hemispherical shell set in the end of the leg, the ball-roller, and the cap with its perforated end plate and ornamental sides, said cap being provided with perforations through the end plate, adapted to receive fastening-screws, substantially as set forth.

352,210. DISK-HARROW. GEORGE R. THOMSON, Gouverneur, N. Y. Filed June 17, 1886. (No model.)



Claim.—1. The combination, with the gangs of disks, of the hanger composed of the horizontally-arranged rectangular frame A, having rigid sides diverging toward their rear, to which between their ends the gangs are connected, and the tongue connected to the front bar of the frame, substantially as described.

2. The combination, with the gangs of disks, of the hanger composed of the frame having the rear portion of its sides diverging and the gangs connected therewith, substantially as described.

3. The combination, with the gangs of disks and a hanger-frame, of sleeves embracing the sides of the frame and connecting the gangs thereto and formed with enlarged openings, to permit a lateral movement of the sleeves on the sides of the frame to obliquely adjust the gangs, substantially as described.

4. The combination, with the gangs of disks and a hanger-frame of sleeves connecting the gangs and frame and movable upon the latter, and formed with openings enlarged vertically and transversely, to permit of the gangs moving vertically and horizontally, substantially as described.

5. The combination, with the gangs of disks and a hanger-frame, of sleeves movable upon the sides of the frame and having rings connected therewith to receive the axles of the gangs, substantially as described.

6. The combination of the gangs of disks, the hanger or frame, sleeves embracing the sides of the frame and connecting the gangs thereto, and movable laterally thereon, to permit of oblique adjustment of the gangs, the tongue and rods adjustably connecting the gangs with the tongue, substantially as described.

7. The combination, with the obliquely-movable gang of disks, of the sectional scraper-bar provided with scrapers, and a spring connected with the sections of the bars to throw the scrapers against the disks, substantially as described.

8. The combination of the gang of disks, the hanger-frame, a sleeve supported from the frame and movable thereon and having a ring connected therewith, a sectional box fitting within the ring and having the axle of the gang journaled therein, and means for holding the sections of the box in the ring, substantially as described.

9. A disk-harrow composed of the hanger-frame, the tongue connected thereto, the obliquely-movable gangs of disks, the sleeves connecting the axles of the gangs to the hanger, the scraper-bar made in sections connected together by a frame and connected with the hanger and gangs of disks, the adjustable dog to the tongue, and the rods connecting the gangs with said dog, substantially as described

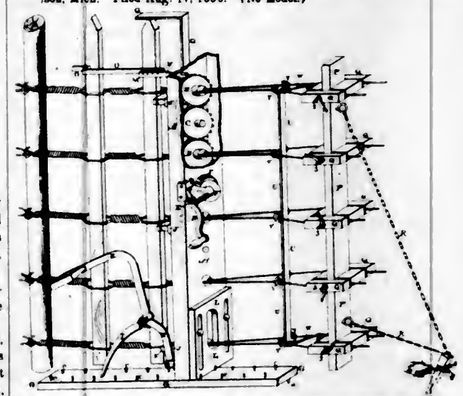
10. The combination of the hanger-frame, the gangs of disks, and the sleeves connecting the gangs of disks to the hanger-frame, said sleeve having studs to bear against the hanger-frame, substantially as described.

352,211. FIRE-ESCAPE. SAMUEL I. TRASK, Guilford, N. Y. Filed June 26, 1886. (No model.)



Claim.—In a fire-escape, the combination, with a suitable hammock and lowering-rope, of a pulley having a V-shaped groove on its periphery, metal plates connected to its sides and projecting above the grooved periphery, guide-rods passing through the plates and extending transversely across and over the same, and hangers secured to the plates, the hangers upon one side being bent horizontally at their upper ends and disposed at an angle to each other, and the opposite hanger bent to form an elbow or right-angle bend, substantially as and for the purpose set forth.

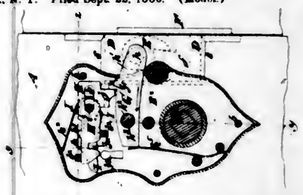
352,212. FENCE-MAKING MACHINE. BENJAMIN A. WELDS, Jackson, Mich. Filed Aug. 17, 1886. (No model.)



Claim.—1. The base G, provided with pins or projections *a c* upon opposite sides, the pins on one side being placed farther apart than those on the opposite side, substantially as described.

2. The combination, with the tension mechanism, of suitable supporting-wires and a rod provided with a series of hooks for the wires to pass through, substantially as described.

352,213. LATCH-LOCK FOR CAR-DOORS. CHARLES H. WHITE, New York, N. Y. Filed Sept. 22, 1886. (Model.)

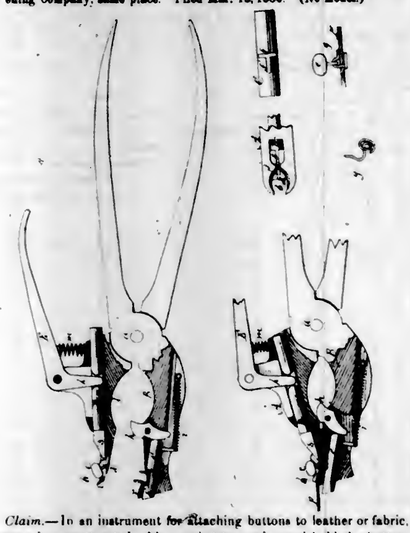


Claim.—1. The combination, with the horizontally-pivoted tongue and handles of a car-door latch, and a draw-bar connecting the handles with the tongue for lifting the latter, of a lock whereby the tongue may be held against lifting, substantially as herein described.

2. The combination, with the horizontally-pivoted tongue and handles of a car-door latch, and a draw-bar connecting the handles with the tongue for lifting the tongue, of a hollow handle-plate to be applied to the face of the door and in which said draw-bar works, and a lock also arranged in said hollow handle-plate, whereby the tongue may be held against rising, substantially as herein described.

3. The combination, with the horizontally-pivoted tongue and handles of a car-door latch, of the draw-bar G, connecting the handles and tongue and provided with the upward projection *j*", the sliding locking-bolt H, having the projection *j* for engaging the inner side of the projection of the draw-bar when moved to a locking position, and the pivoted tumbler I, applied to said bolt, substantially as herein described.

352,214. INSTRUMENT FOR ATTACHING BUTTONS. WILLIAM H. WOOD, Rochester, N. Y., assignor to the Wood Automatic Button Fastening Company, same place. Filed Mar. 18, 1886. (No model.)



Claim.—In an instrument for attaching buttons to leather or fabric, the upper jaw constructed with a socket to receive and hold the button, a flat bed to receive the eye of the button and hold it in position, and a slot to allow the passage of the hook as it rises to enter the eye of the button, as hereinbefore set forth.

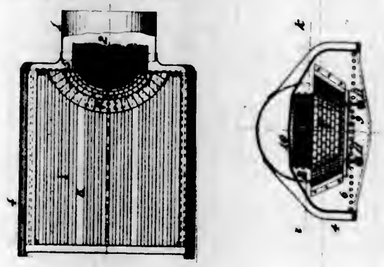
2. In an instrument for attaching buttons to leather or fabric, the combination, with the lower jaw provided with a socket, of a slide constructed with right-angled grooves, one of which receives the base and the other the body of the hook, and a device to give motion to the slide as the jaws are closed, as set forth.

3. In an instrument for attaching buttons to leather or fabric, the combination, with the upper jaw constructed with a socket to hold the button, and with the lower jaw, of a slide in the lower jaw constructed with right-angled grooves to receive the hook, whereby as the jaws are closed the hook is first caused to pierce the leather, and then is carried into the eye of the button by a turning movement of the hook, as set forth.

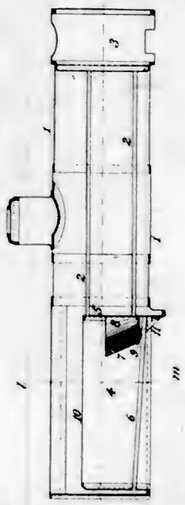
4. In an instrument for attaching buttons to leather or fabric, the combination of the slide provided with right-angled grooves to receive the hook, and a shoulder or stop on the outer end of the lower jaw at the end of the slot, whereby when the hook is seated it is clamped by the spring-pressure of the slide to hold it in place while passing through the leather, as set forth.

5. In an instrument for attaching buttons to leather or fabric, the combination, with the upper jaw provided with a socket to receive the button, and with the lower jaw, of a slide in the lower jaw provided with right-angled grooves to receive and hold the hook, and a plunger in the upper jaw for pressing the point of the hook down after it has entered the eye of the button, as set forth.

352,215. LOCOMOTIVE-BOILER. JOHN E. WOOTTEN, Philadelphia, Pa., assignor to the Wharton Railroad Switch Company, same place. Filed Aug. 30, 1886. (No model.)



352,215.



Claim.—1. The combination, in a locomotive-boiler, of a laterally-extended fire-box having a grate at or near the lower line of the waist of the boiler, and a fire-bridge located wholly within the fire-box and above the grate and extending upwardly from the plane of the grate in rear of and out of contact with the tube-sheet, substantially as set forth.

2. The combination, in a locomotive-boiler, of a laterally-extended fire-box having a grate at or near the lower line of the waist of the boiler, and a fire-bridge located wholly within the fire-box and above the grate, and extending upwardly from the plane of the grate, said fire-bridge forming the rearward boundary of a combustion space or chamber adjacent to the tube-sheet, which space is closed at bottom and open at top for the free passage of gases to the tubes, substantially as set forth.

3. The combination, in a locomotive-boiler, of a laterally-extended fire-box, and a fire-bridge located wholly therein at and above the grate-level, and of greater width than the diameter of the waist of the boiler, substantially as set forth.

4. The combination, in a locomotive boiler, of a laterally-extended fire-box, a supporting-plate located therein at or near the level of the grate, and a fire-bridge resting upon said supporting-plate and interposed throughout its entire extent between the tube-sheet and the portion of the grate not covered by the supporting-plate, substantially as set forth.

5. The combination, in a locomotive-boiler, of a laterally-extended fire-box, and a fire-bridge located wholly therein at and above the grate-level and forming the rearward boundary of a combustion space or chamber adjacent to the tube-sheet, said fire-bridge being rearwardly inclined from its lower to its upper surface, substantially as set forth.

352,216. PRESERVING TIMBER. HENRY AITKEN, Darroch, Falkirk, County of Stirling, Scotland. Filed Nov. 10, 1884. (No specimens.) Patented in England Jan. 2, 1882, No. 3.

Claim.—1. As an improvement in the art of preserving timber, saturating the timber or the outer surface thereof with naphthaline.

2. Timber the outer surface of which has been saturated with naphthaline.

352,217. LOCOMOTIVE-FURNACE. JOHN R. ALEXANDER, Pittsburg, Pa. Filed Nov. 18, 1885. Renewed Oct. 7, 1886. (No model.)

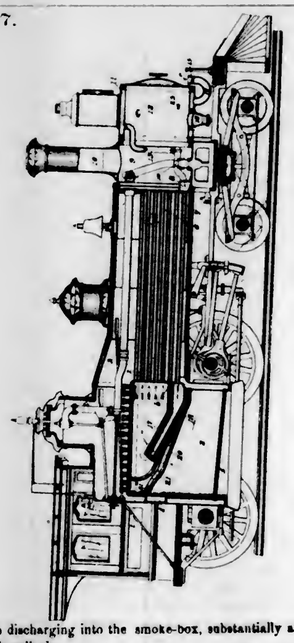
Claim.—1. In a locomotive-engine, a deflecting-arch situate in the fire-chamber, extending from the rear end thereof toward the front wall, and having side wings, substantially as described, substantially as and for the purposes specified.

2. The combination, in a locomotive-engine, of a regenerator situate in the smoke-box, means for admitting air to the regenerator, a gas-producing fire-box, an arch in the fire-box extending partially across the same, a conduit pipe or flue leading from the regenerator through the arch into the fire-box, and a deflecting-wing, 21, projecting laterally from the arch, substantially as and for the purposes described.

3. The combination, in a steam-boiler furnace, of a regenerator, means for admitting air to the regenerator, a fire-box, an arch in the fire-box extending partially across the same, a conduit pipe or flue leading from the regenerator through the arch into the fire-box, and a deflecting-wing, 21, projecting laterally from the arch at a different level, substantially as and for the purposes described.

4. The combination, in a locomotive-engine, of a smoke-box, a regenerator-chamber surrounding the smoke-box, a gas-producing fire-box,

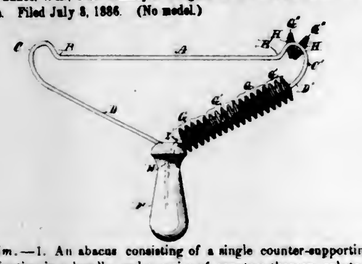
352,217.



and an air-flue discharging into the smoke-box, substantially as and for the purposes described.

5. The combination, in a steam-boiler furnace, of a regenerator-chamber in the smoke-box, a fire-box, an arch in the fire-box, and a conduit pipe or flue leading from the regenerator through the arch and discharging into the fire-box, substantially as and for the purposes described.

352,218. ABACUS. GEORGE W. BOLTON and CHARLES H. TILLMEYER, Milwaukee, Wis.; said Tillmeyer assignor to Sarah E. B. Bolton, same place. Filed July 3, 1886. (No model.)



Claim.—1. An abacus consisting of a single counter-supporting wire terminating in a handle, and a series of counters thereon, substantially as described.

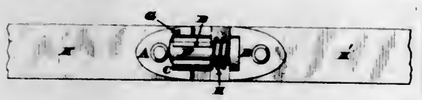
2. In an abacus, the straight counter enumerating-line A, the curved necks C C', proportioned as described, and the counters G G'.

3. In an abacus, the straight counter enumerating-line A, the angles B B', the curved neck C C', and the outwardly-inclined reserve lines D D', substantially as described.

4. The combination of the straight counter enumerating-line A, the angles B B', curved necks C C', reserve lines D D', and the counters G G', substantially as described.

5. In an abacus, a counter-supporting wire, the thereon-strung counters G G' G'', and the bushing H in and about the orifices in the counters, by and through which they are strung on the wire, substantially as described.

352,219. HARNESS-COUPLING. FRANK M. BOWEN, Dayton, Ohio. Filed Aug. 24, 1885. (No model.)



352,219.

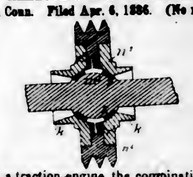


Claim.—1. The combination, in a coupling device, of a female member consisting of a notched and longitudinally slotted tube and a male member composed of a spring and a lugged shank, which latter is adapted to traverse said slotted tube and then be turned axially, so as to cause its lug to engage with the notch of the same, in the manner herein described.

2. The female coupling A C D E, in combination with the male coupling B F G, the shank F of the latter having a spring, H, coiled around a portion thereof, the fixed end of said spring being secured to the rear side of ear B, for the purpose herein described.

3. A coupling device consisting of the female member B' C D E, male member A' F G, spring H, and loop L, the latter being joined to the ear A' and shank F of the same, in the manner herein described, and for the purpose stated.

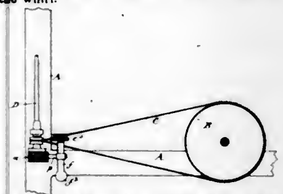
352,220. AXLE-JOINT FOR ROAD-ENGINES. HENRY BOSENDELL, New Haven, Conn. Filed Apr. 6, 1886. (No model.)



Claim.—In a traction-engine, the combination of the axle having a central globular bearing, *m'*, provided with opposite longitudinal grooves or slots, *r*, the driving-wheel *n*², having opposite radial recesses adapted to receive the perforated radial steps *r*², the pair of bearing-sleeves *m*², bolted, respectively, on opposite sides of the driving-wheel and adapted to secure the steps in place, each having internal concave bearings fitting the globular part of the axle, and external cylindrical journals fitting fixed bearings in the frame-work of the engine, and the oscillating pins *r'*, journaled in the steps *r*², and having rectangular heads fitted in the slots, all arranged and combined substantially in the manner and for the purpose specified.

352,221. BAND-TIGHTENER FOR SPINNING-MACHINES. WM. T. CARROLL, Worcester, assignor to George Draper & Sons, Hopedale, Mass. Filed May 1, 1886. (No model.)

Brief.—The device is designed to apply pressure upon the side of the band on the slack portion, whereby the band is caused to more nearly encompass the spindle-whirl, and is forced into the bottom of the groove of the whirl.



Claim.—The spindle having a whirl, and the drum to move the spindle-driving band, combined with the lever *f*, the pintle, and sheave *e*², the face of which occupying a position in a plane substantially parallel to the face of the whirl on the spindle, the edge of the sheave acting upon the side of the band, forcing it into the bottom of the groove of the whirl and about the said whirl, substantially as described.

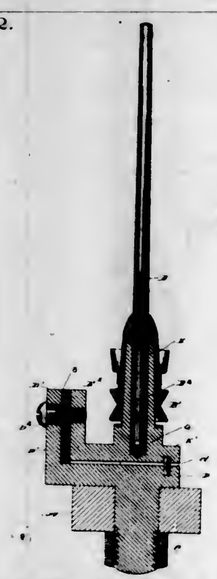
352,222. SPINDLE-SUPPORT. EDGAR J. CARROLL, Worcester, assignor to George Draper & Sons, Hopedale, Mass. Filed June 22, 1886. (No model.)

Brief.—A rigid tube-like bearing to receive the pintle of the spindle and be surrounded by the sleeve-whirl has a foot located above the surface of the rail, said foot having at one extremity a vertical flange, which is attached loosely to a rigid face formed upon a base or upon the rail itself.

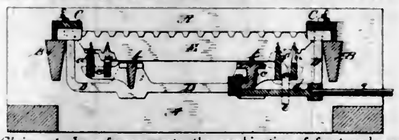
Claim.—1. A spindle-bearing composed, essentially, of a rigid tube, E, having a foot provided with an ear, E², extended therefrom parallel with the spindle, substantially as described, combined with a face or abutment, to one side of which the said ear is attached loosely, and means to attach the said ear to the said face loosely, substantially as set forth.

2. A spindle-bearing composed, essentially, of a rigid tube, E, having a foot provided with an ear extended therefrom, substantially as described, combined with a face or abutment to which the said ear is secured, an interposed packing, and means to loosely connect the said ear with the said face, the foot of the bearing being supported above and externally with relation to the bolster or step-rail, substantially as described.

352,222.



352,223. GRATE. JACOB CHRISTIE, Long Island City, assignor to Sherwood Sterling, Brooklyn, N. Y. Filed Oct. 27, 1884. (No model.)



Claim.—1. In a furnace-grate, the combination of front and rear rockers, rocker-supports, slotted lever, movable grate-bars, frame, and dead-plates on which the grate-bars rest, when arranged and combined in the manner herein shown and described.

2. The combination of lever *d*, front and rear rockers, *a a' a' a'*, movable grate-bars E E, dead-plates B B, and frame D with the walls of a furnace, in the manner herein shown and described.

3. In a furnace-grate, the combination, with the walls of a furnace provided with dead-plates, of an independent frame for supporting the grate, header-bars for holding the grate-bars in position, grate-bars, and mechanism for moving the grate-bars, consisting of separate rockers and rocker-supports, and a vibrating lever, all when arranged as herein shown and described, and for the purposes set forth.

4. The combination of the lever *d*, provided with slotted arms *f f*, front and rear rockers, *a a' a a'*, downwardly-projecting pins *e e*, and rocker-supports *c c*, with grate-bars E E and frame D, and furnace-walls A, provided with dead-plates B B, as herein shown and described, and for the purposes set forth.

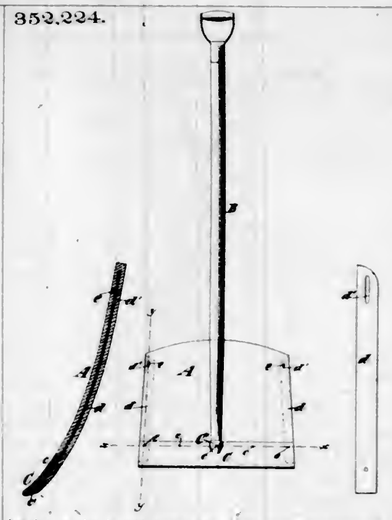
352,224. SHOVEL. HENRY C. COLE, Wallingford, Vt. Filed Aug. 4, 1886. (No model.)

Claim.—1. The combination, with the shovel-blade A, of wood, and the handle B, of an edge plate extending across from side to side of the blade at the front thereof and having between its ends the outwardly offset or struck-up portion C', forming, in connection with the blade, a socket to receive the end of the handle, substantially as herein described.

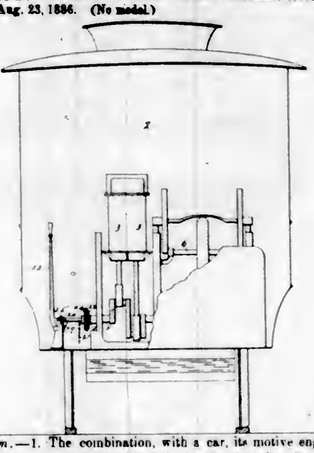
2. The combination, with the shovel-blade A, of wood, and the handle B, of the edge plate, C, extending across from side to side of the blade at the front thereof, having its edge portion reverted or turned backward so as to lap on the back of the blade, and having between its ends the outwardly offset or struck-up portion C', forming, in connection with the blade, a socket to receive the end of the handle, substantially as herein described.

3. The combination, with the wood blade A, having its grain extending horizontally from side to side, of re-enforcing strips *d*, extending vertically at the edges of the blade and slotted, as at *d'*, and rivets inserted through the blade and slotted strips and made fast in the blade, but free to play in said slots as the wood may shrink or swell, substantially as herein described.

352,224.



352,225. BRAKE FOR CARS. JOHN S. CONNELLY, Brooklyn, N. Y. Filed Aug. 23, 1886. (No model.)



Claim.—1. The combination, with a car, its motive engine, and brake, of a rotary brake-shaft and mechanism for throwing the same into gear with the driving mechanism of the engine, substantially as and for the purposes described.

2. The combination, with a car, its motive engine, and brake, of a continuously-rotary shaft driven by the engine, a brake-shaft, and mechanism for throwing said continuously-rotary shaft into gear with the brake-shaft, substantially as and for the purposes described.

3. The combination, with a car, its motive engine, and brake, of a continuously-rotary shaft, 5, having a friction-disk, 23, and a brake-shaft, 24, having a friction-disk, 26, which is movable against the friction-disk 23 to rotate the brake-shaft, substantially as and for the purposes described.

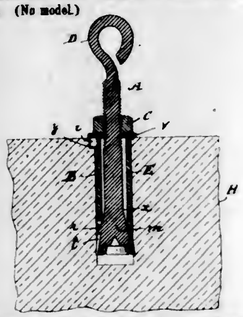
4. The combination, with a car, its motive engine, and brake, of a continuously-rotary shaft, 5, having a friction-disk, 23, a brake-shaft, 24, having a friction-disk, 26, a lever for moving the shaft 24 in its bearings to connect the disks 23 and 26, and a spring for disconnecting the disks, substantially as and for the purposes described.

5. The combination, with a car, a motive engine, and brake, of mechanism connecting the engine with the brake and arranged to transmit motive power from the engine to the brake for operating the latter, substantially as and for the purposes described.

6. In a car which is driven by a continuously-running engine provided with mechanism for connecting it with and disconnecting it from the driving-axle of the car, the combination of the motive engine, a

brake, and mechanism for connecting the engine with the brake to transmit motive power to the latter, substantially as and for the purposes described.

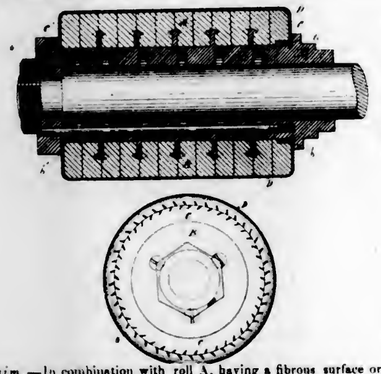
352,226. EXPANSIBLE BOLT. HERBERT F. COURTNEY, Boston, Mass. Filed Apr. 9, 1886. (No model.)



Claim.—1. In an expansible bolt of the character described, the combination of a body, a sleeve, and a nut, the lower portion of said body being conical and provided with a laterally-projecting stud and the upper portion screw-threaded to receive the nut, and the lower portion of the sleeve provided with a series of slits to permit it to expand, and with a slot for receiving the stud on the body, and its upper portion provided with a laterally-projecting lip, substantially as described.

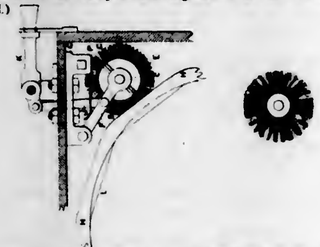
2. The bolt A, having the conical portion *m*, and provided with the stud *r* and nut C, and the sleeve B, provided with the slits *f*, slot *t*, and lip *i*, constructed, combined, and arranged to operate substantially as set forth.

352,227. ROLL FOR POLISHING-MACHINES. FREDERICK W. COY, Boston, Mass., assignor to George H. P. Flagg, trustee, same place. Filed Apr. 19, 1882. (No model.)



Claim.—In combination with roll A, having a fibrous surface or cushion, sheath D and disks C C', arranged and secured together, substantially as and for the purpose set forth.

352,228. BRUSHING MECHANISM FOR BOLTING-REELS. JABEZ W. CROSBY, Leeds, County of York, England. Filed Mar. 12, 1886. (No model.)



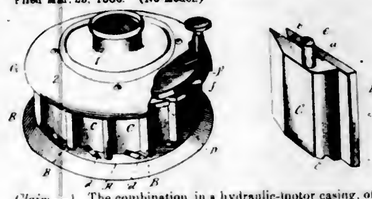
Claim.—1. The combination, with a bolting-surface, of a revolving brush having its bristles or fibers arranged on its cylinder in the manner described—namely, with a portion of them extending in practically longitudinal or straight lines from end to end, and with others arranged in right and left hand spiral lines, all substantially as shown and described.

2. In combination with the reel provided with flanges, as set forth, a brush provided with pulleys E E, adapted to bear or press on said flanges and to be driven thereby.

3. In combination with the reel, the pulley driven by contact therewith, the revolving brush, and the means described for raising and lowering the pulleys, consisting of the links F, rods *j*, and lever K.

4. In combination, the flanged reel, the revolving brush and its pulleys E E, the links F, rods J, lever K, and spring P, all substantially as and for the purpose set forth.

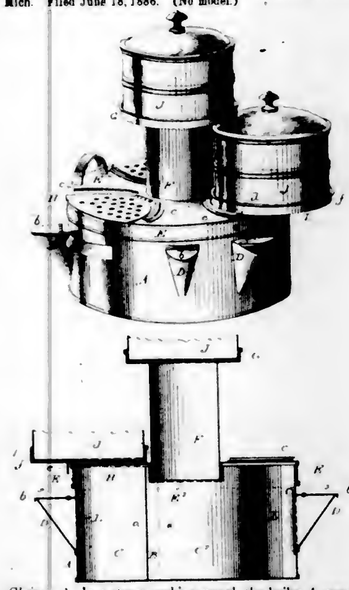
352,229. HYDRAULIC MOTOR. ABNER B. CROWELL, Richmond, Va. Filed Mar. 25, 1886. (No model.)



Claim.—1. The combination, in a hydraulic-motor casing, of the oblique partitions arranged at an angle to each other and formed with projections *b*, the gates provided with a corresponding projection, *a*, and pins *c*, the top plate having tangential recesses in which the pins move, and the cam-ring having grooves arranged in a direction opposite the recesses of the top plate, substantially as described.

2. In a hydraulic motor, the casing-base having the ribs *d*, and provided with the oblique partitions arranged at a slight angle to each other and having projections *b*, in combination with the gates formed on their lower edge with a groove corresponding to the ribs and provided with projection *a*, and pins *c*, the top plate, D, and cam-ring E, all arranged to operate substantially as described.

352,230. STEAM COOKING-VESSEL. CHRISTENIA C. DANNER, Ionia, Mich. Filed June 18, 1886. (No model.)



Claim.—1. In a steam cooking-vessel, the boiler A, provided with a central chamber, B, and chambers C' C² C³, arranged about the central chamber, each chamber being provided with a filling tube or spout.

2. In combination with boiler A, having chambers B C' C² C³, a cover, E, applied to the boiler, provided with a perforated socket above the chamber B, and with perforated sections H above each of the chambers C' C² C³, and kettles J, adapted to be placed over the perforations in the cover, substantially as shown.

3. In combination with boiler A, kettles J, and cover E, provided with perforated sections H, and sockets or holders I, applied to the cover, substantially as shown, and adapted to receive and support the kettles.

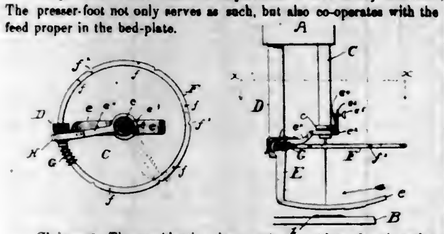
4. In combination with boiler A, cover E, provided with perforated sections H, and flanges c, holder I, provided with wings *d*, and raised rim *f*, and having its bottom cut out where it rests upon the cover, as and for the purpose set forth.

5. In combination with boiler A, cover E, provided with perforated sections H, and flanges c, and the removable cover or plate K, arranged substantially as described.

6. The herein-described steamer, consisting of boiler A, divided as shown, cover E, provided with perforated sections H, flanges c, and central socket, E³, a tubular stem, F, seated in said socket and provided at its upper end with a, perforated kettle-support, kettle-holders I, provided with wings *d*, raised rim *f*, and depending flange *e*, and adapted to rest upon the perforated sections H, and kettles J, provided with perforated bottoms, all arranged to operate substantially as described.

352,231. FEED MECHANISM FOR SEWING-MACHINES. ALEXANDRE DE BEAUMONT, Camden, N. J., and SAMUEL SHELLENBURG, Philadelphia, Pa.; said Shellenburg assignor, by mesne assignments, to Thomas B. Harned, Camden, N. J. Filed Oct. 2, 1885. (No model.)

Brief.—The device admits of adjustment to feed in any direction. The presser-foot not only serves as such, but also co-operates with the feed proper in the bed-plate.



Claim.—1. The combination, in a sewing-machine, of a pivoted or rocking presser-foot, a needle-bar adapted to engage therewith and occasion the rocking of said foot, and a ring or rod secured to and carried by the presser-bar, and upon which said presser-foot is mounted for circumferential adjustment, substantially as set forth.

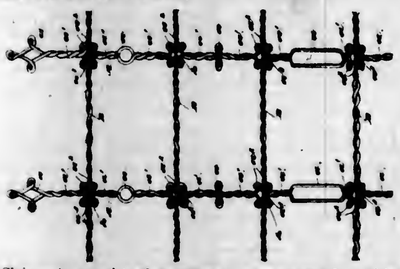
2. The combination, in a sewing-machine, of a pivoted or rocking presser-foot, a needle-bar adapted to engage therewith and occasion the rocking of said foot, a ring or rod secured to and carried by the presser-bar, and upon which said presser-foot is mounted for circumferential adjustment, and a spring connected with both adjusting-ring and presser-foot, substantially as set forth.

3. The combination, in a sewing-machine, of a pivoted or rocking presser-foot, a needle-bar adapted to engage therewith and occasion the rocking of said foot, a ring or rod secured to and carried by the presser-bar, and upon which said presser-foot is mounted for circumferential adjustment, a spring connected with both adjusting-ring and presser-foot, and means for maintaining the presser-foot in given positions upon the ring, substantially as set forth.

4. As a device for maintaining the presser-foot in given positions upon the adjusting-ring, the combination of the adjusting-ring provided with notches, the presser-foot adapted to rock thereupon, and a spring-clip applied to the presser-foot and adapted to engage with said notches, substantially as set forth.

5. The combination, in a sewing-machine, of a pivoted or rocking presser-foot, a needle-bar adapted to engage therewith and occasion the rocking of said foot, a ring or rod secured to and carried by the presser-bar, and upon which said presser-foot is mounted for circumferential adjustment, and a bed-plate feed operating in the plane of the bed-plate, substantially as set forth.

352,232. WIRE FENCE. JOSEPH H. DOUGHERTY, Wellington, Kans. Filed June 15, 1886. (No model.)



Claim.—As an article of manufacture, an ornamental fence-picket made of wire strands bent and twisted to form various configurations, each separated from the other by a twisted portion, and provided at the parts where the line-wires are to cross with projecting guard-loops a^2, so bent as to form spaces a^2 for the reception of said line-wires, substantially as described.

352,233. PNEUMATIC CHECK FOR DOORS, &c. JARVIS B. EDSON, Brooklyn, N. Y. Filed June 18, 1886. (No model.)



Claim.—1. A pneumatic door-check composed of two reversed cylindric cup-shaped members, each comprising one or more cylindric cups and fitting together without packing, with each cup of one member loosely entering a corresponding cup of the other member, so as to form a tortuous passage for the escape of air from the interior of the members, substantially as herein described.

2. A pneumatic door-check composed of two reversed cylindric cup-shaped members, each comprising one or more cylindric cups, which in one or both members are perforated to regulate the admission or escape of air, and which are fitted together without packing, and with each cup of one member loosely entering a corresponding cup of the other member, so as to form a tortuous passage for the escape of air from the interior of the members, substantially as herein described.

3. A pneumatic door-check composed of two reversed cylindric cup-shaped members, each comprising one or more cylindric cups, which are fitted together without packing, with each cup of one member loosely entering a corresponding cup of the other member, so as to form a tortuous passage for air, in combination with an air-displacing trunk or body interiorly located, substantially as herein described.

4. A pneumatic door-check composed of two reversed cylindric cup-shaped members, each comprising one or more cylindric cups, which in one or both members are perforated to regulate the admission or escape of air, and which are fitted together without packing, and with each cup of one member loosely entering a corresponding cup of the other member, so as to form a tortuous passage for the escape of air, in combination with an air-displacing trunk or body interiorly located, substantially as herein described.

5. A pneumatic door-check composed of reversed cylindric cup-shaped members, each comprising one or more cylindric cups and fitting together without packing, with each cup of one member loosely entering a corresponding cup of the other member, so as to form a tortuous passage for the escape of air from the interior of the members, and having a rod connecting the two members and preventing their disengagement, substantially as herein described.

6. The combination, with a pneumatic door-check composed of reversed cup-shaped members fitting one within the other, and a stop for limiting the outward movement of one member from the other, of an engaging device to be secured to a door or casing, and constructed to engage automatically with the movable member as the door closes, and to disengage itself from or pull off the movable member after producing its outward movement as the door is opened, substantially as herein described.

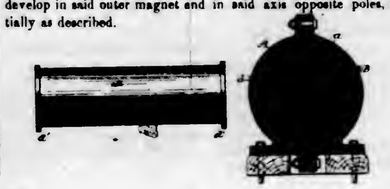
7. The combination, with a pneumatic door-check composed of reversed cup-shaped members fitting one within the other, and a stop for limiting the outward movement of one member away from the other, said movable member being provided with a knob or head, of the engaging device G, made of expansible material and perforated to automatically engage with and disengage itself from said knob or head, substantially as herein described.

352,234. ELECTRO-MAGNETIC AND MAGNETO-ELECTRIC MACHINE. RUDOLF EICKEMEYER, Yonkers, N. Y. Original application filed Nov. 8, 1882, Serial No. 76,234. Divided and this application filed Oct. 23, 1885. (No model.)

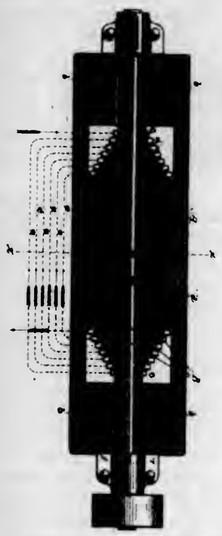
Claim.—1. In an electro-magnetic or magneto-electric machine, a rotative armature embodying a series of concentric tubular conductors, substantially as described.

2. In an electro-magnetic or magneto-electric machine, an armature embodying one or more concentric tubular conductors and a polarized axis, substantially as described.

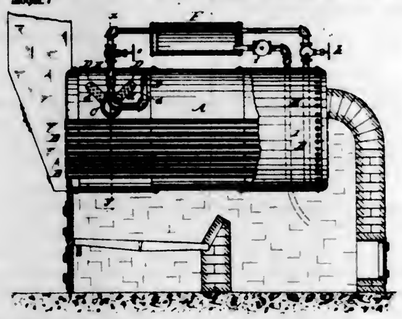
3. In an electro-magnetic or magneto-electric machine, the combination of an exterior tubular magnet, an armature embodying one or more tubular conductors and a polarized axis, and helices which centrally develop in said outer magnet and in said axis opposite poles, substantially as described.



352,234.



352,235. BOILER-CLEANER. HENRY V. FARIES, Atchison, Kans., and CHARLES D. WILCOX, Indianapolis, Ind. Filed July 31, 1886. (No model.)



Claim.—1. In a boiler-cleaner, the skimming device herein shown and described, consisting of the pipe C and the upwardly-inclined perforated tubes D D, substantially as and for the purpose set forth.

2. In a boiler-cleaner, the skimming device herein shown and described, consisting of the pipe C, the upwardly-inclined perforated tubes D D, and the ejector-pipe G, substantially as and for the purpose set forth.

3. In a boiler-cleaner, the combination, with a boiler, of a submerged pipe, C, and a series of upwardly-inclined perforated tubes, D D, arranged to project above the surface of the water, substantially as and for the purpose set forth.

4. In a boiler-cleaner, the combination, with a boiler, of a submerged pipe, C, closed at each end, a series of upwardly-inclined perforated tubes, D D, closed at their outer ends, an eduction-pipe, E, and an ejector-pipe, G, communicating with the steam-space and terminating just below the lower end of the eduction-pipe, substantially as and for the purpose set forth.

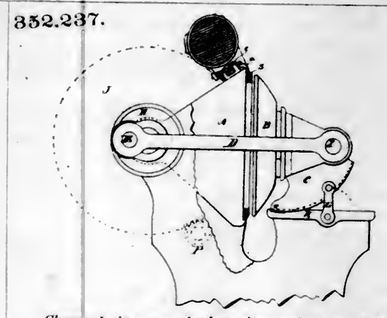
5. In a boiler-cleaner, the combination, with a boiler, of a submerged pipe, C, and one, two, or more rows of perforated tubes, D D, upwardly-inclined in opposite directions from each other, so as to operate over a large surface of the water, substantially as and for the purpose set forth.

352,236. PROCESS OF MORDANTING. BERTHOLD FINKELSTEIN, Lindenau, Saxony, Germany. Filed Mar. 11, 1886. (No specimens.)

Claim.—Mordanting vegetable fibers, yarns, and woven goods impregnated or printed with tannin with antimony by treating the same with antimony oxalate suspended in water, substantially as specified.

352,237. PRINTING-PRESS. MERRITT GALLY, New York, N. Y. Filed June 5, 1886. (No model.)

352,237.



Claim.—1. In a press having a bed or platen to which a rocking motion is given, the combination, with the rocker and its rocker-seat, of the connecting-link for controlling the movement of the rocker, the link being at right angles to the face of the rocker-seat, or nearly so, when in position for the impression.

2. The combination, with the rocking bed or platen, of the rocker and its rocker-seat, the controlling-link, and the impression draw-bar, the link being pivoted to the part having the rocking motion at a point intermediate between the toe of the rocker and the connecting-pivot of the draw-bar.

3. The combination, with the impression-crank F and the draw-bar, of the rocking bed or platen provided with the rocker and its rocker-seat, and the pivoted controlling-link, the link so connected to the rocker as to be deflected backward from a vertical position during the backward rolling movement of the rocker.

352,238. AUTOMATIC VALVE-GEAR. FREDERICK A. GARDNER, Catskill, N. Y., assignor to Frederick A. Gardner & Co., same place. Filed July 1, 1886. (No model.)



Claim.—1. In an improved automatic valve-gear, the combination of an eccentric-shaft with a collar secured thereon, a spring-disk loose on said shaft, with a ratchet-and-pawl connection between said disk and collar, a weight-disk fixed to said shaft and with swinging weights pivoted thereto, a weight-spool loose on said shaft and connected with the free swinging ends of the pivoted weights, and a volute spring coiled around said shaft, with one of its ends attached to the spring-disk and the other end attached to said spool, all forming a device for applying power to move an eccentric on said shaft, substantially as described.

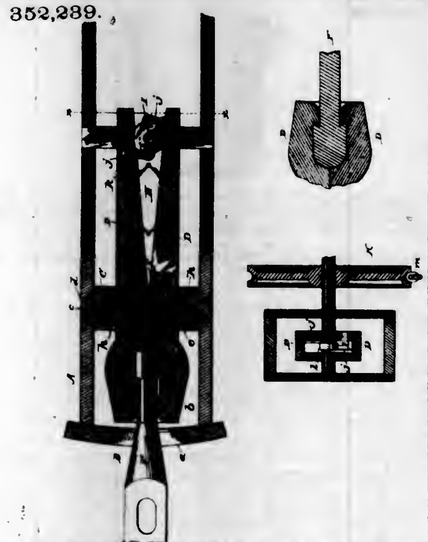
2. In an improved automatic valve-gear, the combination of an eccentric-shaft, a collar fixed to said shaft, a loose spring-disk having a ratchet-and-pawl connection with said fixed collar, a fixed weight-disk with swinging weights pivoted thereto, and with a curved aperture made through said weight-disk, a loose weight-spool having a curved slot made at an inclination to the curved aperture in said disk and with the free ends of the swinging weights connected therewith, an eccentric pivoted to a disk fixed on said shaft, and having an elongated hole, through which said shaft extends, and also having a fixed swing-pin extending through said disk-aperture and into the curved slot in said spool, whereby the eccentric may be moved on its pivot to and fro across the shaft by the movement of said weight-spool, substantially as described.

3. In an improved automatic valve-gear, the combination of the eccentric-shaft, the weight-spool, a series of disks, 8 and 27, a series of pivoted eccentrics, each having an elongated hole, through which said shaft extends, and a series of actuating-spools, 17, each loose on said shaft between one of said disks and the next distant eccentric, whereby when the first spool is turned in either direction all the eccentrics are moved on the shaft to the same extent, and all the parts of each eccentric are made to retain the same relative position with the same parts of the other eccentrics, substantially as described.

352,239. CAR-COUPLING. GILBERT S. GILDERSLEEVE, Gratton, Va. Filed Mar. 26, 1886. (No model.)

Claim.—1. In a car-coupling, the combination, with a draw-head having a swiveled beam located therein, of draw-bars passing through and pivoted in an opening in said beams, and a spring bearing against the inner ends of the draw-bars, as set forth.

352,239.



2. In a car-coupling, the combination, with a draw-head, of a swiveled beam having an opening, draw-bars passing through and pivoted in said opening, springs bearing against the inner sides of the draw-bars, a vertical shaft having eccentrics, and plates pivotally connecting the eccentrics and the draw-bars, as set forth.

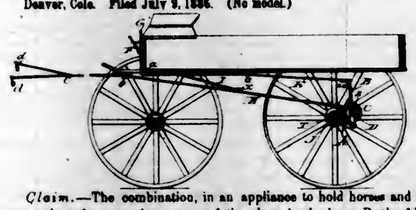
3. In a car-coupling, the combination, with a draw-head, of pivoted draw-bars, a spring located between them, a shaft having eccentrics, plates connecting the eccentrics and draw-bars, a grooved wheel on the shaft, a pivoted lever, and connections between the lever and wheel, as set forth.

352,240. CAR-COUPLING. JOHN W. HARRELL, Winston, N. C. Filed May 12, 1886. (No model.)



Claim.—The draw-head recessed to receive a link and drop-pin, and formed with the forwardly-inclined walls *e f*, diverging from the rear of groove G, and constituting the upper and lower walls thereof, in combination with the drop-pin D, formed with the upwardly-extending arm F and pivoted to the draw-head, substantially as described.

352,241. DEVICE FOR STOPPING HORSES. CARLETON C. HARRIS, Denver, Colo. Filed July 9, 1886. (No model.)

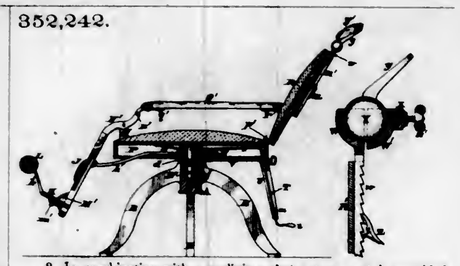


Claim.—The combination, in an appliance to hold horses and to prevent them from running away, of the plate A, the lever B, the friction-wheel C, the rotary drum D, the spiral spring K, the lever-strap E, the self-acting clasp F, the holding-strap H, and the rubber elastic tension I, all substantially as described, and for the purpose set forth.

352,242. BARBER'S CHAIR. FREDERICK HEINZ, Cincinnati, Ohio, assignor to Eugene Burningham, same place. Filed Jan. 8, 1886. (No model.)

Claim.—1. In combination with the seat P, having a flap or leaf, J, jointed thereto, the bearing C, slotted pivot F *f*, rack H, locking-lever I, spring S, and treadle T *t*, the front end of said rack being coupled to said leaf, for the purpose specified.

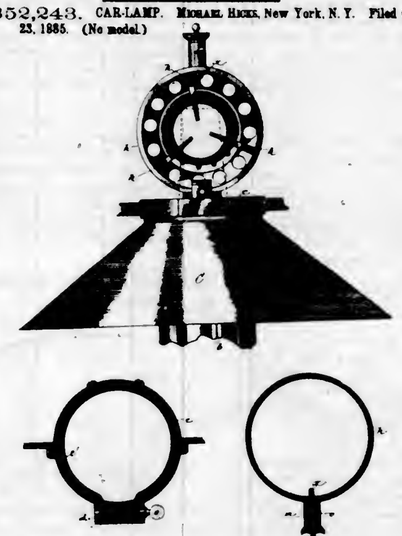
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2. In combination with a reclining-chair whose seat is provided with a hinged back and swinging leg-rest, and is adapted to be turned around horizontally, the hanger U, depending rigidly from the rear of said seat and having a guide traversed by the rod T of treadle *t*, which rod operates the locking-lever I, that engages with the forked rack H *h h'*, substantially as herein described, and for the purpose stated.

3. The combination, in a reclining-chair, of the seat P, supported on a vertical pivot, F, and having an adjustable flap, J, coupled thereto, said flap being maintained at the desired inclination by a forked rack, H *h h'*, traversing the slot *f* of said pivot, the rear of said seat having a hanger, U, depending rigidly therefrom, which hanger carries the treadle T *t*, that operates the locking-lever I of said rack, in the manner described.

352,243. CAR-LAMP. MICHAEL HICKS, New York, N. Y. Filed Oct. 23, 1885. (No model.)



Claim.—1. The combination, with the support of a car-lamp, of the ring *c*, attached thereto, the chimney-supporting cap *h*, hinged to the said ring, the springs *k k k*, bolt *x*, and spring *m*, mounted on the cap *h*, substantially as described and shown.

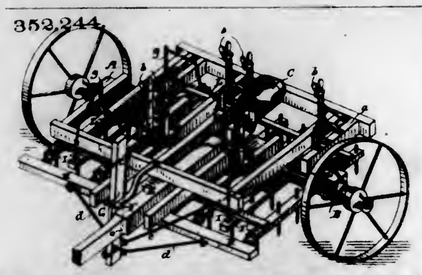
2. The combination, with a car-lamp support, of a shade-holder attached thereto, and a chimney-supporting cap hinged to the shade-holder and provided with chimney-holding springs, substantially as described and shown.

3. The combination, in a shade-holder, of a circular spring for embracing the shade, the ends of said spring being provided with reversely screw-threaded holes, with a bolt provided at its two ends, respectively, with screw-threads of opposite inclination and adapted to engage with the threads of the holes in the spring, substantially as described and shown.

352,244. SULKY-HARROW. JACOB P. HOFFMAN, Pittsburg, Kans. Filed Apr. 22, 1886. (No model.)

Claim.—1. In a harrow of the character described, the combination of the main transporting-frame having a draft-tongue rigidly secured to it, a longitudinal beam, E, alongside of the said tongue, the guide-loop F, sustained, as described, and receiving freely through it a vertical bar, G, provided with a stop-pin and a draft-clevis, the cross-bar H, arranged considerably in rear of this bar G and free to rise and fall and to move endwise, and connected by links *d d* to the lower end of the bar G in

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close relation to the draft-clevis, harrow-sections linked to said bar H and suspended by chains from lifting devices on the main frame, as described, and the links *e e*, connecting the bar G to the long axle-bar of the main frame, all constructed and adapted to operate substantially in the manner and for the purposes described.

2. The combination, with the transporting-frame and a series of independent harrows linked to a transverse bar, H, and also flexibly suspended from raising and lowering levers on the main frame, of a vertically-movable bar, G, arranged considerably in front of bar H, guided by a loop on one side of the draft-tongue and movable independently of the bar H, to which it is connected by link-braces, and the stay-links *e e*, connecting the bar G to the axle-bar, substantially as described.

3. The combination, with the transporting-frame, the suspended harrows, their raising and lowering devices, and the draw-bar H, to which they are linked, as described, of a vertically-movable bar, G, connected by links to the said draw-bar, and a guide-loop, F, secured to the draft-frame on one side of the draft-tongue, the said bar H being free to move laterally and vertically independent of the movements of the bar G, substantially as described.

4. In a silky-harrow, the combination of a series of independent harrows linked to a draw-bar, H, and independently vertically adjustable by means described, a vertically self-adjusting bar, G, connected by long links to said draw-bar, and also to the axle of the transporting-wheels, the guide-loop F, secured to the main frame and supported upon a beam, E, located on one side of the draft-pole, said loop receiving vertically through it the self-adjustable bar G, having the draft-clevis attached to it, all constructed and adapted to operate substantially in the manner and for the purposes described.

352,245. OBSTETRICAL INSTRUMENT. FREDERICK HULLHORST, Yutan, Nebr. Filed Aug. 21, 1886. (No model.)



Claim.—1. An instrument for tying by means of clamps or ligatures, and cutting, the umbilical cord after birth, the same consisting of clamping-jaws arranged to move the one toward the other, and an interposed cutter intermediate of the width of the jaws, whereby the same instrument by its clamping-jaws closes the clamps or ligatures on or about the cord, and by its cutter severs the cord between the clamps or ligatures, substantially as specified.

2. In an instrument for tying and cutting the umbilical cord after birth, the combination of the levers A A, provided with jaws *c c*, having grooves *d d*, adapted to receive clamps or ligatures within them, and the lever B, having a cutting-blade, *e*, arranged to work in between said grooves, essentially as shown and described.

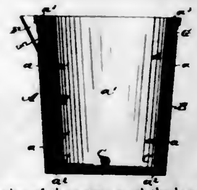
352,246. TWISTED AND FLATTENED WIRE BOX-FASTENING. CHARLES F. HUNT, Worcester, Mass. Filed Apr. 12, 1886. (Model.)



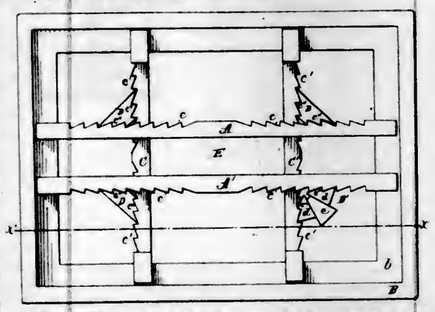
Claim.—A box-fastening strap consisting of twisted and flattened strands of wire, substantially as described.

352,247. FLOWER-POT. SARAH L. HUNTER, Little Rock, Ark. Filed Aug. 23, 1886. (No model.)

Claim.—A flower-pot formed of the outer sheet-metal vessel, *a*, having a spout, F, and apertures *f* and G near its upper edge, and the inner smaller vessel, *a'*, flared outwardly at its lower end, and there secured to the inner surface of the outer vessel, and the outward and downward bent flange a^3 around the upper edge of said inner vessel, overlapping and secured to the upper edge of the outer vessel, the lower part of the inner vessel having apertures C, communicating with the water-space B, formed between the said vessels, substantially as set forth.

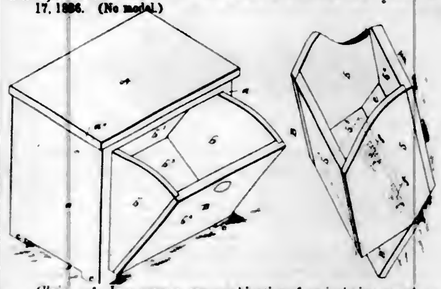


352,248. LOCK-UP FOR PRINTERS' FORMS. WALTER LLOYD, Chicago, Ill. Filed May 1, 1886. (No model.)



Claim.—The combination of the longitudinally-slotted bars A A', each provided with sets of ratchet-teeth c, which are oppositely arranged with respect to each other, the transverse bars C C', received in the slots of the bars A, and provided with sets of ratchet-teeth c', which are oppositely arranged with respect to each other, the triangular blocks D, provided with ratchet-teeth c'', and the expansible block D', formed of sections *d*, having ratchet-teeth c'', and a wedge, *e*, adapted to force the sections *d* apart, substantially as herein shown and described.

352,249. CABINET. JOHN LOUGHBRIDGE, Pikeville, Ohio. Filed May 17, 1886. (No model.)



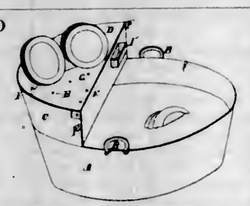
Claim.—1. In a cabinet, the combination of an inclosing-case having the battens a^2 and the connecting-bar a^4 at the sides and front thereof, and the tilting removable receptacle or bin eccentrically hinged to a false bottom, which is permanently attached thereto and carried thereby, the said bottom resting on the battens a^2 and against the edges of connecting-bar and the rear wall of the inclosing-case, substantially as described, for the purpose set forth.

2. In a cabinet, the combination of the inclosing-case having the transverse cleats a^3 at the sides and the connecting-bar a^4 at the front thereof, the triangular blocks D, secured to the front of the case and at the sides of the connecting-bar, the tilting receptacle or bin removably fitted in the case and having the side walls provided with the curved upper edges, and the inclined wall *e*, arranged at an acute angle with the front and bottom of the case and the false bottom permanently hinged to the case at its front edge, and where the inclined wall *e* joins the bottom, all arranged and combined substantially as described, for the purpose set forth.

352,250. DISH-BASIN. DANIEL LOMBERT, Centreville, Mass. Filed May 26, 1885. (No model.)

Claim.—The combination of the draining-receptacle C, segmental in shape, having inclined sides D, contracted at their lower ends, and front E, and perforated and inclined bottom G, cut away at *g*, with the dish-basin A, substantially as and for the purpose described.

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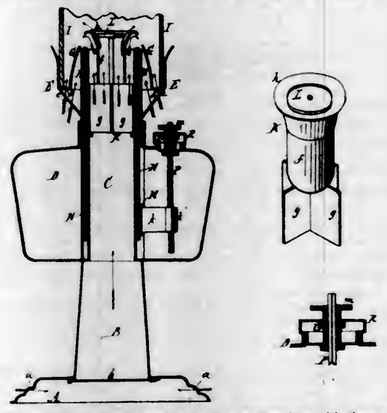
352,251. SELF-ACTING SAFETY-GATE FOR SWING-BRIDGES. HENRY MARCHETER, Wallaceburg, Ontario, Canada. Filed Feb. 18, 1886. (No model.)



Claim.—1. The combination, with the swing provided with the bar M, of the double lever G, provided with the head H, and connections of the said lever with the rising and falling gate, substantially as described.

2. The combination, with the rising and falling gate, of the chains D, passing oppositely from the lower part of the said gate over the sheaves I, arranged substantially as described, and at their ends connected respectively to the weight C and lever G, substantially as and for the purpose set forth.

352,252. LAMP. EDWARD J. MCKOWN, Rochester, N. Y., assignor to William H. Vick, same place. Filed May 6, 1886. (No model.)



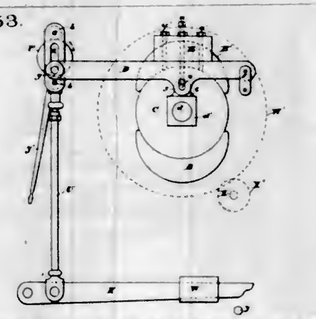
Claim.—1. In an Argand lamp, the combination, with the central air-tube, of the attachment K, consisting of the inner tube, *f*, the radial wings *g g*, the main button *h* at the top of the tube, with its outer edge curved outward, and the auxiliary button L inside the main button, as shown and described, and for the purpose specified.

2. In an Argand lamp, the combination, with the central air-tube, of the attachment K, consisting of the inner tube, *f*, radial wings *g g*, the main button *h* and auxiliary button L, and the exterior cone, G, surrounding the wick-tube, as shown and described, and for the purpose specified.

3. The combination, with a central-draft lamp, of the wick-raiser M and screw P, and the hollow filling-cap R, provided with an interior socket-piece, *l*, which is capable of turning, and through which the upper square end of the screw passes loosely, the screw receiving motion with the socket-piece as it is turned, as set forth.

352,253. MACHINE FOR PRESSING FABRICS. GEORGE W. MILLER, Woonsocket, R. I. Filed Jan. 6, 1885. (No model.)

352,253.



Claim.—1. The combination, with the cylinder and upper and lower beds and cylinder bearings, of levers D, having loose connections with the bearings of the cylinder, and arranged to lift the upper bed when elevated, and the weighted levers R, rods U, movable connections between the rods and levers D, and stops *y*, all substantially as set forth.

2. The combination of the cylinder, its shaft, lower fixed bed, upper movable bed, levers D, connected to the upper bed and loosely connected with the cylinder-bearings, wheel W' upon the shaft of the cylinder, pinion X', shaft X, weighted levers R, rods U, adjustable connections between the rods and levers D, and rods *y*, substantially as set forth.

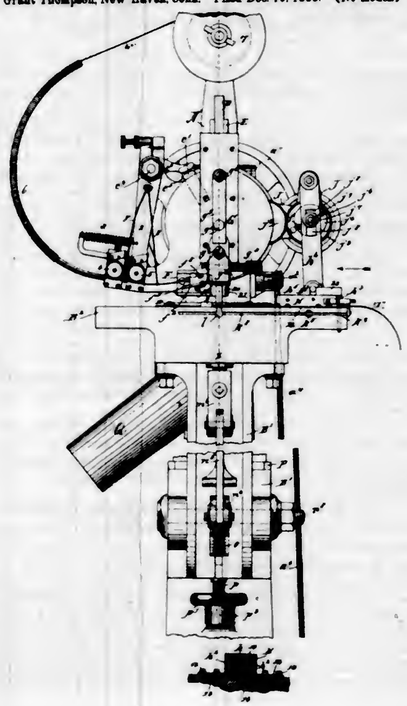
3. The combination of the cylinder-bearings *d'*, lower fixed bed, B, upper bed, B', levers D, connected to the upper bed and having slotted ears 5, devices, substantially as described, for moving the levers, and ears on the bearings having pins extending into the slots of the ears 5, substantially as set forth.

4. The combination of the cylinder C, cylinder-bearings *d'*, beds B B', levers D, having connections with the bearings permitting of limited vertical play independently thereof, weighted levers R, rods U, and adjustable connections, substantially as described, between the rods U and levers D, substantially as set forth.

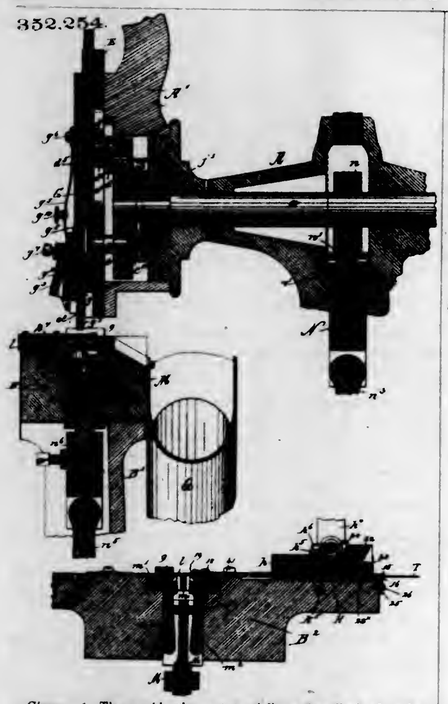
5. The combination, with the cylinder and upper and lower beds, B B', and continuous belts G and H, and belt-supporting rolls, of a roll, F, and belt F^2, passing round said roll and round the cylinder, substantially as set forth.

6. The combination of the cylinder-bearings *d'*, levers D, loosely connected to the bearings, and screw-bolts, substantially as and for the purpose set forth.

352,254. MACHINE FOR MANUFACTURING PIN-TAGS. SAMUEL E. MOWEN, New Haven, assignor to Henry G. Thompson, Milford, and H. Grant Thompson, New Haven, Conn. Filed Dec. 19, 1885. (No model.)



352,254.



Claim.—1. The combination, substantially as described, of a wire-feed, a wire-cutter, a reciprocating staple-former, and a driver-bar and driver, with a tag-strip feed-slide, and a tag-cutter provided with a stationary and a movable cutting member, for the purpose set forth.

2. The combination, substantially as described, of a wire-feed, a wire-cutter, a reciprocating staple-former, and a driver-bar and driver, with a tag-strip feed mechanism, a tag-cutter having a stationary and a movable knife, a tag-stop, and a tag-clearer or knock-off, for the purpose set forth.

3. The combination, substantially as described, with a staple-former and a staple-driver, of a stationary anvil and a pair of clinchers or folders arranged below the anvil, as and for the purpose set forth.

4. The combination, substantially as described, with a staple-former and a reciprocating driver, of a tag-strip feed-slide provided with a movable block mounted on inclined ways in the feed-slide, and a lever engaging said block to move it in the feed-slide and to actuate the slide, as and for the purpose set forth.

5. In a machine for manufacturing pin-tags, the tag-strip feed-slide provided with inclined ways, and the clamp-block mounted in the ways, a stud secured to the clamp-block, combined with a block pivoted to the slide, and having a clamp-roll, and a reciprocating lever to engage first the stud and then the pivoted block, as and for the purpose set forth.

6. In a machine for manufacturing pin-tags, the tag-strip feed-slide having inclined ways, combined with a clamp-block adapted to slide on the ways, and an elbow-arm secured to the slide and provided with an adjusting-screw to engage the clamp-block and regulate its movement in the slide, as and for the purpose set forth.

7. The table provided with a stop and a tag-strip feed-slide, combined with a tag-cutter having a stationary knife secured to the table, and a movable knife, and with a reciprocating tag-clearer adapted to move between the stop and the stationary knife of the tag-cutter, for the purpose set forth.

8. The head A′, provided with a wire-cutter having an opening for the passage of the wire, and having a stationary knife and a movable or pivoted knife, combined with the reciprocating driver-bar having a groove in its face, as specified, of the cut-bar pivoted to the face-plate and provided with a screw, g^3, and a catch, g^4, substantially as described.

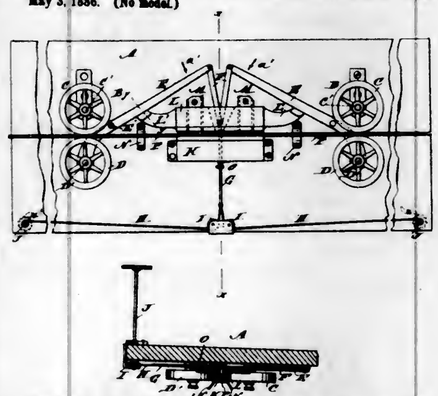
9. The head A′, provided with a wire-cutter having an opening for the passage of wire, a stationary knife, and a pivoted knife, combined with the reciprocating driver-bar having a groove in its face, the former having a transverse groove in its face, as specified, the face-plate having a transverse groove, g, and the cut-bar pivoted to the face-plate and provided with a screw, g^3, a catch, g^4, and a spring to throw the lower end of said cut-bar outward from the face-plate, as and for the purpose set forth.

10. The combination, with the clincher-carrier provided with a pair of clinchers pivoted thereto, and the main shaft provided with a cam-wheel, n, of the spring-actuated roller-carrier, the pivoted lever n^4, and connecting-rods and coupling, whereby motion from the main shaft is transmitted to the clincher-carrier, substantially as described.

11. The combination, with the main shaft provided with a gear, the bracket I, having an auxiliary shaft provided with a gear, and the idle-gear j^3, and a cam-wheel, of a spring and sleeve encircling said shaft, the sleeve having a roll, as specified, the arm k^4, the slide-rod k^3, the lever k^2, and connected tag-clearer, as and for the purpose set forth.

12. In a machine for manufacturing pin-tags, the table having the plates 15 16, and the plate 25, combined with the feed-slide and its contained clamp-block having the pivoted stop provided with the press-roll, substantially as described.

352,255. CABLE-GRIP. GEORGE MULLER, Hoboken, N. J. Filed May 3, 1886. (No model.)



Claim.—1. In a cable-grip, pulleys turning on stationary spindles, and a stationary clamping-plate, in combination with levers actuated from the brake-shaft, pulleys mounted on stationary spindles on the said levers, and a movable clamping-plate operated by the said levers in such a manner that the cable is first gripped by the said pulleys and then by the clamping-plates, substantially as and for the purpose set forth.

2. In a cable-grip, sets of pulleys, each set composed of a pulley turning on a stationary spindle, and of a pulley turning on a spindle attached to a lever operated from the brake-shaft, in combination with two clamping-plates, of which one is stationary and the other mounted to slide by the action of the levers, each carrying one pulley, substantially as shown and described.

3. In a cable-grip, the sets of pulleys B and the clamping-plates K and L, in combination with the levers E, the links F, and the rod G, operated from either end of the platform, substantially as shown and described.

4. In a cable-grip, the pulleys C, turning on the stationary spindles C′, the pulleys D, turning on the spindles D′, the levers E, the links F, and rod G, operated from either end of the platform, in combination with the clamping-plates K and L, substantially as shown and described.

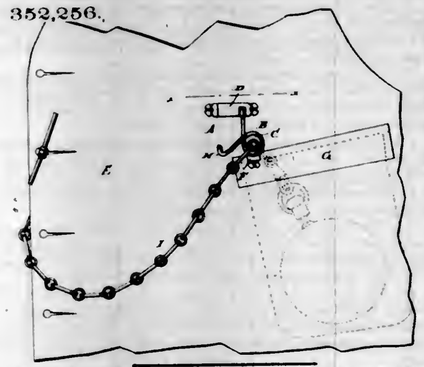
5. In a cable-grip, the pulleys C, turning on the stationary spindles C′, and the stationary clamping-plate K, in combination with the pulleys D, turning on the spindles D′, the levers E, carrying the spindles D′, and connected by the links F with the rod G, operated from either end of the platform A, and the sliding clamping-plate L, substantially as shown and described.

352,256. SAFETY ATTACHMENT FOR WATCHES. DANIEL NETTEKOVEN, Fort Shaw, Mont. Filed June 9, 1886. (No model.)

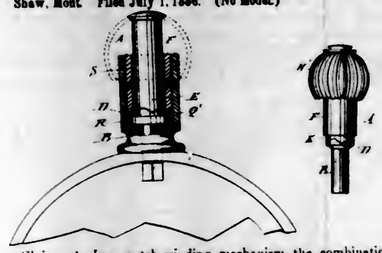
Claim.—1. In a watch-protector, the combination of a hook with two bars, of which one is secured to the body part of the garment and the other to the pocket of the garment, said hook being curved into a loop and having its one portion extending past and disposed out of contact with its other portion to form the entrance-opening to said loop for the reception and passage of the chain into and through the loop, substantially as shown and described.

2. In a watch-protector, the combination of the hook B, having the loop C, and having its free end H in close contact with the top part of the garment, with the cross-bar D and the bar F, said hook being curved into a loop and having its one portion extending past and disposed out of contact with its other portion to form the entrance-opening to said loop for the reception and passage of the chain into and through the loop, substantially as shown and described.

352,256.



352,257. WATCH-PENDANT KEY. DANIEL NETTEKOVEN, Fort Shaw, Mont. Filed July 1, 1886. (No model.)



Claim.—1. In a watch winding mechanism, the combination of a tension-clutch on the winding mechanism with a device for regulating the tension of the clutch, substantially as shown and described.

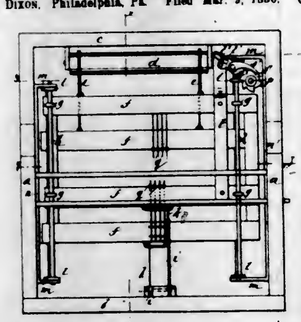
2. In a watch-winding mechanism, the combination of a tension-clutch on the winding mechanism with a spring for regulating the tension of the said clutch, substantially as shown and described.

3. In a watch-winding mechanism, the combination of a tension-clutch consisting of the ratchet-wheel D on the shank B, and of the ratchet-wheel E on the stem F, with a spring for regulating the tension between the ratchet-wheels D and E, substantially as shown and described.

4. In a watch-winding mechanism, the combination of the stem F, provided with the ratchet-wheel E, with the shank B, provided with the ratchet-wheel D, the shaft G, formed on the shank B, the spring I, coiled on the said shaft G, the collar J, and the nut K, screwed on the said shaft G, substantially as shown and described.

5. In a watch-winding mechanism, the stem F, the ratchet-wheel E, formed on the same, and the cap L, in combination with the shank B, the ratchet-wheel D, formed on the said shank, the shaft G, the spring I, coiled on the said shaft G, the collar J, and the nut K, screwing on the upper part of the shaft G, substantially as shown and described.

352,258. LOOM FOR CROSS-WEAVING. GEORGE OLDHAM and WILLIAM DIXON, Philadelphia, Pa. Filed Mar. 9, 1886. (No model.)

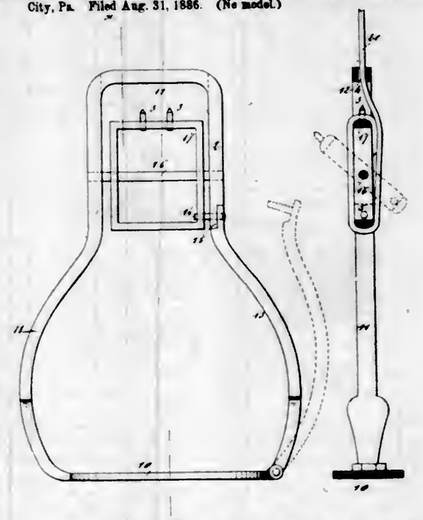


Claim.—1. The heddles f, the vertical rods h, to which the heddles are loosely attached, the plates l, in which the rods h are held, the supports m for the plates l, the latter being pivoted centrally to said supports, and the frame to which the supports are attached, in combination with the cam-shaft p and means, substantially as described, intermediate of said cam-shaft and one of the heddles, for actuating the cam-shaft, substantially as set forth.

2. The heddles f, the vertical rods h, on which they are placed, the centrally-pivoted plates l, that hold the said rods, the supports m for the plates l, and the main frame, to which the supports m are attached, in combination with the cam-shaft p, the ratchet s, the pawl s', the lever s^2, the plate t, and the pin or stud t', substantially as set forth.

3. The heddle-plate q, formed with the eye q', made near the end of the plate and in line with the width of the plate by carving the stock in opposite directions from a central slot, the point of the plate being beveled at q^2 from the outer edge entirely across the plate to the inner edge thereof, substantially as described.

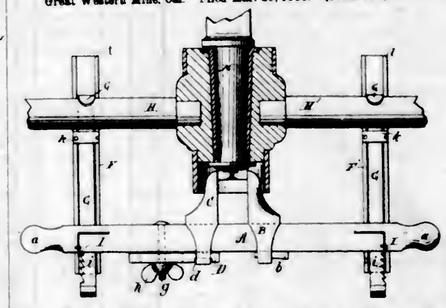
352,259. SAFETY-STIRRUP. ALLEN R. PARKISON, Monongahela City, Pa. Filed Aug. 31, 1886. (No model.)



Claim.—1. The combination, in a stirrup, of the rack mounted within the head of the stirrup, for the attachment of a strap, pins or hooks carried by the rack, and a locking attachment from one of the side bows, substantially as described.

2. The combination, with the stirrup, of a hinged section, 13, provided with the pin 14, a rack, 17, mounted upon a shaft, 16, and arranged within the head of the stirrup, and pins 3, carried by the rack, which rack is arranged to be engaged by the pin 14 of the section 13, substantially as described.

352,260. WRENCH. JOHN M. PARSONS and WILLIAM H. PARSONS, Great Western Mine, Cal. Filed Mar. 29, 1886. (No model.)



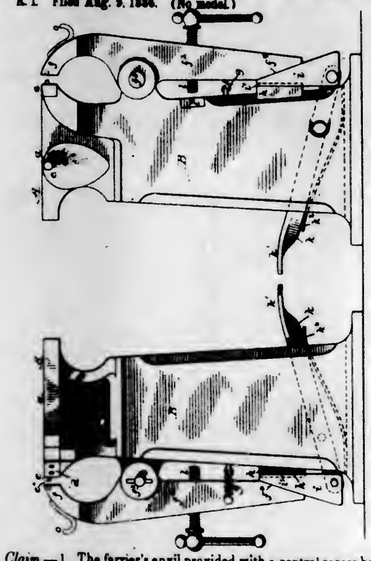
Claim.—1. In a wrench, the combination of a handle-lever, jaws on said lever, means for adjusting the jaws on the lever, arms projecting from the said lever near its ends, sliding hooks on the said arms, and catches for locking the sliding hooks on the arms, substantially as herein shown and described.

2. In a wrench, the combination, with a lever-arm, of jaws, one of which is adjustable, extending arms F F″, formed with recesses l, hooks G, mounted in said recesses and provided with ratchet-teeth i, and a

spring-catch, I, carried by the lever-arm and arranged to engage with said ratchet-teeth, substantially as described.

3. In a wrench, the combination, with a lever-arm, of a jaw, B, keyed thereto, a jaw, C, arranged in connection with an adjustable plate, D, a bolt, *g*, and a winged nut, *h*, arms F F', hooks G, provided with ratchet-teeth *i*, and a spring-catch, I, substantially as described.

352,261. **FARRIER'S ANVIL.** CHARLES H. PERKINS, Providence, R. I. Filed Aug. 9, 1886. (No model.)



Claim.—1. The farrier's anvil provided with a central recess beneath the anvil-face and at its front side, substantially as described, for the free reception of one heel of a horseshoe while the other is being squared up on the anvil-face.

2. A farrier's anvil having a shoe-heel-receiving recess beneath its face at its front side, and a horn projecting from its rear side and substantially at right angles thereto, substantially as described.

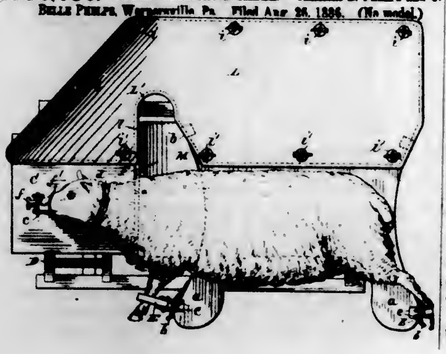
3. The combination, with an anvil, of clamping-jaws, a treadle for putting said jaws into prompt service, and a vise-screw for operating independently of said treadle in the use of said jaws as a vise.

4. The combination, with an anvil, of a movable clamping-jaw, a jaw-lever, the sliding wedge, a treadle-lever for reciprocating said wedge in clamping, and springs for respectively returning the clamping-jaw and the wedge to their normal positions, substantially as described.

5. The combination of the anvil recessed beneath its face centrally at its front side, and having the angular vertical face at one end, the horn projecting from its rear side, and the clamping-jaw operated by a treadle, substantially as described.

6. The combination, in a farrier's anvil, of a pair of clamping-jaws and a central punctaring-stud projecting from one of said jaws, substantially as described, whereby a shoe may be securely held against vertical displacement while forming a toe-lip or a toe-calk.

352,262. **SHEEP-SHEARING TABLE.** CHARLES B. PHELPS and J. BELLE PHELPS, Watsonville, Pa. Filed Aug. 26, 1886. (No model.)



Claim.—1. A sheep-shearing table composed of a main table and an auxiliary table arranged to form a space, F, between their adjacent edges, the main table being provided with fastening devices to hold the leg-stocks, substantially as described.

2. The sheep-shearing table composed of a main table, A, and an auxiliary table, C, arranged to form the space F between their adjacent edges, in combination with an apron attached to the main and auxiliary tables to receive the fleece, substantially as described.

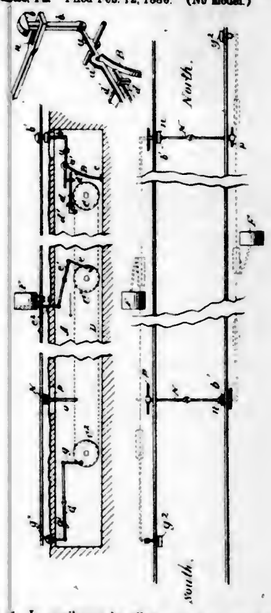
3. The sheep-shearing table composed of the main table A and auxiliary table C, arranged near the table A, and provided at the rear edge with fenders, in combination with the apron L, attached to the fenders and to the main and auxiliary tables, the fenders serving to hold the apron in an inclined position, substantially as described.

4. The sheep-shearing table composed of a main table, A, and auxiliary table C, arranged to form a space, F, between their adjacent edges, in combination with a fastening device attached to the auxiliary table C, for holding the sheep's head, substantially as described.

5. The sheep-shearing table composed of the main table A and auxiliary table C, arranged to form the space F between their adjacent edges, in combination with the rotary block *f*, attached to the auxiliary table C, and provided with the ring *f''* and straps *d*, substantially as described.

6. The leg-stock E, having fastening devices or loops *e*, and formed with the opening *m* and side openings, *m' m'*, in combination with the intermediate hinged block, m^2, arranged to close opening *m* and to retain the animal's legs in the openings *m'*, substantially as described.

352,263. **AUTOMATIC DANGER-SIGNAL.** EBBETT E. PHILLIPS, New Castle, Pa. Filed Feb. 12, 1886. (No model.)



Claim.—1. In a railway signaling apparatus, the combination, with a signal operated by a slide, of a chain mounted on sheaves and carrying a bar, *d*, a spring, B, and lever *a*, carrying stem *b*, and of means for operating the slide from the chain, substantially as described.

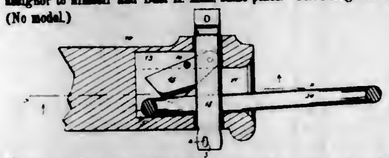
2. In a railway signaling apparatus, the combination, with a signal and its tripping mechanism, of a series of sheaves carrying a chain, and a mechanism for restoring the parts, consisting of a lever, G, connecting-rod *g*, and a stem, *g'*, having a bearing surface or head, *g''*, substantially as described.

3. In a railway signaling apparatus, the combination of the following elements, viz: stem *b*, having bearing-head, lever *a*, having notch *a'*, spring B, bar *d*, chain D, sheaves C C' C'', lever *e'*, signal-box F, slide *f*, connecting-rods *e* and *e''*, lever G, rod *g*, and stem *g'*, having a bearing surface or head, *g''*, substantially as described.

4. The combination, with two signal-operating mechanisms, substantially as described, of a lever, N, connected to the chain of one of said signaling mechanisms by the bar *o*, and connected to the stem *b* of the other signal-operating mechanism, substantially as described.

5. The combination, with two signal-operating mechanisms, substantially as described, of two levers N N, one end of each lever being slotted to engage with the stem *b* of each signaling apparatus, while the other end of each lever is slotted to engage with a rod, *o*, carried by the chain of the opposite signaling apparatus, substantially as described.

352,264. **CAR-COUPLING.** MARK M. REDUS, Lansborough, Miss., assignor to himself and Basil A. Man, same place. Filed Aug. 11, 1886. (No model.)



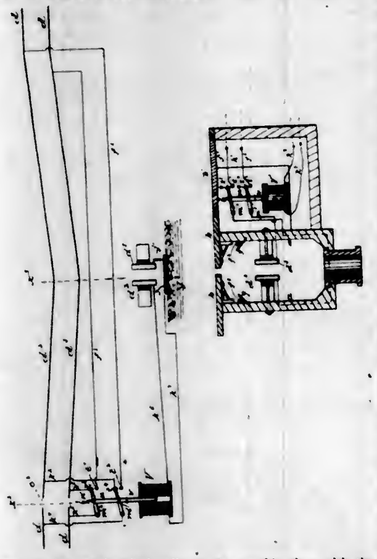
Claim.—1. In a car-coupling, the combination, with a draw-head, of tumblers pivotally mounted therein and connected by a rod, substantially as described.

2. In a car-coupling, the combination, with a draw-head formed with recesses 13, of tumblers formed with recesses 2 and pivotally mounted within the recesses 13, and a connecting-rod, 16, carried by the tumblers, substantially as described.

3. The combination, with a draw-head and its coupling pin and link, of tumblers pivotally mounted within the draw-head, and a rod carried by and connecting the tumblers, substantially as described.

4. In a car-coupling, the combination, with a draw-head formed with recesses 13 and an inclined lower defining-wall, 5, of a coupling link and pin and tumblers pivotally mounted within the recesses 13, said tumblers being formed with recesses 2 and connected by a rod, 16, substantially as described.

352,265. **ELECTRICAL RAILWAY.** ELIAS E. RICE, Baltimore, Md., assignor, by direct and mesne assignments, to Edward O. Punchard, Boston, Mass. Filed Jan. 9, 1886. (No model.)



Claim.—1. In an electrical railway, the combination, with the conducting rail or rails having a detached section, of a loop or loops bridging said section, and an automatic switch device operated by a rise of water, tending to short-circuit the conducting-rails, to cut said detached section out of circuit, substantially as described.

2. In an electrical railway, the combination, with the main conducting rail or rails having a detached section located at portions of the roadway subject to inundation, of a loop or loops bridging said detached portion, and switching devices arranged to be operated by a rise of water, tending to short-circuit the conducting-rails, to cut said detached sections out of circuit, substantially as described.

3. The combination, with the conducting rail or rails, of a break therein, a loop bridging said break and extending some distance on one side thereof, and switching devices for cutting out of circuit the portion of the conducting rail or rails lying between the end of the loop and the break, substantially as described.

4. The combination, with the conducting rail or rails located in conduits and having electrically-detached sections, one or more, of a loop or loops arranged to bridge said detached sections, electrically-operated switching devices arranged to shunt the current from said detached rail-sections to the loop or loops, and circuit-closing devices arranged to automatically close the circuit of said electrical switching devices, substantially as described.

5. The combination, with the conducting-rails located in the conduit and having electrically-detached depressed sections, of the loops arranged to bridge said section, the switches and connections for bringing said loops into or out of connection with other conductors, the solenoid or solenoids arranged to operate said switches, and means, substantially as described, for automatically closing an electrical circuit through said solenoid or solenoids, essentially as set forth.

6. In an electrical railway, the combination, with the conducting-rails having depressed electrically-detached sections, of loop-conductors permanently bridging said detached depressed sections, and switches and conductors arranged to connect said depressed sections in multiple arc with the bridging-loops, and to automatically break such connection as required, substantially as described.

7. The combination, with the conducting-rails having depressed detached sections, of the loops bridging said detached sections, the switches and conductors arranged to connect said detached sections with the bridging-loops, a solenoid arranged to actuate said switches, and the terminal plates arranged to close an electric circuit to said solenoid when water rises in the conduit to connect said terminal plates, as set forth.

8. In an electrical railway, the combination, with the conducting-rails inclosed in a conduit and having detached sections, of the loop or cable conductors bridging said detached sections, and suitable switches for connecting the bridging-loops to and automatically disconnecting them from said detached conducting-rail sections, substantially as described.

9. In an electrical railway, the combination, with the conducting-rails inclosed in a conduit and having depressed or low-lying detached section, of a loop for connecting said depressed sections electrically with the main portions of the conducting-rails, and a switch device operating by a rise of water in the conduit to automatically break the connection between the detached section and the main portion of the conductors, substantially as described.

10. In an electrical railway employing conducting-rails inclosed in a conduit and having detached sections, the combination, with the conduit, of the side chambers, the switching devices arranged in said side chambers, and suitable electrical connections, whereby said switching devices are adapted to make or break electrical connection between the detached sections and the main portion of the conducting-rails, said switches being arranged to be operated by the rising of water in the conduit, as set forth.

11. In an electrical railway having one or more conducting-rails provided with detached conducting-sections, said sections being normally in electrical connection with the main portions of the rails, switch devices operated by a solenoid in a derived circuit, and means for completing said derived circuit for breaking said electrical connection, substantially as described.

12. In an electric railway, the combination, with the main conducting-rails inclosed in a conduit and having detached or insulated low-lying conducting-sections, of the loop-conductors or cable bridging said detached sections, suitable switches for alternating the main conducting-rails with their detached sections and with the loop-conductors, one or more solenoids or equivalent electro-magnetic devices for operating said switches, a source of electricity, and means, substantially as described, consisting of a suitable arrangement of circuit-connections and terminal or circuit-closing plates, whereby when water rises in the conduit beyond a predetermined height the solenoid or solenoids or their equivalent devices will be energized to cut out the said detached or low-lying sections, substantially as set forth.

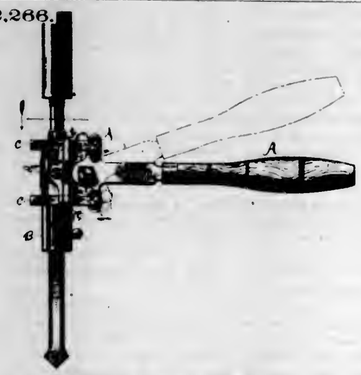
13. In an electric railway, the combination, with the conducting rail or rails having low-lying detached or insulated conducting-sections normally in electrical connection with the main portions of said rail or rails and carried in an underground conduit, of automatic switching devices operated by the action of water rising in the conduit to shunt the current around said detached or insulated low-lying sections through one or more supplementary overhead loop-conductors connected with the main portions of the conducting rail or rails at both sides of said sections, and means, substantially as described, whereby an electric motor traveling upon said detached or cut-out section of the railway may be supplied with current from the supplementary conductor or conductors, substantially as and for the purpose set forth.

352,266. **RATCHET-DRILL.** MICHAEL ROTHFUSS, Williamsport, Pa. Filed Aug. 16, 1886. (No model.)

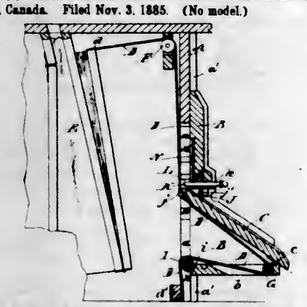
Claim.—The drill-holder B, constructed with two ratchet-wheels, *d d*, and fitted with a sleeve, L, in combination with the ratchet-bars *c c*, operated by the lever A, substantially as described.



352,266.



352,267. ADJUSTABLE ORGAN-PEDAL. JOHN T. ROWE, Aylmer Ontario, Canada. Filed Nov. 3, 1885. (No model.)



Claim.—1. An adjustable pedal for organs, consisting of a pedal-carrying frame fitted to slide vertically on the organ-case, and a flexible webbing or bands having one end connected to the bellows and the other end passed down under the free ends of the pedal, thence over a guide in the hinged end of the said pedal, thence back through the same and secured to the organ-frame, substantially as herein shown and described.

2. The combination, with an organ-case, of a pedal-carrying frame adjustably secured thereto and provided with a roller at its inner lower portion, a flexible webbing or bands secured to the bellows passed down into the pedal and over a guide in the hinged end of the pedal, thence over the roller in the pedal-frame and secured to the organ-case, and a curtain secured to the said roller and organ-case, substantially as herein shown and described.

3. In adjustable pedals for organs, the combination, with the organ-case front A, having an opening, *a*, and a pedal-frame and pedals, B C, fitted to slide on the case, substantially as and for the purpose specified, of a curtain arranged to cover the lower part of the case-opening *a* when the pedal-frame is raised, substantially as herein set forth.

4. In adjustable pedals for organs, the combination, with the case-front A, having an opening, *a*, the pedal-frame and pedals B C, fitted to slide on the case, and webbing strips D D, connected at opposite ends to the bellows and organ-case and guided beneath the pedals, of a roller, I, and curtain H, wound thereon, located beneath the webbing strips, substantially as shown and described, whereby when the pedal-frame is raised and lowered the curtain will be unwound and wound, respectively, by the frictional contact of the webbing, as set forth.

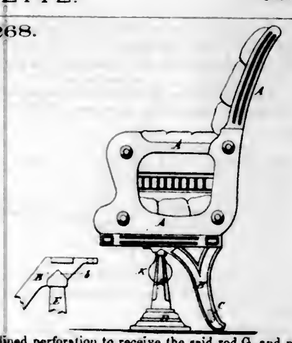
5. In adjustable pedals for organs, the combination, with the organ-case front A, having an opening, *a*, and a pedal-frame and pedals B C, fitted to slide on the case, of plates J, held adjustably to the pedal-frame, and having bent ends *j* standing at the inside of the case-front, substantially as herein set forth.

6. In adjustable pedals for organs, the combination, with the pedal-carrying frame fitted to slide on the organ-case and arranged relatively to the webbing strips D to operate the bellows at any vertical adjustment of the pedals, substantially as specified, of the spring-pressed bolts K K, adapted to notches or holes M M in the organ-case, and having end parts, *k k*, projecting at the front of the instrument, substantially as herein set forth.

352,268. REVERSIBLE CAR-SEAT. JOHN M. SAUDER, Harrisburg, Pa. Filed Feb. 12, 1886. (No model.)

Claim.—1. The combination, with a car-seat, A, of the inclined rod G, having recesses H in the upper side, and its support, the block K,

352,268.

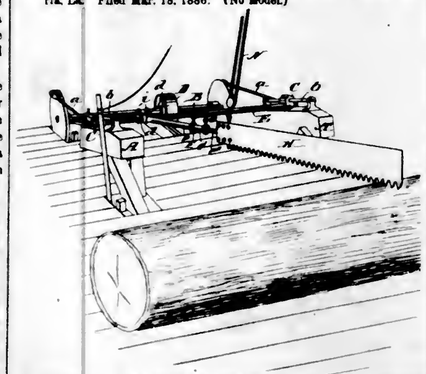


having inclined perforation to receive the said rod G, and provided with a countersunk vertical perforation, the pin I, placed in the said vertical perforation, having its lower end wedge-shaped and held down by a spiral spring, the pivoting-bolt O, provided with a nut and spring-washer, and the perforated base-block N, concaved upon the lower side to receive the rounded upper end of the sliding block K, and upon its upper side to receive the spring-washer and the nut of the pivot-bolt, substantially as herein shown and described, whereby the said seat can be moved inward and upward, swung through half a revolution, and moved outward and downward to its place, as set forth.

2. In a reversible car-seat, the combination, with a car-seat, A, having V-shaped recesses in the under side of its ends, and the inclined rod G, carrying the sliding block K, provided with a spring-pressed pin, I, and pivoted to a base-block attached to the car-seat, of the pedestal D, provided with arms E, having sockets F, and having the upper side of their ends V-shaped to engage with the V-shaped recesses of the said seat, substantially as herein shown and described, whereby the said reversible car-seat will be firmly supported without front legs, as set forth.

3. The combination, with a car-seat and an inclined rod supported beneath the said seat, of a diagonally-apertured block, to which the said seat is pivoted, and means for locking the rod in the aperture of the said block, substantially as set forth.

352,269. FIRE-WOOD DRAG-SAW. BENJAMIN F. SHINN, New Iberia, La. Filed Mar. 18, 1886. (No model.)



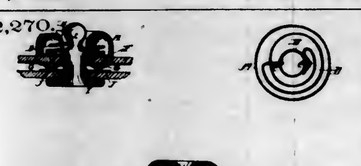
Claim.—1. In a drag-saw, the combination, with a supporting-frame and inclined ways thereon, of a reciprocating cross-bar mounted on the inclined ways, a saw-arm adjustably pivoted on the cross-bar, and means for reciprocating the said cross-bar, substantially as herein shown and described.

2. In a drag-saw, the combination, with a supporting-frame and inclined ways thereon, of a reciprocating cross-bar mounted on the inclined ways, an adjustable saw-arm adjustably pivoted on the cross-bar, a saw-supporting tackle, and means for reciprocating the said cross-bar, substantially as herein shown and described.

3. The combination, with a drag-saw and its supporting-tackle, of the following elements: a saw arm or pitman formed of telescopically-united sections, a driving-bar, E, mounted on inclined ways *b b*, the saw-arm being loosely connected to the driving-bar and held in position by collars *d*, that are provided with set-screws *i*, substantially as described.

352,270. BUTTON. MADISON D. SHIPMAN, De Kalb, Ill. Filed Jan. 27, 1886. (No model.)

352,270.



Claim.—1. In a separable button, the hollow cap and tube A B, formed integral, the hollow cap portion being the button-top proper, and the tube portion being the means for uniting the connected button-top with the fabric or a piece on the fabric by clinching, substantially as and for the purpose set forth.

2. As an improved article of manufacture, a separable button consisting of a hollow cap and a tube both formed in one piece, a spring having its point projecting through the tube, the cap being adapted to receive and hold the spring and the tube having a hole to receive the point of the same, and a slip-stud provided with an annular groove or notch, into which the point of the spring catches, substantially as described.

3. In a separable button, a tube perforated at its side to receive the spring and made of increased thickness around the tube near the perforation, substantially as and for the purpose specified.

4. A stud having a base provided with an inwardly-turned flange and an enlargement near the junction of the stud and base, constructed to deflect the fastening-eyelet toward the flange and under the same, substantially as described.

352,271. FASTENING FOR GLOVES AND OTHER ARTICLES. SAMUEL W. SHOREY, Boston, Mass. Filed Aug. 16, 1886. (No model.)

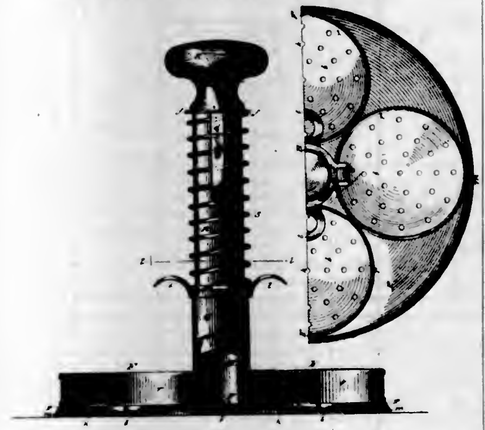


Claim.—1. The improvement in fastenings for gloves and other articles, comprising the cap *e*, the washer *d*, adapted to be riveted together, as described, said washer having combined therewith the parallel wires *g*, passing through the upright sides near the rim thereof, substantially as described.

2. The combination, with the washer of the socket member of a ball-and-socket fastening and the parallel wires *g*, of the ball member of the fastening, substantially as described.

3. As a member of a ball-and-socket fastening for garments, &c., a cap-washer, *d*, perforated for riveting to another member to be located on the opposite side of the material, which cap-washer is traversed by two parallel wires, *g*, attached thereto, substantially as and for the purposes described.

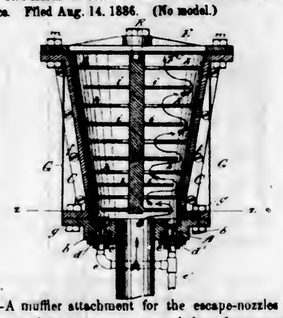
352,272. EGG-POACHER AND EGG-FRIER. WILLIAM H. SILVER, New York, N. Y. Filed Dec. 2, 1885. (No model.)



Claim.—1. In combination with a superposed nesting-frame, a surface-plate having depending shallow cups or bulbs integral therewith and perforated with small holes, and a depending rim surrounding the area within which said bulbs depend, substantially as herein specified, for the purposes set forth.

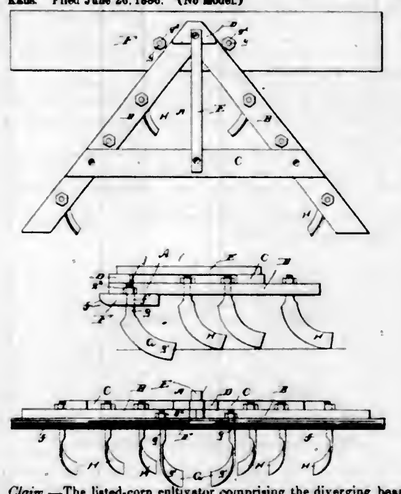
2. The combination, in a utensil for poaching or frying eggs, of a surface-plate having a central handle fixedly attached thereto perpendicular to its upper surface, a superposed nesting-frame movable vertically clear of said surface-plate and having a handle by which to so lift it relatively to said surface-plate, and a central spring which normally holds said nesting-frame down upon said surface-plate, substantially as herein specified.

352,273. STEAM-MUFFLER. REINALDO SOLANO, Brooklyn, N. Y., assignor of two-thirds to John W. Howard and David R. Morse, both of same place. Filed Aug. 14, 1886. (No model.)



Claim.—A muffler attachment for the escape-nozzles of vacuum-brake ejectors or other steam-escapes, consisting of an annular chamber formed of a separable casting, A, having a series of inwardly-projecting annular flanges, and a central core or casting, D, having a series of outwardly-projecting flanges arranged alternately, as described, for diverting the course of the passing steam, said chamber communicating openly with the steam-escape and with the atmosphere through a perforated or gauze covering, and fitted with suitable drip-valves, as set forth.

352,274. LISTED-CORN CULTIVATOR. DAVID SOMMER, Abilene, Kans. Filed June 26, 1886. (No model.)

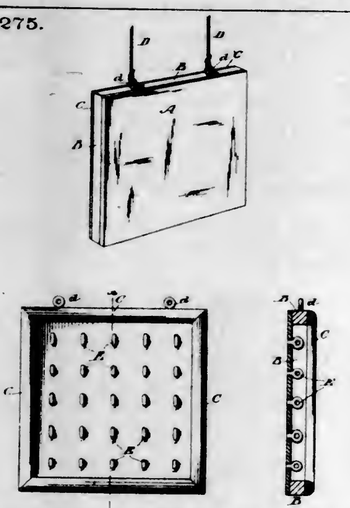


Claim.—The listed-corn cultivator comprising the diverging beams B, the beam C, connecting the said beams B, the transverse leveling-beam F, attached to the front ends of the beams B, on the under side thereof, the inwardly-curved teeth H, attached to the diverging beams B, and the inwardly-curved teeth G, attached to the beam F, near the beams B, the said latter teeth, G, extending deeper than the teeth H, substantially as described.

352,275. DEVICE FOR CLOSING OPENINGS IN THE HULLS OF VESSELS. JOHN SPERR, Jersey City, N. J. Filed Mar. 29, 1886. (No model.)

Claim.—A device for closing apertures in vessels, consisting of a plate having a flange or strip surrounding its outer edges on one side of the plate, packing-strips or cushions of the width of the flanges and re-

352,275.



cured thereto, eyebolts secured to the outer side of the flange or strip for receiving ropes for raising and lowering said plate, and eyebolts on the inner side of the said plate for receiving ropes for securing the plate in place from the inside of the vessel, substantially as shown and described.

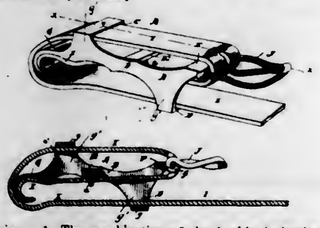
352,276. LEVEL, PLUMB, AND ANGLE-GAGE. William R. St Clair, McKenzie, Tenn. Filed June 3, 1886. (No model.)



Claim.—1. The case having the dials N and S, arranged at right angles to each other, the weighted index-hands M and R, adapted to swing over the said dials, the pendulum-rod V, pivoted at one end of the case and having the pointer V', and the graduated card or scale Z at the opposite end of the case, over which the pointer V' swings, substantially as described.

2. The combination, in a level, of the shaft P, having the arm T and the index-hand R, with the weighted pendulum-rod U, engaging with the arm T, for the purpose set forth, substantially as described.

352,277. BUCKLE. Sidney N. Stevens, North Lawrence, N. Y. Filed Sept. 4, 1886. (No model.)



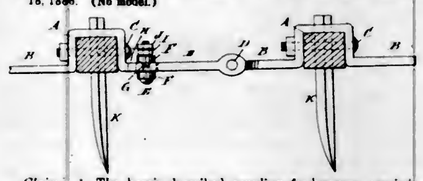
Claim.—1. The combination of the buckle A, having the open loops C D, arranged on opposite sides thereof, and the curved clip G, the strap fitted within the clip at one end and passing through the loops and around the buckle, and the buckle J, fitted in a doubled portion of the strap, and having its tongue passing through the same, substantially as described.

2. The herein described buckle, comprising the side bars, the transverse bar connecting the side bars at one end, a middle cross-bar connecting the side bars and having the angular draw-stud, the open loops arranged on opposite sides of the side bars, near the ends thereof and out of line with the same, and the curved clip connecting the opposite ends of the side bars, substantially as described, for the purpose set forth.

352,278. LINIMENT. Orrin W. Storer, Snelling, Cal. Filed July 6, 1886. (No specimens.)

Claim.—The herein-described composition of matter to be used as a liniment, consisting of wine, rock-salt, saltpeter, molasses, oil of vitriol, spirits of turpentine, and essence of sassafras, combined in the proportions substantially as herein described.

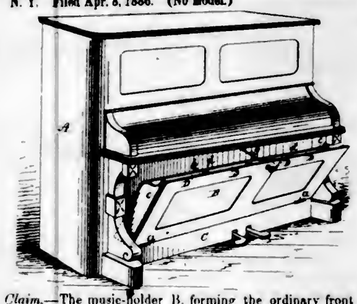
352,279. HARROW. Mathias C. Theisen, Diana, Dak. Filed May 18, 1886. (No model.)



Claim.—1. The herein-described coupling for harrows, consisting of the bars B, each provided with a bend for receiving the tooth-bars, and one formed with a slot and the other with a tongue pivoted in said slot at the ends of its prongs, and buttons pivoted to one bar for locking the free end of the tongue in the slot, as set forth.

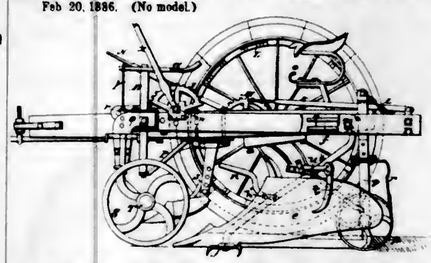
2. In a harrow, the combination, with the tooth-bars A and the coupling-bars B, having hinge-joints, of the buttons F, having lips G, and the fastening-bolts E and nuts I J, substantially as herein shown and described, whereby the hinge-joints of the coupling-bars can be made rigid, as set forth.

352,280. UPRIGHT-PIANO CASE. Hermann Toaspern, Brooklyn, N. Y. Filed Apr. 8, 1886. (No model.)



Claim.—The music-holder B, forming the ordinary front panel of the case of the piano, located between the pedals and the key-board and hinged to the base C, between the end uprights of the case, and provided upon its inner surface with partitions for forming the music-receptacles D, substantially as described.

352,281. SULKY-PLOW. John S. Trimble, Shelby, Ohio. Filed Feb 20, 1886. (No model.)



Claim.—1. In a sulky-plow, the combination, with the frame proper, of the plow-beam and its plow, the beam being slidingly connected with the said frame, an anchor secured to the frame, and a lever connected with the plow-beam and mounted upon said frame and adapted to draw the beam back while the frame is held against forward movement by the anchor.

2. In a sulky-plow, the combination, with the frame proper and its supporting-wheels, of the plow-beam having a plow attached thereto and provided with an elongated opening, a bolt passing through the same and secured to the frame, an anchor and a lever pivoted to the frame, the anchor being adapted to engage the ground and the lever being connected to the beam, whereby the plow may be moved rearwardly without moving the frame proper or backing the team.

3. In a sulky-plow, the combination, with the frame proper having a bolt or shaft extending across the same, of the plow-beam having a slot therein through which the bolt passes, an anchor pivoted to the

frame, extending in a forward direction and adapted to engage the ground forward of its pivotal point, and a lever mounted upon the frame and connected with the beam, by actuating which the beam is thrown back with respect to the frame.

4. In a sulky-plow, the combination, with the frame thereof, of an anchor-bar pivoted thereto, extended in a forward direction and adapted to engage the ground forward of its pivoted point.

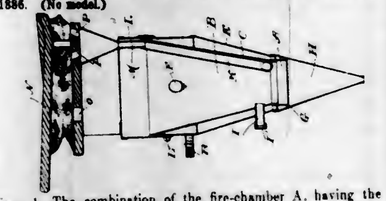
5. In a sulky-plow, the combination, with the frame proper having a transverse bolt, a crank, and means to adjust and hold the crank, of the plow-beam having a slot which receives said bolt and slotted plates which receive said crank, and an anchor and a lever to back the beam with respect to the frame.

6. In a sulky-plow, the combination, with the plowshare and its standard, of a sod-cutter consisting of the arm having a series of holes in either end, secured at one or the other of said holes at one end to the standard, and the cutting-blade having a number of holes at one end registering with those in the arm, so as to be secured thereto at different angles, and standing substantially in a vertical line and near the share, so as to divide the sod as it falls to the ground from the share.

7. In a sulky-plow, the combination, with the frame proper and a plate secured thereto and constructed to form a bearing, of a caster-wheel having the upright portion of its shaft mounted in said bearing and provided with a segment having projections adapted to engage the plate and a notch, the spring-actuated locking-bolt, and the foot-lever connected thereto.

8. In a sulky-plow, the combination, with a plate forming a bearing, a spring-actuated locking-bolt, and a foot-lever connected therewith, of a caster-wheel having the upright portion of its shaft mounted in said bearing and provided with a segment having a notch and projecting lugs.

352,282. FUMIGATOR. Jos. Watson, Petaluma, Cal. Filed Mar. 23, 1886. (No model.)



Claim.—1. The combination of the fire-chamber A, having the openings F near its upper end, the outer casing, E, surrounding the fire-chamber, and thereby forming the chamber C, the spout H, secured to the lower end of the casing E, the tube I, passing from the fire-chamber out through the outer casing and having the cap or plug, and the pipe K, for conducting a blast of air to the bottom of the fire-chamber, for the purpose set forth, substantially as described.

2. In a smoking apparatus, the combination of an outer shell, a fire-chamber having a closed bottom and inclosed within the outer shell and out of contact therewith to form an intermediate space or chamber, the openings F, formed in the fire-chamber near its upper end and communicating with the chamber of the fire-box and the intermediate space, a spout attached to the lower end of the outer shell beneath the fire-chamber and having an open contracted discharge end to conduct the smoke, &c., from the intermediate space or chamber into the hole or burrow, and a bellows on the upper end of the fire-chamber, substantially as described, for the purpose set forth.

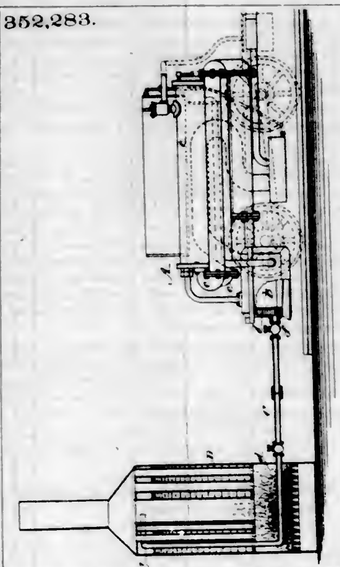
3. In a smoking apparatus, the combination of an outer tapering shell, a fire-chamber having a closed lower end and the openings F in its upper end, and arranged within and out of contact with the outer shell to form an intermediate space or chamber, a conical discharge-spout connected to the lower end of the outer shell and arranged beneath the fire-chamber, a bellows supported on the top of the fire-chamber, and a vertical pipe, K, communicating with the bellows and terminating above the bottom of the fire-chamber, substantially as described, for the purpose set forth.

352,283. METHOD OF HEATING WATER IN STEAM-GENERATORS. Frederick G. Wheeler, New York, N. Y. Filed Dec. 26, 1885. (No model.)

Claim.—1. The herein-described method of imparting initial heat to the water in the generator of a street-car or other motor, which consists in the injection of superheated steam into and through a water-chamber surrounding the fire-box of the generator, and from thence through a series of storage and circulating tubes connected therewith and arranged for the evolution of steam, essentially as specified.

2. In the method herein described of imparting initial heat to the water in the generator of a locomotive or motor-car, first generating steam in an independent boiler, then passing it under cover through the furnace of said boiler or through an independent furnace, and afterward through an adjustable or attachable and detachable pipe-connection to and through an intermediate water-chamber, and from thence to the

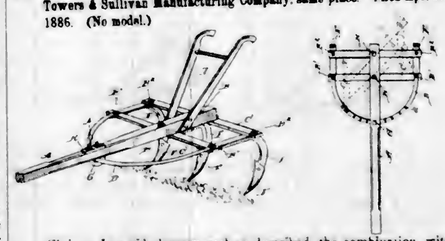
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generator and main water-supply, substantially as specified.

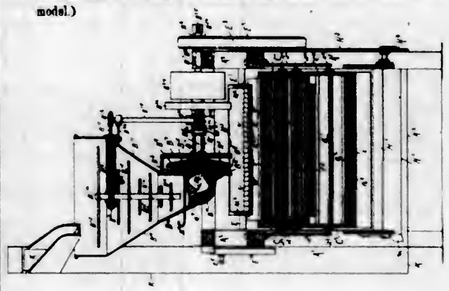
3. The combination, with the fire-box and water-chamber and water-circulating tubes of the generator of the motor, substantially as described, of a separate and detachable steam-generator provided with means adapted to superheat the steam generated therein, and to transmit such superheated steam to the water in the generator of the motor for the purpose of initially heating the water in the generator of the motor, as herein set forth.

352,284. HARROW. Arthur M. Word, Rome, Ga., assignor to the Towers & Sullivan Manufacturing Company, same place. Filed Apr. 17, 1886. (No model.)



Claim.—In a side harrow such as described, the combination, with the beam, cross-bars C, and middle standard E, pivoted together by bolts B, passed through said parts, of the curved end standards E, pivoted to the rear cross-bar and extending from there to the front bar, and the curved bar D, clamped to the beam and connected at opposite ends to the front cross-bars by bolts B', which pivotally join the cross-bar and standards together, the several parts being arranged to operate substantially as and for the purpose set forth.

352,285. COTTON-SEED REDUCING AND SEPARATING MACHINE. David J. Ames, Owatonna, Minn. Filed Oct. 12, 1885. (No model.)

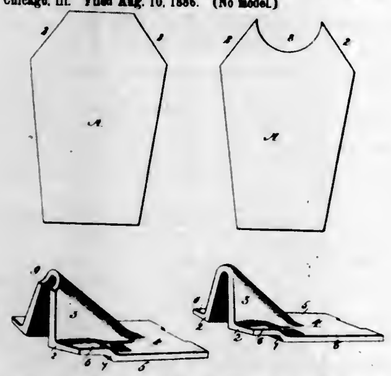


Claim.—1. In a machine for reducing cotton-seed, a reducing mechanism comprising a casing, B^2, vertical stationary grinding-disk B^3, vertical revolving disk B^9 B^8, horizontal feed-screw B^4, attached to the face of the revolving grinding-disk and extending through the stationary grinding-disk into the hopper, lower hopper, B^{10}, provided with grooves a^2 in its inner surface, upper hopper, B^{11}, and revolving agitating-fingers B^{15} in the upper hopper, substantially as and for the purpose herein set forth.

2. The herein-described grinding-mill comprising the vertical stationary grinding-disk B^3, vertical revolving grinding-disk B^9 B^8, horizontal feed-screw B^4, attached to the face of the revolving grinding-disk and extending through the stationary grinding-disk into the hopper, lower hopper, B^{10}, provided with grooves a^2 in its inner surface, upper hopper, B^{11}, provided with a hollow hanger, B^{12}, vertical shaft B^{14}, having its bearing in the said hanger and provided with agitating-fingers B^{15}, vertical shaft B^{16}, chain-gear B^{17}, connecting the said vertical shafts and running in the said hollow hanger, worm-wheel B^{22} on the shaft B^{19}, and worm B^{23} on the shaft of the revolving grinding-disk, substantially as and for the purpose herein specified.

3. The herein-described separator comprising the frame A', upper shoe C', the screens F' F^2, formed of inclined sections of inclined slats e' e', the inclined wire-cloth screen F^3, the backwardly-inclined suspension-rods d' d', the lower shoe, C^2, the carrier-board G', the corrugated and perforated metal screen G^2, the inclined slatted screen i, and the distributing-shoe M', having an inclined furrowed surface, c, and arranged above the feed end of said shoe, substantially as and for the purpose herein specified.

352,286. **MANUFACTURE OF RAIL-BRACES.** CHARLES ALKINS, Chicago, Ill. Filed Aug. 10, 1886. (No model.)



Claim.—1. The improvement in the art of manufacturing rail-braces consisting in striking up a metal blank into a hollow abutment rising from a base, with its front or abutting end and said base shaped to the portions of the rail against which the brace is to bear, substantially as described.

2. The improvement in the art of manufacturing rail-braces consisting in striking up between the two opposite side edges and at one end portion of a metal blank a hollow abutment, with its front or abutting end shaped to the portions of the rail against which it is to bear, substantially as described.

3. The improvement in the art of manufacturing rail-braces consisting in forming an oblong metal blank widening toward one end, and striking up a length of the wider end portion of said blank into a hollow abutment, with its front or abutting end and the material left as a base shaped to the portions of the rail against which the brace is to bear, substantially as described.

4. The improvement in the art of manufacturing rail-braces consisting in forming an oblong metal blank, A, widening toward one end, shearing or cutting off the corners at its wider end, as at 2 2, and striking up said blank into a hollow abutment, 3, rising from a base, substantially as described.

5. The improvement in the art of manufacturing rail-braces consisting in forming the blank A, cutting the same to form a notch, substantially as described, in one of its ends, and striking up said blank into an abutment, 3, rising from a base, and at its highest point shaped to the curvature of the edge portion of the tread of a rail, substantially as set forth.

6. The blank A for a rail-brace, widening toward one end, substantially as described.

7. The blank A for a rail-brace, widening toward one end and cut away at the corners of its wider end, as at 2 2, substantially as described.

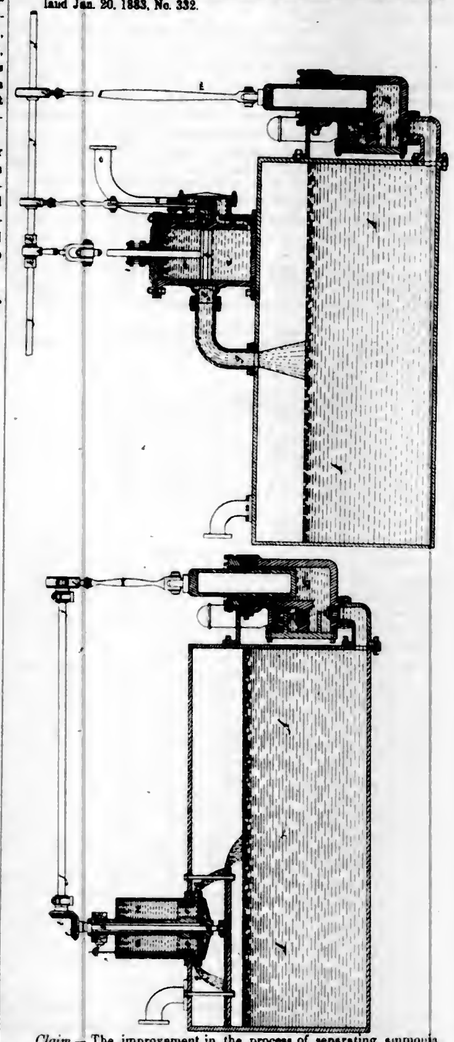
8. The blank A for a rail-brace, widening toward one end and notched at its widest end, as at 8, substantially as described.

9. A struck-up metal rail-brace having a hollow abutment rising from a base, substantially as described.

10. The struck-up metal rail-brace formed with the hollow abutment 3, rising from a base, 4, substantially as described.

11. The struck-up metal rail-brace formed with the hollow abutment 3, provided with a concavity, 9, and rising from a base, substantially as described.

352,287. **PROCESS OF REDUCING CURRENTS OF LIQUIDS IN VACUO.** MARCELLUS BAILEY, Washington, D. C., administrator of James Young, deceased. Filed Apr. 29, 1884. (No model.) Patented in England Jan. 20, 1883, No. 332.

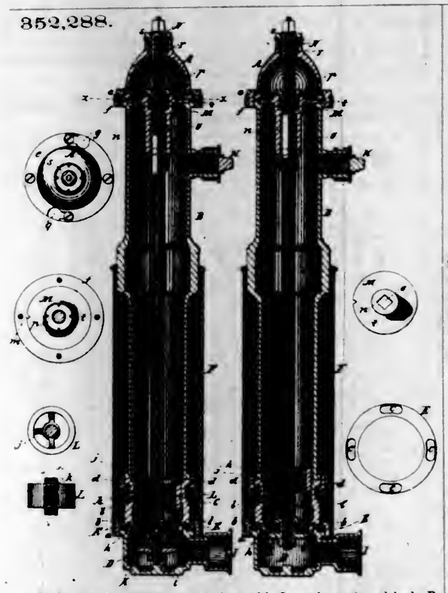


Claim.—The improvement in the process of separating ammonia from sewage or other liquids, which consists in maintaining a vacuum in the vessels in which the separation takes place and applying the force of the liquid entering the vacuum to remove the liquid from the vessel by suitable apparatus, substantially as described.

352,288. **HYDRANT.** PETER N. BARDO and THOMAS FORD, Newport Ky. Filed July 24, 1886. (No model.)

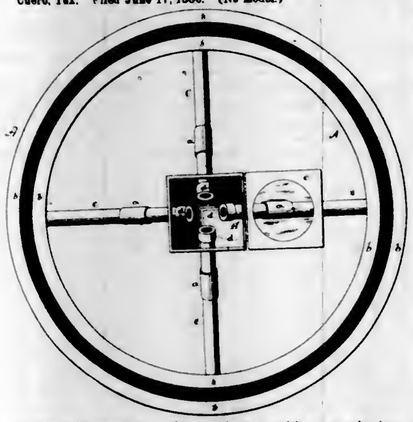
Claim.—1. The combination, with the valve-chamber D, having the flange a, of the ring E, bolted through segmental slots to said flange and threaded on its inner periphery, and the waste-chamber threaded at its lower end to engage with said ring, substantially as and for the purpose specified.

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2. In a hydrant, the combination, with flanged cap A and body B, the latter having a recessed flange, f, provided with detent m, of guide-piece M, having at its lower end a shank, n, with a square socket, and at its upper end a flange, t, fitting the recess in flange f, and having a notch for engagement with detent m, and valve-rod J, inserted through guide-piece M, and made square to conform to the socket of the guide, substantially as described.

352,289. **ANT-TRAP.** ROBERT H. BARNES and GEORGE C. SALLEE, Cuero, Tex. Filed June 17, 1886. (No model.)

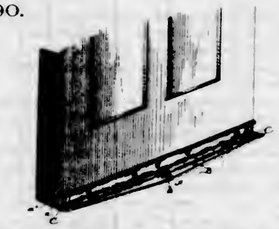


Claim.—In an ant-trap, the combination, with an annular box, A, adapted to surround an ant's nest, and provided with a downwardly-inclined annular flange, b, of the central ant-receptacle, B, provided with a hinged lid having a sight-opening therein, a series of divided tubes, C, connecting said annular box and ant-receptacle, collars a, covering the divisions in said tubes, and perforated metal caps d at the upper ends thereof, substantially as shown and described, whereby the ants are held within said annular box and conducted from thence to the central receptacle, B, as set forth.

352,290. **RAIN-WATER CONDUCTOR.** WILLIAM D. BATES, Guthrie Centre, Iowa. Filed July 19, 1886. (No model.)

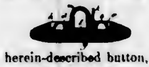


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Claim.—The combination, with the rear vertical wall having a flange and apertured, of the plate or shelf inclined from either end to the center thereof, and having its ends curved upwardly from about the center of their transverse portion longitudinally, and the straight or flattened portion formed at the center of said plate between the inclined and curved portions thereof, substantially as shown and described.

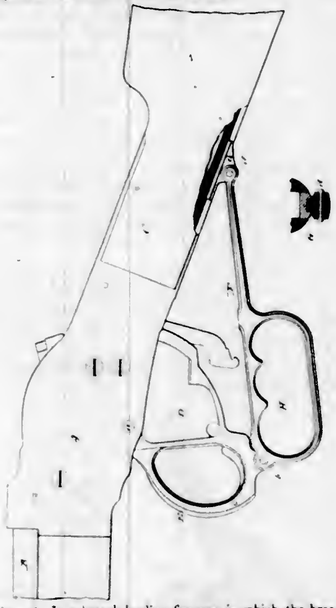
352,291. **BUTTON.** FREDERIC S. BECK, Brooklyn, N. Y., and JOHN J. HOLLAND, New Brunswick, N. J. Filed Sept. 11, 1886. (No model.)



Claim.—1. The herein-described button, consisting of the body g, composed of a rubber or similar material, the disk d, having the inclined flange e embedded in the back of the body, the disk f, inserted within the flange e, and the shank a, having the metal binding b interposed between the disks d f, substantially as described.

2. The combination, with the button-body, the disks d f, and the shank a, of the pin k, passing through openings in the disks and projecting out at the back of the button, substantially as described.

352,292. **BREECH-LOADING FIRE-ARM.** THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Mar. 1, 1886. (No model.)



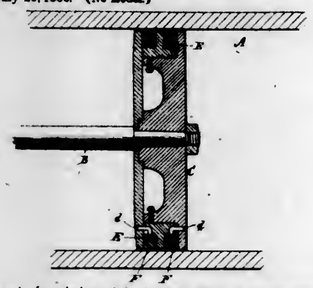
Claim.—1. In a breech-loading fire-arm in which the breech-piece is opened by means of a lever-like extension below the receiver, hung upon a pivot and extending rearward therefrom so as to swing downward and forward in opening, the breech-piece, the combination therewith of a link hung by its forward end to said extension in rear of its pivot, the said link extending rearward beneath the stock, its rear end hung to the stock, and so that said rear end may slide forward and backward in the opening and closing movement of the breech-piece, substantially as described.

2. In a breech-loading fire-arm in which the breech-piece is hung upon a pivot so as to swing downward and backward in opening and upward and forward in closing, the said breech-piece extended in rear

of its pivot in the form of a lever through which the said breech-piece may be opened or closed, the combination therewith of a link the forward end of which is hung to said lever, the said link extended rearward and its rear end hung to the stock so as to slide longitudinally therein, substantially as described.

3. In a breech-loading fire-arm in which the breech-piece is opened and closed by means of a lever hung in the receiver and extending rearward below the receiver, the combination therewith of a link, its forward end hung to the said lever in rear of its pivot, the link extending rearward beneath the stock, its rear end hung to the stock so as to be moved forward and backward, the said lever adapted to be grasped by the fingers at the grip, substantially as described, and whereby under the downward forward movement of the link the breech-piece is opened and under the upward and rearward movement of the link the breech-piece is closed, the said link constructed with a handle to receive the fingers at the grip and by which the said link may be operated, substantially as described.

352,293. **BALANCED PISTON.** JOHN P. BENOIT, Detroit, Mich. Filed July 29, 1886. (No model.)



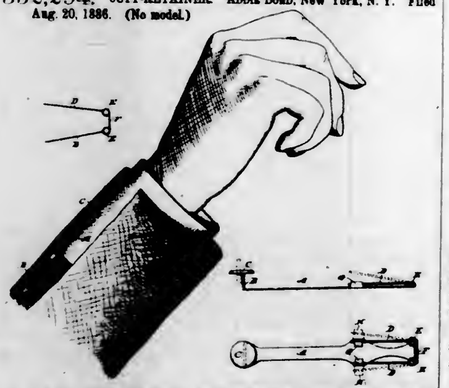
Claim.—1. In a balanced horizontal piston, a piston-packing consisting of an inner and outer ring, the inner ring being vertically divided and laterally connected with the piston, and of steam-passages leading back of the lower portion of the inner ring, substantially as described.

2. In a balanced horizontal piston, a pistoo-packing consisting of an inner and outer ring, the inner ring being vertically divided in halves, each half being laterally connected with the piston at a point above a horizontal line through the center of the piston, and of steam-passages in the piston terminating back of the lower portion of the inner ring, substantially as described.

3. In a balanced horizontal piston, a piston-packing consisting of an inner and outer ring, the inner ring being vertically divided in halves, each half having a laterally-sliding connection with the piston in a horizontal line passing above the center of the piston, and of steam-passages in the piston leading back of the lower portion of the inner ring, substantially as described.

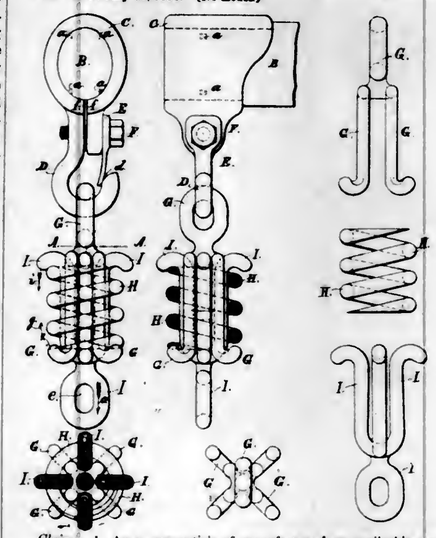
4. In a balanced horizontal piston, the combination, with the piston, of the two sets of inner and outer rings, E F, the former being vertically divided in halves, and having studs *b* engaging into holes *c* of the piston, and of the steam-passages *d* in the piston, all arranged and operating substantially as described.

352,294. **CUFF-RETAINER.** ADDIE BOND, New York, N. Y. Filed Aug. 20, 1886. (No model.)



Claim.—The combination, in a cuff-fastener, with a plate of sheet metal, double connected pins hinged transversely thereto at one end thereof, and lateral keepers thereon to engage and retain the respective pin-points, of a coiled spring formed at the base of each pin, near to its hinged connection, and operating to throw the pin-points in opposite directions laterally outward from the plate and keepers, substantially in the manner for the purpose herein set forth.

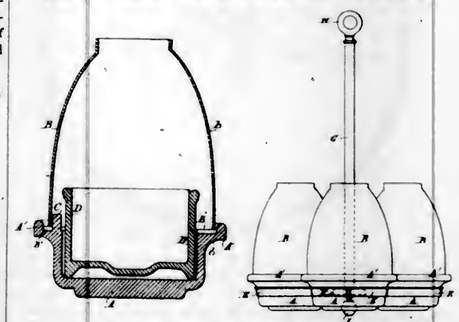
352,295. **WHIFFLETREE-HOOK.** ALDUS A. BRACKETT, Greenland, Pa. Filed July 17, 1886. (No model.)



Claim.—1. As a new article of manufacture from malleable cast iron or steel, the frieze-strap C, almost entirely around the single-tree B, with the hook D attached, and the tap-bolt, F, which screws into the body of the strap C, so as to require no loose nut, and holds the spring E in position, said spring also serving as a hardened-steel washer for the head of the bolt F, substantially as set forth and described.

2. In combination with the frieze-iron C, the expansion-link composed of the upper spring-hooks, G, and the lower spring-hooks, I, with the spring H, when constructed as shown, and for the purpose described.

352,296. **CANDLE-LAMP AND CHANDELIER.** SAMUEL CLARKE, Child's Hill Works, County of Middlesex, England. Filed Dec. 14, 1885. (No model.) Patented in England Sept. 23, 1885, No. 11,353; in France Dec. 4, 1885, No. 172,717; in Germany Dec. 5, 1885, No. 36,679; in Belgium Dec. 7, 1885, No. 71,120, and in Austria May 3, 1886, No. 36/795.



Claim.—1. The combination of the glass lamp-cup A, provided with the horizontal corrugated annular flange B′ and a vertical annular flange, A′, surrounding said corrugated flange, with the glass dome supported upon the corrugated flange within said vertical flange, substantially as and for the purpose set forth.

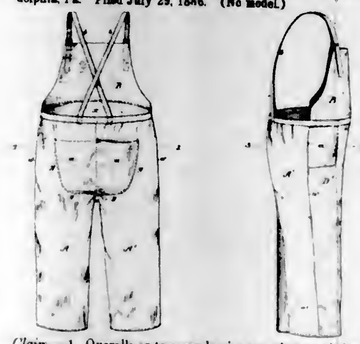
2. The combination of the glass lamp-cup provided with the horizontal corrugated flange and the vertical flange, the inner glass cup, D, and the glass dome, substantially as and for the purpose set forth.

3. The combination of a group of glass lamp-cups, containing the glass candle-holding cups D, and constructed, as described, each with a horizontal corrugated annular flange and the surrounding vertical flange, with the glass domes, and a rod, G, and the arms radiating from said

rod and supporting the lamp-cups at their outer ends, as and for the purpose set forth.

4. The combination of the series of glass lamp-cups A, each having the horizontal corrugated annular flange and the vertical annular flange, the inner glass cups, D, received in the cavities of the lamp-cups, the glass domes resting upon the horizontal flanges of the lamp-cups, the lamp or chandelier rod, and the arms connected therewith, and provided with the rings for receiving the lamp-cups and holding them by their annular shoulders, substantially as and for the purpose set forth.

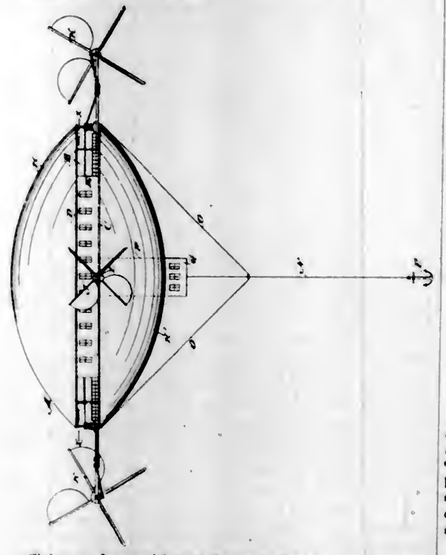
352,297. **TROUSERS OR OVERALLS.** WILLIAM COHLMAN, Philadelphia, Pa. Filed July 29, 1886. (No model.)



Claim.—1. Overalls or trousers having a pocket consisting of a portion projecting from one of the leg-pieces and overlapping and permanently secured to the adjacent leg-piece, all substantially as specified.

2. Overalls or trousers, each of the rear leg-pieces of which has a projecting pocket portion overlapping and permanently secured to the adjoining leg-piece, one of said overlapping pocket portions being on the outside and the other on the inside, all substantially as specified.

352,298. **AERIAL VESSEL.** MOSES S. COLE, Rivas, Nicaragua. Filed Mar. 1, 1886. (No model.)



Claim.—1. In an aerial vessel, the combination of a central compartment with semi-spheroidal balloons attached to the ceiling and floor of the said compartment, substantially as shown and described.

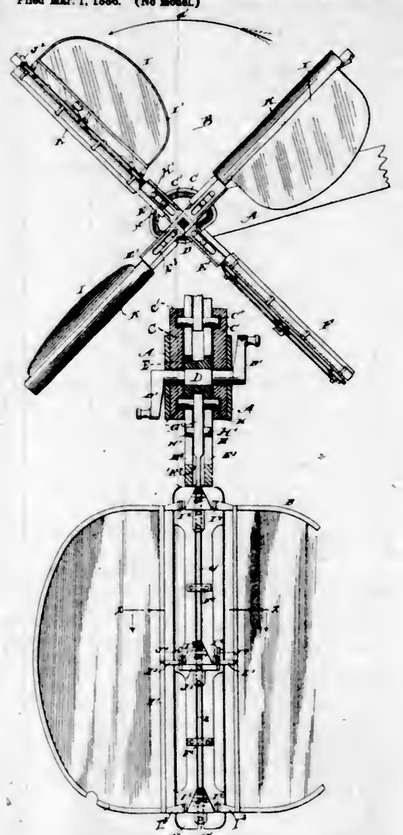
2. In an aerial vessel, the combination of a central compartment having a downwardly-extending hollow shaft, forming a pilot-house at its lower end and containing the motive power, with two semi-spheroidal balloons, substantially as described.

3. In an aerial vessel, the combination of a central compartment and a downwardly-extending hollow shaft, forming a pilot-house at its lower end and containing the motive power, with two semi-spheroidal balloons and side and end wheels, substantially as shown and described.

4. In an aerial vessel, a central compartment having a vertical downwardly-extending shaft, forming at its lower end a pilot-house and containing the motive power, and two semi-spheroidal balloons formed on the top and bottom of said compartment, in combination with wheels placed on each end of the said vessel and rotated by suitable devices, substantially as shown and described.

5. In an aerial vessel, a central compartment, a vertical hollow shaft having a pilot-house on its lower end and containing the motive power, and two semi-spheroidal balloons, in combination with two wheels placed at the sides of the aerial vessel for ascending and descending purposes, and two wheels placed one on each end for the purpose of propelling and steering, substantially as shown and described.

352,299. **PROPELLING-WHEEL.** MOSES S. COLE, Rivas, Nicaragua. Filed Mar. 1, 1886. (No model.)



Claim.—1. In a propelling-wheel, a cam having a groove composed of four parts, of which two are concentric and of different radii, and the other two parts connect the two concentric grooves with each other, in combination with a bracket-wheel having sliding bars provided with pins moving in said cam-grooves, wings covered with canvas or other suitable material and hinged on the said bracket-wheel, and means for connecting the said sliding bars and wings for feathering the wings, substantially as shown and described.

2. In a propelling-wheel, the combination of a cam and a bracket-wheel having spokes each provided with a wing-arm, and wings hinged to the said arms and consisting of a frame covered with canvas and provided with lugs, with a sliding bar provided with wedge-shaped pieces which engage the lugs on the wing-frame, and provided with pins extending into the groove of the cam, substantially as herein shown and described.

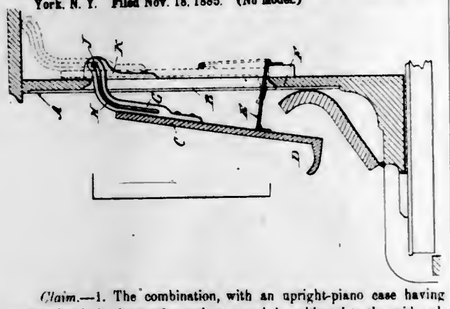
3. In a propelling-wheel, the combination of a cam, a bracket-wheel provided with spokes, each having a wing-arm, and with wings hinged on each arm and provided with lugs, with a sliding bar provided with wedge-shaped pieces, and a locking device consisting of lugs secured to the sliding arm and passing over bars attached to the wing-frame,

and with pins extending into the groove of said cam, substantially as herein shown and described.

4. In a propelling-wheel, the cams C, having grooves C', the shaft D, provided with crank-arms D', and the bracket-wheel E, provided with the spokes E' and the arms F, in combination with the hinged wings I, having lugs I^2, the sliding bar G, having wedge-shaped pieces J, J', and J^2, which engage with the lugs I^2 of the hinged wings I and locking-plates J^4, and the pins H and H', substantially as herein shown and described.

5. In a propelling-wheel, the cam C, having a cam-groove, C', the bracket-wheel E, provided with the spokes E', each having the aperture E^2 and recesses E^3, the arms F, having recesses F', and the hinged wings I, each having a frame, I', provided with lugs I^2 on pieces I^3, in combination with the sliding bars G, provided with the wedge-shaped pieces J J' J^2 and lugs J^4, which engage with the lugs I^2 and the pieces I^3, respectively, of hinged wings I, and the pins H and H', substantially as herein shown and described.

352,300. MUSIC-RACK FOR PIANOS. JAMES F. CONOVER, New York, N. Y. Filed Nov. 18, 1885. (No model.)

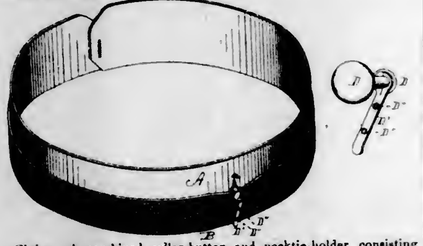


Claim.—1. The combination, with an upright-piano case having an opening in its front, of a rack or panel, bars hinged to the said rack or panel near its bottom, and to the piano-case, and of curved slotted arms secured to the panel and guided by pins passed through the slots in said arms, substantially as herein shown and described.

2. The combination, with the piano-front A, having the opening B, of the panel or rack C, having the ledge D, the bars E, hinged to the rack or panel, the blocks F on the back of the piano-front, to which blocks the bars E are hinged, the curved slotted arms G on the panel or rack, the brackets K, and the pins J, projecting from the same, substantially as herein shown and described.

352,301. COMBINED COLLAR-BUTTON AND NECKTIE-FASTENER. JOHN B. COBURN, Barnstable, Mass. Filed June 21, 1886. (No model.)

Brief.—The arm extending from the head or shank of the button is punched or perforated to form an inward roughened surface, which serves to prevent the tie from riding up over the collar, and also prevents the tie from shifting laterally.

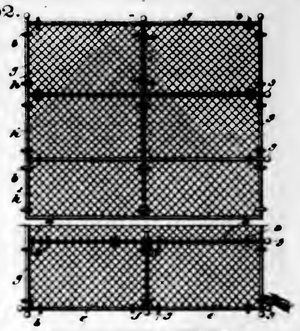


Claim.—A combined collar-button and necktie-holder, consisting of a button having a downwardly-projecting and outwardly-curved arm provided with a series of perforations having inwardly-projecting edges adapted to engage with and rigidly hold a necktie, substantially as shown and specified.

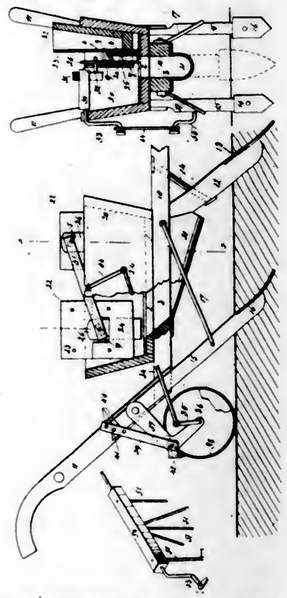
352,302. FOLDING FIRE-FENDER. DENNIS J. DALEY, Pittsburg, Pa. Filed Apr. 14, 1886. (No model.)

Claim.—The within-described folding fender, comprising the horizontal screen *a*, secured to the mantel above the fire-place and provided with loops *b*, adapted to serve as hinges, the vertical side screens, *c c*, also provided with wire loops, the top horizontal screen, *e*, formed of two jointed sections, provided at the joint with catches *f*, and a rod, *g*, attached to the screen *a*, the folding sides *d* d' d^2, and folding front sections, *h* h' h^2, said parts being connected by loops and rods, and all constructed and adapted to be folded and swung to a position above the fire-place, substantially as described.

352,302.



352,303. CORN AND COTTON PLANTER COMBINED. JOSEPH G. DAVIS, Huntsville, Tex. Filed Aug. 7, 1886. (No model.)



Claim.—1. The combination, with the main hopper, of auxiliary hoppers provided with feeders 25, a rock-shaft, 30, carrying a beam, 31, pins 32, carried by the beam 31 and arranged to engage with the feeders 25, and a mechanism, substantially as described, whereby the feeders are reciprocated, as and for the purpose stated.

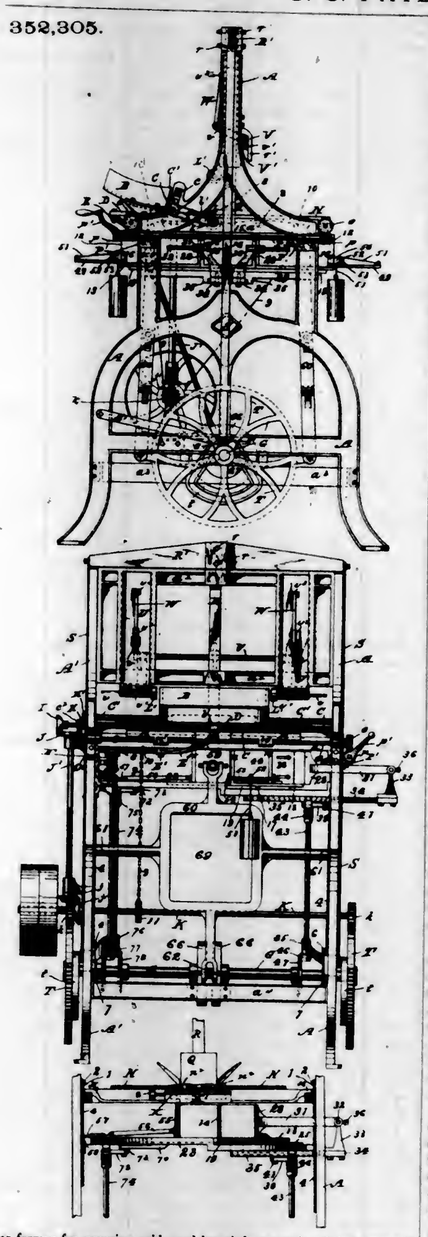
2. The combination, with hoppers 22, of feeders 25, consisting, essentially, of plates 26 and blocks 6, adjustably connected to the plates, a rock-shaft, 30, a beam, 31, carrying pins 32, that engage with diagonal apertures formed in the plates 26, a driving and supporting wheel, 38, the shaft of which is provided with a crank-arm, 35, and a connecting-rod, 34, extending from the crank-arm 35 to a crank-arm, 33, formed upon the rock-shaft 30, substantially as shown and described.

3. In a combined corn and cotton planter, the combination, with a beam and its handle, of a furrow-opener and furrow-closers, an adjustable supporting and driving wheel, the shaft of which is provided with a crank-arm, 35, a connecting-rod, 34, a rock-shaft, 30, formed with an arm, 33, a beam, 31, carried by the rock-shaft, feeders 25, and auxiliary hoppers 22, substantially as described.

352,304. PAPER-BOX MACHINE. WALTER S. DAVIS, Contoocook, N. H. Filed Nov. 12, 1885. (No model.)

Claim.—1. The combination, with a receptacle adapted to contain the pieces of card-board composing the bottom and sides of a box, and means, substantially as described, whereby said card-board is delivered, as required, of adjustable forming-tables, feed-rolls, feeding-trucks, and guide-stops adjustably secured to said forming-tables, against which said card-board pieces are carried by said feeding-trucks, and an adjustable

352,305.



die or former for pressing said card-board downward and between said forming-tables, whereby the bottom and sides of a box are formed, all operating as and in the manner set forth.

2. The combination, with a receptacle adapted to contain the pieces of card-board composing the bottom and sides of a box, and means, substantially as described, whereby said card-board is delivered, as required, of suitable forming-tables, feed-rolls, feeding-trucks, and guide-stops adjustably secured to said forming-tables against which said card-board pieces are carried by said feeding-trucks, an adjustable die or former for pressing said card-board downward and between said forming-tables, whereby the bottom and sides of a box are made, and adjustable slides attached to said forming-tables, whereby the ends of said bottom and sides of a box are bent at right angles inward, all operating in the manner and for the purpose set forth.

3. In a machine for making paper boxes, constructed substantially as described, the herein-described paste-boxes, and distributing-rolls mounted therein, so as to be partially submerged in the paste therein contained, one journal of either of said rolls having a suitable chain-pulley mounted thereon, a chain connecting said pulleys with a similar pulley mounted upon the driving-shaft in such manner as to rotate said paste-rolls in opposite directions, and a system of levers and cams connecting said paste-boxes with a counter-shaft, whereby said paste-boxes are simultaneously moved toward the ends of the box at the proper time to distribute a layer of paste thereon, as specified.

4. An adjustable die or former comprising a hub in two sections, one above the other, adjustable slides adapted to enter slots formed in the contacting surfaces of the said hub-sections, and right-angle vertical plates swiveled to the outer ends of said slides, the latter being capable of adjustment to and away from said hub-sections, and said hub-sections being adapted to rotate for the purpose of adjusting said right-angled corner-plates relative, respectively, to the length and width of a given box, and means, substantially as described, whereby said hub-sections are held firmly together and said slides in any desired position, all constructed and operating substantially as and for the purpose set forth.

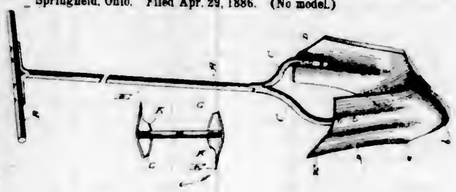
5. The combination, in a machine for making paper boxes, of feed-rolls mounted as shown, for carrying the card-board composing the bottom and sides of a box, spur-gears connecting the same, and a system of bevel-gearing and shafts connecting with the driving-shaft by which said rolls are driven, with the feeding-trucks, the shafts upon which they are carried, the adjustable forming-tables, upon the under side of which one end of either of said shafts is mounted, belt-pulleys and belts connecting the outer ends of either shaft carrying said feeding-trucks with one of the feed-rolls, an adjustable forming-die, a piston-rod to which it is attached, and the mechanism, substantially as shown, by which it is operated, the pressure-trucks carried upon shafts capable of horizontal adjustment in the lower end of vertical sliding frames upon which said shafts are mounted, and mechanism, substantially as shown, operated by said piston-rod, whereby said pressure-trucks are moved vertically to and away from said feeding-trucks during the time said forming-die is making a portion of its up-and-down stroke above said forming-tables, all operating substantially as and for the purpose described.

6. In a machine constructed and operating substantially as shown, the herein-described receptacles adapted to contain those pieces of card-board forming the ends of a box, having one of their side walls adjustable, and means, substantially as described, whereby said receptacles are adjusted relative to the length and width of a given box to be formed by said machine, delivery-slides by which said card-board pieces are carried singly to position, a follower-plate adapted to press said card-board continually against said delivery-slides, mechanism, substantially as described, for giving a horizontal reciprocal motion to said slides, and a bevel-pinion, by which said mechanism is operated, meshing with a bevel-gear segment mounted upon a counter-shaft, and so provided with teeth as that said pinion shall make one entire revolution during one quarter-revolution of said gear-segment, and be at rest during the remaining three quarter-revolutions of said gear-segment, as and for the purpose set forth.

7. In a machine constructed substantially as shown, a bed-table adapted to move horizontally upon a portion of the frame of said machine, and under the forming-die—*i. e.*, in one position affording a seat for the said forming-die when completing the formation of a box, and in another position leaving an opening through which said completed box may drop—and mechanism connecting with a counter-shaft by which said table is moved once in either direction during one quarter-revolution of said counter-shaft, and permitted to remain at rest during the remaining three quarter-revolutions of said counter-shaft, as and for the purpose specified.

8. The combination, in a machine constructed substantially as described, of pressure-plates located at either end of the forming-die and adapted to move simultaneously toward and away from the same, for the purpose, respectively, of uniting the ends with the bottom and sides of a box, and leaving said box free to drop from said forming-die when completed, and mechanism, consisting of levers connecting with cams, mounted upon a counter-shaft, whereby said pressure-plates are operated.

352,305. POST-HOLE AUGER. THOMAS DEVITT and MARTIN L. SISK, Springfield, Ohio. Filed Apr. 29, 1886. (No model.)



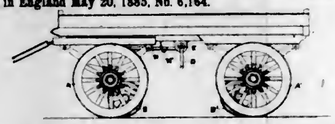
Claim.—1. In an earth-auger, the combination, with a handle

porting the same with the feeding-in rolls, the feeding-in rolls and the

Claim.—1. In an earth-auger, the combination, with a handle terminating in a yoke, of two cutting-blades consisting of a sheet substantially convex from end to end, the curvature being less on one side of the point of attachment with the yoke than the curvature on the other side, and the edge of the side having the lesser curvature being sharpened, and the said side extending radially farther than the other side, the said blades terminating each in a point at its lower end, and curved inwardly to about a right angle to the convexity, and having both sides of the points sharpened.

2. In an earth-auger, a cutting-blade consisting of a sheet substantially convex from end to end, the curvature being less on one side of an intermediate vertical line than on the other, and the edge of the side having the lesser curvature being sharpened and extending radially farther than the other side, the said blade terminating in a point at its lower end and curved inwardly to or about a right angle to the convexity, and having cutting-edges at both sides of the point.

352,306. **WHEELED CARRIAGE.** ALFRED DICKINSON, Darlaston, County of Stafford, England. Filed Aug. 3, 1886. (No model.) Patented in England May 20, 1885, No. 6,164.

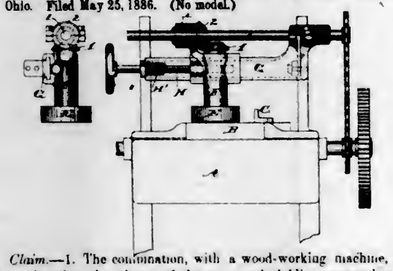


Claim.—1. In a wheeled carriage, two sets of wheels raised and lowered therefrom, in combination with shaft E, means, substantially as set forth, for operating the same, worm H, carried by said shaft, wheel M, into which said worm gears, and the levers which operate said wheels, substantially as and for the purpose set forth.

2. The combination of the hand-wheel, the shafts O E, and the interposed gearing F F' Q Q', whereby motion is communicated, with the worm H, carried by shaft E, the wheel M and lever K, operated thereby, the track-wheels, capable of vertical motion, and the levers interposed between lever K and the axles of said wheels for raising or lowering them when the hand-wheel is turned, substantially as set forth.

3. A vehicle provided with two vertically-movable sets of wheels, one set for running on ordinary roads and the other set for running on rails, in combination with a series of levers connected to the axles, whereby all four wheels of one set are simultaneously raised while those of the other set are lowered, substantially as set forth.

352,307. **PLANING-MACHINE.** WILLIAM H. DOANE, Cincinnati, Ohio. Filed May 25, 1886. (No model.)



Claim.—1. The combination, with a wood-working machine, of a rail overhanging the platen of the same and rigidly connected to the frame of the machine, and a pendent edge feed-roll mounted on said rail, substantially as described.

2. The combination, with a wood-working machine, of an overhanging rail extending transversely of the platen and rigidly attached to the frame of the machine, and a pendent edge feed-roll adjustable upon said rail, substantially as described.

3. The combination, substantially as before set forth, of the pendent edge feed-roll, the adjustable bearing of the same, the overhanging rail for supporting said bearing rigidly connected with the frame of the machine, and the driving-shaft and the shaft of the feed-roll being operatively connected.

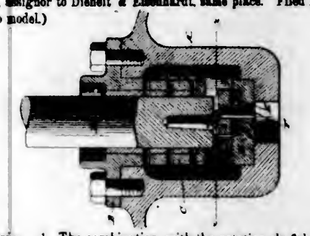
4. The combination, substantially as before set forth, of the pendent edge feed-roll, the adjustable bearing for the same, the overhanging rail for supporting said bearing rigidly connected to the frame of the machine, the driving-shaft, and a bearing for said shaft connected to the bearing for the feed-roll, the driving-shaft and the shaft of the feed-roll being operatively connected.

5. The combination of an adjustable pendent edge feed-roll and an arm rigidly connected to the frame of the machine, supporting the same above the platen, with the upper and lower feed-rolls and the guide C, substantially as described.

6. The combination, in a planer, of an adjustable pendent edge feed-roll and a rail rigidly connected to the frame of the machine supporting the same with the feeding-in rolls, the feeding-in rolls and the pendent edge feed-roll being operatively connected.

7. The combination, in a planer, of an edge-guide and feeding-in rolls, of a pendent edge feed-roll and arm rigidly connected with the frame supporting the same, the edge feed-roll and the feeding-in rolls being operatively connected, substantially as described.

352,308. **STEP-BEARING.** GEORGE F. EISENHARDT, Philadelphia, Pa., assignor to Dienelt & Eisenhardt, same place. Filed Aug. 30, 1886. (No model.)



Claim.—1. The combination, with the rotation shaft having an end-wise pressure, of a rotating washer supporting the shaft and arranged eccentric thereto, substantially as described.

2. The combination, with the shaft and center pin, of the washer mounted upon a pin arranged eccentric to the shaft, substantially as described.

3. The combination, with the shaft and center pin, of the washer and friction-rolls rotating on a pin eccentric to the shaft, substantially as described.

4. The combination, with the oil-chamber and shaft; of the roll-casing, rolls, roll-frame, and washer, substantially as described.

5. The combination, with the recessed roll-casing having a pin in the recess, of the roll-frame and washer rotating on said pin, and a shaft bearing on said washer, substantially as described.

6. The combination, with the shaft and its center pin, of a washer eccentric to said pin, the diameter of the washer being about twice that of the pin, substantially as described.

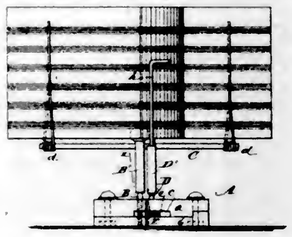
7. The combination, with the oil-chamber, of a rotating washer having a comparatively broad surface, and a shaft bearing eccentrically upon the washer, whereby rotating surfaces are uniformly lubricated, substantially as described.

352,309. **CLOCK.** LEOPOLD FEUERSTEIN, Chicago, Ill. Filed Oct. 23, 1885. (No model.)

Claim.—1. In a pendulum-clock, the combination, with the pendulum and face of the clock, having one or more openings, of an object pivotally supported behind each opening in the face and provided with an extension, *o*, an arm, *r'*, supported on the shaft of the anchor-escapement to oscillate with the same, and having a link, *p'*, carried by the arm *r'* and engaging with the extension *o*, and an arm, *r*, connecting the shaft of the anchor-escapement with the pendulum, substantially as and for the purpose set forth.

2. In a pendulum-clock, the combination of the face provided with a figure and having openings for eyes, an arch-shaped projection, C, carrying the pendulum, eyeballs G, pivotally supported on the rear side of the clock-face, adjacent to the openings in the same, upon rigid U-shaped bearings *n q*, pins *o*, extending backward from the eyeballs, an arm, *r'*, supported on the shaft of the anchor-escapement to oscillate with the same, and having a cross-head, *p*, and links *p'*, engaging with the pins *o*, and an arm, *r*, connecting the shaft of the anchor-escapement with the pendulum, whereby the vibrations of the latter will move the eyeballs, substantially as and for the purpose set forth.

352,310. **MUSIC-LEAF TURNER.** WILLIAM H. FESLER, Columbiana, Ohio. Filed July 24, 1886. (No model.)

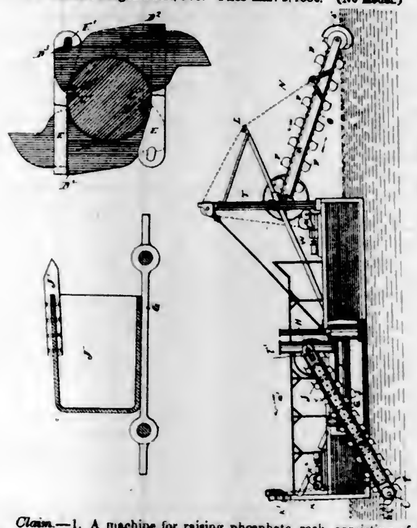


Claim.—1. In a music-leaf turner, the combination, with the base-piece having a chamber, a vertical rock-shaft projecting through the top of the base, a pinion on said shaft within the chamber, and a pivoted finger-piece having a toothed segment on its inner end engaging the said pinion, of the removable socket on the outer end of the rock-shaft and parallel angle-wires on said socket, substantially as set forth.

2. A music-leaf turner and holder comprising a vertical rock-shaft and its operating finger-piece, the removable socket on the upper end of the said shaft, the angle-wires projecting from said socket, the post, the vertical removable socket thereon, the transverse bar at the upper end thereof, and holding-arms at opposite ends of said bar, substantially as set forth.

3. In a music-leaf turner, the combination of the base-piece A, provided with the chamber *c*, the rock-shaft D, the pinion *e*, carried thereby, the socket D', fitted to the rock-shaft, and parallel angled wires *h h'*, carried thereby, the key-lever E, provided with the toothed sector *f* and finger-piece *g*, and the sheet-music holder formed of the socket B', the cross-bar C, and wire forks *d*, substantially as shown and described.

352,311. **MACHINE FOR RAISING PHOSPHATE ROCK.** DANIEL J. GILCHRIST, Bergen Point, N. J. Filed Mar. 5, 1886. (No model.)



Claim.—1. A machine for raising phosphate rock, consisting of a scow or float, a shaft suspended in front of and below the bottom of the scow, which shaft is provided with blades, a bucket-elevator at the rear end of the float and working entirely clear of the same, whereby the width of the elevator may be equal to that of the scow, and driving mechanism for operating the bucket-elevator, and the shaft carrying the blades, substantially as shown and described.

2. A machine for raising phosphate rock, consisting of a scow or float provided at each side with a swinging endless bucket-elevator frame, said frames having their lower ends at the front part of the vessel connected by a shaft carrying blades, and with a bucket-elevator frame at the rear end of the vessel, the width of said rear elevator-frame being equal to the width of the vessel, substantially as shown and described.

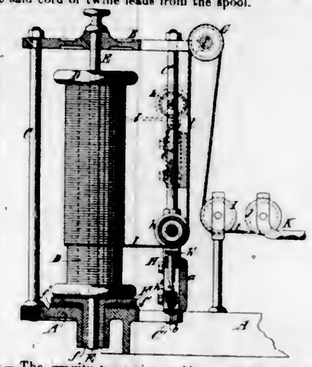
3. In a machine for raising phosphate rock, the combination, with a scow, of an inclined frame at each side, bucket-chains on the inclined frames, a shaft provided with blades uniting said side frames at the front end of the vessel, a bucket-elevator chain at the rear end of the vessel, and separate engines for imparting motion to said bucket-chains at the front and rear parts of the vessel, substantially as shown and described.

4. The combination, with a shaft, of blades having curved recesses to adapt them to fit on the shaft, and prongs which can be passed into recesses in the shaft, and of stirrups passed over the blades for the purpose of holding them on the shaft, substantially as shown and described.

5. The combination, with the shaft C, having the longitudinal grooves C', of the blades D, having the prongs D', which can be passed into the grooves C', the shoulders or offsets D^2, the notches D^3, and of the stirrups E, placed over the blades and having their shoulders resting against the cross-piece E^2, and the keys E', passed through apertures in the shanks of the stirrups, substantially as shown and described.

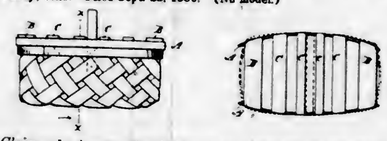
352,312. **MEANS FOR CONTROLLING THE UNWINDING OF THREAD, TWINE, AND CORD FROM BOBBINS AND SPOOLS.** JOHN GOOD, Brooklyn, N. Y. Filed Dec. 5, 1885. (No model.)

Brief.—The gravity traversing guide works on guide-rods and travels up and down on the same as the cord or thread is unwound, to keep the same normal to the cylinder of the spool and in a horizontal plane with the immediate coil being unwound. It consists of a hanger and a movable sheave-holder connected thereto by a spring, over which sheave the said cord or twine leads from the spool.



Claim.—The gravity traversing guide consisting of the combination of the hanger H, the movable sheave-holder fitted to said hanger, the sheave *h*, fitted to said holder, and the spring h^2, connecting the said holder and hanger, all substantially as and for the purpose herein set forth.

352,313. **FRUIT-BASKET COVER.** NATHANIEL A. HADDEN, Sandusky, Ohio. Filed Sept. 23, 1886. (No model.)



Claim.—1. A cover for fruit-baskets, consisting of the strips A, drawn toward each other at the ends, and of the cross-slats B, secured thereto, all so arranged that the cover is supported on the top of the basket by the strips A, resting on the sides and ends of the basket and embracing the handle, substantially as described.

2. A cover for fruit-baskets, consisting of the strips A, drawn toward each other at the ends, of the slats B, nailed across said ends, and of intervening cross-slats, C, all so arranged that the cover is supported on the top of the basket by the strips A, resting on the sides and ends of the basket and embracing the handle, all substantially as set forth.

3. As a new article of manufacture, a cover for fruit-baskets, consisting of the strips A, placed on edge and drawn toward each other at their ends, of the cross-slats B, nailed across the corresponding ends of the strips, and of the intervening cross-slats, C, one of which is placed on each side of the handle, all arranged substantially as described.

352,314. **FORGING PLANT.** WILLIAM HAINSWORTH, Pittsburg, Pa. Filed June 28, 1886. (No model.)

Claim.—1. In a forging plant, the combination of a hammer, a series of two or more cylinders provided with pistons, said cylinders and pistons arranged to operate simultaneously or one at a time on said hammer, and an anvil, substantially as set forth.

2. In a forging plant, the combination of a hammer, a series of two or more cylinders provided with pistons, said cylinders being operative independent of each other on the hammer through the medium of the pistons, and an anvil, substantially as set forth.

3. In a forging plant, the combination of a hammer, a series of two or more cylinders provided with pistons arranged in tandem and operative on said hammer, and an anvil, substantially as set forth.

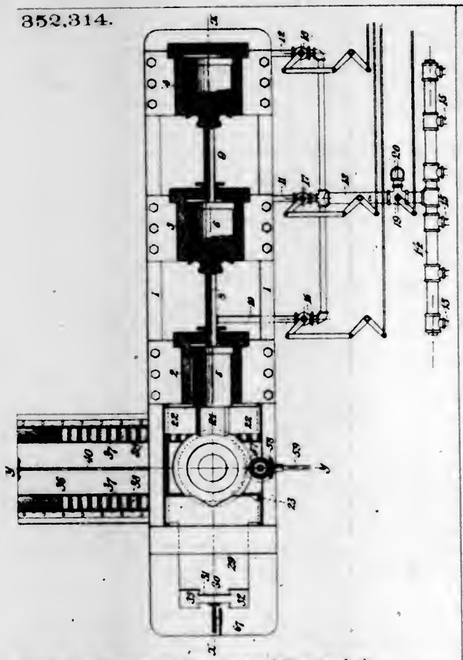
4. In a forging plant, the combination of a reciprocating hammer, an anvil, a wedge for adjusting the anvil, and a cylinder and piston for operating the wedge, substantially as set forth.

5. In a forging plant, the combination of a hammer, a single-acting cylinder and piston moving said hammer in one direction, and a single-acting cylinder and piston under constant fluid-pressure for moving the hammer in the opposite direction, substantially as set forth.

6. A forging plant comprising a horizontally-acting forging-press, a pit located under said press and extending laterally beyond the same, a truck located in the bottom of the pit, and means for moving an ingot from the pit through between the jaws of the press, substantially as set forth.

7. A forging plant comprising a horizontally-acting forging-press, a vertically-acting lift for moving an ingot between the jaws of the press,

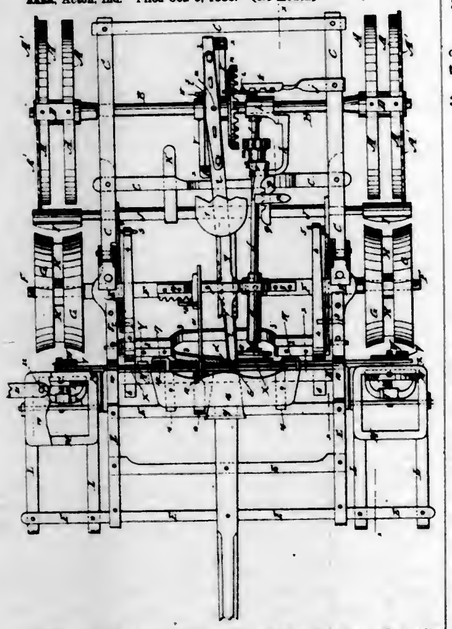
352,314.



and means for rotating the ingot, substantially as set forth.

8. In a forging plant, the combination of a reciprocating hammer, an adjustable anvil, and indices for indicating the amount of movement to the hammer and anvil respectively, substantially as set forth.

352,315. COMBINED DRILL AND PLANTER. WILLIAM H. HALFACRE, Acton, Ind. Filed Oct. 5, 1885. (No model.)



Claim.—1. The combination, with the forward frame, E, having one of its cross-bars extended beyond its sides, of the bars L L, hinged to said projecting ends, the seed-hoppers M on the inner ends of each pair of bars, a dropping mechanism, the furrow-openers O O on the lower sides of the hoppers, the cross-bar N, connecting the two hoppers, the vertical connecting-rod 12 on said cross-bar, the lever 11, pivoted at its forward end to the frame E, connected to the rod 12, and extended back toward the driver's seat, and locking devices for the lever 11, substantially as set forth.

2. The combination, with the front frame, the hoppers, dropping mechanisms therein, the cross-bar connecting the said mechanisms, the axle F, and wheels, and the long tubular bearing *g*, pivoted to the axle, and the shaft *f*, having a crank-wheel, *s*, on its forward end, connected to the cross-bar, of the rear frame, C, hinged to the forward frame and provided with the drive-shaft B and wheels, the sliding bearing-frame *h* on the drive-shaft and forming a bearing for the rear end of the shaft *f*, the gear-wheel *n*, secured upon the shaft B and having a series of concentric sets of teeth, the sliding pinion *m* on the shaft *f*, the lever *p*, and hook *o*, for throwing the pinion *m* into engagement with any set of teeth on gear *n*, means for locking said lever, and the lever *i*, for sliding the frame A on the drive-shaft, substantially as set forth.

3. In a planter, the drive-wheels A, formed with two separated rims connected at intervals by the marking-blocks D, the spaces between the several blocks being entirely open, substantially as set forth.

4. In a planter of the character set forth, the combination, with the forward frame, E, having the seed-dropping mechanism, the furrow-openers, the axle F, and the concaved wheels G, having a space, H, between them, of the frame C, hinged to the frame E, and having the driving-shaft and the wheels A A, provided with two separated rims connected at intervals by marking-blocks, whereby the wheels A will follow in the tracks of the wheels B and the marking-blocks will form depressions in the ridge formed by the earth being pressed into the spaces H, substantially as set forth.

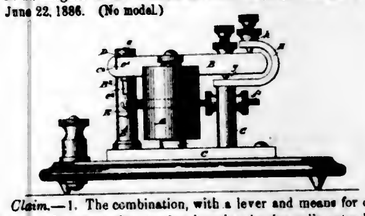
5. The combination, with the hopper, and the dropping-ring therein having the shaft U, provided with the ratchet-wheel Z, of the operating cross-bar X, having a push-pawl, *b*, and a hooked pulling-pawl, *a*, both pawls engaging the teeth of the ratchet-wheel, substantially as set forth.

6. In a combined drill and planter, the combination, with the two frames C E, hinged to each other, and the cross-bar N, connecting the hoppers M, of the foot-levers 4, the rocking cross-bar 2 3, carrying the said foot-lever and provided with the forwardly-projecting arms 6 and the rearwardly-projecting arms 7, having laterally-projecting hooks 8, and the curved arms 9, attached to the rear frame, C, and engaging with the said hook-arms of the arms 7, substantially as herein shown and described, whereby the cutters and the drive-wheels can be raised from the ground by operating the said foot-levers, as set forth.

352,316. MANUFACTURING WHITE LEAD. WILLIAM E. HARRIS, New York, N. Y. Filed Jan. 5, 1886. (No specimens.)

Claim.—In the manufacture of carbonate of lead, the combination of sulphite and sulphate of lead and carbonate of soda, made substantially as herein described.

352,317. TELEGRAPH-SOUNDER. CHARLES D. HASKINS, Brooklyn, N. Y., assignor to the Western Electric Company, Chicago, Ill. Filed June 22, 1886. (No model.)



Claim.—1. The combination, with a lever and means for operating the same, of a supporting torsional spring having a lip extending from the same entering a slot formed in the lever, substantially as described.

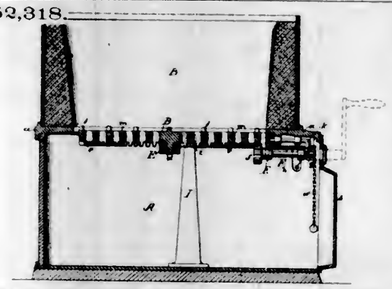
2. In a telegraph receiving-instrument, the combination, with an electro-magnet and its armature and a lever supporting the armature, of a flat spring secured to said lever and having an angled extension or lip and means for securing said lip to said lever.

3. The combination, with an electro-magnet, its armature, and armature-lever, of a flat supporting-spring secured to said lever at a central point, supports for the respective ends of said spring, a lip or angled projection upon one side of said spring, entering a slot in said lever, and an adjustable retractile spring applied to said lever.

4. In a telegraph receiving-instrument, the combination of an electro-magnet, its armature, a lever for the same, a flat torsional spring carrying said lever and having its ends rigidly supported, an arm attached to said lever, extending in a direction at right angles to said spring, and a retractile spring connected with said arm.

352,318. FURNACE-GRATE. WILLIAM HAMLAM, Philadelphia, Pa., assignor to David S. Creswell, same place. Filed Apr. 27, 1885. (No model.)

352,318.

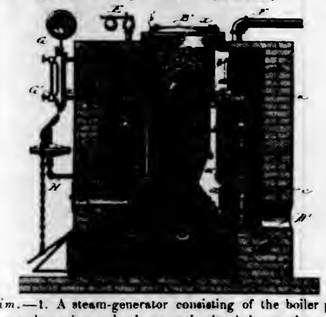


Claim.—1. The combination of a rotary grate, D, with a swinging grate-frame, E, the grate pivoted to the frame to turn thereon in a horizontal plane, and the frame pivoted at *i* in front of the pivot of the grate, as set forth.

2. The combination of the frame E, of rectangular form, pivoted at its sides in the furnace-casing, and having a socket, *d'*, with a grate having a central pivot-pin, *d*, adapted to the socket, a shaft, F, in bearings in the front portion of the frame, and having a pinion, *f*, gearing with a circular rack on the under side of the grate, substantially as set forth.

3. The combination of the pivoted frame E, a grate, D, pivoted to rotate thereon, and the frame E, pivoted off the center of the grate D, with a chain, *w*, connected to the frame for returning the grate to its normal position after dumping, substantially as specified.

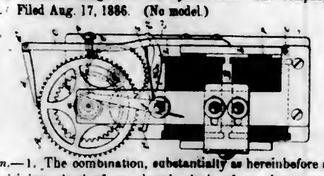
352,319. STEAM-GENERATOR. HENRY HAYES and BERTINE P. BONNELL, Chicago, Ill. Filed Apr. 20, 1886. (No model.)



Claim.—1. A steam-generator consisting of the boiler provided with the central opening, *a*, having a projecting ledge at *c'*, an enlarged opening in the portion below said ledge forming the fire-chamber, water-pipes a^2, connecting the water-space surrounding the fire-chamber at the sides with the water-space above it, two openings, D, near the top of and on opposite sides of the fire-chamber, the fuel-magazine B in separate sections $b\ b^2$, each provided with a flange, *b'*, at the top, adapted to rest on the top and on ledge at *c'* of the central opening, and the brick-work or outer covering, I, with space between it and the boiler, and common flue D', located at the bottom of said space, as and for the purpose specified.

2. In a steam-generator, the fuel-magazine B, composed of separate sections $b\ b^2$, each provided with a flange, *b'*, in combination with the central opening, *a*, of the boiler, provided with a ledge at *c'* for resting the flange of said lower section upon, and having the flange of said upper section resting on its edge at the top, substantially as specified.

352,320. SECONDARY ELECTRIC CLOCK. JOHN F. HEDER, Jr., Providence, R. I., assignor to the Synchronous Time Company, Boston, Mass. Filed Aug. 17, 1886. (No model.)

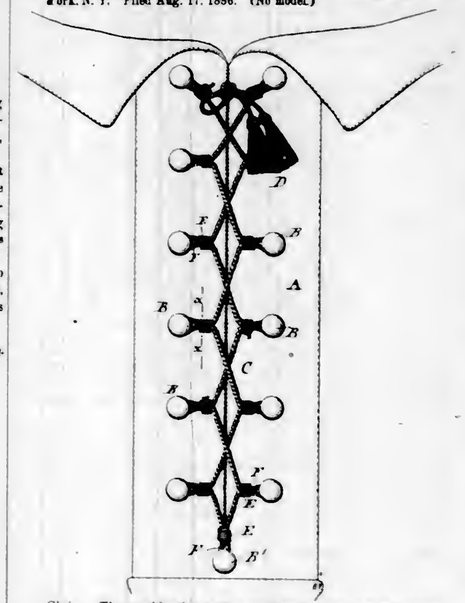


Claim.—1. The combination, substantially as hereinbefore set forth, with the driving-wheel of an electric clock, of an electro-magnet, its armature and armature-lever, a driving-pawl pivoted to said lever for actuating said driving-wheel, and the lever L, having its curved end *l'* in constant engagement with said armature-lever, while the other end engages with said driving-wheel.

2. The combination, substantially as hereinbefore set forth, of the driving-wheel A, the electro-magnet, its armature and armature-lever, the pawl *d*, the catch *c*, and the lever L, having the curved end *l'* in constant engagement with the armature-lever.

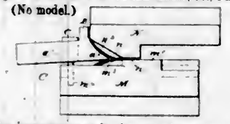
3. The combination, substantially as hereinbefore set forth, of the driving-wheel A, the electro-magnet, its armature and armature-lever, the pawl *d*, the catch *c*, the curved lever L, kept in engagement with the armature-lever by the slot *e*, and the spring-pawl *f*, engaging the ratchet *a*.

352,321. COMBINED SHIRT AND LACING. ARNOLD HEPNER, New York, N. Y. Filed Aug. 17, 1886. (No model.)



Claim.—The combination, with a shirt having two rows of buttons, of a single lace doubled at intervals to form loops for receiving the buttons, upon each of which loops a sleeve is mounted, the lace crossing each other and passing alternately from a sleeve of a loop on one row of buttons to the sleeve of a loop on the next higher button of the opposite row, substantially as shown and described.

352,322. MANUFACTURE OF VISE-HEADS. JOHN C. HERMAN, St. Louis, Mo., assignor of one-half to Frank Krein, Jr., same place. Filed May 24, 1886. (No model.)



Claim.—1. An improvement in the art of making vise-heads, consisting in first plugging the jet to the blank; secondly, shaping the jet in a die and simultaneously welding it to the blank, and, thirdly, spreading the head, substantially as set forth.

2. In devices for the manufacture of vise-heads, the combination, with a lower die provided with a hole adapted to receive a pivotal bolt or pin for holding and manipulating the blank on the die, of an upper die acting in conjunction with the lower die for shaping the head, substantially as set forth.

3. In devices for the manufacture of vise-heads, the combination, with the upper die provided with the beveled face having the fuller raised therefrom, of the lower die acting in conjunction with the upper die, substantially as set forth.

4. In devices for the manufacture of vise-heads, the combination, with the lower die having the fuller formed on the upper face thereof, and devices for loosely securing the blank thereto, of the upper die having the fuller formed on the lower face thereof, the said fullers adapted to work on the blank with a combined draw and pressure stroke, substantially as set forth.

352,323. INKING-PAD. BENJAMIN B. HILL, Philadelphia, Pa. Filed June 17, 1884. (No model.)

352,323.

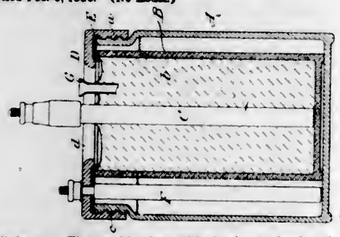


Claim.—1. As a new article of manufacture, an inking-pad having a filling, an inclosing-frame therefor, and a flexible covering passing over the top of the filling and under both frame and filling and securing the two together, substantially as described.

2. An inking-pad having the following elements: the close-bottomed box A, the interior hollow frame, B, the filling inclosed in said frame, and the flexible covering D, holding the filling within the frame and passing between the frame and the box, whereby said box performs the double function of holding the ink with which the filling is saturated and securing the covering on the frame, substantially as described.

3. In an inking-pad, a frame inclosing the filling and having a projection, *b*, to keep said filling from rising above the frame, substantially as described.

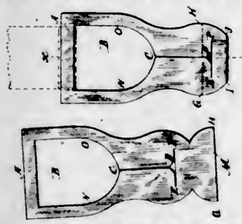
352,324. GALVANIC BATTERY. JOHN W. HOFFMAN, Pullman, Ill. Filed Feb. 8, 1886. (No model.)



Claim.—1. The combination, with the jar A, having the threaded upper end, of the cup B, located in said jar A and having its upper edge on a plane with that of the jar, the cover having the opening, as shown, and the gasket resting on the upper edges of the jar and cup and clamped upon the latter by the cover, as set forth.

2. The combination, with the jar A, containing an exciting-fluid and having a threaded upper end, and the zinc pole located in the jar A, of the porous cup containing broken carbon and a carbon pole, the cover having an opening, *d*, the gasket resting on the upper edges of the jar and cup, the cover clamping the gasket in place, and the air-tube G, extending from the porous cup, substantially as set forth.

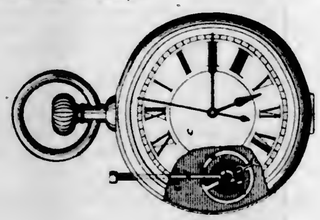
352,325. GARMENT-SUPPORTER. JOHN C. JENSEN and FRANK A JOHNSON, Chicago, Ill. Filed Oct. 13, 1884. (No model.)



Claim.—1. The hose-supporter consisting of a piece of sheet metal having an opening, B, a vertical slit leading downward therefrom, a transverse slit at the bottom of the vertical slit, and a stop attached to the lower end of the body, and located back of and extending above the transverse slit to support the jaws formed by the slits, substantially as described.

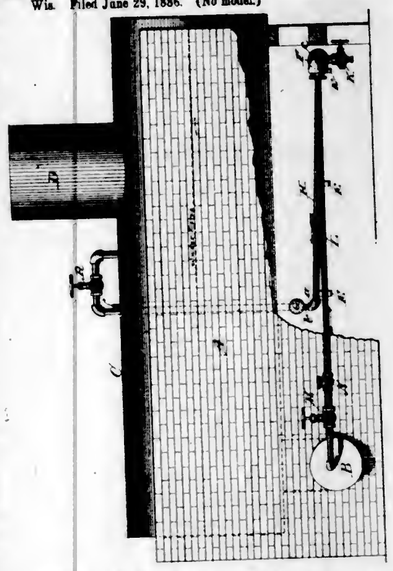
2. The hose-supporter consisting of a single piece of sheet metal provided with an opening, B, a central slit, C D, and a transverse slit, E F, and also having its lower end upturned on the back side to form a stop for the jaws formed by the slits, substantially as described.

352,326. STOP-WATCH. ARTHUR O. JENNINGS, Southport, Conn. Filed June 7, 1886. (No model.)



Claim.—In combination with the arbor *a* of the balance-wheel of a watch or analogous structure, the slide *d*, carrying the elastic arm *f*, all adapted to bring said elastic arm in contact with said arbor at right angles with the axis thereof, and to move said arbor by moving said slide, as specified.

352,327. STEAM-BOILER FURNACE. ALLEN R. JONES, Milwaukee, Wis. Filed June 29, 1886. (No model.)

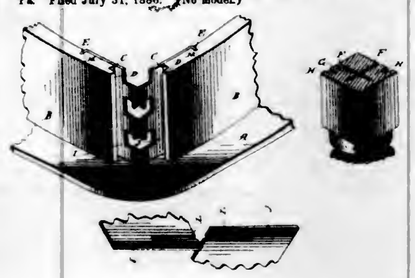


Claim.—1. In a steam-boiler furnace, a tubular grate consisting of a transverse front header-pipe, a similar rear header-pipe that has a series of vertically-depending nipples, and a series of longitudinal pipes that unite the front header with the nipples of the rear one, in combination with a feed-water pipe connected to said front header, and a discharge-pipe united to said rear header and arranged to have its outlet into the boiler above the water-line, substantially as and for the purpose set forth.

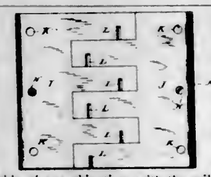
2. In a steam-boiler furnace, a tubular grate consisting of transverse front and rear header-pipes set at different elevations, the rear header being provided with a series of vertically-depending nipples, and a series of longitudinal pipes directly connected to the front header and coupled to the nipples of the rear one, in combination with a feed-water pipe that connects with said front header, and a discharge-pipe united to said rear header and having an outlet into the boiler above the water-line, substantially as set forth.

3. In a steam-boiler furnace, a tubular grate consisting of transverse front and rear header-pipes, the former one of which is provided with a blow-off valve and the latter with a series of vertically-depending nipples, and a series of longitudinal pipes uniting the front header with the nipples of the rear one, in combination with a feed-water pipe connected to said front header and provided with a cut-off and back-pressure valve, and a discharge-pipe united to said rear header and provided with a cut-off valve, said discharge-pipe being arranged to have its outlet into the boiler above the water-line, substantially as and for the purpose set forth.

352,328. TABLE LEG FASTENING. HENRY A. KAUFHOLD, Scranton, Pa. Filed July 31, 1886. (No model.)



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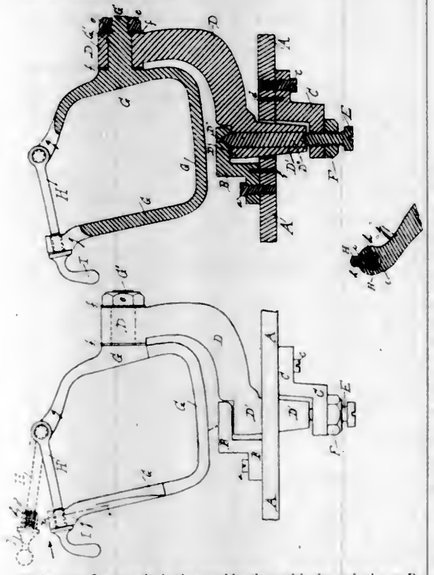
Claim.—1. In a table, the combination, with the rails having kerfs and tenons and the legs having intersecting slots which at the point of intersection extend beyond each other, and having rabbets, of the locking-plates having flanges which engage said kerfs and connect with the rails, and provided with interlocking projecting ends which extend beyond each other and fit into the said slots in the leg.

2. In a table, the combination, with the rails, of two distinct locking-plates secured to the rails, and each provided with projecting ends which cross and which interlock with each other, and the legs having slots which at the point of intersection extend beyond each other, and which are adapted to receive the plates and their ends.

3. A table-leg lock consisting of two distinct plates, each having projecting ends which cross and which interlock with each other.

4. A table-leg lock consisting of two plates having projecting ends provided with slots, the slots in the projecting ends of the one plate being on the opposite side to the slots in the projecting ends of the other plate, whereby they may be interlocked and yet be of the width of only one set of ends.

352,329. ROWLOCK. EDWARD J. KERNS, Worcester, Mass. Filed May 29, 1886. (No model.)



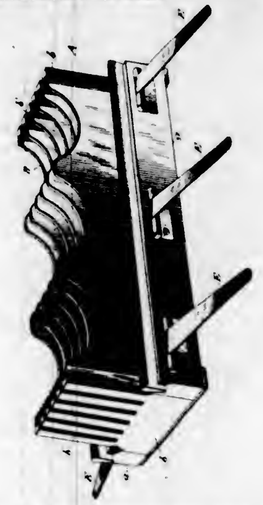
Claim.—1. In a rowlock, the combination, with the swivel-arm D, supported at its lower end and swiveling horizontally upon two tapering centers, of the oar-lock G, provided with a journal, G', extending out from one side thereof and having its bearing in the upper end of the arm D, so that said oar-lock will have a vertical oscillating motion independent of the motion of the arm D, in the manner substantially as shown and described.

2. In a rowlock, the combination, with the swivel-arm D, having a swiveling horizontal motion upon two tapering centers, of an adjusting-screw, E, and means for supporting said arm and screw, substantially as set forth.

3. The combination, with the oar-lock G, open at the top and provided with a slot, *i*, in the upper end of one of its arms, of the rod H, hinged at one end to the upper end of the other arm of the oar-lock G, and provided with a movable hub, *h*, at its other end, adapted to engage with the slot *i* and lock the oar in the oar-lock, in the manner substantially as shown and described.

4. In a rowlock, the curved supporting swivel-arm D, swiveling horizontally upon two tapering centers formed at its lower end, and means for supporting said arm, in combination with the oar-lock G, supported in the upper end of the swivel-arm D, in the manner substantially as described, and having a vertical oscillating motion independent of the motion of the arm D, so that both motions will be upon one universal center, substantially as set forth.

352,330. METHOD OF AND APPARATUS FOR FORMING ARTICLES OF FLEXIBLE MATERIAL. ISAAC B. KLEINERT, New York, and ARTHUR C. SQUIRES, Brooklyn, N. Y.; said Squires assignor to said Kleinert. Filed June 10, 1886. (No model.)



Claim.—1. The herein-described method of forming articles of flexible material, which consists in passing a fold of the material into one of a series of cells and temporarily holding the same while another cell is filled, then inserting another fold of the material into another of the cells, and repeating said operation until the necessary folds have been inserted in the cells, and finally pressing simultaneously a series of stretchers into the cells, substantially as described.

2. The herein-described method of forming articles of flexible material, which consists in passing a fold of the material into one of a series of cells and temporarily holding the same while another cell is filled, then inserting another fold of the material into another of the cells, and repeating said operation until the necessary folds have been inserted in the cells, next pressing simultaneously a series of stretchers into the cells, then submitting the material to a setting operation, and finally cutting the different articles apart and trimming their edges simultaneously by a cut at right angles to the folds, substantially as set forth.

3. The combination, in a machine for forming articles of flexible material, of a fraine provided with a series of partitions forming cells between them adapted to receive folds of the material being operated on, means, as the pins G, for securing the edges of the material, a series of stretchers constructed to pass between the folds, and means, as the board D and fasteners E, for holding the stretchers in position, substantially as described.

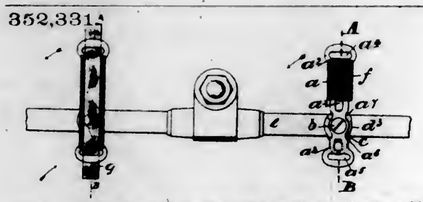
4. The herein-described method of forming articles of flexible material, which consists in forcing the same between a series of partitions or formers, the outlines of whose upper edges are substantially the shape of the fold of the articles to be formed, then subjecting the same to vulcanization, and finally cutting said articles apart and trimming the same to shape simultaneously, substantially as described.

5. The combination, in a machine for forming articles of flexible material, of a frame provided with a series of stationary partitions or formers whose upper edges are substantially the shape of the fold of the article to be formed, a series of movable shapers whose lower edges are substantially the shape of another fold or edge of the article to be formed, and means, as the board D and fasteners E, for holding the said shapers in position, substantially as described.

6. The combination, in a machine for forming articles of flexible material, of a frame provided with the side bars, *a*, the slotted end bars, *b*, the partitions B, shapers C, top board, D, and fasteners *d* E, substantially as described.

352,331. LUGGAGE-CARRIER FOR VELOCIPEDES. JAS. A. LAWLOR, Birmingham, England. Filed Sept. 6, 1886. (No model.) Patented in England Jan. 6, 1886, No. 135, and Feb. 12, 1886, No. 2,069; in France Mar. 6, 1886, No. 174,579, and in Germany Mar. 10, 1886, No. 4,394.

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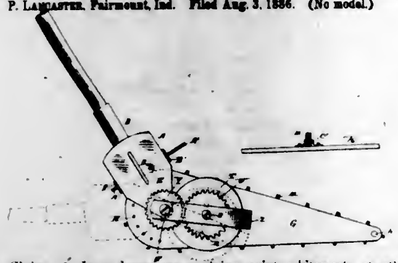


Claim.—1. In a luggage-carrier for bicycles, the combination, with the handle of the bicycle, of a clamp embracing said handle, a plate pivotally secured to said clamp, and straps or equivalent luggage-securing devices on said plate, substantially as described.

2. In a combined luggage-carrier and leg-rest, the combination, with the handle and a clamp embracing the same, of a luggage-carrying plate and leg-rest pivotally secured to said clamp and provided with an elastic facing, substantially as described.

3. The combination, with the handle *a* and grip-bracket *d*, having the stop *c*, of the swiveled plate *a*, having the shoulders a^4 a^5, adapted to impinge against said stop and limit the movement of the said plate, substantially as described.

352,332. PAINTING AND WHITEWASHING MACHINE. CHARLES P. LANCASTER, Fairmount, Ind. Filed Aug. 3, 1886. (No model.)



Claim.—1. In a device for applying paint, whitewash, or other substances to surfaces, the combination of a receptacle having a slot for the emission of the paint or wash, the movable frame having rollers carrying a moving belt provided with brushes, and the mechanism for driving the belt to apply the paint or wash, substantially as specified.

2. The combination, with the receptacle or reservoir, of the tube secured to the same, and serving for filling and as a socket for the handle, substantially as specified.

3. The combination, with the receptacle having a curved slotted front, of the regulating-slide and its rod passing through stuffing-boxes in the walls of said receptacle, substantially as and for the purposes set forth.

4. The combination, with the receptacle and its wings, of the frame pivoted between said wings and carrying the belt-rollers and the belt and the springs secured to the receptacle, adapted to engage apertures in the sides of the frame to adjust its position, substantially as and for the purposes set forth.

5. The combination, with the frame pivoted between the wings of the receptacle, of the adjustable plain wheels and their bolts, whereby the frame may be adjusted so as to cause the brushes to bear with more or less force against the surface to be coated, substantially as set forth.

6. The combination, with the plain wheel and its cog-wheel mounted at one side of the belt-frame, of the intergearing cog-wheel mounted on the shaft of the driving-roller of the belt, substantially as and for the purposes set forth.

7. The combination, with the shaft of the driving-rollers and the driving cog-gearing, of the frame pivoted to said shaft, and forming a support for the driving-gearing, substantially as set forth.

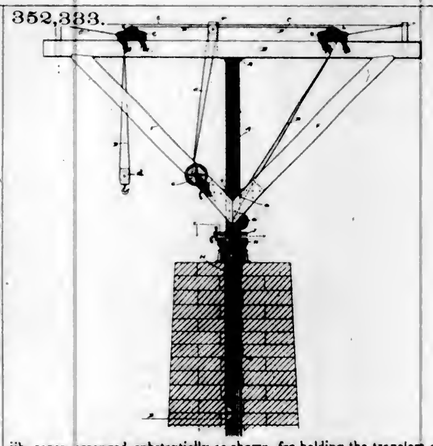
352,333. DERRICK. JEREMIAH LE DUKE, Berea, Ohio. Filed July 13, 1886. (No model.)

Claim.—1. The combination, with a post, a jib rigidly secured to the top thereof, and a tube inclosing the lower portion of the post, of anti-friction balls or wheels for supporting the post vertically and laterally and devices secured to the upper end of the tube and engaging the post for revolving the latter, substantially as set forth.

2. In a derrick, the combination, with a hollow post, a jib mounted thereon, and a tube for supporting the post, the parts being arranged substantially as indicated, of a worm-gear secured to the post, a worm mounted on an attachment of the outer tube for engaging the worm-gear for revolving the post, and an eccentric yoke for supporting the worm, said yoke furnishing means for engaging and disengaging the gear, substantially as set forth.

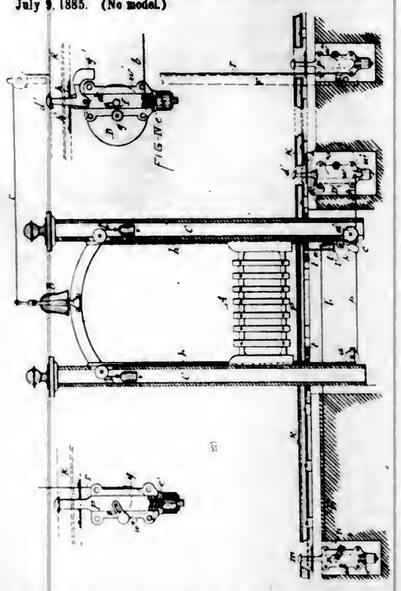
3. In a derrick, the combination, with a post and a jib mounted thereon, substantially as indicated, of so-called travelers mounted on the

352,333.



jib, ropes, arranged substantially as shown, for holding the travelers on opposite sides of and at equal distances from the line of the post, and hoisting-ropes, arranged substantially as shown, and made to pass over the sheaves of the respective travelers, whereby the draft of the hoisting-ropes is sustained equally by the two arms of the jib.

352,334. RAILWAY-GATE. FREDERICK MARBLE, Jr., Oneida, N. Y. July 9, 1885. (No model.)



Claim.—1. In combination with the counterbalanced gate, the sheaves *a a'* under the gate, the drum D, ropes or chains *b b*, extending from the drum around the sheaves and to the gate, the ratchet *g*, attached to the shaft of said drum, the plunger *d*, sustained in its elevated position by the spring *e*, the pawl *f*, connected to the plunger, the plate *h*, arranged at the side of the rail R and provided with the guide-slot *h'*, and the arm *d'*, pivoted on the plunger and projecting through the slotted plate *h*, and held normally erect by the counter-weight *g'*, substantially as described and shown.

2. In combination with the counterbalanced gate A, sheaves *a a'*, drum D, ropes or chains *b b*, extending from the drum to the gate, one of which is wound around the sheave *a'*, the arm *d'*, and mechanism for transmitting motion from said arm to the drum, as set forth, the ratchet *c*, attached to the sheave *a'*, the pawl *k*, the lever *l l'*, engaging said pawl, the spring-sustained plunger *m*, the lever *n*, having the arm *n'* connected with the plunger, and the rope or chain *b'* connecting the lever *n* with the lever *l*, substantially as set forth and shown.

3. In combination with the overbalanced gate, the sheave *a'*, rope or chain *b*, wound on said sheave and connected with the gate, the ratchet *c*, attached to the sheave *a'*, the pawl *k*, the platform P, mounted on springs *t*, and the stirrup *u*, for transmitting motion from the platform to the pawl *k*, to throw the latter out of engagement with the ratchet, substantially as and for the purpose specified.

352,335. CATTLE-PRICKER BELT. JACKSON M. MARKHAM, Williamsville, Mo. Filed Sept. 18, 1886. (No model.)



Claim.—1. The device described, consisting of a belt having elastic fingers carrying spurs, the spurs being provided with the spring-actuated shields, all constructed and arranged substantially as and for the purpose set forth.

2. The device described, consisting of a belt provided with a pad, the fingers secured to the belt, spurs secured to the fingers, thimbles surrounding the spurs, and spring-actuated shields within the thimbles, substantially as and for the purpose set forth.

3. In a device for the purpose stated, the combination, with a belt and a strap and buckle to secure the belt in place, of the fingers C, provided with spurs, substantially as described, for the purpose set forth.

4. In a device for the purpose stated, the combination, with the belt provided with a strap, buckle, and saddle, of the fingers attached to the belt and provided with spurs, substantially as described, for the purpose set forth.

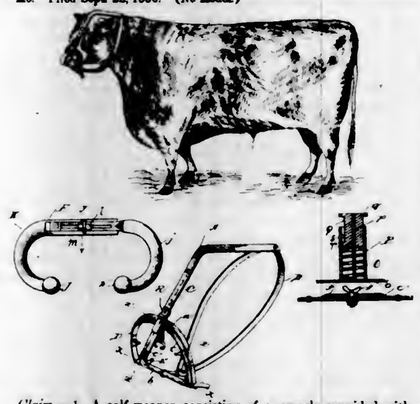
5. In a device for the purpose stated, the combination, with the belt provided with the saddle, strap, and buckle, of the fingers adjustable on said belt by means of screws, said fingers being provided with spurs, substantially as described, for the purpose set forth.

6. In a device for the purpose set forth, the combination, with the belt having the saddle, strap, and buckle, of the fingers, the plate *c*, thimble D, spur *c'*, spring F, surrounding said spur, and the guard G, substantially as described.

7. In a device for the purpose set forth, the combination, with the belt provided with a saddle, strap, and buckle, of the fingers provided with the plate, thimble, and spur, the guard G, having a flange, *g*, shoulder *e*, and cut-away part H, and the pin *f*, substantially as described.

8. The spur-finger consisting of a bar or plate of elastic or spring material, provided with perforations and bent midway of its length to form a slot, and having the plate *c*, thimble D, and spur *c'* seated in its unbent ends, the spring F, surrounding said spur, the guard G, provided with the flange *g*, shoulder *e*, and cut-away portion H, and the pin *f*, passing through the thimble D, and abutting against the cut-away portion to limit the movement of the guard, substantially as described.

352,336. CALF-WEANER. JACKSON M. MARKHAM, Williamsville, Mo. Filed Sept. 22, 1886. (No model.)



Claim.—1. A calf-weaner consisting of a muzzle provided with a nose-bow, having inner side barbs, the curved adjustable central front plate having a barb on its inner front end, and the adjustable nose-clamp suspended from said nose-bow, as set forth.

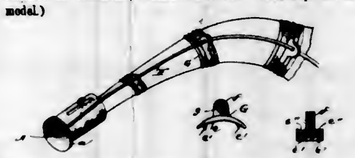
2. The muzzle provided with the semicircular nose-bow armed with barbs on its inner side, and the curved adjustable central front plate having barbs, said barbs being provided with spring-actuated shields, in combination with the adjustable nose-clamp, as set forth.

3. A calf-weaner consisting of the yoke, the face-strap, lip or curb strap, the nose-bow provided with barbs on its inner side, the adjustable curved central front plate, also provided with a barb, and means for attaching said parts together, as described, in combination with an adjustable nose-clamp suspended from said nose-bow, in the manner described.

4. The nose-clamp consisting of two curved arms having a tip at each of their outer ends and adjustably secured together in the middle, in the manner shown, in combination with a nose-bow having barbs arranged on its inner side and the curved adjustable central front plate, also provided with barbs, as set forth.

5. In a calf-weaner, the combination of the adjustable nose-clamp with a muzzle having a nose-bow provided with barbs on its inner side, arranged as described.

352,337. DEVICE FOR PREVENTING CATTLE FROM GORING. JACKSON M. MARKHAM, Williamsville, Mo. Filed Sept. 22, 1886. (No model.)

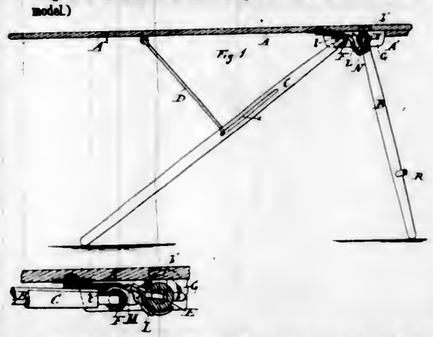


Claim.—1. The combination of the socket and spring with the wire barb secured at one end to said socket and the guiding-plates for said wire barb, all arranged as described.

2. The combination of the socket having an external circumferential flange, and slots on the sides of said socket, the spring secured therein, the plug fitting in the bottom of the socket, the barb secured at one end to the socket, suitable guides or plates, and means for attaching the same at proper intervals along the horn of an animal, as set forth.

3. The combination of the socket having an external circumferential flange, and the slots on each side thereof, the spring secured within, the plug, the screws entering said plug, the wire barb, the guiding-plates having teeth on their bottoms, and grooves, as shown, the lugs having eyes therein and wires for attaching said plates to the horn of an animal, as set forth.

352,338. IRONING-BOARD. JOSEPH MATTHIAS, New York, N. Y., assignor to L. Rosie Matthias, same place. Filed Dec. 14, 1885. (No model.)



Claim.—1. The combination, with the ironing-board A, of the legs B B, secured to the shaft E, and the leg C, secured to the shaft F on the under side of the board and at or toward one end thereof, so as to open and form supports for the board or fold up against the same, the shaft E being provided with projections *b b*, adapted to stop and control the extent of the opening of the legs B B, and the leg C being slotted and provided with a bent or double brace sliding therein, and hinged at its ends to the under side of the board, substantially as and for the purposes set forth.

2. In an ironing-board, the combination, with the board A, of the end legs, B B, and middle leg, C, which is provided with the sliding brace D, hinged on the under side of the board at or toward one end thereof, so as to open and form supports for the board or fold up against the same, and the latch L, hinged to the board, so as to drop by gravity, and constructed with a central elongated slot, M, and provided with the projection *l*, and the catch N, adapted to move in and engage with the slotted latch, all constructed substantially as described, and for the purposes set forth.

3. In an ironing-board, the automatic latch for locking the end

legs when extended, consisting of the latch L, hinged to the board, so as to drop by gravity, and having the slot M formed with the openings *m m*, the narrow long opening *m'*, and the ribs *m²*, in combination with the catch N, provided with the ribs *n²* and notches *n' n'*, and adapted to move in and engage with the slotted latch, substantially as described, and for the purposes set forth.

4. In an ironing-board, the automatic latch for locking the end legs when extended, consisting of the latch L, hinged to the board, so as to drop by its own weight, and provided with the elongated slot M, and the projection *l*, in combination with the catch N, adapted to engage with the slot M, constructed substantially as described, and for the purposes set forth.

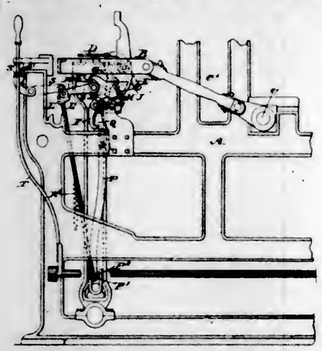
352,339. METALLIC PICKET FENCE. EDWARD F. MCCARRON, St. Louis, Mo. Filed May 15, 1886. (No model.)



Claim —1. The combination, in a fence, of the horizontal metal bars C, having flanges C^2 and slots C', with metal pickets having twisted shoulders above and below one or more of the intersecting bars, and locking the pickets to said bars, substantially as set forth.

2. The combination of the horizontal metal bars having flanges and being provided with slots, with flat metal pickets having shoulders formed thereon by twisting them at each passage through the slots in the bars and at right angles to their adjacent positions, substantially as described, and for the purpose set forth.

352,340. STOP-MOTION FOR LOOMS. BENJAMIN F. MEYER, Camden, N. J., and MAGNUS KOHLER, Philadelphia, Pa., assignors to M. A. Furbush & Son Machine Company, Camden, N. J. Filed June 26, 1885. (No model.)



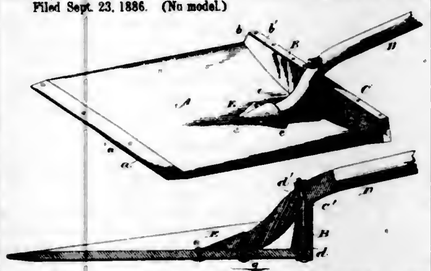
Claim.—1. A lay, in combination with the feeler K, pivotally secured to said lay, the nose L, pivotally secured to said feeler, the double-inclined piece M, the grid-plate D, the rock-shaft D^4, having bearings in the rear of the lay, means, substantially as described, for imparting a rising-and-falling motion to said grid-plate D, the bar G, the arm E connected to the rock-shaft D^4, the angular piece H, the link J, pivotally connecting said arm E and angular piece H, the pawl F, the shipping-lever T, and mechanism, substantially as described, intermediate of said pawl F and said shipper T, whereby said shipping-lever is shifted, all substantially as described.

2. A lay and means, substantially as described, for operating the same, in combination with the oscillating feeler K, provided with the stop K' and pivoted nose L, the double-inclined piece M, the bar G, the angular piece H, pivoted to said bar G, the rock-shaft D^4, carrying the grid-plate D, the arm E, connected by the link J to the arm H, the said arm E being mounted on the said rock-shaft D^4, the shipping-lever T, the mechanism, substantially as described, intermediate of said bar G and said shipping-lever T for shifting said lever T, all substantially as described.

3. A lay and means, substantially as described, for operating the same, in combination with a feeler having a pivoted nose, a double-inclined piece on which said nose rides, the rising-and-falling bar G, the angular piece H, pivoted to said bar G and adapted to be operated by said feeler, the rock-shaft D^4, having bearings in the rear of the lay and carrying the grid-plate D, the arm E, mounted on said rock-shaft, link J, connecting said piece H and arm E, the pawl F, pivotally connected to said rising-and-falling bar G, the bar P, formed with a nose adapted for engagement with said pawl, the shipping-lever T, and mechanism, substantially as described, intermediate of said bar P and shipper-lever T, whereby said lever is shifted at the falling of said bar P, all substantially as described.

4. A lay provided with a grid-plate, and means, substantially as described, for operating said lay and grid-plate, in combination with a feeler provided with a stop, a spring, and a pivoted nose, a double-inclined piece on which said nose rides, a pawl pivoted to the lay and having an upper limb, a rising-and-falling bar pivoted to said upper limb and having an angular piece pivoted thereto, mechanism, substantially as described, intermediate of and connecting said angular piece and grid-plate, a rising-and-falling bar adapted to engage said pawl, a shipping-lever, and means, substantially as described, intermediate of the last-described rising-and-falling bar and the shipping-lever, whereby said lever is shifted by the falling of said bar, all substantially as described.

352,341. WOODEN SHOVEL. HENRY MIDDLETON, Houlton, Me. Filed Sept. 23, 1886. (No model.)

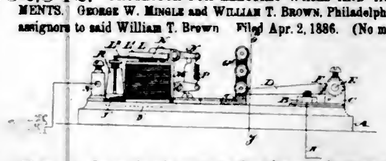


Claim.—1. In a wooden shovel, substantially as shown, a blade, A, having a rear curved portion, a back piece, B, having the under side thereof curved, and a handle attached to the upper edge of said back piece and to the shovel-blade in front of the same, substantially as shown, and for the purpose set forth.

2. In a wooden shovel, a blade having a straight front edge, the rear edge thereof being curved in cross-section and provided with a back piece, B, a handle attached to the back piece and upper edge of the shovel-blade, substantially as shown.

3. In combination with a wooden shovel, a blade having a straight front edge and a curved rear edge, a back piece, B, having the lower portion thereof curved, a binding-strip, C, encircling the upper and side edges of the back piece and the lower rear edge of the shovel-blade, the center portion of said back piece being recessed for the reception of the handle, a bolt, *d*, for securing the handle to the back piece, and a socket-plate, E, for the reception of the front end of the handle, the parts being organized substantially as shown, and for the purpose set forth.

352,342. PROTECTOR FOR ELECTRIC WIRES AND INSTRUMENTS. GEORGE W. MINGLE and WILLIAM T. BROWN, Philadelphia, Pa., assignors to said William T. Brown. Filed Apr. 2, 1886. (No model.)



Claim.—1. In an electric protector for wires and instruments, the combination of an insulating-base having thereon a rotating lever, fusible wires, and an electro-magnet having an armature normally in the electric circuit and adapted to complete the connection with the ground-wire, substantially as and for the purpose set forth.

2. An electric protector for wires and instruments, having a rotating lever, fusible wires adapted to be in contact with said lever, an electro-magnet having its coil electrically connected to said fusible wires, an armature electrically connected to said coil and adapted to be brought in contact with the core of said magnet when an abnormal current of electricity is passed through the said circuit, and a ground-wire attached to said core, all of said parts being combined and arranged substantially as and for the purpose set forth.

3. In an electric protector for wires and instruments, a rotating lever, fusible wires adapted to be in contact with said lever, an electro-magnet having its coil electrically connected to said fusible wires and to the instrument to be protected, and means, substantially as described, actuated by the passage of an abnormal current of electricity for grounding said current without shunting the electro-magnet, all combined substantially as described.

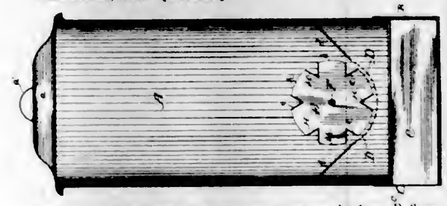
4. In an electric protector for wires and instruments, a rotating lever, fusible wires, an electro-magnet, a binding-post, wires electrically connecting the coil of said magnet, fusible wires and binding-post, a tap-wire connecting said binding-post and the base of the armature-support, a contact-post having a ground-wire, all of said parts being combined and arranged whereby an abnormal current of electricity may be grounded without passing to the instrument to be protected.

5. In an electric protector for wires and instruments, an insulated base, A, having suitably secured thereon a rotary lever, fusible wires on supports G G', the former metallic, the latter insulated, the electro-magnet J, electrically connected to fusible wires and to binding-post S, all of said parts being combined substantially as and for the purpose set forth.

6. In an electric protector for wires and instruments, a rotating lever, fusible wires in contact with said lever, an electro-magnet having its coil in electric connection with said wires and a binding-post, the latter having a wire connection with the instrument to be protected, an armature adapted to be brought in contact with the core of said magnet, a ground from said core, and a tap-wire electrically connecting the said binding-post to the base of said armature-support, all of said parts so combined and arranged whereby an abnormal current may be grounded, substantially as and for the purpose set forth.

7. An electric protector for wires and instruments, having a metallic armature-support with the armature, an electro-magnet having its coil connected to a binding-post, and a wire electrically connecting said binding-post with the base of the armature-support, whereby an abnormal current of electricity passing through said coil, while actuating the armature and grounding the current, continues to magnetize the core of the magnet during the passage of the said abnormal current, substantially as described.

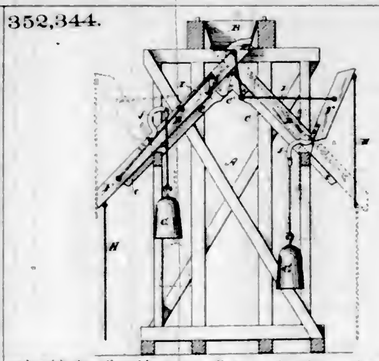
352,343. FLOUR-SIFTER SAFE. SERENO E. NORTON, Chicago, Ill. Filed Feb. 26, 1886. (No model.)



Claim.—1. A flour-safe, A, comprising a rectangular base, B, flour-pan C, fitting in said base, horizontal semi-cylindrical sieve D, secured near the bottom of said safe above said pan, a horizontal rotary skeleton stirrer, E, having V-shaped blades H concentric with said sieve, and a shaft and crank for revolving the same, said V-shaped blades being arranged with their apices radially inward, so that their outer V-shaped recesses will receive and carry the flour around against the sieve and rub it through the same, substantially as specified.

2. A flour-safe, A, comprising a rectangular base, B, flour-pan C, fitting in said base, horizontal semi-cylindrical sieve D, secured near the bottom of said safe above said pan, a horizontal rotary skeleton stirrer consisting of disks E E, having notches *e*, shaft F, V-shaped blades H, secured in the notches of said disks, and crank *f*, said V-shaped blades being arranged with their apices radially inward, so that their outer V-shaped recesses will receive and carry the flour around against the sieve and rub it through the same, substantially as specified.

352,344. COAL-DISTRIBUTING CHUTE. CORNELIUS M. O'DONOVAN, Omaha, Nebr. Filed May 18, 1886. (No model.)

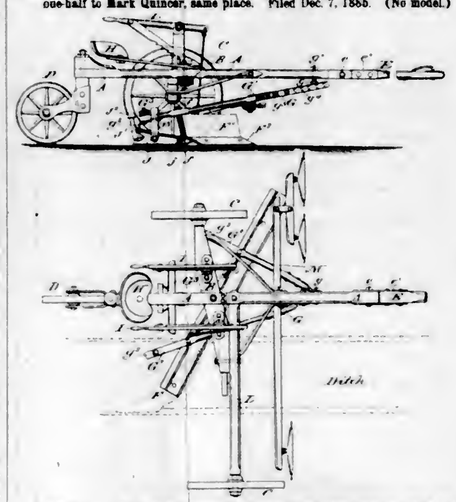


Claim.—1. In an apparatus for distributing coal or other material, two chutes provided with adjustable aprons hinged to their lower ends, in combination with a tilting gate located above the upper end of the chutes, and suitable means connecting the adjustable aprons with the tilting gate, all arranged and operating to the end that as either of said aprons is adjusted in position for service the gate will be tilted to communicate with the chute desired to be used and will be held in position, substantially as shown and described.

2. In an apparatus for distributing coal or other material, a hopper or receiver supported on a suitable framing and having an open bottom, two chutes located below the bottom of the hopper or receiver and provided with adjustable aprons hinged to their lower ends, in combination with a tilting gate located intermediately between the bottom of the hopper or receiver and upper ends of the chutes, and connected by suitable rods with the adjustable aprons, all arranged and operating to the end that as either of said aprons is adjusted in position for service the gate will be tilted to communicate with the chute desired to be used and will be held in position, substantially as shown and described.

3. In an apparatus for distributing coal or other material, the hopper B, having an open bottom, the inclined chutes D D, provided with the adjustable aprons F F, having the counterbalance-weights H H, in combination with the tilting gate E, located intermediately between the bottom of the hopper and upper ends of the chutes, and connected by suitable rods, I I, with the adjustable aprons, all arranged and operating substantially as shown and described.

352,345. ROAD-SCRAPER. JAMES M. ORPUT, Malta, Ill., assignor of one-half to Mark Quincer, same place. Filed Dec. 7, 1885. (No model.)



Claim.—1. In a wheel-mounted scraper, the combination, with an inclined scraper located between the wheels, of the wheel-spindles set out of line in a direction opposite the inclination of the scraper, substantially as described.

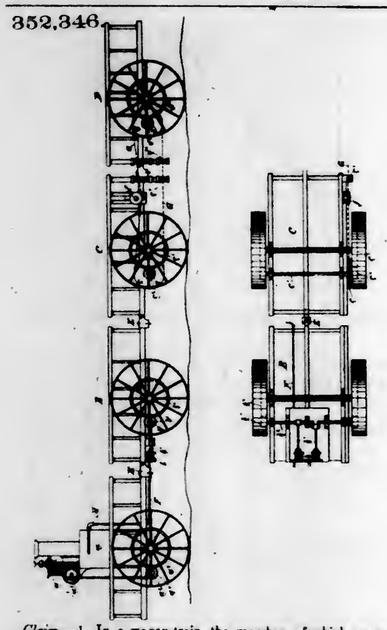
2. The combination, with a frame and its supporting-wheels set out of line, as shown, of an inclined scraper set between the wheels, and adapted to be adjusted to various angles of inclination with the line of draft, substantially as described.

3. The combination, with a supporting-frame, a scraper set obliquely to the line of draft, and a central longitudinal scraper-beam pivotally connected with the frame and supporting the scraper, of a rudder connected with the said scraper-beam and movable independently of the scraper, substantially as described.

4. The combination, with a scraper-frame and two supporting-wheels located one at each side of the scraper, of a single transverse axle affording bearings for both of said wheels, and an extension axle adapted for attachment to the frame in position to extend at one side of the frame, and constructed to afford bearings for one of said wheels, substantially as described.

352,346. SELF-PROPELLING WAGON-TRAIN. JONAS B. OSBORNE, Daggett, Cal. Filed July 22, 1886. (No model.)

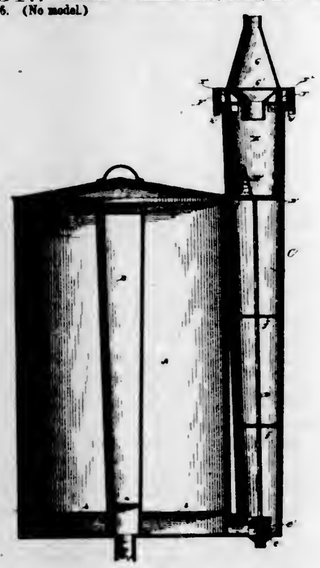
352,346.



Claim.—1. In a wagon-train, the members of which are suitably coupled, independent propelling-engines upon each member of the train and connected with the driving-wheels, and a steam-boiler upon the leading member of the train, connected with and operating the engine on the succeeding members, substantially as and for the purpose herein described.

2. In a wagon-train the members of which are suitably coupled, independent gearing upon each member of the train, by which its drive-wheels are operated, in combination with a steam-boiler on the leading member of the train, steam-engines upon each member of the train and connected with the gearing thereof, and suitable steam-pipes, by which the steam from the boiler is conveyed to the engines of each member of the train, substantially as described.

352,347. FILTER. William Piercy, Butler, Mo. Filed May 24, 1886. (No model.)



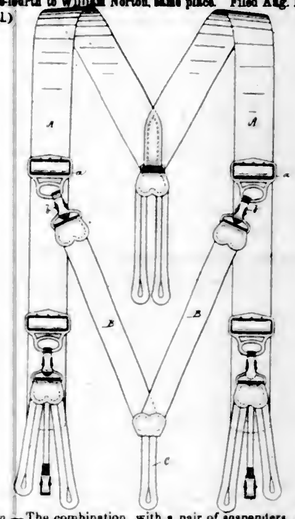
Claim.—1. In a filter, the combination, with the water-cup and its connected valve, of springs secured to a bracket of the inclosing tube or pipe and acting upon projections or arms of the cup, substantially as and for the purpose stated.

2. In a filter, the combination, with a water-cup having an aperture in its bottom and connected by a rod to a valve, of the springs connected at their one ends to brackets or supports applied to the inclosing tube or pipe, and at their other ends to projections or arms of the cup, substantially as and for the purpose indicated.

3. The combination, with the pipe or tube having the valve-covered opening, and the brackets secured to said pipe or tube, of the water cup or vessel having the valve-rod connected thereto, the springs bearing against overhanging arms of said cup or vessel, and the water-receiving pipe entering said water-cup, substantially as shown and described.

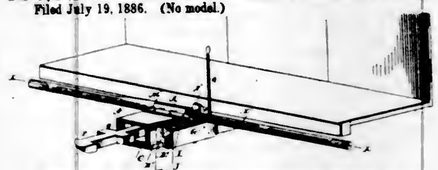
4. In a filter, the combination, with the tank having the central filtering-tube, and within the chamber surrounding said tube an upper and a lower perforated diaphragm, of the external tube or pipe having connection at its lower end with said tank, the water-pipe entering said external tube, the water-cup having an aperture in its bottom, and overhanging arms connected to springs resting on brackets of the tube, said water-cup being secured to a spider, and a rod connected to said spider and carrying a valve seated in the lower end of the said external tube or pipe, substantially as and for the purpose set forth.

352,348. SUSPENDERS. Francis M. Piper, Lynn, Mass., assignor of one-fourth to William Norton, same place. Filed Aug. 16, 1886. (No model.)



Claim.—The combination, with a pair of suspenders, of the straps B B and button attachment C, secured between the shoulder-straps of the suspenders in front and buttoning to the front of the trousers, for the purposes and substantially as specified.

352,349. CAR-COUPLING. Matthew M. Pittman, Findlay, Ohio. Filed July 19, 1886. (No model.)



Claim.—1. In a car-coupling, the combination of the rigid jaw having its inner face recessed and provided with a hook-shaped outer end, the spring secured in the rear of said rigid jaw, the pivoted jaw having a corresponding recess and hook-shaped outer end, the spring secured in the rear of said pivoted jaw, and means, substantially as described, for locking and unlocking the pivoted jaw.

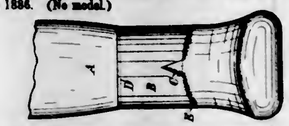
2. In a car-coupling, the combination of the rigid jaw having its inner face recessed and provided with a longitudinal groove and hook-shaped outer end, the spring secured in said groove, the pivoted jaw having a corresponding recess, groove, and hook-shaped outer end, the spring secured in said groove, and means, substantially as described, for locking and unlocking the pivoted jaw.

3. In a car-coupling, the combination of the rigid jaw having hook-shaped outer end, the pivoted jaw having corresponding hook-shaped outer end, the sliding lock or key having a series of cogs on the upper side thereof, the transverse shaft having a step or shoulder at one end, and the other end being provided with a cog-wheel, and lever for operating the sliding lock.

4. In a car-coupling, the combination of the rigid jaw having hook-shaped outer end, the pivoted jaw having corresponding hook-shaped outer end, the outer face of said end being provided with a laterally-extending flange or shoulder, the sliding lock or key having a series of cogs on the upper side thereof, the transverse shaft having its ends beveled, one of said ends having a step or enlargement, and the opposite end being provided with a cog-wheel, and lever for operating the sliding lock.

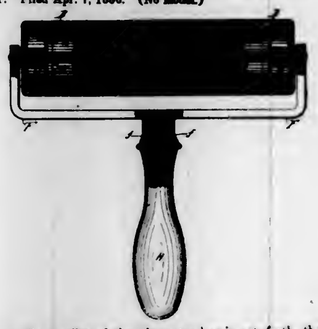
5. In a car-coupling, the combination of the rigid jaw having hook-shaped outer end, the pivoted jaw having corresponding hook-shaped end, the outer face of said end being provided with a laterally-extending flange or shoulder, the sliding lock or key having a series of teeth or cogs and a removable stop or button, the transverse shaft having its ends beveled, one of said ends having a step or enlargement, and the opposite end being provided with a cog-wheel, and a lever for operating the sliding lock.

352,350. FELT BOOT. Daniel B. Platt, Rochester, N. Y. Filed Aug. 20, 1886. (No model.)



Claim.—The herein-described felt boot A, provided with the continuous flexible band B around the ankle, attached thereto by stitching around its upper and lower edges, and provided with the slit C in the lower edge of the band above the instep, substantially as described.

352,351. PAPER-HANGER'S ROLLER. William P. Pope, Brooklyn, N. Y. Filed Apr. 7, 1886. (No model.)



Claim.—1. In a roller of the character herein set forth, the outer or covering sleeve turned in at the ends and held in place by removable plugs, substantially in the manner and for the purposes explained.

2. The combination, with the roller, of the centrally-perforated removable end plugs and the roller-axis passing through said plugs, substantially as shown and described.

3. In combination with a roller-axis projecting beyond the ends of the roller, a yoke for receiving the ends of the axis, said yoke being made in two separate parts arranged to be held together by the removable handle, substantially and for the purposes explained.

352,352. SAW-FILING IMPLEMENT. Piles A. Potter, Wellsborough, Pa. Filed July 29, 1886. (No model.)



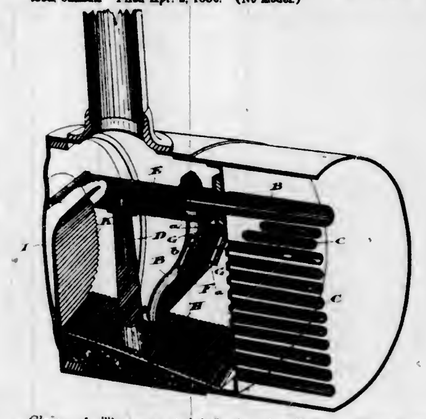
Claim.—1. In a saw-filing implement, for the purpose set forth, the combination of the bed-plate, a file pivotally secured above the same, means for rotating said file, and a gage extending over the same and provided with a series of notches, substantially as shown, and for the purpose set forth.

2. In a saw-filing implement, the bed-plate provided with adjusting-screws *a a*, a rotary file with an inwardly-inclined face, and a gage-plate adjustably attached to the bed-plate above the file, substantially as shown, and for the purpose set forth.

3. In a saw-filing implement, for the purpose set forth, a bed-plate, A, provided with adjusting-screws *a*, upon which the saw to be filed may be placed, an adjustable gage-plate, C, with notches *d*, a circular file, G, with beveled edges, a shaft having a disk to which said file is attached, and a crank-handle for rotating the same, the parts being combined and organized substantially as shown, and for the purpose set forth.

4. In a saw-filing implement, a base or bed plate, A, provided with adjusting-screws *a*, an adjustable gage, C, which lies over the file and is provided with a series of notches, *d*, in combination with the circular file G, having inwardly-beveled cutting-face, said file being removably secured to a rotary disk, E', so that it may be reversed thereon, and means for rotating the shaft which carries said disk, substantially as shown, and for the purpose set forth.

352,353. SPARK-ARRESTER. William T. Reed, Winnipeg, Manitoba, Canada. Filed Apr. 2, 1886. (No model.)

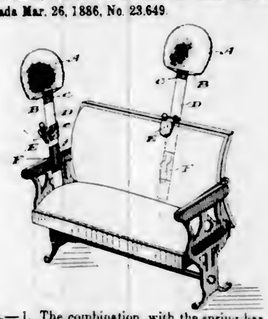


Claim.—1. The corrugated deflecting-plate F, in combination with the corrugated base-plate H and corrugated plate K, arranged substantially as and for the purpose specified.

2. The corrugated deflecting-plate F, in combination with the corrugated base-plate H, corrugated plate K, and netting E, arranged substantially as and for the purpose specified.

3. The corrugated deflecting-plate F, supported on the angle-iron G by the studs *a*, substantially as and for the purpose specified.

352,354. ADJUSTABLE HEAD-REST. William H. Robertson, Toronto, Ontario, Canada. Filed Mar. 15, 1886. (No model.) Patented in Canada Mar. 26, 1886, No. 23,649.



Claim.—1. The combination, with the spring-bar D, provided with the vertically-adjustable spring-clasp E, of the socket C, sleeved on said bar, the bracket B, secured to said socket, and the head-piece A, hinged to said bracket, substantially as and for the purpose specified.

2. The combination, with the head-piece A, bracket B, hinged thereto and provided with socket C, of the bar D, made in sections, as described, the spring-clasp F, attached to the sleeve *f* on said bar and vertically adjustable thereon, and the sleeve *e* and spring-clasp E, carried thereby, all substantially as shown, and for the purpose specified.

352,355. SASH-FASTENER. Frank J. Robertson, Cleveland,

5. The combination of the trip-frame having a projecting bar, l

352,355. SASH-FASTENER. FRANK L. ROSENTRETER, Cleveland, Ohio. Filed June 25, 1886. (No model.)

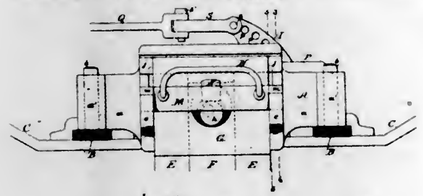


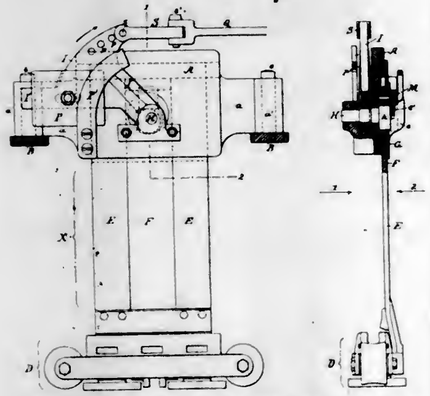
Claim.—1. The combination, in a meeting-rail lock, of a keeper-bar on one of the meeting-rails, a lock-case on the opposite rail provided with bolt-guides, a bolt having a bifurcated shank, an upturned tapered locking-lip, an arc-shaped groove, and two shoulders formed on one of the limbs of the bolt-shank, and a circularly-movable base-plate having a central post extending through the lock-case, an inclined concentric flange adapted to lift the front end of the bolt, and a stud for protruding and retracting the latter, substantially as described.

2. The combination, with the lock-case and circularly-movable base-plate, constructed as described, of a bolt constructed with an upturned tapered lip, shoulders, and an arc-shaped groove, whereby the bolt while being shot will be raised and caused to engage with a keeper-bar, substantially as described.

3. The combination, with the lock-case provided with guides for a bolt, of a bolt having an upturned lip and two shoulders on one of its limbs, a circularly-movable base having a bolt throwing and retracting stud, and also an inclined bolt-lifting flange, and a handle secured on the post of this base, having a stop adapted to abut against the sides of the lock-case, substantially as described.

352,356. CABLE-GRIP. EDWARD SAMUEL and VICTOR ANGERER, Philadelphia, Pa., assignors to William Wharton, Jr., & Co., (Limited.) same place. Filed Feb. 26, 1886. (No model.)





Claim.—1. The combination of the supporting-frame on the car, the grip-frame adapted thereto, and a retainer for said grip-frame, constructed to engage therewith as it is moved to release the grip-frame from the supporting-frame, whereby both grip-frame and retainer can be removed from the supporting-frame together, all substantially as specified.

2. The combination of the supporting-frame on the car, the grip-frame adapted thereto, and a grip-frame retainer constructed to engage therewith as it is moved to release the grip-frame from the supporting-frame, said retainer having a handle-bar, whereby it can be readily manipulated, all substantially as specified.

3. The combination of the supporting-frame on the car, the grip-frame adapted thereto, and a grip-frame retainer constructed to engage therewith as it is moved to release the grip-frame from the supporting-frame, said retainer being detachable from the grip-frame after the latter has been removed, all substantially as specified.

4. The combination of the grip-frame having a projecting bar, J, the retaining-wedge M, and the frame A, having shoulders for supporting said bar J, and keepers for the retaining-wedge M, all substantially as specified.

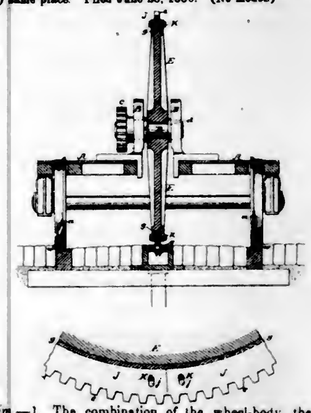
5. The combination of the grip-frame having a projecting bar, J, the frame A, having supporting-shoulders *c* and keepers *e*, and the retaining-wedge M, having lugs *n n*, adapted to engage with the bar *j* as the wedge is removed from the keepers, all substantially as specified.

6. The combination of the supporting-frame A, the grip-frame, the sliding bar F, the shaft H, having a cam, *h*, acting on said bar, and a counterweighted lever, I, connected to the shaft and to the operating-rod, substantially as set forth.

7. The combination of the grip-operating shaft, the lever connected thereto, the operating-rod Q, and a link, S, connecting said rod to the lever and having joints at right angles to each other, all substantially as and for the purpose specified.

8. The combination of the grip-operating shaft H and its operating-arm I, having a counter-weight, P, with the carrying-frame having a bar, P', whereby said counter-weight is laterally guided, all substantially as specified.

352,357. PINION-WHEEL FOR TRACTION-ENGINES. EDWARD SAMUEL, Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited,) same place. Filed June 23, 1886. (No model.)

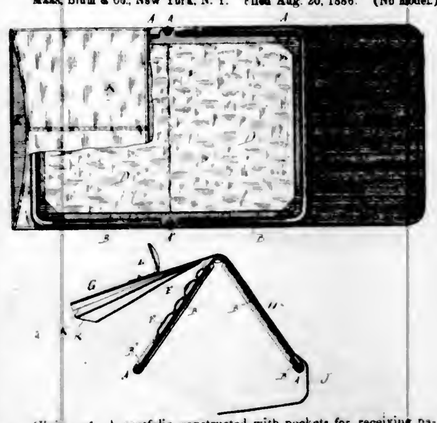


Claim.—1. The combination of the wheel-body, the segmental plates carrying the teeth and free to yield radially on the wheel-body, and an elastic backing for said plates, all substantially as set forth.

2. The combination of the wheel-body, the toothed segmental plates having radial slots, the confining-bolts adapted to said slots, and the elastic backing for the plates, all substantially as set forth.

3. The combination of the wheel-body having an annular groove in its periphery, the toothed segmental plates adapted to said groove and free to move radially therein, and an elastic backing for said plates, all substantially as specified.

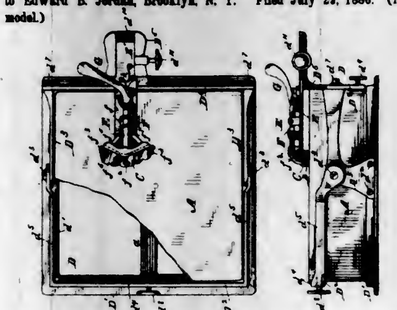
352,358. PORTFOLIO. CHARLES SCHERER, Brooklyn, assignor to Mass, Blum & Co., New York, N. Y. Filed Aug. 20, 1886. (No model.)



Claim.—1. A portfolio constructed with pockets for receiving paper, pencils, and other writing utensils, and with a stiff frame formed of two parts hinged together, in which frame pieces of leather, pasteboard, or other material are held for forming stiff supports for writing-paper, substantially as shown and described.

2. A portfolio constructed with pockets for receiving paper and other writing utensils, and with two frames formed of hollow rods, provided along the inner edges with slots for receiving the edges or pieces of the pasteboard, leather, or other material held in said frames and forming writing-surfaces, substantially as shown and described.

352,359. APPARATUS FOR HOLDING LEATHER WHILE BEING SCALLOPED. ANTON SCHEMEL, Philadelphia, Pa., assignor of one-half to Edward B. Jordan, Brooklyn, N. Y. Filed July 29, 1886. (No model.)



Claim.—1. A frame, D, and block A, and provided with the adjustable swinging or pivoted clamp constructed and adapted to embrace and secure said block, substantially as shown and described.

2. A frame constructed substantially as described, and adapted to receive and hold a block, A, and combined therewith, said frame having a pivoted or swinging yoke, D^3, with set-screws d^4, substantially as shown and described.

3. A frame, D, and block A, said frame having one of its sides composed of or comprising an adjustable plate or bar, D^4, which embraces said block, substantially as shown and described.

4. The frame D, comprising a base, D', pivoted or swinging yoke D^2, standards D^3 D^4, and adjustable plate or bar D^4, the bar D^4 being attached to side bars, D^3, which embrace a block, A, substantially as shown and described.

5. The combination, with frame D and block A, and with a clamp which embraces said block and holds it in position, of a clamp, E, for clamping work on said block, substantially as shown and described.

6. The combination, with a frame, D, and block A, and provided with a clamp which embraces said block and holds it in position, of a sliding horizontally-adjustable clamp, E, substantially as shown and described.

7. The combination, with a frame, D, and block A, and provided with a clamp which embraces said block and holds it in position, of a vertically-adjustable clamp, E, substantially as shown and described.

8. The combination, with a frame, D, and block A, and provided with a clamp which embraces said block and holds it in position, of a horizontally and vertically adjustable clamp, E, substantially as shown and described.

9. The combination, with frame A, having a bar or plate, D^4, with extension or bracket D^5, of a clamp, E, said clamp comprising a base or slide, E', and said bracket being grooved and provided with a set-screw, whereby said clamp is adjustably held, substantially as shown and described.

10. The combination, with frame D and block A, and having vertically-adjustable plate or bar D^4, of a clamp, E, supported on said plate or bar, substantially as shown and described.

11. The clamp comprising a slide or base, E', and lever F, having downwardly-extending toes, separately pivoted to the lever F and adjustable relatively to each other, substantially as shown and described.

12. The combination, with the clamp-lever F, having downwardly-extending and laterally-adjustable toes, f^2 f^3, of the lever G, substantially as shown and described.

13. The combination, with the lever F, of the laterally and relatively adjustable toes f^3, substantially as shown and described.

14. The combination, with base E', of lever F, having toes f^2 f^3, adjustable relatively to the lever and to each other, and cam-lever G, substantially as shown and described.

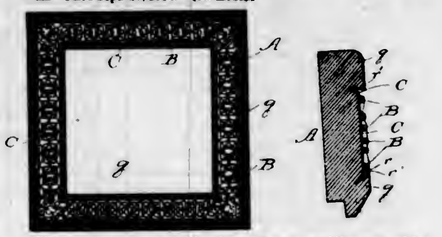
15. The combination, with base E', of lever F, having central fixed toe, f^2, and adjustable toes f^3 on either side of the fixed toe, substantially as shown and described.

16. The combination, with base or slide E', having flange *e*, of lever F, fulcrumed thereon, said lever having downwardly-extending toes, springs f^7, for raising said lever, and lever G, for throwing down and holding said lever F, substantially as shown and described.

17. The combination, with slide or base E' and clamping-lever F, of cam-lever G, pawl A, and ratchet g^3, substantially as shown and described.

18. The combination, with lever F, having cross-head f^5, of toes f^6, pivoted on said lever and movable on or along said cross-head, substantially as shown and described.

352,360. MOLDING. JACOB SCHRAM and LOUIS SCHRAM, Chicago, Ill. Filed Sept. 27, 1886. (No model.)



Claim.—1. As a new article of manufacture, molding comprising, in combination, the body portion A, fabric C, secured upon the body portion, and ornamental open-work B, secured upon the fabric, substantially as and for the purpose set forth.

2. As a new article of manufacture, molding comprising, in combination, the body portion A, provided with a longitudinal recess, *r*, a strip of fabric, C, secured in the recess *r*, and ornamental open-work B, secured in the recess *r* upon the fabric C, substantially as and for the purpose set forth.

3. As a new article of manufacture, a molding comprising, in combination, the body portion A, provided with a longitudinal recess, *r*, to afford lateral ledges *q*, and lateral recesses *r'* within the recess *r*, a strip of fabric, C, secured within the recesses *r* and *r'*, to form the ground, and ornamental open-work B, secured upon the fabric C, substantially as and for the purpose set forth.

4. The combination of the base A, ornamental open-work B, and interposed strip of colored fabric C, substantially as and for the purpose set forth.

352,361. PRODUCTION OF ACETINE-BLUE COLORS. CONRAD SCHRAUBE, Ludwigshafen-on-the-Rhine, Bavaria, assignor to the Badische Anilin and Soda Fabrik, Mannheim, Germany. Filed Sept. 9, 1886. (No specimens.) Patented in Germany Feb. 26, 1886, No. 37,064; in France Mar. 24, 1886, No. 174,993, and in England May 17, 1886, No. 6,631.

Claim.—As a new compound, the blue coloring-matter (acetine-blue) obtained by the action of acetine upon induline, substantially as described.

352,362. JACK-SCREW. OBADIAH SEELY, Syracuse, N. Y., assignor to E. C. Stearns & Co., same place. Filed Jan. 27, 1886. (No model.)



Claim.—In a jack-screw, a base or standard, A, provided with a hollow handle, E, adapted to receive the capstan-bar, and provided at both ends with webs *e*, whereby it is secured to the base A, and forming between the webs *e* a rigid handle, by which the jack-screw can be carried about, substantially as set forth.

352,363. BUTTON. MADISON D. SHIPMAN, De Kalb, Ill. Filed Nov. 23, 1885. (No model.)



Claim.—1. In a separable button, the combination, with a head provided with a base having on one side a turned-under flange, forming a recess, and a split tube on the opposite side of said base, forming spring-arms, of a fastener, as C, adapted to be expanded into the recess in the base when forced against the under side of the same, substantially as described.

2. In a separable button, the combination, with a head provided with a base having a turned-under flange, forming a recess, and spring-arms provided with ridges or projections between their ends and the base, of a fastener, as C, adapted to be expanded into the recess in the base when forced against the under side of the same, substantially as described.

3. In a separable button, the combination, with a base having a split tube forming spring-arms rising therefrom, said arms being provided with ridges or projections between their ends and the base, of a cap having its lower edge turned below said base, and a fastener, as C, adapted to be forced outward toward the lower end of a cap by contact

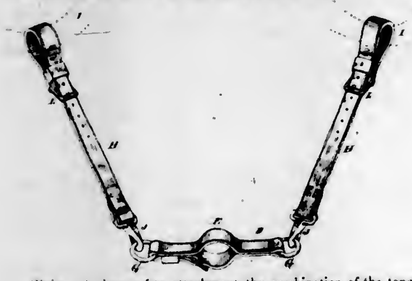
with the base, substantially as described.

4. The combination, in a separable button, of a cylindrical hollow stud having a notched neck near its top of smaller diameter than the body of the same, and a base, with a cylindrical plug, E, fastened therein below said neck and having flange e', substantially as described.

5. The combination, in a separable button, of a hollow stud having a notched neck and a base with a cylindrical hollow plug, E, having flange e' fastened in said hollow stud, and having the sides of both stud and plug indented, substantially as described.

6. The combination, in a separable button, of a head, A, having a base and a split tube rising therefrom, and forming spring-arms with ridges or projections between their ends and the base, and a stud having a notched neck passing between and embraced by said arms, with a cap covering said arms and stud, substantially as described.

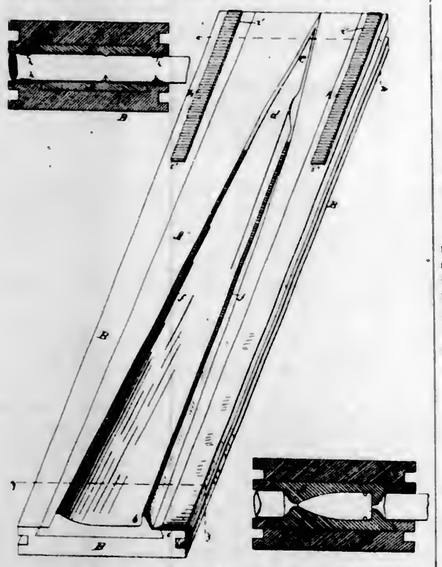
352,364. **SAFETY NECK-YOKE ATTACHMENT.** GEO. F. SHULNBURG, Madison, Nebr. Filed May 3, 1886. (No model.)



Claim.—1. In a safety attachment, the combination of the tongue, strap secured to the tongue, and connection for securing the strap to the harness upon the animals, substantially as set forth.

2. In combination with the tongue, the strap provided with a loop fitting over the tongue, staple securing the strap to the tongue, rings on the strap, and straps for connecting the tongue-strap to the harness on the animal, substantially as shown and described.

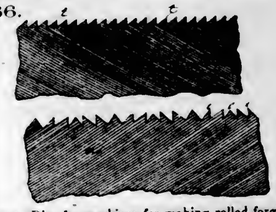
352,365. **DIE FOR MAKING ROLLED FORGINGS.** GEORGE F. SIMONDS, Fitchburg, Mass. Filed Apr. 8, 1886. (No model.)



Claim.—A die for making rolled forgings, having the portion d c of the forming and spreading surfaces smooth in contradistinction to serrated or toothed, in combination with serrated bars or plates h h, secured to the bed or supporting-plate of the die, substantially in the manner set forth.

352,366. **ROLLER-SWAGING DIE.** GEORGE F. SIMONDS, Fitchburg, Mass. Filed Apr. 8, 1886. (No model.)

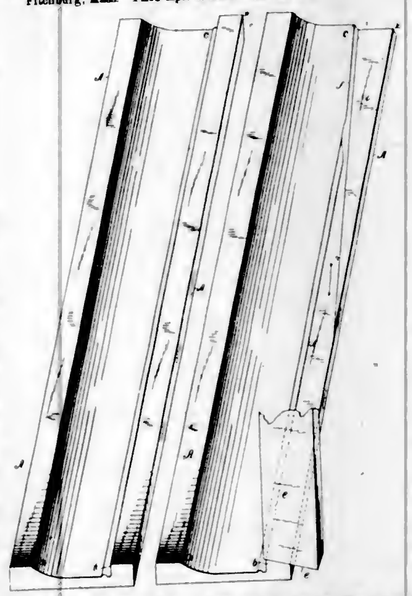
352,366.



Claim.—1. Dies for machines for making rolled forgings provided on their surfaces with transversely-arranged raking-teeth, for the purpose set forth.

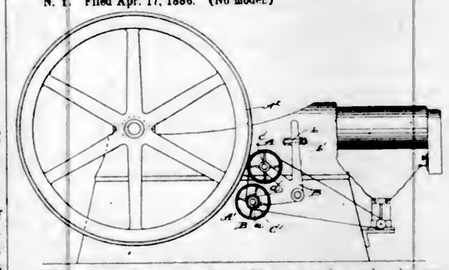
2. Dies for machines for making rolled forgings, provided on their surfaces with series of transversely-arranged oppositely-raking teeth and an intermediate vertical tooth, substantially as described.

352,367. **MAKING METAL-ROLLING DIES.** GEORGE F. SIMONDS, Fitchburg, Mass. Filed Apr. 8, 1886. (No model.)



Claim.—The method herein described for making dies for making rolled forgings, consisting, essentially, in first forming in the die-blank a surface corresponding to and the converse of the cross-sectional form of the article to be produced, forming the spreading and reducing surfaces by a cut diagonal to both planes of the blank, and finally removing the surplus metal or idle-face portions, substantially as set forth.

352,368. **GAS-ENGINE SPEEDER.** CHARLES E. SKINNER, Yonkers, N. Y. Filed Apr. 17, 1886. (No model.)



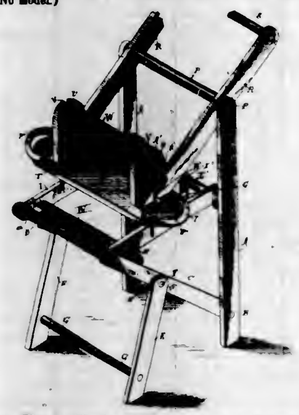
Claim.—1. The combination, with a gas-engine and a dynamo-electric machine, of the variable or speed-changing mechanism comprising the two-armed lever, and the frictional wheels supported upon trunnions or studs thereof and having pulleys on their hubs for transmitting motion from the engine drive-wheel to the drive-wheel or pulley of the dynamo-machine, either of said wheels being movable into contact or engagement with the drive-wheel, substantially as set forth.

2. The combination, with the gas-engine and the dynamo-electric machine and their drive-wheels, of the lever carrying frictional wheels, the hubs of which wheels are provided one with a large pulley and the hub of the other with a small pulley, and a belt transmitting motion from said pulleys to the drive-wheel or pulley of the dynamo-machine, substantially as and for the purpose set forth.

3. The combination, with the engine and the dynamo-electric machine and their drive-wheels, of the lever having a horizontal slot receiving an adjusting or set screw, the frictional wheels supported upon trunnions or studs of two arms of the lever and carrying different-sized pulleys, and a belt transmitting motion from the said wheels to the dynamo-machine, substantially as and for the purpose set forth.

4. In a gas-engine wherein the explosion is produced by the spark of an electric current generated by a dynamo-electric machine, the method of operating, substantially as herein described, of temporarily increasing the relative speed of the dynamo while starting the engine, and of decreasing said speed when the engine has attained its regular or required speed by means of two wheels secured on arms of a lever, said wheels having one a large and the other a small pulley on their hubs, substantially as shown and described.

352,369. **FOLDING WASH-BENCH.** MORGAN H. SLY and PLEASANT F. WOOD, Adrian, Mo.; said Sly assignor to said Wood. Filed Oct. 29, 1885. (No model.)

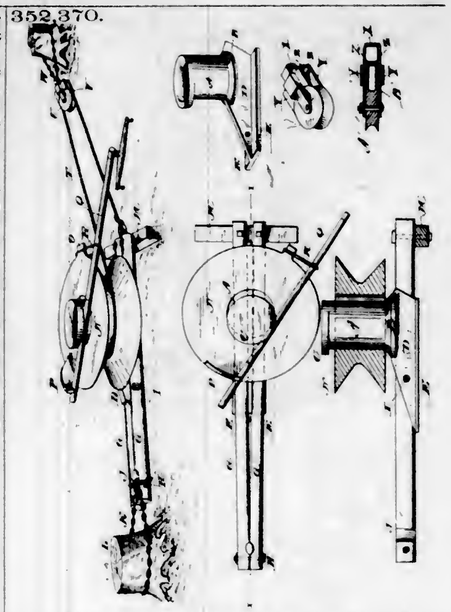


Claim.—1. The combination, with the standards A, connected together by suitable rounds, of the oblique beams C, pivoted to the said standards A, connected together at their forward ends by a round, D, and provided with stops H, the beams or legs E, pivoted to the oblique beams C, and the horizontal pivoted beams I, with hooked ends, substantially as described.

2. The combination, with the standards A, connected together, of the oblique beams C, pivoted to the said standards A and connected together at their forward ends by a round, D, the stops H, secured to the beams C, supporting-beams E, pivoted to beams C, the pivoted beams I, with hooked ends, and the swinging beams R, pivoted to the upper ends of the standards A and adapted to support the washing mechanism, all arranged substantially as described.

352,370. **STUMP-EXTRACTOR.** FRANK R. SMITH, Tomah, Wis. Filed June 8, 1886. (No model.)

352,370.



Claim.—1. In a stump-extractor, the combination of a vertical standard or axle having a flange, B, at its lower end, and having an eccentric circular flange at its upper end projecting toward the anchoring stump or stake, with a drum having a bore of the same diameter as the eccentric flange and revolving upon the standard or axle, as and for the purpose shown and set forth.

2. In a stump-extractor, the combination of a vertical standard or axle having a flange at its lower end, and having an eccentric flange at its upper end projecting toward the anchoring stump or stake, with a drum having a bore of the same diameter as the eccentric flange, and revolving upon the standard and formed hour-glass-shaped, being contracted at its middle, as and for the purpose shown and set forth.

3. In a stump-extractor, the combination of a standard or axle having a flat portion extending from the lower end, and provided with horizontal laterally-extending flanges at its lower edge, with two beams bolted at the sides of the flat portion, clamping and holding the same, and a winding drum or pulley, as and for the purpose shown and set forth.

4. In a stump-extractor, the combination of a standard or axle having at its lower end a flat portion extending toward the anchoring stump or stake, and formed with a perforation in the extension and provided with laterally-projecting horizontal flanges at the lower edge, with two beams having bolts passing through them, and a bolt passing through them and through the perforation in the flat portion of the standard, clamping at both sides of the said flat portion, and a winding drum or pulley, as and for the purpose shown and set forth.

5. In a stump-extractor, the combination of a standard for the winding-drum having a flat portion at its lower end extending toward the anchor and provided with a transverse perforation in the said extended portion, and with laterally-projecting horizontal flanges at the lower edge, two beams clamping the flat portion between their ends, and having bolts passing through them and one bolt passing through the perforation in the flat portion of the standard, and formed with recesses in the inner sides of the ends, and an anchor-chain passed through the perforation formed by the recesses, and a winding drum or pulley, as and for the purpose shown and set forth.

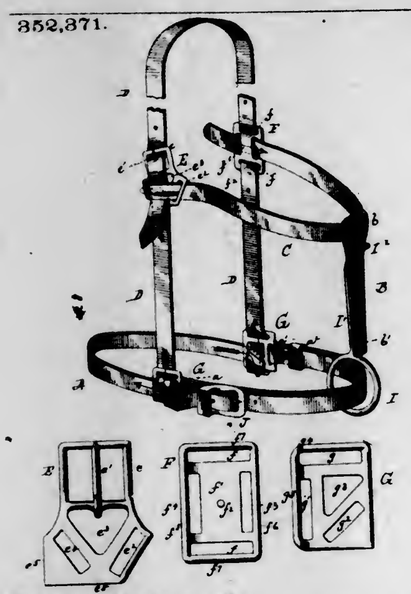
6. In a stump-extractor, the combination of a standard having a flange at its lower end and an eccentric circular flange at its upper end, and having a flat portion extending toward the anchor, and formed with horizontal laterally-projecting flanges and with a transverse perforation in the extension, a winding-drum having a sweep adapted to turn upon the standard, having a diameter equal to the diameter of the eccentric flange, two beams clamping the flat portion with their ends, and having connecting-bolts passing through them and through the perforated flat portion, and formed with facing-recesses in the inner sides of the other ends, a cross-beam secured under the ends of the beams clamping the flat portion of the standard, and an anchor-chain passed through the aperture formed by the recesses, as and for the purpose shown and set forth.

7. In a stump-extractor, the combination of a pulley-clevis, a sheave journaled in the said clevis, and two plates secured to the arms of the clevis, and having meeting curved flanges at their outer edges, and having the inner edges cut out concave and sharpened, fitting inside of the edges of the sheave, as and for the purpose shown and set forth.

352,371. **HALTER.** MARION N. SMITH, Troy, Pa. Filed Sept. 2, 1886. (No model.)

Claim.—1. As an improved article of manufacture, a halter consisting of the single strap forming the cheek, the head and the throat portions, and the forward part of the nose portion, the round-barred rectangular buckle having the diagonal slots e^2 e^2, and arranged at the joints of the cheek and throat straps, the buckle E, having the four marginal rectangular slots and arranged opposite to the said buckle, the buckles G G, having the two straight slots arranged at right angles to each other, and the oblique slot g^2, connecting the front and rear sections of the nose-strap, and the chin-strap connecting the throat-strap with the rear portion of

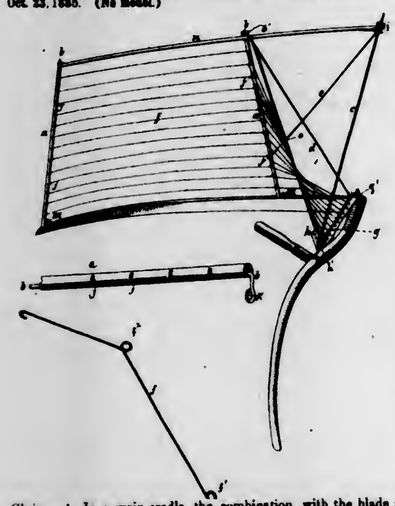
352,371.



the nose-strap, substantially as specified.

2. For the halter herein described, the buckle E, having the parts *e e'*, in combination with the flat extension provided with the angular aperture e^3, oblique slots e^3 e^4, and the rectangle e^5, substantially as described.

352,372. GRAIN-CRADLE. William B. Smith, Atlanta, Ga. Filed Oct. 23, 1885. (No model.)



Claim.—1. In a grain-cradle, the combination, with the blade and handle or snath, of a bar secured to the handle or snath in swinging adjustment, and a series of fingers secured to the blade and the swinging bar, and adapted to be adjusted by the adjustment of the bar, substantially as set forth.

2. In a grain-cradle, the combination, with the handle or snath and the blade, of the movable bar *g*, fingers *f*, bracket or stay *h*, and means for fastening, substantially as set forth.

3. In a grain-cradle, the combination, with the tubes *a*, having transverse slots formed therein, of the fingers *f*, adapted to enter the slots, and the rods *b*, for securing the fingers in the tube, substantially as set forth.

4. In a grain-cradle, the combination, with the handle or snath, a bar adjustably secured thereto, and rods extending longitudinally through slotted tubes located transversely to the blade, of fingers attached to the adjustable bar and held in position by the rods within the tubes, substantially as set forth.

5. In a grain-cradle, the combination, with the upper rail or border finger, the handle, and the blade, of the slotted tubes *a a*, fingers *f*, and rods *b*, substantially as set forth.

6. In a grain-cradle, a tube provided with transverse slots adapted to receive loops or eyes formed on the fingers, in combination with a finger-securing rod extending through the tube, substantially as set forth.

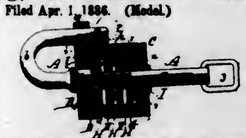
7. In a grain-cradle, an adjusting-bar, *g*, having its edge turned over to increase its strength, and provided with a series of perforations for the attachment of the ends of the fingers, substantially as set forth.

8. In a grain-cradle, the combination, with the handle or snath, the adjusting-bar *g*, secured thereto, and the cradle-fingers secured to the adjustable bar, of the bracket *h*, secured to the handle or snath and folded over onto itself to carry one end away from the handle, the free end being provided with a series of holes for the attachment of one end of the adjusting-bar *g*, substantially as set forth.

9. In a grain-cradle, the combination, with the fingers adjustably secured to the handle, the handle, and the stay-rods, of the slotted tubes adapted to separate the fingers, the rods *b*, extending longitudinally through the tubes, and the blade bolted to the rods *b*, substantially as set forth.

10. In a grain-cradle, the combination, with a series of fingers secured to the blade and to an adjustable bar attached to the handle or snath, of the stay-rods, substantially as described, adapted to secure the fingers to the handle or snath, substantially as set forth.

352,373. PERMUTATION-PADLOCK. Nicholas Spencer, St. Paul, Minn. Filed Apr. 1, 1886. (Model.)



Claim.—1. In a permutation-padlock, the combination of an inner shell, a series of locking-tumblers revolving within the shell, an outer shell revolving around the inner shell for turning the tumblers, and a hook-shackle extending axially through the shells and tumblers, and sliding therein, for securing or releasing the article to be locked, substantially as herein specified.

2. The combination of a shackle, A, having a notched shaft, *a*, inner shell, B, in which the shackle slides, revolving outer shell, C, surrounding the inner shell, and tumblers D E F G, located and turning in the inner shell, having apertures accurately fitting the general form of the shackle-shaft, and adapted, respectively, to turn in the notches of the shackle-shaft by the turning of the outer shell, for locking and unlocking the shackle, substantially as herein set forth.

3. The combination of the shackle A, having a series of tumbler-receiving notches, *m n o p*, of different widths, a series of locking-tumblers, D E F G, all of different thickness, and respectively fitting the said notches, an inner shell, B, in which the shackle slides, and revolving outer shell, C, surrounding the inner shell, substantially as and for the purpose herein specified.

4. The combination of the tumblers, the intermediate spring washer-rings, and the inner containing-shell slightly grooved in its inner periphery to retain the washer-rings, substantially as herein specified.

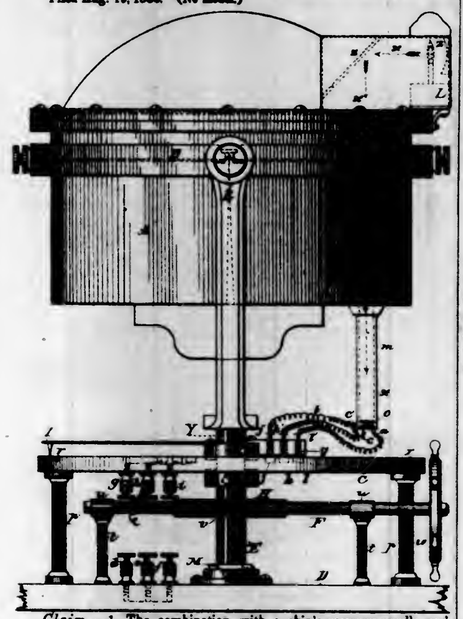
5. The combination of the shackle A, having a hook-extension, *c*, and a coupling-pin, *f*, on its shaft, and the inner shell, B, having a perforated extension-flange, *e*, to receive the said hook-extension, and a notch, *g*, in its head *d*, to receive the said coupling-pin, substantially as and for the purpose herein specified.

6. The combination of the outer shell, C, having an annular groove, *j*, in its outer periphery, the inner shell, B, having a flange-extension, *h*, projecting over the said coupling-groove of the outer shell, and provided with an inwardly-projecting coupling pin or screw, *i*, and the shackle A, having a hook-extension, *c*, covering the said coupling screw or pin when the shackle is locked, for the purpose herein specified.

7. The combination of the outer shell, C, having a cylindrical aperture in its head, the shackle A, extending through the same, and the packing washer or block I, fitting around the shackle-shaft, and turning in the aperture of the head of the shell, for the purpose herein specified.

8. The combination of the sliding shackle A, having tumbler-notches *m n o p* in its shaft, with intermediate webs, *q q q*, thereon, the inner shell, B, having a pointer-mark thereon, revolving tumblers D E F G within the shell B, fitting the respective notches in the shackle-shaft, and having coupling-pins *t u* on their faces, washers H H H between the respective tumblers for keeping the tumblers in position, and outer shell, C, having a coupling-pin, *s*, to couple it with the outer tumbler, and an index-scale on its periphery adjacent to the pointer-mark on the inner shell for accurately determining the revolving movements of the said outer shell in locking and unlocking the shackle, substantially as and for the purpose herein specified.

352,374. APPARATUS FOR STEERING SHIPS. James A. Tilden, Hyde Park, assignor of one-half to Harney Brothers, South Boston, Mass. Filed Aug. 19, 1886. (No model.)

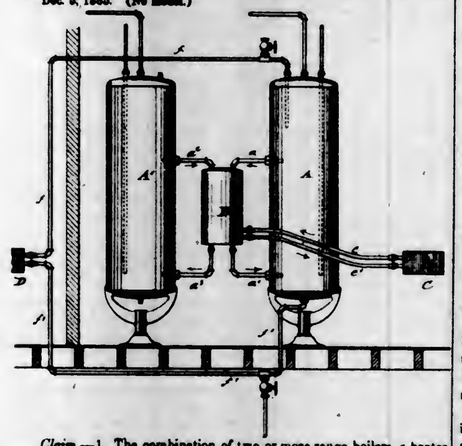


Claim.—1. The combination, with a ship's compass-needle and compass-card provided with an opening, substantially as described, of sensitive electrodes which become conductors of electricity by the action of light upon them, so arranged as to open and close an electric circuit, for the purposes specified.

2. The combination, with a ship's compass-needle, of a compass-card provided with an opening in the compass-card for the admission of light to electrodes which become conductors in an electric circuit by the action of light admitted to them through such opening, sensitive electrodes *o* and *o'*, tubes *m* and *m'*, pins *j'*, *k'*, and *l'*, and the rings *j*, *k*, and *l*, as and for the purposes specified, substantially as described.

3. The combination of a ship's compass which is electrically connected with steering-gear, with the lamp, compass-card provided with an opening, and sensitive electrodes whereby the intensity of the electric current may be varied in the line of said electric connection, as and for the purposes specified.

352,375. RANGE-BOILER. John Tucker, New York, N. Y. Filed Dec. 8, 1885. (No model.)



Claim.—1. The combination of two or more range-boilers, a heater composed of an exterior shell and an interior body, pipes connecting the range-boilers, respectively, with the shell and the interior body of the heater, and a water-back connected by pipes to the heater, substantially as set forth.

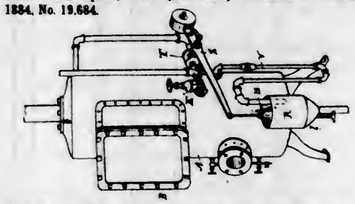
2. The combination of two or more range-boilers, a heater composed of an exterior shell and an interior tubular body having closed heads, pipes connecting the range-boiler, respectively, with the shell and the interior tubular body of the heater, and a water-back connected by pipes to the heater, substantially as set forth.

352,376. SALT OR PEPPER DREDGE. Robert Wallace, Wallingford, Conn. Filed July 12, 1886. (No model.)



Claim.—The combination of the bottle A, open at the neck, and with an annular recess, *b*, within the neck, a thin metal perforated cap, B, constructed with an annular rib, *a*, below the perforated portion of the cap, and the sides of the cap extended below the said rib *d* to form a thin concentric flange having an annular rib, *f* around its lower edge, and the said flange having vertical slits *g*, the said annular rib *f* adapted to engage the shoulder in the neck of the bottle, while the annular rib *d* rests on the top of the bottle, substantially as described.

352,377. FEED-WATER HEATER. Alexander F. Ward, Detroit, Mich. Filed Apr. 8, 1886. (No model.) Patented in Canada June 28, 1884, No. 19,684.



Claim.—1. In a feed-water heater, an intermittent or pulsating feed-water supply controlled by the overflow as a means for producing an intermittent or pulsating overflow, substantially as and for the purposes described.

2. In a feed-water heater, a regulating-valve in the supply-pipe, arranged to control the amount of supply by an intermittent action at regulated intervals of shutting off the feed, or partly so, and actuated by the overflow, substantially as and for the purposes described.

3. In a feed-water heater, a regulating-valve in the supply-pipe, controlled by the overflow from the heater to intermittently and automatically shut off the water, or partly so, substantially as and for the purposes described.

4. In a feed-water heater, the combination of a regulating-valve in the supply-pipe, a bucket swung on a lever arranged to open and close said valve, an overflow arranged to discharge into the bucket, and a restricted waste-orifice in the bucket, all arranged to operate substantially as described.

5. In a feed-water heater, the combination of the regulating-valve T, bucket R, having a restricted waste-orifice and an overflow-pipe, V, all arranged to operate substantially as described.

6. The bucket R, arranged to operate the regulating-valve in the supply-pipe, said bucket being provided with the waste-pipe K, sliding tube *l*, having waste-orifice *m*, and adjusting-nut *n*, all arranged to operate substantially as described.

7. The combination of the overflow-pipe V, the bucket R, having a restricted waste-orifice near the bottom, the lever S, and its counter-weight, all arranged to form an automatically intermittently-operating device to actuate the regulating-valve in the supply-pipe by means of any suitable connection therewith, substantially as described.

8. The regulating-valve T in the supply-pipe, provided with the spring *h* and handle *i*, combined with the lever S, having hole I, to loosely receive said handle, arranged to operate as described.

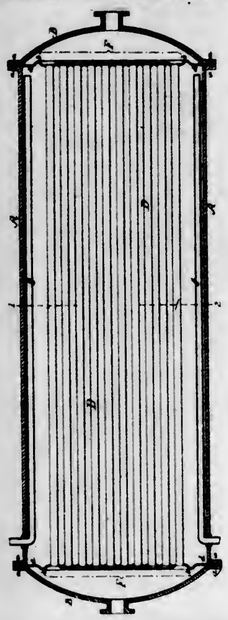
9. In a feed-water heater, in combination with the supply, the series of heating-pans C D, and the pipe *o*, all arranged to keep the water while being heated from the direct course of the steam in the heater, substantially as and for the purpose described.

10. A settling-chamber formed in the bottom of the heater, and having the feed-pipe and blow-off connected thereto, the combination of the deflector I, having ring K, the conical mud-pot Q, having blow-off P, the perforated screen L, and the screens M N O, all arranged substantially as described.

11. In a feed-water heater, the combination of the deflector I, having a central opening, the packing-ring K, the conical mud-pot Q, the screen L, having its upper edge scalloped, and the feed and blow-off pipes V P, all arranged substantially as described.

12. In a feed-water heater, the combination with the settling-chamber having the feed-connection V, of a series of concentric screens resting on the conical bottom or mud-pot and permitting a free circulation of the water over their top edge, substantially as described.

352,378. SURFACE-CONDENSER. HENRY WARDEN, Philadelphia, Pa. Filed June 19, 1885. Renewed Aug. 23, 1886. (No model.)



Claim.—1. The combination of the casing and tubes of a feed-water heater or surface-condenser with a tube-sheet confined to the casing at the rim, said sheet having the portion which carries the tubes stiffened by corrugations, and having between the stiffened portion and the rim an elastic expansion ring or band, as set forth.

2. The within-described tube-sheet for feed-water heaters or surface-condensers, said tube-sheet having a central portion stiffened by corrugations and an outer plain portion, as specified.

3. The combination of the casing and tubes of a feed-water heater or surface-condenser with a tube-sheet secured to the casing at the rim, and having a plain outer portion forming an expansion-ring, and a central portion stiffened by corrugations, this corrugated portion of the sheet being bounded by a corrugation, *b*, as set forth.

352,379. FEED-WATER HEATER. HENRY WARDEN, Philadelphia, Pa. Filed Nov. 2, 1885. Renewed Aug. 23, 1886. (No model.)

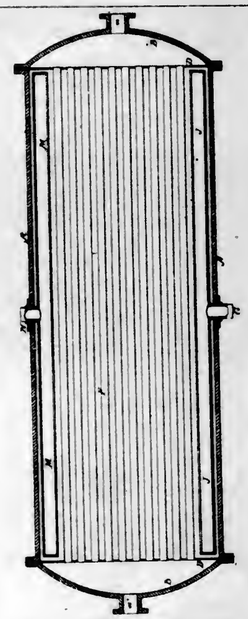
Claim.—1. The combination, in apparatus for purifying or heating and purifying feed-water, of the shell or casing of the feed-water vessel, an inlet-pipe having a distributer in the lower portion of the chamber within said casing, and a discharge-pipe having a collector in the upper portion of said chamber, both distributing and collecting pipes being slotted or perforated and providing extended areas for the inlet and discharge of the water, whereby the latter is caused to flow through the vessel without forming special currents, all substantially as specified.

2. The combination of the shell or casing of a feed-water vessel with a distributing or collecting pipe contained in the chamber within said casing, and having a passage of differential area for the water, the area of the passage being greater at points remote from the inlet or discharge pipe than at points adjacent thereto, all substantially as specified.

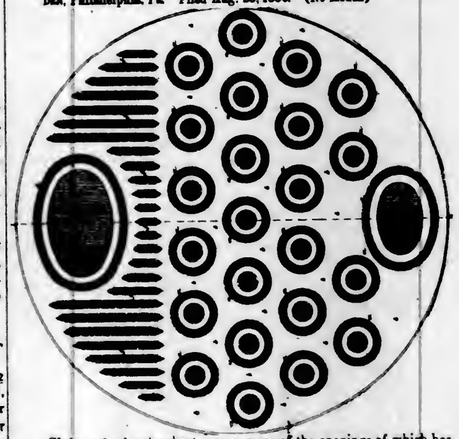
3. The combination of the shell or casing of a feed-water vessel, a water-inlet pipe communicating with the chamber within said vessel at some distance above the bottom, a water-discharge pipe communicating with said chamber at some distance below the top, and scum and sediment discharge pipes located, respectively, near the top and near the bottom of said chamber, all substantially as specified.

4. The combination of a shell or casing of a feed-water vessel, and the inlet and discharge pipes for the water, with a slotted or perforated sediment-discharge pipe in the lower portion of the chamber within the casing, and a similar pipe in the upper portion of said chamber for the discharge of scum, all substantially as specified.

352,379.



352,380. TUBE-SHEET FOR STEAM-BOILERS, &c. HENRY WARDEN, Philadelphia, Pa. Filed Aug. 23, 1886. (No model.)



Claim.—1. A tube-sheet one or more of the openings of which has a circumscribing corrugation, with elastic portion beyond the same, all substantially as specified.

2. A tube-sheet the tube-carrying portion of which comprises a number of divisions, each with one or more tube-openings, a circumscribing corrugation, and an elastic portion beyond the latter, all substantially as specified.

3. A tube-sheet each of the tube-openings of which has a circumscribing corrugation and an outer elastic portion beyond the latter, all substantially as specified.

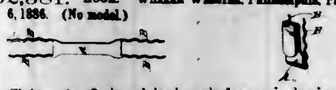
4. The combination of the tubes with a tube-sheet, one or more of the tube-openings or tube-spaces of which has a circumscribing corrugation and an elastic portion beyond the same, whereby the tube-sheet is relieved from strain due to the uneven expansion and contraction of the tubes, all substantially as specified.

5. A tube-sheet having tube-openings and one or more man-hole openings, with circumscribing corrugation, all substantially as specified.

6. A tube-sheet having one or more tube-openings or tube-spaces with circumscribing corrugation and elastic portion beyond the same, and one or more man-hole openings with circumscribing corrugation, all substantially as specified.

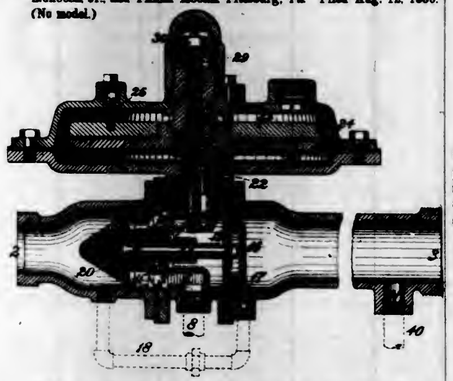
7. A tube-sheet having one or more tube-openings or tube-spaces with circumscribing corrugation and elastic portion beyond the same, and having corrugations in that portion in which there are no tube-openings, all substantially as specified.

352,381. HOOK. WILLIAM WEBSTER, Philadelphia, Pa. Filed May 6, 1886. (No model.)



Claim.—An S-shaped hook made from a single piece of metal or other suitable material, having corrugated spring-fastening pins at one or both ends, substantially as described and shown.

352,382. PRESSURE REGULATOR AND CUT-OFF. GEORGE WESTINGHOUSE, Jr., and FRANK MOORE, Pittsburg, Pa. Filed Aug. 12, 1886. (No model.)



Claim.—1. In a pressure-regulating apparatus, the combination of a chamber or casing having supply and delivery passages at opposite ends, a transverse valve seat or partition located in the casing between said passages, a rotary valve fixed upon a stem passing through said valve-seat and governing a series of ports or openings therein, and a weighted pressure-plate or diaphragm working in a pressure-chamber communicating with the casing on the delivery side of the valve-seat and having its stem coupled to the stem of the valve, substantially as set forth.

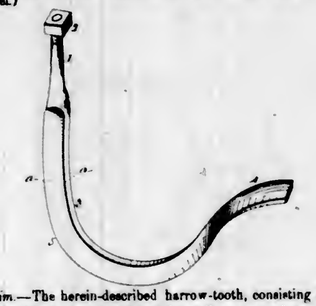
2. In a pressure-regulating apparatus, the combination of a chamber or casing having supply and delivery passages at opposite ends, a transverse valve seat or partition located in the casing between said passages, and having a series of direct delivery-ports and a meter-port communicating with a meter-supply passage, a rotary valve fixed upon a stem passing through said valve-seat and governing said direct delivery-ports and meter-port, a weighted pressure-plate or diaphragm working in a pressure-chamber communicating with the casing on the delivery side of the valve-seat only, and having its stem coupled to the stem of the valve, and a gas-meter adapted to receive a supply of gas from the meter-port and meter-supply passage and to deliver the same to a passage communicating with the discharge end of the casing, substantially as set forth.

3. The combination of a chamber or casing having supply and delivery passages at opposite ends, a transverse valve seat or partition located in the casing between said passages, a rotary valve fixed upon a stem passing through said valve-seat and governing a series of ports or openings therein, a weighted diaphragm or pressure-plate having its stem coupled to the stem of the valve, and a balancing-diaphragm or pressure-plate fixed upon the valve-stem on the delivery side of the valve and working in an equilibrium-chamber communicating with the casing on the supply side of the valve, substantially as set forth.

4. The combination of a chamber or casing having supply and delivery passages at opposite ends, a transverse valve-seat or partition located in the casing between said passage, a rotary valve fixed upon a stem passing through said valve-seat and governing a series of ports or openings therein, a weighted diaphragm or pressure-plate having its stem coupled to the valve-stem, and a grated or perforated strainer extending across the casing between the valve and the supply-passage of the casing, substantially as set forth.

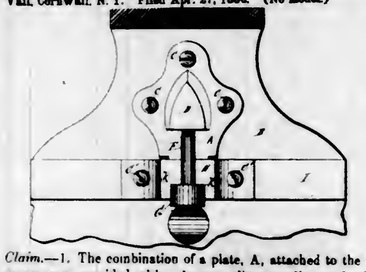
5. The combination of a chamber or casing having supply and delivery passages at opposite ends, a transverse valve-seat or partition having a series of radial ports at or near its periphery and a central socket or bearing, and fixed in the casing between the supply and delivery passages, a plate or disk-valve having a series of radial ports adapted to register with the ports of the valve-seat and fixed upon a stem fitting freely in the central bearing thereof, a weighted diaphragm or pressure-plate working in a pressure-chamber which communicates with the casing on the delivery side of the valve-seat only, and a lever-and-link connection coupling the stem of the diaphragm to the valve-stem, substantially as set forth.

352,383. HARROW. LEWIS A. WEYBURN, Rockford, Ill., assignor to the L. A. Weyburn Company, same place. Filed July 3, 1886. (No model.)



Claim.—The herein-described harrow-tooth, consisting of a shank to connect with the harrow-beam, a depending rearward-curving portion produced in convex cutter form and approximating a semicircle, and a rear end twisted to a nearly horizontal position and located in a plane above that of the lower effective portion of the cutter, substantially as set forth.

352,384. WAGON-SEAT LOCK. DANIEL D. WHITNEY, Cornwall, N. Y., assignor to Arthur F. Whitin, Whitinsville, Mass., and William H. Vail, Cornwall, N. Y. Filed Apr. 27, 1886. (No model.)



Claim.—1. The combination of a plate, A, attached to the support of a wagon-seat, provided with a downwardly-extending projection, A', a holding-piece, H, attached to the side of the wagon and provided with a recess, L, adapted to receive the projection A', and a longitudinally-adjustable bolt or rod connecting the plate A and the holding-piece H in such manner that the seat will be clamped rigidly to the wagon-body and prevented from rattling, and also prevented from longitudinal movement.

2. The combination of a plate, A, attached to the support of a wagon-seat, provided with a downwardly-extending projection, A', a holding-piece, H, attached to the side of the wagon and provided with a recess, L, adapted to receive the projection A', and a bolt or rod connecting the plate A and the holding-piece H, said bolt or rod bearing a clip provided with an upwardly-extending lip or flange adapted to enter the recess in the holding-piece H, substantially as and for the purposes set forth.

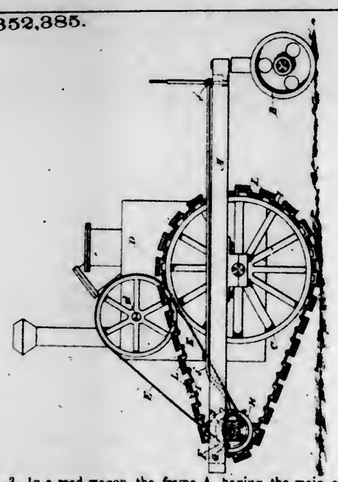
3. A securing device for wagon-seats, consisting of a plate, A, having a hollow enlargement, D, nut E, thumb-screw F, clip G, and plate H, the whole combined and arranged substantially as shown and described.

352,385. ROAD-ENGINE. WM. APPLEGARTH, Fresno, Cal. Filed Aug. 25, 1886. (No model.)

Claim.—1. In a road-wagon, the wheeled frame A, the engine thereon, and the shaft G, with its chain-pulleys H, forming part of the power-transmitting mechanism from the engine to the driving-wheels, in combination with the feathered clutches J, engaging one side of said pulleys, and the feathered clutches K, engaging reversely the other side, substantially as herein described.

2. In a road-wagon, the frame A, having the main supporting or carrying wheels C, and the engine D, in combination with the shaft G, driven from the engine, the loose chain-pulleys H on the shaft, the endless chains I, passing from said pulleys to and around the peripheries of the wheels C, the feathered clutches J, engaging one side of the loose pulleys, the feathered clutches K, engaging reversely the other side of said pulleys, and mechanism for simultaneously throwing one set of clutches into and the other out of engagement, substantially as herein described.

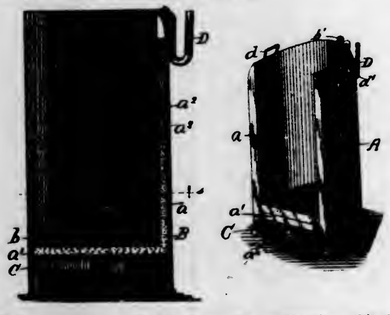
352,385.



3. In a road-wagon, the frame A, having the main supporting or carrying wheels C, the engine D on the frame, the shaft G, the loose chain-pulleys H on the shaft, the endless chains I from said pulleys around the peripheries of the wheels C of the frame, and mechanism for driving the shaft from the engine, in combination with the feathered clutches J, engaging one side of the loose pulleys H, the feathered clutches K, engaging reversely the other side of said pulleys, the pivoted levers *j'*, secured to the clutches J, the pivoted levers *k*, secured to the clutches K, and the sliding bar *j*, with which said levers are connected, substantially as and for the purpose herein described.

4. In a road-wagon, the frame A, having main supporting and carrying wheels C, and an engine, D, in combination with the endless chains I, driven by the engine and passing around the peripheries of the wheels C, and the shoes L on the chains, substantially as herein described.

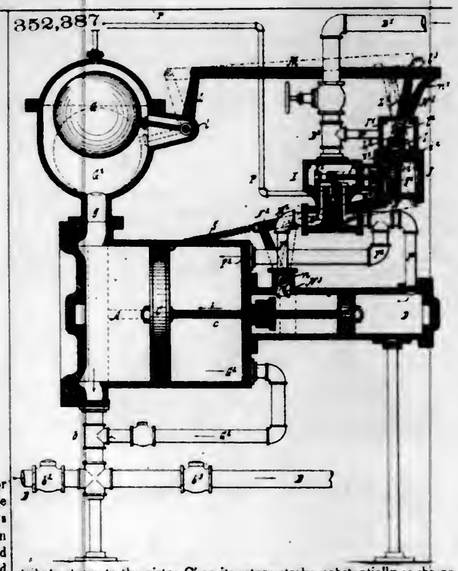
352,386. PORTABLE WARMING APPARATUS. ANNA E. BAILEY, Chicago, Ill. Filed Dec. 15, 1885. (No model.)



Claim.—1. In a warming apparatus, the combination, with the semicircular body A, open at the back and consisting of the vertical part *a* and the horizontal part *a'*, constructed double so as to provide a water-space between, substantially as and for the purpose set forth.

2. In a portable warming apparatus consisting of a semicircular body having double walls to form a water-receptacle, a chambered base, a heating device inserted in said base, and an escape or vent tube, all constructed and arranged to operate substantially as and for the purpose described.

352,387. STEAM-TRAP. JOSEPH H. BAKER, New York, N. Y. Filed Apr. 1, 1886. (No model.)



Claim.—1. The combination, with the water-receiving cylinder A and its piston C, of the auxiliary cylinder D, the piston therein connected with the piston C, a chamber communicating with the cylinder A, a float therein, and an equalizing-valve connected with said float, which distributes steam to both cylinders, substantially as shown and described.

2. The combination, with the water-receiving cylinder A and its piston C, of the auxiliary cylinder D, the piston C', connected with piston C, a chamber communicating with the cylinder A, a float therein, and an equalizing-valve connected with said float, which distributes steam to both pistons on their working stroke, and is operated by piston C' to distribute steam to the piston C' on its return-stroke, substantially as shown and described.

3. The combination, with the water-receiving cylinder A and the cylinder D, of the connected pistons C C', the chamber G', communicating with cylinder A, the hinged float G therein, the valve I, the arms L L' L^2, and link M, connecting the same with the float, the finger N^2, adapted to be engaged by piston C', arm N^2, link M', and lever N N', for tripping the link M and moving the valve I on its seat, the spring S, the piston J', and the valve E', connected thereto to distribute steam to the cylinder, substantially as set forth.

4. The combination, with the water-receiving cylinder A and its piston C, of the auxiliary cylinder D and its piston C', connected with piston C, a chamber communicating with the cylinder A, a float therein, the valve I, operated by the float to admit steam to both cylinders, and by piston C' to admit steam to cylinder D, the steam-ports e^2 e^3, the exhaust-ports e e', one of which, e', is in communication with the chamber, the equalizing-valve E, controlling said ports to bring the two exhaust-ports in communication while the cylinder is receiving, substantially as shown and described.

5. The combination, with the water-receiving cylinder A and the cylinder D, of the connected pistons C C', the chamber G', communicating with cylinder A, the hinged float G therein, the valve I, the arms L L' L^2, and link M, connecting the same with the float, the finger N^2, adapted to be engaged by piston C', an arm, N^2, link M', and lever N N', for tripping the link M and moving the valve I on its seat, the spring S, the piston J', the auxiliary valve E', connected thereto to distribute steam to the cylinder, and the connection for leading the exhaust-steam into the receiving-cylinder, substantially as described.

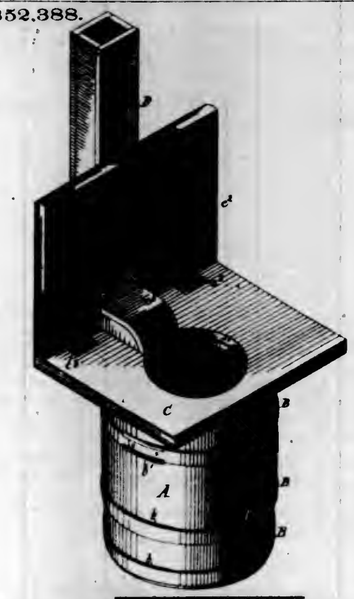
352,388. COMMODE. PROSPER BARDON, Waco, Tex. Filed Aug. 20, 1885. (No model.)

Claim.—1. In a commode, a receiving-barrel, A, having hoops B and elastic tightening-strips *b*, substantially as and for the purpose described.

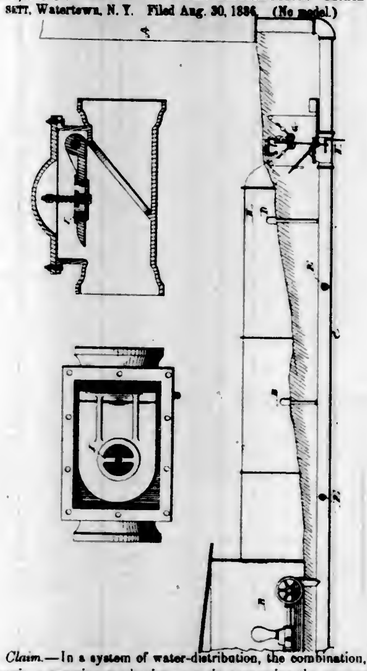
2. A commode comprising the receiving and supporting barrel A, having a chine, lower imperforated head, a^2, and upper perforated head, a^3, a hermetically-closing seat, C, resting down upon the chine of the barrel and having a packing-flange, *c*, fitting within and against the chine, a suction or draft flue, D, and a removable flue, c^3, substantially as and for the purpose described.



352,388.

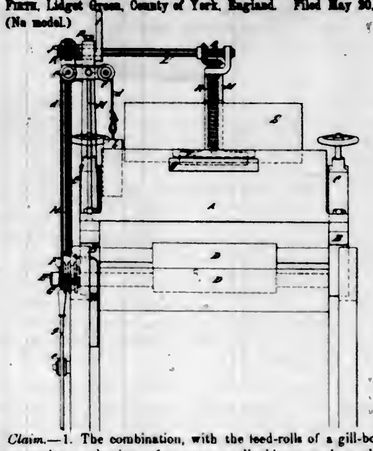


352,389. SYSTEM OF WATER-DISTRIBUTION. GEORGE B. BASSETT, Watertown, N. Y. Filed Aug. 30, 1886. (No model.)



Claim.—In a system of water-distribution, the combination, with a reservoir, a pumping mechanism, a main connecting the reservoir with the pumping mechanism, and having service-pipes and fire-plugs upon it, a mechanically-controlled valve in the main near the reservoir, opening away from it, and means for instantly closing or opening the said valve from a central point, cutting off the supply from the pumping mechanism to the reservoir, of a relief or safety valve located in the flap of the aforesaid valve and adapted to open toward the reservoir, and adjustable to open at any desired pressure, as and for the purpose set forth.

352,390. APPARATUS FOR DISTRIBUTING OIL, &c., UPON FIBROUS SUBSTANCES. ARTHUR REES, Great Horton, and PRIESTLEY FIRTH, Lidget Green, County of York, England. Filed May 20, 1886. (No model.)



Claim.—1. The combination, with the feed-rolls of a gill-box and their operating mechanism, of a system or liquid-receptacle, a plunger, mechanism, substantially as described, for forcing the plunger down into the cistern, and gearing, substantially as described, connecting the feed-roll-operating mechanism with the plunger mechanism, whereby they are simultaneously operated, as set forth.

2. The combination, with the feed-rollers D D, having driving-shaft E, of the cistern, the plunger S, having actuating-screw R, and gearing, substantially as described, connecting the shaft E with said screw R, as set forth, whereby the plunger is operated from the feed-roll shaft, as described.

3. In combination, the oil-cistern, the feed-rollers D D, shaft E, worm F, worm-wheel G, shaft H, worm J, worm-wheel K, shaft L, bevel-gearing, screw R, and plunger S, all located and operating as described.

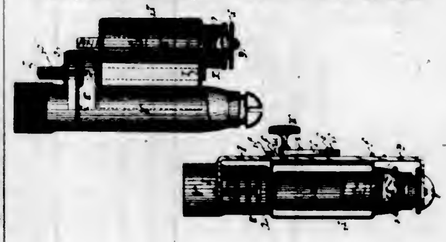
4. In combination, the feed-rolls of a gill-box provided with operating mechanism, an oil-cistern, a plunger located therein, gearing, substantially as described, connecting the plunger and the feed-roll-operating mechanism, a supplementary plunger, its rope, and the starting-lever to which said rope is connected, whereby upon the stopping of the machine the auxiliary plunger is raised and the level of the oil correspondingly lowered, as set forth.

5. The combination, with a gill-box and its feed-rolls, of an oil-cistern having side outlets, a main plunger, mechanism, substantially as described, connecting it with the feed-rolls for moving it in the cistern to cause the oil to overflow, a supplementary plunger, the feed-roll-starting lever, and means whereby said supplementary plunger is connected to the feed-roll-starting lever, whereby it is dropped into the oil to bring it to the level of the outlets when the machine is started, and withdrawn to lower the level of the oil when the machine is to be stopped, as set forth.

6. In combination, the oil-cistern, the feed-rolls D D, shaft E, worm F, shaft H, provided with worm-wheel G and worm J, the adjustable bearings in which said shaft is journaled, the worm-wheel K, shaft L, bevel-gearing, screw R, and plunger S, for the purpose set forth.

7. The combination of the oil-cistern, the feed-rolls, shaft E, shaft H, gearing therewith, shaft L, geared to shaft H, and plunger S, having screw R geared to shaft L, with the eccentric bearing-block O, in which shaft L is journaled, having lever I, as and for the purpose set forth.

352,391. DEVICE FOR CUTTING OFF THE FLOW OF GAS TO GAS-BURNERS. JOSEPH W. BIRCH, New York, N. Y., assignor of one-fourth to Stephen T. Smith, same place. Filed Mar. 11, 1886. (No model.)



352,391.



Claim.—1. The combination, with a burner, of a valve, a closed expansible and contractible chamber having a diaphragm at its upper end and located in close proximity to the burner, a button resting on the diaphragm, and a vertically-slidable rod for connecting the button with the valve, substantially as described.

2. The combination, with a gas-burner, of a rising and falling valve having a stem, an expansible and contractible chamber having a diaphragm at its upper end and located in close proximity to the burner, a button resting on the diaphragm, and a rod-connection between the button and the valve, substantially as described.

3. The combination, with a gas-burner, of a rising and falling valve, an expansible and contractible chamber having a diaphragm at its upper end and located in close proximity to the burner, a button resting on the diaphragm, a vertically-sliding rod connected with the button, and means, substantially as described, for connecting the rod with the valve, whereby the rising of the buttons lifts and opens the valve, substantially as described.

4. The combination, with a gas-burner having a valve-chamber, B provided with a horizontal diaphragm, *b*, having an inlet-orifice, *c*, and dividing the chamber, of a valve, C, seating on said diaphragm, and having a stem, *c'*, extending to the exterior of the burner, an expansible and contractible chamber, D, located in close proximity to the burner, a button, F, resting on the upper end of the latter, and a slidable rod-connection between the button and the stem of the valve, substantially as described.

5. The combination, with the burner, of the valve C, the valve-rod thereof, the expansible and contractible chamber D, located in close proximity to the burner, a follower-rod connected with the upper end of the chamber, and a lever-and-pin connection between the valve-rod and the follower-rod, substantially as described.

6. The combination, with a burner, of a valve having a valve-stem, a vertically-slidable rod connected with the valve-stem and having a trip-pin, a turning-lever for acting on said pin to lift said rod, an expansible and contractible chamber having a diaphragm at its upper end and located in close proximity to the burner, and connections, substantially such as described, between the diaphragm and the sliding rod, substantially as described.

7. The combination, with the burner closed at one end, of the valve-casing B, communicating with the burner and the gas-supply pipe, the valve C in said casing, the valve-rod I, having a trip-pin, *i*, the expansible and contractible chamber D, located in close proximity to the burner, the follower-rod G, carrying a button, F, at its upper end, which rests on the chamber, and having the pin *g*, the swinging lever J, having the arm *j* and the hook *j'*, and the handle or knob M, substantially as described.

8. The combination, with the burner, of the gravitating valve C, controlling the gas-supply, the valve-rod I thereof, the expansible chamber D, located in close proximity to the burner, the follower-rod G, in connection with the chamber, the pins *i* and *g* on the valve and follower rods, the lever *j* J, having a hook-shaped arm engaged by the pin on the follower-rod, and an arm engaging the pin on the valve-rod, substantially as shown and described.

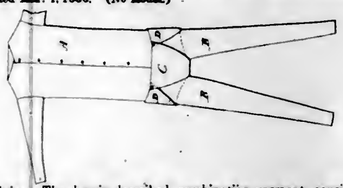
9. The combination, with a burner closed at one end, of a valve-casing, B, communicating with the burner and the gas-supply-pipe, of the gravitating valve C in said casing, the valve-rod I thereof, the casing E', the expansible chamber D therein, said casing and chamber located in close proximity to the burner, the button F, in connection with the chamber, the follower-rod G, the pins *i* and *g* on the valve and follower rods, and the levers *j* J engaging the pins *i* and *g*, substantially as shown and described.

352,392. COVER FOR JARS. AMARON W. BESSETWELL, Owen, Ind., assignor of one-half to Martin M. Allhands, same place. Filed Apr. 16, 1886. (No model.)



Claim.—In combination with a crock or similar article or vessel having a flange around its upper edge, a cover having a knob at its center formed with diametrically-opposite lugs, arms pivoted with their bifurcated inner ends upon the lugs, and having downwardly-bent portions formed with inwardly-projecting lips for engaging the flange of the vessel and outwardly-projecting manipulating-lips, and flat springs secured to the inner ends of the arms and bearing against the upper side of the cover, as and for the purpose shown and set forth.

352,393. UNDER-GARMENT. F. BARTON BROWN, Boston, Mass. Filed Mar. 1, 1886. (No model.)



Claim.—The herein-described combination-garment, consisting of the body A and the legs B B, permanently attached as a continuous garment, the leg portions extending from the front rearward at the waist-line to about the hip-line, open at the rear, with the flap C, attached to the back at the waist-line, adapted to be brought forward between the legs, and provided with extensions D D and E E, the said extensions D D adapted to be brought forward at each side and to meet the extensions E E, so as to secure the said flap, substantially as described.

352,394. WATER-ELEVATOR. GEORGE W. CAMPBELL, El Paso, Tex., assignor of one-fourth to E. C. Roberts, same place. Filed May 5, 1886. (No model.)

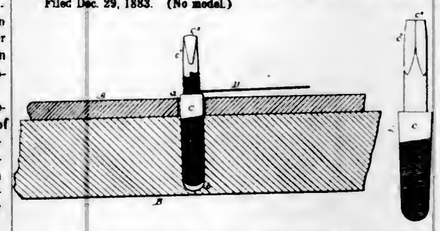
Brief.—A hollow shaft perforated to permit the confined air to escape, and thus relieve the screw of pneumatic pressure.



Claim.—1. A water-elevating screw having a hollow axial shaft provided with openings leading from between the threads to its interior, for the escape of the confined air, substantially as and for the purposes specified.

2. The combination, with the axial shaft perforated, as described, of the spiral metallic sheet and outer casing, the flattened journal secured in its lower end and stepped in a bearing-block at the bottom of the well, and the beveled gearing whereby the screw is driven by means of any suitable motor, substantially as and for the purposes specified.

352,395. TUNING-PIN FOR PIANOS. JOHN W. CARNES, Orion, Ill. Filed Dec. 29, 1883. (No model.)



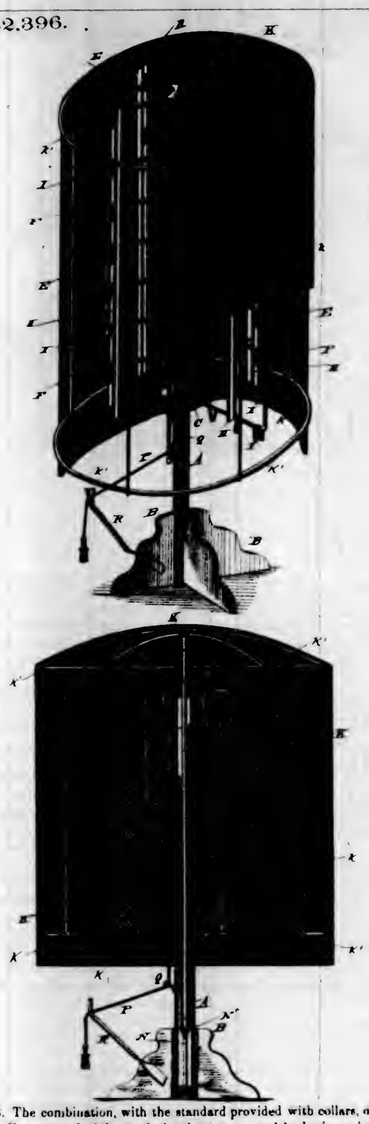
Claim.—A tuning-pin for pianos having one end fitted, as usual, to receive the tuning-hammer, a cylindrical shank for the string-winding part of the same diameter as the end to which the tuning-hammer is attached, and an enlarged tapering and milled body, substantially as described.

352,396. LACE AND EMBROIDERY STAND. MORRIS C. COHEN, Winfield, Kans. Filed Mar. 1, 1886. (No model.)

Claim.—1. The combination, in a display-stand, with the standard provided with collars formed with openings, as described, of a series of removable swinging frames provided with depending hooks to rest in the openings in the collars, substantially as described.

2. The combination, with the standard provided with collars, as described, of the frames E, having horizontal wires F, the upper and lower wires F being extended inwardly and bent downwardly to form hooks G, substantially as described.

352,396.



3. The combination, with the standard provided with collars, of the frames E, composed of the vertical strips *e*, connected by horizontal strips F, said strips F being provided with wire holders, substantially as described.

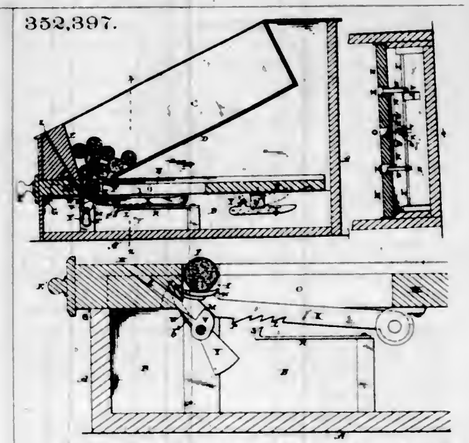
4. The combination, with the standard and with the frames, of collars mounted upon said standard, and provided with openings *c* and radial grooves J, substantially as described.

5. The combination, with hollow cylindrical standard, of a canopy-cover consisting of the central depending rod, N, the frame *k'*, and the canopy *k*, and means for raising and lowering said cover, substantially as described.

6. The combination, with the hollow cylindrical standard, of the canopy-cover provided with a depending rod, N, and means for raising and lowering said canopy-cover, consisting of the cord P, secured to the standard, and passed down within said standard under a hook, N', on the rod N, and passed up within the standard and over a guide, Q, and thence downward outside the standard, substantially as described.

352,397. AUTOMATIC CIGAR-SELLER. CARY O. COLE, Letts, Iowa, assignor of one-half to E. G. Grosjean, Mount Eaton, Ohio. Filed Feb. 10, 1885. (No model.)

352,397.



Claim.—1. The combination of a case having an upper compartment with an inclined bottom and an opening at its lower end, and a lower compartment with a drawer sliding between the compartments and having an opening coincident with the opening in the upper compartment, coincident openings in the case and the drawer for the reception of a coin, and a cigar-receiver resting under the opening in the drawer, the said receiver automatically locking the said drawer when no coin has been received, substantially as shown.

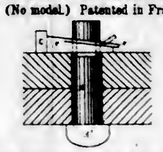
2. The combination of the case having an upper and a lower compartment, the upper compartment being provided with an inclined bottom having an opening at its lower end, the drawer H, having a recess, I, and opening A', the lever K, which is pivoted to the under side of the drawer, and which is provided with prongs at its forward end for grasping the coin, a catch normally supporting the lever, and a means for raising said lever and releasing the coin when the drawer is drawn outward, substantially as described.

3. The combination of the case having the compartments B C, the drawer H, having the recess I and opening A', the lever K, pivoted on the under side of said drawer and having prongs at its front end for grasping the coin, an incline, M, incline P, and teeth L, hook S, secured in the case, and means for raising the lever and releasing the coin when the drawer is drawn forward, substantially as described.

4. The combination of the case having the compartments B C, drawer H, having the recess I and opening A', lever K, which is pivoted on the under side of the drawer, and which is provided with prongs at its front end for grasping the coin, and an incline, M, incline P, teeth L, hook S, which is secured to the case, shaft T, having the arms W, weight Y, and cam V, substantially as specified.

5. The combination of the lever X', having an angular or bent arm, Y', the bent arm Z', having its lower end turned upward, a support for the rear free end of the lever, and the drawer having a recess in its under side, substantially as shown and described.

352,398. LOCKING-BOLT. GEORGES COULON, Paris, France. Filed Apr. 20, 1886. (No model.) Patented in France Oct. 8, 1885, No. 171,553.



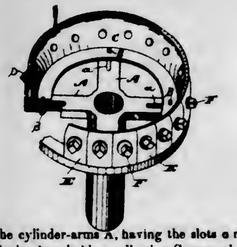
Claim.—1. The improved wedge pin or key herein described, consisting of the solid head, the bifurcated body, forming wedge-shaped prongs or arms *e*, and the tongues *e'*, formed integral with and upon the side of the arms, and of a slightly greater length, as set forth.

2. In combination, the bolt A, having inclined grooves or recesses B B', and the pin or key having a solid head and a bifurcated body, forming wedge-shaped prongs or arms *e*, with tongues *e'* formed integral therewith and upon the sides thereof, and adapted to fit the recesses B B' of the bolt, as and for the purpose set forth.

352,399. NEEDLE-CYLINDER FOR CIRCULAR-KNITTING MACHINES. GEORGE DAVIDSON and WILLIAM W. CLAY, Paris, Ontario, Canada. Filed Apr. 22, 1886. (No model.)

Brief.—Each needle may be independently removed and replaced without disturbing any of the other needles, and the needle-ring is so connected to the cylinder-arms that it may be readily removed and replaced by another ring of different diameter.

352,399.



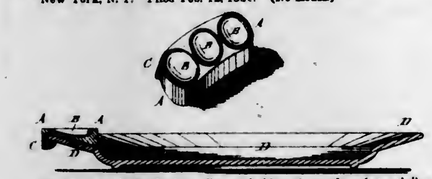
Claim.—1. The cylinder-arms A, having the slots a made in them, in combination with the detachable needle-ring C, secured in position by the screws B and holding-pins *b*, substantially as and for the purpose specified.

2. The cylinder-arms A, needles, needle-carrier D, formed with wide rib *d* and grooves *e*, to receive the shanks *f* of said needles, and the needle-ring C, secured to the cylinder-arms, and having a groove formed on its outside to receive the rib *d*, combined with the detachable holding-plates E and means for holding said plates in position, substantially as and for the purpose specified.

3. The ring *c*, the needles, the needle-carrier D, made in sections and having vertical grooves *e* formed in it, and a projecting shoulder or rib, *i*, made near its base, in combination with the holding-plates E, secured by the screw-bolts F, and having grooves cut on their inner side to receive the shoulder *i*, substantially as and for the purpose specified.

4. A knitting-machine needle having a shank, *f*, with a bent end, *g*, and a beveled shoulder, *j*, in combination with a needle-carrier, D, having a slot, *e*, to receive the shank *f*, and a notch, *h*, to receive the end *g*, substantially as and for the purpose specified.

352,400. INDIVIDUAL CONDIMENT-HOLDER. GEORGE DOWLOTT, New York, N. Y. Filed Feb. 12, 1886. (No model.)



Claim.—An individual condiment-holder, A, made substantially as herein shown and described, with one or more recesses, B, in its upper side to receive condiments, with an inclined lower side to rest upon the brim of a plate, and with a downwardly-projecting flange, C, along its shallower side edge to rest against the edge of a plate and to serve as a foot to the holder, as set forth.

352,401. TOY. JAMES FALLOWS, Philadelphia, Pa. Filed Feb. 15, 1886. (No model.)

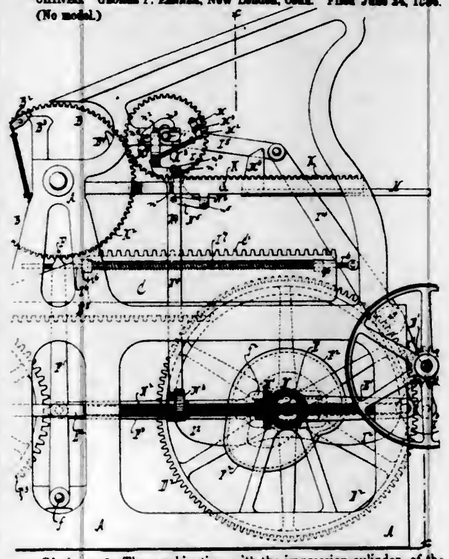


Claim.—1. In a toy, the combination, with the wooden platform A and a suitable supporting means therefor, substantially as described, of the metallic figure B, and the metallic plate or plates E, provided with tacks for insertion into or through the wooden platform, and having the metallic figure soldered to the upper surface of said plate or plates, substantially as and for the purposes herein set forth.

2. The combination of the wooden pedestal or platform A, the soldering plate or plates E, secured to the platform, a surmounting metal figure, B, the axle-supports D, having the spur or spurs *d* and attaching-strip *d'*, and the wheels C, all arranged substantially as and for the purpose described.

3. The wooden platform or pedestal A, having a surmounting figure, in combination with the wheels C, and supports D, having their tops bent to clasp around the edge of the platform, and being provided with the attaching-strips *d'*, said attaching-strips extending only partially across the under side of the wooden platform, substantially as described.

352,402. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. GEORGE P. EMERY, New London, Conn. Filed June 24, 1886. (No model.)



Claim.—1. The combination, with the impression-cylinder, of the stationary supports K^2, having open-ended slots, the carrier-reel J, having an axle, I', and adapted to be actuated by the impression-cylinder, and means, substantially such as described, for moving the reel-axle into and out of the slotted supports and to and from the cylinder.

2. The combination, with the impression-cylinder, of the carrier-reel J, a fixed support or journal, K^2, for the shaft of the carrier-reel, and a locking device, n^2, substantially as set forth.

3. The combination, with the impression-cylinder, of the carrier-reel J, a fixed support or journal, K^2, for the shaft of the carrier-reel, and a detent mechanism, N^4 N^5, substantially as set forth.

4. The combination, with the impression-cylinder, of the carrier-reel J, a fixed support or journal, K^2, for the shaft of the carrier-reel, a locking device, n^2, and a detent mechanism, N^4 N^5, substantially as set forth.

5. The combination, with the impression-cylinder, of the fixed reel support or journal K^2 and a carrier-reel adapted to be actuated by the impression-cylinder to receive the sheet, substantially as set forth.

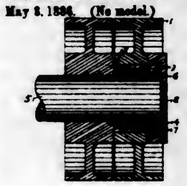
6. The combination, with the impression-cylinder, of stationary supports K^2, the carrier-reel J, having an axle, I', and end supporting-disks, K', the ways K, located beneath the reel and on which the supporting-disks rest and travel, and means, substantially such as described, for moving the carrier-reel to and from the cylinder and causing the reel-axle to move into and out of engagement with the stationary supports.

7. The combination, with the impression-cylinder and the gear K^2 thereof, of the carrier-reel J, having a gear, I, adapted to engage with the gear on the impression-cylinder, and a fixed support for the shaft of the carrier-reel, substantially as set forth.

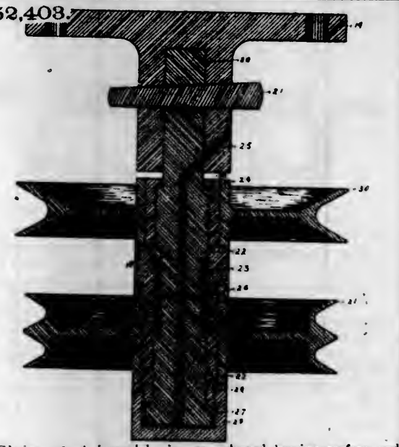
8. The combination, with the impression-cylinder, of a stationary support, K^2, a carrier-reel, J, having an axle, I', and means, substantially such as described, for moving the reel-axle into and out of engagement with the said support and to and from the cylinder.

9. The combination of the impression-cylinder having the attached gear K^2, the reciprocating carrier-reel J, having a shaft, I', provided with a gear, I, adapted to engage and disengage the gear on the cylinder, stationary support K^2, the stationary rack G, and means, substantially such as described, for reciprocating the reel and moving its shaft into and out of engagement with the said support.

352,403. JOURNAL AND BEARING. CHARLES H. FISHER, Lowell, Mass. Filed May 8, 1886. (No model.)



352,403.



Claim.—1. A journal having an enlarged bearing-surface, and having a bearing that is in its largest interior diameter impervious to oil, closely fitting and revolving upon the said enlarged bearing-surface, there being an inwardly-projecting oil-impervious lip at each end of the said bearing, which overhangs the said enlarged bearing-surface, and the journal having means entirely between the said lips for closely limiting the longitudinal motion of the said bearing, substantially as described, and for the purposes set forth.

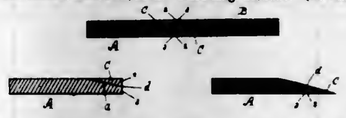
2. A journal having an enlarged bearing-surface that is provided with a lubricant-storing groove, and also having a bearing that is in its largest interior diameter impervious to oil, closely fitting and revolving upon the said enlarged bearing-surface, and that is provided with an inwardly-projecting oil-impervious lip at each end, which overhangs the said enlarged bearing-surface, substantially as set forth, and for the purposes specified.

3. A journal having an enlarged bearing-surface, and having a bearing that is in its largest interior diameter impervious to oil, closely fitting and revolving thereon, the said bearing having an inwardly-projecting lip at each end, which overhangs the said enlarged bearing-surface, and the said journal having means entirely between the said lips for closely limiting the longitudinal motion of the said bearing, and a lubricant-conduit leading from the space exterior to the said bearing through the said journal to the interior of the said bearing, substantially as described, and for the purposes set forth.

4. A journal having an enlarged bearing-surface that is provided with a lubricant-storing groove, and also having a bearing that is in its largest interior diameter impervious to oil, closely fitting and revolving upon the said enlarged bearing-surface, and that is provided with an inwardly-projecting oil-impervious lip at each end, which overhangs the said enlarged bearing-surface, the said journal having means entirely between the said lips for closely limiting the longitudinal motion of the said bearing, and a lubricant-conduit leading from the space exterior to the said bearing through the said journal to the interior of the said bearing, substantially as described, and for the purposes specified.

5. A detachable journal having an end which projects beyond the bearing-surface thereof, and that is smaller than the said bearing-surface, and means for securing the said journal to a suitable support therefor, and provided with a bearing that is in its largest interior diameter impervious to oil, closely fitting and revolving upon the said bearing-surface, and that has an inwardly-projecting oil-impervious lip at each end, which overhangs the said bearing-surface, substantially as described, and for the purposes set forth.

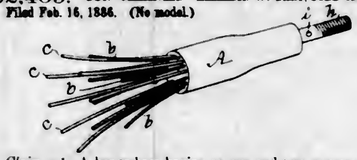
352,404. METHOD OF UNITING PIECES OF LEATHER. PATRICK J. FITZGERALD, Haverhill, Mass. Filed Aug. 26, 1886. (No model.)



Claim.—1. The method of uniting scrap leather, which consists in the following steps: first squaring the ends of the scraps to be united, next cutting obliquely into each scrap toward the squared end, so as to form a flap integral therewith, then folding each flap down as a continuation of the scrap to which it is united, and finally imposing the oblique face thus formed of one of the scraps on the other and fastening them together, substantially as set forth.

2. The method of uniting scrap leather, which consists in the following steps: first squaring the ends of the scraps to be united, next cutting obliquely into each scrap toward the squared end, so as to form a flap integral therewith, then folding each flap down as a continuation of the scrap to which it is united, then coating with cement the oblique faces thus formed of the ends of the scraps and placing them in contact with each other, and finally applying pressure to make the cement bind them together, substantially as set forth.

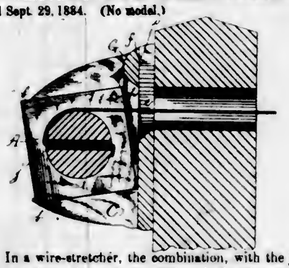
352,405. GUN-CLEANER. HARRISON W. GARY, Plum Creek, Nebr. Filed Feb. 16, 1886. (No model.)



Claim.—1. A bar or base having an eye and two or more series of elastic and outwardly-curved scrapers of unequal length at one end and a screw-threaded bore at its opposite end, and a detachable wormer having a screw-threaded shank, combined to operate in the manner set forth.

2. The improved gun-cleaner composed of the base A, having series of fixed elastic scrapers *b* and *c*, an eye, *d*, and a screw-threaded bore, *f*, the wormer *g*, having a screw-threaded shank, *h*, and a perforation, *i*, substantially as shown and described, to operate in the manner stated.

352,406. WIRE-FENCE BINDER. WILLIAM C. GHOLSON, Cincinnati, Ohio. Filed Sept. 29, 1884. (No model.)

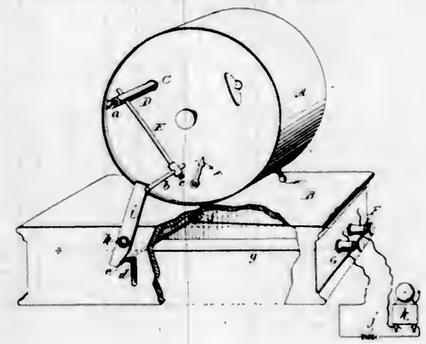


Claim.—1. In a wire-stretcher, the combination, with the journal-box having open-ended bearing-sockets, of the winding-drum mounted in said bearing-sockets and provided with blocks of greater diameter than its body and so formed as to bear against the wall of the journal-box when the drum is rotated, substantially as and for the purposes set forth.

2. In a wire-stretcher, the drum A, provided with the square central projections, *b*, the journal-box C, provided with slot *e* and the grooves *f*, and the key G, having a projection adapted to fit into the said grooves of the box, whereby the drum when the wire is tightened is locked and held in place, substantially as described.

3. A wire-fence binder comprising, in combination, a winding-drum, A, the journal-box C, provided with sockets *d*, to receive the ends of the drum-shank, a slot, *e*, through which the wire is passed, and grooves *f* on both sides of the slot, to receive a key, and said key G, slotted to form arms *h*, having inclined faces on one end, and provided with lugs whereby the key is adapted to fit into the grooves of the journal-box, substantially as described.

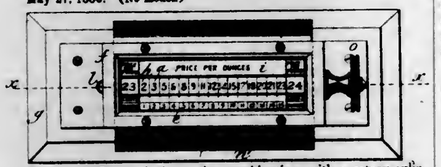
352,407. ELECTRIC ALARM FOR TIME-PIECES. FRANK GLASGOW, Osceola Mills, Pa. Filed May 1, 1886. (No model.)



Claim.—1. The combination, with the alarm mechanism of an alarm-clock, of the arbor-extension D, the arm E and pin *b*, lever *i*, extending into the path of the pin *b*, the contact-lever *e*, arranged to be released by the lever *i*, the contact-wire *g*, and the electrical connections, substantially as herein shown and described.

2. The combination, with the alarm-clock A, provided with the arbor-extension D, the arm E, and pin *b*, of the base B, provided with the right-angled notch *d*, the wire *g*, stretched across the base, the contact-lever *e*, placed above the wire *g*, the lever *i*, pivoted to the base B, extending into the path of the pin *b* and adapted to engage the contact-lever *e*, and the electrical connections, substantially as herein described.

352,408. CALCULATOR. George H. Harris, Bloomington, Ill. Filed May 27, 1886. (No model.)



Claim.—1. In a calculator, the combination, with a rotary cylinder having a computation-table on its surface, said table being provided with a series of numbers, located at each end of the cylinder, denoting the price of a unit, and with intermediate numbers denoting the price of fractional parts of a unit, of a longitudinally-slotted cylinder-casing and a scale of numbers denoting fractional units located outside of the casing along the edge of the slot, substantially as and for the purpose described.

2. In a calculator, the combination, with a series of whole numbers located in columns *b* and *c* at the ends of a rotary cylinder, and adapted to denote the price of a whole thing, and sets of whole numbers located on the face of the cylinder between said columns, said sets of numbers having distinguishing features and being adapted to denote the price of fractional parts of a whole, of the slotted casing and the scale of numbers denoting the fractional parts of the whole, arranged substantially as shown and described.

352,409. DIE FOR MAKING SHEARS. Ira Harris, Cleveland, Ohio. Filed Oct. 31, 1885. (No model.)

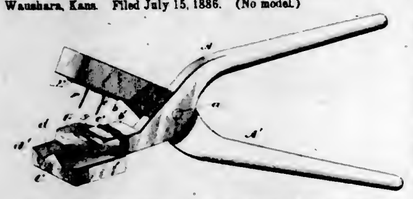


Claim.—1. The forging-dies C C', constructed and operating as herein shown and described, for forging each half a member of a pair of bevel-bowed shears from a single piece of steel, as explained.

2. The series of dies A A', B B', and C C', constructed and operating as herein shown and described, for forging bevel-bowed shears.

3. The twisting or shaping dies F F', constructed and operating as and for the purpose herein shown and described.

352,410. DEVICE FOR ATTACHING TAGS. Melville L. Howell, Waushara, Kans. Filed July 15, 1886. (No model.)

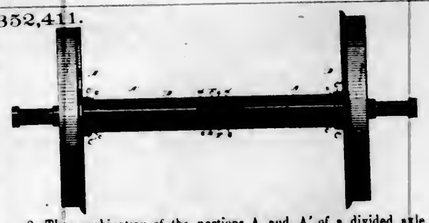


Claim.—The combination, in an implement for attaching tags by means of staples, of the jaws pivotally attached to each other and provided with handles A A', the jaws having attached thereto spring-plates *b b'*, beneath which the tags are placed, so as to be maintained in position, an anvil provided with a central raised portion, with inclined sides and oppositely-inclined bases, which serve to turn the points of the staples outwardly and upwardly, substantially as shown, and for the purpose set forth.

352,411. CAR-AXLE. De Witt C. James, Warren, Pa. Filed May 5, 1886. (No model.)

Claim.—1. The bands *c c*, secured upon each part of a divided axle close to the wheels, in combination with the sleeve D, substantially as and for the purpose set forth.

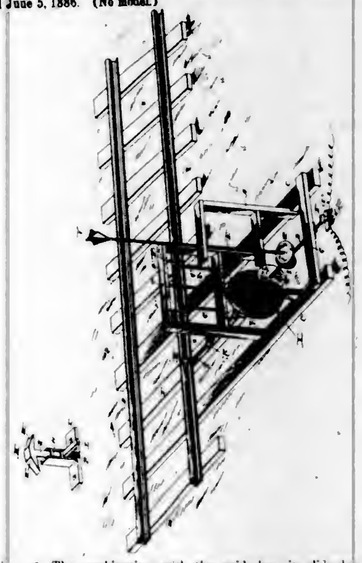
352,411.



2. The combination of the portions A and A' of a divided axle, each of said portions having turned upon its inner end bosses beveled each way from near the center of their peripheries so as to form ridges or bearings, one of said bosses being provided with a pin, which extends into a corresponding recess in the other, as and for the purpose set forth.

3. An axle divided in two parts, each part having a beveled boss upon its inner end, in combination with the divided box G and the sleeve D, substantially as and for the purpose specified.

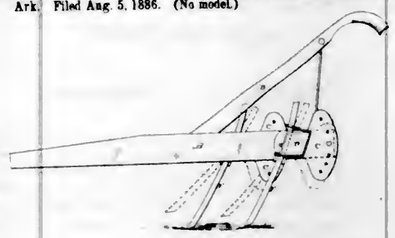
352,412. RAILROAD-SIGNAL. De Witt C. James, Warren, Pa. Filed June 5, 1886. (No model.)



Claim.—1. The combination, with the guide-box, its slide having a beveled head and side arm, and the spring for returning the slide to normal position, of the horizontal shaft and its crank-lever, the vertical signal-carrying shaft and beveled gear-wheels, and the disk and spiral spring for returning the parts to normal position, the whole arranged to operate substantially in the manner specified.

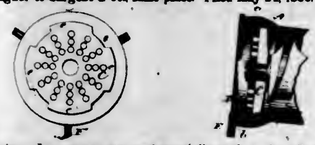
2. The combination, with the horizontal shaft and mechanism for operating the same, of the loosely-mounted beveled gear-wheel and rigidly-mounted ratchet and pawl, the vertical shaft and intergearing pinion, the arm attached to said shaft and having a cord and ball at one end, and the dependent and vertical wires, the whole arranged to operate in such manner as to return the parts slowly to normal position, substantially as specified.

352,413. CULTIVATOR. Paschal S. Kinsworthy, Brownstown, Ark. Filed Aug. 5, 1886. (No model.)



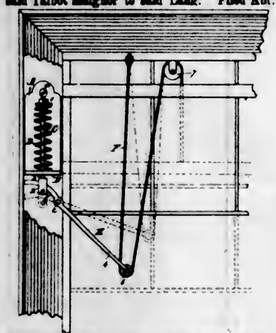
Claim.—The combination of the beam, the pivoted adjusting-plates secured thereto, the blocks which are rigidly secured to the plates and extend at right angles to the beam, and which are provided with a series of recesses in their front sides, and the standards, which are made adjustable in the recesses, substantially as described.

352,414. MEAT-CUTTER. Henry J. Landolt, New Haven, Conn., assignor to Sargent & Co., same place. Filed May 24, 1886. (No model.)



Claim.—In a meat-cutter substantially such as described, the cylindrical case having its delivery end undivided and constructed with an internal annular recess, *a*, near said delivery end, and with inwardly-projecting lugs *b* at the outer end of said recess, combined with the perforated plate C, corresponding in diameter to substantially the internal diameter of the said recess, constructed with notches *c* in its periphery corresponding to the lugs *b* in the cylinder, the said plate provided with an external flange, E, adapted to bear against the outer end of the cylinder and take a bearing thereon when the edge of the plate has passed into the said recess in the cylinder, substantially as described.

352,415. SASH-BALANCE. Alon Lang and Thomas W. Talbot, Florence, S. C.; said Talbot assignor to said Lang. Filed Apr. 1, 1886. (No model.)

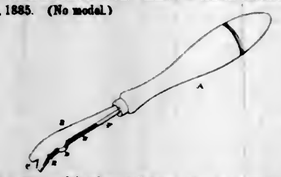


Claim.—1. An improved sash-balance, comprising a lever pivoted between its arms or ends and having one end adapted for connection with the object to be balanced, and a spring connected with the other end or arm of said lever and movable along the same, whereby the spring will have the greatest leverage when at its least tension and the least leverage when at its greatest tension, substantially as set forth.

2. The improved sash-balance herein described, consisting of the bracket provided with a perforated foot-piece, the bolt passed through said foot-piece and having a stop on its upper end, and its lower end bifurcated and provided with an anti-friction roller, and a lever pivoted between its ends and having one end curved and inserted through the bifurcated end of the bolt and a spring placed on the bolt and bearing between the foot-piece of the bracket and the stop of the bolt, substantially as set forth.

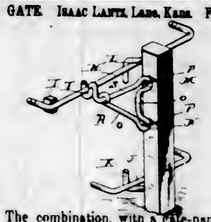
3. The combination, with a window sash and frame, of a pivoted lever having one arm provided with a pulley, a spring connected with and movable along the opposite arm of the lever, and a cord connected at one end with the window-frame, disposed thence around guide-pulleys on the lever and the window-frame and secured at its opposite end to the sash, substantially as set forth.

352,416. CARPET-TACK TOOL. Menno S. Lantz, Chestnut Hill, Pa. Filed Dec. 5, 1885. (No model.)



Claim.—As a new article of manufacture, the carpet-tack tool composed of a tack-lifter having the ordinary claws or prongs for withdrawing tacks, with an angular notch and semicircular projection upon one side, in combination with the metallic spring for holding tacks, substantially as and for the purposes described.

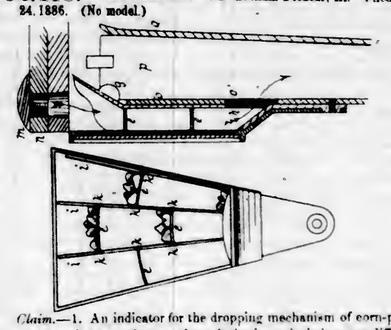
352,417. GATE. Isaac Lantz, Lane, Kans. Filed Aug. 7, 1886. (No model.)



Claim.—1. The combination, with a gate-panel having horizontal rods secured upon its upper and lower rail, said rods adapted to rest and slide in suitable supports attached to the hinge-post, of a rod bent to form eyes at the ends of its vertical portion, by which it is pivoted in staples upon the gate-post, and having an inclined brace extending from the lower eye, formed with an eye at its end, and a horizontal portion passing through the eye of the brace and formed with an upwardly-opening hook at its end, having the upper rod sliding in it, as and for the purpose shown and set forth.

2. The combination of a gate-panel having two horizontal rods secured at the upper and lower rail, at a distance from the same, book-shaped bolts at the upper and lower end of a corner of the hinge-post having the rods resting and sliding in them, and a bracket hinged to the gate-post by two eyes at the extremities of its vertical portion, and having an upwardly-inclined brace having an eye at its upper end, and a horizontal portion passed through the eye of the brace and formed with an upwardly-opening hook having the upper rod resting in it, as and for the purpose shown and set forth.

352,418. CORN-PLANTER. Jas. Locher, Decatur, Ill. Filed Sept. 24, 1886. (No model.)



Claim.—1. An indicator for the dropping mechanism of corn-planters, consisting in a set of approximately horizontal shelves at differing altitudes and a set of approximately vertical wings in the same plane with the shelves, and forming therewith a series of interiorly-exposed compartments, either the wings or the shelves having lateral reciprocating motion, as and for the purpose set forth.

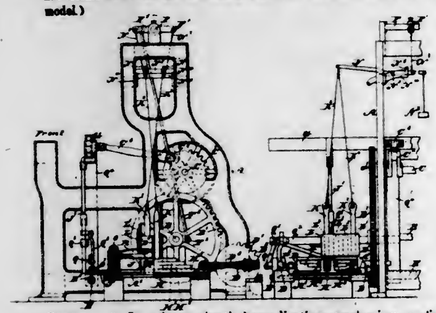
2. An indicator for the dropping mechanism of corn-planters, consisting in a set of approximately horizontal shelves arranged in a zigzag manner at differing altitudes and a set of approximately vertical and parallel wings in the same plane with the shelves, and forming therewith a series of interiorly-exposed compartments, either the shelves or the wings having lateral reciprocating motion, as and for the purpose set forth.

3. An indicator for the dropping mechanism of corn-planters, consisting in a set of arc-formed shelves approximately horizontal in general position and at differing altitudes, and a set of radial wings approximately vertical in general position, and forming with the shelves a series of interiorly-exposed compartments, either the shelves or the wings having an oscillatory reciprocating motion in an approximately horizontal plane, as and for the purpose set forth.

4. An indicator for the dropping mechanism of corn-planters, consisting in a set of arc-formed shelves approximately horizontal in general position and arranged in a zigzag manner at differing altitudes and a set of radial wings approximately vertical in general position, and forming with the shelves a series of interiorly-exposed compartments, either the shelves or the wings having an oscillatory reciprocating motion in an approximately horizontal plane, as and for the purpose set forth.

5. In combination with a corn-planter, an indicator for the dropping mechanism thereof, consisting in a set of approximately horizontal shelves at differing altitudes and a set of approximately vertical wings, forming with the shelves a series of interiorly-exposed compartments, the indicator being placed to receive the discharge from the seed-plate of the planter, and either the shelves or the wings having a lateral reciprocating motion synchronously with the operation of the seed-plate of the planter, as and for the purpose set forth.

352,419. LOOM SHUTTLE-BOX-OPERATING MECHANISM. William Lorey and John Braun, Philadelphia, Pa. Filed Jan. 30, 1886. (No model.)



Claim.—1. In a loom shuttle-box-adjusting mechanism, a slide having two sets of stepped cams or wipers thereon, and means, substantially as described, for reciprocating said slide, in combination with an oscillating lever having a perforated head, tappets fitted in perforations in said head, devices, substantially as described, for raising and lowering said tappets, a shuttle-box-carrying rod actuated by said lever, and devices connecting said rod to said lever, all substantially as and for the purpose set forth.

2. In a loom shuttle-box-adjusting mechanism, the frame A, having guideways A', in combination with the reciprocating slide H, provided with two sets of stepped cams or wipers, each of said sets occupying a reverse position to the other relatively to the line of motion of the slide, means for actuating said slide, an oscillating lever having a head with tappets, the latter having devices for raising and lowering the same in said head, and a shuttle-box-carrying rod, and devices connecting said rod with said lever, all substantially as and for the purpose set forth.

3. The slide H, with cams thereon, and means, substantially as described, for operating said slide, in combination with the oscillating lever J, provided with a head carrying tappets, the shuttle-box-carrying rod, and devices connecting said lever to the shuttle-box-carrying rod, a releasing-lever, a rock-shaft carrying said releasing-lever, means for actuating said rock-shaft, and cords and lever connecting said levers to said tappets, all substantially as and for the purpose set forth.

4. In a loom shuttle-box-adjusting mechanism, a slide with two sets of cams, and means, substantially as described, for reciprocating the same, in combination with a lever having a head with tappets, a rod carrying shuttle-boxes, devices connecting said levor to said rod, a releasing-lever, a rock-shaft carrying said releasing-lever, lifting-levers, cords connecting said releasing-lever to said lifting-levers at the inner ends of the latter, cords connecting the outer ends of the said lifting-levers to the tappets, a main shaft and arms, and a rod connecting the rock-shaft to the main shaft, all substantially as and for the purpose set forth.

5. In a loom shuttle-box-adjusting mechanism, a slide having cams thereon and provided with means for reciprocating the same, in combination with an oscillating lever having tappets, a rod carrying the shuttle-boxes, devices for connecting said lever to said rod, a releasing-lever, a rock-shaft carrying the said lever, means for actuating said shaft, lifting-levers, cords connecting said lifting-levers to the tappets, and releasing-lever and weights connected to the inner ends of said lifting-levers, all substantially as and for the purpose set forth.

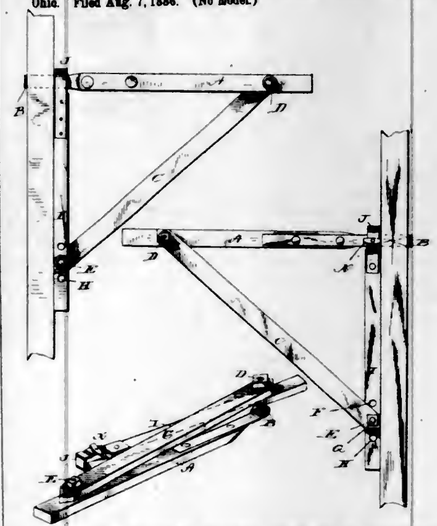
6. In a loom shuttle-box-adjusting mechanism, a reciprocating slide having cams thereon, and means for reciprocating said slide, in combination with the lever J, formed with the head L, tappets K K', the lay G, the rock-shaft E, having thereon the reciprocating sleeve P, the collar O^2, link O', the elbow-lever Q, the shuttle-boxes, the rod J', and links connecting said lever Q to the sleeve P and to the box-supporting rod J', respectively, all substantially as and for the purpose set forth.

7. In a loom shuttle-box-adjusting mechanism, the slide H, provided with two sets of cams, and means for reciprocating said slide, in combination with the lever J, tappets K K', the rock-shaft E, the reciprocating sleeve P, mounted thereon, the rod J', carrying the shuttle-boxes, devices for connecting the sleeve P to the rod J', the lay G, the crank-shaft C, the pitmen, and the link and collar for connecting the lever J to said sleeve P, all substantially as and for the purpose set forth.

8. The slide H, provided with two sets of stepped cams, constructed substantially as described, and means for imparting reciprocating motion to the same, in combination with an oscillating lever provided with a perforated head having devices, substantially as described, for raising and lowering said tappets, a rod carrying the shuttle-boxes, devices for connecting said lever to said rod, and a spring bearing on said lever J and adapted to keep said tappets in contact with said cams, all substantially as and for the purpose set forth.

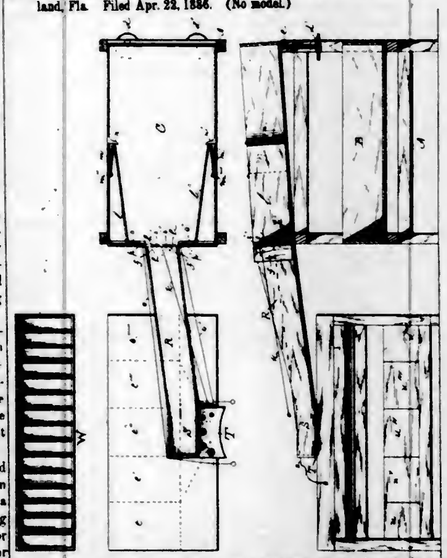
9. The lay and its rock-shaft, a reciprocating sleeve fitted on the rock-shaft and constructed with a loose collar, a box-supporting rod, an elbow-lever, links connecting the elbow-lever to the sleeve and rod, respectively, an operating-lever, means for actuating the same, and a link connecting the operating-lever to said collar of the sleeve, all combined substantially as and for the purpose set forth.

352,420. SCAFFOLDING-BRACKET. Samuel Martin, Montpelier, Ohio. Filed Aug. 7, 1886. (No model.)



Claim.—In a bracket for supporting scaffolding, the combination of a horizontal arm having a hook at its inner end, a brace pivoted upon a bolt to the outer end of the horizontal arm and having a notted bolt at its lower end, and a vertical arm having a series of perforations at its lower portion for the bolt of the brace, and having a loop at its upper end for the passage of the hooked end of the horizontal arm, and provided with a pointed bar pivoted upon the side of the hook, as and for the purpose shown and set forth.

352,421. ORANGE SIZER AND BIN. James S. McKenzie, Fruitland, Fla. Filed Apr. 22, 1886. (No model.)



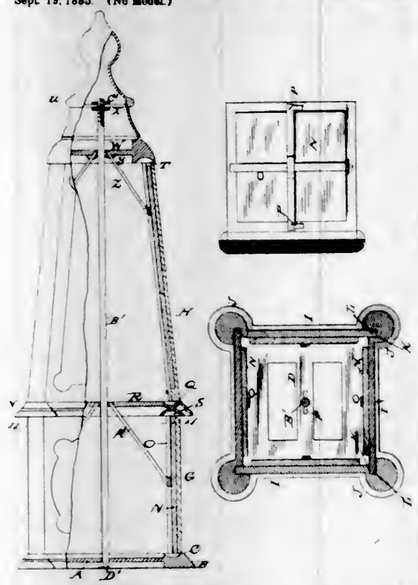
Claim.—1. The combination of an inclined bin having discharge-doors at the lower end thereof, a trough, a tray, and a sizer or gage-plate formed with holes, as described, with a series of bins provided with conduits for receiving the different sizes of fruit as they are dropped through the holes of the sizer or gage-plate, substantially as set forth.

2. In combination with a sizer or gage-plate and a trough leading thereto, a delivery-bin provided with doors at one end thereof for communicating with the trough, a frame supporting the delivery-bin, and elevating-screws for holding said bin at any desired inclination, substantially as set forth.

3. In combination with a sizer or gage-plate and a trough leading thereto, the delivery-bin C, provided with doors communicating with the trough, and slides *l l'*, having hinged sections hinged to the inner sides of the bin, and the cords *o o'*, substantially as and for the purpose set forth.

4. In combination with a sizer or gage plate formed with holes, a series of bins provided with conduits leading from the different holes, and a trough leading to the sizer, and a bin connected with the opposite end of the trough, said bin being held at an incline, and provided with the discharge-doors at its lower end, and slides *l l'*, having hinged sections hinged to the inner sides of the bin, and the guards *n n'*, substantially as described, and for the purpose specified.

352,422. MONUMENT. August H. Miller, Lorain, Ohio. Filed Sept. 19, 1885. (No model.)

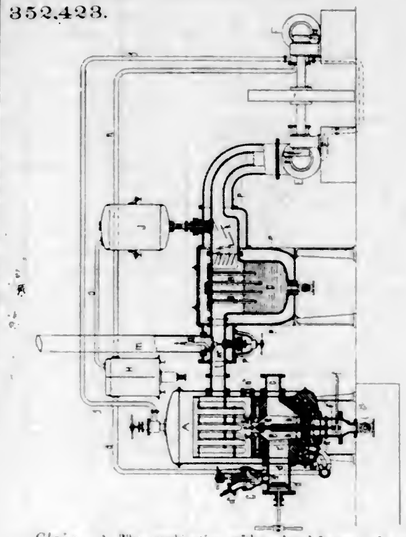


Claim.—1. A sectional metallic monument, each section composed of a series of separate plates connected together by tongue-and-groove joints, and having on their inner faces projecting lugs, in combination with a suitable supporting-base and a cap adapted to receive the top and bottom edges of the respective plates, lugs on the under face of the cap, and brace-bars connecting and bracing the cap and plates forming the frame, substantially as set forth.

2. A sectional monument, each section composed of a series of separate plates connected together at their side edges by tongue-and-groove joints, and having a central open space and inwardly-projecting lugs, separate panels adapted to rest against the inner faces of said plates, and cross-bars engaging the lugs projecting inwardly from said plates for the purpose of retaining the panels in position, substantially as set forth.

3. A sectional monument having a base provided with strengthening cross-bars having a slot therein, and grooves to receive the bottom of the lower section, caps having grooved under and upper faces to receive the top of the lower section and the tops and bottoms of the remaining sections, and having lugs on their under faces, in combination with angularly-extending brace-bars connecting said caps and the respective sections, and a vertical rod extending from top to bottom of the monument and having at its lower end a locking-lug adapted to engage the base, and a screw-threaded upper end, and means, as described, for adjusting the tension of said rod for the purpose of clamping the respective sections together, substantially as set forth.

352,423. WORKING FURNACES BY COMPRESSED AIR. Carl Otto Greifenhagen, Prussia, Germany. Filed Aug. 14, 1886. (No model.)



Claim.—1. The combination, with a closed furnace, of a steam-boiler receiving heat from the former, a pump for supplying compressed air to the furnace, a hot-air engine worked by the compressed combustion-gases from the said furnace, and a motor co-operating with the hot-air engine in driving the air-pump, substantially as and for the purpose described.

2. The combination, with a steam-boiler, A, of a closed furnace, B, an air-pump, G, supplying compressed air to the furnace through the pipes a' and a^2, the hot-air engine E, worked by the compressed combustion-gases from the furnace, and a steam-engine, F, connected to the boiler A and coupled with the engine E, the said engines E and F driving the air-pump G, substantially as and for the purpose specified.

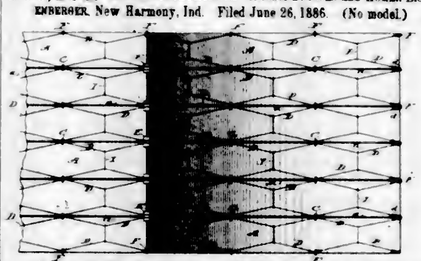
3. The combination, with a closed furnace, a steam-boiler, a pump supplying compressed air to the furnace, a hot-air engine connected to the furnace, and a motor co-operating with the hot-air engine in driving the air-pump, of means for purifying the compressed combustion-gases on their course from the furnace to the hot-air engine, for reducing their temperature and for mixing them with steam, substantially as hereinbefore set forth.

4. The combination, with the closed furnace B, steam-boiler A, air-compressing pump G, hot-air engine E, connected to the furnace, and steam-engine F, connected to the boiler and coupled with the engine E, of the gas-purifier D, containing a watery alkaline solution and provided with the baffle-plates *g*, substantially as described.

5. The combination, with the closed furnace B, in which combustion is kept up under pressure, of the fuel-feeder C, comprising the cylinder *d*, piston d', hopper d^2, with cover d^3, and valve d^2, provided with means for operating it and keeping it closed against the pressure acting thereon, substantially as and for the purpose specified.

6. The combination, with a steam-boiler, A, the air-compressing pump G, the hot-air engine E, and the steam-engine F, of a furnace adapted for melting metals, substantially as set forth.

352,424. ROOFING-RETAINER. Ernest D. Owen and Homer Light Emberger, New Harmony, Ind. Filed June 26, 1886. (No model.)



Claim.—1. The combination, with laid roofing, of retaining-wires stretched over the roofing and fastened at the ends, and saddles or bearers resting on the roofing, and over which the wires pass, to cause pressure on the roofing, substantially as described, for the purposes set forth.

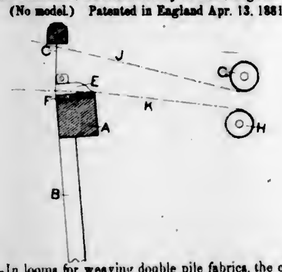
2. The combination, with laid roofing and wires, as at D, stretched across the roofing and retained by end fastenings, and saddles or bearers spaced along the wires, substantially as specified, of tie or straining wires, as at I, connected to two adjacent wires D between their fastenings and saddles, substantially as described, for the purposes set forth.

3. The combination, with roofing having ridged joints, as at *a*, of wires D, stretched over the roofing and secured at opposite ends, saddles, as at C, having slots *c*, fitting on ridges *a*, and also provided with hooks c^2, within which the wires D are passed, and straining-wires I, fixed to wires D between their end fastenings and the saddles C, substantially as described, for the purposes set forth.

4. The combination, in retainers for roofing of gable roofs, of saddles E, placed at the peak of the roof and provided with upper slots, *s'*, wires D, stretched over the roof and entered in said slots, and secured at opposite ends to the eaves of the roof, and edge wires fastened at the sides of the roof, saddles, as at C, having hooks c^2 c^2, receiving wires D, and placed between the end fastenings of the wires D and the peak-saddles E, and straining-wires I, secured to the wires D between their end fastenings and the saddles C E, substantially as described, for the purposes set forth.

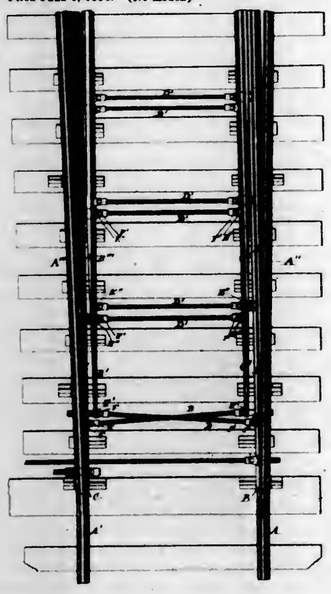
5. As an improved article of manufacture, the roofing-saddle C, provided with a bottom slot, *c*, to receive a joint-ridge of roofing, and with upper hooks, c^2 c^2, to receive the retaining-wires, substantially as shown and described.

352,425. **LAY OR GOING PART OF POWER-LOOMS FOR WEAVING DOUBLE PILE FABRICS.** James Priestley, Frederick Priestley, and George Priestley, Bradford, County of York, England. Filed Apr. 17, 1883. (No model.) Patented in England Apr. 13, 1881, No. 1,612.



Claim.—In looms for weaving double pile fabrics, the combination, with the lay-beam A, having a reduced or cut-away portion, of the series of steel plates E, secured in such reduced portion and permitting the warp-threads of the bottom pile fabric to drop into the spaces between such plates, all as set forth.

352,426. **THREE-THROW SWITCH.** Eugene J. Remillon, Moberly, Mo. Filed June 1, 1886. (No model.)

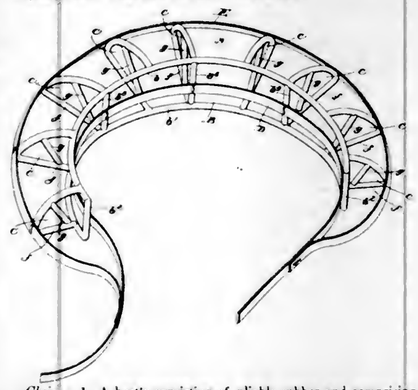


Claim.—1. In a three-throw switch, the combination of the outer point-rails, B C, inner point-rails, B' C', and the crossed rods D in front of the inner point-rails, secured to the webs of the outer point-rails and to the webs of the extreme ends of the inner point-rails, substantially as described.

2. In a three-throw switch, the combination of the outer point rails, B C, inner point-rails, B' C', brackets E, secured to the webs of the outer point-rails, brackets E', secured to the webs of the extreme ends of the inner point-rails, pivots F F', and the crossed rods D in front of the inner point-rails secured by said pivots to the brackets.

3. A three-throw switch consisting of the main rails A A', having extensions A'' A''', point-rails B B' C C', having outer portions, B'' B''' C'' C''', crossed rods D, brackets E E', and pivots F, connecting the extreme ends of the innermost point-rails to the outer point-rails, and the parallel rods D', brackets E'', and pivots F', connecting the outer portions of the point-rails, substantially as shown and described.

352,427. **BUSTLE.** Alonzo W. Rice and Peter Landaker, Eureka Springs, Ark. Filed Jan. 13, 1886. (No model.)

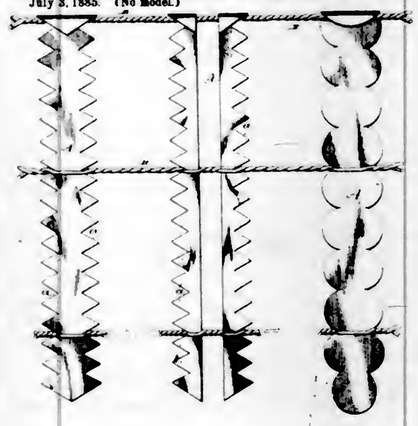


Claim.—1. A bustle consisting of pliable rubber and comprising a curved body having the sides *b* and *b'* and connecting-bars b^2 b^3, the radial curved arms or supports C, the brace-arms *f* intermediate of the outer ends of the radial arms and the lower side of the body, and the diagonal braces *g*, connecting the radial and brace arms, substantially as described, for the purpose set forth.

2. A bustle consisting of rubber and comprising a curved body, the radial curved arms, the brace-arms intermediate of the outer ends of the radial arms and the body, the waistband B, connected to the body, and the band E, secured to the outer ends of the radial arms and the waistband, substantially as described, for the purpose set forth.

3. A bustle consisting of pliable or yielding rubber and comprising a curved body having the connected sides *b* and *b'*, the radial curved arms C, made gradually shorter from the middle of the body toward the ends thereof, the braces intermediate of the body and outer ends of the arms, and the waist and connecting bands secured to the body and the arms thereof, respectively, substantially as described.

352,428. **BARBED FENCE.** John L. Ritter, Brownsville, Ind. Filed July 3, 1885. (No model.)



Claim.—The combination, with a series of cables, each of which is composed of several strands of wire, of a series of metal pales having prongs, the cables being twisted between the pales and embracing the same at points between the prongs, substantially as set forth.

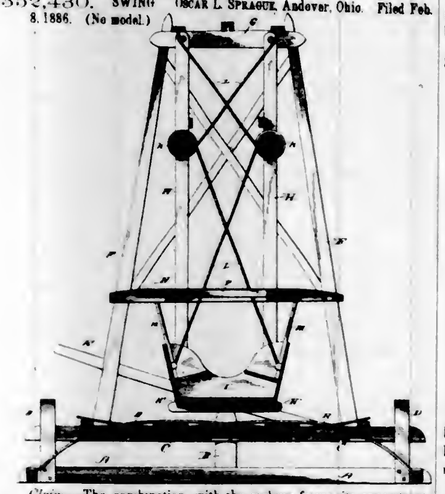
352,429. **TENSION DEVICE FOR GRAIN-BINDERS.** George W. B. Smith, Pomona, Ill. Filed Apr. 6, 1886. (No model.)



Claim.—1. In a take-up and tension device for grain-binders, the combination of an arm projecting from a shaft having its ends suitably journaled in a support, a spring coiled around the shaft, and secured at one end to the arm and at the other end to one of the bearings of the shaft, and a pulley having the binding twine or wire passing over it and journaled upon a stud projecting from a box sliding adjustably upon the arm, as and for the purpose shown and set forth.

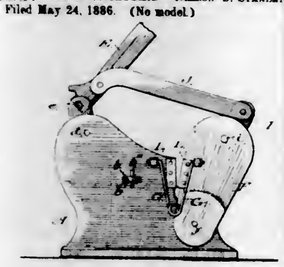
2. In a take-up and tension device for grain-binders, the combination of the base having the slot, the bracket having the rear flange, and one end flange having a perforation and another end flange having a slot, a shaft journaled with its ends in the perforation and slot, an L-shaped arm secured to the shaft and having the rear end of its horizontal portion resting upon the rear flange, a spring coiled around the shaft and secured to the rear end of the arm and to the slotted end flange, a box having a set-screw and sliding upon the upper portion of the arm, and a pulley journaled upon the side of the box, as and for the purpose shown and set forth.

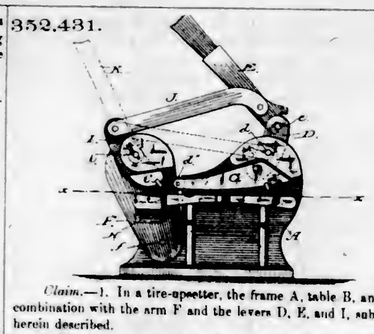
352,430. **SWING.** Oscar L. Sprague, Andover, Ohio. Filed Feb. 8, 1886. (No model.)



Claim.—The combination, with the rocking frame, its superstructure, and swinging frame, of the handles E and the springs R, the whole arranged to operate substantially in the manner specified.

352,431. **TIRE-UPSETTER.** Nelson D. Stanley, Essex Junction, Vt. Filed May 24, 1886. (No model.)





Claim.—1. In a tire-upsetter, the frame A, table B, and shoe C, in combination with the arm F and the levers D, E, and I, substantially as herein described.

2. The frame A, reversible table B, and shoe C, provided with the holder *d'* and friction-roll *d''*, in combination with the pivoted arm F and levers D, E, and I, substantially as herein described.

3. The frame A, table B, shoe C, and levers D and E, in combination with the movable arm F, bench H, lever I, and connecting-links J, substantially as herein described.

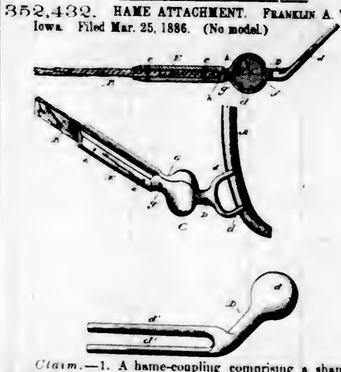
4. The frame A, the table B, and the shoe C, having the holder *d'*, in combination with the movable arm F, the bench H, having a self-adjusting shoe *h*, the lever I, having the holder *i'*, and the levers D and E, substantially as herein described.

5. The combination, with the frame A, the table B, and the shoe C, of the movable arm F and the levers D, I, and K and connections, substantially as herein described.

6. The frame A, provided with the cutting-blade L, in combination with the movable arm F, having the cutting-blade L', the levers E and I, and the links J, substantially as herein described.

7. The frame A and movable arm F, each provided with a cutting-blade, in combination with the spring G, the levers D, E, and I, and the links J, substantially as herein described.

352,432. **HAME ATTACHMENT.** Franklin A. Thompson, Fonda, Iowa. Filed Mar. 25, 1886. (No model.)



Claim.—1. A hame-coupling comprising a shank having an enlarged ball or head and the angular prongs adapted to be attached to the hame, and the coupling-plates provided with the hollow socket for the reception of the ball or head, substantially as described.

2. As an improved article of manufacture, a hame-coupling cast in three pieces and comprising a shank having a head or ball, and the prongs adapted to be attached to the hame and the plates, each having a hollow recessed head and a reduced neck intermediate of the plate and head, substantially as described.

3. As an improved article of manufacture, a hame-coupling comprising a shank having an integral enlarged ball or head, and the angular integral prongs arranged parallel with each other, and the two coupling-plates, each having the enlarged and hollow heads and reduced necks, all cast in one piece, the plates and necks having the rivet-apertures, and the hollow heads the recessed front ends, *f*, substantially as described.

352,433. **WRENCH.** Andrew D. Ward, Augusta, Me. Filed May 12, 1886. (No model.)

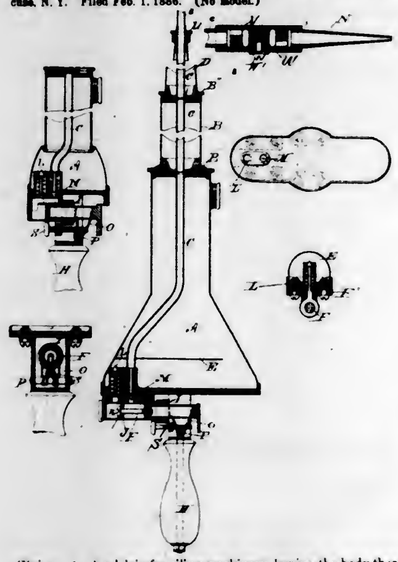


Claim.—1. In a pipe-wrench, the combination ratchet-bar A, having fixed jaw A' at one end, with movable jaw B, having yoke B' fitting around the bar A, the ratchet-slide D, to which the jaw B is pivoted, the block E, and spring F, the screw H, confined to the slide D by pin i, and the thumb-wheel I on the screw H, substantially as shown and described.

2. In a pipe-wrench, the toothed bar A, having fixed jaw A', combined with the movable jaw B, having a yoke, B', and a lifting-spring, C, and being pivoted to the slide D, which slide is connected with a second slide, E, by the screw H, having milled thumb wheel I, said slide being provided with spring F, all substantially as described.

3. In a pipe-wrench, the ratchet-bar A, having on its end the fixed jaw A', the pivoted jaw B, having yoke B', the slide D, the screw H, and piece E, the spring F, and thumb-screw G, substantially as described.

352,434. **TELELAIN OR SHAFT-OILER.** Orrs H. Warren, Syracuse, N. Y. Filed Feb. 1, 1886. (No model.)



Claim.—1. A telelain for oiling machinery, having the body thereof, as herein defined, made in sections united by separable couplings, as described.

2. The combination of the sectional parts of the conducting-tube c c.c with the coupling-boxes of the corresponding body-sections, all being united by the same coupling-joint, as specified.

3. The combination of the pump with the oil-reservoir A, by means of a coupling-plate covering the valves of the pump, so that by detaching the coupling-plate the valves of chambers L M are uncovered.

4. The combination of the collar I and spring O with the pump barrel, packing, and piston, substantially as and for the purposes set forth.

5. The valved port J, situated between the inlet and outlet valves of the pump, and controlling the passage between them by the valve K, attached to the pump-piston, by which it is actuated.

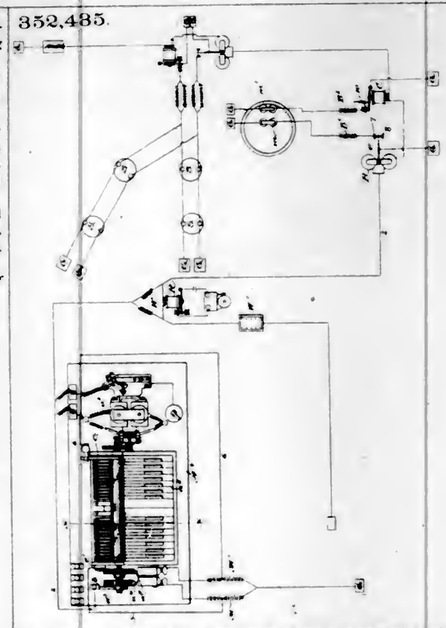
6. The pump-barrel placed transversely across and below the base of the oil-reservoir, with which it is connected, having its piston projecting outward by means of the spring O, with the handle in position to permit the thumb of the hand grasping the handle to actuate the pump, the parts being constructed, arranged, and combined substantially in the manner and for the purposes specified.

7. The combination of the adjustable tip, constructed as herein specified, with the oil-conduit, and the oil-retainer at the base of the oil-reservoir, as and for the purposes specified.

352,435. **PRINTING-TELEGRAPH SYSTEM.** John C. Wilson, Boston, Mass. Filed Jan. 4, 1886. (No model.)

Claim.—1. In a system for the distribution of stock-quotations, a main electric circuit containing a main or transmitting station and one or more sub-stations, a single transmitter comprising co-operating devices located at the said main station that transmits impulses of opposite polarity over the said main line, and also impulses of different intensity, two relays located at each sub-station, one of which is responsive to the impulses of opposite polarity and the other responsive to the impulses of different intensity, two local circuits respectively controlled by the armatures of the said two relays, magnets in said local circuits, and the

352,435.

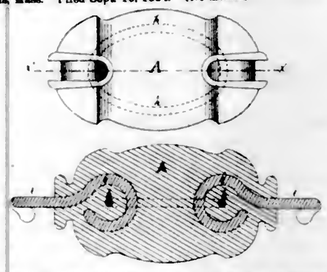


type-wheel and paper-printing mechanism of one or more stock-receiving instruments operated by said magnets, substantially as described.

2. A transmitter for sending stock-quotations from a central office, consisting of a main rotating roll provided with studs or projections, printing-levers co-operating therewith, a commutator rotating in unison with the main roll, two pins or contact-pieces connected respectively with the positive and negative poles of the two main batteries co-operating with the commutator to send impulses of opposite polarity over the main line, a contact-piece co-operating with the main roll, and a conducting-strip to which the printing-levers are connected, said conducting-strip and contact-piece being connected by a circuit dividing the battery to thus vary the intensity of the current, all substantially as described.

3. The method herein described of distributing stock-quotations, which consists in transmitting impulses of two different characters from a single main or transmitting station to several sub-stations, and in automatically repeating both kinds of impulses to one or more stock-tickers located in the vicinity of the said sub-stations.

352,436. **ELECTRIC INSULATOR.** Henry D. Winton, Wellesley Hills, Mass. Filed Sept. 10, 1884. (No model.)

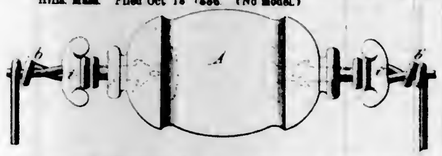


Claim.—1. The combination, with the line of a telegraphic or other electric circuit, of an insulator having conducting-wires attached to its extremities, and provided with lips or projections which are formed on the faces of the insulator around the points of contact of the wires with the latter, and are adapted to protect the wires from rain or moisture, substantially as described.

2. An electric insulator combined with a re-enforcing metallic ring or hoop molded into the interior of it and passing through and binding together those parts of the insulator which lie between the points where the insulator sustains the strain of the conducting-wires, substantially as set forth.

3. The new article of manufacture consisting of an electric insulator made of glass, porcelain, or other suitable material, provided at its extremities with means for the attachment to it of conducting-wires, and also with lips or projections for shedding rain or moisture, substantially as described.

352,437. **ELECTRIC INSULATOR.** Henry D. Winton, Wellesley Hills, Mass. Filed Oct 18 1886. (No model.)

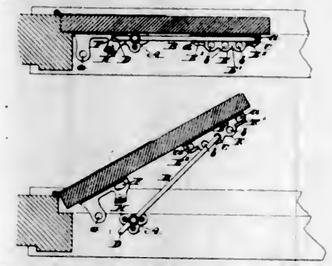


Claim.—The combination, with a telegraphic or other electric line or circuit, of an insulator made of glass, porcelain, or other suitable material, and having at its extremities metallic hooks, cross-heads, or other equivalent devices, cast, embedded, or otherwise permanently anchored into it, whereby the parts of the line may be so attached to the insulator that they may be dropped below it or carried above or around it, substantially as and for the purposes set forth.

352,438. **PREPARATION FOR CLEANING AND POLISHING METALS.** Henry A. Arndt, Philadelphia, Pa., assignor to Andrew Reiter, same place. Filed Aug. 9, 1886. (No specimens.)

Claim.—A composition of matter consisting of oxalic acid, rottenstone, tartaric acid, table-salt, and water, forming a preparation for cleaning and polishing metals, as stated.

352,439. **COMBINED SHUTTER-FASTENER AND SHUTTER-BOWER.** Avon Balmer and Peter B. Cunningham, Allentown, Pa., assignors of one-third to Jacob Barnes, same place. Filed Aug. 26, 1886. (No model.)



Claim.—1. A shutter-fastener having a rising and falling arm, with a nose and heel at opposite ends, and a perforated plate and eye, with which the nose and heel engage, respectively, said eye having an inclined lip, on which the heel rides, so as to raise the arm and locate the nose and heel over the openings which they occupy in the locking position of the arm, substantially as described.

2. In shutter fastener and bower, the combination of the arm B, having nose C, pivotally mounted on the post A of the window-sill, so as to permit a rising and falling motion of the said arm, the plate having perforations *a a* and *b b* in different lines on said plate, all substantially as and for the purpose set forth.

3. In a shutter fastener and bower, the arm with nose and heel, said arm being mounted on the post A, and having a rising and falling motion, in combination with the perforated plate E, having field E' and guard E^2, and piece with eyes F and G, and lip H, all substantially as and for the purpose set forth.

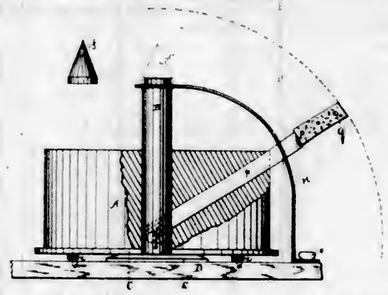
352,440. **HARROW AND PULVERIZER.** John B. Brewer and James H. Corbin, Hartsell's, Ala.; said Corbin assignor to said Brewer. Filed Aug. 11, 1886. (No model.)



Claim.—1. The combination, with a harrow and pulverizer having the cross-bars B, of the cutting-teeth having their stems attached to the upper sides of each cross-bar, the rear edges of the said teeth bearing under the cross-bar in rear of the one to which they are attached, for the purpose set forth, substantially as described.

2. The combination, in a harrow and pulverizer, of the frame having the cross-bars B, the inclined teeth having their stems attached to the cross-bars, each tooth having its rear side bearing under the cross-bar in rear of the one to which it is attached, and the rotating shaft journaled in the frame and having the radial cutting-teeth, substantially as described.

352,441. **CHEESE-KNIFE.** John Buchholz, Grove City, Ohio. Filed Mar. 15, 1886. (No model.)



Claim.—The combination of the slotted stem B, fixed to the bottom of the cheese-box, with a knife-blade pivoted therein by means of a pivot-pin, *b'*, passing through an open slot, *r*, in the end of said knife-blade, the slotted knife-guide strip *n*, having its upper end fitted over the top of the stem and its lower end detachably secured to the bottom of the cheese-box, and the detachable conical cap *f*, substantially as and for the purpose specified.

352,442. **THERMOSTAT.** George F. Bulen, New York, N. Y., assignor to the Automatic Fire Alarm and Extinguisher Company, same place. Filed Jan. 20, 1886. (No model.)



Claim.—1. In combination, a composite contact-strip formed of materials having different expansibilities, said contact-strip fixed at a point between the ends thereof, said ends free, and front and back contacts for said free ends and adjacent thereto, whereby upon a sufficient increase in temperature said ends may make contact with said contacts.

2. In combination, a composite thermostatic contact-strip formed of materials having different expansibilities, said contact-strip fixed at a point between the ends, said ends free, a central contact connected with said strip at a point between said ends, and front and back contacts adjacent to and coacting with said free ends, said front and back contacts adjustable relative to said ends, whereby upon a sufficient rise in temperature said ends may make contact in succession with said respective front and back contacts.

3. In combination, a laminated bimetallic contact-strip formed of flat layers of metals having different expansibilities, a central contact fixed to said contact-strip at a point between the ends, said ends free, and front and back contacts adjacent to and coacting with said free ends, said front and back contacts predeterminately set, whereby upon a sufficient rise in temperature said free ends may close in succession on said front and back contacts, respectively.

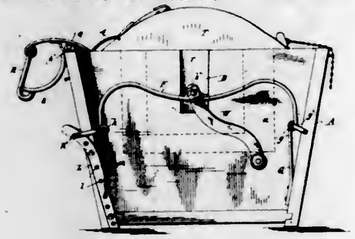
4. In combination, a laminated contact-strip formed of materials having different expansibilities, a semi-cylindrical insulating frame or core provided with a central boss and terminal projections, a front and a back and a central contact mounted on said core, said strip fixed near the center of length upon said boss and connected with said central contact, said ends of said strip free and adjacent and coacting with said adjustable front and back contacts, a spring-arm secured to each front and back contact, a tubular sleeve surrounding said core, each end of said sleeve provided and fitted with an insulating-thimble, and an incasing-cap therefor, both having one end closed, and a binding-screw set through said closed ends, said thimbles and caps secured upon the ends of said sleeve, whereby said interior parts are completely housed, substantially as described.

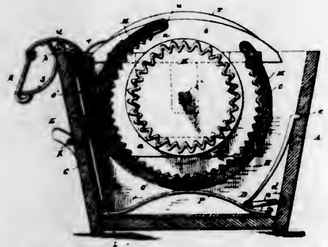
5. In combination, the insulating-core B, provided with a boss, *b*, and projections *d*, the bimetallic contact-strip *m n*, set on said boss, the front contact *s*, and the back contact *s*, substantially as described.

6. In combination, the insulating-core B, provided with a central boss, *b*, and end projection, *d*, the bimetallic contact-strip *m n*, secured upon said boss, the central contact, *t i*, set in said core and connected with said strip, and the front and back contacts, *s* and *s*, substantially as described.

7. In combination, the insulating-core B, provided with boss *b* and projections *d*, the bimetallic contact-strip *m n*, the central contact, *t i*, the front and back contacts, *s s*, provided with spring-arms *l l*, the sleeve C, insulating-thimbles H, the caps c, and the binding-screws r r, substantially as described.

352,443. **WASHING-MACHINE.** PETER BULGER, Shaner Station, Pa. Filed Feb. 26, 1886. (No model.)





Claim.—1. The combination, in a washing-machine, of the yielding roller or drum H, the yielding concave M, the springs P O', the retaining-irons *b*, the guides C, and means for holding the springs P in position, substantially as described.

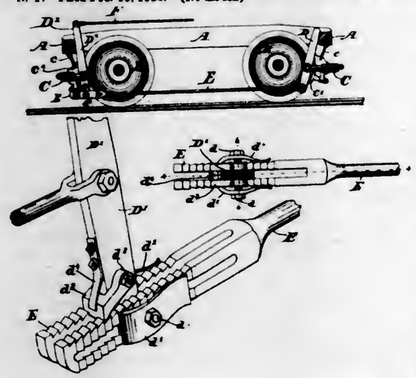
2. The combination, in a washing-machine, of the yielding roller or drum H, the yielding concave M, the springs P O', the retaining-irons *b*, the guides C, rock-shaft D, and rod E, substantially as and for the purpose set forth.

3. The combination, in a washing-machine, of the roller H, the yielding concave M, the bow-springs P, curved springs O', retaining-irons *b*, guides C, the auxiliary hinged spring Q, rod R, and curved spring S, secured to the box A, substantially as described.

4. A concave or bed for washing-machines, consisting of the staves o, spring-metal bands O, having their edges beveled, and the corrugated rubbing-surface *n*, the ends only of the latter being secured to the staves, substantially as and for the purpose set forth.

5. The combination, in a washing-machine, of the drum or roller H, the elliptical springs F, provided with a bearing for said roller, the springs G, bent lever K, supporting-irons L, having the perforations *l*, and rod *m*, whereby the springs F may be adjusted, substantially as described.

352,444. **AUTOMATIC BRAKE-ADJUSTER.** JOHN B. BURNS, Indianapolis, Ind., assignor of one-half to Elisha D. Eames, Watertown, N. Y. Filed Feb. 10, 1886. (No model.)



Claim.—1. The combination, in a brake mechanism, of a serrated connecting-rod and a brake-lever engaging with said rod, provided with one or more detents as a means of engagement, and a pawl by which the engagement may be varied.

2. The combination of a slotted rod, E, having serrations upon its sides and top, a brake-lever passing between the two portions of said rod, detents outside of said rod, secured to the lower end of said lever by a pivot-bolt, and a pawl also secured to said lever above said rod.

3. The combination, in a brake mechanism, of a rod, E, having vertical and horizontal slots and serrations, as described, a brake-lever, D', entering the vertical slot in said rod, a pivot-bolt, *d*, passing through the lower end of said lever and through the horizontal slot in said rod, detents *d'* on the outer ends of said bolt, and a pawl, d^2, secured to said brake-lever, said detents and said pawl being arranged to engage with the serrations in said rods.

4. The combination, in a brake mechanism, of brake-levers, a rod connecting said brake-levers, and a connection between one of said brake-levers and the operating devices, the lower end of said brake-lever being connected to said connecting-rod by a ratchet and pawl and detent, substantially as and for the purposes set forth.

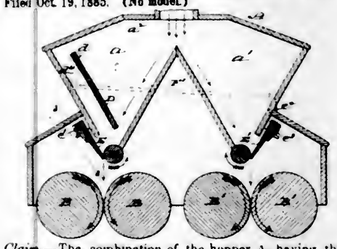
5. The combination, in a brake mechanism, of brake-levers, a rod connecting said levers, means of operating said levers, and a ratchet, pawl, and detent connection between the lower end of said brake-lever and said rod.

6. The combination, in a brake mechanism, of a brake-lever, a rod to which said brake-lever is connected, a ratchet-and-pawl connection between said brake-lever and said rod and detents, said detents being provided with projections *p*, which enter slots in said rod and hold said detents in position, substantially as set forth.

352,445. **COMPOSITION FOR THE MANUFACTURE OF BLOCKS FOR CONTAINING ELECTRIC WIRES OR CABLES.** JAMES W. BUTLER, Humber Road, Blackheath, County of Kent, England. Filed July 6, 1886. (No specimens.) Patented in England Feb. 2, 1886, No. 1,538.

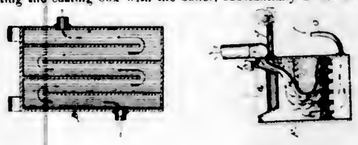
Claim.—The material or composition capable of being used for the manufacture of blocks or receptacles for containing electric wires or cables, and for other electrical purposes, as described, which consists of Trinidad or other bitumen, crude paraffine, compound silicate of lime and alumina, (commonly called "Portland cement,") Aylesford or similar sand or finely-powdered limestone, and roughly-pulped wood or sawdust or tan-yard waste, in conjunction or not with Taranaki sand, the whole employed in or about in the proportions before mentioned, all substantially as herein set forth.

352,446. **FEED-HOPPER.** CHARLES L. BUTTERFIELD, St. Louis, Mo., assignor of one-half to the Crescent Manufacturing Company, same place. Filed Oct. 19, 1885. (No model.)



Claim.—The combination of the hopper A, having the compartments *a a'*, the crushing-rolls B B and B' B', the feed-rolls C C', the board D, gates E E', the shafts d^2 e' e^2, the arms d^3 d^4 e e^3, and the rods F F', substantially as described.

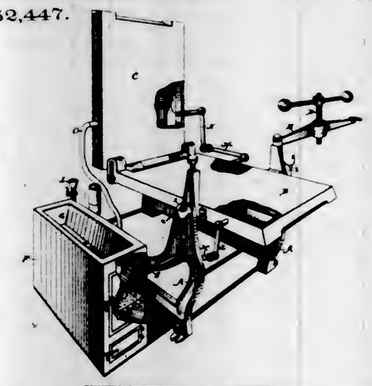
352,447. **STEREOTYPE-CASTING MACHINE.** JOHN EDWARD CAPS, Kansas City, Mo., assignor of one-half to Cortland Carlton, same place. Filed Feb. 15, 1886. (No model.)



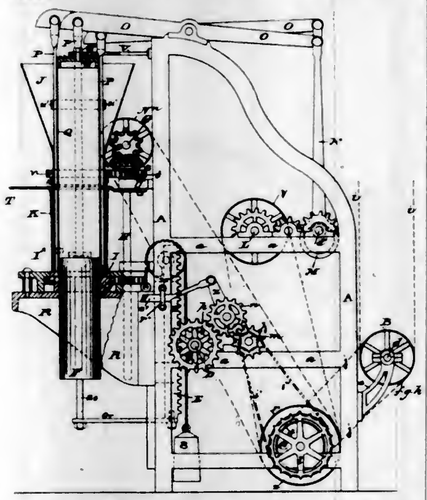
Claim.—1. In a machine for casting stereotype-plates, the combination, with the casting-box sections provided with chambers, of a steam-pipe connection joining said chambers and a supply-pipe, substantially as set forth.

2. The combination of the furnace, the boiler, the casting-box formed in sections pivoted together, each section being chambered, connections forming communication between said sections, and a supply-pipe connecting the casting-box with the boiler, substantially as set forth.

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352,448. **DRAIN-TILE-MAKING MACHINE.** ROBERT J. CARSON, Omaha, Nebr., assignor of one-third, by mesne assignments, to the Union Hydraulic Drain Tile Company, same place. Filed Dec. 11, 1885. (No model.)



Claim —1. The combination of a frame having a vertically-moving table secured to its front side, said table being round on its front side and having a hole or aperture in its top, a core projecting upwardly through said hole, a hopper above said table and around said core, a shell upon said table and around the lower end of said hopper, a series of tamping-bars between said hopper and said core, and means, substantially as described, for operating said tamping-bars and for moving said table and core.

2. The combination of a frame having a vertically-moving table secured to its front side, an annular cover secured to the top of said table, a revolving table between said cover and said vertically-moving table, a core projecting upwardly through said tables, a hopper above said tables and around said core, a shell upon said revolving table and around the lower end of said hopper, a series of tamping-bars between said hopper and core, and means, substantially as described, for operating said bars, tables, and core.

3. The combination of a frame having a vertically-moving table secured to its front side, a revolving table movably secured upon the top of said vertically-moving table, a core projecting upwardly through said tables, a hopper above said tables, a core-protector within said hopper and around the upper end of said core, a series of tamping-bars between said hopper, core, and core-protector, and means, substantially as described, for operating said bars, tables, and core.

4. The combination of a frame having a vertically-moving table secured to its front side, a revolving table secured to the top of said vertically-moving table, a core projecting upwardly through said tables, a hopper above said tables having an annular cog-wheel around its intermediate portion, a shell around the lower end of said hopper and resting upon said revolving table, a vertical shaft at the side of said hopper having a gear-wheel at its top engaging with said annular cog-wheel and another gear-wheel secured to its lower end by means of a feather engaging with said revolving table, a series of tamping-bars between said hopper and said core, and means, substantially as described, for operating said bars, shaft, table, and core.

5. The combination of a frame having a vertically-moving table secured to its front side, a core projecting upwardly through said table, a hopper above said table, a core-protector within said hopper and around the upper end of said core, a casting secured to the top of said core-protector having teeth upon its upper edge, a crank having one of its arms provided with a catch or pawl engaging with said teeth, a series of tamping-bars between said hopper and said core-protector, and means, substantially as described, for operating said bars, crank, and table.

6. The combination of a frame having a vertically-moving table secured to its front side, a core projecting upwardly through said table, a hopper, a core-protector within said hopper, an annular guide having notches upon its inner side and secured at the top of said core-protector by means of vertical arms and a bolt, a series of tamping-bars around said core-protector within the notches in said guide, the lower end of said bars being provided with laterally-extending feet, and means, substantially as described, for operating said bars, table, and core.

7. The combination of a frame having a vertically-moving table secured to its front side, a rack-bar secured to the front cross pieces of said frame, a forwardly-projecting arm secured to the lower end of said rack-bar, a rod secured to the end of said arm, a core secured to said rod and projecting upwardly through said table, a hopper above said table, a series of tamping-bars between said hopper and said core, and means, substantially as described, for operating said rack-bar and tamping-bars.

8. The combination of a frame having a vertically-moving table secured to its front side, a rack-bar secured to the front cross-pieces of said frame, a core secured to said rack-bar and projecting upwardly through said table, a hopper, a series of tamping-bars between said hopper and said core, a lever pivotally secured to said frame, two intermeshing pinions secured to the lower end of said lever, either of said pinions being adapted to engage with and operate said rack-bar, and means, substantially as described, for operating said tamping-bars and said pinions.

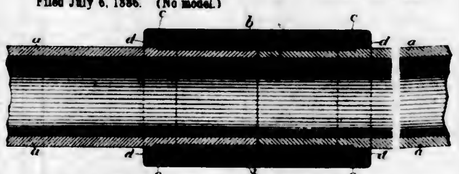
9. The combination of a frame having a vertically-moving table secured to its front side, a core, a hopper, a shell around the lower end of said hopper, a series of tamping-bars, a lever secured at one end to said frame and resting upon the top of said shell and having a hand-hole at its outer end, and means, substantially as described, for operating said tamping-bars and said core and table.

10. A core for tile-machines, consisting of a sheet of metal having its edges united one side in a butt-split joint, two vertical ribs upon the inner side of said core, one of which is at said joint and the other is directly opposite, one of said ribs being provided near each end with an offset or loop, a ring in each of said loops, a rod projecting within said core, and an arm for securing said rings to said rod.

11. A core for tile-machines, consisting of a sheet of metal having its edges united at one side in a butt-split joint, two vertical ribs within said core, one of said ribs being at said joint and the other directly opposite, one of said ribs being provided near each end with an offset or loop, a ring in each of said loops, a rod connecting said rings at the other side, a spring connected to the lower ring and to the lower end of said core, a rod projecting within said core, and an arm connecting the upper ring with the top of said second rod.

12. The combination of a frame having a vertically-moving table secured to its front side, a collapsible core projecting upwardly through said table, a hopper, a series of levers pivotally secured to the top of said frame, a core-protector within said hopper, a tamping-bar secured to the end of each of said levers and working between said hopper and said core-protector, a crank secured by one arm to one of said levers, having a catch on the other arm engaging with teeth in the upper end of said core-protector, and means, substantially as described, for operating said levers, table, and core.

352,449. **CEMENT FOR PIPE-JOINTS.** CHARLES W. COLLINS, Allegheny City, assignor of one-half to Harry H. Hooton, Pittsburg, Pa. Filed July 6, 1886. (No model.)

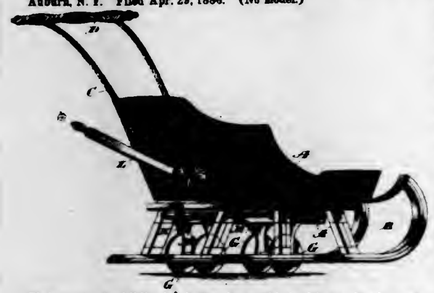


Claim.—1. The method of making pipe-joints, consisting in coating the surfaces of the joints with an impervious material and then

filling the joint with a plaster composed of plaster-of-paris and lime-water, substantially as and for the purposes described.

2. A cement for pipe-joints, composed of plaster-of-paris and lime-water, substantially as and for the purposes described.

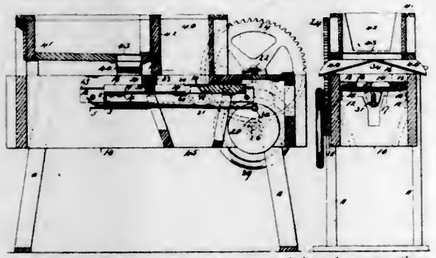
352,450. **COMBINED SLEIGH AND CARRIAGE.** Wm. H. Crane, Auburn, N. Y. Filed Apr. 29, 1886. (No model.)



Claim.—1. A child's sleigh that is provided with a pair of runners and a set of wheels, either of which, by the movement of a lever that extends upward and rearward between or near the handles, may be caused to furnish a support for the body, substantially as and for the purpose shown and described.

2. In combination with the sleigh-body provided with runners and handles, the vertically-slotted standards secured upon said body in pairs, the axles provided with wheels and having their ends contained in the slots of said standards, the longitudinally-movable bars which are adapted to be operated by a lever at the rear of said body, and the connecting-bars that extend between said longitudinally-movable bars and the axles, substantially as and for the purpose specified.

352,451. **VEGETABLE AND ROOT CUTTER.** Ira P. Cribb, Canandaigua, N. Y. Filed June 15, 1886. (No model.)



Claim.—1. A vegetable or root cutter consisting of a supporting-frame, two hoppers divided by a removable partition, a screen in the bottom of one of the said hoppers, laterally-extending troughs under the hopper provided with the screen, a reciprocating cutter-frame mounted on ways in the frame and provided with horizontal and vertical knives, and mechanism for reciprocating the cutter-frame, substantially as herein shown and described.

2. In a vegetable or root cutter, the combination, with a supporting-frame provided with inwardly-projecting flanges and cutting-blocks 34 and 35, of the frame 14, provided with slotted brackets 15, the horizontal knife 19 on the end block, 18, and the vertical knives 20 on the bottom plate, 17, substantially as herein shown and described.

3. In a vegetable or root cutter, the combination, with a supporting-frame and a reciprocating cutter-frame mounted on ways in the supporting-frame and provided with vertical and horizontal knives, of the shaft 22, the gear-wheel 24 thereon, the shaft 26, below shaft 22, the pinion 25 and disk 28 on shaft 26, and the pitman 31, pivoted to the disk 28 and to the under side of the reciprocating frame, substantially as herein shown and described.

352,452. **LEVER-BUTTON.** Eugene B. Crocker, Pawtucket, R. I. Filed July 8, 1886. (No model.)



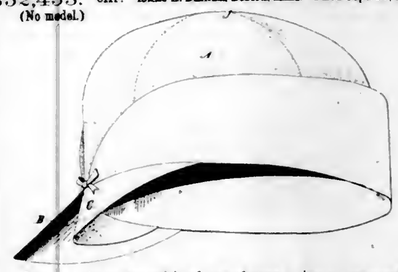
Claim.—1. The combination of the button-head, a post secured to said head and formed of a wire bent into a loop or eye at the foot of the post, the sides or strands of the wire intermediate of said loop and the ends bent into contact, or nearly so, and a movable shoe hinged in said eye, substantially as described.

2. The combination of the button-head, a doubled wire or staple having the free ends secured to one face of the button-head, the closed end of said wire formed into a long narrow loop having the long axis arranged parallel with the button-head, the sides or strands of the wire bent in toward each other, the closed end of the wire forming the long side of the loop provided with one or more flat faces extending the length of the side, a movable shoe consisting of a cap-plate provided with a spring-band secured thereto, and a hinge-band bent across its length and set transversely of said spring-band, the bend of said hinge-band having its concave face passed through and engaged by said long side of the loop of the wire, the spring-band engaging said long side on an opposite side from said hinge-band, substantially as and for the purpose described.

3. The combination of the button-head 7, the doubled wire 6, formed into the post and looped shoe-bearing, and the movable shoe hinged in the bearing of said doubled wire, substantially as described.

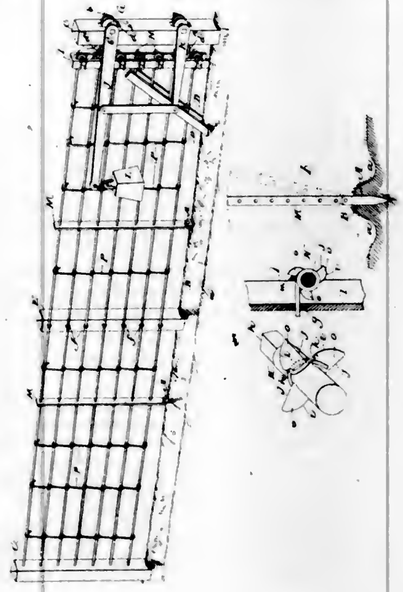
4. The combination of the button-head 7, the doubled wire 6, formed into the post and looped shoe-bearing, the movable shoe composed of the shoe-cap 12 and the spring-plate 11, and the hinge-band 10, all arranged and constructed substantially as described.

352,453. **CAP.** Isaac H. Dinner, Boston, Mass. Filed Sept. 27, 1886. (No model.)



Claim.—As a new article of manufacture, a hat or cap provided with a forehead-protecting strip projecting below the band or body of the cap immediately back of or under the visor, as and for the purposes hereinbefore set forth.

352,454. **FENCE.** William H. Dungan, Rockland, Ind. Filed Feb. 10, 1886. (No model.)



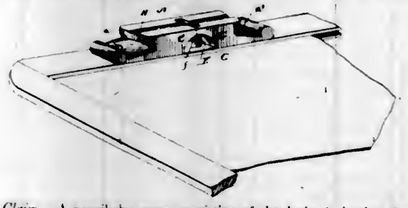
Claim.—1. The short posts or anchors A, set in the ground, in combination with the stays M, hinged at their lower ends to the top of the posts or anchors and connecting the wires of the fence, the standard I, connecting the ends of the wires, the cables connected to the standard, the pulleys on which the cables are wound, and the tension devices mounted on the shafts of the pulleys, as and for the purpose set forth.

2. The combination, with the posts or anchors A, set in the ground, of the stays M, hinged thereto and connecting the wires, the movable standard I at the ends of the wires, independently-acting cables connecting with the top and bottom of the standard, the pulleys on which the respective cables are wound, and weighted devices for both pulleys, whereby the top of the fence is made elastic, as set forth.

3. The combination, with the wires of a fence, of a stretching device having a series of wings or blades, to one of which the ends of the wires are secured, and a stop to engage the wings and prevent the stretching device from unwinding, as set forth.

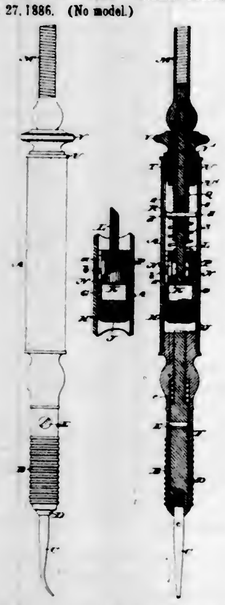
4. The combination, with the wires of a fence, of the movable standard connecting the ends of the wires, the post, the cables connected to the standard and passed through the post, the pulleys journaled in the post and having the cables wound thereon, the levers J K, connected together and mounted rigidly on one end of the shafts of the pulleys, and a weight suspended from the lever J, as set forth.

352,455. **PENCIL-SHARPENER.** Edwin B. Dunn, West Carrollton, Ohio. Filed June 16, 1886. (No model.)



Claim.—A pencil-sharpener consisting of the body A, having the elevated portion and the reduced ornamental ends provided with openings to receive screws or other suitable means in attaching the body to a slate frame or desk, the said body being entirely closed, except at a point, G, on the sides, where an opening is cut out, the opening D at the top of the elevated portion of the body, the walls C C' within the opening G, and an adjustable blade, E, fitted to one of the walls C C' and projecting through the opening D, as set forth.

352,456. **DENTAL PLUGGER.** Charles Foerster, Philadelphia, Pa. Filed Feb. 27, 1886. (No model.)

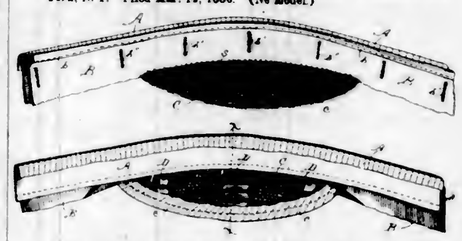


Claim.—1. In a dental plugger, the hollow holder G, longitudinally movable in the casing A, and having the flange P, provided with a spirally-inclined under face, secured to the upper part thereof, in combination with the rotary head K, secured to the lower end of the spindle L, and having the spiral flange N on its upper face, the said spiral flanges P and N being in contact, the hammer H, secured to said holder G, and the spring S between the cross-head and upper portion of the holder, all substantially as described.

2. In a dental plunger, the casing A, in combination with the nut U', secured in the upper portion of said casing, the sleeve Q, swiveled in said nut, and having shoulders U'' and V' and upper and lower threaded portions, the nut V, the cross-thread R, the rotary head K, having spindle L, passing through said sleeve Q, and holder G, all substantially as and for the purpose set forth.

3. In a dental plugger, the casing A, with grooves *e*, in combination with the holder G, having hammer H and flange P, the swiveled screw-sleeve Q, with nut V, and carrying head R, having tongues *d*, and spring S, interposed between said flange P and head R, substantially as and for the purpose set forth.

352,457. **WAISTBAND ATTACHMENT.** Leon Friedenrich, New York, N. Y. Filed Mar. 19, 1886. (No model.)



Claim.—1. As a new article of manufacture, a fly waistband provided with button-holes *b'*, and having attached to its lower edge a piece of elastic fabric, C, the lower edge of which is of curvilinear form, in combination with vertical elastic strips D, connected at their upper and lower ends rearwardly to the upper and lower edges of the fabric, substantially as described.

2. A fly waistband, B, attached at its lower edge to the waist of a pair of pants and having a downwardly-extending elastic piece of fabric, C, of the greater width at its middle, said elastic C having rearward strips of webbing D arranged in parallel vertical lines, attached only at their upper and lower ends, in combination with a pair of pants, to the seat of which the elastic fabric C is connected along its curved edge, substantially as described.

3. The combination, in a supplementary waistband, of the depending elastic piece C, curved at its lower edge, with a series of vertical elastic strips, D, arranged at the rear of the piece C, and attached thereto at their upper and lower ends, as and for the purpose intended, substantially as described.

352,458. **COTTON-PICKER.** Samuel H. Frist, Chattanooga, Tenn. Filed June 10, 1885. (No model.)

Claim.—1. In a cotton-harvester, the combination of a flat carrying belt or apron, a series of picker-bearing brackets, the bases of which are elongated and rigidly secured to the face of the belt, with the longer portions in a line with the belt and projecting at right angles from the same, an outwardly-projecting picker-rod journaled in each of said brackets, and means for moving said belt and for rotating said pickers around their own axes, substantially as and for the purpose set forth.

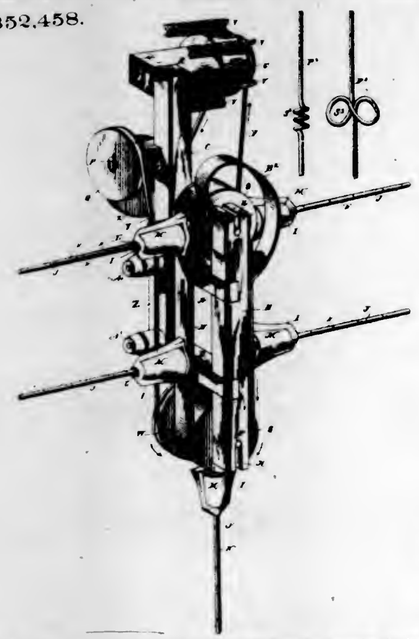
2. In a cotton-harvester, the combination of a traveling carrying belt or apron having a series of revolving picker-rods secured to and projecting at right angles from the face thereof, a friction-pulley secured to the inner end of each of said rods, a friction-belt lying parallel to the picker-belt and bearing against the sides of said pulleys, and means for moving the friction-belt in the opposite direction to the movement of said apron, thereby imparting a rotary motion to said picker-rods around their own axes, substantially as and for the purpose set forth.

3. In a cotton-harvester, the herein-described picker-rods provided with a loop or spring-coil integral therewith interposed or formed between their inner and outer ends, whereby the said rods are rendered flexible, substantially as and for the purpose herein set forth.

4. In a cotton-harvester, the combination of a traveling carrying-belt having a series of laterally-projecting picker-rods secured to its face, a friction-belt parallel with and traveling in the opposite direction to the movement of said carrying-belt, and a series of friction-pulleys secured to the frame of the machine in a line with and bearing against said friction-belt, substantially as and for the purpose set forth.

5. In a cotton-harvester, the combination of a carrying belt or apron, the picker-rods having friction-pulleys at their inner ends secured to said apron, and a cam-shaped strip or track secured at the upper end of the frame of the machine and adapted to bear against the friction-pul-

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leys of the picker-rods, to which latter a rotary motion may thus be imparted, substantially as and for the purpose herein set forth.

6. In a cotton-harvester, the combination of an endless carrying belt or apron, the rotary picker-rods suitably mounted upon the same, and a revolving cylinder carrying a series of brushes adapted to strip the cotton off the picker-rods, substantially as and for the purpose herein set forth.

7. As an improvement in cotton-harvesters, the combination of a suitable frame, an endless carrying belt or apron, brackets mounted on the latter, picker-rods journaled in the said brackets and having friction-pulleys at their inner ends and projecting spirally pronged or barbed ends, a driving-belt adapted to bear against the friction-pulleys of the picker-rods while the latter are being carried in an upward direction, a cam-shaped track adapted to bear against the opposite side of the said friction-pulleys when the picker-rods are at the top of the machine, a revolving cylinder having brushes adapted to strip the cotton off the picker-rods, and suitable operating mechanism, all arranged and operating substantially in the manner and for the purpose herein set forth.

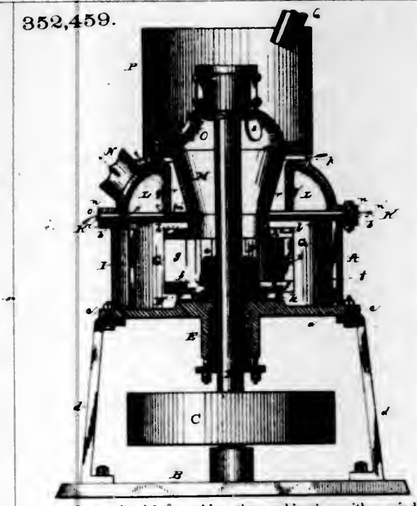
352,459. PULVERIZING-MACHINE. WILLARD M. FULLER, New York, and JOHN J. HAYES, Brooklyn, assignors to the American Pulverizer Company, New York, N. Y. Filed Nov. 27, 1885. (No model.)

Claim.—1. In a pulverizing-machine acting by attrition of masses of the material, the combination, with a grinding-cylinder having a closed bottom, a revolving center in such cylinder, a feed-magazine delivering material into the top of said center, and a plate over the top of said grinding-cylinder having a central opening to permit the entrance of such feed-magazine, and provided around this central opening with perforations forming exits for the discharge of the pulverulent material, substantially as set forth.

2. In a pulverizing-machine acting by attrition of masses of the material, the combination, with a grinding-cylinder having a closed bottom, a revolving center in such cylinder, a feed-magazine delivering material into the top of said center, a discharge-plate over the top of the grinding-cylinder having a central opening to permit the entrance of said feed-magazine, and provided around this central opening with perforations forming exits for the discharge of pulverulent material, and an annular dust-chamber surmounting such discharge-plate, substantially as set forth.

3. In a pulverising-machine, the combination, with the grinding-cylinder, of a discharge-plate provided with perforations forming exits through which pulverulent material is discharged from said grinding-cylinder, and a dust-chamber covering said discharge-plate and provided with air inlet and outlet openings, whereby air-currents may be formed directly through such dust-chamber for carrying off the pulverulent material, substantially as set forth.

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4. In a pulverizing-machine, the combination, with a grinding-cylinder having a closed bottom and the revolving center, of a plate closing the top of the grinding-cylinder, and provided with perforations forming discharge-exits, a central feed-magazine delivering the material to be ground through the center of such plate to the revolving center, and the annular dust-chamber surmounting the grinding-cylinder and covering such discharge-exits, and having air inlet and outlet openings, substantially as set forth.

5. In a pulverizing-machine acting by attrition, the combination, with the grinding-cylinder, the revolving center therein, and the top plate covering said grinding-cylinder and having perforations forming discharge-exits, of the central feed-magazine, the annular dust-chamber mounted upon and raised off of said plate, and forming therewith air-inlet openings admitting air to the surface of the discharge-plate at both its outer and inner edges, and the exhaust-pipe from such dust-chamber, substantially as set forth.

6. In a pulverizing-machine acting by attrition, the revolving center provided with the removable frames forming pockets, substantially as set forth.

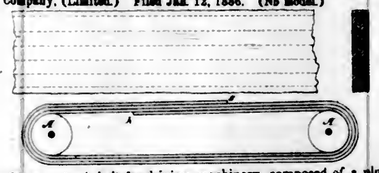
7. In a pulverizing-machine acting by attrition, the revolving center provided with the removable frames forming pockets, and removable wearing-plates carried by such frames, substantially as set forth.

8. In a pulverizing-machine acting by attrition, the revolving center provided with plates forming oblique working-surfaces tending to throw material upwardly as the center revolves, substantially as set forth.

9. In a pulverizing-machine acting by attrition, the combination of the disk F, having posts F', with frames G, and the annular plate A, forming the revolving center, substantially as set forth.

10. In a pulverizing-machine acting by attrition, the revolving center provided with radial ribs on top and bottom of same to throw material away from center, substantially as set forth.

352,460. CANVAS BELTING. MAURICE GANDY, New Brighton, County of Chester, England, assignor to the Gandy Belt Manufacturing Company, (Limited.) Filed Jan. 12, 1886. (No model.)

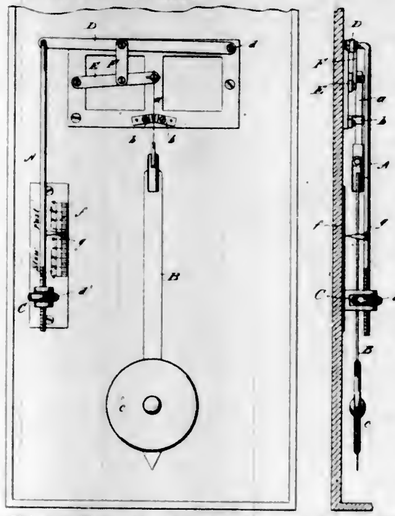


Claim.—1. A belt for driving machinery, composed of a plurality of single thicknesses of canvas woven to the exact width it is desired to make the belt and having its selvage on each edge closely united by and combined with a row of stitching, thus augmenting the strength and hardness of the selvage by the strength of the stitching, substantially as described.

2. In a belt composed of a plurality of separate plies fastened together, a gradual increase in the length of the several plies from the inside to the outside of the belt, for the purpose of equalizing the strain on each ply and to avoid wrinkling of the inside plies, substantially as described.

3. A canvas belt composed of several separate and distinct plies of canvas, built up one upon the other, and stitched together, as described, forming an endless belt, constructed and joined substantially as described.

352,461. COMPENSATION-PENDULUM. JOHN GERHARDT, Montreal, Quebec, Canada, assignor to himself and Samuel Davis, same place. Filed June 5, 1886. (No model.)



Claim.—1. The combination, with the pendulum, of the supported compensating-rod and the intermediate lever-connection, comprising a lever connected to the compensating-rod and a second lever connected with the aforesaid lever and with the pendulum, substantially as and for the purpose set forth.

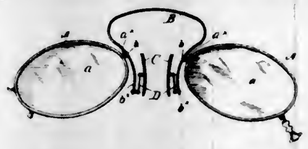
2. The combination, with the pendulum B, of the compensating-rod A, supported upon the projection C, and connected to the pendulum by the connected levers D E, the pendulum-spring being held between the points *b*, substantially as described.

3. The compensating-rod A, made longitudinally adjustable, in combination with the pendulum and the pivoted connected and connecting levers D E, substantially as and for the purposes described.

4. The combination, with the compensating-lever A and adjusting-nut *d*, of the index *f* and pointer *g*, substantially as described.

5. The combination, with the compensating-rod having a pointer and the apertured bracket or support, of the nut working and supported in said bracket or support and upon said rod, and the index, substantially as and for the purpose set forth.

352,462. EYEGLASS-FRAME. JARUS H. GILBERT, Philadelphia, Pa., assignor to T. B. Hagstoz & Co., same place. Filed Dec. 29, 1885. (No model.)



Claim.—1. The combination of the nose plates or clamps with the prolonged legs of the bridge or kindred projecting arms secured to the bows by means of adjustable links pivoted to the lower extremities of said legs of the bridge and to the centers of the nose-pieces, substantially as and for the purposes set forth.

2. The nose-clamps connected at or near their centers with adjustable frictionally-pivoted links, in turn connected to bridge-legs or kindred projecting arms secured to the bows, substantially as set forth.

352,463. FIRE-ESCAPE. LAURA J. GOTT, La Grange, Ohio. Filed May 13, 1886. (No model.)

Claim.—1. In a fire-escape, the combination, with a frame having foot-rests, a brake-carrying bar mounted on said frame, and a drum journaled on an axle connected with or forming a part of the frame, of a spring located inside the drum, said spring having its ends secured, respectively, to the drum and to the axle, a supporting-strap secured to the

352,463.

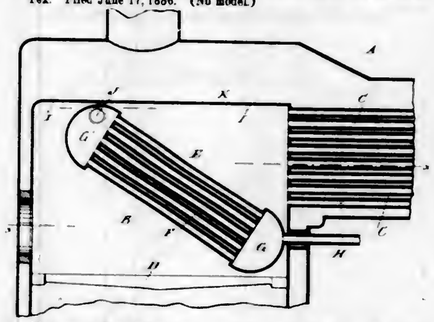


outer periphery of the drum, said strap being wound on the drum in such direction that the unwinding of the strap revolves the drum in the direction to wind up the spring, substantially as set forth.

2. In a fire-escape, the combination, with a frame, a drum journaled on a suitable axle connected with or forming a part of the frame, a spring, and a supporting-strap arranged substantially as indicated, of a cross-bar forming a foot-rest, said cross-bar being made to slide on the frame, and brake-blocks attached to the foot-rest to engage the drum when the foot-rest is depressed, substantially as set forth.

3. In a fire-escape, the combination, with a frame, drum, spring, and supporting-strap arranged substantially as indicated, of a cross-bar for a foot-rest, said cross-bar being mounted on the frame, brakes secured to the cross-bar in position to engage the drum when the cross-bar is depressed, and springs for elevating the cross-bar to separate the brakes from the drum, the parts being arranged substantially as described.

352,464. FEED-WATER HEATER. GEORGE GREEN, Corpus Christi, Tex. Filed June 17, 1886. (No model.)



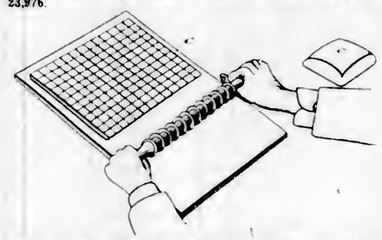
Claim.—1. In a boiler, the combination of a fire-box with a feed-water heater consisting of pipes opening into half-cylindrical heads, an inlet-pipe connected with one head, and an outlet-pipe connecting the other head with the water-compartment of the boiler, substantially as shown and described.

2. In a boiler, the fire-box B, the boiler-flues C, the grate-bars D, and the water-compartment K, in combination with the feed-water heater E, consisting of the pipes F and the heads G and G', the inlet-pipe H, and the outlet-pipes J, connecting the head G' with the compartment K of the boiler, substantially as shown and described.

352,465. COMPOUND TABLE-SALT OR CONDIMENT. JOHN M. HUGHES, Brooklyn, assignor of one-half to Edward N. Dickerson, Jr., New York, N. Y. Filed July 18, 1884. (No specimens.)

Claim.—The herein-described mixture as a condiment for table use, the same consisting of common table-salt in granular condition and powdered phosphate of lime.

352,466. PROCESS OF MANUFACTURING A CONFECTION TO CONTAIN MEDICINE. GEORGE C. HUTTEMEYER, Toronto, Ontario, Canada, assignor of one-half to Francis Porter Terry, Batavia, N. Y. Filed Apr. 22 1886. (No specimens.) Patented in Canada May 5, 1886, No. 23,976.



Claim.—1. The within-described process for the manufacture of a confection containing a substance held independent of the material com-

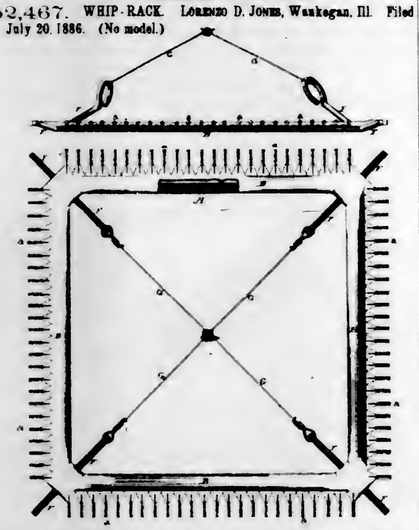
posing the confection, the said process consisting in spreading the substance to be concealed upon a warm sheet of confection, folding the covered surface together, and cutting the sheet into tablets, so that the edge of each tablet shall be sealed by the cutter.

2. The within-described process for the preparation of a confection and containing a substance held independent of the material composing the confection, the said process consisting in boiling sugar, paraffine, cream of tartar, and water, substantially in the proportions specified, to a heat of about 320° to 340° Fahrenheit, spreading the compound thus prepared into a sheet, the surface of which is coated with the substance to be concealed, folded together and cut into small tablets, substantially in the manner and for the purpose hereinbefore described.

3. As a product of the within-described process, the tablets C, consisting of three layers, two of confection and one of medicament, the latter adherent to the layers of confection and concealed by the same, substantially as described.

4. The tablet C, comprising a shell or coating consisting, essentially, of sugar, paraffine, and cream of tartar, in the proportions specified, and an independent filling of medicament, substantially as described, and for the purpose specified.

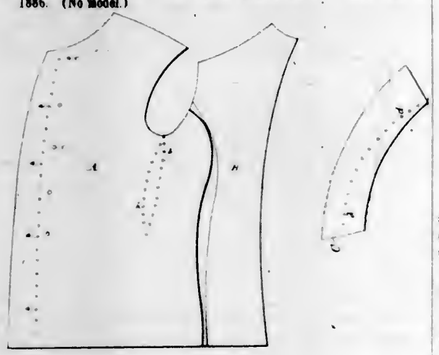
352,467. WHIP-RACK. LORENZO D. JONES, Waukegan, Ill. Filed July 20, 1886. (No model.)



Claim.—1. In a whip-rack, the combination of a rectangular wire frame with the pieces of sheet metal which are connected thereto, the edges of the sheet metal being slitted, and the slitted parts doubled downward, substantially as shown.

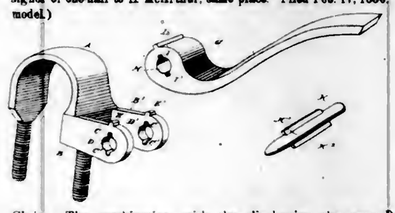
2. The combination of the frame of the rack with the wires F, which are secured to it at the corners, and the suspension-wires G, which are fastened to the inner ends of the wires F, the outer ends of the wires F being made to project beyond the outer edge of the frame, substantially as set forth.

352,468. METHOD OF MAKING AND ATTACHING COLLARS TO MILITARY BLOUSES. JOHN JUDGE, Washington, D. C. Filed June 10, 1886. (No model.)



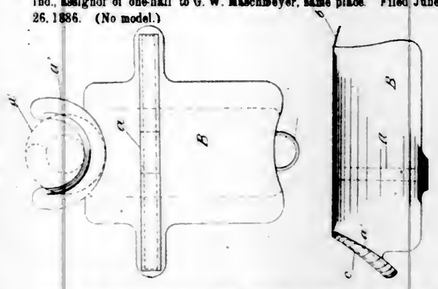
Claim.—The method of making and attaching a collar to a military blouse, which consists, first, in cutting two separate pieces of cloth on the bias to conform to the collar-pattern—to wit, an outside piece and an inside piece; second, in stretching the stand of the inside piece until the lower edge assumes a curve similar to the outside edge, the curve being in the opposite direction; third, stretching the outside piece to conform to the inside piece, and pressing both to retain the shape secured; fourth, in sewing the pieces together, and, finally, attaching the collar thus made to the body of the blouse, substantially as described.

352,469. THILL-COUPLING. JOHN A. KRANK, Waukegan, Ill., assignor of one-half to E. McArthur, same place. Filed Feb. 17, 1886. (No model.)



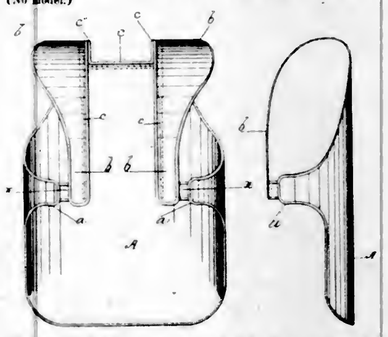
Claim.—The combination, with the clip having the arms B B', formed with eyes having grooves, and with exterior transverse guide-ribs, E E', of the thill-iron G, formed with the exterior guide-rib and provided with the transverse bolt-hole H, having horizontal grooves I I', and the bolt K, provided with the ribs K' K² between shoulders, substantially as specified.

352,470. BLANKET FOR ANIMALS. WILLIAM B. LOGAN, Richmond, Ind., assignor of one-half to G. W. Maschmeyer, same place. Filed June 26, 1886. (No model.)



Claim.—The combination, with a blanket or cover for animals, of the spring-bands *a* around the body and *a'* about the neck, in the manner and for the purpose as herein set forth.

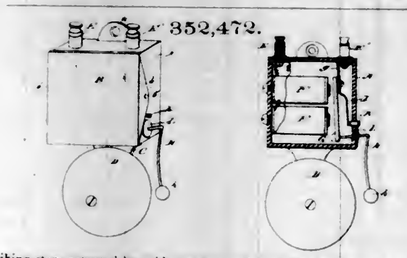
352,471. BIB OR APRON. WILLIAM B. LOGAN, Richmond, Ind., assignor of one-half to G. W. Maschmeyer, same place. Filed Aug. 23, 1886. (No model.)



Claim.—A bib or apron composed of the body A, provided with shoulder-straps *b b*, waist-straps *a a*, in combination with the frame-support *c c' c' c'' c''*, constructed and operating in the manner and for the purpose herein set forth and described.

352,472. ELECTRIC BELL AND ALARM. ADAM LÜNGEN, New York, N. Y. Filed Jan. 26, 1886. (No model.)

Claim.—1. In an electric bell or alarm, the combination, with an electro-magnet and vibrating armature within an inclosing-case, of a



striking-stem actuated by said armature and extending out through said case in a direction parallel, or nearly so, to the direction of vibrations of the armature, substantially as and for the purpose set forth.

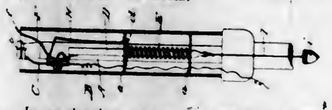
2. In an electric bell or alarm, the combination, with an electro-magnet, vibrating armature, and striking-stem working through an inclosing-case in the direction of the movement of the armature, of a flexible washer surrounding said stem on one side of the wall of the case, and adapted to close the opening in said wall around the stem, substantially as and for the purpose set forth.

3. In an electric bell or alarm, the combination, with an electro-magnet, a vibrating armature, and an insulated interrupting spring-plate attached to said armature, all inclosed in a metallic case included within the electric circuit with the electro-magnet, of a metallic contact-point projecting through the walls of the case and in direct contact therewith and adjustable from without the case, substantially as and for the purpose set forth.

4. In an electric bell or alarm, the combination, with an electro-magnet and vibrating armature, and with a contact-point connected in circuit with said electro-magnet, of an insulated contact-plate attached to said vibrating armature and insulated therefrom, said contact-plate forming the flexible support for the armature, all as and for the purpose set forth.

5. In an electric bell or alarm, the combination, with an electro-magnet and vibrating armature provided with an insulated contact-spring upon said armature, and with a metallic inclosing-case, of an adjustable metallic contact-point projecting through said case and in direct contact therewith, substantially as and for the purpose set forth.

352,473. ELECTRICAL GAS-LIGHTER. ADAM LÜNGEN, New York, N. Y. Filed Jan. 26, 1886. (No model.)



Claim.—In an electric gas-lighter, the combination, with a gas-burner and with a fixed electrode attached thereto and insulated therefrom, and a sliding spring-actuated rod carrying a spring-arm to act as an electrode to make and break the electric circuit, of an auxiliary guide to govern the movement of the movable electrode, substantially as and for the purpose set forth.

352,474. ELECTRIC DEVICE. ADAM LÜNGEN, New York, N. Y. Filed Jan. 26, 1886. (No model.)

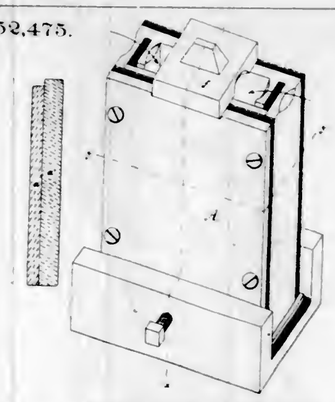


Claim.—The herein-described fastening-clip, having the spring-body A, slot *a*, inwardly-projecting edge B, and outwardly-curved end C, in combination with a shoulder or projection upon the end of the rod, shaft, or bolt to be secured, and the insulating-frame upon which the device is mounted.

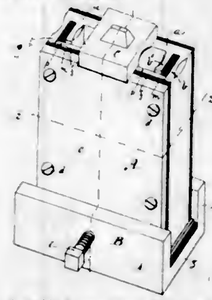
352,475. PROCESS OF MANUFACTURING COMPOUND METAL PLATES OF PRECIOUS METALS. ADOLPHUS J. LUSTIG, New York, N. Y., assignor of one-fifth to Louis Kahn, same place. Filed Mar. 23, 1886. (No model.)

Claim.—The process of producing compound metal plates, which consists in roughening one plate, oxidizing it, placing it in diluted sulphuric acid, pouring oil upon it, placing it into a mold, and pooring liquid metal upon and alongside of it while the mold is heated, substantially as specified.

352,475.



352,476. MOLD FOR CASTING COMPOUND INGOTS. ADOLPHUS J. LUSTIG, New York, N. Y., assignor of one-fifth to Louis Kahn, same place. Filed Mar. 23, 1886. (No model.)



Claim.—1. A mold, A, consisting of the back plate, *a*, covered by a stratum of asbestus, *n*, secured by a plate, *a'*, the double sides *b b'*, with asbestus *b²* between them, the inner plates, *b'*, being of less depth than the outer side plates, *b*, and the front plate, *c*, with a stratum of asbestus, *m*, and wrought-iron plate *f* at its inner surface, substantially as and for the purpose described.

2. In combination with a mold, A, the sole-plate B, consisting of a bottom plate, *g*, with upwardly-projecting back and front plates, *h k*, and stratum of asbestos *w*, and cast-iron plate *v* upon the bottom plate, substantially as and for the purpose set forth.

3. In combination with a mold for producing compound plates of precious metals, the bar *p*, having a slanting upper surface placed on top of the metal plate, as and for the purpose specified.

352,477. PROCESS OF SOLDERING TUBES OF PLATED METAL. ADOLPHUS J. LUSTIG, New York, N. Y., assignor of one-fifth to Louis Kahn, same place. Filed Mar. 23, 1886. (No model.)



Claim.—1. The herein-described process of soldering compound plated metal plates by inserting the solder, drawn in the shape of wire, together with borax, into the tube formed of the metal plate and then applying heat to the same, as and for the purpose specified.

2. The herein-described process of soldering compound plated metal plates by inserting the solder, drawn in the shape of wire, together with borax, into the tube formed of the metal plate, and covering the end of the tube by a cap, C', and then applying heat, as and for the purpose described.

352,478. MACHINE FOR MEASURING AND WINDING FABRICS. CHARLES H. LYON, Greeley, Kans. Filed July 2, 1886. (Model.)

Claim.—1. The combination of the rollers E E', the boards M M', the centers K K', cramps I I', tightening-screws J J', and adjustable beam B, substantially as described.

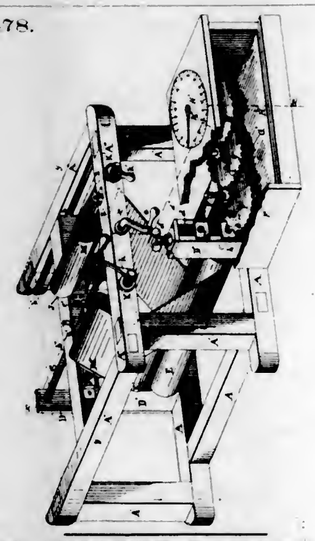
2. The combination of the frame A''', the centers K K', with handles *k k'* for adjustment, and tightening-screw *a'''*, the screw-rod C, with its handle *c*, yoke-nut *c'*, the sliding beam B, with its tenons, cramps I I', and screws J J', and grooved end beams, A'''.

352,478.

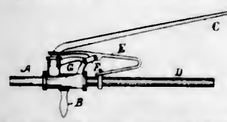
352,482.

352,484.

352,478.



352,479. MAIL-BAG CATCHER. WILLIAM A. MACK and JULIETT T. WARD, Elyria, Ohio, executors of La Fayette Ward, deceased, assignors to Joseph M. Crane, Newark, N. J. Filed July 28, 1884. (No model.)

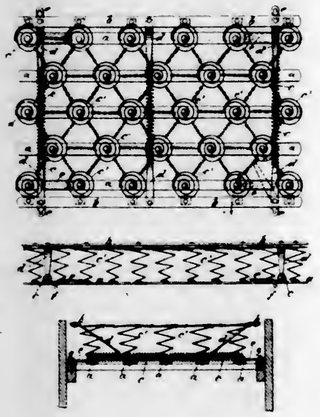


Claim.—1. The combination, in a mail-bag catcher provided with a support-shaft and a reach rigidly attached thereto and a handle for swinging the same, of a yielding spring loosely secured at two points thereon adapted to impinge the bag, substantially as and for the purpose specified.

2. A package-catching apparatus consisting of a frame composed of a bar and a reach rigidly connected together, provided with a handle for operating, and an angular bent spring substantially such as described loosely connected at two different points between said bar and reach, substantially as and for the purpose set forth.

3. A package or mail-bag catcher consisting of a frame composed of a bar and reach, with an interposed device or intermediary frame, and a spring substantially such as described secured at or near its center to said intermediary frame, substantially as and for the purpose set forth.

352,480. ADJUSTABLE FOLDING SPRING BED-BOTTOM. JOHN L. MEEKS, Brooklyn, N. Y. Filed May 4, 1885. (No model.)



Claim.—1. A bed-bottom composed of volute springs and slats, connected together by coiled springs, so as to be adjusted laterally or rolled up, substantially as described.

2. A bed-bottom consisting of slats having volute springs, the slats being connected together by coiled springs, so that they can be adjusted laterally or rolled up, and means, substantially as described, whereby the bed-bottom is held in adjusted lateral position, substantially as described.

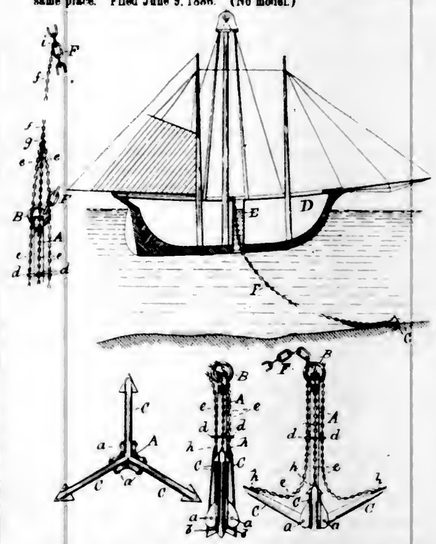
3. A folding bed-bottom composed of slats, volute springs, and cross coil-springs connecting the slats together, and means for fastening the same when rolled up or adjusted to width, substantially as described.

4. The combination, with a laterally adjustable and folding bed-bottom having its slats connected by coiled springs, of side strips with adjustable braces, substantially as described.

352,480.



352,481. ANCHOR FOR ANCHORING VESSELS. FRANCIS D. MONTAGUE, Hopedale, Mass., assignor of one-half to George Draper & Sons, same place. Filed June 9, 1886. (No model.)



Claim.—1. The anchor-shank A, provided with the flukes C, pivoted thereto independently of each other, in combination with the leading-chains *e*, attached to said flukes, and the leading-chain *f*, attached at one end to said leading-chains *e* and at the other to the hawser F, substantially as described.

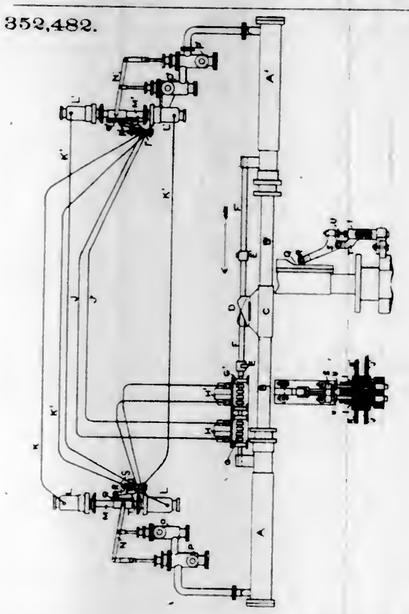
2. The combination of the anchor-shank A, provided at one end with the ring B, the hawser F, attached to said ring, the flukes C, pivoted to the opposite end of said anchor-shank independently of each other, the guide-rings *d*, attached to said anchor-shank, and the leading-chains *e*, attached to the outer end of said flukes and passing through said guide rings *d*, whereby said flukes may be drawn close up to said anchor-shank, substantially as set forth.

3. The vessel D, provided with the hawser-pipe E, passing through the bottom of said vessel amidships, the hawser F, the anchor consisting, essentially, of the shank A and independently-pivoted flukes C, the leading-chains *e*, attached to said flukes, and the leading-chain *f*, attached to said leading-chains *e* and to said hawser F, the whole combined and operating substantially as described.

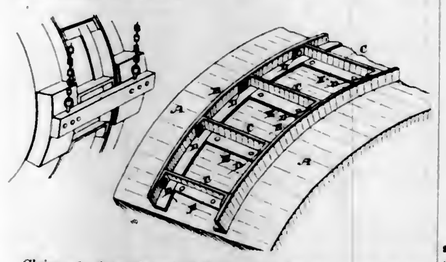
352,482. MODE OF OPERATING THE VALVES OF HYDRAULIC PUMPING-ENGINES. JOSEPH MOORE, San Francisco, Cal. Filed Jan. 22, 1884. (No model.)

Claim.—In hydraulic pumping-engines, the combination of the intermediate valves, I I', and their operating mechanism, substantially as described, with the main valve-actuating rams M M', working in cylinders L L', and the pipes J J' K K', connecting said ram-cylinders alternately with the pressure and exhaust columns, as and for the purpose described.

352,482.



352,483. TRACTION-WHEEL. RUFUS R. MOORE, Modesto, Cal. Filed Apr. 19, 1886. (No model.)



Claim.—1. A traction-wheel having rims or flanges projecting outwardly from the surface of the rim, in combination with transverse bars extending between the flanges and bolted to them and the rim, substantially as herein described.

2. The angle-iron plates fitted and secured to the exterior wheel-rim so as to form projecting flanges, in combination with transverse angle-ribs extending between the flanges, bolted to the wheel-rim, having their ends bent at right angles, and bolted to the flanges, substantially as herein described.

3. A wheel having the outer portions or edges of the rim formed with a smooth surface, and the central portion with corrugations or ribs, in combination with a brake having blocks fitting the smooth portions of the rim at each side of the center and guided by the central flanges.

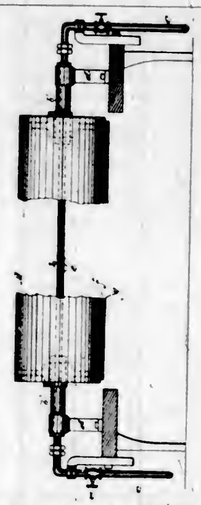
352,484. DANDY-ROLL. JOHN R. OGDEN, Palmer Falls, N. Y., assignor to the Eastwood Wire Manufacturing Company, Belleville, N. J. Filed June 25, 1886. (No model.)

Claim.—1. A dandy-roll for use in paper-making, having a water-supply pipe leading into the interior thereof, substantially as and for the purposes set forth.

2. The dandy-roll for paper-making, having therein a spray-pipe by means of which the interior of said roll may be supplied with liquid, substantially as and for the purposes set forth.



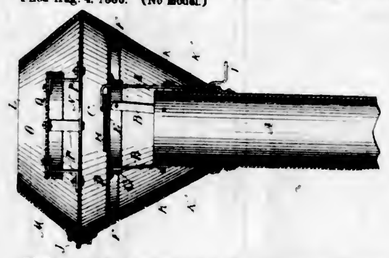
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3. In combination, the dandy-roll, perforated supply-pipe entering said roll, the said pipe having a flexible section, *c'*, in its course to allow for vertical play in the roll, substantially as set forth.

4. In combination, the dandy-roll, perforated pipe *b*, bearings *d d*, valve *n*, and supply-pipe *c c'*, substantially as and for the purposes set forth.

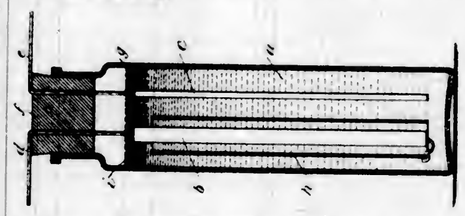
352,485. SPARK-ARRESTER. ORLANDO T. OWINGS, Le Mars, Iowa. Filed Aug. 4, 1886. (No model.)



Claim —1. In a spark-arrester, the combination of a cap and a smoke-stack projecting into the said cap with a deflector supported from the upper end of the said smoke-stack, and having a central aperture, and a lid or cover adapted to open and close said aperture in the deflector, substantially as shown and described.

2. In a spark-arrester, the smoke-stack A, the deflector C, having the aperture E, and the lid H, adapted to open or close the said aperture E, in combination with the cap J, formed of the two cones K and L, hinged together at their bases, and the deflector O, supported in the upper cone, L, above the aperture N in the base-plate M, substantially as shown and described.

352,486. GALVANIC BATTERY. WILLIAM R. PATTERSON, Chicago, Ill., assignor to the Western Electric Company, same place. Filed May 24, 1886. (No model.)



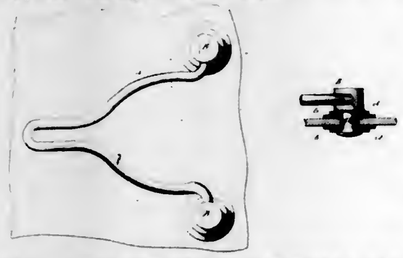
Claim.—1. The combination, with the chloride-of-silver element of a galvanic battery, of a transparent non-conducting tube open at both ends inclosing said element, substantially as and for the purposes specified.

2. In a galvanic battery, the combination, with the zinc element,

of a copper connecting-wire, and an insulating-oil upon the surface of the liquid covering the joint between said zinc element and its copper connecting-wire, as described.

3. In a galvanic battery, the chloride-of-silver element and the zinc element and their respective connecting-wires, in combination with non-conducting oil floating upon the liquid of the battery and covering the joint between the zinc element and its connecting-wire, and a transparent tube surrounding the chloride-of-silver element, the upper end of said tube being below the oil, substantially as and for the purpose specified.

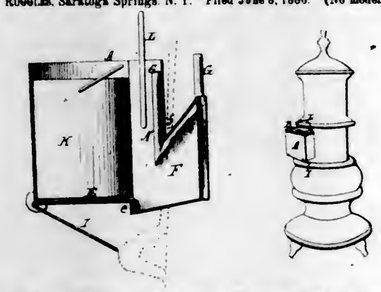
352,487. BLANKET-FASTENING. WILLARD B. PRITCHARD, Waterbury, Conn. Filed Aug. 23, 1886. (No model.)



Claim.—1. The herein-described fastening for blankets, consisting of the loop in substantially V shape, the two ends of the legs hinged in sockets adapted to be secured to the blanket, the opening between the legs being broader than at their ends and contracting toward the apex, substantially as described.

2. The combination of the loop A, in substantially V shape, the sockets B, the two ends of the legs hinged, respectively, in said sockets, said sockets constructed with a shank, *a*, adapted to pass through the blanket, as a means for securing the buckle to the blanket, substantially as described.

352,488. COOKING ATTACHMENT FOR HEATING-STOVES. MARY RUGGLES, Saratoga Springs, N. Y. Filed June 8, 1886. (No model.)



Claim.—1. The vessel A, formed with a central offset, A', and lateral extension F, having an upward inclination to form a crotch, *f*, for supporting the same within the doorway of heating-stoves, as described and shown.

2. In combination with the water-tight vessel A, formed with central offset, A', and lateral extension F, the pipes G, substantially as and for the purposes described and shown.

3. In combination with the water-tight vessel A, formed with central offset, A', and lateral extension F, having an upward inclination, the bracket or support I, hinged to the lower edge of the body A, for the purposes specified.

4. The combination, with the water-tight vessel A, formed with central offset, A', and lateral extension F, of the lid B, with openings *b* therein and slides *b'*, substantially as and for the purposes described.

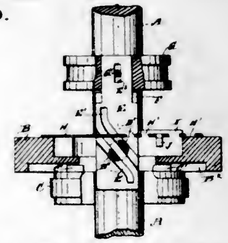
5. The combination, with the water-tight vessel A, formed with a central offset, A', and lateral extension F, of the pipes G and removable partition D, substantially as and for the purposes described and shown.

352,489. REVERSING-GEAR FOR ENGINES. ROBERT RUTHERFORD, Reutchlar, and THOMAS MOORE, O'Fallon, Ill. Filed Feb. 26, 1886. (No model.)

Claim.—1. In a reversing-gear for steam-engines, the combination of an eccentric provided with a forked pin and adjustable on a disk attached to the crank-shaft, with a cam-plate sliding in the said disk and having diagonal grooves which engage with the said forked pin, substantially as herein shown and described.

2. In a reversing-gear for steam-engines, the combination of an

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eccentric provided with a forked pin and a notched plate and sliding on a disk attached to the crank-shaft, with a cam-plate having diagonal grooves, and with a locking-plate operating a locking-bolt by means of a bell-crank lever, substantially as herein shown and described.

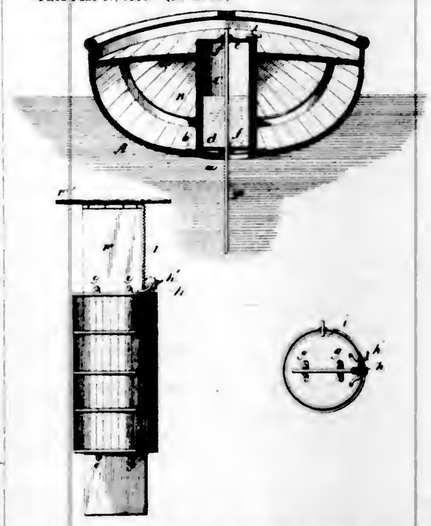
3. In a reversing-gear for steam-engines, the combination of an eccentric provided with a forked pin and a notched plate and sliding on a disk attached to the crank-shaft, with a wheel provided with a pin, with a cam-plate having diagonal grooves, and with a locking-plate operating a locking-bolt by means of a bell-crank, substantially as herein shown and described.

4. In a reversing-gear for steam-engines, the crank-shaft A, the disk B, the eccentric C, the pin D, having the prongs D' D', and the plate H, having the notches H', in combination with the wheel G, provided with the pin G^2, the cam-plate E, having the diagonal grooves E' E', the heart-shaped grooves E^2, and the elongated slot E^3, and a locking-plate, F, provided with the pins F' and operating the locking-bolt J by means of the bell-crank J', substantially as herein shown and described.

5. In a reversing-gear for steam-engines, the shaft A and a disk, B, having the grooves B' and B^2, and the notches K, in combination with the eccentric C, having the aperture C^2, and provided with the cleats C' C', and the spring L, substantially as herein shown and described.

6. In a reversing-gear for steam-engines, the wheel G, provided with the pin G', and the locking-plate F, having the pin F', in combination with the cam-plate E, having the heart-shaped grooves E^2 and the elongated slot E^3, and the bell-crank J', operating the locking-bolt J, substantially as herein shown and described.

352,490. CENTER-BOARD FOR VESSELS. ALBERT L. SHEARS, St. Louis, Mich., assignor of one-half to John M. Combs, Hicksville, Ohio. Filed June 17, 1886. (No model.)



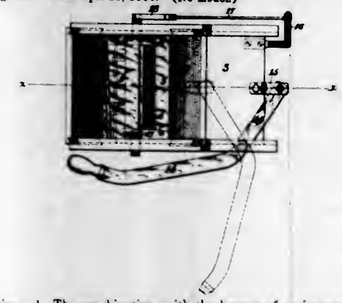
Claim.—1. In combination with the hull of a vessel, a circular casing or well attached thereto, an inner cylinder, C, attached to said well and journaled so as to rotate therein, said inner cylinder carrying a vertically-adjustable center-board, substantially as shown, and for the purpose set forth.

2. In a vessel, an outer cylindrical well, B, having an inner cylinder journaled thereto so to rotate within the same, a center-board, F, attached to the inner cylinder and provided with a rack and pinion for vertically adjusting the same, substantially as shown, and for the purpose set forth.

3. The combination, in a center-board for vessels, of an outer cylinder, B, rigidly attached to the hull, an inner cylinder, C, journaled thereto so as to be capable of a rotary movement, a dog for locking said cylinders to each other against rotary movement, a center-board, F, provided with a rack-bar and handles F', a pinion attached to the inner cylinder for vertically adjusting the center-board, substantially as shown, and for the purpose set forth.

4. In combination with a center-board for vessels, the outer cylinder, B, provided at its upper edge with notches, an inner cylinder, C, journaled within the outer cylinder so as to be capable of a rotary movement, said inner cylinder being provided with heads *d* and *e*, with transverse slots *f* and guide-rollers *g*, a rack attached to the center-board, a pinion with crank-handle attached to the upper head of the inner cylinder for adjusting vertically the center-board, and a dog, *i*, for locking the cylinders against rotary movement, the parts being organized substantially as shown, and for the purpose set forth.

352,491. FEEDING DEVICE FOR CIGAR-BUNCHING MACHINES. STEPHEN A. SHEPARD, West Bellevue, assignor to Lang & Shepard, Pittsburg, Pa. Filed Apr. 16, 1886. (No model.)



Claim.—1. The combination, with the hopper of a cigar-machine, of a sliding bottom having an open pocket extending therethrough and arranged to reciprocate beneath the hopper, and a knife affixed to the sliding bottom at the rear of the pocket, substantially as and for the purposes described.

2. The combination, with the hopper of a cigar-machine, of a sliding bottom having an open pocket extending therethrough and arranged to reciprocate beneath the hopper, and a knife situate at the base of the hopper over the surface of the sliding bottom and set at an angle to the median line of the pocket, substantially as and for the purposes described.

3. The combination, with the hopper of a cigar-machine, of a sliding bottom arranged beneath the hopper and having an open pocket, and a bar forming the wall of the pocket, said bar being movable and adjustable to increase or diminish the size of the pocket, substantially as and for the purposes described.

4. The combination, with the hopper of a cigar-machine, of a sliding bottom arranged beneath the hopper and having an open pocket, a horizontally-rotary shaft provided with agitating-arms situate within the hopper directly over the sliding bottom and adjacent thereto, and levers connecting the agitating-shaft with the sliding bottom and arranged to rotate the shaft, so that the agitating-arms, when below the axis of the shaft and next to the sliding bottom, shall move in a direction opposite to the direction of motion of the sliding bottom, whereby the tobacco-filler is forced into the pocket, substantially as and for the purposes described.

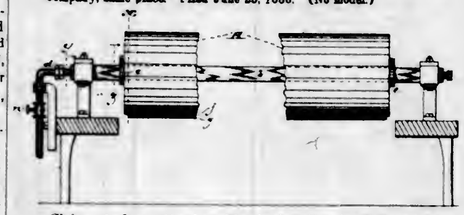
352,492. METHOD OF MAKING AXLE-ARMS. CHARLES H. SMITH, Norfolk, Conn., assignor of one-half to Ellsworth D. Ives, same place. Filed Feb. 15, 1886. (No model.)



Claim.—1. The art or method of making axle-arms, which consists in first forging the axle-blank in the rough from a billet of metal, then reheating to about a cherry-red heat the blank, and forming it to final shape by repeated blows between finishing-dies, all substantially as described.

2. The art or method of making axle-arms, which consists in first forging the axle-blank in the rough from a billet of metal, then reheating the bank to about a cherry-red heat to prevent the formation of a scale, and forming the blank to final shape by repeated blows between finishing-dies, and then polishing the wearing-surface of the arm, all substantially as described.

352,493. DANDY-ROLL FOR USE IN PAPER-MAKING. CHARLES SMITH, Belleville, N. J., assignor to the Eastwood Wire Manufacturing Company, same place. Filed June 25, 1886. (No model.)



Claim.—1. In combination with a dandy-roll, a pipe, *b*, therein, having perforations on the under side only, substantially as and for the purposes set forth.

2. The combination of the dandy-roll and a shaft supplying water to said roll, said roll having a vertically-movable relation to said shaft, substantially as set forth.

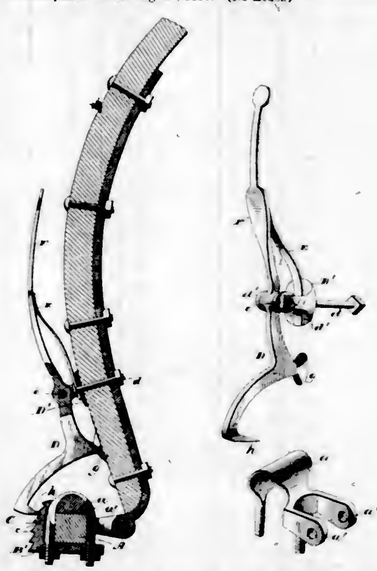
3. In combination, the tubular and perforated shaft, and dandy-roll having a movement on said shaft in a direction at angles thereto, substantially as described.

4. The combination, with the dandy-roll, of the perforated shaft and slotted journal, said parts being arranged and adapted to operate substantially as set forth.

5. The combination, with the fixed quadrangular shaft, slotted journal-bearing, and dandy-roll, all said parts being arranged and adapted to operate substantially as and for the purposes set forth.

6. In combination with a fixed perforated pipe connected with a suitable supply-pipe having a valve to control the flow of water therethrough, the perforations being on the under side of said pipe only, a dandy-roll, and a slotted journal-bearing, *c*, said parts being arranged and adapted to operate substantially as set forth.

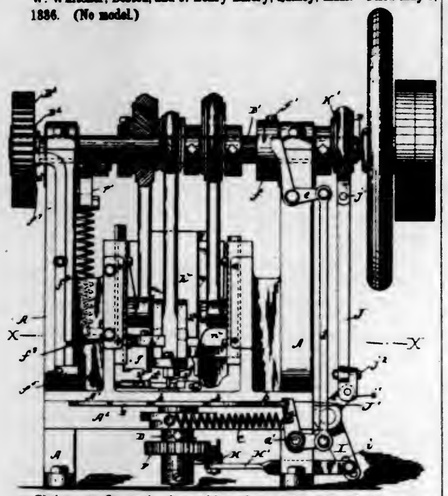
352,494. SHAFT-HOLDER. GEORGE J. SPENNEBERG, Carrollton, Ky., assignor of two-thirds to Joseph A. Donaldson and Daniel Bromley, both of same place. Filed Aug. 12, 1886. (No model.)



Claim.—1. In a device for supporting thills, the combination of the bar D, pivotally attached near the lower end of the same, and provided with a spring, E, a knob or bearing, *g*, formed integral therewith, and located between its pivotal point and hooked end, and a serrated plate, C, attached rigidly to the axle, substantially as shown, and for the purpose set forth.

2. In a thill-support, a bar, D, pivoted near the lower end of the thills and provided with an enlarged bearing-block, *g*, which is held in contact with the upper portion of the thill by a spring which bears upon its opposite end, substantially as shown, and for the purpose set forth.

352,495. METALLIC-SHANK MACHINE. CHARLES T. STETSON, Rockland, assignor of one-half to Oscar W. Whitcher, Hyde Park, Frank W. Whitcher, Boston, and J. Henry Emery, Quincy, Mass. Filed May 5, 1886. (No model.)



Claim.—1. In a shank-machine, the combination of the cutting, punching, and bending dies with the intermittently-rotated carrying-disk, for the purpose and substantially as shown and described.

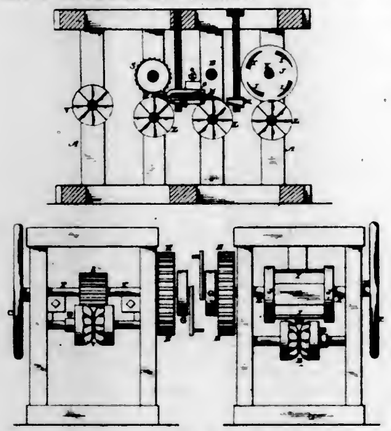
2. In a shank-machine, the combination, with independently-actuated cutting, punching, and bending dies and the carrying-disk, of an intermittent feed mechanism, whereby a strip of metal the width of a shank may be fed into the cutting-dies at each cut, substantially as set forth.

3. In a machine for making shanks for boots and shoes, provided with cutting, punching, and bending mechanism, the combination of the slotted upper bed, A', the lower bed, A^2, and the slotted carrying-disk, mounted between said beds, and its operating mechanism, substantially as shown and described.

4. In a shank-machine provided with cutting, punching, and bending mechanism, the combination of the carrying-disk E and its operating mechanism and the stop-pawl *a* and its operating mechanism, whereby the positive movement of the disk is regulated, substantially as and for the purposes set forth.

5. The combination, in a shank-machine provided with intermittent feed mechanism, of the cutting-dies and the clearing-finger f^3 and its operating mechanism, for the purposes and substantially as described.

352,496. HOOP-SHAVING MACHINE. WILLIAM A. STONE, Eddyville, Ill. Filed Mar. 24, 1886. (No model.)



Claim.—1. The combination of the series of revolving knives placed at the end of the machine where the hoop enters, a guide for directing the movement of the hoop and placed between the cylindrical knives and the stationary knife, and the stationary knife and the fluted roller, the fluted roller for drawing the hoop through the machine, and cuffs which are placed under the revolving knives, the stationary knife, and the fluted roller, substantially as shown and described.

2. The combination of the revolving knives placed at the end of the machine where the hoop enters, a suitable guide placed between the revolving knives and the stationary knife, the stationary knife placed between the guides through which the hoop passes from the machine, and cuffs which are placed upon a separate shaft and at a higher elevation on the machine than the other cuffs, for the purpose of breaking the hoop before it leaves the machine, substantially as set forth.

352,497. BEDCLOTHING-CLAMP FOR BEDS. GEORGE W. STREET, Chicago, Ill., and JOHN S. WATTERS, Baltimore, Md. Filed Jan. 11, 1886. (No model.)



Claim.—1. The combination, with a bed-frame, of a series of clamps comprising stationary and movable jaws, and a bar or rock-shaft, E, engaging the several movable jaws for actuating the latter, substantially as described.

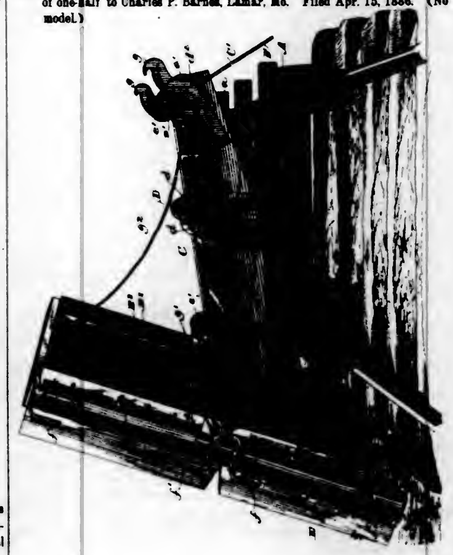
2. The combination, with a bed-frame, of a series of clamps comprising stationary and movable jaws, and a rock-shaft supporting the said movable jaws, the stationary jaws being provided with bearings for the rock-shaft, substantially as described.

3. The combination, with a bed-frame and a series of stationary and movable jaws, of a rock-shaft, E, engaged with and supporting the said movable jaws, and suitable bearings for the rock-shaft upon the frame, said rock-shaft being made of square iron and provided with sleeves E', made cylindric upon their outer surfaces to engage the shaft-bearings, substantially as described.

4. The combination, with the stationary and movable clamp-jaws, and the rock-shaft E, engaging the movable jaws, of a ratchet-wheel, F, upon the said shaft, provided with a handle, F', and a pawl, *f*, engaging said ratchet-wheel, substantially as described.

5. The combination, with stationary and movable jaws, of a rock-shaft, E, made square throughout its entire length, and engaging square apertures in the movable jaws, and sleeves E', fitted upon the rock-shaft and made cylindric on their outer surfaces, set-screws holding said sleeves from end movement upon the shaft, and suitable bearings for the shaft engaging said sleeves, substantially as described.

352,498. DUMPING-CAR. JAMES H. R. TALLEY, Sheldon, assignor of one-half to Charles P. Barnes, Lamar, Mo. Filed Apr. 15, 1886. (No model.)



Claim.—1. The combination, in a dumping-car, or a truck, a series of tilting beams pivoted thereon and provided with hooked portions *g*, and a platform adapted to slide on said beams, and having a rod, *g'*, to engage said hook portions, substantially as set forth.

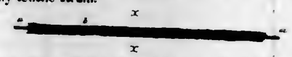
2. The combination, in a dumping-car, of a car-truck, a series of tilting beams pivoted thereon, a platform adapted to slide on said beams, and devices, C', for locking said beams against tilting, substantially as set forth.

3. The combination, in an interchangeable dumping-car, of a car-truck, intermediate shifting devices provided with rollers and platform consisting of two longitudinal pivoted sections, and a series of guideways, E'', detachably secured to said platform, substantially as set forth.

4. In combination with a dumping-car, the tilting device consisting of grooved disk H' and beam H, pivotally mounted thereon, substantially as set forth.

352,499. WIRE PICTURE-CORD. GEORGE C. TATE, Jr., Malden, Mass. Filed Feb. 24, 1886. (No model.)

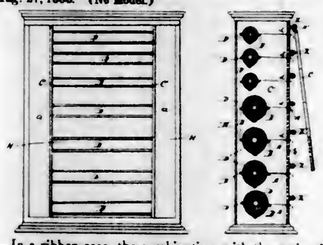
Brief.—The invention consists of a non-extensible wire picture-cord composed of a straight flexible wire core having a plurality of wires plaited or braided therearound, so as to give body to the cord and aid in sustaining any tensile strain.



Claim.—1. An entirely metallic picture-cord consisting of a core of straight wire having a plurality of wires plaited or braided therearound at a slight angle thereto, to aid in sustaining any tensile strain to which the cord may be subjected when in use, as set forth.

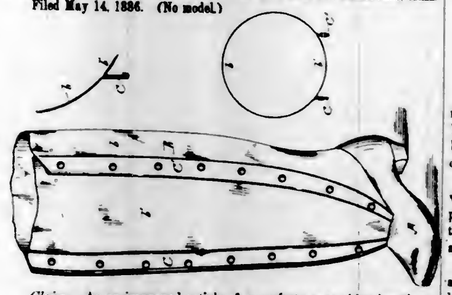
2. An entirely metallic picture-cord consisting of a core of straight wire having a plurality of wires of finer gage than the core plaited or braided therearound, as set forth.

352,500. RIBBON-CASE. JOHN R. TUCKER, Baxter Springs, Kans. Filed Aug. 27, 1885. (No model.)



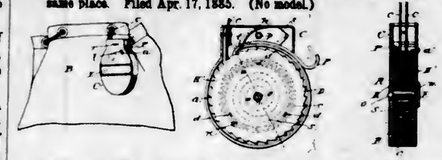
Claim.—In a ribbon-case, the combination, with the casing having an open front and a transversely-slotted back, the ribbon-shelves each composed of a group of three horizontal rods, B, the spaces H upon each side of the display-shelves for the reception and display of the reserve stock, and the rings X, secured upon the back of the casing near each of the horizontal slots therein, of the yard-stick C, provided with the hook A' so as to be detachably connected to any one of the rings X, substantially as shown and described.

352,501. RUBBER BOOT. JAMES L. TYLER, Jr., Somerville, Mass. Filed May 14, 1886. (No model.)



Claim.—As an improved article of manufacture, a rubber boot having a foot portion formed or constructed of material of ordinary form or thickness and a leg portion of gossamer or other similar material made of the sections *b b'*, having their edges brought together and united to form stays C C', which support lines of lacing devices, which are adapted to be drawn or secured together after the boot has been put on to gather in the fullness of the boot-leg and fit it to the leg of the wearer, substantially as described.

352,502. COMBINED MAIL-BAG-CORD CASE AND LOCK. OLIVER B. YOUNG, Detroit, Mich., assignor of one-half to William T. Bleeman, same place. Filed Apr. 17, 1885. (No model.)

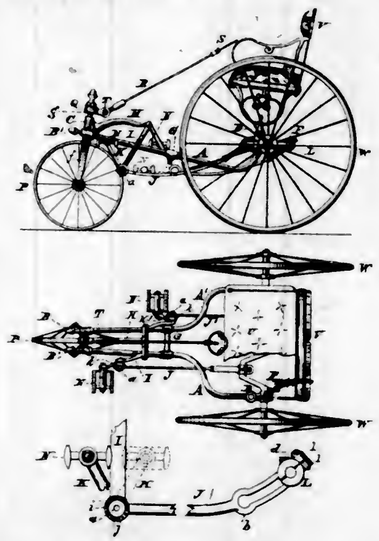


Claim.—1. The combination, with a mail-bag and its cord or cords, the metal case, the spool, and means, set forth, for reeling the cord within said case, of the locking-bolt and its spring *h*, said bolt adapted to engage with the toothed portion *b* of said spool, as and for the purposes set forth.

2. The combination, with a mail-bag and its closing-cord, the metal case C, the spool D, and composed of two parts and secured together, as set forth, having the toothed surfaces *a b*, as specified, of a locking-bolt, P, and spring-pawl K, said pawl and bolt adapted to engage with the toothed peripheries of said spool for locking it in its various positions, for the purposes specified.

3. In a combined mail-bag-cord case and lock, the metal case C, the spool D, as set forth, the spring-pawl K, attached to said case, the free end of said pawl K engaging with the teeth *a* upon the periphery of said spool, the button *a'*, and slot *l*, as and for the purposes specified.

352,503. VELOCIPEDE. THEODOR ZANGER, Buffalo, N. Y., assignor to Watson E. King and Charles D. Whittet, both of same place. Filed June 23, 1886. (No model.)



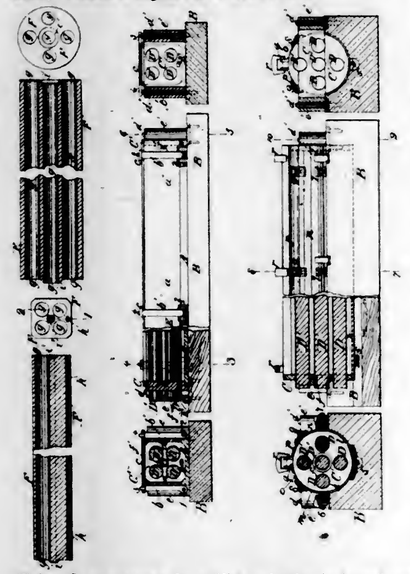
Claim.—1. In tricycles and similar vehicles, a head, C, having a rearwardly-projecting arm to which are pivoted two pendulum-levers, K K', connecting-rods J J', and the double-cranked axle F, the whole being constructed and arranged to operate substantially as and for the object specified.

2. In pedal mechanism, the connecting-rod J, having on its forward end a head, *j*, provided with a circular serrated portion, *i*, and the pedal-arm K, having a circular head provided with serrations matching those of the head *j*, the two heads being secured together by a bolt, *a*, as and for the object described.

3. In pedal mechanism for tricycles, the connecting-rod J, having a circular head provided with serrations, as described, the pedal-arm K, having a serrated head engaging said head *j*, and the pedal N, said heads being adjustably affixed together by means of a bolt, *a*, forming the pitman for connecting said connecting-rod with the pendulum-lever I, as stated.

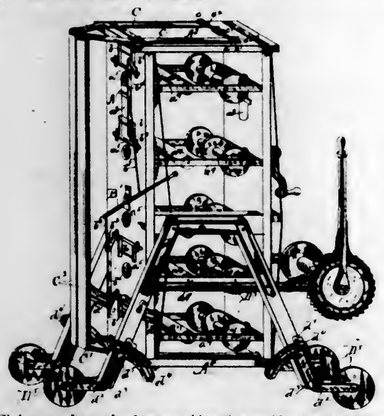
4. In velocipedes, the connecting-rod J, having on its rear end a fork, L, secured together by a bolt, *d*, said fork having a journal-bearing for the crank-axle and being adapted for springing over the crank-pins, substantially as and for the purpose stated.

352,504. APPARATUS FOR MOLDING PERFORATED BLOCKS FOR CONTAINING ELECTRIC WIRES. JAMES W. BUTLER, Humber Road, Blackheath, County of Kent, England. Filed July 6, 1886. (No model.) Patented in England Feb. 2, 1886, No. 1,538.



Claim.—In an apparatus for molding or forming horizontally-perforated blocks or receptacles of bituminous composition for containing electric wires or cables, the horizontal molds or cases formed of jointed sections, and end plates carrying cores or mandrels covered with sleeves of prepared bituminous cloth, or bituminous or other paper, substantially as herein set forth.

352,505. WIRE-FENCE MACHINE. GEORGE W. HOMSHER, Dublin, Ind. Filed Jan. 5, 1886. (No model.)



Claim.—1. In a wire-fence machine, the combination of a twister-frame having slots for the following-pieces, said following-pieces having devices for securing them in place, and the twisters mounted in said frame, substantially as described.

2. In a wire-fence machine, the combination of a twisting-frame having slots for the following-pieces, said following-pieces having devices for securing them in place, twisters mounted in said frame and having cog-wheels, and the idlers connecting said cog-wheels, substantially as described.

3. In a wire-fence machine, the combination of a twisting-frame, the twisters mounted therein, and the vertical rollers pivotally connected with said twisting-frame, substantially as described.

4. In a wire-fence machine, the combination of a twister-frame, the twisters mounted therein, the vertical rollers, the levers pivoted on said frame and supporting the vertical rollers at one end, and means arranged at their other end for holding the rollers yieldingly together, substantially as described.

5. In a wire-fence machine, the beaters having the projecting arms and the adjustable bar, substantially as described.

6. In a wire-fence machine, the combination of two pairs of beaters, the beaters of each pair being connected by links, and the two pairs being arranged to move toward each other, and a lever connected by links to the links of each pair of beaters, substantially as described.

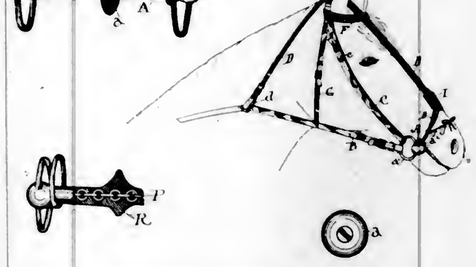
7. In a wire-fence machine, the combination of two sets of beaters arranged to move in opposite directions, and means, substantially as described, for simultaneously operating the beaters, as set forth.

8. In a wire-fence machine, the combination of a twister-frame, a carriage having legs for supporting said twister-frame, rollers having their standards pivoted to the legs of the carriage, and means for rigidly securing said standard to said legs, substantially as described.

9. In a wire-fence machine, the combination of a twister-frame, a carriage having legs for supporting said frame, standards pivoted to the legs and having the slotted bars and rollers, and the clamping device for securing said standards to the legs, substantially as described.

10. In a wire-fence machine, the combination of the frame, the twisters, the rollers, the levers C and C', having devices for holding the rollers in yielding contact, and a grooved step secured to one lever, C, and having a flange resting upon the other lever, C', substantially as described.

352,506. BRIDLE AND BRIDLE-BIT. WILLIAM H. SANBORN, Rochester, N. Y., assignor of one-half to William H. Stevens, Portland, Me. Filed Aug. 16, 1886. (No model.)



Claim.—1. A flexible bit having an enlarged central portion of button shape or convex form projecting above the other portions of the bit, and provided with driving-rings, and loose rings within said driving-rings, substantially as shown.

2. The combination of a driving-bridle, a flexible bit having a central enlargement or upward-projecting portion, driving-rings, and loose rings within said driving-rings, an overdraw-check attached to said loose rings, and provided at the ends with loops through which pass the driving-reins, a loop or keeper through which the two parts of said overdraw-check pass, and means for holding said keeper in place, substantially as shown.

PHOTO LITH NORRIS PETERS WASHINGTON D.C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

CLEMSON *v.* FOWLER.

Decided October 21, 1886.

1. Where a motion is made and denied absolutely and without reservation, a repetition of the same motion without first obtaining leave to make the same is irregular and unauthorized.
2. The Commissioner of Patents has authority, which should and will be duly exercised in proper cases and on proper application, to permit the amendment of preliminary statements.
3. A party to an interference who has, without negligence or carelessness, mistaken a date, or been misled into asserting an incorrect date in his preliminary statement, may thereafter, upon a clear and satisfactory showing of the reason why he was misled or mistaken, be permitted to file an amended statement which shall conform to the facts.
4. Such amendments, however, will be refused "where the error, omission, or mistakes in the first statement are directly chargeable to the carelessness, indifference, or want of attention of the party himself."

SAWS.

APPEAL from the Examiner of Interferences.

Application of Clemson filed December 29, 1885. Application of Fowler filed February 9, 1885. (Patent No. 328,019.)

Messrs. Munn & Co. for Clemson.

Mr. George W. Gregory for Fowler.

MONTGOMERY, *Commissioner:*

On the 13th of October, 1885, a patent was issued to Fowler, who at that time and ever since has resided in Bridgeport, Connecticut. Applicant Clemson filed his application after the issue of such patent to Fowler, and on the 29th of December last. On the 19th of February an interference was declared between these parties. Meantime Mr. Fowler had sold and assigned his patent and invention to the Thompsons, of New Haven, Connecticut. Mr. Fowler's preliminary statement was verified on the 11th day of March last, and filed seven days thereafter. In such statement he alleged conception in the fall of 1881, disclosure to others and reduction to practice in February, 1884. Clemson filed his preliminary statement on the day on which Fowler's statement was so verified. Clemson in his statement averred conception, disclosure, and reduction to practice all in the month of July, 1883. After the approval of such preliminary statement Clemson proceeded, took, and closed his testimony.

Motion is made on behalf of the assignees of Fowler to be permitted to amend his preliminary statement so as to allege conception in the spring of 1883, disclosure in the month of May in the same year, and reduction to practice in the month of January or February, 1884. This motion was denied by the Examiner of Interferences on the ground that "no sufficient showing was made" to authorize it. After such denial, and on the 26th of May last, another motion was made by counsel for Fowler, asking for the same order. The motion was an independent and separate one, in no way connected with the former motion, and was made without having obtained leave to so make it.

I cannot recognize the regularity of this second motion. Mr. Fowler had once moved upon what he deemed to be a proper and sufficient showing for permission to amend his preliminary statement. This motion was denied absolutely and without reservation. Fowler did not reserve or obtain permission to renew such motion, to furnish a supplemental showing, or to make a new motion. He simply comes back and assumes as a matter of right to make the precise motion over again. In analogy with all legal proceedings the denial of the first motion was conclusive upon the subject, and the second one was irregular and unauthorized, except by permission upon special application. Inasmuch, however, as applicant Fowler may desire to still further move or attempt to move in this matter, I think best while the case is before me to briefly review the situation.

The motion which is now under consideration is based upon certain affidavits which exhibit the fact that not long after the declaration of interference the assignees of Mr. Fowler sent for him to come to New Haven and see them; that he at once responded and went, without understanding what they desired of him; that when he reached there he ascertained that they wished to get the necessary facts to enable a preliminary statement to be prepared, and that he should verify such statement; that because of his ignorance of what was wanted he failed to prepare himself or to take with him any dates, books, data, or memoranda. The affidavits filed in his behalf furnish a reasonable explanation of how he came to assert in his preliminary statement that he conceived the invention in dispute in the fall of 1881. His explanation, however, of the reason why he averred disclosure to others in February, 1884, is by no means satisfactory; but in view of the entire showing, and in view of what is asserted in these affidavits as to actual disclosure in the spring of 1883, it would perhaps be unjust to refuse to put the case in shape so that proof may be given. This last remark is also applicable to his averment in regard to the reduction to practice of his alleged invention. There is, however, one important omission which ought to be fully explained. It is this: It is shown that Mr. Fowler and his assignees had counsel at Boston and other counsel at Bridgeport. On the 26th of February, 1886, counsel at Boston wrote Mr. Thompson, one of the assignees, advising him to see applicant Fowler in company with one of the Bridgeport attorneys and—

take down carefully and fully a complete history of the Fowler saw from its conception up to the time of making this application; * * * when and where he conceived his invention; * * * the names and residences of parties to whom he first disclosed it, and when and where he made his first saw and subsequent ones.

The letter then directs as follows:

If the witness relied upon to prove his disclosure is in Bridgeport or near there, I would suggest that such person be seen, to see if he can corroborate Mr. Fowler's date of disclosure, &c., *before signing the preliminary statement.*

It will be remembered that Mr. Fowler now desires to amend his preliminary statement in this most important particular of alleged disclosure to his own son, who lived in the same town with him, in May, 1884. There is no showing whatever of whether or not Mr. Fowler was so interviewed, carefully interrogated, and his statement carefully taken down, as directed, prior to his visit to New Haven, and the preparation of the preliminary statement. If such interview did take place, and if he thereafter, and before such visit to New Haven, talked with his son, it should all be shown by the affidavit of some person or persons, and if Mr. Fowler was not so interviewed and had no chance to and did not make such statement, this should be shown. It need hardly be suggested that if after the writing of this letter on the 26th day of February, 1886, and before the verification of the preliminary statement on the 11th day of the following month, Mr. Fowler had been seen by Mr. Thompson and Mr. Smith, (the attorney,) and carefully interrogated, and had made a careful review and investigation of the facts, his omission to take with him to New Haven his books, dates, and memoranda can be of very little consequence. If all this can be completely and satisfactorily explained, I see no reason why upon proper application the Examiner of Interferences should not grant permission that this motion be renewed, based upon the present and such additional showing. Counsel are, of course, aware that an applicant, to be permitted to renew or to again make a motion which has once been passed upon and denied, is and usually must be based upon the same showing on which it is expected such renewed motion will be granted, and hence as a matter of practice the two motions are in effect submitted contemporaneously.

I do not wish to direct in advance what ruling shall be made by the Examiner of Interferences. I desire to leave him at liberty, in view of what is said in this opinion, to pursue such course as seems to him right and proper. As the question is now presented to me I must decline to direct the Examiner of Interferences to grant the motion to amend. The motion was properly denied by him, and, indeed, should not in strictness have been entertained as it was presented.

Upon the general subject of the right to amend, and the propriety of permitting amendments to preliminary statements, I desire to say that I have no doubt whatever that the Commissioner has authority, which should and will be duly exercised in proper cases and upon proper application, to permit such amendments. (*Ives* v. *Lee*, MS. Vol. 29, p. 57; *Hill* v. *Bray*, MS. Vol. 29. p. 135; *Robinson* v. *Seymour*, MS. Vol. 29, p. 133; 33 O. G., 113.)

In the case of *Hill* v. *Bray* it was held by the present Commissioner, upon a satisfactory showing of sufficient reason why the mistake in his first preliminary statement occurred, that such statement might be amended.

In the case of *Robinson* v. *Seymour* it was declared as follows:

I can see no reason, however, why a party who has in good faith and without negligence or carelessness on his part mistaken a date, or mistaken what was expected of him, or who has without fault been misled into asserting a date which did not turn out to be the correct one, should be precluded afterward, upon a proper and reasonable showing of what he alleges the truth to be, and upon a clear and satisfactory showing of the reason why he was misled or induced or mistaken into averring an incorrect date of conception in his preliminary statement, from filing an amended statement which shall conform to the facts.

On the other hand it is the clear duty of the Office to refuse to permit such amendments to be made where the error, omission, or mistakes of the first statement are directly chargeable to the carelessness, indifference, or want of attention of the party himself. (See *Hopkins* v. *Le Roy*, C. D. 1880, 188; *Smith & Thomas* v. *Cowles*, 30 O. G., 343; *Abel* v. *Wilcomb*, MS. Vol. 29, p. 132; *Van Deporle* v. *Sprague*, MS. Vol. 29, p. 132.)

EX PARTE BARRICKLO.

Decided August 7, 1886.

Where an alleged invention is asserted to have been in public use and on sale for more than two years before the time of filing the application, which assertion is predicated upon affidavits or a similar *ex parte* showing, the same should be called to the attention of the Commissioner, that he may, in case the proceeding seems to be warranted, call upon applicant to show cause why an inquiry into these questions under the statute should not be directed.

MANUFACTURE OF WINDOW-SHADES.

PROTEST.

Applications of Andrew Barricklo, Nos. 192,474 and 192,475, filed February 18, 1886.

Mr. W. R. Barricklo for the applicant.

MONTGOMERY, *Commissioner:*

Against this application public use and sale are asserted and affidavits tending to establish such facts have been filed.

On the 7th day of July last an order was made by the Commissioner, in which it was directed that the files of the cases—

including all the affidavits, be sent to the Commissioner, that he may determine whether or not a fair *prima facie* presumptive case of such public use or sale is shown.

The files have been sent to and examined by the Commissioner. The result is that I think it my duty to and I hereby do require applicant to show cause to the Commissioner on Saturday the 14th instant, at ten o'clock in the forenoon, if any such cause there be, why an order directing an inquiry into the question of public use and sale should not be made.

Let a copy of this order be served on applicant.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court---Western District of Pennsylvania.

TONDEUR v. STEWART, ESTEP & CO.

Decided July 17, 1886.

1. TONDEUR—GLASS-ANNEALING FURNACES.

Letters Patent No. 258,156, granted May 16, 1882, to Cleon Tondeur, for an improvement in glass-annealing furnaces, construed, sustained, and *held* to be infringed by the defendants' furnace.

2. CONSTRUCTION OF PATENTS.

As a patent is read by persons skilled in the arts so should it be read by the court.

3. SAME.

The rule laid down in Klein *v.* Russell that in construing a patent the court should proceed in a liberal spirit, so as to sustain the patent and the construction claimed by the patentee himself, if this can be done consistently with the language he has employed, affirmed.

Messrs. Bakewell & Kerr for the complainant.

Mr. John H. Roney for the defendants.

ACHESON, *J.:*

This suit is upon Letters Patent No. 258,156, dated May 16, 1882, granted to the plaintiff for improvements in glass-annealing furnaces. The patent, which relates especially to the annealing of window-glass, shows a flattening-furnace having four flattening-stones mounted on a circular revolving table or wheel, and a continuous and straight annealing chamber, tunnel, or leer running directly from the flattening-furnace, the heated air from the flattening-oven passing by a clear draft into and through the leer and finally escaping at its outer end. Extending longitudinally through the leer and elevated above the bottom thereof are two sets of iron bars, designated *d* and *d'*, arranged side by side and placed alternately, one set reciprocating between the other, whereby the sheets of glass are supported in and carried through the leer. The bars described in the specification are supported by transverse shafts, two sets of arms being attached to each shaft, one set of arms with hinged joints for the bars *d* and one set of arms with rollers or grooved wheels for the reciprocating bars *d'*, and by means of a lever connected with one of the shafts one set of bars is elevated while the other is lowered. The motion of the bars *d*, it is stated, however,

is very small, since they can move only the distance the lever h'' moves the arm e''', which has no effect on the progress of the glass through the tunnel.

The chief function of the bars *d* is to support the sheets of glass while the reciprocating or transmitting bars *d'* (which rest on the rollers or grooved wheels and move readily back and forth in the leer) are pushed forward toward the flattening-wheel.

The described operation of the bars is as follows: When the sheet of glass by the moving of the wheel is sufficiently cooled and in proper position, it is placed on the ends of the reciprocating bars *d'*, they being advanced into the furnace. The operator at the outer end of the leer then draws the bars *d'* outward the width of the sheet. He then moves the lever so as to lower the bars *d'* and raise the bars *d*, and thus the sheet is transferred from the former to the latter, where it rests while he pushes the bars *d'* back into the furnace. He then reverses the lever and the bars *d'* take up the sheet. A second sheet is then placed on the inner ends of the bars *d'*, and the two sheets are moved down the leer and deposited on the bars *d*, and the bars *d'* moved back again; and this operation is repeated until a series of sheets fills the leer, when they are discharged from the outer end, one by one, at each reciprocal movement of the bars *d'*.

The distinguishing feature of the plaintiff's invention is this, viz., that the sheets of glass travel through the leer elevated above the floor, away from the disturbing influences of the conditions there existing, and so as to be subjected on both sides to the heated currents of air, whereby they are uniformly annealed. This feature is altogether novel. Nothing of the kind is shown in the American patent to Bieveg, or Bowen's British patent, in both of which the glass is moved along the floor of the leer and rests thereon, except during the instant of transfer from place to place.

To the objection that the plaintiff has failed specifically to claim elevated bars, it is sufficient, once for all, to say that the specification expressly declares that "a space of about one foot deep is desirable beneath the bars," and the drawings plainly show the bars to be elevated. In all the details of description the specification clearly implies such elevation. The patentee says:

The advantages and uses of my invention are apparent to those skilled in the art to which it appertains.

From the testimony of such skilled persons in the record it is seen that they understand the great merit of the invention to consist in keeping the sheets of glass as they pass through the leer constantly raised above the floor, and as a patent is read by persons skilled in the art to which it relates, so should it be read by the court. (*Loom Co.* v. *Higgins*, 105 U. S., 580.) Moreover, the first claim of the patent necessarily implies the elevation of the bars above the bottom of the leer, otherwise they could not perform their supporting function.

Upon the question of the utility of the invention I content myself with saying that the proofs thereof are unusually full and convincing.

The defendants are charged with the infringement of the first, third, and fifth claims of the plaintiff's patent. The first claim is as follows:

1. The combination of the bars *d d'*, arranged side by side and alternately between each other, the set *d* supporting the sheets of glass, while the bars *d'* are pushed toward the leer or flattening-wheel *a*, and the set *d'* supporting the sheets of glass and moving them onward and through the tunnel, substantially as set forth.

The third claim is for the furnace and tunnel, made with a continuous and straight chamber from the section of the flattening-wheel, in combination with the bars *d* and *d'*, so constructed that the bars *d'* shall enter the leer-furnace over the section of the wheel. The subject-matter of the fifth claim is the furnace with flattening wheel and tunnel, constructed and adapted to the two sets of bars *d* and *d'*, the latter being made by the grooved wheels to reciprocate and project alternately into the furnace and out of the exit, whereby the sheets of glass are received by the furnace ends of said bars and discharged by their exit ends out of the tunnel without opening the furnace or tunnel.

In the defendants' tunnel or leer the grooved wheels which support the reciprocating bars are sustained from above instead of from below, and the rest-bars are fastened rigidly to immovable cross bars, and consequently have no movement. But with these changes in construction the defendants use everything shown and described in the first, third, and fifth claims of the plaintiff's patent. Now, it is quite clear that the change in the mode of supporting the reciprocating bars is unimportant and formal. Is the change to immovable rest-bars anything else? Clearly the defendants' stationary rest-bars perform the identical supporting function which the plaintiff's bars *d* perform. And upon the slightest reflection it must be perceived that for the supporting of the sheets of glass by the bars *d*, and the supporting and moving thereof by the bars *d'*, it is altogether immaterial whether the vertical movement is divided between them or is executed by the bars *d'* alone. The principle is the same whether the one arrangement or the other be adopted. The defendants, then, employ two sets of iron bars operating substantially in the same way and producing the same results as the plaintiff's. The simple truth is that the defendants have appropriated the substance of the plaintiff's invention. But it is contended by the defendants that their immovable rest-bars are within the scope of a disclaimer, to be found in the plaintiff's specification, and that the first claim of the patent, especially in view of that disclaimer, must be limited to the bars *d* and *d'*, connected to the arms e' and e''', as particularly described. The disclaimer is as follows:

I am aware that movable bars and fixed temporary rests for the glass have long been in public use to move sheets of glass through an annealing-tunnel. Therefore I do not claim these.

This disclaimer, however, as appears from the contents of the file-wrapper, was made in view of Bowen's British patent, already referred to, and in recognition of the prior state of the art, which, as stated in the letter of the plaintiff's solicitor transmitting the disclaimer, was that "one plain set of reciprocating bars" had long been used to move glass in an annealing-tunnel. But the only previously-known rests, it is shown, were floor-rests. These rests, then, it may rationally be presumed, were in the contemplation of the patentee when he made his disclaimer, and so, indeed, he testifies. By interpreting the disclaimer as referring to such rests reasonable effect is given to it and justice is done to a meritorious inventor. In *Klein* v. *Russell* (19 Wall., 466) we are told that in construing a patent—

the court should proceed in a liberal spirit, so as to sustain the patent and the construction claimed by the patentee himself, if this can be done consistently with the language he has employed.

In the introduction to his specification we find Tondenr declaring—

My device for removing the glass out of the furnace consists of two sets of bars of iron, one of which reciprocates between the other.

The combination of these bars is the subject-matter of the first claim, and the specific function there assigned to the bars *d* is to support the sheets of glass while the reciprocating bars *d'* are pushed toward the leer-furnace. The substance of the claim is for bar-rests in combination with the transmitting-bars. To import into the claim the arms *e'* and *e'''* and the hinge-joint would be to introduce that which the patentee carefully omitted. The use of the reference-letters *d* and *d'* is merely to designate with greater certainty the elements of the combination claimed, and does not imply the limitation insisted on by the defendants. (*Grier* v. *Castle*, 17 Fed. Rep., 523.) The conclusion that no such limitation was intended is the clearer, and indeed becomes irresistible, when we regard the second claim of the patent, which in terms embraces the arms *e'* and *e'''*, in combination with the bars *d* and *d'*. To adopt the defendants' construction would be to make two distinct claims of the patent cover, not different things, but one and the same thing, a result to be avoided, if possible.

Let a decree be drawn in favor of the plaintiff, and adjudging that the defendants infringe the first, third, and fifth claims of the patent.

U. S. Circuit Court—District of Connecticut.

AMERICAN PAPER BARREL COMPANY v. LARAWAY.
(Two Cases, Nos. 516 and 517.)

Decided July 16, 1886.

1. INJUNCTION—INVENTOR ESTOPPED TO DENY ORIGINALITY OF HIS INVENTION.
   On a motion for a preliminary injunction to restrain an inventor and assignor of letters patent from infringing them, he is estopped to deny that he was the first inventor.
2. TERRITORIAL INTERESTS—RIGHTS OF OWNERS OF.
   The owner of letters patent for two counties in New York would not have the right to manufacture the patented machines in Boston for use in Ohio.
3. LIMITATION OF UNITED STATES PATENT TO EXPIRE WITH PRIOR ENGLISH PATENT.
   The fact that United States patents are not limited upon their face to expire with the life of a prior English patent is not held in the second circuit to affect their validity.
4. PRACTICE—AFFIDAVITS FILED OUT OF TIME NOT CONSIDERED.
   Where, by stipulation, the time within which evidence to show cause upon motions for preliminary injunctions was limited to expire on a certain date, and the hearing was to be had as soon thereafter as the court could give it, *held* that affidavits filed after such date, without any stipulation or order of court permitting it, could not be considered.
5. MATTERS OF DEFENSE—ORIGINAL, WHAT ARE.
   That the patent sued on has expired by reason of the expiration of foreign patents for the same invention is an original defense, and should not be left to be introduced as surrebuttal.
6. CONSTRUCTION OF CLAIM—INFRINGEMENT.
   A patent on a machine for making barrel-heads from paper-pulp contained a claim for "the combination of the piston, the resisting surface opposed to the piston, and the laterally-removable matrix-case, all substantially as described." The specification described the matrix-case as made in sections pivoted or hinged together. *Held* that the hinged features of the matrix-case were not a part of this claim, and that said claim was infringed by a combination of the same parts operating in the same way, although the matrix-case was made of a single piece.

MOTIONS for preliminary injunctions.

Mr. William E. Simonds for the plaintiff.

Mr. David G. Gordon and *Mr. Charles E. Mitchell* for the defendant.

SHIPMAN, *J.*:

These are two motions for preliminary injunctions in the above-entitled cases. No. 516 is a bill in equity to restrain the infringement of three Letters Patent Nos. 206,396, 243,677, and 244,678, respectively, dated July 30, 1878, June 28, 1881, and June 28, 1881, all granted to the defendant, and assigned by him to the plaintiff, the first two being for improvements in the manufacture of barrel-heads and other articles from paper-pulp, and the third being for machinery for molding barrels from paper-pulp. No. 517 is a bill in equity to restrain the infringement of Letters Patent No. 258,236, dated May 23, 1882, issued to the defendant and Dwight Slate, assignees to the plaintiff, for a machine for molding barrel-heads from pulp.

On August 1, 1876, the defendant assigned to the plaintiff, a corporation established for the purpose of manufacturing barrels from pulp, an invention specified in an application for a patent which had previously been made, and agreed to assign to it all inventions applicable to paper-pulp vessels which he might make during seven years from that date. In pursuance of that agreement the patents in suit were assigned. From August, 1876, to January, 1884, the defendant was a director in said corporation, and during substantially the same period was in its employ as superintendent of machinery, upon a salary varying from one thousand to two thousand five hundred dollars per annum. The salary ceased on December 15, 1883. A serious difficulty seems to have existed between the defendant and S. M. Hotchkiss, an officer of said corporation, and the former left its service, and for most of the time since has been occupied in Boston in the manufacture of pulp-barrel machinery. On December 2, 1884, two letters patent (Nos. 308,615 and 308,616) for such machinery were issued, the first to the defendant and W. P. Laraway, assignors to the defendant and John F. Seiberling, the second to the defendant, assignor to the same two persons.

Suit No. 516.

The important novel features of construction contained in the machinery which is described in Nos. 206,396 and 243,677 are specified by the patentee as follows:

First, the idea or principle of perforated movable walls which will compress the pulp and express the water; second, the combination of the side compressors with the interspace compressors; third, the mold so constructed that the sides and one end of the hollow article can be formed and compressed at once.

The important feature of No. 243,678 was a matrix composed of hinged inner staves and outer staves radially moving inwardly, the interspaces being provided for by interstaves, both inner staves and outer staves being perforated, the outer face of the inner staves and the inner face of the outer staves being grooved and covered with a finely-perforated mold-face.

The defendant sets up in his affidavit a variety of defenses—viz., that the claims of Nos. 243,677 and 243,678 were anticipated by a patent to Wheeler and Jerome; that the machine described and claimed in No. 243,678 was in public and open use in Medina, New York, for two years before the date of the application for said patent; that the defendant is equitably entitled to have the title to the three patents for the counties of Orleans and Niagara, in the State of New York, conveyed to him, which the plaintiff refuses to do; that the plaintiff acquiesced in the defendant's manufacture; that he is a workman employed by the day and has no interest in the new machine; that a British patent to one Lake, dated June 25, 1877, was granted for the subject-matter of the three patents, and that the American patents are not limited on their face to expire with the Lake patent, and are therefore void, and that the new machine does not infringe.

Mr. Laraway's antagonism against the persons with whom he was formerly associated has led him to unnecessarily decry his own inventions.

No time need be spent upon the alleged anticipation by the Wheeler and Jerome patent. Mr. Laraway was the assignor of the patents in controversy, and upon this motion he is estopped from saying that he was not the first inventor. Indeed, this point was not made in the argument.

The alleged public use of the Medina machine is in conflict with Mr. Laraway's statements as an applicant for a patent, and with his testimony upon a question of interference. The affidavits in the case lead me to the opinion that his former statements were correct.

Considerable space is given in the affidavits to the alleged equitable title of Laraway to two New York counties. I do not deem it wise to settle this difference upon *ex parte* affidavits. If the defendant's claim is true, it affords no excuse for his manufacturing in Boston infringing machines to be used in Ohio; and, as it is stoutly denied, the doctrine that he who seeks equity must do equity will hardly allow a court to permit the defendant to continue infringement until the merits of this controversy have been thoroughly ascertained.

The points in regard to acquiescence by the plaintiff, or that Laraway is employed by the day and has no interest in the machine, are not of sufficient importance to spend time upon. His position in regard to the infringing mechanism is very different from that of a person who works under the orders of another without any pecuniary interest in the machine upon which he works.

The fact that United States patents are not limited upon their face to expire with the life of a prior English patent is not held in this circuit to affect the validity of the United States patents. (*Canan* v. *Pound Manufacturing Company*, 23 Fed. Rep., 185.)

The question of infringement is the one of importance. If the defendant has built in Boston but one set of machinery, it was at one time constructed in accordance with his Patent No. 308,615, of December 2, 1884. He says that the machine "which is complained of" is not in accordance with that patent, in that it does not have the interspace compressors therein described, but has instead the spring-plates of the Wheeler and Jerome patent, and that these interspace compressors are unperforated. He intends it to be understood that he has been engaged upon only one set of machinery. If that is true, it is also true that the machine contained, in July, 1885, the interspace compressors of Patent No. 206,396, and was made like the other two patents in controversy, and had the continuous series of perforated external side compressors of No. 243,677, and that it infringed the third claim of No. 206,396, the first, second, and third claims of No. 243,677, and all the claims of No. 243,678.

If the defendant has altered the original machine in accordance with the statements in his affidavit, it infringes the first, second, and fifth claims of No. 243,678. I do not thoroughly understand Mr. Laraway's account of the construction of the machine so far as the fifth claim is concerned. His affidavit does not give a clear statement of the way in which he makes the inner core; but, so far as I can understand it, the fifth claim is infringed.

The orders to show cause upon these motions were dated March 18, 1886, and were returnable on March 26. On that day, upon the defendant's motion for further time, it was ordered that he should have till April 5 to file answering evidence, and that the plaintiff should have until April 9 to file rebutting evidence. On April 5 the respective counsel stipulated that the defendant should have till April 12 to file his evidence, and that the plaintiff should have till April 19 to file rebutting evidence, "and that hearing shall then be had as soon as the court will hear us." Affidavits on both sides were filed accordingly. On April 30, 1886, without any further stipulation, and without any order or consent of the court, the defendant filed seven affidavits in reply to the plaintiff's rebutting affidavits, and which relate to some one of the defenses which have been mentioned other than non-infringement. They are mostly cumulative, in some instances stating alleged facts in addition to those previously stated. The case must rest entirely upon the affidavits that were previously presented. In them the defendant should have stated his entire defense, which should not be divided into fragments.

The defendant also filed on April 30 a Canadian patent, issued to him October 11, 1876, for five years, which, it is said, was for the same invention described in the three American patents, and, having expired, the American patents expired also in October, 1881, three and one-half months after two of them were issued. This was an original defense, and should not have been left to matters of surrebuttal. Ample time was given for the

preparation of the defense. I shall not therefore consider the questions that may arise upon this patent.

Suit No. 517.

The matrix case of No. 258,236 is thus described by the patentee in his specification:

This consists, speaking generally, of a band or ring, which forms the periphery, exterior, or circumference of the barrel-head, which is within or forms a part of the piston-chamber while a barrel-head is being formed, has the barrel-head formed within it, and after the head is formed is removed from the piston-chamber, carrying the barrel-head, and the barrel-head then taken from it. This hoop, ring, or band is made in sections *k k' k'*, pivoted or hinged together. Sections *k k* are pivoted together by pivot *l*. Sections *k' k'* are hinged to sections *k k* by pivots *l' l'*, in order that the hoop may be opened to remove a barrel-head.

This barrel-head is in shape a disk with a turned-up peripheral rim. In other and general terms, a round box with very low walls or sides.

The first claim of the patent, and the only one which is said to be infringed, is as follows:

1. The combination of the piston, the resisting-surface opposed to the piston, and the laterally-removable matrix-case, all substantially as described, and for the purpose specified.

The defendant says, in substance, that the part of his machine which corresponds to the matrix-case, the whole machine being described in No. 308,616, is a shallow pan, called in the patent "a drawer," formed from a single piece of metal, having flaring sides, and removable vertically from the machine when the barrel-head has been formed. His machine has the piston and the resisting surface of No. 258,236. It has a laterally removable matrix case or pan made of a single piece, instead of being made in sections, because the barrel head is shaped differently from that of the former patent; but the hinged feature of the matrix-case is not a part of the first claim. There is no substantial difference between the two devices so far as the first claim is concerned.

Let there be a temporary injunction restraining the infringement of the third claim of No. 206,396, the first, second, and third claims of No. 243,677, the five claims of No. 243,678, and the first claim of No. 258,236.

U. S. Circuit Court—Southern District of New York.

BROWN *v.* LAPHAM *et al.*

Decided April , 1886.

1. LICENSE—ESTOPPEL.

A licensee under a patent is estopped to deny its validity on any question arising out of that relation between the parties, (*Kinsman* v. *Parkhurst*, 18 How., 289;) but it does not follow that he will be always estopped because he has stood in that relation

2. WHEN LICENSEE MAY CHALLENGE VALIDITY OF PATENT.

When a licensee under a patent stands out from under the license, and claims nothing from it, and does nothing more under it, with full knowledge to the licensor of his position, he is at as full liberty to contest the patent as any one.

3. WHEN INFRINGEMENT BY LICENSEE WILL BE ENJOINED.

Taking and operating under a license is sufficient evidence of acquiescence to warrant an injunction without any previous adjudication, if the patent is unchallenged.

Mr. B. F. Clark for the plaintiff.

Mr. Samuel Greenbaum for the defendants.

WHEELER *J.*:

The defendants appear to have been licensees of the plaintiff under his Patent No. 264,854, dated September 26, 1882, for an improvement in stylographic pens, and afterward to have repudiated the license and continued their infringement in defiance of the patent. The plaintiff has moved for a preliminary injunction. On this motion the defendants have filed affidavits tending to show that a manufacturer for the plaintiff of another style of pen, and his own workmen, devised this improvement for the plaintiff, and that they were the inventors of it, althongh the plaintiff got the patent for it. The plaintiff relies upon the estoppel of the defendants to deny the validity of the patent growing out of the license and the operating under it by them. There is no fair question but that a licensee under a patent is estopped to deny its validity on any question arising out of that relation between the parties. (*Kinsman* v. *Parkhurst*, 18 How., 289.) It does not follow that he will be always estopped because he has stood in that relation. When he stands out from under the license, and claims nothing from it, and does nothing more under it, with full knowledge to the licensor of his position, he would appear to be at as full liberty to contest the patent as any one. In this case, taking and operating under the license would appear to be sufficient evidence of acquiescence to warrant this injunction without any previous adjudication if the patent were unchallenged. As it is, the plaintiff must stand upon the validity of his patent and maintain it against this attack. On cross-examination of these witnesses, and the whole evidence when put in, this attack may not amount to anything decisive. As it is, upon this question as submitted, the affidavits raise sufficient doubts about the patent to stand in the way of granting this motion now.

Motion denied.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 37—No. 7. TUESDAY, NOVEMBER 16, 1886. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

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INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 190 pp.—

Bound half-turkey	2 50
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Patents	398—	No. 352,507 to No. 352,904, inclusive.
Designs	9—	No. 16,984 to No. 16,992, inclusive.
Trade-Marks	13—	No. 13,798 to No. 13,810, inclusive.
Labels	12—	No. 5,021 to No. 5,032, inclusive.
Reissues	2—	No. 10,782 to No. 10,783, inclusive.
Total issue	434	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	1	
Arizona Territory	1		Nevada		
Arkansas	3		New Hampshire	6	
California	13		New Jersey	13	
Colorado	2		New Mexico Territ'y		
Connecticut	12		New York	63	5
Dakota Territory	3		North Carolina	3	
Delaware	1	1	Ohio	20	3
District of Columbia	5		Oregon	3	
Florida	2		Pennsylvania	53	3
Georgia	5		Rhode Island	3	
Idaho Territory			South Carolina		
Illinois	34	3	Tennessee	1	
Indiana	12		Texas	4	
Indian Territory			Utah Territory		
Iowa	10		Vermont		
Kansas	6		Virginia		
Kentucky	6		Washington Territ'y		
Louisiana	1		West Virginia	1	
Maine	5		Wisconsin	12	
Maryland	5	2	Wyoming Territory		
Massachusetts	31	1	United States Army		
Michigan	15	1	United States Navy		
Minnesota	8				
Mississippi			Total to citizens of the United States	373	19
Missouri	10				
Montana Territory					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	3	1
Austria-Hungary	1		India	1	
Barbadoes			Ireland	2	
Belgium			Mexico		
Brazil			New Zealand	1	
British Columbia			Norway		
Canada	5		Russia		
Central America			Scotland		
Colombia, U. S. of			Spain		
Cuba			Sweden	1	
Denmark	1		Switzerland		
Ecuador					
England	17		Total to citizens of foreign countries	34	6
France	2	5			

DESIGNS.

16,984.—ADVERTISING-SIGN.—*Arthur D. Giannini*, New York, N. Y. Application filed September 28, 1886. Serial No. 214,805. Term of patent 7 years.

16,985.—HEATING STOVE AND FURNACE.—*Frank A. Magee* and *Sylvester Van Vorst*, Chelsea, assignors to *The Magee Furnace Company*, Boston, Mass. Application filed September 30, 1886. Serial No. 215,015. Term of patent 14 years.

16,986.—FOLDING BED-FRAME.—*Louis E. Matuska*, Chicago, Ill. Application filed April 5, 1886. Serial No. 197,916. Term of patent 7 years.

16,987.—SHOW-CASE.—*John H. Mullan*, Philadelphia, Pa., assignor to *Levi F. Smith*, same place. Application filed September 22, 1886. Serial No. 214,278. Term of patent 7 years.

16,988.—FONT OF PRINTING-TYPE.—*Carl Schraubstadter, Jr.*, St. Louis, Mo. Application filed February 10, 1886. Serial No. 191,518. Term of patent 14 years.

16,989.—CASE FOR MECHANICAL THERMOMETERS.—*Edgar W. Upton*, Peabody, Mass. Application filed June 29, 1886. Serial No. 206,660. Term of patent 7 years.

16,990 and 16,991.—HEATING-STOVE.—*Thomas White*, Quincy, Ill. Applications filed October 20, 1886. Serial Nos. 216,776 and 216,777. Term of patents 7 years.

16,992.—BOTTLE-STOPPER.—*August H. Wirz*, Wallingford, Pa. Application filed August 28, 1886. Serial No. 212,135. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,796.—OLIVE-OIL.—*A. Gounelle*, trading as *Plagniol de James*, Marseilles, France. Application filed September 18, 1886. Used sixty years.

"A view showing an olive-tree, and male and female figures engaged in gathering olives, the whole inclosed in a circular border."

13,799.—OLIVE-OIL.—*A. Gounelle*, trading as *Plagniol de James*, Marseilles, France. Application filed September 18, 1886. Used sixty years.

"The name 'JAMES PLAGNIOL' and an heraldic design comprising a Swiss cross."

13,800.—OLIVE-OIL.—*A. Gounelle*, trading as *Plagniol de James*, Marseilles, France. Application filed September 18, 1886. Used sixty years.

"A shield or coat of arms, accompanied by four prize medals and the signature 'PLAGNIOL' in fac-simile."

13,801.—OLIVE-OIL.—*A. Gounelle*, trading as *Plagniol de James*, Marseilles, France. Application filed September 18, 1886. Used sixty years.

"A blue Swiss cross upon a white oval."

13,802.—OLIVE-OIL.—*A. Gounelle*, trading as *Plagniol de James*, Marseilles, France. Application filed September 18, 1886. Used since the year 1878.

"The words 'JAMES PLAGNIOL' and representations of four prize medals."

13,803.—MEDICINAL PREPARATION.—*Kalle & Co.*, Biebrich, Germany. Application filed September 24, 1886. Used since August 14, 1886.

"The word 'ANTIFEBRIN.'"

13,804.—PRINTING-INK.—*The Queen City Printing Ink Company*, Cincinnati, Ohio, New York, N. Y., and Philadelphia, Pa. Application filed September 25, 1886. Used since January, 1879.

"The letters 'H. D.'"

13,805.—DETACHABLE DRIVE-CHAINS.—*Link Belt Machinery Company*, Chicago, Ill. Application filed September 21, 1886. Used since December 1, 1880.

"The word 'LINK-BELT.'"

13,806.—SPECIFIC FOR UTERINE DISEASES.—*Elizabeth A. Nobles*, Springfield, Ohio. Application filed August 7, 1886. Used since June 1, 1886.

"A monogram formed of the letters 'A U S.'"

13,807.—FRUIT TONIC.—*Edwin H. Plummer*, Detroit, Mich. Application filed October 1, 1886. Used since July 1, 1886.

"A triangle inclosing the monogram 'C F T,' and inclosed within a circle, above which appears the word 'CALIFORNIA,' and below which circle appears the words 'FRUIT TONIC.'"

13,808.—CHAMPAGNE-WINE.—*Julius Somborn*, New York, N. Y. Application filed October 23, 1886. Used since December 29, 1884.

"The words 'GRAND SEC.,' printed in script on a white label."

13,809.—MEDICINAL PREPARATION OF AN ALTERATIVE OR TONIC CHARACTER.—*Hulbert H. Warner*, Rochester, N. Y. Application filed September 28, 1886. Used since September 15, 1886.

"The representation of a log cabin used in connection with the word 'CABIN.'"

13,810.—PRINTING-INKS.—*John Woodruff's Sons*, Philadelphia, Pa. Application filed October 9, 1886. Used since 1872.

"The name 'FRANKLIN PRINTING INK WORKS.'"

LABELS.

5,021.—Title: "DOWNS' SELF ADJUSTING CORSET."—*Lewis A. Downs*, Chicago, Ill. Application filed October 16, 1886.

5,022.—Title: "SMITH'S CHILL SYRUP."—*George E. Smith*, Laurel, Del. Application filed October 19, 1886.

5,023.—Title: "THE MORAVIAN INSTANT RELIEF FROM PAIN."—*George G. Stacy*, Boston, Mass. Application filed October 21, 1886.

5,024.—Title: "DR. BURY'S RELIABLE CAMPHOR OINTMENT."—*Robert P. Tunnard*, West Troy, N. Y. Application filed October 21, 1886.

5,025.—Title: "DR. BURY'S RELIABLE LUNG BALSAM."—*Robert P. Tunnard*, West Troy, N. Y. Application filed October 21, 1886.

5,026.—Title: "DR. BURY'S RELIABLE CATARRH SNUFF."—*Robert P. Tunnard*, West Troy, N. Y. Application filed October 21, 1886.

5,027.—Title: "THE PART-PAYMENT CLOTHING COMPANY."—*Nathan A. Bacharach*, Baltimore, Md. Application filed October 22, 1886.

5,028.—Title: "CHEMICAL AND VEGETABLE COMBINATION" (FOR A BURNING FLUID.)—*Jacob Erb*, Philadelphia, Pa. Application filed October 12, 1886.

5,029.—Title: "THE SURE CURE KIDNEY & LIVER REMEDY."—*John Keeshan*, Cincinnati, Ohio. Application filed October 22, 1886.

5,030.—Title: "PATRICK'S PREPARED SANITARY COFFEE."—*G. W. Patrick & Co.*, Chicago, Ill. Application filed October 22, 1886.

5,031.—Title: "BLACK PILLS."—*Walter H. O'Neal, Charles S. Duncan*, and *W. M. Duncan*, Gettysburg, Pa. Application filed October 23, 1886.

5,032.—Title: "ICELAND MOSS" (FOR A MEDICINE.)—*Fred L. Whitcomb*, Boston, Mass. Application filed October 25, 1886.

DISCLAIMER.

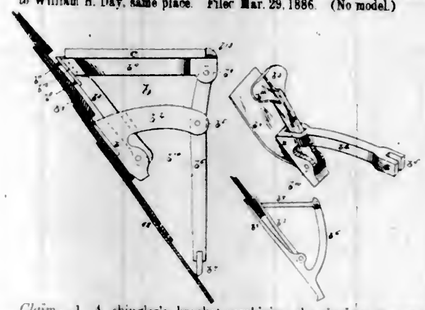
286,429.—*John M. Haigis*, Beaver Falls, Pa. IMPROVEMENT IN GRINDING-MACHINES. Patented October 9, 1883. Disclaimer filed November 9, 1886, by the patentee.

Enters his disclaimer to "the first claim of said patent, which is in the following words, to wit: 1. 'The combination, in a grinding-machine, of a grindstone, a pivoted holder, E, for the article to be ground, a slide, F, pivoted plate G, provided with a way on which said slide moves, a bed, D, supporting the holder and appurtenances, suitable levers for moving the bed to and from the stone, means for reciprocating the holder past the face of the stone and simultaneously rocking the holder, substantially as set forth.'"

PATENTS

GRANTED NOV. 16, 1886.

352,507. BRACKET FOR USE IN SHINGLING ROOFS. JOSEPH B. ALLEN and HERBERT W. TICHENOR, Irvington, N. J.; said Allen assignor to William H. Day, same place. Filed Mar. 29, 1886. (No model.)



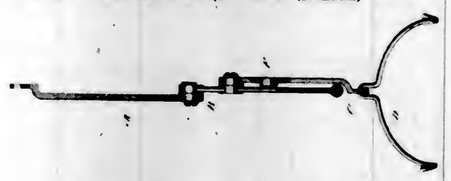
Claim.—1. A shingler's bracket combining therein jaws to grasp the shingle, one of which is provided with teeth b^{10}, a support resting at its inner end upon the outer of said jaws, and adapted to force the jaws automatically into holding engagement with the shingle, and a leg supporting the outer end of said support, all said parts being arranged and operating substantially as set forth.

2. In a bracket for shingler's use, the combination of the jaws b^2 b^3, support b^9, bearing on one of said jaws, and a leg, all said parts being arranged and adapted to operate substantially as herein set forth.

3. In combination, the plate b', having flat jaw b^2, arm b^4, and bearing b^{10}, a leg, b^8, jaw b^3, and a support, b^9, all arranged and combined substantially as and for the purposes set forth.

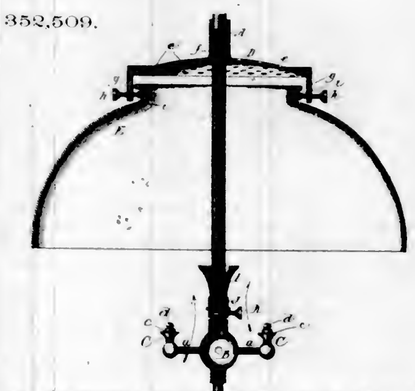
4. In combination, the plate b', having jaw b^2, arm b^4, and bearing b^{10}, a co-operating jaw, b^3, pivoted on said bearing b^{10}, and provided with teeth b^{11}, a lever-like leg, b^8, fulcrumed on said arm b^4, and a horizontally-arranged support, b^9, pivoted at the top of said leg and resting on said co-operating jaw, all substantially as herein set forth.

352,508. BICYCLE-SUSPENDER. SETH W. BARRITT, Meriden, assignor of two-thirds to Wilbur E. Nettleton, Meriden, and Joseph B. Renshaw, Hartford, Conn. Filed Sept. 10, 1886. (No model.)



Claim.—A bicycle-suspender consisting of the arm A, the lever B, and the arm C, constructed and combined substantially as described.

352,509. SUPERHEATING GAS-BURNER. SILAS D. BALDWIN, Chicago, Ill. Filed May 1, 1886. (No model.)



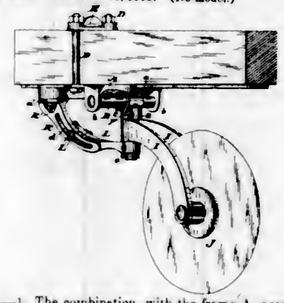
Claim.—1. The combination, with a gas-burner, of the bulb B, supporting the burner-tube, the inverted bell-shaped superheater I, located above said bulb, the perforated disk D, supported above the superheater, and pipes for conveying gas to the bulb and burner, substantially as described.

2. The combination of the bulb B, a pipe for conveying gas to said bulb, the burners C, each having a tip, *d*, a curved under surface, and a circular overhanging flange, *c*, just below said tip, the inverted bell-shaped superheater I, and the tubes *a a*, connecting the bulb and burners, said tubes being arranged beneath the overhanging flanges of the burners, substantially as described.

3. The combination of gas-burners, a globe, a perforated disk, D, arranged above said burners, and provided with lugs and screws *h*, to receive and hold the globe, non-conductors of heat, *i*, between the screws and globe, and a central support for the disk, substantially as described.

4. The combination of the bulb B, gas-burners supported by said bulb, a tube for conveying gas to the bulb, a superheater, I, a coupling, J, and gas-regulator K, substantially as described.

352,510. ROLLING COLTER. LORENZO D. BALL and JOHN T. BENDER, Canton, Ohio. Filed Dec. 10, 1885. (No model.)



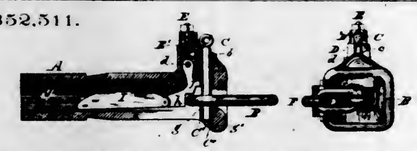
Claim.—1. The combination, with the frame A, provided with the semicircular groove *a* and elongated slots C, the extensions or arms *b b*, curved bolt B, and king-bolt F, mounted thereon, of the clamping plate or bar E, having the elongated slots C', and the beam of a plow, substantially as and for the purpose described.

2. The frame A, having the semicircular groove *a*, ears *b*, and slots C, and clamped to the plow-beam by the slotted bar E, in combination with the curved bolt B, king-bolt F, having cross-head and stop G, colter-arms I, with recess H, and the adjustable slotted arms K L, substantially as shown and described.

352,511. CAR-COUPLING. BERNARD BIRD, Buffalo, N. Y. Filed Feb. 10, 1886. (No model.)

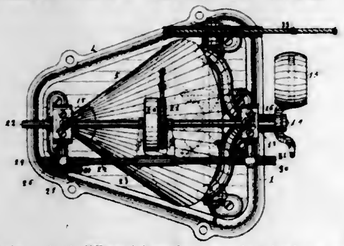
Claim.—The combination, with the draw-head and coupling-link, of the pivoted dog H, bolt E, with spiral spring E', and the counterpoise

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I, pivoted to said dog and arranged to operate within the passage J, as and for the purpose set forth.

352,512. DIFFERENTIAL MOTION-TRANSMITTER. CARL F. W. BÖDEKER, New York, N. Y. Filed May 4, 1886. (No model.)



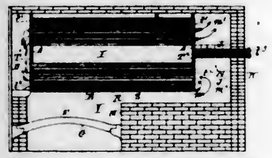
Claim.—1. A differential motion-transmitter having a truncated conical drum, 5, in combination with the three miter-gears 7 and 8 and 8', and the friction-clutch 11, clutch-lever 12, reversing-levers 13, and cam-shaft 14, by means of which a reversible stop-motion is obtained, substantially as described, and for the purposes set forth.

2. A differential motion-transmitter having a truncated conical-shaped drum, in combination with the small drum 20, grooved pulley 21, shaft 22, with adjustable bearings 18, and stationary section 6 of the conical drum 5, whereby a reversible stop-motion is transmitted from the conical drum to the small drum 20, substantially for the purposes specified.

3. A differential motion-transmitter having a small drum, 20, actuated by a conical drum, in combination with the yoke 23, guide-shaft 24, brackets 25, direction-pulleys 26 and 30, spiral spring 27, and cords 28, 29, and 31, the treadle 36, vertical slide 40, flat spring 42, spiral spring 43, and direction-pulleys 44 and 44', whereby the differential motion of the transmitter is produced and regulated, substantially as described.

4. The combination, in an instrument or machine, of the mechanical devices by which a reversible differential stop-motion is obtained—namely, a truncated conical-shaped drum, 5, miter-wheels 7, 8, and 8', friction-clutch 11, small drum 20, grooved pulley 21, shaft 22, with adjustable bearings 18, yoke 23, guide-shaft 24, pulleys 26 and 30, spring 27, and cords 28, 29, and 31, the treadle 36, vertical slide 38, detents 40, and springs 42 and 43, all substantially as herein described, and for the purposes set forth.

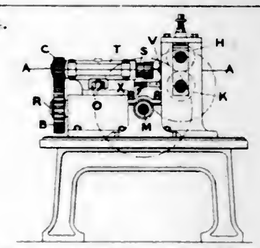
352,513. STEAM-BOILER. GEORGE L. BOTTUM, Cohoes, N. Y., assignor to Margaret A. Bottum, same place. Filed Nov. 23, 1885. (No model.)



Claim.—The combination, with the fire-box and the vertical end flue, J, having partition N, of the boiler provided with an upper and a lower series of fire-tubes, and rearwardly-extended water-tubes projected across the end flue and opening into the boiler and having their outer ends closed, substantially as described

352,514. MACHINERY FOR MANUFACTURING FENCING-WIRE. FREDERICK W. BRAMPTON, Birmingham, County of Warwick, England. Filed Jan. 4, 1886. (No model.) Patented in England Dec. 23, 1884, No. 16,833; in France Dec. 23, 1885, No. 173,097; in Belgium Dec. 23, 1885 No. 71,369; in Canada Jan. 14, 1886, No. 23,176; in Victoria Feb. 2, 1886 No. 4,412; in South Australia Feb. 5, 1886, No. 646; in Brazil Feb. 9, 1886, No. 322; in New South Wales Mar. 16, 1886, No. 2,575; in Queensland June 28, 1886, No. 102, and in Argentine Republic July 22, 1886, No. 519.

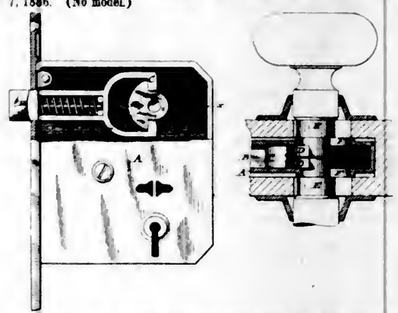
Claim.—1. In machinery for forming wire into a spiral or screw shape for fencing purposes, the combination of an anvil or fulcrum plate through which the wire passes with a rotary shaft, and a die-plate carried



thereby having an opening for the passage of the wire eccentric to the axis of said shaft, substantially as set forth.

2. In machinery for forming wire into a screw or spiral shape for fencing purposes, the combination of feeding-rolls with an anvil or fulcrum plate and a hollow sleeve carrying a die-plate and a friction-roll eccentric to the axis of the wire plate and sleeve.

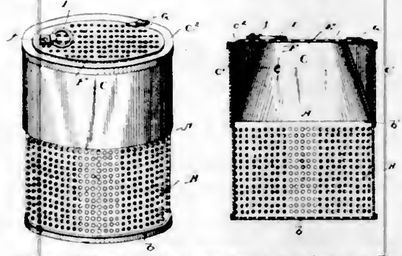
352,515. LATCH. CHARLES W. BULLARD, Chicago, Ill. Filed Oct. 7, 1886. (No model.)



Claim.—1. The combination, in a door-latch, and with its rose, or combined rose and escutcheon, of the latch-case provided with an enlarged orifice of sufficient capacity to admit the lugged end of the knob-shank, and having a contracted horizontal continuation, F', and the knob-shank E, provided with a projecting cam or lugs, D, the parts being adapted to engage together in the manner essentially as herein described.

2. The combination, in a door-latch, and with its rose, or combined rose and escutcheon, of the latch-case provided with a vertically elongated orifice, F, of a like configuration to the lugged end of the knob-shank and having a contracted horizontal continuation, F', the end of which is concentric with the axis of the knob-spindle in use, and the knob-shank E, having projecting cam or lugs D, the parts being adapted to engage together in manner essentially as herein described.

352,516. COFFEE OR TEA POT STRAINER. WILLIAM H. BURDEN and FREDRICK C. BURDEN, Cleveland, Ohio. Filed Apr. 7, 1886. (No model.)

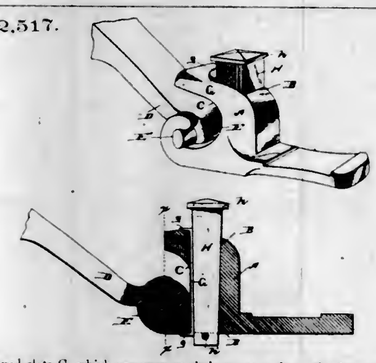


Claim.—As a new article of manufacture, a strainer for coffee and tea pots, consisting of a perforated receptacle or vessel, B, and a float connected to the upper end of the vessel and having an outer concentric shell and an inverted conical shell arranged within the outer shell and connected thereto at its lower edge, a swinging cover connected to the float to close the opening E therein, and a keeper for confining the free edge of the cover, substantially as described, for the purpose set forth.

352,517. THILL-COUPLING. DANIEL B. CAHOW, Akron, Ohio. Filed Sept. 1, 1886. (No model.)

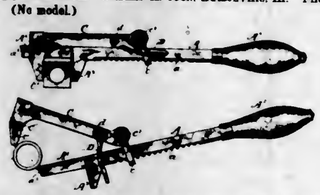
Claim.—In a thill-coupling, the shackle having the opening B and

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the curved slots C, which are open at their upper ends on the front side and are closed at their lower ends, said slots C communicating with the openings B, in combination with the draft or thill iron D, having the eye seated in the slots C, the plate G, passed through the openings B and bearing against the outer face of the eye of the thill-iron, and the wedge H, also passed through the openings B, to keep the plate G pressed against the outer surface of the thill-eye, as set forth.

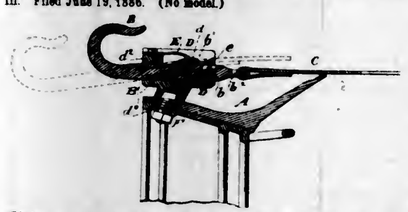
352,518. WRENCH. ALBERT A. COON, Hutsonville, Ill. Filed Aug. 6, 1886. (No model.)



Claim.—1. A wrench consisting of a lever-bar provided with notches along one side, a stationary jaw, A^3, and one end provided with an acute edge or teeth, in combination with a hinged jaw perforated as at c^3, and a clevis, substantially as and for the purpose described.

2. In a wrench, the combination of a lever-bar provided with notches along one side, a hinged jaw, and a clevis, with a thumb-lever pivoted to the hinged jaw and provided with a notch to engage with the clevis, substantially as and for the purpose described.

352,519. HARNESS CHECK-HOOK. PATRICK W. CORCORAN, Seneca, Ill. Filed June 19, 1886. (No model.)



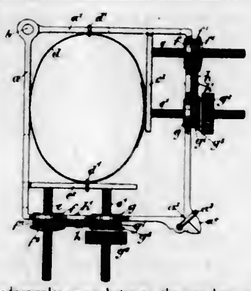
Claim.—1. The harness check-hook shank B', having the hole *b*, in combination with a trough, D, having the rearwardly-inclined stud *e*, as and for the purpose described.

2. The harness check-hook shank B', having the opposite grooves, *d d*, inclined toward as well as open at the front, and provided with the rear pockets, *d' d'*, as and for the purpose set forth.

3. The combination of the harness-saddle, a trough, D, having side grooves, *d d*, and rearwardly-inclined bottom stud, *e*, and the loose check-hook B on shank B', the said shank having hole *b*, cross-slot b^2, side studs, *b' b'*, and an attached strap, C, as and for the purpose described.

352,520. DEVICE FOR MEASURING CIRCLES AND OVALS. L. COURLANDER, Croydon, County of Surrey, England. Filed Apr. 27, 1886. (No model.) Patented in England Nov. 18, 1885, No. 14,131.

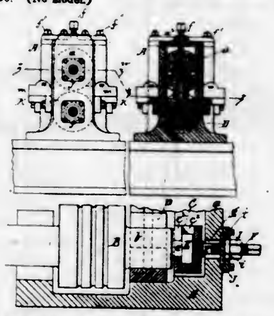
Claim.—1. The combination of a square or an approximately square frame, produced by hinging together two pieces, each one bent to a right angle, and therefore forming two sides of said frame, with two bars parallel, respectively, to the two adjacent sides of the frame, each bar rigidly connected to a screw device working in the frame side parallel to said bar, by which device it can be advanced to or withdrawn from the opposite frame side, and with a spring measuring and girthing band con-



tained in the quadrangular space between the two bars and the respectively opposite sides of the frame, said band being compressible by the advancement of and expansible after the withdrawal of said bars, substantially as and for the purpose described.

2. The combination, with the hinged frame and band compressing and releasing bars of an instrument for measuring circular or oval shapes or objects, of two scales and an index upon the end of each bar working over or by the side of said scales, respectively, substantially as and for the purpose described.

352,521. ROLLING-MILL. FRED H. DANIELS, Worcester, Mass. Filed Mar. 15, 1886. (No model.)



Claim.—1. The housing for continuous rolling-mills, having its front upright constructed, as herein shown and described, as a single narrow standard, the metal whereof is disposed to embrace three sides of a square or space within which the roll-journals and their bearing-boxes are inclosed, substantially as set forth.

2. A housing-frame for continuous rolling-mills, having its front upright formed as a single standard, and provided with openings therethrough for receiving or accommodating devices for effecting longitudinal adjustment of the roll-axles, substantially as set forth.

3. The housing-frame having its front upright formed as a single standard and provided internally with guideways for supporting the roll-journal boxes and the adjusting-boxes, whereby the roll-axles are retained in proper relation longitudinally, substantially as set forth.

4. The combination, in a continuous rolling-mill, of a series of roll-supporting housings severally constructed with two uprights for supporting the rear journal-boxes, and a single upright for supporting the front journal-boxes, said single upright being arranged to give an enlarged space between the housings of the adjacent pairs of rolls in front of the guides, substantially as and for the purpose set forth.

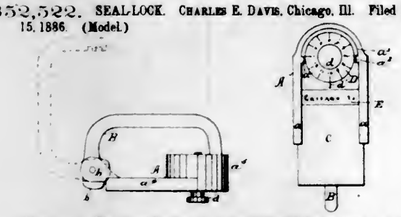
5. In a metal-rolling mill, the roll-axle provided with a flange head or enlargement, in combination with an adjusting-box confining the same, and means for effecting adjustment thereof in a direction longitudinally of the axis, for the purpose set forth.

6. In a rolling-mill, the roll-axle provided with the flanged head E, in combination with an adjusting-box embracing said head, and a screw-threaded stud connected with said box and extending through the housing at the end of the axle for effecting longitudinal adjustment of the roll, in the manner substantially as set forth.

7. The combination, substantially as described, of the roll-axle provided with the flange or head E, the adjusting-box C, the stud F, having the screw-threaded end passing through said box and bearing against the end of the axle, and the rotative nut I, confined to the housing-standard, for the purposes set forth.

8. The combination, in a continuous rod-rolling mill, of the housing-frames having a narrow front standard, as *a*, and guide-supporting girts K, having their forward ends cut away or curved toward said standards, as at *n*, to give space between the adjacent supports, substantially as hereinbefore set forth.

352,522. SEAL-LOCK. CHARLES E. DAVIS, Chicago, Ill. Filed Mar. 15, 1886. (Model.)

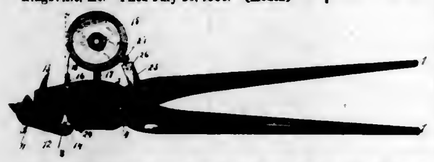


Claim.—1. The combination of a permutation-lock with an opaque frangible seal held securely in position by the locking of the lock, and serving to cover, and by its opacity to conceal, the registering-points of the permutation devices, substantially as and for the purpose specified.

2. The combination of a permutation-lock with an opaque frangible self-luminous seal held securely in place by the locking of the lock, and serving to cover, and by its opacity to conceal, the registering-points of the permutation devices, and by its luminosity to show in the night-time the effective continuance of such concealment, substantially as described.

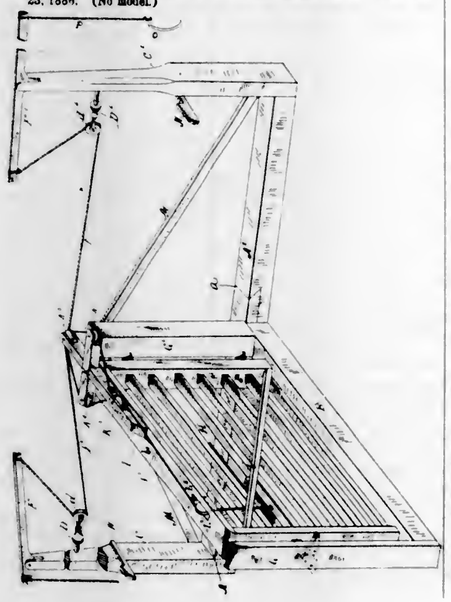
3. The combination of a permutation-lock having the dial thereof set flush with the face of the lock, grooved flanges along the sides of body of the lock, and a shackle, with pivoted end made eccentric, with an opaque frangible seal, substantially as and for the purpose set forth.

352,523. TOOL FOR WORKING WIRE. ADOLPHUS M. DELANY, Kingsville, Mo. Filed July 26, 1886. (Model.)



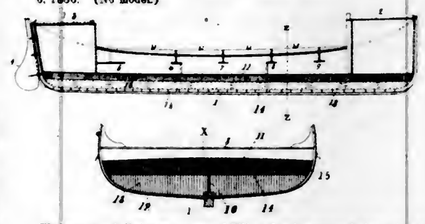
Claim.—The pliers above described, having the handles 11, lower jaw, 2, having the groove 9, the notch 11 and the groove 12 in said notch, the arm 14, rising perpendicular from the lower edge of said jaw and tripping the lever 19, the upper jaw, 3, pivoted to the said lower jaw, and having the bite 15, the guides 16, and the arms 20, the lever 19, pivoted in the said arms, the spiral spring 23, secured to the outer end of said lever 19 and to the lower end of jaw 2 in eye 24, elbow-arm 17, bearing the spool 18, and the brace 25, having the elbow-arm 26 and screw 27, all substantially as shown and described, and for the purposes set forth.

352,524. GATE. JARRET W. DENTON, Henderson, Ky. Filed Apr. 23, 1886. (No model.)



Claim.—The combination, with posts G and G', of the swinging gate provided at its top and rear end with a cruciform cap-piece having rollers k k' k^2 k^3 at the ends of its arms, and operating-cords f'' f^3, guided by said rollers and connected with the gate-latch, all constructed and arranged substantially as described.

352,525. LIFE-BOAT. DAVID P. DOBBINS, Buffalo, N. Y. Filed July 6, 1886. (No model.)



Claim.—1. A light water-proof filling for the space below the deck of a life-boat, consisting of reeds or rushes having their ends rendered water-proof by paraffine or other similar material and secured together and to the boat, substantially as and for the purposes described.

2. A life-boat provided with a cork filling below the deck, a supplementary deck above the cork filling, and a filling of the space between the supplementary deck and deck 11 of rushes or other similar light material, substantially as and for the purposes specified.

3. In a life-boat, the combination of a cork filling secured in place in the lower part of the hold, consisting of cork in sheets or slabs set up edgewise and secured together by nails or the equivalent thereof, and a filling of lighter material extending above the cork up to the under side of the deck, thereby filling the whole space under the deck, as and for the purposes specified.

4. In a life-boat, the combination of a cork filling in the lower part of the hold, consisting of cork sheets or slabs secured together and rendered water-proof, and a filling of rushes set up vertically and having their ends rendered water-proof and extending upward to and filling all the space between the deck and the cork filling, substantially as and for the purposes described.

352,526. CAR-COUPLING. JOHN F. DUFF, Murphysborough, Ill. Filed Sept. 30, 1886. (No model.)



Claim.—1. In a car-coupler, a draw-head recessed and formed with a transverse bar, in combination with a gravity locking-pawl formed with a locking-shoulder and operating-shoulder at its rear end, and with a cam-lever pivoted in said chamber and under and in contact with said operating-shoulder, substantially as specified.

2. In a car-coupler, the combination of a draw-head formed with a recess and transverse bar, with a locking gravity-pawl loosely mounted on the transverse bar and removable from the chamber, and formed with a locking-shoulder and a slanting operating-shoulder, and with a cam-lever pivoted in said recess and in contact with the operating-shoulder, substantially as specified.

3. The combination of the draw-head A, having the recess A' and cross-bar A^2, with the pawl C, having the shoulders C^2 C^3, and the pivoted cam-lever D, formed with the cam portion D', substantially as specified.

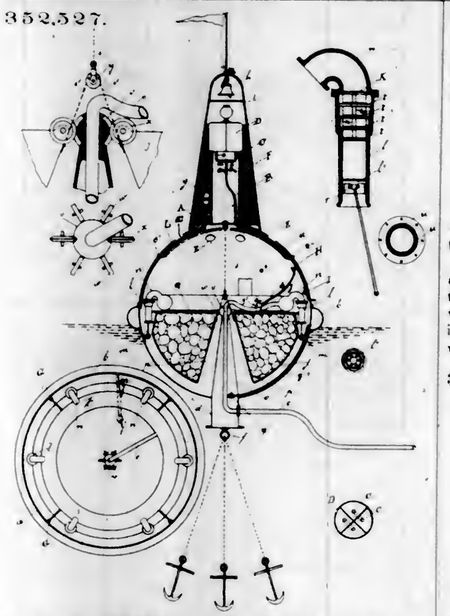
352,527. SIGNAL-BUOY. TERRENCE DUFFY, San Francisco, Cal. Filed June 27, 1885. (No model.)

Claim.—1. In a signal-buoy, the combination of buoy-body and the signal device, as g, with the interior swinging part, j, and air-pumps l, substantially as and for the purpose set forth.

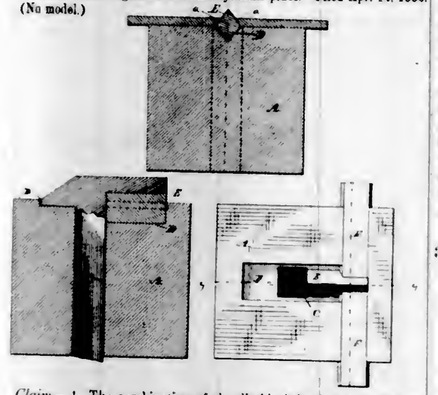
2. In a signal-buoy, the combination of the buoy body or shell, a weighted part, as j, capable of oscillation, the air-pumps connected to it and to the shell of the buoy, a signal, adapted to be operated by compressed air, means for supplying air thereto from the air-pumps, an internal air-chamber, and the tube e, for conveying air from said chamber, as set forth.

3. In a signal-buoy, the combination of the buoy-body and tower thereon, the compartment-reservoir D, connecting-pipe B, and branch pipes c c, said reservoir being located in the tower of the buoy, as described.

352,527.



352,528. DIE FOR FORGING WRENCH-HEADS. G. FRANK EVANS, Portland, Me., assignor to A. C. Libby, same place. Filed Apr. 14, 1886. (No model.)



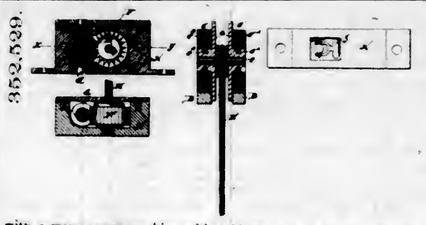
Claim.—1. The combination of the die-block having the recess on its upper surface to receive the jaw of the wrench, the opening through it for the passage of the wrench-shank, and the die-recess running from said opening to the rear end of the recess for the jaw, with the die four-sided and equilateral in cross-section and fitting into the die-recess, as set forth.

2. The combination of the die-block provided with the recesses B D f f and opening C, the four-sided die equilateral in cross-section, the sliding locking-bars F F, having their inner edges beveled to rest against the surface of the die.

3. The combination of the recessed die-block and the detachable die, as set forth.

4. The combination of the recessed die-block, the detachable die, and means, substantially as described, to hold the die firmly in place.

352,529. DOOR-HANGER. CHARLES W. EWING, Ypsilanti, assignor to Edward S. Grece, Detroit, Mich. Filed Jan. 30, 1886. (No model.)

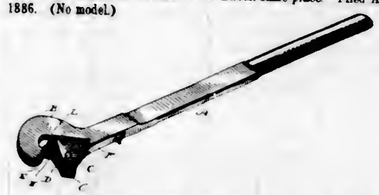


Claim.—1. The combination, in a door-hanger, of the supporting-wheels consisting of the face-plates c', having hubs c^2, and the elastic disks or wheels C^2 interlocked with said hubs at the sides of the face-plates, a spindle connecting the wheels, and a roller on the spindle between said wheels, substantially as described.

2. In a door-hanging device, the combination, with a supporting-rod, of a worm-wheel screw-tapped thereon, having in combination therewith a worm-screw meshing with said wheel, substantially as and for the purpose described.

3. The combination, in a door-hanger, of two supporting-wheels, a spindle connecting the latter and provided with a wheel intermediate the supporting-wheels, and a rod suspended from the intermediate wheel, with a bearing-plate for attachment to a door, a worm-wheel journaled in the plate and screw-tapped on the rod, and a worm engaging the worm-wheel, substantially as described.

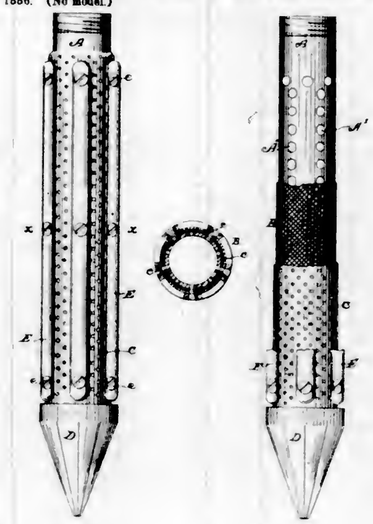
352,530. PIPE-WRENCH. JAMES FATKIN, Winifrede, W. Va., assignor of one-half to Thomas O. M. Davis, same place. Filed Apr. 29, 1886. (No model.)



Claim.—1. A hand-wrench consisting of an operating-handle, a stationary hook-shaped jaw, cheek-pieces projecting from said handle in front of the stationary jaw, a movable jaw pivoted between said cheek-pieces, said movable jaw having a rounded projection in front of the pivot, and a retaining-spring outwardly curved at its free end, and bearing against the said rounded portion of the movable jaw, substantially as described.

2. A hand-wrench consisting of an operating-handle, a stationary hook-shaped jaw, cheek-pieces projecting from said handle in front of the stationary jaw, a movable jaw pivoted between said cheek-pieces, said movable jaw having a rounded projection in front of the pivot, a flat surface upon its opposite side, a hollowed-out portion in front of the rounded projection, and a retaining-spring outwardly curved at its free end, bearing against the said rounded portion of the movable jaw, the free end of the spring being adapted to rest within the hollow portion of the movable jaw when such jaw is open, substantially as described.

352,531. DRIVE-WELL POINT. WILLIAM F. FELTEN, Merrill, Wis., assignor of one-half to Armenigle Bernier, same place. Filed May 26, 1886. (No model.)



Claim.—The herein shown and described well-point, consisting of the following elements: the tube A, having a series of perforations longitudinally arranged in parallel rows, surrounding screens, bars located opposite the spaces between the rows of perforations, and serving the double purpose of clamping the screens between them and the tube, and a barrier or guard for preventing injury to the screens, screws passed through the bars and screens and screwed into the tube for retaining the bars in place, and a point secured to the lower end of the tube, and having its base bulging and extended beyond the sides of said tube, substantially as shown, and for the purposes described.

352,532. **FASTENING FOR SHOES, GLOVES, &c.** IVAN FOX and GUSTAV E. HOLLE, Philadelphia, Pa. Filed Mar. 20, 1886. (No model.)



Claim.—1. The combination of a hasp having a throat or eye and a spring, a hook-provided lever pivoted to the hasp, and a hook-provided staple having a slot, notch, or seat for the spring, substantially as and for the purposes set forth.

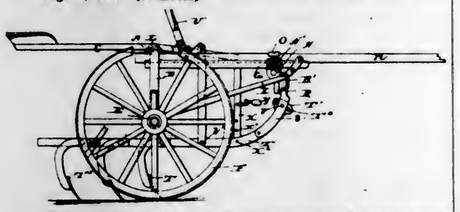
2. The combination, to form a fastening of the class herein recited, of a hasp having a throat or eye and a spring-tongue, a hook-provided lever pivotally connected with the hasp, the hook of which lever is adapted upon the rotation of the lever to enter the eye of the hasp, and a hook-provided staple having a slot, notch, or seat, which is adapted to be engaged by the hook-provided portion of the lever, and to be deflected by said lever into the throat or eye of the hasp so as to occasion the engagement of the spring-tongue within its slot, notch, or seat, substantially as and for the purposes set forth.

3. The combination of the hasp having a throat or opening and a spring-tongue, and also having a pivotally-connected hook-provided lever, with the hook-provided staple having a slot, notch, or seat, and guards or keepers, substantially as set forth.

4. The combination of the hasp having a throat or eye and a spring, a hook-provided lever having a hooked nose, and ears or bearings intermediate between its hooked nose and its handle, by which it is pivoted, and a hook-provided staple having a slot, notch, or seat for the spring, substantially as and for the purposes set forth.

5. In a fastening of the class herein recited, the combination of the hasp having the throat or eye and the spring, the hooked-nosed lever pivoted to the hasp at a point between its hook and its handle, and at a point in advance of the throat of the hasp, and the hook-provided staple having a slot, notch, or seat, substantially as set forth.

352,533. **CULTIVATOR.** DANIEL D. FUNK, Fremont, Ohio. Filed Aug. 24, 1886. (No model.)



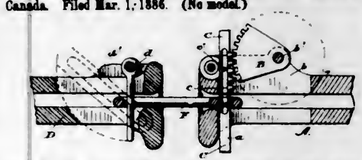
Claim.—1. In a sulky-cultivator, the combination of the arched axle, the yoke having the rear ends of its arms attached to the axle, the transverse draft-bar clamped to the arms of the said yoke and adjustable longitudinally thereon, and the cultivator-beams connected to the said draft-bar, substantially as described.

2. The combination, in a sulky-cultivator, of the draft-bar, the hangers R, laterally adjustable thereon, the draft-arms S, connected to the said hangers, and the cultivator-beams connected to the draft-arm, substantially as described.

3. The combination of the sulky-frame having the draft-bar with the hangers R, hinged to the said draft-bar, the draft-arms attached to the said hangers, the cultivator-beams attached to the draft-arms, and the evener or double-tree having the depending hanger-rods X connected to the cultivator-beams, and the single-trees attached to the said hanger-rods, whereby the draft is applied directly to the cultivator-beams, substantially as described.

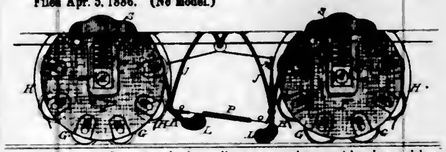
4. The combination, in a sulky-cultivator, of the draft-bar, the hangers R, hinged thereto, the draft-arms swiveled to the said hangers and having the transverse openings S', the cultivator-beams pivoted to the draft-arms and having the openings P^2 at their upper ends, adapted to coincide with the opening S', and the bolts or pins V, adapted to enter the said openings S' and P^2, substantially as described.

352,534. **CAR-COUPLING.** ROBERT GEMMELL, Columbus, Ontario, Canada. Filed Mar. 1, 1886. (No model.)



Claim.—In a car-coupling, the combination of the draw-head A, having a ratcheted vertically-movable pin, C, and a toothed cam, B, engaged with said pin, the draw-head D, having a swinging coupling-pin, *d*, and the link F, having an opening, *f*, to engage the vertically-movable pin C, and a slot, *f'*, to engage the swinging pin *d*, substantially as described.

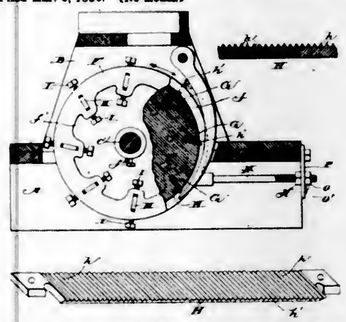
352,535. **CAR-TRUCK.** AUGUSTUS W. GETCHELL, Cleveland, Ohio. Filed Apr. 5, 1886. (No model.)



Claim.—1. In a truck for railway-cars, the combination, with a non-rotating axle fixed in suitable hangers and brackets attached to the car-body and provided with the fixed bearing-beams B, of the circular rotating plates E F, carrying the rollers G G, said rollers being carried by the movement of said plates around, over, and down to take their places in quick succession beneath the said beams and upon the railway-tracks, substantially in the manner described, and for the purpose specified.

2. The brake mechanism consisting of the rock-shafts I I, journaled in the hangers J J, and having the crank-arms K K, carrying the brake-shoes L L, also having the levers M, connected with cords to be operated from the car-platforms, and having the arms O O, united by a spring, P, all constructed, combined, and arranged to operate substantially as and for the purpose specified.

352,536. **POTATO-GRATER.** GEORGE W. GOODALE, Concord, Mass. Filed Mar. 6, 1886. (No model.)



Claim.—1. As a new article of manufacture, the herein-described grating-knife having the beveled outer edge, A', and the transverse V-shaped grating-teeth on that side of the knife below the bevel-edge, as set forth.

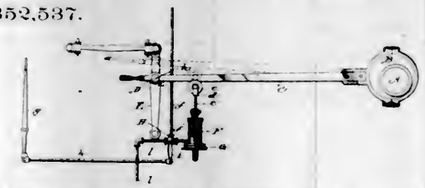
2. In a machine for grating potatoes, the combination of the rotating roller or cylinder having the grooves or recesses with the knives H, located in the said grooves or recesses, and having their outer edges projecting beyond the face of the roller or cylinder, and V-shaped grating-teeth extending transversely across one side of the knife, a portion of the teeth along the entire length of the knives being exposed beyond the roller or cylinder, as set forth.

3. In a machine for grating potatoes, the combination, with the roller or cylinder, of the knives H, fitted thereto and having their outer edges projecting beyond the face of the roller or cylinder, and transverse grating-teeth *h*, extending across the under side of the knives at an angle to the outer edges thereof, as set forth.

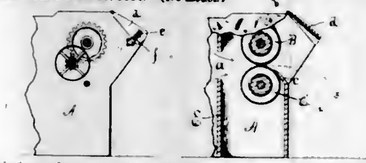
352,537. **STEAM-ENGINE.** ANDREW GRAN, Menominee, Mich. Filed Mar. 29, 1886. (No model.)

Claim.—In combination with the eccentric-rod C, the steam-cylinder F, the piston *b*, piston-rod *c*, the upper end of which rests under the eccentric-rod C, the rocker-arm E, connecting with the valve-gear of the engine and having a pin, *k*, a notch formed in the rod C to receive the pin, the end of the rod beyond the pin providing a handle, the steam-cylinder and its piston being located on the other side of the pin, pipes for admitting steam to and exhausting it from the cylinder, a valve for controlling the passage of steam, and lever-connection for operating the valve, as set forth.

352,537.

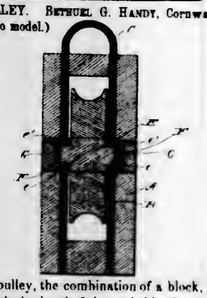


352,538. **COTTON-CONDENSER.** THOMAS S. GREENMAN, Mystic Bridge, assignor to the Standard Machinery Company, Mystic River, Conn. Filed June 18, 1886. (No model.)



Claim.—In combination with the condensing-rollers B C, an inclosing-case extending beyond said rollers, guards *b c*, and a deflecting-hood hinged adjustably to said case at the delivery side, substantially as described, and for the purpose specified.

352,539. **PULLEY.** BETHUEL G. HANDY, Cornwall, N. Y. Filed Apr. 1, 1886. (No model.)



Claim.—1. In a pulley, the combination of a block, the independent bearings fitted in the block, the shaft journaled in the bearings, a sheave carried by the shaft, and the stops affixed rigidly in and concealed by the block and in contact with the bearings for retaining them against movement, substantially as described.

2. The combination, in a pulley, of the independent bearings, the exteriorly-threaded stops affixed rigidly in the block and fitted against the bearings to retain them against lateral movement, and the shaft having the trunnions journaled in the bearings and the shoulders fitted against the bearings, and the sheave fitted loosely on the shaft, substantially as described.

3. In a pulley, the combination of a block having a strap, C, on its inner sides, the bearings fitted in the strap and the block, and a shaft journaled in the bearings and carrying a sheave, substantially as described, for the purpose set forth.

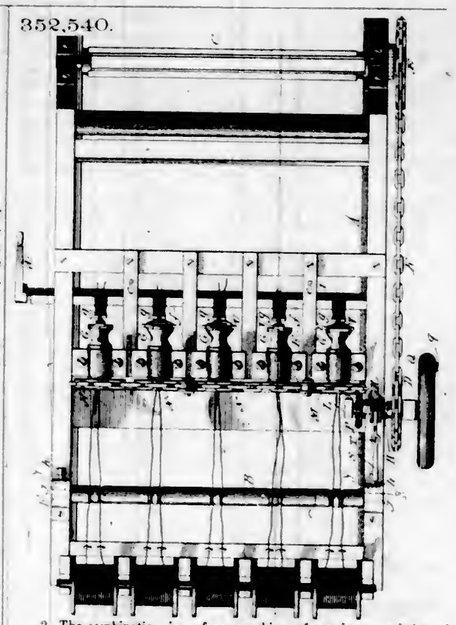
4. The combination of the rotatable shaft carrying the loose sheave, the bearings loosely mounted in the pulley-block and having the shaft journaled therein, and the fixed stops for retaining the bearings against longitudinal play, substantially as described.

5. In a pulley, the combination of a block, the independent hollow bearings fitted therein, a tubular shaft journaled in the bearings, a sheave carried by the shaft, the hollow stops secured rigidly in the block and concealed from view thereby and in contact with the bearings, and a central pin passing through the shaft, its bearings, and the stops, substantially as described, for the purpose set forth.

352,540. **FENCE-MACHINE.** ARCHIMEDES HAYNES, Springfield, Ill. Filed Apr. 17, 1886. (Model.)

Claim.—1. The combination, in a fence-machine, of the double clutch R, the shipper-lever S, the sprocket-wheel D, and means for connecting it with the sprocket-wheel E on the end of the reel, and the bevel-gear P and intermeshing bevel-gear O, secured to the twister G, substantially as shown, and for the purpose specified.

352,540.

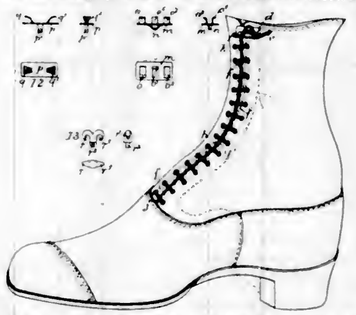


2. The combination, in a fence-machine, of a twister consisting of a stem, G, sprocket-wheel N, sliding wire-guides U, and set-screw W, with the tension-roll and operating mechanism, substantially as shown, and for the purpose stated.

3. The combination, in a fence-machine, of the tension-roller B, the box J, the slide Y, and the set-screw *h*, substantially as shown, and for the purpose specified.

4. The combination, in a fence-machine, of the hand-lever *d* and connecting mechanism, conjointly operating the stops *c* and presser-fingers *g*, with the twisting apparatus, substantially as shown, and for the purpose stated.

352,541. **WIRE LACING.** HENRY HEARD and HERBERT C. HEARD, 24 Newport Road, Cardiff, County of Glamorgan, England. Filed Nov. 2, 1885. (No model.) Patented in England Aug. 22, 1885, No. 9,970; in Belgium Oct. 20, 1885, No. 70,575; in France Oct. 22, 1885, No. 159,192; in Austria-Hungary Oct. 26, 1885, and in Canada Jan. 7, 1886, No. 23,088.



Claim.—1. A flexible metallic lace consisting of several metal wires twisted, plaited, or woven together, in combination with a solid metal tag at each or both of the ends of said lace, each tag consisting of the ends of the wire strands of the lace united and mutually incorporated by solder or molten metal, substantially as hereinbefore described.

2. In combination with a flexible composite metallic wire lace for connecting the adjacent edges or surfaces of flexible material or materials, a fastener or locking device to which the two ends of said lace can be fastened, one end permanently and the other releasably, said fastener or locking device consisting of a plate having an eye formed on its under face, to which the first-above-mentioned lace end can be fastened permanently, and having three pins projecting from its upper face, which are set alternately a little out of line with each other, substantially as hereinbefore described.

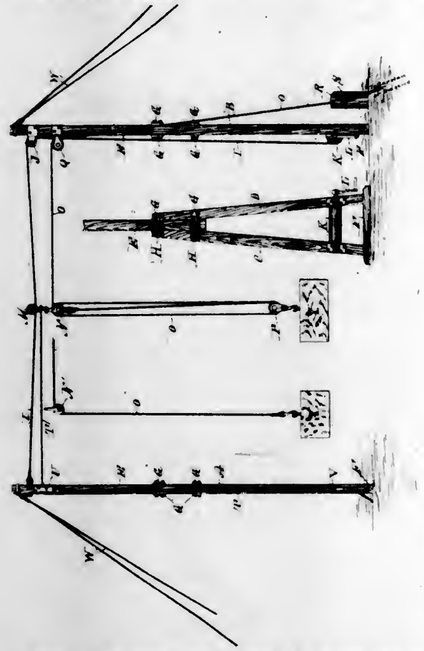
3. The combination of a boot and a flexible metallic lace consisting of several metal wires twisted, plaited, or woven together, said lace being furnished with a solid metal tag at one end, consisting of the ends of the metal wires united and mutually incorporated by solder or molten metal, with a fastener or locking device to which the untagged end of the lace can be fastened permanently and the tagged end releasably, said fastener or locking device consisting of a plate having an eye formed on its under surface, to which the untagged end of the lace can be permanently fastened, and having also three pins on its upper face set thereon alternately a little out of line with each other, substantially as hereinbefore described.

352,542. HAME-FASTENER. WELLINGTON INGALLS and FREDERICK A. BAILEY, Mattawamkeag, Me. Filed Nov. 23, 1885. (No model.)



Claim.—The hame-fastening consisting in the combination of the hook A, having the tubular shank *a*, provided with notches a^3 at its end *a'*, the hook B, having the shank *b*, provided with a toothed rack, the catch-lever C, having the ends *d* and c^2 and the ears *c*, located as described, the pin *c'*, and the spring D, the end c^2 bearing on the shank *a* when the device is closed, and the ears *c* catching on the notches a^3 when the device is open, as and for the purposes set forth.

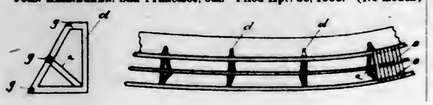
352,543. DERRICK. NICHOLAS JENSEN, Milwaukee, Wis. Filed Mar. 25, 1886. (No model.)



Claim.—1. The combination of the posts A B, the latter being provided with a pulley, J, and a windlass, K, the supporting-rope I, attached to the post A and passing over the pulley J on the post B, and winding upon a windlass, K, the traveling pulley M, provided with a retrieving-rope, T, the pulley-block N, and the hoisting-rope O, substantially as described.

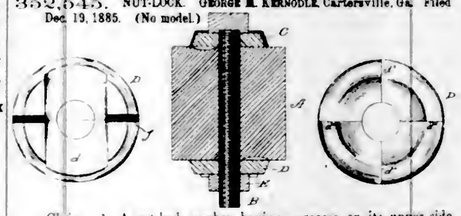
2. The combination of two posts, A and B, the supporting-rope I, affixed to post A and running over pulley J, attached to post B, and winding on windlass K, the traveling pulley M, provided with retrieving-rope T and supporting the two pulleys N and P, and the hoisting-rope O, substantially as described.

352,544. PROTECTIVE FRAME-WORK FOR LEVEES, DAMS, &c. JOHN KERNAGHAN, San Francisco, Cal. Filed Apr. 20, 1885. (No model.)



Claim.—The combination, with a series of triangular bents having diagonally-arranged bracing-bars and notches, of a series of longitudinal stringers seated in said notches and secured to the bents, and a series of vertical slats or planks secured to the stringers, as set forth.

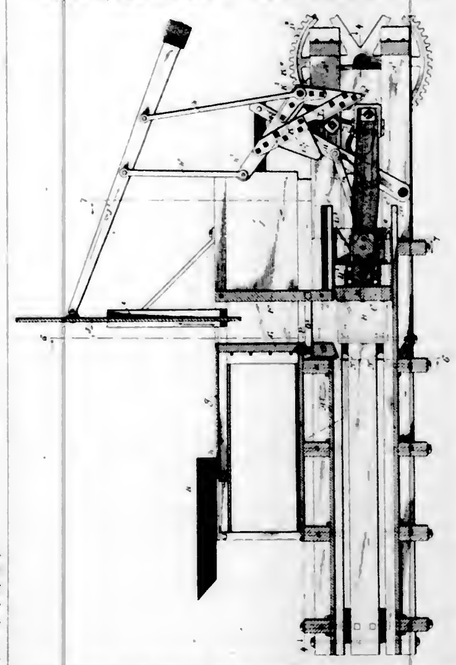
352,545. NUT-LOCK. GEORGE M. KERNODLE, Cartersville, Ga. Filed Dec. 19, 1885. (No model.)



Claim.—1. A nut-lock washer having a recess on its upper side to receive the nut and a series of circumferential locking projections on its under side formed on the arc of a circle in their radial widths and tapered or sloped rearwardly in their circumferential length, whereby they will slide upon the surface of the beam or bar and become embedded therein when the said washer is turned, substantially as described.

2. A lock-nut washer provided with a recess in its front side to receive the nut, a series of projections on its rear side sloping rearwardly to form locking-teeth, a pair of which is located on diametric opposite sides of the washer at right angles to the nut-receiving recess, and a groove formed at right angles to the recess and in line with the termini of the locking-teeth, to facilitate the separation of the washer, substantially as hereinbefore set forth.

352,546. HAY-PRESS. JOHN LA DOW, Trumansburg, N. Y., assignor to Gregg & Co., same place. Filed Feb. 5, 1886. (No model.)

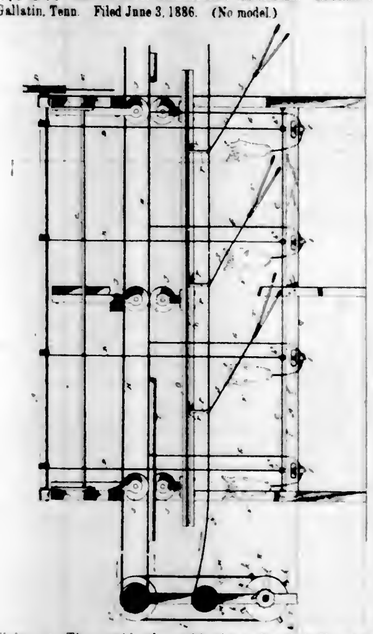


Claim.—1. In a hay-press, the combination, with suitable compressing and condensing chambers, of a follower, a crank and pitman for reciprocating the follower, the pivoted rock-frame K, the lower portion of which, K^3, is located in the path of the pitman and the upper portion of which is provided with cams L', the walking-beam J', the feeder J and suitable supports therefor, and connections between the rock-frame and walking-beam, whereby the latter is positively actuated at each movement of the rock-frame, as set forth.

2. In a hay-press, the combination, with compressing and friction chambers framed as described, a follower, a pitman, a crank, and suitable wheel-work for reciprocating the follower, of the rock-frame K, supported upon axis K', with its lower portion, K^3, located in the path of the pitman, a walking-beam, J', having arms *k* secured thereto and supported upon axis K', and links k^2, extending from the outer end of frame K and pivotally secured thereto, whereby the walking-beam is oscillated whenever the pitman strikes the lower end of the rock-frame, and a feeder, J, pivotally connected to the outer end of the walking-beam and actuated positively by the movements thereof, as set forth.

3. In a hay-press, the follower C, consisting of the wooden head D, side pieces, D', extension-guides D^2, and hollow bosses *d'*, in combination with suitable pitman provided with pivot-plates d^2, and a connecting-pin, d^3, as set forth.

352,547. DEVICE FOR RELEASING ANIMALS. ANDREW C. LEE, Gallatin, Tenn. Filed June 3, 1886. (No model.)

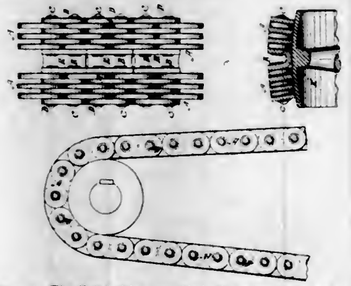


Claim.—1. The combination, with the endless belt H and means for imparting motion to the same, of the cords G, attached at one end to said belt and at the other to the ring of the halter, substantially as described.

2. The combination, with the shaft A and cords B, attached thereto, as described, of the pins *b*, attached to the free ends of said cords, and provided with eyes b^2, and the rod C', passed through the eyes of all the pins on one side of the building, substantially as and for the purpose specified.

3. The combination with the endless belt H, means for imparting motion to the same, pulleys J J, and cords G, attached to said belt, of the supports L for said cords, substantially as described.

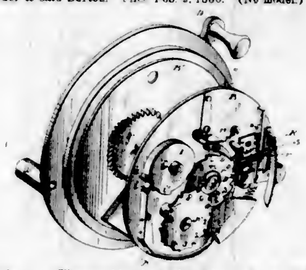
352,548. MACHINE-BELTING. JOHN LEE and JAMES LEE, Hepperholme, County of York, England. Filed Mar 27, 1886. (No model.) Patented in England Sept. 2, 1884, No. 11,873.



Claim.—1. The link belting provided with joints both in the direction of its length and transverse of its length, substantially as described.

2. The link belting composed of a series of two or more comparatively narrow ribbons of linked belting, united together from side to side at even distances apart by flexible joints E, substantially as described.

352,549. WATCHMAN'S ELECTRIC SIGNAL BOX. WILLIAM W. LE GRANDE and GEORGE W. BURTON, Louisville, Ky.; said Le Grande assignor to said Burton. Filed Feb. 9, 1886. (No model.)



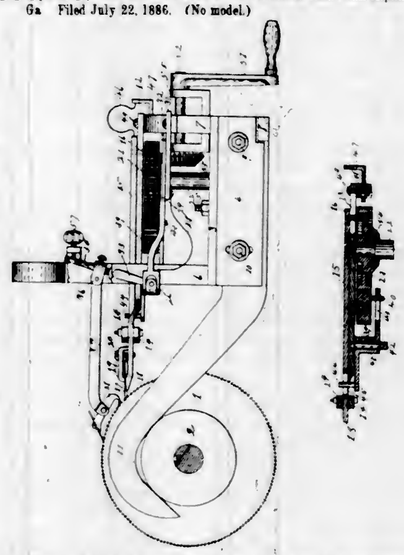
Claim.—1. The combination, with the handle, shaft D, spring, and signal-wheel, of the toothed registering-wheel, the pivoted rod R, the trip-rod carried by said pivoted rod and having a foot to engage the registering-wheel, and suitable means connected with shaft D for operating said pivoted rod, substantially as described.

2. The combination, with the pivoted rod R, arranged to operate the registering devices, of the electro-magnet T in the box-circuit and the armature-lever having a shoulder or stop arranged to stand in the path of said lever when the box-circuit is broken, substantially as and for the purpose set forth.

3. The combination, with the registering mechanism and a lever or arm for operating the same, of the electro-magnet having an armature-lever arranged to arrest said arm when the magnet is not energized, as set forth.

4. The combination, with the registering mechanism, the pivoted arm R, arranged to operate the same, and the electro-magnet having its armature-lever provided with a shoulder or stop arranged to stand in the backward path of said arm when the magnet is not energized, of the make-and-break wheel having one of its teeth arranged to close a circuit through said magnet when said pivoted arm reaches said shoulder or stop, substantially as described

352,550. GIN-SAW GUMMER. SINGLETON A. MAXWELL, Alpharetta, Ga Filed July 22, 1886. (No model.)



Claim.—1. In a machine for gumming gin-saws, the combination of the file-arm 15, pivoted at its rear end in the slot 13, the guides 14, the spring 46, and actuating mechanism, substantially as described.

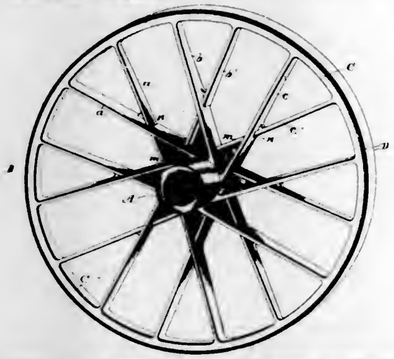
2. In a machine for gumming gin-saws, the combination of the file-arm 15, having stud 16, the spring 46, and the cam 23, substantially as described.

3. In a gin-saw-gumming machine, feeding mechanism consisting

of the studs 24 in a wheel, the stud 27, the hooked connecting-rod having a spring to keep it pressed against the stud 27, the lever 33 34, the sleeve 36, the connection 37, and the feeding-pawls, substantially as shown and described.

4. In a machine for gumming gin-saws, the combination of the gears 21 and 39, the wrist 40, the lever 41, the file 17, the file-arm having stud 16, the cams 23, the stud 24, the hooked connecting-rod 26, the adjustable plate 31, having on it the stud 27, the lever 33 34, the screw 57, the sleeve 36, connecting-rod 37, and feeding-pawl 38, all arranged on an adjustable supporting-base, substantially as shown and described, and for the purpose specified.

352,551. VEHICLE-WHEEL. James McCallum, Elgin, Ill. Filed June 30, 1886. (No model.)



Claim.—1. A cast-metal vehicle-wheel consisting, essentially, of a chilled hub provided with spokes integral with and radiating tangentially from said hub to the rim of the wheel, substantially as set forth.

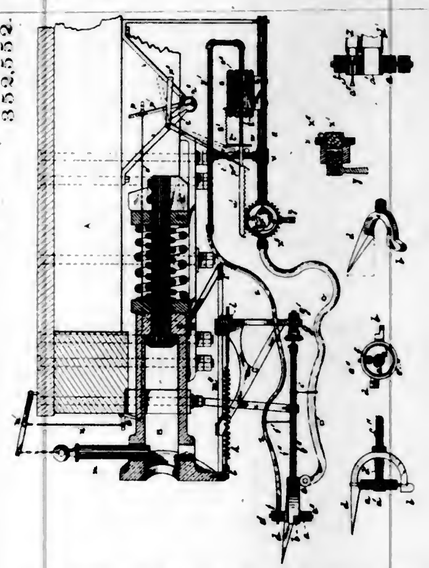
2. In a vehicle-wheel, the combination, with the rim and chilled hub, of two oppositely-radiating sets of tangent spokes integral with the hub, and extending from the said hub to the rim and intersecting and attached to each other, substantially as set forth.

3. In a vehicle-wheel, the combination, with the rim and chilled hub, of two oppositely-radiating sets of flat or hollow right-angle T-shaped spokes formed integral with the said parts and radiating tangentially from the hub to the rim, substantially as set forth.

4. In a cast-metal vehicle-wheel, the combination, with the rim and hub, of a series of hollow flat right-angle or T-shaped spokes integral with the hub, for the purpose substantially as set forth.

5. In a cast-metal vehicle-wheel, the combination, with a hub and spokes integral therewith and radiating tangentially therefrom, of a wrought-iron tire shrunk on, for the purpose substantially as set forth.

352,552. AUTOMATIC PIPE-COUPLING. Robert M. McKinney, Elizabeth, Pa. Filed Mar. 6, 1886. (No model.)



Claim.—1. In an automatic pipe-coupling, the combination, with the perforated coupling-disk, of a ring wherein the disk is pivoted, and a fork wherein the disk-ring is pivoted, substantially as and for the purposes specified.

2. The combination, with the perforated pivoted pipe-coupling disk, of a bifurcated rod wherein the disk is pivoted, said rod having a universal joint, and a stirrup for loosely supporting the disk-rod, substantially as and for the purposes specified.

3. An automatic coupling for train-pipes, consisting of two disks having gimbal-joints, springs for holding the disks together, and flexible connections with the train-pipes, substantially as and for the purposes specified.

4. In an automatic coupling for train-pipes, coupling-disks having gimbal-joints, and a fork wherein the disk is pivoted, said fork having a universal joint, and guide-projections for correcting the alignment of the coupling-disks, substantially as and for the purposes specified.

5. The combination, with the draw-bar, of a sliding carrying-frame, a tubular rod supported thereby and having universal-joint connections, a coupling-disk secured to the tubular rod by gimbal-joints, and a tension-spring for controlling the carrying-frame, substantially as and for the purposes specified.

6. The combination, with the main air-pipe and its valve, of a secondary pipe, a cylinder whose piston actuates the valve of the main pipe, and cam or tappet mechanism for controlling the valve of the secondary pipe, substantially as and for the purposes specified.

7. The combination, with a main pipe and its valve, of a secondary pipe and its valve, a cylinder and its piston, a rack actuated by the piston, a loose pinion journaled on the valve of the main pipe, and a pawl and a ratchet mechanism, substantially as and for the purposes specified.

8. The combination of the main pipe and its valve, a secondary pipe and its valve, a cylinder whose piston actuates the valve of the main pipe, a lever, and a rod for actuating the rock-shaft, substantially as and for the purposes specified.

9. The combination, with the secondary pipe and its valve, of a bent lever for actuating the valve, a rock-shaft and cam for actuating the bent lever, and a rod and crank-arm having adjustable connections for actuating the rock-shaft which carries the cam, substantially as and for the purposes specified.

10. The combination, with the frame C, having an elongated slot therein, of the bolt and nut $g\ g'$, the rod f'', having a universal joint, a pivoted coupling-disk, and a stirrup for loosely supporting the rod f'', substantially as and for the purposes specified.

11. The combination, with an automatic car-coupler, of a main air-pipe and its valve, secondary air-pipe and its valve, a cylinder whose piston actuates the valve of the main air-pipe, a rock-shaft, and cam and lever mechanism for actuating the valve of the secondary pipe from the automatic coupler mechanism, substantially as and for the purposes specified.

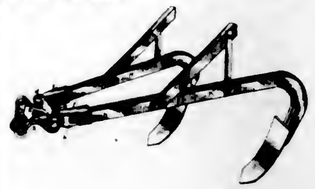
12. The combination, with the coupling-disk, the main pipe, a valve therein, the secondary pipe, and the cylinder and piston which actuate the valve of the main pipe, of a check-valve arranged in the secondary pipe, substantially as and for the purposes specified.

13. The combination, with a car, of an automatic car-coupling, a valved air-pipe, an automatic pipe-coupling, and intermediate mechanism, consisting of rock-levers, tappets, and connecting-rods, for actuating the valve of the air-pipe from the car-coupling devices, substantially as and for the purposes specified.

14. The combination, with the fork having an upward and outward projecting or horizontally and vertically inclined projecting guide on one side, and a horizontal laterally-projecting arm on the other, of a coupling-disk pivoted in the fork or bifurcation between the guides, substantially as and for the purposes specified.

15. In an automatic pipe-coupling, the combination, with a tubular bifurcated rod having a coupling-disk pivoted in its fork, of a flexible pipe, D, and a common coupling for coupling the flexible pipe to the tubular rod, substantially as and for the purposes specified.

352,553. CULTIVATOR. Thomas Meikle, Louisville, Ky. Filed Aug. 4, 1886. (No model.)



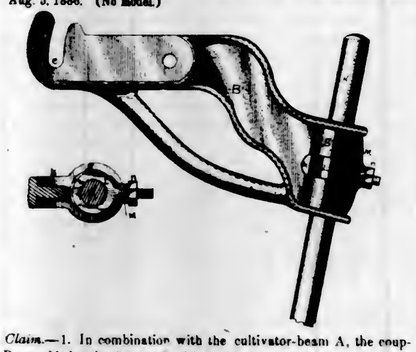
352,553.



Claim.—1. The clevis A, provided with the lateral studs or arms *b c* to receive the coupling-bolts *d*, and the rear projection, *g*, whereby the cultivator drag-bars are attached to the clevis instead of to each other, substantially as set forth.

2. The clevis A, provided with the lateral studs or arms *b c*, and the rearward projection *g*, combined with the clips E F, hinged to said arms, and the drag-bars H I K, as set forth.

352,554. CULTIVATOR. Thomas Meikle, Louisville, Ky. Filed Aug. 5, 1886. (No model.)

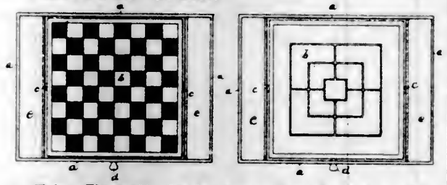


Claim.—1. In combination with the cultivator-beam A, the coupling B, provided at its front end with the slot or notch *e*, and at its rear end with the socket *g*, and clamp to hold the shank H in position as adjusted, substantially as set forth.

2. The drag-bar A and the cultivator tooth and shank H, combined with the coupling-plate B, pivoted to said drag-bar on a horizontal axis, whereby the vertical angle of said tooth and shank may be adjusted, said clamping-plate having the socket *g* at one end and in line with the length of said plate, and the transverse notch *k*, and with the eyebolt L and saddle M, whereby said shank may be adjusted vertically and draft-strains be transmitted through said coupling in the line of its length.

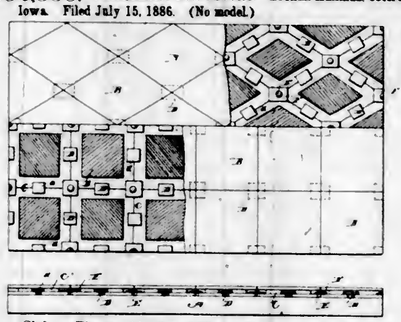
3. A cultivator having each of its drag bars or beams A constructed with two parallel metallic bars, combined with a coupling, B, adapted to enter between said bars and be secured thereto by pivot-bolt *d* and clamp-bolt *f*, said coupling being provided with a socket, *g*, and a clamp to receive and hold the shank H of the cultivator-hoe in the direct line of draft, as and for the purpose set forth.

352,555. GAME-TABLE. Charles Merkel and George Merkel, Philadelphia, Pa.; said Charles Merkel assignor to said George Merkel. Filed Mar. 6, 1886. (No model.)



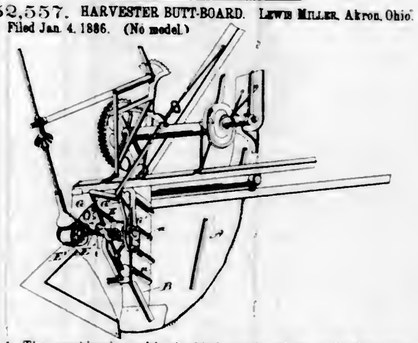
Claim.—The combination, in a game-table, of the frame *a*, having sides *e* for holding game-counters, and a double-faced game-board, *b*, pivoted to said frame *a* at *c*, a pin or catch, *d*, and legs *f g*, pivoted together at *h*, the former being hinged or pivoted to frame *a* at *e*, and the latter being furnished with a catch, *j*, adapted to engage with a plate, *u*, on interior of frame *a*, to keep the table open, all substantially as and for the purposes set forth.

352,556. PARQUETRY FOR FLOORS. Luther Merrill, Osterdock, Iowa. Filed July 15, 1886. (No model.)



Claim.—The combination, with the floor, of the blocks B, having the grooves C in their meeting edges, and the nails or tacks to secure the blocks to the floor, and having the laterally-extending heads adapted to enter the recesses formed by the grooves in the edges of the blocks when the latter are placed together, substantially as described.

352,557. HARVESTER BUTT-BOARD. Lewis Miller, Akron, Ohio. Filed Jan. 4, 1886. (No model.)



1. The combination, with the binder-table, of an oscillating butt-board, the crank-shaft for actuating said butt-board, and an adjustable frame or standard carrying said crank-shaft, and having bearings therefor both above and below the crank which actuates the butt-board, substantially as described.

2. The butt-board and its actuating-crank, in combination with an adjustable frame having bearings for the crank-shaft both above and below said crank, and a bearing for the shaft actuating said crank-shaft, and gears connecting said shafts and made adjustable with said frame, substantially as described.

3. In a harvesting-machine, the binder-table, in combination with the oscillating butt-board, the longitudinally-adjustable standard or frame carrying the butter-shaft, and provided with bearings for the latter both above and below the actuating-crank, the crank and its driving mechanism for actuating said butt-board, and means, substantially as described, for adjusting said standard or frame and butt-board and its actuating devices longitudinally.

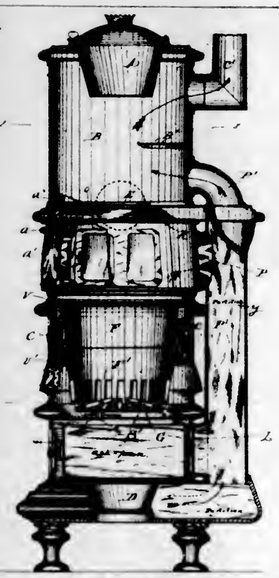
4. In a harvesting-machine, the butt-board and its actuating crank-shaft carried by a longitudinally-adjustable frame or standard, in combination with the rock-shaft having arms engaging said standard both above and below the butt-board-actuating crank, and means for effecting the adjustment of said rock-shaft and frame or standard, substantially as described.

5. In a harvesting-machine, the butt-board and its actuating-shaft carried by an adjustable frame or standard, in combination with a guide-rod connected with said standard, upon which the butt-board slides for directing the movements of said board, substantially as described.

352,558. STOVE. William N. Moore, Joliet, Ill. Filed June 8, 1885. (No model.)

Claim.—1. The stove shown and described, having the flue P, for connecting the combustion-chamber above the fire-pot with the base, and the flue P', for connecting the base with the drum B near its bottom part, drum B, having the exit-flue *c'* above the inlet-flue P', and the semicircular horizontal partition B', located between said flues, and diaphragm K, located between the combustion-chamber and the drum, and having the direct-draft damper between the combustion-chamber and drum, said parts being in combination with each other, and for the purpose set forth.

352,558.

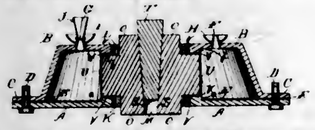


2. The combination, with a stove having a combustion-chamber and a drum above the same, a diaphragm between the combustion-chamber and drum having an opening, a damper, E, pivoted in said opening and having a crank, a, of a door, a', having a hook, a^2, substantially as and for the purpose set forth.

3. The stove shown and described, having a drum above the combustion-chamber and a hollow base below the ash-pit, divided at the rear by a partition, the rear flue, P, connecting the combustion-chamber and the base at one side of the partition, the flue P', connecting the base at the opposite side of the partition and the drum, diaphragm K, provided with a central opening, and damper E, pivoted therein, substantially as shown, said parts being in combination with each other, as and for the purpose set forth.

4. The stove shown and described, having a drum above the combustion-chamber and a hollow base below the ash-pit, divided at the rear by a partition, the rear flue, P, connecting the combustion-chamber and the base at one side of the partition, the flue P', connecting the base at the opposite side of the partition and the drum, diaphragm K, provided with a central opening, and damper E, pivoted therein, drum B, having the exit-flue c' above the inlet-flue P', and located immediately above said diaphragm, and the diaphragm B', located in said drum between its said flues, said parts being in combination with each other, as and for the purpose set forth.

352,559. MOLD FOR CASTING BLOOMS. JAMES MUNTON, Chicago, Ill. Filed Dec. 30, 1885. (No model.)



Claim.—1. An annular mold provided with means for sealing the same, and having an inner wall or core consisting of radially-expansible segments abutting against each other at their ends, and each of said segments having curved outer faces which bear against the molten metal or bloom, substantially as specified.

2. The annular mold provided with means for sealing the same, having an inner wall or core consisting of radially-expansible wedging-segments abutting against each other at their ends, in combination with a wedge having operating-faces acting directly against only the alternate ones of said segments, and each of said segments having curved outer faces which bear against the molten metal or bloom, substantially as specified.

3. The annular sealed mold, having an inner wall or core, consisting of radially expansible wedging-segments abutting against each other at their ends, in combination with a wedge having operating-faces acting directly against only the alternate ones of said segments, and a band, as B, surrounding said segments, substantially as specified.

4. The combination, with the annular mold-plates A B, of radially-expansible wedging-core segments N M, fitting between said mold-plates A B, means for sealing said mold, and a wedge, T, operating directly against only the alternate segments N, each of said segments having curved outer faces which bear against the molten metal or bloom, substantially as specified.

5. The combination, with annular mold-plates A B, provided with annular shoulders a b, of radially-expansible segments N M, substantially as specified.

6. The combination, with an annular mold and means for sealing the same, of radially-expansible segments N M, said segments N M having inclined or wedging faces, of the segments M M, and a band, B, surrounding said segments, and a wedge, T, for expanding the same radially, substantially as specified.

7. A mold or apparatus for the manufacture of annular castings, comprising a mold-box, the upper and lower sides of which are provided with central openings or apertures, an expansion-core having shoulders extending through said openings, a sheet-metal band encircling the said core, suitable packing, and means for chilling the metal at the vent and gate openings, and thereby sealing the mold previous to the expansion of the core, substantially as set forth.

8. An expansion-core composed of the end segments having angular inner sides, as described, and side segments having angular ends abutting or bearing against the angular inner sides of the end sections, in combination with a sheet-metal ring or band encircling the said core, and means for expanding said core, substantially as specified.

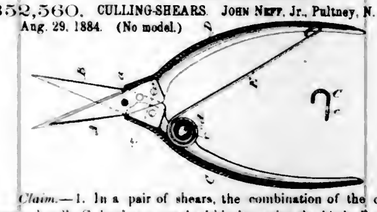
9. A mold consisting of a separable base and upper portion, in combination with an expansible core, interposed packing, and a sheet-metal ring or band encircling the said core, substantially as specified.

10. In an apparatus for the manufacture of annular castings, a mold composed of a base-plate, an upper portion having vent and gate openings, and provided with an annular flange at its lower edge, and suitable connecting-bolts, said mold being equipped with an expansion-core, and packing interposed between the top and bottom of the mold and the upper and under sides of said core and between the base of the mold and the flange of the upper portion of the latter, substantially as set forth.

11. A mold or apparatus for the manufacture of annular castings, equipped with an expansion-core, the latter being encircled by a sheet-metal ring or band, substantially as set forth.

12. A mold or apparatus for the manufacture of annular castings, having concave flanges formed upon or attached to necks at the vent and gate openings, for the purpose of cooling the metal at these points, and thereby sealing the mold, substantially as specified.

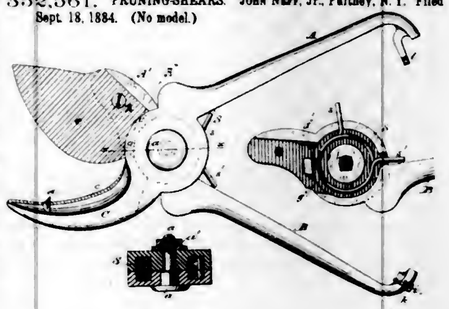
352,560. CULLING-SHEARS. JOHN NEFF, Jr., Pultney, N. Y. Filed Aug. 29, 1884. (No model.)



Claim.—1. In a pair of shears, the combination of the concavo-convex handle C, having secured within its cavity the blade B, the concavo-convex handle D, having secured within its cavity the blade A, and the pivot a, passing through the blades, said blades being re-enforced at their heels opposite the attaching-rivets, and the ends of said handles acting as stops, substantially as specified.

2. In a pair of shears, the combination of the concavo-convex handle C, having secured thereto the blade B, the concavo-convex handle D, having secured thereto the blade A, the pivot a, passing through the blades, the handle D having the cut-away portion or recess c', and the spring E, substantially as specified.

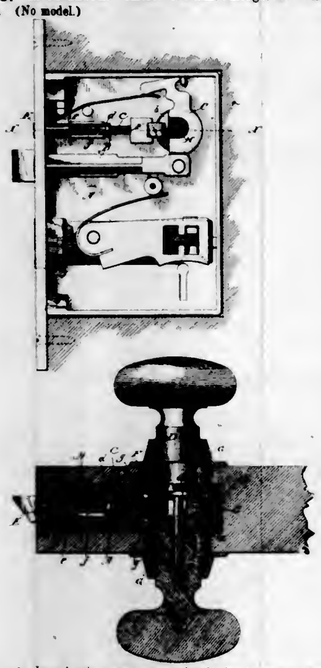
352,561. PRUNING-SHEARS. JOHN NEFF, Jr., Pultney, N. Y. Filed Sept. 18, 1884. (No model.)



Claim.—1. In a pair of pruning-shears, the handle B, having the flange A' and projection A^2, and the removable blade E, provided with lugs f g, secured to the blade by a single screw, h, substantially as specified.

2. The combination of the handle A, having the hook C, provided with the inset steel facing c, and the adjacent tooth or prong d, cast as a part of the hook, with the handle B, provided with the flange A', and lug A^2, and with the removable blade e, having the projections f g and single screw h, substantially as specified.

352,562. KNOB-LATCH. MILTON C. NILES, Chicago, Ill. Filed Jan. 12, 1886. (No model.)



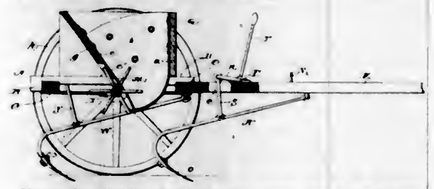
Claim.—1. In a latch, one or more knob-shanks and a flange at the end of said knob-shanks, in combination with a positively-moving locking device engaging said flange, whereby the knob shank or shanks are maintained in their operative position independent of the rose, substantially as described.

2. The knob shank or shanks, an end flange thereof, in combination with a locking device, and a means, substantially as described, accessible from the outside of the case for maintaining said locking device in engagement with the knob-shanks, substantially as described.3

3. The knob shank or shanks and the end flange thereof, in combination with the locking device and screw-bolt for actuating said locking device, and a fixed bearing for the screw-bolt, whereby said bolt is maintained from a longitudinal movement, substantially as described.

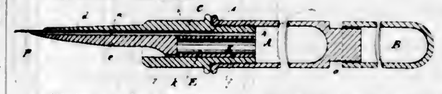
4. The knob-shanks, the end flanges thereof, and the bifurcated locking device engaging said flanges, in combination with a screw-bolt for actuating said locking device and accessible from the outer edge of the case, substantially as described.

352,563. FERTILIZER-DISTRIBUTER. JAMES A. OGLETREE, Randall, Ark. Filed Sept. 17, 1886. (No model.)



Claim.—In a fertilizer-distributer, the hopper having the inclined rear side, g, provided with the opening c' at its lower edge, and the lining-plate a at its front side curved under the lower edge of the rear side, and thereby forming the bottom of the hopper, in combination with the rotating shaft I, having the radial arms M, extending through the opening c' and adapted to strike the free rear edge of the spring-plate a successively as the shaft rotates, for the purpose set forth, substantially as described.

352,564. FOUNTAIN-PEN. NOYES F. PALMER, Jamaica, N. Y. Filed Aug. 6, 1886. (No model.)



Claim.—1. In a fountain-pen, the combination of the handle or reservoir A, pen-plug C, pen P, and central plug, E, with a projection or tongue, d, attached to the pen-plug C and lying upon the pen over the slit, and a projection or tongue, e, lying against the inner side of the pen and extending nearly to the point of the pen, substantially as specified.

2. In a fountain-pen, the combination of the pen-plug C with the hollow central feed-plug, E, provided with a central longitudinal cavity, g, and channels h and l, and with opening i, connecting the cavity g with the channel h, and opening k, connecting the cavity g with the channel l, operating in combination with the pen and ink in the reservoir in the manner substantially as set forth.

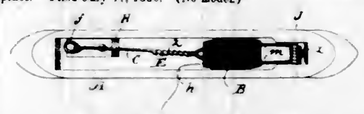
3. The combination of pen-plug C, having tongue d, with the feed-plug E, provided with tongue e, cavity g, opening i, and channel h, and channel n on the face of the tongue e, and forming a continuation of the channel h, substantially as described.

4. In a fountain-pen, the combination of a pen with a top feed consisting of a tongue attached to the pen-plug and lying upon the pen over the slit, and a bottom feed consisting of a tongue attached to the central hollow feed-plug and extending nearly to the point of the pen, and provided with an ink-channel connected to the central cavity of the plug and to a channel on top of said plug, substantially as and for the purpose specified.

5. In a fountain-pen, the combination, with the plug C, of a hollow central feed-plug, E, provided with a forward-extending tongue, e, central cavity, g, top channel, h, connecting with the ink-reservoir, the opening k, and channel l, connecting with the outer end of the pen-plug C, substantially as and for the purpose set forth.

6. The combination, in a fountain-pen, of a top feed extending over the top of the slit of the pen, with a bottom feed-plug provided with an ink-duct extending underneath the slit of the pen, substantially as described.

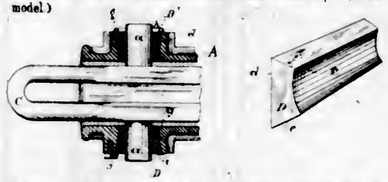
352,565. SHUTTLE FOR WEAVING WIRE-CLOTH. JOHN W PARKER, Clinton, Mass., assignor to the Clinton Wire Cloth Company, same place. Filed July 17, 1886. (No model.)



Claim.—1. The body A, having the mortise E in its upper face, and the transverse rod J in said mortise, in combination with the latch C, comprising a single piece of wire having two members connected at their inner ends by a coil through which said rod J passes, and also connected about midway of the length of the shuttle-body, and means for locking said latch C in position, substantially as described.

2. The body A, having the mortise E in its upper face, and the transverse rod J in said mortise, in combination with the latch C, comprising a single piece of wire having two members connected at their inner ends by a coil through which said rod J passes, and also connected about midway of the length of the shuttle-body by being twisted around each other, and means for locking said latch C in position, substantially as described.

352,566. CAR-COUPLING. FRANCIS W. PARSONS, Philadelphia, Pa., assignor to Winslow Warren, Dedham, Mass. Filed Sept. 2, 1886. (No model.)



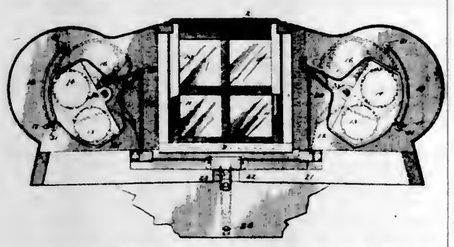
Claim.—1. In a draw-bar of a railway-car coupling, one or more liners of hard metal secured in grooves in either or both sides of the slots B, at the lower ends, removably secured therein and arranged to receive

the bearing of the trunnions *a* on one or both sides of each trunnion, in combination with the link, substantially as set forth.

2. In combination with a coupling-bar and link-liners removably secured to said bar and partially surrounding the trunnions *a*, said liners having a concaved face and of a dovetailed tapering form, adapted to fit in corresponding grooves in the lower ends of the slots B, substantially as described, and for the purpose set forth.

3. In combination with a coupling-bar and a link provided with trunnions *a*, a pair of liners of hard metal arranged on each side of said trunnions and removably secured in grooves in the lower ends of the slots B, to receive the bearings of said trunnions, substantially as described, and for the purpose specified.

352,567. **TRAIN-SIGNAL.** JOHN H. PARSONS, Chicago, Ill. Filed Feb. 24, 1886. (No model.)



Claim.—1. An indicator-box mounted upon the top of a car and communicating freely therewith, and provided with removable plates for displaying the numbers of the train and section, with signal-lamps mounted in said box, one at each end thereof, colored transparent signal-plates pivoted one before and one behind each lamp, and mechanism connected with each of said plates and passing to the interior of the cars, whereby the signals may be simultaneously shifted, substantially as and for the purpose set forth.

2. An indicator-box placed upon the top of a car and communicating freely therewith, said box being provided with a sash for carrying indicator-numbers, and a sash-frame, the sides of the grooves of said sash-frame being cut away toward the bottom of the sash, so as to permit the removal of the sash from below, substantially as described and shown.

3. An indicator-box placed upon the top of a car and communicating freely therewith, said box being provided with a sash for carrying indicating-numbers, and a sash-frame, the sides of said sash-frame being cut away toward the bottom of the sash, so as to permit the removal of the sash from below, and the sash being provided with springs for preventing the rattling and displacement of the sash, substantially as described and shown.

4. In a signal-frame, the combination of the sheet-metal plate 12, having signal-glasses 13 14 fixed thereon, and wire-rim 16, passing around the edge of the said plate and provided with projection 18, for the attachment of a cord, said plate 12 being pivotally suspended, substantially as described and shown.

5. The combination of a pivoted signal-frame, said frame being provided with projections from the body thereof, 17 and 18, mechanism attached to one of said projections for moving the frame, and the fixed segmental guideway 19, under which the other of said projections lies, whereby the signal-frame is held in position as it is swung on its pivot from one position to another in displaying signals, substantially as described.

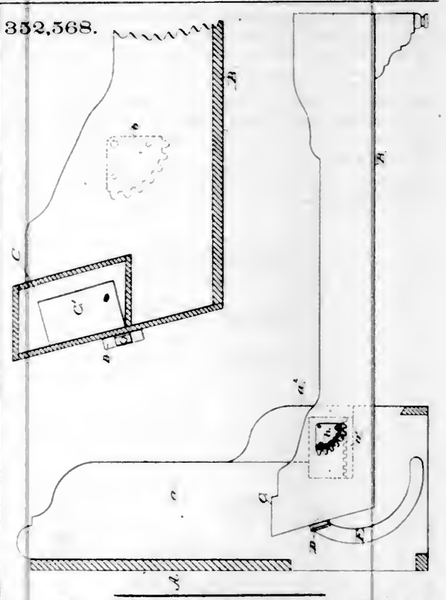
6. The combination of two pivoted signal-frames, cords 20, attached thereto, clamp 23, formed of two grooved pieces screwed together, for clasping the cords, said clamp being provided with ring 25, and hook 26, for the attachment of the clamp, substantially as described, and for the purpose set forth.

352,568. **FOLDING BEDSTEAD.** CHARLES W. PROBLE, Troy, N. Y. Filed Apr. 7, 1886. (No model.)

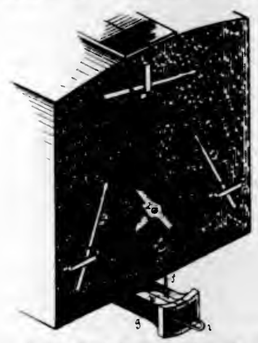
Claim.—1. In a folding bedstead, the combination, with a standing frame provided with friction-plates rigidly secured thereto, of a movable bed-frame provided with friction-blocks that are adapted to bear against said friction-plates at every phase of the movement of said bed-frame, as and for the purpose specified.

2. In a folding bedstead, the combination, with a standing frame, A, having friction-plates E, rigidly secured thereto, of a movable bed-frame, B, having friction-blocks D, provided with adjusting-screws *d*, as herein described, the said friction-blocks being adapted to bear against said friction-plates through every phase of the movement of said bed-frame, as and for the purpose specified.

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352,569. **CAR-COUPLING.** RICHARD PERRY, Dunn, Ill., assignor of six-sevenths to David Perry and William T. Perry, Bethany, Benjamin F. Perry, Todd's Point, and Moses H. Perry and Samuel B. Perry, Decatur, Ill., and Marion S. Perry, Stratton, Nebr. Filed Apr. 15, 1886. (No model.)



Claim.—1. In draw-heads for car-couplings, the conformable link-guide herein set forth, consisting in the combination of head *g*, having recess *g'* and diminished throat *g''*, and latch *h*, having horizontal under surface, *h'*, normally resting in recess *g'* on a line approximately horizontal with the lower surface of the throat, and also having a catch, *h''*, slightly in the rear of the narrowest portion of the throat, as and for the purpose set forth.

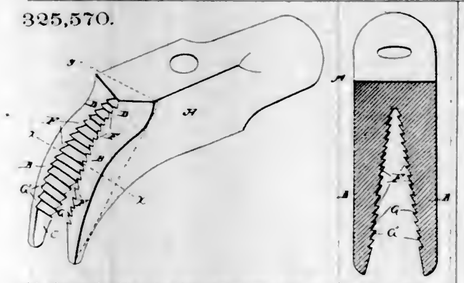
2. Radial arms *d*, having vertical rotation approximating a quarter-revolution, lug *d'*, so located on arms *d* that the motion of said arms will carry the lug from a position approximately horizontal with the pivot of the arms to a position above and slightly past the vertical of said pivot, a chain running over a guide-pulley and connecting the arms with a latch in the draw-head, and readily-accessible levers connected with the arms, all in combination, as and for the purpose set forth.

325,570. **HAMMER.** SAML. G. PILLSBURY, Long Island, Kans. Filed May 19, 1886. (No model.)

Claim.—1. A hammer-head having curved claws B B, the inner and outer sides of which are beveled, as at C D, forming sharp edges E, said inner sides, C, being provided with teeth or corrugations extending from the upper to the lower edges of the said jaws, substantially as set forth.

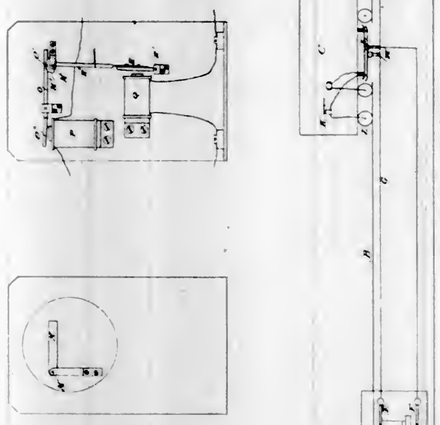
2. A hammer-head having curved claws B B, beveled so as to form sharp edges E, the inner beveled sides of said jaws being provided with teeth, the sides of which, facing the points of the jaws, are provided

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with abrupt shoulders G, while their inner sides are beveled at G', substantially as and for the purpose set forth.

352,571. **RAILWAY-SIGNAL.** CHARLES W. PRIDHAM, Earls Court Road, County of Middlesex, England. Filed Oct. 21, 1885. (No model.)



Claim.—1. The combination of apparatus for train-signaling, consisting of the following parts: at the signal-cabin a battery and finger-keys for applying the battery to one or other of two line-wires, on the line the said insulated line-wires and contact-posts connected therewith, and on the train a semaphore-arm or like signal apparatus; also two contact-bars making contact with the contact-posts, and means for raising the signal to allow it to be latched in the "danger" position, and independent apparatus for lifting the latch when the signal is not required to be retained.

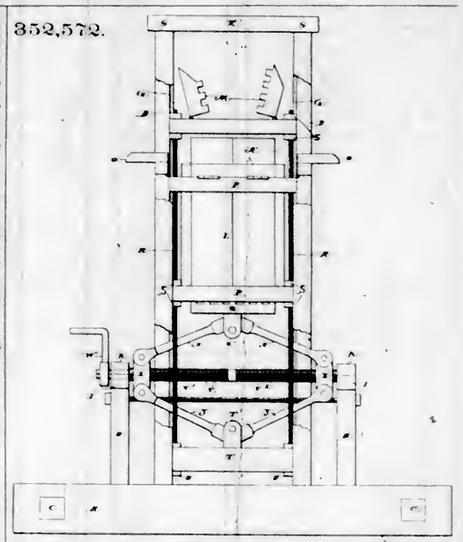
2. The combination of apparatus for train-signaling, consisting of the following parts: at the signal-cabin a battery and a finger-key for applying the battery to a line-wire; on the line the said insulated line-wire and a contact post or posts connected therewith, and on the train a semaphore-arm or like signal and mechanical apparatus for raising the signal as the train passes a contact-post; also a contact-bar making contact with the contact-posts, and an electro-magnet or equivalent instrument for lifting the latch when the signal is not required to be retained.

352,572. **BALING-PRESS.** JOHN B. ROMANS, Helena, Ark., assignor of one-half to Charles R. Coolidge, same place. Filed June 26, 1886. (No model.)

Claim.—1. The press-box P, having the folding doors M at its upper side to form the top of the box, the side doors, N, to form the front and rear sides of the upper portion of the press-box, and the doors O at the upper sides of the ends of the press-box, for the purpose set forth, the lower end of the press being open to receive the follower, substantially as described.

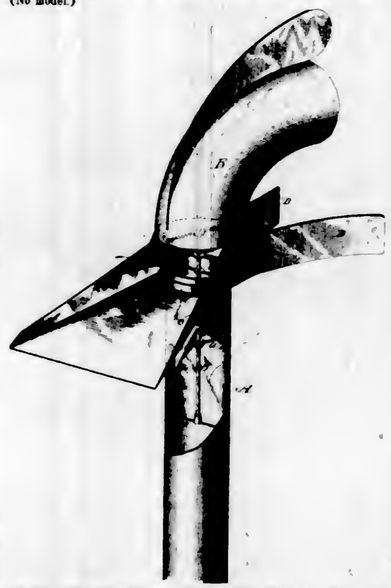
2. The combination of the guiding-frame, the press-box and platen movable in the said frame, the said press-box being rigidly connected to the said platen and having the doors M, forming one end, the other end being open, the follower in the open end of the press-box, the right and

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left hand screw-threaded shaft, the blocks fitting on the said shaft, and the toggle-jointed levers connecting the said blocks to the follower and platen, whereby the press-box and the follower will be moved simultaneously in opposite directions when the screw-shaft is turned, substantially as described.

352,573. **COWL.** OTTO ROTTON, Brooklyn, N. Y. Filed June 1, 1886. (No model.)

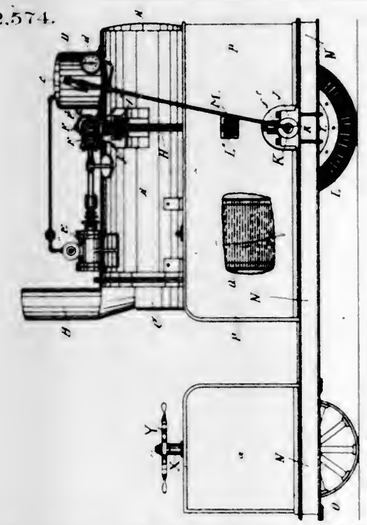


Claim.—The combination, with a hollow shaft or column, of a deflector consisting of an inclined plate provided with sides converging toward the column, a collar attached to said deflector and mounted on the column, and a cowl, B, the lower end of which is supported by the deflector above the upper end of the column, substantially as set forth.

352,574. **STEAM ROAD-ROLLER.** JOSEPH SCHEERER, San Francisco, Cal. Filed Apr. 28, 1886. (No model.)

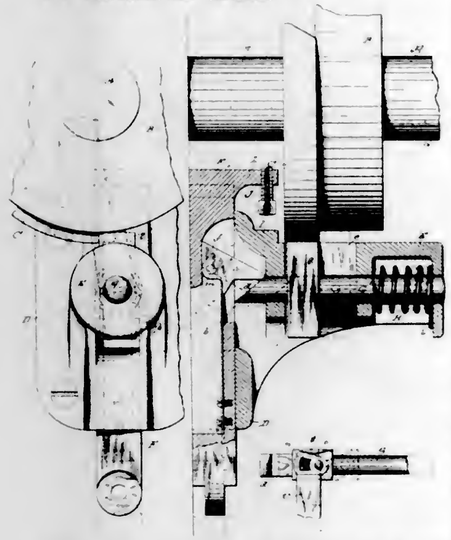
Claim.—The steam road-roller herein described, consisting, essentially, of the horizontal boiler A, supported upon suitable frame directly over the roller I, horizontal engine E, crank-shaft F, vertical shaft H,

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bevel gear and pinion L L', and roller l, arranged substantially as herein set forth.

352,575. STOP FOR POWER-PRESSES. JULIUS A. SKITZ, Brooklyn, N. Y. Filed Dec. 31, 1885. (No model.)

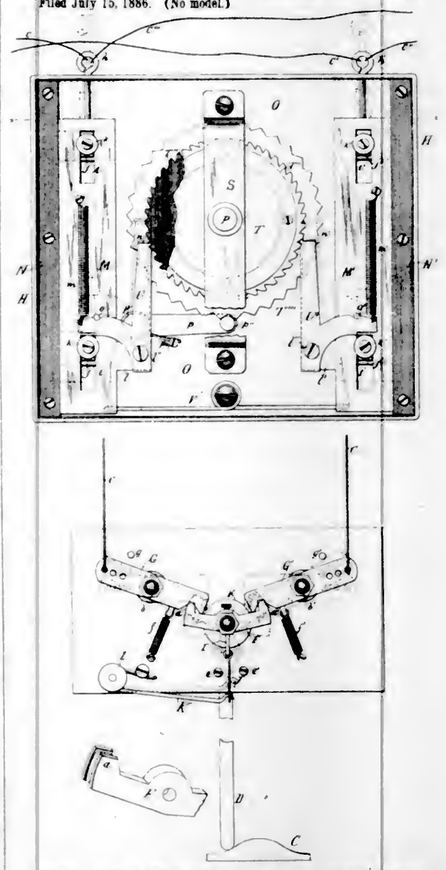


Claim.—1. In a power-press, the combination, with the clutch mechanism, of a block having a reciprocal and side movement, and adapted to be moved positively in one direction by means of a bar provided with an inclined face, and returned automatically by a spring to the path of the clutch mechanism, whereby the motion of the same is positively controlled in starting and stopping the revolutions of the press-shaft.

2. In a power-press, the combination, with the clutch mechanism, of a bar actuated by means of a treadle and adapted to move in one direction a block by means of a movable inclined-faced tappet or latch, and return to its normal position at any time, while the block is in or out of action, without disturbing the position of same, as and for the purpose set forth.

3. In combination with the clutch mechanism of a power-press, a block adapted to be moved by a sliding bar, which can be limited in the amount of its movement by an adjustable stop, and the relation of the block to that of the clutch mechanism so adjusted that the shaft may be run continuously or stop at each revolution.

352,576. STATION-INDICATOR. ROBERT SENFTNER, Brooklyn, N. Y. Filed July 15, 1886. (No model.)



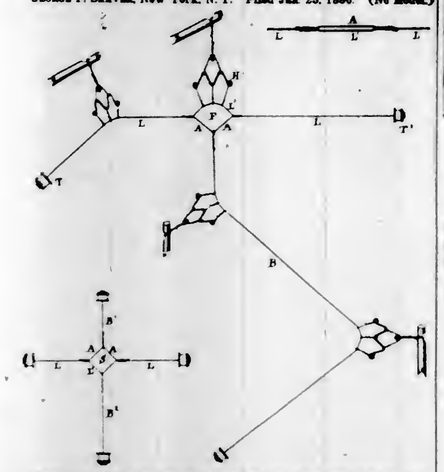
Claim.—1. In a station-indicator, a stationary projecting piece, C, formed with a gradually rising and falling face, and located on the line of a railroad, and a vibrating lever, D, so suspended from the car that it shall engage with the stationary projecting piece C and be vibrated by it, in combination with the indicator-operating mechanism rigidly affixed to the car, and composed of the rocker F, capable of being turned either way, and which is rigidly affixed to the shaft E, which shaft E carries the vibrating lever D, the levers G G', so placed as to engage with the ends of the rocker F, said levers G G' being made to constantly engage with the ends of the rocker F by means of the springs *f f*, stops *g g'*, for limiting the upward throw of the pulling ends of the levers G G', stops *e e'*, for limiting the vibration of the rocker F, and spring K, connected to the rocker F by the arm I and link J, for retaining the lever D in a perpendicular position, substantially as described.

2. In a station-indicator for railway-cars, a composite ratchet-wheel, T, composed of the ratchet-wheels T' T'', engaging with the pawls U U', and the detent wheel T''', engaging with the detent *p*, superimposed one upon the other, and all fastened to one shaft or spindle, P, substantially as described.

3. In a station-indicator, the composite wheel T, composed of the ratchet-wheels T' T'' and the detent-wheel T''', in combination with the pawls U U', engaging with the composite wheel T, sliding blocks M M', which carry and in their upward movement actuate the pawls U U', and springs *m m'*, one end of each being fastened to the sliding blocks M M' and the other to the pawls U U', and stops O O', by which the contact-points of the pawls U U' are prevented from entering within the radius of their respective ratchet-wheels, substantially as described.

4. In a station-indicator, the composite wheel T, composed of the ratchet-wheels T' T' and the detent-wheel T''', in combination with the pawls U U', engaging with the composite wheel T, sliding blocks M M', which carry and in their upward movement actuate the pawls U U', springs *m m'*, one end of each being fastened to the sliding blocks M M' and the other to the pawls U U', stops O O', by which the contact-points of the pawls U U' are prevented from entering within the radius of their respective ratchet-wheels, the spring-detent *p*, engaging with the detent-wheel T''', to insure a regularity of motion, and the spring V, the two ends of which are fastened to the ends of the sliding blocks M M', and by which the sliding blocks M M' are returned to their original position, drawing the pawls U U' with them and turning the composite wheel T, substantially as described.

352,577. LINE-CONNECTION FOR MECHANICAL TELEPHONES. GEORGE F. SHAVER, New York, N. Y. Filed Jan. 25, 1886. (No model.)

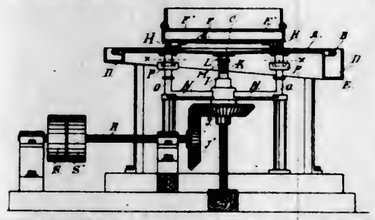


Claim.—1. In a mechanical-telephone line, the combination, with the main line, of one or more branch lines, said branch line or lines being connected to the main line by means of a short supplemental piece of wire attached by its ends to the main line, substantially as described.

2. In a mechanical-telephone line, the combination, with the main line, of a short supplemental piece of wire, attached at its ends to the main line to form a loop therewith, and one or more branch lines, said branch line or lines being connected to the side or sides of the loop, the tension of said main and branch line, when properly stretched, causing the loop to assume the form of a polygon, substantially as described.

3. The combination, with the main line and short supplemental piece of wire connected at its ends to the main line to form a loop, of a branch line connected to one side of the loop, and a hanger connected to the other, whereby the loop is maintained in the form of a polygon, substantially as described.

352,578. ORE-CONCENTRATOR. STEPHEN W. SHAW, San Francisco, Cal. Filed Feb. 22, 1886. (No model.)



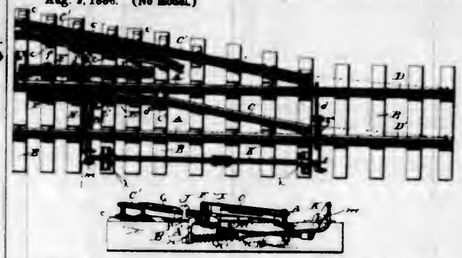
Claim.—1. In an ore-concentrator, the combination of a disk or pan having a slightly-concave surface, and a central discharge-opening provided with a suitable screen, through which the heavier particles of ore pass, and means for imparting a vibratory or rotary reciprocating motion to said pan, substantially as shown and described.

2. In an ore-concentrator, the combination of a disk or pan having a slightly-concave surface, and a central discharge-opening adapted to receive the heavier particles of ore which gravitate to the center thereof, and means for imparting a vibratory or rotary reciprocating motion to the pan, substantially as shown and described.

3. In an ore-concentrator, the combination, with the pan and means, as described, for operating the same, of a feeding device secured thereto, and consisting of a screen having a central plane surface, and a perforated outer surface and a shield below the screen, provided with a central opening, substantially as shown and described.

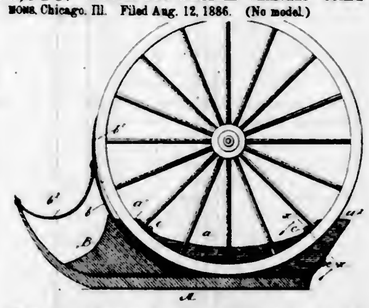
4. In an ore-concentrator, the combination of the disk or pan provided with a central lug having a seat or hole, and with four pins, with the spindle I, provided with a pin eccentric to its axial line, and the standards or posts provided with basins, in which the lugs or pins upon the bottom of the pan operate, as specified and shown.

352,579. RAILWAY-SWITCH. ROBERT B. SHORT, Hanna, Ind. Filed Aug. 9, 1886. (No model.)



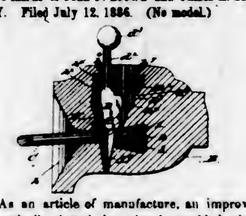
Claim.—The combination of a shifting rail having a depending plate, a rock-shaft, a rod intermediate of the rock-shaft and plate and passing through the latter, a collar on the rod, and a cushion-spring interposed between the collar and plate, as set forth.

352,580. RUNNER FOR WHEELED VEHICLES. JOSEPH W. SIMMONS, Chicago, Ill. Filed Aug. 12, 1886. (No model.)



Claim.—As an improvement in detachable runners for wheeled vehicles, the runner, as A, provided with flanges having the parts *a' a²* adapted to rest against the sides of the felly, and spring *b* and clamps *c*, all substantially as and for the purpose specified.

352,581. CAR-COUPLING. JACOB G. SLATER, Poughkeepsie, assignor of two-thirds to John F. Brown and James H. Simonson, both of Albany, N. Y. Filed July 12, 1886. (No model.)

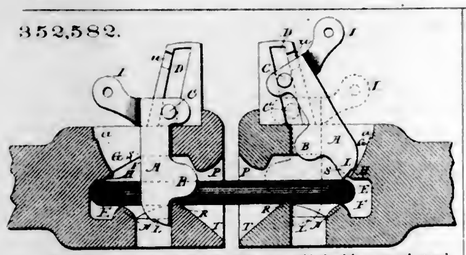


Claim.—As an article of manufacture, an improved car-coupler consisting of a vertically-slotted draw-head provided with indentations and projections in the front and rear walls, a reversible coupling-pin engaging with said slot and having projections and indentations conforming and adapted to engage with those formed in the front and rear walls of the vertical slots, and a link-recess formed with a series of indentations in the rear walls thereof, substantially as described.

352,582. CAR-COUPLING. BENJAMIN W. SMITH, Rockport, Ind. Filed Aug. 21, 1885. (No model.)

Claim.—1. In a car-coupling, the combination of a draw-bar having grooved standards on its top, coupling-pin mounted in said draw-bar, its top end being mounted and arranged to slide in said grooved standards and having a round-faced projection on its front side, whereby as said projection is struck by the link of the other draw-head said pin is slid up in said grooves and said link permitted to pass under it, substantially as set forth.

352,582.

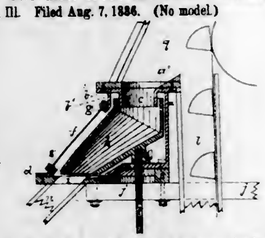


2. The combination of the draw-bars provided with grooved standards on their tops, the coupling-pins A, having the projecting parts C at their top ends, said projecting parts being mounted in the grooves in said standards, and said pins A being formed with the round-faced projections B on their front sides, and also being formed with a tapered or curved lower end, and the curved projections N at the rear of said lower end of the pin, all substantially as described, and for the purposes specified.

3. The combination, with the draw-head of a car-coupling, of a coupling-pin arranged to be vertically adjustable in said draw-head, said coupling-pin being provided on its front side with a rounded or curved-out projection arranged to meet the end of the link of the other draw-head, whereby said link operates upon said projection to lift said pin and permit itself to pass under it, substantially as set forth.

4. The combination of the draw-bar and coupling-pin A with the guide-grooves D, concave slope S in top wall of cavity F, the projection N in bottom wall of cavity F, the projection P in top wall of cavity F, and the slot G, with the shoulder *a*, the slot being so spaced and arranged as to form a backing for the rounded end of the pin A when in the act of coupling or raising up for the coupling-link to enter the cavity of the draw-bar, as shown and described, and for the purposes of an improved coupling apparatus for railroad-cars.

352,583. SWIVELED SPOUT AND CASE. DERASTUS H. SPENCER, Jr., Chicago, Ill. Filed Aug. 7, 1886. (No model.)

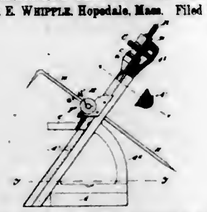


Claim.—1. An inclosing-case having at its top a horizontal flange, *b*, and a vertical cylinder, *c*, in combination with a swivel-spout, the upper end of which encircles the cylinder, substantially as specified.

2. A swivel-spout having its lower end in a horizontal plane, and provided with a projection, *t*, in combination with an inclosing-case having a bottom upon which said projection *t* rests and supports the swivel-spout, substantially as described.

3. A swivel-spout having its lower end in a horizontal plane, in combination with an inclosing-case provided with a bottom having that portion to which the spouts are to be applied in a horizontal plane, substantially as shown and described.

352,584. SURFACE AND PLANER GAGE. BENJAMIN E. D. STAFFORD and FENNER E. WHIPPLE, Hopedale, Mass. Filed Mar. 9, 1886. (No model.)

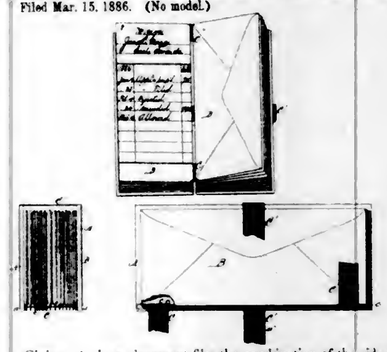


Claim.—1. The body A, having the graduated way A', in combination with the slide E, having a surface, *e*, parallel to the base of A, and clamping means G G', arranged to serve as herein specified.

2. The threaded bar B, having holes *b*, and nut C, in combination with the plug F, slide E, having the surface *e*, and body A, having the way A' and head A^2, arranged for joint operation, as herein specified.

3. The gage described, having the slide E, with surface *e*, adjustable on the inclined way A', micrometer-nut C, perforated bar B, means, as the plug F, for engaging E with B, and vernier graduations for aiding to determine the exact adjustment, all combined and arranged for joint operation, as herein specified.

352,585. DOCUMENT-FILE. JUSTUS M. ST. JOHN, Cedar Rapids, Iowa. Filed Mar. 15, 1886. (No model.)



Claim.—1. In a document-file, the combination of the side-boards or covers A A, and the elastic connections C C, securely attached to said covers, and adapted to connect with the lower edge of a series of file-pockets, substantially as and for the purpose set forth.

2. In a document-file, the combination of elastic straps C C, and envelopes or equivalent file-pockets securely fastened to said elastics at fixed intervals, substantially as and for the purpose specified.

3. In a document-file, the combination of the side-boards or covers A A, the elastic connections C C, secured to the covers, and the envelopes B B, or equivalent file-pockets, fastened securely to the elastics at fixed points, substantially as and for the purpose set forth.

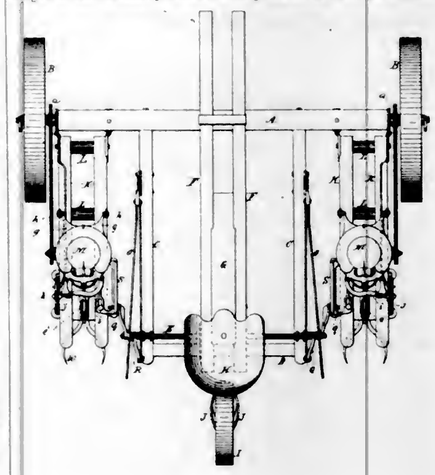
4. In a document-file, the combination of the elastics C C, the separate and independent file-pockets B B, and the removable fastener c, or its equivalent, substantially as specified.

5. In a document-file, the combination of the covers A A, the elastic connections C C, secured to the covers, the elastic strap C', and the envelopes or equivalent file-pockets B B, all constructed, arranged, and adapted to operate substantially as and for the purpose set forth.

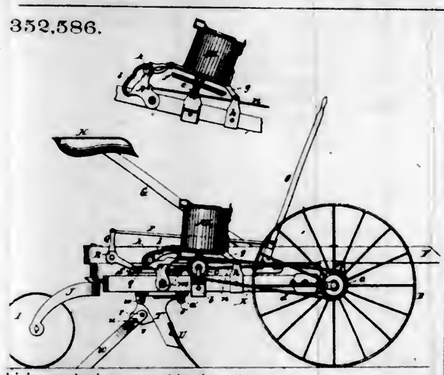
352,586. CORN-DRILL. HORACE G. SWOPE, Liberty, Ind., assignor to the Rude Brothers Manufacturing Company, same place. Filed Sept. 10, 1886. (No model.)

Claim.—1. In a double-row corn-drill, the combination, with a rigid main frame supported upon two carrying and driving wheels, and a rear caster-wheel, of two independently hinged and vibrating secondary frames united to the main frame at each side thereof, and carrying the seeding mechanism and furrowing-hoes, substantially as described.

2. In a double-row corn-drill having a main frame supported on wheels, and vibrating secondary frames hinged thereto, of the seed-boxes hinged to said secondary frames, seeding mechanism within said boxes,



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driving mechanism actuated by the main wheels, and connecting mechanism, whereby when said secondary frames are lowered the seeding mechanism and driving mechanism are automatically thrown into gear, and whereby when said secondary frames are raised the seeding mechanism and driving mechanism are automatically thrown out of gear, substantially as described.

3. In a double-row corn-drill, the combination, with the main frame, the secondary vibrating frames hinged thereto, and seed-boxes hinged to said secondary frames, of the segmentally-slotted crank-arms hinged to said secondary frames, secured to a fixed point upon the main frame, and connected to the seed-boxes by studs confined in the segmental slots, whereby the raising and lowering of the secondary frames causes a corresponding raising and lowering of the seed-boxes for the purpose of throwing the seeding and driving mechanism out of and into gear, substantially as described.

4. The combination, with the driving-sprockets upon the hubs of the main wheels, and the sprockets journaled to the secondary frames, and provided with driving-pinions, said two sets of sprockets being connected by drive-chains, of the vibrating secondary frames having the seed-boxes hinged thereto, and the crown-pinion normally meshing with the pinions on the sprockets on the secondary frames and connected with the seeding mechanism, with connecting mechanism, substantially as described, whereby the raising of the secondary frames causes the tilting of the seed-boxes and the crown-pinions to be thrown out of gear with the sprocket-pinions, and whereby the lowering of said frames causes said pinions to be thrown into gear, substantially as described.

5. In a double-row corn-drill, the combination, with the main frame and the secondary frames, of levers pivoted to the main frame and united to the secondary frames by bell-crank arms and connecting-rods, substantially as described, whereby the vibration of said levers causes the raising or lowering of the secondary frames either simultaneously or independently, substantially as described.

6. The combination, with the inclined slotted crank-arms N, pivoted to the secondary frames and united by a rod, *n*, to a fixed point upon the main frame, of the seed-boxes hinged to the secondary frames, and provided with studs entering the slots of the arms N, whereby the vibration of said arms caused by the raising and lowering of said frames effects the raising and lowering of the seed-boxes, substantially as and for the purpose described.

7. In a double-row corn-drill having a main frame and vibrating secondary frames hinged thereto, laterally-adjustable plates secured to said secondary frames, said plates having secured to their under sides the furrowing-hoes and covering-shares, whereby the width of the furrows may be changed by the adjustment of said plates on the secondary frames, substantially as described.

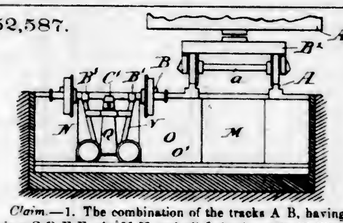
8. The laterally-slotted plate X, adjustably secured to the secondary frames, provided with a seed-aperture, *d'*, and having hinged to its under side at the rear a combined furrowing-hoe and covering-share conduit, having the furrowing-hoe and covering-shares rigidly secured thereto, and held up in working position by the break-pin *b'* at its forward side, substantially as described.

9. The plate X, provided with the adjusting-slots *c'* and notched seed-aperture *d'*, in combination with the adjustable seed-spout A', provided with teats *g'*, and the furrowing-hoe and covering-shares hinged to the under side thereof and supported by a break-pin, substantially as and for the purpose described.

10. The combination, with the adjustable slotted plate X and feed-spout A', of the fastening-clip *e'*, for securing said feed-spout to said plate, substantially as described.

352,587. APPARATUS FOR REMOVING AND REPLACING THE WHEELS AND AXLES OF RAILWAY-CARS. HUGH SYM, Montreal, Quebec, Canada. Filed Aug. 17, 1886. (No model.)

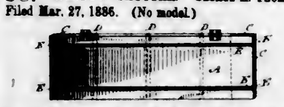
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Claim.—1. The combination of the tracks A B, having removable portions C D E F, pits M N, and pit O, having rails O' O^2, and truck P, having jack for carrying the axle and wheels, the whole constructed and arranged substantially as described.

2. The combination of the truck P, having jack provided with arms V, pivoted to the screw thereof, said arms having bearings B', and jack-screw having bearing C', the whole constructed and arranged substantially as described.

352,588. WINDOW-SHUTTER. GEORGE H. THOMPSON, Frostburg, Md. Filed Mar. 27, 1886. (No model.)



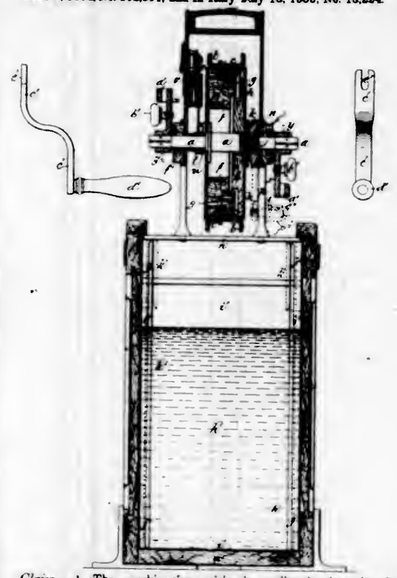
Claim.—1. A shutter-section formed from a single piece of lumber, having its faces worked with grooves and beads to imitate a frame and panel, substantially as set forth.

2. A shutter-section formed from a single piece of lumber, having its faces worked with grooves and beads to imitate a frame and panel, and having the plugs C fitted to the ends of the section, for the purpose set forth.

3. A shutter-section formed from a single piece of lumber, having its faces worked with grooves and beads to imitate a frame and panel, and having the pins D, for the purpose set forth.

4. A shutter-section composed of two or more thin boards united face to face, and having its opposite faces grooved and beaded to imitate a frame and panel, substantially for the purpose set forth.

352,589. NAVIGATIONAL SOUNDING APPARATUS. WILLIAM THOMSON, Glasgow, County of Lanark, Scotland. Filed Feb. 9, 1886. (No model.) Patented in England Dec. 8, 1883, No. 5,675; in France June 6, 1884, No. 162,591, and in Italy May 18, 1885, No. 18,224.



Claim.—1. The combination, with the pulley having the circumferential groove in its periphery, and the shaft to which it is secured, of the wire drum, ring, or wheel fitting loosely and capable of rotating upon said grooved pulley, and a friction clutch or brake for retarding or preventing the rotation of said wire drum independently of the grooved pulley, substantially as set forth.

2. The combination, with the shaft *a*, the disk *e*, the ring *f*, and the blocks *g*, constituting a pulley having a groove in its periphery, of the wire drum, ring, or wheel *b*, the disk *h*, perforated for the passage of the shaft *a*, the ring or disk *i*, secured to said disk *h*, and the nut *k*, working upon a threaded portion of the shaft *a*, substantially as and for the purposes set forth.

3. The combination, with the shaft *a*, the pulley secured thereto and having the groove in its periphery, and the wire drum or ring mounted and adapted to rotate on said pulley, of the elastic disk *h*, having the friction-surface *i*, and means for forcing said disk against the wire drum, whereby its rotation relatively to the pulley is retarded or prevented at pleasure, substantially as set forth.

4. The combination, with the shaft, the pulley fixed thereto, and the wire drum mounted and adapted to rotate upon said pulley, of the pinion *t*, mounted loosely upon the shaft *a*, the arm *u*, secured at its respective ends to said pinion *t*, and the wire drum, the indicator *v*, and gearing connecting said pinion with said indicator, substantially as and for the purpose set forth.

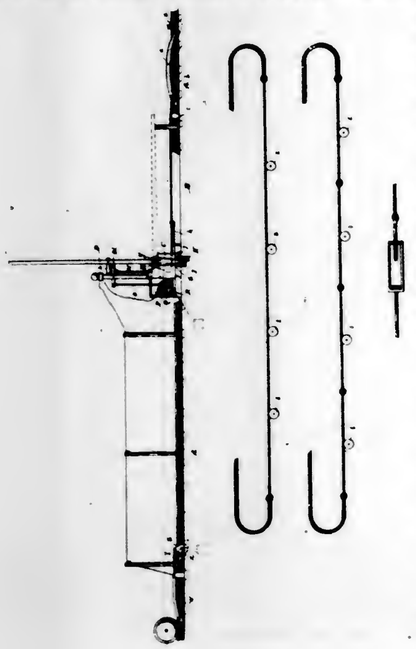
5. The combination, with the shaft *a*, the pulley and the wire drum, ring, or wheel mounted and adapted to rotate thereon, of the friction-disk *h i*, perforated for the passage of the shaft *a*, the nut *k*, engaging a threaded portion of the shaft *a* and having the groove *n*, and the brackets or clips *o*, secured to the friction-disk and engaging in said groove, substantially as and for the purposes set forth.

6. The combination, with the shaft *a*, the pulley secured thereto, and the wire drum, ring, or wheel mounted and adapted to rotate upon said pulley, of the friction-disk *h i*, perforated for the passage of said shaft *a*, the nut *k*, connected to the disk *h* and engaging a threaded portion of the shaft *a*, the arm *l*, projecting from the said nut, the frame, and the locking-bolt *r*, fitting within a socket in the frame and adapted to engage said arm, substantially as and for the purposes set forth.

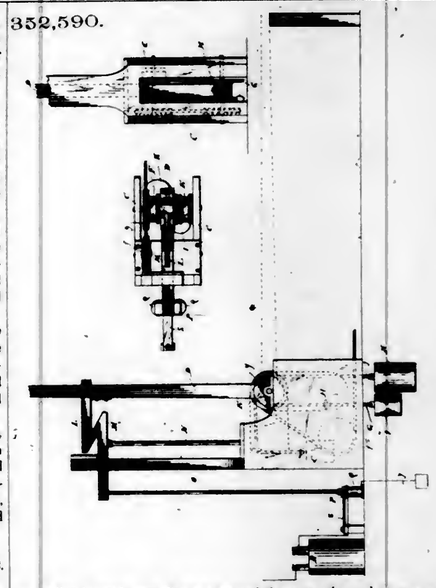
352,590. RAILROAD-GATE. Morton Toulmin, Washington, D. C. Filed Feb. 18, 1886. (No model.)

Claim.—1. The combination, with a pivoted gate having a normal tendency to close, and the locking devices, of a normally-closed electric circuit, a circuit-breaker, an electro-magnet and its armature, the magnet and armature and intermediate devices arranged to control the locking devices, and the gate arranged to return the armature within the magnetic field by its descent, and mechanical mechanism connected with the gate and constructed to open it, said mechanism being adapted to be operated by a passing train, substantially as specified.

2. The combination, with the pivoted gate having a normal tendency to close, of an electro-magnet, the locking-hooks, one of which is controlled by said magnet, the circuit-breaker located in advance of the gate and near the track, and constructed to be operated by the train,



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the pulley located some distance beyond the gate, the rod or rope connecting said pulley with the gate, and means to actuate the said pulley by the passing of a train, whereby the gate is elevated.

3. The combination, with a pivoted gate having a drum and a pulley on its shaft, of the lighter weight suspended from the drum and connected with the shorter arm of the gate, the heavier weight suspended from the drum, the locking-hooks, the electro-magnet, the electric circuit, the pivoted lever, the contact-disk and strip constituting the circuit-breaker, and the pivoted lever, the pulley actuated thereby, and the rod or rope connecting said pulley with the gate.

4. The combination, with a pivoted gate having a drum on its shaft, of two weights of unequal heft, the heavier of said weights being hung from the drum on the inner side of the gate, and the lighter of said weights being hung from the drum on the outside of the gate, and being also connected with the shorter arm of the gate.

5. The combination, with a pedestal, a pivoted hook having rods suspended therefrom, and an electro-magnet and its armature connected with one of said rods, of a pivoted gate having a hook which engages with the first-named hook when the gate is opened, and having weights of unequal heft suspended from opposite sides of its axis, the shorter arm of said gate being adapted to actuate the other of said rods as the gate descends to return the armature within the magnetic field.

6. The combination, with a pivoted gate and the described mechanism to open it by the action of a train, of a wire or rope connecting the gate with said mechanism, and a spring to overcome the slack of the wire or rope.

7. The combination, with a pivoted gate having a normal tendency to close, and locking-hooks to hold the gate in an open position, of an electro-magnet and its armature, the armature controlling one of the locking-hooks, and a device connected with that hook against which the gate acts in closing to return the armature within the magnetic field, from which field it departs when the locking-hooks are freed.

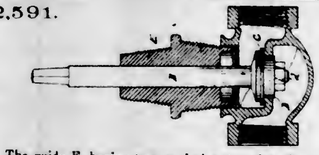
8. The combination, with a pivoted gate having a tendency to close, of an electrical generator, an electro-magnet, hooks to hold the gate in an open position, one of which is controlled by the armature of said magnet, the normally-closed electric circuit, and a circuit-breaker consisting, essentially, of the rocking disk, and an operating-lever connected thereto and located in proximity to a railway-rail.

9. The combination, with a pivoted gate having a normal tendency to close and a wire or rope connected thereto, so as to elevate it when drawn, of a pivoted inclined lever located near a railway-rail some distance beyond said gate, a rock-shaft with which such lever is pivotally connected, and a pulley mounted upon said shaft, to which said wire or rope is connected.

352,591. DEVICE FOR DRESSING VALVE-SEATS. Harvey R. Tower, Holyoke, Mass. Filed Feb. 26, 1886. (No model.)

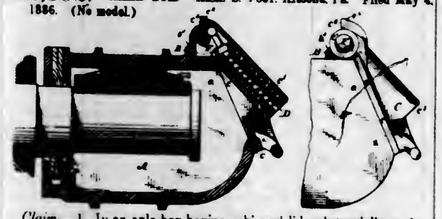
Claim.—1. In a tool for dressing the seats of globe-valves, the combination of the stem B, cutter C, and guides D and E, substantially as and for the purpose set forth.

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2. The guide E, having two conical or tapering threaded parts of different sizes, and a central opening, adapted to receive the stem of a dressing-tool, substantially as set forth.

352,592. AXLE-BOX. Axel S. Voet, Altoona, Pa. Filed May 4, 1886. (No model.)



Claim.—1. In an axle-box having a hinged lid, substantially as described, the combination of a compressing-arm journaled or pivoted on the box, with a spring abutting against the lid and transmitting its pressure thereto in one direction and through the compressing-arm to the box in the other direction, substantially as and for the purpose shown and described.

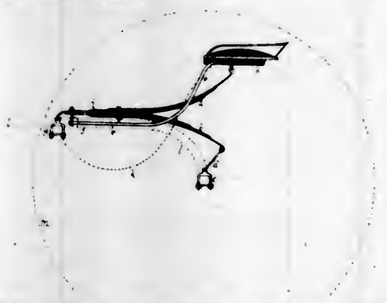
2. In an axle-box having a hinged lid, substantially as described, the combination of the compressing-arm pivoted on the box, the spring abutting against the lid, and the lid-hinge arranged in relation to the arm-pivot and line of thrust of the spring, substantially as shown and described, so that one component of the pressure between the spring and the compressing-arm is directed toward the fitting-face of the lid when it is closed and away from said face when it is wide open.

3. In an axle-box having a hinged lid, substantially as described, the combination of the socket *b'*, situated on the box, the pocket c^2, formed in the lid, the spiral spring D, and the compressing-arm E, pivoted at one end in the socket *b'*, and having its other end inclosed in the pocket c^2 and resting against the spring D, all substantially as and for the purpose specified.

4. In an axle-box having a hinged lid, the combination of the socket *b'*, situated on the box, the lid C, having a spring secured thereto, substantially as and for the purpose specified, and having a hood, c^2, extending over and covering the socket *b'*, and the compressing-arm pivoted in the socket *b'* and bearing against the spring, all substantially as and for the purpose specified.

5. In an axle-box having a hinged lid, the combination of the hinge-lug B, having a bearing or socket, *b'*, and a slot, b^2, extending downward from the bottom of said socket, the door or lid C, having hinge-lugs *c' c'*, a box or pocket, c^2, and hood c^2, extending over the open socket *b'*, the spring D, and compressing-arm E, having arms *e e*, all substantially as and for the purpose specified.

352,593. ROAD-CART. William J. Wayne, Decatur, Ill. Filed Mar. 8, 1886. (No model.)

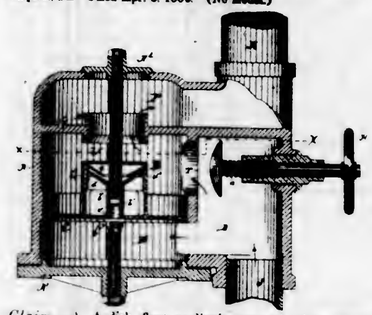


Claim.—1. In road-carts, the combination, with the seat, the axle, and the circle-bar, of bifurcate springs, as *a b i*, having their integral ends pivotally connected with the circle-bar, and their bifurcations pivotally connected with the seat and axle, respectively, and inelastic braces rigidly attached to the seat and having their extending ends supported in a manner permitting motion in the direction of their lengths, as and for the purpose set forth.

2. In road-carts, the combination of bifurcate springs, as *a b i*, connected with the circle-bar and seat through the integral ends and upper bifurcations, respectively, and swinging supports, as *d*, interposed between the axle and the lower bifurcation, as and for the purpose set forth.

3. In road-carts, the combination of bifurcate springs, as *a b i*, pivotally connected with the circle-bar and seat through the integral ends and the upper bifurcations, respectively, supports, as *d*, interposed between the axle and lower bifurcations of the springs, and braces, as *c*, rigidly attached to the seat and having their extended ends supported in a manner permitting motion in the direction of their lengths.

352,594. VOLUMETRIC REGULATOR. Moses G. Wilder, Philadelphia, Pa. Filed Apr. 8, 1886. (No model.)



Claim.—1. A disk, float, or diaphragm and valve combined and operating so that the valve is opened automatically with an increase of delivery and closed automatically with a reduced delivery, combined with a suitable inclosing shell or case and an adjustable opening into said case, and a hand-wheel with a spindle and valve for adjusting said opening from the outside of the case, substantially as set forth.

2. A float and its valve mounted upon a centrally-located rod or post so as to rise and fall freely upon said rod or post, combined with a disk made adjustable upon said rod when required, said disk operating to balance the valve, so that it remains unaffected by variations of initial pressure and responds to variations of volume, acting upon the float only as may be required to maintain a constant delivery at varying pressures in the supply, substantially as described.

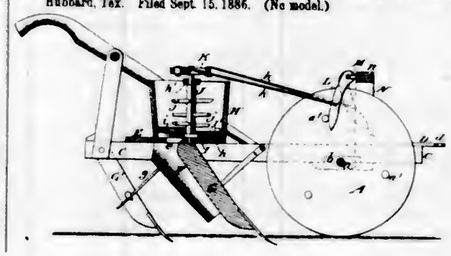
3. A float and valve mounted upon a rod or post in the regulator shell or case, combined with a chamber above the float and an adjustable gas-inlet, through which the gas enters said chamber and from which it flows to said valve, the float and its valve so arranged as to be lifted and held poised in the gas-current in a position when the gas entering said chamber flows from it through said valve at a constant predetermined rate, substantially as described.

4. A volumetric regulator consisting of the shell or case A, with removable top and bottom, A^2 A', central rod *a'*, passing through said top and bottom, and secured thereto by nuts, as shown, valve G, float C, and inlet and outlet J K, all combined and operating substantially as set forth.

5. The combination, with a volumetric gas-regulator, substantially as described, of the valve G and the conical re-entering shell *e*, which operates to protect the contact-surfaces *d'* from any drip or other deposit from the gas which flows past the edges of the valve, substantially as described.

6. An annular valve and float, substantially as described, mounted upon a rod or post and having its guiding-contact at the top upon the edges of a ring or disk made adjustable when required, and its guiding-contact at the bottom directly upon the rod itself, or upon a covering-shell of less diameter than that of said ring or disk, so as to reduce as far as possible the friction due to said contact, substantially as set forth.

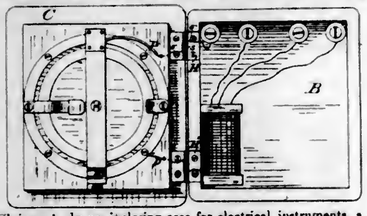
352,595. CORN AND COTTON PLANTER. John W. Williams, Hubbard, Tex. Filed Sept. 15, 1886. (No model.)



Claim.—1. In a planter, the upright frame N, supported on the beams C C and carrying the two pivoted arms L L, in combination with the wheel A, having studs on both sides, the wires *k k*, and the lever middle fastened to the agitator-shaft, as and for the purpose specified.

2. In a planter, the combination, with a hopper having the circular excision *h* in its bottom, of the horizontal feed-wheel I and arms *j*, fast to a vertical vibratory shaft, J, as shown and described.

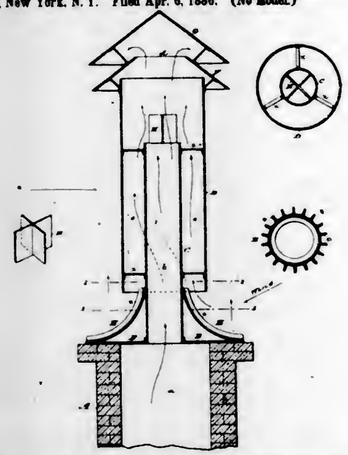
352,596. HINGE-CONNECTION FOR ELECTRICAL INSTRUMENTS. GEORGE W. WILSON, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed June 26, 1884. (No model.)



Claim.—1. In an inclosing-case for electrical instruments, a spiral wire constituting the hinge or part of the hinge, and also a circuit-connection between the separable or movable parts of said case, substantially as described.

2. In a case for electrical instruments, a hinge composed of a spiral wire and forming part of an electric circuit, substantially as described.

352,597. CHIMNEY-CAP AND VENTILATOR. FREDERIC W. WOHLFERT, New York, N. Y. Filed Apr. 6, 1886. (No model.)



Claim.—1. A chimney-cap and ventilator comprising, as its essential elements, a substantially cylindrical pipe, C, forming the smoke or foul-air flue, a deflector, E, of substantially the character described, arranged around the base of said pipe, a drum, D, arranged around said pipe B and extending above it, which forms an annular flue, *e*, said drum being open at both top and bottom, and a conical cap or caps over the upper end of the drum.

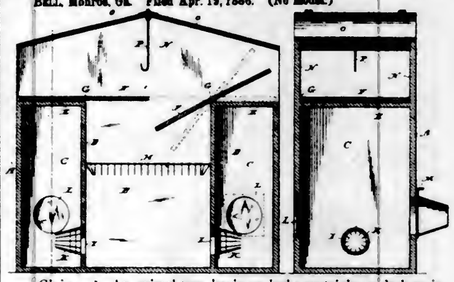
2. The combination, with the base-plate B, the substantially cylindrical pipe C, and the deflector E, all arranged substantially as set forth, of the drum D, arranged to surround the pipe C and to form a single annular flue, *e*, said drum extending from about the top of the deflector E to a point above the top of pipe C, and open at both ends, the conical cap F, with a central aperture, *d*, and the cap G, said caps being mounted over the top of drum D.

3. The combination, with the pipe C and drum D, arranged as set forth, of the deflector E, arranged to surround the base of pipe C below the open lower end of the drum, and provided with ribs c c, extending down its sides.

4. The combination, with the pipe C and drum D, arranged as set forth, of the conical or pyramidal deflector E, provided with concave inclined surfaces, as shown, and ribs c c, said deflector being arranged to surround or embrace the base of pipe C.

5. The combination of the pipe C, of substantially cylindrical form, the deflector E at its base, the drum D, arranged as shown, to form a single annular flue, *e*, around the pipe C, and open above and below, and the deflector H, of substantially the form shown, mounted on the top of pipe C.

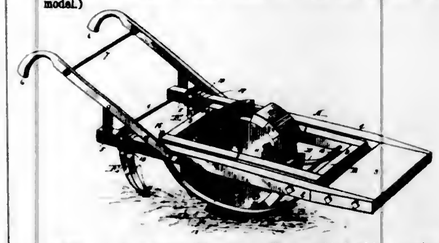
352,598. ANIMAL-TRAP. NOTLEY W. WORTHAN and JAMES I. J. BELL, Monroe, Ga. Filed Apr. 19, 1886. (No model.)



Claim.—1. An animal-trap having a body containing a dark main receiving-compartment, and closed side receiving-compartments, to which light is admitted, leading from the main compartment and formed by fixed partitions, and cover-pieces within the body, tilting platforms extending from the edges only of the trap over the side and main compartments, a roof supported by upward extensions of the sides of the trap and having one side hinged, and a bait-holder under said roof, substantially as described.

2. An animal-trap having a body containing a dark main receiving-compartment, and closed side receiving-compartments, to which light is admitted, formed by fixed partitions and cover-pieces within the body of the trap, the said side compartments leading from the main compartment, platforms pivoted above and extending over the compartments to the edges only of the trap, a row of downwardly-projecting wires around the sides of the compartment, guarded passages leading from the main to the side compartments, and guarded openings in the side compartments for the admission of light, substantially as described.

352,599. COTTON THINNER AND CULTIVATOR. NOTLEY W. WORTHAN and JAMES I. J. BELL, Monroe, Ga. Filed July 26, 1886. (No model.)



Claim.—1. In a cotton-thinner, a roller provided with a sectional rim formed of blocks adjustable around the periphery of said roller, whereby any desired number and relative size of recesses and rolling-surfaces may be formed without removing the blocks, substantially as described.

2. In a cotton-thinner, a roller having a body formed of disks or plates and blocks arranged at intervals around the periphery of the body, and means for clamping the blocks adjustably between said plates, substantially as described.

3. A cotton-thinner consisting of a frame carrying plows or coverers, a roller with a rim provided with alternate crushing-surfaces and recesses, guards or fenders at the sides of the roller, and pivoted connections between the roller and frame, substantially as described.

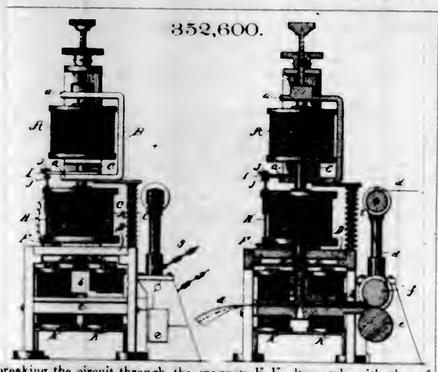
4. A cotton-thinner consisting of the main frame A, pivoted frame B, roller C, with alternate crushing-surfaces and recesses, and adjustable guards or fenders D at the sides of the roller, substantially as described.

352,600. TELEGRAPH-INSTRUMENT. CHANCY G. WRIGHT, Chicago, Ill. Filed Jan. 26, 1886. (No model.)

Claim.—1. The magnet, the armature, the guide-rod thereof extending axially through said magnet, and the punch disconnected from and intermittently actuated by said guide-rod, in combination with a tape-guide having a passage therein for the punch, and a separate passage for the tape, extending across the punch-passage, whereby the tape in its forward movement will be prevented from a vertical movement, substantially as described.

2. The punch and a guide for the tape, said punch being actuated by an armature for depressing it, in combination with the lever I, magnets K K, contact-points *m m*, and means for automatically making and

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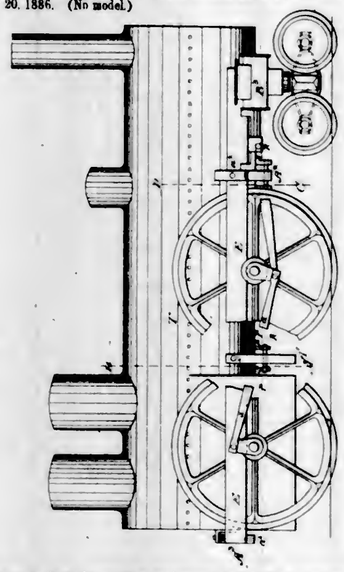
breaking the circuit through the magnets K K alternately with that of the magnets A A, substantially as described.

3. The punch and a guide for the tape, said punch being actuated by an armature for depressing it, in combination with lever I, magnets K K, contact-points *m m*, spring-actuated hook, the armature B, and the battery, substantially as described.

4. The magnets A A, located one above the other, a sliding guide-rod extending axially through said magnets, and the armatures rigidly secured to said guide-rod, in combination with the perforating-punch located in the path of travel of said guide-rod, the tape-passage, the contact-points F and G, rod H, guide-rod *i*, spiral spring *l*, and projection *l'*, substantially as and for the purpose set forth.

5. The punch, an electro-magnet, and circuit-breaking devices for operating said punch and the feed-rollers, in combination with a tape-passage having an enlarged portion intermediate said punch and rollers, whereby a buckling of the tape is permitted, substantially as described.

352,601. LOCOMOTIVE. WILLIAM ANDERSON, Denver, Colo. Filed May 20, 1886. (No model.)



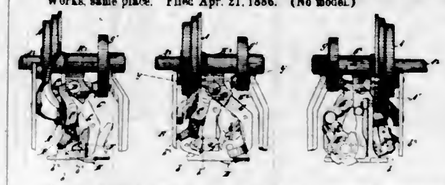
Claim.—1. In a locomotive engine and boiler, the combination of the cross-bar A', secured to the side frames, E E, together with the plates P, which have recesses or oblong holes *r* to allow the action of the spring, and the pin R, secured to the cross-bar A', substantially as described.

2. In a locomotive engine and boiler, the combination of the cross-bar A' with frames E E and pin D, with the springs *d*, together with the pins R, substantially as described and set forth.

3. In a locomotive engine and boiler, the combination of the frames E E and distant pieces F F with cross-bar A', with its pins D and springs *d*, and plate P, substantially as described and set forth.

4. In a locomotive engine and boiler, the combination of the saddle H with the dovetail groove G and sliding piece O, secured to the boiler T by the rivets O', and the saddle-bolts *f f*, fastened to the beam M, substantially as described and set forth.

352,602. KNOTTING APPARATUS FOR GRAIN-BINDERS. JOHN F. APPLEBY, Minneapolis, Minn., assignor to the Minneapolis Harvester Works, same place. Filed Apr. 21, 1886. (No model.)

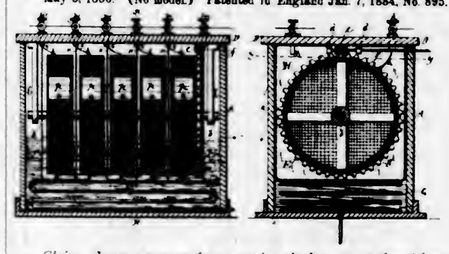


Claim.—1. In knotting apparatus for grain-binders, the combination, as herein set forth, of a cord-holder, a swinging tucker-arm carrying the pawl for impelling the cord-holder disk, a swinging frame carrying the rotating knotter-shaft, and means for rocking the tucker and pawl-carrying arm and the knotter-shaft frame toward and from each other at appropriate stages of the knotting operation.

2. The knotter-shaft frame C, the tucker and pawl-carrying arm G, the pivot D, serving as a common axis for the frame C, and the arm G, a cord-holder, and means for imparting swinging movements toward and from each other to the frame C, and the tucker and pawl-carrying arm G at appropriate stages of the knotting operation.

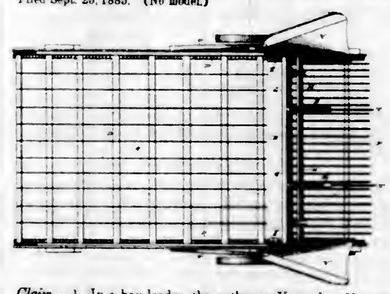
3. The cord-guiding hook F, mounted upon the swinging frame C, in combination with the knotting-bill and cord-holder, and the stationary knife F, as and for the purposes set forth.

352,603. RECOVERING TIN FROM WASTE TINNED IRON. WILLIAM BEATSON, Ash Mount, Rotherham, County of York, England. Filed May 5, 1886. (No model.) Patented in England Jan. 7, 1884, No. 895.



Claim.—In an apparatus for recovering tin from waste tinned iron by the combined use of a chemical solution and electricity, the combination of the tank or boiler A, containing the steam-pipes G, the cover D, having suspended therefrom the gauze-cylinders B on axle *b*, supported in bearing-brackets C C, cog-wheel E, worm-wheel *e*, and crank-shaft *f*, said gauze-cylinders being connected to the positive pole of a battery or dynamo, and the depositing-plates H H, placed between said cylinders and connected to the negative pole of a battery or dynamo, all arranged and combined substantially as and for the purpose set forth.

352,604. HAY-LOADER. DAVID W. BOVER, Richland Centre, Wis. Filed Sept. 25, 1885. (No model.)

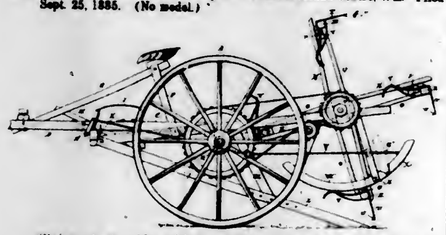


Claim.—1. In a hay-loader, the gatherers V, made widest at their rear and narrowest at their front ends, and provided with vertical flanges along their outer edges, and having their inner edges curved downward, the curvature increasing from their rear ends toward their front ones, substantially as shown.

2. The combination of the rake-teeth with the auxiliary teeth placed in the rear thereof, and provided with loops on their lower ends, substantially as described.

3. The combination of the rake-teeth with the auxiliary teeth placed in the rear thereof, the auxiliary teeth being made longitudinally adjustable in relation to the rake-teeth, substantially as set forth.

352,605. **TEDDER.** David W. Boyer, Richland Centre, Wis. Filed Sept. 25, 1885. (No model.)



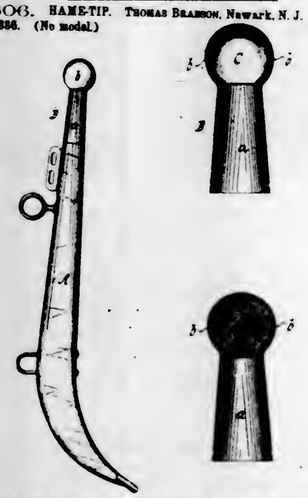
Claim.—1. A tedder with a reel having tooth-bars pivoted therein, and each carrying an arm at one end, and a segment-frame on the reel-carrying frame, said segment-frame having a hinged connection at its rear end, and which is adapted to be raised upward, substantially as specified.

2. A tedder having a reel with arms formed of pieces, one projecting more than the other, and tooth-bars pivoted on one side to said arms between the same, and engaging with the end of one piece and the side of the other, substantially as specified.

3. In a tedder, a reel provided with the bars R, to each one of which is attached a set of teeth, T, and a set of teeth, U, bent near their outer ends in a direction opposite to the motion of the reel, substantially as specified.

4. A tedder with a reel having pivoted tooth-bars, and a segment-frame with a hinged extension, a rod extended from the same to the front of the main frame of the said tedder, and a rock-shaft connected to said rod and operating the same, substantially as specified.

352,606. **HAME-TIP.** Thomas Branson, Newark, N. J. Filed Mar. 25, 1886. (No model.)



Claim.—A hame-tip consisting of the spheroidal lining, and the shank and globular head made seamless and jointless, substantially as described.

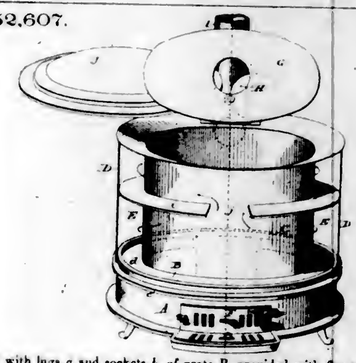
352,607. **STRAW-BURNER.** Emanuel Clotter and Andrew Mockenhaupt, Pierre, Dak., assignors, by direct and mesne assignments, to the North Western Straw Fuel Company, same place. Filed Apr. 21, 1886. (No model.)

Claim.—1. In combination with base A, grate B, resting thereon, magazine C, resting upon said grate and provided with a flared mouth, and a jacket, D, resting upon the base A, and encircling the magazine and forming an intermediate chamber, E, as and for the purpose set forth.

2. In combination with base A, having lugs *a*, grate B, provided with a flange, *d*, to rest thereupon, and with an outlet, *g*, magazine C, provided with flange *i* and opening *j*, and jacket D, all arranged substantially as shown.

3. In a straw-burner, the combination, with base-section A, provided with lugs *a* and sockets *b*, of grate B, provided with flange *d* and arms *e*, arranged substantially as shown.

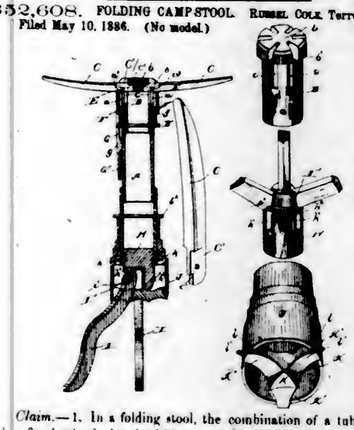
352,607.



4. The grate B, having the inwardly-turned fingers *f* rigidly secured on two or more sides, when combined and arranged to operate substantially in the manner shown.

5. The herein-described straw-burner, comprising base A, grate B, provided with flange *d*, opening *g*, and bent fingers *f*, magazine C, provided with flange *i*, opening *j*, and a flared mouth, incasing-jacket D, provided with outlet I, cap J, and door G, secured to the top of the magazine.

352,608. **FOLDING CAMP-STOOL.** Russel Cole, Terre Haute, Ind. Filed May 10, 1886. (No model.)



Claim.—1. In a folding stool, the combination of a tubular standard, a fixed tube inclosed within the standard, the swinging arms supported by the fixed tube, and a sliding sleeve fitted over the standard independently of the arms, and impinging against the latter to simultaneously close the same, substantially as described, for the purpose set forth.

2. In a folding stool, the combination of a tubular standard, a slotted tube fixed in the upper end of the standard, the radial arms fitted in the slots of the tube and pivoted therein, a sleeve fitted over the standard on the outer periphery thereof and impinging upon the radial arms, and a locking device for retaining the sleeve in its elevated position to hold the arms folded together, substantially as described, for the purpose set forth.

3. In a folding-stool, the combination of a tubular standard, the tube detachably fixed in the upper end of the standard and having the head and the vertical radial slots, the radial arms having the notched inner ends fitted and pivoted in the slotted head of the tube, a sleeve fitted over the standard beneath the arms and impinging against the latter, and means for locking the sleeve in its elevated position, substantially as described, for the purpose set forth.

4. The combination of a slotted standard, a slotted tube having a solid cap and detachably fitted in the standard, a ring or band fitted on the tube beneath the edges of the cap thereof, the swinging arms pivoted on the ring and having the inner ends thereof bearing against the cap of the tube when unfolded, and a sleeve for actuating the arms, substantially as described.

5. The combination of a slotted standard, a tube fitted therein and having a projecting cap and the vertical slots, a pin passing through the standard and tube to detachably connect the tube to the standard, a ring or band fitted around the tube and beneath the edges of the cap thereof, the radial arms having the shoulders *c* and the notched tongues fitted in the slots of the tube and pivoted on the ring, and a sliding sleeve fitted on the standard to actuate the arms, substantially as described.

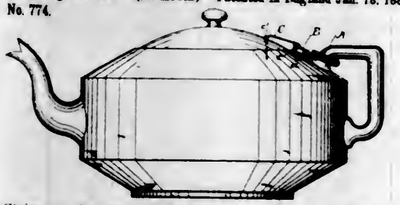
6. The combination of a standard, the swinging arms carried by the standard, a sleeve for actuating the arms and having a shoulder, *f*, a pivoted latch carried by the standard, and a spring for normally retaining one end of the latch in contact with the sleeve, substantially as described.

7. The combination of a standard, the swinging curved legs loosely connected at their upper inner ends within the lower end of the standard, and having their inner and opposing edges beveled or inclined and normally in contact with each other, a sleeve fitted over the lower end of the standard and impinging upon the outer sides of the legs, and means, carried by the sleeve, for spreading the legs when the sleeve is elevated, substantially as described, for the purpose set forth.

8. The combination of a standard, the swinging legs, a sleeve bearing against the outer edges of the legs for closing the latter when the sleeve is moved in one direction, and a spider carried by the sleeve and bearing against the inner edges of the legs, for distending them when the sleeve is moved in the reverse direction, substantially as described.

9. The combination of a tubular standard, a slotted plug fitted therein and having a circumferential groove, the longitudinally-curved legs having the notched inner ends fitted in the slots of the plug and normally in contact with each other, a ring or band in the groove of the plug and notches of the legs, a sleeve fitted on the standard, a spider carried by the sleeve, and a stop fitted in the standard for limiting the sliding movement of the sleeve in one direction on the standard, substantially as described, for the purpose set forth.

352,609. **ADJUSTABLE LID-HOLDER FOR TEA-POTS AND OTHER VESSELS.** Meshach Dean, Webstaston, County of Stafford, England. Filed Aug. 24, 1886. (No model.) Patented in England Jan. 18, 1886, No. 774.



Claim.—1. An extensible elastic loop for attachment to the body of a vessel, in combination with a hook pivotally connected to the said loop, and a lid provided with a hole with which the said hook may engage.

2. An extensible elastic loop formed of a helical coil of wire for attachment to the body of a vessel, in combination with a hook pivotally connected to the said loop, and a lid provided with a hole with which the said hook may engage.

3. The combination of an extensible elastic loop for attachment to the body of a vessel, provided with an eye at each end, a bar provided with hooks engaging with the said eyes, and a hook pivotally connected to the bar for holding the lid.

4. The combination of an extensible elastic loop for attachment to the body of a vessel, provided with an eye at each end, a bar provided with hooks, one of which is permanently secured to one of said eyes, and the other hook detachably connected to the remaining eye, and a hook pivotally connected to the bar between the aforesaid hooks for holding the lid.

352,610. **CHURN-DASHER.** William E. Duff, Brookville, Pa. Filed Aug. 26, 1886. (No model.)

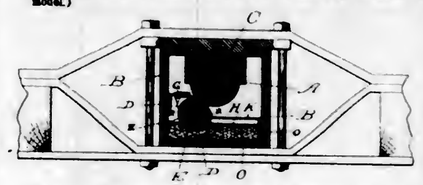


Claim.—A churn-dasher comprising the rotary shaft A and the downwardly-inclined blades B, affixed to and extending outward from the staff, the wheels C, loosely journaled directly to one side of and parallel with the blades at the lowest point thereof, and wings C', provided on the wheels and extended above the blades, whereby the blades will cut through the cream, and the currents descending or deflected down the blades will strike the wings of the wheels, as set forth.

352,611. **EXPLOSIVE COMPOUND.** Eugene Du Pont, Wilmington, Del. Filed June 16, 1886. (No specimens.)

Claim.—An explosive compound consisting of a nitrate and sulphur combined with charcoal retaining its fibrous structure, substantially as described.

352,612. **CAR-AXLE BOX.** Rudolph Faas, Chicago, Ill., assignor of one-half to William Tannig, same place. Filed Aug. 2, 1886. (No model.)



Claim.—1. The combination of the roller E with the metal frame D D, open upon the bottom to permit the roller E to play in or receive the lubricant which is then served upon the journal A, substantially as set forth.

2. The combination of the roller E, consisting of cork, leather, felt, cloth, paper, or other porous substance for receiving, holding, and serving the lubricant to the journal A, with the metal frame D D and extension H H, substantially as above described and set forth.

3. The combination of the roller E, partially covered and protected by the guards or aprons *a a*, bearing upon the blocks *d d*, resting upon the spiral springs F F, operating upon the journal A, substantially as described.

4. The combination of the roller E with the frame D D and extension H H, with the cover K and adjustable spring-cover G, for the purpose of keeping the journal continuously lubricated and of protecting the lubricant from dirt, sand, or other foreign material, substantially as set forth and described.

5. The combination of the roller E, having capillary attraction, with the apron or guards *a a*, the blocks *d d*, the set-screws *x x*, the flanges *y y*, centered and countersunk, the rod *z*, the spiral springs F F, the frame D D and H H, and covers G and K, substantially as described for the purpose specified.

6. The combination of the roller E on its frame D D, its adjustable bearing, and protected with its aprons or guards, as above described, with the device resting upon the bottom of and in the lower corner of the journal-box and upon my device B, Fig. 1, which allows the roller E to engage with the journal A at an angle of about forty-five degrees, (more or less,) as above described, thereby allowing the journal to play freely in the journal-box without injury to my roller and frame, substantially as set forth.

352,613. **PROCESS OF AND APPARATUS FOR GENERATING COMPOUND GASES.** Charles G. Fairchild, Oberlin, Ohio. Filed Aug. 27, 1885. (No model.)

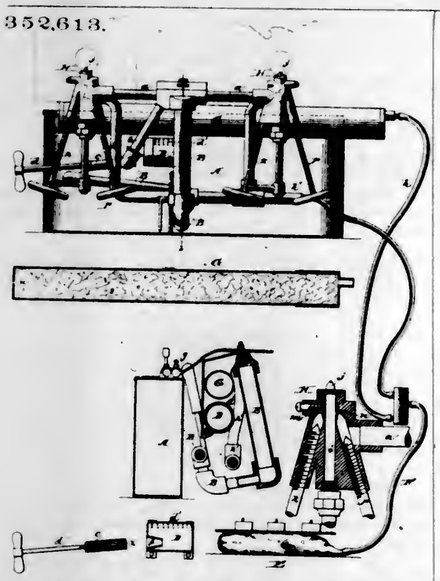
Claim.—1. The within-described improvement in generating compound gases from different liquid and solid materials, the same consisting in feeding the liquid from the main supply into a heated generator in quantities sufficient to generate the gas required for immediate use, in adjusting the relative positions of the retort containing the entire mass of solid material and the heater so as to heat only so much of the retort at any one time as is necessary to generate the amount of gas required at such time, and in then combining the gases, substantially as described.

2. The combination, in an apparatus for making a compound burning-gas, of a reservoir of liquid material, a generator communicating therewith, a heater, a retort containing the entire mass of solid material to be used, adjustable in respect to the heater so as to carry the heating-point gradually toward the closed end of the retort, a nozzle or burner, and connections between the latter and the retort and generator, substantially as described.

3. The combination of the receptacles for solid and liquid materials, two generators, a single burner communicating therewith, a heater arranged to heat both generators, and an air-bag containing air under pressure and communicating with the liquid-receptacle, substantially as described.

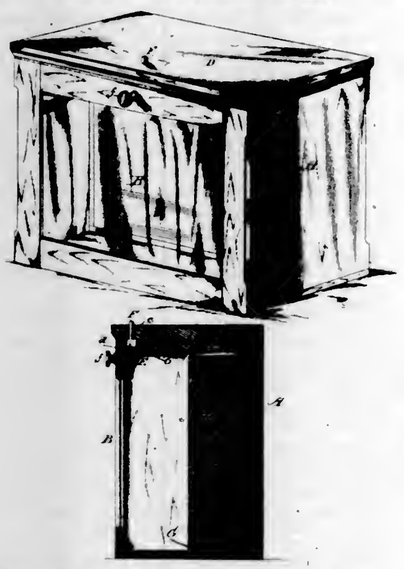
4. The combination of a burner or heater for burning a vapor or gas, a gas-generator arranged to be heated by said burner, a reservoir containing the material from which the gas is generated, connections

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between the reservoir and the generator and between the generator and the burner, whereby the latter is supplied with a portion of the gas generated, a second reservoir containing material from which another gas may be generated by heat, said reservoir being adjustable in respect to the burner, and connections whereby the gases produced in both generators are brought together, substantially as set forth.

352,614. BOX OR SHOW-CASE FOR PLUG-TOBACCO. JOHN W. FASHING, Garnett, Kans. Filed Apr. 30, 1886. (No model.)



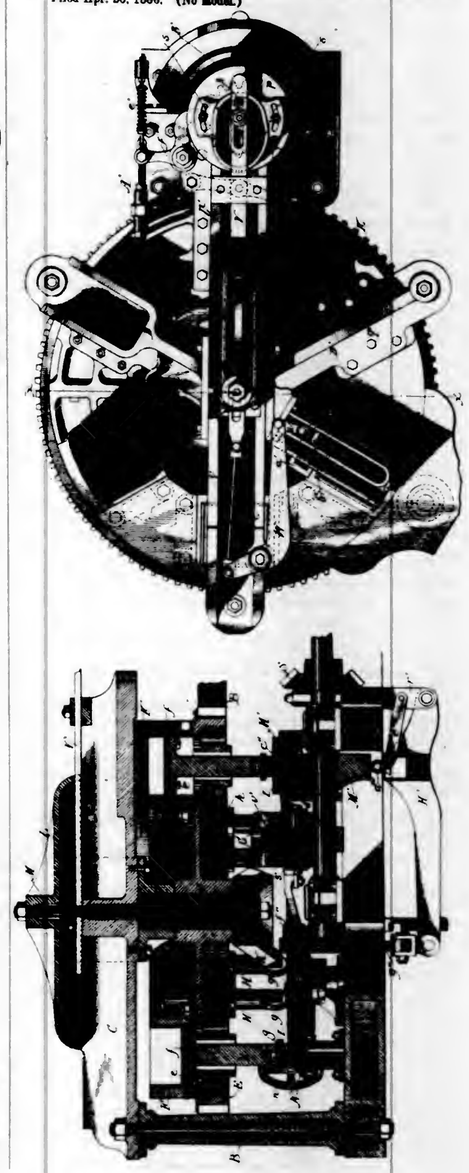
Claim.—The combination, with a box or show-case for plug-tobacco provided with a glass door or cover, of a spring-latch device having a shank, and a push-bar playing through the top of the box or case, a reenforce panel secured to the under side of the top and clamping the shank thereagainst, and beveled at its front to form a stop and seat for the shank, substantially as set forth.

352,615. PROCESS OF PURIFYING AND HARDENING COPPER AND COPPER ALLOYS. FRANCIS M. FORMAN, Otisco, Mich. Filed Jan. 4, 1886. (No specimens.)

Claim.—1. The improvement in the art of refining and hardening copper, which consists in fusing the copper and a carbonate together in a suitable vessel and burning carbonaceous material above the same, the temperature of the copper being kept near its point of fusion, substantially as described.

2. The improvement in the art of refining and hardening copper, which consists in fusing copper and a carbonate together in a suitable vessel, supplying carbonaceous matter to the surface of the materials, removing slag, and pouring the metal, substantially as set forth and described.

352,616. BRICK-MACHINE. WILLIAM L. GREGG, Philadelphia, Pa. Filed Apr. 20, 1886. (No model.)



Claim.—1. In a brick-machine, a track for the lower ends of the follower-stems provided with a movable piece, N, provided with two or more inclines, *j*, on the under side, in combination with a support, O, provided with two or more inclines, *k*, substantially as and for the purpose specified.

2. In a brick-machine, a track for the lower ends of the follower-stems having a movable part consisting of two pieces, N *i*, and a rack on the part N, in combination with a worm-wheel, *m*, substantially as and for the purposes specified.

3. In a brick-machine, a fulcrum-pin, *i''*, provided with an eccentric *h''*, for the purpose of varying the position of the fulcrums of the pressure-levers, as may be desired for brick of different thicknesses, substantially as specified.

4. In a brick-machine, the pressure-lever G', forked at its inner end, and the pressure-lever I', having its inner end between the arms of the fork-lever G', in combination with a main shaft, R, and a cam, J', provided with rollers *s'*, whereby the single cam J' operates both levers G' I' simultaneously, substantially as and for the purposes specified.

5. In a brick-machine, a mold-table provided with mold-boxes, followers in the mold-boxes, follower-stems supported on a track having movable parts *u' a'' c''*, and a counter-pressure plate, F'', in combination with three pressure-levers, G' H' I', a main shaft, R, cam J', provided with rollers *s'*, crank *f''*, pitman *g''*, and pressure-blocks K' L' M', substantially as and for the purposes specified.

6. In a brick-machine, a revolving mold-table having mold-boxes thereon provided with notches *i'*, in combination with a mutilated pinion, B', cam C', a sliding and locking bar provided with teeth to engage with the notches *i'*, and a latch, *j''*, pivoted to said sliding and locking bar, substantially as and for the purposes specified.

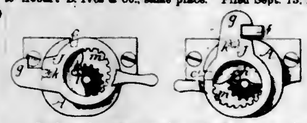
7. In a brick-machine, a sweep-box, *a'*, in combination with a cam, *r*, sliding bar V, and bell-crank lever W, substantially as and for the purpose specified.

8. In a brick-machine, a main shaft, R, miter-wheels S U, and shaft T, in combination with a cam, *r*, sliding bar V, sweep-box *a'*, and connections between the bar V and box *a'*, substantially as and for the purpose specified.

9. In a brick-machine, a pivoted hopper, in combination with a mutilated pinion, *d'*, lever *f'*, bar A', and spring *e'*, substantially as and for the purposes specified.

10. In a brick-machine, the combination of a bed-plate, A, posts B, trusses C D D', hood L, pivot J, for the hub of the mold-table, supports K, for the pivot J, and bolt M, substantially as and for the purposes specified.

352,617. SASH-FASTENER. HOBART B. IVES, New Haven, Conn., assignor to Hobart B. Ives & Co., same place. Filed Sept. 13, 1886. (No model.)



Claim.—1. In fastenings for meeting-rails for sashes, the combination, with a base-plate, of a latch guided on the base-plate and provided with a rack or series of gear-teeth, a knob or lever arranged to turn upon the base-plate, and provided with a pinion or gear for engaging the teeth of the latch to close the fastener and draw the sashes together, and means for locking the latch at either or both extremities of its throw, substantially as and for the purpose described.

2. In fastenings for meeting-rails for sashes, the combination of a latch mounted and guided upon a base-plate and provided with a rack or series of gear-teeth, with a pinion or gear secured upon an external knob or lever supported in the base-plate and intermeshing with the teeth of the latch, as and for the purpose specified.

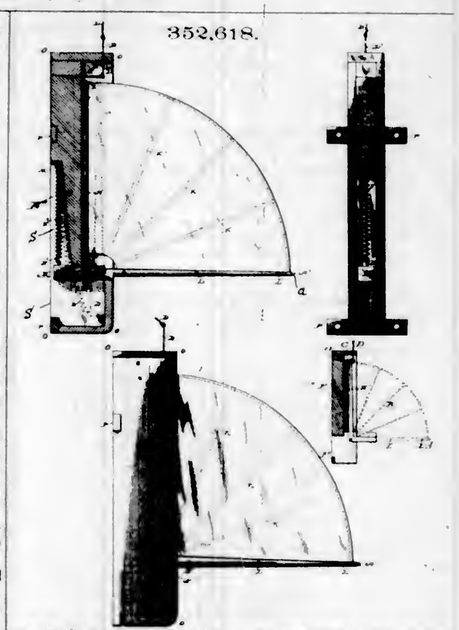
3. In combination, the base-plate A, having the central perforation, *b*, pin *h*, and slots *c c'*, the hooked latch J, having the pin *k* and central slot, *i*, by which it is guided upon the projection *h* on the base-plate, and provided with a rack or series of gear-teeth, the knob or lever L, mounted upon the base-plate, and provided with a pinion or gear for intermeshing with the teeth of the latch, and the base-plate E, having a raised projection or catch, *f*, all combined substantially in the manner and for the purpose described.

352,618. DANGER-SIGNAL. HALCOTT P. JONES, Hillsborough, N. C. Filed May 15, 1885. (Model.)

Claim.—1. In a car-signal, the combination, with a suitable case, of a fixed and a pivoted standard, a signal-flag secured to the standards, means for holding and releasing the pivoted standard, and a spring attached to the pivoted standard at one end and to the case at its other end, substantially as set forth.

2. In a car-signal, the combination, with a suitable case, of a fixed and a pivoted standard, the latter being provided with a neck, a signal-flag connecting said standards, a perforated spring-catch to engage the neck, means for releasing the catch from engagement with the neck, and

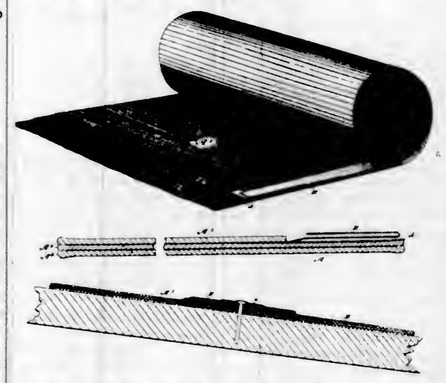
352,618.



a spring for moving the pivoted standard away from the fixed standard, substantially as set forth.

3. In a car-signal, the vertical stationary standard H, the pivoted standard, the signal-flag secured in slits of said standards, as described, the spring secured to the pivoted standard, the spring-catch C, the handle D, and the rope secured thereto, substantially as set forth.

352,619. ROOFING-FELT. FREDERICK L. KANE, Brooklyn, N. Y. Filed Jan. 5, 1886. (No model.)



Claim.—1. A roofing-felt consisting of two or more layers of water-proof felt cemented together, with the edge of the second layer, A^2, extending beyond the edge of the upper layer, A', along one side, and provided with a free flap, B, of cloth, with its edge cemented under the edge of the layer A', substantially as set forth, whereby this flap may be turned up while nailing the lap, and may subsequently be turned down to cover the joint.

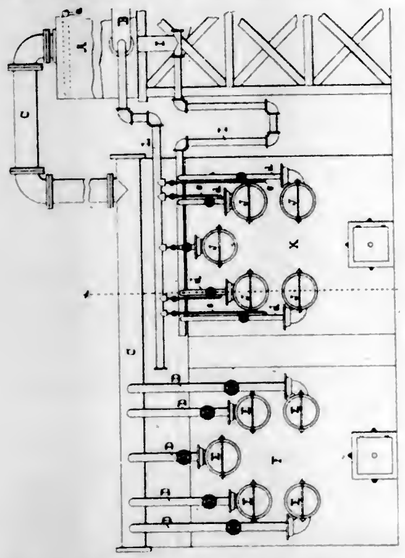
2. A roofing-felt consisting of two or more layers of water-proof felt cemented together, with the edge of the second layer, A^2, extending beyond the edge of the upper layer, A', along one side, and provided along that side with a free flap, B, of flexible cloth, with its one edge cemented under the edge of the layer A', and extending beyond that edge across the layer A^2 to and beyond the edge of the latter, and uncemented thereto, substantially as and for the purposes set forth.

3. A roofing-felt consisting of two or more layers of water-proof felt cemented together, with the second layer, A^2, extending beyond the edge of the upper layer, A', along one side, and provided along that

side with a flap, B, of cloth, with its edge cemented under the edge of the layer A', and extending thence over the layer A^2 to the edge of the latter, and with a strip, *d*, of impervious paper interposed between said flap and the layer A^2, and cemented to the latter, whereby the flap is left free, being protected by said paper strip from contact with the cement, substantially as set forth.

4. A roll of ready roofing fabric, consisting of two or more layers of water-proof felt cemented together, with the edge of the layer A^2 extending beyond the edge of the layer A' along one side, with a cloth strip, B, having its one edge cemented under the said edge of the layer A', and its remaining portion of a width exceeding the exposed portion of the layer A^2, uncemented to the latter, and turned or folded in upon itself, substantially as set forth, whereby the cloth B is housed within the roll and does not extend beyond the end thereof.

352,620. **MANUFACTURE OF GAS FROM CRUDE PETROLEUM.** Frederick C. Kneise, Baltimore, Md., assignor of two-thirds to Alexander Rom, same place, and H. F. Attrill, Goderich, Canada. Filed June 25 1886. (No specimens.)



Claim.—1. The improvement in the art of manufacturing illuminating-gas from crude petroleum, which consists in conducting a body or stream of crude petroleum to a moderately-heated chamber, thereby producing vapor and liquid, and then separately conducting the vapor to decomposing-retorts heated to one degree of temperature, and at the same time conducting the liquid portions to decomposing-retorts heated to a higher degree of temperature, whereby the respective products are decomposed and converted to permanent gas without overheating either portion, as described.

2. The improvement in the art of manufacturing illuminating-gas from crude petroleum and generator or water gas, which consists in conducting a body or stream of crude petroleum to a moderately-heated separator or chamber, thereby producing vapor and liquid, simultaneously conducting the liquid from the chamber and conducting generator-gas into the same, and said gas and vapor together from said chamber to retorts heated to decompose the vapors and convert them to a fixed gas, as specified.

3. The improved process of making illuminating-gas herein described, which consists in separating crude petroleum in the gas-making process into its light and heavy constituents, and then, with generator-gas, conducting said products separately to retorts heated, respectively, to different degrees of temperature, to decompose and convert the mixture of generator-gas and hydrocarbon vapors into a fixed gas, as described.

4. The improved process of making illuminating-gas, which consists in passing crude petroleum through a moderately-heated chamber, thence, in connection with generator-gas, passing the vapors therein produced to a fixing-chamber, and thence to the hydraulic main, and simultaneously conducting the heavy or liquid portion, in connection with generator-gas, to a separate retort or fixing-chamber, and thence through a washer to the hydraulic main, substantially as described.

352,621. **CUT-OUT FOR INCANDESCENT LAMPS.** Herrmann Lemp and Merle J. Wightman, Hartford, Conn., assignors to the Schuyler Electric Light Company. Filed Aug. 19, 1886. (No model.)



Claim.—1. In an incandescent lamp, the combination, with the entering-in conductors, of a conducting-extension from each brought into proximity with, but normally insulated from, the other pole.

2. In an electric lamp, the combination, with the poles *a b*, of the conducting extensions lapping one upon the other and connected each with one of the poles, but normally insulated from the other pole.

3. The combination, with the entering conductors for an incandescent lamp, of two conducting-extensions electrically united with said poles, respectively, and each brought into proximity with, but normally insulated from, the opposite pole, as and for the purpose described.

4. In an automatic cut-out, the combination, with the conductors *a b*, of a wrapping composed of two superposed conductors normally insulated from one another but connected, respectively, with said conductors, as and for the purpose described.

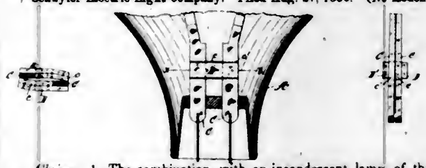
5. The combination, with the entering supporting-conductors for an incandescent lamp, of conducting-extensions connected, respectively, with one of said conductors and brought into proximity with the other, said extensions being formed of two overlapping conductors wrapped around the supporting-conductors of the lamp.

6. In an electric lamp, the combination, with the entering-in conductors, of two flexible conducting-strips electrically united with said conductors, respectively, and wrapped around the same, with an interposed sheet of non-conducting material, as and for the purpose described.

7. In an electric lamp, the combination, with the two entering-in conductors *a b*, of two conducting-strips electrically connected with said conductors, respectively, and each wrapped around but insulated from the opposite pole or conductor.

8. In an electric lamp, the combination, with the entering-in conductors *a b*, of the two flexible enveloping-strips connected, respectively, with the conductors *a b*, but insulated from one another, one of said strips being made longer than the other to form an exterior wrapping.

352,622. **THERMOSTATIC CUT-OUT FOR INCANDESCENT LAMPS.** Herrmann Lemp and Merle J. Wightman, Hartford, Conn., assignors to the Schuyler Electric Light Company. Filed Aug. 27, 1886. (No model.)



Claim.—1. The combination, with an incandescent lamp, of thermostatic expansion-pieces located within the lamp and in proximity to the filament, and adapted to close a circuit through the conductors upon an increase of temperature due to the rupture of the filament, as and for the purpose described.

2. The combination, with an incandescent lamp, of thermostatic expansion-pieces attached to the conductors within the lamp and in proximity to the filament, and adapted to force the same into electrical connection upon an increase of temperature due to the rupture of the filament, as and for the purpose described.

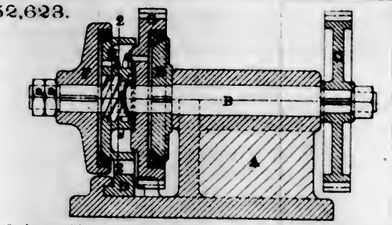
3. The combination, with an incandescent lamp, of leading-in conductors brought into proximity at some point within the lamp, thermostatic expansion-pieces attached to such conductors at that point and adapted to force them into contact upon an increase of temperature due to the rupture of the filament, as and for the purpose described.

4. The combination, with an incandescent lamp, of a thermostatic expansion-piece attached to a leading-in conductor of different material therefrom, whereby such conductor is forced into electrical connection with the other conductor upon an increase of temperature due to the rupture of the filament, as and for the purpose described.

352,623. **MACHINERY FOR TRANSMITTING AND ARRESTING MOTION.** Wilfred Lewis, Philadelphia, Pa., assignor to William Sellers & Company, (Incorporated,) same place. Filed May 13, 1886. (No model.)

Claim.—1. In machinery for transmitting and arresting motion, a frictional member of a driving-train, in combination with two frictional members of a driven train, connected substantially as described, whereby the angular adjustment of one of the driven frictional members about its axis will cause their frictional surfaces to approach or recede from each other, as and for the purposes described.

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2. In machinery for transmitting and arresting motion, two frictional members of the driven train, in combination with a frictional member of the driving-train, and means, substantially as described, whereby one of the frictional members of the driven train is brought in contact with the frictional member of the driving-train, as and for the purposes described.

3. In machinery for transmitting and arresting motion, a driving-train provided with frictional driving members, in combination with a driven train provided with a transmitting frictional member, an engaging frictional member, and a retaining device, substantially as described, whereby the engaging frictional member of the driven train is prevented from rotating with the driving-train, the combination being and operating substantially as described.

4. In machinery for transmitting and arresting motion, a driving-train provided with frictional driving members, in combination with a driven train provided with a transmitting frictional member and an engaging frictional member, connected substantially as described, whereby he engaging frictional member will rotate with the driving-train when released from the retaining device and engage the driven train with the driving-train, and by arresting the motion of the engaging frictional member the driven train may be disconnected from the driving-train.

5. In machinery for transmitting and arresting motion, a driven train provided with a transmitting frictional member and an engaging frictional member, substantially as described, in combination with a driving-train having frictional driving surfaces, whereby the resistance offered by the transmitting frictional member will tend to increase the angular adjustment of the two frictional members and engage their surfaces more firmly with the driving-train.

352,624. **SAW.** Terrence O. Loughlin, Spanish River, Ontario, Canada. Filed June 19, 1886. (No model.)



Claim.—A circular crosscut-saw constructed with teeth having a knife-edge on the front of each tooth, and terminating in a beveled gullet at the base of each tooth, and the face of the tooth running in a line to a point behind the center of the saw, each alternate tooth having the cutting-edge beveled in one direction, and the cutting-edge of the intervening teeth beveled in the opposite direction, the teeth which act on the end of the board being without set, and the teeth which act on the part being cut off having a small portion of set only, substantially as shown and described.

352,625. **ELECTRIC LAMP.** Darius Lyman and Marshal Wheeler, Washington, D. C. Filed Feb. 8, 1886. (No model.)

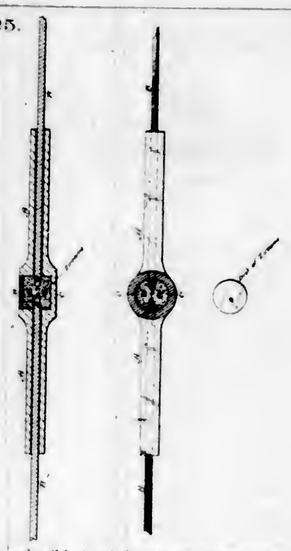
Claim.—1. In an electric lamp, the combination of the conducting-wires, a suitable holding or conducting device which is applied to the wires, and an amorphous mass or body of zirconia, substantially as shown.

2. The combination of a suitable holding or supporting device having a recess or pocket formed therein, a body or amorphous mass of zirconia, which is placed in the said pocket, and the conducting-wires which pass through the supporting device to the pocket formed therein, and which have their ends separated and surrounded by a mass of zirconia, substantially as described.

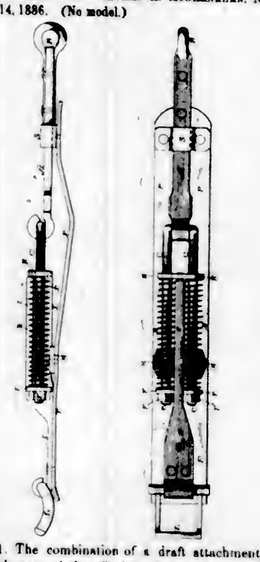
3. The combination of a suitable holding or supporting device provided with a recess or pocket, an amorphous mass or body of zirconia, which is placed in the pocket around the tips or points of the two conducting-wires, and a disk, D, of zirconia, placed in the open end of the pockets, substantially as set forth.

4. In an electric lamp, the combination of the two conducting-wires connected with the terminals of the circuit, the points of which are slightly separated, and through which the electric current passes, with a body or amorphous mass of zirconia, which is placed around the tips of the conducting-wires, and through a portion of which zirconia the current passes, whereby the whole mass becomes intensely heated, substantially as specified.

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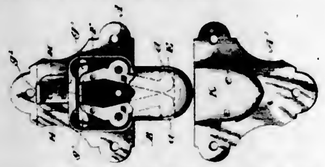
352,626. **HAME-TUG.** Thomas A. McGranahan, Newhall, Iowa. Filed Aug. 14, 1886. (No model.)



Claim.—1. The combination of a draft attachment, constructed substantially as shown and described, with a strap which is immovably fastened to the device at one end, and which is provided at the other end with a loop for the draft-rod to pass through, substantially as shown.

2. The combination of the draft-rod provided with a loop upon its front end for attachment to the hame, the U-shaped rod, which is loosely connected to the draft-rod, the movable plate for the ends of the springs to bear against, the adjusting-nuts, and the rod I, which has a tug-buckle attached to its rear end and a plate for the springs to bear against secured to its front end, substantially as shown and described.

352,627. TRUNK OR BOX FASTENER. FRANK W. MIX, New Britain, Conn. Filed Sept. 8, 1886. (No model.)



Claim.—1. In a trunk or box fastener, the combination, with a spring-actuated locking-bolt adapted to swing within a hollow dowel, of a bar for operating the locking-bolt, adapted to work independently of the locking-bolt, substantially as set forth.

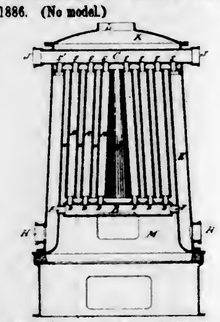
2. In a trunk or box fastener, the combination, with a pair of spring-actuated locking-bolts adapted to swing within a hollow dowel, of a bar adapted to lock the bolts in released adjustment and also permit the bolts to operate automatically, substantially as set forth.

3. In a trunk or box fastener, the combination, with a pair of spring-actuated locking-bolts pivoted at points between their ends and provided with hook-shaped lower ends, of a bar or plate adapted to engage the upper ends of the locking-bolts, substantially as set forth.

4. In a trunk or box fastener, the combination, with a securing-plate provided with a flat tongue projecting from one of its edges, of a casing provided with a projection adapted to conform to the shape of the tongue and form a hollow dowel, and a locking-bolt adapted to swing within the hollow dowel, substantially as set forth.

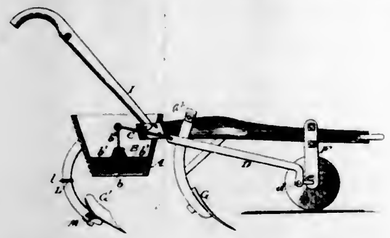
5. In a trunk or box fastener, the combination, with a pair of locking-bolts secured in rocking adjustment within a hollow dowel, their lower or hooked ends adapted to project through the sides of said dowel, of the spring bearing against their upper ends, and the winged operating-bar, substantially as set forth.

352,628. WATER-HEATER. WILLIAM E. NOLAN, Brooklyn, N. Y. Filed July 26, 1886. (No model.)



Claim.—In a water-heater or a steam-boiler, in combination, the annular sections A A A and E and the headers B and C, connected by the pipes D D D, F F, G G G, and G', as and for the purposes set forth, shown, and described.

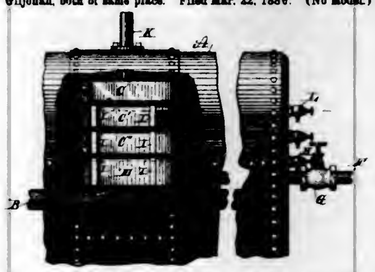
352,629. PLANTER. DAVID F. PULLEY, Malakoff, Tex. Filed Aug. 2, 1886. (No model.)



Claim.—1. The combination, with the beam H, of a hopper having the front hole, a^2, the elastic standards K K, beam bows or braces A A, and the eye-rod L, as and for the purpose set forth.

2. The handles I I of a planter, secured detachably in a clip, J, on the end of the beam H and just within the front of the hopper A, as shown and described.

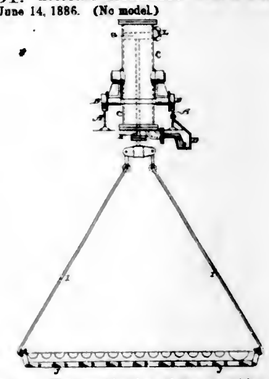
352,630. BOILER WATER-PURIFIER. EDWARD A. RUSSELL, Milwaukee, Wis., assignor of two-thirds to Henry J. Delaney and Robert Giljohan, both of same place. Filed Mar. 22, 1886. (No model.)



Claim.—1. A boiler-water purifier consisting of a series of pans supported one above another within a steam-generating boiler, each of such pans above the bottom one being provided with a discharge-pipe extending upwardly from the bottom of the pan nearly as high as the sides of the pan, a bottom pan having a blow-off pipe leading from its bottom, and an inlet-pipe discharging water into the top pan, substantially as described.

2. The combination, within a steam-generating boiler, of a series of pans, C C' C'', each provided with an upwardly-extending discharge-pipe, D, superimposed upon a bottom pan, E, provided with blow-off pipe F, and an inlet-pipe, K, leading into the top pan, substantially as described.

352,631. HOISTING APPARATUS. JOHN W. SEIGH, Johnstown, Pa. Filed June 14, 1886. (No model.)

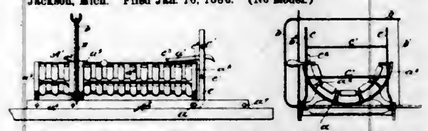


Claim.—1. The combination of the movable cylinder provided with wheels which bear upon the track A, a protecting-trough which is secured to one of the rails of the track, and a flexible steam-tube which is connected at one end to the cylinder, and which is supported in and protected from the heat of the iron by the trough, substantially as shown.

2. The combination of the cylinder mounted upon wheels, the piston, the piston-rod, the grappling rods or hooks, and the chains, which are to be sunk in the sand bed before the castings are made, substantially as described.

3. The combination of the track, the cylinder mounted on wheels and placed upon the track, the piston provided with grappling rods or hooks, the chains, and the short pipe L, connected at both ends to the upper portion of the cylinder, and which only admits steam to the top of the cylinder, to form a cushion for the piston when the piston reaches a certain height in the cylinder, substantially as set forth.

352,632. CUTTING-TABLE FOR TILE-MACHINES. JOHN S. SMITH, Jackson, Mich. Filed Jan. 16, 1886. (No model.)

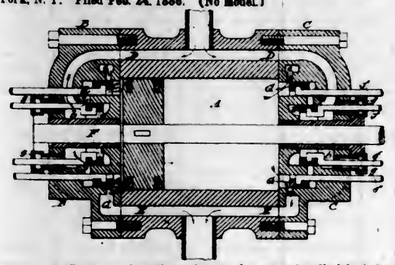


Claim.—1. In a cut-off table for tile-machines, the combination, substantially as before set forth, of the tilting section and pallet-support independent of each other but mounted to turn on a common pivot, and means to lock these parts together or to release them.

2. In a tile-table, the combination, substantially as before set forth, of the tilting section and pallet-support having a common pivot, and a latch pivoted to the pallet-support and having a hooked end to engage a projection on the tilting section.

3. In a tile-table, the combination, substantially as before set forth, of the tilting section and pallet-support having a common pivot, the latch, and the tripping device to automatically release the latch at a given time.

352,633. RECIPROCATING ENGINE. WILLIAM W. ST. JOHN, New York, N. Y. Filed Feb. 24, 1886. (No model.)



Claim.—1. In an engine, the valves and ports of cylindrical form arranged in the cylinder-heads, substantially in the manner and for the purpose specified.

2. In an engine, the valves made of cylindrical form and seated upon cylindrical faces, having the ports for admitting and exhausting the steam, arranged in the cylinder-heads, as set forth.

3. In an engine, the valves made of cylindrical form seated upon cylindrical faces, provided with steam inlet and outlet ports, arranged in the cylinder-heads, substantially as specified.

4. The combination of a cylinder and hollow cylinder-heads containing the valves and ports of cylindrical form with valve-stems operating said valves, substantially as and for the purpose set forth.

5. In an engine, the hollow cylinder-heads containing the valves and ports of cylindrical form, in combination with a cylinder having annular ports communicating with the ports in the cylinder-heads, as and for the purpose specified.

6. In an engine, the valves having cylindrical faces seated on cylindrical valve-seats, provided with ports and communicating with steam-chambers in the heads and ports in the cylinder, as set forth.

7. The combination of a cylinder with the cylinder-heads, provided with steam-chambers and ports of cylindrical form, and containing the valves, arranged substantially as described.

8. In an engine, the cylindrical valve-seats provided with ports and made removable, in combination with cylindrical valves, and all arranged in the cylinder-heads in the manner shown and specified.

9. The cylinder A, having ports D, and communicating by annular chamber c with the chambers in the cylinder-heads, containing the inlet and outlet ports, and the valves F and G, of cylindrical form, and seated on cylindrical valve-seats, all substantially as and for the purpose set forth.

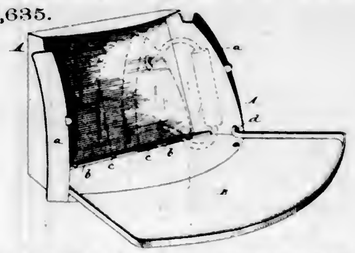
352,634. SADDLE FOR TOP ROLLS OF SPINNING-MACHINES. AMOS B. TAYLOR, Wellaston, Mass. Filed Mar. 3, 1886. (No model.)



Claim.—1. A saddle for the top rolls of spinning-machines, composed of an upper section provided with a slot or aperture, and a lower section connected therewith by a screw passing through the slot or aperture in the upper section into a threaded aperture in the lower section, and arranged with relation to the fulcrum or bearing-point of the upper upon the lower section of the saddle, as shown, whereby the inner end of the lower section is raised out of contact with or brought down upon the middle roll, substantially as and for the purpose set forth.

2. The combination of the lower section, *f*, the upper section, *e*, bearing thereon at *i*, and provided with a slot or aperture, *k*, and the regulating-screw G, passing through the slot or aperture *k* in the upper section, *e*, into a threaded aperture in the lower section, *f*, whereby as the screw G is turned the inner end of the lower section, *f*, will be raised to relieve the middle roll of the pressure of the saddle weight, or depressed to apply the pressure of said weight to the roll, substantially in the manner and for the purpose described.

352,635. HEATING ATTACHMENT FOR STOVES. DAVID S. TRIMMER, Springfield, Ohio. Filed Jan. 18, 1886. (No model.)



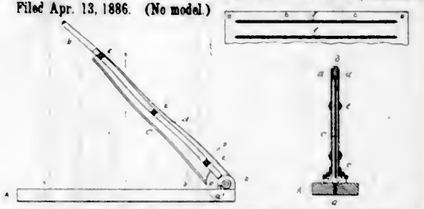
Claim.—1. The attachment for heating-stoves, consisting of the box-like casting A, with flanges *a*, and reduced in width at the top, as described.

2. The attachment for heating-stoves, consisting of the box-like casting adapted to enter the stove-door or the window, its upper end being reduced in width to pass within and above the opening, and its lower edges being flanged to limit the inward movement.

3. The box-like casting A, provided with flanges and with the rib *b*, having notches *c* entirely across its upper face, whereby it is adapted to maintain the pointed irons in an upright position.

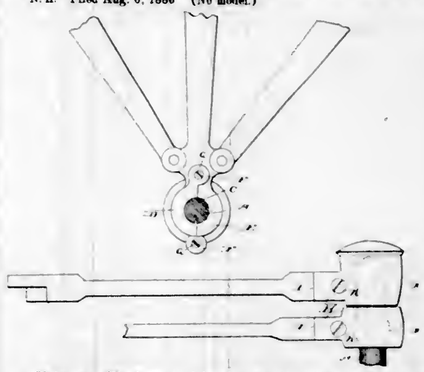
4. A heating attachment for stoves, consisting of the box-like casting A, having a flanged edge, whereby it is adapted for application within the stove-door, in combination with the detachable shelf B, constructed and applied to its lower edge, substantially as described and shown.

352,636. MACHINE FOR SLITTING METALLIC LATHING-SHEETS. EDWARD TUNSTEAD and JOSIAH W. MOORE, Minneapolis, Minn. Filed Apr. 13, 1886. (No model.)



Claim.—In a machine for making metallic lathing material, the combination of the bed-plate having an elongated slot with a slitting-blade pivoted at one end to the bed-plate, said blade being less thick than the width of the slot, and having a double-beveled edge, as described, for cutting slits in the sheet of metal and bending the edges of the slits down into the slot.

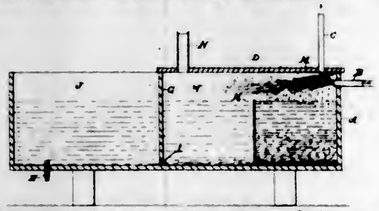
352,637. JOINT FOR VEHICLE-TOPS. JAS. S. WILKINS, Jr., Keene, N. H. Filed Aug. 6, 1886. (No model.)



Claim.—1. The bows or jointed arms of a vehicle-top having one part, D, of the sockets formed integrally therewith, the other portion, E, of the sockets being formed separately therefrom and clamped to the part D, in combination with the bearing A, having the ball (one or more) secured between the sections of the socket, whereby a ball-and-socket bearing is formed to permit the bows or arms to be turned only in one direction, as set forth.

2. The sockets carried by the bows or jointed arms of a vehicle-top, in combination with the bearing A, independent of the bows or jointed arms, and the ball (one or more) on the bearing A, which ball or balls are fitted in the socket so as to form a ball-bearing, but not a ball-and-socket joint, as set forth.

352,638. **WATER HEATER AND PURIFIER.** MARTIN M. WILSON, Honey Grove, Tex. Filed Mar. 24, 1886. (No model.)

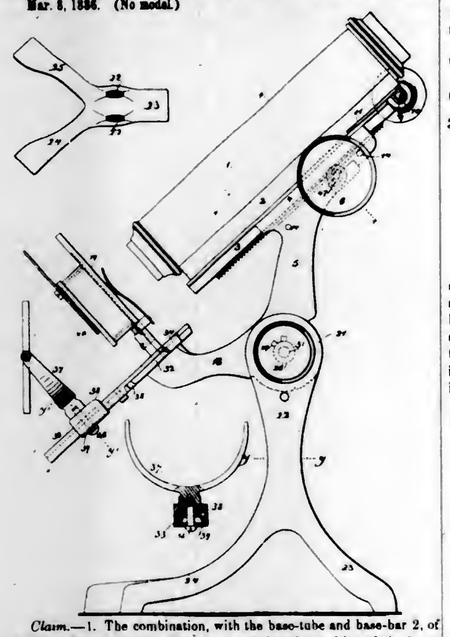


Claim.—1. In the condenser A, having the cover D, the water-pipe C and exhaust-steam pipe B, combined with the corrugated convex disk M, whereby the water falls upon the disk and the steam enters beneath it, substantially as described.

2. The condenser A, having water-apartments H and J and cover D, with water and escape pipes C and N passing through it, said apartment J divided by the perforated partition K, and the corrugated disk M and exhaust-steam pipe B, in the combination shown and described.

3. In a condenser, and in combination with the water-apartment H, provided with water and exhaust-steam inlets N and a spraying and condensing disk, the apartment J, and the partition G, having aperture I at its base and the escape-pipes E and F, respectively, at the bottom and sides, substantially as described.

352,639. **MICROSCOPE.** BENJAMIN F. ALLEN, Plainfield, N. J. Filed Mar. 8, 1886. (No model.)



Claim.—1. The combination, with the base-tube and base-bar 2, of a rack-bar, 3, an adjusting-screw for regulating the position of the base-bar upon the rack-bar, and the jaws 4, thumb-wheel 6, and pinion for adjusting the rack-bar within the jaws, substantially as set forth.

2. The combination, with the lens and base-bar 2, of the rack-bar 3, the spring 8, screw 9, right-angle lever 11, and swinging strut 13, for adjusting the lens-tube endwise of the rack-bar, substantially as set forth.

3. The combination, with the lens-tube and its base-bar, of the rack-bar 3, having dovetailed legs 7, passing into undercut grooves in the base-bar 2, the spring 8, to give motion to the parts in one direction, the right-angle lever 11 and the screw 9, acting against the same, and the swinging strut 13 between the right-angle lever and the rack-bar, substantially as set forth.

4. The combination, with the lens-holder and object-table, of the arms 5 and 18, the joint-pieces upon the respective arms, a base-frame with cheeks for the reception of the joint-pieces, a pivot-bolt passing through the joint-pieces and cheeks, a clamping-nut for holding the parts, and a clamping-block and screw for stiffening the joint between the arms 5 and 18, substantially as set forth.

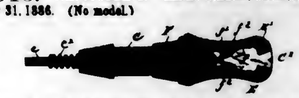
5. The joint-pieces 15 16 17 and the cheeks 20 21, in combination with the flanged pivot-bolt 26, thumb-nut 25, stud 29, clamping-block 30, and screw 31, for actuating the clamping-block, substantially as set forth.

6. The combination, with the object-table and the arm for holding the same, of the circular holder 32, arm 33, claws 34 35, and mirror-holder supported by the arm, substantially as set forth.

7. The mirror-holder 37 and its pivot-screw 36, in combination with the slotted arm 33, slide-block 38, and clamp-block 39, substantially as set forth.

8. The combination, with the object-table and the arm supporting the same, of a mirror-holder, an arm for carrying the same, having a circular eye surrounding the arm that supports the object-table, and a circular holder for the said eye and its arm, and claws for grasping the edge of the holder, substantially as set forth, whereby the mirror-holder and its arm can be adjusted into any desired position relatively to the object-table, substantially as set forth.

352,640. **CAR-COUPLING.** HENRY BEEBER, Chillicothe, Mo. Filed July 31, 1886. (No model.)



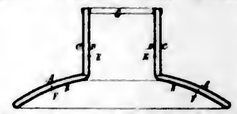
Claim.—1. The combination of the draw-bar, the link-clamps, the sleeve arranged to slide on the draw-bar and engage and hold and be held by the link-clamps, and the lever for operating the sleeve, substantially as specified.

2. The vertically-arranged and transverse levers, in combination with the draw-bar sleeve for uncoupling from the top of the car, as set forth.

3. The spring intermediate of the link-clamps, in combination with the latter and the sleeve, as and for the purpose set forth.

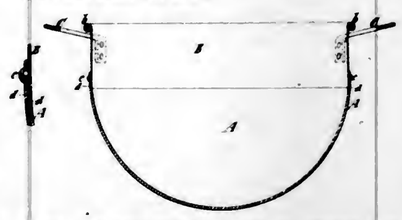
4. In a car-coupling, the draw-bar provided with a sleeve, arranged to operate substantially as specified, for the purpose set forth.

352,641. **MANUFACTURE OF LAMP-SHADES.** PATRICK BRADY, Cambridgeport, Mass. Filed Feb. 17, 1886. (No model.)



Claim.—The process, substantially as described, of making the aforesaid lamp-shade, it consisting in first blowing it in the form of the hollow segment of a sphere with a single neck projecting from its crown, next heating the base part and pressing or drawing it within the great part, so as to form the inner dome therein, next heating this latter at its central part and forcing it inward into the said neck, so as to form the said inner dome with a neck projecting within that of the outer dome, all being essentially as specified.

352,642. **CANDY-KETTLE.** THOMAS BURKHARD, Brooklyn, N. Y. Filed Mar. 5, 1886. (No model.)

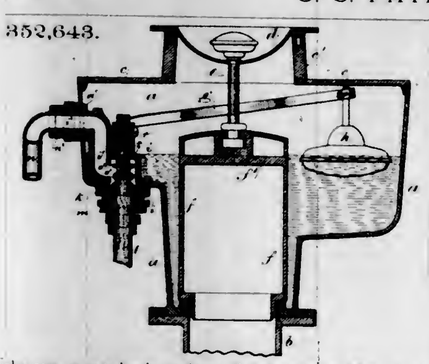


Claim.—The candy-kettle herein described, consisting of the concavo-convex shell A, of cast iron or steel, forming the bottom and a portion of the sides or body, and a body portion, B, of copper, inserted within the said shell, and at its lower edge forming an approximately flush joint with the shell upon the interior surface of the kettle, substantially as herein described.

352,643. **VALVE FOR WATER-CLOSETS.** JOHN DEHARBE, New York, N. Y., assignor to the J. L. Mott Iron Works, same place. Filed June 14, 1886. (No model.)

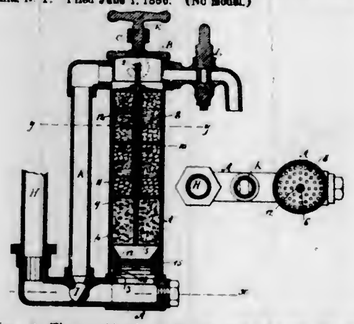
Claim.—In an automatic water-closet valve, the valve-case having a flange and nut for clamping to the valve-chamber, and an inlet at the lower end, and a lateral discharge-pipe at one side, in combination with a flat valve, a cylindrical stem sliding in the upper part of the valve-case, and a lever and float for the same, and a valve-seat having an exterior conical surface at the top and screwed into the lower end of the

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valve-case, so as to be changeable to adapt the valve to different pressures of water, substantially as specified.

352,644. **FILTER.** WILLIAM FOULKES and WILLIAM E. FOULKES, Morrisania, N. Y. Filed June 1, 1886. (No model.)

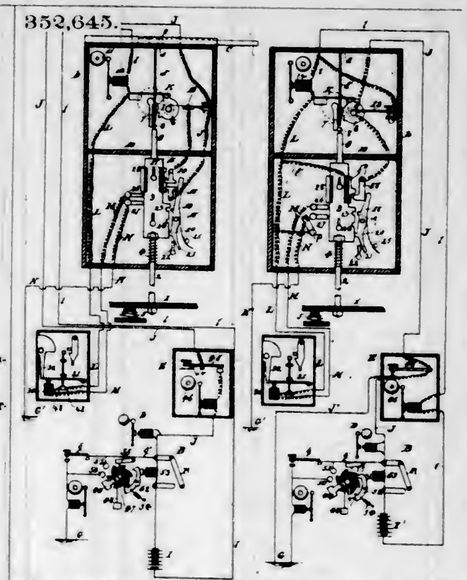


Claim.—1. The combination, with the filter-case and the supply and discharge pipes at the upper and lower ends thereof, of a removable cap at the upper end, removable cylinders having perforated bottoms and central guide-tubes, and filtering material within said cylinders, and a central rod connected to the lower cylinder and passing up through the guide-tubes, whereby the cylinders and filtering material can be removed for cleaning the filter and the filtering material retained in the respective cylinders, substantially as set forth.

2. The combination, with the filter-case and the supply and discharge pipes at the upper and lower ends thereof, of a removable cap at the upper end, removable cylinders having perforated bottoms and central guide-tubes, and filtering material within said cylinders, and a central rod connected to the lower cylinder and passing up through the guide-tubes, whereby the cylinders and filtering material can be removed for cleaning the filter and the filtering material retained in the respective cylinders, and disks of wire-gauze with intervening felt, and a clamping-ring for clamping the disk in an opening in the base of the lower cylinder, substantially as set forth.

3. The combination, with the vertical filter-case and its removable cap, of the cylinder 4, containing filtering material, the septum 5, and flange 22, formed therewith, the ring 13 at the bottom of the same, and the disks of wire-gauze with intervening felt clamped between the said flange and ring, and the rod 6, for removing the parts from the filter-case, substantially as specified.

352,645. **RAPID FIRE-SIGNAL.** THOMAS F. GAYNOR, Lexington, Ky. Filed Apr. 3, 1886. (No model.)



Claim.—1. In a signaling-circuit comprising a central station and a booth or signal station connected in electric circuit, said booth being provided with a door and a locking mechanism therefor, the combination, with said locking mechanism having a bolt adapted to be electrically tripped and locked, of a circuit-controller located at the central station for operating said bolt, substantially as described.

2. In a signaling-circuit comprising a central station having an electric circuit connected with the signal mechanism in a booth or signaling-station provided with a door and a lock, the combination, with said lock, the bolt of which is electrically tripped and locked, of an armature, a magnet, and a circuit making or breaking mechanism at the central office, substantially as specified.

3. In combination with the door of a signal-booth, a lock having a bolt held by tripping mechanism and electrically connected with a signaling apparatus in said booth, which is in turn connected in circuit with a central station having both a ground and a metallic circuit, the connections of the former being established at the central station by the operation of the connecting-plate 3, substantially as specified.

4. In a booth having a door, a signal apparatus comprising a push-button, a trip mechanism, and an automatic signal device inclosed in a box and provided with an aperture exposing the push-button for sending signals by releasing the trip mechanism of the signal-box, which aperture is covered by mechanism connected to the door, whereby such aperture is exposed only when the door is closed, substantially as specified.

5. In a booth having a door, a signal apparatus comprising a push-button and an automatic signal device inclosed in a box and provided with a tripping device which is covered by mechanism connected to and operated by the booth-door, whereby said tripping mechanism is exposed for operation only when the door is closed, substantially as specified.

6. In combination with the automatic signal device located in a box, *b*, the tripping mechanism held from operation by the sliding plate 3, which is moved to establish circuit-connections for sending alarms, the foot-board 1, and the rod 2, connected with said plate, substantially as specified.

7. A signal device electrically connected with two independent circuits for automatic alarms and independent signaling, respectively, the ground of one circuit being established by terminals which are cut in and out by sliding plate 3, electrically connected to the signaling device and inclosed in a box, *b*, at a signal-station, substantially as specified.

8. In combination with the automatic signal device located in box *b*, the sliding plate 3, having ground and circuit terminals for establishing a circuit by the moving plate 3, and a push-button for tripping of the automatic signal device for sending in alarms, substantially as specified.

9. In combination with a signal-booth having a door provided with a lock, the automatic signal devices located in a box in said booth, the connecting-plate 3, having ground-connecting terminals connected in circuit with the magnet and bolt-tripping mechanism of the lock, and ground-connections through said lock-magnet for providing a circuit for tripping the bolt independent of the signal-circuit, substantially as specified.

10. In combination with the automatic signal devices located in a box, the connecting-plate 3, having ground-connecting terminals connected in circuit with the magnet and bolt-tripping mechanism of the lock in said box, and ground-connections through said lock-magnet to ground at a certain station for providing a circuit for tripping the bolt independent of the signal-circuit, and an automatic ground cut-out operated by the bolt after it is tripped, whereby the ground-circuit may be established at another station for similar signals and operations, substantially as specified.

11. In combination with the booth-door of a signal-station, a lock the bolt of which is automatically tripped by a magnet having one ground-connection at the booth and the other ground at the central station, which are automatically connected in circuit by plate 3 of the signal device, substantially as specified.

12. In combination with the lock *e*, a magnet connected in circuit with the automatic ground-closer and terminals located at the central office, said magnet controlling a bolt-tripping armature and connected in and operated by the automatic signal-circuit, substantially as specified.

13. In combination with the automatic signal located in a booth and exposed only when the door is closed, a lock and magnet, a bolt-trip for locking the booth-door, and an automatic ground-closing terminal located in the central office and operated by the automatic signal device in said booth, substantially as specified.

14. In combination with the circuit making and breaking plate 3 of the signal device, the yielding floor 1 of the booth connected to said plate, whereby the circuit-connections are made for signaling and locking the door by the weight of a person on the floor 1 of the booth, substantially as specified.

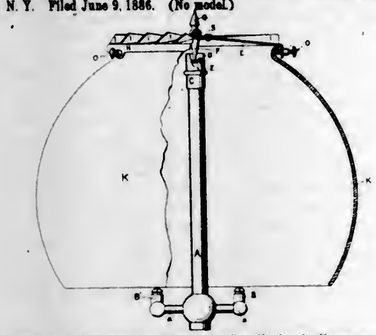
15. In combination with the sliding circuit-closing plate 3, located in the box *b*, having a circuit-connection with the automatic signal devices, the lock-bolt 18, pivoted in said box and engaging with said plate 3 and operated by a key inserted into a key-hole in said box, whereby said plate 3 is locked or released, substantially as specified.

16. In combination with the circuit-closing terminals 26 27 and ground and line wires, the plate 3, having a circuit-connection and means for moving it up or down, as and for the purpose set forth.

17. In combination with plate 3, connected in circuit with the signal mechanism, the circuit-connecting plate 28, insulated from plate 3, terminals 26 27, magnet 30, lock-bolt 32, and switch P, for bringing in ground G' when the ground connection through magnet 30 is cut out by the lock-bolt, substantially as specified.

18. In combination with the door of a booth and mechanism covering the tripping devices of a signal-box mechanism connected to and operated by said door, the movable plate 3, yielding floor 1, and the circuit closing and breaking rod 2, connected to the yielding floor and to said plate, whereby the signal-circuits are established by a person entering the booth and closing the door, substantially as specified.

352,646. ROTARY DISPLAY-BODY. Emil F. Gennert, Brooklyn, N. Y. Filed June 9, 1886. (No model.)



Claim.—1. In a mechanism for rotating display-bodies, a combined bucket-wheel and body-holder, as I and H, provided with a concentric pivot on its under side, in combination with a standard, as A, having burners B B, said standard surmounted with a step or socket adapted to receive the said pivot and permit its free rotation, substantially as and for the purpose set forth.

2. In a mechanism for rotating display-bodies, a pivot forming the central point of rotation having a threaded tang, with a nut adapted to screw thereon, and a combined bucket-wheel and holder, such as described, in combination with a standard, as A, having burners B B, and step, as E, arranged in the manner and for the purpose substantially as described.

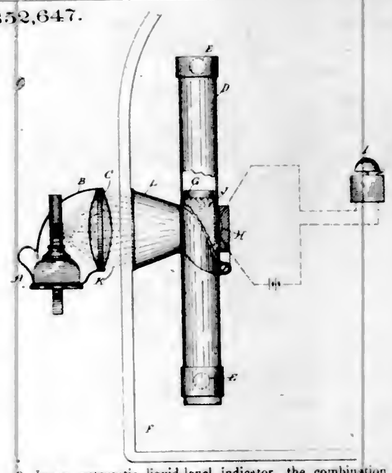
3. In combination, a combined bucket-wheel and holder, as I and H, a pivot-center and nut, as F and G, a straight standard, as A, having burner or burners B B, said standard being surmounted with a step, as E, arranged substantially in the manner as shown, the whole comprising a mechanism for rotating display-bodies, as set forth and described.

352,647. AUTOMATIC ELECTRIC LIQUID-LEVEL INDICATOR. John J. Gehman, Newark, N. J. Filed May 29, 1886. (No model.)

Claim.—1. The combination of a source of light, a translucent vessel containing a liquid, and a piece of selenium forming part of an electric circuit, including a translating device, substantially for the purpose and in the manner described.

2. In an automatic liquid-indicator, the combination of a source of light, a condensing-lens, a liquid translucent containing-vessel, an opaque float in said vessel, a piece of selenium, and an electric circuit including a translating device, such as an electric signal, said source of light, lens, float, and selenium lying normally in an approximately straight line.

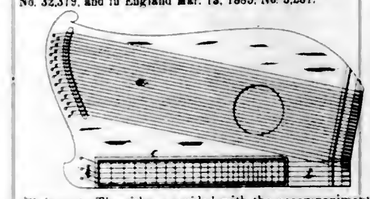
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3. In an automatic liquid-level indicator, the combination of a source of light, a liquid translucent containing-vessel, an opaque float therein, and a piece of selenium forming part of an electric circuit containing a translating device, such as an electric signal, said float being normally between said source of light and said selenium.

4. In a liquid-level indicator, the combination of a lamp, a double-convex lens attached thereto, a liquid-containing vessel, a funnel-shaped mouth fixed upon the side of said vessel, an opaque float in said vessel, a piece of selenium, and an electric circuit containing an electric bell, said lamp, lens, funnel, float, and selenium being normally in an approximately straight line, as and for the purpose described.

352,648. ZITHER. Carl F. Haupt, Dresden, Saxony, Germany. Filed Mar. 31, 1885. (No model.) Patented in Germany Jan. 29, 1885, No. 32,319, and in England Mar. 13, 1885, No. 3,281.

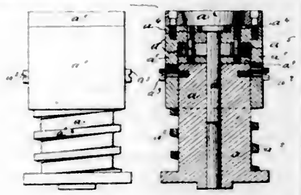


Claim.—1. The zither provided with the accompaniment-strings *a* at an acute angle to the finger-board *c* and the air-strings *b*, substantially as set forth in the foregoing specification and shown in the accompanying drawings.

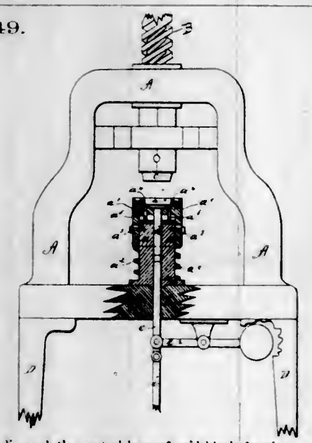
2. The zither provided with the finger-board elevated above the accompaniment-strings, and the accompaniment-strings nearest the finger-board located lower than or beneath the same, substantially as set forth in the foregoing specification and shown in the accompanying drawings.

352,649. HEEL-MACHINE. John W. Jones, 78 Ambler Road, Finsbury Park, County of Middlesex, England. Filed June 11, 1886. (No model.) Patented in England Mar. 23, 1885, No. 3,728; in France Dec. 23, 1885, No. 173,098, and in Belgium Dec. 24, 1885, No. 71,374.

Claim.—The combination of the centrally-bored fixed block *a*, the hollow die *a'*, fitted to slide upon the exterior of said block and containing receptacles for leather and nails, the nail-drivers a^2, fitted to the said nail-receptacles, the plate a^5, for holding said drivers fitted within said die and supported on said block, and the discharging-plunger *d*, working through said block, die, and plate, the exterior of said block forming a

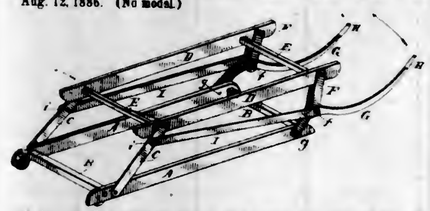


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guide to the die, and the central bore of said block forming a guide for said discharging-plunger, all substantially as herein described, for the purposes set forth.

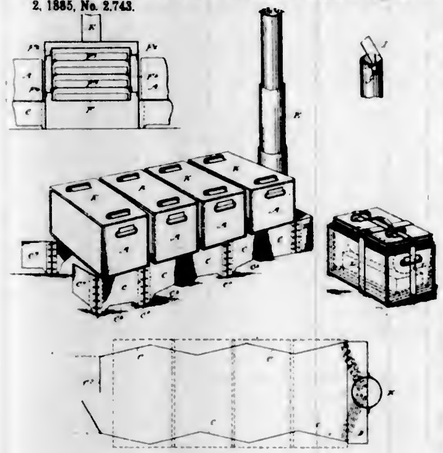
352,650. LIFTING-JACK. George F. Kaler, Rockland, Me. Filed Aug. 12, 1886. (No model.)



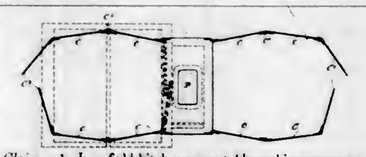
Claim.—1. The combination of the stringers and the top bar, the pivoted brace, as C, connecting the same at one end, the toggle-lever forming the other end connection, and a rigid bar connecting the toggle-lever with the brace, so that the top bar will be lifted by the movement of the toggle-levers, substantially as described.

2. The combination, with the stringers A A and top bars, B B, tied in pairs, as described, of the braces C C, and the toggle-levers pivotally connected to said stringers and bars, the handles H forming extensions of the lower members of the toggle-levers, said handles moving in line with the top bars, and the draw-bars I connecting the pivot of the toggle-levers with the pivoted braces, all substantially as described.

352,651. FIELD COOKING APPARATUS FOR MILITARY AND OTHER PURPOSES. Alexander L. Linzee and William Jones, London, England. Filed July 28, 1885. (No model.) Patented in England Mar. 2, 1885, No. 2,743.



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Claim.—1. In a field-kitchen or portable cooking apparatus, an extensible flue or fire-space for supporting the cooking-vessels, consisting of two series of pivotally-connected plates, substantially as described, for the purposes specified.

2. In a field-kitchen or portable cooking apparatus, the combination, with a smoke-box, of an extensible flue or fire-space for supporting the cooking-vessels, consisting of two series of plates pivotally connected together and to opposite ends of the smoke-box, substantially as and for the purpose specified.

3. In a field-kitchen or portable cooking apparatus, the combination, with a smoke-box, of an extensible flue or fire-space for supporting the cooking-vessels, consisting of two series of plates pivotally connected together and to opposite ends of the smoke-box, and constructed to fold within the same, substantially as and for the purpose specified.

4. In a field-kitchen or portable cooking apparatus, the combination, with a smoke-box, of an extensible flue or fire-space for supporting the cooking-vessels, consisting of two series of plates having a portion of their lower edges cut away to form draft-apertures, said plates being pivotally connected to one another and to the smoke-box, and constructed to fold within the same, substantially as and for the purpose specified.

5. In a field-kitchen or portable cooking apparatus, the combination, with a smoke-box, of an extensible flue or fire-space for supporting the cooking-vessels, consisting of two series of plates pivotally connected together and to opposite ends of the smoke-box, and a telescopic chimney for said smoke-box, said parts being constructed to nest or fold within the smoke-box, substantially as and for the purpose specified.

6. A field-kitchen or portable cooking-stove composed of a smoke-box, D, a foldable flue or fire-space consisting of two series of plates hinged together and to opposite ends of the smoke-box so as to stand on end when drawn out and folding into the same, a chimney, E, constructed of telescopic sections detachably secured to the smoke-box, and a plurality of cooking-vessels constructed to be seated on said foldable plates when drawn out to form the fire-space and draft-flue, said parts being constructed to nest or fit into one another, substantially as described, for the purpose specified.

7. A field-kitchen or portable cooking-stove composed of a smoke-box, D, having an opening in one side, a foldable flue or fire-space consisting of two series of plates, C, hinged together and to opposite ends of the open side of the smoke-box and folding into the same, said plates having a portion of their lower ends cut away to form draft-openings, a chimney, E, constructed of telescopic sections detachably secured to the smoke-box, and a plurality of cooking-vessels constructed to be seated on said foldable flue when drawn out, the end plates, C^3, folding toward each other and constituting the doors of the stove or fire-place, said parts being constructed to nest or fit into one another, substantially as and for the purpose specified.

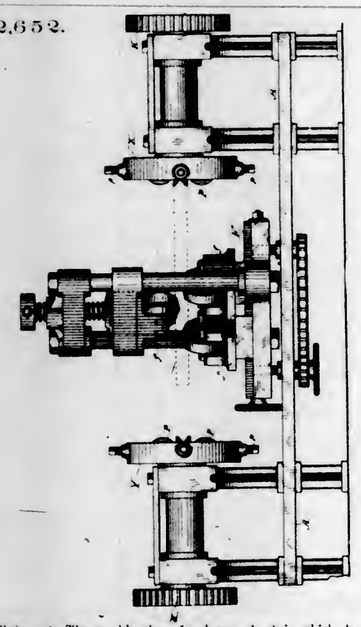
8. A field-kitchen or portable cooking-stove composed of a smoke-box, D, having an opening in one side, a foldable flue or fire-place consisting of two series of plates, C, hinged together and to opposite ends of the open side of the smoke-box and folding into the same, the hinges C' being constructed to limit the rotation of the plates on their hinge-pintles in one direction to form zigzag lines when drawn out or unfolded, the end plates, C^3, folding toward each other to form the doors of the draft-flue or fire-space, substantially as and for the purpose specified.

9. A field-kitchen or portable cooking-stove composed of a smoke-box, D, having an opening in one side, of a foldable flue or fire-place consisting of two series of plates, C C^3, hinged together and to opposite ends of the open side of the smoke-box and folding into the same, said plates having their upper edges inclined in reversed directions from their hinged joints, in combination with cooking-vessels having the form of a truncated cone in section to be placed upon said reversely-inclined edges of the flue, substantially as and for the purpose specified.

10. A field-kitchen or portable cooking-stove composed of a smoke-box, D, having openings in its sides, foldable flues or fire-places composed of four series of plates, C C^3, hinged together and to opposite ends of the open sides of the smoke-box and folding into the openings therein, a chimney, E, composed of telescopic sections detachably secured to the smoke-box, and a plurality of cooking-vessels having the form of truncated cones in section to be placed upon said foldable flues or fire-places, said cooking-vessels nesting one within the other, and containing the chimney E when telescoped and fitting into the smoke-box D, substantially as and for the purpose specified.

352,652. MACHINE FOR STRAIGHTENING METAL BARS OR PIPES. Philip Medart, St. Louis, Mo., assignor of one-half to William Medart, same place. Filed Apr. 12, 1886. (No model.)

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Claim.—1. The combination of a sheave-chuck in which the shafting to be straightened is secured and by which it is rotated, and the straightening and draft rolls in contact with which the shafting rotates, whereby a draft or strain is created which causes the shafting to move endwise through the sheave-chuck and between the straightening-rolls.

2. The combination of the straightening and draft rolls or devices, a sheave-chuck arranged on each side thereof, and driving mechanism for rotating the sheave-chucks, substantially as and for the purpose set forth.

3. The combination of the straightening and draft rolls or devices, a sheave-chuck, the hollow mandrel or rotating tube on which the sheave-chuck is carried, and mechanism for driving said mandrel.

4. The combination of the chuck-head and the radially-adjustable sheaves.

352,653. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. ROBERT MIEHLE, Chicago, Ill. Filed Dec. 23, 1885. (No model.)

Claim.—1. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of two sets of reciprocating delivery-grippers operating in unison, substantially as described, one of which transfers the sheet from the cylinder to a point of rest, and the other set delivering the sheet to the receiving-table, as set forth.

2. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of the reciprocating gripper-carrying arms K, having two sets of delivery-grippers, and being provided with racks which engage with pinions, and means, substantially as described, for revolving the pinions to impart a reciprocating movement to the gripper-carrying arms K, as set forth.

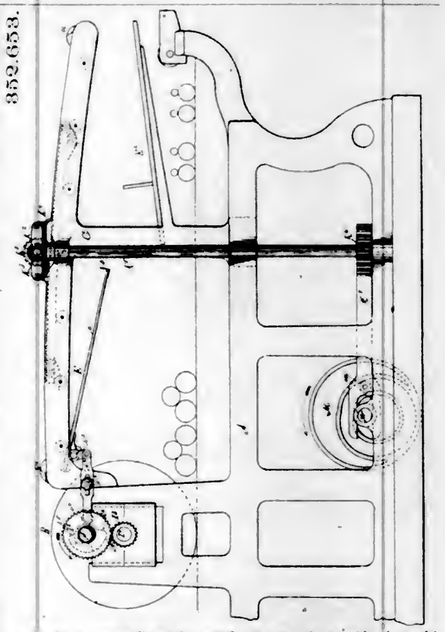
3. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of delivery-grippers, gripper-carrying arms K, and supporting pulleys and frame in which they are held, the said arms being supported only by said pulleys in their movement to and from the cylinder, the said pulleys being placed at the under side of the arms K only, substantially as and for the purpose set forth.

4. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of delivery-gripper-carrying arms K, being provided with racks and pinions, and the supporting-pulleys c, for supporting the said arms in their movement to and from the cylinder, substantially as described.

5. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of two sets of reciprocating delivery-grippers, the receiver E, and the receiving-table, substantially as described, and for the purpose set forth.

6. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of two sets of reciprocating delivery-grippers, the receiver E, provided with stops e to arrest the sheet, and receiving table, substantially as described, and for the purpose set forth.

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7. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of two sets of delivery-grippers, receiver E, friction-roller E^2, and receiving-table, substantially as and for the purpose set forth.

8. In a sheet-delivery for printing-presses, the combination of the impression-cylinder, delivery-grippers, reciprocating arms K, the receiver E, and the supporting-pulleys for supporting the said arms while reciprocating to deliver the sheet from the first receiver to the receiving-table, substantially as described.

9. In a sheet-delivery for printing-presses, the combination of the impression-cylinder, two sets of delivery-grippers, the receiver E, friction-rollers E^2, sheet-stops e, and the receiving-table, substantially as and for the purpose set forth.

10. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, of two sets of delivery-grippers and the receiver E, the said receiver having a vibratory movement imparted to the same for delivering the sheet to the second set of delivery-grippers, substantially as described.

11. In a sheet-delivery for printing-presses, the combination, with the impression-cylinder, two sets of delivery-grippers, and receiver E, of a cam for imparting a vibratory movement to the said receiver for delivering the sheet to the second set of grippers, substantially as described.

12. In a printing-press, the combination, with the impression-cylinder, of delivery-grippers and receiver E, the said receiver having a downward movement imparted to the same, so that the sheet will be lowered as the same is drawn off by the said delivery-grippers to be deposited upon the receiving-table, substantially as described.

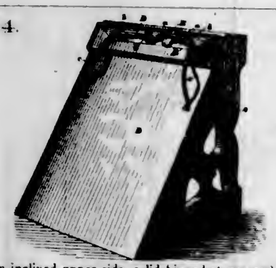
13. In a printing-press, the combination, with the impression-cylinder, of delivery-grippers and receiver E, the said receiver having a downward movement imparted to the same, so that the sheet will be lowered as the same is drawn off by the said delivery-grippers to be deposited upon the receiving-table, and an upward movement to receive the next sheet, substantially as described.

14. In a printing-press, the combination, with the impression-cylinder, of two sets of delivery-grippers and the receiver E, the said receiver having a vibratory movement imparted to the same for delivering the sheets to the second set of delivery-grippers, and a secondary vibratory movement imparted to the same receiver, so that the sheet will be lowered as the same is drawn off by the second set of delivery-grippers to be deposited upon the receiving-table, substantially as described.

352,654. BOOK-SUPPORT AND LEAF AND COPY HOLDER. JAMES F. MORTON, Newton Centre, Mass. Filed Aug. 19, 1886. (No model.)

Claim.—1. A book-support and leaf or copy holder containing the following elements, viz: a stand having two sides at right angles to each other, either of which may be used as a base to rest upon a flat plane,

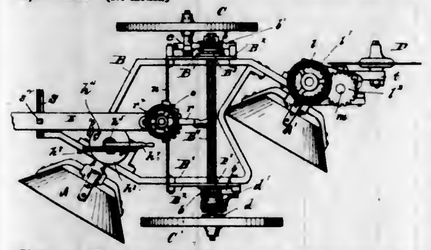
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and having an inclined upper side, a lid hinged at one end to said stand and provided with a projecting ledge at or near its hinged end, a pair of spring-actuated fingers for holding the book open or clamping the copy-sheet, and a ratchet and pawl for adjusting said lid to different angles of inclination.

2. The combination of the stand A A' A^1, the lid B, hinged to said stand, and provided with the ledge B', the ratchet-teeth *d d*, the pawl G, the shaft D, provided with the offset *a a*, and the curved fingers *c c*, and the spring E, all constructed, arranged, and operating substantially as described.

352,655. ROTARY PLOW. HIRAM MYERS, Springfield, Ohio. Filed Apr. 7, 1886. (No model.)



Claim.—1. The combination, with the main frame and cutting-disks supported thereon, of carrying-wheels adapted to support said frame, said carrying-wheels being of an equal diameter, and means, substantially as set forth, for elevating and depressing said frame and cutters in relation to said carrying-wheels, whereby one side of said frame is adapted to travel faster than the other to compensate for the lowering of one carrying-wheel into the furrow, substantially as set forth.

2. The combination, with the main frame and the carrying-wheels for supporting said frame, of the rotary cutters, each journaled on an independent supporting-stud adapted to reciprocate in sleeved bearings in said frame, and means for raising and lowering each of said studs, substantially as and for the purpose set forth.

3. The combination, with the main frame and a rotary cutter, of a sleeve supported on the main frame, a stud in said sleeve provided with an angular projection adapted form a bearing for said cutter, said sleeve being capable of a rotary movement in said frame, and means for raising and lowering said stud in said sleeve, substantially as set forth.

4. The combination, with the rear cutter and the guiding-wheel, of the sleeves and studs for supporting said cutter and guiding-wheel, the said studs being screw-threaded and provided with screw-threaded gears adapted to be revolved by a hand-wheel to raise and lower said studs equally, substantially as set forth.

5. The combination, with the main frame, of the shaft extending across said frame and supported at one end by one of said carrying-wheels, said shaft being provided at either end with pinions adapted to engage racks on either side of said frame, and a sliding head on which the other carrying-wheel is supported, said sliding head being provided with a rack adapted to engage the pinion on said shaft at the opposite side from the stationary rack, substantially as set forth.

6. The combination, with the main frame, of the shaft extending across said frame and provided at either side with pinions adapted to engage with racks on either side of said frame, the carrying-wheels supporting said frame, one of said carrying-wheels being journaled on the end of said shaft and the other supported on a sliding head provided with a rack adapted to engage with the pinion on said shaft, and means for revolving said shaft and for holding the same against revolution in either direction, substantially as set forth.

7. The combination, with the main frame having the yoke or loop secured at either side thereof, of sliding bearings in said yoke, the shaft supported in said sliding bearings and provided with pinions adapted to engage with racks at either side of said frame, a carrying-wheel journaled on said shaft, and a clutch-collar adapted to engage said carrying-wheel and thus connect the shaft thereto, and means for automatically withdrawing said clutch-collar by the raising of said frame, substantially as set forth.

8. The combination, with the main frame, of the shaft extending across said frame, carrying-wheels for supporting said frame and cutters, one of said carrying-wheels being journaled on the shaft and the other on a sliding head adapted to reciprocate in bearings on said frame, pinions on said shaft adapted to engage with stationary racks on either side of said frame, one of said pinions being adapted to engage with a rack on said sliding head, a clutch-collar on said shaft adapted to engage the carrying-wheel journaled thereon, and a pivoted pawl-lever to engage one of the pinions, and thus hold the shaft against revolution in either direction, substantially as set forth.

9. The combination, with the main frame and the yokes secured thereto, of the sliding bearings in said yoke, the shaft supported in said sliding bearings, having a pinion secured thereon, a stationary rack secured to said frame, and a sliding rack adapted to reciprocate on bearings in said frame, a pivoted lever having at its lower end two pawls, and means for securing said lever in different positions of adjustment, whereby the respective pawls are alternately adapted to engage or disengage said pinion, substantially as set forth.

10. The combination, with the main frame and the carrying-wheels, of the shaft supported in sliding bearings at each side of said frame, pinions on said shaft adapted to engage in stationary racks on said frame, one of said racks and pinions being provided with two sets of teeth, the teeth in one set being adapted to come opposite the spaces of the other, and a hand-lever journaled at its lower end on said shaft and provided with a spring-dog adapted to engage with the teeth of one of said pinions, substantially as set forth.

11. The combination, with the main frame and a rotary cutter supported on a sliding stud in said frame, of a guiding-wheel supported by an adjustable arm on a similar stud on said frame, each of said studs being screw-threaded at the top and adapted to be simultaneously elevated or depressed by a hand-wheel and gears thereon, substantially as set forth.

12. The combination, with the main frame provided on either side with U-shaped depressions, side irons secured to said frame on either side opposite to said depressions, and yokes supported in said U-shaped depressions, of a transverse shaft in sliding bearings in said yokes, said shaft being supported by the carrying-wheels, and means for raising and lowering said shaft in relation to said frame, substantially as set forth.

13. The combination, with the main frame, of the tongue pivoted at the forward end of the frame and provided at the rear with a toothed segment having projecting side flanges thereon, a hand-lever provided with a series of teeth adapted to engage said toothed segment between the said flanges, and a raising-screw passing through said lever and adapted to form a pivot for and raise and lower said lever, and thereby raise and lower the end of said tongue, substantially as and for the purpose set forth.

352,656. MANUFACTURE OF LONGITUDINALLY-FOLDED TUBES. RUSSELL PARKER, Brooklyn, N. Y., assignor to himself, JAMES H. STEARNS, and Benjamin F. Sutton, all of same place. Filed June 12, 1886. (Specimens.)



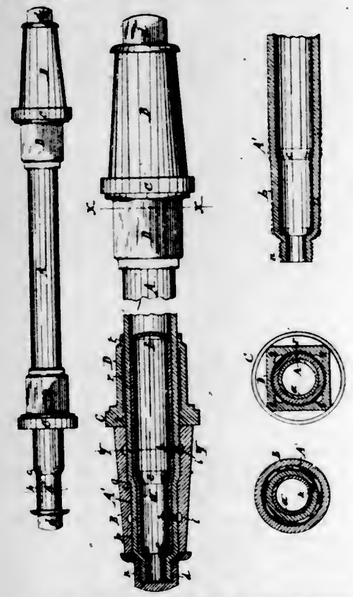
Claim.—The method herein described of making a longitudinally folded or collapsed tube, consisting in first producing a tube of simple form of vulcanizable india-rubber or analogous material, and in then subjecting it to pressure on opposite sides while preventing its expansion in a direction transverse to the line of pressure, substantially as herein set forth.

352,657. CAR-AXLE. EDGAR PECKHAM, Syracuse, N. Y., assignor to the National Tube Works Company, Boston, Mass. Filed Mar. 25, 1886. (No model.)



Claim.—A car-axle composed of a main tube, and tubular bushings in said main tube, extending from the extremities thereof inward beyond the attachments of the wheels, and portions of said main tube and its bushings compressed circumferentially to form the journals, substantially as described and shown.

352,658. VEHICLE-AXLE. EDGAR PECKHAM, Syracuse, N. Y., assignor to the National Tube Works Company, Boston, Mass. Filed Mar. 31, 1886. (No model.)



Claim.—1. A tubular metallic axle having its spindles compressed circumferentially from the outer ends part way the length of the spindles, substantially as described and shown.

2. A tubular metallic axle re-enforced by a lining or bushing in the spindle, and the outer end portion of said spindle and its lining compressed circumferentially, substantially as set forth.

3. A tubular metallic axle provided internally with a dam back of the spindle, and having rearwardly-inclined lubricating-channels through the bottom of the spindle, substantially as described and shown.

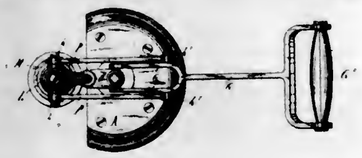
4. In combination with the axle provided in the spindle with a lubricant-reservoir and with lubricating-channel through its bottom, the journal-box provided with circumferential grooves communicating with the aforesaid channels, substantially as described and shown.

5. A tubular metallic axle having the outer ends of its spindles compressed circumferentially, and screw-threaded externally for the reception of the wheel-retaining nut, and washings on the interior of the spindles extending through the aforesaid compressed ends thereof, substantially as described and shown.

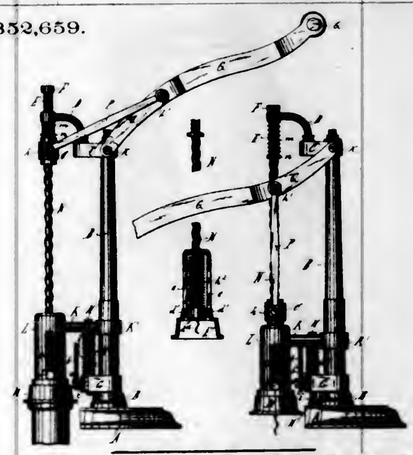
6. A tubular metallic axle having its spindles tapered externally and formed internally with cylindrical portions, the outer of which is of a smaller diameter than the inner portion and joined therewith by a circumferential offset, substantially as described and shown.

352,659. SIDEBOARD-CORKSCREW. ANDREAS F. PETERSEN, Nykjöbing, Denmark. Filed Nov. 23, 1885. (No model.)

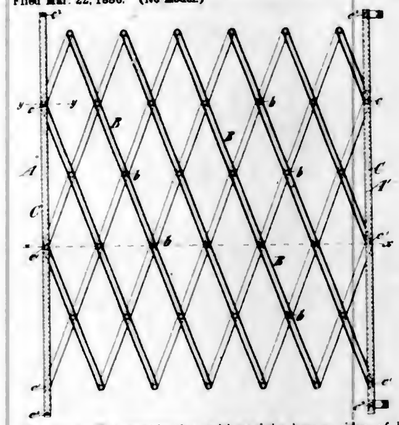
Claim.—A sideboard-corkscrew consisting of the standard or shaft B, attached to or made of one piece with the base-plate A, the arm or beam C, and the arched or other arm, D, in combination with the forked lever Q, handle Q', the rod E, the middle part of which is provided with a screw-thread, N', of high pitch, and the lower end with a corkscrew, E', the runner-slide O, connecting-rods P, the case L, with bell-shaped mouth-piece M, the arm K, the collar or ring K', which embraces the standard or shaft B, the rod H, and the spiral spring H', substantially as set forth in the foregoing specification and represented in the accompanying drawings.



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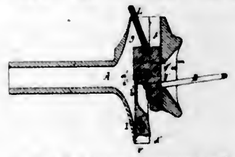
352,660. FOLDING GATE. WILLIAM R. PITT, New York, N. Y. Filed Mar. 22, 1886. (No model.)



Claim.—1. The combination, with upright bars or sides, of lazy-tong levers connecting them, and composed of channel-bars arranged back to back, with their flanges presented outward, and rivets connecting the channel-bars at their points of crossing and inserted between and shielded by the flanges thereof, substantially as herein described.

2. In a folding gate, the combination, with lazy-tong levers, of upright sides, each composed of channel-bars arranged face to face, with their flanges presented inward, pins or rivets inserted through the lazy-tong levers and the channel-bars of the upright sides and forming fixed centers for the operation of the levers, and other pins connecting the levers and entering between and guided by the flanges of the channel-bars composing the sides and forming the movable centers for the operation of the levers, substantially as herein described.

352,661. CAR-COUPLING. DAVID L. RICHARDS, St. John, New Brunswick, Canada. Filed Mar. 11, 1886. (No model.)



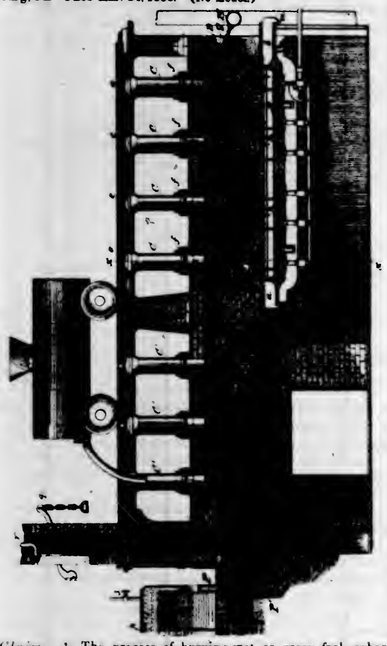
Claim.—1. The link-holder chambered on its opposite sides and provided with the vertical slot, in combination with the gravitating latch, having its upper part furcated and bent at or about at a right angle to the shank, and connected solely to the link-holder by a pin going through the slot and the prongs of the said upper part, such holder also having the incline *i'*, all being substantially as set forth.

2. The link B and its chain S, in combination with the draw-head having the vertical notches *a*, as set forth.

3. The combination of the link-holder provided with the incline *i'* with the gravitating latch provided with the incline *d'*, and connected with such link-holder, substantially as described.

4. The link-chamber decreasing in width and depth from its top downward, as described.

352,662. PROCESS OF AND FURNACE FOR BURNING WET VEGETABLE, ANIMAL, OR MINERAL MATTER. LEMAN P. RIDER, Pittsburg, Pa. Filed Mar. 24, 1886. (No model.)



Claim.—1. The process of burning wet or green fuel, gabarge, &c., which consists in depositing said matter in conform piles in a close chamber from which atmospheric air is excluded, and to which the products of combustion from a furnace are admitted, and surrounding the exposed surfaces of the fuel with said products of combustion, substantially as described.

2. The combination of a furnace, a close working-chamber from which atmospheric air is excluded, and provided with a series of parallel charging-openings through its crown, and a combustion-chamber between the furnace and the working-chamber, which forms the only channel through which gases are admitted to the working-chamber, substantially as described.

3. The combination of a furnace, a close working-chamber from which atmospheric air is excluded, and provided with a series of parallel charging-openings through the crown, and side openings having doors for sealing the same, and a combustion-chamber intermediate of the furnace and the working-chamber, which forms the only channel through which gases are admitted to the working-chamber, substantially as described.

4. The combination of a furnace, a working-chamber, and a combustion-chamber intermediate of the two, and the crowns of all of said parts arranged on the same plane, substantially as described.

5. The combination of a furnace, a combustion-chamber, a working-chamber, a flue or passage leading therefrom, a gate or valve controlling said flue, and a steam-generator, substantially as described.

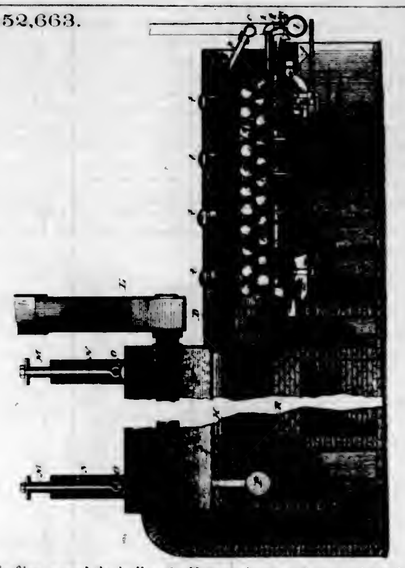
6. A furnace-door consisting of an open metallic frame filled with fire-brick, and a bar crossing the frame, in combination with an arm and a clamping device, substantially as described.

7. In a furnace, a plate provided with a plane horizontal flange and a corrugated vertical flange, in combination with a sliding door, substantially as described.

352,663. PROCESS OF BURNING GAS. LEMAN P. RIDER, Pittsburg, Pa. Filed Mar. 24, 1886. (No model.)

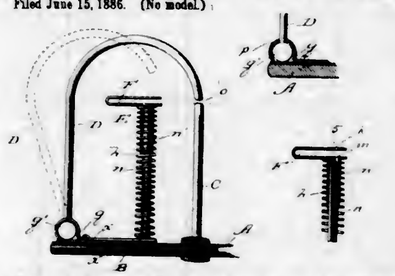
Claim.—1. The process of burning gas, which consists in mixing gas and air by discharging the same between layers of refractory bodies and against an upper layer of heated bodies, and burning the mixture in thin films around the bodies of said upper layer or layers, substantially as described.

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2. The process of burning gas, which consists in mixing gas and air within a furnace by discharging the same into interstices or cells formed by layers of refractory bodies, and against the heated bodies of an upper layer, and burning the mixture in thin films around the bodies of the upper layer or layers, substantially as described.

352,664. PAPER-FILE. ALEXANDER B. SHERWOOD, Chicago, Ill. Filed June 15, 1886. (No model.)



Claim.—1. In a paper-file, the combination, with the base A, of a receiving-wire, and a transfer-wire arched to coincide at its extremity with the receiving-wire and provide a permanent space, *o*, substantially as and for the purpose set forth.

2. In a paper-file, the combination, with the base A, of a receiving-wire, and a movable transfer-wire arched to coincide normally at its extremity with the receiving-wire and provide a permanent space, *o*, substantially as and for the purpose set forth.

3. The combined punch and gage E for a paper-file, comprising in combination a tubular rod, *n*, notched at one extremity to provide puncturing-points and cutting-edges, a gage, F, provided with an opening, *k*, and a guide-tube, *n'*, to fit over the tubular rod *n*, and a spring, *h*, upon the parts *n n'*, substantially as described.

4. The combined punch and gage E for a paper-file, comprising in combination a tubular rod, *n*, notched at one extremity to provide puncturing-points and cutting-edges, a beveled stop, *l*, within the rod *n*, a gage, F, provided with an opening, *k*, and a guide-tube, *n'*, to fit over the tubular rod *n*, and a spring, *h*, surrounding the parts *n n'*, substantially as described.

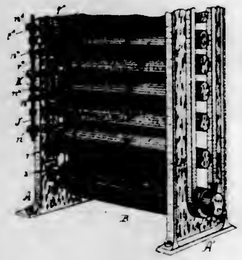
5. In a paper-file, the combination, with the base A, of a receiving-wire, a transfer-wire arched to coincide at its extremity with the receiving-wire and provide a permanent space, *o*, and a combined gage and punch, E, between the receiving and transfer wires, substantially as and for the purpose set forth.

6. In a paper-file, the combination, with the base A, of two parallel receiving-wires, C and C', two transfer-wires, D and D', arched to

coincide at their extremities with the adjacent receiving-wires and provide permanent spaces *o*, and a combined gage and punch, E, between the receiving and transfer wires, comprising in combination two parallel tubular rods, *n*, notched at adjacent extremities to provide puncturing-points and cutting-edges, beveled plugs *l* within the rods *n*, a gage, F, provided with openings *k* and guide-tubes *n'*, to fit over the tubular rods *n* and maintain the openings *k* coincident with the said tubular rods, and spiral springs *h*, surrounding the parts *n n'* and tending to maintain the gage F normally with the entrance to the same coincident with the spaces *o*, substantially as described.

352,665. **DOCTOR FOR PAPER-CALENDER ROLLS.** Reuel Smith, Sherbrooke, Quebec, Canada. Filed May 27, 1886. (No model.)

Brief.—Improvement on the invention embraced in Patent No. 327,031, dated September 29, 1885.



Claim.—1. A deflector-plate or doctor composed of a tubular back or rib to which is secured a curved metallic plate, the latter provided longitudinally with apertures opening into the tubular rib, whereby a flow of air may be continuously discharged, substantially for purposes herein described.

2. Two continuously-rotating rolls, one partially inclosed by and the other in contact with a deflector-plate or doctor, in combination with said deflector-plate pivotally mounted and swinging in horizontal paths of movement toward or away from the rolls, for purposes herein set forth.

3. In combination with a series of continuously-revolving rolls, the pivotal spring-actuated deflector-plates oppositely and serially arranged on either side thereof, said deflector-plates alternating at the meeting surfaces of the rolls and adapted to supply air continuously, substantially for the purposes described.

4. In combination with a pair of revolving rolls, a pivotally-mounted doctor composed of a tubular back, to which is secured a curved metallic plate, the latter to contact against the upper roll and partially inclose but not touch the lower roll, substantially as herein stated.

5. The series of revolving rolls provided with a series of alternately oppositely-disposed pivotally-arranged doctors, in combination with the actuating-shaft, eccentric-disks, and connecting-rods united with the doctors, whereby simultaneous movements of the latter are effected, substantially as herein stated.

6. In combination with a series of continuously-rotating rolls and the alternately oppositely-arranged doctors pivotally mounted, the doctors P P', secured upon the standards and permanently impinging upon their co-operating rolls, as and for purposes set forth.

7. The combination, with the curved plate *c*, perforated as described, and attached to a tubular rib, *a*, pivotally mounted, of the sliding gib, *j*, bracket G, and actuating-rod, J, with its connecting mechanism, all operating substantially as described.

8. In combination with a pair of revolving rolls adapted to receive and pass between them a continuous paper web, the doctors longitudinally disposed thereof, but oppositely inclined and adjusted to rest in contact with said rolls while in rotation, substantially as herein stated.

9. In combination with a pair of rolls, the deflector-plate D and the shaft J, provided with the eccentric-hub *n*, ring *p*, and screw-threaded rod *q*, the rod *s*, adjustably connected with the doctor by the coupling *r*, substantially as described.

10. The cheek-pieces I and the bracket G, which supports one end of the doctor D, in combination with the gib *j*, its springs *k k*, and the terminal support *e* of said doctor, whereby vertical movement thereof is obtained, substantially for purposes herein set forth.

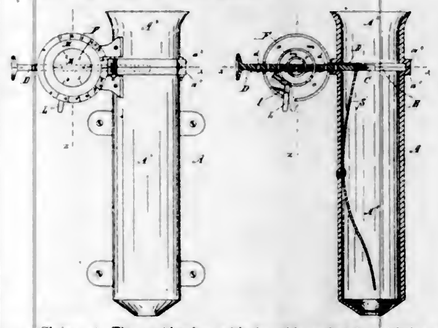
11. In combination with two adjacent rolls and the doctors vertically disposed as to each other, but oppositely and permanently inclined against the surface of said rolls, the adjustable disks 2 2 and face-plates 3 3, slotted at 5 5, and carrying the journals 4 4, all operating as herein described.

12. The combination, with two adjacent rolls and the oppositely-inclined doctors, longitudinally arranged and normally resting thereon, of the supporting-plates 6 6, slotted disks 7 7, and journals 8 8, substantially as and for the purposes stated.

352,666. **METHOD OF PRESERVING FISH.** Otto Stillwaggon, Ellerbeck, Prussia, Germany. Filed June 12, 1886. (No specimens.) Patented in Germany Feb. 9, 1884, No. 28,752; in England Sept. 29, 1884, No. 12,929; in Denmark Jan. 23, 1885, No. 1,706, and in Sweden Feb. 13, 1885.

Claim.—The method herein described of preserving fish, consisting in first taking the fish in the natural condition and smoking them, in then packing the smoked fish in layers with dry salt and allowing them to remain until the salt has combined with the smoked fat sufficiently to render the fish perfectly hard on their exterior, and in then filling up the barrels containing the hardened fish with brine and closing them air-tight, substantially as herein described.

352,667. **WHIP-SOCKET.** Matthew S. Tarrington, Greensburg, Ind. Filed June 14, 1886. (No model.)

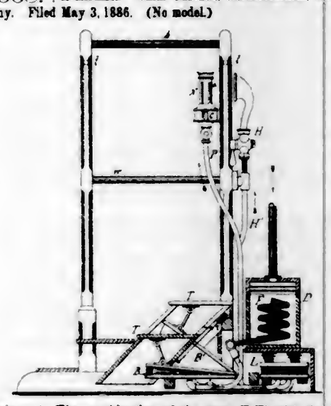


Claim.—1. The combination, with the whip-socket A, consisting of the socket proper, A', and the mouth-piece A^3, both being provided with the flanges a' and a^3, forming the slotted chamber B, of the forked lock-bar D, provided with the vertical notches *d d*, and operating as described, and the combination locking device F M *m*, all constructed as described, and for the purpose specified.

2. The combination, with the whip-socket A, being formed by the socket proper, A', and the receiver A^3, as described, of the forked lock-bar D, provided with the vertical notches *d d*, the combination locking device F M *m*, constructed as described, and the spring S, engaging into and operating the lock-bar D, all arranged as described, and for the purpose specified.

3. The combination, with the whip-socket A, consisting of the socket proper, A', and the receiver A^3, having the flanges a' and a^2 and forming the chamber B, of the forked lock-bar D, provided with the vertical notches *d d*, the combination locking device F M *m*, the spring S, operating the bar D, when unlocked, and the pawl L, engaging into notches on the under side of the bar D, all substantially constructed and arranged as described, and for the purpose specified.

352,668. **INHALER.** Carl Ulbrich, Niedersömnitz, Saxony, Germany. Filed May 3, 1886. (No model.)



Claim.—1. The combination of the steps T T' with the bellows B B', substantially as described and shown.

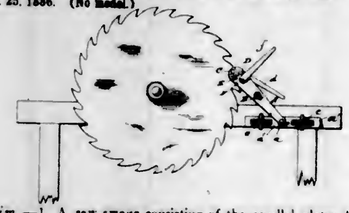
2. The combination of the steps T T' and bellows B B' with the receptacle D, substantially as described, and shown in the accompanying drawings.

352,669. **SNAP-HOOK.** Edward T. Viton, New York, N. Y., assignor to himself and Joseph L. Dole, same place. Filed Sept. 13, 1884. (No model.)



Claim.—A solid metal snap-hook having an aperture or mortise through the metal near the end of the hook, said aperture being widest at the under surface and beveled, in combination with the spring that is fastened at its broader end to the body of the snap-hook, and its tapering moving end is curved outwardly to pass into the mortise, substantially as set forth.

352,670. **SAW-SWAGE.** Clarence Ward, Haring, Mich. Filed Aug. 25, 1886. (No model.)



Claim.—1. A saw-swage consisting of the parallel plates A A', separated centrally by a gage-washer, *b*, pivotally connected at one end to an adjustable plate, *a'*, and provided at the other with serrated jaws C, eccentric-faced roller D, and interchangeable stationary anvils E, together with a clamping-screw, F, and means for operating said roller D and screw F, substantially as shown and described, and for the purpose herein set forth.

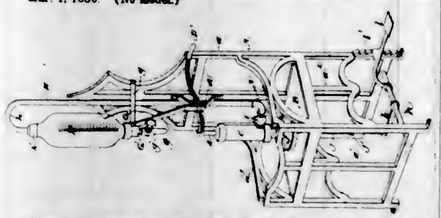
2. In a saw-swage, the combination, with a frame constructed as herein set forth, of the serrated jaws C, eccentric-faced roller D, and interchangeable anvil E, held stationary within said frame by set-screws d^2, together with a clamping-screw, F, and means for operating said roller and screw, substantially as shown and described, and for the purpose herein set forth.

3. In a saw-swage, the combination, with a frame constructed as herein set forth, of the serrated jaws C, eccentric-faced roller D, and the stationary anvil E, provided with a circular bearing-surface and an inner eccentric surface, *d'*, together with a right and left threaded screw, F, and means for operating said roller D and screw F, substantially as shown and described, and for the purpose herein set forth.

4. In a saw-swage, the combination, with the parallel-spaced plates A A', carrying clamping-jaws, and means for swaging a tooth, of the oppositely-threaded screw F, substantially as shown and described, and for the purpose herein set forth.

5. The combination, with two spaced bars provided at one end with holding-jaws, and means for clamping the said jaws to a saw-tooth, of an anvil adjustably held in said bars, and an eccentric roller journaled in said bars above the anvil, substantially as shown and described.

352,671. **MEASURING-PUMP.** Henry Amerland, Fargo, Dak. Filed Mar. 1, 1886. (No model.)



Claim.—1. The combination of a portable frame, as A, a drip-can carried by the frame, a pump-cylinder, C, supported on the frame above the drip-pan and having the piston, a measuring-vessel, F, also supported on the frame and arranged above the drip-pan, and the cylinder carried thereby, a valved supply-pipe, E, to the cylinder, a pipe, H, intermediate of the cylinder and the measuring-vessel, and a pivoted lever for operating the piston, substantially as described, for the purpose set forth.

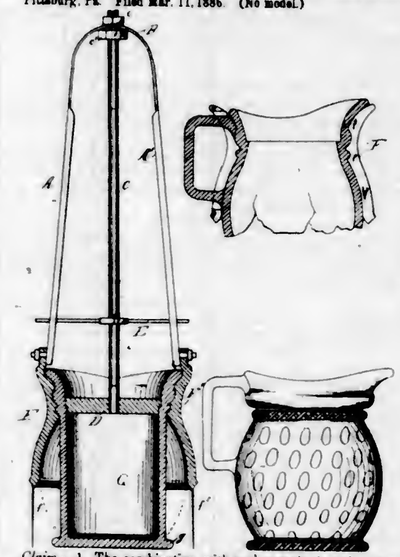
2. The combination of a frame, a supply-pipe having the socket *h'*, a bracket, G, mounted on the frame and having a similar socket, and a measuring-vessel supported in the said sockets, substantially as described.

3. The combination of a frame, a supply-pipe, H, having a bent end and a flaring socket, *h'*, a bracket, G, having a similar socket carrying a valved discharge-nozzle and provided with diverging arms securing the bracket to the frame, and a measuring-vessel having reduced open ends fitted in the said sockets to support the vessel, substantially as described.

4. In a portable measuring device, the combination of a carrying-frame having a drip-pan, a cylinder, C, secured to the frame, a piston working in the cylinder, a lever pivoted on the frame and connected to the piston-rod, a measuring-vessel secured on the frame above the drip-pan and cylinder, a valved supply to the cylinder, a supply-pipe intermediate of the cylinder and measuring-vessel, a vertically-movable can-carrier arranged above the drip-pan, a rock-shaft journaled in the frame beneath the drip-pan, connections intermediate of the rock-shaft and can-carrier for actuating the latter, and means for oscillating the rock-shaft, substantially as described.

5. In a portable measuring device, a frame carrying a measuring-vessel and a drip-pan, in combination with a vertically-movable can-carrier arranged above the drip-pan, a rock-shaft carrying an arm and a lever or treadle, and a jointed rod or arm passing through the drip-pan and connected to the can-carrier and the arm of the rock-shaft, substantially as described.

352,672. **MANUFACTURE OF GLASSWARE.** Philip Arbogast, Pittsburg, Pa. Filed Mar. 11, 1886. (No model.)



Claim.—1. The combination, with a glass-maker's tool or tongs, of a sectional mold or former adapted and designed to retain the molded portion of a blank in shape, and serving as a partial mold for the unfinished portion of the blank while being blown, substantially as shown and described.

2. The combination, with a glass-maker's tool or tongs, of a partial mold or former, an interior block or retainer, and a blow-pipe constructed and arranged substantially as described, whereby the molded parts of a blank are held in shape while the other portions are being finished by blowing.

3. The combination, with a glass-maker's tool or tongs, of a sectional mold, an interior block or retainer, and a blow-pipe, said mold being of such size and configuration as to mold only the upper half of the article blown therein.

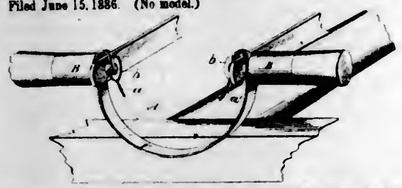
4. The combination, with a glass-maker's tool or tongs, of a sectional mold, one end of which is open and bell-shaped, while the other end is shaped to conform with the outline of the blank to be placed therein, as set forth.

352,673. **HAND SEEDING-MACHINE.** Arthur D. Baker and William H. Orem, South Bend, Ind. Filed Jan. 2, 1886. (No model.)



Claim.—The laterally-vibrating spurred plate G, having a thin rear curved extension, g^4, a front slotted extension, a backwardly-inclined plane, and a forwardly-inclined plane, g^4, terminating at the rear of a slot, g', in combination with the seed-box A, having a double-inclined bottom, a' a^2, terminating in a discharge-passage, a, and the rotative distributing-wheel B, applied on a shaft, D, the crank of which passes through the forward extension of the plate G, all constructed and adapted to operate substantially as and for the purposes described.

352,674. REIN-GUARD. CEPHAS L. BARD, San Buenaventura, Cal. Filed June 15, 1886. (No model.)



Claim.—1. The combination with a pair of whiffletrees, of a flexible strap or band secured to and connecting the adjacent ends of the whiffletrees, and forming a rein-guard, substantially as set forth.

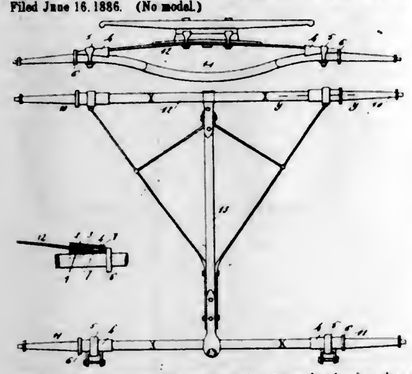
2. The combination, with a pair of whiffletrees, of a flexible strap or band provided with slits or openings in its ends adapted to be slipped over the tips of the adjacent ends of the whiffletrees, for the purpose substantially as set forth.

3. The combination, with a pair of whiffletrees, of a flexible band or strap provided with slits or openings adapted to be slipped over the tips of the adjacent ends of the whiffletrees, and having its ends prolonged to form trace-fasteners, substantially as set forth.

4. A rein-guard consisting, essentially, of a flexible strap or band adapted to connect the adjacent ends of a pair of whiffletrees, and having trace-fastening ends projecting at right angles, or nearly so, to the body portion, substantially as set forth.

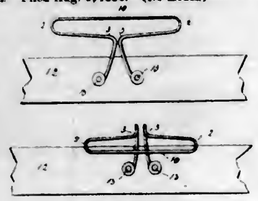
5. The rein-guard consisting, essentially, of the body portion with slits formed near the ends thereof, and adapted to couple the adjacent ends of the whiffletrees, and the end portions tapered and adapted to bend over the traces and extend through the eyes in the whiffletree-tips, substantially as set forth.

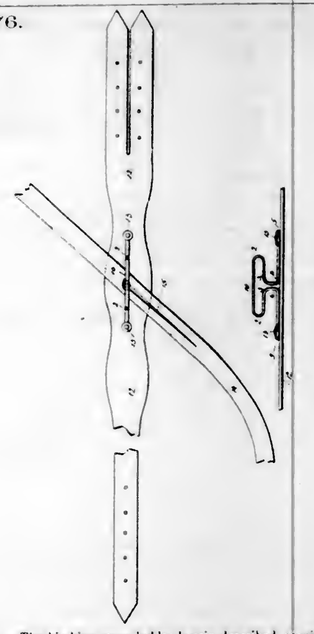
352,675. VEHICLE-SPRING. EDWARD BOWMAN, Santa Cruz, Cal. Filed June 16, 1886. (No model.)



Claim.—The combination, with an axle, of a spring having slots in its ends, the socket 4, provided with the downwardly-projecting pins 3, the wearing-plate 7, and the washer 1, interposed between the wearing-plate and axle, and the clip 5, for securing the socket to the axle, substantially as shown and described.

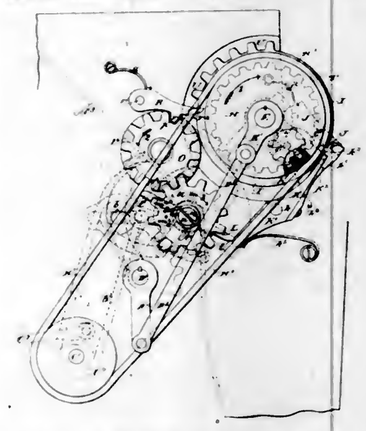
352,676. HITCHING-STRAP HOLDER. EDWARD R. CAMPBELL, Austin, Minn. Filed Aug. 9, 1886. (No model.)





Claim.—The hitching-strap holder herein described, consisting of a wire bent to form a loop having laterally-projecting arms, a shank portion below the loop, and attaching-eyes in the free ends, all substantially as set forth and shown.

352,677. SELF-BINDING HARVESTER. LUCIUS A. GARSON, Uniontown, Pa. Filed July 11, 1885. (Model.)



Claim.—1. In self-binding harvesters, the combination, with the grain-chute and compressors held to a shaft, a, and adapted to receive the grain, of a trip-arm, L, fast on shaft a, a spring-pressed trip-lever, K, having a stud, k^2, a wheel, I, fast on the knotter-shaft E, and provided with a notch, i^2, to which stud k^2 is adapted, a drive-wheel, H, loose on shaft E, and provided with an internal gear, h, a shaft, i', journaled in wheel I, and carrying a pinion, i, meshing with gear h, and a clutch-wheel, I', a spring-pressed dog, J, pivoted to wheel I, and adapted to engage the clutch-wheel, a stud, k^3, on trip-lever K, adapted to hold dog J out of engagement with the clutch-wheel, teeth U on wheel I, a pinion, O, adapted to be engaged by teeth U, a peripherally-notched flange, P, on pinion O, a dog, R, adapted to the notches of flange P, a stud, T, on wheel I, a pinion, M, loose on shaft a, and having a hub, m, slotted at m', loosely around the trip-arm L, and a spring, N, connected to shaft a and pinion M to allow independent forward movement of the shaft a, and its trip-arm L, for tripping the binding mechanism into action, substantially as herein set forth.

2. In self-binding harvesters, the combination, with the grain-chute and compressors fixed to a shaft, a, to extend opposite ways from said shaft alternately to receive and discharge the gavels of grain, substantially as specified, of a trip-arm, L, fast on shaft a, and having opposite acting ends l l', a spring-pressed trip-lever, K, having a stud, k^2, a wheel, I, fast on the knotter-shaft E, and provided with a notch, i^2, to which stud k^2 is adapted, a drive-wheel, H, loose on shaft E, and provided with an internal gear, h, a shaft, i', journaled in wheel I, and carrying a pinion, i, meshing with gear h, and a clutch-wheel, I', a spring-pressed dog, J, pivoted to wheel I and adapted to engage the clutch-wheel, a stud, k^3, on trip-lever K, adapted to hold dog J out of engagement with the clutch-wheel, teeth U on wheel I, a pinion, O, adapted to be engaged by teeth U, a flange, P, on pinion O, and notched at p p, a dog, R, having a stud, r, adapted to notches p p, a stud, T, on wheel I, a pinion, M, on shaft a, and having a hub, m, slotted at m' loosely around the trip-arm L, and a spring, N, connected to the shaft a and pinion M to allow independent forward movement of the shaft a, and its trip-arm L, for tripping the binding mechanism into action after each half-revolution of the compressors, substantially as herein set forth.

3. In self-binding harvesters, the combination, with the grain-chute, the compressors, their shaft a, and trip-arm L on shaft a, of a drive-wheel, H, loose on the knotter-shaft E, and provided with a gear, h, the wheel I, fast on shaft E, and notched at i^2, a shaft, i', journaled in wheel I, and carrying a pinion, i, and clutch-wheel, I', a spring-pressed dog, J, on wheel I, and adapted to engage the clutch-wheel, and a trip-lever, K, provided with studs acting to lift the dog J from clutch-wheel I' and hold the dog from said wheel, and a stud entering notch i^2 of wheel I to lock it at rest, substantially as herein set forth.

4. In self-binding harvesters, the combination, with the compressors, their shaft a, the trip-arm L, the wheel I, notched at i^2, a clutch-dog, J, pivoted on wheel I, and provided with an edge, j^4, and angular face j^5, substantially as specified, of a spring-pressed trip-lever, K, made in two parts, K' K^2, the rigid part K' provided with the end stud, k', and the elastic part K^2 provided with a stud, k^2, for stopping the wheel, and a dog-holding stud, k^3, substantially as herein set forth.

5. In self-binding harvesters, the combination, with the grain-chute, the compressor-shaft a, and knotter-shaft E, of a wheel, I, fast on shaft E, means for operating said wheel I, the pinion M on the shaft a, and adapted to revolve said shaft, the pinion O, meshing with pinion M, and provided with a flange, P, notched at p, a dog, R, adapted to the notches p, and a trip-stud, T, and teeth U on wheel I, substantially as herein set forth.

6. In self-binding harvesters, the combination, with the grain-chute, the compressors, their shaft a, the trip-arm L, fixed to shaft a, and the trip-lever K, of a pinion, M, placed loosely by its hub m on shaft a, and said hub having slots m', allowing independent forward movement of the shaft a, and arm L for tripping the lever K to start the binding devices, substantially as herein set forth.

7. In self-binding harvesters, the combination, with the compressors, their shaft a, the trip-arm L, and trip-lever K, of the spring N, held to shaft a and to its driving-pinion M, so its tension controls the movement of the compressors and trip-arm L as the binding mechanism is tripped into action, substantially as herein set forth.

8. The combination, with the shaft E, the wheel H, having internal gear, h, and loosely mounted on shaft E, and wheel I, fast on shaft E, of the shaft i', pinion i, clutch-wheel I', and spring-dog J, substantially as set forth.

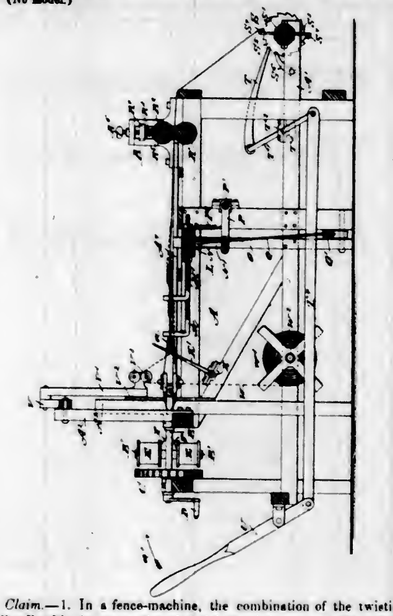
9. In a self-binding harvester, the combination, with the shaft E, having crank-arm E', wheels H and I, and mechanism for locking said wheels together, shaft a, carrying gavel-arms A, mechanism for revolving and holding said shaft a, and the needle D, loosely mounted on shaft a, and provided with the gear-segment d, of the shaft D', having crank-arm D^2, the gear-segment d, and the connecting-rod D^3, substantially as set forth.

10. In a self-binding harvester, the combination, with the shaft E and wheel I, having gear-segment U and a pin, T, of the shaft a, carrying gavel-arms A, the gear M on shaft a, the pinion O, provided with disk P, having notches p, and the spring-pawl R, having studs r and r^2, substantially as set forth.

11. In a self-binding harvester, the combination, with the wheel H, having internal gear, h, the wheel I, the shaft i', carrying clutch-wheel I', and pinion i, and the spring-dog J, having tooth j and stud j^3, of the shaft a, carrying the gavel-arms A, the arm L on shaft a, the pinion M, mounted loosely on said shaft and having a slotted hub engaging the arm L, the spring N, and the spring-lever K, engaging the dog J and arm L, substantially as set forth.

12. In a self-binding harvester, the combination, with the shaft E, carrying wheel I, provided with gear-segment U and pin T, wheel H, loosely mounted on shaft E, mechanism for locking said wheels H and I together, shaft a, carrying gavel-arms A, pinion M, spring N, and arm L, of the gear O, having disk P, provided with notches p, spring-pawl R, and lever K, having arm k', and spring-arm K^2, substantially as set forth.

352,678. FENCE-MACHINE. ROBT. F. DEERING, Washington, Kans., assignor to himself and Martin McNitt, same place. Filed July 8, 1886. (No model.)



Claim.—1. In a fence-machine, the combination of the twisting-spindles B with the screw-threaded right-angled gage-rods M and M', having applied thereto upon each side of their supports adjusting-nuts, substantially as shown and described.

2. In a fence-machine, the combination of the twisting-spindles B with the adjustable gage-rods M and M', the cross-beam N, and a device for raising and lowering the same, substantially as shown and described.

3. In a fence-machine, the combination of the twisting-spindles B, each provided with a tension device, G, with the adjustable gage-rods M and M', the cross-beam N, carrying the said rods M and M', and provided with an arm, N', the arm P, attached to the shaft P', and the spring P^3, substantially as shown and described.

4. In a fence-machine, the reel S, consisting of the shaft S', having slots S^3, within which are pivoted the arms S^2, and the cross-bars S^4, substantially as shown and described.

5. In a fence-machine, the tension device G, attached to the hollow spindle B, and consisting of the keepers H, each having a groove, H', the spring-plate I, and the screw J, having a head or thumb-piece, J', substantially as shown and described.

6. In a fence-machine, the rotating hollow spindles B, each having apertures B^2 and B^3, and being provided with arms B', each carrying a wire-reel, E, in combination with a tension device, G, attached to the hollow spindle B, and consisting of the keepers H, each having a groove, H', the spring-plate I, and the screw J, having a head or thumb-piece, J', substantially as shown and described.

7. In a fence-machine, the combination of the gage-rods M and M', the cross-beam N, having the downwardly-extending arms N', in combination with the arms P, attached to the shaft P', the spring P^2, operating on the said arm P', the rod Q, and the treadle Q', substantially as shown and described.

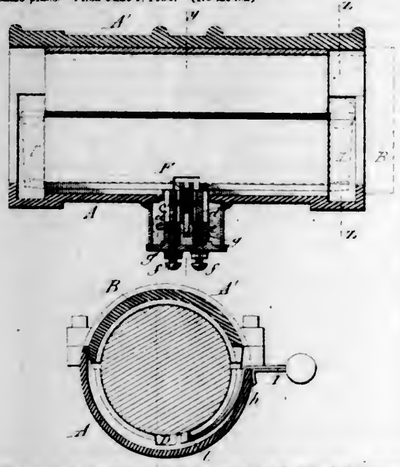
352,679. LATCH. WILLIAM W. DEY, Altoona, Pa. Filed Sept. 29, 1886. (No model.)



Claim.—In a latch, the combination of a keeper having the shoulders s' on its rear edge, a swinging locking-plate pivoted to the keeper at an intermediate point of its length and having a flange or rib at its rear end, which projects therefrom into the path of the shoulders s', and is adapted to come in contact with the said shoulders to limit the movement of the plate, and the door-plate having the projecting lug adapted

to ride upon a beveled shoulder at the front end of the locking-plate, substantially as described, for the purpose set forth.

352,680. SELF-LUBRICATING JOURNAL-BEARING. ISACHAR W. DOWS, New Market, N. H., assignor of one-half to Ambrose J. Nichols, same place. Filed June 9, 1886. (No model.)



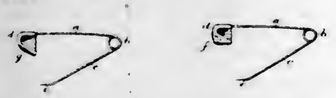
Claim.—1. The combination of a journal-bearing having a lower opening, annular end recesses, and intercommunicating channels, the sight-feed glass with its adjustably-mounted lubricating-roller, and the fulcrumed scrapers or wipers, substantially in the manner specified and shown.

2. In a sight-feed lubricator, the combination of the journal-bearing, the observation-chamber G secured thereto, and the removable and adjustable roller F, revolving in contact with the shaft, said roller being carried by a spindle, *c*, whose extremities are journaled in rods *d*, located within slotted tubular posts *e*, which are secured within the chamber G, and are provided with screw-bolts *f* and springs *g*, all arranged substantially as described.

3. The combination of the recessed and channeled journal-bearing, the sight-feed oil-receptacle, the distributing-roller, and the wipers fulcrumed on the apertured wall of the bearing, substantially as set forth and shown.

4. The combination of the sight-feed glass, containing the lubricating-liquid, the adjustably-mounted roller for conveying said liquid to the shaft, and the scrapers having inclined flanges that wipe the journal, together with channels for gathering up and reconveying the liquid to the feed-glass, substantially as shown and described.

352,681. SAFETY-PIN. DAVID L. DURAND, Derby, Conn., assignor to the Housatonic Brass Corporation, same place. Filed June 10, 1886. (No model.)



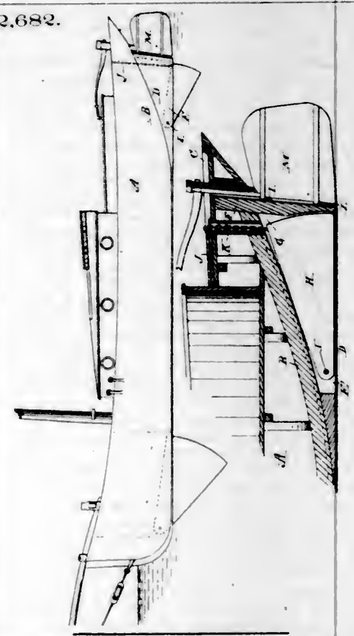
Claim.—1. The improved safety-pin herein shown and described, in which the pin *c* has a short portion at the pointed end bent inwardly toward the back, substantially as described, and for the purpose specified.

2. The improved safety-pin herein shown and described, the same consisting, essentially, of a shield, back, spring, and pin, the latter having a short portion at the pointed end bent inwardly toward the back, while the shield has its flange formed with special reference to the covering the point of the pin thus bent, substantially as described, and for the purpose specified.

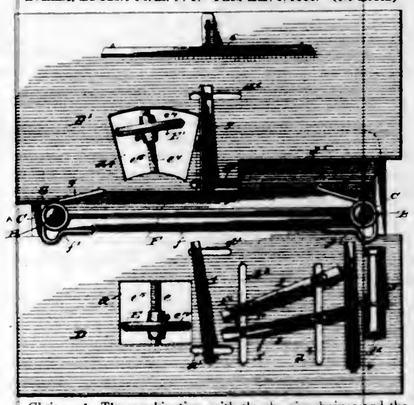
352,682. SKEG ATTACHMENT FOR VESSELS. THOMAS G. EDMONDSON, Tarpon Springs, Fla. Filed Apr. 12, 1886. (No model.)

Claim.—In combination with the sloping stern B, the skeg-casing D, having its bottom aligned with the keel and its rear end formed by the upright or post F, which is secured in the extremity of the hull, and the triangular skeg H, pivoted at its front end within the like-shaped casing, all as shown and described.

352,682.



352,683. MACHINE FOR CUTTING SHEET METAL. LABAN J. EVEREST, Au Sable Forks, N. Y. Filed Mar. 8, 1886. (No model.)



Claim.—1. The combination, with the shearing-knives and the adjustable gages mounted upon the table, of the feeding-pulleys E E', adjustable upon their arbors, substantially as described.

2. The combination, with the shearing-knives, of the feeding-pulleys E E', adjustable upon their arbors, the operating-treadle, and the chains connected therefrom to the arbors, said chains being secured adjustably to the treadle, substantially as and for the purpose set forth.

3. The combination, with the shears F F', of the pivoted table-section D', as described.

4. The combination, with the fixed and movable shears and the rotary shafts carrying the feed-pulleys, of the operating-treadle connected to the movable knife and to the said shafts in such manner as to actuate the same simultaneously, substantially as set forth.

5. The combination, with the standards B and the cross-pieces C, of the collars G, carrying the movable knife, the fixed knife supported between the standards, the shaft *e*, with its adjustable pulley, drum, and retracting-spring, the shaft *e'*, with its adjustable pulley and retracting and withdrawing springs, the chain for drawing said shaft forward, and the table-sections D D', with their slots and adjustable guides, substantially as described.

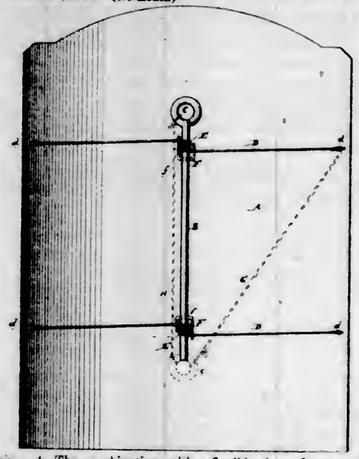
6. In a sheet-metal-cutting machine, the combination, with a treadle

mounted upon a suitable supporting-frame and a rotating and pivotally-moving shaft mounted upon said frame and carrying a pair of drums, of a chain wound upon one of said drums and connected to the treadle, a second chain wound oppositely upon the other drum and connected to said frame, and a pulley mounted upon said shaft and engaging the stock for moving and guiding it to the cutters, substantially as set forth.

7. The combination, with the frame and the fixed and rigid table-sections having slots, openings, and adjustable and fixed guides, of the fixed and movable knives, the springs for sustaining and raising the movable knife, the fixed and pivotally-moving arbors carrying the feed-wheels, the drums, retracting and withdrawing springs for the same, the treadle with its adjustable connections to the arbors, and the adjustable pulleys upon said arbors, as set forth.

8. In a machine for cutting sheet-metal forms, the combination, with the cutting-knives, of guiding-pulleys and actuating-connections to feed the blank beneath the cutters in such manner as to produce curved cuts of predetermined extent and relative proportions, substantially as described.

352,684. FLEXIBLE SIGN. HENRY P. FENSTER, Philadelphia, Pa. Filed June 26, 1886. (No model.)



Claim.—1. The combination, with a flexible sign, of two or more tension cords, bands, or wires secured to the sign, and a roller or rod arranged at the back of the sign and secured to said cords, bands, or wires, whereby upon rotating the roller or rod the cords, bands, or wires are wound up and draw in the sides of the sign, causing it to assume a convex or curved form, substantially as and for the purpose specified.

2. The combination, with a flexible sign, of two or more tension cords, bands, or wires secured to the sign, a roller or rod arranged at the back of the sign and secured to said cords, bands, or wires, whereby upon rotating the roller or rod the cords, bands, or wires are wound up and draw in the sides of the sign, causing it to assume a convex or curved form, and a suitable locking device to prevent the roller or rod from unwinding after the sign has been curved, substantially as and for the purpose specified.

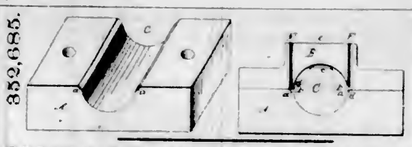
3. The combination, with a flexible sign, of two or more tension cords, bands, or wires secured to the sign, a roller or rod provided with a supporting eye or loop and arranged at the back of the sign and secured to said cords, bands, or wires, whereby upon rotating the roller or rod the cords, bands, or wires are wound up and draw in the sides of the sign, causing it to assume a convex or curved form, substantially as and for the purpose specified.

4. The combination, with a flexible sign, of two or more tension cords, bands, or wires secured to the sign, a roller or rod provided with a supporting eye or loop and arranged at the back of the sign and secured to said cords, bands, or wires, whereby upon rotating the roller or rod the cords, bands, or wires are wound up and draw in the sides of the sign, causing it to assume a convex or curved form, and a suitable locking device to prevent the roller or rod from unwinding after the sign has been curved, substantially as and for the purpose specified.

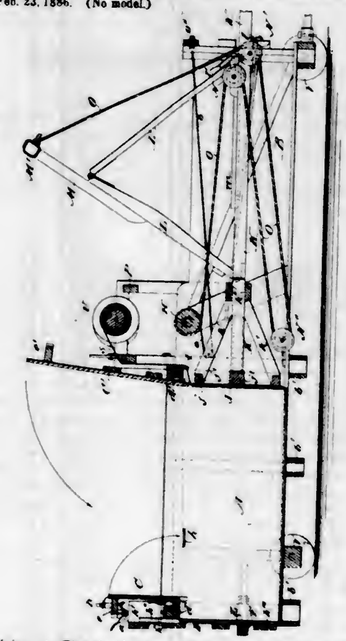
352,685. JOURNAL-BEARING. WILLIAM A. FRANK and THOMAS WICKS, Pinal, Ariz. Filed June 15, 1886. (No model.)

Claim.—The combination, in a journal-bearing, of a body-piece constituting one half of the bearing and a cap therefor constituting the other half of the bearing, the said cap and body being formed with oil-grooves along the bearing at their joint and provided with an oil-hole, substantially as shown and described.

352,685.



352,686. BALING-PRESS. JOSEPH I. GILBERT, Lebanon, Oreg. Filed Feb. 23, 1886. (No model.)



Claim.—1. The combination, with the frame having the chambers A B, of the follower J, the longitudinally-moving guides K K, having the upper and lower pulleys, N N', the pulley N², journaled on the frame between the follower and the pulleys N N', the axle H, journaled in the frame above the guides K, the toggle-lever L L', the arms L resting at their lower ends on the forward ends of the guides, and the arms L' bearing against the rear end of the frame, the arms M, extending upward from the arms L, a rope secured to the arms M, passed downward over the pulley N', thence to and around pulley N², back over the pulley N, and forward to the axle and there secured, substantially as set forth.

2. The combination, with the frame having the chambers A B, of the follower J, the longitudinally-movable guides K K, having the upper and lower rear pulleys, N N', and the forward pulley, *o'*, the pulley N'', journaled on the frame between the follower and the pulley N, the axle H, journaled in the frame above the guides, the toggle-levers L L' M, the rope O, secured to its opposite ends to the arm M and axle, respectively, and passed around the pulleys N N' N'', as shown, the pulleys *o''* *o'''*, journaled in the upper rear corners of chamber B, and the rope *o*, wound on the axle in the direction opposite to the rope O, extending forward around the pulley *o'* on the guides, thence rearward around the pulleys *o''* *o'''*, and secured to the guides on the side opposite the pulley *o'*, substantially as set forth.

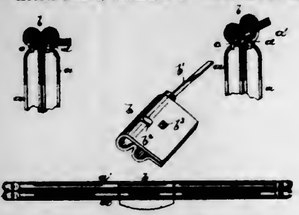
3. The combination, with the frame having the chambers A B and the follower, of the two-part cover C C', the spools, and the knotter R, mounted on the forward section, C, at its free end, whereby when the material is pressed within the space covered by the section C the section C' may be raised to allow the operator to pass the end of the cord to the knotter, substantially as set forth.

4. The combination, with the longitudinally-apertured casing *v*, of the sliding needle *u*, mounted therein and notched transversely to form the knotter-hook *u'*, substantially as set forth.

5. In a baling-press, the combination, with a baling-chamber, of lids or covers C C', that are provided with strips *c''* *c'''*, and levers *f*, carrying links *g*, substantially as described, and for the purpose specified.

6. The combination, with a baling-chamber and its gate D, of a cross-bar, E, link F, a strap, G, formed with an eye, *i*, a lever, G', and a pin, *i'*, substantially as described.

352,687. FASTENING FOR SATCHEL AND POCKET-BOOK-FRAMES. AUGUST GOERTZ, Newark, N. J. Filed June 28, 1886. (No model.)



Claim.—The combination, with the hinged sections, one of which is provided with a limiting projection and the other with a co-operating catch, of a catch, *b*, provided with a slot or recess, b^2, on its under side, into which said projection extends, substantially as set forth.

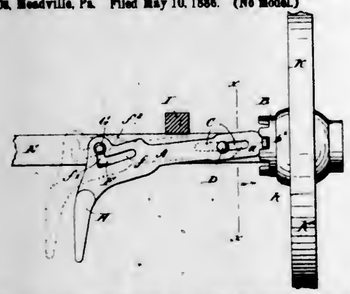
352,688. BRIDLE. EMERY E. HARDY, Newark, N. J. Filed Sept. 4, 1882. (No model.)



Claim.—1. As an improved article of manufacture, the bridle provided with the mountings B and C, as described and shown.

2. The strap-holding device B, consisting of a plate, *b*, provided with a central cavity extending to one edge only, two loops, *c*, rising from the face of the plate on opposite sides of the cavity, and a central stud, *d*, seated in the middle of the cavity and extending upward beyond the face of the plate, as described, whereby the plate is adapted to secure two straps firmly in position, one upon the other, and prevent them from changing their relative positions.

352,689. BRAKE FOR CHILDREN'S CARRIAGES. T. WILSON HAUS, Meadville, Pa. Filed May 10, 1886. (No model.)

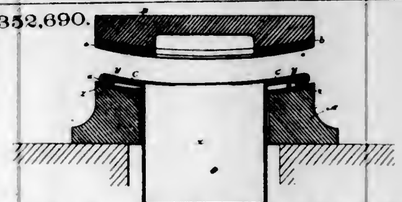


Claim.—1. The combination, in a brake for children's carriages, of a brake-bar, A, held to slide on the carriage-axle and provided with an angular slot, F, forming a locking-shoulder, f^2, a bolt, G, entering slot F, and a clutch-plate, B, fixed to the carriage-wheel and having notches *b*, to which the bar A is adapted, substantially as herein set forth.

2. The combination, in a brake for children's carriages, of a brake-bar, A, having a slot, C, and an angular slot, F, bolts, as at D G, entering said slots and holding the bar A to the carriage-axle, and a clutch-plate, B, fixed to the carriage-wheel and having notches *b*, to which the bar A is adapted, substantially as herein set forth.

3. In a brake for children's carriages, the brake-bar A, made with a slot, C, an angular slot, F, and a pendent arm, H, in combination with bolts D G, and a clutch-plate, B, fixed to the carriage-wheel and having notches *b*, to which the bar A is adapted, substantially as herein set forth.

352,690. MACHINE FOR TRIMMING THE CURLS OR ROLLS OF HAT-BRIMS. GEORGE H. HOOPER, Brooklyn, N. Y., assignor of one-half, by direct and mesne assignments, to Edmund McLoughlin, Jr., and Andrew Campbell, both of same place. Filed July 13, 1886. (No model.)



Claim.—1. A machine for trimming the curls or rolls of hat-brims, comprising a press-bed to receive and support the hat-brim, a follower to press on the hat-brim as it rests on the press-bed, a brim-plate which rests on the hat-brim, and over which the edge of the brim is folded or rolled, and an annular cutter, *e*, attached to one of these parts, substantially as set forth.

2. A machine for trimming hat-brims, comprising a press-bed to receive and support the hat-brim while it is being trimmed, a follower to press on the hat-brim as it rests on the press-bed, the brim-plate C, having an aperture, *d*, to receive the hat-body, and an exterior contour corresponding to the contour of the hat-brim, and an annular cutter, *e*, attached to or formed integrally with said plate C, said cutter being arranged to stand under the roll on the edge of the hat-brim, substantially as set forth.

3. As a means for trimming the edge of the roll or turned-over margin of a hat-brim, a plate with an aperture to receive and fit the hat-body, and an annular cutter, *e*, attached to or formed integrally with said plate, substantially as set forth.

4. The combination, with the brim-plate and annular cutter, of the follower of the press provided with a cushion on its operating face, substantially as and for the purposes set forth.

352,691. SYSTEM OF ELECTRICAL DISTRIBUTION. JOHN W. HOWELL, New Brunswick, N. J. Filed Apr. 15, 1886. (No model.)



Claim.—1. The method of producing movement for the indication or regulation of pressure for two or more electrical circuits, consisting in effecting such movement for one circuit directly by the pressure thereat, and effecting such movement for the other circuits by moving instruments by the resultant of electrical forces acting cumulatively or differentially thereon, such forces being derived from the standard circuit and from such other circuits, substantially as set forth.

2. The combination of two or more electrical circuits, an absolute indicator of pressure connected directly with one circuit, and a comparative pressure-indicator for each of the one or more other circuits acted upon differentially or cumulatively by electrical forces derived from the first circuit and one of the other circuits, substantially as set forth.

3. The combination, with two electrical circuits, of two bridge-wires connecting conductors of like polarity of such circuits and a differentially-wound indicating or regulating instrument located in such bridge-wires, for effecting movement for indication or regulation by an electrical comparison between the pressures of the two circuits, substantially as set forth.

4. The combination, with the connected main conductors of a system of electrical distribution and the feeders leading thereto, of one or more absolute pressure-indicators connected with the conductors of the system, and one or more comparative pressure-indicators, each acted upon differentially or cumulatively by electrical forces derived from two points of the system, substantially as set forth.

5. The combination, with the connected main conductors of a system of electrical distribution and the feeders and pressure-wires thereto, of one or two absolute pressure-indicators connected with the conductors of the system, and comparative pressure-indicators connected in bridges between feeder pressure-wires and the circuit or circuits provided with the absolute instrument, substantially as set forth.

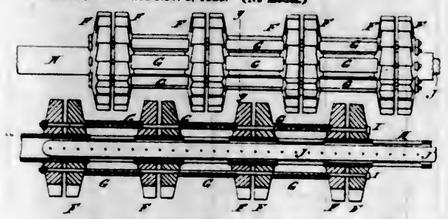
6. The combination, with the connected main conductors of a system of electrical distribution and the feeder and pressure-wires thereto, of a local station-circuit provided with an absolute pressure-indicator, and regulating devices and comparative pressure-indicators connected in bridges between the feeder pressure-wires and this local station-circuit, substantially as set forth.

7. The combination, with the connected main conductors of a system of electrical distribution and the feeders and pressure-wires thereto, of a local station-circuit provided with a fixed and an adjustable resistance, an absolute indicator showing pressure across terminals of fixed resistance, and comparative indicators connected by bridge-wires between pressure-wires and the terminals of said fixed resistance, substantially as set forth.

8. The combination, with a standard circuit, of two or more comparative pressure-indicators connected with the same pressure-wires from such standard circuit, substantially as set forth.

9. The combination, with a standard circuit, of two or more comparative pressure-indicators connected with the same pressure-wires from such standard circuit, and separate wires from the standard circuit including one or more absolute pressure-indicators, substantially as set forth.

352,692. GRATE FOR FURNACES. SILAS H. HUNTINGTON, West Pittston, Pa. Filed Nov. 3, 1885. (No model.)

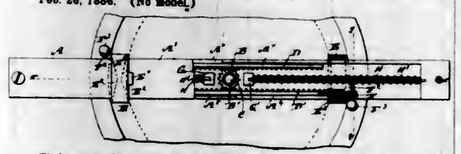


Claim.—1. The combination, in a grate-bar, of toothed wheels F, provided with bars G and mortises for receiving the bars of the adjoining section, hollow shaft H, and fastening-bolts I, substantially as herein specified.

2. The combination, in a grate-bar, of the hollow shaft H, the toothed wheels F, provided with the bars G, and the perforated tube J, inserted in the tube H, substantially as herein specified.

3. In a grate bar, the combination, with the hollow slotted shaft H, of toothed wheels F, provided with bars G, projecting from the side thereof, and provided with mortises in the side thereof, alternating with the bars G, for receiving the bars G of the adjoining wheels F, and bolts I, extending through the entire series of sections formed of toothed wheels F and bars G underneath the bars G, substantially as herein specified.

352,693. CENTERING DEVICE. JOHN IRVING, Warren, Mass. Filed Feb. 26, 1886. (No model.)



Claim.—1. In a centering device, the combination of a frame with internal and external calipering heads attached to racks which mesh into a pinion turning on a central hollow pin, with stationary rods attached to the frame, with springs placed on the said rods, and with sliding bars fitted to the calipers to compress the said springs, substantially as shown and described.

2. In a centering device, a frame on which slide internal and external calipering heads attached to racks which mesh into a pinion turning on a hollow pin, and provided with stationary rods around which are placed springs which are compressed by sliding bars, in combination with an index and graduated radius-bar turning on a shank provided with an arm and set screw, the said shank being secured in the center of the frame, substantially as shown and described.

3. In a centering device, the frame A, the pin B, having an aperture, B', the pinion C, the rods H, and the springs H', in combination with the racks D and D', and the calipering heads, substantially as shown and described.

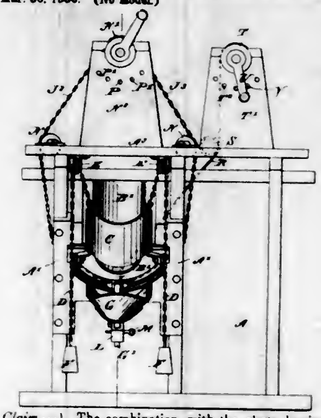
4. In a centering device, the frame A, the pin B, the pinion C, the rods H, and the spring H', in combination with the racks D and D', the calipering heads E, having the beveled inner and outer edges, E^2, and the sliding bar F', substantially as shown and described.

5. In a centering device, the frame A, the pin B, having the aperture B', the pinion C, the racks D and D', the calipering heads E E, the rods H H, and the springs H', in combination with the index K, provided with a graduated radius-bar, the shank N, and the adjustable arm O, substantially as shown and described.

6. In a centering device, the pinion C, the racks D and D', the calipering heads E, provided with the beveled edges E^2, the short arm F, and the sliding bar F^2, in combination with the rods H, secured in the frame A, and the springs H', substantially as shown and described.

7. In a centering device, the frame, the pin B, the pinion C, the racks D and D', the calipering heads E, the rods H, the springs H', the shank N, and the adjustable arm O, provided with the set-screw O^2, in combination with the index-plate K^2, the graduated radius-bar L, and the center-plug holder M, substantially as shown and described.

352,694. COAL-CHUTE. JAMES JOPLING, What Cheer, Iowa. Filed Mar. 30, 1886. (No model.)



Claim.—1. The combination, with the chute having a rounded or curved portion at its forward end, of a scuttle curved to correspond to the curved end of the chute, and a longitudinally and laterally movable rod, connected to the said scuttle, whereby the scuttle may be moved longitudinally or laterally in the arc described by the curved end of the chute, substantially as set forth.

2. The combination, with the chute, of the longitudinally-sliding rod, horizontally-movable bearings therefor, curved ways for said bearings, means for operating the rod, and a scuttle hinged to swing vertically on the forward end of the said bar, substantially as set forth.

3. In a coal-heaver, the combination of the chute B and the scuttle G, hinged to the block H, and the segment G', with the bar I, the adjustable block H, the casting L, and the pin M, substantially as shown and described.

4. In a coal-heaver, the combination of the scuttle G, hinged to the block H, the segment G', the casting L, the pin M, and the bar I, with the bearings J, sliding in the grooves K in the cross-beams A' and A^2, and the chains J^3, wound upon the windlass N', substantially as shown and described.

5. In a coal-heaver, the combination of the scuttle G, pivoted to the block H, the bar I, and the bearings J, sliding in the grooves K and provided with the lugs J' and J^2, with the chains J^3, the windlass N', the crank-arm O, mounted on the standards N^2, having apertures P', and the pin P, substantially as shown and described.

6. In a coal-heaver, the combination of the scuttle G, pivoted to the block H, the bar I, and the bearings J, sliding in the grooves K and provided with the lugs J' and J^2, with the adjustable arm Q, the rope R, passing over the guide-rollers S, the windlass T, mounted on the standards T', having the apertures T^2, the crank-arm U, and the pin V, substantially as shown and described.

7. In a coal-heaver, the combination of the chute B, the hinged plate C, the scuttle G, pivoted to the block H, the segment G', having apertures G^2, the casting L, the pin M, and the bar I, sliding in the bearings J, with the bearings J, the chains J^3, the windlass N', the crank-arm O, the arm Q, the chain R, the windlass T, and the crank-arm U, substantially as shown and described.

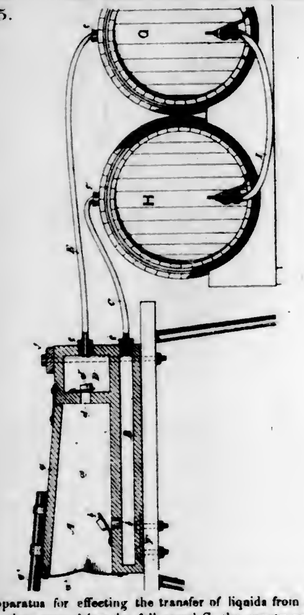
8. In a coal-heaver, the combination of the inclined chute B, made semicircular in its lower half, with the hinged curved plate C, the chains D, the pulleys E, and the weight F, substantially as shown and described.

352,695. APPARATUS FOR TRANSFERRING LIQUIDS. JAMES T. KENWORTHY, DANIEL SEXTON, and ALBERT THOMPSON, Colton, Cal. Filed Aug. 11, 1886. (No model.)

Claim.—1. In an apparatus for effecting the transfer of liquids from one receptacle to another, the bellows A, having chamber a, the inlet-port *b*, with its controlling-valve *b'*, and the outlet-port *d*, with its controlling-valve *d'*, in combination with a tube or passage, B, communicating with the inlet-port *b*, and the tube or passage D, communicating with the outlet-port *d*, whereby said ports may be readily connected with the receptacles, substantially as described.

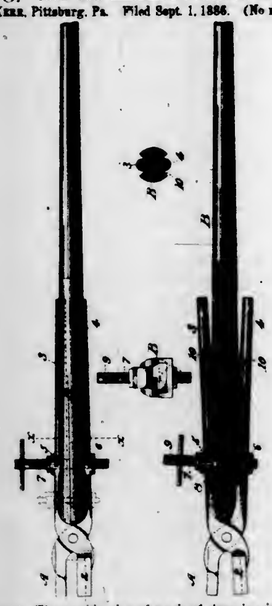
2. In an apparatus for effecting the transfer of liquids from one receptacle to another, consisting of the bellows A, having the chamber a, the inlet-port *b* and valve *b'* in the base of the chamber, the outlet-port *d* and valve *d'* in the front of the chamber, the hose C, connected with one receptacle, and the hose E, connected with the other receptacle, the tube or passage B, connecting the hose C with the inlet-port *b*, and the tube or passage D, connecting the hose E with the outlet-port *d*, substantially as described.

352,695.



3. An apparatus for effecting the transfer of liquids from one receptacle to another, comprising the full vessel G, the empty vessel H, the pipe I, connecting them, the bellows A, having the inlet valved port *b* and the outlet valved port *d*, the passage or tube B, communicating with the inlet-port, the passage or tube D, communicating with the outlet-port, the hose C, connecting vessel H with the passage B of the inlet-port, and the hose E, connecting vessel G with the passage D of the outlet-port, all arranged and adapted to operate substantially as herein described.

352,696. TOOL FOR HANDLING FORGINGS, INGOTS, &c. EDWARD KERR, Pittsburg, Pa. Filed Sept. 1, 1886. (No model.)

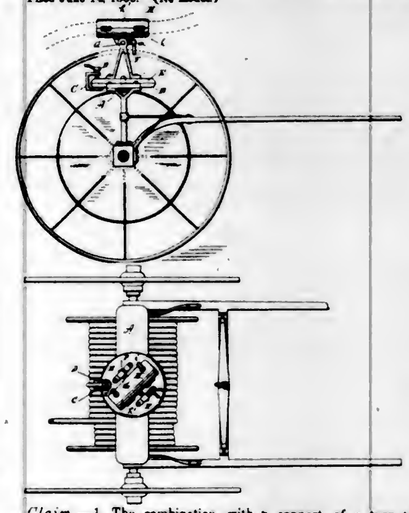


Claim.—1. The combination of a pair of clamping-jaws operated by reins or handles, a porter-bar arranged between said reins, and means for securing the reins and porter-bar together, substantially as set forth.

2. The combination of a pair of clamping-jaws and their reins or handles, a porter-bar arranged between the reins, and a screw for closing the jaws and clamping the reins upon the porter-bar, substantially as set forth.

3. The combination of a pair of clamping-jaws and their operating reins or handles, a porter-bar having longitudinal grooves in opposite sides, and means for simultaneously closing the jaws and forcing the reins into the grooves in the porter-bar, substantially as set forth.

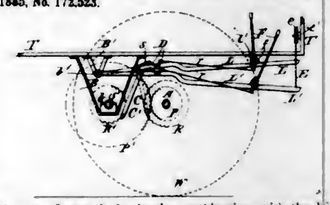
352,697. HOSE-NOZZLE HOLDER. MARY LANE, Hot Springs, Ark. Filed June 14, 1886. (No model.)



Claim.—1. The combination, with a support, of a turn-table mounted thereon, a clamp for locking the turn-table in position, uprights projecting from the turn-table, a shaft journaled in the upper ends of the uprights, a hose-holder secured to the said shaft, and a set-screw for locking the shaft in position, substantially as herein shown and described.

2. The plate B of the cross-piece A, provided with the iron C and screw D, in combination with the turn-table E, uprights F, shaft G, divided holder H, and set-screw *a*, arranged to lock the shaft G, substantially as described.

352,698. VELOCIPEDE. EMILE LEGROS and JULES LEGROS, Paris, France. Filed July 14, 1886. (No model.) Patented in France Nov. 25, 1885, No. 172,523.

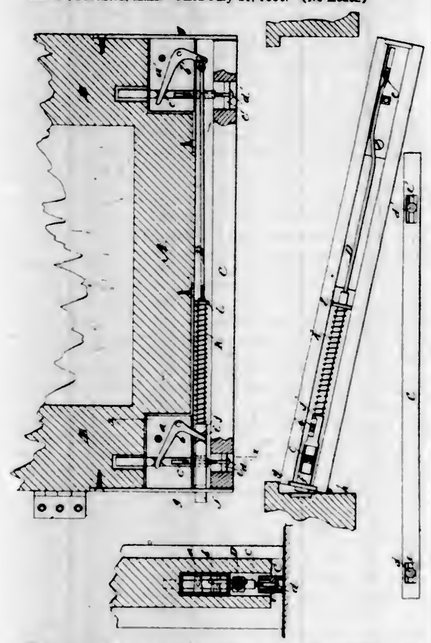


Claim.—1. In a velocipede, the combination, with the driving-axle of a ratchet-and-pawl driving mechanism such as described, and a foot-lever to which said pawl is connected and from which it is operated, of mechanism for varying the throw of the pawl, consisting of a bell-crank and hand-lever pivoted to the foot-lever and connected together by a connecting-rod, a yielding connection between the bell-crank lever and pawl above the fulcrum of the latter, and a locking-pawl pivoted to the hand-lever and arranged to engage notches formed in the foot-lever to lock said hand-lever into position, substantially as described, for the purposes specified.

2. In a velocipede, the combination, with the pivoted fore axle, A', the main axle A, the counter-shaft S, said main axle and counter-shaft being geared together and carrying each a ratchet, foot-levers and pawls pivoted thereto for operating the ratchets, of adjusting devices, such as described, for adjusting the throw of the pawls, and a steering mechanism consisting of steering-spindle *h'*, carrying worm-wheel *h*, the operating-worm h^2, the cross-head or lever H', and the connecting-rod H, connecting said cross-head with the fore axle, substantially as described, for the purpose specified.

3. In a velocipede, the combination, with the pivoted fore axle, A', the main axle A, and counter-shaft S, geared together and carrying each a pair of ratchet-wheels, of the foot-levers L L', pivoted at one end and supported from a chain and pulley at the other, the pawls C C', pivoted to said foot-levers and constructed of two side pieces and two or more cross-bars arranged for operation on the teeth of the ratchets for driving the vehicle in one direction, a corresponding ratchet-and-pawl mechanism for driving the vehicle in a reverse direction, adjusting devices mounted on the foot-levers for adjusting the throw of the pawls, a yielding connection between said adjusting devices and the driving-pawls, and a steering mechanism consisting of a worm-gearing connected with and controlling the movements of said fore axle on its pivot, substantially as described, for the purposes specified.

352,699. DOOR ATTACHMENT. ALBERT H. MACKIE and FRED W. MACKIE, Brockton, Mass. Filed July 21, 1886. (No model.)



Claim.—1. The door attachment comprising a movable stop, C, having mortises provided with cross-bars *e e'*, the casings *a a'*, having end flanges, *g g*, the bell-crank levers pivoted in said casings, the vertically-sliding bolts *c c'*, mortised between their ends and receiving the long arms of the bell-crank levers, the adjusting-screws *d d'*, extending up through the cross-bars and mortises in the stop C into the lower ends of the bolts *c c'*, and the spring-pressed rod D, having one end, *f*, extending through the flange *g*, and a mortise, *i*, into which projects the short arm of lever *b*, the short arm of lever *b'* being pivotally connected to the opposite end of said rod, substantially as set forth.

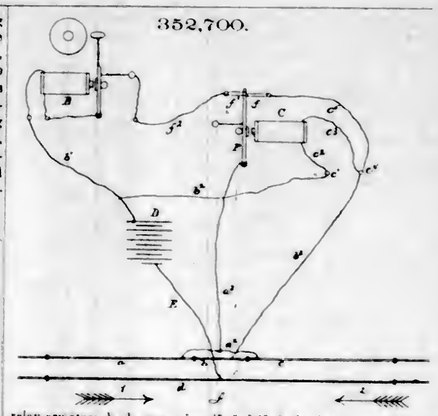
2. The combination, with the strip for closing the space below the door, provided with mortises and cross-bars within said mortises, of the operating-rod, the bell-crank levers, the vertically-reciprocating bolts operated by the bell-crank levers, and the adjusting-screws extending up through the mortises in the strip and engaging the lower ends of the bolts, the heads of the screws bearing against the said cross-pieces, whereby the distance that the strip is to project below the door may be regulated without detaching any of the operating mechanism, substantially as set forth.

352,700. ELECTRIC RAILWAY-SIGNAL. SIDNEY C. MAHANAY and BEN. L. CAMPBELL, near Manchester, Mo. Filed Apr. 14, 1886. (No model.)

Claim.—1. The combination of the sections *a b c* of one line of track-rails and the section *d* of the other line of track-rails, sections *b* and *d* being parts of a relay-circuit, which circuit is normally open, the armature resting on the back stop, and sections *a* and *d* and *c* and *d* being, each set, parts of an alarm-circuit which includes the relay-armature, and each set also parts of another circuit which includes the relay-coils and relay-armature, as set forth.

2. The combination of sections *a*, *b*, *c*, and *d*, arranged as set forth, the battery, alarm, and relay, wires E b' f^3, the last connected to the

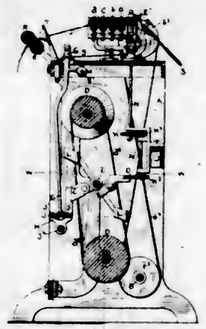
352,700.



relay-armature back stop, wires b^2 c^2 c^3 b^3 e^3, the last connected to the relay-armature front stop, bridge-wire a^2, and wire a^3, connected to the heel of the relay-armature, as set forth.

352,701. EVENER FOR RAILWAY-HEADS, &c. RUFUS S. MATTESON, Providence, R. I. Filed Sept. 11, 1884. (No model.)

Brief.—The governor has two members, one of which is capable of swinging to adapt it to be moved by a passing sliver, and one of which is adjustable with relation to its fellow to vary the sliver-passage between them. Means are provided whereby the cone-belt shipper is actuated by the swinging member, and means are also provided whereby the adjustable member is moved from the shipper, in order that the passage of a thick or thin sliver shall not move too much the cone-belt, and so effect too much the speed of the drawing-rolls.



Claim.—1. A governor for railway-heads, having two members, E and E', one of which is capable of swinging to adapt it to be moved by a passing sliver, and one of which is adjustable with relation to its fellow to increase or decrease the space or sliver-passage between said members, in combination with means, substantially as described, for automatically adjusting one of the members with relation to the other to increase or decrease said passage, substantially as described.

2. The combination, with the belt-shipper I, of a governor having two members, E and E', one of which is capable of swinging to adapt it to be moved by a passing sliver, and one of which is adjustable with relation to its fellow to increase or decrease the space or sliver-passage between said members, means, substantially as described, connecting the swinging member of the governor with the belt-shipper to transmit movement from said member to the shipper, and means, substantially as described, connecting the belt-shipper with the adjustable member of the governor to move the said member from the shipper to vary the space or sliver-passage between the two members of the governor, substantially as described.

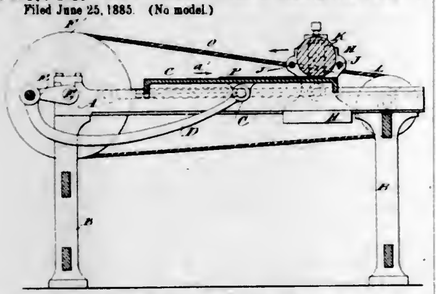
3. A governor for railway-heads, &c., having a frame, F, a member, E, pivoted to said frame and adapted to swing under the action of a passing sliver, a member, E', a frame, F', to which the member E' is connected, and screws f f^3, upon which the frame F' is mounted, substantially as and for the purposes specified.

4. A governor for railway-heads, having members E E', with segmental heads e e^3, respectively, both of which members are pivoted to swing under the action of a passing sliver, means, substantially as described, which connect said members so they shall swing in unison, and

means, substantially as described, for adjusting one of said members with relation to the other to increase or decrease the space or sliver-passage between them, substantially as set forth.

5. The combination of a member, E, a frame upon which said member is mounted, a member, E', a cam-rod, e^3, upon which the member E' is mounted, and a frame, F', in which the said cam-rod is journaled, whereby the member E' can be raised to enable the sliver to be easily threaded between it and the member E, substantially as set forth.

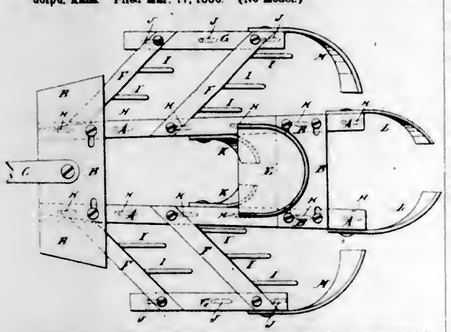
352,702. IRONING-MACHINE. JEAN L. MAZOYER, New York, N. Y. Filed June 25, 1885. (No model.)



Claim.—1. An ironing-machine provided with a reciprocating table and a reciprocating roller, K, above it, both of which are operated from the same shaft, substantially as herein shown and described.

2. In an ironing-machine, the combination, with a supporting-frame, of a sliding table, a connecting-rod connecting the table with the crank of a shaft, pulleys on the end of the shaft, sliding bearings, a roller journaled in the same above the sliding table, and connecting-rods for connecting the sliding bearings with pulleys on the ends of the crank-shaft, substantially as herein shown and described.

352,703. CULTIVATOR. JOHN C. MCCANDLESS and ORSON KING, Randolph, Kans. Filed Mar. 17, 1886. (No model.)



Claim.—1. The combination, with the runners A, connected by cross-bars B, and having pins H and knives K L, of the rearwardly-inclined bars F, having pins I, and the side runners, G, having pins J, and provided with knives M at their rear ends, substantially as herein shown and described, whereby the soil will be loosened and the weeds destroyed upon the opposite sides of a row of plants, as set forth.

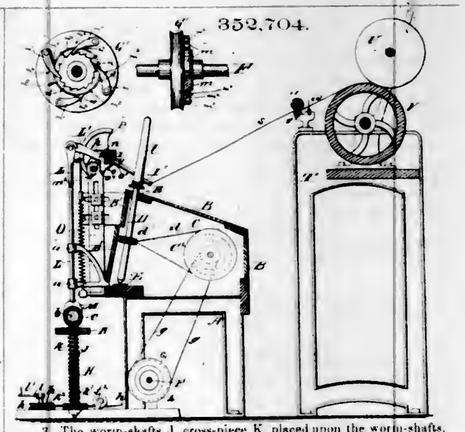
2. In a cultivator, the combination, with the runners A, having beveled forward end, and having rearwardly-inclined pins H attached to their lower edges, of the pairs of knives K L M, curved outward and having their lower edges set forward, and the slotted cross-bar B, substantially as herein shown and described, whereby the said cultivator can be used between rows of plants, as set forth.

352,704. COP-WINDING MACHINE. GEORGE H. MCCAUSLAND, Philadelphia, Pa. Filed Sept. 25, 1885. (No model.)

Claim.—1. The faller-shaft having faller-fingers and arm L' and connection L, the shaft *b*, and cam M, secured thereto and carried by the cross-piece K, and means, substantially as described, for revolving the shaft *b*, in combination with the said cross-piece K, the worm-shafts J, on which the cross-piece K is mounted, and means, substantially as described, for revolving the worm-shafts J, as and for the purposes set forth.

2. The worm-shafts J, each formed with grooves or threads of varying pitch, in combination with the cross-piece K, shaft *b*, and means, substantially as described, for revolving the same, the cam M, rod L, arm L', faller-shaft I, and means, substantially as described, for revolving the worm-shafts J, substantially as and for the purposes set forth.

352,704.



3. The worm-shafts J, cross-piece K, placed upon the worm-shafts, the shaft *b*, means, substantially as described, for revolving the same, the cam M, rod L, arm L', and faller-shaft I, in combination with the power-transmitting shafts C' F, the belt *g*, the pulleys C' G G', the pulleys on the worm-shafts J, and a suitable belt for revolving the worm-shafts, substantially as and for the purposes described.

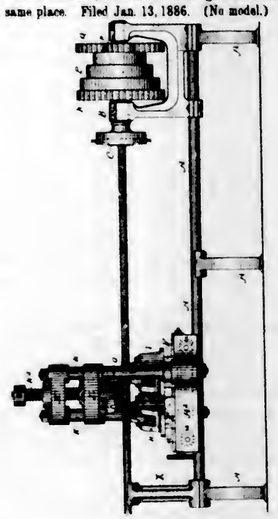
4. The worm-shafts J, each having grooves of varying pitch, the cross-piece K, shaft *b*, and means, substantially as described, for revolving the same, the cam M, rod L, arm L', faller-shaft I, and shafts C' F, belt *g*, pulleys on the worm-shafts, and a belt for transmitting motion to the worm-shafts, in combination with the pulleys C' G G', for transmitting motion to the worm shafts J, substantially as described.

5. The pulley G', clutched to the shaft F, means, substantially as described, for unclutching pulley G' from said shaft, the worm-shafts J, and cross-piece K, in combination with shaft F, belt *h*, pulleys *j*, crank-shaft *l*, and pulley k^2, secured thereto, the belt *h*, passing from the pulley G' around the pulleys *j* and k^2, for revolving the worm-shafts J and crank-shaft *l*, and whereby the revolution of the worm-shafts may be reversed by unclutching pulley G' and turning crank-shaft *l* for elevating the cross-pieces K, substantially as and for the purposes set forth.

6. The arm L' and catch or dog *o* pivoted thereto, in combination with the faller-shaft I, notched to receive the dog *o*, for locking the faller-arm to the shaft, substantially as described.

7. The faller-shaft I, provided with the notch *q*, the arm L', placed loosely upon the faller-shaft and provided with the dog *o*, in combination with the shaft N, provided with the segment o^3, for turning the dog *o* out of notch *q*, substantially as and for the purposes set forth.

352,705. MACHINE FOR STRAIGHTENING METAL BARS OR PIPES. PHILIP MEDART, St. Louis, Mo., assignor of one-half to William Medart, same place. Filed Jan. 13, 1886. (No model.)



Claim.—1. The combination of the draft and straightening rolls with the chuck which carries and rotates the bar or shaft in contact with said rolls, the endwise relation of the straightening-rolls and shaft being varied by the draft created by the contact of the shaft with the rolls, whereby all parts of the shaft are presented to the straightening-rolls and the shaft straightened throughout its entire length.

2. The combination of the longitudinally-traveling draft and straightening rolls and the chuck which carries and rotates the bar or shaft in contact with said rolls, the relation of the straightening and draft rolls relatively to the shaft being varied by the draft created by the rotation of the shaft in contact with the rolls, whereby the shaft is straightened throughout its length.

3. The combination of the longitudinally-traveling idly-rotating straightening and draft rolls and the chuck which carries and rotates the shaft in contact with the straightening and draft rolls, whereby the draft and straightening rolls are caused to travel longitudinally along the shaft and straighten it.

4. The combination of a positively-rotated chuck which supports and rotates the shaft to be operated upon, straightening-rolls in contact with which said shaft is positively rotated, and means for causing the straightening-rolls to act on the shaft from end to end.

5. The combination of the main frame, the longitudinally freely-traveling straightener-carriage, draft and straightening rolls carried thereby, and the chuck for carrying and rotating the shafting arranged in a fixed relation to the main frame.

6. The combination of the main frame, the straightener-frame free to move longitudinally on the main frame, draft and straightening rolls carried by the straightening-frame and free to rotate in either direction, and the chuck for supporting and rotating the shafting, substantially as set forth.

7. The combination of the lower straightening devices and mechanism for adjusting them toward or from each other, for the purpose set forth.

8. The combination of the lower pairs of straightening and draft rolls, arranged obliquely with reference to the shaft to be operated upon, and the upper pair of rolls arranged between and transversely to the lower pairs of rolls, the arrangement being such that the shafting is acted upon at three points, and is not provided with back braces or anvils at such points.

9. The combination of the frame, the straightener-carriage traveling thereon, straightening and draft rolls on the carriage, and adjusting devices for varying their obliquity or angle with reference to the shafting to be operated upon.

10. The combination of the lower pairs of straightening and draft rolls arranged obliquely with reference to the shafting acted upon, the upper pair of straightening-rolls arranged between the lower pairs of rolls and transversely thereto, and mechanism for pressing the upper rolls down upon the shafting.

11. The combination of the straightener-frame, the plates sliding on ways thereon, the roller-housings carried by said plates, the screw for adjusting the position of the plates and roller-housings, and the screw-sockets in which said screw works.

12. The combination of the frame, the plates sliding on ways thereon, mechanism for adjusting the plates toward and from each other, roller-housings adjustably carried upon said plates, and devices for securing the roller-housings in any desired position.

13. The combination of the straightener-frame provided with ways and formed with a longitudinal slot between the ways, the plates which travel on said ways, the depending threaded lugs on the plates projecting downwardly through the central slot, the reversely-threaded adjusting-screw which works in said lugs, and roller-housings carried by the plates.

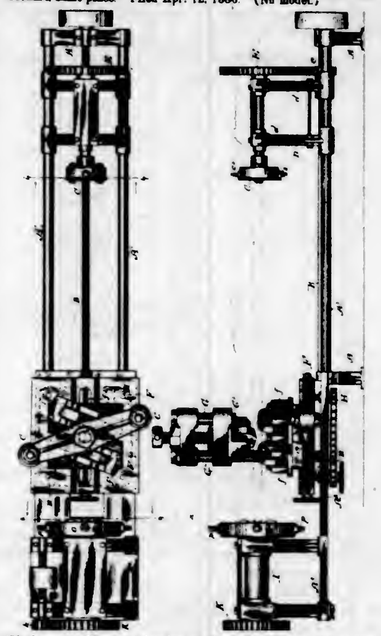
14. The combination of straightening and draft rolls, their housing, its supporting-plate, the hub and socket or swiveling connection between the housing and plate, and the clamp-bolt.

15. The combination of the straightener-frame, the lower rollers or straightening devices carried thereby, the uprights or standards, also carried thereby, the upper-housing carrying-plate, through which said standards loosely pass, the housing and its straightening devices or rolls carried thereby, the socketed cross-piece which connects the standards, and the screw K^3.

16. In a machine for straightening metal bars, the combination of the main frame, the shaft-supporting device arranged in a fixed horizontal relation to the frame, the lower housing or housings, and straightening-rolls loosely and removably seated in bearings in said housing, whereby rolls of different sizes may readily be put in place to act on different-sized shafting.

17. The combination of a main frame, a rotating chuck, the driving gearing or devices, by which the chuck may be driven in either direction, and straightening and draft rolls free to rotate in either direction, arranged obliquely to the shafting carried and rotated by said chuck, said straightening and draft rolls being rotated by contact with the shafting with which they act, whereby the relation of the rolls and chuck is varied by the draft of the rolls and the shaft straightened throughout its length.

352,706. MACHINE FOR STRAIGHTENING METAL BARS OR PIPES. PHILIP MEDART, St. Louis, Mo., assignor of one-half to William Medart, same place. Filed Apr. 12, 1886. (No model.)



Claim.—1. The combination of the stationary straightening and drawing devices and the rotating and traveling chuck or device in which the bar or shafting is carried, whereby the shaft is advanced and straightened.

2. The combination of the straightening and draft rolls, the rotating chuck, the chuck-frame, the ways on which it moves, the chuck-driving gear, the spline-shaft, the pinion thereon which drives the chuck-gear, and a pulley for rotating the spline-shaft.

3. The combination of the main frame, a rotating shaft-supporting device which holds and rotates the shaft being operated upon, straightening and drawing rolls, and means for raising and lowering the straightening and drawing rolls relatively to the shaft-support, for the purpose described.

4. The combination of the main frame, a shaft-supporting device rotating in a fixed relation to the main frame, in which the shaft is carried and rotated, straightening devices located on one side of the shaft-support, means for varying the endwise relation of the shaft-support and said straightening devices, whereby all parts of the shaft are operated upon, and means for raising and lowering the straightening devices relatively to the shaft-support, substantially as and for the purpose set forth.

5. The combination of the main frame, a shaft-supporting device which holds the shaft being operated upon, straightening devices upon which the shaft rests at two points in different transverse lines, and means for simultaneously raising and lowering said straightening devices relatively to the shaft-support, substantially as and for the purpose described.

6. The combination, substantially as set forth, of the frame, the straightener-frame, the screws on which the straightener-frame is mounted, the sprockets on said screws, and the chain for simultaneously turning them.

7. The combination of the main frame, a rotating chuck in which the shafting is secured, straightening and draft rolls, the straightener-frame, and means for raising and lowering the frame to adapt it to shafting of different sizes.

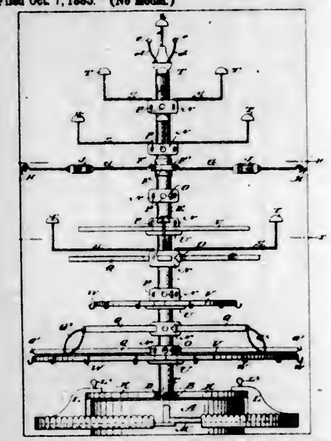
8. In a machine for straightening metal bars or shafting, a rotating chuck in which the shafting is carried, said chuck consisting of the combination of the chuck-head, the pivoted notched jaws, their springs, and the adjusting-screws.

9. In a machine for straightening metal bars or shafting, a rotating chuck in which the shafting is carried, said chuck consisting of the combination of the chuck-head, the pivoted notched jaws, and the adjusting-screws.

10. The combination of the longitudinally-traveling rotating chuck C, in which the shafting being operated upon is secured, the straighten-

ing and draft rollers between which the shafting rotates, and the sheave-chuck which forms a guide and support for the end of the shafting while it is being rotated by the chuck C, and by which the shafting is rotated to complete its passage through the straightener-rollers when the shafting has been released from the chuck C.

352,707. REVOLVING EXHIBITOR. WILLIAM F. MILLER, Butler, Pa. Filed Oct. 7, 1885. (No model.)



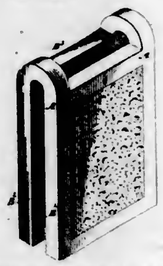
Claim.—1. The combination, with the shaft E, of the hubs N, having a series of apertures, P, in their sides, and apertures R in their upper surfaces, and the arms Q S, engaging the apertures P R, respectively, substantially as set forth.

2. In a exhibitor, the shaft E, in combination with the hub N, having the flange U around its lower edge, a series of apertures, P, in the side of the hub above the flange and a series of apertures in the top of the hub, a shelf resting on the flange, and arms engaging the apertures, substantially as set forth.

3. The combination, with the base A, the pivot B, having the cross-pin C, and means for rotating the pivot, of the shaft E, having a notch, D, in its lower end engaging the cross-pin C, a series of adjustable hubs N, on the shaft, and braces for the upper end of the shaft, substantially as set forth.

4. The combination, with the revolving pivot B, of the shaft E, carrying hubs provided with arms, the plate K, connected with the pivot B, the brackets L on the plate K, and the shelf M, secured on said brackets, substantially as herein shown and described.

352,708. STORAGE-BATTERY. OTTO A. MOSER, New York, N. Y. Filed Jan 18, 1886. (No model.)



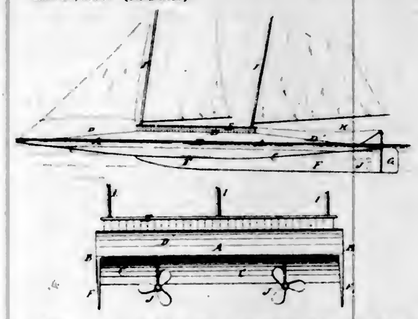
Claim.—1. In a secondary or storage battery, a series of fluid-containing compartments and a removable U-shaped battery-plate of lead having its respective arms integral with each other and extending into different compartments, one arm constituting a positive and the other a negative electrode.

2. A storage-battery plate consisting of a U-shaped frame having the greater portion of each side removed and a packing of lead placed in each of the openings formed, substantially as described.

3. A storage-battery plate consisting of frame A, having the three openings B', B², and B³, and the packing of freshly-divided lead in the openings B' and B³, such packing cohering with the adjacent sides of the frame.

4. A bent plate of lead for a storage-battery, having its legs, respectively, positively and negatively charged.

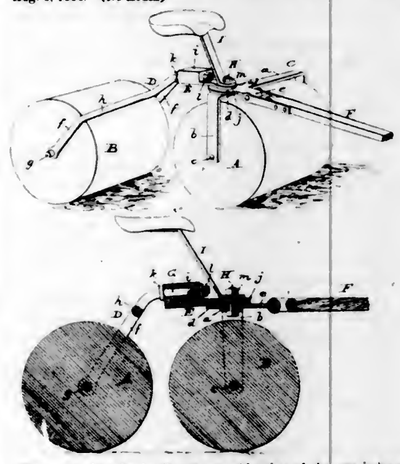
352,709. VESSEL. WILLIAM L. D. O'GRADY, New York, N. Y. Filed Mar. 27, 1886. (No model.)



Claim.—1. A vessel having a rectangular contour in plan and transverse cross-section and double convex in side elevation and longitudinal cross-section, substantially as set forth.

2. The combination, with the vessel formed with a rectangular contour in plan and transverse cross-section and double convex in side elevation and longitudinal cross-section, of the keels F, extending from a point beyond the center of the vessel to the stern thereof, and the rudders G at the ends of the keels, substantially as set forth.

352,710. LAND-ROLLER. WILLIAM B. PARSONS, Dalton, N. Y. Filed Aug. 5, 1886. (No model.)



Claim.—1. In a land-roller, the combination of the two independent frames C D, provided with rollers A B and located one in advance of the other, a single block or coupling, E, connecting the two roller-frames at or near their inner ends and substantially in line with the tongue, substantially as shown.

2. In combination with rollers A B, one in advance of the other, frames C D, applied to said rollers, a forwardly-extending journal or stem, G, formed upon frame D, at the inner end thereof, a vertical bolt, H, secured to frame C near its inner end, in line with stem G, and a coupling, E, comprising perforated block *i*, to receive stem G, and perforated plate *j*, to receive bolt H, all substantially as shown.

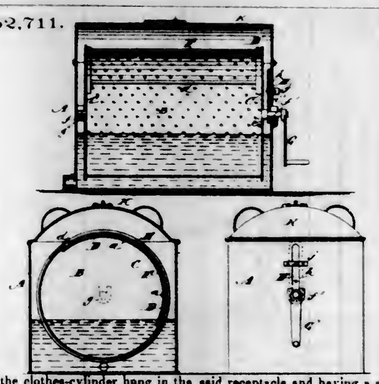
3. In combination with roller A, having frame C, a roller, B, a frame, D, therefor, consisting of the arms *f* and *h*, united at the inner end of the roller to form a journal, G, a coupling, E, mounted upon frame C, and a pivot-bolt, H, connecting the coupling and frame C.

4. The herein-described roller, comprising roller A, frame C, provided with arms *a b* and bearing-face *d*, a bolt, H, secured thereto, tongue or pole F, pivoted to bar *a*, roller B, a frame, D, therefor, provided with arms *f* and *h*, united to form a journal, G, a coupling, E, consisting of block *i* and plate *j*, both perforated, as shown, and a seat-stand having its lower end perforated and held in place by the bolt H.

352,711. WASHING-MACHINE. STEPHEN T. POTTER, Marshall, Mo. Filed Feb. 17, 1886. (No model.)

Claim.—1. The washing-machine consisting of the water-receptacle

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and the clothes-cylinder hung in the said receptacle and having a semi-circular door or slide provided with a spring-catch, said water-receptacle having in its end a vertical slot or opening, and the gudgeon-supporting plate held with its packing against the inside of said receptacle in alignment with said opening or slot, and the spring-button spanning said slot or opening and connecting with said plate, substantially as and for the purpose set forth.

2. The gate H, faced with a packing, *i*, and placed upon the gudgeon *f* of the drum B, in combination with the reservoir A, having the slot *h*, and the spring-button *j*, pivoted to the gate and adapted to span the slot *h*, substantially as and for the purposes described.

352,712. CUFF-BUTTON. WILLIAM RIKER, Newark, N. J. Filed July 27, 1886. (No model.)



Claim.—1. The combination, with the head and post of the button, of the plate C, formed with the opening *b*, having curved edges *c c'*, and upset in the center to form the slope *e*, and to elevate the curved edge *c* to a higher level than the edge *c'*, substantially as and for the purposes described.

2. The top A and post B of the button, the latter formed with the projection *i* at its lower end, in combination with the plate C, slotted and upset in the center to spread the edges formed by the slot and to form the slope *e*, substantially as and for the purposes set forth.

3. The blank D for the plate of a button, made in the form of a flat disk, and formed with the opening *b*, separating the point *d* from the opposite portion, *d'*, but not reaching to the edge of the blank, and formed at the edge with the concentric prong *a*, joining the portion *d'*, and cut from the edge of the point *d*, substantially as shown and described.

352,713. COMBINED MAST HEAD AND FOOT GEARS. JOHN H. RUSHTON, Canton, N. Y. Filed June 19, 1886. (No model.)

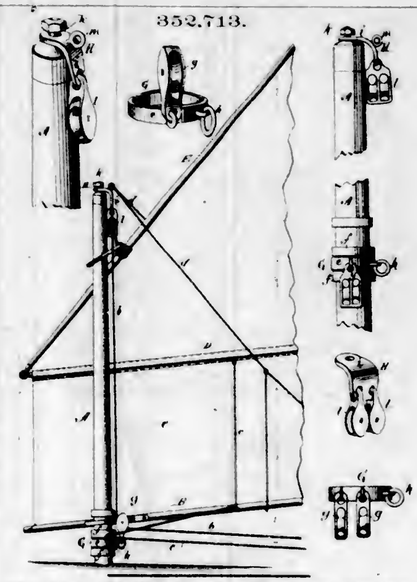
Claim.—1. In a mast-head gear for sailing craft, the head-gear H, having a bent hand or block carrier, *i*, adapted to swivel or rotate upon top of the mast and to project laterally downward in relation therewith, and provided at or near its lower end with one or more loosely or freely attached sheave-blocks, *l*, in combination with a mast-foot gear having one or more freely-attached blocks and halyards, substantially as specified.

2. In combination with a mast-head gear fitted to freely swivel or rotate on and around the upper end of the mast, the foot-mast gear G, having a ring, band, or block carrier, *e*, adapted to encircle and to swivel or rotate around the lower portion of the mast, and provided with one or more loosely or freely attached sheave-blocks, *g*, together with means connecting said mast-head gear and mast-foot gear, substantially as described.

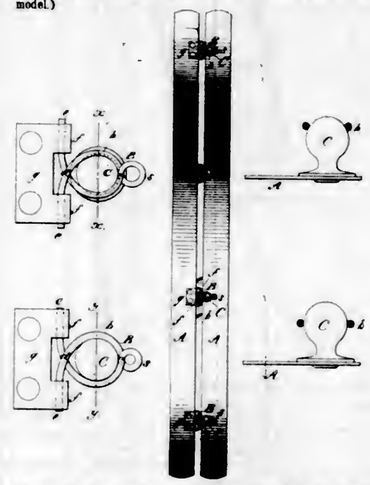
3. The freely swiveling or rotating mast-head gear provided with a projecting eye, in combination with the freely swiveling or rotating mast-foot gear provided with a reef-line ring, and halyards connecting the same together, substantially as and for the purpose set forth.

4. The combination of the mast A, the ring-like foot-gear G, having one or more freely-attached blocks, *g*, the stud or bolt *k* on top of the mast, and the downwardly-overlapping head-gear H, adapted to freely swivel or rotate around the upper end portion of the mast, and provided at or near its lower end with one or more loosely or freely attached sheave-blocks, *l*, and the mast-foot gear having a reef-line ring, together with halyards connecting the said foot-gear and mast-head gear, substantially as specified.

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352,714. CORSET-FASTENING. LOUIS SANDERS, New York, assignor to Eliza Sanders, Brooklyn, N. Y. Filed Sept. 8, 1886. (No model.)



Claim.—1. The spring-wire loop-fastening B for buttons or studs, having an elastic loop, *b*, outer finger-piece, *s*, and shanks or trunnions *e e* at its inner free ends, in combination with the holder *g*, having eyes or sockets *f f*, adapted to freely receive said shanks or trunnions within them, essentially as described.

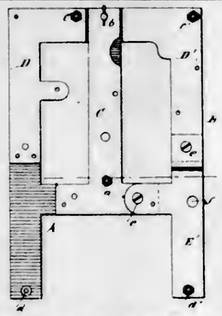
2. The spring-wire loop-fastening B, for buttons or studs, composed of a piece of wire bent upon itself and crossed, as at *c d*, to form an elastic loop, *b*, finger-piece *s*, and shanks or trunnions *e e* at its free ends, substantially as shown and described.

3. The combination, with the corset-steels A A, of the buttons or studs C, the spring-wire loop-fastening B, having an elastic loop, *b*, finger-piece *s*, and shanks or trunnions *e e* at its free ends, and the holder *g*, having eyes or sockets *f f*, adapted to freely receive said shanks or trunnions within them, essentially as specified.

352,715. CLOCK-MOVEMENT FRAME. SWEN P. SANDMARK, Ishpeming, Mich. Filed June 21, 1886. (No model.)

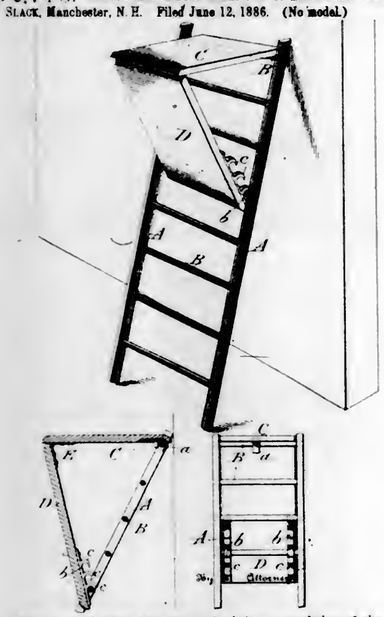
Claim.—A clock-movement frame formed of the back plate, A, the central plate-section, C, supported from the back plate, and the lateral plate-sections D D' E E', secured to each other and to the central sec-

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tion, C, and supported from the back plate by studs, substantially as shown and described.

352,716. PLATFORM ATTACHMENT FOR LADDERS. FRED. J. SLACK, Manchester, N. H. Filed June 12, 1886. (No model.)



Claim.—A platform attachment for ladders, consisting of the platform-section C and the bracing-section D, said sections being hinged together, and section C being provided with a hook, *a*, and section D being provided with a series of hooks, c c c, substantially as described.

352,717. HEEL-PROTECTOR. EDWARD S. SMITH, Waterbury, Conn. Filed Sept. 27, 1886. (No model.)



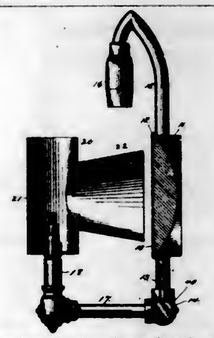
Claim.—1. The herein-described heel-protector made from sheet metal, consisting of a bar, D, having several studs as an integral part thereof, each bent into tubular shape, substantially as specified.

2. The herein-described heel-protector made from sheet metal, and consisting of the bar D, with three or more studs made as an integral part of the bar, the studs A C at the extreme ends of the bar, bent into tubular shape and longer than the depth of the bar, so that said tubular studs will project beyond the edge of the bar, the intermediate studs, also bent into tubular shape, but shorter than the studs at the ends of the bar, the axis of the several studs being at substantially right angles to the bar, substantially as specified.

352,718. NIGHT-LIGHT. JAMES STRATTON and WILLIAM J. STRATTON, Brooklyn, N. Y. Filed May 10, 1886. (No model.)

Claim.—1. The combination, in a night-light, of a support formed with a swinging joint, a burner, a screen supported thereon and formed

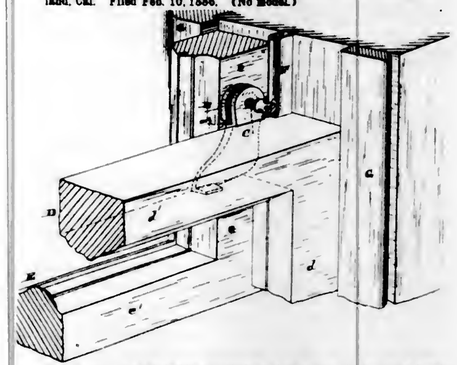
352,718.



of a cylindrical section and a lateral cone-shaped section, and a lens supported by the swinging joint in front of the cone-shaped section of the screen, substantially as shown and described.

2. In a night-light attachment, the combination, with a drop-light, of the screen 20, composed of the cylindrical section 21 and the cone-shaped section 22, and supported upon the burner, the standard 13, projecting from a joint in the drop-light, the hood 11, secured to the standard in front of and a short distance from the cone-shaped section of the screen, and the lens 10 in the said hood, substantially as herein shown and described.

352,719. WINDOW-SASH HOLDER. HARRIET W. R. STRONG, Oakland, Cal. Filed Feb. 10, 1886. (No model.)



Claim.—1. A sash-holder consisting of the plate A, having a head-piece, *a*, and a tail-piece, *a'*, for bearing against the meeting rail or stile of the lower sash, the plate B, for bearing against the stile of the upper sash, and the thumb-screw C, whereby the plates are separated to force the sashes against their bead-strips, substantially as herein described.

2. A sash-holder consisting of the plate A, having a head-piece, *a*, and tail-piece *a'*, said plates being formed with a shoulder, a^2, as described, the plate B, opposing the head-piece *a* above the shoulder, whereby it can be drawn in flush with the tail-piece, and the screw C, for forcing the plates to separate, substantially as herein described.

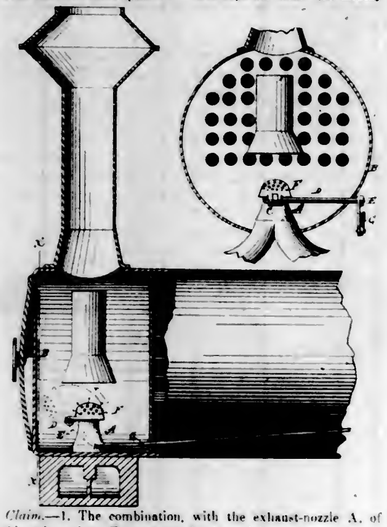
3. A sash-holder consisting of the plate A, having a catch, a^3, on its lower end for fitting under and engaging the meeting-rail of the lower sash, the plate B, and the screw C, for separating said plates, substantially as herein described.

4. A sash-holder comprising the plate A, having a head-piece, *a*, and backwardly-bent tail-piece *a'*, forming with the head-piece a shoulder, a^2, the catch or lip a^3 on the bottom of the tail-piece, the plate B, opposing the head-piece of plate A above its shoulder, and the screw C, threaded through the head-piece *a* and swiveled in the plate B, substantially as herein described.

5. A sash-holder consisting of the opposing plates A B, said plate A having a shoulder, a^2, and a lip or catch, a^3, on its lower end, and the expanding-screw C, as described, in combination with the thumb-screw H, threaded through said lip or catch, and the plate A, swiveled on the upper end of the screw H, whereby the holder may be secured to the meeting-rail of the lower sash, substantially as herein described.

6. The inner plate, A, the outer plate, B, having a corrugated or toothed surface, and the expanding-screw C, in combination with the plate or socket *b*, let into the stile of the upper sash, and having a corrugated or toothed surface for engaging the corresponding surface of plate B, substantially as described.

352,720. QUIETER FOR LOCOMOTIVE EXHAUST-NOZZLES. RUSSELL THAYER, Philadelphia, Pa. Filed Sept. 22, 1886. (No model.)

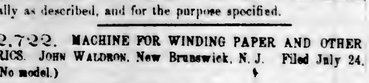


Claim.—1. The combination, with the exhaust-nozzle A, of the movable noise-quieter F, constructed substantially as described.

2. The combination, with the exhaust-nozzle A, of the shaft D, the noise-quieter F, secured to the shaft and arranged to swing over the exhaust-nozzle A, the arm E, carried by the shaft, and the rod G, extending to the cab of the locomotive, substantially as described.

3. The combination, with the exhaust-nozzle A, of the perforated swinging noise-quieting cap F, provided on its interior with wire-gauze to intercept the exhaust-steam and prevent the vibrations thereof, substantially as described.

352,721. LEVEL ATTACHMENT FOR BORING-TOOLS. JUSTUS A. TRAUT, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed July 3, 1886. (No model.)



Claim.—A level for boring-tools consisting, essentially, of the frame having the tubular level mounted thereon, two or more sockets extending across the frame at different angles, and clamping mechanism for holding the shank of the boring-tool within either of said sockets, substantially as described, and for the purpose specified.

352,722. MACHINE FOR WINDING PAPER AND OTHER FABRICS. JOHN WALDRON, New Brunswick, N. J. Filed July 24, 1886. (No model.)

Claim.—1. The combination of a driving-roll provided with vanishing grooves, a winding-roll upon which fabric is wound, surmounted upon said driving-roll and adapted to be rotated by it, and means for rotating said driving-roll, substantially as set forth.

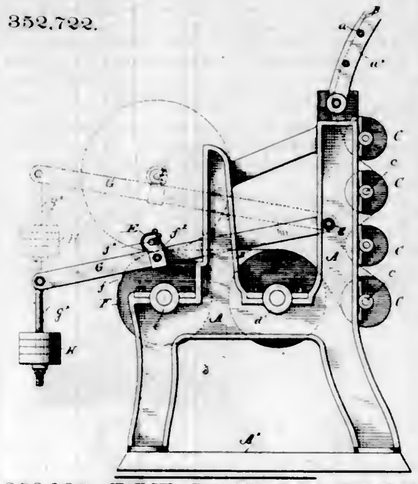
2. The combination of a driving-roll provided with vanishing grooves, a winding-roll upon which the fabric is wound, surmounted upon said driving-roll and adapted to be rotated by it, means for rotating said driving-rolls, and tension-regulating rolls, substantially as set forth.

3. The combination, in a paper-winding machine, of tension-regulating rolls, a driving-roll having vanishing grooves, a winding-roll upon which material is wound, and which is supported upon and rotated by said driving-roll, and independently-moving bearings for said winding-roll, substantially as set forth.

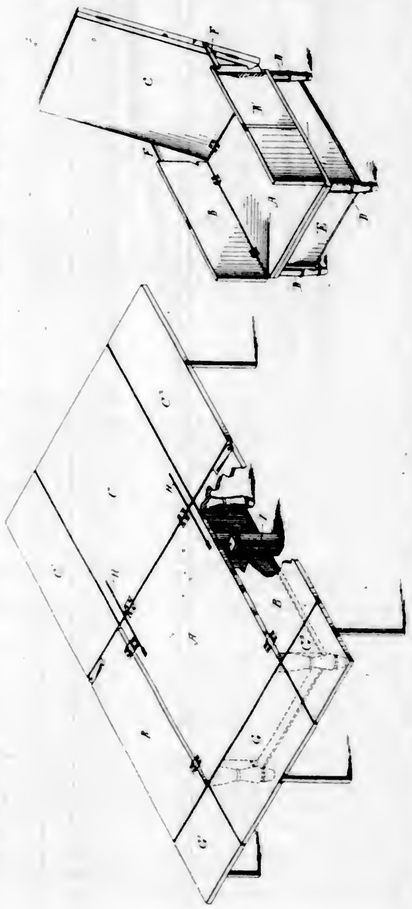
4. In a paper-winding machine, the combination of the driving-roll provided with vanishing grooves, a winding-roll upon which the fabric is wound, surmounted upon and driven by said driving-roll, boxings for said winding-roll, and carrying-arms upon which said boxings are mounted, substantially as set forth.

5. In a paper-winding machine, the combination of the driving-roll provided with vanishing grooves, a winding-roll upon which fabric is wound, surmounted upon and driven by said driving-roll, boxings for said winding-roll, carrying-arms upon which said boxings are mounted, and tension-regulating rolls, substantially as set forth.

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352,723. CHAIR-BED. HENRY C. WEEDEN, Boston, Mass. Filed May 14, 1886. (No model.)

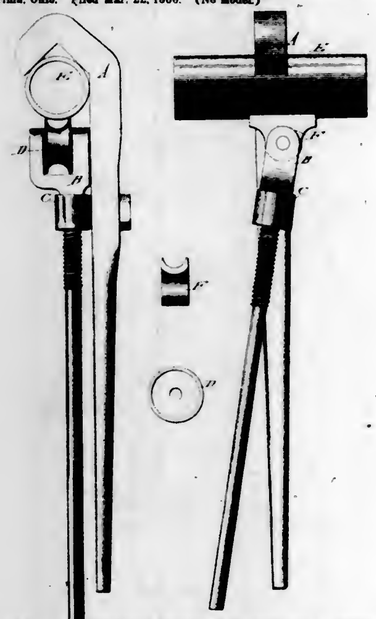


Claim.—1. The improved chair-bed herein described, consisting of a seat, A, carried upon suitable supports, D, and provided with folding arms B B', and the folding back C, provided with folding wings C' C², and suitable fastening devices, F F, whereby the back C may be held up into position to form the back of a chair, and which may be disengaged to allow said back to be lowered to form part of a bed, all substantially as set forth.

2. In a convertible chair-bed, the combination, with the seat A, the arms B B', and the folding back C, provided with wings C' C², of the hinged extension G, provided with hinged leaves G' G², all substantially as shown.

3. In a convertible chair-bed, the combination, with the seat A and folding arms B B', of the folding back C, provided with suitable wings, C' C², said back being provided with a suitable counter-balance, substantially as herein set forth.

352,724. TUBE-CLAMP FOR OIL-WELLS, &c. WILLET C. WELLS, Tiffin, Ohio. Filed Mar. 22, 1886. (No model.)



Claim.—1. Gripping-tongs having a lateral projecting V-shaped jaw on the main arm and an auxiliary arm pivotally connected to the main arm on the side on which the jaw is projected, so as to oscillate in a plane transverse to that in which the main jaw is projected, and opposing its head or forward end to the main jaw, for the purpose described.

2. In gripping-tongs, the combination of an arm having a lateral jaw, an arm pivoted to the inner side of said last-mentioned arm and oscillating in a plane transverse to that in which said jaw is projected, and an inner jaw pivoted to the head of the oscillating arm, for the purpose described.

3. In gripping-tongs, the combination of an arm having a lateral jaw and an arm pivoted to the inner side of said first-mentioned arm, oscillating in a plane transverse to that in which said jaw is projected, and having journaled in its head, opposite to said jaw, a sheave, for the purpose described.

4. The combination, in gripping-tongs, of an arm having a lateral jaw, an arm pivoted to oscillate in a plane transversely to that in which said jaw is projected and presenting its head as an offset to said jaw, and a pivotal support for said last mentioned arm, through which the same is adjustable to adapt it to grip different-sized bodies, for the purpose described.

5. The combination, in gripping-tongs, of an arm with a lateral jaw and an arm pivotally attached thereto, oscillating in a plane transverse to that in which said jaw is projected, and having a head which affords an offset to said jaw when said arms are adjusted with reference to each other, to bring the head and jaw nearer to or farther from each other, for the purpose described.

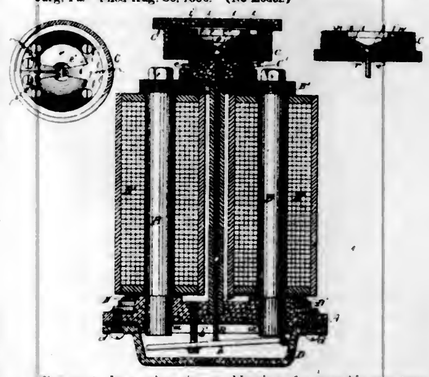
6. The arms of gripping-tongs pivotally united to each other by means of a collar, through which one arm passes and which has its pivotal bearing in the other arm, for the purpose described.

7. The arms of gripping-tongs pivotally connected with each other by means of a collar, through which one arm is adjustable forward and backward, and which has a pivotal bearing in the other arm, for the purpose described.

8. The arms of gripping-tongs pivotally connected by means of a collar, through which one of them is adjustable forward and backward by means of a screw-thread on said arm, and which is pivoted in the other arm, for the purpose described.

9. The gripping-tongs having a lateral V-shaped jaw on one arm and an arm pivotally connected to said first-mentioned arm, oscillating in a plane transverse to that in which said jaw is projected, and having journaled in its head a gripping-jaw which by said oscillation is brought opposite said first-mentioned jaw when said arms are adjustable through their pivotal connection, to bring said jaws nearer to or farther from each other, for the purpose described.

352,725. TELEGRAPHIC RELAY. GEORGE WESTINGHOUSE, Jr., Pittsburg, Pa. Filed Aug. 30, 1886. (No model.)



Claim.—1. In a relay, the combination of a movable armature, a rod carried on and movable with the armature, and two or more electrically-insulated springs for making and breaking circuit located transversely to the line of movement of said rod, electric connection being made between the springs by direct end-pressure of the rod thereon, substantially as set forth.

2. Two or more electrically-insulated spring having their free ends adjacent and movable into and out of end-abutting contact, in combination with a magnet, an armature, and a rod carried on the armature and movable thereby against the ends of the springs to press them into contact, substantially as described, whereby electric circuit is made between the springs by sliding contact of their ends upon the rod, and movement of the armature toward the magnet is stopped by the abutting springs.

3. The recessed head C, in combination with downwardly-converging spring-electrodes *i i*, in any desired number, rod R, and electrically-controlled armature *b*, substantially as set forth.

4. Two or more converging springs, *i*, having their free ends normally open but movable into abutting contact by pressure thereon, in combination with rod R, and pivoted armature *b*, and an electrically-excited magnet for moving the armature, such movement being stopped by abutting contact of the springs by pressure of the rod thereon, substantially as set forth.

5. The combination of an electrically-excited magnet, a vertically-movable armature lifted by magnetic attraction and withdrawn by gravity, a rod carried on and movable with the armature, and two or more electrically-insulated springs converging downward over the rod, such springs being normally open and movable under pressure of the rod thereon into an abutting contact, substantially as and for the purposes set forth.

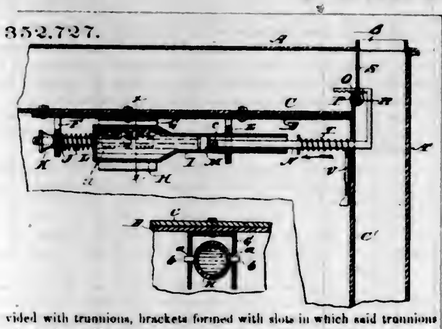
352,726. MANUFACTURE OF ARTIFICIAL LEATHER OR LEATHER CLOTH. WILLIAM V. WILSON, Jubilee Street, County of Middlesex, and JOSEPH STOREY, Lancaster, County of Lancaster, England; said Storey assignor to said Wilson. Filed Oct. 15, 1885. (Specimens.) Patented in England Apr. 7, 1884, No. 6,051; in France June 25, 1884, No. 162,965; in Belgium June 28, 1884, No. 65,624; in Italy Sept. 30, 1884, XVIII, 17,146, XXXIV, 162, and in Canada Apr. 20, 1885, No. 21,473.

Claim.—As a new article of manufacture, a fabric coated with the residuum from a solution of mononitro-cellulose in acetate of amyl in admixture with oil and a pigmentary matter, as described.

352,727. AUTOMATIC ATTACHMENT FOR STOVE OR RANGE DAMPERS. ISAAC A. ABBOT, Denver, Colo. Filed Jan. 30, 1886. (No model.)

Claim.—1. The combination, with a damper, of a vessel, H, provided with trunnions, brackets formed with slots in which said trunnions ride, a piston, M, a spring, L, and mechanism for establishing a connection between the damper and piston, substantially as described.

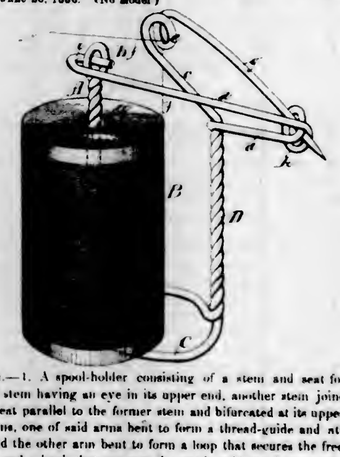
352,727.



2. The combination, with a damper provided with a pinion, of a vessel containing mercury and formed with a cylinder, I, and provided with trunnions, brackets formed with slots in which the trunnions of the mercury-vessel ride, a piston, M, rod N, carrying a rack, O, and a spring, T, substantially as described.

3. The combination, with a damper, of the following-named elements: pinion P, rack O, rod N, piston M, spring T, cylinder I, vessel H, that is provided with the stem J, trunnions *b b*, a bracket, G, formed with slots *a a*, a spring, L, and a thumb-nut, K, substantially as described.

352,728. SPOOL-HOLDER. FRANK W. ANDREE, Milwaukee, Wis. Filed June 26, 1886. (No model.)



Claim.—1. A spool-holder consisting of a stem and seat for the spool, said stem having an eye in its upper end, another stem joined to the spool-seat parallel to the former stem and bifurcated at its upper end to form arms, one of said arms bent to form a thread-guide and attaching-pin, and the other arm bent to form a loop that secures the free end of the pin, and a hook that engages the eye in said spool-stem, substantially as and for the purpose set forth.

2. A spool-holder consisting of a single continuous wire comprising a vertical stem having an eye in its upper end, a horizontal seat, another stem parallel to the former one and bifurcated at its upper end to form arms, one of these arms being the pin for securing said holder to the person, and provided with an eye that acts as a thread-guide, and the other arm bent to form a loop to secure the free end of the pin, and a hook that engages the eye in said spool-stem, substantially as and for the purpose set forth.

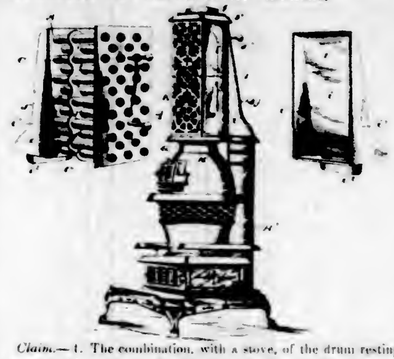
352,729. MANUFACTURE OF PARCHMENTIZED PAPER-BOARD. EMERY ANDREWS, Kennebunk, Me. Filed Feb. 17, 1886. (No specimens.)

Claim.—1. The process of manufacturing parchmentized paper-board, which consists in first passing paper through a bath of parchmentizing-liquid, then uniting several layers of such paper by pressure to form a solid sheet, then perforating the same, so as to allow the escape of any gas that may be generated within such sheet, then submitting the same to a water or neutralizing bath, substantially as herein described.

2. In the manufacture of paper-board composed of several layers of acid-treated paper, perforating such board after the union of the said layers of paper, so as to allow the escape of gas generated in such board, substantially as set forth.

3. The process of manufacturing parchmentized paper-board, which consists in passing paper continuously through a bath of parchmentizing-liquid, winding the same around a roll, so as to form two or more thicknesses thereon, cutting the tube thus formed about the roll from end to end and flattening it to form a sheet, then thickly perforating such sheet and submitting it to a water bath to remove the parchmentizing-liquid, substantially as specified.

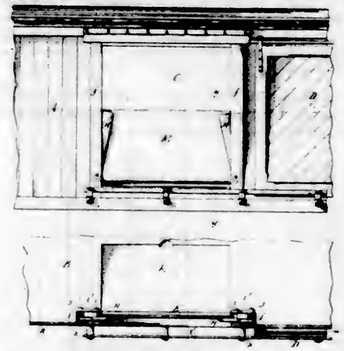
352,730. HEATING ATTACHMENT FOR STOVES. MADISON H. BALL, Madison, Wis. Filed Feb. 20, 1886. (No model.)



Claim.—1. The combination, with a stove, of the drum resting on the stove and in communication therewith, and provided with an opening at its upper end for the exit of the smoke, air-pipes passing transversely through the drum for discharging the heated air into the room, a hood secured to one side of the drum and covering the adjacent ends of the air-pipes, the pipe H', the upper end of which communicates with the hood for supplying cold air to the drum, and a scraper, substantially as described, located within the drum, substantially as set forth.

2. The combination, with the stove, of the drum consisting, essentially, of the perforated front and back plate, air-tubes connected to said plates, the side plates, the top plate, the base G, and the hood, the latter secured to the back plate of the drum and covering the rear ends of the air-tubes, and the pipe H', all of the above parts constructed substantially as described.

352,731. FREIGHT-CAR DOOR. JOHN B. BATT, Williamsville, assignor of one-half to Lorenz Gebhard, Buffalo, N. Y. Filed Aug. 30, 1886. (No model.)



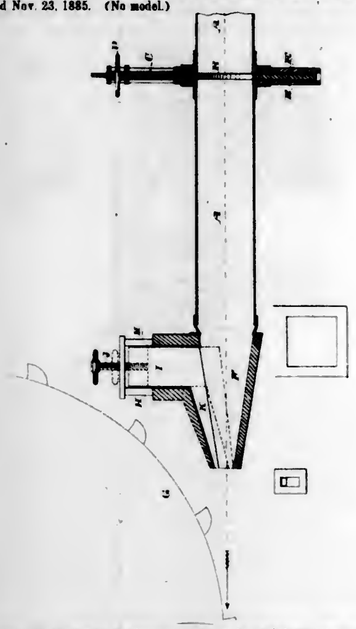
Claim.—1. In a freight-car, the combination, with the posts of the side opening and the car-floor, of a swinging door hinged at its bottom to swing between said posts inwardly to the car-floor and outwardly to the bottom of the side opening, whereby the door can be swung upon the bottom of the car-floor when not required for use, or be swung out for discharging the cargo, substantially as set forth.

2. In a freight-car, the combination, with the posts of the side opening and the car-floor, of a swinging door, hinged at its bottom to swing between said posts inwardly to the car-floor and outwardly to the bottom of said opening, and stops attached to said posts by pivots arranged at right angles to the pivots of the car-door, whereby the stops can be projected into the side opening of the car, thereby preventing the door from swinging outwardly beyond said stops, substantially as set forth.

3. The combination, with the posts *f*, provided in their inner faces with recesses *h*, of stops H, pivoted in said recesses, and a door, E, pivoted at its bottom to swing between said posts inwardly to the car-floor and outwardly to the bottom of the side opening, whereby said stops can be

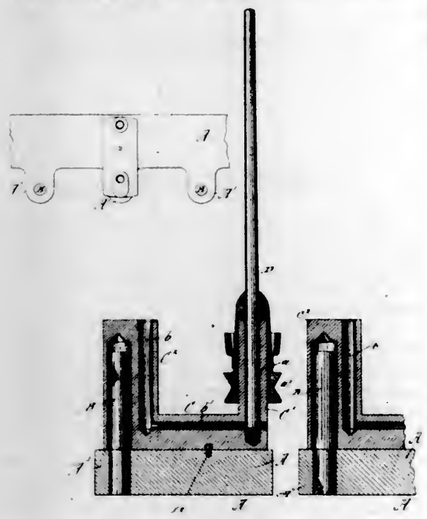
projected into the side opening to bear against the outer side of the door and prevent the latter from moving outwardly beyond said stops, substantially as set forth.

352,732. **HYDRAULIC NOZZLE AND GATE.** James H. Byrne, Nevada City, Cal., assignor of one-half to Henry S. Welch, same place. Filed Nov. 23, 1885. (No model.)



Claim.—A hydraulic discharge-nozzle made straight or rectangular in its interior dimensions, and having one of its sides duplicated, the duplicate side being movable within the nozzle and in a parallel plane, so as to increase or diminish the inside area of the nozzle, in combination with a screw connected with the movable side, so as to move it in a parallel plane within the nozzle, substantially as and for the purpose herein specified.

352,733. **SPINDLE-SUPPORT FOR SPINNING-FRAMES.** William T. Carroll, Worcester, assignor to George Draper & Sons, Hopedale, Mass. Filed May 28, 1886. (No model.)

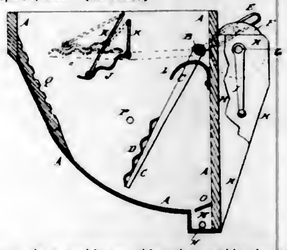


Claim.—1. A spindle, a bolster or step rail, and a pin or stud, one end of which enters a hole in the said rail, while its other end terminates above the said rail, combined with a spindle-support consisting of a block having not only an upright sleeve to receive the pintle of the spindle, but also a socket to surround the said pin or stud loosely, thereby permitting the block to move to a limited extent above the surface of the said rail with the pintle or lower end of the spindle, substantially as described.

2. A spindle and a bolster or step rail having an attached vertical pin or stud, combined with a spindle-support consisting of a block having an upright sleeve to receive the pintle of the spindle, and provided with a socket to surround the said pin or stud loosely, thereby permitting the block to move above the surface of the said rail with the pintle or lower end of the spindle, the said block having communicating passages for oil, substantially as described.

3. The combination, substantially as described, of the bolster or step rail, the spindle, the spindle-support having at one end a sleeve or tube to receive the pintle of the spindle, and a pin or stud directly but loosely connecting the said support and rail, and located out of line with or at one side of the center of rotation of the spindle, the said pin or stud serving to hold the said spindle-support loosely on or with relation to the step-rail.

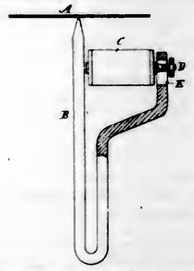
352,734. **WASHING-MACHINE.** Eaton K. Clark, Seymour, Iowa. Filed Sept. 14, 1885. (No model.)



Claim.—1. In a washing-machine, the combination, with the tub A, of the corrugated plate D, the arms C, and rock-shaft B, carrying the said corrugated plate, the slotted arm E, the crank-wheel F, and the crank-shaft G I, operating the said rock-shaft, and the swinging corrugated plate J and its supporting-bars K, substantially as herein shown and described, whereby the clothes will be washed by rubbing and pressure, as set forth.

2. The combination, with the tub having vertical vibrating arms pivoted at their upper ends adjacent to the rear end of the tub, and provided at their lower ends with a transverse plate, of a curved plate secured transversely to the tub behind the vibrating arms, and projecting forward between said arms above the plate thereon, with its concave face downward, whereby when the arms move downward and rearward the water will be forced upward along the back to the concave under face of the curved plate, thence downward in front of the said arms upon the transverse plate, substantially as set forth.

352,735. **TELEPHONE.** William R. Cole, Detroit, Mich., assignor to Wm. R. Cole, Frank G. Smith, and Geo. W. Moore, trustees, same place. Filed May 27, 1886. (No model.)

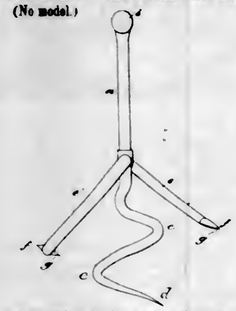


Claim.—1. In a receiving-telephone, a permanent magnet having one of its poles free and arranged at right angles to the diaphragm of said telephone and the other pole attached to one of the poles of an electro-magnet arranged with its axis parallel with said diaphragm, substantially as described.

2. A receiving-telephone consisting of the combination of the following elements: a diaphragm and a permanent magnet having one of its poles free and its opposite pole adjustably secured to one of the poles of an electro-magnet, as and for the purposes specified.

3. The combination, with the diaphragm A, of the permanent magnet B, having one of its poles free and arranged at right angles to said diaphragm, and the electro-magnet C, attached to the other pole of said permanent magnet, arranged with its axis parallel with the said diaphragm and adjustable to and from the same on its pole of the permanent magnet, substantially as and for the purpose specified.

352,736. **FRUIT-LIFTER.** John E. Colbs, New York, N. Y. Filed June 29, 1886. (No model.)



Claim.—In a fruit-lifting device of the character described, the combination, with the stem spirally formed at its lower end and provided with suitable operating-handle, of two curved arms secured to and projecting from the stem in opposite directions, the said arms being of varying length and being in different planes horizontally, substantially as shown, and for the purposes set forth.

352,737. WITHDRAWN.

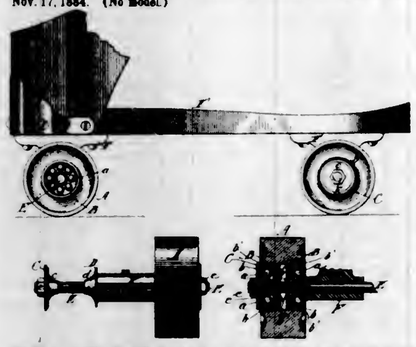
352,738. **SLIPPER-HANGER.** Horace M. Crockett, Lawrence, Mass. Filed Dec. 21, 1885. (No model.)



Claim.—1. As a new or improved article of manufacture for use as set forth, the slipper-hanger, substantially as described, composed of a piece of wire bent at its middle to form in it the eye *a*, and thence in opposite directions in a plane at a right angle to that of the eye to form in it the two semicircles or bends *b*, and thence upward in the plane of the eye, and having its parts *c* so bent upward inclined toward each other and united at their ends, all being essentially as represented.

2. The combination of the wire or guard *d'* with the slipper-hanger, substantially as described, composed of a piece of wire bent at its middle to form in it the eye *a*, and thence in opposite directions in a plane at a right angle to that of the eye to form in it the two semicircles or bends *b*, and thence upward in the plane of the eye, and having its parts *c* so bent upward inclined toward each other and united at their ends, all being essentially as represented.

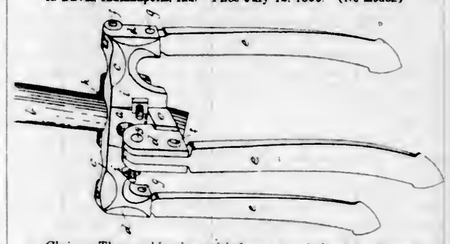
352,739. **ROLLER-SKATE.** William H. Daniel, Chicago, Ill. Filed Nov. 17, 1884. (No model.)



Claim.—1. The hub B, made in two parts, having the locking and limit flanges *b'*, and the vertically-concave surface *b*, in combination with the end plates, C D, having concave grooves, substantially as shown and described, whereby the action of the balls tends to crowd the locking-flanges against the roller A, as set forth.

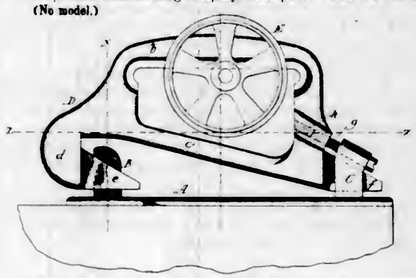
2. In combination with a foot-plate of a roller-skate, its hanger and supporting-axle, a hub, B, made in two parts, having locking and limit flanges *b'*, the vertically-concave surface *b*, and the end plates, C D, having concave grooves, substantially as shown and described, for the purposes set forth.

352,740. **HARROW ATTACHMENT FOR CULTIVATORS.** Calvin R. Davis, Indianapolis, Ind. Filed July 12, 1886. (No model.)



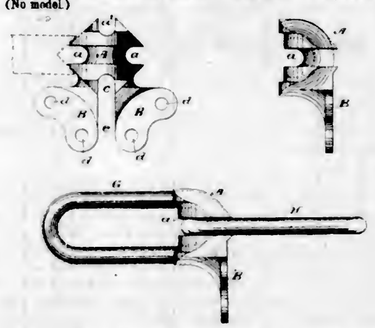
Claim.—The combination, with frame *a* and shank *b*, of arms *c c c*, having harrow-teeth *e e e*, pivotally secured thereon, substantially as shown and described.

352,741. **DOOR-HANGER.** Israel Doan, Aurora, Ill., assignor to the Wilcox Manufacturing Company, same place. Filed Dec. 10, 1885. (No model.)



Claim.—The combination of the yoke D, having the extension *f* and hook *d e*, the plate A, having the slotted posts B C, located outside the extreme limit of the wheel-axis movement, and the adjusting-screw *g*, all constructed and arranged substantially as and for the purposes set forth.

352,742. **DRIVE-CHAIN.** Jas. M. Dodge, Philadelphia, Pa., assignor to the Ewart Manufacturing Company, Chicago, Ill. Filed Sept. 6, 1886. (No model.)



Claim.—1. In a drive-chain or carrier-chain composed of alternate links and intermediate connecting-sections or bearer-blocks, A, substantially as specified, the combination, with said block A, of a laterally-projecting duplex or bifurcated flight or carrier attachment or stand B, substantially as and for the purposes hereinbefore set forth.

2. In a drive-chain or carrier-chain composed of alternate links and connecting bearer blocks or sections adapted to run in or engage with a V-shaped groove in the periphery of a wheel, the combination, with the links, of bearer-blocks formed of or provided with two sets of V-shaped bearing-surfaces located in transverse planes, all substantially in the manner hereinbefore set forth, for the purposes specified.

352,743. ROLLER-SKATE. JOHN H. FENTON, Chicago, Ill. Filed June 8, 1885. (Model.)



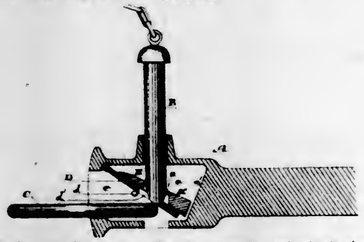
Claim.—1. A foot-plate, A, having a central depending flange, B, and constructed at each end with an arm and a bar which converge toward their lower extremities where they join, the upper extremities of the arms joining, respectively, the front and rear ends of the flange, and said arms and bars respectively disconnected above their joined extremities to provide between them an unobstructed space, substantially as described.

2. A foot-plate, A, having at each end an arm and a bar which converge toward their lower extremities where they join, and disconnected above their junction, to provide between them an unobstructed space, each bar having at its lower extremity a rounded bearing-surface, *c*, and a pendent rib, *a*, said foot-plate constructed at the upper extremity of each bar with a flange having a concave bearing, *b*, combined with the rocking bars F, having the upper journal ends, *c*, and lower bearing-surfaces, *d*, substantially as described.

3. A foot-plate having at each end an arm and a bar which converge toward their lower extremities where they join, and disconnected above their junction, to provide between them an unobstructed space, each bar provided with a bearing, H, a perforation, H', leading therefrom, a bearing, *e*, and rib *a* at its lower end, combined with the rocking bars F, the springs I, arranged in said bearings H, and headed screws J, extending through the springs into the rocking bars, substantially as described.

4. The foot-plate A, having front and rear openings, A'', and constructed at each end with an arm and a bar which converge toward their lower extremities where they join, each bar having a bearing, H, and perforation H', combined with the rocking bars F, seated on said bars, the springs I, arranged in said bearings, and the headed screws J, passing through the springs into the rocking bars, substantially as described.

352,744. CAR-COUPLING. SIMEON J. FORD, Placerville, Cal., assignor of one-half to Benjamin G. Parlow and Amon Melton, both of same place. Filed Aug. 25, 1886. (No model.)



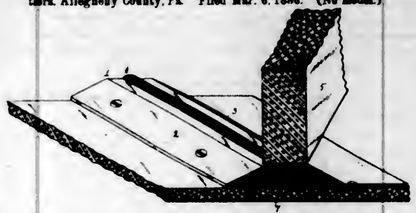
Claim.—1. In a car-coupling, the pivoted gravity-latch plate D, resting at an inclination within the draw-head chamber and having a hole, on the edge of which the coupling-pin is supported, in combination with the loose plate E upon the plate D, and having an aperture through which the pin passes, said plate E holding the pin to its seat in the latch-plate, substantially as herein described.

2. In a car-coupling, the draw-head A, the coupling-pin B, and the link C, in combination with the inclined gravity-latch plate D, pivoted in the chamber and having an aperture supporting the pin on its edge, and the loose plate E, resting upon the plate D and holding the pin B to its seat in the apertured latch-plate, substantially as herein described.

3. In a car-coupling, the draw-head A, having a chamber, *a*, with a curved rear wall, the coupling-pin B, passing through the draw-head, and the link C, in combination with the inclined gravity-latch plate D, pivoted in chamber *a* and having the hole *d'*, on the edge of which the pin is supported, and the loose plate E, resting upon the plate D and binding the pin in its seat in the latch-plate, said loose plate having a curved rear end coming in contact with the rear wall of the chamber *a*, whereby it is forced to relieve the pin when the plates are raised by the entering link, substantially as herein described.

4. An improved car-coupling comprising the draw-head A, having the depression or notches a^2, the coupling-link C, resting in said notches, the rearwardly-inclined gravity-latch plate D, pivoted in the front portion of said draw-head and having the hole *d'*, and a perforated loose plate seated upon the latch-plate and binding against the coupling-pin, substantially as herein described.

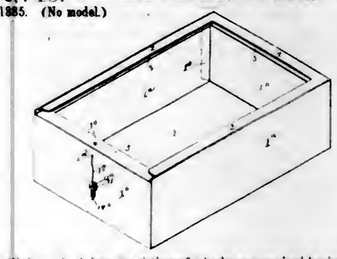
352,745. CARPET-STRIP OR DOOR-SILL. JOHN H. FOERS, Chartiers, Allegheny County, Pa. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination, with the longitudinally-divided door-sill or carpet-strip, of the interposed rubber or like yielding strip 4, the rigid supporting-strip 7 under the same, and means for adjusting said interposed strips vertically, substantially as and for the purposes set forth.

2. The combination, with the longitudinally-divided carpet-strip, of the interposed rubber or like yielding strip 4, the rigid supporting-strip 7, secured thereto, and means for adjusting said interposed strips vertically, substantially as and for the purposes set forth.

352,746. BOX. IGNACE GOLDBERGER, Cleveland, Ohio. Filed Oct. 3, 1885. (No model.)

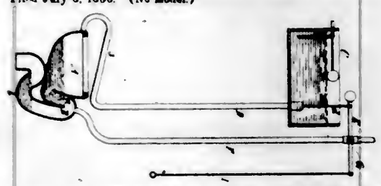


Claim.—1. A box consisting of a body, a marginal horizontal flange, 2, formed in one piece with vertical flanges 3, and extending around the sides and rear end, a cover, 4, extending over the flange and body, having rabbeted side strips, 6, and rabbeted end strip, 7, receiving the flange, and the front strips, 5 and 8, substantially as set forth.

2. The combination of the body having end perforation, 1^a, and bottom perforation, 1^a, front strip 5, having perforation 10, cover having a front strip, 8, formed with a perforation, 9, and a locking-pin, 11, fitting in the front strips and provided with a cord secured thereto, passed through the end perforation forming a loop, and through the bottom perforation and secured by a knot to the bottom, substantially as shown and described.

3. The combination of the body having a front strip, 5, formed with perforation 10, cover having a front strip, 8, formed with perforation 9, and groove 8^a, leading therefrom, and a locking-pin, 11, fitting in said perforations, having a groove, 11^a, and provided with a cord secured to the body and seating in said grooves flush with the cover, substantially as shown and described.

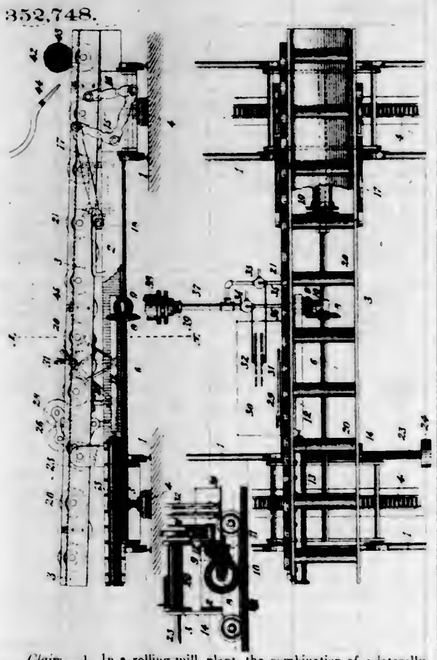
352,747. WATER-CLOSET. HARRY L. GOODWIN, New York, N. Y. Filed July 8, 1886. (No model.)



Claim.—In a water-closet, the combination, with a tank, of a flushing-pipe leading to the bowl of the closet, a valve for normally preventing the flow of water to the bowl, a lever for operating the valve, a vent-pipe, and a cock in said vent-pipe operating in conjunction with said lever, substantially as described, whereby when the lever is operated in one direction it will raise the valve and the cock will be operated to close the passage in the vent-pipe, and when it is operated in another direction it will close the valve and the cock will be operated to open the passage in the vent-pipe.

352,748. FEED-TABLE FOR ROLLING-MILLS. PATRICK F. HANLEY and FRANCIS M. RICHEY, Homestead, Pa. Filed Aug. 25, 1886. (No model.)

352,748.



Claim.—1. In a rolling-mill plant, the combination of a laterally-moving carriage, a table provided with feed-rolls pivoted to the carriage, bell-crank levers pivoted to the carriage, each having one of its arms connected to the table, and means for rotating the bell-crank levers connected to the opposite arm thereof, substantially as set forth.

2. In a rolling-mill plant, the combination of a carriage, a table provided with feed-rolls pivoted to the carriage, and a hydraulic cylinder mounted on the carriage and arranged through interposed mechanism to move the carriage laterally, substantially as set forth.

3. In a rolling-mill plant, the combination of a carriage, a table provided with feed-rolls pivoted to the carriage, and a hydraulic cylinder mounted on the carriage and arranged through interposed mechanism to raise and lower the free end of the table, substantially as set forth.

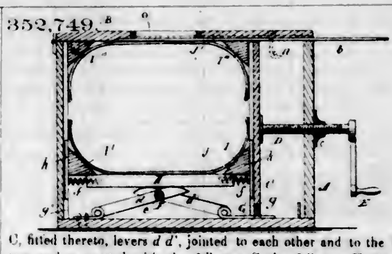
4. In a rolling-mill plant, the combination of a carriage, a table provided with feeding-rolls pivoted to the carriage, and hydraulic cylinders mounted on the carriage and adapted through interposed mechanism to move the carriage laterally and to raise and lower the free end of the table, substantially as set forth.

5. In a rolling-mill plant, the combination of a carriage, a table provided with feed-rolls pivoted to the carriage, hydraulic cylinders mounted on the carriage and adapted to operate the carriage and table, as described, and an extensible pipe-connection from the cylinders to a suitable source of supply, substantially as set forth.

6. In a rolling-mill plant, the combination of a carriage, a table provided with feed-rolls pivoted to the carriage, hydraulic cylinders mounted on the carriage and adapted to operate the carriage and table, gearing for operating the feed-rolls, a platform secured to the carriage, and levers connected to the valves of the cylinders, and the gear-operating mechanism located in convenient proximity to the platform, substantially as set forth.

7. In a rolling-mill plant, the combination of a carriage, a table pivoted to the carriage, hydraulic cylinders located on the carriage for operating the table and carriage, a pipe connected to the cylinders at one end and having the opposite end closed, and a tight cylinder surrounding said pipe and connected to a suitable source of water-supply, the portion of the pipe within the cylinder being perforated, substantially as set forth.

352,749. CIGAR-BUNDLING MACHINE. T WILSON HAUS, Meadville, Pa. Filed Mar. 19, 1886. (No model.)



Claim.—1. The combination, in a cigar-bundler, of the box A, follower C, fitted to the box, follower H, the levers *d d'*, jointed together and supporting the follower H and arranged to be moved by the follower C, to which lever *d'* is attached, and means, substantially as described, for moving forward the follower C.

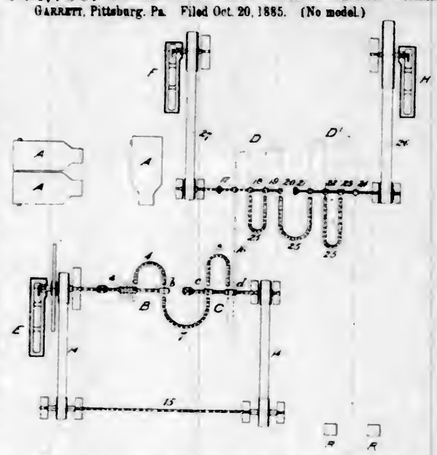
2. In a cigar-bundler, the combination of the box A, the follower C, fitted thereto, levers *d d'*, jointed to each other and to the box-bottom and connected with the follower C, the follower H, the corner-pieces I I' I'' I''', and means for operating the follower C, substantially as herein shown and described.

3. The combination of the box A, follower C, fitted thereto, the screw D, adapted to move the follower, the levers *d d'*, pivoted to the box-bottom and connected with the follower C, the follower H, supported by the levers, the springs *f*, guiding the follower H, the triangular corner-pieces I I' I'' I''', the apertured cover B, and the slide *b* fitted thereto, substantially as herein shown and described.

4. The combination of the box A, follower C, fitted thereto, the screw D, adapted to move the follower, the levers *d d'*, pivoted to the box-bottom and connected with the follower C, the follower H, supported by the levers, the springs *f*, guiding the follower H, the triangular corner-pieces I I' I'' I''', the lining J J', and the apertured cover B and slide *b* fitted thereto, substantially as herein shown and described.

5. The combination of the box A, provided with the groove *g'* and the recesses *j*, the follower C, fitted to the box and provided with the dovetailed groove *g*, the screw D, arranged to move the follower, the levers *d d'*, pivoted to each other and to the box-bottom and pivotally connected with the follower C, the follower H, provided with the springs *f*, the triangular corner-pieces I I', provided with the dovetailed tongues *h*, the triangular corner-piece I'', having the trunnions *k*, the triangular corner-piece I''', provided with screws *m*, and the apertured cover B, having the dovetailed grooves *l*, and provided with the slide *b*, as described.

352,750. ROLLING-MILL PLANT. JAMES HEMPHILL and WILLIAM GARRETT, Pittsburg, Pa. Filed Oct. 20, 1885. (No model.)



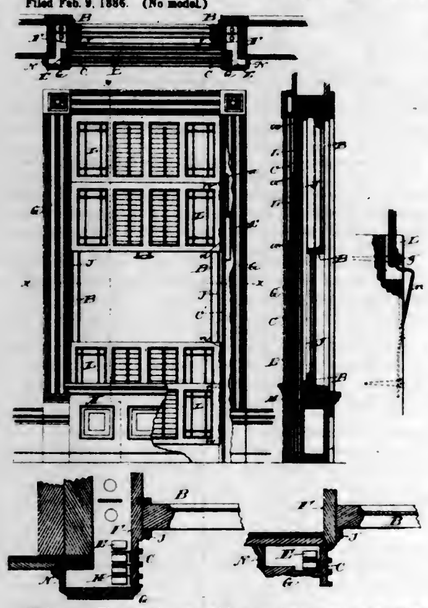
Claim.—1. A rolling-mill plant for rolling wire-rods directly from blooms, having in combination a billet-train, B, rod-trains D D, and an intermediate train, C, the rolls of the intermediate train being arranged in the axial plane of the billet-train and having its last pair of rolls in or approximately in line with the first pair of rolls of the rod-trains, substantially as set forth.

2. A rolling-mill plant for rolling wire-rods directly from blooms, having in combination a billet train, B, rod-trains D D, and an intermediate train, C, the rolls of the billet and intermediate trains having their axes in the same vertical plane and being arranged at such a distance from the rod-trains as to permit of back and forth passes through the rolls of the trains B and C, and the receiving or first pair of rolls of the rod-trains being located in or approximately in line with the last or delivery pair of rolls of the intermediate train, substantially as set forth.

3. In a rolling-mill plant for rolling rods directly from blooms, the intermediate train, C, arranged in line with the train B, and having its

delivery-rolls in or approximately in line with the receiving-rolls of the rod-train, in combination with the billet and rod trains B, D, and D, a curved trough or guide for conducting the rod from the last pass of the billet-train to the first pass of the intermediate train, and a trough or guide, 16,[5] for conducting the rod from the last pass of the intermediate train to the first pass of the rod-trains, substantially as set forth.

352,751. SLIDING BLIND. Walter A. Holbrook, Milwaukee, Wis. Filed Feb. 9, 1886. (No model.)



Claim.—1. The combination, with a window-frame, of the blindway-strip C, projecting forward in front of the wall or plaster, casing G, set out from the wall or plaster toward the interior of the room, and staying at its inner edge the forwardly-projecting edge of said blindway-strip, and the back piece, N, closing the space between the face of the wall or plaster and the outer edge of said casing, substantially as and for the purposes set forth.

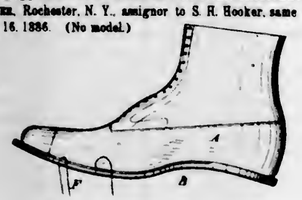
2. The combination, with a window-frame, of the blindway-strip C, projecting in front of the face of the wall or plaster, the casing G, set out from said wall or plaster, and back piece, N, arranged to form a weight-box, and a series of sliding-blind sections L L, weights E E, and pulleys *a a*, substantially as and for the purposes set forth.

3. The combination, with a window-frame, of a sliding-blind section, L, and an adjustable spring, *n*, applied to one side thereof, and blindway-strips C C, substantially as and for the purposes set forth.

4. The combination, with a window-frame, of a sliding-blind section, L, blindway-strips C, and spring *n*, adjustably attached at one end to one side of said blind-section, recessed to receive said spring and the weight-cord, by the screw *g*, and the adjusting-screw *g* serving also as a cord-fastener, substantially as and for the purposes set forth.

5. The combination, with a window-frame, of the blindway-strip C, projecting forward in front of the wall or plaster, casing G, formed in sections and set out from the wall or plaster in different planes toward the interior of the room, and staying at its inner edge the forwardly-projecting edge of said blindway-strip, and the back piece, N, closing the space between the face of the wall or plaster and the outer edge of said casing, substantially as and for the purposes set forth.

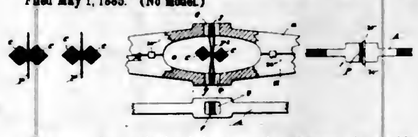
352,752. MANUFACTURE OF LEATHER ARTICLES. Horace B. Hooker, Rochester, N. Y., assignor to S. H. Hooker, same place. Filed Aug. 16, 1886. (No model.)





Claim.—As an improvement in the art of manufactoring articles of leather—as boots, harness, &c.—the herein-described process of uniting the parts, consisting in sewing them together by suitable machinery with a line of stitches which permit the ready removal of the thread, in subsequently removing the thread, and then sewing the parts again together by hand in the holes previously made by the machine-stitches, whereby the employment of an awl is dispensed with, substantially as described.

352,753. MOLECULAR PIVOT-BALANCE. Lewis M. Hosea and Alfred Sprenger, Cincinnati, Ohio, assignors, by mesne assignments, to the United States Torsion Balance and Scale Company, Jersey City, N. J. Filed May 1, 1885. (No model.)



Claim.—1. In a weighing-balance or other structure, in combination with a vertically-oscillating beam, an elastic fulcrum-pivot (such as a band or strip of metal) tensioned vertically between holding-abutments arranged at opposite sides of the axis of beam-rotation, substantially as set forth.

2. In combination with the vertically-oscillating beam of a weighing-balance or other beam structure, an elastic pivot (such as a band or strip of metal) secured vertically in lineal tension upon the beam across the axis of beam-rotation, and a beam-support clamping the pivot at the axis of rotation, substantially as set forth.

3. In a weighing-balance or other beam structure, the combination of a balance-beam, holding-abutments arranged vertically at opposite sides of the axis of rotation upon said beam, an elastic fulcrum-pivot secured between such abutments, and a supporting-standard engaging said pivot between such holding-abutments, as set forth.

4. In a weighing-balance or other beam structure, the combination of two vertically-arranged holding-abutments, an elastic pivot held in tension between such holding-abutments, and a balance-beam secured to and oscillating upon such pivot, the connection being such as to oppose the combined pivoted resistances of flexion and tension to oscillations of the beam, substantially as set forth.

5. In a flexion pivot-balance, in combination with the beam and a pivot arranged perpendicularly thereto, a pivot-clamping device embodying, essentially, two holding-blocks, adjustable vertically in relation to and at opposite sides of the pivot to regulate the neutral relation of the pivot to the beam, substantially as set forth.

6. In a flexion pivot-balance, the adjustable clamping device for the pivot or pivots, embodying a holding-head, B, clamping bars or blocks *c*, and set-screws *s*, combined and arranged as set forth.

7. A pedestal-support for flexion balance-beams, consisting of a head, B, recessed, as at *b*, laterally perforated, as at *d*, and provided with holding-blocks *c*, substantially as set forth.

8. In a flexion-balance, the combination of an elastic pivot, *p*, secured at each end to the beam, and a beam in two parts, divided longitudinally and adjustable apart, to tension the pivot, substantially as set forth.

9. In combination with the beam A, longitudinally divided, as shown, an elastic pivot, P, and adjusting-wedges *w*, substantially as set forth.

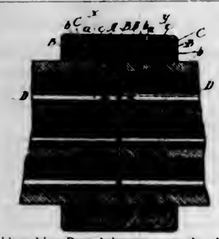
10. In a flexion-balance, a perforated beam divided into two parts perpendicularly across its linear axis, in combination with an elastic pivot secured across the perforation and between the two parts of the beam, and means, substantially as described, uniting the parts of the beam, substantially as set forth.

11. A beam for flexion pivot-balances, perforated laterally, in combination with an elastic plate or pivot secured to the beam across the perforation perpendicularly to the linear axis of the beam, substantially as set forth.

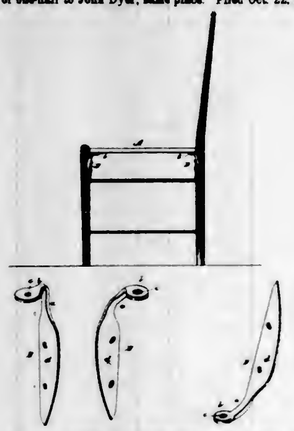
352,754. FLEXIBLE JOINT FOR UNDERGROUND ELECTRICAL CONDUITS. Seth E. Hurlbut, Chicago, Ill. Filed June 14, 1886. (No model.)

Claim.—The combination, with two conduit-sections capable of movement relative to each other, of a ring or collar having interior circumferential grooves, *b*, the flexible packing B, held in said grooves by its own elasticity and projecting beyond said grooves, the grooves *c*, arranged between said packing B, and the permanently-plastic filling C, contained in said grooves *c*, the ring or collar having holes *a* communicating with the grooves *c*, substantially as described.

352,754.

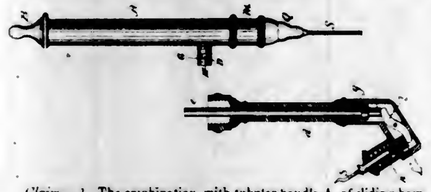


352,755. BRACE FOR CHAIRS. George E. Hurley, Nashville, Mo., assignor of one-half to John Dyer, same place. Filed Oct. 22, 1885. (No model.)



Claim.—As a new article of manufacture, a chair-brace made of a single piece of malleable metal, and consisting, essentially, of a flattened end provided with a transverse perforation for the passage of screws to secure it to the chair-bottom, a perforated shank arranged substantially at right angles to the flattened end, and adapted to be bent or curved to conform with the shape of the leg of the chair and fit the same very snugly, and a reduced or tapered portion or neck, *e*, connecting the flattened end and the shank, substantially as described.

352,756. PNEUMATIC DENTAL PLUGGER. Hubert G. Husted, Oberlin, Ohio. Filed July 31, 1886. (No model.)



Claim.—1. The combination, with tubular handle A, of sliding hammer C and an adjustable valve for regulating the admission and discharge of air to and from said handle below the hammer therein, whereby the force of the blow may be regulated or arrested, substantially as set forth.

2. The combination, with tubular handle A and means for supplying air to and withdrawing it from said handle, of sliding hammer C, valve F, tube D, and adjustable annular piece E, provided with set-screw H, said screw having a movement in slot G of tube D, substantially as set forth.

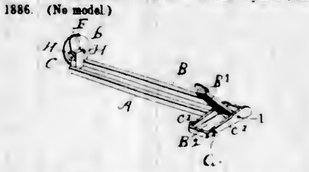
3. The combination of tubular handle A, sliding hammer C, valve F, tube D, for the admission and discharge of air, and means within said tube for limiting or stopping the action of the valve, substantially as set forth and described.

4. The combination, with tubular handle A, of sliding hammer C, adjustable valve F, intermediate piece, M, nose-piece Q, socket-pin L, spiral spring P, point-holder T, provided with a series of beveled notches on its flanged end, and spring U, substantially as set forth.

5. The combination, with a dental plugger, of air-pump 3, having piston-rod 5, friction and crank wheels 1 2, keyed to shaft 7, driving-wheel 17, hinged supporting-frame 4, stationary frame G, lever 8, and rack-bar 19, substantially as set forth and described.

6. In a dental plugger, an auxiliary nose-piece consisting of tube *d*, rod *e*, supporting arm or casing *g*, lever *l*, said lever set at an obtuse angle from the line of the plugger, and socket-pin L', provided with spring *n*, arranged and operated as shown and described, whereby the plugger-point may be operated in an upward direction on a line divergent from the line of the plugger-handle, substantially as set forth.

352,757. CUFF-HOLDER. Perry A. Jones, Seymour, Ind. Filed May 29, 1886. (No model.)



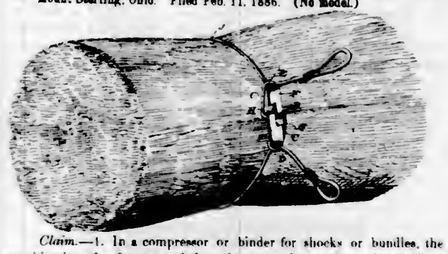
Claim.—1. A cuff-holder consisting of the parallel bars A B, jaws C' C', secured to said bars, the pivoted clasp B', the spring B^2, and a button for connection with the cuff, substantially as set forth.

2. The cuff-button *b*, having lugs H H secured to one side of center or eccentrically on under side of said button, in combination with post *c*, parallel bars A B, spring F, and a clasp for securing the device to the sleeve, as set forth.

3. A cuff-holder having at one end means, substantially as described, for connecting with a cuff, and provided at its other end with lateral jaws C', combined with a clasp, B', and spring B^2, all being constructed and arranged substantially as set forth.

4. The combination, in a cuff-holder provided at one end with means, substantially as described, for connecting with a cuff, of jaws C', arranged at the opposite end of such holder, the clasp B', the spring B^2, and the stirrup G, as and for the purposes specified.

352,758. SHOCK OR BUNDLE COMPRESSOR. Webster Junk, Mount Sterling, Ohio. Filed Feb. 11, 1886. (No model.)



Claim.—1. In a compressor or binder for shocks or bundles, the combination of a frame consisting of a cross-piece and two longitudinal pieces, plates pivoted at the cross-piece and having their ends bearing against the ends of said longitudinal pieces, said pieces being provided with bent ends for securing a rope, a spring bearing with its ends against the outer sides of the plates and secured to the cross-piece, and a rope or cord, as and for the purpose shown and set forth.

2. In a compressor or binder for shocks or bundles, the combination of a frame consisting of a cross-piece and two longitudinal pieces projecting from the ends of the cross-piece, and provided at their ends, one with an eye and one with a hook, two flat plates having their inner ends cut away at one-half their width and bent to form transverse eyes turning upon the cross-piece, a spring coiled at its middle around the middle of the cross-piece and bearing with its ends against the outer cut-away ends of the plate, and a cord or rope passed through the eye and hook, and clamped by the plates, as and for the purpose shown and set forth.

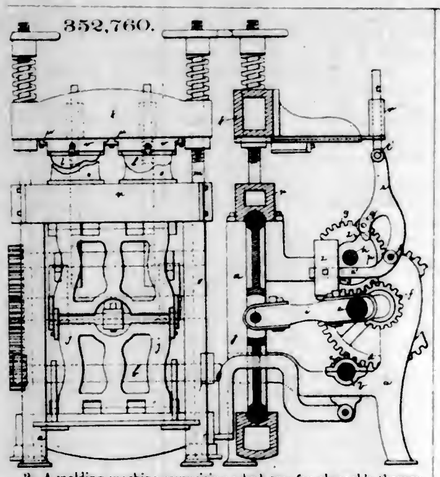
352,759. METHOD OF SIZING PAPER. Charles Kellner, Goertz, Austria-Hungary. Filed Apr. 23, 1886. (No specimens.)

Claim.—The process herein described of sizing paper, which consists in mixing resin soap with the pulp and precipitating the resin size by a sulphite salt, substantially as set forth.

352,760. MOLDING-MACHINE FOR BOOTS OR SHOES. George A. Knox, Lyon, Mass. Filed Aug. 28, 1886. (No model.)

Claim.—1. A molding-machine comprising a bed, a female mold thereon, a cross-head, a carrier adapted to be reciprocated thereon, a male mold secured to said carrier, mechanism, substantially as described, for reciprocating said cross-head vertically, a revolving cam, and lever for moving said male-mold carrier and its attached mold horizontally only when said cross-head reaches substantially the highest limit of its vertical movement, all arranged substantially as set forth.

352,760.

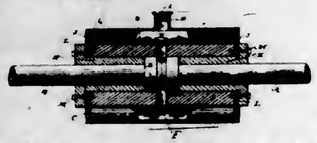


2. A molding-machine comprising a bed, two female molds thereon, a cross-head, two carriers adapted to be reciprocated thereon, a male mold secured to each carrier, mechanism, substantially as described, for reciprocating said cross-head vertically, revolving cams, and levers, substantially as described, for moving said male-mold carriers and their attached molds horizontally alternately when said cross-head reaches substantially the highest limit of its vertical movement, as set forth.

3. The combination of the two stationary female molds, the two vertically-movable and alternately horizontally-reciprocating male molds, a revolving cam, and lever for imparting a quick horizontally-reciprocating motion to said male molds when they have reached substantially the highest point of their vertical movement, all arranged as set forth.

4. The combination of the frame and bed, the cross-head, and mechanism, substantially as described, for imparting to it a vertically-reciprocating motion, molds *o* on the bed, carrier *v*, adapted to be guided in ways on the cross-head, molds *l* on said carrier, lever *r*, cam *p*, and weight *z*, as set forth.

352,761. CAR-AXLE. Ernest E. Krengel, Buena Vista, Oreg. Filed Apr. 20, 1886. (No model.)



Claim.—The combination of the divided car-axle, the flanged boxings, the centrally-enlarged, grooved, and perforated sleeve, the washers, and the outer casing provided with an oil-aperture and serving as an oil-reservoir, substantially as shown and described.

352,762. SCHOOL DESK AND SEAT. Jesse M. Lane, Nettle Creek, assignor of one-half to Nathan F. Canaday, Hagerstown, Ind. Filed May 14, 1886. (No model.)



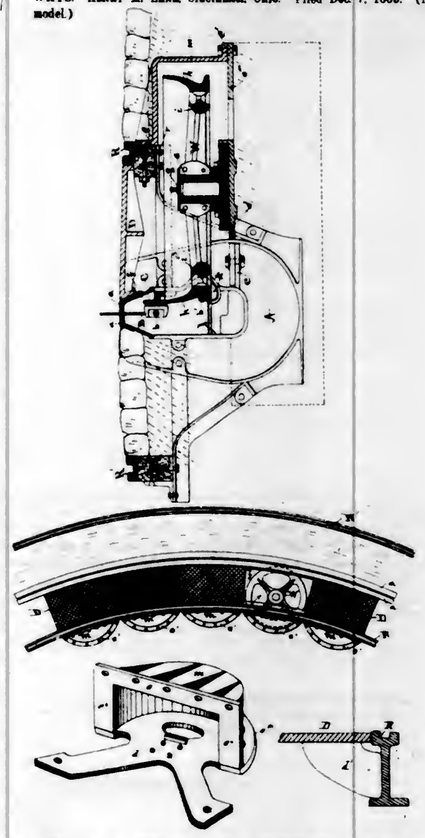
Claim.—1. The combination, with a standard and a vertically-adjustable seat secured thereto, of a back-rest adjustably secured to the said standard at a point above the seat, substantially as set forth.

2. The combination, with a standard and a seat secured thereto in vertical and laterally-swinging adjustment, of a vertically-adjustable and laterally-swinging back-rest secured to the standard at a point above seat, substantially as set forth.

3. The combination, with a standard and collar, the latter having a recess therein, and a device for locking the collar to the standard in any desired vertical adjustment, of a seat-supporting arm mounted on the standard and provided with a lug or rib adapted to enter the recess in the collar, substantially as set forth.

4. The combination, with the hollow standard provided with the spreading base and the seat sleeved on the standard in vertical and swinging adjustment, of the desk secured to a standard-section adapted to fit within the base standard-section, the back-rest secured to the back of the desk, and the means for locking the desk and back-rest in the desired vertical and swinging adjustment, substantially as set forth.

352,763. CURVE-PULLEY CONSTRUCTION FOR CABLE RAILWAYS. Henry M. Lane, Cincinnati, Ohio. Filed Dec. 7, 1885. (No model.)



Claim.—1. In cable-railway curve constructions, a shallow box-receptacle for the horizontal curve-pulley extending laterally from the tunnel beneath and beyond the inner track-rail, between and supported by two contiguous tunnel-yokes, and provided with a removable cover, substantially as set forth.

2. In cable-railway curve constructions, a bottom plate or support for the horizontal pulleys, consisting substantially of a stud-plate or spider resting upon and supported by contiguous tunnel-yokes at the tunnel side, and connected by a partial cover or boxing with the track-stringer at the outer side of said bottom plate, substantially as set forth.

3. The combination, in cable-railway curve constructions, of two tunnel-supporting yokes provided with side brackets for rail-supports, a supporting-plate for the curve-pulley secured to said yokes, and an approximately-horizontal cable-pulley pivotally mounted on said plate between the yokes, substantially as set forth.

4. In cable-railway constructions, a cast yoke for supporting the tunnel on horizontal curves of the line, provided with a lateral inner recess, K, substantially as set forth.

5. In a cable-railway curve constructions embodying a pulley-casing opening between the cable-tunnel iron and the track-stringer, a supporting-bracket upon the tunnel-iron, in combination with an inward extension of the inner track-stringer forming side supports for a removable cover, substantially as set forth.

6. In cable-railway curve constructions, a pulley-support and casing for the horizontal curve-pulleys of a size approximately just sufficient to contain the pulley, consisting of a bottom plate secured to contiguous yokes and extending beneath and beyond the inner track-stringer, an outer part cover or boxing secured to the stringer and supporting the bottom plate, and a removable cover or top plate adjusted between the track-rail and the tunnel-iron.

7. In cable-railway constructions, a continuous tunnel-casing for a series of curve-pulleys, entirely open above throughout, between the inner track-stringer and the cable-tunnel, provided with abutting removable covers having their resting supports solely upon a bracket secured upon the cable-tunnel iron at one side and the inner track-stringer at the other, substantially as set forth.

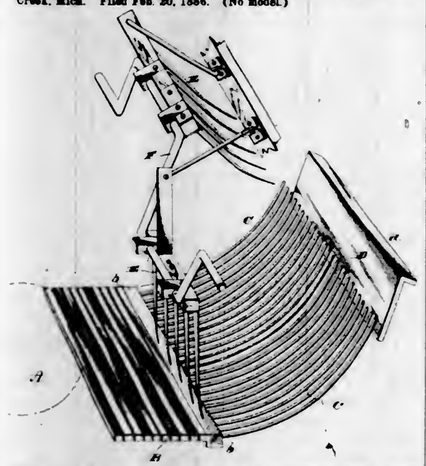
8. In cable-railway curve constructions, a part-casing constituting the outer wall of the curve-pulley boxing, constructed with marginal flanges at the sides and top of the opening, the top flange adapted to secure the said part-casing against the rail or rail-stringer, and the side flanges extending downward as supporting-columns for the same to rest upon the bottom plate of the pulley-boxing, substantially as set forth.

9. In cable-railway curve constructions, in combination with the cable-tunnel iron and the inner rail or track stringer, forming parts of the walls of a continuous open cavity for the operation of the horizontal curve-pulleys, and a series of removable covers resting upon side bearings formed by the cable-tunnel and said rail or track stringer, a series of individual part-casings, each constituting the outer boxing of its pulley and attached to and forming a series of supports for the rail or track stringer upon the base or stud plates of the pulleys, substantially as set forth.

10. The combination of the pulley W and base-plate *d*, having an abutment, *n*, with the stud-plate P, wedge w, and bolt-connections, substantially as set forth.

11. The combination of a guard-rail, *c*, recessed at the under side, with an approximately-horizontal curve-pulley adjusted to play in such recess flush with the general face of the rail, substantially as and for the purpose set forth.

352,764. THRASHING-MACHINE. John B. McCutcheon, Battle Creek, Mich. Filed Feb. 20, 1886. (No model.)



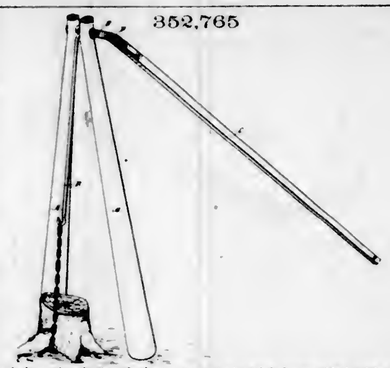
Claim.—1. In a thrashing-machine, the combination, with a cylinder and a guide-board or apron, of a grate located between the cylinder and the guide-board or apron, and consisting of a series of bars or slats, the front ends of which are rigidly secured to the machine at a point behind the cylinder, while the rear or free ends thereof terminate above the lower end of the guide-board or apron.

2. In a thrashing-machine, the combination, with a cylinder and the guide-board or apron, of the slats or bars rigidly secured in position at their front ends and extending rearwardly to a point over the guide-board or apron, and the fork located above the bars for forcing the straw rearwardly, substantially as set forth.

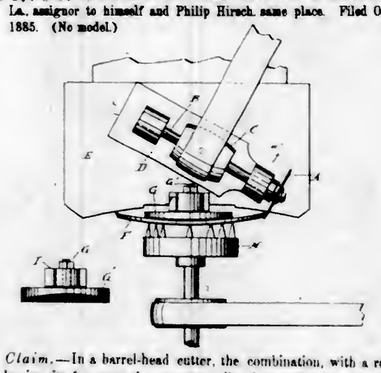
352,765. STUMP-PULLER. William M. McKay, Wilmot, Mich. Filed June 1, 1886. (No model.)

Claim.—In a stump-puller, the combination of two uprights, a connecting-bolt passing through their tops, a hook and chain suspended from the bolt, and a draft-rod, the lower end of which is provided with means for attaching a team to it, and having curved strips secured to its upper end, the outer ends of said strips being mounted upon the connecting-bolt.

352,765



352,766. BARREL-HEAD CUTTER. Thos. McMillen, New Orleans, La., assignor to himself and Philip Hirsch, same place. Filed Oct. 14, 1885. (No model.)



Claim.—In a barrel-head cutter, the combination, with a rotary disk having its face curved on a convex line in one direction only, and against which the head is held, of a saw or cutter mounted on a shaft journaled in a frame pivoted to turn in a plane parallel with the plane of the disk-shaft, substantially as specified.

352,767. MANUFACTURE OF MAINSPRINGS. Paul H. Mielender, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed July 22, 1886. (No model.)



Claim.—1. As an improvement in the manufacture of mainsprings, the method of coiling and testing the same, consisting, first, in coiling a spring within a holder, and then ejecting said spring thus coiled bodily out of said holder, substantially as and for the purpose specified.

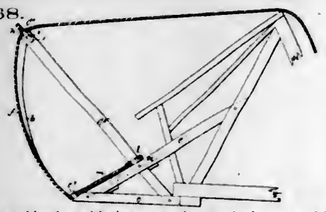
2. As an improvement in mechanism for coiling and testing mainsprings, a holder having a recess within which a spring may be coiled, and provided with a follower by means of which a coiled spring may be instantly ejected, substantially as and for the purpose shown.

3. As an improvement in mechanism for coiling and testing mainsprings, the spring-holder A, provided with the recess a^3, the follower B, and the push-rod C, in combination with a winding-arbor, F, substantially as and for the purpose set forth.

352,768. BUNDLE CARRIER AND DROPPER FOR HARVESTERS. Luke Moffatt and Charles H. Moffatt, Verndale, Minn. Filed Aug. 14, 1885. (No model.)

Claim.—1. The combination, with the apron, of the standards arranged in front of the lower edge of said apron, and connections secured at one end to the lower end of the apron, and having their other ends engaged with and movable on the standards, whereby the apron will rest normally in position to secure the grain and may be elevated to discharge the same, substantially as set forth.

352,768.

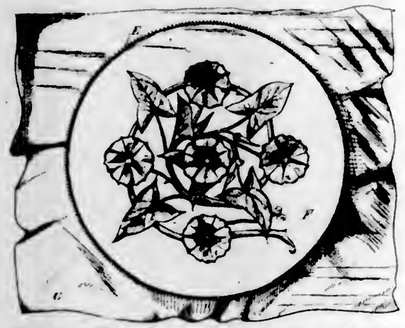


2. In combination with the apron, the standards arranged in front of the apron and inclined from base to top toward the apron, and connections secured at one end to the lower end of the apron and held to and movable along the inclined standards, substantially as set forth.

3. The combination of the framing, the apron, a beam supporting the upper edge of the apron, a cord connected with the lower edge of the apron and passed upward outside of the apron and over the top beam thereof, standards arranged in front of the apron, and connections secured at one end to the apron and movably connected at their opposite ends with the standards, substantially as set forth.

352,769. STRETCHING-RING. EDWARD A. MOON and EDWIN PYECHON, Chicago, Ill. Filed Aug. 7, 1886. (No model.)





Claim.—1. The combination of an outwardly-concave ring and an elastic band encircling the same.

2. The combination of an outwardly-concave ring with a roughened outer surface and an elastic band encircling the same.

3. The combination of an outwardly-concave ring with an inwardly-curved upper edge and an encircling elastic band.

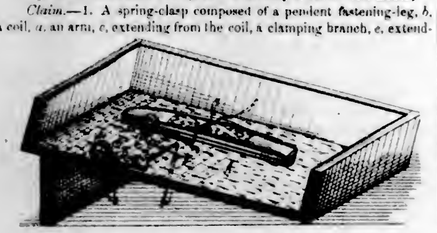
4. The combination of an outwardly-concave ring with an outwardly-projecting lower edge and an encircling elastic band.

5. The combination of an outwardly-concave ring, an outward covering, and an elastic encircling band.

6. The combination of an outwardly-concave ring with a roughened outer surface, an outwardly-projecting lower edge, and an encircling elastic band.

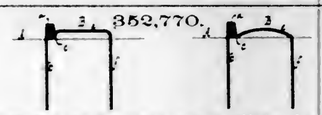
352,770. SPRING-CLASP. GEORGE T. MOORE, New York, N. Y., assignor to MAX KAMAK, same place. Filed July 8, 1886. (No model.)

Claim.—1. A spring-clasp composed of a pendent fastening-leg, *b*, a coil, *a*, an arm, *c*, extending from the coil, a clamping branch, *e*, extending laterally from the arm, and a pendent guide-leg, *f*, on the lateral branch, all made of one and the same piece of wire, one of said legs adapted to pass through a hole in a support and the other leg to slide in another hole in said support, substantially as described.



2. The combination, with the support A, having two holes, *d g*, with a spring-clasp composed of a fastening-leg, *b*, extending through the hole *d*, of a coil, *a*, an arm, *c*, an upwardly-curved clamping branch, *e*, and a guide-leg, *f*, extending into the hole *g*, substantially as described.

352,770.



352,771. UNDERGROUND TUBE FOR ELECTRIC WIRES. HERBERT G. MOREHOUSE, Croton Landing, N. Y. Filed Aug. 18, 1886. (No model.)



Claim.—1. For protecting underground electric wires, a series of small iron or steel tubes, each lined throughout with an enamel insulating compound fused thereon, and continually connected so as to have an insulating-enamel throughout the entire series, substantially as described.

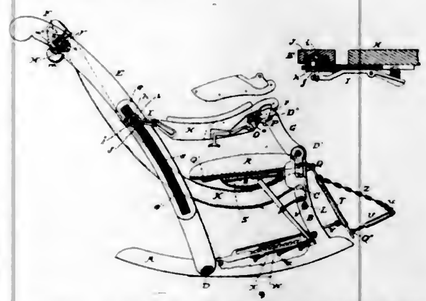
2. In combination with a small iron or steel tube lined throughout with an enamel insulating-coating fused thereon, a naked electric wire contained within said tube and insulated from the metal of the tube by the enamel alone, substantially as described.

352,772. ARTICLE OF ARTIFICIAL STONE, &c. WILLIAM J. MORROW, Gainesville, assignor of one-half to Ira Mowery, Jacksonville, Fla. Filed May 11, 1886. (No model.)



Claim.—A tubular article of cement, artificial stone, terra-cotta, or similar material, said article being made in a single piece and provided with one or more strengthening-rings embedded in its walls, substantially as described.

352,773. RECLINING-CHAIR. JOHN A. NEWELL, Cochran, Ind. Filed Jan. 8, 1886. (No model.)



Claim.—1. In a reclining-chair, the combination, with the rocking base-frame A B C, of the back-frame E F, pivoted to the rockers A of said base-frame, and having in its sides grooves *e'* and rows of holes *e*, arms H, having at their outer ends hinged and angularly-adjustable connection with the posts B, and at the other ends slides J, riding in the grooves *e'*, and pins *i*, which pass through slides J and engage said holes *e*, substantially as set forth.

2. In a reclining-chair, the combination, with the rocking base-frame A B C, of the back-frame E F, pivoted to the rockers A of said

base-frame, standard G, pivoted to the upper extremities of posts B, and having segment-racks P, arms H, pivoted at their front ends to said standards, spring-catches O on said arms engaging with segment-racks P, and adjustable connections between the rear ends of arms H and the back E F, substantially as set forth.

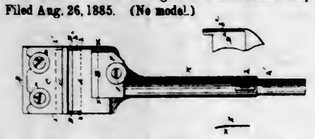
3. In an adjustable chair, the combination, with the removable rod L, that occupies holes in the posts B, and with a windlass, M, in the chair-back E, having the handle *m'*, spring-catch N, and studs *m*, of the removable paillasse or hammock K, having at one end a loop or hem, *k*, and at the other end loops *k'*, which engage said studs *m*, substantially as set forth.

4. In combination with a chair having a stretcher or hammock, a seat or cushion hinged to the front part of the chair between the front legs, and so adapted to rest at its free extremity directly upon said stretcher, whereby the latter is held taut, substantially as set forth.

5. In combination with a chair having a stretcher or hammock, K, a seat or cushion, R, hinged to the front part of the chair, and an additional extension, S, hinged to the seat or cushion R, and having the pad *s*, substantially as and for the purposes set forth.

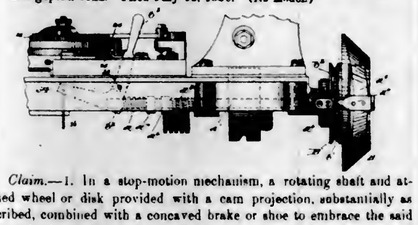
6. In combination with a rocking-chair, the removable foot 1, having rocker-embracing yoke 2, with clamping set-screw 3, follower 4, and the india-rubber pieces 5, interposed between the rocker and the clamping-surfaces, substantially as and for the purposes set forth.

352,774. KNIFE-HEAD FOR APPLE-PARING MACHINES. WILLIAM A. C. OAKS, Antrim, N. H., assignor to the Goodell Company, same place. Filed Aug. 26, 1885. (No model.)



Claim.—A knife-head for a fruit-paring machine, provided with a depressed portion, B', in combination with a removable guard of suitable material, held in place by a spring-clamp, E, secured to the head by a screw, substantially as shown and described.

352,775. STOP-MOTION MECHANISM. FREELAND W. OSTROM, Bridgeport, Conn. Filed July 15, 1886. (No model.)



Claim.—1. In a stop-motion mechanism, a rotating shaft and attached wheel or disk provided with a cam projection, substantially as described, combined with a concaved brake or shoe to embrace the said cam projection and stop the rotation of the said wheel frictionally at a predetermined position, substantially as described.

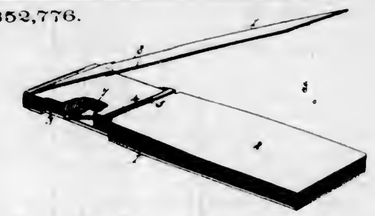
2. In a stop-motion mechanism, a rotating shaft and attached wheel or disk provided with a cam projection, substantially as described, combined with a slide-rod, a brake or shoe, a spring to actuate the said rod to force the brake or shoe against the cam-surface of the said wheel or disk when it is desired to stop the rotation of the said shaft, substantially as described.

3. In a stop-motion mechanism, a rotating shaft, A', a wheel or disk attached thereto and provided with a cam projection, a loose pulley shaped to co-operate with the said wheel or disk to constitute a friction-pulley, a slide-rod provided with a brake or shoe to co-operate with the cam-surface of the wheel or disk, and with a projection to engage and move the said loose pulley, as described, and a latch or lever to hold the brake or shoe out of contact with the said wheel or disk, combined with a spring to move the said slide-rod to bring the said brake or shoe against the cam-surface of the said wheel or disk when the latch or lever is released, substantially as described.

4. In a stop-motion mechanism, a rotating shaft, A', a wheel or disk attached thereto and provided with a cam projection, a loose pulley shaped to co-operate with the said wheel or disk to constitute a friction-pulley, a slide-rod provided with a brake or shoe to co-operate with the cam-surface of the wheel or disk, and with a projection to engage and move the said loose pulley, as described, and a collar or projection to limit the movement of the said rod parallel to the shaft A', and the movement of the brake or shoe toward the wheel or disk, combined with a spring to force the said brake or shoe against the cam projection of the said wheel or disk, substantially as described.

352,776. CHECK, DRAFT, OR RECEIPT BOOK. S. WHITE PAINE, Rochester, N. Y. Filed Sept. 18, 1885. (Model.)

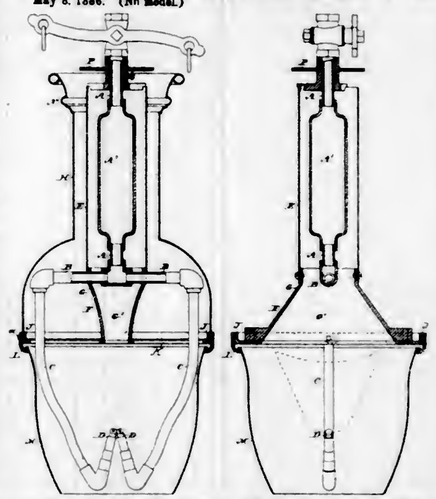
352,776.



Claim.—1. The combination, with a check, draft, or receipt book, of a transverse cutter having spring-arms fastened to the back of said book, substantially as described.

2. The combination, with a check, draft, or receipt book having the top and bottom edges of its stub portion recessed, of a transverse cutter attached to the back cover of the book, with its cutting-edge across the leaves and its attaching-arms lying in the recessed edges of the book, substantially as described.

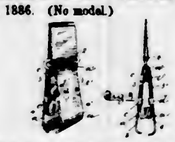
352,777. GAS-LAMP. BRUNO E. PAMBO, Philadelphia, Pa. Filed May 8, 1886. (No model.)



Claim.—1. A gas-lamp having an inlet-pipe with an enlarged portion, the branches B, having gas-tubes C, their lower ends being provided with burners, the deflector F, having the branches B passing through the upper part thereof, and the jacket E, open at top and bottom, and surrounding the inlet-pipe, the ring J, with arms K, and the chimney H, having an enlarged lower portion resting on ring J, and surrounding the jacket E, all of said parts combined substantially as and for the purpose set forth.

2. A gas-lamp having an inlet-pipe with branches, the latter provided with burners, a deflector having side openings through which said branches pass, a jacket connected to the deflector and open at both top and bottom, a ring having arms resting on the reflector, a chimney surrounding the jacket, and open at top and bottom, resting on the said ring, and a shade, M, all of said parts being combined and arranged substantially as and for the purpose set forth.

352,778. GARMENT-CLASP. FREDERICK E. RANDALL, Boston, Mass. Filed July 22, 1886. (No model.)



Claim.—1. In a clasp, the combination of two jaws, *a a*, and a hook and loop located on the inner side of said jaws *a a*, as described, between and covered by the latter, the said hook being adapted to engage the loop and rigidly lock the other jaw *a* when the said jaws are pressed into contact, substantially as set forth.

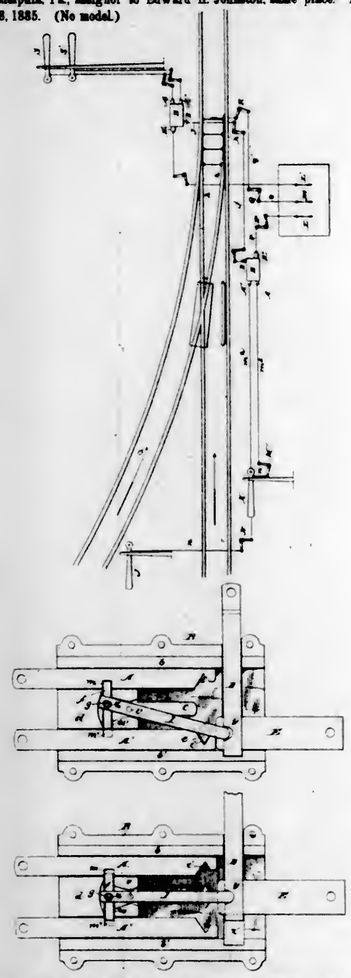
2. In a clasp, the combination of two jaws, *a a*, a book and loop located on the inner side of said jaws *a a*, as described, between and

covered by the latter, the said hook being adapted to engage the loop and rigidly lock the other jaw *a* when the said jaws are pressed into contact, and a strap-holding cross-bar connected to said hook, substantially as set forth.

3. In a clasp, the combination of two jaws adapted to have their biting portions pressed into contact to grasp the garment, eyes *c*, located on the inner side of one jaw, and eyes *d*, located on the inner side of the other jaw, and a loop formed to receive a supporting-strap and adapted to slide in the eyes *c*, and provided with a hook to engage the eye *d* to rigidly lock the jaws when they have been pressed into contact, substantially as set forth.

4. In a clasp, the combination of two grasping-jaws, each having eyes *c* and *d* on its inner side, and the wire loop composed of the cross-bar 2, adapted to receive a supporting-strap, the arms 3 3', inserted in the eyes *c* and normally standing at different angles, whereby the loop is caused to act as a spring, and provided with hooks adapted to engage the eyes *d d*, as set forth.

352,779. RAILROAD-SIGNAL APPARATUS. GUSTAVUS N. REIFF, Philadelphia, Pa., assignor to Edward H. Johnston, same place. Filed Dec. 8, 1885. (No model.)



Claim.—1. A signal-operating device consisting of two or more guided bars, a laterally and horizontally movable slide constructed to make connection with each bar independently, and means for shifting the slide laterally, and a locking device independent of the slide, whereby both bars are locked immovably until the slide is in connection with one or the other of the bars, substantially as described.

2. The combination, with the signal-bars and laterally and horizontally moving slide and shifting device, of a locking device independent of the slide, and connections between the same and the slide or shifting device, whereby the locking device is withdrawn on the shifting of the slide from each bar as the slide is brought into connection therewith, substantially as described.

3. The combination of the signal-bars, the center and side ribs extending longitudinally, and the sliding and shifting slide connected with the switch devices and adapted to make connection with either bar and to fit between each side rib and the center rib when thrown inward to set the signal, substantially as and for the purpose set forth.

4. The combination of the sliding signal-bars, shifting slide adapted to slide with each bar between parallel bearings, and a locking device for securing both bars, and a lever extending between the locking device and the slide or shifting bar, connected to move the lock to unlock only the signal-bar to which the slide is connected, substantially as described.

5. The combination of the parallel notched signal-bars, independent bolt arranged between to lock both bars immovably, and connections between the bolt and the bar-operating devices, whereby the bolt is withdrawn only from the notch of the bar in connection with such operating devices, substantially as described.

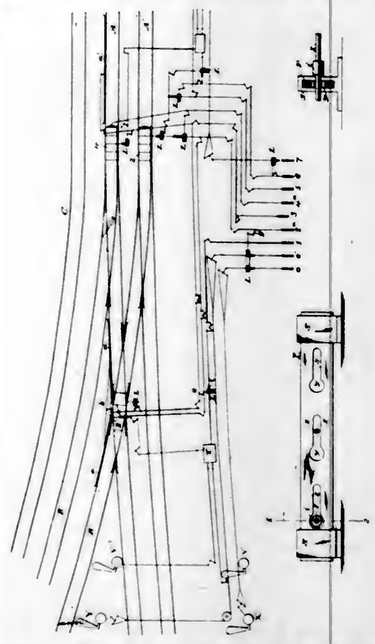
6. The combination of the signal-bars, sliding bolt, shifting slide, and lever connected to the bolt and to the slide-shifting devices, substantially as described.

7. The combination of the signal-bars, bolt, slide, slide-carrying bar, and lever connected to the bolt and slide-carrying bar, substantially as described.

8. The box, the signal-bars guided therein, the rib *c*, extending between the bars, the slide and slide-carrying bar sliding transversely of the box, the bolt *f*, and lever I, all substantially as described.

9. The combination, with the main and branch tracks and switch-bars and signals of a railway, of a signal-lever, switch-lever, signal-bars each connected to operate one of the signals, slide connected to the signal-lever and adapted to make connection with each bar, slide-shifting devices connected with the switch devices, an independent locking device for securing both bars, and connections between the lock and the signal-bar-operating devices, substantially as described.

352,780. RAILWAY SWITCH AND SIGNAL OPERATING DEVICE. GUSTAVUS N. REIFF, Philadelphia, Pa. Filed Feb. 27, 1886. (No model.)



Claim.—1. The combination, with the series of movable switch-points, signals, and other like movable parts of a railway, of a gang of operating-levers and connections, and series of slotted locking-plates, each arranged adjacent to one of the parts to be operated, and constantly traversed by a rod extending to said part and connected with another part to be operated, whereby the latter must be first adjusted to permit the adjustment of the former, substantially as set forth.

2. The combination, with the rods connected with the movable parts of a railway switching and signaling apparatus, of a movable locking-plate arranged adjacent to the part to be moved, and having a flange and recess traversed by the rod connected with the part to be moved, the said rod having an enlargement adapted to pass through the recess and make contact with the flange, and independent operating devices connected with the locking-plate, substantially as set forth.

3. The combination, with the movable part of a railway signaling and switch apparatus, and with a rod connected thereto and provided with an enlargement, of a slotted locking-plate having a recess for the passage of the enlargement, and a flange arranged to be struck thereby, and independent devices for moving the said plate, substantially as set forth.

4. The combination, with a movable part of a switch and signal apparatus, and with the gang of levers thereof, of slotted locking-plates arranged each adjacent to one of the said parts, and connecting-rods passing through the slots of said plates and provided with enlargements, substantially as described.

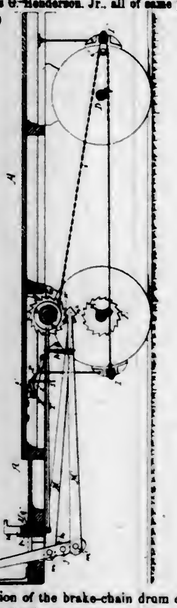
5. A locking-plate for railway-switch apparatus, provided with a series of slots, with flanges and enlargements, combined with standards supporting the plate adjustably, and sliding bars provided with shoulders and extending transversely through the slots, substantially as set forth.

352,781. UMBRELLA OR PARASOL. ERNEST REFORMAT, Paris, France, assignor to Edmund Wright, Joseph Wright, Charles S. Howe, and George T. Moxey, Philadelphia, Pa., and Harris Filson, New York, N. Y. Filed July 3, 1886. (No model.)



Claim.—The combination of the stick having a transverse stop-pin with a runner-retainer, consisting of a strip of sheet metal having an elastic shank with spur for holding the same at one end, and at the opposite end an enlarged head for engagement with the runner, said head having a slot for the reception of the stop-pin, all substantially as specified.

352,782. CAR STARTER AND BRAKE. CHARLES A. SHANK, Philadelphia, Pa., assignor of nine-tenths to James T. Ellison, Philip H. Charles, John H. Hudson, and Charles G. Henderson, Jr., all of same place. Filed May 27, 1886. (No model.)



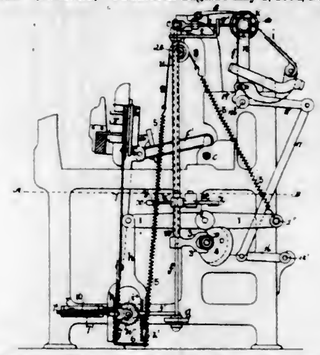
Claim.—1. The combination of the brake-chain drum of a car and ratchet-wheel with the car-axle having a starting ratchet-wheel, pawls to engage with either ratchet-wheel, a lever to reciprocate the pawls, and devices for throwing the arms or pawls into or out of gear with either of the ratchet-wheels, substantially as set forth.

2. The combination of the car-axle having a ratchet-wheel and the brake mechanisms with a ratchet-wheel controlling the brake mechanism, and a lever, J, having two pawl-arms, M M', pivoted one below and one above the fulcrum of the lever, and adapted to engage with either ratchet-wheel.

3. The combination of the car-axle having a ratchet-wheel, E, the brake-operating ratchet-wheel G, a pawl to engage with either of the ratchet-wheels, with a lever to operate the pawl, and spring, P, adapted to hold the pawl in gear with the brake ratchet-wheel G, and devices under the control of the operator for depressing the spring and allowing the pawl to engage with the starting ratchet-wheel E, substantially as specified.

4. The combination of the car-axle having a ratchet-wheel, and a brake-chain drum having a ratchet-wheel, with a pawl to engage with either ratchet-wheel, an operating hand-wheel therefor, and a rod, T, under the control of the operator's foot, to cause engagement of the pawl with either ratchet-wheel, all substantially as specified.

352,783. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. WRIGHT SHAW, Bradbury, County of Chester, England. Filed Sept. 1, 1884. (No model.) Patented in England May 1, 1884, No. 7,073.



Claim.—1. The combination of the pattern-cylinder *a* and means for vibrating the same, the three rods *b c d*, and pivoted arm *e*, connecting the two outer rods, the pattern-cylinder and rods being at the top of the loom, with the drop-boxes, boot-jack, and its pinion and connecting devices, substantially as set forth, whereby the boot-jack controls the drop-boxes, lever carrying the boot-jack, lifting mechanism therefor, and devices, substantially as specified, intermediate of the boot-jack and lever and rods *b d*, whereby the latter control the boot-jack, all substantially as described.

2. The combination of the pattern-cylinder, carrying-bracket, and means for vibrating the latter, with a fixed stop, *q*, a spider, *r*, on the cylinder, a loose pegged disk, *k*, carrying removable pins *p*, and pawls or hooks *s o*, to engage with the spider and pegged disk, all substantially as specified.

3. The combination of the pattern-cylinder and vibrating devices therefor, sliding rod *c*, tubular shaft *u*, arm *t* on one end of said shaft and fork 3 at the other, with cam-shaft, tappets or cams thereon, lever 1, boot-jack *h*, drop-boxes, and devices, substantially as set forth, connecting the said boot-jack and drop-boxes, all substantially as specified.

4. The combination of the pattern-cylinder and vibrating mechanism, shaft *u*, and intermediate devices, as described, whereby the said shaft is partially turned, with the arm *v* on the shaft, flirt *w*, and spring-carrying lever *x*, lever 1, and operating devices, the drop-boxes, and devices connecting them with said lever, all substantially as set forth.

5. The combination of the pattern-cylinder and bracket and stopping devices therefor, a shaft, 12', and devices connecting the shaft to the cylinder-bracket, with a lever, 12, on the shaft 12', a movable bearing-block on the lever, a bowl in the said block, a spring, 15, and a grooved cam, 11, and cam-shaft, all substantially as set forth.

6. The combination of the drop-boxes, their supporting-rod, and connecting-rack having a flange, 9, with a pinion and devices, substantially as described, to operate the pinion, a spring to keep the rack in gear with its pinion, and a handle, 10, having a projection to act on the flange of the rack, as described.

7. The combination of the lay, drop-boxes, and supporting-rod with a two-part balancing-spring connected at one end to a fixture and at the other end to the rod, connecting-strap 8, and a pulley, 20, over which the strap passes, all substantially as set forth.

352,784. ARTIFICIAL DENTURE. LUCIUS T. SHEFFIELD, New York, N. Y. Filed Aug. 12, 1884. (No model.)

Claim.—1. The within-described improvement in the manufacture of artificial dentures, the same consisting in first applying supporting crowns and teeth in proper position upon a cast of the mouth; in then connecting the said supporting-crowns to a brace extending partly across

352,784.

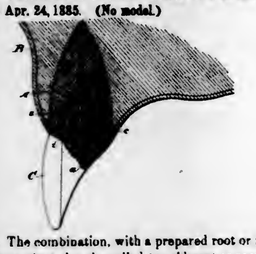


the structure from side to side, whereby they are held rigidly in their positions in relation to each other; in fitting the crowns in the mouth, and in then applying and securing the artificial teeth to the bridges or supports between said supporting teeth and crowns, substantially as set forth.

2. The improvement in the manufacture of artificial dentures, consisting in connecting together the supports for a denture by means of a supplemental brace, a part of which crosses from side to side, and then applying and securing the artificial teeth between the supports, and in then removing the exposed portions of the brace, substantially as described.

3. In the manufacture of artificial dentures, preparing the roots and applying the supporting-teeth in position thereon, applying metallic crowns to the supporting natural teeth, then taking an impression of the mouth and removing the crowns and supporting-teeth therewith, then connecting the opposite sides of the structure by a supplemental brace, connecting the crowns and supporting-teeth by the usual bridge, and then securing the intermediate artificial teeth between the supporting teeth and crowns and removing the exposed portions of the brace, substantially as described.

352,785. ARTIFICIAL TOOTH. LUCIUS T. SHEFFIELD, New York, N. Y. Filed Apr. 24, 1885. (No model.)



Claim.—1. The combination, with a prepared root or roots and with an artificial denture adapted and applied to said root or roots, of an interposed water-proof cement, substantially as set forth.

2. The combination of the prepared root or roots, artificial denture adapted thereto, a crystallizing cement applied directly to the roots, and a water-proof cement interposed between the crystallized cement and the denture, substantially as described.

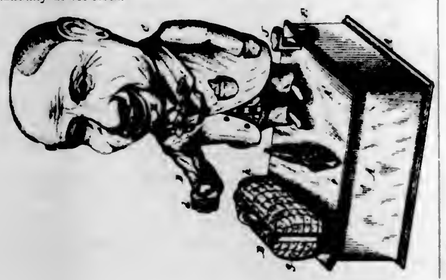
3. The combination, with a prepared root or roots and an artificial denture adapted to be supported thereby, of an interposed cement consisting of a solution of gutta-percha, substantially as set forth.

4. The combination, in an artificial denture, and with the natural root or roots supporting the same, of the tooth-crowns provided with caps adapted to the roots and with pins adapted to openings in the roots, and an interposed gutta-percha cement, substantially as described.

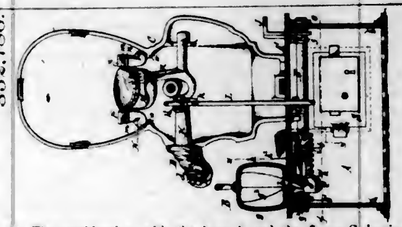
352,786. TOY SAVINGS-BANK. CHARLES G. SHEPARD and PETER ADAMS, Buffalo, N. Y.; said Adams assignor to Walter J. Shepard, same place. Filed May 1, 1886. (No model.)

Claim.—1. The combination, with the base A, of a figure, C, having a pivoted jaw, M, hung to vibrate freely back and forth when set in motion, substantially as set forth.

2. The combination, with the base A and the figure C, having a pivoted jaw, M, hung to vibrate freely, of an actuating-arm, R, which is arranged in the figure, and whereby the jaw is set in motion, substantially as set forth.



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3. The combination, with the base A and the figure C, having a pivoted jaw, M, hung to vibrate freely, of a rock-shaft, K, provided with an actuating-arm, R, and an arm, *k*, a rock-shaft, E, provided with an arm, *l*, a rod, L, connecting the arms *l* and *k*, and a thumb-piece, J, whereby the rock-shaft E is actuated, substantially as set forth.

4. The combination, with the hollow head of the figure C, of a jaw, M, provided with pivots *m*, and a detachable bridge-plate, N, secured in the hollow head and having recesses *n*, in which said pivots are supported, substantially as set forth.

5. The combination, with the coin-receptacle A, of a satchel, B, composed of a vertical stationary part, *g*, open at one side and secured with its lower end to the receptacle A, and a vertical movable part, *h*, open at its side and pivoted with its lower end upon the coin-receptacle, the vertical open sides of the stationary and movable parts being arranged opposite each other, substantially as set forth.

6. The combination, with the coin-receptacle A, having an opening in its top, of the stationary part *g* of the satchel, having a vertical opening at one side and secured with its lower end to the receptacle, and the movable part *h*, having a vertical opening at its side and supported in the opening of the receptacle and provided at its lower end with a projection, *h'*, which opens and closes the coin-passage, substantially as set forth.

7. The combination, with the coin-receptacle A, of the stationary part *g* of the satchel secured to the receptacle, the movable part *h* of the satchel, provided at its lower end with a shank, *h'*, and arm h^2, and an actuating rock-shaft, E, provided with an arm, *f*, substantially as set forth.

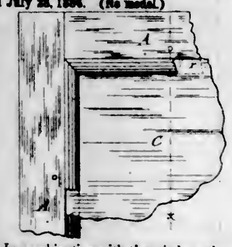
8. The combination, with the coin-receptacle A, provided with a satchel, B, composed of a stationary part, *g*, and a movable part, *h*, having an arm, h^2, of a figure, C, provided with a movable arm, D, and a pivoted jaw, M, hung to vibrate freely, a rock-shaft, K, to which the movable arm D is attached, and which carries an arm, R, a rock-shaft, E, provided with an arm, *f*, whereby the satchel is opened and closed, a rod, L, whereby the rock-shaft E is connected with the shaft K, and a thumb-piece, J, substantially as set forth.

352,787. RULER. WILLIAM P. SIBSON, Garnett, Kans. Filed May 24, 1886. (Model.)



Claim.—As a new article of manufacture, a ruler having attached thereto a finger socket or clamp, substantially as and for the purpose described.

352,788. WINDOW-GLASS SETTER. DANIEL K. TEAL, Oneida Castle, N. Y. Filed July 23, 1886. (No model.)



Claim.—1. In combination with the window-glass, a sash provided with longitudinal slits in the side walls of the rabbet, and metallic strips formed with bearings on the said side walls of the rabbet and on the glass and provided with fastening-lips entering the aforesaid slits, as set forth.

2. In combination with the window-glass, a sash provided with longitudinal slits in the side walls of the rabbet and metallic strips of V shape in cross-section and having one of their longitudinal edges inserted in the aforesaid slits and the other edge abutting against the side walls of the rabbet, and the corners of the strips bearing on the glass, substantially as described and shown.

3. In combination with the window-glass, a sash provided with longitudinal slits in the side walls of the rabbet, and metallic strips of V shape in cross-section and one side thereof wider than the other side, and the edge of said wider side entering the aforesaid slits, the other edge abutting against the side wall of the rabbet, and the corner resting on the glass, substantially as described and shown.

4. In combination with the window-glass, a sash provided with longitudinal slits in its side walls, metallic strips of V shape in cross-section and having one of its sides wider than the other and bearing on the glass, and the edge of said side inserted in the aforesaid slit, and the other edge abutting against the side wall of the rabbet, and a packing interposed between the wide side of the strip and adjacent portion of the glass, substantially as described and shown.

5. In combination with the window-glass, the sash provided with longitudinal slits in the side walls of the rabbet, metallic strips of V shape in cross-section and having one side wider than the other and bearing on the glass, and the edge of said wide side inserted in the aforesaid slits and the edge of the other side abutting against the side of the rabbet, and pins inserted into the sash and passing through the wide sides of the metallic strips, substantially as described and shown.

6. In combination with the window-glass, the sash provided in the side walls of the rabbet with longitudinal slits inclined toward the rabbet, and glass-holding strips having lips entering the aforesaid slits, as and for the purpose set forth.

7. In combination with the window-glass, the sash provided in the side walls of the rabbet with longitudinal slits inclined toward the rabbet, metallic strips of V shape in cross-section and having one side wider than the other and bearing on the glass, and the edge of said wide side inserted in the aforesaid slits, the edge of the other side abutting against the side wall of the rabbet, and pins inserted into the sash and passing through the wide side of the metallic strips, substantially as described and shown.

352,789. APPARATUS FOR USE IN GRINDING AND SHARPENING TOOLS. CHARLES S. THOMASON, Indore, India. Filed Mar. 30, 1885. (No model.) Patented in England Sept. 27, 1884, No. 12,898.

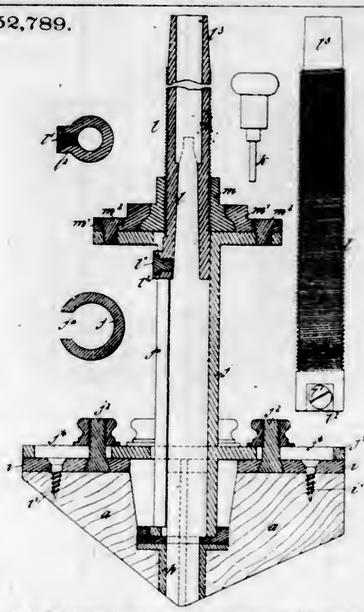
Claim.—1. A holder for grinding tools, consisting of a block having an aperture therein in which the tool to be sharpened is securely and rigidly held, said block being formed with a series of faces corresponding to the faces which are to be ground on the tool.

2. A grinding-wheel, a platform or rest arranged in connection therewith, and a guide or tail-rest on said platform, in combination with a holder in which the tool to be sharpened is held, said holder having recesses or notches formed therein, which recesses or notches are engaged by said guide or tail-rest, which co-operate therewith, substantially as set forth.

3. A tool-holding block having an aperture therein in which the tool is held, said block being divided into two parts through the tool-aperture, and screw-threaded projections j^3, carried by said block, in combination with a block-holding plate provided with slotted apertures through which said projections pass, and securing-nuts which fit on said projections, substantially as set forth.

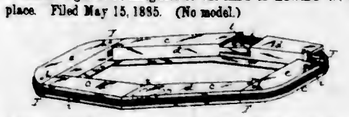
4. An apertured tool-block and a tubular projecting tool-holder, the tool to be ground being held within said holder and the aperture of said block, in combination with a tool-carrier within said tubular holder in which the shank of the tool is held, and means, substantially as described, for imparting a longitudinal movement to said carrier within said holder, substantially as set forth.

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5. A tool-holder having tubular projection *j* and a ring, *m*, having a female screw-thread carried by said projection and being capable of rotary motion, in combination with a tool-carrier, *l*, carried within said tubular projection, said carrier having an exterior screw-thread entering the female screw of the ring *m*, substantially as set forth.

352,790. BOSOM-BOARD. JOHN J. THORNTON and PETER HUBBARD, Greensborough, N. C., assignors of one-third to Edward W. Lyon, same place. Filed May 15, 1885. (No model.)



Claim.—1. The combination, with the bosom-board, of the frame conforming in shape thereto and formed of side and end bars connected at the corners by tongue-and-groove joints having a sliding movement in any direction, and suitable spring apparatus to press the frame against the board, substantially as and for the purposes set forth.

2. The combination, with the bosom-board, of the frame conforming in shape thereto and formed of side and end bars connected at the corners by tongue-and-groove joints having a sliding movement in any direction, and having a groove extending around their outer faces, and the elastic band fitting within said groove, substantially as and for the purposes set forth.

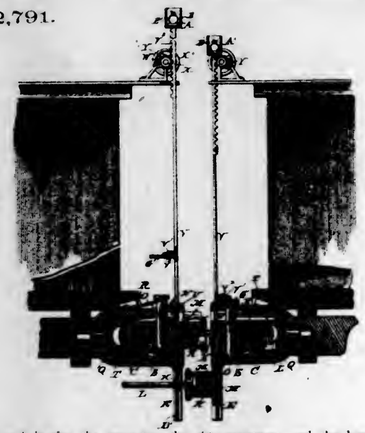
3. In combination with the bosom-board having the bulged portions *b*, the frame formed of side and end bars connected at the corners by sliding tongue-and-groove joints, and having like sliding joints in its side bars and the spring, substantially as and for the purposes set forth.

352,791. CAR-COUPLING. FRANK VAUGHAN, Elizabeth City, N. C. Filed Aug. 30, 1886. (No model.)

Claim.—1. The combination, with the draw-head having the vertical guideways at its mouth, having the aperture in its top, and the interior lower and upper recesses, arranged as described, of the spring-actuated coupling-pin, composed of the two parts pivoted together, the slide having the open frame formed with the inwardly-extending arm secured to its upper end and carrying the box or casing on its outer sides, suitable means for raising and lowering the said slide, the link having the headed stem at one of its ends, and the double spiral spring, arranged as described, as and for the purpose herein set forth.

2. The combination, with the draw-head having the vertical guideways at its mouth, having the aperture in its top, and the interior lower and upper recesses, arranged as described, of the spring-actuated coupling-pin, composed of the two parts pivoted together, the slide having the open frame formed with the inwardly-extending arm secured to its upper end and carrying the box or casing on its outer side, the rod having the inwardly-bent slotted lower end, the casing secured to the top

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of the rod, having the open top, the side apertures, and the lamp secured within it, means, substantially as described, for raising and lowering the said rod and holding it in its adjusted position, the link having the headed stem at one of its ends, and the double spiral spring, arranged as described.

3. The combination, with the draw-head having the vertical guide-ways, the aperture in its top, and the interior lower and upper recesses, arranged as described, of the spring-buffers, the spring-actuated coupling-pin, composed of the two parts pivoted together, the slide having the open frame formed with the inwardly-extending arm secured to its upper end and carrying the box or casing on its outer side, the rod having the inwardly-bent slotted lower end, the casing secured to the top of the rod, having the open top, the side apertures, and the lamp secured within it, means, substantially as described, for raising and lowering the said rod and holding it in its adjusted position, the link having the headed stem at one of its ends, and the double spiral spring, arranged as described, all constructed and arranged to operate in the manner and for the purpose herein set forth.

352,792. PROCESS OF AND MOLD FOR CASTING. JOHN R. WHITNEY, Radnor, Delaware County, Pa. Filed Jan. 2, 1886. (No model.)

Brief.—Uses thin blades of asbestus paper, mica, carbonized cloth, plates of clay, alone or in combination with sheet-iron. Asbestus paper, felt, card-board, mica, sheet-iron, &c., with a coating of asbestus, are also used.



Claim.—1. The within-described improvement in the art of casting chill-molds for car-wheels, &c., the same consisting in dividing a mold into sections by means of thin blades of asbestus paper or other equally refractory material, and pouring the molten metal into the sections, substantially as set forth.

2. The combination, with a mold for casting chill-molds for car-wheels, &c., of thin blocks or blades of asbestus or other refractory material, extending into the opening of the mold, so as to separate the parts of the casting, after the manner of a core, at the places where the blades are situated, substantially as and for the purpose set forth.

3. The combination, with a mold for casting chill-molds for car-wheels, of thin blocks or blades of asbestus or other equally refractory material extending from the sand into the mold-opening, substantially as set forth.

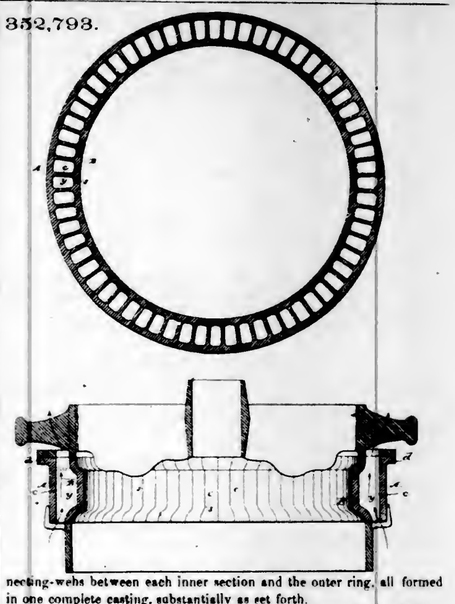
4. The combination, with a mold for casting chill-molds for car-wheels, of thin plates or blades consisting, in whole or in part, of asbestus or other equally refractory thin material embedded in a dry-sand core or frame and placed in the mold, substantially as described.

352,793. CHILL FOR CASTING CAR-WHEELS. JOHN R. WHITNEY, Radnor, Delaware County, Pa. Filed Feb. 13, 1886. (No model.)

Claim.—1. A chill consisting of an outer and an inner ring or plate, the latter being divided into segments or sections by the process of casting, and the segments connected by webs with the outer ring or plate, all the parts being of such thickness as to be of equal or nearly equal density throughout, and all forming together one complete and undivided casting, substantially as set forth.

2. A chill consisting of an outer ring, an inner ring or plate divided into sections of uniform thickness throughout, and of one or more connecting-webs between each inner section and the outer ring, all formed in one complete casting, substantially as set forth.

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3. A chill consisting of a solid continuous casting, with its chilling-surface separated into segments or sections by the process of casting, and having air-passages whereby the heat alone of the molten metal poured into the chill will cause its inner diameter to contract, while the air prevents the expansion of its outer diameter, substantially as set forth.

4. A chill consisting of an outer ring, an inner ring composed of a series of sections of uniform density, and connecting-webs, all forming one complete casting, substantially as set forth.

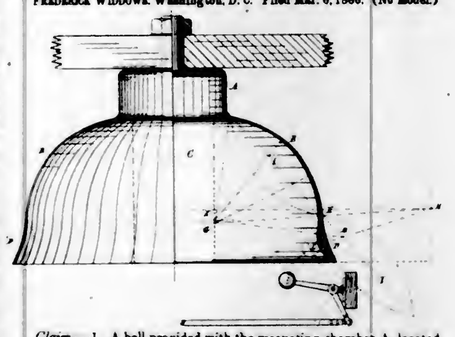
5. A chill consisting of an outer and an inner ring and connecting-webs, the outer ring having an unobstructed circular periphery, for the purpose described.

6. A chill provided with an outer ring, and an inner ring composed of sections supported by webs, with intervening slots less than one-sixteenth of an inch in width, all formed in one complete casting, for the purpose described.

7. The combination, in a molding-flask, of a cope, drag, and of a chill consisting of an inner and an outer ring connected by webs arranged to form openings *y*, arranged so as to permit upward drafts of air to pass without artificial or mechanical aid of any kind, substantially as set forth.

8. The combination of the cope, drag, and the chill having vertical openings between its inner and outer rings, arranged with the said openings beyond the outer faces of the cope and drag, substantially as described.

352,794. MUSICAL BELL FOR CHURCH AND OTHER CHIMES. FREDERICK WIDDOWS, Washington, D. C. Filed Mar. 6, 1886. (No model.)



Claim.—1. A bell provided with the resonating-chamber A, located on the apex and constituting the crown of the bell, substantially as and for the purpose set forth.

2. In combination with the body or waist B of a bell, the lip or sounding-bow D, projecting entirely inward, and the external outline of which forms a reverse curve to that of the waist, the two curves being of equal radii, substantially as described and shown.

3. In a bell having the body or waist B of an oblate hemispheroidal form, the lip D, the external outline of which forms a reverse curve to that of the body or waist B, the said curves being of equal radii, substantially as and for the purposes set forth.

4. In a bell, the resonating-chamber A, in combination with the body or waist B, having an oblate hemispheroidal form, and the lip D, the external outline of which forms a reverse curve to that of the body or waist B, the said curves being of equal radii, substantially as described and shown, and for the purposes set forth.

352,795. TOOL FOR TURRETS OF TURRET-LATHES. GEORGE S. ADAMS, Worcester, Mass. Filed Mar. 26, 1886. (No model.)

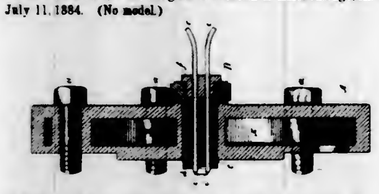


Claim.—1. In a tool for a turret of a turret-lathe, the combination, with the shank for entering the turret, provided at its outer end with a way or guide piece, of a sliding carriage connected with said way, and a slide carrying a tool supported upon said carriage and having a motion in a direction at right angles to the motion of the sliding carriage, and means for operating said slide, substantially as set forth, and for the purpose stated.

2. In a tool to be used in a turret of a turret-lathe, the combination, with the shank E, provided with a beveled way or guide-piece, F, at its outer end, of a sliding carriage, G, connected with and movable upon said guide-piece F, and a slide, H, carrying a tool, I, and supported upon and having a motion in a direction at right angles to the motion of the sliding carriage G, and means for operating said slide H, all constructed and operated substantially as set forth.

3. The combination, with the shank E and a beveled way or guide-piece, F, connected therewith and having a slot, *r*, therein for the purpose stated, and provided with a spring, of a carriage, G, connected with and movable upon the guide-piece F, and slide H, and adjustable cutter I carried thereon, said slide having a stud, *g*, and being connected with and having a motion upon the carriage G in a direction at right angles to the motion of said carriage upon the guide-piece E, substantially as set forth.

352,796. ELECTRIC IGNITER FOR GAS-ENGINES. CYRUS W. BALDWIN, Yonkers, N. Y., assignor to William E. Hale, Chicago, Ill. Filed July 11, 1884. (No model.)



Claim.—1. In an exploder for gas-engines, the combination, with the engine-cylinder, of a hollow shell extending through the cylinder, wires passing through said shell, insulated therefrom and provided with electrodes, and a surrounding body of artificial stone or cement, substantially as described.

2. The combination, in a gas-engine, of a cylinder having a perforation and a surrounding water-space, an electric exploder consisting of a shell fitting said perforation, and wires passing through said shell, insulated therefrom and provided with electrodes, substantially as described.

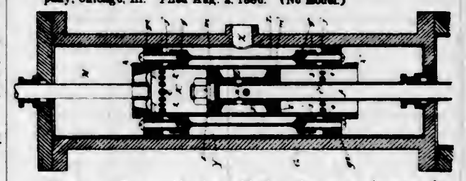
3. The combination of the hollow shell, its filling, conductors, electrodes, and cap, with a gas-engine, substantially as described, for the purpose set forth.

4. An exploder comprising a hollow shell, a plug fitted to one end thereof, and conductors passing through and insulated from said shell, in combination with the cylinder or head of a gas-engine, and with a water-chamber which surrounds said exploder, substantially as described.

5. A hollow shell having its exterior and interior provided, respectively, with male and female screw-threads, a screw-threaded plug engaging said female screw-threads to close one end of said shell, conductors passing through said plug and shell to support electrodes, and non-conducting material surrounding said conductors within said shell, substantially as described.

6. A hollow shell having its exterior and interior surfaces, respectively, provided with male and female screw-threads, a screw-threaded plug to engage said female screw-threads, and conductors provided with electrodes passing through said plug and shell and insulated therefrom, in combination with a cylinder or cylinder-head, and with water-receiving chambers within said cylinder or cylinder-head and surrounding said hollow shell, substantially as described.

352,797. VALVE-OPERATING DEVICE FOR ELEVATORS. CYRUS W. BALDWIN, Yonkers, N. Y., assignor to the Hydraulic Elevator Company, Chicago, Ill. Filed Aug. 2, 1886. (No model.)



Claim.—1. The combination, with the valve, of a valve-operating engine, consisting of an outer casing, a tube provided with ports *i i' m m'*, a piston, J, sliding in the tube, provided with channels and connected by a hollow stem with the valve, and a cylinder, L, carrying rings 1 2 3 4 g^1 g^2, and a stem, N, and connections, substantially as described, to permit the adjustment of the cylinder in respect to the tube, substantially as set forth.

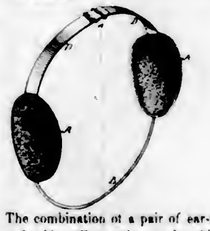
2. The combination, with the valve, perforated piston J, and stem *f*, of a tube, K, having four series of openings, a cylinder adjustable in respect to the tube between shoulders thereof, and provided with rings 1 2 3 4, and a casing within which the cylinder slides, substantially as set forth.

3. The combination, with the hollow stem connected to a valve, of a perforated piston provided with rings 5 6, a tube provided with four series of ports and with shoulders *h h'*, and a cylinder, L, sliding upon the tube and carrying rings 1 2 3 4, and rings g^2, and a casing, G, provided with a port communicating with a water-supply, and a stem, N, connected to the tube or cylinder, substantially as described.

4. The combination of the elevator-engine, the valve thereof, the casing G, communicating with the water-supply, perforated piston J, connected by a hollow stem to the valve-tube K, provided with ports and shoulders and receiving the piston J, cylinder L, carrying rings 1 2 3 4, and provided with rings closing the space between the tube and the casing, and devices connecting the cylinder or tube with the case, substantially as set forth.

5. The combination, with the piston J, tube K, cylinder L, and casing G, of the flanged packing-rings upon the piston and upon the cylinder, arranged in relation to openings or ports in the tube, substantially as described.

352,798. EAR-MUFF. EZRA R. BARNES, Philadelphia, Pa. Filed Dec. 12, 1885. (No model.)



Claim.—1. The combination of a pair of ear-muffs, a head-piece connecting the tops of said muffs together, and a chin-piece connecting together the bottoms of the muffs, one of said connections being inelastic, and both connections being adjustable as to length, whereby the muffs can be adjusted to suit the height of the wearer's ears, all substantially as specified.

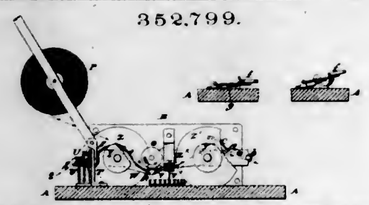
2. The combination of a pair of ear-muffs with a head-piece connecting the tops of the muffs and a chin-piece connecting the bottoms of the muffs, one of said connections being elastic and the other inelastic, but adjustable as to length, whereby vertical adjustment of the ear-muffs on the head is permitted, all substantially as specified.

3. The combination of a pair of ear-muffs, each having a rigid metallic frame, a head-piece connecting the tops of the muffs together, and a chin-piece connecting the bottoms of the muffs, one of said connections being inelastic, but both connections being adjustable as to length, whereby the muffs can be adjusted vertically on the wearer's head, all substantially as specified.

352,799. STENOGRAPHIC MACHINE. MILES M. BARTHOLOMEW, Belleville, Ill. Filed Mar. 17, 1885. (No model.)

Claim.—1. The combination, in a stenographic machine, of a spring drive-roller, suitable mechanism, substantially as described, connecting said spring with the drive-roller, and a fly regulating the speed of the feed.

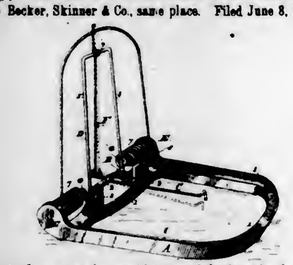
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2. The combination, with the fly M, for the purpose set forth, of the stop device *e f f' g*, substantially as and for the purpose set forth.

3. The combination of an abutment-piece, a marker for forcing the ink-ribbon against the paper strip and the abutment, and a feed device, substantially as described, to the rear of the marker, flexing the strip when detained by the pressure of the marker.

352,800. ANIMAL-TRAP. ALPHONZO BECKER, Waterford, Pa., assignor to Becker, Skinner & Co., same place. Filed June 8, 1886. (No model.)



Claim.—1. In a trap, the combination of the base having an edge-like rib and provided alongside of and below said rib with a bearing for the bail, the spring-actuated bail movable alongside of said rib and to and against the bearing, and trip mechanism, substantially as set forth.

2. In a trap, the combination, with a base having studs projected inwardly toward each other, of the arch-like bail, the ends of which are coiled on the said stud and have an outward tension, all being arranged substantially as described, whereby the said bail will be self-retaining on its supporting-studs, substantially as set forth.

3. The combination, with the base having a cross-bar and trip mechanism, of the standard formed of wire having its arms bent around the cross-bar and having the extremities or ends of said arms bent and extended laterally along the cross-bar, substantially as set forth.

4. The improved trap, substantially as herein described, consisting of the base having an edge-like rib and provided with a cross-bar and with extensions in rear of such cross-bar having lateral studs, the bail having its ends wound on said studs, the standard formed of wire and having its arms bent around the cross-bar and their extremities extended laterally, the trigger pivoted to the cross-bar, and the trip-lever pivoted to the standard, substantially as set forth.

352,801. BALANCE-VALVE. ANDREW BICKERT, Baltimore, Md. Filed Aug. 18, 1886. (No model.)



Claim.—1. In a balance-valve, the combination of a valve, a balance-plate secured to the valve and having a balance-ring recess in the top and openings a^2, the balance-ring, the springs located between the valves and the balance-plate, and pins passing through openings a^2 and interposed between the ring and springs, substantially as described.

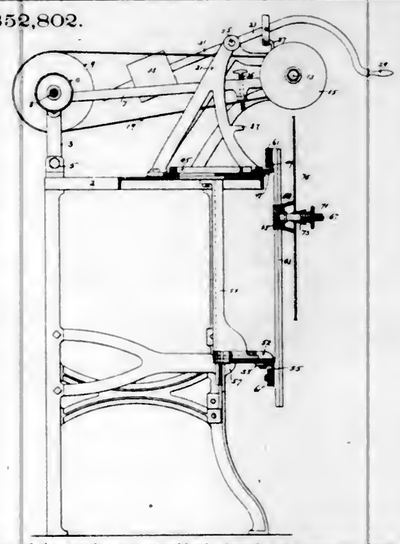
2. In a balance-valve, the combination of a valve, a balance-plate overhanging the body of the valve and provided with a balance-ring recess having openings a^2 and a^7, the balance-ring, the springs between the balance-plate and the valve, and the pins projecting through said openings a^2 and interposed between the springs and balance-ring, substantially as described.

3. In a balance-valve, the combination of a valve, a balance-plate secured to the valve and having a balance-ring recess, openings a^2 and recesses on the under side, the balance-ring, the springs located in said recesses, and the pins in said openings a^2 and interposed between the springs and balance-rings, substantially as described.

352,802. SAW-SHARPENING MACHINE. ANDI BLACKNER, Minneapolis, Minn. Filed June 19, 1886. (No model.)

Claim.—1. The combination, in a saw-sharpening machine, of a grinding-wheel mounted in vertically-movable bearings, a movable plate arranged to turn about a vertical axis that is substantially under the center of the working part of said wheel, and saw-supporting devices secured to said plate, substantially as described.

352,802.



2. The combination, in a saw-sharpening machine, of a grinding-wheel mounted in vertically-movable bearings, a movable plate arranged to turn about a vertical axis that is substantially under the center of the working part of said wheel, horizontally-movable slides supported on said plate, and a vertically-adjustable saw-supporting device supported on said slides, substantially as described.

3. The combination, with the grinding-wheel, of the plate 45, arranged to turn about an axis that is substantially central to said wheel, the horizontally-movable slide 61, supported on said plate, the plate 63, secured to said slide and having the vertical slot therein, and the vertically-movable stud or bolt 67, adapted to support a saw, all substantially as described.

4. The combination, in a saw-sharpening machine, of the pivoted standard 3, the frame 7, pivoted to said standard, a grinding-wheel mounted on said frame, and a stationary vertical way or guide with which said frame is connected, whereby said wheel is guided in a vertical direction, substatially as described.

5. The combination, with the swinging frame 7 and the grinding-wheel mounted thereon, of the shaft 25, supported in bearings on the frame of the machine, the lever 23, secured to said shaft, the yoke 27, connecting said lever with said swinging frame, the arm 31, and the counterbalance-weight 33, substantially as described.

6. The combination, in a saw-sharpening machine, with the frame 2 and standards 21, of the swinging frame 7, the grinding-wheel mounted thereon, the vertical way 41, supported by the standard 21, the block 43, secured to the shaft of the grinding-wheel and moving in said way, and the counterbalanced lever 23, pivoted to the standards 21 and connected with the frame 7 by a yoke, 27, substantially as described.

352,803. MANUFACTURE OF AXES AND SIMILAR TOOLS. JOHN W. BOWERS, Franklin, assignor to the Douglas Axe Manufacturing Company, Boston, Mass. Filed Aug. 30, 1886. (No model.)

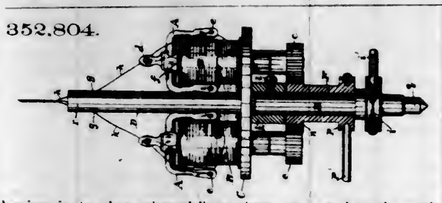


Claim.—The method of making ax-polls and similar tools by first forming a solid blank with a concave surface across the head end, and then punching the eye, thereby producing a head with a flat rectilinear surface, substantially as described.

352,804. MACHINE FOR TWISTING TWINES AND CORDS. JOSEPH W. BOWERSOX, Woodberry, Md. Filed Jan. 31, 1885. (No model.)

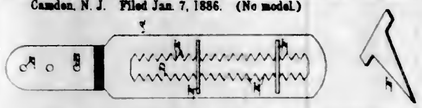
Claim.—1. The combination of a rotary plate, C, having a twister-shaft, D, centrally fixed to the top thereof, flier-spindles *b*, mounted in bearings in the plate, substantially as shown, so as to have the spools seated on the plate, and each spindle projecting through the said plate, and having a pinion, *c*, on the end, which projects below the plate, a flier, A, having downwardly-curved arms mounted on the top of each spindle and provided with a top center eye, *d*, a supporting-spindle, E, below the plate, provided with a fixed drive-pulley, *i*, and a loose-turning hub, F, provided with a whirl, *p*, and a driving gear-wheel, *n*, engaged with the several pinions aforesaid, as set forth.

352,804.



2. The combination of a rotary plate, C, having a twister-shaft, D, centrally fixed to the top thereof and provided on its lower side with a central hub, *k*, flier-spindles *b*, mounted in bearings in the plate, and each spindle having a pinion, *c*, fliers mounted on each spindle, a supporting-spindle, E, detachably secured in the said central hub and provided with a fixed drive-pulley, *i*, and a loose-turning hub, F, provided with a whirl, *p*, and a wheel, *n*, to drive the fliers, as shown and described.

352,805. FASTENING FOR WATER-CONDUCTORS. JAS. A. CARR, Camden, N. J. Filed Jan. 7, 1886. (No model.)



Claim.—1. A fastening for a water-conductor, consisting of a plate having a slot, the edges thereof being serrated, substantially as and for the purpose set forth.

2. The plate A, having openings B, and slot D, with serrated edges E, in combination with the pin F, adapted to enter said slot, all substantially as described.

3. The plate A, having a slot with serrated walls, the upper part of the plate being set out, substantially as described.

352,806. MICROPHONE-TRANSMITTER. WILLIAM R. COLE, Detroit, Mich., assignor to himself and Frank O. Smith and Geo. W. Moore, trustees, same place. Filed May 27, 1886. (No model.)



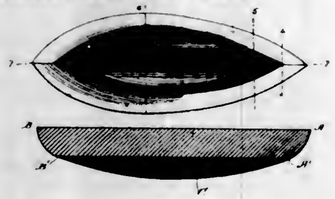
Claim.—1. In combination with a diaphragm, a horizontal curved spring-bar with an electrode at one end, such bar lying in a plane substantially parallel with the rear face of the diaphragm and with its center in contact with said diaphragm, substantially as described.

2. In combination with a diaphragm and spring-bar having an electrode at both ends thereof, one or more adjustable electrodes carried by adjusting-screws and arranged in contact with the electrodes on said bar, substantially as and for the purposes specified.

3. In combination with a diaphragm, spring-bar, and electrodes at each end of said bar, as described, guide posts or plates supporting such spring-bar, substantially as set forth.

4. A microphone-transmitter consisting of the following elements: a base, a diaphragm, a curved spring-bar centrally in contact with such diaphragm and carrying electrodes at both ends of such bar, and one or more adjustable electrodes, the parts being constructed, supported, and arranged with relation to each other, substantially as and for the purposes described.

352,807. CONSTRUCTION OF SHIPS, &c. WILLIAM H. DANIELS, Southsea, England. Filed Feb. 9, 1886. (Model.)



352,807



Claim.—A hull for vessels, having its bottom centrally provided with an external inverted-V-shaped channel or trough, which extends longitudinally through said bottom, and intersects at each end with the stem or cut-water near the water-line, the sides of said channel being curved and merging gradually into the line of curvature of each division of the bottom adjacent to said side, as shown and described.

352,808. PROCESS OF CLARIFYING COFFEE OR COCOA. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Feb. 25, 1886. (No specimens.)

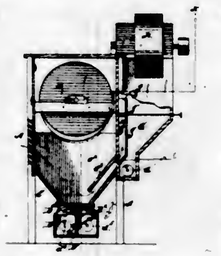
Claim.—The herein-described method of clarifying aqueous infusions or decoctions of coffee or cocoa, which consists in effecting a precipitation of the matter that causes the turbidity of said infusions or decoctions by adding to them borax or other alkali until a faintly alkaline reaction is produced, and in then removing the precipitated matter by filtration or decantation, whereby the liquor is left brilliantly clarified, substantially as set forth.

352,809. PROCESS OF CLARIFYING TEA. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Feb. 25, 1886. (No specimens.)

Claim.—1. The herein-described method of clarifying aqueous infusions or decoctions of tea, so that they will remain clarified and brilliant when cold, which consists in dissolving the precipitated matter that causes the turbid appearance of said infusions or decoctions by adding borax to them until a faintly alkaline reaction is produced, whereby the liquor is clarified brilliantly, all substantially as set forth.

2. The herein-described method of clarifying aqueous infusions or decoctions of tea, so that they will remain clarified and brilliant when cold, and when charged with carbonic acid or mixed with carbonated water for the production of an effervescent beverage, which consists in first effecting the removal of the matter which the carbonic acid would precipitate by adding to said infusions or decoctions trihydrate of alumina in about the proportion specified, stirring or agitating the solution so that the alumina and said matter may combine, and then removing this combination by filtration or decantation, and next in dissolving the matter that causes the turbid appearance of said infusions or decoctions, owing to its precipitation on their becoming cold, by adding borax to them until a faintly alkaline reaction is produced, whereby the liquor is clarified brilliantly, all substantially as set forth.

352,810. MIDDLINGS-PURIFIER. JAS. P. DEUBEL, Ypsilanti, Mich. Filed Mar. 18, 1886. (No model.)



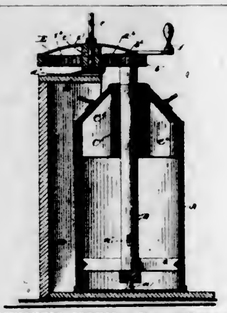
Claim.—A middlings-purifier comprising a graded bolt or screen, a series of valved hoppers located beneath said bolt or screen, a conveyer-trough beneath said hoppers, an air-trunk having a conveyer in its lower part, and a valved flue connecting each hopper with said air-trunk, the walls of said flue being extended up within the air-trunk, substantially as and for the purpose described.

352,811. CHURN. ORANGE B. DIKE and ERIN N. ROOD, Guthrie Centre, Iowa. Filed Aug. 21, 1886. (No model.)

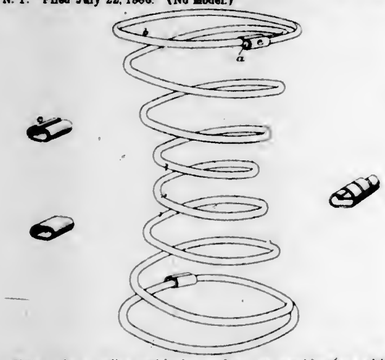
Claim.—1. The herein-described churn comprising the can or receptacle, the lid or cover having a central sleeve or extension, the dasher-rod, the pinion secured on the upper end thereof having a stud or projection, the frame, the metallic plate secured thereto having the right-angular apertured arm, and the wheel secured on a shaft or rod of said metallic plate, and having cogs, all arranged to operate substantially as shown and described.

2. The combination, with the can or receptacle, the dasher-rod carrying a pinion and having a stud or projection, the frame, and the operating-wheel, of the metallic plate secured to said frame, having a right-angular apertured arm, and a shaft or rod whereon the hub of said operating-wheel is secured, substantially as shown and described.

352,811.

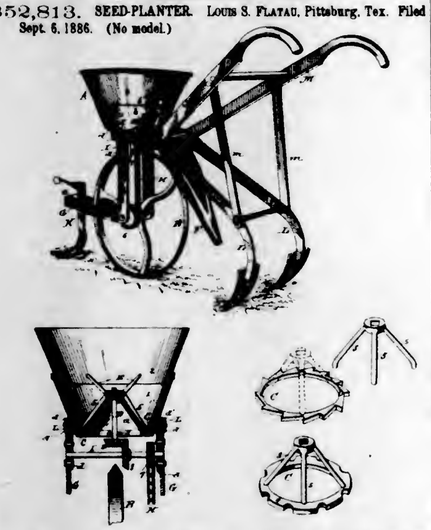


352,812. CUSHIONING-SPRING. RUDOLF ECKERMEYER, Yonkers, N. Y. Filed July 22, 1886. (No model.)



Claim.—In a coiled cushioning-spring, the combination, with the terminal and the end coil, of a metallic binding-clasp crimped on a central longitudinal line to separately clamp said portions of the spring and confine and maintain them in one horizontal plane, and thereby afford a smooth uniform circular bearing-surface for the spring at its terminal, substantially as described.

352,813. SEED-PLANTER. LOUIS S. FLATAU, Pittsburg, Tex. Filed Sept. 6, 1886. (No model.)



Claim.—1. The seed-discharger consisting of an annular rim provided with teeth, the arms or spokes standing up from it, and a hub or central portion, to which said arms are rigidly attached, as shown and described.

2. The combination, with a vertical rotating shaft and a seed-hopper having a rear seed-discharge opening, of the seed-discharger C, having a toothed rim arranged horizontally in the base of the hopper, substantially as shown and described.

3. The combination, with the vertical rotating shaft and the seed-hopper having a seed-discharge opening and a central cone, of the conical seed-discharger consisting of radiating arms and a toothed rim, which latter is arranged in the bottom of said hopper in the space surrounding the base of the cone, as shown and described.

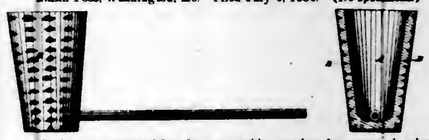
4. The combination, with the hopper, the cone, and vertical shaft having its upper end constructed with a polygonal and screw-threaded part, of the seed-discharger C, having a polygonal opening, and the agitator provided with a screw-threaded aperture, whereby it is adapted to be screwed on the shaft, as specified, for the purpose set forth.

5. The cast-metal hopper-base 1, having the horizontal parallel flanges *d'* and the pendent perforated lugs *d*, arranged and adapted for attachment of the standards and frame, respectively, as shown and described.

6. The seed-discharger C, formed of arms 5 and a rim, 4, which is made separate and detachable from said arms, as shown and described.

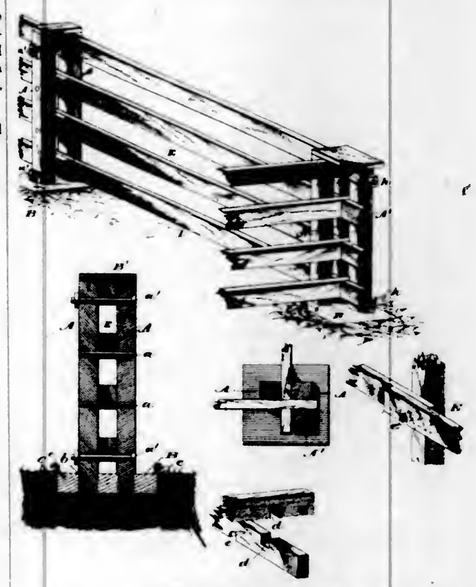
7. The combination, with the hopper, furrow-opener, and wheel B, of the right-angular frame arranged with its arms respectively vertical and horizontal, said furrow-opener and wheel being arranged, respectively, at the front and angle of said frame, as shown and described.

352,814. COMPOSITION FOR COATING CORN-COB PIPES. ZACHARIAH FOSS, Washington, Mo. Filed July 6, 1886. (No specimens.)



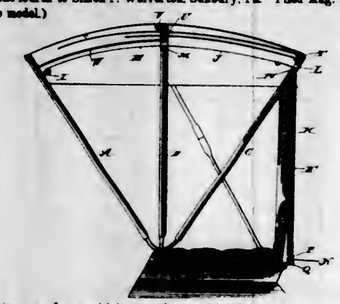
Claim.—A composition for an outside coating for corn-cob pipes, consisting of the following elements, viz: cement, chalk, sulphate of potassium, and pumice-stone, in about the proportions herein stated, and for the purposes set forth.

352,815. FENCE. WILLIAM GEPFORD, West Salem, Ohio. Filed Aug. 12, 1886. (No model.)



Claim.—The combination, in a fence, of the vertical posts A A, which are connected to each other intermediately by pins *a a*, and near their upper and lower ends by bolts *a' a'*, said pins and bolts forming rail-supports, one of the posts A having its lower end cut away, as shown, a base-plate, B, having recesses *b b*, within which the ends of the posts are placed, staples *c c*, attached to the upper edge of the base-plate, and securing-pins C, engaging with the staples, a cap-piece, B', attached to the upper ends of the posts, and rails E E, having notched ends, which engage with the pins and bolts, substantially and shown.

352,816. VEHICLE-TOP. GEORGE GEPFORD, Philadelphia, assignor of one-fourth to Simon P. Walverton, Sunbury, Pa. Filed Aug. 12, 1886. (No model.)



Claim.—1. In a vehicle-top, the combination of the curtains upon one side of the top, coiled springs upon the other side, and cords connecting said curtains with the springs.

2. In a vehicle-top, the combination of the quarter-pieces, the inner edges of which are provided with a groove or channel, the rear curtain sliding therein, a series of springs secured to the front bow, and a cord secured to each of said springs and to the top of said curtain.

3. In a vehicle-top, the combination of a bar secured to the under side of the rear and middle bows, a curtain, a series of coiled springs secured to the front bow, and a cord connecting each of said springs with the top of said curtain.

4. In a vehicle-top, the combination of a bar secured to the rear bow, a curtain between said bar and said bow, a bar secured to each end of said curtain, said bars in said curtain being longer than the curtain is wide, a series of springs secured to the front bow, and a cord connecting each of said springs with the top of said curtain.

5. In a vehicle-top, the combination of a spring-actuated curtain, a bar in its lower edge having slots through it, the shifting rail, and a series of half-moon catches.

6. In a vehicle-top, the combination of the bows, one of which is slotted, a curtain in each end of said slotted bow, a spring upon the rear and slotted bows at each side of the top, and a cord connecting each spring on one side of the top with the curtain upon the opposite side of the vehicle.

7. In a vehicle-top, the combination of the bows, one of which is slotted, a curtain in each end of said slotted bow, a partition in the top or middle of said slotted bow, two troughs secured to the rear bow, a spring upon the rear and slotted bow at each side of the buggy, and a cord connecting the springs on one side of the top with the curtain upon the opposite side.

8. In a vehicle-top, the combination of the quarter-pieces, the front edge of each of which is formed with a curl, and spring-actuated side curtains, the rear edge of each of which is formed with a curl or hook.

9. In a vehicle-top, the combination of a slotted bow, a curtain in each end of said bow, and guide-strips secured to the curtains at the sides of said bow.

10. In a vehicle-top, the combination of spring-actuated side curtains and a piece of cloth in the front portion of the top.

352,817. TYPE-CASE AND GALLEY SUPPORT. WILLIAM H. GOLDING, Chelsea, Mass. Filed Nov. 2, 1885. (No model.)



Claim.—1. A type-case bracket having its upper edge shaped to form upper, lower, and intermediate inclined case-supporting surfaces, the latter being inclined rearwardly and downwardly, and the others rearwardly and upwardly, substantially as specified.

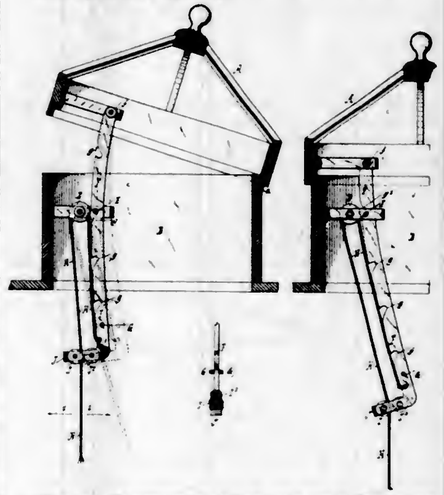
2. A type-case-supporting bracket having an upper, lower, and intermediate supporting-surface, the latter extending into the standard of the former, substantially as and for the purpose set forth.

3. A type-case-supporting bracket having a lower supporting-surface shorter than the case, and a downwardly-inclined supporting-surface, and anti-friction rollers arranged at the apex of the two surfaces, substantially as specified.

4. The combination, with two type-case brackets, the upper edges of each of which are shaped to form upper and lower upwardly-inclined type-case-supporting surfaces, an intermediate downwardly and rearwardly inclined case-supporting surface, of a galley-rest connecting the same, substantially as specified.

5. The type-case-supporting bracket consisting of the base A', standards A^3 A^3, and supporting-surfaces A^4 A^5 A^6, and roller B, substantially as specified.

352,818. LIFTING DEVICE. VALENTIN HARBORT, Jersey City, N. J. Filed Sept. 10, 1886. (No model.)



Claim.—1. The combination, with an operating-rod, F, of an operating-cord, H, secured at one end to the said rod, the pulley D on the frame or dome, arm or eye J, connected to the operating-rod and engaging the cord H, a fixed detent, E, and recesses or notches in the operating-rod, substantially as set forth.

2. The combination, with an operating-rod, F, of a pulley, D, fixed detent E, recesses or notches in the operating-rod, and an operating-cord, one part of said cord being fixedly connected to the operating-rod, and another part of said cord being movably connected to the operating-rod, substantially as set forth.

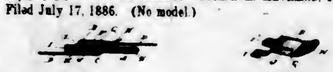
3. The combination, with a frame or dome, B, and a skylight, A, of the operating-rod F, pivoted to the skylight, and provided with the laterally-projecting stop G, and a series of edge recesses, *g*, the arm or eye J on said rod, the pulley D on the frame or dome, and the operating cord or chain H, secured to the operating-rod, passing over the pulley and engaging the said arm or eye, substantially as described.

352,819. WATCH-BALANCE. GEORGE E. HART, Waterbury, Conn., assignor to the Waterbury Watch Company, same place. Filed July 22, 1886. (No model.)



Claim.—As a new article of manufacture, a watch-balance consisting of a rim, central arm, and radial peripheral projections, which are formed of or from one piece, and said peripheral projections have plane lower faces and half-round upper faces, substantially as and for the purpose specified.

352,820. CORSET-CLASP. JOSEPH H. HAVILAND, Jackson, Mich. Filed July 17, 1886. (No model.)

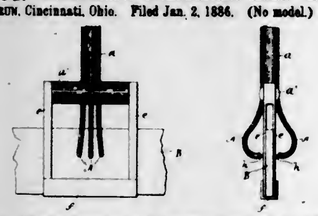


Claim.—1. The herein-described corset-clasp, consisting of a plate having a curved lip, H, at one end and three hook-shaped prongs at the other end, the middle prong, J, being doubled back upon the plate so as

to leave an opening or recess between the two outer prongs, and having also a shoulder or offset at the point where the plate is slotted to form the prongs, substantially as and for the purpose shown and set forth.

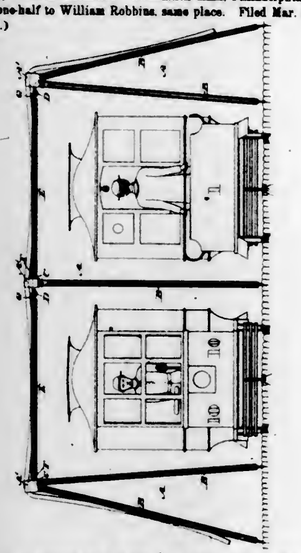
2. The combination, with the slotted steel blade A, of the clasp-plates B, provided with the curved lip H, and prongs I, J, and I', constructed as described, and having an offset or shoulder between said prongs and the curved lip, substantially as and for the purpose shown and specified.

352,821. HYDROCARBON INCANDESCENT LIGHT. ALEXANDER HEILBRUN, Cincinnati, Ohio. Filed Jan. 2, 1886. (No model.)



Claim.—The combination, with the supply-pipe *a* and the horizontal blast-tube *a'*, of the hangers *e*, depending from said blast-tube, the support *f*, secured to the lower ends of said hangers in the same vertical plane as the tube *a'*, the piece B, of incandescent material, having parallel sides supported by said holder, with its sides vertical and in the same vertical plane as the tube *a'*, and the small tubes A, having upwardly-inclined mouth ends terminating in two parallel rows upon opposite sides of the piece B, substantially as set forth.

352,822. HOSE-BRIDGE. FREDERICK HEIN, Philadelphia, Pa., assignor of one-half to William Robbins, same place. Filed Mar. 15, 1886. (No model.)



Claim.—1. A hose-bridge formed of a head and legs, with a hook or eye attached to said head, and a stretcher having hooks or eyes at its ends, substantially as described.

2. A hose-bridge formed of a head and legs, with a hook or eye attached to said head, and a stretcher which is jointed at one end to said head and provided at the other end with a hook or eye, substantially as described.

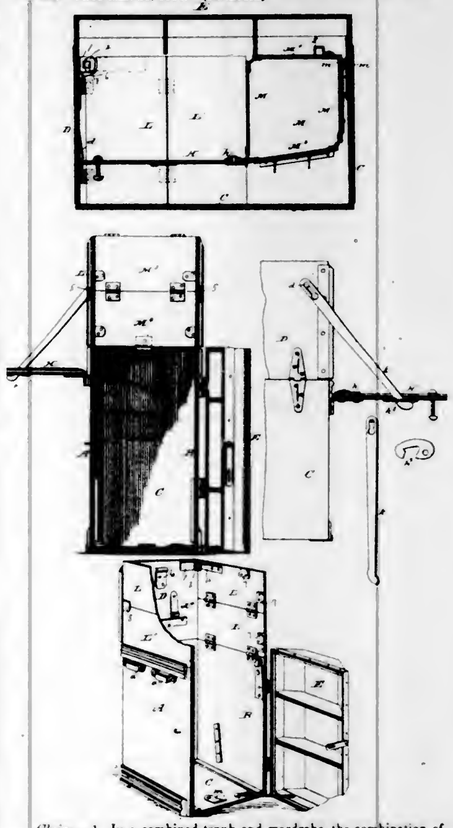
3. A hose-bridge formed of side supports, and a central support with stretchers connecting the same, substantially as and for the purpose set forth.

352,823. BOW FOR LADIES' WEAR. MICHAEL L. HILLER, New York, N. Y. Filed Jan. 9, 1885. (No model.)



Claim.—The within-described article of manufacture, consisting of a bow for ladies' wear, having a pliable shield, A, and an intermediate transverse re-enforcing strip formed of annealed wire woven in a tape, substantially as described.

352,824. WARDROBE-TRUNK. ZALMON D. HINKLEY, Grand Rapids, Mich. Filed Mar. 25, 1886. (No model.)



Claim.—1. In a combined trunk and wardrobe, the combination of the trunk-body having one of its ends hinged at its lower edge and adapted to be turned outward to serve as the back of the upper portion of the wardrobe, and the leaves whereby to form the sides of the upper portion of the wardrobe, and adjustable into and out of the trunk, and devices, substantially as described, for adjustably connecting said leaves to the trunk, substantially as set forth.

2. The combination, in a combined trunk and wardrobe, and with the trunk-body, of the hat-box, formed of hinged sections and adapted to be folded and incased within the trunk-body and be adjusted by means substantially as described, for use in connection with the extension constituting a part of the wardrobe, substantially as set forth.

3. In a combined trunk and wardrobe, the combination, with the trunk provided with hook *m'*, of the hat-box, formed in sections and adapted to be adjusted for use in connection with the extension constituting a part of the wardrobe, and a hook, *m*, secured to said box and arranged to engage hook *m'* when the box is incased within the trunk, substantially as set forth.

4. The combination, with the trunk-body, the leaves adapted to form the sides of the upper part of the wardrobe, and the sectional hat-box, of the partition-piece H, whereby to hold the side pieces in place in the trunk and to form a brace for the whole structure, and a button pivoted to the partition and arranged to engage the box, substantially as set forth.

5. The combination of the main body or framing, having sockets *a'*, the piece H, having hooks arranged to enter the sockets *a'*, a hook, h^3, connected with the piece H, and a rod connected at one end with the body or framing, and having its other end detachably connected with hook h^3, substantially as set forth.

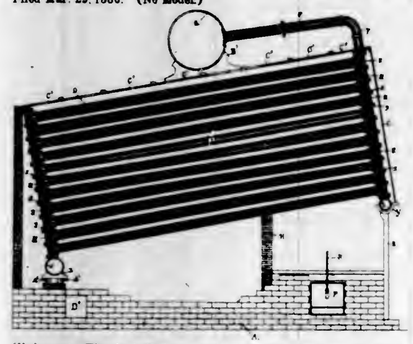
6. The combination of the trunk-body having sections or portions adapted to form the top and portions of the sides and front of the wardrobe, and the trunk-lid, and latch devices, substantially as described, whereby said lid will secure the wardrobe-extension, substantially as set forth.

7. A trunk having a box at one end, and provided between said box and its opposite end with side pieces or leaves, and having suitable fastenings for connecting the latter to the trunk-sides, whereby the trunk may be converted into a wardrobe, and a horizontal partition, H, substantially as set forth.

8. The combination of the parts M' M^2 M^3 M^4, having the hooks, recesses, and the swinging latch to form the top and upper front of a wardrobe and to be locked by the closing of the door.

9. In a combined trunk and wardrobe, the combination, with the side pieces of the trunk and the hinged end thereof, of the leaves adapted to serve as the upper side pieces of the wardrobe, and adjustably connected with the trunk, and latch devices, whereby to secure said end piece to the sides of the trunk or to the leaves, which form the upper side pieces of the wardrobe, in the different positions of said end piece and leaves, substantially as set forth.

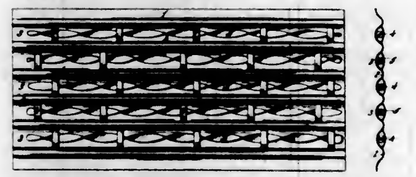
352,825. STEAM-BOILER. CHARLES N. HITCHCOCK, Stockton, Cal. Filed Mar. 29, 1886. (No model.)



Claim.—1. The bed Z, in combination with the rolls A', for the purpose of supporting the manifold J and allowing the motion required by the expansion and contraction of the water-tubes D, constructed and operated substantially as and for the purposes set forth.

2. The tubes D, arranged in vertical rows connected only at the bottom by the manifolds I and J, and at the top by means of the tubes F, connecting with the steam-drum G, supported by the saddle B', for the purpose of securing a separate action in each of the rows, thereby allowing a whole row to be thrown out of use by closing the top and bottom connection, constructed and operated substantially as and for the purposes set forth.

352,826. METALLIC LATHING AND FOUNDATION THEREFOR. JAMES W. KENNETT, Newport, R. I., assignor of part to John H. Storer, Boston, Mass., and John M. Glover, St. Louis, Mo. Filed Mar. 29, 1886. (No model.)



Claim.—1. A lathing-foundation having a series of parallel grooves or depressions provided at intervals with lath-supporting loops or eyes that are continuous from end to end and extend across said grooves, substantially as described.

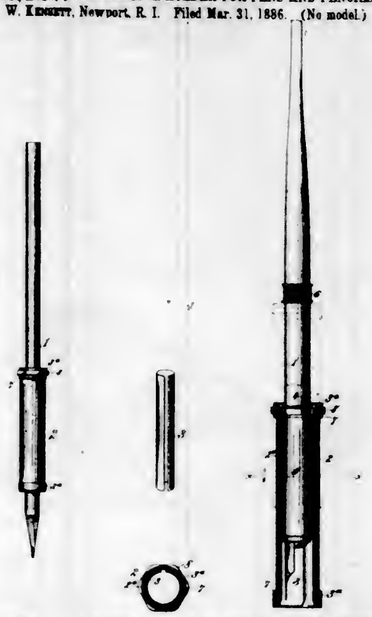
2. A corrugated metallic lathing-foundation having integral loops or eyes for supporting the laths, substantially as described.

3. A metallic lathing-foundation formed with a series of parallel grooves or depressions, each provided at intervals with lath-supporting loops, the loops in one groove alternating with those in adjacent grooves, substantially as described.

4. A metallic lathing-foundation having a series of parallel corrugations and intervening grooves or depressions provided with integral lath-supporting loops that are continuous from end to end and extend across said grooves or depressions, substantially as described.

5. The combination, with the metallic lathing-foundation having a series of parallel corrugations and intervening grooves provided with integral loops, of metallic laths lying in said grooves and supported by said loops, substantially as described.

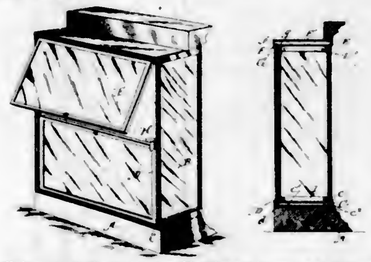
352,827. PROTECTIVE HOLDER FOR PENS AND PENCILS. JAS. W. KENNETT, Newport, R. I. Filed Mar. 31, 1886. (No model.)



Claim.—1. A protective holder for pens and pencils, consisting of a longitudinally-divided cylinder or tube having a flange at each end, and an external non-conducting covering surrounding said cylinder or tube between its flanged ends, substantially as described.

2. In combination with a pen-holder having a barrel of slightly-increased diameter, a split metallic cylinder embracing said barrel, flanged rings mounted upon the ends of said cylinder, and a coating or non-conducting covering between and engaging with the flanges of the rings, the holder being provided with a stop or stops limiting the longitudinal movement of the shield, substantially as described.

352,828. SHOW-CASE. JOHN E. LEE, Chicago, Ill. Filed June 29, 1885. (No model.)



Claim.—1. A show-case one side whereof is composed of the upper and lower doors pivotally connected thereto to swing outwardly, said case being provided at its top and bottom with spaces or ways within which the doors may slide, substantially as described.

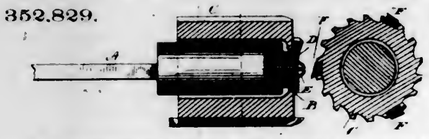
2. The combination, with the show-case, of the sectional display-frames comprising vertical end bars formed separate from the case and detachably connected thereto, and provided with the wires for holding the ribbon-rolls, substantially as described.

352,829. REAMING-TOOL. EDWIN L. MANSFIELD, Boston, Mass. Filed Sept. 15, 1886. (No model.)

Claim.—1. A reamer consisting of a fluted head adjustably connected to its shank.

2. A reamer consisting in the combination of a hollow cylindrical cutting-head and a shank formed with a cylindrical portion at one end of less diameter than that of the inner cylindrical surface of said head.

352,829.

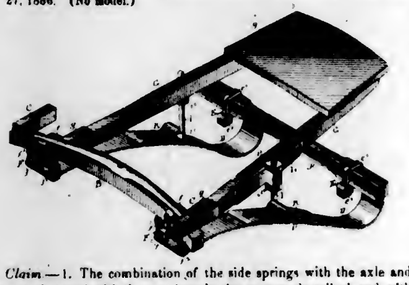


3. The combination of a reamer-head provided with longitudinal dovetailed grooves and cutters removably secured in said grooves.

4. The combination of a fluted reamer-head, adjustably secured upon its shank and provided with longitudinal dovetailed grooves, and keys adapted to be removably secured in said grooves.

5. A reamer consisting in the combination of a hollow cylindrical fluted head provided with a rectangular opening in one end, a shank provided with a cylindrical portion at one end which terminates in a rectangular portion, a washer, and a screw for securing the head to the shank, the diameter of the inner cylindrical surface of the head being greater than that of the cylindrical portion of the shank.

352,830. ROAD-CART. ANTHONY McAVOY, Racine, Wis. Filed Sept. 27, 1886. (No model.)



Claim.—1. The combination of the side springs with the axle and the cross-piece and with the seat-bars in the manner described, and with the bolt-connections between the seat-bar and side springs, all as and for the purposes set forth.

2. The combination of the seat and seat-bars with the side springs and the clips thereon, and with the connecting-bolts I, substantially as described.

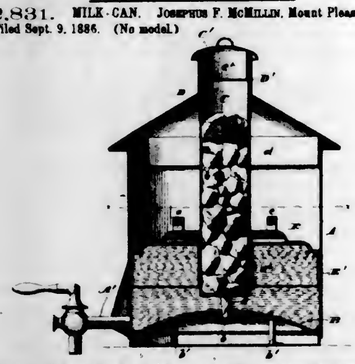
3. The combination of the seat-bars with the side spring, the clips thereon, and with bolts and nuts whereby the height of the seat can be regulated, substantially as set forth.

4. The combination of the seat-bars with side springs, and with bolts secured to the seat-bars at their upper ends and at their lower right-angled ends to the clips on the side spring, substantially as described.

5. The combination of the axle A and clip E, secured thereto, and the bolt *e*, loosely mounted in said clip, with the spring D, bent at its ends over said bolt, and thence curved under the axle and horizontally forward to the cross-bar.

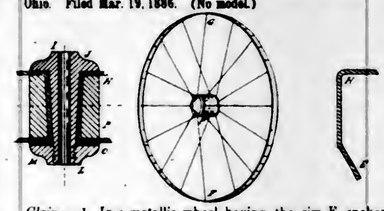
6. The combination of the springs D with the plate K, bolted thereto at its ends, and the bolt I, right angled at its lower end and passing through said plate, the nut *i'*, the seat-bars G, and the plate L, substantially as described.

352,831. MILK-CAN. JOSEPHUS F. McMILLIN, Mount Pleasant, Pa. Filed Sept. 9, 1886. (No model.)



Claim.—In combination with a vessel, A, a concave bottom, B, attached to the lower edge thereof and provided centrally with a block, *b*, an ice-containing vessel, C, provided at its base with a downwardly-projecting pin, *c*, a top, D, provided near its lower edge with a flange, *d*, an upwardly-extending wall, D', a cover, C', and float E adapted to move vertically on the ice-chamber, the parts being organized substantially as shown, and for the purpose set forth.

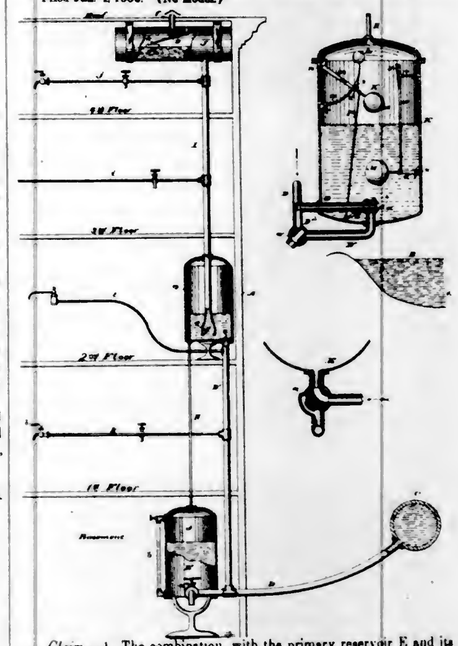
352,832. VEHICLE-WHEEL. ALEXANDER L. H. MESSNER, Toledo, Ohio. Filed Mar. 19, 1886. (No model.)



Claim.—1. In a metallic wheel having the rim F, spokes G, and shaft I, and its flanges J and M, the sleeve P, when used as a lock or fastening for the said spokes, when a continuation or a portion of the said spokes are bent to pass longitudinally between the shaft I and the sleeve P, substantially as shown, and for the purpose described.

2. In a metallic wheel having the rim F, sleeve P, shaft I, and flanges J and M, the spokes G, when clamped longitudinally between the shaft I and sleeve P, and vertically between the ends of the said sleeve and the flanges J and M, substantially as shown, and for the purpose described.

352,833. LIQUID-ELEVATING APPARATUS. SAMUEL D. MOTT, New York, N. Y., assignor of one-fourth to Eugene Kelly, Jr., same place. Filed Jan. 4, 1886. (No model.)



Claim.—1. The combination, with the primary reservoir E and its two-way cock *a*, of the float K, connected with an arm of the cock-plug, and latch devices, substantially as described, for detaining said float against rising and falling until the liquid in the reservoir has reached the predetermined levels, substantially as set forth.

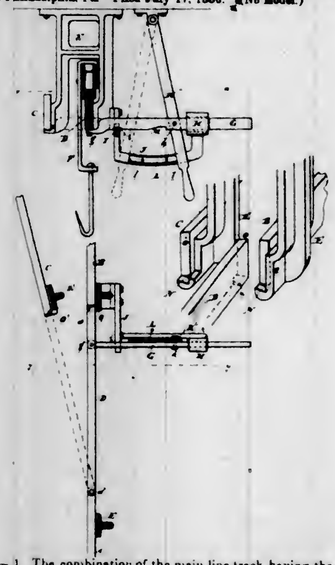
2. The combination, with the primary reservoir and its two-way cock for controlling the ingress and egress of water thereto and therefrom, of the mechanism for automatically controlling said cock, which comprises the float K, provided with a toe, *z*, and attached to a hinged arm provided with a stud, *t*, the float L, attached to a hinged arm provided with a catch, *s*, to engage stud *t*, the float M, arranged in the lower part of the reservoir and attached to a hinged arm, and the connecting-rod *w*, coupled to the reservoir-wall by a hinged link at its upper end, provided with a spring-latch, *y*, and coupled at its lower end to the float-arm or float, all arranged to operate substantially as set forth

3. The combination, with the primary reservoir connected with the main and provided with a cock for controlling the ingress of water to and its egress from said reservoir, the higher reservoir G, provided with a liquid-supply pipe controlled by a check-valve, the air-pipe H, which connects the primary reservoir with the reservoir G, the higher reservoir G', connected with reservoir G, below it, by a supply-pipe, I, controlled by a check-valve, the said supply-pipe, the air-pipe H', which connects the primary reservoir with reservoir G', the pipe I', which is controlled by a check-valve, and which extends from near the bottom of reservoir G' to the delivery-point above, the air-valve *g'* in reservoir G', and a valve and float device arranged within the primary reservoir for automatically closing air-pipe H' when the water rises to a predetermined level in the primary reservoir, substantially as set forth.

4. The combination, with the primary reservoir and the air-pipes H H', arranged to open into it at different levels, of the cocks *b'* and *b''*, at the terminals of said pipes, respectively, the floats B' and B'', attached by their arms to the plugs of said cocks, respectively, whereby the vertical movements of said floats rotate their respective cock-plugs, and means, substantially as described, whereby the float B' is caused by its movement to actuate the plug of cock *b''*, substantially as set forth.

5. The combination, with the retaining-reservoir, of the air-pipe H', the cock *b''* at the end of said air-pipe provided with a tubular plug, *c'*, and an inner plug, *h'*, the float B'', the arm of which is attached to said inner plug, the arm *i'''*, attached to the tubular plug *c'*, the float B', and the rod coupling float B'', with arm *i''*, substantially as and for the purposes set forth.

352,834. SWITCH FOR OVERHEAD RAILWAYS. JONAH W. MOYER, Philadelphia, Pa. Filed July 17, 1886. (No model.)



Claim.—1. The combination of the main-line track having the pivoted switch-section with two branch tracks, a supporting and actuating bar connected to said switch-section, and having a cam-face to raise and lower said bar during its movements, guides for said bar, and a hand-lever hinged to said bar to shift it, substantially as and for the purpose specified.

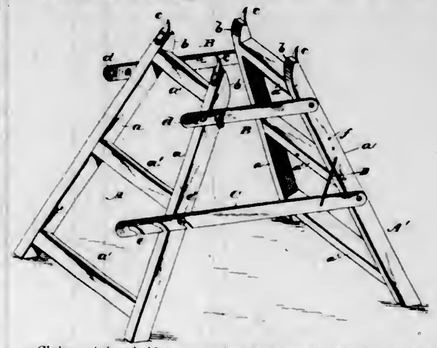
2. The combination of the main-line track having the pivoted switch-section with two branch tracks, a supporting and actuating bar connected to said switch-section, and having a cam-face to raise and lower said bar during its movements, guides for said bar, a hand-lever hinged to said bar to shift it, and a lock to lock said lever in its extreme positions, substantially as and for the purpose specified.

3. The combination of the main-line track having the pivoted switch-section with two branch tracks provided on their ends with beveled grooves to lock the switch-section securely against lateral movement in line with said branch tracks, substantially as and for the purpose specified.

4. The combination of the main-line track having the pivoted switch-section with two branch tracks, and a supporting and actuating bar connected to said switch-section, guides for said bar, a hand-lever hinged to said bar to shift it, and a lock to lock said lever in its extreme positions, consisting of a plate over either end of which the lever is snapped by its own elasticity, substantially as and for the purpose specified.

5. The combination of the main-line track having the pivoted switch-section with the shifting-lever and its bar, two branch tracks, and supports on the ends of the branch tracks to lock the switch-section against lateral displacement independently of said shifting lever or bar, substantially as and for the purpose specified.

352,835. BAG-HOLDER. FRANK M. NICHOLSON, Hunt's, N. Y. Filed June 24, 1886. (No model.)



Claim.—A bag-holder comprising the converging side frames, A and A', provided at their upper ends with pins *c c*, the frame A also having the pin *c'* and the frame A' the perforations *f*, the bars B B, pivotally attached to one of the side frames and adjustably attached to the other, a bar, C, provided with recesses *e*, adapted to engage with the projecting pin *c'*, and the pivoted hook D, attached to the bar C and adapted to engage with the perforations *f*, substantially as described, and for the purpose set forth.

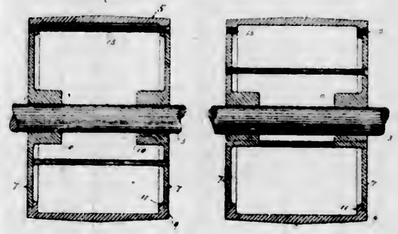
352,836. RUBBER BOOT. SUSANNE OLDBERG, Washington, D. C. Filed Dec. 19, 1885. (No model.)



Claim.—1. The herein-described improved article of manufacture, consisting of a rubber shoe and a thin water-proof leggin having an opening and a covering-flap therefor at the instep or ankle part fastened substantially as described.

2. The boot herein shown and described, consisting of the rubber shoe and thin water-proof leggin, the latter having an opening joining the shoe over the instep and ankle provided with a covering-flap, and the joining-seam for the shoe and leggin provided with a water-proof binder-strip, as set forth.

352,837. PULLEY. WILLIAM F. PARISH, Minneapolis, Minn. Filed May 5, 1886. (No model.)



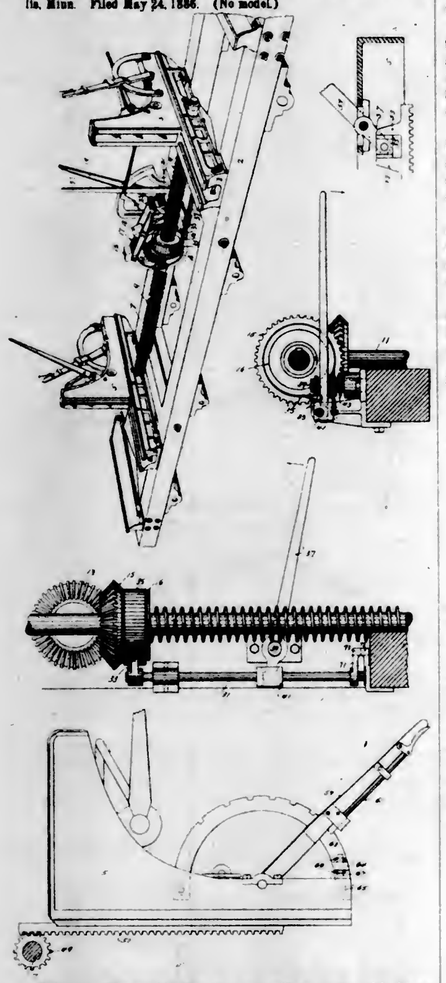
Claim.—1. The metallic pulley herein described, consisting of the plates or disks 7, having the smooth outer surfaces, the ring 5, supported wholly on said disks with its edges flush with their outer surfaces, and

securing devices holding said plates and rim firmly together, all combined and arranged substantially as described, and for the purpose set forth.

2. The combination, in a pulley, of the plates 7, having the inwardly-projecting bosses 10, and having smooth outer surfaces, the ring 5, supported wholly on said plates, and having the projecting flanges 9, with shoulders formed therein, and having its edges flush with the outer surfaces of the plates, and securing means holding said parts together, substantially as described.

3. The combination, in a pulley, of the rim 5, having the flanges 9, with the annular shoulders formed therein, the plates or disks 7, having the inwardly-projecting bosses 10 and smooth outer surfaces flush with the edges of the rim, and the bolts 13, passing through bolt-holes formed partly in the plates and partly in the flanges 9, and securing said plates to said rim, all substantially as described.

352,838. SAW-MILL SET-WORKS. William F. Parish, Minneapolis, Minn. Filed May 24, 1886. (No model.)



Claim.—1. The combination, in a saw-mill set-works, with the set-shaft and reversing-springs, of a counter-shaft, gearing between said counter-shaft and set-shaft, a ratchet mechanism on said counter-shaft, and means for disconnecting said counter-shaft and set-shaft, whereby when the shafts are disconnected the set-shaft may be reversed by the springs without reversing the ratchet-wheel.

2. The combination, in a saw-mill set-works, of the set-shaft, the reversing-springs thereon, the counter-shaft, the ratchet mechanism on said counter-shaft, gearing between said counter-shaft and set-shaft, and means for disconnecting said gearing, whereby when said gearing is disconnected the set-shaft may be reversed by the springs without reversing the counter-shaft and ratchet-wheel.

3. The combination, in a saw-mill set-works, with the set-shaft and reacting-springs, of the counter-shaft, gearing between said counter-shaft and set-shaft, means for disconnecting said gearing, and a brake mechanism adapted to regulate the reverse movement of said set-shaft, for the purpose set forth.

4. In a saw-mill set-works, the combination of the set-shaft, mechanism for moving the set-shaft in one direction, mechanism for connecting and disconnecting the set-shaft and ratchet mechanism, reacting-springs for reversing the movement of the set-shaft, and a brake mechanism engaging the set-shaft and regulating its reverse movement, for the purpose set forth.

5. In a saw-mill set-works and in combination with the set-shaft, its reacting-spring, and the counter-shaft, the sliding gear mounted on and turning with the set-shaft, and a friction-brake applied to said gear, for the purpose set forth.

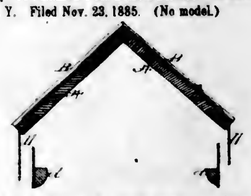
6. In a saw-mill set-works, the combination, with the set-shaft and the reacting-spring thereon, of the counter-shaft having the ratchet mechanism and the gear 13, the sliding gear 15 on the set-shaft, the drum 16, secured to said gear, the sliding shaft 31, the lever 37, and the strap 35, secured to said shaft and passing around said drum, substantially as described.

7. The combination, in a saw-mill set-works, with the set-shaft having the sliding gear 15, drum 16, and the spring 9, of the sliding rock-shaft 31, the lever 37, mounted on a stud, 39, the spring 48 on said stud, and the strap 35, secured to said rock-shaft and passing around said drum 16, all substantially as described.

8. The combination, with the knee 5 and the adjusting-lever, of the curved arc 63, having slots in its ends, studs passing through said slots and securing said arc to the knee, the lug 64 on the arc, the stud 67, secured to the knee and projecting through said lug, and the nuts 69 on said stud on opposite sides of said lug, all substantially as described.

9. The combination, with the sliding knee, the head-block, and set-shaft, of the sliding rack-bar meshing with a pinion on the set-shaft and having the projecting lugs 53, the block 55, fitting between said lugs, and the lever 59, pivoted to the knee, and the sliding block 55.

352,839. COVERING FOR BRICK-HACKS. Hiland R. Rose, Poughkeepsie, N. Y. Filed Nov. 23, 1885. (No model.)

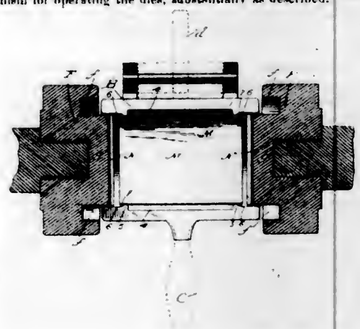


Claim.—1. A covering for brick-hacks, consisting of a series of saddles constructed of boards fastened together at right angles, and provided with strips B, and weighted flexible sides, the one overlapping the other, as and for the purpose described.

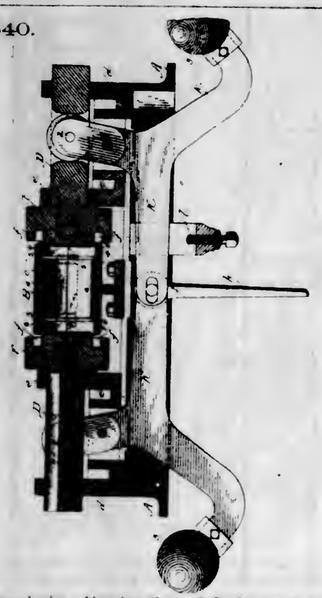
2. The saddle provided with strips extending above it in such a manner as to form a crotch or angular receptacle, in combination with weighted and flexible sides, as and for the purpose described.

352,840. CAN-HEADING MACHINE. John Solter, Baltimore, Md., assignor of one-half to George L. Krebs, same place. Filed Mar. 13, 1886. (No model.)

Claim.—1. The case having the upper hinged part, and fitted to receive and hold the can-body, in combination with reciprocating dies having grooves *f* and central parts, *g*, adapted to enter the ends, and mechanism for operating the dies, substantially as described.

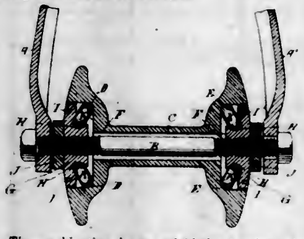


352,840.



2. A case having a hinged section, and fitted to receive and hold the can-body, and having the bearing-ribs 5 and chambered part 4 between the same, combined with dies for putting on the heads, and mechanism for operating the dies, substantially as described.

352,841. ROLLER-BEARING. John K. Starley, Meteor Works, Coventry, County of Warwick, England, assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Dec. 7, 1885. (No model.) Patented in England Jan. 24, 1885, No. 1,040.



Claim.—The combination, in an anti-friction bearing, of curved or rounded bearing-surfaces on or carried by the shaft or axle, and similar curved or rounded bearing-surfaces in or carried by the hub or box, the radii of the curves of said bearing-surfaces being inclined to the axis of the shaft, a series of roller-disks having their axes inclined to the axis of the shaft and rounded or formed upon their peripheries to bear or revolve upon the said curved or rounded bearing-surfaces at either side of the bearing, a means, substantially as described, for changing and securing one or more of said curved or rounded bearing-surfaces laterally in position, so as to change the inclination of the disks and adjust the bearing, essentially as set forth.

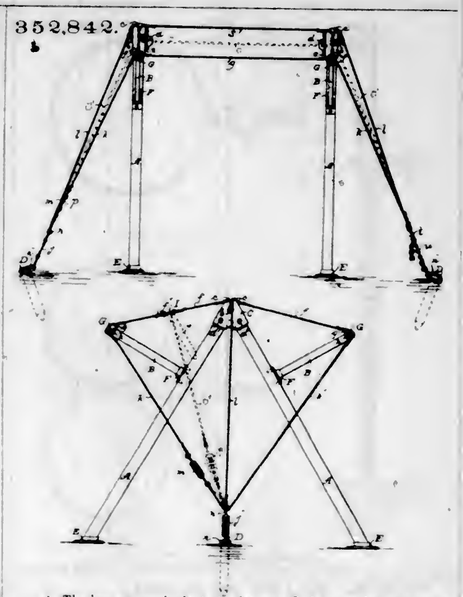
352,842. HAMMOCK-SUPPORT. George E. Stevens, Claremont, N. H. Filed Oct. 12, 1885. (No model.)

Claim.—1. The combination, with the legs or standards A A, of the triangular caps C C, provided each with a hook, *b*, on one side, a pair of hooks, *c c*, on the upper end, a hook, *d*, on the other side, and a hook, *e*, below said hook *d*, substantially as and for the purposes set forth.

2. The combination of the legs or standards A A, the triangular caps C C, each having a pair of hooks, *c c*, on its upper end, an arm, B, attached to each leg or standard, wires connecting said arms, and wires connected to the arms and to the hooks *c c* on the caps, substantially as described.

3. The combination of the legs or standards A A, caps C C, having hooks *c c*, braces *r r*, with plates I on their ends, wires connecting said braces, and wires connecting them with the caps and with stakes in the ground, substantially as described.

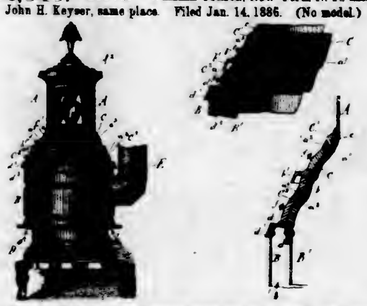
352,842.



4. The legs or standards A A, the caps C, for securing the upper ends of said legs or standards together, wires extending from said caps down to and connecting with a hand around a stake set in the ground, and screw-buckles for tightening said wires, all combined substantially as described.

5. The legs or standards A A, secured together at their upper ends by caps C, adapted to support a hammock, the arms B B, attached to said legs or standards, and provided each with a cap, G, on its outer end, and wires connecting the several caps, and wires extending therefrom down to the stakes, with screw-buckles for regulating their tension, substantially as described.

352,843. STOVE. William Turton, New York, N. Y., assignor to John H. Keyser, same place. Filed Jan. 14, 1886. (No model.)



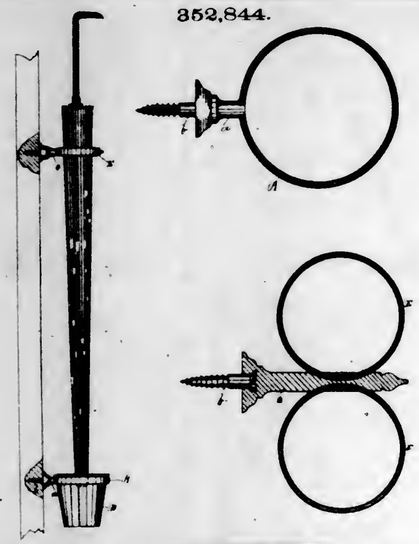
Claim.—The combination, with the upper section, A, and lower section B B', of the casting C, constituting an intermediate section, and formed with the shoulder *b*, projecting rest *d*, having one or more flanges, as d' d^2, and two tiers of air-holes, a' a^2, and the two perforated ring-registers C' C^2, substantially as and for the purpose described.

352,844. UMBRELLA-HOLDER. Charles G. Ulings, Boston, Mass., assignor to Charles W. Rogers, same place. Filed Mar. 12, 1886. (No model.)

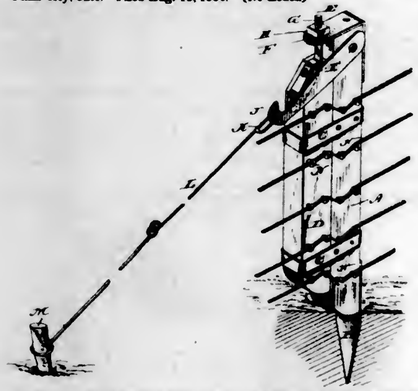
Claim.—1. An umbrella-holder consisting of a ring-bracket composed of a wire ring, a stem of cast metal, and a screw, the stem being cast around the head of the screw and around the side of the ring, so that the three parts are rigidly united, and the bracket may be screwed to a support without the aid of other tools, substantially as described.

2. An umbrella-holder consisting of two ring-brackets each composed of a wire ring, a stem of cast metal, and a screw, the stem being cast around the head of the screw and around the side of the ring, so that the three parts are rigidly united, and the bracket may be screwed to a support without the aid of other tools, in combination with a drip-cup, substantially as described.

352,844.



352,845. TENSION DEVICE FOR WIRE FENCES. JACOB WILCOX, Plain City, Ohio. Filed Aug. 13, 1886. (No model.)



Claim.—1. In a tension device for wire fences, the combination of a rigid post, having a series of pairs of studs upon its side, with a post sliding upon the rigid post and having a registering series of pairs of studs upon its side, and having means for moving it longitudinally upon the post and for adjusting it there, as and for the purpose shown and set forth.

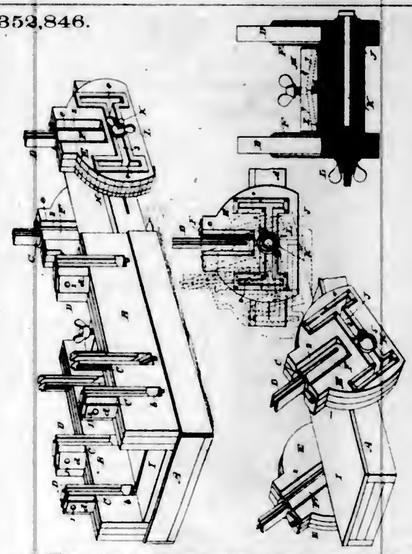
2. In a tension device for wire fences, the combination of a rigid post having a flat pointed bar at its lower end, and having rearwardly-projecting loops or stirrups and a rearwardly-projecting perforated bracket at its upper end, a hook-shaped bar pivoted to the upper end of the post, a brace-rod secured to the hook-shaped bar and to a stake in the ground, a post sliding in the loops or stirrups upon the rigid post, and having a screw-threaded rod at its upper end projecting through the perforation of the bracket, and provided with a nut, and series of pairs of transverse registering-studs upon the sides of the rigid post and of the sliding post, as and for the purpose shown and set forth.

352,846. MITER-BOX. CLARENCE A. WILLIAMS, Webster City, Iowa. Filed May 10, 1886. (No model.)

Claim.—1. In combination with a miter-box, a stop consisting of a block or support, arms held thereby and having their ends movable outward against the sides of the box, and a set-screw for adjusting said arms, substantially as set forth.

2. The combination of the bottom, the side piece, E, having a slot formed with a cross-wing, 3, and end wings, 4, and a bolt and nut for securing said side piece, the bolt being passed through the slot of the side piece, substantially as set forth.

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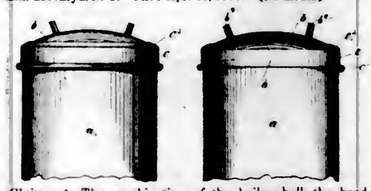


3. The combination, in a miter-box, of the bottom, the side piece having its edge provided with graduations, said side piece being lapped against and adjustable rotarily in a plane parallel with the side edge of said bottom, and securing means for fastening said side piece in any desired adjustment, substantially as set forth.

4. The combination, in a miter-box, of the base or bottom, the side piece lapped against the side of and movable longitudinally along or rotarily on the bottom, and the screw and nut, substantially as set forth.

5. The combination of the bottom, a side piece adjustable longitudinally along the same, and also rotarily in a plane in line with its direction of longitudinal movement, and a clamp for securing said side piece in any desired adjustment, substantially as set forth.

352,847. KITCHEN RANGE OR PRESSURE BOILER. JOSEPH H. ASH, Brooklyn, N. Y. Filed Apr. 13, 1885. (No model.)



Claim.—1. The combination of the boiler-shell, the head formed with a rim snugly fitting within the shell, and the ring formed of a portion tightly encircling the shell, and an inwardly-projecting portion tightly embracing the head, the three parts being secured together by sweat-joints.

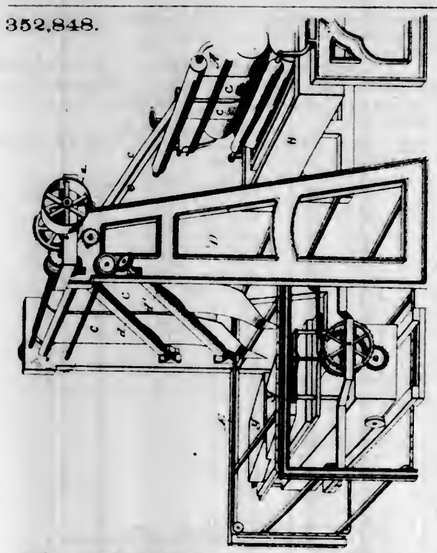
2. The herein shown and described boiler shell, in combination with means, as set forth, for heading the same, consisting of the head having inlet and egress ports, and a depending rim snugly fitted within the open end of the shell and secured in place by a sweat-joint, and the ring snugly fitting the exterior of the shell, and having an inwardly-projecting flange extending over the junction between the rim and shell, and resting upon the top of the head, and secured to the shell and head by a sweat-joint, substantially as set forth.

352,848. PAPER-CUTTING MACHINE. JAS. BALL, Holyoke, Mass., assignor to the Holyoke Envelope Company, same place. Filed Mar. 23, 1885. (No model.)

Claim.—1. The obliquely-arranged cutters *d* and *d'*, arranged in relation to each other as described, whereby the web is cut into rhomboidal sheets, which are presented to the lay-boy or carrier simultaneously, all substantially as set forth.

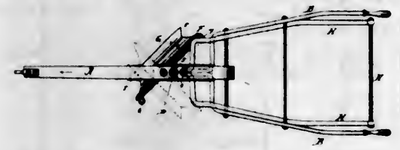
2. A plurality of cutters obliquely arranged and arranged in relation to each other and the webs, substantially as set forth, whereby rhomboidal sheets are cut by each from the web on which it operates, and the several sheets are delivered simultaneously to the lay-boy or carrier.

352,848.



3. In combination with the frame and driving mechanism of a paper-cutting machine, a plurality of cutting-rolls extending obliquely across said frame, the oblique-cutters on one roll being in a line transversely of the machine with those of the next roll, substantially as shown.

352,849. PLOW. JOHN A. BALL, Grass Valley, Cal. Filed Sept. 15, 1884. (No model.)



Claim.—1. The plow-beam A and its attached bearing C, combined with the shoe E, having a squared washer, *a*, fitted therein and held in alignment with the landside or share, the bolt D, connecting the beam, bearing, shoe, and washer, and the reversible mold-board secured to the bolt between the washer and bearing by eyes engaging a sleeve on said bolt, and means to lock the mold-board in its positions, substantially as described.

2. The plow-beam having a bearing, C, the shoe E, the bolt D, and its sleeve *b*, combined with the reversible mold-board having eyes at its center which encircle the sleeve and eyes 6 and 7, as described, and the hand-lever pivoted to the said bearing and provided with the prongs *h*, substantially as set forth.

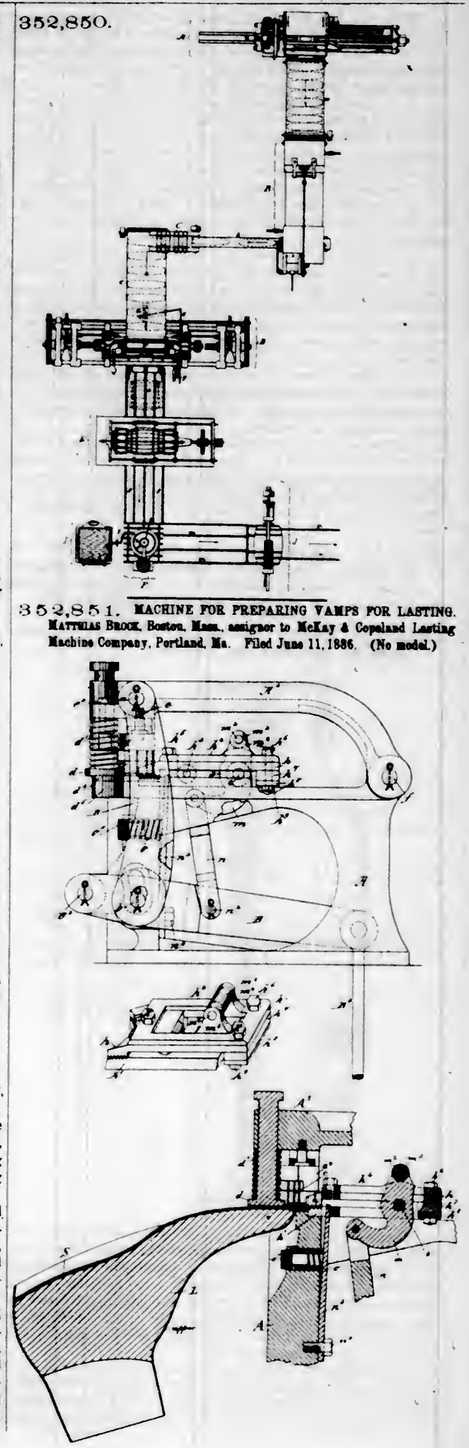
352,850. PROCESS OF MAKING BARRELS. MARIA E. BEASLEY, Philadelphia, Pa. Filed Dec. 21, 1885. (No model.)

Claim.—1. The mode herein described of making barrels or like vessels, said mode consisting in first cutting the staves to the proper form, then steaming said staves, then, while they are hot, bending or shaping the same, and then, while bent and still hot, setting them up and securing them around the heads, all substantially as specified.

2. The mode herein described of making barrels or like vessels, said mode consisting in first cutting the staves to the proper form, then steaming said staves, then, while they are hot, bending or shaping the same, then, while bent and still hot, setting them up and securing them around the heads, and finally completing the hooping of the barrel, all substantially as set forth.

3. The mode herein described of making barrels or like vessels, said mode consisting in first cutting the staves to the proper form, then steaming the staves, then, while they are hot, bending or shaping the same, then, while bent and still hot, setting them up and securing them around the heads, then completing the hooping of the barrel, and finally introducing glue or other cement into said barrel, and supporting the barrel on end while painting the heads, whereby the simultaneous painting and sealing of the heads is effected, all substantially as specified.

352,850.



352,851. MACHINE FOR PREPARING VAMPS FOR LASTING. MATTHIAS BROCK, Boston, Mass., assignor to McKay & Copeland Lasting Machine Company, Portland, Me. Filed June 11, 1886. (No model.)

Claim.—1. In a machine for preparing vamps for lasting, a pair of jaws to grasp the edge of the upper about the toe of the last, combined with a yielding presser-foot, *d*, to act upon the bottom of the last or the inner sole thereon to crowd the last into the upper, and with means, substantially as described, to actuate the said presser-foot.

2. In a machine for preparing vamps for lasting, a pair of jaws to grasp the edge of the upper about the toe of the last, and slitting mechanism to cut or slit the edge of the upper while held by the said jaws, combined with a yielding presser-foot, *d*, to act upon the bottom of the last or on the inner sole thereon to crowd the last into the upper, and with means, substantially as described, to actuate the said presser-foot.

3. The combination, with the jaws A A', and the plate A^4, and a spring, as a^3, of a jaw-operating lever to close the said jaws, substantially as described.

4. In a machine for preparing vamps for lasting, a yielding presser-foot to act upon the bottom of the last or inner sole thereon to force the last into the upper, and the pair of jaws to grasp the edges of the upper about the toe of the last and hold it while the last is being forced into the upper, combined with a spring to permit the jaws to move longitudinally under excessive strain applied to the upper, substantially as described.

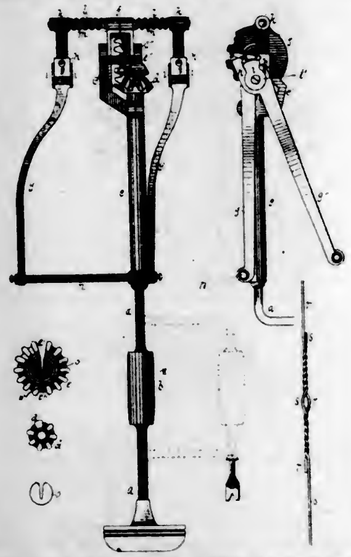
5. The lever A^2 and its attached yielding presser or foot *d* and holders c' c^2, with the segmental blocks c^3 c^4, adjustable in the said holders and slotted for the reception of the knives or blades to slit or cut the upper, substantially as described.

6. The lever A^2 and the holders c' c^2, pivoted thereon, as described, combined with the blocks c^3 c^4, slotted as described, and with the blades or knives therein made adjustable in the direction of their width or longitudinally in the said slots or toward and from the toe of the last, to adapt the blades to lasts of different size or curvature, substantially as described.

352,852. INSULATING MATERIAL FOR ELECTRIC WIRES. David Brooks, Jr., Philadelphia, Pa. Filed May 1, 1886. (No specimens.)

Claim.—An insulating material for electric wires, composed of rosin and rosin-oil, in about equal proportions, substantially as described.

352,853. MACHINE FOR CONNECTING WIRES. Alonzo L. Brush, Decatur, Ill. Filed Sept. 4, 1886. (No model.)

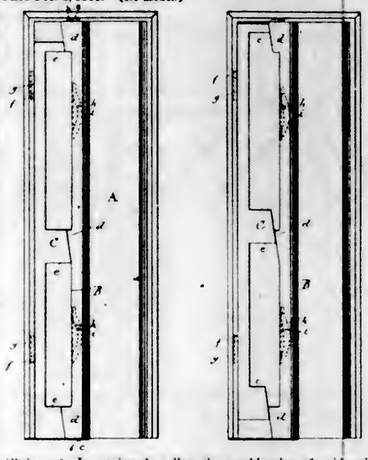


Claim.—1. A machine for connecting wires, consisting in the combination of a cleft gear-wheel having an enlarged space in its gearing directly opposite the cleft, a drive-pinion one-half the diameter of the cleft-wheel in mesh therewith, and provided with an enlarged tooth in position to mesh with the cleft and with the enlarged space of the twister-wheel, a shaft for the pinion, means for rotating the shaft, and a pair of clamping-jaws on each side of the cleft-wheel on a line with the cleft thereof, as and for the purpose set forth.

2. A machine for connecting wires, consisting in the combination of a cleft gear-wheel, a pair of clamping-jaws on each side of the twister-wheel on a line with the cleft thereof, having a limited degree of motion toward the wheel, springs to hold the jaws normally at their greatest distance from the wheel, a drive-pinion in mesh with the twister-wheel, a shaft for the pinion, and means for rotating the shaft, as and for the purpose set forth.

3. A machine for connecting wires, consisting in the combination of brace *a b*, pinion *d*, cleft-wheel *e*, bearings *c c'*, clamping-jaws *h*, having arms *g g'*, handles *n*, rod *l*, spring *m*, and bearings *k*, as and for the purpose set forth.

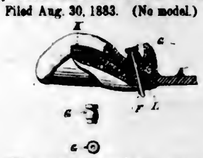
352,854. PRINTER'S GALLEY. Fred P. Buttman, Holbrook, Mass. Filed Feb. 2, 1885. (No model.)



Claim.—1. In a printer's galley, the combination of a side-stick and opposing galley-frame provided with rounded or semi-cylindrical edges, as herein described, and for the purposes specified.

2. A printer's galley the inner edge of whose side is rounded, as and for the purpose described.

352,855. ARTIFICIAL DENTURE. Henry W. F. Buttner, New York, N. Y. Filed Aug. 30, 1883. (No model.)



Claim.—1. The mode of securing a gage or guide for setting an artificial tooth, consisting in inserting a guide-pin in a hole in the natural root, in taking an impression of the mouth while said pin is in place, and in making a cast from said impression with the pin in place, substantially as set forth.

2. The process of preparing artificial denture, which consists in suitably preparing the end of a root for the reception of an inclosing-cap and in inserting in a suitable longitudinal cavity previously prepared in said root a supporting-pin, in removing the impression from the mouth and in replacing the tooth-root by an artificial root-model of suitable size, in investing said root-model in a suitable material and in applying to the same a root-cap of suitable size, in attaching to said root-cap an artificial tooth-crown by a suitable attaching material, in removing the cap and crown together, and in replacing the attaching material by a suitable solder, and, finally, in placing the prepared denture upon the root, substantially as described.

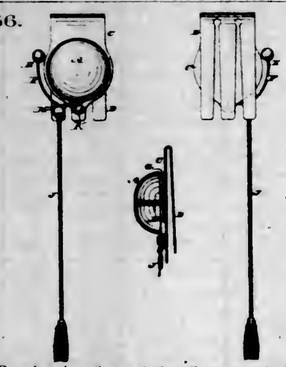
352,856. ALARM. Joseph J. Cantelli, Philadelphia, Pa., assignor of one-half to Charles W. Davis, same place. Filed June 4, 1886. (No model.)

Claim.—1. An alarm formed of a gong attached to a back plate, the latter having means for securing the same to a garment, and a lever secured to the back plate, carrying a bell-hammer, all substantially as described.

2. An alarm formed of a gong secured to a back plate, the latter having a downward-projecting tongue, a pivoted lever having at its end a bell-hammer, and a spring secured at one end to the back plate and pivotally connected with the pivoted lever, all of said parts being combined and arranged substantially as described.

3. An alarm formed of the gong A, secured by post B to back plate, C, the said back plate having the tongue D, the pivoted lever F, with eye H and bell hammer E, the spring G, secured at one end to the

352,856.



back plate, C, and at the other end pivotally connected with the lever F, and the cord J, all of said parts being combined and arranged substantially as described.

352,857. SEWAGE AND NIGHT-SOIL INCINERATING APPARATUS. Philipp C. Close, Augusta, assignor of one-third to Joseph S. Bean and Frederick T. Lockhart, Richmond County, Ga. Filed Feb. 23, 1886. (No model.)



Claim.—1. The combination of a hopper, a vertical retort located thereunder, a casing inclosing the whole retort, a fire-chamber located on one side of said hopper and retort and having valved passages in its sides to lead the heated products of combustion first down against one side of the retort and upward on the opposite side, substantially as and for the purpose described.

2. The combination of a hopper, a vertical retort wholly inclosed in a casing and having a door in its lower end, and a fire-chamber located on the side of the upper end of said retort, substantially as and for the purpose described.

3. The combination of a hopper, a vertical retort having a door in its lower end, a prop under said retort, and a fire-chamber located on the side of the upper end of said retort, and a casing inclosing the whole, substantially as and for the purpose described.

352,858. EXPRESS-CAR. John T. Condon, Kingsley, Iowa. Filed Aug. 30, 1886. (No model.)



Claim.—1. The combination, with the body of the car, of the iron partition having the metal door and the small window having the metal inside cover, the sliding iron or wood side doors of the car, the levers, arranged as described, and the rods connecting the said levers and the side doors, substantially as set forth.

2. The combination, with the car having the ports in its bottom, sides, and ends, of the iron partition having the metal door, and the small window having the metal inside cover, the sliding iron or wood side doors of the car, the levers, arranged as described, and the rods connecting the said levers with the side doors, as and for the purpose set forth.

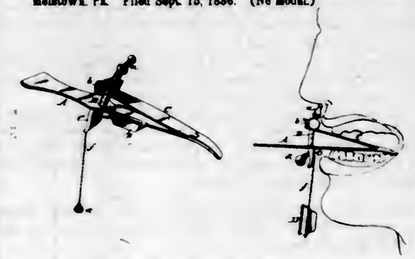
3. The combination, with the car covered outside or inside with sheet-iron and having the ports in its bottom, sides, and ends, of the iron partition having the metal door, and the small window having the metal inside cover, the sliding iron or wood side doors of the car, the levers, arranged as described, and the rods connecting the said levers with the side doors, as and for the purpose set forth..

4. The combination, with the car covered outside or inside with sheet-iron and having the ports in its bottom, sides, and ends, of the inside metal end doors, the iron partition having the metal door, and the small window having the metal inside cover, the sliding iron or wood side doors of the car, the levers, arranged as described, and the rods connecting the said levers with the side doors, as and for the purpose set forth.

5. The combination, with the car covered outside or inside with sheet-iron and having the ports in its bottom, sides, and ends, of the metal cage secured beneath the car, and having the sliding shutters connected by the cross-bar and the iron net-work inclosing the cage, the lamps, the lever projecting through the floor of the car, and the connecting-rod, substantially as set forth.

6. The combination, with the car covered outside or inside with sheet-iron, and having the ports in its bottom, sides, and ends and the windows near its top closed by the iron shutters, of the inside metal end doors, the iron partition having the metal door, and the small window having the metal inside cover, the sliding iron or wood side doors of the car, the levers, arranged as described, the rods connecting the said levers with the side doors, the lamps and reflectors over the end doors, the metal cage secured beneath the car, and having the sliding shutters connected by the cross-bar and the iron net-work inclosing the cage, the lamps, the lever projecting through the floor of the car, and the connecting-rod, all constructed and arranged as and for the purpose herein set forth.

352,859. DENTAL ARTICULATOR-GAGE. Josiah B. Crist, Hummelstown, Pa. Filed Sept. 15, 1886. (No model.)

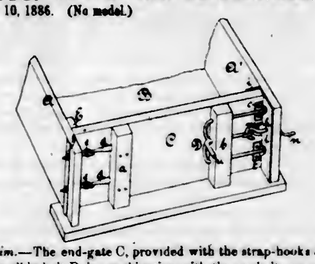


Claim.—1. The combination, with the plate A, having an upwardly-projecting arc-bar, B, near its middle, of the radial bar C, having a pivotal connection near the rear end of plate A, and sliding over the arc-bar, and a set-screw for fixing its position, substantially as and for the purpose described.

2. The combination, with the plate A, having an upwardly-projecting arc-bar, B, and the radially-moving bar C, with set-screw, of the detachable block D, substantially as and for the purpose described.

3. The combination, with plate A, having upwardly-projecting arc-bar B and downwardly-projecting perforated lip *c*, of the radial bar C, with set-screw, and the detachable block D, with chain *f* and ball *d*, connecting said block to the said lip, as and for the purpose described.

352,860. WAGON END-GATE. John R. Davis, Bristol, Wis. Filed May 10, 1886. (No model.)

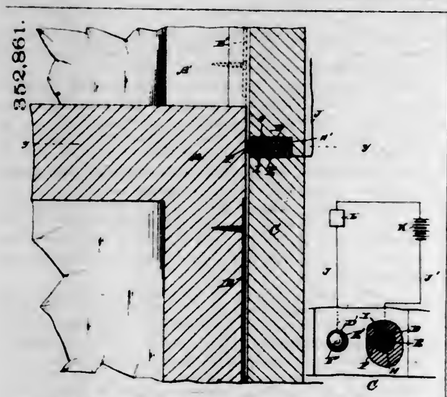


Claim.—The end-gate C, provided with the strap-hooks *d d*, cleat *b*, and triple slide-bolt D, in combination with the eyebolts *e e*, angle-iron *i*, hook *m*, and wing-nut *n*, substantially as described, and for the uses and purposes mentioned.

352,861. BURGLAR-ALARM. Charles H. Dowden, Newark, N. J. Filed Mar. 11, 1886. (No model.)

Claim.—1. In a burglar-alarm, a metallic strip attached to the outer edge of a window-sash, in combination with two metallic buttons, each sliding in a shell and pressed against the outer edge of the sash by a spring, and wires connecting the said buttons with an alarm and a battery, substantially as shown and described.

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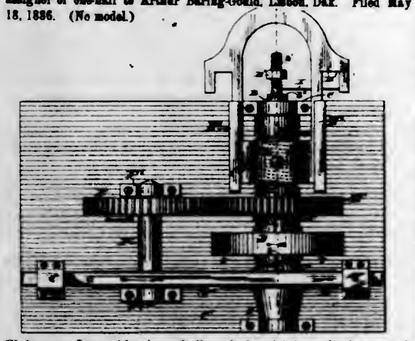


2. In a burglar-alarm, a metallic strip attached to the outer edge of a window-sash, in combination with two metallic buttons placed in the jamb of the window-frame and pressed against the outer edge of the window-sash by springs, so that when the sash is raised or lowered a contact is established between the metallic strip and the metallic buttons, and when the sash is closed the said metallic strip and buttons are out of contact, substantially as shown and described.

3. In a burglar-alarm, the window-sash A, provided with the metallic strip B, in combination with the shells E and E', placed in the jamb C, the sliding metallic buttons F and F', pressed against the edge of the window-sash by the springs I, held in place by pins H, having heads H', and the wires J and J', connecting the shells E and E' with an alarm and a battery, substantially as herein shown and described.

4. In a burglar-alarm, the shells E and E', the sliding buttons F and F', the pins H, having heads H', the springs I, and a metallic plate, B, attached to the outer edge of the window-sash, in combination with the wires J and J', connecting with the alarm and with the battery, substantially as herein shown and described.

352,862. REVERSING MECHANISM. JAMES E. DUNCAN, Dunbar, assignor of one-half to Arthur Baring-Gould, Lisbon, Dak. Filed May 18, 1886. (No model.)



Claim.—1. In combination, a hollow shaft, a driving-wheel mounted thereon, continuously-rotating oppositely-moving spur-gear wheels upon said shaft at opposite sides of said driving-wheel, and means, substantially as described, whereby the movement of said spur-wheels is reversed, as and for the purpose set forth.

2. A hollow shaft having a key-slot, a driving-wheel mounted thereon, and continuously-rotating oppositely-moving spur-gear wheels upon said shaft at opposite sides of said driving-wheel, in combination with a shaft placed within said hollow shaft and provided with a key adapted to continuously engage said driving-wheel and to engage said spur-gear wheels alternately, substantially as described.

3. A hollow shaft having a key-slot and a shaft therein provided with a key, in combination with a driving-wheel mounted upon said hollow shaft, spur-gear wheels upon said shaft at opposite sides of said driving-wheel, and means, substantially as described, whereby said key is maintained in continuous engagement with said driving-wheel and is brought into alternate engagement with said spur-wheels, as and for the purpose set forth.

4. In combination, a hollow shaft having a key-slot, a shaft therein provided with a key, a driving-wheel mounted upon said hollow shaft in constant engagement with said driving-wheel, continuously-rotating spur-gear wheels upon said shaft at opposite sides of said driving-wheel, and means, substantially as described, to move said key alternately into engagement with said spur-wheels and to rotate said wheels in opposite directions, as and for the purpose set forth.

5. In a device for converting motion, a hollow driving-shaft having a slot, a key-shaft having a key placed and operating within said hollow shaft, a spur-gear wheel loosely mounted upon said hollow shaft and provided with a screw-threaded boss or hub, in combination with a traveling table, substantially as described.

6. A hollow shaft having a slot, a shaft therein having a key, and continuously-rotating oppositely-moving spur-gear wheels loosely mounted upon said shaft and provided with key-seats, in combination with spur-gear wheels rigidly secured to a rotatable shaft, and a rack-bar, as G, substantially as described.

7. In a device for reversing motion, a hollow shaft having a slot, a shaft therein having a key, gear-wheels loosely mounted and continuously rotating in opposite directions upon said shaft and provided with key-seats, in combination with spur-gear wheels rigidly secured to a shaft rotating in a parallel plane with said hollow shaft, rack-bar, as G, and traveling table, as H, substantially as described.

8. In a device for converting motion, a traveling table having a depending pin, as *h*, in combination with a spur-gear wheel, as E', having a screw-threaded hub, and means, substantially as described, for alternately rotating said wheel in opposite directions to move said table forward and backward.

9. A hollow shaft having a slot, a shaft thereon having a key, *b*, and a screw-threaded projection, *b'*, in combination with a spur-gear wheel mounted upon said shaft and provided with a screw-threaded boss or hub, and a table, H, provided with a spring, I, substantially as described.

10. In a device for reversing motion, a table, as H, having a spring, as I, and a depending pin, as *h*, in combination with a spur-gear wheel, as E', having a screw-threaded hub, as e^4, and mounted upon a hollow shaft having a key-slot, a shaft within said hollow shaft having a key, as *b*, and a screw-threaded projection, as *b'*, and an adjusting-nut, as B', substantially as described.

11. In a device for reversing motion, a spur-gear wheel, as F^3, rigidly secured to a shaft, as F', in combination with a spur-gear wheel, as E, loosely mounted upon a shaft, as A, and a rack, G, for operating said wheels in unison, and means, substantially as described, to reverse the direction of rotation of said wheels.

12. A bed, as C', having bearing-blocks C, a hollow rotatable shaft journaled in said blocks and provided with a slot and a longitudinally moving key-shaft, and oppositely-rotating gear-wheels E E', loosely mounted upon said hollow shaft, in combination with a rotatable shaft, as F', gear-wheels, as F F^3, rigidly mounted thereon, rack-bar C, and means, substantially as described, for rotating said wheels E E' in alternate opposite directions, as and for the purpose specified.

13. A hollow rotating shaft having a key-slot, a shaft therein having a key, and a projecting screw-threaded end having an adjustable nut thereon, in combination with oppositely-rotating spur-gear wheels loosely mounted upon said hollow shaft, and an adjustable stop to engage said nut to reverse the direction of rotation of said gear-wheels, substantially as described.

14. The combination of a stop adjustably secured upon a longitudinal shaft having a key and held within a rotatable hollow shaft having a key-slot, and oppositely-moving spur-gear wheels mounted thereon at opposite sides of a driving-wheel, and a reciprocating table having a stop to engage the stop upon the longitudinal shaft to reverse the direction of rotation of said spur-gear wheels, substantially as described.

352,863. REVOLVER. GUSTAF ENVALL, Stockholm, Sweden, assignor to William W. Thomas, Jr., Portland, Me. Filed June 3, 1885. (No model.)

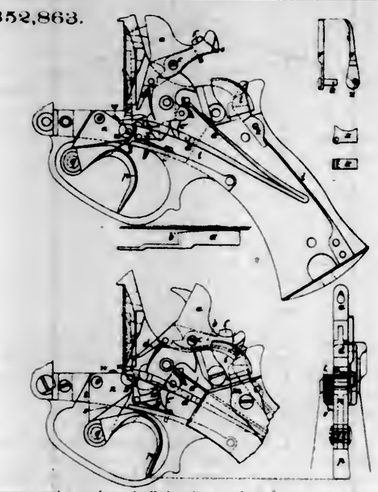
Claim.—1. The combination of the stock and hammer of a revolver, with a firing-trigger on the top of the stock to be pressed by the thumb, and a spanner-trigger below the hammer to cock the latter, and having a stop, *z*, to come into contact with the stock when the hammer is brought to the full-cock, substantially as set forth.

2. The combination of the stock and hammer of a revolver, and the cocking-spanner pivoted to the stock, with a movable tongue, *d*, on the hammer, with which the said spanner engages, and a lever, *b*, also on the hammer, engaging with said movable tongue, as and for the purpose specified.

3. The combination of the stock and hammer of a revolver, and a firing-trigger on top of the stock, with a cocking-spanner below, having a notch, *z*, and a catch, *x*, to engage with and retain the spanner, the said hammer having a shoulder, *g*, to act on the catch and release the spanner when the revolver is fired, substantially as described.

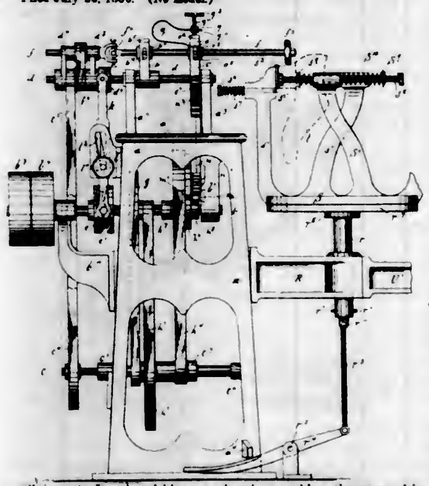
4. The combination of the hammer of a revolver, having a shoulder, *g*, at its lower end, with a movable tongue, *d*, and a lever, *b*, both carried by the hammer, a firing-trigger pivoted to the stock and engaging with said lever *b*, the cocking-spanner *n*, a catch, *x*, engaging with the

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spanner, and a spring, *a' a''*, bearing on the hammer and spanner, substantially as set forth.

352,864. BURNISHING AND TRIMMING MACHINE. ALFRED B. FOWLER, Exeter, N. H., assignor to the Rockingham Machine Company. Filed July 26, 1886. (No model.)



Claim.—1. In a burnishing or trimming machine, the rotary driving-shaft *b* and its pulley *h*, with belt *h'*, leading to pulley *h''* on counter-shaft *c*, the pulley c^4 on the latter, with belt c^5, leading to pulley d^4, mounted on rock-shaft *d*, the belt f^5, pulley f^2, and shaft *f'*, universally jointed to the burnisher or trimmer shaft *f*, for the purpose of imparting a rotary motion to said shaft *f* and its burnisher or trimmer tool f^3, as herein set forth and described.

2. The herein-described device for imparting an oscillating motion to the burnisher or trimmer shaft *f*, consisting of the rotary driving-shaft *b* and its cam h^3, the reciprocating rack *m*, the segmental lever *n*, having teeth *n'*, adapted to engage in the toothed rack *m*, and teeth n^2, meshing in the teeth *o'* on block *o*, secured to shaft *d*, the block *p*, also secured to said shaft *d*, both of said blocks *o p* having respective bearings o^2 p'', in which the shaft *f* is journaled, as and for the purpose set forth.

3. In a burnishing or trimming machine, the herein-described device for imparting a longitudinal reciprocating motion to the shaft *f*, consisting of the rotary shaft *b* and its grooved cam *e*, the rocking lever *k*, pivoted at *l'*, the levers *d''* d^3, mounted on sleeve *d'*, longitudinally movable on shaft *d*, the shaft or spindle *f'*, journaled in the levers *d''* d^3, and connected to the burnisher or trimmer shaft *f*, as and for the purpose set forth.

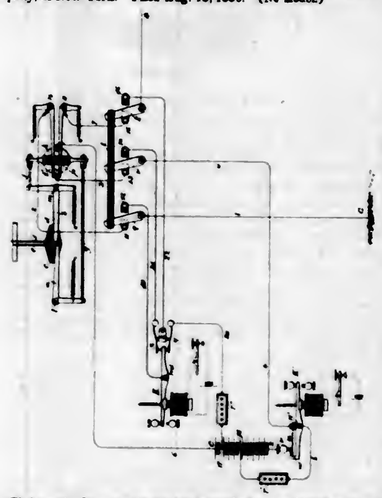
4. In a burnishing or trimming machine, the rock-shaft *d*, having secured to it the blocks *o p*, the shaft *f*, journaled in bearings o^2 p'', adapted to slide in the respective blocks *o p*, and adjustable spring *q*, for automatically pressing the rotary tool f^3 against the article to be operated upon, as herein set forth and described.

5. The herein-described duplex rotary or reversible jack, consisting of two pairs of arms, S' S'' *s' s''*, with clamping and rest devices, as described, said arms being secured to a vertically-adjustable post, *r*, adapted to slide up and down and turn in a stationary bearing, R, and provided with a treadle and locking mechanism, in a manner and for a purpose as herein set forth and described.

6. In a burnishing or trimming machine, the duplex jack having the upright supporting-arms S' *s'* and sliding breasting-knives S^3 s^3, located in the upper ends of said arms S' *s'*, in combination with the stationary post U, the pressure-rod *u*, arranged in bearings in the same and adapted to be operated by means of treadle u^4, rod u^3, bell-crank lever *u'*, and spring u^5, as and for the purpose set forth.

7. In a burnishing or trimming machine, the rotary shaft *b* and its cam *e*, in combination with the slotted lever *k*, slotted bracket *l*, and adjustable fulcrum-pin *l'*, for the purpose of regulating the longitudinal reciprocating motion of shaft *f*, as herein set forth and described.

352,865. DIPLEX AND QUADRUPLEX TELEGRAPHY. SAMUEL P. FREE, Roselle, N. J., assignor to the Western Union Telegraph Company, of New York. Filed Aug. 13, 1886. (No model.)



Claim.—1. In a quadruplex telegraph, the combination, at a transmitting-station, of an automatic and two manual transmitters and a switching arrangement, the whole being so arranged that either both manual transmitters, or one manual transmitter and the automatic transmitter, may be simultaneously used to send independent messages.

2. In a diplex or quadruplex telegraph system, the combination of two manual transmitters, an automatic transmitter, a switching arrangement for connecting a manual transmitter and disconnecting the automatic transmitter, and vice versa, and two receiving-instruments at a distant station, as and for the purpose described.

3. In a diplex or quadruplex telegraph system, the combination of a manual and an automatic transmitter which may be independently and interchangeably used, a battery-section which is used with the manual transmitter, an additional battery, and a switch for adding such additional battery to the first-named battery-section when the automatic transmitter is used, as and for the purpose described.

4. In a quadruplex-telegraph system, a manual transmitter for effecting changes in current strength, a manual and an automatic transmitter, each for effecting current reversals, and a switching arrangement and electrical connections, by which said automatic and manual transmitters may be interchangeably used, as and for the purpose described.

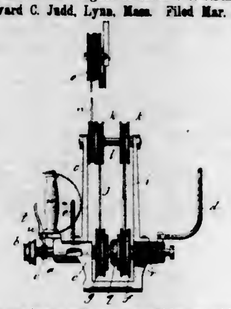
5. In a quadruplex-telegraph system, a manual transmitter for effecting changes in current strength, an automatic and a manual transmitter, each for effecting current reversals, a switching apparatus for interchangeably connecting said transmitters in circuit, and a battery so arranged that a weaker section is employed with said manual transmitter than is used with the automatic transmitter, as and for the purpose described.

6. In a diplex or quadruplex telegraph system, the combination of the main line, a manual transmitter and an automatic transmitter, and a second manual transmitter which may be interchangeably used with the automatic transmitter for simultaneously sending two independent mes-

sages, and two receiving-instruments at a distant station, one of which is responsive to the first manual transmitter and the other to the automatic or second manual transmitter, as and for the purpose set forth.

7. In a quadruplex-telegraph system, a relay responsive to signals due to current reversals, a relay-tongue controlling a local sounder-circuit, and an ink-recorder, in combination with manual and automatic transmitters which may be interchangeably brought into operation, as and for the purpose described.

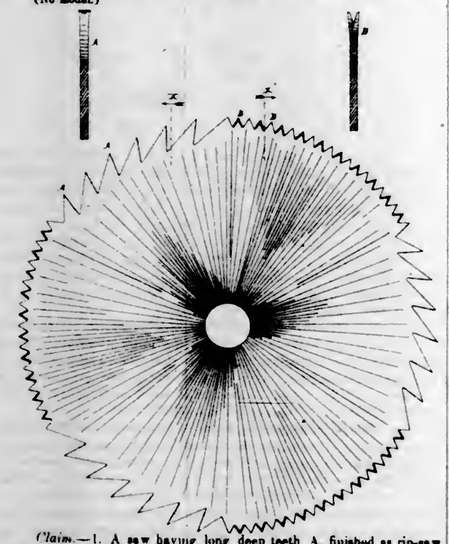
352,866. SOLE OR HEEL EDGE BURNISHING MACHINE. William Gordon, Boston, Mass., assignor of one-half to Arthur Fuller, same place, and Edward C. Judd, Lynn, Mass. Filed Mar. 20, 1886. (No model.)



Claim.—1. In a sole or heel edge burnishing machine, the combination of a rotary tool-holding shaft, two loose pulleys thereon driven in opposite directions, and a clutch engaged with said shaft, as described, and movable between said pulleys, so that it may be engaged with either pulley, and means, substantially as described, whereby said clutch may be moved from one pulley to the other, as set forth.

2. In a sole or heel edge burnishing machine, the combination of a rotary longitudinally-movable tool-holding shaft, two loose pulleys thereon driven in opposite directions, a clutch rigidly affixed to the shaft between said pulleys, a spring whereby the shaft is normally held in position to engage said clutch with one of said pulleys, and means, substantially as described, for moving said shaft against the pressure of its spring to engage the clutch with the other loose pulley, as set forth.

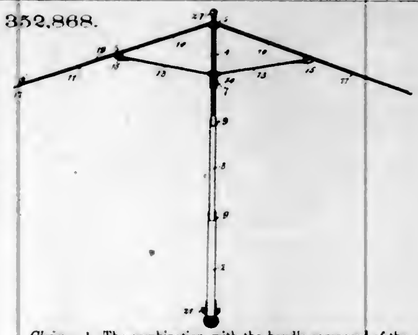
352,867. SAW. Charles W. Grent, Erie, Pa. Filed June 14, 1886. (No model.)



Claim.—1. A saw having long deep teeth A, finished as rip-saw teeth, and short shallower teeth B, finished as crosscut-saw teeth, said teeth being arranged in alternating groups, substantially as set forth.

2. A circular saw having groups of teeth intercepted by teeth of greater depth, thereby breaking the periphery into sections, substantially as and for the purposes set forth.

352,868. POCKET-UMBRELLA. Alfred Hall, Minneapolis, assignor of one-half to James Barry, Willmar, Minn. Filed Sept. 21, 1885. (No model.)

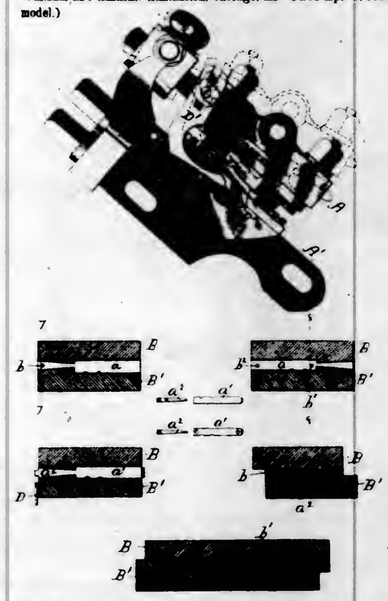


Claim.—1. The combination, with the handle composed of the sections 2, 3, and 4, of the hollow ribs 10, the rods 11, sliding therein, the runner 14, adapted to slide upward as the umbrella is closed, the braces 13, attached to the runner 14 and to the hollow ribs 10, and the cloth 19, all substantially as described, and for the purpose set forth.

2. The combination, with the sectional handle 2, 3, and 4, of the hollow ribs 10, having openings in their under sides, the rods 11, sliding in said ribs, the runner 14, and the braces 13, attached to said runner and to the ribs 10, and having the spring-toes 15 projecting into said ribs, as and for the purpose set forth.

3. The combination, with the sectional handle 2 3 4, of the hollow ribs 10, runner 14, braces 13, rods 11, having hooks 17, and the flanged tip-cup 21, all substantially as described, and for the purpose set forth.

352,869. MOLD FOR CASTING TYPE. Carl Hochstadt, Philipp Wenzel, and Herman Heinebach, Chicago, Ill. Filed Apr. 9, 1884. (No model.)



Claim.—1. In a type-casting machine, the combination, with the lower stationary member of the mold, having a detaining device in the jet-casting portion, of the upper mold-section provided with similar detaining devices in the type-casting portion, substantially as described.

2. In a type-casting machine, the combination, with the lower or stationary half of the mold B', of the pin *b*, the upper movable half of the mold B, and the pins *b'* *b²*, whereby the jet is broken from the type in the process of casting, substantially as described.

3. In a type-casting machine, the combination, with the type-mold, the upper member of which is provided with a type-detainer, and the lower member of which is provided with a jet-retainer, of a jet-discharging arm connected with a moving part of the machine and moving in close proximity with the jet end of the mold, substantially as described.

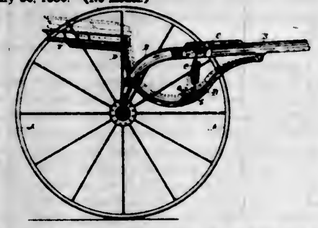
4. In combination, substantially as set forth, the mold having in one member a type-detainer, and in the other or companion member a jet-detainer, and a jet-ejecting arm moving past the jet end of the mold while the mold is open, whereby the type and jet are automatically broken apart when the mold opens, and the jet ejected therefrom.

5. In combination, substantially as set forth, the mold having a jet-detainer in one member, and a jet-discharging arm on the other member, provided with a beveled end engaging the projecting portion of the jet to wedge it off from the mold and eject it therefrom when the mold opens.

6. In a type-casting machine, the combination of the mold and a jet-discharging arm attached to and receiving motion from a moving part of said machine, substantially as described.

7. In a type-casting machine, the combination, with the upper and lower parts forming the mold, of the pins *b b' b²* and the curved arm D, adjustably secured in relation to said mold and adapted to move therewith, substantially as and for the purpose set forth.

352,870. TWO-WHEELED VEHICLE. Henry G. M. Howard, Kalamazoo, Mich., assignor of one-half to George W. Montgomery, same place. Filed July 30, 1886. (No model.)



Claim.—1. In a two-wheeled vehicle, the combination of a suspended body, thills, the elongated hanger-couplings provided with a suitable number of loops, and hangers having the end loosely surrounding the looped bar of the coupling and movable on said bar in adjusting from one loop to another, substantially as set forth.

2. The combination of the thills, the suspended body, the elongated hanger-couplings having a suitable number of loops, and the spiral-spring hangers, substantially as set forth.

3. The body composed of side bars, the transverse slats, the crossed bars forming a brace to the side bar, and a longitudinal slat-support secured to the brace-bars where they cross each other, substantially as set forth.

4. The vehicle-body provided with the X-brace between the seat and rear foot-slat, substantially as set forth.

352,871. ELEVATOR. Wales Hubbard, Wiscasset, Me. Filed Apr. 19, 1886. (No model.)

Claim.—1. In combination with the car of an elevator and its guideways, a brakeway inclined to the guideway, a cylinder and piston, and connections to supply the cylinder with liquid, provided with a valve or stop-cock, and means for closing the valve when the car falls, and connections between the piston and brake-shoes bearing on the inclined way, substantially as described.

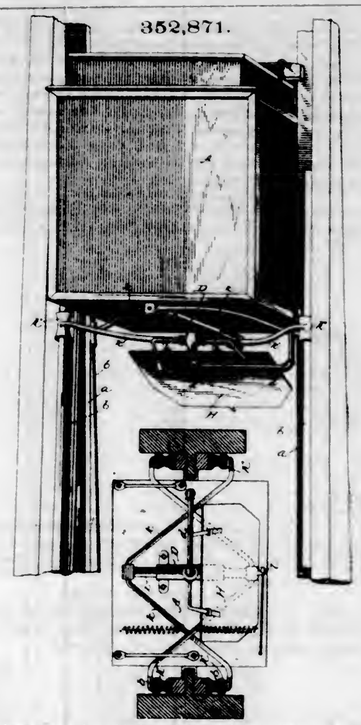
2. In combination with the car of an elevator and its guideways, a brakeway on each side of the guideway, inclined to the guide, a cylinder fixed to the car, having connection at its center, a tank carried on the car whereby the liquid may be introduced from the tank into the cylinder, or the reverse, a stop-cock, and means for automatically operating the stop-cock to close the cylinder upon the rapid descent of the car, and pistons in the cylinders connected to brake-shoes bearing on the brakeway, all substantially as described.

3. In combination with an elevator-car, a cylinder, D, brake-shoes bearing upon ways inclined to the guideways, and piston-connection between said brake-shoe and cylinder, a valve having arms connected to its stems provided with operating mechanism, substantially as described, whereby the valve may be closed, substantially as described.

4. In combination with an elevator-car, a cylinder, D, brake-shoes bearing upon ways inclined to the guideways, connected with the cylinder D by piston-connection, a valve having arms connected to its stems, provided with the described mechanism, whereby the valve may be closed, and a catch with mechanism for operating it, whereby the valve may be held closed, substantially as described.

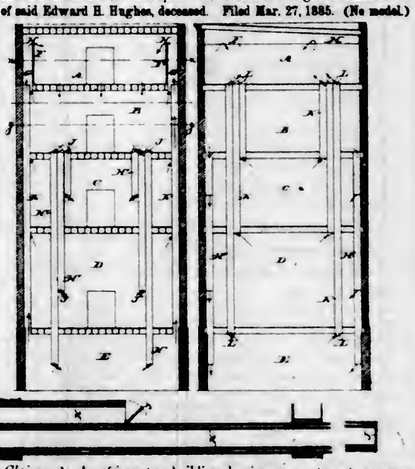
5. In combination with an elevator-car, a cylinder, brake-shoes bearing upon ways oblique to the guideways, and connected with the cylinder by piston-connection, a valve having arms connected to a closing mechanism with catch mechanism, and a cord attached to the valve-arm, and passing through the car, whereby the valve may be opened or closed at will by the operator, substantially as described.

6. In combination with the cylinder fixed to the car, the arms having piston-connection with the cylinder, and the brakeways having heads, the brake-shoes constructed to clasp the heads of the brakeways, whereby the piston is operated in both directions, all substantially as described.



7. In combination with the car of an elevator and its guideways, a brakeway inclined to the guideway, a cylinder, and piston-connections to supply the cylinder with liquid, a stop-cock, and means for automatically operating the stop-cock to close the cylinder upon either the rapid ascent or descent of the car, and connections between the piston and brake-shoes bearing upon the inclined ways, substantially as described.

352,872. REFRIGERATOR-BUILDING. Theodore J. Hughes and Edward H. Hughes, Philadelphia, Pa.; Theodore J. Hughes administrator of said Edward H. Hughes, deceased. Filed Mar. 27, 1885. (No model.)

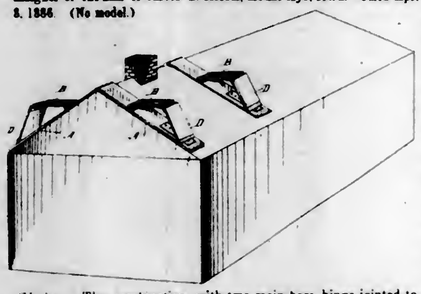


Claim.—1. A refrigerator-building having a number of compartments arranged one above another and an ice-chamber located above said compartments, warm-air flues leading from the upper portion of the said compartments to the upper part of said ice-chamber, the said flues

being formed of double walls having a dead-air space between the same, all combined substantially as and for the purpose set forth.

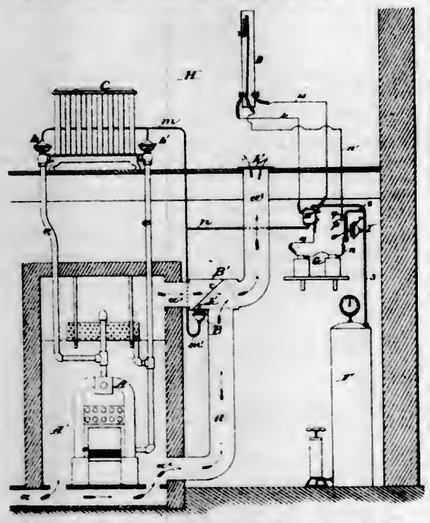
2. A refrigerator having a series of compartments one above another, an ice-chamber having a perforated floor located above said compartments, warm-air flues leading from the ceilings of said compartments to the upper portion of said ice-chamber, cold-air flues leading from the floor of the compartment next below the ice-chamber to the lower portion of the other compartments, the said flues being formed with dead-air spaces between the inner walls or linings and the outer walls, substantially as and for the purpose set forth.

352,873. **SCAFFOLDING-SUPPORT.** John T. Johnson, Kallerton, assignor of one-half to Calvin B. Morris, Mount Ayr, Iowa. Filed Apr. 3, 1886. (No model.)



Claim.—The combination, with two main bars hinge-jointed together and provided with perforated plates G, of hinged arms, and hinged braces D, provided with pins E, adapted to enter the perforations of the plates, substantially as described.

352,874. **SYSTEM OF TEMPERATURE-REGULATION.** Warren S. Johnson, Milwaukee, Wis., assignor to the Johnson Electric Service Company, same place. Filed Apr. 20, 1886. (No model.)



Claim.—1. In combination with the valves which control the direct heating of an apartment, and the valves which control the admission of air to said apartment, all of said valves being operated by fluid-pressure, of an electrically-actuated secondary valve which controls the compressed fluid by which the main valves are operated, suitable circuit-closing devices, electric circuits, battery, and reservoir for the fluid under pressure, whereby the closing of the electric circuit will operate the secondary valve, and thus allow the fluid-pressure to operate the main valves on the direct heating device, and at the same time operate the valves which govern the admission of air to said apartment, substantially as set forth.

2. In a system of temperature-regulation, the combination, with the steam-valves controlling the direct heating of an apartment, and the air-dampers controlling the admission of air to said apartment, of an electrically-actuated secondary valve adapted to admit a fluid under pressure into expansible chambers which operate by their movable walls the valves on the direct heating device, and the valves which control the admission of air to the apartment, said expansible chambers, a battery, electric circuits, and circuit-closing devices, whereby the completion of the electric circuit operates the secondary valve, and by its means the main valves, and serves to control the admission of air into the apartment at the same time that the direct steam-valves are operated, substantially as set forth.

3. In a system of temperature-regulation, the combination, with valves operated by fluid-pressure, of a secondary electrically-actuated valve, which controls the main valves by fluid-pressure, a circuit-closing device, which serves to complete the electric circuits which operate the secondary valve, and a circuit-breaking device also operated by the fluid which is governed by the secondary valve, whereby the closing of the circuit by the circuit-closing device operates the secondary and thus the main valves and breaks said circuit by the action of the fluid under pressure at a point distinct from the point at which the circuit was closed, substantially as set forth.

4. In an electrically-actuated valve, the combination, with the valve proper, of a circuit-closing device and a circuit-breaking device operated by a fluid-pressure controlled by said valve and distinct from said circuit-closing device, whereby the completion of the electric circuit by the circuit-closing device will operate the valve and allow the circuit-breaking device to break the circuit by means of fluid-pressure, substantially as set forth.

5. In an electrically-actuated valve, the combination, with said valve, of a circuit-closing device for operating said valve, and two circuit-breaking devices, one of said circuit-breaking devices serving, by means of a fluid-pressure controlled by the electrically-actuated valve, to break the circuit each time that it is made by the circuit-closing device, and the other circuit-breaking device serving to permanently break the circuit when the fluid-pressure is exhausted, substantially as set forth.

6. In a system of temperature-regulation, the combination, with valves controlling the heat supplied to an apartment, said valves being operated by fluid-pressure, of an electrically-actuated secondary valve, which controls the fluid-pressure, a thermostat which makes the electric circuits controlling the secondary valve, and a circuit-breaking device operated by the fluid under pressure which has passed through and is governed by said secondary valve, said circuit-breaking device serving to break the electric connection at one point while it remains closed at the thermostat, substantially as set forth.

7. In a system of temperature-regulation, the combination, with valves controlling the heat supplied to an apartment, said valves being operated by fluid-pressure, of an electrically-actuated secondary valve which controls the fluid-pressure, a thermostat located in the apartment heated, a circuit-breaking device operated by fluid-pressure, said circuit-breaking device serving to break the electric connection while the connection remains intact at the thermostat, and a second circuit-breaking device also operated by pressure, whereby when the pressure is exhausted the circuit will be permanently broken by the second circuit-breaking device and remain broken until said pressure is restored, substantially as set forth.

8. In an electric valve for controlling fluid under pressure, the combination, with the valve proper, of two electric circuits serving to operate the valve in opposite directions when first one and then the other circuit is energized, each of said circuits being provided with a circuit-closing device and a separate and distinct circuit-breaking device, consisting of an expansion-chamber having a movable wall and a suitable contact-strip and posts, whereby the closing of one circuit at the circuit-closing device will operate the valve in one direction, and by means of the action of fluid under pressure in the expansion-chamber break the circuit at the circuit-breaking device, and whereby the closing of the other electric circuit will operate the valve in the opposite direction, and break the the electric circuit by the action of the fluid under pressure at the said circuit-breaking device, substantially as set forth.

9. In an electric valve for controlling fluid under pressure, the combination, with the valve proper, of two electric circuits serving to operate said valve in opposite directions as one or the other of the circuits is energized, each of said circuits having a circuit-closing device, and a circuit-breaking device operated by fluid-pressure, and a circuit-breaking device in the main circuit from which the opposing circuits are derived, said last circuit-breaking device serving to break the main circuit when the fluid-pressure is exhausted, substantially as set forth.

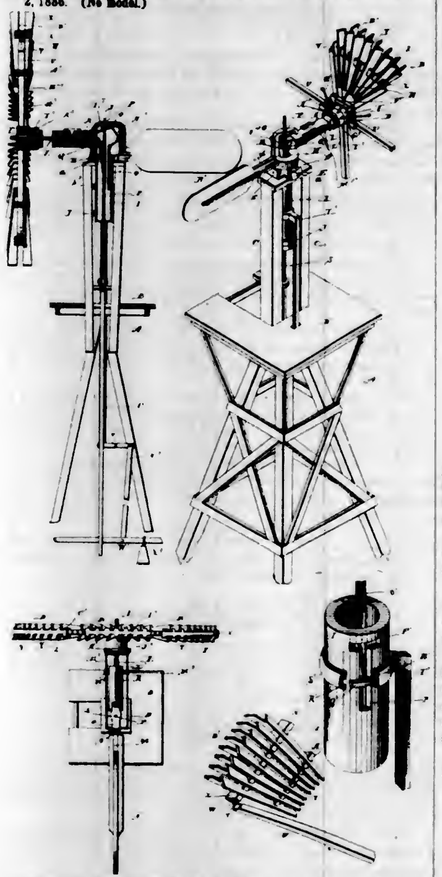
10. In an electrically-actuated valve mechanism, the combination, with the valve proper and the electro-magnetic actuating mechanism, of an initial circuit-closing device and a circuit-breaking device serving to break the circuit by the action of the fluid under pressure, which has passed through and is governed by said valve, while the circuit remains closed at the initial circuit-closing device, substantially as set forth.

11. In an electro-pneumatic valve, the combination, with a pivoted rocking bar adapted to close alternately one or the other of two ports situated adjacent to the ends of said bar, of opposing electro-magnets, an oscillating armature provided with an arm, a friction-roller carried by said arm, and a spring connected to said arm, whereby the force of the spring will keep the friction-roller always against the rocking bar, substantially as set forth.

12. The combination, with a valve which when moved in either direction opens one flue while it closes another, of an expansion-chamber suitably attached thereto, whereby the expansion or contraction of said chamber by the action of fluid-pressure will operate said valve, a secondary electrically-actuated valve which governs the fluid-pressure, suitable electric circuits, and electric generator for operating said secondary valve, whereby the energizing of an electric circuit will operate the secondary valve, and thus the main valve, so as to open one flue while it closes another, substantially as set forth.

13. In a system for controlling the heating and ventilation of apartments, the following elements in combination: (*a*) valves on the direct heating-pipes of the apartment, and valves on the pipes supplying air to said apartment, with expansion-chambers, which, through proper mechanism, serve, when expanded by a fluid-pressure, to operate said valves; (*b*) a secondary valve which controls the admission of the fluid under pressure, to said chambers and its release therefrom; (*c*) a thermostat which, through proper mechanism, operates said secondary valve, whereby, by the action of the thermostat upon the secondary and thus the main valve, both the heating and ventilation of an apartment are controlled.

352,875. **WINDMILL.** Alpheus A. Kinney, Paris, Nebr. Filed July 2, 1886. (No model.)

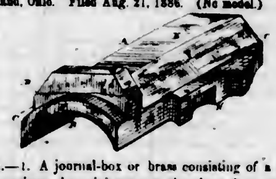


Claim.—1. In a windmill, the combination of a frame and two sets of vanes, the front set being at right angles to the face of the wheel, and the rear set being at an angle to the front set and having their front edges in a line with the rear edges of the front set.

2. In a windmill, the combination of radiating arms upon the wheel-shaft, wheel-sections of vanes secured to cross-bars provided with trunnions at their ends pivoted in lips upon the arms, a sliding adjusting-sleeve upon the wheel-shaft, blocks pivoted at their ends between the inner ends of the radiating arms and having rods sliding in perforations in the middles of the blocks and pivoted to the sleeve with their inner ends, and arms pivoted with their inner ends to the outer ends of the rods and with their outer ends to the outer portions of the wheel-sections, as and for the purpose shown and set forth.

3. In a windmill having a downwardly-projecting sleeve journaled in the supporting-frame and formed with a vertical slot in its side, the combination of a governing-rod having a headed bolt projecting through and sliding in the slot, a collar upon the sleeve and having a groove in its inner side for the head of the bolt, and a handle for sliding it up and down upon the sleeve, as and for the purpose shown and set forth.

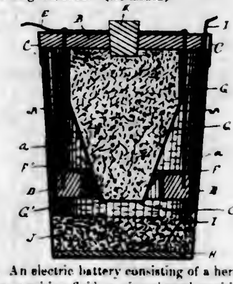
352,876. **RAILWAY-AXLE JOURNAL-BEARING.** Jacob Kritch, Cleveland, Ohio. Filed Aug. 21, 1886. (No model.)



Claim.—1. A journal-box or brass consisting of a brass or bronze base having a journal-receiving recess therein and a cast-iron re-enforce backing upon the base, the whole of said re-enforce being above the journal-recess of the base and cohesively connected thereto, forming one integral body, substantially as described.

2. A journal-box or brass consisting of a brass or bronze base having a journal-receiving recess therein and a re-enforce backing of cast-iron upon the base, the whole of said re-enforce being above the journal-recess of the base and cohesively connected thereto upon substantially a straight line, as and for the purpose set forth.

352,877. **GALVANIC BATTERY.** Edwin J. Leland, Worcester, Mass. Filed Aug. 24, 1885. (No model.)

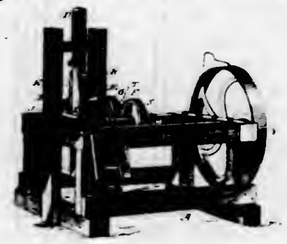


Claim.—1. An electric battery consisting of a hermetically-covered jar containing an exciting-fluid, a ring-shaped positive electrode suspended midway in said fluid, a closed hopper-shaped reservoir containing the crystals of the exciting-salt suspended from the cover of the jar and immersed in the exciting-fluid, the lower or small end of said reservoir being permeable and placed within the positive electrode, and a negative electrode placed in the bottom of the jar and surrounded by suitable depolarizing material, as described, and for the purpose set forth.

2. The combination, in a jar containing an exciting-fluid, of a zinc ring, D, reservoir containing crystals of the exciting-salt for the positive electrode, iron disk H, and oxide of copper J, as described, and for the purpose set forth.

3. The combination, with a jar containing exciting-fluid and positive and negative electrodes, of a hopper-shaped reservoir suspended from the cover of the jar, a cover placed hermetically on said jar and having an opening to admit the crystals of the exciting-salt to be placed in the reservoir, and a depolarizing material around the negative electrode, substantially as described, and for the purpose set forth.

352,878. **APPARATUS FOR CONVERTING MOTION.** John F. Loomis and Byron E. Wing, Shelby, Iowa. Filed Apr. 30, 1886. (No model.)

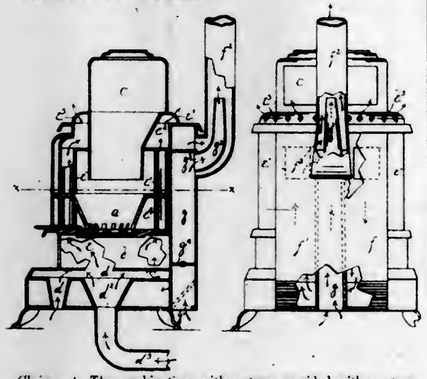


Claim.—1. The combination, with the vertically-reciprocating rack-bar of the two parallel shafts having on their outer ends the gear-wheels, and having rigidly secured upon them near their inner ends the hollow flanged disks, the disks turning loosely on the inner ends of the said shafts, having on their outer sides the concentric pinions which mesh with the said rack-bar, and having on their inner sides the circular enlargements formed with the recesses having the flaring mouths arranged as described, the metal pawls having the reduced inner ends fitting and turning in the said recesses, and formed at their outer ends with the longitudinal recesses, the wooden shoes secured in the said recesses, and the drive-shaft having at its inner end the pinion and at its outer end the balance drive-wheel, all constructed and arranged to operate in the manner and for the purpose herein shown and set forth.

2. The combination, with the hollow flanged disks, of the pawl-disks having the inner circular enlargements formed with the recesses having the flaring mouths arranged as described, the metal pawls having the reduced inner ends fitting and turning in the said recesses, and formed at their outer ends with the longitudinal recesses, the wooden shoes secured in the said recesses, and the leather strips secured around the bearing-edges of the said shoes, substantially as and for the purpose shown and described.

3. The combination, with the pumping-rod of a windmill, consisting of the upper part and the lower part having at its lower end the rack-bar, of the adjustable U-shaped spring connecting the adjacent ends of the said parts together, the two parallel shafts having on their outer ends the gear-wheel and having rigidly secured upon them near their inner ends the hollow flanged disks, the disks turning loosely on the inner ends of the said shafts, having on their outer sides the concentric pinions which mesh with the said rack-bar, and having on their inner sides the circular enlargements formed with the recesses having the flaring mouths arranged as described, the metal pawls having the reduced inner ends fitting and turning in the said recesses, and formed at their outer ends with the longitudinal recesses, the wooden shoes secured in the said recesses, and the drive-shaft having at its inner end the pinion and at its outer end the balance drive-wheel, all constructed and arranged as and for the purpose shown and described.

352,879. **HEATING-STOVE.** EUGENE L. MESSENGER, Fulton, N. Y. Filed Dec. 26, 1885. (No model.)

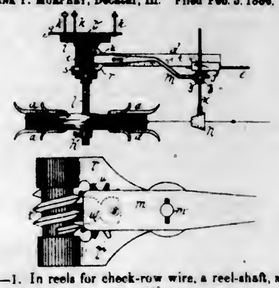


Claim.—1. The combination, with a stove provided with a return-passage for the products of combustion, of a passage within the stove separate from the flues of the stove, having a part of its length adjacent to the passage for the products of combustion, said passage communicating with air outside of the room at one end and at the other discharging into the room, and a ventilating-passage communicating with the air of the room at its lower end, and rising therefrom and discharging into the smoke-outlet of the stove, said ventilating-passage having a portion of its length adjacent to the passage for the products of combustion, substantially as described.

2. The combination, with a stove provided with two vertical passages and a horizontal passage connecting the lower ends of the two, forming a return-passage for the products of combustion, of a passage within the stove having a part in close proximity to the horizontal connecting-passage communicating with the air outside of the room at one end and at the other discharging within the room, and a foul-air ventilating-passage communicating with the air of the room at its lower end, rising therefrom adjacent to the vertical passages of the return-flue, and extending into the smoke-outlet of the stove and discharging into the same, substantially as described.

3. The combination, with a stove provided with two vertical passages and a horizontal passage connecting the two lower ends of the two, forming a return-passage for the products of combustion, of a passage within the stove having a part in close proximity to the horizontal connecting-passage communicating with the air outside of the room at one end and at the other discharging within the room, and a foul-air ventilating-passage communicating with the air within the room at its lower end, rising therefrom between the vertical passages of the return-flue, and extending into the smoke-outlet and discharging into the same, substantially as described.

352,880. **REEL FOR CHECK-ROW WIRE.** GEORGE W. MURPHEY and FRANK P. MURPHEY, Decatur, Ill. Filed Feb. 5, 1886. (No model.)



Claim.—1. In reels for check-row wire, a reel-shaft, a worm on the reel-shaft, a worm-wheel in mesh with the worm, an eccentric-pin on a face of the worm-wheel, and a wire-guide having a slot to receive the pin on the worm-wheel.

2. In reels for check-row wire, a reel-shaft, a worm on the reel-shaft, a worm-wheel in mesh with the worm, an eccentric-pin on a face of the worm-wheel, and a wire-guide having a centrally-contracted oblong slot to receive the pin on the worm-wheel.

3. A reel-shaft, a reel capable of adjustment longitudinally on the reel-shaft, a worm, a co-operating worm-wheel having an eccentric-pin, a pivoted arm adapted to be oscillated by the eccentric-pin, and a laterally-adjustable wire-guide in connection with said arm.

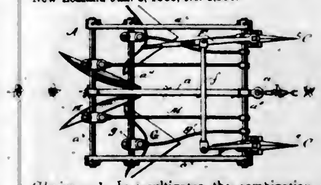
4. A bracket for a check-row-wire reel, adapted to fit over a planter-wheel hub in an approximately vertical position, and a brace forming a permanent approximate right angle therewith, as and for the purpose set forth.

5. A bracket for a check-row-wire reel, adapted to fit over a planter-wheel hub in an approximately vertical position, and a longitudinally-extensible brace forming a permanent approximate right angle therewith, as and for the purpose set forth.

6. A bracket for the shaft of a check-row-wire reel, adapted to fit over a planter-wheel hub in an approximately vertical position, and a horizontally-adjustable brace vertically immovable in said bracket and forming an approximate right angle therewith.

7. A reel loosely mounted on its shaft, a pulley partaking of the rotary motion of the shaft, and a clamp attached to the reel and encircling the pulley, the said clamp being composed of two or more elastically-connected sections.

352,881. **HOE AND CULTIVATOR.** WILLIAM A. MURRAY, Piako, Auckland, New Zealand. Filed Oct. 13, 1885. (No model.) Patented in New Zealand Jan. 8, 1885, No. 1,353.



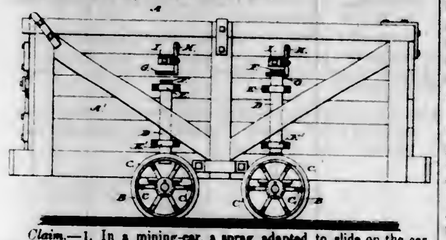
Claim.—1. In a cultivator, the combination, with two concavo-convex revolving disks, H H, arranged to operate upon opposite sides of a row of plants, of a sharp guiding-disk, as C, and means for controlling it and partially turning it at will, as set forth.

2. In a cultivator, as described, the combination, with the frame A and adjustable disks H, of the two sharp-edged disks C, the hand-lever F, and the link *f* and lever F', as set forth.

3. In a cultivator, as described, the frame A and double-shovel plows G, in combination with the shafts D, having forks *d*, and disks C, having sharp peripheries *c* journaled in said forks, the clips E, long lever F, short lever F' and connecting-link *f*, as and for the purposes set forth.

4. The combination, with the plows G and disks C, of the concavo-convex disks H, arms I, and clips K, adjustably secured to the main frame A, and of the set-screws K^3, for holding the arms I in desired vertical adjustment, and the braces M', sleeves M, and set-screws *m*, as set forth.

352,882. **SPRAG FOR MINING-CARS.** JOHN J. NEWBAKER, Steelton, Pa. Filed Aug. 24, 1886. (No model.)



Claim.—1. In a mining-car, a sprag adapted to slide on the car-body, and engaging with the car-wheels, substantially as shown and described.

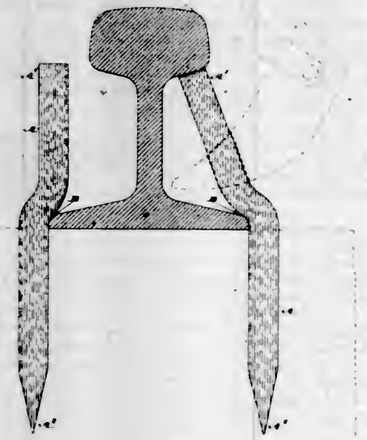
2. The combination, with a car-body and car-wheels having lugs, of a sprag adapted to slide on the car-body, and engaging with the said lugs on the wheels, substantially as shown and described.

3. The combination, with a car-body provided with guides E and E', and the car-wheels B, having the projections or lugs C, of the sprag D, sliding in the said guides E and E', and having the arm F, substantially as shown and described.

4. The combination of the sprag D, sliding in the guides E and E', and having the arm F, with the pivoted handle H, having the arm G, substantially as shown and described.

5. The car-body A' and the car-wheels B, having the lugs C, in combination with the sprags D, sliding in suitable bearings secured to the car-body A', and provided with the arm F, the handle H, pivoted on the bracket I, secured to the car-body A', and provided with the arm G, substantially as shown and described.

352,883. **SPIKE.** JAMES T. NULTY, Philadelphia, assignor of one-half to Thomas J. Crumbie, Chester, Pa. Filed May 15, 1886. (No model.)



Claim.—A railway-spike formed of a rolled bar sharpened at one end and slightly bent near its middle to enable it when driven to catch over the edge of the base of the rail, and extending thence upward to such distance as that when bent sidewise will form a brace or support to the head of the rail, substantially as described and shown.

352,884. **HORSE-RAKE.** SHERMAN R. NYE, Chicopee Falls, Mass. Filed July 17, 1885. (No model.)

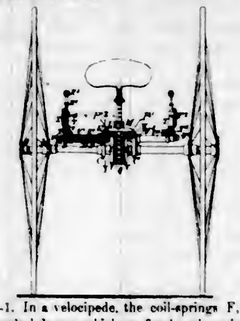


Claim.—1. The combination of the holder or bracket composed of the base 2, the single ear 3, formed thereon, the cylindrical boss 4, formed on and projecting laterally from the ear 3, the margin of said ear projecting outside of said boss, and forming with the body of the ear a shoulder around the boss, the collar *d*, detachably secured to the ear, the inner end of said collar forming a shoulder surrounding the boss, the tooth having a hook portion partly surrounding the boss and confined between the two shoulders surrounding the latter, and the spring coiled upon the collar and engaged at its ends, respectively, with the base and tooth, as set forth.

2. The holder or bracket composed of the base 2, the single ear 3, the cylindrical boss 4, projecting laterally from the ear inside of the margin thereof, and provided with a projection, 5, a shouldered collar, *d*, detachably secured to the boss 4, the projection 5 being located in the space between the ear 3 and collar *d*, the tooth having the hook portion bent to form a part of a circle and confined on the boss 4 between the collar *d* and ear 3, the arrangement being such that the tooth can oscillate on the boss, its oscillations being limited by the projection 5, and the spring *e*, coiled upon the collar and engaged at its ends, respectively, with the base and tooth, as set forth.

3. The holder or bracket composed of the base 2, having the notched rib *i*, the single ear 3, the cylindrical boss 4, projecting laterally from the ear inside of the margin thereof, and provided with a projection, 5, a shouldered collar, *d*, detachably secured to the boss 4, the projection 5 being located in the space between the ear 3 and collar *d*, the tooth having the hook portion bent to form a part of a circle and confined on the boss 4 between the collar *d* and ear 3, the arrangement being such that the tooth can oscillate on the boss, its oscillations being limited by the projection 5, and the spring *e*, coiled upon the collar and engaged at its ends, respectively, with the notched rib on the base, and with the tooth, as set forth.

352,885. **VELOCIPEDE.** EDWARD C. F. OTTO, Peckham, County of Surrey, England. Filed Jan. 4, 1886. (No model.) Patented in England Oct. 7, 1884, No. 13,291.



Claim.—1. In a velocipede, the coil-springs F, mounted on and connected to mandrel-drums, which are fixed each on its road-wheel axle A A', in combination with an outer driving-drum, B, which incloses the springs F, and is provided with brake-bands Q, and in combination with caps I, fixed each on its road-wheel axle A A' and provided with brake-bands V, and in combination with means for actuating the brake-bands Q and V, so that the coil-springs F are wound up or released by the steering-brakes V, and the driving-power, while tending to enlarge still more the expanded coil-springs F to a greater diameter than that of the drum E, if that were possible, is transmitted to the driving-wheels, and in combination with clutches within the drums E, substantially as set forth.

2. In a velocipede, the coil-springs F, in combination with the mandrel-drums E on axles A A', the driving drums B B', brake-bands Q, caps I, brake-bands V, and means for actuating the brake-bands Q and V, with the swing-frame M N^2, mounted centrally on the axles A A' and provided with pedals and driving-pulley O, and endless band which takes onto the driving-drum B B', substantially as set forth.

3. The coiled spring-clutches F and the mandrel-drums E, on which said springs are mounted, in combination with an outer inclosing driving-drum, B, and the brake mechanism, substantially as and for the purposes set forth.

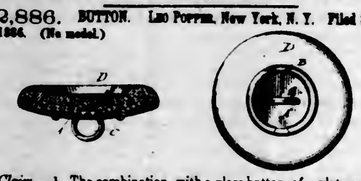
4. In a velocipede, the combination, with the driving-drum B, the brake-cap I, encircling the end of the driving drum, the brake-band V around the cap I, and the spring-clutches F within the drum B, and the tube L^2 and standard S, connected together and to the frame of the machine, of the handle R, to be rotated, the tube T, surrounding the standard S, and to which the handle is connected, the bevel-wheel T', surrounding the tube T, the sleeve U^7, surrounding the tube L^2, the sector U around the sleeve at one end and meshing with the wheel T', the rod U^2 within the tube L^2, its lever U^4, connected with the sector U, and its lever U^3, to which the brake-band V is connected, substantially as specified.

5. In a velocipede, the combination, with the axle A, driving-drums

B B', and the sleeves C around the axle, of the drums E upon the sleeves C, the caps I, encircling the ends of the drum B, the spring-clutches F, one end of each of which is connected to the drum E and the other end to the caps I, the brake-bands around the caps I, and means, substantially as specified, for operating the brake-bands, the notched disks G within the drums E, the steel balls H, and springs H' within the notches, whereby one wheel can be turned and the other held stationary, substantially as specified.

6. In a velocipede, the combination, with axle A, outer axle, A', and its thickened portion A^3, having tongues and recesses on one end, of the ball-bearing sleeve C, provided at one end with tongues and recesses corresponding and interlocking with those upon the end of A', the nut-ferrule D, screwing upon the sleeve C and having a flange to bear against the edge of the portion A^3 in clamping the parts, and a catch-spring, D', to prevent the nut-ferrule D unscrewing, substantially as specified.

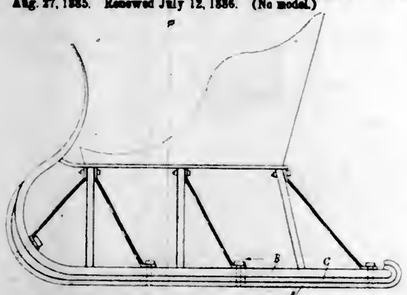
352,886. BUTTON. Leo Potter, New York, N. Y. Filed Sept. 4, 1886. (No model.)



Claim.—1. The combination, with a glass button, of a plate provided on its rim with dovetailed lugs or projections passed into the body of the button, substantially as shown and described.

2. The combination, with a glass button, of a plate resting against the under side of the button, and provided on its rim with dovetailed or wedge-shaped projections which pass into the body of the button, and of a shank on said button, substantially as shown and described.

352,887. SLEIGH-RUNNER. Geo. W. Potter, Albion, N. Y. Filed Aug. 27, 1885. Renewed July 12, 1886. (No model.)



Claim.—1. A sleigh having shoes of annealed or toughened glass attached to the runners, substantially as set forth.

2. A sleigh having shoes of annealed or toughened glass, and stripe C, both shoes and stripe being attached to the runners, substantially as set forth.

352,888. GARMENT-SUPPORTER. Charles A. Preston, Cambridgeport, assignor to George Frost, George H. Phelps, and George A. Frost, all of West Newton, Mass. Filed Sept. 8, 1886. (No model.)



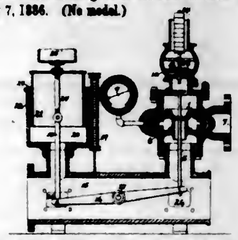
Claim.—1. In a clasp, a frame, a, cross-bar a', and finger-piece hinged to said cross-bar, combined with a tongue hinged to the under side of said finger-piece and having three engaging-points, 2 3 4, two of which, as 2 4, are turned in one direction to lie against one side of the frame, and the third turned in the opposite direction to lie against the opposite side of the frame when the finger-piece is depressed and the tongue moved forward to engage the material, substantially as described.

2. In a clasp, a loop or frame, and a tongue having points 2 3 4 to engage the fabric at each side of the end of the said frame, combined with means, substantially as described, to move the said tongue, for the purpose set forth.

352,889. COMPOSITION OF MATTER FOR FUEL. Hermann Prinsmann, Chicago, Ill., assignor to William L. Newman, same place. Filed Nov. 30, 1885. (No specimens.)

Claim.—The artificial fuel described, consisting of charcoal, nitrate of sodium, nitrate of potassium, or other soluble hyperoxide, glue, dextrine, gum-arabic, or other adhesive material, clay, and iron filings, substantially as specified.

352,890. FLUID-PRESSURE-REGULATING VALVE. John W. Ramsey, Beaver Falls, Pa., assignor of one-half to John Corbus, same place. Filed July 7, 1886. (No model.)



Claim.—1. In a pressure-regulator, a double-seated valve having a central passage through the valve, a piston, a valve-casing having an annular opening into the valve-chamber, and lever and pipe connections between the valve and piston.

2. In a pressure-regulator, a double-seated valve provided with a central passage therethrough, and having the seats of different areas, a piston, and lever and pipe connections between the valve and piston.

3. In a pressure-regulator, a valve and an auxiliary valve arranged in operative relation to the valve, whereby it is seated when the fluid-supply is cut off.

4. A double-seated valve having a central passage therethrough, and the seats of which are of different areas, and a cone-shaped body to the valve below each of the valve-seats.

5. A double-seated valve having the seats of different area, and a central passage longitudinally through the valve.

6. In a pressure-regulator, a double-seated valve, a piston, a pipe connecting the piston and valve-chamber, a rock-lever located in said pipe, and rod-connections uniting said lever with the valve and piston.

7. In a pressure-regulator, a double-seated valve, a piston, a weight-receptacle carried by the piston, and lever and pipe connections between the valve and piston.

8. In a pressure-regulator, a double-seated valve with a central passage through the valve, a piston, a pipe connecting the piston and valve-chambers, a pressure-gage upon the valve, and a pressure-gage upon said pipe, and lever-connections between the valve and piston.

9. In a pressure-regulator, a double-seated valve, a piston, pipe, and lever-connections between the two, and a valve in the pipe leading to the piston.

10. In a pressure-regulator, a regulator-valve, a piston, a pipe connecting the piston and valve-chamber, a safety-valve in the said pipe, and lever-connections between said regulator-valve and piston.

11. In a pressure-regulator, a regulator-valve, a piston, a pipe connecting the piston and valve-chamber, a safety-valve in said pipe, and a valve also in said pipe at the entrance to the piston-chamber.

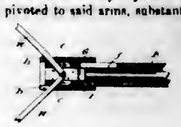
12. In a pressure-regulator, a valve, a piston, a pipe connecting the piston and valve-chamber, a rock-lever located in said pipe, man-holes in said pipe opposite said rock-lever, and rod-connections uniting said lever with the valve and piston.

352,891. ADJUSTABLE SKIRT HOLDER AND RACK. Florence M. Reynolds, Pinacate, assignor of one-half to Josie Humble, Los Angeles, Cal. Filed June 14, 1886. (No model.)

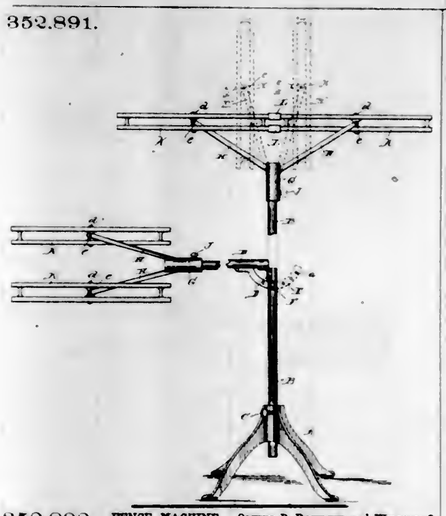
Claim.—1. In a skirt-holder and rack, the combination of a staff, laterally-adjustable arms secured thereto, adjustable spreaders K, hinged to said arms, and means by which the spreaders are held in an upright or a horizontal position, all substantially as and for the purpose set forth.

2. The combination of a sectional staff, one section being hinged to the other, a slide connected to one section of the staff, laterally-adjustable arms connected with the slide, and spreaders pivoted or hinged to said arms, substantially as described.

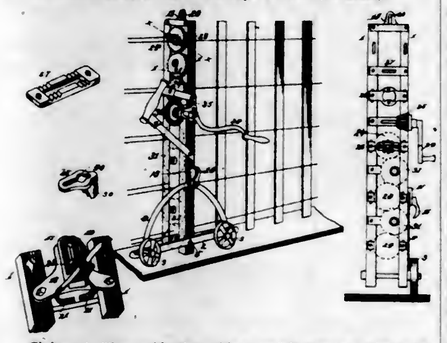
3. The combination of the sectional staff, one section being tubular and hinged to the other, a block sliding within the tubular portion, a slide secured to said block, laterally-adjustable arms hinged to the block, and spreaders pivoted to said arms, substantially as described.



352,891.



352,892. FENCE-MACHINE. Oliver B. Rowlett and William C. Shoemaker, Richmond, Ind. Filed Sept. 7, 1886. (No model.)



Claim.—1. The combination, with an upright frame carrying twisting devices, of the sill 2, pivoted to the lower end of said frame, the segmental brace 4, adjustable on said frame, the ground-wheels 3, and the brackets 6, connecting said wheels and brace to the sill, substantially as described.

2. The combination of the twisting-frame 1, the pivoted sill 2, having wheels 3, the segmental brace 4, pivoted clamp 15, through-bolt 14, and set-nut 16, substantially as described.

3. The combination of the twisting-frame 1, pivoted sill 2, adjustable segment-brace 4, and the brackets 6, having recesses 7 and 11, for connecting the sill and brace, substantially as described.

4. The combination of the upright wire-twisting frame, the spring-clamp 21, and gage 17, for suspending the slats at their top in a uniform plane, substantially as specified.

5. In combination with the top of the upright frame, the vertically-adjusting gage 17, and spring-clamps 21, located beneath said gage, substantially as specified.

6. The twisting-eyes 28, provided with the semi-tubular extension 30, substantially as specified.

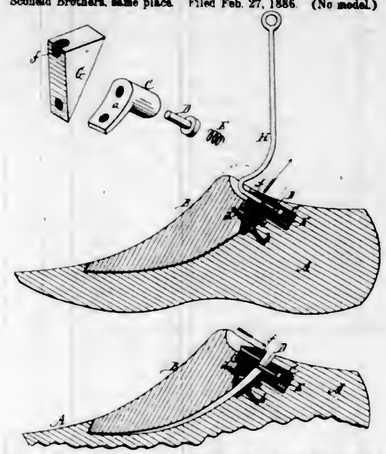
7. The twisting-eye 28, provided with the enlargement in its slot for the passage of the knots in the wires, substantially as specified.

8. In combination with the twisting-disk 24, the slotted bracket 27, and the twisting-eyes 28, having an elongated slotted shank, and a semi-tubular extension, 30, substantially as described.

9. The combination of the upright frame 1, slotted brackets 26, twisting-disks 24, slotted brackets 27, eyes 28, having semi-tubular extensions 30, and the bolts 29, substantially as described.

10. A wire-twisting loom composed of the vertical frame 1, the alternate series of twisting-disks 24, having vertically-adjustable bearing, and provided with teeth on their peripheries, and the series of transmitters 31, arranged alternately between the twisters, provided with laterally-adjustable bearings, and driven by a crank and bevel-pinions, substantially as specified.

352,893. LAST. Henry L. Scofield, Rochester, N. Y., assignor to Scofield Brothers, same place. Filed Feb. 27, 1886. (No model.)



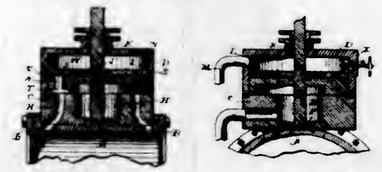
Claim.—In a last, the combination, with the last and last-block, of a socket in the last, a headed pin in the socket, a spring behind the and to force the pin forward, and a bearing in the block, with a hole that extends entirely through in line with the pin, whereby the pin can enter the hole, and a hook can be inserted from the outside at the rear end of the block to press the pin back and withdraw the block, as herein shown and described.

352,894. TREATING SEWAGE. John W. Slater, Holloway, County of Middlesex, and William Stevens, London, England. Filed Mar. 31, 1885. (No specimens.) Patented in England Dec. 1, 1884, No. 15,810, and Dec. 17, 1884, No. 16,592.

Claim.—1. In the purification of liquid sewage and similar matters, the process described, consisting in mingling terhydrate of alumina which is free from carbonate of lime with muriatic acid, subjecting the mixture to heat until the acid has combined with the terhydrate, and adding the muriate of alumina resulting to the liquid sewage, substantially as described.

2. In the purification of liquid sewage and similar matters, the process set forth, consisting in mingling terhydrate of alumina which is free, or nearly so, from carbonate of lime with muriatic acid, subjecting the mixture to heat until the acid has combined with the alumina, adding the resulting muriate of alumina to the sewage in the presence of clay and carbon ground together with water, substantially in the proportions specified.

352,895. ROTARY STEAM-VALVE. William H. Smith, La Crosse, Wis., assignor of one-half to Charles H. Schoff, Marshalltown, Iowa. Filed Sept. 25, 1885. (No model.)



Claim.—1. The combination of a circular valve-chest having a valve seat at its bottom, a circular valve having a series of segmental openings, and a segmental block within each of said openings, each of said blocks being shorter than the said openings and adapted to be moved therein.

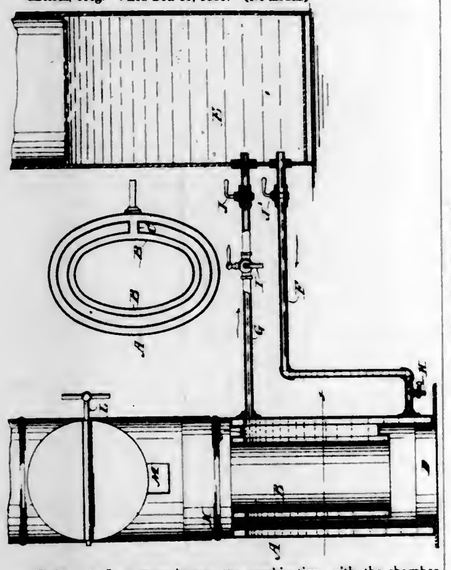
2. The combination of a circular valve-chest having a valve-seat at its bottom, a circular valve having a series of segmental recesses upon its under side, said recesses opening into a central exhaust-aperture, and a segmental opening in said valve between each of said recesses, a plate fitting upon said valve having a central aperture and a series of segmental openings, a segmental block secured to each of the radii of said plate and fitting within said segmental openings in said valve, said blocks being shorter than said openings and adapted to be moved therein.

3. The combination of a circular valve-chest having a valve-seat at its bottom, a valve having a series of segmental openings, a plate having a circular aperture and a series of segmental openings, and a block secured to each of the radii of said plate, said blocks being shorter

than the openings in said valve, and having a flange projecting from their under sides and adapted to be moved within said openings.

4. The combination of a circular valve-chest having a valve-seat at its bottom, a valve having a series of segmental openings, a plate having a central aperture and a series of segmental openings, a block secured to each of the radii of said plate and adapted to be moved from end to end of said openings in said valve, the periphery of said plate being provided with cog-teeth, and a cog-pinion, said valve-chest being provided with a recess upon one side for the reception of said cog-pinion.

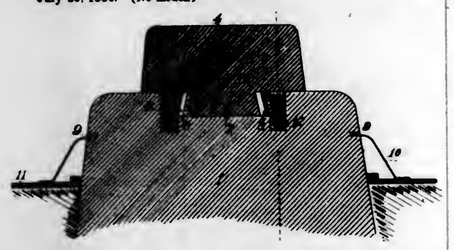
352,896. **WATER-HEATER.** JOHN H. SWAGER and JACOB F. PERCHEN, Astoria, Oreg. Filed Dec. 19, 1885. (No model.)



Claim.—1. In a water-heater, the combination, with the chamber A and the annular chamber B, connected by a neck, C, of the pipes F and G, tank E, and faucet I, substantially as described.

2. In a water-heater, the combination, with chamber A and the annular chamber B, connected by the neck C, of the pipe G, having faucet I and stop-cock J, the pipe F, having cocks H and J', and tank E, substantially as described.

352,897. **ANVIL FOR STEAM-HAMMERS.** JOSEPH T. TREES, Mc Keesport, Pa., assignor of one-half to Thomas D. Wood, same place. Filed July 29, 1886. (No model.)

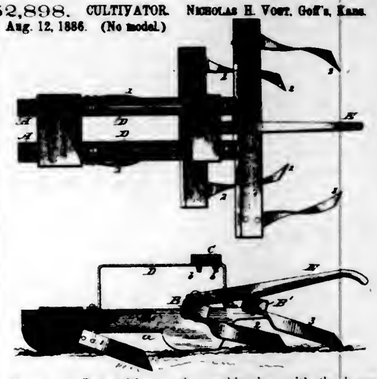


Claim.—1. The combination of an anvil-block having a transverse recess therein, said recess having vertical side walls, filling-blocks having their outer walls vertical and their inner walls undercut, and an anvil having a dovetailed projection, substantially as set forth.

2. The combination of an anvil-block having a transverse recess therein having vertical side walls, filling-blocks having their side walls constructed as described, the under sides provided with projections or enlargements adapted to engage corresponding openings or grooves in the bottom of the transverse recess in the block, and an anvil having a dovetailed projection, substantially as set forth.

3. The combination of an anvil-block and an apron closely encircling the block near its top, and flaring from thence toward the standing plate, substantially as set forth.

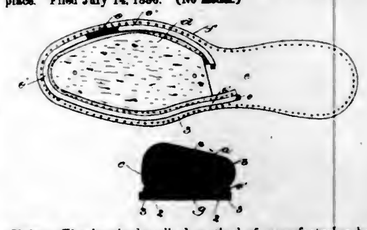
352,898. **CULTIVATOR.** NICHOLAS H. VOGT, Goff's, Kans. Filed Aug. 12, 1886. (No model.)



Claim.—1. In a cultivator, the combination, with the beams A A and the rear cross-bars, of the inwardly-curved and downwardly-inclined blades 1 1, attached to their middle portion, and the two sets of similarly curved and inclined blades 2 2 and 3 3, which are attached to the respective cross-bars B and B', and arranged at a higher plane than said blades 1 1, and at different distances from the path of the beams, as shown and described, to operate as and for the purpose specified.

2. In a cultivator, the combination, with the runners A A and front and rear cultivating-blades, of the parallel angular seat-supporting rods, arranged as shown, the shiftable seat, and clamping devices for securing the latter, as specified.

352,899. **MANUFACTURE OF BOOTS OR SHOES.** HENRY H. WADGH, Whitman, Mass., assignor of one-half to Clarence D. Read, same place. Filed July 14, 1886. (No model.)

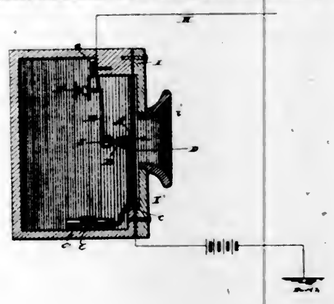


Claim.—The herein-described method of manufacturing boots and shoes, which consists in lasting the upper to the inner sole, as usual, providing an intersole with a cork-filling sole, and stitching to the intersole around the cork-filling sole a piping-cord, as described, securing the intersole thus provided with the piping-cord and cork-filling sole to the lasted shoe, and, lastly, securing the outer sole to the intersole.

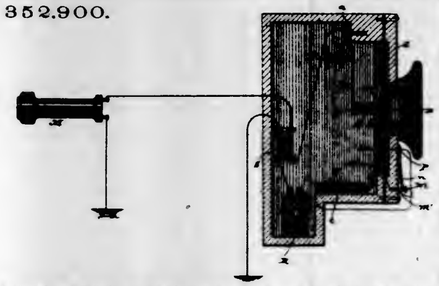
352,900. **TELEPHONE-TRANSMITTER.** MALONE WHELESS and JAMES D. DARDEN, Washington, D. C.; said Wheless assignor to said Darden. Filed Mar. 5, 1886. (No model.)

Claim.—1. A telephone-transmitter, one of whose electrodes consists of a body of moistened absorbent conducting material adjacent to the diaphragm, and a button of hard carbon constituting the electrode-contact, substantially as specified.

2. A telephone-transmitter, one of whose electrodes consists of a



352,900.



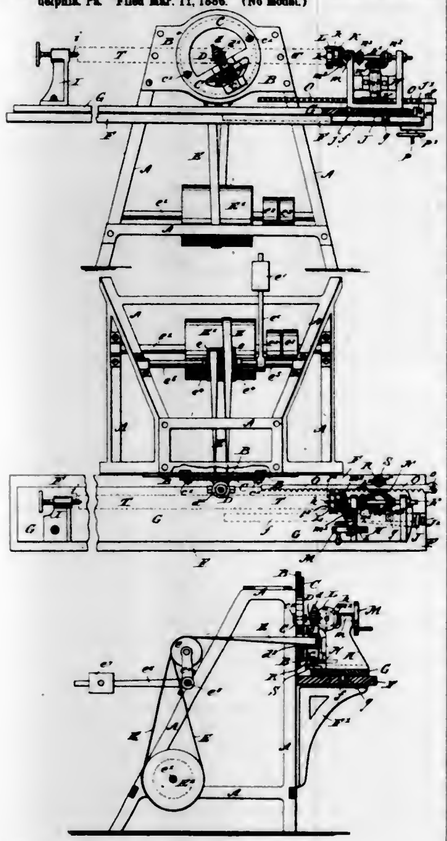
body of moistened powdered carbon adjacent to the diaphragm, and a button of hard carbon constituting the electrode-contact, substantially as specified.

3. A telephone-transmitter having a diaphragm provided with a central socket containing a body of moistened powdered carbon, and a button of hard carbon in front of said powdered carbon, the two forms of carbon constituting one of the electrodes, substantially as specified.

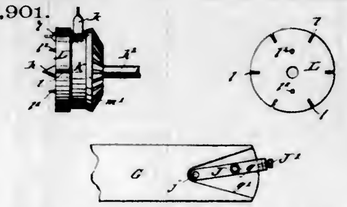
4. A telephone provided with an absorbent electrode composed of powdered carbon, and a button of hard carbon, a feed-reservoir for furnishing fluid thereto, and a capillary conveyer intermediate between the electrodes and reservoir, substantially as described.

5. A telephone-transmitter having a diaphragm provided with a central socket containing a hard carbon button, a body of powdered carbon intermediate between said button and diaphragm, a feed-reservoir, and a capillary conveyer between the reservoir and powdered carbon, substantially as described and shown.

352,901. **LATHE FOR TURNING SPIRALS.** GEORGE WOOD, Philadelphia, Pa. Filed Mar. 11, 1886. (No model.)



352,901.



Claim.—1. In a machine for working spiral-twist forms, the combination of a main frame, a face-plate fixed thereon, a cutter-frame fitted to turn in or adjustably on the face-plate, a spindle journaled radially in the cutter-frame, cutters on said spindle operating at the axis of motion or adjustment of the cutter-frame, means, substantially as specified, for rotating the cutters, a work-bed fixed to the main frame, a carriage fulcrumed at one end to the work-bed and free to move toward or from the cutters at its other end, and movable also along the bed, and head and tail stocks mounted on the carriage and provided with work-holding centers set in alignment horizontally with the axis of motion or adjustment of the cutter-holding frame, substantially as and for the purposes herein set forth.

2. In a machine for working spiral-twist forms, the combination of a frame, A, face-plate B, cutter-frame C, spindle *d*, and cutters D thereon, arranged substantially as specified, and a fixed work-bed, F, slotted at *f*, a carriage, G, laid loosely on the bed F, and having a guide or fulcrum-pin or roller, *g*, at or near one end and adapted to the bed-slot *f*, and head and tail stocks on the carriage, having work-holding centers set in alignment horizontally with the axis of motion or adjustment of the cutter-frame C, substantially as and for the purposes herein set forth.

3. In a machine for working spiral-twist forms, the combination, with the frame A and the fixed work-bed F, slotted at *f*, of a carriage, G, laid loosely on the bed and provided with work-holding head and tail stocks, a lever, J, fulcrumed at *j* to the carriage, a pin or roller, *g*, on lever J, and adapted to slot *f* of bed F, and a clamping device, as a set-screw, J', adapted to hold the carriage G and lever J and its roller *g* at various adjustments relatively to the bed F and its slot *f*, substantially as and for the purposes herein set forth.

4. In a machine for working spiral-twist forms, the combination of the frame A, work-bed F, the carriage G, loose on bed F and fulcrumed thereto at one end, and adapted also to move along the bed, head and tail stocks H I on the carriage, a work-holding spindle, *h'*, journaled in head-stock H, a vertical shaft, n^2, also journaled in the head-stock, a gear-wheel or pinion, n^3, on spindle *h'*, gear-wheels *n* N on the shaft n^2, and a rack-bar held to the bed F, and with which the gear-wheel N meshes, substantially as shown and described, whereby as the spindle *h'* is turned the carriage G will be moved along the bed and may be moved freely inward or ontward at the tail-stock end, as and for the purposes herein set forth.

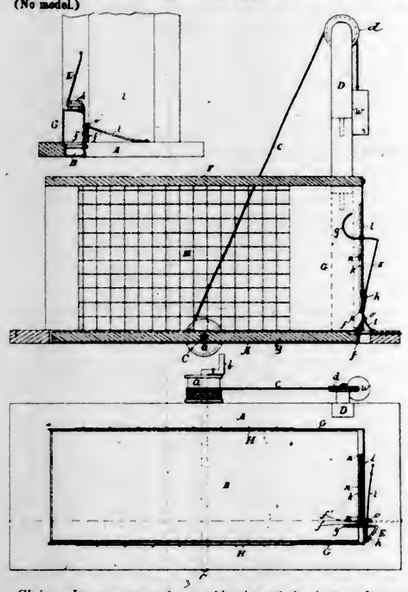
5. In a machine for working twist forms, the combination of the frame A, work-bed F, the carriage G, loose on bed F and fulcrumed thereto at one end, and adapted to move along the bed, work-holding head and tail stocks H I on the carriage, a spindle, *h'*, journaled in head-stock H, a vertical shaft, n^2, also journaled in the head-stock, a gear-wheel, n^3, on spindle *h'*, a gear-wheel, *n*, on the shaft n^2, a rack-bar held to the bed F, and with which the wheel N meshes, a gear-wheel, m^2, on spindle *h'*, a shaft, *m*, journaled in the head-stock, a pinion, *m'*, on shaft *m* and meshing with pinion m^2, and a hand-wheel, M, on shaft *m*, substantially as and for the purposes herein set forth.

6. In a machine for working spiral-twist forms, the combination of the frame A, work-bed F, slotted at *f*, the carriage G, loose on bed F and carrying head and tail stocks H I, a lever, J, fulcrumed at *j* to the carriage, a pin or roller, *g*, on lever J and adapted to the bed-slot *f*, a clamping device, as a set-screw, J', adapted to hold the carriage G at various adjustments, a rack-bar, O, held adjustably at one end to the bed F, an adjustable guide, R S, held to the carriage, and adapted to give back-support to the rack-bar O, a spindle, *h'*, journaled in the head-stock H, a shaft, n^2, journaled vertically in the head-stock, a drive-wheel, *n*, on shaft n^2, interchangeable gears N on shaft n^2 and adapted to mesh with the rack O, and a gear-wheel or pinion, n^3, on the spindle *h'*, adapted to mesh with the gear-wheel *n*, substantially as and for the purposes herein set forth.

7. In a machine for working twist-forms, the combination of a frame, A, face-plate B, adjustable cutter-frame C, spindle *d*, and cutters D thereon, arranged and operating substantially as specified, and a work-bed, F, a carriage, G, loose on bed F and fulcrumed thereto at one end, and adapted to move along the bed, head and tail stocks H I on the carriage, a spindle, *h'*, journaled in head-stock H, a vertical shaft, n^2, journaled in the head-stock, a gear-wheel, *n*, on shaft n^2, pinions *n'* n^3 on spindle *h'*, adapted to be engaged separately with the wheel *n*, a gear-wheel, N, on shaft n^2, and a rack-bar held to the bed F, and with

which the wheel N meshes, substantially as shown and described, whereby upon engaging the pinions n^2 n', respectively, with the wheel n when the spindle h' is rotated the work may be revolved in reverse directions for cutting a right and left hand spiral thereon when pressed to the cutters as the carriage moves along the bed F, as herein set forth.

352,902. RAT-TRAP. JAMES L. ANDERSON, Grand Rapids, Mich., assignor of one-half to Worden B. Mason, same place. Filed Mar. 15, 1886. (No model.)



Claim.—In a rat-trap, the combination of the bottom frame, A, having the pivoted floor B, the drum mounted on the shaft of the floor, a journaled pulley, a weighted rope secured to the drum and passing over the pulley, the pivoted rod E, bent to form a hook at its upper end and bent inwardly at its lower end to engage the under side of the floor to support it, the catch f', bent inwardly to engage the upper side of the floor and bent at its upper end to form an eye, and a spring, i, passing through the eye o and bearing against the catch f, substantially as set forth.

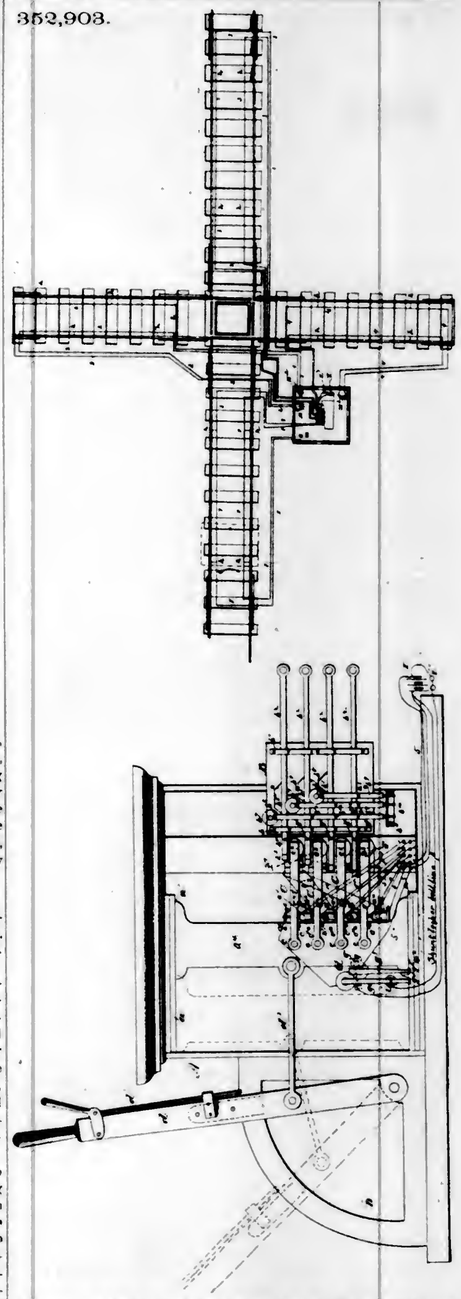
352,903. ELECTRO-MECHANICAL SIGNAL APPARATUS. WILLIAM W. LE GRANDE, Louisville, Ky., assignor of one-half to H. R. Dering, W. W. Dering, and T. H. Upperman, all of same place, and George E. Rockwell, Indianapolis, Ind. Filed Oct. 14, 1885. (No model.)

Claim.—1. In combination with a hand-lever and a vertically-arranged sliding bar adapted to be reciprocated thereby, a latch or pull-bar pivotally attached to said sliding bar and resting normally in a horizontal position, and formed with an incline on its under edge and hooked free end, a pull-bar arranged to slide on bearings and having its outer end connected to the semaphore-strand, and free end formed to engage with the free end of the pivoted pull-bar, a normally-closed track-circuit, and an electro-magnet in said circuit having a pivoted armature adapted and arranged to fall under the pivoted pull-bar when released from contact with the electro-magnet, substantially as described, and for the purpose specified.

2. In combination with a hand-lever and a sliding bar adapted to be reciprocated thereby, a pull-bar pivotally attached to the sliding bar and resting normally in a horizontal position, and formed with an incline on the under edge and hooked free end, a pull-bar having its outer end connected to the semaphore-strand, and its free end formed to engage with the free end of the pivoted pull-bar, a normally-closed track-circuit having an electro-magnet in said circuit, having a pivoted armature adapted and arranged to fall under the pivoted pull-bar when released from contact with the core of the electro-magnet, a normally-closed independent circuit having current through the armature of said electro-magnet, an electro-magnet in said independent circuit, and pivoted armatures on said last-named electro-magnet arranged to lock the sliding bar at the limit of its movements, substantially as described.

3. The combination, with a series of insulated sections of railway-track and a series of independent track-circuits laid thereto, an electro-magnet in each of said circuits, and a railway signaling apparatus, of an

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independent electric circuit having current through the armatures of all the electro-magnets in series, and closed and opened thereby, and an electro-magnet in said independent circuit having armatures arranged to lock the apparatus in normal position and against return when drawn back, substantially as described.

4. The combination, with a railway signaling apparatus, a circuit, as 5, and battery, as I, said circuit being broken and closed by the breaking and closing of any of the track-circuits, of an electro-magnet,

G, disposed in circuit 5, having independent armature-bars g^2 g^3, pivotally supported on the rod, as g', to contact, respectively, with the cores of said electro-magnet above and below their axes, and throw their lower ends in opposite directions and lock and unlock the apparatus, substantially as described.

5. The combination, with the casing, the sliding bar arranged therein, and a hand-lever adapted to reciprocate the sliding bar, of a series of pull-bars pivotally secured to the sliding bar, and arranged to rest in a horizontal position, and formed with hooked ends, a series of pull-bars arranged to slide independent of each other in a horizontal plane and have their free ends secured to the semaphore-strands, and formed with cam-blocks on their upper edges, except the lowest bar of the series, and having hooked ends to engage with the hooks on the pivoted pull-bars, a series of disks having bars pivotally suspended therefrom and arranged to operate as described, a series of normally-closed railway-circuits, an electro-magnet in each of said circuits having armatures adapted and arranged to fall under the pivoted pull-bars when released from contact with the cores of the magnets, an independent electric circuit having normally a current through the armatures of all the electro-magnets in series, and an electro-magnet in said independent circuit having armatures arranged to lock and unlock the sliding bar, substantially as specified.

6. The combination, with the track-circuit, the electro-mechanical signal-actuating mechanism, and the independent local circuit having the interlocking mechanism mounted therein, of the shunt-circuit having currents through an armature-lever of the interlocking device and an audible signal interposed in the circuit, substantially as described.

7. In combination with the pull-bars of an electro-mechanical signal mechanism, an electro-magnet having an armature pivotally attached thereto, and formed at its free end with a projection struck at right angles to the armature, and disposed and arranged to drop down and lodge under the pull-bar when the electro-magnet is demagnetized, substantially as described, and for the purpose stated.

8. The combination, with the hand-lever and the vertical sliding bar arranged to be reciprocated by said lever, of a series of hooked pull-bars pivotally secured to the sliding bar and supported thereon in a horizontal position, a series of track-circuits having an electro-magnet in each circuit, provided with pivoted armatures having projecting pieces arranged to fall under said pull-bars when the circuit is broken, a series of sliding pull-bars arranged to slide independently of each other in a horizontal plane, means, substantially as described, whereby the pull-bars below the one drawn are lifted up, an independent local circuit having mounted therein an electro-magnet the armatures of which are projected in the path of the sliding bar, and a series of circuit-closers in said independent local circuit, having conducting-connection to all the electro-magnets in series, a single circuit-closer being operated by each of the sliding pull-bars, whereby the interlocking magnet is energized and the armature-lever unlocked when two or more track-circuits are broken, substantially as specified.

9. The combination, with an electro-mechanical signal mechanism, having a series of track-circuits and an interlocking circuit opened and closed by the opening and closing of the track-circuits, of a series of circuit-closers opened and closed by the movements of the pull-bars, and having circuit-conductors to the armatures of each of the electro-magnets in the track-circuits, whereby when two or more of the track-circuits are broken the circuit with the interlocking magnet shall be established, substantially as described.

10. The combination, in an electro mechanical signal apparatus, of two or more semaphores, two or more pull-bars having connection to a single sliding bar, two or more electro-magnets having armatures arranged to fall under the pull-bars, and a single hand-lever connected to the sliding bar, substantially as described.

11. The combination, with an electro-mechanical signal mechanism, of a circuit-closer composed of a series of disks of non-conducting and conducting material placed in alternation, an insulating-core centrally disposed therein, and an insulating-plate projected across the circumferential face thereof, a series of metal conductors mounted in independent relation on the conducting-disks, and flanges radially arranged on the side of said disk, substantially as described, and for the purpose stated.

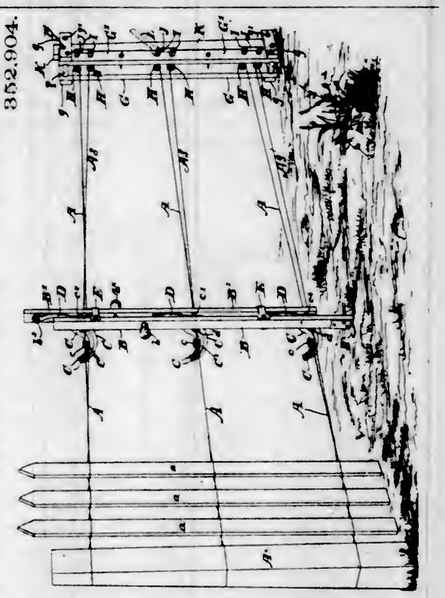
352,904. FENCE-WEAVING MACHINE. HARRISON OSBORN, Richmond, Ind. Filed June 5, 1886. (No model.)

Claim.—1. The combination of two adjacent vertical weaving-bars, the slotted bars C, and the pivoted bars D, each having a wire-retaining device, clasps for holding the bars in position, and handles for operating them, in the manner and for the purposes substantially as set forth.

2. The combination of two vertical parallel weaving-bars, clasps for holding them in position, handles for operating them, and slotted bars C and pivoted arms D, each having holes for the wires, for the purposes and uses substantially as set forth.

3. The combination of two vertical weaving-bars having the slotted bar C and pivoted bar D, each provided with a wire-retaining device attached thereto for weaving the wires and slats together, lugs for holding them the proper distance apart, and clasps for holding them in position while in motion, substantially as set forth and described.

352,904.



4. The combination of two vertical weaving-bars secured together, one having the slotted bars C, provided with a wire retainer or holder, and the other having the pivoted bars D, provided with a wire retainer or holder, substantially as described.

5. The combination of bars B and B', clasps E, slotted curved bars C, having recesses c, curved pivoted bars D, having holes d, lugs c^2 c^3 c^4 between the bars B and B', plate or stop F, and the handles b b', substantially as described.

6. The curved slotted bar C, rigidly attached to bar B, and having recess c near its middle, in combination with curved bar D, pivoted at the top to bar B', having lug D', with recess d at its outer end, by means of which it is made to traverse slot c', as and for the purpose set forth.

7. The rigidly-attached bar C and pivoted bar D, formed and attached as described, in combination with upright bars B B', spools H H, bolts I, nuts i i, frame G, G', and P, bolts P', and arms g g, substantially as and for the purposes set forth.

8. The frame G, G', and P and bolts P', in combination with spools H, bolts I I, nuts i i, uprights B B', and bars C D, constructed in the manner substantially as and for the purposes set forth.

9. The frame G, G', and P, in combination with spool H, having flange h^3 and square part h, bolt I, and nut i, substantially as and for the purposes set forth.

10. In combination with the frame G G', spools H, bolts I, and nut i, the long double washer J, for the purposes specified.

11. The curved slotted bar C, rigidly attached to the upright B, and provided with the recess c for the wire A, as herein set forth.

12. The curved slotted bar C, rigidly attached to the upright B, and provided with the recess c for the wire A, in combination with the arm D, pivoted to bar B', and provided with recess d for the wire A^2, as herein set forth.

13. The curved slotted bar C, rigidly attached to the upright B, and provided with recess c and slot C', open at its outer end, for the purposes specified.

14. The curved slotted bar C and curved pivoted bar D, provided with recesses c d, respectively, in combination with pins c' d', substantially as shown and described.

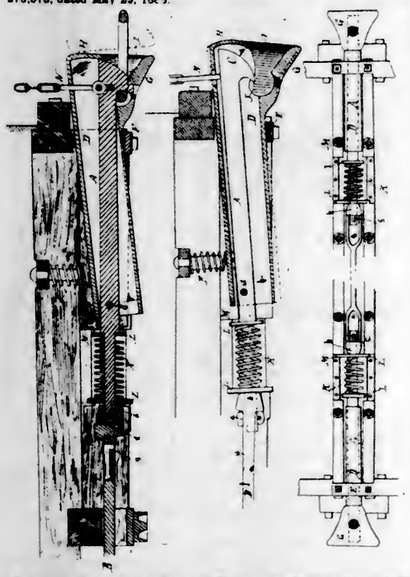
15. In combination with a tension device and a fence-post, the within-described weaving device, consisting, essentially, of the uprights B B' and the curved slotted bar C and curved pivoted bar D, substantially as shown and described.

16. In a wire-fence machine, the combination of bars B and B', having devices for crossing the wires, and the lugs c^2, c^3, and c^4, for the purpose specified.

17. The frame G, G', and P, spool H, bolt I, and nut i, in combination with projecting arms g g, post K, and bolt g^2, for attaching the tension devices to the post, in the manner and for the purposes herein set forth.

REISSUES.

10,782. CAR-COUPLING. CHARLIE E. MARK, Flint, Mich., assignor of one-half to J. W. Begole, D. S. Fox, and Geo. L. Walker, same place, assignors, by direct and mesne assignments, to the Marks Automatic Car Coupler Company, Cleveland, Ohio. Filed Jan. 31, 1884. Original No. 278,573, dated May 29, 1883.



Claim.—1. In a car-coupling, a buffer-box constructed substantially as described, and not connected with the buffer-spring, a hook draw bar or head, the rear end of which passes through the rear end of such buffer-box, and is pivotally connected with the draw-bar proper, said draw-head carrying upon it the buffer-spring, substantially as and for the purposes specified.

2. The combination, with two draw-bars, each carrying at its rear end a spring and followers, of a connecting-bar provided at each end with a yoke terminating in a socket, and each socket embracing the adjacent end of the draw-bar, and a key passed through the end of the draw-bar within the yoke, whereby the couplings are connected with each other and each spring acts within its own draw-bar both in buffing and drawing, substantially as described.

3. In combination with the buffer-box D and fulcrum-plate E, the hooked draw-bar A, having the said box D pivoted at its rear end thereto, and provided with pin N, and lifting devices, substantially as described, whereby when the draw-bar is elevated the front end of the buffer-box is depressed and the coupling released, as set forth.

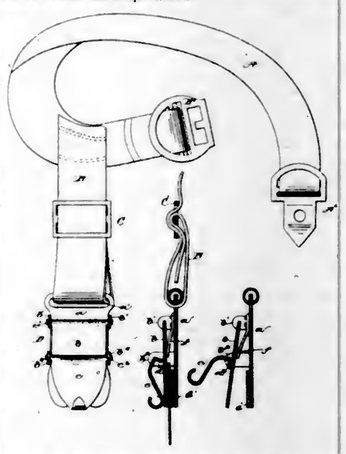
4. In a car-coupling device, and in combination with a draw-bar inclosed therein and pivoted thereto, a buffer-box supported upon a fulcrum-plate and provided with a spring by means of which the vertical working movement of said buffer-box is limited, substantially as set forth.

5. In a car-coupler, the combination of the pivoted buffer-boxes D, suitable fulcra, E, the hooked draw-bars A, and suitable elevating devices, with the downward-acting springs F, and means, substantially as described, for operatively connecting said draw-bars and buffers, as set forth.

6. In a car-coupling, a bar running from the rear to the forward coupling, and two springs—one for each part of the coupling—connected with said bar, and the whole constructed and arranged to act on the rear spring first and then upon the front and rear springs jointly, substantially as described.

7. In a car-coupling, two draw-bars and a bar connecting the same, combined with two sets of movable follower-plates, one set for each draw-bar, and each set provided with a spring and a point of resistance for each plate, the rear follower-plate of each set being normally in contact with its point of resistance and the forward or front plate normally out of contact with its point of resistance, substantially as described.

10,783. GARTER. WILLIAM S. WARDWELL, Rutland, Vt., assignor to George Frost, George H. Phelps, and George A. Frost, West Newton, Mass. Filed July 16, 1886. Original No. 152,200, dated June 16, 1874. Reissue No. 9,143, dated Apr. 6, 1880.



Claim.—The combination of the band A, arranged to buckle around the leg immediately below the knee, and the strap B, pendent from the said band A at but one side thereof, as shown, and a clamping device attached to the said pendent strap B to grasp the stocking and hold up the same, substantially as and for the purpose herein set forth.

PHOTO LITH NORRIS PETERS WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BAILEY.

Decided November 9, 1886.

1. When an application for design patent is received which is a clear, palpable, and manifest error, and for the subject-matter of which applicant is entitled to, if anything, a mechanical patent, the case should be withheld by the application clerk and applicant advised.
2. When, however, such error is not plain, palpable, and manifest, and the case goes to a division for examination, the preliminary fee cannot be refunded to applicant or applied upon a new application.

DESIGN FOR A CARPET-STRETCHER.

Application of Martin Bailey filed complete June 4, 1886, No. 204,162.

MONTGOMERY, *Commissioner:*

On the 3d of May last this application was received, in which applicant asked for a patent for a design for the term of three years and six months. The application was accompanied by a fee of ten dollars. On the 4th of May the drawing was discovered to be informal. The case was therefore sent to the draftsman's division for the correction of the drawing, and on the 4th of June a new drawing was prepared by the Office, for which applicant was charged three dollars. On the 1st of July the application was reached for examination, and applicant informed by Office letter that it was "manifest from the drawing and description that the subject-matter is for a mechanical improvement, and not for a design." On the 1st of November, instant, applicant transmitted to the Office his petition for a mechanical patent, together "with five dollars to complete preliminary fee," and asked that his new application be received and filed and considered in the usual way without further payment.

I think it very plain that applicant's request cannot be granted.

In the case of *Ex parte* Sellers (1870 C. D., 58) Mr. Commissioner Fisher held that a fee of fifteen dollars which had been forwarded to the Office with an application for mechanical patent could no thereafter, when applicant discovered that he was not entitled to a mechanical patent, but was entitled to a design patent, be applied in part payment of the fees required for such design patent. The reasoning of that case seems to apply to the case under consideration. Suppose, for instance, that the examiner had, as he had the undoubted right to do, and as applicant had the undoubted right to insist upon, passed upon the application for design patent as he received it. Applicant would have been rejected, and would have been entitled to appeal. Upon such appeal the examiner had been affirmed. Would applicant claim under these circumstances that his original and first fee should be applied upon a fee which should thereafter accompany a new application?

I have no doubt that where an application is received which is palpably and manifestly a mistake it would be the duty of the application clerk to withhold the same and notify applicant thereof. It must, however, be a very plain case—such a one as admits of no question—or such applicant might properly charge the application clerk with impertinent voluntary advice. It can hardly be presumed, however, that such manifest and palpable mistakes will occur except in rare cases. When, however, such error is not plain, palpable, and manifest, and the case goes to a division for examination, I see no reason why the accompanying fee should be refunded, and no practical ground upon which such refunding can be asked for or based.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of Illinois.

POPE MANUFACTURING COMPANY v. OWSLEY. OWSLEY v. POPE MANUFACTURING COMPANY.

Decided June 2, 1886.

1. EQUITY JURISDICTION—LICENSE—DISCOVERY.
   Equity has jurisdiction to compel a discovery of the number of patented articles made under a license, where the licensee neglects or refuses to make monthly reports as he has covenanted to do, and a covenant to make monthly reports is, in fact, a covenant for a monthly discovery of the work done under the license.
2. RESTRICTED LICENSE—INFRINGEMENT.
   Where a license does not purport to give an unlimited right to the use of the patent, but restricts the right to machines of certain descriptions, when licensee makes machines not in conformity to his license, but within the patent, he not only violates his express covenant not to do so, but violates the patents.
3. REVOCATION OF LICENSE.
   A license provided that licenser might terminate it by notice in writing. He sent a postal card to licensees, reading: "Your royalty return for February has not come to hand. Failure to forward same within five days from March 10th subjects your license to revokement." *Held* that this paper fell far short of a notice in writing of a revocation or termination of the license.
4. WHEN LICENSEE ESTOPPED TO DISPUTE VALIDITY OF PATENT.
   Licensees under patents covenanted that they would not dispute or contest the validity of the same or of complainant's title thereto. *Held* that as long as the licenses remain in force defendants are estopped by the terms of their agreements from denying the validity of the patents in question.
5. THREATS OF SUIT—EFFECT ON LICENSE TAKEN IN CONSEQUENCE.
   The mere fact that the owner of a patent alleges an infringement and threatens suit unless a settlement is made with him cannot be held to make such settlement void for fraud or intimidation.

6. SAME.

The fact that defendants feared the result upon their business of a suit for infringement of patents, and therefore settled and took a license, is no support to a charge of fraud in the procurement of the license.

7. LICENSE UNDER EXPIRED PATENT.

Where a license was granted covering a large number of patents, including one which had already expired, but which licenser owned and licensee had infringed, and there was no proof that it was included by the licenser in bad faith, *held* not enough to taint the transaction as fraudulent.

8. SAME.

The date or duration of a patent is a matter of public record, of which a licensee is as much bound to take notice as the licenser.

9. EFFECT OF DECISION ADVERSE TO PATENT.

A license under patents is not affected by the fact that in a suit between other parties the patents have been adjudged void where the licensee has agreed not to contest their validity.

10. ESTOPPEL.

Where licensee under a patent agrees not to contest its validity nor licenser's title, he cannot urge want of patentability nor any question save that whether his devices are covered by it.

11. SAME.

Where the alternative to settle a claim for infringement or litigate is fairly tendered to a party and he chooses to settle, he cannot afterward retreat from the settlement merely because some other party has successfully contested the validity of the patents.

12. CONSTRUCTION OF INSTRUMENT.

Where a license included a large number of patents, and provided that licensees should pay a stipulated royalty on all machines made by them "embodying in their construction or mode of operation the inventions and improvements shown and described in each, all, or either of said letters patent," *held* that so long as licensees used either of the patents they were liable to pay the royalty named in the license.

Messrs. Coburn & Thacher for the complainant.
Messrs. West & Bond for the defendant.

BLODGETT, *J:*

The original bill in this case alleged that on the 6th day of October, 1879, complainant entered into an agreement in writing with the defendants, then doing business under the firm-name of the St. Nicholas Toy Company, which agreement is annexed to the bill, and made a part thereof, as Exhibit B, in which agreement it is recited that complainant owns and controls certain letters patent of the United States for the inventions therein set forth and described, enumerating eleven patents, and that defendants "are desirous of securing license and authority to work under said patents, and make and sell the inventions therein described." Wherefore it is agreed:

1. The complainant licenses defendants, subject to conditions in said agreement contained, to make, use, and sell to the full end of the term for which each of said letters patent were granted, wooden bicycles whose wheels do not exceed fifty inches, made principally of wood, embodying in their construction or mode of operation the inventions or improvements shown or described in each, all, or either of said letters patent.

2. The defendants agree to make full and true returns in writing to complainant, on or before the tenth day of each calendar month in each year, of all bicycles containing said improvements so manufactured by them during the month preceding, and the name or names of any or all purchasers of the same, and to pay the royalty or license-fee accruing thereon on or before the said tenth of each of said months; and to keep full, true, and correct books of account, open at all reasonable times to the inspection of the complainant, in which shall be entered and set down all velocipedes made and sold by them, and to mark each machine sold "Patented," and to pay complainant as license-fee or royalty upon each and every bicycle whose wheels do not exceed forty-two inches in diameter one dollar, and upon each one whose wheels exceed forty-two inches, and do not exceed fifty inches, two dollars, so manufactured and sold by the defendant, containing the improvements set forth and described in said letters patent or either of them.

Defendants also agreed that they would not make or sell any bicycles other than those having wooden wheels, and not of greater diameter than fifty inches; "nor in any manner, directly or indirectly, violate or infringe upon said letters patent, or either of them; nor dispute or contest the validity of the same, or of complainant's title thereto," and in case the defendants should violate any of the provisions contained in the said agreement on their part the plaintiff might terminate said license by notifying the defendants in writing that their said license had been revoked. The bill then avers similar agreements or licenses made between the same parties, one bearing date July 16, 1881, two dated November 1, 1881, and one dated February 3, 1882, and enumerating different patents as owned by the complainant, and licensing the defendants to make bicycles and velocipedes of different sizes and construction, and baby-carriages, with wire wheels and rubber tires, all of which licenses contain substantially the same provisions as to payment of royalties or license-fees called for by each of them, the making of monthly reports, the keeping of books, the agreement of defendants not to contest or dispute the validity of the letters patent enumerated in the licenses, and the provision for the termination of licenses by the complainant in case of default by defendants, such as are contained in Exhibit B, copies of all these licenses being attached as exhibits to the bill, and made a part thereof, Exhibit B enumerating eleven patents, Exhibit C fourteen patents, Exhibit D thirteen patents, Exhibit E eleven patents, and Exhibit G twelve patents, as owned and controlled by complainant, describing such patents by their official numbers, dates, and the names of the persons to whom they were respectively granted, and describing some of them as reissues. The bill then charges that defendants, acting under the said licenses, made monthly reports and paid royalties as called for by the respective instruments, up to the 1st of March, 1883, when they refused to pay any more royalties, refused to make any more reports, and, although there is no specific or direct allegation that defendants still continued to manufacture articles on which they should report and pay royalties as provided by said licenses or agreements, yet it is indirectly so stated. It is also stated in the bill that the defendants are making and selling velocipedes and bicycles of different sizes and construction than were allowed by their license, in violation of their covenants contained in said license or agreement that they will not make any other bicycles or velocipedes or wheels than such as are described and authorized by the licenses. The prayer of the bill is for a discovery of the number of bicycles and wheels for baby-carriages made by defendants in accordance with and under the provisions of the several licenses mentioned since they have failed to make their monthly reports, as called for by said agreements; that they be decreed to make reports in writing, and to pay the license-fees found due, and also for an injunction restraining the defendants from selling any velocipedes, bicycles, or wheels specified in the several licenses without affixing or stamping thereon the word "Patented," and also that the defendants be enjoined and restrained from making or selling bicycles or other machines described in the said licenses of different construction from those which they are allowed to make and sell by virtue of their several licenses.

Defendants, by their answer, admit the making of the agreements, and the making of reports and payment of royalties up to and including the month of February, 1883, and their refusal to make such reports and pay royalties since that time. They allege, by way of defense, that the several licenses were obtained from them by fraud; that several of the patents mentioned in the licenses were null and void at the time said licenses were granted; that the machines manufactured and sold by the defendants are not covered by any of the said patents, and do not infringe the same; and that the complainant has declared the licenses forfeited, whereby the defendants claim to be released from all obligation assumed by them in said agreements or licenses. Defendants have also filed a cross-bill, in which they seek to have the agreements or licenses in question set aside on the ground that they were obtained by fraud, the fraud charged mainly consisting in the fact that one of the patents enumerated in the licenses had expired at the time the licenses were taken, and others were very nearly expired, but by stating the date of the reissue, instead of the date of the original patent, defendants were induced to believe that the said patents had a much longer time to run than they in fact had; that several of the reissued patents were void by reason of enlarged claims, and that defendants were intimidated by threats of lawsuits and injunctions into taking said licenses and making the agreements therein contained; also that the machines made by the defendants do not infringe the claims of either of said patents, when said patents are properly understood and construed by the state of the art; and, further, that two of said patents have been declared void by a court of competent jurisdiction since said agreements were made. The prayer of the cross-bill is that the agreements be set aside, and the defendants released from all obligation to observe the same, and for an injunction restraining the defendants in the cross bill from asserting said patents as against the complainants in the cross-bill.

The original bill alleged the making of another agreement described as "Exhibit A," and another is described as "Exhibit I;" but as the proof shows that defendants were released from the payment of royalty under Exhibit A at the time the same was made, and its only purpose seems to have been for the settlement of past claims, and that Exhibit I contained a clause allowing the defendants to revoke or cancel the same, of which they availed themselves soon after this bill was filed, it is not deemed necessary to consider them further.

Soon after the filing of the original bill, on motion of complainant, an injunction was ordered unless the defendants should file a bond in the penal sum of twelve thousand dollars, conditioned for the payment of royalties, with interest and such damages as the court should find on the hearing had accrued up to the date of the order, and also that the defendants should report to the complainant each month after the date of the order the number and kind of machines made by them under the several licenses held by the defendants from the complainant, and pay into court, or to complainant, the royalties accruing after the date of such order. Defendants filed the bond called for by this order, and have reported from month to month in pursuance thereof, and no exception has been taken to the correctness of these reports.

The first and substantially the only question raised by the defendants in the original bill is that the complainant has a complete remedy at law, and therefore a court of equity has no jurisdiction. Upon this point I think the case made by the bill showing an agreement by which the defendants were to report monthly the number of machines made under their licenses, and a covenant not to make machines, except of a certain description, and not to dispute the validity of the patents mentioned in the licenses, and that the defendant's had violated their agreements in all these particulars, makes a clear case for the interposition of a court of equity. The covenant to make monthly reports is, in fact, a covenant for a monthly discovery by defendants of the work done by them under the complainant's patents. The licenses do not, any of them, purport to give the defendants an unlimited use of any of the patents, but only a restricted right to make machines of certain sizes and descriptions, so that when defendants made machines not in conformity to the licenses they violated, not only their express covenant not to do so, but also the complainant's patents, or some of them, covering such machines.

As to the allegation in the answers that the licenses had been forfeited by the complainant before the commencement of these suits, and the defendants are thereby relieved from the obligation resting upon them therefor, it is sufficient to say that by the terms of the licenses complainant was empowered to terminate them by "notifying defendants in writing that their said licenses had been revoked." The proof in the case fails to show that any such notice was ever given by the complainants. The only element of proof bearing upon this question is a postal card written by one of the officers of complainant to defendants, dated March 13, 1883, reading as follows:

Your royalty return for February has not come to hand. Failure to forward same within five days from March 10th subjects your license to revokement.

This paper falls far short of a notice in writing of a revocation or termination of the licenses, and was evidently written for the purpose of cautioning defendants in regard to the danger they incurred by neglecting to make their monthly reports. I think there can be no doubt that if complainant had instituted any judicial proceeding upon the ground that it had revoked this license, and defendants had resisted such claim, any court would have held that the notice in question was not a notice of revokement. This feature of the defense, therefore, I think wholly fails for want of proof.

By the terms of their agreements defendants are estopped, as it seems to me, from denying the validity of the letters patents in question, and cannot be heard to say that the patents were void as long as these licenses remain in force.

This brings me to the consideration of the allegation contained in the cross-bill, as to the procurement by the complainant of these licenses by fraud. The proof as to these allegations of fraud is, in substance, that the complainant, about June, 1879, sent to defendants a printed circular stating that it was the owner of certain patents, giving a list of them, and describing them by the official numbers, dates, and names of the patentees, and stating that—

The complainants had been advised by eminent counsel that said patents cover, broadly, the application of a foot-crank to the front axle of a bicycle or velocipede, and the application of such a foot-crank for the entire propulsion of the front axle of a bicycle

or velocipede having only one front wheel and handle to guide the same. We hereby give notice that we shall proceed against any and all parties who infringe either of said letters patent, or who, without authority or license from us, make, use, or sell any velocipedes or bicycles constructed substantially like either of the improvements set forth and described in said letters patent, that suits have already been brought in the several circuit courts of the United States against infringers, and in each case the said patents have been sustained, and the infringing parties have recognized the validity of said patents, and in some cases have taken out licenses and paid royalty, and in others have stopped the manufacture of the same.

On July 23, 1879, complainant wrote defendants a letter, as follows:

We desire to call your attention to the fact that you are infringing our letters patent as per inclosed printed circular. We do not suppose that you intended to willfully disregard our rights, but rather from want of knowledge that we had a valid claim. Should you desire to continue to work under our patents, we think we can agree upon a satisfactory settlement for past damages and grant you a license for future use.

On September 8, 1879, complainant's attorneys wrote defendants as follows:

We are instructed by our clients, the Pope Manufacturing Company, to inform you that unless immediate settlement is made for the infringement of velocipede patents owned by them suit will be commenced against you. The inclosed lists will inform you of the patents referred to. We are authorized to make settlement with you, and give you a license, if you desire to do so without litigation, on terms which you can learn by calling at our office. Unless settlement is made within ten days from the date hereof, we shall proceed to commence suit against you for infringement at once. We think, however, the terms we are authorized to propose to you are such you will have no hesitation in settling.

The proof shows that the list of patents included in both these letters was the same as that in the June circular. On October 6, 1879, the "License B" was taken by defendants and a full settlement made of the matters called for by the license, Exhibit A.

It is now urged that as Reissued Patent No. 3,319 had expired on August 12, 1879, and because several of the other patents had been reissued with extended claims, and under the recent rulings of the Supreme Court might have been successfully resisted, therefore the whole transaction is fraudulent and void, not only as to the agreement of October 6, 1879, but those subsequently made in July, 1881, November, 1881, and February, 1882. There is no pretense or proof that the complainant did not own these patents at the time the circular of June, 1879, was sent out. The patents themselves were a matter of public record, of which the defendants, as well as the entire public, were bound to take notice. The circular gave the defendants full and explicit information as to the claims of the complainant to those patents, and they had from June to October in which to investigate and determine for themselves as to the alleged infringement and the validity of the several patents. The mere fact that the owner of a patent alleges an infringement, and threatens suit unless a settlement is made with him, cannot be held to make such settlement void for fraud or intimidation. These parties stood in no relation of confidence which entitled the defendants to accept the statement of complainant upon the mixed questions of law and fact in regard to the validity and scope of its patents. The parties were dealing at arm's-length. The defendants were given their choice between accepting the terms offered by the complainant and a lawsuit. They had time enough allowed them for investigation and reflection. The fact that they feared the result of litigation upon their business, and therefore settled, is no support of the charge of fraud. Any infringer could escape his settlements and liability for a patent if such a defense were admissible. There is no proof whatever that the complainant, or its officers, acted in bad faith. The mere fact that the Smith patent, No. 3,319, had actually expired when the settlement was effected, although it was in force when negotiations commenced, does not, as it seems to me, taint the transaction as fraudulent. In the first place, if it were a valid patent, and the defendants had used it, they were liable to damages up to August 12, 1879, when it expired. In the second place, the patent was in force when the circular was sent out, and as the proof shows the complainant had previously issued quite a number of licenses to others, undoubtedly the blank agreement was prepared while the patent was in force, and by mere inadvertence this patent was not crossed off the list when the license was issued. And, finally, the date or the duration of this patent was a matter of public record, which the defendants were as much bound to know as the complainant or its officers. No attempt at concealment seems to have been made which can be claimed to be a fraud.

It is further urged that this "dead patent," as it is called, was the principal and broad patent controlling the use of important elements in the construction of velocipedes, and that the opinion of "eminent counsel" referred to in the circular was based on this patent alone. While there is no proof in the record as to which of the thirteen patents described in this circular was considered by the counsel who gave the opinion referred to, it is a sufficient answer to this suggestion that the patent undoubtedly was in force and properly considered when the opinion was given; and if it had expired before the defendants closed their treaty with the complainant the defendants were as much bound to know it as the complainant. If the complainant had demanded instant settlement without time to examine or take the advice of counsel as to the scope or validity of the patents in question, or the opinion of experts as to the fact of infringement, there would be much more moral force in this line of argument; but the matter was not pressed with any undue or unconscionable haste. The time, from June to October, which was allowed to defendants to examine the entire field seems to me to have been liberal and sufficient.

It is further urged that two of the reissued patents were held void by the learned circuit court judge of the sixth circuit, (*Pope Manuf'g Co.* v. *Marqua*, 15 Fed. Rep., 400;) but this decision was rendered more than a year after the last license now in question was made, and after the Supreme Court of the United States had, in *Miller* v. *Bridgeport Brass Co.*, (104 U. S., 350,) taken a radical departure from the rule formerly held by that court as to the validity of the reissue. At the time the first license was taken the general rule followed by the courts and acted upon by the public in reference to reissued patents was that a reissue taken at any time for expanded and enlarged claims was valid if the foundation of such claims could be found in the specifications, or even the specifications aided by the drawings, and with the law thus expounded it would certainly be harsh to charge the holder of a reissued patent with fraud for asserting its validity and claiming damages for its infringement. The *Bridgeport Brass Co.* case had been decided by the Supreme Court when the later licenses were taken, and the defendants had as many facilities as the complainant for determining whether this patent came within the rule declared in that case.

It is urged, however, that the decision of the Circuit Court for the Southern District of Ohio that these two patents are void amounts to an eviction, and, as I understand the argument of the learned counsel for defendants, invalidates all the agreements for licenses in which this patent was included with the others. I cannot agree with the learned counsel as to this conclusion. In the first place, that adjudication is binding only on the parties to that suit, and does not affect the relation between the parties to this contract; and, secondly, the licenses in question included a large number of patents, and provided that defendants should pay a stipulated royalty on all machines made by them "embodying in their construction or mode of operation the inventions and improvements shown and described in each, all, or either of said "letters patent." My construction of this clause of the agreement is that so long as the defendants used all or either of these patents while the patents remained in force they were liable to pay royalty according to their contract; but when the patents expired by lapse of time, so that the machines described in one or more of the licenses could not be made without embodying the construction or mode of operation shown in any of the patents covered by the licenses, the obligation to pay royalty under such licenses ceased on the well-accepted principle that the license terminates with the patent. But these patents are not, in my opinion, "dead," as between these parties, merely because the judge in another circuit has held them void in some suit before him between different parties. By taking the licenses these defendants waived and abandoned their right to contest the validity of these patents, or any of them, and agreed to pay the stipulated license-fees, and merely because some one else has successfully contested the validity of one or more of these patents the defendants are no relieved from their obligations. The alternative to settle or litigate seems to have been fairly tendered them, and they chose to settle, and cannot now retreat from the settlement they made.

Much time was devoted by the learned counsel for defendants in his brief and argument to the discussion of the effect of the prior art in limiting the scope of the claims of these patents, and even urging a want of patentability in the devices covered by some of them for want of novelty. These questions, it seems to me, are all foreclosed. By the defendants taking the licenses they admit the validity of the patents, and the only question left open for them is whether the machines made by them are within the terms of the claims in the patents. They have waived all questions of limiting or escaping the claims by the prior art by their agreement embodied in the license; but if they have not made this waiver by their license they have done so by their reports made in pursuance of the second clause of the licenses, as this clause required them to report monthly "all machines containing said improvements," and by making such reports they have admitted that the machines herein mentioned contain said improvements.

Without further discussion of the testimony of the defendants in support of their answer and cross-bill, I will say that I do not think the ground taken by the defendants for annulling these licenses is supported by the proof, or sanctioned by the rules governing the relations of the parties; nor do I think that the proof shows that the complainant has ever canceled, or intended to cancel or terminate, these licenses, nor the provisions which they respectively contain.

Upon the question whether the defendants have manufactured machines prohibited by their agreement, for which the complainant should have damages awarded, the proof is not satisfactory as the record now stands, and a reference may therefore be had to ascertain what machines the defendants have so made in violation of their agreements, and which are now covered by the complainant's patents yet in force, or which were yet in force after the making of said agreements and before the patents expired, if they have expired.

I am not advised as to whether the defendants have paid complainant the amounts shown and called for in their monthly reports made under the order of court entered January 21, 1884, or whether they have paid the amounts so reported into court or not.

U. S. Circuit Court—Northern District of Illinois

HALLIDAY *et al.* v. COVEL.

Decided March 22, 1886.

1. INFRINGEMENT—SAW-SHARPENING MACHINES.

Claims 12, 13, and 14 of Reissued Letters Patent No. 10,252, granted December 5, 1882, to W. L. Covel, and the fourth claim of Patent No. 254,869, granted March 14, 1882, to William H. Halliday, for improvements in saw-sharpening machines, construed and *held* infringed.

2. EQUIVALENTS.

The only defense in this case was non-infringement; and while it was true that defendant's mechanism was not an exact copy or reproduction of the patented machines, and there was a noticeable display of ingenuity and skill in an attempt to evade the patent, *held* that defendant's mechanism worked out the same result as complainants', and by substantially the same means, using equivalent parts to perform the functions performed by the complainants' construction.

Mr. G. L. Chapin for the complainants.

Mr. Pliny B. Smith for the defendant.

BLODGETT, *J.*:

Complainant by this bill seeks an injunction and accounting for the alleged infringement of Reissued Patent No. 10,252, granted December 5, 1882, to complainant, as assignee of W. L. Covel, for an improvement in saw-sharpening machines, and Patent No. 254,869, granted March 14, 1882, to William H. Halliday, for an improvement in saw-sharpening machines. As to the reissued patent, the original was granted May 11, 1876; but the infringement is only alleged as to claims 12, 13, and 14 of the reissue, which are substantially the claims found in the original patent. As to the Halliday patent, (No. 254,869,) infringement only of the fourth claim is charged. The bill in terms also charges the infringement of Patent No. 222,386, granted December 9, 1879, to W. L. Covel, and assigned to complainant; but this charge in the bill was not pressed, and no claim was made under it at the hearing. Both patents in controversy pertain to machines for sharpening saws, in which the saw and the grinding-wheel are brought in contact automatically. It is shown by the proof that saw-sharpening machines were used before any of these devices were invented; but it is contended by complainant that a difficulty was encountered in all the older machines, from the fact that as the teeth in the same saw are not of equal length

therefore no reliable automatic adjusting-feed had been obtained before the Covel patent, and that the chief merit of this device is in overcoming this difficulty, and in making a mechanism which shall automatically sharpen the teeth of the saw, without further attention, by bringing the teeth in contact with the grinding-wheel. The chief feature of the Covel device is the latch-feed, by which the pawl or dog feed acts upon the tooth of the saw next after the one to be ground, to bring the tooth to be ground in contact with the grinding-wheel, and the claims of the patent in controversy here all refer to this feature of the mechanism and the parts by which it is operated. These claims are—

12. The combination of a latch-feed, I, a screw-threaded pivoted bolt, *c*, and a suitable guide and stop, as shown, and for the purpose described.

13. The combination of a sliding block, a screw-rod, D, lever E, pitman F, and crank-shaft G, as and for the purpose set forth.

14. The combination, with a latch-feed, of a pivoted lever, J, pitman K, rock-shaft O, cranks M N, tappet P, and crank L, as and for the purpose described.

The special features of the Halliday patent (No. 254,869) are an oscillating device which operates, with a tilting frame, to bevel the edges of the saw-teeth during the sharpening process, and a continuous cam which co-operates with the tilting frame and the oscillating support to the grinding-wheel, to secure the movement by which the beveling is done. The claim of this patent in controversy is the fourth, which is as follows:

4. The tilting frame 2 3 4 *n*, in combination with a continuous cam, L, and supporting-frame 16 *m*, and wheel F, with the feed devices S R T X, as and for the purpose specified.

The only defense relied upon is non-infringement. After careful consideration of the proofs I am satisfied that the defendant's machine embodies in its construction and mode of operation the principle of the reissued Covel patent as to its feeding device, and the Halliday patent as to its mechanism for tilting the grinding-wheel. It is true the defendant's mechanism is not an exact copy or reproduction of the machines described in the patent. There is, in fact, as there often is in infringing machines, a noticeable display of ingenuity or skill in attempting to evade the complainants' patent; but the defendant's mechanism works out the same result as the complainants', and by substantially the same means, using equivalent parts to perform the functions performed by the elements of the complainants' construction.

There may be a decree prepared finding the defendant infringes the two patents as charged, and for an accounting.

U. S. Circuit Court—Northern District of Illinois.

CONSOLIDATED BUNGING APPARATUS COMPANY v. PETER SCHOENHOFEN BREWING COMPANY.

Decided July 26, 1886.

1. CONTEST IN PATENT OFFICE—INJUNCTION.

The action of the Patent Office in granting a reissue, after an exhaustive discussion and examination of the art, in which opposing interests to the grant were fully heard, is of weight in an application for a preliminary injunction to restrain infringement of the reissue.

2. SAME—INCIDENTAL CONSIDERATION OF PATENT—NOVELTY.

The patent sued on having been discussed in its relation to the state of the art in another suit, where it was held to anticipate the patent there sued on, and infringement being clear, such decision considered on the question of novelty and a preliminary injunction granted.

Mr. Wells W. Leggett, Messrs. Banning & Banning, and *Messrs. Dyrenforth & Dyrenforth* for the complainant.

Messrs. West & Bond, Mr. George B. Selden, and *Mr. John N. Beckley* for the defendant.

BLODGETT, *J.*:

This is an application for a preliminary injunction to restrain the alleged infringement by defendant of Reissued Patent No. 10,284, granted February 6, 1883, to John M. Pfaudler, Edward J. Kelsey, Josiah Sullivan, and James Sargent, (the last three being assignees of Pfaudler), for an apparatus for regulating the pressure in a series of fermenting-vessels, the original patent having been issued to Pfaudler, July 2, 1878, and the application for the reissue having been filed August 26, 1879.

It is stated in the specification that—

The invention has for its object to provide an effective apparatus for equalizing the pressure in a series of hogsheads or other vessels containing beer, wines, or other liquids in a state of fermentation, and for regulating the pressure of the gas caused by such fermentation, so that it shall not exceed a certain number of pounds to the square inch previously determined and gaged in the said apparatus.

The apparatus, as described in the specifications and drawings, consists of one or more reservoirs connected by pipes with the hogsheads or other vessels containing the fermenting liquids. To this reservoir is attached an escape-pipe with a pressure-gage attached, so that when the pressure in the reservoir exceeds the amount at which the gage is set the gas blows off through the escape-pipe until the pressure is reduced to the gage; and it is claimed that by this apparatus the pressure in the casks is equalized, the process of fermentation in the different vessels is made uniform, and, as applied to beer, the liquid settles and clarifies much more rapidly than by the old process of finishing.

Defendant denies the patentable novelty of the device and the validity of the reissue, but the use of an apparatus which in its mode of operation and effect is substantially like that covered by the principle of the complainant's device is admitted.

From the contention of the parties on the argument of this motion, and they each seem to have been fully prepared, it seems to me that complainant's rights under this patent must turn mainly upon the question of the novelty of Pfaudler's device.

As the proof now stands in the case it would seem that a very vigorous contest was made over the reissue of this patent, and the Patent Office, after an exhaustive discussion and examination of the state of the art, in which the interests opposed to the patent were fully heard, awarded the reissue.

In view of the action of the Patent Office in the face of vigorous opposition, and of the decision of Judge Brown of the eastern district of Michigan in the case of the *New Process Fermentation Company* v. *Koch*, where this patent was considered and discussed in its relation to the state of the art, I think complainant entitled upon the present showing to an injunction, as prayed for in the bill.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Order No. 376.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, November 12, 1886.

It is hereby directed that fifty copies each of all publications of this Office now on hand and a like number of all future publications be reserved from sale and distribution, and carefully packed in boxes provided for the purpose, properly sealed. Of the bound volumes of specifications and drawings, referred to in sections 490 and 491 Revised Statutes, only ten copies will be reserved.

The chief of the Issue and Gazette Division is charged with the execution of this order and with the custody of the publications reserved.

M. V. MONTGOMERY, *Commissioner.*

Order No. 377.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 16, 1886.

On the recommendation of the examiner in charge, the title of sub-class, "Track-cleaners, centrifugal," of Class 104, Railways, Division IV, is abolished, and the following new sub-classes established in place thereof:

Track-cleaners— Explosives, Stock-alarms.	Track-cleaners— Removing weeds.

In Class 61, Hydraulic Engineering, Division IV, the following sub-classes are abolished:

Sea-walls. Dams.	Harbors.

In lieu thereof the following are established:

Dams, sectional. Jetties, sectional. Breakwaters. Protecting shores.	Dams and levees. Wharves. Forming and preserving channels.

The following new sub-classes are formed in such class:

Canals, lock-gates. Gate, valves. Gates, bear-trap.	Caissons, ship. Coffer-dams. Cribbing.

In Class 159, Fire Escapes and Ladders, Division IV, the following additional sub-classes are formed:

Hoists, trolley. Blanket.	Bed bottom.

37 O G—8—i

Issue of November 23, 1886.

Patents	374	No. 352,905 to No. 353,278, inclusive.
Designs	10	No. 16,993 to No. 17,002, inclusive.
Trade-Marks	22	No. 13,811 to No. 13,832, inclusive.
Labels	7	No. 5,033 to No. 5,039, inclusive.
Reissue	1	No. 10,784.
Total issue	414	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Montana Territory	.....	.....
Arizona Territory	.....	.....	Nebraska	4	.....
Arkansas	.....	.....	Nevada	.....	.....
California	8	.....	New Hampshire	2	.....
Colorado	2	.....	New Jersey	15	1
Connecticut	11	1	New Mexico Territ'y	.....	.....
Dakota Territory	4	.....	New York	70	8
Delaware	1	.....	North Carolina	.....	.....
District of Columbia	2	.....	Ohio	33	.....
Florida	1	.....	Oregon	2	.....
Georgia	2	.....	Pennsylvania	34	5
Idaho Territory	.....	.....	Rhode Island	4	.....
Illinois	27	1	South Carolina	2	.....
Indian Territory	.....	.....	Tennessee	5	.....
Indiana	13	1	Texas	9	.....
Iowa	4	.....	Utah Territory	.....	.....
Kansas	3	.....	Vermont	3	.....
Kentucky	6	1	Virginia	2	.....
Louisiana	5	.....	Washington Terr'y	3	.....
Maine	1	.....	West Virginia	3	.....
Maryland	3	3	Wisconsin	5	.....
Massachusetts	45	2	United States Army	.....	.....
Michigan	6	.....	United States Navy	.....	.....
Minnesota	3	2			
Mississippi	3	.....	Total to citizens of the United States	359	25
Missouri	10	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	3	1
Austria-Hungary	2	.....	Holland	.....	.....
Belgium	.....	2	Mexico	.....	.....
Bohemia	.....	.....	Roumania	.....	.....
British Guiana	.....	.....	Nicaragua	.....	.....
Canada	7	.....	Russia	.....	.....
Central America	.....	.....	Scotland	.....	.....
Colombia, U. S. of	.....	.....	Switzerland	.....	.....
Cuba	1	.....	West Indies	.....	.....
Denmark	.....	.....			
Egypt	.....	.....	Total to citizens of foreign countries	25	4
England	11	1			
France	1	.....			

DESIGNS.

16,993.—QUILTED LINING.—*August Hildt*, New York, N. Y., assignor to *L. Dryfoos*, same place. Application filed October 13, 1886. Serial No. 216,134. Term of patent 14 years.

16,994.—ORNAMENTATION OF DISHES OR VESSELS.—*William Leighton, Jr.*, Wheeling, W. Va. Application filed August 4, 1886. Serial No. 210,023. Term of patent 3½ years.

16,995.—ORNAMENTATION OF GLASSWARE.—*William Leighton, Jr.*, Wheeling, W. Va. Application filed September 1, 1886. Serial No. 212,435. Term of patent 3½ years.

16,996.—LANDSIDE FOR PLOWS.—*John Murphy McConnell*, Anderson, S. C. Application filed October 12, 1886. Serial No. 216,071. Term of patent 14 years.

16,997.—GLASSWARE.—*John E. Miller*, Pittsburg, Pa. Application filed February 18, 1886. Serial No. 192,457. Term of patent 7 years.

16,998.—TILE-DISPLAY STAND.—*Edward D. Morris*, Chicago, Ill. Application filed June 3, 1886. Serial No. 204,098. Term of patent 14 years.

16,999.—LINK FOR DRYING-CHAINS OF ENVELOPE-MACHINES.—*Walter E. Preble*, New York, N. Y. Application filed October 9, 1886. Serial No. 215,811. Term of patent 14 years.

17,000.—HEATING-STOVE.—*Charles Rohlfs*, Brooklyn, assignor to *Josiah Jewett*, Buffalo, N. Y. Application filed August 24, 1886. Serial No. 211,769. Term of patent 14 years.

17,001.—SCARF.—*J. Sewell Tappan*, New York, N. Y., assignor to *Fisk, Clark & Flagg*, same place. Application filed June 26, 1886. Serial No. 206,378. Term of patent 14 years.

17,002.—CALL-BOX.—*Henry Thau*, New York, N. Y. Application filed September 18, 1886. Serial No. 213,967. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,811.—CORSETS.—*Benjamin Altman*, New York, N. Y. Application filed October 15, 1886. Used since April 1, 1886.
"The word 'FASSO.'"

13,812.—GARTERS AND GARMENT-SUPPORTERS AND THEIR PARTS AND ATTACHMENTS.—*William W. Anderson*, New York, N. Y. Application filed September 25, 1886. Used since June, 1886.
"The representation of a child having an infant's sock suspended from its neck."

13,813.—WHISKY.—*Cahn, Belt & Co.*, Baltimore, Md. Application filed October 22, 1886. Used since August 13, 1872.
"The arms of the State of Maryland having a club or trefoil upon the shield and the words 'MARYLAND CLUB.'"

13,814.—WHISKY.—*Cahn, Belt & Co.*, Baltimore, Md. Application filed October 22, 1886. Used since August 13, 1872.
"A representation of the Battle Monument and the words 'CITY OF BALTIMORE,' constituting the arms of said city, having a group of three casks on either side, and the monogram of the letters 'C B & Co.'"

13,815.—REFINED PETROLEUM FOR ILLUMINATING PURPOSES.—*The Chester Oil Company*, Philadelphia, Pa. Application filed June 7, 1886. Used since March 15, 1886.
"The word 'MATCHLESS.'"

13,816.—WATCHES AND WATCH-CASES.—*Crescent Watch Case Company*, Brooklyn, N. Y. Application filed October 28, 1886. Used since May, 1885.
"The representations or words of a star and crescent."

13,817.—LAUNDRY-SOAP.—*Curtis Davis & Co.*, Cambridge and Boston, Mass. Application filed September 3, 1886. Used since June 8, 1886.
"The word 'O-HI-O,' thus arranged."

13,818.—BROOMS.—*Broom Makers' Protective Union*, Baltimore, Md. Application filed October 25, 1886. Used since July, 1886.
"A circle contained in an oval and inclosing a triangle within which is a broom and the letters and words 'K OF L. B. M. P. U. HAND MADE.'"

13,819.—SATINS.—*Meckel & Co.*, Elberfeld, Germany. Application filed December 9, 1885. Used since June 22, 1878.
"The designation 'CROWN.'"

13,820.—PLATED KNIVES, FORKS, AND SPOONS.—*Oneida Community, (Limited,)* Niagara Falls, N. Y. Application filed September 6, 1886. Used since March 1, 1886.
"The letters and words 'N. F. NICKEL SILVER.'"

13,821.—CIGARS AND CIGARETTES.—*Charles L. Pratt*, Minneapolis, Minn. Application filed September 25, 1886. Used since September, 1884.
"The word 'ZENOBIA.'"

13,822.—CIGARS AND CIGARETTES.—*Charles L. Pratt*, Minneapolis, Minn. Application filed September 25, 1886. Used since September, 1885.
"The words 'QUEEN JESSIE.'"

13,823.—SPRINGS, SPRING-BALANCES, AND SPRING-ACTUATED MACHINES NOT HOROLOGICAL.—*George Salter & Co.*, West Bromwich, County of Stafford, England. Application filed January 6, 1886. Used since November 3, 1884.
"A device representing the Staffordshire knot with an arrow directed horizontally through the loops, the word 'SALTER' over the device, and an 'S' within the middle loop."

13,824.—SOLID AND LIQUID EXTRACTS OF BEEF.—*William F. Schmoele & Co.*, Antwerp, Belgium. Application filed September 30, 1886. Used since July, 1882.
"The design of an arched and columned facade in connection with the word 'CIBILS.'"

13,825.—SOLID AND LIQUID EXTRACTS OF BEEF.—*William F. Schmoele & Co.*, Antwerp, Belgium. Application filed September 30, 1886. Used since July, 1882.
"The word 'CIBILS.'"

13,826.—BROOMS.—*C. W. Spencer*, Burgin, Ky. Application filed October 6, 1886. Used since 1875.
"The word 'EX-SHAKER.'"

13,827.—MINERAL-SPRING WATER.—*Case Brothers*, South Manchester, Conn. Application filed July 23, 1885. Used since June 23, 1885.
"The words 'HIGHLAND TONICA.'"

13,828.—BUTTONS.—*G. Cramer & Kaufeld*, New York, N. Y. Application filed October 1, 1886. Used since June 15, 1886.
"The word 'KISBER.'"

13,829.—SHOES.—*J. F. Dane, Grinnell & Co.*, Boston, Mass. Application filed September 29, 1886. Used since February 4, 1886.
"A pictorial representation or sketch consisting of a red country farm-house and yard, in which are persons apparently at work or play, a fence in the foreground, a large tree in the background overhanging said building, a sheet of water at the right, and in the background the sun setting behind a hill."

13,830.—TEA.—*J. W. Doane & Co.*, Chicago, Ill. Application filed July 12, 1886. Used since March, 1876.
"A blank panel or outlined rectangle."

13,831.—MACHINE-BELT FASTENERS.—*Greene, Tweed & Co.*, Brooklyn, N. Y. Application filed October 30, 1886. Used since 1874.
"The word-symbol 'BLAKE'S BELT STUD.'"

13,832.—MEN'S, WOMEN'S, AND CHILDREN'S HATS.—*O. Oatman Osborne* and *Archibald M. Taylor*, Mattewan, N. Y. Application filed September 23, 1886. Used since August, 1886.
"The representation of a spread eagle with arms, scroll, and branches, inclosed by a circular border, on which appears the words and letters 'UNITED STATES WOOL HAT FINISHERS ASSO.,' 'REGISTERED.'"

LABELS.

5,033.—Title: "MEDICATED COUGH PASTILLES."—*Dabbs Brothers*, Philadelphia, Pa. Application filed October 27, 1886.

5,034.—Title: "ARNOLD'S CELEBRATED CHILL PILLS."—*A. G. Evans*, Bordentown, N. J. Application filed October 29, 1886.

5,035.—Title: "STUB" (FOR FALCON PENS.)—*Leon Isaacs & Co.*, Philadelphia, Pa. Application filed May 8, 1886.

5,036.—Title: "CHOCOLAT PORTO CABELLO."—*Paul Sutorius*, Brooklyn, N. Y. Application filed October 26, 1886.

5,037.—Title: "SMITH'S REMEDIES."—*Anna Mary Smith*, Philadelphia, Pa. Application filed October 29, 1886.

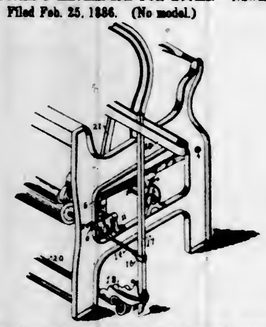
5,038.—Title: "KILLING-RED" (FOR A PAINT FOR BRICK FLOORS AND PAVEMENTS.)—*John Thomas Hopkins*, Jeffersonville, Ind. Application filed November 1, 1886.

5,039.—Title: "WARNER & CO'S EFFERVESCING BROMO POTASH." *William R. Warner*, Philadelphia, Pa. Application filed November 2, 1886.

PATENTS

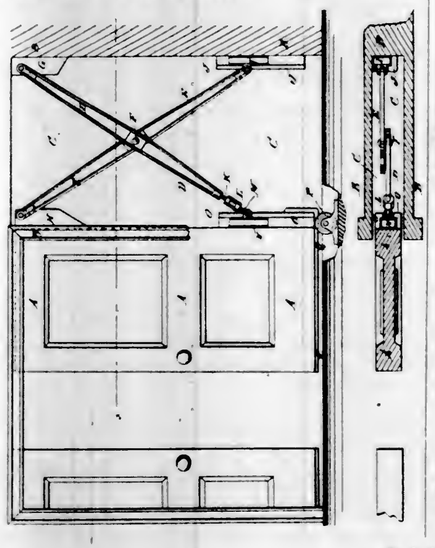
GRANTED NOV. 23, 1886.

352,905. **PICKING MECHANISM FOR LOOMS.** NEWELL ABARE, Lowell, Mass. Filed Feb. 25, 1886. (No model.)



Claim.—The picking mechanism of a loom which consists of the combination of the cam 2, and a means of supporting and rotating the same, with the rocking-lever 3, a fixed pivot for supporting one end of the said lever, and a means of actuating the said lever from the said cam, the bell-crank lever 8, a pivot upon which the said bell-crank lever rocks, and a fixed support for the said pivot, a rod pivoted to one end of the bell-crank lever, and a flexible band and a bolt connecting the said rod to the free end of the lever 3, the pin 12 in the said bell-crank lever, a rod, 14, provided with a slot in one end, which works upon the pin 12, the picker-staff, and the flexible band and bolt connecting the said picker-staff to the rod 14, substantially as described, and for the purposes set forth.

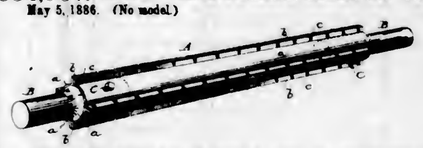
352,906. **SLIDING-DOOR HANGER.** JAMES ALLAN, New York, N. Y. Filed Mar. 9, 1886. (No model.)



Claim.—1. In sliding doors, the combination, with the door A and casing B, provided with guideways O J, respectively, of the hanging bars E D, pivoted together at or about their centers, and having their upper ends pivoted to the door and casing, respectively, the bar D being adjustable in length, and the pivoted blocks I N, substantially as herein shown and described.

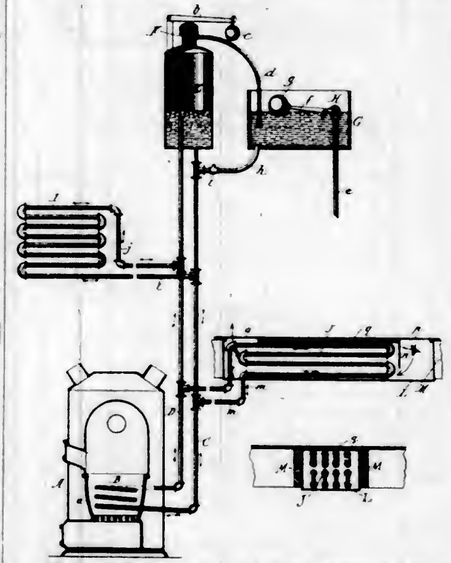
2. In folding doors, the combination, with the pivoted hanger D and its sliding block N, of the right and the left screws K M, and the long right and left nut L, substantially as herein shown and described, whereby the said hanger can be readily lengthened or shortened to plumb the door, as set forth.

352,907. **DRIER.** VALERIUS D. ANDERSON, Cleveland, Ohio. Filed May 5, 1886. (No model.)



Claim.—The herein-described shaft for driers and like machinery, consisting of a series of flanged segmental plates united by their flanges, and provided with cylindrical journals or end pieces, substantially as shown.

352,908. **HOUSE-HEATING DEVICE.** JOHN R. BARKER, Chicago, Ill. Filed Dec. 22, 1885. (No model.)

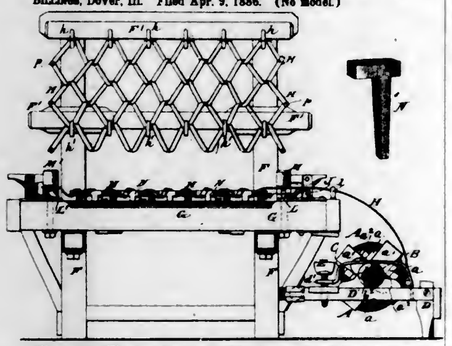


Claim.—1. The combination, with a hot-air furnace and with the fire-pot thereof, of coil B, pipes C D, boiler E, connected with the coil by said pipes, suitable radiators connected with the pipes, and tank G, also connected therewith, as set forth.

2. The combination, with a hot-air furnace and the fire-pot thereof, of coil B, pipes C D, suitable radiators, and a boiler, both connected with said pipes, and a tank provided with an automatic water-supply pipe, and also with a branch pipe provided with a check-valve for forming communication between it and the pipes C D, as set forth.

3. The combination, with a hot-air furnace and the fire-pot thereof, of coil B, pipes C D, a boiler, E, and suitable radiators, both connected with said pipes, tank G, a pipe connecting the boiler and tank, and a pipe, *h*, provided with a check-valve, the said pipe connecting the tank and pipes C D, as set forth.

352,909. APPARATUS FOR BENDING METAL STRIPS. WILLIAM BILLINGS, Dover, Ill. Filed Apr. 9, 1886. (No model.)



Claim.—1. The combination, with the spool and its frame, guide, and table, of the two parallel rows of formers N, arranged to alternate, as shown and described.

2. The combination, with the table, guide, and formers, of the punches and dies, arranged as and for the purpose set forth.

3. The combination, with the table, guide, punches, dies, and formers, of the chisel, arranged as and for the purpose specified.

352,910. FLOAT FOR TRANSPORTATION-CANS. WILLIAM A. CARPENTER, Sutton, Nebr. Filed Apr. 13, 1886. (No model.)

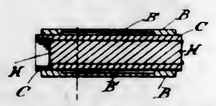


Claim.—1. An air-tight float for transportation-cans provided with an internal lining of non-conducting material, substantially as described.

2. A drum-float for transportation-cans having an arched top, its bottom plate flush with its lower edge, and external grooves or passages, substantially as described.

3. An air-tight float for transportation-cans having arched tops, external grooves or passages, and non-conducting lining, substantially as described.

352,911. COVERING FOR TOP ROLLS OF SPINNING-MACHINES. THOMAS B. DUNGAN, Philadelphia, Pa., assignor of one-half to Jacob P. Detwiler, same place. Filed June 26, 1886. (Model.)



Claim.—1. As a new article of manufacture, a covering for drawing-rolls, consisting of a thin seamless tube of wood, substantially as described.

2. As a new article of manufacture, a covering for drawing-rolls, consisting of a thin seamless tube of wood hollowed out between its ends, substantially as described.

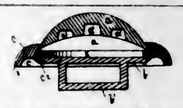
3. The combination, with a drawing-roll, of a covering composed of a seamless sleeve formed of wood, substantially as described, and for the purposes set forth.

4. The combination, with a drawing-roll, of a covering composed of a seamless sleeve formed of wood, the inner side of said sleeve being hollowed out, substantially as described, and for the purposes set forth.

352,912. ROSETTE. GOTTHILF EBERHARD, Akron, Ohio. Filed Aug. 11, 1886. (No model.)

Claim.—1. In a rosette, a glass setting, *a*, having a convex face,

352,912.

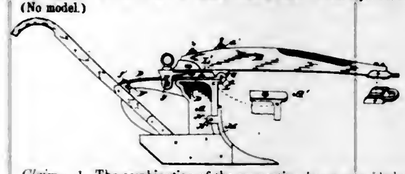


and a concave back side formed with a reflecting-coating, substantially as described.

2. In a rosette, a glass setting, *a*, having a convex face, and the opposite side formed with indentations and having reflecting-coating, substantially as described.

3. A rosette having a glass setting and a holder, *c*, projecting over the perimeter of the glass, and formed with a circumferential groove, *c'*, in its bottom, in combination with a disk, *b*, formed with a loop, screw-threaded nut, a shank, or other well-known means for attachment, substantially as described.

352,913. PLOW. OTIA A. ESSIG, Canton, Ohio. Filed Apr. 14, 1886. (No model.)



Claim.—1. The combination of the connecting-bar *a*, provided with the recess *c*, with the adjusting-bar D and the post or standard A, substantially as and for the purpose specified.

2. In a plow, the connecting-bar *a*, provided with ears H, the yoke I, and adjusting-screw J, having flanges or collars *i* and *i'*, substantially as described.

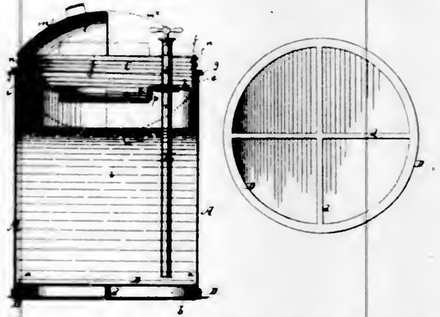
3. The combination, in a plow, of the connecting-bar *a*, having ears H, the yoke I, screw J, having collars *i i'*, the pivot-bolt *g*, and bar D, having threaded aperture K, substantially as described.

4. In a plow, the combination of the yoke I, the screw J, pivotal bolt *g*, connecting the yoke with the connecting-bar, and an adjusting-bar having a threaded aperture to receive bolt J, substantially as described.

5. The combination of the beam B, hinge connecting-bar *a*, standard A, and adjusting-bar D with the yoke I and adjusting-screw J, constructed and operated substantially as specified.

6. The combination, with the beam B, connecting-bar *a*, provided with the recess C, and the adjusting-bar D, with the eyebolt *c* and the cross-bar or pin *d*, provided with the fin *f*, of the aperture E, provided with the recess *e*, substantially as and for the purpose specified.

352,914. OIL-TANK. RUDOLPH FEDERROLL, New York, N. Y. Filed Sept. 23, 1886. (No model.)



Claim.—1. The oil-tank A, combined with the reversible top C, substantially as and for the purpose specified.

2. The tank A, having threaded portion *e*, combined with the top C, having threaded portion *f* and diaphragm *h*, substantially as and for the purpose specified.

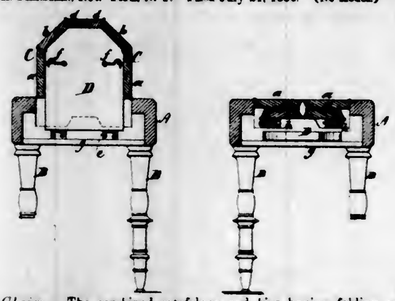
3. The combination of the tank-body A, having threaded portion *e*, with the top C, having threaded portion *f* and rigid half-lid *l*, and with the threaded ring *n* and movable half-lid *m*, substantially as herein shown and described.

4. The combination of the diaphragm *h* with the cup-shaped strainer *o*, having threaded upright portion *p*, and with the screw-ring *q*, substantially as and for the purpose herein shown and described.

5. The sectional pump E, consisting of the lower threaded portion *r*, having flange *s*, upper portion, *t*, having flange *u*, and screw-ring *v*, in

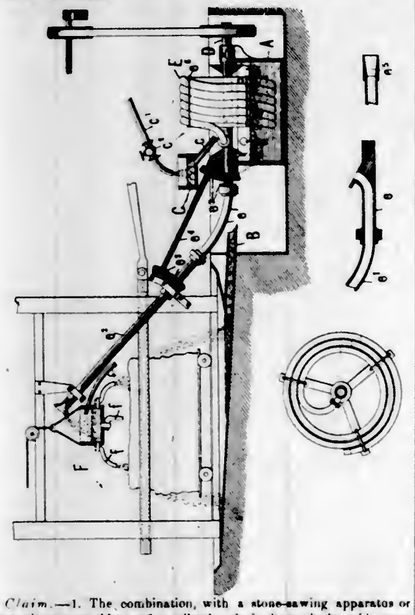
combination with the diaphragm *h*, against which the flanges *s u* are drawn when the sections are united by the screw-ring, substantially as herein shown and described.

352,915. PORTABLE CATAFALQUE AND BIER COMBINED. GEO. A. FIELDSTEIN, New York, N. Y. Filed July 21, 1886. (No model.)



Claim.—The combined catafalque and bier having folding and jointed side pieces, C, each composed of the sections *a b d*, and hinged end pieces, D, on the frame A, all arranged to allow the end pieces, D, to be concealed beneath the contracted sections *a b d* of the side pieces, as specified.

352,916. SAND AND WATER FEED MECHANISM FOR STONE SAWING MACHINES. JOHN H. FREDIER, Rutland, Vt. Filed Sept. 17 1885. (No model.)



Claim.—1. The combination, with a stone-sawing apparatus or other analogous machines, of a collecting-drain beneath the said apparatus, a main supply and collecting tank adapted to hold the sand and water, a rotary spiral pump supported in such manner as to rotate horizontally into the tank and partly submerged in the mixture of sand and water, a reservoir to extend above the plane of the machine, and a delivery-pipe connected to the pump and leading to the reservoir to convey thereto mixed sand and water or chilled shot and water, substantially for the purpose set forth.

2. The combination, with a sawing apparatus, of a collecting-drain beneath said apparatus, and a main supply-tank connected with said drain adapted to hold the sand and water mixture, an overflow-opening at the top of said tank for letting off the detritus, a spiral pump supported to rotate horizontally into said tank and partly submerged in the mixture of sand and water contained in the tank, and means to support and rotate said pump, and a suitable delivery-pipe connected to the pump for conveying the mixture to points where needed, substantially for the purpose set forth.

3. In a stone-sawing machine, the combination of a distributing-drain beneath the machine, a main supply-tank in combination with the drain, a source of fresh sand and water discharging into said tank, a pump-wheel composed of a spiral or helicoidal passage and supported horizontally and partly submerged in said tank, said wheel at each revolution taking in a volume of sand and water and a separate volume of air, which by the continued revolution of the wheel advances and elevates the mixture to the reservoir, substantially as specified, and for the purpose set forth.

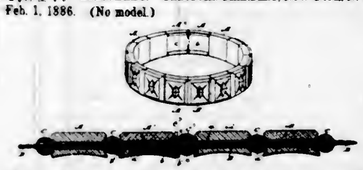
4. In a stone-sawing machine, the combination, with the collecting-drain beneath the machine, of a main supply-tank adapted to hold the sand and water mixture, of a rotary spiral pump-wheel set horizontally and composed of a spiral or helicoidal passage or conduit, one end forming an inlet-opening and the other end a discharge-opening, and a discharge-pipe centrally connected with the pump-wheel and revolving with it throughout its entire length, substantially as described, and for the purpose set forth.

5. The combination, with a stone-sawing machine, of a distributing-reservoir above the plane of the machine, of adjustable pipes consisting of rigid parts connected to the reservoir, and an adjustable swinging piece connected to the rigid part, and both provided with register-valved joints adapted to shut off the supply when turned out of their normal positions, substantially as described, and for the purpose set forth.

6. In combination with a tank containing a sand and water mixture, a spiral pump formed of a coiled pipe supported horizontally and partly submerged in said tank, adapted to take at each revolution a volume of sand and water mixture and a separate volume of air, as described, with means for supporting and rotating said pump-wheel, a reservoir set above the plane of the machine, a delivery-pipe leading to said reservoir, a flexible pipe connecting said delivery-pipe to the pump-wheel, and means to transmit the motion of the wheel-shaft to the delivery-pipe, substantially as set forth, and for the purpose described.

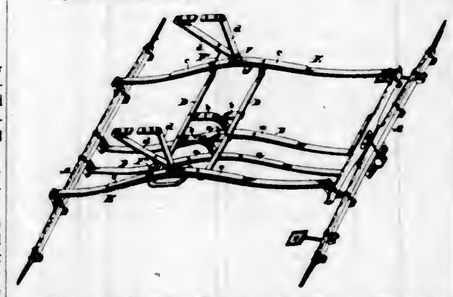
7. In a stone-sawing machine, the combination, with the collecting-drain beneath the machine, of a main supply-tank adapted to hold the supply of sand and water mixture, of a rotary spiral pump-wheel formed with a spiral or helicoidal hollow passage or conduit, one end forming an inlet-opening and the other end a central discharge-opening, a delivery-pipe centrally connected to the wheel and revolving with it, said delivery-pipe consisting of a rigid part and of a flexible part, as described, and a system of gearing for transmitting the rotary motion of the wheel to the delivery-pipe, substantially as and for the purpose set forth.

352,917. BRACELET. THEODORE GRANBERY, New York, N. Y. Filed Feb. 1, 1886. (No model.)



Claim.—The combination of the blocks A A' A^2, provided each with two or more holes, *a a'*, for the passage of the connectors, the chains B B, arranged to connect said blocks, as described, and metal plates mounted on the end blocks, A' and A^2, respectively, substantially as described, said chains being secured at their ends to said metal plates, substantially as and for the purposes set forth.

352,918. VEHICLE-SPRING. JOHN F. GROSS, Canton, Ohio. Filed May 15, 1886. (No model.)



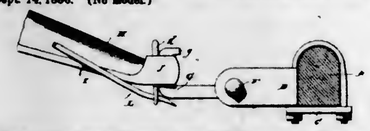
Claim.—1. The springs B B, provided with the auxiliary springs *a a* and the bent or curved portions *b b*, and the clamping-bolt C, substantially as and for the purpose specified.

2. The springs E, provided with the auxiliary springs *c c* and the

bent or curved portions *d d*, and the clamping-bolts F, substantially as and for the purpose specified.

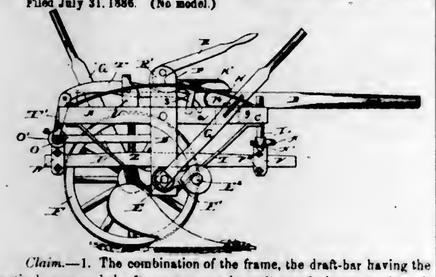
3. The combination of the parallel springs B B and E, provided with the bent or curved portions *b b* and *d d*, of the auxiliary springs *a a* and *c c*, the clamping-bolts C and F, substantially as and for the purpose specified.

352,919. THILL-COUPLING. JOHN G. HESS, Emmittsburg, Md. Filed Sept. 14, 1886. (No model.)



Claim.—An improved attachment to thill-couplings, the same consisting of the thill-eye E, to be fitted between the draw-bars of an ordinary coupling, an integral hook or angular shaped draw-bar, G, provided on the eye, an overhanging lip, *g*, formed on the outer end of the bar G, the thill-iron I, to be attached to the shafts or thills, and provided with a head, J, having an opening therein to allow the head to fit around the bar G beneath the lip *g*, a wedge, K, driven down through the opening of head J against the hook end of bar G, and the locking part or strap L, connected to the thills or shafts and passed through an opening in the wedge K, as set forth.

352,920. SULKY GANG-PLOW. JAS. W. HOLLAND, Pomeroy, Wash. Filed July 31, 1886. (No model.)



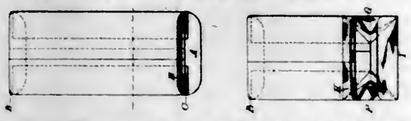
Claim.—1. The combination of the frame, the draft-bar having the vertical arms, and the foot-rest secured to the vertical arms and vertically adjustable thereon, substantially as described.

2. The combination of the frame, the hand-lever R, having the cam-arm R', and the link S, with the pivoted lever T, having the curved front end engaging with the said link, the pivoted supporting-yoke to carry the rear end of the plow-beams, and the link connecting the said yoke with the rear end of the lever T, substantially as described.

3. In a sulky-plow, the combination of the vertically-movable draft and supporting bars at the front and rear ends of the sulky-frame, the depending clamp-plates pivoted to the said draft and supporting bars and adjustable laterally thereon, and the U-shaped clamp-yokes and the bolts to connect the arms thereof to the clamp-plates, whereby the ends of the plow-beams may be clamped between the clamp-plates and the arms of the clamp-yokes, and thereby suspended at the front and rear sides of the frame, substantially as described.

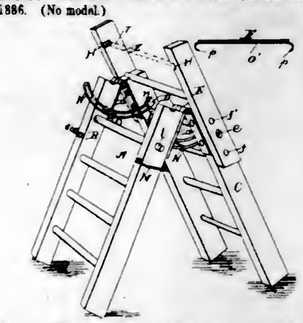
4. The combination of the frame A, having the depending yoke-frames D, the vertically-adjustable draft-bar at the front end of the frame, the supporting bar or frame at the rear end of the frame A, and having the arms pivoted to the yoke-frames, the lever to raise and lower the said supporting bar or frame, and the plow-beams having their front ends attached to the draft-bar and their rear ends attached to the supporting bar or frame, substantially as described

352,921. PROCESS OF MAKING PAPER BAGS. WM. H. HOMES, Hartford, Conn., assignor to Felix W. Leisbach and Clarence A. Wolle, both of Bethlehem, Pa. Filed Mar. 20, 1886. (No model.)



Claim.—That process of making the bottom of a paper bag which consists in cutting a paper tube having the lip A and the recess D from a continuous length of paper tubing, and then in opening out the lower end thereof into a box-like form at right angles to the body of the tube, as shown in Figs. 4, 5, and 6, and then in pressing the side walls, F and G, of that box-like form toward each other by flat implements, each of which has its edges at right angles to each other, so as to make right-angled folds in said side walls, and then in pressing the wall H down upon the walls F and G and under the wall I, and then in pressing the wall I, with its lip A, down upon those which preceded it, all substantially as described.

352,922. LADDER. THOMAS W. HUGHES, Butler, Mo. Filed Apr. 27, 1886. (No model.)

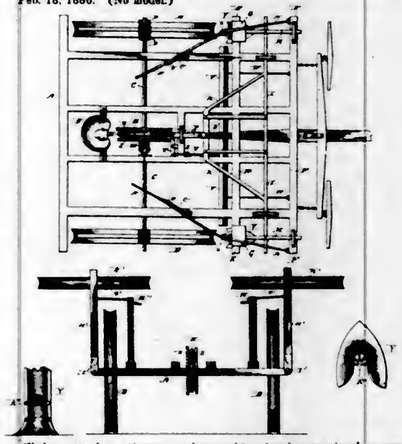


Claim.—1. The combination of the upper section, B, the lower section, C, hinged thereto, and the side rails, E, secured to the lower section and extending from the same to embrace the sides of the upper section, the said rails having the notches *h*, to receive the projecting ends of the rung I in the upper section, substantially as described.

2. The combination, in a ladder, of the upper and lower sections, pivoted or hinged together and the curved arms connecting the said sections, the said arms being secured to one of the sections, and the other section being provided with means for clamping the arms thereto at any desired angle, substantially as described.

3. The combination, in a ladder, of the upper and lower sections, pivoted together, the curved slotted arms secured to the lower section and extending to the upper section of the ladder, and the set-screws extending through the slots of the curved arms and entering the upper section of the ladder, for the purpose set forth, substantially as described

352,923. CORN-PLANTER. ELIAS H. LANCASTER, Marion, Ind. Filed Feb. 18, 1886. (No model.)



Claim.—1. In a planter, a changeable planting mechanism consisting of a cam with inclines containing short non-operative portions, a cam secured thereto with inclines of corresponding length, and a cam also secured to the first or main cam and having short inclines, the whole being secured to the axle, combined with connected grain-dropping slides, and a marker operated by said cams, substantially as specified.

2. In a planter, a changeable planting mechanism consisting of a main cam with inclines, a cam with corresponding inclines secured thereto, and a cam with short inclines also secured to the main cam, the whole being secured to the axle, combined with connected grain-dropping slides, and a marker operated by said cams, substantially as specified.

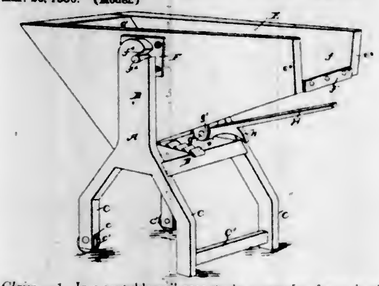
352,924. VEHICLE-WHEEL. JAMES MACPHAIL and FRANKLIN M. NEEDHAM, Rockford, Ill. Filed Feb. 20, 1886. (No model.)

Claim.—The combination, with an annular rim and tension-spokes, of a hub consisting of a thimble having tapering ends, and independent



hub ends whose central openings are tapering to fit upon the thimble, substantially as described.

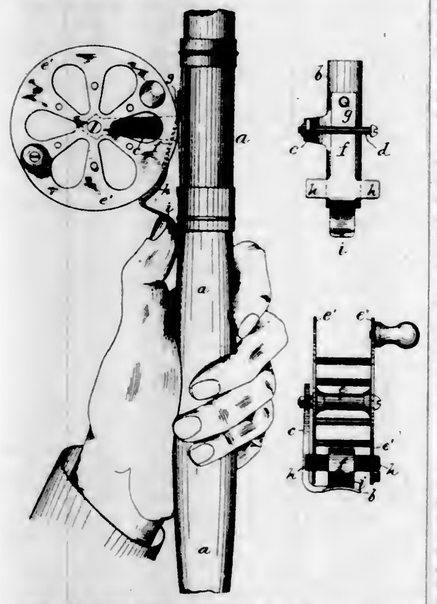
352,925. NAIL-RECEPTACLE. WM. MATHEWS, Llano, Tex. Filed Mar. 26, 1886. (Model.)



Claim.—1. In a portable nail-receptacle, a carrying-frame having a cross-beam, D, provided with a rack, in combination with a swinging receptacle journaled in the frame and having enlarged rear end normally resting against the beam D, to elevate the discharge end thereof, and a detaining bar or rod pivoted to the under side of and carried by the swinging receptacle, and having a projecting lip, *h*, adapted to engage the rack and retain the receptacle in its adjusted position, substantially as described.

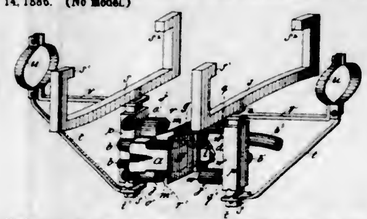
2. In a portable nail-receptacle, a frame comprising the standards, the bases having rollers, and a cross-beam connecting the standards, in combination with a pivoted receptacle having a contracted open end, a detaining-bar pivoted to the receptacle, and provided with a lip, and a rack carried by the cross-beam of the frame, all arranged and combined substantially as described.

352,926. FISHING-REEL DRAG. AUGUST F. MEISELBACH, Newark, N. J. Filed Aug. 10, 1886. (No model.)



Claim.—The combination, with the reel having flanges *e' e'*, of the foot *b*, provided with standard *c* and pivot *d*, and the drag consisting in the spring *f*, secured to the foot *b* at one end, and provided with the cross-bar *h*, and thumb-piece *i*, adapted to lie adjacent to the pole where the reel is sustained thereon, substantially as herein shown and described.

352,927. AUTOMATIC AIR-BRAKE COUPLER. JOHN T. MELSON, Laurel, Del., assignor of two-thirds to Alexander Y. Davison, Gordon S. Carrigan, and William S. Carrigan, all of Philadelphia, Pa. Filed Aug. 14, 1886. (No model.)



Claim.—1. An automatic air-brake coupler consisting of two sections provided with entrance and exit tubes in communication with chambers in said sections separated from one another by partition-walls, said chambers opening into central apartments, and valve-doors attached to vertical rods carrying lever-arms playing freely within threaded sleeves secured to said sections, in combination with brackets and arms keyed to said brackets, carrying spiral springs, sleeves secured to said arms, and vertical supporting-arms passing through said sleeves, substantially as and for the purposes set forth.

2. The combination of an automatic air-brake coupler consisting of two sections provided with entrance and exit tubes, chambers in communication therewith, central apartments in the respective sections, valve-doors therein attached to vertical rods carrying lever-arms, retracting-springs secured in said chambers and to the valve-doors, and means, as described, for attaching the respective sections to the cars, substantially as and for the purposes set forth.

3. An automatic air-brake coupler consisting of two sections having ports and chambers therein and entrance and exit pipes in direct communication therewith, in combination with adjustable sleeves supported upon U-shaped arms, substantially as and for the purposes set forth.

4. The combination, with an automatic air-brake coupler, of a vertical supporting-arm, a bracket attached thereto and supporting an adjustable eye or ring, and a secondary arm supported upon said vertical arm and held in a recess in said adjustable ring or eye, substantially as and for the purposes set forth.

5. The combination of an automatic air-brake coupler consisting of the sections *a a'*, sockets *j j'*, arms *m m'*, springs *o o'*, sleeves *p*, vertical arms *s*, brackets *t*, secondary arms *v*, and adjustable ring *u*, substantially as and for the purposes set forth.

6. The combination, with automatic air-brake-coupling apparatus, of vertical supporting-arms, sleeves supported thereon, brackets secured to said arms, and eyes or rings attached to said brackets, substantially as and for the purposes described.

7. An automatic air-brake coupler consisting of two sections provided with port-openings, the surrounding surfaces of which are covered with rubber fiber or similar material, in combination with central apartments in the sections divided by partition-walls and entrance and exit tapering tubes connected therewith, brackets, arms cast to sleeves carrying helicoidal springs keyed to said brackets, vertical supporting-arms to which sleeves and brackets are secured, and adjustable eyes or rings attached to said brackets, substantially as and for the purposes described.

8. Automatic air-brake-coupling apparatus, substantially as described, provided with divided central apartments in the respective sections thereof, in combination with valve-doors therein provided with suitable packing on one of the sides thereof and retracting-springs secured within the sections and to the opposite sides of the doors, and vertical rods supported in threaded sleeves secured to the sections carrying lever-arms, and operating automatically by the coupling and uncoupling of the sections, substantially as and for the purposes set forth.

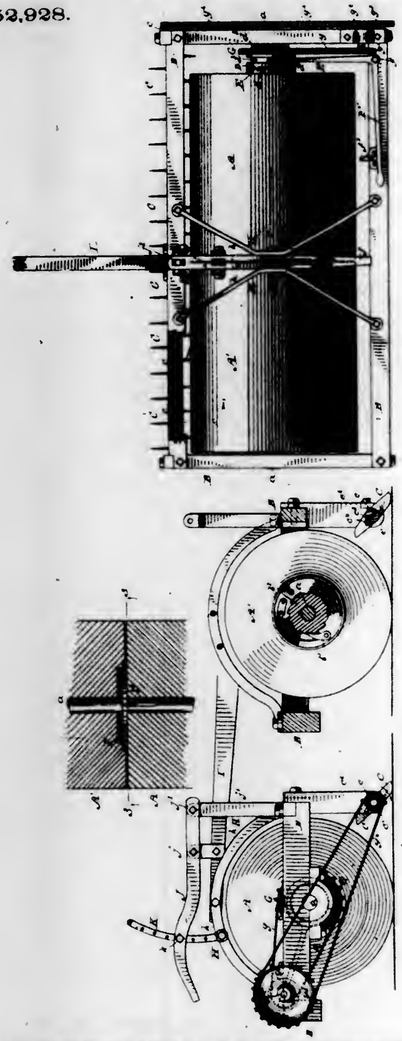
352,928. COMBINED ROLLER AND CULTIVATOR. JAMES MILLS, Keyesport, Ill. Filed May 5, 1886. (No model.)

Claim.—1. The combination, substantially as set forth, of the main frame, the roller-shaft, the roller fast on the shaft, a second roller loose on the shaft, and means for automatically locking the two rollers together when the machine is advanced.

2. The combination, substantially as set forth, of the main frame, the roller-shaft, the roller fast on the shaft, a second roller loose on the shaft, the ratchet-wheel on one of the rollers, and the pawl on the other roller, that engages with the ratchet-wheel when the machine is advanced, whereby both rollers are caused to turn together.

3. The combination, substantially as set forth, of the main frame, the roller or rollers, the cultivator-shaft, and gearing between the roller or rollers and the cultivator-shaft, that operates to revolve the cultivator-shaft when the machine is advanced, but that is inoperative when the machine is backed.

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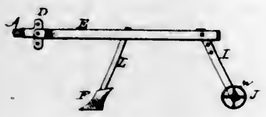


4. The combination, substantially as set forth, of the main frame, the roller or rollers, the cultivator-shaft, gearing between the roller or rollers and the cultivator-shaft, that operates to revolve the cultivator-shaft when the machine is advanced, but that is inoperative when the machine is backed, and the lever for shifting or unlocking the gearing.

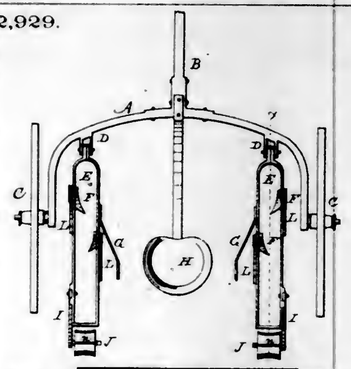
352,929. RIDGE-PLOW. JOHN B. MOORMAN, Dayton, Ohio. Filed July 24, 1886. (No model.)

Claim.—1. In a ridge-plow, the iron frame E, with parallel sides and pivoted to stirrups of the axle, in combination with arms L, shovels F, and the curved mounted axle, substantially as set forth.

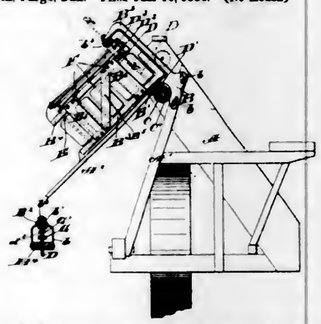
2. In a ridge-plow, the iron frame E, with parallel sides and pivoted to stirrups attached to the axle, in combination with arms L, shovels F, and leveling-roller J, with marker on the face thereof, substantially as set forth.



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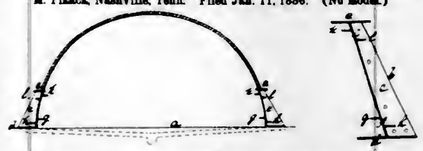
352,930. BUTT-ADJUSTER FOR GRAIN-HARVESTERS. ANDREW B. MOOCK, Fargo, Dak. Filed Jan. 16, 1886. (No model.)



Claim.—1. In combination, substantially as hereinbefore set forth, the butter-frame, two crank-shafts journaled therein having each two cranks not in the same plane, the link connecting the wrists of the cranks, respectively, nearest to the shaft-bearing, the crank-shafts journaled in the frame having single cranks whose wrists are journaled in said link, and the second link connecting the outer crank-wrists of the two double-cranked shafts, and the train for revolving one of the double-cranked shafts, and the bats on all said shafts.

2. In combination, substantially as set forth, the elevator, and the bracket secured at the upper end thereof, the roller-shaft, and the gear thereon, the double-cranked shaft at right angles with the roller-shaft, and the gear thereon driven by the first-named gear, the frame pivoted on said double-cranked shaft, the second double-cranked shaft and the single crank-shaft journaled in said frame, the bats on said shafts and the link connecting the inner cranks on all the shafts, and the link connecting the outer cranks of the double-cranked shafts.

352,931. KILN FOR THE MANUFACTURE OF CHARCOAL. H. M. PIERCE, Nashville, Tenn. Filed Jan. 11, 1886. (No model.)



Claim.—1. As an improvement in the construction of movable or forest meilers, a rigid removable base-section or breastwork having air-ports and gas-vents, and a soil or similar cap-section, substantially as and for the purposes specified.

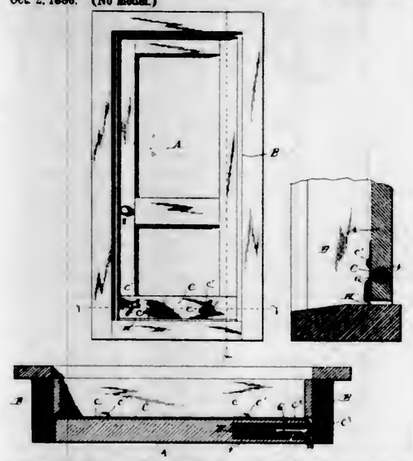
2. A rigid breast for forest or movable meilers, having regular or fixed air-ports and gas-vents adapted to be closed by plugs or stoppers, substantially as and for the purposes specified.

3. A rigid breast for forest or movable meilers, composed of detachable sections of plate-iron, said sections provided with air-ports and gas-vents, substantially as and for the purposes specified.

4. A section for constructing a breast for forest-meilers, said section consisting of an iron plate provided with flanges and having air-ports and gas-vents protected by shields, substantially as and for the purposes specified.

5. A section for constructing the breast for forest-meilers, said section consisting of an iron plate provided with ports and stopper-shelves, substantially as and for the purposes specified.

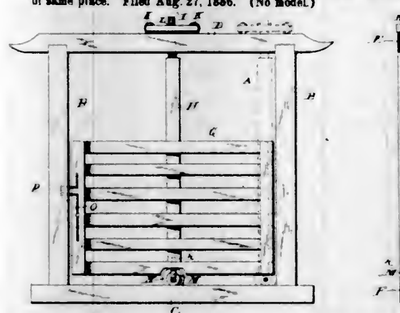
352,932. WEATHER-STRIP. CLARK POLLEY, New Berlin, Fla. Filed Oct. 2, 1886. (No model.)



Claim.—1. The combination of a jamb, the door having a horizontal recess or chamber formed in its rear edge, an endwise-moving plate or strip having the diagonal slots and the extended angular lip at one end, arranged in line with the recess or chamber of the door, a spring housed in the recess or chamber, a pin or bolt located in the chamber and normally impelled into contact with the angular lip of the plate by the spring, and the fixed guide-pins passing through the slots, substantially as described, for the purpose set forth.

2. The combination of a door having the horizontal recess or chamber in its rear edge, the coiled spring housed within the chamber, the bolt or pin normally impelled beyond the chamber or recess by the spring, the endwise-moving plate or strip having the diagonal slots, and an extended lip at one end arranged at an angle to the plate and in the path of the pin or bolt, the lower edge of the said plate being doubled or bent upon itself and having a yielding strip, H, secured therein, and the fixed guide-pins passing through the diagonal slots of the plate, substantially as described, for the purpose set forth.

352,933. GATE. JOHN A. ROGERS and JACKSON W. ROAN, Hartsell's, Ala., assignors of one-half to Thomas M. Ward and James E. Roan, both of same place. Filed Aug. 27, 1886. (No model.)

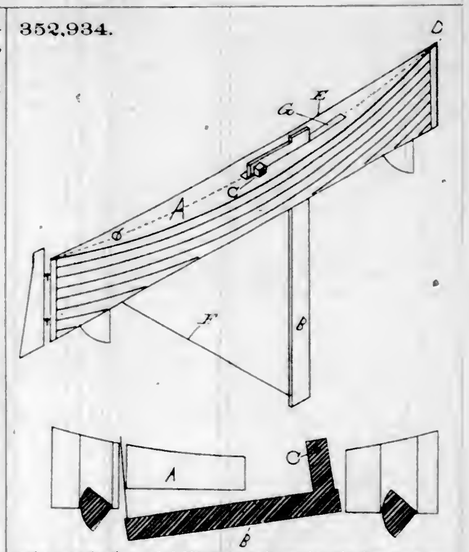


Claim.—The combination, with the gate-frame having the sill provided with the groove or guideway F, and the horizontal beam D, provided with the slot E, of the carriage supported on the said beam and having the rollers to bear thereon, the gate provided with a vertical central shaft having its upper end pivoted in the carriage and suspended therefrom, and the caster attached to the gate, in line with the center of the said shaft and having the roller working in the guideway F, for the purpose set forth, substantially as described.

352,934. SHIFTING-BALLAST CENTER-BOARD. GEO. W. SCHERMERHORN, Philadelphia, Pa. Filed Nov. 3, 1885. (No model.)

Claim.—In a ballasting device for vessels, the combination of the shifting-ballast center-board having a long and a short arm at right

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angles to each other and rigidly connected together, the long arm having secured to it a rope or chain, and the other end of the short arm having a lug or pivot-pin secured to it, in combination with the center-board well passing through the vessel to its deck, and having ways inclining fore and aft upon which the lug or pivot-pin rests, and an opening in the after part of the vessel through which the rope or chain that is secured to the board is passed to the deck, all so connected that as the after end of the board is lowered its forward end is shifted aft, all substantially as shown and described, for the purpose specified.

352,935. WATCH. CHARLES G. SCHELLENBERGER, St. Paul, Minn. Filed Mar. 25, 1884. (Model.)



Claim.—1. In a watch, the combination of the center staff, center wheel, center-staff pinion, a removable gear-wheel and pinion interposed between the center-staff pinion and barrel-gear, and mounted on an auxiliary staff, the barrel-gear, and a reversible mainspring-barrel, substantially as and for the purpose herein specified.

2. The combination of the center staff, C, center-staff wheel a', reversible mainspring-barrel D, carrying a gear-wheel, d^4, center-staff hub c^2, constructed with a spiral groove, c^4, and the pinion b^2, having an interior coupling projection, c^3, fitting in the said groove, substantially as and for the purpose herein specified.

3. The combination of the center staff, center wheel, a reversible mainspring-barrel carrying a gear-wheel, and a removable gear-wheel and pinion mounted on an auxiliary staff gearing into the gear-wheel on the barrel and adapted to gear into a center-staff pinion of smaller diameter than the pinion which gears into the barrel-wheel, substantially as and for the purpose herein set forth.

4. The combination of the center wheel and train leading to the escapement-wheel, and a balance-wheel constructed with its rim in two separate parts, with a doubly-curved elastic arm, G^3, connecting opposite ends of the parts of the rim, and two adjusting-plates, $m' m^2$, connecting the arm G^3 at its two ends, respectively, with the adjacent ends of the rim parts and united with the said parts by screws $n' n^2$, substantially as and for the purpose herein set forth.

5. The combination of the center wheel and train leading to the escapement-wheel, the balance-wheel, hair-spring, an index-pointer constructed with a divided ring, K', provided with projecting tangs $l' l^2$, a

swivel-plate, f^4, playing between the said tangs, and an adjusting-screw, f^5, substantially as and for the purpose herein specified.

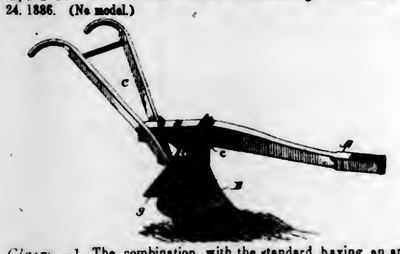
6. The combination of a center wheel and train leading to the escapement-wheel, the balance-wheel, hair-spring, index-pointer adapted to be adjusted around the balance-staff and provided with an adjustable hair-spring, regulating-plate L', screw S^4, pin S^5, and screw-foot S^6, substantially as and for the purpose herein specified.

7. The combination of a center wheel and train leading to the escapement-wheel, balance-wheel, hair-spring, plate M', adjustable upon the balance-bridge G', and a hair-spring-holding pin, v^4, adjustable up and down in the socket of the said plate, the hair-spring being held in the said pin by a wedge or key, substantially as and for the purpose herein specified.

8. The combination of a center wheel and train leading to the escapement-wheel, balance-wheel, hair-spring, index-pointer provided with an adjustable hair-spring regulating-plate, L', adjustable hair-spring-holding plate M', and hair-spring-holding pin v^4, adjustable up and down in a socket of the plate M', substantially as and for the purpose herein specified.

9. The combination of a center wheel and train of gear leading to the escapement-wheel, balance-wheel, hair-spring, an adjustable index-pointer, and an index-plate, K^2, provided with an adjustable pointer, p^3, substantially as and for the purpose herein specified.

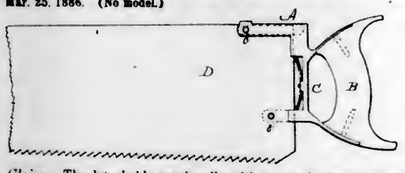
352,936. PLOW. John T. Sentenet, Blocksburg, Cal. Filed June 24, 1886. (No model.)



Claim.—1. The combination, with the standard having an arm branching therefrom, and the reversible share the landsides of which are each provided with an opening, of a pin projecting laterally from each side of the arm and adapted to enter the openings in the landside, substantially as and for the purpose described.

2. The combination of the beam, the standard having an arm projecting upward and rearward, the handles having the lower ends secured to the upper end of the arm, and secured to the beam at a distance from the lower ends, the reversible share pivoted to the lower end of the standard, the landsides of the share having openings, a pin projecting laterally on each side of the standard-arm to engage the openings in the landsides, the double catch, and the plate interposed between the top of the standard and the under side of the beam, and having lateral projections, substantially as and for the purpose described.

352,937. SAW-HANDLE. George E. Siebler, Dayton, Ohio. Filed Mar. 25, 1886. (No model.)



Claim.—The detachable saw-handle with rear projections to engage the grip-piece B, and forward slotted projections, with a rigid pin, O', in the lower arm, and orifices for pin O' of the spring E in the upper arm, the said spring E and spring C in combination with a saw-blade, substantially as set forth.

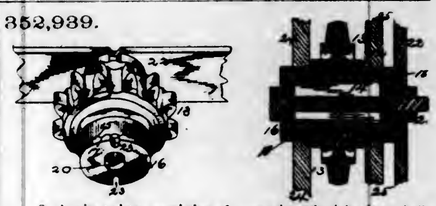
352,938. HAIR-TONIC. David Tope, Geneva, Nebr. Filed Sept. 15, 1885. (No specimens.)

Claim.—In a hair-tonic, the compound composed of the following ingredients, to wit: spirits of cologne, spirits of ammonia, tincture of cantharides, oil of rosemary, oil of nutmeg, and oil of lavender, all combined substantially in the proportions hereinbefore described.

352,939. MACHINE FOR MAKING FENCES. William Van Horn, Piqua, Ohio. Filed Mar. 27, 1886. (No model.)

Claim—1. A wire-twister consisting of a sprocket-wheel having a hollow hub and detachable and adjustable slotted disks, and means, substantially as described, for holding said disks in position, and means for operating the twister.

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2. A wire-twister consisting of a sprocket-wheel having a hollow hub, detachable and adjustable slotted disks, a removable bolt and nut for securing said disks in position, and an operating-crank secured to one of said disks, substantially as set forth.

3. In a wire-twister, the combination of a sprocket-wheel having a hollow hub and corrugated, toothed, or notched ends, and detachable and adjustable slotted disks having similarly toothed or notched under faces to engage with the ends of the hub, and means, substantially as described, for removably securing said disks in position.

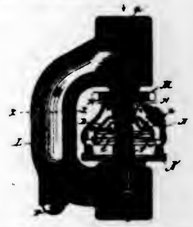
4. In a wire-twisting machine, a series of wire-twisters consisting of sprocket-wheels having hollow hubs, detachable and interchangeable adjustable slotted disks engaging with said hollow hubs, and removable bolts and nuts connecting and securing said disks in position, and an operating-crank secured to one of said disks, substantially as and for the purpose set forth.

5. The combination of a sprocket-wheel having a hollow hub, the detachable and adjustable slotted disks, and the removable bolt and nut, as and for the purpose set forth.

6. The combination of the tension-bar and the wire-clamping plates having claws, as herein described, and means for adjustably clamping said plates against the tension-bar, as and for the purpose set forth.

7. The twister-supporting frame herein described, having a series of twisters journaled therein, an endless chain connecting said twisters, a chain-gripping concaved block secured to the inner face of the frame, and a vertical strip secured to the inner face of the frame in a position adjacent to the twisters, to form, in connection with the adjacent side strip, 26, constituting a portion of the frame, a guideway for the passage of the chain, substantially as set forth.

352,940. GAS-REGULATOR. Moses G. Wilder, Philadelphia, Pa. Filed Apr. 6, 1886. (No model.)



Claim—1. A shell or body having an inlet or inlets opening downward to convey the gas to a volumetric opening or openings, in combination with a check or diaphragm and valve, and said volumetric openings and a suitable outlet passage or passages opening downward from said valve, substantially as set forth.

2. A volumetric regulator consisting of a check or diaphragm, substantially as described, a valve which is opened when the check falls and closed when the check rises, combined with a volumetric opening or openings to convey the gas to the valve, and an outlet-passage which opens downward to permit of the discharge of the gas to the burners, and a suitable shell for inclosing the same, all substantially as described.

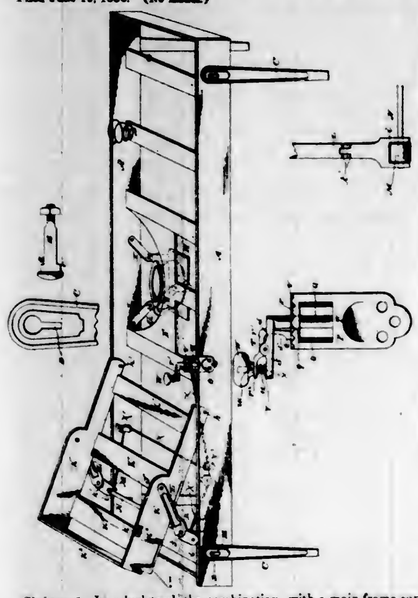
3. A volumetric regulator consisting of a check or diaphragm, substantially as described, and a volumetric opening or openings, a valve which opens when the check falls and closes when the check rises, in combination with a suitable shell or body, and an inlet passage or passages which open downward into said shell to convey the gas to a point where it is acted upon by the said valve for the purpose of limiting and controlling the volume delivered, substantially as set forth.

4. In a volumetric gas or fluid regulator, and in combination with the check, valve, and volumetric opening or openings, all substantially as described, the hollow central post, substantially as and for the purposes set forth.

5. The combination, with a gas or fluid regulator, as described, and as a device for breaking up and preventing buzzing of the current of gas or fluid entering the hollow post F, the pin I, substantially as described.

6. In a gas-regulator, and in combination with shell D, the distributing-diaphragm E, substantially as and for the purposes set forth.

352,941. INVALID-BEDSTEAD. Hermann Winter, Hermann, Mo. Filed June 19, 1886. (No model.)



Claim.—1. In a bedstead, the combination, with a main frame supported on a set of folding legs and the cross-slats resting thereon, of a series of jointed arms pivotally secured at their upper ends to the bedstead, and a shelf pivotally secured to the lower ends of the arms, substantially as set forth.

2. In a bedstead, the combination, with a main frame and a series of supporting-legs, of a series of arms each made up of sections pivotally secured together, the said arms being pivotally secured at their upper ends to the under side of the bedstead, and a shelf pivotally secured to the lower ends of the arms, substantially as set forth.

3. In a bedstead, the combination, with the main frame and adjustable head-rest pivotally secured thereto, of a supporting or elevating arm pivoted at its upper end to the head-rest, with its lower end resting loosely on the bed-frame, and a flexible device for regulating the position of said arm, substantially as set forth.

4. In a bedstead, the combination, with a main frame and an adjustable head-rest pivotally secured thereto, of a pair of jointed elevating or supporting arms pivoted at their upper ends to the head-rest, with their lower ends resting loosely on the bed-frame, and a flexible device, substantially as described, for regulating positions of said arms, substantially as set forth.

5. In a bedstead, the combination, with a main frame, a head-rest pivoted thereto, and arms pivoted to the head-rest, and provided at their lower ends with rollers, which latter rest and move on the sides of the frame, of ropes connected to the arms and attached to a drum or windlass, substantially as set forth.

6. The combination, in a main frame and a head-rest pivoted thereto, and arms for supporting the outer end of the head-rest, of a spindle or reel, flexible devices connecting the spindle or reel and the arms, and a handle connected to the spindle or reel and adapted to automatically lock itself against movement, substantially as set forth.

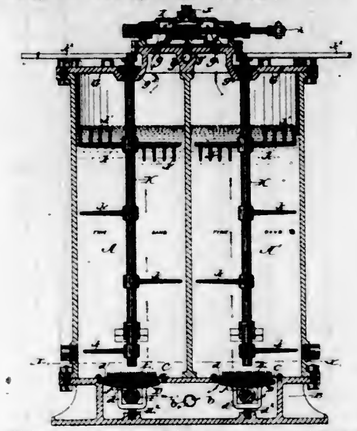
7. In a bedstead, the combination, with the main frame and an adjustable head-rest secured thereto, of a pair of jointed elevating-arms with one end pivoted to the said head-rest, and the free ends joined and adapted to roll backward or forward on the said main frame, and means for preventing the head-rest from lowering beneath the plane thereof, substantially as set forth.

352,942. KNOB ATTACHMENT. John B. Wood, Providence, R. I. Filed Apr. 12, 1886. (No model.)

Claim.—The combination, with the split holding-pin provided with a cylindrical head at its solid end and a head of oval cross-section at its split end, and with an intermediate cylindrical portion of less diameter than the diameter of the said heads, whereby retaining-shoulders are formed, of the laterally-perforated latch-spindle and the laterally-perforated knob-shank, adapted to receive and engage the heads of the holding pin, substantially as described.



352,943. WATER-PURIFYING APPARATUS. James H. Blessing, Albany, N. Y. Filed Sept. 4, 1886. (No model.)



Claim.—1. A water-purifying apparatus consisting of two independent filtering-chambers, a single valve-inclosure from which an eduction-port leads to a waste-water discharge and a separate induction-port leads into each filtering-chamber, and a single valve of insufficient length to cover both induction-ports at the same time, the said valve when moved to cover either of said induction-ports forming a passage which connects the covered induction-port with the said eduction-port, as and for the purpose specified.

2. The combination of two independent filtering-chambers fixed on a bed-piece that is common to both of said filtering-chambers and from which the filtered water is drawn, a single valve-inclosure from which an eduction leads to a waste-water discharge, and a separate induction-port leads into each filtering-chamber, a single valve of insufficient length to cover both of said induction-ports at the same time, but which, when moved to cover either induction-port, will form a passage that connects the covered induction-port with the said eduction-part, and agitators for stirring the filtering material in said filtering-chambers, as and for the purpose specified.

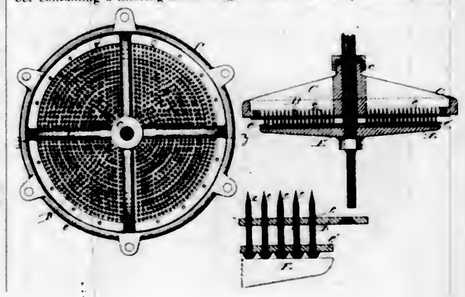
352,944. APPARATUS FOR PURIFYING WATER. James H. Blessing, Albany, N. Y. Filed Aug. 19, 1886. (No model.)

Claim.—1. In a filtering apparatus, a perforated percolating-plate having pins or plungers inserted in its perforations, to produce minute openings through which the water will ooze, as herein specified.

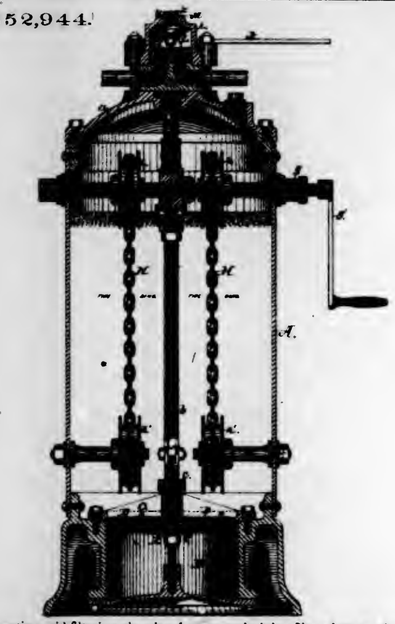
2. In a filtering apparatus, the combination, with a chamber containing sand or other filtering media and a perforated percolating-plate, of a reciprocating head provided with pins or plungers adapted to slide in the perforations of said percolating plate, as and for the purpose herein specified.

3. In a filtering apparatus which contains filtering media of granular particles, an agitator composed of a rotative shaft having chain-sheaves, and endless chains driven by said shaft, as and for the purpose herein specified.

4. In a filtering apparatus, the combination, with a filtering-chamber containing a filtering media of granular material, a percolating-plate



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separating said filtering-chamber from an underlying filtered-water chamber, and a pipe leading from the latter to an eduction-port, of a series of pins or plungers fitted into the perforations of the percolating-plate, to produce minute openings through which the water will ooze, and a single valve for changing the direction of the currents of water through said filtering apparatus, as herein specified.

352,945. COMPOUND FOR COATING WOOD, CORDAGE, &c. TOUSSAINT P. BOSCHER, New Orleans, La. Filed July 28, 1886. (No specimens.)

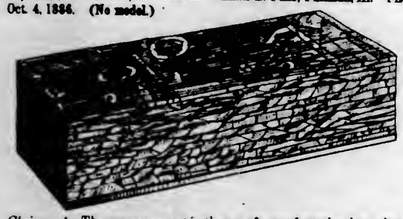
Claim.—The herein-described composition of matter to be used for coating for wood, metals, plaster, masonry, electric cables, cordage, ropes, nets, harness, paper, tarpaulins, and other tissues, consisting of water, gas-tar, dead-oil, pine-tar, naphtha, chloride of ammonia, and bone-black, in the proportions specified.

352,946. DEVICE FOR CLEANING SLATES. JACOB COCHEU, Brooklyn, N. Y. Filed Sept. 7, 1886. (No model.)



Claim.—The annular tubular elastic reservoir provided with the pieces B B' *b*, of absorbent material, adjustable substantially as described, and a stopper having an aperture and adjustable washer.

352,947. FAGOTING METAL. FRANK B. FELT, Pullman, Ill. Filed Oct. 4, 1886. (No model.)

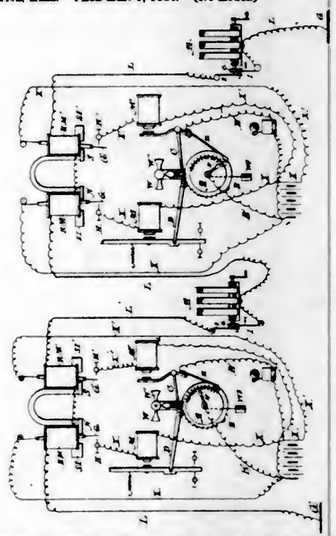


Claim.—1. The improvement in the art of manufacturing iron plates, shafts, and axle-bars herein described, consisting in forming a fagot from pieces of scrap so arranged that the original fiber of the iron in each piece shall be parallel to the fiber in the other pieces and to the sides of the fagot, and then heating and reducing the fagot, substantially as described.

2. In the manufacture of iron plates, shafts, and axle-bars, forming a pile from pieces of scrap with the fibers of all the pieces parallel, and then heating and reducing said pile by rolling it longitudinally, substantially as and for the purpose set forth.

3. In the manufacture of iron plates, shafts, and axle-bars, forming a pile of scrap with the pieces so arranged that the fibers of all shall be parallel, then heating and rolling the pile to a bar, and then piling sections of such bars, reheating, and compacting and reducing by means of a hammer to the form of a plate, shaft, bar, or axle, substantially as described.

352,948. INDIVIDUAL CALL APPARATUS. LYCURGUS S. GLOVER, Marion, Kans. Filed Mar. 1, 1886. (No model.)



Claim.—1. The combination, substantially as hereinbefore described, in a telephone, telegraph, or other electrical system where individual signals of one or more predetermined instruments is desired to the exclusion of all other signals of the same system, of a double-acting polar relay comprising a permanent magnet, N S, the coils of insulated copper wire R M and R M', the vibrating soft-iron cores K and K', attached to the springs L and L', the soft-iron armatures S I and S I', the contact-screws H and H', and the spring-contacts G and G', operating as and for the purpose specified.

2. In an electrical signaling apparatus, a double polar relay in a main-line circuit, said relay provided with two vibrating soft-iron cores, K and K', each normally biased by opposite poles of a permanent magnet and adapted to vibrate, respectively, independent of each other, one only by the action of a positive impulse, and the other only by the action of a negative impulse in the said main-line circuit, the two circuit-closing springs G and G' attached one to the free end of each of said soft-iron cores and held normally open thereby, the two normally-open circuits X and X', including therein said circuit-closers, one for each circuit, and the contact-screws H and H', the retention-levers I I', adapted to engage the contact-springs G G' when said cores are caused to vibrate, locking said springs in contact with the contact-screws H H', a battery and an electro-magnet in each of said normally-open circuits, and an armature for each of said electro-magnets, adapted to release said springs G G' from said levers I I', all combined substantially as and for the purpose set forth.

3. In an electrical signaling apparatus, the combination of the ratchet-wheel B and the vulcanite wheel A, attached to the same shaft and adapted to rotate together therewith, the series of contact-points 1 2 3 4, &c., on the periphery of said wheel A, the driving-pawl D, the ratchet-lever C, and its extensions E and F, the weighted catch-levers W and W', and a normally-open electrical circuit, B, including therein a bell, the contact-spring Z, and the shifting contact-spring 4', all co-operating as and for the purpose specified.

352,949. DISCAL INDICATOR. WILLIAM GRIFFITH, Pittston, Pa. Filed June 15, 1886. (No model.)

Claim.—1. An indicator composed of a series of two disks pivoted together at the center, each disk provided with slots, through which

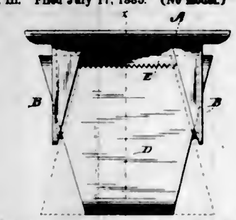
352,949.



characters on the inner faces of the disks are read, substantially as set forth.

2. The combination, with a plate having characters on one or both faces, of a second plate pivoted thereto and similarly provided with characters, those on the interior faces of each disk being displayed through the slot of the adjacent plate, substantially as set forth.

352,950. FIXTURE FOR HOLDING TOILET-PAPER. OLIVER H. HIKES, Chicago, Ill. Filed July 17, 1885. (No model.)



Claim.—1. The combination, with the base-plate having diverging arms, of the oscillating core-plate having the converging ends, and a stop for arresting the rotation of said core-plate in either direction, substantially as described.

2. The combination of the removable bearing-pin having the bent end with the core-plate having the socket for receiving the bearing-pin, and the stop for said pin, and arms having bearings for the pin, substantially as described.

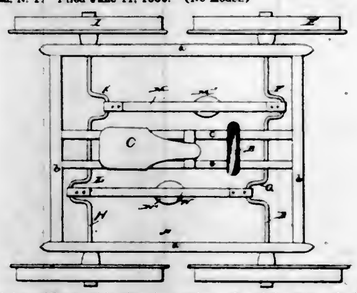
3. The combination, with the removable bearing-pin, of the core-plate having the socket for receiving said pin, and the arms having the bearing for the pin tapering outwardly, substantially as specified, for the purpose set forth.

352,951. PACKAGE OF TOILET-PAPER. OLIVER H. HIKES, Chicago, Ill. Filed Oct. 28, 1885. (No model.)



Claim.—As a new article of manufacture, a roll of toilet-paper having converging ends, substantially as described.

352,952. RAILWAY-VELOCIPEDE. ALFRED W. INGRAHAM, Thurman, N. Y. Filed June 11, 1886. (No model.)



Claim.—The combination, in a velocipede, of the frame A, having the seat C, the shaft D, journaled at one end of the frame, and having the cranks F and G, extending in opposite directions, and the wheels E, the shaft H, journaled in the rear end of the frame A and having the oppositely-extending cranks K and L, and the wheels I, the rod M, connecting the cranks K and F, and having the pedal M', and the rod N, connecting the cranks G and L, and having the pedal M', the said rods M and N being arranged on opposite sides of the seat and at a suitable distance below the same, substantially as described.

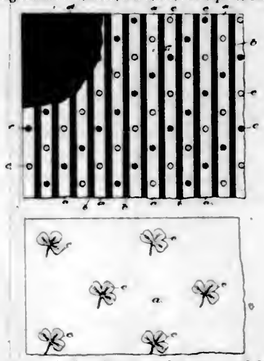
352,953. DEVICE FOR SUSPENDING CURTAINS. HENRY D. B. LEVERETT, New Brunswick, N. J. Filed Mar. 12, 1886. (No model.)



Claim.—1. A device for supporting and operating portières, curtains, and the like, consisting of a hollow bar longitudinally slotted at its upper portion, and supporting the suspending-rings, in combination with extensible springs, one end of each spring having a fixed point of attachment, sliding blocks connected with the free ends of said springs, and having outwardly-projecting pins traveling within the bar-slot and connected with one of the suspending-rings, and drawing-cords connected with the sliding blocks, substantially as described.

2. A device for supporting and operating portières, curtains, and the like, consisting of a support for the suspending-rings, in combination with extensible springs located below the line of support of said rings, one end of each spring having a fixed point of attachment, sliding blocks connected with the free ends of said springs and having outwardly-projecting pins connected with one of the suspending-rings, and drawing-cords connected with the sliding blocks, substantially as described.

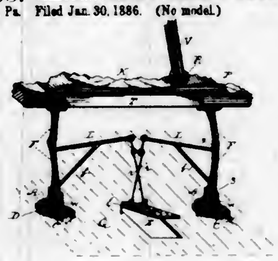
352,954. WATER-PROOF FABRIC. CHARLES MOSELEY, Manchester, County of Lancaster, England. Filed Aug. 20, 1885. (Specimens.) Patented in England Nov. 2, 1883, No. 5,207, and Apr. 9, 1884, No. 6,175.



Claim.—1. An india-rubber-coated water-proof fabric having a partially-lustrous and a partially-dull or non-lustrous face, the coating concealing the fibrous material of which the fabric is composed and affording a lustrous design, substantially as described.

2. An india-rubber-coated water-proof fabric having a combined lustrous or farina-coated and color-printed face, substantially as described.

352,955. LEATHER-ROLLING MACHINE. THOMAS W. MCKEE, Towanda, Pa. Filed Jan. 30, 1886. (No model.)



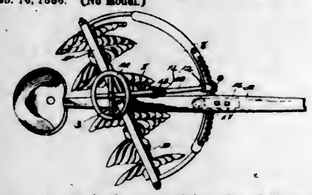
Claim.—1. In a leather-roller machine, in combination with a vibrating roller and the table carrying the carved bed-piece, the knuckle-jointed fulcrum and treadle mechanism, substantially as and for the purpose described.

2. In a leather-roller press, the wedges W, in combination with the inclined blocks B, screws S, cranks C, boxes A, and fulcrums F, substantially as described.

3. In a leather-rolling press, the twin fulcrums F, provided with the middle knuckle-joints, the said joints being outside of the vertical center line of the fulcrums, in combination with the levers connected to the fulcrums near the said joints, substantially as described.

4. In a leather-roller press, the combination of the boxes A, the blocks B, the wedges W, the triple-jointed fulcrums F, the levers L, rods r, treadle E, and table T, as and for the purposes herein described and set forth.

352,956. ROTARY PLOW. JOHN Q. A. NEWSOM, Seymour, Ind. Filed Feb. 16, 1886. (No model.)



Claim.—1. A plow having a revolving plow-shaft, on which is mounted a series of independent cutting knives placed closely together, with the point of each knife overlapping the cutting-blade of the forward knife, and set in a single spiral line, so as to form a continuous series of spiral cutters, substantially as described.

2. A plow having a revolving plow-shaft, on which is mounted a series of cutting-blades independently arranged in the form of disks, said disks being united to form a continuous single-line series of said spiral cutting-blades, the points of said blades overlapping the cutting portion of the forward blades, substantially as described.

3. A plow having a revolving plow-shaft, on which is mounted spirally a series of curved knife-edged cutters having sharp points, the point of each cutter overlapping the knife-edged portion of the next adjacent blade in the rear, substantially as described.

4. In a plow, the combination of a revolving plow-shaft, a series of sectional brackets secured thereto, forming a continuous spiral when mounted, independent cutters mounted in sockets in said sectional brackets, and set-bolts for holding said cutters in their desired position, substantially as described.

5. The combination with the fixed or stationary draft-bar, of a suspended frame and a journaled plow-shaft, a segment attached to the plow-shaft pin at each of its ends adapted to be turned, and mechanism operated by the driver for adjusting the plow frame and shaft relatively to the draft-bar, and locking them in position, substantially as described.

352,957. KEY-FASTENER. AUGUSTUS E. SHADER, Chicago, Ill. Filed Feb. 20, 1886. (No model.)

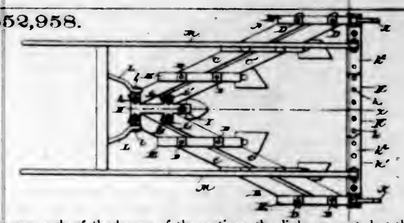


Claim.—The combination of the scutcheon A, having the recess A' and shoulder S, the reciprocating key-guard B, having the shoulder B', and the secondary guard L, adapted to enter the space between the shoulders B' S when the key-guard is in operative position and to lock the key-guard against displacement, substantially as and for the purpose set forth.

352,958. CULTIVATOR. JAS. M. SUTTON, Bryan, Tex. Filed Aug. 25, 1886. (No model.)

Claim.—1. In a cultivator, the combination of the laterally-adjustable connected sections, each consisting of the parallel beams, the links connected at their ends to the beams, the through-bolts, the shovel-standards pivoted at one end to one of the links, and the arms intermediate of the standard and the other end of the links, substantially as described.

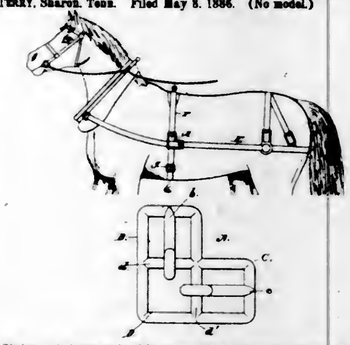
2. In a cultivator, the combination of the laterally-adjustable sections, each having the parallel beams, the pivot-plates intermediate of



the rear ends of the beams of the sections, the links connected at their ends to the beams, the shovel-standards connected at their upper ends to one end of the links and carrying the shovels at their lower ends, and the arms pivoted at their upper ends to the opposite ends of the links, and adjustably connected at their lower ends to the shovel-standards, substantially as described.

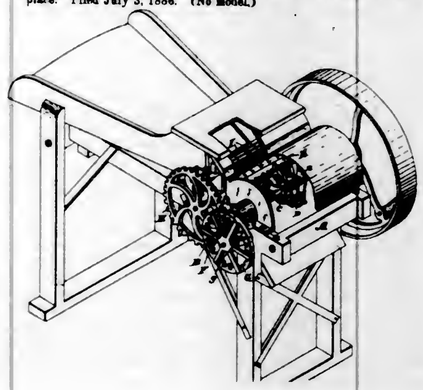
3. In a cultivator, the combination of the sections A B, adjustable laterally of each other, and each having the parallel connected beams carrying the shovel-standards, the connecting-arms pivoted to the forward ends of the sections and adjustably connected together at their inner ends, the connecting-plates pivoted to the rear ends of the beams of both sections, and a handle, substantially as described.

352,959. HARNESS-BUCKLE. JERRY T. SUTTON and GEORGE M. TERRY, Sharon, Tenn. Filed May 8, 1886. (No model.)



Claim.—A harness-buckle comprising a central frame, D, and the integral end frames, B C, arranged at right angles to each other, the sides *d d'* of the central frame forming the inner sides of the end frames, and the independent tongues lying at right angles to each other, and each pivoted on one of the bars of the central frame, in combination with a trace passing through the end and middle frames, C D, and having the tongue of the frame C passing through an aperture therein, and the back-strap passing through the end frame, B, with the tongue thereof fitting in an aperture therein, the lower end of the back-strap being passed through the central frame in rear of the trace therein and connected to the belly-band, substantially as described, for the purpose set forth.

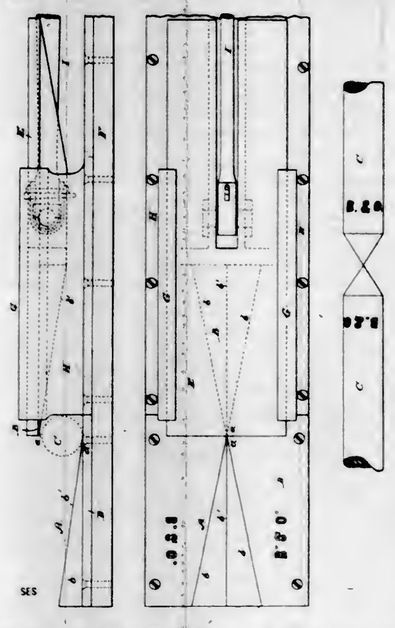
352,960. FODDER-CUTTER. DAVID SWANGER, Canton, Ohio, assignor of two-thirds to William Betz and Anton Hammerly, both of same place. Filed July 3, 1886. (No model.)



Claim.—1. The combination, with the diagonally-toothed cutter-bar E, of the rotary shaft B, the arms C, connected in pairs by collars and adjustably secured to said shaft in different planes, thereby forming a spiral thereon, and the knives D, adjustably secured to the ends of said arms with their cutting-edges standing at an angle thereto, substantially as described.

2. The combination of the feed-rollers I, the toothed cutter-bar E, the rotary shaft B, having pinion F, the arms C, mounted on said shaft and provided with knives D, the adjustable bracket L, having slot M and stud K, the wheel G and pinion *g*, mounted on said stud, and the wheel H, attached to the lower feed-roller, substantially as described.

352,961. MACHINE FOR CUTTING AND POINTING RODS OF METAL. JOHN C. TALIAFERRO, Richmond, Va. Filed Sept. 7, 1886. (No model.)



Claim.—1. The combination of the frame, the pointed cutter A, inclined longitudinally and doubly inclined transversely, and the similarly-formed reciprocating cutter B, between which cutters the bar is operated upon to simultaneously sever it into two bars with pointed ends, substantially as and for the purpose set forth.

2. The combination of the frame, the pointed cutter A, inclined longitudinally and doubly inclined transversely, and having the securing-plate with the branding-marks upon it, the cutter B, pointed and inclined correspondingly with the cutter A, and having the securing-plate, the guideways, and the connecting-rod, substantially as and for the purpose set forth.

352,962. WIRE-UNWINDING REEL. ALEXIS J. TREMPE, Ansonia, Conn. Filed Apr. 28, 1883. (No model.)

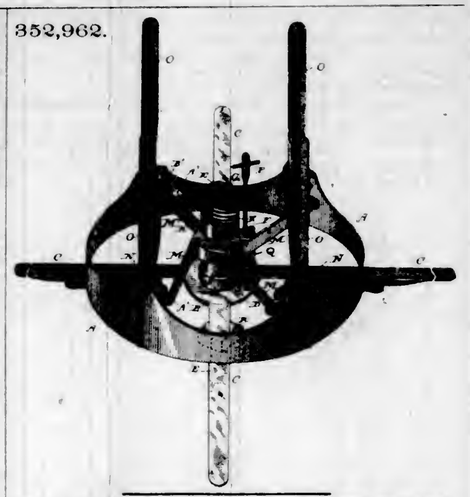
Claim.—1. In a reel for holding coils of wire while being unwound, the combination of the drum or disk A, having coil-supporting arms C, and pivoted coil-retaining arms O, as and for the purpose set forth.

2. The combination of drum A, shaft or spindle E, tubular projection J, spiral spring H, and nut G, substantially as and for the purpose set forth.

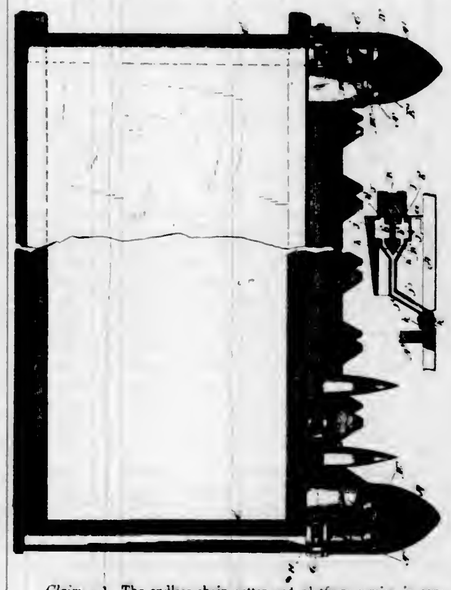
3. The combination of drum A, shaft or spindle E, tubular projection J, handle P, having flange or gate Q, spider K, having arms M, connected with said drum, and the links or arms O, substantially as and for the purpose set forth.

4. In a coil-holding device, the combination of drum A, having arms C, shaft or spindle E, tubular projection J, handle P, having flange or gate Q, spring H, nut G, spider K, having arms M, and links A', arms O, pivoted at N, substantially as and for the purpose set forth.

352,962.



352,963. ENDLESS-CHAIN SICKLE FOR MOWERS AND REAPERS. SQUIRE S. TURNER, Columbia, Mo. Filed July 14, 1885. (No model.)



Claim.—1. The endless-chain cutter and platform-carrier, in combination with the knife-supporting bars secured to the shoes or inner shoe and divider by means of angle irons, for the purpose and substantially as described.

2. The knife-supporting bar, in combination with the endless-apron rollers, the endless-platform carrier driven thereby and arranged in rear of the knife-supporting bar, and the endless-chain cutter arranged in front of said bar and driven by said rollers, substantially as described.

3. The combination, with the endless-chain cutter, of the knife-supporting bar provided with the forwardly-projecting tongue having the beveled edges corresponding to the inclined shanks of the cutters or knives, and grooves on its upper and lower faces for the links of the chain to move in, substantially as described.

4. The knife-supporting bar provided with the forwardly-projecting tongue, grooved on its upper and lower faces, and having the double bevel at its forward edge, substantially as described.

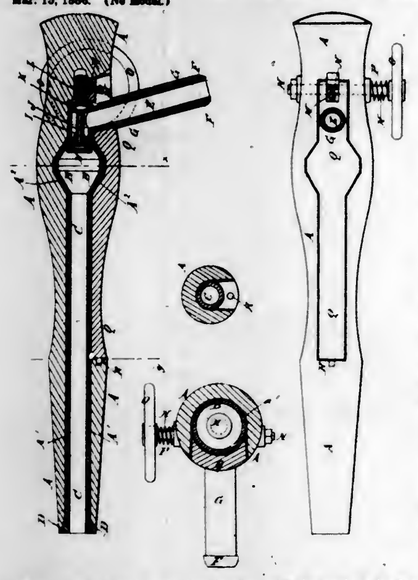
5. The combination, with the knife-supporting bar provided with the grooved and bevel-edged tongue, of the endless-chain cutter, the knife

portions of which are connected with the chain-link portion by inclined dovetailed shanks, substantially as described.

6. The combination, with the endless-chain cutter and its grooved supporting-bar, of the grooved guards or covers made adjustable to take up wear, substantially as described.

7. The combination, with the endless-chain cutter, of the supporting-bar having the grooved and beveled tongue, and the grooved guards or covers made adjustable to take up wear, substantially as described.

352,964. BEER-FAUCET. JOHN WALSH, New York, N. Y. Filed Mar. 15, 1886. (No model.)

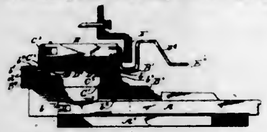


Claim.—1. In a faucet, the combination, with the stock A, having longitudinal perforation A', with enlargement A^2, and the rubber tube C, having flanged rear end and closed forward end, and provided with an enlargement, B, and a nozzle, E, of the valve H, the screw J, embedded in the said valve, the nut K, embedded in the closed forward end of the said rubber tube and engaging with the said screw, the slotted nut L, the screw-pin M, engaging with the said slotted nut, and the shaft N, carrying the said screw-pin and provided with a spring, P, connected with the stock A, substantially as herein shown and described, whereby the faucet can be readily opened and closed, as set forth.

2. In a faucet, the combination, with the stock A, having slot in its lower side, and the rubber tube C, having nozzle E, of the separable block Q, substantially as herein shown and described, whereby the said rubber tube can be readily inserted and will be securely supported when in use, as set forth.

3. In a faucet, the combination, with the stock A, the separable block Q, and the rubber tube C, provided with a nozzle, E, having flange F at its outer end, of the tube G, substantially as herein shown and described, whereby the said nozzle is covered and protected, as set forth.

352,965. KEY-BOARD FOR MUSICAL INSTRUMENTS. WORTHINGTON T. WEIR, Chicago, Ill. Filed May 7, 1885. (No model.)



Claim.—1. In a musical instrument, a transposition key-board composed of a frame, C, and frame or board D, resting within said frame C, said transposition-board resting loosely in open grooved or angular ways, whereby said board is restrained from shifting in a transverse direction, but is permitted to be shifted longitudinally and to be raised at its front side or lifted entirely from said ways, substantially as herein set forth.

2. In a musical instrument, a transposition key-board composed of a frame, C, and frame or board D, resting within said frame C, said transposition-board resting loosely on a way or ways, while its rear portion is loosely engaged by a horizontal groove and tongue or hook, and its front portion rests against a relatively-fixed parallel bar, whereby said key-board is restrained from shifting transversely, but is permitted to be shifted longitudinally and to be raised at the front side, or lifted entirely from its seat, substantially as herein set forth.

3. In a musical instrument, the combination, with the frame C and frame or board D, having the tongue d^2, of a bar, B^4, having the groove b^5, and the bar B', substantially as shown, and for the purposes set forth.

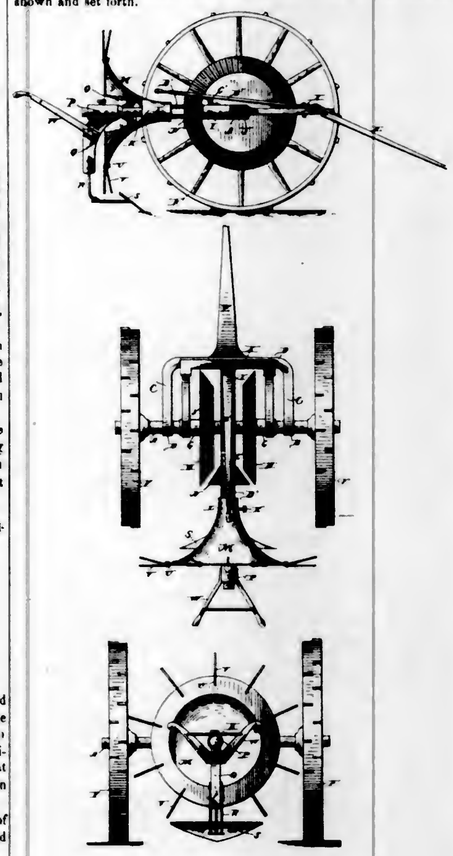
4. In a musical instrument, the combination, with the frame C and frame or board D, having the tongue d^2, of a bar, B^4, having the groove b^5, and the bar B' and ledge B^2, substantially as and for the purposes set forth.

5. In a harmonized key-board having the finger-pieces arranged in banks, substantially as described, keys E, which extend outwardly to the first bank, of which they are to form a part, then upwardly to the level of said bank, then outwardly across said bank, then downwardly to the level of the next bank, of which they are to form a part, then outwardly in said second bank, substantially as shown and described.

6. In a musical instrument having a transposition key-board, a pair of separate indicator-scales, one bearing the characters indicating the signatures usually printed at the beginning of pieces of music, and the other bearing the characters used to represent the key-notes, in combination with a pair of pointers mounted upon the transposition-board, and carried by the latter before said indicator-scales, substantially as shown and described.

352,966. POTATO-DIGGER. FRANCIS O. WILLIAMS, Cohocton, N. Y. Filed Mar. 20, 1886. (No model.)

Claim.—1. In a potato-digger, the combination of a U-shaped frame having an arm projecting from the middle of its cross-piece toward the rear, forming a spindle at its rear end, said arm and the ends of the said frame being provided with transverse bearings registering with each other, and a drive-shaft journaled in the said bearings, as and for the purpose shown and set forth.





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2. In a potato-digger, the combination of a rearwardly-projecting spindle, a bell-shaped or funnel-shaped reel having a bearing in its forward end and near the mouth of the flaring portion turning upon the spindle, and means for revolving it, as and for the purpose shown and set forth.

3. In a potato-digger, a revolving bell or funnel shaped reel having fingers at its periphery, as and for the purpose shown and set forth.

4. In a potato-digger, a revolving bell or funnel shaped reel having fingers at its periphery projecting radially, and inclined forward, as and for the purpose shown and set forth.

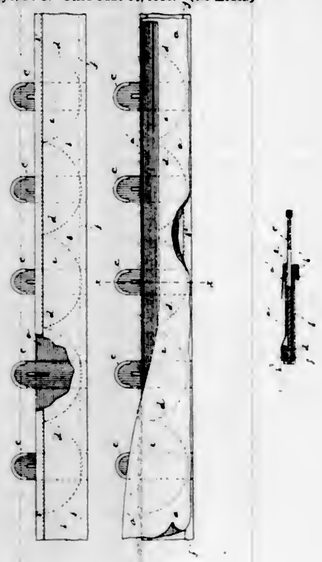
5. In a potato-digger, the combination of a revolving bell or funnel shaped reel having means for revolving it, and having a number of equidistant notches in its periphery, with a number of diverging fingers having their inner connected ends formed with lips for straddling the rim in the notches, and having bolts passed through the lips and the rim, as and for the purpose shown and set forth.

6. In a potato-digger, the combination of a rearwardly-extending spindle having a shoulder at its forward end, a sleeve revolving upon the spindle and formed with a prismatic exterior, and with a beveled pinion at its forward end, having means for revolving it, and a bell or funnel shaped reel having a prismatic bore in the forward end of its sleeve fitting adjustably upon the sleeve having the pinion, and having a bearing in the mouth of the flaring portion revolving upon the spindle, as and for the purpose shown and set forth.

7. In a potato-digger, the combination of a spindle projecting rearward and having a revolving reel, a sleeve secured upon the rear end of the spindle by a set-screw confining the reel and having a downwardly-projecting standard, a digging-blade having an inclined triangular forward edge, and having an upwardly-projecting shank, and clips or bails for securing the shank adjustably to the standard, as and for the purpose shown and set forth.

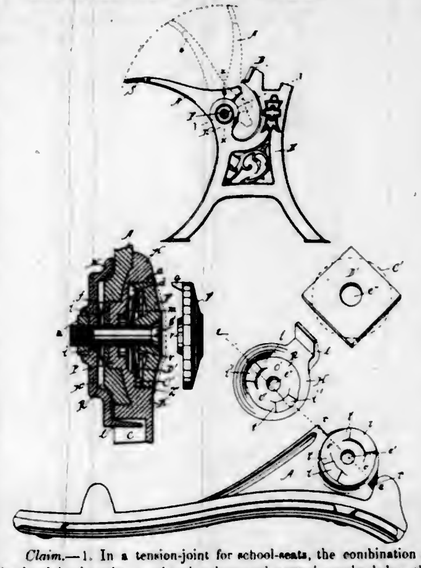
8. In a potato-digger, the combination of a revolving reel having a beveled pinion upon its forward end, a drive-axle having two sleeves sliding upon it and turning with it, and provided with beveled cog-wheels at their inner ends at both sides of the pinion, and a U-shaped frame pivoted at its middle upon the machine-frame and having a rearwardly-projecting handle or lever at its middle, and provided with bifurcated rear ends at its arms projecting around the upper and under sides of the sleeves, and having pins projecting into annular grooves in the sleeves, as and for the purpose shown and set forth.

352,967. MODE OF MAKING WAISTBANDS. HUGO WIRTHS, Brooklyn, N. Y. Filed June 10, 1886. (No model.)



Claim.—The mode of producing a waistband which consists in connecting two stripe, *a b*, by a lower seam, *f*, and by a curved seam, *d*, that forms a series of open half-round contiguous pockets, *e*, placed side by side between stripe *a b*, and in attaching an elastic strap, *c*, within and at the bottom of each pocket, all being so constructed that the straps *c* have a lateral play at their free ends, substantially as specified.

352,968. TENSION-JOINT FOR SCHOOL-DESKS. FRANCIS R. BEAL, Northville, Mich. Filed May 10, 1886. (No model.)



Claim.—1. In a tension-joint for school-seats, the combination of the head having the annular chambers and central annular ledge, the spring-metal disk and cap F, located therein, the seat-arm having the lugs, with inclined ends formed on its back face, the cap H, having the locking-arm *l* engaging with the recess C of the head, and lugs *i'* with inclined ends on its inner face, said lugs adapted to engage with the lugs on the arm A, and the bolt and nut for securing said parts together.

2. In a tension-joint for school-seats, the combination of the standard, the head K, formed integral therewith, the hub P, the chamber C', having the ledge Z', the spring-metal disk, the cap F, having the nose *n* and arm *a*, the seat-arm A, having the chamber *f*, the lugs *i i*, and depressions *o o*, the cap H, having the arm *l* engaging with the recess C of the head, and lugs *i i*, with screw-bolt securing said parts together, as and for the purposes set forth.

3. In a tension-joint for school-seats, the combination of the head K, having the chamber C' and annular ledge, the square metal disk located in said chamber, the arm A, having the lugs *i i* with inclined ends and depressed spaces *o o*, the cap H, having the lugs *i' i'*, with depressed spaces *o' o'* on its inner face, said cap adapted to be locked to the head K, also the cap F, with bolt and nut securing said parts together, as and for the purposes specified.

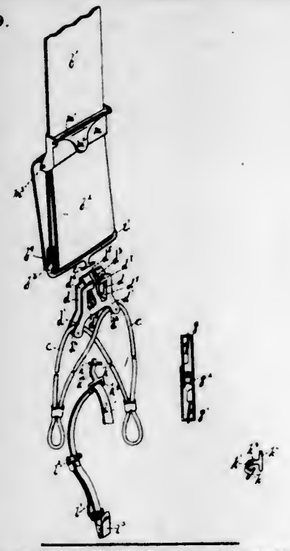
352,969. SUSPENDERS. J. TALMAN BUDD, Buffalo, N. Y. Filed Aug. 31, 1885. (No model.)

Claim.—1. A clasp for suspender-ends, &c., consisting of a frame having a slot or slots, on either side of which is a shoulder, and a spring-strip operating within or under the slot and shoulders, in combination with a T-shaped hanger adapted to co-operate with such slotted frame, substantially as shown and described.

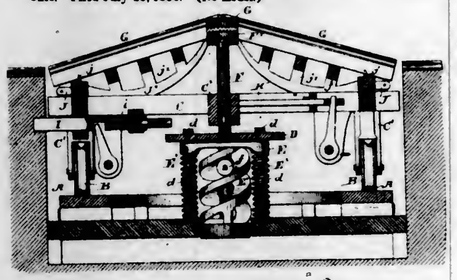
2. The clasp having the spring-strip d^5, the slot d^7, and recess d^8, and the shoulders d^7 within the recess d^8, and on either side of the slot d^7, in combination with a T-shaped hanger, substantially as shown and described.

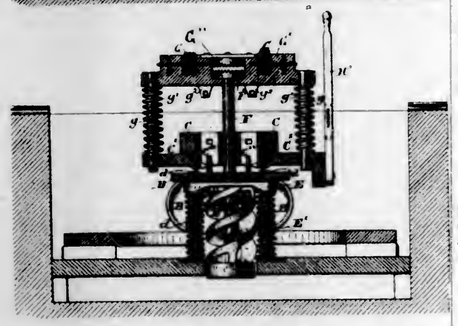


352,969.



352,970. RAILWAY TURN-TABLE. JOHN F. CLASS, Pleasant Hill, Ohio. Filed July 28, 1886. (No model.)





Claim.—1. A turn-table having springs compressed by the weight of the engine, truck, or car to turn the turn-table with the burden upon it, and a second set of springs also compressed by the weight of the engine, truck, or car for restoring the table to its normal position when the burden is removed.

2. A turn-table having a track centrally pivoted to a cross-head and springs on the side to elevate the central portion of the track when the burden is removed.

3. In a turn-table, the combination, with the worm and the plunger working therein, of the centrally-pivoted track and springs for elevating its central portion, as set forth.

4. In a turn-table, the combination, with the worm, of plunger working therein, centrally-pivoted track having the head of the plunger held within it, and springs, as described, for raising the center of the track, as set forth.

5. In a turn-table, the combination, with the worm, of the plunger working therein having a clutch on its upper end to be operated as described, a centrally hinged or pivoted track, and springs for elevating the same.

6. In a turn-table, the combination, with the worm, plunger, centrally-pivoted track, and springs for elevating it, of a locking-lever for holding the track down.

7. In a turn-table, the combination of the worm mounted upon springs, the plunger working in said worm and having the clutch at its top, substantially as and for the purpose set forth.

8. In a turn-table, the combination, with the worm, plate to which it is attached, the posts on which the plate works up and down, and springs surrounding said posts, of the plunger working in the worm and connected to a depressible track above, as set forth.

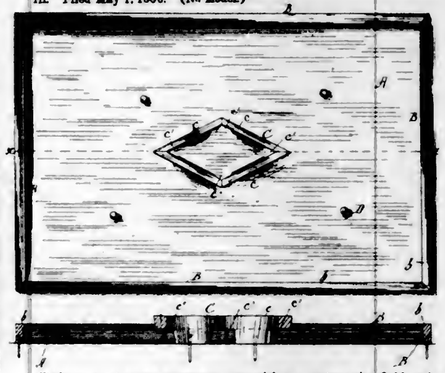
9. The combination of the centrally-pivoted depressible track having arms extending downward on each side and working in openings in ears or projections on the framing.

10. The combination, with the centrally-pivoted track and means, as described, for raising it, of the trucks J, on which the ends of track are carried.

11. The combination, with the centrally hinged or pivoted track, of the trucks J and braces J×, as set forth.

12. The combination of the turn-table, having means for automatically rotating it, and a spring-actuated bolt for engaging the sides of the pit in which the table revolves.

352,971. MECHANICAL GAME. ALBERT DURHAM, South Evanston, Ill. Filed May 1, 1886. (No model.)



Claim.—1. A game apparatus comprising a rectangular field and a central or nearly central box having an opening, c', in each corner, substantially as described.

2. A game apparatus comprising a rectangular field having overhanging side rails and a central or nearly central diamond-shaped box provided with an opening, c', in each corner, substantially as described.

3. A game apparatus comprising a rectangular field having practically inelastic side rails, a central or nearly central diamond-shaped box having sides that project outward at the top and provided with an opening, c', in each corner, elastic balls, and means for impelling said balls, substantially as described.

4. The herein-described game apparatus consisting of the rectangular field A, having practically inelastic overhanging side rails, B, the central or nearly central diamond-shaped box, C, provided with corner openings, c', the elastic balls, and means for impelling the balls, substantially as described.

352,972. AX. JOHN Q. EVERSON, Pittsburg, Pa. Filed July 12, 1886. (No model.)



Claim.—As a new article of manufacture, an ax having a cutting edge of high steel and a body composed of low steel and wrought-iron, constructed substantially as and for the purpose set forth.

352,973. TEDDER. WILLIAM H. HALL, Tiffin, Ohio. Filed Jan. 5, 1886. (No model.)

Claim.—1. In combination with the fork-arm and actuating-crank of a tedder, a sliding box affording a bearing for the crank, having longitudinal extensions mounted and guided in brackets on said fork-arm, and spring-arms extended transversely of the movement of said box and affording elastic resistance to the same, for the purpose described.

2. The combination, with the actuating-crank of a tedder, of the sliding box having slotted extensions, brackets in which said extensions are supported and guided both above and below the crank-bearing, and a

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spring mounted on the fork-arm and affording elastic resistance to the longitudinal movement of the arm upon the box, for the purpose described.

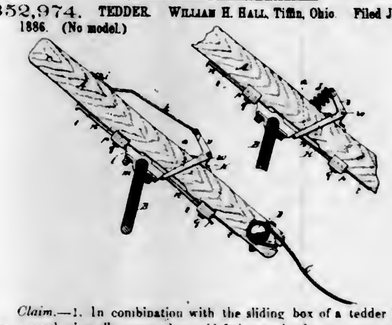
3. In combination with the slotted extensions of the sliding box, the brackets embracing and guiding said extensions, for the purpose described.

4. In combination with the fork-arm of a tedder, a sliding box mounted thereon having bearing for the actuating-crank, a coiled spring mounted on said fork-arm, and arms extended from said coil-spring substantially transversely of said fork-arm, engaging with said sliding box and controlling the longitudinal movement thereof, for the purpose described.

5. In combination with the sliding box of a tedder fork-arm, a spring composed of a coil mounted upon a suitable plug, having extended therefrom in a direction substantially transverse to the movement of said sliding box one or more arms, which engage with said sliding box and control its longitudinal movement, for the purpose described.

6. In combination with the sliding box of a tedder fork-arm, a coiled spring mounted upon a plug upon the opposite side of said fork-arm, having extensions transversely of said fork-arm taking into said sliding box and controlling its longitudinal movement, for the purpose described.

352,974. TEDDER. WILLIAM H. HALL, Tiffin, Ohio. Filed Jan. 5, 1886. (No model.)



Claim.—1. In combination with the sliding box of a tedder fork-arm, a crank pivotally mounted on said fork-arm, having one arm engaging with said sliding box and the other arm actuated by a spring, whereby the longitudinal movement of said sliding box is controlled, for the purpose described.

2. The combination of the sliding box of a tedder fork-arm, the crank having one arm engaging with said sliding box, and a flexible metallic plate bearing elastically upon the other arm of said crank, and thereby controlling the longitudinal movement of said box, for the purpose described.

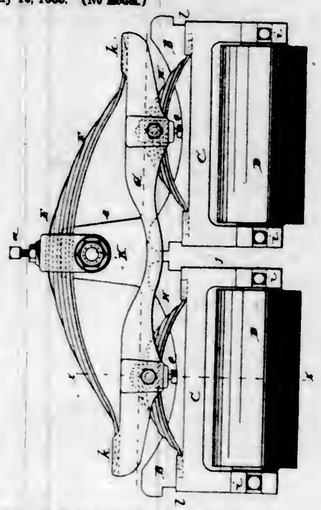
3. The combination of the sliding box with its slotted extensions, the brackets in which the same is guided, the tedder-arm, and the crank having one arm engaging with the sliding box and the other arm actuated by a spring, whereby the movement of the box is controlled, for the purpose described.

352,975. SAD-IRON. OREN R. HANCHETT, Erie, Pa. Filed Mar. 5, 1885. (No model.)



Claim.—In a sad-iron, the solid base A, the plate or shield B, secured thereto, having the side flanges, B', resting upon said base, and provided with corresponding slots similarly located and arranged one near each end of the plate, in combination with the U-shaped reversible hollow handle provided with a stationary foot at one end and a pivoted foot or latch at the other, both adapted to enter the slots in the plate B, and the arm of the latch projecting inwardly through a slot in the handle to a point within convenient reach of the index-finger of the hand for rocking the foot inward to detach the handle from the base, and the spring within the handle for actuating the latch, for the purpose and substantially as described.

352,976. PLANING-MACHINE. LOUIUS P. HOYT, Aurora, Ill. Filed July 16, 1885. (No model.)



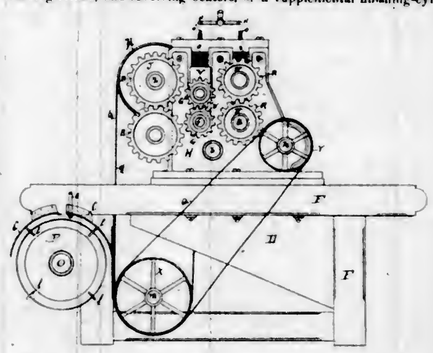
Claim.—1. The combination, with the independent pressure-rolls, of the two independent distributing-springs, one on each roller, the balance-bar supported upon both of the distributing-springs, and the mainspring held at the middle by a rocking box or bearing, and at its ends arranged to bear upon the balance-bar, substantially in the manner and for the purpose herein described.

2. The combination, with the independent pressure-rolls, of the two tilting distributing-springs held at their middle portions by vertically movable and rocking clips or bearings, and bearing one on each roller, and a main upper spring common to both distributing-springs, substantially as and for the purpose described.

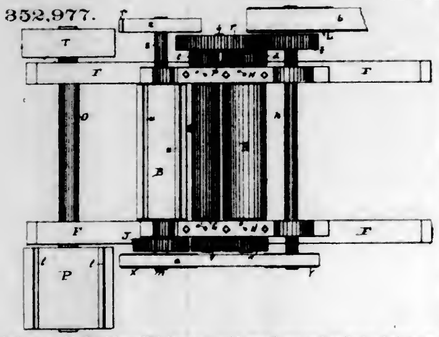
3. The combination, with the independent pressure-rolls, of the balance-bar, the distributing-springs held at their middle portions by clips or boxes pivoted to the balance-bar, with each distributing-spring bearing on one pressure-roll, and the mainspring bearing upon the balance-bar, substantially as described.

352,977. MACHINE FOR REMOVING THE FIBER FROM JUTE, &c. JULES JUVERET, New Orleans, La. Filed Jan. 5, 1886. (No model.)

Claim.—1. The combination, with smooth feed-rollers, grooved crushing-rollers, and revolving beaters, of a supplemental finishing-cyl-



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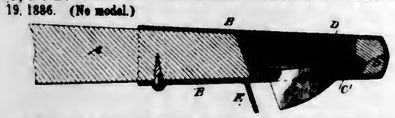


inder provided with radial beaters, said supplemental cylinder being arranged with relation to the main rollers substantially as described, so that the material being treated may be fed by hand to said supplemental beaters after passing through the main rollers, substantially as described.

2. The combination, with a series of feed-rollers, crushing-rollers, and main beaters, of a supplemental beater, to whose action the fiber is subjected after being grasped by the hand of the operator from the main beaters, substantially as described.

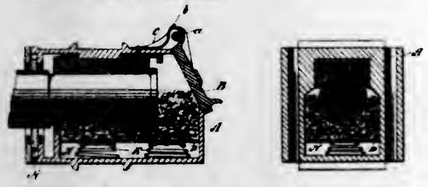
3. The combination, with the tank D and housing H, of the feed-rollers, crushing rollers, and main beaters, all arranged, as described, above said tank, and provided with spray-pipes and an independent revolving finishing-beater, against which the fiber is held by hand after it passes from the main beaters, and a spray-pipe, E, substantially as described.

352,978. POLE-TIP. MILO H. MOTT, Jamestown, Dak. Filed July 19, 1886. (No model.)



Claim.—A pole-tip, B, having the cavity b' and socket b^2, in combination with the latch C, having notch c', lip c^2, rounded end c^3, and a spring bearing on said end c^3, whereby a pivot is not needed, the rounded end c^3 being held directly by the spring, and a broad bearing for the latch on the shell of tip being provided as well at the rear as at the front of said latch, as shown and described.

352,979. CAR-AXLE BOX. RICHARD MCDOWELL, Lambertville, N. J., assignor to I. S. McGiehan, New York, N. Y. Filed Oct. 15, 1884. Renewed Feb. 12, 1886. (No model.)



Claim.—1. In a car-axle box, the plate D, extending across the entire width of the box and provided with the guide-lips d', for the purpose of keeping the plate from tipping, the said plate resting upon the springs E, as and for the purpose set forth.

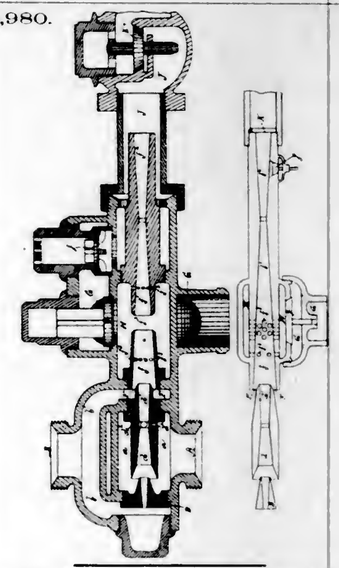
2. In a car-axle box, the plate D, constructed with the guide-lips d', to keep the plate level within the box, and provided with suitable perforations through which the waste absorbs the oil from the bottom of the box, the said plate resting upon suitable spiral springs, as and for the purpose specified.

352,980. JET APPARATUS. WM. R. PARK, Taunton, Mass. Filed Feb. 11, 1886. (Model.)

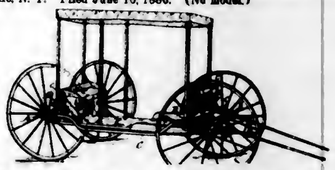
Claim.—1. In combination, nozzle D, tubes d d', water-chamber a, nozzle F, tubes f f' f^3, with openings f^4, and overflow g, the openings f^5 connecting the combining-tube of nozzle F with the overflow, all substantially as described.

2. In combination, nozzle D, tubes d d', with opening d^3, water-chamber a, nozzle F, tubes f f' f^3, with openings f^4, and overflow G, the openings d^3 connecting the combining-tube d of nozzle D with the water-supply, and the openings f^5 connecting the combining-tube f f' of nozzle F with the overflow, all substantially as described.

352,980.



352,981. VEHICLE. JOHN R. PARSONS and HORACE H. WELCH, Earlville, N. Y. Filed June 10, 1886. (No model.)



Claim.—1. In a four-wheeled vehicle, the combination, with the hind axle and head-block, of two reaches having the central or main portions of their lengths deflected downward, and the body carried between said reaches and below the hind axle and head-block, substantially as described and shown.

2. The combination, with the hind axle and head-block, of two reaches connected to the ends of said parts and extending horizontally from the head-block part way rearward, and having their central portions deflected downward, a cross-bar secured to the reaches back of the head-block, and the body hung below and between the said cross-bar and hind axle, substantially as described and shown.

3. The combination, with the hind axle and head-block, of two reaches connected to the ends of said parts and extending horizontally from the head-block part way rearward, and having their central portions deflected downward, a cross-bar secured to the reaches back of the head-block, a brace extending from the lower end of the king-bolt to the aforesaid cross-bar, springs mounted on the cross-bar and hind axle, and the body supported by said springs and carried below the aforesaid cross-bar and hind axle, all constructed and combined substantially as described and shown.

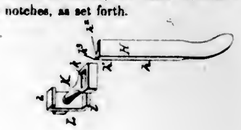
352,982. SIDE HARROW. WILLIAM W. POPE, Walker's Bridge, Miss. Filed June 9, 1886. (No model.)

Claim.—1. The frame A, consisting of the ends a^2 a^3 and plates a' a', the latter having the teeth B, in combination with the teeth H, having the rib h, and held against such frame, as set forth.

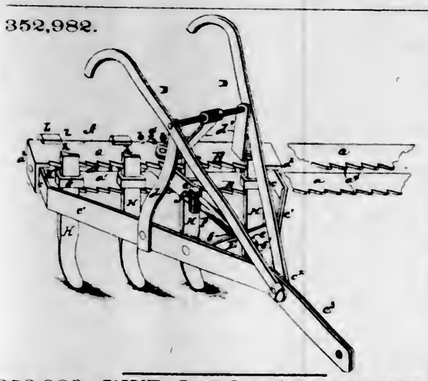
2. The combination of the frame A, consisting of the ends a^2 a^3 and the plates a a', having the teeth B, with the teeth H, having the ribs h, the rods or bolts K, having eyes k, and the clamps L, as set forth.

3. The combination of the frame A, the bars c c', brace E, and rod F and plate G, the latter two hinged together, as set forth.

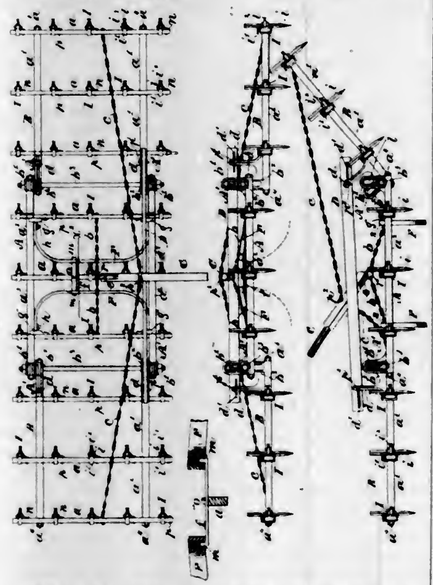
4. The frame A, having the teeth B, with a straight portion, a^4, between the notches, as set forth.



352,982.



352,983. HARROW. TIMOTHY ROGERS, Springfield, Ohio, assignor, by direct and mesne assignments, to R. C. Converse, same place. Filed Mar. 19, 1885. (No model.)



Claim.—1. In a harrow, a hinge having each section formed in a single piece, with a pipe-bar in line with the tie-beam to allow it to be attached to the latter, as set forth.

2. In a folding harrow, a hinge having the long vertical eyes, the pipe-bars attached to the latter and forming a part of the tie-beams, with means for connecting said hinge and said tie-beams together.

3. In a flexibly-connected harrow, the combination of the longitudinal beams, the tubular tie-beam sections, and the hinges, the latter being formed with a transverse vertical slot in each hinge-section, and cast in a single piece with the hollow bar in line with the other sections of the tie-beams, whereby they may be attached to and made a part of said tie-beams, as set forth.

4. In hinges for connecting the sections of a harrow-frame, the combination, with the wing-sections of said hinges, of an upright or support for a fulcrum-bar extending over the middle section, and having its ends resting on said wing-sections, as set forth.

5. In a hinged harrow, a hand-lever with the end pivoted at or near the center of the main or middle section and extending beyond the end of the latter, and a fulcrum-bar for said hand-lever having its ends resting on the wing-sections and extending over said middle section, whereby the latter may be wholly elevated above the plane of said wing-sections by means of said hand-lever and fulcrum-bar, as set forth.

6. In a harrow of the class described, a fulcrum-bar supported over the middle section by the wing-sections, and a hand-lever extending across said fulcrum-bar and having its end pivotally attached over the center of said middle section, whereby the latter may be wholly elevated, said hand-lever being reversible to adapt it for operating the harrow from either end, as set forth.

7. In a three-section harrow with flexibly-connected sections and operated by a hand-lever, and chains connecting the latter with said sections, of the wing-sections having uprights or supports thereon, a fulcrum-bar extending over the middle section and resting on said uprights or supports, with longitudinally-slotted ends engaging a cleft in the top of the latter, and a pin extending through the upright and slot in said fulcrum-bar, whereby either wing-section may be elevated without materially changing the position of said fulcrum-bar, as set forth.

8. In a harrow with flexibly-connected sections, the combination, with the middle section, of a chain connecting its side beams, a hand-lever pivotally attached to said chain, a fulcrum-bar for said hand-lever over said middle section, but disconnected therefrom, and the wing-sections supporting said fulcrum-bar, whereby said middle section may be elevated entire without inclining or tilting the same.

9. In a hinged harrow, the combination of the wing-sections with uprights thereon, a fulcrum-bar extending from one wing-section to the other over the middle section and resting on said uprights, with means for allowing said uprights to move on said fulcrum-bar without detaching the latter therefrom, and a hand-lever pivoted at or near the center of said middle section, with chains connecting the same with the wing-sections, whereby the latter may be operated from either end of the harrow by reversing said lever and changing said fulcrum-bar to the opposite side.

10. In a hinged harrow, the combination of a hand-lever and a fulcrum-bar with their connections as means for elevating the middle section, runners pivoted to the latter, a device securing said runners when folded and for releasing the same, and an automatic locking device for fastening said runners in an erect position.

11. In a harrow, the combination, with the end beams, of the main section having studs thereon, the longitudinal runners pivoted on the latter, whereby they may be folded between the beams, a pivoted bar on the middle beam securing said runners on its respective ends when folded, and a device for automatically locking said runners when dropped to an erect position, as set forth.

12. In a folding harrow, the combination, with the middle section, of runners having their ends loosely pivoted at the respective ends of said section on the inside of the beams to allow them to fold upward and inward between the latter and in line therewith, a device on the middle beam to hold said runners in a folded position, with means to release them therefrom, a locking device at the pivotal ends of said runners to arrest them at the point of support as they are unfolded, and to secure them in an erect position.

13. In a harrow, the combination of the frame, the runners pivoted thereto and adapted to fold up between the beams or in the same plane therewith, means for arresting said runners at the point of support, and a pivoted dog operating automatically to lock said runners in an upright position.

14. In a harrow, the combination, with the main section, of the runners having their ends pivoted to the front and rear of said section, respectively, near the outer beams to allow them to be folded upward and inward toward the middle beam, whereby they may be supported near the line of the latter by a bar thereon, and to allow them, when released, to swing downward and outward to an erect position beneath said outer beams to support the harrow, as set forth.

15. In a harrow-frame, the combination of the longitudinal beams, the tie-beams connecting the latter, the hinge-section having its lower portion cast hollow and forming a part of said tie-beams, and a rod extending through the whole and secured by nuts on the ends of the same, as set forth.

16. In a harrow-frame, the combination, with the pipe-sections, the longitudinal beam, and the rod for tying the latter together, of the hinge-section cast with a pipe forming a part of the tie-beam and having the horizontal flanges on the inner end engaging said longitudinal beam, as and for the purpose hereinbefore set forth.

17. In a reversible harrow composed of the three flexibly-connected sections, a lever flexibly attached to the main section, having chains connecting it with the side sections, said lever and the chains connecting it with said side sections being adapted to be freely and simultaneously reversed in their relative positions to operate the harrow when the draft is reversed.

18. In a harrow with flexibly-connected sections adapted to be drawn in either direction, a lever pivoted over the main section and having chains connecting it with the side sections, said lever being adapted to be moved from side to side to operate said side sections up and down to operate the main section, and free to be reversed or thrown to the opposite end of said harrow without disconnecting its attachments, for the purpose set forth.

19. In a harrow with flexibly-connected sections, a lever pivotally supported over the main or middle section, chains connecting said lever with sections on either side of the latter to manipulate them, said lever being free to be reversed from one end of the harrow to the other with-

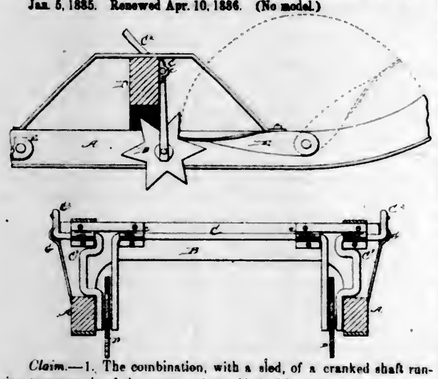
out disconnecting said chains, and adapted to operate said main or middle section and the side sections in like manner from either end when the draft of the harrow is reversed.

20. In a harrow consisting of the three flexibly-connected sections, of a series of tooth-holders pivotally attached to the frame-bars of said sections to allow the teeth to be shifted from a vertical to an inclined position in accordance with the draft, a hand-lever pivoted over said frame and connected by chains with the sections, said hand-lever being adapted to be reversed or changed to the opposite end in reversing the draft, and a detachable fulcrum-bar supporting said hand-lever, adapted to be changed to the opposite end of the harrow with the reversible hand-lever.

21. In a three-section reversible harrow, a reversible hand-lever pivoted over the middle section, chains connecting said hand-lever with the outside sections, and a fulcrum-bar for supporting said hand-lever removably attached to said outside sections to allow it to be changed to the opposite end of the harrow at the same time the hand-lever is reversed, as and for the purpose set forth.

22. In a flexibly-connected harrow, the combination, with the hinges having the long vertical slots and the harrow-sections, of the tubular rod b^2, loosely inclosing rod r, whereby said pivot-rod is allowed to roll in said slots easily in manipulating the harrow-sections.

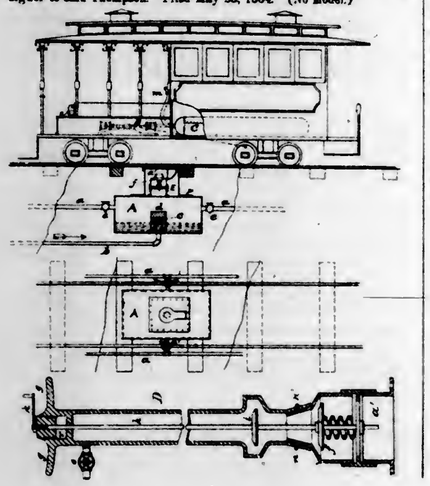
352,984. SLED-BRAKE. Orson W. Smith, Charlevoix, Mich. Filed Jan. 5, 1885. Renewed Apr. 10, 1886. (No model.)



Claim.—1. The combination, with a sled, of a cranked shaft running transversely of the same, and provided with notched or star wheels, and pawls placed upon the runners and adapted to engage these wheels to hold them stationary, substantially as shown and described.

2. The sled A B, having the pawls E in front and rear of its knees, and the springs G upon their sides, in combination with the cranked shafts C C', handles C^2, and notched wheels D, substantially as and for the purpose set forth.

352,985. PROPULSION OF CARS BY COMPRESSED AIR. James M. Thompson and Frederick Jones, San Francisco, Cal.; said Jones assignor to said Thompson. Filed May 23, 1884. (No model.)



Claim.—1. In a street-railway on which the cars are propelled by compressed-air engines, the station air-reservoirs A, situated below the street surface and track at each of the points where supplies of compressed air are needed for the said air-engines, and connected with each other and with an air pump or compressor by the pipe a, and each having in its top the upright air-outlet pipe a', with its end terminated below the street surface and containing the valve or stop-cock f, constructed and arranged in the manner substantially as and for the purpose described.

2. In a street-railway on which the cars are propelled by compressed-air engines, the combination, with the air supply pipe or main a, laid along and near the track and below it and the street surface, and connected with an air-compressor, of the station air-reservoirs A, situated below the track and street surface at each of the points where compressed air is needed for said air-engines, and each having its upright air-outlet pipe a', with its end terminated below the street surface and containing the valve or stop-cock f, substantially as and for the purpose described.

3. The combination, with an air-reservoir having an air inlet and outlet pipe and a water inlet and outlet, of a water inlet and outlet pipe, b, connecting with a supply of water under pressure, and through which pipe it is passed into and from the reservoir, substantially as and for the purpose described.

4. In an air-reservoir having a water inlet and outlet pipe, the combination, with the perforated pipe or guide d, of the float-valve c, constructed and arranged substantially as and for the purpose described.

5. In a street-railway on which the cars are propelled by compressed air, the combination, with the air-supply pipe or main a, laid along and near the track and below it and the street surface, and having the upright air-outlet pipes a', with their ends terminated below and near the street surface, and containing the valves or cocks f, of an air pump or compressor connected with said pipe or main at one of its ends, and of a storage air-reservoir connected with it at its other end, substantially as and for the purpose described.

6. The tapping pipe or tool E, enlarged and slotted at its lower end and having the cross-arm or handle g, and outlet-pipe with its stop-cock o at its upper end, and provided with the push-rod h and the valve i, constructed substantially as and for the purposes described.

7. The box E, with its flanges p p' and cover s, having its pivoted cover t and recess v, and drain-pipe w, substantially as and for the purpose described.

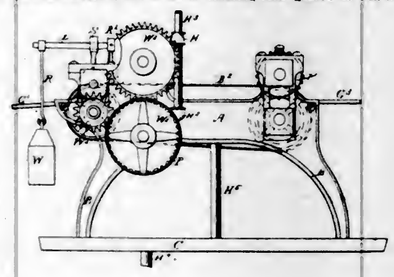
8. In a street-railway on which the cars are propelled by compressed air, the box E, placed with its top at the street surface, and connected with a street-sewer by the drain-pipe w, and having an opening in its bottom to admit the upright air-outlet pipe a', and on its top the cover s over the end of said pipe, substantially as and for the purpose described.

9. In a pneumatic street-railway, the combination, with the air-supply pipe or main a, laid along and near the track and below it and the street surface, and having the upright air-outlet pipes a', with their ends terminated below and near the street surface, and containing the valves or stop-cocks f, of an air-compressor connected with said pipe or main a at a point as midway as practicable between its ends and those of the track, substantially as and for the purpose set forth.

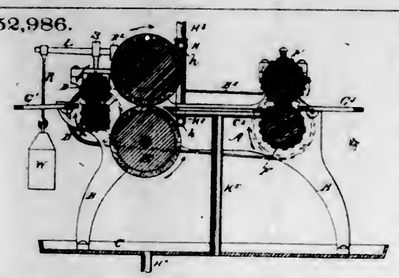
10. In a pneumatic street-railway, the double line of air-pipe a a, extending along the track, under the street surface, from and connected with an air-compressor and also with the station-reservoirs A, or with each other, through the points where compressed air is passed from either of them into the air-receivers on the cars by the cross-pipes x, which contain the cocks e e on each side of said reservoirs or points, and having the cocks e' e' on each side of said cross-pipes x, substantially as and for the purpose described.

352,986. SHEET-METAL CLEANING, WASHING, AND DRYING MACHINE. William Waxely, Taunton, Mass. Filed Sept. 16, 1885. (No model.)

Claim.—1. In a sheet-metal smoothing, washing, and drying machine, a set of smoothing and feeding rolls, D D, provided with adjustable pressure-weights, and a set of scouring-rolls geared to run in an



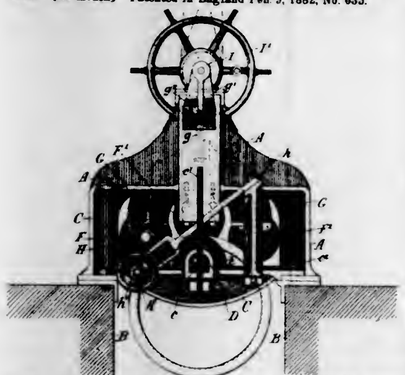
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opposite direction from the rolls D D, in combination with a set of drying-rolls geared to run in an opposite direction from the scouring-rolls, with a supporting-frame, substantially as described.

2. A sheet-metal smoothing, washing, and drying machine consisting of a frame, A, vats C C^2, pipes H^2 H^3 H^4 H^5, and a set of feeding-rolls, D D, scouring-rolls E E, and wiping-rolls F F, all arranged and operated substantially as described.

352,987. MACHINE FOR MANUFACTURING BOILER-TUBES. William Arnold, Barnsley, County of York, England. Filed May 12, 1886. (No model.) Patented in England Feb 9, 1882, No. 635.



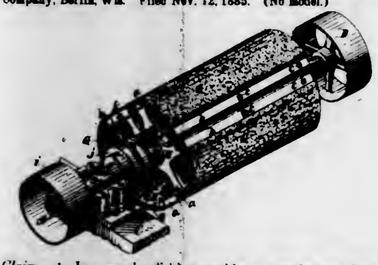
Claim.—1. The combination, in a machine for manufacturing flanged boiler-flue tubes having varying diameters, of the shaping-roll E, pressing-rolls F F' F^2, and flanging-rollers H H', arranged to act simultaneously upon the heated tube presented to the machine.

2. The pressing-rolls carried in a pair of vertically-sliding frames, which, by means of gearing setting in action a pair of suspending-screws, are simultaneously forced rapidly down to or raised from their work.

3. In combination with the driving-axle carrying the shaping-roll, the hinged bracket at the front of the machine, with its adjustable bearing pivoted to a hand-lever for supporting the front end of the axle, and providing for the insertion into the machine of the heated tube to be moulded and flanged.

4. In combination with the hinged bracket carrying the bearing of the shaping-roll axle, the flanging-roller H, mounted in an adjustable arm, h, pivoted to the bracket and serving to press the roller to its work.

352,988. WOOD-POLISHING MACHINE. Almon Bridgman, Berlin, and John Challoner, Omro, assignors to the Yates Manufacturing Company, Berlin, Wis. Filed Nov. 12, 1885. (No model.)



Claim.—1. In a wood-polishing machine, a rotating polishing-cylinder formed in longitudinal sections, which sections are connected together in pairs rigidly, the sections in each pair being diametrically opposite each other, and at least one pair of these sections being free to move longitudinally on its driving-shaft, and being connected with mechanism whereby a reciprocal lateral motion is given to such sections, all substantially as described.

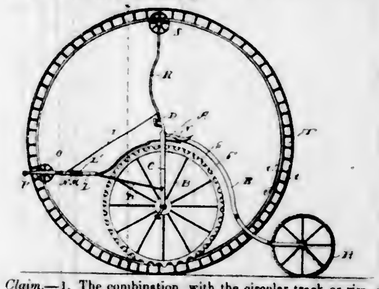
2. In a wood-polishing machine, a rotating polishing-cylinder formed in longitudinal sections in pairs, each of which pairs has diametrically-opposite sections, in combination with a sleeve, H, having a cam-groove, k, rotating on the shaft of the cylinder and making less or more revolutions than the cylinder, said pairs of sections being each connected with and guided by said cam, whereby a lateral alternating reciprocal movement of the pairs of sections is secured, substantially as and for the purpose set forth.

3. In a wood-polishing machine, the radial arms F F', in pairs rigid on shaft A, and provided with recesses h h, in combination with the radial arms E E', sliding on shaft A, and provided with guides g g, substantially as described.

4. In a wood-polishing machine, the cylinder-carrying driving shaft A, provided with pulley D, in combination with sleeve H, provided with pulley i and collar j, and the collar j provided with a cam-groove, k, whereby a differential motion between said sleeve and said shaft and a reciprocal motion to be given to mechanism connected with said sleeve and rotating on said shaft is provided for, all substantially as described.

5. The combination of radial arms E and F, rotating with shaft A, and rigid projecting arms l, having travelers m m, with sleeve H, having rigid collar j, provided with cam-groove k, rotating freely on shaft A, substantially as described.

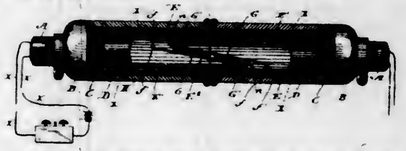
352,989. VELOCIPEDE. Edward S. Burbank, Dow City, Iowa. Filed Mar. 24, 1886. (No model.)



Claim.—1. The combination, with the circular track or rim, of the bicycle having its driving-wheel engaged therewith, and provided with the arm R, having the grooved wheel for engaging with the upper side of the circular track or rim, and the arm L, the frame M, movable on the said arm and carrying the wheel O, for engaging the front side of the circular track or rim, substantially as described.

2. The combination, with the inclosing circular track or rim, of the velocipede having the driving-wheel and the wheel S, engaging therewith, and provided with the forwardly-extending arms L, the spring-actuated frame M, movable on the outer end of the said arm and carrying the wheel O, and the anti-friction roller P, for engaging, respectively, the inner and outer sides of the circular rim, for the purpose set forth, substantially as described.

352,990. AUTOMATIC ELECTRICAL SIGNAL-COUPLER. John S. Copers, New Orleans, La. Filed Feb. 11, 1886. (No model.)



Claim.—1. An electric coupling of the kind described, consisting of two co-operating members, each of which consists of the casing H, the parallel flexible strips E E', connected with the conducting-wire X X of an annunciator-circuit, and the auxiliary strip E^2, extending inwardly from the outer end of the strip E' and making spring-contact with the strip E when the members of the coupling are disconnected, said auxiliary strip being provided on the face proximate to the strip E with the insulating-buttons G G', substantially as described.

2. An electric coupling of the kind described, consisting of the casings H, the end portions B, screw-threaded at C, and provided with the inner projections, D, the strips E, secured to the sides of the said inner projections, and connected with the conducting-wire X X of an annunciator-circuit, and the auxiliary strips E^2, making contact with the strips E when

the members of the coupling are disconnected, and provided with the insulating-buttons G G', substantially as described.

352,991. CHURN-DASHER. WILLIAM H. HANSON, East Milan, Mich. Filed July 13, 1886. (No model.)



Claim.—1. In combination with the socket-piece B, having the projecting spindle, the dasher-head having its hub *a* provided with a socket, a^1, to receive the socket-piece, and a bore or opening, a^2, to receive the spindle, and fastening means to hold the parts together and yet allow the free rotation of the dasher-head on the spindle of the socket-piece, as set forth.

2. The combination, with the socket-piece B, having the shoulder b', and the spindle with its smooth portion b^2, shoulder b^4, and threaded portion b^5, of the dasher-head having the bore a^2, socket a^4, and concave socket a^5, and the nut b^7 and washer b^8, substantially as described.

3. The combination, with the dasher-rod and the socket-piece having cavity *b*, shoulders b' b^2, smooth spindle b^2, and threaded portion b^4, of the dasher-head having hub *a*, with its bore a' and cavities a^3 a^4, double-beveled oblique blades a', rim a^3, and nut b^7 and washer b^8, as specified.

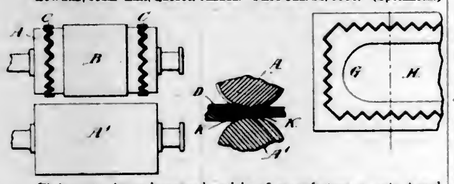
352,992. PORTIERE RING AND PIN. FRANCES M. HOUSE, Bridgeport, Conn. Filed Nov. 18, 1885. (No model.)



Claim.—1. A portière-ring and curtain-supporting pin formed integral from wire, said ring having strung thereon a series of friction-rollers, substantially as specified.

2. The combination, with a portiere-ring having a curtain-supporting pin formed integral therewith, of a series of friction-rollers strung upon said ring, whereby the friction between the ring and its rod is diminished, substantially as set forth.

352,993. ARTICLE MANUFACTURED FROM PULP. FRANK B. HOWARD, Cedar Hall, Quebec, Canada. Filed Jan. 22, 1886. (Specimens.)



Claim.—1. As an improved article of manufacture, a pulp board having patterns or configurations rolled into its surface, the whole substantially as described.

2. As an improved article of manufacture, a pulp board having patterns or configurations rolled into its surface, and having additional projecting configurations or embossments attached upon its surface and afterward coated with a water-proof compound, the whole substantially as described.

3. As an improved article of manufacture, a pulp board having projecting patterns or configurations rolled thereon and impressed patterns rolled thereinto, with additional projecting patterns or embossments attached thereon, the whole afterward coated with a water-proof compound, the whole substantially as described.

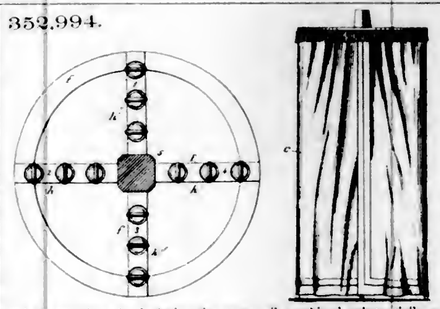
4. As an improved article of manufacture, a pulp board having projecting patterns or configurations rolled thereon and additional projecting configurations or embossments attached thereto and afterward coated with water-proof compound, the whole substantially as described.

5. As an improved article of manufacture, a pulp board having projecting patterns or configurations rolled thereon, the whole substantially as described.

352,994. PORTABLE WARDROBE. PRISCILLA C. JOHNSON, Indianapolis, Ind. Filed Apr. 23, 1886. (No model.)

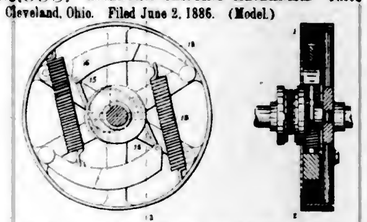
Claim.—In a portable wardrobe, the base *b*, adapted to serve as a shelf, the standard *s*, secured in such base, and supporting the frame-work *f* upon or near its top, the hooks *h*, connected with such top frame,

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and the curtain *c*, for inclosing the same, all combined substantially as described.

352,995. ECCENTRIC-SHIFTING MECHANISM. JACOB KAISER, Cleveland, Ohio. Filed June 2, 1886. (Model.)



Claim.—1. The combination, with a crank-shaft and a disk rigid therewith, of a slotted eccentric on said shaft and guided on the face of said disk, a governor, a yoke connected to said governor, and a second disk, slotted for the passage of said shaft, engaged by said yoke and having tongue-and-groove connection with said eccentric, in such manner that the governor shall shift the eccentric transversely of the shaft, substantially as and for the purposes set forth.

2. In combination with a crank-shaft and a disk rigid therewith, a slotted eccentric having tongue-and-groove connection with said disk, a second disk slotted for the passage of said shaft, having tongue-and-groove connection with said eccentric, and an eccentric circular recess, a yoke having a circular eccentric arm fitting said recess, and a governor having connection with said yoke, substantially as set forth.

3. In combination with a crank-shaft and a disk rigid thereon and having a tongue upon its face, a slotted eccentric having grooves wherein said tongue can engage, said grooves lying one in line with the major axis of the eccentric-slot and the other in line with its minor axis, a governor, and a yoke connected with said governor and with said eccentric, substantially as and for the purpose set forth.

4. In combination with a crank-shaft, a disk rigid therewith, a slotted eccentric having tongue and-groove connection with said disk on one face, a second disk movable on the crank-shaft and having tongue-and-groove connection with the opposite face of said eccentric, a yoke engaging said second disk, and a governor for oscillating said disk, substantially as and for the purpose set forth.

5. In combination with a crank-shaft, disks, one rigid therewith and the other loosely movable thereon, an eccentric whose opposite faces engage with said two disks by tongues and grooves arranged transversely to each other, a yoke having an eccentric engaging in a recess in said loose disk, and a governor for oscillating said disk, substantially as and for the purpose set forth.

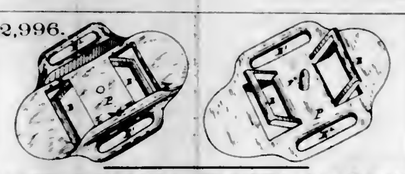
6. The combination of a crank-shaft, a slotted eccentric, a disk rigid on said shaft, on which said eccentric is actuated, a yoke engaging with said eccentric for shifting it transversely of the shaft, governor-weights connected with said yoke, a thimble, connecting-rods and bell-cranks between said governor-weights and said thimble, and a weighted lever pressed against said thimble to counteract the action of the governor-weights thereon, substantially as set forth.

7. The combination, with the shaft, the valve-operating eccentric, the governor, and connections between said governor and eccentric, whereby the latter is shifted, of a rectilinear guide for causing said eccentric to move in a line between a line drawn through the points of maximum and minimum eccentricity and a second line drawn at right angles thereto, whereby the "throw" and the "lead" are both regulated by a movement of the eccentric, substantially as set forth.

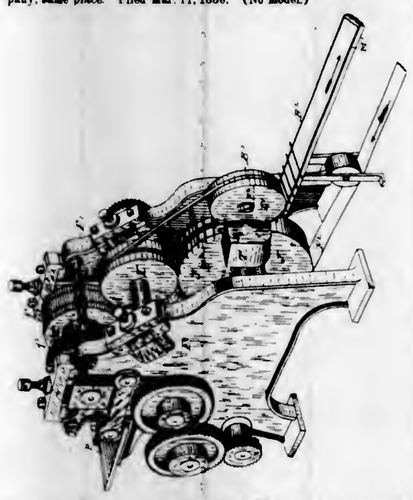
352,996. STRAP-PLATE FOR HARNESS. CHARLES R. MILLER, Lansingburg, N. Y. Filed June 25, 1885. (No model.)

Claim.—The plate P, made with the side strap-eyes, E' E^2, the trace-guides G G, the upcast beveled buckle-loops B B, and the intermediate pin, P^2, substantially as shown and described.

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352,997. MACHINE FOR MAKING MATCHES. GEORGE E. NORRIS and WILLIAM E. HAGAN, Troy, N. Y., assignors to the Citizens Match Company, same place. Filed Mar. 11, 1886. (No model.)



Claim.—1. The combination of the belt B', adapted to run on the roller I and pulley J on its progressive stretch, and on and from the bottom of the pulley L' on its return stretch, and the belt B^2, adapted to run on the pulley J, beneath the said belt B', with said belts adapted to intermediately receive match-splints while coming together on the pulley J, and arranged to separate at the bottom of the pulley L', with the belt B' returning to the roller I, and the belt B^2, with the matches deposited upon its upper surface, making a progressive stretch to a transfer and return pulley or pulleys, substantially as and for the purposes set forth.

2. The combination of the belt B', adapted to run on the roller I and pulley J on its progressive stretch, and on and from the pulley L' on its return stretch, and the belt B^2, adapted to run on the pulley J, beneath said belt B', with said belts adapted to intermediately receive match-splints while coming together on the pulley J, and arranged to separate at the bottom of the pulley L', with the belt B' returning to the roller I, and the belt B^2, with the matches deposited upon its upper surface, making a progressive stretch to a transfer and return pulley or pulleys, substantially as and for the purposes set forth.

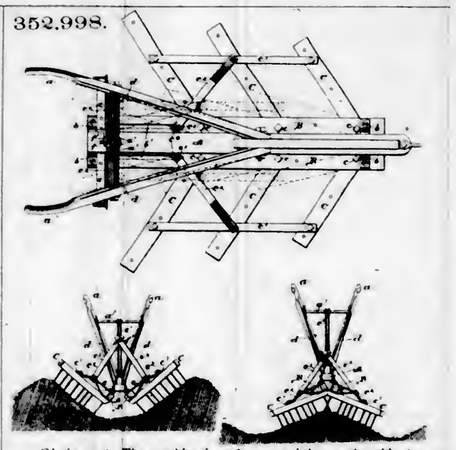
3. The combination, with the belt B^2, arranged to receive and convey match-splints upon its upper surface, substantially as shown and described, of the transfer-pulley L^2, and pulleys to return said belt B^2 to the pulley J, the belt B^4, adapted to underrun the belt B^2 on said transfer-pulley L^2, to receive the matches on its upper surface, and return-pulleys for said belt B^4, all arranged to operate substantially in the manner as and for the purposes set forth.

4. In a mechanism for drying matches, the combination of a series of horizontally-arranged belts, with each belt of the series excepting the last one provided with a transfer pulley or pulleys, whereon it runs connectedly with another belt of the series, and each belt having a return pulley or pulleys arranged to operate substantially as shown and described.

5. In a mechanism for drying matches, the combination of a series of horizontally-arranged belts, with each of them excepting the last one of the series provided with a transfer pulley or pulleys to transfer the matches from it to another belt of the series, and each belt of the series provided with a return pulley or pulleys, and a table upon which the upper stretch of the belts carrying the splints moves, substantially in the manner as and for the purposes set forth.

352,998. HARROW OR CULTIVATOR. NICHOLAS C. ORRICK, Canton, Miss. Filed July 9, 1886. (No model.)

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Claim.—1. The combination of a central beam, the side beams hinged to the central beam and carrying the teeth-beams which extend outwardly therefrom, the vertical guide affixed to the central beam, the brackets carried by the side beams, and the links connected to the brackets and the guide on the central beam, substantially as described, for the purpose set forth.

2. The combination of the central beam, the side beams hinged thereto and having the longitudinal slots b' near their rear ends, the teeth-beams C, pivoted at their inner ends to each of the side beams, the longitudinal bars C', connecting the teeth-beams, the diagonal links C^2, pivoted at their outer ends to the teeth-beams, and having the bolts C^3 at their inner ends, which pass through the slots b' in the side beams, the vertical guide affixed to the central beam, and connections intermediate of the guide and side beams, substantially as described, for the purpose set forth.

3. The combination of the central beam, the side beams hinged thereto and carrying the teeth-beams, the vertical guide affixed to the central beam near the rear end thereof, the brackets affixed to the rear ends of the side beams and extending outwardly therefrom, and the links pivotally connected at their outer ends to the brackets, and adjustably connected at their inner ends to the fixed guide, substantially as described.

4. The combination of a central beam, the side beams hinged thereto and carrying the teeth-bars, the vertically-slotted guide affixed to the rear end of the central beam, the brackets secured to the rear ends of the side beams and extending outwardly therefrom, the links pivotally connected at their lower ends to the brackets, and the bolt passing through the inner meeting ends of the links and the slot of the vertical guide, substantially as described, for the purpose set forth.

5. The combination, with the central beam, A, the side beams, B, pivoted thereto and provided with the slots e', of the bars c', connecting said teeth-bars, the links c^2, having bolts c^3 working in said slots, and nuts c^4 working upon the said bolt, the teeth-bars being pivotally connected to the side bars, substantially as described.

352,999. SULKY-PLOW. WILLIAM S. PATEN, Alton, Ill. Filed July 19, 1886. (No model.)

Claim.—1. The combination, with the axle B, of the brackets N and P, secured on the axle, the bail M, hinged to the brackets, a plow having its beam extending over the bail and axle and hinged to the bail, and a lever and connections between the lever and the bail for raising and lowering the plow, substantially as described.

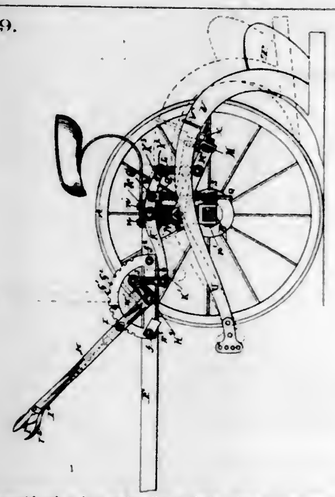
2. The bracket N, formed with angle-flanges N' and N^2, tubular studs or sleeves O and K^1, and the arm R, substantially as described.

3. The combination, with the axle B and the tongue F, of the bracket N, having angle-flange N' on the axle and angle-flange N^2 over the tongue, and the bolts *n* and n^2, by which the bracket is secured to the tongue and to the axle, respectively, substantially as described.

4. The combination, with the axle B, brackets N and P, the bail M, and plow having its beam extending over the bail and axle, of the rock-lever K, band-lever H, rod Q, pivoted to the rock-lever and extending through an arm of the bracket N, and the spring surrounding the rod, substantially as described.

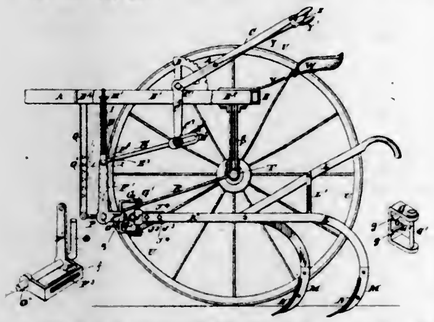
5. The combination, with the axle B, the bail M, devices for raising and lowering the bail, and a plow having its beam extending over the bail and axle, of the clip V, secured to the beam, having trunnions W, adjustable saddle-brackets Y on the rear bar of the bail, having corrugated surface Y^1, tubular lugs X, and elongated slots Y', washers Y^2, having corrugated surfaces, and the bolts Z, substantially as described.

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6. The combination, in a sulky-plow, of the plow-beam extending over the axle and hinged by saddle-brackets to a lifting-bail, the said brackets having elongated slots and a corrugated friction-surface and corrugated washers with set-screws, all arranged to adjust the attachment of the gang-beam to the bail and level the plow, substantially as described, and for the purpose set forth.

353,000. CULTIVATOR. WILLIAM S. PATES, Alton, Ill. Filed May 29, 1886. (No model.)



Claim.—1. The combination of a suitable supporting-frame, a lifting-lever, a hanger provided with a horizontal spindle, a horizontal bail having an upwardly-extending arm, a hinged spring-rod, a rod connecting the lever with the arm, a clevis, J, and a vertical bail, G, by which the clevis and horizontal bail are connected together, substantially as described.

2. The combination of a suitable supporting-frame, a hanger provided with a horizontal spindle, the horizontal bail F, hinged on the spindle, a vertical bail, G, sliding sidewise on the horizontal bail, and a clevis, J, connected to the horizontal bail by means of the vertical bail and adjustable vertically on the latter, substantially as described.

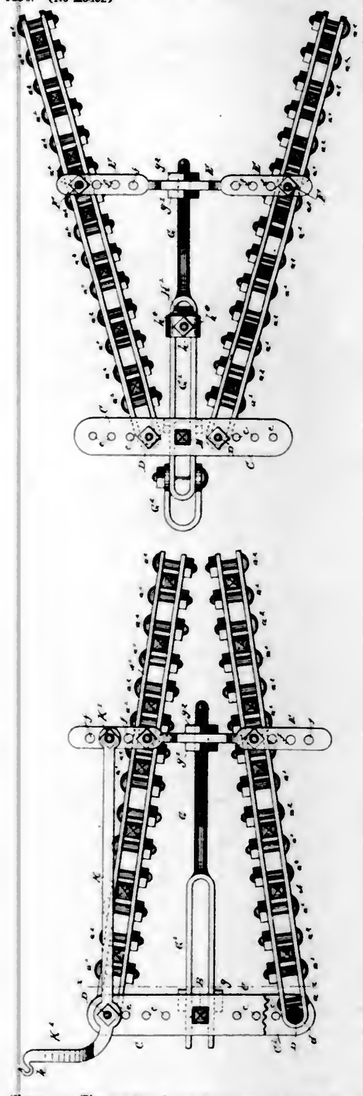
3. The combination of a suitable supporting-frame, a hanger provided with a horizontal spindle, the horizontal bail F, having an upwardly-extending arm, F', and hinged on the spindle, a vertical bail, G, to the rear of the horizontal bail and sliding sidewise thereon, having rear arms provided with a vertical bolt, G', and a clevis, J, to the rear of the vertical bail and sliding vertically thereon, substantially as described.

4. The combination of the horizontal bail having an upwardly-extending arm, a bearing-rod, a spring surrounding the bearing-rod, and a lever connected to the arm, substantially as described.

5. The combination of a hanger provided with a horizontal spindle, a horizontal bail having an upwardly-extending arm and hinged to the spindle, a bearing-rod, a spring, a lever, and a rod connecting the lever with the arm and bearing-rod, substantially as described.

6. The combination of a suitable frame, a hanger having a horizontal spindle, a horizontal bail, F, hinged on the spindle having an upwardly-extending arm, F', and formed with a slot, F^3, in its rear plate, a vertical bail, G, to the rear of the horizontal bail adjustable on the rear plate, the bolt G^2, and nut g', for securing the vertical bail, the vertical bolt G', secured in the arms of the vertical bail, and a clevis, J, to the rear of the vertical bail and adjustable on the vertical bolt of the latter, substantially as described.

353,001. HARROW. JOHN R. PILE, Livermore, Ky. Filed July 31, 1886. (No model.)

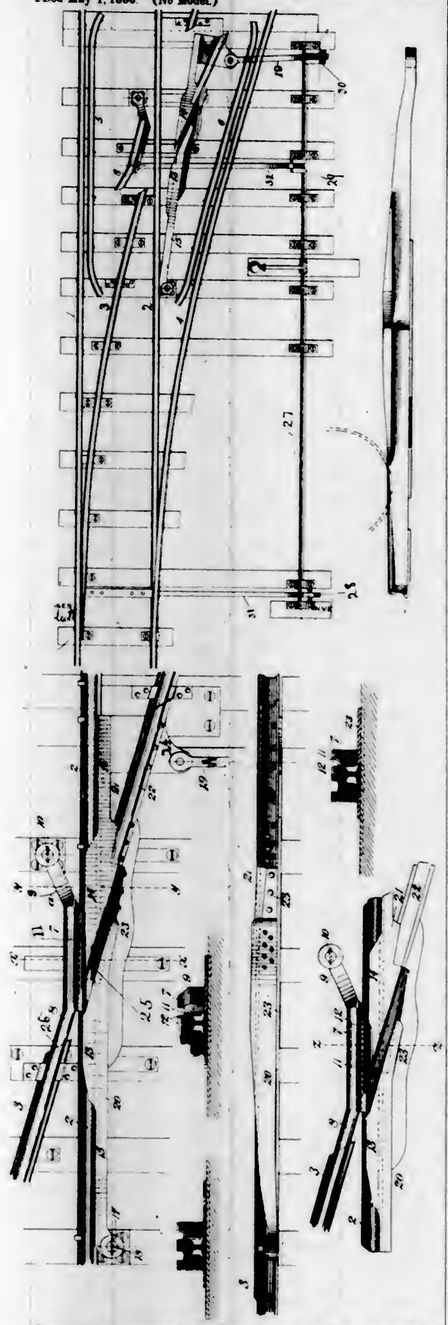


Claim.—1. The combination of the transverse plates provided with series of corresponding perforations at the front ends of the tooth-frames, the tooth-frames adjustably secured thereto, the adjustable transverse plate bolted to the tooth-frames intermediate of the ends, and the central draft-bar adapted to be longitudinally adjusted in the tooth-frame connecting-plates, substantially as specified.

2. The side draft-bars fixed to the transverse plates connecting the tooth-frames, in combination with the harrow, as and for the purpose set forth.

3. The spring-plate and driver's seat, in combination with the central draft-bar and the transverse plate connected to the tooth-frames intermediate of their ends, substantially as specified, for the purpose set forth.

353,002. FROGLESS SWITCH. CHARLES B. PEECK, Pittsburg, Pa. Filed May 1, 1886. (No model.)



Claim.—1. A movable frog-rail constructed to be thrown upon the main rail and provided with inclined extensions adapted to lie alongside the main rail, and to raise the wheels of cars passing along the main rails above the level of such rails, substantially as set forth.

2. A movable frog-rail arranged outside of and constructed to form a bridge across the main rail for wheels of cars moving into a siding, said frog-rail being pivoted at the end nearest the switch-points, substantially as set forth.

3. A movable frog-rail constructed to form a bridge across the main rail for wheels of cars moving into a siding, in combination with a leading-in rail having a movable section, said section being pivoted at its rear end, substantially as set forth.

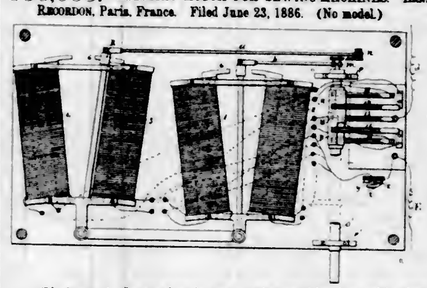
4. A movable frog-rail having the end of its heel-rail beveled, in combination with the inner siding-rail having its end adjacent to the frog correspondingly beveled, substantially as set forth.

5. A movable frog-rail constructed to form a bridge across the main rail for the wheels of cars moving into a siding, in combination with a leading-in rail having a movable section provided with a groove for the reception of the flanges of wheels moving along the main rail, substantially as set forth.

6. A movable frog-rail constructed to be thrown upon the main rail and to partially cover the tread thereof, in combination with a leading-in rail provided with a movable section constructed to be thrown upon and partially over the main rail, forming in connection with the movable frog a tread for the wheels moving along the main rail, said movable section being provided with a groove for the flanges of such wheels, substantially as set forth.

7. A movable frog-rail having in combination the part 20, forming the front safety wing and extension, the part 21, forming the rear safety wing and extension, and the heel, said parts being detachable from each other, substantially as set forth.

353,003. ELECTRIC MOTOR FOR SEWING-MACHINES. ERNEST RECORDON, Paris, France. Filed June 23, 1886. (No model.)



Claim.—1. In an electric motor, the combination, with electro-magnets arranged in pairs, of an armature or armatures—one for each pair—hinged at the base of the magnets, and having openings therein, the poles of said magnets being of a size to enter said openings, substantially as described.

2. The combination, with a pair of electro-magnets placed side by side and having poles turned toward each other, of an armature movable back and forth lengthwise of said poles, and a commutator operated by said armatures for controlling the current through said magnets, substantially as described.

3. The combination of electro-magnets placed side by side and having their poles turned toward each other, an armature formed of a bar placed lengthwise of said magnets and pivoted so that it may vibrate between and lengthwise of the poles of the magnets, a rotary shaft, a commutator thereon, and a pitman connecting the armature with a crank on said shaft, substantially as described.

4. The combination of two or more electro-magnets, armatures placed lengthwise of said magnets between the poles, and pivoted at the ends farthest from the poles, a shaft having cranks connected by pitmen with said armatures and arranged one in advance of the other, so as to avoid dead-centers, and a commutator on said shaft for supplying current to the magnets in proper succession, substantially as described.

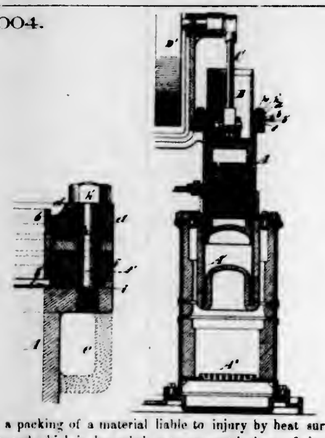
5. The combination, with the frame and stitch-forming mechanism of a sewing-machine, of the shafts arranged under the standard of the goose-neck at right angles to the length of the stationary arm, the cranks and cams on said shafts, the magnets placed side by side and alongside of said shafts, the reciprocatory armatures, the pitmen, and the commutator, substantially as described.

353,004. HOT-AIR ENGINE. THOMAS J. RIDER, New York, N. Y. Filed Aug. 5, 1886. (No model.)

Claim.—1. The combination, with the cylinder and piston of a hot-air engine, and a packing of a material liable to injury by heat surrounding the piston, and which is depended on to prevent leakage of air, of a ring or rings made separate from and secured to the cylinder, and upon which the packing is supported, whereby the continuity of metal in the cylinder is broken between the hottest portion of the cylinder and the packing, and the packing is thereby preserved from injury without the employment of a water-jacket, substantially as herein described.

2. The combination, with the cylinder and piston of a hot-air en-

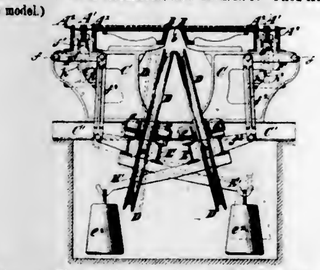
353,004.



gine, and a packing of a material liable to injury by heat surrounding the piston, and which is depended on to prevent leakage of air, of a ring or rings made separate from and secured to the cylinder, and upon which the packing is supported, and a material which is a poor conductor of heat interposed between the ring or rings and the cylinder, whereby the continuity of metal in the cylinder is broken between the hottest part of the cylinder and the packing, and the packing is preserved from injury without the employment of a water-jacket, substantially as herein described.

3. The combination, with the cylinder and piston of a hot-air engine, of the reversed packings *b b'* and the interposed ring *c*, the ring *f*, or rings interposed between the lower packing and the cylinder, and made separate from the cylinder, and the cap-ring or gland-ring *d*, substantially as and for the purpose herein described.

353,005. MECHANISM FOR OPERATING CABLE-SUPPORTING SHEAVES. JOHN H. ROBERTSON, New York, N. Y. Filed Aug. 14, 1886. (No model.)



Claim.—1. The combination, with a cable-supporting sheave and a frame wherein it is journaled, and which is movable to carry the sheave out of the path of the grip mechanism carried by a car, of a vertically-movable rail-section connected with said movable frame, and serving to move it when depressed by the weight of a passing car, substantially as herein described.

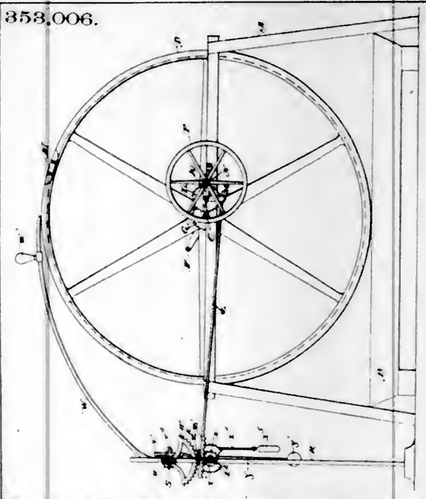
2. The combination, with a cable-supporting sheave and a frame in which it is journaled, and which is pivoted to swing in a vertical plane parallel with the axis of the sheave, of a vertically-movable rail-section connected with said movable frame, and serving when depressed by the weight of a passing car to move the sheave out of the path of the grip mechanism carried by the car, and a weight for returning the sheave and sheave-frame after such movement by the movable rail-section, substantially as herein described.

3. The combination, with the sheaves D and their frames E, pivoted at the ends and weighted to bring the sheaves into oblique positions and near together at the top, of the vertically-movable rail-sections A', and lever and rod connections for moving the sheave-frames when the said rail-sections are depressed by the weight of a passing car, substantially as herein described.

353,006. MOTOR. JAMES K. SAMPLE, Hastings, Nebr. Filed Apr. 3, 1886. (No model.)

Claim.—1. The combination of the water-wheel having the crank-handle F, the pump having the pipe to discharge water on the wheel, the shaft geared to the wheel and having the crank M, the pump-rod having the rack-teeth, the shaft S, having the pinion meshing with the rack-teeth of the pump-rod, and the rod Z, attached to crank M and having

353,006.



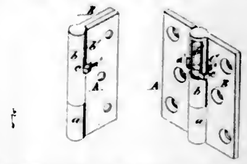
the rack-teeth Z', and the shaft X, geared to shaft S, and having the pinion with which the toothed rod Z engages, whereby the pump-rod will reciprocate when the water-wheel is rotated, substantially as described.

2. The combination of the water-wheel having the crank-handle F, the pump having the pipe to discharge water on the wheel, the shaft geared to the latter and having the crank M, the pump-rod, the shaft S, connected thereto to reciprocate the rod, the shaft X, geared to shaft S, and having the pinion X', and the rod Z, attached to the crank M, and having the rack-teeth meshing with pinion X', substantially as described

3. The combination of the water-wheel having the crank-handle F, the pump having the pipe to discharge water onto the wheel, the pump-rod, the rock-shaft S, connected thereto to operate the pump-rod, the shaft X, geared to shaft S, and having the pendulum, and the rod Z, connecting the water-wheel with the shaft X, to impart motion from the former to the latter, substantially as described.

4. The combination of the water-wheel having the crank-handle F, the pump having the pipe to discharge water onto the wheel, the shaft geared to the latter and having the crank M, the shaft S, the pump-rod geared thereto and actuated thereby, the shaft X, geared to shaft S, and having the pinion X', the drum X^3, the weighted cord attached to the drum and the weighted pendulum, and the rod Z, connected to crank M, and having the rack-teeth meshing with the pinion X', substantially as described.

353,007. HINGE. GEORGE SCHUBERT and FREDERICK THIES, St. Louis, Mo. Filed Feb. 16, 1886. (No model.)

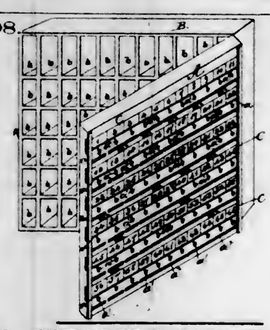


Claim.—The combination, with the part or leaf A, having the pintle-socket *a*, and the part or leaf B, having the pintle-socket *b*, the latter having the slot *b'*, closed at both ends, of the pintle C, having the stud *c*, working in said slot, whereby said pintle is allowed a limited movement within its socket, but held against removal therefrom, substantially as set forth.

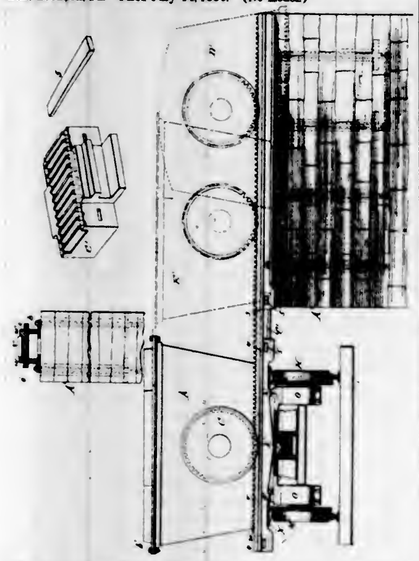
353,008. COUPON-ORDER RECORD-BOARD. JOHN H. SUTLIFF, Albany, N. Y. Filed Dec. 15, 1885. (No model.)

Claim.—In a coupon-order record-board, the combination, with a face-board having tranaverse grooves for containing removable number-slips, and provided with a series of hooks corresponding to the numbers on said slips, and with a series of openings through said face-board which correspond to the said numbers, of a receptacle-case to which the said face-board is hinged or otherwise attached, containing a series of receptacles which correspond in positions to the openings through the face-board, as and for the purpose herein specified.

353,008.



353,009. CINDER-CAR FOR BLAST-FURNACES. PETER L. WEIMER, Lebanon, Pa. Filed July 14, 1886. (No model.)



Claim.—1. A cinder-car body supported by a hoop constructed in sections and detached from the body, substantially as described.

2. A cinder-car body supported by a hoop having trunnions formed thereon and provided with gear-wheels, in combination with a geared track and means for revolving the car-body and moving it laterally, substantially as described.

3. A cinder-car body supported upon trunnions having master gear-wheels secured thereto, in combination with car-trucks having bolsters provided with geared or toothed surfaces, and suitable gear for revolving the car-body and moving it laterally, substantially as described.

4. A cinder-car body supported upon trunnions having wheels secured thereto provided with gear-teeth and plain surfaces adjacent thereto, in combination with bolsters having their upper surfaces provided with teeth, and tracks adjacent thereto, substantially as described.

5. A cinder-car body mounted upon trunnions provided with wheels, in combination with bolsters having tracks formed thereon, and laterally-projecting flanges, flanged plates engaging with said flanges, and suitable gear for revolving the car-body, substantially as described.

6. A cinder-car body mounted upon trunnions provided with gear-wheels, a geared pinion engaging with one of said gear-wheels, a worm-gear wheel, and a worm, all combined substantially as described.

7. A cinder-car body mounted upon trunnions provided with gear-wheels, a frame incasing one of said wheels on opposite sides, and a bolster provided with a track, in combination with supplemental wheels supported by said frame and adapted to engage with the track on the bolster, substantially as described.

8. A cinder-car truck having a bolster provided with a projection on its lower side, in combination with a seat for said projection and an elastic cushion under said seat, substantially as described.

9. A cinder-car truck having a bolster provided with a projecting flange, in combination with a coupling jaw or head and an elastic cushion interposed between the flange of the head and the flange on the bolster, substantially as described.

10. A cinder-car truck having a bolster provided with a track on its upper surface and projections on opposite sides of its longitudinal center, in combination with a plate on the truck-frame having corresponding projections, substantially as described.

11. A cinder-car truck having a frame provided with axle-boxes, and covers laterally removable on a horizontal plane, substantially as described.

12. A cinder-car truck having a frame provided with laterally-removable axle-box covers on the end of said frame, in combination with an open frame containing axle-boxes, and laterally removable from said truck-frame, substantially as described.

13. A revoluble cinder-car body mounted on trucks having tracks thereon, in combination with a pit and means for dumping said car-body over said pit, substantially as described.

14. A revoluble cinder-car body mounted on trucks having bolsters with tracks formed thereon, in combination with a pit having tracks surmounting its walls, and detachable sections of track for connecting the bolsters with said tracks, substantially as described.

15. A revoluble cinder-car body having a horizontally-projecting flange at its upper end, in combination with a removable lining and flanged plates projecting over said lining and detachably secured to said horizontal flange on the car-body, substantially as described.

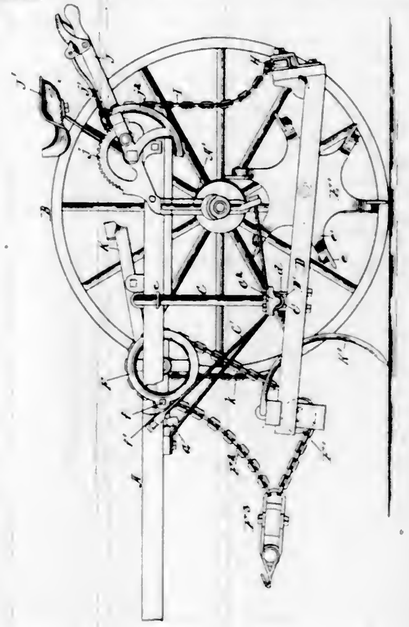
16. A cinder-car body supported on gear-wheels having projecting flanges thereon, in combination with trucks having bolsters provided with gear, and projecting tracks adjacent thereto, with which the gear and flanges on the supporting-wheels engage, substantially as described.

353,010. STALK-CUTTER. JOHN Q. ADAMS, Marseilles, Ill. Filed June 3, 1886. (No model.)

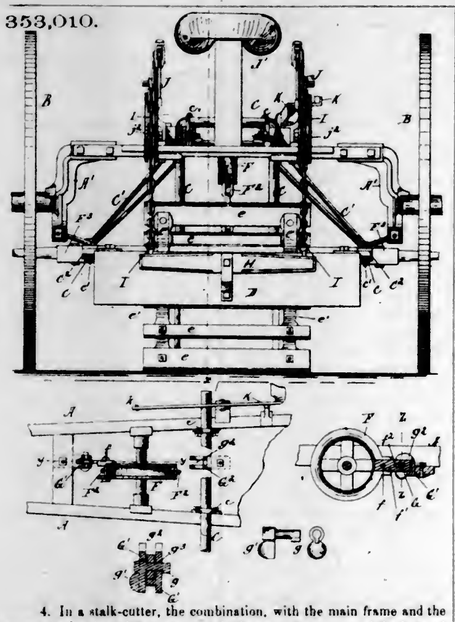
Claim.—1. In a stalk-cutter, a main or supporting frame, in combination with a cutter-frame mounted on pivotal supports back of its front end, and a draft device connected to the cutter-frame and arranged to tilt the cutter-frame and cutter downward by the operation of the draft, substantially as and for the purposes specified.

2. In a stalk-cutter, a main or supporting frame, in combination with a cutter-frame mounted on pivotal supports, and a draft device connected to the cutter-frame, and adjustable to raise and lower the point of draft, substantially as and for the purposes specified.

3. In a stalk-cutter, a main or supporting frame, in combination with a cutter-frame mounted on pivotal supports back of its forward end, a draft-chain composed of two sections, one of which is connected to the forward end of the cutter-frame and the other passes directly to the double-tree, and an adjusting device whereby the relative working-lengths of the two sections may be changed to change the line of draft to apply it to or take it from the cutter-frame, substantially as and for the purposes specified.



353,010.



4. In a stalk-cutter, the combination, with the main frame and the cutter-frame pivoted there to at a point between the cutter and the forward end of the cutter-frame, of the draft-chain secured to the main frame and passing under a sheave on the forward end of the cutter-frame, substantially as and for the purposes specified.

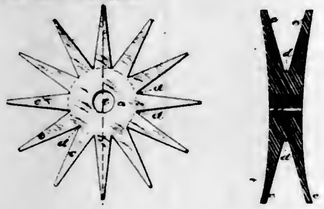
5. In a stalk-cutter, the combination, with the main frame and cutter-frame pivoted thereto, of the draft-chain having its ends secured to the draft apparatus and passing under a sheave on the cutter-frame and over a sheave on the main frame, to which latter sheave it is attached, said sheave being provided with locking devices whereby it may be locked either to the front or rear, substantially as and for the purposes specified.

6. The combination, with the draft-chain F^2, of the sheave F, to which it is connected, the said sheave being provided with the apertured radial arm f', the slotted and perforated lugs G' G^2, arranged in front and rear of said sheave, and the removable locking-pin G, substantially as and for the purposes specified.

7. In a stalk-cutter, the combination, with the main frame and the cutter-frame pivoted thereto, of the evener pivoted to the cutter-frame, and the lifting-levers suitably connected with the extremities of the evener, substantially as and for the purposes specified.

8. In a stalk-cutter, the combination, with the main frame and the cutter-frame pivoted thereto near its forward end, of the evener H, pivoted centrally to the rear of the cutter-frame, and the lifting-levers J, connected to the extremities of the said evener by means of chains I, and provided with suitable locking devices, substantially as and for the purposes specified.

353,011. COKE-BREAKER. BENJAMIN J. ALLEN, Newark, N. J. Filed Apr. 28, 1886. (No model.)



Claim.—1. The improved coke-breaker herein described, consisting, essentially, of a metallic head having teeth formed in pairs radially thereabound and a handle, said parts being constructed, arranged, and combined substantially as and for the purposes set forth.

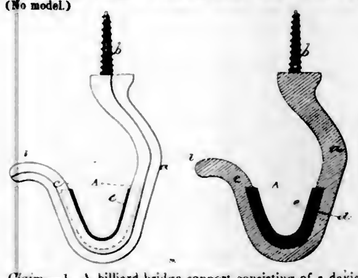
2. In combination, a metallic head having long and oppositely-flaring teeth arranged or formed radially and in pairs aronnd the periphery of said head, and having a central opening for a handle, and a handle, all said parts being constructed and arranged substantially as and for the purposes set forth.

353,012. PADLOCK. WILLISTON L. ALVORD, Bridgeport, Conn. Filed July 27, 1886. (No model.)



Claim.—In a padlock, the combination, with the nose of the shackle and a stop projecting from the side of the padlock-casing, of a rotary shell having arranged therein tumblers adapted to slide laterally, and having extending from its side a hook, said tumblers and hook adapted to engage with said stop and nose respectively when the said shell is rotated to lock the shackle, substantially as set forth.

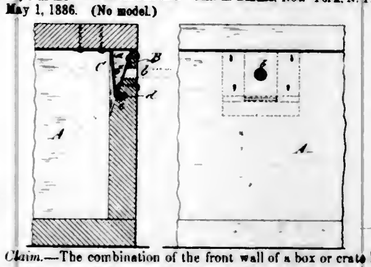
353,013. BILLIARD-BRIDGE HOOK OR SUPPORT. WARREN L. BRADDOCK and HARRY J. WITCHELL, Boston, Mass. Filed Jan. 27, 1886. (No model.)



Claim.—1. A billiard-bridge support consisting of a device having the form of a hook, in which the two arms, or the major portions thereof, extend at an angle to each other so as to form a substantial V shape, with a lining of rubber, leather, felt, or like frictional material on its inner lower portion where the handle of the bridge is to rest, whereby said arms are adapted to have the bridge-handle wedged and held therebetween at their frictionally-lined point, one of said arms being extended and provided with means for securing it to a billiard-table, as set forth.

2. A billiard-bridge support consisting of a device having the form of a hook, in which the two arms, or the major portions thereof, extend at an angle to each other so as to form a substantial V shape, with a lining of rubber, leather, felt, or like frictional material on its inner lower portion where the handle of the bridge is to rest, whereby said arms are adapted to have the bridge-handle wedged and held therebetween at their frictionally-lined point, one of said arms being extended and provided with means for securing it to a billiard-table, and the other being provided at its upper end with an outwardly-extended lip, *l*, as set forth.

353,014. BOX-FASTENER. JAS. E. BRIGGS, New York, N. Y. Filed May 1, 1886. (No model.)

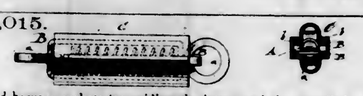


Claim.—The combination of the front wall of a box or crate having a beveled recess, a hole extending from said recess through the wall, and a horizontal recess below said hole, with a re-enforcing plate extending over the beveled recess to the horizontal recess, and having a hole in line with the hole in the front wall, and a locking-spring attached to the under side of the lid, and having a forwardly-bent lip at the lower end that is adapted to engage the horizontal recess of the wall, and released therefrom when pressed back, substantially as set forth.

353,015. ORNAMENTAL CHAIN-LINK. JAMES BUSHEE, Attleborough Falls, Mass., assignor to Salomon Davidson, New York, N. Y. Filed Mar. 12, 1886. (No model.)

Claim.—1. The combination of a spiral spring, links engaging said spring by their opposite ends, a box or sleeve inclosing said spring and

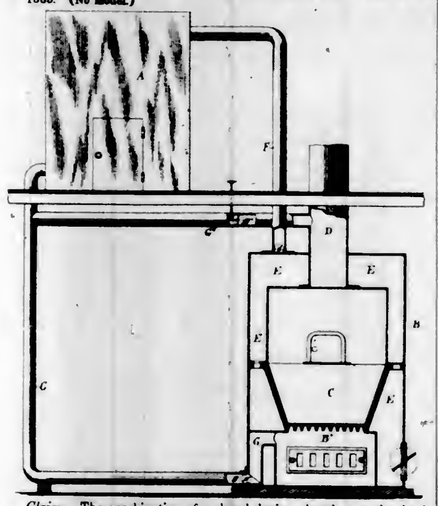
353,015.



links and having pockets for guiding the latter, and rings applied to the outer ends of the links, substantially as set forth.

2. The combination of a spiral spring, links sliding sidewise of each other and engaging said spring by their opposite ends, a box or sleeve inclosing said spring and links and having pockets for guiding the latter, and rings applied to the outer ends of the links, substantially as set forth

353,016. DRIER. LYDIA J. CADWELL, Chicago, Ill. Filed July 3, 1885. (No model.)



Claim.—The combination of a closed drying-chamber, a pipe leading from a hot-air furnace into the said chamber, a pipe leading from the said drying-chamber back to the fire-grate, a branch pipe leading from this latter pipe to the smoke-flue, and suitable dampers in said pipes, substantially as described.

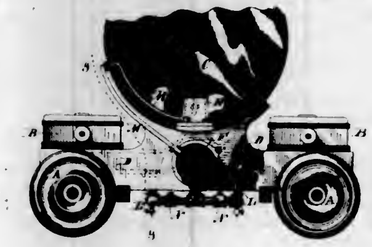
353,017. METHOD OF DRYING DISTILLERS' SLOPS. LYDIA J. CADWELL, Chicago, Ill. Filed Oct. 28, 1885. (No specimens.)

Claim.—The method of preparing a food product from distillers' slops and brewers' grains, or other substances similar to brewers' grains, which consists in first settling the slops, whereby the solid, the glutinous, and the starchy substances are precipitated, then drawing off the water, then mixing the wet, starchy, glutinous, and solid residue with dry brewers' grains or other dry vegetable substance, whereby a frangible mass is produced, and finally disintegrating the mass in the presence of a current of heated air, substantially as described.

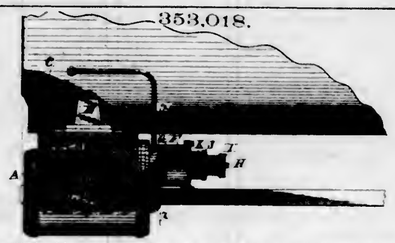
353,018. EXHAUST-RELIEF AND CONTINUOUS BLAST FOR ENGINES. JOHN C. CARROLL, Milwaukee, Wis. Filed July 3, 1886. (No model.)

Claim.—1. A steam-cylinder, F, provided with a steam and spring actuated piston, in combination with one or more eduction-pipes, L L, provided with check-valves, said pipes leading from the exhaust-steam pipes of an engine to the cylinder F, and a discharge-steam pipe, M, leading from the cylinder F into the smoke-box of the engine, substantially as described.

2. In an engine, steam-cylinders A A, smoke-box C, and exhaust-steam pipes D D, in combination with an exhaust-steam cylinder, F,

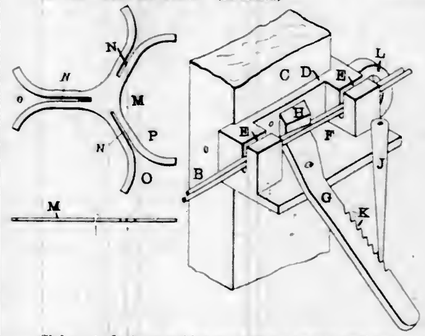


353,018.



provided with a steam and spring actuated piston, G, eduction-pipes L L, provided with check-valves N N, and a discharge-steam pipe, M, all substantially as described.

353,019. FENCE-MAKING APPARATUS. JOHN W. CLARK, Hamilton, Ohio. Filed Oct. 4, 1886. (No model.)

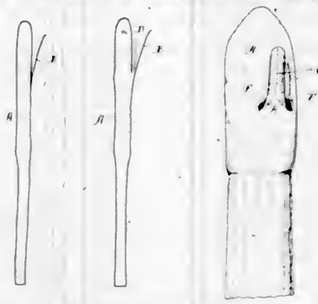


Claim.—1. In fence-making apparatus, a tension device consisting of block D, having upwardly-open slots E and gap F, lever G, provided with jaw H, engaging to the rear of wires that may be laid in the slots of the block, and having ratchet-teeth K and pivoted to the block, and pawl J, pivoted to the block and engaging the teeth of the ratchet, combined and arranged to operate substantially as set forth.

2. In a fence-making apparatus, the combination of tension-post C, blocks D, provided with slots E and with eye-hooks L, lever G, pivoted to the blocks and provided with jaws H and teeth K, and pawls J, pivoted to the blocks and engaging the levers, substantially as and for the purpose set forth.

3. In fence-making apparatus, the flat spider-like wrench M, having radial slots N, terminating outwardly in flaring mouths O, and having spaces P, combined substantially as and for the purpose set forth.

353,020. MITTEN AND THE ART OF KNITTING THE SAME. JOHN COLLINS, Malden, Mass. Filed Aug. 24, 1885. (Specimens.)

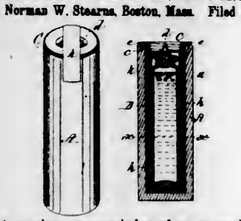


Claim.—1. The improved mitten having the thumb formed on the inner face of its hand portion, with the gussets or gores K' K' at the base of the thumb, the former being formed below the thumb, or on that side extending toward the wrist portion of the mitten, and the latter on the upper or palm portion of the base of the thumb, and with the thumb united to the palm portion by the seams F F, and the uniform tubular part of the thumb having a single seam extending from the junction of the seams F F to the top of the thumb, as set forth.

2. The herein-described improvement in the art of manufacturing mittens, which consists in knitting the hand portion of the mitten-body,

then knitting thereto the end of a flat strip of like fabric along a line transverse to said body, then completing the body and wrist portion of the mitten, then cutting away the series of stitches beneath said strip by which it had been connected to the palm or hand portion of the mitten, then turning or drawing in the edges of the strip at the inner or lower end thereof, and joining it to the adjacent edge of the slit, working from each end of the slit to the center, forming the seams F F, and completing the thumb by uniting the remainder of the edges of the strip to each other, forming a single seam, C, extending from the junction of said seams F F to the tip of the thumb, as set forth.

353,021. BOTTLE-CASE. JOSEPH DAVIS, New York, N. Y., assignor to himself, and Norman W. Stearns, Boston, Mass. Filed Dec. 29, 1885. (No model.)



Claim.—1. A mailing-case consisting of an outer shell or casing open at one end only, an inner tightly-fitting but removable metallic shell open at the end or ends and flush or nearly flush at one end (when in position) with the open end of the outer casing, the openings in the shells extending from wall to wall, combined with a screw-cap applicable at once to both shells, substantially as set forth.

2. A mailing-case consisting of an outer shell or casing open at one end only, an inner tightly-fitting but removable metallic shell open at the end, and flush or nearly flush at one end when in position with the open end of the outer casing, the openings in the shells extending from wall to wall, a screw-cap applicable at once to both shells, and a cushion of suitable soft elastic or absorbent substance within the inner shell, to be interposed between it and the object mailed and to be protected, substantially as described.

3. A mailing-case consisting of an outer shell or casing open at one end only, an inner tightly-fitting but removable metallic shell flush at the top with the top of the outer shell, combined with a screw-cap applicable at once to both shells, and with a washer between the screw-cap and its end of the case, substantially as and for the purpose set forth.

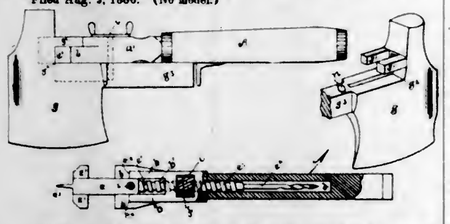
353,022. BAIT-BOX. EDWARD W. DELAND, Saco, Me. Filed May 8, 1886. (Model.)



Claim.—1. A bait-box having on the back lugs or loops for the purpose of securing the box to the person, and having a downwardly-projecting flexible rim, as and for the purpose specified, in combination with a cup which embraces the body of the box, extends under the depending flexible rim, and is clasped and retained on the box thereby, substantially as herein set forth.

2. As a new and improved article of manufacture, a bait-box constructed as shown, described, and claimed, the box being provided with loops to secure it to the person, and a depending flexible rim to clasp and retain a cup which embraces the body of the box, as shown and described.

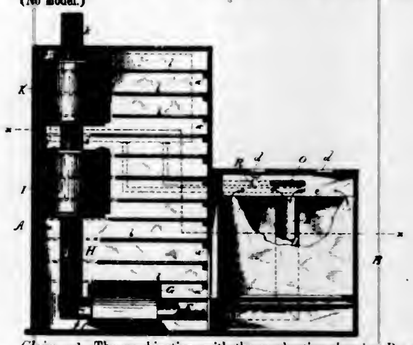
353,023. COMBINATION-TOOL. JOHN H. DOWALDSON, Gore, Ohio. Filed Aug. 9, 1886. (No model.)



Claim.—1. The combination of the hollow tool-handle with the tongue adapted to fit within the slotted end of the handle, said tongue having its front end provided with a forwardly-projecting screw-driver blade and laterally-projecting lugs, having its rear portion provided with a vertical screw-hole, and having projecting rearwardly a screw adapted to pass through and engage with a thumb-nut located in an oblong hole in the handle, and to enter the hollow of the handle, said screw having a rearwardly-projecting gimlet on its end, substantially as and for the purpose specified.

2. The combination of the hollow tool-handle having its forward portion slotted to receive a tongue, the latter having its front end provided with a forwardly-projecting screw-driver blade and laterally-projecting lugs, having its rear portion provided with a vertical screw-hole, and having projecting rearwardly a screw adapted to pass through and engage with a thumb-nut located in an oblong hole in the handle, and to enter the hollow of the handle, said screw having a rearwardly-projecting gimlet on its end, with a hatchet-blade having a chisel formed on its rear side, detachably secured to the front end of said handle, substantially as and for the purpose specified.

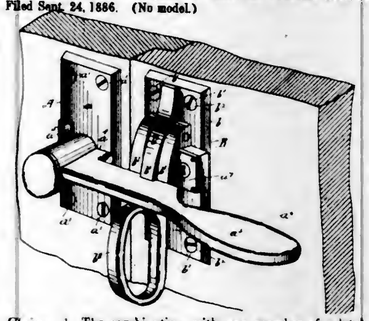
353,024. RANGE. ELI C. FROST, Elmira, N. Y. Filed Apr. 14, 1884. (No model.)



Claim.—1. The combination, with the combustion-chamber B and oven, of the vertical flue E and one or more radiators arranged in the oven, as and for the purpose specified.

2. The combination, with an oven and with a fire-pot for heating the same, of an auxiliary heating apparatus comprising a radiator, as G, located in the bottom of the oven, and having connections with a pipe leading from the fire-pot, and with an escape-flue and drums, also within the oven, as set forth.

353,025. LATCH. JOHN H. GRANT, HENRY C. GOODSPEED, and THEODORE M. FOOTE, Boston, Mass.; said Grant assignor, by direct and mesne assignments, to said Goodspeed and Foote, and Franklin Reed, Bath, Me. Filed Sept. 24, 1886. (No model.)



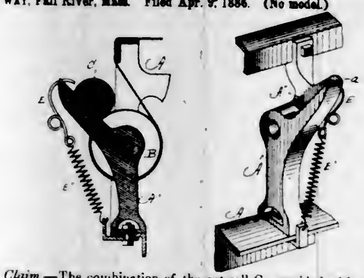
Claim.—1. The combination, with one member of a latch, which member comprises a plate having a stud or post, a^3, a swinging arm, a^2, which swinging arm is provided with a handle, a^4, and a latching part, a^1, of another member of said latch, which other member comprises a plate, b, provided with one or more blocks, b^2, which blocks have inclined or rounded or tapering surfaces b^4, and catch b^3, which catch has the notch or recess b^7, all substantially as described.

2. The combination, in a member of a latch, of a plate, a, a post or stud, a^3, supporting a swinging arm, a^2, comprising a handle, a^4 a latching part, a^1, with the stops a^5, and spring a^6, substantially as described.

3. The member of a latch, comprising a plate, b, having one or more blocks, b^2, provided with rounded, inclined, or tapering surfaces, the catch b^3, pivoted thereto, and spring b^{11}, substantially as described.

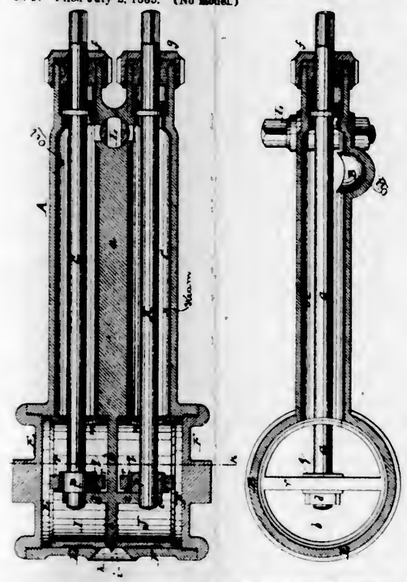
4. The member of a latch, comprising a plate, b, having one or more blocks, b^2, provided with rounded, inclined, or tapering surfaces, the catch b^3, pivoted thereto, having the arm or handle b^4, substantially as described.

353,026. TAKE-UP MECHANISM FOR LOOMS. WILLIAM HATHAWAY, Fall River, Mass. Filed Apr. 9, 1886. (No model.)



Claim.—The combination of the cut-roll C, provided with the flattened bushes D, the hooks E, and springs E', the sand-roll B, and the supporting-stand A', provided with the notches a, substantially as and for the purpose set forth.

353,027. HYDROCARBON-BURNER. CHAS. W. HEINE, New York, N. Y. Filed July 2, 1885. (No model.)



Claim.—1. The combination of the cylinder A and its chamber E, the latter having outlet-slot h, with the cylindrical valve I and means, substantially as described, for moving said valve, as specified.

2. The combination of the cylinder A, chamber E, and valve I with the cylinder C, chamber F, valve J, and partition b, said chambers E and F having the slots h and i, substantially as herein shown and described.

3. The partition b, constructed with the teeth j, in combination with the movable valve J, having teeth o, substantially as specified.

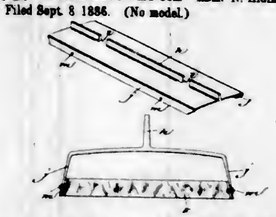
4. The combination of the cylindrical valve I, having partition r, with the box q, eccentric p, shaft G, and supports for said shaft, all arranged, as described, for moving said valve in manner specified.

5. In a hydrocarbon-burner having steam-cylinder C and hydrocarbon-cylinder A, separated by a web, a, the combination of said cylinders and said web with the cock L, placed in the web for the purpose of establishing and preventing communication between said cylinders, as set forth.

6. In a hydrocarbon-burner having partition b, placed between the upper hydrocarbon-discharge orifice and the lower steam-discharge orifice, the combination of said partition with the vertically-movable hydrocarbon-valve I and vertically-moving steam-valve J, as and for the purpose specified.

7. In a hydrocarbon-burner, the partition b, constructed with upper sloping discharge-edge and lower toothed discharge-edge, in combination with the vertically-movable valves I and J, as specified.

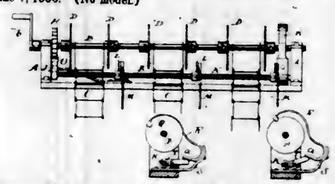
353,028. METAL RAILWAY-TIE. EBEN N. HIGLEY, Somersworth, N. H. Filed Sept. 8, 1886. (No model.)



Claim.—1. A metal railway-tie formed with downwardly-extending side flanges to enter the earth, with upwardly-extending projections having a space between them, said projections forming vertical walls to each space far enough apart to allow the lower flange of a rail to lie between them, and a stay or brace beneath said tie between said flanges, and fastened to said flanges to stiffen and strengthen them, the said stay or brace being placed edge downward and calculated to engage the earth and prevent an endwise movement of the tie, substantially as described and shown.

2. A metal railway-tie made in one piece, having a single vertical flange running longitudinally upon it and forming an integral part thereof, with notches in said flange, each of said notches formed with vertical walls far enough apart to allow the lower flange of a rail to lie between them, the sides of said tie being turned into downwardly-projecting flanges which engage the earth, and a stay or brace beneath said tie, between said flanges, and fastened to said flanges to stiffen and strengthen them, the said stay or brace being placed edge downward and calculated to engage the earth and prevent an endwise movement of the tie, substantially as described and shown.

353,029. FIRE-ESCAPE. LEON HIRSCH, New York, N. Y. Filed June 7, 1886. (No model.)



Claim.—The combination, with a shaft journaled in standards on the roof of the house, of flexible ladders secured to the shaft, a ratchet-wheel on the shaft, a rocking shaft below the one to which the ladders are fastened, a pawl on the rocking shaft, which pawl engages with the ratchet-wheel on the shaft to which the ladders are fastened, a spring acting on a projection of the rocking shaft, rods connected to the rock-shaft and extending through the several stories, knobs on the rods at the several stories, a brake-disk on the shaft to which the ladders are fastened, a brake-lever resting on the rim of the disk, and provided with a projection, and an arm on the rock-shaft, which arm engages a projection of the brake-lever, substantially as shown and described.

353,030. HORSESHOE-NAIL-FINISHING MACHINE. JOHN A. HUTCHINSON, Chicago, Ill., assignor to Abraham W. Kingsland, of Illinois. Filed July 3, 1886. (No model.)

Claim.—1. In a machine for finishing horseshoe-nails, a continuously-moving nail-carrier, in combination with devices for rolling the blanks, beveling devices and trimming devices, and mechanism for operating the same in such manner that the blanks are rolled, beveled, and trimmed without interrupting their constant movement forward by the carrier.

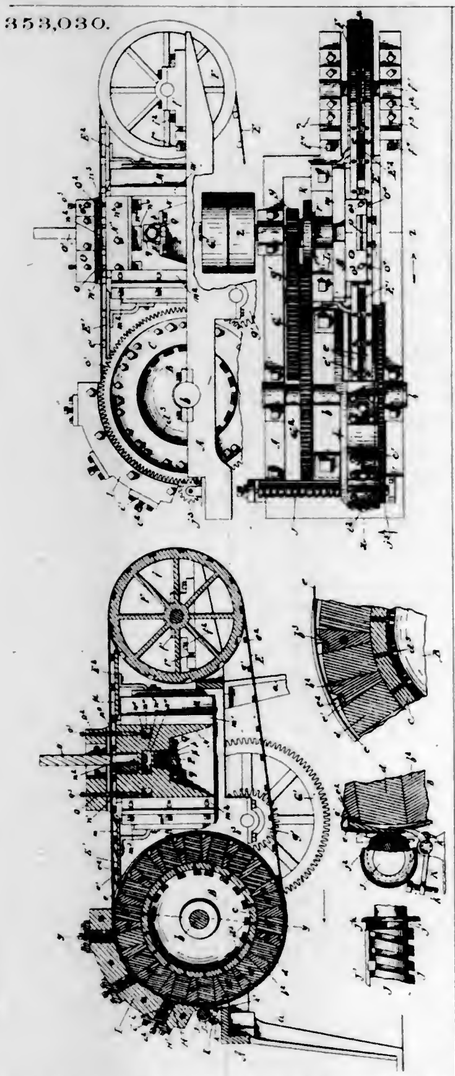
2. In a horse-nail-finishing machine, a die-wheel containing a series of roller-dies, in combination with a roller arranged to operate in connection with the said dies, and a continuously-moving nail-carrier arranged to draw the nails between the die-wheel and roller, substantially as and for the purposes set forth.

3. In a horse-nail-finishing machine, a continuously-moving nail-carrier, in combination with movable beveling devices, and mechanism arranged to move said devices forward in unison with the carrier, substantially as and for the purposes set forth.

4. In a horse-nail-finishing machine, a continuously-moving nail-carrier, in combination with movable trimming devices, and mechanism arranged to move said devices forward in unison with the carrier, substantially as and for the purposes set forth.

5. In a horse-nail-finishing machine, a continuously-moving nail-carrier arranged to operate in a vertical plane, in combination with a die-wheel arranged in a vertical plane and provided with a series of

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roller-dies, and rolling device arranged to operate in connection with said die-wheel, substantially as and for the purposes set forth.

6. In a horse-nail-finishing machine, a continuously-moving nail-carrier, in combination with rolling devices and beveling and trimming devices, all arranged to operate in a vertical plane, and mechanism for operating the same, substantially as and for the purposes set forth.

7. In a horse-nail-finishing machine, a continuously-moving nail-carrier, in combination with movable beveling and trimming devices, and mechanism whereby said devices are moved forward in unison with the carrier and at the same time operated to bevel and trim the nails, and are then moved backward to their former position, substantially as and for the purposes set forth.

8. In a horse-nail-finishing machine, a continuously-moving nail-carrier, in combination with devices for feeding blanks automatically to the carrier, and rolling devices for rolling the blanks while moved forward by the carrier, substantially as and for the purposes set forth.

9. The endless nail-carrier composed of the metallic strips and cross-lugs notched for the heads of the nails, in combination with the die-wheel provided with a series of pockets at its periphery for roller-dies, and a stationary roller arranged about in contact with the die-wheel, substantially as and for the purposes set forth

10. The die-wheel B, provided with the recessed rim b', in combination with the annular plate C, provided with the flange c, and the roller-dies D, substantially as and for the purposes set forth.

11. The roller H, in combination with the box h, in which it is mounted, the casing I, provided with a socket for the box, and the die-wheel provided with roller-dies, substantially as and for the purposes set forth.

12. The nail-carrier E, provided with notched lugs e', in combination with the feed-screw J, provided with the cam j^3, substantially as and for the purposes set forth.

13. The carrier E, in combination with the feed-screw J, provided with the cam j^3, and the yielding clamping-lever K, substantially as and for the purposes set forth.

14. The feed-screw J, provided with the cam j^3, in combination with the yielding clamping-lever K and the stop-screw k, substantially as and for the purposes set forth.

15. The endless carrier E, provided with lugs, in combination with the die-wheel B, provided with roller-dies at its periphery, and notched to receive the lugs of the carrier, whereby the latter is driven by the die-wheel, substantially as and for the purposes set forth.

16. The die-wheel provided with a series of roller-dies at its periphery, in combination with the continuously-moving nail-carrier, and a series of rollers arranged to operate successively upon the blank, substantially as and for the purposes set forth.

17. In a horse-nail-finishing machine, the continuously-moving nail-carrier, in combination with a compound slide consisting of two parts, one arranged to move horizontally and the other vertically, and pointing mechanism the opposing parts of which are mounted on the respective members of the slide, substantially as and for the purposes set forth.

18. The continuously-moving nail-carrier, in combination with the horizontal slide M, the vertical slide N, mounted on the latter, the beveling and trimming punches mounted on the horizontal slide, the beveling and trimming dies on the vertical slide, and mechanism whereby the horizontal slide is moved back and forth while the vertical slide is moved up and down thereon, substantially as and for the purposes set forth.

19. The compound slide M N, in combination with the beveling and trimming devices mounted thereon, and the eccentric or crank-pin P, arranged to work in the two members of the slide, substantially as and for the purposes set forth.

20. The support L, in combination with the horizontal sliding plate M, the vertical sliding plate N, mounted on the former, the main shaft G, and the crank-pin P on the end of the main shaft, substantially as and for the purposes set forth.

21. The horizontal sliding plate M, provided with the stationary gib m' and movable gib m^2, in combination with the vertical sliding plate N, provided with bevel edges n, and the beveling and trimming devices mounted on said plates, substantially as and for the purposes set forth.

22. The die-wheel, in combination with the endless nail-carrier, and the guard E', substantially as and for the purposes set forth.

23. The die-wheel, in combination with the endless carrier, the guard E', the compound slide carrying the pointing mechanism, and the guard E^2, substantially as and for the purposes set forth.

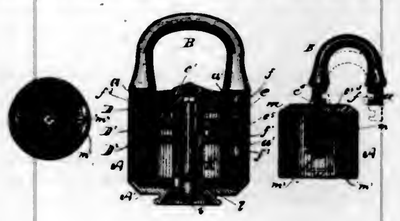
24. The die-wheel, in combination with the endless nail-carrier, and the idle-wheel around which the latter runs, all arranged in a substantially-vertical plane, as and for the purposes set forth.

25. The continuously-moving nail-carrier, in combination with the movable pointing devices, mechanism whereby the latter are moved forward in unison with the carrier and then back again, and mechanism whereby the relation of the carrier to the pointing mechanism may be adjusted to suit nails of different sizes, substantially as and for the purposes set forth.

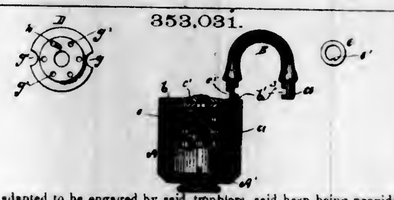
26. The nail-carrier, in combination with the compound slide, the pointing mechanism mounted thereon, the shaft G, provided with a crank-pin, the slotted flange R, fixed on the shaft, and the driving-pinion g, mounted loosely on the shaft, substantially as and for the purposes set forth.

353,031. PERMUTATION-PADLOCK. JOHN H. JULIAN, Troy, Ohio. Filed May 10, 1886. (Model.)

Claim.—1. The combination, with the outer casing and the dial-plate and the tumblers adapted to be revolved by said dial-plate, of the



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hasp adapted to be engaged by said tumblers, said hasp being provided with an extended portion adapted when the hasp is withdrawn to be drawn into engagement with and lock the said tumblers when the lock is open, substantially as set forth.

2. The combination, with the outer casing, the dial-plate, and the tumblers adapted to be revolved by said dial-plate, of the hasp provided with notches adapted to be engaged by said tumblers, the notches in said hasp being so arranged in relation to said tumblers that the hasp is capable of longitudinal movement sufficient to engage with the lower tumblers, and thus lock the dial-plate before coming into contact with the other tumblers of the series, substantially as set forth.

3. The combination, with the outer casing and the dial-plate journaled thereon, and the tumblers adapted to be revolved by said dial-plate, of the hasp provided with notches adapted to be engaged by said tumblers, and the lower tumblers provided with a series of false or blind notches, substantially as and for the purpose set forth.

4. The combination, with the outer casing, the dial-plate journaled thereon, the tumblers adapted to be revolved by said dial-plate, and the hasp provided with notches adapted to be engaged by said tumblers, of a central shaft or stud on which said dial-plate and tumblers are adapted to be revolved, a circular nut at the top of said casing adapted to support said stud, said nut being provided with notches on either side, through which the legs of the hasp extend when the lock is closed, and thus hold the nut against revolution, and the notch in the back of said hasp adapted when the said hasp is withdrawn to come opposite to said nut to permit the same to be revolved to loosen said stud on shaft, substantially as set forth.

5. The combination, with the outer casing having the openings in the top to receive the legs of the hasp and provided on one side with projections at the side of said hasp adapted to form a guide therefor, and a stop-plate on said hasp adapted to come against said projections, of the dial-plate and the revolving tumblers adapted to be moved thereby, substantially as set forth.

6. The combination, with the outer casing and the dial-plate journaled thereon, the locking-tumblers adapted to be revolved by said dial-plate, of the hasp B, adapted to be engaged by said tumblers, said hasp being provided with an extended portion adapted to lock said tumblers when the hasp is withdrawn, the stop projection on said casing, and a plate on said hasp adapted to engage therewith, substantially as and for the purpose set forth.

7. The combination, with the outer casing and the dial-plate journaled thereon, the tumblers adapted to be revolved by said dial-plate, one of said tumblers being provided with a series of false or blind notches, of a hasp, B, adapted to be engaged by said tumblers, said hasp being provided with notches of varying sizes, so that a movement thereof sufficient to engage with the blind notches is permitted without bringing said hasp in contact with the other tumblers of the series, substantially as set forth.

8. The combination, with the outer casing, the dial-plate thereon, the revolving tumblers adapted to be moved by said dial-plate, the central stud for supporting said tumblers and dial-plates, of a hasp provided with notches adapted to be engaged by said tumblers, said hasp being extended and provided with a stop-plate adapted to engage with a stop projection on said casing, so that the extended portion will be brought into engagement with and lock the tumblers when the hasp is withdrawn, and a nut for supporting said stud, said nut being held from turning while the lock is closed and adapted to be released when the lock is open, substantially as set forth.

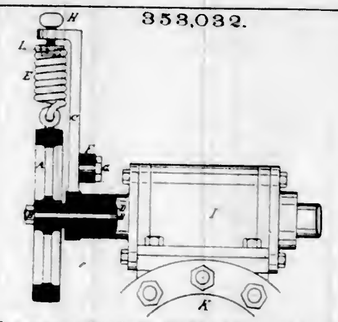
353,032. VALVE-GEAR. CHARLES E. KENDALL, Anamosa, Iowa. Filed Apr. 14, 1886. (No model.)

Claim.—1. The spring E and the balance-wheel A, as shown, and means for operating the same, in combination with a stem or rod to operate the cut-off valves of a steam-engine connected with and operated by said balance-wheel A, whereby the action and motion of the cut-off valves is governed and regulated, substantially as shown and described.

2. In a steam-engine, the combination of the eccentric-rod F, stud G, arm C, spring E, balance-wheel A, and stem B, substantially as and for the purpose described.

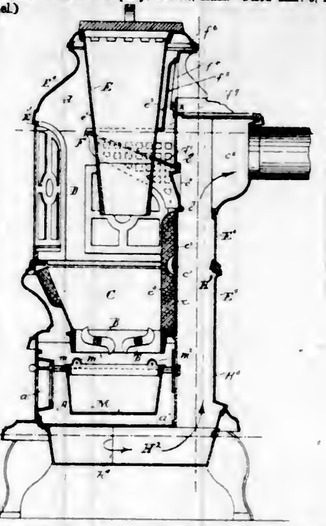
3. In a steam-engine, the combination of the eccentric-rod F, stud G, arm C, sleeve D, spring E, adjusting-screw H, plate L, balance-wheel A, and stem B, substantially as and for the purpose specified and described.

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4. In a steam-engine, the combination of the eccentric-rod F, stud G, arm C, sleeve D, spring E, adjusting-screw H, plate L, weighted arms X Y Z, (or any of said arms,) radiating from the axis, and stem B, to operate the cut-off valves, substantially as and for the purpose described.

353,033. HEATING-STOVE. FRANK A. MAGEE, Chelsea, assignor to the Magee Furnace Company, Boston, Mass. Filed Mar. 6, 1886. (No model.)



Claim.—1. The combination, in a heating stove or furnace, of a magazine, a partition or deflecting plate or plates arranged upon each side of the magazine, as described, and extending inward from the rear and side walls of the combustion-chamber, and the combustion-chamber having the upward extension, d, and the lateral extensions or branches d' d^2 in the top part of the stove, one upon each side of the magazine, all substantially as described.

2. The combination, in a heating stove or furnace, of a combustion-chamber, a magazine, a partial partition or deflecting plate or plates arranged in the combustion-chamber between the magazine and side of the stove, whereby the combustion-chamber is provided with a front section, d, and two side sections, d' d^2, and the down-flues G G', substantially as described.

3. The combination, in a heating stove or furnace, of the magazine-wall, the plates F, F', F^2, and f, arranged in relation to each other and the side and rear plates of the stove to form the horizontally-extending air-heating chamber F^2, substantially as described.

4. The combination, in a heating stove or furnace, of a magazine, a combustion-chamber, and an air-heating chamber arranged between the sides of the magazine between it and the side plates of the stove, which chambers are connected with each other, the side plates of the stove having openings f^2 to said air-heating chambers and the rear outlet, f', substantially as described.

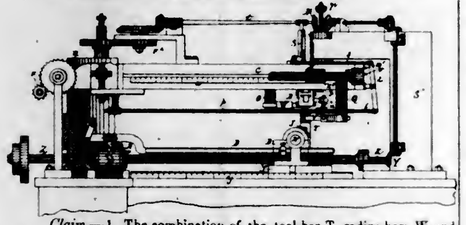
5. The combination, in a heating stove or furnace, of a magazine, a combustion-chamber, an air-heating chamber arranged between the side plates of the stove, as specified, the said side plates having openings f^2 to the chamber, the rear outlet, f', and a heat-conducting drum and pipe, f^3 f^4, substantially as described.

6. The combination, in a heating stove or furnace, of a magazine, the partition or deflecting plate or plates, arranged in relation to the magazine as specified, the combustion-chamber D, having the upper section, *d*, and the side sections, *d' d²*, the down-flues G G', base-flues H H' H³, and up-flue H⁴, substantially as described.

7. The combination, in a heating-stove, of a combustion-chamber, with a plate or plates extending across the same from the side plates of the stove to form the upper sections, *d' d²*, to the combustion-chamber, and the down-flues G G', substantially as described.

8. In a heating stove or furnace, the combination of the fire-pot, a combustion-chamber, a deflecting plate or partition arranged to extend into the combustion-chamber from the back plate or wall thereof, and an air-heating chamber or chambers arranged to extend from the sides of the stove above the deflecting plate or partition and opening to the outer air, and opening or outlet at the back of the stove, all substantially as described.

353,034. MACHINE FOR MAKING CUTTERS. William D. Marks, Philadelphia, Pa. Filed May 29, 1886. (No model.)



Claim.—1. The combination of the tool-bar T, radius-bars W and V, slides *b* and *c*, pivoted at S' and S², bolts *g* and *h*, striking-pin *n*, reversing-rod *p* 1 2 3, tool-post J, and the pivoted slide *a*, and mechanism, as described, for driving them and for reversing the motion of the machine, all substantially as set forth.

2. The combination of mandrel N, eccentric mandrel K', cutter C', stationary pawl G', and actuating-pawl H', substantially as and for the purposes set forth.

3. The combination of mandrel N, adjusting-screw I', adjustable eccentric false mandrel K', actuating-pawl H', stationary pawl G', and the false mandrel Q' Q², all arranged and operating substantially as and for the purposes set forth.

4. The combination of the feed-motions F F², tangent-screws X' X² X³, sector R, and adjustable sectors E and H, main radius-bar C, describing radius-bars W and V, tool-bar T, latch-bar *j*, spring-bolts *g* and *h*, pivoted slides *b* and *c*, tool-post J, eccentric mandrel K', eccentric false mandrel Q' Q², cam A, and reciprocating bar B, and driving mechanism, as shown, substantially as set forth.

353,035. MODE OF CONNECTING AND DISCONNECTING GENERATORS FOR ELECTRIC LIGHTING. John W. Howell, New Brunswick assignor to himself and Francis R. Upton, Orange, N. J. Filed June 5 1886. (No model.)

Claim.—1. The method of operation for dynamo-electric machines in a system wherein two or more such machines are adapted to be driven from the same shaft, consisting in running a machine as a motor to bring its loose pulley to approximately the same speed as the shaft before connecting said pulley to said shaft, and also in running the machine as a motor to take the strain off the pulley before disconnecting the pulley from the shaft, substantially as set forth

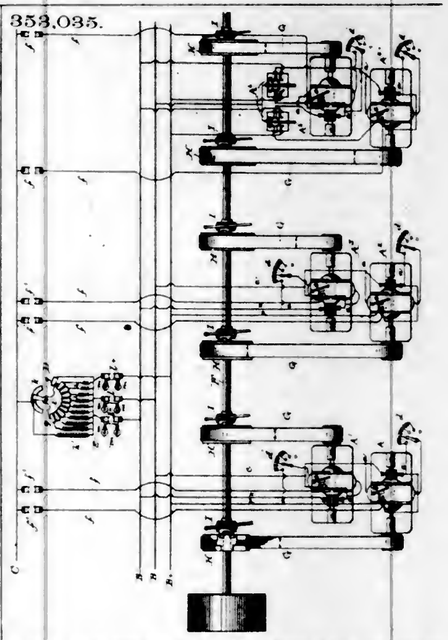
2. The method of starting a dynamo-electric machine in a system in which two or more such machines are adapted to be driven from the same shaft, consisting in first running said machine as a motor to bring its loose driving-pulley to approximately the same speed as the shaft and then connecting said pulley to said shaft, substantially as set forth.

3. The method of stopping a dynamo-electric machine in a system in which two or more such machines are adapted to be driven from the same shaft, consisting in first converting the machine into a motor to relieve the strain on the driving-pulley and then disconnecting said pulley from the shaft, substantially as set forth.

4. The method of operation for a dynamo-electric machine in a system in which two or more such machines are adapted to be driven from the same shaft and to supply current to the same system of conductors, consisting in first (when a machine is to be started) connecting the machine to said conductors through a resistance and running the same as a motor, gradually removing said resistance until the driving-pulley is brought to approximately the same speed as the shaft, and then connecting said pulley with said shaft, and, second, (when the machine is to be stopped,) converting the same into a motor to take the strain off the driving-pulley, then disconnecting said pulley from the shaft, and then disconnecting the machine from the circuit, substantially as set forth.

5. The method of starting a dynamo-electric machine in a system

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in which two or more such machines are adapted to be driven from the same shaft, consisting in first connecting said machine to the circuit through a resistance and with a strong field-magnet, gradually removing such resistance from the circuit to start the machine as a motor, gradually weakening the field to increase the speed of the motor until the driving-pulley runs at approximately the same speed as the shaft, and then connecting said pulley with said shaft, substantially as set forth.

6. The method of stopping a dynamo-electric machine in a system in which two or more such machines are adapted to be driven from the same shaft, consisting in weakening the field-magnet of the machine until the same becomes a motor, disconnecting the driving-pulley from the shaft, disconnecting the machine from the circuit and throwing it on a load, strengthening the field again until the machine comes to rest, and finally disconnecting the machine from its load, substantially as set forth.

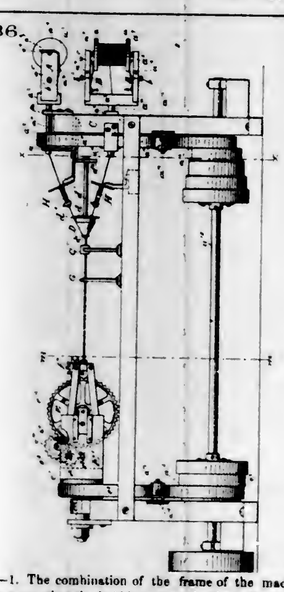
7. In a system of electrical distribution, the combination of a shaft, two or more dynamo-electric machines, a loose pulley on said shaft for each machine, means for connecting the pulley with the shaft, main conductors with which each machine is adapted to be electrically connected, an additional conductor leading from one terminal of each machine and adapted to be connected to either of said main conductors through an adjustable resistance, and means for varying the electro-motive force of each machine, substantially as set forth.

8. In a system of electrical distribution, the combination of a shaft, two or more dynamo-electric machines, a loose pulley on said shaft for each machine, means for connecting the pulleys with the shaft, main conductors with which each machine is adapted to be electrically connected, an extra conductor, a conductor leading from a terminal of each machine to said extra conductor and provided with a switch, an adjustable resistance connected with said extra conductor, a connection from said adjustable resistance to each of the main conductors, provided with a switch, and means for varying the electro-motive force of each machine, substantially as set forth.

9. In a system of electrical distribution, the combination of a shaft, two or more dynamo-electric machines, a loose pulley on said shaft for each machine, means for connecting the pulleys with the shaft, main conductors with which each machine is adapted to be electrically connected, an extra conductor, a conductor leading from each machine to said extra conductor and provided with a switch, an adjustable resistance connected with said extra conductor, a connection from said adjustable resistance to each of said main conductors, provided with a switch, a high-resistance shunt around each of such switches including an electrical indicator, and means for varying the electro-motive force of each machine, substantially as set forth.

353,036. MACHINE FOR MAKING CORD AND ROPE. Mark S. Palmer, Reading, Mass. Filed Sept. 4, 1884. (No model.)

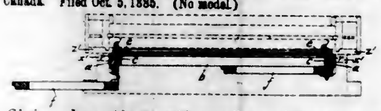
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Claim.—1. The combination of the frame of the machine, C, the frames A, for supporting the bobbins or spools, the hollow shafts a^4, the pulleys a^{10}, the belt a^{13}, the pulley a^{12}, the shaft a^{13}, the drum E, mounted upon the frame E', said frame E', the stud or post *e*, the pulley *e'*, the belt e^2, the pulley e^3, the bevel-gears e^4 e^5, the shaft e^6, gears e^7 e^8 e^9 e^{11}, the spur-wheel e^{12}, the screw f^2, the gear f^3, pins f^5, the traversing block F, and the laying-head D, all substantially as described.

2. The combination of the drawing and winding reel with the laying-head, the frame C, and the frames or bobbin-supports A, the jaws h^2 h', having the recesses h^3, a band or ring surrounding each pair of jaws and an adjusting-screw, h^5, carried thereby, the sleeves *h*, the hollow posts supporting them, and the springs h^7, connecting said sleeves with a fixed support, the said jaws being arranged between the laying-head and bobbin holders or supports, substantially as described.

353,037. WINDOW-FRAME. Samuel F. Peters, London, Ontario, Canada. Filed Oct. 5, 1885. (No model.)



Claim.—In combination with an ordinary window-frame, the additional frame *a*, having removable stops *c d*, forming with frame *a* grooves for the reception of the interchangeable window and screen sashes, substantially as described.

353,038. ROTARY BRUSH FOR FINISHING BOOTS AND SHOES. Benjamin F. Quinby, Boston, Mass. Filed Feb. 1, 1886. (No model.)



Claim.—As an improvement in circular brushes for finishing the soles and heels of boots and shoes, a stock or holder composed of two heads, *a b*, and a central portion, *c*, formed integral with one head, in combination with alternate rows of bristles and washers, the bristles being arranged radially around the central portion, *c*, with their inner ends only—that is, with their butts or roots only—in contact therewith and with the washers, and with their flag ends free and forming the outer or working periphery of the brush, the various parts being securely held together by an adhesive substance, substantially as described.

353,039. CHANGEABLE BUTTON. Louis D. Radenesky, McKeesport, Pa., assignor of two-thirds to C. A. Snow and E. G. Siggers, Washington, D. C., and Austin Curtin, Roland, Pa. Filed Mar. 5, 1886. (No model.)



Claim.—1. In a changeable button, the combination of a removable shell having a threaded stud or post with a button having a central hole or socket, the wall of which is threaded to receive said stud or post.

2. In a changeable button, the button having its body constructed with a screw-threaded hole or socket at its center, combined with a removable hollow cap or shell constructed with a central stud upon its inside, threaded correspondingly to the hole or socket of the body, the hollow interior or cavity of the cap or shell receiving the button-body therein so as to wholly conceal the button-body from view, as set forth.

3. A button the body of which is constructed with a screw-threaded hole at its center, combined with a metal cap adapted to be set upon and cover the said body, the cap constructed with a central concentric stud upon its inside threaded correspondingly to the screw-threaded hole in the center of the body.

4. The combination of a button having a central threaded socket, a shank provided with an exteriorly-threaded tubular end removably secured in button-socket, and a shell or cap having a threaded post screwed into the tubular end of the shank, substantially as described.

5. The combination, with a button-body provided with a central socket, a shank having a tubular socket removably secured in the button-socket, and a cap or shell adapted to be set upon and cover the said button-body, said cap having a central stud passing through the button-body and detachably fitted in the socket of the shank, as set forth.

353,040. NEEDLE. Edwin Strain, Melrose, assignor to Miles S. Cahill, Boston, Mass. Filed Sept. 18, 1886. (No model.)



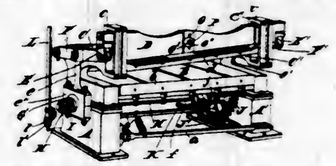
Claim.—1. A needle having a point, *a'*, and an eye formed by the cross-slot a^2, wider on one side of the needle than on the other, and the recess a^4, extending from the narrow section of said slot to the butt, substantially as described.

2. A needle having a point, *a'*, and an eye formed by the slot a^2, V-shaped or substantially V-shaped in cross-section, the recess a^4, opening therefrom, also V-shaped or substantially V-shaped in cross-section, and the shoulder a^5, substantially as described.

3. In needles having the cross-slot a^2 and recess a^4, the shoulder or edge a^5, having the pocket a^{11}, extending downward below or beyond its pointed edge, as and for the purposes described.

4. In a needle having the cross-slot a^2, the recess a^4, made deeper at or near its outer end, as and for the purposes described.

353,041. METAL-SHEARING MACHINE. Christian Wais, Cambridge City, Ind., assignor to Charles A. Bertsch and John J. Bertsch, both of Wayne County, Ind. Filed Apr. 19, 1886. (No model.)



Claim.—1. In a shearing-machine, the combination, with the shear-blade-supporting gate or beam D, mounted in guides *c c'* on the main frame for its vertical movement, of two horizontal arms or levers, F F' pivoted at their rear ends upon said main frame, and pivotally connected at their fore ends with the opposite outer ends of said shear-gate, and vertical rods or links *e e'*, connecting said horizontal arms or levers with a pair of eccentrics, G, on a through driving-shaft, H, whereby said shear-gate is operated by a downward pull of said vertical rods, substantially as and for the purpose specified.

2. In a shearing-machine, the combination, with the shear-gate D and its reciprocating arms and rods, of a driving-shaft, H, provided with eccentrics G, for engagement with said rods, and a clutch and worm-gear driving mechanism composed of the gear-wheel J, endless screw J', counter-shaft K, foot-lever *a*, connecting-rod *a'*, sliding clutch-collar

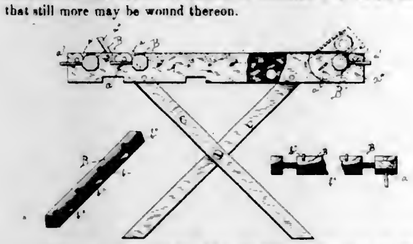
f, and clutch-hub *j*, the parts being connected and adapted to operate substantially in the manner and for the purpose described.

3. In a shearing-machine, the combination, with the shear-gate D and its driving mechanism composed of the horizontal arms, vertical rods, and the driving-shaft provided with eccentrics, as in the immediately-preceding claim, of a ratchet wheel or wheels, I, mounted upon either or both ends of said shaft, and a hand-lever, L, having a pivoted dog, *l'*, at its lower end engaging said ratchet-wheel, whereby the machine may be operated by hand-power for light work, substantially as herein set forth.

4. In a shearing-machine, the combination, with the movable shear-gate D, of a stationary tie-beam, M, said shear-gate being loosely connected with said tie-beam by means of an embracing shoe or plate, N *n n'*, attached to the tie-beam about mid-length, a center bolt, P, projecting from the tie-beam through a vertical slot, O, in the shear-gate, to receive a washer, O'', and nut O^2 on its outer end, and set-screws *p* and *p'*, for adjusting the shear-gate to or from the tie-beam, substantially as and for the purpose specified.

353,042. QUILTING-FRAME. ABRAHAM B. WALKER, Orangeburg, S. C., assignor to Annie L. Walker, same place. Filed Apr. 1, 1886. (No model.)

Brief.—The pivoted bearing-pieces carrying a roller allow the same to rise when the roll of material is increased to a certain size, so that still more may be wound thereon.



Claim.—1. In a quilting-frame, the combination, with the parts A, of the angular rollers B B and B', having hooks, as described, secured in one face and bent over the corner of the roller, with space between said hooks and roller for the reception of the cloth, as set forth.

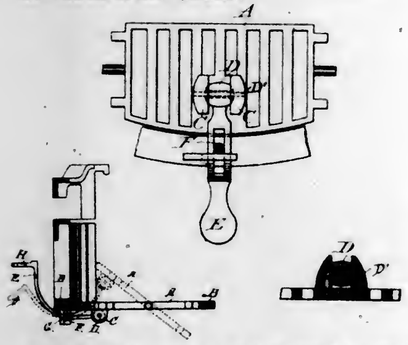
2. In a quilting-frame, the combination, with the parts A, having the pivoted end bearing-pieces, a^*, thereon, of the cloth and finished-quilt rollers, the finished-quilt roller lying in said pivoted bearing-pieces, substantially as described.

3. In a quilting-frame, the combination, with the parts A and a^* of the rollers B B and B', the latter resting in part a^*, and the tension-rod, substantially as and for the purpose set forth.

4. In a quilting-frame, the combination, with the parts A A, having the lines of holes on the top thereof, and pins insertible in said holes, of the cloth-rolls B, removable, as described, the winding-up roller B', and the tension-rod, all substantially as described.

5. The herein-described quilting-frame, consisting of the end pieces or parts, A A, having the pivoted bearings a^*, the rollers B B and B', the latter being held in bearings a^*, the removable rails D, the grooved tracks E, having rollers, as described, the cut-away portions in said tracks, and the clamps *e*, all constructed and combined to operate as set forth.

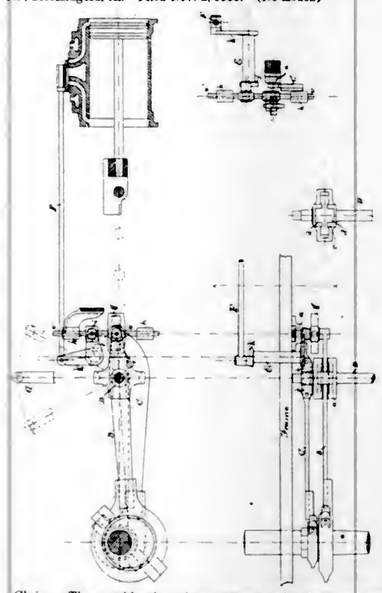
353,043. MANTEL-GRATE. EDWARD W. WILLIAMS, San Francisco, Cal. Filed Jan. 23, 1886. (No model.)



Claim.—1. The combination of the grate-frame B, provided with lip G, having a pin, F, the dumping-grate A, pivoted in said frame and provided with downwardly-extending lugs C C, whose opposing faces are concaved, and the curved and slotted operating-lever E, movable on the pin F and having a terminal ball, D, held between the lugs C, substantially as described.

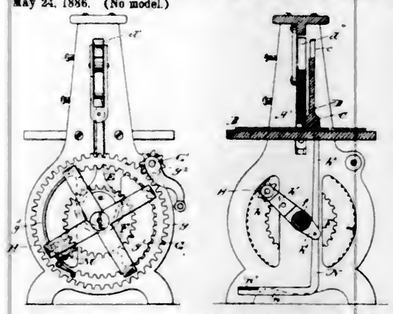
2. The combination, with the grate-frame B, having lip G, supporting the pin F, and the dumping-grate A, pivoted in said frame and provided with lugs C C, whose opposing faces are concaved, of the curved and slotted lever E, movable on the pin F, and having a terminal ball flattened on the upper and lower sides and held between the lugs by a transverse rod, all arranged substantially as described

353,044. VALVE-GEAR FOR STEAM-ENGINES. WILLIAM WILSON, Bloomington, Ill. Filed Nov. 2, 1885. (No model.)



Claim.—The combination of an axle or main shaft, an eccentric-lever, a reversing-shaft carrying a guide in which the lever moves and is fulcrumed, a slotted yoke, a valve-rod, and connections between the yoke and valve-rod, substantially as and for the purposes specified.

353,045. PAPER-CUTTING MACHINE. FRANK D. WITHERELL, Cambridge, Mass., assignor of one-half to Benj. F. De Costa, same place. Filed May 24, 1886. (No model.)

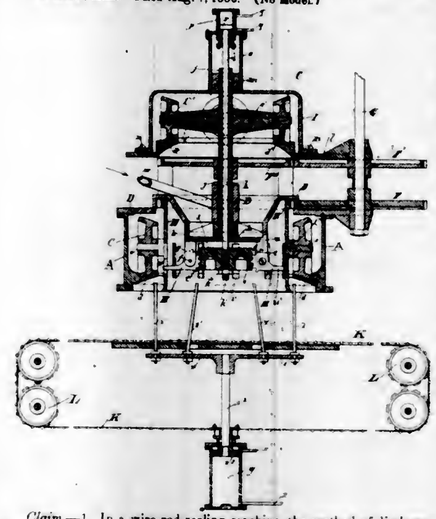


Claim.—1. The combination, in a paper-cutting machine, of a pressure-block, the levers connected therewith, each bearing a pinion, H, mounted upon one arm thereof, the gears G, having internal teeth, *g'*, arranged to mesh with the pinion, the gears F, adapted to be revolved by the pinions H, and having the eccentrics *e* connected with the block or head carrying a cutter, substantially as described.

2. The combination of the main shaft of the machine, the pinion g^3, carried thereby, the gear G, having external teeth, *g*, internal teeth, *g'*, the gear F, having the eccentric *e* connected with the cross-head carrying the cutter-knife, the pinion H, arranged between the internal gear, *g'*, and the gear G upon the end of the lever *h'*, and the lever *h'*, connected with the pressure-bar by the rod A^3, all substantially as described.

3. The combination of the pinion H, carried upon the end of the lever *h'*, connected with the pressure-block C, with the gear G, having a spring or yielding arm, M, for lifting it to a position to bring the pressure-block in contact with the paper to be cut before the internal gear, *g'*, is caused to mesh with the pinion, substantially as described.

353,046. WIRE-ROD-REELING MACHINE. HORACE A. YOUNG, Worcester, Mass. Filed Aug. 7, 1886. (No model.)



Claim.—1. In a wire-rod-reeling machine, the method of discharging the completed wire coils from the bottom thereof by dropping down or moving to one side the supports of said wire coils, substantially as shown and described.

2. In a wire-rod-reeling machine, a series of hinged levers or their equivalents arranged in circular form capable of receiving and holding the wire rods as they are delivered thereon and of discharging the same by moving them from one fixed point to another, in combination with means for supporting and operating said hinged parts for keeping the coil within its proper limits laterally and for conducting the rods to the reel, substantially as shown and described.

3. In a wire-rod-reeling machine, the hinged levers H or their equivalents, in combination with means for supporting and operating the same and for keeping the wire rod within its proper limits laterally as it is delivered and coiled upon said hinged parts, substantially as shown and specified.

4. The combination of the hinged levers H with their supporting parts, the corrugated or toothed part *s*, central shaft, *k*, sleeve *j*, and means for operating said shaft and sleeve, substantially as and for the purpose set forth.

5. The hinged levers H or their equivalents, in combination with means for supporting the same, the corrugated or toothed part *s*, central shaft, *k*, sleeve *j*, means for operating said shaft and sleeve and for keeping the wire rod within its proper limits laterally as it is delivered and coiled upon said hinged parts, substantially as shown and described.

6. The hinged levers H or their equivalents, in combination with means for supporting the same, means for conducting the wire rod to the aforesaid hinged parts H and depositing the same in a coil thereon as they are rapidly rotated in a body, means for thus rotating said parts, means for keeping the coil as it is formed within its proper limits laterally, and means for operating the hinged parts to discharge the finished coil, substantially as specified.

7. The hinged levers H, their means of support, the corrugated or toothed part *s*, central shaft, *k*, and means for operating said shaft in a vertical direction, in combination with the inner casing, E, having the slots *v*, means for rotating said casing, the sleeve *j*, means for rotating the same, the conducting-pipe *w*, and means for supporting and inclosing the various parts, substantially as and for the purpose set forth.

8. A wire-rod-reeling machine comprising the hinged levers H or their equivalents, the corrugated or toothed part *s*, shaft *k*, sleeve *j*, means for operating said shaft and sleeve, means for conducting the wire rod to the reel and for keeping it within its proper limits laterally as it is being deposited and coiled, and means for supporting the various parts, in combination with the plate *z*, having the upright spokes *z'*, and operated up and down, substantially as shown and described.

9. A wire-rod-reeling machine comprising the hinged levers H or their equivalents, the corrugated or toothed part, *s*, shaft *k*, sleeve *j*, means for operating said shaft and sleeve, means for conducting the wire rod to the reel and for keeping it within its proper limits laterally as it is being deposited and coiled, and means for supporting the various parts, in combination with the carrying-chain K, the plate *z*, having the upright spokes *z'*, and operated up and down, substantially as shown and described.

10. In a wire-rod-reeling machine, the combination of the hinged levers H and means for supporting the same with the corrugated or toothed part *s*, shaft *k*, and means for guiding and operating the same up and down, substantially as set forth.

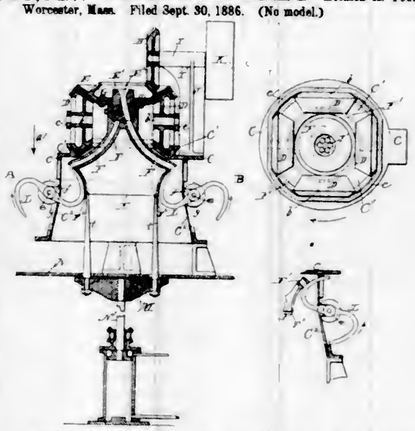
11. The combination of the hinged levers H with the corrugated or toothed part *s*, shaft *k*, means for operating said parts *s* and *k* up and down, sleeve *j*, having the arms *e'*, wheels C', supporting part *l*, spur-gears F' F^3, shaft G, and casing I, substantially as set forth.

12. The combination of the hinged levers H and means for supporting and operating the same, with the inner casing, E, provided at its upper outer edge with spur-teeth, also with studs *e*, wheels C, outside frame, A, having the inclined circular track *d*, spur-gear F, shaft G, and cover D, substantially as shown and described.

13. The hinged levers H or their equivalents, means for supporting and operating the same, and means for conducting the wire rods thereto, in combination with means for keeping the rods in position as they are deposited and coiled on said hinged parts, substantially as set forth.

14. Mechanism for rotating the series of hinged levers H, comprising the sleeve *j*, having the hub *h*, hangers *g*, and arms *e'*, wheels C', stationary part *l*, having the inclined circular track *d'*, spur-gears F' F^3, and shaft G, in combination with mechanism for tilting said levers in a vertical direction, comprising the corrugated or toothed part *s*, shaft *k*, means for operating said shaft up and down and for supporting the various parts in position, substantially as and for the purpose set forth.

353,047. WIRE-ROD-REELING MACHINE. HORACE A. YOUNG, Worcester, Mass. Filed Sept. 30, 1886. (No model.)



Claim.—1. In a wire-rod-reeling machine, a device for delivering the rods in a coil upon a suitable stationary reel or other receptacle, consisting of a central rotating body having a series of curved conducting-openings formed vertically therein and adjustably suspended from a top plate having a central hub through which a curved opening is formed, adapted to be adjusted in line with any one of the openings in the aforesaid central body, said top plate also being supported and arranged to turn on a series of wheels arranged to travel in a circular guideway or track, and provided with a bevel-gear or its equivalent, whereby driving-power may be operatively connected therewith to turn the same and the central body suspended therefrom, substantially as shown and described.

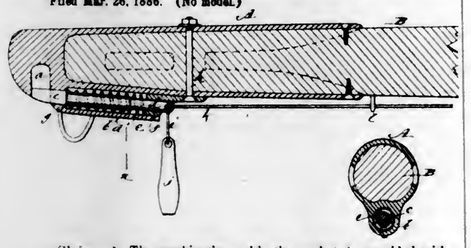
2. In a wire-rod-reeling machine, a delivering device consisting of a central body having a series of curved conducting-openings formed vertically therein, and adjustably suspended from a top plate having a central hub through which a curved opening is formed, adapted to be adjusted in line with one of the openings in the aforesaid central body, and means for supporting and rotating said plate and body, in combination with a series of adjustable levers arranged in a circle, horizontally, or substantially so, below the openings in the central body, and adapted when in one stationary position to receive and support the wire rod as it is delivered from the aforesaid rotating delivering device, and to discharge the coil at completion by moving them into another position, and means for supporting and operating said levers, substantially as shown and described.

3. A wire-rod-reeling machine comprising a delivering device having a central body provided with a series of curved conducting-openings formed vertically therein, and adjustably suspended from a top plate

having a central hub through which a curved opening is formed, adapted to be adjusted in line with any one of the openings in the aforesaid central body, and means for supporting and rotating said plate and body, also comprising means for supporting the wire rods while being coiled and discharging the same at completion, consisting of a series of adjustable levers arranged in a circle, horizontally, or substantially so, below the openings in the central body, and adapted when in one stationary position to receive and support the wire rod as it is delivered from the aforesaid rotating delivering device and to discharge the coil at completion by moving them into another position, and means for supporting and operating said levers, in combination with an upright stationary reel, and means for operating said reel up and down, substantially as set forth.

4. In a wire-rod-reeling machine, the combination of a central body having a series of curved conducting-openings formed vertically therein, with a top plate having a central hub through which a curved opening is formed, said central body being so fastened to said hub as to admit of the adjustment thereof to bring any one of its openings in line with the hub-opening, and means for supporting and operating said top plate and central body, substantially as and for the purpose set forth.

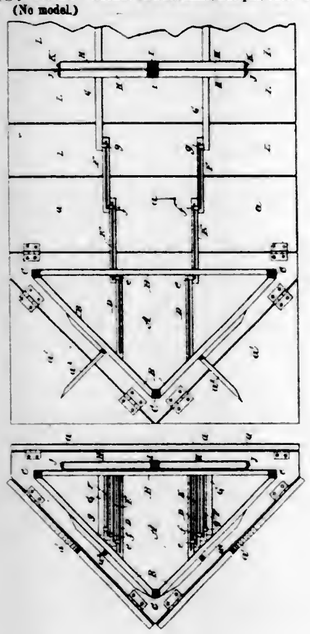
353,048. WAGON-TONGUE. GEORGE W. AVERY, Fort Ransom, Dak. Filed Mar. 26, 1886. (No model.)



Claim.—1. The combination, with the socket A, provided with a notch, *a*, near the end thereof, and having a bolt-casing, *b*, formed integrally with it, of the spring-acted bolt *c*, contained by the casing and adapted to close the notch *a*, the end of the socket and bolt being rounded to present a smooth curved outline, substantially as herein shown and described.

2. The combination, with the socket A, provided with the notch *a*, and having the bolt-casing *b* formed thereon, of the bolt *c*, the spring *e*, the rod *k*, and the handles *j m*, substantially as herein shown and described.

353,049. TABLE. HARLEY A. BARNHART, Adelphi, Ohio. Filed Aug. 3, 1886. (No model.)

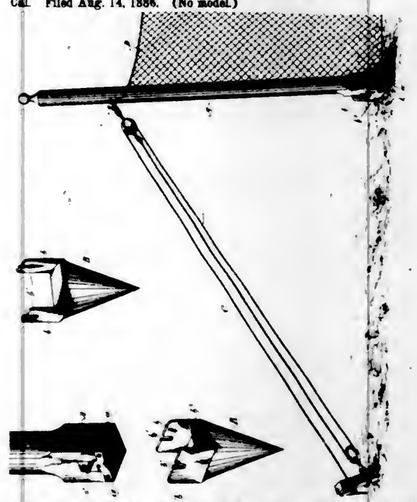


Claim.—1. An extension-table constructed with a top, A, and hinged corner-leaves *a' a'*, legs C, fixed slide-bars D D, one or more pairs of slides, as at E F G, fitted for movement on bars D and on each other, and the outermost pair of slides connected by a cross-bar, H, having an independent leg-support, substantially as shown and described.

2. An extension-table constructed with a main top, A, hinged leaf *a*, and corner-leaves *a' a'*, legs C, fixed slide-bars D D, one or more pairs of slides, as at E F G, fitted for movement on bars D and on each other, and the outermost pair of slides connected by a cross-bar, H, having an independent leg, I, substantially as shown and described.

3. The combination of two tables, each having a top, A, legs C, fixed slide-bars D D, slides, as at E F G, a bar, H, having a leg, I, and connected to the ends of the outermost slides, and hook-fastenings, as at J K, adapted to connect the bars H H of the two tables, substantially as described, for the purposes set forth.

353,050. LAWN-TENNIS-NET POLE. EMILE G. BOOTH, Berkeley, Cal. Filed Aug. 14, 1886. (No model.)



Claim.—1. A lawn-tennis-net pole having a point for entering the ground pivoted to its lower end, whereby the pole may be moved on its point to tighten the net, substantially as described.

2. The combination of a pole, an independent point for entering the ground, and a pivot-connection between the upper end of the point and the lower end of the pole, the whole forming an adjustable pole for supporting and tightening lawn-tennis nets, substantially as described.

3. A lawn-tennis-net pole having an independent separable point for entering the ground, and a pivot-connection between the point and pole, by which the latter may be readily applied to and removed from the point, substantially as described.

4. The combination of the lawn-tennis-net pole A, having pivot-pins at its lower end, with the point B for entering the ground, and having the flanges *b*, with bearings for the reception of the pivot-pins of the pole, substantially as described.

5. The lawn-tennis-net pole A, having on its lower end the plate or casting *a*, provided with pins or lugs *a'*, in combination with the point B for entering the ground, and having the flanges *b*, with bearings or slots *b'* for the pins or lugs *a'*, whereby the pole is pivoted in the point, substantially as described.

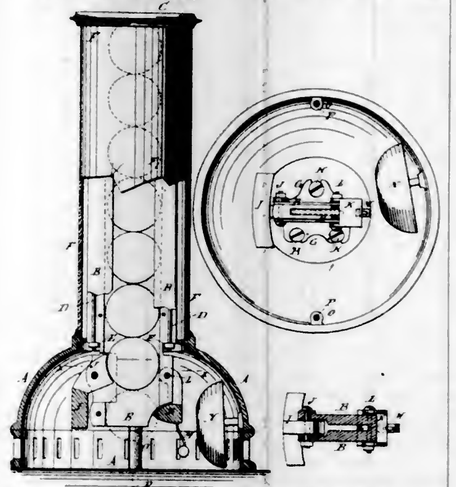
6. The lawn-tennis-net pole A, having on its lower end pivot-pins, in combination with the point B, having the flanges *b*, with bearings for the reception of the pivot-pins of the pole, and the back bar or stop, b^2, substantially as described.

7. The lawn-tennis-net pole A, having on its lower end the plate or casting *a*, provided with pins or lugs *a'*, in combination with the point B, having the flanges *b*, with bearings or slots *b'* for the reception of the pins or lugs *a'*, and the back bar or stop, b^2, substantially as described.

8. In lawn-tennis apparatus, the combination of a pole having a point pivoted to its lower end for entering the ground, a net secured to said pole, and ropes or guys, by which the pole may be turned on its point to tighten the net, substantially as described.

9. In lawn-tennis apparatus, the combination of the pole A, having pivot-pins *a'*, the separable point B having flanges *b*, with bearings for receiving the pins *a'*, whereby the pole is pivoted to the point, the net D, secured to the pole, and the block and tackle C, by which the pole is adjusted and secured to tighten and hold the net, substantially as described.

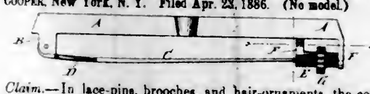
353,051. CHECK-RECEIVER. JOHN CASEY, Jersey City, N. J. Filed Sept. 25, 1885. (No model.)



Claim.—1. In a check-receiver, the combination, with the slotted lower end of the flat tube B, having open sides, of the pivoted weight I, having the inwardly-projecting end of its shank concaved, substantially as herein shown and described, whereby the checks will be discharged one at a time, as set forth.

2. In a check-receiver, the combination, with the tube and the base provided with the bell, of the pivoted weight having the inwardly-projecting end of its shank concaved and arranged in the lower end of the tube, and the additional pivoted weight, also disposed in the lower end of the tube and having the bell-hammer, substantially as and for the purpose set forth.

353,052. SAFETY-FASTENING FOR LACE-PINS, &c. CHARLES A. COOPER, New York, N. Y. Filed Apr. 23, 1886. (No model.)



Claim.—In lace-pins, brooches, and hair-ornaments, the combination, with the body A and pin C, of an externally-threaded socket, E, rigidly connected to the body by the projecting lug or lugs F, and slotted upon its inner side, and the internally-threaded nut G, adapted to be screwed along the threaded socket E, and playing between the body A and the socket, substantially as herein shown and described.

353,053. FOUNTAIN-PEN. DEWITT C. DEMAREST, Denver, Colo. Filed Apr. 20, 1886. (No model.)



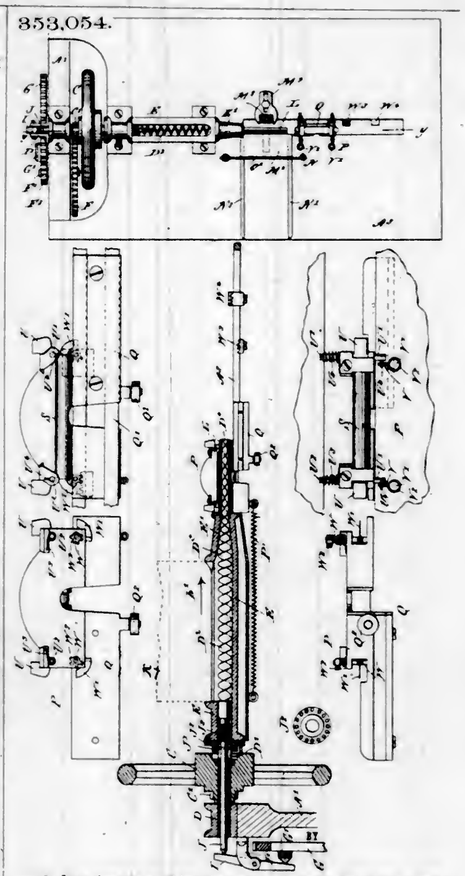
Claim.—1. In a fountain-pen, the wire feeder F, formed at its outer end with the angular bends *f f' f²*, in combination with the tube E, having the opening *e*, the said wire feeder being wholly inclosed by said tube and its bends forming retaining-bearings upon the walls of the tube at its open end, leaving the tube unobstructed throughout its length for the outflow of the ink and the inflow of the air, as shown and described.

2. In a fountain-pen, the combination of the feeding-tube, having the opening *e*, with the feeder F, of round wire, extending through said tube into the reservoir, its other end having the angular bearing-bends *f f' f²*, the latter bearing being flattened, and the bend *f'* standing within the open end of said tube, as shown, and for the purpose stated.

353,054. CIGARETTE-MACHINE. ANEROSIO DE ZAYAS Y MORENO, Matanzas, Cuba. Filed June 29, 1886. (No model.)

Claim.—1. In a cigarette-machine, a distributing, packing, and discharging screw, consisting of a cylindrical screw part which terminates at one end into a conical screw part, which again terminates into a cylindrical screw part, in combination with a split tube and a stationary shell provided with a hopper and conforming to the shape of the said screw, substantially as and for the purpose set forth.

353,054.



2. In a cigarette-machine, the combination of a distributing, packing, and discharging screw, a shell inclosing the same, and a split tube arranged to surround the end of the shell and mounted upon a reciprocating carriage, and mechanism for reciprocating said carriage, substantially as and for the purpose set forth.

3. In a cigarette-machine, the combination of a distributing, packing, and discharging screw, and a stationary shell having a hopper, with a split tube containing a wrapper and mounted on a traveling carriage, and mechanism for intermittingly operating the screw and reciprocating the carriage, substantially as shown and described.

4. In a cigarette-machine, the combination of a distributing, packing, and discharging screw, and a stationary shell having a hopper, with a split tube containing a wrapper, a carriage on which the said tube is mounted, a friction-roller attached to the said carriage, and a spiral cam operating on the said friction-roller, substantially as shown and described.

5. In a cigarette-machine, the combination of a split tube containing a wrapper and a carriage on which the said tube is mounted, and mechanism for reciprocating said carriage, with the folding device P, substantially as described, for folding the ends of the wrapper automatically, as set forth.

6. In a cigarette-machine, the combination of a split tube containing a wrapper and a carriage on which the said tube is mounted, and mechanism for reciprocating said carriage, with the folding-blocks U and the folding-blades W', operated automatically, substantially as shown and described.

7. In a cigarette-machine, the combination of the stationary tube L and the split tube S with the rolling and stamping device M, for feeding the cut wrapper between the said tubes, substantially as shown and described.

8. In a cigarette-machine, the combination of the stationary tube L and the split tube S with the segmental arm M^2 and the rubber stamp M^3, secured to the said arm M^2, substantially as shown and described.

9. In a cigarette-machine, the combination of the stationary tube L and the split tube S with the segmental arm M^2, the rubber stamp

M³, secured to the said arm M², and the adjustable ink-roller M⁶, substantially as shown and described.

10. In a cigarette-machine, the combination of the stationary tube L and the split tube S with the segmental arm M², the rubber stamp M³, and the tension device consisting of the spring M⁵, the guide M⁴, and the set-screw M⁷, substantially as shown and described.

11. In a cigarette-machine, the combination of the stationary tube L, the split tube S, and the glass plate M′ with the segmental arm M², provided with a rubber stamp M³, and the cam-shaft H, substantially as shown and described.

12. In a cigarette-machine, the combination of the stationary knife O and the pivoted knife O′ with the spring-rod O² and the crank-arm O⁶, attached to the cam-shaft H, substantially as shown and described.

13. In a cigarette-machine, the combination of the guides N′ and the glass plate M′ with the cutting mechanism N O O′ and mechanism for operating the same, substantially as shown and described.

14. In a cigarette-machine, the combination of the guides N′, the glass plate M′, and the knives O and O′ with the rod O², the tube O³, the spring O⁴, and the cam O⁵ on the said rod O², which cam is operated by the crank-arm O⁶, fastened to the cam-shaft H, substantially as shown and described.

15. In a cigarette-machine, the combination of the split tube S and the carriage Q, on which the said tube S is mounted, with the folding-block U, the folding-blades W′, and a device, substantially as described, for operating the said blocks and blades, as set forth.

16. In a cigarette-machine, the reciprocating carriage Q, having a tube, S, the folding-blocks U, the trunnions U′, and the pins U⁴ on the said trunnions U′, in combination with the spring-shafts V′, the pins V, attached to the said shafts V′, and mechanism for reciprocating the carriage, substantially as shown and described.

17. In a cigarette-machine, the reciprocating carriage Q, having a tube, S, the folding-blocks U, the trunnions U′ and U², the pins U⁴, and the spring U³, in combination with the spring-shafts V′, the pins V, and mechanism for reciprocating the carriage, substantially as shown and described.

18. In a cigarette-machine, the reciprocating carriage Q, having a tube, S, the folding-blocks U, the trunnions U′ and U², the pins U⁴, and the spring U³, in combination with the pins V, the shafts V′, the coil-springs V² on the said shafts V′, the arm V³, the stop-pins V⁴, and mechanism for reciprocating the carriage, substantially as shown and described.

19. In a cigarette-machine, the reciprocating carriage Q, having a tube, S, the shafts W, the folding-blades W′, and the pinions W², in combination with the racks W³ and W⁴ and mechanism for reciprocating the carriage, substantially as shown and described.

20. In a cigarette-machine, the reciprocating carriage having the split tube S and the spring P′, in combination with the stationary tube L, the screw part D⁴ of the shaft D, and mechanism for reciprocating the carriage, substantially as shown and described.

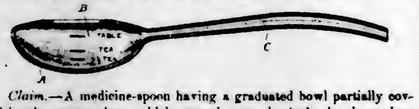
21. In a cigarette-machine, a split tube, S, the carriage Q, having the friction-roller Q², the cam R, and the spring P′, in combination with the fixed tube L and the screw part of the shaft D, substantially as shown and described.

22. In a cigarette-machine, the fly-wheel C, the clutch-plate J², spring J³, the pin J′, the shaft J, and the hollow shaft D, carrying screw D², in combination with the train of gear-wheels C′, F, F², and G, the segmental cam G′, and the lever I, substantially as shown and described.

23. In a cigarette-machine, the gear-wheel G, connected by a train of gear-wheels with the fly-wheel C, the segmental cam G′, and the cam-shaft H, in combination with the lever I, the shaft J, the clutch-plate J², spring J³ and the hollow shaft D, carrying screw D², substantially as shown and described.

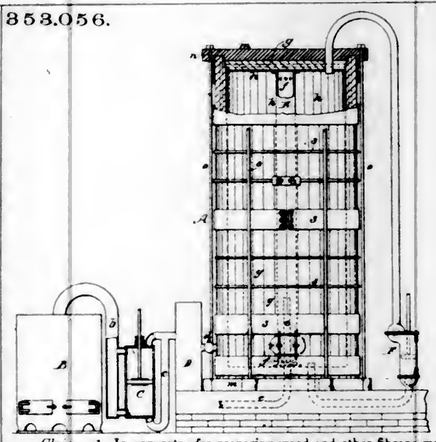
24. In a cigarette-machine, the lever I, the shaft J, the clutch-plate J², and the spring J³, in combination with the fly-wheel C and the hollow shaft D, carrying screw D², and mechanism for vibrating lever I, substantially as shown and described.

353,055. MEDICINE-SPOON. Conrod S. Dorr, Wheeling, W. Va. Filed Apr. 23, 1885. Renewed July 15, 1886. (No model.)



Claim.—A medicine-spoon having a graduated bowl partially covered by the upper edges, which extend over the body, leaving only a central opening, and provided with a hollow handle through which the medicine is administered to the patient, all made of a single piece of glass, substantially as specified.

353,056. APPARATUS FOR PREPARING WOOD AND OTHER FIBROUS MATERIAL FOR CONVERSION INTO PULP. Franklin B. Erwin, Elkhart, Ind. Filed Mar. 11, 1886. (No model.)



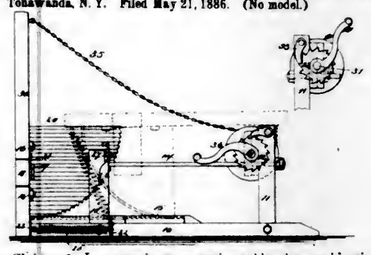
Claim.—1. In apparatus for preparing wood and other fibrous material for conversion into pulp, the combination, with the boiler or digester, of a furnace for producing sulphur-fumes, a pump for drawing said fumes from the furnace and forcing them into the digester, a receiver for said fumes interposed between the pump and the digester, and means for producing a circulation therein, essentially as described.

2. The combination, with the digester A, of the steam-pipe e, and perforated tube or pipe E, the furnace B, the pump C, and the receiver D, substantially as and for the purpose herein set forth.

3. The digester A, constructed of staves *g*, lead facings *h*, applied to said staves and bent to enter within the joints of the same, and lead tongues *k*, arranged to engage with the sides of the staves, substantially as described.

4. The combination, with the staves *g*, composing the body of the digester, of the tightening-bolts *l*, inclosed within the staves and arranged to pass laterally through them, essentially as shown and described.

353,057. VETERINARY OPERATING-TABLE. Mathew L. Fading, Tonawanda, N. Y. Filed May 21, 1886. (No model.)

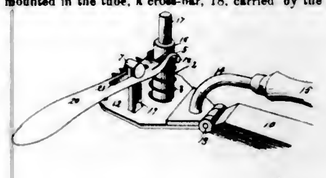


Claim.—1. In a veterinary operating-table, the combination, with a main supporting-frame provided with racks, of a table-leaf provided with toothed quadrants engaging with said racks, and an operating mechanism, substantially as described.

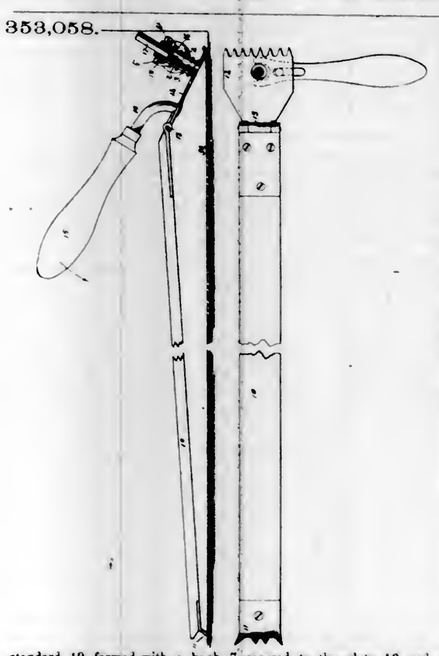
2. In a veterinary operating-table, the combination, with a supporting stand or frame provided with toothed racks, of a table-leaf provided with toothed quadrants engaging with said racks, springs 25, connecting the table and the stand or frame, chains 35, secured to the table-leaf and to drums 34, said drums, their shaft, ratchet-wheels carried by said shaft, their engaging-pawls, and a crank arm or arms, substantially as described.

353,058. CARPET-STRETCHER. Charles R. Gingley, West Chester, Pa. Filed Sept. 1, 1886. (No model.)

Claim.—In a carpet-stretcher, the combination, with a bar, 10, carrying a claw-iron, 11, of a claw-plate, 12, hinged to the bar, a lever carried by the claw-plate, a slotted tube connected thereto, a magnetized plunger mounted in the tube, a cross-bar, 18, carried by the plunger, a

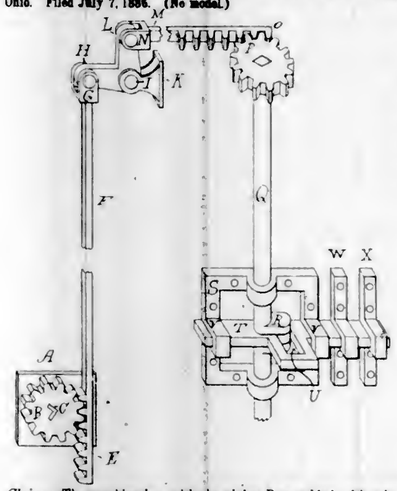


353,058.



standard, 19, formed with a knob, 7, secured to the plate 12, and a slotted lever, 20, formed with hooks 5, said lever being mounted on the standard 19, and arranged so that its hooks 5 will engage with the cross-bar 18, substantially as described.

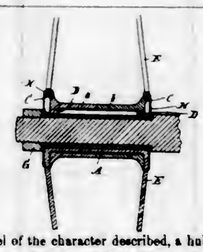
353,059. BOLT FOR PRISON-DOORS. Francis O. Hanson, Kenton, Ohio. Filed July 7, 1886. (No model.)



Claim.—The combination, with the pinion B, provided with a key-hole, C, of lever F, having rack E thereon, the pivoted elbow-lever H L, rod M, provided with rack O, pinion P, shaft Q, having eccentric R thereon, and bolt T, adapted to be operated by said eccentric, substantially as shown and described.

353,060. WHEEL. Frank H. Harris, Toledo, Ohio. Filed Apr. 8, 1886. (No model.)

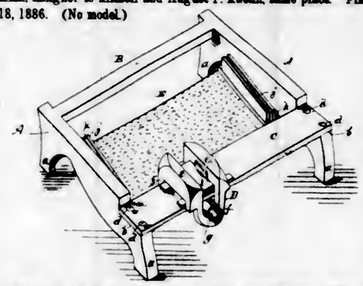
Claim.—1. A wheel consisting of a thimble inclosed within a hub, openings between such thimble and hub diagonally opposite each other in the longitudinal direction of the axle, and spokes passing through such openings with their outer ends secured to a rim, substantially as described.



2. In a wheel of the character described, a hub provided with outwardly-projecting notched flange, C, and inwardly-projecting lugs, D, substantially as and for the purposes specified.

3. The combination, with the hub B, provided with notched flange C and lugs D, diagonally opposite each other in the longitudinal direction of the hub of the spokes, each pair formed of a single rod, and inserted in the openings between said lugs, substantially as described.

353,061. PENCIL-SHARPENER. Thomas A. Henderson, Natchez, Miss., assignor to himself and August P. Koehn, same place. Filed June 18, 1886. (No model.)

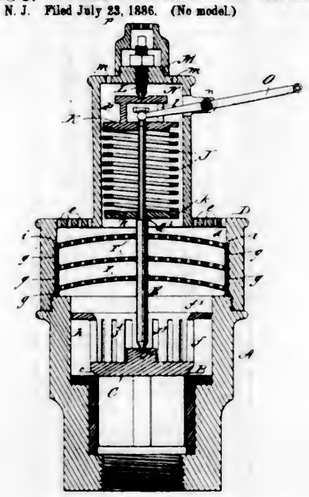


Claim.—1. In a pencil-sharpener, the combination, with a sliding and rotating pencil-holder, of a spring-supported plate provided with an abrasive surface, substantially as shown and described.

2. In a pencil-sharpener, the combination of the sliding carriage D, the rubber-covered sleeve *g*, journaled in the carriage, the bar C, arranged to support and guide the carriage and to contact with the rubber-covered sleeve, and the spring-supported board E, provided with an abrasive surface, substantially as herein shown and described.

3. In a pencil-sharpener, the combination of the frame formed of end pieces, A, and the longitudinal bar B, and provided with inclined grooved cleats *j*, the board E, having an abrasive surface, the elastic bands *k*, extending around the cleats and around the ends of the board E, the corrugated bar C, the carriage D, placed on the bar and provided with the spring *i*, and the sleeve *g*, journaled in the carriage D and having the rubber covering *h*, substantially as described.

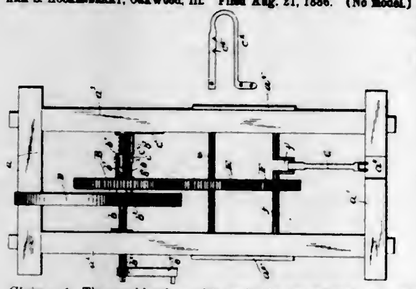
353,062. MUFFLER FOR STEAM-VALVES. Thomas E. Hill, Rahway, N. J. Filed July 23, 1886. (No model.)



Claim.—1. The valve C, formed with the upwardly-projecting flange *f*, having many slots, f^3, formed in it, and the horizontal flange *f'*, formed at the upper edge of the vertical flange *f*, in combination with the valve-seat B, casing A, and perforated plates F, substantially as and for the purposes set forth.

2. The valve C, formed with the slotted flange *f* and horizontal annular flange *f'*, in combination with the perforated plates F, held in a casing formed with the perforations *e*, substantially as described.

353,063. **MOTOR FOR PUMPS.** JOHN A. HOCKENBERRY and ABRAHAM S. HOCKENBERRY, Oakwood, Ill. Filed Aug. 21, 1886. (No model.)



Claim.—1. The combination, with a suitable supporting-frame, and a shaft, *b*, journaled therein, of a gear-wheel, B, mounted loosely upon said shaft and carrying a spring-pawl, b^4, and a power-spring, D, secured at one end to the shaft and at its opposite end to the said frame, of a fixed clutch-section set rigidly upon the shaft and having ratchet-teeth for said pawl, a fixed collar confining the said wheel against said ratchet-section, a movable clutch-section, and an operating-lever therefor, substantially as described.

2. The combination, with the frame *a a' a^3 a^3*, the shafts *e f*, carrying gear-wheels E F, and the pitman G, journaled in crank-section *f'* of said shaft *f*, of the shaft *b*, carrying gear-wheel B, with its pawl b^4, and spring b^5, the collar b', fixed clutch-section b^2, with its ratchet-teeth b^3, the sliding clutch-section b^2, spring b^7, and power-spring D, the lever *c*, having spring c^3 and plate c^4, the hanger c', and loop c^2, having notches c^5, substantially as set forth.

353,064. **BUTTON-HOLE MARKER.** ANNA HUFFER, Cowden, Ill. Filed July 13, 1886. (No model.)

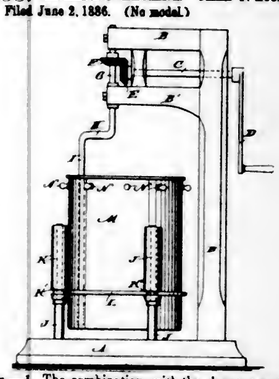


Claim.—1. A button-hole marker consisting of a main body, A, provided with a scale, and having regularly-spaced slots *a*, which align with the division-marks of the scale, and of a guide-plate, D, held to slide transversely on the body A, substantially as shown and described.

2. A button-hole marker consisting of a body, A, having upturned ends C, and stops C', and provided with a series of slots cut therein at regular intervals, and a scale extending its entire length along one edge, together with a guide-plate, D, adapted to slide in ways formed by said upturned ends C, substantially in the manner and for the purpose herein set forth.

3. In a button-hole marker, the combination, with the slotted body A, having upturned ends C and stops C', and provided with a sliding guide-plate, D, of the U-shaped metal plate B, provided with a scale upon its face adapted to be rigidly secured to one edge of the said body A, the lines thereon designating the half-inch and inch, alternately centering the slots cut in said body, substantially as shown and described, and for the purpose herein set forth.

353,065. **KNEADING-MACHINE.** JAMES F. HUGHES, Georgetown, Tex. Filed June 2, 1886. (No model.)

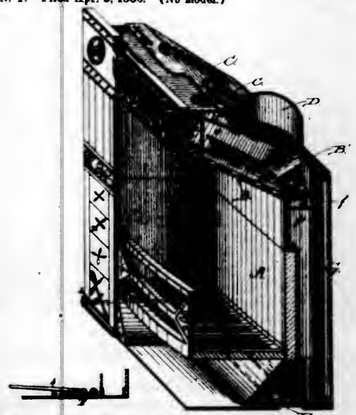


Claim.—1. The combination, with the elevated upright rollers having grooves near their lower ends, of the tray or receptacle having the surrounding ring or track entering the said grooves of said rollers and supporting said tray in an elevated position, substantially as and for the purpose set forth.

2. The combination, with the elevated upright rollers having near their lower ends grooves, of the tray or receptacle having the ring or track entering the grooves of said rollers, said tray or receptacle being disposed in an elevated position and having a series of handles at its upper end, substantially as and for the purpose specified.

3. In a kneading-machine, the posts or rods J, secured to the platform A, the rollers K, mounted to revolve on the rods J, and having the grooves K', and the tray or receptacle M, provided with the ring L, in combination with the vertical rod I, attached to the angular arm H, secured to the vertical shaft G, the bevel gear-wheel F, mounted on the shaft G, the bevel gear-wheel E, meshing into the gear-wheel F, the shaft C, carrying the gear-wheel E, and the crank-arm D, secured to the shaft C, substantially as shown and described.

353,066. **VENTILATING-GRATE.** EDWIN A. JACKSON, New York, N. Y. Filed Apr. 3, 1886. (No model.)

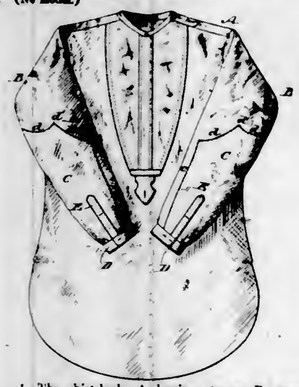


Claim.—1. In a heating apparatus, the combination, with the inner casing having a grate, of the outer casing forming with said inner casing an air-flue, the top plates, B B', the deflectors F F', and the ribs *c*, located between the top plates and the smoke-flues for the products of combustion, extending from the interior of the inner casing through the chamber between the top plates on either side of the deflector F, as set forth.

2. In a heating apparatus, the combination, with the top plates, the deflectors F F', and the ribs *c*, of the inner and outer casing forming an air-flue, as shown and described.

3. In a heating apparatus, the combination, with the inner and outer casing forming an air-flue, of the top plate having a series of openings, the smoke-flues, the plate B, ribs *c*, and the deflectors F F', the former of which rests upon ribs *c* upon the lower plate, B, between two smoke-flues, as shown and described.

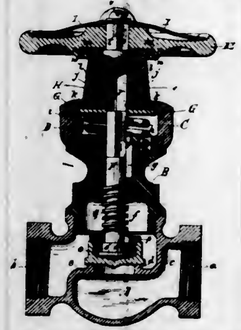
353,067. **SHIRT.** FERDINAND JACOBY, New York, N. Y. Filed July 22, 1886. (No model.)



Claim.—1. The shirt-body A, having sleeves B, provided with re-enforcing pieces C, formed with straight edges *a*, bound in with the wristbands, and formed with the placket-slits *b*, the edges of which are secured to the edges of the placket E, the side edges, *c*, and upper end of the re-enforcing pieces being stitched to the body of the sleeves, substantially as described.

2. The shirt-body A, having sleeves B, provided with re-enforcing pieces C, formed with straight edge *a*, placket-slit *b*, and side edges, *c*, and cut on the bias at the upper edges, substantially as described.

353,068. **VALVE.** JOSEPH JANOTTE, Worcester, Mass., assignor of one-half to Tancsaint Tetreault, same place. Filed Sept. 10, 1886. (No model.)



Claim.—1. The combination, with the valve-neck made in two parts, B and C, the part C having a conical opening at its upper end and an enlarged chamber at its lower end for the reception of a spiral spring, G, and said spring G, of the valve-stem made in three parts, the threaded part F, provided with a valve at its lower end, the part H, of conical shape, attached to the hand-wheel and held up within its seat in the valve-neck C by a spring, I, extending over the hand-wheel, and the collar G, interposed between the part F and the conical part H, for the purpose stated, all constructed and arranged substantially as set forth.

2. The combination, with the valve-neck C, having a conical opening in its upper part, and shoulders *k k*, extending from the lower end of said opening, said opening and shoulders being lined with Babbitt metal, of the conical part H of the valve-stem and spring I, extending over the upper part of the hand-wheel E, and secured upon the upper end of the part H, for the purpose of supporting the same within its seat and allowing it to turn freely therein, substantially as set forth.

353,069. **MILK-JAR.** EDWIN Y. JUDD, Hartford, Conn. Filed Sept. 8, 1886. (No model.)



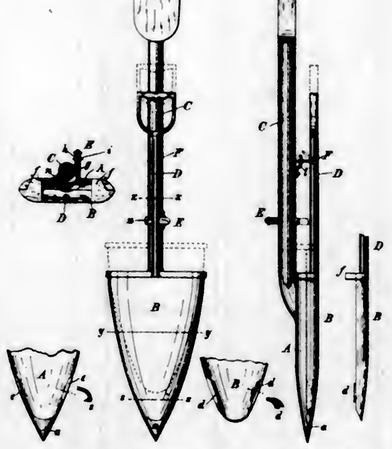
Claim.—1. A milk-jar provided with cam-slots, a stopper, a yoke attached thereto, and entering the slots, a ring fitting over the neck of the jar and having the yoke connected with it, and means located above and engaged by the ring for temporarily supporting the same in an elevated position, permitting the stopper to clear the neck of the jar in being swung away from or over the same, substantially as set forth.

2. A milk-jar provided with cam-slots and a cam-face, a stopper, a yoke attached thereto and entering the slots, and a ring fitting over the neck of the jar, and having the arms of the yoke connected with it, and engaging when elevated with the cam-face of the jar, substantially as set forth.

3. A milk-jar provided with cam-slots, and with a cam-face encircling its neck, larger in diameter at its upper than at its lower edge, and located above the said slots, a stopper, a yoke attached to the same and entering the slots, and a ring fitting over the neck of the jar and having the yoke connected with it, and engaging when lifted with the said cam-face of the jar, substantially as set forth.

4. A milk-jar provided with two cam-slots, respectively located on opposite sides of its neck, with two vertical slots respectively leading into the upper ends of such cam-slots, and with a cam-face located above the cam-slots, a stopper, a yoke carrying the stopper and having the lower ends of its arms bent to enter the slots in the jar, and a ring fitting over the neck of the jar and connected with the arms of the yoke in position to engage with the cam-face of the jar, substantially as set forth.

353,070. **TREE-PLANTER.** JULIUS J. KEMPE and FREDERIK J. HEINOLD, Rochester, N. Y. Filed July 10, 1886. (No model.)



Claim.—1. The combination, in a tree-planter, of the detachable recessed blades A and B, provided with handles C and D, a suitable hook, F, for detachably securing the handles together, and means for detachably connecting the blades to each other at or near their points, substantially as described.

2. The combination, with the main blade A and guard-blade B, having incurved and opposing edges, of the lugs *d* and *e*, substantially as described.

3. The combination, with the main blade A and guard-blade B,

having incurved and opposing edges, of the lugs *d* and *e* and the guides *f*, substantially as described.

4. The combination, with the main blade A and guard-blade B, having incurved and opposing edges, of the lugs *d* and *e*, handles C and D, and a suitable hook, F, for securing the handles together, substantially as described.

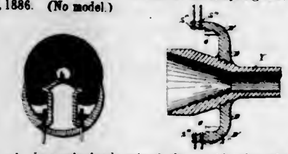
5. The combination, with the main blade A and the guard-blade B, having incurved and opposing edges, of the handles C and D, and clamp E, substantially as described.

6. The combination, with the main blade A and the guard-blade B, having incurved and opposing edges, of the handles C and D hook F, and clamp E, substantially as described.

7. The combination, in a tree-planter, of the detachable recessed blades A and B, provided with handles C and D, a suitable hook, F, for detachably securing the handles together, and suitable lugs or hooks attached to the blades and arranged to permit the entire separation of the blades from each other, substantially as described.

8. The combination, with the main blade A, having solid point *a*, of the guard-blade B, removably secured to said main blade, substantially as described.

353,071. VELOCIPEDE. HOMER A. KING, Springfield, Mass. Filed July 17, 1886. (No model.)

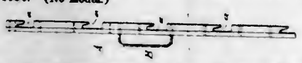


Claim.—1. In a velocipede-wheel, the combination of the horizontal or nearly horizontal spoke and ratchet annular D' at each end of a wheel-hub, with two rows of holes in each annular, through which straight or nearly straight spokes may be inserted on a tangent, or nearly on a tangent, and with the threaded outer ends secured to the felly-rim and the headed inner ends held in the annulars, and with the ratchets in the spoke and ratchet annulars nearer together than the holes for the spokes, the spokes being inserted, tightened, or removed without removing either ratchet or the rubber tire.

2. In a velocipede-wheel, the combination of a ratchet-rim and a horizontal or nearly horizontal spoke and ratchet annular at each end of the hub, and each annular pierced with two rows of holes for spokes, the ratchet-rims being between the holes on one annular and the holes on the other annular, and removable without removing the spokes, essentially as set forth.

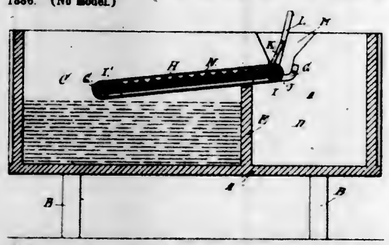
3. The combination of a centrally-elevated hollow felly-rim and a rubber tire constructed with the opening *b* between the centrally-elevated part of the felly-rim and the rubber tire, which fits the central elevation on each side of the opening *b*, the opening giving greater elasticity to the rubber tire outside of the central elevation of the felly-rim.

353,072. FENCE-CLAMP. WILLIAM H. KIRBY, Warsaw, Ky. Filed July 27, 1886. (No model.)



Claim.—A fence-clamp formed of the bar A, provided with angled notches *a*, and having the handle B and the tightening-chains C, substantially as shown and described.

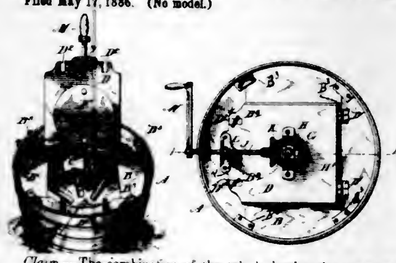
353,073. WASHING-MACHINE. JOSEPH LA RIVER, Haywards, Cal., assignor of one-fourth to Bonifacius Haas, same place. Filed Mar. 2, 1886. (No model.)



Claim.—1. In a washing-machine, the combination of a tub or box divided into two compartments, an inclined fluted scrubbing-board, an endless apron surrounding said scrubbing-board and mounted upon rollers at the ends thereof, and a ratchet-wheel and pawl with an operating-lever secured to one of said rollers for moving said apron, all constructed, arranged, and operating substantially in the manner as herein set forth and specified.

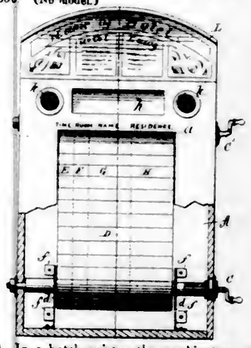
2. In a washing-machine, the combination of a tub or box, an inclined scrubbing-board, an endless apron surrounding the same and mounted upon rolls I I', placed at the ends of said scrubbing-board, the double lugs G, adapted to hold the scrubbing-board and rollers in their relative positions, the ratchet and pawl for moving the apron, and the hand-rubber, substantially as described and shown.

353,074. WASHING-MACHINE. ISAAC H. LAUBACH, Pan Argyl, Pa. Filed May 17, 1886. (No model.)



Claim.—The combination of the tub A, having the cover-sections B, secured as at B^3, one of said sections being provided with cleats D^{2*}, projecting therefrom, the lid D, hinged to one of said sections and projected as at X, and recessed as at D^2, to receive the cleats D^{2*}, with the standard L, mounted on the projecting end X, and carrying a shaft, J, provided with a crank, M, at its outer end and a pinion or gear, K, at its opposite end, and with the agitator-rod E, having the gear G, journaled in the lid, and the bridge-piece H, extended as at I, to form a journal, I', for the shaft J, substantially as specified.

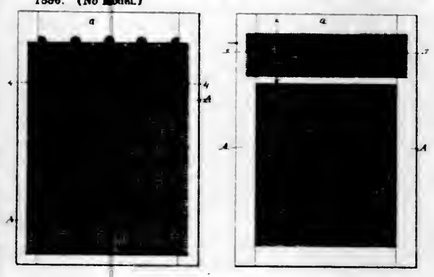
353,075. HOTEL-REGISTER. JAS. W. LEASURE, Bradford, Pa. Filed Jan. 23, 1886. (No model.)



Claim.—1. In a hotel-register, the combination, with the case A, of the rollers B B', journaled in the case, and the shields *d*, secured within the case and having openings *e* for the reception of the rollers, substantially as herein shown and described.

2. The herein-described hotel-register, consisting of the pivoted case A, having the slots *a a'* in its top and provided with the recess *h*, the ink-wells *k*, and the inclined panel *l*, the rollers B B', journaled in the case behind the openings *a a'*, the shields *d*, secured in the case at each end of the rollers and having openings *e* for the reception of the same, and the strip of paper D, secured to the rollers and passing through the slots and over the top of the case, as specified.

353,076. FLY-TRAP. JAMES W. LEVY, Clinton, Mo. Filed July 2, 1886. (No model.)

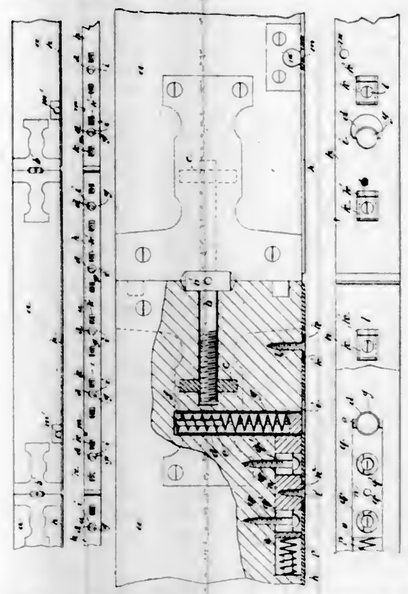


Claim.—1. A fly-trap attachment for window-screens, consisting of the parallel strips arranged out of contact with each other and provided with projections on their opposing edges, which alternate with each other to form a channel substantially zigzag in form, and the screens partially covering the said strips on opposite sides and forming the inlet and outlet openings, substantially as described.

2. A fly-trap attachment for window-screens, consisting of the upper and lower strips arranged parallel and out of contact with each other and provided with projections on their opposing edges, which alternate with each other to form a channel substantially zigzag in form, the projections *d* on the upper edge of the lower strip being of greater thickness than the strip itself and extended beyond one of the vertical faces of the strip, and the screens partially covering the strips on opposite sides and forming the inlet and outlet openings, substantially as described, for the purpose set forth.

3. The combination of a frame having the upper cross-piece, *a*, provided with the V-shaped projections *c* and the intermediate recesses *c'*, the lower cross-piece, *a'*, having the V-shaped projections *d*, which alternate with the corresponding projections, *c*, on the strip *a*, and the lateral extensions *d'*, arranged as described, the inner screen, *g*, covering the said cross-pieces on one side, and the screen B, partially covering the cross-pieces on their opposite sides, substantially as described, for the purpose set forth.

353,077. OUTLINING-TOOL. ROBERT A. MACKENZIE, New York, N. Y. Filed June 10, 1886. (No model.)



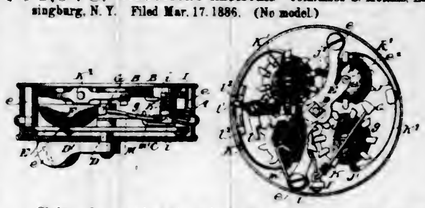
Claim.—1. As a new and improved article of manufacture, an outlining-tool provided with numerous spring-actuated plungers held in chambers formed in the body of the tool, and provided also with a sliding plate arranged for retaining a series of plungers and for simultaneously releasing a series of them, substantially as and for the purposes set forth.

2. The sections *a*, formed with numerous chambers, *d*, in combination with the springs *e*, plungers *g*, and the apertured sliding plate *h*, held at the edge of the section and arranged to release all of the plungers simultaneously, substantially as and for the purposes set forth.

3. The sections *a*, formed with chambers *d* at right angles with the chambers *d*, in combination with the plungers *g* and springs *e*, placed in the chambers *d*, for forcing the plungers outward, and the sliding plate *h*, arranged to retain the plungers, substantially as described.

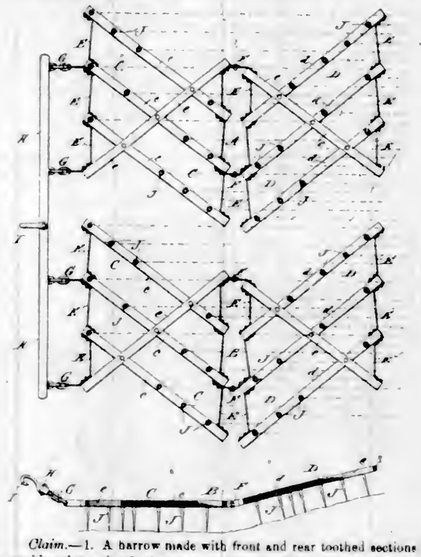
4. The several sections *a*, provided with means for connecting them together end to end, in combination with the sliding plates *h* at the edges of the sections, and having apertures *i*, the spring-actuated plungers *g*, placed in the chambers *d*, and the spring-actuated friction-blocks *n*, arranged to press against the plungers *g*, substantially as and for the purpose set forth.

353,078. CONDUCTOR'S REGISTER. CORNELIUS S. MORRIS, Lansingburg, N. Y. Filed Mar. 17, 1886. (No model.)



Claim.—In a conductor's register, the combination, with the unit-wheel and bell, of a central shaft, D, having two fast arms, L M, of which the arm L carries the pawl *l* and extension *l'*, the casing provided with the stops l^2 l^3, the spring *m'*, the hammer G, having the helve *g*, passing through eyes of post I and between the cogs of wheel J, and the spring K, as and for the purpose described.

353,079. HARROW. JAMES G. OWEN, Covello, Wash. Filed Aug. 18, 1886. (No model.)



Claim.—1. A harrow made with front and rear toothed sections or parts hinged together for free movement vertically, and the tooth-holding bars of the front and rear sections arranged diagonally or converged horizontally toward the longitudinal center or hinge-joint of the harrow, substantially as shown and described.

2. The combination, in a harrow, of front and rear toothed sections or parts hinged together for free movement vertically, and the tooth-holding bars of the front and rear sections arranged diagonally or converged horizontally toward the longitudinal center or hinge-joint of the harrow, and flexible or jointed connections from the front section to a draft-beam or device, substantially as shown and described.

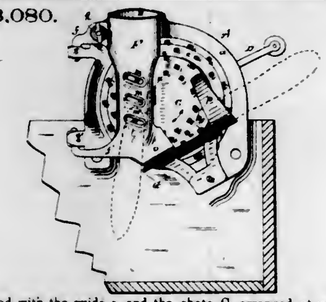
3. The combination, in a harrow, of front and rear sections, C D, formed, respectively, of bars *c d*, provided with teeth J, brace-bars *s*, and braces E, and said sections C D hinged together at F F, and the bars *c d* of said sections arranged diagonally or converged horizontally toward the longitudinal center or hinge-joint of the harrow, and flexible or jointed connections from the front section, C, to a draft beam or device, substantially as described, for the purposes set forth.

4. A harrow made in two double sections, connected by flexible couplings, as at G, to a draft beam or device, as at H, and each of said double sections comprising independent front and rear sections, C D, formed, respectively, with braced bars *c d*, provided with teeth J and hinged together at F F, and said bars *c d* of sections C D arranged to converge horizontally toward the longitudinal center or hinge-joint of the harrow, substantially as described, for the purposes set forth.

353,080. CORN-SHELLER. ASAHEL H. PATCH, Clarksville, Texas. Filed May 1, 1886. (No model.)

Claim.—1. The combination, in a corn-sheller, of the toothed offset and bevel-edged wheel C, spring-pressed shell F, provided with spiral

353,080.

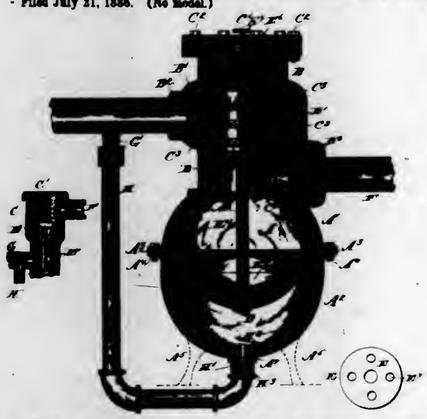


ribs and with the guide *o*, and the chute G, arranged at an angle with the shell F, and having the finger *p*, substantially as herein shown and described.

2. In a corn-sheller, the combination of the frame A, formed of the yoke *a*, and cross-bar *b*, carrying the sleeve *c*, the offset and bevel-edged toothed wheel C, the shell F, having spiral ribs *l*, openings *m*, and the guide *o*, and the inclined chute G, having the finger *p*, substantially as herein shown and described.

3. The combination, with the toothed wheel C and frame A, provided with perforated ears, of the shell F, provided with pivot-arms *f f'*, the bolt *h*, projecting from the frame and provided with the wing-nut *i*, and the spring *k*, placed between the wing-nut and the arm *f*, substantially as herein shown and described.

353,081. PRESSURE-REGULATOR. WILLIAM S. PATTERSON, Allegheny City, Pa., assignor of one-fourth to George W. Bishop, same place. Filed July 21, 1886. (No model.)



Claim.—1. A regulator for the purposes described, comprising a flexible governing-chamber and its support, a valve-stem bearing upon said chamber and connected to a piston, the bushing for which is provided with ports communicating with inlet and outlet pipes, and a branch pipe connecting the outlet-pipe with the flexible chamber, substantially as specified.

2. In combination with a regulator of the class described, a valve comprising an outer cylinder provided with inlet and outlet ports or openings and an annular chamber, and an inner bushing or lining provided with ports registering with said annular chamber, and a valve adapted to cover said ports, substantially as specified.

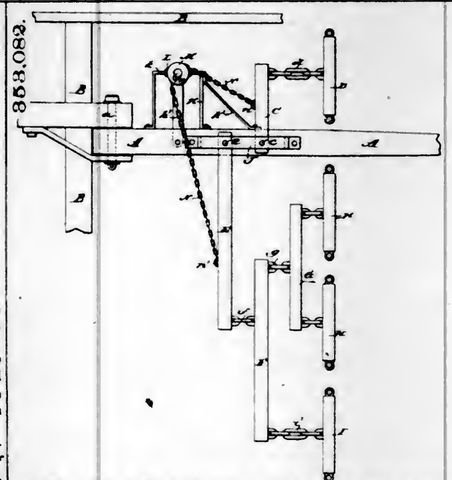
3. A casing for governors of the class described, comprising a governor-receptacle, a cylinder mounted thereon and provided with an annular chamber having openings, in combination with a bushing or lining apertured to register with said chamber and one of said openings, substantially as specified.

4. The combination of the chambers A and D, the cylinder B, having chamber B' and openings B^2 B^3, the diaphragm A^4, pipes F, G, and H, hollow bolt H', stem E', piston E, and plate E^2, substantially as and for the purpose set forth.

5. The combination of the chambers A and D, with hollow bolt H', having flange H^3, and with the nut H^4, substantially as specified.

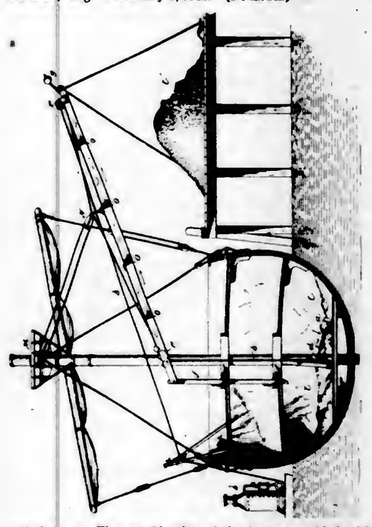
353,082. DRAFT-EQUALIZER. JOHN L. POWLEN, Goodland, Ind. Filed Aug. 31, 1886. (No model.)

Claim.—In a draft-equalizer, the combination, with a pole, A, of levers C E, adapted to receive draft attachments, a frame, K, fixed to



the pole, a yoke, L, fitted adjustably on the frame K, a roller, M, journaled to said yoke, and a chain or rope, N, passed over the roller and connected at opposite ends to the levers C E, to give proportionate leverage, substantially as described, for the purposes set forth.

353,083. MEANS FOR DISCHARGING CARGOES. JAMES REID, Portland, Oreg. Filed May 8, 1886. (No model.)



Claim.—1. The combination of the boom provided with a way having a depression, a carrier adapted to travel on said way, and having supporting-wheels, one of which is designed to enter said depression and prevent the movement of the carrier, and a rope guided by said carrier, and having a stop, *y'*, to contact with said carrier and elevate the wheel thereof out of the depression, substantially as set forth.

2. The combination of the boom, carrier adapted to travel thereon, rope guided by said carrier, hook *u*, dumping devices connected therewith, and means, substantially as described, for disengaging the bucket-dumping devices from the hook, substantially as set forth.

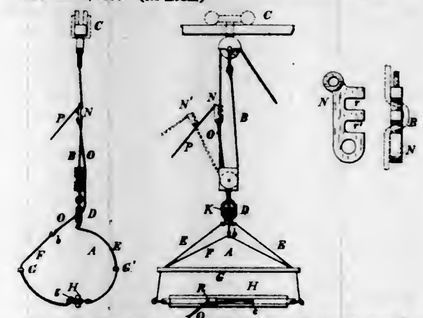
3. The combination of the boom, carrier adapted to travel thereon, rope guided by said carrier, a bucket-suspending hook connected to said rope, a hook, *u*, having a spring-play relative to said bucket-hook, a bucket having a pivoted bottom, and a rod, *t*, connecting said bottom and hook *u*, an enlargement and spring, and a shipper for depressing the hook *u*, to release the rod *t*, substantially as set forth.

4. The combination, with the boom and carrier adapted to travel thereon, of a rope guided by said carrier, and a snatch-block having a

hinged section carrying a pulley, and a bolt, *s*, for securing said section, substantially as set forth.

5. The combination of the bucket provided with the hinged bottom, the pivoted rod *t*, the spring-hook *u*, the rope, the carrier, the ways, and the shipper, substantially as described.

353,084. HAY-SLING. WENTWORTH G. REKER, Rochester, N. Y. Filed Mar. 9, 1886. (No model.)



Claim.—1. The combination, with the bar H, having rope E attached thereto and provided at its ends with the hooks *i i'*, of the sliding rods *e e'*, lever *c*, and the rope F, having enlarged ends, substantially as described.

2. The combination, with the bar H, having rope E attached thereto and provided at its ends with the hooks *i i'*, of the sliding rod *e e'*, lever *c*, the rope F, having enlarged ends, cord Q, and cord-guide R, substantially as described.

3. The combination, with the binding-rope of a hay-sling, of the detachable notched clamp N, substantially as described.

4. The detachable clamp N, provided with the notches *r r'*, adapted to receive and grip the rope to which it is applied, substantially as described.

5. The combination, with a hay-sling of the binding-rope O, clamp N, and means for elevating the load placed in the sling, substantially as described.

6. The combination, with the hay-sling A, of the binding-rope O, provided with a suitable rope-clamp and the binding device D, substantially as described.

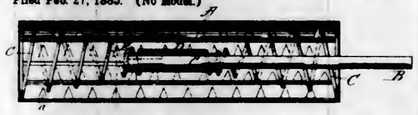
7. The combination, with the ropes of a hay-sling, of the ring or hook I, frame J, and clamp or pulley K, substantially as described.

8. The combination, with the ropes of a hay-sling, of the ring or hook I, frame J, provided with a double hook, *a a'*, and clamp or pulley K, substantially as described.

9. The combination, with a separable hay-sling consisting of the ropes E and F, bar H, provided with suitable locking mechanism, and binding-rope O, of a detachable clamp, N, and the binding device D, substantially as described.

10. The combination, with a hay-sling, of the binding-rope O, provided with hook *b*, detachable rope-clamp N, and the binding device D, substantially as described.

353,085. COTTON-PICKER STEM. WILLIAM G. SEARS, Chattanooga, Tenn., assignor of one-half to Hiram Sanborn Chamberlain, same place. Filed Feb. 27, 1885. (No model.)



Claim.—1. In a cotton-picker stem, the combination of a central supporting-rod, an external sheet-metal cylinder, and two spiral springs connecting said cylinder to said rod, whereby the stem is rendered flexible, substantially as and for the purpose described.

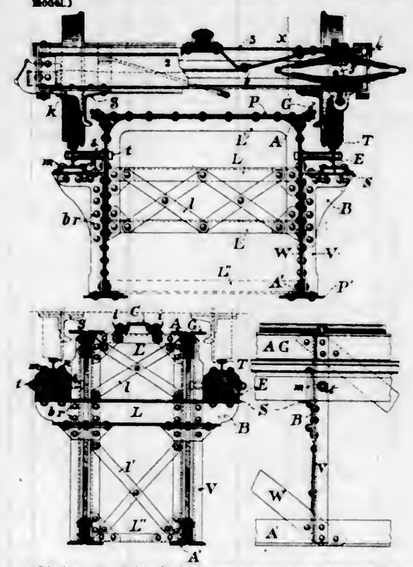
2. In a cotton-picker stem, the combination of a central supporting-rod, a ferrule provided interiorly with flattened projecting faces engaging the flattened end of said rod, an outer casing and intermediate spiral springs secured to said central rod and to said outer casing, substantially as and for the purpose described.

3. In a flexible cotton-picker stem, the combination of a toothed sheet-metal cylinder, A, internal springs C, ferrule D, and supporting-rod B, substantially as shown and described.

4. The combination, in a cotton-picker stem, of a toothed cylinder, internal coiled springs, and supporting-rod, as shown and described.

5. The combination, with a supporting-shank, of a picker-stem having picking-teeth upon its exterior and provided within its body with a yielding connection with its supporting-shank, substantially as described.

353,086. ELEVATED-RAILWAY SUPERSTRUCTURE AND CAR-TRUCK. EDWARD S. SHAW, Cambridge, Mass. Filed Jan. 20, 1886. (No model.)



Claim.—1. A longitudinal superstructure or permanent way for an elevated railway consisting of a double girder, or of a pair of connected girders or trusses, placed between two track-rails and supporting the track-rails in proximity to the upper and outer corners of the girders by means of cantilevers or brackets attached to and projecting transversely from the web or web members of the girders or trusses, the position and relation of the principal parts of the structure being substantially as herein shown and described.

2. In combination with the longitudinal girder or girders of an elevated-railway superstructure, cantilevers or brackets attached to and projecting transversely from the web or web members of the girder or girders, each bracket consisting of an upper horizontal member or shelf, S, receiving a longitudinal track stringer or rail, and a lower vertical or inclined member, strut, or brace, B, re-enforcing the upper member or shelf, S, the position of the brackets with reference to the girders and rails being substantially as herein shown and described.

3. In combination with the longitudinal girders A V W A' and transverse brackets S B, of an elevated-railway superstructure, the transverse or lateral connections and internal bracing L L' L'' *l* uniting the girders and brackets, substantially as and for the purposes set forth.

4. In combination with a pair of flanged plates or guards attached to the transverse beams of a car or locomotive truck, a pair of longitudinal guard-rails, G, situated between and above the inner and upper corners of the track-rails and attached to the longitudinal girders, each guard-rail being provided with a flange projecting outwardly in proximity to and above the inwardly-projecting lower flange of the truck-guard *g*, substantially as shown and described.

5. In an elevated-railway superstructure, the combination of longitudinal girders A V W A', transverse cantilevers or brackets S B, track-rails T, elastic blocks or stringers E, lateral bracing L L' L'' *l*, guard-rails G, and connections *m n s t b r*, &c., substantially as and for the purposes set forth.

6. In a truck for an elevated-railway superstructure as herein described, the combination of the wheels 1, principal transverse beams or transoms 2, bolster 3, side frames, 4, spring-hangers 5, spring-tie 6, and flanged guard *g*, arranged substantially as set forth, and for the purpose specified.

7. In combination with stationary longitudinal guard-rails situated between and above the level of the track-rails and attached to the longitudinal girders of an elevated-railway superstructure, a pair of truck-guards, each consisting of a flanged plate or shape of iron or steel attached, as described, to the transverse beams or frames of a car or locomotive truck, so as to move longitudinally with the motion of the truck in proximity to but not ordinarily in contact with the guard-rail on the structure, substantially as set forth.

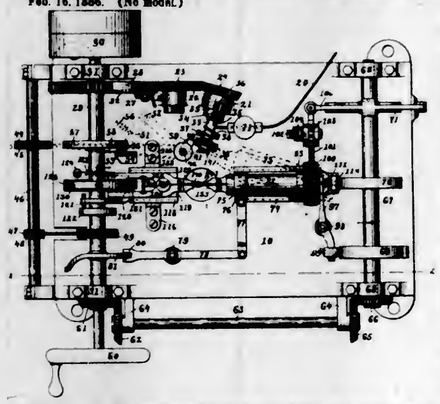
8. The combination of the flanged truck-guard *g*, knees or braces *k*, and transoms of the trucks 2, substantially as set forth.

9. The combination, substantially as and for the purposes set forth,

with the transoms of the trucks 2, of the truck-guard *g*, knees or braces *k*, stop or catch c, and bolts passing through spring-washers *b z*.

10. In a turn-out or crossing of elevated-railway tracks carried upon the superstructure herein described, the combination, with the supporting-girders, transverse brackets, and lateral connections, of the main track-rails T, turnout or crossing rails T', guard-rails G, and standards or braces u, supporting the guard-rails, substantially as shown, and for the purposes set forth.

353,087. CHAIN-MAKING MACHINE. JOHN E. SHERMAN, North Attleborough, assignor to Engley Wetherell & Co., Chartley, Mass. Filed Feb. 16, 1886. (No model.)



Claim.—1. In combination, a two-part clamp, said parts placed flatly together and each provided with a corresponding groove on their meeting faces, said grooves registering to form a guideway, a support provided with a socket for said clamp, a spring-acted presser engaging one of said parts, and a tension device engaging said presser, whereby a wire set in said guideway may receive a constant spring-pressure.

2. In combination, a support provided with a transverse socket, a two-part clamp set through said socket and consisting of two similar semi-cylindrical members, each having a rectilinear groove on the flat face in the central line of length, said grooves registering to form a guideway, a longitudinal channel in said support and communicating with said socket, a presser working in said channel and engaging with one end one of said clamp members, a spring nested in said channel and engaging the other end of said presser, and a binding screw-cap working on the screw-threaded free end of said support and engaging the free end of said spring, whereby the adjustment of the cap may regulate the pressure of the clamp members on each other.

3. In combination, a twist-arbor consisting of a stock provided with a flat and rounded shank having channel-like depressions on the broad sides near said stock, a support provided with a transverse perforation and a rotary collar set therein, and means for intermittently rotating said collar, said stock fixed rigidly in said collar and rotated thereby.

4. In combination, a twist-arbor consisting of a cylindrical stock provided at one end with a shank elliptical in cross-section and extending in the line of the long axis of said stock, a spiral channel-like depression on each flat side of said shank near its junction with said stock, an upright provided with a transverse socket-eye, a rotary collar set in said eye and provided at one end with a bevel-gear, an idle gear-wheel in mesh with said bevel-gear and provided with a spring-acted check device, a cam keyed on the power-shaft and provided with a partially-toothed periphery in mesh with said idle-gear, a partial circumferential rim upon a face of said cam and engaging with said check device, and means for actuating said power-shaft, whereby said gears may intermittently rotate said twist-arbor.

5. In combination, the twist-arbor constructed and mounted substantially as described, an idle gear-wheel in mesh with the bevel-gear controlling said arbor, one face of said wheel provided with two diametrically-opposite depressions, a suitably-mounted spring-acted pawl having one end bearing constantly on said face in the path of said depressions when said wheel is rotated, a power-shaft and actuating means therefor, a cam keyed on said shaft and having a portion of the periphery thereof provided with cog-teeth and the remainder smooth, and a raised rim extending circumferentially and partially around one face of said cam and coincident with said smooth periphery, the other end of said pawl continuously engaging said rim and lack of rim, whereby said gears may rotate said bevel-gear, and so the twist-arbor, at intervals.

6. In combination, the twist-arbor, substantially as described, a support provided with a transverse socket-eye, a rotary collar set loosely in said eye, said twist-arbor rigidly mounted in said collar, an arm adjacent to said support and overhanging said twist-arbor, and a pair of spring-acted jaws attached to said arm, each arm provided with a corresponding tooth, said pair of teeth engaging the opposite sides of the shank of said twist-arbor and out of alignment relative to the axis of the arbor, whereby said teeth may take between adjacent coils of a spiral wire passed about said arbor.

7. In combination, the twist-arbor, substantially as described, a support provided with a transverse socket-eye and a rotary collar loosely set therein, said arbor mounted rigidly in said collar, a rigid arm set on said support and overhanging the shank of said twist-arbor, a pair of jaws pivoted near their centers upon the free end of said arm, a spring connecting corresponding ends of said jaws, the other end of said jaws provided each with a tooth, said jaws arranged with the teeth engaging opposite sides of said shank and on a line diagonal to the long axis of said shank, and means for intermittently rotating said twist-arbor, whereby said teeth may take between adjacent coils of a wire passed spirally about said shank and moving on its length thereabout.

8. In combination, the twist-arbor constructed and mounted substantially as described, means for intermittently rotating said arbor, a rotary cutter, suitably mounted and traveling at intervals toward and away from said arbor and cutting on or near the shank of said arbor, means for revolving said cutter, and means for moving said cutter to and from said arbor.

9. In combination, the twist-arbor constructed and mounted substantially as described, means for intermittently rotating said arbor, a rotary cutter mounted on a spindle and disposed with its axis of rotation normal to the long axis of said arbor, a guard-finger arranged adjacent to a side of said shank for the cutter to cut on, said spindle loosely mounted on an L-shaped rocker-arm, suitably pivoted at the angle thereof, a normal fixed arm on said rocker-arm and provided with a stud, a power-shaft and actuating means therefor, a cam keyed on said shaft and provided with a circumferentially-disposed raised portion, said stud constantly engaging the face of said cam having said raised portion, and if the path thereof, said spindle provided at the end remote from the cutter with a fixed pulley, and another fixed pulley on a rotary shaft adjacent to said power-shaft and belted to said first pulley, whereby said spindle may rotate the cutter and the rocker-arm may carry said cutter toward and away from the shank of the arbor at intervals.

10. In combination, a swiveled carriage suitably mounted, means for reciprocating said carriage on its swivel through a predetermined arc, and a body or barrel superposed on said carriage and provided with a pair of jaws adapted to open and close, whereby said jaws may be carried to and fro over said arc.

11. In combination, a swiveled carriage suitably mounted, means for moving said carriage on its bearing to and fro in a predetermined arc, a body superposed on said carriage and provided with a pair of jaws capable of opening and closing, and means for working said jaws, whereby said jaws may be swung back and forth in said arc and the jaws worked at intervals.

12. In combination, a swiveled carriage and support therefor, means for reciprocating said carriage on its bearing in a predetermined arc, a body superposed on said carriage and turnable on its long axis, means for turning said body, a fixed and a movable spring-acted jaw working together on said body, and means for opening and closing said movable jaw or its fellow, whereby said jaws may travel to and fro in said arc and may open and close and turn on their axis, which lies parallel to the plane of the mouth formed by said jaws.

13. In combination, a pivoted or swiveled carriage and a support therefor, means for reciprocating said carriage in a definite arc, a slide mounted on said carriage, and means for reciprocating said slide, a body or barrel set on said slide and turnable on its long axis, but not in itself movable on the length of said axis, means for turning said body on said axis, a fixed and a movable spring-acted jaw placed and working together in said barrel, and actuating means for said movable jaw, whereby said jaws may oscillate in said arc and work and turn on themselves and advance and recede on radii of said arc.

14. In combination, a carriage swiveled near one end to a suitable support, an arm projecting from near the other end of said carriage, a lever pivoted upon a stand and provided with a connecting-rod, having one end thereof pivoted to the free end of said arm, a power-shaft and actuating means therefor, a cam keyed on said shaft and provided with an edge partially upset, said edge or periphery working in a fork on the other end of said lever, a body superposed on said carriage and provided with jaws adapted to open and close, and means for working said jaws, said lever and cam adjusted to control and reciprocate said carriage in a certain arc, whereby said jaws may move over said arc and work on themselves.

15. In combination, a carriage swiveled near one end to a suitable support and means for reciprocating said carriage on its swivel in a definite arc, a hollow cylindrical barrel superposed on said carriage, a fixed jaw extending from the end of said barrel remote from the swivel of said carriage, an arm lying in said barrel and fulcrumed on a pivot fixed in the barrel and provided at the outer end with a jaw coacting with said fixed jaw, a spring fixed upon the outside of said barrel and engaging the inner end of said arm through a slot in the barrel, a perforated screw-plug set in the end of said barrel remote from said jaws, a rod working through said eye and provided at the outer end with a cap and at the inner end with a head engaging and sliding over the inner end of said arm, a coil-spring surrounding said rod between its head and said plug, a lever fulcrumed near its center on a fixed post and having one end thereof loosely secured to the outer end of said rod, a rotary shaft and means for actuating the same, and a circular-shaped cam keyed on said shaft and provided with a radial projection on the periphery, the periphery of said cam engaging constantly the other end of said lever, whereby the jaws may traverse the arc and open and close at intervals.

16. In combination, a swiveled carriage and support therefor, means for reciprocating said carriage on its swivel through a definite arc, a body or barrel superposed upon said carriage and adapted to turn on its long axis in its bearings, a pair of jaws adapted to open and close set upon the end of said body remote from the swivel of said carriage, a cog-wheel keyed upon the other end of said body, a cam provided with peripheral cogs constantly in mesh with said cog-wheel, said cam keyed on an axle journaled in a stand and provided with a spring normally constrained and acting to restore said cam always to normal position, a rotary shaft and actuating means therefor, a disk-shaped cam keyed on said shaft and provided with a radial extension on the periphery, a rigid arm adjacent to said shaft and having a lever pivoted to the free end, said lever constantly engaged near its center by the periphery of said cam, and an arm pivoted upon the other end of said lever and secured to the said spring-acted toothed cam by a knuckle-joint, said toothed cam adjusted whereby the jaws may travel over the arc and be turned in accordance with the cam adjustment on the axis lying parallel to the plane of the mouth formed by said jaws.

17. In combination, a swiveled carriage and a support therefor, means for reciprocating said carriage on its swivel through a determined arc, a slide provided with ways on said carriage and reciprocating thereon at right angles to said swivel-joint, an upright collar fixed near each end of said slide, a body or barrel set in said collars with the line of length parallel to the line of reciprocation of said slide, said body turnable in said collars, but not movable endwise therein, and provided with a pair of grappling-jaws at the end thereof remote from the swivel of said carriage, an L-shaped arm rigidly secured by one member thereof to the end of said slide and adjacent to the swivel of said carriage, a standard adjustably mounted by its foot on the other end of said arm and provided with a roller at the head thereof, a rotary shaft and actuating means therefor, and a circular-shaped cam keyed on said shaft and provided with a radial projection on the periphery thereof, the periphery of said cam engaging the roller on said standard, whereby the slide may be reciprocated on the carriage in the radii of said arc.

18. In combination, a tilting table and a support therefor, a pair of spring-acted jaws superposed on said table, means for tilting the table, and means for opening and closing the jaws.

19. In combination, a tilting table and a support therefor, means for tilting said table at intervals, a slide provided with guides upon said table and reciprocating thereon, means for reciprocating said slide, a pair of spring-acted jaws pivoted upon said slide and capable of opening and closing on each other, and means for working said jaws, whereby said table may be tilted and the slide reciprocated and the jaws worked at intervals.

20. In combination, a table rigidly mounted on an axle journaled in fixed supports, a power-shaft adjacent to said table and actuating means for said shaft, a wheel keyed on said shaft and provided with a trip-stud projecting from one face, a rigid arm controlling the tilting of said table and disposed in the path of said trip-stud, a pair of pivoted coacting jaws superposed on said table, and a retracting-spring controlling said table to keep it in normal position, whereby the jaws may be moved out and in a plane normal to the plane of the mouth formed by said jaws at intervals.

21. In combination, a tilting table, provided with guides and a slide reciprocating thereon in a line always parallel with the plane of the table, a retracting-spring secured to said slide and to an adjacent fixed point, a roller upon one end of said slide, a power-shaft having a cam keyed thereon, said cam consisting of a circular disk having a radial projection on the periphery and engaging the roller on said slide, a pair of spring-acted jaws pivoted on said slide, and means for tilting said table, whereby the jaws may be oscillated in a plane normal to the plane of the table and reciprocated on their line of length at intervals.

22. In combination, a tilting table suitably pivoted in fixed supports, a slide reciprocating on guides formed on said table and in a plane parallel to the plane of said table and parallel to the axial line of the pivoted bearings of said table, a spring attached between one end of said slide and to a fixed adjacent point, a pair of lever-arms pivoted at corresponding points to the same pivot on said slide, said arms provided with jaws at one end, forming a mouth lying in a plane normal to the plane of reciprocation, the other end of said lever-arms connected by a spring, a power-shaft and actuating means therefor, a cam keyed on said shaft and consisting of a disk having a radial projection on the periphery, and each face provided with a correspondingly situated raised ridge disposed circumferentially and partially around said disk, the ends of said lever-arms remote from the jaws engaging each with one of said ridges and lack of ridge, said radial projection of the cam engaging a roller upon the adjacent end of said slide, and means for tilting said table, whereby said jaws may sweep through an arc lying in a plane normal to the plane of reciprocation and may advance and recede on the line of reciprocation, and may open and close at intervals.

23. In combination, the wire-guide clamp, the twist-arbor actuated at intervals, the reciprocating rotary cutter adjacent to said arbor, and means for actuating said arbor and said cutter, said parts assembled and arranged on the platform, all substantially as described.

24. In combination, the clamp-grip and the twist-grip arranged oppositely on the platform, and constructed and operated substantially as described.

25. In combination, the wire-guide clamp, the twist-arbor, the reciprocating rotary cutter, the clamp-grip, and the twist-grip, all assembled on the platform and arranged, constructed, and operated substantially as described.

26. In combination, the post 12, fixed upon platform 10, the socket-eye 17 and the communicating channels 13 and 16, the two-part clamp 19, set in eye 16, the presser 15, working in channels 13 and 16, the spring 14, engaging said presser, and the screw-cap 18, working on a screw-thread on post 12, substantially as described.

27. In combination, the twist-arbor 33, having the spiral twist 35 on the shank thereof, the upright 21, provided with a transverse perforation, and the collar 23, journaled in said perforation, substantially as described.

28. In combination, the upright 21, provided with a transverse perforation, the collar 23, provided with the screw 34 and set in said perforation, the twist-arbor 33, having the twist 35 thereon, the arm 36, provided with the spring-acted jaws 37, the bevel-gear 24, fixed to collar 23, the idle-gear 25, provided with depressions 26 in a side thereof and mounted on a post, the power-shaft 29, provided with the cam 28, having cog-teeth on part of the periphery, and having the raised rim 32, the spring-acted pawl 27, mounted on a fixed post and engaging the cam 28 and gear 25 with its respective ends, and the platform 10, substantially as described.

29. In combination, the rocker-arm 51, pivoted on pin 52 on platform 10, the spring 56, the spindle 42, journaled in arm 51 and provided with a sleeve, 50, the cutter 41, fixed to said spindle, the fixed pulley 43, communicating with pulley 45 on shaft 46 by means of belt 44, the pulley 48 and pulley 49, provided with belt 47, the opening 54 in platform 10, the fixed arm 53, provided with a stud, 55, the cam 57, provided with the raised rim 58, and the guard-finger 40, substantially as described.

30. In combination, the tilting table 118, provided with a fixed axle, 117, journaled in the posts 116, the slide 119, reciprocating on said table and provided with the arm 120, the spring 123 and the roll 131, the lever-arms 126, provided with jaws 129 and spring 128, and pivoted on pivot 127, and the cam 125, keyed on shaft 29 and provided with the ridges 130, substantially as described.

31. In combination, the carriage 74, swiveled on the boss 72, the slide 73, provided with the collar 75 and 83, the barrel 82, set in said collars and provided with a projection, 84, having a jaw, 85, the lever-arm 88, pivoted on pin 89 and provided with jaw 90, the spring 87, working through a slot, 86, the screw-plug 91, having a channel, 92, therein, the rod 93, provided with head 95 and cap 94 and the spring 96, the lever 97, pivoted on post 98 and provided with roller 99, the rotary shaft 67, indirectly operated by shaft 29, and the cam 69, all substantially as described.

32. In combination, the carriage 74, swiveled on the boss 72, the arm 76, fixed to said carriage, the connecting-rod 77, the lever 78, fulcrumed by a pivot on post 79 and provided with a forked end, 80, the power-shaft 29, and the cam 81, keyed on said shaft and engaging said fork, substantially as described.

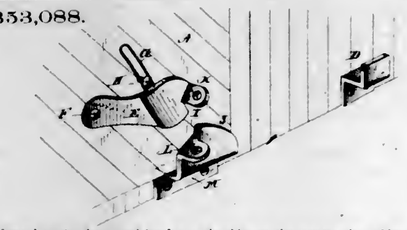
33. In combination, the slide 73, provided with an arm, 111, the adjustable standard 112, mounted on said arm and provided with the roll 114, the cam 70, keyed on shaft 67, the bevel-gear 66 on shaft 67, the shaft 63, provided with bevel-gears 65 62 and journaled in brackets 64 on platform 10, and the power-shaft 29, provided with gear 61, substantially as described.

34. In combination, the rotary barrel 82, provided with the cog-wheel 100, the toothed cam 101, mounted on axle 102, the bearing 103 and spring 104, the connecting-rod 105, the lever 106, provided with hanger 109 and roll 110, and the upright 108, fixed upon platform 10, substantially as described.

353,088. SLIDING-DOOR LOCK. SAMUEL SHIPMAN, Grand Island, Nebr., assignor of one-fourth to James Robinson, same place. Filed Aug. 21, 1886. (No model.)

Claim.—1. In a lock for sliding doors, the combination of a plate secured below the door and having its upper portion bent outwardly and upwardly, one of the upper corners of which is rounded, a latch

353,088.



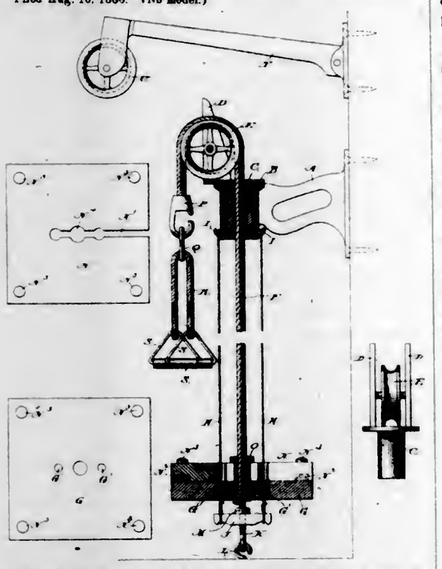
pivoted to the door, and having a shoulder at the lower edge of its free end, and means, substantially as described, for securing said latch to said plate.

2. In a lock for sliding doors, the combination of a plate secured below the door and having its upper portion bent outwardly and upwardly, one corner of which upper portion is provided with an outwardly-projecting perforated lip, a latch pivoted to the door and having a shoulder and an outwardly-projecting perforated lip at its free end, and means, substantially as described, for securing said lips together.

3. In a lock for sliding doors, the combination of a plate secured below the door and having its upper portion bent outwardly and upwardly, a latch pivoted to said door, and having its free end provided with a segmental loop, a headed pin in the door, projecting through said loop, and means, substantially as described, for securing the latch to the plate.

4. In a lock for sliding doors, the combination of a plate and a lip secured to the side of the car, the plate at one end of the throw of the door when it is closed and the lip at the end of the throw when it is open, and a latch pivoted to the side of the door near the lower corner, and having its free end weighted and provided with a shoulder.

353,089. EXERCISING-MACHINE. JOHN A. SMITH, New York, N. Y. Filed Aug. 10, 1886. (No model.)



Claim.—1. In an exercising-machine, the combination, with the bracket A, having the socket B, of the swivel C, carrying the pulley E, the rope F, passing over said pulley E, and the weight G, substantially as shown and described.

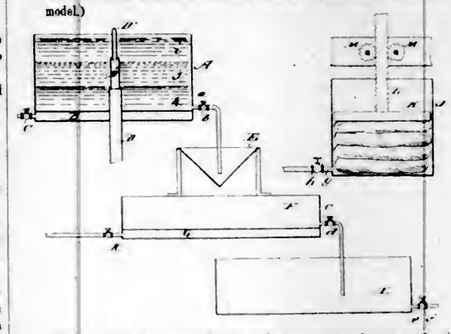
2. In an exercising-machine, the combination, with the bracket A, having the socket B, of the swivel C, carrying the pulley E, the rope F, passing over the said pulley E, the weight G, attached to the rope F, and the adjustable guide-rods H, on which slide the said weight G, substantially as shown and described.

3. In an exercising-machine, the combination of the bracket A, having the hooks I, with the guide-rods H, the cross-bar J, on which the lower ends of the rods H are fastened, the bolt K, hooked on the hook I, and the nut J, screwing on the said bolt K and resting against the cross-bar J, substantially as shown and described.

4. In an exercising-machine, the rope F, the handles S, and the weights G and N, in combination with the swivel C, carrying the pulley E, and supported by the bracket A, the adjustable guide-rods H, and the pulley U, mounted on the arm T, supported above the bracket A, substantially as shown and described.

5. In an exercising-machine, the rope F and the swivel C, carrying the pulley E, in combination with the bottom weight, G, attached to the said rope F, the weights N, and the stopper O, for holding the weights N in place, substantially as shown and described.

353,090. PROCESS OF AND APPARATUS FOR MANUFACTURING CONCENTRATED EXTRACT OF COD-LIVERS. JAMES W. STAIRS and JOHN CRAIG, Halifax, Nova Scotia, Canada. Filed Feb. 13, 1886. (No model.)



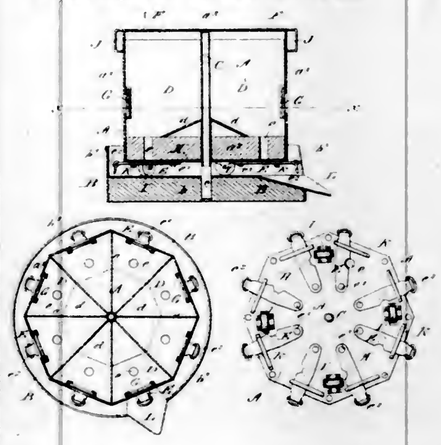
Claim.—1. In apparatus for preparing concentrated extract of cod-livers, the combination, with a vat, A, provided with a steam-jacketed bottom, B, of the central telescopic tube for the discharge of the upper stratum of the contents of the vat, the discharge-pipe *a*, filter-bag E, the evaporating-pan F, provided with a steam-jacketed bottom, the discharge-pipe *c*, and the cooling-vat I, substantially as herein shown and described.

2. The process of preparing the concentrated extract of cod-livers, which consists in rendering the livers by heat, withdrawing the oil from the top of the mass rendered, discharging the liquid from the bottom of the mass rendered, filtering it, and concentrating it by heat, substantially as herein shown and described.

3. The process of preparing concentrated extract of cod-livers, which consists in heating the livers until they are reduced to a pulpy mass, withdrawing the oil from the watery and solid portions of the mass, afterward removing the aqueous extract of the livers and concentrating it by heat in an evaporating-pan, and finally discharging it from the evaporating-pan into a cooling-vat, substantially as herein shown and described.

4. The process of preparing concentrated extract of cod-livers, which consists in heating the livers until they are reduced to a pulpy mass, withdrawing the oil from the watery and solid portions of the mass, afterward removing the aqueous extract of the livers and concentrating it by heat in an evaporating-pan, and finally discharging it from the evaporating-pan into a cooling-vat, returning the contents to the filter-bag and evaporating-pan and reconcentrating the liquid, substantially as herein shown and described.

353,091. REVOLVING SHOT-CASE. FRANK STEARNS and GEORGE L. WELLS, Creighton, Mo. Filed Apr. 9, 1886. (No model.)



Claim.—1. A revolving shot-case constructed with a holder, A, divided into shot-compartments D, and provided with inlet-holes F, outlet-holes *e*, and glazed sight-holes, as at G, and having a downwardly-projecting axial pin, *c*, a base, B, provided with a hole receiving the holder-pin *c*, and also having a chute, L, rollers I, journaled to holder A and resting on the base B, and lever cut-offs E, pivoted at their inner ends at *e'* to holder A, substantially as described, for the purposes set forth.

2. A revolving shot-case provided with compartments having discharge-openings controlled by suitable valves and a marginal flange projecting from the base of the case in front of the valves, and said flange provided with an opening allowing introduction of the fingers to operate the valves when they are turned to said opening, substantially as shown and described.

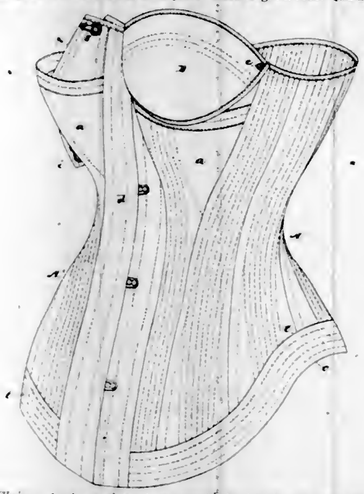
3. A revolving shot-case provided with compartments having discharge-openings controlled by suitable valves and a marginal flange, *b'*, projecting from the base of the case in front of the valves, and said base provided with a spout, L, and the flange *b'*, cut away over the spout to allow operation of the valves at the spout, substantially as shown and described.

4. A shot-case comprising a revoluble holder, A, divided into compartments D, having discharge-openings *s*, controlled by suitable valves, a base, B, on which the holder is journaled, anti-friction rollers I, interposed between the holder and base, a spout, L, on the base, a flange, *b'*, held to the base and projecting in front of the discharge-valves, and said flange cut away over the spout to allow operation of the valves, substantially as shown and described.

353,092. REFINING RAW COLORED SUGARS. CARL STEFFEN, Vienna, Austria-Hungary. Filed June 28, 1884. (No specimens.)

Claim.—The herein-described process of refining raw colored sugar, which consists in the systematic lixiviation of the raw sugar in a battery or series of connected vessels by means of an aqueous solution of pure sugar, which is made to pass through the said vessels and the sugar contained therein in succession, substantially as described.

353,093. NURSING-CORSET. JOHN C. TALLMAN, Bridgeport, Conn., assignor to Warner Bros., same place. Filed Aug. 14, 1885. (No model.)

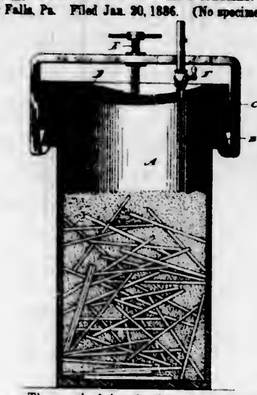


Claim.—1. A nursing-corset provided with fixed breast portions *a*, having recesses *x*, open at the upper edges thereof, and with flaps or covering-pieces D, each pivoted at the outer edge of one of the recesses to swing laterally in contact with the face of the corset, and connections for detachably attaching the free end of the flap to the top of the corset at the inner edge of the recess, substantially as described.

2. The combination, with a corset having fixed projecting breast portions *a* and recesses *x*, open at the upper edges thereof, of rounded and stiffened flaps D, each pivoted at one end at one side of the said recesses to swing laterally in contact with the face of the corset, and connections for attaching the opposite end at the opposite side of said recess, substantially as described.

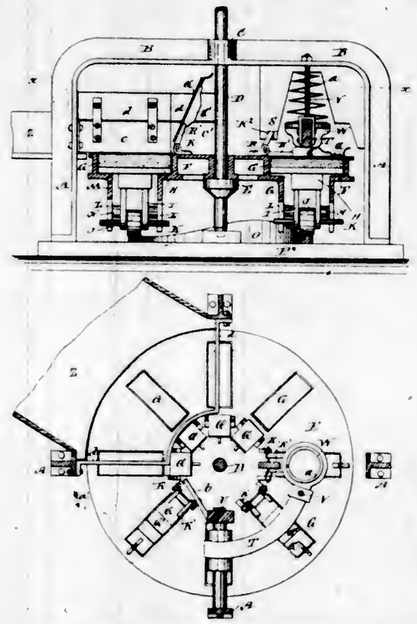
3. The combination of a corset-body having fixed breast portions with recesses open at the upper edges, and pivoted flaps connected to constitute upward extensions of the corset above the lower breast portions, and to swing laterally in contact with the face of the corset, substantially as described.

353,094. PROCESS OF ANNEALING METALS. JOSEPH A. TATRO, Beaver Falls, Pa. Filed Jan. 30, 1886. (No specimens.)



Claim.—The method herein described of annealing metals, the same consisting in heating the articles packed in charcoal or other pure carbon in an air-tight vessel provided with a petcock, through which the contained air is allowed to pass during the initial heating, and subsequently cooling the articles in the same vessel, after closing the petcock to prevent the admission of air, substantially as specified.

353,095. BRICK-MACHINE. WILLIAM THARON, Austin, Tex. Filed Jan. 7, 1886. (No model.)



Claim.—1. In a brick-machine, the combination, with a mold-wheel mounted to revolve in the horizontal plane and provided with mold-cavities, of a plunger in each cavity, lateral guide-pins on the lower end of the plunger and resting against the lower parts of the mold-wheel, a shaft mounted on the lower end of each plunger and passed through vertical guide-grooves in the said lower parts of the mold-wheel, a roller on each shaft, and a cam-ring on which the rollers run, substantially as herein shown and described.

2. In a brick-machine, the combination, with a mold-wheel mounted to revolve in the horizontal plane and provided with mold-cavities, of a door for each cavity, hinged on the top of the mold-wheel, each door being provided with a central transverse rib and its hinge-leg with a lever arm or shank, and of cams acting on the doors and their hinge-

levers for raising the doors for swinging them down on the top of the wheel, substantially as herein shown and described.

3. In a brick-machine, the combination, with a rotary mold-wheel provided with mold-cavities, of a movable plunger in each cavity, a door for each cavity hinged on the mold-wheel, and a curved spring-acted presser-arm arranged to act upon the hinged doors, substantially as specified.

4. In a brick-machine, the combination, with a mold-wheel mounted to revolve in the horizontal plane and provided with mold-cavities, of a vertically-movable plunger in each cavity, a door for each cavity hinged on the top of the wheel, the hinge plate or lug attached to the mold-wheel being slotted to allow a vertical movement of the hinge-pin, a curved arm pivoted over the top of the mold-wheel and extending over part of the same, and a spring acting on the swinging end of said curved arm, substantially as herein shown and described.

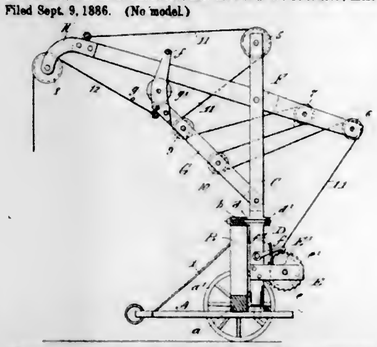
5. In a brick-machine, the combination, with a mold-wheel mounted to revolve in the horizontal plane and provided with a series of mold-cavities, of a plunger in each cavity, a door for each cavity hinged on the top of the wheel, so as to allow of a slight vertical movement, a curved arm pivoted above the mold-wheel and extending over part of the same, the rod V, connected with the swinging end of said arm and passed through the top of the frame of the machine, and of a spiral spring resting on the head on the end of the curved arm, substantially as herein shown and described.

6. In a brick-machine, the combination, with a frame and a mold-wheel mounted to revolve in the horizontal plane and provided with a series of mold-cavities, of a plunger in each cavity, a door for each cavity hinged on the top of the mold-wheel and adapted to move vertically a short distance when swung down, an arm extending over part of the wheel, which arm is acted upon by a spring, and of a scraper secured to the frame of the machine and projecting over the cavities of the mold-wheel, substantially as herein shown and described.

7. In a brick-machine, the combination, with the frame uprights A and the horizontally-revolving mold-wheel F, having mold-cavities G, of the scraper-frame *d*, having radial and segmental parts, and secured at its outer ends to the standards A, and of the scraper *c*, secured on the radial and segmental parts of said frame, substantially as herein shown and described.

8. In a brick-machine, the combination, with a frame and a mold-wheel mounted to revolve in the horizontal plane and provided with a series of mold-cavities, of a vertically-movable plunger in each cavity, rollers on the lower ends of the plungers, a cam-ring having different heights, on which ring the plunger-rollers run, a presser-arm extending over part of the top of the wheel and acted upon by a spring, and of a hopper for receiving the clay before it is delivered upon the mold-wheel, the height of the cam-ring being greatest a short distance beyond the presser, and lowest at the hopper, whereby the plungers are gradually moved upward toward the presser, and then still further upward beyond the presser to eject the bricks, and are then moved down toward the hopper, substantially as herein shown and described.

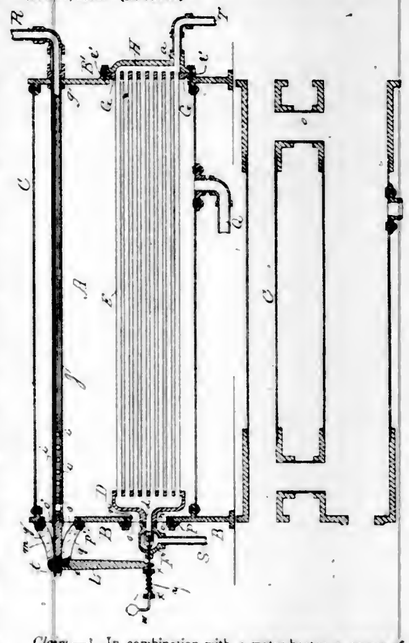
353,096. **DERRICK FOR LOADING AND STACKING HAY.** THOR O. THORSON, PETER S. PETERSON, and MICHAEL W. PETERSON, Elliott, Ill. Filed Sept. 9, 1886. (No model.)



Claim.—1. The combination, with the platform A, supported upon wheels provided with a rectangular frame, B, and a slotted standard, C, pivoted to turn on said platform, provided with an upper grooved pulley, 5, of the long upper beam, F, slotted to receive grooved pulleys 6 and 7 in the end thereof, and the short slotted under beam, G, having grooved pulleys 9 and 10 pivoted therein, together with the rope 11, adapted to pass over said pulleys, substantially as herein shown and described.

2. The combination, with the platform A, supported upon wheels provided with a rectangular frame, B, and a slotted standard, C, pivoted to turn on said platform, provided with an upper grooved pulley, 5, and a drum, E', fitted with a ratchet and pawl, of the upper pivoted slotted beam, F, having grooved pulleys 6 and 7, pivoted in its rear end, and provided with a lifting-pulley, 8, at its forward end, the lower pivoted slotted beam, G, having pulleys 9 and 10 pivoted therein, and provided with upwardly-extending arms *g*, carrying a friction-wheel, *g'*, and a rope, 11, adapted to pass over the pulleys 5, 6, 7, 9, and 10, attached at one end to the drum E, at the other to the beam F, together with the rope 12, attached to the beam G, and adapted to pass over the projecting pulley 8 of the said upper beam, F, all arranged to operate substantially as herein shown and described.

353,097. **WATER-HEATER.** HENRY A. TOBEY, Lima, Ohio. Filed June 17, 1885. (No model.)



Claim.—1. In combination with a water-heater, a source of heat in connection therewith, a valve controlling such source of heat, an expansible body attached at one end to the interior of the water-heater and extending outside of the same, and a lever connecting the expansible body and the valve, substantially as set forth.

2. The combination, with a water-heater, of a source of heat in connection therewith, a valve controlling such source of heat, having a stem provided with a spring and locking mechanism, the expansible pipe attached at one end to the interior of the water-heater and extending outside of the same, and a lever connecting said valve-stem and expansible pipe, whereby by the greater or less expansion of the pipe the valve is operated to regulate the admission of the heat and thus control the temperature of the water, substantially as described.

3. In combination with a water-heater, a valve controlling the source of heat, an expansible tube within the water-heater and made fast at one end thereto, and a flexible diaphragm connected with said valve, and against which diaphragm the opposite end of the said tube rests and exerts pressure upon as it expands, substantially as described.

4. The combination, with a water-heater in connection with a source of heat and a valve controlling such source of heat, of the expansible pipe within the heater provided with apertures for the admission therein of the water to be discharged, with one end of the pipe rigidly secured to the casing, and a flexible diaphragm in the casing against which the opposite end of the expansible pipe rests, the lever connected to said valve, and an extension-arm connecting said lever to the said diaphragm and pipe, whereby the expansion and contraction of said pipe serve to move said diaphragm and lever, substantially as and for the purpose set forth.

5. The shell or body of the heater provided with heating-pipes, in combination with a flexible diaphragm in one end of the heater, a valve controlling the source of heat, a hollow casting in the heater supporting the said pipes at the same end, and provided with a neck extending through said diaphragm and connected with and supporting the valve, a ring to hold the diaphragm between the valve and the said neck, and a rigid plate at the opposite end of the heater, to which the said pipes at that

end are secured, whereby the series of heating-pipes are supported within the body of the heater, and a lateral expansion of the pipes in one direction permitted, substantially as and for the purpose described.

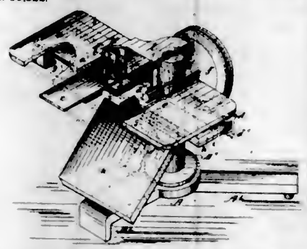
6. In a water-heater provided with a valve mechanism controlling the source of heat, in combination with a water-inlet located near one end of the heater, the expansion-pipe connected to said valve mechanism and extending to and provided with openings near the other end of the heater, and heating-pipes placed within the heater and arranged, as shown, above said inlet, whereby water admitted to the heater is compelled to pass lengthwise with said heating-pipes, rise between them, and become heated before reaching the expansion-pipe, and the said pipe is kept constantly at the same temperature of the surrounding water, substantially as described.

7. The water-heater casing, in combination with the valve-casing, valve mechanism consisting of the valve, valve-stem, valve-arms, cross-arm, the coiled spring on valve-stem, and the locking-nuts, the steam-pipe fixed at one end to the valve casing, the flexible diaphragm, and the expansion device within the casing connected to the valve, substantially as and for the purpose described.

8. In combination with the casing and expansible tube within the casing, the lever, a steam-inlet pipe, a valve fixed to said pipe, and the screw-threaded valve-stem, the latter provided with a coiled spring and locking nuts or rings *x x'*, substantially as and for the purpose described.

9. The lever mechanism consisting of the long arm forked at its lower end and the extension-piece *m*, to which the short arm of the lever is connected, and the brackets *q*, to which the lever-arm is pivoted, in combination with the heater-casing, the expansible tube within the casing, the valve, and the steam-inlet pipe, substantially as described.

353,098. **HÆMOGLOBINOMETER.** ERNST FLEISCHL VON MARXOW, Vienna, Austria-Hungary. Filed May 29, 1885. (No model.) Patented in France May 15, 1885, No. 168,929; in Belgium May 15, 1885, No. 68,880; in England May 15, 1885, No. 5,991; in Germany May 16, 1885, No. 33,408; in Canada June 9, 1885, No. 21,841; in Italy June 30, 1885, XIX, 18,338, XXVI, 247, and in Austria-Hungary July 30, 1885, No. 17,266 and No. 39,522.



Claim.—1. The herein-described mode of obtaining standard units of comparison, which consists in ascertaining the thickness of a plate of ruby glass that corresponds in intensity of color with that of blood containing a normal proportion of hæmoglobin or a solution of such blood by comparison under occlusion of violet rays of light, then grinding the plate from the unit mark to one extreme or end of said plate in the form of a wedge, the thickness of which is zero at the attenuated edge, and subdividing the inclined surface into equal spaces, as and for the purpose specified.

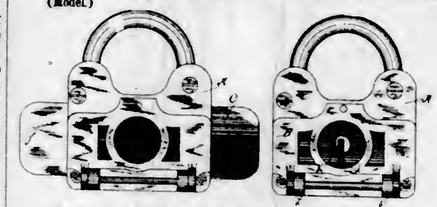
2. The mode of preparing wedges of comparison from standard wedges, which consists in grinding a plate of ruby glass to present an inclined surface, and ascertaining the unit standard by colorimetric comparison of the various thicknesses of the plate with the unit thickness of the standard wedge until a thickness is found that in intensity of color will correspond with that of the unit of thickness in the standard wedge, and marking the same on the plate and finishing the latter to correspond with or proportionately with the standard wedge, as described.

3. A plate for colorimetric comparison in hæmoglobinometers, consisting of a ruby or blood-colored transparent plate, the intensity of the color of which gradually decreases from a unit or standard intensity of color, and which plate is provided with graduations corresponding with the variations in the intensity of its color, substantially as and for the purpose specified.

4. The combination, with the wedge-shaped ruby-glass plate A, provided with a scale indicating degrees of transparency, of a colorless-glass backing, as described.

5. In an apparatus for determining the volume of hæmoglobin in blood by colorimetric measurement, which consists of a vessel divided into two chambers having a transparent bottom, a wedge-shaped plate of ruby glass adapted to be moved backward and forward under one of the compartments of the vessel, and a reflector for projecting light from below through both compartments and through the ruby-glass plate, as described, for the purpose specified.

353,099. **SEAL-LOCK.** SOPHRONIA WALKER, New York, N. Y., administratrix of Robert O. Walker, deceased. Filed June 21, 1886. (Model.)

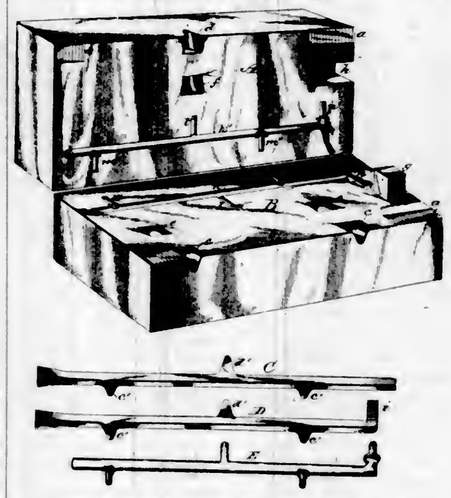


Claim.—1. In a seal-lock, the combination of the lock-casing provided with a tranverse groove, the hinged locking-plate, and a seal provided with enlarged ends, and shoulders adapted to engage the groove and edge of the lock-casing, substantially as shown and described.

2. In a seal-lock, the combination, with the casing A, of the spring-bolts 1, 2, and 3, provided with lugs *i*, the shackle S, spring N, plates Q and Q', provided with spring *q*, and the sleeve K, substantially as shown and described.

3. In a seal-lock, the combination of the bolt 1, having recess *i* and lug *i*, with the spring T and the hinged plate B, having hook *h*, substantially as shown and described.

353,100. **DIE FOR FORGING SHIFTING-RAILS.** ADOLPH WALTER, Fremont, Ohio. Filed Sept. 20, 1886. (No model.)



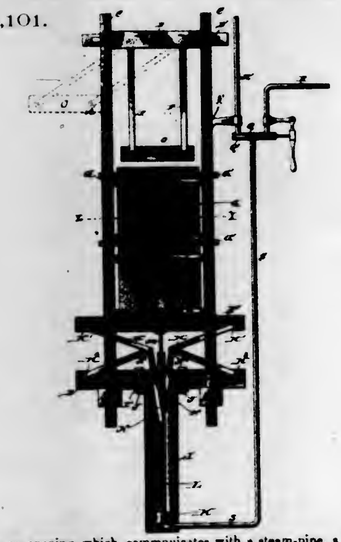
Claim.—A die for forging into shape shifting-rails for carriages or buggies, consisting of two die-sections having at or near their corners serrated surfaces, and at or near one end an anvil on one section and a depression on the other to fit over the same when the two sections are brought together, and depressions or mortises on the two die-sections to form the lugs on the shifting-rail, and grooves with extensions for giving to the rail its finished or complete shape after the lugs have been formed on the blank by the depressions or mortises in the die-sections, and the right-angle end of the blank being formed by the anvil, substantially as and for the purpose set forth.

353,101. **BALING-PRESS.** SAMUEL J. WEBB, Minden, assignor of one-half to Reuben N. McKellar, Shreveport, La. Filed July 24, 1886. (No model.)

Claim.—1. In a cotton and hay press, a cylinder provided with a piston-rod and piston, one end of the cylinder being open and secured to a fixed sill on the under side of the press, the lower end of said cylinder having an opening which communicates with a steam-pipe, a movable sill mounted above said fixed sill or piece, two toggle arms jointed to the piston-rod, the upper or outer ends of said arms being jointed to the joints of two toggle-arms, the outer ends of said toggle-arms being pivoted to the fixed sill and movable sill, respectively, substantially as described, and for the purpose set forth.

2. In a cotton and hay press, a cylinder provided with a piston-rod and piston, the upper end of the cylinder being open and secured to a fixed sill on the under side of the press, the lower end of said cylinder

353,101.



having an opening which communicates with a steam-pipe, a movable sill mounted above said fixed sill or piece, two toggle-arms jointed to the piston-rod, the upper or outer ends of said arms being jointed to the joints of two toggle-arms, the outer ends of said toggle-arms being hinged to the fixed sill and movable sill, respectively, the upper end of the piston-rod being provided with the central longitudinal opening, the under side of the movable sill being provided with a vertically-suspended rod rigidly secured thereto, said rod entering the opening in the piston-rod and serving as a guide therefor, substantially as described, and for the purpose set forth.

3. A press provided on its under side with a cylinder open at its upper end, and provided on its under side with an opening communicating with a steam-pipe, a fixed sill, D, provided with an opening corresponding with the opening in the cylinder, said cylinder being provided with a piston and piston-rod, in combination with a toggle-joint, arms N and H, and the movable sill F, the arms N being pivoted to the sides of the piston-rod at a distance from the upper end of said rod nearly equal to the length of the arms N, whereby said arms may be folded and extended into the open end of the cylinder when the movable sill is lowered, the upper or outer ends of said arms being jointed to the toggle-joint of the arms H, the outer ends of the toggle-arms H being pivoted at H′ and H², respectively, to the fixed sill D and movable sill F, substantially as described, and for the purpose set forth.

4. The combination, with the standards, of a sill vertically movable on said standards, and provided with a box on its upper side, said box being open at its top and also provided with a door on the lower part of one side, a plunger or compression-block mounted above the opening in the top of the box, and means for actuating said sill and box, substantially as described, and for the purposes set forth.

5. The combination of the standards having top cross-pieces united therewith, the block O, and arms P, the upper ends of said arms being pivoted to the cross-pieces, the lower ends thereof being pivoted to said block, a movable sill provided on its upper side with a box having a top opening, and means for actuating said sill and box, substantially as specified.

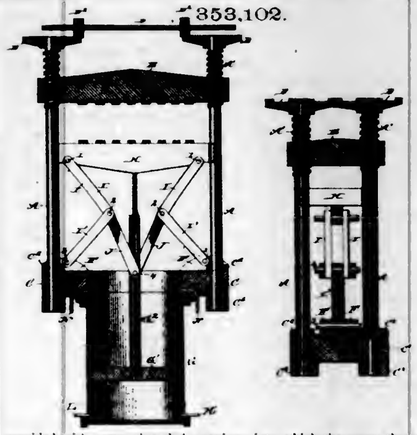
6. In a cotton and hay press, a movable sill, F, and box G, mounted thereon, said box being provided with guide projections G′, and the posts A A′, in combination with the swinging block O, and hinged arms P, substantially as described, and for the purpose set forth.

353,102. BALING-PRESS. Samuel J. Webb, Minden, assignor of one-half to Reuben N. McKellar, Shreveport, La. Filed July 24, 1886. (No model.)

Claim.—1. A cylinder open at one end, said cylinder being provided with a piston and a piston-rod, and also provided with supply and exhaust ports near one end, and exhaust-ports near the open end of the cylinder, whereby when the piston passes above the exhaust-ports near the open end of the cylinder the steam is automatically exhausted from the cylinder and the pressure of steam removed from the piston, all combined substantially as described.

2. The base-plate C, provided with corner openings, revolubie posts A, provided with shoulders and seated in the base-plate openings, the posts being screw-threaded on their upper ends, the movable platen E,

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provided with screw-threaded openings into which the screw-threaded portions of the posts work, the wheels B, provided on their peripheries and upper outer surfaces with spurs, the shaft D, and wheels D², said spurs being keyed to the shaft, the wheels B being keyed to the posts, all combined substantially as described, and for the purposes set forth.

3. In a cotton or hay press, the bed-plate C, provided with lugs F, and having standards or posts mounted thereon, a cylinder secured to the under side of said plate, said cylinder's piston extending upward and having the arms J pivoted thereto, the movable platen H, and toggle-arms I I′, the arms I′ being pivoted to the lugs F, the outer ends of the arms I being pivoted to the platen H, the outer ends of the arms J being jointed to the jointed ends of the toggle-arms I I′, all combined and operated substantially as described, and for the purposes set forth.

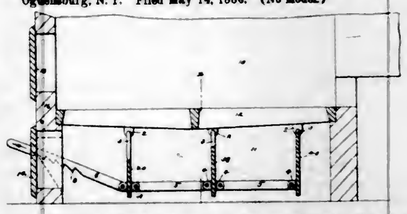
353,103. FUR SKIRT. Phillip Weinberg and Louis Clare, Jr., New York, N. Y. Filed Aug. 20, 1886. (No model.)



Claim.—1. A garment of seal-skin in the form of a skirt having front, side, and back breadths, the front breadth having the front enlargement or swell, *d*, substantially as described.

2. The front breadth, C, having the curved edges *c* and gored at *h*, in combination with the side breadths, E F, plaited back breadth, D, and waistband B, substantially as described.

353,104. VERTICAL-DRAFT ATTACHMENT. George W. Wheater, Ogdensburg, N. Y. Filed May 14, 1886. (No model.)



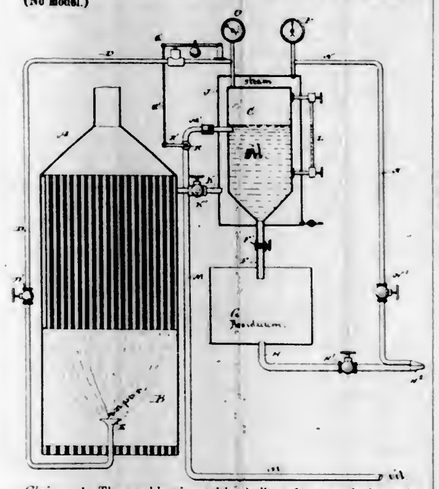
Claim.—1. The combination, with a grate, of a series of transverse pivoted deflecting-plates below the same, spaces being provided between

the grate and the upper edges of the plates, except the rear plate, links pivotally connecting said plates beyond their pivotal points, and an adjustable rod for adjusting said plates at any desired angle, substantially as set forth.

2. The combination, with a grate, of a series of graduated deflecting-plates arranged beneath the grate, substantially as described.

3. The combination, with a grate, of deflecting-plates 20, 30, and 40, pivotally connected to the grate, links 5, arranged to connect the plates, and manipulating-rods 6, substantially as described.

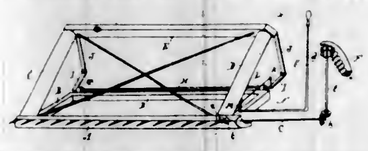
353,105. HYDROCARBON-BURNER. Lewis B. White, New York, N. Y., assignor to Leon Abbett, Jersey City, N. J. Filed July 10, 1885. (No model.)



Claim.—1. The combination, with a boiler, of a steam jacket or box connected with the same, a retort in the same, a tank, and steam-jet apparatus for converting the residuum from the retort into spray, substantially as herein shown and described.

2. The combination, with a steam-boiler, of a steam jacket or box connected with the same, a retort in the jacket, a pipe extending from the retort to the fire-box of the boiler, a pipe for withdrawing the residuum from the retort, a tank for receiving the residuum, a pipe connected with the residuum-tank, and having a nozzle in its end, and a steam-pipe extending to the nozzle on the residuum-pipe, substantially as herein shown and described.

353,106. HARVESTER-PLATFORM. L. Chester Williams and John A. Wiseloge, Albion, Mich. Filed May 13, 1885. (No model.)

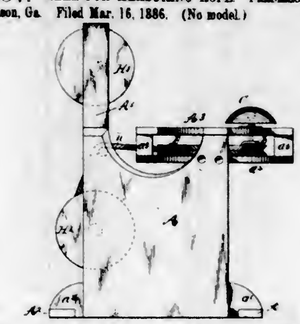


Claim.—1. A harvester-platform hinged to the finger-bar and carrying rollers upon which is placed an endless apron, combined with means on the same horizontal plane as the pivot of said platform for revolving said rollers, a lever within reach of the driver, the hinged arms I J, and intermediate connections, substantially as described, for adjusting the inclination of the platform from nearly a vertical to a horizontal position, substantially as described.

2. The combination, with the finger-bar platform and frame B, connected therewith, of the roller-carrying frame hinged to the frame B, rollers C D, journaled at their lower ends in the finger-bar and at their upper ends in the upper cross-bar of the roller-frame, hinged arms I J, shaft H, lever O, and intermediate connections, substantially as described, for tilting said rollers from nearly a vertical to a horizontal position, or vice versa, as set forth.

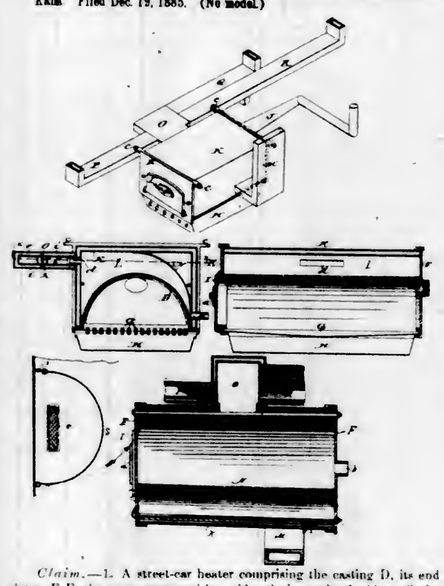
3. The combination, with the finger-bar and the rearward extended frame B, connected therewith, of the roller-carrying frame hinged to said frame B, rollers C D, means for revolving said rollers, shaft H, journaled upon the rear of the frame B, crank-arm K, rod L, crank-arm M, shaft N, and lever O, all constructed and arranged for joint operating, substantially as and for the purpose specified.

353,107. REEL FOR MEASURING ROPE. Frederick A. Winter, Thomson, Ga. Filed Mar. 16, 1886. (No model.)



Claim.—In a rope-measuring device, the frame having rope-reel supports, as shown, and transverse connection provided with a sheave adapted to measuring the rope from reels above and below the same, the rollers for holding the rope against the sheave, the bell, and the hammer, all combined and arranged to operate as shown and specified.

353,108. STREET-CAR HEATER. Theodore Wiseman, Lawrence, Kans. Filed Dec. 19, 1885. (No model.)



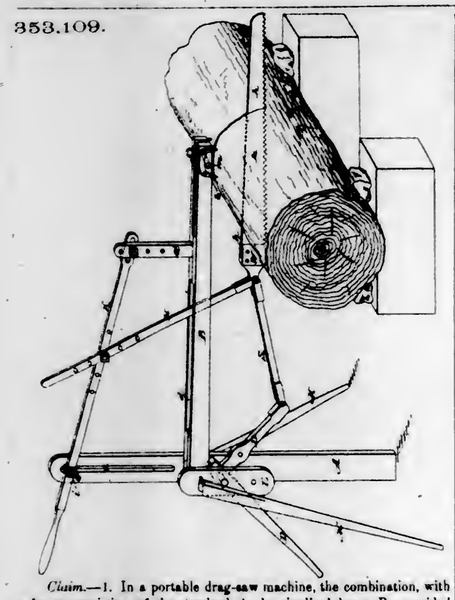
Claim.—1. A street-car heater comprising the casting D, its end plates, E F, the grate supported by said end plates, the double-wall air-chamber supported by the casting, the horizontal pipe *d*, leading to the outside of the air-chamber, the horizontal double-wall distributing-chamber O, communicating with said pipe *d*, the separate and independent horizontal register-pipes P Q R, leading from the ends of the distributing-chamber, the air-supply pipe M, leading from above the heater down to the lower part of the air-chamber, and the smoke-outlet J, substantially as set forth.

2. The furnace for heating cars, comprising the arched casting D, having outward-extending flanges along its lower edges, the grate G, the end plates, E F, having flanges on their inner sides to receive the ends of the grate and casting D, the door I in the end plate E, and the smoke-outlet in the end F, the double-wall structure K, resting on the flanges of the casting D, to form the chamber L, having inlet-pipe M and outlet *d*, the distributing-chamber O, and separate register-pipes leading therefrom, substantially as set forth.

3. The combination, with the car having a register in its platform, of the swinging protector M, forming a space to receive the driver over the register, substantially as set forth.

353,109. DRAG-SAW. Cornelius W. Wright, Democracy, Ohio. Filed June 18, 1886. (No model.)

353,109.

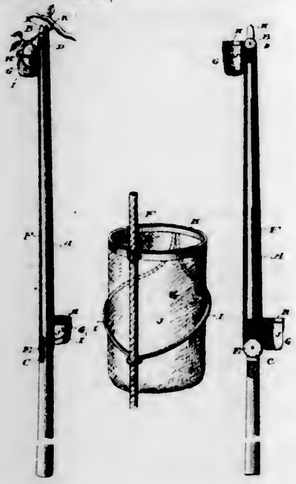


Claim.—1. In a portable drag-saw machine, the combination, with a frame consisting of the standard A, longitudinal beam B, provided with a U-shaped iron, *m*, at one end, the plate L, secured to said longitudinal beam B, and the hinged braces M, of the angular lever D, pivoted between the plate L and standard A below said beam, the connecting-rod S, and lifting-bar H, the said lifting-bar and connecting-rod slotted at their ends and pivoted by the same pivot-bolt to a saw-handle, substantially as herein set forth.

2. In a portable drag-saw machine, the combination, with a frame consisting of the standard A, longitudinal beam B, and plate L, of the hinged braces M, attached to said standard and plate, and the U-shaped irons *m*, attached to the free end of the said beam, substantially in the manner and for the purpose herein set forth.

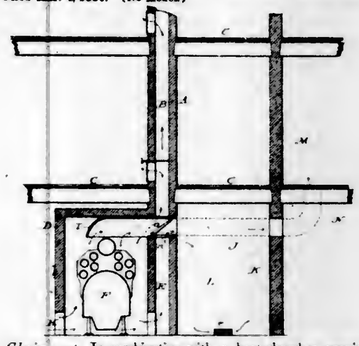
3. In a portable drag-saw machine, the combination, with the standard A, having slot *a*, and the beam B, having the slot *d* and small standard G, of an adjusting-lever, K, a thumb-screw, *i*, in said lever entering said slot *a* of the standard A, and the lifting-bar H, adjustably pivoted to said adjusting-lever K at one end and slotted to receive a saw-handle at the other end, substantially as shown and described, and for the purpose herein set forth.

353,110. FRUIT-PICKER. HUDSON H. C. ARNOLD, Dallas, Tex. Filed Feb. 17, 1886. (No model.)



Claim.—A fruit-picker consisting in the combination of a pole forked at its upper end and provided with a slot near its lower end, sheaves journaled, respectively, in the fork at the upper end of said pole and in the slot near the lower end of the same, an endless cord passing over said sheaves, and two fruit-receptacles, one attached to the cord on each side of the pole, said receptacle consisting of a ring secured by one side to the cord, a bag suspended from said ring, and a brace-wire secured by its ends at one point of the ring and to said cord by its middle, the bag being embraced by the wire and thereby held in place, as shown and described.

353,111. HEATING APPARATUS. STERLING L. BAILEY, Chicago, Ill. Filed Mar. 4, 1886. (No model.)



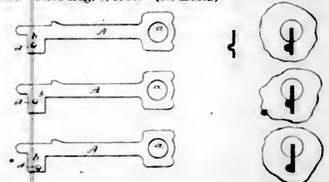
Claim.—1. In combination with a heat-chamber provided with ascending heat flues or pipes, the hood I, arranged to intercept a portion of the ascending hot air and direct it to a lateral opening or pipe in the side wall of the chamber, substantially as shown and described.

2. The hood I, provided with an opening, *n*, arranged to coincide with a cold-air duct, E, in combination with the valve *a*, arranged to simultaneously close the hot-air passage and open the cold-air inlet, or vice versa, said parts being arranged to operate in connection with a heat-chamber, substantially as shown and described.

353,112. WELDING COMPOUND. JOSEPH O. BALL, Springfield, Mass. Filed May 26, 1886. (No specimens.)

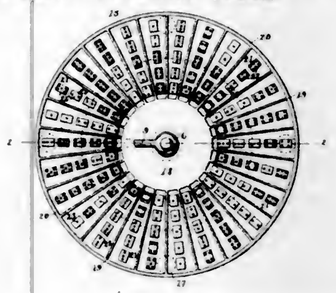
Claim.—The herein-described composition of matter to be used for welding iron and steel, consisting of oxide of zinc and sand, in about the proportions specified.

353,113. KEY. JOHN H. BARNES and JOSEPH H. WOOLASTON, New Haven, Conn., assignors to the Barnes Manufacturing Company, same place. Filed Aug. 9, 1886. (No model.)

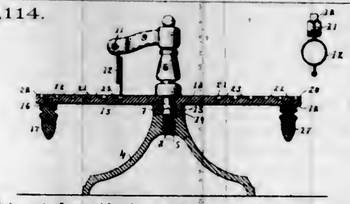


Claim.—The herein-described key, having its bit constructed with a projection upon its side of less extent than the width of the bit, substantially as and for the purpose described.

353,114. PARLOR-GAME APPARATUS. WILLIAM N. BAXTER, Providence, R. I. Filed Feb. 2, 1886. (No model.)



353,114.



Claim.—1. In combination, a dial provided with a lay-out consisting of a set of figures representing die-faces, said figures disposed in radial series, inter-serial ribs extending radially, a post upon which said dial is mounted, a chance-indicator arranged upon said post and projecting over said lay-out and co-operating with said inter-serial ribs, said dial and indicator having a relative rotary motion whereby they may move past each other, and one of said series be designated by said indicator on coming to rest, for the purpose set forth.

2. In combination, the rotary dial 13, provided with the radial series of raised figures 22, having pips 23, representing die-faces, the inter-serial ribs 19, the knobs 17, the stand 4, and post 6, supporting said dial, the arm 9, secured upon said post and carrying the chance-indicator, which is tripped by said ribs 19, substantially as described.

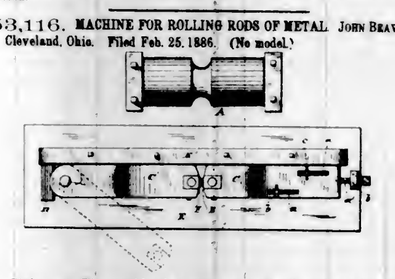
353,115. SHOT AND POWDER MEASURE. WILLIAM N. BEARDSLEY, Bridgeport, Conn., and LOUIS KELLER, New York, N. Y. Filed May 22, 1886. (No model.)



Claim.—1. The combination, in a shot and powder measure, of an external tube, C, provided with a slotted gage, D, having laterally-extending notches, an inner movable cup, E, provided with a thumb-button, H, the shank whereof passes through the slot of the gage D and enters a disk of wood or like material placed in the bottom of the cup E, substantially as and for the purposes set forth.

2. The described improvement in the manufacture of shot and powder measures, consisting in an external measure-tube, C, provided with a slotted gage, D, the inner cup, E, provided with a disk of wood or like material placed in the bottom thereof, and a thumb-button operated from the outside of the measure, attached to the inner cup by means of a shank or tang driven into the said disk, substantially as and for the purposes set forth.

353,116. MACHINE FOR ROLLING RODS OF METAL. JOHN BRAVIS Cleveland, Ohio. Filed Feb. 25, 1886. (No model.)



Claim.—1. The combination, with a pair of rolls and two housings independent of each other, in which said rolls are respectively and independently mounted, of adjusting mechanism which moves one or both said roll-housings to and from its companion housing, substantially as set forth.

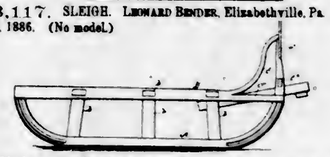
2. The combination, with a train of metal-reducing rolls, of auxiliary reducing-rolls mounted in housings external to the train and adjacent thereto, one or both of said auxiliary roll-housings being arranged to be slid on ways or otherwise to be movable into the pathway of the working metal, substantially as set forth, whereby said auxiliary rolls are caused to grip the metal, so as to compress and reduce it at any portion of its length as it passes through the train, substantially as set forth.

3. The combination, with a set of rolls, of an auxiliary set of rolls having their rolling-faces located in a plane angular to the plane in which the rolling-faces of the other set of rolls is located, the two rolls of the auxiliary set mounted in independent housings, one of which is pivoted and has swinging movement to and from its companion housing, substantially as set forth.

4. The combination, with a set of rolls, of an auxiliary set of rolls having their rolling-faces located in a plane angular to the plane in which the rolling-faces of the other set of rolls is located, the two rolls of the auxiliary set mounted in independent housings, one of which is pivoted and has swinging movement to and from its companion housing, together with a support against which said pivotal housing has lateral bearing when in operative position, substantially as set forth.

5. The combination, with a set of rolls, of an auxiliary set of rolls having their rolling-faces located in a plane angular to the plane in which the rolling-faces of the other set of rolls are located, one of said auxiliary rolls having pivotal movement and the companion roll having rectilinear adjustment, substantially as set forth.

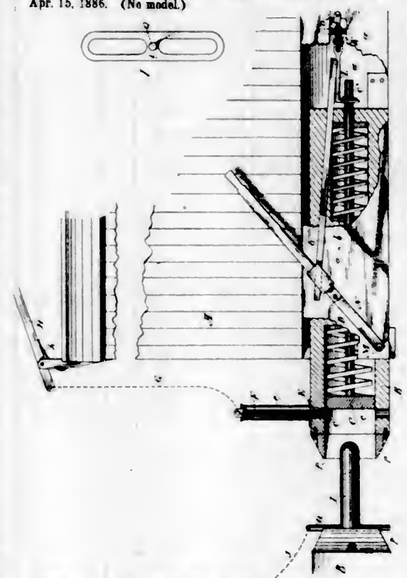
353,117. SLEIGH. LEONARD BENDER, Elizabethville, Pa. Filed Aug. 4, 1886. (No model.)



Claim.—1. The herein-described sleigh, comprising the runners having a portion thereof removed at the front end for the purpose stated, the inclined standards having cross-pieces connected thereto, the horizontal side bars having long and short arms, the said long arm being connected to the said runners and the shield or plate, substantially as shown and described.

2. The combination, with the runners having a portion of their bend removed, and the shield or plate, of the side bars having each a long and short arm connected to said runners, substantially as shown, and for the purpose described.

353,118. CAR-COUPLING. JOHN J. BOGARD, Tehama, Cal. Filed Apr. 15, 1886. (No model.)



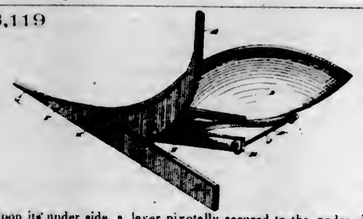
Claim.—1. In a car-coupling, the draw-head B and the vertically-moving pin F, in combination with the spring-actuated latch C within the draw-head, and having a flange, *c'*, for supporting said pin, the double coupling-link having a cross-pin for limiting the insertion of the link within the draw-head, and means for attaching the pin to the car, substantially as herein described.

2. In a car-coupling, the draw-head B and the vertically-moving pin F, in combination with the coupling-link I, latch C, supporting the pin and releasing it by the action of the entering link, and having a rearwardly-extending stem or shank, *c²*, passing through the draw-head and projecting at its rear end, the spring D within the draw-head, by which the latch is held forward, the pivoted lever N, the pivoted lever K, the connecting-rod O between the levers, and the link L, connecting the lever K with the rear end of the latch-stem *c²*, whereby the latch is drawn back to uncouple the cars, substantially as herein described.

353,119. FASTENER FOR PLOW POINTS. GEO. T. BROWN, Round Rock, Tex. Filed July 17, 1886. (No model.)

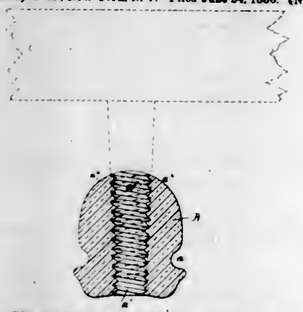
Claim.—The combination, with a plow-body, of a point having a

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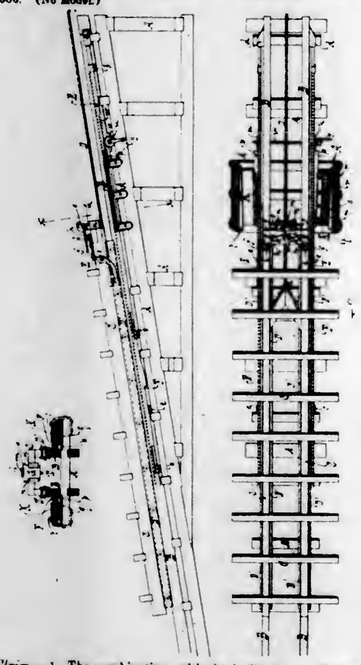
hook upon its under side, a lever pivotally secured to the under side of the mold-board, a spring secured to the standard, and a link secured to the free end of said spring and engaging with the rear end of said lever.

353,120. INSULATOR. ROBERT G. BROWN, Brooklyn, assignor to E. S. Greeley & Co., New York, N. Y. Filed June 24, 1886. (No model.)



Claim.—The described insulator for hanging line-wires, having the convex or sloping top end, a^2, and a central longitudinal opening, a', extending entirely through its body from top to bottom and threaded throughout its extent, as and for the purpose specified.

353,121. MARINE RAILWAY. ANTONIO CATRARI, Brooklyn, N. Y., assignor to himself and Bartholomeo Costa, same place. Filed Aug. 12, 1886. (No model.)



Claim.—1. The combination, with the inclined ways B, the cradle C, and the cable D, of the rack-bars F, the pawls E, and the gravitating stop *o*, substantially as described.

2. The combination, with the inclined ways B, the cradle C, and the cable D, of the rack-bars F, the pawls E, the bell-crank lever *h*, connected to the pawls, the cords *k*, the winding-post *l*, carrying the arm *m*, and the weight G, provided with a stop, *o*, substantially as described.

3. The combination, with the inclined ways B, the cradle C, and the cable D, of the movable rack-bars F, the pawls E, the gravitating stop *o*, the elastic brake-shoes K, constructed to act on the rack-bars, and the stops *c*, substantially as described.

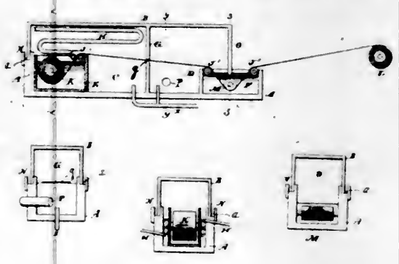
4. The combination, with the inclined ways B, the cradle C, and the cable D, of the movable rack-bars F, the pawls E, the gravitating stop *o*, the wedge-shaped projections *p*, formed on the rack-bars, the elastic brake-shoes K, constructed to act on said projections, and the stops *c*, substantially as described.

5. The combination, with the inclined ways B, the cradle C, and the cable D, of the movable rack-bars F, the pawls E, the gravitating stop *o*, the wedge-shaped projections *p*, formed on the rack-bars, the roller-frames *q*, the springs *r*, constructed to act on said roller-frames, and the stops *c*, substantially as described.

6. The combination, with the inclined ways B, the cradle C, and the cable D, of the movable rack-bars F, the pawls E, the gravitating stop *o*, the wedge-shaped projections *p*, formed on the rack-bars, the roller-frames *q*, the springs *r*, mounted in the boxes *s*, and constructed to act on the roller-frames, the wedges *t*, adapted to hold said boxes in an inclined position, and the stops *c*, substantially as shown and described.

7. The combination, with the inclined ways B, the cradle C, and the cable D, of the movable rack-bars F, the pawls E, the bell-crank levers *h*, connected to said pawls, the cords *k*, the winding-post *l*, carrying the arm *m*, the weight G, carrying the stop *o*, the wedge-shaped projections *p*, formed on the rack-bars, the roller-frames *q*, the springs *r*, mounted in the boxes *s* and constructed to act on the roller-frames, the wedges *t*, adapted to hold the boxes in an inclined position, and the stops *c*, substantially as shown and described.

353,122. METHOD OF COATING PAPER AND OTHER MATERIAL WITH WAX. STEPHEN M. CHESTER, Elizabeth, N. J., assignor to Clayton Rockhill, New York, N. Y. Filed May 1, 1886. (No specimens.)



Claim.—1. The method of coating paper or other material with wax, consisting, essentially, in first impregnating the paper or other material with wax; secondly, submitting the impregnated paper to an evaporating-blast, and, thirdly, passing it through water.

2. The method of coating paper or other material with wax, consisting in first soaking the paper or other material in a solution of wax, then exposing it to an evaporating-blast, and subsequently passing it through water.

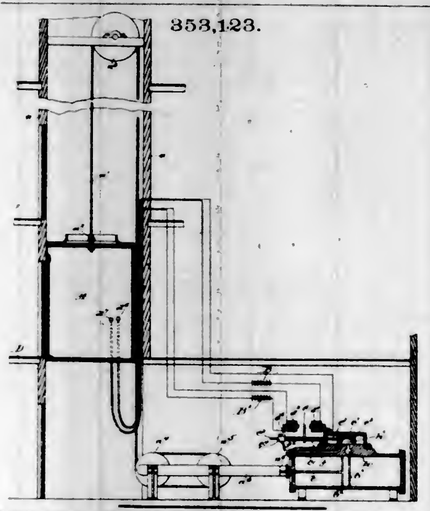
3. The method of coating paper or other material with wax, consisting in first impregnating the paper with wax, then subjecting it to heat to assist evaporation, and then passing it through water.

4. The method of coating paper and other material with wax, consisting, essentially, in first soaking the paper or other material in a solution of wax, then exposing it to an evaporating-blast in an air-tight chamber, and finally passing it through a tank of water, substantially as set forth.

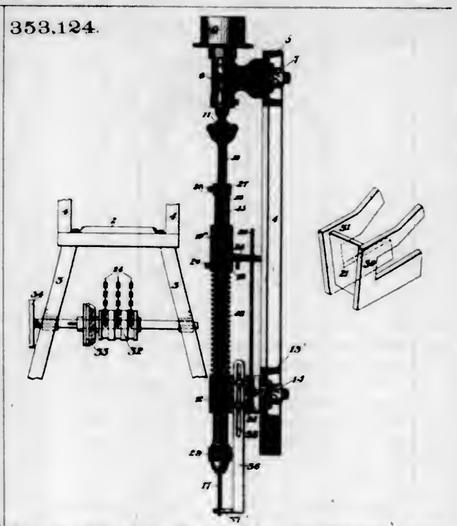
353,123. ELECTRIC ELEVATOR. JOHN H. CLARK, Boston, Mass. Filed Aug. 12, 1886. (No model.)

Claim.—An elevator-car and a motor mechanism provided with a valve to control the movement of the motor mechanism and effect the movement of the car, combined with switches upon the car, and electrical devices, substantially as described, connected with the car and to the motor mechanism and co-operating with the valve of the said motor mechanism to effect from the said car the movement of the valve of the motor mechanism at will, in one or the other direction, and by such movement effect the ascent or descent of this said car, substantially as and for the purpose set forth.

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353,124.



353,124. DRILLING-MACHINE. WILLIAM R. DICKSON, Pittsburg, Pa., assignor of two-thirds to John E. Hall and Leonard A. Bradley, both of same place. Filed Sept. 13, 1886. (No model.)

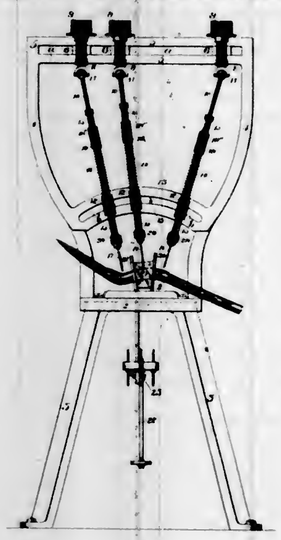
Claim.—1. An improvement in the art of attaching the blades of shovels, &c., to their handles, which consists in first placing the shovel-handle between the straps and then drilling a hole through the straps and handle, substantially as and for the purposes described.

2. In a machine for drilling curved articles, the combination of a support for the article to be drilled, a drill, a drill-shaft capable of vertical elongation or contraction, and a journal-block for such drill-shaft movable horizontally, whereby the drill can be adjusted, substantially as and for the purposes described.

3. In a machine for drilling curved articles, the combination of a support for the article to be drilled and several drills directed thereto ward at right angles to the tangents of the curve, substantially as and for the purposes described.

4. In a drilling-machine, the combination of a drill and its shaft and a journal-block for the drill, said journal-block being movable and adjustable to vary the angle of inclination of the drill-shaft, substantially as and for the purposes described.

5. In a drilling-machine, the combination of a drill and its shaft, a journal-block for the drill, said journal-block being movable and adjustable to vary the angle of inclination of the drill-shaft, and a driving-shaft,



8, connected with the drill-shaft by a flexible joint, substantially as and for the purposes described.

6. In a drilling-machine, the combination, of a drill and its shaft, a journal-block for the drill, said journal-block being movable and adjustable to vary the angle of inclination of the drill-shaft, and an adjustable driving-shaft, 8, connected with the drill-shaft by a flexible joint, substantially as and for the purposes described.

7. In a drilling-machine, a rotary drill-shaft made in sections, arranged to be elongated or contracted, substantially as and for the purposes described.

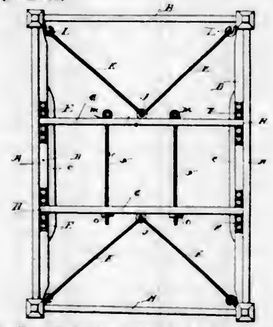
8. In a drilling-machine, a rotary drill-shaft made in sections, arranged to be elongated or contracted, and mechanism, substantially as described, for elongating the drill-shaft, as and for the purposes specified.

9. In a drilling-machine, a rotary drill-shaft made in sections, arranged to be elongated or contracted, mechanism, substantially as described, for elongating the drill-shaft, and a spring for contracting it, substantially as and for the purposes described.

10. The combination, with a drill for drilling a shovel-handle and its straps, of a clamp, 21, for confining the straps to the handle during the drilling, substantially as and for the purposes described.

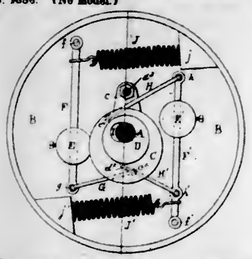
11. The combination, in a drilling-machine, of a rotary drill and a guide depending from and secured to the journal-block holding the drill-shaft in position, through which guide the drill passes, substantially as and for the purposes described.

353,125. BEDSTEAD. JOHN F. DRAPER, Patoka, Ill. Filed July 12, 1886. (No model.)



Claim.—The combination, with a bedstead the side rails of which are provided with longitudinal strips, each of said strips having a hole near each end, of two pairs of blocks secured to each of said strips and to the side rails, a pair of cross-pieces having a pin at each end secured to said side rails between said pairs of blocks, a pair of brace-rods secured to the middle portion of each of said cross-pieces, and to the posts of the bed at that end, and a pair of adjusting rods or bolts connecting said cross-pieces.

353,126. CUT-OFF GOVERNOR. R. LEE EDMOND, Richmond, Va. Filed Aug. 23, 1886. (No model.)

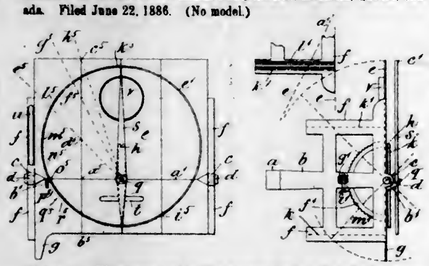


Claim.—1. In a rotary governor, the combination of an auxiliary eccentric suspended to the disk on the main shaft, and a main eccentric journaled upon the auxiliary eccentric, with means, substantially as shown and described, for actuating both eccentrics.

2. A rotary governor composed of an auxiliary eccentric suspended to the disk of the main shaft, a main eccentric journaled upon the auxiliary eccentric, a pair of pivoted and weighted arms pivoted upon said disk, a pair of springs confining the free end of the arms to the disk, and three links, two of which connect opposite points of the main eccentric with the opposite arms, and the remaining one of which links connects one of said arms near to its pivot with the auxiliary eccentric.

3. The combination, with the shaft A, carrying the disk B, of the arms F F', carrying the weights E E', the springs J J', connecting said arms to the disk, the auxiliary eccentric D, suspended to disk B, the links G H, connecting the main eccentric to the arms, the main eccentric C, journaled upon the auxiliary eccentric, and the link H', connecting said auxiliary eccentric to the arm F', substantially as set forth.

353,127. INSTRUMENT FOR MEASURING THE DISTANCE AND HEIGHT OF OBJECTS. WILLIAM FARQUHARSON, Montreal, Quebec, Canada. Filed June 22, 1886. (No model.)



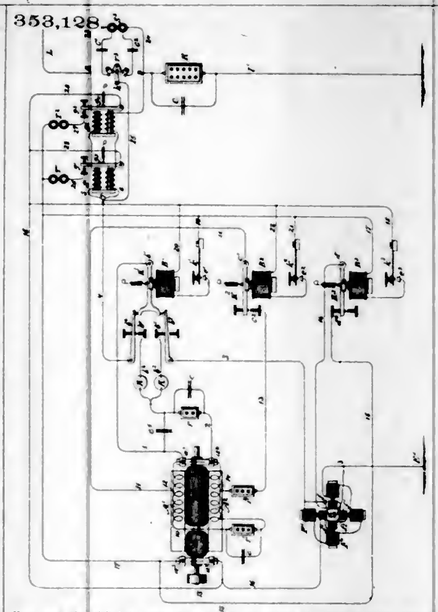
Claim.—1. The cross-staff having cross-sights, as described, in combination with the distancer having oscillating table *e*, hands *s* and *k*, and graduated circles *e'*, substantially as described.

2. In combination with a cross-staff constructed and arranged substantially as described, the distancer having oscillating table *e*, provided with graduated circles *e'* and level *t*, cross-bar *b*, frame *f*, having graduated scales *k'*, and level *u*, the whole constructed and arranged substantially as described.

3. In the instrument called the "distancer," the combination of cross-bar *b*, frame *f*, having level *u* and scales *k'*, table *e*, having level *t*, and graduated circles *e'*, and trunnions *d*, hands *s* and *k*, with a mechanism, substantially as described, for actuating the said hands, and mechanism for adjusting the table either to the level or at an inclination, the whole constructed and arranged substantially as shown and described, for the purposes set forth.

4. The combination, in the cross-staff, of the plate c^3, having graduated scale of degrees d^3, foot e^3, frame f^3, cylinder h^3, plate k^3, sight m^3, having level a^4, and cross-sight l^3, the whole constructed and arranged substantially as described, for the purpose set forth.

353,128. MULTIPLE TELEGRAPHY. STEPHEN D. FIELD, Yonkers, N. Y. Filed July 31, 1886. (No model.)



Claim.—1. The combination, with a generator and a telegraphic main line, of a pole-changing key connecting one pole or the other of the generator with the line at will, and a second key having its lever and contact-point, respectively, connected with intermediate points in the field-magnet coils of the generator.

2. The combination, with a main line and a source of electricity, of three independent keys or transmitters, the first of which acts to reverse the connections of the source with the main line, the second to vary the electro-motive force of said source with reference to the main line, and the third to superpose rapid reversals of current upon the currents traversing the main line from an independent source.

3. The combination, with a source of electricity and a main line, of a key for reversing the connections of the source with the main line, a second key for varying the electro-motive force of said source, and a third transmitter for establishing electrical vibrations upon the main line, consisting of a revolving series of magnets, a stationary series of magnets, one of which series is connected in the main-line circuit and acted upon by the other series, and a circuit for vitalizing the latter series, of magnets.

4. In a telegraphic system, a magneto-electric transmitter consisting of a revolving series of magnets, means for completing a circuit through said magnets at will, a series of coils surrounding said magnets included in the main-line circuit, and a circuit-controlling device for establishing a short circuit around said coils at predetermined points in the revolution of the first-named magnets.

5. The combination, with a source of electricity and main and artificial telegraph-lines, of two receiving-instruments having opposing coils, respectively, included in said lines, a pole-changing key applied to said source, a second key for varying the strength of current from said source, a third receiving-instrument having its respective coils included in condenser-circuits, respectively, leading from said source of electricity to the main and artificial lines.

6. The combination, with a dynamo-electric generator, of a pole-changing key applied thereto, a shunt-circuit around a portion of the field-magnet coils of said machine, a key for controlling the connections of said shunt-circuit, and an artificial resistance included in the portion of the field so shunted.

7. The combination, with a dynamo-electric generator, of a pole-changing key applied thereto, a shunt-circuit around a portion of the field-magnet coils of said machine, a key for controlling the connections of said shunt-circuit, an artificial resistance included in the portion of the field so shunted, and an artificial resistance in said shunt-circuit.

8. The combination, with a dynamo-electric generator and a telegraphic main line, of a transmitter for reversing the connections of said generator with the line, a condenser inserted between the conductors leading from said generator to said key, and a source of vibratory impulses connected with said main line through said key.

9. The combination, substantially as hereinbefore set forth, of a source of electricity, a pole-changing key for reversing the connections of said source with said main line, an artificial resistance included between said generator and said key, a condenser around said resistance, and a second key for varying the strength of the current derived from said generator.

10. In a multiple-telegraph system, a source of electricity, a pole-changing key, and a current-varying key, in combination with a second source of electricity and a key for superposing currents from the last-named source upon the currents from the first-named source, substantially as described.

11. In a multiple-telegraph system, a vibratory transmitter consisting of stationary electro-magnets having their coils included in the main-line circuit, revolving electro-magnets having their coils included in an independent circuit, or vice versa, and a key for controlling the connections of the last-named circuit.

12. In a multiple-telegraph system, the combination, with a shunt-wound dynamo, a pole-changing key, and a current-varying key, of an additional armature applied to said dynamo, and receiving-instruments deriving their operating-currents from said additional armature.

13. In a telegraphic system, the combination of a polarized receiving-instrument, a neutral receiving-instrument, both included in the main line, a local circuit having its connections controlled by the neutral relay, and a coil acting upon the armature of the polarized relay included in said local circuit.

14. In a telegraphic system, the combination of a polarized receiving-instrument, a neutral receiving-instrument, both included in the main line, a local circuit having its connections controlled by the neutral relay, a coil acting upon the armature of the polarized relay included in said local circuit, and a sounder also included in said local circuit.

15. In a telegraphic system, the combination, with a polarized and a neutral relay included in the main line, of a supplemental coil applied to the neutral relay, and a second magnet applied to the armature of the neutral relay having its coils included in circuit with said supplemental coil, substantially as described.

16. In a telegraphic system, a vibration-receiving instrument consisting of a diaphragm, a polarized magnet to which it is applied, supporting wires or strings carrying said diaphragm, and a circuit-controller operated by the movements of said diaphragm.

17. In a telegraphic system, a vibration-receiver having its coils included in a bridge-condenser circuit around other instruments of said system, a relay responding to the movements of the harmonic receiver, a supplemental magnet applied to said relay, a second condenser around said instrument, including said supplemental magnet, and a circuit-controller operated by said relay, substantially as described.

18. In a telegraphic system, a vibration-receiving instrument, a condenser-circuit including the same, a condenser-circuit around said instrument, a reversing-relay controlled by said harmonic receiver, a local circuit controlled by said reversing-relay, a sounder included in the same, and a circuit-controller operating to complete said second condenser-circuit upon the interruption of the local circuit, and vice versa.

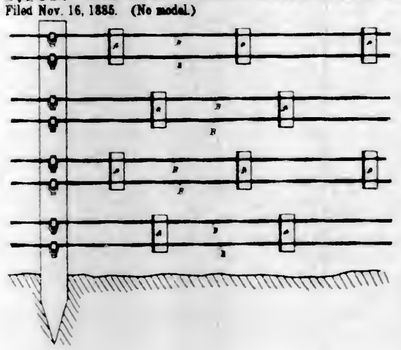
19. The combination, substantially as hereinbefore set forth, with a source of electricity, of a pole-changing key, a conductor leading from one pole of the source to the key-lever, branch conductors leading from the other pole to two contact-points, an artificial resistance in each branch conductor, two contact arms or levers applied to said points and key-lever, and a main line connected with said arms, substantially as described.

20. In a system of electric telegraph, a dynamo-electric generator, a main-line circuit, controlling-keys determining the connections of the generator with the main line, electro-magnets operating said keys, receiving-instruments, and local circuits derived from said generator including said electro-magnets and receiving instruments.

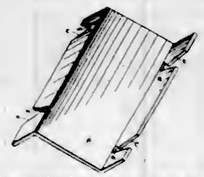
21. The hereinbefore-described method of rendering the action of a polarized armature constant under the conditions of actuating-currents of varying strength, which consists in decreasing its magnetism when influenced by currents of less strength, and increasing its magnetism when influenced by currents of greater strength.

22. In a telegraphic system, a polar and a magnetizing coil acting on the polar armature, a neutral relay, a battery, a circuit therefor including said coil, having its connections such as to tend to neutralize the polarization of the armature, and a circuit-controller for said circuit operated by the neutral relay to interrupt the circuit when the neutral relay is traversed by a current of increased strength.

353,129. WIRE FENCE. WILLIAM C. GHOLSON, Cincinnati, Ohio. Filed Nov. 16, 1885. (No model.)

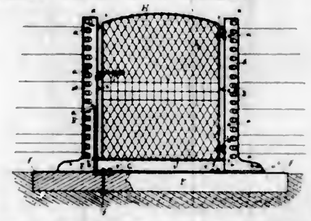


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Claim.—In combination with two separate wires or cables, each composed of twisted strands of wire, a light sheet-metal plate having its longitudinal edges bent at a right angle to the body or central portion of the plate and in opposite directions, each of the turned edges perforated, as shown at *a*, at the angle or bend, the body of the plate being tangent to the perforations and provided with flaring V-shaped notches *c*, cut from the perforations *a* to facilitate the entrance of the wires into the perforations, substantially as described.

353,130. GATE FOR WIRE FENCES. WILLIAM C. GHOLSON, Cincinnati, Ohio. Filed Nov. 16, 1885. (No model.)

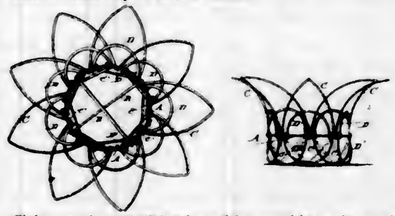


Claim.—1. The combination, substantially as specified, of the post A, with the angle-bar E, secured to the gate edge of the post, and having its lower bent end extending horizontally for attachment to the base and the wire-tighteners B, and fence-wires to draw the post from the gate and hold it firmly upon its base.

2. In combination, the two-part posts A, the spools B, journaled within the posts, the bolts *a*, for securing the sides together, and the bar E, secured within the post and to the gate edge thereof, and having its lower end bent and extending out for attachment to the base, substantially as shown and described.

3. The combination, substantially as specified, of the posts A, bars E, secured to the gate edges of said posts, and having their lower ends extending below the base and bent at a right angle to the posts, as shown, with the base F, bar G, bolts *e' f*, wire-tighteners B, and the fence-wires.

353,131. CONVERTIBLE WIRE BASKET. ALEXANDER S. GREENWOOD, Toronto, Ontario, Canada. Filed Aug. 13, 1886. (No model.) Patented in Canada May 29, 1884, No. 19,452.



Claim.—1. A convertible wire article comprising a ring or circle and a plurality of series of loops hinged to said ring, the loops of each series being adjustable independently of the loops of the other series, substantially as set forth.

2. The combination, with the base-ring, of the cross-bars, and the side loops hinged upon and around the said ring, as set forth.

3. The combination, with the base-ring, of the double row of base-loops, hinged, as described, upon and around the base-ring, substantially as set forth.

4. The combination, with the base-ring, of the side loops hinged upon and around the said ring, and the double row of base-loops hinged, as described, upon and around the base-ring, substantially as set forth.

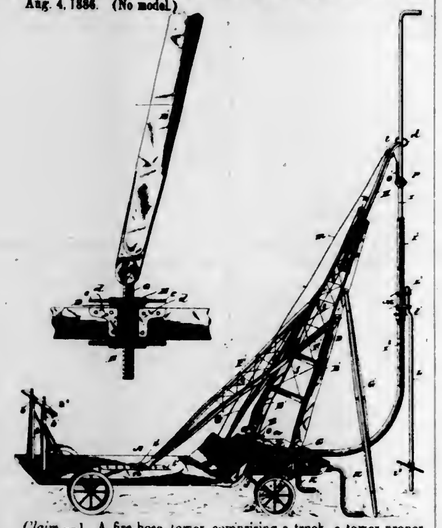
5. The combination, with the base-ring, of the cross-bars, the side loops hinged upon and around the said ring, and the double row of base-loops hinged, as described, upon and around the base-ring, substantially as and for the purpose set forth.

6. The combination, with the base-ring, the double row of base-loops, and the side loops, of the suspension-wires, arranged as described.

7. In a convertible wire article, the combination, with a base ring

or circle, of a series of loops hinged independently to said ring and interlocked, as described, whereby the relation of said loops will be preserved in the different positions thereof, substantially as set forth.

353,132. WATER-TOWER. GEO. C. HALE Kansas City, Mo. Filed Aug. 4, 1886. (No model.)



Claim.—1. A fire-hose tower comprising a truck, a tower proper, a mast having at its upper end a yoke, and a suspended swiveled support or block, in combination with a nozzle-pipe, substantially as and for the purpose set forth.

2. The combination, with the truck and tower side pieces, of the screws working in sleeves or bushings connected to the truck and the nuts applied to said screws, said tower side pieces being pivoted to said screws, substantially as and for the purpose set forth.

3. The combination, with the upheld pipe connected to a nozzle-pipe and to a water-hose, of the pole having in its upper end a spring catch or snap and slips applied to said pipe, and between which and the pipe said end of the pole is inserted, its spring-catch snapping past and standing above said clips, substantially as and for the purpose specified.

4. The combination, with the truck and its tower, of the two-armed brace with their divergent ends pivoted to the side pieces of the tower, and their convergent or merged ends provided with an apertured extension-plate receiving a pin entering any one of a series of apertures of a plate applied to the floor of the truck, substantially as and for the purpose set forth.

5. The combination, with a truck, of a pivoted braced tower, a windlass arranged upon the truck, the mast held between the upper ends of the side pieces of the tower and carrying a yoke and a pulley in its upper portion, and a cable connecting with said windlass and passed over the pulley in the mast and connected to a swiveled block or support, substantially as and for the purpose indicated.

6. The combination, with the truck and the tower supported upon the truck and conveying a pulley at its upper end, of a windlass arranged upon the truck, the mast having a yoke at its upper end, and a cable connected to said windlass and passed over said pulley and connected to said mast, substantially as and for the purpose designated.

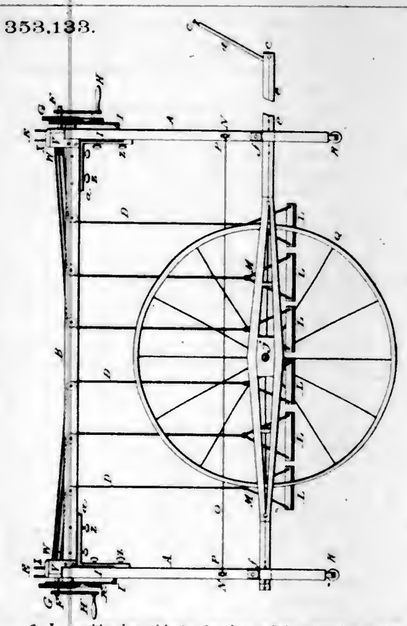
7. The combination, with the truck, of the windlasses arranged upon the truck, the tower having a pulley at its upper end supported and braced in position upon the truck, the mast telescopically held between the upper ends of the side pieces of the tower and carrying a yoke and pulley at its upper end, and the cables connected to said windlasses, one passing over the pulley at the upper end of the tower and connected to the lower end of the mast, and the other cable passing over the pulley in the upper portion of the mast and suspending a swiveled block or support, substantially as and for the purpose described.

353,133. PATIENT'S ELEVATOR AND PERAMBULATOR. MARGARET HAMMOND, Port Madison, Wash. Filed Mar. 8, 1886. (No model.)

Claim.—1. An improved elevator and perambulator comprising a main frame having wheels, elevating devices, frames or bars provided with wheels, as Q, and clamps for detachably securing said bars or frames to the main frame, substantially as set forth.

2. In a device substantially as described, an arm or support formed of separable side sections provided with interlocking connections, whereby they may be united or detached at will, substantially as set forth.

353,133.

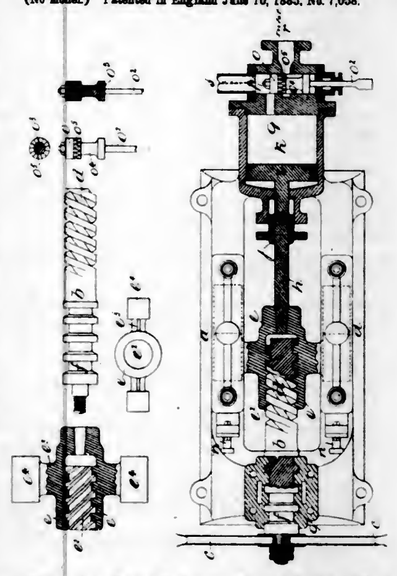


3. In combination with the framing and the elevating devices, the stretcher and means whereby to secure the same to the framing, substantially as set forth.

4. The combination, with the framing, the arms or supports, and the elevating-cords, of spring-connections M between said cords and the arms or supports, substantially as set forth.

5. The combination of the framing having uprights A, provided with clamps *f*, the side bars or frames having wheels Q, and provided with clamps *g*, and the elevating devices, substantially as set forth.

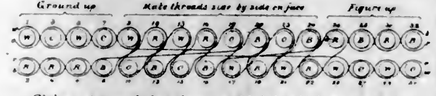
353,134. DIRECT-ACTING ENGINE. ALFRED C. HANDS and FRANK PARKES, Birmingham, County of Warwick, England. Filed June 7, 1886. (No model.) Patented in England June 10, 1885, No. 7,058.



Claim.—In a direct-acting engine, the combination, with a steam-cylinder, a piston, and piston-rod, a cross-head having a screw-threaded

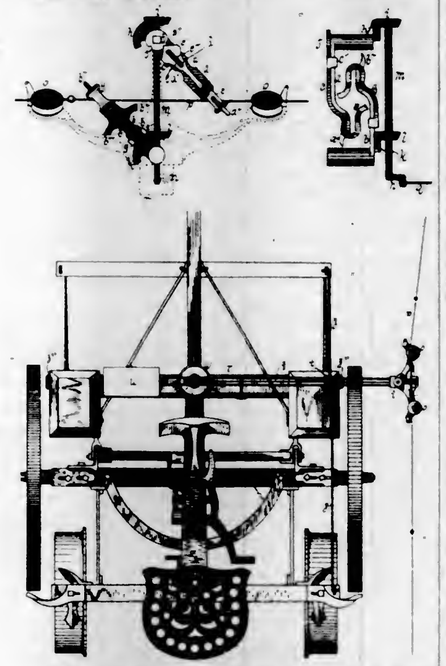
cavity and sliding in a suitable frame, and springs secured in said frame and bearing against said cross-head, of a shaft, *b*, having a screw, *d*, said shaft being journaled in the frame and provided with a pulley, *c*, all constructed and arranged substantially as described, whereby the said shaft and pulley will be rotated in one direction by the forward movement of the piston and in the opposite direction by the resiliency of the springs.

353,135. INGRAIN CARPET FABRIC. HARRY HARDWICK, Philadelphia, Pa. Filed May 4, 1886. (No specimens.)



Claim.—A two-ply ingrain carpet fabric in which mate weft-threads appear side by side on the same face of the fabric where it is double-ply, and form a part of the pattern of the fabric, all substantially as specified.

353,136. CHECK-ROWER. GEORGE D. HAWORTH, Decatur, Ill. Filed Sept. 16, 1886. (No model.)



Claim.—1. A check-row bar consisting in a continuous metallic strip forming two parallel lines.

2. A check-row bar consisting in a single metallic strip having its ends joined together and forming two parallel lines.

3. A check-row bar composed of a single metallic strip bent to form two parallel lines and having its ends joined together.

4. In check-rowers, in combination, a pair of reversely-conformed and reversely-arranged arms having simultaneous oscillation in contrary directions and provided each with a centripetal bifurcation, a segmental gear on each arm concentric with the fulcrum thereof, and a shaft having pinions in mesh with the gear of the arms, as and for the purpose set forth.

5. In check-rowers, in combination, a pair of reversely-conformed and reversely-arranged arms having simultaneous oscillation in contrary directions, each arm consisting of a lever having a deflected outer termination, and a dog having motion longitudinally on the lever and forming therewith a centripetal bifurcation, as and for the purpose set forth.

6. In check-rowers, in combination, a pair of reversely-conformed and reversely-arranged arms having simultaneous oscillation in contrary direction, each arm consisting of a lever having a deflected outer termination, and a dog having motion longitudinally on the lever and forming therewith a centripetal bifurcation, a segmental gear on each arm concentric with the fulcrum thereof, and a shaft having pinions in mesh with the gear of the arms, as and for the purpose set forth.

7. In check-rowers, in combination, a pair of reversely-conformed and reversely-arranged arms having simultaneous oscillation in contrary directions, each arm consisting of a lever having a deflected outer termination, and a dog having motion longitudinally on the lever and forming therewith a centripetal bifurcation, a segmental gear on each arm concentric with the fulcrum thereof, and a crank-shaft having pinions in mesh with the gear of the arms, the radius of said pinions being equal to one-half the radius of the gear, as and for the purpose set forth.

8. In check-rowers, in combination, a pair of reversely-conformed and reversely-arranged arms having simultaneous oscillation in contrary directions, each arm consisting of a lever having a deflected outer termination, and a dog having motion longitudinally on the lever and forming therewith a centripetal bifurcation, a non-rotative washer at the fulcrum of a lever having peripheral incisions in line with the extreme positions of the arm, and a V-shaped projection on the end of the contiguous dog adapted to enter an incision at the termination of each stroke of the arms, as and for the purpose set forth.

9. In check-rowers, in combination, a pair of reversely-conformed and reversely-arranged arms having simultaneous oscillation in contrary directions, each arm consisting of a lever having a deflected outer end and a lateral contraction, and a dog having a slot to fit over the deflected outer end of the lever, and clips to pass over the contraction of the lever and embrace the lever in a manner permitting motion longitudinally thereon, the said dog forming with the lever a centripetal bifurcation, as and for the purpose set forth.

10. In check-rowers, in combination, a pair of reversely-conformed and reversely-arranged arms pivoted one above the other and having simultaneous oscillation in contrary directions, each arm consisting of a lever having a deflected outer end, and a dog having motion longitudinally on the lever and forming therewith a centripetal bifurcation, the upper arm being provided with a spring by means of which the dog is held, commonly at its nearest approach to the fulcrum of the lever, as and for the purpose set forth.

11. In check-rowers, in combination, a check-row bar adapted to pivot in an approximately-horizontal plane at the transverse center of a corn-planter, and a check-row movement on the outer end of the bar, consisting of a lever or levers having a reciprocating motion and adapted to be operated from either side by the knots on a check-row line.

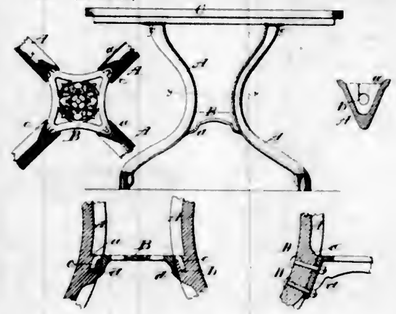
12. In check-rowers, in combination, a check-row bar adapted to pivot in an approximately-horizontal plane at the transverse center of a corn-planter, a check-row movement on the outer end of the bar, consisting of a lever or levers having a reciprocating motion and adapted to be operated from either side by the knots of the check-row line, and a counterpoise on the end of the bar opposed to the check-row movement.

13. In check-rowers, in combination, a check-row bar adapted to pivot in an approximately-horizontal plane at the transverse center of a corn-planter, and a check-row movement on the outer end of the bar, consisting of a pair of reversely-conformed and reversely-arranged arms having simultaneous oscillation in contrary directions and adapted to be operated from either side by the knots of a check-row line.

14. In check-rowers, in combination, a check-row bar adapted to pivot in an approximately-horizontal plane at the transverse center of a corn-planter, a check-row movement on the outer end of the bar, consisting of an arm or arms having a reciprocating motion and adapted to be operated from either side by the knots of a check-row line, a lever having its fulcrum on a vertical line with the pivot of the bar, means for connecting the lever with the seed-slide of the planter, and a pivotal connection between the check-row movement and the lever.

15. The swinging arm adapted to be swung from side to side of the planter, with the knotted check-row line in its regular operating position, in combination with a check-row movement adapted to be operated by such knotted check-row line when operating in opposite directions in relation to said movement.

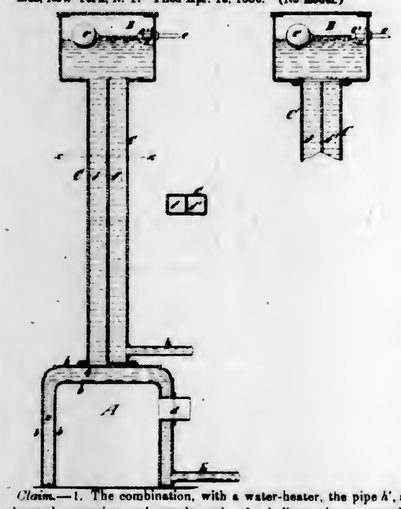
353,137. TABLE. JOHN HINKEL, Milwaukee, Wis. Filed June 1, 1886. (No model.)



Claim.—1. In a knockdown table, the combination of inwardly-curved legs, each provided with a bearing surface or seat having a vertically-disposed socket, a polygonal brace-piece having depending flanges that bear against the seats on the legs and the corners of this brace-piece provided with vertically-disposed fingers to engage the sockets in said seats, and a suitable top removably secured to the legs, substantially as and for the purpose set forth.

2. In a knockdown table, the combination, of inwardly-curved metallic legs V-shaped in horizontal section throughout the greater portion of their length and provided with solid parts or seats having sockets, a metallic brace-piece having its corners provided with depending fingers to engage the sockets in the seats and depending flanges that bear against the same, and a removable wooden top having its battens or other portion thereof provided with recesses to engage the upper ends of said legs, as set forth.

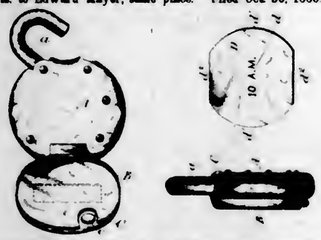
353,138. **HOT-WATER HEATING APPARATUS.** Chas. E. Hitchings, New York, N. Y. Filed Apr. 15, 1886. (No model.)



Claim.—1. The combination, with a water-heater, the pipe *h'*, and an elevated expansion and supply tank, of a hollow column extending upward from the heater for supporting the said tank, and comprising two passages for circulation, one passage, *f*, communicating at its upper and lower ends, respectively, with the tank and water-space of the heater, and the other passage, *f'*, communicating at its upper end with the tank and having its lower end communicating with the pipe *h* and closed to the water-space of the heater, substantially as herein described.

2. The combination, with a water-heater and a pipe, *h'*, of a hollow cast-metal column erected on the heater, and supporting at the upper end an expansion and supply tank, B, made integral therewith, said column containing one passage, *f*, open at the ends to the water-space of the heater and the tank, and another passage, *f'*, open at the upper end to the tank and closed at its lower end to the water-space of the heater and communicating with the pipe *h*, substantially as herein described.

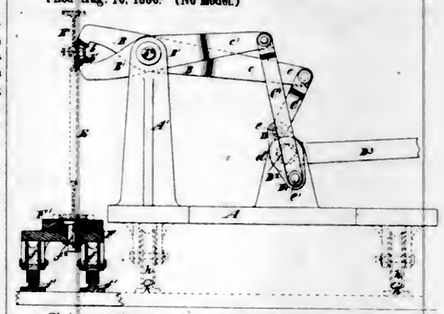
353,139. **INDICATOR FOR DROP-LETTER BOXES.** Marcus R. Jones, Washington, D. C., assignor of one-half, by direct and mesne assignments, to Edward Mayer, same place. Filed Oct. 30, 1885. (No model.)



Claim.—1. An indicator-lock for drop-letter boxes, provided with an outer dish-faced cap, B, having an open panel, *b*, and having an overturned orificed flange, C, whereby said cap can be secured by the hasp *a* of the lock, as and for the purpose intended, substantially as described.

2. An indicator-lock for drop-letter boxes, provided with a hinged cap, B, having an open panel, *b*, and having an overturned orificed flange, C, in combination with an inscribed removable plate, D, as and for the purpose intended, substantially as described.

353,140. **RIVETING-MACHINE.** Julius Jonson, New York, N. Y. Filed Aug. 10, 1886. (No model.)



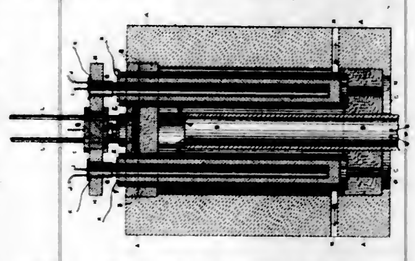
Claim.—1. In a riveting-machine, the combination, with a support or base portion, of two levers fulcrumed thereon and riveting-dies secured directly upon the front arms of the levers, the rear arms of the levers being extended in substantially the same direction, and the rock-shaft and links or rods connected with the rear ends or arms of said levers, and through which motion is transmitted for operating the levers, substantially as herein described.

2. In a riveting-machine, the combination, with a support or base portion, of two levers fulcrumed thereon, riveting-dies arranged directly on the front arms of the levers, the rear arms of the levers being extended in substantially the same direction, and being of unequal length, and a single rock-shaft and connections for operating said levers, substantially as herein described.

3. In a riveting-machine, the combination, with a base piece or support, of the levers B B', fulcrumed thereon, having their front arms provided with dies, and having rear arms, *c c'*, of unequal length, a rock-shaft, D², having crank-arms D D' extending radially in opposite directions, and links or rods C C', connecting the crank-arms and the lever-arms *c c'*, substantially as herein described.

4. The combination, with a base piece or support, of levers fulcrumed thereon and having front arms provided with riveting-dies, a rock-shaft and connections for operating said levers, and a carriage for the work provided with an upper portion secured by a vertical pivot on the carriage and capable of being turned to present opposite sides of the work to the machine, substantially as herein described.

353,141. **ELECTRIC BATTERY.** Jas. A. Kendall, Middlesbrough, County of York, England. Filed Jan. 18, 1886. (No model.) Patented in England Mar. 21, 1883, No. 1,481, and in France Sept. 17, 1883, No. 157,599.



Claim.—1. The apparatus for generating electricity, consisting of the combination, substantially as set forth, of two metallic electrodes, a saline or vitreous substance between them adapted to be permeated by heated hydrogen, and an ingress for heated gases.

2. In an apparatus for generating electricity, the combination of a pair of metallic electrodes, F G, and a solid mass of material, such as described, separating the electrodes, the whole being permeable by hydrogen at a red heat or the heat employed.

3. In an apparatus for generating electricity by means of gases, an electricity-generating cell consisting of metallic plates or electrodes, a mass of saline or vitreous material separating them, and a heating-flue surrounding the same, substantially as described.

4. In an apparatus for generating electricity by means of hydrogen, the electrodes, and a medium separating the electrodes consisting of a solid material, such as described, of low conductivity when cold, but becoming a good conductor when heated and permeated by a current of hydrogen passing through it.

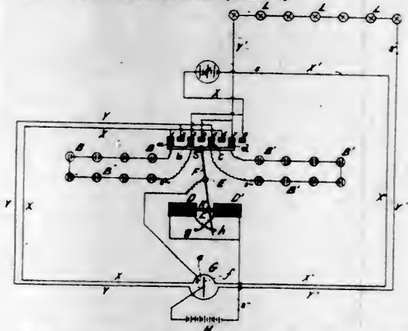
5. In an apparatus for generating electricity, the combination of a tubular electrode, means for supplying heated air to the same, a non-metallic medium, such as described, within the electrode, a central tubular electrode, and means for supplying the inner surface of the same with free hydrogen, all substantially as described.

6. In a battery, the combination of the furnace-flue D, for supplying highly-heated gaseous matter to the upper part of the battery, a series of cells, an outer flue surrounding the cells for receiving said highly-heated gaseous matter and delivering it at the bottom.

7. In a battery, the combination of the air-passage O, the suspended cell F, means for applying furnace-heat, and a porcelain tube and intervening air-space separating the cell from the source of heat.

8. The hereinbefore-described method of generating electricity, which consists in supplying heated hydrogen or mixture of gases containing uncombined hydrogen to a material permeable by heated hydrogen, and in causing such hydrogen to pass from one to the other electrode of the battery and preventing the passage of other gases.

353,142. **APPLICATION OF SECONDARY BATTERIES TO ELECTRIC LIGHTING.** Edward R. Knowles, Brooklyn, N. Y. Filed May 18, 1882. Renewed Oct. 23, 1886. (No model.)



Claim.—1. In a system of storing and applying electric energy, the combination of a generator of electricity, A, two storage-batteries, B and B', one or more electric lamps, L, and a switch-piece, S, in connection with and common to both storage-batteries, and operated automatically by the currents flowing in said system, one of said storage-batteries being in circuit with the generator at the same time the other is in circuit with the lamps, the automatic switch being interposed to change the circuit from the generator to one storage-battery, and at the same time from the other storage-battery to the lamps.

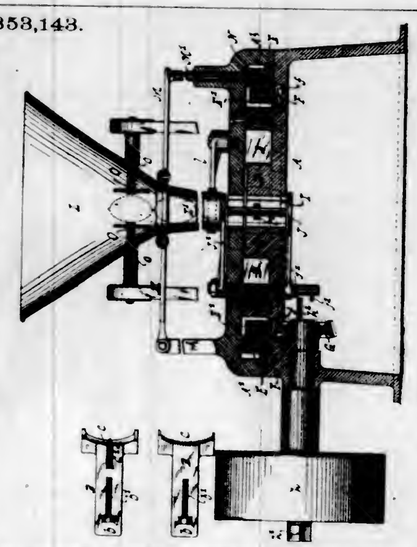
2. In a system of storing and applying electric energy, a generator of electricity, A, two storage-batteries, B and B', one or more electric lamps, L, and a switch-piece, S, in connection with and common to both storage-batteries, in combination with a local battery, and an automatic switch-changer in connection with the circuits of the generator, battery, and lamps, for the purpose of operating the switch automatically, substantially as described.

3. In a system of storing and applying electric energy, the combination, with a generator of electricity, A, two storage-batteries, B and B', one or more electric lamps, L, electrically connected, as described, of a switch-piece, S, and a differential galvanometer, G, interposed between the circuit from the generator to one storage-battery, and the circuit from the other storage-battery to the lamps, for the purpose substantially as described.

4. In a system of storing and applying electric energy, the combination of a switch-piece, S, pivoted lever F, movable magnet-core K, to which the lever is attached, two solenoids, D and D', contact-terminals *g h*, differential galvanometer G, and battery H, electrically connected, as described, the local circuit being closed through the galvanometer-needle, as described, and the said galvanometer being interposed between the circuit from the generator to one storage-battery and the circuit from the other storage-battery to the lamps, for the purpose specified.

5. The combination, with an electrical generator and electric lamps, of two intermediate secondary batteries, a commutator throwing such batteries alternately in connection with the generator and lamps, and mechanism operated by the current for working such commutator, substantially as described.

353,143. **NUT-CRACKING MACHINE.** Rudolph C. Koerber, Austin, Tex. Filed May 13, 1886. (No model.)



Claim.—1. The combination, in a machine for cracking nuts, having a chamber, I, for the passage therethrough of the nut to be cracked, of a series of radially-movable carriers, B, having attached nut-shell piercers C, provided with cutting-edges, and means for operating the carriers to cause the cutting-edges of the piercers to simultaneously enter the chamber and penetrate and split the nut-shell, substantially as described.

2. The combination, in a machine for cracking nuts, of a hub, D, having a chamber, I, for the passage of the nut therethrough, radially-movable carriers B, having attached shell-piercers C, provided with curved cutting-edges, and means for operating the carriers to cause the piercers to enter the nut-receiving chamber and penetrate the nut-shell lengthwise from end to end, substantially as described.

3. The combination, in a machine for cracking nuts, of a hub having a chamber for the passage of the nut therethrough, a vibrating door for opening and closing the discharge end of the chamber, a series of radially-movable carriers having shell-piercers, and means for operating the carriers to cause the piercers to enter into the nut-chamber and penetrate the nut-shell, substantially as described.

4. The combination, with the shell-piercers and the spring-pressed piercer-carriers, of guides for the same, a rotary cam-ring engaging the carriers, a central receiving-chamber, and a vibrating door closing the same, substantially as shown and described.

5. The combination, with the shell-piercers and the spring-pressed piercer-carriers, of guides for the same, a rotary cam-ring engaging the carriers, a central receiving-chamber, vibrating doors at the receiving and discharging ends of the same, and a hopper communicating with the chamber, substantially as shown and described.

6. The combination, with the shell-piercers C and the spring-pressed piercer-carriers B, of guides for the piercer-carriers, a rotary ring, E, provided with cams E', engaging the carriers, and a rack, F, an arbor, *j*, carrying pins *j' j²*, engaged by a post on the gear G, doors J J', attached thereto, extending over the receiving and discharging ends of the chamber, the hopper L, and feed-tube L', substantially as shown and described.

7. The combination, with the rotary ring E and the corrugations N thereon, of the hopper L, the arm M, supporting the same, and the trip-pin M', in contact with the arm and corrugations on the rotary ring, substantially as shown and described.

8. The combination, with the rotary ring E, the corrugations N thereon, of the hopper L, the trip-pin M', in contact with the hopper and the corrugations on the ring, and the feed-tube L', substantially as shown and described.

9. The combination, with the shell-piercers, of carriers for the same, mechanism, such as described, for actuating the carriers, a receiving-chamber, and a vibratory hopper, substantially as set forth.

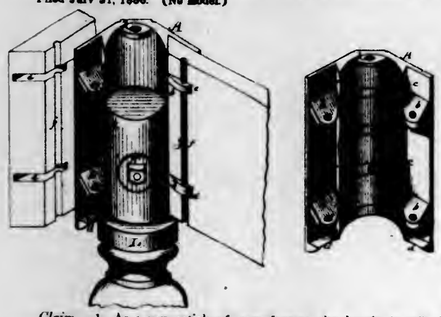
10. The combination, with the shell-piercers, of carriers for the same, mechanism, such as described, for actuating the carriers, a receiving-chamber, a vibratory hopper, L, and a feed-tube, L', substantially as shown and described.

11. The combination, with a carrier, B, of longitudinal shell-piercers C and transverse shell-piercers C', substantially as shown and described.

12. The combination, with carriers B, of longitudinal concave shell-piercers C and transverse concave shell-piercers C', substantially as set forth.

13. The combination, with the shell-piercers, of carriers for the same, mechanism, such as described, for actuating the carriers, a receiving-chamber, a hopper, a feed-tube communicating therewith, and the agitators O O in the hopper, substantially as described.

353,144. **TABLE-CORNER.** HENRY J. LANGSTON, Garrettsville, Ohio. Filed July 31, 1886. (No model.)



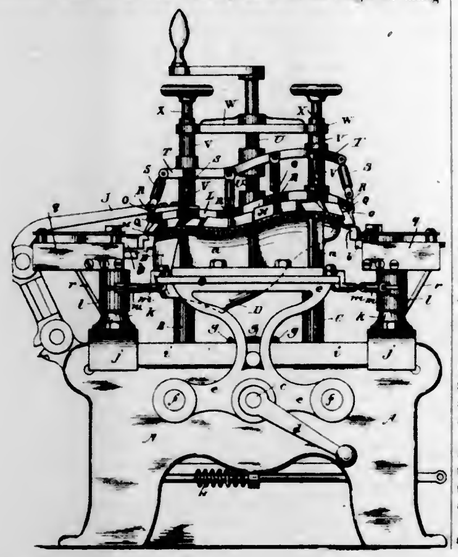
Claim.—1. As a new article of manufacture, the herein-described metal corner-iron for tables, consisting of angle-plates A, provided on their inside surfaces with lugs *b b*, having holes to receive a rod for securing it to the rails, and a top flange, *h*, having a hole for securing it to the table-top, and flanges *c c*, the space between which is made half-tubular to receive the table-leg, and a bolt-hole for fastening the leg therein, all as shown and described.

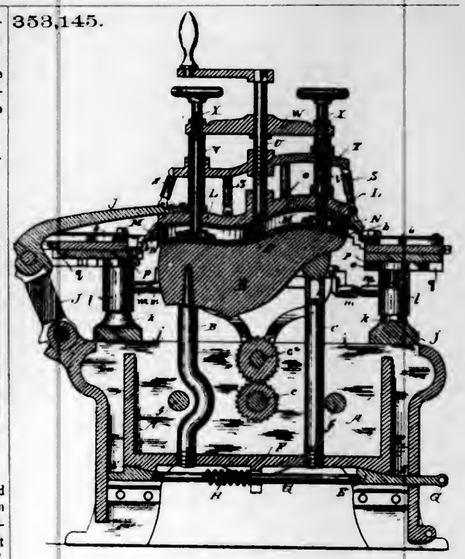
2. The combination, with the corner-iron having angle-plates provided on their inside surfaces with lugs *b b* and flanges *c c* and *d*, the space between said flanges *c c* made half-tubular, of the rails having the slots *e e* and groove *f*, secured to said corner-iron by the rod or pin *g*, and the leg L, secured in the tubular space by the bolt and nut N, all substantially as described, and for the purpose specified.

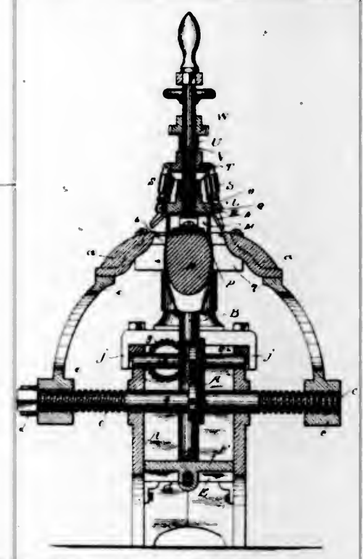
353,145. **LASTING-MACHINE.** JOHN H. LASKEY, Boston, Mass., assignor by direct and mesne assignments, to Isaac F. Dobson, Joseph F. Reynolds, and Edward E. Reynolds, all of same place. Filed June 16, 1886. (No model.)

Claim.—1. The hollow base, the last-supporting standards contained therein, the treadle connected to said standards so that the last may be lifted thereby, as set forth, and the movable head supported above the last, substantially as shown and described.

2. In a lasting-machine, the combination, with the hollow base, of the inclosed table having last-supporting standards, the wedges for lifting







said table, and the treadle and connections by which the table is lifted, substantially as stated.

3. The combination, with the last-supporting mechanism, of the laterally-movable side clamps and their operating-screw and the longitudinally-moving heel-and-toe clamps, the latter clamps closing by means of a rod connecting the side and toe clamps, said rod receiving its movement from the side clamps, as set forth.

4. The combination, with the last-supporting mechanism, of the head supported on a pivoted arm, the sole-shaped flange on said head, and the series of grippers and their actuating mechanism, substantially as described, whereby all the grippers are actuated to clasp the upper against said flange.

5. The combination, with the pivotally-supported head and the single sole-shaped flange, of the series of grippers, each gripper pivoted to the edge of the head, and the series of grippers provided with the mechanism for closing them simultaneously on the flange, substantially as described.

6. The combination, with the pivoted head-plate L, of the tubular studs V, the presser-plate P, operated by screws passing through the

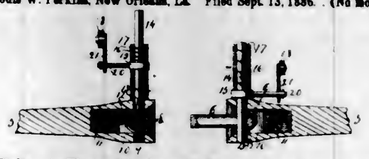
tubular studs, and the gripper-actuating plate T, guided on said tubular studs, substantially as described.

7. The combination, with the last-supporting mechanism, of the laterally-movable clamps *a* at the sides of the last and the swinging clamp-jaws *b* at the ends of the last, the swinging jaws connected with the sliding jaws by a connecting-rod, substantially as described.

8. The combination, with the last-supporting mechanism and the longitudinally-movable blocks *j*, of the rocking sleeves *l*, supported on said blocks, the mechanism by which said sleeves are separately oscillated, and the clamp-jaws actuated by said oscillation of the sleeve, substantially as described.

9. In a lasting-machine, the vertical studs *k*, with loose sleeves *l* and gears *o* thereon, and the connecting-rods *m*, in combination with the sliding shelf *q*, having rack *p* engaging with said gears, and the pivoted reciprocating clamp-jaws *b*, positively actuated by a slot-and-pin connection, substantially as set forth.

353,146. **CAR-COUPLING.** EPHRAIM LATHAM, Washington, D. C., assignor, by direct and mesne assignments, of two-thirds to Thomas J. Powell, Brooklyn, N. Y., and Ethan A. Sawyers, Brownsville, Oreg., and Louis W. Perkins, New Orleans, La. Filed Sept. 13, 1886. (No model.)



Claim.—1. The combination, with the draw-bar of a car, of a push-plug, 10, fitted to slide within the draw-bar and provided with lips 12 at its forward end, a push-spring, 11, fitted to enter the draw-bar behind the push-plug, and a coupling-pin, 7, notched in its rear side near its lower end, the said push-plug having a notch between the lips 12, substantially as shown and described, whereby, first, the pin may be held raised, permitting quick insertion of the link, and, secondly, the link will be held in position as set to enter an approaching draw-bar.

2. The combination of the draw-bar 5, the pin 7, provided with the elongation 14 as a portion of the body of the pin, and the head 15 on the middle of the said body, the yoke 17, secured upon the draw-bar and perforated for the passage of the pin's elongation, the spring 16 between the head 15 and the yoke 17, the levers 18, extending across the car, the posts 19, pivotally connected with the said levers and pivotally secured to the car, and a link, 21, and stud 20, connecting the levers 18 with the pin 7, substantially as shown and described.

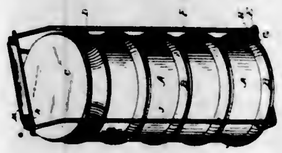
3. The combination of the draw-bar 5, fitted to slide longitudinally in the car, the yoke 17, secured thereto, the pin 7, fitted to move vertically in the draw-bar and yoke and provided with a stud, 20, fixed rigidly to it to project longitudinally with the car, and the levers 18, pivoted to the car and provided each with a hole through which the said stud may slide freely, substantially as shown and described.

4. The combination of the posts 19, pivoted to the car, the levers 18, crossing the car and pivoted midway upon the said posts and connected at their inner ends with a coupling-pin, the rod 22, pivoted at its lower end near the outer end of one lever, 18, loosely secured midway to the car by a staple, 23, and provided with a side notch, 28, and the stud 25, projecting from the car, substantially as shown and described, whereby the rod 22 may either be engaged with the stud 25 or disengaged therefrom by a person on top of the car or at either side thereof.

5. The combination of the posts 19, secured to the car, the levers 18, having a pivotal and lateral-moving connection with the said posts and pivotally connected with the coupling-pin, and a catch, substantially as shown and described, whereby the pin may be held raised, for the purpose specified.

6. The combination of the pedal-rod 22, loosely secured midway to the car and provided with a side notch, 28, the stud 25, fixed in the car within reach of the notch 28, and the levers 18, pivotally connected at their inner ends with the coupling-pin, and connected midway to the car with a pivotal and laterally-movable connection, substantially as shown and described.

353,147. **DINNER-BUCKET.** EDWARD E. LEDERLE, Austin, Tex., assignor of one-half to L. Stein & Co., same place. Filed Apr. 30, 1886. (No model.)

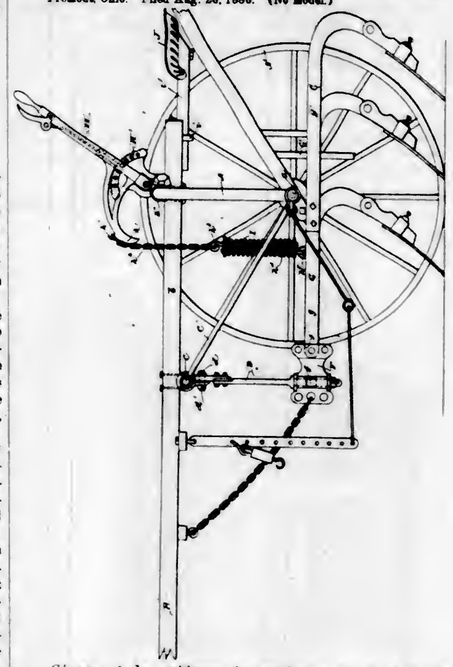


Claim.—1. In a dinner-bucket, the combination of a base-plate having a sleeve upon two of its opposite edges, two rectangular-shaped bails secured at one end in said sleeves, a series of vessels upon said plate and between said bails, and means for securing said bails together at their tops.

2. In a dinner-bucket, the combination of a base-plate having sleeves upon two of its opposite edges, two rectangular-shaped bails secured at one end in said sleeves, the upper ends of each of said bails being bent inward or toward each other, the upper end of one of said bails being shorter than the other and bent slightly upward, and means for securing the upper ends of the bails together.

3. In a dinner-bucket, the combination of a base-plate having sleeves upon two of its opposite sides, rectangular-shaped bails secured at their lower ends in said sleeves and having their upper ends bent inward, the upper end of one of said bails being shorter than the other, and a plate secured to the longer of said bails by means of a sleeve and having a flange, hook-shaped in cross-section, which engages with the shorter bail.

353,148. **CULTIVATOR.** NICHOLAS P. LEHR and JOSEPH W. LEHR, Fremont, Ohio. Filed Aug. 26, 1886. (No model.)



Claim.—1. In a cultivator, the combination, with the frame, the bangers secured to a horizontal bar thereof, and the levers secured on said frame, of the shovel-beams comprising three parallel bars or beams connected by brackets, and the double-acting springs secured to said shovel-beams and to the levers by chains, said shovel-beams and bangers being connected by clevises, substantially as shown and described.

2. The combination, with the cultivator-frame having a horizontal cross-bar, the shovel-beams, and the bangers, of the split sleeves having the lower splits in the center and the top splits slightly on one side, substantially as shown, and for the purpose stated.

3. The combination, with the tongue having right-angular flanges on its rear end and the axle, of the seat resting on said flanges and having notched brackets bearing against said axle, substantially as shown and described.

353,149. **STONE-DRESSING MACHINE.** JAMES W. MALOY, Somerville, Mass. Filed Dec. 19, 1885. (No model.)



Claim.—1. The combination, in a stone-cutting machine, of a support for holding a slab to be cut, carried by a shaft perpendicular to the face of the support, a head carried by the shaft, and one or more cutters carried by the head, and each with a central projecting portion,

whereby to cut in the slab an annular channel with bevel or curved sides, substantially as set forth.

2. The combination of a holder supporting the slab, heads supported by shafts upon opposite sides of the said holder, and cutters carried by the heads and constructed with projecting central portions, and all arranged at the same radial distance from the axis of the shaft, to simultaneously cut an annular channel from opposite sides of the slab and impart an ornamental shape to the edges of the parts cut, substantially as set forth.

3. The combination of a frame, supporting-shafts *b b'*, axially in line with each other, and provided with clamping-heads *a a'*, and a revolving head upon each shaft, carrying one or more cutters, and means, substantially as described, for feeding the head toward the slab, for the purpose set forth.

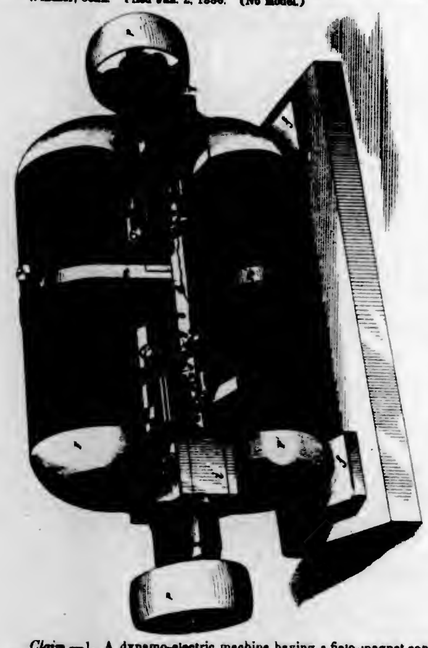
4. The combination, with a revolving cutter-head carrying an annular cutter, and with supports for the slab, of contracting devices, such as lugs on the cutter-head carrier and on the slab support, for automatically lifting the head at each revolution to carry the cutter at intervals wholly from the slab, substantially as described.

353,150. CAR-COUPLING. Fred. L. Mark, Clio, Mich. Filed Sept 22, 1886. (No model.)



Claim.—In combination with a car-coupler provided with suitable cam mechanism for raising the draw-bar, an oil-chamber located beneath the cam, whereby said mechanism can be lubricated, substantially as and or the purpose described.

353,151. DYNAMO-ELECTRIC MACHINE. Richard H. Mather, Windsor, Conn. Filed Jan. 2, 1886. (No model.)



Claim.—1. A dynamo-electric machine having a field-magnet consisting of two segments whose ends, being turned toward each other in pairs, embrace two armatures, the latter being located upon a single shaft which is parallel to the longitudinal axes of said segments, and is provided with a sleeve or collar which is attached to one of said segments, substantially in the manner and for the purpose specified.

2. In a dynamo-electric machine, a metallic plate or apron which is rigidly attached to the middle part of a segment of the field-magnet and supports the yokes to which the brushes of such machine are attached, substantially as set forth.

3. In a dynamo-electric machine, a field-magnet consisting of two like parallel segments provided with like pole-pieces, which are turned toward each other in pairs, and are bolted together upon intermediate blocks of brass or other insulating material, in combination with two separate armatures, both of which are mounted upon a single shaft parallel to the longitudinal axes of said segments, and each of which is supported between a pair of said pole-pieces, and also between a pair of said insulating-blocks by means of suitable yokes which are firmly attached to said insulating-blocks, substantially in the manner and for the purpose specified.

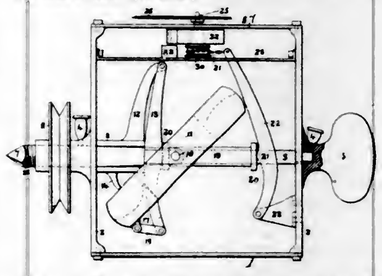
4. In a dynamo-electric machine, two armatures and two commutators upon a single shaft, in combination with an intermediate sleeve or collar which is fixed in an immovable position about said shaft, and serves as a support for two brush-holding yokes, substantially in the manner and for the purpose specified.

5. In a dynamo-electric machine, an armature-shaft carrying two armatures and commutators, in combination with two brush-yokes which are mounted upon an immovable sleeve surrounding said shaft between said commutators, substantially in the manner and for the purpose specified.

6. In a dynamo-electric machine, a metallic plate or apron which is rigidly attached to the field-magnet and holds in an immovable position upon the armature-shaft a sleeve or collar, to which the brush-yokes of such machine are attached, substantially in the manner and for the purpose specified.

7. A sleeve or collar which is formed in two longitudinal segments, and is fixed between two commutators in an immovable position upon the armature-shaft of a dynamo-electric machine, substantially in the manner and for the purpose specified.

353,152. VELOCIMETER. Richard J. McCarty, Kansas City, Mo. Filed Mar. 5, 1886. (No model.)



Claim.—1. The combination, with the index and the shaft having means for connecting it with the part whose speed is to be measured, of an annular gyratory weight encircling said shaft, arms projecting from said shaft, to which said weight is pivoted, operative connections between the weight and index, and a projection from said shaft in the path of said weight, whereby the latter is arrested, substantially in the manner and at the instant set forth.

2. In combination with an index and a sleeve or member having connection therewith, a lever having bearing against said sleeve or member, an operating weight having connection with said lever, and a bearing-surface on said lever whose curve is an involute of a circle whose radius is the perpendicular from the pivotal point of said lever to the axis of the main shaft.

3. In combination with the index and the shaft of a velocimeter, a hub rigid thereon, arms projecting from said hub, a ring-shaped weight encircling said shaft and pivoted on two of said arms, a lever pivoted to another of said arms at one end and connected to said weight at the other, and a sleeve bearing against said lever at one end, substantially as set forth.

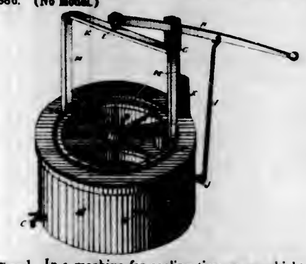
4. In combination with the index and the shaft of a velocimeter, a hub rigid thereon having arms projecting therefrom, a weight encircling said shaft pivoted to two of said arms, and a lever pivoted to a third arm having link-connection with said weight, substantially as set forth.

5. In combination with the index and the shaft of a velocimeter, a ring-shaped gyratory weight encircling said shaft and having pivotal connection therewith, a lever, and a link having one end pivoted to said weight and the other to said lever, substantially as and for the purpose set forth.

6. In combination with the index and the shaft, a ring-shaped gyratory weight encircling said shaft and having pivotal connection therewith, the interior opening of the weight being made oval or elliptical in form, with its major axis lying in line with said pivots, substantially as and for the purpose set forth.

7. In combination with the index and the rotary shaft, a hub thereon having arms projecting from opposite sides thereof, a ring-shaped gyratory weight encircling said shaft and pivoted on said arms, a lever pivoted to a third projection from said hub and connected with said weight, and recesses or depressions in said weight to allow the same to assume a position nearly perpendicular to the axis of rotation, substantially as set forth.

353,153. TIRE-SETTER. George Meyers, Cameron, Pa. Filed Mar. 26, 1886. (No model.)



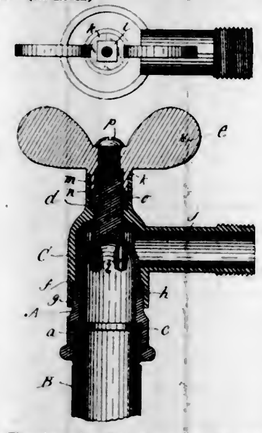
Claim.—1. In a machine for cooling tires upon vehicle-wheels, the combination of a cylindrical vessel, an upright at the side of said vessel having a socket in its upper end, a rod in said socket, a lever pivoted to the upper end of said rod, and a wheel-supporting frame suspended from the inner end of said lever.

2. In a machine for cooling tires upon vehicle-wheels, the combination of a cylindrical vessel having vertical grooves at diametrically-opposite points of its inner sides, a screw-threaded upright at the central portion of its bottom, a supporting-upright at the side of said vessel, a lever pivoted to the upper end of said supporting-upright, a frame suspended from the inner end of said lever, consisting of a top piece and two side pieces, said side pieces adapted to fit and slide in said vertical grooves, a cross-shaped frame having a central aperture secured at the ends of two of its arms to the lower ends of said side pieces, and means for securing the wheel upon said cross-shaped frame.

3. In a machine for cooling tires upon vehicle-wheels, the combination of a cylindrical vessel having a screw-threaded upright at the central portion of its bottom, a supporting-upright at its side having a socket at its upper end, a rod turning with its lower end in said socket and having its upper end bifurcated, a lever pivoted between said bifurcated ends, a hook upon the outer end of said lever engaging with a hook upon the side of the vessel, a swiveled bolt upon its inner end, a wheel-supporting frame suspended upon said bolt, and a hand-nut for securing the wheel upon said frame.

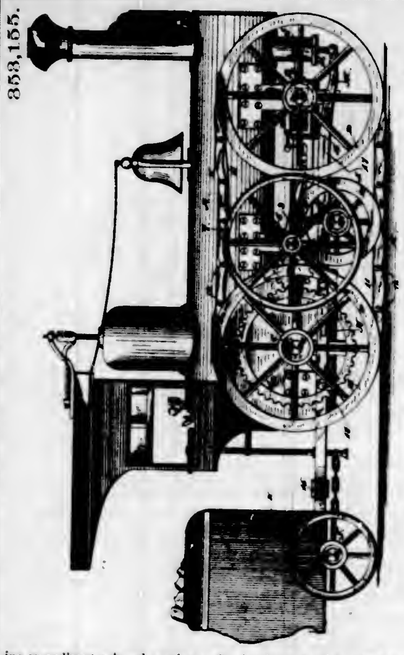
4. In a machine for cooling the tires of vehicle-wheels, the combination of a cylindrical vessel having a screw-threaded upright in its bottom, sleeves fitting detachably upon said upright and upon each other, a hand-nut upon said upright above said sleeves, and a wheel-supporting frame pivotally secured to the side of said cylindrical vessel, as and for the purpose set forth.

353,154. SWIVEL PIPE-COUPLING. Harrison S. Miller, Indianapolis, Ind., assignor of one-half to Patrick J. Freaney, same place. Filed July 1, 1886. (No model.)



Claim.—The above-described swivel-coupling, consisting of the hollow coupling A, having socket *a*, shoulder *g*, stem *d*, and openings *i*, chamber C, having shoulder *f* and recess *n*, branch pipe *j*, the thumb-wrench *e*, having flange *m*, the packing *o*, and packing *h*, all combined substantially as specified.

353,155. TRACTION-ENGINE. John Q. A. Newson, Seymour, Ind. Filed Feb. 13, 1886. (No model.)



Claim.—1. A steam traction-engine having traction-wheels carrying an endless track and running on fixed axles, a steering wheel or truck, a pair of auxiliary wheels having a limited vertical movement, and means for depressing such wheels below the base-line of the main traction-wheels, substantially as described.

2. In a steam traction-engine, the combination of the traction-wheels mounted on fixed axles and supporting the engine, a pair of auxiliary wheels having a limited vertical movement, an auxiliary steam-cylinder, a piston within such cylinder connected to the auxiliary wheels, a swinging steering wheel or truck, and an endless track on the traction-wheels, substantially as described.

3. A traction-engine having traction-wheels running in an unvarying plane relatively to the engine-frame, an endless track, a single steering wheel or truck, a pair of auxiliary wheels journaled between the drive-wheels and running on the endless track, and means for depressing said auxiliary wheels below the plane of the base-line of the traction-wheels.

4. In a steam traction-engine, the combination, with the boiler-frame and front and rear traction-wheels, of a pair of auxiliary wheels, as I, mounted in curved slotted boxes placed between the traction or driving wheels, a steam cylinder and piston, and connections between said auxiliary wheels and piston in the form of a lever, by which the said wheels I may be raised above or lowered below the base-line of the driving or traction wheels, substantially as and for the purpose set forth.

5. In a steam traction-engine mounted upon traction-wheels running in a fixed plane of rotation and carrying an endless track, a pair of wheels, as I, having a limited vertical movement and running upon the endless track, a steam cylinder and piston independent of the main driving-cylinder, and a pivoted lever connected to the piston-rod of such cylinder and bearing upon the axle of the said wheels I, substantially as described and shown.

6. A flexible endless track for a traction-engine, composed of plates each formed in one piece hinged together, and having rectangular recesses in their bottom faces, substantially as and for the purposes set forth.

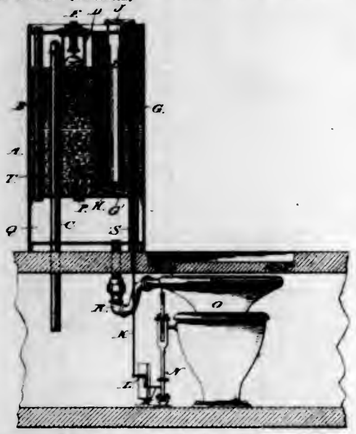
7. In combination with a traction-wheel composed of two sections mounted upon a common hub and having inclined flanges, an endless flexible track composed of hinged plates having rectangular recesses on their traction-surface, and a rib adapted to fit the space between the sections composing the wheel, substantially as described.

8. In a traction-engine having traction-wheels running in an unvarying plane of rotation, a pair of wheels, as I, journaled between the traction-wheels and running on the endless track supported by such wheels, a steering-truck located at the rear of the engine, and means for throwing the weight of the engine upon said wheels I and the rear steering-truck, substantially as described.

9. In a traction-engine, the combination of the fly-wheel shaft operated directly by the engine-crank and revolving on the journals of the

main traction-wheels, a counter-shaft operated by the fly-wheel shaft, and in its turn operating such traction-wheel, substantially as described.

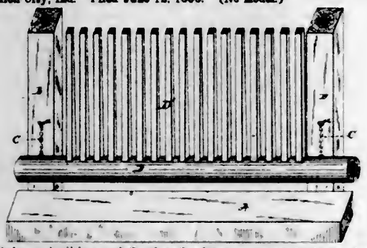
353,156. TANK. ANTONIO ORDOÑEZ Y PONCE, Brooklyn, N. Y. Filed Sept. 6, 1886. (No model.)



Claim.—1. In a tank, the combination, with the closed chamber, of a supply-pipe discharging into the said chamber, a float held in a cage in the upper part of said chamber, an air-pipe connecting the chamber with the outside air and opened or closed by said float, and the tube depending within said chamber and having a valve seated therein, the lower end of said tube being supplied from and discharging outside of said chamber, substantially as and for the purpose set forth.

2. In a tank, the combination, with the closed chamber, of a supply-pipe discharging into the said chamber, a float held in a cage in the upper part of said chamber, an air-pipe connecting the chamber with the outside air and opened or closed by said float, the tube depending within said chamber and having a valve seated therein, and means for automatically closing the valve, the lower end of said tube being supplied from and discharging outside of the said chamber, substantially as and for the purpose set forth.

353,157. FLOOD-FENCE. JEREMIAH A. PROCTOR and JAMES B. MARTIN, Union City, Ind. Filed June 12, 1886. (No model.)



Claim.—A tilting and floating flood-gate composed of a horizontal cylindrical base-log having pickets rigidly secured to its upper side, in combination with suspension-chains, the lower ends of which are secured to the log on its upper side in the plane of the row of pickets, and the upper ends of said chains secured directly to the sides of the supporting-posts, against which the cylindrical log bears, as set forth.

353,158. INCANDESCENT ELECTRIC LAMP. ALBERT L. REIMANN, Pittsburg, Pa. Filed Aug. 12, 1886. (No model.)



Claim.—1. The combination of the platinum electrodes, the carbon filament connected to said electrodes, conducting-rods arranged alongside of the legs of the filament and connected to the electrodes, and a conductor connecting the conducting-rods, substantially as set forth.

2. The combination of electrodes provided with suitable sockets, the carbon filament having its ends inserted in said sockets, conducting-rods arranged alongside of the legs of the filament and inserted in the sockets, and a conductor connecting the conducting-rods, substantially as set forth.

353,159. CORE-ROD. GEORGE P. RENO, Louisville, Ky. Filed June 3, 1886. (No model.)

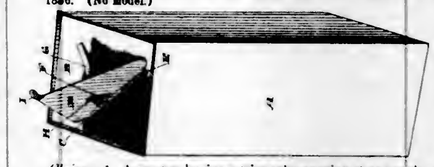


Claim.—1. The combination of the shank provided with the recesses C C, V-shaped in cross-section, and the slots C' C', entering said recesses, and provided with the enlarged outer ends, c c, the arm locking to the shank by means substantially as described, and provided with a recess, E, and slot E', respectively similar to the recess C and slot C', and the plates F, having the notches *f*, projection *f'*, and V-shaped head *f²* on said projection, to lock in the recesses of the shank or arms, substantially as specified.

2. The combination of the shank provided with the recesses *a'* and C, and slots C', having enlarged outer ends, the plates B, having the slots *b*, the detachable arms D, having the projections D', and provided with the recesses E and slots E', having enlarged outer ends, and the plates F, provided with the notches *f* and projections *f'*, having the V-shaped heads to engage the recesses C and E, substantially as specified.

3. A core-rod consisting of a shank having V-shaped recesses and slots forming entrances to said recesses, and plates having V-shaped heads and reduced portion *f'*, substantially as specified.

353,160. CAN TOP AND COVER. FREDERICK A. ROBBINS, San Francisco, Cal., assignor to W. W. Montague, same place. Filed Sept. 18, 1886. (No model.)



Claim.—1. A can-top having a triangular opening at one angle, and a longitudinal channel or depression made parallel with the hypotenuse of the opening, in combination with a cover fitting over said opening, having its rear edge bent so as to fit the channel or depression and serve as a hinge about which the cover turns, and the spring G, substantially as herein described.

2. A can-top having a triangular opening at one angle, and a channel or depression formed in the outside parallel with the rear edge of the opening, in combination with the cover having its rear edge formed so as to fit said channel, and a spring entering a slot in said cover, so as to hold it open or closed, substantially as herein described.

3. A can-top having a triangular opening formed in one of its angles and a cover fitted to open or close over this opening, said cover having a slot formed near its rear edge, in combination with a spring having one end secured to the top, the other end passing through the slot in the cover, and having a short bend formed in it, so as to hold the cover open or closed, substantially as herein described.

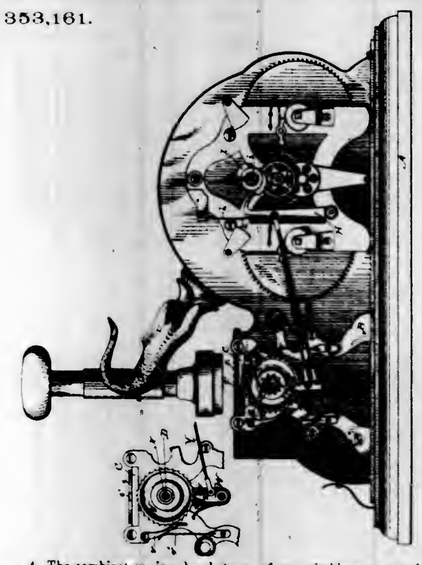
353,161. HAND-STAMP. EBENEZER H. ROGERS, Jr., Brooklyn, N. Y. Filed Mar. 29, 1886. (No model.)

Claim.—1. In a hand-stamp, a platen, as C, provided with an annular step, c, recesses c', and movable blocks c^2, for the purpose of imprinting letters or other characters upon any suitable surface.

2. The combination, in a hand-stamp, of any suitable supports with the type-wheel U, the ratchet V, the pawl W, having toe *w* and spring *w'*, the rod Y, the pawl Z, having spring *z*, the cam A A, and an ordinary clock-movement to revolve said cam, whereby the characters representing the current day of a month may be automatically adjusted.

3. The combination, in a hand-stamp, of any suitable supports with the block M, the ratchets E and K, the pawl F, having toe *f*, and spring *f'*, the rod G, the pawl H, having spring *h*, the cam I, the pawl L, and an ordinary clock-movement to revolve said cam, whereby the characters representing the meridianal divisions of a day may be automatically adjusted.

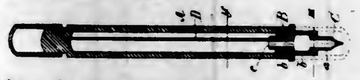
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4. The combination, in a hand-stamp, of any suitable supports with the wheel O, the sleeve N, the ratchet P, the pawl Q, having toe *q*, and spring *q'*, the rod R, the pawl S, having spring *s*, the cam T, and an ordinary clock-movement to revolve said cam, whereby the characters representing the hours of a meridianal division of a day may be automatically adjusted.

5. The combination, in a hand-stamp, of any suitable supports with the wheel B B, the ratchet C C, the pawl D D, having toe *d d*, and spring *d' d'*, the rod E E, the pawl F F, having spring *f' f'*, the ratchet G G, and an ordinary clock-movement to revolve said ratchet last named, whereby the characters representing the minutes of an hour may be automatically adjusted.

353,162. FOUNTAIN-PEN. GEORGE H. SACKETT, Brooklyn, N. Y. Filed Apr. 23, 1883. (No model.)

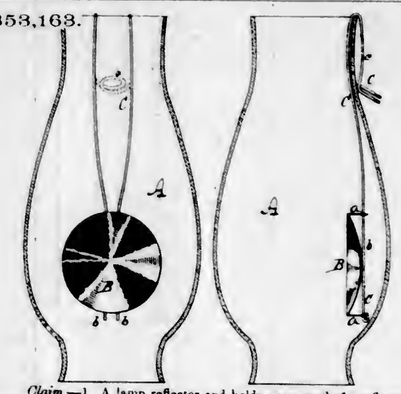


Claim.—1. In a fountain-pen, the combination of the following elements, to wit: an ink-reservoir closed air-tight at its top and open and internally unobstructed at the bottom for the passage of air and ink, a slitted pen attached to the permanently-open bottom of the reservoir, and a lip or tongue the inner surface of which is applied parallel with the pen to form, conjointly with the surface and the slit of the pen, a channel for conducting the ink directly from the open lower end of the reservoir to the point of the pen, all substantially as and for the purpose herein set forth.

2. In a fountain-pen, the combination of the following elements, to wit: an ink-reservoir closed air-tight at its top and open and internally unobstructed at the bottom for the passage of air and ink, a slitted pen attached to the permanently-open bottom of the reservoir, and a lip or tongue the inner surface of which is applied parallel with the pen to form, conjointly with the surface and the slit of the pen, a channel for conducting the ink directly from the open lower end of the reservoir to the point of the pen, and a feeding-stem located within the reservoir and with its lower end connecting with the channel aforesaid, and with its upper end extended to or near the closed upper end of the reservoir to insure the descent of ink to said channel, all substantially as and for the purpose herein set forth.

3. In a fountain-pen, the combination of a holder or reservoir closed air-tight at the top and open and internally unobstructed at the bottom, a slitted pen, and a feeding-stem placed within said reservoir with its upper end extended to or near said upper end of said reservoir and provided at its lower end with the lip C, placed over and adjacent to the back and slit of the pen, all substantially as and for the purpose herein set forth.

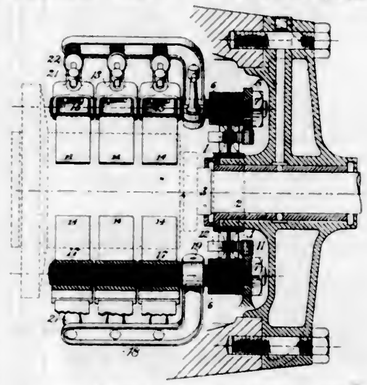
353,163. REFLECTOR-HOLDER. GEORGE A. SANDERS, Lake Village, N. H., assignor of one-half to Augustus R. Burfee, same place. Filed Feb. 18, 1886. (No model.)



Claim.—1. A lamp reflector and holder composed of a reflector, B, provided with means, as the ears *a a*, for attaching it to the holder, and a holder, C, formed of a rod or rods, to receive the reflector attachment, and having an elastic suspending-hook, *c*, substantially as and for the purpose herein specified.

2. The combination of a lamp-chimney, A, and a lamp reflector and holder composed of a reflector, B, provided with means, as the ears *a a*, for attaching it to the holder, and a holder, C, formed of a rod or rods, to receive the reflector attachment, and having an elastic suspending-hook, *c*, catching upon the upper end of the lamp-chimney, substantially as and for the purpose herein specified.

353,164. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES. ALBERT SCHMID, Pittsburg, Pa. Filed July 29, 1886. (No model.)



Claim.—1. A brush-holder for dynamo-electric machines, having in combination a split disk provided with a closing-screw, supporting-bars secured to said disk, and brush-holders mounted on the supporting-bars, substantially as set forth.

2. A brush-holder for dynamo-electric machines, having in combination threaded supporting-bars and yokes constructed to hold the brushes, and having threaded eyes fitting over said supporting-bars, substantially as set forth.

3. A brush-holder for dynamo-electric machines, having in combination supporting-bars, yokes constructed to hold the brushes, and arms adjustably secured to the supporting-bars, the arms and yokes being adjustably connected together, substantially as set forth.

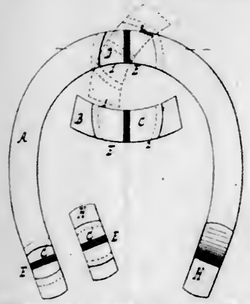
4. A brush-holder for dynamo-electric machines, having in combination a disk provided with notched lugs, and rings connected with the electric mains, and provided with radially-projecting lugs engaging the notched lugs, substantially as set forth.

353,165. HORSESHOE. CHARLES E. SEARLES, Stamford, assignor to himself and James E. Bacon, Cos Cob, Conn. Filed Mar. 18, 1886. (Model.)

Claim.—1. A horseshoe provided with a cavity extending transversely across one surface and having curved dovetailed sides, in combination with the calk having the horizontal circular tenon, provided with a flat bearing-surface, said cavity and tenon being wider at one end than at the other to limit the turning of the calk in attaching it, substantially as described.

2. The curved horizontal dovetail tenon C on the calk of a horse-

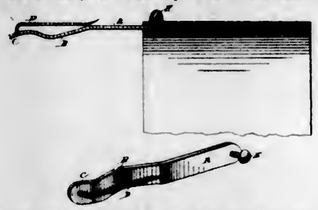
353,165.



shoe, the cavity D in the shoe adapted to receive said tenon, in combination with the transverse grooves E in the tenon C and cavity D, and locking-key G, substantially as described.

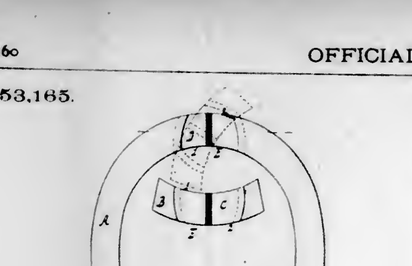
3. The curved horizontal dovetail tenon C on the calk of a horse-shoe, the cavity D provided with dovetail sides to receive said tenon, said tenon and cavity being made of unequal length, as described, so that the curves of the dovetail-joints are eccentric, substantially as shown and described.

353,166. LADY'S CUFF-SUPPORTER. FRANK M. SEARS, East Saginaw, Mich., assignor of one-half to George W. Haight, Jr., and Allen Yerrick, both of same place. Filed May 17, 1886. (No model.)



Claim.—A cuff-holder consisting of a flat bar having its middle bulged outward, and having one end bulged outward, a pin secured with its inner bent end to the face of the bulged portion, and having its free end projecting against the bulged central portion of the flat bar, and a button or stud projecting from the face of the other end of the bar, as and for the purpose shown and set forth.

353,167. COTTON-PICKER STEM. WILLIAM G. SEARS, Chattanooga, Tenn., assignor of one-half to Hiram Sanborn Chamberlain, same place. Filed June 19, 1885. (No model.)



Claim.—1. In a cotton-picker stem, an outer envelope or cylinder yieldingly supported upon a central stem, and provided with parallel circumferential rows of teeth which are struck from the metal itself of the cylinder, and circumferential continuous ribs alternating with the rows of teeth, substantially as described.

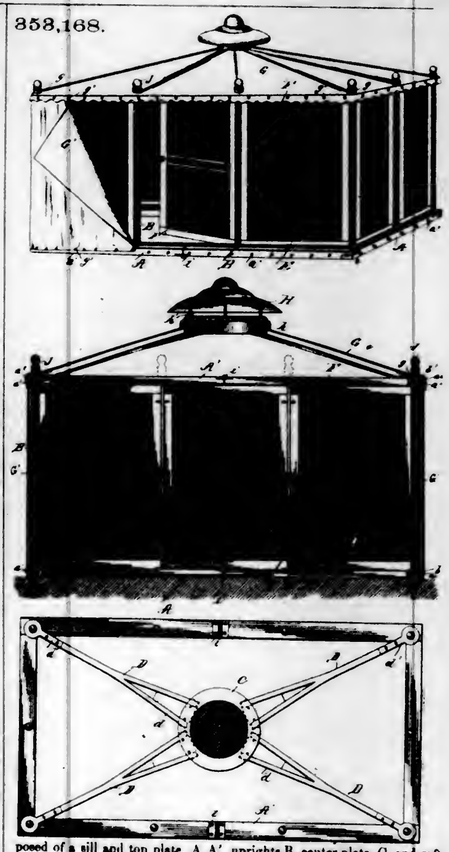
2. A cotton-picker stem consisting of the cylinder A, having circumferential rows of teeth *b b* and ribs *a a*, parallel therewith, the rod B, and coiled springs C, substantially as shown and described.

3. The combination, with the supporting-rod of a cotton-picker stem, of an outer envelope or cylinder provided with parallel circumferential rows of teeth and parallel circumferential continuous ribs alternating with the rows of teeth, both said ribs and teeth being formed from the metal of the cylinder, substantially as specified and shown.

353,168. TENT. JOHN E. SHAW, Chicago, Ill. Filed Aug. 2, 1886. (No model.)

Claim.—1. The tent herein described, consisting of the frame composed of a sill and top plate, A A', uprights B, center plate, C, and rafters D, in combination with top covering, G, side covering, G', and screens F, whose frames are fitted between said plates and uprights, all constructed and arranged substantially as and for the purpose specified.

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2. In a tent, the frame consisting of a sill and top plate, as A A', provided with buttons or hooks *a'*, uprights B, center plate, C, provided with recesses c and pins *c'*, and rafters D, secured in said recesses by said pins, substantially as and for the purpose specified.

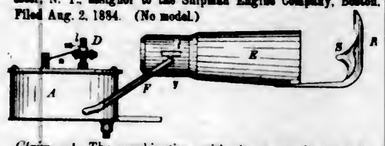
3. In a tent, the center plate, C, having an opening in the center covered with gauze F, in combination with the cap H, having the flange *h* and opening *h'*, as and for the purpose specified.

4. In a tent, the center plate, C, having recesses c and pins *c'*, and the bifurcated rafters D, in combination with the body of the tent, substantially as and for the purpose specified.

5. In a tent or pavilion, the cover G, provided with button-holes *g'* at the edge, in combination with the plate A', with buttons *a'*, the center piece, C, provided with a screen-opening, and the cap H, provided with flange *h*, as and for the purpose specified.

6. In a tent, the combination of the post B, provided with tenons *b b'*, metal peg I, provided with a flange at the top and a socket adapted to tenon *b*, and the cap T, adapted to be attached to the tenon *b'*, as and for the purpose specified.

353,169. HYDROCARBON-FURNACE. ALBERT H. SHIPMAN, Rochester, N. Y., assignor to the Shipman Engine Company, Boston, Mass. Filed Aug. 2, 1884. (No model.)

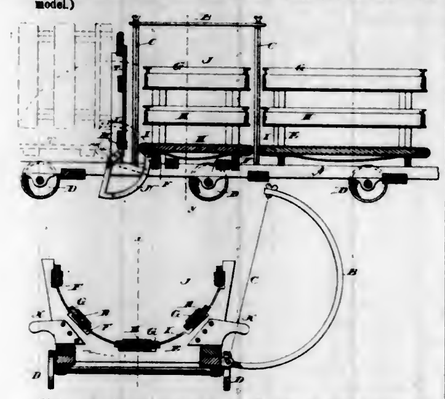


Claim.—1. The combination, with the reservoir A, of the atomizer D, combustion-tube E, and wick-tube F, substantially as and for the purposes set forth.

2. The combination, with the oil-reservoir A, provided with the atomizer D, float B, and valve C, of the combustion-tube E, wick-tube F, and supply-reservoir T and connecting-pipe *g*, substantially as described.

3. The combination, with the steam oil-spraying device D, of the combustion-tube E, provided with an opening, *i*, and having a wick-tube, F, arranged outside of the combustion-tube to maintain a flame which operates to light the jet from the atomizer, substantially as described.

353,170. CUT-OFF TABLE FOR TILE-MACHINES. GEORGE C. SKINNER and JOSEPH H. SKINNER, Troy, Ohio. Filed May 26, 1886. (No model.)



Claim.—1. An attachment for cut-off tables for tile-machines, consisting in the combination of a trough, adjustable or fixed, and sliding bands adapted to move longitudinally about the bottom and sides of said trough, substantially as described and set forth.

2. The combination of a cut-off table for tile-machines, a cutting-frame and cutting-wires, a series of troughs, the end one of which is hinged to said table, a pallet-frame, also hinged to said table and working independently of dumping-trough, and a pallet, substantially as and for the purpose set forth.

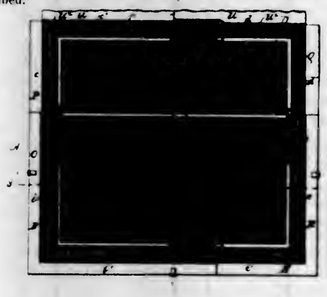
3. In a cut-off table for tile-machines provided with a series of troughs or guides, the combination, with one trough of the series, of a pair of quadrant-shaped hinges, the arc parts of which are secured to said trough, and the radial parts to the sides of said table, substantially as shown and described.

4. An attachment for cut-off tables of tile-machines, consisting in the combination of a series of troughs or guides formed of U-shaped cross-pieces and longitudinal strips secured thereto, endless bands adapted to move about said strips, the side portions of said cross-pieces being hinged at their lower ends, and means for adjusting said side portions, substantially as shown and described.

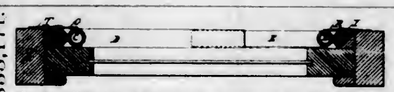
5. An attachment for cut-off tables of tile-machines, consisting in the combination of a skeleton trough or guide formed of U-shaped cross-pieces and longitudinal strips secured thereto, endless bands adapted to move about said strips, the side portions of said cross-pieces being hinged at their lower ends and provided with slots, longitudinal strips provided with screw-threaded sockets, and set-screws for adjusting said strips upon said cross-pieces, substantially as shown and described.

353,171. ADJUSTABLE WINDOW-SCREEN. TABER SKINNER, Philadelphia, Pa. Filed Feb. 26, 1886. (No model.)

Claim.—1. An adjustable window-screen composed of telescopic or sliding sections, each section being L-shaped and having a rectangular piece of netting secured thereto by two edges, substantially as shown and described.



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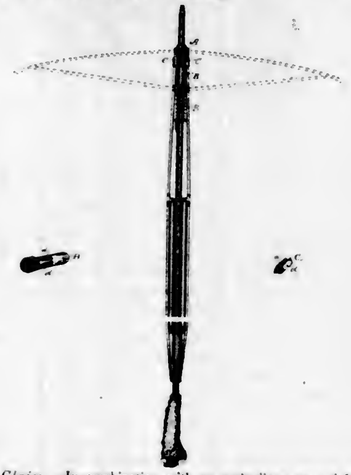


2. An adjustable window-screen having sliding sections, each section having a piece of netting secured thereto, the unattached edges being bound, and having a holding and guiding clip, substantially as shown and described.

3. The combination, with a sectional adjustable window-screen frame, of external sectional flanges or strips adapted and designed to overlap the molding-strip or bead of a window-frame and to slide past each other when said screen-frame is adjusted, substantially as shown and described.

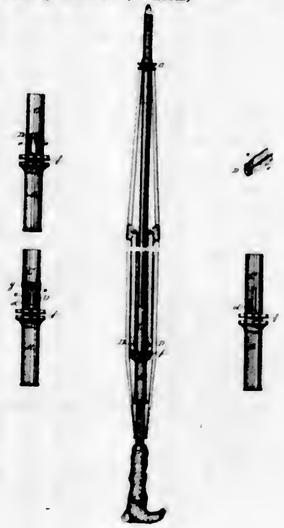
4. The combination, with a sectional adjustable window-screen, of sectional weather-strips attached to the screen-sections and adapted and designed to slide on each other when the screen is adjusted horizontally, substantially as shown and described.

353,172. UMBRELLA OR PARASOL. JAMES T. SMITH, New York, N. Y. Filed Sept. 16, 1886. (No model.)



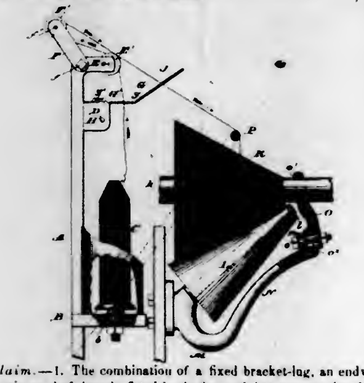
Claim.—In combination with an umbrella or parasol frame and ribs, the rib-notch provided with a tube-extension, B, and a spring-catch C, substantially as and for the purpose described.

353,173. UMBRELLA OR PARASOL. JAMES T. SMITH, New York, N. Y. Filed Sept. 18, 1886. (No model.)



Claim.—In combination with an umbrella or parasol, the runner provided with a tube-extension, C, above the runner-notch, a spring-catch secured to said extension, and stretchers secured to the notch and adapted to be held close to the stick by said spring-catch when the frame is closed, substantially as and for the purpose described.

353,174. YARN-CLEANING DEVICE. JACOB A. SNYDER, Little Falls, N. Y. Filed June 1, 1886. (No model.)



Claim.—1. The combination of a fixed bracket-lug, an endwise-moving pin or shaft loosely fitted in the lug and free to move longitudinally therein, a rigid stripper-plate affixed to the bracket-lug, a laterally-movable stripper-plate arranged in the same plane as the rigid stripper-plate and carried by the pin or shaft, a regulating-screw supported in the bracket-lug, to limit the movement of the shaft and determine the extent of the separation of the stripper-plates, and a spring bearing against the shaft, to normally hold it in contact with the regulating-screw and effect the separation of the stripper-plates, substantially as described, for the purpose set forth.

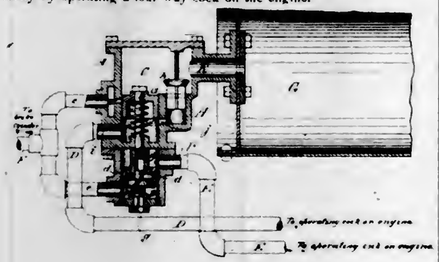
2. The combination of a fixed chambered bracket-lug, an endwise-moving shaft or pin working in the chamber of the said lug and carrying a vertical post, a rigid stripper-plate affixed to the bracket-lug above the shaft, a laterally-movable stripper-plate arranged in the same plane as the rigid plate and secured to the post of the shaft to move with the latter, a regulating-screw supported in the bracket-lug and impinging upon the vertical post of the shaft and determining the extent of the separation of the stripper-plates, and a coiled spring housed in the chamber of the bracket-lug and encircling the shaft to bear against the post thereof, and thereby normally hold the post in contact with the regulating-screw and effect the separation of the stripper-plates, substantially as described, for the purpose set forth.

3. The combination of the bobbin-frame having the fixed bracket-lug and the inclined arm at its upper end, the stripper-plates connected to the bracket-lug and arranged in the same plane and parallel with each other, and each having its free end inclined, as at *g*, the guide-roller E', arranged above the stripper-plates, and the guide-roller F', arranged above and in rear of the roller E', whereby the yarn is caused to first pass through the stripper-plates from the supply-cop over the rollers E' F', and thence through the inclined ends *g* of the stripper-plates on its way to the winding-bobbin, as set forth.

4. The combination, with the stripper-blades, of the auxiliary blades secured thereto and having their free ends out of contact with the said stripper-blades, substantially as described.

353,175. POWER-BRAKE. RINALDO SOLANO, Brooklyn, N. Y., assignor of two-thirds to John W. Howard and David R. Morse, both of same place. Filed July 29, 1886. (No model.)

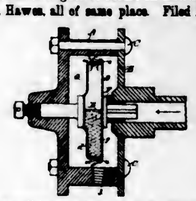
Brief.—The brakes may be applied either automatically or directly by operating a four-way cock on the engine.



Claim.—1. A power-brake apparatus fitted with a main reservoir, an auxiliary reservoir, and a brake-cylinder provided with two pipes leading from the operating-cock to the valve-chambers that direct the pressure-current, and a single pipe leading from the valve-chambers to the brake-cylinder, whereby pressure is conducted from either source of supply to the brake-cylinder or released therefrom through a single pipe.

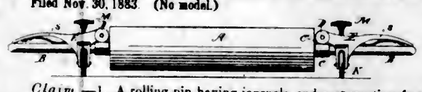
2. In a power-brake apparatus fitted with a main reservoir and brake-cylinder, the combination, with an auxiliary reservoir, of two separate valve-chambers and a four-way operating-cock having communicating pipe and port connections, as described, whereby pressure is directly applied to and released from the brake, or automatically by a reserved pressure in the event of accident, the latter force being also capable of application at the will of the engineer.

353,176. EXPANSIBLE VESSEL FOR STEAM-TRAPS. JEROME C. TAFT, Providence, R. I., assignor to Jethro M. Hawes, Edward C. Hawes, and Rowland G. Hawes, all of same place. Filed Aug. 21, 1886. (No model.)



Claim.—An expansible vessel made of hardened sheet metal having a cup-formed portion provided with an outwardly and backwardly turned flange, and a disk portion having its edge turned inward over the edge of the outwardly and backwardly turned flange of the cup-formed portion, and soldered at the joint so formed, substantially as described.

353,177. ROLLING-PIN. WILLIAM O. TAYLOR, Somerville, Mass. Filed Nov. 30, 1883. (No model.)



Claim.—1. A rolling-pin having journals, and a supporting-frame for each journal, constructed and arranged to rest upon the table and to be moved in any direction, each of said supporting-frames carrying bearings in which said journals revolve, combined with adjusting devices, substantially as described, to adjust the said supporting-frames with relation to the axis of rotation of the said journals, all as set forth.

2. The main roll A, provided with journals and bearings to receive the said journals, combined with a frame pivoted to the bearings, and having a hand-lever, E, provided with supports to rest upon the table, action of the hand upon the said lever raising or lowering the acting periphery of the main roll A, to regulate the thickness of the material to be rolled, substantially as described.

3. The roll A, its journals and bearings for said journals, and the frame pivoted to the bearings, and consisting of the arms H H, hand-lever E, and the roller-supports K K, combined with an adjusting device, substantially as described, to regulate the distance that the acting periphery of the roll A may rise above the table, all substantially as and for the purpose set forth.

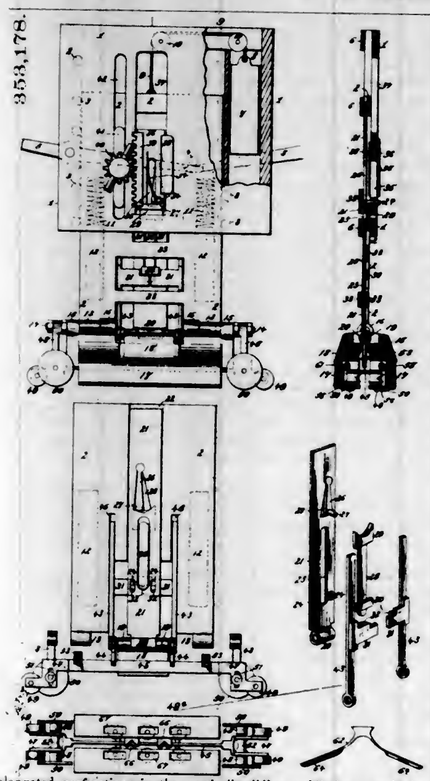
4. The roll A, its journals and bearings for said journals, and the frame pivoted to the bearings, and consisting of the arms H H, hand-lever E and its spring, and the roller-supports K K, combined with an adjusting device, substantially as described, to regulate the distance that the acting periphery of the roll A may rise above the table, all substantially as and for the purpose set forth.

353,178. GRIP FOR CABLE ROADS. SAMUEL H. TERRY, Fulton, Mo. Filed Sept. 15, 1886. (No model.)

Claim.—1. The combination, with a fixed gripper-supporting plate, of a vertically-sliding plate, a grip composed of two hinged jaws carried at the lower end of said sliding plate, a horizontal cam-bar suspended between said jaws and adapted to open the same, jointed bars or rods attached to said cam-bar, a vertically-sliding bar having a saddle pivoted to its lower end and adapted to clasp the grip-jaws, said saddle-carrying bar being connected with the jointed bars that are attached to the cam-bar, a rack-carrying slide-block connected with the saddle-carrying bar, and a pinion for actuating said rack to open or close the gripping-jaws, substantially as described.

2. The combination, with a fixed gripper-supporting plate and a vertically-sliding plate carrying two hinged gripping-jaws, of a horizontal cam-bar suspended between the gripping-jaws and having at each end a roller-carrying bracket, a vertically-sliding bar provided with slots and perforations, a saddle pivoted to the lower end of said bar and adapted to clasp the gripping-jaws, jointed rods attached to the horizontal cam-bar and provided with rabbeted lugs having pins to engage

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elongated perforations in the vertically-sliding saddle-bar, a swinging arm pivoted in said bar and carrying a locking-pin, a slide arranged in a slot in the saddle-carrying bar, and having at its lower end a cross-head to engage the rabbeted lugs and at its upper end a cam to disengage the locking-pin, and a slotted block supported in the stationary plate of the gripper and provided with a notch to receive said locking-pin, whereby the gripping-jaws are automatically opened and released from the cable by the contact of the rollers in the brackets at the ends of the horizontal cam-bar with guides placed in the cable-way at a crossing or elsewhere, substantially as described.

3. The combination, with a grip comprising two hinged jaws, of an external saddle, a sliding bar carrying the saddle, a sliding plate, means for lowering the bar and saddle, and a horizontal cam-bar between the jaws, connected with the sliding bar and provided with rollers to come in contact with a guide in the cable-way, substantially as described.

4. The combination, with a stationary gripper-supporting plate and a vertically-sliding plate carrying the cable-gripping jaws, of treadles engaging a pin or lugs on said sliding plate to raise or lower the said plate and attached gripping-jaws, substantially as described.

5. The combination, with the hinged gripping-jaws, of a horizontal cam-bar suspended between said jaws and adapted to be actuated to open the same, and a horizontal grooved roller carried in a bracket at each end of said bar and adapted to bear on the cable, substantially as described.

6. The combination, with the hinged and internally-recessed gripping-jaws, of a longitudinally-sliding frame placed in each of said jaws, gripping-rollers journaled in said frames, and springs for centering the roller-carrying frames, substantially as described.

7. The combination, with the hinged and internally-recessed gripping-jaws provided with a series of depressions or double-inclined planes, of a longitudinally-sliding frame placed in each of said jaws, gripping-rollers journaled in said frames and adapted to ride on the double-inclined planes to grip the cable, and springs to center said frames, substantially as described.

8. The combination, with the hinged and recessed gripping-jaws having a series of internal depressions and springs set in said depressions, of a longitudinally-sliding frame placed in each of said jaws, gripping-rollers journaled in said frames, and springs to center the roller-carrying frames, substantially as described.

9. The combination, with the hinged and recessed gripping-jaws, of the horizontally-sliding roller-carrying frames placed in said jaws and provided with interlocking teeth, and springs for centering said frames, substantially as described.

10. The combination, with the recessed and slotted hinged gripping-jaws, of longitudinally-sliding frames placed in said jaws, gripping-rollers journaled in said frames, with their pivots or journals extended down into the slots in the bottom of the jaws, and springs to center said sliding frames, substantially as described.

11. The combination of the stationary plate 1, the vertically-sliding plate 2, the hinged gripping-jaws 17, cam-bar 45, jointed rods 43 44, the saddle 18, sliding bar 21, having slot 23, perforations 24, and triangular opening 25, the arm 26, pivoted in said opening and carrying a locking-pin, 27, the lugs 31, attached to the rods 43 and having pins 32, engaging the perforations 24, the slide 28, having a cam, 29, and cross-head 30, the block 36, having slot 35, notch 34, and rack 39, and the pinion 40, substantially as described.

12. The combination of the stationary plate 1, the vertically-sliding plate 2, the hinged gripping-jaws 17, the cam-bar 45, having end brackets, 47, carrying rollers 49, the hangers 48, carrying rollers 50, the jointed bars or rods 43 44, rabbeted lugs 31, having pins 32, the saddle 18, vertically-sliding bar 21, provided with slot 23, perforations 24, and pivoted arm 26, carrying a locking-pin, 27, the slide 28, having cam 29 and cross-head 30, and the block 36, having slot 35 and notch 34, for receiving the locking-pin, substantially as described.

13. The combination, with the vertically-sliding plate 2 and the gripping-jaws 17, hinged to the lower end of said plate, of a vertically-sliding bar, 21, a saddle, 18, pivoted to the lower end of said bar and adapted to clasp the gripping-jaws, means for locking said bar 21 in a lowered position, a horizontal cam-bar, 45, suspended between the gripping-jaws and having end brackets, 47, carrying rollers 49, and means for connecting said cam-bar with the saddle carrying bar and its locking mechanism, substantially as described.

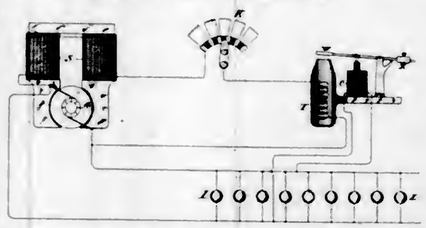
14. The combination, with the sliding plate 2, having eyes 13, of the gripping-jaws 17, provided with eyes 15 16, the hinge-pins 14, the hangers 48, suspended from said hinge-pins and carrying rollers 50, the cam-bar 45, provided with end brackets, 47, having a loose connection with the shafts of the rollers 50, the rollers 49, carried by said brackets, the saddle 18, sliding bar 21, means for locking said bar 21 in a lowered position, and means for connecting the cam-bar 45 with the locking mechanism of the saddle-carrying bar 21, substantially as described.

15. The combination of the hinged gripping-jaws 17, the vertically-movable bar 21, carrying a saddle, 18, adapted to clasp said jaws, the horizontal bar 45, suspended between said jaws and provided with wedge-shaped lugs or cams 53, the brackets 47, attached to the ends of said cam-bar and carrying rollers 49, means for locking the saddle-carrying bar in a lowered position, and means for connecting the cam-bar 45 with the locking mechanism of the saddle-carrying bar, substantially as described.

16. The combination, with the hinged gripping-jaws 17, having recesses 60 and slots 67, of the longitudinally-sliding frames 55, placed in said jaws and provided with interlocking teeth 66, the gripping-rollers 56, journaled in said frames, with their pivots extending into the slots 67, and springs for centering said frames, substantially as described.

17. The combination, with the hinged gripping-jaws 17, having recesses 60 and springs 62, of the longitudinally-sliding frames 55, having interlocking teeth 66, the gripping-rollers 56, journaled in said frames, and the spring 58, substantially as described.

353,179. REGULATOR FOR ELECTRIC CURRENTS. ELIHU THOMSON, Lynn, Mass. Filed June 10, 1886. (No model.)



Claim.—1. An adjustable rheostat consisting, essentially, of a conductor of electricity carrying an electric current, combined with means independent of the heating effects of such current for varying the temperature of said conductor so as to vary its specific resistance, as and for the purpose described.

2. The combination, with an electric conductor whose resistance varies with changes of temperature, of a surrounding tube or casing and a valve controlling the passage of a cooling-current through such casing.

3. The combination, with a magnet-coil, of an artificial resistance connected with the circuit of the same, and consisting of a material whose resistance varies with changes of temperature, and means for varying the temperature of said material so as to vary its specific resistance to the current flowing through it.

4. The combination, with a dynamo-electric machine, of a resistance-coil whose resistance varies by changes of temperature, connected with the field-magnets of said machine, and means independent of the current flowing in the coils for controlling its temperature, as and for the purpose set forth.

5. The combination, with a dynamo-machine having derived-circuit field-coils, of a resistance-coil placed in said circuit and composed of a material whose resistance varies with changes of temperature, an inclosing-case for said coil, and a valve controlling the passages to said case, as and for the purpose described.

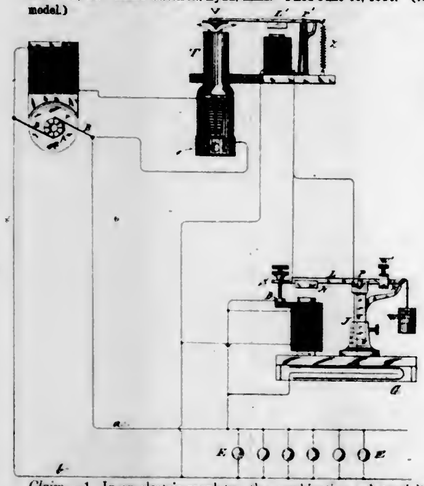
6. The combination, with a dynamo-machine having field-coils in derived circuit to the work, of a resistance-coil, V, placed in the circuit of field-coils S, and consisting of a material whose resistance varies with changes of temperature, a tube or casing surrounding said coil, a valve controlling the passage of a cooling agent, and devices responsive to changes in the difference of potential between the mains for controlling said valves.

7. The combination, with field-magnet coils in derived circuit to the work, of a coil in circuit with the field-coil and variable in its resistance by changes of temperature, means external to said coil for controlling its temperature so as to vary its specific resistance, and an electro-magnet responsive to changes in the potential between the mains for controlling the action of the devices governing the temperature of the coil.

8. The combination, with field-magnet coils in a derived circuit to the work, of a coil, V, in circuit with the field-magnet coils, a surrounding casing, T, for said coils, a valve, W, and an electro-magnet, C, placed in derived circuit to the work and controlling the valve.

9. The combination, in an electric regulator, with the controller-magnet C, connected in a circuit or branch uniting mains that supply devices in multiple arc, of a main-circuit coil, D, said coils C D being differentially wound, as and for the purpose described.

353,180. **REGULATOR FOR DYNAMO-ELECTRIC MACHINES, MOTORS, &c.** ELIHU THOMSON, Lynn, Mass. Filed June 10, 1886. (No model.)



Claim.—1. In an electric regulator, the combination, substantially as described, of a field-magnet coil upon whose degree of excitation the action of the machine depends, an artificial resistance connected to the same and formed of a material whose specific resistance varies with changes of temperature, controlling devices external to the coil itself for governing or controlling the temperature, motor devices for operating such controlling devices, and a controller-magnet governing the motor devices, as and for the purpose described.

2. The combination, in an electric regulator, of a field-magnet coil upon whose degree of excitation the potential of current developed depends, a conductor connected with the circuit of the same and formed of a material whose resistance varies with changes of temperature, means for governing the temperature of said conductor, a controlling or operating motor, and a governing-magnet sensitive to changes in the potential of the current to be governed.

3. The combination, in an electric regulator, of a shunt field-magnet coil, a conductor in the circuit thereof formed of a material whose resistance varies with changes of temperature, means for governing the temperature of said conductor independently of the exciting-current flowing to the field-magnet coils, an operating-motor device, and a controller-magnet connected to the mains, as described, so as to be sensitive to changes in the difference of potential between said mains.

4. The combination, with a dynamo-machine and working devices in multiple arc, of a field-magnet coil in a shunt to the working devices, a resistance-coil in the circuit to the field-magnet coil, a tube inclosing such resistance-coil, a valve controlling a passage of a cooling-current through a tube, a motor device for operating said valve, and a controlling-magnet connected to the mains in multiple arc with the working resistances.

5. The combination, with a dynamo-machine supplying working resistances in multiple arc, of means such as an electro-magnet responsive to changes in the difference of potential in the mains, a motor device controlled by said electro-responsive devices, a resistance connected to the circuit of a field-magnet coil, and means for controlling the temperature of said coil so as to vary its specific resistance according to the amount of current desired in the field-magnet coils, said means being operated by the motor devices.

6. The combination, with the mains *a b*, supplying devices in multiple arc, of an electro-magnet connected in a circuit from one main to the other, an armature-lever, L, balanced on knife-edges, controlling contacts governed by the same, a motor magnet or magnets governed by said controlling contacts, and an artificial resistance whose temperature is controlled by the operation of the motor devices, as and for the purpose described.

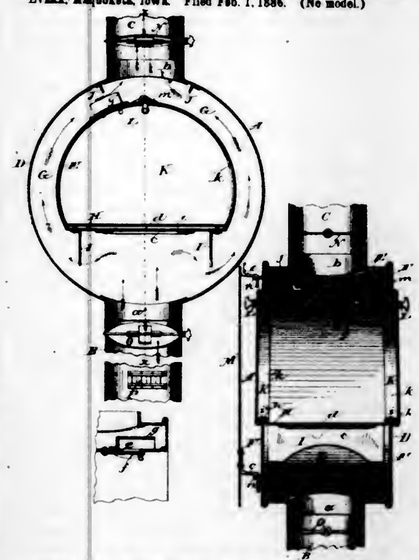
7. The electric conductor R, formed of material whose resistance varies with changes of temperature, and placed in the path of a cooling-current by which its temperature may be governed, in combination with a tapered frame on which the conductor is wound, as and for the purpose described.

8. The combination, with the resistance-coil R, of a taper-frame consisting of a number of tapering wings of non-conducting material, as and for the purpose described.

9. The combination, with the controller-magnet having coils C in a derived circuit and coils C' in a main circuit, of a variable shunt-wire, V^2, as and for the purpose described.

10. The combination, with the controller-magnet C, of controlling-contacts, a motor-magnet, M, an artificial resistance whose resistance varies with changes of temperature, and a valve, V, operated by the motor-magnet and controlling the passage of a cooling-current over the resistance.

353,181. **COMBINED HEATING-DRUM AND OVEN.** DEWITT VAN EVERA, Maquoketa, Iowa. Filed Feb. 1, 1886. (No model.)



Claim.—1. A drum consisting of an outer and inner shell of different diameters secured to end plates, the outer shell provided with inlet and outlet extensions, and the inner shell having a horizontal base, and vertical transverse plates depending from said base, as set forth.

2. A drum consisting of an outer and inner shell of different diameters secured to end plates, the outer shell provided with inlet and outlet extensions, and the inner shell provided with a horizontal base having vertical transverse plates and a covered opening, in combination with suitable doors designed to close the open ends of said drum, as set forth.

3. A drum consisting of an outer and inner shell of different diameters secured to end plates, the former shell provided with an inlet and outlet extension, and the latter with an aperture leading to the draft-space between said shells, and a hood extended into said draft-space over the aperture, as set forth.

4. A drum consisting of an outer and inner shell of differing diameters secured at their ends to suitable plates, whereby a space is formed for the passage of the ascending products of combustion in opposite directions, the inner shell provided with an aperture having a hood extending into the draft-space, and a cover for the aperture pivotally connected to the outer face of said shell, in combination with suitable doors designed to close the open ends of said drum, as set forth.

5. A drum consisting of an outer and inner shell of differing diameters secured to end plates, the former shell having an inlet and outlet extension, and the latter shell provided with a horizontal base having a covered opening, depending deflecting-plates, and hooded aperture provided with a cover, in combination with suitable doors designed to close the open ends of said drum, and suitable dampers and check-draft for regulating and confining the heat, as set forth.

6. A drum consisting of an outer and inner shell of differing diameters secured to end plates, the former shell having an inlet and outlet extension, and one of the end plates provided with suitable eyes, in combination with a shield having hooks arranged to engage said eyes, as set forth.

7. In a drum consisting of an outer and inner shell of differing diameters secured to end plates, the outer shell provided with inlet and outlet extensions, and short transverse deflecting-plates located on opposite sides of the outlet, as set forth.

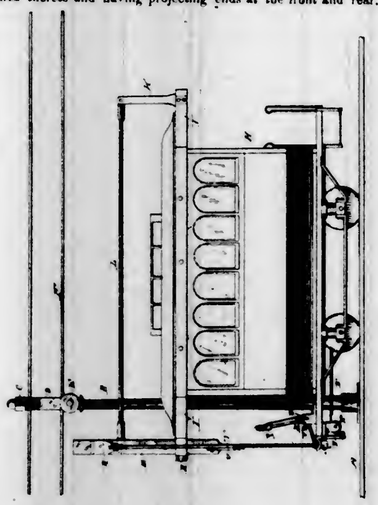
353,182. **WINDOW-SHADE ROLLER.** HENRY A. WALKER, London, County of Middlesex, England. Filed June 28, 1884. (No model.) Patented in England Apr. 9, 1883, No. 1,782.



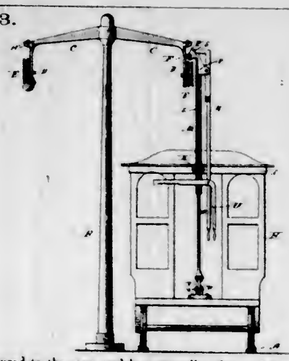
Claim.—The combination, with a blind or other roller, K, and cord J, of the spool G', having flange G, lever A, friction-roller D, bracket B, and adjustable stop H, for regulating the movement of said lever A, adjusting the frictional pressure upon the flange G of the roller D, and compensating for the wear of the parts in frictional contact, substantially as set forth.

353,183. **CABLE RAILWAY.** GEORGE WARBURTON, Philadelphia, Pa., assignor of one-half to James F. Reddy, same place. Filed July 27, 1886. (No model.)

Claim.—1. The combination, with the car, of the metallic band attached thereto and having projecting ends at the front and rear, the



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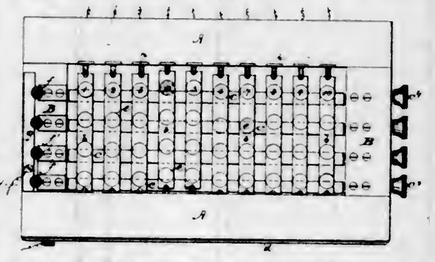


standard secured to the rear and bar extending forward from the same, the movable standard carrying the gripping devices and secured to said rod, and the mechanism for operating said gripping devices, substantially as specified.

2. The combination, with the movable standard and the angle-lever, whereby it is elevated, of the bracket having a seat for the cable, the gripping angle-lever and its handle, and the locking angle-lever having a ratcheted arm, the whole arranged to operate substantially as and for the purposes specified.

3. The combination, with the movable standard and its operating-lever, of the stirrup and sliding plate connected with the brake-chain, whereby the brake is automatically applied, substantially as set forth.

353,184. **ELECTRIC SWITCH-BOARD.** JOSEPH H. WEHRLE, Newark, N. J. Filed Nov. 30, 1885. (No model.)



Claim.—1. The combination, in a switch-board, with movable individual line-plates normally in contact with a ground-plate, a ground-plate, and line-connecting bars arranged beneath and transverse to said line-plates, said bars being beveled on the upper side and pivotally arranged to release the connecting-plugs simultaneously when turned, of connecting-plugs having barbed ends or points arranged and operating in relation to the line-plates to cause said plates to move, for the purpose set forth, when brought into engagement with the beveled side of the subtending connecting-bars, and adapted to catch upon said connecting-bars, as set forth.

2. In a switch-board, the combination, with movable line-plates normally in contact with the ground, and spring-actuated connecting-plugs having barbed ends arranged in said movable line-plates, of line-connecting strips arranged transversely to and beneath said line-plates, and having the upper sides thereof next to the line-plates beveled or inclined, said strips being rigidly held when the beveled sides are uppermost, to cause the longitudinal movement of the line-plates when the plugs are depressed, substantially as described, but free to turn pivotally toward the overlying line-plates to release the connecting-plugs, substantially as herein set forth.

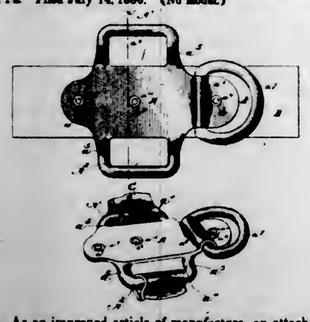
3. In a switch-board, the combination of movable line-plates normally in connection with the ground, spring-actuated connecting-plugs having barbed ends arranged in said line-plates, pivotally-arranged line-connecting strips or bars placed beneath and transversely to said line-plates, and having beveled or inclined sides and a finger-piece, a stop engaging with the side of said strips opposite to the bevel thereon, whereby the said bevel is held uppermost and the strips held rigidly, and a spring operating to hold said strips and stops in engagement and to return said strips to said engagement, for the purposes set forth.

4. In combination, in a switch-board, a ground-plate, longitudinally-moving individual line-plates normally in connection with said ground-plate, spring-actuated connecting-plugs having barbed ends or points arranged in said individual line-plates, plug-cylinders secured in said line-plates, within which the connecting-plugs are arranged and move,

pivoted spring-actuated line-connecting bars arranged beneath and transverse to said line-plates, said connecting-bars being beveled on the upper side, and plates in the circuit of the subscriber's wire, with which the individual line-plates are in permanent contact, all of said parts being arranged and operating for the purposes set forth.

5. In combination, in a switch-board, a ground-plate, longitudinally-moving individual line-plates normally in connection with said ground-plate, spring-actuated connecting-plugs having barbed ends, plug-cylinders secured in said line-plates, and within which the connecting-plugs are arranged and move, pivoted spring-actuated line-connecting bars arranged beneath and transverse to said line-plates, said connecting-bars being beveled on the upper side, plates with which the individual line-plates are in permanent contact in the circuit of the subscribers' wires, and a strip connected with the operator's telephone and brought into the circuit of the line-connecting bars by means of a removable plug, substantially as and for the purposes set forth.

353,185. ATTACHMENT FOR TUGS OR TRACES. LUIS WERLE, Warren, Pa. Filed July 14, 1886. (No model.)



Claim.—As an improved article of manufacture, an attachment for traces or tugs, comprising a flat plate or body, A, provided with holes for the insertion of rivets or like means for securing the plate or body to one side or face of the trace or tug, the said plate or body being bent outward transversely at one end to provide a ridge, a^2, the inner side of which ridge provides a groove or space between the plate and the leather, a swinging D, a^3, journaled in the said groove or space, and the integral loops A' A^3 at opposite sides of the plate or body A, said loops being deflected in rear of a vertical line drawn through the body or plate A, so that the loops come directly on a line with the solid portion of the trace or tug, as set forth.

353,186. THERMOSTAT. GEORGE WESTINGHOUSE, Jr., and FRANK MOSES, Pittsburg, Pa. Filed May 13, 1886. (No model.)



Claim.—1. The combination of a closed liquid chamber or receptacle, a casing or chest connected to said chamber, a regulating-valve working in the casing, a movable abutment closing one end of the chamber, and a follower bearing against said abutment and transmitting pressure therefrom to the regulating-valve, substantially as set forth.

2. The combination of a closed liquid chamber or receptacle, a casing or chest connected to said chamber, a regulating-valve working in the casing, and a device interposed between the liquid-chamber and valve for increasing the degree of traverse of the latter under the action of pressure resultant upon the expansion of liquid contained in the chamber, substantially as set forth.

3. The combination of a closed liquid chamber or receptacle, a casing or chest connected to said chamber, a regulating-valve working in the casing, a movable abutment closing one end of the chamber, a follower bearing against said abutment, and one or more levers adapted to transmit pressure from the follower to the regulating-valve, substantially as set forth.

4. The combination of a closed liquid chamber or receptacle, a casing or chest connected to said chamber, a regulating-valve working in the casing, a movable abutment closing one end of the chamber, a follower bearing against said abutment and transmitting pressure therefrom to the regulating-valve, a movable abutment closing the opposite end of the liquid-chamber, a supplemental follower bearing against said abutment and having a stem provided with an adjusting-nut for regulating its traverse, and a spring bearing against the supplemental follower and against a fixed abutment, substantially as set forth.

5. The combination of a casing or chest, a regulating-valve working therein and adapted to control the passage of a heating medium from the supply to the delivery side thereof, a closed liquid-chamber connected adjustably to the valve-casing, so as to be fixed at a greater or less distance therefrom, a movable abutment closing one end of said chamber, and a follower bearing against said abutment and transmitting pressure therefrom to the regulating-valve, substantially as set forth.

6. The combination of a closed liquid chamber or receptacle, a casing or chest connected to said chamber, a regulating-valve working in the casing, a movable abutment closing one end of the chamber, a follower composed of two sections connected with the capacity of relative longitudinal movement, one of said sections adjoining the movable abutment and the other bearing against the regulating-valve, and a relieving-spring interposed between the follower-sections, substantially as set forth.

7. The combination of a casing or chest, a regulating-valve working therein and adapted to control the passage of a heating medium from the supply to the delivery side thereof, a closed liquid-chamber connected to the valve-casing, a movable abutment closing one end of said chamber, a follower working in a passage leading from the valve-casing to the movable abutment and transmitting pressure from said abutment to the regulating-valve, and a flexible diaphragm connected at its center to the follower and at its periphery to the casing within which the same is inclosed, substantially as set forth.

8. The combination of a closed liquid chamber or receptacle, a movable abutment closing one end of said chamber, a valve-casing connected to the abutment end of said chamber, a regulating-valve working in said casing, a follower bearing against the movable abutment and transmitting pressure therefrom to the regulating-valve, a removable plug or stem closing an opening in the valve-casing in line with the regulating-valve, and a bracket for supporting the apparatus, having a socket to receive said plug or stem, substantially as set forth.

353,187. GAS-BURNER. JAMES S. WETHERED, San Francisco, Cal., assignor of one-half to Isaac D. Guyer, Chicago, Ill. Filed Dec. 17, 1885. (No model.)



Claim.—1. In a gas-burner, the combination of an outer shell or gas-passage, an inner shell or air-passage, air-inlets extended through the gas-passage, an incombustible material inclosed in the inner shell and extending entirely across the space within the same and forming circuitous air-passages, a foraminous plate sustaining said material, and an auxiliary gas-jet located beneath said foraminous plate, substantially as specified.

2. In a gas-burner, the combination of an outer shell or gas-passage, an inner shell or air-passage, a gas jet or nipple located in the lower part of the inner shell, a perforated transverse diaphragm above said internal gas-jet, and an asbestus filling inclosed in the inner shell and resting on said perforated diaphragm, substantially as described.

353,188. DEVICE FOR DRAWING METAL. ROLLIN WHITE, Lowell, Mass. Filed Nov. 2, 1885. (No model.)

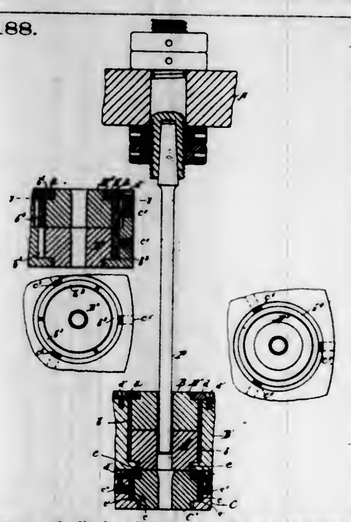
Claim.—1. The combination of a die composed of two or more superimposed plates contained in one or more die-holders, one or more of said die-holders having a die-chamber larger than the plate of said die contained in said die-chamber, and an elastic packing interposed between said die and the said die-chamber, substantially as shown and described.

2. The combination of a die composed of two or more superimposed plates contained in one or more die-holders, one or more of said die-holders having a die-chamber larger than the plate of said die contained in said die-chamber, and an elastic packing interposed between said die and the sides of said chamber, as for the purpose specified.

3. The combination of a die, a die-holder having a die-chamber larger than said die, an elastic packing surrounding said die, a metallic ring surrounding said packing, and two or more screws thrusting against said ring, as and for the purpose specified.

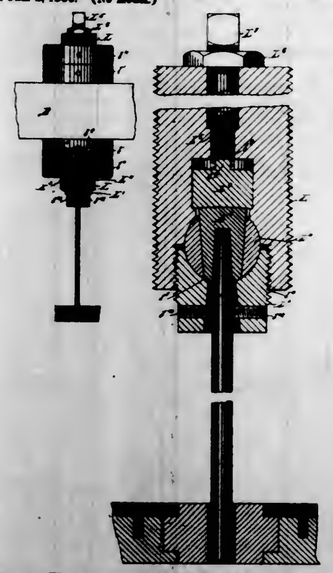
4. A die composed of two or more superimposed plates in two or more die-holders, all of said die-holders being provided with die-chambers somewhat larger than the plates contained in said die-holders, so that all the plates composing the die may have a slight lateral motion,

353,188.



for the purpose of adjusting themselves to the work, substantially as shown and described.

353,189. SOCKET FOR PUNCHES. ROLLIN WHITE, Lowell, Mass. Filed Jan. 2, 1886. (No model.)



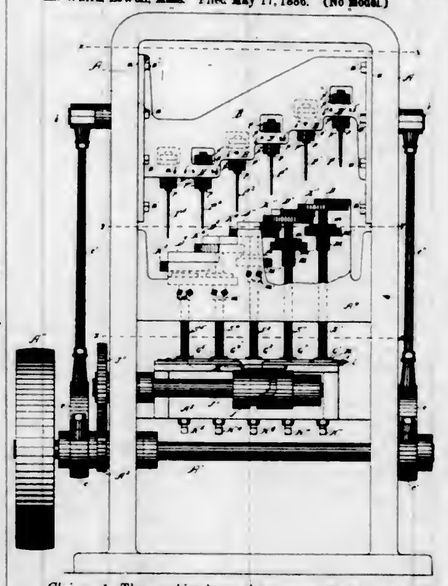
Claim.—1. The combination of a holder having at its lower end a chamber, a cylindrical plug secured in said chamber, said plug having a central opening and a hemispherical cavity in its top, a ball having a central conical opening, a punch having a conical head adapted to be received into said conical opening, and a punch, substantially as described.

2. The combination of a holder having at its lower end a chamber, a cylindrical plug secured in said chamber, said plug having a central opening and a hemispherical cavity in its top, a ball having a conical central opening, a punch having a conical head adapted to be received into said conical opening, two or more screws turning in screw-threaded holes in the lower part of said plug radially to the punch, and a punch, substantially as described.

3. The combination of a holder having at its lower end a chamber, a cylindrical plug secured in said chamber, said plug having a central opening and a hemispherical cavity in its top, a ball having a central conical opening, a punch having a conical head adapted to be received into said conical opening, a punch, a spring, and a screw passing through the top of said holder and adapted to compress said spring between said screw and the upper end of the conical head of said punch, substantially as shown and described.

4. The combination of the head, the holder or sleeve provided at its ends with external screw-threads, and having in its lower end a chamber, the lower end of said chamber being provided with an internal screw-thread, a cylindrical plug having an external screw-thread to engage with the threads of said chamber, and having a central vertical opening and in the top a hemispherical cavity, a ball having a central conical opening, a conical plug adapted to fill said conical opening, and having a central orifice to receive the upper end of a punch, and a punch, substantially as shown and described.

353,190. MACHINE FOR DRAWING CARTRIDGE-SHELLS. ROLLIN WHITE, Lowell, Mass. Filed May 17, 1886. (No model.)



Claim.—1. The combination and arrangement of a series of dies and a series of punches in zigzag lines, whereby any die with its corresponding punch may be adjusted independently of the other dies and punches of the series, and one or more carriers for conveying the partially-drawn blanks from die to die, substantially as shown and described.

2. The combination and arrangement of a series of dies and a series of punches in zigzag lines, whereby any die and its corresponding punch may be adjusted independently of the other dies and punches of the series, and carriers adapted to convey blanks from die to die of such series, substantially as herein shown and described.

3. The combination of a series of stationary die-plates containing dies, said dies being arranged in zigzag lines, and carriers having one or more perforations for the purpose of conveying the partially-drawn blanks from one stationary die to another, as and for the purpose specified.

4. The combination of the intermittently-moving carrier, its shaft, and the journal-box adjustable laterally, substantially as shown and described.

5. In an automatic machine for drawing blanks, two or more carriers provided with shafts, said shafts turning in boxes having a lateral adjustment, in combination with a series of dies and a series of punches arranged in zigzag lines, as and for the purpose specified.

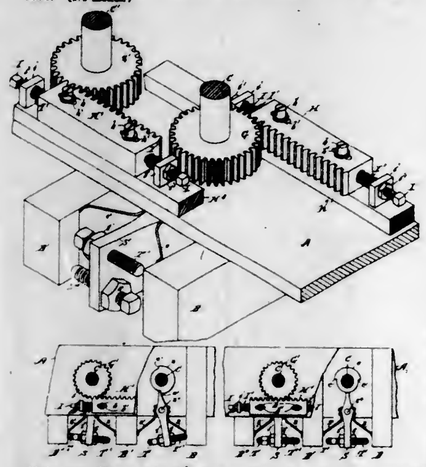
6. The combination of a series of punches and a series of dies, one or more carriers supported on shafts provided with gears, a rack engaging with said gears secured to a bar having a reciprocating motion, and said bar, said rack being so secured to said bar that it may be moved to adjust it to the required motion of the carriers, substantially as described.

7. The combination of a series of punches and a series of dies, the carriers supported on carrier-shafts, said shafts provided with gears, and a rack adapted to engage with said gears and having an intermittent vibratory motion imparted to it, whereby the carriers are oscillated to and fro, substantially as shown and described.

8. The combination of a series of punches and a series of dies arranged in zigzag lines, carriers adapted to convey the partially-drawn blanks from die to die, said carriers being supported on carrier-shafts having an intermittent oscillating motion communicated to them through an intermittently-moving rack which engages with gears secured to said

shafts, the rack, the carrier-shafts and their gears, and a cam adapted to move said rack only when the punches are raised out of the dies, substantially as shown and described.

353,191. DEVICE FOR REGULATING THE MOVEMENT OF OSCILLATING SHAFTS. Rollin White, Lowell, Mass. Filed May 17, 1886. (No model.)



Claim.—1. The combination of an oscillating carrier-shaft, provided with projections thereon, and the swinging stops, substantially as shown and described.

2. The combination of the oscillating carrier-shafts, provided with projections, and the swing-arms provided with adjustable stops, as and for the purpose specified.

3. An oscillating carrier-shaft provided with projections which strike against one end of a swinging arm, the other end of said arm being provided with screw-threaded bolts, whereby the movement of said arm may be limited by said bolts striking against a surface on either side of said swing-arm, substantially as shown and described.

4. The combination of an oscillating carrier-shaft provided with projections which strike against one end of a swing-arm, the other end of said arm being provided with screw-threaded bolts, whereby the movement of said swing-arm may be limited by said bolts striking against a surface on either side of said swing-arm, and springs attached to said swing-arm and projecting therefrom and striking against said surfaces, as and for the purpose specified.

5. The combination of a series of carrier-shafts provided with gears, each of said gears engaging with a separate rack, each of said racks being adjusted independently of all the other racks of such series, substantially as shown and described.

353,192. SOCKET FOR PUNCHES. Rollin White, Lowell, Mass. Filed July 19, 1886. (No model.)

Claim.—1. The combination of a punch-holder having a chamber provided with a contracted punch-seat, and a punch provided with a shank generally smaller than the mouth of said chamber, but having an enlargement near its end, and adapted to reach into said chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, as and for the purpose specified.

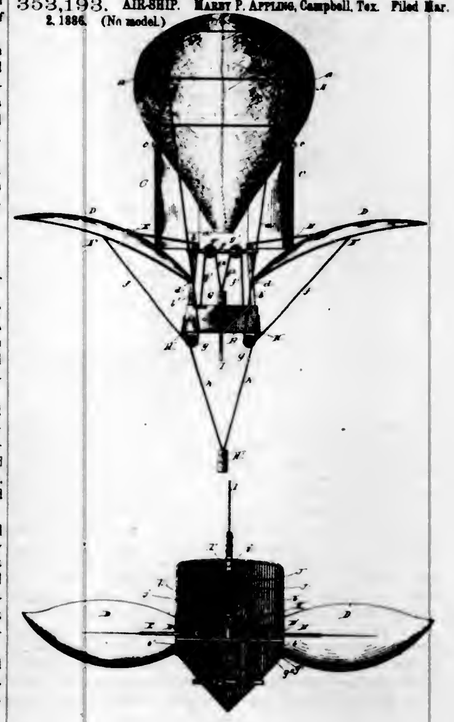
2. The combination of a punch-holder having a chamber provided with a contracted punch-seat, and a punch provided with a shank generally smaller than the mouth of said chamber, but having an enlargement near its end, and adapted to reach into said chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, a spring pressing said enlargement into said seat in said holder, as and for the purpose specified.

3. The combination of a punch-holder having a chamber provided with a contracted punch-seat, a punch provided with a shank generally smaller than the mouth of said chamber, but having an enlargement near its end, and adapted to reach into a chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, a vertical screw turning in said holder above said punch and thrusting against a spring interposed between the upper end of said punch and said vertical screw, as and for the purpose specified.

4. The combination of a punch-holder having a chamber provided with a contracted punch-seat, and a punch provided with a shank generally smaller than the mouth of said chamber, but having an enlargement near its upper end, and adapted to reach into said chamber beyond said seat, and to be retained in said holder by said seat and said enlargement, and two or more screws passing radially through the lower part of said chamber and thrusting against said shank, as and for the purpose specified.

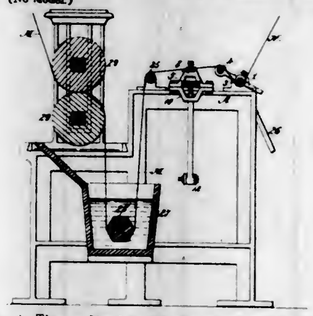
5. The combination of a punch-socket, a punch adapted to move laterally in said socket, and screws passing radially through the lower part of said socket and thrusting against the shank of said punch, as and for the purpose specified.

353,193. AIR-SHIP. Marby P. Appling, Campbell, Tex. Filed Mar. 2, 1886. (No model.)



Claim.—An air-ship consisting of a gas-bag having vertical adjustable sails secured thereto, a car body and frame having side wings pivoted to inclined sides and adjustably held to the top of car-frame by elastic cords, and to a central weight within said frame by cords secured to the wings and passing over pulleys below and above the car-body, and a pivoted rudder actuated by a segmental gear, substantially as shown and specified.

353,194. MACHINE FOR SINGEING CLOTH. William Banks and Samuel Brierley, Bolton, County of Lancaster, England. Filed July 1, 1886. (No model.)

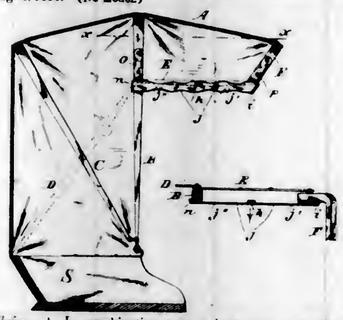


Claim.—1. The combination of the bridge or frame 5, carrying the platinum or other wire or tape 8, means for oscillating the bridge or frame, and electrical connections for heating the said wire or tape, substantially as and for the purposes described.

2. The combination of the bridge or frame 5, carrying the platinum or other wire or tape 8, means for oscillating the bridge or frame, the terminal 9, the pivoted terminal 10, and its supporting-frame 12, connected with the pivoted terminal for holding the said wire or tape, and allowing it to expand and contract, substantially as and for the purposes described.

3. The combination, with the bridge or frame 5, carrying the platinum or other wire or tape 8, of the spur-wheels 17 and 21, means for operating the latter wheel, connecting-rod 18, and lever 16, for oscillating the bridge or frame, substantially as and for the purposes described.

353,195. BUGGY-TOP. Charles A. Behlen, Cincinnati, Ohio. Filed Aug. 4, 1886. (No model.)



Claim.—1. In combination with a buggy-top, a hood connected therewith by means of braces E and J, adapted and arranged to move approximately at right angles to each other, substantially as shown and described.

2. In a buggy-top, the combination, with a main bow, of a hood F, connected therewith by means of horizontally-pivoted brace E and vertically-pivoted brace J.

3. In a buggy-top, the combination, with a main bow, of a hood, F, and a brace, J, connecting the hood to the main bow, made in two parts, j' and j'', and adapted to swing horizontally.

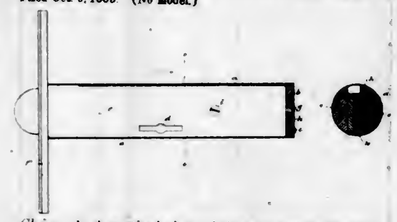
4. In a buggy-top, the combination, with body S, of bows B C, pivoted thereto, a hood, F, connected with bow B by means of a hinged brace, E, and a hinged brace, J, the former adapted to move vertically and the latter horizontally, as and for the purpose set forth.

5. In a buggy-top, the combination, with the bows B C, of a hood, F, a hinged brace, E, connecting the bow B and the hood, and a brace, J, also connecting the hood and bow, and provided with a beveled or inclined hinge, substantially as shown.

6. In combination with a buggy-top, a hood connected therewith by means of braces E and J, the latter comprising two parts, j' and j'', connected by a beveled hinge, b, and provided at their outer ends, respectively, with a beveled and a vertical hinge, substantially as and for the purpose set forth.

7. In a buggy-top, side braces, J, provided with beveled hinges b i, and vertical hinge n, attachment-plates o p, in combination with supporting-bows and jointed exterior braces, whereby the top can be sustained or thrown back, substantially as shown and described.

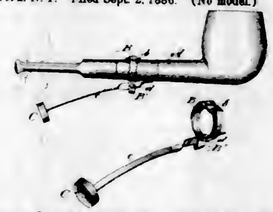
353,196. MORTISE-LOCK. Frederick J. Biggs, London, England. Filed Oct. 6, 1885. (No model.)



Claim.—1. A mortise-lock consisting of a cylindrical frame formed with a chamber for the lock mechanism extending entirely through it, a latch or bolt and tumbler arranged to work in said chamber, and a face-plate fixed to said frame, in combination with an exterior sheath, a, of thin drawn tubing, having a closed end, b, fitting over said frame, and a fastening-screw, g, passing through the end b and engaging said frame, whereby the sheath is secured to the lock, substantially as set forth.

2. A mortise-lock consisting of a cylindrical frame formed with a chamber for the lock mechanism extending entirely through it, a latch or bolt and tumbler arranged to work in said chamber, a face-plate fixed to said frame, and a projection, i, at the rear end of said frame, in combination with an external sheath, a, of thin drawn tubing having a closed end, b, and having also a hole therein to receive said projection and prevent the sheath from turning, substantially as set forth.

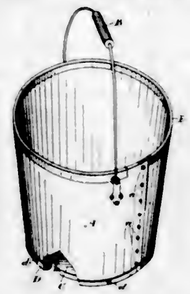
353,197. CHIN-REST FOR TOBACCO-PIPES. Thomas S. Brady, New York, N. Y. Filed Sept. 2, 1886. (No model.)



Claim.—1. In a tobacco-smoking pipe having either a straight or curved stem, a brace-rod, c, attached by one end to and beneath the stem of said pipe, and having its opposite end provided with a chin-rest, C, located, by means of said brace-rod c, at a point vertically beneath the mouth-piece of said pipe, substantially as and for the purposes herein set forth.

2. In combination with the stem of a tobacco-smoking pipe and a brace-rod, c, located relatively thereto, as herein described, the adjustable strap B, buckling device b, and frictional pivot d, supporting said brace-rod c, substantially as and for the purposes herein set forth.

353,198. PAIL, &c. Archibald Brake, Toronto, Ontario, Canada. Filed May 27, 1886. (No model.) Patented in Canada May 27, 1886. No. 24,162.

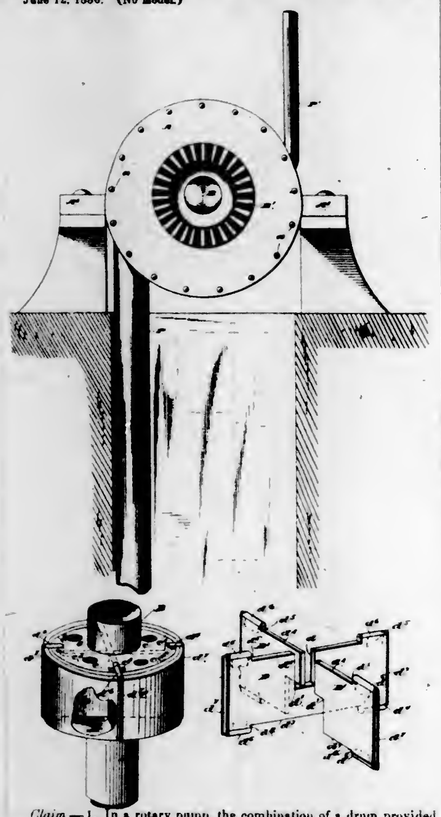


Claim.—1. A vessel having a body, A, made of thin veneer connected together by a tongue-and-groove joint secured by the rivets a, in combination with a bottom, C, having a flange, b, designed to fit the body A, and secured thereto by means of the band D and rivets d, substantially as and for the purpose specified.

2. A vessel having a body, A, made of thin veneer connected

gether by a tongue-and-groove joint secured by the rivets *a*; in combination with a bottom, C, having a flange, *b*, designed to fit the body A, and secured thereto by means of the band D and rivets *d*, and the band E, fitted upon the top edge of the body A, substantially as and for the purpose specified.

353,199. ROTARY PUMP. JAMES BREWER, Pueblo, Colo. Filed June 12, 1886. (No model.)



Claim.—1. In a rotary pump, the combination of a drum provided with circular packing on the exterior of its heads, and having diametric right-angled slots therethrough, piston-slides passing through said slots of a length equal to the distance apart at all points of the walls of the chamber in which the drum is mounted, and a shell or casing inclosing said drum the walls of whose chamber form with the drum a pressure-chamber, and also a continuous track for the ends of the piston-slides, and having ingress and egress openings diagonally opposite to each other at or near the commencement and ending of said pressure-chamber, substantially as described.

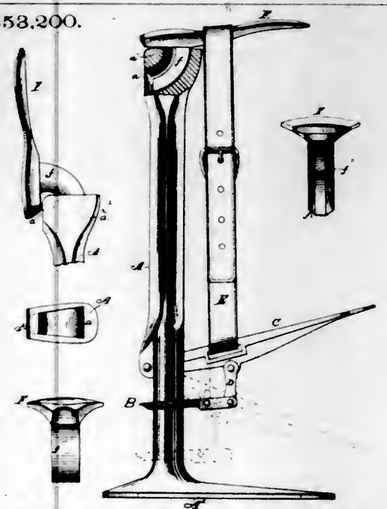
2. In a rotary pump, the combination of the shell A, having an elliptical chamber provided with ingress and egress openings, drum C, having diametric slots *c'*, circular packing c^2, and supplemental packing c^3, piston-slides D and D', provided with packings d^2 and d^3, and means for operating the same, substantially as described.

353,200. PEGGING-JACK. SAMUEL O. BROWN, Greenwood, N. Y. Filed Mar. 12, 1886. (No model.)

Claim.—1. In a pegging-jack, the combination, with the standard having a mortise in its upper end, and a rib closing one end of the mortise, of a last, and a segmental or hooked tongue depending therefrom adapted to enter the mortise and work about the rib and form a pivotal connection between the last and standard, substantially as described, and for the purpose specified.

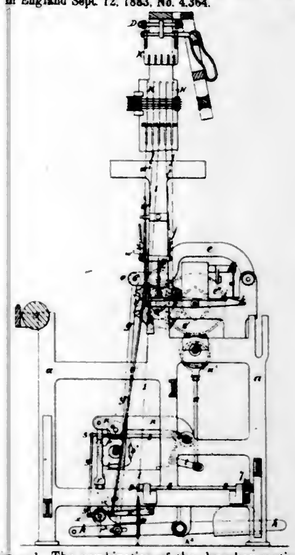
2. The combination, with the standard having a curved mortise projecting from its top and through to one of its sides, forming a rib, said mortise being wedge-shaped in cross-section, of a last having a correspondingly-curved or segmental tongue depending therefrom coincidently shaped in cross-section, and fitted in said mortise for pivotally connecting the last with the standard, substantially as set forth.

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3. The combination of the standard having a curved recess in its upper end, wedge-shaped in cross-section, and the last having a correspondingly shaped and curved tongue depending from its under side, the end of said tongue being slightly expanded, substantially as and for the purposes set forth.

353,201. LOOM. ROBERT BROWNRIDGE and PETER BOND, Macclesfield, County of Chester, England. Filed Mar. 28, 1884. (No model.) Patented in England Sept. 12, 1883, No. 4,364.



Claim.—1. The combination of the drop-box motion of a loom, a peg, *i*, and devices, substantially as set forth, whereby the said peg controls the drop-box motion, with a lever, *i*, and the hook of a Jacquard mechanism connected to said lever to move it out of the way of the peg, and a retracting-spring for the lever *i*, substantially as described.

2. The combination of the operating-lever *h* of the drop-box motion of a loom, cam *p*, and devices, substantially as described, whereby said cam controls the lever, with a pawl, *s*, devices, substantially as set forth, for reciprocating the pawl to turn the cam, Jacquard mechanism, and a link, *y*, levers *x x'*, shaft carrying said levers, and a wire, *w*, connecting a hook of the Jacquard mechanism with the said lever *x* to throw it into and out of action, all substantially as specified.

3. The combination of the picker-staff and strap, an operating-lever, 13, the tappet-shaft, picking-bowls, slide-tappet 2, and bar 3, carrying a finger, 4, with a cam, 5, Jacquard mechanism, and devices, substantially as described, connecting the hook of the Jacquard with the cam to operate said bar 3, all substantially as set forth.

353,202. BUNG OR PLUG. LEANDER BUTLER, Boston, Mass. Filed July 17, 1886. (No model.)



Claim.—1. A barrel bung or plug having connected with or confined within its lower portion a substance for treating malt or other liquors adapted to be discharged into the barrel by the force of a blow or blows upon the top of said bung or plug, substantially as herein described.

2. The combination, with a bung or plug, of a container or receptacle composed of paper or other suitable material, attached to the bottom of the bung or plug, said receptacle containing a substance for treating malt or other liquors and having a bottom adapted to be forced downward without being entirely detached from the main portion of the container by the concussion produced by driving the bung or plug into the barrel, whereby the contents of the container is dislodged and discharged into the barrel, substantially as set forth.

3. The combination, with a bung or plug, A, of a container or receptacle, B, attached to the bottom thereof and containing a substance for treating malt or other liquors, and having an inwardly-turned lip or flange, *g*, and a bottom, *d*, connected therewith by a hinge portion, 12, and supported by the flange *g*, whereby when the bung is driven into the barrel or receptacle the bottom *d* will be forced out past the flange *g*, without being entirely detached from the main portion of the container, and the contents of the latter simultaneously dislodged and discharged into the barrel or other receptacle, substantially as herein described.

4. The herein-described method of applying to malt or other liquors a substance for charging the same with carbonic-acid gas, the same consisting in attaching the said substance to or connecting it with the bottom of a bung or plug, or placing it within an open cavity in the bottom of the same, then inserting the said bung or plug within the bung-hole of the barrel, and finally discharging the substance into the barrel by a blow or blows delivered on the top of the bung or plug, whereby the substance is detached therefrom, substantially as set forth.

353,203. METALLIC EYEGLASS-CASE. HERBERT G. CHASE, Fitchburg, Mass. Filed Mar. 6, 1886. (No model.)



Claim.—1. An eyeglass-receptacle consisting of a case having a body of substantially flattened oblong form, and having a transverse entrance-opening across one end, bounded by a flange, a transverse flange secured across the inner edge of the said entrance-opening, and a flanged lid hinged to said transverse flange to close the transverse entrance-opening, substantially as described.

2. An eyeglass-receptacle consisting of a case having a closed body of substantially flattened oblong form, and provided at one end with a transverse entrance-opening provided at its opposite sides with the snaps 8, and a lid hinged to the transverse inner edge of said entrance-opening and having a flange, 7, the opposite sides of which engage the side snaps, substantially as described.

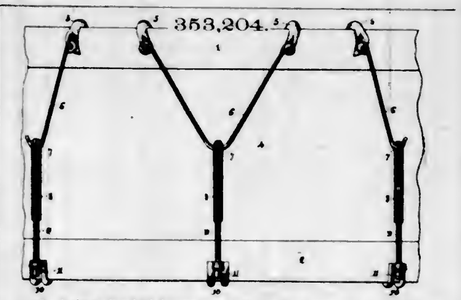
3. The combination, with a metallic case having an opening, 2, provided on its sides with snaps 8, of a lid, 4, having a rim, 7, substantially as described.

4. The herein-described metallic case, having an opening provided with side snaps, a lid hinged transversely across the inner edge of said opening, and a lip or flange secured beneath the hinge-joint, substantially as described.

353,204. DRUM-HEAD TIGHTENER. CHARLES G. CONN, Elkhart, Ind. Filed June 1, 1886. (Model.)

Claim.—1. In a drum-head tightener, the combination of a wire or cord connected at two points to independent paired fastenings engaging one rim or hoop, a rod connecting said wire or cord to the other rim or hoop, and means for lengthening or shortening such connections, said tightener being disconnected from those adjoining, substantially as set forth.

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2. A drum-head tightener consisting of an extensible rod, a hook secured to one end of the rod, and a wire or cord secured to the other end of the rod, provided with a pair of fastenings secured to the ends thereof, substantially as described.

3. A drum-head tightener consisting of hooks adapted to be connected to either rim or hoop of a drum, wires or cords connecting said hooks in pairs, two-part rods adapted to be lengthened or shortened and connected to said wires or cords at one end, and hooks joining the other end of said rods to the other rim or hoop of the drum, substantially as set forth.

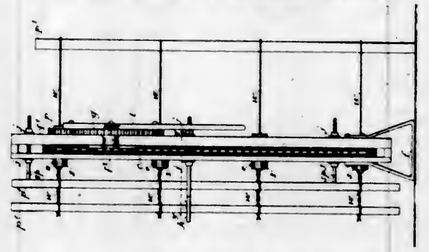
4. The combination of the hooks 5, applied to either rim or hoop of a drum, a bent wire, cord, or rod, 6, connecting said hooks in pairs, a rod, 8, connected at one end to the bent portion of said wire, cord, or rod, and interiorly screw-threaded at its other end, a rod, 9, engaging with such interior screw-thread on the rod 8, and having a square head at its lower end, and a hook, 10, swiveled on said screw-rod 9 and applied to the lower hoop, 2, of the drum, substantially as and for the purpose set forth.

353,205. SAND-REEL FOR ARTESIAN WELLS. CHARLES G. CONN, Lima, Ohio. Filed June 21, 1886. (No model.)



Claim.—The sand-reel for wells, consisting of a wooden shaft having the polygonal end 3 and annular grooves 7, and the reel-wheels, each comprising a series of sectional wooden disks secured together side by side with their bores fitting the polygonal shaft, and having one of said disks of each wheel engaged in the annular grooves of the shaft, substantially as and for the purpose described.

353,206. WIRE-FENCE MACHINE. LEWIS R. COWLES and SAMUEL D. BUTTZ, near Clifford, Ind. Filed Apr. 16, 1886. (No model.)



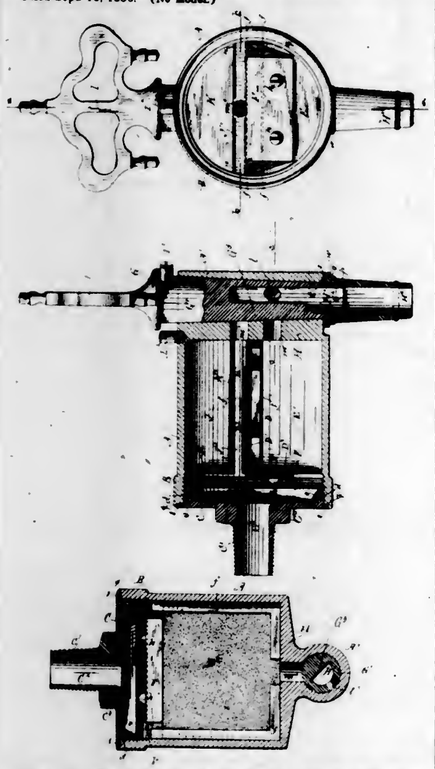
Claim.—1. In a wire-fence machine, a series of revolving twisters having bearings in the sides of a frame-work, the central portions of these twisters carrying sprocket-wheels mounted thereon, a drive-chain belt connecting these sprocket-wheels, a pinion mounted on the axis of the upper sprocket-wheel and adapted to mesh with a gear-wheel mounted on an axle having bearings in a part connected with the frame, a lever for revolving such gear-wheel connected therewith, and removable eyes connected with the twisters, all combined substantially as described.

2. A wire-fence machine provided with twisters revolving on axles having bearings in a frame-work, and provided with removable loops or eyes for carrying the wire, in combination with mechanism for revolving the twisters, and the spring-hook *h*, substantially as shown and described.

3. In a wire-fence machine, a series of twisters revolving on axles having bearings in the frame-work, and provided with removable eyes for carrying the wire, in combination with actuating mechanism, substantially as described.

4. In a fence-machine, a series of revolving twisters having bearings in the sides of a supporting-frame, the central portions of these twisters carrying sprocket-wheels, a drive-chain belt connecting such sprockets, a pinion mounted on the axis of one of the sprockets and meshing with a gear-wheel mounted on an axle having bearings in a part of the frame-work, to which is secured a lever or handle for actuating the revolving mechanism, the heaters *sp*, and spring-latch *h*, all combined substantially as described.

353,207. WATER-FILTER. William H. Cummings, Spencer, Mass. Filed Sept. 15, 1886. (No model.)

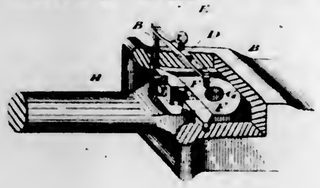


Claim.—1. The combination, with cylinder A, provided with attaching end C and heads E and H, the latter having ports or holes *m m'*, of chambers E' J, filtering-grate D, and filtering-cloth D^2, supported in the sides of cylinder A, so as to bring the upper filtering-surface thereof on a line with port *m'*, and two-way fancet G G', provided with a flat water-impinging surface, G', upon its inside, as shown and described, said parts being constructed and arranged in relation to each other as and for the purposes set forth.

2. The combination, with cylinder A, provided with side flanges, *f f*, of head E, filtering-grate D, netting D', filtering-cloth D^2, and rear holding-plate, F, with its screws *h h*, substantially as and for the purposes set forth.

3. The combination, with cylinder A and filtering-cloth D^2, supported on a level with the bottom of port *m'*, of head K and bottom plate, K', substantially as described, whereby a wide but thin water-space, J', is produced, for the purposes stated.

353,208. CAR-COUPLING. Thomas Davies, Toronto, Ontario, Canada. Filed Apr. 22, 1886. (No model.)



Claim.—1. The coupling-bar H, having wings F applied to its end or ends and actuated by a spring, G, in combination with the bars B, having beveled edges *e*, and fitted into holes *b* behind the notches *a*, substantially as and for the purpose specified.

2. The coupling-bar H, having wings F applied to its end or ends and actuated by a spring, G, in combination with the bars B, having beveled edges *e*, and fitted into holes *b* behind the notches *a*, the arm L, connected at one end to the bars B and at its other end to the horizontal bar I, having crank-handles K formed on its ends, and the rod N, connecting the arm L to the pivoted lever O, the whole being arranged substantially as and for the purpose specified.

3. The bars B, having beveled edges *e*, and fitted into the holes *b* behind the notches *a*, in combination with the plates C and D, connecting the bars B together, so that the latter shall work in conjunction with each other.

353,209. FENCE-POST-SETTING TOOL. Joseph Du Bois, Waverly, N. Y. Filed Apr. 17, 1886. (No model.)



Claim.—1. A fence-post-setting tool consisting of the metallic tube provided with the solid conical point and interior core, in combination with the removable rammer adapted to fit within the top of the tube and rest upon the core, substantially as and for the purpose described.

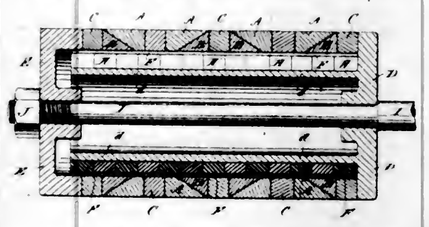
2. The combination, in a fence-post-setting tool, of the metallic tube provided with the conical point and interior core, and adapted to receive a rammer, and the bail, substantially as and for the purpose set forth.

3. In a fence-post-setting tool, the combination of the metallic tube provided with the solid conical point and interior core, in combination with the removable rammer, consisting of an iron cap adapted to fit within the top of the tube, substantially as and for the purpose described.

353,210. FERTILIZER. D Willard Dudley, Montpelier, assignor of one-half to William V. Peck, Calais, Vt. Filed Dec. 3, 1885. (No specimens.)

Claim.—The process of preparing fertilizers, which consists, first, in mixing and saturating equal quantities of bone-meal and wood-ashes with water, and allowing them to remain in such condition for about three weeks; second, slaking lime in brine and adding it to the mixture of bone-meal and ashes, and, third, in adding gypsum and salt in equal quantities to the mass, as set forth.

353,211. PISTON-PACKING. John W. Dudley, Portland, Oreg. Filed Apr. 23, 1886. (No model.)



Claim.—1. A piston-packing comprising bevel-faced split metallic rings held between opposite fixed and movable heads of the piston, and an elastic packing placed within the said rings and tending to force them outward, substantially as herein set forth.

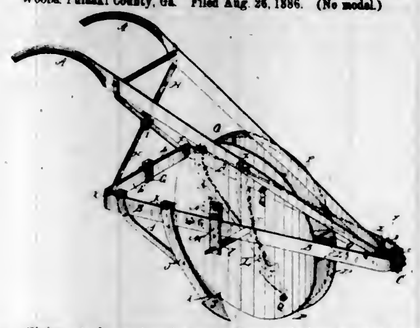
2. A piston-packing comprising bevel-faced split metallic rings A B, held between opposite fixed and movable heads of the piston, and an elastic packing, as at H, placed within the rings A B and over a collar fixed to one of the piston-heads, substantially as herein set forth.

3. A piston-packing comprising bevel-faced split metallic rings A B, held between opposite fixed and movable heads of the piston, an elastic packing, H, held over a collar fixed to one of the piston-heads, and a metallic sleeve, F, interposed between the rings A B and the packing H, substantially as and for the purposes herein set forth.

4. A piston-packing comprising bevel-faced split metallic rings A B, held between opposite heads of the piston, metallic spacing and packing rings C, placed between the sets of rings A B, and an elastic packing, H, interposed between the rings A B C, and a collar fixed to one of the piston-heads, substantially as herein set forth.

5. A piston-packing comprising bevel-faced split metallic rings A B, metallic spacing and packing rings C, placed between the sets of rings A B, an elastic packing, H, held over a collar fixed to one of the piston-heads, and a metallic sleeve, F, interposed between the packing-rings A B C and the elastic packing H, substantially as herein set forth.

353,212. COTTON-CULTIVATOR. George R. Dykes and John M. Woods, Pulaski County, Ga. Filed Aug. 26, 1886. (No model.)

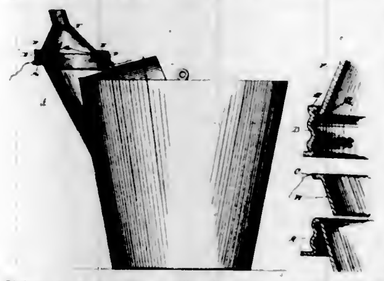


Claim.—1. In combination with a frame and plows arranged along both sides thereof, a wheel arranged between them and provided with cups O at certain intervals, and the circular plates P of equal diameter with said wheels, said plates being detachably fastened to the latter, substantially as set forth.

2. In combination with the frame, the wheel L, shaft *l*, bearing-bars M, and the bolts passing through the bifurcated upper ends of the latter, said bifurcated ends being provided with holes arranged one above the other in order that the wheel may be adjustable vertically as well as backward or forward, substantially as set forth.

3. In combination with the handles and the eye or loop attached thereto, the plate passed through said eye or loop, the clevis and its bolts and the frame B, and re-enforce interposed between said clevis and said handles and held by said bolts, substantially as set forth.

353,213. MILK-PAIL. Frederic G. Ford, Philadelphia, Pa. Filed Aug. 10, 1885. (No model.)



Claim.—1. A spout for a milk-pail, having its outer edge turned downward on the outside, the outside downward-turned portion being formed with a screw-thread for the reception of an annular binding-cap, the interior of the spout being left smooth to prevent accumulations, substantially as specified.

2. The combination, with the spout having a downturned external screw-threaded edge, of the strainer and funnel and the annular cap for securing the same, substantially as specified.

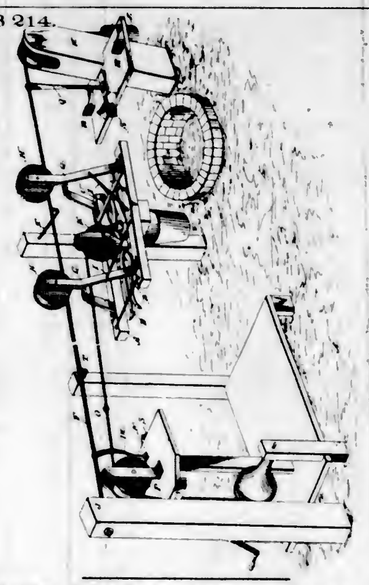
353,214. WATER ELEVATOR AND CARRIER. Jesse S. Ford, Ohio County, and Peter Rarick, Owensborough, Ky. Filed Sept. 20, 1886. (No model.)

Claim.—1. In a water elevator and carrier, the combination of the terminal posts, a single-strand track secured to said posts, a bracket secured to each post a support at each bracket having its upper end secured to the track, and having its lower end screw-threaded and passed through the bracket, two nuts upon each support, one above and one below the bracket, and a carrier suspended from said track.

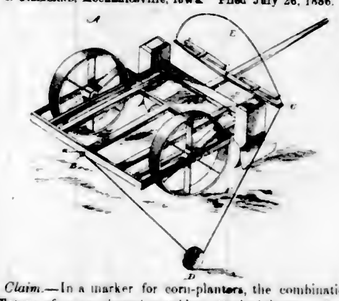
2. In a water elevator and carrier, the combination of the terminal posts, a single-strand track secured to one post and passed over a pulley in the other one, a weight attached to the free end of said strand, adjustable supports arising from brackets secured to the terminal posts, intermediate supports, and a carrier suspended from said track.

3. In the within-described carrier, the combination of the clamping-levers and a tripping device consisting of an H-shaped frame pivoted by one end of each of its side pieces to one end of the carrier and having the other ends of said side pieces bent inwardly, and means, substantially as described, for operating said tripping mechanism, and for moving said carrier.

353,214.

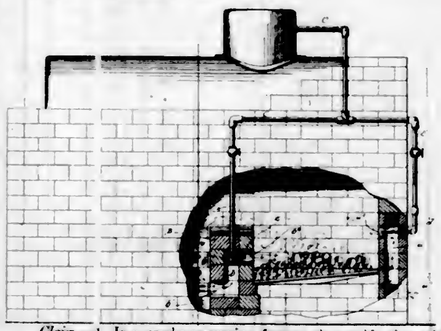


353,215. MARKER FOR CORN AND SEED PLANTERS. Daniel C. Gilliland, Mechanicsville, Iowa. Filed July 26, 1886. (No model.)



Claim.—In a marker for corn-planters, the combination, with the whiffletree, of an arc-shaped metal bar attached thereto, a bolt projecting from the rear end of the planter, a bar pivotally mounted thereon and carrying a marker at its outer end, and a rope secured to the marker and adapted to slide on the arc-shaped bar E, substantially as set forth.

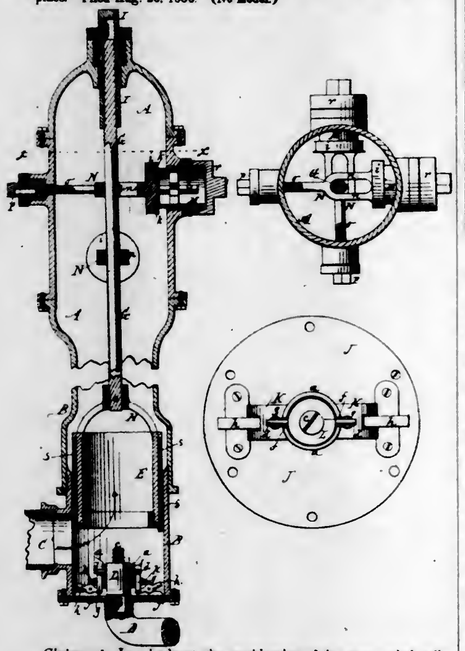
353,216. FURNACE. Charles H. Grewcox and Fred Yetter, Brainerd, Minn. Filed May 18, 1886. (No model.)



Claim.—1. In a smoke-consuming furnace, the combination, with the fire-box and front and rear steam-pipes, of the front wall having an air-passage connecting with an air-inlet in said wall and with the combustion-chamber above the grate, a transverse bridge-wall having an air-passage connecting the air-space in the rear of said wall with the combustion-chamber, substantially as shown and described.

2. In a smoke-consuming chamber, the combination, with a steam-pipe and a combustion-chamber having an air-passage in its front wall and an air-passage in its bridge-wall connecting the space in rear of said wall with the combustion-chamber, of the two series of steam-jet pipes disposed in different planes of elevation and projecting into short pipes of said air-passages, which pipes open into the combustion-chamber, substantially as and for the purpose set forth.

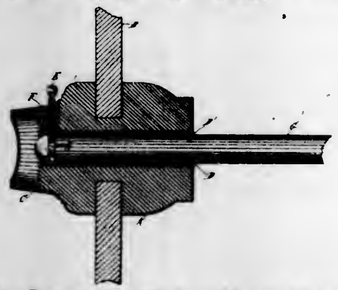
353,217. HYDRANT. EXIMS HAND, Rochester, N. Y., assignor of three-fifths to Peter E. Rivard and Robert C. Kershner, both of same place. Filed Aug. 20, 1886. (No model.)



Claim.—1. In a hydrant, the combination of the open-ended cylinder, forming a cut-off to the induction-water, the valve covering the discharge-opening at the bottom, said valve provided with radially-projecting studs, the cylindrical seat in which the valve rests, the vertically-acting pins resting under the studs of the valve, and the rock-arms to which the pins are pivoted, said rock-arms standing in position to be struck by the cylinder in descending, thus tripping the valve, as set forth.

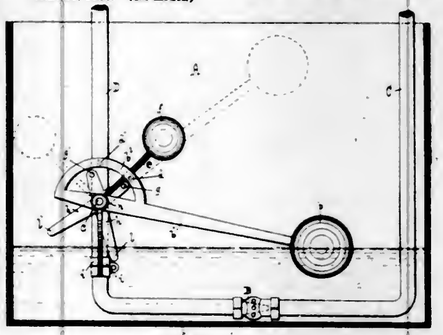
2. In a hydrant, the combination, with the discharge-nozzle, of a valve-rod constructed with a valve which shuts against the inner end of the nozzle, a forked central portion that embraces the piston-rod, a guide-stem that rests in a bearing of the nozzle, and a screw-stem that enters a nut on the opposite side of the hydrant from the valve, as herein shown and described.

353,218. HUB-ATTACHING DEVICE. CHARLES F. HARRINGTON, Lyndhurst, N. J. Filed July 24, 1885. (No model.)



Claim.—The combination, with the axle G, having the groove H formed therein, of the hub A, provided with a radial bolt, E, extending into said groove, a spiral spring encircling the bolt within the body of the hub, substantially as shown and described.

353,219. FLUID-EJECTOR. GEO. HAYDN, Baltimore, Md., assignor to Benjamin B and Hiram W. Friedenwald, both of same place. Filed Mar. 20, 1885. (No model.)



Claim.—1. In an apparatus for draining cellars, the combination, with a pressure-pipe, a discharge-pipe, and an intermediate ejector between these two pipes and in communication with the cellar to be drained, of a valve in the pressure-pipe, and operating mechanism therefor, substantially as described, whereby the valve is opened by the rising of the water and closed by the falling of the same in the cellar, substantially as explained.

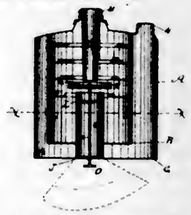
2. In an apparatus for draining cellars, the combination, with a pressure-pipe, a discharge-pipe, and an intermediate ejector between these two pipes and in communication with the cellar to be drained, of a valve in the pressure-pipe, and a float connected with the valve by intermediate mechanism, substantially as described, whereby the valve is opened quickly when the water rises to a specified height and closed quickly when it falls, substantially as described.

3. The combination, with pressure and discharge pipes, and an intermediate ejector between the two communicating with the cellar to be drained, of a valve in the pressure-pipe, a weighted lever in connection with the valve, and a float arranged to operate the weighted lever suddenly, whereby the valve is operated quickly when the water reaches a given height and closed quickly when the water falls, substantially as described.

4. In a device for operating ejectors, the combination of the valve *a*, the lever *h*, secured to the key of the valve *a*, and provided with the pins *g* and *g'*, the weighted stem *e*, and the float-lever *b'*, provided with the pins *d* and *d''*, as set forth.

5. The combination of the valve *a*, the shaft *c*, the lever *h*, having arms and pins, the weighted stem *e*, and the float-lever *b'*, provided with pins that come in contact with the stem *e*, as set forth.

353,220. INHALING DEVICE. MARMADUKE W. HOBBS, Richmond, Ind. Filed Mar. 10, 1886. (No model.)



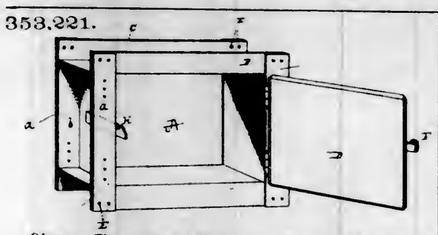
Claim.—1. In an inhaling-instrument, the combination, with the receptacle B and an air-tube projecting into it, of a valve or disk which is adjustable toward or from the mouth of said tube, for the purpose stated.

2. In an inhaling-instrument, the combination, with the receptacle B, the bar J, and an air-eduction-tube, of the valve E, and the screw-rod P, for adjusting the latter, as shown and described.

3. In an inhaling-instrument, the combination, with the air-induction tube and air-eduction tube and receptacle B, of the disk E, arranged between the inner ends of these tubes and having a peripheral flange which projects in each direction or toward each tube, as shown and described, to operate as specified.

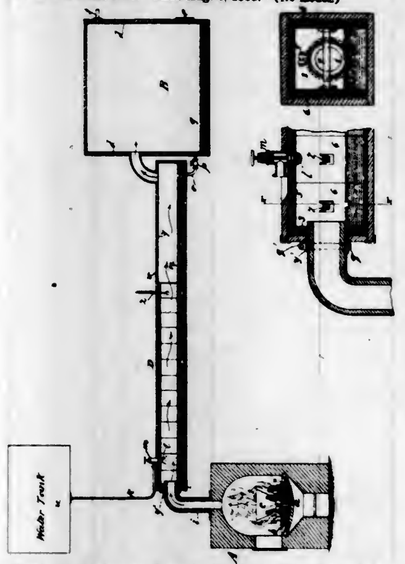
353,221. ASH-PIT FRAME AND DOOR. WILLIAM Y. HORNE and JACOB DANZ, 2d, St. Paul, Minn. Filed Dec. 29, 1885. (No model.)

353,221.



Claim.—The sheet-metal frame having the outwardly-projecting flanges, the parts thereof being secured together at the corners of the frame by plates and rivets, substantially as specified.

353,222. APPARATUS FOR MAKING SULPHURIC ACID. JOHN HUGHES, Stapleton, N. Y. Filed Aug. 6, 1885. (No model.)



Claim.—1. An improved sulphuric-acid apparatus, formed by the combination, with the sulphur-furnace, of an intermediate vaporizing or mixing chamber, a source of fresh water discharging into the same, a pipe or flue extending from the sulphur-furnace and discharging into said chamber and arranged to project its fumes against the water-supply therein, and a condensing-chamber into which said mixing-chamber discharges, substantially as shown and described.

2. The combination, with the furnace A and acid-chamber B, of the intermediate conduit D, with a water-duct, *k*, discharging into said conduit, the furnace-pipe *i*, discharging into the initial end of said conduit over or against the water supplied thereto, and with the terminal end of said conduit discharging into the chamber B, substantially as shown and described.

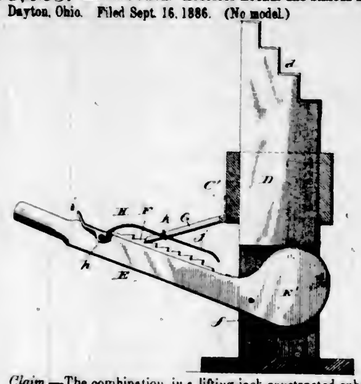
3. The combination, with the sulphur-furnace A, of the vaporizing chamber or conduit D, a water-spraying device, *l*, discharging therein, a source of water connected to said device, and furnace pipe or flue *i*, discharging into the conduit in proximity to said spraying device, and a condensing-chamber into which said conduit discharges, substantially as set forth.

4. The combination, with furnace A and chamber B, of the conduit D, connected at one end with the furnace and at the other end with the chamber, and constructed to hold a layer of water in the base thereof, with a source of water discharging into said conduit, and a regulable outflow for said water from said conduit, whereby the water-level may be maintained uniform therein, or nearly so.

5. The combination, with furnace A and chamber B, and conduit D extending between the two, of water-duct *k*, discharging into said conduit, and regulable outflow *o p*, discharging from said conduit into said chamber.

6. The combination, with the sulphur-furnace A and condensing-chamber B, of the vaporizing and mixing conduit D and furnace-pipe *i*, discharging into the initial end of said conduit, and acid and fire proof lining 3 5 6, at the initial end of said conduit.

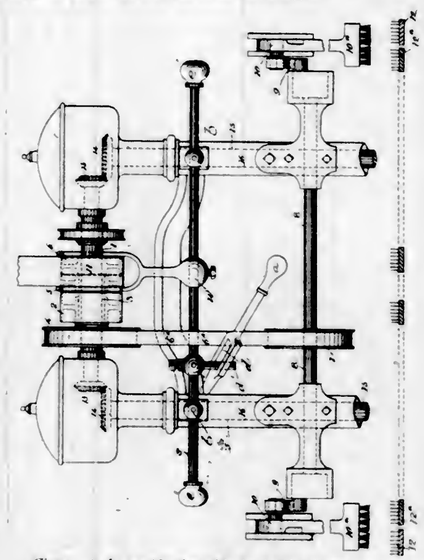
353,223. LIFTING-JACK. AUGUSTUS HUGHES and SAMUEL H. HUGHES, Dayton, Ohio. Filed Sept. 16, 1886. (No model.)



Claim.—The combination, in a lifting-jack constructed substantially as shown and described, of a sliding block, D, adapted to bear upon a cam-shaped end of a lever, so as to elevate the handle portion of said lever, a gravity-pawl, G, pivoted to the frame of the lifting-jack, so as to engage with the serrated bar attached to the upper edge of the lever, a pawl-lifting device, H, pivoted to the lever, near the handle portion of the same, and provided with a member which extends transversely over the hand-grasping portion, a member, *j*, which passes through an eye, *k*, located near the lower end of the pawl G, so as to provide a means for disengaging said pawl from the rack-bar when it is desired to lower the vertical sliding block of the lifting-jack, substantially as shown, and for the purpose set forth.

353,224. COMBING-MACHINE. JOSEPH JEFFERSON, CORNELIUS JEFFERSON, LAZARUS JEFFERSON, and MORDECAI JEFFERSON, Bradford, County of York, England. Filed Mar. 4, 1886. (No model.) Patented in England Oct. 20, 1884, No. 13,839.

Brief.—In order that the material may be thoroughly dabbed into the teeth of the combs, the brushes are made to start before the combs and to continue to run after the combs have stopped.

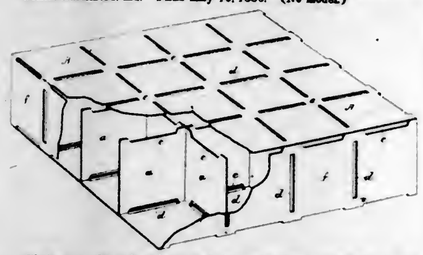


Claim.—1. In combination with the dabbing-brushes and combs of a combing-machine, a pulley and intermediate mechanism for driving the brushes, a second pulley, and intermediate mechanism for driving the combs, said pulley being placed at one side of the first-mentioned pulley, a loose pulley situated upon the other side of the first-mentioned pulley, and a belt adapted in size to act upon both the driving-pulleys at the same time, substantially as described.

2. In combination with the dabbing-brushes and combs of a combing-machine, a main driving-shaft and intermediate mechanism for actu-

ating the combs, a fixed pulley on said shaft adapted to receive motion from the driving-power, a loose pulley mounted on a sleeve on the shaft, a pulley fixed to the sleeve between the loose and fixed pulleys, intermediate mechanism for communicating the motion of the sleeves to the brushes, and a suitable belt adapted to act upon the fixed pulleys at the same time, substantially as described.

353,225. PACKING-BOX. SIMEON T. JENKINS and THOMAS J. MCGUIRE, Baltimore, Md. Filed May 10, 1886. (No model.)

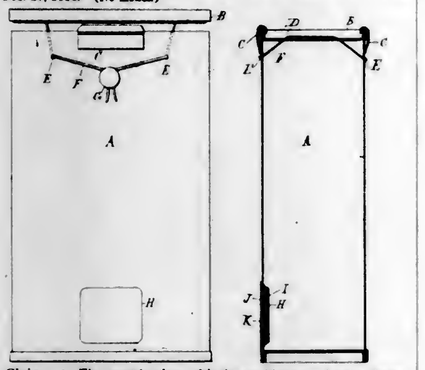


Claim.—1. In a knockdown fruit-carrier, the combination of the interlocking strips, cut away or provided with openings on the edges between the points of intersection, and the horizontal partitions having corresponding perforations, substantially as described.

2. The combination, with the series of cells formed by interlocking strips, each cell being provided on every side, both above and below, with openings between the corners, of the horizontal sheets having openings coinciding with those in the vertical strips, substantially as described.

3. The combination of the horizontal sheets or partitions, having oblong openings forming two sets of parallel lines running at right angles with each other, and the interlocking strips forming a series of cells provided with openings or air-passages communicating with those of the horizontal sheets, substantially as described.

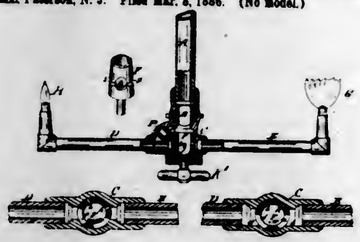
353,226. PACKING-CASE. FREDERICK E. KIP, Belleville, N. J. Filed Feb. 27, 1886. (No model.)



Claim.—1. The combination, with the packing-case having fastenings for detachably securing the top thereof, of a sealing cord or wire passing through the holes of both body and top of the case, substantially as and for the purpose described.

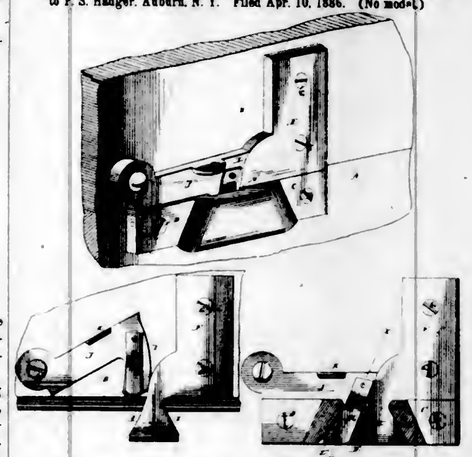
2. The combination, with a sheet-metal packing-case having clasps to overlap the top for detachably securing it in position, of a sealing cord or wire passing through holes of both the body and top of the case, substantially as and for the purpose described.

353,227. GAS-REGULATOR. JOHN L. KUYL and EDWARD D. CUNDELL, Paterson, N. J. Filed Mar. 3, 1886. (No model.)



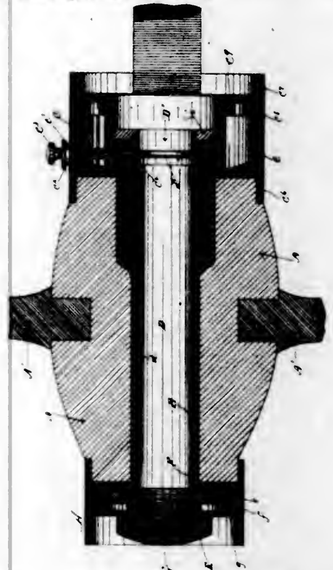
Claim.—A gas-regulator consisting of the case C, provided with tapering hollow plug F, having therein one or more ports, *a b f k*, the branch K, and plug P, substantially as and for the purpose specified.

353,228. SEAT-LOCK. ANTOINE DE BULEN LOVETT, Geneva, assignor to P. S. Hadger, Auburn, N. Y. Filed Apr. 10, 1886. (No model.)



Claim.—In a seat-lock, the combination of a recessed plate having a groove formed in one side of said recess, a bar having an inclined edge or notch at its bottom, a hook, and a flat bulged spring upon one side of said hook.

353,229. AXLE-LUBRICATOR. WALTER C. LUSSON, Philadelphia, Pa. Filed Aug. 24, 1886. (No model.)



Claim.—1. In an axle-lubricator, the combination, with the axle box and lubricator-chamber cast in a single piece, of the cap or cover for said chamber screwed into the walls thereof and extended back to form the band for the hub and axle, as set forth.

2. In an axle-lubricator, a lubricator-chamber having its outer wall or shell carried forward to form a band for the wooden portion of the hub, and a removable end cap or cover for said chamber, as set forth.

3. In an axle-lubricator, a lubricator chamber or reservoir extending entirely around the spindle and provided with an opening in its outer wall and another in its inner wall, and a set-screw with jam-nut upon it to act as a stopper for the outer opening and as a valve or regulating means for the inner opening, as set forth.

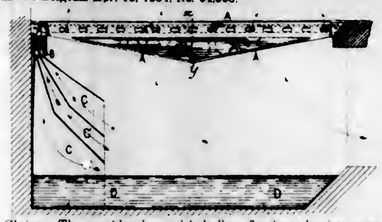
4. In an axle-lubricator, an annular lubricator-chamber provided with an opening extending to the axle-space, and a cup or lip formed or secured upon one side of said opening, as and for the purpose set forth.

5. In an axle-lubricator, an annular lubricator-chamber having an opening to the axle-space within and a cup or lip on one side of said opening, and a smaller lip or projection on the other side of said opening, as and for the purpose set forth.

6. In an axle-lubricator, the combination, with the lubricator-chamber having a discharge-opening, of the spindle having an annular groove or channel registering with said opening in the interior wall of the lubricator-chamber, and a longitudinal channel or groove on top of, extending the full length of, the spindle and communicating with the annular groove or channel.

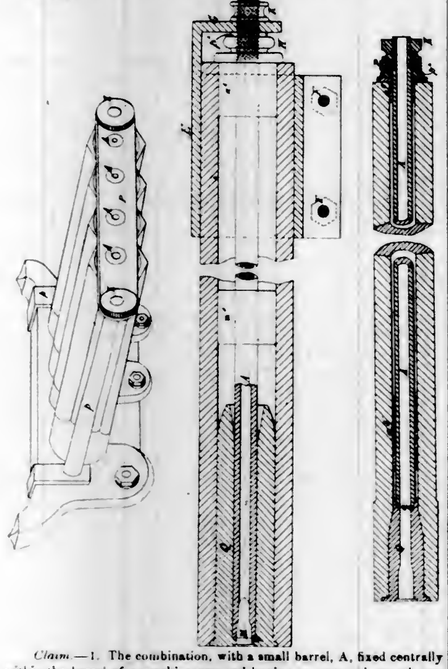
7. In a lubricator for axles, the combination, with the spindle and nut thereon, of the angle-plate F *f*, and the cap G *g*, screwed into said angle-plate, as set forth.

353,230. FURNACE. JOHN N. MORRATH, Kilburn Park Road, County of Middlesex, England. Filed Sept. 10, 1886. (No model.) Patented in England Nov. 10, 1883, No. 5,320, and Nov. 21, 1884, No. 15,356; in Germany Jan. 26, 1884, No. 31,157; in France Apr. 18, 1884, No. 161,596, and in Belgium Apr. 18, 1884, No. 64,868.



Claim.—The combination, with hollow fire-bars having apertures, of the hollow bearer B, with openings leading into the hollow fire-bars, and the air-suckers or tuyeres C C' below the hollow bearer, and acting to heat the air and vapor from a water-pan and pass the same into the fire, substantially as specified.

353,231. MACHINE-GUN. RICHARD MORRIS, Blackheath, County of Kent, England. Filed June 29, 1886. (No model.) Patented in England Oct. 11, 1883, No. 4,846; in France Jan. 26, 1884, No. 142,862; in Belgium Jan. 29, 1884, No. 63,989, and in Germany Jan. 31, 1884, No. 28,043.

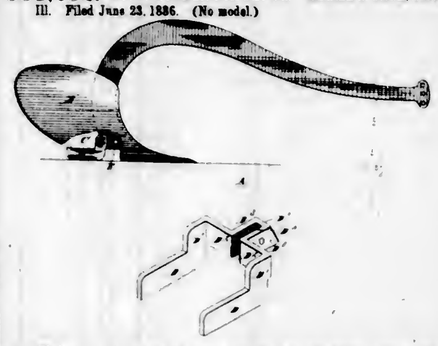


Claim.—1. The combination, with a small barrel, A, fixed centrally within the barrel of a machine-gun and having an external smooth-surfaced breech end, of the tubular block Q, for containing a miniature cartridge, having its inner end portion smooth internally to freely slide upon the smooth breech end of the small barrel, so that the block can be inserted into and extracted from the breech end of the main barrel at every discharge, and when inserted surround the breech end of the small barrel, substantially as and for the purpose described.

2. The combination, with the barrels of a machine-gun, of the small barrels A, fixed centrally therein, the tubes Q, inserted in the bores of said guns and surrounding the breech ends of the small barrels, the bar P, through which the muzzles of the small barrels pass, and nuts K, clamping the bar to the muzzles of the machine-gun, substantially as described.

3. The combination, with the barrel of a machine-gun, of the small barrel A, centrally fixed in the bore of said gun-barrel, the block Q, having the shoulder *q*, and fitted in the machine-gun barrel to surround the small internal barrel, the clamp E, having a pendent bracket, G, through which the small barrel passes, bolts F, securing the clamp, and nuts H and K, applied to the muzzle of the small barrel on opposite sides of the bracket, substantially as described.

353,232. GUIDE-RUNNER FOR PLOWS. WILLIAM S. PATES, Alton, Ill. Filed June 23, 1886. (No model.)

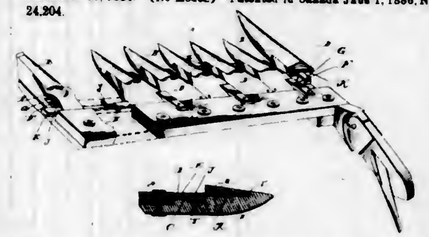


Claim.—1. A runner for plows having the horizontal rearwardly-extending parts, the vertical parts, the horizontal inwardly-extending parts, the forwardly-extending parts, and the connecting part, substantially as described.

2. As an improved article of manufacture, a double runner for plows formed of a single piece of metal, and constructed to be attached to the beam of the plow, as set forth.

3. As a new article of manufacture, a runner for plows formed of a single piece of metal having horizontal parts D, vertical parts D', horizontal inwardly-extending parts D², horizontal forwardly-extending parts D³, and connecting parts D⁴, substantially as shown and described, for the purpose set forth.

353,233. CUTTING APPARATUS. EZRA ROYCE, Palisade, Dak. Filed Feb 15, 1886. (No model.) Patented in Canada June 1, 1886, No. 24,204.



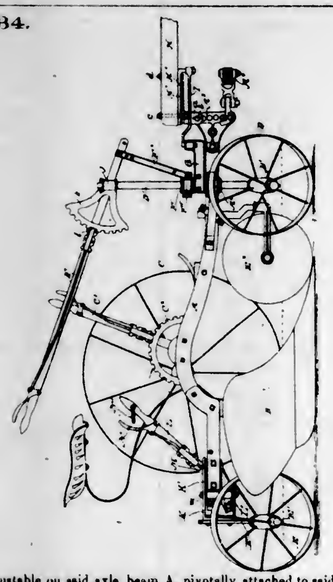
Claim.—In a cutting apparatus, the combination of a finger-bar provided with guard-fingers, each of said fingers being provided with a groove in front of and extending below the level of the cutter-bar groove, the groove in each of the end guards not extending entirely across them, a bar in said groove having a series of cutters secured thereto, and a reciprocating bar having cutters secured to it.

353,234. WHEEL-PLOW. CHARLES S. RUFF, Dixon, Ill., assignor to the Grand De Tour Plow Company, same place. Filed Sept. 11, 1886. (No model.)

Claim.—1. In combination with the beam A and plow B, brace A', axle D', sleeve F', seated on said axle, wheel D, and arm G, rigidly attached to said sleeve, substantially as shown, and for the purpose described.

2. The combination of the wheel D, axle D', sleeve F', seated ver-

353,234.



tically adjustable on said axle, beam A, pivotally attached to said sleeve, lever F, pivotally fulcrumed on said axle, and lifting-arm F^2, pivotally attached to said sleeve, substantially as shown, whereby the attitude of the plow can be adjusted, while the wheel D may be free to be drawn into various positions relative to said beam.

3. The combinations of the tongue H, plates H' and H^2, arm I, guide-bar G, rigidly attached to sleeve F', axle D', sleeve F', seated on said axle, and wheel D, substantially as shown, and for the purpose described.

4. The combination, with the tongue H, plates H' and H^2, and beam A, with brace A', of the wheel D, axle D', sleeve F', seated on said axle, and guide-bar G, rigidly attached to said sleeve, substantially as shown, and for the purpose described.

5. The combination of the wheel E, axle E', beam A, clevis K, having elongated end K', and pivoted on the beam A, lever L, lever N, and clutch M, substantially as shown, and for the purpose described.

6. The combination of the wheel E, pivotally seated in the clevis K, the beam A, the clevis K, and the clutch M, adapted to clasp and hold said clevis parallel with said beam, whereby the plow can be backed without its rear end swinging laterally, substantially as shown.

353,235. LEATHER-SPLITTING MACHINE. AARON F. STOWE, Worcester, Mass. Filed Aug. 25, 1886. (No model.)

Claim.—1. In a leather-splitting machine, the combination, with the feeding-rolls and splitting-knife, of an auxiliary blade the edge of which is disposed in conjunction with the surface of the fluted presser-roll, supported on bearings that embrace the ends of said fluted roll or the roll-journals, whereby the relative adjustment of the blade to the roll-surface is maintained regardless of the movement of the presser-roll in relation to the gage-roll and splitting-knife, substantially as and for the purpose set forth.

2. The combination, with the rolls B and D and splitting-blade C, of a clearing-blade having its edge disposed adjacent to the fluted surface of the feed-roll D, and a support for said blade suspended from bearings mounted upon or coincident with the axis of said feed-roll, substantially for the purpose set forth.

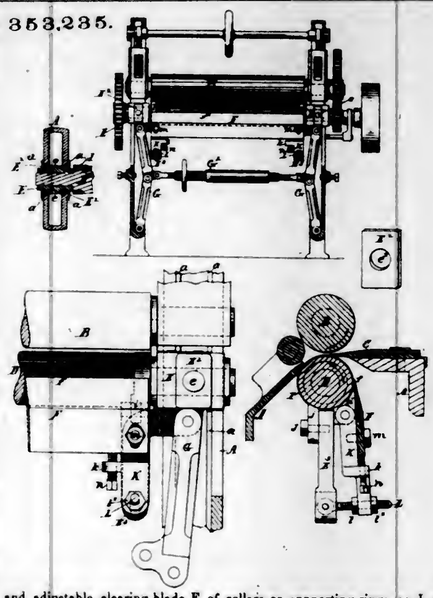
3. The combination, with the feed-rolls and splitting-blade in a leather-splitting machine, of an auxiliary cutting or clearing blade, F, an adjustable blade-supporting bracket suspended from a bearing or ring surrounding and concentric with the roll-axis, and adjusting devices for regulating the position of said clearing-blade in relation to the roll-surface, substantially as set forth.

4. The combination of the roll D, the bearing-box E, having a tongue or projection, as E^2, the hinged bracket or arm K, the clearing-blade F, secured to said bracket, and the adjusting-screw L, having set-nuts *l l'*, substantially as and for the purpose set forth.

5. The collars or bearing-rings I, having lugs *i*, the brackets K, hinged thereto, the clearing-blade F, attached to said brackets, with the clamping and adjusting screws *m* and *n*, in combination with the roll D and journal-bearings, substantially as and for the purposes set forth.

6. In a leather-splitting machine, the combination, with the roll D

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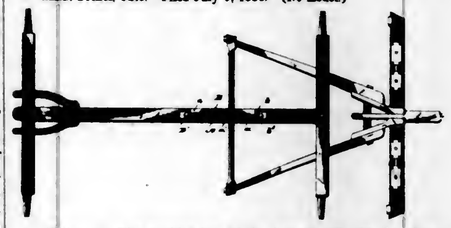


and adjustable clearing-blade F, of collars or supporting-rings, as I, of slightly greater diameter than the roll, substantially as and for the purpose set forth.

7. The combination, substantially as described, of the gage-roll B, splitting-knife C, feed-roll D, journal-boxes E, spring-actuated knuckle-joint arms G, clearing-blade F, adjustable supporting-brackets K, bearing-rings I, and adjusting-screws L, *n*, and *m*, for the purposes set forth.

8. The combination, with the presser or feed roll D and frame A in a leather-splitting machine, of the journal-box E, provided with trunnions *e*, and the slide-plates E^2, having an opening fitting over said trunnions and their outer edges fitting to and embraced by angular grooves *a* in the guiding-way of the frame, substantially as shown and described.

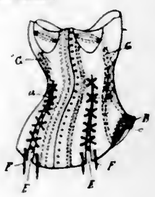
353,236. RUNNING-GEAR FOR VEHICLES. WILBUR S. STRICKLAND, Bethel, Ohio. Filed July 9, 1886. (No model.)



Claim.—1. The combination of the bearing-roll with the plate or casting having the end gudgeons and intermediate additional bearing, as and for the purpose set forth.

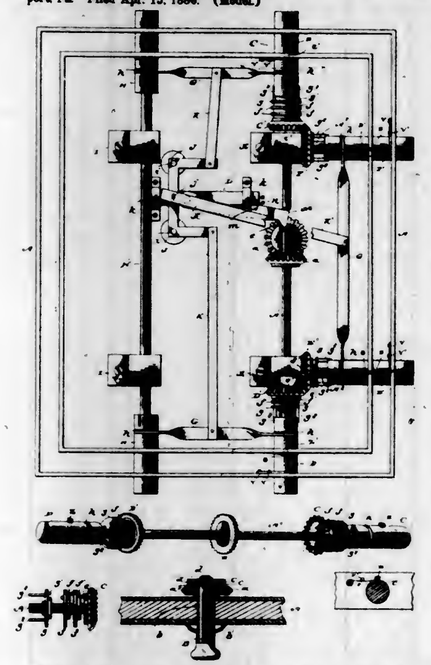
2. The combination, with the front hound and reach of the running-gear of a vehicle, of the casting or plate having the end gudgeons and intermediate or additional bearing, and the roll journaled in said gudgeons and resting in said intermediate or additional bearing, substantially as and for the purpose set forth.

353,237. CORSET. EMMA J. SWARTWOUT, New York, N. Y. Filed May 11, 1886. (No model.)



Claim.—In a corset, the ruffled crescent-shaped elastic hip-piece B, inserted on the lower edges of both sections, the lacer-slits E, extending upward from the lower edges of both sections to a point approximately opposite the waist-line, and provided with a lacer, and the stays arranged in pockets of both sections to extend above and below said waist-line, substantially as and for the purpose described.

353,238. COMBINATION-LOCK. HERMAN W. TROGNITZ, Williamsport, Pa. Filed Apr. 15, 1886. (Model.)



Claim.—1. In a combination-lock, a series of locking-bolts adapted to successive individual adjustment by means of a single spindle or arbor, substantially as and for the purposes set forth.

2. In a combination-lock, a series of locking-bolts adapted to successive individual adjustment by a single spindle or arbor, and to be drawn or thrown simultaneously by means of said spindle or arbor, substantially as and for the purposes set forth.

3. In a combination-lock, a series of individually-adjustable locking-bolts, a pair of pivoted bell-cranks having intermediate connections with the bolts, a pivoted sliding pawl or dog, and a spindle or arbor with notched tumblers, all combined and arranged substantially as and for the purposes set forth.

4. In a combination-lock, a series of adjustable bolts, a pair of dummy bolts, a series of coupling-yokes for the bolts, a pair of pivoted bell-cranks having pivotal connections with the yokes, a sliding bar carrying a pivoted pawl or dog, and a spindle or arbor carrying a beveled gear and a pair of notched tumblers provided with engaging pins or studs, all combined and arranged substantially as and for the purposes set forth.

5. In a combination-lock, the combination of a series of adjustable sliding bolts, each provided with a stud on the outside thereof, and the inside wall of the door provided with a slot over each bolt, substantially as and for the purposes set forth.

6. In a combination-lock, the combination, with the spindle or arbor B and its attachments, of the shaft A^2, its bolt F, and its beveled gear F', provided with two pins, g^3 g^3, substantially as described.

7. In a combination-lock, the combination, with the spindle or arbor B and its attachments, of the shaft A^2, its bolt F, and its gear F', the shaft A^3, its bolt E, gear E', and the intermediate perforated disk, *g*, and gearing for turning said gears E' and F', substantially as described.

8. In a combination-lock, the combination, with the spindle or arbor B and its attachments, of the shafts A', A^3, and A^3 and their respective bolts, gears, and disks or tumblers provided with pins or studs, substantially as described, and for the purpose set forth.

9. In a combination-lock, the combination of a series of adjustable sliding bolts, each provided with a stud on the outside, a series of slots in the inside wall, one above each bolt, and a spring for each bolt, bearing upon the same so as to hold the studs opposite the slots, substantially as described.

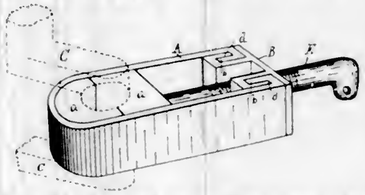
10. In a combination-lock, the horizontal leaf-spring *v* and pins *v'*, in combination with the locking-bolts, substantially as and for the purposes set forth.

353,239. SASH-HOLDER. MILTON C. TULLY, Louisville, Ky. Filed Dec. 29, 1885. (No model.)



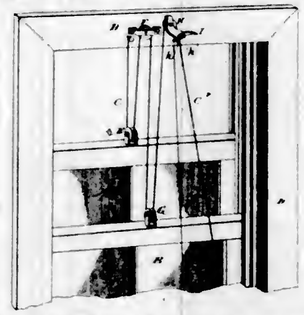
Claim.—The herein-described sash-holder, comprising the longitudinally-movable case C, divided by partition *a* into two sockets or compartments, a spring, H, located in one of the compartments or sockets, a roller, D, journaled within the other socket and having only its periphery or rim projecting therefrom, a series of longitudinal teeth, *d*, on the periphery of the roller, which teeth impinge against the frame, and a pawl, G, fitted to the case and engaging with the teeth of the roller to prevent retrograde movement thereof, all constructed and combined as set forth.

353,240. PITMAN-HEAD. WILLIAM H. WILD, Valatie, N. Y. Filed Feb. 18, 1886. (No model.)



Claim.—In a pitman-head, the combination of strap A, having an end opening, *g*, between the introverted flanges *b*, with crank-bearings *a a*, and centrally-perforated key-plate B, provided with retroverted flanges *d*, interlockable with flanges *b*, substantially as described, and for the purposes set forth.

353,241. SASH-BALANCE. TALIJE G. WILLIAMS, Cedar Plains, Ala. Filed Sept. 27, 1886. (No model.)



Claim.—In a sash-balance, the combination, with sashes and window-frame, of a cord, C, pulleys E F G H, and forked adjuster I, said pulley H having projections *h h'* and string h^2, as and for the purpose set forth.

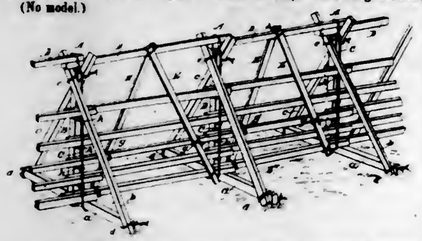
353,242. GAGE FOR SAWS. ORLANDO E. WILLIAMS and JAMES R. BREWSTER, Windsor, assignors of one-third to David L. Spaulding, Windsor County, Vt. Filed Mar. 18, 1886. (No model.)



Claim.—The combination, with a gage, G, of the arc-slotted arms F F, pivoted to and near each end of said gage, the U-shaped spring-clamp C, having edge flanges, *c c*, which fit under the lower edges of

saw-back, and the screw D, passing through said spring-clamp, as well as through the slotted arms, substantially as shown and described.

353,243. FENCE. OLLIE I. YAGER, Beard, Ky. Filed Aug. 12, 1886. (No model.)

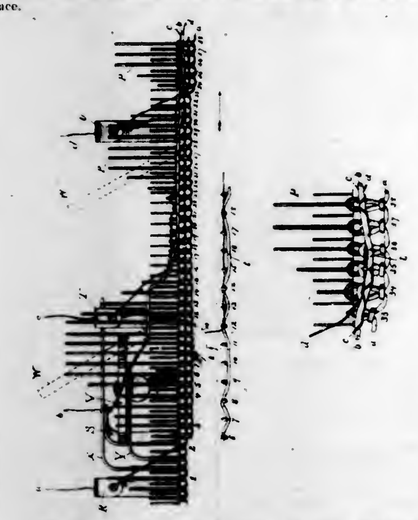


Claim.—1. The combination, in a fence, of the transverse base-rail, the diagonal brace-stakes secured to the outer ends thereof by wire loops, the upright secured to the said stakes on their adjacent sides by a wire loop formed from the same wire that unites the upper ends of the stakes, and the vertical wire securing the lower end of the upright to the transverse base-rail, and both of the latter to the crown-rails, substantially as specified.

2. The improved fence, consisting of the transverse base-rails, the diagonal brace-stakes secured at their outer ends by wire, the uprights secured by wire at the upper end of the stakes, as described, the overlapped crown-rails placed in the fork of the brace-stakes, the vertical wire securing the lower ends of the uprights to the transverse base-rails, and both of the latter to the crown-rails, the loops securing the vertical wires to the uprights, the lower longitudinal rails embraced by the said vertical wires, the fence-rails arranged between the vertical wires and uprights, and the lateral oblique braces secured at their upper ends to the crown-rails about midway the length of the latter, their lower ends secured to the lower longitudinal rails adjacent to the base-rails, and also secured to one or more of the main fence-rails, substantially as specified.

353,244. CIRCULAR-KNITTING MACHINE. JOSEPH ADAMS, Philadelphia, Pa., assignor to John J. Glazier, William H. Glazier, and George R. Repplier, all of same place. Filed June 11, 1886. (No model.)

Brief.—The machine is a latch-needle machine, upon which a backing or plush thread is, at desired intervals, tied to the back face of the knitted fabric in such manner that it does not appear upon the front face.



Claim.—1. In a circular-frame knitting-machine, in combination, first, latch-needles; second, mechanism for throwing predetermined needles out of line with the remaining needles; third, mechanism for placing a backing or plush thread between the needles so thrown out of line and needles remaining in line and below the lower ends of the open latches of said needles; fourth, mechanism for guiding a tying-in thread to said needles; fifth, mechanism by which the needles are caused to descend below the plush-thread and to again ascend, whereby such needles as have been thrown out of line are caused to rise on the opposite side of the plush-thread to that on which they descended; sixth, mechanism for guiding a fabric-thread to the needles above their latches; seventh, and mechanism to cause said needles to descend and pull said fabric-thread and tying-in thread together through a loop previously formed upon said needles, as specified.

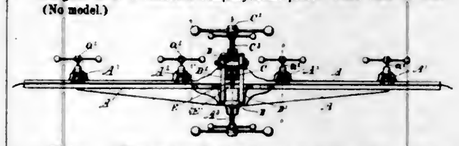
2. In a circular-frame knitting-machine, in combination, first, latch-needles; second, mechanism for guiding a fabric-thread to said needles; third, mechanism by which said needles are caused to pull said fabric-thread through loops previously formed upon them; fourth, mechanism by which said needles are caused to rise through said loops formed by said fabric-thread; fifth, mechanism by which predetermined needles are thrown out of line with the others; sixth, mechanism by which a backing-thread is fed to and caused to lie between said needles so thrown out of line and the others and below their latches; seventh, mechanism for feeding a tying-in thread to said needles; eighth, mechanism by which said needles are caused to descend below said backing-thread, and whereby such needles as have been thrown out of line with the others are caused to rise upon the other side of said backing-thread and loop said tying-in thread around said backing-thread and to retain said tying-in thread in contact with the needles above their latches; ninth, mechanism for guiding a fabric-thread to the needles above their latches; tenth, mechanism by which said needles are caused to descend and carry said tying-in thread and said fabric-thread together through the loops previously formed on said needles by the first-named fabric-thread; eleventh, and mechanism by which said needles are caused to rise so that the said newly-formed loops thereon shall be below the latches of the needles, as specified.

3. In a circular-frame knitting-machine, in combination, first, latch-needles; second, mechanism for throwing predetermined needles out of line with the remaining needles; third, mechanism for placing a backing or plush thread between the needles so thrown out of line and needles remaining in line and below the lower ends of the open latches of said needles; fourth, mechanism for guiding a tying-in thread to said needles; fifth, mechanism by which said needles are caused to descend below the plush-thread and to again ascend, whereby such needles as have been thrown out of line are caused to rise on the opposite side of the plush-thread to that on which they descended; sixth, mechanism for guiding a fabric-thread to the needles above their latches; seventh, mechanism to cause said needles to descend and pull said fabric-thread and tying-in thread together through loops previously formed upon them, and, eighth, a guard or guards located in close proximity to the latch sides of said needles at points above the lower ends of their latches, and at points in the line of needles at which the loops and threads of which the fabric is formed are upon said needles below the latches, as specified.

4. In a circular-frame knitting-machine, in combination, first, latch-needles; second, thread-guides R S T U; third, cams H and I, adapted to actuate said needles; fourth, presser-wheel V, and, fifth, brush-wheel W, as specified.

5. In a circular-frame knitting-machine, in combination, first, latch-needles; second, thread-guides R, S, T, and U; third, cams H and I, adapted to actuate said needles; fourth, presser-wheel V; fifth, brush-wheel W, and, sixth, latch-guards X and Y, as specified.

353,245. BRAZING-MACHINE. GEORGE S. BLACK, Indianapolis, Ind., assignor to E. C. Atkins & Company, same place. Filed June 18, 1886. (No model.)



Claim.—1. The combination, in a brazing-machine, of a main plate or frame, A, having a transverse groove, and projections or standards alongside said groove, a clamping-bar arranged in said groove, a bar pivoted to said standards carrying a second clamping-bar, catches for securing said pivoted bar in operative position, and hand-screws for forcing the clamping parts toward each other.

2. The combination of the main plate A, the overhanging projections A', with clamping-screws therein, the carrying-bar D, two clamping-bars, brazing-bars, and hand-screws for operating the same.

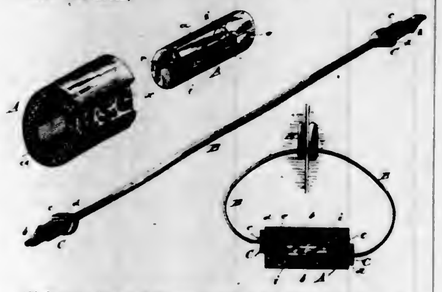
3. The combination of the main bar or plate A, having a transverse groove and standards, a clamping-bar arranged in said groove, a carrying-bar having a second clamping-bar attached, pivoted to said standards, means for securing the free end of said carrying-bar, and stops upon said carrying-bar and said standards to limit the movement of said carrying-bar in either direction, substantially as set forth.

4. The combination, in a brazing-machine, of a plain surface upon which the saw to be brazed rests, and bars which come in immediate contact with both sides of the parts to be operated upon, which are adjustable vertically by means of hand-screws arranged above and below said parts, substantially as set forth.

5. The combination, in a brazing-machine, of a bar or plate upon which the saw to be brazed rests, brazing-bars which come in immediate contact with the saw ends, clamping-bars, and means for operating said clamping-bars.

6. The combination, in a brazing-machine, of a bar or plate forming a frame for the machine and a rest for the saw, clamping-bars arranged transversely of said plate, a swinging bar carrying the upper clamping-bar, and catches for holding said swinging bar in position.

353,246. SELF-FASTENING SEAL. EDWARD J. BROOKS, East Orange, N. J., assignor to E. J. Brooks & Co., New York, N. Y. Filed Oct. 2, 1886. (No model.)



Claim.—1. In a self-fastening seal, a tubular seal part having a middle chamber and an entrance and catch-shoulder at each end, in combination with a flexible shackle having snap-catches at its respective ends, which interlock independently with the respective catch-shoulders, substantially as herein specified.

2. In a self-fastening seal, a seal part having a middle chamber, diagonally-opposite entrances at the respective ends of said chamber, and diagonally-opposite catch-shoulders in line with the respective entrances, substantially as herein specified, whereby the interior is adapted to be readily shaped by a pair of cores, in the manner set forth.

3. In a self-fastening seal, a seal part having a middle chamber, a pair of entrances in its respective ends, which are non-circular in cross-section, and a pair of internal catch-shoulders, and constructed with a distinctive external shape, to distinguish or aid in distinguishing seals of different owners, substantially as herein specified.

4. In a self-fastening seal, a guard of irregular non-circular shape, as semi-oval, in cross-section, in combination with a hollow seal part having an entrance of like irregular non-circular shape in cross-section, and a catch-shoulder at one side of said entrance, and a shackle, upon which said guard is fast, having a single snap-catch at its extremity, to interlock with said shoulder, whereby the insertion of the catch in the proper position to so interlock with said catch-shoulder is insured, substantially as herein specified, for the purpose set forth.

353,247. PROCESS OF MAKING STEEL. DAVID BROSK, Pittsburg, Pa., assignor of three-fourths to George W. Miller, John J. McGuire, and George Bromley, all of same place. Filed Feb 8, 1886. (No specimens.)

Claim.—1. In the art of making steel, the process of intimately mixing manganese with the refined metal, which consists in adding the manganese and carbonate of lime to the refined metal at or nearly the same time, substantially as and for the purpose specified.

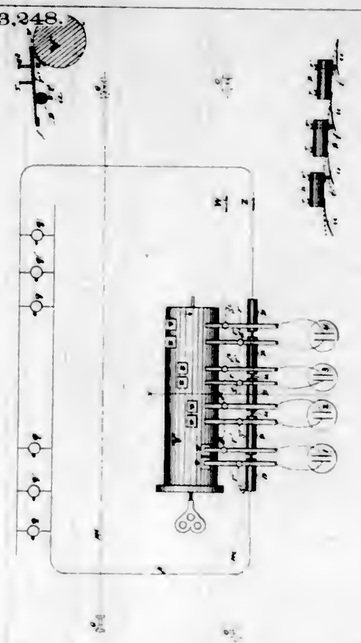
2. In the art of making steel, the process of intimately mixing manganese with the molten metal, which consists in placing the manganese and carbonate of lime in a ladle and then pouring the molten metal thereupon, substantially as and for the purpose specified.

353,248. ELECTRIC LIGHTING OF RAILWAY-TRAINS. CHARLES E. BUELL, New Haven, Conn. Filed Aug. 4, 1882. (No model.)

Claim.—1. In a system of electric lighting for railways, the combination of the following elements in the equipment of each car, viz: electric conductors extending through the car and forming part of the main charging-circuit, a series of electric storage-batteries, a working-circuit including electric lamps, and switch devices for withdrawing in turn each battery of the series entirely from the working-circuit and interposing it in the charging-circuit, and simultaneously therewith closing the working-circuit with the other batteries of the series interposed therein coupled for intensity, substantially as described.

2. In a system of electric lighting, the combination, with a series of secondary or electric storage-batteries, a charging-circuit and means for charging it, and a discharging or working circuit, of fingers connected to the electrodes of each of the several batteries and normally in connection with the discharging or working circuit, contacts in the charging-circuit which the fingers strike when lifted, and means, substantially as described, for lifting said fingers successively in pairs and closing the discharging-circuit, whereby each battery of the series is in turn entirely withdrawn from the working-circuit and interposed in the charging-circuit to be charged, while the working-circuit is simultaneously closed

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with all the other batteries of the series coupled therein for intensity, substantially as described.

3. In combination with the charging-circuit, a series of secondary batteries, the electrodes of each battery being connected to contact-fingers, means for connecting said fingers to the charging-circuit, and switch devices operated by said fingers, whereby when they are connected with the charging-circuit the working-circuit including the remaining batteries will be completed around said battery, substantially as described.

4. In combination with the charging-circuit, a series of secondary batteries, the electrodes of each battery being connected to fingers, the contacts of the working-circuit placed in proximity to said fingers, the conducting-blocks with which one of the fingers of each succeeding battery is normally connected, switching devices connecting the conducting blocks operated by the fingers, and means for operating upon the fingers to place them in contact with the charging-circuit contacts, whereby when the fingers of a battery are moved into connection with the contacts the battery will be placed in the working-circuit and at the same time the charging-circuit will be closed through the remaining batteries, substantially as described.

5. In combination with a charging-circuit, a working-circuit, and a series of secondary batteries normally connected to the working-circuit in series, contacts connected with the terminals of each battery, devices for successively shifting the contacts from the working-circuit to the charging-circuit, whereby the batteries may be successively cut out of the working-circuit and connected into the charging-circuit, and independent switches for opening the charging-circuit and working-circuit, or either of them, substantially as described.

6. In combination with a charging-circuit, a working-circuit, and a series of secondary batteries normally connected to the working-circuit in series, contacts connected with the terminals of each battery, continuously-operating switch devices for shifting the contacts from the working-circuit to the charging-circuit, whereby the batteries may be successively cut out of the working-circuit and connected into the charging-circuit and at the same time the working-circuit closed with the remaining batteries coupled therein, substantially as described.

7. In combination with the charging-circuit, a series of secondary batteries, a working-circuit, the series of pairs of fingers connected to the electrodes of the batteries, the metal blocks connected to the working-circuit, having the springs secured to one end, the insulating-pins passing through the blocks, the contacts for the charging-circuit arranged in proximity to the pairs of fingers, and the rotary drum having the projections adapted to act upon the pairs of fingers to raise them into contact with the charging-circuit contacts, thus inserting the battery in the charging-circuit and at the same time closing the working-circuit through the remaining batteries, substantially as described.

353,249. HAME-CLIP. PATRICK W. CORCORAN, Seneca, Ill., assignor of one-half to John C. Corcoran, same place. Filed Aug. 2, 1886. (No model.)



Claim.—A hame-end clip formed of a spring-plate, C, doubled on a median or nearly median cross-line to form two arms, C' C^2, the arm C' being provided with the side flanges, c' c', the arm C^2 with the inside dowels, c^2, and the two arms with an oppositely-located hole for the fastening rivet or screw, substantially as shown and described.

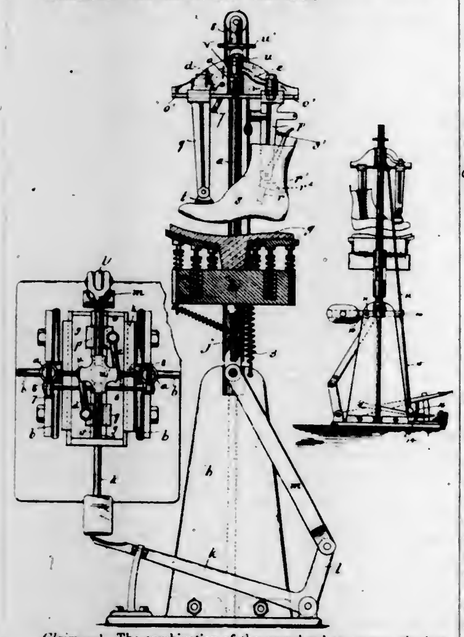
353,250. CUTTING-NEEDLE. PETER A. COUPAL, Boston, and JOSEPH COUPAL, Quincy, Mass. Filed Nov. 5, 1885. (No model.)

Brief.—The curved needle or awl is provided with knives to make incisions in a surface penetrated by the needle, and thereby form tongues on the said surface, as on the inner surface of the sole of a turned shoe, to engage stitches or loops of thread drawn through the outer edge of the sole by a needle. A machine for using this needle is shown in Patent No. 332,642, dated December 15, 1885, granted to the same parties.



Claim.—A curved needle or awl having knives extending longitudinally thereof, presenting their cutting-edges toward the point of the needle or awl, the knives being substantially at right angles with each other in cross-section, whereby they are adapted to form a V-shaped cut in an object penetrated by the needle or awl, as set forth.

358,251. SOLE-LAYING MACHINE. PETER A. COUPAL, Boston, Mass., assignor to the Boot and Shoe Sole Laying machine Company, Portland, Me. Filed Mar. 19, 1886. (No model.)



Claim.—1. The combination of the cross-head or support, the last-supporting standards adapted to move on guides on said head, a rotary plate pivoted to the head, and connections between said plate and standards, whereby the standards are moved simultaneously in opposite directions by the rotation of the plate, as set forth.

2. The combination of the cross-head, the standards p q, adapted to slide on guides on said head, the rotary plate pivoted to the head, and the rods c d, connecting said plate, respectively, with the standard p and the standard q, as set forth.

3. The combination of the vertical standards a a, the jack-supporting cross-head adapted to move thereon, springs 3 3, and cords 8 8, or equivalent devices, as specified, for imparting an upward pressure to the cross-head, and movable detents for supporting said cross-head at various heights against such pressure, as set forth.

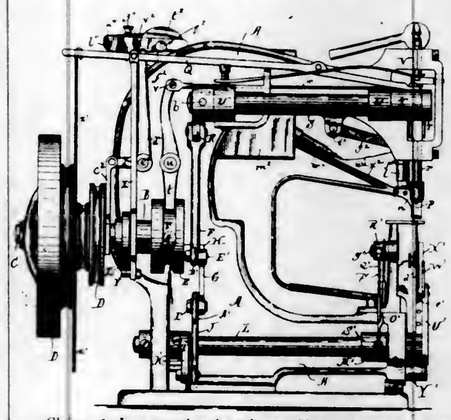
4. The combination of the vertical notched standards a a, the jack-supporting cross-head adapted to move thereon and provided with the dogs 4 4, adapted to engage the notches of the standards, and devices, substantially as described, whereby the cross-head is normally forced upwardly, as set forth.

5. The cross-head having the last-supporting standards, the rock-shaft 6, and the dogs 4 4, secured to said rock-shaft, combined with the notched standards and the devices for pressing the cross-head upwardly as set forth

6. The standard p, having the spindle r and the projection r^3, formed to bear on the top of the last behind the spindle-socket, as set forth.

353,252. WAX-THREAD SEWING-MACHINE. JOB A. DAVIS, Boston, Mass.; Willard A. Davis (executor of said Job A. Davis, deceased) assignor of one-half to Lee E. Moore, both of same place. Filed Dec. 22, 1885. (No model.)

Brief.—The upper rock-shaft operates an awl-bar and awl, and the lower rock-shaft operates a needle-bar and a hook or open-eyed needle. As the awl rises after puncturing the material or fabric operated upon, the needle follows it upward through the hole which has been made, and when the needle is above the work the thread-guide moves in an elliptical path around the needle, laying a loop of thread in the hook of the needle. Before the needle descends through the work a plate in which the needle-bar reciprocates vertically is swung to feed the material forward the length of a stitch, the presser-foot being lifted, and then the needle descends and is moved or swung in an opposite direction to bring it to its first position, or in the vertical plane of the awl.



Claim.—1. In a wax-thread sewing-machine, a reciprocating awl above the work and a hooked needle below and reciprocating through the work-plate, to draw down a loop of the upper thread, in combination with an oscillating shuttle having an offset point extending beyond or outside of the plane in which the body of said shuttle oscillates, and thus adapted to engage said loop and carry it around the shuttle, substantially as set forth.

2. In a sewing-machine, the combination, with a shuttle provided with an offset or laterally-projecting point extending beyond the plane in which the body of the shuttle oscillates, a hooked needle co-operating with said shuttle, and means for operating said shuttle and needle, of a take-up and an intermittent tension device and their operating mechanisms, whereby when the shuttle has passed through a loop of needle-thread the slack of said loop will be taken up and the lower thread drawn into the work, substantially as set forth.

3. In a wax-thread sewing-machine, the combination, with the main shaft C and cylinder E, provided with a wrist-pin, H, of the bell-crank lever F D' and its connections, the rock-shafts S and L, and the awl and needle bars and the shuttle-driver connected therewith, whereby the rotation of said cylinder serves to oscillate the said rock-shafts, and thereby to effect in proper time the reciprocation of the awl and the needle, the oscillation of the shuttle, and the lateral feed movement of the needle, substantially as set forth.

4. In a wax-thread sewing-machine, the combination of a main shaft, a rock shaft above the work-plate, an awl-bar connected with said rock-shaft, a rock-shaft below the work-plate, a needle-bar, and a shuttle-driver connected with and thus receiving movement from the latter rock-shaft, and connections between said main shaft and the said rock-shafts, substantially as set forth.

5. In a sewing-machine, the combination, with shuttle, the needle-bar and needle, and their operating mechanisms, of a take up mechanism and an automatic or intermittent tension operated by a moving part of the said take-up mechanism, substantially as set forth.

6. In a wax-thread sewing-machine, the combination, with a main shaft and two rock-shafts connected therewith, of a needle-bar, and a shuttle operated by one of said rock-shafts, and an awl-bar operated by the other, substantially as set forth.

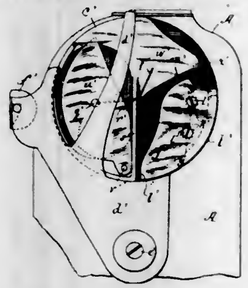
7. In a wax-thread sewing-machine, the combination, with the needle-bar and its hooked needle, of a thread-guide, a vibrating lever, by which said thread-guide is carried, and a slotted oscillating shaft, within which said lever is pivoted, substantially as set forth.

8. In a wax-thread sewing-machine, the combination, with the vertical shaft or cylinder l, the lever j, pivoted thereto, and the thread-guide carried by said lever, of mechanism, substantially as described, for vibrating said lever and for oscillating said shaft, as set forth.

9. In a wax-thread sewing-machine, the combination, with the shaft C and cam E, of the lever t, the rod w, the shaft l, having arm a', the lever j, pivoted to said shaft and carrying the thread-guide n, the arm f, attached to said lever and provided with a beveled end, and the vibrating arm T, having a wedge-shaped block or projection, e, as set forth.

353,253. SHUTTLE. JOB A. DAVIS, Boston, Mass.; Willard A. Davis (executor of said Job A. Davis, deceased) assignor of one-half to Lee E. Moore, both of same place. Filed Dec. 22, 1885. (No model.)

Brief.—The offset point is adapted to engage directly with the loop formed by the hooked needle.



Claim.—1. A rotary or oscillating sewing-machine shuttle provided with an offset or laterally-projecting point extending beyond or in front of the plane of any part of revolution of the body of the shuttle, substantially as set forth.

2. A rotary or oscillating sewing-machine shuttle having an offset or laterally-projecting point extending outside of or beyond the plane in which any part of the body of the shuttle works, said shuttle having a recess to receive the thread and a rib at one side having a thread-delivery hole at the center of rotation of the shuttle, substantially as set forth.

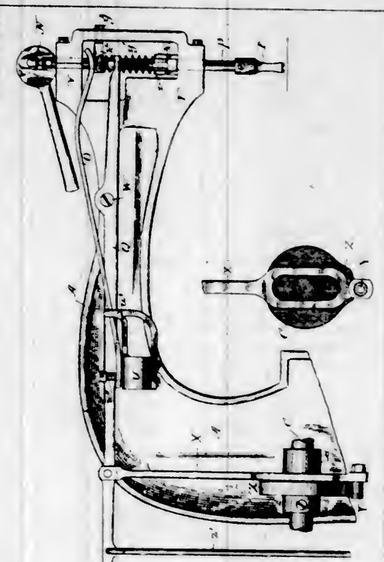
353,254. PRESSER-FOOT-LIFTING MECHANISM. JOB A. DAVIS, Boston, Mass.; Willard A. Davis (executor of said Job A. Davis, deceased) assignor of one-half to Lee E. Moore, both of same place. Filed Dec. 22, 1885. (No model.)

Claim.—1. In a sewing-machine, the combination, with a presser-bar, of a gripping-block through which said bar passes, a second block adapted to bear against the presser-bar, and to which said gripping-block is pivoted, a lever connected with the said second block, and a cam connected with said lever for operating the latter, substantially as set forth.

2. The combination, with the shaft C and the cam Z, of the rod X, lever Q, link z, blocks x^2 and x, presser-bar p, springs y' and O, and arm l^2, substantially as set forth.

3. The combination, with the main shaft and its cam, of the rod X, the lever Q, the presser-bar, and a gripping device surrounding said bar and connected with the said lever, substantially as set forth.





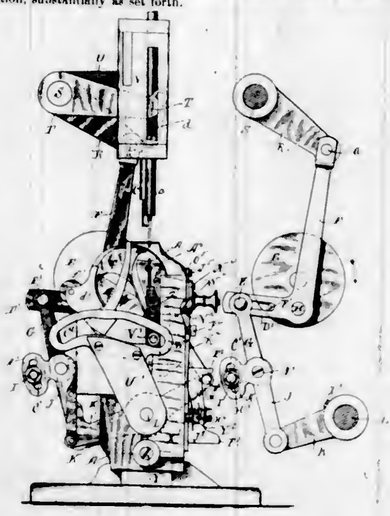
353,255. SEWING-MACHINE. JOB A. DAVIS, Boston, Mass.; Willard A. Davis (executor of said Job A. Davis, deceased) assignor of one-half to Lee E. Moore, both of same place. Filed Dec. 22, 1885. (No model.)

Brief.—The relative movements of the needle and the shuttle may be varied. The extent of the feed movement due to the lateral motion of the needle may be increased or diminished as desired. The machine is of the general order known as "wax-thread sewing-machines."

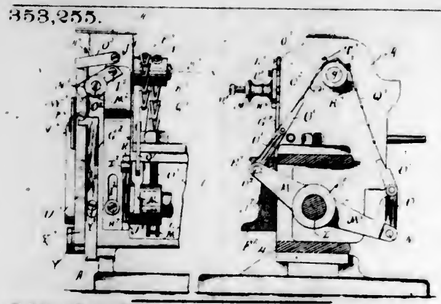
Claim.—1. The combination, with the rotary cylinder E, having the wrist-pin H, of the bell-crank lever F D', mounted on said pin, the oscillating or rocking shafts S and L, connected with said lever, the needle and awl bars, and connections between said bars and said shafts, substantially as set forth.

2. The rocker-shaft L, having arms M M', in combination with the shuttle-shaft g', provided with a shuttle-carrier, h', and the flexible connections extending from said arms to said shaft, whereby the vibration of said arms effects the oscillation of the shuttle, substantially as set forth.

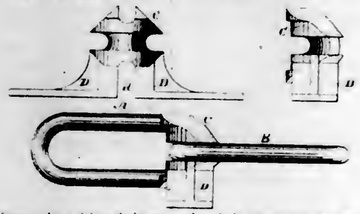
3. The rocker-shaft L, and the obliquely-slotted vibrating plate U' W', fixed thereon, in combination with the needle-bar Z', provided with a projecting stud and friction-roll V', engaging in the slot of said plate, whereby as the shaft L oscillates the needle is given a vertical reciprocation, substantially as set forth.



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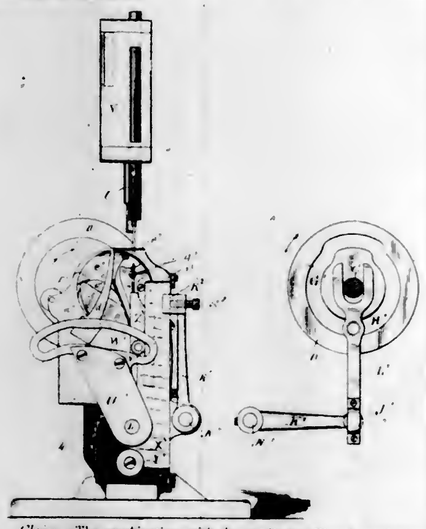
353,256. CONVEYER-CHAIN. JAMES M. DODGE, Philadelphia, Pa., assignor to the Ewart Manufacturing Company, Chicago, Ill. Filed Sept 6, 1886. (No model.)



Claim.—In a drive-chain or carrier-chain composed of alternately-arranged open links and connecting-sections, which also constitute bearing-blocks, the combination, with such bearing-blocks, of a double or bifurcated stand, D, preferably cast integral with said bearing-blocks, and of the form specified, all in the manner and for the purposes hereinbefore set forth.

353,257. FEED MECHANISM FOR SEWING-MACHINES. JOB A. DAVIS, Boston, Mass.; Willard A. Davis (executor of said Job A. Davis, deceased) assignor of one-half to Lee E. Moore, both of same place. Filed Dec. 22, 1885. (No model.)

Brief.—The goods are intermittingly carried forward by a lateral movement of the needle.



Claim.—The combination, with the needle-bar Z' and mechanism for reciprocating the same vertically, of the swinging plate X', in which said needle-bar works, the rock-shaft N', having arms K' and R², the latter provided with the adjusting-screw S², the link L', and the rotary pulley D, having the cam-groove G', substantially as set forth.

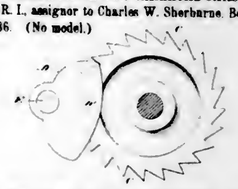
353,258. GUIDE FOR SEWING-MACHINES. WALTER L. DIXON, Milford, assignor of one-half to John C. Daggett, Boston, Mass. Filed Feb. 6, 1886. (No model.)



Claim.—1. A sewing-machine throat-plate provided on its upper side with a block which projects above the upper surface of the said plate, and which has two vertical guiding-edges arranged in different vertical planes, combined with a spring-pad attached to said block, substantially as set forth.

2. A sewing-machine throat-plate provided with a block or guide projecting above its upper surface, said block having two vertical guiding-edges which are in different vertical planes, and having also an overhanging lip and a spring-pad, substantially as set forth.

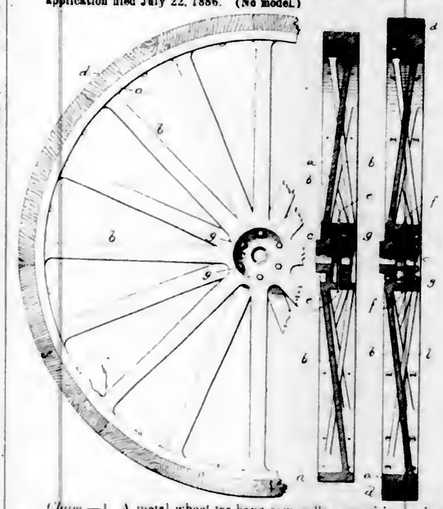
353,259. BRAKE-PAWL FOR RAILROAD-CARS. GEO. H. GRIGGS, Providence, R. I., assignor to Charles W. Sherburne, Boston, Mass. Filed Aug. 19, 1886. (No model.)



Claim.—1. The brake-pawl D, in combination with the top shield, D', adapted to serve substantially as herein described.

2. In a railroad-car brake, the pawl D, in combination with the shield D', ratchet-wheel C, and brake-shaft B, and operating means B', arranged for joint operation, substantially as herein specified.

353,260. WHEEL FOR BAND-SAWS. GEORGE M. HINKLEY, Milwaukee, Wis., assignor of one-half to Edward P. Allis, same place. Original application filed Apr. 6, 1886, Serial No. 198,002. Divided and this application filed July 22, 1886. (No model.)



Claim.—1. A metal wheel for band-saw mills, comprising a rim, a divided hub, and a series of crossed spokes, half of the spokes being secured to one part of the hub and the remaining spokes being secured to the other part of the hub, substantially as shown, whereby the entire wheel may be cast at one operation and provision made for contraction.

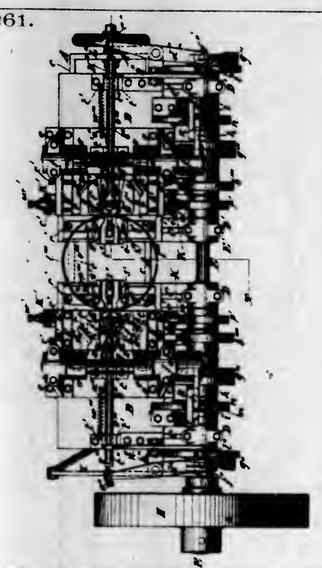
2. The herein-described metallic wheel, comprising rim *a*, parted hub *c*, and spokes *b*, extending from the rim alternately to the two parts of the hub, the rim, spokes, and hub forming a single casting, substantially as shown.

3. The herein-described saw-carrying wheel, comprising rim *a*, crossed spokes *b*, and parted hub *c*, cast integral, ring *f*, between the adjacent faces of the hub, and bolts *g*, connecting the two parts of the hub, substantially as shown.

353,261. AUTOMATIC EAR-BENDING MACHINE. FRANK M LEAVITT, Brooklyn, assignor to Frederick Haberman, New York, N. Y. Filed Apr. 28, 1886. (No model.)

Claim.—1. The combination of the heads B and B' and the bed A of an automatic machine for forming ears upon ear-wires, said heads each comprising specific mechanism for forming one of the ears of such ear-wire, substantially as herein described, and the composite shaft composed

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of the parts E and E', connected together by sleeve, spline, and feather coupling G in such manner that the sections of said shaft E and E', respectively, act when coupled as one shaft and permit the removal of either of said heads without disturbing the other head or changing the relation and arrangement of the working parts in either head, substantially as and for the purpose herein specified.

2. The combination of the heads B and B' and the bed A of an automatic machine for forming ears upon ear-wires, said heads each comprising specific mechanism for forming one of the ears of such ear-wire, substantially as herein described, the composite shaft composed of the parts E and E', connected together by sleeve, spline, and feather coupling G in such manner that the sections of said shaft E and E', respectively, act when coupled as one shaft and permit the removal of either of said heads without disturbing the other head or changing the relation and arrangement of the working parts in either head, and the adjusting-screw K, arranged in relation with said bed and the head B', whereby the head B' can be adjusted toward or away from the head B, substantially as and for the purpose herein described.

3. In a head of an automatic ear-bending machine, the combination of the carriages *s*, arranged to slide laterally upon the head-frame toward and away from the central longitudinal axis of the machine, grippers *f'*, pivoted to said carriages, sliding bars *r*, arranged to slide longitudinally on said carriages, toggle-bars *e'*, connecting the sliding bars *r* and grippers *f'*, gripper-jaws *q'*, antagonizing the grippers *f'*, for clamping the ear-wire, and mechanism for actuating said carriages, sliding bars, toggle-bars, and grippers in proper relation with each other and at the proper periods for clamping said ear-wire and pressing the clamped parts toward each other to form the loop of the ear, substantially as and for the purposes herein set forth.

4. In a head of an automatic ear-bending machine, the combination of the carriages *s*, arranged to slide laterally upon the head-frame toward and away from the central longitudinal axis of the machine, grippers *f'*, pivoted to said carriages, sliding bars *r*, arranged to slide longitudinally on said carriages, toggle-bars *e'*, connecting the sliding bars *r* and grippers *f'*, gripper-jaws *q'*, antagonizing the grippers *f'*, for clamping the ear-wire, and the specific mechanism herein described for actuating said carriages, sliding bars, toggle-bars, and grippers in proper relation with each other at the proper periods for clamping said ear-wire and pressing the clamped parts toward each other to form the loop of the ear, said mechanism consisting of a cam, *p'*, levers K K', respectively bearing against the outer margins of the carriages *s*, link L, connecting said levers K K' in such manner that their motions are in opposite directions, the cam *m*, rock-shaft and rock-levers *g h o*, for actuating the sliding bars *r*, toggles *e'*, and grippers *f'*, and the furcated spring *n'*, engaging the inner faces of the longer arms of the grippers *f'* and antagonizing the action of the levers K K', and rock-levers *o*, for reversing the motion of this entire system of mechanism, substantially as and for the purposes herein specified.

5. In a head of an automatic ear-bending machine, the combination of the carriages *s*, arranged to slide laterally upon the head-frame toward and away from the central longitudinal axis of the machine, grippers *f'*, pivoted to said carriages, sliding bars *r*, arranged to slide longitudinally on said carriages, toggle-bars *e'*, connecting the sliding bars *r* and gripping-jaws *q'*, antagonizing the grippers *f'*, for clamping the ear-wire, mechanism for actuating said carriages, sliding bars, toggle-bars, and grippers in proper relation with each other at the proper periods for clamping said ear-wire and pressing the clamped parts toward each other to form the loop of the ear, and the mandrel *n''* for shaping the loop of the ear, in combination with mechanism, substantially as herein described, for carrying said mandrel to a point between the jaws of said grippers and depressing it down into the interior of the wire loop in such manner that when the grippers are pressed toward the central longitudinal axis of the machine the loop is formed around said mandrel, and that when said loop is formed said mandrel is raised out of such loop and drawn toward the end of the machine to make room for the action of the dies, which subsequently bend the ear to an angle with the body of the ear-wire, substantially as herein described, and for the purposes specified.

6. In a head of an automatic ear-bending machine, the combination of the mandrel *n''*, the longitudinal sliding bar *v'''*, through the inner end of which said mandrel passes, the lever *c''*, carrying at its inner end the mandrel *n''* and pivoted to the upper side of the bar *v'''*, or to a bracket thereon, the hook-lever *a''*, attached to the lever *c''*, between its pivoted bearing and said mandrel, the spring *w'''*, attached to the hook-lever *a''* for depressing the mandrel and causing it to project below the lower face of the sliding bar *v'''*, the lever *k''*, the inner extremity of which presses upon the upper face of the lever *c''* to antagonize the action of the spring *w'''*, the lever *d''*, the inner end of which presses against the end of the sliding bar *v'''*, also antagonizing the action of the spring *w'''*, and the cam *g''*, having one of its side faces formed to actuate the lever *d''* at the proper period for pressing the sliding bar *v'''* toward the center of the machine, and having its perimeter formed to actuate the lever *k''* at the proper period for depressing the outer end of the lever *c''* and raising the mandrel *n''* out of the loop of the ear-wire, substantially as herein described, and for the purposes set forth.

7. In the head of an automatic ear-bending machine, the combination, with the mandrel *n''* and mechanism for actuating the same, substantially as herein described, of the die *r''*, adjustably attached to the under face of the inner end of the sliding bar *v'''*, and having at its end lying next said mandrel a concave circular contour for shaping the outer extremity of the loop of the ear-wire simultaneously with the shaping of the inside of said loop by said mandrel, substantially as herein described, and for the purposes set forth.

8. In the head of an automatic ear-bending machine, the combination of carriages *s*, grippers *f'*, gripping-jaws *q'*, antagonizing the jaws of the grippers *f'*, longitudinally-sliding bars *r*, toggle-bars *e'*, connecting the sliding bars *r* with the longer arms of the grippers *f'*, for actuating the jaws of the same toward the gripping-jaws *q'*, the mandrel *n''*, for regulating the shape of the inside of the loop of the ear, the die *r''*, for regulating and forming the outside of the outer extremity of said ear, a system of mechanism for actuating said carriages toward the central longitudinal axis of the machine for forming said loop and reversing said motion, a system of mechanism for actuating the slide-bars *r* toward the end of the machine and reversing said motion, a system of mechanism for actuating the sliding bar *v'''* and its attached parts toward the center of the machine and reversing such motion, and a system of mechanism for actuating the mandrel in such manner that it projects below the face of the inner end of the sliding bar *v'''* into the interior of the wire loop while the loop of the ear is being formed, and is withdrawn from said loop after its formation, substantially as herein described, and for the purposes set forth.

9. The combination, with the grippers *f'* and gripping-jaws *q'*, for gripping the body of the wire and pressing the gripped parts of the same toward each other for forming a loop on said wire, of the vertically-sliding die *t'''*, for bending said loop after it is formed to an angle with the body while the shank or neck of the said loop is still engaged with said grippers, substantially as herein described, and for the purpose set forth.

10. The combination, with the grippers *f'* and gripping-jaws *q'*, mandrel *n''*, and die *r''*, all constructed and operated substantially as herein described, of the vertically-sliding die *t'''*, for bending the ear to an angle with the body of the wire after the loop of the ear has been formed and while the wire is still gripped by the grippers *f'* and *q'*, substantially as and for the purposes specified.

11. In the head of an automatic ear-bending machine, the combination of the carriage *t''*, sliding longitudinally on said head, the vertically-acting die *t'''*, sliding in said carriage, and the die *h'''*, rigidly but adjustably attached to the upper part of said carriage in relation with the die *t'''*, having thereon the shaper *s'''*, mechanism for actuating said carriage to bring the shaper *s'''* of the die *h'''* over the neck or shank of the ear at the proper period to antagonize the upward pressure of the die *t'''* when the same rises to bend the ear, whereby a regular and uniform angle of bending said neck or shank is secured, and mechanism for reversing the motion of said carriage, substantially as herein described, and for the purposes set forth.

12. In the head of an automatic ear-bending machine, the combi-

nation of the carriage f'', sliding longitudinally on said head, the vertically-acting die f''', sliding in said carriage, and the die h''', rigidly but adjustably attached to the upper part of said carriage in relation with the die f''', having thereon the shaper s''', and the specific mechanism for actuating the same toward the end of the machine, and the reverse for bringing said carriage and its working parts in proper relation with the ear-wire at the proper period for bending the ear into an angle with the body of the wire, said mechanism consisting of a cam, g''', slide e''', spring m''', antagonizing the action of the cam, horizontal rock-lever c''', and links d''' and b''', connecting said lever c''' with said slide e''' and carriage f'', substantially as herein described, and for the purposes set forth.

13. The combination, with the carriage f'', the vertically-acting die f''', and the die h''', of the cam b'''', a rock-lever pivoted to the head-frame, its outer end bearing against the perimeter of the cam b'''', and its inner end bearing against the lower end of the die f''', and the spring f'''', connected with the head-frame and the lower end of the die f''', which antagonizes the upward motion of said die and the movement of the rock-lever derived from the cam b'''', substantially as and for the purposes set forth.

14. The combination, with the die f''', the spring which antagonizes its upward motion, and the die h''', of the composite lever c'''' d'''', the part d'''' of which is pivoted to the part c'''' and bound thereto by the adjusting screw-bolt k'''', for regulating and limiting the upward motion of the die f''', substantially as and for the purposes herein set forth.

15. The combination, with the cam p', levers K K', link L, and carriages s, of set-screws w', inserted in the upper extremities of the levers K K', for regulating and limiting the motion of said carriages toward the central longitudinal axis of the machine, substantially as and for the purposes herein specified.

16. In the head of an automatic ear-bending machine, the combination, with the lateral sliding carriages s, the longitudinal sliding bars r, the grippers f', pivoted to said carriage, the toggle-bars e', connecting the sliding bars r with the longer arms of the grippers f', and the gripping-jaws q', for antagonizing the gripping action of the grippers f', of the gibs b and set-screws c', for regulating and limiting the gripping action of the grippers f' against the gripping-jaws q' in working different sizes of wire, as and for the purpose herein set forth.

17. In the head of an automatic ear-bending machine, the combination, with the lateral sliding carriages s, the sliding bars r, grippers f', and toggle-bars e', of the radially-adjustable gripping-jaws q', attached to said carriage by pivots r', and having set-screws s' passing through slides in the same into the carriages s, for holding said jaws in radial adjustment relatively to the centers of the pivots r' in working different sizes of wire, substantially as and for the purpose herein set forth.

18. The combination, with the heads B and B' of an automatic ear-bending machine, said heads being constructed and operated substantially as herein described, the head B being adjustable toward or away from the head B', of the guide-plate o'''', attached to the fixed head B, but placed in relation with the adjustable head B', whereby a certain adjustment of the head B' toward or away from the head B is permitted without removal of such guide-plate, substantially as and for the purpose set forth.

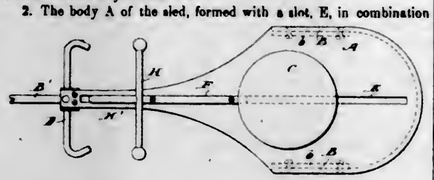
19. In the head of an automatic ear-bending machine constructed substantially as herein described, the combination, with the carriages s, grippers f', sliding bars r, and toggle-bars e', all constructed and operating as described, of the plate l', bolted to the carriages s in such manner as to come down flush on the upper surfaces of the gibs d', sliding bars r', grippers f, and toggle-bars e', for holding the same in relation with said carriages, substantially as and for the purposes set forth.

20. In the head of an automatic ear-bending machine, the combination of the sliding bar v''', the lever c'', pivoted to the lever v''', and having the chuck m'' attached to its inner end, the reversible mandrel n'', having its middle part adapted to fit the chuck m'', and having its extremities made of different size to adapt it to different sizes of ears, and mechanism for actuating said sliding bar, lever, and mandrel in such manner as to bring the lower extremity of the mandrel into the interior of the loop of the ear while the same is being formed, substantially as and for the purpose set forth.

353,262. HAND-SLED. HERMAN LINDENBERG, Jersey City, N. J. Filed Apr. 3, 1886. (No model.)

Claim.—1. The combination, with a hand-sled, of a sliding bar having penetrating-points and a handle by which the rider may propel the sled, substantially as described.

2. The body A of the sled, formed with a slot, E, in combination



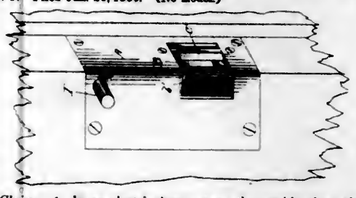
with the sliding bar F, placed in the slot and provided with the penetrating-points G, and handle H, substantially as and for the purposes set forth.

3. The bar F, provided upon its under surface with the inclined points G, hinged to the bar and provided at its upper surface with the handle H, in combination with the body A, formed with the slot E, to receive the bar F, substantially as and for the purposes set forth.

4. The body A, provided with rear fixed runners, and with a front pivoted runner provided with a foot-piece, D, in combination with the sliding propelling-bar F, provided with penetrating-points, substantially as and for the purposes set forth.

5. The body A, slotted as shown at E, and provided with the elevated seat C, in combination with the sliding bar F, provided with points G, substantially as and for the purposes set forth.

353,263. ELECTRIC DOOR-OPENER. ADAM LÜNGEN, New York, N. Y. Filed Jan. 26, 1886. (No model.)



Claim.—1. In an electric door-opener, the combination, with a lock bolt or latch of a door, of a nosing or striking plate pivoted to the door-frame in the path of said bolt or latch, and having a friction-roller upon the striking-surface, and means for releasing said striking-plate through the agency of an electro-magnet, all substantially as and for the purpose set forth.

2. In an electric door-opener, a movable nosing pivoted to the door jamb, held in position to form a detent for the lock-bolt of the door by a lever or levers controlled by an electro-magnet, and a friction-roller mounted upon said movable nosing to form its striking-surface, all as and for the purpose set forth.

3. In an electric door-opener, the combination, with the bolt or latch of the door, of a face-plate, A, secured to the door-jamb, a swinging yoke, B, to form a striking-surface, a locking armature-plate, E, and an electro-magnet, F, the latter connected in an electric circuit controlled by push-contacts, substantially as and for the purpose set forth.

4. In an electric door-opener, the face-plate A, with spring-actuated yoke B, pivoted to the same by adjusted arms C C, and provided with a friction-roller, b', a locking-lever, E, and an electro-magnet, F, all combined substantially as and for the purpose set forth.

353,264. MANUFACTURE OF SULPHONATED PURPLE DYE-STUFFS FROM BASIC ROSANILINE. CARL L. MÜLLER, Ludwighafen-on-the-Rhine, Bavaria, Germany, assignor to the Badische Anilin and Soda Fabrik, Mannheim, Germany. Filed Sept. 25, 1886. (Specimens.)

Claim.—As a new product, the purple dye-stuff or coloring-matter, which in an alkaline bath imparts to the material to be dyed its characteristic purple shade, and which, when intimately mixed with lime and then submitted to destructive distillation, produces a basic oil possessing a characteristic disagreeable smell, substantially as specified.

353,265. MANUFACTURE OF SULPHONATED PURPLE DYE-STUFFS FROM BASIC ROSANILINE. CARL L. MÜLLER, Ludwighafen-on-the-Rhine, Bavaria, assignor to the Badische Anilin and Soda Fabrik, Mannheim, Germany. Filed Sept. 25, 1886. (Specimens.)

Brief.—This is one of the sulphonated purple dye-stuffs obtained from basic rosaniline derived from condensation of tetraethyldiamidobenzophenone with benzyldiphenylamine and toluol. It dyes a bright-blue color and resists the action of acids.

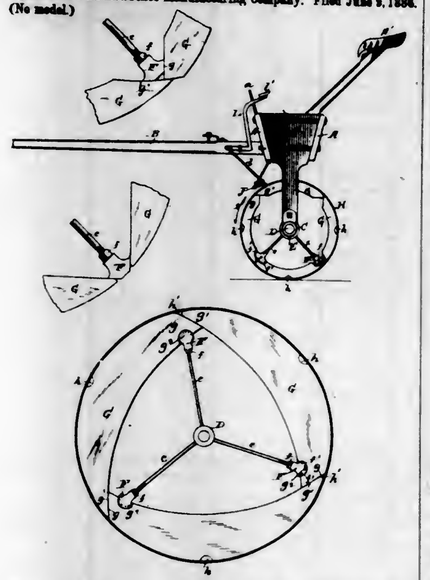
Claim.—As a new product, the purple dye-stuff or coloring-matter herein described, and having the characteristics set forth.

353,266. MANUFACTURE OF SULPHONATED PURPLE DYE-STUFFS FROM BASIC ROSANILINE. CARL L. MÜLLER, Ludwighafen-on-the-Rhine, Bavaria, assignor to the Badische Anilin and Soda Fabrik, Mannheim, Germany. Filed Sept. 25, 1886. (Specimens.)

Brief.—A purple sulphonated dye-stuff obtained from basic rosaniline by condensation of diethylamidobenzoic acid with methyldiphenylamine. The process is analogous to Patent No. 346,322.

Claim.—As a new product, the purple dye-stuff or coloring-matter which, when employed in the process of dyeing and printing in a similar manner as the hitherto-known sulphonated coloring-matter, is capable of imparting to animal fiber a bright bluish-purple color resisting the action of acids, and which is dissolved by rectified sulphuric acid with a yellow-red color, which, upon addition of water, turns green, substantially as described.

353,267. LAND-ROLLER. FRED. H. NORTON, Gouverneur, N. Y., assignor to the St. Lawrence Manufacturing Company. Filed June 9, 1886. (No model.)



Claim.—1. The combination, substantially as herein set forth, of the shell, spokes within the shell, a series of fellies having their ends of different widths, and means for moving the wider end of a felly outward relatively to an adjacent felly to produce tension of the parts.

2. The combination set forth herein of the shell, spokes supported within the shell, a series of fellies one or more of which has its wider end, g, abut against an adjacent felly, and its narrow end, g', inserted behind the wider end, g, of an adjacent felly, and means for moving the wider end of said felly relatively to and sliding upon the end of an adjacent felly to produce tension of the parts.

3. The combination, substantially as herein set forth, of the shell, spokes supported within the shell, a series of fellies having their ends of different widths and having their wider ends formed in arcs of circles, and having its narrow end, g', inserted behind the wider end of an adjacent felly, and means for moving the wider end of said felly relatively to and sliding upon the end of an adjacent felly to produce tension of the parts.

4. In a land-roller, the combination, with the seed-box and the shell, of the scraper J, its supporting-links j j, the lever L, link l, and the ratchet-bar a, substantially as set forth.

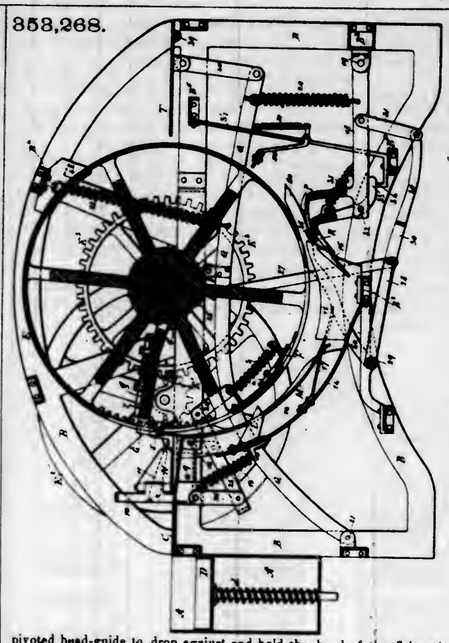
353,268. MACHINE FOR SPLITTING AND CLEANING FISH. MAGNUS J. PALSON, Elizabeth, N. J., assignor to himself, Farmer R. Walker, Gloucester, Mass., and William M. Crane, Roselle, N. J. Filed Feb. 15, 1886. (No model.)

Claim.—1. A revolving carrier-wheel provided with slots in its periphery, in combination with tail-clamps adapted to grasp the tail of the fish after it has been passed into a slot in the said carrier-wheel, a stationary inclined splitting-knife, and a gibber for removing the gills and gibs, substantially as set forth.

2. The combination, with a revolving carrier-wheel and clamps thereon for grasping the fish, of a tipping-throat to guide the fish against the wheel as it is drawn down, a knife to split the fish, and a gibber to remove the gibs and gills, substantially as set forth.

3. The combination, with the revolving carrier-wheel and the clamps for grasping the fish, of a tipping-throat having spring sides, a stationary knife to split the fish, and a yielding plate to press the fish toward the revolving wheel, substantially as set forth.

4. The combination, with the revolving carrier-wheel and the clamps on the carrier for grasping and holding the tail of the fish, of a



pivoted head-guide to drop against and hold the head of the fish, substantially as set forth

5. The tipping-throat having a pivoted base, a yoke, and converging springs, in combination with the revolving carrier, a slotted yielding plate connected to the tipping-throat, a stationary splitting-knife passing through the plate, and a table supporting the tipping-throat.

6. The combination, with the revolving carrier and clamps for grasping the fish, of a splitting-knife, a yielding plate to press the fish toward the carrier, an opener and spreader, and a gibber, substantially as set forth.

7. In a fish-cleaning machine, a gibber having prongs, in combination with a cleaner that is partially between the prongs of the gibber while seizing the gibs and gills, and mechanism, substantially as set forth, moving the cleaner and discharging the gibs, substantially as set forth.

8. The gibber formed of prongs upon a lever, in combination with a holder pivoted upon the lever of the gibber, a projection upon the holder passing up between the prongs of the gibber, and the trippers, and spring for moving the holder, substantially as set forth.

9. The combination, in a fish-cleaning machine, of a revolving carrier, a tipping-throat, a splitting-knife, an opener, a gibber, and a cleaner, substantially as set forth.

10. The combination, in a fish-cleaning machine, of supply-tank having a lifter within the same, a tipping-throat, a revolving carrier, a splitting-knife, a yielding plate to press the fish toward the carrier, an opener and spreader, a gibber and cleaner, and a table for delivering the fish, substantially as set forth.

11. The combination, with a revolving carrier, of a tail-clamp and a head-guide upon such revolving carrier, a gibber to remove the gibs and gills, and a lever, 60, acted upon by a projection from the head-guide to move the gibber away from the nose of the fish, substantially as set forth.

12. The gibber having prongs, in combination with a yielding holder that acts to grasp the gibs and gills, and mechanism, substantially as specified, for presenting the fish to the gibber, substantially as set forth.

13. The combination, with the revolving carrier and means for holding and splitting the fish, of the gibber and a yielding scraper, 50, substantially as set forth.

353,269. WINDOW-SPRING FOR ELECTRIC BURGLAR-ALARMS THEODORE H. PARKER and JOHN GEARY, Philadelphia, Pa., assignors to Shaw & Geary, same place. Filed June 12, 1886. (No model.)



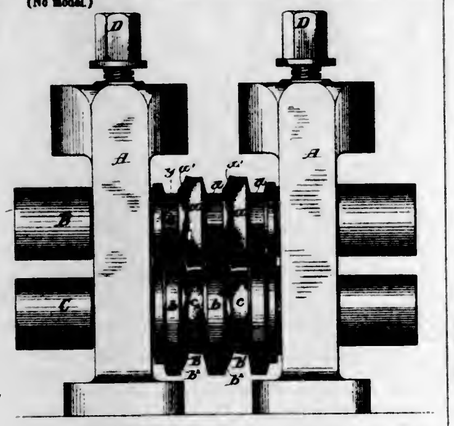
Claim.—1. An electric burglar-alarm attachment or device comprising a pivoted or fulcrumed cam or block, B, having an insulating-

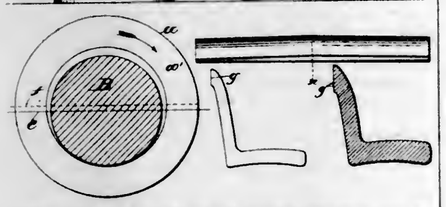
piece, b^2, and two springs, C D, bearing on said cam on opposite sides of the latter, both exerting pressure or tending to move said cam in the same direction, substantially as shown and described.

2. In an electric burglar-alarm window-spring, the combination, with a pivoted or fulcrumed cam or block, B, having an insulating-piece, b^2, of two springs, C and D, which bear upon said cam or block on opposite sides and at equal or approximately equal distances from its pivotal point or fulcrum, substantially as shown and described.

3. The window-spring for electric burglar-alarms herein described, and comprising plate A, having slot A', cam or block B, pivoted or fulcrumed therein at b and having insulating-piece b^2, spring C, fastened to said plate A, and spring D, secured to insulation-piece E on plate A, said springs bearing on said cam or block on opposite sides of the latter, and both, when flexed, tending to move said cam or block in the same direction, substantially as shown and described.

353,270. ROLLING-MILL. WILLIAM B. PARKER, Bay View, assignor of one-half to Francis Hinton, Milwaukee, Wis. Filed June 14, 1886. (No model.)



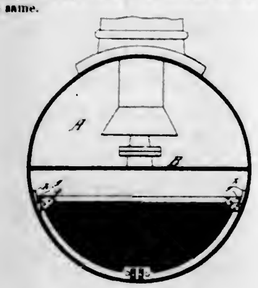


Claim.—In a train of rolls, one roll provided with one or more eccentric tongues eccentrically beveled on one side, and the opposing roll having one or more non-eccentric collars beveled and shouldered on the side opposite the bevel on the aforenamed tongues, substantially as set forth.

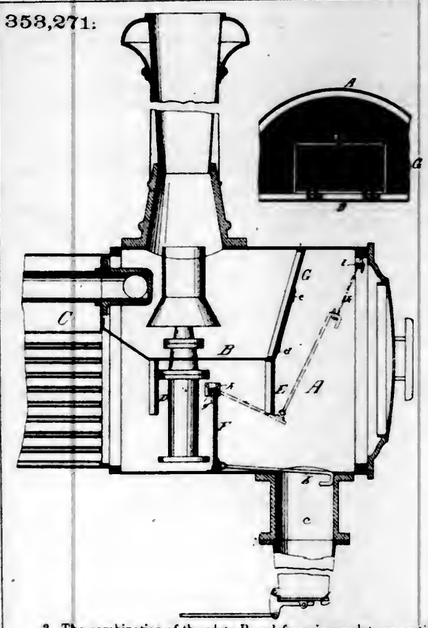
353,271. SPARK-ARRESTER. RENALDO SOLANO, Brooklyn, N. Y. Filed Aug. 28, 1886. (No model.)

Claim.—1. A chamber into which the products of combustion are discharged, provided with a partition-plate, B, depending foraminous or wire-cloth frames D and E, and projecting interposed foraminous or wire-cloth frame F, for the purpose specified.

2. In a spark-arrester, substantially as described, the swinging perforated or screen plate F, provided with suitable devices for elevating and securing the same.

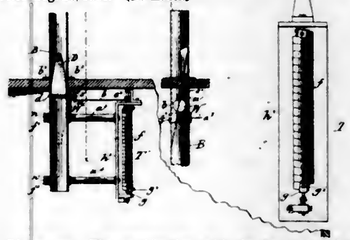


353,271.



3. The combination of the plate B and foraminous plate or partition G, fitted with a central trap of similar material, substantially as and for the purpose specified.

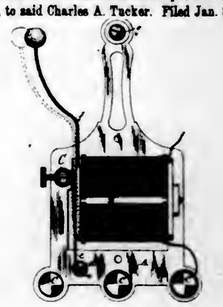
353,272. HEAT-REGULATOR FOR INCUBATORS. GEORGE B. ST. JOHN, Boston, Mass., assignor to the Standard Thermometer Company. Filed Aug. 24, 1885. (No model.)



Claim.—1. The combination, with the frame A and pipe B, set therein, of a damper, D, a damper-shaft, d, in said pipe, a counter-balance, W, and pin a on said shaft, and a thermostat provided with an arm, b, to engage the said pin to open the damper at an undue rise in temperature, substantially as described.

2. The frame A, pipe B, and a damper arranged in said pipe, a damper-shaft, and a pin, a, thereon, combined with the thermostat T, having a pointer, b, and the arms a^2 a^4, secured to said thermostat and engaging the pipe, substantially as and for the purpose described.

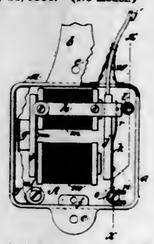
353,273. STRIKER FOR ELECTRIC BELLS. CHARLES A. TUCKER, Islip, and WILLIAM H. MARKLAND, Brooklyn, N. Y., assignors, by mesne assignments, to said Charles A. Tucker. Filed Jan. 8, 1886. (No model.)



Claim.—1. An electric bell having a suitable frame for mounting the same, the striker-rod f and armature a, in combination with a spring, c, provided with a collar, d, and screw e, substantially as described and shown.

2. As an improved article of manufacture, a striker-spring, c, provided with a collar, d, substantially as described and shown.

353,274. ELECTRIC BELL. CHARLES A. TUCKER, Islip, and OTTO H. HUBER, Brooklyn, N. Y., assignors, by mesne assignments, to said Charles A. Tucker. Filed May 21, 1886. (No model.)



Claim.—1. An electric-bell apparatus provided with a case consisting of a front, A, carrying the operating parts, in combination with the inclosing-frame a a, substantially as described and shown.

2. The frame a a, adapted to inclose and protect the operating mechanism of an electric bell, in combination with a removable front, A, supporting all the operating parts, substantially as described and shown.

3. The frame a a, adapted to inclose and protect the operating mechanism of an electric bell, and a cover-plate carrying the operating parts, in combination with the inclosing-back y, substantially as described and shown.

4. The frame a a, back y, and removable front A, in combination with the operating parts of an electric bell secured to such front A, substantially as described and shown.

5. The combination of the armature j, strip k, and the support n, slotted at right angles to the strip k, in combination with an adjusting-screw, o, substantially as described and shown.

6. The combination of the eccentric l, and screw s, and a suitable contact-point, as the strip h, substantially as set forth.

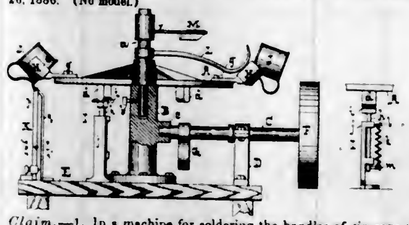
7. The combination, with an adjustable contact-screw passing through the front of the case, of an eccentric, l, formed of non-conducting material, substantially as described.

8. The combination of the magnet-wire v, terminating in a suitable contact-point, as r, with the adjusting-eccentric l, adapted to be operated from the front of the case A, substantially as set forth.

9. In an electric-bell apparatus, the combination of the vibrating hammer-rod j' and hood w, securely attached to the hammer-rod and to the plate A, and adapted to exclude foreign substances from the interior of the inclosing-case in whatever position the same may be placed, substantially as described and shown.

10. An electric-bell apparatus consisting of the case a a, front A, suitable magnets, rod j', armature j, and adjustable standard n, in combination with the strip h and screw s, carrying the eccentric l, substantially as described and shown.

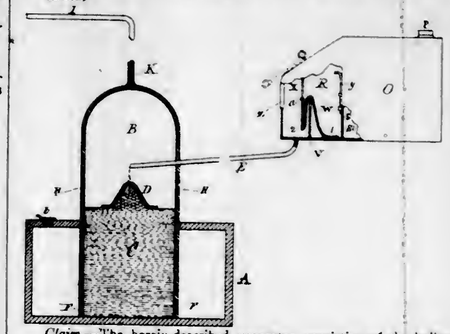
353,275. MACHINE FOR SOLDERING THE HANDLES TO TIN CUPS. CHAS. L. WAGANDT, Baltimore, Md., assignor to George V. Keen, James S. Hagerty, and James R. Hagerty, all of same place. Filed Aug. 26, 1886. (No model.)



Claim.—1. In a machine for soldering the handles of tin cups to their bodies, a rotary table having peripheral tin-cup holders provided with slots for the reception of the cup-handles, and means, substantially as described, to effect an intermittent rotation of the said table, combined with burners to project flames to the said cups, substantially as specified.

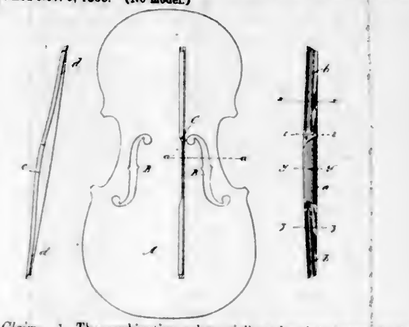
2. In combination with the rotative table A, having the cup-holders H, with the slots o and the teeth d on its under surface, the driving-shaft C, carrying the arm G, which engages with the said teeth, substantially as and for the purpose specified.

353,276. APPARATUS FOR MANUFACTURING HEATING-VAPORS. WILLIAM WALTON, Brooklyn, N. Y. Filed Dec. 4, 1885. (No model.)



Claim.—The herein-described generator, consisting of the hollow base A, tube B, provided with openings H for the admission of air, escape-pipe K, and core-tube C, substantially as and for the purpose set forth.

353,277. STRINGED MUSICAL INSTRUMENT. MAURICE W. WHITE, Somerville, Mass., assignor of one-half to George W. Ross, same place. Filed Nov. 9, 1885. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the body of a stringed instrument and the base-bar applied to the under side of its face A, said base-bar consisting of a narrow strip running lengthwise of the said face, and having a reduced central portion, a, and the remaining portion at each side of the central portion grooved, as at b, all substantially as and for the purpose described.

2. The combination, substantially as hereinbefore set forth, of the body of a stringed instrument and the base-bar applied to the under side of its face A, said base-bar consisting of a narrow strip running lengthwise of the said face and beveled on that side which lies in contact with the said face A, that it may lie at right angles with relation to the surface with which it is in contact, or at an angle with relation to the side walls.

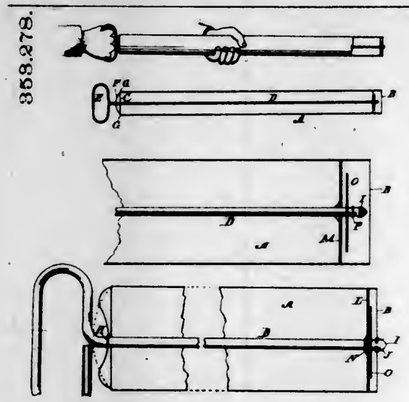
3. The combination, substantially as hereinbefore set forth, of the body of a stringed instrument and the base-bar applied to the under side of its face A, said base-bar consisting of a narrow strip running lengthwise of the said face, and having grooves b located upon each side thereof and extending inward toward its center for some distance, and having one edge curved longitudinally to lie in contact with the curved face A, while its opposite edge is straight, thereby forming a base-bar of considerable depth and strength throughout.

4. The combination, substantially as hereinbefore set forth, of the body of a stringed instrument and the base-bar applied to the under side of its face A, said base-bar consisting of a narrow strip running lengthwise of the said face, and having a tapering reduced central portion, a, as described, and the remaining portions at each side of the central portion grooved adjacent to that side in contact with the face A, as described.

353,278. HAND FIRE-EXTINGUISHER. JAMES S. ZERBE, Hartwell, Ohio, assignor to David M. Monroe, Baltimore, Md. Filed Jan. 28, 1885. Renewed Sept. 18, 1886. (No model.)

Claim.—1. In hand fire-extinguishers, the plunger or piston-rod within the tube, having its ends sharpened, barbed, or pointed, provided at its opposite end with a handle, outside the tube, by means of which the head of the tube may be perforated when the rod is impelled forward, substantially as herein described.

353,278.



2. In a hand fire-extinguisher, a tube hermetically sealed and containing the fire-extinguishing compound, having within a plunger or piston rod and head, whereby the said compound is forcibly ejected therefrom, substantially as herein described.

3. In a hand fire-extinguisher, the rear end of the tube having a bridge or metallic bow through which the rod or plunger passes, in combination with the rod or plunger soldered thereto, so that when the rod is impelled forwardly the said bridge will collapse, substantially as herein described.

4. A hand or portable fire-extinguisher consisting of a tube closed at both ends, and a piston-rod having a puncturing end and bearing a perforated piston and a movable disk.

5. A fire-extinguisher consisting of a tube closed at both ends, and provided with a yielding bridge or bow at one end, in combination with a pointed piston-rod provided with a perforated piston and a movable disk, substantially as described.

6. In a hand fire-extinguisher, the tube containing the liquid, having on its rear end the bridge or metal bow soldered to the said rod or plunger, in combination with said rod or plunger passing through the head of the cylinder or tube, and sealed at its juncture with the head of the tube with paraffine, wax, or any analogous substance, substantially as herein described.

7. In a hand fire-extinguisher, the tube having two heads, B C, and at the rear end the bridge or metal bow F, in combination with the plunger or piston-rod D, having a handle, E, on its outer end and soldered to the metal bow F, and on its inner end a perforated head, L, and valve O, and the pointed or sharpened end I, substantially as herein described.

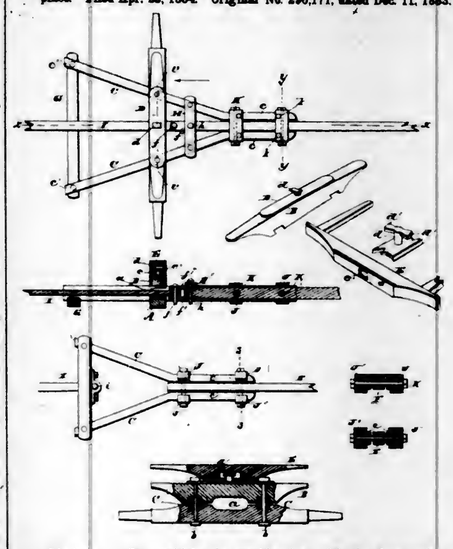
8. In a hand fire-extinguisher, the tube A, having the heads B C for containing suitable liquid, in combination with the plunger or piston-rod D, having a handle at one end and the head L perforated, and valve O, with the pointed or sharpened end I for puncturing the head B, as and for the purpose substantially as herein described and set forth.

9. In a fire-extinguisher, the combination of a cylinder to contain the solution, a plunger or piston-head to eject the solution, and a puncturing-point arranged to rupture or puncture the said cylinder.

10. In a hand fire-extinguisher, the combination of the tube or outside casing, a piston-head or plunger, a handle to operate the said head, and a valve to transfer the solution contained in the tube from one side of the piston head to the other, for the purpose set forth.

REISSUES.

10,784. RUNNING-GEAR FOR WAGONS. Reward C. Blackwell, Henderson, Ky., assignor of one-third to William Henry Lewis, same place. Filed Apr. 23, 1884. Original No. 290,171, dated Dec. 11, 1883.



Claim.—1. In a vehicle, the combination, with the front axle, a head-block secured to said axle, and a bolster loosely connected to the head-block, of a reach-bar disconnected from the front axle and head-block and connected to the tongue, and devices connecting the tongue and head-block or axle.

2. In a vehicle, the combination, with the front axle, a head-block secured to said axle, a bolster, and a king-bolt connecting the bolster and head-block, of a reach-bar the front end of which projects forwardly in front of the axle, and a pole or shafts secured to the axle and pivotally connected to the front end of the reach-bar, substantially as set forth.

3. The axle A, head-blocks B, with the interposed hounds C, and the plate D, having bolster-pivot *d*, secured together by the bolts *b*, combined with the bolster E, having plate *e*, provided with recess *e'*, as specified.

4. The combination of the axle A, head-block B, interposed hounds C, and the plate D, having bolster-pivot *d*, secured together by the bolts *b*, to form recess *a*, with the bolster E *e e'*, the tongue F, and reach I, pivoted thereto forward of the axle, as set forth.

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DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF
UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Connecticut.

ENTERPRISE MANUFACTURING COMPANY, PENNSYLVANIA, *v.* SARGENT *et al.*

Decided July 23, 1886.

1. COMBINATIONS OF OLD DEVICES.
A new combination of old parts for attaining an object may sometimes, and perhaps often, be so obvious as to merit no title to invention.

2. INVENTION—NOVELTY AND UTILITY.
While in ordinary cases of new combinations of old parts for attaining an object novelty and utility are evidence of invention, there should be other evidence to show that it exists.

3. INVENTION—EVIDENCE OF.
Evidence of invention, in addition to novelty and utility, may often be found in the machine itself, which shows that it came from a creative mind, or the necessary evidence may sometimes be found in the history of the invention.

4. INVENTION—RESULT AS EVIDENCE OF.
In this case the patentee accomplished a new and beneficial result by means which others had been near to and apparently wanted to find, but did not see. *Held* that he was entitled to be styled an inventor.

5. No. 271,398—MACHINE FOR MINCING MEAT.
The first and second claims of Letters Patent No. 271,398, of January 30, 1883, to John G. Baker, for a machine for mincing meat, considered, and *held* not infringed by the defendant's machine, patented in Reissued Letters Patent No. 10,717, of April 17, 1886, to John H. Shaw.

Mr. Charles Hoxson and *Mr. Charles E. Mitchell* for the plaintiff.

Mr. John K. Beach and *Mr. B. F. Thurston* for the defendants.

SHIPMAN, *J.*:

This is a motion for a preliminary injunction to restrain the defendants from the alleged infringement of Letters Patent No. 271,398, dated January 30, 1883, to John G. Baker, assignor to the plaintiff, for a machine for mincing meat and other plastic or yielding substances. The question, so far as the first and second claims are concerned, are, (1) in view of the undisputed state of the art, that of invention, and (2) that of infringement.

The meat-cutter described in the United States patent to Purches Miles, of July 13, 1864, and in the English patent for the same invention to Joseph Donnell, of September 23, 1865, was a hollow cylinder into which at one end the uncut material was fed, a perforated plate at the other end, a rotating knife within the casing, with its cutting-edges against the inner face of the perforated plate, and stationary and moving cutting-knives arranged near the hopper, into which the material was fed, around a revolving shaft which connected the hopper with the plate, and by the aid of a spiral wing fed the material to the plate. The cutting-knives upon the shaft did the principal cutting work before the plate was reached. The meat-cutter of Hubert Dollman's English patent of 1881, the candy-cutter of E. Belling's United States patent of 1859, and the soft-dough machine of H. Dusch's United States patent of 1878 had a hollow cylinder, a revolving screw, a perforated plate, and a rotating knife outside the plate.

These two systems substantially comprised the state of the art at the date of the Baker patent, for it is not necessary to dwell upon the United States patent to G. A. Coffman, of February 28, 1845, for a meat-cutter which consisted of a hollow case, a series of chopping-cutters, a propeller-wheel, a perforated plate, and a knife on the outside of the plate, thus having the Miles cutters upon the shaft inside the case and the Dollman knife outside the plate. A Miles machine, known as the "Challenge," has, in addition to its cutting-knives around the shaft, two rotating knives, one outside and the other inside the plate. The Baker device dispensed with the cutters around the shaft and relied for its cutting mechanism upon a rotating knife on the inside of the perforated plate. The substantial portions of the machine are a hollow casing, a perforated plate near the end of the casing, a rotating knife acting against the inner face of the plate, a forcing-screw the continuous thread of which extends to or nearly to the knife, and which rotated with the latter. The interior of the casing, in all of the drawings except one, and in the exhibits, is corrugated by longitudinal grooves, each of which is inclined on one side and presents an abrupt retaining-shoulder on the other. These corrugations do not extend to the outer end of the casing.

The first and second claims are as follows:

1. The combination, in a machine for cutting up plastic or yielding substances, of the following instrumentalities, namely: first, a casing for containing the substances to be cut up; second, a perforated plate at or near the end of the casing; third, a device for forcing the crude mass forward in the casing and against the said plate without otherwise disturbing the integrity of the said mass; and, fourth, a knife operating against the inner face of the plate, and serving as the sole means, in connection with the said plate, of cutting up the mass by severing therefrom the portions which enter the perforations, all substantially as set forth.

2. The combination of a casing, E, having at or near one end a perforated plate, a rotating knife acting against the inner face of the said plate, and a forcing-screw the continuous thread of which extends to or nearly to the knife, and which rotates with the latter, substantially as specified.

The cutter is an actual and commercial success. It is far simpler than the Miles cutter, being composed of a much less number of parts, and is more easily taken care of and cleaned. That it is a patentable invention as an improvement upon the Miles or Coffman machines seems obvious. To discard the stationary and revolving knives of Miles and to rely upon the screw, either with or without the corrugating shoulders, to force the material along and upon the knife inside the perforated

plate to cut it, and thus to make a cheaper, simpler, and more easily cared for machine was the work of an inventor.

It is urged that the patentee in his specification makes a marked distinction between his screw and the Miles screw and cutters in that his screw simply imparts pressure to the uncut material during its progress to the plate without any other action, and forces the mass along "without otherwise disturbing" its integrity, whereas the defendant says it does cut or disintegrate the meat, and thus the screw and shoulders are only a substitute for the knives and revolving shaft of Miles. The language of the patentee was used with reference to the cutting qualities of the Miles knives as compared with the non-cutting qualities of the screw. The portions of the meat which are in contact with the shoulders are rubbed or ground or abraded; but it can probably be truly said that they are not cut, although I was somewhat surprised upon trying some slight experiments with large pieces of meat at the extent of the comminution which was the result.

The next question is whether it was an invention to put the rotating knife of the Dollman, Dusch, and Belling machines inside the perforated plate. It made the machine as a meat-cutter a success, for a meat-cutter with the knife outside the plate is worthless. By such a construction the plate would soon become clogged. The defendants in this branch of the case dwell upon the fact that the patentee says that his invention is not restricted to the cutting of meats, but may be used for candy, dough, or any other plastic material; and they urge that the position of the plate is a matter of judgment, and that it is to be placed according to the requirements of the material to be acted upon, and therefore that the change of position was not patentable. It is obvious, whether or not the invention could be applied to other substances, that the machine was for the mincing of meat and suet, and that to make an effective meat-cutting machine this combination had not been found by prior inventors, although they had been close to it.

A new combination of old parts for attaining an object may sometimes, and perhaps often, be so obvious "as to merit no title to invention," and in ordinary cases, while novelty and utility are evidence of inventive skill, there should be other evidence to show that it existed. This is often found in the machine, which itself shows that it came from a creative mind, or the necessary evidence may sometimes be found in the history of the invention. In this case the machine is a simple one; but it is manifest that the inventor accomplished a new and beneficial result by means which other people had been near to and apparently wanted to find, but failed to see. The skill of his predecessors did not produce the idea which was to make an efficient implement. Baker produced it, and is entitled to be styled an inventor.

The device of the defendants, which was patented to John H. Shaw by Reissued Letters Patent No. 10,717, dated April 17, 1886, the original having been dated March 9, 1886, is, so far as the first two claims are concerned, the machine of the plaintiff, except that instead of the longitudinal shoulders the Shaw cutter has spiral ribs—

running toward the perforated plate, the inclination of thread being by preference about forty-five degrees, or considerably greater than the inclination of the spiral rib of the screw.

As has been said, the absence of cutting action before the knife is reached is a distinctive feature of the Baker cutter. The defendants say that their machine is especially adapted to cut the meat before it reaches the perforated plate, in consequence of the action upon it of the spiral ribs in conjunction with the blades of the screw. Without committing myself definitely to a conclusion, it seems to me that there is a shearing action upon the meat between the edges of the spiral ribs and the revolving screw-blade like that of a powerful dull pair of shears. There is a difference between the defendants' two machines which are exhibits in the case in respect to the sharpness of the blades; but either machine, in my present opinion, cuts the meat before it reaches the rotating knife.

The first two claims contain the gist of the Baker invention. There is a question of fact in regard to each of the four minor claims which are said to be infringed. Inasmuch as the principal claims are not infringed, as at present advised, and as the patent is a comparatively recent one which has never been adjudicated upon, I have not thought it advisable to examine carefully the minor questions involving details of construction.

The motion is denied.

U. S. Circuit Court—Southern District of New York.

HERMANN v. HERMANN.

Decided November 15, 1886.

Mr. Walter R. Leggat for the complainant.

Mr. William B. Ellison and *Mr. Charles C. Gill* for the defendant.

BROWN, *J.*:

The complainant seeks to enjoin the defendant against the manufacture and sale of a certain form of hood, known as the "Daisy Hood," the design for which was invented by her husband, Isidor Hermann, and for which a patent was taken out in the complainant's name October 12, 1886. The defendant does not assail the validity of the patent, but denies the right of the plaintiff to bring suit in her own name, and also sets up a license in effect for the manufacture of the hood in question.

1. Prior to the commencement of this suit the plaintiff, October 18, 1886, transferred to the firm of R. Hermann & Co., of which she is also a member, the "exclusive right to the use of the improvements and rights secured to her by the letters patent" for the whole term of the patent. The transfer of the exclusive right is further stated to be "by way of license, and not as a transfer of a title to the letters patent."

In the written assignment the plaintiff further stipulated—

at all times to defend the validity of the patent against all infringements, and on due notice of any infringement to proceed with all reasonable dispatch to seek to enjoin by all lawful means all such infringements, and to secure such damages as may be reasonable and commensurate with the injury done by such infringement to the rights secured

by the transfer; and she thereby charges herself with—

defending the rights secured by the patent against any and all infringements.

The present suit is for damages for infringement, as well as for an injunction.

The stipulation of the plaintiff above recited does not bind her, it will be observed, to pay all damages that may accrue to the transferees from any infringements of the patent. She agrees only to defend its validity in case of infringement, and "to seek to enjoin infringements and to secure damages."

The exclusive right to the use of the patent having been transferred to the firm of Hermann & Co., the complainant did not individually suffer any damages from infringements. Any damages recovered would belong, not to her individually, but to the firm; and, as she has not made herself responsible to the firm for the payment of these damages, the suit should, I think, have been brought in the firm-name, though prosecuted in their names at her expense and charge. Such was the view taken in the case of *Washburn* v. *Gould* (3 Story, 122) upon covenants substantially the same as those in the present case.

2. The above formal defect of parties might, perhaps, be remedied by amendment; but upon the merits as they appear from the bill and the affidavits submitted there is, I think, too much doubt of any exclusive right in the plaintiff as against the defendant to authorize an injunction before the final hearing. (*Poppenhusen* v. *Falke*, 4 Blatchf., 493.)

Isidor Hermann, the inventor, had been for several years associated in business with the defendants, part of the time as partner and later as a superintendent, employed at a large salary. By a contract made in November, 1885, his employment with the defendant was continued for a term of one year from January 1, 1886, at a salary equal to fifty per cent. of the net profits of the business, with the right to draw seven thousand five hundred dollars during the year, in consideration of which Isidor Hermann agreed—

to devote all his time and energy during the said period in superintending the manufacturing department of said business, as well as in the buying and selling of goods belonging to said business.

His duties were not otherwise specified; but the affidavits submitted show that the duties he had been accustomed to perform embraced the preparation of new designs, many hundreds of which he had prepared for the use of the defendant's business, and for some of which he had obtained patents. I am satisfied that this was a part of the plaintiff's employment and duty, and that the skill, taste, and inventive resource of Isidor Hermann in the preparation of new designs were an important part of the consideration of his employment on which the success of the business was in part deemed to depend, and that it was within the contemplation and expectation of both parties that the defendant should have the right to use in his business all the designs of Isidor Hermann made in this department and in the course of his employment. The design for the "Daisy Hood" was invented by him in 1886, while thus employed and in the course of his employment. Application for a patent thereon was made by him on the 16th of June, 1886. Two days before that date he had paid to his solicitors twenty-five dollars for that purpose, and on the same day received a check from the defendant for thirty-five dollars, twenty-five dollars of which was on account of the solicitor's charge, and entered on the defendant's books, not as a charge against Isidor Hermann, but as one of the items of the expenses of the defendant's business. In August following Isidor Hermann left the defendant's employ without any legal justification, so far as the papers submitted to me disclose, and, having assigned the patent rights to his wife, he organized a new firm for the manufacture of the "Daisy Hood" and other articles. Before Isidor Hermann left the defendant's employ the defendant had been engaged for several months in manufacturing the "Daisy Hood" under his superintendence, by his permission, and without objection, and without further compensation.

The case as presented upon the affidavits seems to me to fall within the principles of the decisions in *McClurg* v. *Kingsland* (1 How., 202) and *Chabot* v. *American Button Hole Company*, (6 Fish Pat. Cas., 71,) in which a license, special privilege, or grant to use the invention is to be necessarily inferred from the contract and from the relation and acts of the parties. (See, also, *Blanchard* v. *Sprague*, 1 Clif., 288.)

The motion for an injunction should be denied.

U. S. Circuit Court—Southern District of New York.

COLGATE v. THE WESTERN ELECTRIC MANUFACTURING COMPANY.

Decided July 20, 1886.

1. SALE OF PATENTED ARTICLE—INSUFFICIENT EVIDENCE OF DAMAGES.

Infringement consisted in sale of the patented article. Proof of an established license-fee for the use of the invention *held* insufficient to authorize a recovery.

2. MEASURE OF DAMAGES.

Royalty paid for a license to sell and transfer to purchasers the right to use is not the criterion of the value of an ordinary selling right.

Messrs. Betts, Atterbury & Betts for the complainant.

Mr. George P. Barton for the defendant.

WALLACE, *J.*:

The master has awarded damages to the complainant upon an accounting for the infringement of his patent for insulated wire upon the basis of a royalty. The infringement by the defendant consisted in the sale of the article. The proofs for the complainant may show that he has an established license-fee for the use of his invention, but they wholly fail to show that he has any uniform established license-fee for the right to sell the article. The complainant testifies in general terms that he has an established license-fee, and grants licenses to sell his invention for a royalty of ten per cent. upon the gross cost of the article sold; but he names as licensees several corporations, railroad and municipal, not manufacturers or trading concerns, whose operations may require them to use the invention, and when he is pressed to produce documentary evidence he presents agreements which are licenses to use the invention for specified purposes, with the exception of four. Two of the four are releases of past infringements. Royalty paid by licensees for the right to use the invention is not evidence of damages sustained by the patentee by the sale of the patented article sufficient to authorize a recovery. The value of some patents consists, principally, in the right to use the invention, the value of others in the right to sell, and infringement by selling and infringement by use of the patented article are essentially different invasions of the patentees property. The complainant's case consequently rests on the effect of the two remaining agreements introduced by him

for the purpose of showing his established license-fee for the right to sell under his patent. These are the agreements with the Bishop Gutta Percha Works and the Laflin & Rand Powder Company. The agreement with the Bishop Gutta Percha Works grants the exclusive right to manufacture and sell the patented article to that company, and contains a covenant not to sue purchasers from that company buying for certain specified uses of the invention, and in consideration therefor the company is to pay a royalty of five per centum of the gross price received from sales. This agreement was subsequently modified by adding a covenant not to sue purchasers from the company for certain other specified uses of the invention, and by increasing the royalty on the sales to purchasers for such uses to ten per cent. of the gross price received by the company. The agreement with the Laflin & Rand Powder Company is a grant of the privilege to manufacture and sell the invention to purchasers for specified uses with a covenant not to sue such purchasers, and the company agrees to pay a royalty of ten per centum of the gross price of manufacture to the complainant and an equal royalty to the Giant Powder Works, which company is a party to the agreement. Royalty paid for the whole monopoly of selling and manufacturing under a patent is not sufficient evidence of the value of the right to make occasional sales in a particular territory. (*Le Bau* v. *Hawkins*, 2 B. & A., 561.) An exclusive license may well afford to pay a much larger consideration for the property right than the patentee could command from purchasers of a license to compete with other sellers; but aside from this consideration, which is alone sufficient to deprive the agreement with the Bishop Gutta Percha Works of any weight as evidence of an established royalty, the agreement contains a covenant not to sue purchasers from the licensee. The agreement with the Laflin & Rand Powder Company contains a similar covenant upon the part of the complainants. Such a covenant operates by way of estoppel to license the purchaser to use the patented article. Both of these agreements are therefore equivalent to a license to sell and transfer to purchasers the right to use the invention for the purposes specified. Royalty paid for such an interest in the property right is not the criterion of the value of an ordinary selling right. The right to sell might be of insignificant value without such a covenant as is contained in these agreements. Ordinarily it would only be a right to sell a law suit, or the limited privilege of selling to customers having a license to use the article. With such a covenant the value of the right is greatly enhanced, because the seller can transfer to the purchaser the privilege of using the invention.

There are other reasons why these two agreements fail to afford such evidence of a uniform established license fee as to entitle the complainant to the damages found by the master. It is not necessary for present purposes to suggest them.

The defendant's exceptions are sustained.

U. S. Circuit Court—Eastern District of Louisiana.

GAIL *et al.* v. WACKERBARTH *et al.*

Decided June 16, 1886.

TRADE-MARKS—IMITATION OF OTHER GOODS—INJUNCTION.

Parties will be restrained by injunction from putting up goods in packages in imitation of others in the trade calculated to deceive the buying public and to defraud the original users of such packages; but such imitation must be sufficiently close to have that effect or the injunction will be refused.

ON MOTION for injunction *pendent lite.*

Mr. Joseph P. Horner for the complainant.
Mr. J. R. Beckwith for the defendant.

PARDEE, *J.:*

There is no one characteristic or mark common to the packages of tobacco of complainants and defendants that either one can have an exclusive right to. There remains, then, but the question whether the defendants' packages, in form, size, color, lettering, and marks combined, are made in imitation of complainants' packages, and are calculated to deceive the buying public, and thus defraud the complainants of their rights. The form and size or shape of the defendants' packages are identical with complainants; but this shape is the common one and of long standing for all manufacturers of the article, and seems to be required to meet the stamp act of the Government and for convenient handling by consumers, the shape being oblong, about five and a half inches by two and a half inches, and one and a quarter inch thick, a package easily placed in the pocket. The common color is blue; but they are of decidedly different shades, and if color is an object to the purchaser the defendants' packages could not be easily passed off to a purchaser who desired complainants' goods. The only common lettering is the word "Navy," and in this there is a great similarity. The size of the letters and the circular form are very similar. There are no common or similar marks, except that each has a black border or fringe on the face, but similar only in general appearance. Both packages show lead-foil at the ends as an outside wrapper. The packages of each have a distinct and prominent trade-mark on the face of the package; but there is no similarity, the defendants' mark being a naked muscular arm holding a heavy hammer poised for striking, while the complainants' mark is the letter "G," inclosing a tomahawk in a diamond background, with the words "Trade-Mark" under the letter "G." Over the defendants' trade-mark is the word "Union" in plain, prominent letters, while over the complainants' mark are the words "Smoke" and "Chew" in a sort of script. By inspection of the packages in evidence I can see no improper imitation, unless it is in the color and in the shape given to the word "Navy." The showing made by the answer and exhibits clearly meets the complainants' bill and affidavits as to intended imitation and fraud and as to effect on trade.

As the case stands at present, I am compelled to refuse the injunction prayed for.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

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The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

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Bound half-turkey	2 50
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Issue of November 30, 1886.

Patents	375	No. 353,279 to No. 353,653, inclusive.
Designs	9	No. 17,003 to No. 17,011, inclusive.
Trade-Marks	14	No. 13,833 to No. 13,846, inclusive.
Labels	7	No. 5,040 to No. 5,046, inclusive.
Reissues	2	No. 10,785 to No. 10,786, inclusive.
Total issue	407	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1		Nebraska	2	
Arizona Territory			Nevada		
Arkansas	4		New Hampshire	1	
California	12		New Jersey	12	
Colorado	2		New Mexico Territ'y		
Connecticut	12		New York	56	6
Dakota Territory	2		North Carolina	1	2
Delaware			Ohio	23	
District of Columbia			Oregon		
Florida	1		Pennsylvania	49	1
Georgia	2		Rhode Island	4	
Idaho Territory			South Carolina		
Illinois	37	1	Tennessee	7	
Indiana	11		Texas	7	
Indian Territory			Utah Territory		
Iowa	11		Vermont	2	
Kansas	9		Virginia	2	
Kentucky	2		Washington Territ'y		
Louisiana	2		West Virginia	3	
Maine	2		Wisconsin	6	1
Maryland	6	2	Wyoming Territory		
Massachusetts	33	5	United States Army		
Michigan	14		United States Navy		
Minnesota	8				
Mississippi	1		Total to citizens of the United States	359	18
Missouri	10				
Montana Territory	2				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	6	1
Austria-Hungary	1		India		
Barbadoes			Ireland		
Belgium			Mexico		
Brazil			New Zealand		
British Columbia			Norway		
Canada	3		Russia		
Central America			Scotland		
Colombia, U. S. of			Spain		
Cuba			Sweden		
Denmark			Switzerland		
Ecuador					
England	13	2	Total to citizens of foreign countries	25	3
France	2				

DESIGNS.

17,003.—COVERING FOR TOILET-BOTTLES.—*Flora Barnett*, New York, N. Y. Application filed October 23, 1886. Serial No. 217,071. Term of patent 3½ years.

17,004.—FONT OF TYPE.—*William F. Capitain*, Chicago, Ill., assignor to *Marder, Luse & Co.*, same place. Application filed October 2, 1886. Serial No. 215,193. Term of patent 3½ years.

17,005.—RUG.—*John C. Griffin*, Philadelphia, Pa. Application filed October 2, 1886. Serial No. 215,194. Term of patent 3½ years.

17,006.—PIN.—*Peter Celestin Harbour*, Chicago, Ill. Application filed May 22, 1885. Serial No. 166,403. Term of patent 7 years.

17,007 and 17,008.—HANDLE FOR KNIVES, FORKS, SPOONS, &c.—*Austin Frederick Jackson*, Taunton, Mass., assignor to *Reed & Barton*, same place. Applications filed October 30, 1886. Serial Nos. 217,635 and 217,636. Term of patents 7 years.

17,009.—MEDAL.—*Stephen S. Newton*, Brooklyn, N. Y. Application filed October 7, 1886. Serial No. 215,638. Term of patent 14 years.

17,010.—RUCHING.—*George H. Taylor*, New York, N. Y., assignor to *The Kursheedt Manufacturing Company*, same place. Application filed September 2, 1886. Serial No. 212,563. Term of patent 3½ years.

17,011.—FORK, SPOON, &c.—*Walter Wilkinson*, Providence, R. I., assignor to *The Gorham Manufacturing Company*, same place. Application filed June 19, 1886. Serial No. 205,726. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,833.—CATARRH-SNUFF.—*David G. Alling* and *Joseph B. Abrams*, Dunkirk, N. Y. Application filed September 15, 1886. Used since July, 1886.

"The words 'MENTHOL' and 'CATARRH SNUFF,' inclosed within a circular border and printed on a red label."

13,834.—ALKALIES, ACIDS, AND SALTS USED INDUSTRIALLY.—*Brunner, Mond & Co., (Limited,)* Winnington, near Northwich, county of Chester, England. Application filed October 4, 1886. Used since January 30, 1877.

"The representation of a crescent and the initials, cipher, and abbreviation 'B. M & Co.'"

13,835.—SMOKING-TOBACCO.—*Gradle & Strotz*, Chicago, Ill. Application filed October 12, 1886. Used since December 2, 1884.

"The words 'GOLD STAR.'"

13,836.—SMOKING AND PLUG CHEWING TOBACCO, CIGARS, AND CIGARETTES.—*B. F. Hanes*, Winston, N. C. Application filed October 1, 1886. Used since 1873.

"The words 'BENJAMIN FRANKLIN.'"

13,837.—PLUG CHEWING-TOBACCO.—*Lockett, Vaughn & Co.*, Winston, N. C. Application filed October 20, 1886. Used since May 1, 1884.

"The representation of a portion of cut water-melon."

13,838.—CANNED OYSTERS.—*Platt & Co.*, Baltimore, Md. Application filed September 24, 1886. Used since 1866.

"The letter and word 'A. FIELD.'"

13,839.—SOAP FOR ANTISEPTIC AND DISINFECTING PURPOSES.—*Fels & Co.*, Philadelphia, Pa. Application filed July 15, 1886. Used since July 1, 1886.

"The word 'GERMICIDE.'"

13,840.—SHELLAC.—*F. W. Heilgers & Co.*, London, England. Application filed January 30, 1886. Used since December 1, 1880.

"The letters 'O K,' inclosed in a diamond."

13,841.—ALE.—*George Farnum Hewett*, Worcester, Mass. Application filed March 6, 1886. Used since November 27, 1883.

"A many-pointed star with the monogram 'G F H' printe on its face."

13,842.—TEA FROM CHINA.—*J. H. Labaree & Co.*, New York, N. Y. Application filed October 8, 1886. Used since 1884.

"The figure of a flying swallow and the words 'SWALLO CHOP.'"

13,843.—KID-LEATHER.—*Gustav Levor*, Gloversville, N. Y. Application filed October 4, 1886. Used since July 15, 1886.

"The word 'UNICORN.'"

13,844.—HARMONICAS.—*Gebrüder Ludwig*, Zwota, Saxony, Germany. Application filed October 8, 1886. Used since June 2, 1881.

"The representation of a pine tree."

13,845.—PREPARATION FOR THE SKIN.—*Prentice & Evenson*, Janesville, Wis. Application filed June 25, 1886. Used since December 1, 1884.

"The word 'CUTICREAM.'"

13,846.—MUSTARD PREPARED FOR TABLE USE.—*Ferdinand Wittich*, Baltimore, Md. Application filed September 30, 1886. Used since April 30, 1886.

"The word 'FRANKFORT,' and the representation of a ha having a wing attached at each side of the rim and rising abov the crown."

LABELS.

5,040.—Title: "BERTRAM'S SCALE KILLER" (FOR A BOILER CLEANING COMPOUND.)—*F. A. Bertram*, Brooklyn, N. Y. Application filed November 4, 1886.

5,041.—Title: "CONDITION POWDERS FOR HORSES, CATTLE AND SWINE."—*Robert H. Lahy*, New York, N. Y. Application filed November 4, 1886.

5,042.—Title: "LE PAGE'S IMPROVED LIQUID GLUE, MNF'D BY LE PAGE'S LIQUID GLUE & CEMENT CO."—*Le Page's Liquid Glue & Cement Co.*, Gloucester, Mass. Application filed November 4, 1886.

5,043.—Title: "LE PAGE'S IMPROVED LIQUID GLUE FOR FAMILY USE."—*Le Page's Liquid Glue & Cement Co.*, Gloucester, Mass. Application filed November 4, 1886.

5,044.—Title: "LE PAGE'S IMPROVED LIQUID GLUE, IT STICKS EVERYTHING, ORNAMENTS, LEATHER, GLASS, MARBLE, &c."—*Le Page's Liquid Glue & Cement Co.*, Gloucester, Mass. Application filed November 4, 1886.

5,045.—Title: "W. N. LE PAGE'S IMPROVED CARRIAGE GLUE."—*Le Page's Liquid Glue & Cement Co.*, Gloucester, Mass. Application filed November 4, 1886.

5,046.—Title: "WHAT TO DO IN CASES OF POISONING" (FOR AN ACCIDENT CASE.)—*Seabury & Johnson*, New York, N. Y. Application filed October 22, 1886.

DISCLAIMER.

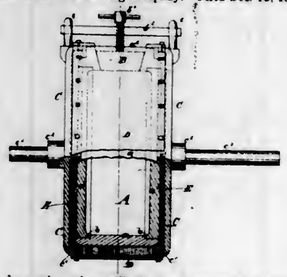
9,307. (Reissue.)—*John F. Wollensak*, Chicago, Ill. Reissue patent dated July 20, 1880. IMPROVEMENT IN TRANSOM-LIFTERS. Disclaimer filed November 19, 1886, by patentee.

"Enters his disclaimer 'to the broad combination or invention described and claimed in said first claim, and desires said first claim to be considered and treated as erased, expunged, and canceled, and limits himself to the combinations and inventions set forth in the second and third claims of said reissue.'"

PATENTS

GRANTED NOV. 30, 1886.

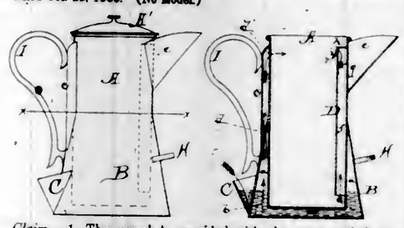
353,279. TRITURATING-CYLINDER. JOHAN R. ALSING, New York, N. Y., assignor to the J. R. Alsing Company. Filed Dec. 15, 1885. (No model.)



Claim.—1. In a triturating-mill, the combination of the inner cylinder, A, composed of the central shell, *a*, and the two end disks, *a'*, with an outer casing having journals c^2, and cement interposed between the said cylinder and casing.

2. In a triturating-mill, the combination of the inner cylinder, A, composed of the central shell, *a*, having opening *a'*, surrounded by the flange a^2, and the two end disks, *a'*, rabbeted to the said cylinder *a*, with an outer casing having journals c^2, and cement interposed between the said cylinder and casing.

353,280. STEAM COFFEE-POT. ALEXANDER M. AMOS, Buffalo, N. Y. Filed Oct. 23, 1885. (No model.)



Claim.—1. The vessel A, provided with the spout, and the partition D, forming a passage, *f*, communicating with said spout, substantially as set forth.

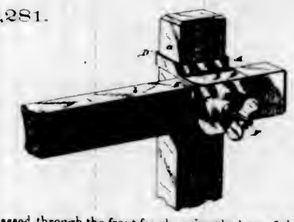
2. The combination, with the vessel A, provided with the spout, and the partition D, forming the passage *f*, of the removable cover fitting the upper end of said passage, substantially as set forth.

3. The combination, with the vessel A, provided with the spout, and partition D, forming the passage *f*, of the cover *h*, comprising a flat top, bent as at *i*, and the spring-tongue *k*, substantially as set forth.

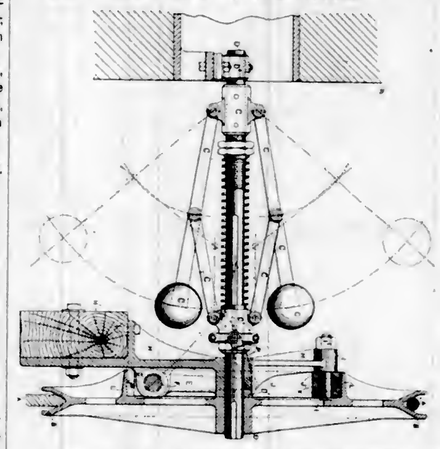
4. The combination, with vessel A, of the case inclosing its lower end and secured to its sides at its upper end, leaving a space between the two, the flaring spout C, the said inclosed case having an opening communicating with said spout, the tube *c*, secured to the side of the vessel A, and case B, said case having the opening *d* and the pot the opening *d'*, both of said openings communicating with the interior of the tube, as set forth.

353,281. CORNER-CLAMP. JOHN ANDERSON, Toledo, Ohio. Filed Jan. 2, 1886. (No model.)

Claim.—The corner-clamp formed of a single piece of metal, and having the front C and the arms B, forming a rectangle, the arms having the loops D in their outer ends for the bar *a* of the quilting-frame, and thereby forming a space between the said bar, the inner ends of the arms, and the front for a bar, *b*, at right angles to the bar *a*, and the screw passed through the front for clamping the bars of the quilting-frame together, substantially as described.



353,282. BRAKE APPARATUS FOR HOISTS. ROBERT A. BEAVER, Liverpool, County of Lancaster, England. Filed Feb. 4, 1886. (No model.) Patented in England Aug. 13, 1885, No. 9,653.



Claim.—1. In a brake mechanism for hoists, the combination, with a fixed frame-work, of a shaft journaled therein, a wheel rigidly secured upon the shaft and provided with a brake-surface, a brake mechanism mounted in the stationary frame-work, and a governor applied directly to the shaft and connected with the brake mechanism, as and for the purposes set forth.

2. In a hoist, in combination with a shaft, D, a governor, C, secured thereon, a wheel, B, also secured upon said shaft and provided with an annular brake-flange, L, a right-and-left screw, G, journaled in the frame, an arm, E, rigidly secured to said screw, a link, P, connecting the arm and the governor, and brake-shoes J K, pivoted at one end and connected with the screw at their other ends, substantially as shown, whereby when the shaft exceeds a predetermined speed the brake-shoes are moved upon their pivot into contact with the flange.

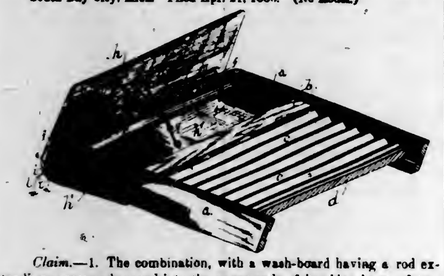
3. In a hoist, in combination with a bracket, H, a shaft, D, journaled therein and provided with a wheel, B, flange L thereon, brake-blocks J K, pivoted at their upper ends to the bracket I, screw G, connected to said brake-blocks at their lower ends, arm E, secured to screw G, and link P, connected to the arm E and with the governor, substantially as set forth.

4. The combination of the arms E, screwed spindle G, and sus-

pended brake-blocks J K with the balance rope, chain, or pulley B of a hoist, for the purpose described.

5. The bracket H, having lug for carrying brake-spindle F, bearing D' for main shaft, and suspension-spindle I, carrying hinged brake-blocks J K, substantially as described.

353,283. WASH-BOARD PROTECTOR. CHARLIE J. BONSFIELD, South Bay City, Mich. Filed Apr. 21, 1886. (No model.)

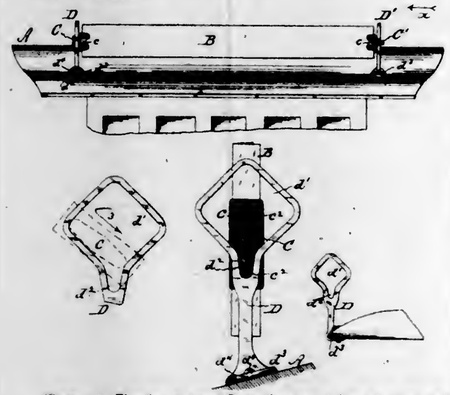


Claim.—1. The combination, with a wash-board having a rod extending across and passed into the upper ends of its side pieces, of two protector-pieces hinged independently of each other to the said cross-rod and provided on their outer edges, the one with a longitudinal groove and the opposite one with a lip fitting into the said groove, and means, as described, for retaining the protector-pieces in a working position, substantially as and for the purpose herein set forth.

2. The combination, with a wash-board having the rod *e* extending across and passed into the upper end of the side pieces, *a*, of the protector-pieces *h* and *h'* on opposite sides of the side pieces and hinged to the rod *e*, the jointed brace *q*, the hook *j*, and staples *k* and *k'*, substantially as shown, and for the purpose herein set forth.

3. The combination, in a wash-board protector, of the piece *h*, extending across and over the side pieces, *a*, and hinged to the cross-rod *e*, and provided with the curved portion *i*, and having the groove *l* and lip *m* on its upper edge, with a piece *h'*, placed upon the opposite side of the board and hinged to the cross-rod *e*, and provided with a curved portion, *i'*, and having upon its upper edge the groove *n* and lip *o*, substantially as herein shown, and for the purpose set forth.

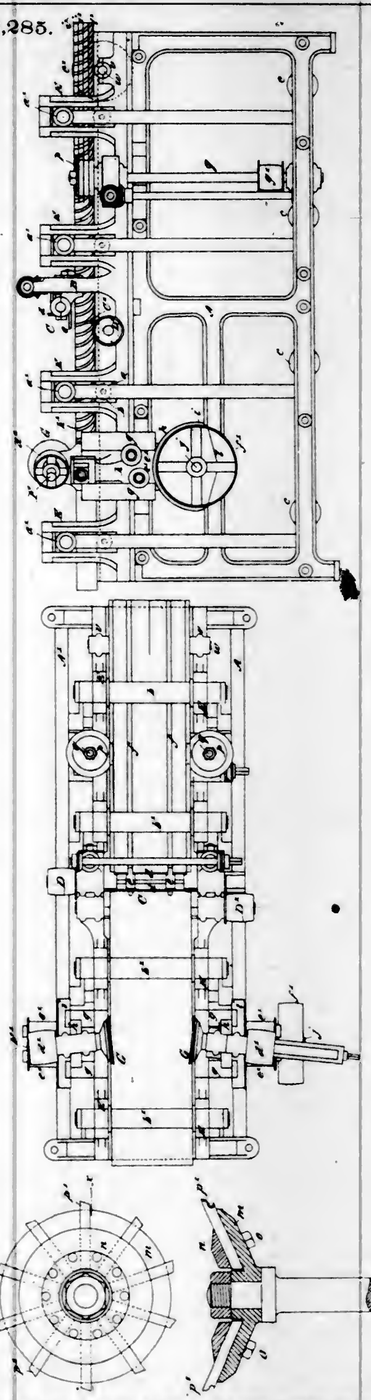
353,284. SIGN AND ADVERTISING BOARD FOR STREET-CARS. GEORGE M. BRILL and JAMES RAWLE, Philadelphia, Pa. Filed Mar. 11, 1886. (No model.)



Claim.—1. The sign or board B, having round journal at one end and an angular journal at the other, in combination with brackets or supports for said journals, one of which supports has an angular opening for the reception of the angular journal, and coacts with it to form a lock for holding the sign in its adjusted position, substantially as set forth.

2. The combination of sign-board B, having at one end a journal and support and at the other a reversely-tapered elongated journal, C, and bracket D, having angular opening *d'*, in one of the angles of which is a recess, d^2, substantially as and for the purpose set forth.

353,285. MOLDING-MACHINE. SAMUEL C. BURRS, Victoria, British Columbia, Canada. Filed Feb. 20, 1886. (No model.)

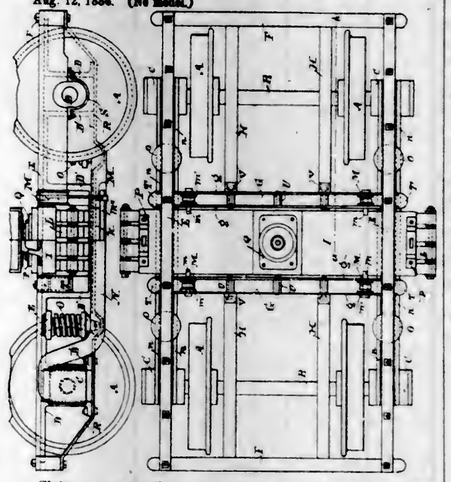


Claim.—1. The combination, in a wood-working machine provided with upper and lower cutter-heads for simultaneously surfacing and grooving opposite sides of a timber, of the cutters G, arranged at an angle to the line of motion of the timber passing through the machine, and mechanism for periodically dropping the cutters into engagement with the edges of the timber, as herein specified.

2. The combination of the cutters G and horizontal shaft F, arranged angularly with reference to the path of the wood being operated upon, the slides *h*, supporting the shafts of the cutters, the cams *i*, and the horizontal cutter-heads *p*, provided with series of cutters *s*, and arranged to produce longitudinal grooves in the edges of the timber, substantially as herein shown and described.

3. The combination, in a wood-working machine, of the vertically-reciprocating cutters G, arranged at an angle to the path of the timber passing through the machine, and adapted to act on the sides of said timber, the surfacing and grooving cutters C C', arranged, respectively, above and below the timber, and the circular saw *c'*, arranged beneath the timber and midway of the width of the machine, for dividing the timber lengthwise, as specified.

353,286. CAR-TRUCK. THOMAS CARTER, San Francisco, Cal. Filed Aug. 12, 1886. (No model.)



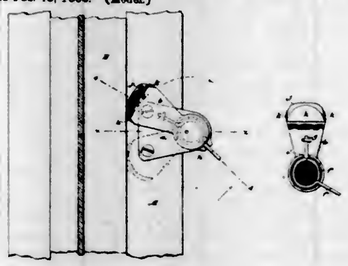
Claim.—1. In a railway-car truck, a combination of truck-frame and pedestals, consisting, essentially, of the wheel-pieces E E, of straight metal bars extending between and being fastened to the end pieces, F F, pedestal-frames and transom-supports, composed of the metal bars D, forming one of the sides of the pedestals, and bars D', forming the other sides of the same, and transom end supports, and the tie-bars R, with suitable transoms, end pieces, and safety-beams, substantially as herein set forth.

2. The equalizing-bars N, consisting, essentially, of two side plates, *n n*, placed a distance apart, so as to permit the truck-frame to vibrate between, in combination with a suitable truck-frame, pedestals, and axle-boxes, substantially as and for the purposes described.

3. In railway-car trucks, the improved transom-piece G, composed of metal plates *g g*, bound to each other by bolts or rivets and having separating blocks or sockets *n'* between, and solid end pieces, substantially as and for the purpose herein described.

4. A railway-car truck consisting, essentially, of a frame composed of straight metal bar wheel-pieces E E, connected together and combined with suitable end pieces, F F, transoms G G, safety-beams H H, pedestals and transom ends supports, composed of the bars D D' D, shaped in the manner shown and described, pedestals tie-bars R R, bolster I, spring-plank K, hangers M, and springs O and L, the whole arranged and combined with suitable carrying-wheels, axles, and boxes, substantially as described.

353,287. SASH-HOLDER. E. MELCHOR CHUMARD, Stroudsburg, Pa. Filed Feb. 13, 1886. (Model.)



Claim.—1. A sash supporter and fastener comprising the base-plate, the single-headed cam-detent pivoted at one end to said plate, and the spring to hold the detent up to the sash in both of its positions, said spring being attached permanently at one end to one of these parts and detachably connected to the other part at its other end, whereby the cam-detent may be readily released from the operation of the spring while the detent is being shifted from one position to the other, substantially as set forth.

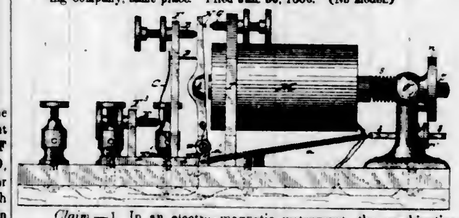
2. The combination of the base-plate *a*, the single-headed cam-detent *b*, pivoted thereto at one end, and the spring *f*, attached permanently at *g* to one of these parts and provided with a branch, *f'*, adapted to be removably attached to the other part by engagement with a notch, *h*, formed therein, the said spring adapted to hold the head of the cam-detent up to the sash in both positions of said detent—namely, in its position as a support and also as a fastener, substantially as set forth.

3. The combination of the base-plate provided with a retaining-notch, *h*, for the spring, the single-headed cam-detent pivoted to said plate and provided with a stop to limit its movement, as described, and the spring *f*, attached by its one end to the detent, and the branch *f'* at the other end adapted to engage the notch *h*, said spring serving, as described, to hold the detent up elastically to the sash in both of its positions, and said stop serving to limit the movement of the detent in both of said positions.

4. The combination of the base-plate provided with a flange-like cylindrical housing, *i*, slitted at *i'*, and a tubular stud, *d*, the cam-detent *b*, provided with a stud, *e*, formed integrally therewith, said stud *e* fitting into the hollow of stud *d*, and riveted, as shown, and the spring *f*, coiled around stud *d*, the branches or ends of said spring extending out through slit *i'*, and secured, respectively, to the base-plate and cam-detent, as described, and operating as set forth.

5. The detent having its head *b'* provided with a recess for the cushion with overhanging sides, and provided also with a lip, *k'*, capable of being bent against the rubber to retain it in place when inserted, substantially as set forth.

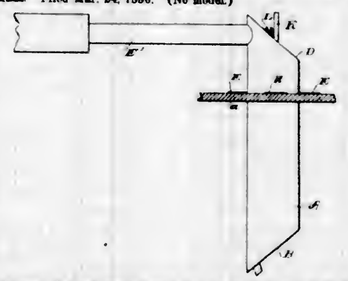
353,288. ELECTRIC TELEGRAPH-RELAY. JOSEPH L. CONKLIN, Jr., Brooklyn, N. Y., assignor of one-half to the Lewis & Fowler Manufacturing Company, same place. Filed Jan. 30, 1886. (No model.)



Claim.—1. In an electro-magnetic instrument, the combination, with the armature and retractile spring, of a supplemental spring having a relatively-short stroke which acts on the armature at the beginning of each attraction thereof in aid of the magnets, substantially as herein specified, for the purpose set forth.

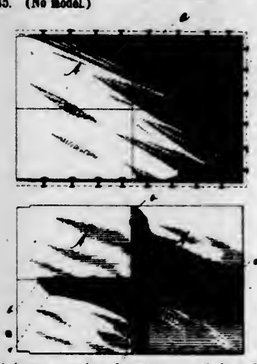
2. The combination, with the armature of an electro-magnetic instrument, of an adjustable retractile spring having a constant connection therewith, a supplemental spring disconnected therefrom, a pin transmitting force from the latter to the armature in aid of the magnets, and a stop limiting the action of said spring, substantially as herein specified.

353,289. WATERING-TROUGH. ADELBERT J. CROSS, Sedgwick, Kans. Filed Mar. 24, 1886. (No model.)



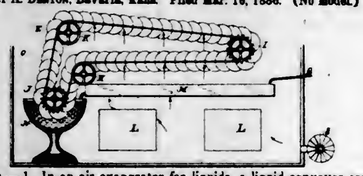
Claim.—In combination with the platform *a*, the tank A, passing through the platform and provided with the inclined bottom B, having an opening, C, closed by a plug, the brackets E, carried by the tank and secured to the platform for suspending the tank therefrom, the water-supply pipe E', secured to the upper end of the tank above the platform, and the operating-valve, as set forth.

353,290. OVEN-PLATE. Royal E. Deane, New York, N. Y. Filed July 17, 1885. (No model.)



Claim.—A bottom or plate for ovens, consisting of sections constructed with downturned flanges on all inner or inside edges and upturned flanges on all outer or outside edges, secured together by bolts or rivets, and forming a whole with even and smooth upper surface adapted to be similarly secured to the wall of an oven, in the manner and for the purpose substantially as specified.

353,291. APPARATUS FOR EVAPORATING LIQUIDS BY AIR. Albert A. Denton, Bavaria, Kans. Filed Mar. 16, 1886. (No model.)



Claim.—1. In an air-evaporator for liquids, a liquid-conveyer consisting of a vertical part for wetting the evaporating-surfaces, and a horizontal or inclined part for evaporating the liquid which adheres to the surfaces of the disks, as set forth.

2. In an air-evaporator, in combination with a liquid-conveyer consisting of a horizontal part and an inclined part, as described, a horizontal or inclined drip-pan to receive the liquid dropping from the liquid-conveyer and to return it to the basin, as set forth.

3. In a compound slat, a single central axis, as set forth.

4. In a compound slat, single disks or plates, with a central or nearly central perforation fitting the central axis, and soldered or otherwise rigidly attached to the central axis, as set forth.

5. In a compound slat, a collar or thimble fitting upon the axis, and preferably flanged for keeping the single plates or disks in proper position, as set forth.

6. In an air-evaporator, the combination of a liquid-conveyer consisting of a vertical part and a horizontal part, and angle wheels or rollers, and a drip-pan and a basin containing the liquid to be evaporated, and an air-chamber and an air-heater and a fan, as set forth.

7. In an air-evaporator, the combination of a liquid-conveyer consisting of a vertical part and a horizontal part, and angle-wheels, and a drip-pan and a basin containing the liquid, and an air-chamber and a fan, as set forth.

8. In an evaporating apparatus, as described, in combination with the liquid-conveyer, consisting of a vertical and horizontal part, as described, a fan whereby air is admitted vertically through the horizontal part of the conveyer, substantially as described.

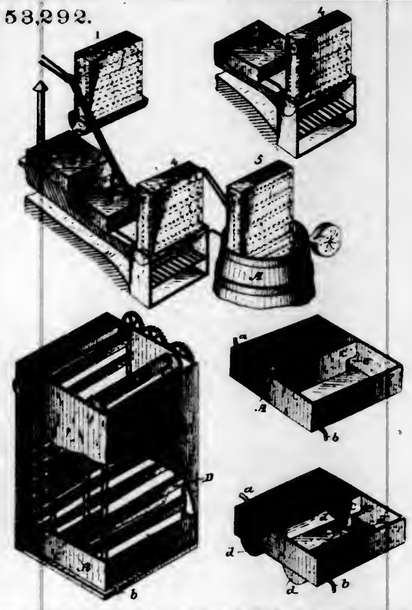
353,292. APPARATUS FOR EVAPORATING LIQUIDS BY AIR. Albert A. Denton, Bavaria, Kans. Filed Mar. 16, 1886. (No model.)

Claim.—1. In an air-evaporator, a basin or trough for the liquid, made in semicircular form, and combined with the liquid-conveyers, substantially in the manner and for the purposes described.

2. In an air-evaporator, a basin or pan having a flat bottom and divided by parallel partitions into channels, the partitions having openings at alternate ends, so that the liquid passes or flows backward and forward across the pan through the channels, the liquid being admitted continuously, and being evaporated by the single-slat or compound-slat liquid-conveyers in each channel while flowing through the pan, and also passing out of the pan continuously, as set forth.

3. In an air-evaporator, a basin or pan having a bottom composed of a series of troughs or corrugations corresponding to the single-slat or compound-slat liquid-conveyers used, the troughs being connected by

353,292.



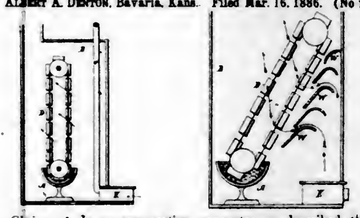
pipes at their alternate ends, so that the liquid flows forward and returns across the pan through the troughs or corrugations, and from one trough to another through the connections, the liquid being admitted continuously, and being evaporated by the liquid-conveyers while flowing through the troughs and passing out of the pan continuously, the troughs or corrugations having a semicircular form fitted to the arc of the circle described by the single or compound slats of the liquid-conveyers while passing under the lower wheels, as set forth.

4. In an air-evaporator having a basin divided by parallel partitions into channels or troughs, the alternate openings or connections of one channel or trough to the next, near the bottom of the channels or troughs, to retain the less dense liquid on the surface, as set forth.

5. In an air-evaporator, as described, in combination with the slats or liquid-conveyers, and a trough or basin, as described, a scum-guard, *f*, in the trough or basin and at the lower end of the slat or conveyer, substantially as described.

6. In evaporating sirup, fruit juices, and like liquids, the process of exposing large surfaces of the liquid to air, vapor, or gas, for bleaching or clarifying by the fumes of sulphur or other gas, or by use of bisulphite of lime, then, after the first clarification has been performed by heat, adding clarifying chemicals when the liquid is boiling, adding at the same time sugar or other clarifying substance to increase the density, and evaporating the liquid thus treated by an air-evaporator apparatus, as described, all substantially in the manner set forth.

353,293. APPARATUS FOR EVAPORATING LIQUIDS BY AIR. Albert A. Denton, Bavaria, Kans. Filed Mar. 16, 1886. (No model.)



Claim.—1. In an evaporating apparatus, as described, the liquid-conveyers inclined in any suitable way and combined with fresh-air inlets, whereby the air is caused to pass digonally through the liquid-conveyer, substantially as described.

2. In an air-evaporator, radiating-flues radiating heat from the sides of the evaporating-chamber to restore the heat absorbed by evaporation in the evaporating-chamber, as set forth.

3. In an evaporating apparatus, a liquid conveyer having spreading wheels *a* and *b* at its upper part, substantially as described.

4. In an air-evaporator, applying heat to the liquid which is being evaporated in the basin, by means substantially as described, for the purpose of re-enforcing the temperature of the air in the evaporating-chamber, as set forth.

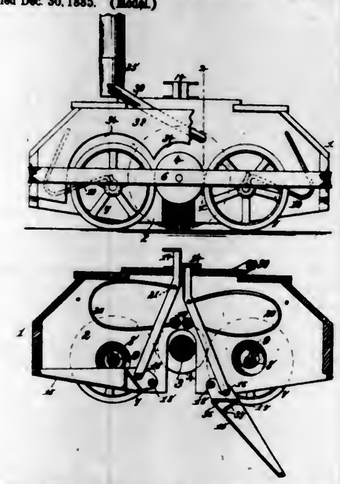
5. In an air-evaporator, the combination of a heater heating the liquid being evaporated and a heater heating the air which passes through the evaporating-chamber, as set forth.

6. In an evaporating apparatus, an inclined evaporating-chamber and an inclined liquid-conveyer, combined with supply-pipes introducing fresh air to any part of the evaporating-chamber, and a heater for the liquid and a heater for the air, all substantially as described.

7. In an air-evaporator for liquids, deflectors placed at any angle suitable to divert the air from its upward tendency and to cause it to pass evenly through the liquid-conveyer sidewise or diagonally instead of vertically, as set forth.

8. In an inclined air-evaporator, the deflectors slightly overlapping each other, so as to return the liquid dropping from the liquid-conveyer to the basin, and also shaped so as to divert the air from its upward tendency, and to cause it to pass sidewise or diagonally through the liquid-conveyer and evenly through all parts of the liquid-conveyer, as set forth.

353,294. CARPET-SWEEPER. Walter J. Drew, Grand Rapids, Mich., assignor to the Bissell Carpet Sweeper Company, same place. Filed Dec. 30, 1885. (Model.)



Claim.—1. The combination, with a carpet-sweeper case, its brush-shaft and drive-wheels, of the pendulous wheel-supports, each consisting of a single continuous rod of spring metal bent into angular form, with its upper supported end attached to the end wall of the case and extending downward therefrom and then laterally toward the brush-shaft, with its lower extremity supporting the drive-wheel, so that the case can yield toward the surface traversed, and thereby cause the drive-wheels to enter the case and press toward the brush-shaft, substantially as shown and described.

2. The combination, with a carpet-sweeper case, its brush-shaft and drive-wheels, of the pendulous wheel-supports, each consisting of a single continuous rod of spring metal having its upper end provided with a lateral stud pivoted to the end wall of the case and extending downward therefrom and then laterally toward the brush-shaft, said pendulous wires at their lower ends supporting the drive-wheels, so that pressure on the sweeper-case forces the drive-wheels toward the brush-shaft, substantially as described.

3. The combination, with a carpet-sweeper case and its brush-shaft, of drive-wheel shafts extending continuously through the case and through openings in the end walls thereof, which are larger than the diameter of said shafts, drive-wheels mounted on the projecting ends of said shafts, and pendulous spring-rods connected at their lower ends with the shafts, said sweeper-case being capable of yielding downward toward the surface traversed to force the wheels into the case and upon the brush-shaft, substantially as described.

4. The combination, with the sweeper-case and its brush-shaft, of drive-wheel shafts which extend continuously through the case and through openings in the end walls thereof, which are larger than the diameter of the said shafts, drive-wheels mounted on the projecting ends of said shafts, and pendulous spring-rods pivoted at their supported ends outside the end walls of the case, and connected at their lower ends with the drive-wheel shafts, said sweeper-case being capable of yielding downward toward the surface traversed to force the wheels into the case and upon the brush-shaft, substantially as described.

5. The combination, with a carpet-sweeper having pivoted dust-pans, of two vertically-sliding push-pins guided by the sweeper-case and connected with the dust-pans, and capable of being simultaneously or independently moved to simultaneously or independently tilt the dust-pans, substantially as described.

6. The combination, with a carpet-sweeper having pivoted dust-pans, of two push-pins sliding in right lines and connected with the dust-pans, and two independent springs connected with the push-pins for throwing the push-pins upward after they have been pushed downward to tilt the dust-pans, substantially as described.

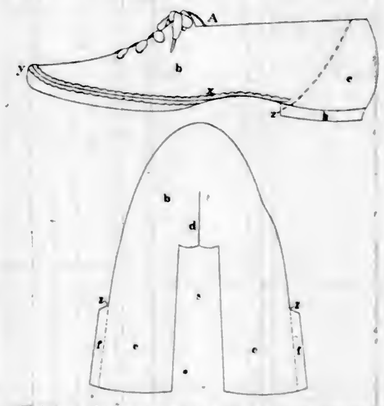
7. The combination, with a carpet-sweeper case having its side and top walls extended longitudinally beyond its end walls, of the shields or guards extending across the width of the case in the spaces formed by the said extensions of the case and secured at their ends to the side walls of the case, said shields being separated from the end walls of the case, and having their lower edges provided with concave recesses located directly over and conforming to the circular shape of the drive-wheels, substantially as described.

8. The combination, with the carpet-sweeper case and a handle-carrying bail pivoted to the end walls thereof, of shields or guards secured to the sweeper-case outside the said end walls of the case, and also outside the arms of the bail for preventing the pivoted ends of the bail from spreading outward, substantially as described.

9. The combination, with a carpet-sweeper case having its side and top walls extended longitudinally beyond its end walls, and the extended ends of the top wall recessed to provide front and rear shoulders, of a handle-carrying bail pivoted to the end walls of the case, and shields or guards fitting the spaces formed by the said extensions of the case and located outside the said end walls and the pivoted ends of the bail to prevent such pivoted ends from moving outwardly from their seats, substantially as described.

10. The combination, with a sweeper-casing, the brush-shaft, and pivoted dust-pans having suitable fenders, of push-pins having curved lower ends pivoted to the dust-pans, against which curved portions of the push-pins the fenders strike when the push-pins are depressed, substantially as described.

353,295. MOCCASIN-SHOE. Daniel Dudley, Bangor, Me. Filed Aug. 4, 1886. (No model.)



Claim.—1. In a moccasin shoe or slipper having a separate sole and upper, an upper formed of a single piece of leather forming both vamp and quarters or counter, and having the downward extensions to its counter, as shown, substantially as described.

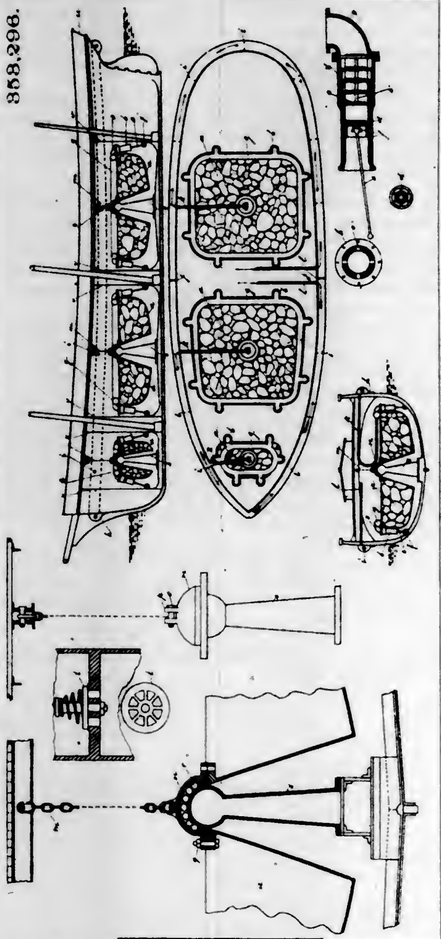
2. A moccasin shoe or slipper consisting of the combination of an upper formed of a single piece of leather having the downward extensions to its counter, as shown, a sole formed to turn up around the edges of the foot from the counter or quarters forward on both sides, a stiffening for the counter, and a heel, substantially as described.

353,296. MOTOR FOR VESSELS. Terrence Duffy, San Francisco, Cal. Filed Aug 21, 1885. Renewed Aug. 13, 1886. (No model.)

Claim.—1. The combination, with the swinging basin, air-chamber mounted on top thereof, air-pump connected to side of basin and communicating with the air-chamber on top, and the pump-rod connected to fixed part of vessel.

2. The combination, with the swinging basin, air-chamber on top thereof, and exterior air-chamber on outside of vessel connected to interior air-chamber by a pipe or analogous means, air-pump connected to swinging basin and communicating with chamber on top of basin, and pump-rod connected to fixed part of the vessel.

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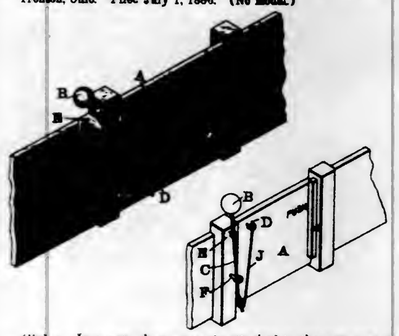


erse-bar, shaft d^2, gears d d', shaft b, rod g, and cones g' thereon, the crank g^2, the lever g^3, link r, crank h', link h', lever h^2, bar s, spring k, and machine-frame, as described and shown, and for the purpose set forth.

2. The combination, with lever g^3 and lug g^4, for actuating the lever, of the crank h', for supporting lever g^3, the bell-crank g^5, link r, the rod g, and cones g', and drop-wires f, brackets f', rod e^3, mechanism for actuating rod e^3, stud h^4, link h', for actuating lever h^2, lever h^2, for actuating bar s, the bar s, having rods i and slots, the studs i^3 i^3, and the spring k, as described, and for the purpose set forth.

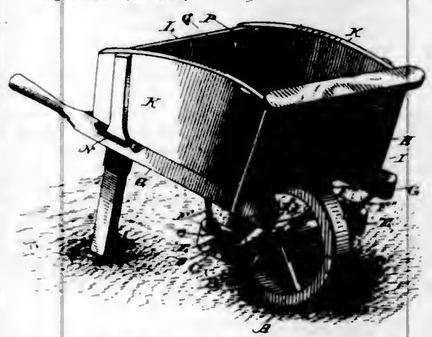
3. The combination, with the wheel l^2 and tooth m, carried by said wheel to actuate an indexed ratchet-wheel, of the ratchet-wheel n and the pin n', the stop-lever h^3, the shifting-bar s, the spring k, and pinion l^3, the wheel l', the worm l, shaft b, gears c c', reel B, studs l^4 l^4, stud h^5, and machine-frame, substantially as described, and for the purpose set forth.

353,298. DEVICE FOR CLOSING GATES, &c. Augustus Ehrett, Trenton, Ohio. Filed July 1, 1886. (No model.)



Claim.—In a gate-closer, a guide attached to the gate-post, an eye attached to the gate, and a weighted rod fitted to reciprocate in the guide on the post and supported by the eye on the gate, combined and arranged to operate substantially as set forth.

353,299. WHEELBARROW. John P. Enderis, Pimento, Ind. Filed Aug. 6, 1886. (No model.)

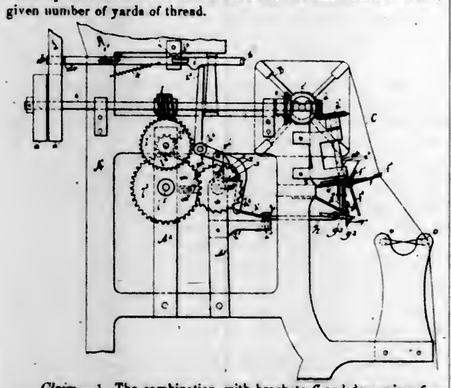


Claim.—1. The combination of the body having sides or side-boards provided with slots to receive the edges of the end-board, and bolts for engaging in the eyes of said end-board, with the wheel, the axle, the boxes E E', the bearings located therein, and the bracket-bars F', F''', and F'''', as set forth.

2. In combination, the side-boards provided with slots to receive the ends of the rear end-board and upwardly-projecting bolts, and the rear end-board having eyes or staples to engage said bolts, for the purpose set forth.

353,297. REELING-MACHINE. William H. Dunkerley, Paterson, N. J. Filed Jan. 21, 1886. (No model.)

Brief.—By the devices covered, the machine will be stopped automatically when a thread breaks or when the reel has wound thereon a given number of yards of thread.



Claim.—1. The combination, with brackets f' and drop-wires f, arranged in said brackets, of the traverse-bar e^3, for reciprocating the brackets, lug g^4, carried by bar e^3, bar e', crank-arm e, for actuating the traverse-bar, shaft d^2, gears d d', shaft b, rod g, and cones g' thereon, the crank g^2, the lever g^3, link r, crank h', link h', lever h^2, bar s, spring k, and machine-frame, as described and shown, and for the purpose set forth.

2. The combination, with lever g^3 and lug g^4, for actuating the lever, of the crank h', for supporting lever g^3, the bell-crank g^5, link r, the rod g, and cones g', and drop-wires f, brackets f', rod e^3, mechanism for actuating rod e^3, stud h^4, link h', for actuating lever h^2, lever h^2, for actuating bar s, the bar s, having rods i and slots, the studs i^3 i^3, and the spring k, as described, and for the purpose set forth.

3. The combination, with the wheel l^2 and tooth m, carried by said wheel to actuate an indexed ratchet-wheel, of the ratchet-wheel n and the pin n', the stop-lever h^3, the shifting-bar s, the spring k, and pinion l^3, the wheel l', the worm l, shaft b, gears c c', reel B, studs l^4 l^4, stud h^5, and machine-frame, substantially as described, and for the purpose set forth.

353,298. DEVICE FOR CLOSING GATES, &c. Augustus Ehrett, Trenton, Ohio. Filed July 1, 1886. (No model.)

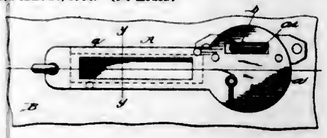
Claim.—In a gate-closer, a guide attached to the gate-post, an eye attached to the gate, and a weighted rod fitted to reciprocate in the guide on the post and supported by the eye on the gate, combined and arranged to operate substantially as set forth.

353,299. WHEELBARROW. John P. Enderis, Pimento, Ind. Filed Aug. 6, 1886. (No model.)

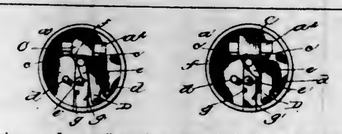
Claim.—1. The combination of the body having sides or side-boards provided with slots to receive the edges of the end-board, and bolts for engaging in the eyes of said end-board, with the wheel, the axle, the boxes E E', the bearings located therein, and the bracket-bars F', F''', and F'''', as set forth.

2. In combination, the side-boards provided with slots to receive the ends of the rear end-board and upwardly-projecting bolts, and the rear end-board having eyes or staples to engage said bolts, for the purpose set forth.

353,300. MAIL-BAG LOCK. Hiram F. Gaines, Rouse's Point, N. Y. Filed Mar. 20, 1886. (No model.)



353,300.



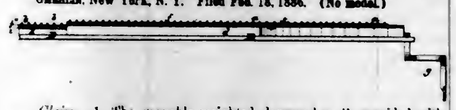
Claim.—1. In a mail-pouch or other lock, the case having coincident openings or slots, in combination with the bolt having a shoulder formed by a reduced shank and a dog pivoted to said shank, the spring-tumbler adapted to move in alignment with the shoulder of said bolt, and means, substantially as described, for shooting and retracting the bolt, as and for the purpose set forth.

2. The combination, with the case having coincident openings or slots, of the bolt having a dog, a tumbler acted upon by said dog, said bolt also having a notch to receive the edge or wall of the opening in the case, and a divergently-projecting spring to lock or snap said bolt into engagement with said case, substantially as and for the purpose specified.

3. The combination, with the case having coincident openings or slots, upon the inner edge of one of which are arranged guide-studs, and the key post or stud, of the bolt having the dog and a stop therefor, which also serves to receive the action of the key-bit, and the spring-tumbler bearing upon the bolt in one part of its movement, and at the end of its movement adapted to snap or spring into alignment with a shoulder of the bolt, substantially as and for the purpose set forth.

4. The combination, with the case having coincident openings or slots, the bolt having a dog pivoted thereto, and a stop for the dog, which also receives the action of the key-bit, and a notch in one end of said bolt, of the spring connected divergently thereto, and the tumbler with its spring, said tumbler bearing upon the bolt during one part of its movement, and as the bolt is shot home snapping in alignment with the shoulder of said bolt, substantially as and for the purpose set forth.

353,301. MUTE-BAR DAMPER FOR UPRIGHT PIANOS. Paul Gmehlin, New York, N. Y. Filed Feb. 18, 1886. (No model.)

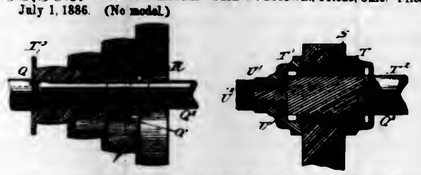


Claim.—1. The movable weighted damper-bar B, provided with the felt facing e, and with the flexible apron f, which is adapted to be carried in or out of the path of the series of hammers of a piano, the damper-bar with its felt facing serving by its own weight to damp the string which receives the muffled blow, as specified.

2. The weighted damper-bar B, combined with the molding d, having tapering portion i, and with the flexible apron f, substantially as herein shown and described.

3. The weighted damper-bar B, provided with the flexible aprons f and $f^\times$, which are set in different planes on said bar without overlapping one another, as described.

353,302. TURNING-LATHE. Seth W. Goodwin, Toledo, Ohio. Filed July 1, 1886. (No model.)



Claim.—1. In a turning-lathe having the pedestal J, the horizontal removable or movable bar J^3, when the said bar J^3 is removable or movable horizontally for the purpose of increasing the capacity of the lathe, in combination with the vertically-adjusting bracket W, substantially as shown and described.

2. In a turning-lathe, the means herein described for securing the pulley V to the head-spindle, consisting of the centering-taper Q, in combination with the tapered compressible sleeve R and the internally-tapered hub Q', substantially as shown and described.

3. In a turning-lathe, the means herein described for securing the pulley V to the head-spindle, consisting of the compressible sleeve R and the internally-tapered hub Q', substantially as shown and described.

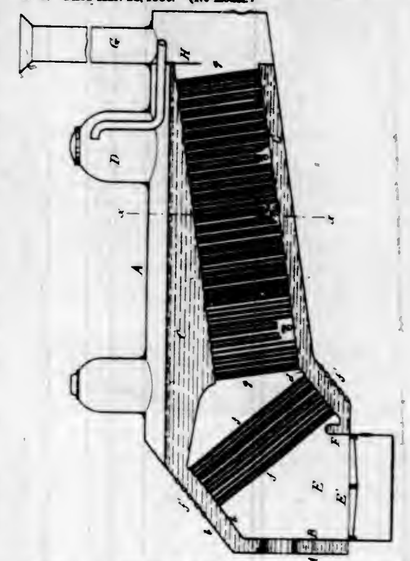
4. In a turning-lathe, the combination, with its head-stock journal-box and the nuts T and T', when the said nuts close over the end or ends, of a longitudinally-adjusting box, S, substantially as shown and described.

5. In a turning-lathe, the head-stock spindle Q^2, when said spindle is reduced in diameter at or near its rear end, and forming a thrusting-shoulder, in combination with nuts T' and U', substantially as shown and described.

6. In a turning-lathe having the head-stock spindle Q^2, threaded at or near its rear end, in combination with the nut U' and check-screw U^2, when the said nut U' and screw U^2 are attached to and revolve with the spindle Q^2, substantially as shown and described.

7. In a turning-lathe, the herein-described method of adjustably securing the tail-stock to the supporting-bar J^3, and the supporting-bar to the pedestal J, or either of them, consisting of the expanding key N, the expansion-block O, and the eccentric M, when the said parts are constructed and operate substantially as shown and described.

353,303. LOCOMOTIVE-BOILER. Henry C. Goulding, New York, N. Y. Filed Mar. 22, 1886. (No model.)



Claim.—1. A locomotive-boiler constructed substantially as herein shown and described, with front upper corner and lower rear corner of the fire-box formed parallel to each other and at angles of forty-five degrees, or thereabout, to the crown-sheet, with a series of water-tubes extending diagonally from the upper front to the lower rear corner of the fire-box, and communicating at both ends with the boiler water-chamber, with water bridge-wall communicating with the boiler water-chamber, with the top and bottom of the inner shell placed parallel with each other and at an upward inclination from fire-box to smoke-stack, with inclined tubes extending between the top and bottom inner shells and communicating at both ends with the water-chamber, and with tubes for ejecting ashes and cinders entered through both shells of the boiler at the sides thereof, all arranged as herein set forth.

2. In a locomotive-boiler constructed with the upper front and lower rear corners of the fire-box formed parallel with each other and at angles of forty-five degrees, or thereabout, to the crown-sheet, substantially as herein shown and described, the series of water-tubes f, extending diagonally between said corners, and communicating at both ends with the boiler water-chamber, as set forth.

3. In a locomotive-boiler constructed substantially as herein specified, with the inner shell inclined upward from fire-box to smoke-stack, the inclined water-tubes g g, fixed in the top and bottom of the inner shell and at right angles thereto, as set forth.

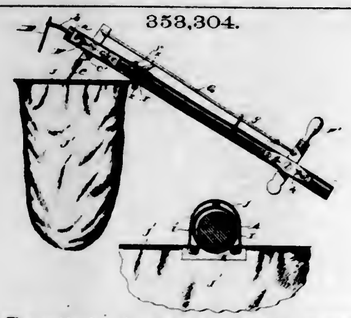
4. In a locomotive-boiler constructed with water-tubes fixed diagonally in the fire-box from the upper front corner to the lower rear corner thereof, a water bridge-wall extending across the fire-box in front of the lower ends of the diagonal tubes, and communicating at both ends with the boiler water-chamber, substantially as and for the purposes described.

5. In a locomotive-boiler constructed substantially as herein shown and described, the combination, with the boiler shells, of a deflecting-plate fixed thereon and extending down over the upper portion of the exit-opening of the combustion-chamber, as and for the purposes set forth.

353,304. FRUIT-PICKER. Ashel Green, Keswick, Iowa. Filed Apr. 2, 1886. (No model.)

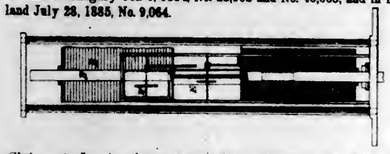
Claim.—1. The combination of a handle, a sleeve fitted loosely on the handle to permit the latter to be turned or rotated within and independent of the sleeve, a pin or shaft journaled in the sleeve and carrying a receptacle, the rigid and swinging blades supported on the handle, and means for operating the swinging blade, substantially as described.

353,304.



2. The combination of a handle provided with a circumferential groove near one end, a sleeve fitted loosely in the groove, a receptacle having a pin or shaft, K, journaled in the sleeve, and a band, *j*, fitted around the sleeve and handle, a rigid blade carried by the handle, a swinging blade, a pivoted lever, and a rod intermediate of the lever and the swinging blade, substantially as described, for the purpose set forth.

353,305. REGULATOR FOR ELECTRIC-ARC LAMPS. HUGO HEINEMANN and REINARD O. LORENZ, Vienna, Austria-Hungary. Filed Dec. 29, 1885. (No model.) Patented in Germany Aug. 6, 1884, No. 31,235; in Austria-Hungary Oct. 6, 1884, No. 28,902 and No. 45,668, and in England July 28, 1885, No. 9,064.

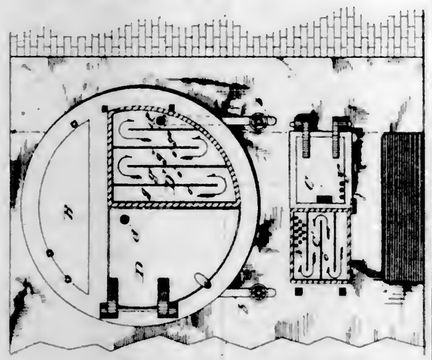


Claim.—1. In electric-arc lamps, the combination of a thick wire coil placed in circuit with the carbons with a thin wire coil placed in a shunt-circuit and wound in opposite direction to the main coil, a disk of paramagnetic material adapted to turn on its axis and placed so that the two wire coils have an opposite inductive action on the said disk, and mechanism for converting the rotary motion of the disk into an advancing or receding motion of one of the carbons, and vice versa, for the purpose of regulating the distance between the carbons, substantially as described.

2. In electric-arc lamps, the combination of a thick wire coil placed in a circuit with the carbons with a thin wire coil placed in a shunt-circuit and wound in opposite direction to the main coil, a pole shoe or core common to both coils and adapted to be magnetized by the same in opposite direction, a disk of paramagnetic material adapted to turn in a slot of the said pole-shoe without contact with the latter, and mechanism for converting the motion of the disk into a feed-motion of one of the carbons and vice versa, substantially as and for the purpose described.

3. A regulator for electric-arc lamps, comprising in its construction a rack, D, serving as one of the carbon-holders, an iron disk, E, adapted to turn on its axis, mechanism intermediate the disk E and the rack D, a slotted pole-shoe, A, provided with main coil B and shunt-coil C, and adapted to act on the disk E by induction, and a stopping device, G *g* H K, substantially as and for the purpose described.

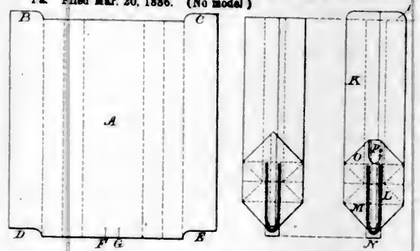
353,306. BOILER-FRONT. WILLIAM A. HENNESSEY, Springfield, Mass. Filed Apr. 19, 1886. (No model.)



Claim.—1. The within-described improvement in boiler-fronts, consisting of a boiler end provided with a continuous air-passage disposed to extend transversely several times over said end, and provided at one end of said air-passage with a port open to the space in front of the boiler, and at the other with a port communicating with the fire-box, whereby, when the fire is in operation, the front of the boiler is kept packed by outside air in circulation.

2. The improvement in boiler-fronts, which consists in the combination, with the boiler and usual attachments, of the furnace-door having extended and internal walls, and alternating longitudinal partitions extending from one end of the door nearly to the other, and from the front to the rear wall thereof, said door having an external air-port near one end of the passage thus formed, and a port leading into the furnace near the other end, substantially as described.

353,307. PAPER BAG. WILLIAM H. HOWES, Hartford, Conn., assignor to Felix W. Leinbach and Clarence A. Wolle, both of Bethlehem, Pa. Filed Mar. 20, 1886. (No model.)



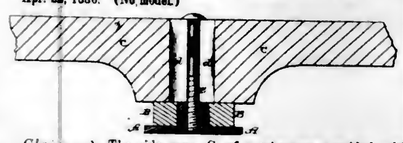
Claim.—A paper bag the square bottom of which has the flaps M and O folded down upon the middle quadrangular portion of the diamond L, and in which the two side folds of that diamond lap over each other entirely across that middle quadrangular portion, and in which one of the flaps O and M has the recess cut away from the inner thickness thereof, and which bag has the thumb-lip I made from the paper cut away from another paper bag to form a recess, P, therein, all substantially as shown and described.

353,308. PAPER BAG. WILLIAM H. HOWES, Hartford, Conn., assignor to Felix W. Leinbach and Clarence A. Wolle, both of Bethlehem, Pa. Filed Mar. 20, 1886. (No model.)



Claim.—A paper bag the outer thicknesses of the lateral center of the bottom of which are composed of the lips A and B, integrally united to the inner thicknesses of the same center and pasted directly down upon those thicknesses along a zone extending entirely across the bottom of the bag, all substantially as described in the foregoing specification and illustrated in Fig. 10 of the accompanying drawings.

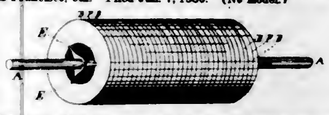
353,309. TOBOGGAN. JOHN W. JOHNSON, Burlington, Vt. Filed Apr. 22, 1886. (No model.)



Claim.—1. The side rave, C, of a toboggan provided with an elongated slot, *d*, for the passage of the fastening-bolt, thereby allowing free longitudinal play to the bolt, and thus permit the bending of the bottom A independent of the rave, substantially as described.

2. In a toboggan, the combination of the slotted rave C, bolt E, and longitudinal A, substantially as herein described.

353,310. DYNAMO-ELECTRIC MACHINE. NATHANIEL S. KEITH, San Francisco, Cal. Filed Jan. 7, 1886. (No model.)



Claim.—1. A ring-armature of a dynamo-electric machine, in which armature the convolutions of a fractional part—such as the one-half, one-third, &c.—of the total number of its bobbins overlie, both within and without the ring, the convolutions of the remainder of the bobbins.

2. The method of winding the circuit of a ring-armature of a dynamo-electric machine, which consists in winding the several bobbins in alternating order as follows: first, bobbins Nos. 1 3 5 7 9, *et seq.*, and then Nos. 2 4 6 8, *et seq.*

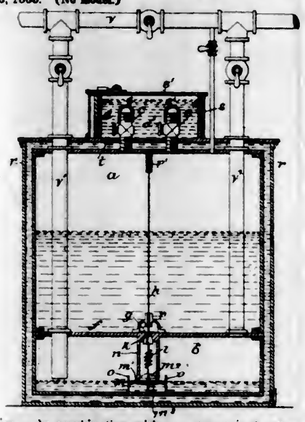
3. A ring-armature of a dynamo-electric machine, in which armature the convolutions of its a fractional part—such as the one-half, one-third, &c.—of the total number of its bobbins (which part is divided and so interspersed at intervals among the remainder of its bobbins) overlie in the inner part of the ring the convolutions of the remainder of the bobbins.

4. A ring-armature of a dynamo-electric machine, in which armature the convolutions of a fractional part—such as the one-half, one-third, &c.—of the total number of its bobbins overlie on the outer part of the ring the convolutions of the remainder of the bobbins.

5. A ring-armature of a dynamo-electric machine, in which armature the convolutions of a fractional part—such as the one-half, one-third, &c.—of the total number of its bobbins overlie in the inner part of the ring the convolutions of the remainder of the bobbins.

6. A ring-armature of a dynamo-electric machine, in which armature the convolutions of each one of a fractional part, as one-half, one-third, &c., of the total number of bobbins overlie complementary parts, as one-half, one-third, and two-thirds, of their adjacent bobbins, substantially as described.

353,311. CARBURETOR. PETER KELLER, New York, N. Y. Filed Dec. 8, 1885. (No model.)



Claim.—In combination with a carburetor, the float-valve composed of the disk with keels on the lower surface thereof, and the upwardly-projecting lobe on the upper surface of the same, and connected with a spring terminating in a straight rod operating in the guides, and the valve fixed to said rod above the spring aforesaid, substantially as shown and described.

353,312. WEB-PERFECTING PLATEN PRINTING-MACHINE. WM. N. KELLY, Hoosick Falls, N. Y. Filed Jan. 24, 1882. (No model.)

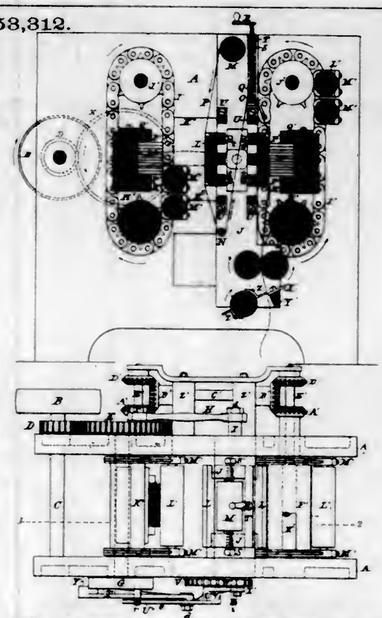
Claim.—1. A printing-press constructed with two stationary parallel type-beds arranged face to face, and two platens to operate in connection therewith, supported on a reciprocating platen-frame, in combination with provisions, substantially as shown, for imparting to said platen-frame a reciprocating movement between said type-beds, substantially in the manner described, and for the purposes set forth.

2. A web-perfecting press having a platen-frame adapted to reciprocate between two parallel stationary type-beds, which are disposed face to face in substantially the manner described, and said platen-frame having mounted upon it the continuous web or roll of paper, and the feed-rolls, whereby the paper is fed from the roll to the face of the platen, substantially as shown, and for the purpose set forth.

3. A web-perfecting printing-press wherein the roll of paper, the platens, feed-rolls, and severing apparatus are all mounted on a frame which is interposed between two parallel stationary type-beds, with faces opposed to each other, and which frame has a reciprocatory movement between such type-beds, substantially as described and set forth.

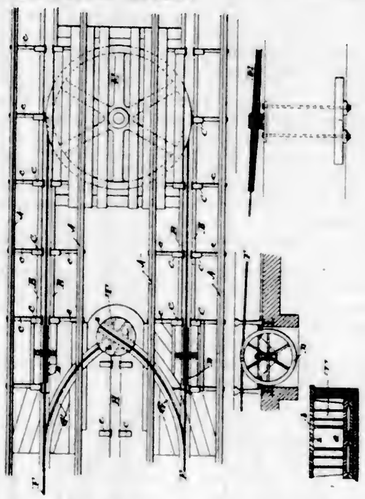
4. The mechanism shown for cutting off the sheet, consisting of stationary rack on main frame, loose pinion-carrying pawl on axis of cutting-cylinder, the cutting-cylinder armed with severing-blades, and ratchet for co-operation with said pawl, and a stationary ledger-blade, said several parts being mounted, combined, and arranged to operate substantially in the manner specified.

353,312.



5. The two platens disposed back to back, having an interval or passage-way between them for the passage of the continuous web of paper, in combination with appropriate devices, substantially as described, for carrying or conducting said web over one platen, thence between the two platens, and finally over the other platen, all as a means of reversing the sheet of paper so as to consecutively present its opposite sides to the type-forms to be printed, substantially as described and set forth.

353,313. CABLE RAILWAY. HENRY M. LANE, Cincinnati, Ohio. Filed Nov. 14, 1885. (No model.)

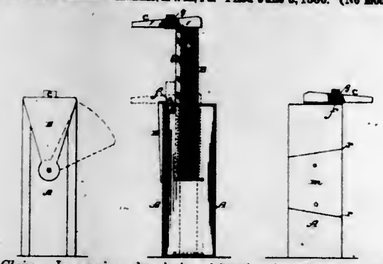


Claim.—1. In combination with the tunnel mechanism of a cable railway and a branch tunnel connecting with and at the side of the cable-tunnel for the shunting of a detached and independently-movable grip device, a turn-table adapted to receive and turn said grip device to any desired position.

2. In a cable railway, in combination with the outgoing and incoming cable-tunnels and a connecting or shunting tunnel, a storage-tunnel adapted to receive and retain the detached and independently-movable devices, substantially as set forth.

3. The combination, in a cable-railway system, of the parallel main tunnels for outgoing and incoming cables, the two switch-tunnels, the turn-table, and the storage-tunnel, arranged for operation substantially as set forth.

353,314. BURGLAR-ALARM. SIMON D. LAUFFER, CYRUS F. BELSHER, and WILLIAM WILLIAMS, Irwin, Pa. Filed June 3, 1886. (No model.)



Claim.—In a sash or door lock and burglar-alarm, the combination of the box or body A with the feathered rod B, handle or bolt C, pierced to hold a cartridge, and projecting point *f*, substantially as described.

353,315. STEP-LADDER CHAIR. FRANK E. LEVANSELER, St. Cloud, Minn. Filed Mar. 23, 1886. (No model.)



Claim.—1. A step-ladder chair having the front half of the seat hinged to the rear half, and adapted to be folded upon the latter to produce a ladder, the step c^4, overtopped by the step c^5, and said step provided with a flat metal catch screwed to the under side of one of the steps and having a projecting lip, and a latch having a hook adapted to become interlocked when the chair-seat is open, substantially as described.

2. The combination of the rear half of a step-ladder-chair seat, its back, and legs, the front half of the seat and legs having steps c^4, and the rear legs secured by removable screws to said rear half of the seat, with the hinged brace F, uniting said legs, substantially as and for the purpose described.

3. The combination of the rear half of a step-ladder-chair seat, its back, and legs, the front half of the seat and legs having steps c^4, and the rear legs secured by removable screws to said rear half of the seat, with the arms E and the hinged brace F, substantially as and for the purpose described.

4. The combination of the rear half of a step-ladder-chair seat, the front half of the seat and legs having a step, c^4, the rear legs, the back, the arms E, and the legs C, secured to the front half of the seat, and provided with the braces c^3, and the removable screws entering the rear end of the seat, and the arms, whereby said arm-chair is adapted to be folded for transportation, substantially as and for the purpose described.

353,316. STEP-LADDER CHAIR. FRANK E. LEVANSELER, St. Cloud, Minn. Filed Mar. 29, 1886. (No model.)



Claim.—1. A step-ladder chair having the rear half of the seat hinged to the front half and adapted to be folded upon the latter, the step c^4, overtopped by the step c^5, and said steps provided with an adjustable flat metal latch screwed to the under side of one of the steps, and having a projecting lip, and a catch having a hook adapted to become interlocked when the chair-seat is open, substantially as described.

2. The combination of the rear half of a step-ladder-chair seat, having the diagonally-retained legs C, the step *a* at the lower end of said legs, and the brackets *a'*, having the bearings a^2, with the legs A, pivoted to said bracket, and the front half of the seat hinged to the rear half and provided with two pairs of legs, C' and D, connected by a hinged brace, the legs D being pivoted to the legs C', substantially as described.

3. The combination of the rear half of a step-ladder-chair seat, having the diagonally-retained legs C, the step *a* at the end of said legs, and the brackets *a'*, having the bearing a^2, with the rear legs, A, pivoted to said bracket, and the front half of the seat provided with two pairs of legs secured to the front half of the seat, and the latter pivoted to the rear half of the seat, and connected together by a hinged brace, substantially as described.

4. The combination of the rear half of a chair-seat, its legs and back, and the front half of a step-ladder-chair seat hinged to the rear half, the legs C', and bracket *c'*, having the perforated wing C^6, with the pivoted legs D, having their pivot passing through said wing of the bracket, and a retaining-brace, E, hinged in the middle of its length, substantially as and for the purpose described.

353,317. SHOE-BLACKING STAND AND STOOL COMBINED. FRANK E. LEVANSELER, St. Cloud, Minn. Filed Mar. 31, 1886. (No model.)

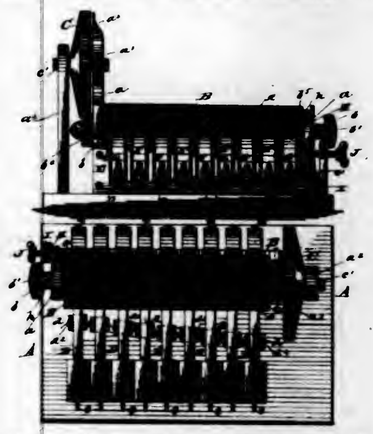


Claim.—1. A blacking-implement holder and stool consisting of the box A, having semicircular ends provided with radial perforations and legs pivoted to said ends, with bolts entering said radial perforations, substantially as and for the purpose described.

2. The combination of the box A, having semicircular ends and radial perforations therein, with bolts entering the latter, rods uniting said bolts, and legs pivoted to the box A, substantially as described.

3. The combination of a box having semicircular ends and pivotally supported on two pairs of legs adapted to be set at any angle from each other, and retained, as set forth, with the cover A^3, having the footrest A^4, and the upper cover, A^5, secured to the ends of the box with spring-hooks, substantially as and for the purpose described.

353,318. ADDING-MACHINE. LEONIDAS H. LEWIS and PETER M. GUERRANT, Danville Va. Filed Apr. 28, 1886. (No model.)

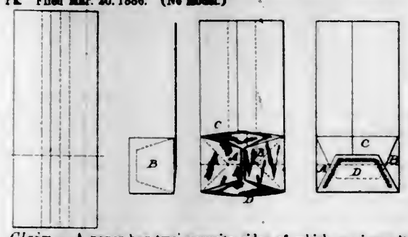


Claim.—1. The combination, with the base A, carrying the standards *a a*, supports *d*, springs *e*, and frame E, having slots *e'*, and means for adjusting the lengths of the slots, of the continuous serrated roll B, journaled between the standards *a*, the levers D, carrying the pawls F at

their outer ends, the scale-disk C, and suitable gearing between the disk and roll, substantially as described.

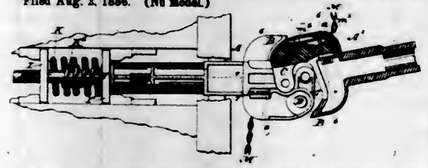
2. The combination, with the base A, having standards *a* a^2 and pivotal supports *d*, of the rolls B, having ribs *x*, wheel *b'*, and pinion b^2, the toothed dial-disk C, the levers D, having springs *e* and G, the frame E, with its varying slots *e'*, and adjusting-screws e^2, and the pawls F, pivoted upon levers D and held by said springs G, substantially as described.

353,319. PAPER BAG. WILLIAM A. LORENZ, Hartford, Conn., assignor to Felix W. Leinbach and Clarence A. Wolle, both of Bethlehem, Pa. Filed Mar. 20, 1886. (No model.)



Claim.—A paper bag two opposite sides of which are inwardly tucked, and the bottom of which is composed of two opposite overlapping flaps and two opposite open-mouth flaps, all four of which flaps are turned toward the center of the bottom of the bag on a line extending around the bag on one plane, and all four of which flaps are everywhere of one length in the directions which extend at right angles from the respective reaches of that line, and each of which two overlapping flaps is composed of but one thickness of paper and is in the form of a truncated acute-angled triangle, and each of which open-mouth flaps is composed of an outer thickness of paper in the form of a truncated acute-angled triangle, and of two inner thicknesses of paper, each of which serves to connect the outer thickness to one of the overlapping flaps, and is in the form of an acute-angled triangle, all substantially as described in the foregoing description, and elaborately illustrated in the accompanying three sheets of drawings.

353,320. CAR-COUPLING. MADISON J. LORRAINE, St. Louis, Mo. Filed Aug. 2, 1886. (No model.)



Claim.—1. The combination of the draw-head A, the pivoted hook C, the rod m^2, and the chain M, substantially as described.

2. The combination of the draw-head A, the pivoted hook C, the rod m^2, the chain M, the crank-shaft R, and the car, substantially as described.

3. In a car-coupling in which the draw-bars are coupled by means of pivoted hooks, as described, the bar J, the two plates I and I', the longer spring K, and the shorter spring K', as described.

4. The combination of the draw-head and the locking-block having the beveled projection, said draw-head having a chamber to receive said projection when the locking-block is raised, as described.

5. The combination of the car, the block r^3, and the crank-shaft R, substantially as and for the purpose described.

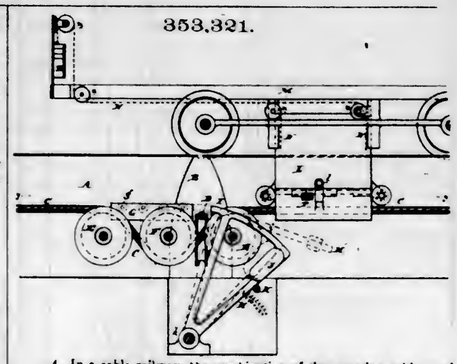
353,321. CABLE RAILWAY. THOMAS J. LOVEGROVE, Philadelphia, Pa. Filed Mar. 4, 1886. (No model.)

Claim.—1. In a cable railway, the combination of two crossing cables and a movable segmental pivoted bridge having the arc thereof adapted to span one of the cables and in line with the other, but normally drawn back clear of the cable it is designed to span, substantially as and for the purpose specified.

2. In a cable railway, the combination of two crossing cables and a movable bridge pivoted at a point directly below the cables, whereby its movement at its bridging portion is horizontal, adapted to span one of the cables, and in the horizontal plane of the other, but normally drawn back clear of the cable it is designed to span, a spring or weight to positively draw said bridge back, and a stop to limit its backward movement, substantially as and for the purpose specified.

3. In a cable railway, the combination of two crossing cables and a movable bridge adapted to span one of the cables and in line with the other, but normally drawn back clear of the cable it is designed to span, and stops to limit its backward and forward movements, substantially as and for the purpose specified.

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4. In a cable railway, the combination of two crossing cables and a movable segmental pivoted bridge adapted to span one of the cables and in line with the other, but normally drawn back clear of the cable it is designed to span, a car, and movable grip supported by said car, substantially as and for the purpose specified.

5. In a cable railway, the combination of two crossing cables and a movable bridge adapted to span one of the cables and in line with the other, but normally drawn back clear of the cable it is designed to span, a car, depressing guide-pulleys for one of the cables, and a movable and counterbalanced grip supported by said car, substantially as and for the purpose specified.

6. In a cable railway, the combination of two crossing cables and a movable bridge adapted to span one of the cables and in line with the other, but normally drawn back clear of the cable it is designed to span, a car, and a movable grip supported by said car, and suitable devices, substantially as set forth, to automatically free the cable from the grip just before it reaches the movable bridge, substantially as and for the purpose specified.

7. In a cable railway, the combination of two crossing cables with a movable bridge arranged upon one side of the upper cable and adapted to span it, and stationary guide or rails upon the other side of the upper cable, the said bridge and guide being in line with the lower cable, and the bridge being adapted to approach the guide to bridge the upper cable, substantially as and for the purpose specified.

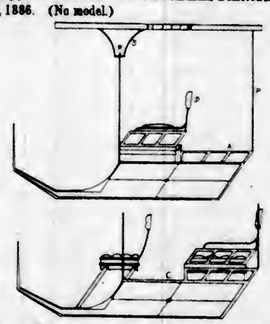
8. The combination of crossing cables C and D, rollers E F, for the under cable, the stationary guides or rails G, and the pivoted or movable bridge H, substantially as and for the purpose specified.

9. The combination of crossing cables C and D, rollers E F, for the under cable, the stationary guides or rails G, and the pivoted or movable bridge H, having counter-balance or springs, substantially as and for the purpose specified.

10. The combination of crossing cables C and D, rollers E F, for the under cable, the stationary guides or rails G, having rollers *g*, and the pivoted or movable bridge H, substantially as and for the purpose specified.

11. The combination of crossing cables C and D, rollers E F, for the under cable, the stationary guides or rails G, and the pivoted or movable bridge H, car M, having vertically-movable grip L, and stationary tripping lugs or stops in the conduit close to the bridge and adapted to act upon the grip to free the cable, substantially as and for the purpose specified.

353,322. CARRIAGE. JACOB N. MILLER, Bellefontaine, Ohio. Filed Feb. 26, 1886. (No model.)



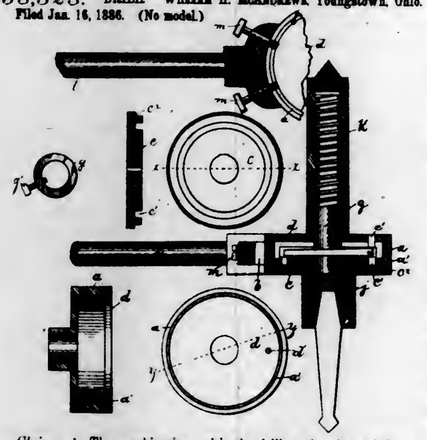
Claim.—1. The combination, with the stationary rail A on the body of the buggy, of the rail B on the shifting seat that forms a continuous rail when the vehicle is used as a one-seated vehicle.

2. The combination, with the rail A on the body of the buggy and cut-away part C, of the shifting seat carrying the rail B, which forms a continuous rail from the rear of the vehicle to the front of the seat when used as a one-seated vehicle, and forms an entrance when used as a two-seated vehicle, as and for the purpose set forth.

3. In a standing-top buggy, the combination, with the bracket N and the cones Q on the ends of the standard P, of funnel-shaped holes L, and nut R, as and for the purpose set forth.

4. The combination, with the screw on the top of the canopy-posts P, of the nut E, sunken in the bottom of the rim of the canopy-top and held in position by two ordinary screws sunk in the holes T, as and for the purpose set forth.

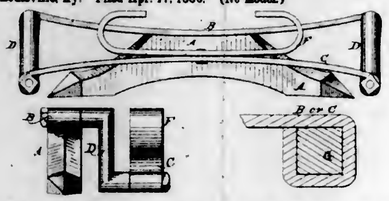
353,323. DRILL. William H. McAndrews, Youngstown, Ohio. Filed Jan. 16, 1886. (No model.)



Claim.—1. The combination, with the drill-stock, of a disk keyed thereto, having an annular groove, the cap or flanged disk mounted loosely thereupon, the clutch-lever located intermediate the disk and the base of the cap and having a pin projecting laterally from one end, and forming a pivotal connection between it and the cap, and having a lug projecting from its opposite end and fitted in the groove of the keyed disk, the boss secured to the flange of the cap, and the removable handle, substantially as and for the purposes described.

2. The combination, with the drill-stock, the disk keyed thereto, the cap loosely mounted thereon, and intermediate clutching devices, of a removable boss having a threaded socket and a handle removably fitted in the socket of the boss, substantially as and for the purpose described.

353,324. VEHICLE-SPRING. James C. Oliver and J. M. Hunter, Louisville, Ky. Filed Apr. 17, 1886. (No model.)



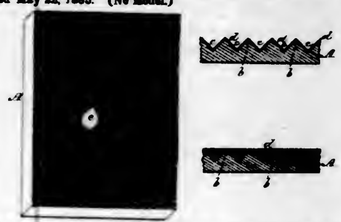
Claim.—1. The combination of a semi-elliptic spring placed with its convex side downward and having eyes in its ends, crank-shaped hangers hung in the said eyes, and another semi-elliptic spring having eyes in ends engaging the lower wrists of the said crank-hangers, and curved centrally upward, the last-named spring being hung upon the said hangers wholly below the plane of the first-named spring, substantially as shown and described.

2. The combination of two semi-elliptical springs, the two crank-shaped hangers connecting their ends, whereby one spring is hung upon the other entirely below the plane thereof, and another leaf of a spring centrally secured upon the lower spring, and having perforated ends rising above the plane of the lower spring, substantially as shown and described.

3. The combination, with two springs having square eyes at their ends, of two crank-shaped hangers having square wrists to closely fit the said eyes, substantially as shown and described

4. A spring-hanger in the form of a crank having square wrists, substantially as shown and described.

353,325. METHOD OF MAKING DRAWINGS. Cecil Palmer, New York, N. Y., assignor to himself and William B. Closson, Boston, Mass. Filed May 22, 1885. (No model.)

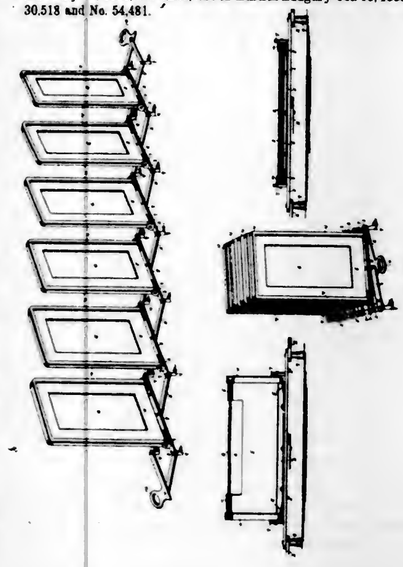


Claim.—1. The herein-described method or process of making drawings, the same consisting in first preparing a plate, sheet, block, or body composed of one or more pieces, with a surface composed of a series of ridges or projections, or both combined, of gradually-increasing width or thickness from top to bottom, and having the intervening grooves or spaces of gradually-decreasing width or thickness from top to bottom, then coating or filling the surface thus prepared with a pigment or substance of a contrasting color, and finally producing the drawing by scraping or cutting away said surface with a suitable implement to a greater or lesser depth at the required points, whereby lines or stipples of different widths or extent of surface are disclosed to produce various tones or effects of light and shade, substantially as set forth.

2. The herein-described method or process of forming a surface by which to produce a drawing, the same consisting in providing the said surface with a series of ridges or projections, or both combined, of gradually-increasing width or thickness from top to bottom, and having the intervening grooves or spaces of gradually-decreasing width or thickness from top to bottom, and then coating or filling the surface thus prepared with a pigment of a contrasting color, whereby, as the said surface is scraped or cut away to a greater or lesser depth, lines or stipples of varying width or extent of surface will be made to appear and different tones or effects of light and shade be produced, substantially as set forth.

3. A plate, sheet, block, or body composed of one or more pieces, and having a surface composed of a series of ridges or projections, or both combined, of gradually-increasing width or thickness from top to bottom, and having the intervening grooves or spaces of gradually-decreasing width or thickness from top to bottom, said surface being coated or filled with a pigment or substance of a contrasting color, whereby, as the said surface is scraped or cut away to a greater or lesser depth, lines or stipples of varying widths or extent of surface will be exposed to view to produce different tones or effects of light and shade, substantially as set forth.

353,326. PHOTOGRAPH OR CARD HOLDER. Jean Petermann, Offenbach-on-the-Main, Germany, assignor to Liebenroth, Von Auw & Co., New York, N. Y. Filed Jan. 20, 1886. (No model.) Patented in England July 10, 1885, No. 8,367, and in Austria-Hungary Oct. 15, 1885, No. 30,518 and No. 54,481.

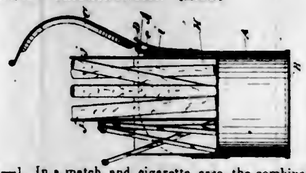


Claim.—1. A device for holding and displaying photographs and similar articles, consisting of the two series of bars 2 3, pivoted together in the form of lazy-tongs and provided with holders for receiving and supporting the photographs or similar articles, said holders being mounted upon one series of the bars and arranged to move therewith, whereby the holders are moved apart and at the same time turned partly around as the bars are expanded, substantially as described.

2. A device for holding and displaying photographs and similar articles, consisting of the two series of bars 2 3, pivoted together in the form of lazy-tongs and provided with frames 4, for receiving and supporting the photographs or similar articles, said frames being mounted upon one series of said bars and arranged to move therewith, whereby the frames are moved apart and at the same time turned partly around as the bars are expanded, substantially as described.

3. A device for holding and displaying photographs and similar articles, consisting of the two series of bars 2 3, pivoted together in the form of lazy-tongs and provided with pivoted frames 4, for receiving and supporting the photographs or similar articles, said frames being mounted upon one series of said bars and arranged to move therewith, whereby the frames are moved apart and at the same time turned partly around as the bars are expanded, substantially as described.

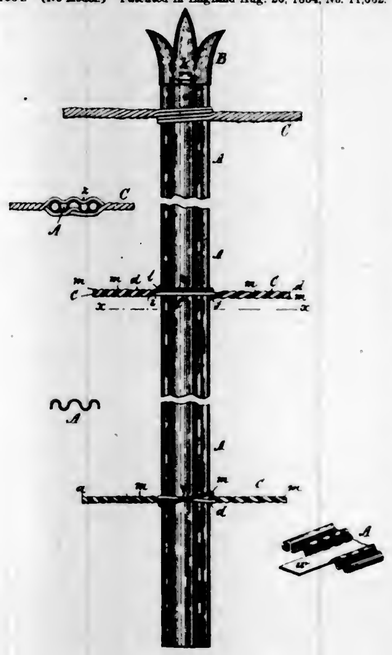
353,327. MATCH AND CIGARETTE BOX. Sarah N. Randolph, Baltimore, Md. Filed Dec. 12, 1885. (Model.)



Claim.—1. In a match and cigarette case, the combination of an exterior with an interior case, the latter arranged to be raised out of the former by pressure applied through a hole in the bottom of exterior case, and provided with a partition the top of which is raised above the sides and serves to open the lid when pushed up, as well as divide the case, substantially as described.

2. In a match and cigarette case, the combination of an exterior with an interior case, the latter provided with a partition the top of which is raised above the sides of the interior case to the level of the sides of the exterior case, as and for the purpose specified.

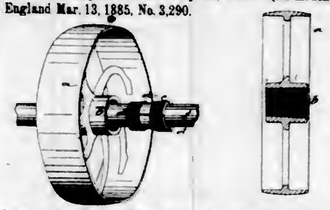
353,328. WIRE FENCE. Benjamin Scarles, Clinton, Mass., assignor to the Clinton Wire Cloth Company, same place. Filed Aug. 13, 1884. (No model.) Patented in England Aug. 26, 1884, No. 11,662.



Claim.—1. In a wire fence, the combination, with two or more fence-wires, of a corrugated picket engaged by both of said fence-wires, one and the same strand of one of said fence-wires completely encircling the picket, while one or more of the strands of the same fence-wire pass upon one side only of the picket, the strands of the double-fence-wire being twisted together on opposite sides of the picket, and the strands on the same side of the picket being bent into the same corrugation therein, substantially as described.

2. The sheet-metal picket A, provided with an upwardly-extending tongue, W, in combination with the cap B, provided with the slot *h*, said tongue being bent outward through said slot and holding said cap in position, substantially as described.

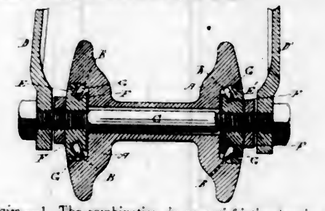
353,329. MEANS FOR SECURING PULLEYS TO SHAFTS. Geo. Smith, Edwin Smith, and Nathaniel Smith, Jr., Thrapston, County of Northampton, England. Filed July 26, 1886. (No model.) Patented in England Mar. 13, 1885, No. 3,290.



Claim.—1. The combination, with a pulley or wheel having a conical and screw-threaded center hole, of a hollow divided bush or socket having a flexible lining and adapted to screw into the said center hole of the pulley or the like, substantially as and for the purpose hereinbefore described, and represented in the accompanying drawings.

2. A divided hollow bush or socket, such as c, screw-threaded on its exterior, and having a lining, *e*, of suitable material, substantially as and for the purposes hereinbefore described, and represented in the accompanying drawings.

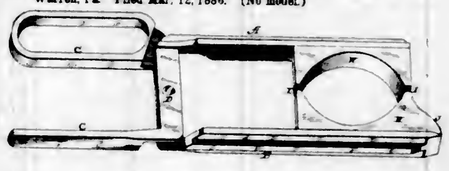
353,330. ROLLER-BEARING FOR VELOCIPEDES. John K. Starley, Coventry, County of Warwick, England, assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Dec. 12, 1885. (No model.) Patented in England Jan. 30, 1885, No. 1,341.



Claim.—1. The combination, in an anti-friction bearing, of an axle, a hub or box, a bearing-surface, as B, in the hub or box, a series of roller-disks, as G, having inclined axes, a collar, as E, movable laterally and having a bearing-surface, as F, in a substantially rectangular or parallel sided groove, with a projection on either side substantially vertical to the axes of the rollers, and the complementary parts and connections, essentially as set forth.

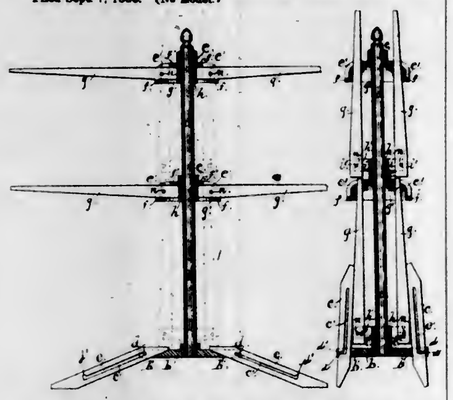
2. The combination, in an anti-friction bearing, of a series of cylindrical or prolate spheroidal or similarly-shaped rollers having their axes inclined to the axis of the shaft about which they are placed, bearing-surfaces in or carried by the hub or box, and the shaft or axle substantially on conical frustra concentric with the shaft or collar, the lines of contact between the bearing-surfaces and rollers in cross-section being either parallel or one or both convexed to the other, an annular projection or guide on either side of one of said bearing-surfaces substantially vertical to the axes of the rollers, and a means, substantially as described, for changing and securing one of said bearing-surfaces laterally in position, so as to adjust the bearing by moving the rollers along on their bearing-surface without changing their angle of inclination, essentially as set forth.

353,331. DISH-TONGS OR PLATE-LIFTER. Robert W. Tebbe, Warren, Pa. Filed Mar. 12, 1886. (No model.)



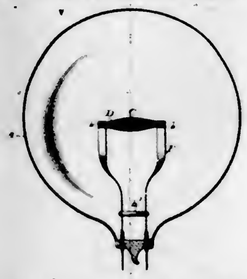
Claim.—The combination of the two jaws provided with handles at one end and the wooden blocks at the other, one of the jaws and one of the blocks being made pointed, substantially as set forth.

353,332. CLOTHES-DRIER. Theophilus Tremble, Bay City, Mich. Filed Sept. 7, 1885. (No model.)



Claim.—In a clothes-drier, the standard *a*, having the supporting-piece *c* on its upper end and provided with the openings *c'*, the sleeve *h*, sliding upon the standard, the arms *g*, pivoted to the sleeve and passed through the openings *c'*, and the base *b*, firmly secured to the standard and provided with the slots *b'*, in combination with the foot-piece *c*, resting in the said slots *b* and provided with the slots *c'*, and the bolt *d* passing through the base and slot *c'*, substantially as and for the purpose set forth.

353,333. INCANDESCENT ELECTRIC LAMP. Charles J. Van De Poele, Chicago, Ill. Filed Aug. 1, 1885. (No model.)



Claim.—1. An incandescent filament composed of an indefinite number of small fibers united at their outer ends and arranged in loose, imperfect, and discontinuous contact with each other throughout the remainder of their length, as described.

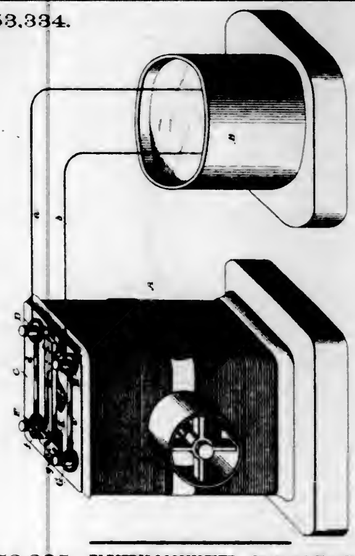
2. An incandescent filament composed of a bundle of loose fibers united at each end, as described, and having a loose wrapping along its intermediate portion, as described.

3. An incandescent filament consisting of the combination of a bundle of loose fibers held together by a loose wrapping of thread and provided at its end with clips *d*, substantially as described.

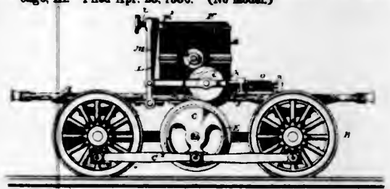
353,334. AUTOMATIC CIRCUIT-CONTROLLER FOR ELECTRO-PLATING-MACHINES. Charles J. Van Depoele, Chicago, Ill. Filed Mar. 15, 1886. (No model.)

Claim.—An automatic circuit-closer for electroplating-machines, consisting of the combination, with working-conductors, of a shunt-circuit extending from the main binding-posts and provided with separated terminals, a pivoted lever provided at its lower side with upward acting spring, and an iron armature within the field of force of a magnetic portion of the generator, and at its upper side with a metallic plate for bridging the separated terminals, and thereby closing the shunt-circuit, said armature being held away from the shunt terminals by the normal attraction of the magnetic frame of the generator, and adapted to be released to close the shunt-circuit when the magnetic strength falls below a predetermined point, substantially as shown and described.

353,334.



353,335. ELECTRIC LOCOMOTIVE. Charles J. Van Depoele, Chicago, Ill. Filed Apr. 23, 1886. (No model.)

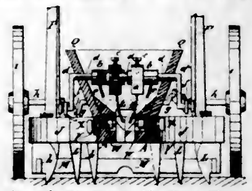


Claim.—1. In an electric locomotive, the combination of an electric motor having one or more driving-pulleys, main driving-wheels and connections, an intermediate shaft, to which the driving-wheels are mechanically connected, and which is provided with one or more friction-pulleys, one or more idle-pulleys, and pivoted levers, to which the idle-pulleys are connected, said levers being provided with adjusting-screws, substantially as shown and described, whereby the idle-pulleys are held between the motor and intermediate pulleys with the desired degree of pressure.

2. In an electric locomotive, the combination of an electric motor having a plurality of driving-pulleys and of various sizes, driving-wheels supporting the locomotive, an intermediate driving-shaft provided with friction-pulleys, and also mechanically connected to the driving-wheels, a plurality of idle-pulleys supported in movable frames, pivoted levers controlling the longitudinal movements of the pulley-bearing frames, and adjusting-screws arranged to act directly upon the pivoted levers for bringing the desired connecting-pulley into action, as set forth.

3. In an electric locomotive, the combination of an electric motor and an intermediate driving-shaft, to which it is mechanically connected, main driving-wheels, supporting-springs between the said wheels and the intermediate shaft and motor, and vertically-yielding mechanical connections between the main and intermediate driving-wheels, as set forth.

353,336. COTTON-PLANTER AND FERTILIZER-DISTRIBUTER. James W. Voltz, Marion Junction, Ala. Filed Feb. 25, 1886. (No model.)



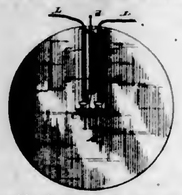
Claim.—1. In a planter, the combination, with a supporting-frame and a hopper mounted thereon, of two independently-moving distributers journaled therein, and means for operating the said distributers alternating in opposite directions, substantially as herein shown and described.

2. In a cotton-planter and fertilizer-distributer, the combination, with the hopper Q, the beams A J, and the handles N, of the distributers Z *a*, the crank-shafts *d*, carrying the distributers, and the connecting-bar *f*, crank-shaft A, wheels *i*, and slotted uprights *j*, substantially as herein shown and described, whereby the seed or fertilizer will be distributed with certainty and uniformity, as set forth.

3. In a cotton-planter and fertilizer-distributer, the distributers made substantially as herein shown and described, and consisting of the collars *a*, having fingers Z, and secured by sleeves *b* and set-screws *c* to crank-shafts *d*, whereby the said distributers can move in opposite directions, as set forth.

4. In a planter, the combination, with the coverer-bars J, the slotted standards *j*, and the handles N, of the hopper Q, the distributers Z *a*, provided with the cranks *d*, the shaft A, provided with the cranks *g* and working in the slots of the bars J, the wheels *i*, and the connecting-bars *f*, substantially as herein shown and described.

353,337. MICROPHONE. Thomas Wallace and Oscar A. En Holm, New York, N. Y. Filed Jan. 26, 1886. (No model.)

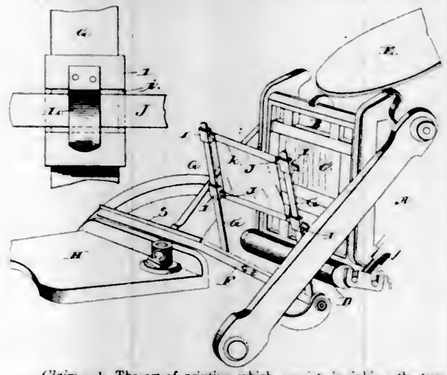


Claim.—1. The combination, with the diaphragm, of the bridge-piece secured thereto, the bars secured to the bridge-piece and connected to the line, and the suspended and weighted bar resting on and between said bars, substantially as described.

2. The combination, with the diaphragm and the bridge-piece carrying the carbon bars, of a covering connected to the bridge-piece and extending over the bars, substantially as described.

3. The combination, with the diaphragm, of the bridge-piece, the elevated end of which bears upon the center of the diaphragm and the other is secured at or near the edge of the carbon bars carried by the bridge-piece, and the weighted bar resting upon and between the fixed bars, substantially as described.

353,338. PROCESS OF PRODUCING COPIES IN IMITATION OF TYPE-WRITING. George W. Weaver, Ilion, N. Y. Filed Feb. 3, 1886. (No model.)



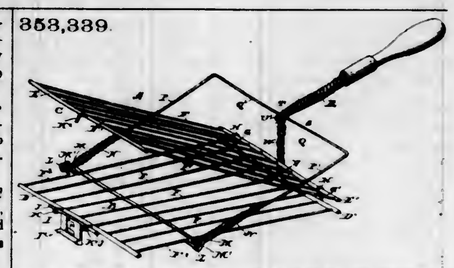
Claim.—1. The art of printing which consists in inking the type and making the impression through a fabric which is interposed between the inked type and the surface upon which the impression is to be produced.

2. The method or process of printing circulars and the like from a type or other relief printing-surface in close or exact imitation of a type-writer, consisting in first inking the form; second, interposing a sheet of fabric between the form and the paper to be printed; third, inking the fabric by contact with the form, and, fourth, subjecting the paper to pressure against the form and fabric, whereby the type or other printing-surface will make the required impression upon the paper through the inked fabric, substantially as described.

353,339. TOASTER AND BROILER. George S. White, Danbury, Conn. Filed Jan. 20, 1886. (No model.)

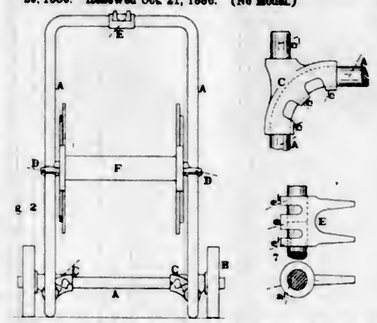
Claim.—1. The wire frames hinged together and provided with a swinging catch and rigid keeper to hold them together, combined with a handle-frame pivoted to one of said wire frames, and a stop-chain connecting the handle-frame and wire frames to permit a limited oscillatory movement of the wire frames within the handle-frame, substantially as described.

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2. The combination, with the rectangular wire frame provided with a handle, of the hinged frames pivoted therein, and a stop-chain connecting the handle with the said pivoted frames, substantially as specified.

353,340. HOSE-REEL CARRIAGE. William B. Wilcox, Chicago, Ill., assignor of one-half to William H. Cosper, same place. Filed Jan. 29, 1886. Renewed Oct. 21, 1886. (No model.)



Claim.—1. In a hose-reel carriage, the combination of gudgeon-brackets C and frame A, said gudgeon-brackets C having teats *c*, that secure said brackets to frame A, and gudgeons *c'*, to which the carriage-wheels B are secured, substantially as shown and described.

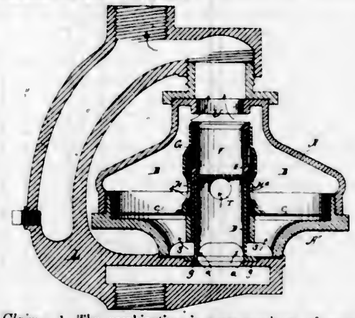
2. In a hose-reel carriage, the combination of pillows D and frame A with recesses *a*, for securing said pillows to frame, substantially as shown and described.

3. In a hose-reel carriage, the combination of union-coupling E with eyes *e e'*, and the frame A, with recesses *a'*, so that a portion of the metal composing eyes *e'* can be pressed into the said recesses, and the ends of frame A be firmly held together, substantially as shown and described.

353,341. COMPOUND FOR TANNING. Hiram L. Wilcox, Lincoln Nebr. Filed Aug. 26, 1885. (No specimens.)

Claim.—As a new article of commerce and manufacture, the described compound of the extract of polygonum and extract of *Rhus glabrum*, substantially as and for the purposes set forth.

353,342. GAS-REGULATOR. Moses G. Wilder, Philadelphia, Pa. Filed Feb. 14, 1885. (No model.)



Claim.—1. The combination, in a gas-regulator, of an outer shell or case, a centrally-situated tube connected to said outer case, and furnished with openings, as described, a cylinder within said tube closed at

its top and open at its bottom, and furnished with openings corresponding to the openings in said outer tube, and with lugs adapted to lock in the supporting-frame, and a disk or float and valve, all arranged and operating substantially as set forth.

2. The herein-described device for opening or closing the holes T in cylinder D, and for regulating the amount of gas which passes through said holes into the gas-chamber B, and, in combination with said cylinder, consisting of tube E, secured to the outer shell or case, A A', and furnished with openings T', corresponding to said holes T, said openings T being opened or closed by turning said shell or case upon its axis, substantially as set forth.

353,343. TUBULAR LANTERN. WILLIAM C. WINFIELD, Warren, Ohio. Filed June 10, 1886. (No model.)



Claim.—1. The combination, in a tubular lantern, of air-inlet openings on the inner sides of the tube, each provided with a hood or guard overhanging the opening and extending down to its lower edge, a vertical plate extending centrally up into said guard forming air-passages on either side thereof, and a horizontal plate beneath the opening in the tube, intersecting said vertical plate near its center and having openings at each side thereof, as and for the purpose set forth.

2. The combination, in a tubular lantern, of a tube having free air-passages from side to side across its top, and inlet-openings at its sides, a cap or hood overhanging said openings, a vertical plate extending centrally into said hood in front of the air-openings, and a horizontal plate below the hood and having air-passages outside the tube and along the vertical plate, substantially as set forth.

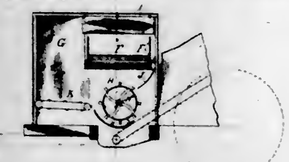
3. The combination, in a lantern, of an arched air-tube having a deflector secured thereto at its sides with a globe-collar independent of the deflector, hinged at one side to allow the removal of the globe, and a guard or band on which the collar is hinged, substantially as set forth.

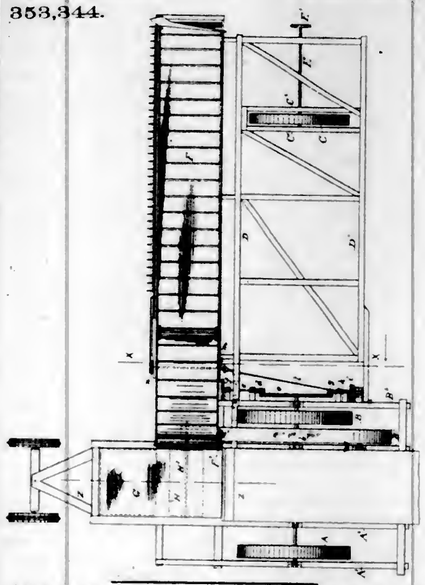
4. The combination, in a lantern, of a globe-supporting disk having a flanged neck, a ledge upon which the globe rests, and a flange outside thereof to confine the globe, an open-work depressed portion between the neck and the ledge, and an aperture or door at one side in the depressed portion with a gate adapted to slide horizontally over the aperture or door, and having a handle attached to the neck of the disk, substantially as set forth.

353,344. HARVESTER. DAVID YOUNG, Stockton, Cal. Filed Oct. 16, 1885. (No model.)

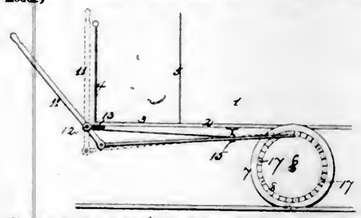
Claim.—1. In a combined header and thrasher, the thrashing-machine mounted upon suitable bearing-wheels having the header-frame hinged to and projecting from one side, with its outer end supported upon a single wheel journaled in the longitudinal beams C' C² of the header-frame, a supplemental frame containing the draper attached to the front of the main header-frame, and connecting-gearing actuating the sickle and draper, comprising the axle *b*, bevel gear-wheel *c*, pinion *d*, shaft *e*, sprocket-wheel *f*, pinion *g*, shaft *h*, gear-wheel *i*, pinion *j*, shaft *k*, tumbling-rod *l*, shaft *m*, and crank-pulley *n*, substantially as set forth.

2. The combination, substantially as described, of the feeding-box G, feeder K, cylinder H, board J, gate I, and conveyer F, the latter being in a direct line with the shaft H' of the cylinder H, and discharging the grain directly upon the cylinder.





353,345. CAR-STARTER. SIMEON BAKER, San José, Cal., assignor of one-half to Byron J. Rhodes, same place. Filed Apr. 14, 1886. (No model.)



Claim.—1. A car-starter consisting of a pair of toothed disks secured to the interior faces of the fore wheels, hooked rods supported in suitable bearings depending from the vehicle, and a lever connected to said rods, and having pivotal bearing to permit of the reciprocation of said rods upon said lever being rocked in its bearing, substantially as and for the purpose set forth.

2. A car-starter having a pair of toothed disks secured to the inner faces of the fore wheels, a pair of angular starter-rods having hooked ends adapted to engage with the teeth on said disks, sockets depending from the vehicle within which said rods rest and longitudinally reciprocate, and an operative lever having pivotal bearing in a suitable support attached to the vehicle near its lower end, and coupled at its lower end to said starter-rods, as and for the purpose set forth.

353,346. ELECTRIC THERAPEUTIC INSTRUMENT. CHARLES E. BALDWIN, Philadelphia, Pa., assignor to Martin V. Wagner, Marshall, Mich. Filed July 3, 1886. (No model.)



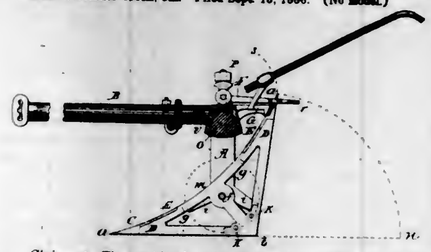
Claim.—1. The combination, with the spindle A, of the perforated voltaic piles *c z f*, a casing inclosing the same, and contact-surfaces, as the disks D D, at or near each end of the casing, substantially as described.

2. The combination of the spindle A and a series of voltaic piles with a spring-connection between two of the piles, a casing surrounding the same, and contact-surfaces, as D D, at or near each end of the casing, substantially as described.

3. The combination of the voltaic piles, consisting of plates *c z* and the fibrous material *f*, with two disks in electrical connection therewith and an insulating-casing between said disks, substantially as described.

4. The combination of the voltaic piles, consisting of the perforated plates and fibrous material and the spindle A, with two disks in electrical connection with the piles and an insulating material between the disks, substantially as described.

353,347. REVERSIBLE PLOW. SAMUEL J. SIMSON and ALONZO D. HOLLIS, Boulder Creek, Cal. Filed Sept. 13, 1886. (No model.)



Claim.—1. The combination of a rotating plow-beam with the pivotal standard A, and the double-pointed tilting plows C, pivoted on the lower end of said standard, with a movement of substantially a quarter-revolution in a vertical plane parallel to the landside-plate D, substantially as and for the purpose specified.

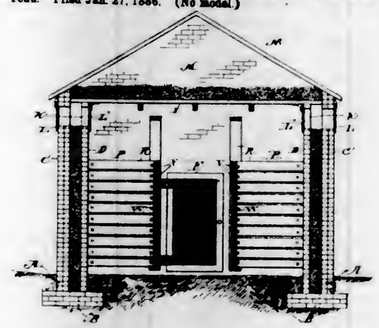
2. The double-pointed tilting plow C, having substantially a right-angled frame, D, attached to which are the stop-lugs *k* or equivalents, and the mold-board E, provided with shares or points at C, and with a slot and brackets, as at *m h h*, and pivotal bearing at *f*, in combination with the pivotal standard A, and a rotating plow-beam, substantially as and for the purpose set forth.

3. The pivotal standard A, having a friction-bearing and pivot for the beam, as at *v o*, and tension-bolt, as at P, the flattened and forked lower ends conforming to the sides and ends of the mold-board slot, and coming flush, as at *m*, and conforming to the surface of the mold-board E, in combination with the double-pointed tilting plow E C, the frame D, and the stop-lugs *k*, and engaging the sides and ends of the slot, the pivot *f*, and the rotating beam, as at *v o*, substantially as and for the purpose set forth.

4. The notched quadrant G, in combination with a rotating beam, the pivot and friction bearing, as at *v o*, the cam and looped lever F *a r*, the pivotal standard A, as described, and the double-pointed plow E C, having slot, as at *m*, and a landside-plate, D, having stop-lugs *k*, supporting and secured to the mold-board E, bracket at *h h*, and pivot-bearing at *f*, said plow-point engaging with the notched quadrant, as shown near C, substantially as and for the purpose specified.

5. The combination of the looped lever and cam F with the plow C, quadrant G, stud and nut at P, rotating beam B, friction-bearing and pivot *v o*, and pivotal standard A, the whole arranged and constructed substantially as and for the purpose described.

353,348. COLD-STORAGE HOUSE. JAMES B. BROWN, Shelbyville, Tenn. Filed Jan. 27, 1886. (No model.)

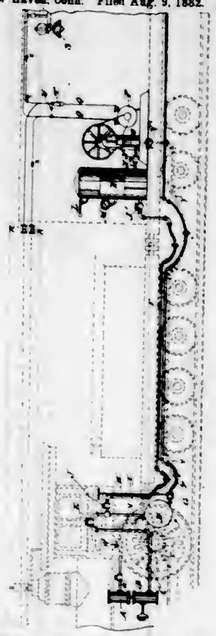


Claim.—1. The store-house having the non-conducting walls provided with ventilators or openings K, the central passage or alley through the store-house, the bins arranged on each side of the said alley, and the doors made of or filled with non-conducting material and located at each end of the alley, substantially as described.

2. The store-house having the inner and outer walls and the ventilators or openings therein, the compartment M above the store-house, the floor I of the said compartment forming the top for the store-room and resting on the inner walls, and extending to the outer walls, so as to close the space between the upper edges of the said inner and outer walls, substantially as described.

3. The store-house having the non-conducting walls, the central alley or passage through the store-house, the bins arranged on each side of the said alley, the outer doors, E, at the ends of the alley, and the inner gauze doors, F, located at the ends of the alley and at a slight distance from the inner sides of the doors E, substantially as described.

353,349. ELECTRIC LIGHTING OF RAILWAY-TRAINS. CHARLES E. BUELL, New Haven, Conn. Filed Aug. 9, 1882. (No model.)



Claim.—1. In a system of electric lighting for railway-trains, the combination, with the train and its electric-lamp circuit, including lamps, of an air-compressing apparatus arranged upon the locomotive, an air-holder arranged upon one of the cars, a motor, and an electrical generating-machine for supplying the lamp-circuit, also on said car, with suitable connections between the compressor and the air-holder and the latter and the motor, whereby the motor is enabled to be driven from the air-holder, whether the locomotive carrying the compressor be connected to the train or not.

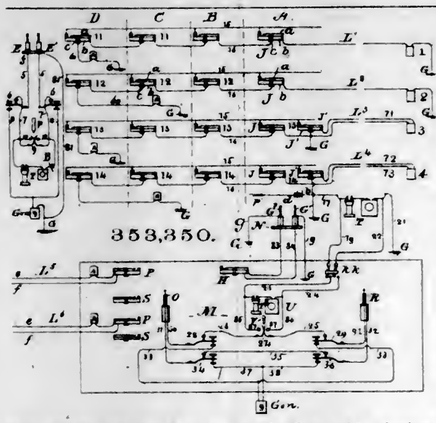
2. In a system of electric lighting for railway-trains, the combination, with the train and its electric-lamp circuit, including lamps, of an air-compressor on the locomotive, an air-holder, motor, and electrical generating-machine mounted on a separate vehicle of the train, with suitable connections between the compressor, air-holder, motor, and electrical generating-machine, and a steam-pipe between the locomotive-boiler and the motor, whereby the motor is adapted to be run either by steam taken directly from the locomotive or by compressed air taken from the air-holder, whether the train be at rest or in motion, and is also adapted to be run by the air in the air-holder when the locomotive is detached from the train, substantially as described.

3. The combination, with a railway-train, of an electric circuit thereon, including translating devices, a dynamo-electric machine for supplying said circuit, and a motor for driving said dynamo, a compressed-air holder, and a means of communicating between the air-holder and a motor and a pipe connecting the locomotive-boiler with the motor, whereby the motor can be run either by the steam from the boiler or by compressed air from the holder, substantially as described.

4. The combination, with a railway-train and mounted upon the same, of an air-compressing apparatus, an air-holder charged by the air-compressing apparatus, an air-motor operated by air from the holder, and an electrical generating-machine operated by the motor, and an electric circuit containing electric lamps fed by the generator, substantially as described.

353,350. SWITCHING APPARATUS AND TEST-CIRCUIT FOR TELEPHONE-EXCHANGES. JOHN J. CARTY, Cambridge, assignor to the New England Telephone and Telegraph Company, Boston, Mass. Filed Sept. 6, 1886. (No model.)

Claim.—1. In a telephone-exchange system, a series of complete or continuously metallic double-line circuits, a series of double-wire circuits, both outgoing and return wires being provided with earth-terminals at a central station, and means, as indicated, for removing the said



earth-terminals from both direct and outgoing lines, and for simultaneously transferring the said lines to a connection with the two lines of the complete metallic circuits, substantially as specified herein.

2. In a telephone-exchange system, a series of double-line circuits extending by outgoing and return lines between a corresponding series of sub-stations and a central station, and provided at said central station with earth-terminals for both outgoing and return lines, and a multiple switch-board having upon each of its several sections a spring-jack connected in the outgoing line of each circuit and controlling the earth-terminals of both outgoing and return lines, substantially as hereinbefore described.

3. A series of multiple switch-board sections, one of which is furnished with a number of extra spring-jacks, a series of double-line circuits, one line of each being connected to earth after passing through a spring-jack at each board, the other being connected to earth after passing through the extra jack of the special board only, a normally-open test-circuit for each of the said double-line circuits extending to the several jacks thereof, switching devices for connecting complete metallic circuits with the two ends of the said double-wire circuits at the said special multiple-board section for simultaneously removing the two normal ground-terminals thereof, and for simultaneously connecting an independent ground-connection to the normally-open and detached test-circuit, whereby it may be ascertained at any other switch-board section that the double-line ground-circuit is already in use.

4. In a telephone-exchange system, the combination of a series of double-line circuits, including both continuously-metallic or earth-completed circuits, of detachable double conductors for uniting the said double-wire circuits, each line of the said detachable conductors including two keys normally united through their back contacts, each pair of keys representing one of the interconnected double lines, an electrical generator having one of its poles connected with the front contacts of two of the said keys and its other pole united with the front contact of two other of the said keys, as shown and described, and an operator's telephone outfit normally disconnected but adapted to be looped into the circuit between two of the said keys, all substantially as and for the purposes described.

5. In a multiple switching system, the combination of a series of single-line ground return-circuits, a series of double-line circuits, both lines being terminally grounded at a central station, a series of complete metallic circuits, a multiple switch-board provided with connecting devices at each section thereof for uniting any two of the single-line grounded circuits or any one of the said single-line circuits with any one of the double-line grounded circuits, an auxiliary switch-board provided with connecting devices for connecting the said double-line grounded circuits with the continuously-metallic double-line circuits, and for automatically disconnecting the earth-terminals of the former, and means, substantially as herein described, whereby a test circuit and connections are provided independent of the said earth-terminals.

6. In a system of multiple switch-boards for the interconnection of metallic circuits, the hereinbefore-described try-signal or testing device, comprising a pair of spring-jacks at a given switch-board, and a single spring-jack at each other board of the system for each circuit, a normally-open and detached line connecting the frames of the several spring-jacks of the said circuits, a pair of plug-connectors and flexible conductors attached thereto, constituting terminals of the other of the said circuits, and an insulated and independent ground-plate attached to the said plug-connectors, and adapted to be brought into contact with the normally-open line connecting the spring-jack frame, and to ground the same for the purpose of affording a line in use test for the other boards.

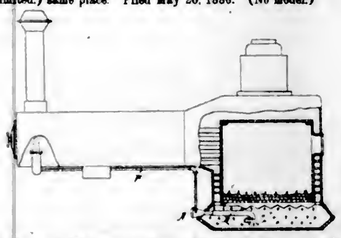
7. The hereinbefore-described try-signal for multiple switch-boards, adapted for the interconnection of a combined series of absolutely-metallic and double-wire ground-terminal lines, consisting of a spring-jack for each line upon each of a series of switch-boards, a normally-open or detached test-line connecting the frames of the several jacks, a plug-connector adapted to be inserted in the jack for the purpose of connecting another line therewith, and a ground plate or connection attached to the said plug, but insulated therefrom and adapted to make contact with the normally-open test-line through the spring-jack frame when the plug-connector is thrust therein, whereby the said test-circuit may be grounded independent of the connected lines and a test provided for metallic circuits, as specified.

8. In a telephone-exchange system, a multiple switch-board comprising a spring-jack at each section for each entering line, an auxiliary switch-board provided also with a spring-jack for each entering line and with a series of extra spring-jacks, a series of double-line circuits, one line of each being grounded at the central station after passing through a spring-jack at each multiple-board section, including the auxiliary board, and the other line of each of the said series being grounded also at the central station after passing through one of the extra jacks at the auxiliary board only, a series of absolute or continuously metallic double-wire circuits, and intermediate connections for connecting one of the lines of the said metallic circuit with the spring-jack of the outgoing wire, and the other metallic-circuit line with the extra jack of the return-wire of the double-line ground-circuits at the auxiliary board and for automatically removing the ground-connections of both lines thereof, substantially as and for the purposes described herein.

9. The combination, in a telephone-exchange system, with a multiple switch-board and a series of single-line earth-return circuits connected therewith, and represented by spring-jacks on the several sections thereof, of a series of complete metallic trunk-circuits, a series of double-line grounded circuits having both outgoing and return-line terminals grounded at the same central station, the outgoing line of each passing, as described herein, through spring-jacks at each switch-board section controlling the ground-terminal of the said outgoing line, whereby the said outgoing line only may be disconnected from its ground-terminal and united with any one of the single-line circuits, and means for connecting the said double-grounded lines to the two lines of any of the metallic trunk-lines independent of any ground-connections, said means consisting of an auxiliary switch-board of one or more sections, a spring-jack located thereon in the circuit of the outgoing line of each grounded double-line circuit in series with the multiple-board section spring-jacks of said line, and an additional and single spring-jack in the circuit of the return-line, also located at the said auxiliary board and controlling the ground-terminal of the said return-line, each return-wire jack being in close proximity to the spring-jack of its own outgoing line, whereby the two ends of the metallic trunk-circuits (represented by plug-connectors) may be connected with both lines of the double-line ground-circuits, and by the act of such connection disconnect the normal ground-terminals of the said double lines, for the purposes specified.

10. In a telephone-exchange system, a subscriber's circuit composed of outgoing and return lines, both of the said lines being grounded at the central station, the outgoing line of said circuit passing to its ground-terminal through spring-jacks serially arranged in circuit at the several sections of a multiple switch-board, and the return-line of said circuit passing to its ground-terminal through a single and independent spring-jack at but one of the said sections of said multiple switch-board, as and for the purposes set forth.

353,351. AIR-INJECTOR FOR FURNACES. Elijah B. Cornell, Philadelphia, Pa., assignor to the E. B. Cornell Manufacturing Company, (Limited,) same place. Filed May 20, 1886. (No model.)



Claim.—1. The combination, with the fire-box and ash-pit of a furnace, of the injector A, with downwardly-bent nozzle and suitable devices, as described, for conducting air and steam to said injector, all substantially as and for the purposes set forth.

2. The combination, with the fire-box and ash-pit of a furnace, of the air-injector A, hood B, with downwardly-bent end C, and suitable devices, as described, for introducing air and steam to said injector, all arranged and operating substantially as and for the purposes set forth.

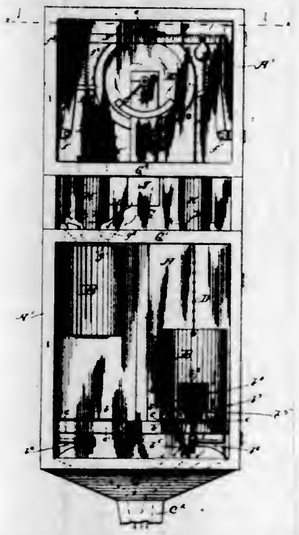
353,352. BASKET. Myron H. Debrow, Rochester, N. Y. Filed Apr. 14, 1886. (No model.)

353,352.



Claim.—A berry-basket consisting of the combination, with an oblong body or receptacle, of two wire bails or handles corresponding in form and dimensions with the contour of the end portions of the basket, pivotally connected with the sides of said basket about one-third of its length apart, substantially as described.

353,353. AUTOMATIC GRAIN-WEIGHING SCALE. Cyrenius Dorsey, Englewood, Ill. Filed July 20, 1886. (No model.)



Claim.—1. In an automatic weighing-machine, the combination, with a wheel or pulley, of a pair of grain-weighing buckets suspended by a line or chain passing over said pulley, and a pair of scale-beams furnished with pawls adapted to oppose the motion of said wheel until said scale-beams are raised, substantially as specified.

2. The combination of weighing-buckets B B with line or chain D, pulley E, furnished with notches *e e*, and bent scale-beams F F, having pawls *f f*, substantially as specified.

3. The combination of weighing-buckets B B with chain D, sprocket-wheel E, having notches *e e*, one on each side face, bent scale-beams F F, pivoted at their lower ends to the frame of the machine and arranged one on each side of said wheel E, guards f^2 f^2 for the free ends of said scale-beams, and pawls *f f*, pivoted to said scale-beams, substantially as specified.

4. The combination of weighing-buckets B B with line or chain D, pulley E, furnished with notches *e e*, bent scale-beams F F, having pawls *f f*, and register-operating arm K, secured to the shaft of said pulley E, substantially as specified.

5. In an automatic weighing-machine, the weighing-bucket B, furnished with an open-bottomed top-closed vertical valve shell or case having side openings near its base, and a vertically-moving piston inside said shell for opening and closing the openings in said shell, whereby the working parts of the valve are kept free from interference, substantially as specified.

6. In an automatic weighing-machine, the combination, with a weighing-bucket, B, furnished with an open-bottom top-closed valve shell or case having side openings near its base, of a valve-piston inside said shell, and a fixed stop for moving said valve-piston by the movement of said bucket, substantially as specified.

7. The combination of a weighing-bucket, B, with open-bottom top-closed valve-shell, b^2, having side openings, b^3, loaded valve-piston b^4, and adjustable fixed stop b^5, substantially as specified.

8. The combination of weighing-bucket B with open-bottom top-closed valve-shell b^2, having side openings, b^3, loaded valve-piston b^4, and adjustable fixed stop b^5, furnished with yielding cushion b^6, substantially as specified.

9. The combination, with a pair of vertically-moving weighing-buckets and a chain for operating said buckets, of a pair of filling-valves arranged above said buckets, and each consisting of a valve shell or case having side openings near its base, and a valve-piston working in said shell, substantially as specified.

10. The combination, with a pair of vertically-moving weighing-buckets and a chain for operating said buckets, of a pair of filling-valves arranged above said buckets, and each consisting of a valve shell or case having side openings near its base, and a valve-piston working in said shell, said bucket-chain being furnished with projections for operating said valve-piston, substantially as specified.

11. The combination, with a pair of vertically-moving weighing-buckets and a chain for operating said buckets, of a pair of filling-valves arranged above said buckets, and each consisting of a valve shell or case having side openings near its base, and a valve-piston working in said shell, said valve-piston operating by its own gravity in one direction, and said chain being provided with projections for raising said valve-pistons and opening said valves when said buckets are in turn brought to their filling positions, substantially as specified.

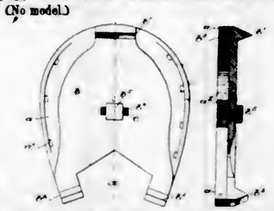
12. The combination, with weighing-buckets B B, of chain D, pulley E, hopper or grain-receptacle G, bottom G', having grain-discharge openings *g'*, valve-shells H H, having ports *h h* near their base, and pistons H' H', said chain D being formed with projections *d d*, for operating said valve-pistons, substantially as specified.

13. The combination of weighing-buckets B B, chain D, having projections *d d*, pulley E, having notches *e e*, bent scale-beams F F, having pawls *f f*, filling hopper or receptacle G, valve shell or case H, having side openings, *h*, and pistons H', operated by said projections on said chain, substantially as specified.

14. The combination of weighing-buckets B B, chain D, having projections *d d*, pulley E, having notches *e e*, bent scale-beams F F, having pawls *f f*, filling hopper or receptacle G, valve shell or case H, having side openings, *h*, and pistons H', operated by said projections on said chain, said buckets B B each having a discharge-valve consisting of a valve shell or case, b^2, having side openings, b^3, and a piston, b^4, substantially as specified.

15. The combination of weighing-buckets B B, chain D, having projections *d d*, pulley E, having notches *e e*, bent scale-beams F F, having pawls *f f*, filling hopper or receptacle G, valve shell or case H, having side openings, *h*, and pistons H', operated by said projections on said chain, said buckets B B each having a discharge-valve consisting of a valve shell or case, b^2, having side openings, b^3, and a piston, b^4, and a fixed stop, b^5, for raising said valve-piston b^4 by the descent of said bucket, substantially as specified.

353,354. HORSESHOE. Isaac Fenno, Boston, Mass. Filed Mar. 24, 1886. (No model.)



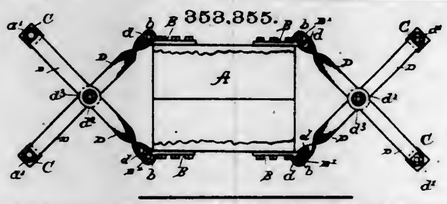
Claim.—1. The main shoe having a cross-bar, a^2, provided with a screw-threaded hole, and the auxiliary shoe having calks, and slotted and provided with an opening for the reception of a bolt, combined with a bolt to attach the said main and auxiliary shoes together, substantially as described.

2. The main shoe *a*, having a cross-bar, a^2, provided with a screw-threaded hole, the said shoe also having a hole for the reception of a stud, and an auxiliary shoe provided with calks and with a stud and with a slot for the reception of a bolt, combined with a bolt to connect the said main and auxiliary shoe, the stud of one shoe entering a hole in the other shoe, the slot and bolt permitting adjustment of the auxiliary shoe on the main shoe, substantially as described.

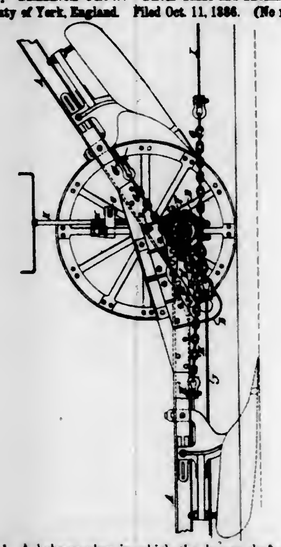
353,355. FASTENING FOR BRIDGES AND CULVERTS. Jacob Goodheart, Montevallo, Mo. Filed July 30, 1886. (No model.)

Claim.—The plates fixed to the bridge or culvert, the studs, the plates secured to each other intermediate of their ends and at one end with the studs, and at the other end with plates fixed to the bridge or culvert, in combination with a bridge or culvert, as and for the purpose set forth.

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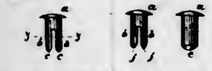
353,356. BALANCE-PLOW. DAVID GREES and THOMAS BENSTEAD, Leeds, County of York, England. Filed Oct. 11, 1886. (No model.)



Claim.—1. A balance-plow in which the bar or shaft upon which the plow-beam is pivoted is drawn forward past the center of the beam in whichever direction the implement is being drawn.

2. The combination of the plow-beam A, toothed racks B^3, carried thereby, axis C, supported by the main wheels, sleeve D, loose on the axis C, pinions E, fixed upon the sleeve and gearing with the racks, drum F, and chains G, H, and K, all acting together, substantially as described.

353,357. RIVET. JAMES L. HALL, Kingston, Mass. Filed Aug. 7, 1886. (No model.)



Claim.—1. A rivet consisting of a bead, *a*, a cylindrical shank, and prongs *b b*, having their outer sides concentric with the shank and head, and with flat inner sides parallel with each other, and having their ends beveled on both sides to a cutting-edge, substantially as shown and described.

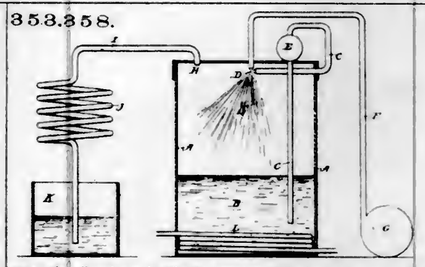
2. A rivet having prongs beveled on both sides at their ends when made from a solid shank having a flat end to form straight cutting-edges, as set forth.

3. A rivet having prongs beveled on both sides at their ends when made from a solid shank having a rounded edge to form carved cutting-edges, as set forth.

353,358. APPARATUS FOR OXIDIZING DRYING-OILS AND OTHER LIQUIDS. JOHN W. HOARD and FREDERICK R. HOARD, Providence, R. I. Filed Aug. 21, 1885. (No model.)

Claim.—1. In an apparatus for oxidizing drying-oils or other liquids, the combination of a tank or vessel to contain the liquid under treatment and a pipe leading from said liquid, connecting with a pump or equivalent device for propelling the liquid through such pipe, and terminating in atomizing or spraying apparatus, so located that the liquid having been thereby atomized will fall, run, or be conveyed back in or into said containing-vessel for continuous treatment over and over again as often as desired, substantially as above set forth.

2. In an apparatus for oxidizing drying-oils or other liquids, the combination of a pipe leading from the liquid under treatment, connected with a pump or equivalent device for propelling the liquid through such pipe, and terminating in atomizing apparatus suitable to atomize or spray the oil and supply it with a current of air through an air-pipe connected therewith, substantially as above set forth.



3. In an apparatus for oxidizing drying-oils or other liquids, the combination of a pipe leading from the liquid under treatment, connected with a pump or equivalent device for propelling the liquid through such pipe, and terminating in a contracted mouth-piece situated close to and approximately at right angles with the contracted mouth-piece of an air-pipe, substantially as above set forth.

4. In an apparatus for oxidizing drying-oils or other liquids, the combination of a tank or vessel to contain the liquid under treatment, a pipe leading from such liquid connected with a pump or equivalent device for propelling the liquid through such pipe, and terminating in atomizing apparatus suitable to atomize or spray the oil and supply it with a current of air through an air-pump connected therewith, said atomizing apparatus being so situated that the liquid having been thereby atomized will fall, run, or be conveyed back in or into said containing-vessel for continuous treatment over and over again as often as desired, substantially as above set forth.

5. In an apparatus for oxidizing drying-oils or other liquids, the combination of a tank or vessel to contain the liquid under treatment, a pipe leading from such liquid connected with a pump or equivalent device for propelling the liquid through such pipe, and terminating in a contracted mouth-piece situated close to and approximately at right angles with the contracted month-piece of an air-pipe, and said mouth-pieces being so situated that the liquid having been atomized thereby will fall, run, or be conveyed back in or into said containing-vessel for continuous treatment over and over again as often as desired, substantially as above set forth.

6. In an apparatus for oxidizing drying-oils or other liquids, the combination of a pipe leading from the liquid under treatment, a pump or equivalent device for propelling the liquid through such pipe connected therewith, and an air-pipe connected with an air-pump, fan, or blower, or equivalent device for propelling the air through such air-pipe, and said two pipes terminating in atomizing apparatus suitable for atomizing or spraying the liquid by the agency of a blast of air through said air-pipe, substantially as above set forth.

7. In an apparatus for oxidizing drying-oils or other liquids, the combination of a pipe leading from the liquid under treatment, a pump or equivalent device for propelling the liquid therewith, and an air-pipe connected with an air pump, fan, or blower, or equivalent device for propelling the air through such air-pipe, and said two pipes terminating in contracted mouth-pieces close to and approximately at right angles with each other, substantially as above set forth.

8. In an apparatus for oxidizing drying-oils or other liquids, the combination of a tank or vessel to contain the liquid under treatment, a pipe leading from such liquid, a pump or equivalent device for propelling the liquid through such pipe connected therewith, and an air-pipe connected with an air pump, fan, or blower, or equivalent device for propelling the air through such air-pipe, said two pipes terminating in atomizing apparatus suitable for atomizing or spraying the liquid by the agency of a blast of air through said air-pipe, and said atomizing apparatus being so situated that the liquid having been atomized thereby will fall, run, or be conveyed back in or into said containing-vessel for continuous treatment over and over again as often as desired, substantially as above set forth.

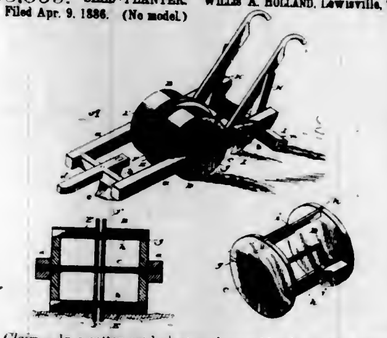
9. In an apparatus for oxidizing drying-oils or other liquids, the combination of a tank or vessel to contain the liquid under treatment, a pipe leading from such liquid, a pump or equivalent device for propelling the liquid through such pipe connected therewith, and an air-pipe connected with an air pump, fan, or blower, or equivalent device for propelling the air through such air-pipe, said two pipes terminating in contracted mouth-pieces close to and approximately at right angles with each other, and so situated that the liquid having been atomized thereby will fall, run, or be conveyed back in or into said containing-vessel for continuous treatment over and over again as often as desired, substantially as above set forth.

10. In an apparatus for oxidizing drying-oils or other liquids, in which the liquid is atomized or sprayed by the agency of a blast of air through an air-pipe, the arrangement of the air-pipe with its outlet in such position that the blast of air through it will be directed downward and upon the surface and into the body of the liquid under treatment, substantially as above set forth.

11. In an apparatus for oxidizing drying-oils or other liquids, in which such oils or liquids are to be oxidized beyond the point at which they become thick or solid at ordinary temperatures, the combination of a tank or vessel to contain the liquid under treatment, a pipe leading from such liquid, connected with a pump or equivalent device for propelling the liquid through such pipe and terminating in atomizing apparatus, and a suitable device for heating the oil or liquid when partially oxidized and maintaining it in a fluid condition, substantially as and for the purposes above set forth.

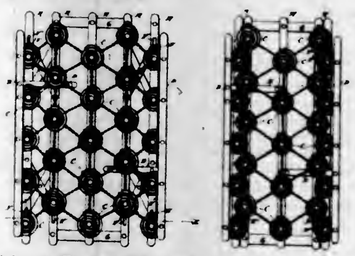
12. In an apparatus for oxidizing drying-oils or other liquids, in which such oils or liquids are to be oxidized beyond the point at which they become thick or solid at ordinary temperatures, the combination of a tank or vessel to contain the liquid under treatment, a pipe leading from such liquid, connected with a pump or equivalent device for propelling the liquid through such pipe and terminating in atomizing apparatus, and a coil of steam-pipe within such containing-vessel, substantially as and for the purposes above set forth.

353,359. SEED-PLANTER. WILLIS A. HOLLAND, Lewisville, Tex. Filed Apr. 9, 1886. (No model.)



Claim.—In a cotton-seed planter, the combination, with a supporting-frame, of a revolving hopper comprising circular heads connected by cross-bars having recesses, circular strips inclosing the cross-bars and leaving a space within their inner ends, flanges secured between and projecting through the circular strips and leaving a space between them, a slotted plate located on one of the bars of the frame and having its end located between the flanges, and a set-screw for clamping the plate in place, substantially as set forth.

353,360. SPRING BED-BOTTOM. ROBERT W. HOMAN, Brooklyn, N. Y., assignor to the Farrell Brothers Company, of Connecticut. Filed May 22, 1886. (No model.)



Claim.—1. The combination, with a series of slats arranged parallel with each other, the center ones being secured in a fixed position by spring cross-slats rigidly secured thereto and adapted for folding, of adjustable outer slats operating in connection with the former in such a manner as to adapt the said bottom to beds of varied widths, substantially as set forth.

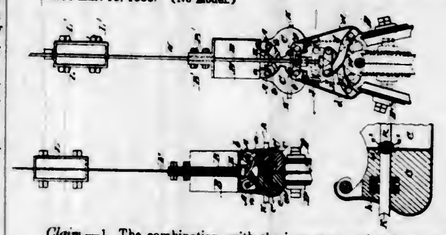
2. The combination, in a bed-bottom, with a series of centrally-located slats held in a fixed parallel position to each other by means of spring cross-pieces rigidly attached thereto, of connecting adjustable slats supporting a slat or side rail above, substantially as and for the purpose set forth.

3. A spring bed-bottom consisting of a series of connecting-slats, the center ones being non-yielding in respect to width, but adapted to be folded, provided with outside connecting-slats adjustably held and operated by means of cross-linked devices supporting slats or rails above, substantially as and for the purpose set forth.

4. A spring bed-bottom provided with a series of central slats rigidly secured together in respect to their lateral relation, to which also are connected outer adjustable slats held and operated by cross-linked connections supporting upper side slats, and a series of coiled springs united by chains, substantially as set forth.

5. A bed-bottom consisting of a series of central slats rigidly fixed in respect to their lateral relation to each other, and supporting a series of coiled springs above, and adjustable outer side slats, and one or more angular spring-arms supporting upper side slats or rails, substantially as set forth.

353,361. CABLE-GRIP FOR CARS. THOMAS KERR, New York, N. Y. Filed Mar. 13, 1885. (No model.)



Claim.—1. The combination, with the jaws or grasping devices of a cable-grip and a vertically-movable lifting device, of toggle-levers for opening and closing the lifting devices, substantially as and for the purposes set forth.

2. The combination, with lifting-wheels and hinged arms carrying the same, of a sliding bar and toggle-levers connected to said bar and hinged arms, substantially as herein shown and described.

3. The lifting devices D D', attached to the arms *d*, hinged to the plates G, in combination with the toggle-levers *f f*, attached to the arms *d*, and plate J', attached to the vertically-movable rod J, whereby the lifting devices may be opened and closed by raising and lowering the rod J, substantially as described.

4. The hinged arms *d d*, carrying lifting devices D D' at their lower ends and hinged at their upper ends to the plate G, attached to vertically-movable rods H, in combination with vertically-movable bar J, plate J', and toggle-levers *f f*, hinged to plate J' and to arms *d*, whereby vertical movement of rod J will open and close lifting devices D D' and vertical movement of plates H will raise or lower the whole lifting device, substantially as described.

5. The grasping-jaws C, formed of a shell, *c*, with a filling, *c'*, of soft metal or non-metallic substance, substantially as and for the purposes described.

6. The combination, with the jaws C, of the yielding grasping-wheels K, journaled in the said jaws, substantially as and for the purpose set forth.

7. The jaws C, hinged upon or suspended from suitable rods, A, in combination with the vertically-movable rod F, plate E, and toggle-levers *b*, hinged to the jaws and plate E, substantially as and for the purposes set forth.

8. The frame-pieces B and L, formed with hinges B' and L', respectively, in combination with main body of the frame and the elevating and gripping mechanism, whereby the grip will follow the curves of the cable, substantially as described.

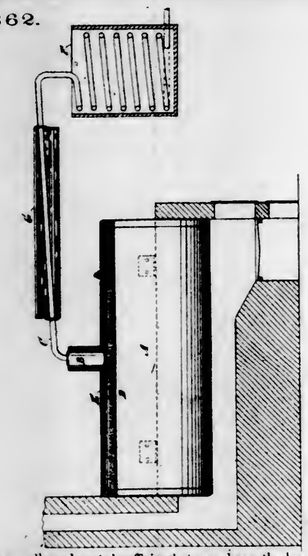
353,362. PROCESS OF DISTILLING PETROLEUM. GEORGE H. KLINE, Pamrapo, N. J., assignor of one-half to A. C. Henderson, Brooklyn, N. Y. Filed Aug. 3, 1885. (No specimens.)

Claim.—1. In the process of distilling crude petroleum, passing the light vapors of the petroleum through a thin layer of divided material located upon a perforated diaphragm above the surface of the liquid and within the body of the still, and which material is at a lower degree of temperature than the vapors and does not substantially act chemically upon the vapors, whereby the heavier vapors are obstructed and caused to return for redistillation, substantially as described.

2. In the process of distilling crude petroleum, passing the light vapors of the petroleum through thin a layer of divided material within the body of the still having an extended surface in comparison with its depth, which material is at a lower degree of temperature than the vapors and does not substantially act chemically upon the vapors, whereby the heavier vapors are obstructed and caused to return for redistillation, substantially as described.

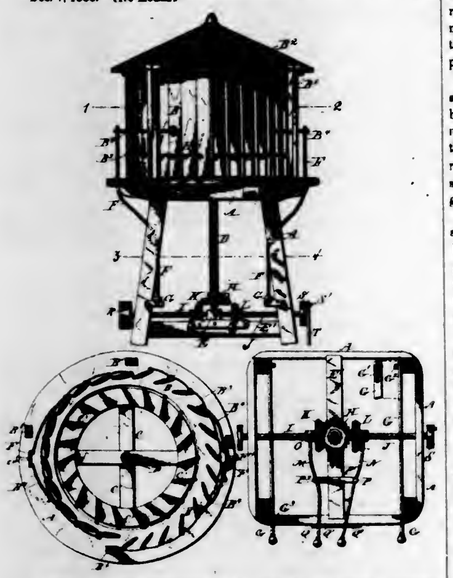
3. In the process of distilling crude petroleum, passing the light vapors of the petroleum through a thin layer of divided material located upon a diaphragm immediately above the surface of the liquid and within the body of the still, and which material is at a lower degree of temperature than the vapors and does not act chemically upon the vapors, thence passing the light vapors as they leave the still through a pipe

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inclined upwardly and cooled sufficiently to condense the heavier vapors, but not sufficiently to condense the lighter vapors, whereby by the action of said divided materials and said cooled pipe the heavier vapors are condensed and fall back into the still for redistillation, while the vapors pass over into the condenser, substantially as described.

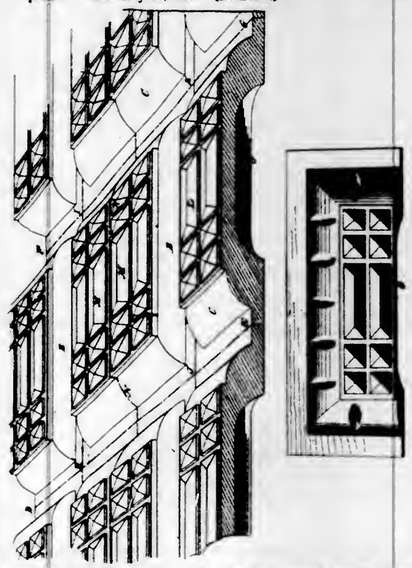
353,363. WINDMILL. CHARLES LUDWIG, Reinbeck, Iowa. Filed Dec. 7, 1885. (No model.)



Claim.—1. The combination of the tower A, the casing B, mounted thereon and comprising vertically-pivoted slats, the links B^3, connecting consecutive slats in each separate series, and the pivoted levers F, connected at opposite sides of their pivots to the slats of said separate series by rods B^4, substantially as specified.

2. The combination of the wind-wheel C, vertical shaft D, supporting the same, gear H, secured to shaft D, horizontal shafts I J, sliding gears K L, mounted thereon, levers M N, connected with said sliding gears, and the fixed central bearing-block, E, common to all the shafts, substantially as specified.

353,364. PROCESS OF MANUFACTURING ORNAMENTAL WOODEN HANDLES. FREDERICK MANKEY and CHARLES P. MANKEY, Williamsport, Pa. Filed July 12, 1886. (No model.)



Claim.—1. The method of making ornamental wooden handles, substantially as herein set forth, which consists in first forming on the surface of a block, plank, or board a new ornamental configuration and deep channels or grooves standing at an angle to or transversely the direction of the grain of the wood and like channels standing longitudinally the direction of said grain, then dividing said board along the center lines of said channels and forming finger notches or recesses in the pieces so produced.

2. The method of making ornamental wooden handles, substantially as herein set forth, which consists in first forming on the surface of a block, plank, or board a new ornamental configuration, and deep channels or grooves standing at an angle to or transversely the direction of the grain of the wood and like channels standing longitudinally the direction of said grain, then dividing said board along the center line of said channels, and then dividing the pieces so produced and forming finger notches or recesses in said pieces.

3. The method of making ornamental wooden handles, substantially as herein set forth, which consists in forming on the surface of a block, board, or plank a new ornamental configuration, and deep channels or grooves disposed at an angle to or transversely the grain of the wood, then dividing said board along the center line of said channels, dividing the pieces so produced, and forming finger notches or recesses in said pieces.

4. The method of making ornamental wooden handles, substantially as herein set forth, which consists in forming on the surface of a block, plank, or board a new ornamental configuration, and deep channels or grooves disposed at an angle to or transversely the grain of the wood, then dividing said board on the center lines of said channels, and then forming on the rear side of the pieces so produced finger notches or recesses.

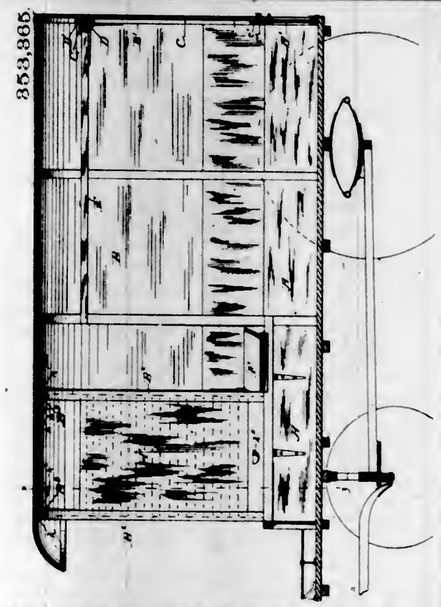
5. The method of making ornamental wooden handles, substantially as herein set forth, which consists in producing on the surface of a board, block, or plank a new ornamental configuration, and deep channels or grooves C transversely the direction of the grain of the wood, dividing said board on the center lines of said channels, dividing said board on the lines N N, and forming on the rear side of the pieces so produced finger notches or recesses.

353,365. COVERED DELIVERY-WAGON. JOHN T. MCLAUGHLIN, Chicago, Ill. Filed Apr. 12, 1886. (No model.)

Claim.—1. The combination, with a delivery-wagon body, A, having hinged tail-board A', of its cover B and cover-frame posts or pieces B', provided with rabbets or offsets *b* and strips *b'*, secured thereto, and vertically-sliding flexible wood-slat door C, having its base-slat *c'* provided with a catch or locking device, c^3, substantially as specified.

2. The combination, with a delivery-wagon body, A, having hinged tail-board A', of its cover B and cover-frame posts B', provided with rabbets or offsets *b* and strips *b'*, secured thereto, and vertically-sliding

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flexible wood-slat door C, having its base-slat c' provided with a catch or locking device, c^3, and a holding device, c^4, substantially as specified.

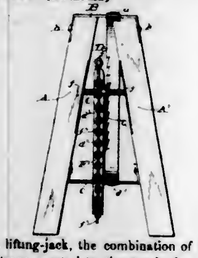
3. The combination, with a delivery-wagon body, A, of its cover B and cover-frame posts or pieces B', and a vertically-sliding flexible wood-slat rear end door, C, mounted in grooves or guideways b^2 on said posts B', roller D, and horizontal guides or supports E, secured to the uprights B', substantially as specified.

4. The combination, with a delivery-wagon body, A, of its cover B and cover-frame posts or pieces B', and a vertically-sliding flexible wood-slat rear end door, C, mounted in grooves or guideways b^2 on said posts B', rollers D and D', and horizontal guides or supports E, secured to the uprights B', substantially as specified.

5. The combination, with a delivery-wagon body, A, of its cover B and uprights B' and B^2, a vertically-sliding flexible wood-slat rear end door, C, mounted in grooves or guideways b^2 on the rear uprights, B', rollers D and D', horizontal guides or supports E, secured to said uprights B', and vertically-sliding flexible wood-slat side protectors, H and H', mounted in guide-grooves *h* and *h'* in said uprights B^2, said guide-grooves extending along the horizontal part B^3 of said frame-pieces B^2 and overlapping each other, substantially as shown and described.

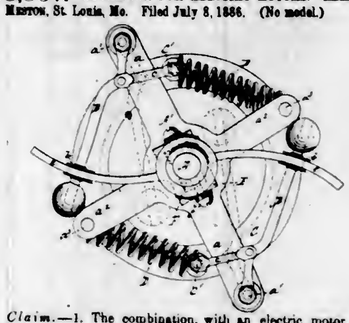
6. The combination, with a delivery-wagon body, A, of its cover B and uprights B', having rabbets *b* and strips *b'* secured thereto, roller D, guides or supports E, and vertically-sliding flexible wood-slat door C, having a holding device, c^3, consisting of a cam or curved catch pivoted to the base-slat of said door, and adapted to bear against the face of one of the uprights, B', substantially as specified.

353,366. LIFTING DEVICE. JAMES M. MCNARR, Boonsville, Tex. Filed July 12, 1886. (No model.)



Claim.—In a lifting-jack, the combination of the inclined uprights or standards, the straps secured to the standards at the upper ends and middle thereof, to connect the same together, the vertical rack-bar secured at its ends to the said straps, the rock-shaft journaled in the uprights, the lever arranged on one side on the rack-bar, and pivoted on the rock-shaft by transverse pivot-bolt *c'*, and capable of a vertical movement on the shaft and a lateral movement on the pivot-bolt, the plate carried by the lever and projecting beyond one side thereof to engage the teeth of the rack-bar, and a chain connected to the shorter end of the lever, substantially as described, for the purpose set forth.

353,367. GOVERNOR FOR ELECTRIC MOTORS. ALEXANDER W. MEIXON, St. Louis, Mo. Filed July 8, 1886. (No model.)



Claim.—1. The combination, with an electric motor, of a loose power-transmitting device, an interposed mechanical resistance whose force varies with the speed of the shaft, and a switch or commutator controlled by the movement of said interposed mechanism, whereby the equilibrium or balance between power and load is maintained, notwithstanding a change of either, substantially as and for the purposes specified.

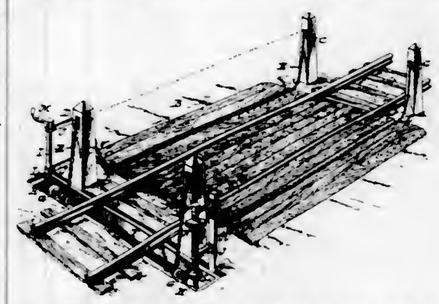
2. In combination with an electric motor, a power-transmitting device, a centrifugal governor connecting the motor with the power-transmitting device, and a commutator or switch operated through the governor, substantially as and for the purposes specified.

3. In combination with a motor-shaft, a centrifugal governor, a loose pulley connected with the governor-arms, a yielding connection between the shaft and the pulley operating in opposition to the governor-arms, and a shunt or commutator operated by the movement of the governor-arms, substantially as and for the purposes specified.

4. In combination with an electric motor, a centrifugal governor, a power-pulley loose on the shaft of the motor and connected therewith by a yielding resistance, and also connected to the governor, sliding forks journaled on the shaft and which embrace the governor-arms, and a commutator or switch controlled by the forks, substantially as and for the purposes specified.

5. The combination, with the shaft of an electric motor, of a loose power-transmitting device, a commutator or switch controlled by the power-transmitting device, and a centrifugal governor interposed between the power-transmitting device and the shaft of the electric motor, substantially as and for the purposes specified.

353,368. CROSSING-GUARD. DAVID L. MILLER, Trinidad, Colo., assignor to William H. Ely, New York, N. Y. Filed Nov. 16, 1885. (No model.)



Claim.—1. In combination with posts C C C' C', chains E E, shaft F, provided with gear-wheels H, shaft I, provided with gear-wheel L, handle M, and pawl and ratchet N O, arranged substantially as herein described and shown.

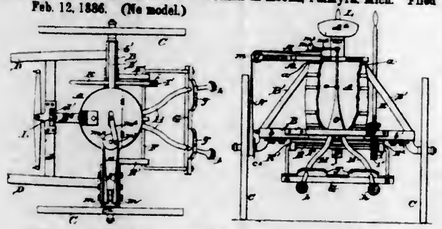
2. In a crossing-guard, the combination of posts C C', chain E, extending from post to post, a shaft, F, provided with a gear-wheel, H, and connected with one end of the chain, a shaft, I, provided with a gear-wheel, L, to mesh with gear H, and a hand-lever, M, all combined and arranged to operate substantially as shown and described.

353,369. CORD ATTACHMENT FOR ARTIFICIAL LEGS. George Moore, Rochester, N. Y. Filed Sept. 15, 1886. (No model.)



Claim.—The cord attachment herein described, consisting of the cord having looped ends, the bearing provided with a concave seat, the cylindrical pin passing through one of the loops and resting in the seat, the sheath inclosing the top of the cord, and the rubber spring around the sheath, as herein shown and described.

353,370. SPRINKLER. William H. Moore, Palmyra, Mich. Filed Feb. 12, 1886. (No model.)



Claim.—1. In a water-sprinkler, a barrel, A, mounted upon an axle, B, supported upon wheels C, in combination with an oscillating paddle, O, its supporting-bar *o*, connecting-rod m^4, pulley m^3, having crank-arm m^3, belt N, and pulley c^2, formed upon the wheel-hub, substantially as described.

2. The combination, with the barrel or reservoir, of the distributing-pipes connecting therewith, the supporting-bar G for the pipes, the journaled rod or shaft F, having its end bent outward and secured in the bar G, the pivoted bar E, the arms E' E^2, provided on the said bar and forming bearings for the rod or shaft F, and connecting devices to shift the bar E on its pivot, for the purpose set forth.

3. The combination, with the barrel or reservoir, of the distributing-pipes connecting therewith, the bar G, supporting the outer ends of the pipes, the journaled rod or shaft F, having its ends bent outward and secured in the bar G, and a lever, K, connecting with the rod or shaft F, as set forth.

4. The combination, with the barrel or reservoir, of the distributing-pipes connecting therewith, the pivoted or hinged bar G, supporting the outer ends of the pipes, the pivoted oscillating bar E, connected to the bar G, and means for oscillating the bar E, as set forth.

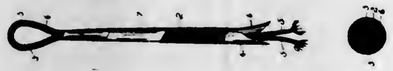
5. The barrel or reservoir, in combination with the distributing-pipes connecting therewith, the hinged or pivoted bar G, for supporting the pipes, the bar F, connecting with the bar G, a bar, E^2, and a pivoted lever, L, engaging with bar E^2 to oscillate bar E, as set forth.

6. The barrel or reservoir, in combination with the distributing-pipes connecting therewith, the hinged bar G, for supporting the pipes, the bar F, connecting with bar G, the lever K, for elevating the hinged bar, and oscillating bar E, for operating the bar G, and a lever, L, connecting with the bar E, as set forth.

7. The combination, with the barrel or reservoir, of the oscillating paddle O therein, the supporting-bar *o*, from which the paddle is pivotally hung, the connecting-rod m^4, the pulley m^3, to which the rod is connected, and means for operating the said pulley from the driving-wheels, as set forth.

8. The barrel or reservoir, in combination with the stirrer or paddle therein, the adjustable bar or timber M, extending out from the top of the barrel, pulleys *m* on the outer end of the bar M, a pulley, m^3, connecting with and driving the pedale or stirrer, and a belt, N, connecting the pulley m^3 with the driving-wheel and passing over the pulleys *m*, whereby the adjustability of the bar or timber M allows the slack of the belt N to be taken up, as shown.

353,371. WHIP. Henry Mullen, Westfield, Mass. Filed July 12 1886. (No model.)



Claim.—As an improved article of manufacture, a whip having a lash-loop consisting of several wires having their ends secured in the tip of the whip, the latter and said loop having a suitable covering, substantially as set forth.

353,372. METHOD OF AND MEANS FOR MAKING SHOVELS. Henry M. Myers, Beaver Falls, Pa. Filed May 26, 1886. (No model.)



Claim.—1. The improvement in the art of making shovels to the shearing-point hereinbefore described, which consists in heating a bar of metal and cutting blanks therefrom, splitting the tang of the blank and forming the socket for the handle, partly reducing the blank and rolling out the tang to its proper dimensions for the handle-straps between wet rolls, and completing the rolling and pointing the blade between dry rolls, substantially as described.

2. The improvement in the art of making shovels to the shearing-point hereinbefore described, which consists in heating a blank, splitting the tang and forming the socket for the handle, partly reducing the blank and rolling out the tang to its proper dimensions for the handle-straps between wet rolls, and completing the rolling and pointing the blade between dry rolls, substantially as described.

3. The improvement in the art of making shovels to the shearing-point, which consists in heating a blank, splitting the tang and forming the socket for the handle, partly reducing the blank and rolling out the tang to its proper dimensions for the handle-straps between wet rolls, reheating the blank, and completing the rolling and pointing the blade between dry rolls, substantially as described.

4. The improvement in the art of making shovels to the shearing-point hereinbefore described, which consists in heating a bar of metal and cutting blanks therefrom, splitting the tang of the blank and forming the socket for the handle, partly reducing the blank and rolling out the tang to the proper dimensions for the handle-straps between wet rolls, then pickling the blank, reheating the same, completing the rolling and pointing the blade between dry rolls, substantially as described.

5. The improvement in the art of making shovels to the shearing-point hereinbefore described, which consists in heating a blank, splitting the tang, and forming the socket for the handle, partly reducing the blank and rolling out the tang to the proper dimensions for the handle-straps between wet rolls, then pickling the blank, reheating the same, completing the rolling and pointing the blade between dry rolls, substantially as set forth.

6. The process of making shovels to the shearing-point, which consists in splitting the tang of a heated blank and forming the socket for the handle, partly reducing the blank by passing it through rolls tang foremost, then through other rolls, first tang foremost then blade foremost, then reducing the tang to proper dimensions for handle-straps, pickling the blank, then reheating the same, and, finally, completing the rolling and pointing of the blade, substantially as described.

7. The improvement in the art of making shovels from heated blanks, which consists in partially reducing the blade and rolling out the tang to its proper dimensions for the handle-straps between wet rolls, and completing the rolling and pointing the blade between dry rolls, substantially as described.

8. The means herein described for reducing shovel-blanks, which consists in the combination of breaking-down rolls, a pair of rolls having a plain surface and an eccentric portion, water-distributing pipes for said rolls, and a third pair of rolls having an eccentric recess in one of the rolls, substantially as described.

353,373. BIER. George W. Newton and George Terry, Hubbard, Ohio. Filed Apr. 3, 1886. (No model.)

Claim.—1. In a bier, the axles having the supporting-wheel and the tongues pivoted to the axles and having the extensible outer section, and means for engaging said section to support the tongues in an upright position, as set forth.

2. In a bier, the combination of the axles, the standards secured to the axles, and the blocks H, swiveled to the standards, as set forth.

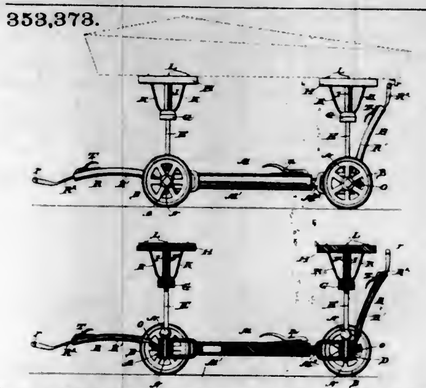
3. In a bier, the combination of the axles, the reach having each end pivoted to one of the axles, the standards secured to the axles, and the blocks H, swiveled to the standards above the centers of the axles, substantially as described.

4. In a bier, the blocks H, having the projecting pins, for the purpose set forth, substantially as described.

5. In a bier, the combination of the axles and the extensible tongues connected thereto, substantially as described.

6. In a bier, the combination of the axles having the loops or keepers and the tongues pivoted thereto, and provided with the extensible outer sections, R^2, adapted to be moved inwardly to cause their inner ends to engage between the axles and the loops, to support the tongues

353,378.

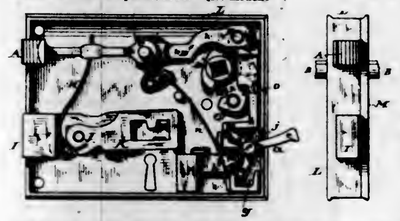


in an upright position, for the purpose set forth, substantially as described.

7. In a bier, the reach, in combination with the axle carrying the wheels and removable from the reach, the standards extending up from the axles and removable therefrom, and the removable blocks placed in the standards, as set forth.

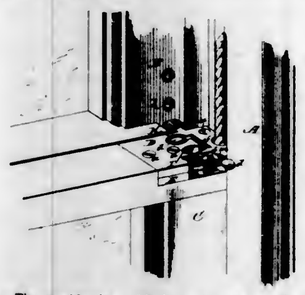
8. In a bier, the combination, with the axles, of the standards extending up therefrom and the blocks swiveled on the standards and removable therefrom, and provided with devices—such as projecting pins—to engage with the coffin, as set forth.

353,374. COMBINED LATCH AND LOCK. Floyd N. Perkins, Cleveland, Ohio. Filed Apr. 16, 1886. (No model.)



Claim.—In a combined latch and lock, the combination, with the spring-latch and the cam-lever *a*, having pivotal bearings in the case, and provided with arms *c*, *d*, and *e*, of the slide *h*, provided with a head and adapted to be operated by said lever to cover the key-hole, and the stop slide *k*, also operated by the lever to a position between the lock-case and said latch, when in a locked position, to prevent the retraction of the latter, substantially as and for the purpose set forth.

353,375. SASH-LOCK. Harry P. Prior, Fort Worth, Tex. Filed Feb. 16, 1886. (No model.)

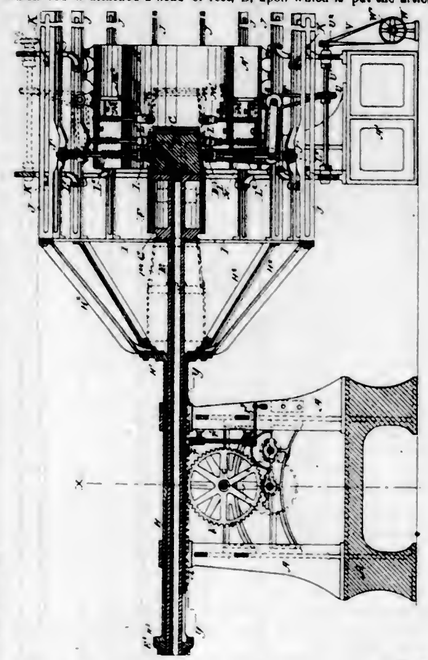


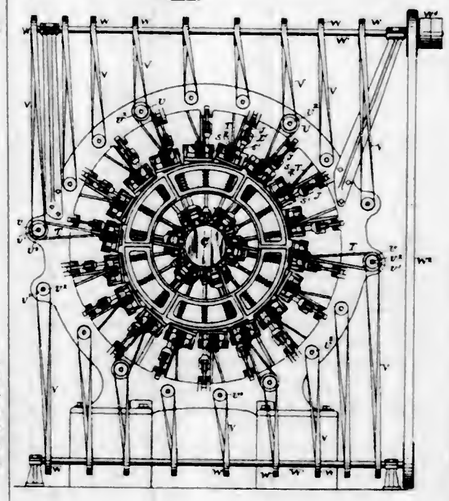
Claim.—The combination, with the sash and frame having perforations *h i*, the casing D E, having mortise-seats H I, recesses *b c*, and shouldered slots *f k*, of the bolts F G, seated in said recesses and having shanks with knobs *d d*, working in said slots, whereby said bolts are locked in or out of engagement with said perforations by means of the shanks of the bolts coming in contact with the shouldered slots of the casing with their knobs seated in the mortises H I flush with the face of the casing, substantially as shown and described.

353,376. GROOVING-MACHINE. Israel L. G. Rice, Brookline, Mass. Filed Feb. 19, 1886. (No model.)

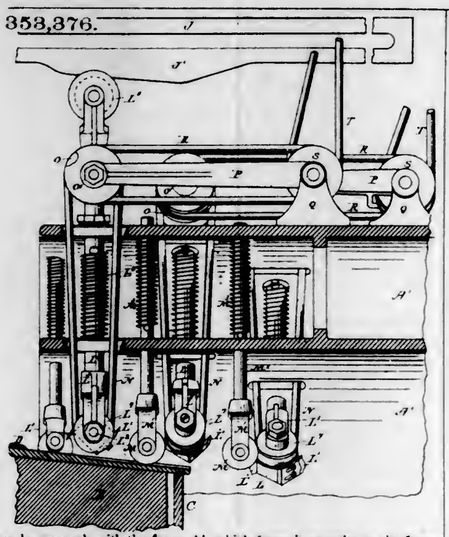
Claim.—1. The combination, in a grooving-machine, of the frame A, having a reciprocating sleeve or rod, E, and its operative mechanism, to which rod is attached a head or rest, B, upon which is put the article to be grooved, with the frame A', which frame is opposite to the frame A and may be on the same bed-plate with it, the frame A' having a number of cutters, L' L' L', arranged in circular or angular order, the cutting-edge of the cutters being at such a distance apart from one another as to admit of the article on the head B pressing into the circle of the cutters, so that a number of longitudinal grooves may be cut in various parts of the periphery or the entire periphery of the article on the head at one operation of the machine, substantially as set forth.

2. The combination, in a grooving-machine, of the frame A, having a reciprocating sleeve or rod, E, and its operative mechanism, to which rod is attached a head or rest, B, upon which is put the article





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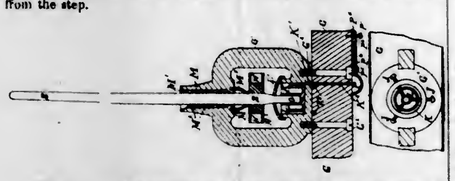


to be grooved, with the frame A', which frame is opposite to the frame A and may be on the same bed-plate with it, the frame A' having a number of pressure-rolls, M M M, and cutters L' L' L', arranged in circular or angular order, the cutting-edges of the cutters being at such a distance apart from one another as to admit of the article on the head B passing into the circle of cutters, so that a number of longitudinal grooves may be cut in various parts of the periphery or the entire periphery of the article on the head at one operation of the machine, substantially as set forth.

3. The combination, in a grooving-machine, of the frame A, having a reciprocating sleeve or rod, E, and its operative mechanism, to which rod is attached a head or rest, B, upon which is put the article to be grooved, with the frame A', which frame is opposite to the frame A and may be on the same bed-plate with it, the frame A' having a number of pressure-rolls, M M M, and dam-rods J J J, cutter-rods L^4 L^4 L^4, and the cutters L' L' L', arranged in circular or angular order, the cutting-edges of the cutters being at such a distance apart from one another as to admit of the article on the head B pressing into the circle of cutters, so that a number of longitudinal grooves may be cut in various parts of the periphery or the entire periphery of the article on the head at one operation of the machine, substantially as set forth.

353,377. SPINNING-MACHINE. John S. Richardson, Lowell, assignor to George Draper & Sons, Hopedale, Mass. Filed July 31, 1882. (No model.)

Brief.—The invention relates to means for stopping the revolution of the spindles by the operation of the belt-shipping devices and connecting mechanism, and to means for catching the oil which overflows from the step.



Claim.—1. The combination of the shipper F, the rock-shaft T, provided with brakes, and means of connecting said shipper and rock-shaft, and operating said rock-shaft and brakes by the movement of said shipper, as and for the purposes set forth.

2. The combination of the shipper F, provided with the arm F^2 and pin F^3, the rock-shaft T, provided with brakes, and with an arm, T^4, having an incline, T^5, at its free end, as and for the purpose specified.

3. The combination of the shipper-rod, the shipper, the arm V', the valve V, and the trunk Q, as and for the purpose specified.

4. The oil-cup P, provided with the jointed arm P^4, turning on the pivot P', in combination with said pivot and the spiral spring P^5, as set forth.

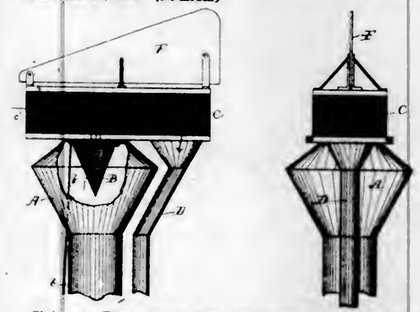
5. The stand G', provided with the cavity K and the oil-passage K', in combination with the rail G, provided with the oil-passage K^3, and the cup P, as and for the purpose specified.

6. The stand G', provided with the cavity K and oil-passage K', and the rail G, provided with the annular groove K^2 and oil-passage K^3, and the oil-cup P, as and for the purpose specified.

353,378. LIQUID FOR THE PRODUCTION OF COLD. Auguste J. Rossi, New York, N. Y., assignor to George H. Robinson, same place. Filed July 8, 1885. (No specimens.)

Claim.—The improved binary liquid composed of liquefied anhydrous sulphurous acid and carbonic-acid gas absorbed and held in solution by it for the production of cold, substantially as described.

353,379. SPARK-ARRESTER. Meherad Rumely, La Porte, Ind. Filed Mar. 29, 1886. (No model.)



Claim.—1. The revoluble hood for smoke-stacks, pivoted to the top of the smoke-stack in such manner as to be capable of being turned with its open mouth toward the wind, substantially as specified.

2. The combination, with the revoluble open-mouth perforated hood, of a vane for holding the hood in position to the wind, substantially as specified.

3. The combination of the perforated open-mouth revoluble hood, the smoke-stack to which it is pivoted, and the interior inverted cone or screen B, substantially as specified.

4. The combination, with the smoke-stack A, the interior inverted perforated cone, B, attached to the stack in such manner that it may be shaken, of the rod or pull *b*, connected to the cone or its support in such manner that the cone may be shaken by power applied to said rod or pull, substantially as specified.

353,380. BICYCLE. Lucian A. Rust, Loudonville, Ohio. Filed June 24, 1886. (No model.)



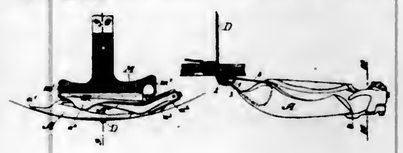
Claim.—1. In a bicycle, the combination of a reversible saddle and a reversible steering-gear, as set forth.

2. In a bicycle, means for adjusting the seat for riding with either wheel foremost, in combination with mechanism for adjusting the steering apparatus for riding in a corresponding direction, as described.

3. In combination with the forks or standards B, the head *a*, shaft C, and an adjustable piece carrying the handle-bar and adapted to be applied either to the shaft C or the standard, substantially as and for the purposes set forth.

4. In combination with the standard B, head *a*, shaft C, and adjustable piece carrying the handle-bar, the detachable saddle adapted to be reversed in position, substantially as set forth and described.

353,381. SEWING-MACHINE. Anton C. Sabey, Kansas City, Mo., assignor to himself, and George P. Best, Chicago, Ill. Filed Sept. 17, 1885. (Model.)



Claim.—1. The combination, with the eye-pointed needle and the to-and-fro-moving shuttle carrier or driver of a lock-stitch sewing-machine, of a looper adapted to be held in and carried by such carrier or driver in lieu of the shuttle, substantially as specified.

2. The combination, with the eye-pointed needle and the shuttle-carrier, of the hook-shaped looper, the extremity of one limb whereof carries the point *a*, for engaging the loops, substantially as specified.

3. The combination, with the eye-pointed needle and the to-and-fro-moving shuttle carrier or driver, of a looper having a back, *m*, substantially as specified.

4. The combination, with the eye-pointed needle and a to-and-fro-moving shuttle-carrier, of the looper consisting of the hook A A', having the engaging-point *a*, the shipper *a'* at the bend, the guard for confining the loop, and the cast-off a^2, substantially as specified.

5. The combination, with the eye-pointed needle and the to-and-fro-moving shuttle-carrier, of the looper consisting of hook A A', having the engaging-point *a*, the shipper *a'*, the guard for confining the loop, the loop-detaining device a^4, and the cast-off a^2, substantially as specified.

6. The looper provided with the cushion *o*, in combination with a shuttle-carrier, substantially as specified.

7. The eye-pointed needle and the to-and-fro-moving carrier, in combination with the looper having a loop-engaging point, *a*, and a shipper, *a'*, substantially as set forth.

8. The eye-pointed needle and the to-and-fro-moving carrier, in combination with the hook-shaped looper, the limbs whereof are in the same horizontal plane, substantially as specified.

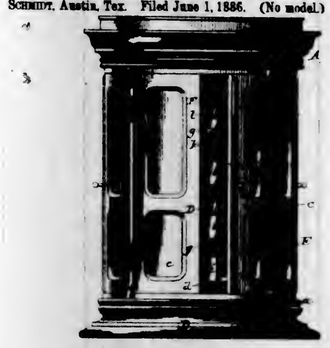
9. The eye-pointed needle and the to-and-fro-moving carrier, in combination with a hook-shaped looper, the limbs whereof are in the same horizontal plane, and the bend of which looper is provided with a shipper, *a'*, substantially as specified.

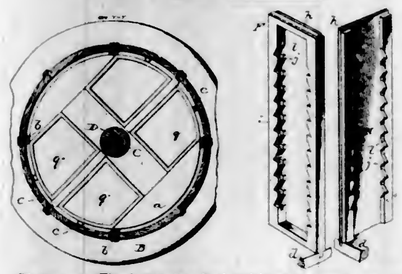
10. The eye-pointed needle and the to-and-fro-moving carrier, in combination with a looper having a confining-guard, a^3, substantially as specified.

11. The looper having a cast-off, a^2, and the projecting lip a^4 below the cast-off, the latter bearing against the shuttle-race, in combination with the shuttle-carrier and the eye-pointed needle, substantially as and for the purpose set forth.

12. As a new article of manufacture, a chain-stitch looper consisting, essentially, of a hook-shaped frame having the point *a*, the shipper *a'*, a guard for confining the loop to prevent interference with the following loop, and a cast-off projection, substantially as specified.

353,382. COMBINED WARDROBE AND BOOK-CASE. Julius F. Schmidt, Austin, Tex. Filed June 1, 1886. (No model.)





Claim.—1. The herein-described article of furniture, comprising cap A, base B, stem C, connecting the cap and base, tubular post D, encircling stem C, and revolving case E, provided with heads *a a* between the cap and base, and resting upon the base B or rollers therein.

2. In an article of furniture of the class described, the combination, with cap A, base B, and stem C, of the revolving case E, mounted upon the base B and provided with two or more removable and interchangeable upright frames adapted to be removed without dismounting the body.

3. In an article of furniture of the class described, the combination, with cap A, base B, and stem C, of case or body E, provided with grooved heads *d*, adapted to turn independently of the body when desired, and a series of removable frames adapted to be inserted into the grooves in the heads *d*, substantially as shown.

4. In an article of the class described, the revolving case E, provided with heads *a*, and uprights *b*, connecting said heads, disks or beads *d*, provided with grooves *f*, terminating opposite said uprights, frames F, inserted in said grooves, and screws *e*, all arranged substantially as shown.

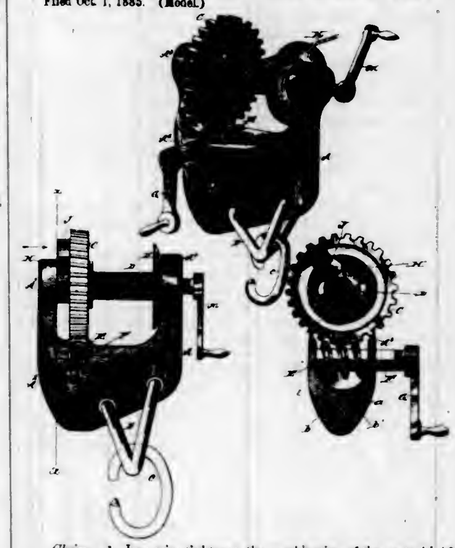
5. The combination, with case E, frame F, provided with upright bars *i*, the latter having sockets *j* and a beveled face, *l*, above each socket, cross-bars *k*, to fit said sockets and extending from one bar *i* to the other, and shelves *g*, resting upon the cross-bars *k*, substantially as shown.

6. In combination with revolving case E, shelves *g*, made in sections, and provided with pins *o* and sockets *p* in their adjacent faces.

7. In combination with revolving case E, provided with heads *a a*, uprights *b*, and heads *d d*, drawers *g*, inserted between the heads *a* and *d* at the top and bottom of the case E, and doors *c*, hinged to the uprights *b* and adapted to close over the drawers.

8. The revolving case E, provided with a series of interchangeable partitions or frames, as F G H, whereby the device may be used as a book-case or wardrobe, or both.

353,383. WIRE-STRETCHER. Willis D. Sherman, Dixon, Ill. Filed Oct. 1, 1885. (Model.)



Claim.—1. In a wire-tightener, the combination of the parts A' A^3, which form the plate A and have projected ends A^3, with the shaft F, journaled in said parts and having worm-gear E, and the shaft D, journaled in the ends A^3, and having the gear C, loosely mounted thereon and provided with a stop, all substantially as shown and described.

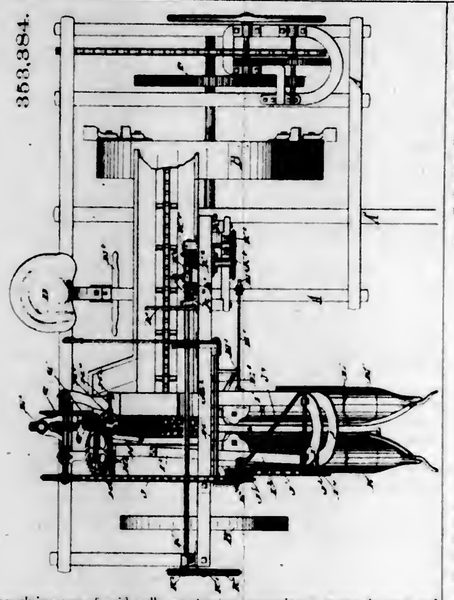
2. In combination with plate A, consisting of the part A' A^3, united as described, and the shaft F, having worm-gear E, the shaft D, provided with lug H, and the gear C, mounted on said shaft and having the dog J, and engaging with said worm-gear, substantially as described.

3. In a wire-tightener, the combination, substantially as described, of the several parts—viz., the plate A, consisting of parts A' A^3, carrying link B, and having projected ends A^3, the shaft F, having worm-gear E, and journaled in parts A' A^3, the shaft D, journaled in parts A^3, and having plate D', and lug H, and the gear C on said shaft, provided with dog J, substantially as set forth.

353,384. CORN HARVESTER AND HUSKER. Gilbert B. Snow, Sugar Grove, assignor to William Deering, Chicago, Ill. Filed Oct. 6, 1884. (No model.)

Claim.—1. In combination with the co-operating rolls adapted to admit the standing corn between them, the longitudinal breaker-bar H,

353,384.



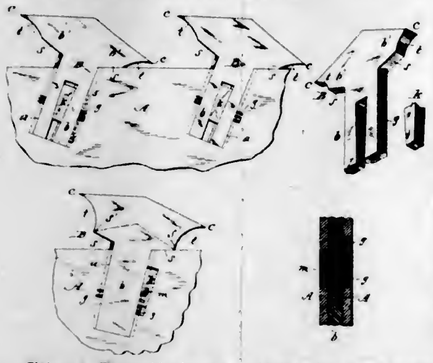
overlying one of said rolls, mechanism operating to move the rear end of the bar laterally and longitudinally, and the guide engaging the forward end of the bar and directing the same longitudinally, whereby the breaker-bar is caused to pass obliquely across the path of the stalks.

2. The picking mechanism, in combination with breaking mechanism, means whereby it may be adjusted so that the length of its stroke while in contact with the ear may be varied, substantially as and for the purpose specified.

3. In a corn-harvester, picking-rollers supported in bearings adapted to be made rigid in relation to each other or to yield elastically, substantially as and for the purpose described.

4. The two spirally-ribbed rolls reduced in diameter toward their forward ends, in combination with the two overlying guide-plates L and L', beginning at a point in advance of the rolls and extending thereover to a point at or near the termination of their reduced portions, said plates formed with broad upper surfaces, substantially as described, adapted to sustain the detached ears and prevent their descent between the rolls.

353,385. INSERTIBLE SAW-TOOTH. ELISHA S. SNYDER, Snyder's Mills, W. Va. Filed June 24, 1886. (No model.)



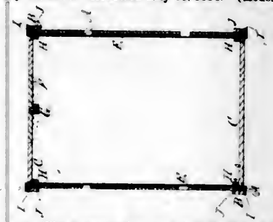
Claim.—1. The combination of a saw-blade having a socket formed entirely within the blade, a saw-tooth provided with two opposite cutting-edges, a shank having straight opposite edges adapted to fit any part of the socket when adjusted inward or outward, said shank being expansible, and a key for expanding the same, substantially as set forth.

2. A saw-tooth having a straight shank, two oppositely and similarly inclined straight shoulders, *s*, curved throats *t*, beyond said shoulders, and two opposite cutting-edges, *c*, in combination with a straight blade having a socket inclined at the same angle as are the shoulders *s*, the blade being thereby adapted to support one shoulder and to elevate the opposite cutting-edge and angle *s'*, substantially as set forth.

3. The combination of a saw-blade having a socket, a tooth having a shank and a series of grooves, and a soft flexible material in narrow form laced back and forth through said grooves, and through corresponding grooves in an opposing part, substantially as described.

4. The combination of a saw-blade having a socket, a tooth having a shank adapted to fit said socket, and having a series of recesses or grooves, a key bearing against the shank opposite said recesses, and having a series of similar recesses and a soft material, substantially as described, engaged with those recesses of the shank and key which correspond when said parts are adjusted, substantially as described.

353,386. BARREL, TUB, &c. JOHN A. TANNER, Louisville, Ky. Filed May 12, 1885. Renewed May 15, 1886. (Model.)

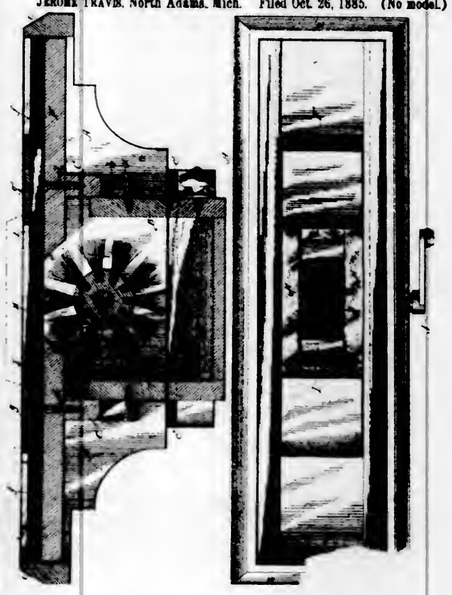


Claim.—1. The combination, in a barrel, of two series of diagonal staves, one series interwoven with the other, each stave extending the length of the barrel and partly around it, two hoops nailed to the inside of the staves at a little distance from the ends of the barrel-heads fitted within the staves upon the said inner hoops, other hoops fitted tightly around the staves over the heads, and nails extending through the outer hoops and staves into the head, substantially as shown and described.

2. The combination, in a barrel, of two sets of staves standing diagonally in opposite directions and interwoven with each other, each stave extending the full length of the barrel and partly around it, a lining of tough flexible sheet material against the inner face of the staves, heads fitted closely within the lining, and hoops around the staves binding them and the lining upon the heads and secured thereto by nails, substantially as shown and described.

3. The combination, in a barrel, of diagonally-interwoven staves, a flexible sheet lining therefor, hoops secured within the lining by nails passing through the staves and lining into the said hoops, heads fitted within the lining to rest on the said hoops, and other hoops around the staves binding them and the said lining upon the said heads, and secured by nails extending through the outer hoops, the staves, and lining into the heads, substantially as shown and described, for the purpose specified.

353,387. MACHINE FOR CLEANING BLACKBOARD-ERASERS. JEROME TRAVIS, North Adams, Mich. Filed Oct. 26, 1885. (No model.)



Claim.—1. A receptacle provided with an opening in one side thereof and a revolving brush therein, in combination with a movable cleaner-holder, substantially as described.

2. The receptacle having an opening in one side thereof and the revolving brush in said receptacle, in combination with an adjustable holder receiving the blackboard-cleaner held in contact with the brush, substantially as described.

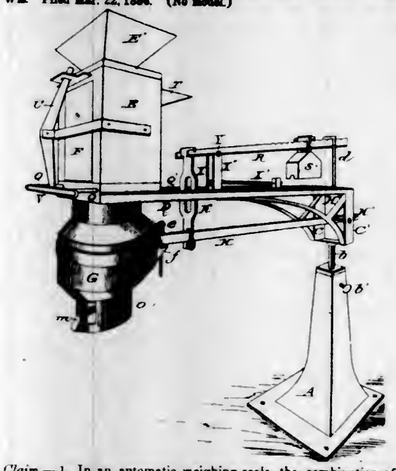
3. The receptacle having an opening in one side thereof, and the rotary brush, a cleaner-holder, and a bed-plate or guideway supporting said holder, substantially as described.

4. The receptacle having an opening in one side thereof and the revolving brush, in combination with a bed-plate and means for adjusting said bed-plate toward and from the brush, and a holder mounted on said bed-plate and free to reciprocate thereon, substantially as described.

5. In a machine for cleaning blackboard-erasers, a cleaning-brush in combination with a holder composed of opposing and normally abutting end pieces flexibly connected together, whereby said holder may be adjusted to cleaners varying in length, substantially as described.

6. The receptacle, the revolving brush therein, and a bed-plate having an opening providing access to the brush, in combination with a holder reciprocating on said bed-plate and adapted to close said opening, substantially as described.

353,388. AUTOMATIC WEIGHING-SCALE. HENRY K. WARNER, St. Paul, Minn., assignor of one-half to Francis Henry Harvey, Hudson, Wis. Filed Mar. 22, 1886. (No model.)

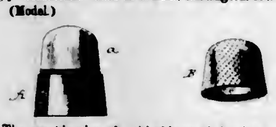


Claim.—1. In an automatic weighing-scale, the combination of a base, A, stem *b*, bracket-arms C and C', frame D, hopper E and E', with the weighing-hopper G, beam H, link K, scale-beam R, and weight S, all as and for the purpose set forth and described.

2. In an automatic weighing-scale, the combination of a hopper, E, a cut-off, T, lever-arms U, guide Q and Q', thumb-piece V, cut-off M, with the catch J, the plate L, link K, beams H and R, weight S, and hook *d*, and spring X', operating the plate I, all substantially as and for the purpose set forth and described.

3. In an automatic weighing-scale, the combination of the cylinder G', lever H, set-screw *e*, bracket *f*, arbor H'', link K, and scale-beam R, combined with the adjustable cylinder G'', standard *h*, case *g*, spring *i*, trap *k*, and trigger *m*, all substantially as and for the purpose set forth and described.

353,389. THIMBLE. OTTO E. WEBER, Burlington, Iowa. Filed June 19, 1885. (Model.)

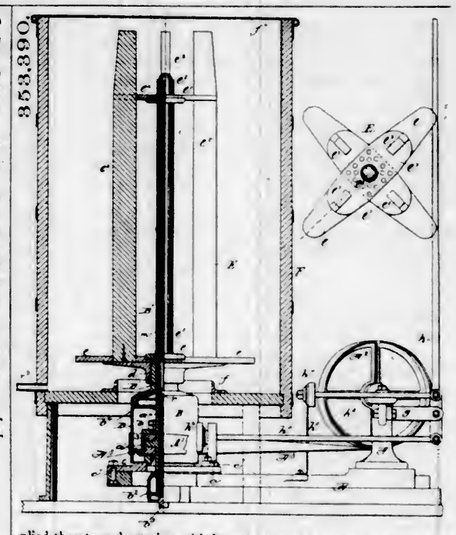


Claim.—The combination of a thimble-stock having a smooth apex and a removable punctured crown, substantially as and for the purpose described.

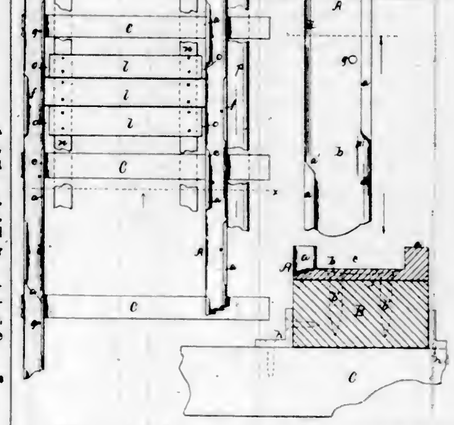
353,390. CENTRIFUGALLY-ACTING DRYING-MACHINE FOR CLOTH, &c. DAVID M. WESTON, Boston, Mass. Filed July 24, 1885. (No model.)

Claim.—The combination of an upright balanced spindle and means, substantially as described, to rotate it, with a skeleton reel applied thereto and rotating with it, and adapted to receive a bolt of cloth to dry it by centrifugal action, substantially as set forth.

353,390.



353,391. WAGON-RAILROAD. TIMOTHY WHALEN, Rochester, N. Y. Filed July 8, 1886. (No model.)



Claim.—1. A rail for a wagon-track having a bottom plate formed with equal upwardly-projecting flanges at the edges thereof and a channel between for the wheels of a vehicle, the floor of the said channel being straight across between the flanges, the opposing inner faces of said flanges rising in straight lines from said floor, said flanges being divided into sections by openings extending below the floor of said rail, substantially as and for the purpose set forth.

2. A rail for a wagon-track having a bottom plate formed with upwardly-projecting flanges at the edges thereof and a channel between for the wheels of a vehicle, said flanges being divided into sections by openings formed therein, so that a section of said flange at either edge of the rail shall be opposite an opening between two flanges at the other edge of the rail, substantially as shown.

3. A rail for a wagon-track having a bottom plate formed with flanges at the edges thereof and a channel between for the wheels of a vehicle, said flanges being divided into sections by openings formed therein, the ends of said sections being slanted or inclined, substantially as and for the purpose set forth.

4. A rail for a wagon-track having a bottom plate formed with flanges at the edges thereof, said flanges being divided into sections by openings formed therein, the portions of said bottom plate between the opposing ends of either two adjacent flanges at the same side of the rail being sloped downward or cut away, substantially as and for the purpose specified.

5. A rail for a wagon-track having a bottom plate formed with flanges at the edge thereof, said flanges being divided into sections by openings formed therein, the floor or tread of said rail being formed into alternately opposite-inclined water-sheds, substantially as shown.

6. A rail for a wagon-track having a bottom plate formed with flanges at the edges thereof, said flanges being divided into sections by openings formed therein, the rail being further formed with lateral extensions, substantially as shown, and for the purpose set forth.

7. A rail for a wagon-track having a bottom plate formed with flanges at the edges thereof, said flanges being divided into sections by openings formed therein, the rail being further formed with lateral extensions having notches formed in the edges thereof, substantially as and for the purpose specified.

8. A wagon-railroad formed of parallel tracks constructed of rails having flanges at the respective edges of each, said flanges being divided into sections by openings formed therein, so that a section of flange at one edge of the rail shall be opposite a space or opening at the other edge of the rail, said opposite rails of the track being placed so that a section of flange, for instance, at the inner edge of one rail shall be opposite a corresponding section of flange at the inner edge of the opposing rail, for the purpose set forth.

9. A wagon-railroad formed of parallel tracks constructed of rails having flanges at the respective edges of each, said flanges being divided into sections by openings formed therein, so that a section of flange at one edge of the rail shall be opposite a space or opening at the other edge of the rail, said opposite rails of the track being so placed that a section of flange, for instance, at the inner edge of one rail shall be opposite a corresponding section of flange at the inner edge of the opposing rail, the space between said rails being covered with planking, substantially as shown and described.

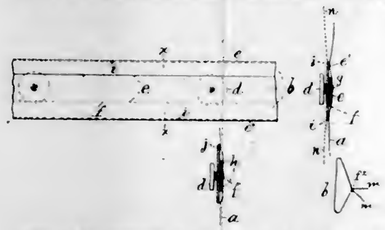
10. A wagon-railroad having parallel tracks formed with rails having upturned flanges at their respective edges, said flanges being divided by openings formed therein, substantially as shown, the ground between said tracks being covered with planks, as described.

11. A wagon-railroad having parallel tracks formed with rails having upturned flanges at their respective edges, said flanges being divided by openings formed therein, substantially as shown, the ground between said tracks being covered with planks, some of which reach across from one track to the other, and other of said planks being made short to form openings between the ends thereof and said tracks, as and for the purpose set forth.

12. A wagon-railroad having parallel tracks formed with rails having upturned flanges at their respective edges, said flanges being divided by openings formed therein, the ground between said tracks being covered with planks, longitudinal timbers being placed along the outer edges of said tracks, as described.

353,392. METHOD OF MAKING WAISTBANDS FOR GARMENTS.

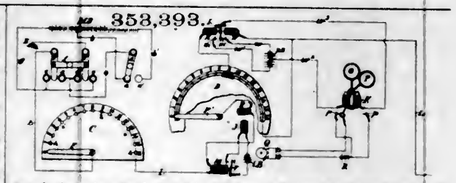
CHARLES W. WHEELER, Newark, N. J. Filed Nov. 21, 1885. (No model.)



Claim.—The improvement herein described in the art of making re-enforced waistbands and attaching them to the waist, consisting in folding the waistband material with its two edges adjacent, securing the material together on a line parallel with such edges, folding the said edges to lie in the middle of the band, and attaching the band to the waist by stitching the edges thereto, as and for the purpose set forth.

353,393. RAILWAY-SIGNAL.

THOMAS D. WILLIAMS, Bellevue Borough, and GEORGE M. ETZEMILLER and JOHN S. LUDDEN, Allegheny City, Pa. Filed Feb. 26, 1886. (No model.)



Claim.—1. The combination of a transmitting-instrument at the terminal station, having a series of electrical contacts corresponding in number with the outlying signal-stations, and an index-arm connected with the line-circuit, which on being moved by the operator from one contact to another makes and breaks the line-circuit, a number of similar receiving-instruments, one of which is located at each of several outlying signal-stations, having suitable mechanism, substantially as described, to cause the index-arm of each receiving-instrument, in response to the making and breaking of the main circuit, to move step by step in correspondence with the motion of the index-arm of the transmitting-instrument, the index-arms of the receiving-instruments being normally in electrical connection with the transmitter through the main-line circuit, an electro-magnet at each outlying station for operating the signal, which electro-magnet is placed in a derived circuit connected with the main line and by a normally open circuit connection with the transmitting and receiving instruments, such connection being at each outlying station at a different point in the arc of motion of the index-arm of the receiving-instrument, so that said index-arm on reaching that point at any station shall close the derived circuit of the signal-instrument at that station only, operating the signal, substantially as described, when a battery-current of sufficient force is switched onto the line to operate the signal-instrument the armature of which is so adjusted as not to operate when its electro-magnet is subjected only to the ordinary current used for operating the transmitting and receiving instruments.

2. A transmitter located at a transmitting-station, having a defined number of contact-points, an electric circuit from said transmitter to a series of outlying stations each having a receiving-instrument furnished with a contact-making arm, and mechanism for advancing it step by step in unison with the transmitting-arm, a signal mechanism located at each station in a normally open derived circuit connected with the main line through the receiving-instrument, such point of connection being located at a different point in the arc of motion of the contact-making arm at each station, whereby on the making of contact by the contact-arm at any station the alarm-signal will be operated at that station and not at any of the other stations, substantially as described.

3. The combination, with a transmitting-instrument, of a series of receiving-instruments, each having its index-arm, and all arranged in the line-circuit, so that the movement of the arm shall be synchronous, the movement of the arms of the receiving-instruments being produced by electric pulsations from the main line, an open circuit differently placed in each receiving-instrument and adapted to be closed by the index-arm of said instrument, and a signal arranged in said open circuit, whereby the signal at any one of several distant stations may be operated without affecting the signals at any other stations, substantially as specified.

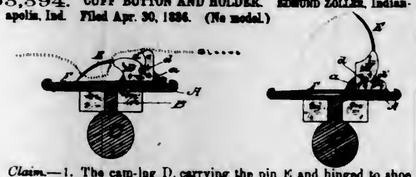
4. The combination, with a battery and line circuit, of a transmitting-instrument having a series of contacts on a graduated arc, said contacts connected together by a conducting-wire, and also connected at one end of the arc with the line-circuit and having a movable index or pointer capable of conducting the current and connected with the line-wire for successively opening and closing the circuit at the contacts, and a receiving-instrument having a graduated arc divided into sections corresponding with the series of contacts on the transmitting-instrument, an index or pointer traversing the graduated arc and having a ratchet-wheel on its axis or shaft, and an electro-magnet, said armature being furnished with suitable mechanism for rotating the ratchet-wheel before mentioned, as an apparatus for repeating at a distant station or stations the movements at the terminal station of an index or pointer over a graduated arc.

5. The combination, in apparatus for the electrical operation of signals, of a battery, a switch by which the whole or a portion only of the electric current may be transmitted over the line, a switch and wire connections with the battery and line-wire for reversing the current on the line, a transmitting-instrument for the terminal station having a separate contact-point (connected with the line-wire) for each of several signal-stations, an index-arm connected with the line-wire from the battery, which index-arm opens and closes the circuit as it passes from one contact-point to another, a receiving-instrument (for each signal-station) having suitable mechanism, substantially as described, operating by the line-current to cause the index-arm to pass from one point to another on the receiving-instrument corresponding with the contact-points on the transmitting-instrument, an electro-magnet having an armature which operates in different directions under the influence of a positive or negative current, and a signal operated in different directions by means of and in accord with the armature of the said electro-magnet, said signal and electro-magnet being placed in a broken or incomplete circuit connected with the line-wire, so that when the index-arm of the receiving-instrument reaches and comes in contact with the free or unconnected end of the wire of such broken circuit the circuit from the main battery to the signal-instrument shall be closed, substantially as described.

6. The combination of a pair of electro-magnets so wound that the cores shall have the same polarity when magnetized by the electric current, with cores projecting beyond the spool to form pole-pieces, and a permanently-polarized steel armature pivoted midway between the pole-pieces, whereby the forces of attraction and repulsion are utilized in operating the signal, substantially as described.

353,394. CUFF BUTTON AND HOLDER.

EDMUND ZOLLER, Indianapolis, Ind. Filed Apr. 30, 1886. (No model.)



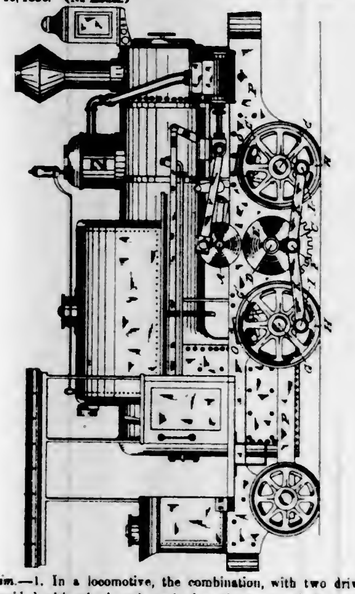
Claim.—1. The cam-leg D, carrying the pin E and hinged to shoe A of a cuff-button, for the purpose of engaging in the sleeve of a dress or coat and fastening the cuff to the sleeve of the dress or coat, substantially as described and specified.

2. The cam-leg D, carrying the pin E and hinged to the shoe A of a cuff-button, in combination with a cuff-button, and the wings *m m'* on each side of the stem of the button, to prevent the turning of the button in the button-hole, substantially as described.

3. The combination of the shoe A, stem B, ball C, flanges *m* and *m'*, cam-leg D, hinge-pin *d*, ears *a*, spring F, pin E, and notch *d'*, all substantially as set forth.

353,395. LOCOMOTIVE.

HENRY K. ADAMS, Nashville, Tenn. Filed Apr. 16, 1886. (No model.)



Claim.—1. In a locomotive, the combination, with two driving-axles provided with wheels and crank-pins, of a master-shaft receiving motion from the engines and located above the plane of the driving wheel axles, a crank-disk on said master-shaft, and rods connecting said crank-disk with the crank-pins on both the driving-wheels, substantially as and for the purpose set forth.

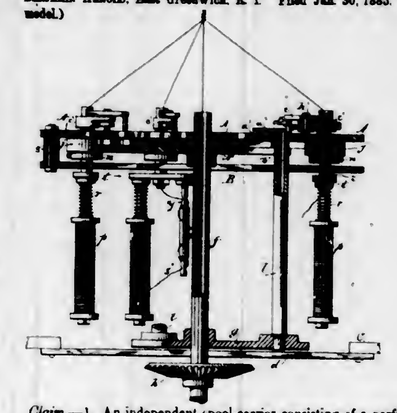
2. In a locomotive, the combination, with a master-shaft receiving motion from the engines and located above the plane of the main axles, of one or more main axles provided with driving-wheels, and means for communicating motion from the master-shaft to the main axles, said axles being mounted in pedestals which are inclined to the plane of the main axles, substantially as and for the purpose set forth.

3. In a locomotive, the combination, with a master-shaft receiving motion from the engines and located above the plane of the main axles, of one or more main axles provided with driving-wheels, and means for communicating motion from the master-shaft to the main axles, said axles being mounted in pedestals which are inclined to the plane of the main axles, so that their center line is tangential to a circle struck from the center of the master-shaft and touching said center line, substantially as and for the purpose set forth.

4. In a locomotive, the combination, with the engine-shaft A, provided with the pinion B, of the master-shaft D, spur-gear C, crank-disk E, wrist-pin F, driving-wheels H H, crank-pins I I, connecting-rods K K, and pedestals O O, which are inclined so that their center line, 1 1, is at right angles to the line 2 2, substantially as and for the purpose set forth.

353,396. MACHINE FOR MAKING INTERLOCKED CORDAGE.

BENJAMIN ARNOLD, East Greenwich, R. I. Filed Jan. 30, 1885. (No model.)



Claim.—1. An independent spool-carrier consisting of a perforated central body, by which it is supported and actuated in the machine, and a spindle located below the central body and its supports, for the purpose of holding the spool, substantially as and for the purpose specified.

2. The combination, with a spool-carrier, of the arm *c*, lever *i*, pivot *h'*, and spring *q*, substantially as and for the purpose specified.

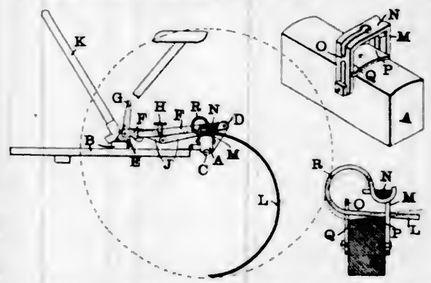
3. The combination of the spool-carrier, arm *c*, lever *i*, cam-plate *a'*, and stud *l* with means for rotating the carriers around the cam-plate, substantially as and for the purpose set forth.

4. The combination of the plates N F, dogs *v v'*, and spool-carriers with the plates A B and disks *a' b'*, and mechanism for rotating the disks around the central axis of the machine, substantially as set forth, and for the purpose specified.

5. A spool-carrier shaped on one side, at the place where the plate A holds it, like a tooth of that plate, and having an inverted-V-shaped recess in its opposite side, in combination with the plate A, having teeth cut away to fit into the inverted-V-shaped recesses, disk *a'*, and stud *l*, substantially as and for the purpose set forth.

353,397. HORSE HAY-RAKE.

FREDERICK BENTEL, Hamilton, Ohio, assignor to John W. Sohn, same place. Filed Nov. 30, 1885. (No model.)



Claim.—1. A rocking rake-head with its rank of teeth, a shaft-frame articulated thereto, a pivot-support secured to the shaft-frame, an arm secured to the rake-head, a pair of connected toggle-links reaching from said arm to said pivot-support and arranged to have their connecting central pivot occupy a position below the neutral line when the rake-head is in raking position, a foot-lever attached to the forward one of said links, and adapted, when pushed in a direction away from the rake-head, to elevate the toggle-center, and a foot-pad pivoted to the inter-

21. In a fountain-pen, the combination, with the fount and a pen, 353,401

mediate pivot of the toggle, combined substantially as and for the purpose set forth.

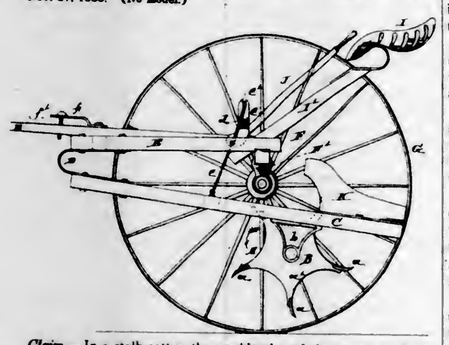
2. A rocking rake-head with its rank of teeth, an arm projecting therefrom, a shaft-frame articulated to the rake-head, a pivot-support upon the shaft-frame, a pair of toggle-links reaching from said arm to said pivot-support, and arranged to have their intermediate pivot descend when the rake is dumped and to occupy a position below the neutral line when the rake-head is in normal position, a hand-lever connected with the forward link of said toggle, and adapted, when pulled in a direction toward the rake-head, to depress said toggle and dump the rake, a second pair of toggle-links engaging said arm and pivot-support, and adapted to have their intermediate pivot rise as the rake is dumped and to occupy a position below the neutral line when the rake-head is in normal position, and thus form a lock to prevent the rising of the intermediate pivot when the rake is at work, and a foot-lever connected with the forward one of said last-mentioned toggle-links, and adapted, when pressed in a direction forward from the rake-head, to elevate said last-mentioned toggle and dump the rake, combined substantially as and for the purpose set forth.

3. A rake-head, an arch-piece for each rake-tooth, secured to the rake-head and carrying a tooth-pivot above the rake-head, a rake-tooth hooking under said tooth-pivot and projecting forwardly in bow form, and then rearwardly under the hooked portion and over the rake-head, and a contact-support on the rake-head for the bow forward of said tooth-pivot, combined substantially as and for the purpose set forth.

4. A rake-head, a tooth-pivot secured over the front thereof by means of a bolt engaging a slot, and a rake-tooth hooked into engagement with such pivot and passing forwardly in bow form, and then rearwardly under the hooked portion and over the rake-head, combined substantially as and for the purpose set forth.

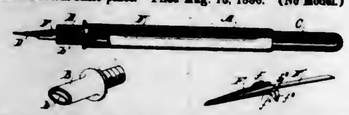
5. A rake-head, a slotted arch-piece straddling the rake-head and bolted thereto, and carrying a tooth-pivot, and a tooth hooked to said pivot and projecting forwardly in bow form out through said arch, and then into the arch again over a contact-support on the rake-head in advance of the tooth-pivot, and rearwardly out under the hooked portion and over the rake-head, combined substantially as and for the purpose set forth.

353,398. STALK-CUTTER. Byron C. Bradley, Chicago, Ill. Filed Nov. 27, 1885. (No model.)



Claim.—In a stalk-cutter, the combination of the upper and lower bars, C and E, located in line above each other and forming the main frame and cutter-frame, the U-shaped springs D, connecting said frames together at their forward ends, the revolving cutter A, connected to the lower frame, the arms *e*, pivotally secured to the upper frame and connected with lever J, and the yoke *d* and chain *c*, connecting the lower frame to the arms *e*, substantially as described.

353,399. FOUNTAIN-PEN. Francis C. Brown and David W. Beaumer, New York, N. Y., assignors, by direct and mesne assignments, to Marie Brown, same place. Filed Aug. 18, 1886. (No model.)



Claim.—1. A feed-bar for fountain-pens having one or more bearing or contact faces of less cross-sectional area than the body of the bar, substantially as and for the purposes specified.

2. A feed-bar for fountain-pens having diametrically-opposite bearing or contact faces of less cross-sectional area than the body of the bar, substantially as and for the purposes specified.

3. A feed-bar for fountain-pens having one or more bearings or contact-faces of less cross-sectional area than the body of the bar, and having its lateral faces channeled or roughened, for the purposes specified.

4. A feed-bar for fountain-pens having one or more bearings or contact-faces of less cross-sectional area than the body of the bar, and having its lateral faces channeled or corrugated, said channels or corrugations being formed at an angle to the longitudinal axis of the bar, substantially as and for the purposes specified.

5. A feed-bar for fountain-pens having bearings or contact-faces of less cross-sectional area than the body of the bar, and provided with enlargements or wings projecting from opposite sides thereof, substantially as and for the purposes specified.

6. A feed-bar for fountain-pens having enlargements or wings f^2, provided with notches or grooves f^3 along the body of the pen on the upper and under side of said wings, substantially as and for the purposes specified.

7. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of two feed-bars, between which the pen is inserted, the lower feed-bar having a groove in its upper face, substantially as and for the purposes specified.

8. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen extending in rear of the shank thereof, and having said extended portion beveled in a direction away from said shank, and a feed-bar arranged above the seat to feed ink to the top of the pen, substantially as and for the purposes specified.

9. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen extending in rear of the shank thereof, and ink-ducts between the pen and its seat, and between said seat or pen and the wall of the nozzle, substantially as described.

10. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen extending in rear of the shank thereof, and having the extended portion beveled in a direction away from said shank, and a feed-bar located above said seat, and said parts being arranged to form ink-ducts between the wall of the nozzle and the pen when inserted between the seat and feed-bar, to deliver ink to the top and under side of the pen, substantially as described.

11. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen extending in rear of the shank thereof, and having said extended portion beveled in a direction away from the shank of the pen, a feed-bar above the seat for the pen, and ink and air ducts above and below the seat or pen and between it and the wall of the nozzle, substantially as and for the purposes specified.

12. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen having a cavity in its outer end to form a space between the seat and the pen, and a feed-bar arranged above the seat and pen, substantially as and for the purposes specified.

13. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen, and a feed-bar provided with lateral projections arranged above the seat and pen, to divide the nozzle longitudinally and nearly close the space on opposite sides thereof, substantially as and for the purposes specified.

14. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen, a feed-bar provided with lateral projections arranged above the seat and pen to divide the nozzle longitudinally and close the space on opposite sides of said feed-bar, and ink and air ducts formed on opposite sides of the feed-bar, substantially as and for the purposes specified.

15. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat for the pen, a feed-bar provided with lateral projections or wings arranged above the seat and pen to divide the nozzle longitudinally and close the space on opposite sides of the bar, ink and air ducts formed along the feed-bar, and an ink-duct formed above the seat and between it and the pen, substantially as and for the purposes specified.

16. In a fountain-pen, the combination, with the fount, of a nozzle of greater diameter in one direction than in the other, substantially as and for the purposes specified.

17. In a fountain-pen, the combination, with the fount and a nozzle of greater diameter in one direction than in the other, of a seat for the pen arranged in said nozzle, and a feed-bar arranged above the seat, substantially as described, for the purposes specified.

18. In a fountain-pen, the combination, with a fount and a nozzle of greater diameter in one direction than in the other, of a seat for the pen arranged in said nozzle, and a feed-bar having that face which lies in proximity to or in contact with the pen of less cross-sectional area than the body of the bar, said feed-bar being arranged above the seat or pen, substantially as and for the purposes specified.

19. In a fountain-pen, the combination, with the fount and a pen section or nozzle of greater diameter in one direction than in the other, of a seat for the pen and air-ducts and ink-ducts above and below said pen when applied to its seat, substantially as and for the purposes specified.

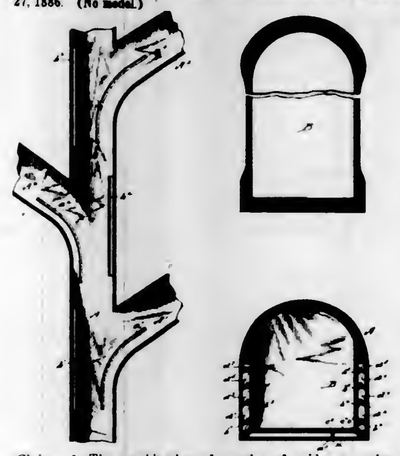
20. In a fountain-pen, the combination, with the fount and pen, of a pen section or nozzle having substantially the form of a prism, as described.

21. In a fountain-pen, the combination, with the fount and a nozzle of substantially prismatic form, of a seat for the pen seated on the base of the prism and a feed-bar seated in the apex of said prism, substantially as and for the purposes specified.

22. In a fountain-pen, the combination, with the fount and the pen section or nozzle, of a seat or under feed-bar and a top feed-bar, between which the pen is inserted, an ink-duct between the pen and its seat, and an ink-duct between the seat or pen and the wall of the nozzle, substantially as and for the purpose specified.

23. In a fountain-pen, the combination, with the fount and the pen section or nozzle having that portion above the pen closed, of a seat for the pen, a feed-bar arranged above said seat or pen extending through the closed portion of the nozzle into the fount, and ink and air ducts formed along the feed-bar and communicating with the fount, substantially as and for the purpose specified.

353,400. AUTOMATIC SWITCH FOR PNEUMATIC DISPATCH. Andrew Bryson, Jr., and Henry S. Mudge, Brooklyn, N. Y. Filed July 27, 1886. (No model.)



Claim.—1. The combination of a series of guides, a carrier, and means on the carrier to engage automatically with any predetermined guide of the series.

2. The combination of a series of guides, a carrier, and means on the carrier adjustable at the option of the sender to engage automatically with any predetermined guide of the series.

3. The combination of a pneumatic tube, a carrier, and an automatic switch consisting of fixed guides in the tube, and means on the carrier adjustable vertically and transversely to engage with any predetermined guide.

4. The combination of a pneumatic tube, a carrier fitting therein, automatic-switch mechanism, and mechanism for controlling the carrier when passing an intersecting branch, substantially as described.

5. In a pneumatic-dispatch tube, mechanism for controlling the carrier when passing an intersecting branch, consisting of lateral guides located at such intersection and parallel with the main tube, and means on the carrier adjustable at the will of the sender to engage automatically with one or more of such lateral guides.

6. The combination of groove a', carrier B, aperture c', and director z, substantially as and for the purpose hereinbefore set forth.

7. The combination of grooves a' a^2 a^3, carrier B, apertures c' c^2 c^3, and adjustable director z, substantially as and for the purpose hereinbefore set forth.

8. The combination of tube A, carrier B, grooves a' a^2 a^3, apertures c' c^2 c^3, and adjustable director z, substantially as and for the purpose hereinbefore set forth.

9. The combination of tube A, lateral guides b' b^2 b^3, carrier B, and adjustable removable hooks d' d^2 d^3, substantially as and for the purpose hereinbefore set forth.

10. The combination of tube A, carrier B, grooves a' a^2 a^3, apertures c' c^2 c^3, and adjustable director z, with lateral guides b' b^2 b^3 and adjustable removable hooks d' d^2 d^3, substantially as and for the purpose hereinbefore set forth.

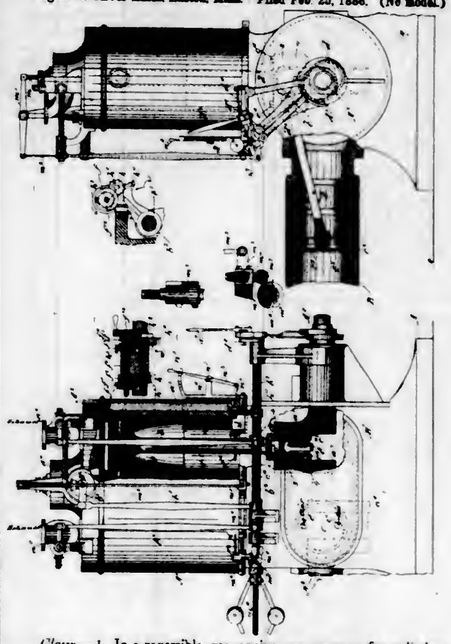
11. Pneumatic carrier B, adapted to fit the tube at both ends and having its sides and bottom hollowed out, substantially as and for the purpose hereinbefore set forth.

353,401. CATCH FOR BREASTPINS. Sarah E. Cheesman, Snow Shoe, Pa. Filed June 1, 1886. (No model.)



Claim.—In a breastpin, a cross-bar or other suitable ornament, and a spring-controlled pin connected thereto, in combination with an open annulus or ring affixed upon the ornament or bar, a catch pivotally connected to one end of the ring and adapted to come in contact with the other end of the ring and completely close the same, and a spring connected to the ring and bearing against the pivoted catch to normally press it in contact with the ring and thereby close the latter, substantially as described.

353,402. REVERSIBLE GAS-ENGINE. John H. Clark, Boston, assignor to Oliver Ames, Easton, Mass. Filed Feb. 25, 1886. (No model.)



Claim.—1. In a reversible gas-engine, one or more fire-cylinders provided with gas admitting and exhaust valves, a fire-bonnet communicating with said fire-cylinders and provided with a valve to admit air to said bonnet, combined with one or more air-cylinders provided with air inlet and outlet valves, and with means, substantially as described, to in unison reverse the operation of the valves in the fire-cylinders, substantially as specified.

2. In a reversible gas-engine, one or more fire-cylinders provided with gas admitting and exhaust valves, a fire-bonnet communicating with said fire-cylinders and provided with a valve to admit air to said bonnet, combined with one or more air-cylinders provided with air inlet and outlet valves, and with means, substantially as described, to in unison reverse the operation of the valves in the fire-cylinders, and with means, substantially as described, to reverse the operation of the air-valve of fire-bonnet substantially in unison with the valves of the fire-cylinders, substantially as set forth.

3. In a reversible gas-engine, one or more fire-cylinders provided with gas admitting and exhaust valves, a fire-bonnet communicating with said fire-cylinders and provided with a valve to admit air to said bonnet, combined with one or more air-cylinders set at an angle to the said fire-cylinders and provided with air inlet and outlet valves, and with means, substantially as described, to reverse in unison the operation of the valves of the fire-cylinders, and with means, substantially as described, to reverse the operation of the air-valve of the fire-bonnet substantially in unison with the valves of the fire-cylinders, substantially as specified.

4. In a reversible gas-engine, one or more fire-cylinders provided with gas admitting and exhaust valves, a fire-bonnet communicating with said fire-cylinders and provided with a valve to admit air thereto, combined with one or more air-cylinders provided with air inlet and outlet valves, and having the connecting-rod of each air-piston joined directly to the connecting-rod of a fire-piston, substantially as described.

5. In a reversible gas-engine, one or more fire-cylinders provided with gas admitting and exhaust valves, a fire-bonnet communicating with said fire-cylinders and provided with a valve to admit air thereto, combined with one or more air-cylinders provided with air inlet and outlet valves and having the connecting-rod of each air-piston joined directly to the connecting-rod of a fire-piston, and with means, substantially as as described, to reverse the operation of the valves in the fire-cylinders, substantially as set forth.

6. In a reversible gas-engine, one or more fire-cylinders provided with gas admitting and exhaust valves, a fire-bonnet communicating with said fire-cylinders and provided with a valve to admit air thereto, combined with one or more air-cylinders provided with air inlet and outlet valves and having the connecting-rod of each air-piston joined directly to the connecting-rod of a fire-cylinder, and with means, substantially as described, to reverse the operation of the valves in the fire-cylinders, and with means, substantially as described, to reverse the operation of the air-valve of the fire-bonnet to correspond to and co-operate with valves of the fire-cylinders, substantially as set forth.

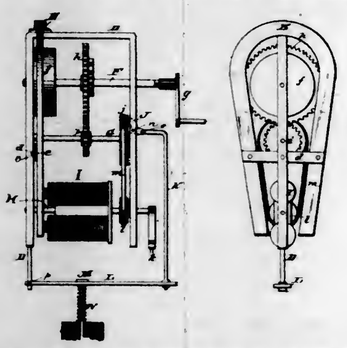
7. In a reversible gas-engine, one or more fire-cylinders provided with gas admitting and exhaust valves, a fire-bonnet communicating with said fire-cylinders and provided with a valve to admit air thereto, combined with one or more air-cylinders set at an angle to the said fire-cylinders, said air-cylinders being provided with air inlet and outlet valves, and having the connecting-rod of each air-piston joined directly to the connecting-rod of a fire-piston, substantially as described, and with means, substantially as described, to reverse the operation of the valves of the fire-cylinders, and with means, substantially as described, to reverse the operation of the air-valve of the fire-bonnet to correspond to and co-operate with the valves of the fire-cylinder, substantially as set forth.

8. In a reversible gas-engine, the air-cylinder casting B and fire-cylinder casting A, provided with a fire-bonnet, to which oil is fed, combined with the shafts h and f^{12}, and gearing, substantially as described, on said shafts, and with the gear h^4, to actuate the gears on the said shafts, whereby the oil is fed continuously into the fire-bonnet irrespective of the direction of rotation of the crank-shaft, substantially as described.

9. In a gas-engine, two fire-cylinders arranged side by side, two air-cylinders arranged side by side and at an angle to the said fire-cylinders, and pistons in said fire and air cylinders and attached connecting-rods, combined with a crank-shaft to operate all the said pistons, substantially as described.

353,403. ELECTRICAL APPLIANCE FOR DENTAL CHAIRS.

Levi L. Deckard, Middletown, Pa. Filed Aug. 24, 1886. (No model.)



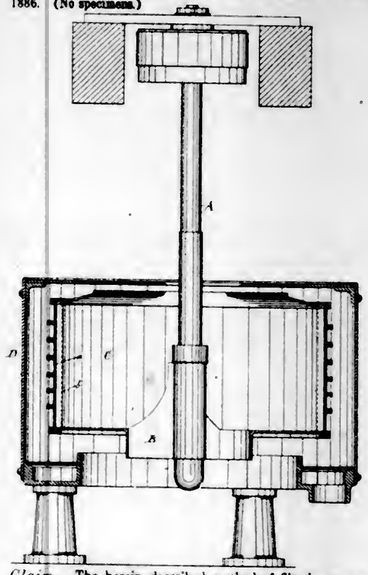
Claim.—1. In a magneto-electric machine, an automatic driving mechanism, a revolving disk, and a brake-shoe in operative contact therewith, in combination with rods, and a pedal having an elongated slot or slots, and guides therefor, substantially as described.

2. A magneto-electric machine having an automatic driving mechanism incased in and supported upon a portable stand, a pedal having an elongated slot or slots therein and mounted upon opposite legs of the stand, pins for securing either end of the pedal to said legs, and a brake-rod secured to its center, said rod passing through the center of the stand and encircled by a spring pressing against the frame and the stand, in combination with circuit-wires terminating in electrodes, substantially as described.

3. A magneto-electric machine having an automatic driving mechanism supported upon a portable stand, a brake mechanism connected with a pedal attached to said stand, and insulated wires, in combination with a chair, the arms of which are encircled by said wires, terminating in electrodes placed in a convenient position for a patient to hold, substantially as described.

353,404. METHOD OF FILTERING SUGAR-LIQUORS, SIRUPS, AND SACCHARINE JUICES.

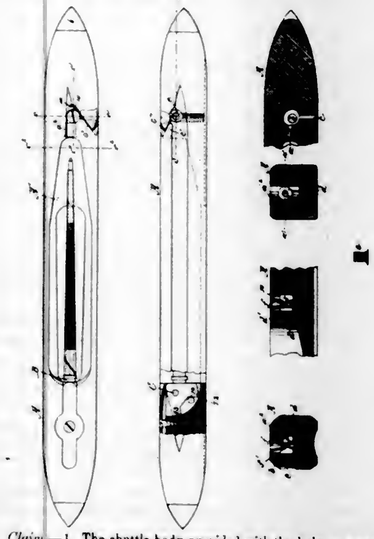
Charles H. W. Foster, Brookline, assignor of one-fourth to David M. Weston, Boston, Mass. Filed Apr. 12, 1886. (No specimens.)



Claim.—The herein-described method of filtering sugar-liquors, sirups, and saccharine joices, which consists in mixing with the said liquors and juices a granulated filtering medium, substantially as described, placing the said juices and granular filtering material in a basket of a centrifugal machine, and subjecting the same to centrifugal action to remove the thinner juices which are to be saved, the slimy or gummy mass or impurities contained in the said liquors or juices remaining in the granular filtering material, substantially as described.

353,405. LOOM-SHUTTLE.

Louis Goddu, Winchester, Mass., assignor to the Goddu Improvement Company of Maine. Filed Mar. 18, 1885. (No model.) Patented in England Mar. 3, 1885, No. 2,819, and in Belgium Mar. 9, 1885, No. 68,073.



Claim.—1. The shuttle-body provided with the holes or openings a b c, and slotted diagonally at a^3 and at c', the said slots connecting the holes or openings a b c, combined with the slotted metal eyes d e, substantially as described.

2. The shuttle-body provided with the holes or openings a b, and slotted diagonally, as at a^3, between the said holes or openings, combined with a slotted thread-receiving eye and with a beaded post or stud having a cam-surface, 8, the eye being placed in the hole or opening a and the post or stud in the hole or opening b, substantially as described.

353,406. TELESCOPIC HAND-LEVEL.

William Gurley, Troy, N. Y., assignor to W. & L. E. Gurley, same place. Filed July 10, 1886. (No model.)



Claim.—1. A telescopic leveling-instrument embracing a spirit-level furnished with an index and a diagonal or inclined reflector, an object-glass, and an eye-piece having two segmental lens portions combined, so that one eye can see through one segmental lens portion of the eye-piece the index or its reflected image and the reflected image of the bubble of the spirit-level, and in apparent coincidence therewith can simultaneously see a distant object magnified through the object-glass and the other segmental lens portion of the eye-piece, substantially as set forth.

2. A telescopic leveling-instrument embracing a spirit-level furnished with an index and an inclined reflector, an object-glass, and an eye-piece having segmental convex and concave lenses, so combined that one eye can see through the segmental convex lens the index or its reflected image and the reflected image of the bubble of the spirit-level, and in apparent coincidence therewith can simultaneously see a distant object magnified through the object-glass and the segmental concave lens of the eye-piece, substantially as set forth.

3. A telescopic leveling-instrument embracing a spirit-level furnished with an index, inclined reflector, and stadia lines or points, an object-glass, and an eye-piece having two segmental lens portions so combined that one eye can see through one segmental lens portion of the eye-piece the index or its reflected image, the reflected image of the bubble of the spirit-level, and the stadia lines or points, and in apparent coincidence therewith can simultaneously see a distant object magnified through the object-glass and the other segmental lens portion of the eye-piece, substantially as set forth.

4. A telescopic leveling-instrument embracing a tube having a lateral aperture, an object-glass in one end of the tube, an eye-piece in its other end, and a spirit-level wholly within the tube at one side thereof, and having the middle part only of the spirit-level opposite to and visible through said lateral aperture in the tube, substantially as set forth.

5. A leveling-instrument embracing a telescope having a tube with an object-glass in one end, an eye-piece in the other end, and an aperture in one side, a spirit-level within the tube, at one side thereof, and opposite to and visible through the side aperture in the tube, and a slide movable to and fro lengthwise on said tube, and in one position covering said aperture, and in another position exposing said aperture, and extending beyond and shading the object-glass, substantially as set forth.

6. A telescopic leveling-instrument embracing a case having a lateral aperture, a spirit-level within the case, at one side thereof, opposite and adjacent to said lateral aperture, and furnished with an index and an inclined reflector, an object-glass at one end of said case, and at its other end an eye-piece having a segmental convex lens directed toward said reflector, and a segmental concave lens directed toward the object-glass, substantially as set forth.

7. A telescopic leveling-instrument embracing a case having a lateral aperture, a spirit-level within the case, at one side thereof, opposite to said aperture, and furnished with an index, inclined reflector, and stadia-points, an object-glass at one end of the case, and at its other end an eye-piece having a segmental convex lens directed toward the reflector and stadia-points and a segmental concave lens directed toward the object-glass, substantially as set forth.

8. A telescopic leveling-instrument embracing a case having a lateral aperture, a spirit-level within the case, at one side thereof, opposite to said lateral aperture, and furnished with an index and an inclined reflector, an object-glass at one end of the case, at its other end an eye-piece having a segmental convex lens directed toward said reflector, and a segmental concave lens directed toward said object-glass, and a slide movable to and fro lengthwise on the case, and in one position covering said lateral aperture, and in another position exposing the aperture and extending beyond and shading the object-glass, substantially as set forth.

9. In a telescopic leveling instrument, a lateral aperture in the tubular case of the telescope, a removable slide adjustable to and fro lengthwise within said case, and a spirit-level adjustably secured to said slide and by the latter adjustable to and fro lengthwise within said case and in respect to said lateral aperture, substantially as set forth.

10. A telescopic leveling-instrument embracing a case having a lateral aperture therein, a slide adjustable to and fro lengthwise in the case, a spirit-level secured to said slide within the case opposite to said lateral apertore, and furnished with an index and an inclined reflector, an object-glass at one end of the case, and at its other end a sliding eye-piece having a segmental convex lens directed toward the reflector, and a segmental concave lens directed toward the object-glass, substantially as described.

11. In a telescopic leveling-instrument, a spirit-level having a case with top and bottom openings opposite to the middle part of the glass of the spirit-level, and an inclined reflector opposite to one of said openings and supported by a holder having a socket fitting and adjustable lengthwise upon said case, as set forth.

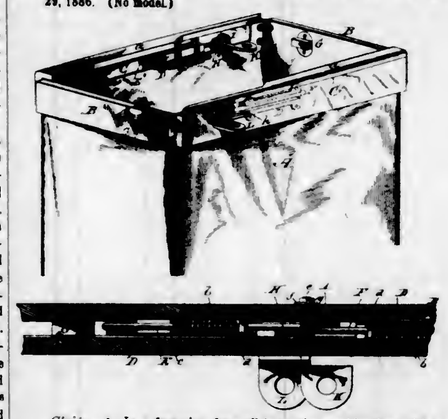
12. In a telescopic leveling-instrument, a spirit-level having a cylindrical case with top and bottom openings opposite to the middle part of the glass of the spirit-level, and an inclined reflector opposite to one of said openings and supported by a holder having a socket fitting and adjustable circumferentially upon said case, substantially as set forth.

13. In a telescopic leveling-instrument, a spirit-level having a case with top and bottom openings opposite to the middle part of the glass of the spirit-level, and an inclined or diagonal reflector opposite to one of said openings and supported by a holder having a socket fitting and adjustable lengthwise and circumferentially upon said case, substantially as described.

14. A telescopic leveling-instrument having a side aperture in the telescope-tube, a slide fitting and adjustable lengthwise within said tube, a spirit-level secured to said slide within said tube and opposite to the side aperture therein, and having a case with top and bottom openings opposite to the middle part of the glass of the spirit-level, and a diagonal or inclined reflector opposite to one of said openings and supported by a holder having a socket fitting and adjustable upon the case of the spirit-level, substantially as described.

353,407. MAIL-BAG.

William Hawn, Knoxville, Tenn. Filed Apr. 29, 1886. (No model.)



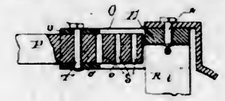
Claim.—1. In a fastening for mail-bags, the combination, with two spring-bolts, of a cam-actuating device for operating them, consisting of two circular disks eccentrically connected to a shank on different vertical planes and with relation to each other, substantially as shown and described.

2. In a fastening for mail-bags, the combination, with spring-bolts, of a cam-actuating device consisting of two disks eccentrically connected to the shank of a staple and simultaneously operating on the bolts, substantially as and for the purpose described.

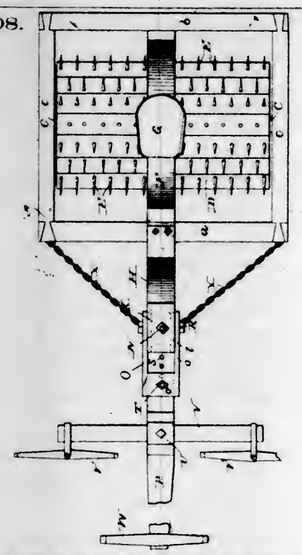
353,408. CLOD CRUSHER AND PULVERIZER.

Milton C. Jett, Washington, Ind. Filed May 22, 1886. (No model.)

Claim.—In combination with the frame A, the clod crusher or roller D, journaled therein, the curved arm H, attached to the front or frame A and bent vertically at I and horizontally at K, the standard L, pivoted to the part K of arm H, the guiding-wheel M, journaled in the standard L, the box O, embracing the standard L below the part K of arm H and forward of the part I, the bolt R, connecting the box O rigidly to the standard L, the tongue P, adjustable in the box O, and



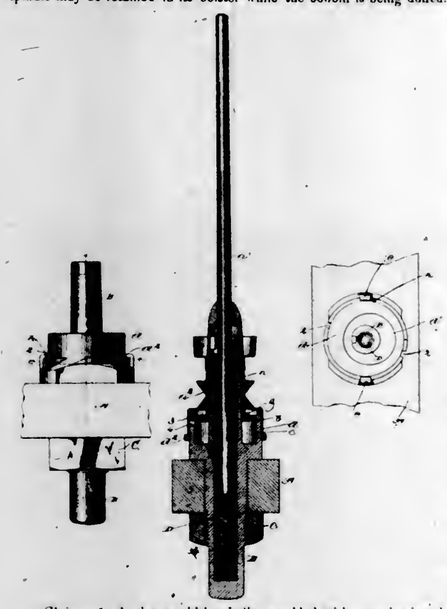
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the chains X, connecting the frame and the standard and detachable from the latter, as set forth.

353,409. SPINDLE-SUPPORT. JOHN B. MCPHERSON, Lowell, assignor of one-half to George Draper & Sons, Hopedale, Mass. Filed July 12, 1886. (No model.)

Brief.—The object is to provide means whereby a sleeve-whirl spindle may be retained in its bolster while the bobbin is being doffed.

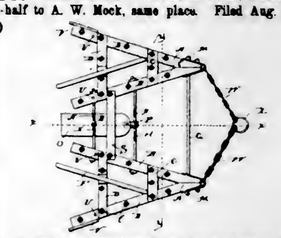


Claim.—1. A sleeve-whirl spindle provided with a projection, *b*, and a bolster-case, combined with a cap or cover having an eccentric opening therein to leave a lip of varying width to co-operate with the projection of the sleeve-whirl and prevent the spindle from being removed from the bolster when doffing a bobbin, substantially as described.

2. A bolster-case having a projection, as *e*, and a cap having an eccentric opening in its top, and provided with a projection having a slot, combined with a sleeve-whirl spindle having a projection, *b*, below the whirl, to operate, all substantially as described.

3. The sleeve-whirl spindle provided with a projection, *b*, and a bolster-case having a curb provided with a hole, 4, combined with the cap *d*, for the said curb, the cap being provided with a hole, 3, at its side and with an opening in its top, which is covered by the sleeve-whirl, the holes 3 4 when in line serving for the admission of the nose of an oil-can, as set forth.

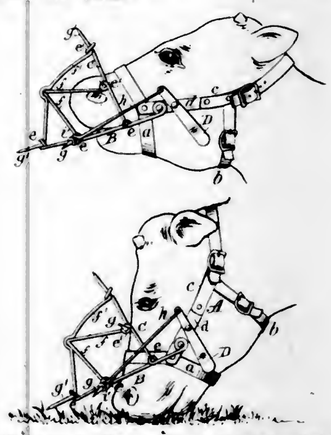
353,410. CULTIVATOR. MARTIN L. UNGER, Nelson, Nebr., assignor of one-half to A. W. Mock, same place. Filed Aug. 31, 1886. (No model.)



Claim.—1. The combination of the frames having the cultivating-teeth, and arranged side by side, the rigid transverse arched bars attached to the frames to secure them at a suitable distance apart, and the guard-runner arranged between the frames and having the rigid link P at its front end pivoted to one of the arched bars, and the chain R, suspending the rear end of the guard-runner from another of the arched bars, for the purpose set forth, substantially as described.

2. The cultivator, comprising the frames A, arranged side by side at a suitable distance apart and connected rigidly together, the said frames having the cultivating-teeth, with the guard-runner suspended between the frames, and the fender-plates attached to the outer rear sides of the frames, for the purpose set forth, substantially as described.

353,411. CALF-WEANER. MAX J. AHLGRIN, Rose Lawn, Ind. Filed Mar. 9, 1886. (Model.)



Claim.—1. A calf-weaner formed of a halter provided with metallic side pieces, *d*, the wire loop B, pivoted thereto, and provided with eyes *e*, the wire loop C, connected with the sides of the loop B, and provided with eyes *e'*, the curved pointed wires *f f f'*, crossing each other and received in the eyes *e e'*, the weighted levers D, pivoted to the sides of the halter, and the connecting-rods *h*, connecting the shorter arms of the levers with the lateral points *g*, projecting from the loop B, substantially as herein shown and described.

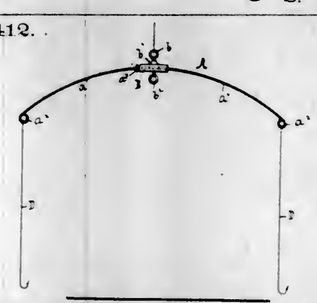
2. As an improved article of manufacture, a calf-weaner consisting of a half-muzzle formed of wire loops B C, with projecting points *g g'*, passing through eyes *e e'*, formed on the loops B and C, the joints being secured by galvanizing or tinning, a halter, A, provided with metallic side pieces, *d*, and supporting the pivots of the muzzle, and weighted levers D, pivoted to the metallic plates of the halter, and connected by rods *h* with the lateral points *g*, as herein shown and described.

353,412. FISHING-LINE SPREADER. HENRY C. BEERENS, Baltimore, Md. Filed July 28, 1886. (No model.)

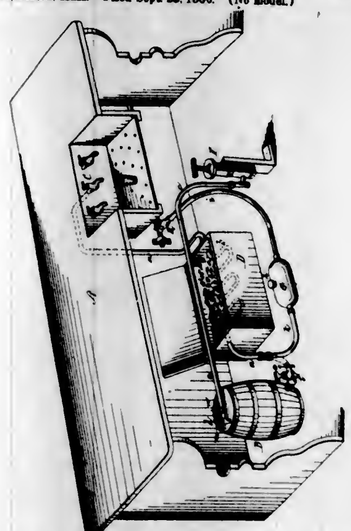
Claim.—1. A fishing-line spreader constructed to be opened or closed by one part sliding on the other, for the purpose set forth.

2. In a fishing-line spreader, the combination of the arms *a* and *a'*, one sliding upon the other, and the crown-piece B, for the purpose set forth.

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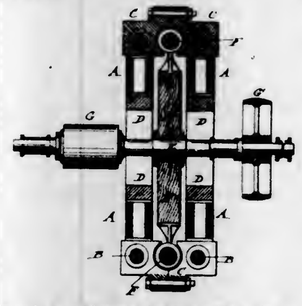


353,413. ATTACHMENT FOR CLEANSING PIPES. VINCENZO BONLAGNI, Boston, Mass. Filed Sept. 23, 1886. (No model.)



Claim.—A pipe-cleaning attachment to beverage-drawing apparatus, consisting of a water-pipe having in its line a receptacle provided with a strainer and containing lime, potash, or other cleansing agent, in combination with and attached at the barrel end to the draft-pipe provided with a detachable coupling and having a stop-cock between it and the barrel, whereby the barrel may be cut out and the pipes be cleaned without having to empty its contents, substantially as described.

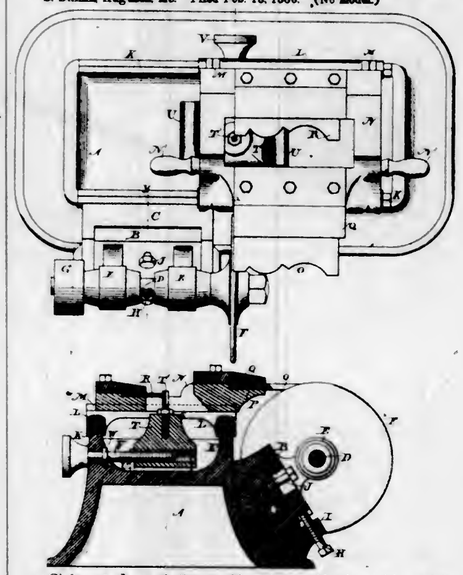
353,414. DYNAMO-ELECTRIC MACHINE. CARL COEPER, Cologne on-the-Rhine, Prussia, assignor to the Helios Actiengesellschaft für Elektrisches Licht und Telegraphenbau, Ehrenfeld and Cologne, Germany. Filed May 6, 1886. (No model.) Patented in Belgium Apr. 19 1886, No. 72,801.



Claim.—1. In a dynamo-electric machine, the combination of radial field-magnets arranged at both sides of and parallel to the plane of rotation of the armature, transverse pole-pieces at the outer ends of the field-magnets, bolts for connecting said pole-pieces, and an armature rotating between the pole-pieces, substantially as set forth.

2. In a dynamo-electric machine, the combination of field-magnets arranged at both sides of and parallel to the plane of rotation of the armature, transverse pole-pieces connecting the field-magnets, an armature rotating between the pole-pieces, and intermediate electro-magnets connecting the pole-pieces at the sides of the armature and parallel to the plane of rotation of the same, substantially as set forth.

353,415. MACHINE FOR GRINDING MOLDING-CUTTERS. EDWIN S. DRAKE, Augusta, Me. Filed Feb. 18, 1886. (No model.)



Claim.—1. In a grinding-machine, the combination, with a grinding-wheel mounted in stationary bearings, of a sliding frame adapted to move in a direction parallel to the arbor of the said wheel, a carriage movable on the said sliding frame toward or from the said grinding-wheel, a cutter or tool-holder and a templet, both fixed to and thus movable with the said carriage, and a stationary gage against which the said templet impinges to control the movements of the said carriage toward or from the said grinding-wheel, substantially as set forth.

2. The combination, with the frame A, having the ways K, extending lengthwise of the machine, the sliding frame movable on the said ways and provided with the transverse ways M, the sliding carriage movable on the said transverse ways and having a cutter or tool-holder and a templet, and the adjustable gage T', against which the said templet impinges to control the movement of the said carriage toward or from the grinding-wheel, substantially as set forth.

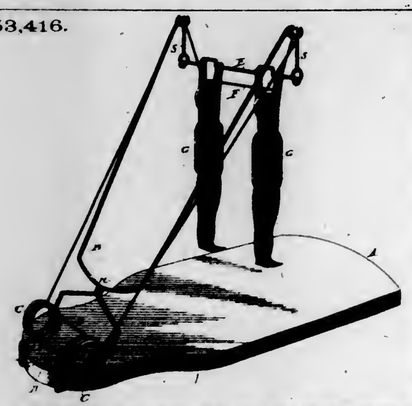
3. The combination, with the frame A, having the inclined projection C, of the journal-stand B, adjustably secured to the said projection and having the bearings E, the arbor D, journaled in the said bearings, the grinding-wheel F, carried by the said arbor, the sliding frame L, movable lengthwise of the frame A, the sliding carriage N, movable transversely of the machine on the frame L, and provided with the cutter or tool-holder P Q, and the templet R, the gage T', and its supporting-post T, substantially as set forth.

4. The combination, with the frame A, of the sliding frame L, movable lengthwise of the said frame A, the sliding carriage N, movable transversely of the machine on the said sliding frame and having a cutter or tool-holder and a templet, the gage T', against which the said templet impinges, and the adjustable post T, by which the said gage is supported, substantially as set forth.

353,416. JUMPING-JACK. JOHN R. HERSH and ELMER E. HERSH, Dayton, Ohio. Filed Jan. 15, 1886. (No model.)

Claim.—1. In combination with a jumping-jack, a frame for operating the same, consisting of a central curve to embrace the base A, the spring-coils C C, the arms twisted together at the center to form a finger bearing and extending over the said base-board, eyes at the top, and return-bends *s s*, with loops, in combination with the pivot E, which forms the bearings for said jumping-jacks and passes through said loops B, and the string F, which passes through the arms of said jumping-jacks, the eyes of the frame, and the spring-coils, substantially as set forth.

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2. The pivot E, with angular bends and jumping-jacks suspended thereon, in combination with the operating-cord F, held in eyes of the frame above the point of suspension of said jumping-jacks, substantially as set forth.

353,417. OIL-CAN. JOHN B. HERBOLDSHEIMER, Chicago, assignor to William D. Gibson and Charles P. Parrish, both of Cook County, Ill. Filed July 24, 1886. (No model.)



Claim.—1. The combination of an oil-can, a pump located within the same, and a discharge-tube, a part of said discharge-tube being made of a lap of the metal of the pump-cylinder, substantially as and for the purpose set forth.

2. The combination of an oil-can, a pump placed within the same, the cylinder thereof being of less height than the height of the can, a discharge-tube formed along the side of the pump-cylinder, the side of the said cylinder forming a part of the discharge-tube, a piece of circular tubing soldered to said discharge-tube and extending from the top of the pump-cylinder to the top of the can, and a slip-tube nozzle accurately fitting said tubing and adjustable within the same, substantially as and for the purpose set forth.

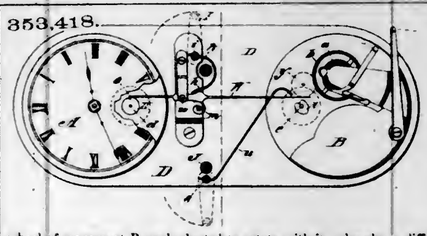
3. In an oil-can, the combination of the pump-cylinder C, of a less height than the height of the can, the discharge-tube I, formed of thin sheet metal and lying along and in close contact with the side of the cylinder, the piece of circular tubing O, soldered to said discharge-tube at the top of the pump-cylinder and extending therefrom to the top of the can, and the slip-tube L, closely fitting into said tubing O, substantially as and for the purpose set forth.

4. The combination of an oil-can, a pump located within the same, the cylinder thereof being of a less height than the height of the can, a discharge-tube formed for the length of the pump-cylinder of a lap of the metal of the cylinder, and above the cylinder of a piece of round tubing soldered upon the end of that part of the discharge-tube lying along the side of the pump-cylinder, and extending thence to the top of the oil-can, and a slip-tube accurately fitting the upper portion of the discharge-tube, substantially as and for the purpose set forth.

353,418. DEVICE FOR TESTING WATCH-BALANCES AND HAIR-SPRINGS. A. LINCOLN KELLER, Springfield, Mass. Filed Aug. 11, 1886. (No model.)

Claim.—The within-described mechanism for determining the strength of hair-springs and momentum of balance-wheels of watches, consisting of two watch-movements, A B, fixed at an interval apart, intermediate mechanism, substantially as shown, operatively connected with the fourth wheel of movement A and the mechanism of movement B, and adapted to start and antimatically stop the two movements synchronously, and a hand upon the prolonged spindle of the fourth

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wheel of movement B and adapted to rotate with it, whereby a difference in the rate of speed of the fourth wheels of the two movements is indicated, as and for the purpose set forth.

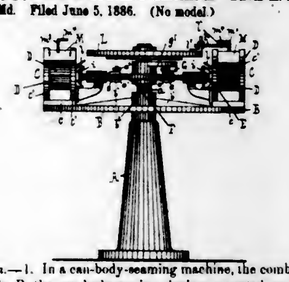
353,419. TOOL-RECEPTACLE. EBENEZER G. LAMSON, Shelburne Falls, Mass. Filed Nov. 7, 1885. (No model.)



Claim.—1. In an improved receptacle or chest for tools, the following instrumentalities, viz: the semicircular revolving adjustable shelves F, the attachable upholding-brackets I, and the adjustable supporting-collets J, in combination with a sustaining-rod, E, and polygonal receptacle, as described, and for the purpose specified.

2. In an organized receptacle for tools, the combination of the adjustable revolving semicircular shelf F with the detachable bracket I, the interchangeable bracket-clamp Q, and sustaining-rod E, substantially as described.

353,420. CAN-SOLDERING MACHINE. DAVID M. MONROE, Baltimore, Md. Filed June 5, 1886. (No model.)



Claim.—1. In a can-body-seaming machine, the combination of the rotary table B, the can-body-gaging devices mounted on the table, the shaft *a*, the cam F, and means to expand the cylindar D, whereby the rotation of the table moves and successively expands the body-gaging devices, as set forth.

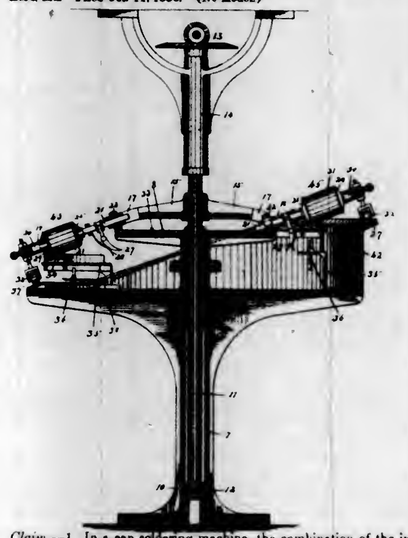
2. The combination of the rotary table B, the expanding-cylinder D, the standards *c'*, the wedge E, the yoke *i*, the angular projection *k*, and the cam G, for the purpose set forth.

3. In a can-body-seaming machine, the combination of the rotary table B, a series of complete gaging and clamping devices mounted on and arranged to rotate with the table, each comprising the standards *c'*, the expanding-cylinder D, and a guide, M, means to expand and contract the said cylinder and to operate said clamping-guide, jointly arranged to be automatically operated by the movement of the rotating table B.

4. The combination of the rotary table B, the expanding-cylinder D, the standards *c'*, the wedge E, the cam F, and the cam G, for the purpose set forth.

5. The combination of the rotary table B, the standards *c'*, the expanding-cylinder D, means to expand the cylinder, the clamping-guide M, the projecting arm m^2, and the lifting-plate *l'*, for the purpose set forth.

353,421. CAN-SOLDERING MACHINE. DAVID M. MONROE, Baltimore, Md. Filed Oct. 11, 1886. (No model.)



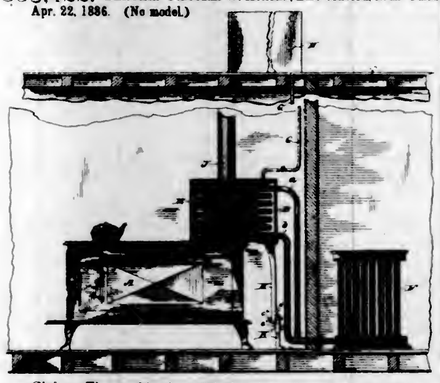
Claim.—1. In a can-soldering machine, the combination of the inclined track 37, the soldering-troughs 32 34, placed, respectively, at different elevations, and a circumferentially-movable rotating and oscillating clamping device, for the purpose set forth.

2. In a can-soldering machine, the combination of circumferentially-movable radial arms, or a hub, 15, a rotary oscillating can-clamping device, the inclined track 37, and the soldering-troughs 32 34, placed, respectively, at different elevations, for the purpose set forth.

3. In a can-soldering machine, the combination of circumferentially-movable radial arms, or a hub, 15, the rack 33, an oscillating clamping device, the rotating spindle 21, the pinion 22, the inclined track 37, and the troughs 32 34, placed, respectively, at different elevations, substantially as shown, and for the purpose set forth.

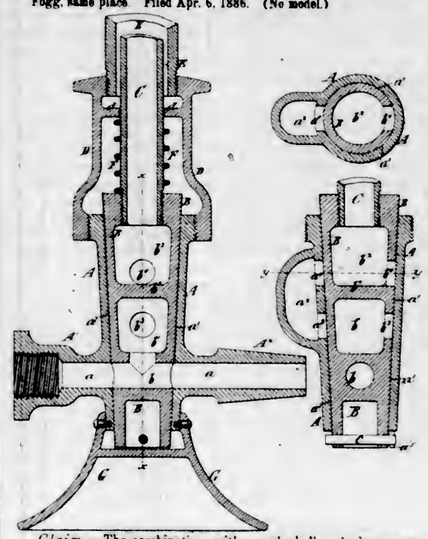
4. In a can-soldering machine, the combination of the circumferentially-movable radial arms, or hub 15, a rotary oscillating can-clamping device, the inclined track 37, and solder-applying devices placed, respectively, at different elevations, whereby both end seams of the can may be soldered without removing the can from the machine.

353,422. HEATER. SCHUYLER W. MORGAN, East Concord, N. H. Filed Apr. 22, 1886. (No model.)



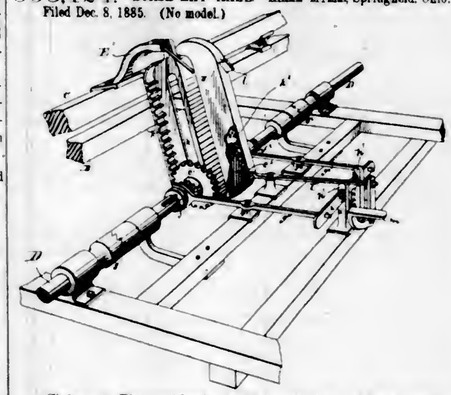
Claim.—The combination, with the pipe-collar of a stove, of a surrounding box having a smoke-pipe leading from the top thereof, a pipe-coil within said box connected by circulating-pipes with a heater in an adjoining room, the said heater, and a cistern located above the pipe-coil for supplying the latter with water, as set forth.

353,423. COCK FOR HOUSE-SERVICE AND STREET-WASHER CONNECTIONS. JOHN MOSS, Brooklyn, N. Y., assignor to Frederick M. Fogg, same place. Filed Apr. 6, 1886. (No model.)



Claim.—The combination, with a cock shell or body constructed with a plain straight transverse water-way, *a*, destitute of passages communicating therewith, and a side passage, a^2, communicating with the plug-seat by openings a^3 a^4, arranged one above another, of the plug B, constructed with a transverse water-way, *b*, and with internal cavities, *b'* b^2, one above another, and from which extend at right angles to the water-way *b* openings or ports b^3 b^4, ranging horizontally with the openings a^3 a^4 in the shell, the lower cavity, *b'*, being in constant communication with the transverse water-way *b*, and a pipe or hollow stem, C, extending upward from the upper cavity, b^2, of the plug, substantially as and for the purpose herein described.

353,424. HORSE HAY-RAKE. HIRAM MYERS, Springfield, Ohio. Filed Dec. 8, 1885. (No model.)



Claim.—1. The combination, with the rake-head, of the reciprocating yoke attached to said rake-head and provided on either side with the racks thereon, loosely-revolving pinions on a revolving shaft adapted to be engaged on opposite sides by said racks, and means for automatically connecting and disconnecting said pinions to and from the revolving shaft, substantially as specified.

2. The combination, with the rake-head, the yoke provided with racks on either side thereof attached to said rake-head, and the revolving shaft having the pinions thereon adapted to engage said racks, of the spring-clutches on each side of said pinions, adapted to drive the shaft in a forward direction only, substantially as set forth.

3. The combination, with the rake-head, the yoke provided with racks on either side thereof attached to said rake-head, and the loosely-revolving pinions adapted to engage with said racks, of the clutches on the shaft adapted to engage said pinions, and mechanism, substantially

as set forth, for simultaneously moving one of said clutches out and the other into engagement with the respective pinions as the yoke nears the limit of its forward stroke, substantially as and for the purpose set forth.

4. The combination, with the pinions revolving loosely on the shaft, the yoke adapted to be engaged by said pinions, and the rake-head attached to said rake, of the revolving clutches, the clutch-levers adapted to move said clutches longitudinally on said shaft, a slide connecting said clutch-levers together, and a foot-lever connected to said slide, substantially as specified.

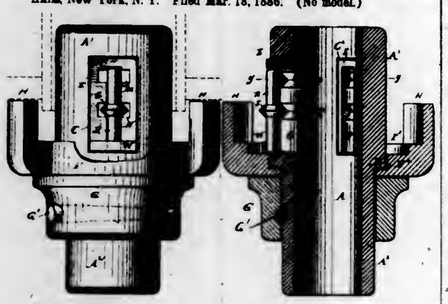
5. The combination, with the yoke and the loosely-revolving pinions adapted to engage respectively on opposite sides with said yoke, of the revolving clutches adapted to be moved simultaneously by a slide, *h*, to engage and disengage said pinions respectively, and a cam projection on said yoke adapted to move said slide, substantially as set forth.

6. The combination, with the rake-head and the yoke connected thereto, said yoke being provided with racks on opposite sides thereof, pinions of unequal diameters adapted to engage the respective racks on the said yoke and raise and lower the rake at different speeds, substantially as specified.

7. The combination, with the rake-head, the pinions and their clutches, and the yoke adapted to be engaged by said pinions, of the clutch-levers connected to said clutches, a slide connecting said clutch-levers, a foot-lever for moving said slide, and a spring-bolt for holding said slide in different positions, substantially as set forth.

8. The combination, with the rake-head and yoke, the pinions to engage therewith, and the clutches to engage said pinions, of the clutch-levers connected to said clutches, a slide connecting said levers, a cam-lever connected to said slide, and a cam projection on said yoke adapted to strike said lever, a spring-bolt for holding said slide, and a foot-lever adapted to move said slide, substantially as and for the purpose set forth.

353,425. TUBE EXPANDER AND CUTTER. William I. B. McHale, New York, N. Y. Filed Mar. 18, 1886. (No model.)



Claim.—1. In a tube expander and cutter, the combination, with a stock having longitudinal slots, of boxes in said slots, rollers mounted in the boxes, and cutters mounted detachably on said rollers, substantially as herein shown and described.

2. In a tube expander and cutter, the combination, with a stock having slots, of boxes in said slots, two parallel longitudinal rollers in each box, and a cutter on one roller on each pair of rollers, substantially as shown and described.

3. In a tube expander and cutter, the combination, with a stock having slots, of boxes in said slots, two longitudinal parallel rollers in each box, and a cutter mounted loosely on the outer roller, substantially as shown and described.

4. In a tube expander and cutter, the combination, with a stock having slots, of boxes in the slots and two longitudinal parallel rollers in each box, substantially as shown and described.

5. In a tube expander and cutter, the combination, with a stock having slots, of a box in each slot, two longitudinal parallel rollers in each box, one roller projecting from the inner surface of the box and the other from the outer surface, and said rollers being in contact, substantially as shown and described.

6. In a tube expander and cutter, with a stock having slots, of boxes in the slots, two parallel longitudinal rollers in each box, one roller projecting from the inner and the other from the outer surface of the box, the inner rollers having annular grooves and the outer rollers carrying cutters, substantially as shown and described.

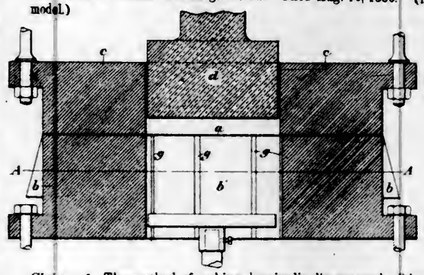
7. In a tube expander and cutter, the combination, with a stock having slots, of boxes in the slots, each box having a longitudinal groove and slot and two transverse slots, and of a cutter mounted on the outer roller within one of the transverse slots, substantially as shown and described.

8. In a tube expander and cutter, the combination, with a stock having slots, of pairs of rollers in the slots of the stock, said rollers being mounted to travel transversely to their longitudinal axis toward and from the center of the stock, and said rollers being in contact, and of cutters on the outer rollers, substantially as shown and described.

9. In a tube expander and cutter, the combination, with the stock having longitudinal slots, of boxes in the slots, each box having longitudinal grooves and slots, rollers in the boxes, and the bridging-flanges W at the ends of the boxes, substantially as shown and described.

10. In a tube expander and cutter, the combination, with the stock A, having the longitudinal slots E, of the rings F, having the lugs H and the rabbet, the lower ends of the slots E being flush with the upper surface of the ring F, substantially as shown and described.

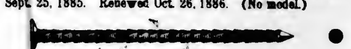
353,426. DRAWING CORRUGATED CUPS OF SHEET METAL. Archibald W. Paull, Wheeling, W. Va. Filed Aug. 16, 1886. (No model.)



Claim.—1. The method of making longitudinally grooved, ribbed, or corrugated sheet-metal cups, which consists in drawing the same in a die over a grooved, ribbed, or corrugated surface, substantially as and for the purposes described.

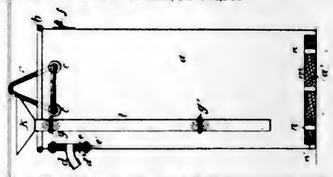
2. The combination, in a drawing-press, of a die having a cylindrical matrix, a clamping-ring, and a plunger provided with a ribbed, grooved, or corrugated surface over which the metal is drawn by the action of the plunger, substantially as and for the purposes described.

353,427. WIRE NAIL. Ferdinand Philips, Philadelphia, Pa. Filed Sept. 25, 1885. Renewed Oct. 26, 1886. (No model.)



Claim.—As a new article of manufacture, a nail having one or more series of indentations impressed into it, said indentations forming square shoulders situated in a plane at right angles to the axis of the nail and tapering upward gradually in the direction of the head, substantially as shown and described.

353,428. APPARATUS FOR BATHING THE FEET OF HORSES. Adrien Purson, Stenay, Meuse, France. Filed July 7, 1886. (No model.) Patented in France Feb. 26, 1886, No. 174,342



Claim.—The flexible bucket or pail of water-proof cloth, the same being constructed with the eyes *c c*, and combined with inner rings, *g g'*, discharge-pipe *d*, and weighted removable bottom *m*, substantially as herein shown and described.

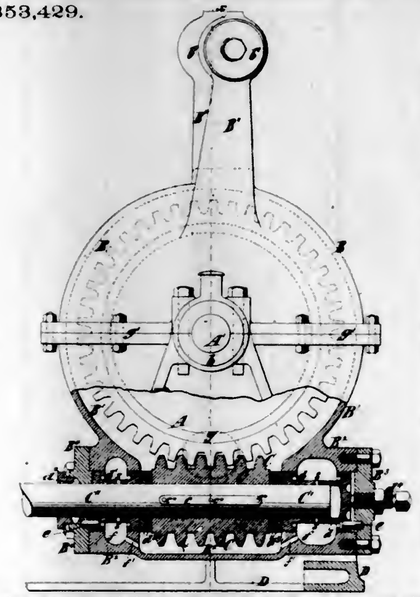
353,429. WORM-GEARING. George H. Reynolds, New York, N. Y., assignor of one-half to the Crane Brothers Manufacturing Company, Chicago, Ill. Filed Feb. 13, 1886. (No model.)

Claim.—1. The combination, with a shaft and a worm which is constantly locked to turn with the shaft, but is free to slide on the shaft, of a casing containing the worm and shaft and comprising bearings wherein the shaft may turn, and stationary thrust-bearings for the opposite ends of the worm, substantially as herein described.

2. The combination, with a worm and shaft, thrust-bearings for the worm, and bearings for the shaft, which are provided with transverse oil-holes leading to their inner surfaces, of an oil chamber or reservoir wherein the worm turns and in which are the thrust-bearings, and which is in communication with the transverse oil-holes in the shaft-bearings, whereby lubrication of the worm or shaft bearings and the thrust-bearings is insured, substantially as herein described.

3. The combination, with the worm and shaft C C', of the oil-case B³, containing the worm and comprising bearings for the shaft, and supplemental oil-reservoirs *f*, surrounding the shaft-bearings and communicating by holes *s* with the inner surfaces of the shaft-bearing, and also communicating with the main oil-reservoir B³, substantially as herein described.

353,429.



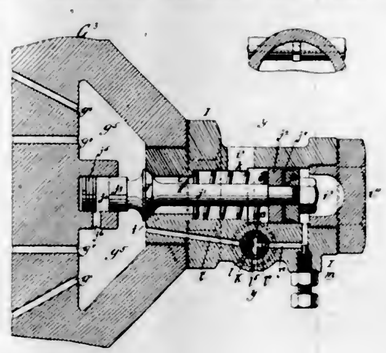
4. The combination, with a worm and its shaft, of a worm-case having at one end a bearing for the shaft and a thrust-bearing for the worm, a bushing movable in the case and forming a bearing for the other end of the shaft and a thrust-bearing for the worm, and a set-screw bearing on the bushing, and serving by its adjustment to take up wear in both thrust-bearings, substantially as herein described.

5. The combination, with a worm and its shaft, of the case B³, closed at the ends by heads B³ B⁴, and containing at the ends removable bushings *d d'*, forming bearings for the shaft and thrust-bearings for the worm, and a single set-screw, d^4, inserted in the head B⁴ and bearing on the bushing *d*, and serving to take up wear in both thrust-bearings, substantially as herein described.

6. The combination, with a worm-wheel, A, and a worm and shaft, C C', of a case for the worm-wheel, composed of the upper portion, B, and the lower portion, B', having formed integral with it the case B³ for the worm, substantially as herein described.

7. The combination, with a worm-wheel, A, and a worm and shaft, C C', of a case for the worm-wheel, composed of the upper portion, B, and the lower portion, B', having formed integral with it the case B³ for the worm, and standards projecting upward from the upper case portion, B, and supporting bearings for an upper drum-shaft, substantially as herein described.

353,430. PNEUMATIC CANNON. George H. Reynolds, New York, N. Y. Filed Mar. 10, 1885. Renewed Nov. 1, 1886. (No model.)



Claim.—1. In a pneumatic gun, the combination, with a breech portion having an aperture through which the projectile may be inserted, of a breech block or piece consisting of a door or valve seating against the inner side of the breech portion, and pivoted at its edge to the breech portion so as to swing inward before the entering projectile, substantially as described.

2. The combination, with the breech-casting C and the flange C⁴, the inner side of which forms a valve-seat, of the door or valve E, pivoted at its lower edge to swing downward and inward, and a cushioning-spring applied to deaden the fall of the door or valve, substantially as described.

3. The combination, with the breech-casting C, having recesses *c'* extending inward from its rear end, and the flange C⁴, of the door or valve E, having integral ears or trunnions offset beyond its face and fitted in the recesses or notches *c'*, substantially as described.

4. The combination, with the breech-casting C and the flange C⁴, the inner side of which forms a valve-seat, of the valve or door E, seating against the inner side of the flange C⁴, and pivoted at its edge so as to swing inward, and provided with a cross bar or handle, *d*, accessible through the opening in the flange C⁴, substantially as herein described.

5. The combination, with the breech portion of a pneumatic gun, of a latch or stop, F, pivoted at *f* in said breech portion and adapted to be raised by the entering projectile and to fall behind it, in order that the forward end of the latch F may serve as a stop to prevent rearward movement of the projectile before firing, substantially as described.

6. In a pneumatic gun, the combination, with the valve-box and cylinder, of the main valve and piston connected together, a passage leading from the valve-box to the cylinder behind the piston, a valve for controlling communication between the cylinder behind the piston and the atmosphere, a controlling piston and cylinder for operating the last-mentioned valve, and an auxiliary hand-valve for producing the operation of the controlling-piston, substantially as described.

7. In a pneumatic gun, the combination, with the valve-box and cylinder G G², the main valve H and piston H', connected together, and a passage leading from the valve-box to the cylinder behind the piston, of the valve J, for controlling communication between the cylinder behind the piston and the atmosphere, the controlling-cylinder i^3 and piston j^3, connected with the valve J, the plug-seat *l*, the passage l', for establishing communication between the cylinder G² behind the piston H' and the plug-seat *l*, the passage l^2, for establishing communication between the other end of the cylinder i^3 behind the piston j^3 and the plug-seat *l*, and the passage l^3, leading from the plug-seat *l* to the atmosphere, and the valve K, fitted to the plug-seat *l*, and serving to control the passages l' l^2 l^3, substantially as herein described.

8. In a pneumatic gun, the combination, with the valve-box and cylinder G G², the main valve H, and piston H', connected together, and a passage leading from the valve-box to the said cylinder behind its piston, of the valve J, for controlling communication between said cylinder behind its piston and the atmosphere, the controlling-cylinder i^3 and piston j^3, connected with the valve J, the plug-seat *l*, the passage l', for establishing communication between the cylinder G² behind the piston H' and the plug-seat *l*, the passage l^2, for establishing communication between the cylinder i^3 behind the piston j^3 and the plug-seat *l*, and the passage l^3, leading from the plug-seat *l* to the atmosphere, the valve K, fitted to the plug-seat *l*, and serving to control the passages l' l^2 l^3, and the throttling device *m* for the passage l^2, substantially as herein described.

353,431. MACHINE FOR MAKING SPIRALLY-FORMED PIPES. John B. Root, Port Chester, N. Y. Filed Aug. 10, 1886. (No model.)

Claim.—1. In a pipe-machine, the combination of mechanism for spirally winding the blank and a stationary welding mechanism arranged to operate upon the edges of the blank for the purpose of joining the same together.

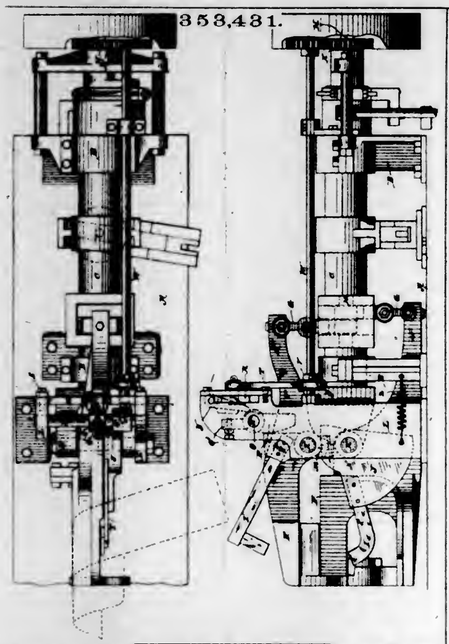
2. In a pipe-machine, the combination of spirally-reciprocating blank-advancing mechanism and stationary welding mechanism arranged to operate upon the edges of the blank for the purpose of joining the same together.

3. In a pipe-machine, the combination of spirally-reciprocating blank-advancing mechanism and stationary hammers arranged to operate upon the edges of the blank for the purpose of welding the same together.

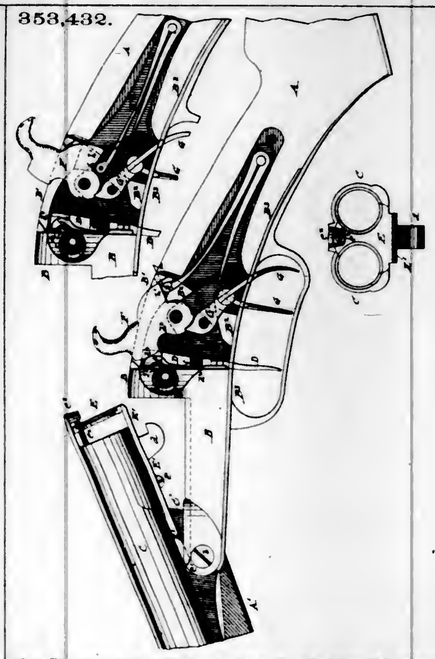
4. In combination, the pinchers F F, mounted upon the spirally-reciprocating shaft C, the fixed supports L, the hammers I I, and the hammer-operating connections between the hammers and the driving-shaft H.



353,431.



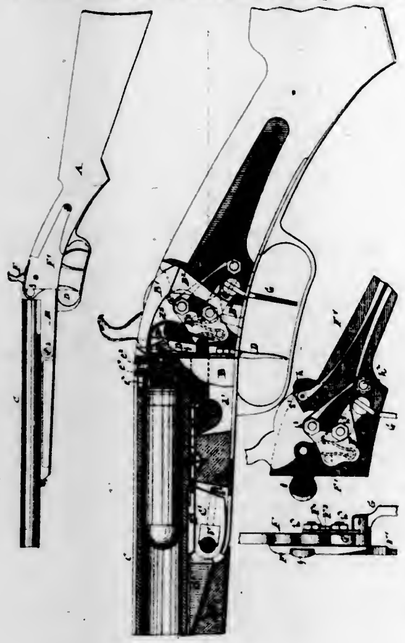
353,432.



353,432. **BREECH-LOADING FIRE-ARM.** GUSTAV A. SACHS, Valley City, Dak. Filed Nov. 7, 1884. Renewed June 25, 1886. (No model.)

Claim.—1. The combination of a breech-block, B, having a recessed front end, with toes c' and a top recess, c^4, fulcrumed barrels C C, having a longitudinal guide-pin, c^3, and lug c^2 at the breech end, a sliding extractor, E, guided along the pin c^3, and a slotted shank, E', guided along the under side of the barrels, substantially as set forth.

2. The combination of a breech-block, B, having recessed tail-



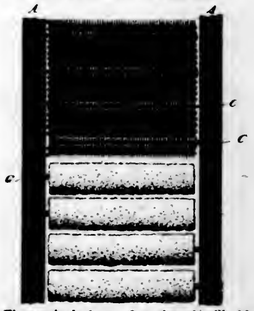
piece B', a central stay, B^3, bottom plate, B^4, side plates, F', hammers F, extending through the recesses in said tail-piece, and mechanisms for actuating the hammers, supported on the side plates at both sides of the center stay, substantially as set forth.

3. In a breech-loading fire-arm, the combination of the hammer F, mainspring F^3, side plates, F', auxiliary plate F^5, fulcrumed and spring-actuated trigger-lever G', and a trigger, G, pivoted to a laterally-projecting lug of the trigger-lever, substantially as set forth.

4. In a breech-loading fire-arm, the combination of the hammer F, side plate, F', mainspring F^3, auxiliary plate F^5, fulcrumed and spring-actuated trigger-lever G', trigger G, pivoted to said lever, transverse screw-bolts having nuts A^3, and not-locking plate F^4, substantially as set forth.

5. The combination of the hammer F, the spring-cushioned firing-pin f^2, having an enlarged head, and the spring-guard f, having a cup-shaped head, f', normally resting upon said enlarged head, said guard being adapted to receive the percussion of the hammer and impart it to the firing-pin, substantially as described.

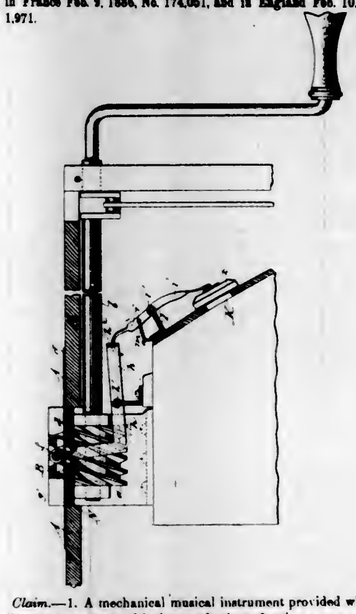
353,433. **METHOD OF MANUFACTURING CHENILLE FRINGE.** SAMUEL STEINBECK, Brooklyn, N. Y., assignor to Christian A. Schmidt, Hoboken, N. J. Filed June 12, 1886. (Specimens.)



Claim.—The method of manufacturing chenille fringe, consisting in interweaving one weft in one shuttle with two sets of heading-warps and intermediate chenille or body warps, and interweaving a temporary weft with the body-warps in alternation with the permanent weft, the permanent weft being interwoven alternately with the two heading-warps,

and then cutting the body-warps between the permanent wefts and removing the temporary wefts, substantially as shown and described.

353,434. **MECHANICAL MUSICAL INSTRUMENT.** EMIL G. STURM, Leipsic, Saxony, Germany. Filed Mar. 17, 1886. (No model.) Patented in France Feb. 9, 1886, No. 174,051, and in England Feb. 10, 1886, No. 1,971.



Claim.—1. A mechanical musical instrument provided with a worm for direct engagement with the music-chart for the purpose of shifting the same, substantially as shown and described.

2. A mechanical musical instrument having a worm mounted on the crank-shaft, the threads of said worm projecting above the surface over which the slotted music chart or sheet passes, substantially as shown and described.

3. A mechanical musical instrument constructed with a worm mounted on a shaft, the threads of said worm projecting above the plate over which the chart or sheet passes, and a cross-piece having rollers for pressing the music chart or sheet on the surface over which it passes, substantially as shown and described.

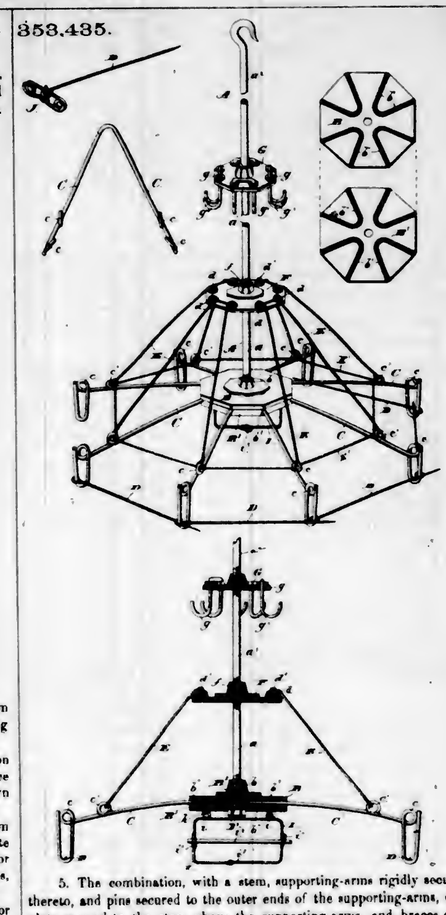
4. A mechanical musical instrument constructed with a worm for moving the music chart or sheet, and of valve-levers at both sides of the worm-shaft, substantially as shown and described.

5. A mechanical musical instrument constructed with the valves k, the levers i, to which the valves are secured, the pivoted levers h, having lugs A^3, through which hooks on the upper ends of the levers i pass, and the springs m, substantially as shown and described.

6. A music sheet or chart for mechanical musical instruments, provided with a longitudinal row of inclined slots for engagement with the threads of a worm, substantially as shown and described.

7. A music chart or sheet for mechanical musical instruments, having a central longitudinal row of inclined slots for engagement with the thread of a worm, and with rows of longitudinal slots at both sides of the said longitudinal row of inclined slots, substantially as shown and described.

353,435.



353,435. **COMBINED BAG AND TWINE HOLDER.** JOSEPH ALLEN, Palmyra, N. Y. Filed Aug. 31, 1885. (No model.)

Claim.—1. In a combined bag and twine holder, the combination, with a rigid stem and plates attached thereto, of a series of arms clamped between the plates and provided at their outer ends with spring-hooks and pins removably attached to said spring-hooks.

2. In a combined bag and twine holder, the combination, with a stem and plates attached thereto, of a series of arms clamped between the plates, pins secured to the outer end of said arms, and a twine-holder suspended below the plates.

3. The combination, with a stem and plates rigidly secured thereto, the latter being provided with grooves, as described, of the arms clamped between the plates and pins secured to the arms.

4. The pins, each having a ring at one end and triangular point at the other end, and a removable handle adapted to engage the ring, substantially as set forth.

5. The combination, with a stem, supporting-arms rigidly secured thereto, and pins secured to the outer ends of the supporting-arms, of a plate secured to the stem above the supporting-arms, and braces connecting said plate and supporting-arms, substantially as set forth.

6. In a combined bag and twine holder, the combination, with the stem, arms, and pins, of the plate located above the arms, the braces, substantially as described, connecting the plate and arms, and a twine-holder.

7. The combination, with the sectional stem, the plates B and B', the arms secured between said plates, and the pins, of the plate located above the arms, braces connecting said latter plate and the arms, and the lateral braces, all of the above parts combined substantially as set forth.

8. The combination, with a rigid stem, plates secured thereto, and bag-supporting arms secured between the plates, of the plates G, secured to the stem, a series of hooks removably secured to said plate G, and a twine-holder located below the bag-supporting arms.

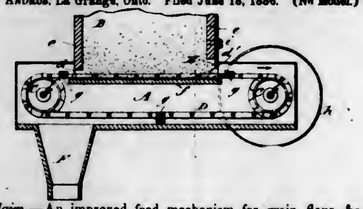
9. The combination, with the sectional stem and the plates F and G, connecting the sections of said stem, of bag-supporting arms secured to the lower end of the stem, braces connecting the plate F and bag-supporting arms, and hooks secured to the plate G, substantially as set forth.

10. In a combined bag and twine holder, the combination, with the sectional stem having a hooked-shaped upper end, of bag-supporting arms rigidly secured to the lower end of the stem, and a twine-holder located below the bag-supporting arms, substantially as set forth.

11. In a combined bag and twine holder, the combination, with a stem, plates secured to the stem, and bag-supporting arms clamped between said plates, of a twine-holder hinged to the lower face of one of said plates.

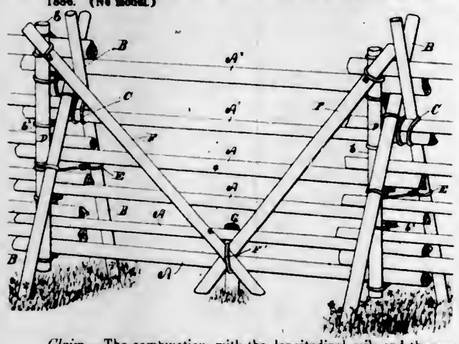
12. In a combined bag and twine holder, the combination, with a stem, plates secured thereto, and arms clamped between said plates, of the wire twine-holding frame hinged to the lower face of one of said plates, substantially as set forth.

353,436. FEEDING MECHANISM FOR GRAIN, FLOUR, &c. CHAS. A. ANDRUS, La Grange, Ohio. Filed June 18, 1886. (No model.)



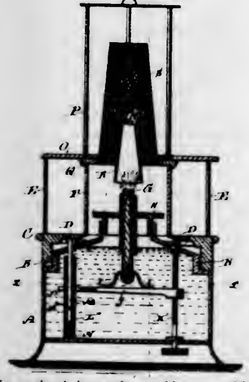
Claim.—An improved feed mechanism for grain, flour, &c., consisting of the box A, provided with the spout F, the receptacle B, having its bottom *f* projecting beyond its sides, and provided with the elongated apertures *d d'*, the adjustable gate E, the sprocket-wheels C, journaled in the box A, and the endless belt D, provided with the cross-bars *g*, substantially as herein shown and described.

353,437. FENCE. EDWIN M. BAKER, Crayon, Ohio. Filed July 1, 1886. (No model.)



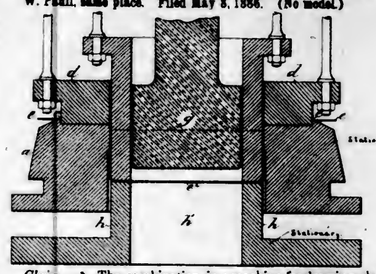
Claim.—The combination, with the longitudinal rails and the supporting loop and braces, of the suspending-cleats composed of one flexible and one unyielding side, tension-wires around said cleats, a tie-wire connecting said cleats and braces, diagonal braces from said cleats to the lower rail, and the anchor-stake secured thereto, substantially as specified.

353,438. MINER'S SAFETY-LAMP. AUGUST J. BECKER, Mount Carmel, Pa. Filed June 21, 1886. (No model.)



Claim.—In a miner's lamp, the combination, with the oil-receptacle A, of the burner, the screw-rod K, the forked bar J, having a screw-threaded aperture at one end, through which the rod K passes for moving said bar vertically, wick-holders or clamps on the upper side of said bar, the tube L, the bolt M, guided therein, projecting through the top of the receptacle and engaging with the forked end of the bar J, to be moved downward thereby, a spring pressing the bolt upward, and the cap C, having ratchet-teeth engaging the projecting end of the bolt, substantially as set forth.

353,439. MACHINE FOR DRAWING SHEET-METAL ARTICLES. GEORGE F. BUTTERS, Wheeling, W. Va., assignor of one-half to Archibald W. Paull, same place. Filed May 8, 1886. (No model.)

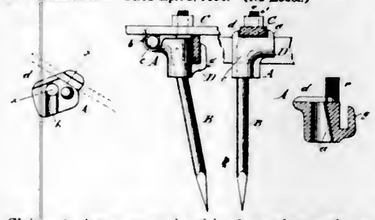


Claim.—1. The combination, in a machine for drawing sheet metal, of a die having a cylindrical matrix, a clamping-ring acting in conjunction with the face of the die, a second die situate in the first die, a hollow plunger working into the first die and against the face of the second die, and a plunger working through the hollow plunger and into the second die, substantially as and for the purposes described.

2. The combination, in a machine for drawing sheet metal, of a die having a cylindrical matrix the mouth of which is slightly narrowed, a second die situate in the wider part of the matrix of the first die, a hollow plunger working through the narrow mouth of the first die and against the face of the second die, and a plunger working through the hollow plunger into the second die, substantially as and for the purposes described.

3. The combination, in a machine for drawing sheet metal, of the die *a*, clamping-ring *d*, the clamping-die plungers *f h*, working inside of the die *a* and ring *d*, and the plunger *g*, working inside of the die-plungers *f* and *h*, the die *a*, ring *d*, and plunger *f* performing the first step on the blank, and the plungers *f*, *g*, and *h* completing the formation of the article, substantially as and for the purposes described.

353,440. HARROW. PETER C. CARSTENSEN and INGWER A. CARSTENSEN, Walnut, Iowa. Filed Apr. 3, 1886. (No model.)

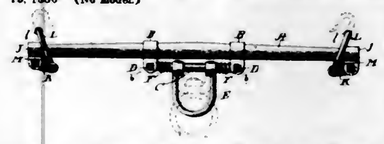


Claim.—1. As an improved article of manufacture, the socket A, provided with the vertical aperture *a*, the lateral recess *b*, the stud *c*, and the hook *g*, as specified.

2. The combination, with the bars C D, of the socket A, provided with the flaring opening *a* and recess *b*, communicating therewith, and having the hook *g*, threaded stud *e*, and nut *f*, adapted to the stud, substantially as herein shown and described.

3. The combination, with the bars C D, of the socket A, provided with the ribs *d*, the flaring opening *a*, and recess *b*, communicating therewith, and having the threaded stud *e*, the hook *g*, and the harrow-tooth B, having the right-angled end *c*, adapted to be received in the socket A, substantially as herein shown and described.

353,441. NECK-YOKE. DAVID W. CLARKE, Tidioute, Pa. Filed Apr 15, 1886. (No model.)



Claim.—1. The combination, with the bar A, of the clips B, having ears *b*, the cross-bar C, and the bolts D, passing through said ears and bar, and the latter supporting the pole-connection, substantially as described.

2. The combination, with the bar A, of the clips B B, the bar C, and a spring sliding connection between the carriage-pole and the bar C, substantially as described.

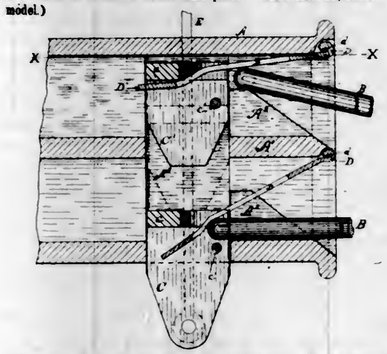
3. The combination, with the bar A, of the clips B B, bar C, loop E, and springs F F, substantially as described.

4. The combination, with the bar A, of the clip J, link K, loop or hook L, and a spring, M, substantially as described.

5. The combination, with the bar A, of the clip J, link K, and the loop or hook L, substantially as described.

6. The combination, with the clips D, the cross-bar C, held by bolts passing through said clips, and a sidewise-moving pole-connection, as the loop E or ring H, of a laterally-moving connection between bar C and said pole loop or ring, substantially as described.

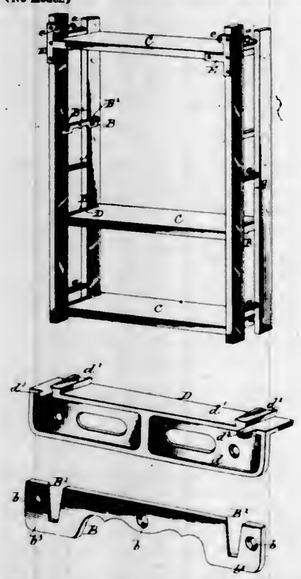
353,442. CAR-COUPLING. ROYAL M. CRAWFORD, Erie, Pa., assignor of one-half to Nickolas Blass, same place. Filed Apr. 23, 1886. (No model.)



Claim.—1. In a car-coupler, the combination, with the draw-head A, of the catch-lug A^3, the slide C, having the cross-bar *c'*, the lever D, pivoted at *d*, and engaging said slide, and the yoke E, for lifting said slide to disengage the link from the catch-lug.

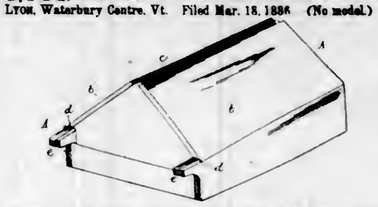
2. In a car-coupler, the combination, with a draw-head, A, having two compartments, as shown, of the catch-lugs A^3 in each compartment, the slides C and C', each having a cross-bar, *c'*, the levers D D, and the yoke E, for lifting both of said slides, as set forth.

353,443. BOOK-SHELF. JOHN DANNER, Canton, Ohio. Filed May 1, 1884. (No model.)



Claim.—Book-shelf supports consisting of rectangular standards A and plates B, having dovetailed grooves B^3 adjacent to the ends thereof, in combination with angular plates D, provided with two tongues dovetailed lengthwise and crosswise, and shelves secured thereto, whereby said shelves are supported at four points, and the tilting thereof is prevented, substantially as described.

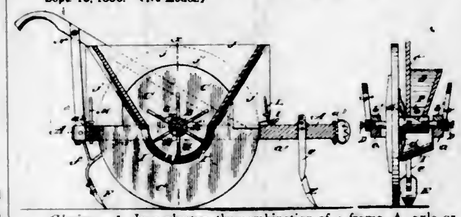
353,444. EVAPORATOR-COVER. OLIVER W. DAVIS and LEMUEL A. LYON, Waterbury Centre, Vt. Filed Mar. 18, 1886. (No model.)



Claim.—1. A cover for evaporators, adapted for retaining and deflecting the heat upon the surface of the sap or material under treatment, as made with sloping sides and having the longitudinal slit or opening at its top, as set forth.

2. The double slanting roof A, having the slit or gap c at its top and provided with the grooves or gutters *d* within and extending beyond the roof, all substantially as set forth.

353,445. PLANTER. RICHARD A. FRASER, Mansfield, La. Filed Sept. 15, 1886. (No model.)



Claim.—1. In a planter, the combination of a frame, A, axle or drum B, wheel C, fixed to the drum, agitators G, a hopper mounted on the frame and inclosing said drum and agitators, and open at the side next the wheel, and screws D D, set into the frame and adapted to adjust the wheel C laterally, substantially as described, for the purposes set forth.

2. In a planter, the combination, with a frame, A, an axle or drum, B, journaled thereon, a wheel, C, fixed to the axle, and a seed-hopper supported by the frame around the drum B and open at the side next the wheel C, of agitating-fingers G, fixed to the drum at a distance from the face of the wheel C, and bearing at their outer parts against the face of said wheel, substantially as described, for the purposes set forth.

3. In a planter, the combination of a frame, an axle or drum, B, a wheel, C, fixed to the axle, agitators G, fixed to the drum and bearing at their outer parts on the face of the wheel C, a seed-hopper on the frame and open at the side next the wheel C, a furrow-opener, E, and seed-coverers, as at F, substantially as described, for the purposes set forth.

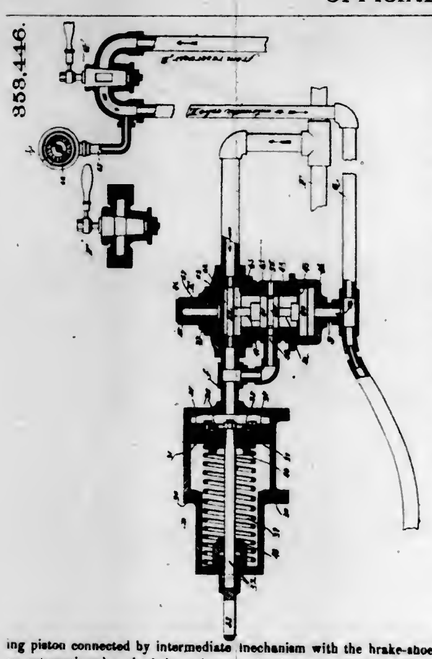
353,446. AUTOMATIC COMPRESSED-AIR BRAKE. AMASA S. GOODE, Old Frame, Pa. Filed June 17, 1886. (No model.)

Claim.—1. In a compressed-air brake, the combination of a brake-cylinder having the piston, the independent pipe-lines normally charged with air of the same degree of compression, an automatic valve intermediate of the brake-cylinder and pipe-lines, and having a piston upon which the air from one of the pipes acts to normally cut off communication between the brake-cylinder and the other pipe, a valve for diminishing the pressure in the pipe to the automatic valve, and a spring for depressing the piston of the automatic valve when the initial pressure in the valve supply-pipe is diminished, and thereby re-establish communication between the brake-cylinder and the air-supply pipe thereto, substantially as described, for the purpose set forth.

2. In a compressed-air brake, the combination of a brake-cylinder having a piston operating therein, an automatic valve in communication with the cylinder and having a piston provided with the heads 50 and 51 at its ends, the head 52 of the piston being provided with a peripheral channel which aligns with suitable openings in the valve-shell, an air-supply pipe in communication with the automatic valve, beneath the head 50 of the piston therein, to normally elevate the piston, a similar supply-pipe communicating with one of the openings in the automatic valve, and a spring for depressing the piston of the automatic valve when the initial pressure in the valve supply-pipe is reduced, and thereby re-establish communication between the brake-cylinder and the supply-pipe thereto through the passage in the piston-head 52, substantially as described, for the purpose set forth.

3. In a compressed-air brake, the combination of a reservoir or tank and air-pump connected with and driven from an axle or other revolving part of a train, and discharging the air compressed thereby into the tank or reservoir continuously, a brake-cylinder having a reciprocat-

353,446.



ing piston connected by intermediate mechanism with the brake-shoes, an automatic valve, the independent supply-pipes normally charged with air from the reservoir, and both entering the automatic valve, one of the said pipes serving to operate the valve to normally cut off communication between the other supply-pipe and the brake-cylinder, a two-way cut-off valve, F', communicating with the supply-pipe to the cylinder, and a three-way cut-off valve, G', in the supply-pipe to the automatic valve, the said three-way valve being adapted to open communication between the reservoir and the automatic valve, or to cut off communication between said reservoir and automatic valve and discharge the air from the automatic valve supply-pipe into the surrounding air, and thereby cut off communication between the automatic valve and reservoir, whereby the initial air-pressure in the valve supply-pipe is reduced to actuate the automatic valve and re-establish communication between the brake-cylinder and its supply-pipe, substantially as described, for the purpose set forth.

4. In a compressed-air brake, the combination of a reservoir or tank, an air-pump connected with and driven by an axle or other revolving part of a train and discharging the air compressed thereby into the tank, a brake-cylinder having a reciprocating piston therein, the independent air-supply pipes normally charged with air of the same degree of compression from the reservoir, an automatic valve comprising a valve-shell having the exhaust-port 55, and the piston operating in the shell and having the heads at its ends, and the channeled middle head, 51, adapted to coincide with the exhaust-port, and an exhaust-pipe intermediate of the brake-cylinder and the automatic valve to conduct the exhaust-air from the brake-cylinder to the automatic valve, the piston of the said automatic valve being operated to cause its channeled head to coincide with the exhaust port and pipe, to permit the air from the brake-cylinder to escape through the valve simultaneously with the restoration of the initial pressure of air in the valve supply-pipe, substantially as described, for the purpose set forth.

5. The combination of a brake-cylinder, a supply-pipe thereto, a valve intermediate of the supply-pipe and having a piston provided with two heads, 50 and 52, the piston-head 52 having a peripheral channel which aligns with the supply-pipe to the cylinder to establish communication between the cylinder and its pipe, an air-supply pipe entering the valve beneath the piston-head 50 to actuate the piston and cut off communication between the cylinder and its pipe, and a reservoir from which the supply of air is drawn for the pipes of the cylinder and valve, substantially as described.

6. The combination of a brake-cylinder, an air-supply pipe thereto, an automatic valve intermediate of the cylinder and its pipe, and comprising a valve-shell having its ends of larger diameter than its middle, and provided with a hollow cap, and a piston having heads working in the enlarged ends of the shell, and with one end extended into the cap thereof, one of said piston-heads, 52, having a peripheral channel adapted to register with the supply-pipe to the cylinder, a spring fitted in the cap and bearing on the piston-head 52, to depress the piston, a supply-pipe to the valve, entering the shell thereof beneath the piston-head 50, and a compressed-air reservoir to supply the pipes to the cylinder and automatic valve at all times, substantially as described.

7. The combination of a brake-cylinder, a compressed-air reservoir, a supply-pipe to the brake-cylinder, an automatic valve intermediate of the brake-cylinder and its supply-pipe, and having a shell provided with an exhaust-port, and a piston working in the shell with heads at its ends, and an intermediate grooved head adapted to coincide with the exhaust-port of the valve-shell, a supply-pipe to the valve, and an exhaust-pipe intermediate of the cylinder and the valve-shell, substantially as described, for the purpose set forth.

8. An air-compressor for automatic air-brakes, comprising the independent induction and compression cylinders normally in communication with each other by an intermediate pipe, the reciprocating pistons operating in the said cylinders and capable of movement in the same direction simultaneously, and each having a fixed perforated head, the inwardly-opening valve affixed centrally to the inner side of the piston-head for the induction-cylinder, and the outwardly-opening valve affixed centrally to the outer side of the piston-head for the compression-cylinder, substantially as described, for the purpose set forth.

9. An air-compressor for automatic car-brakes, comprising the induction and compression cylinders normally in communication with each other by an intermediate pipe, the reciprocating pistons working in the said cylinders, and having the perforated heads, the valves affixed to opposite sides of the perforated heads of the pistons for the said cylinders, and opening in opposite directions, the trunks connected to the pistons and moving simultaneously therewith, and means operated by one of the revolving parts of a train for moving the pistons simultaneously in the same direction, substantially as described, for the purpose set forth.

10. An air-compressor for use in automatic air-brakes, having an induction-cylinder and a compression-cylinder in communication with each other, in combination with the reciprocating pistons working in the cylinders, the gear-wheel having the cranks, the pitmen intermediate of the cranks and the pistons, and gearing actuated by the axle of one of the cars for rotating the gear-wheel and the cranks carried thereby, substantially as described.

11. In an air-compressor for compressed-air brakes, the combination of an induction-cylinder, with a compression-cylinder in communication with the induction-cylinder, the pistons working in the cylinders, the inwardly-opening valve in the induction-cylinder, an outwardly-opening valve for the compression-cylinder, the cranks for reciprocating the pistons, and gearing for rotating the cranks, actuated by one of the axles of a train, substantially as described.

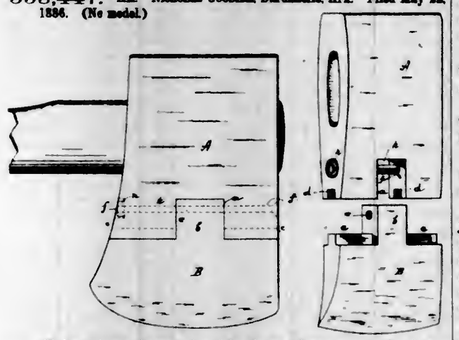
12. The combination of the induction and compression cylinders in communication with each other, and the pistons working therein, and each comprising a rod, an annular head carrying a perforated disk, and a pliable valve secured to the disk and adapted to alternately conceal and expose the perforations in the disk during the strokes of the piston, substantially as described, for the purpose set forth.

13. The combination of the induction-cylinder having an air-supply pipe entering the head thereof beneath the piston, a compression-cylinder in communication with the induction-cylinder and having an outlet-pipe, a piston working in the induction-cylinder and having an annular piston-head provided with a perforated disk, and an inwardly-opening valve of pliable material carried by the perforated disk, a similar piston working in the compression-cylinder and having an annular head with a perforated disk, and an outwardly-opening valve secured to the perforated disk beneath the same, and means for reciprocating the piston, substantially as described.

14. The combination of the induction and compression cylinders in communication with each other, the pistons working therein and having the valves, the trunks connected with the pistons and reciprocating therewith, a sectional pinion carried by one of the axles of the train, a banger, a gear-wheel journaled in the hanger and meshing with the pinion to be driven thereby, the cranks carried by the trunnions or shaft of the gear-wheel, and pitmen intermediate of the cranks and the piston-rods, substantially as described.

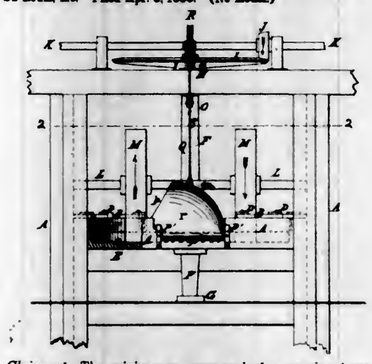
15. In an automatic compressed-air brake, the combination of a compressor deriving its motive power from one of the axles of a train, a reservoir or tank into which the air from the compressor is continuously discharged, a brake-cylinder, a supply-pipe thereto and normally filled with compressed air from the reservoir, an automatic valve intermediate of the cylinder and its pipe to normally cut off communication between the cylinder and its pipe and hold the air in check in the latter, a supply-pipe to the valve having free and uninterrupted communication therewith to elevate the same to normally cut off the air from the cylinder, a cut-off valve in the valve supply-pipe to decrease or diminish the pressure in the latter, and a spring to depress the automatic valve when the pressure in the valve supply-pipe is decreased, and open communication between the brake-cylinder and its pipe to actuate the brake devices, substantially as described.

353,447. AX. NICHOLAS GOODIER, Dardanelle, Ark. Filed May 22, 1886. (No model.)



Claim.—As an improved article of manufacture, an ax-head consisting of a body portion provided with a transverse groove, *d*, and a central slot, *a*, at right angles to the groove, a detachable blade provided with a transverse tongue, *c*, and a central projection, *b*, fitting in the groove and slot, respectively, of the body, a bolt, *f*, passed through the body and central projection, *b*, on the blade at right angles to the slot *a* in the body, and the fastening-nut *n*, substantially as specified.

353,448. MACHINE FOR WORKING FIRE-CLAY. JAS. H. GREEN, St. Louis, Mo. Filed Apr. 3, 1886. (No model.)



Claim.—1. The mixing-pan composed of a rotating bottom part and a fixed upper part, substantially as set forth.

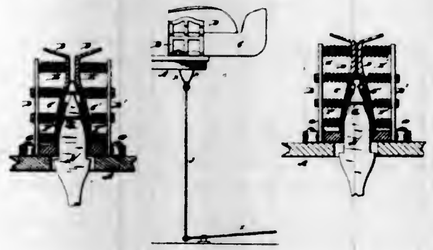
2. The fixed upper part, C, of the pan, having a gap, *c*, with discharging-scoop occupying the gap.

3. The combination of a rotating pan-bottom, E, and a tilting scoop hinged at the side of the pan, substantially as and for the purpose set forth.

4. The combination of a pan formed of a rotating lower part and a fixed upper part, and the tilting scoop located in a gap of the fixed part.

5. The combination of sectional pan C E, guides N, mixing-wheels M, and tilting scoop P, all constructed and arranged substantially as set forth.

353,449. BOOT OR SHOE FINISHING JACK. MOSES HARRIMAN, Detroit, Mich. Filed Dec. 31, 1885. (No model.)



Claim.—1. The combination, in a boot or shoe finishing jack, of clamping-jaws for engaging the boot or shoe from the exterior, with wedge-shaped spreaders, substantially as described, which in the upward or advance movement between the jaws act to spread said jaws apart, and means for forcing the jaws upon the boot or shoe when the spreaders are moved downward or withdrawn, as set forth.

2. In a finishing-jack, the combination, with the clamping-jaws and their retracting mechanism, of the spreaders H H', having wedge-shaped upper ends and shoulders h h', substantially as described.

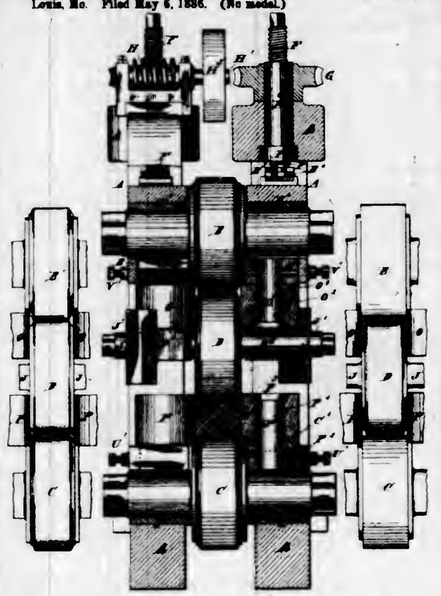
3. In a finishing-jack, the combination, with the clamping-jaws and their retracting mechanism, of the wedge-shaped spreaders H H', treadle I, and connecting-rod J, substantially as described.

4. In a finishing-jack, the combination of the table A, clamp-frame B, clamping-jaws C C' D D', springs E E' and F F', spreaders H H', and a treadle for actuating said spreaders, substantially as described.

5. The combination, in a boot or shoe finishing jack, of clamping-jaws for engaging the counter of a boot or shoe, separate clamping-jaws for engaging the upper of a boot or shoe from the exterior, means, substantially as described, for forcing said clamping-jaws upon the boot or shoe, and mechanism, substantially as described, for spreading each series of jaws simultaneously to locate the boot or shoe therein, substantially as described.

6. The combination, in a boot or shoe finishing jack, of clamping-jaws separated longitudinally, and constructed to engage the counter or upper of a boot or shoe from the exterior, and means for opening and closing said jaws, said jaws constructed with broadened upper faces at one end to support the forward part of a boot or shoe when engaged therewith, substantially as described.

353,450. THREE-HIGH ROLLING-MILL. WILLIAM E. HARRIS, St. Louis, Mo. Filed May 6, 1886. (No model.)



Claim.—1. In a rolling-mill, the combination, with a roll and movable boxes in which it is journaled, of the edging-rollers carried by the boxes of the movable roll and adjustable toward and from the plane of the pass, substantially as set forth.

2. In a rolling-mill, the combination, with the rolls having the passes, of the journal-boxes therefor, each having a frusto-conical boss projecting from one side thereof, an edging-roll having a corresponding socket fitting said boss, and a journal pin or stud upon which said roller turns secured to said box, substantially as set forth.

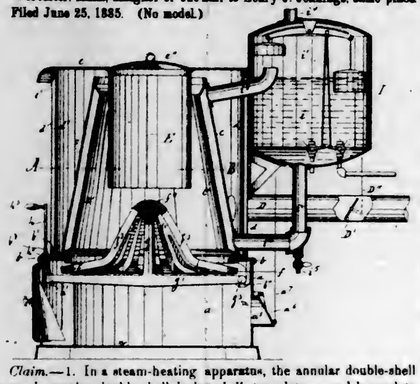
3. In a roller-mill, the combination, with the housing and the movable journal-boxes, of the screws F, swiveled to said boxes, the internally-screw-threaded sleeves F^6, fitted upon said screws and turning in bearings in the housing, the flanges F^7 on said sleeves, the worm-wheels G, secured to said sleeves, and the worm-screw H, engaging said worm-wheels, substantially as and for the purposes set forth.

4. In a three-high rolling-mill, the combination of the upper and lower rolls, balanced middle roller, and vertically-movable edging-rollers, substantially as shown and described, for the purpose set forth.

5 In a three-high rolling-mill, in combination with the upper and

lower rolls, the balanced middle roll, and edging-rollers secured to movable blocks in the boxes of the upper and lower rolls by means of journal-pins, substantially as shown and described, for the purpose set forth.

353,451. STEAM-HEATING APPARATUS. WARREN P. HARTMAN, Worcester, Mass., assignor of one-half to Henry J. Jennings, same place. Filed June 25, 1885. (No model.)

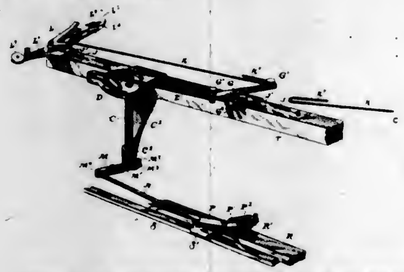


Claim.—1. In a steam-heating apparatus, the annular double-shell boiler *c c'*, annular double-shell jacket *d d'*, top plate, *e*, and base-plate *b*, combined with the downwardly-projecting hopper E and upwardly-projecting grates *f' f'' f³*, as and for the purpose set forth.

2. The combination of the annular plate *b*, having ears *b''* and opening *b³*, the cross-bar *g''*, journaled in said ears and having an arm, *g'*, provided with a central grate-supporting post, *g*, the grate-bars *f' f'*, having a central pivot-plate, *f''*, and the holder *h*, extending through the opening *b³* in the plate *b*, said holder being provided with an eye to engage the end of the arm *g'*, and having a lip, *h''*, that rests on said plate, substantially as described.

3. The combination of the double-shell annular boiler *c c'*, the double-shell jacket *d*, having smoke-pipe D, the tank I, the pipe *i''*, leading from the bottom of the tank to and through the double-shell jacket and into the lower part of the annular boiler, and the steam-pipe *i³*, leading from the upper part of the annular boiler through the jacket and into the tank, substantially as described.

353,452. CHECK-ROWER. EDWARD M. HEYLMAN, Peoria, Ill. Filed Mar. 29, 1886. (No model.)



Claim.—1. In a check-rower, the combination, with the feed-slide, of the vertical oscillating shaft, the crank-arm projecting from said shaft, and the connecting-rod joining said crank-arm to said feed-slide, substantially as and for the purpose specified.

2. In a check-rower, the combination, with the feed-slide, of the vertical oscillating shaft, the crank-arm projecting from said shaft, a sleeve adjustably secured to said crank-arm, and the pitman connecting said sleeve and feed-slide, for the purpose set forth.

3. In a check-rower, the combination of the case D, the V-cam A, the shaft C, the crank-arm M, and the rod N, as and for the purpose specified.

4. In a lock for a reciprocating bar, the toggle-joint pivoted to said bar and a fixed point and having a tension-spring connected thereto and to another fixed point, substantially as and for the purpose specified.

5. The combination, with the feed-slide of a corn-planter, of the toggle-joint, the fixed offset-plate, and the tension-spring connecting said toggle-joint and offset-plate, as and for the purpose set forth

6. The combination, with the bifurcated levers of a check-rower, of the centrally-pivoted lever G, rods connected to said levers and with said lever G, the rod E, having finger E', and pivoted to said lever G, the V-cam A, oscillated by the reciprocation of said finger, substantially as described, and means for actuating the feed-slide by said oscillations.

7. The combination, in a check-rower, of the bifurcated levers, the centrally-pivoted lever G, rods pivoted to said bifurcated levers and loosely connected to said lever G, the rod E, connected to said lever G and having finger E', the V-cam A, the case D for said V-cam, the vertical shaft C, on which said V-cam is mounted, the crank-arm M, and the connecting-rod N, joining said crank-arm to the feed-slide of a corn-planter, substantially as set forth.

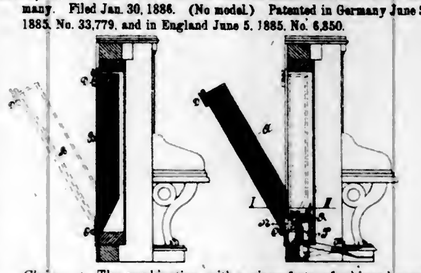
8. In a check-rower, the combination, with the V-cam, of the case D, plate D^2, web D^3, joining said case and plate, the finger F, projecting from said web, the stepped bearing D^4, formed on the plate D^2, and the lever G, having stepped hub G^2, as and for the purposes set forth.

9. In a check-rower, the combination, with an oscillating lever having a cylindrical hub, of a tension-spring suitably anchored, and a flexible connection wrapped about said hub and joined to said spring, for the purpose set forth.

10. In a check-rower, the combination, with a bearing having stop-shoulders D^5, of the oscillating lever having its hub provided with corresponding stop-shoulders, G^3, as and for the purpose set forth.

11. In a check-rower, the combination, with the shaft, of the arm M', having split socket M^2 and a clamping-bolt, and the slot M^3 in said arm, the sleeve M^4, having pin-hole M^5, the rod N, having lug N', and a clamping-bolt, for the purpose specified.

353,453. PIANO-FORTE. EMIL HÖFINGHOFF, Barmen, Prussia, Germany. Filed Jan. 30, 1886. (No model.) Patented in Germany June 5, 1885, No. 33,779, and in England June 5, 1885, No. 6,850.

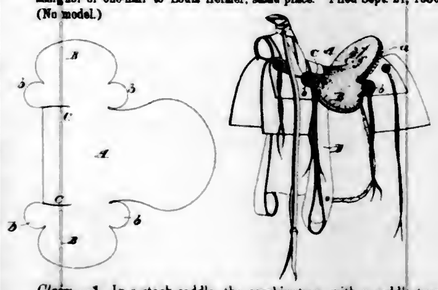


Claim.—1. The combination, with a piano-forte, of a hinged cover for the space behind or under the sound-board, the said cover having a filling of fibrous or analogous sound-deadening material, substantially as set forth.

2. The combination, with a piano-forte, of a cover hinged to open or close the space behind or below the sound-board, a damper-box projecting into the sound-box from the inner face of the cover, and a fibrous or analogous sound-deadening, filling in the said damper-box, substantially as set forth.

3. The combination, with a piano-forte having the frame E, of the cover B, having the spaced damper-boxes A on its inner face entering the sound-chamber, and having a fibrous filling, the toothed segment N, connected with the cover, the rack O, meshing with the segment, the rod P, connected to the rack, the spring S, acting against the rod, and the lever or treadle M, pivoted to the frame and to the rod P, substantially as set forth.

353,454. RIDING-SADDLE. JOHN G. LENTZ, Colorado Springs, Colo., assignor of one-half to Louis Helmer, same place. Filed Sept. 21, 1886. (No model.)

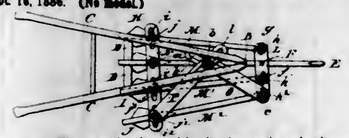


Claim.—1. In a stock-saddle, the combination, with a saddle-tree, of the single piece of leather forming the seat, jockeys, and cantle, the front edge of said piece of leather preferably on a line between the seat portion and jockeys being provided with slits for the passage of the stirrup-strap.

2. In a stock-saddle, the combination, with the saddle-tree, of a single piece of leather adapted to form the seat, cantle, and jockeys, the edge of the cantle portion being rolled to fit the edge of the cantle, and having projections for the attachment of rosettes, and with slits for the adjustment of the stirrup-strap, substantially as set forth.

3. In a stock-saddle, the combination, with a saddle-tree, of the single piece of leather forming the seat, cantle, and jockeys, and provided with a slit for the stirrup-strap, the front and rear edges of the jockeys at the points where the latter meet the seat proper being provided with rounded extensions, substantially as and for the purpose set forth.

353,455. PLOW. PHINNEY H. LEQUIRE, Greenwood, Ark. Filed Sept. 16, 1886. (No model.)

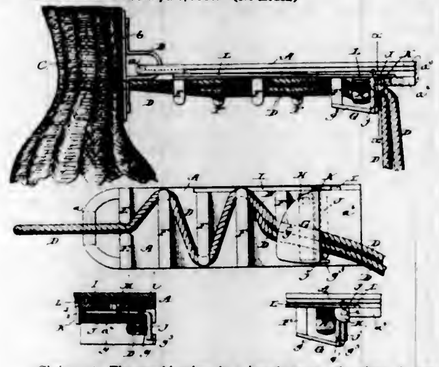


Claim.—1. The combination, with the beam A and plow carried thereby, of the bars L K N, pivotally connected with the beam, the auxiliary beams M M' M^3, carrying the plows H I J, and means, substantially as shown and described, for holding the transverse bars in the position of use.

2. The combination, with the plow-beam A, provided with the pin F and studs *a b*, and carrying a mold-board on the curved end thereof, of the cross-bar K, provided with the aperture *d* and bolts *e f g*, the bar L, provided with the aperture *d* and apertured to receive the bolts *e f g*, the slotted bar N, pivoted on the stud *a*, the plow-beams M M' M^3, pivoted on the bolts *e f g*, and provided with studs *j' j' j³*, inserted in the slots of the bar N, and the plows H I J, carried by the beams M M' M^3, substantially as shown and described.

3. The combination, with the plow-beam A, provided with the pin F and studs *a b*, and carrying a mold-board on the curved end thereof, of the cross-bar K, provided with the aperture *d* and bolts *e f g*, the bar L, provided with the aperture *d* and apertured to receive the bolts *e f g*, the slotted bar N, pivoted on the stud *a*, the plow-beams M M' M^3, pivoted on the bolts *e f g*, and provided with studs *j' j' j³*, inserted in the slots of the bar N, the plows H I J, carried by the beams M M' M^3, and the braces O P, connected with the bars K L N, substantially as shown and described.

353,456. BAG-FASTENER AND TAG-HOLDER. AUSTIN LEYDEN, Atlanta, Ga. Filed Sept. 1, 1886. (No model.)



Claim.—1. The combination, with a bag-fastener, of a plate, A, provided with a hook or hooks, over which the tightened bag-cord may be drawn, a plate, G, having a slot, *g*, to receive the cord, and a spring clamping the cord when it is drawn into said slot *g*, substantially as described, and for the purposes set forth.

2. The combination, in a bag-fastener, of a plate, A, provided with a hook or hooks, over which the tightened bag-cord may be drawn, a plate, G, having a slot, *g*, to receive the cord and an adjustable latch-bar, *j*, adapted to be turned across the slot *g* outside of the entered cord, substantially as described, and for the purposes set forth.

3. The combination, in a bag-fastener, of a plate, A, provided with a hook or hooks, over which the tightened bag-cord may be drawn, a plate, G, having a slot, *g*, to receive the cord, a spring clamping the cord when in slot *g*, and an adjustable latch-bar, *j*, adapted to be turned across the slot *g* outside of the entered cord, substantially as described, and for the purposes set forth.

4. The combination, in a bag-fastener, of a plate, A, provided with a hook or hooks, over which the tightened bag-cord may be drawn, a plate, G, having a slot, *g*, a shaft, J, having a bent arm, *j*, adapted to be turned across the slot *g* and lock the cord therein, a latch-plate, K, on the shaft, and a spring, L, acting on the plate K, substantially as described, and for the purposes set forth.

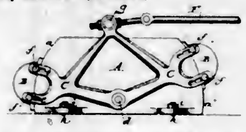
5. The combination, in a bag-fastener and tag, with a plate, A, having one or more hooks, over which the tightened bag-cord may be drawn, a plate, G, having a slot, *g*, and a latch-bar, *j*, adapted to be turned across the slot to confine the cord therein, of a lug, g^3, on plate G, substantially as described, and for the purposes set forth.

6. The combination, in a bag-fastener and tag, of a plate, A, having a pocket to receive a tag, and one or more hooks, over which the tightened bag-cord may be drawn, a plate, G, having a slot, *g*, to receive the cord, and a shaft, J, journaled across the plate A, and having an arm, *j*, adapted to be turned across the cord-slot *g*, and said shaft also having a stud or pin, M, crossing the tag-pocket, to confine the tag therein when the shaft-arm *j* crosses the slot *g*, to confine the bag-cord therein, substantially as described, and for the purposes set forth.

7. The combination, in a bag-fastener and tag, of a plate, A, having a pocket adapted to receive a tag, a shaft, J, having a stud, M, adapted to be turned across the tag-pocket, and a spring device holding the shaft and stud in position, substantially as described, and for the purposes set forth.

8. A bag-fastener and tag comprising a plate, A, adapted for attachment to a bag, and provided with a tag-holding pocket and a series of cord-receiving hooks, E F, an angle-plate, G, secured to plate A, and having a slot, *g*, a cord, D, laced through the bag and through or over the hooks E F, and entered into the slot *g* of the plate G, a spring, H, clamping the cord when it is in said slot, a shaft, J, having a bent arm, *j*, adapted to be turned across the cord-slot, a pin, M, on the shaft J, a latch-plate, K, on the shaft J, and a spring, L, held to the plate A and bearing on the plate K, all substantially as described, and for the purposes set forth.

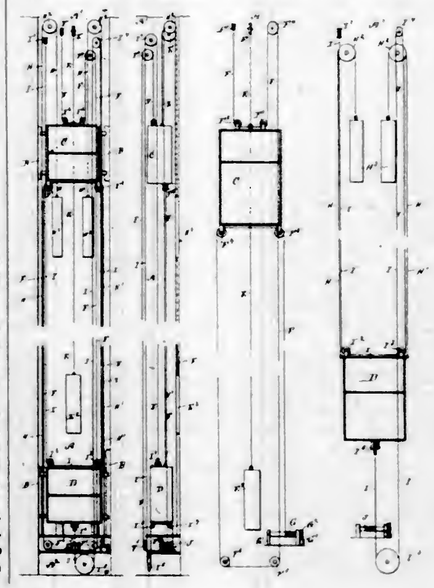
353,457. DUPLEX STEAM-VALVE. SIMEON MILLS, Madison, Wis. Filed May 21, 1886. (No model.)



Claim.—1. A duplex steam-valve consisting of a double-faced convex valve-seat, A, the adjustable concave valves B B, and rock-shafts C C, constructed and arranged to operate as herein shown and described.

2. In combination with the valve-seat A and the valves B B, the rock-shafts C C, having their ends provided with slots *e e*, and set-screws *f f*, for adjusting the valves to the valve-seat, as set forth.

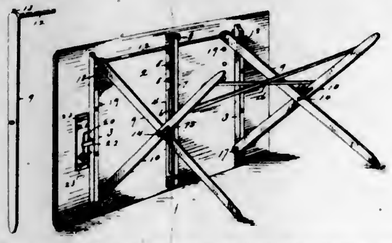
353,458. DUMB-WAITER. JAS. MURTAUGH, New York, N. Y. Filed May 14, 1886. (No model.)



Claim.—1. In a dumb-waiter, the combination of a shaft provided with guides with two carriages traveling in the shaft on the said guides independently of each other, and placed one above the other, substantially as shown and described.

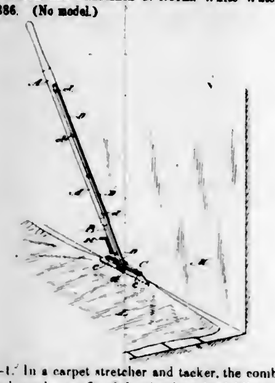
2. In a dumb-waiter, the combination, with a shaft, of two counterbalanced carriages arranged in the said shaft one above the other, and means, substantially as described, for operating the said carriages independently of each other, as specified.

353,459. **FOLDING TABLE.** Wyman J. Newcomb, Springfield, Mass., assignor to Charles A. Wilcomb, same place. Filed Feb. 20, 1886. (No model.)



Claim.—A folding table consisting of the following elements: a top having the cleats 3, secured transversely to its under side near each end, the cross-grooved cleat 4, secured thereon between said cleats 3, the spring-arm 7, secured on the grooved side of said cleat 4, the legs 10, pivotally attached by one end to said cleats 3, and having the oblong slots 15 therein, the legs 9, having the round 12 uniting their upper ends and passing between said grooved cleat and spring-arm 7, and the bolts 14, passing through the slots in the legs 10 and pivotally uniting the latter and the legs 9, all combined substantially as set forth.

353,460. **CARPET STRETCHER AND TACKER.** Adelbert H. Noyes, Jefferson, and Frederick G. Noyes, White Water, Wis. Filed Apr. 5, 1886. (No model.)



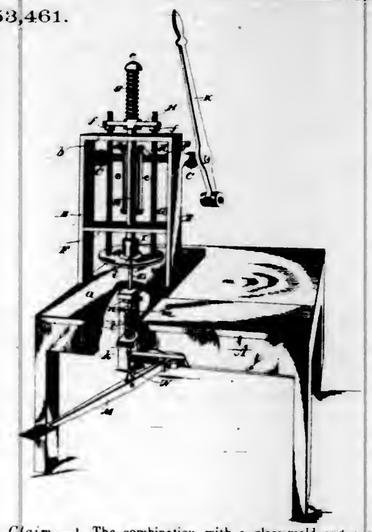
Claim.—1. In a carpet stretcher and tacker, the combination, with a staff, a barrel, a plunger fitted in the barrel, yielding or expansible tack-holding lips fitted at the end of the barrel, and a tack-holding tube ranging along the staff and barrel and opening into the barrel below the raised plunger, substantially as specified, of a pedal, as at H, fixed to and projecting laterally from the plunger, substantially as herein set forth.

2. In a carpet stretcher and tacker, the combination, with the staff A, barrel B, plunger F *f*, yielding spring-pressed lips G G, and a tube, D, opening at *d'* into the barrel B, of a pedal, as at H, fixed to and projecting laterally from the plunger, a rod, I, on pedal H, a guide, *i*, for rod I, held to the barrel, and a spring, K, on rod I, substantially as herein set forth.

3. In a carpet stretcher and tacker, the combination, with the staff A, barrel B, plunger F *f*, yielding spring-pressed lips G G, and tube D, of a pedal, H, fixed to and projecting laterally from the plunger and inclined backward horizontally from the plane of the toothed stretching-head C of the implement, substantially as and for the purpose herein set forth.

4. In carpet stretchers and tackers, the stretcher-head C, constructed with separate aligned blades *c c*, held together by straps *c' c'*, bowed at *c'*, and screws *c'*, or equivalent fastenings, in combination with the staff or barrel held between the inner ends of the blades *c c*, substantially as herein set forth.

353,461. **GLASS-PRESS.** Thomas G. Otterson, Woodbury, N. J. Filed Apr. 9, 1886. (No model.)



Claim.—1. The combination, with a glass-mold and a plunger adapted to be forced into the mold and provided with a spur or punch on its lower face, of a yielding pin or punch adapted to meet the plunger within the mold, substantially as set forth.

2. In a glass-press, the combination, with a suitable mold and a plunger provided with a spur or punch on its face adapted to be forced into the mold, of a yielding pin or punch extending upwardly through the bottom of the mold, substantially as set forth.

3. In a glass-press, the combination, with a suitable support, a mold located thereon, a plunger provided with a spur or punch on its face, and a lever for forcing the plunger into the mold, of a pin or punch extending upwardly through the mold, means for holding the pin in a normally elevated yielding adjustment, and a lever for depressing the pin, substantially as set forth.

4. The combination, with a plunger located above a mold and provided with a spur or punch on its face, and a yielding pin or punch extending upwardly through the bottom of the mold, of a system of levers for simultaneously operating the plunger and the pin, substantially as set forth.

5. The combination, with the plunger secured in vertically-sliding adjustment in a supporting-frame and provided with a depending spur or punch, a spiral spring secured on the plunger-rod adapted to hold the plunger in a normally elevated adjustment, means for adjusting the tension of the spring, and the operating rock-shaft provided with arms, and an operating-lever, of the yielding pin adapted to meet the plunger within the mold, substantially as set forth.

6. The combination, with the vertically-movable pin extending upwardly through the bottom of the mold, a spring adapted to hold the pin in a normally elevated adjustment, means for adjusting the tension of the spring, and a treadle-lever for operating the pin, of a reciprocating plunger provided with a spur or punch adapted to meet the pin, substantially as set forth.

353,462. **COMBINED HOOK AND BUCKLE.** James J. Pinkham, Stillwater, Mont. Filed Aug. 19, 1886. (No model.)

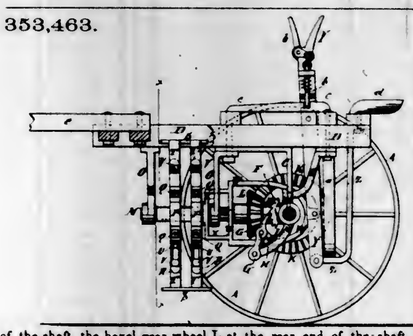


Claim.—A combined hook and buckle made of wire bent to form an oblong loop, A, with arms *a* projecting from one of the longer sides thereof, bent over toward the loop and provided with eyes *b*, the buckle-tongue formed by a wire pointed at one end and having an eye, *c*, on the opposite end, and a wire, *d*, passing through the eyes *b c* and bent over upon the eyes *b*, substantially as shown and described.

353,463. **COTTON-CHOPPER.** Ernst C. A. Pula, San Geronimo, Tex. Filed June 28, 1886. (No model.)

Claim.—1. The combination, with the frame D, axle B, having the bevel-gear K, and the wheels A A, of the bearings O O on the under side of frame D, the bearing N on the axle B, the shaft M, rotating and sliding longitudinally in said bearings, the cutter-bar at the forward end

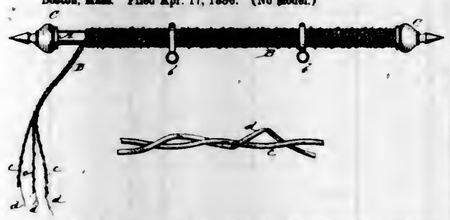
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of the shaft, the bevel gear-wheel L at the rear end of the shaft, the frame W, extending around the said bevel-gear and bearing N, and having a forward cross-bar through which the shaft passes in front of gear L, and an extension, X, through which the shaft passes at a point adjacent to the rear side of the cutter-bar, and a pivoted lever, Y, for operating the said frame to slide the shaft M and throw the bevel-gears into and out of engagement.

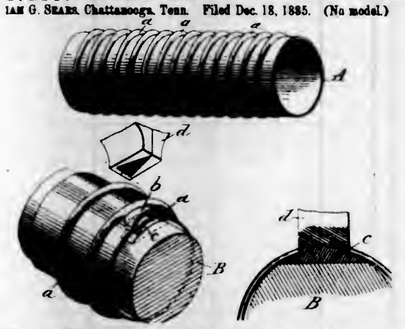
2. The combination, with the shaft M, squared near its forward end, and an operating mechanism, of the parallel cutter-bars R R, slotted longitudinally at their opposite ends, the clasps P, embracing the squared part of the shaft and bolted to the bars R R, the chopping-hoes S, having two parallel shanks, T T, formed at their lower ends with lugs U U, engaging the slots in bars R R, and bolts Q Q, passed through said shanks and slotted bars, substantially as set forth.

353,464. **BANNER OR OTHER LIKE ROD.** Rufus H. Sawyer, Boston, Mass. Filed Apr. 17, 1886. (No model.)



Claim.—An ornamental bar comprising the bar having a cord composed of a metallic and a fibrous strand wound spirally around it, substantially as set forth.

353,465. **METHOD OF MAKING TOOTHED CYLINDERS.** William G. Sears, Chattanooga, Tenn. Filed Dec. 18, 1885. (No model.)

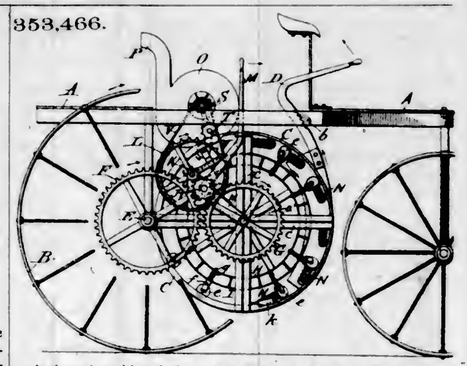


Claim.—The herein-described method of making toothed and rigid cylinders, which consists in spinning ridges upon the blank cylinders and in punching out teeth between the said ridges from within the interior of the cylinder, substantially as shown and described.

353,466. **COTTON-HARVESTER.** William G. Sears, Chattanooga, Tenn. Filed Dec. 26, 1885. (No model.)

Claim.—1. In a cotton-picker, a stem-carrying wheel with an inner and an outer rim, the former being provided with a series of apertures and the latter with a series of slots, in combination with picking-stems carried by yoked spindles rocking in said apertures and slots, and a guide, the whole arranged and operating so that the stems may be guided into

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a horizontal position during a part of the revolution of the wheel and may fall into an oblique position during the remainder, substantially as described.

2. In a cotton-picker, a cylindrical casing for containing the picking mechanism, which has half of its interior surface made of greater radius than the other half, substantially as shown and described.

3. The combination, with cylindrical casings having the interior surfaces formed with the semi-circumferences of different radii, of stem-carrying wheels revolving within the said casings and carrying picking-stems provided with rollers that are actuated by frictional contact with the surface having the shorter radius, substantially as shown and described.

4. The combination of cylindrical casings having concentric interior semi-circumferences, double-rimmed stem-carrying wheels revolving within said casings, the inner rim being provided with a series of holes and the outer with a series of slots shaped as the longitudinal section of two truncated cones placed end to end, the lower extremity of the middle lines of the slots being nearest the middle of the machine, and picker-stems provided with rollers for actuating the stems by frictional contact with the casing, said rollers being carried by standards so operating within the slots and apertures of the rims that the stems may gravitate alternately from a horizontal to the oblique position, and the reverse, substantially as shown and described.

5. The combination, with the stem-carrying, wheel whose outer rim is provided with slots in the shape of a longitudinal section of two truncated cones placed end to end, the lower extremity of the middle line of the slots being nearest the middle of the machine, of yoked spindles for supporting picking-stems secured to them at right angles, said spindles being situated within the slots with the yokes parallel to the edges of the rim, but adapted during the rotation of the wheel to move into a position with the yokes oblique to the edge of the rim under the action of gravity, substantially as described.

6. In a cotton-harvester, the combination of a stem-carrying wheel, the picker-stems carried thereby and provided with rollers, and a cylindrical casing whose interior surface forms a track, with which the rollers come into frictional contact to actuate the stems, said interior surface having its semi-circumferences of different diameter, the one of shorter diameter having a groove to guide and operate the rollers, substantially as specified and shown.

7. The combination of the driving-wheels having the gears F F, the cylindrical casings C C, having cross-bars *c c*, at whose intersections are formed shaft-bearings, the shafts journaled in said bearings and having gears G G, and stem-carrying wheels H I, secured upon the said shafts and carrying picking-stems, and the intermediate gears, J, substantially as shown and described.

8. The combination of the rotary shafts, the two-rimmed stem-carrying wheels mounted thereon, their outer rims having slots *j* and their inner rims a series of apertures, the picker-stems N, having rods *d*, which carry friction-wheels *e*, that are supported in yoke-spindles *f g*, rocking in said apertures and slots, and the casings C, having a circumferential groove and surrounding said stem-carrying wheels, the whole arranged and operated so that the stems may be guided into a horizontal position during a part of the revolution of the wheels and may fall into an oblique position during the remainder, substantially as described.

9. In a cotton-harvester, the combination, with a revolving stem-carrying wheel having an inner and an outer rim and a casing surrounding the wheel, of a set of picking-stems carried by said wheel and actuated as described, which during half the revolution of the wheel are horizontal and in contact with the cotton-plants, but during the other half are in an oblique position out of contact with the plants, substantially as shown and described.

10. In a cotton-harvester, the combination, with a stem-carrying wheel and a set of picking-stems carried thereby, which are automatic-

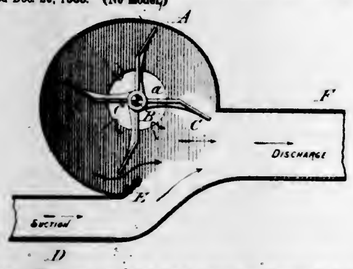
ally adjustable by suitable means from an operative to an inoperative position alternately, of a surrounding casing having a lug, *k*, which assists in returning each stem from an oblique to a horizontal position, as set forth.

11. In a cotton-picker, the combination, with the double-rimmed wheels C, of the mechanism for carrying the stems, which consists of a friction-roller, *e*, secured on the end of a rod, *d*, carrying the stem, said roller being journaled in the bifurcated end of a yoke-spindle, *f g*, the lower portion of which is rounded at *g*, and is provided with spring *h*, and the pin *i*, arranged and operating for the purposes shown and described.

12. In a cotton-harvester, a series of stems, N N, secured to rods *d*, which carry friction-rollers *e*, that are journaled in the bifurcated ends of yoke-spindles *f g*, said spindles being at right angles to the stems and adapted to uphold the stem in its operations, substantially as and for the purposes shown and described.

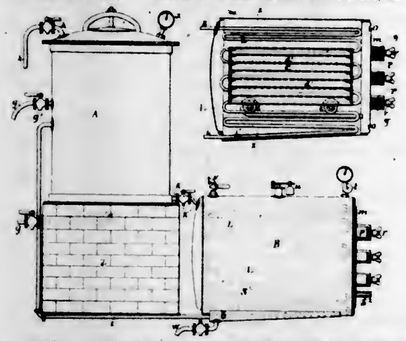
13. The combination, with a revolving stem-carrying wheel, of mechanism for carrying and actuating the stems, which consists, essentially, of a friction-roller, *e*, journaled in the bifurcated end of a caster-shaped standard secured adjustably within the rims of the said hand-wheel, as shown, and for the purpose described.

353,467. **EXHAUST-FAN.** William G. Sears, Chattanooga, Tenn. Filed Dec. 29, 1885. (No model.)



Claim.—The combination of the fan-casing A, suction-pipe D, discharge-pipe F, the lip E, integral with or secured upon the inner surface of the casing and situated so as to constitute an extension of said casing into the channel of suction and discharge, and the fan located eccentrically within the casing in a manner to leave an unoccupied space adjacent to the lip E, so that during the revolutions of the fan the air-current next the casing-surface may be deflected upward and compacted with the current forward of the fan-blades, thereby causing a more powerful blast in the discharge and a more perfect vacuum in the suction, substantially as described.

353,468. **PROCESS OF AND APPARATUS FOR DISSOLVING AND REMOVING THE GUM FROM NETTLE AND OTHER PLANT FIBERS.** Théodore E. Schleffner, Esbouen, Seine-et-Oise, France. Filed Feb. 20, 1886. (No model.) Patented in France Dec. 12, 1885, No. 172,882.

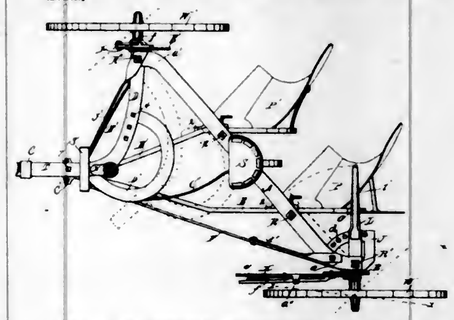


Claim.—1. The continuous process of dissolving and removing the gum from the nettle or china-grass and other plant fibers, in order to divide the fibers to give them a silky appearance and to fit them for bleaching and fine spinning, the said process consisting in conducting the appropriate chemical agents—such as solutions and vapors, separate or mixed—from a reservoir into an apparatus containing the plant fibers, and there causing them to act upon said fibers, and then returning said agents to the reservoir for a new circulation, the strength of the solutions or vapors being restored or their composition modified from time to time as occasion may require, and the plant fibers remaining undisturbed in the apparatus, so that entanglement and felting of the fibers and the sources of loss in general are avoided, substantially as described.

2. The apparatus for treating nettle or china-grass and other plant fibers to dissolve and remove the gum, as specified, the said apparatus consisting of the reservoir for the chemical agents, the apparatus for containing the fibers, the carriage provided with perforated or wire network hurdles or compartments for supporting the fibers, and the pipes for conducting the agents from the reservoir into the apparatus and delivering the same upon the fibers therein, and for then returning the same into the reservoir for a new circulation, substantially as described.

3. The reservoir provided with steam-pipe and water-pipe, in combination with the apparatus for containing the material to be treated, provided with pipes at top and bottom, respectively, the perforated serpentine pipes in said apparatus, the pipes for conducting the chemical agents from the reservoir and returning them into the same, and the carriage provided with perforated hurdles or compartments for supporting the fibers in the said apparatus, substantially as described.

353,469. **GANG-PLOW.** Abraham Shaffer, Cassopolis, Mich., assignor of one-half to F. Goodwin, same place. Filed Sept. 7, 1886. (No model.)



Claim.—1. In a gang-plow, the combination of the axle arranged obliquely to the line of travel, having the bent end portions, the series of plows the beams of which are fulcrumed on said axle, the transporting-wheels, the axle made vertically adjustable on said wheels, and mechanism for turning independently said wheels on said axle, substantially as specified.

2. In a gang-plow, and in combination, the axle arranged obliquely to the line of travel, the transporting-wheels mounted on said axle, and mechanism for raising and lowering said axle on the transporting-wheels, the horizontal frame having the depending arm Z', and the plow-beam adjustably attached to said arm and fulcrumed on the axle, the points of the plows standing on an oblique line and in advance of the axle, as and for the purposes specified.

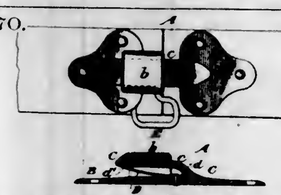
3. In a device for the purposes set forth, the combination of the axle arranged diagonally to the line of travel, the supporting-wheels mounted adjustably thereon, the horizontal frame F F', formed integral, its ends being attached to the lower bar of the axle, the braces joining said frame to the upper bar of said axle, the circular track joining said frame and the axle, the curved bar D, pivotally attached to the axle, the tongue mounted thereon, and the circular rub-iron attached to the bar D, and having the depending arm with head *m*, adapted to engage with and slide over the under face of the circle-iron, as and for the purposes specified.

4. In combination with the bars of the axle, the vertical bar H, having the ear *n'* and lever L formed integral therewith, the circle-iron J, attached to the upper bar of the axle, the mechanism for locking said lever to the circle-iron, the rod R', passing through the lever L, the bars of the axle, and ear *n'* of the arm H, substantially as specified.

5. In combination with the bars of the axle, the lever L, having the vertical arm H formed integral therewith and pivotally mounted on the rod R' of the axle, the sliding head carrying the axle-arm mounted on the arm H, the disk E, the elbow-lever pivoted to said disk, mechanism for locking said lever, and the bar G, having one end pivoted to the elbow-lever, the other to the sliding head, as and for the purposes specified.

6. In combination with the axle, the vertical arm H', having the curved bar D, formed integral therewith and pivoted to the axle, the rub-iron D', carrying the lug with head *m*, adapted to engage with the circle-iron, the horizontal frame F F', and the braces joining said frame to the axle, substantially as specified.

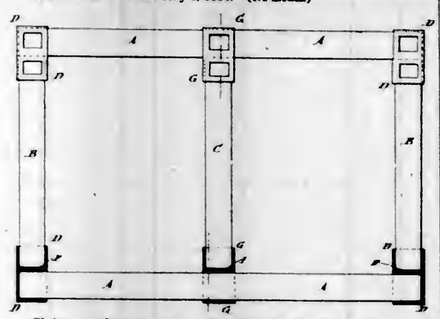
353,470. **BREAST-STRAP COUPLING.** David L. Shafer, Pleasant Hill, Ohio. Filed Apr. 28, 1886. (No model.)



Claim.—1. The breast-strap coupling A, consisting of the keeper-section B, the hook-section C, the plate-spring D, and the martingale-loop E, as shown and described.

2. In a breast-strap coupling, the one section having a hook, *c*, and the other provided with a keeper, *b*, in combination with a plate-spring, D, passing through the keeper, the end *d* being riveted in front of said keeper and the end *d'* bent up to the rear thereof, substantially as shown and described.

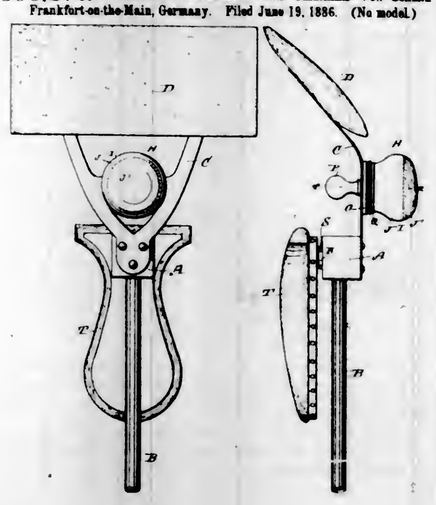
353,471. **PACKING-FRAME FOR PAPER.** Charles F. Spaulding, Elizabeth, N. J. Filed May 1, 1886. (No model.)



Claim.—1. In a knockdown frame for bundles of paper, the combination, with the ends of the side bars, A, and end bars, B, having rabbeted under sides, of the metallic couplings D, having longitudinal end sockets and transverse side sockets, and provided with flanges E on their under sides, to enter the rabbets of the said bars, substantially as herein shown and described, whereby the said bars are detachably connected, as set forth.

2. In a knockdown frame for bundles of paper, the combination, with the side bars, A, and the intermediate bar, C, having rabbeted under sides, of the metallic coupling G, having longitudinal sockets at one end and transverse openings at their other ends, and provided with flanges H on their under sides, to enter the rabbets of the said bars, substantially as herein shown and described, whereby the said bars are detachably connected, as set forth.

353,472. **WINDOW-CLEANER.** Carl Bernhard Von Schenk, Frankfort-on-the-Main, Germany. Filed June 19, 1886. (No model.)

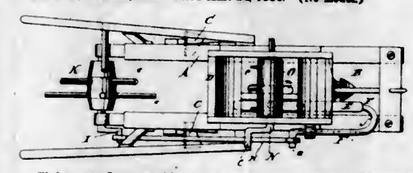


Claim.—1. In a window cleaner and polisher, the combination of the block A and the handle B with the pads D and T and the powder-holder H, substantially as shown and described.

2. In a window cleaner and polisher, the combination of the block A and the handle B with the detachable pad T and the powder-holder H, substantially as shown and described.

3. In a window cleaner and polisher, the bag I, having the satin-finished sides J and the front part, J', and the polishing-powder K, placed in the said bag I, in combination with the disk L, having the screw N, the disks M and O, the handle P, and the elastic band Q, substantially as shown and described.

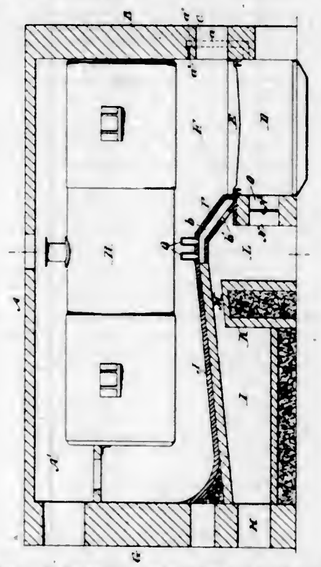
353,473. **COMBINED CORN AND COTTON PLANTER.** William Walker, Weimar, Tex. Filed Mar. 24, 1886. (No model.)



Claim.—1. In a combined corn and cotton planter, the combination, with a frame, a hopper mounted thereon, and a wheel journaled in the rear part of the same, of the seed-slide E, provided on its forward end with the bent arm F, having the rearwardly-extending leg F' *a*, and the connecting-rod H, substantially as herein shown and described.

2. In a combined corn and cotton planter, the combination, with a crank-shaft driven by an armed wheel, of a slide having an arm, F, bent to U form, so as to have a rearwardly-extending leg, F', that is guided by a bearing, G, said rearwardly-extending leg being provided with an extending end, *a*, upon which there is fitted a connecting-rod, H, that also engages with the crank-shaft, substantially as described.

353,474. **FURNACE.** John H. Wetmyer, Harrisburg, Pa. Filed June 25, 1886. (No model.)



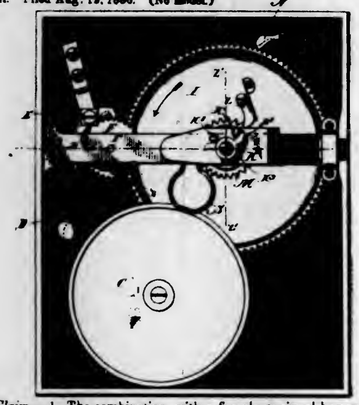
Claim.—1. A furnace constructed with a rear inlet-passage, I, below the flame-bed, terminating in an enlarged chamber, L, at the back wall of the ash-pit, and communicating therewith, a check-wall, K, extending near to the flame-bed and forming the narrow passage M, between passage I and chamber L, whereby the entering cold air will strike the wall K and be forced upward against the flame-bed and be highly heated before entering the ash-pit and furnace-chamber, substantially as set forth.

2. The combination, in a furnace, with the flame-bed, the fuel-chamber, and the intermediate hollow fire-back having upper and lower openings, and the ash-pit having an opening in its rear wall provided with a damper, of a rear inlet extending below the flame-bed and terminating in an enlarged chamber below the fire-back and rear of the

ash-pit wall, and a check-wall separating the said passage and enlarged chamber and extending upward to a point near the flame-bed, substantially as set forth.

3. The hollow fire-back P, having a horizontal upper portion apertured and provided with perforated tubes, the forward side being inclined downward and apertured in its rear wall to communicate with an air-supply chamber, substantially as shown and described.

353,475. FIRE-ALARM-SIGNAL BOX. John Ashworth, Chicago, Ill. Filed Aug. 19, 1886. (No model.)



Claim.—1. The combination, with a fire-alarm-signal box provided with a bolt or latch actuating device, and an alarm mechanism operated from the latch-actuating device when the latter is operated to permit the box to be opened, of a yielding-spring resistance placed in and forming a portion of the connection between the alarm mechanism and the bolt or latch actuating device, said spring-resistance being susceptible of either transmitting power from the latch-actuating device to the alarm mechanism, when the latch is in working condition or of simply presenting a yielding resistance to the free action of the latch-actuating device at such times as the alarm mechanism may be inoperative, substantially as and for the purpose described.

2. The combination, with a fire-alarm-signal box, of the local-alarm mechanism, the latch or bolt operating device, and a coiled spring, P, interposed in a connection between said local-alarm mechanism and the latch or bolt operating device, substantially as and for the purpose described.

3. The combination, with the alarm-striking mechanism, of the latch-actuating device, a spring, P, connecting the said alarm mechanism with gearing which is operated from the latch-actuating device, and means for placing said latch-actuating device in positive connection with the gearing when it is operated to draw back the latch or bolt, but permitting a free reverse action on the part of the latch-actuating device independent of said gearing, substantially as described.

4. The combination, with the latch-actuating handle, of the gear I, a pawl-and-ratchet connection between the spindle of the handle and the gear, an alarm-striking mechanism, and power-transmitting connection between the alarm-striking mechanism and the said gear I, substantially as described.

5. The combination, with the fire-alarm box, of the handle, having its spindle extended into the box and adapted to engage and operate the latch or bolt, the gear I, having a pawl-and-ratchet connection with said handle, a pawl for checking a back motion on the part of said gear, and a spring connecting a cog which is engaged by gear I with an alarm-striking mechanism, substantially as described.

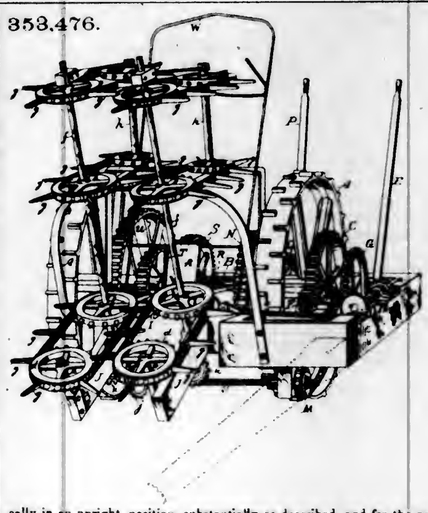
6. The combination, with a fire-alarm-signal box provided with an alarm mechanism comprising a gong, a striking-hammer carried by an oscillatory pawl, and a wheel, F, for actuating said pawl, of the spring P, connecting said wheel with a cog, H, the gear I in engagement with said cog, the handle having its spindle adapted for drawing back the latch, substantially as described, and a pawl-and-ratchet connection between said spindle and the gear I, substantially as set forth.

353,476. CORN-HARVESTER. Harry S. Bartholomew, Bristol, Conn. Filed Nov. 17, 1884. (No model.)

Claim.—1. The combination of husking-rollers, the holding-frame above said rollers, and the opposing sets of chains carrying fingers and mounted upon pulleys, with the rear pulleys located over the husking-rollers, substantially as described, and for the purpose specified.

2. The combination of the cutting mechanism, the husking-rollers, and gathering mechanism, which presents the stalks, first, to the cutting mechanism, and, second, to the husking-rollers while the stalks are practically in an upright position, substantially as described, and for the purpose specified.

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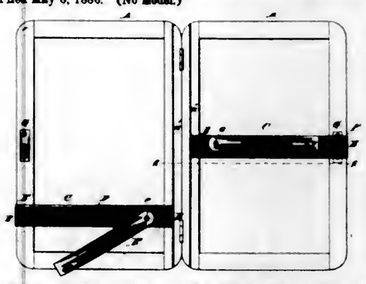
3. In a corn-harvester, the combination of the cutting mechanism, the shafts *e* and *f*, inclined forward and bearing pulleys, with the shaft *e* located forward of the cutting mechanism, while the rear edge of the pulley on the shaft *f* is higher than and extends rearward to a point above said cutting mechanism, and a set of gathering-fingers mounted on a chain and running over said pulleys, substantially as described, and for the purpose specified.

4. In a harvester, the combination of cutting and husking mechanism with the shafts *e f h*, bearing pulleys, and chains having ingathering-fingers, substantially as described, and for the purpose specified.

5. The combination of the axle B, provided with driving-wheels A, the cutting mechanism located at the forward end of the machine and extending transversely across its frame, the husking-rolls mounted horizontally just back of the cutting mechanism, in front of the axle, and parallel to both, and suitable connecting-gearing for operating said parts, substantially as described, and for the purpose specified.

6. In a corn-harvester, the combination of a pair of husking-rolls whose axes extend transversely to the length of the machine, two opposing series of gathering-fingers moving inwardly toward each other at the front and outwardly from each other at the rear, and having the fingers in one series lap by those of the other series when they are brought into their confronting position, and the rack or frame above said husking-rolls, at the rear of the fingers, for catching the stalks of corn while the fingers are moving outwardly, substantially as described, and for the purpose specified.

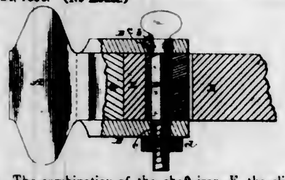
353,477. RULER ATTACHMENT FOR SLATES. Frank H. Bloemker, St. Louis, Mo., assignor of one-half to Michael Wagner, same place. Filed May 8, 1886. (No model.)



Claim.—1. The combination of a slate having outside grooves in its side bars, and a ruler extending across the slate, having clips B, one at each end, formed with inturned lips occupying the outside grooves in the side bars, substantially as described.

2. The combination of a slate formed with an oblique face-groove, *a'*, and a ruler, C, provided with a clip, B, formed with an oblique lip *b'*, substantially as described.

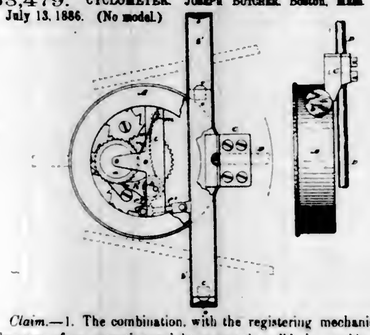
353,478. THILL-COUPLING. Ariel Bratschie, Sharpsburg, Pa. Filed Apr. 24, 1886. (No model.)



Claim.—1. The combination of the shaft-iron E, the clip A, provided with the jaws B, the bolt D, having a square portion, a revolving cam-shaped bush having an angular opening to receive the bolt, and the rubber G, substantially as shown.

2. The combination of the clip A, jaws B, one of which is provided with a recess, *a*, the bolt D, having an angular portion and provided with the projection *b*, the revolving bush F, through which the bolt passes, the thill-iron, and the cushion G, substantially as described.

353,479. CYCLOMETER. Joseph Butcher, Boston, Mass. Filed July 13, 1886. (No model.)



Claim.—1. The combination, with the registering mechanism of a cyclometer, of an actuating-weight arranged to slide in a guide way or ways, said guideway, and mechanism for transmitting the motion of said weight to said registering mechanism.

2. A cyclometer comprising a case, a clamp or fastening for securing the cyclometer to the spoke of a wheel, a guide way or ways arranged substantially perpendicular to the radius of the wheel at the point of attachment, an actuating-weight arranged to slide in said guide way or ways, mechanism for transmitting the movements of said weight to the registering mechanism of said cyclometer, and said registering mechanism.

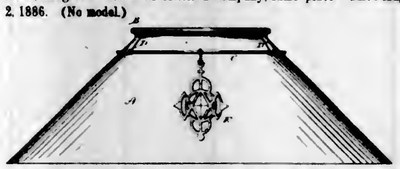
3. The combination, with the registering mechanism of a cyclometer which has a driving ratchet-wheel, *a*, of a guide way or ways for a sliding weight, said weight *c*, arranged to slide in said guide way or ways, a pawl engaging the teeth of wheel *a*, and intermediate mechanism between said pawl and weight, whereby the reciprocating movements of the weight are communicated to said pawl.

4. The combination, with the cyclometer-case, of the guideway *b'*, carried thereby, the weight *c*, mounted to slide in said guideway, the registering mechanism, and mechanism whereby the reciprocating movements of said weight in its guide are transmitted to the said registering mechanism.

5. As a means for actuating intermittently the registering mechanism of a cyclometer, a weight, *c*, arranged to slide in a guide way or ways, the eccentric *k* and its arm, the link which couples the said arm to the weight *c*, the pawl *h*², constructed to embrace said eccentric in the manner of a yoke, and the pawl-spring.

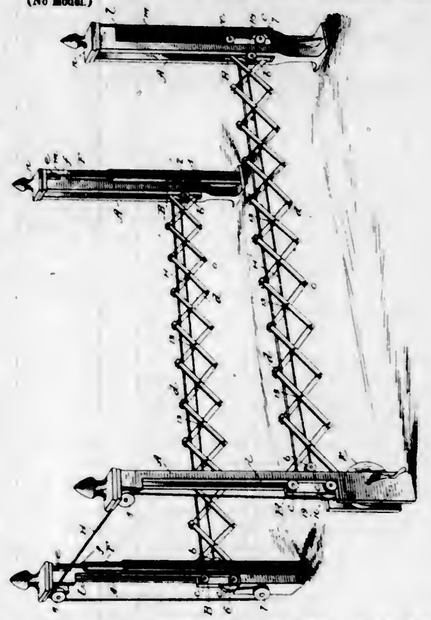
6. A cyclometer the case of which carries a laterally-extended guideway for a sliding weight, substantially as and for the purposes set forth.

353,480. LAMP-SHADE ORNAMENT. George L. Cooper, Meriden, Conn., assignor to Edward Miller & Company, same place. Filed Aug. 2, 1886. (No model.)



Claim.—The combination of the ring C, adapted to pass over the neck of a shade and rest thereon below the neck, provided with fingers D, extending from the said ring upward, and so as to engage the neck of the shade, and ornaments hung to said ring, substantially as described.

353,481. RAILWAY-GATE. David W. Copeland, Syracuse, N. Y., assignor to the Copeland Manufacturing Company. Filed Sept. 17, 1885. (No model.)



Claim.—1. In combination, the posts A, the vertically-sliding gates, and the rope H, secured to the post A at the point 1, passing through the gate upon one side of the railroad over pulley 7 at the base of the post, up over pulleys 8 8 on the upper ends of the posts A, and from thence to a winding-drum, substantially as described.

2. In combination, the slotted posts A, the blocks provided with anti-friction rollers sliding therein, the trusses extending across the road, secured to said blocks at either end and moving therewith, a winding-drum, and ropes H H', the rope H being secured to one post, passing through the truss to the post opposite, and from thence overhead to the winding-drum, and the rope H' being secured to its post and passing through the truss to the drum, substantially as described.

3. In combination, slotted posts, blocks sliding therein, having suitable anti-friction pulleys, and pulleys for supporting the operating cords or chains, trusses secured to said blocks and moving therewith, and ropes or chains H H', connected to posts upon opposite sides of the railroad, passing over pulleys carried on said sliding blocks and on the posts to a winding-drum, and the weights connected to each of said sliding blocks, substantially as described.

353,482. ARTICLE OF JEWELRY. Jethro C. Cottle, New York, N. Y. Filed Sept. 25, 1886. (No model.)



Claim.—1. The improved article of jewelry hereinbefore described, the same being in the form of an insect or bird, and having a wing, claw, and hollow abdomen *a*, also a wing, claw, and hollow back *b*, constructed integral and pivoted together, and a spring, which is inclosed within the body composed of said parts *a b* and holds the claws closed and one wing normally in contact with the free edge of said part *a*, substantially as shown and described.

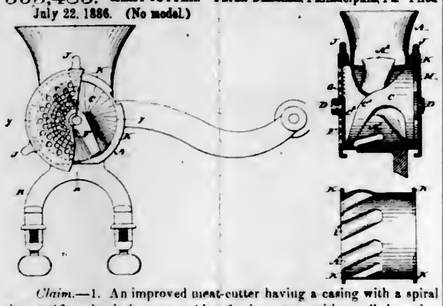
2. In the article of jewelry simulating an insect, the combination, with the wing *w*, claw *c*, the hollow abdominal part *a*, made integral, of the corresponding wing, *w'*, its claw *c*, and the back *b*, also made integral, the back having perforated lugs that enter part *a*, and the spring inclosed and concealed within the body, and a pivot that passes through the parts and connects them and is attached thereto, as shown and described.

3. In an article of jewelry simulating an insect, the combination of

the pivot *p*, having tail-piece *t*, and the head *h*, which screws on said pivot, with the wing and abdomen *a*, and wing and back *b*, having perforated portions to receive said pivot, and the spring *s*, arranged within the body of the insect, as shown and described.

4. In an article of jewelry simulating an insect, the combination of the pivot *p*, having tail-piece *t*, and the lateral projections 3, with the head *h*, constructed as a nut adapted to screw on said pivot, the spring *s*, the wing *w'* and back *b*, and the wing *w* and abdominal part *a*, having a key-hole perforation to receive the said pivot and projection, all substantially as shown and described.

353,483. MEAT-CUTTER. PETER DENGLER, Philadelphia, Pa. Filed July 22, 1886. (No model.)



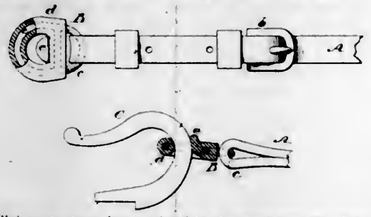
Claim.—1. An improved meat-cutter having a casing with a spiral throat, A^2, and spiral grooves A', a forcing-screw with swelled portion C, depressed adjacent portion C^2, and shoulders E, cutting-knives F, mounted substantially as described, perforated removable cap G, and removable cap H, all of said parts being combined and arranged substantially as and for the purpose set forth.

2. A meat-cutter casing having right and left spiral flanges on the opposite ends thereof, and removable caps, having lugs which tighten on said flanges, in combination with a forcing-screw having bearings in said caps, all substantially as and for the purpose set forth.

3. A meat-cutter having right and left spiral flanges on the opposite ends thereof, removable caps having lugs adapted to tighten on said flanges, and a cam-shaped forcing-screw having shoulders and provided with bearings in said removable caps, substantially as described.

4. A meat-cutter casing having right and left spiral flanges on the opposite ends thereof, caps with lugs adapted to tighten on said flanges, the said casing having a spiral throat leading from the hopper, and grooves in the walls thereof, all of said parts combined and arranged substantially as and for the purpose set forth.

353,484. SAFETY-LOOP FOR HARNESS-CHECKS. EPHRAIM K. DENNER, New Bedford, Mass. Filed Aug. 21, 1886. (No model.)



Claim.—1. As an improved article of manufacture, the check-rein loop, consisting of a rigid core or body part and a flexible covering or filling having a lip partly covering or projecting into the eye of the loop, substantially as shown.

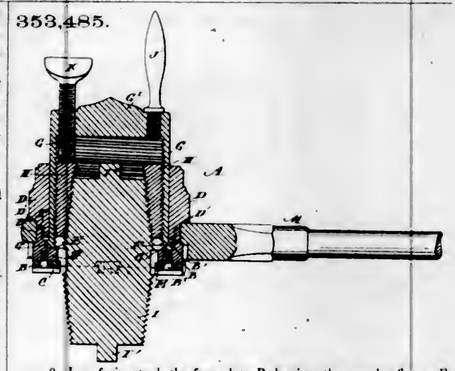
2. The combination, with the saddle-hook and check-rein, of the loop consisting of the rigid or inflexible core or body part, and the flexible covering or filling having a lip partly covering or projecting into the eye of the loop, substantially as and for the purpose set forth.

353,485. FACING-TOOL. ALFRED H. DONNALLY, Foxburg, Pa. Filed May 4, 1886. (No model.)

Claim.—1. In a facing-tool, the combination of a face-plate provided with cutters, and a ratchet-lever for turning the face-plate, with a casing screwed on a cylinder attached to a spindle, substantially as shown and described.

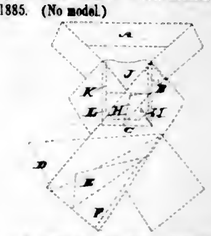
2. In a facing-tool, the combination of a face-plate provided with cutters and ratchet-teeth, a collar attached to the face-plate, and a ratchet-lever for turning the face-plate, with a casing screwing on a sleeve, a handle attached to the said casing, and a set-screw screwing on the casing to hold the same in place, substantially as shown and described.

353,485.



3. In a facing-tool, the face-plate B, having the annular flange F, the cutting tools C, attached to the face-plate, the collar D, screwed to the face-plate, and the ratchet-lever M, operating on the ratchet-teeth B' of the face-plate by its spring-pawl L, in combination with the casing G, having the rim G', the handle J, attached to the casing G, the set-screw K, screwed in the end G^2 of the casing, and the threaded ring or sleeve H, screwed in the casing, substantially as shown and described.

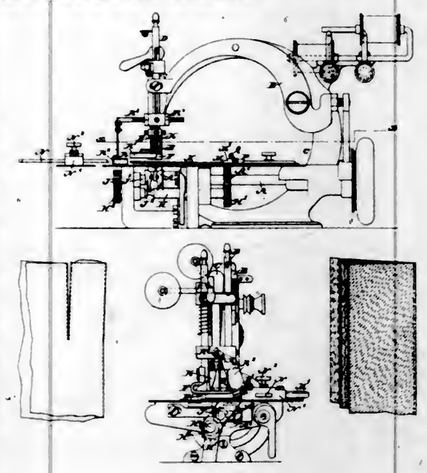
353,486. NECK-WEAR. LOUIS ESCHNER, Philadelphia, Pa. Filed Oct. 29, 1885. (No model.)



Claim.—A scarf or neck-wear composed of a band, A, having a lining, one end of which projects therefrom and forms the tongue B, the apron C, composed of facing material D, lining E, and a stiff backing, F, the shield H, with stiffening-piece J, attached thereto, and having a covering, K, consisting of a facing, L, and back M, the parts being arranged and combined substantially as described.

353,487. SEWING-MACHINE. LOUIS ESCHNER, Philadelphia, Pa. Filed Nov. 21, 1885. (No model.)

Brief.—Two lines of stitching are produced at the same time, the cutter being in the rear of both needles. A gage is used to guide the goods and hold them in position while operated upon, which are stitched and so severed as to be formed into tubes.



Claim.—1. In a sewing-machine, the needles E E, mounted diagonally relative to the feed-plate of the said machine, in combination with a cutter located in the rear of the needles and upon a line passing between the needles in the direction of the line of feed, and means, substantially as described, for operating said needles and cutter, all substantially as and for the purpose set forth.

2. In a sewing-machine, the combination of the needles E E, the cutter K, said needles and cutter being arranged substantially as described, and means to operate the said needles and cutter, with the adjustable gage M, having head M', all substantially as and for the purpose set forth.

3. In a sewing-machine, the needles E E and cutter K, arranged substantially as described, and means to operate the same, in combination with the gage M, having head M', and flanged guide P, all combined substantially as described.

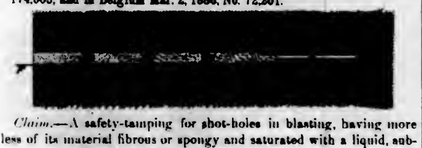
4. In a sewing-machine, the needles E E, the cutter K, means to operate the said needles and cutter, the gage M, having adjustable bar N, and guide P, all combined substantially as and for the purpose set forth.

5. In a sewing-machine, the needles E E and the cutter K, with means to operate the same, the gage M, having bar N, and gage R, the latter located above said bar N, all combined substantially as and for the purpose set forth.

6. In a sewing-machine, the needles E E and the cutter K, with means to operate the same, in combination with the gage M and the gage R, the latter formed of loop-shaped pieces R^2 and bent arm B^3, the latter having a screw-thread end, all combined substantially as and for the purpose set forth.

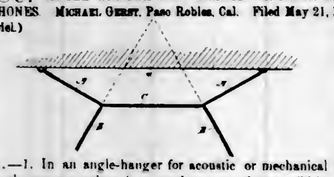
7. In a sewing-machine, in combination with the needles thereof and means for operating the same, an adjustable gage adapted to operate on the table of the machine, and a second gage located above the bar of the first-mentioned gage and adjustably connected to the frame of the machine, all substantially as described.

353,488. TAMP FOR BLASTING. WILLIAM GALLOWAY, Cardiff, County of Glamorgan, England. Filed Mar. 9, 1886. (No model.) Patented in England Nov. 17, 1885, No. 14,005; in France Mar. 2, 1886, No. 174,505, and in Belgium Mar. 2, 1886, No. 72,201.



Claim.—A safety-tamping for shot-holes in blasting, having more or less of its material fibrous or spongy and saturated with a liquid, substantially as and for the purpose described.

353,489. ANGLE-HANGER FOR ACOUSTIC OR MECHANICAL TELEPHONES. MICHAEL GERST, Paso Robles, Cal. Filed May 21, 1886. (No model.)



Claim.—1. In an angle-hanger for acoustic or mechanical telephone wires, the separate wires A, secured at one end to a solid bearing or support and at the other to the severed ends of the inleading and outleading line-wires, meeting said wires at a true right angle, and the separate wire C, connecting the joined ends of the wires A and line-wires, substantially as described.

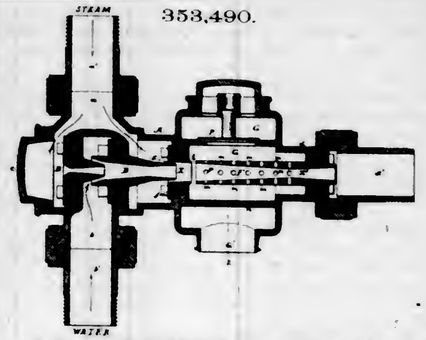
2. An angle-hanger for the line-wires of acoustic or mechanical telephones, comprising the solid support *a*, the separate wires A, connected at one end with the solid support and at the other to the severed ends of the inleading and outleading line-wires, and meeting said wires at a true right angle, and the separate wire C, having its ends connected with the junction of the wires A and the line-wires, substantially as herein described.

353,490. DOUBLE-TUBE INJECTOR. JOHN R. GOSHENG, Philadelphia, Pa., assignor to Henry Belfield and T. Broom Belfield, both of same place. Filed Aug. 9, 1886. (Model.)

Claim.—1. An injector having two or more sets of steam-nozzles and combining-tubes, the nozzles receiving steam simultaneously in starting the injector, and the overflow-passages being formed wholly in the rear combining-tube of the series, and having an area equal to or greater than the combined areas of the steam-nozzles, all substantially as specified.

2. An injector having two or more sets of steam-nozzles and combining-tubes, all arranged in the same axial line, the nozzles receiving steam simultaneously in starting the injector, and the overflow-passages being formed wholly in the rear combining-tube of the series, and having an area equal to or greater than the combined areas of the steam-nozzles, all substantially as specified.

353,490.

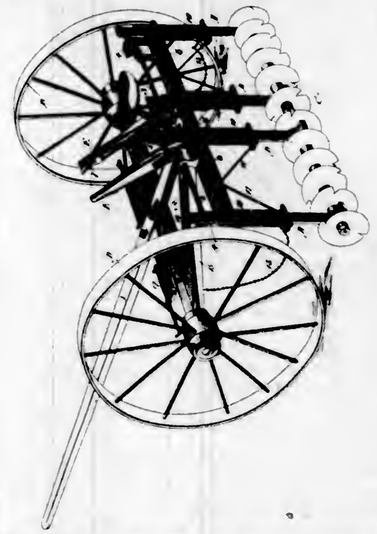


3. An injector in which forward and rear combining-tubes arranged in the same axial line are combined with a forward steam-nozzle discharging into the forward end of the first combining tube, and a rear steam-nozzle formed by an annular space around the rear end of the forward combining-tube, both nozzles receiving steam simultaneously in starting the injector, and the overflow-passages being formed wholly in the rear combining-tube, and having an area equal to or greater than the combined areas of the steam-nozzles, all substantially as specified.

4. An injector having two or more sets of steam-nozzles and combining-tubes, the nozzles receiving steam simultaneously in starting the injector, and the overflow-passages being formed wholly in the rear combining-tube of the series, and having an area equal to or greater than the combined areas of the steam-nozzles, the point of final overflow being at or near the point of least diameter of said rear combining-tube, all substantially as specified.

5. An injector having two or more sets of steam-nozzles and combining-tubes, the nozzles receiving steam simultaneously in starting the injector, and the overflow-passages being distributed throughout the length of the rear combining-tube from its forward end to the point of least diameter, and having an area equal to or greater than the combined areas of the steam-nozzles, all substantially as specified.

353,491. SOIL-PULVERIZER. FRED A. HEPWORTH and LOU SANTANY, Aurora, Ill. Filed May 7, 1886. (No model.)



Claim.—1. In a soil-pulverizer, a set of rotary pulverizing devices secured upon an axle, vertically-sliding rack-bars D, provided with bearings for said axle, a rock-shaft provided with gear-segments engaging the rack-bars, and a hand-lever for actuating the rock-shaft, substantially as described.

2. In a soil-pulverizer, the two sets of rotary pulverizing devices carried by horizontally-swinging supports which are pivotally attached to a wheeled body-frame, substantially as described.

3. In a soil-pulverizer, the two sets of rotary pulverizing devices carried by and adjustable vertically and independently of swinging supports which are pivotally attached to a wheeled body-frame, substantially as described.

4. In a soil-pulverizer, the two sets of pulverizing devices carried by horizontally-swinging supports which are pivotally attached to a wheeled body-frame, and hand-levers for swinging said supports, substantially as described.

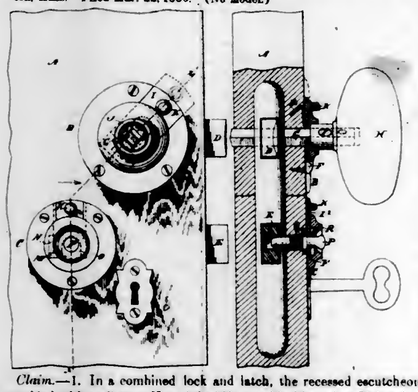
5. In a soil-pulverizer, the two sets of rotary pulverizing devices supported from and adjustable in height independently of a pair of swinging supports which are pivotally attached to a wheeled body-frame, and means, substantially as described, for raising and lowering the pulverizing devices, for the purpose set forth.

6. The combination, with the wheeled body-frame, of the horizontally-swinging bars S, pivoted thereto, the vertically-sliding rack-bars working through guides, which are attached to said horizontal swinging bars, the rotary pulverizing-disks carried by axles which have their bearings on the rack-bars, and means for lowering and raising the rack-bars, substantially as described.

7. The combination, with a wheeled body-frame, of the pair of horizontally-swinging bars pivoted to said body-frame in rear of the axle thereof, pulverizing devices adjustably supported from said swinging bars, and means for raising and lowering the pulverizing devices, substantially as described.

8. The combination, with a wheeled body-frame, of the horizontally-swinging bars pivoted thereto, the trunks or guides 10, secured to said bars, the rotary pulverizing devices carried by the rack-bars which are arranged to work through said guides, and means, substantially as described, for raising and lowering the rack-bars, for the purpose set forth.

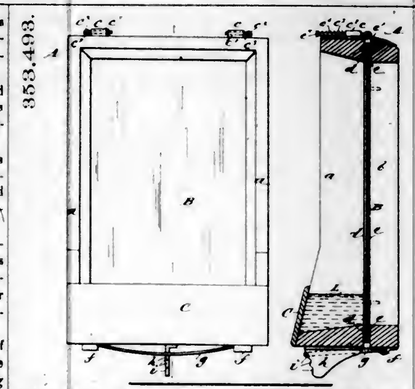
353,492. COMBINED LOCK AND LATCH. Thomas Kirwan, Boston, Mass. Filed Mar. 22, 1886. (No model.)



Claim.—1. In a combined lock and latch, the recessed escutcheon C, provided with a gibway, N, and the bifurcated locking-plate I^2, bearing the projecting gib M, in combination with a perforated lock-bolt, E, and spring-actuated thumb-bolt P, bearing a circumferential flange, Q, as illustrated, and for the purpose described.

2. In a combined lock and latch for doors, rocker-cam W, having duplex extended faces Y, in combination with the quadruple offsets X, the lever Z, perforated arm T, perforation S^2, thumb-bolt P, locking-plate I^2, and escutcheon C, substantially as and for the purpose specified.

353,493. PHOTO-DEVELOPING BOX. William H. Lewis, New York, N. Y., assignor to E. & H. T. Anthony & Co., same place. Filed May 26, 1885. (No model.)



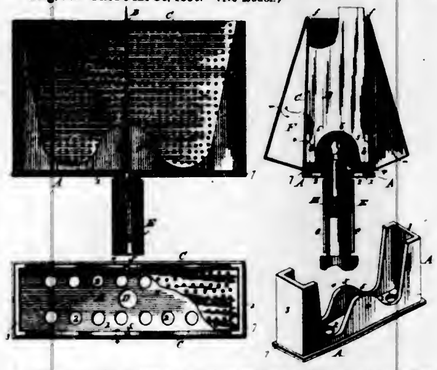
Claim.—1. The sections or frames *a b* of the developing-box A, hinged together by springs or yielding hinges *c*, substantially as and for the purposes set forth.

2. The box A, composed of two open frames or sections, *a b*, in combination with the spring or yielding hinges *c* at one end, and the spring-bail *g* and inclined and notched plate *h* at the other end, arranged to operate substantially as described.

3. The sections *a b*, provided with the yielding strips *d e*, in combination with the yielding hinges *c*, applied to the ends of the sections *a b*, substantially as described.

4. The section *b*, provided with the horizontally-arranged eye-plates c', and the section *a*, provided with the vertically-arranged eye-plates c^2, in combination with the bent hinge-rods c^3, and coiled springs c^4, placed upon the rods to press upon the plates c^2, substantially as and for the purposes described.

353,494. GAS-BURNER ATTACHMENT. Frances E. Mills, Pittsburg, Pa. Filed June 30, 1886. (No model.)



Claim.—1. In a burner attachment, a cage having perforated or foraminated sides and imperforate ends, substantially as and for the purposes specified.

2. In a burner attachment, the combination, with the main frame having end wings forming the imperforate ends of the cage, of the foraminated sides connected with and supported by said main frame, substantially as set forth.

3. A burner attachment comprising a cage having imperforate ends and foraminated sides, and provided with short imperforate side wings, whereby to protect the root or base of the flame, substantially as set forth.

4. The combination of the flame-inclosing cage having foraminated or perforated sides and the flame-dividing blade, substantially as set forth.

5. The combination of the main frame having end wings and side wings, the latter being provided with vertical grooves, the foraminated sides having their ends connected, forming a band fitted over the wings of the main frame, and the flame-dividing blade fitted into the grooves of the side wings, substantially as set forth.

6. A burner attachment comprising a cage having foraminated sides and imperforate ends, and provided with a socket provided with two bearings or points of contact for engaging the burner, substantially as set forth.

7. The combination, in a burner attachment, with a cage having foraminated sides, of a shield supported alongside of said cage and diverging outwardly toward its lower end, substantially as set forth.

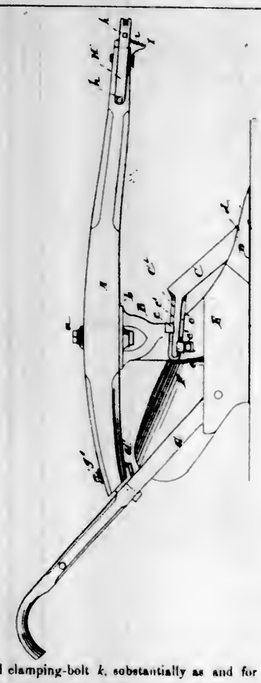
8. In a burner attachment, the combination of the main frame having imperforate end wings, and side wings having vertical grooves, the foraminated sides, and the flame-dividing blade fitted into the grooves of the side wings, substantially as set forth.

353,495. PLOW. John F. Packer, Chicago, Ill., assignor to the David Bradley Manufacturing Company, same place. Filed Oct. 28, 1884. (No model.)

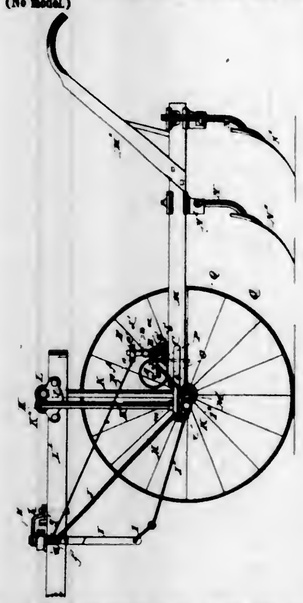
Claim.—1. The clevis H and rack I, in combination with the thimble J, having the lip *j*, substantially as and for the purpose set forth.

2. The clevis H and rack I, in combination with the thimble J, having lip *j* and clamping-bolt *k*, substantially as and for the purpose specified.

353,495.



353,496. CULTIVATOR. John F. Packer, Chicago, Ill., assignor to the David Bradley Manufacturing Company, same place. Filed Feb. 12, 1885. (No model.)



Claim.—1. The combination, with a pivoted plow-beam and a double-tree, of a spring secured to the forward end of said beam, a lever connected with said spring, a movable fulcrum, and a connection between the lever and double-tree, substantially as described.

2. The combination, with the pivoted beam M, of the recessed plate C, having hook c', the spring A, having eye *a*, the movable fulcrum B, engaged with the hook c', and the lever D, pivotally mounted in the upper end of the fulcrum, and having a pin, *d*, to engage the eye *a* of the spring, substantially as described.

3. The combination, with the axle, double-tree, and pivoted beam, of the spring mounted on the forward end of the beam, a movable fulcrum located between the spring and beam, a lever pivotally mounted on said fulcrum and connected with the spring, a rod connecting the lever and double-tree, and connections between the double-tree and axle, substantially as described.

4. The combination, with the spring A, of the lever D and slide E, for changing the relation between the parts, substantially as and for the purpose specified.

5. The combination, with the spring A and lever D, of the slide E and rod F, substantially as and for the purpose specified.

6. The combination, with the spring A, fulcrum B, and lever D, of the slide E, substantially as and for the purposes specified.

7. The combination, with the spring A, fulcrum B, and lever D, of the slide E and rod F, substantially as and for the purposes specified.

8. The combination of the spring A, fulcrum B, and lever D with the slide E, rod F, and double-tree H, substantially as and for the purposes specified.

9. The spring A, fulcrum B, and socket C, in combination with the lever D and a beam, substantially as and for the purposes specified.

10. The spring A, fulcrum B, plate C, and lever D, in combination with slide E, rod F, pendant G, and a plow-beam, substantially as and for the purposes specified.

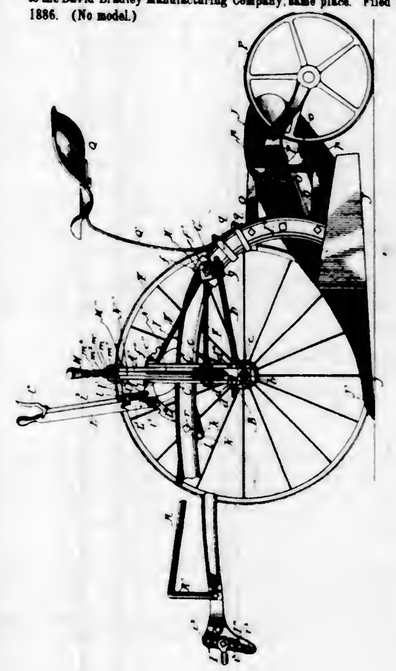
11. A plow-beam having mounted on its front end a lifting mechanism consisting of a spring, movable fulcrum, and changeable lever, substantially as and for the purpose specified.

12. The combination, with the movable arch-section and a plow-beam carried thereby, of a lifting mechanism supported on the plow-beam at the forward end and a connection between the lifting mechanism and the double-tree, for maintaining the lifting mechanism in the same relative position with the arch, substantially as and for the purposes specified.

13. The stop O and pin P, in combination with a plow-beam for preventing lateral swing thereof when elevated, substantially as and for the purpose specified.

14. The stop O and pin P, in combination with a plow-beam and a lifting mechanism therefor, for preventing lateral swing of the beam and strain on the lifting mechanism when the beam is elevated, substantially as specified.

353,497. WHEEL-PLOW. John F. Packer, Chicago, Ill., assignor to the David Bradley Manufacturing Company, same place. Filed Mar. 9, 1886. (No model.)



Claim.—1. The axle-bar A, having at its inner end an upright portion, A′, in line with the wheel-centers, said upright portion being composed of two arms, *a′ a′*, adapted to form a support for the plow-beam and its raising devices in such a manner as to leave the land-wheel side clear for the suspending-rods of the land-wheel spindle, substantially as specified.

2. The combination, with the axle-bar A, carrying the furrow-wheel and provided at its inner end with an upright portion, A′, for supporting the plow-beam and its raising devices, of the standard B, carrying the land-wheel, and a pivotal connection, C C, between the parts A′ and B, for operating the standard B independent of the axle-bar A, substantially as specified.

3. The combination, with the support A A′ and arm B, of the connecting-links C and a lever for raising and lowering the land-wheel of the plow, substantially as specified.

4. The combination, with the furrow and land wheels T T′, the axle A A′, and the plow-beam I, located between the said wheels and having a socket, *g*, of the land-wheel standard B, having a spindle, *b*, carrying the land-wheel, and the rod D, pivoted at its outer end to the said standard and at its inner end in the socket on the beam, substantially as and for the purpose described.

5. The combination, with the land-wheel standard B and axle A′, of the links C C, rod D, and lever M, for furnishing a support for and a free vertical movement of said standard, substantially as specified.

6. The combination, with the support A A′ and plow-beam I, of the brace-rods E F, substantially as and for the purposes specified.

7. The support A A′ and arm B, in combination with the links C, rod D, and braces or rods E F, substantially as and for the purposes specified.

8. The arm B and rod D, in combination with the socket G and plow-beam I, for pivotally connecting the arm with the plow-beam, substantially as and for the purpose specified.

9. The combination, with a plow-beam and a frame therefor, of a pivotal support for the beam, a lever, and a shaft connected with the lever and having its acting end beneath and unattached to the plow-beam, and acting on the latter forward of the frame for lifting the latter and leaving it free, substantially as and for the purposes described.

10. The combination, with a bar or support, A A′, and a plow-beam, I, carried by the bar or support, of a pivotal support for the beam at the rear of the frame, and a lifting rod or arm, K, having its acting end beneath and unattached to the plow-beam and acting on the beam forward of the frame in an upward direction, substantially as and for the purpose specified.

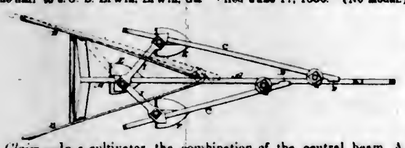
11. The axle A A′, arm B, and links C, in combination with the lever M, and rack-rod N, for furnishing a support and lift for the arm, substantially as specified.

12. The rocking or swinging frame, in combination with a plow-beam, and rods F extending rearward from the frame and pivoted to the beam, whereby the frame is rocked by raising or lowering the plow, substantially as specified.

13. The combination, with a plow-beam, a frame therefor, and supporting-wheels, of the draw-rod R, connected at its rear end with the beam and provided at its forward end with a transverse extension, R′, and the frame S, pivoted to the transverse part of the rod and provided with means for the attachment of a tongue thereto, substantially as described.

14. The combination, with a plow-beam and plow carried thereby, of the carrying-wheels, the caster-wheel, and the frame having a central pivotal or turning point, said wheels being equidistant from said pivotal or turning point, thereby preventing strain on the frame, substantially as described.

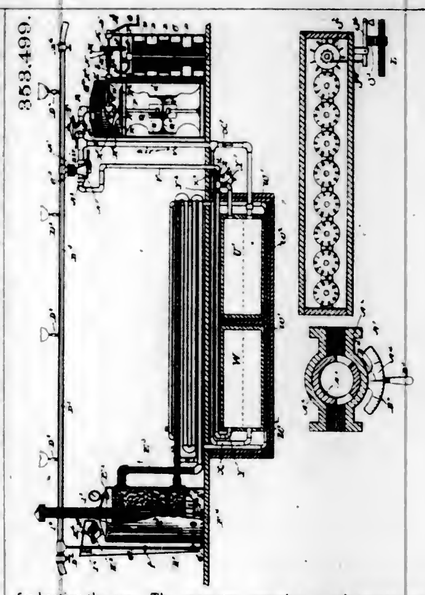
353,498. CULTIVATOR. William Pendley, Ladville, assignor of one-half to J. G. B. Erwin, Erwin, Ga. Filed June 17, 1886. (No model.)



Claim.—In a cultivator, the combination of the central beam, A, provided with a shovel at its rear end, the handles B, the side beams, C, provided with shovels at their rear ends and with flanges D at their front ends, to catch over opposite edges of the central beam, A, a T-shaped clamp for each beam C, and the connecting-rods I, substantially as shown.

353,499. APPARATUS FOR LIGHTING AND HEATING RAILWAY-CARS, &c. Reuben H. Plass, New York, N. Y. Filed July 22, 1884. (No model.)

Brief.—Air is carbureted and used for lighting the railway-car and for heating a boiler connected with a water-circulating system of pipes



for heating the car. The apparatus comprises a spring-motor, an air-forcer, an air-meter, a pressure-regulator on the air-pipe, a carburetor heated by steam or hot-water coils, a gas-and-air-mixing valve and chamber, and a water-heater heated by gas-burners. Two detachable carbureting-chambers with separate connections are used, so that either one may be thrown out of use while the other one is in operation.

Claim.—1. The means herein described for lighting and heating, comprising a carburetor with suitable pipes leading thereto and therefrom, and air or gas forcing or exhausting apparatus connected with said carburetor, the heating apparatus and burners for lighting and also for supplying a gas-fuel or fuel-gas to the heating apparatus connected with pipes leading from the carburetor to supply said burners, and valves in said pipes, all substantially as and operated as set forth.

2. The means herein described for lighting and heating, comprising the spring-motor, the diaphragm air-pump provided with a meter in its inlet-opening, the pressure-regulator, and the generator connected to each other and to the air and gas pipes, substantially as specified.

3. The combination, with the nest spring-motor consisting of springs coiled in separate sleeves and connected to common shafts to operate independently and in unison, of a spring-actuated clutch to retain power on the motor in winding up the springs, the diaphragm air-pump provided with a registering index or meter in its inlet-chamber, the pressure-regulator, and the generators connected to each other and to the air and gas pipes, substantially as described.

4. The means herein described for lighting and heating, comprising a spring-actuated motor, the diaphragm air-pump, and the generators provided with air and gas pipes having cocks, whereby one or both may be used, substantially as described.

5. The combination of the spring-motor, the diaphragm air-pump, the pressure-regulator, the generators connected to the air and gas pipes, and the commingling-chamber, substantially as described.

6. The combination, with the nest spring-motor, of the diaphragm air-pump having a meter in its inlet-chamber, the pressure-regulator generators connected to the gas and air pipe, the density-regulator, and the commingling-chamber, substantially as described.

7. The combination, with a car-body, of the casing provided with non-conducting packing, of the generators provided with air and gas pipes, and the heating-pipes arranged within the casing and connected with the heating apparatus, substantially as described.

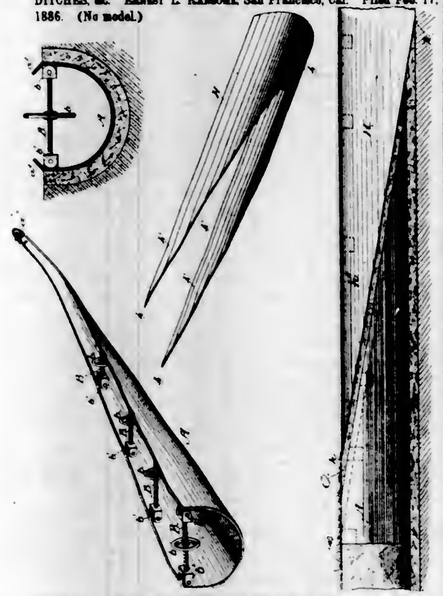
8. The combination, with the car-body, of the casing provided with non-conducting packing, a coil of pipe in said casing connected with the heating-pipes of the car, and the generators or carburetors located in the casing and having the air and gas pipes, and the coupling-pipes, substantially as described.

9. The combination, in an apparatus for heating and lighting railway-cars, of the spring-motor, the diaphragm air-pump, the interchangeable generators, air-pipes leading to the generators, the heating apparatus, and pipe and gas-pipes leading from the generators to the heating apparatus, substantially as described.

10. The combination, in an apparatus for heating and lighting railway-cars, of the spring-motor, the diaphragm air-pump, the generator situated in a casing provided with non-conducting packing, the heating apparatus, gas-pipe leading from the generator to the heating apparatus, and a pipe leading from the heating apparatus and coiled within the casing of the generator, substantially as described.

11. The combination, in an apparatus for heating and lighting railway-cars, of the spring-motor, the diaphragm air-pump, the generator air-pipes connecting the air pump and generator, the heating apparatus, and gas-pipes for conducting the gas to the car and heating apparatus, and provided with a safety-cock whereby the supply of gas is automatically cut off when the car is overturned.

353,500. CONCRETE MOLD FOR SUBWAYS FOR CABLE ROADS, DITCHES, &c. Ernest L. Ransome, San Francisco, Cal. Filed Feb. 17, 1886. (No model.)



Claim.—1. A concrete mold consisting of an expansible and contractible frame or piece of the outline in cross-section of the work to be made, and having a sloping top, substantially as described.

2. A concrete mold consisting of a laterally expanding and contracting frame or piece having one end conforming in curvature or direction of outline and extent of perimeter to the inner surface of the concrete work to be formed, and having its top sloping thence toward a point, substantially as described.

3. A concrete mold consisting of a laterally expanding and contracting frame or piece, A, having an end, *a*, conforming for any given distance in extent of perimeter to the inner surface of the concrete work to be made, and having its top sloping thence toward a point, substantially as described.

4. A concrete mold consisting of the laterally expanding and contracting frame or piece A, having an end, *a*, with a straight top, and thence having its top sloping toward a point, *a′*, substantially as described.

5. A concrete mold consisting of a frame formed in one piece, having a sloping top, and of a nature adapting its diameter to be increased or diminished, substantially as and for the purpose described.

6. A concrete mold consisting of the frame A, formed of a single piece of metal, having a top sloping toward a point, and a mechanism for expanding or contracting its sides, whereby its diameter may be increased or diminished, substantially as and for the purpose described.

7. The frame or piece A, having a sloping top, in combination with the right and left hand screws B, fitted between its sides, whereby its diameter may be increased or diminished, substantially as and for the purpose herein described.

8. The frame or piece A, having an end, *a*, with a straight top for any given distance, and its top thence extending on a slope toward a point, in combination with the right and left hand screws B, fitted between its sides, substantially as described.

9. The adjustable and movable concrete mold A, formed of a single piece, having a sloping top, as described, and inwardly bent at *a²*, substantially as described.

10. The laterally expanding and contracting mold A, in combination with the vertically-adjustable rollers D, mounted in the bottom of said mold, substantially as and for the purpose herein described.

11. The movable concrete mold A, having the adjustable rollers D in its bottom, in combination with the independent plate E, on which they travel, substantially as described.

12. A movable and adjustable concrete mold, as described, having the grooves or recesses F in its sides, and the form-supporting guides G in said grooves, substantially as described.

13. In combination with the movable or traveling concrete mold A, having a sloping top, as described, an auxiliary or supplementary movable or traveling frame, H, to be placed in the excavation in advance of the mold, said frame having at its farther end a curvature or direction of outline and an extent of perimeter conforming to the excavation, a straight top, and an upwardly-sloping bottom, substantially as described.

14. In combination with the movable or traveling concrete mold A, having a sloping top, as described, an auxiliary or supplementary movable or traveling frame, H, to be placed in the excavation in advance of the mold, said frame having at its farther end a curvature or direction of outline and an extent of perimeter conforming to the excavation, a straight top, and an upwardly-sloping bottom, forming an opening, *h′*, and side arms, *h²*, between which the point of the mold lies, substantially as described.

15. In combination with the movable or traveling adjustable concrete mold A, having a sloping top, as described, the auxiliary or supplementary movable or traveling frame, adapted to have its diameter increased or diminished, said frame having at its farther end a curvature or direction of outline and an extent of perimeter conforming to the excavation, a straight top, and an upwardly-sloping bottom forming an opening, *h′*, and side arms, *h²*, all arranged and adapted to operate substantially as described.

16. The traveling pieces or frames, as herein described and used in combination with screws J and K, for adjusting vertically and laterally their line of draft, substantially as described.

17. The traveling pieces or frames, as herein described and used, in combination with the means for adjusting their line of draft, consisting of the horizontal screw J, with its clutch-nut, the laterally-moving screw K, with its nut *k*, and the draft-hook *k′* in said latter nut, substantially as described.

18. The traveling mold A, having a large end, *a*, with straight top, said mold thence having a top sloping downwardly, as described, in combination with an independent plate or plates, *z*, laid on top of the end *a*, for the purpose of sustaining the top concrete until it has become set, substantially as described.

19. A concrete mold consisting of a frame or piece of the outline in cross-section of the work to be made, and having a bottom straight, throughout its length, and a top sloping down to a point, substantially as described.

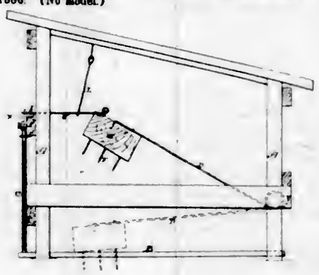
20. The mode or method of lining subways for cable roads, ditches, sewers, tunnels, &c., with concrete, which consists in tamping the concrete into the space between the exterior of the mold and the inclosing subway along the diagonally-sloping sides of the mold until such space is filled, then longitudinally advancing the mold until additional sloping-space is formed between the mold and inclosing subway adapted to be filled and tamped as before, and so on, substantially as herein described.

353,501. BRICK. Ernest L. Ransome, San Francisco, Cal. Filed May 12, 1886. (No specimens.)

Claim.—1. As a new article of manufacture, an unburned brick made from tufa or tufa and lime or similar material mixed and pressed, substantially as herein described.

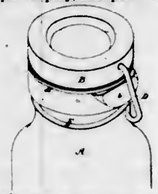
2. An unburned brick made from tufa or tufa and lime or similar material mixed and afterward enameled by heat, substantially as herein described.

353,502. MOLE-TRAP. John Reeder, Haynesville, La. Filed Sept. 1, 1886. (No model.)



Claim.—The combination of the movable rod B, placed in the bottom of the frame, and which is to be operated by the passage of the mole under the trap, the rod C, which is operated by one end of the rod B, and the trigger which is placed upon the frame and operated by the upper end of the rod C, with the spring-actuated block E, provided with prongs, the rod H, which is loosely connected to the block at one end, and which is made to engage with the trigger at the other, and the rod L, which is supported by the top of the machine, and which forms a support for the rod H, and block E, substantially as shown and described.

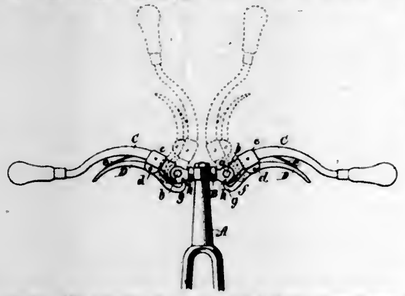
353,503. FRUIT-JAR. MARTIN O. RENFORD, Philadelphia, Pa., assignor to the Jely Stopper Company, same place. Filed Sept. 15, 1886. (No model.)



Claim.—1. The combination of the jar and its cap with cams formed upon one of said parts and retaining-arms pivoted to the other part, and having bearing portions, and a yoke connecting the same, the parts being arranged in respect to each other as specified, whereby as the arms swing their bearing portions engage with the cams and cause the cap to be drawn down firmly to its seat on the jar, all substantially as specified.

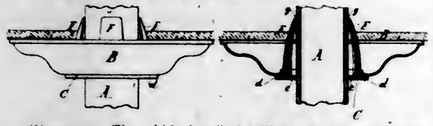
2. The combination of the jar and its cap having cams and recesses, as described, retaining-arms having bent or pivoted ends adapted to the recesses, and bearing portions connected by a yoke, the parts being arranged as specified, whereby as the arms swing on their pivots the bearing portions of said arms engage with the cams and cause the cap to be drawn down firmly upon its seat on the jar, all substantially as specified.

353,504. BICYCLE-HANDLE. ROBERT RODEN, Jr., Nashville, Tenn. Filed Mar. 13, 1886. (No model.)



Claim.—The combination, with the arm B, having upward-extending cavities *h h* in its lower edge, near its opposite ends, of the vertically-swinging handles pivoted at the ends of the arm B and the curved spring-acted levers D, pivoted between their ends to the under sides of the handles and provided with upward-extending hooks *g*, entering the cavities *h h* in the arm B, substantially as set forth.

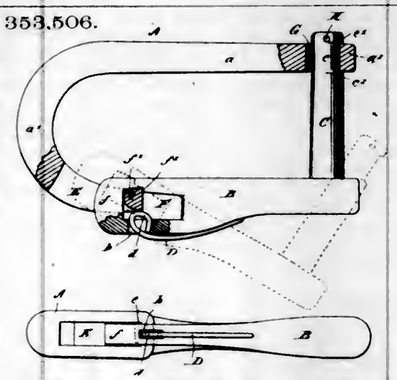
353,505. CEILING-COLLAR FOR GAS, STEAM, AND OTHER PIPES. EDWARD K. ROLLINS, Scranton, Pa., assignor of one-half to Alexander E. Hunt, same place. Filed Apr. 12, 1886. (No model.)



Claim.—1. The within-described ceiling-collar for gas or other pipes, formed with an upper edge adapted to fit flush against the ceiling, an annular body extending to the pipe, and internal upwardly-bent spring clasps or holders adapted to embrace the pipe, and to be concealed from view when the collar is in position, substantially as described.

2. The combination, with the ceiling-collar B, of a spring-clasp or holding-collar, C, provided with grips F, and a supporting-ledge, *d*, for the ceiling-collar B, substantially as and for the purpose described.

353,506. CLEVIS. ARTHUR W. ROBERT, New Kiowa, Kans. Filed Apr. 20, 1886. (No model.)



Claim.—1. A clevis comprising a bar, A, provided with a bent end, *a'*, a slot, E, and a hole, G, a bar, B, provided with a slot, F, and a shoulder, f^2, in said slot adapted to engage an end cross-piece, *e*, of bar A, and a pin, C, held rigidly to bar B, and adapted to enter the hole G of bar A, and provided with a side recess, *c*, forming shoulders c' c^2, substantially as and for the purposes herein set forth.

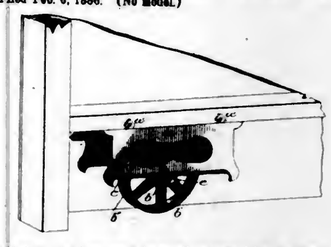
2. A clevis comprising a bar, A, provided with a bent end, *a'*, a slot, E, and a hole, G, a bar, B, provided with a slot, F, and a shoulder, f^2, in said slot, a pin, C, held rigidly to bar B, and adapted to hole G, and provided with a side recess, *c*, and a removable pin, H, passed through the pin C, outside of the bar A, substantially as herein set forth.

3. The combination of the clevis-bars A B and pin C, said bar A provided with the slot E, cross-piece *e*, and hole G, and said bar B having the slot F, cross-piece *f*, recess *f'*, and shoulder f^2, and said pin C fixed at one end to the bar B, and having a recess, *c*, forming shoulders c' c^2, engaging the end a^2 of bar A, and a spring, as at D, fixed to bar B, and acting on the cross-piece *e* of bar A to hold it to the shoulder f^2, substantially as described, for the purposes set forth.

4. In a clevis, the bars A B, linked together by cross-pieces *e f*, formed by slotting the respective bars vertically and horizontally, as at E F, and said bar B having a shoulder, as at f^2, with which the cross-piece *e* of bar A engages, substantially as herein set forth.

5. In a clevis, the bars A B, linked together by cross-pieces *e f*, formed by slotting the respective bars vertically and horizontally, as at E F, and said bar B having a shoulder, as at f^2, and a spring, as at D, holding the cross-piece of bar A into engagement with the shoulder f^2 of bar B, substantially as herein set forth.

353,507. DOOR-ROLLER. HENRY F. SAWTELLE, Leominster, Mass. Filed Feb. 6, 1886. (No model.)



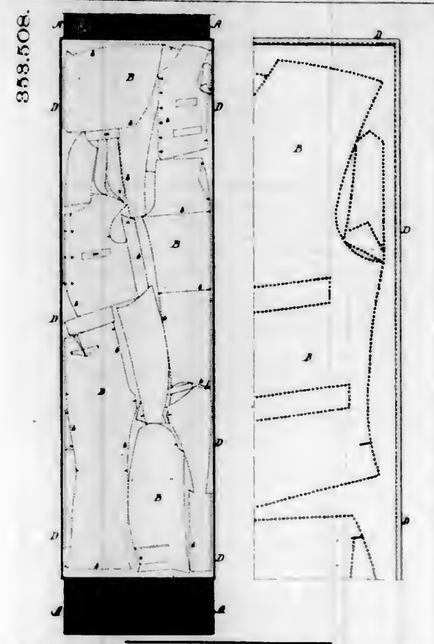
Claim.—An improved door-roller, comprising the axle *e*, having the annular grooves *e''*, and the diverging spokes *b'*, connecting said axle with the periphery of the roller, in combination with the frame *a*, having a flattened top whereby it is secured directly under the lower frame of the door, and riding-rails *c*, having re-enforcements c' c' on their lower edges and engaging the grooves in the axles, substantially as and for the purpose set forth.

353,508. PATTERN-SHEET. JACOB SCHUMACHER, Camden, N. J. Filed Aug. 28, 1885. (No model.)

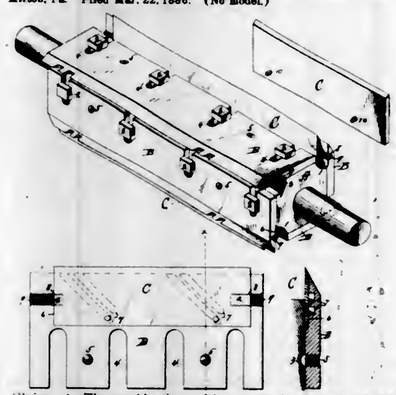
Claim.—1. As a new article of manufacture, a pattern-sheet for marking clothing, said pattern-sheet having all the parts of a complete garment or complete suit marked out in lines of perforations which do not overlap, the said pattern-sheet being of a width to fit the woven goods to be cut.

2. As a new article of manufacture, the herein-described pattern-sheet, having the parts of a complete garment or suit marked out in lines of perforations, and having its margins provided with a protective binding, substantially as set forth.

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353,509. BIT-HOLDER FOR CUTTER-HEADS. SAMUEL J. SHIMER, Milton, Pa. Filed Mar. 22, 1886. (No model.)



Claim.—1. The combination, with a cutter-head stock, a holding-plate removably secured to the said stock and having a knife-seat formed thereon, and a knife provided with studs to move in diagonally-arranged grooves in its seat, of adjusting-screws let in the ends of the holding-plate, whereby the knife may be moved forward or backward in its seat, substantially as described.

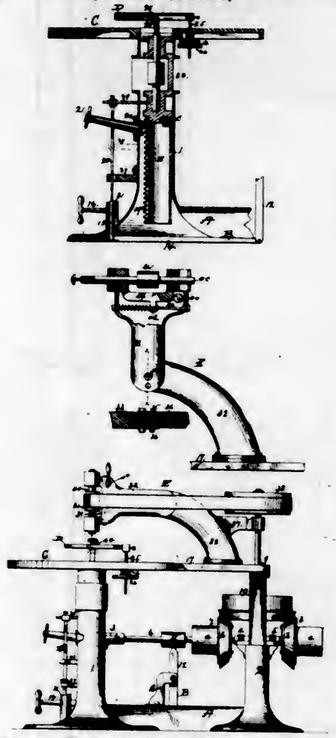
2. The combination, with a cutter-head stock and a holding-plate detachably secured thereto and formed with a knife-seat, and diagonally-arranged grooves across the knife-seat, of a knife formed with studs to set within the said grooves in the knife-seat and adjusting-screws let into the ends of the holding-plate, whereby the knife may be adjusted to any desired cut, substantially as described.

3. The combination, with a cutter-head stock formed with countersinks on its faces, a holding-plate secured to the stock and provided with set-screws to set within the countersinks of the head-stock and having a knife-seat formed with diagonal grooves across its face, and a knife formed with studs to set within the grooves of the knife-seat, of adjusting-screws let in the ends of the holding-plate to move the knife backward and forward, substantially as described.

4. The cutter-head knife herein described, consisting of a plate of steel formed or provided with studs 10, projected from its face, near opposite ends of the knife, and arranged to set in and traverse parallel guiding-grooves in the cutter-holder plate of a cutter-head, substantially as described.

5. In combination with a cutter-head and a knife thereof formed with studs on its face disposed in diagonal grooves in the holding-plate, of adjusting-screws let into the head from both ends parallel to the knife-bed and engaging with the ends of said knife, whereby the knife may be moved forward and backward and set at any desired cut, substantially as described.

353,510. VARIETY-MOLDING MACHINE. SAMUEL J. SHIMER, Milton, Pa. Filed May 13, 1886. (No model.)



Claim.—1. The combination, with the lower tool, the main table, and the upper tool arranged in the hinged arm E, of the intermediate detachable and adjustable table, D, formed with a tool-aperture, and projected from and supported by an adjustable support on the main table between the tools above the main table, whereby the work may be accommodated to the action of the lower tool or to the tool in the hinged arm, as specified.

2. The combination, with the sliding housing of the lower tool-spindle, of the vertical lifting-rod provided with a lifting-arm, a vertical rod or turning-bar beneath the lifting-rod, a cam-shaped block secured to the top of said turning-bar and serving as a rest or support for the lower end of the lifting-bar, and an operative device for rotating said cam-block and vertically reciprocating the lifting-bar, substantially as described.

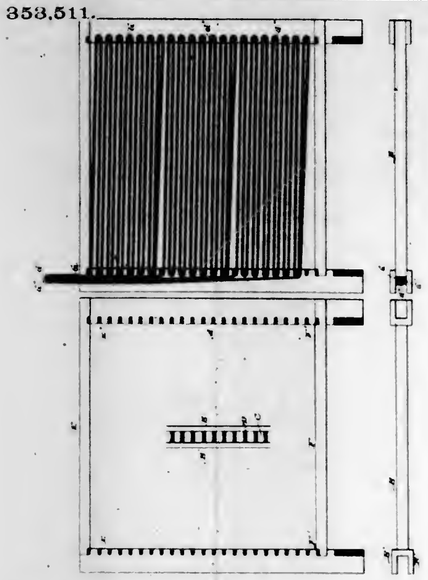
3. The combination, with the hand-lever of the shifting mechanism formed with a cam-shaped surface upon which the lower end of the lifting-rod rests and is supported, and the sliding housing of the lower tool, of the lifting-rod disposed through guide-arms in the post of the machine and having a projecting arm extending within the housing, substantially as described.

4. The combination, with the table of a molding-machine, of the overhanging arm E, comprised of a stationary base-piece, and a forearm hinged to said stationary base-piece by a lap joint secured by a pivotal bolt, and having in one face a quarter-turn groove and in the other a pin projected within said groove, substantially as described.

353,511. SECONDARY-BATTERY ELEMENT. CHARLES SORLEY, New York, N. Y. Filed Feb. 25, 1886. (No model.)

Claim.—1. A plate-like electrode for secondary batteries, comprising a non-conducting supporting-frame and a body or support for the

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active material, consisting of two or more strips of metal arranged loosely in said frame and free to expand in all directions.

2. A plate-like electrode for secondary batteries, comprising a non-conducting supporting-frame, a body or support for the active material, consisting of two or more separate strips of metal arranged loosely in said frame and free to expand in all directions, and the ends of said strips united to form a terminal.

3. A plate-like electrode for secondary batteries, comprising a non-conducting supporting-frame, a body or support for the material active in the battery, consisting of separate strips of metal arranged horizontally in said frame and free to expand and contract therein in all directions, and a terminal formed by uniting the ends of said strips.

4. An electrode for secondary batteries, comprising a non-conducting supporting-frame, a body or support for the material active in the battery, consisting of separate strips of metal arranged horizontally in said frame and free to move therein, and separate strips of metal arranged vertically in said frame and woven or braided over said horizontal strips, and a terminal formed by uniting all the ends of the separate strips.

5. An electrode for secondary batteries, comprising a non-conducting frame, a body or support for the active material arranged in said frame in separate and electrically-independent sections, and all of the sections united together through conductors to form a terminal, whereby all the sections will act collectively but independently of each other.

6. An electrode for secondary batteries, having its body or support formed in independent sections, and said sections provided with receptacles for the reception of the material active in the battery, whereby an injury or fault to one section will be limited to that section and not affect the action of the remaining sections of the electrode.

7. An electrode for secondary batteries, comprising a supporting-frame, a body or support consisting of ribbons of metal braided or woven together, their flat surfaces in contact, and arranged as independent sections within said frame and provided with receptacles wherein the active material or material to become active is packed, said receptacles on both surfaces but not through the electrode.

8. An electrode for secondary batteries, comprising a non-conducting supporting-frame, a metallic body or support for the material active in the battery arranged loosely in said frame, and the sides of the frame arranged to project beyond the surfaces of said supporting-body.

9. In a secondary battery, two or more elements or electrodes provided with non-conducting supporting-frames, the sides of which are wider than the top and bottom of said frames and project beyond the surfaces of the active portions of said electrodes, whereby while said electrodes are insulated from each other circulation of the electrolytic solution between the electrodes is not impeded.

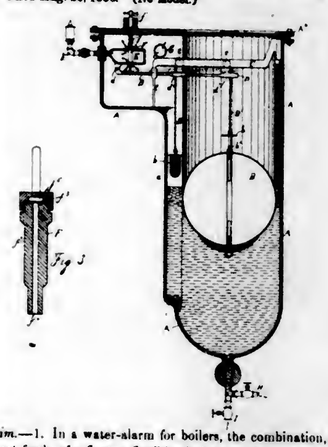
10. An electrode for storage-battery, comprising a supporting-frame the sides of which are grooved and flanged and provided with rungs, in combination with strips of metal wound across said frame and over said rungs and the ends of said strips carried upward in one of the grooves to the top of the frame.

353,512. BUCKLE. James Spruck, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Apr. 26, 1886. (No model.)



Claim.—The herein-described buckle, consisting of the frame A, its ends bent backward and inward, the turned-in ends slit near the inner edge, and the metal outside the slit depressed to form seats *e e* and leave bars *f f* flush with the surface of the ends, combined with the lever C, constructed with trunnions *g g*, resting in said seats *e e* and below the bars *f f*, the upper edge of the lever turned inward, substantially as described.

353,513. BOILER WATER-ALARM. Francis R. Stevenson, Erie, Pa. Filed Aug. 20, 1886. (No model.)

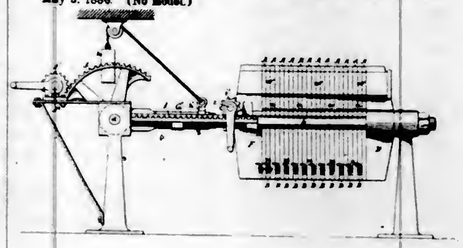


Claim.—1. In a water-alarm for boilers, the combination, substantially as set forth, of a float, a flexible chain or cord connected with said float, which passes over sheaves and attaches to a weight, so that said weight will move counter to said float in a parallel vertical plane, a steam-escape chamber, a valve regulating admission to said chamber, and a lever for moving said valve, which is arranged with relation to said float, chain, and weight in a manner substantially as shown, whereby the said lever may be moved by the action of said parts to open said valve when the said float is unduly elevated or depressed.

2. In a water-alarm for steam-boilers, the combination, substantially as shown, of a shell or case, A, connected with the boiler by a pipe extending from the top of said case to the steam-space of the boiler, and a pipe extending from the lower part of said case to a point below the low-water line of the boiler, a steam-escape chamber within said case, and having its inlet controlled by a valve and its outlet extending through the wall of said case, a lever for moving said valve, and a float for operating said lever when the said float is unduly elevated or depressed.

3. In a water-alarm for steam-boilers, the combination, substantially as set forth, of the shell or case A, connected with the boiler, as commonly, the steam-escape chamber E, having its exit through the wall of the main case and its entrance controlled by the puppet-valve F, the lever D, for moving said valve, the float B, the cross-beam C, having sheaves *c c* thereon, the weight *b*, and the chain B', connecting said weight and float and passing through slots *d' d'* in said lever D and over said sheaves *c c* in said beam C.

353,514. FILTER-PRESS. Magnus Swenson, Fort Scott, Kans. Filed May 3, 1886. (No model.)



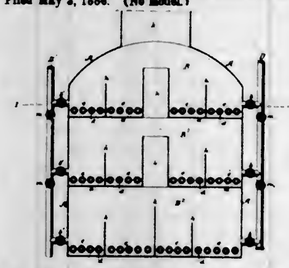
Claim.—1. The combination of the heads and leaves of a filter-press with a pressure device acting upon but disconnected from the movable head of the press and pivoted so as to be thrown up out of the way, all substantially as described.

2. The combination of the heads and leaves of a filter-press, a pivoted pressure device acting upon but disconnected from the movable head of the press, and a counterbalance-weight for facilitating the elevation of said pressure device when it is withdrawn from contact with the head, all substantially as specified.

3. The combination of the heads and leaves of the press, and a pressure device acting upon but disconnected from the movable head of the press, with pinions carried by said head, and fixed racks with which said pinions engage, whereby the head can be run to and fro when free from the control of the pressure device, all substantially as specified.

4. The combination, in a filter-press, of discharge-leaves B and cake-receiving leaves A, alternating with each other, and each having two hollow lugs or projections, one of which is blank and the other in communication with the interior of the leaf, whereby when the leaves are fitted together two longitudinal supply-passages are formed, one communicating with the interiors of the discharge-leaves B and the other with the interiors of the cake-receiving leaves A, all substantially as specified.

353,515. CONCENTRATING-PAN. Magnus Swenson, Fort Scott, Kans. Filed May 3, 1886. (No model.)



Claim.—1. The combination, in a concentrating-pan, of the casing having a discharge-pipe communicating with the exhauster, a vacuum-chamber contained in said casing and forming a passage for the liquid to be concentrated, heating-pipes near the bottom of said chamber, an inlet-pipe for the liquid, and an outlet-pipe therefor having a mouth above the level of the heating-pipes, all substantially as specified.

2. The combination, in a concentrating-pan, of the casing containing a series of chambers, one above another, a pipe through which the upper chamber communicates with the exhauster, flues through which each of the lower chambers is placed in communication with that above, and liquid supply and discharge pipes for each chamber, all substantially as specified.

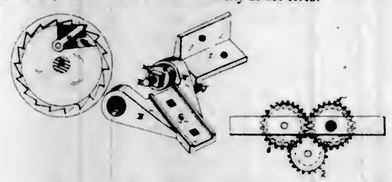
3. The combination, in a concentrating-pan, of the casing containing a series of chambers, heating-pipes in each chamber, a liquid-supply pipe and a discharge-pipe, each communicating with each chamber, and valves in said pipes, whereby liquid may be caused to pass through the chambers in succession, or through each of the chambers independently of the others, all substantially as specified.

4. The combination, in a concentrating-pan, of the closed casing containing a series of chambers, each having heating-pipes, with boxes or cases carrying said pipes, but located outside of and detachable from said casing, all substantially as specified.

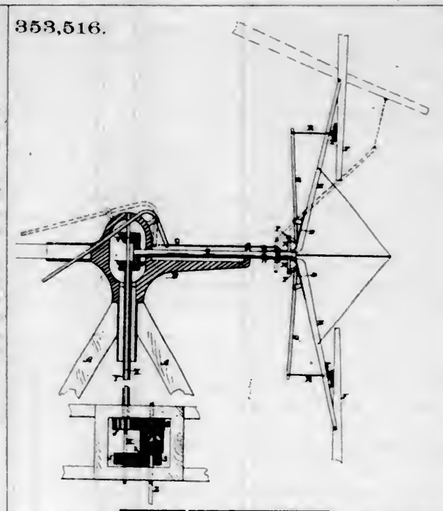
353,516. WINDMILL. Charles W. Sylvester and Henry E. Sylvester, Marengo, Ill. Filed May 24, 1886. (No model.)

Claim.—1. The combination of the arms E, the sections F, with the castings G, provided with the two ears H, the triangular castings I, provided with the ears J, the clamping-bolts K, and the nuts M, substantially as described.

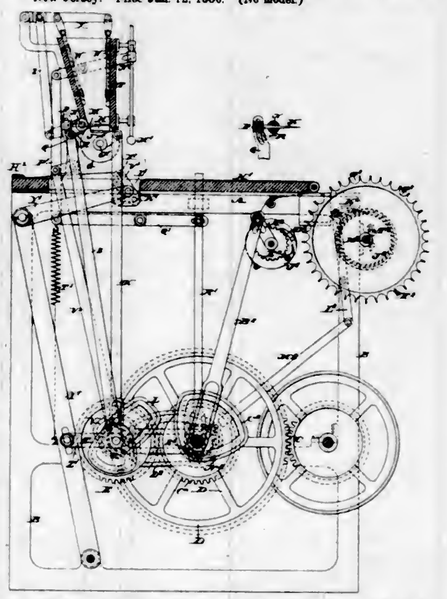
2. The combination of the main shaft C of the windmill, the gear U, the pinions V W, and the two shafts X Y, which revolve in opposite directions, with the two gears 1 5, secured to the lower ends of the two shafts, the idle-wheel 2, and the two wheels 3 6, which are connected to the shaft Z by the ratchets 4 7, substantially as set forth.



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353,517. CIGAR AND CIGARETTE MACHINE. John Thompson, Philadelphia, Pa., assignor to the Automatic Cigar Machine Company, of New Jersey. Filed Jan. 12, 1886. (No model.)



Claim.—1. In a cigar-machine, a fork passing freely through a rocking shaft, in combination with a hopper and means, substantially as described, for oscillating the said rocking shaft and for reciprocating said fork, substantially as and for the purpose set forth.

2. In a cigar-machine, a charger having a discharge-plunger, with a pushing-plate provided with a detachable bottom piece and with arms embracing the shaft of the charger, the said arms being provided with studs, in combination with fixed slotted plates, substantially as and for the purpose set forth.

3. In a cigar-machine, the hopper F, in combination with the rocking shaft N, the fork M, loosely passing through said shaft, bracket Q, pivoted to the frame A, frame A, and means, substantially as described, for oscillating said shaft and for operating said bracket, substantially as and for the purpose set forth.

4. In a cigar-machine, the hopper F, in combination with agitators W, fitted to the inner sides of said hopper and connected by links to pivoted arms X, pivotally secured to a bracket attached to said hopper,

and means, substantially as described, for imparting a rising and falling motion to said agitators, substantially as and for the purpose set forth.

5. In a cigar-machine, the hopper F, in combination with the rock-shaft N, the fork M, the slotted bracket Q, pivoted to the frame A and pivotally connected to the fork M, and means, substantially as described, for oscillating said rock-shaft N and for operating said bracket Q, substantially as and for the purpose set forth.

6. In a cigar-machine, the combination of the hopper F with the head M', connected by the pivoted arms N' to arms P' the pivoted arm Q', connected to the arm R', and means, substantially as described, for operating the said arm R', whereby a rising and falling motion is imparted to said head M', substantially as and for the purpose set forth.

7. In a cigar-machine, the apron H', with loop K, and with means connected thereto, substantially as described, for adjusting the slack therein, in combination with the table A, having recess L', the rising and falling head M', the reciprocating carriage U', and pocket-wheel F^2, and suitable devices for connecting and means, substantially as described, for operating said parts, as stated.

8. In a cigar-machine, the apron H', in combination with the table A, having recess L', the drum J', loosely mounted on its shaft, the wheel E^2, rigidly mounted on the same shaft, pawl D^2, secured to the end of said drum, arms B^2 and A^2, and means, substantially as described, for operating said arm A^2, substantially as and for the purpose set forth.

9. In a cigar-machine, a charger having a pocket in its periphery, in combination with the discharging-plunger A', having arms B' with studs C', the slotted piece E', rigidly secured to the sleeve F', and hopper F, to which said sleeve F' is secured, and means, substantially as described, for oscillating said charger, substantially as and for the purpose set forth.

353,518. CAR-COUPLING. Alban N. Towne, San Francisco, Cal. Filed July 26, 1886. (No model.)



Claim.—1. An improved bar and coupling composed of an integral piece having curved heads provided with wings or resistance-guides C, forming an open vertical channel between them, and vertical recesses in said channel adapted to receive the coupling-pin, said head also having a pin-hole, whereby a coupling-pin may be attached, substantially as herein described.

2. The draw-bars having curved heads formed in a single piece with each head, with vertical channels in each, open at the top and bottom and having wings or resistance-guides at the opposite sides of the channel from the coupling-head, and an elongated vertical recess made with one-half in the meeting faces of each of the heads and in a plane transverse to the line of draft, substantially as described.

353,519. CAR-COUPLING. Alban N. Towne, San Francisco, Cal. Filed Aug. 25, 1886. (No model.)



Claim.—1. The draw-bars having heads which pass each other upon the opposite sides of a vertical longitudinal plane, with curved extensions or resistance-guides from each bar, which pass outside of the head of the opposite bar, and a pin hole or opening one-half of which is formed in each of the meeting faces of the heads to receive a coupling-pin, in combination with horizontal plates formed at the rear of the recesses of the heads, substantially as herein described.

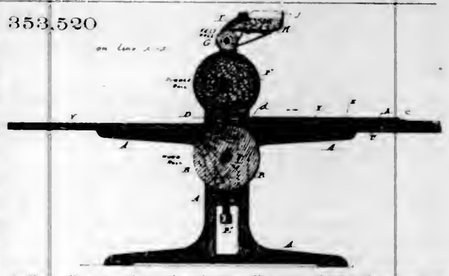
2. The draw-bars having the coupling-heads adapted to enter corresponding open chambers in the opposite heads, and having horizontal slots made in their ends, as shown, in combination with the horizontal plates or diaphragms, extending across the rear of the chambers, into which the heads are received, so as to enter the slots, substantially as herein described.

353,520. STENCILING-MACHINE. Charles L. Travis, Minneapolis, Minn. Filed Feb. 25, 1886. (No model.)

Claim.—1. In a stenciling-machine, the combination of a supporting and feeding roll, B, an elastic painting-roll, F, having a smooth and unbroken surface, and a roll for supplying the latter with paint, whereby the machine is adapted to deliver paint through a stencil-plate to the surface thereunder.

2. In a stenciling-machine, the combination of a supporting and

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feeding roll, a smooth elastic painting-roll located directly thereover and held constantly out of contact therewith, and connecting-gears, substantially as described, for driving said rolls at equal surface-speeds, whereby the painting-roll is caused to serve the additional purpose of advancing the board thereunder.

3. In a stenciling-machine, the combination of a supporting and feeding mechanism, an elastic painting-roll, a holder or carrier for the board to be painted, and a stencil-plate overlying said holder, whereby the stencil and the board may be advanced in contact with the surface of the painting-roll.

4. In a stenciling-machine, a guide or holder, X, to receive the board to be painted, and a stencil-plate, Y, secured at one end thereto, substantially as described.

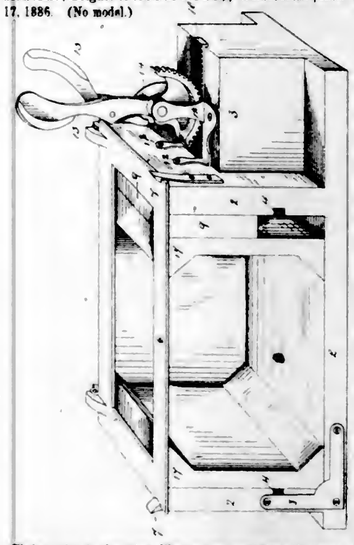
5. The blank-holder for a stenciling-machine, consisting of the board X, having the side guide or ledge and the tapered end, in combination with the stenciling-sheet attached thereto.

6. In a stenciling-machine, the combination of a smooth elastic painting-roll, F, a distributer-roll, G, acting thereon, and a paint-fountain, H, divided transversely into distinct compartments, whereby paint of different colors may be laid in distinct annular bands upon the painting-roll.

7. In a machine for producing signs by the stenciling process, the combination of a support for the blank to be painted, a stencil to overlie said board, an elastic painting-roll, and a mechanism, substantially as described, for delivering paints of different colors to the painting-roll at various points in its lengths, whereby a sign may be painted in two or more colors at one operation.

8. In a stenciling-machine, the elastic painting-roll and the paint-fountain divided transversely into two or more compartments, the intermediate distributer-roll having a surface of felt, whereby it is enabled to apply different colors to the painting-roll without causing them to blend.

353,521. CIGAR-BUNDLING PRESS. William Wassung, Springfield, Mass., assignor of one-half to Philipp Walch, same place. Filed Apr. 17, 1886. (No model.)



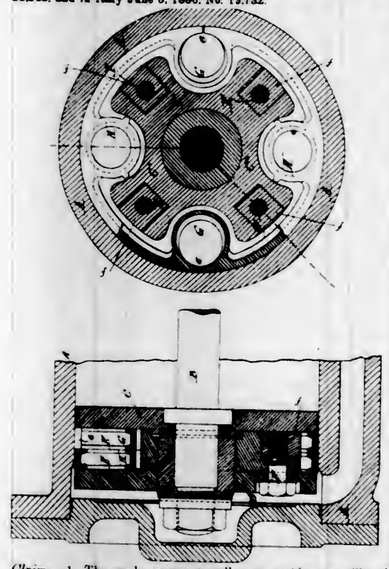
Claim.—1. A cigar-bundling press consisting of an open body, substantially as described, having one side open and a cover hinged thereon, a plunger supported at one end of said body within the latter, an arm to which said plunger is attached, extending through the end of said body

and having a rack thereon, a lever pivotally supported over the latter, having a geared segment thereon engaging with said rack, a stop-cam pivoted at the side of said lever and capable of swinging into engagement with said rack, a disengaging lever pivoted on said segment-lever and having one end engaging with said stop-cam, and suitable forming-blocks removably attached to said plunger and to the inner end of the press, combined and operating substantially as set forth.

2. A cigar-bundling press consisting of an open body, substantially as described, having one side open and a cover hinged thereon, and a removable bottom, a plunger supported at one end of said body within the latter, an arm to which said plunger is attached, extending through the end of said body and having a rack thereon, a lever pivotally supported over the latter, having a geared segment thereon engaging with said rack, a stop-cam pivoted at the side of said lever and capable of swinging into engagement with said rack, a disengaging-lever pivoted on said segment-lever and having one end engaging with said stop-cam, and suitable forming-blocks removably attached to said plunger and to the inner end of the press, combined and operating substantially as set forth.

3. The combination, with the body 2, of the forming-blocks arranged in the latter, the plunger 9, acting against one of said blocks, the arm 10, attached to said plunger and having a rack thereon, the lever 13, having a geared segment thereon engaging with said rack, the stop-cam 14, pivoted at the side of said lever, and the lever 15, pivoted on the side of the latter and engaging with said stop-cam, substantially as set forth.

353,522. METALLIC PISTON AND VALVE. John Watts, Bristol, County of Bristol, England. Filed Mar. 16, 1886. (No model.) Patented in England Mar. 20, 1885, No. 3,608; in France Nov. 20, 1885 No. 172,420; in Belgium Nov. 21, 1885, No. 70,947; in Germany Nov. 21, 1885, No. 35,363, and in Italy June 8, 1886, No. 15,732.



Claim.—1. The mode herein described of making metallic piston-rings and the like by casting the part of the ring which in work bears on the cylinder with internal loops, cast to leave a skin on the inside of the loops, and then cutting the parts of the rings at which the loops are situated, and then compressing the ring to contract or close the gaps, and then turning the ring to its proper diameter, as hereinbefore set forth.

2. In a piston, piston-valve, or pump-bucket, the combination of a ring or rings, E, divided in more than one place and provided with spring-loops, the piston-body C, and junk-ring D, with intervening piece C^2, and pieces f and screws F, substantially as hereinbefore described.

3. In a piston, piston-valve, or pump-bucket, the combination of a ring or rings, E, divided in more than one place and provided with spring-loops, with the unrecessed piston-body C, junk-ring D, and securing-screws F, substantially as hereinbefore described.

4. In pistons, piston-valves, and pump-buckets, the combination of rings E, divided in more than one place and provided with spring-loops, a junk-ring, and piston-body, and means for securing them together, with springs A, and bearing part A^2 on some of the rings, substantially as and for the purpose hereinbefore described.

353,523. ORNAMENTATION OF GLASSWARE. August Wittrauer, Pittsburg, Pa. Filed June 18, 1886. (No specimens.)

Claim.—A compound for ornamentation of glass, consisting of ale, beer, Epsom salts, and niter, in or about the proportions specified.

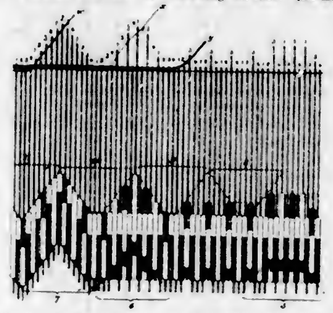
353,524. FASTENER FOR LACINGS. Leander W. Wood, Fontanelle, Iowa. Filed Sept. 24, 1886. (No model.)



Claim.—1. As an improved article of manufacture, a lace-fastener consisting of two plates, one mounted upon and pivotally connected to the other by means of eyelets struck therefrom or secured thereto, and loops formed on opposite ends of each plate fitting and operating in relation to each other, substantially as described.

2. In a lace-fastener, the combination of a lower portion, A, having an eyelet, a, and loop a', a portion, B, having an eyelet, b, and a loop, b', mounted upon and pivotally connected to the portion A, the parts of the portion B engaging with and fitting in the like parts of the portion A, and a stud or knob, b^2, for operating the device, substantially as described.

353,525. KNITTING-MACHINE. William Wrightson and Robert N. Wrightson, Linwood, Pa. Filed Aug. 18, 1885. (No model.)

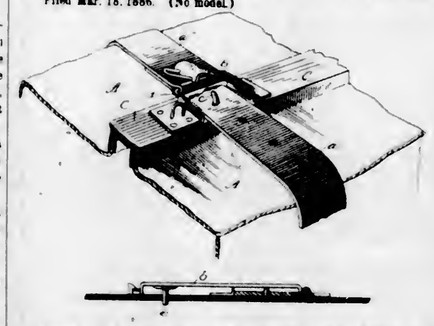


Claim.—1. The combination of guides for backing, binding, and knitting threads, the needle-cylinder and latch-needles guided therein, and having upper tuck, lower tuck, and plain bits, as described, with upper tuck-cam 8, upper plain cams 10 and 11, lower tuck-cams 5 and 6, and lower plain cam 7, all substantially as specified.

2. The combination of guides for backing, binding, and knitting threads, the needle-cylinder and latch-needles guided therein, and having upper tuck, lower tuck, and plain bits, as described, with the upper tuck-cam 8, upper plain cams 9, 10, and 11, lower tuck-cams 5 and 6, and lower plain cam 7, all substantially as specified.

3. The combination of guides for the backing, binding, and knitting threads, means for imparting tension to said backing-thread, the cylinder and latch-needles guided therein, and having upper tuck, lower tuck, and plain bits, as described, with the upper tuck-cam 8, upper plain cams 10 and 11, lower tuck-cams 5 and 6, and lower plain cam 7, all substantially as specified.

353,526. SATCHEL-STRAP. John A. Yarger, New Hampton, Iowa. Filed Mar. 18, 1886. (No model.)

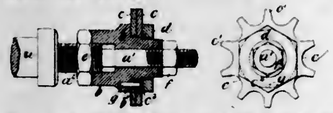


Claim.—1. In combination with a satchel, a strap secured at one end to one jaw thereof, and having its free end perforated, a pin pro-

jecting from the opposite jaw of the satchel and adapted to register with the perforations in the strap, a spring-clasp adapted to fit over the strap and lock the same in position, and a fastening device for the said clasp, substantially as described.

2. In combination with a satchel, a strap secured at one end to one jaw thereof and having its free end perforated, a pin projecting from the opposite jaw of the satchel and adapted to register with the perforations in the strap, a clasp adapted to fit over the strap and lock the same in position, and a supplemental holding device secured to an extension of said clasp, substantially as described.

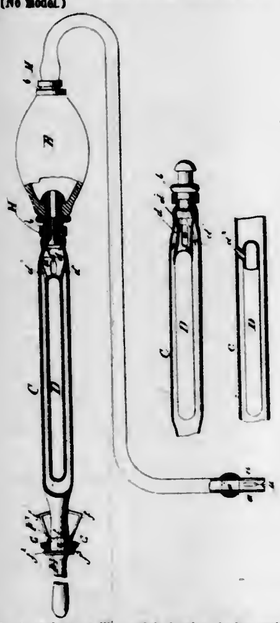
353,527. PRINTING-WHEEL. WALTER R. BACON, London, England. Filed Apr. 24, 1886. (No model.)



Claim —1. The combination of a pin, *a*, the sleeve *b*, having the flange *b'*, and mounted on the pin to turn thereupon, the type-wheels *c c*, arranged on the sleeve and bearing against the flange thereof, a nut, *d*, screwing on the sleeve to clamp the wheels against the sleeve-flange, and nuts on the pin at opposite ends of the sleeve for holding the latter stationary, substantially as described.

2. The combination of the pin or stud *a*, the sleeve *b*, mounted thereon and capable of turning axially thereupon, and provided with the flange *b'*, the interchangeable type-wheels arranged on the sleeve and bearing against its flange, a nut, *d*, for clamping the wheels against the sleeve-flange, and devices, such substantially as described, for locking the sleeve against rotation on the pin or stud, substantially as described.

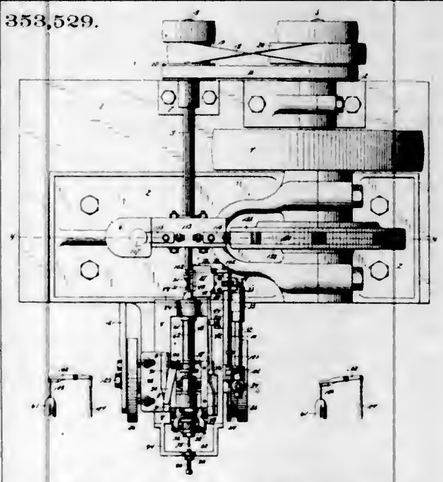
353,528. SYRINGE. JOSHUA BARNES, Brooklyn, N. Y. Filed Aug. 21, 1886. (No model.)



Claim.—1. A syringe or like article having in its outlet-conduit a flexible air-chamber contracting under pressure and expanding on cessation of pressure from the bulb or pump, for the purpose set forth.

2. In combination with the outlet-conduit of a syringe or like article, an elastic tube or chamber placed within the said conduit, and a vent connecting the said elastic chamber with the outer air, substantially as and for the purpose set forth.

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2. The combination, with the hopper and spring 41, which presses the needles out singly, and the cross-slide which receives the needles and carries them forward, of a reciprocating chuck which receives each needle from the cross-slide, and a pivoted finger upon the cross-slide which acts to press the needle home in the chuck.

3. The combination, with the hopper and the chuck, of feeding mechanism consisting, essentially, of a cross-slide having grooved carrying-plates 49, a bell-crank lever, 39, and springs 51 upon said lever, which hold the needle in said grooves as the cross-slide moves forward.

4. The hopper, chuck, and cross-slide, in combination with rock-shaft 32, having slotted arm 31, block 37, pivoted in said slot, and bell-crank lever 39, pivoted to the cross-slide and connected by rod 38 to said block.

5. The hopper, chuck, and cross-slide, in combination with rock-shaft 32, having arm 31, block 37, pivoted to said arm, bell-crank lever 39, pivoted to the cross-slide and connected by link 38 to the block, and a set-screw, 48, in yoke 47, whereby when arm 31 swings inward the cross-slide is carried forward thereby, and when said arm swings backward the bell-crank lever is first dropped downward and then swung gradually up into position as the cross-slide moves backward.

6. The cross-slide having carrying-plates 49, and yoke 47, with set-screw 48, and bell-crank lever 39, having springs 51, in combination with rock-shaft 32, having slotted arm 31, block 37, pivoted in said slot, and a rod connecting said block with the bell-crank lever, as and for the purpose set forth.

7. The hopper, cross-slide, and chuck, in combination with rock-shaft 32, having an arm, 34, adapted to engage the groove in cam 23, and an arm, 31, whereby the forward and backward movements are imparted to the cross-slide.

8. The hopper, cross-slide, chuck, and cam 23, in combination with rock-shaft 32, having an arm, 34, adapted to engage the groove of said cam, and an upwardly-projecting arm, 31, having a swinging block, 37, pivoted thereto, and a rod, 38, connecting said swinging block with the bell-crank lever upon the cross-slide, as and for the purpose set forth.

9. The hopper and chuck, in combination with a cross-slide having grooved needle-plates, and a bell-crank lever carrying springs which hold the needle in said groove, and operating mechanism, substantially as described, whereby said cross-slide is moved forward, the bell-crank lever drops out of the way and then gradually returns to its former position as the cross-slide moves backward.

10. The cross-slide having bell-crank lever 39 and yoke 47, with set-screw 48, in combination with a swinging arm, 31, having swinging block 37 pivoted thereto, and rod 38, one end of which is connected to the lower arm of the bell-crank lever, the other to the block above its pivotal point.

11. The chuck, hopper, and cross-slide, in combination with a finger, 102, pivoted to the cross-slide, and mechanism—for example, arm 31 and rod 104—for actuating said cross-slide and finger.

12. The chuck, cross-slide, and cam 23, having a dog, 97, in combination with finger 102, pivoted to the cross-slide, rod 104, pivoted to said finger and provided with shoulders, and a spring, 105, bell-crank lever 100, adapted to bear against said spring, and parts 101 and 98, the latter having a dog, 99, whereby at each revolution of said cam the finger is actuated to press the needle home in the chuck.

13. The hopper, presser-spring, chuck, and cross-slide, in combination with finger 102, pivoted to the cross-slide, cam 23, having a peripheral groove, and a dog, 97, and intermediate mechanism, substantially as described, whereby said finger and cross-slide are actuated.

14. Cam 23, having dog 97, and lever 98, pivoted to the bed, and having an adjustable dog, 99, in combination with pivoted finger 102, parts 100, 101, and 104, and spring 105, whereby at each revolution of said cam a yielding movement is imparted to said finger, as and for the purpose set forth.

15. The chuck and cross-slide, in combination with finger 102, pivoted to said cross-slide, and having a shoulder, 103, and spring-actuated rod 104, whereby a yielding movement is imparted to said finger to press the needle home in the chuck as soon as it is received thereby.

16. The combination, with the cross-slide and finger 102, of the cams 25, and a pivoted lever, 52, one end of which is adapted to engage the chuck and the other to bear upon cams 25, whereby the chuck is caused to advance and take the needle and then remain stationary while the needle is pressed home by the finger.

17. The chuck having loose collar 56 and spring 73, in combination with cams 25, and lever 52, adapted to bear on said cams and to engage the collar upon the chuck, whereby the latter is caused to move forward with a yielding movement.

18. The combination, with bracket 8 and sliding carrier 57, of the chuck carried by said carrier, cams 25, and lever 52, whereby reciprocating motion is imparted to said carrier and chuck.

19. Bracket 8, having gear 9 recessed therein, and provided with an extension, 84, having gear 86 recessed therein, in combination with the sliding carrier and the chuck.

20. The combination, with inner shell, 58, having jaws attached thereto, of outer shell, 61, having flanged collar 63, which is engaged by bell-crank lever 90, to retard the movement of the outer shell relatively to the inner shell as the chuck moves forward, as and for the purpose set forth.

21. Inner shell, 58, and piece 79, having jaws 66 attached thereto said jaws being provided with shoulder 68, in combination with the outer shell having shoulder 65, a flanged collar, 63, and bell-crank lever 90, adapted to engage said flanged collar, whereby the movement of the outer shell is retarded, causing shoulder 65 to clamp the jaws upon the needle.

22. The inner shell having recess 77 at its outer end, and piece 79 having jaws 66 secured in said recess, in combination with spindle 75 having expelling-rod 83 at its outer end, and spring 78, for holding said rod in its retracted position.

23. The inner shell having a recess, 77, at its outer end, a piece, 79, having jaws to receive the needle, a recess, 80, at its inner end, and a passage, 82, leading from said recess to the opening between the jaws, in combination with the spindle having a shoulder resting in recess 77, a spring bearing against said shoulder and the inner end of piece 79, and an expelling-rod projecting forward from the spindle and into passage 82.

24. Piece 79, having jaws 66, with shoulders 68, and a recess between said jaws, in combination with the inner shell, to which piece 79 is attached, and an outer shell adapted to move longitudinally on the inner shell and provided with shoulders 65, which engage and close the jaws.

25. Piece 79, having spring-jaws 66, made integral therewith, in combination with an inner shell to which said piece is attached, and an outer shell adapted to move longitudinally upon the inner shell, whereby the jaws are opened and closed.

26. Piece 79, having spring-jaws made integral therewith, a recess, 81, between said jaws, and a recess, 80, at its inner end, in combination with the inner shell having a recess, 77, the spindle having a shoulder, 76, and an expelling-rod, 83, and a spring, 78, adapted to bear upon said shoulder and the inner end of piece 79, whereby the expelling-rod is retained at the base of recess 81.

27. The inner shell and the jaws, in combination with the outer shell adapted to move longitudinally thereon and having longitudinal grooves 62, and gear 86, having keys adapted to slide in said groove, whereby rotary motion is imparted to the chuck independently of its longitudinal motion.

28. The inner shell, the jaws attached thereto, and an outer shell adapted to reciprocate thereon, and having longitudinal grooves 62, in combination with gear 86, keyed in said grooves and held against longitudinal movement by plate 88, and a gear, 9, adjustably keyed to shaft 5, whereby rotary motion is imparted to the outer shell.

29. The inner shell adapted to reciprocate longitudinally, and the jaws secured thereto, in combination with the outer shell having longitudinal grooves 62 and the flanged collar 63, bell-crank lever 90, adapted to engage said collar, whereby the longitudinal movement of the outer shell is retarded relatively to the inner shell, and gear 86, keyed in groove 62, whereby rotary motion is imparted to the outer shell irrespective of the longitudinal movement of the chuck.

30. Bracket 8, having extension 84 and provided with recesses 85 and 87, and gears 9 and 86, lying in said recesses, and held there by plate 88, in combination with shaft 5, to which gear 9 is attached, and the outer shell having a longitudinal groove, in which gear 86 is keyed.

31. Sliding carrier 57, the inner shell having flanges 59 and cap 60, by which it is secured to the sliding carrier, in combination with the outer shell having flanged collar 63, bell-crank lever 90, engaging said collar, and gear 86, keyed to the outer shell, by which rotary motion is imparted thereto.

32. The sliding carrier having stud 70, adjustably connected thereto and carrying the inner shell, in combination with a flanged collar, 56, on the stud, and spring 73, one end of which bears against the collar, the other against a shoulder on the stud, and the cam-actuated lever 52, engaging said collar, whereby yielding forward movement is imparted to the chuck.

33. The sliding carrier, inner and outer shells, and stud 70, in combination with bell-crank lever 90, one end of which engages cam-groove 91, the other engaging the outer shell, whereby the latter is retarded as the chuck is moved forward by the engagement of lever 52 with a yielding sleeve, 56, upon the stud.

34. The combination, with the sliding carrier, the inner and outer shells, and stud 70, adjustably secured in the sliding carrier, of sliding flanged collar 56, spring 73 upon said stud, and lever 52, engaging said collar, whereby a yielding forward movement is imparted to the chuck.

35. The sliding carrier, inner and outer shells, stud 70, and the spindle having an expelling-rod, 83, in combination with set-screw 93, adjustably secured in bracket 94, whereby at each backward movement of the chuck the spindle is forced forward relatively thereto and the needle-blank is expelled.

36. The inner shell and the jaws attached thereto, the outer shell, and the spindle having a rod extending to the base of the jaws, in combination with bell-crank lever 90, which controls the movement of the outer shell, lever 52, which controls the movement of the sliding carrier, and set-screw 93, against which the spindle strikes to expel the blank at the proper moment.

37. The sliding carrier, the inner and outer shells, and stud 70, in combination with bell-crank lever 90, engaging the outer shell for the purpose set forth, lever 52, engaging a yielding sleeve upon the stud, cams 25, and spring-actuated rod 96, whereby lever 52 is held in contact with the cam.

38. The combination, with the dies, of the jaws, the inner and outer shells, the sliding carrier, and levers 52 and 90, whereby the jaws are caused to grasp the needle-blank, carry it forward to the dies, and then withdraw it therefrom.

39. The combination, with the sliding carrier, the inner and outer shells, and the jaws, of dies 109 and tappets 129, carried by a rotating cylinder, whereby the operating-die is actuated in use.

40. The sliding carrier, the inner and outer shells, and the jaws, in combination with the dies, the spindle having expelling-rod 83, and levers 90 and 52, whereby the needle is carried to the dies, then withdrawn therefrom, and expelled after being acted upon by the dies.

41. The cross-slide, inner and outer shells, jaws, and sliding carrier, in combination with the dies, the spindle having expelling-rod 83, and set-screw 93, as and for the purpose set forth.

42. The combination, with the hopper, the cross-slide, and the dies, of the sliding carrier, the inner and outer shells, the jaws, and the spindle having expelling-rod 83.

43. The cross-slide and pivoted finger 102, in combination with the sliding carrier, the inner and outer shells, and the jaws.

44. The needle-chuck, in combination with the dies and die-carriers, spring 114, the rotating tappet-cylinder and cam 118.

45. Bracket 6, having plate 111, and the die-carriers resting on said plate, in combination with the rotating tappet-cylinder and cam 118.

46. Bracket 6, the die-carriers having pins 116, and covering-plate 113, by which the dies are held in place, in combination with spring 114 and adjustable stops 115 upon the carrying-plate, whereby the backward movement of the die-carriers is limited.

47. The dies supported in die-carriers, and spring 114, for throwing said die-carriers apart, in combination with the rotating tappet-cylinder, and a rack, pinion, and cam, for imparting forward-and-backward movement to the die-carrier not acted on by the tappet-cylinder.

48. The die-carriers and dies, in combination with cam 118, the rotating tappet-cylinder, and spring 114.

49. The die-carriers, the rotating tappet-cylinder, and spring 114, in combination with cam 118 upon shaft 117, and a rack and pinion whereby oscillatory motion is imparted to said cam.

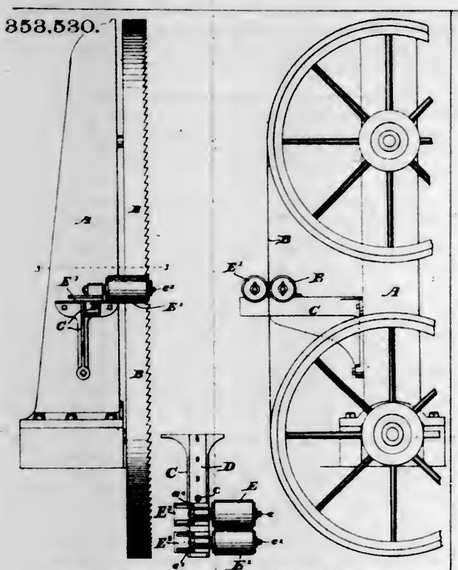
50. The die-carriers having pins 116, cam 118, and the rotating tappet-cylinder, in combination with plate 113 and adjustable stops 115, which engage said pins, as and for the purpose set forth.

51. The combination, with the die-carriers and dies, cam 118, and spring 114, of cylinder 131, having recesses for the tappets, springs 132, whereby they are held in operative position but allowed to yield, and rings 133, whereby they are held in place.

52. The spring-tappets recessed in the periphery of cylinder 131, in combination with the die-carriers, one of which is provided with a rod, 128, to receive the blows of the tappets, and spring 114.

353,530. GUIDE-ROLL FOR BAND-SAWS. GEORGE S. BLACK, Indianapolis, Ind. Filed Mar. 15, 1886. (No model.)

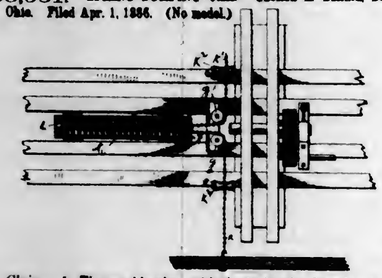
353,530.



Claim.—1. The combination of the band-saw B, bracket C, having a groove in its upper surface, a slide-bar, D, having several holes and mounted in said groove, a bolt, c, by which said bar is secured in said groove, brackets E^2 E^3, adjustably secured to said bar and carrying stud-shafts, and rolls E E', mounted upon said stud-shafts, substantially as set forth.

2. The combination of a band-saw, a bracket secured to its column, brackets E^2 E^3, provided with slots and adjustably secured on said bracket, stud-shafts on said brackets E^2 E^3, and rolls mounted on said stud-shafts, substantially as shown and described.

353,531. SPRING DUMPING-CAR. GEORGE E. BLAINE, Dayton, Ohio. Filed Apr. 1, 1886. (No model.)

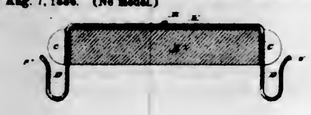


Claim.—1. The combination, with the body of a dumping-car and the non-dumping portion thereof, of a latch attached to the body, a weight attached to said latch, and a chain secured at one end to said weight and its opposite end to the draw-frame, as set forth.

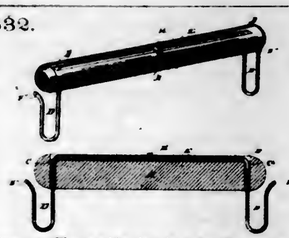
2. The combination, with the body of a dumping-car and the draw-frame thereof, of a door pivoted to standards on the body, a latch pivoted to the body and adapted to normally prevent the swinging of the door, a pulley secured to the body, and a chain, one end of which is secured to the latch and the other end to the draw-frame, said chain passing over said pulley, as set forth.

3. The combination, with the body of a dumping-car and the draw-frame thereof, of two chains attached, respectively, at their outer ends to the side beams of the body and at their other ends to each other, a cylinder secured to the draw-bars, a spiral spring within said cylinder, a bar attached to the inner ends of said chains in said cylinder, and block at the inner end of said bar to bear upon and compress said spring when the body is dumped in either direction, as set forth.

353,532. BUNDLE-CARRIER. MATTHEW J. BOGERT, Demarest, N. J. Filed Aug. 7, 1886. (No model.)



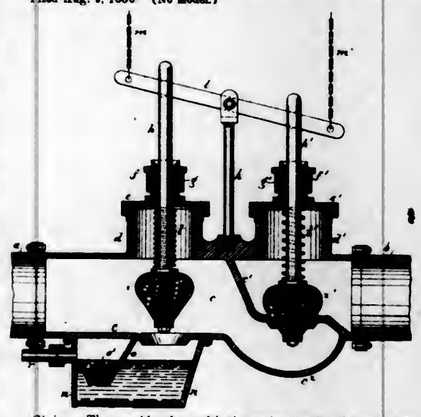
353,532.



Claim.—1. The combination, in a bundle-carrier, of the handle having the openings or slots C made transversely near the ends, and the wire yoke having its central portion bearing on the upper side of the handle, the arms of the said yoke being secured in the openings or recesses C, and having the hooks formed therewith, the ends of the handle projecting beyond the openings of slots over the open ends of the hooks, so as to come nearly in engagement with the points of the hooks, for the purpose set forth, substantially as described.

2. The combination, in a bundle-carrier, of the handle having the longitudinal groove B in its upper side, and the openings or slots C made transversely in its ends and communicating with the said groove, and the wire yoke having its central portion bearing in the groove B, the depending arms of the said yoke being secured in the openings or recesses C, the said arms being bent to form hooks, the ends of the handle projecting over the open ends of the hooks, so as to come nearly in engagement with the points of the hooks, for the purpose set forth, substantially as described.

353,533. SERVICE STOP-COCK. EDWARD J. BRADY, Brooklyn, N. Y. Filed Aug. 9, 1886. (No model.)



Claim.—The combination, with the main pipe *b* and service-pipe *a*, of a valve-case, *c*, connecting said pipes, and having an opening and valve-seat in the bottom, a transverse partition, *c'*, in said case, having an opening and valve-seat therein, the conical valves *i i'* above the respective seats, the perpendicular valve-stems *h h'*, the caps and packing-glands through which the stems pass, the springs *l l'* around the valve-stems within the case, the lever *l*, connected to the valve-stems, a fixed pivot for said lever, the trap-case *n* below the seat of the valve *i*, the partition *o*, valve *o'*, and a discharge-pipe to the sewer, substantially as set forth.

353,534. FINGER AND FINGER-BAR FOR HARVESTERS. THOS. S. BROWN, Poughkeepsie, N. Y. Filed July 2, 1885. (No model.)

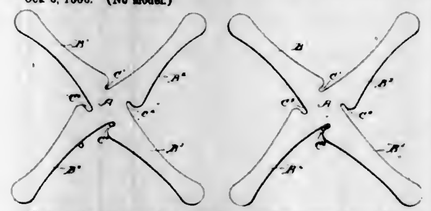


Claim.—1. In a harvester, in combination, fingers, each provided in its upper surface with a transverse cut or channel below and adjacent to the surface or part of the finger which rests against the finger-bar, and a finger-bar, the front edge of which constitutes the upper part of the rear wall of said cut or channel, as specified.

2. In a harvester, a finger-bar the upper surface of which is provided with a bar of steel or of other metal detachably secured thereto and adapted to be reversed end for end or turned over, so as to successively present several wearing-surfaces, in combination with a cutter-bar, the heels of the knife-sections of which rest and reciprocate upon the upper surface of said detachable bar, and the bar or stock of which rests and reciprocates against the front edge of said finger bar, as and for the purpose specified.

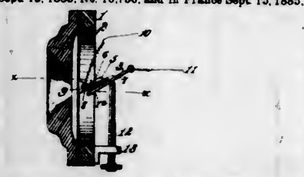
3. In a harvester, a finger-bar provided with a longitudinal shoulder or abutment, fingers, each provided with a broadened heel, and as to its upper surface provided with a transverse cut, channel, or depression below and adjacent to the surface or part of the finger which rests against the finger-bar, and a vibrating knife-carrying bar or stock, said parts being combined so that the rear edges of the heels of the fingers abut against said shoulder upon the finger-bar, and the side edges of said heels abut against the adjacent side edges of the heels of the adjacent fingers, and so that the reciprocating cutter bar or stock is contained and adapted to be vibrated in said transverse cuts in the fingers, substantially as specified.

353,535. WIRE-TWISTER. ELIJAH BUNCH, Richmond, Ind. Filed Oct. 6, 1886. (No model.)



Claim.—In a wire-twister such as described, two or more handles emanating from a solid body, and each provided with different-sized notches at their base upon one side and a curved surface on the other, said curved surface leading gradually into the said notches in the adjoining handle, substantially as set forth.

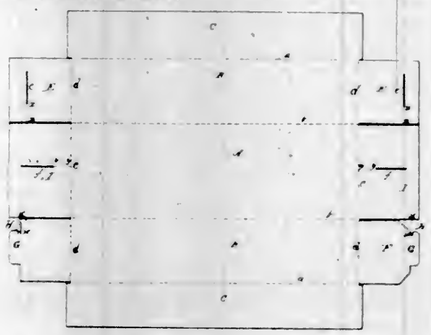
353,536. TELEPHONE-TRANSMITTER. WILLIAM BURNLEY, North East, Pa., assignor of two-thirds to Charles A. Hitchcock, same place, and Lewis F. Watson, Warren, Pa. Filed Aug. 12, 1886. (No model.) Patented in England Sept. 15, 1885, No. 10,750, and in France Sept. 15, 1885, No. 171,195.



Claim.—1. In a telephonic transmitter, the combination, with the fixed supporting-frame and the diaphragm and its electrode carried thereby, of a platform pivotally connected with the fixed supporting-frame, the loose sliding gravitating electrode resting upon said pivoted platform and making contact with the diaphragm-electrode, and means for supporting the pivoted platform and varying its inclination in relation to the diaphragm, for the object herein stated.

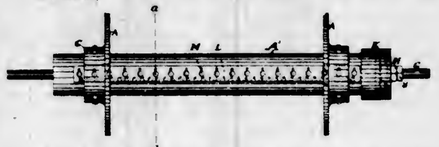
2. In a telephonic transmitter, the combination, with the fixed supporting-frame and the diaphragm and its electrode, of a platform pivotally connected at one end with the fixed supporting-frame, the loose-sliding gravitating electrode resting upon the pivoted platform, and the vertical adjusting-screw mounted upon the fixed diaphragm-frame and bearing upon the free end of the pivoted platform for supporting the latter at different angles in relation to the diaphragm, for the object herein stated.

353,537. PAPER EGG-CARRIER. JOHN BURNS, Chicago, Ill. Filed July 13, 1886. (No model.)



Claim.—A package egg-carrier the exterior of which consists of the bottom A, sides B, ends I, and two-part cover C, the flaps F, provided with notched tongues G H, and the flaps E, with slots *e*, and the ends with corresponding slots, *f*, the sides, ends, cover, and flaps folded, as specified, and the tongues put through slots *e f* to lock the ends and flaps together, as specified.

353,538. WARP-BEAM FOR LOOMS. THOMAS BURNS, ABRAHAM AKEROYD, and JAMES FOWLER, Bradford, England. Filed Aug. 25, 1886. (No model.)



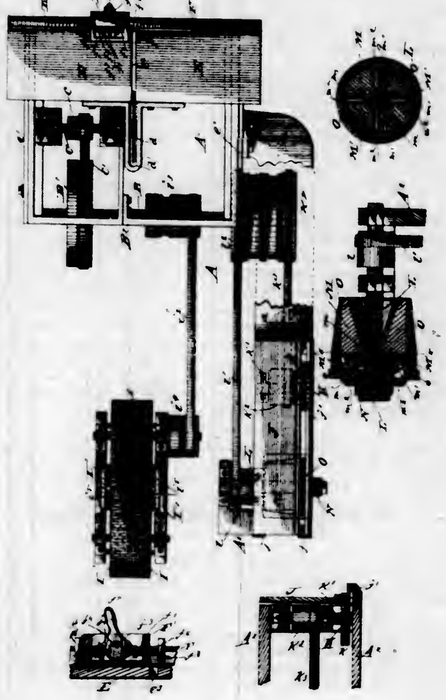
Claim.—1. The combination, with the beam-body having an arbor, and the flanges A, loosely mounted on said beam-body, of screw-rods passing longitudinally through the beam-body, operating to move the flanges toward or from each other when turned in one or the other direction, and a spur-wheel mounted loosely on the beam-arbor, provided with a square boss, and meshing with gear-wheels rigidly mounted on the ends of the screw-rods, whereby the latter may be simultaneously rotated, for the purpose specified.

2. The combination, with the beam-body having an arbor, and the flanges A on said beam-body, movable toward and from each other, of a plate, graduated as described, let into the beam-body and flush with its outer surface, and provided with slots M for retaining the ends of the warp-cords, as described.

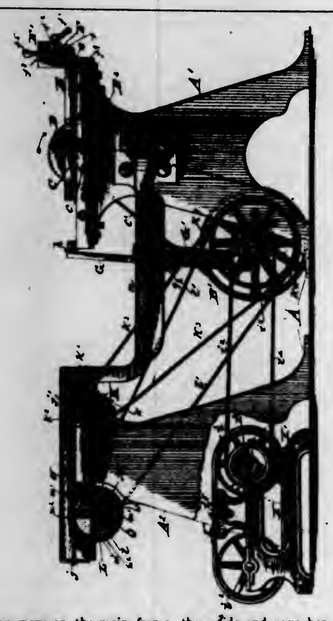
353,539. WOOD-WORKING MACHINE. JEREMIAH CASEY, New York, N. Y. Filed Mar. 29, 1886. (No model.)

Claim.—1. The combination of the slotted frame or bed for crosscut sawing, moving on ways on the main frame of the machine, the graduated bar hinged thereto, and the gage-frame F', traveling on said bar, and provided with the set-screw f^5, actuated by the crank-handle f', coil-springs f, the pivoted cam f^3, the shafts f^4, coil-spring f^7, surrounding said shafts, and holding-bars f^6, attached to the outer ends of the shafts, substantially as specified.

2. The combination of the slotted bed or frame for crosscut sawing,



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traveling on ways on the main frame, the guide and gage bar hinged thereto, and the gage-frame F', traveling on the said bar, with the circular saw having its shaft journaled in the main frame below the said bed, the slotted table for rip-sawing, hinged to the top of the main frame and arranged to overlie the bed for crosscut sawing in such manner that the circular saw will pass through the slots of both the gaging device G', secured to said table, and the gage and guide bar g^3, connected to said device, substantially as specified.

3. The combination, with the machine for crosscut and rip sawing, constructed substantially as described, of the frame I', the pulleys i^3 i^4, having their shafts journaled in said frame and driven from the main shaft of said machine by the pulleys i^2 i^5 and belt i^6, and the belt I, traveling over the pulleys i i', having an outer sand-paper surface and supported by the rollers i^3, substantially as specified.

4. The combination, with the machine for crosscut and rip sawing, constructed substantially as described, of the circular saw K, having its shaft k' driven from the main shaft of the said machine by means of the belt k^2 and pulleys k^4 and k^5, and the hinged bed or table J, provided with a slot for the passage of the saw and proper guide-strips to direct the boxes properly over the same, substantially as specified.

5. The combination, with a machine for crosscut and rip sawing, substantially as described, of the circular edge-dressing saw, driven from the main shaft of said machine, the hinged table J, and the drum having its shaft driven by means of pulleys and a belt from said main shaft, and provided with a surrounding sleeve of sand-paper to smooth the boxes after they have been riven by the saw, substantially as specified.

6. The combination, with a machine for crosscut and rip sawing, substantially as described, of the slotted hinged bed J, provided with guide-strips j', the shaft L, driven from the main shaft B by the pulleys l^2 and belt l', the drum M, splined on the shaft L and provided with the pivoted levers m', the sleeve N, actuating said levers, the elastic ring M', surrounding the drum, and the sleeve O, of sand-paper, surrounding the drum and ring M', substantially as specified.

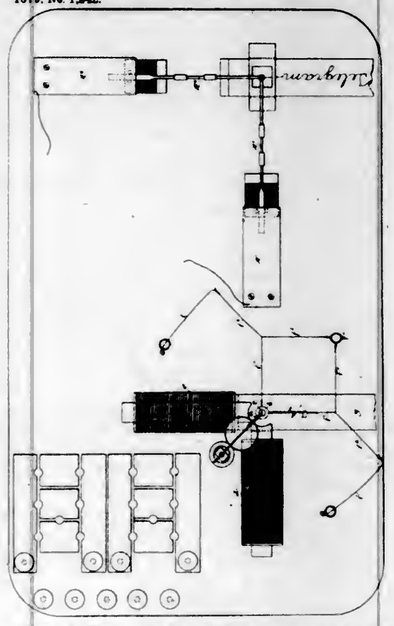
353,540. **BOX-BAND.** William A. Comstock, Chicago, Ill. Filed May 6, 1886. (No model.)



Claim.—1. A wire band for strapping boxes, composed of a straight wire and a secondary wire wound around it and bent to form loops between the windings, substantially as and for the purpose set forth.

2. A box provided with a wire band composed of a main wire, C, and a secondary wire wound around it and bent to form loops between the windings, said wire band being secured to said box by nails, the upper parts of the shanks of which are too large to enter the unused loops without distorting the latter, substantially as set forth.

353,541. **ELECTRIC TELEGRAPH.** Edward A. Cowper, Westminster, County of Middlesex, England, assignor to Brunt Good, New York, N. Y. Filed Aug. 7, 1886. (No model.) Patented in England Mar. 23, 1879, No. 1,242.



Claim.—1. The combination, with two electro-magnets placed at an angle to each other, of a laterally-movable armature-carrier pivoted or supported between said electro-magnets, substantially as described.

2. The combination, with two electro-magnets placed at an angle to each other, of an armature-carrier pivoted or supported between said electro-magnets, and a pen or stylus connected with said carrier, substantially as described.

3. The combination, with two electro-magnets placed at an angle to each other, of a laterally-movable armature-carrier pivoted or supported between said electro-magnets and provided with an armature common to both, substantially as described.

4. The combination, with two electro-magnets placed at an angle to each other, of an armature-carrier pivoted or supported between said electro-magnets and provided on its lower end with a pen or stylus, substantially as described.

5. The combination, with two electro-magnets placed at an angle to each other, of an armature-carrier supported by a spring and provided at its lower end with a pen or stylus, substantially as described.

6. The combination, with a siphon receiving-pen suspended by a spring, of an armature carried by said pen, substantially as described.

7. The combination, with contact-plates, of a sending-stylus, contact-makers, and springs connected with the circuit and arranged to bear on said contact-makers, substantially as described.

8. The combination, with the receiving-stylus, of a curved perforated plate under which the paper is arranged to pass, whereby a surface approximately corresponding to the arc in which the point of the pen moves is presented to the pen, substantially as described.

9. The combination, with the receiving-stylus laterally movable in any direction, of means for lifting the same from the paper when the circuit is broken, substantially as described.

10. The combination, with the receiving-stylus laterally movable in any direction, of an armature connected thereto, and an electro-magnet in circuit with the sending apparatus, substantially as described.

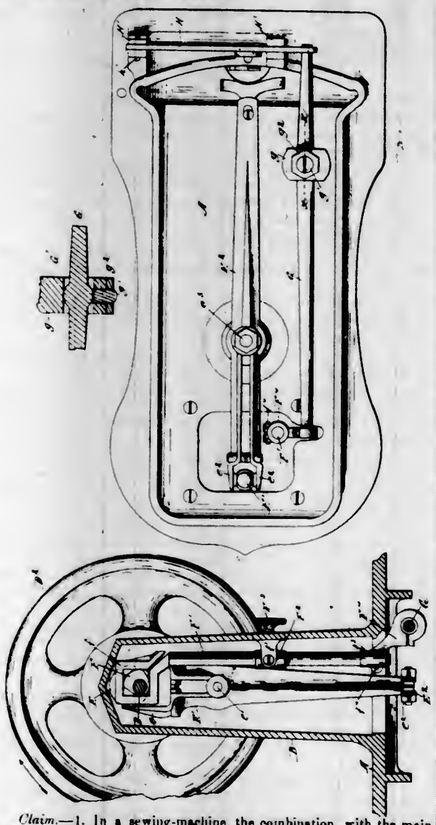
11. The combination, with the receiving-stylus laterally movable in any direction, of a spring-armature connected to said stylus and arranged to normally lift the latter, of an electro-magnet in circuit with the sending apparatus, and arranged, when energized to depress the armature, so as to allow the stylus to come into contact with the paper, substantially as described.

12. The combination, with a movable sending style or tracer, of contact-pieces connected thereto and to the circuit, and a series of contact-plates connected to a series of battery-cells, whereby varying numbers of battery-cells may be included in and excluded from the circuit, substantially as described.

13. The combination, with a movable sending style or tracer, of contact-pieces connected thereto and to the circuit, and a series of contact-plates connected to a series of battery-cells and to a series of resistances, whereby varying numbers of battery-cells and also varying resistances are included in or excluded from the circuit, substantially as described.

353,542. **SEWING-MACHINE.** Henry E. Dieterle, Chicago, Ill., assignor to Barnabas Eldredge, same place. Filed Jan. 5, 1885. (Model.)

Brief.—The vertical feed-lever is provided with a square yoke embracing the actuating-cam on the main driving-shaft, its lower end being connected with and vibrating a lever mounted on a universal joint, which latter lever actuates the feed-bar.



Claim.—1. In a sewing-machine, the combination, with the main shaft and a single cam thereon for operating the feed-lever, of the feed-lever having a square yoke embracing said cam, the feed-bar, and a positively-actuated vibrating lever mounted on a universal joint and connecting the feed-bar and feed-lever, substantially as and for the purposes specified.

2. In a sewing-machine, the combination, with the main shaft having a single cam thereon to operate the feed-lever, of the feed-lever having a square yoke embracing said cam, the pivoted guide through which the feed-lever reciprocates, the feed-bar, and a positively-actuated vibrating lever mounted on a universal joint and connecting the feed-lever and feed-bar, substantially as and for the purposes specified.

3. In a sewing-machine, the combination, with the main shaft having a single cam thereon to operate the feed-lever, of the feed-lever having a square yoke embracing said cam, the feed-bar provided with an inclined slot embracing a fixed pin, and the vibrating lever mounted on a universal joint and connecting the feed-lever and feed-bar, substantially as and for the purposes specified.

4. In a sewing-machine, the combination, with the main shaft having a single cam thereon to operate the feed-lever, of the feed-lever having a square yoke embracing said cam, the pivoted guide through which the feed-lever reciprocates, the feed-bar provided with an inclined slot embracing the fixed pin, and the vibrating lever mounted on a universal joint and connecting the feed-bar and feed-lever, substantially as and for the purposes specified.

5. The combination, with the shuttle-lever and its actuating-lever, the latter pivoted near its upper end and the former pivoted at a point near the connection between the two levers, of the main shaft provided with an eccentric to operate the said actuating-lever, and with a single cam to operate the feed-lever, the feed-lever provided with a square yoke embracing said cam, the feed-bar, and a vibrating lever connecting the feed-lever and feed-bar, substantially as and for the purposes specified.

6. The main shaft provided with the eccentric and single cam, and the shuttle-lever and its actuating-lever, the latter operated by the eccentric and pivoted near its upper end, and the former pivoted near the connection between the two levers, in combination with the feed-lever having a square yoke embracing the cam, the pivoted guide through which the feed-lever reciprocates, the feed-bar provided with an inclined slot to receive a guiding and supporting pin, and a vibrating lever mounted on a universal joint and connecting the feed-bar and feed-lever, substantially as and for the purposes specified.

353,543. **ORNAMENTAL CHAIN.** Oscar M. Draper, North Attleborough, Mass. Filed July 17, 1886. (No model.)



Claim.—1. The combination of a link, two or more links entering said first link, and a cross-bar extending through said first link and provided with locking or holding pieces upon the ends.

2. The combination of a link, two or more links interlocking with said first link and having their planes approximately normal to the plane thereof, and a cross-bar provided with locking or holding ends, said bar passed through said first link transversely thereof and retained in position by means of said holding ends.

3. The portion or section of a chain consisting of a link, two links interlocking with said first link at each of two opposite ends thereof, and a cross-bar having enlargements at the ends thereof, said bar placed through said first link transversely thereof and lying to the outside of said interlocking links.

4. The chain composed of a series of interlocked sections or divisions consisting of the following parts, viz: a link, two or more links entering said first link, and a cross-bar set through said first link transversely thereto, said cross-bar provided with holding ends for retaining said bar in position.

5. The combination of a rectangular link, two or more links having curved frames and interlocking with said rectangular link, and a cross-bar provided with bulbous or enlarged ends, said bar lying through said rectangular link and engaging with said curved links, substantially as described.

6. The combinations of the square link having broad flat sides, the four circular links interlocked with said square link, and the cross-bar provided with the spheroidal ends and disposed through said square link and in engagement with the peripheries of said circular links, substantially as described.

7. The combination of the rectangular link 7, two or more of the circular links, 8, and the cross-bar 9, composed of the stem 10 and the caps 12, substantially as described.

8. The combination, with a link, of four links interlocked with the first link, as described, and a cross-bar provided with enlarged ends inserted between the four links, as described.

353,544. **BOOT OR SHOE NAILING MACHINE.** Henry Dunham, Abington, Mass. Filed May 15, 1880. (No model.)

Claim.—1. In a machine for uniting the soles and uppers of boots or shoes, a work-supporting horn having in its upper extremity a concavity for turning the points of the nails back into the stock, in combination with an awl, substantially as described.

2. In a boot or shoe nailing machine for feeding and driving loose nails, substantially as above described, the nail-tube Q, the awl S, and the driver P, in combination with a work-supporting horn having a concavity for clinching the nail, as set forth.

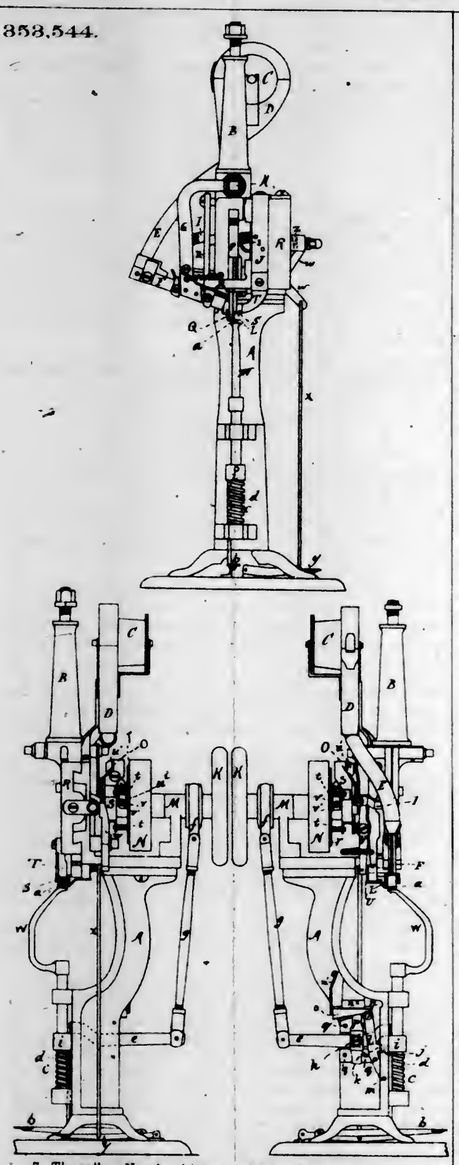
3. In a boot or shoe nailing machine, guideways adapted to support the nails by the heads, a nail-tube through which the nails are driven into the shoe, and mechanism to separate the nails one at a time, an awl, a driver, and a work-supporting horn having a concavity for clinching the nail, as set forth, in combination, substantially as described.

4. The tracks F, the separator, the throat, and the driver, in combination with the awl arranged to feed the stock, and horn having a concavity for clinching the nail, as set forth, substantially as described.

5. In a nailing-machine, in combination, a work-supporting device having on its upper extremity a concavity and awl, substantially as and for the purpose specified.

6. In a machine for uniting the soles and uppers of boots and shoes, the awl for making the holes for the nails, in combination with a horn having a concavity for clinching the nail, as set forth.

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7. The pulleys N and *r*, driving-shaft M, and springs *t t*, in combination with suitable mechanism to connect and disconnect said pulleys, as shown and described.

353,545. DETECTIVE-CAMERA. GEORGE EASTMAN and FRANKLIN M. CORBETT, Rochester, N. Y., assignors to the Eastman Dry Plate and Film Company, same place. Filed Mar. 1, 1886. (No model.)

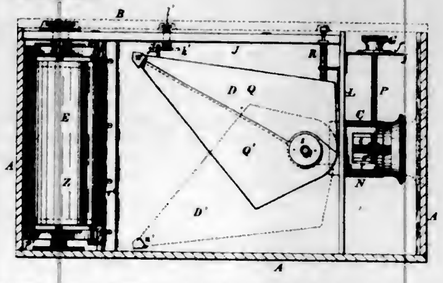
Claim.—1. The pivoted drop-shutter D, provided with opening O at the front and and slot *a* at the rear end, substantially as described.

2. The combination, with the pivoted drop-shutter D, having opening O and slot *a*, of the notched disk *w* and catch *y*, substantially as described.

3. The combination, with the pivoted drop-shutter D, having opening O and slot *a*, of a suitable stop or catch arranged to permit the fall of the free end of the shutter, for the purpose of effecting the exposure, substantially as described.

4. The pivoted drop-shutter D, consisting of a suitable light-tight

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casing having an opening, O, at its largest end and a slot, *a*, at its narrower end, and arranged to effect the exposure by the passage of light through the slot when the free end of the shutter falls, substantially as described.

5. The pivoted drop-shutter D, consisting of the upper and lower separable sections, Q Q', substantially as described.

6. The pivoted drop-shutter D, consisting of the upper and lower separable sections, Q Q', provided with grooves *c'* on their opposing edges, substantially as described.

7. The combination, with the pivoted drop-shutter D, having opening O and slot *a*, of the catch *y* and thumb-nut K, substantially as described.

8. The combination, with the pivoted drop-shutter D, provided with opening O and slot *a*, of a suitable brake arranged to control the time of exposure, substantially as described.

9. The combination, with the drop-shutter D, of the disk *w*, brake *e'*, spring *f'*, and adjusting-screw R, substantially as described.

10. The combination, with the case A, having lid B and inner cover, J, of the pivoted drop-shutter D and adjustable means for controlling the time of exposure, so located as to be accessible when lid B is open, substantially as described.

11. The combination, with the case A, having lid B and inner cover, J, of the pivoted drop-shutter D and adjustable means for controlling the time of exposure, provided with an indicator so located as to be accessible when lid B is open, substantially as described.

12. The combination, with the drop-shutter D, composed of two separable sections, Q Q', of a locking device by which the upper section may be prevented from falling, substantially as described.

13. The combination, with the drop-shutter D, composed of two separable sections, Q Q', of the loop *j'* and catch *k'*, substantially as described.

14. The combination, with the drop-shutter D, composed of two separable sections, Q Q', of a locking-catch arranged to retain the upper section in position, and a thumb-nut, K, attached to the lower section, substantially as described.

15. The combination, with the case A, having lid B and inner cover, J, of the pivoted drop-shutter D, composed of the separable sections, Q Q', a locking-catch arranged to retain the upper section in position, and a thumb-nut, K, attached to the lower section, substantially as described.

16. The combination of the case A, having exposing-shutter F, lens C, plate L, drop-shutter D, roll-holder E, and inner removable light-tight cover J, substantially as described.

17. The combination, with the case A, of the roll-holder E, drop-shutter D, and lens C, attached to the removable plate L, substantially as described.

18. The combination, with the lens C and roll-holder E, of the pivoted drop-shutter D, provided with opening O and slot *a*, substantially as described

19. The combination, with the drop-shutter D, having opening O and slot *a*, of the light-excluding guards *n'*, substantially as described.

20. The combination, with the drop-shutter D, having opening O and slot *a*, of the light-excluding guards *n'*, and a suitable catch for permitting the shutter to drop to effect the exposure, substantially as described.

21. The combination, with the lens C and roll-holder E, of the drop-shutter D, having opening O and slot *a*, the light-excluding guards *n'*, and a suitable catch for releasing the shutter to effect the exposure, substantially as described.

22. The combination, with the lens and drop-shutter, of the roll-holder E, provided with tugs *p'*, and case A, having suitable grooves for the reception of the lugs, substantially as described.

23. The combination, with the case A, having lid B and inner cover, J, of the roll-holder E, drop shutter D, and lens C, and means for adjusting the focal position of the lens, substantially as described.

24. The combination, with the case A, having lid B and inner

cover, J, of the lens C, drop-shutter D, and roll-holder E, having winding-key I, and indicator T, substantially as described.

25. The combination, with the reel and spool of a roll-holder, of the supporting-plate U, having sliding paper-guides V attached to its edges, substantially as described.

26. In a camera such as described, and in combination with the lens and plate or film holder thereof, a tubular shutter or light-conveyer interposed between the lens and holder and provided with a narrow slit or opening at the end adjacent the holder and an enlarged opening next the lens, said shutter or conveyer being manipulated in a manner to effect a gradual and uniform movement of the slitted end across the face of the plate or film, substantially as and for the purpose set forth.

27. In a camera such as described, and in combination with the lens and plate or film holder thereof, a tubular shutter interposed between the lens and holder, the walls of said shutter converging toward the holder and terminating in a narrow slot or opening next the latter, and means for effecting the passage of the slotted end of the shutter across and in proximity to the sensitized film, substantially as described.

28. In combination with the lens and plate or film holder of a camera such as described, an interposed shutter pivotally supported near the end adjacent to the lens, and with its opposite end in proximity to the sensitized film in the holder, said shutter being provided with a longitudinal opening or passage terminating in a transverse slot near the sensitized film, substantially as and for the purpose set forth.

29. In a camera such as described, and in combination with plate or film holder thereof, a tubular shutter provided with a narrow slot or opening adjacent to the holder and pivotally supported at or near one end in such manner that when vibrated its slotted end will be caused to move across and in proximity to the sensitized film, substantially as described.

30. In a camera such as described, and in combination with the plate or film holder, a tubular shutter pivotally supported near one end and provided with a narrow slot or opening next the film-holder, substantially as described.

31. In a camera such as described, and in combination with the film or plate holder thereof, a tubular drop-shutter pivotally supported at one end and provided with a narrow slot or opening at the end remote from the pivot and adjacent to the plate or film holder, said tubular shutter being divided longitudinally, substantially as and for the purpose set forth.

32. In a camera such as described, and in combination with the plate or film holder, the lens and the inclosing-case, a tubular shutter interposed between the lens and holder and pivotally supported at the end nearest the lens, while the opposite end is free to move across and in proximity to the sensitized film in the holder, substantially as described.

33. In a camera such as described, and in combination with the lens and film or plate holder, a swinging tubular shutter composed of two sections supported upon coincident axes, substantially as described.

34. In a camera such as described, and in combination with the lens and plate or film holder, a pivoted tubular shutter arranged to swing in the arc of a circle across the face of the holder, and light-excluding guards co-operating with the free end of the shutter to close the opening or slot therein at the extremes of its movement, substantially as described.

35. In a camera such as described, the combination, with the lens and holder, of a tubular shutter supported upon transverse pivots in rear of the lens and with its free end contiguous to the holder, and means for vibrating said shutter upon its pivoted supports to cause its free end to move across the face of the holder, substantially as described.

36. In a camera such as described, and in combination with the lens and plate or film holder thereof, a tubular shutter interposed between the lens and holder and pivotally supported and vibrating in the arc of a circle in rear of the lens with its free end contiguous to the holder, substantially as described.

353,546. CHEESE-SAFE. CHARLES R. ELLIS, Minneapolis, Minn. Filed Mar. 9, 1886. (No model.)

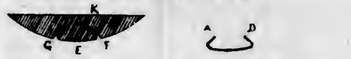


Claim.—1. A combination cheese-safe consisting of two parts or safes, each of which is provided with an independent cheese-platform, one of which slides within the other and may be drawn out, providing places for two cheeses in the same safe, substantially as set forth.

2. A safe consisting of two parts, which may be used either as a single safe or as a double safe, each part provided with an independent revolable cheese-platform, substantially as set forth.

3. The movable safe B, having doors E', and legs D and revolving platform *e*, in combination with the safe A, having the legs C, doors E, ways *a*, guides *c*, and revolving platform *d*, substantially as described.

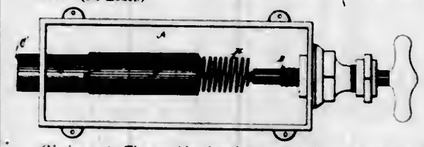
353,547. METALLIC SHOE FOR TOBOGGANS. CHARLES H. EMERSON, Yonkers, N. Y. Filed May 28, 1886. (No model.)



Claim.—1. The combination, with the wooden slat or runner in a coasting-sled or toboggan, of a flexible metal shoe flanged at its edges and snugly embracing overlying portions of the wood throughout the length of the shoe, substantially as described, whereby the main or bearing portion of said shoe is confined in position on the slat or runner without the aid of screws, bolts, or rivets at any point throughout the bearing of the shoe.

2. The combination of a wooden slat or runner provided with longitudinal grooves on its under surface and a flexible metal shoe having upwardly-turned flanges which occupy said grooves, substantially as described.

353,548. GAS-REGULATOR. BENJAMIN FRANKLIN, Bradford, Pa., assignor of one-half to Solomon R. Drawer, same place. Filed Apr. 30, 1886. (No model.)

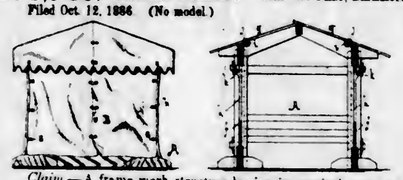


Claim.—1. The combination, in a gas-regulator, of an inclosing-case provided with inlet and outlet pipes, and a stationary hollow valve inside of said case on the end of the inlet-pipe, having its end closed and its sides perforated, with a movable sleeve valve-seat adapted to operate over said hollow valve, a spiral spring between the stationary valve and its seat, and a weaker spring between the movable valve-seat, and a regulating-screw in the case, substantially as and for the purpose set forth.

2. In a gas-regulator, the combination of the case A with the stationary inlet-valve C, provided with V-shaped openings E, the sleeve valve-seat F, the spring H, and the adjusting-screw B, substantially as and for the purpose set forth.

3. In a gas-regulator, the combination of the stationary inlet-valve C with the spiral spring G, the sleeve valve-seat F, and the spring H, substantially as and for the purpose set forth.

353,549. FRAMED BUILDING. JOHN W. FREY, Baltimore, Md. Filed Oct. 12, 1886. (No model.)



Claim.—A frame-work structure having its vertical posts provided with grooves for the reception of the ends of the side boards, and branches to admit of the entrance of the said boards to the said grooves while the roof frame-work is in position, combined with a cover of canvas or duck formed in sections attached together and to the said frame-work by means of cords, substantially as and for the purpose specified.

353,550. GATE. WILLIAM TRITCH, Corunna, Ind. Filed Aug. 12, 1886. (No model.)

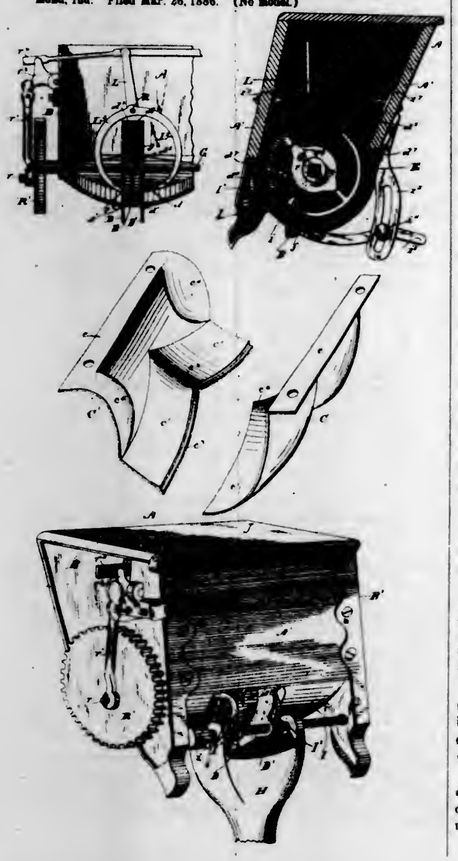
Claim.—1. In combination with a swinging gate, a supporting-post having a vertical bar pivotally secured thereto so as to be maintained in a vertical position, the upper end being provided with serrations *c*, a gate, D, the rear upright thereof having attached thereto an eye, *g*, which engages with the serrations *c*, and a serrated bar, F, loosely pivoted to the bar B, and adapted to engage with a plate attached near the lower end of the rear upright of the gate, substantially as shown, and for the purpose set forth.

2. In a swinging gate, a supporting-post, A, having eyes *a a*, which are adapted to support pivotally a vertical bar, B, said bar having its upper end serrated, as shown, in combination with the rear upright, D', of the gate, having an eye, *g*, attached thereto, said upright being provided near its lower end with a slotted plate, *d*, and a recess, and a bar, E, serrated on its lower edge to engage with the plate *d*, and loosely pivoted to the bar B, said bar E having an inwardly-projecting portion which forms a handle, substantially as shown, and for the purpose set forth.

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353,551. FERTILIZER-DISTRIBUTER. JESSE P. FULGHAM, Richmond, Ind. Filed Mar. 26, 1886. (No model.)



Claim.—1. In a fertilizer-distributer of the character indicated, and in combination with the rotary flanged feed-wheel located and operating within the hopper, the plate forming with the wheel the outlet and scraper and an adjustable gate or cut-off located outside the hopper and acting in conjunction with the scraper-plates to determine the feed, substantially as described.

2. In a fertilizer-distributer, and in combination with its rotary flanged feeding-wheel, a casting for inclosing and protecting the wheel, provided with lateral openings for the passage of the material to the inner surface of the flange, substantially as described.

3. In combination with a rotary flanged feeding-wheel, the disk-plates provided with bearings for the wheel, a protecting and inclosing cap for the upper portion of the wheel, and lateral openings at or near the lower portion of the wheel, substantially as described.

4. In a fertilizer-distributer, and in combination with the rotary flanged feeding-wheel, an inclosing-casing provided with bearings for the hub of the wheel, lateral openings for the passage of the fertilizing material, and curved flanges or plates located within the rim of the wheel to serve as a cut-off and scraper, substantially as described.

5. The detachable disk-plates, constructed substantially as described, in combination with the rotary flanged feed-wheel mounted in bearings in said plates, the whoe constituting a complete feeding mechanism adapted to be applied to or removed from the hopper and driving-shaft, substantially as and for the purpose set forth.

6. In combination with the rotary feed-wheel and the scrapers, the adjustable gate or cut-off mounted upon a rod in rear of the hopper, said gate or cut-off being arranged to operate in conjunction with the feed-wheel and scraper outside the hopper, substantially as described.

7. In a fertiiizer-distributer, and in combination with the feed-wheels thereof, the removable sectional bottom plates provided with the double-inclined walls, substantially as described.

8. The removable sectional bottom plate constructed, as described, with the reversely-inclined curved surfaces, the end recesses, the attaching flanges, and the overlapping edges, substantially as described.

9. In a fertilizer-distributer, and in combination with the hopper and rotary flanged feed-wheels, the described bottom sections and inclosing disk-plates, all constructed and arranged substantially as and for the purpose set forth.

10. In a fertilizer-distributer, and in combination with the hopper and rotating flanged feeding-wheel, the curved bottom sections and the disk-plates, the latter forming an inclosing-casing for the upper portion of the feed-wheel, and provided with the lower apertures and vertical flanges, between which latter the rim of the feed-wheel is received, substantially as described.

11. In combination with the disk-plates forming an inclosing-casing, perforated at the lower portion for the passage of the material and provided with the lower vertical flanges or plates and the scraper, a rotary feed-wheel composed of a circumferential flange or rim united to the hub by spokes or arms, whereby openings are formed in the feed-wheel for the passage from either side of the material contained in the hopper, substantially as described.

12. In a fertilizer-distributer, and in combination with a vertical feed-wheel provided with a horizontal carrying rim or flange and an open web, a reciprocating stirrer or agitator adapted and arranged to enter the wheel between the spokes or plates, substantially as described.

13. In a fertilizer-distributer, the combination of a rotary feed-wheel provided with a carrying-rim and a perforated central disk or web, and a reciprocating stirrer or agitator adapted to be inserted or withdrawn through the openings in the wheel while the latter is in motion, substantially as described.

14. In a fertilizer-distributer, and in combination with the perforated feed-wheel having a carrying rim or flange, a furcated lever mounted above the feed-wheel and provided with stirrers or agitators which are alternately projected into the openings in the feed-wheel from opposite sides, substantially as described.

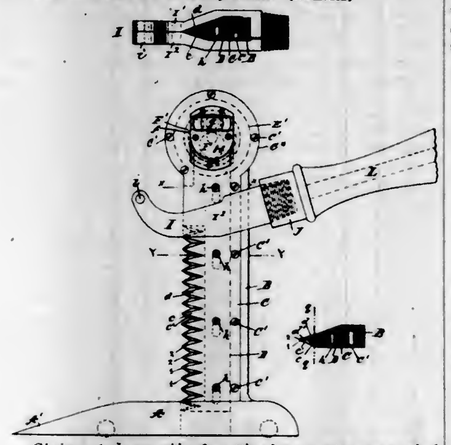
15. In combination with the disk-plates forming the perforated inclosing-casing and the rotary feed-wheel contained therein, the reciprocating stirrers alternately projected through the openings in the casing, substantially as described.

16. In a fertilizer distributer, and in combination with a series of feed-wheels, each provided with an internal carrying-rim and a perforated web, a series of stirrers or agitators each mounted upon separate pivots above the feed-wheels, and all connected together and oscillated in unison by the link, bell-crank lever, and pitman located at one end of the hopper, substantially as described.

17. In a fertilizer-distributer, and in combination with a series of feed-wheels independently supported and mounted, the longitudinal driving-shaft, the series of furcated stirrers or agitators mounted one above each feed-wheel, and all connected together and oscillating in unison with the rotation of the feed-wheels, as and for the purpose specified.

18. In a fertilizer-distributer, and in combination with the hopper and rotary feed-wheel provided with the internal carrying-rim, the inclined and curved bottom plates, and the furcated stirrers or agitators mounted on a shaft above the feed-wheel, substantially as described.

353,552. MACHINE FOR CUTTING CLOTH. GABRIEL J. W. GALSTER, New York, N.Y. Filed July 7, 1886. (No model.)



Claim.—1. In a machine for cutting forms, a cutter composed of two blades or plates moving one upon the other, and each provided with a series of duplex scissor-edges and terminating in cutting-points, said points on both blades extending to the same vertical line, whereby the blades are adapted to cut their way into a solid mass of material.

2. The combination, with the traversing bed-plate and standard of a machine for cutting forms from a layer or layers of fibrous or other material, of a fixed blade and a vertically-reciprocating blade, each blade having inclined duplex scissor-edges, and the reciprocating blade being provided with sharp cutting-points, whereby the blades are adapted to cut their way into a solid mass of material, as and for the purpose described.

3. In an apparatus for cutting forms, a traversing bed-plate, two blades projecting up at right angles from the plane of said bed-plate and provided with duplex scissor-edges terminating in points which extend to the same vertical plane, the points of one blade being sharpened, as described, and means for giving to said latter blade a vertically-reciprocating movement, as and for the purpose described.

4. In an apparatus for cutting forms, the combination of a traversing bed-plate, a blade or plate projecting upward from the bed-plate at right angles to the plane thereof and formed with a series of duplex scissor-edges terminating in points, a second blade similarly formed with sharpened points, as described, flush with the points of the first blade and working in suitable guides carried by the bed-plate, a flexible shaft, and intermediate mechanism for imparting a reciprocating movement to the second cutter-blade, as and for the purpose described.

5. In an apparatus for cutting forms, a cutter composed of a fixed blade provided with a series of duplex scissor-edges terminating in points, and a vertically-reciprocating blade provided with corresponding duplex scissor-edges terminating in sharp cutting-points, the points of the stationary and reciprocating blade being arranged on the same vertical line, whereby the blades are adapted to cut their way into a solid mass of material, as and for the purpose described.

6. The combination, with the bed-plate and standard of an apparatus for cutting forms, of two vertical blades moving one upon the other, and a two-part adjustable presser-foot surrounding said blades and standard, and means for clamping the same to the standard, as and for the purpose described.

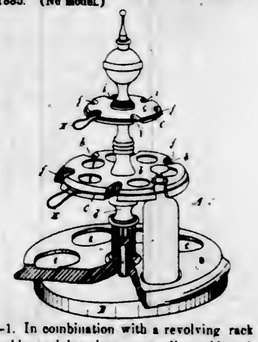
353,553. REFRIGERATOR-HOUSE. DU BOIS F. GERALDS, Clintondale, N. Y. Filed May 6, 1886. (No model.)

Brief.—Improvement on his patent, No. 333,407, dated December 29, 1885.



Claim.—The combination, in a refrigerator-house having an upper and lower chamber separated by a partition, D, of the cold-air ducts E, the intersecting warm-air ducts E', having the common slide-valve F', and the valve J, pivoted in the slot I in the partition, substantially as set forth.

353,554. REVOLVING SHOW-RACK. THOMAS F. GODFREY, Detroit, Mich., assignor to the Sealy Manufacturing Company, same place. Filed Nov. 16, 1885. (No model.)



Claim.—1. In combination with a revolving rack having slots, as shown, a movable retaining-ring surrounding said rack and constructed to allow of the insertion and removal of articles from said slots, substantially as and for the purposes described.

2. In combination with a revolving rack, a movable retaining-ring surrounding said rack and provided with a loop, E, substantially as and for the purposes set forth.

3. A revolving rack consisting of the trays *a b c*, slots *h i*, and rings C, constructed and arranged to operate substantially in the manner and for the purposes set forth.

4. The combination, with a tray, as *b*, provided with a groove, *f*, and recesses or slots to receive articles to be held in the tray, of a movable retaining-ring sliding in said groove and constructed to allow of the removal of the articles from said slots, substantially as described.

353,555. ROTARY CUTTER FOR WEB-PRINTING MACHINES. FREDERICK L. GOSS and SAMUEL G. GOSS, Chicago, Ill. Filed Sept. 21, 1885. (No model.)



Claim.—1. In a printing-press for printing upon a continuous web, mechanism for cutting the printed web into sheets, comprising, in combination, a rotary shifting cylinder carrying a knife and a rotary cylinder provided with a longitudinal slot for the knife, substantially as described.

2. In a printing-press for printing upon a continuous web, mechanism for cutting the printed web into sheets, comprising, in combination, a rotary shifting cylinder carrying a serrated knife and a rotary cylinder provided with a longitudinally-slotted bar for the knife, substantially as described.

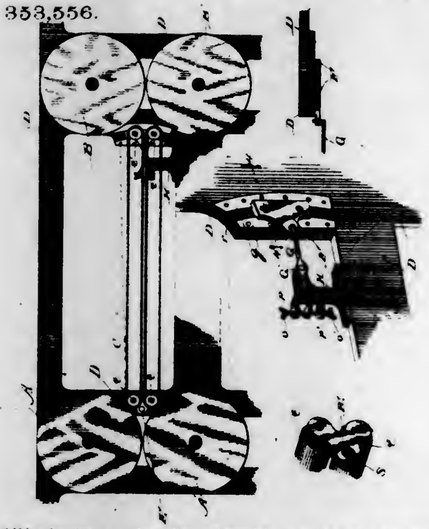
3. In a printing-press for printing on a continuous web, a cylinder, B, carrying a knife, D, and provided at one extremity with a cam, E, for the knife, a spring, *q*, operating when released from compression to shift the cylinder B, a bearing, E' E², to move the cylinder in the opposite direction and compress the spring, and a cylinder, C, provided with a longitudinally-slotted bar, C', for the knife on the cylinder B, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

353,556. REGISTERING MECHANISM FOR PRINTING-MACHINES. FREDERICK L. GOSS and SAMUEL G. GOSS, Chicago, Ill. Filed Dec. 14, 1885. (No model.)

Claim.—1. In a printing-press, the combination, with the sets of cylinders A A' and B B', of an endless conveyer, C, having at one end rollers supported on pivotal bearings, and at the opposite end rollers supported on shifting bearings, substantially as and for the purpose set forth.

2. In a printing-press, the combination, with the sets of cylinders A A' and B B', of an endless conveyor, C, having at one end rollers supported on pivotal bearings and at the opposite end rollers supported on shifting bearings, and means, substantially as described, for moving the

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shifting bearings carrying rollers, substantially as and for the purpose set forth.

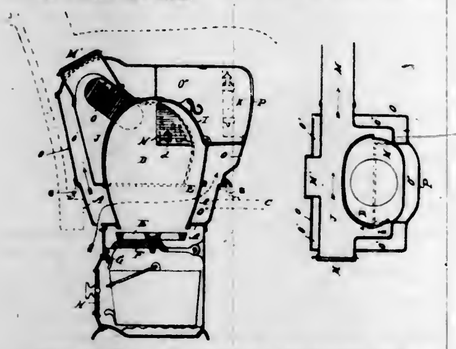
3. In a printing-press, the combination, with the sets of cylinders A A' and B B', of an endless conveyer, C, having at one end rollers *t*, with their bearings in plates E, pivoted to the frame of the press, and at the opposite end rollers *t'*, having their bearings in shifting blocks F, dovetailed on their rear sides and movable within dovetailed recesses on the frame of the press, a lever, G, connected with the block F, a standard, H, upon which the lever is fulcrumed and provided with bearings *p* and *p'*, and thumb-screws in the bearings *p* and *p'*, for operating the lever G at its free end, the whole being constructed and arranged to operate substantially as described.

353,557. INDICATOR-LOCK. CHAS. F. GREEN, Hampton, Va. Filed June 14, 1886. (No model.)



Claim.—The combination, with the casing, of a signal-plate pivotally supported within the casing and having a curved slot with notched ends, a sliding locking-block having a lug which engages the notched ends of the curved slot in the signal-plate, and a spring secured within the casing and acting on the sliding block to hold it in engagement with the signal-plate, substantially as specified.

353,558. CAR-HEATER. EPHRAIM HAMBUJER, Detroit, Mich. Filed Apr. 12, 1886. (No model.)



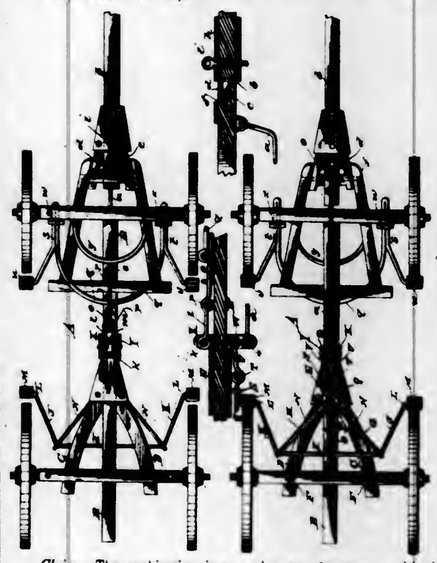
Claim.—1. The combination, with the fire-pot provided with openings *b*, of the fingers K, secured over said openings, and the plate N, pivotally secured to one of said fingers, substantially as and for the purpose specified.

2. In a car-heater, the combination, with the fire-pot, of the jacket J, surrounding the same and forming the chamber L, the fire-pot being formed with openings affording communication with said chamber, plates for controlling said openings, and one or more exits from said chamber through the said jacket, substantially as described.

3. In a car-heater, the combination of the fire-pot, the jacket J, surrounding the same and formed with exits M M, and exit M' at right angles thereto, removable caps for said exits, and the external casing, O, forming an air-space around the jacket J, substantially as described.

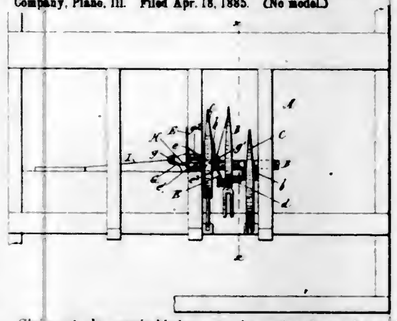
4. In a car-heater, the combination of the fire-pot, the jacket J, surrounding the same and provided with exits M M M', as described, and removable caps therefor, the perforated external casing, O, provided with feed-door P, and suitable partitions forming the feed-throat between the fire-pot and the feed-door, and the pivoted plates N, substantially as described.

353,559. WAGON-BRAKE. HECTOR HÉBERT, Duluth, Minn. Filed Aug. 20, 1886. (No model.)



Claim.—The combination, in a running-gear for wagons, with the rear brake-rod provided at its ends with brake-shoes and intermediately of its ends with a double-inclined rod, and a link-rod connecting said brake-rod and double-inclined rod, of the front curved brake-rod having rearwardly-extending arms provided with brake-shoes at their rear ends, the vertical levers fulcromed to the reach and connected by link-connection to the front and rear brake-rods, and the hinge-rod connecting the vertical levers to the slotted sliding tongue, substantially as specified.

353,560. GRAIN-BINDER. GEORGE G. HUNT, Bristol Station, and GEORGE H. STEWARD, Plano, Ill., said Hunt assignor of one-half of his right, and said Steward assignor of all his, to the Plano Manufacturing Company, Plano, Ill. Filed Apr. 18, 1885. (No model.)



Claim.—1. In a grain-binder, a tension-spring fastened to a fixed point at one end, and arranged to clamp the cord between the spool and needle-arm, in combination with the needle-arm shaft, to which, at the other end, it is attached eccentrically, whereby the rocking of the shaft alternately strains and releases the spring, substantially as and for the purposes set forth.

2. In a grain-binder, a tension-spring consisting of an elastic strip or rod of metal provided with a double bend between its ends, substantially as specified, in combination with a suitable seat for the bend, whereby said elastic strip is adapted to clamp the cord, and the ends are arranged in different planes for their respective attachments, substantially as and for the purposes set forth.

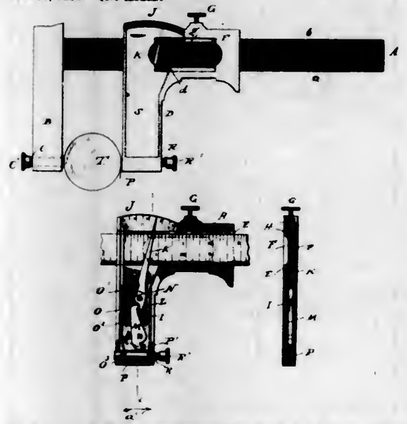
3. In a grain-binder, the tension-spring E, provided with the double bend *e' e² e³*, in combination with a cord-guide, G, provided with a seat for the bent portion of the spring, substantially as and for the purposes set forth.

4. In a grain-binder, the bent tension-spring E, attached at one end to a fixed portion of the frame, in combination with the needle-arm D and eccentric-pin F, to which the other end of the spring is attached, substantially as and for the purposes set forth.

5. The cord-guide G, provided with the apertures *g g'*, and the slot *g²*, substantially as and for the purposes set forth.

6. The tension-spring E, bent as described, and attached at one end to a fixed portion of the frame, in combination with the cord-guide G, provided with a seat for the double bend in the spring, the needle-arm D, and the eccentric-pin F at the heel of the needle-arm, to which the other end of the spring E is attached, substantially as and for the purposes set forth.

353,561. SLIDE-CALIPERS. JACOB HURST, Syracuse, N. Y. Filed June 16, 1886. (No model.)



Claim.—1. Calipers constructed with a scale bar or rule, a fixed cross-piece, a slide on the rule, a scale on the slide, a hand or pointer pivoted on the slide and extending over the scale on the slide, and of a screw for moving said hand or pointer, substantially as shown and described.

2. Calipers constructed with a rule or scale bar, a fixed cross-bar on the same, a slide on the scale-bar, a scale on the slide, a hand or pointer pivoted to the slide, a lever pivoted on the slide and acting on the hand, and a screw for actuating said lever, substantially as shown and described.

3. Calipers constructed with a scale bar or role, a fixed cross-piece on the same, a slide on the scale-bar, a scale on the slide, a hand or pointer pivoted on the slide, a lever pivoted on the slide and acting on the hand, a sliding piece acting on the lever, serving as a contact-piece for the article to be measured, and a screw for actuating said slide-piece, substantially as shown and described.

4. Calipers constructed with a scale bar or rule, a fixed cross-piece on the same, a slide on the scale-bar, a scale on the slide, a hand or pointer pivoted on the slide, a lever pivoted on the slide, acting on the hand, and serving as a contact-piece for the article to be measured, a sliding piece acting on the lever, a screw for actuating said slide-piece, and a spring resting on the hand and the slide-piece, substantially as shown and described.

5. The combination, with a scale-bar having a fixed cross-piece, of a slide provided with a scale, a hand or pointer pivoted to the slide, a spring acting on the pointer, and a screw for adjusting the position of the pointer, substantially as shown and described.

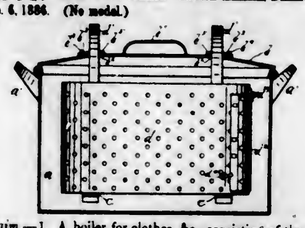
353,562. BINDING FOR BOOKS. JOHN H. JOHNSON, Chicago, Ill., assignor of one-half to Cyrus J. Ward, same place. Filed June 8, 1886. (No model.)



Claim.—1. The combination, with the strapped body of a book, of a cover-back having thin edges, and lids or covers flexibly joined to the back, in close proximity thereto, and united with the body by straps or other flexible connections inserted and secured beneath flies upon the lids, the said lids having acute edges adjacent to the cover-back, formed by beveling or tapering the marginal parts of the lids upon both sides of the latter, substantially as described.

2. The combination, with the strapped body of a book, of a cover-back having thin edges, lids or covers secured to the body by straps or other connecting parts inserted beneath flies upon the lids, the rear margins of said covers being beveled upon both sides, to form acute edges, an outer cover, D, flexibly uniting the back and lids, and an inner sheet, E, secured to the inner surface of the cover-back and inserted at its edges beneath the flies of the lids, substantially as described.

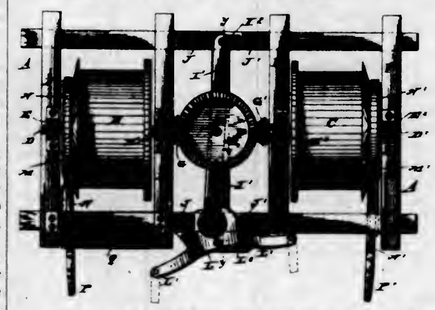
353,563. CLOTHES-BOILER. LOUISA KALBEL, Buffalo, N. Y. Filed Feb. 6, 1886. (No model.)



Claim.—1. A boiler for clothes, &c., consisting of the vessel *a*, with raised supports *c c*, and the cover *b*, provided with the transverse slots *b² b²*, with slides or covers *b² b²*, and the perforated clothes-receptacle *d*, having the high handles *d' d'*, adapted to rest within the slots *b² b²* of cover *b*, substantially as shown and described.

2. A boiler for clothes, &c., consisting of the vessel *a*, with raised supports *c c*, and the cover *b*, provided with the transverse slots *b² b²*, with slides or covers *b² b²*, and the perforated clothes-receptacle *d*, having the high handles *d' d'*, adapted to rest within the slots *b² b²* of the cover, and the door *d²*, pivoted at its top to the receptacle, substantially as and for the purpose stated.

353,564. HOISTING-MACHINE. JULIUS KAHN and JOSEPH KAHN, Highland, Wis. Filed July 22, 1886. (No model.)



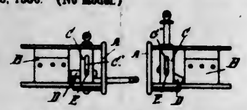
Claim.—1. The combination, with the main frame and the flanged hoisting-drums provided with the miter-gears on the inner ends of their shafts, of the vertical shaft provided with the driving-gear thereon, the shifting lever, the double lever engaging the shifting lever, and the brake for controlling the drums, substantially as specified.

2. The combination, with the double frame provided with the two flanged hoisting-drums having miter-gears on the inner ends of their respective shafts, of the vertical shaft provided with the driving-wheel thereon and stepped at its lower end in a seat in the shifting lever, the brakes engaging the projecting disks on the hoisting-drums, and the double lever engaging the shifting-rods, substantially as specified.

3. The combination, with the frame and the drums, of the vertical shaft provided with the driving-wheel adapted to engage alternately the

pinions on the drum-shafts, the shifting lever, the double lever connected by rods to a lever, and the brakes, substantially as specified.

353,565. CAR-COUPLING. WALTER H. KEEN, Woodbridge, Cal. Filed Apr. 28, 1886. (No model.)



Claim.—In a car-coupling, the combination, with the draw-head and coupling-pin, of the upright posts C C, secured to the upper and lower plates of said draw-head, and provided with vertical slots $C^{\times}$, and the oscillating balance-plate D, having horizontally-projecting pins E E, which enter the slots $C^{\times}$, and provided also with a bevel-sided central perforation for holding and receiving the coupling-pin, substantially as shown and described.

353,566. PROCESS OF MANUFACTURING SOAP AND GLYCERINE. MARK H. LACKERSTEEN, Chicago, Ill. Filed Mar. 10, 1886. (No specimens.)

Claim.—The application of electro-motive force in the manufacture of soap and glycerine by first emulsifying the neutral fats and oils with a solution of a saline electrolyte having an alkaline base, preferably the chloride of sodium, and then subjecting the emulsion to electrolysis, substantially as specified.

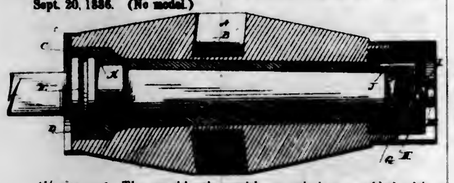
353,567. COAT AND HAT HOOK. EDWARD D. LAWSON, New York, N. Y. Filed Sept. 30, 1886. (No model.)



Claim.—1. The combination, with the two sections A B of a hook, and with a locking device, of a convex jaw, *b*, secured to one of the hook-sections, a concave jaw, *c*, secured to the other hook-section, and the elastic band *d*, stretched across the clamping-surface of said concave jaw, substantially as described.

2. The combination, with the two sections A B of a hook, the hinge-joint connecting the same, and with a locking device, of the spring *k*, secured to one of the hook-sections, and the stop *o*, substantially as described.

353,568. AXLE-BOX. TARGE G. MANDT, Stoughton, Wis. Filed Sept. 30, 1886. (No model.)



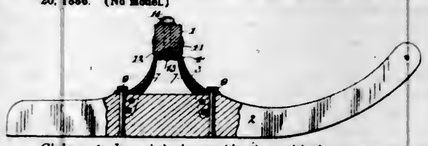
Claim.—1. The combination, with an axle-box provided with a screw-thread upon its outer end and a cap adapted to screw upon said end, of an axle-spindle and its nut, the screw-threads of which are cut in an opposite direction to the screw-threads of said box and cap, as and for the purpose specified.

2. The combination of an axle-spindle having a groove formed about its inner end, an axle-box having a corresponding groove formed on the interior of its inner end, and a rubber ring having a flange formed along the middle of its inner edge, as and for the purpose set forth.

3. The combination of an axle-spindle provided with a groove about its inner end and the usual nut upon its outer end, and an axle-box provided with an annular groove about the interior of the inner end, a flanged ring fitting into said groove, and a screw-cap upon the outer end of said box, as shown and described.

4. The combination, with an axle-spindle provided with a groove about its inner end and the usual nut upon its outer end, of an axle-box provided with an annular groove about the interior of its inner end, a flanged ring fitting into said groove, and a screw-cap provided with a screw-stopped aperture in its center and adapted to fit upon the outer end of said box, as and for the purpose set forth.

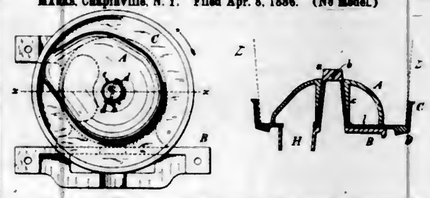
353,569. BOB-SLED. TARGE G. MANDT, Stoughton, Wis. Filed Sept. 20, 1886. (No model.)



Claim.—1. In a sled, the combination, with the runner, of a knee having divergingly curved legs formed with upwardly-tapering flanges upon their inner edges, and having the lower ends of the said flanges extended, forming lips bearing against the inner side of the runner, as and for the purpose shown and set forth.

2. In a sled, the combination of a knee having a semi-cylindrical bearing formed at its doubled or curved upper end, and having flat faces at the side of the bearing, a beam having a corresponding recess and having a metallic facing, and a bail having its ends passing upward through the beam, and having its middle portion fitting into the concave side of the bearing of the knee, as and for the purpose shown and set forth.

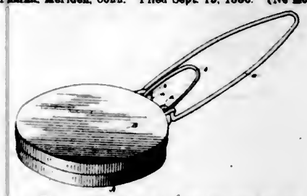
353,570. FEED-CUP FOR FERTILIZER-DISTRIBUTERS. WALTER MAREE, Chapinville, N. Y. Filed Apr. 8, 1886. (No model.)



Claim.—1. The combination, with the perforated supporting-frame B, provided with the tapering spindle *a* and pin *b*, of the feed-shell A, having hollow tapering hub *c* and slot *e*, and the rotating feed-cup D, substantially as described.

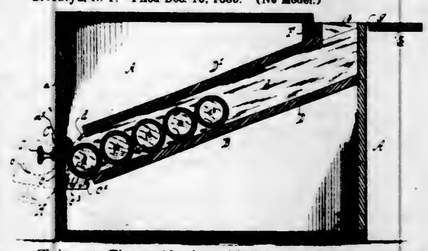
2. The combination, with the perforated supporting-frame B, provided with the recessed tapering spindle *a* and pin *b*, of the feed-shell A, having hollow tapering hub *c*, and slot *e*, substantially as described.

353,571. BLACKING-BOX HOLDER. GEORGE E. MEEKER and ELIAS R. FISHER, Meriden, Conn. Filed Sept. 15, 1886. (No model.)



Claim.—The combination, with the box and the lid, of the handle having its ends secured in and to said box, and provided with U-shaped arms, and the tongue having its ends secured on the inside of said lid and having looped portions passed on said arms, substantially as shown and described.

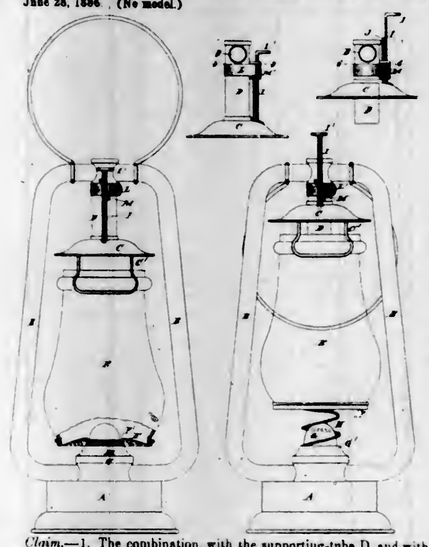
353,572. CABINET FOR SPOOL-THREAD. FREDERICK MEYERS, Brooklyn, N. Y. Filed Dec. 10, 1885. (No model.)



Claim.—1. The combination, with the casing A of the cabinet and the inclined chute B, of the grooved carrier C, having the tail *c'* and hinged at its lower edge within an opening in the front wall of the casing, so that when opened it will stand laterally beyond the front wall of the casing and retain the spool, and when closed will be flush with the said front wall, substantially as described.

2. The combination, with the casing, of the series of inclined chutes B, having mouths *b*, opening upwardly, and discharge-openings *b'* at the front of the casing, the slotted hinged carrier C, extending across the discharge-openings of the chutes, the groove or channel *c* therein, and the tail *c'* thereof, substantially as and for the purpose specified.

353,573. LANTERN. FERDINAND METROSE, St. Louis, Mo. Filed June 28, 1886. (No model.)

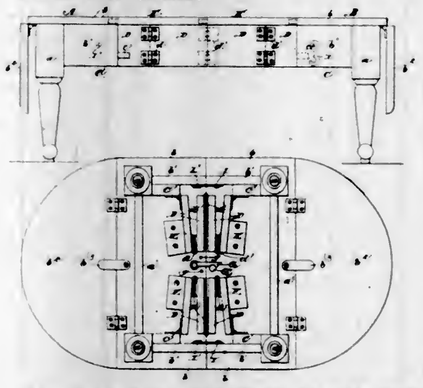


Claim.—1. The combination, with the supporting-tube D, and with the cap C sliding thereon, of the upright arm I, having a shoulder, J, and the catch L, secured to and lapping around the tube for engaging the shoulder, and having outturned end L', substantially as shown and described.

2. The combination of the tube D, cap C, spring-catch L, upright arm I, having shoulder J, and the keeper M, substantially as shown and described.

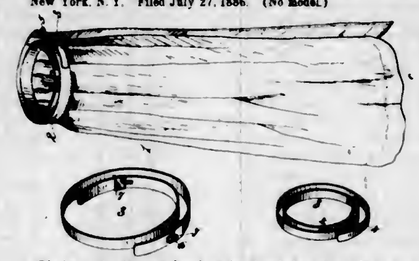
3. The combination of the tube D, cap C, spring-catch L, upright arm I, having shoulder J and head I', keeper M, and spring H, substantially as shown and described.

353,574. EXTENSION-TABLE. SANFORD R. MOORE, Egan, Dak. Filed Mar. 5, 1886. (No model.)



Claim.—In an extension-table, the combination of the end sections A B, carrying the side blocks, *b'*, and the shorter blocks, C', arranged in rear of the blocks *b'*, the blocks D, hinged together and to the blocks C', and forming the side rails of the table when the latter is extended, the blocks E, secured and arranged at an angle to the end sections A B, and having the blocks D bearing against the same when the table is folded, and the fastening devices carried by the end sections A B, and the side blocks, *b'*, thereof, for securing the end sections together when folded, as set forth.

353,575. SUPPORTING-BAND FOR APRONS. ANNIE M. MORRISON, New York, N. Y. Filed July 27, 1886. (No model.)

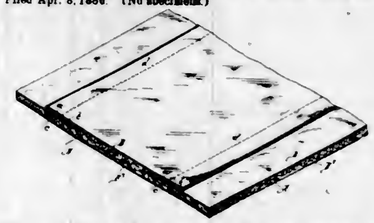


Claim.—1. A convoluted spring-band for supporting an apron, having adjacent to its ends the laterally-projecting hooks 6, for penetrating and thereby securing the ends of an apron-waistband, substantially as described.

2. A convoluted spring-band for supporting an apron, having adjacent to its ends the adjustable sliding plates 7, having attached hooks 6, for penetrating and thereby securing an apron-waistband, substantially as described.

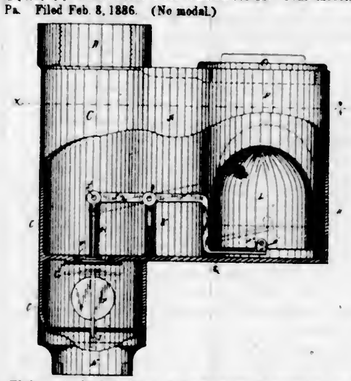
3. A spring-band for supporting an apron, having adjacent to each end a longitudinal slot and a laterally-projecting hook, 6, substantially as and for the purpose described.

353,576. CARPET-LINING. JAMES S. MUNROE, Lexington, Mass. Filed Apr. 8, 1886. (No specimens.)



Claim.—A carpet-lining composed of a paper covering and an elastic filling, and the paper covering folded or doubled upon itself and along such doubled or folded portion or portions, the whole secured together by a line of stitches, substantially as described.

353,577. SEAL-TRAP FOR WASTE-PIPES. JOHN MCCONNELL, Erie, Pa. Filed Feb. 8, 1886. (No model.)



Claim.—1. In a seal-trap for waste-pipes, a chamber adapted to be coupled into such waste-pipe, having a valve-seat in the bottom thereof, and a valve opening downward from such valve-seat, in combination with a float in said chamber connected by a lever to a stem on said valve projecting upward into said chamber, whereby said valve is automatically operated by the action of the water on said float, substantially as and for the purpose set forth.

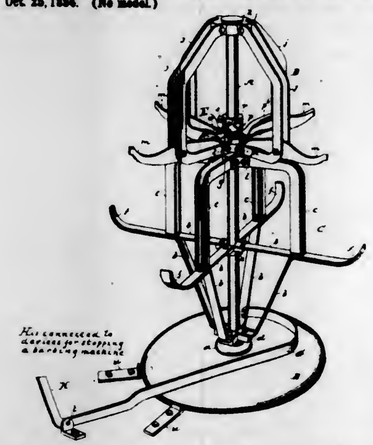
2. The combination, in a seal-trap for waste-pipes, of a chamber adapted to be coupled into such waste-pipe and form a continuation thereof, and having a lateral extension to one side of the line of said pipe, and a valve-seat in the bottom of the chamber in line with the inlet and outlet thereof, with a valve opening downward from said valve-seat, and a hemispherical float in said chamber connected to the upward-

projecting stem of said valve by means of a lever, by means whereof said float operates said valve, and a bell-crank lever in the lower part of the laterally-projecting portion of said chamber for operating said lever and float to drain the chamber, all substantially as and for the purpose set forth.

3. In a seal-trap for waste-pipes, a chamber provided with hand-holes and caps for closing the same, substantially as shown, and a valve-seat in the bottom of said chamber, in combination with a valve opening downward from said seat, and a float within said chamber connected to and adapted to operate said valve by means of a lever, and a bell-crank lever in the lower portion of said chamber for raising the float so as to drain the chamber, substantially as and for the purpose set forth.

4. In a seal-trap for waste-pipes, the chamber A, having the lateral projection B, and being adapted to be coupled into a waste-pipe, and the valve-seat F in the bottom of said chamber, in combination with the downward-opening valve G, having an upward-projecting stem, H, the lever I, and the float L, attached thereto within said chamber for operating said valve, and the bell-crank lever Q, adapted to raise the float and open the valve for draining the chamber, all substantially as and for the purpose set forth.

353,578. **REEL.** George W. McKinny, Marshalltown, Iowa, assignor to Ruben E. Sears, same place. Filed Nov. 18, 1885. Renewed Oct. 25, 1886. (No model.)



Claim.—1. A reel for feeding wire to a barb-wire machine, consisting of two or more independent reels, one above the other, the arms of said upper reel being adapted to deposit its coil of wire onto the arms of the lower reel, substantially as set forth.

2. A reel for feeding wire to a barb-wire machine, consisting of two or more independently-operating reels placed one above the other, vertically-swinging arms secured to the upper reel, and a means for holding said arms in a horizontal position and for releasing them to permit of their vertical movement, as and for the purpose set forth.

3. A reel for feeding wire to a barb-wire machine, which consists of a central rod around which revolve two or more independent reels, placed one above the other, vertically-swinging arms secured to the upper reel, and a recessed disk revolving with said upper reel for holding the arms in a horizontal position, and capable of partial rotation independent of said upper reel, substantially as set forth.

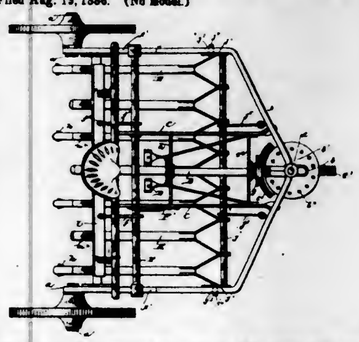
4. The combination, with a reel for feeding wire to a barb-wire machine, of a lever connected with said reel and with devices for stopping the machine, whereby when the reel is inclined from any cause the operations of the machine through the intervention of the lever will be checked, substantially as and for the purpose set forth.

5. A reel for feeding wire to a barb-wire machine, consisting of an upright shaft or standard having a reel or reels revolving around the same, and a lever connected with the base of the standard and with devices for stopping the said machine, whereby when the reel is inclined the operations of the machine will be checked, substantially as set forth.

6. A reel for feeding wire to a barb-wire machine, which consists of a standard having two reels revolving around the same, placed one above the other, of the swinging arms *m*, secured to the upper reel, and the recessed disk E, substantially as set forth.

7. A reel consisting of the standard and two independent reels, C D, revolving around the same and placed one above the other, and the spring-actuated disk E, provided with recesses and adapted to hold the swinging arms of the upper reel in a horizontal position, and to be moved to permit the arms to swing and deposit the coil of wire onto the arms of the lower reel, substantially as set forth.

353,579. **CULTIVATOR.** William H. Newton, Tower Hill, Ill. Filed Aug. 19, 1886. (No model.)

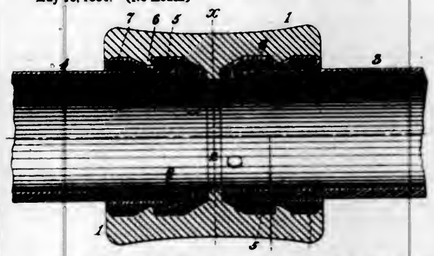


Claim.—1. The combination, with the fifth-wheel plate carrying a guide or steering wheel, and having at its one edge a segmental rack or teeth, of the shaft carrying a pinion gearing with said rack, and provided with a cross bar or lever connected to foot-levers or treadles, substantially as and for the purpose set forth.

2. The combination, with the cultivator shovel or teeth beams and the pivoted curved or adjustable bars, of the bar connected at its ends to said adjustable bars, and the end-notched downwardly-bent plates connected to the aforesaid bar by nuts or bolts passed through apertures of said plates and the aforesaid bar, substantially as and for the purpose specified.

3. The combination, with the cultivator-frame, the shovel-beams, and the adjustable curved bars connected to said frame, of the bar having a series of laterally-adjustable notched plates, substantially as shown and described.

353,580. **PIPE-COUPLING.** Joshua Nuttall, Pittsburg, Pa. Filed May 15, 1886. (No model.)



Claim.—1. In a pipe-coupling, the combination of a sleeve or collar having an internal groove with a continuous outer wall and a pipe-section provided with springs constructed to engage the outer wall of said groove, and to be entirely inclosed by the collar when the pipe-section is thrust within the collar, substantially as set forth.

2. In a pipe-coupling, the combination of a sleeve or collar having an internal groove with a continuous outer wall and a pipe-section provided with springs having their free ends projecting rearwardly or away from the ends of the pipe-section, said springs engaging the outer wall of the groove and being entirely inclosed by the collar when a coupling is formed, substantially as set forth.

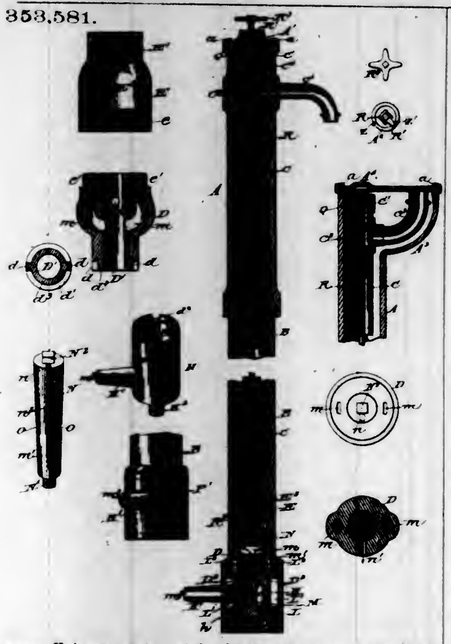
3. In a pipe-coupling, the combination of a sleeve or collar having an internal groove, 5, and an additional calking-groove, 7, a pipe-section provided with springs constructed to engage to outer wall of the groove 5, and a lead packing filling the grooves 5 and 7, substantially as set forth.

353,581. **HYDRANT.** George A. Oehlert, Harrisburg, Pa. Filed May 24, 1886. (No model.)

Claim.—1. The combination, with the lower part of the stock or stand I, cast with the exterior shoulder, I², thereon, and having the vertical slots 1, arranged oppositely in its wall above its bottom, and with the base-joint H, secured to the bottom of said stand interiorly, and provided with the attaching-nozzle H', projected through either of said slots, of the removable jacket P, provided with the slot P', opening upward and applied around said stand against said shoulder, and closing the unused slot in the stand, substantially as herein set forth.

2. The hydrant valve-seat D, having its upper end a screw for uniting thereby with the interiorly-threaded gland E, and having its lower end a slip-joint formed with a tubular tenon provided with exterior lugs adapted to fit in and interlock with the top end of the fixed

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support H, having on it a tubular rim formed with notches in it; the said valve-seat also having in it the downwardly-tapering receptacle D', extending from its top centrally through it, and the upward-curving ways *m* in its wall, leading from ports at said receptacle to exits into said gland, in combination with the plug-valve N, fitted into said receptacle, and having in it the vertical bore M', intersecting with the transverse bore O, and registering thereby with said ways, and with means applied to the lower end of the valve for holding it down in said seat, all constructed and co-operating substantially as herein shown and described.

3. In a hydrant, the valve-seat D, having its upper end connected by screw-joint with the gland E and its foot end connected by the interlocking slip-joint set forth with the fixed support H therefor, said seat being formed with the conical receptacle D', extending centrally through its entire length, and with the opposite vertical ways *m*, extending from ports at the mid-height of said receptacle through the wall of the seat to exits at its top, and also with the waste-orifice *n'* in said wall, arranged between said ways and above said ports, in combination with the valve N, fitted into said receptacle, and having in it the central bore, *m'*, intersecting with the transverse bore O, and thereby communicating with said ways, and also having in it the vertical bore *n*, intersecting with the transverse bore n^2, and thereby communicating with said orifice, and with means adapted to hold said valve in its seat, and means to limit its throw, substantially as herein shown and described.

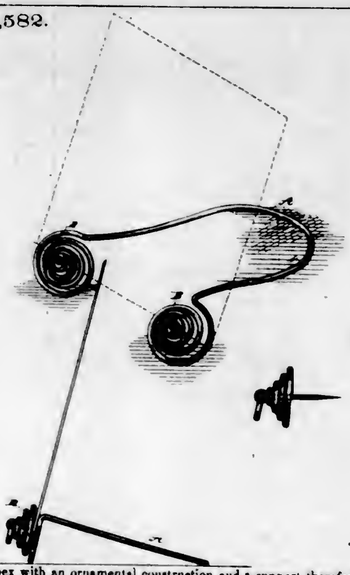
4. The hydrant set forth, comprising the stock formed of both cast and wrought sections, united solidly into one structure and having a cap-plate removably secured on its top, and having secured therein at its bottom a tubular base-joint provided with a detachable inlet-nozzle projected through a slot in the wall of said stock, of a tubular jacket applied around the stock below, of an inner tubular delivery-column formed of sections, all screwed together and the whole set on said base-joint, to which its lowest section, which is the valve-seat, is fitted by means to resist turning, and on which it is held by said cap-plate bearing on said column, of a plug-valve fitted into said seat provided with a conical receptacle therefor, and with water-ways in its wall having intercourse both ways with intersecting bores in the valve adapted to let the supply up into said column and to let the waste off, and of a rod fitted to said valve as a key for turning it, all said parts being constructed and arranged with reference to removal of said column without displacing the stock, substantially as set forth.

353,582. **CARD OR PICTURE HOLDER.** John W. Palmer, Tipton, Mo., assignor to Osborn & Peck, New York, N. Y. Filed June 1, 1886. (No model.)

Claim.—1. A card or picture holder consisting of a volute spring and a support therefor, substantially as described.

2. A card or picture holder consisting of a volute spring provided

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at its apex with an ornamental construction and a support therefor, substantially as described.

3. A card or picture holder consisting of a volute spring, and a support therefor extending beyond the base of the spring.

4. A card or picture holder consisting of a wire support or base provided at its front with a volute spring, substantially as before set forth.

5. A card or picture holder consisting of a U-shaped support provided at each end with a volute spring, substantially as before set forth.

353,583. **PIANO-CASE.** Talbot H. Perry, Wilkes-Barré, Pa. Filed Jan. 22, 1886. (No model.)

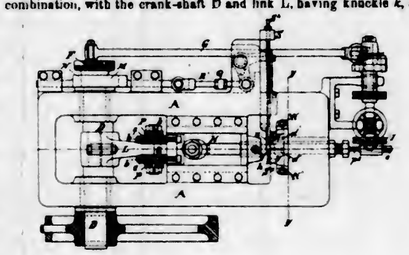
Claim.—1. The combination, with the piano case or frame, of the flanged cast bottom or foot secured and conformed to the bottom of said case or frame, substantially as shown and described.

2. The cast or metallic molding applied to the key-bottom, the said molding having inwardly-projecting lugs or projections, which are fastened to said bottom, substantially as and for the purpose set forth.

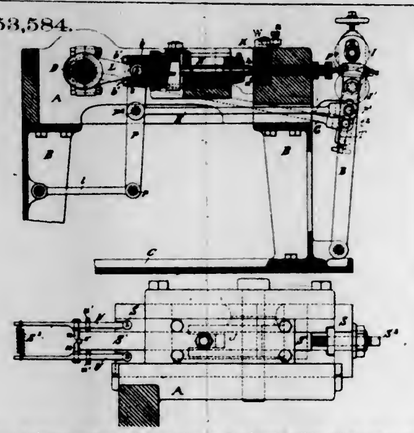
3. The combination, with the piano case or frame and the flanged cast bottom or foot, of the end plate resting upon said bottom or foot, substantially as shown and described.

353,584. **MACHINE FOR HEADING BOLTS AND RIVETS.** Ferdinand Philips, Philadelphia, Pa. Filed July 7, 1886. (No model.)

Claim.—1. In a machine for making rivets or screw-blanks, the combination, with the crank-shaft D and link L, having knuckle *k*, abut-



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ting against a corresponding cavity on the header-slide, of straps *s*, encircling the knuckle *k*, and secured to the header by means of screws *b'*, as and for the purposes described.

2. In a machine for making rivets or screw-blanks, the combination, with the crank-shaft D and link L, having knuckle *k*, of a slide, H, removable abutment *b* for the knuckle *k*, interposed between the heading-slide H and the knuckle *k*, and straps *s*, encircling the knuckle, and bolts *b'*, connecting said slide H, knuckle *k*, abutment *b*, and straps *s*, as and for the purposes described.

3. In a machine for making rivets or screw-blanks, the combination, with the heading mechanism, of a lever, P, compensating-link *l*, rod R, and ejector E, said lever P being so proportioned relative to lever E that the linear motion of point *e* of lever E is less than the linear motion of the heading mechanism, as and for the purpose described.

4. In a machine for making rivets or screw-blanks, the combination of the crank-shaft D with link L, lever P, suspended from the knuckle or link L, compensating-link *l*, rod R, and lever E, having screw *e*, said lever P being shorter than lever E, as a means to reduce the amount of linear motion of screw *e* as compared with the amount of linear motion of the header, as and for the purpose described.

5. In a machine for making rivets or screw-blanks, the combination, with the main bed A, of a die-block, K, movable up and down by screw *n* and sidewise by wedges W W', as and for the purpose described.

6. In a machine for making rivets or screw-blanks, the combination, with a shear-slide, S, of two carrier-arms, U, pivotally connected with said slide S, and provided with fingers *u*, secured to said arms, and spring S^2, combining said arms, and screws *u'*, passing through said arms, substantially as and for the purposes described.

7. In a machine for making rivets or screw-blanks, the combination, with the crank-shaft and an adjustable crank mechanism, F, of a jawed rod, G, slotted lever T, and threaded and shouldered pin t^2, passing through the jaw of rod G and lever T, and being adjustable in position by screw t^3, substantially as and for purpose described.

8. In a machine for making rivets or screw-blanks, the combination of levers P and E and rod R by pins p' and p^2, one of which at least is weakened, as and for the purpose described.

9. In a machine for making rivets or screw-blanks, the combination, with a shear-slide, S, of arms U with fingers *u* and cams u^2, pivotally secured to the slide, and cam u^3, fastened to the machine stationary, as and for the purpose described.

353,585. **WIRE-NAIL MACHINE.** Ferdinand Philips, Philadelphia, Pa. Filed Aug. 5, 1886. (No model.)

Claim.—1. In a wire-nail machine, the combination, with the reciprocating header, of toggle-links *l l'* and levers D D', as and for the purpose described.

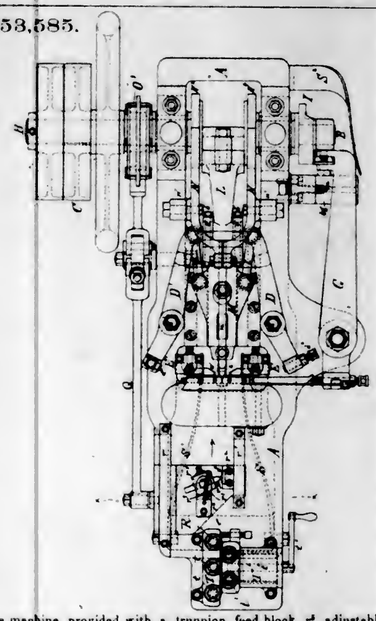
2. In a wire-nail machine, the combination, with crank-shaft B, of connecting-link L, having knuckle *k*, header H, fitted to receive the knuckle *k*, straps *s s*, encircling the knuckle and attached to the header by bolts *b'*, toggle-links *l l'*, and levers D D', as and for the purpose described.

3. In a wire-nail machine, the combination, with the crank-shaft B, of cam I, lever G, and roller *g*, said cam I and roller *g* having cone-surfaces, as and for the purpose described.

4. In a wire-nail machine, the combination of the header H, links *l l'*, cutter-levers D D', and means for operating said header, with a cam, substantially as described, operating working-lever P, rod Q, adjustable in lever P, and feed-plate R, substantially as and for the purpose described.

5. In a wire-nail machine, the feed-plate R, guided on the bed of

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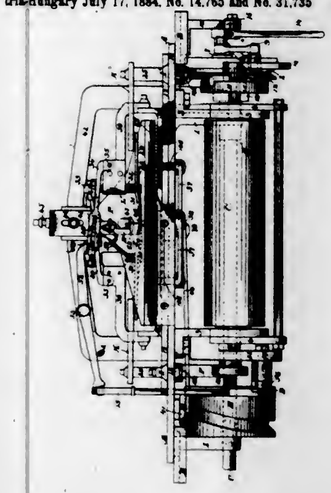
the machine, provided with a trunnion feed-block, r^4, adjustable pawl r^4, passing substantially through the axis of the trunnion, spring r^5, stops r^2 and r^3, and stationary block r^3, as and for the purpose described.

6. In a wire-nail machine, the combination, with the main bed, of levers F F', and springs S S', pressing against said levers above the axis of the fulcrum of levers F F', as and for the purpose described.

7. In a wire-nail machine, the straightening apparatus consisting of a common slide-rest, T T', the portion T' being movable upon portion T by screw t^5 and adjustable thereto by set-screw and stop t^6, each portion T and T' carrying a row of rollers, *t* and *t'*, respectively, as and for the purpose described.

8. In a wire-nail machine, a feed mechanism consisting of the following elements: cam O, as described, shielded yoke O', slotted lever P, with threaded and shouldered pin V and screw *p*, rod Q, and sliding plate R, substantially as and for the purposes described.

353,586. **MACHINE FOR CLIPPING LACE AND OTHER FABRICS.** James Ranger, Nottingham, England, assignor to the Willcox & Gibbs Sewing Machine Company, New York, N. Y. Filed Apr. 26, 1884. (No model.) Patented in England Mar. 7, 1883, No. 1,214; in France Aug. 25, 1883, No. 157,227; in Germany Sept. 9, 1883, No. 30,479, and in Austria-Hungary July 17, 1884, No. 14,765 and No. 31,735



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Claim.—1. One or more pickers having a back-and-forth and also a rising-and-falling motion, in combination with operating mechanism for advancing said pickers when depressed, so as to insert their lifting-fingers between the floats or loose threads and the body of the fabric, and for then raising the same, substantially as described.

2. The combination, with pickers having a back-and-forth and also a rising-and-falling motion, of mechanism for advancing the said pickers when depressed, so as to insert their lifting-fingers between the floats or loose threads and the body of the fabric, and for then raising the same, and cutters for severing the lifted floats, substantially as described.

3. The combination, with one or more pickers having a back-and-forth and also a rising-and-falling motion, and mechanism for advancing the said pickers when depressed, and for then raising the same, of shears or scissors for cutting the floats when lifted from the body of the fabric by said pickers, substantially as described.

4. A cutter or blade, a co-operating cutter or blade, mechanism for thrusting the former cutter or blade across the fabric between the float or loose thread, and the fabric mechanism for closing the blades by a movement transverse to the movement in thrusting the blade or cutter under the float or loose thread to cut the threads, and mechanism for returning the parts into position for acting upon a new float or thread, substantially as described.

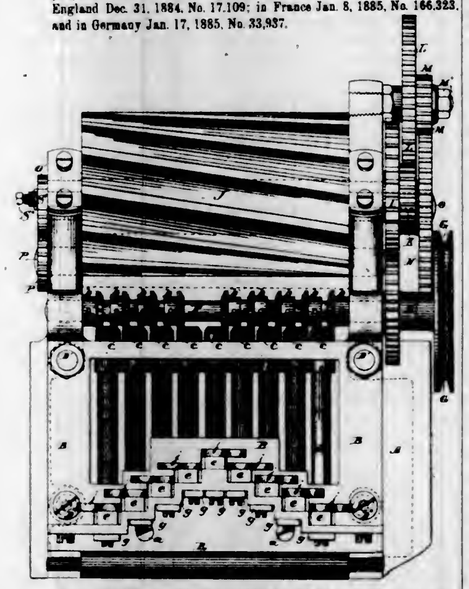
5. The combination, with mechanism for supporting and feeding lace or other fabric through the machine, of pickers and cutters, movable back and forth across the line of feed for raising and clinping successively the floats or loose threads, and mechanism for operating said pickers and cutters, substantially as described.

6. The combination, with a pair of scissors, of a sliding support, the cam and connections for reciprocating said support, the slotted plate, and pins on the ends of the scissor-blades projecting into the slots in said plate, substantially as described.

7. The combination of the pressing-plate, the picker or pickers, mechanism for operating the pickers, and means for cutting the floats or loose threads, substantially as described.

8. The combination, with a picker or pickers and means for cutting the floats or loose threads raised by said pickers, of a plate provided with a slit or receptacle into which the severed threads are forced by said pickers, substantially as described.

353,587. **MACHINE FOR CLIPPING LACE, &c.** James Ranger, Nottingham, England, assignor to the Willcox & Gibbs Sewing Machine Company, New York, N. Y. Filed Apr. 26, 1884. (No model.) Patented in England Dec. 31, 1884, No. 17,109; in France Jan. 8, 1885, No. 166,323, and in Germany Jan. 17, 1885, No. 33,937.



Claim.—1. The combination, with the fabric supporting and feeding mechanism, of devices movable over said fabric for lifting and cutting the loose threads thereon independently of the feed movement, means for operating said devices, and mechanism for mowing off the cut threads, substantially as described.

2 The combination, with mechanism for supporting and feeding lace or other fabric, of mechanism comprising reciprocating pickers and cutters for cutting the floats or loose threads and mechanism for mowing off the pieces of said threads so cut, which remain attached by one end to the fabric, substantially as described.

3. The combination, with one or more reciprocatory pickers having a rising and falling as well as a back and forth movement over the fabric, of mechanism for advancing the said pickers when depressed and for theg lifting the same away from the fabric, and one or more blades or cutters placed above the lifting-fingers, so that the floats on the lifting-fingers are pressed between the latter and the said blades or cutters and severed by their conjoint action without tearing or straining the lace, substantially as described.

4. The combination of the cutting-picker with mechanism for moving the said picker and the stationary co-operating cutter, substantially as described.

5. The combination, with means for supporting and feeding lace or other fabric, of a series of reciprocatory cutting-pickers and their co-operating cutters supported in a row across the line of feed, and mechanism for operating said pickers simultaneously, so as to lift away from the fabric and cut a series of floating threads, substantially as described.

6. The combination, with means for supporting and feeding lace or other fabric, of a series of reciprocatory pickers divided into gangs, the pickers of each gang having the fingers which take up the floats directed away from the center, and operating mechanism for moving the pickers in the two gangs separately, substantially as described.

7. The combination of the brushes with the series of pickers and operating mechanism, substantially as described.

8. The combination, with the series of pickers and their carriers supported across the machine, of the series of shafts of unequal length, the eccentrics at the end of said shafts for operating said picker-carriers, the main cross-shaft, and the gearing for operating the series of shafts from said main shaft, substantially as described.

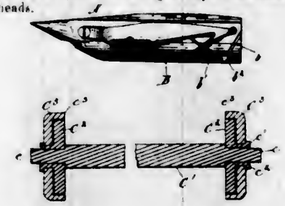
9. The combination, with the series of pickers and the mechanism for operating the same, of the slotted picker-plate, substantially as described.

10. The combination of the machine-frame, picker-plate, picker-frame, pickers, picker-carriers, springs for forcing down the picker-carriers, series of parallel shafts, eccentrics on said shafts fitting in slots in said carriers, and mechanism for revolving said shafts, substantially as described.

11. The combination of the following elements: machine-frame, picker-plate, picker-frame, series of cutting-pickers, operating mechanism, series of co-operating stationary cutters, mowing mechanism comprising rotary knife and mechanism for revolving the same, and ledger-blade, feed-rolls, and mechanism for revolving said rolls to feed slowly the lace or other fabric, substantially as described.

353,588. **SEWING-MACHINE SHUTTLE AND BOBBIN.** Martin Ransom, Chicago, Ill., assignor to the Eldredge Manufacturing Company, same place. Filed Feb. 10, 1886. (No model.)

Brief.—The outer heads on the bobbin-spindle bear against the inner wall of the cylindrical recess in the shuttle, the hubs of the inner heads affixed to the spindle revolving loosely in the central apertures in the outer heads.



Claim.—1. A shuttle having a self-threading slot open at the rear end, extending downward and forward from said end to a level with the lower edge of the shuttle-spring, and continuing in an upward and forward direction, the continuation being substantially at right angles to the rear portion of the slot, substantially as and for the purposes set forth.

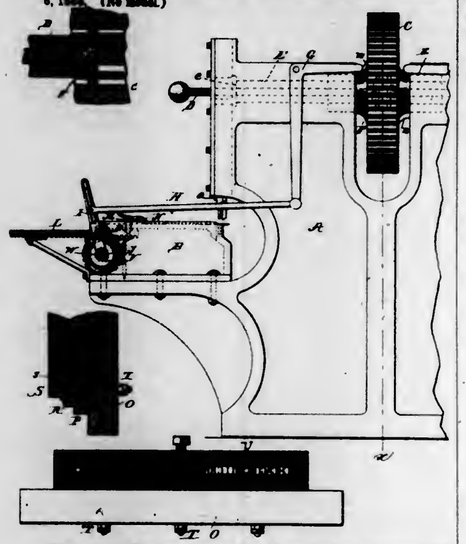
2. A shuttle having a self-threading slot extending downward and forward from the heel of the shuttle and continuing in an upward and forward direction, and provided with the enlarged apertures b^3 and b^3, arranged substantially as described, substantially as and for the purposes specified.

3. The combination, with the shuttle open at its rear end of the bobbin consisting of a spindle with fixed inner end heads, and with loose or revoluble outer end heads of greater diameter, substantially as and for the purposes specified.

4. The combination, with the spindle C', of the inner end heads, C^3,

secured thereon, and provided with the projecting sleeves c', and the outer heads, C², of greater diameter, mounted loosely on the said sleeves, substantially as and for the purposes specified.

353,589. PUNCHING, SHEARING, AND EMBOSSING MACHINE. William Renshaw and Nicholas W. Tillman, Chicago, Ill. Filed Sept. 6, 1886. (No model.)



Claim.—1. The combination, with a punching or embossing and shearing machine, of an automatic feeding device, consisting of the sliding plate-carrier M N L, and mechanism for driving the latter, with an automatic device, substantially as shown and described, for releasing the feed mechanism when it reaches the limit of its travel

2. The combination of vibrating arm I, pawl *p*, retaining-pawl *f*, spring V, and pinion K, with the plate-carrier M N L, substantially as and for the purpose set forth.

3. In a plate-feeding device, the combination of pin *k*, arm *j*, shaft *l*, fingers *m m*, and catch *g*, substantially as and for the purpose set forth.

4. In an embossing and shearing apparatus, the combination of shear-blade P, dies R R, and shear-blade Y, having on its edge-face the counter impression of the dies R R.

5. The combination, in an embossing and shearing apparatus having an automatic feeding device, substantially as described, of shear-blade P, dies R R, and shear-blade Y, having through its edge-face the holes Z Z, opposite the punches U U, as and for the purpose set forth.

6. The combination of gear C, shaft E, and rod and clutch D F, the clutch having its face formed as and for the purpose described.

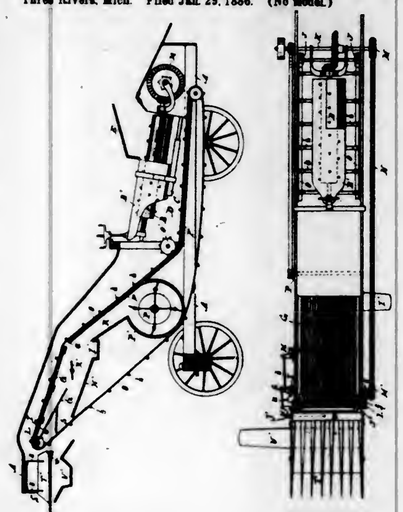
353,590. JAR-CLAMP. Edward H. Rice, Mendota, Ill. Filed Oct. 12, 1886. (No model.)



Claim.—1. The combination, with a jar provided with a bead, of a lid that rests on the bead and has its top provided with a central depression and annular groove, a ring fitted loosely in said groove and provided with flanges that are of even height throughout, but eccentric in a horizontal plane, and thumb pieces, and a bail having the transverse portion thereof bent to correspond with the depression in the lid, and its vertical portions turned in to come under the bead on the jar, substantially as and for the purpose set forth.

2. The combination, with a jar provided with a bead, of a lid that rests on the bead and has recesses in its periphery and a central depression and annular groove in its top, of a ring loosely fitted in said groove and provided with flanges that are of even height throughout, but eccentric in a horizontal plane, and thumb-pieces, and a bail having the transverse portion thereof bent to correspond with the depression in the lid and its vertical portions seated in the recesses of said lid and turned in to come under the bead on the jar, substantially as and for the purpose set forth.

353,591. CORN SHELLER AND SEPARATOR. Cyrus Roberts. Three Rivers, Mich. Filed Jan. 29, 1886. (No model.)



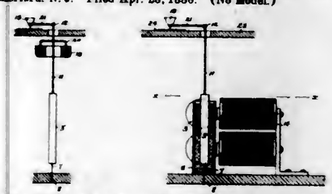
Claim.—1. The combination, with the shelling-cylinder and an inclosing-case therefor, of a floor extending beneath said cylinder and thence upwardly and rearwardly, a riddle independent of said floor and situated upon a plane above said cylinder, and a carrier running under said cylinder, over said floor, and over the surface of the riddle, substantially as described.

2. The combination with the riddle and the bell-crank lever H, of the revolving shaft I, cam-disk c on said shaft, and the pitman *b*, connecting said cam-disk and lever, the rack T, shaft L, bell-crank lever U, and pitman connecting the lever U and cam-disk c, substantially as and for the purpose specified.

3. The combination, with the case and the frame T', suspended from the top of the case, of the rake T, secured to said frame, the bell-crank lever U, connected with said frame, the shaft I, and connections, substantially as described, between the lever U and shaft I, as and for the purpose specified.

4. The combination, with the shelling-cylinder and the floor extending thereunder and thence upwardly and rearwardly, of the fan-case constructed to form a throat, R, spout I', and incline H', the riddle G, the inclined guide G', and wind-guide R', all substantially as shown and described, and for the purpose specified.

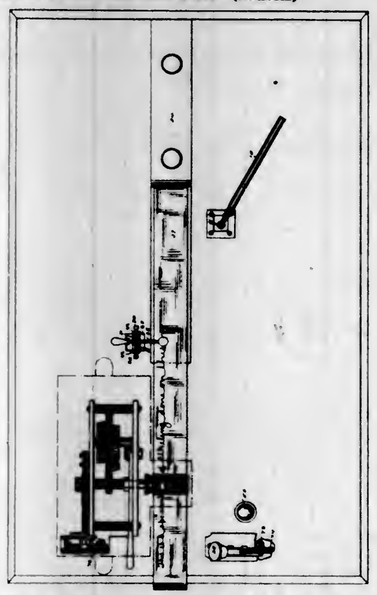
353,592. AUTOGRAPHIC TELEGRAPH. James H. Robertson, Rutherford, N. J. Filed Apr. 28, 1886. (No model.)



Claim.—1. In an autographic telegraph, the combination, with the receiving-stylus arranged to have a free lateral motion over the surface of the paper and armature or armatures, of a liquid-containing receptacle, substantially as described.

2. In an autographic telegraph, the combination, with the receiving-stylus arranged to have a free lateral motion over the surface of the paper and armature or armatures, of a liquid-containing receptacle in which said armature or armatures are immersed, substantially as described.

353,593. AUTOGRAPHIC TELEGRAPH. James H. Robertson, Rutherford, N. J. Filed June 30, 1886. (No model.)



Claim.—1. The combination, with two electro-magnets placed at an angle to each other, of an armature-carrier mounted to have a lateral motion and provided with magnetically-separate armatures for said electro-magnets, substantially as described.

2. The combination, with two electro-magnets placed at an angle to each other, of an armature-carrier mounted to have a lateral motion and provided with magnetically-separate armatures arranged to overlap the poles of said magnets, substantially as shown and described.

3. An armature-carrier provided with two sets of magnetically-separate armatures, the armatures of one set being magnetically connected with those of the other, substantially as described.

4. An armature-carrier provided with two sets of magnetically-separate armatures, the armatures of one set being magnetically connected with those of the other by an adjustable connection, whereby the two sets can be adjusted nearer to or farther from each other, substantially as described.

5. An armature-carrier provided with magnetically-separate armatures secured to said carrier by a non-magnetic block and set-screw, substantially as described.

6. A flexible laterally-movable armature-carrying rod provided with magnetically-separate armatures, substantially as described.

7. A movable armature-carrier provided at its upper end with a stylus or pen pivoted thereto, substantially as described.

8. An armature-carrier provided at its upper end with an arm pivoted thereto and carrying a fountain-pen, substantially as described.

9. A movable armature-carrier provided with a counterbalanced stylus or pen pivoted thereto, substantially as described.

10. A movable armature-carrier provided at its upper end with an arm pivoted thereto, and having an opening and a stylus or pen secured in said opening, substantially as described.

11. An armature-carrier provided at its upper end with a bifurcated part, in combination with an arm pivoted to said part and carrying a pen or stylus at its outer end, substantially as described.

12. A movable armature-carrier provided with a projection, in combination with a vessel containing liquid in which said projection is arranged to dip, substantially as described.

13. An armature provided with a projection, in combination with a vessel containing liquid in which said projection is arranged to dip, substantially as described.

14. A movable armature-carrier provided with a projection, in combination with a vessel having a depression in its side, as described, to permit said armature-carrier to occupy a central position, said projection being arranged to dip into a liquid contained in said vessel, substantially as described.

15. The combination, with two line-wires and receiving and transmitting instruments (which latter vary the current) included therein, the said line-wires being connected at each end to a single ground-wire, of two batteries of equal power having poles opposed to each other, substantially as described.

16. The combination, with the paper-feed mechanism, of a brake-lever for arresting the action of said feed mechanism, and a switch-lever arranged to disengage said brake-lever when said switch-lever is shifted to put one or both instruments in circuit, substantially as described.

17. The combination, with the paper-feed mechanism, of a brake-lever for arresting said feed mechanism, a switch-lever provided with a projection for depressing said brake-lever, and a spring for returning the latter to operative position, substantially as described.

18. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to the direction in which said lever is moved, substantially as described.

19. The combination, with two piles of carbon disks placed near and at an angle to each other, of a long lever arranged to exert a pressure near its pivot on either one or both of said piles, whereby the free end of said lever has a large field of motion and the hand of the operator is not cramped in its movement, substantially as described.

20. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, a table provided with an opening through which said lever extends, and a holder for the hand of the operator, substantially as described.

21. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, and a holder for the hand of the operator, substantially as described.

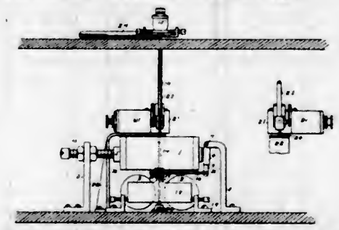
22. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, and a holder for the hand of the operator universally pivoted to said lever, substantially as described.

23. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever arranged to exert a pressure on either one or both of said piles according to its movements, and strips of metal arranged between said lever and piles, to which the conductors are attached, substantially as described.

24. The combination, with two piles of carbon disks placed near and an angle to each other, of a lever provided with pressure-points and arranged to exert a pressure on either one or both of said piles, and strips of metal arranged between said lever and piles for attachment of conductors, substantially as described.

25. The combination, with two piles of carbon disks placed near and at an angle to each other, of a lever universally pivoted at its lower end and arranged to exert a pressure on either one or both of said carbon piles, according to its movements, at points between its pivot and free end, substantially as described.

353,594. AUTOGRAPHIC TELEGRAPH. James H. Robertson, Rutherford, N. J. Filed July 31, 1886. (No model.)



Claim.—1. The combination, with a rod carrying the receiving stylus or pen, of a pair of rigid bars connecting said rod with the armatures of two electro-magnets arranged substantially at right angles to each other, substantially as described.

2. The combination, with a rod made to act as a spring and carrying the receiving stylus or pen of the armatures, of two electro-magnets arranged substantially at right angles to each other, and a pair of rigid bars connecting said armatures with said rod, substantially as described.

3. The combination, with two electro-magnets arranged substantially at right angles to each other, and two armatures arranged very near to the same, of a rod carrying the receiving-stylus, and two bars connecting said armatures with said rod, substantially as described.

4. The combination, with two electro-magnets arranged substantially at right angles to each other, and two armatures arranged very near to the same, of a rod carrying the receiving-stylus, a block secured to said rod, and two bars connecting said armatures with said rod, and connected by a ball-and-socket joint with said block, substantially as described.

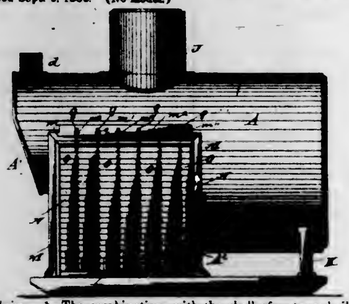
5. The combination, with two electro-magnets arranged substantially at right angles to and vertically over each other of two armatures for said magnets, a rod carrying the receiving-stylus arranged to pass between the legs of said magnets, and two bars connecting said rod with the two armatures, substantially as described.

6. The combination, with two electro-magnets arranged substantially at right angles to and over each other, and two armatures therefor, of a rod carrying the receiving-stylus and connected by bars with said armatures, two piles of carbon disks placed above said magnets, and a transmitting-stylus arranged near the receiving-pen, substantially as described.

7. The combination, with the receiving-stylus, of the transmitting-stylus and an arm projecting from the latter and arranged in proximity to the former, substantially as described.

8. The combination of the receiving-stylus with the transmitting-stylus arranged near the same, and an arm projecting from the latter and arranged in proximity to the former, substantially as described.

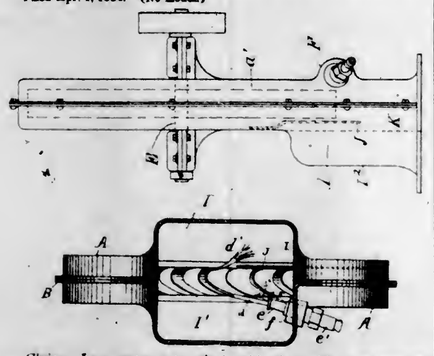
353,595. STEAM-BOILER FURNACE. GEORGE SELDEN, Erie, Pa. Filed Sept. 6, 1886. (No model.)



Claim.—1. The combination, with the shell of a steam-boiler, of a series of fire-bricks having notched or recessed ends and disposed in successive layers or courses, a series of rods extending downward between the contiguous ends of each pair of said bricks and within their notches or recesses, and a casting or frame having a series of sockets to receive said rods, substantially as described.

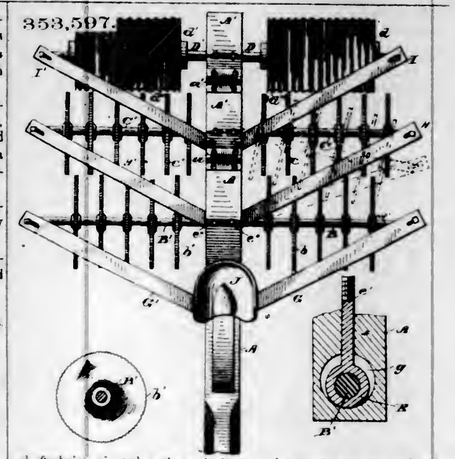
2. An improved frame for holding fire-brick linings for boiler-furnaces, having a series of holes to receive the binding-rods of said lining and extended outward from the shell of the boiler, and a removable rectangular plate bolted to the outside of the furnace, substantially as and for the purpose specified.

353,596. WATER-MOTOR. JAMES M. SEYMOUR, Jr., Newark, N. J. Filed Apr. 1, 1886. (No model.)



Claim.—In a water-motor, the combination, with a motor-wheel having parabolic bucket curved across the rim of the wheel and lateral openings between the bucket to admit a jet of water, of a vertical casing provided at its bottom with an outlet and a nozzle inserted in the casing and directed obliquely toward such openings upon one side of the wheel, the water being discharged backward from the opposite side of the wheel, and a guard projected forward within the casing adjacent to the wheel upon such opposite side, to protect the unfilled succeeding bucket from the recurved jet, substantially as herein shown and described.

353,597. REVOLVING HARROW. JOHN D. SCHELL, Little Rock, Ark. Filed July 15, 1886. (No model.)



Claim.—1. In a harrow, a main beam having hinged extensions, in combination with shafts and cross-bars pivotally secured thereto, said shafts being pivoted to the main beam and extensions at one end and to the outer ends of cross-bars at the other end, and carrying series of alternating disks or rollers, as set forth.

2. In combination, the main beam A, slotted cross-bars G G', shafts B B', rolls *b b'*, and the bearing for the shafts formed as an eyebolt, in the manner set forth.

3. In a harrow, the combination, with a longitudinal beam and its hinged extensions, of a series of sidewise-projecting shafts pivotally connected to said beam, the forward shafts being provided with alternating series of serrated-edged disks, and the rear shaft with rolls having circumferential grooves and ribs, as set forth.

4. In combination, beam A, shaft B, pivoted thereto and carrying rollers *b*, bearing eyebolts for adjustably supporting the said shaft at the beam, the cross-bar G, having depending arm at its outer end, and the bolt-bearing *f f'*, loosely mounted in said arm, for the purpose set forth.

5. In a harrow, the combination of the main beam and the hinged extensions with the pivotally-connected shafts having the series of disks mounted thereon, as shown and described.

6. The combination of the main beam and the hinged extensions with the pivotally-connected shafts having the series of rollers or disks mounted thereon, as shown, and the slotted pivoted cross-bars, as described.

353,598. CARBON FOR ELECTRICAL PURPOSES. EDGAR SHAW, Lynn, Mass. Filed Apr. 11, 1885. (Specimens.)

Claim.—Blocks, plates, or rods consisting of compressed carbonized algæ or sea-weed, adapted for electrical uses.

353,599. BOTTLE-STOPPER. ELY H. SLAYBAUGH and JOHN M. AKERS, Alliance, Ohio. Filed Aug. 28, 1886. (No model.)



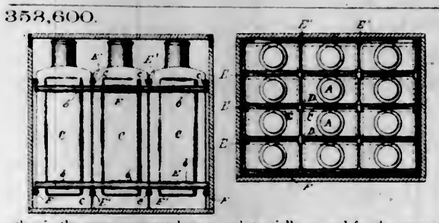
Claim.—1. In a bottle-stopper, the combination, with the bail and stopper, of the lever and perforated lug, the wires of the former bent at an angle and passing through the perforations in said lug, and bent around and over the lug and secured to the bail, all constructed and operated as herein set forth.

2. The combination, with the bottle having a neck, A, and a wire, *a*, twisted or bent, as shown at *a'*, of a bail, *b*, the stopper constructed substantially as described, and having the lug with its two perforations, *c²*, and a lever, D, composed of a single wire bent upon itself and having the differently-bent portions d^2 d^3 d^4 d^5 d^6, substantially as and for the purposes described.

353,600. BOTTLE. GEORGE SLOAN, Otter River, Mass. Filed July 6, 1886. (No model.)

Claim.—1. A rectangular bottle having one side provided with a convex surface and its opposite side with a corresponding concave surface, its opposite sides being also provided with grooves parallel to each other in the same horizontal plane, substantially as and for the purpose described.

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2. The combination, with bottles having their opposite sides provided with horizontal grooves, of packing-rods entering the corresponding grooves of adjacent bottles, substantially as and for the purpose set forth.

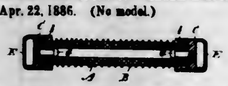
3. In combination with rows of bottles having their sides provided with horizontal grooves, packing-rods running between said rows of bottles, said rods fitting into corresponding grooves in the sides of adjacent rows of bottles, substantially as described.

353,601. RAILWAY-RAIL FASTENING. PARKER P. SMITH, Pittsburg, Pa. Filed Aug. 27, 1886. (No model.)



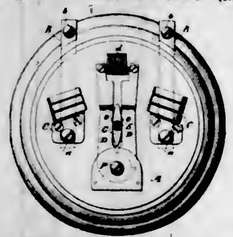
Claim.—The combination, with the rail-chair provided with the parallel vertical flange-extensions K L of its inclined portions abutting against the heads of the rail, and provided, respectively, with the rectangularly-countersunk and horizontally-elongated and flaring key-holes P Q, of the rails having slotted webs and the rectangularly-headed keys having split ends spread against the webs of the rail ends, substantially as specified.

353,602. CHECK-REIN SPRING. CHARLES L. SPONENBURGH, Detroit, Mich. Filed Apr. 22, 1886. (No model.)



Claim.—The improved check-rein spring described, consisting of the rubber tube A, coil-spring B, surrounding the same, screws *a*, the heads of which are embedded in the axis of said rubber spring, binding-wires for compressing said spring and securing said screws therein, the metallic cap C, comprising in a single piece the flanges *b* and loop E, and secured to the ends of the coil-springs, with said flanges embracing and protecting said binding-wires, substantially as shown and described.

353,603. ELECTRIC-CIRCUIT CONTROLLER. WILLIAM STANLEY, Jr., Great Barrington, Mass. Filed Dec. 11, 1885. (No model.)



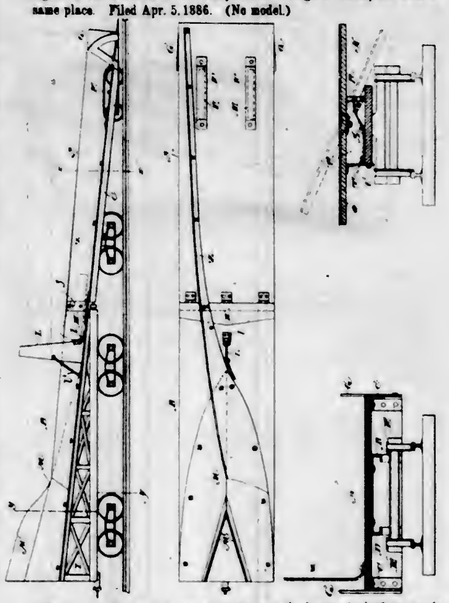
Claim.—1. The combination, substantially as hereinbefore set forth, of two circuit-closing arms supported from a pivot common to both, a spring tending to draw said arms toward each other, means of separating said arms, and two contact-points against which the respective arms are pressed when they are separated from each other.

2. The combination, substantially as hereinbefore set forth, of two contact-arms pivoted at one end, a single spring tending to draw said arms toward each other, two contact-points with which the respective arms make contact when separated, a shaft extending between said arms, and a cam carried thereby, serving, when said shaft is turned, to separate said arms.

3. The combination, with the pivoted arms D D, of the spreader G, operating to separate the arms, and notches *c c* in the arms, adapted to receive the ends of the spreader when the arms are extended so as to complete the circuit, substantially as set forth.

4. The combination of the contacts C C, the pivoted arms D D, completing the circuit when in contact therewith, and the single spring *d*, attached to the arms D D and operating to break the circuit by withdrawing the arms from the contacts, substantially as set forth.

353,604. SNOW-PLOW. CURTIS M. STEENBARGER, Howard, Kans., assignor of one-fourth to W. I. Thompson and George H. Thompson, both of same place. Filed Apr. 5, 1886. (No model.)



Claim.—1. In a snow-plow for railways, the inclined platform made of boiler-iron faced with a smooth steel surface, and provided with the longitudinal strengthening angle-bars, substantially as described.

2. In a snow-plow for railways, the inclined platform mounted on wheels, and having openings or slots at its front ends for the upper side of the front wheels to extend through, and longitudinal straps F, covering the said openings and the wheels, substantially as described.

3. In a snow-plow for railways, the inclined platform provided with the vertical cutter L, hinged to the platform and adapted to be thrown forwardly thereon, for the purpose set forth, substantially as described.

4. In a snow-plow, the inclined platform having the double mold-board M, provided with the removable upper section, M', substantially as described.

5. The car N, having the vertical brackets P, and the platform hinged thereon, the hinged or pivoted arms for supporting the free edge of the platform O, and means for moving said arms to release the platform, substantially as described.

6. In a snow-plow, substantially as described, four inclined cars when needed to lengthen the inclined plane and raise the snow higher.

7. In a snow-plow, the combination of the inclined platforms arranged behind each other, the rear end of each platform being on a line with the front of the platform coupled to the rear thereof, whereby the snow will be gradually elevated above the track, for the purpose set forth, substantially as described.

8. In a snow-plow, the combination of the inclined platforms coupled together, and the diagonally-arranged mold-board formed in sections and secured on the inclined platform, substantially as described.

9. In a snow-plow, the combination of the inclined platforms coupled together, and provided with the diagonally-arranged mold-board Z, formed in sections, each section of the said mold-board being provided at its rear end with a hinged lap-plate for bearing against the front end of the rearward section, substantially as described.

353,605. STAIRCASE. HEINRICH STOLLWERCK, Cologne-on-the-Rhine, Germany, assignor to Gebr. Stollwerck, same place. Filed Sept. 9, 1886. (No model.)

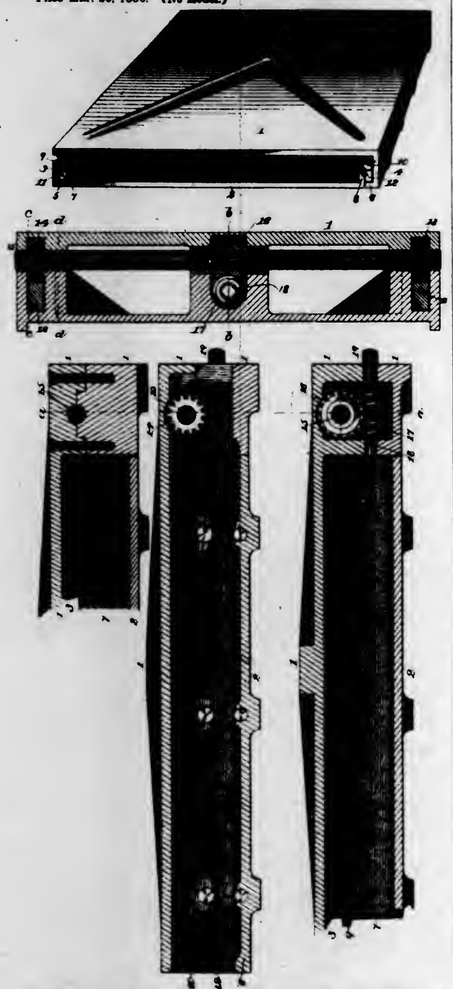
Claim.—In a staircase, the combination, with the supports or beams *b*, forming the vertical faces of each stair, of an intervening mass or filling, *a*, of concrete, in which the said supports or beams are more or less embedded, and by which they are rigidly held together, the upper

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surface of said mass forming the horizontal stepping-surface of the step or stair, substantially as described.

353,606. COPYING-PRESS. SIMON H. STUPAKOFF, Hartford, Conn. Filed Mar. 26, 1886. (No model.)



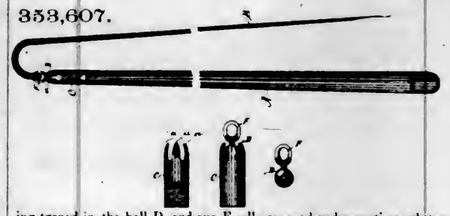
Claim.—1. In a copying-press, the combination of parts 1 and 2, constructed substantially as described, and arranged to be forced toward each other by the horizontal movements of inclined surfaces, between flanges appurtenant to those two parts, all substantially as described.

2. In a copying-press, the combination of the part 1, provided with the sides 3 and 4 and the flanges 5 and 6, the part 2, provided with the sides 7 and 8 and the flanges 9 and 10, the wedges 11 and 12, the pinions 13 and 14, the shaft 15, the worm-gear 16, the worm 17, and the shaft 18, all substantially as described.

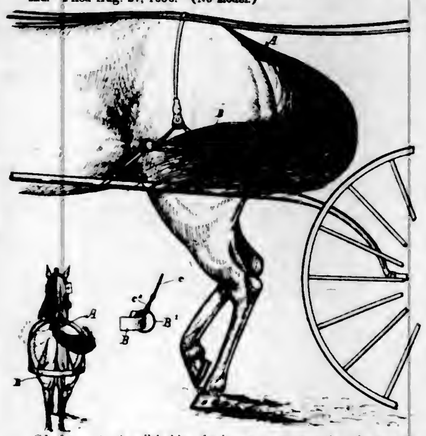
358,607. WHIP. BENJAMIN R. SUPLEE and GEORGE M. MAIN, Philadelphia, Pa. Filed Sept. 22, 1886. (No model.)

Claim.—The combination of the cylinder C, the upper end of which is furnished with points *a*, and slots between said points, said points being turned in the ball D, and eye F, all arranged and operating substantially as and for the purposes set forth.

353,607.



353,608. HORSE-TAIL HOLDER. JOSIAH G. SWAIN, Martinsville, Ind. Filed Aug. 27, 1886. (No model.)

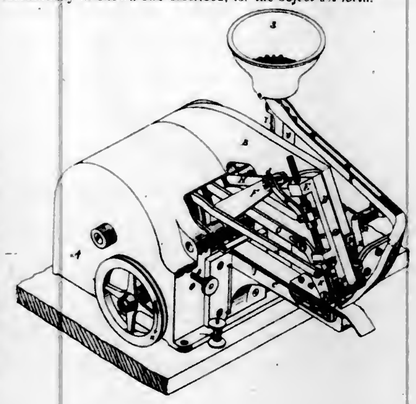


Claim.—1. A tail-holder for horses constructed at its upper end with means for attachment to the harness and to the animal's tail, and at its lower end provided with a large loop adapted to surround and slide freely upon the breeching of the harness, substantially as set forth.

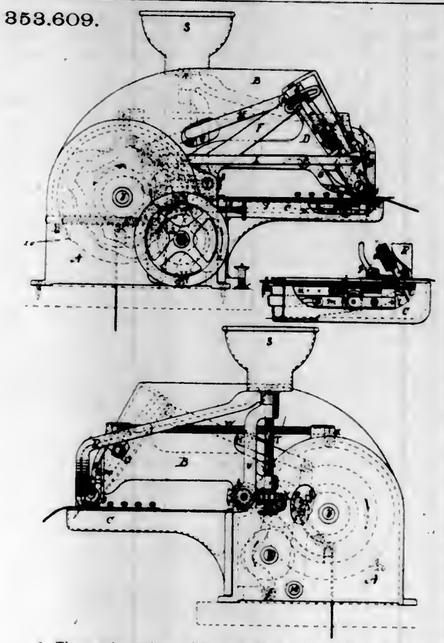
2. The combination of the crupper A, breeching B, and holder C, composed of the loop c at its top, the straps C^2, and the large loop C' at its lower end, which surrounds said breeching and is adapted to slide freely thereon, all substantially as shown and described, and for the purposes specified.

353,609. MACHINE FOR SEWING SHANK-BUTTONS TO BOOTS, &c. ROSEWELL THOMPSON, Bridgeport, Conn., assignor to the Morley Button Sewing Machine Company, Boston, Mass. Filed Apr. 12, 1886. (No model.)

Claim.—1. In a machine for sewing shank-buttons to fabrics, mechanism for successively presenting the buttons to the needle in such a manner as to cause both the body and shank of each button to rest upon the material during the formation of the stitch through the eye of the same, in combination with a fabric-supporting arm and an angular alternately-vibrating reciprocating needle-bar, all constructed and operating substantially as shown and described, for the object set forth.



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2. The angular reciprocating needle-bar *a*, vibrated in such a manner as to cause the needle in the lower end to alternately pierce the fabric outside and inside of the inclined button-shank, in combination with the fabric-supporting arm and mechanism for turning the barb of the needle away from the end of the loops during the sewing operation, all constructed and operating substantially as shown and described, for the object set forth.

3. The double hooks *l*, for retaining and controlling the main loop after it is forced through the fabric by the needle, and mechanism for operating the same, in combination with the fabric-supporting arm and reciprocating and alternately-vibrating needle-bar, all constructed and operating substantially as shown and described, for the object set forth.

4. The oscillating needle-bar bearings E, pivoted at the lower end to the rising and falling needle-bar bearing-support, and mechanism for operating the same, in combination with the reciprocating needle-bar, button-feeding trough, and fabric-supporting arm, all constructed and operating substantially as shown and described, for the object set forth.

5. The vibrating segmental gear K, for turning the needle-barb away from the ends of thread-loops, and mechanism for operating the same, in combination with the oscillating needle-bar bearings, reciprocating needle-bar, pinion, button-trough, and fabric-supporting arm, and pivoted at lower end in line with the fulcrum of the oscillating needle-bar bearings, all constructed and operating substantially as shown and described, for the object set forth.

6. The horizontally-reciprocating locking-loop spreader *h* and mechanism for operating the same, in combination with the angular reciprocating and vibrating needle-bar and needle, needle-bar bearing-support, button-trough, main loop-controlling hooks, and fabric-supporting arm, constructed and moved in such a manner as to remove the loop of thread from the barb of the needle after it has entered said loop and then carry the loop over the body of the button sufficiently far to cause the loop to pass below the center of the same when drawn off the point of the spreader by the take-up mechanism, substantially as shown and described, for the object set forth.

7. The thread-guard *e*, in combination with the angular alternately vibrating and reciprocating needle-bar and needle, needle-bar bearings, button-feeding mechanism, main loop-controller, and fabric-supporting arm, and constructed in its body and pivoted at its upper end to the lower needle-bar bearing in such a manner as to cause the back edge of the same to rest upon the inclined needle during its vibratory motion by force of gravity, and thus by its own weight retain the loop of thread in the barb of said needle while the latter is changing from an upward to a downward movement, substantially as shown and described, for the object set forth.

8. The feed-pin *o'* and the sliding elastic feed-bar *o*, in combination with the operating mechanism, fabric-supporting arm, and sewing and loop and thread controlling devices, constructed and arranged to operate in such a manner as to cause said pin to enter the first hole made in the material by the needle during the sewing operation after the stitch is completed and then move the fabric back a sufficient distance to place the succeeding button in its proper position to be sewed, as described, for the object set forth.

9. The feed-carrier *p*, adjustable roller-block *r*, feed-carrier supporting-rod *q*, and adjusting-screw *s*, in combination with the feed-cam G', feed-point-lifting rock-shaft *t*, feed-bar *o*, pin *o'*, fabric-supporting arm, and button-sewing mechanism, all constructed and arranged to operate substantially as shown and described, for the object set forth.

10. The rock-shaft *t*, in combination with the elastic feed-bar *o*, pin *o'*, cam Q', fabric-supporting arm, and button-sewing and fabric-feeding mechanism constructed and arranged to lift the extreme front end of the feed-bar and force and retain the feed-pin in the fabric during the feeding operation, as shown and described, for the object set forth.

11. The stud 12, in combination with the needle-bar bearing-support D, button-trough R, needle-bar *a*, and other sewing mechanism inserted at one end into the right side of said support, the opposite end extending under the button-trough in such a manner as to allow the latter to rest upon and rise and fall with it, and thus cause the extreme end of the button-trough to move in unison with the presser-foot, and other devices attached to the front end of the needle-bar bearing-support, as shown and described, for the object set forth.

12. The needle-bar lever F, in combination with the cam G, connecting-bar *c*, oscillating and reciprocating needle-bar *a*, and other sewing mechanism, constructed and arranged to be pivoted on same shaft with the needle-bar bearing-support and having an arm extending back to be operated by the cam G, and the front end, which operates the needle-bar, having a curved slot, the center of which is the arc of a circle, the radius of which is equal to the distance of the connecting-rod *c* between centers, said arc of a circle being described when the needle-bar and connecting-rod are at their lowest point, so that the top end of the connecting-rod may be moved and secured in such a position on the lever as will give the required upward stroke to the needle-barb and length of loop drawn up by the same, without affecting or changing the relative position of said barb with respect to the thread and loop controllers when it is at its lowest point in the fabric-supporting arm, and operating as shown and described, for the object set forth.

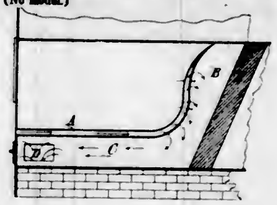
13. The upright button-shaft and button-trough support U, in combination with the button-trough R, hopper-bowl S, needle-bar bearing-support D, gearing 6, 7, 8, and Y, and worm Z, constructed and arranged to receive the vertical shaft T, and having horizontal bearings at the lower end to receive the hub of gear 8, with sufficient space between said bearings to receive the worm Z, which is secured to the hub of gear 8, said hub being pivoted to and revolving concentric with the same shaft on which the needle-bar bearing-support and needle-bar lever are pivoted, so that the upright support U may act in unison with said devices, and the horizontal bearings be a pivotal point for the hopper-trough, as shown and described, for the object set forth.

14. The combination of the loop-controller *i*, connecting-rod *j*, lever *k*, ring-cam N', secured to periphery of the needle-bar turning-lever N, fabric-supporting arm C, and take-up mechanism, all constructed and arranged to control the thread before it is formed into loops and stitches, substantially as shown and described, for the object set forth.

15. The combination of the sliding bar *u*, tension-disk *x*, lever *v*, cam *w*, fabric-supporting arm C, and thread-controller *i*, all constructed and arranged to take up the final or locking loop to complete the stitch before the operation of the fabric-feeding mechanism, substantially as shown and described, for the object set forth.

16. The combination of the button table V, hopper-bowl S, button-trough R, vertical shaft T, worm gear Y, ratchet-wheel 13, pawl 14, spring 15, and revolving worm Z, all constructed and arranged substantially as shown and described, the worm-gear Y being fitted to revolve freely on vertical button-shaft, and the ratchet-wheel 13, secured to said shaft, so that the pawl 14, having a thumb-piece on opposite side of turning center, may be conveniently used as an intermediate device to connect or disconnect the vertical shaft and button-table attached thereto with the revolving worm-gear Y in regulating the supply of buttons to the end of button-trough, for the object set forth.

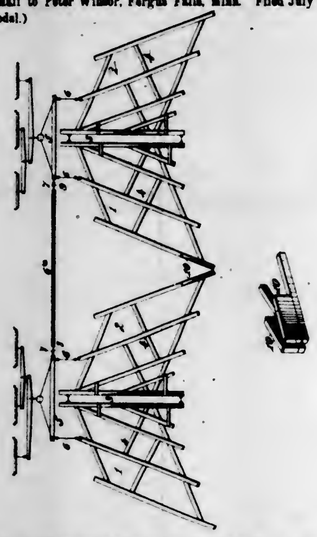
353,610. FURNACE FOR STEAM-BOILERS. HENRY THOMPSON, Canonbury, London, England. Filed Aug. 31, 1885. Renewed Oct. 11, 1886. (No model.)



Claim.—1. The boiler-furnace having the perforated hollow bars A, the chamber B, and the mouth or mouths D, opening into the flue or flues near the front portion of the ash-pit, the top of the grate, stove, or furnace and chamber B being closed, substantially as and for the purposes hereinbefore described and shown.

2. The furnace provided with the hollow bars A, the chamber B, the division or partition F, the horizontal plate G, and flue H, substantially as and for the purposes hereinbefore described and shown.

353,611. HARROW. ORRIN C. VAN NESS, Pomme de Terre, assignor of one-half to Peter Winsor, Fergus Falls, Minn. Filed July 26, 1886. (No model.)

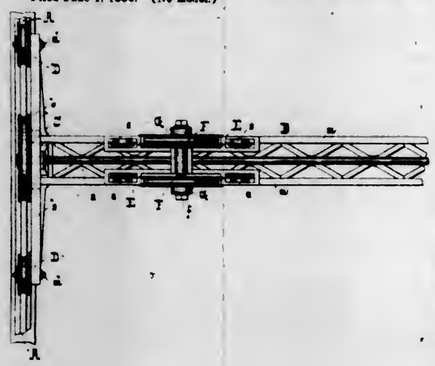


Claim.—1. The combination of the harrow-frames, each complete in itself and comprising flexibly-connected sections 1 and 2, a double-tree connected with each frame by end links, which are secured, respectively, to the sections of the frame, and a continuous single coupling-pole, having its ends jointed directly to the inner ends of the double-trees, substantially as and for the purpose described.

2. The combination of the harrow-frames, each complete in itself and comprising two flexibly-connected sections, 1 and 2, which extend rearward in oblique directions with the inner adjacent end bars of the frames arranged obliquely in opposite directions with reference to the line of draft, a double-tree connected with each frame by end links, which are secured, respectively, to the sections of the frame, and a single continuous coupling-pole having its ends jointed directly to the inner ends of the double-tree, substantially as and for the purpose described.

3. The combination, with the harrow-frames, each comprising two flexibly-united sections, the double-trees, and the coupling-pole jointed directly thereto, of the blocks rising from the rear ends of the adjacent end bars of the frames to prevent the latter from riding each other, substantially as described.

353,612. TRAVELING CRANE. JOHN WALKER, Cleveland, Ohio. Filed June 1, 1886. (No model.)



Claim.—In a traveling or overhead crane, the bridge or trolley thereof supported on a track by means of a single shaft, and a pair of wheels on the said shaft, and provided with rollers to limit its tilting, substantially as specified.

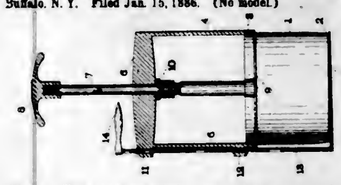
353,613. INHALER. DAVID B. WEIGHTMAN, Grand Rapids, Mich. Filed Sept. 20, 1886. (No model.)



Claim.—1. The combination of the parts A D, the sleeve *b* within and integral with said top A, and containing the slots *i i*, with a thimble fitting snugly within said sleeve, and having corresponding slots, the mouth-piece C, and chin-piece B, as shown and described.

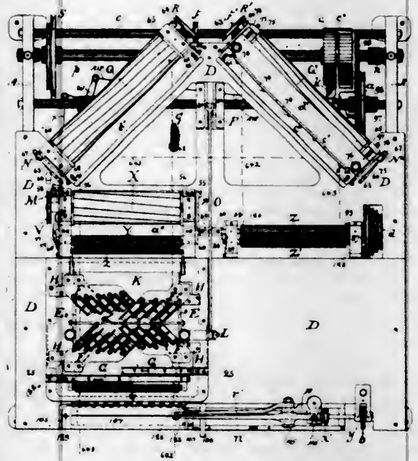
2. In an inhaler, the parts A D, united by a screw-joint and having a slotted sleeve integral with said top A, and the guard *a*, also integral with said top, in combination with the slotted thimble *d*, fitting closely in said sleeve and adapted to turn therein, the stop *h*, mouth-piece C, and chin-piece B, as shown and described.

358,614. CUTTER FOR BUTTER, LARD, &c. RUSSELL WELLS, Buffalo, N. Y. Filed Jan. 15, 1886. (No model.)



Claim.—The open-top tubular cutter 1, secured to the rim 3, and the vertical frame-pieces 4 5 and cross-bar 6, the cross-bar 6 having a lug, 11, and the vertical bar 5 a lug, 12, in which is secured a vertical rod having a handle, 14, at the top and a swinging cutter, 15, at the bottom, in combination with a vertical rod, 7, provided with a handle, 8, an adjusting-sleeve, 10, and a piston, 9, substantially as and for the purposes described.

353,615. MACHINE FOR CLIPPING LACE, &c. CHARLES H. WILLCOX, New York, N. Y. Filed Feb. 5, 1885. (No model.) Patented in Germany Jan. 17, 1885, No. 33,937; in England Jan. 20, 1885, No. 837; in France Nov. 4, 1885, No. 172,262, and in Belgium Nov. 4, 1885, No. 70,731.



Claim.—1. The combination, with the lace-plate and feed-rolls, or the fabric supporting and advancing means, of the pickers movable obliquely to the movement of the fabric, said pickers having lifting-fingers for entering beneath the loose threads to be clipped, substantially as described.

2. In combination with the fabric supporting and advancing means, the series of pickers arranged at different angles with respect to the movement of the lace or fabric to be clipped, substantially as described.

3. The combination, with the pickers of a clipping-machine, of a take-up for drawing in fabric when the pickers are out of action, and afterward giving up the same to be drawn in by the pickers, substantially as described.

4. The combination, with the pickers of a clipping-machine and the continuously-acting feed-rolls, of a take-up for acting upon the fabric between the feed-rolls and the pickers, substantially as described.

5. The combination, with the throat-plate around which the fabric bent over the edge thereof is to be drawn, of cutters for mowing off the loose threads, said throat-plate and cutters being set obliquely to the movement of the said fabric, substantially as described.

6. The combination, with a supporting-frame, of two mowing mechanisms arranged at an angle one to the other, and comprising each a throat-plate and cutters, and feeding mechanism for feeding the fabric successively between the throat-plate and cutters of the two mowing mechanisms, substantially as described.

7. The combination, with the fabric supporting and feeding means of a clipping-machine, of mowing mechanisms arranged at different angles to the line of feed, and comprising each a throat-plate and cutters, substantially as described.

8. The combination, with the fabric supporting and feeding means of a clipping-machine, of pickers and cutters for cutting the loose threads, arranged obliquely to the line of feed, and devices for mowing off the cut-threads, also arranged obliquely to the line of feed, substantially as described.

9. The combination, with the fabric supporting and feeding means of a clipping-machine, of pickers and cutters for cutting the loose threads, arranged at different angles to the movement of the fabric, and mowing mechanisms, also arranged at different angles to the said movement, substantially as described.

10. The combination of two sets of feed-rolls and the mechanism for acting upon the fabric between the said sets with mechanism for revolving said feed-rolls, the second set at the greater surface speed, said mechanism including a friction device for engaging the said second set of rolls, whereby they act to keep the fabric stretched between the two sets of feed-rolls, substantially as described.

11. In combination with the slotted lace plate, a series of pickers carried by a common support and having lifting-fingers for entering beneath the loose threads, and means whereby said common support can be moved so as to operate said pickers simultaneously, substantially as described.

12. The combination, with a series of pickers having lifting-fingers provided on top with cutting-edges, of a blade common to and co-operating with the series of pickers, and arranged at the side of and above said lifting-fingers, and operating means, substantially as described.

13. The combination, with the slotted lace-plate, of a slide, means for moving said slide, an arm attached to said slide and overhanging said lace-plate, and a series of pickers attached to said arm, substantially as described.

14. The combination, with the slide, the overhanging arm, and the pickers attached to said arm, of the vertically-movable bed, whereon the said slide is supported, and means whereby said slide and said bed can be operated, substantially as described.

15. The combination, with the vertically-movable bed, of picker-slides mounted in ways on said movable bed and mechanism for operating said bed and said slides, substantially as described.

16. The combination, with the movable bed and the links and eccentrics for reciprocating the same vertically, of picker-slides mounted on said bed and eccentrics and connections for reciprocating said slides, substantially as described.

17. The combination, with picker-slides, of a wrist-plate, the links between the wrist-plate and slides, and an eccentric and connections for vibrating said wrist-plate, substantially as described.

18. The combination, with the movable bed and the eccentrics and links for moving the same up and down, of picker-slides on said bed, a wrist-plate, the links between the wrist-plate and the slides, and the eccentric and links for vibrating said wrist-plate, substantially as described.

19. The combination, with a series of pickers and a common support to which the pickers are attached, of mechanism for giving a rising-and-falling and back-and-forth movement to said support, substantially as described.

20. The combination, with the pickers of a clipping-machine, of mechanism for giving a back-and-forth and also a rising-and-falling motion to said pickers, said mechanism comprising the vertically-movable bed and the picker-slides movable in ways on said bed, in connection with the means for reciprocating the said bed and slides, substantially as described.

21. The combination of the grooved lace-plate, the pickers, the overhanging arms to which said pickers are attached, the picker-slides, the movable bed, and the eccentrics and connections for reciprocating said bed, and also for reciprocating said slides on said bed, substantially as described.

22. The combination, with the series of cutting-pickers, an overhanging arm forming a common support to which the cutting-pickers are fastened, and the mechanism for giving a back-and-forth and also an up-and-down motion to said support, of one or more stationary cutting-blades co-operating each with more than one picker, substantially as described.

23. The combination, with the picker-frame, lace-plate, cutting-pickers, and a common movable support to which the pickers are fastened, of co-operating cutting-blades projecting over the lace-plate and alongside the said cutting-pickers, substantially as described.

24. The combination, with the stationary blade and the rotary cutter, of the movable throat-plate and lever and connections for moving it toward and away from said cutter, substantially as described.

25. The combination, with the movable throat-plate and the movable feed-roll, of the mechanism for moving them simultaneously, substantially as described.

26. The combination, with the pairs of feed-rolls, one roll of each pair being movable away from the other, of mowing mechanisms comprising each a throat-plate and cutters, the throat-plate being movable away from the cutters, and the levers and connections for moving the feed-roll away from its fellow and the throat-plate from the cutter, substantially as described.

27. The combination, with the two throat-plates arranged at an angle to each other, of the intermediate adjustable guide-piece around which the fabric is led, substantially as described.

28. The combination, with the guide-piece and the spring for holding it up, of the movable segment for adjusting the position of the guide-piece, substantially as described.

29. The combination, with a feed-roll and its shaft, of a second feed-roll having its shaft in line with and coupled to the shaft aforesaid, the said second feed-roll having the larger diameter, and being composed of a sleeve connected by friction with its shaft, substantially as described.

30. The combination, with the lace-clipping machine, comprising feeding mechanism for advancing the fabric to be clipped lengthwise through the machine and the clipping mechanism for removing the loose threads therefrom, of the sewing-machine movable in ways at the front of the machine across the fabric, for stitching together the ends of different lengths, substantially as described.

31. The combination, with the sewing-machine movable lengthwise of its stationary arm for sewing together lengths of fabric at the ends, and the machine for operating upon the fabric, the same having feed mechanism for moving the fabric transverse to the movements of the sewing-machine, of driving mechanism, combined and arranged as described, whereby the feeding of the said fabric is arrested when the sewing-machine is brought into action, substantially as set forth.

32. The combination, with the mowing-off cutters, of the throat-plate, the lever and links for moving the same toward and away from the cutters, and the screw-stop for regulating the closeness of the edge of said throat-plate to said cutters, substantially as described.

33. A double row of pickers, in combination with two stationary blades arranged between or on opposite sides of the double row of pickers, substantially as described.

34. A spring-cutting picker consisting of a shank to be secured in a socket, an elastic and flexible middle portion of less thickness than said shank, and a lifting-finger of greater width than the thickness of said middle portion having a cutting-edge, substantially as described.

35. The combination of a movable spring-picker having a lifting-finger provided with a cutting-edge, in combination with a stationary co-operating blade and means for operating said picker, substantially as described.

36. A series of movable spring-pickers having lifting-fingers provided each with a cutting-edge, in combination with a stationary blade common to and co-operating with the series of spring-pickers and means for operating said pickers, substantially as described.

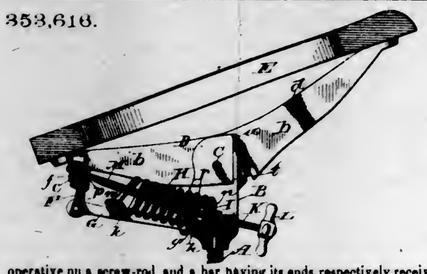
37. A double row of spring-pickers having lifting-fingers provided each with a cutting-edge, the cutting-edges being formed on opposite sides of the lifting-fingers in the pickers of the two single rows, in combination with means for operating said pickers and co-operating stationary blades, substantially as described, so that the elastic pressure of the pickers of the two rows against the stationary blades is in opposite directions, as set forth.

38. A row of pickers having the horizontal lifting-fingers in the same line and pointing in the same direction, in combination with mechanism for giving an up-and down and back-and-forth movement to said pickers, one picker acting as a guard to hold down the fabric, and thus to keep the point of the lifting-finger behind from catching in said fabric, substantially as described.

353,616. TILTING-CHAIR IRON. HERMANN WOLFF, Milwaukee, assignor to the Webster Manufacturing Company, Menasha, Wis. Filed May 1, 1886. (No model.)

Claim.—1. The combination, with a standard fast to a spindle and a spider-frame pivotally united to the standard, of a rectangular link toggled at its rear end to the spider-frame and having its forward end provided with bearings designed to engage notches in said standard, a spiral spring connected at one end to the link and at the other to a bushing

353,616.



operative on a screw-rod, and a bar having its ends respectively received by the toggle and bushing, as set forth.

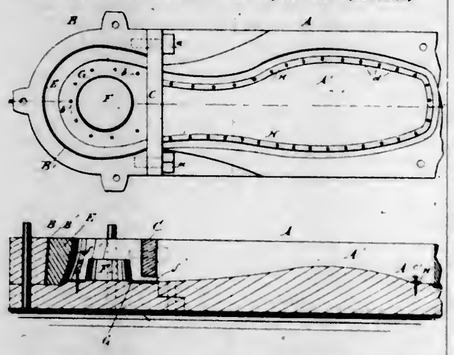
2. The combination, with a standard fast to a spindle and a spider-frame pivotally united to the standard, of a toggle-link uniting the spider-frame with a rectangular link, the latter having a bearing in the standard, a spiral spring secured at one end to the rectangular link and at the other to a recessed bushing operative on a screw-rod, and a bar having its front end adapted to fit said bushing and its rear end received by a notch in the toggle-link, as set forth.

3. The combination of a bifurcated standard fast to a spindle and provided with shoulders, and a spider-frame pivoted to the standard and having rocker-bearings on the shoulders thereof, with a spiral spring secured at its rear end to a link toggled to said spider-frame, and a bushing threaded to receive the forward end of the spring and operative on a screw-rod that bears against a rod extending from the bushing to the toggle-connection of the spider-frame, as set forth.

4. In a tilting-chair iron, a spider-frame comprising longitudinal side bars having enlarged perforated ends and integral cross-pieces uniting the side bars, the rear cross-piece centrally reduced to form a bearing, and said bars pivotally connected to a bifurcated standard fast on a spindle, in combination with a toggle-link operatively connected to the rear cross-piece of the spider-frame, a rectangular link pivoted to the toggle-link, a spiral spring connected at one end to said rectangular link, a bushing operative on a screw-rod and in turn connected to the other end of the spring, and a bar arranged to have its respective ends in impingement against said toggle-link and screw-rod, as set forth.

5. In a tilting-chair iron, a rectangular link having its front end shouldered and reduced and its rear end toggled to a spider-frame pivotally connected to a standard that is fast on a spindle and provided with notches for the reduced end of the link, in combination with a spiral spring secured at one end to the rectangular link and at the other to a recessed bushing operative on a screw-rod, and a bar fitting the recessed portion of the bushing and impinging against the toggle-connection of the spider-frame and said link, as set forth.

353,617. MOLD FOR SOLES AND HEELS OF BOOTS OR SHOES. DARIUS BAKER, Morrisville, Pa. Filed July 29, 1886. (No model.)

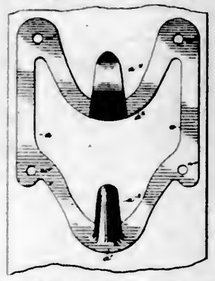


Claim.—1. The combination, with a mold for a boot or shoe heel, of a removable heel-back, E, made of flexible material and curved and undercut at its inner surface, substantially as described.

2. The combination, with the heel portion of the mold, of the removable tack-holding plate G, having a series of holes formed in it, the bottom of the heel portion of the mold having a corresponding series of holes formed in it, substantially as described.

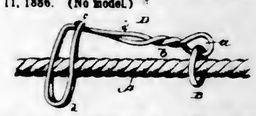
3. The combination, with the foot portion of the mold, of the narrow removable tack-holding plate H, formed with a series of holes, *d*, the mold being formed with corresponding holes to receive the points of the nails, substantially as described.

353,618. LINE AND TRACE CARRIER. JOHN S. BEESLEY, Brookhaven, Miss. Filed July 14, 1886. (No model.)



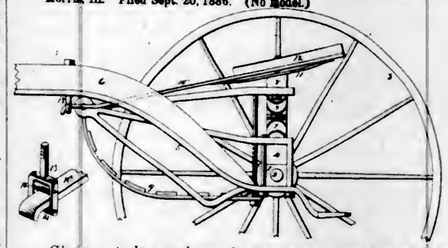
Claim.—As an improved article of manufacture, the herein-described plate to be secured over the back-bands of harness, and made of a skeletonized frame comprising the side bars, *a*, the transverse bars a^3 a', connecting the side bars at their extremities, and the hooks a^2 a^4 on the transverse bars arranged one beneath the other, the hook a^2 receiving the trace, while the hook a^4 supports the rein, as set forth.

353,619. CLOTHES-PIN. SERAPHIN E. BERGERON, Butte City, Mont. Filed Jan. 11, 1886. (No model.)



Claim.—A clothes-pin consisting of a single piece of wire doubled to form a loop, *a*, and twisted, as at *b*, to close the loop, the free ends of the wire each being bent and secured to the body portion, as shown and described, forming two loops, *d*, extending at right angles to the body of the pin and adapted to clamp the clothes between them, said pin being provided with a ring at its looped end, substantially as set forth.

353,620. TWO-WHEELED VEHICLE. GEORGE C. BOVEY, Mount Morris, Ill. Filed Sept. 20, 1886. (No model.)

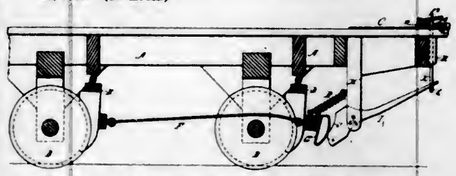


Claim.—1. In a road-cart, the transverse combination, with the thills and with the spring-bar, of a seat-supporting side spring having a free connection of its forward end with the thills, and its rear end portion supported on the transverse spring-bar, substantially as and for the purpose set forth.

2. In a road-cart, the combination, with the spring-bar and with the side-spring support to the seat having a free connection of its forward end with the thills, of an auxiliary spring between the spring-bar and the side-spring support to the seat, substantially as and for the purpose set forth.

3. The combination, with the side-spring support to the seat and with the thills, of an anti-friction-roller support of the forward end of the side-spring support, substantially as and for the purpose set forth.

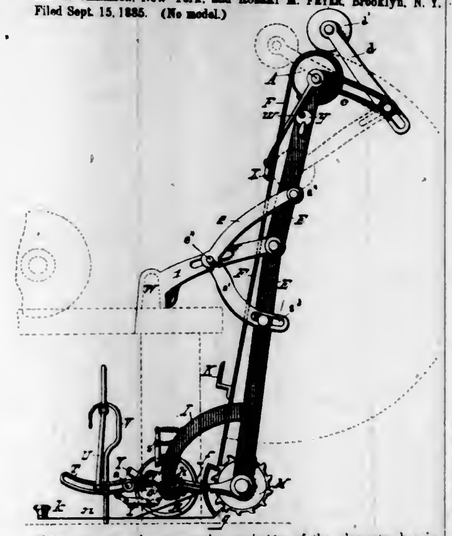
353,621. CAR-BRAKE. ALFRED G. BUTTERFIELD, High Point, N. C., assignor of one-half to Goodell & Waters, Philadelphia, Pa. Filed July 28, 1886. (No model.)



Claim.—1. The combination, with a brake-beam having a shoe, G, of a lever, I, having a head or short arm which forms a toggle with said shoe, and a standard, K, connected with said lever, adapted to move the latter when depressed, substantially as shown and described.

2. The combination, with a brake-beam, D, having a shoe, G, with curved outer side, of a lever, I, having an arm with convex and concave curves *i i'*, substantially as shown, and for the purpose set forth.

353,622. COPY-HOLDER FOR TYPE-WRITING MACHINES. WILLIAM H. CLARKSON, New York, and ROBERT M. FRYER, Brooklyn, N. Y. Filed Sept. 15, 1885. (No model.)



Claim.—1. A spring-actuated copy-holder of the character herein described, provided with releasing or escape mechanism, in combination with the operating mechanism of a type-writing machine, substantially as shown and described.

2. In a copy-holder for type-writing machines, the combination of two rollers, one of which is spring-actuated, an apron or carrier connecting said rollers and adapted to be wound from one upon the other, an escape mechanism connected with one of said rollers for intermittently releasing the same, and a connection between said escape mechanism and the operating mechanism of the type-writing machine, substantially as shown and described.

3. In a copy-holder for type-writing machines, the combination of a roller, an escape mechanism connected therewith, means, substantially as described, for actuating the escape mechanism, and a variable connection between said actuating mechanism and the operating mechanism of the type-writing machine by which the speed can be regulated, substantially as shown and described.

4. In a copy-holder for type-writing machines, the combination of an apron, a roller upon and from which the same may be wound, an escape mechanism connected with and controlling the movement of said roller, a rotating wheel and crank for operating the escape mechanism, a lever, T, and pawls connected therewith for driving said wheel, and a connection between said lever and the operating mechanism of a type-writing machine, substantially as shown and described.

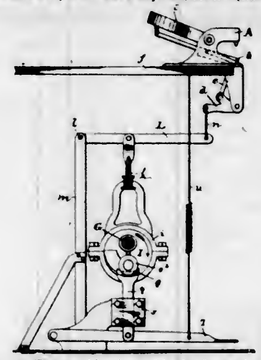
5. In a copy-holder for type-writing machines, the combination of an apron, a roller upon and from which the apron is wound, an escape mechanism for controlling the movement of the roller, a driving mechanism connected with and actuated by the operating mechanism of the type-writing machine, a flexible connection between the driving and the escape mechanisms, and a lever connected with the escape mechanism for actuating the latter independently of the driving mechanism, substantially as shown and described.

6. The combination of the roller B, the escape-wheel M thereon, the pallet *g*, for controlling the escape-wheel, having slotted arm P, the wheel S, and its crank O, the latter in engagement with the arm P, a lever and pawls, T Y Y, for actuating the wheel S, and a connection between said lever and the operating mechanism of the type-writing machine, substantially as shown and described.

7. In a copy-holder for type-writing machines, the combination of the roller B, the escape-wheel M thereon, the pallet *g*, for controlling the escape-wheel, the slotted arm P, flexibly connected with the pallet, a driving-wheel and crank S O, an actuating mechanism connected with the operating mechanism of the type-writing machine for driving said wheel S, and a lever, *n*, rigidly connected with the pallet *g*, by which the latter may be operated independently of its driving mechanism, substantially as shown and described.

8. The combination, in a copy-holder for type-writing machines, of a roller and a carrying-apron connected therewith, an escape-wheel, M, on said roller, a spring-controlled pallet, *g*, to govern the escape-wheel, and a hand-lever, *n*, connected with said pallet, whereby the latter may be operated by hand to permit the rotation of the roller, substantially as and for the purposes described.

353,623. TRIP FOR OPERATING BUTTON-ATTACHING MACHINES. WILLIAM CRAIN, Baltimore, Md., assignor of three-fourths to Wise Bros., same place. Filed Sept. 23, 1886. (No model.)

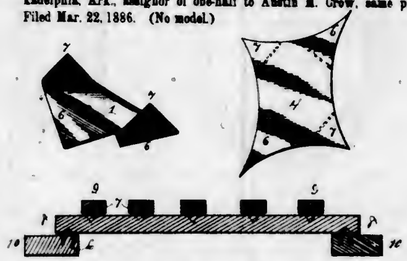


Claim.—1. The combination, with the jaws of a button-attaching or eyelet machine, of a drive-shaft, G, having a fixed rotary head, H, provided in its side with a hole, *h*, an eccentric, I, loose on the drive-shaft and provided with a spring-bolt to engage with the hole in the rotary head, a connection, substantially as described, between the eccentric and the movable jaw of the machine, and a retractor to keep the spring-bolt normally disengaged from the rotary head, as set forth.

2. The combination, with the jaws of a button-attaching or eyelet machine, of a drive-shaft, G, having a fixed rotary head, H, provided in its side with a hole, *h*, an eccentric, I, loose on the drive-shaft and provided with a spring-bolt to engage with the hole in the rotary head, a trip-lever, L, connected with the movable jaw, and also with the eccentric, and a wedge-shaped retractor, Q, having its point part in a direction opposite that in which the eccentric revolves and occupying a position in the path of the spring-bolt, for the purpose set forth.

3. The combination, with the jaws of a button-attaching or eyelet machine, of a drive-shaft, G, having a fixed rotary head, H, provided in its side with a hole, *h*, an eccentric, I, loose on the drive-shaft and provided with a spring-bolt to engage with the hole in the rotary head, a trip-lever, L, connected with the movable jaw, and also with the eccentric, a treadle, T, and a retractor to actuate the said spring-bolt, said retractor being attached to the treadle, for the purpose set forth.

353,624. STRINGER AND TIE FASTENER. JACOB W. CROW, Arkadelphia, Ark., assignor of one-half to Austin M. Crow, same place. Filed Mar. 22, 1886. (No model.)

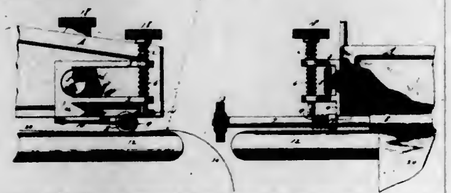


Claim.—A stringer and tie fastener, 1, being made of a plate of metal, as above described, having the shorter points, 7, turned up and perpendicular to the face of the plate and parallel with each other, and its longer points, 6, turned down perpendicular to the face of said plate and parallel with each other, substantially as shown and described.

353,625. LEAF-HOLDING ATTACHMENT FOR TYPE-WRITING MACHINES. THEODORE A. CURTIS, Formosa, Fla. Filed July 7, 1886. (No model.)

Claim.—1. The combination of the frame of the key-board portion of a type-writing machine, a spring-pressure feed-roll having its bearings connected with said portion of the frame, and a pressure-bed or platen against which said feed-roll is adapted to be rotated, whereby a sheet or leaf having written or printed matter thereon may be moved in be-

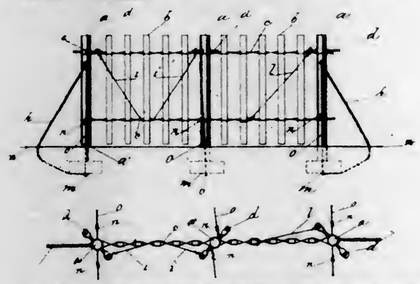
353,625.



tween said roll and pressure-bed or platen and the successive lines to be copied indicated thereby, substantially as described.

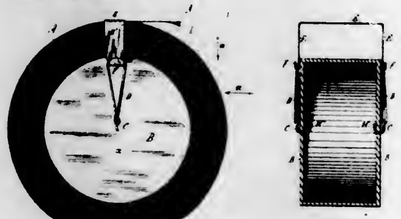
2. The combination of the frame of the key-board portion of a type-writing machine, a spring-pressure feed-roll having its bearings connected with said portion of the frame, a pressure-bed or platen against which said feed-roll is adapted to be rotated, and a finger-key consisting of a rod having a clutch-connection with said pressure feed-roll, whereby said roll may be given an intermittent rotary movement in one direction only by pressure of the finger on said key, substantially as described.

353,626. FENCE. LUCIAN A. CUSHING, New Paris, Ohio. Filed Mar 26, 1886. (No model.)



Claim.—A fence composed of the posts *a*, each provided with a metallic continuation, *a'*, brace-levers *d d*, connected with brace-wires *i i l*, and side brace-wires, *o o*, combined with the horizontal wires *c c*, pickets *b b*, and the foundation *m*, in the manner and for the purpose herein set forth and described.

353,627. RIBBON-HOLDER. LEVI M. DEVORE, Freeport, Ill., assignor of one-half to Charles D. Knowlton, same place. Filed Mar. 4, 1886. (No model.)

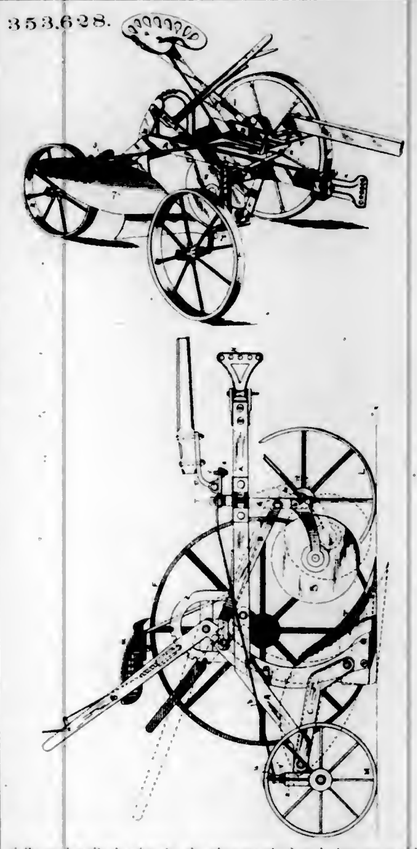


Claim.—1. In a ribbon-holder, the combination of a central cylindrical block, revoluble hooks at the centers of the end faces of the block, a rigid bar adapted to lie in contact with the face of the ribbon wound on said block, and two elastic links connecting the respective ends of said bar with said hooks, respectively, substantially as and for the purpose set forth.

2. In a ribbon-holder, the combination of a hollow cylindrical block, independent hooks pivotally attached to the end walls of said cylinder by passing through said walls at their respective centers, a rigid bar resting upon the cylindrical surface of the coiled ribbon, and elastic links connecting the respective hooks with the corresponding ends of said bar.

3. The bar E, having arms E' E' and hooks F F, the elastic links D D, the revoluble double hooks C C, and the hollow block B, combined substantially as set forth.

353,628. WHEEL-PLOW. ISAAC R. GILBERT, Charlestown, Ind. Filed Mar. 9, 1886. (No model.)



Claim.—1. In a three-wheeled plow, and in combination with the wheels and frame of the same, a plow, a standard, B, a hand-lever jointed directly to the top of said standard and fulcrumed on the frame, substantially as described, whereby the plow-standard and plow are positively controlled longitudinally and vertically by said lever.

2. In a three-wheeled plow, and in combination with the frame and wheels of the same, a plow, a standard, B, a hand-lever jointed directly to the top of said standard and fulcrumed on the frame at a point in front of said standard, so as to move the same in a line curving backward of said fulcrum, and a thrust-bar jointed at its rear end to the frame and at its front end jointed to the heel of the plow, whereby the up and down movements of the plow are positively controlled by the hand-lever and by the composition of circular arcs, the initial movement of the point slightly in advance of the heel, and the general movement of the plow is in a horizontal position clear of the ground.

3. In combination with the frame of a three-wheeled plow, a plow connected behind with the frame by means of a thrust-bar jointed to said frame at one end and to the plow at the other, a lifting-lever pivoted on the frame and jointed to the plow-standard, and a caster-colter whose standard is jointed to the frame and connected with the lifting-lever by a connecting-rod, substantially as and for the purpose set forth.

4. A plow and a lifting-lever for the same jointed to the standard, combined with a main frame composed of two parallel side bars bent downward at the place of intersection with the plow-standard, so as to cross said standard obliquely, for the purpose set forth.

5. A wheel-frame made from flat or channel bars parallel and with an intervening space, combined with the plow-standard B and thrust-bar C, located in said intervening space, whereby said standard and thrust-bar are supported laterally in both directions by the bars of the frame itself.

6. The following wheel M, mounted on an arm pivoted midway its length on the bracket 10, which projects from the frame laterally to the middle of the furrow, or thereabout, said arm extending laterally from said pivot to the spindle of said wheel, as and for the purpose set forth.

7. A plow, 7, attached to a wheel-frame, whereon it may be supported for transportation, and bearing-wheels for said frame, two of said wheels being located on the furrow side, one in advance and one in rear of said plow, both mounted on arms pivoted to said frame, combined with a rod, 3, jointed at its rear end to the arm 2 at 4 on the land side of its pivot, and at its front end to the bolster R on the furrow side of its pivot, as and for the purpose set forth.

8. A plow, 7, attached to a wheel-frame whereby it may be supported for transportation, and bearing-wheels for said frame, two of said wheels being located on the furrow side of said frame, the larger one in advance and the smaller one in rear of the plow, both pivoted on laterally-extended arms fastened to said frame, combined with a bolster, F, also pivoted on said frame and connected with swinging arms 2 and *q* by bars 3 and *s*, as set forth.

9. In a three-wheeled plow, a hollow standard or pipe-box, O, secured to the frame by bracket P, and a shaft, N, to turn therein, provided with a transverse socket-bearing, *p*, at the lower end of said shaft, combined with the spindle for the leading wheel L, adjustably secured in said socket *p*, whereby said spindle may be turned over or laterally adjusted, as set forth.

10. A three-wheeled plow provided with a substantially equilateral triangular frame, one side whereof is substantially in the line of advance, three wheels of different diameters, the larger one being at the angle opposite the furrow side and the smaller one being behind the plow, and said furrow-wheels being wholly controlled by the lateral movements of the tongue.

11. In a three-wheeled plow, a main frame composed, essentially, of parallel bars A A, a caster-colter the standard whereof is pivoted at its upper end to said frame, and a connecting-bar, D, attached at one end to said standard and passing between said bars A A, combined with the hand-lever by which the plow is lifted, whereby the side bars, A A, support said connecting-rod D laterally and prevent lateral sway of the colter-standard.

353,629. FIRE-PROOF COMPOUND. CHARLES C. GILMAN, Eldora, Iowa. Filed July 13, 1884. (Specimens.)

Claim.—1. The process or method of producing the material herein described, which consists in simultaneously mixing and grinding together, in suitable proportions and in powerful mills, alluvial clay, sawdust, and water, so as to produce a homogeneous plastic mass, then subjecting this mass to the action of a press, then dividing the same into blocks or pieces of suitable length, then partially drying, and finally burning the same in a kiln by the combined action of external heat and the combustion of the imprisoned sawdust, substantially as described.

2. The process or method of producing the material herein described, which consists in simultaneously mixing and grinding together, in suitable proportions and in powerful mills, sawdust, water, and alluvial clay substantially free from sand or grit, so as to produce a homogeneous plastic mass, then subjecting this mass to the action of a press, then dividing the same into blocks or pieces of suitable length, then partially drying, and finally burning the same in a kiln by the combined action of external heat and the combustion of the imprisoned sawdust, substantially as described.

3. The process or method of producing the material herein described in finished form or condition, which consists in simultaneously mixing and grinding together, in suitable proportions and in powerful mills, sawdust, water, and alluvial clay substantially free from sand or grit, so as to produce a homogeneous plastic mass, then subjecting this mass to the action of a press, then dividing the same into blocks or pieces of suitable length, then partially drying by atmospheric influences, then burning in a kiln, substantially as described, and finally sawing or working the same with edged tools to the form required, substantially as set forth.

4. The new material or product hereinbefore described, which consists of kiln-burned alluvial clay having the porosity and homogeneity substantially as described.

5. The new material or product hereinbefore described, which consists of kiln-burned alluvial clay substantially free from sand or grit and possessing the porosity and homogeneity substantially as described.

353,630. PROCESS OF PRODUCING A BUILDING MATERIAL. CHARLES C. GILMAN, Eldora, Iowa. Filed Dec. 26, 1885. (Specimens.)

Claim.—1. That improvement in the art of making porous earthenware which consists in mixing clay with fibrous vegetable matter cut in lengths, substantially as described, expressing the mixture through a press of expression, so as to cause the lengths of vegetable matter to arrange themselves parallel to the length of the material, and, subsequently to drying, burning the same, substantially as described.

2. That step in the process of making porous earthenware which consists in mixing with clay a sufficient quantity of straw or equivalent fibrous vegetable matter cut into lengths, substantially as described, for the purpose of preventing the cracking and shrinking apart in drying, substantially as set forth.

3. A porous earthenware product characterized by longitudinal pores, cells, or holes formed by the burning out of imprisoned fibrous vegetable matter, substantially as described.

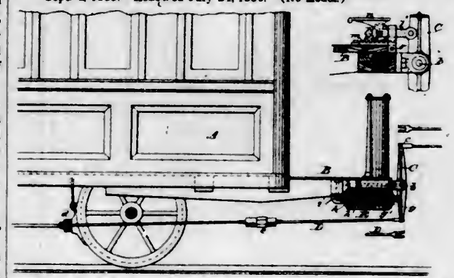
353,631. ART OF MAKING POROUS EARTHENWARE. CHARLES C. GILMAN, Eldora, Iowa. Filed Apr. 24, 1886. (Specimens.)

Claim.—1. That improvement in the art of making porous earthenware which consists in mixing clay, sawdust, and straw cut in lengths substantially as described, in expressing the mixture through a press, and in burning the same in a kiln, substantially as described.

2. That improvement in the art of making porous earthenware which consists in expressing a mixture of clay, sawdust, and straw cut in lengths, substantially as described, through a press, in contradistinction to compressing the same, whereby the pieces of straw are caused to arrange themselves parallel with each other and with the axis of the press, substantially as described.

3. A porous earthenware product in large blocks made by mixing clay, sawdust, and straw cut in lengths, substantially as described, and subsequently expressing and burning the mixture, as hereinbefore described, substantially as described.

353,632. CAR STARTER AND BRAKE. EMIL HARTMANN, Philadelphia, Pa., assignor of one-half to Charles Wendt, same place. Filed Sept. 4, 1885. Renewed July 24, 1886. (No model.)



Claim.—1. In a car-starter, the combination of the lever C and spring E with the brake-rod and brake-blocks, arranged substantially as shown, and for the purpose herein specified.

2. In a car-starter, the lever C, pivoted to the platform and having attached to it the spring E, which is connected at its opposite end to a bracket, *i*, and supported in cup-shaped plates *g* and *h*, all constructed substantially as and for the purpose set forth.

3. The combination of a spring, E, supported in cup-shaped plates *g* and *h*, and incased in a suitable casing, with a lever, C, and arranged to exert its tension both in starting and stopping the car, substantially as specified.

4. The combination of a spring, E, supported in cup-shaped plates *g* and *h*, with an expansible casing, and connected to a lever, C, fulcrumed at *b*, and having attached to it the brake-rod at one end and the horses at the upper end, in the manner shown, and for the purpose set forth.

5. The car-starter herein described, consisting of a fulcrumed lever, C, to which the brake-rod D, having torn-buckle *e*, is connected, and the spring E, supported in cup-shaped plates *g* and *h*, a guide-rod, *k*, and the brackets *b* and *i*, all constructed and arranged as herein shown, and for the purpose specified.

6. In a car-starter, a lever, C, pivoted to a bracket, *b*, and connected to the brake-blocks at one end and to the horse-harness at the other, and carrying a pinion, *l*, meshing with a rack, *m*, and a treadle, *n*, having pawl *n'*, all arranged as and for the purpose set forth.

7. The combination of a treadle, *n*, having pawl *n'*, engaging with the teeth of a rack-bar, *m*, with the pinion *l* and lever C, operated by a spring, E, as and for the purpose specified.

8. The combination of a treadle, *n*, having pawl *n'*, engaging with the teeth of a rack-bar, *m*, a pinion, *l*, meshing with said rack-bar and connected to the lever C, connected to the spring E, brake-blocks, and the horse-harness, all substantially as and for the purpose set forth.

353,633. BURNISHING-MACHINE. HENRY J. HOUSE, Camden, N. J. Filed Apr. 21, 1886. (No model.)

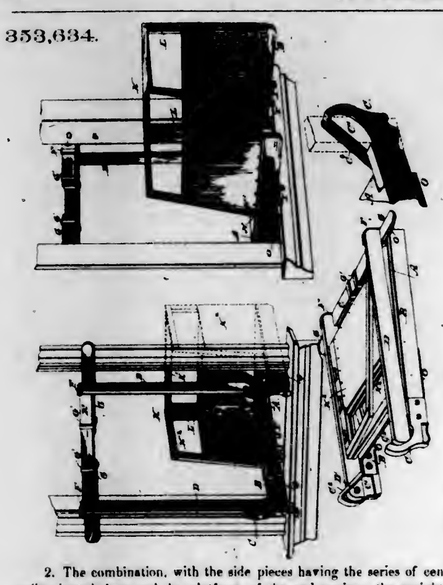


Claim.—A burnishing implement comprising a flexible body and a series of hard points secured thereto, for the purpose set forth.

353,634. ADJUSTABLE BALCONY. GOTTLIEB D. HUSEMANN, St. Louis, Mo., assignor of one-half to Charles Kroeninger, same place. Filed Aug. 3, 1886. (No model.)

Claim.—1. The combination, with the side pieces having the series of centrally-pivoted dogs and the platform, of the end castings, the uprights having the stops at their lower ends and connected at their upper ends by the cross-piece, and having the loops at their upper ends, and the adjustable arms having the end loops, as and for the purpose herein set forth.

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2. The combination, with the side pieces having the series of centrally-pivoted dogs and the platform, of the end castings, the uprights having the stops at their lower ends and connected at their upper ends by the cross-piece, and having the loops at their upper ends, the adjustable arms having the end loops, and the folding guard composed of the main part connected by the double hinges to the platform, and having the lower ends of its side pieces extended below the platform, the wings hinged, as described, to the said part, and the hooks for securing the wings in their open positions, all substantially as and for the purpose herein set forth.

3. The combination, with the side pieces having the series of centrally-pivoted dogs, the platform, and the cushions secured on their lower inner edges, of the end castings, the uprights having the stops at their lower ends, and connected at their upper ends by the cross-piece, and having the loops at their upper ends, and the adjustable arms having the end loops, and having the cushions secured to their operative faces, substantially as and for the purpose herein set forth.

353,635. SHOE FASTENER OR CLASP. Jacob Jackle Charlotte, Mich., assignor to Frank S. Belcher and John B. Belcher, both of same place. Filed Sept. 9, 1886. (No model.)



Claim.—1. The herein-described buckle, consisting of the toothed bar or frame, the plate having flanged portions, the parallel arms having shouldered ends, and the spring-tongue having lugs or flanges, substantially as shown and described.

2. The combination, with the toothed bar or frame, of the plate having flanged portions, and the parallel arms having shouldered inner ends, substantially as shown and described.

3. The combination, with the toothed bar or frame and the plate, of the parallel arms having shoulders formed on the inner ends thereof, and the spring-tongue, substantially as shown and described.

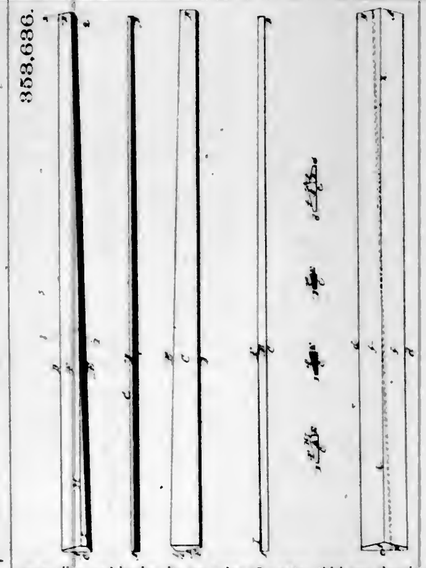
353,636. MANUFACTURE OF HARVESTER FINGER-BARS. Jas. H. Jones, Rockford, Ill., assignor to Emerson, Talcott & Co., same place. Filed Jan. 30, 1886. (No model.)

Claim.—1. A tapered finger-bar uniform in thickness on its front edge and its rear edge of greater thickness than its front edge, said bar diminishing on its rear edge in width and thickness toward its free or divider end.

2. A finger-bar of taper form in plan, having its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

3. A finger-bar of taper form in plan, uniform in thickness on its

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crown-line, and having its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

4. A finger-bar of taper form in plan, having its front edge uniform in thickness, its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

5. A finger-bar of taper form in plan, having its front edge uniform in thickness, its crown of uniform thickness greater than its front edge, and its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

6. A finger-bar of taper form in plan, having one plane side, and its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

7. A finger-bar of taper form in plan, having one plane side uniform in thickness on its crown-line, and its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

8. A finger-bar of taper form in plan, having one plane side, its front edge uniform in thickness, its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

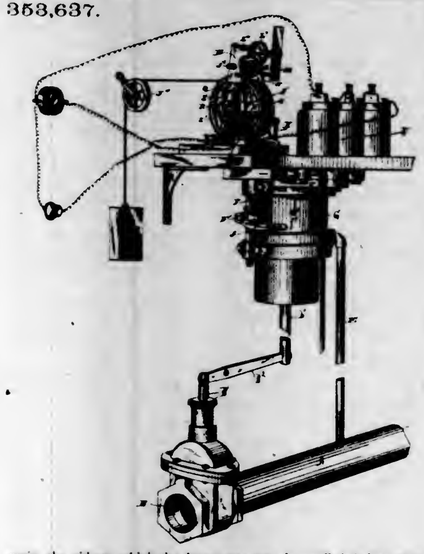
9. A finger-bar of taper form in plan, having one plane side, its front edge uniform in thickness, its crown of uniform thickness greater than its front edge, and its rear edge of greater thickness than its front edge, said rear edge produced in opposite uniform tapers in equal opposite angles from its point of greatest thickness nearest its shoe or heel end, substantially as and for the purpose set forth.

353,637. ELECTRICAL APPARATUS FOR WORKING VALVES. Henry Lely, Charles A. Carpenter, and Fred. B. Graves, Rochester, N. Y. Filed Aug. 2, 1886. (No model.)

Claim.—1. The combination, with a pipe or main and a cut-off valve arranged therein, of a cylinder having a piston operated by a difference in pressure on opposite sides and controlling by its position the valve in the main, the side to which the lesser pressure is applied being acted upon normally by a fluid, a passage through which fluid is admitted connecting with the side of the piston to which the greater pressure is applied, a valve located in said passage, devices for controlling the operation of said valve, and a device for starting or stopping the operation of said valve-operating mechanism.

2. The combination, with a pipe or main and a cut-off valve arranged therein, of a cylinder having a piston operated by a difference in pressure on opposite sides and controlling by its position the valve in the

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main, the side to which the lesser pressure is applied being normally acted upon by a fluid, a passage through which fluid is admitted, connecting with the side of the piston to which the greater pressure is applied, a valve in said passage, a device for controlling said valve, and an electric circuit and connections for starting or stopping the controlling device, substantially as described.

3. The combination, with a pipe or main and a cut-off valve arranged therein, of a cylinder having a piston operated by a difference in pressure on its opposite sides and controlling by its position the valve in the main, the side to which the lesser pressure is applied being normally acted upon by a fluid, a passage through which fluid is admitted, connected with the side of the piston to which the greater pressure is applied, a valve located in said passage, and automatically-operating mechanism for opening and closing said last-mentioned valve, and devices for throwing the operating mechanism into and out of operation, substantially as described.

4. The combination, with the supply-pipe or main and a cut-off valve arranged therein, of a cylinder having a piston presenting unequal areas to pressure on opposite sides and connected to the cut-off valve, a passage for establishing communication between the main and the cylinder on one side of the piston, a valve and connections for establishing communication between the opposite ends of the cylinder, a supplemental motor device for controlling said last-mentioned valve, and means, substantially as described, for starting and stopping said motor, as set forth.

5. The combination, with the supply-pipe and a main cut-off valve arranged therein, of a cylinder having a piston presenting unequal areas to pressure on opposite sides connected to the cut-off valve, a passage connecting the smaller side of the piston with the main, a passage connecting the two sides of the piston, a valve therein, and means for operating said valve, substantially as described.

6. The combination, with the supply-pipe and a main cut-off valve arranged therein, of a cylinder having a piston presenting unequal areas to pressure on opposite sides connected to the cut-off valve, a passage connecting the smaller side of the piston with the main, a passage connecting the two sides of the piston, a valve therein, and means for operating said valve, and a discharge-opening on the larger side of the piston, substantially as described.

7. The combination, with the two heads and the intermediate tubular portion constituting the piston, of the two-part cylinder in which said two heads work, the passage leading from the cylinder to the main or other source of pressure, the valve and connections for establishing communication with the cylinder on opposite sides of the piston, and the overflow or discharge pipe, substantially as described.

8. The combination, with the main valve and motor for operating it, of the valve controlling the motor, the shaft and its crank to which the valve is connected, mechanism for rotating said shaft, and devices controlled by an electric circuit for keeping said mechanism in check, substantially as described.

9. The combination, with the valve which controls communication between the opposite sides of the valve-operating piston, of the supplemental motor-shaft and its crank, mechanism for rotating said shaft, and devices controlled by an electric circuit for keeping said mechanism in check, substantially as described.

10. The combination, with the main cut-off valve, a motor for operating it, a valve by the manipulation of which said motor is operated, and a supplemental motor mechanism for operating said valve, of an electro-magnet for starting and stopping said motor, an electric circuit including the magnet, devices for making or breaking said circuit, and suitable switch devices operating to keep the circuit in a condition to permit the motor to fully open or close the valve, and switch devices for returning the circuit to normal condition when the operation is accomplished, substantially as described.

11. The combination, with the motor mechanism and the electro-magnet for controlling it, of the electric circuit containing the magnet, a circuit-closing device, and a switch connected to the motor and included in said circuit, operating upon the closing of the circuit and the starting of the motor to keep the circuit closed until a full movement is made and then to automatically break said circuit, substantially as described.

12. The combination, with the motor-valve, the supplemental motor for operating it, and the electro-magnet for controlling the motor, of an electric circuit including said magnet, a circuit-closer, a second electrical circuit including said electro-magnet and another circuit-closer, and a switch connected to the motor and included in both circuits, whereby upon closing either of the circuits the supplemental motor will be started and the circuit kept closed until the motor-valve is operated and then broken and the supplemental motor stopped, substantially as described.

13. The combination, with the valve, the motor for operating it, and the electro-magnet for controlling the motor, of an electric circuit including said magnet and a thermostatic circuit-closing device, and another circuit including a circuit-closer and the magnet, and the switch operated by the supplemental motor and arranged in both circuits, whereby upon the closing of one of the circuits the motor will be operated and the circuit kept closed until the motor-valve has been operated and then is broken and the motor stopped, substantially as described.

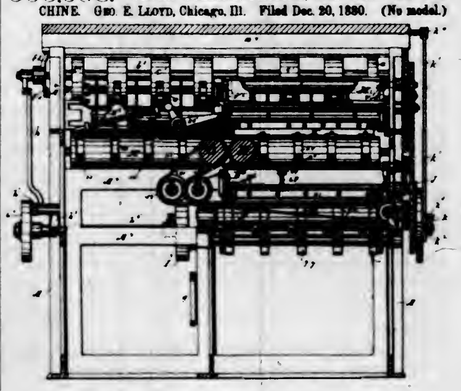
14. The combination, with a valve and a motor for operating it, of an electro-magnet for controlling said motor, two electrical circuits including said magnet, a switch included in both said circuits for alternately changing their condition and operated by a movement of the motor, and devices for manipulating said circuits, whereby when one circuit is manipulated the motor is started, the valve moved to one position, and the condition of the circuit changed, and when the other circuit is operated the motor is again started, the valve returned to first position, the first circuit restored to normal condition, and the last-operated circuit changed, substantially as described.

15. The combination, with the supplemental motor-shaft, of the means for rotating and governing the same, the insulating notched disk on the shaft, the spring contact-fingers, each in a separate circuit, the yoke with which they are adapted to make contact, the electro-magnet connected thereto and controlling the supplemental motor, and two electric circuits, each including one of the spring contact-fingers, the yoke, and electro-magnet, and means for varying said circuits, substantially as described.

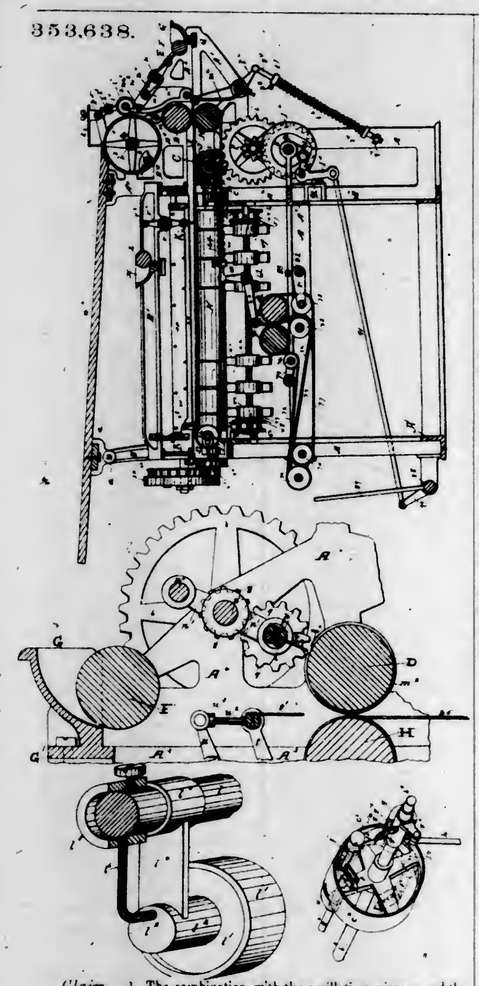
16. The combination, with the supplemental motor-shaft, of the means for rotating and governing the same, the notched disk on the end of the said shaft, the spring contact-fingers, the yoke, electro-magnet, armature, bell-crank, the stop-rod, and the electric-circuit connections, substantially as described.

17. The combination of the motor-shaft, the means for rotating and governing the same, the notched disk, the spring contact-fingers, the yoke and its contacts, the electro-magnet, armature, bell-crank, and governor-stop with the electric-circuit connections, including a thermostat or thermostats or other circuit-manipulating devices, substantially as described.

353,638. PAPER FOLDING, PASTING, AND TRIMMING MACHINE. Geo. E. Lloyd, Chicago, Ill. Filed Dec. 20, 1880. (No model.)



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Claim.—1. The combination, with the oscillating grippers and the gripper-carrying wheels, of the spring-actuated rollers bearing against and receiving motion from the peripheries of said gripper-wheels, the pin or stud upon which said rollers are journaled, the suspended bearings hanging from a loose sleeve on a rigid shaft, and a vertical spring connected at its lower end to said stud, and at its upper end to a sleeve encircling a rigid shaft, secured thereon in any desired position by a set-screw.

2. The combination, with the grippers and the gripper-carrying wheels, of the spring-actuated friction-rollers engaging said gripper-wheels and adapted to press the passing sheet against said wheel, and the adjustable sleeve l^5, substantially as shown.

3. The combination, with the gripper-wheels and grippers and the strippers, of the horizontally-revolving folding-roller arranged one above the other in a plane below the stripper, substantially as described and shown.

4. The combination, with the folding-blade, of an actuating-lever, the links adapted to oscillate said blade, and adjustable rod connecting said actuating-lever and links, whereby the stroke of said links and the oscillations of said folding-blade are regulated.

5. The pasting mechanism consisting of a pasting-blade having a planetary movement about the axis of its carrying-frame, in combination with a paste-roller and paste-reservoir, said blade being adapted to take paste from said paste-roller and apply it to the sheet of paper as it travels across the upper folding-roller once during a given number of revolutions.

6. The folding-rollers in combination with a rotary pasting-blade having a planetary movement about the axis of the carrying-frame.

7. The combination, with the folding-blade, the directing-lever u, and link u^2, of a crank-arm, t^2, rod t^3, an expansion-spring, t^5, upon said rod, and arm s^4, link s^3, lever J, and cam-wheel I, as set forth.

8. The feeding mechanism consisting of the gripper-wheels c, c', and c^2, the grippers e, and means for operating the same, the folding-blade, the folding-rollers, one of which is provided with a longitudinal groove, as set forth, a revolving pasting-blade, and the paste roller and reservoir, all combined and operating substantially as set forth.

9. The combination, with the gripper-carrying wheels c c' c^2, grippers e, and means for operating the same, strippers m m, folding-rollers, the carrier-tapes, and stop 28, of the second folding-blade placed at right angles to the first, and the second set of folding-rollers, as and for the purpose set forth.

10. The folding-rollers N and O, carrier-tapes 41, and guards 55, in combination with the revolving cutting-disks arranged on a plane below said rollers, at one side of a vertical line between them, in the manner shown and described.

11. The combination, with the power-shaft C, gripper-carrying wheels c, c', and c^2, and intermediate gearing, 1, 2, and 3, of the grippers e, tumbler f, studs f' and f^2, sleeves g and g', pin g^2, slot g^3, arm g^4, and pitman h, and means for operating the same.

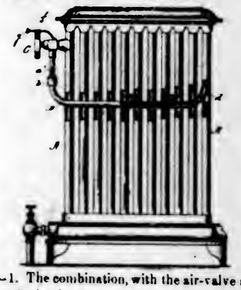
12. The combination, with the power-shaft C, gripper-carrying wheels, and intermediate gearing, 1, 2, and 3, of the strippers m, guards m^3, pinions 4 and 5, and folding-rollers D and H.

13. The combination, with the power-shaft, the folding-rollers D and H, the intermediate gearing, 1, 2, 4, and 10, and pinion 5 upon the roller D, of the pasting-blade frame, the planetary pasting-blade E, the gear 6, and intermediate gearings, 8 and 9.

14. The combination, with the power-shaft, the folding-rollers D and H, and intermediate gearing, of the folding-blade t', lever t, levers u, rods u^2, arms s^4, connecting-rods s^3, lever J, shaft h^3, cam-wheel, and gearing connecting said cam-wheel to the power-shaft.

15. The combination, with the power-shaft, the folding-rollers N and O, and intermediate bevel-gear, c' c^2, and gears 20 and 23, of the cutting-disks journaled at one side of a vertical line between said rollers N and O, in such manner below them as to trim the passing sheets of paper, as set forth.

353,639. AIR-VALVE FOR RADIATORS. James P. Marsh, Chicago, Ill. Filed Feb. 23, 1886. (No model.)



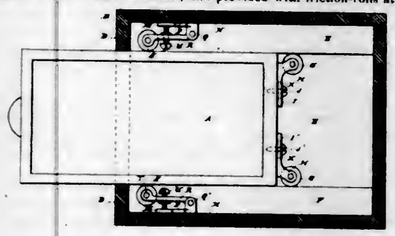
Claim.—1. The combination, with the air-valve and flues of a steam-radiator, of a tube having ports or openings therein and in operative connection with the said valve, and arranged horizontally in juxtaposition with the said flues, substantially as and for the purposes specified.

2. The combination, with the air-valve and flues of a steam-radiator, of a flexible evaporator-tube arranged horizontally between the flues, substantially as and for the purposes specified.

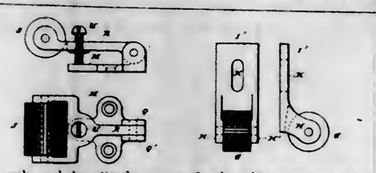
3. The combination, with the air-valve of a steam-radiator, of a flexible evaporator-tube having ports or openings therein, substantially as and for the purposes specified.

353,640. DRAWER-GUIDE. Lucius H. Nourse, Woonsocket, R. I. Filed Aug. 20, 1886. (No model.)

Claim.—1. The combination, with the drawer-case and its sliding drawer, of the parallel side guide-strips and levers, pivoted at one end to the inner side walls of the case, and provided with friction-rolls at their



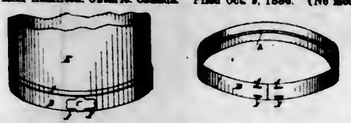
353,640.



opposite ends, and the adjusting-screws for the said levers, arranged between the pivotal point and rollers thereof, substantially as specified.

2. The combination, with the drawer-case and its sliding drawers, of side guide-strips and pivoted levers secured to the vertical side walls of the drawer-case, and provided with friction-rolls and adjusting screws, and the laterally-adjustable slotted castings attached to the rear ends of said drawers, and having friction-rolls journaled to bearing in the outer ends of said castings, substantially as specified.

353,641. LOCK-FASTENING FOR BOTTOM HOOPS OF MILK-CANS. J. O'Neill, Hamilton, Ontario, Canada. Filed Oct. 9, 1886. (No model.)

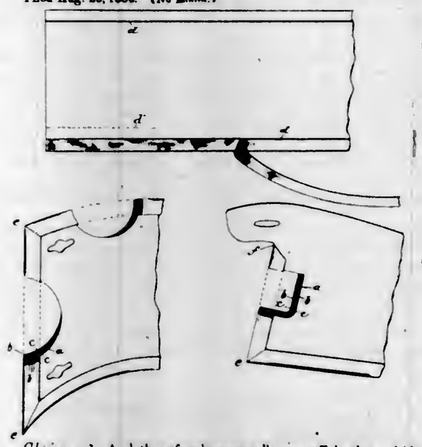


Claim.—1. The combination, with the bottom hoop, B, having horizontal end slots, A A', and provided internally with a longitudinal ogee molding, h, of the lock-plate C, having upper wings, d d, and lower wings, e e, substantially as described.

2. The combination, with a flanged milk-can bottom, D, of the hoop B, provided with end slots, A A', and having an internal longitudinal molding, h, and the lock-plate C, having upper and lower wings or projections, d e, to engage the slots in said hoop, substantially as described.

3. The combination of the bottom D, with its flange f, the bottom hoop, B, with projection h, the lock-plate C, with its projections d d e e, all arranged and constructed substantially as and for the purpose specified.

353,642. COLLAR OR CUFF. James D. Parsons, Springfield, Mass. Filed Aug. 25, 1886. (No model.)

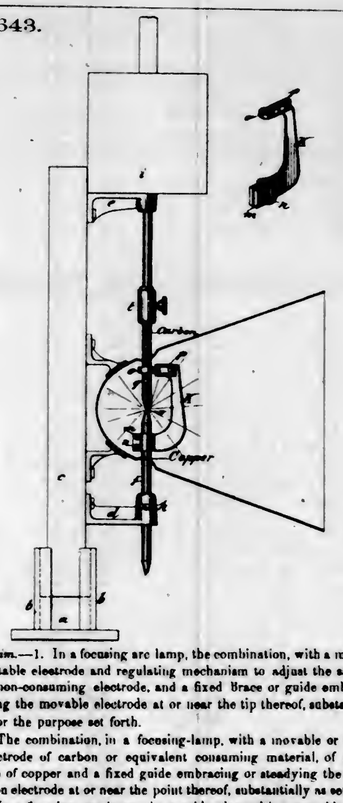


Claim.—1. A cloth-surfaced paper collar or cuff having a folded and pasted edge, the inner face of said collar or cuff being scored or partially cut and stripped of the cloth facing beneath the fold and outside the line of cut, substantially as hereinbefore set forth.

2. The improvement in the art of forming folded edges on cloth-surfaced paper collars or cuffs, consisting in scoring or partially cutting through the material along the edges on that face on which the fold is to be laid, then stripping from the fabric between the score-line and the adjoining edge the muslin or cloth facing, so as to expose the paper interior of the fabric, and then folding said stripped portion down upon and pasting it to the body of the fabric, as and for the purposes hereinbefore set forth.

353,643. ELECTRIC-ARC LIGHT. George C. Pyle, Cuyahoga Falls, Ohio, assignor to the American Electric Head Light Company, Indianapolis, Ind. Filed May 5, 1886. (No model.)

353,643.



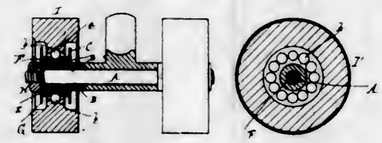
Claim.—1. In a focusing arc lamp, the combination, with a movable or adjustable electrode and regulating mechanism to adjust the same, of a fixed non-consuming electrode, and a fixed brace or guide embracing or guiding the movable electrode at or near the tip thereof, substantially as and for the purpose set forth.

2. The combination, in a focusing-lamp, with a movable or adjustable electrode of carbon or equivalent consuming material, of a fixed electrode of copper and a fixed guide embracing or steadying the movable carbon electrode at or near the point thereof, substantially as set forth.

3. In a focusing arc lamp, the combination, with a movable or adjustable electrode, of a fixed non-consuming electrode, and a fixed steadying arm or brace, such as K, secured to the fixed electrode at or near the tip thereof, and having a guide to receive the movable electrode at or near the tip thereof, said arm being insulated between its extremities, substantially as and for the purpose set forth.

4. The combination, in an electric lamp, with an automatically movable or adjustable carbon electrode, of an opposite fixed electrode of copper, a tip or point of deposited carbon upon the end of said copper electrode, and a fixed brace or guide arranged to guide the movable carbon electrode at or near the point thereof, substantially as herein set forth.

353,644. ROLLER-SKATE. Dexter A. Root, South Bay City, Mich. Filed Sept. 30, 1886. (No model.)

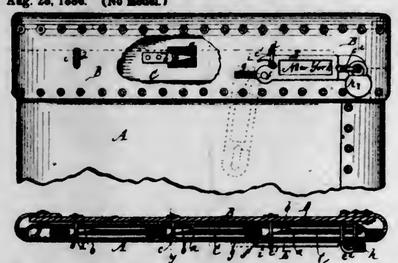


Claim.—1. In a roller-skate, the combination, with the axle and skate-bracket, of the skate-roller formed with internal annular channel, conical bearings within said roller, washers between said bearings, and a nut upon the end of said axle, substantially as and for the purpose specified.

2. In a roller-skate having anti-friction bearings, an axle-bearing in two parts, forming a groove between them, and provided with intermediate washers, substantially as described.

3. In a roller-skate, the combination, with the axle and skate-bracket, of the skate-roller formed with internal annular channel, conical bearings in said roller, washers between said bearings, washers C G upon opposite sides of said bearings, the collar B on the axle between the washer C and the bracket, and the adjusting-nut on the end of the axle, substantially as and for the purpose specified.

353,645. MAIL-BAG. GEORGE W. SMITH, Rochester, N. Y., assignor to Daniel T. Hunt, same place, and Phillip Smith, New York, N. Y. Filed Aug. 23, 1886. (No model.)

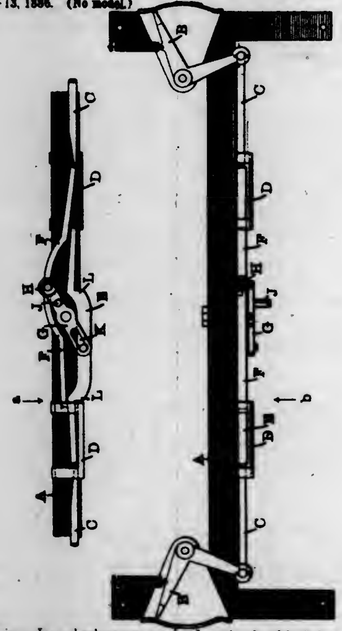


Claim.—1. In a mail-bag, the combination of a fastening-slide inclosed in a pocket in the back side of the bag, or opposite to the movable flap thereof, a bolt or pivot extending from the slide through a slot in the back side of the bag, and a locking-plate attached to the bolt or pivot, and serving, also, as a handle for moving the slide, substantially as and for the purpose herein set forth.

2. The combination of the bag A, locking-slide C, inclosed in a pocket, D, in the back of the bag, bolt or pivot *f*, projecting from the slide through a slot, *g*, in the back of the bag, locking-plate E, pivoted to the bolt or pivot *f*, and serving as a handle to move the slide by, locking-staple *c*³, and lock *h*, substantially as and for the purpose herein set forth.

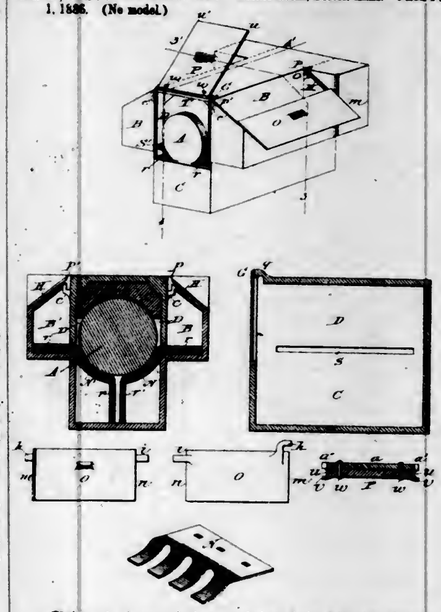
3. The combination of the main flap, the pocket attached to the inside of the flap, the slide inclosed in the pocket, the pivoted plate on the outside of the flap, connected with the slide and forming a handle therefor, the horn upon the said plate, the staple into which the horn enters, and the lock which secures the plate to the flap, substantially as and for the purpose herein specified.

353,646. CHECK-ROWING ATTACHMENT. WORTHINGTON J. SNIDER, Madison City, assignor to Henry P. Deuscher, Hamilton, Ohio. Filed Sept. 13, 1886. (No model.)



Claim.—In a check-rower, a pair of pawl-rods with their ends presenting toward each other, a rigid reciprocating bar arranged in the line of motion of the pawls and provided with a stud, guides serving to restrict the motion of said bar to a right line, an articulated reciprocating bar disposed above the first-mentioned bar and arranged to slide thereon and on said guides, and an oscillating lever articulated to the upper bar and having a slot engaging the stud in the lower bar, combined and arranged to operate substantially as and for the purpose set forth.

353,647. CAR-AXLE BOX. HENRY STILL, Beloit, Kans. Filed Feb. 1, 1886. (No model.)



Claim.—1. A car-axle box consisting of the following elements in combination: independent oil-chambers located on each side of the journal, and having lateral apertures above the lowest element thereof, and a separate oil compartment or cellar located intermediate said chambers and directly beneath the journal, to receive the excess of lubricant, as and for the purposes described.

2. An axle-box having lateral oil-chambers B B', in combination with plate or finger-bars N N', communicating with the journal through apertures S S'.

3. In an axle-box, lateral oil-chambers B B', in combination with apertures S S' and finger-bars N N', connected with a lower oil-cellar, C, by means of material having capillarity, substantially as described.

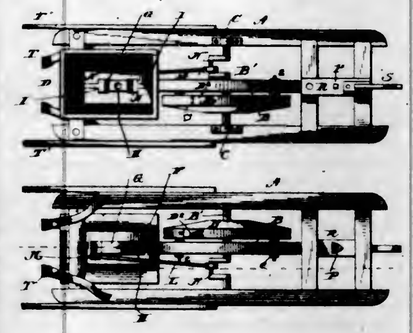
4. In a car-axle box, the door P, in combination with stop-rod *a*, ends *a'* *a''*, and loop G, as set forth.

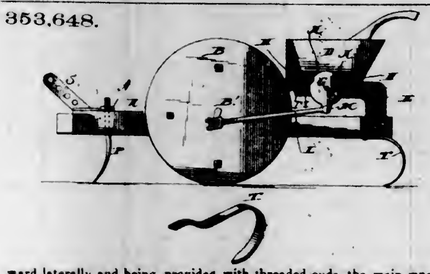
5. In an axle-box, the sliding cap O O' and lugs *k* and *i*, in combination with slots H and *p* and catches *c c'*, substantially as set forth.

353,648. COTTON AND CORN PLANTER. ROBT. M. TYUS, Karnes, Tex. Filed Sept. 27, 1886. (No model.)

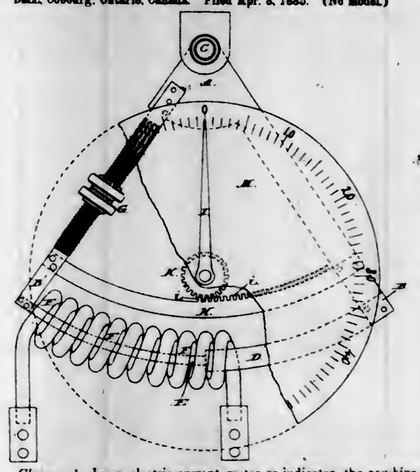
Claim.—1. The combination, in a combined corn and cotton planter, of the rectangular frame and wheel B, the hopper supported on an independent arm fixed to the rear of the frame, a disk-wheel provided with pockets in its periphery and pivotally mounted in said arm, spring-actuated lips K, and the pitman L, all arranged and operated as specified.

2. In a planter, the combination of the main wheel and shaft, a dish-shaped disk mounted on the shaft, the inner side of said disk having a series of bolt-heads rigidly secured thereto, the bolts extending inward laterally and being provided with threaded ends, the main wheel being provided with openings for the reception of said bolt ends and the adjusting-nuts on both sides of said wheel, substantially as described, and for the purposes set forth.





353,649. ELECTRIC-CURRENT INDICATOR. MONTGOMERY WADDELL, Cobourg, Ontario, Canada. Filed Apr. 8, 1885. (No model.)



Claim.—1. In an electric-current meter or indicator, the combination, with a pendulum, of a horizontally-projecting curved solenoid-core carried by such pendulum and a curved coil in an electric circuit acting upon such core, substantially as set forth.

2. In an electric-current meter or indicator, the combination, with the pendulum in the form of a sector, of a horizontally-projecting curved solenoid-core carried by such pendulum and a curved coil in an electric circuit acting upon such core, substantially as set forth.

3. In an electric-current meter or indicator, the combination, with a pendulum, a horizontally-projecting curved solenoid-core carried by such pendulum, and a curved attracting-coil, of a weight carried by such pendulum, and adjustable, so as to change the center of gravity of such pendulum, substantially as set forth

4. In an electric-current meter or indicator, the combination of two arms projecting below and diverging radially from a pivotal center, and forming a pendulum, with an adjustable weight carried by one of such arms, a horizontally-projecting curved solenoid-core carried by such pendulum, and a curved coil acting upon such core, substantially as set forth.

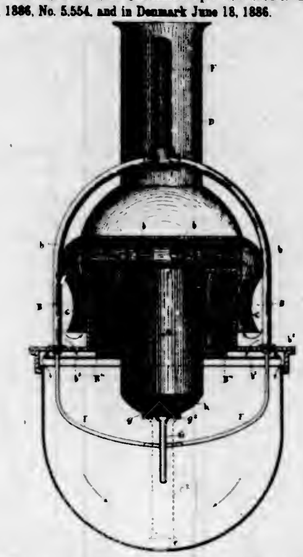
5. In an electric-current meter or indicator, the combination, with a pendulous curved solenoid-core, of a fixed curved solenoid-coil adapted to be placed directly in the main line, and composed of open rigid convolutions of bare metal, substantially as set forth.

6. In an electric-current meter or indicator, the combination, with a pendulum, of a horizontally-projecting curved solenoid-core carried thereby, a fixed curved solenoid-coil composed of open rigid convolutions of bare metal, and a weight on the pendulum, adjustable, so as to change the center of gravity of such pendulum, substantially as set forth.

7. In an electric-current meter, the combination of a rigid curved coil forming part of the circuit whose current is to be measured or indicated, a similarly curved core having an arm extending upwardly from its outer end, a curved non-magntic bar extending from the inner end, and an arm extending upwardly from said non-magnetic bar, said upward arms being joined at their upper ends and pivotally supported thereat, substantially as set forth.

8. The combination, with an iron core pivoted to swing as a pendulum and curved in an arc described about said pivot as its center, and with a coil serving as a conductor for an electrical current, and which is curved in its length and fixed in position to permit the core to swing therein, of a transverse rack-bar moving with the core and gearing into a pinion carrying an indicator fitted to move over a suitable scale or dial, substantially in the manner and for the purpose herein set forth.

353,650. GAS-LAMP. FRANCIS H. WENHAM, The Beeches, Goldsworth, Woking, County of Surrey, England. Filed Oct. 11, 1886. (No model.) Patented in England Feb. 2, 1885, No. 1,514, and Aug. 11, 1886, No. 10,279; in Victoria May 4, 1885, No. 4,049; in New South Wales July 13, 1885, No. 6,757; in Russia Oct. 28, 1885; in South Australia Dec. 7, 1885, No. 629; in Queensland Apr. 30, 1886, No. 72; in Spain June 10, 1886, No. 5,554, and in Denmark June 18, 1886.



Claim.—1. In a gas-lamp, the combination of a lamp-casing and flame-inclosing glass, an air-heating chamber provided with an air-dividing ganze, a burner supported directly below the air-chamber, and a gas-supply pipe entering the lamp from above, but clear of the air-heating chamber, substantially as described.

2. In a gas-lamp, the combination, with the lamp-casing, of an air-heating chamber provided with an air-dividing gauze, a burner below said chamber, a disk or cover, and a notched or pegged rim or flange surrounding said burner, substantially as described.

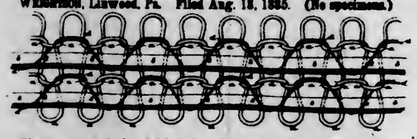
353,651. NOSE-RING FOR SWINE. LEANDER W. WOOD and WILLIAM MORLEY, Fontanelle, Iowa. Filed July 19, 1886. (Model.)



Claim.—1. As an article of manufacture, a nose-ring constructed of a single wire having a loop, C, formed therewith, and prongs formed by the ends of said wire and extending beyond the loop, substantially as described

2. A nose-ring constructed of a single wire, A, a loop, C, formed therewith, and having an extension or prong, B, and the prong *a* adapted to be passed through the loop C, substantially as described.

353,652. KNITTED FABRIC. WILLIAM WEBSTER and ROBERT N. WEBSTER, Linwood, Pa. Filed Aug. 13, 1885. (No specimens.)



Claim.—1. A knitted fabric in which a body composed of successive courses of interlooked loops is combined with a surface-thread tied to said body fabric by successive courses of binding-thread, each of which engages with the loops of a single course only of the body fabric, all substantially as specified.

2. A knitted fabric in which a body composed of successive courses of interlocked loops is combined with a surface-thread tied to said body fabric by successive courses of binding-thread, each of which engages with the loops of a single course only of the body fabric, the binding-thread being interlocked with alternate loops only of said holding-course of stitches of the body, all substantially as specified.

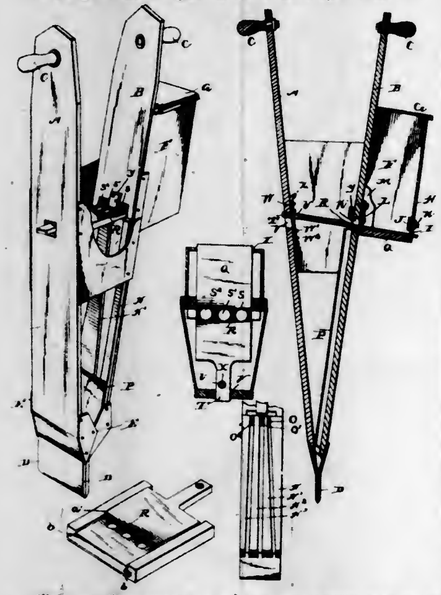
353,653. COMPOSITION OF MATTER FOR INSULATING ELECTRIC CONDUCTORS. CHARLES J. VAN DEPOELE, Chicago, Ill. Filed Apr. 28, 1886. (No specimens.)

Claim.—1. The herein-described insulating material, consisting of pulverized mica, silicate of soda, and an earthy substance, as set forth.

2. In insulating material composed of pulverized mica, silicate of soda, and a pulverulent earthy substance, substantially in the proportions stated.

REISSUES.

10,785. HAND CORN-PLANTER. CHARLES B. ARNOLD, Glasgow, Ky. Filed Aug. 30, 1886. Original No. 315,881, dated Apr. 14, 1885.

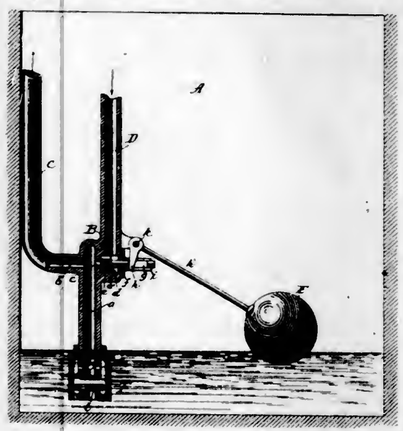


Claim.—1. The combination, in a hand corn-planter, with the leg B, provided with the strips N N² at opposite sides on its inner face, tapering to a point from above downward, of the intermediate strips, N², tapering from below upward, and the fabric P, for covering the strips to form the seed-tubes, as set forth.

2. In a hand corn-planter, the combination, with the pivoted legs and a hopper carried by one of the legs, of a seed-slide connected with and reciprocated by one of the legs, and having an elevated transverse offset or shoulder on its upper working-surface provided with an inclined rear face, and a series of vertical seed openings or cups arranged in line with each other transversely of the slide and cutting or intersecting into the said offset thereon, a sweep inclosed within the hopper above the seed-slide, and terminating at its lower end a slight distance above or in contact with the elevated offset of the said slide, and the independent conveyer passages or tubes for the grains of corn, substantially as described, for the purpose set forth.

3. In a hand corn-planter, the combination, with the legs and a hopper, of a reciprocating slide working in the hopper, and having an offset or shoulder arranged transversely thereof on its upper working-surface and at an intermediate point of its length, the said offset having an inclined face, and the vertical seed cups or openings arranged across the slide and cutting or intersecting into the offset, and a sweep terminating at a point above or in contact with the upper side of the offset on the slide, substantially as described, for the purpose set forth.

10,786. FLUID-EJECTOR. CHARLES WHITE, Baltimore, Md., assignor to Benjamin B. Friedenwald and Hiram W. Friedenwald, same place. Filed Aug. 19, 1886. Original No. 346,878, dated Aug. 3, 1886.



Claim.—1. In combination with an ejector, B, and the pressure-pipe D, the piston-head *e*, placed in relation with the two, that forms a cut-off valve which is moved positively a certain distance by the float and arm K, and through the remainder of its throw is moved quickly or instantaneously by the fluid-pressure.

2. The combination of the ejector B, the discharge-pipe C, the pressure-pipe D, and the piston-head *e*, arranged to form a cut-off and be held open or closed by the pressure of the fluid in the pipe D when placed in either position, as specified.

3. The combination of the ejector B, the pipes C and D, the piston-head *e*, arranged to be positively moved a certain distance by the float E and arm K, and through the remainder of the stroke quickly moved either way by the pressure of the fluid, the stem *e'*, the float E, and the bell-crank connected to the float and stem *e'*, as set forth.

4. In an apparatus for draining cellars, the combination, with pressure and discharge pipes and with an ejector and suction pipe between the two, said suction-pipe extending into the cellar to be drained and provided with a valve adapted to allow the discharge of the liquid, but to prevent the admission thereof into the cellar, of a valve in the pressure-pipe and operating mechanism therefor, substantially as shown, whereby the said valve is opened by the rising of the water and closed by the falling of the same in the cellar, substantially as described.

PHOTO 11TH NORRIS PETERS WASH. D.C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SELLERS AND BANCROFT *v.* WALTER AND WALTER.

Decided November 17, 1886.

1. A party to an interference proceeding on appeal to the Commissioner is entitled to have his case considered and decided upon the law and the evidence.
2. In an interference proceeding between an applicant on the one side and a patentee on the other, even though the Examiner of Interferences and the Board of Examiners-in-Chief have respectively upon the facts awarded priority to such patentee, it is the duty of the Commissioner on appeal to reverse such award if, in his opinion, applicant has established by a clear preponderance of the proof that he and not such patentee was the first inventor.
3. The fact that the Examiner of Interferences and the Board of Examiners-in-Chief had respectively reached the same conclusion, while "somewhat persuasive in its character," will not excuse the Commissioner from awarding priority to the party who is, in his judgment, by clear preponderance of proof, entitled thereto.

MOTION for rehearing.

METAL-PLANING MACHINES.

Application of Sellers and Bancroft filed February 14, 1884. Patent No. 293,239 granted February 12, 1884, to Walter and Walter.

Mr. George Harding and *Mr. F. T. Chambers* for Sellers and Bancroft.

Messrs. Smith & Hubbard for Walter and Walter.

MONTGOMERY, *Commissioner:*

Walter and Walter have a patent. Sellers and Bancroft are applicants. The Examiner of Interferences and the Board of Examiners-in-Chief, respectively, upon the facts awarded priority of invention to Walter and Walter. Sellers and Bancroft appealed to the Commissioner. On the argument counsel for Walter and Walter insisted, *first*, that his clients having a patent for the invention in dispute, and having been awarded priority upon the facts by both tribunals below, were therefore entitled to a similar award on the part of the Commissioner, unless applicants were shown beyond a reasonable doubt to be the first inventors; *second*, that as a matter of fact the evidence on the subject of priority fairly preponderated in favor of Walter and Walter. In regard to such first position I am unable to agree with him. I am aware that my predecessor, Commissioner Fisher, in the case of *Fawcett* v. *Graham* (C. D. 1869, p. 113) declared that—

> The appeal to the Board of Examiners, and to the Commissioner and judge was given to determine disputed points of law, rather than to review mere questions of fact. Upon such questions the examiner is as likely to be right as the Commissioner. It is familiar law that the verdict of a jury, or the finding of a judge upon submission, upon facts, will not be disturbed by the appellate tribunal, except in cases where the verdict or judgment is manifestly without evidence, or beyond a reasonable doubt against evidence. The mere fact that the appellate judge feels that if the question had been originally tried before him, he would have come to a different conclusion from the lower tribunal, (no question of law being involved,) will not justify him in disturbing the judgment of that tribunal, where there was any evidence to sustain it.

The doctrine of this case of *Fawcett* v. *Graham* was substantially affirmed by the same Commissioner in *Blanchard* v. *Strain*, (C. D. 1870, p. 54,) and again in *White* v. *Purdy*, (C. D. 1870, p. 115.)

I cannot think that it was intended to be said that a party to an interference proceeding was not entitled on *appeal* to have his case considered and decided *de novo*. Neither can I believe that it was really intended to assert that the functions of the Commissioner in an appeal in an interference proceeding were like those of a *nisi prius* judge to whom a motion for the vacation of the verdict of a jury upon the ground that such verdict was against the weight of the evidence had been submitted. Undoubtedly and unconsciously the fact that two or more competent persons or competent tribunals had reached the same conclusion would be in its effect somewhat persuasive in its character; but every litigant to whom the statute permits an *appeal* upon the law and the facts is entitled to have his case *examined* and *decided*, while in case of a motion to vacate the verdict of a jury upon the ground above mentioned the judge to whom the motion is addressed is called upon to assert his own judgment in the place and stead of that branch of the court whose especial duty and especial function it is to determine the facts.

In the case of *Packard* v. *Sandford* (16 O. G., p. 1182) my predecessor, Commissioner Payne, criticised the doctrine of the case above cited and declared his disagreement with it.

In the case of *Walsh et al.* v. *Rogers et al.* (13 Howard, 283) the judge who delivered the opinion of the court declared that they were—

> disposed to require that the appellant should be held to make out a pretty clear case of mistake in the court below before he (the appellant) could expect a reversal of their judgment.

But this was an admiralty case, and the court was discussing the question of interfering with the findings of the tribunals below upon questions of fact, where they (the tribunals below) had the opportunity to see the witnesses and hear them testify.

Of course it is very familiar law that an appellate tribunal which is not permitted to see or hear the witnesses, and can only examine the case upon the record as it comes up upon appeal, will not overturn the finding of the tribunal below upon a pure question of fact where such tribunal below has seen the witnesses and heard their testimony—as, for instance, in case of the trial of a chancery case in open court—except in cases where the evidence strongly preponderates the other way. I cannot, however, assent to the position that there is any rule of law which makes it incumbent upon any tribunal or officer to whom is committed the duty of determining questions of fact and of awarding judgments thereon to make such award against what may be its or his opinion of what is fairly established by a clear preponderance of the evidence. I know of no civil litigation where it is not the plain duty of the judge, jury, or officer charged with the responsibility

of awarding judgment or decree upon the facts to determine and decide every case according as, in his judgment, the evidence fairly or clearly preponderates. If A, an applicant, in an interference against B, a patentee, upon appeal to the Commissioner upon the merits is able to satisfy such Commissioner by a clear preponderance of evidence that he, and not B, was the inventor of the device in controversy, in my judgment, notwithstanding the fact that B has a patent and notwithstanding the further fact that the Examiner of Interferences and the Examiners-in-Chief have respectively awarded priority to the patentee, it would nevertheless be the clear duty of the Commissioner to reverse such award.

In the case under consideration, while I am not satisfied as to the facts beyond a reasonable doubt, I do think that applicants Sellers and Bancroft have shown by a clear preponderance of evidence that they first successfully reduced this invention to practice, and upon the ground and for that reason I think that priority should be awarded to them.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

WHITE *et al. v.* DUNBAR *et al.*

Decided November 15, 1886.

1. DUNBAR—METAL CANS.

Reissued Letters Patent No. 9,957, granted December 6, 1881, to Dunbar *et al.*, for preserving shrimps in metal cans, adjudged to be invalid.

2. REISSUE—DIFFERENT INVENTION.

The original patent covered the use of a textile fabric between the can and its contents, while the reissue covered the use of an enveloping material for the shrimps between the can and the shrimps. This was a material expansion and enlargement.

3. CONSTRUCTION OF PATENT.

The statement of the object of the invention in the specification is a very different thing from the invention itself.

4. SAME.

While the specification may be resorted to for a better understanding of the claim, it cannot be used for the purpose of changing it.

5. CONSTRUCTION OF CLAIM.

The claim is a statutory requirement calling for precision on the part of the patentee, and must be construed in accordance with the plain import of its terms.

6. SAME.

While rights of other parties intervening between the original patent and its reissue may illustrate the evil consequences of improper reissues, they add nothing to its illegality, which is determined from general principles of law applied to the statutes.

APPEAL from the Circuit Court of the United States for the Eastern District of Louisiana.

Mr. J. P. Horner, *Mr. Charles H. Joyce*, and *Mr. William G. Henderson* for the appellant.

Mr. Melville Church and *Mr. J. B. Church* for the appellee.

Mr. Justice BRADLEY delivered the opinion of the Court.

This is a suit on a reissued patent. The appellees obtained a patent, dated June 20, 1876, for a method of preserving shrimps and other shell fish by placing them in a bag or sack made of cotton, muslin, or other textile fabric, and then sealing them up in a metallic can, and subjecting them to a boiling process. In their specification they declare that the object of placing the shrimp in the bag is to keep them from coming in direct contact with the can, and thus prevent their discoloration and loss of flavor. They describe the process as follows:

> The shell having been removed from the shrimp in the usual manner, the fish is thrown into salt water of about six degrees, and there remains for an hour, more or less, and from thence to kettles filled with water, and brought to a boiling heat, after which they are placed on dippers, and cooled and thoroughly rinsed with fresh cold water, and from which, so soon as thoroughly dripped, in a moist condition, they are placed in the sack B, the same having been previously arranged in the can A, and without the addition of any salted or otherwise prepared liquid. So soon as the sack is filled, the mouth thereof being properly secured, the lid or head *a* is placed in position on the can A and immediately sealed. The cans are then subjected to a steam-bath, or placed in kettles containing boiling water, and boiled for two hours at the highest temperature attainable, and which completes the process.

The claim is then stated, as follows:

> What we claim as new, and desire to secure by Letters Patent, is—
>
> The herein-described method of preserving shrimps, &c., preventing their discoloration, which consists in placing textile fabric between the can and its contents, and then sealing the can and subjecting the same to a boiling process, substantially as and for the purpose specified.

In April, 1880, Pecor, one of the appellants, together with one Bartlett, obtained a patent for another method of preserving shrimps, by first lining the inside of the can with a coating of asphaltum cement, and then with paper coated with a solution of paraffine or kindred substance. The can is then filled with shrimps, sealed up, and subjected to the boiling or steaming process in the usual manner of canning vegetables and meats.

In April, 1881, the appellees surrendered their original patent and applied for a reissue thereof, which was granted in December, 1881. In the new specification they describe their process to consist, first, providing the can with a lining to prevent direct contact of the shrimps with the metal, and, second, placing them in the lined can while they are in a dry or moist condition and devoid of free liquid or gravy, sealing the can without adding any liquid to its contents, and cooking the contents of the can after sealing. They add that—

> there is nothing arbitrary about the peculiar form and construction of the textile-fabric lining, as other forms and arrangements might be substituted therefor.

And again—

> B is the lining, constructed preferably of cotton or muslin.

The claim of the reissued patent is in the following words:

> What we claim as new, and desire to secure by Letters Patent, is—
>
> As an improvement in the art of preserving shrimps in metal cans, the mode of preventing the discoloration of the shrimps, which consists in interposing between the metal can and the shrimps an enveloping material for the shrimps, which is not itself capable of discoloring the shrimps, and then sealing the can and subjecting the same and its contents to a boiling process, substantially as described.

In March, 1882, the appellants commenced the canning of shrimps, and in their answer state that all the business of canning shrimps that they have ever done has been under the authority of the patent granted to Pecor and Bartlett. They further describe the process used by them as follows:

> The common tin cans being ready for packing, three pieces of paper, previously boiled in paraffine wax or coated with same, are cut and placed in the can, so that one piece covers the bottom, another piece the sides, and a third piece the top of the contents when the can is filled. The shrimps are then picked raw, then washed, and thoroughly cooked for about twenty minutes, until fit to eat. They are then placed in the cans, which are soldered, and then put into a steam-retort without water, which is heated to 240° Fahrenheit, where they remain from two and a half to three hours, which process has the effect of condensing the air and liquids in the can and exterminating any animal or vegetable life that may remain in the contents of the can, after which they are ready to be labeled and sold.

The process thus used by the appellants is claimed by the appellees to be an infringement of their reissued patent. They also contend that the claim of the reissued patent is no broader than that of the original properly construed.

In the latter proposition we cannot concur. The claim in the original patent was for placing textile fabric between the can and its contents, while in the reissue it is for interposing between the metal can and the shrimps an enveloping material for the shrimps. This is certainly, on its face, a very important enlargement of the claim, and we see nothing in the context of the specification in the original patent which could possibly give the claim so broad a construction. The description of the invention throughout specifies a textile fabric as the material to be interposed between the shrimp and the metallic can. It is true that the object of the invention is stated to be "to prevent the article to be preserved from coming in direct contact with the surface of the can;" but the object of an invention is a very different thing from the invention itself. The object may be accomplished in many ways. The invention shows one way. Again, in describing the nature of the improvement, the patentees say:

> Primarily, our improvement consists in so placing a suitable textile fabric between the fish or other article of food to be preserved as to cause it to so intervene as to prevent, under all circumstances, any direct contact between the metallic surface of the can and its contents; and it is the employment of such textile fabric, in connection with the process hereinafter described, of treating the fish or other article, both before and after the same is placed in the can and sealed, which constitutes the nature or subject-matter of our present invention.

Then, in describing the apparatus used, referring to the figures annexed to the specification, (which are not necessary to the understanding of the description,) they say:

> In the accompanying drawing is illustrated, at Figure 1, a metallic can, such as is ordinarily used for articles of food which are offered to the trade in a canned state. Fig. 2 is a textile lining which we propose usually to make (although there is nothing arbitrary about the form, as other forms may be used) in the form of a cylindrical bag or sack, the diameter of which, when filled, is to be such as will permit of its fitting snugly within the can.
>
> A is the metallic can; *a*, its lid or cover. B is the bag or sack, constructed of cotton, muslin, or any other suitable textile fabric. Material of the cheapest and most inferior quality may be used, as the sole object of its use is to prevent the article to be preserved from coming in direct contact with the surface of the can, and which contact with the metal, in the case of the shrimp, causes, during the process of boiling, and all along thereafter until the can is opened, a profuse precipitation of a black substance, generally believed to be sulphur, and which supposition is based upon the fact that the shrimp is said to possess a much larger proportion of sulphur than other shell-fish. The substance thus precipitated not only discolors the fish, (shrimp,) but detracts much from the color, freshness, and richness of its flavor. Now, practical experience has fully demonstrated the fact that, by using a textile fabric, as described, the precipitation of the substance alluded to is prevented, or at least does not appear either on the fabric or metal, and hence the value and importance of this feature of our invention. *b*, Fig. 3, is a circular piece cut out of material similar to that of which the bag B is made, and which is inserted within the mouth of the latter after the same is filled with the fish or other article to be preserved.
>
> Such a can and lining as herein described are admirably adapted for the purpose attained by our present invention; but, as before stated, there is nothing arbitrary about the peculiar form or construction of the textile-fabric lining, as other forms and arrangements might be substituted therefor without in any manner altering the principle of the invention.

We see nothing in all this to raise the slightest implication that the patentees were the inventors of the process of interposing any and every kind of lining between the cans and their contents, and when their claim is confined to a lining of textile fabric it is tantamount to a declaration that they claimed nothing else.

Some persons seem to suppose that a claim in a patent is like a nose of wax, which may be turned and twisted in any direction by merely referring to the specification, so as to make it include something more than or something different from what its words express. The context may undoubtedly be resorted to, and often is resorted to, for the purpose of better understanding the meaning of the claim, but not for the purpose of changing it and making it different from what it is. The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is, and it is unjust to the public as well as an evasion of the law to construe it in a manner different from the plain import of its terms. This has been so often expressed in the opinions of this Court that it is unnecessary to pursue the subject further. (See *Keystone Bridge Co.* v. *Phœnix Iron Co.*, 95 U. S., 274, 278; *James* v. *Campbell*, 104 U. S., 356, 370.)

We are clearly of opinion, therefore, that the original patent is not susceptible of the broad construction which the appellees would give to it, and that the reissued patent is a material expansion and enlargement of it. As such expansion appears to be the only object of the reissue, and as the application for the reissue was not made until nearly five years after the original was granted, the case comes within the ruling of *Miller* v. *Brass Company* (104 U. S., 350) and subsequent cases to the same purport.

We attach no importance to the fact that between the date of the original patent and the application for the reissue the patent to Pecor and Bartlett was granted. It is, indeed, quite apparent that the appellees applied for a reissue in consequence of that patent and in order to prevent the canning of shrimps under it. The circumstance that other improvements and inventions, made after the issue of a patent, are often sought to be suppressed or appropriated by an unauthorized reissue has sometimes been referred to for the purpose of illustrating the evil consequences of granting such reissues; but it adds nothing to their illegality. That is deduced from general principles of law as applied to the statutes authorizing reissues and affecting the rights of the government and the public.

In our judgment, the reissued patent in this case was unlawfully granted, and the bill should have been dismissed.

The decree of the circuit court is therefore reversed, and the case remanded, with directions to dismiss the bill.

Supreme Court of the United States.

CONSOLIDATED SAFETY VALVE COMPANY *v.* KUNKLE.

Decided November 15, 1886.

INFRINGEMENT.

The claims of the patents of Richardson, Nos. 58,294 and 85,963, as limited in the case of the *Consolidated Safety Valve Company* v. *Crosby Steam Gage Valve Company*, (113 U. S., 157,) are not infringed by a valve which has no huddling-chamber and no strictured orifice leading from a huddling-chamber to the open air.

APPEAL from the Circuit Court of the United States for the Northern District of Illinois.

Mr. Thomas William Clarke for the appellant.

Mr. J. H. Raymond for the appellee.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

This is an appeal by the plaintiff in a suit in equity to recover for the infringement of two letters patent from a decree dismissing the bill. The suit was brought in the Circuit Court of the United States for the Northern District of Illinois by the Consolidated Safety Valve Company, a Connecticut corporation, against Erastus B. Kunkle, on Letters Patent No. 58,294, granted to

George W. Richardson, September 25, 1866, for an improvement in safety-valves and on other letters patent (No. 85,963) granted to the same person January 19, 1869, for an improvement in safety-valves for steam boilers or generators. These are the same two patents which were the subject-matter of the litigation involved in the case of *Consolidated Safety Valve Company* v. *Crosby Steam Gage Valve Company*, decided by this Court at October Term, 1884, and reported in 113 U. S., 157. The specifications and claims and drawings of the two patents are set forth fully in the report of that case. The patents were both of them held to be valid and to have been infringed.

The claim of the patent of 1866—

A safety-valve with the circular or annular flange or lip *c c* constructed in the manner, or substantially in the manner, shown, so as to operate as and for the purpose herein described—

was construed as covering—

A valve in which are combined an initial area, an additional area, a huddling-chamber beneath the additional area, and a strictured orifice leading from the huddling-chamber to the open air, the orifice being proportioned to the strength of the spring, as directed.

The claim of the patent of 1869—

The combination of the surface beyond the seat of the safety-valve, with the means herein described for regulating or adjusting the area of the passage for the escape of steam, substantially as and for the purpose described—

was construed as covering—

The combination, with the surface of the huddling-chamber and the strictured orifice, of a screw-ring to be moved up or down to obstruct such orifice more or less in the manner described.

The decree in the present case was made in January, 1883, and proceeded, as it states, on the ground that the defendant's valves did not infringe the patents. This also appears from the decision of the circuit court, reported in 14 Federal Reports, 732. As the defendant's valves have no huddling-chamber and no strictured orifice leading from a huddling-chamber to the open air, we are of opinion that they do not infringe either of the patents.

Decree affirmed.

U. S. Circuit Court—District of Massachusetts.

BELLE PATENT BUTTON FASTENER COMPANY *v.* LUCAS
SAME *v.* DANIELS. SAME *v.* BROOKS *et al.*

Decided July 29, 1886.

1. No. 247,032—BUTTON-FASTENERS.

Letters Patent No. 247,032, of September 13, 1881, to Farnsworth and Robinson, for a new mode of attaching buttons to garments, and a device for accomplishing the same, sustained, none of the prior patents containing the essential features of this invention, which comprises a malleable tack passed through the garment and clinched through the eye of the button by means of a clinching device.

2. INFRINGEMENT.

A mere change of position of the button, or the fact that the tack is not bent before passing through the eye of the button, not material, nor sufficient to evade infringement of this patent.

3. JOINT INVENTION.

Upon the evidence, *held* that it was not shown with sufficient clearness and certainty to overthrow the patent that the improvements covered by it were not the joint invention of Farnsworth and Barnes, as stated in the patent.

Mr. B. F. Thurston and *Messrs. Livermore & Fish* for the complainant.

Mr. Richard K. Evans and *Mr. Benjamin N. Johnson* for the defendants.

COLT, *J.*:

This bill in equity is brought for infringement of Letters Patent No. 247,032, issued September 13, 1881, to F. H. Farnsworth and H. S. Robinson, assignees of A. J. Barnes, for the joint invention of Farnsworth and Barnes of a new mode of attaching buttons to garments, and a device for accomplishing the same. The patent describes a method of fastening buttons to garments by passing a malleable tack through the garment, and then clinching the tack through the eye of the button in a pair of forceps, one jaw of which has a groove or recessed lip, by which the point of the tack is turned around so as to clinch upon its shank. The button is held in this jaw in such a position that the tack will be clinched through the eye. The other jaw presses against the head of the tack, and by this means the point of the tack is forced along and beyond the groove in its curved track until the tack is clinched through the eye of the button. The claims in controversy are as follows:

1. The mode herein described of attaching buttons to garments by a single-pointed malleable tack, consisting in passing the shank of the tack through the garment and then turning or clinching its end through and around the eye of the button by pressing the point against a clinching portion of the device which holds the button while the clinching is being performed, substantially as described.

2. An instrument for attaching buttons, substantially such as described, provided with means for pressing the head of a malleable tack, and having a recessed lip, *a*, for forcing and clinching its point through the eye of a button for securing said button to a garment, substantially as specified.

We have carefully examined the numerous patents introduced to prove want of novelty in the Farnsworth and Barnes invention. Most of the prior patents relate to riveted fastenings where the button is held to the fabric by spreading the top of the rivet. Other patents relate to a flexible prong fastening where the fingers are used. In the Robertson patent, No. 222,300, we find a tack with a groove cut in it, which is bent over at an angle by meeting the closed top of the button, which it holds by this means. It is manifest that none of these prior patents contain the essential feature of the invention before us. Nowhere do we find the tack curved by a die so as to turn and clinch its end through and around the eye of the button.

The defendants also set up non-infringement. A comparison of the two devices, however, reveals the fact that the defendant has incorporated into his machine the essence of the Farnsworth and Barnes invention, and that the mechanism he employs is substantially the same. In the patented machine the button is so situated that the tack goes forward to the clinching-die on a line parallel with the flat side of the eye of the button. In the defendant's machine the button is so situated that the tack in going forward to the clinching portion is presented to the hole of the eye at right angles to the flat side of the eye, and therefore passes through the eye before reaching the clinching-die. Merely changing the position of the button does not constitute, in our opinion, a material difference; nor can the fact that the tack first passes through the eye of the button before the process of bending or clinching begins relieve the defendant of the charge of infringement of the first claim. This would be to give too narrow and technical a construction to the language of the claim.

Concerning the second claim, the defendant's machine clearly shows the same elements, or their equivalents, in combination. In relation to the tack, and for forcing and clinching its point through the eye of the button, the die of defendant's machine performs the same functions as the recessed lip or die which forms one of the elements of the second claim of the patent in suit.

The defendant contends that Barnes was the sole inventor of the improvements covered by the patent, and that it was not the joint invention of Farnsworth and Barnes, as stated in the patent, and that therefore the patent is void. There is much conflict of testimony on this question. Upon the record before us we cannot give much weight to the testimony of Barnes. Upon careful consideration, we do not think the defendant has established this point with sufficient clearness and certainty to overthrow the patent.

Decree for complainant.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 37—No. 10. TUESDAY, DECEMBER 7, 1886. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, November 27, 1886.

SIR: The Secretary of the Interior has ordered that George W. Vennum, of Jamestown, Dakota, be not recognized after this date as attorney in the prosecution of any claim or other matter before this Department or any bureau thereof.

Very respectfully,

GEO. M. LOCKWOOD,
The Commissioner of Patents. *Chief Clerk.*

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, November 27, 1886.

SIR: The Secretary of the Interior has ordered that Frank A. Bidwell, of Mitchell, Dakota, be not recognized after this date as attorney in the prosecution of any claim or other matter before this Department or any bureau thereof.

Very respectfully,

GEO. M. LOCKWOOD,
The Commissioner of Patents. *Chief Clerk.*

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, December 1, 1886.

SIR: The Secretary of the Interior has ordered that R. G. Pendleton, alias W. S. Rush, of Oakley, Kansas, be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any bureau thereof.

Very respectfully,

GEO. M. LOCKWOOD,
The Commissioner of Patents. *Chief Clerk.*

Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth $10 00

INDEX TO ITALIAN PATENTS, 1848 to May 1, 1882, (subject-matter,) one volume, 120 pp.—

Bound half-turkey	2 50
Bound in cloth	1 25
Paper covers	1 00

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Issue of December 7, 1886.

Patents	427—No.	353,654 to No. 354,080, inclusive.
Designs	11—No.	17,012 to No. 17,022, inclusive.
Trade-Marks	16—No.	13,847 to No. 13,862, inclusive.
Labels	7—No.	5,047 to No. 5,053, inclusive.
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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	.....	Montana Territory	1	.....
Arizona Territory	.....	.....	Nebraska	3	.....
Arkansas	.....	.....	Nevada	1	.....
California	9	1	New Hampshire	2	1
Colorado	2	.....	New Jersey	17	.....
Connecticut	15	.....	New Mexico Territ'y	.....	.....
Dakota Territory	.....	.....	New York	91	5
Delaware	.....	.....	North Carolina	2	.....
District of Columbia	4	.....	Ohio	24	2
Florida	3	.....	Oregon	4	.....
Georgia	4	.....	Pennsylvania	45	1
Idaho Territory	.....	.....	Rhode Island	4	1
Illinois	44	3	South Carolina	2	.....
Indian Territory	.....	.....	Tennessee	5	.....
Indiana	9	.....	Texas	7	.....
Iowa	8	.....	Utah Territory	.....	.....
Kansas	5	.....	Vermont	1	2
Kentucky	7	2	Virginia	2	.....
Louisiana	4	1	Washington Terr'y	.....	.....
Maine	1	.....	West Virginia	1	.....
Maryland	1	3	Wisconsin	7	.....
Massachusetts	45	.....	United States Army	.....	.....
Michigan	10	.....	United States Navy	.....	.....
Minnesota	5	.....			
Mississippi	.....	.....	Total to citizens of the United States	410	23
Missouri	13	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia	.....	.....	Germany	5	.....
Austria-Hungary	1	.....	Ireland	1	.....
Belgium	.....	.....	Mexico	.....	.....
Bohemia	.....	.....	Roumania	.....	.....
British Guiana	.....	.....	Nicaragua	.....	.....
Canada	2	.....	Russia	.....	.....
Central America	.....	.....	Scotland	.....	.....
Colombia, U. S. of	.....	.....	Sweden	3	.....
Cuba	.....	.....	West Indies	.....	.....
Denmark	.....	.....			
Egypt	.....	.....	Total to citizens of foreign countries	28	.....
England	15	.....			
France	1	.....			

DESIGNS.

17,012.—WATCH-CASE.—*Germain Bapst* and *Lucien Falize*, Paris, France. Application filed September 24, 1886. Serial No. 214,460. Term of patent 14 years. Patented in France August 24, 1886, No. 21,432.

17,013.—FONT OF PRINTING-TYPE.—*William F. Capitain*, Chicago, Ill., assignor to *Marder, Luse & Co.*, same place. Application filed October 21, 1886. Serial No. 216,909. Term of patent 7 years.

17,014.—ORNAMENTAL CABLE-CORD.—*Thomas R. Lees* and *Robert T. Lees*, Westport, Conn., and *James E. Lees*, New York, N. Y., assignors to *The Lees Manufacturing Company*, Westport, Conn. Application filed October 18, 1886. Serial No. 216,592. Term of patent 7 years.

17,015.—CRUMB-BRUSH.—*Walter K. Northall*, New York, assignor to *J. D. Lincoln*, Brooklyn, N. Y. Application filed October 23, 1886. Serial No. 217,075. Term of patent 7 years.

17,016.—WALL-PAPER.—*William N. Peat*, Brooklyn, N. Y. Application filed August 20, 1886. Serial No. 211,453. Term of patent 3½ years.

17,017.—MEDAL.—*Charles O. Penfold*, Buffalo, N. Y. Application filed October 11, 1886. Serial No. 215,957. Term of patent 3½ years.

17,018.—CARRIAGE-BODY.—*Henry O. Sears*, Boston, Mass. Application filed August 16, 1886. Serial No. 211,077. Term of patent 14 years.

17,019.—FIRE-GRATE.—*John Burkhardt*, New York, N. Y. Application filed November 3, 1886. Serial No. 217,909. Term of patent 7 years.

17,020.—TILE.—*John H. Hankinson*, New York, N. Y. Application filed October 21, 1886. Serial No. 216,910. Term of patent 7 years. Patented in England July 6, 1886, No. 51,873.

17,021.—BRANDING-IRON.—*John George Kostmayer*, New Orleans, La. Application filed October 19, 1886. Serial No. 216,654. Term of patent 7 years.

17,022.—BADGE.—*Joseph Lukanitsch* and *William H. Cosman*, Dallas, Tex. Application filed October 12, 1886. Serial No. 216,072. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,847.—BARBED WIRE.—*California Wire Works*, San Francisco, Cal. Application filed October 6, 1886. Used since September 23, 1886.
"The word-symbol 'PACIFIC BARB.'"

13,848.—BELTING OF CANVAS, DUCK, AND WOVEN COTTON.—*The Chesapeake Belting Co.*, Baltimore, Md. Application filed October 15, 1886. Used since June 11, 1885.
"The word 'CHESAPEAKE.'"

13,849.—TOILET-SOAP.—*Graham Bros. & Co.*, Chicago, Ill. Application filed October 8, 1886. Used since April 1, 1886.
"The word 'DRUGGISTS.'"

13,850.—ASTRINGENT MEDICINES.—*Synvita Company*, Delphos, Ohio. Application filed August 21, 1886. Used since January 1, 1886.
"The word 'SYNVITA.'"

13,851.—REMEDIES IN SOLID FORM FOR BRONCHIAL AND OTHER DISEASES.—*Synvita Company*, Delphos, Ohio. Application filed August 21, 1886. Used since January 1, 1884.
"The word 'BLOCKS.'"

13,852.—REMEDY FOR CONSTIPATION.—*Anna M. Walrath*, Little Falls, N. Y. Application filed October 9, 1886. Used since August, 1886.
"A bust picture of the registrant."

13,853.—CURED AND CANNED MEATS, AND LARD.—*Armour Packing Co.*, Kansas City, Mo. Application filed October 8, 1886. Used since August 2, 1886.
"The arbitrary symbol '49ER.'"

13,854.—TOOTH-PASTE AND TOOTH-WASH.—*Curran & Geiler*, Rochester, N. Y. Application filed September 16, 1886. Used since October 15, 1885.
"The word 'ENAMELINE.'"

13,855.—COTTON AND SILK ON SPOOLS, YARNS, AND TWISTS.—*Isaac Einhorn*, New York, N. Y. Application filed September 8, 1886. Used since February 2, 1885.
"The representation of the head of a unicorn."

13,856.—COTTON AND SILK ON SPOOLS, YARNS, BUTTONS, TAPES, BRAIDS, AND TWISTS.—*Isaac Einhorn*, New York, N. Y. Application filed May 10, 1886. Used since February 2, 1885.
"The word 'UNICORN.'"

13,857.—REMEDY FOR APOPLEXY AND OTHER KINDRED DISEASES.—*Dr. F. S. Hutchinson & Co.*, Enosburg Falls, Vt. Application filed November 8, 1886. Used since October 1, 1886.
"The word 'ANTI-APOPLECTINE.'"

13,858.—COTTON FABRICS.—*James R. MacColl*, Pawtucket, R. I. Application filed October 9, 1886. Used since July 1, 1886.
"The words 'KNOTTED PONGEE.'"

13,859.—RYE AND OTHER WHISKY.—*Sour Mash Distilling Company*, Owensborough, Ky. Application filed October 7, 1886. Used since May, 1886.
"The word 'SOVEREIGN.'"

13,860.—RYE AND OTHER WHISKY.—*Sour Mash Distilling Company*, Owensborough, Ky. Application filed October 7, 1886. Used since January, 1869.
"The title 'M. V. MONARCH.'"

13,861.—WHISKY.—*Stein Bros. & Baumgartl*, Chicago, Ill. Application filed October 13, 1886. Used since October, 1885.
"The words 'OLD AGE.'"

13,862.—CORSETS.—*Warner Bros.*, New York, N. Y. Application filed October 9, 1886. Used since October 1, 1886.
"The word 'TAILOR.'"

LABELS.

5,047.—Title: "BOIL UNTIL THE SMALLER BONE IN THE HOCK END BECOMES LOOSE," (FOR HAMS.)—*O. Cazard & Son*, Baltimore, Md. Application filed November 3, 1886.

5,048.—Title: "TRY ME," (FOR STRAW CUTTERS.)—*George S. Garth*, Bald Eagle, Clinton County, Pa. Application filed November 6, 1886.

5,049.—Print.—Title: "IMPERVIOUS SAFETY OIL CAN."—*Impervious Package Company*, Keene, N. H. Application file November 4, 1886.

5,050.—Title: "PEYCHAUD'S AMERICAN AROMATIC BITTER CORDIAL."—*Louis E. Jung*, New Orleans, La. Application filed November 6, 1886.

5,051.—Title: "CHESAPEAKE CANVAS BELTING."—*The Chesapeake Belting Co.*, Baltimore Md. Application filed October 15, 1886. (Trade-Mark Registered.)

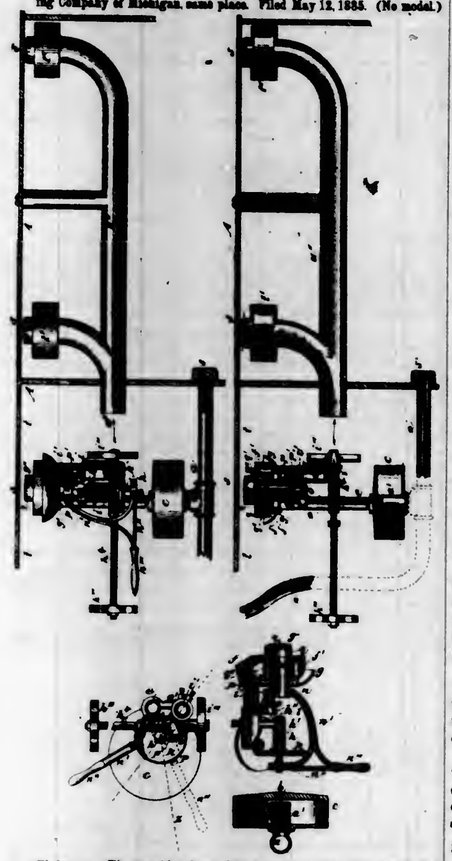
5,052.—Title: "GOLD STAR," (FOR SMOKING TOBACCO.)—*Gradle & Stritz*, Chicago, Ill. Application filed October 12, 1886. (Trade-Mark Registered.)

5,053.—Title: "ANTI-APOPLECTINE," (FOR A MEDICINE.)—*Dr. F. S. Hutchinson & Co.*, Enosburg Falls, Vt. Application filed November 2, 1886. (Trade-Mark Registered.)

PATENTS

GRANTED DEC. 7, 1886.

353,654. VAPOR-BURNER. MICHAEL C. ARMOUR and FRANK G. BIELFELD, Chicago, Ill., assignors to the Adams & Westlake Manufacturing Company of Michigan, same place. Filed May 12, 1885. (No model.)



Claim.—1. The combination, with a burner, of a needle-valve in the supply-pipe, a cut-off interposed between the jet-orifice of the supply-pipe and the air-tube of the burner, and a lever connected to said needle-valve and cut-off, and operating both, substantially as set forth.

2. In a vapor-burner, the combination of a cistern, a superimposed generator, a vertical tube extending from the bottom of said cistern and serving as the support of the generator, an apertured tube or thimble extending within the cistern to above the opening of the vertical tube, and a supply-pipe, substantially as set forth.

3. In a vapor-burner, a superimposed generator, a cistern, a vertical tube extending from the bottom of said cistern and serving as the support of the generator, and an apertured tube or thimble extending within the cistern to above the opening of the vertical tube, combined with a needle-valve and a pipe connecting said valve and generator, substantially as set forth.

4. A generator, a needle-valve in the supply-pipe, a burner, and a cut-off interposed between the jet-orifice of the supply-pipe and the air-tube of the burner, combined with a lever having attachment to said needle-valve and engaging the cut-off, and operating both, substantially as set forth.

5. In a vapor-burner, a generator, a needle-valve, a tube connecting said generator and needle-valve, a pivoted cut-off interposed between the jet-orifice of the supply-pipe and the air-tube of the burner, and a lever attached to the needle-valve and engaging the cut-off, and operating both, all combined substantially as set forth.

6. In a vapor-burner, a generator, a central air-tube, a needle-valve, a tubular connection between said needle-valve and generator, a pivoted cut-off, and a lever pivoted upon said air-tube, attached to the needle-valve and engaging the cut-off, and serving to operate both, all combined substantially as set forth.

7. In a vapor-burner, the combination of a generator having a tubular center and an annular interior space and gasoline-inlet, an air-tube concentric with and within the said tubular center, leaving a tubular space, *q''*, between the same, a needle-valve below and concentric with the air-tube, and a hat-shaped burner-cap mounted upon the generator and having a space, *q'*, below it in communication with the annular space *q''*, the flange or brim of the cap being slotted and the cylindrical or crown portion perforated, the slots and perforations being radially in line with each other, substantially as set forth.

8. In a vapor-burner, the combination of the hat-shaped cap having a radially-slotted flange or brim and a perforated crown, the slots and perforations being radially in line with each other, with the generator having a space, *q'*, below the cap in communication with the annular space *q''*, substantially as set forth.

9. The combination, with a vapor-burner, of a generator having a tubular center, an air-tube within and concentric therewith, a needle-valve below and concentric with said tube, and the cap *g*, substantially as set forth.

10. The open supply-tube *u''*, supporting two or more burners and having the projection *w*, located at the intersection of the burner and supply-tubes, projecting partly across the supply-tube at an angle of about forty-five degrees, combined with a generator and vapor-burner having a jet-orifice coinciding with the open end of the supply-tube, substantially as set forth.

11. The combination, with a burner having an air and vapor induction tube, of a cut-off interposed between the jet-orifice and the induction-tube, a needle-valve closing said jet-orifice, and a lever pivoted upon the induction-tube, attached to the needle-valve and engaging the cut-off, substantially as set forth.

12. The combination, with a vapor-burner, of a cut-off provided with a groove, *p'*, said cut-off being interposed between the jet-orifice and the induction-tube of the burner, and a lever pivoted upon the induction-tube and having a pin engaging the groove in the cut-off, substantially as set forth.

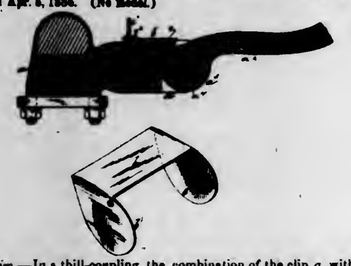
353,655. TRACK GAGE AND LEVEL. JEAN L. BARNETT, Stewartville, Mo. Filed Apr. 7, 1886. (No model.)



Claim.—The combination of the spirit-level fixed to the gage-body the gage-body made of wood to avoid the contraction and expansion from heat or cold peculiar to metal, and provided with metal plates at

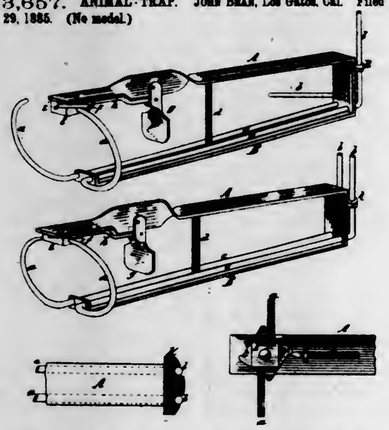
its upper and lower edges to prevent warping of the body, the bearing-plate fixed to the gage-body at one end and provided with an extension for engaging the rail at one side of the track, the bearing-plate provided with an extension for gaging the distance between the rails forming the track, and a curved upward extension arranged to be adjusted within the gage-body, and the set-screw fixed to the gage-body and adapted to secure gage-body and the bearing-plate provided with the curved extension in different relative positions to each other, substantially as specified, for the purpose set forth.

353,656. THILL-COUPLING. PETER J. BAUMGARTNER, Berne, Ind. Filed Apr. 8, 1886. (No model.)



Claim.—In a thill-coupling, the combination of the clip *a*, with ears *a'*, the thill *a²*, and coupling-pin *a⁴*, with the keeper *b*, formed with extended wings *b'*, the rubber *c*, and the screw *c'*, formed with projection *c²*, all constructed and arranged to operate substantially as and for the purpose set forth.

353,657. ANIMAL-TRAP. JOHN BEAN, Los Gatos, Cal. Filed Oct. 29, 1885. (No model.)



Claim.—1. In an animal-trap, the combination, with the frame carrying a rotating catch, a trigger, and a trencher for releasing the catch, of the jaws mounted in the frame and engaging opposite sides of the catch, and constructed to grasp the animal when the trencher is disturbed.

2. In an animal-trap, the combination, with the frame thereof and a torsional spring constructed with a grasping-jaw at one end and a lever at the other, of a portion co-operating with the jaw to grasp the animal.

3. In an animal-trap, the combination, with the frame and the rotating catch mounted thereon, of the jaws placed slightly out of line with each other, the torsional springs secured to the jaws and the levers secured to the springs and adapted to engage the frame, and a releasing device for freeing the catch.

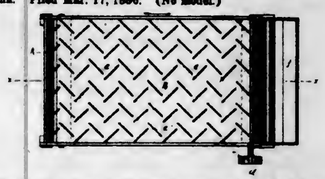
4. In an animal-trap, the torsional springs bent at the forward ends to form jaws, and means for holding said springs under tension, in combination with a catch for holding the jaws set, a trigger, and a trencher.

5. In an animal-trap, the combination, with the jaws, of the rotating catch having countersinks on its several sides adapted to be engaged by the jaws, said catch being provided with a flange of larger diameter than the body of the catch, said flange having lugs on its several corners, with which a trigger engages, for the purpose set forth.

6. In an animal-trap, the combination, with a frame carrying a trigger, of a trencher for releasing the catch, the jaws mounted in the frame and engaging with said catch, and setting-levers connected with said jaws and located some distance from them, whereby, when the trap is placed in a burrow, the animal in coming out meets the jaws before reaching the levers.

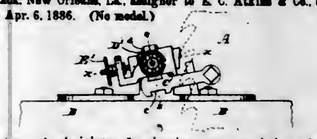
7. In an animal-trap, the combination, with the frame and the rotating catch having a flange, the trigger, and the trencher, all mounted upon the frame, of torsional springs, the jaws formed on one end and the setting-levers formed on the other end, substantially as described.

353,658. GRAIN-GRADER. MARCUS D. BEARDSLEE, Minneapolis, Minn. Filed Mar. 17, 1886. (No model.)



Claim.—In a grain-grader, the combination, with a screen, of an endless moving apron provided with series of strips arranged at angles oblique to the direction of the apron's movement, whereby grain on the screen is swept forward in zigzag courses, substantially as and for the purpose set forth.

353,659. DEVICE FOR JOINTING THE TEETH OF SAWS. GEO. S. BLACK, New Orleans, La., assignor to E. C. Atkins & Co., of Indiana. Filed Apr. 6, 1886. (No model.)



Claim.—1. A jointer for circular saws, consisting of an outside frame secured on the saw frame or guide, an inside frame adjustably mounted therein, and a stone adjustably mounted in said inside frame, substantially as described, and for the purposes specified.

2. The combination, in a saw-jointer, of the frame D, the base of which is mounted in a suitable groove on the saw-frame, the frame E, provided on its top and bottom with tongues *e*, which slide in suitable ways in said frame D, and the stone F, adjustably mounted in said frame E, substantially as set forth.

3. In a saw-jointer, the combination of the frame D, the hand-nut D', mounted in the end of said frame, the frame E, adjustably mounted within the frame D, and provided on one side with a screw, *e²*, which engages with said hand-nut D', the hand-nut E', mounted in the bearing *e'* on the rear end of the frame E, and the stone F, having the metal base F', on which is formed a screw, *f*, secured to its rear end, said screw *f* engaging with and operated by the hand-nut E', substantially as shown and described, and for the purposes specified.

4. The combination, with the saw-guide C, of a saw-jointer mounted in a groove in said guide, consisting of an outside frame, D, a frame, E, adjustably mounted in said frame D, and a stone, F, mounted in said frame E, and provided with means for longitudinal adjustment, substantially as set forth.

353,660. SAD-IRON HANDLE. JAS. F. BLESS, Newark, N.J. Filed Jan. 7, 1886. (No model.)

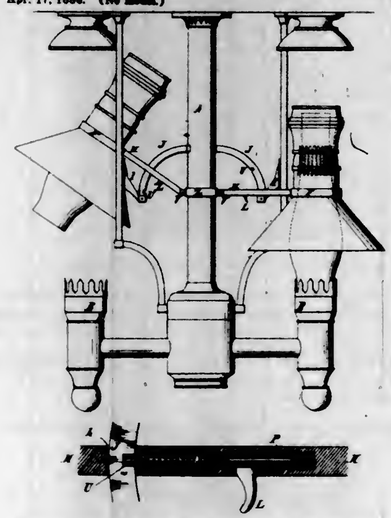


Claim.—1. The combination, with a sad-iron, of two lugs, D, projected from the top of the iron near the middle with their points extended toward one another, a handle having its base F provided with a single slot, E, at its middle to fit around the feet D' of said lugs, and a latch, *a b c*, constructed as described, and pivoted horizontally upon the base and provided with depending hook *c*, the hook and lugs being constructed somewhat eccentric to one another to make the hook wedge upon the lug when latched, and thus hold the handle to the body firmly by the mere weight of the latch, substantially as herein set forth.

2. The combination, with a sad-iron body, of a top secured thereto by fastenings and provided with two lugs, the top having an opening, I, beneath the points of said lugs, arranged substantially as and for the purpose set forth.

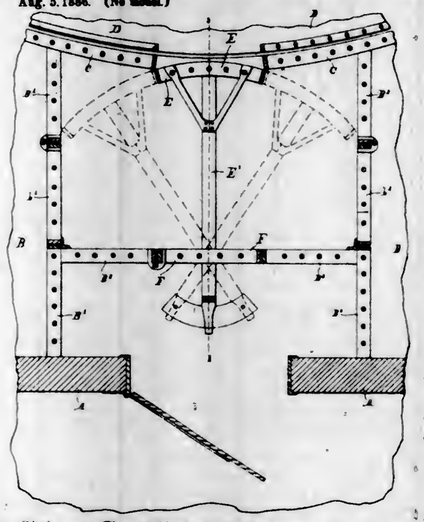
3. The combination, with the body A, of the top B, provided with the lugs D, the opening I, and the flange C, formed with notches C', the lugs being adapted to fit a latch upon the base of the handle, substantially as shown and described.

353,661. CAR-LAMP. WILLIAM H. BRIGGS, Bond Hill, Ohio. Filed Apr. 17, 1886. (No model.)



Claim.—In a car-lamp, the combination with the tube A and the smoke-jack and shade, of the ring Z, surrounding said tube, the arm H, hinged thereto and carrying said smoke-jack at its free end, the notched quadrant J, concentric with the hinge of said arm, and the spring-bolt P *p*, carried by said arm, substantially as and for the purpose set forth.

353,662. DOOR FOR JAILS OR PRISONS. WILLIAM H. BROWN, Indianapolis, Ind., assignor to Charles H. Sparks, Chicago, Ill. Filed Aug. 5, 1886. (No model.)



Claim.—1. The combination, with the door-opening of a jail or prison, of a vestibule or space adjacent thereto and a door to said opening, mounted upon pivoted bars extending out into said vestibule, whereby it can be operated from said vestibule, substantially as set forth.

2. The combination, in a jail or prison, of the cell structure, a vestibule adjacent thereto, a door leading from the vestible into the space or corridor in front of the cell-structure, and a door mounted upon bars pivoted in the door-opening for said vestibule-door, and adapted to close the door of the cell, said pivoted door being thus adapted to be operated from outside said vestibule-door, substantially as set forth.

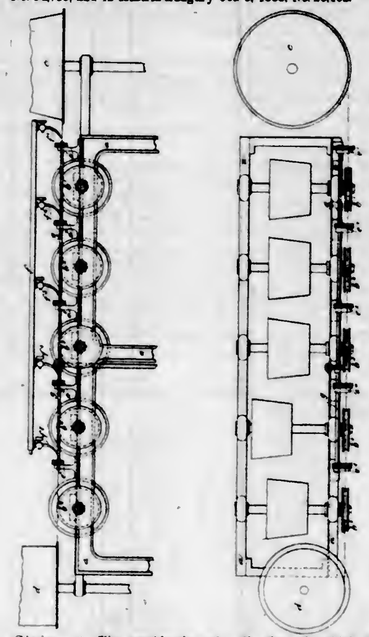
3. The combination, in a jail or prison, of a vestibule, a vestibule-door, a cell structure having appropriate door-opening, and a cell-door mounted upon pivoted bars and having appropriate operating and fastening devices outside said vestibule-door, substantially as set forth.

4. The combination of the grating C, the door-opening therein, the grating B², the door F therein, and the door E, having bars E' and E², which extend to outside the door F, and are mounted on pivots, whereby the door E can be operated to open or close the door-opening in the grating C.

5. The combination, with a door-opening, of a door mounted on pivoted bars, which bars extend to outside another door or grating, from where, through said bars, said door may be operated.

6. The combination of the door E, pivoted bars therefor, a hinged catch on the end of one or both said bars, and means for securing such catch.

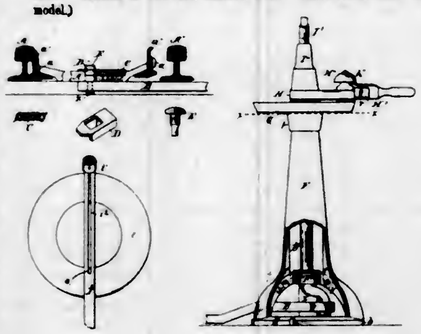
353,663. APPARATUS FOR DRAWING WIRE. SAMUEL H. BYRNE, Brighouse, County of York, England. Filed July 15, 1885. (No model.) Patented in England Jan. 30, 1885, No. 1,359; in France July 8, 1885, No. 170,028; in Belgium July 9, 1885, No. 69,542; in Germany July 11, 1885, No. 34,758, and in Austria-Hungary Oct. 9, 1885, No. 26,402.



Claim.—1. The combination of a die through which the wire passes, the lubricant-supplying pipe, and the nozzle connected with said pipe and directing the lubricant-jet to the eye of the die, substantially as and for the purpose set forth.

2. The combination of the series of rotating dies through which the wire passes, the lubricant-supplying pipe, and the series of nozzles directing the lubricant in jets to the eyes of the dies, substantially as and for the purpose set forth.

353,664. RAILROAD SWITCH-STAND AND SWITCH-CONNECTION. THOMAS E. CALVERT, Lincoln, Nebr. Filed Oct. 3, 1885. (No model.)



Claim.—1. The tie-rod A, formed with shouldered end hooks, as a a, adapted to pass through apertures in the switch-points from the inner sides, substantially as described.

2. The combination of the tie-rod A, formed with a central slot, a switch-rod having its end supported by a bearing in the slot, and a spring interposed in the said slot between the bearing and the end of the slot, substantially as described.

3. The combination, in a switch-connection, of tie-rod A, switch-rod B, spring C, cap D, and pin E, for the purpose of forming an elastic and flexible joint, substantially as described.

4. The combination, with the switch-stand formed with interior flanges, *f*, and the spindle, as B', of the bearing-box F', formed with projecting flanges adapted to be secured to the flanges of the switch-stand, substantially as described.

5. The combination of switch-stand F, eccentric box F', and crank-shaft B', substantially as described.

6. The combination, with a switch-stand formed with spines on its upper end, of the hemispheroidal switch-table formed with depending annular chamber or socket having gains to take the spines of the switch-stand, substantially as described.

7. The combination, with the spindle and the switch-stand and the lever formed with a lock-seat and lock-pin hole, of a lock seated in the seat of the lever and a lock-pin, substantially as described, and for the purpose stated.

8. The switch-lever H, in combination with mortise-lock H' and pin H'', substantially as described.

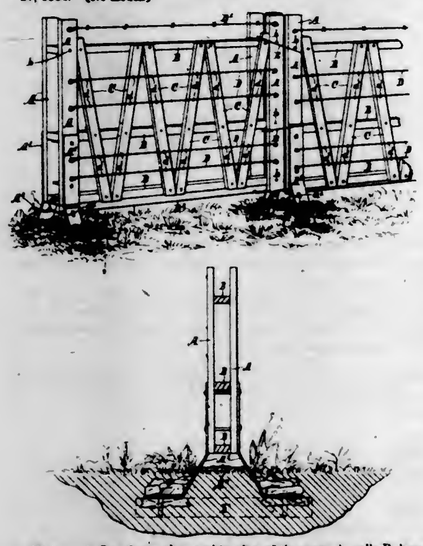
9. The switch-table G, in combination with a switch-lever, H, provided with mortise-lock H' and pin H'', as herein specified.

10. The improved semaphore I, consisting of semaphore-base I'', target-shaft I', targets i i^2, and screw i', substantially as described.

11. The combination, with the switch-table formed with a locking-pin seat and the turning lever, of a vertically-arranged locking-pin in the turning lever, and a lock seated in the turning lever with its bolt arranged to pass over a shoulder on the locking-pin, whereby the pin is held in the seat in the table of the switch locked, substantially as described.

12. The combination of switch-stand F, switch-table G, switch-lever H, mortise-lock H', lock-pin H'', and semaphore I, substantially as described.

353,665. **FENCE.** Stephen Collins, Clarksville, Tenn. Filed Aug. 27, 1886. (No model.)

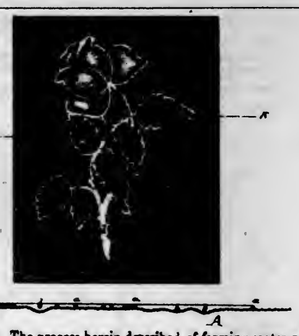


Claim.—1. In a fence, the combination of the posts A, rails B, braces C, and wires D, forming a fence-panel, the feet A', secured to one end of said panel, tie wires or rods A^2, and wire D^2, connecting the tie-rod A^3 of one panel to the tie-rod of the next panel, all substantially as set forth.

2. The combination of the posts A, iron feet A', secured to the lower end thereof, the tie rod or wire A^3, securing said feet in position, the rails B, cross-braces C, wires D, and the wire D^2, extending from the tie-rod A^3 of one panel to the tie-rod of the next panel, substantially as set forth.

353,666. **WATER MARKED PAPER.** Zenas Crane, Jr., Dalton, Mass., assignor to Z. Crane, Jr., & Bro., same place. Filed Apr. 16, 1886. (Specimens.)

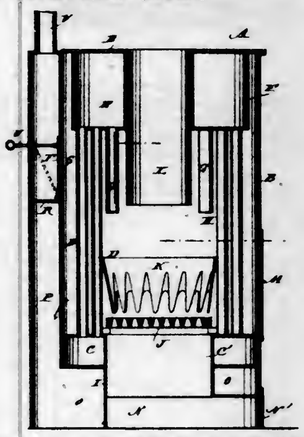
353,666.



Claim.—1. The process herein described of forming water-marks in paper, which process consists in alternately reducing and increasing the thickness of the pulp as it passes through the dandy-roll under the wire-cloth, as specified.

2. As a new article of manufacture, paper having shaded water-marks with light or thinner portions, *d*, and dark or thicker portions, *e*, substantially as described.

353,667. **STEAM-GENERATOR.** William P. Crater, Salamanca, N. Y. Filed Mar. 23, 1886. (No model.)



Claim.—1. In a steam-generator, the combination of a shell and two tanks placed one above the other and connected with each other by pipes, of which the upper tank is provided with downwardly-projecting pipes closed at their lower ends, with a fire-place and a self-feeder, substantially as herein shown and described.

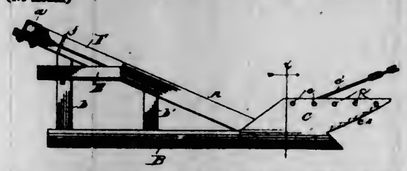
2. In a steam-generator, the combination of a shell and two tanks placed one above the other and connected with each other by pipes, of which tanks the upper one is provided with downwardly-projecting pipes closed at their lower ends, with a fire-place, a self-feeder, and a draft-flue, substantially as herein shown and described.

3. In a steam-generator, the combination of a shell and two tanks placed one above the other and connected with each other by pipes, of which tanks the upper one is provided with downwardly-projecting pipes closed at their ends, with a fire-place, a self-feeder, an ash-pit, and a draft-flue, substantially as herein shown and described.

4. In a steam-generator, the combination of a shell and two tanks placed one above the other and connected with each other by pipes, of which tanks the upper one is provided with downwardly-projecting pipes closed at their lower ends, with a fire-place, an ash-pit, and a draft-flue, the lower part of which is provided with a vertical central partition covered by a top plate having an opening on one side, substantially as herein shown and described.

5. In a steam-generator, the combination of a shell and two tanks placed one above the other and connected with each other by pipes, of which the upper tank is provided with downwardly-extending pipes closed at their lower ends, with a fire-place, self-feeder, ash-pit, and draft-flue, the lower part of which flue is provided with a vertical central partition covered by a top plate having a side opening, and the upper part is connected with the space formed between the said two tanks by an aperture which can be opened or closed by a damper, substantially as herein shown and described.

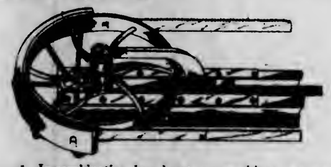
353,668. **PLOW.** (No model.) William Dunn, Bryan, Ohio. Filed Apr. 7, 1886.



Claim.—1. The combination, with the frame of a ditching-machine, of a scoop, substantially such as shown, having a series of cross-rods, a two-part depth-graduating block clamped above and below upon said cross-rods, and means for securing the draft or clevis to either of said rods, as and for the purpose set forth.

2. The combination, with a scoop having a series of transverse bars and an attached shoe or block, an inclined beam, as A, and an earth-receiving table, as E, of a pivoted spider forked at its rear end and adapted to direct the earth to either side of said beam A upon said table, substantially as described.

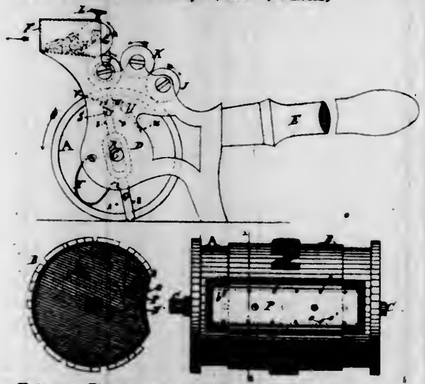
353,669. **BAND-SAW MILL.** Wallace H. Dodge, Mishawaka, Ind. Filed Apr. 1, 1886. (No model.)



Claim.—1. In combination, in a band-saw machine, an upper band-wheel, B, to support and carry the saw, and above said wheel a flat shield or catcher concentric to and parallel with the face of said wheel and with a small intervening space, as set forth, whereby, if the saw breaks, it will be immediately arrested, as set forth.

2. In a band-saw machine, the band-wheel B, sliding bracket C, whereon the center shaft of said wheel is supported, so as to be adjusted when desired, combined with the concentric shield or catcher D, mounted upon said sliding bracket, substantially as and for the purpose set forth.

353,670. **HAND ROLLER PRINTING-MACHINE.** John H. Eisenmann, St. Louis, Mo. Filed May 15, 1886. (No model.)



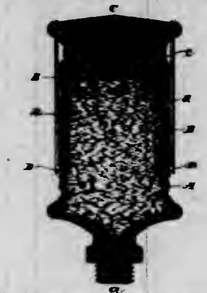
Claim.—1. The combination, with a printing-roller having concave depression M and with printing-band B, of concave plate M, secured to roller A and formed with pins or spikes O, and of clamp or plate P, having holes *o'*, and secured to plate M and roller A, substantially as shown, and for the purpose described.

2. In a hand printing-roller machine, the combination, with the printing-roller having projecting stops or pins 1 2 3 4, and with the side D of frame-work having lugs or projections U V, of a trigger or catch-bar, Q, formed with a projecting stud or catch, S, and connected to the printing-roller by spring T, substantially as shown, and for the purpose set forth.

353,671. **LUBRICATOR.** William M. Evans and John G. Cordner, Oskaloosa, Iowa. Filed May 11, 1886. (No model.)

Claim.—1. In a lubricator, the combination, with a cup open at its upper end and provided with series of notched teeth or notches on its side, of a plunger closed at the top and open at the lower end and adapted

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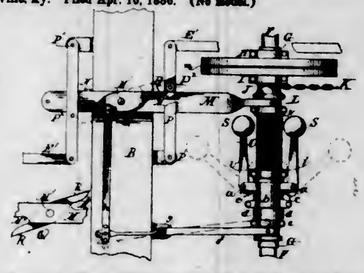
to telescope within the cup, and provided with hooks adapted to engage the teeth or notches and lock the plunger in its adjustment on the cup, substantially as set forth.

2. In a lubricator, the combination, with a cup open at its upper end and provided with series of teeth or notches on its sides, of a cover adapted to telescope within the cup, and provided with a pair of spring-hooks adapted to automatically engage the teeth or notches and lock the cover in depressed adjustment, substantially as set forth.

3. In a lubricator having series of ratchet-toothed notches on its sides, a cover provided with spring-hooks adapted to slide freely down over the notches and automatically lock the cover against an upward movement, substantially as set forth.

4. The combination, with the cup of a lubricator, of a cover open at the bottom and closed at the top, and adapted to fit within the cup and form a chamber for compressed air, the said cover having hooks adapted to engage teeth or notches in the cup and lock the cover in depressed position, substantially as set forth.

353,672. **AUTOMATIC CAR-BRAKE.** Josiah R. Gatherest, Louisville, Ky. Filed Apr. 10, 1886. (No model.)



Claim.—1. The combination of the disk H, fixed on the axle, the disk I, free on the axle and provided with a grooved hub, a shifter-lever, M, pivoted to one of the truck-bolsters and engaging the said groove, and a spring, N, fixed to the other bolster of the same truck in an inclined position to bear against the lever M, substantially as shown and described.

2. The combination of the brake-operating lever M, pivoted to one bolster, and the spring N, fixed to the other bolster and communicating with the lever M by a slanting or wedging contact-surface, substantially as shown and described.

3. The combination of the brake-operating lever M, pivoted to one bolster, and the slanting spring N, fixed to the other bolster and bearing its slanting face against the said lever M, substantially as shown and described.

4. The combination, with car-wheels, brakes therefor, and truck-bolsters, of a friction-clutch comprising a securable and a loose disk on the wheel-axle, a shifter-lever pivoted to one of the bolsters and fitted to engage the loose disk, and having switch-notches in its sides, a retaining lever or levers pivoted to the bolster and crossing the line of the shifter-lever, a roller journaled to the retaining-lever to engage the shifter-lever near a switch-notch, a switch pivoted on the shifter-lever and having projections shaped to fill the said switch-notches, a spring bearing against the shifter-lever on the side to engage the disks of the clutch, a chain connecting the loose disk with the brake-lever, a centrifugal governor mounted on the axle, and connections between the said governor and the switch, substantially as shown and described.

5. The combination of the shifter-lever M, having notches M^2 in its sides and pivoted to a car, the switch Q, pivoted to the lever M and having projections R to fit the notches M^2, a spring, N, bearing against the side of the lever M, and a lever or levers, P, pivoted to the car and provided with rollers P^2, to engage the lever M in opposition to the action of the spring N, substantially as shown and described.

6. The combination of the lever M, having notches M^3, the switch Q, pivoted thereto and provided with projections R to engage the said notches, and the levers P, hung at right angles to the lever M and provided with rollers P^2, substantially as shown and described.

7. The combination, with the shifter-lever M, the switch Q, and the axle F, of the collar *b*, rigidly fixed upon the axle, the centrifugal arms S, pivoted in the said collar *b* and having segments of gear-teeth *c*, the racks *d*, fitted to engage the said segments and to slide longitudinally through the collar *b*, the grooved collar *e*, connecting the racks *d*, the lever *f*, pivoted to a fixture of the car and engaging the groove of the collar *e*, the rod *h*, connecting the lever *f* with the switch Q, and the spring O, mounted on the axle, substantially as shown and described.

8. The combination, with the shifter-lever M, provided with switch-notches in its sides, and a retainer, P^4, adapted to bear along the switch side of the lever, of a switch, Q, having projections R, shaped to fill the said notches, and means, substantially as described, for opening and closing the switch, as and for the purpose specified.

9. The combination, with the bolsters B B', of the shifting-lever M, pivoted to the bolster B, the bracket N^2, secured to the bolster B', the slanting spring N, secured to the bracket N^2 and bearing against the lever M, and the set-screw N' in the bracket N^2, and bearing against the back of the spring N, substantially as shown and described.

10. The combination, in an automatic car-brake, of an axle, a friction-clutch thereon, a fixed collar, *b*, also on said axle, centrifugal levers S, pivoted to collar *b*, and provided with segments of gear-teeth, the rack *d*, engaged by the segment-gear on said levers, and spring O, interposed between the ends of said racks and the loose disks of the clutch, whereby the centrifugal force of the levers S will increase the spring-pressure to apply the brakes with a degree of force proportionate to the speed of the train, substantially as shown and described.

11. The combination, with the axle F, the disk H, rigidly mounted thereon, the disk I, provided with grooves J and L, and freely mounted on the axle, the centrifugal governor mounted on the axle, and the spring O, acting between the disk I and the racks, of the governor, substantially as shown and described, whereby the spring O performs the double office of forcing the disk I into engagement with the disk H and of retracting the arms of the governor and closing the switch.

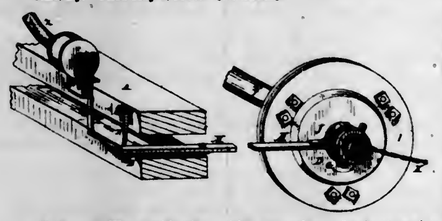
12. The combination of the disks H or I, provided with flanges *k* and radial ribs *l*, and the shoes *m*, fitted to rest within the said flange, as and for the purpose set forth.

13. The combination, in an automatic car-brake, of an axle, F, a friction-clutch therein, a brake-chain, K, attached to the loose disk of the clutch, a shifter-lever, M, engaging a grooved collar on said loose disk, a lever or levers, P, to control lever M, a spring, N, bearing against lever M, rods E', and draw-bars E, as shown and described.

14. The combination, in an automatic car-brake, of an axle, a friction-clutch therein, a spring on the axle pressing constantly against the loose disk of the clutch, a shifter-lever controlling the loose disk against the action of said spring, and a lever or levers for controlling the shifter-lever, as shown and described.

15. In an automatic car-brake, the combination of an axle, F, disks H and I, forming a friction-clutch, with or without a lug, *p'*, a shifter-lever, M, controlling-levers P, and connecting-rods E', as shown and described.

358,673. AIR-BRAKE FOR CARS. Jonah B. Gatewright, Louisville, Ky. Filed May 6, 1886. (No model.)



Claim.—1. The combination, with a car-axle, a clutch adapted to be revolved thereby, a chain connecting the clutch with the brakes, a shifter-lever for the clutch, and a spring adapted to force the clutch continually into action, of an air-cylinder, a piston therefor connected with the said lever in opposition to the action of the said spring, and means for supplying compressed air to the said cylinder, substantially as shown and described.

2. In an air-brake, the combination, with a clutch adapted to receive rotary motion from the wheels, a chain connecting it with the brakes, and a spring adapted to force the clutch continually into engagement, of an air-cylinder provided with a piston, and means for connecting the said piston with the clutch in opposition to the said spring, substantially as shown and described, whereby compressed air in the cylinder will hold the piston extended and keep the clutch disengaged against the action of the said spring, and whereby permitting the air to escape from the cylinder will permit the spring to engage the clutch and apply the brakes to the wheels by power received from the wheels, as set forth.

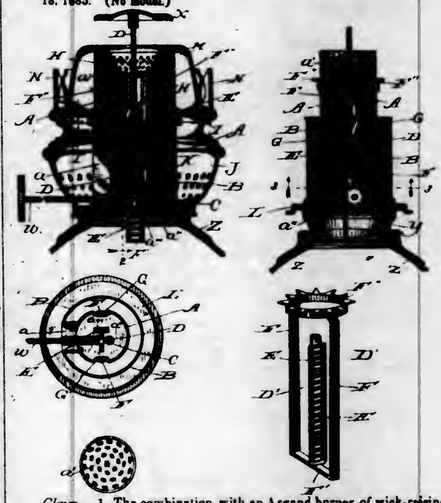
3. The combination of the axle F, the disk H, fixed thereon, the disk I, very loosely fitted upon the axle, and the shifter-lever M, provided with a bearing for the disk I, adapted to support the same partially free from the axle, as set forth.

4. The combination of clutch-disks H I and the annular wearing-plates P, having an open space, R, between them and the axle-holes in the disks, substantially as shown and described.

5. In a clutch-disk, the combination of two half-disks provided with bolting-ears on their inner ends and having jointly an annular wearing-face surrounding the said ears and extending beyond them, as shown and described.

6. The combination of the axle F, the clutch H I thereon, the brake-chain K, attached to one member of the clutch, the lever M, engaging the clutch and pivoted to one of the truck-bolsters, the spring N, bearing against the said lever to engage the clutch, the air-cylinder S, provided with a piston, T, engaging the lever M in opposition to the spring N, an air-pipe, W, fixed to the car-body, and a flexible pipe-connection, *x*, between the cylinder S and pipe W, substantially as shown and described.

353,674. LAMP-BURNER. Adolph Gross, Chicago, Ill. Filed Nov. 18, 1885. (No model.)



Claim.—1. The combination, with an Argand burner, of wick-raising device D', consisting of rack E, posts F F, tie F', and ring F'', with post D, and ratchet and wheel W, all substantially as described, and for the purpose set forth.

2. The combination, with an Argand burner, of wick-raising device D', consisting of posts F F, tie F', and ring F'', and rack E, with an inner wick-tube having an aperture in the bottom thereof, and grooves therein in which said posts F F are moved and guided, all substantially as described, and for the purpose set forth.

3. The combination, with an Argand burner, of a wick-raising device consisting of posts F F, tie F', ring F'', post D, rack E, and ratchet-wheel W, with a tube having grooves therein, and a post in the center thereof, serving as guides for said wick-raising device, all substantially as described, and for the purpose set forth.

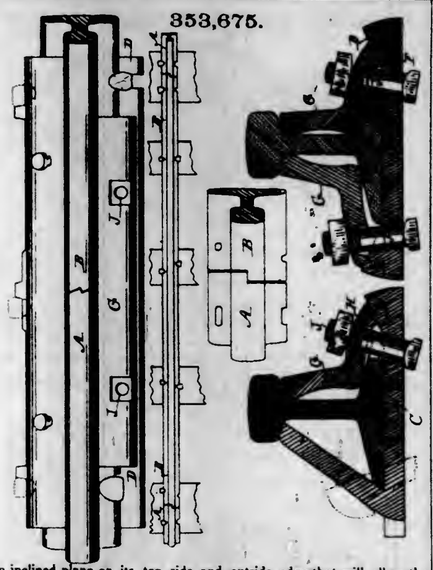
4. The combination, with an Argand burner, of a wick-raising device consisting of posts F, tie-rod F', ring F'', rack E, and inner wick-tube having grooves therein, and a post in the center of said wick-tube, the said rack provided with a guiding-clasp engaging said post, and said post also extending beyond said tube, and an air-deflector placed thereon, substantially as described.

353,675. RAILWAY-RAIL JOINT. William F. Gould, Des Moines, Iowa. Filed June 30, 1884. (No model.)

Claim.—1. A railway-rail having two parallel vertical planes at each end that extend diagonally from its opposite sides, and are connected at their inner ends and at the center of the rail by a single vertical plane that extends diagonally relative to the longitudinal center of the rail, to produce scarf-joints in the manner set forth, for the purposes stated.

2. A fish-plate of elbow shape in its cross-section, having a plain beveled edge at its bottom, and its top edge adapted in shape to engage the under side of the ball of a rail, in combination with a chair having

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an inclined plane on its top side and outside edge that will allow the beveled edge of the fish-plate to move inward and downward thereon relative to the flanges of a rail, while the top edge of the same fish-plate is in contact with the ball of the rail and moves upward relative to the rail.

3. A railway-chair consisting of a horizontal base having a vertical extension at one side that inclines inward to engage the bottom of the ball of a rail, and a plane on the top of its opposite edge inclined inward and downward, a fish-plate that is elbow-shaped in its cross-section, and has a plain beveled edge at its bottom, and its top edge adapted in shape to engage the under side of the ball of a rail, and screw-bolts passed through coinciding perforations in the said chair and fish-plate, in combination with the abutting ends of two railway-rails, to operate in the manner set forth, for the purposes stated.

353,676. MAGAZINE-GUN. Myron E. Gross, Washington, D.C. Filed Dec. 29, 1885. (No model.)



Claim.—1. In a magazine-gun, the combination, with an oscillating cylinder forming a carrier for the cartridge and shell, said cylinder having grooves on its outer face, of a slide actuated by the handle and provided with cam-pins engaging with the grooves of said cylinder, whereby the cylinder is turned to receive the cartridge and the shell, as set forth.

2. In a magazine-gun, an oscillating cylinder located in the rear of the barrel and centrally pivoted thereto, said cylinder having a shell-chamber on one side and a firing-pin at one side of its center and actuated in one direction to receive the cartridge and shell by cam-pins reciprocated by an operating-handle and reversed by the coil-spring D to eject the shell and bring the cartridge to the chamber of the barrel, substantially as and for the purpose set forth.

3. In a magazine-gun, the combination, with the movable handle, of a carrier-cylinder and a slide for actuating the same by intermediate pin and cam-groove connections, said slide being moved by the handle and secured thereto by prongs passing through guide-recesses in the breech-frame, as set forth.

4. In a magazine-gun, the combination, with the movable handle, the carrier-cylinder, and the carrier-arm, of a bifurcated slide which actuates the cylinder, said slide having a transverse piece at its rear end to engage with a recess on the under side of the carrier-arm, whereby the carrier-arm is moved by said slide, as set forth.

5. In a magazine-gun, the combination, with the movable handle and carrier-cylinder, of a slide which actuates said cylinder, the closed end of said slide passing within the casing, the open end having prongs secured to the handle on each side of the barrel, whereby the slide is operated by the handle, as set forth.

6. In a magazine-gun, the combination, with the oscillating cylinder and a reciprocating slide operating the same through intervening cam-pins, of the spool-barrel fitting within and secured to the casing and having a spool journaled in its end wall, said spool receiving the shank of the cylinder through its center and operating through the intervention of the spring to reverse the action of the cam-pins on the carrier-cylinder, as set forth.

7. In a magazine-gun, the combination, with the oscillating cylinder and a slide operating the same through intervening cams, of the spool-barrel, a spool centrally journaled therein and provided with a square shank entering its center, the cylinder having a coil-spring surrounding the spool and bearing in an opposite direction to the action of the cam-pins, said spool and cylinder being limited in their action by a lug of the spool coming in contact with the side of a catch-bar borne by said spool-barrel at a point in the rotation of the cylinder which brings the cartridge-chamber in line with the barrel of the gun, as set forth.

8. In a magazine-gun, the combination, with the oscillating cylinder and a spool-barrel provided with an upper longitudinal slot, of a catch-bar sliding in said slot, the inner end inclosing a transverse piece in the rear wall of the spool-barrel, the opposite end resting on the outer wall thereof, the forward-and-backward movement of said catch-bar in said slot acting to hold and release the cylinder, as set forth.

9. In a magazine-gun, the combination, with the oscillating cylinder, the spool-barrel, the slide, and carrier-arm, of a shell or casing consisting of a single piece of metal having two borings forming an eccentric longitudinal opening, whereby recesses are provided for the movement of the oscillating cylinder, slide, and carrier-arm, and provided with a single opening at the bottom of the casing for receiving the cartridges and ejecting the cartridge-shells, set forth.

10. In a magazine-gun, the oscillating cylinder provided with cam-grooves on its outer face and a cartridge and a shell chamber on opposite sides, in combination with the bifurcated slide, the prongs of which are secured to the handle, and its closed end provided with cam-pins which fit the cam-grooves of the cylinder, and so placed with relation to each other that a bearing-surface is constantly afforded for one pin while the other is traversing a break in the groove, as set forth.

11. In a magazine-gun, the oscillating cylinder provided at opposite sides with a shell-chamber and a cartridge-chamber, and having a square shank, in combination with the slide, and the spool-barrel having the spool journaled therein provided with an opening to receive the shank and connecting with a coiled spring surrounding same, substantially as and for the purpose set forth.

12. The combination, in a magazine-gun, of the oscillating cylinder provided with a shell and a cartridge chamber and with cam-grooves in its outer face, the bifurcated slide having cam-pins on its inner closed end adapted to fit the cam-grooves of the cylinder, the handle secured to the prongs of the slide and located beneath the barrel, and the spool secured to the coiled spring and journaled within the spool-barrel, substantially as and for the purpose set forth.

13. In a magazine-gun, the combination, with the semi-cylindrical handle, open at the top and extending below the magazine, of the breech-frame, and the handle-supporting guide-rods located on either side of the magazine, said rods secured at one end to lugs on the barrel, the opposite end projecting into the breech-frame, as set forth.

14. The combination, in a magazine-gun, of the oscillating cylinder, the spool-barrel having the spool journaled therein within the casing, with its controlling-spring, and the movable catch-bar in the top of the spool-barrel acting to release the cylinder after the shell is withdrawn from the barrel by contact with the carrier-arm at its extreme backward limit, thus ejecting the shell from the casing, as set forth.

15. The combination, in a magazine-gun, with an actuating handle and slide, of the oscillating cylinder provided with a shell-chamber and a cartridge-chamber on opposite sides, and the inclosing-casing having an opening on its under side adapted to discharge the shell, substantially as and for the purpose set forth.

16 The combination, in a magazine-gun, of the chambered cylinder, the bifurcated operating-slide having its arms connected by a transverse piece at their inner end, and the breech-rod which reciprocates through the cylinder, having a recess on the under side of its inner end which fits over and incloses the transverse piece of the slide, and a slant or bevel at its outer end which bears upon the incline at the rear of the barrel and lifts the rod at its forward position, substantially as and for the purpose set forth.

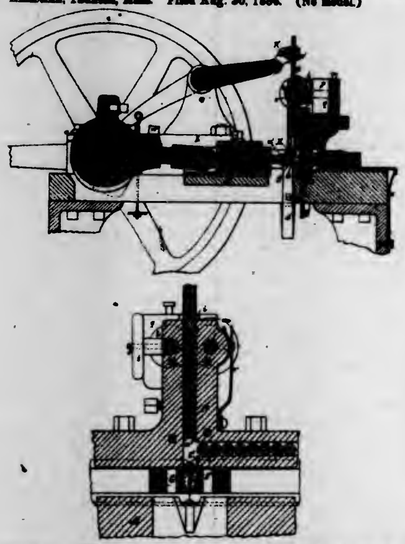
17. The combination, in a breech-loading gun, of the oscillating cylinder, the firing-pin projecting through the same, the carrier-arm having a forward bevel thereon, which, coming in contact with the incline on the rear of the barrel, lifts the arm in its forward movement, and a bevel on the top thereof serving in its backward movement, by engagement with the frame, to bring its forward end down, the retractor-hook in the forward end of the carrier-arm, and the bifurcated slide, whereby the carrier-arm is reciprocated through the cylinder, substantially as and for the purpose described.

18. The combination, in a magazine-gun, of the button pivoted at the mouth of the magazine, provided at its lower point with a finger pro-

jecting from its outer face, and at its upper point with an arm projecting from its inner face, and the oscillating cylinder having a projecting stud on the periphery of its outer end which rotates the button by contact with it, substantially as and for the purpose set forth.

19. The combination, in a magazine-gun, of the reciprocating cylinder having a square shank, and provided on opposite sides with a cartridge-chamber and a shell-chamber, and with cam-grooves on its outer face, the spool-barrel having journaled therein the spool secured to and controlled by the spiral spring surrounding the same, the catch-bar and its controlling-spring, the breech-rod provided with a recess on its under side, and a retractor-hook pivoted in its outer end, and the bifurcated slide having a transverse piece and cam-pins at its inner end which fit and slide in the cam-grooves of the oscillating cylinder, and its outer pronged ends secured to the handle, substantially as and for the purpose set forth.

353,677. MACHINE FOR MAKING SHOE-BUTTONS. Fred H. Hardman, Taunton, Mass. Filed Aug. 30, 1886. (No model.)

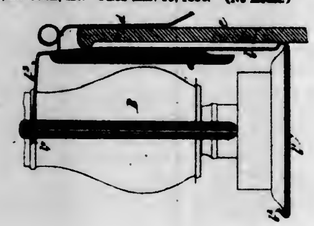


Claim.—1. The combination of one movable jaw K and the pin G, carried thereby, and the other movable jaw K, having the recess or hole to receive the said pin, with the cutter F, provided with the wire-bending notch *v*, and with the bender M, having in it the cup-shaped recess *h'*, as described, such jaws, cutter, and bender being provided with mechanism for operating them, substantially as set forth.

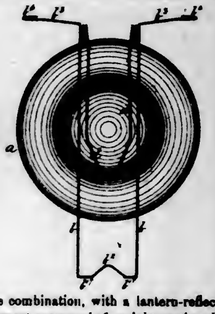
2. The combination of the movable jaws K K, having to one the pin G and to the other the recess *g'*, for its reception, the stationary tubular guide E, having its lower end oblique or inclined, as represented, the cutter F, having the wire-bending notch *v*, and formed to operate with such lower end of such guide so as to cut the wire obliquely, and the bender M, having the cup-shaped recess *h'*, as described, such jaws, cutter, and bender being provided with mechanism for operating them, substantially as set forth.

3. The combination of the stop or abutment D, having in its upper end the wire-centralizing angular recess *u*, as represented, with the feed-rollers *k l*, stationary tubular guide E, movable wire cutter and bender F, pin G, and the jaws K K, such feed-rollers, cutter and bender, and jaws being provided with mechanism for operating them, substantially as set forth.

353,678. REFLECTOR ATTACHMENT FOR LANTERNS. Joseph Hirth, St. Louis, Mo. Filed Mar. 10, 1886. (No model.)

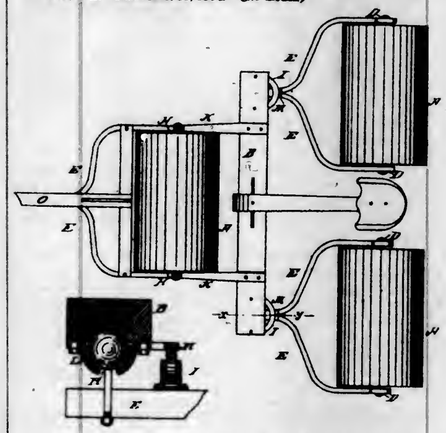


353,678.



Claim.—The combination, with a lantern-reflector, *a*, of a wire or other metal attachment composed of upright portions *b*, horizontal bracket *b'*, hook or catch *b²*, adapted to engage the base of the lantern, arms *b³*, and hooks *b⁴*, substantially as shown, and for the purpose described.

353,679. LAND-ROLLER. John Horst and Canfield Harsh, Springvale, Wis. Filed Mar. 15, 1884. (No model.)



Claim.—1. In a land-roller, the standard H, hooked at the top, in combination with the arm K, provided with slotted eye, the roller frame or bail E, the tongue O, and platform or draft bar B, substantially as and for the purposes described.

2. The shoe-plate M and its wheeled bearing or caster I, in combination with the bar B, coupling R L, and rear roller, bail, or frame, E, substantially as and for the purposes set forth.

3. In a land-roller, the combination of the rollers A A A, bails E E E, hooked standards H H, tongue O, slotted arms K K, platform-bar B, ball-and-socket-joint coupling R L, shoe M, and caster I, all arranged as and for the purposes described.

353,680. CONDUIT OR OTHER PIPE. Daniel N. Hurlbut, Chicago, Ill. Filed Aug. 17, 1886. (No model.)



Claim.—1. A clay or earthenware conduit or pipe, consisting of an outer cylindrical shell and a series of straight longitudinal walls formed integral with said outer shell, and a central portion connecting said walls and also formed in one piece therewith, whereby segmental chambers are provided extending from the outer shell to the central portion, said chambers being of an area or capacity to receive and hold electrical conductors, substantially as described.

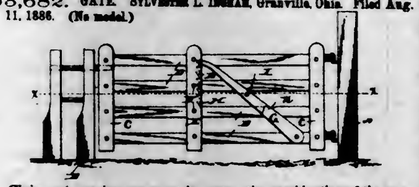
2. A clay or earthenware conduit or pipe, consisting of the outer cylindrical shell, the straight longitudinal walls, and the interior wall or center, all made or molded in one piece, and all of a uniform or nearly uniform thickness, substantially as described.

353,681. Die for forming conduits or pipes. Daniel N. Hurlbut, Chicago, Ill. Filed Aug. 17, 1886. (No model.)



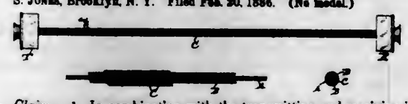
Claim.—The combination, with an outer body or flask, of a center circular block or bell with outer blocks or bells having a convex exterior surface, a concave interior surface, and inclined side faces, all pendent from an annular frame, substantially as described.

353,682. Gate. Sylvester L. Ingham, Granville, Ohio. Filed Aug. 11, 1886. (No model.)



Claim.—As an improvement in gates, the combination of the vertical end bars, the horizontal rails pivoted thereto at their extremities, the vertical bars E, arranged on opposite sides of the rails or panels to which they are pivoted and between the end bars, and having a series of notches or teeth in their rear sides, one of the middle horizontal bars of the gate being provided with a notch, K, in its upper side and at a point thereon in rear of the bars E, the inclined braces or pawls arranged on opposite sides of the horizontal bars, to which they are pivoted at their lower ends and adapted to engage the teeth or notches in the bars E at their upper ends, and a bolt, I, connecting the said braces or pawls at an intermediate point of their length for simultaneous adjustment, and arranged above the horizontal bar in which the notch K is formed, and adapted to fit in the said notch when the gate is elevated to its highest point, thereby to lock the pawls against displacement, substantially as described, for the purpose set forth.

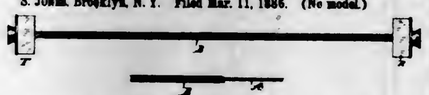
353,683. Conductor for mechanical telephones. John S. Jones, Brooklyn, N. Y. Filed Feb. 20, 1886. (No model.)



Claim.—1. In combination with the transmitting and receiving instruments of an acoustic or mechanical telephone, a multiple conductor consisting of two or more straight and bare wires arranged parallel to each other, as shown and described, and provided with a sound-deadening envelope overlaying the wires when so assembled.

2. In combination with the transmitting and receiving instruments of a mechanical or acoustic telephone, a multiple conductor consisting of two or more straight and bare wires arranged parallel to each other, as shown and described, one or more of the wires being of a softer metal than the others, the wires when so assembled being covered with a sound-deadening envelope.

353,684. Conductor for mechanical telephones. John S. Jones, Brooklyn, N. Y. Filed Mar. 11, 1886. (No model.)



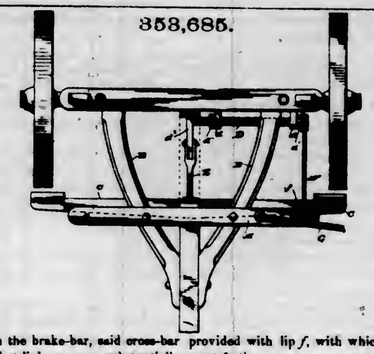
Claim.—A conductor for acoustic or mechanical telephones, which consists of a central wire or wires formed of steel, iron, or some other hard metal, with a sound-deadening cover or envelope, consisting of lead or some other soft metal.

353,685. Wagon-brake. Aaron Kreyer and Frederick Reny, Ashland, Ohio. Filed Aug. 14, 1886. (No model.)

Claim.—1. The combination, with brake-bar C and cross-bar A, of a hand-lever, ratchet-link F, and intermediate mechanism connecting the latter with the brake-bar, said ratchet-link locking with said cross-bar, substantially as set forth.

2. The combination, with brake-bar C and cross-bar A, of a hand-lever, ratchet-link F, and intermediate mechanism connecting the latter

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with the brake-bar, said cross-bar provided with lip *f*, with which said ratchet-link engages, substantially as set forth.

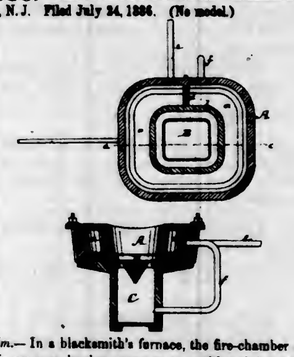
3. The combination, with cross-bar A, rigidly secured to the hounds, of a lever, G, pivoted to said cross-bar, and ratchet-link F, interlocking with said cross-bar, substantially as set forth.

4. The combination, with brake-bar C, connected by link E to rock-shaft D, of cross-bar A, connected to said rock-shaft by ratchet-link F and lever G, said link adapted to lock in with lip *f* on said cross-bar, substantially as set forth.

5. The combination, with brake-bar C, linked to rock-shaft D, and cross-bar A, provided with lip *f*, and lever G, of ratchet-link F, connecting said lever with said rock-shaft, substantially as set forth.

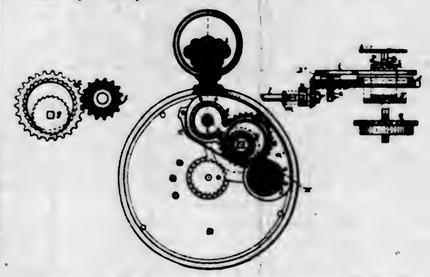
6. The combination, as described, of brake-bar C, link E, rock-shaft D, ratchet-link F, and cross-bar A, provided with lip *f*, and lever G, substantially as set forth.

353,686. Blacksmith's furnace. Hubbard D. Kidd, Hackensack, N. J. Filed July 24, 1886. (No model.)



Claim.—In a blacksmith's furnace, the fire-chamber A, surrounded by the air-space *a*, having transverse partition *d*, in combination with the air-supply pipe *e*, and with the air-discharge pipe *f*, on opposite sides of said partition, the last-mentioned pipe leading from the air-passage *a* to the pit C, beneath the fire, as specified.

353,687. Stem-winding watch. Abraham L. Keller, Elgin, Ill., assignor of one-third to Otto Johnston, same place. Filed Jan. 9, 1886. (No model.)



Claim.—1. The combination, with the endwise-moving stem *l*, having its end formed in a square to receive the pinion *r* thereon, of the intermediate pinion, *f*, provided with both bevel and spur cogs, as shown, and operating in conjunction with the gear-ring *d*, and pendant swing-

ing yoke i, constructed, arranged, and operating substantially as and for the purpose set forth.

2. The combination, with the endwise-moving stem *l* and bevel-pinion *r*, of the double intermediate pinion, *f*, internally and externally geared ring *d*, externally and crown ratched wheel *g*, stationary crown-ratchet *h*, spring P, stationary square stud *o*, and pendant swinging yoke *i*, these members being combined for operation substantially in the manner and for the purpose set forth.

3. The combination, with the pendant swinging yoke *i*, having arbor *v*, and forming the axis of the intermediate pinion, *f*, of the stud *z*, placed on the arbor *v*, below the said pinion, and operating in conjunction with the bifurcated lever *s* or its equivalent, and the endwise-moving crown-stem *l*, combined and arranged for operation substantially as and for the purpose set forth.

4. The externally and internally geared ring *d*, mounted in the pendant swinging yoke *i*, and operating in combination with the endwise and rotatory moving crown-stem, for the purpose set forth.

5. The externally and crown faced ratchet-wheel *g*, rigidly fixed to the stem of the winding-drum *q*, and operating in conjunction with a crown-faced ratchet, *h*, movably fixed on a stationary square stud, *o*, or its equivalent, a spring, P, for holding said ratchet in gear, for the purpose described, combined with the externally and internally geared ring *d*, mounted in a swinging yoke, for alternately engaging and disengaging with the ratchet *g* by the crown-stem, for the purpose set forth.

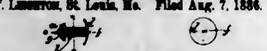
6. The combination, substantially as hereinbefore set forth, of the endwise and rotatory moving crown-stem *l*, bifurcated lever *s*, click *t*, pendant swinging yoke *i*, sleeve *n*, bevel-pinion *r*, intermediate pinion, *f*, externally and internally geared ring *d*, gear-wheel *z*, spring *c*, externally and crown faced ratchet *g*, crown-ratchet *h*; spring P, and winding-drum stem, combined and arranged for operation as shown, for the purpose specified.

7. The externally and crown faced ratchet-wheel *g* and crown-ratchet *h*, operating in conjunction with the externally and internally geared ring *d*, mounted in a swinging yoke and operating in combination with the endwise and rotatory moving crown-stem.

8. The combined externally and internally geared ring *d*, mounted in a pendant swinging yoke, and capable of being alternately thrown in gear with the hand setting and winding gears by the endwise and rotatory moving crown-stem.

353,688. COMBINED SHIRT-STUD AND MAGNIFYING-GLASS.

James F. Lingston, St. Louis, Mo. Filed Aug. 7, 1886. (No model.)

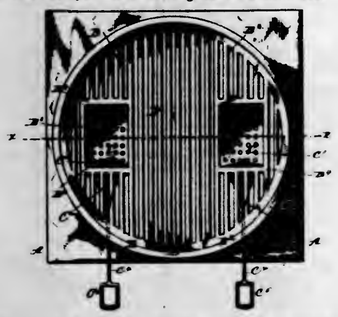


Claim.—A button consisting of the head *a*, provided with the central hole, *s*, and glass-bearing picture *g*, the shoe *d*, also provided with the central hole, *f*, and the tubular shank *b*, provided with the lens *h*, substantially as specified.

353,689. FURNACE-GRATE.

Henry Lescher, Reading, Pa. Filed Sept. 4, 1886. (No model.)

Brief.—There are two sliders, one on each side of the grate, by means of which the operation of cleaning the fire is facilitated.



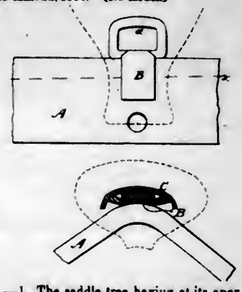
Claim.—1. A furnace-grate provided with one or more frame-works integral therewith and forming openings, said frame-works being extended below the plane of the under surface of said grate and longitudinally grooved, in combination with perforated slides adapted to enter said grooves, substantially as specified.

2. A furnace-grate composed of two or more sections, each outer section being provided with an integral frame-work extending below the under surface of the grate and longitudinally grooved, in combination with a perforated slide having a lip formed thereon apertured to receive an operating-rod, substantially as specified.

3. The combination of the sections B B' B³ with the frame-work comprising the integral longitudinal or side bars, B⁴, and the transverse bars B⁵, said longitudinal bars extending below the plane of the under surface of the grate, and grooved, as at B⁶, and flanged, as at B⁷, and with the slide C, perforated, as at C', and having the apertured screw-threaded lug C² and rod C³, substantially as specified.

353,690. HARNESS-SADDLE.

Albert L. Linton, Pleasant Plains, Ill. Filed Mar. 22, 1886. (No model.)



Claim.—1. The saddle-tree having at its apex a transverse dovetailed tongue provided with the back-strap loop, in combination with the saddle having in its under side a socket to adapt it to fit upon said tongue, and having an aperture to receive means for its connection to the saddle-tree, substantially as and for the purpose set forth.

2. The saddle-tree having a transverse dovetailed tongue at its apex and dovetailed grooves at its ends, in combination with the saddle having a dovetailed groove to receive said tongue, and the tongues provided with loops and fitting in said grooves in the ends of the saddle-tree, substantially as and for the purpose set forth.

3. As an improved article of manufacture, a harness-saddle formed of the tree A, provided with the dovetailed tongue B, and with the dovetailed groove *c*, the saddle C, having a dovetailed groove adapted to receive the tongue B, and the tongues *d*, provided with loops *e*, and with the curved rib *f*, the tongues *d* being adapted to be received in the dovetailed grooves *c*, substantially as shown and described.

353,691. RAILWAY CROSS-TIE.

Sylvanus D. Locke, Hoosick Falls, N. Y. Filed May 5, 1886. (No model.)



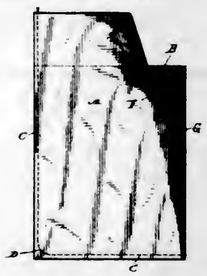
Claim.—1. In a railway, a cross-tie rolled in two separate longitudinal sections or angle-bars and riveted together, the whole being bent down as to its ends to conform to the slope of the roadway, substantially as described.

2. In a railway, a cross-tie rolled in two separate longitudinal sections and riveted together as to their vertical flanges, combined with a central anchor-plate to hold the track against lateral slipping or displacement, substantially as described.

3. In a railway, a metallic cross-tie rolled in two longitudinal sections, with their vertical flanges riveted together, and having the rails secured to each section by shouldered and clamping clips, combined with a central anchor-plate, substantially as described.

353,692. SAFETY SHIPPING-BAG.

Gustave H. Mager, New Orleans, La. Filed Jan. 9, 1886. (No model.)



Claim.—1. A safety shipping-bag of the kind described, consisting of an inner envelope, A, and an outer envelope, B, each formed of a single piece and united along two of their edges by the stitching C; substantially as described.

2. A safety shipping-bag of the kind described, consisting of the inner envelope, A, and the outer envelope, B, united by the edge-stitching C, the edges of said envelopes beyond the stitching C being included between the two envelopes, substantially as described.

353,693. CAMPAIGN-HAT.

Frank H. Maran, Chicago, Ill., assignor of one-half to John Booth, same place. Filed Sept. 24, 1886. (No model.)

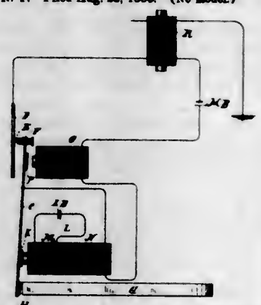


Claim.—1. A campaign-hat having a translucent body, and being provided interiorly with a frame suitable for holding a light, substantially as set forth.

2. A campaign-hat composed of a skeleton frame covered with translucent material, and provided interiorly with a suitable support for holding a light, substantially as set forth.

353,694. TELEPHONE-TRANSMITTER.

James W. McDonough, New York, N. Y. Filed Aug. 28, 1885. (No model.)



Claim.—1. The combination, in a telephone-transmitter, of two electrodes and a differential magnet normally tending to press one of them against the other, the said magnet having one of its coils in circuit with both electrodes, whereby the separation and approach of the electrodes cause variations in the effect produced by the magnet, substantially as and for the purpose set forth.

2. The combination, with the electrodes in a telephone-transmitter, of a magnet tending to separate or bring said electrodes together, and a circuit including the said magnet and controlled by the movements of the electrodes, whereby the movements of the electrodes vary the effect of the magnet thereon, substantially as and for the purpose set forth.

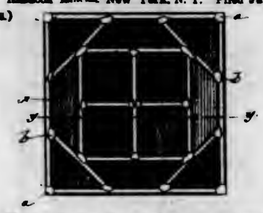
3. The combination, with the electrodes for a telephone-transmitter, of a magnet tending to draw the electrodes together, a coil acting in opposition to the tendency of said magnet, and a circuit-controller controlled by the action of the transmitter on the movement of the electrodes in a direction to cause separation for diminishing the action of said coil simultaneously with such movement.

4. The combination, with the electrodes for a telephone-transmitter, of two electro-magnets, one normally tending to prevent and the other to establish contact, and a counteracting-coil for the latter, said counteracting-coil and the coil of the first-named magnet being controlled in their action by the transmitter under the influence of sound-waves.

5. The combination, with the electrodes in a telephone-transmitter, of a magnet whose action tends to impel the electrode toward the other, an electro-magnetic coil whose influence tends to diminish the action of said magnet and means for decreasing the flow of current in said coil controlled or brought into action by a movement of the electrodes in a direction to be separated, as and for the purpose described.

353,695. CEMENT FOR USE IN MANUFACTURING STAINED GLASS.

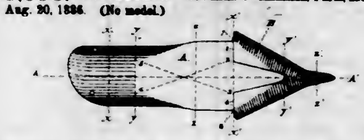
Rebecca McKee, New York, N. Y. Filed June 1, 1886. (No specimens.)



Claim.—The herein-described cement for connecting the meeting and lapped ends of strips in the manufacture of imitation stained glass, consisting of amber, copal, alcohol, powdered glass, ether, and silver-powder, in substantially the proportions specified.

353,696. SWIVEL-PLOW.

Freeman C. Merrill, Paris, Me. Filed Aug. 20, 1886. (No model.)



Claim.—A mold-board and point for swivel-plows, the surface of which consists of combined concave, plane, and convex surfaces arranged in relation to each other, as shown and described.

353,697. MAKING ARTIFICIAL BONE, EBONY, MARBLE, &c.

Lemoine R. Mentanie, Brooklyn, N. Y. Filed Nov. 17, 1883. Renewed Jan. 2, 1886. (Specimens.)

Claim.—1. The combination of skim-milk with salt, caustic soda, terra-alba, hydrochloric, nitric, and sulphuric acids with coloring-matter, as above described and set forth.

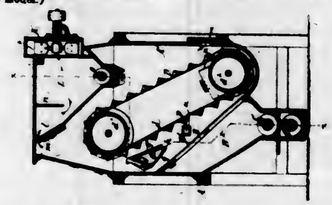
2. The combination of skim-milk with caustic soda, alum, glycerine, ammonia, chloride of barium, and sulphuric acid with or without silica and coloring-matter, as above described and set forth.

3. The combination of pot-cheese with borax, hydrochloric, nitric, and sulphuric acids, silicate of sodium, terra-alba, and coloring-matter, as above described and set forth.

4. The combination of skim-milk cheese with caustic soda, alum, terra-alba, tannin, and silica, as above described and set forth.

353,698. FLOUR-BOLT.

Orville M. Morse, Jackson, Mich., assignor to the Knickerbocker Company, same place. Filed Sept. 1, 1885. (No model.)



Claim.—1. The combination, with an inclined screen and elevating mechanism, of a chest which incloses the screen and elevating mechanism, a fan connected with said chest, and an air-inlet arranged below the head of the elevating mechanism and above the screen, whereby an air-current is caused to flow through the material as it is discharged from the elevating mechanism, substantially as set forth.

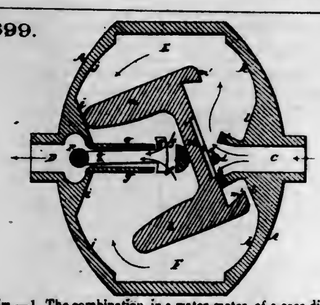
2. The combination, with an inclined screen and elevating mechanism, a fan connected with said chest, and an air-inlet arranged on the rear side of the elevating mechanism, whereby an air-current is caused to flow through the light matter floating in the chest on the rear side of the elevating mechanism, substantially as set forth.

3. The combination, with the inclined screen B, elevating mechanism D, and inclosing-chest A', of the fan K, connected with said chest, and the air-inlet chamber G, arranged between the head of the elevating mechanism and the screen, substantially as set forth.

353,699. OSCILLATING WATER-METER.

Lewis H. Nash, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Sept. 22, 1885. (No model.)

353,699.



Claim.—1. The combination, in a water-meter, of a case divided into two measuring-chambers by interior opposite wall-abutments, and having suitable interior wall-bearings, and a fulcrum placed between said abutments nearer the inlet than the outlet passage of the case, with a piston formed of two joint-forming elongated piston parts, *a b*, connected by a bearing-bar having two shorter joint-bearing end parts, *m' m'*, at the inlet side of the case, substantially as described, for the purpose specified.

2. In a water-meter, a piston adapted to have a motion in its case in a substantially right line, terminating in a swinging movement, a return motion in a similar right line, and a further swinging movement back to the point of beginning, and constructed of a bearing-bar having joint-forming piston projections at each end, in combination with a case having two measuring-chambers formed with interior wall conformations adapted to control the movements of said piston, and having inlet and outlet ports, substantially as described.

3. In a water-meter, a case having a chamber provided with inlet and outlet passages, straight and curved inner wall surfaces *i j k l*, a bearing-bar, A, placed nearer to the inlet-passage than to the outlet-passage, and abutment-joint forming bearings *c c' g g*, in combination with a piston having the piston sides *a b*, the connecting-bar *n*, and the projections *m' m'*, constructed and operating substantially as described.

4. The combination, in a water-meter, of the case A, having its measuring-chambers formed with interior abutments and wall conformations, substantially as described, with a piston having the elongated piston sides *a b* connected by the bar *n*, a fulcrum-bearing therefor, and register-connecting mechanism operated by the piston sides, substantially as described.

5. In a water-meter, a piston having the right-angled sides *a* and *b*, and having the projections *m' m'*, in combination with a case having a fulcrum-bearing for said piston, a guide-bearing, inlet and outlet ports, and interior straight and curved wall conformations, substantially as described, for the purpose specified.

6. In a water-meter, a case having a fulcrum guide-bar located therein between the inlet and the outlet passages, nearer the inlet side of said case, in combination with a piston having sides *a* and *b*, of a length adapted to make contact on opposite sides of the inlet and outlet passages of said case, in such manner that the leverage from the fulcrum to the bearing part of the piston at the outlet side of the case will be greater than the leverage of the joint-forming end of the piston at the inlet side of the case, whereby the pressure of the inflow always maintains the contact of the piston with the case.

353,700. PROPORTIONAL WATER-METER. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Jan. 16, 1886. (No model.)

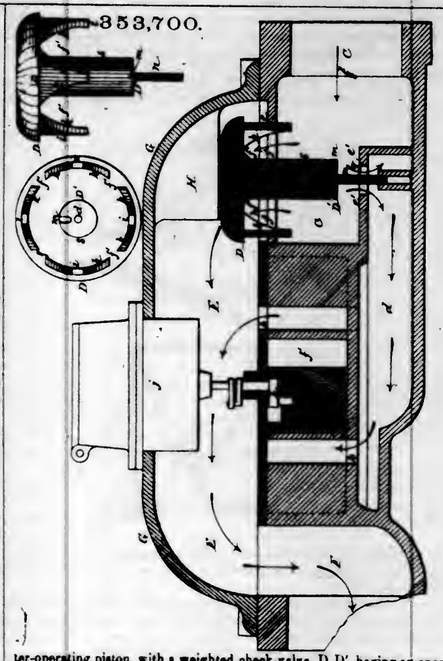
Claim.—1. The combination, with a water-meter having the influent volume divided into two separate streams, one of which is measured, of a double-seated check-valve effecting the division of the flowing volumes, the upper valve part having wall-openings of irregular form and the lower valve part formed of the flat end of the valve-stem, whereby to regulate the proportional area of the discharge-port openings for the two streams for every rate of flow, substantially as described, for the purpose specified.

2. The combination, with a water-meter in which the inflow is divided into two streams, one of which is measured, of a case having two valve-ports of unequal diameters, with a weighted check-valve having a cylindrical guide part provided with discharge-port openings of a conformation adapted to regulate the relative proportional area of the two case-ports for every rate of flow, substantially as set forth.

3. The combination, with a water-meter case having the flow-passages C *d* E and the meter-operating device, of the connected check-valves of unequal diameters, the upper check-valve having ports of irregular outline, and a supplemental perpetually-open flow-channel for the lower valve-port, substantially as described, for the purpose specified.

4. The combination of a water-meter case having the valve-chamber C, provided with an upper and a lower discharge-passage, *f g*, opening into an upper and a lower discharge-passage, E *d*, and a suitable regis-

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ter-operating piston, with a weighted check-valve, D D', having an open cylindrical guide, *i*, formed with ports *f'*, operating substantially as described.

5. The weighted check-valve having the joint-forming faces D D', the guide-stem *n*, and the guide-bearing *i*, formed with ports *f'*, of irregular form, in combination with a meter-case having inflow dividing-passages *f* and *g*, and a suitable register-operating piston, substantially as described.

353,701. PROPORTIONAL WATER-METER. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Jan. 16, 1886. (No model.)

Claim.—1. The combination, with a water-meter having the influent volume divided into two separate streams, one of which is measured, of hollow coacting connected plunger-valves effecting the division of the flowing volume, and having ports for controlling the flow of each stream, formed and adapted to vary the proportional area of the discharge-openings for every rate of flow, substantially as described, for the purpose specified.

2. The combination, with a proportional water-meter, of a hollow plunger-valve of two diameters, each having ports, the valve-port of greatest diameter controlling the flow through the main passage and the valve-port of least diameter controlling the flow through the metered passage, one valve-port formed of irregular outline, whereby to vary the proportional area of the discharge-orifices, substantially as described, for the purpose specified.

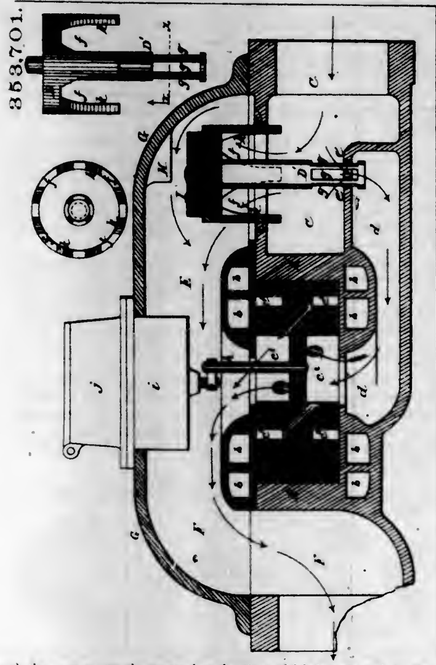
3. The combination, with a water-meter having the inflow divided into two streams, one of which is measured, of a hollow plunger of two coacting valves having a weight, and having two sets of ports formed and adapted to vary the proportional area of the discharge-orifices for every rate of flow, substantially as described, for the purpose specified.

4. The combination, with a proportional water-meter, of a weighted plunger-valve composed of two hollow coaxial cylinder parts, each open at its lower end, the upper cylinder part having seat-bearings and ports of irregular outline controlling the main discharge-orifices and the lower cylinder part having seat-bearings and ports of regular form controlling the metered passage, substantially as described, for the purpose specified.

5. The combination, with the meter-case having the flow-passages C *d* E and the meter-operating device, of the weighted plunger-valve having two hollow cylindrical parts of unequal diameters, one having a cylindrical seat, *e*, opening into the passage E, and the other having a cylindrical seat, *e'*, opening into the passage *d*, and both valve parts having ports opening into the passage C, substantially as described, for the purpose specified.

6. In meters of the class herein stated, the automatic acting plunger-valve having a set of ports at each end, and the valve-seats, in combination with the main outlet, which is governed by one set of said ports,

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and the passage to the measuring-chamber, which is governed by the second set of ports, one set of said ports being of irregular outline, substantially as described, for the purpose specified.

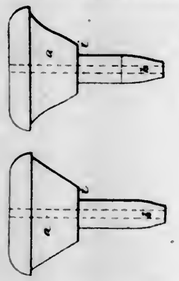
7. In combination with the vertically-acting valve of two cylindrical hollow parts, each having an independent set of ports, one set of which is of irregular form, a water-meter having two passages which are controlled, respectively, by said independent ports, substantially as described, for the purpose specified.

353,702. PROPORTIONAL WATER-METER. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Jan. 16, 1886. (No model.)

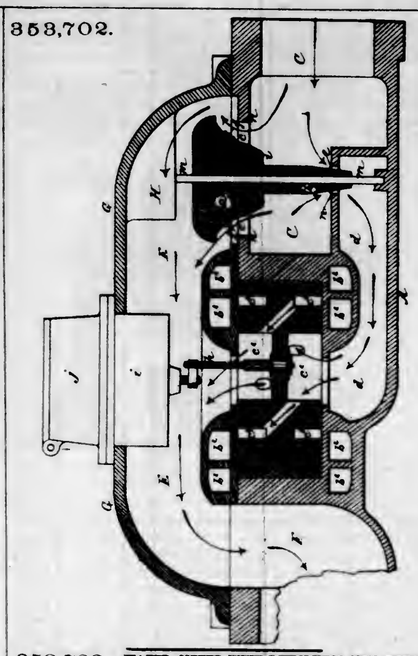
Claim.—1. The combination, with a water-meter having the influent volume divided into two streams, one of which is measured, of coacting valves of conoidal form, having curved or irregular surface formation whereby to vary the proportional discharge-orifices for the two streams, and thereby cause a definite proportion of the flowing volume to pass for every rate of flow, substantially as described, for the purpose specified.

2. The combination, with a water-meter having the inflow divided into two streams, one of which is measured, of a valve having two conoidal parts passing through each valve-port, and having one or both parts formed with curved or irregular surfaces, substantially as described, for the purpose specified.

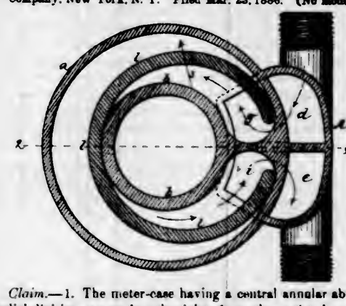
3. The combination, with a water-meter case having two passages for the divided streams of the influent volume, of a valve having two conoidal parts, one of which is formed with curved or irregular surfaces, substantially as described, for the purpose specified.



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353,703. WATER-METER WITH REVOLVING NON-ROTATING PISTON. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Mar. 23, 1886. (No model.)



Claim.—1. The meter-case having a central annular abutment and a radial division separating the inlet from the outlet, in combination with a hollow cylindrical piston having a transverse web, *m*, and a side opening and means connecting the piston with the case for guiding the piston in an orbit in which every point describes a circle, substantially as described.

2. The combination, with a water-meter having a central annular abutment and a radial division separating the inlet from the outlet, of a hollow cylindrical piston having a side opening and a transverse web, *m*, provided with two or more circular grooves, *w*, and two or more fixed studs, *k*, coacting with said piston-grooves, whereby to cause each wall of the side opening of the piston to describe a circle in its motion, for the purpose stated.

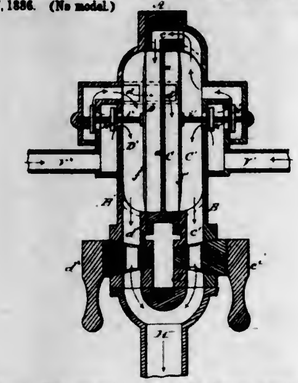
3. The combination, with a water-meter having an interior abutment dividing the inflow from the outflow, as described, of a hollow cylindrical piston, means for guiding it over said abutment in an orbit, whereby every point of said piston is caused to describe a circle, and suitable registering mechanism operated by said piston.

4. In a water-meter case having an annular dividing-abutment joined to the case by a radial abutment, a hollow cylindrical piston having a closed top, an open bottom, and a side opening extending into its top, the piston-grooves *w*, and the fixed studs, all constructed and arranged to co-operate to control the circular path of the piston around the center of the case and upon the walls of that part of the abutment which divides the inflow from the outflow, as shown and described.

5. The combination of a meter-case having a central fixed abutment joined to the case-walls by a radial abutment with a revolving non-rotat-

ing hollow cylindrical piston having a slot bestriding the radial abutment wide enough to permit of the circular movement of the piston, and means for controlling the piston in its described orbit, substantially as described.

353,704. METHOD OF COMMINGLING FLOWING FLUIDS IN DEFINITE PROPORTIONS. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Sept. 23, 1885. Renewed Oct. 7, 1886. (No model.)

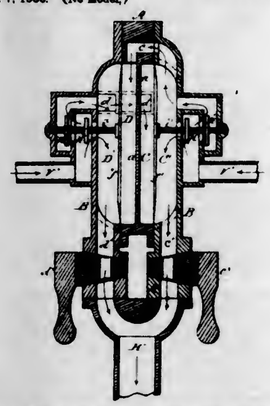


Claim.—1. The method, substantially herein described, of commingling two or more flowing fluids, which consists in conducting each separate constituent into a separate chamber, equalizing the pressures in all the chambers by controlling the inflow therein, and discharging each constituent through a separate passage of determined capacity into a conduit common to all the chambers.

2. The method of commingling two or more fluids, which consists in conducting each fluid into separate chambers, each having a dividing-wall capable of being moved by variations in the pressure of the fluid on opposite sides of said wall, controlling the inflow of each fluid into its chamber by means of the movements of said division-walls, and discharging each fluid through passages of determined capacity into a discharge-conduit common to all the chambers, substantially as described.

3. The method of commingling two or more flowing fluids, which consists in conducting each fluid into a separate receiving-chamber, equalizing the pressures in each chamber by means of variations in the relative pressures in the several receiving-chambers, and discharging each fluid under the same conditions of pressure through passages of determined capacity into a conduit common to all said chambers, substantially as described.

353,705. DEVICE FOR COMMINGLING FLOWING FLUIDS IN DEFINITE PROPORTIONS. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Sept. 23, 1885. Renewed Oct. 7, 1886. (No model.)



Claim.—1. The device herein described for commingling two or more flowing fluids in definite proportions having one or more compartments, each having a movable dividing-wall forming each compartment into two divisions, one of which receives one inflowing constituent and the other having communication with another inflowing constituent, in combination with a valve or valves controlled by the inflow, substantially as described.

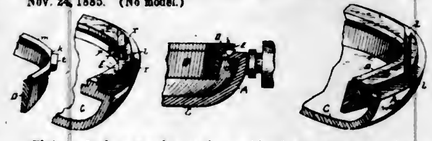
2. In a commingling device for flowing fluids, the combination of a receiving-chamber for each constituent and a valve or valves for controlling the inflow of one or both constituents therein controlled by said inflow, with a wall for said chamber operating said valve or valves by the unequal pressures in said chambers, and a discharge-orifice for each chamber entering a conduit common to both chambers, substantially as described.

3. The combination, with a device for commingling two or more flowing fluids in definite proportions, of one or more compartments, a movable partition dividing said compartment into two divisions, a valve or valves connected with and controlled by said movable partition, and controlling-cocks for regulating the proportional quantity of the discharge of the separate flows into a conduit common to all the chambers, substantially as herein set forth.

4. The device herein described for commingling two or more flowing fluids in definite proportions, consisting of a closure of one or more chambers, each having at least one yielding wall, each having separate inlet and each communicating with an outlet common to all, each chamber having an inlet-valve controlled by its yielding wall and a cock for regulating the chamber discharge-orifice, substantially as herein described.

5. In a fluid-commingling device, the combination of a closure having a receiving-chamber for each flowing constituent, with a movable wall having a connected valve controlling the influent ports, and effluent passage controlled by a cock, and a meeting passage, H, for the commingled fluids communicating with the said chamber effluent passages, substantially as described.

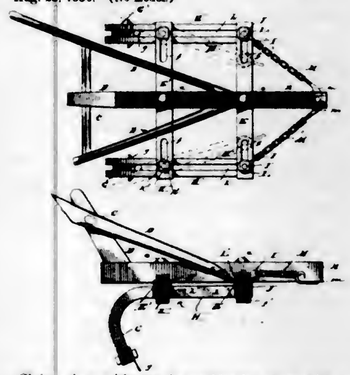
353,706. WATCH-CASE. DANIEL O'HARA, Waltham, Mass. Filed Nov. 24, 1885. (No model.)



Claim.—1. In a watch-case, in combination, a movement ring or band, D, to receive and surround and separate from the watch-movement a case center or shell, A, having a riser, E, at its front and bezel or cap attached thereto, and a hinge, F, in parts *a* and *b b*, connected by a pintle, *h*, and the part *a* on movement-ring D, and the parts *b b* on case-center A, and all the parts flush with front of movement-ring and case-center, substantially as described, for the purpose specified.

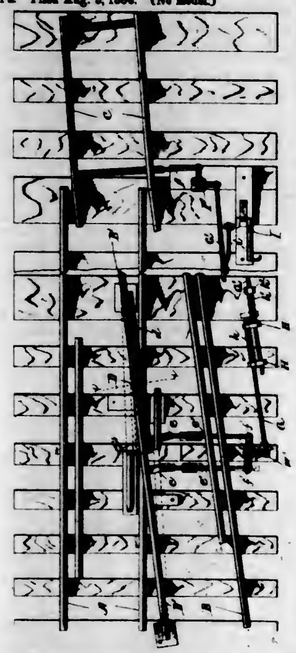
2. In a watch-case, in combination, a movement ring or band, D, to receive and surround and separate from the watch-movement a case center or shell, A, having a riser, E, at its front and bezel or cap attached thereto, and a hinge, F, in parts *a* and *b b*, each tubular and connected by a pintle, *h*, and the part *a* secured to a float, *k*, of movement-ring, and the part *b b* in grooves *l* of case-center A, and all the parts flush with front of movement-ring and case-center, substantially as described, for the purpose specified.

353,707. CULTIVATOR. ELLIS PATTERSON, Cartersville, Ga. Filed Aug. 23, 1886. (No model.)



Claim.—In a cultivator, the combination of central beam, the transverse parallel beams E, pivotally connected at their middle to the central beam and having the slots in their ends, the slotted beams H, arranged on opposite sides of the central beam and having the standards at their rear ends for carrying the shovels or blades, the bolts passing through the slots of the transverse and side beams, E H, for adjustably connecting them together, and the independent diverging check chains or ropes connected at their front ends to the central beam and to the outer ends of one of the transverse beams, E, substantially as described, for the purpose set forth.

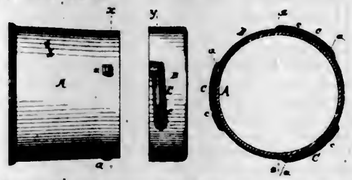
353,708. RAILROAD-SWITCH. JOHN F. PENROD, Blairsville Intersection, Pa. Filed Aug. 5, 1886. (No model.)



Claim.—1. The combination of the main track, the siding, and the rails constructed to overlap the main rail at their proximate ends, and having one of such rails widened and channeled, the T-lever connected with the frog-rails, and the two-part operating-rod connected by a yielding joint, substantially as and for the purpose set forth.

2. The combination of the main track, the siding, the frog-rails, the T-lever connected with the frog-rails, the two-part operating-rod, the yokes secured to the ends of the two rods, and having said ends passed loosely through the opposite yokes, and the coil-springs, one located on one rod between the yokes, and the other spring mounted on the other rod between the yoke and a nut, substantially as shown.

353,709. HUB-CAP. JOSEPH RAPP, Akron, Ohio. Filed Sept. 13, 1886. (No model.)



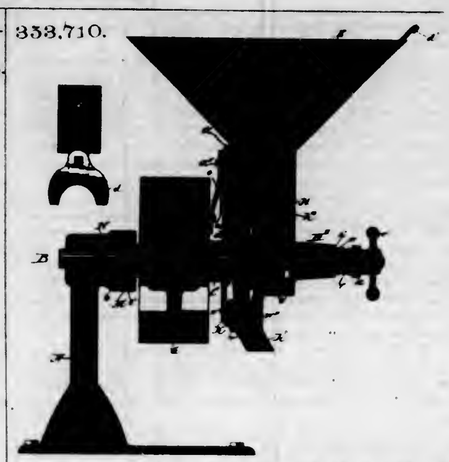
Claim.—The combination, with a hub band and cap, one of which fits upon the other, of a number of studs upon one of said parts, and a corresponding number of spiral grooves in the other, which register with and receive said studs, each being provided with a cross-rib, which arrests the return of said studs, substantially as shown, and for the purpose specified.

353,710. GRINDING-MILL. GEORGE RAYMOND and ALBERT RAYMOND, Chicago, Ill. Filed Aug. 3, 1885. (No model.)

Claim.—1. The combination, in a grinding-mill, of a central fixed shaft, a revolving sleeve thereon provided with a flange, a running-stone secured to said flange, a casing adjustably mounted upon said shaft and adapted to be moved forward and backward thereon, and a bed-stone supported by said casing, substantially as described, and the purpose set forth.

2. In a grinding-mill, the combination of a fixed shaft, a supporting-casting in which the rear end of said shaft is fixed, a sleeve revolving on the said shaft and provided with two flanges, one at each end thereof, a box formed in two parts adapted to be clamped together upon the said casting and sleeve, and provided each with a flange for engaging with the flange formed on the rear end of the sleeve, bolts for clamping said parts together, a casting mounted upon said shaft, and two grinding-stones, one attached to said casting and the other to the forward flange of the sleeve, substantially as and for the purpose set forth.

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3. The combination, with the central shaft of a grinding-mill, of a casting mounted thereon and adapted to be inwardly and outwardly adjusted, two millstones, one of them being attached to said casting, a hand-adjusting wheel working upon said central shaft, a tension-plate against which said hand-wheel operates, a spring held between said tension-plate and said casting, and bolts extending from said casting to the aforesaid tension-plate and provided with adjusting-nuts, whereby the tension of the spring may be regulated, substantially as described and shown.

4. In a grinding-mill, the combination of a fixed shaft, a revolving sleeve provided with a cam, a grinding-stone carried by said sleeve, a casing secured to and adjustable inwardly and outwardly upon said shaft, a bed-stone, a hopper, and feed mechanism carried by said casing, an arm attached to the feed mechanism, and a spring adapted to press the arm out from the casing and against the cam, substantially as described, and for the purpose set forth.

5. The combination, in a grinding-mill, of a shaft, a supporting-casting in which the rear end of said shaft is set, and having a cut-away portion provided with a bearing-face on its inner end, an oil-box provided with a flange, a sleeve provided with two flanges, one on each end thereof, revolving upon said shaft, a friction-ring placed between said bearing-surface and the rear end of said sleeve, a casting mounted on said shaft, near its forward end, and two grinding-stones, one attached to said casting and the other to the forward flange of the sleeve, substantially as and for the purpose set forth.

6. The combination, in a grinding-mill, with the central shaft, of a casing carrying the fixed millstone and mounted upon and adapted to be moved either way in the direction of the length of the shaft, a running-stone, a hopper supported upon said casing, a spring placed at the front or outer end of said casing for regulating the pressure of the stones, means attached to the casing for adjusting the tension of said spring, and an adjusting hand-wheel at the front or outer end of said central shaft for adjusting the casing thereon, substantially as described and shown.

7. The combination of the central shaft of a grinding-mill, a casing supported by said shaft and adjustable in the direction of the length thereof, said casing and shaft being fitted to each other by a spline and groove, a bed-stone carried by said casing, means for adjusting said casing to and fro lengthwise of the shaft, a sleeve adapted to revolve upon the shaft, and a running-stone carried by said sleeve, substantially as described, and for the purpose set forth.

8. In a grinding-mill, the combination of a fixed shaft, a casting provided with a sleeve fitted to said shaft, a bed-stone attached to said casting, a sleeve adapted to revolve upon said shaft, and a running-stone attached to said sleeve, the said sleeves being of such length as to maintain accurate alignment of the surfaces of the stones, substantially as described.

9. In a grinding-mill, the combination of a shaft, a casting fitted upon said shaft and adapted to be adjusted lengthwise thereof, a bed-stone attached to said casting, a running-stone, a spring adapted to press the bed-stone away from the running-stone, a spring of adjustable tension adapted to press the bed-stone toward the running-stone, and a tension-plate bearing against the same, attached to the shaft and adapted to be

adjusted forward and backward thereon, substantially as and for the purpose set forth.

10. In a grinding-mill, the combination of a shaft, a casing mounted thereon and adapted to be moved forward and backward, a hopper, bed-stone, and shake-pan carried by said casing, a running-stone, a revolving sleeve carrying the same, a spring of adjustable tension adapted to press the bed-stone toward the running-stone, an arm connected with the shake-pan and bearing upon a cam formed on said sleeve, and a spring adapted to force said arm out from the casing and against the cam, substantially as and for the purpose set forth.

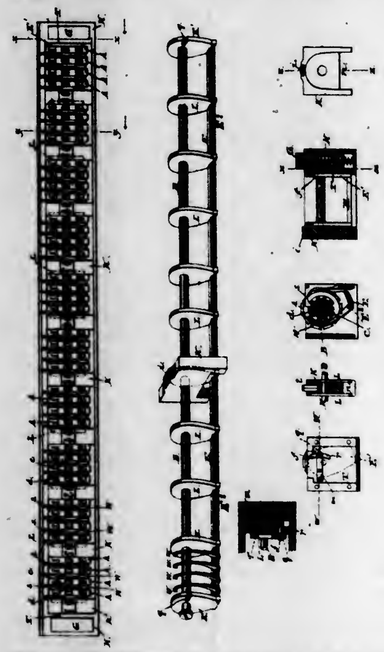
11. In a grinding-mill, the combination of two millstones, the fixed shaft, a casting mounted thereon and carrying one of said stones, and adapted also to be adjusted forward and backward with reference to the other stone, a tension-plate, a spring mounted on said shaft between said plate and said casting, bolts passing from the casting loosely through the tension-plate and provided with nuts on their outer ends, and a bearing for said tension-plate mounted upon a fixed part of the mill and adapted to be adjusted forward and backward with reference to the plate, substantially as and for the purpose set forth.

12. In a grinding-mill, the combination of a hopper, a shake-pan, a pivoted block therefor, an arm attached thereto, a shoe fixed to said arm, a revolving sleeve provided with a cam, and a spring adapted to force the arm against the cam, substantially as and for the purpose set forth.

13. In a grinding-mill, the combination of a fixed shaft, a running-stone, a sleeve carrying the same and mounted on said shaft, a bed-stone, a casting carrying the same and provided with a sleeve fitted to said shaft, a nut screw-threaded on the end of the shaft, a tension-plate, a spring held between the casting and the tension-plate, and bolts passing from the casting loosely through holes in the tension-plate, and provided with nuts at their outer ends, substantially as described and shown.

14. In a grinding-mill, the combination of a shaft, a casting mounted on said shaft and providing a feed-chamber, a bed-stone carried by said casting, a sleeve rotating on said shaft and provided with a flange, a running-stone mounted in said flange, and a cap-piece bolted to said casting and provided with an aperture for said sleeve, substantially as and for the purpose set forth.

353,711. CONSECUTIVE-NUMBERING MACHINE. JAMES H. REINHARDT, Memphis, Tenn., assignor, by direct and mesne assignments, to the Reinhardt Numbering Machine Company. Filed Aug. 24, 1885. (No model.)

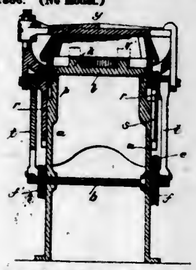


Claim.—1. The combination, in a consecutive-numbering machine, with two or more sets of numbering-wheels rotating upon a common axial shaft, of a fixed partition-plate at the right of each set of wheels, each bearing upon its upper surface one or more stationary type in line of print, to produce, in connection with the type upon the wheels to the left, the first or left-hand figures in a number completed by the movable type on the wheels, substantially in the manner and for the purpose herein set forth.

2. The combination, in a consecutive-numbering machine with its swinging-pawl frame, mechanism, substantially as described, for oscillating said frame, pawls carried by the frame, and two or more sets of numbering-wheels rotating upon a common axial shaft and actuated by said pawls, of partition-plates fixed at the right of each set of wheels, each bearing upon its upper surface one or more stationary types in line of print with the uppermost type on the wheel, and each perforated to allow the shaft to extend through it, and recessed upon its lower side to permit of the play of the swinging frame under it, substantially in the manner and for the purpose herein set forth.

3. The combination, in a consecutive-numbering machine, with its swinging-pawl frame, its plunger, and with registering intersecting slots in the end plate of the swinging frame, and in the adjacent fixed partition-plate separating it from the plunger, of a lever pivoted at one end to said partition-plate and at the other to the plunger, and an intermediate pin projecting from the lever through the two slots, substantially in the manner and for the purpose herein set forth

353,712. SAND-MOLDING MACHINE. ARTHUR RICE, New Albany, Ind., assignor to the Pearless Manufacturing Company, Louisville, Ky. Filed May 17, 1886. (No model.)



Claim.—1. In a sand-molding machine of substantially the character set forth, a movable false part provided with a binder and carrying the flask, and a stationary pattern and pattern-bed, in relation to which the flask is moved to make and clear the mold, substantially as described.

2. In a sand-molding machine, the combination of a frame-work, a stationary pattern, and pattern-bed fixed to the frame-work, with a movable false part carrying a binder and surrounding said pattern and bed, guided upon the frame-work, and adapted to receive and hold a flask and move it down upon the pattern and its bed, and remove it therefrom, as set forth, to thereby form the mold, compress the sand, and strip the mold from the pattern, substantially as described.

3. In a sand-molding machine, the combination of a stationary pattern and pattern-bed, with a false part surrounding them and adapted to receive a flask, guides for said false part, means, substantially as described, for imparting up and down movements to said false part with relation to the pattern and pattern-bed, and a binder connected to said false part and constructed to cover the flask and secure it to the false part, substantially as specified.

4. In a sand-molding machine, the frame-work having its upper end rabbeted and slanting, a pattern and pattern-bed, a slanting false part or box arranged thereon and guided thereby, and means, substantially as described, to impart up and down movements to said false part on said slanting rabbeted portion of the frame-work, combined with a flask and binder, whereby the draw may be affected at an angle, substantially as described.

5. In sand-molding apparatus provided with notches 1 and pins 2, a drag having holes 3 and 4, and a cope having holes 5 and pins 6, to adapt the drag and cope to each other and to the notches and pins of the apparatus, substantially as described.

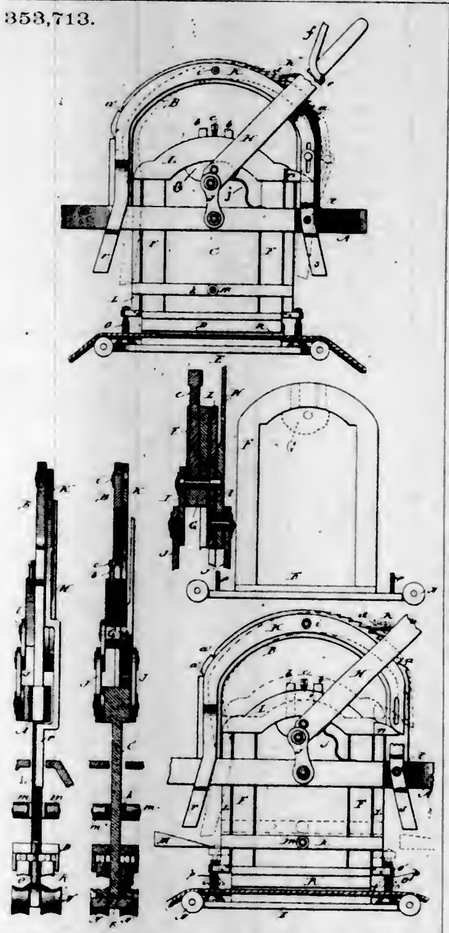
353,713. GRIP FOR CABLE RAILWAYS. CHARLES SCHOLL, Chicago, Ill. Filed Apr. 13, 1886. (No model.)

Claim.—1. The combination, with the toothed bar B, lever H, and pawl *d*, of the supplemental bar K, pivoted to bar B and capable of covering its entire line of ratchets *a*, and connections, substantially as described, to the lower portion of the grip to be acted upon by a projection in the tunnel, as and for the purpose set forth.

2. In a cable-grip, the combination, with toothed arch-bar B and with lever H, having pawl *d*, of pivotal bar K and frame L, with roller *m*, to engage with a stationary incline, all substantially as described, to operate as specified.

3. The combination, with stationary inclines arranged within the cable-tunnel, of a cable-grip having toothed arch-bar B and operating-lever H, with pawl *d*, and being provided with pivotal bar K, and frame L, with rollers *m* and cam *n*, and connecting mechanism, substantially as described, between frame L and lever K, all constructed and arranged substantially as set forth, to operate as specified.

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4. The combination, with stationary inclines arranged within the cable-tunnel, of a cable-grip having toothed arch-bar B and operating-lever H, with pawl *d*, and being provided with pivotal bar K, and with frame L, having roller *m*, cam *n*, and rollers O, all constructed and arranged substantially as and for the purpose set forth, to operate as specified.

5. In a cable-grip, the combination of the movable lower jaw, E, the vertically-sliding frame F, to which said jaw is attached, the lever H, links J, and cranks I, with beam A and bar B, substantially as set forth.

6. In a cable-grip, in combination with toothed arch-bar B and with operating-lever H, having pawl *d*, the pivotal bar K, having extensions *r* and *s*, that reach into the cable-grip slit, substantially as and for the purpose set forth.

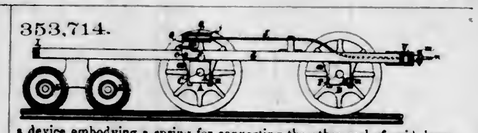
353,714. TRACTION-INCREASER FOR LOCOMOTIVES. HENRY P. SHAW, Boston, Mass., assignor of two-thirds to John W. White, Dedham, Mass., and James C. Farmer, Providence, R. I. Filed Apr. 12, 1886. (No model.)

Claim.—1. A lever interposed between the frame or body of the locomotive and an axle for the driving-wheels, and connected with the tender or train, substantially as and for the purposes set forth.

2. A lever pivoted on the frame of a locomotive, bearing upon a box for an axle, and connected with a device for coupling with the tender or train, substantially as and for the purpose hereinbefore set forth.

3. In a locomotive, a lever pivoted to the locomotive and bearing at one end on a box for an axle of the locomotive, in combination with

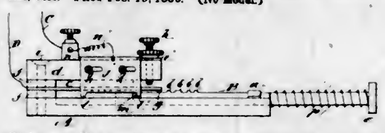
353,714.



a device embodying a spring for connecting the other end of said lever with the tender or train, substantially as and for the purposes set forth.

4. The combination of levers O and P, each pivoted on the frame of the locomotive, boxes K and L, cylinders Q and R, containing springs, rods S and T, and cross-piece U, substantially as and for the purposes specified.

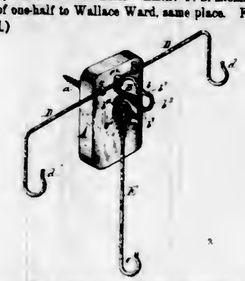
353,715. TELEGRAPH-TRANSMITTER. JAMES W. SHEYOCK, Trinidad, Colo. Filed Feb. 15, 1886. (No model.)



Claim.—1. The combination of the sliding bar B, provided with transverse ribs *b*, and having the pin *m*, projecting from the side thereof, the contact-spring *c*, arranged to be moved by the ribs *b*, the contact-screw *h*, supported in the path of the spring *c*, the plate *i* in electrical communication with the screw *h*, the sliding plate *j*, provided with ears *l l*, projecting into the path of the pin *m*, and means for returning the bar B to the point of starting, substantially as herein shown and described.

2. The combination, in a telegraph-transmitter, of the base A, sliding bar B, provided with transverse ribs *b*, and the pin *m*, the spring *c*, rigidly supported by the base, with its free end in the path of the ribs *b*, the arm *d*, contact-screw *h*, carried thereby, the metallic plate *i* in electrical communication with the screw *h*, the sliding plate *j*, provided with ears *l l*, and the spring *p*, arranged to return the bar B to the position of starting, substantially as herein shown and described.

353,716. BROOM-HOLDER. HENRY P. SPENCER, Forestville, N. Y., assignor of one-half to Wallace Ward, same place. Filed June 12, 1885. (No model.)



Claim.—1. The combination, with the clasp B, composed of the spring-jaws *b b*, and arms D D, provided with hooks *d d*, and formed from a continuous piece of wire, of a rod, E, provided at its lower end with a hook, *e*, and connected at its upper end with the clasp B by a loop, e^2, substantially as set forth.

2. In a holder for brooms, &c., the combination, with the clasp B, composed of two spring-jaws, *b*, formed from a single piece of wire, of a rod, E, provided with a hook, *e*, and an eye or loop, *e'*, and secured at its upper end to the clasp B by a loop, e^2, substantially as set forth.

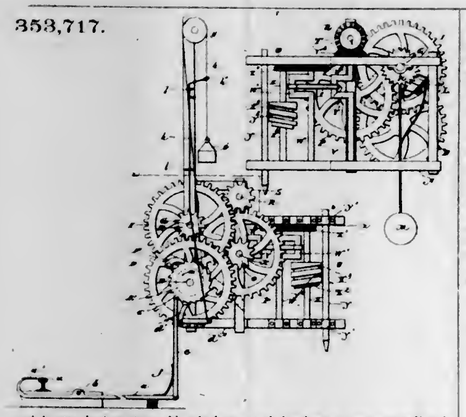
3. The combination, with the block or plate A, of the clasp B, composed of two spring-jaws, *b b*, formed of a single piece of wire, hooks *d d*, formed at the ends of said wire and arranged on opposite sides of the clasp, staples *c c*, and a rod, E, having a hook, *e*, at its lower end, a loop, *e'*, and secured at its upper end to the clasp B by a loop, e^2, substantially as set forth.

353,717. WEIGHT-MOTOR. HIRAM A. SPENCER, Rogers Tex. Filed June 9, 1885. (No model.)

Claim.—1. The combination, in a weight-motor, of the drum having the ratchet-wheel, the gear-wheel D, having the pawl F, engaging the ratchet-wheel, and the lever *a*, adapted to be operated by the wheels of a passing train and having the push-rod *e*, to engage the ratchet-wheel and rotate the same, for the purpose set forth, substantially as described.

2. The combination, in a weight-motor, of the drum having the ratchet-wheel C, the gear-wheel D, having the pawl engaging the ratchet-wheel, the lever *a*, extending from the track and adapted to be operated by the wheels of a passing train, the push-rod *e*, attached to the said lever and adapted to engage the ratchet-wheel to rotate the latter, the rope attached to the drum and having the weights, the trip-lever to move the push-rod out of engagement with the ratchet-wheel, and the

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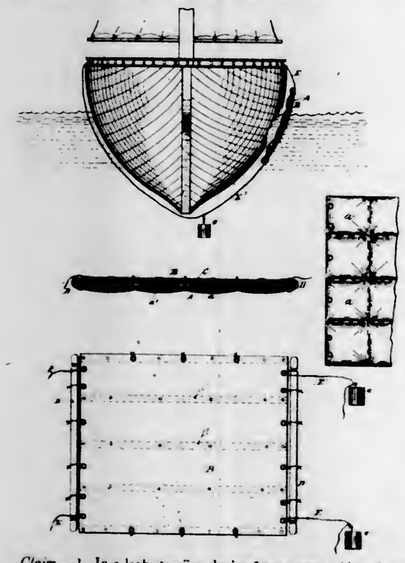


rod *k*, attached to the said trip-lever and having an arm extending in the path of the weight, for the purpose set forth, substantially as described.

3. The combination, in a weight-motor for railways, of the drum having the ratchet-wheel C, the weighted rope attached to the drum, the gear-wheel having the pawl engaging the ratchet-wheel, the operating-lever *a*, extending from the track and having the push-rod *e*, to engage the ratchet-wheel and rotate the drum and elevate the weight, and the escapement to regulate the speed of the machine when the weight descends, substantially as described.

4. The combination of the rotating shaft V, having the crank V', the rock-shaft W, having the crank W', the pitman connecting the said cranks, the rock-shaft X, geared to the shaft W, and having the cam provided with the spiral groove, and the reciprocating rod having the stud engaging the said spiral groove, substantially as described.

353,718. LEAK-STOPPING MATTRESS. JOSIAH H. L. TUCK, San Francisco, Cal. Filed Mar. 23, 1886. (No model.)

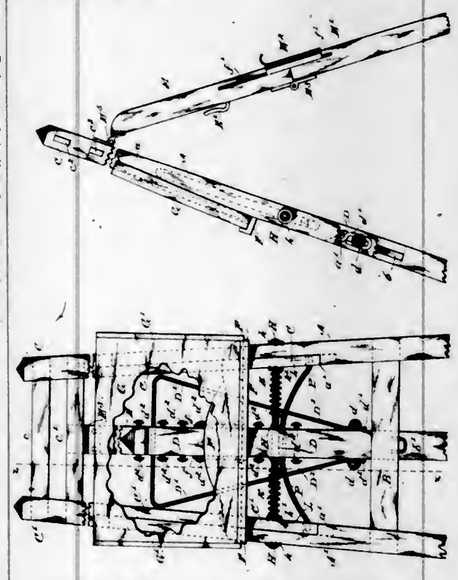


Claim.—1. In a leak-stopping device for use upon ships, the combination of a mattress or portion, A, a back or separately-formed flexible portion, B, united to portion A along two or more sides, the cleats or strips C, placed between the portions A and B, said cleats or strips being secured to portion B, and means, substantially as described, for lowering and securing the device in place over a leak or fracture, as set forth.

2. In a leak-stopping device for use upon ships, the combination of a mattress or portion, A, formed of two or more thicknesses of canvas or other analogous material quilted or united on lines which divide it into sections or compartments, said sections or compartments being filled with some material which will swell up rapidly when wetted, a back or separately-formed flexible portion, B, united to the portions A along two or more sides, the cleats or strips C, placed between the portions A and B, said cleats or strips being secured to portion B, and means, substantially as described, for lowering and securing the device in place over a leak or fracture, as set forth.

3. In a leak-stopping device for use upon ships, the combination of a mattress or portion, A, a back or separately-formed flexible portion, B, united to portion A along two or more sides, cleats or strips C, secured to portion B and lying between portions A and B, detachable end pieces, D, provided with cords or analogous means for ready attachment to the portions A and B, and a rope or ropes, E, secured to one end of the device for lowering it over the side of the vessel, and a rope or ropes, E', provided with a weight or weights, *e*, and secured to the other end of the device, for passing under the vessel and being drawn from the opposite side thereof, all substantially as and for the purpose set forth.

353,719. ARTIST'S EASEL. JOHN W. TURNER, Pittsburg, Pa. Filed Mar. 13, 1886. (No model.)



Claim.—1. The combination of the frame consisting of two distinct parts, one within the other, the inner part being slotted, as set forth, each part adapted to partly receive the other, as shown, and be adjusted endwise with or transversely to each other, the transverse rod extended from the central frame part through the slotted frame, and fixed to the outer frame, and provided with sliding washers and spring for pressing the frames together transversely, the bow-spring fixed to and projecting from the central frame part into the slots of the inner frame, and adapted to press the frames together endwise, the jointed prop provided with corresponding grooves, and plate arranged to slide therein and brace or clear the jointure of the prop, the adjustable wire frame fixed to the central frame-piece, and the bracket adapted to be adjusted on the central frame-piece, substantially as specified, for the purpose set forth.

2. In an artist's easel, the frame consisting of two distinct parts, one within the other, the inner part being slotted, as set forth, and each part being adapted to receive the other, as shown, and be adjusted endwise with or transversely to each other, substantially as specified.

3. In an easel, the transverse rod projecting from the central frame-piece through the slotted frame and fixed to the outer frame, and provided with sliding washers and spring, as shown, in combination with the frame parts, as and for the purpose set forth.

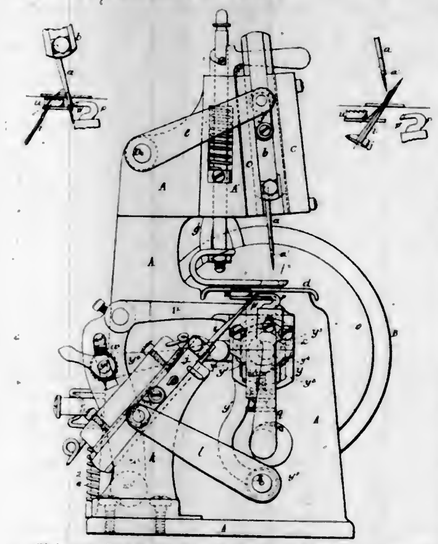
4. In an easel, the bow-spring fixed to and projecting from the central frame-piece into the slotted side frames, as and for the purpose set forth.

5. In an easel, the adjustable wire frame, in combination with the central frame-piece, as and for the purpose set forth.

6. In an easel, the jointed prop provided with a hook, in combination with a sliding plate adapted to operate as set forth, for the purpose specified.

353,720. SEWING-MACHINE. WILLIAM WALKER, Luton, County of Bedford, England. Filed May 11, 1886. (Model.) Patented in England June 24, 1885, No. 7,694, and in France Apr. 14, 1886, No. 175,477.

Brief.—A barbed needle above the bed-plate may be operated either vertically or obliquely thereto. An eye-pointed needle below the bed-plate is arrange to be operated obliquely thereto. The looper takes the loop of thread from the upper needle when below the work-plate, and the feed movement carries the said loop over the point of the under needle, forming a succession of chain stitches.



Claim.—1. In a machine for sewing straw plait, the combination of the barbed needle *a*, arranged above the work-plate and provided with means of adjustment to vary the point at which it shall pierce the work, whereby it may be operated at various angles to the work, the eye-pointed needle *i* below the work-plate, and the looper *p*, with mechanism for giving a regular and uniform feed to the work, the said needles *a* and *i* and looper *p* being arranged and operating substantially in the manner herein set forth.

2. In a machine for sewing straw plait, the needle-bar carrying the barbed needle *a*, arranged to operate vertically or obliquely above the work-plate, and means for adjusting the same with the eye-pointed needle *i* below the work-plate, and a looper, combined, arranged, and operating substantially as herein set forth.

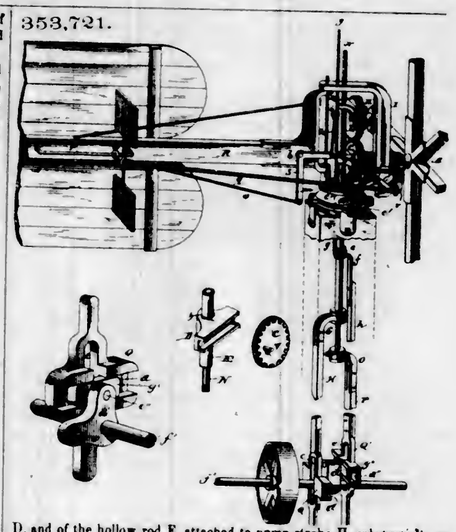
353,721. WINDMILL. GEORGE WALLENBECK and EDWARD WALLENBECK, Willow Creek, N. Y. Filed Apr. 5, 1886. (No model.)

Claim.—1. The combination, with two slotted reciprocating pump-strokes provided with guides at right angles to the bars, and slides in said guides, of a shaft passing through the slots of said bars and provided with two crank-arms attached to the shaft at about right angles to each other and engaging the slides in the guides in the reciprocating bars, substantially as described.

2. The combination, with the pump-stroke H, of the casting Q, having a horizontal and a vertical slot, of a slide *g'*, provided at its center with a circular opening, operating in the horizontal slot *d*, of the triangular piece *d'*, provided with pins *e' e''*, and also with a circular opening, of the shaft *f''*, which passes through the circular opening of the triangular piece, where it is rigidly secured, and through the vertical slots *c c'* of the pump-strokes, and of the slide *g''*, operating in the horizontal slot *d''* in the casting Q' of the pump-stroke P, substantially as described.

3. The combination, with the pump-stroke H, of the casting Q, having a horizontal and a vertical slot, of a slide, *g'*, (provided at its center with a circular opening,) operating in the horizontal slot *d* of the triangular piece *d'*, provided with pins *e' e''*, (constructed so as to turn easily in the circular openings in the slides *g' g''*,) and provided with a circular opening, of the shaft *f''*, which passes through the said circular opening, where it is rigidly secured, and through the vertical slots *c c'* of the slides *g''*, operating in the horizontal slots *d d''* in the castings Q Q', of the pump-stroke P, rigidly secured to the curved iron O, of the rod N, firmly attached to which is the metal flange M, having a horizontal slot, of the cog-wheel L, having a crank-pin working in said slot, of the cog-wheel I, having a crank-pin operating in the horizontal slot in the metal flange

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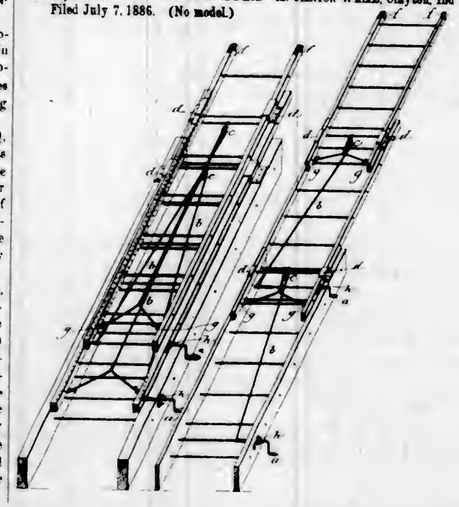
D, and of the hollow rod E, attached to pump-stroke H, substantially as described.

4. The combination, with a cylinder, *a'*, having a concave surface, of the metal casing *c'''*, having a concave surface looking inward and forming, with the surface of the cylinder, a circular groove extending around said cylinder to receive the anti-friction balls *b'*, substantially as described.

5. The combination, with a cylinder, *a'*, (on which rests the weight of the frame and gearing of a windmill,) having a concave surface, of the metal casing *c'''*, firmly attached to the mast, having a concave surface looking inward and forming, with the surface of the cylinder, a circular groove extending around said cylinder to receive the anti-friction balls *b'*, substantially as described, and for the purposes set forth.

6. The combination, with the spool *e*, moving easily up and down on the hollow rod E, and having the curved iron *f*, looping loosely around it, of the rod *g*, the lower end of which loops loosely around the spool, and which is provided with the metal piece *i*, near its upper extremity, having a circular opening to receive one end of the rod *k*, of the bent lever S, pivoted at *l*, of the rod o, looping around the bent portion of the rod *q*, of the rod *q*, bent as shown, looping around and sliding on the fixed rod *p*, and being attached to the frame by means of the V-shaped iron *r*, rigidly attached to the frame, and of the transverse rod *s*, provided at each end with fans *a''*, substantially as described, and for the purpose set forth.

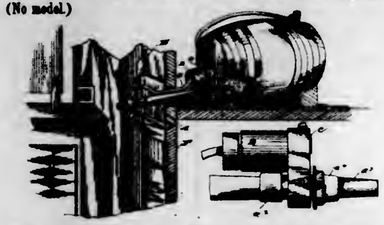
353,722. EXTENSION-LADDER. M. CLINTON WALLS, Clayton, Ind. Filed July 7, 1886. (No model.)



Claim.—1. The combination of any number of ladders, each of which, save the top one, has a single windlass *a*, spring-ratchet, and ratchet-wheel *h*, a single pulley, *c*, and a single rope, *b*, attached by two ends to rings *g*, all substantially as set forth.

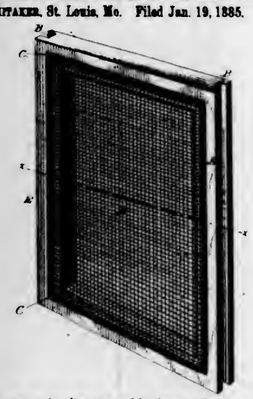
2. The rubber-rimmed rollers arranged in the end of the top ladder, for the purpose specified.

353,723. FORCE AND DRAIN FAUCET. ALBERT J. WEATHERHEAD and EDWARD H. WEATHERHEAD, Cleveland, Ohio. Filed Aug. 19, 1886. (No model.)



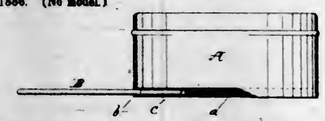
Claim.—In beer apparatus, a faucet constructed substantially as described, and bored simply for the passage of fluid, in combination with an air-pump side by side with the faucet, a piston-rod bent inward toward the faucet, as at *d*, and having a straight body portion, as at *d'*, practically in contact with the outer surface of the faucet, and a lever to operate said rod, whereby the apparatus may be used in connection with a beer-barrel placed inside of a casing having but a single opening for the passage of the faucet and piston-rod side by side, substantially as shown and described.

353,724. MEANS FOR FASTENING SCREEN-CLOTH TO DOORS. CHARLES WHITAKER, St. Louis, Mo. Filed Jan. 19, 1885. (No model.)



Claim.—A screen having around its inner edge a groove combined with wire-cloth or porous material, the edges of which are fitted all around into said groove, and a continuous rope or flexible packing placed in said groove at the sides and about the corners, and secured over and upon the edges of said cloth or material, substantially as described.

353,725. HANDLED BLACKING-BOXES. LOUIS H. WHITE, St. Augustine, Fla., assignor to Samuel M. Bixby, New York, N. Y. Filed Aug. 23, 1886. (No model.)

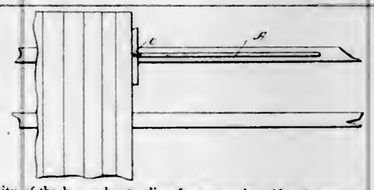


Claim.—1. A blacking-box having a sliding handle arranged to slide into a recess under the box made to receive it.

2. A blacking-box having a recess underneath, a sliding handle, and guides for controlling such handle, in combination with a sliding handle having stop pieces at its inner extremity, for the purposes specified.

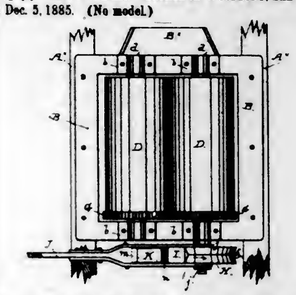
3. A blacking-box provided with a handle which may be drawn out for use, in combination with a recess beneath the box, formed by a projecting rim, in which recess the handle is stowed away after use.

353,726. CLAMP. JAMES G. WILDER, Starke, Fla. Filed Mar. 18, 1886. (No model.)



Claim.—The combination, in a flooring-clamp, of the bar having one end bent at right angles and sharpened, and thereby provided with an engaging-point, and the cross-head C, pivoted to the opposite extremity of the bar and extending from opposite sides thereof in a plane at right angles to the point, substantially as described.

353,727. ORE-FEEDER. GEORGE E. WOODBURY, San Francisco, Cal. Filed Dec. 5, 1885. (No model.)

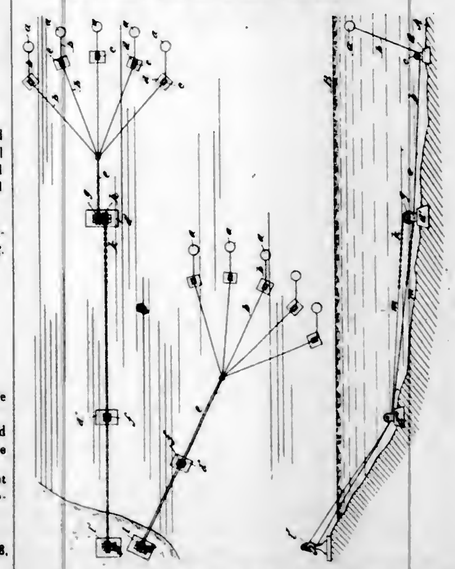


Claim.—1. In an ore-feeder, the combination, with the hopper W, of the feeding-surface consisting of the smooth-faced inclined rollers D D, having their axes in the same plane and their faces in rolling contact, and mechanism connected with said rollers, whereby rotation in opposite directions outward is imparted to them, substantially as described.

2. The combination, in a suitable frame, of the ore-hopper W, inclined rollers D D, supporting-frame B, and the roller-actuating mechanism, consisting of the spur-gears G G, friction-wheel H, lever J, shoe I, and toggle-bar K, substantially as herein described.

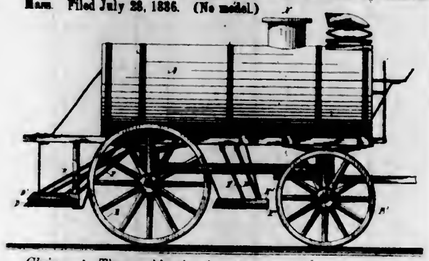
3. In an ore-feeder, the combination of a hopper, W, the inclined rollers D D, geared together and having on the shaft of one of them a wheel, H, the vibrating lever J, and mechanism connecting it with such wheel, whereby the rollers receive intermittent rotation proportionate to the length of vibration of the lever, substantially as herein described.

353,728. MARINE TORPEDO-SERVICE. CHARLES S. ATLESWORTH, Speegleville, Tex. Filed July 21, 1885. (No model.)



Claim.—A torpedo-plant, substantially as described, wherein the torpedoes are secured to guide-lines that pass beneath anchored sheaves and lead to a common manipulating rope or chain that is actuated by a mechanism, substantially as described, located at the operating-station, substantially as described, and for the purpose specified.

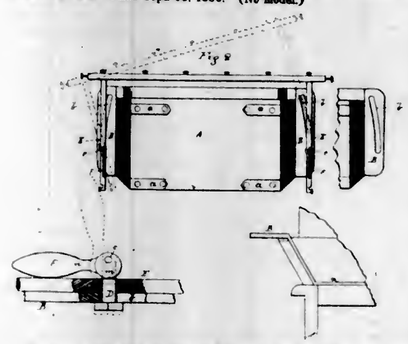
353,729. STREET-SPRINKLER. JOHN A. BANCROFT, Worcester, Mass. Filed July 28, 1886. (No model.)



Claim.—1. The combination, in a water-sprinkler, of a series of upper and lower rear water-discharge chambers, D, D', D^2, D^3, D^4, and D^5, and side water-discharge chambers, E E' and E^2 E^3, and a separate water-supply pipe for each water-discharge chamber, and a single valve and lever for each set of water-discharge chambers, whereby one or both chambers of each set of water-discharge chambers can be used or thrown out of action by a single lever, substantially as and for the purposes set forth.

2. In a water-sprinkler, the combination, with each set of water-supply pipes F F, bottom C, of the water reservoir or tank A, and slotted bar J, of the parts K, K', and K^3, hinged together at *h h'* and to the bottom C at A^3, substantially as and for the purposes set forth.

353,730. SHIFTING CARRIAGE-TOP. FREDERICK J. BRAND, New Britain, Conn. Filed Sept. 10, 1886. (No model.)



Claim.—A carriage-top and the side rails, E, to which it is attached, in combination with a seat which has a curved slot in each end, bolts or studs which pass from said side rails through said slots, and fastening devices, substantially as set forth.

353,731. PAPER-PULP DIGESTER. CHARLES BREMAKER, Louisville, Ky. Filed Apr. 10, 1886. (No model.)

Claim.—1. In a pulp-digester, the herein-described perforated false-bottom plate, consisting of an acid-resisting metal plate having nubs or pins cast or formed upon one or both its faces at the points where it is supported and a lead or similar covering for said plate, the said nubs or pins projecting through the covering to or near its surface, for the purpose set forth.

2. In a pulp-digester, the bottom plate, B, provided with tapering holes C C, flaring downwardly, substantially as shown and described.

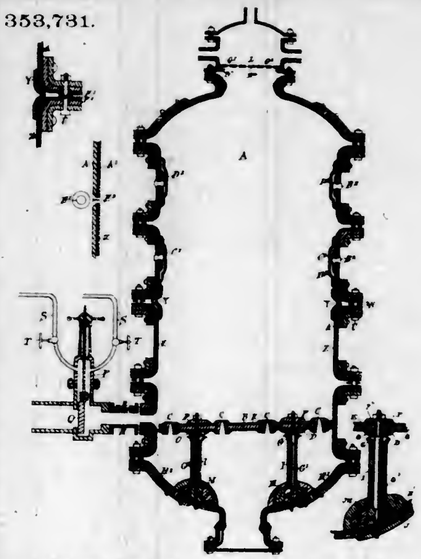
3. In a pulp-digester, a supporting bolt or standard for the false bottom, provided with a lead covering or ring, J, surrounding the lower end, soldered to said lead covering and to the lining of the digester-head, masses of solder M and G, applied at the bottom and top, respectively, in the manner and for the purpose set forth.

4. In a paper-pulp digester, the plate L in the upper end of the digester-boiler, provided with holes O, contracting inwardly from both faces, substantially as and for the purpose set forth.

5. In a pulp-digester, the combination, with the main vessel or boiler A and a blow-off valve, of the pipe or chamber H, connecting the two, provided with an opening to permit the removal of stock lodged therein, and a removable cover for said opening, as set forth.

6. In a pulp-digester, the combination, with the blow-off valve, of the pipes S S, for introducing steam or water under pressure into said valve to cleanse the same, and stop-cocks or valves T T, to regulate the flow in said pipes, as set forth.

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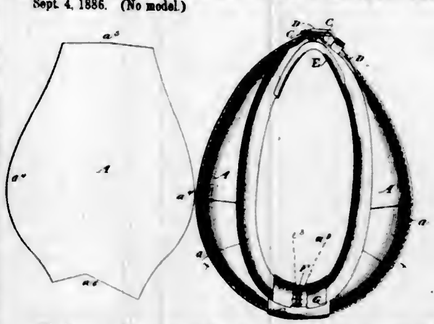


7. In a pulp-digester, the combination, with the securing-bolts or like fastening devices U, of the metal thimbles V and suitable rings or washers, W, surrounding said bolts or fastening devices, as and for the purpose set forth.

8. In a pulp-digester, a lining, Z, composed of a sheet of wire-cloth and a sheet or sheets of lead, and an intermediate filling of solder for uniting the said sheets, substantially as described.

9. In a pulp-digester, the improved means herein described for securing the lining in place, consisting of the countersunk head-rivets B^3, corresponding holes in the lining and outer shell, and the washer-plates C' on the inner end of said rivets, a groove or opening, E', and a covering, D', substantially as set forth.

353,732. HORSE-COLLAR. JAS. I. CAMPBELL, Monticello, Ga. Filed Sept. 4, 1886. (No model.)



Claim.—1. The horse-collar pattern A, formed with the sides rounded at a^4 a^4, the top cut straight, or nearly so, at a^5, and the bottom cut at an obtuse angle at a^6, to adapt it to be used as described, whereby two of said patterns may be fitted together with as little seaming as possible, and with a neck-roll integral with the shoulder part.

2. A horse-collar consisting of two filled flexible sections, A A, having the outer seam *a*, the straight seam *a'*, and the bottom ends, a^3 a^3, sewed to an intermediate welt, F, as shown, whereby it may have flexibility, strength, and durability, as set forth.

353,733. FIRE-BUCKET. JOHN CHIVILL, Chicago, Ill., assignor to the Webster & Comstock Manufacturing Company, same place. Filed Oct. 1, 1886. (No model.)

Claim.—1. A pail provided with the usual bail at its top, and a rigid handle attached to and projecting from the bottom thereof, to prevent the pail being stood upon said bottom, substantially as shown and described.

2. A pail provided with the usual bail at its top, in combination with one or more rigid hoops or bows bent across and projecting from

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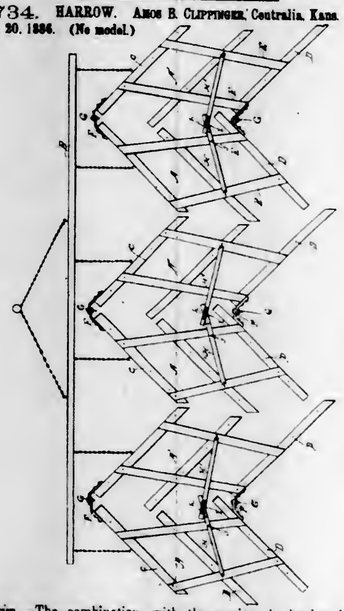
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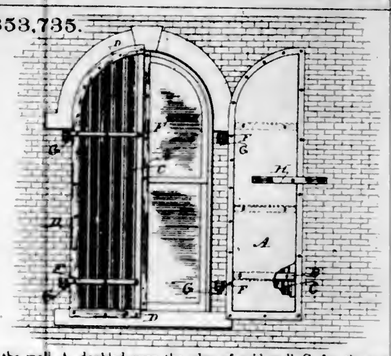
the bottom thereof, substantially in the manner and for the purposes specified.

353,734. HARROW. Amos B. Clippinger, Centralia, Kans. Filed Mar. 20, 1886. (No model.)



Claim.—The combination, with the section A, having inclined beams, as shown, of the section A', whose beams are inclined oppositely to those of section A, whereby the inner ends of said beams alternately overlap, and the two bars H H', loosely secured at their outer ends to the sections, while their inner ends overlap and have an adjustable connection, the whole being combined and arranged, as described, to cause the inner teeth on the overlapping ends of the sections to traverse the bottom of the furrow made by said sections when they are inclined, and secured by the bars H H', substantially as described.

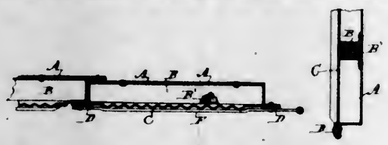
353,735. WINDOW-SHUTTER. Lewis G. Comparet, Des Moines, Iowa. Filed June 11, 1886. (No model.)



Claim.—1. The combination of a plain sheet-metal wall, A, having its edges turned at right angle and doubled backward, angular and tubular sheet-metal stays B, metal straps D, and bars F, having pintles G on their ends, substantially as shown and described, for the purposes stated.

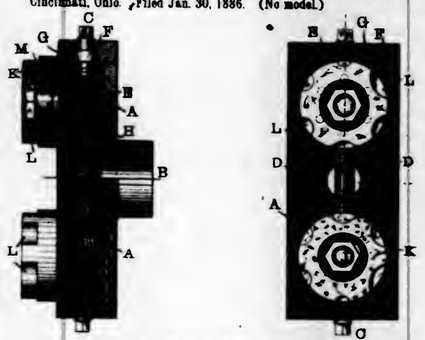
2. The combination of the metal stays B and the wooden blocks B' with the wall A, for the purposes stated.

3. The combination of the straps D with the wall C and the edge



of the wall A, doubled over the edge of said wall C, for the purposes stated.

353,736. LATHE-CHUCK. James H. Curry, Wilkinsburg, Pa., assignor of two-thirds to Edgar J. Baker, Cleveland, and Perrin G. March, Cincinnati, Ohio. Filed Jan. 30, 1886. (No model.)



Claim.—1. In a lathe-chuck, the combination of a jaw-slide, a cylindrical stud projecting therefrom and adapted to clamp the chuck-jaw against the slide, a chuck-jaw provided with a peripheral series of work-receiving recesses or notches and fitted to be revolved upon said stud, and a dowel fitted to maintain the jaw in adjusted relation to the jaw-slide, substantially as and for the purpose set forth.

2. In a lathe-chuck, the combination of a chuck-body provided with a jaw-slot having inwardly-projecting tongues, a jaw-slide fitting said slot and having a longitudinal prolongation bearing in said slot at one side of said tongues, and a chuck-jaw secured to said jaw-slide, substantially as and for the purpose set forth.

3. In a lathe-chuck, the combination of a chuck-body provided with a jaw-slot having inwardly-projecting tongues, a jaw-slide fitting said slot and having an outward prolongation bearing in said slot in front of said tongues, and an inward prolongation bearing in said slot behind said tongues, and a chuck-jaw secured to said jaw-slide, substantially as and for the purpose set forth.

4. In a lathe-chuck, the combination of chuck-body A, provided with a slot having tongues D, a jaw-slide fitting said slot and having inward and outward prolongations H and G, and a cylindrical stud, J, a chuck-jaw, K, fitted to be revolved upon said stud and provided with a series of notches or recesses, L, and dowel M, substantially as and for the purpose set forth.

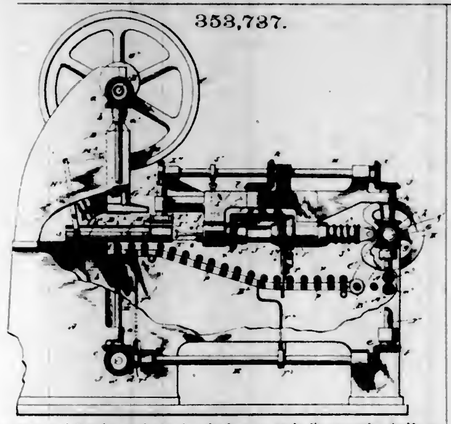
353,737. CAN-MAKING MACHINE. Edward J. Dolan, Philadelphia, Pa. Filed July 17, 1886. (No model.)

Claim.—1. The combination, with the trimming-rollers and forming and seaming devices, of an endless carrier arranged between said trimming-rollers and forming and seaming devices, and a vertically-operating knife arranged to divide the sheet into proper lengths as it passes over said carrier, substantially as described.

2. The combination, with the trimming-rollers and forming and seaming devices, of an endless carrier arranged between said trimming rollers and forming and seaming devices, a vertically-operating knife arranged to divide the sheet into proper lengths as it passes over said carrier, and a stop arranged in advance of said knife, substantially as and for the purpose specified.

3. The combination, with the trimming-rollers and forming and seaming devices, of an endless carrier arranged between said trimming-

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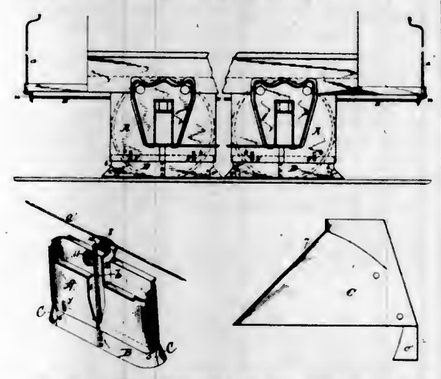


rollers and forming and seaming devices, a vertically-operating knife arranged to divide the sheet into proper lengths as it passes over said carrier, and two stops arranged between said knife and the forming and seaming devices, substantially as and for the purpose specified.

4. The combination, with the cylinder I', of a vertically-reciprocating plunger, an idle crimping-roller carried thereby, and a horizontally-reciprocating bottom clamping device provided with means for removing the finished can, substantially as described.

5. The combination, with the cylinder I', of the plunger I^3, provided with friction-roller i^3, the idle crimping-roller I^3, carried by said plunger, the shaft H, and the cam I^4 on said shaft, substantially as and for the purpose specified.

353,738. RAIL-SCRAPER AND SNOW-PLOW. Elisha B. Durfee, Lincoln, Nebr. Filed Apr. 10, 1886. (No model.)



Claim.—1. The combination of the fixed wheel-case A and the wheel-case B, detachably and adjustably connected to the wheel-case A, substantially as described.

2. The combination of the fixed case A and the wheel-case B, detachably and adjustably secured to the wheel-case A, and a flange-scraper, C', substantially as described.

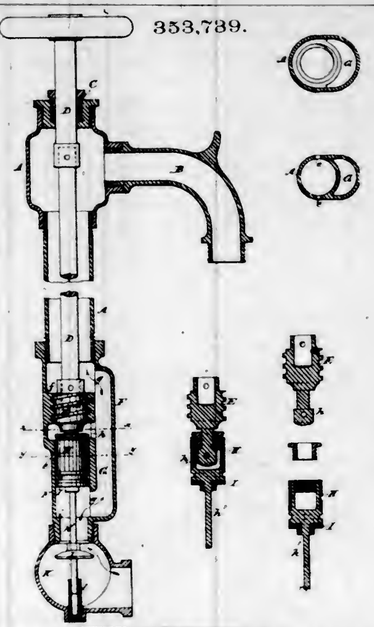
3. The combination of the fixed wheel-case A, the wheel-case B detachably and adjustably secured to the wheel-case A, the scraper C, and flange-scraper C', substantially as described.

4. The combination of the wheel-case A, fixed to the body of the car, and provided with gear 9, the wheel-case B, adjustably set about the wheel-case A, and provided with rack-bar *b*, the plow or scraper C on the end of the case B, and provided with a flange-scraper, C', and means for revolving the said gear and raising and lowering the case B, substantially as described.

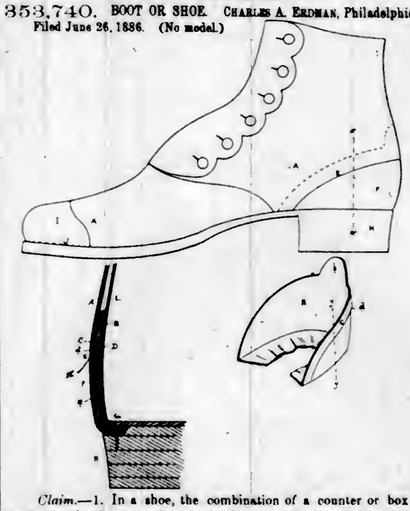
353,739. HYDRANT AND FIRE-PLUG. Henry E. Earle, Danbury, Conn. Filed Mar. 18, 1886. (No model.)

Claim.—The combination of a valve-box having ports *g* and *h*, communicating with side passage, G, and annular recess, and containing the operating screw and valve H, having the disk-valve I, and stem *h'*, with the valve L in the elbow K, all arranged substantially as and for the purpose specified.

353,739.



353,740. BOOT OR SHOE. Charles A. Erdman, Philadelphia, Pa. Filed June 26, 1886. (No model.)



Claim.—1. In a shoe, the combination of a counter or box for a heel or toe having a continuous shoulder near its upper edge, the upper fitting over said counter or box and having a depressed portion formed by the shoulder, and a protecting-tip fitting into said depressed portion, substantially as and for the purpose specified.

2. In a shoe, the combination of a counter or box for a heel or toe having a continuous shoulder made by skiving near its upper edge, and filling the channel thus formed with water-proof cement, the upper fitting over said counter or box, and having a depressed portion formed by the cement-filled shoulder, and a protecting-tip fitting into said depressed portion, substantially as and for the purpose specified.

3. In a shoe, the combination of a counter or box for a heel or toe, having a continuous shoulder near its upper edge, the upper fitting over said counter or box, and having a depressed portion formed by the shoulder, and a protecting-tip fitting into said depressed portion, and having its inner surface covered with water-proof cement, substantially as and for the purpose specified.

4. The combination of the counter or box B, having the shoulder *d*, the upper A, fitting over said counter or box B, forming the depressed

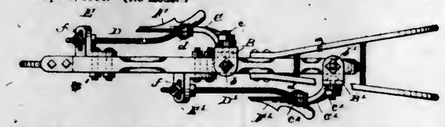
part K, and the protecting-tip F, fitting into the depressed part, substantially as and for the purpose specified.

353,741. FENCE. ALPHUS FAY, Columbia, Tenn. Filed July 17, 1886. (No model.)



Claim.—The combination, in a fence, of the posts having the tenons on the upper ends, the wire loops E, having their upper ends secured on the tenons and suspended therefrom, the rails H, having their ends inserted in and supported by the loops E, and the wire loops I, encompassing the posts, and the loops E between the meeting ends of the rails, the said loops I having the clamping-arms K bearing against opposite sides of the loops E to prevent lateral vibration of the latter, for the purpose set forth, substantially as described.

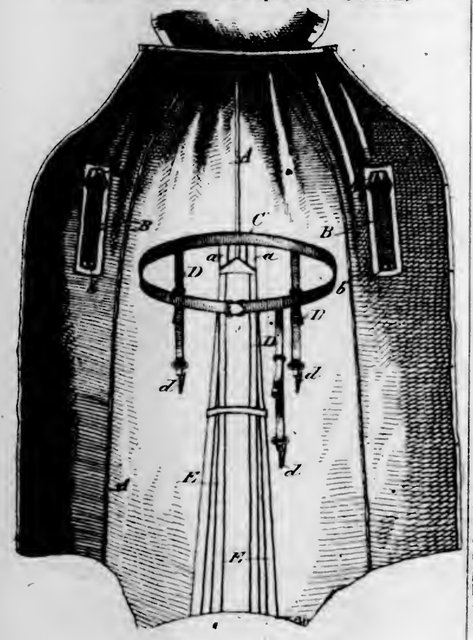
353,742. CULTIVATOR. LAWSON FOSTER, Duncan, S. C. Filed Sept. 3, 1886. (No model.)



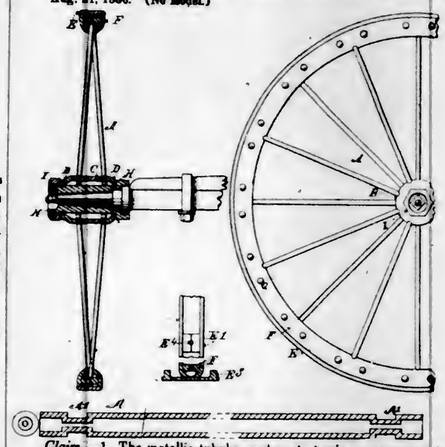
Claim.—1. The combination of the draft-beam, the slotted angle-plates, the stirrup-plates pivoted to the beam, the stocks secured to the stirrup-plates, as specified, and the brace-rods pivoted to the stocks and adapted to secure the different adjustments of the latter, as and for the purpose set forth.

2. The combination, with the plow-stocks and stirrup-plates adjustably secured to each other and to the draft-beam, of the slotted angle-plates fixed to the draft-beam, and the brace-rods pivoted to the plow-stocks and secured to the slotted angle-plates, substantially as and for the purpose set forth.

353,743. GOSSAMER CLOAK. BELLE GOODRICH and THOMAS E. GOODRICH, Shelbyville, Ind. Filed Apr. 29, 1886. (No model.)



353,744. WAGON-WHEEL. ALBERT C. HALL, Denver, Colo. Filed Aug. 21, 1886. (No model.)



Claim.—1. The metallic tubular spokes A, having contracted circular tenons A' near each end, substantially as herein set forth and described.

2. The metallic felly F, U-shaped in cross-section, having inwardly-projecting lugs, as E', placed at equal distances apart upon its circumference, said lugs having grooves fitting the tenons of the spokes and made to securely clamp these tenons by means of rivets passing through the sides of the felly upon each side of the spokes.

3. The combination of the metallic tubular spokes A, having tenons formed near each end, with the metallic felly F, having inwardly-projecting lugs with holes passing through them, and having rivets, one on each side, substantially as herein set forth.

4. In a metallic wheel, the combination of the box H, having a shoulder on its inner end and a screw-thread and nut on its outer end, the collars B, C, and D, clamped between the shoulder and nut and made with grooves upon their edges, forming holes of a size to fit the tenons formed near the inner ends of the spokes A, and the felly F, having inwardly-projecting lugs arranged to secure the outer ends of the spokes.

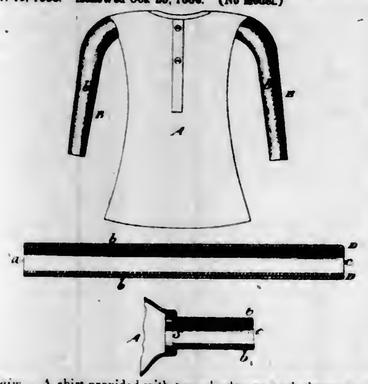
353,745. MACHINE FOR WINDING YARN. WALTER T. HANSON, Macon, Ga. Filed July 29, 1886. (No model.)



Claim.—1. In a machine for winding yarn, the combination, with a swinging frame constructed to carry at its free end a tube or spool upon which the yarn is to be wound, and a spindle located above said tube or spool for carrying a bobbin, of the shaft, the drum and cam-wheel secured thereon, the traverse-bar operated by the cam-wheel, and the guide-finger secured to the traverse-bar and provided with a prong, the latter being integral with the free end of the finger and extending outwardly toward the traverse-bar and upwardly, forming a guide under which the yarn is passed, substantially as set forth.

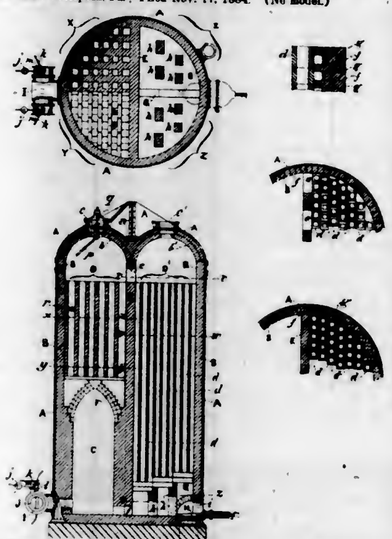
2. The combination, with a traverse-bar and means for actuating the traverse-bar, of the guide-finger secured to the traverse-bar, and consisting, essentially, of a horizontal body or main portion, and an outwardly and upwardly projecting prong, the latter being integral with the main or body portion at the free or inner end of the latter, the said finger at the junction of the body or main portion and the prong being grooved on its lower face, substantially as set forth.

353,746. SHIRT. WILLIAM A. HARDER, Lansingburg, N. Y. Filed Nov. 19, 1885. Renewed Oct. 25, 1886. (No model.)



Claim.—A shirt provided with two-ply sleeves, each sleeve consisting of an open-ended tube of elastic fabric folded at its middle portion, one half of said tube being within and inclosed by the other half, and the separate coincident ends of the two plies of the sleeves being attached to the shirt at the arm-seys, whereby the folded middle portion of the tube forms the wrist portion of the sleeve, as shown and described.

353,747. REGENERATIVE HOT-BLAST STOVE. JOHN M. HARTMAN, Philadelphia, Pa. Filed Nov. 17, 1884. (No model.)



Claim.—1. In a single-surface regenerative stove, the combination of the following elements, arranged substantially in the manner specified, viz: a combustion-chamber, a regenerator above the same, a second regenerator equal in height to the combined height of the first regenerator and chamber, and a solid division-wall extending between said regenerators from the bottom of the stove to the level of their tops, the checker-work of the first regenerator being tied or bonded in with the stove-lining and division-wall and the checker-work of the second being built separate from the adjacent walls.

2. In a single-surface regenerator-stove, the combination, with a regenerator, of a subjacent combustion-chamber, a series of Gothic arches with intermediate passage-ways arranged at the top of said combustion-chamber, and a series of transverse girders resting upon said arches and supporting the filling of the said regenerator.

3. In a single-surface regenerative stove of cylindrical form containing two regenerators, the combination of a division-wall between said regenerators, but extending only to the level of their tops, a series of open arches built upon said division-wall, and a double-arched roof the inner ends of whose arches rest upon the arches of the division-wall, substantially as set forth.

4. In a stove of substantially circular horizontal section and having a checker-work of square or polygonal bricks, the combination, with said checker-work, of an inclosing-wall built of alternating courses of bricks, the brick of one course being laid radially to the circumference of the stove, and those of the next in the direction of chords to said circumference, substantially as set forth.

5. In a regenerative stove containing two regenerators, the combination of a division-wall, E, separating said regenerators, a central wall, G, at right angles to said division-wall, and a series of open arches arranged on each side of and perpendicular to said central wall, said central wall and its side arches forming the support of the second regenerator.

6. The combination, with the regenerator D', of the chimney-valve H, opening downward in the floor of the stove, the central wall, G, having a half-arch, i, over said valve, and the arch in the stove-lining adjacent to said valve.

7. The cold-blast valve arranged at the botton of the division-wall, E, substantially as and for the purposes set forth.

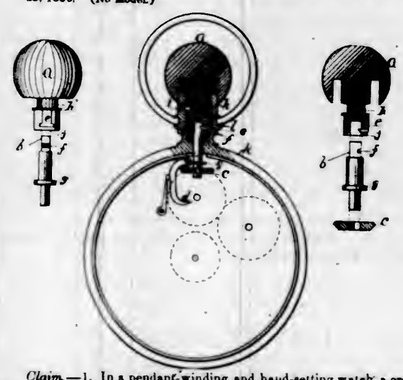
353,748. TOBACCO-BAG FASTENER. FREDERICK E. HEBER, Louisville, Ky. Filed Feb. 10, 1886. (No model.)



Claim.—1. A tobacco-bag provided with a metallic strip which is doubled over its upper edge, said strip being provided with a cut-out portion bent to form a tang or hook, substantially as set forth.

2. The combination, with a bag, of a metal strip doubled, fitted over, and fastened to the upper edge of one side of the body portion of the bag, and provided with teeth or projections, and having a cut-out portion bent to form a tang or hook, as set forth.

353,749. PENDANT-STEM FOR WATCHES. ABRAHAM L. KELLER, Elgin, Ill., assignor of one-third to Otto Johnston, same place. Filed Feb. 23, 1886. (No model.)



Claim.—1. In a pendant-winding and hand-setting watch, a crown-stem made in two sections, the crown or knob section provided with a spring-hook, e, and its pinion-section provided with a square and notch to couple with the crown-section, in the manner shown, for the purpose set forth.

2. In a pendant-winding and hand-setting watch, a crown-stem made in two sections, the crown or knob section having a square hole in its end and a transverse kerf on its side, near its end, to admit of the spring-hook e.

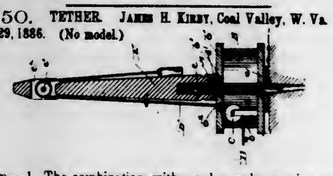
3. In a pendant-winding and hand-setting watch, a crown-stem made in two sections and having a spring provided with a hook for coupling the two sections together, in the manner and for the purpose set forth.

4. In a pendant-winding and hand setting watch, a crown-stem made in two sections having the crown or knob section provided with a

groove, A, to determine the endwise movement of the stem, operating in conjunction with a set-screw in the ring-pendant.

5. The combination, substantially as hereinbefore set forth, of a crown-stem made in two sections, *a* and *b*, the spring *e*, set-screw *i* bevel-pinion *c*, and lever *d*, these members being constructed and arranged for the purpose specified.

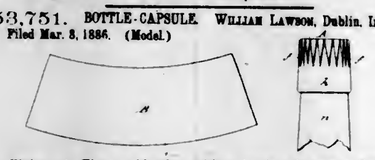
353,750. TETHER. JAMES H. KIRBY, Coal Valley, W. Va. Filed July 29, 1886. (No model.)



Claim.—1. The combination, with a rod or pole carrying a revoluble casing and a staff set upon and turning with said casing, of a winding-drum in said casing, a pulley upon said staff, a tethering-cord wound upon said drum, a cord wound oppositely upon said drum and running over said pulley, and a weight attached to said cord, substantially as set forth.

2. The combination, with staff A, carrying disk *a*, casing B, turning freely upon said staff, and having the hole *b* and bars b^4, the top b', having holes b^2 b^3 b^4, and the staff E, having socket *e*, pin *e'*, and pulley e^2, of the drum C, mounted upon standards *c*, having deep groove c' and shallow groove c^2, the ropes D D', oppositely wound in said grooves, and the weight F, attached to cord D', as specified.

353,751. BOTTLE-CAPSULE. WILLIAM LAWSON, Dublin, Ireland. Filed Mar. 8, 1886. (Model.)

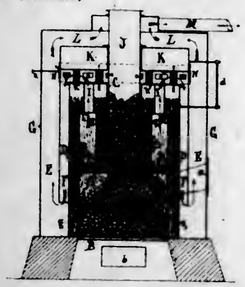


Claim.—1. The combination, with a bottle, of a cap adhesively secured on the top of the bottle-head, and consisting of a disk of thin pliant paper having sections removed from the circumferential portion thereof to form isolated fingers, which are bent down and adhesively secured to the sides of the bottle-head without overlapping, and a strap, likewise of thin pliant paper, enveloping the bottle-neck and vertical sides of the head to cover the cap-fingers and adhesively secured in position, substantially as set forth.

2. The combination, with a bottle, of a cap adhesively secured on the top of the bottle-head, and consisting of a disk of thin pliant paper having sections removed from the circumferential portions thereof to form isolated fingers, which are bent down and adhesively secured to the vertical sides of the bottle-head, and a strap, also of thin pliant paper, enveloping the neck and fingers on the head and adhesively secured both to the fingers and to the bottle-head between the same, substantially as set forth.

3. The combination, with a bottle, of a cap adhesively secured on the top of the bottle-head, and consisting of a disk of thin pliant paper having sections removed circumferentially therefrom to form isolated fingers, which are bent down and adhesively secured to the vertical sides of the bottle-head, a metallic disk interposed between the bottle-top and the cap, and a strap, likewise of thin pliant paper, enveloping the neck and fingers on the head and adhesively secured in position, substantially as set forth.

353,752. STEAM-BOILER. ELISHA D. MORE, New York, N. Y. Filed June 18, 1886. (No model.)



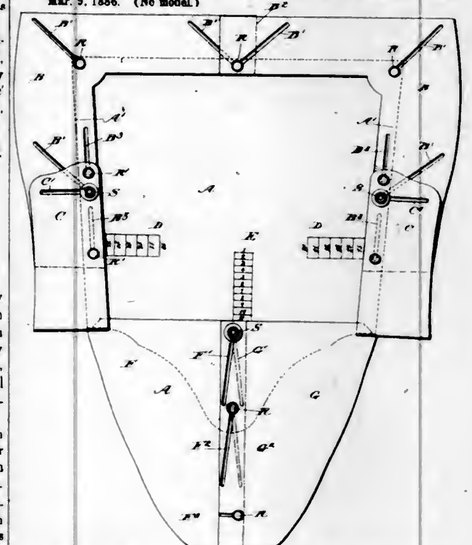
Claim.—1. In combination with a steam-boiler consisting of two annular water-chambers having the sides corrugated, connected, and arranged substantially as shown and described, the independent steam-drum K, the concentric damper N, attached thereto, and the flues I, F, E, L, and M, whereby the movements of the products of combustion are controlled, substantially as shown and described.

2. In combination with a steam-boiler constructed substantially as shown and described, the independent steam-drum K, tubes *c c*, connecting the boiler with the steam-drum, the central self-feeding magazine, J, flues I, damper N, upper portions of flues E and F, and the flues L and M, substantially as and for the purposes specified.

3. A steam-boiler constructed substantially as shown and described, in combination with the flues I, F, E, L, and M, and the concentric damper N, the whole constructed and arranged for joint operation, substantially as shown and described.

4. In combination with a steam-boiler, substantially as shown and described, the independent steam-chamber K, the steam-connecting-tubes *c*, the flues I, the damper N, the holes *e*, and the uptakes or flues L and M, whereby the products of combustion are caused to impinge against the bottom plate of the steam-chamber K, to pass upward about the cylindrical sides of the same, and thence over the top plate to the flue, substantially as shown and described.

353,753. BOOT-PATTERN. GEORGE L. MYERS, Hentzdale, Pa. Filed Mar. 9, 1886. (No model.)



Claim.—1. The part A, provided with the thumb-screws S S, one at each side thereof, and with the triangular pieces B B, having the diagonal slots B', and the pieces or parts C, arranged to move vertically and independently upon the parts B, and provided with the slots C', the whole being constructed, arranged, and combined to operate as specified.

2. The combination of the part A, having the thumb-screws S, the parts B, having the diagonal parallel slots B', the parts C, mounted upon the parts B, for independent movement, and having the slots C', and the parts F and G, provided with converging slots, substantially as shown and described.

353,754. RAILROAD APPLIANCE. JOHN E. NATHAN, New York, N. Y. Filed Apr. 24, 1886. (No model.)

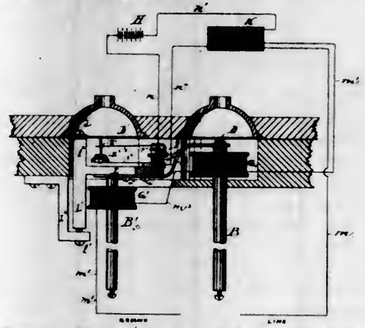


Claim.—1. The combination of a main track and a vertically and laterally flexible temporary track for removing and replacing cars and rolling-stock on the main track, substantially as described.

2. A temporary track for removing and replacing cars and rolling-stock on the main track, consisting of detachable sections hooked or linked together, whereby the track is rendered vertically and laterally flexible and extensible, substantially as described.

3. The combination of a main track and a vertically and laterally flexible temporary track for replacing derailed cars and rolling-stock, consisting of detachable grooved sections hooked or linked together, substantially as described.

353,755. TELEPHONE. NOYES F. PALMER, Jamaica, N. Y. Filed Mar. 27, 1886. (No model.)



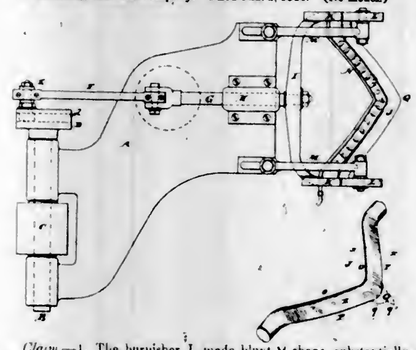
Claim.—1. The combination, in a telephone-transmitter, of spring-arm A, and bar L, having shoulder-piece l^3, with springs s' s^2, carrying electrodes E' E^2, and secured to such shoulder-piece, substantially as specified.

2. The combination, in a telephone-transmitter, of spring-arm A, and bar L, having extension L', and socket l^3, with springs s' s^2, carrying electrodes E' E^2, and with insulators I i^2, and split pin *p*, for holding and adjusting spring *s'*, substantially as specified.

3. The combination, in a telephone-transmitter, of bar L, having shoulder-piece l^3 and extensions l^3 L', with diaphragm D', and bracket L^2, the extension l^3 being attached to diaphragm D', and the extension L' being attached to bracket L^2, substantially as specified.

4. The combination, in a telephone-transmitter, of a diaphragm with a bar attached to said diaphragm, said bar having one extension projecting away from said diaphragm, provided with an adjusting-screw operating into a bracket secured to the case or frame, and said bar having another extension about parallel with said diaphragm provided with a socket carrying two electrodes, one electrode having a pivotal adjustment in said socket, substantially as specified.

353,756. BURNISHING-MACHINE FOR BOOTS OR SHOES. EMMONS M. PARKHURST, Philadelphia, Pa., assignor to the Champion Shoe Burnishing Machine Company. Filed Jan. 2, 1886. (No model.)



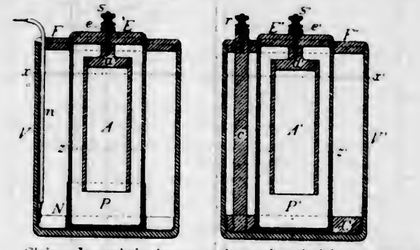
Claim.—1. The burnisher J, made blunt V shape, substantially as shown, and for the purpose specified.

2. The burnisher J, made blunt V shape, and having its rear edge thick, as at O, and forward edge sharp, as at P, substantially as and for the purpose specified.

3. The burnisher J, made blunt V shape, and having its rear edge thick, as at O, and forward edge sharp, as at P, and provided with the curved part *q* and guide part *q'*, substantially as and for the purpose specified.

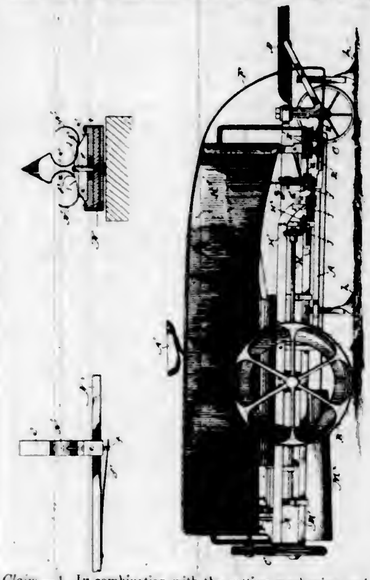
4. A burnisher for boots and shoes provided with a small curved part *q* and guide *q'*, arranged substantially as and for the purpose specified.

353,757. VOLTAIC BATTERY. AUGUST F. W. PARTZ, Philadelphia, Pa., assignor to the Partz Electric Battary Company, same place. Filed Mar. 5, 1885. (No model.)



Claim.—In a voltaic element on the gravity principle, a porous clay cell, of which the lower part is impregnated with paraffine, substantially as and for the purpose herein specified.

353,758. HARVESTER FOR SUGAR-CANE, CORN, &c. SAMUEL H. PEARCY, Franklin, Tenn., assignor to the Pearcy Cane and Corn Harvester Company, of Tennessee. Filed June 18, 1885. (No model.)



Claim.—1. In combination with the cutting mechanism and a carrier adapted to receive the cut stalks, a top-cutter and a support for the latter, such support being movable in the direction of length of the machine, whereby to adjust the top-cutter to stalks of different lengths, substantially as set forth.

2. The combination of the supporting-frame, the cutting mechanism, a supplemental frame, P, adjustable on the main frame in line with the direction of length thereof, the stalk-carrier and top-cutter supported in said supplemental frame, and operating mechanism, substantially as set forth.

3. The combination, with the main frame, adjustable supplemental frame, and the apron-rollers journaled thereto, one of said rollers being formed hollow and provided with a keyway, of the shaft for driving said apron journaled in the main frame, and extended into the hollow roller, and having a key fitting the way thereof, and mechanism for driving said shaft, substantially as set forth.

4. The combination of the frame A, having rails M' fixed longitudinally on it, cutters E at the forward end of the frame, guides K K', extending along the frame A, a supplemental frame, P, fitted to slide on the said rails, rollers L' L^2, journaled in the supplemental frame, an apron, L, mounted on the rollers, and means for revolving the cane, substantially as shown and described.

5. The combination of the frame A, having rails M', the cutters E, mounted thereon, the frame P, fitted to slide on frame A, the rollers L' L^2, the apron L, and the saw M, mounted on the said frame P, substantially as shown and described.

6. The combination of the frame A, provided with rails M', the frame P, mounted to slide thereon, the rollers L' L^2, the apron L and saw M, mounted on the said frame P, and the receptacle M^2, secured to the frame A beneath the path of the saw M, substantially as shown and described.

7. The combination of the frame A, the cutters E, the frame P, the rollers L' L^2, and belt L, mounted on frame P, and the receptacle Q, substantially as shown and described.

8. The combination of the frame A, the receptacle Q, the trap-door Q' therefor, the lever Q^2, connected with the door Q', the receptacle M^3, the trap-door M^3 therefor, and the rod M^4, connecting the said two trap-doors, substantially as shown and described.

9. The combination of the frame A provided with rails M', the frame P, mounted thereon, the forked lever R, having the legs R^2 and R^3, the wheels and axles S, mounted on said legs, the drive-wheel S', and the cords S^2 and S^4, connecting the said frame P with the axles of wheels S, substantially as shown and described.

10. The combination of the frame A, provided with rails M' and A^2, the frame P, fitted to slide on the rails M', the rod T', fitted to slide on the rail A^2, and connected with frame P by a loose link, P^2, and means connecting with the rod T' to reciprocate the frame, substantially as shown and described.

11. The combination of the frame A, provided with the rails M', the frame P, mounted thereon, the rollers L' and L^2, journaled in the frame P, the apron L, mounted on the said rollers, the roller L' being hollow and internally longitudinally grooved, and a shaft, C', journaled in the frame A, passing through the roller L', and provided with a stud, D^2, engaging the said groove therein, substantially as shown and described.

12. The combination of the frame A, the frame P, mounted to slide thereon, the rollers L' and L^2, journaled in the frame P, the apron L, the saw M, journaled in frame P, the shaft C', passing through the roller L', the quill D^2, extending from the roller L' around the shaft C', and provided with a spur-wheel, D^4, and a train of gear-wheels, D^5 D^6 D^7 D^8, connecting the wheel D^4 with the said saw M, substantially as shown and described.

13. The combination of the frame A, provided with rails M', the saws E, the frame P, mounted on the said rails, the rollers L' and L^2, and apron L, mounted on the frame P, the shaft C', passing through the roller L', and provided with a pulley, a', the pulley a^2, mounted on a stud fixed in the frame A, and the chain-belt a, mounted on the pulleys a' and a^2, substantially as shown and described.

14. The combination of the frame P, the rollers L' and L^2, and the apron L, mounted thereon, the pulley b^2, journaled on the frame P, the pulley b^4, fixed on the shaft of the roller L^2, the chain b, provided with teeth b^3, and mounted on the pulleys b^4 and b^2, and the saw M, journaled in frame P, substantially as shown and described.

15. The combination of the frame P, the rollers L' and L^2, the apron L, the chain b, provided with teeth b^3 projecting from its outer face, and the studs b' projecting from one edge, the rail b^5, fixed beneath the path of the said studs, and the clamp c, attached to the rail b^5, substantially as shown and described.

16. The combination of the rail b^5, the bow c^2, the shoe c, fitted to slide vertically thereon to rest on the rail and turned up from the rail at one end, said shoe being pressed normally against the rail, the chain b, provided with teeth b^3, and the studs b', adapted to slide on the rail, substantially as shown and described.

17. The combination of the rail b^5, the shoe c, fitted to press thereon, and the chain b, having studs b' projecting from one edge over the rail, and having teeth b^3 projecting from its outer face near its other edge, substantially as shown and described.

18. In a cane-harvester, the combination, with a carrier for the canes, of a belt and strippers supported thereon and formed of blades arranged to embrace a cane, means for drawing the blades toward each other to grasp the stalks and apart, and operating mechanism, substantially as described.

19. The combination of the frame A, having rails M', the frame P, mounted thereon and shorter than the rails, the belt L, mounted to revolve in frame P, the receptacle Q, the belt N, provided with blades and mounted on rollers N^2 and N^3, slanted toward the said receptacle, substantially as shown and described.

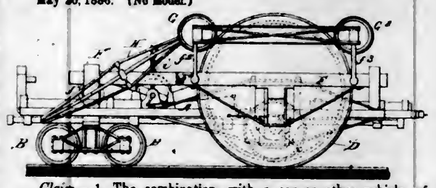
20. The combination of the belt N, the rollers N^2 and N^3, the shaft C', the roller L', provided with the quill D^2 and the spur-wheel D^4, and the sleeve d^2, geared at one end to the roller N^2 and connected by gearing at the other end with the spur-wheel D^4, substantially as shown and described.

21. The combination of the belt N, the cutter-head e, secured thereto, the blades e', secured at one end to the said head, joined at the other end like a picket and semicircularly curved midway, and blades opposing said blades at the curve, substantially as shown and described.

22. The combination of the belt N, the cutter-head e, the blades e', secured thereto, the poppet f, passing through the belt, the blades N', provided with shanks pivoted to the said poppet, and a shoe, f', secured at its forward end to the under side of the belt and connected at its rear end with the poppet, substantially as shown and described.

23. The combination of the belt N, the blades e', secured thereto and provided with shoulders f^3, the poppet f, passing through the belt, and the blades N', provided with shanks 1, pivoted at their lower ends to said poppet and adapted to pry against the said shoulders at points between their pivots and blades, substantially as shown and described.

353,759. CAR-STARTER. BENJAMIN C. POLE, Camden, N. J. Filed May 20, 1886. (No model.)



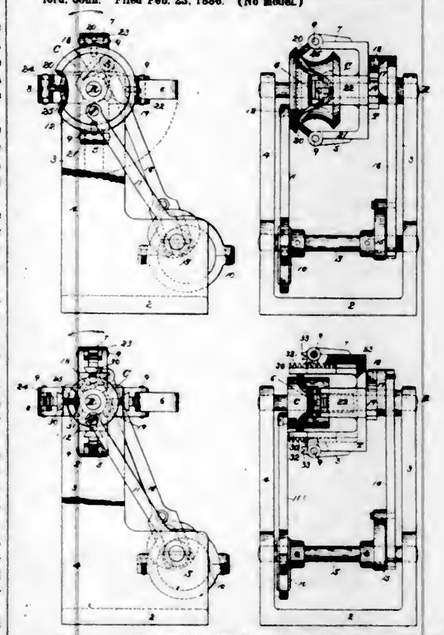
Claim.—1. The combination, with a car or other vehicle, of a starter, runner, and brake, consisting of the wheels D and E, operated by the wheel G, and a prompting device or wedge, substantially as and for the purpose set forth.

2. In a car-starter, the trail-bar links, the operating-wheels G, and suitable friction-rollers, all adapted to a trail-bar which is above or below the frame of the vehicle, substantially as and for the purpose set forth.

3. In a car-starter, a trail-bar allowing independent horizontal action of the wheel D, in combination with the wheel E and vehicle, substantially as set forth.

4. The trail-bar, the links, the operating-wheels G, and suitable friction-rollers adapted to a trail-bar above or below the frame of the vehicle, and a prompter device or wedge, substantially as and for the purposes set forth.

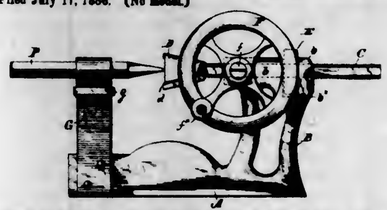
353,760. MECHANICAL MOVEMENT. FRANCIS H. RICHARDS, Springfield, Mass., assignor of one-half to the Pratt & Whitney Company, Hartford, Conn. Filed Feb. 23, 1886. (No model.)



Claim.—1. The combination, in a mechanical movement, of the intermittently-revolving turret, the rotary reciprocating cam, grooved substantially as described, a series of arms carried by said turret and operatively connected with the said cam, and mechanism, substantially as described, operating the turret and cam to carry the levers to each station successively and operate them successively at the same station, substantially as set forth.

2. The combination, in a mechanical movement, of the intermittently-revolving turret, the cylindrical rotary reciprocating cam, grooved substantially as described, a series of pivoted levers carried in said turret, and a corresponding series of slides, 30, also carried in the turret, said slides being operatively connected to said levers and said cam, substantially as set forth.

353,761. PENCIL-SHARPENER. MADISON RUSH, Philadelphia, Pa. Filed July 17, 1886. (No model.)

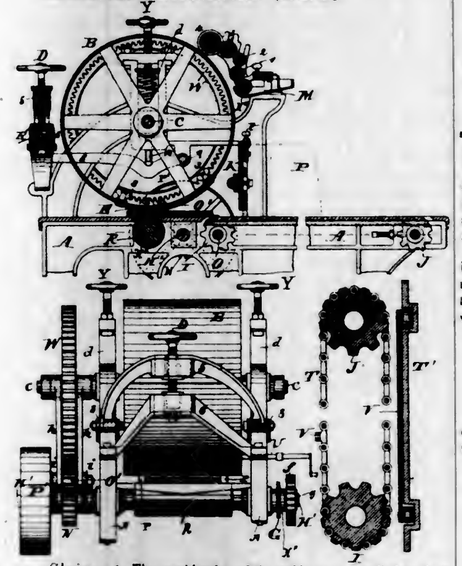


Claim.—1. The combination of a pencil holding or supporting device, a pencil-sharpening device, an actuating-screw upon which said pencil-sharpening device is mounted in permanent alignment with said holding device, and by which it is progressively advanced, a fixed bearing through which said actuating-screw rotates in order progressively to advance said pencil-sharpening device, and means for occasioning the rotation of said actuating-screw and its connected sharpening device, substantially as set forth.

2. The combination of a pencil holding or supporting device, a pencil-sharpening device, an actuating-screw upon which said pencil-sharpening device is mounted in alignment with said holder, a fixed bearing through which said actuating-screw rotates, a pinion feathered upon said actuating-screw and retained against longitudinal movement with or upon said screw, and a bevel-wheel engaged with said pinion, substantially as set forth.

3. The combination of the spring-jaws, a threaded bearing erected upon a frame-work also supporting said spring-jaws, a cutter-actuating screw fitted within said bearing, a sharpening-thimble connected with the advance extremity of said actuating-screw, a pinion feathered upon said actuating-screw and located within a pinion-seat formed in said frame-work, and a bevel-wheel engaged with said pinion, substantially as and for the purposes set forth.

353,762. MACHINE FOR PRINTING LUMBER. LAWRENCE ROTH, Cincinnati, Ohio. Filed Apr. 23, 1885. (No model.)



Claim.—1. The combination of the guideways d, cylinder, shaft, frame, levers fulcrumed to the frame having a cross-head, a cross-bar secured to the frame, and a screw for adjusting the cross-head.

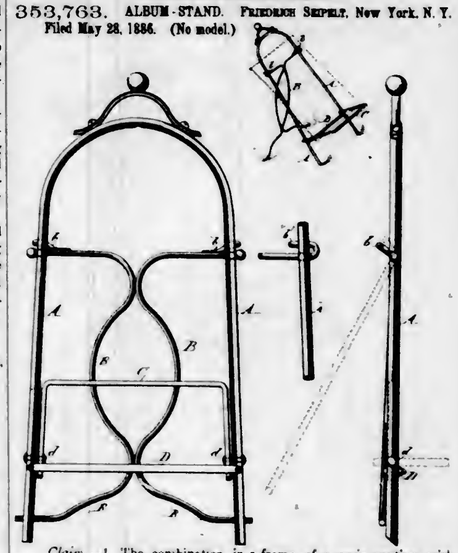
2. As a means for raising and lowering the cylinder of a press for printing on lumber, a screw operating in a cross-head and properly supported underneath, said cross-head being connected at each end to a lever which is fulcrumed between it and its free end, the latter supporting the shaft of the main or type cylinder, in combination with such main cylinder, whose shaft is secured in guideways and held in place from above by means of impression-screws, substantially as shown and described.

3. In a press for printing on lumber, the combination, with a main cylinder and its shaft, of levers on which the cylinder is supported by its shaft, fulcrumed to the frame and provided with a cross-head, a cross-bar secured to the frame, a screw for adjusting the cross-head on the cross-bar, impression-screws, springs, and a small roller beneath the cylinder.

4. In a printing-press, the combination of the main cylinder, the fulcrumed levers and means to operate same, impression-screws, as Y, the gears W, O', and N, with links h i, and driving-pulley P, all arranged in the manner shown and described, and for the purpose set forth.

5. As a means for raising and lowering the cylinder of a lumber-printing press, a screw, as D, operating in a cross-head, as 5, and properly supported underneath, as at 6, said cross-head being connected at each end to a lever whose working-point is between the fulcrum and the point of application, the said levers supporting the shaft of the main cylinder, in combination with such main cylinder and impression-screws, all being arranged substantially as shown and described, and for the purpose set forth.

353,763. ALBUM-STAND. FRIEDRICH SEIFERT, New York, N. Y. Filed May 28, 1886. (No model.)



Claim.—1. The combination, in a frame, of a main portion, with a brace having a cross-piece that is pivoted to the shanks of the main portion, and of stops projecting from the cross-piece of the pivoted brace adjacent to the pivoted ends of said cross-piece, substantially as shown and described.

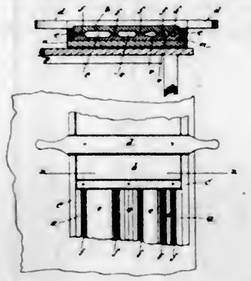
2. In an album-stand, the combination, with a main portion having a riveted transverse front piece, with a rest that is pivoted to the main portion above said front piece, the sides of the rest-piece being extended below the pivots, so as to abut against the transverse front piece when folded in line with the main portion, substantially as set forth.

353,764. UMBRELLA OR PARASOL TIE. JAMES T. SMITH, New York, N. Y. Filed Sept. 16, 1886. (No model.)



Claim.—An umbrella or parasol tie consisting of the band A, in combination with the eyelet B, and the cover H, constructed substantially as and for the purpose described.

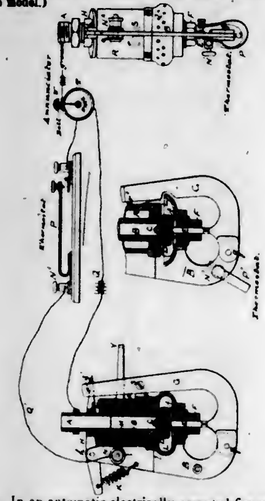
353,765. MACHINE FOR ROLLING ALMOND PASTE. MORITZ E. THIELE, Leipsic, Saxony, Germany. Filed Mar. 5, 1886. (No model.)



Claim.—1. The combination of plates *a* and *b*, forming the chambers *c*, with the grooves *f*, connected to said chambers, substantially as specified.

2. The combination of plate *a*, having rails *c*, with sliding plate *b*, having handle *d*, said plates forming chambers *e* between them, and with grooves *f*, connected to said chambers, substantially as specified.

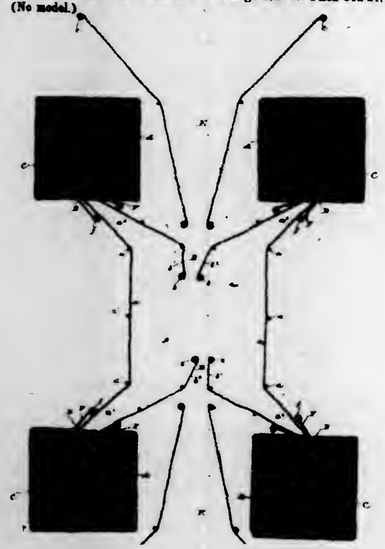
353,766. AUTOMATIC FIRE-EXTINGUISHING APPARATUS. ALFRED THOMPSON and ROBERT O. RITCHIE, London, England. Filed June 1, 1886. (No model.)



Claim.—1. In an automatic electrically-operated fire-extinguishing device, the combination, with a battery-circuit, a suitable thermostat, and an electro-magnet and its armature, of the within-described water-outlet valve having a screw-stem, and a lever engaging with said stem and interlocked with said armature to close the valve, substantially as herein specified.

2. In an automatic electrically-operated fire-extinguishing device, an electro-magnet, M B R, and its spring-pressed or weighted armature H, surrounding the water-passage, substantially as herein specified, in combination with an outlet-valve, D, closed against the water-pressure, and a lever, G, interlocked with said armature to close said valve, and released by the attraction of said armature to open the water-outlet.

353,767. FISH-TRAP. THOMAS THOMPSON, Edenton, N. C., assignor of one-fourth to Allan Rutherford, Washington, D. C. Filed Oct. 21, 1886. (No model.)

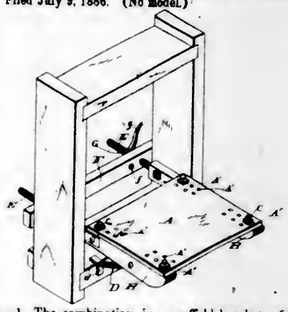


Claim.—1. The herein-described fish-trap, consisting of the heart or main compartment having oppositely-disposed openings, the inclined wings or passage-ways connected to the corners of said heart, the pounds or traps having the cone-shaped tunnels and connected to the ends of said wings or passage-ways, and the inclined guideways located at opposite sides of the heart and between and extending beyond two of the pounds or traps, substantially as shown and described.

2. The combination, with the heart or main compartment having oppositely-disposed openings, and the pounds or traps, of the inclined wings or passage-ways connecting said heart at its four corners with the pounds or traps, arranged substantially as shown and described.

3. The combination, with the heart or main compartment having opposite openings, the inclined wings or passage-ways connected to the four corners of said heart, and the pounds or traps connected to the ends of said wings or passage-ways, of the inclined goideways or leads secured each at its ends and center by stakes, whereby a passage-way is provided between its walls and between each wall and pound or trap, substantially as shown and described.

353,768. SCAFFOLD-BRACKET. MATHEW E. TRAFTON, Minneapolis, Minn. Filed July 9, 1886. (No model.)



Claim.—1. The combination, in a scaffold-bracket, of the platform adapted to project from one side of the window, the bars B, attached to the said platform and adjustable laterally thereon, the arms D, adapted to bear against the window-sill to support the outer end of the bracket, and means for clamping the bars B against the opposite side of the window-frame from which the platform projects, substantially as described.

2. The combination of the platform having the bars B, provided with the extending bolt-rods, and the cross-bar F, having openings to receive the threaded ends of the bolt-rods, and the clamping-nuts to bear against the outer side of the said cross-bar, for the purpose set forth, substantially as described.

3. The combination of the platform having the series of openings A', the bars B, having the bolt-rods, the bolts C, passing through the said rods and through openings A' to secure the bars to the platform, the cross-bar F, having the series of openings *f*, and the clamping-nuts for the threaded ends of the bolt-rods, substantially as described.

4. The scaffold-bracket having the bars B, provided with the slots B' on their under sides, and the arms D, pivoted in the outer ends of the said slots, substantially as described.

353,769. IRONING-MACHINE. LEWIS H. WATSON, Chicago, Ill. Filed May 31, 1883. (No model.)



Claim.—1. The combination, with the ironing-table, the ironing-roller, and means for respectively reciprocating the table and rotating said roller, of mechanism forming a connection between said table and roller, whereby the movement of the table and roller are automatically stopped at the completion of each return movement of the table, substantially as and for the purposes described.

2. The combination, in an ironing-machine, of the ironing-roller, the table, the shaft, and mechanism connecting said shaft with the ironing-table, the fixed and loose pulleys, and a belt-shifter, being provided with arms mounted on said shaft, said shifter having an adjustment concentric with the shaft, substantially as described.

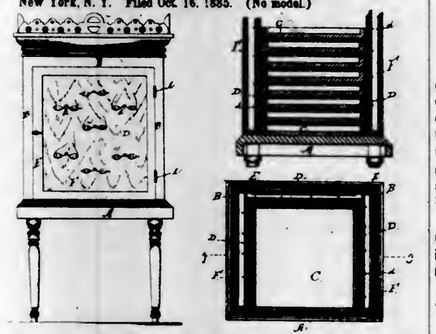
3. The ironing-table and mechanism for reciprocating the same, in combination with a grooved track, and loose anti-friction rollers guided in said track, which support the table and form a shifting bearing therefor, stops on said table for engaging the rollers, and stops on said track to limit the movement of the rollers, substantially as shown.

4. In an ironing-table, the rock-shaft M, arm M', rod M², arm M³, rod M⁴, provided with a slot, M⁶, which engages a pin on the end of the arm M³, bell-crank O, having one of its arms pivotally connected to rod M⁴, and the spring M⁵, in combination with the reciprocating table provided with dogs which alternately engage the other end of said bell-crank, substantially as shown, whereby the belt-shifter is actuated by the movement of the reciprocating table.

5. In ironing-machine, the combination of an ironing-table and mechanism for reciprocating the same, a bell-crank lever, a belt-shifter, and mechanism actuating said lever and shifter, a pair of dogs, and a spring for normally holding said lever in the path of the dogs, substantially as and for the purposes described.

6. An ironing-table, mechanism for reciprocating said table, an ironing-roller, and means for actuating the same in opposite directions, in combination with the sleeve L', the arms L², the fingers L³, and the fast and loose pulleys, all combined and operating substantially as and for the purposes described.

353,770. COMBINED CABINET AND SHOW-CASE. LEO WORMSER, New York, N. Y. Filed Oct. 16, 1885. (No model.)

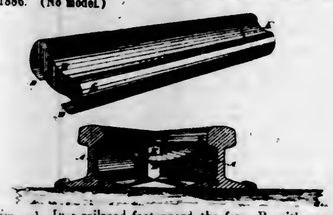


Claim.—1. In a combined stock-cabinet and show-case, the combination of the removable show-boards D, provided with the hooks or pins *d*, the base A, frame B, door E, glass sides F, and drawers C, substantially as shown and described, and for the purpose specified.

2. In a combined stock-cabinet and show-case, the combination of the show-boards D, provided with the hooks or pins *d*, and adapted to slide out at the top of the case, the base A, frame B, drawers C, and glass sides F, substantially as shown and described, and for the purpose specified.

3. In a combined stock-cabinet and show-case, the combination of the show-boards D, provided with the hooks or pins *d*, and adapted to slide in the grooves in the top and base of the case, and to be removed at the corners with the frame B, base A, drawers C, and glass sides F, substantially as shown and described, and for the purpose specified.

353,771. FOOT-GUARD FOR RAILROADS. JAMES B. ATWOOD, Boston, assignor of one-half to S. W. Sexton, Springfield, Mass. Filed Sept. 22, 1886. (No model.)



Claim.—1. In a railroad foot-guard, the form B, with convex sides A A and concave top, substantially as herein shown and described.

2. In a railroad foot-guard, the form B, with convex sides A A and concave top, in combination with the head F, substantially as herein shown and described.

3. A railroad foot-guard composed of a form, B, with convex sides A A and concave top, and open end E, and head F, substantially as described, and for the purpose set forth.

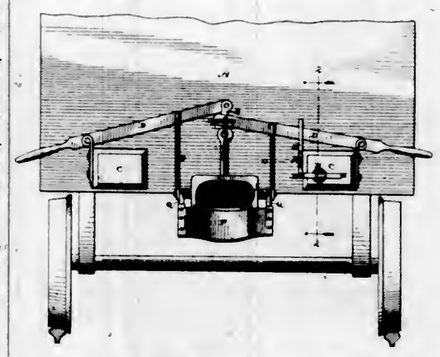
353,772. METALLIC COFFIN. SCIPIO E. BAKER, Springfield, Ohio, assignor to the Springfield Metallic Casket Company, same place. Filed July 28, 1886. (No model.)



Claim.—1. As an article of manufacture, a casket constructed of cast-iron and having receding panels and raised portions surrounding said panels, a shoulder around the lower portion of the outer side thereof, an ornamental molding fitted to said shoulder and extending around the casket, an ornamental upper portion constituting moldings and terminating in a flange at its upper edge, a vertical bead extending around said flange, a top having a depending flange which fits around said bead, a filling of cement and a rubber gasket between the top and flange of the body, and devices to secure the top and said flange.

2. The combination, with a casket having an annular shoulder on the outside thereof and near the bottom, of an annular ornamental molding having a flange which fits said shoulder, and devices to secure the flange to the shoulder.

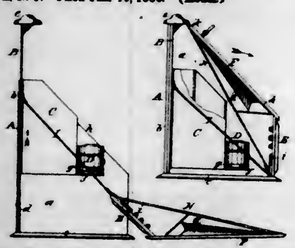
353,773. CAR-COUPLING. HENRY A. BARNARD, Plattsburg, N. Y., assignor of one-half to Samuel L. Wheeler, same place. Filed Sept. 25, 1886. (No model.)



Claim.—1. The combination of the draw-head, the operating-levers, and the pin with the connecting-rods, the guide, the jointed rods Q R, which support the guide, and the springs which are applied to their under sides, substantially as set forth.

2. The combination of the timbers C, the spring N, the bent bar, rod, or lever H, which is pivoted upon the timbers and projects in front of and above the same, and which is provided with a notch at its upper end, with the lever D, which catches in the notch in the upper end of the rod or lever H, the pin, and the head, substantially as set forth.

353,774. PAPETERIE AND WRITING-DESK. SALOMON BERGE, New York, N. Y. Filed Jan. 19, 1886. (Model.)



Claim.—1. The combination of the case A, the receptacle for the stationery, &c., having a vertical sliding movement, the top strip, *e*, pivoted front E, and inclined top F, forming together a cover for the top and front of the case, and the connections between the front and the receptacles, whereby when the case is opened the strip *e* is raised and the receptacle for stationery, &c., thrown up above the edge of the pivoted front, substantially as specified.

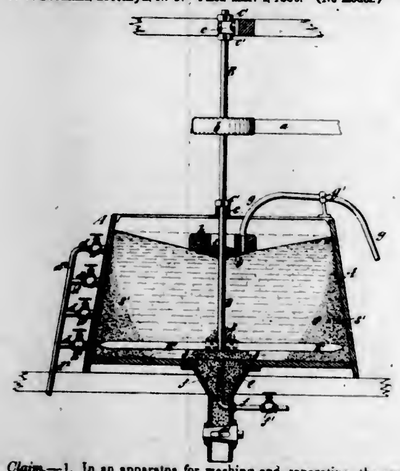
2. The combination of the case A, the vertically-sliding plate B, provided with the top closing-strip, *e*, and carrying the receptacle for stationery, &c., pivoted front, connections between the sliding receptacle and the front, and inclined top rigidly connected with the front, so that when opened it forms a horizontal support for the desk, substantially as specified.

3. The combination of the case A, vertically-sliding receptacle C, pivoted front E, and inclined top F, hinged connections between the receptacle and the front, and the desk H, connected with the inclined top F, and supported in an inclined position by the front E, substantially as specified.

4. The combination, in the case A, of the sliding plate B, carrying the receptacle C, the front E, pivoted to the ends at *i*, between the top and bottom edges of the ends, so that when opened its bottom edge shall be thrown above the pivots, the connections I, having one end attached to the sliding plate and the other to the edge of front *e*, and the desk H, having one edge hinged to the free edge of the inclined front F, and the other resting on and supported by the front E, which sustains it in an inclined position, substantially as specified.

5. The combination of the vertically-sliding plate B, carrying the receptacle C, and provided with the top strip, *e*, pivoted front E, and inclined top F, and connection between the pivoted front and sliding plate, whereby when the case is closed the plate B descends and the strip *e* rests upon the edge of the inclined top F and fastens it, substantially as specified.

353,775. APPARATUS FOR WASHING AND SEPARATING SAW-DUST AND OTHER MATERIAL BY CENTRIFUGAL ACTION. JOHN V. V. BOORAEM, Brooklyn, N. Y. Filed Mar. 4, 1886. (No model.)



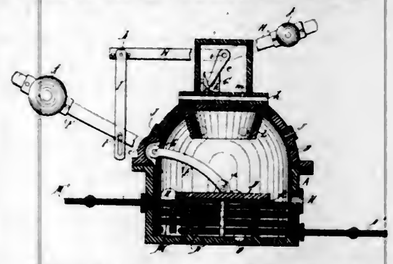
Claim.—1. In an apparatus for washing and separating, the combination, with a vat for water and the substances to be washed and separated, of a rotary stirrer for producing a rotary motion of the contents, an outlet for finer particles at or near the circumference of the vat, and an outlet for coarser and heavier particles at or near the center thereof, substantially as herein described.

2. The combination, with a vat, of a rotary stirrer for producing a rotary motion of the contents of the vat, outlets for finer particles at or near the circumference of the vat, and at different points in the height thereof, and an outlet for coarser and heavier particles at or near the center of the vat, substantially as herein described.

3. The combination, with a vat, of a rotary stirrer for producing a rotary motion of the contents of the vat, an outlet for finer particles at or near the circumference of vat, an outlet for coarser and heavier particles at or near the center thereof, and a jet-pipe in the outlet for coarser and heavier particles, and through which water may be discharged to prevent clogging of said outlet, substantially as herein described.

4. The combination, with a vat and a rotary stirrer for producing the rotary motion of the contents thereof, of an outlet for finer particles at or near the circumference of the vat, an outlet for coarser particles at or near the center of the vat, and a siphon-pipe, the inner end of which is attached to a float for removing scum from the water in the vat, substantially as herein described.

353,776. GOVERNOR FOR CIRCULATOR-PUMPS. WILLIAM H. BROOKS, West Point, N. Y. Filed Dec. 22, 1885. (No model.)



Claim.—1. In a pump-governor of the character herein set forth, the combination of the receiver, the valve-chest, the slide-valve located in the valve-chest upon the top of the receiver, the rock-shaft, operating-arm, and weighted lever connected with said valve, the float, the weighted lever connected therewith, and the slotted connecting-rod joining the two weighted levers, the receiver and the valve-chest being each provided with inlet and outlet ports, substantially as shown and described.

2. In a governor of the character herein specified, the combination, with the receiver having the inlet-ports for exhaust-steam located within the top of the receiver, of the valve-chest located upon the upper section of the receiver, and having the port or channel leading to the exterior and the port or passage establishing communication between the valve-chest and the interior of the receiver and at the top thereof, the valve, the float, and connecting mechanism, substantially as and for the purposes set forth.

3. In a governor of the character herein set forth, the receiver made in two parts, the upper part having the inlets for the return steam and the outlet for passage of steam to the valve-chest containing the slide-valve, the said upper part being mounted upon and made removable from the lower part, the valve-chest having the port for escape of steam to the pump, the valve, the float, and mechanism connecting the valve and float, the several parts being combined and arranged substantially as shown, and for the purposes explained.

4. In a pump-governor, a float, a valve connected with the float, the receiver, the coil of water-pipe, and the coil of steam-pipe located below the float, the said pipes opening into the receiver to discharge water and live steam therein, all combined and arranged substantially as and for the purposes explained.

5. In a pump-governor, the combination of the upper and lower parts of the receiver, the lower part of said receiver being provided with ports for the outflow of water or water and steam, for the passage of the inlet water-pipe, and for the inlet steam-pipe, the blow-off orifice, the valve, the float, and connecting mechanism, substantially as shown and described.

6. In a pump-governor of the character herein set forth, the combination, with the valve-chest having inlet and outlet ports, the valve, the float connected therewith, and the receiver having inlet and outlet ports, of the open port or passage in the valve-chest for permitting a constant flow of steam to the pump or pumps, substantially as and for the purposes set forth.

7. In a pump-governor of the character herein set forth, the combination, with the receiver and the float located in the receiver, of the valve-chest and the slide-valve located in and made smaller than the valve-chest, the valve having a plain bearing-face, being exposed to steam contact on all faces except the bottom, the counterbalanced levers, slotted connecting-rod, and arms connecting the float and valve, the valve-chest, and receiver, each having the inlet and outlet ports, substantially as and for the purposes set forth.

8. In a pump-governor of the character herein set forth, the combination, with the upper part of the receiver having the inlet and outlet ports, of the deflector arranged therein and extending downwardly from the top, the lower part of the receiver, the float, the valve, the valve-chest having inlet and outlet ports, and mechanism connecting the float and valve, substantially as shown and described.

353,777. ART OF MAKING STAIR AND TABLE OIL-CLOTH. ALEXANDER F. BUCHANAN, Montrose, N. Y. Filed Nov. 8, 1886. (No specimens.)

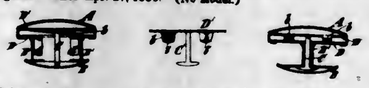
Claim.—1. The improvement in the art of making brocatel and mosaic stair and table oil-cloth, consisting in applying over the daub coat spots of tint color—one or more colors—subordinate to the brocatel or mosaic pattern thereof.

2. The improved process of making finished or complete brocatel and mosaic stair and table oil-cloth, consisting in, first, applying the usual daub coat in any known or usual way; second, in adding spots of tint color or colors to the last daub coat before, together with or after the application of the regular brocatel or mosaic pattern, and, third, the application of a coat of oil and a coat of varnish.

3. The improved process of making incomplete or unfinished brocatel and mosaic stair and table oil cloth, consisting in applying spots of tint color or colors directly to or upon the last daub coat.

4. The improved process of making incomplete or unfinished brocatel and mosaic stair and table oil-cloth, consisting in applying spots of tint color or colors to or upon the last daub coat, which has already had placed thereupon the regular brocatel or mosaic pattern thereof.

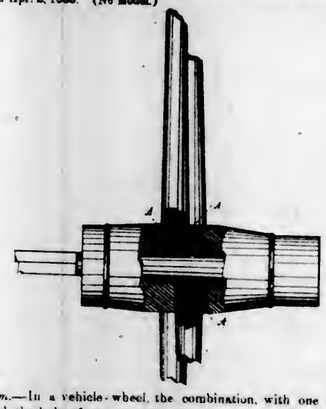
353,778. BUTTON OR STUD. LEON P. CONARD, No. 11 Old North Street, Red Lion Square, County of Middlesex, England, assignor to George W. Mabie, Brooklyn, N. Y., and George Dickman, West Norwood, England. Filed Apr. 27, 1886. (No model.)



Claim.—1. In a separable button or stud, the combination, with a shoe having an oblong hollow post and a head having a T-shaped shank adapted to be entered through the post and locked to the shoe by turning one part relatively to the other, of a rotary plate having arms which enter the post, and a spring-detent between the head and plate for holding the shoe and head against accidental turning, one relatively to the other, substantially as herein described.

2. The combination, with the shoe and its oblong hollow post B', of the head having the T-shaped shank C entering and turning in the post, and the two plates D D', one having perforations or depressions *a* and the other having spring-detents *b*, the plate D being locked to the post by arms *d*, and the plate D' being fixed in the head, substantially as herein described.

353,779. CARRIAGE-WHEEL. CALVIN GOOLIDGE, Cleveland, Ohio. Filed Apr. 2, 1883. (No model.)



Claim.—In a vehicle-wheel, the combination, with one or more spokes and the hub, of one or more screws, respectively, inserted between the tenon of the spoke and mortise of the hub, substantially as set forth.

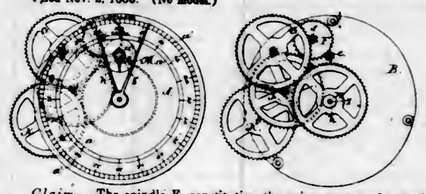
353,780. TILE. HENRY A. DANIELS, Yonkers, N. Y. Filed Jan. 29, 1886. (No model.)

Claim.—A tile consisting of an external frame, webs or projections inclosed by the frame and arranged to divide the same into recesses, and an artificial-stone composition filling all the recesses within the frame and flush with the edges of the said frame and with the webs or projections, the face of the tile thus consisting of metal and artificial stone, substantially as described.

353,780.

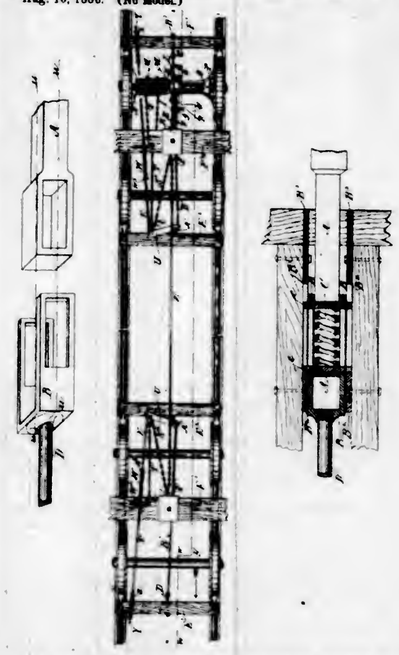


353,781. REGISTER FOR GAS-METERS. JOSEPH DROTSCHMEIN, Albany, N. Y., assignor of one-half to William McDonald, same place. Filed Nov. 2, 1885. (No model.)



Claim.—The spindle E, constituting the prime mover of a register, in combination with the finger *e'* mounted thereon, the hands M A' mounted on another shaft, I, like the hands of a clock, a train of gear-wheels interposed between said spindle E and shaft I for the purpose of driving the hands M *h'* at different rates of speed, and the dial-plate provided with graduated circles for these hands to travel over, and with another circle, a^2, eccentric thereto, for the finger *e'* to travel over in regulating the register, substantially as set forth.

353,782. CAR-BRAKE. ALEXANDER DEU, New York, N. Y. Filed Aug. 10, 1886. (No model.)



Claim.—1. In brake mechanism, the frictional windlass M, provided with differential cranes $M' M^2$, said windlass being secured around the car-axle, and made to carry a chain or its equivalent connecting with mechanism for operating the brakes, said windlass being adapted to take its motion from the car-wheel and to operate the brake mechanism, substantially as described.

2. In combination with brake mechanism having a frictional windlass, M, adapted to operate the same by taking its motion from the car-

wheel, a spring interposed between said windlass and the adjacent car-wheel, whereby the said windlass is kept from contact with the wheel when the brakes are off, substantially as described.

3. The combination, with a car axle and brake mechanism, of the windlass M, secured around said axle, the sleeve O, also secured around the same, and the collar L, interposed between said windlass and sleeve, and connected with levers by means whereof it may be moved, said collar and sleeve being provided with corresponding cam-surfaces adjacent to each other, whereby the movement of said collar operates the said sleeve and windlass and their connecting mechanism, substantially as described.

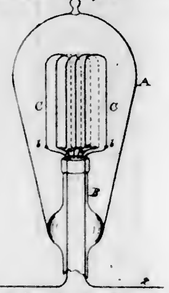
4. In a car-brake mechanism, the combination of the sleeve O and windlass M, arranged as described, the collar L, interposed between said sleeve and windlass and being provided with an arm, K, the lever I, connected with said arm, lever E, connected at one of its ends to the lever I and having its opposite end fixed to the car, and the rod D, pivoted to said lever E and adapted to give motion to the same, thus causing the mechanism to operate, substantially as described.

5. In a car-brake, the combination of the windlass M, secured around the car-axle and provided with cranes M' M^2, the chain S or its equivalent, rod T, lever U, connected with brake-beam E^2, chain S^2, or its equivalent, and rod Z, said chains being made to pass over pulleys connecting with said rods and with the lever U, and the whole being arranged as described, whereby the movement of the windlass M operates the brakes in the manner set forth.

6. In a combination with brake mechanism, the windlass M, collar L, and sleeve O, said collar and sleeve being provided with adjacent cam-surfaces for moving the said windlass and sleeve against the car-wheels, whereby they are carried by frictional contact with said car-wheels, the said sleeve O being provided with an arm, Q, said arm being connected with a rod, R, whereby the circular motion of said sleeve is limited, substantially as and for the purpose set forth.

7. In a car-brake, the combination, with the buffers of the car, of a rod, D, connected with levers adapted to give motion to the brake mechanism, said rod being provided with forked ends B B, and a spring, C, interposed within said forked ends and adapted to be acted upon by the same and by the buffer, whereby the movements of said rod and buffer are rendered independent of each other for the distance permitted by said spring, substantially as and for the purpose set forth.

353,783. INCANDESCENT ELECTRIC LAMP. THOMAS A. EDISON, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 9, 1882. (No model.)



Claim.—1. The coiled or looped carbon filament of an incandescent electric lamp provided with intermediate supports for the coils or loops, substantially as set forth.

2. In an incandescent electric lamp, the combination, with the coiled or looped carbon filament, of a number of wires attached to the coils or loops and all sealed in the glass stem of the lamp, substantially as set forth.

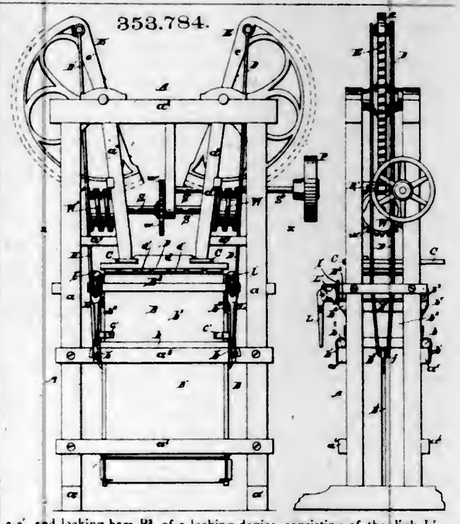
3. In an incandescing electric lamp, the long and fine flexible carbon filament made in one piece, in combination with leading-in wires connected to the ends of the same, and intermediate supports, substantially as set forth.

353,784. COTTON-PRESS. ANDREW B. FLOWERS, Montgomery, Ala. Filed Aug. 5, 1886. (No model.)

Claim.—1. In a baling-press of the class described, the combination, with the follower F, of the supporting bar or strap F', having vertical hooked arms *f* and the enlargements *f'*, substantially as described, for the purpose specified.

2. The combination, with the compressing-box of a baling-press provided with removable walls, and bearings projecting from the front and rear walls thereof, of a locking device consisting of the link L', carrying the plate *l'*, and the eccentric-lever L, pivoted to one end of the link, substantially as described, for the purpose specified.

3. The combination, with the compressing-box B, having a sliding top, removable end walls, and hinged side walls provided with the catches



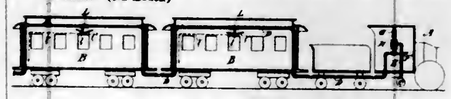
353,784.

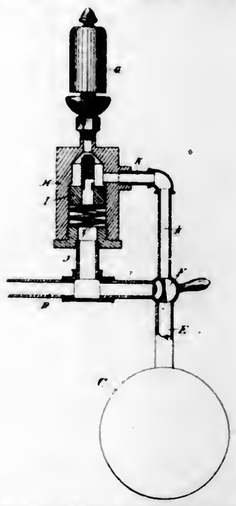
c c', and locking-bars B^3, of a locking device consisting of the link L', carrying the plate *l'*, and the eccentric-lever L, pivoted to one end of said link, substantially as and for the purpose specified.

4. The combination, substantially as described, of the frame F and the downwardly-projecting beams a^4 a^4, supported from said frame, and the sills C C, secured to the lower end of said beams, the lint and compressing box B B', and the top or platen D, constructed to slide on the said sill, for the purpose specified.

5. The combination, with the frame F, the longitudinal girts a^2 a^2, the brackets c c, the depending beams a^4 a^4, and the sills C C, secured to the lower end thereof, of the lint and compressing box B B' and its top or platen D, constructed to slide on the sills C C, said parts being constructed substantially as described, for the purpose specified.

353,785. CAR-SIGNAL. SANDS FORMAN, Gold Hill, Nev. Filed July 22, 1886. (No model.)





Claim.—1. In a railway-car signal, the combination of a compressed-air receiver, a pipe passing through the cars of the train, valves by which the escape of the air from said pipe is effected and controlled, a direct and a branch connection between the pipe and the air-receiver,

a two-way valve or cock controlling the direct and the branch connections, so that one may be closed while the other is opened, a whistle communicating with the branch connection, and a spring-actuated hollow-ended valve let into said branch connection and controlling the communication with the whistle, whereby upon the escape of the air from the pipe through the cars the valve is relieved and the whistle operated, substantially as herein described.

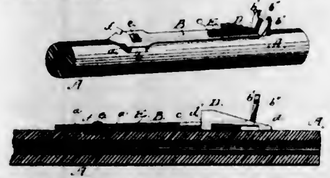
2. In a railway-car signal, the compressed-air receiver C, the single pipe D, connected with the receiver and passing through the cars, and the valves L, by which the escape of the air from said pipe is effected and controlled, in combination with the cylinder H, connected at one end with the pipe D and at the other with the receiver at the point of connection of said receiver with pipe D, the whistle G, connected with the cylinder, the spring-actuated hollow piston-valve I within the cylinder and normally closing the communication of said cylinder with the whistle, and the two-way cock or valve F, controlling the admission of air to pipe D and to either end of the cylinder above and below its valve, substantially as herein described.

3. In a railway-car signal, the whistle G, in combination with the cylinder H, and the hollow-ended spring-actuated piston-valve I in the cylinder and controlling the communication of said cylinder with the whistle, substantially as herein described.

4. In a railway-car signal, the whistle G, in combination with the means by which it is operated, consisting of the cylinder H, communicating with the whistle, a compressed-air receiver and a pipe through the cars, having valves by which the escape of the air therefrom is effected and controlled, said cylinder being separately connected with the receiver and the pipe, and the hollow-ended spring-actuated piston-valve I in the cylinder and controlling the communication with the whistle, substantially as herein described.

5. A railway-car signal comprising the compressed-air receiver C, the pipe D through the cars, having the valves L for effecting and controlling the escape of air from said pipe, the pipe E, connecting pipe D with the air-receiver, the cylinder H, the pipe J, connecting its lower end with the pipe D, and the pipes K *k*, connecting its upper end with the pipe E, the two-way cock or valve F at the junction of the pipes D *k* E, the whistle G, communicating with the top of the cylinder, and the hollow-ended spring-actuated piston-valve I within the cylinder and controlling its communication with the whistle, all arranged and adapted to operate substantially as herein described.

353,786. GUN-SIGHT. FRANK E. HALLADAY, Plover, Wis. Filed Apr. 23, 1886. (No model.)



Claim.—1. An improved sight for fire-arms, comprising a spring-plate, B, a block, D, sliding upon the barrel and having an inclined face engaging said plate, and a screw engaging the block, whereby the sight is adjusted.

2. The combination, with the spring-plate B, one end of which is secured in a slot formed in the barrel, of an inclined or wedge-shaped block sliding upon said barrel, and adjusting the spring-plate, and a screw and nut for moving the block, substantially as herein described.

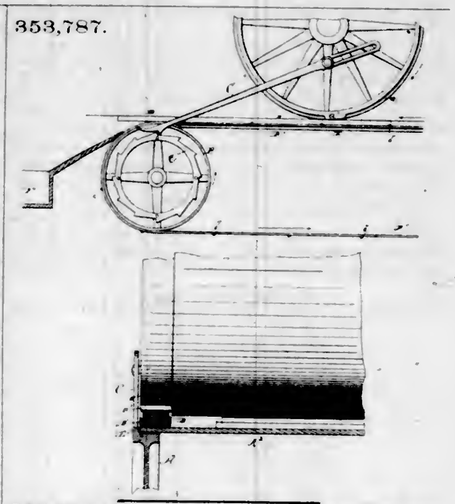
3. The combination, with the barrel of a gun provided with a dovetailed slot, of the plate B, having a head fitting within the slot, a slotted forward portion, and a projection, *b*, a sliding block having an inclined upper face engaging the plate B, a horizontal screw mounted in said plate and engaging a threaded aperture in the sliding block, and an operating-nut secured to the screw, substantially as herein described.

353,787. PRINTING-MACHINE WITH ADDRESSING ATTACHMENT. CHARLES H. HANCHETT, Chicago, Ill. Filed Sept. 14, 1885. (No model.)

Brief.—Prints a circular and addresses its envelope.

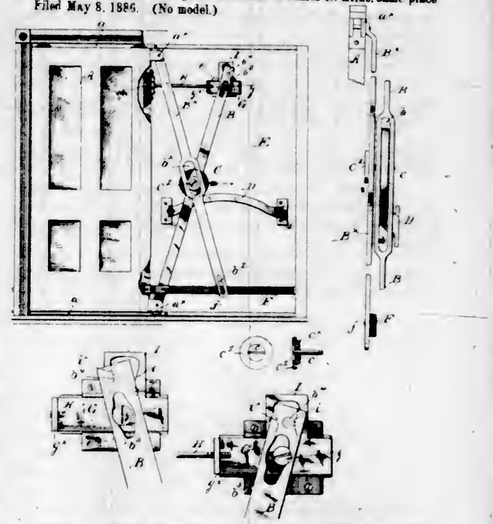
Claim.—1. A printing-press cylinder having one end of its cylinder cut away around its entire periphery, except at a single point, for the reception of an envelope while being printed, in combination with an endless belt having an intermittent motion beneath the end of the cylinder, and provided with means, substantially as described, for engaging and carrying forward a series of type-faced plates, substantially as and for the purpose set forth.

2. The combination, with the cylinder and the reciprocating bed of a printing-press, of an endless metal belt or band having an intermittent motion beneath the cylinder and carrying a series of type-faced plates, and a supporting-plate interposed between the bed and belt to prevent wear on the latter, substantially as and for the purpose set forth



353,787.

353,788. HANGER FOR DOORS AND BLINDS. HERMON HECKLEY, Williamsport, Pa., assignor of one-half to James N. Kline, same place. Filed May 8, 1886. (No model.)



Claim.—1. The combination, in a hanger for a horizontally-moving door or blind, of a pair of levers crossing each other and having a sliding connection at or near their centers, each pivotally secured at one of its extremities to the door, and at its opposite extremity free to move in or with respect to a suitable guide, a roller connected with one of the levers at or near the central portion of said lever, and a fixed track upon which said roller travels, substantially as set forth.

2. The combination of a horizontally-moving door, a lever pivoted to the door at one extremity moving under the control of an adjustable bearing at the other extremity and provided with a carrying-wheel, a fixed track upon which said carrying wheel or roller travels, a second lever, likewise pivoted to the door, crossing the lever first mentioned and moving under the control of a bearing at the other extremity, and a slide-connection between the two levers, substantially as set forth.

3. The combination of the door, the roller-provided lever pivoted to the door at one extremity and provided with an elliptic slot and with a guide-roller at the other extremity, a track upon which the roller of said lever travels, an adjustable slide or bearing provided with a cam-way for the guide-roller and with a suitable pin for the elliptic slot of the roller-lever, a guide-lever crossing the roller-lever, pivoted to the door at one extremity, having a traveling or sliding bearing at the other extremity, and centrally slotted to admit a hub or kindred device con-

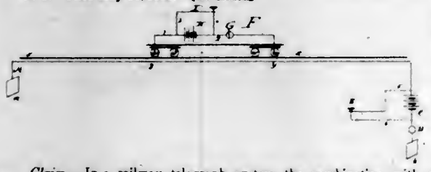
nected with the roller-lever, substantially as and for the purpose set forth.

4. As a device for adjusting the set of a horizontally-moving door, the horizontally-adjustable camway or guide, the stay-pin, in combination with the roller-lever provided with the elliptic slot and with the guide-roller, substantially as and for the purposes set forth.

5. The combination of a roller-lever, a roller applied to said lever, an axle for said roller, a hub beyond said roller-lever, a guide-lever crossing said roller-lever and slotted to admit said hub, a door pivoted to corresponding extremities of the said two levers, and traveling bearings with which corresponding opposite extremities of the said levers are connected, substantially as and for the purposes set forth.

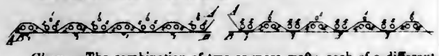
6. In combination, the sliding door, the crossing levers connected with the door, and also connected with traveling bearings, substantially as specified, the roller carried by one of the levers, and a convex track upon which the roller travels, substantially as and for the purposes set forth.

353,789. RAILWAY-TELEGRAPH. EDWARD B. IVES, New York, N. Y. Filed May 10, 1886. (No model.)



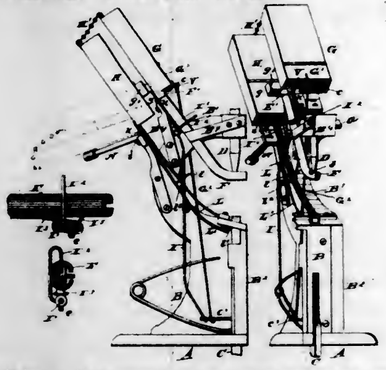
Claim.—In a railway-telegraph system, the combination, with a line-conductor running along the road, of a car-circuit partly upon a car upon said road and partly in close proximity to said line-conductor, the portion of one of said circuits where they are in proximity being formed by the rails of the road, and means, substantially as described, for producing electrical impulses in one of said circuits, transferring them by inductive action to the other of said circuits, and there causing them to produce signals, all as and for the purpose specified.

353,790. WOVEN FABRIC. DAVID B. KERR, Philadelphia, Pa. Filed July 31, 1885. (No specimens.)



Claim.—The combination of two or more wefts, each of a different color, with figuring warp-threads, and a binder warp-thread between the two figuring warp-threads of each pair, as shown, described, and for the purpose specified.

353,791. BUTTON-ATTACHING MACHINE. JEREMIAH LAMOREAUX, Fremont, Mich. Filed June 5, 1886. (No model.)



Claim.—1. In an automatic button-attaching machine, the combination, with a button-guide, of a vibrating or shaking hopper and a feeding device, constructed as shown and described.

2. In an automatic button-fastening machine, the combination, with a fastener-guide, of a vibrating or shaking hopper and a feeding device, constructed and arranged as shown, described, and for the purpose specified.

3. In a button-fastening machine, the combination of two connected vibrating button and button-fastener hoppers, respectively, the button and button-fastener guides, the plunger and anvil, and the devices for automatically and successively releasing and arresting the buttons and fasteners, substantially as described.

4. The combination, in a button-attaching machine, of two flexibly-connected hoppers, substantially as described, hinged to the main frame, means for simultaneously vibrating these hoppers, fixed guides leading therefrom to the points of delivery for the buttons and fasteners, trapping devices therefor, a plunger, and an anvil, substantially as described.

5. In a button-fastening machine, a movable hopper, grooved at F, and provided with a slotted tube, F', in combination with a stationary feed-tube, F, a button trapping and releasing device, a plunger, an anvil, and means described for connecting the plunger to the said hopper, substantially as described.

6. In a button-fastening machine, the combination therewith of a vibrating hopper, H, a guide, H^1, a depression, *h*, a guide for the fasteners, a spring, L', actuated by a tappet on the plunger C, a tripping and releasing device, and a clinching device, substantially as described.

7. In a button-fastening machine, the combination, with the vertically-reciprocating plunger and an anvil coincident therewith, of vibrating button and fastener hoppers, guides therefor, and tripping and releasing devices applied to the guides, the whole arranged as shown, described, and for the purpose specified.

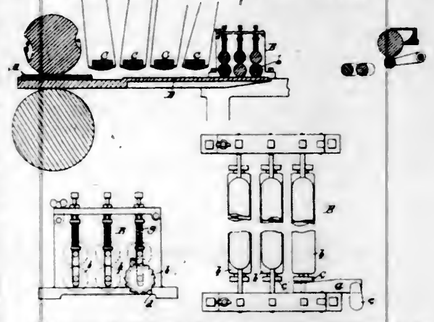
8. In a button-attaching machine, the combination, with the two vibrating hoppers, of the arm-rest N therefor, the stationary guides leading from the hoppers, and clinching devices, substantially as described.

9. In a button-attaching machine, the combination of the cut-off V with the hopper G, adapted to receive vibrating motion, and a stationary guide-tube, as shown, described, and for the purpose specified.

10. The combination, with the button-guide and feed-tube, of the spring-actuated tube I', connected to the rod I, the releasing-lip I^2, and the arresting-catch I^3, substantially as described.

11. The combination, with the fastener-guide, of the spring-arm actuated by a tappet, *l'*, on the plunger C, the catch *l*, and arresting-pin *l''*, substantially as described.

353,792. INKING APPARATUS FOR PRINTING-MACHINES. HOBER LEE, New York, N. Y. Filed Nov. 2, 1881. (No model.)



Claim.—1. In an inking mechanism for printing-presses, an inking-roller which drags while in contact with the printing-surface, substantially as described.

2. An inking mechanism for printing-presses in which a portion of the form-rollers drags while in contact with the printing-surface, substantially as described.

3. In an inking mechanism for printing-presses, an inking-roller which drags across the plate in one direction and runs free in the other direction, substantially as described.

4. In an inking mechanism for printing-presses, an inking-roller which drags when in contact with the plate and runs free when in contact with the inking-table, substantially as described.

5. An inking mechanism for printing-presses in which a portion of the form-rolls drags when in contact with the plate and runs free when in contact with the inking-table, substantially as described.

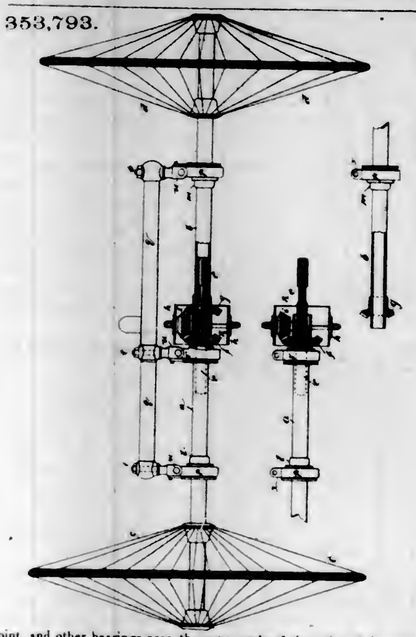
6. The combination of a plate-carrier and plate with inking-rolls and means for retarding one of said rolls while in contact with the plate, all substantially as described.

353,793. TRICYCLE. WALTER J. LLOYD and WILLIAM PRIEST, Harborne, County of Stafford, England. Filed May 22, 1886. (No model.) Patented in England Aug. 5, 1884. No. 10,954.

Claim.—1. In a tricycle, the tubular axle divided in the middle, each axle-section having a bevel-wheel secured thereto near the inner end, a solid plug entering and secured to one section and entering the other section so as to revolve therein, and the chain-wheel having its boss covering the junction of the two shafts and bearing a bevel-wheel engaging the aforementioned bevel-wheels, all in combination substantially as stated.

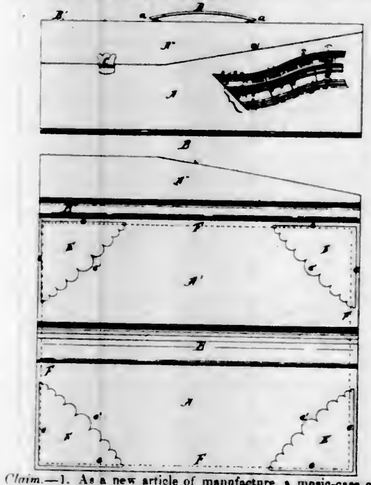
2. In a tricycle, the tubular axle divided in the middle and having a bevel secured near the inner end of each section, the solid plug secured to one section and entering the other section, the chain-wheel having its hub covering the ends of both axle-sections and bearing the intermediate bevel-wheel, and the framing having a bearing near the axle-

353,793.



joint, and other bearings near the outer ends of the axle, all in combination substantially as described.

353,794. MUSIC-CASE. NORBERT LOEBBAUM, Berlin, Germany, assignor to Charles Kauffmann and William Strauss, both of New York, N. Y. Filed Oct. 4, 1886. (No model.)



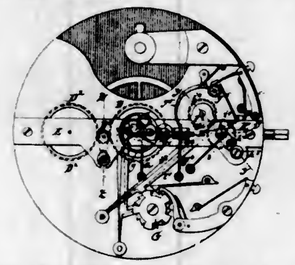
Claim.—1. As a new article of manufacture, a music-case consisting of cover-pieces A A', each substantially the size of half of a sheet of music, attached to one another at one of their edges, respectively, by a hinge, B, each of the covers being provided at the two corners thereof which are farthest from the hinge with sheet-confining pockets E, and means to hold the covers together at their free edges when closed, substantially as set forth.

2. As a new article of manufacture, a music-case consisting of cover-pieces A A', each substantially the size of half a sheet of music, attached to one another at one of their edges, respectively, by a hinge, B, each of the covers being provided at the two corners thereof which are farthest from the hinge with sheet-confining pockets E, and a hinged lid, A'', all combined and operating substantially as set forth.

3. As a new article of manufacture, a music-case consisting of cover-pieces A A', each substantially the size of half a sheet of music, attached to each other at one of their edges, respectively, by a hinge, B, each of the covers being provided at the two corners thereof which are farthest from the hinge with sheet-confining pockets E, a hinged lid, A'', and a handle placed on the edge of case when folded, and a fastening device for the lid when closed, all combined and operating substantially as set forth.

4. A music-case having two covers hinged together by an extensible hinge, whereby the covers will adjust themselves to the number of sheets of music placed between them, and pockets fastened to the corners of each of the covers which are farthest from the hinge which unites them, adapted to receive the corners of the sheets of music, substantially as set forth.

353,795. STOP-WATCH. HENRY A. LOURIE, New York, N. Y. Filed Mar. 12, 1886. (No model.)



Claim.—1. In a stop-watch, the combination of the oscillating and guided arbor of the quarter-second hand, a gear-wheel on said arbor, an intermediate transmitting-pinion supported on an oscillating bridge, and a gear-wheel on the arbor of the fourth wheel of the movement, substantially as set forth.

2. In a stop-watch, the combination of the oscillating arbor of the quarter-second hand, a gear-wheel on said arbor, a transmitting-pinion, a laterally-oscillating bridge supporting said pinion, means to adjust said bridge in a recess of the top bridge of the movement, and a gear-wheel on the arbor of the fourth wheel, meshing with the intermediate pinion, substantially as set forth.

3. In a stop-watch, the combination of the oscillating and guided arbor of the quarter-second hand, a gear-wheel on said arbor, a transmitting-pinion, a laterally-oscillating bridge supporting said pinion, a centrally-perforated set-screw to which the bridge is pivoted, a sleeve inclosing said set-screw and adjustable in a recess of the top bridge, and a gear-wheel on the arbor of the fourth wheel of the watch-movement, substantially as set forth.

4. In a stop-watch, the combination of the top bridge of the movement, having a guide-recess, a sleeve and set-screw adjustable in said recess, a bridge pivoted to said set-screw, and a pinion pivoted to an arbor of the bridge and adapted to adjust itself to the positions of the gear-wheels on the arbors of the fourth wheel and of the quarter-second hand, substantially as set forth.

5. In a stop-watch, the combination of the oscillating arbor of the quarter-second hand, a top bridge having an opening through which said arbor is passed, a recessed guide on said top bridge, and means for adjusting said guide so as to control the extent of oscillating motion of the arbor, substantially as set forth.

6. In a stop-watch, the combination of the oscillating arbor of the quarter-second hand, a top bridge having an opening through which said arbor is passed, a recessed and slotted guide on said top bridge, a set-screw for said guide, and a pivoted eccentric for adjusting said guide, substantially as set forth.

7. In a stop-watch, the combination of the hollow oscillating arbor of the quarter-second hand, the arbor of the split quarter-second hand passing through said hollow arbor, a stop-disk on the arbor of the split quarter-second hand, a friction-brake arranged in line with the direction of oscillation of the arbor of the quarter-second hand, and mechanism for applying said brake to or removing it from said disk, substantially as set forth.

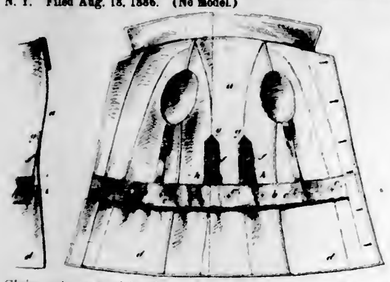
8. The combination of the hollow oscillating arbor of the quarter-second hand, the arbor of the split quarter-second hand passing through said hollow arbor, a stop-disk on the arbor of the split quarter-second hand, a friction-brake arranged to engage the stop-disk, a yoke-shaped guide-piece for the brake, a spring for moving the brake toward the stop-disk, and a lever for removing the brake away from the disk, substantially as set forth.

9. The combination of the arbor of the auxiliary minute-hand, having a shoulder at one end, a supporting-plate having bearings for said arbor, mechanism for oscillating said arbor, a minutely-toothed gear-wheel keyed to said arbor, and an intermediate arbor having a gear-

wheel meshing with the gear-wheel of the minute-arbor, and a pinion located below said gear-wheel and meshing with the center-wheel of the movement, substantially as set forth.

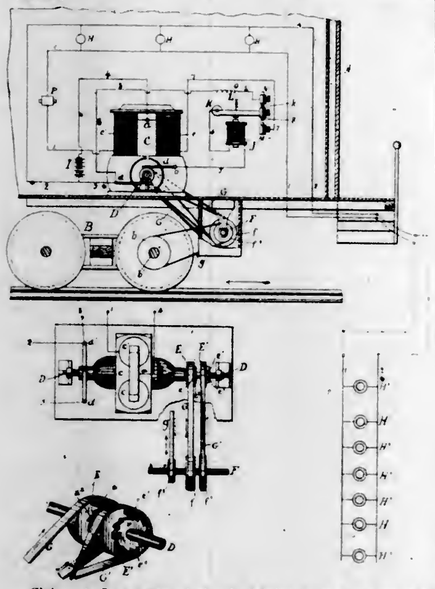
10. The combination of the oscillating and guided arbor of the auxiliary minute-hand passing through an opening of the top bridge, mechanism for oscillating the arbor, a recessed guide for the end of said arbor, and means for setting said guide so as to control the extent of oscillating motion of the minute-hand, substantially as set forth.

353,796. JACKET FOR CHILDREN. HORACE MALTBY, Stapleton, N. Y. Filed Aug. 18, 1886. (No model.)



Claim.—A new article of manufacture consisting of a child's jacket or sailor's blouse, having the following elements—namely, a belt to which the pants are to be attached in the ordinary manner, secured at its ends to the inside of the jacket, and elastic straps connecting such belt with the jacket, substantially as described.

353,797. SYSTEM OF LIGHTING CARS BY ELECTRICITY. JOSEPH H. MARSHALL, Grand Rapids, Mich. Filed Apr. 13, 1885. (No model.)



Claim.—1. In a system of electric lighting for cars, a dynamo or generator, in combination with a group of lamps and a storage-battery, all in multiple with the dynamo, and a cut-out in the main or dynamo circuit, substantially as and for the purposes set forth.

2. In a system of electric lighting, a dynamo or generator, in combination with a group of lamps and a storage-battery, all in multiple with the dynamo, and the storage-battery in circuit on one side with the field-magnets thereof, and a cut-out in the main or dynamo circuit, substantially as and for the purposes set forth.

3. In a system of electric lighting for moving cars, a dynamo or generator, in combination with a group of lamps and a storage-battery, all in multiple with the dynamo, and the storage-battery in circuit on one side with the field-magnets, and an automatic electric cut-out, substantially as and for purposes set forth.

4. In a system of electric lighting for moving cars, a dynamo or generator, in combination with a group of lamps and a storage-battery, all in multiple with the dynamo, and the storage-battery in circuit on one side with the field-magnets, an automatic electric cut-out or switch, and a resistance-coil in the armature-circuit of the switch, substantially as and for the purposes set forth.

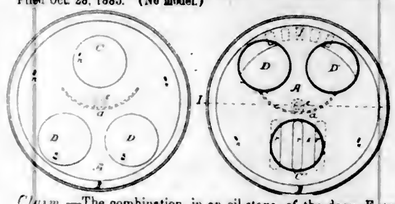
5. The band-wheel *b* on one of the truck-axles, in combination with the counter-shaft F, band *g*, clutch-wheels E' E' on the driving-shaft of the dynamo, the open band G, and cross-band G', substantially as and for the purposes set forth.

6. The dynamo, in combination with a group of lamps arranged in multiple, the secondary battery I, the conductors 3 4, and the field-magnet coils *c c'*, substantially as and for the purposes set forth.

7. The dynamo, in combination with the secondary battery I, the electro-magnet J, conductors 5 6, switch-lever K, contacts M N, and the conductors 7 8, substantially as and for the purposes set forth.

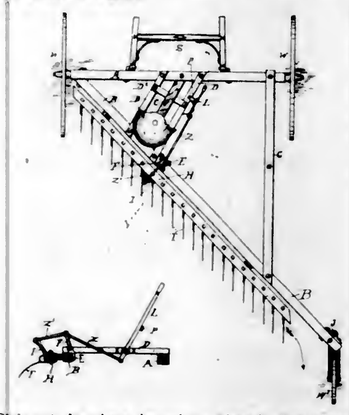
8. The dynamo, in combination with a group of lamps and the storage-battery, all in multiple with the dynamo, the electro-magnet J, conductors 5 6, switch K, spring L, contacts M N, and conductors 7 8, substantially as and for the purposes set forth.

353,798. OIL-STOVE TOP. CHARLES W. MCCUTCHEN, Peekskill, N. Y. Filed Oct. 28, 1885. (No model.)



Claim.—The combination, in an oil-stove, of the drum E, top B, attached eccentrically to said drum and provided with a central pivot, *c*, and deflector *a*, and the circular plate A, having boiler-holes, substantially as shown, and a pivotal bearing cast in the center adapted to rest on the pivot *c*, the whole operating together, substantially as set forth.

353,799. HORSE HAY-RAKE. HORACE MCPHERSON, Creta, Ill. Filed July 10, 1886. (No model.)

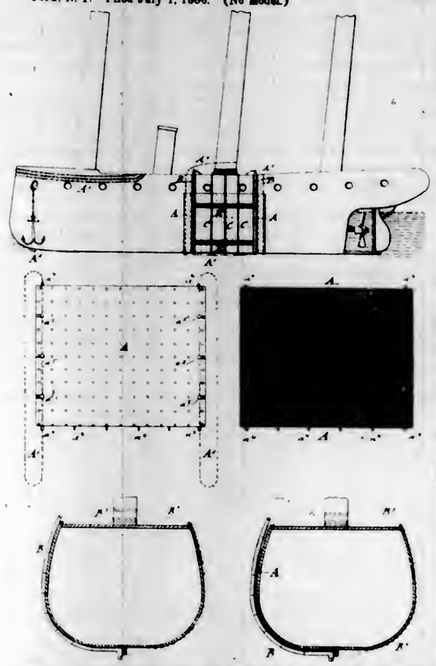


Claim.—1. In a horse hay-rake, a triangular frame formed from the axle A, braces G G, and rake-head beam B, arranged, as shown, in combination with the traveling wheels W W, caster-wheel W', rake-head H, having rake-teeth T and hinged to beam B, standard-box I, standard-box E, rock-arm F, links Z and Z', lever L, and the braces and standard, substantially as described, for supporting a driver's seat, as and for the purpose set forth.

2. In the horse hay-rake shown and described, the frame thereof, consisting of the axle A, beam B, and braces G G', arranged to be triangular in form, in combination with the rake-head H, having the teeth secured thereto, substantially as set forth, and hinged to the oblique side beam of said frame, traveling wheels W W, supporting the axle A of said frame, and caster-wheel W', supporting the rear extending end of beam B of said frame, in the manner and for the purpose specified.

3. The horse hay-rake shown and described, consisting of the combination of the axle A, supported by the traveling wheels W W, of the rake-head beam B, secured to the rear side of said axle and arranged obliquely therewith, the braces G G, connecting the outer end of said beam with said axle, the caster-wheel W', supporting the outer end of said beam, the rake-head H, having rake-teeth T and hinged to beam B, and the means, substantially as set forth, for elevating and lowering said rake-teeth from the ground, as and for the purpose specified.

353,800. LEAK-STOPPER FOR VESSELS. IGNATZ MEISLER, New York, N. Y. Filed July 1, 1886. (No model.)



Claim.—1. A flexible cover for closing leaks in vessels, consisting of an exterior layer of rubber, one or more re-enforcing layers of canvas, and interior intercrossing strips of rubber that are riveted to the layers of rubber and canvas, substantially as set forth.

2. The combination, with the hull of a vessel, of a flexible cover having interior intercrossing rubber strip and side hooks and rings, with endless chains that extend around the hull for tightly fastening the cover, substantially as set forth.

3. The combination, with the hull of a vessel, of a flexible cover for closing the leak, chains for fastening said cover to the hull, rails corresponding to the exterior shape of the hull, said rails passing over the cover, and chains for attaching the rails to the hull, substantially as set forth.

4. The combination, with the hull of a vessel, of a guard frame or grating placed over a leak, chains for lowering the grating, a flexible cover, endless chains applied to the cover placed over the guard frame or grating, and rails corresponding to the shape of the hull and attached over the cover by chains, and intermediate chains or rope, substantially as set forth.

5. The combination, with the hull, of a flexible cover, chains for attaching said cover to the hull, rails corresponding to the shape of the hull, chains for attaching said rails to the hull, longitudinal planks placed over the cover, and endless ropes passing over pulleys and rings of the rails, and having hooks for placing the planks in position, substantially as set forth.

6. The combination, with the hull of a vessel, a flexible cover, chains for attaching said cover to the hull, rails corresponding to the shape of the hull, chains for fastening said rails to the hull, longitudinal planks extending over the cover, and intermediate chains or ropes for holding the planks and cover in position, substantially as set forth.

353,801. MEANS FOR SECURING COVERS ON BOXES. CHARLES MORGAN and EDGAR H. MORGAN, Freeport, Ill., assignors of one-third to Albert Baumgarten, same place. Filed Mar. 26, 1886. (No model.)

Claim.—1. In means for fastening covers upon boxes, a bolt rigidly fixed in the interior of the box and extending nearly through the cover when in place, combined with a nut permanently and revolubly attached to the cover and lying below the surface thereof in an external depression, said nut being adapted to engage said bolt, and thereby retain the cover upon the box.

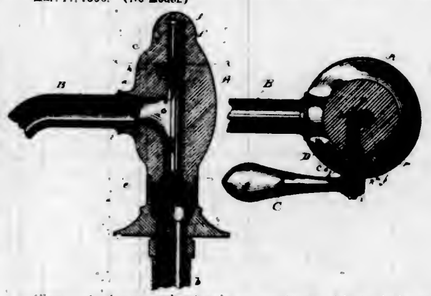
353,801.



2. In combination with the body of a box, B, the recessed or perforated cover A, cleat 6, bar 17, bolt 2, and nut 1, lying in the opening in the cover, and having a flange, 11, whereby it is secured to the cover, substantially as set forth.

3. The box B, provided with a transverse bar, 17, the cover A, provided with an aperture, 5, cleat 6, bolt 2, nut 1, with flange 11, and the washers 12 19, all combined and co-operating substantially as shown and described.

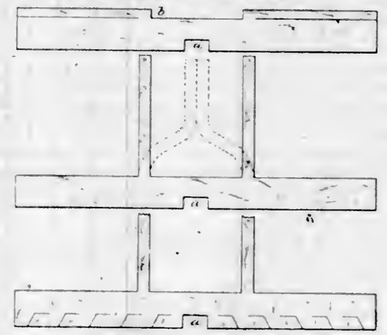
353,802. STOP-COCK. CHARLES J. MORTIMER, New York, N. Y. Filed Mar. 17, 1886. (No model.)



Claim.—1. A stop-cock wherein are combined with the body and outlet and inlet pipes thereof a valve and a weighted handle connected with said valve and opening and closing the cock by its movement, such weighted handle being adjustably connected with the valve-operating parts, whereby the handle can be adjusted to work wholly on one side of the center, so as to return the valve automatically to its seat, or the handle can be adjusted to work back and forth over the center, so as to hold by its weight the valve in either an open or closed position, substantially as set forth.

2. A stop-cock wherein are combined with the body and outlet and inlet pipes thereof a valve, a rack connected with said valve, a pinion engaging said rack, and a weighted handle secured adjustably to the spindle of said pinion, whereby the handle can be adjusted to work wholly on one side of the center, so as to return the valve automatically to its seat, or the handle can be adjusted to work back and forth over the center, so as to hold by its weight the valve in either an open or closed position, substantially as set forth.

353,803. METHOD OF MAKING RAKES. ADDISON D. MYERS, Geneva, Ohio. Filed July 23, 1886. (No model.)



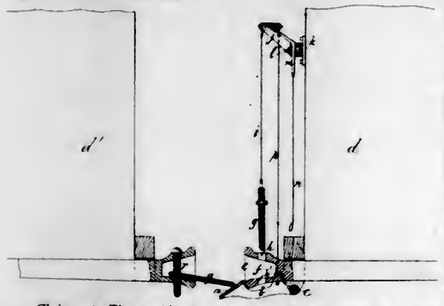
Claim.—1. The blank for a metallic rake herein described, consisting of a flat rectangular piece of metal with notches at the center of its opposite edges, substantially as shown and described.

2. The blanks for metallic rakes, consisting of a flat rectangular piece of metal, a notch, *b*, in one edge, and sheared or cut along that edge from opposite ends toward the notch, the cuts terminating near the latter, substantially as shown and described.

3. The method of constructing metallic hand-rakes herein described, which consists in first forming a blank with notches or cut-away portions at the centers of its opposite edges, then shearing the said blank

from the two ends toward the center and near one edge, bending the sheared portions outward and forming therefrom the tang, then shearing the opposite edge for the teeth, substantially as shown and described, bending the sheared portions out, and forging the teeth, substantially as hereinbefore set forth.

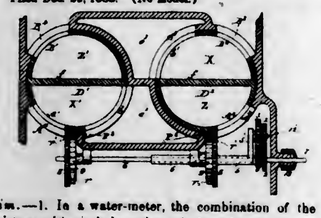
353,804. CAR-COUPLING. JAMES B. NIXON, St. Louis, Mo. Filed Dec. 17, 1885. (No model.)



Claim.—1. The combination of inclined plate *a*, hinged at *c* to the body of the car by the bars or levers *b*, having arms *o*, with chains or cords *p*, lever *k*, pivoted to car *d*, and chain or cord *n*, substantially as shown, and for the purpose specified.

2. The combination of the inclined plate *a*, hinged at *c* to the body of the car by bars or levers *b*, having arms *o*, attached by chains or cords *p* to lever *k*, and of coupling-bolt *g*, attached by chain or cord *i* to lever *k*, with draw-head *e* and chain or cord *n*, substantially as shown, and for the purpose specified.

353,805. REGISTER-CONNECTION FOR PISTON METERS. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Dec. 29, 1883. (No model.)

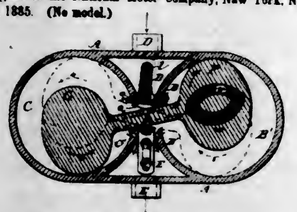


Claim.—1. In a water-meter, the combination of the two free actuated pistons with an independent shaft and connecting-gearing for each piston and motion-transmitting gearing connecting each independent shaft with a registering connecting-shaft, whereby the motion of the two shafts is communicated to the registering mechanism, substantially as herein set forth.

2. The combination, in a water-meter, of two free water-actuated pistons, each having a cog-rack, 10, with an independent shaft, 5 and 6, for each piston, each shaft having a gear, 8, meshing with said piston-racks; a ratchet-wheel, 9, secured to each shaft, fixed pawls *r'* for each ratchet-wheel, and motion-transmitting gearing adapted to transmit the motion of the shafts to the registering mechanism, substantially as described.

3. The combination, in a water-meter, of free actuated pistons, each having independent register-connecting mechanism, with an independent register-connecting shaft, and the gearing 1, 2, 3, and 4, whereby the registering mechanism is driven by the motion of the pistons, substantially as herein set forth.

353,806. OSCILLATING WATER-METER. LEWIS H. NASH, Brooklyn, assignor to the National Meter Company, New York, N. Y. Filed Sept. 22, 1885. (No model.)



Claim.—1. The combination, in a water-meter, of a piston composed of two separated lobes rigidly connected by a bar with a case having two communicating measuring-chambers placed side by side, an adjustable fulcrum for the piston-bar placed in the case between the said chambers, and suitable inlet and discharge ports, substantially as described.

2. The combination, in a water-meter, of a case having two communicating chambers with a piston formed of end knobs or lobes adapted to divide said chambers, connected by a bar having an adjustable bearing between said chambers, whereby the said knobs or lobes are caused to operate in opposite directions, as stated.

3. A water-meter having the following elements in combination, viz: two communicating measuring-chambers, a piston of two rigidly-connected knobs or lobes, one operating in each chamber, a narrow adjustable fulcrum for said piston arranged in the case between its lobes, and a lever-arm, *k*, arranged to communicate the oscillating movements of the knobs to suitable registering mechanism, substantially as described.

4. The combination, with a case having two chambers, twin pistons connected by a separating-bar, and a case-fulcrum upon which the said piston-bar has continually-changing contact from piston to piston, of means, substantially such as described, for controlling the movements of the pistons in elliptical orbits in their respective chambers.

5. The combination, in a water-meter, of a case having measuring-chambers and a piston having a lobe or knob describing a curved orbit within each chamber with a register-operating device consisting of a pivoted vibrating lever-arm arranged to be vibrated by said piston-lobes, substantially as described.

353,807. ALARM-BOTTLE. EDWIN R. PARSIL and JOHN H. THOWBRIDGE, Newark, N. J. Filed Sept. 9, 1885. (No model.)



Claim.—1. A bottle having a stopper removable or separable from the neck thereof, a lever arranged to be actuated by the stopper upon its withdrawal, a hammer, and a bell, said parts being arranged and adapted to operate substantially as and for the purposes set forth and shown.

2. In combination with the bottle, a stopper, a lever, a shoulder to engage said lever upon the withdrawal of the stopper, and a bell to sound an alarm when operated upon by said lever, substantially as set forth.

3. In combination, a bottle, a removable or separable and shouldered stopper, a lever provided with a hammer, and a bell.

4. In combination, a bottle, its stopper, adapted to be withdrawn from the neck thereof, a band providing a fulcrum, a lever arranged adjacent to the stopper, so as to be actuated by said stopper upon its withdrawal from the neck of the bottle, and a bell, said parts being arranged and adapted to operate substantially as set forth.

353,808. SKELP-BENDING MACHINE. JOHN H. PIERCE and WILLIAM B. SANDFORD, both of Kewanee, Ill., assignors to the Harlan Steam Heater Company, same place. Filed Aug. 6, 1886. (No model.)

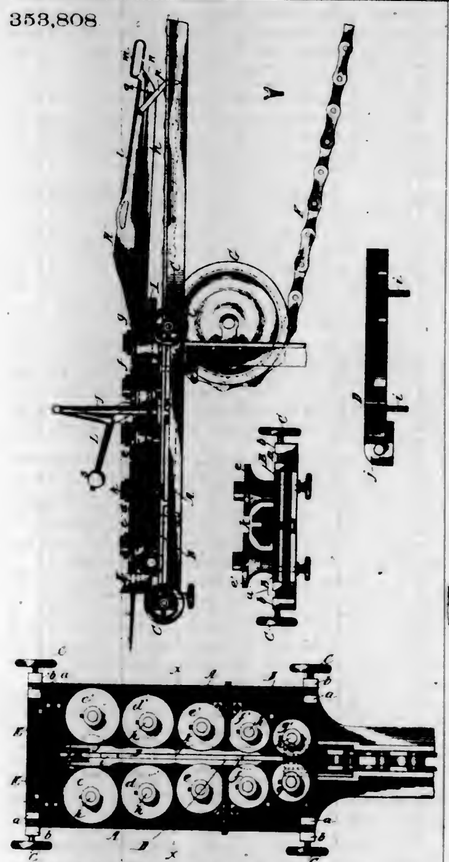
Claim.—1. In a machine for bending skelp, a series of rollers arranged in pairs, each pair differing from the others in form, and adapted to act upon the skelp and cause it to bend while being drawn through the machine, in combination with a guide, D, arranged between the rollers, and provided with a groove, *k*, substantially as and for the purposes specified.

2. In a machine for bending skelp, a series of rollers arranged in pairs, each pair differing from the others in form, and adapted to act upon the skelp and cause it to bend while being drawn through the machine, in combination with a guide, D, arranged between the rollers, and a grooved roller, *j*, pivoted at the forward end of the guide D, substantially as and for the purposes specified.

3. In a machine for bending skelp, two adjustable plates, B B, each carrying a series of rollers, formed substantially as shown, the rollers being arranged in pairs, in combination with a central grooved guide, D, substantially as and for the purposes specified.

4. In a machine for bending skelp, the guide E, made in two parts

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and supported on adjustable plates B B, in combination with a series of rollers arranged in pairs, and a guide, D, substantially as and for the purposes specified.

5. In a machine for bending skelp, a series of rollers arranged in pairs, a central guide, D, provided with a groove, *k*, in combination with a pair of tongs, H, provided with a lever, *p*, substantially as and for the purposes specified.

6. In a machine for bending skelp, a series of rollers of different forms arranged in pairs, and a guide, D, in combination with a pressure-roller, *r*, arranged over the guide, substantially as and for the purpose specified.

7. In a machine for bending skelp, a series of rollers of different forms arranged in pairs, and a central guide, D, in combination with a weighted lever, L, carrying a pressure-roller, *r*, arranged over the guide D, substantially as and for the purposes specified.

353,809. ROLLER CABLE-GRIP. GARRET A. POLHEMUS, Nyack N. Y., assignor, by mesne assignments, to the Polhemus Hydraulic Grip and Brake Company. Filed Jan. 14, 1886. (No model.)

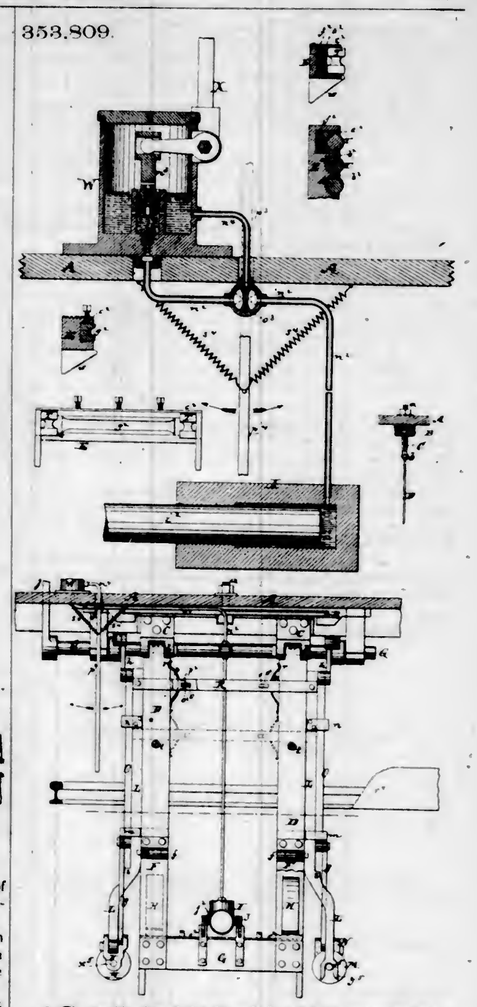
Claim.—1. In the cable-grip, the uprights D, which carry the gripping-jaws, combined with the hinges *b*, from which the upper ends of the uprights are suspended, substantially as is herein shown and described.

2. The combination of the car-bottom A with the upright bolt *a*, swiveled turn-table B, brackets C, and hinged uprights D, which are connected to said brackets, substantially as herein shown and described.

3. The combination of the upright D, having bent arm *e*, with the grip-plate E, which is rigidly secured to said bent arm, and with the hinged bar F, carrying the grip-plate G, and with the elliptic spring H, which is rigidly attached to the bent arm *e*, but free to move in contact with the hinged arm F, substantially as described.

4. In combination with the uprights D of a cable-grip, the slides L L and cross-bar R, having springs *p*, which bear against the uprights D, substantially as shown and described.

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5. The combination of the slides L L and their connecting cross-bar R with the springs *p* and with the uprights D, having notches or recesses *r*, substantially as herein shown and described.

6. In combination with the slides L L, the cross-bar R, and frictional springs *p*, the pins *t*, and uprights D, substantially as described.

7. The spring *p*, constructed with the projecting lugs p^2, in combination with the cleat o^2, wedge *o*, cross-bar R, and upright D, substantially as herein shown and described.

8. The cable-supporting roller *u*, combined with its supporting-frame *v*, and with the double-pointed shield S, for the purpose of preventing the lifting-rollers M M of a grip from striking the roller *u* or frame *v*, as specified.

9. The grip-plates E G, combined with upright rollers T T, and constructed below said rollers with lower bevels, *w*, to form cable-guides, as described.

10. In combination with the recessed grip-plate E, the grip-rollers T T, and the frictional rollers d^2, set behind said grip-rollers, as specified.

11. The combination of the grip-plate E with the grooved rollers T T and grooved plate g^2, the groove in said plate being in alignment with the grooves in said rollers, substantially as herein shown and described.

12. A cable-grip constructed with uprights D, two connected slides, L L, which carry rollers M M, and two slides, O O, which connect with the frames M of said rollers, all arranged so that the two rollers M M will be raised from opposite sides against the cable P whenever the slides O O are raised, as specified.

13. The combination of the pump I, bracket h^2, and grip-plate E with the plunger i^2, cross-bar m^2, yoke J, pivot j^2, and grip-plate G, all arranged so that said cross-bar m^2 will slide on the brackets h^2 whenever the plunger i^2 is moved, as specified.

14. The combination of the grip-plate E and the hydraulic pump I, which it carries, with the pipe n^2, car-platform A, and operating-cylinder W, having plunger n^3, substantially as herein shown and described.

15. The combination of the hydraulic cylinder I, pipe n^1, cylinder W, having plunger n^3, with the pipe n^4, valve o^3, and lever p^3, substantially as herein shown and described.

16. The suspended lever p^4, which is connected with the grip-releasing valve o^3, in combination with the fixed incline r^4 on the track of a cable road, substantially as herein shown and described.

353,810. BUCKLE. THOMAS O. POTTER, Boston, Mass. Filed Feb. 6, 1886. (No model.)

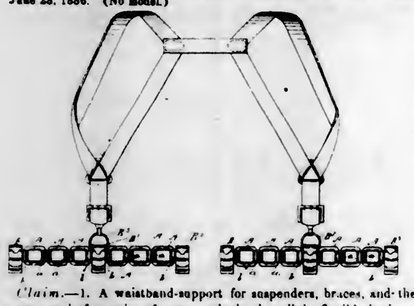


Claim.—1. The buckle having the body a, the ears a', the ends of which are provided with holes b, and are substantially parallel with the body, the depressed sections b' b^2 of said ears, the jaw-bar d, having the ends d^2, which enter said holes, and the jaw c, supported by said bar, all substantially as described.

2. The buckle-body having the hook-section b^2, provided with rounded edges e', formed by folding or turning the section e of the body backward and inward upon the body of the hook, and so as to lie against the same, substantially as shown and described.

3. As a means of attaching a jaw to the ears of a buckle and for uniting said ears with each other, the jaw-bar d, having the long slot d' and the ends d^2, all substantially as set forth.

353,811. SUSPENDERS. THOMAS O. POTTER, Boston, Mass. Filed June 28, 1886. (No model.)

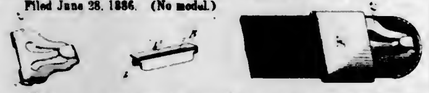


Claim.—1. A waistband-support for suspenders, braces, and the like, composed of a series of comparatively short links flexible horizontally and substantially rigid vertically, in combination with devices for attaching of garment-bands to the same, and with a strap attachment, B^3, substantially as described.

2. The combination of shoulder-straps, two separate or independent supports detachably connected with the lower ends of said straps, each of which supports comprises the short wide links A, united together by long vertical pivotal connections, whereby they have horizontal but no vertical flexure, the waistband attaching or grasping device B', and the end waistband attaching or grasping devices, B B^3, the said devices being secured to the sides of said links, all substantially as and for the purposes described.

3. The combination, in a waistband-support for suspenders or braces, of the links A, the waistband attaching or grasping device B', attached to the links by vertical pivotal connections, and the waistband grasping or attaching devices B B^3, secured to the end links of the support, to be horizontally movable in relation thereto, substantially as described.

353,812. SUSPENDER-BUCKLE. THOMAS O. POTTER, Boston, Mass. Filed June 28, 1886. (No model.)

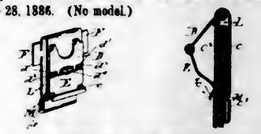


Claim.—1. A continuous adjustable sleeve for suspenders, &c., connected with or supporting a suspender end, jaw, or hook, having its meeting edges or joints on one side thereof, provided with a supplemental swinging or hinged plate attached to the sleeve for covering the said meeting edges or joints, and so as to prevent the clothing of the wearer from coming in contact therewith, substantially as described.

2. The adjustable sleeve for straps of suspenders or other articles, having its edges united by ears, a jaw extending across the said edges, and a hook also extending across the edges, and a supplemental covering-plate for covering the said edges, the jaw, and the upper edge of the hook, substantially as described.

3. A sleeve for suspender and other straps, made of flat metal bent or shaped to bring its principal joints on one side, adapted to support a suspender end, jaw, hook, or other device, and an independent covering-plate provided with a latching device or clasp for latching or fastening it to the sleeve, substantially as described.

353,813. SUSPENDER-CLASP. THOMAS O. POTTER, Boston, Mass. Filed June 28, 1886. (No model.)



Claim.—1. An attaching device for suspenders and other articles, comprising a back plate having a slot, and a cover, c^3, to said slot, adapted to form a pocket for receiving and shielding the ends of the jaw, a movable jaw, E, provided with prongs e, formed to pass into said slot c^3, and the link D, hinged to said movable jaw and to the front plate of the device, outside the receiving-recess of the device, substantially as described.

2. The combination, in an attaching device, of a back plate having a slot, c^3, and a shoulder, M, adjacent thereto, a front plate in continuation of said back plate, and forming in connection with said back plate a recess for the reception of the garment, and a movable jaw, E, attached to said front plate and of which the free end is formed, and adapted to be passed from the front of the front plate across the said recess and through the slot c^3 in the back plate, substantially as described.

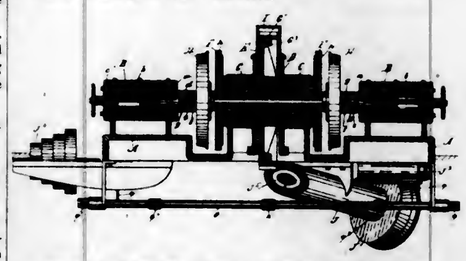
3. In an attaching device for suspenders and other articles, a back plate, C', having a shoulder, a slot, c, and a slot-covering plate, c^3, a front plate attached to or integral with the back plate and forming in connection therewith a receiving recess or space, provided with a slot or recess, c, a jaw or slide-plate, E, having prongs e', movable across said receiving space or recess, and a link or hinged plate, D, connecting said jaw or slide-plate with the plate C', substantially as described.

4. An attaching device for suspenders and other articles, consisting of a back plate having a recess for receiving and holding the prongs of a holding-jaw, another or front plate connected with the plate first named, and adapted to form in connection with the back plate a recess for the reception of the band of the garment to be supported, and an independent or separate jaw hinged to or connected with said front plate, having terminal prongs and movable through a slot formed in said last-named plate across the garment-receiving recess into the prong-receiving recess in the back plate, whereby the garment is inclosed between two plates and is supported by the prongs of a jaw, which pass through the material, and each end of which jaw is supported by the plates closely to the said receiving-recess, substantially as described.

5. A fastening device for suspenders and other articles, having a sliding jaw provided with prongs, and a link or hinged connecting-piece provided with a thumb-piece or projection, d^3, substantially as described.

6. An attaching device for suspenders and like articles, consisting of front and back plates arranged to form or provide a receiving recess or space between them, a separate jaw or slide, E, movable across said receiving space or recess, as specified, and connected with the front plate by the link D, and the attaching-wing or side piece or pieces, F, substantially as described.

353,814. CAR WHEEL AND AXLE LATHE. KNUD RASMUSSEN, Worcester, Mass., assignor to the Pond Machine Tool Company, same place. Filed Apr. 17, 1885. (No model.)



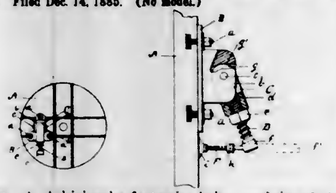
Claim.—1. A lathe for turning car wheels and axles, consisting, essentially, of head-stocks carrying supports for the ends of the axle, a hollow spindle journaled in bearings coincident with the axle-supporting devices, said spindle having an opening permitting the axle to be received, and a worm-gear wheel attached thereto, and a worm adapted to engage said gear and rotate the hollow spindle, so as to impart longitudinal strain to the rotating spindle, and dogging devices by which the motion of the hollow spindle may be imparted to the axle, all combined and operating as set forth, and for the purpose specified.

2. In a lathe for turning car-wheels, the hollow rotating spindle having a gap to receive the car-axle, and having attached thereto the driving plates or disks F F, the central disk, E, and an annular toothed plate, G^2, attached to the central disk, E, said plate G^2 having its interior diameter larger than the disks F F, all combined as described, and for the purpose set forth.

3. In a car wheel and axle lathe, the combination, with a hollow driving-spindle having a gap permitting the car-axle to be received, of a central gear attached thereto having a corresponding cap, and a detachable toothed section of gear having hooked wings fitting corresponding hooks in the body of the gear, said hooked section resting against the web of the gear, toward which it is drawn by the action of the actuating-worm, and an actuating-worm engaging said central gear, and having its axis placed obliquely to the axis of the gear, substantially as described, and for the purpose set forth.

4. In a car wheel and axle lathe, the combination, with one or more sliding tool-rests, of a feeding mechanism adapted to actuate said tool-rests and present the cutting-tools to successive portions of the surfaces to be turned, said mechanism consisting of a rocking shaft journaled in bearings attached to the bed or frame of the machine, and having a series of arms extending radially therefrom, said arms being connected with a pawl-and-ratchet feeding device on the feeding-screw of each of the tool-rests, and a crank-wheel geared to the revolving spindle of the lathe and connected with a radial arm on said rocking shaft, whereby an intermittent motion is given to the several feeding-screws, as and for the purpose set forth.

353,815. DRIVING-DOG FOR TURNING-LATHES. KNUD RASMUSSEN, Worcester, Mass., assignor to the Pond Machine Tool Company, same place. Filed Dec. 14, 1885. (No model.)



Claim.—1. A driving-dog for turning-lathes, consisting of a bar pivoted at one end in bearings carried by the face-plate of the lathe, said bar forming a variable angle with the face-plate, and with its free end adapted to rest against the work, so a rotary motion may be conveyed to the work by an end-thrust of the bar, substantially as described.

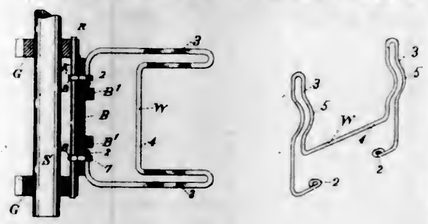
2. A driving-dog for turning-lathes, consisting of a bar pivoted in bearings carried by the face-plate of the lathe, the free end of said bar having an extensible section, whereby the length of the bar may be varied, as described, and for the purpose set forth.

3. The combination, with the face-plate of a lathe having a concave socket, of a driving-bar having a convex end held in said socket, so it may form a variable angle with the face-plate, substantially as described.

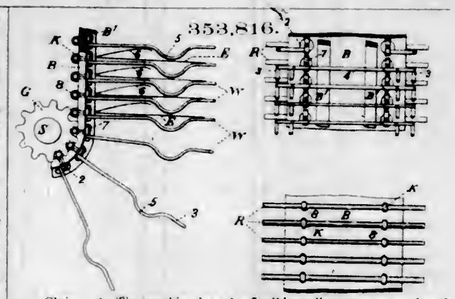
4. A driving-dog for turning-lathes, consisting of a bar pivoted in bearings carried by the face-plate, the free end of said bar having a longitudinal hole carrying a screw-threaded bolt capable of sliding in said hole, said bolt having a check-nut resting against the free end of the said pivoted bar, as described, and for the purpose set forth.

5. The combination, with a driving-dog for turning-lathes, consisting of a bar pivoted in bearings carried by the face-plate of the lathe, with its free end resting against the work, of a brace between said free end and the face-plate, for holding the dog against the work, as described, and for the purpose set forth.

353,816. ENDLESS APRON FOR ENVELOPE-MACHINES. FRANCIS H. RICHARDS, Springfield, Mass., assignor of one-half to the Pratt & Whitney Company, Hartford, Conn. Filed Jan. 19, 1885. (No model.)



353,816.



Claim.—1. The combination of a flexible endless apron, a series of rods, R, the holder W, constructed substantially as described, and fastenings, substantially as described, extending through said apron and holding thereto said rods and holders, substantially as set forth.

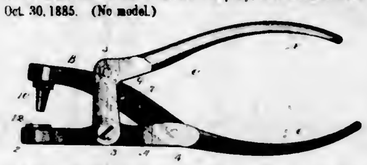
2. The combination of an endless apron, envelope-holders having eyes 2, and pins K inserted through said apron and clinched over said eyes, substantially as described.

3. The improved envelope-holder herein described, consisting of a single piece of wire bent to form the sides 3, which have curved parts 5, and eyes 2, whereby it may be secured to an apron, substantially as set forth.

4. The combination, with an endless apron having envelope-holders and holder-fastenings, substantially as described, of the strips B', substantially as set forth.

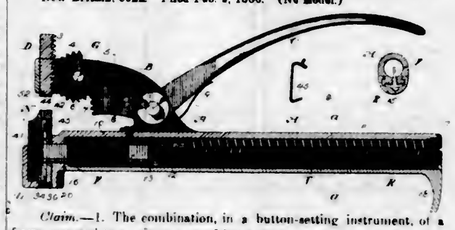
5. The combination of belt B, envelope-holders having eyes 2, rods R, and split pins K, substantially as described.

353,817. PUNCH. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed Oct. 30, 1885. (No model.)



Claim.—The improved plier or like instrument herein described, it comprising the member A, the member B, pivoted to member A at 4, rearward of pivot 3, the lever C, pivoted to member A at 3, forward of pivot 4, and a link connecting lever C with member B and operating as a toggle to impart a retarded movement to said member B, all substantially as described.

353,818. BUTTON-SETTING INSTRUMENT. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button-Fastener Company, New Britain, Conn. Filed Feb. 9, 1886. (No model.)



Claim.—1. The combination, in a button-setting instrument, of a frame grooved to receive a row of fasteners, a cover constructed to slide on said frame and to cover the row of fasteners therein, and a spring-actuated follower constructed to slide in said fastener-receiving space and to be drawn back by engagement with said cover, all substantially as described.

2. The combination of frame A, grooved and channeled, substantially as described, cover R, having groove 15 and stop 16, spring 11, and follower 12, having projection 13, whereby it is operated by said stop, substantially as described.

3. The combination, in a button-setting instrument, of a sliding die, a pivoted handle, and eccentric gearing, substantially as described, imparting a retarded closing movement to said die from a regular movement of said handle, substantially as described.

4. The combination of handle C, having eccentric segment 8, die D, having rack-teeth, substantially as described, and gear G, having teeth meshing with said rack-teeth, and an eccentric section meshing with segment 8, substantially as described.

5. The combination, in a button-setting instrument of a magazine for containing the fasteners, a slide operating crosswise to said magazine at one end thereof, and having a driver-channel, and a passage through one side of said slide into said channel, a fixed driver lying in said channel, and fastener-feeding devices, substantially as described, operating in connection with the slide to transfer fasteners from said magazine through said passage and into said driver-channel above the driver, substantially as described.

6. The combination of slide N, having opening 35, driver 30, having ledge 37, and pawl 41, substantially as described.

7. The combination of slide N, having opening 35, driver 30, having ledge 37, pawl 41, and spring 45, substantially as described.

8. The combination of case L, having grooves 27 27, slide N, driver 30, lying between parts of said slide and having lugs fitting said grooves, substantially as described.

9. The combination of case L, having projection 34, slide N, formed in two parts and formed to receive a spring, spring 33, and the stationary driver 30, constructed and arranged to serve as a stop for said slide, substantially as described.

353,819. BUTTON-SETTING INSTRUMENT. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed Feb. 18, 1886. (No model.)



Claim.—1. The combination, in a hand-instrument for setting button-fasteners, of a frame having a handle and a magazine and carrying the setting-die, a driver-channel, substantially as described, driver D, and member A, operating said driver, and also having a handle, substantially as set forth.

2. The combination, in a hand button-setting instrument, of frame F, having the channel 4, and the slide B, provided with stop 11, driver D, member A, pivoted to frame F and operating said driver, and means, substantially as described, for operating said slide from said driver, all substantially as shown and described.

3. The combination of the frame F, containing the magazine-slide B, driver D, means for operating said driver, and a frictional connection operating said slide from the driver, substantially as shown and described.

353,820. BUTTON-SETTING INSTRUMENT. FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed Feb. 18, 1886. (No model.)

Claim.—1. The combination, in a button-setting instrument of the class described, and with a frame constituting one handle of the instrument, and having a magazine, and a driver-channel vertical to said magazine, of a driver in said channel, a handled lever pivoted to said frame and operating said driver, a vertically-movable setting-die above said channel, and means, substantially as described, operating said die from said lever, substantially as set forth.

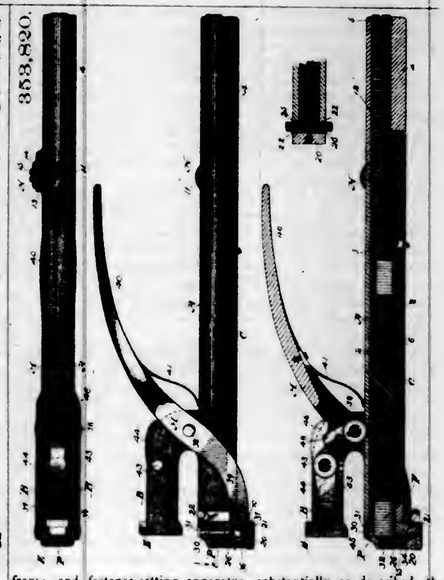
2. The combination of a frame having a magazine, substantially as described, cap 20, having notch 51, there being a driver-channel between said cap and frame, and a driver sliding in said channel, and having the downward projection 50, substantially as and for the purpose set forth.

3. The combination of the frame containing the magazine, cap 20, the presser-slide, driver D, a spring operating to move the slide up, and means, substantially as described, whereby the slide is moved down by the driver, substantially as set forth.

4. The combination, with the frame containing the magazine, and having the front plate, 21, and notches 22, of cap 20, the driver D, having flanges 25 fitting said notches, and the presser-slide fitting between and guided by the cap and driver, substantially as set forth.

5. The combination, in a hand button-setting instrument, of the

353,820.



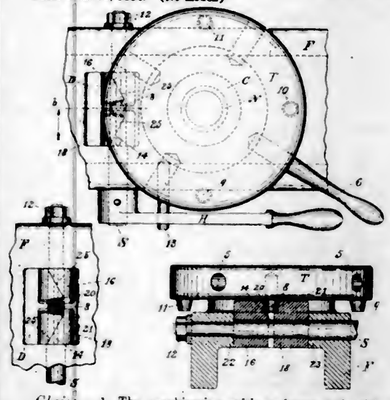
frame, and fastener-setting apparatus, substantially as described, the sliding die E, lever H, having a handle, 40, and operating said apparatus, lever 44, having cam 46, and arm 48, connected to lever H, all substantially as and for the purpose set forth.

6. In a button-setting instrument, the combination of a frame, as A, a cover, substantially as described, jointed to said frame, there being a follower-channel in said frame, and a magazine-groove between said frame and cover, and a follower sliding in said channel and groove, substantially as set forth.

7. In a button-setting instrument, the combination of a frame, as A, a cover, substantially as described, jointed to the end of said frame, having an extension, as 4, of the frame, substantially as described, there being a follower-channel in said frame, and a magazine-groove between said frame and cover, both extending beyond said joint, and a follower sliding in said channel and groove, which follower is adapted to be locked back by said joint on the opening of the cover, substantially as set forth.

8. In a button-setting instrument, the combination of a frame, as A, having channel 2, cover C, connected to said frame by a joint, N, at one side of said channel, groove 6 between said frame and cover, follower 3, and spring 12, all constructed and operating substantially as shown and described.

353,821. TURRET-LOCK. FRANCIS H. RICHARDS, Springfield, Mass., assignor of one-half to the Pratt & Whitney Company, Hartford, Conn. Filed June 19, 1886. (No model.)



Claim.—1. The combination, with a frame and with a turret mounted thereon, of two cams or dogs, substantially as described, abutting outwardly against said frame and engaging between them a pin or

lug on the turret, and means, substantially as described, for operating said cams or dogs, substantially as set forth.

2. The combination, with a frame and with a turret mounted thereon, of a shaft shaped to receive two cams or dogs between solid abutments, and two cams or dogs fitted to slide on and to be turned by said shaft, and to engage between them a pin or lug on said turret, which pin or lug held by said cams or dogs acts to force these apart, substantially as set forth.

3. The combination of a frame, as F, a turret having a pin or lug, 8, shaft S, and cams 16 18, having cam-faces engaging said pin and having incline 25, whereby the cams are turned by said pin, substantially as set forth.

353,822. PROCESS OF MAKING EXTRACTS FROM FISH. CARL A. SAHLSTRÖM, Jönköping, Sweden, assignor to the Normal Company, (Limited,) Westminster, England. Filed June 1, 1886. (No specimens.) Patented in England Dec. 5, 1882, Nos. 5,786, 5,787, and 5,788; in Denmark May 1, 1886, No. 559; in Belgium May 21, 1886, No. 73,210, and in Italy Sept. 30, 1886, No. 20,021.

Claim.—The process of extracting the nutritive and valuable parts—namely, the albumen, salts, and other soluble matters—from the flesh of the shark, whale, seal, and other sea animals and fish, by cutting the raw material into pieces, then soaking it in cold water with which have been mixed ammonia and a disinfectant, such as hypermanganic alkali, then separating the liquor and evaporating the same to the required consistence with salt and other suitable ingredients, substantially as hereinbefore described.

353,823. PROCESS OF EXTRACTING OIL FROM MARINE ANIMALS. CARL A. SAHLSTRÖM, Jönköping, Sweden, assignor to the Normal Company, (Limited,) Westminster, England. Filed Nov. 1, 1886. (No specimens.) Patented in England Dec. 5, 1882, No. 5,787; in Denmark May 1, 1886, No. 559; in Belgium May 21, 1886, No. 73,210, and in Italy Sept. 30, 1886, No. 20,021.

Claim.—Producing a tasteless and colorless oil from fish, whales, seals, and other sea animals by cutting up the raw material, washing out the fat with cold water to which has been added ammonia or other suitable alkaline matter and a disinfectant, such as hypermanganic alkali, and then applying sufficient heat to liberate the oil, substantially as hereinbefore described.

353,824. PROCESS OF OBTAINING GLUE FROM MARINE ANIMALS. CARL A. SAHLSTRÖM, Jönköping, Sweden, assignor to the Normal Company, (Limited,) Westminster, England. Filed Nov. 1, 1886. (No specimens.) Patented in England Dec. 5, 1882, No. 5,786; in Belgium May 21, 1886, No. 73,210, and in Italy Sept. 30, 1886, No. 20,021.

Claim.—Producing glue from the flesh of fish, whales, seals, and other sea animals by washing out with cold water all albuminous, fatty, and extractive matters and salts, then treating the residue with warm water mixed with acetic acid, and concentrating the fluid product by evaporation, substantially as hereinbefore described.

353,825. MANUFACTURE OF PHOSPHATES FROM SLAGS. CARL SCHEIBLER, Berlin, Germany. Filed May 2, 1883. (No specimens.)

Claim.—The treatment of slags obtained in the lime basic process of dephosphorization of iron, consisting in roasting the slag in an oxidizing-flame, reducing the same to powder, adding muriatic acid of the described degree of dilution, and thereby dissolving the main portion of the silica and alkaline-earth phosphates and a part of the oxides of iron and manganese, and then fractionally precipitating the elements of the solution, as described, whereby are obtained separately the phosphates of iron and manganese, and then the alkaline-earth phosphates, with or without the silica, separating the phosphorus from the iron and manganese by oxidation of the above-resulting phosphates of iron and manganese, as described, and then dissolving and precipitating, whereby are obtained an additional amount of alkaline-earth phosphates and an amount of metallic oxides, substantially as set forth.

353,826. CAR-COUPLING. CHARLES E. SEABURY, Stony Brook, N. Y. Filed May 8, 1886. (No model.)

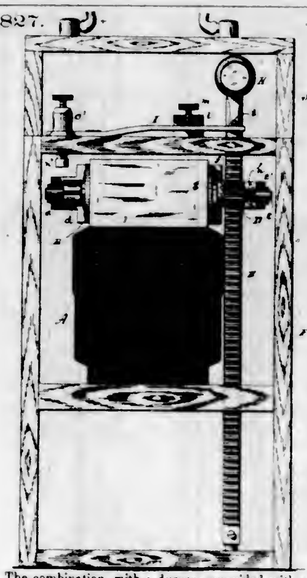


Claim.—The draw-head A, provided with two oppositely-arranged hooks, D D, and two springs, F F, the points of the hooks being beveled, as shown at *e*, in combination with the draw-head B, provided with the pin E, and inwardly-pointing springs G G, substantially as described.

353,827. DYNAMO-ELECTRIC IGNITING-MACHINE. H. JULIUS SMITH, Mountain View, N. J. Filed May 18, 1886. (No model.)

Claim.—1. In an igniting dynamo-electric machine, the combination, with the dynamo provided with a clutch-pinion, D, of a rack-bar, E, engaging the pinion, and the guide-roller *j* for holding the rack-bar in engagement with the pinion, substantially as herein shown and described.

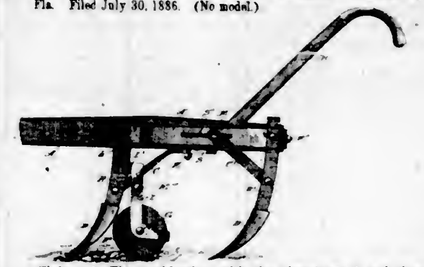
353,827.



2. The combination, with a dynamo provided with a clutch-pinion on its armature-shaft, of the rack-bar E, having the right-angled apertured arm *i*, and the guide-rod G, received in the aperture of the arm *i* and arranged to guide the rack-bar, substantially as herein shown and described.

3. In an igniting-dynamo, the combination, with the operating rack-bar E, of a spring-key, I, placed above the dynamo and arranged in the short circuit of the machine and in the path of the pin projecting from the rack-bar, and a contact arranged above the spring-key and in the short circuit of the dynamo, substantially as herein shown and described.

353,828. PLOW. JOB E. W. SMITH and CLAYTON W. SMITH, Jasper, Fla. Filed July 30, 1886. (No model.)



Claim.—1. The combination, with the plow-beam A and the adjustable supplemental beam A', having the slotted transverse extension A'', of standards attached to the beams, respectively, and plows attached to the standards, substantially as and for the purpose set forth.

2. The combination of the plow-beam A, standard B, and brace C with the hanger I, adjustably fastened to the standard and brace, and the wheel F, pivoted in the hanger and adjustable with reference to the standard, substantially as shown and described.

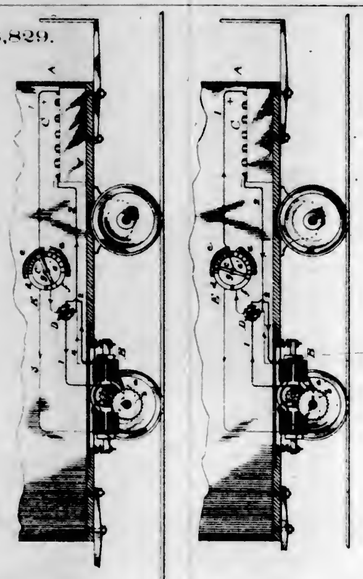
3. The combination of the plow-beam A, the standard B, made up of the bars *b b*, the oblique brace C, the hanger I, made up of two bars clasping the brace C, and having extensions I' lying between the bars *b b*, the clamping-bolt E''', and the wheel F, pivoted between the bars of the hanger, substantially as and for the purpose set forth.

353,829. ELECTRICAL PROPULSION OF VEHICLES. FRANK J. SPRAGUE, New York, N. Y. Filed June 12, 1886. (No model.)

Claim.—1. The method herein described of operating a vehicle propelled by an electric motor supplied with current from a secondary battery carried by the vehicle, consisting in braking the vehicle and returning current to the secondary battery to recharge it by raising the counter electro-motive force of the motor until it exceeds the electro-motive force of the battery when the vehicle is on a downgrade or slowing down.

2. The method herein described of operating a vehicle propelled by

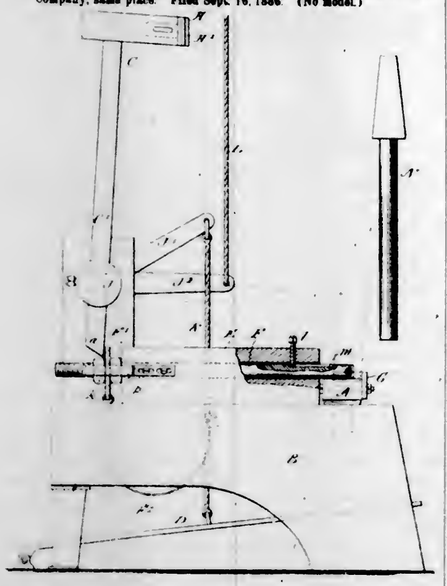
353,829.



a shunt-wound electric motor supplied with current from a secondary battery carried by the vehicle, consisting in braking the vehicle and returning current to the secondary battery to recharge it by increasing the strength of the field-magnet of the motor until its counter electro-motive force exceeds the electro-motive force of the battery when the vehicle is on a downgrade or slowing down.

3. The combination of a vehicle, a shunt-wound electric motor having its armature mechanically connected with an axle of said vehicle, a secondary battery carried by said vehicle and electrically connected with said motor, and means for varying the strength of the field-magnet of said motor, whereby the said motor may be converted into a generator to brake the train and recharge the secondary battery when the vehicle is on a downgrade or slowing down, substantially as set forth.

353,830. MACHINE FOR MAKING WHIFFLETREE-BOLT BLANKS. John Stacker, Winsted, Conn., assignor to the Winsted Norway Bolt Company, same place. Filed Sept. 16, 1886. (No model.)



Claim.—1. The die A, formed with the seats *c d*, and elevated seat *e*, substantially as described.

2. The combination, with the die A, of the opening-bar F, substantially as described.

3. The die A, provided with seats, in combination with the plate G, provided with recesses corresponding with the seats in the die, substantially as described.

4. The hammer C, provided with the knife H', substantially as and for the purposes set forth.

5. The combination, with die A and hammer C, of the knife H', substantially as and for the purposes set forth.

6. The die A, having two side seats, *d e*, and a central elevated seat, e, in combination with the hammer C, having a knife attached thereto in line with one of the side seats, substantially as described.

7. The die A, having seat e, in combination with the plate G, and the reciprocating opening-bar F, substantially as described.

8. The combination, with the hammer C, held in a rotary shaft, J, of the opening-bar F, arranged to be shoved forward by the upward movement of the hammer, substantially as described.

9. The die A, formed with two seats and an elevated seat, in combination with the hammer C, knife H', and the opening-bar F, arranged to be forced forward by the upward movement of the hammer, substantially as described.

353,831. VEHICLE-WHEEL. Ferdinand W. Starr, Springfield, Ohio. Filed July 9, 1886. (No model.)



Claim.—1. In a wheel, the combination, with the rim thereof having holes for the spoke-tenons, of metallic rings fitted into the rim outside of and around the said holes to prevent the rims from splitting.

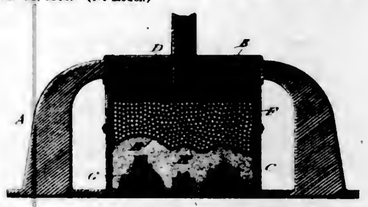
2. In a wheel, the combination, with the rim thereof constructed of wood, of short thin metallic rings having one end sharpened and imbedded into the rim around and outside of the holes for the spoke-tenons.

3. In a wheel, the combination, with the rim thereof constructed of wood, of metallic rings sharpened from their inner side at one end, leaving the interior beveled at said end and embedded into the rim outside of and around the holes for the spoke-tenons, the bevel being such as to cause the rings to flare and clinch themselves in the wood.

4. In a wheel, the combination, with the rim thereof constructed of wood, of the metallic rings having a flange at one end and embedded into the rim outside of and around the holes for the spokes sufficiently to leave the flange flush, or substantially flush, with the rim.

5. In a wheel, the combination, with the rim thereof constructed of wood, of thin metallic rings having a flange at one end and having the other end sharpened from the inner side to form a bevel, and embedded into the rim outside of and around the holes for the spokes the sharpened end clinching itself in the wood and the flange forming a shoulder for the spokes.

353,832. SAND-MOLDING MACHINE. Stephen P. M. Tasker, Philadelphia, Pa., assignor of one-half to O. G. Holt, Louisville, Ky. Filed Oct. 21, 1886. (No model.)

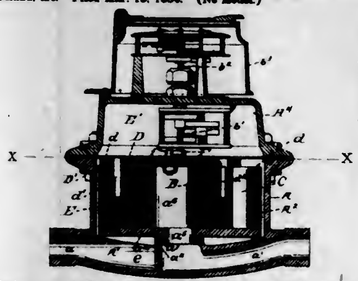


Claim.—1. In a machine for making molds, a flexible pressing-diaphragm backed by a mass of shot, pebbles, sand, sawdust, or other material, the particles of which are capable of sliding past each other without either cohering or adhering and adapted to compress sand, in combination with a flask and a pattern, substantially as set forth.

2. In a machine for making molds, a flexible pressing-diaphragm backed by a mass of shot, pebbles, sand, sawdust, or other material, the particles of which are capable of sliding past each other without either cohering or adhering, and adapted to compress sand, in combination with a plunger, a flask, and a pattern, substantially as set forth.

3. In a machine for making molds, the following elements in combination: a flask containing a pattern to be molded and sand or kindred molding material, a press having a flexible diaphragm adapted to bear upon the molding-sand, and backed by shot, pebbles, sand, sawdust, or other material, the particles of which are capable of sliding past each other without cohering or adhering, and suitable means for forcing the shot against the diaphragm, substantially as and for the purposes set forth.

353,833. WATER-METER WITH REVOLVING PISTONS. James A. Tilden, Hyde Park, Mass., assignor to the Hersey Meter Company, Portland, Me. Filed Mar. 13, 1886. (No model.)



Claim.—1. A fluid-meter having a chamber with one or more measuring-spaces, a distributing-chamber adjacent thereto, a free piston provided with a flange which bears upon the edge of the measuring-chamber, and which separates the measuring-spaces of the chamber from the distributing-chamber, and a series of ports controlled by the piston proper, whereby the said piston is maintained in contact with the measuring-chamber and operated, substantially as described.

2. The combination, in a fluid-meter, of an inlet, a measuring chamber or recess having a wall upon which the edge of the piston overlaps or extends, said piston, a fluid space or recess adjacent to the head of the piston, ports or passages connecting it with the measuring spaces or recesses of the measuring-chamber, and escape ports or passages controlled by the piston proper, connecting the measuring spaces or recesses with an outlet or escape passage, all substantially as described.

3. The combination, in a fluid-meter, of a distributing-chamber, the passage E, the chamber E', the piston D, having the flange D', the ports *d' d²*, the measuring-chamber wall A², the plate *a²*, and the discharge ports and passages, substantially as described.

4. The combination of the inlet *a*, the plate *a²*, the wall A² of the measuring-chamber, and the casing A, arranged to form the passage E between said inlet and the distributing-chamber E', and uncontrolled passages to the measuring-chamber.

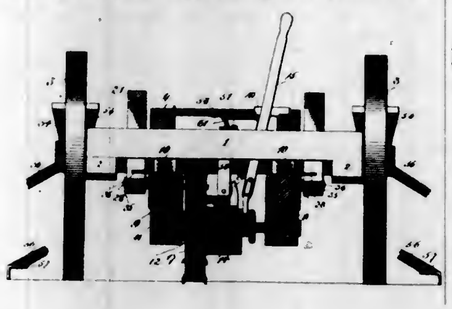
5. The combination of the piston-chamber having measuring spaces or recesses, with the piston B, having the ports *d' d²*, whereby the fluid has access to the measuring-spaces from the distributing-chamber, substantially as described.

6. A fluid-meter having a chamber with one or more measuring-spaces, a distributing-chamber adjacent thereto, a free piston provided with a flange which bears upon the edge of the measuring-chamber, and a series of ports controlled by the piston proper, whereby the said flange may be reduced to a size sufficient only to separate the measuring-spaces of the chamber from the said distributing-chamber when the said measuring-spaces are in operation.

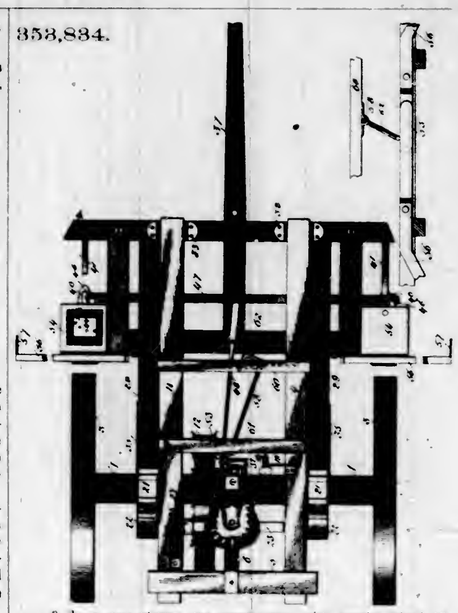
353,834. CORN-PLANTER. Emil Tydeman, Chicago, Ill. Filed Sept 21, 1886. (No model.)

Claim.—1. In a corn-planter, the combination, with the main frame supported on wheels and having pendent guides for the traction-wheel journal-boxes, of an auxiliary frame hinged at its front end to the main frame and carrying the plow-shoes and seeding mechanism, and of vertically-sliding frames operated by a lever and adapted to elevate the traction-wheel and auxiliary frame, substantially as set forth.

2. In a corn-planter, the combination, with traction-wheel 12, having conical sockets, of shifting-clutch 14, having tooth 17 and cam-arm 20, and of suitable connections with such cam-arm for transmitting an oscillating movement to the seed-box valves, substantially as set forth.



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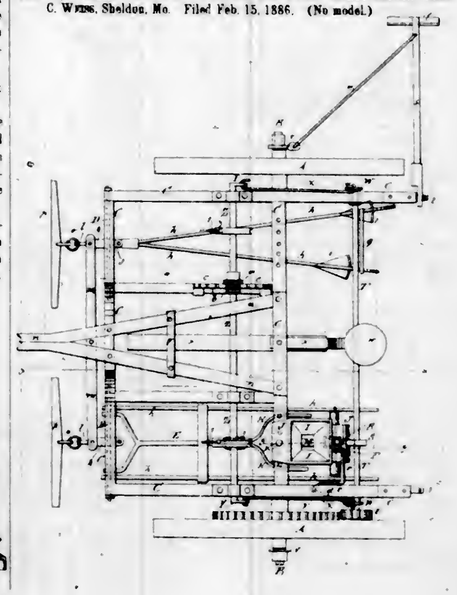


3. In a corn-planter, the combination, with traction-wheel 12, mounted upon shaft 11, that is journaled in vertically-sliding boxes 9, of shifting-clutch 14, having coupling-pin 17 and cam-arm 20, and of lever 15, for moving such clutch in and out of gear with such traction-wheel, substantially as set forth.

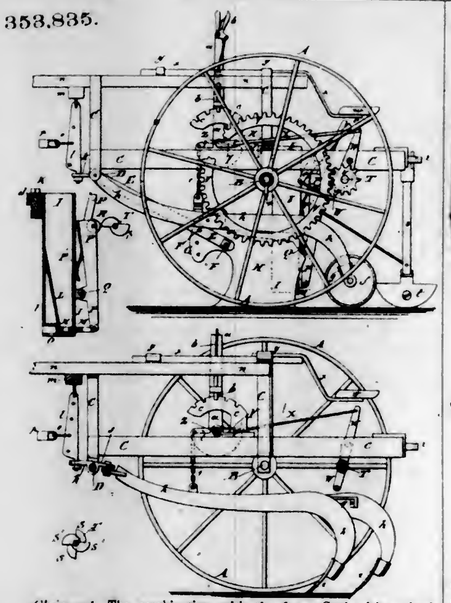
4. In a corn-planter, the combination, with traction-wheel 12, having sockets 13 and being mounted upon shaft 11, journaled in boxes 9, vertically guided between pendants 7 of the frame and coupled to vertically-movable frames 21, arranged to be raised and lowered by suitable connection with lever 25, substantially as set forth.

5. In a corn-planter, the combination, with clutch 14, driven by traction-wheel 12 and having cam-arm 20, of oscillating bar 49, and of rocker-shaft 51, with arms 52 and 53 for transmitting a vibrating movement to lever 48, substantially as set forth.

353,835. COMBINED CORN-PLANTER AND CULTIVATOR. John C. Weis, Sheldon, Mo. Filed Feb. 15, 1886. (No model.)



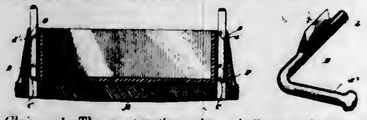
353,835.



Claim.—1. The combination, with the frame C, the drive-wheels A, and the hopper I, of the lever P, pivoted to the hopper, the apertured seed-slide M, pivoted to the lower end of the said lever, and working in the bottom of the hopper, the spring P' between the lever P and the hopper, the shaft T, the S-shaped double cam S on the said shaft, and means for operating the said shaft from one of the drive-wheels, substantially as herein shown and described.

2. In a combined corn-planter and cultivator, the combination, with the crank-shaft Z, having operating-lever *a*, the connecting-rods X, the cam-shaft T, and the pivoted lever-hangers W, of the connecting-rod *d* and the lever *e*, having inwardly-projecting arm, substantially as herein shown and described, whereby the seed-dropping levers and slides will be locked in position when the opening-plows and covering-rollers are raised from the ground, as set forth.

353,836. WAGON-STANDARD. Lee L. Welch, Brownwood, Tex. Filed Sept. 16, 1886. (No model.)



Claim.—1. The combination, with a hollow standard and an extension having vertical movement in said standard, of a gravity-catch adapted to bite against teeth or serrations on said extension in order to maintain the same in an extended position, substantially as and for the purpose set forth.

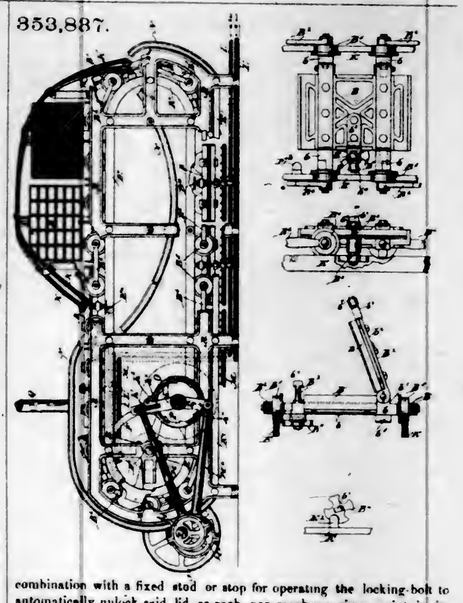
2. The combination, with a hollow standard and an extension having vertical movement in said standard, of a pawl mounted in bearings in the standard and a weighted handle connected to the pawl, substantially as and for the purpose set forth

353,837. MACHINE FOR BAKING SUGAR-WAFER CAKES, &c. Gustave S. Baker, London, England. Filed Nov. 17, 1885. (No model.) Patented in England Oct. 6, 1885, No. 11,899; in France Nov. 20, 1885, No. 172,408; in Italy Nov. 23, 1885, No. 19,131, XIX; in Austria-Hungary Dec. 4, 1885, No. 44,123 and No. 5,033, and in Germany Jan. 19, 1886, No. 36,565.

Claim.—1. In a machine of the class described, an endless chain of baking pans or forms having a progressive movement in one direction, a lid for said pans, and revolubie locking-bolt for locking said lid to the pans, in combination with a fixed stud or stop for operating the locking-bolt to automatically unlock said lid as each pan reaches a given point in its progressive movement, substantially as and for the purpose specified

2. In a machine of the class described, an endless chain of baking pans or forms having a progressive movement in one direction, a lid for said pans, and a revoluble locking-bolt for locking said lid to the pan, in

353,887.



combination with a fixed stud or stop for operating the locking-bolt to automatically unlock said lid as each pan reaches a given point in its progressive movement, and a fixed guide operating on the lid to automatically throw it open after it has been unlocked, substantially as and for the purpose specified.

3. In a machine of the class described, an endless chain of baking pans or forms having a progressive movement in one direction, a lid for said pans, and a revoluble locking-bolt for locking said lid to the pan, in combination with a fixed stud or stop for operating the locking-bolt to automatically unlock said lid as each pan reaches a given point in its progressive movement, and a fixed guide operating on the pan-lid to automatically throw it open, hold the same in open position for a period of time, and then automatically close the lid again, substantially as and for the purpose specified.

4. In a machine of the class described, an endless chain of baking pans or forms having a progressive movement in one direction, a lid for said pans, and a revoluble locking-bolt for locking said lid to the pan, in combination with a fixed stud or stop for operating the locking-bolt to automatically unlock the lid as each pan reaches a given point in its progressive movement, a fixed guide operating on the lid to automatically throw it open, hold the same in an open position for a period of time, then close the lid again, and a second fixed stud or stop operating on the locking-bolt to again lock the lid to the pan, substantially as and for the purpose specified.

5. In a machine of the class described, the combination, with an endless chain of pans, an endless track on which said chain of pans travels, a driving-shaft for propelling the chain of pans along the track, and heating devices for heating the pans, of a ratchet and-pawl mechanism constructed and operating to impart to the driving-shaft an intermitting rotation, substantially as and for the purpose specified.

6. In a machine of the class described, the combination, with an endless chain of pans, a revoluble locking-bolt for the lid of said pans, and endless track upon which the chain of pans travels, a driving-shaft for propelling the chain of pans along the track, and heating devices to heat the pans, of a ratchet-and-pawl mechanism constructed and operating to impart to the driving-shaft an intermitting rotation, and a fixed stud or stop operating on the locking-bolt to unlock the pan-lids when the pans reach a given point on the track, substantially as and for the purposes specified.

7. In a machine of the class described, the combination, with an endless chain of baking-pans, a revoluble locking-bolt for the lid of said pans, an endless track upon which the chain of pans travels, a driving-shaft for propelling the chain of pans along the track, and heating devices for heating the pans, of a ratchet-and-pawl mechanism constructed and operating to impart to the shaft an intermitting rotation, a fixed stud or stop operating on the locking-bolt to unlock the pan-lids when the pans reach a given point on the track, and a guide engaging the pan-lids to throw the same open, substantially as and for the purposes specified.

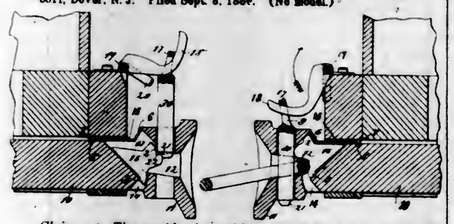
8. In a machine of the class described, the combination, with an endless chain of baking-pans, a revoluble locking-bolt for the lid of said

pans, an endless track upon which the chain of pans travels, a driving-shaft for propelling the chain of pans along the track, and heating devices for heating the pans, of a ratchet-and-pawl mechanism constructed and operating to impart to the shaft an intermitting rotation, a fixed stud or stop operating on the locking-bolt to unlock the pan-lids when the pans reach a given point on the track, and a guide engaging the pan-lids to throw the same open and hold them in an open position for a period of time and then close said lids, substantially as and for the purpose specified.

9. In a machine of the class described, the combination, with an endless chain of baking-pans, a revoluble locking-bolt for the lid of said pans, an endless track upon which the chain of pans travels, a driving-shaft for propelling the chain of pans along the track, and heating devices for heating the pans, of a ratchet-and-pawl mechanism constructed and operating to impart to the shaft an intermitting rotation, a fixed stud or stop operating on the locking-bolt to unlock the pan-lids when the pans reach a given point on the track, a guide engaging the pan-lids to throw the same open and hold them in an open position for a period of time and then close said lids, and a second fixed stop operating on the revoluble locking-bolts to relock the lids to the pans, substantially as and for the purpose specified.

10. In a machine of the class described, the combination, with the endless chain of pans B and the shaft F', carrying chain or pitch wheels F and the gear-wheel G, and the main driving-shaft I, carrying eccentrics H^3 H^4, of the shaft H, carrying gear-wheel G', the ratchet-wheel O, provided with the ring-shoulder O', the ratchet-wheel P within said ring-shoulder, the actuating-pawls h^3 h^4, pawl-arms h' h^2, and connecting-rods H' H^2, said parts being arranged for operation, substantially as and for the purpose specified.

353,838. CAR-COUPLING. Jacob W. Baker and George A. Prescott, Dover, N. J. Filed Sept. 8, 1886. (No model.)



Claim.—1. The combination, with the draw-bar 10, provided with the link-recess 12, the recess 13 in rear of the recess 12, and having upper and lower inclined walls, and the recess 14 below the recess 13, of the block 15, having the curved upper face, 22, and provided with the shoulder 2 and lug 3, and the coupling-pin 30, substantially as herein shown and described.

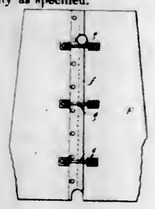
2. The combination, with the draw-bar 10, provided with the recesses 12, 13, and 14, of the block 15 in the recess 13, and provided with the curved upper face, 22, the shoulder 2, and the lug 3, the coupling-pin 30, having recessed lower end, 21, and means for raising and lowering said pin, substantially as herein shown and described.

3. The combination, with the draw-bar and the coupling-pin 30, provided with the forwardly-extending projection 17, having slot 9, of the shaft 19, and the cam-arm 18, secured to the said shaft and projecting through the slot of the pin, substantially as herein shown and described.

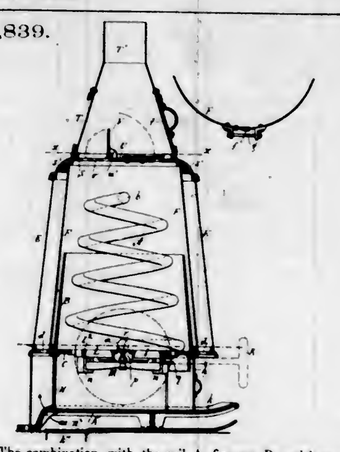
353,839. HEATING APPARATUS FOR RAILWAY-CARS. William C. Baker, New York, N. Y., assignor to the Baker Heater Company, same place. Filed Apr. 18, 1885. (No model.)

Claim.—1. The combination of a fire-pot with the casing F, the top plate, S, setting upon said casing and having a fuel-opening and openings at *v* for the escape of products of combustion, the pivoted safety-plate U, and the vertical flue-plate between the safety plate and the openings *v*, substantially as set forth.

2. The combination, with the base and side walls in a heater, of the flue having a conical base, T, and door *t*, the plate S, perforated at *v*, and upon which the base T rests, the safety-plate U, pivoted to the plate S and closing the fuel-supply opening in the same, and the vertical flue-plate V, substantially as specified.

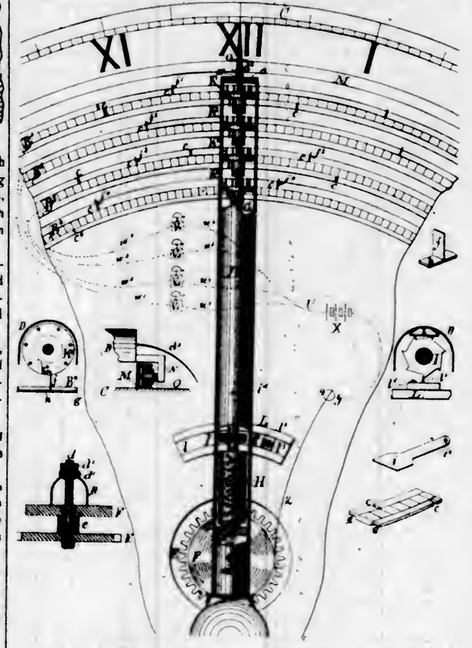


353,839.



3. The combination, with the coil A, fire-pot B, and base-ring C, of the removable casing F, having notches through which the ends of the coil-pipe pass, the lapping strip *f*, and means, substantially as specified, for closing and holding the edges of the case F together around the coil and for allowing the case to be opened and removed for repairing the heater, substantially as set forth.

353,840. ELECTRIC CLOCK FOR TRANSMITTING SIGNALS. J. S. Bailey, Buckingham, Pa. Filed Aug. 19, 1884. (No model.)



Claim.—1. The combination, with a time designating apparatus, of an automatically-moved calendar mounted on one of the pointers or hands.

2. In a time-designating apparatus, the combination, with a pointer or hand thereof, of a rotatable shaft mounted thereon and parallel therewith, the shaft carrying a calendar-cylinder, and a device by which the shaft is rotated at stated intervals for exhibiting the calendar.

3. In an electric time-designating apparatus, the combination, with a hand or pointer, of a device rotatable on the hand or pointer and carrying pins or contact-points which engage, during revolution of the hand or pointer, with contact-pins placed concentrically around the axis of revolution of the hand or pointer.

4. In a time-designating apparatus, the combination of a revolving hand or pointer with a rotatable shaft carried by the hand or pointer and a calendar-cylinder with the names of the days of the week thereon mounted on the shaft.

5. In an electric time-designating apparatus, the combination of the shaft G, the calendar-cylinder H, one or more disks, K, the ratchet-wheel I, and the contact-pins *k*, substantially as and for the purpose specified.

6. The combination of the pointer D, the shaft G, the ratchet-wheel I, and the spring *i*, substantially as and for the purpose specified.

7. The combination, with a dial provided with contact-pins, of a pointer provided with a rotatable disk carrying seven contact-pins, one for each day of the week, one of said pins only being in operative position at a time, and means for rotating such disk at a stated period each day, substantially as described.

8. The combination, with a dial provided with a metallic ring on its face, said ring being divided by lines into the conventional divisions of a day and provided with more than a single series of contact-pins in different concentric circles, of a pointer provided with a rotatable disk having more than a single series of contact-pins, only one of said pins of either series being in operative position at the same time, and means of rotating said disk, substantially as described.

9. In an electric time-designating apparatus, a dial having a metallic ring on its face, and two concentric series of contact-pins upon said ring, in combination with a pointer having a shaft pivoted upon the same, said shaft being provided with two series of contact-pins to engage the contact-pins of the metallic ring, and means for revolving the shaft, substantially as described.

10. In an electric time-designating apparatus, a metallic ring fastened to the face or dial of the apparatus and rabbeted on two sides of its plane next to the face or dial, substantially as and for the purpose specified.

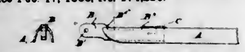
11. In an electric time-designating apparatus, a dial having two series of contact-points, in combination with a pointer having two series of movable contacts, one series being in operative position when the other is out, and means for moving the pointer-contacts into and out of operative position, substantially as described.

12. In an electric time designating apparatus, a disk carrying contact-pins so set in the disk that the one for Sunday projects from one face of the disk and so that those for the other days of a week project from the other face of the disk.

13. In a time-designating apparatus, a circular guide on the face of the dial, in combination with a device attached to one of the hands and running in the guide.

14. In an electric time-designating apparatus, a dial having two concentric series of contact-points, a pointer having a shaft mounted upon the same, carrying two series of contact-points, and means for rotating said shaft, substantially as described.

353,841. UMBRELLA, PARASOL, OR SUNSHADE. THOMAS BREARLEY, Bolsterstone, County of York, assignor to S. Fox & Company, (Limited,) Stocksbridge Works, Deepcar, near Sheffield, England. Filed Feb. 23, 1886. (No model.) Patented in England Dec. 3, 1885, No. 14,863, and in France Feb. 17, 1886, No. 174,230.



Claim.—1. The combination of the trough-like stretcher, its single strong prong formed by the middle piece secured to and projecting beyond its end, the paragon or trough rib, and the git secured externally upon the rib and leaving the interior thereof clear to receive the middle piece or prong of the stretcher, substantially as and for the purpose set forth.

2. The combination of the trough-like stretcher and its single prong formed by the separately made middle piece fixed within the trough of the stretcher and projecting beyond its end, as and for the purpose set forth.

3. The combination of the trough-like stretcher formed with the end notch and the hole A^3, the single prong formed by the middle piece having the notch, the shoulder, and the stud, and the locking-piece, said shoulder and locking-piece being riveted to secure the parts together, substantially as and for the purpose set forth.

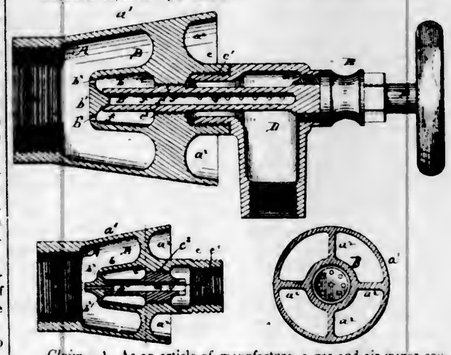
4. The combination of the trough-rib, indented as described, and the git secured by embracing the indented portion of the rib and by the joint pin or rivet, substantially as and for the purpose set forth.

353,842. CLASP FOR HITCHING-STRAPS. CHARLES B. BRISTOL, New Haven, Conn. Filed Oct. 18, 1886. (No model.)



Claim.—The herein-described clasp, consisting of the plate A, one end adapted to be secured to the strap and the other end to stand free from the strap, the said other end constructed to form a loop, C, with an end bar, G, combined with the clamp F, hung over said loop, the said clamp of cam-like shape and extending in the loop toward the bar G, the said clamp constructed with a shoulder, *d*, and with a thumb-piece, I, and the spring H, fixed by one end to the plate in rear of said clamp, the free end of the spring bearing against the said shoulder *d* and tending to force the clamp toward the said bar, substantially as described.

353,843. AIR-MIXER FOR GAS. JAMES L. BROWN, Brookville, Pa. Filed Feb. 18, 1886. (No model.)



Claim.—1. As an article of manufacture, a gas and air mixer consisting of a shell adapted for connection with the supply-pipe for gas and the gas-burner, and having a passage for air and another passage for gas, and provided with a regulator located within the said passage for gas, said regulator being wholly within the shell, whereby the regulator is only accessible when the mixer is disconnected from the supply-pipe, as set forth.

2. As an article of manufacture, a gas and air mixer consisting of a shell adapted for connection with the supply-pipe for gas and the gas-burner, said shell having a passage for air and another passage for gas, and the holes b^2, located as described, and provided with a regulator located within the passage for gas and controlling the holes b^2, as set forth.

3. A gas and air mixer having the holes b^2, arranged as described, and the central hole, b', and provided with the gas-regulator G, having the continuous bore *g*, as set forth.

4. The combination of the conoidal shell A, having the hollow boss B and wings a^2, there being an air-passage at such wings and an opening for gas in such boss, with a regulator for gas, which is located within said boss and controls the opening for gas, as set forth.

5. A gas and air mixer consisting of a shell having a hollow boss within and connected to the shell by wings, at which is an opening for air, said boss having the holes b^2, with a regulator for gas within said boss and controlling the holes b^2, as set forth.

353,844. PULL FOR WATER-CLOSET CISTERNS, &c. WILLIAM BURROWS, Brooklyn, N. Y. Filed Sept. 24, 1886. (No model.)



Claim.—The combination, in a pull, of a tubular glass body, elastic washers at the ends thereof and projecting beyond the body to protect the same, head-pieces and a nut, and a screw passing through the parts to hold them together and clamp the washers to the body, and the suspending-ring at the end of the rod, substantially as specified.

353,845. GLOVE-FASTENER. WILLIAM R. COMINGS, London, England. Filed June 12, 1886. (No model.)



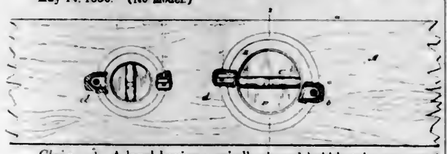
Claim.—1. A fastener for gloves or other articles, consisting of a stud member, *a*, and a socket member, *d*, the stud member having a rounded head and a narrow elliptical neck, the socket member having the mouth of its socket in one direction smaller than the head of the stud member, so that the stud cannot enter said socket when presented squarely thereto, while the stud and socket may be engaged by presenting one edge of the socket to the neck of the stud member in advance of the edge at the opposite side, substantially as described.

2. The stud *a*, having an elliptical neck undercut or dovetailed on the longest sides of said neck, while said oval neck at the ends has substantially straight sides, in combination with the socket member, substantially as described, and for the purpose specified.

3. A fastener for gloves or other articles, consisting of a cap having an oval socket, and an internal part of oval form adapted to be placed within said cap, with the leather between them, and when so placed to be fastened by a quarter-turn axially of one of said two parts, substantially as described, and for the purpose specified.

4. The herein-described fastener for gloves or other articles, in which the cap and socket or stud and stud-filling are formed of a single piece connected by the web *g*, and adapted to be placed one within the other, substantially as described, and for the purpose specified.

353,846. SPIRIT-LEVEL. GUSTAVUS COOK, Watertown, N. Y. Filed May 14, 1886. (No model.)



Claim.—1. A level having a spindle-shaped bubble-tube supported at its ends and left visible at its middle part, whereby the level may be inverted or employed with either face uppermost.

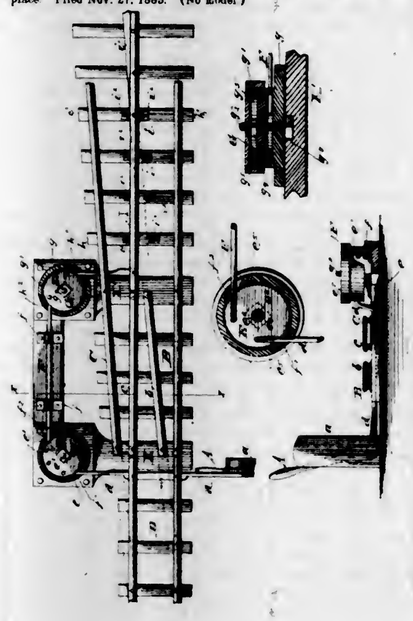
2. A level having an aperture in its bar inclosed at the sides with plates of transparent material and a bubble-tube extending across said aperture within the space inclosed by the said transparent plates.

3. The combination, with the apertured bar, of the ring mounted adjustably therein, the plates of transparent material mounted in said ring, the bubble-tube of spindle shape, mounted in and extending across said ring, and mechanism for adjusting the ring in the bar.

4. A level having a spindle-shaped bubble-tube provided with a mark across its middle to serve as a bubble-index when the level is used said tube being mounted in and extending across an aperture in the bar, whereby it is rendered visible from both sides.

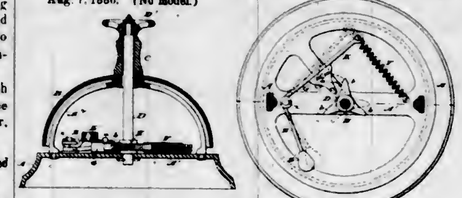
5. The combination, with the bar A, of the ring B, pivoted in the bar on the pin c and provided with a lug, *d*, the bubble-tube mounted in said ring, the screw *e*, screwed into the lug *d* on the ring, and the spring *h*, embracing screw *e*, and arranged between the lug *d* and a shoulder on the bar A, substantially as set forth.

353,847. RAILROAD-SWITCH. CHARLES M. CROSBY, Hillsborough, Ohio, assignor to himself, Harry Asher, and Charles S. Bell, all of same place. Filed Nov. 27, 1885. (No model.)



Claim.—In a railway-switch, the combination of the switch-lever A, the sections of track, B, C, and D, the disks E and G, the rods *d*, F, and *h*, the blocks *e* and *g*, in which the disks are pivoted and turn, the caps e^2 and g^2, and the rail I, all constructed and arranged substantially as and for the purpose specified.

353,848. CALL-BELL. HENRY A. DIEHER, New York, N. Y. Filed Aug. 7, 1886. (No model.)

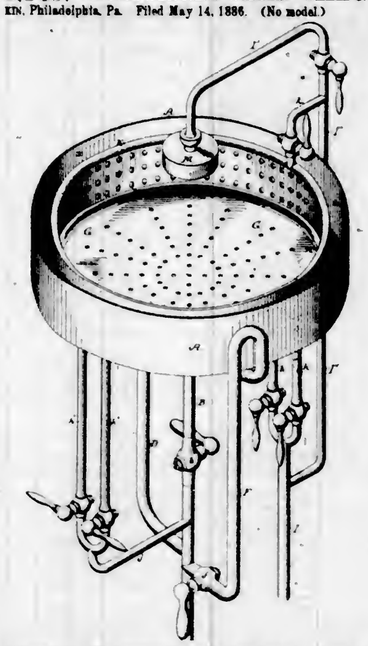


Claim.—1. In a portable call-bell, the combination, with a base, of a gong mounted on said base and provided with a bearing for an operating-shaft, the said operating-shaft, rotatively mounted in said bearing in the gong, projecting through the crown of the gong, and provided with means for rotating it fixed on its outer end, a striking mechanism, and means carried by said shaft for actuating said striking mechanism, whereby the bell is sounded by the rotation of said shaft.

2. In a portable call-bell, the combination, with the base, of the gong mounted thereon and provided with an axial bearing for the operating-shaft, the said operating-shaft rotatively mounted in said bearing in the gong and provided with a hand-wheel on its exterior extremity, a striking mechanism comprising the hammer, its spring, and the escapement-block, and means borne by the said operating-shaft for effecting the proper oscillation of said escapement-block.

3. In a call-bell, the combination, with the base A, provided with a bridge, A', and arched support A^2 for the gong, of the gong B, mounted on said base and provided with a bearing in its crown for an operating-shaft, the said operating-shaft D rotatively mounted in the said bearing and in said bridge A', and provided exteriorly with a hand-wheel, D', a star-wheel, H, fixed on said shaft D, under the gong, and a striking mechanism mounted on said base, comprising a vibrating escapement-block, G, and a hammer arm and spring, substantially as set forth.

353,849. PHOTOGRAPHIC-PRINT WASHER. WILLIAM G. ENTREKIN, Philadelphia, Pa. Filed May 14, 1886. (No model.)



Claim.—1. The combination of the pan having a print-cage and a chamber beneath the same, with the siphon-pipe communicating with said chamber beneath the cage, all substantially as specified.

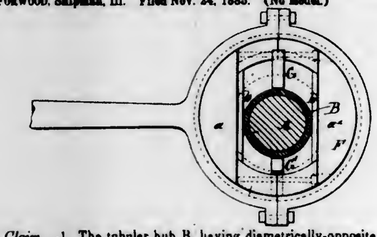
2. The combination of a print-cage with a perforated pipe located in the lower portion of the same, and having a valved supply-pipe and a valved discharge-pipe, whereby either an inward or an outward flow of water through said pipe may be maintained, all substantially as specified.

3. The combination of the print-cage with two pipes located near the bottom of the same, and each having a valved inlet-pipe and a valved discharge-pipe, all substantially as specified.

4. The combination of the print-cage with perforated pipes extending around the same at top and bottom, all substantially as specified.

5. The combination of the pan, drain-pipe, an unobstructed overflow-pipe, and a siphon drain-pipe, all substantially as specified.

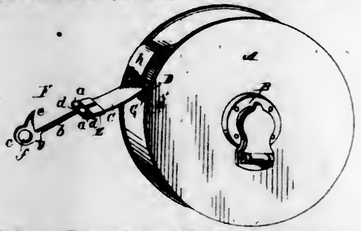
353,850. REVERSING MECHANISM FOR ENGINES. LORIN C. FORWOOD, Shipman, Ill. Filed Nov. 24, 1885. (No model.)



Claim.—1. The tubular hub B, having diametrically-opposite slots parallel with its axis, and collars E E', provided with parallel guiding-edges, in combination with the eccentric F between the collars and guided by the said edges, the wedges G G', oppositely arranged with respect to each other and working in the slots in the hub against the inner edges of the eccentric, and the sliding collar H, to which the wedges are joined, substantially as set forth.

2. The combination, with the shaft A and the tubular hub B, secured thereon to revolve therewith and having the diametrically-opposite slots parallel with the axis, and the collars E E', having parallel guiding-edges *b*, of the eccentric F, formed in two parts *a a'*, secured together between the collars E E', and with an opening having parallel sides sliding on the guides *b b*, the oppositely-arranged wedges G G, working in the slots in the hub against the inner edges of the eccentric opposite those engaging the edges *b*, and having stems *c c*, and a collar, H, substantially as set forth.

353,851. TAPE-MEASURE. JEROME FOUNTAIN, La Grande, Oreg. Filed June 14, 1886. (No model.)



Claim.—1. The combination, with a tape-line and the hook connected thereto, of the case having the metal band forming its circumference bowed outward and returned upon itself at one side of the opening through which the tape-line passes, substantially as and for the purpose set forth.

2. The combination, with the tape-line C, of the clip E, provided with knuckles *a*, and the hook F, having cross-arms *d*, received in the knuckles *a*, and provided with the point *e* and the eye *f*, substantially as herein shown and described.

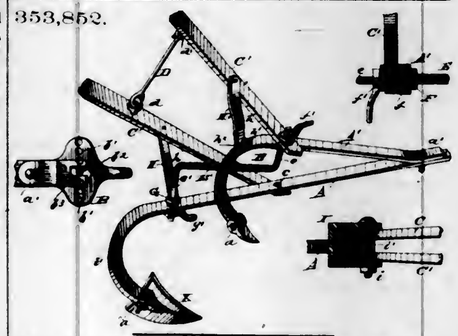
3. The combination, with the casing A and tape-line C, of the hook F, secured to the tape-line and provided with the lug *g*, and the rounded support *h*, attached to or formed upon the casing, substantially as herein shown and described.

353,852. PLOW. WILLIAM A. FRETWELL, Reidsville, N. C. Filed Sept. 11, 1886. (No model.)

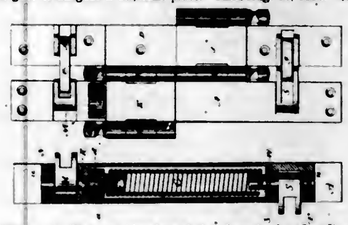
Claim.—1. In a cultivator, the two curved beams A A', pivoted near their front ends, in combination with the cranked brace and its nuts, and a standard connecting the stilts to said beams, substantially in the manner and for the purpose described.

2. In a cultivator, the combination of the pivotally-connected beams A A', the crank E, connecting one beam with the stilt C' direct, the brace-standard H', connecting the said stilt to the said beam, the standard H, pivotally connected to the stilt C and connected by the arm *e'* of the crank to the beam A, all constructed and adapted to operate substantially in the manner and for the purpose set forth.

353,852.



353,853. SPRING-HINGE. WILLIAM GILFILLAN, New Haven, Conn., assignor to Sargent & Co., same place. Filed Aug. 16, 1886. (Model.)



Claim.—1. The combination of the flap A, the flap D, and auxiliary flaps E J, the one flap, E, hung by one edge to one edge of the flap A, and by the opposite edge to the opposite edge of the flap D, and the flap J hinged to the flap A upon its edge opposite that to which the flap E is hung, and also hung to the flap D upon the opposite edge to which the said flap E is hung thereto, the said auxiliary flaps lying between the said flaps A D, the flap A constructed with a spring-chamber upon its back, a torsion-spring, C, arranged in said chamber, its axis parallel with the face of the said flap, a lever, M, hung in a recess in said flap A and upon an axis concentric with the axis of the said torsion-spring, and so as to swing in a plane at right angles to the plane of said flap, the said lever M constructed with a trunnion, P, to form its axis, and extending through a bearing, R, into the spring-chamber, and there connected to one end of the spring, a like lever, S, hung in a corresponding recess at the opposite end of the spring-chamber, and constructed with a trunnion, U, to extend through a bearing, W, into said spring-chamber, and that end of the spring connected with the said trunnion U, the said lever S adapted to swing upon its axis in a plane parallel with the lever M, the said lever M extending in one direction from its axis, and the other lever, S, in an opposite direction, a link, *e*, hung by one end to the free end of the lever M, its other end hinged centrally upon the face of the flap D, and a like link, *g*, hung by one end to the free end of the lever S, and by its other end centrally hung to the flap, the axis upon which the said two links are hung to the said flap being parallel with the axis upon which the said flap turns, and midway between the said axes, substantially as described.

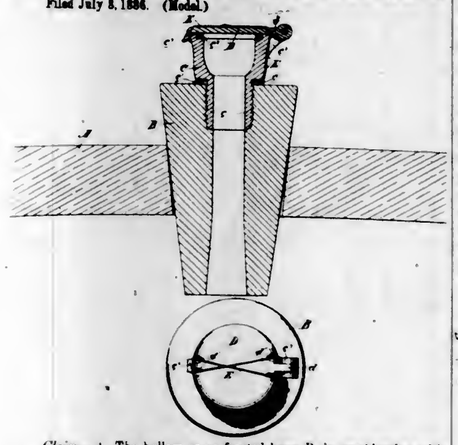
2. The combination of the flap A, the flap D, and auxiliary flaps E J, the one flap, E, hung by one edge to one edge of the flap A, and by the opposite edge to the opposite edge of the flap D, and the flap J hinged to the flap A upon its edge opposite that to which the flap E is hung, and also hung to the flap D upon the opposite edge to which the said flap E is hung thereto, the said auxiliary flaps lying between the said flaps A D, the flap A constructed with a spring-chamber upon its back, a torsion-spring, C, arranged in said chamber, its axis parallel with the face of the said flap, a lever, M, arranged in a transverse recess in said flap A, provided with a trunnion, P, extending through a bearing, R, into said spring-chamber, a collar, *a*, within said spring-chamber and in connection with the end of the spring next said trunnion, the other end of the spring being supported to resist its turning at the said collar end, the said collar adapted to be rotated, means, substantially such as described, to engage said trunnion P with said collar, and a link, *e*, hung by one end to the free end of said lever M, and by its other end to the said flap D at a point midway between the axis upon which the said flap may turn, substantially as described.

3. In a spring-hinge substantially such as described, the one flap constructed with a spring-chamber upon its back, a torsion-spring arranged therein, the axis of which is substantially parallel with the plane of said flap, a lever arranged to work in a transverse recess in said spring-chamber flap, the said lever constructed with a trunnion extending through a bearing into the said spring-chamber, the axis of said trunnion

being parallel with the axis of the spring, and also constructed with a corresponding trunnion upon the opposite side of said lever and in axial line with the said first trunnion, the said first trunnion so extending into the said spring-chamber connected with one end of said torsion-spring, the other end of said spring being supported as a resistance against the turning of the spring at the one end, and a projection, *t*, on the back of said flap, and upon the side of the recess in which the lever swings opposite the end of the spring-chamber, the said projection *t* constructed with a recess corresponding in shape to the hub portion of the lever, with a bearing-block, *u*, adapted to fit the recess in said projection *t*, and the said bearing-block having a hole, *w*, therein corresponding to the trunnion on that side of the lever, substantially as described.

4. A spring-hinge consisting of two flaps hinged together, whereby the one flap may be turned toward or from the other, the combination therewith of a torsion-spring arranged upon one of said flaps whose axis is substantially parallel with the axis upon which the swinging flap turns, two levers, one arranged at one end of said spring and the other at the opposite end, each in connection with its end of the spring, both levers arranged to swing in planes at substantially right angles to the axis of the spring, the said levers extending from their axes in opposite directions, and a link hinged by one end to the free end of one lever and by the other end hinged to the swinging flap, and a like link hinged by one end to the free end of the other lever, and the other end of said second link also hinged to the said swinging flap, the axial line of the hinge between the said links and the swinging flap being parallel with the axis upon which the said swinging flap turns, substantially as described.

353,854. FERMENTING-BUNG. THOMAS S. GLANTZ, Sonoma, Cal. Filed July 8, 1886. (Model.)



Claim.—1. The hollow or perforated bung B, in combination with a valve comprising the annular piece C, having the lip c^4, a threaded stem, *c*, screwed into the top of the bung, a chamber or valve-seat in the top of the annular piece, a package-washer, a lid or cover hinged to said piece, and a spring secured to said piece C, fitting over and bearing on top of said lid and secured to the lip c^4, substantially as herein described.

2. In combination with the hollow or perforated bung B, the valve consisting of the annular piece C, having a threaded stem, *c*, screwed into the top of the bung, a packing-washer, c^3, in its top, a lip, c^4, on one side of its top, and a slotted lug, c^5, on the other side, the cover or lid D, hinged in the slotted lug and fitting down upon the packing-washer, and the rubber band E, secured to the piece C, fitting over and bearing on the top of the cover or lid D and secured to the lip c^4, substantially as herein described.

3. The hollow or perforated bung B, in combination with the valve consisting of the annular piece C, having a threaded stem, *c*, screwed in the top of the bung, the lip c^4 and the slotted lug c^5 on opposite sides, the cover or lid D, hinged in the slotted lug, the rubber band E, for holding said cover or lid down, the washer c^3 between the base of piece C and the top of the bung, and the packing-washer c^3 in the top of the piece C, all arranged and adapted to operate substantially as herein described.

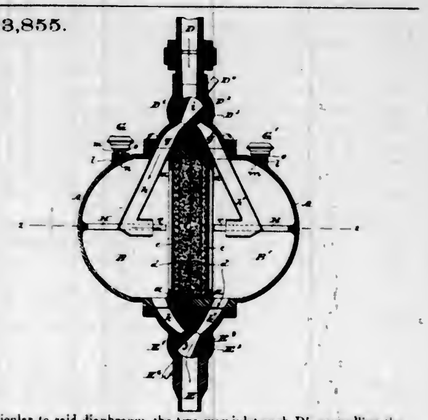
353,855. FILTER. JOHN P. GRUBER, Jersey City, N. J. Filed Aug. 13, 1886. (No model.)

Claim.—1. The combination of the filter-body A, having two chambers, B B', the filtering-diaphragm C between and separating said chambers, the two inlet-pipes h h', arranged, respectively, in chambers B B', the discharge-nozzles of said pipes being arranged with their axes perpendicular to said diaphragm, the two-way inlet-cock D', controlling the inlets to chambers B B', and the two-way outlet-cock E', controlling the outlets from said chambers, as set forth.

2. The combination, in a filter, of the two sections forming the body of the filter, the filtering-diaphragm constructed of layers of filtering material and clamped between and held by flanges on the said sections of the body, and the two staple-like guards H H, one in each chamber, secured to the filter-body, and the ends *r r* of their prongs arranged in proximity to but out of contact with the respective faces of said diaphragm, as set forth.

3. The combination, in a filter, of the hollow body A, divided into two chambers, B B', by a filtering-diaphragm, C, constructed of layers of flexible filtering material clamped and held by flanges on the filter body, the said diaphragm, the two guards or stops H, one in each chamber, secured to the body, and their ends arranged close to but out of contact with the faces of the diaphragm, the two angular inlet-pipes h h', one in each chamber, with their nozzles arranged between the prongs of the guards H, and the axes of said nozzles arranged perpendicular to the faces of said diaphragm, the two-way inlet-cock D', and the two-way outlet-cock E', as set forth.

353,855.



353,856. CAMERA-STAND. JOHN J. HUGHES, New York, N. Y., assignor to E. & H. T. Anthony & Co., same place. Filed Apr. 30, 1886. (No model.)



Claim.—1. A camera-stand top formed of two or more parts hinged together at their adjacent edges and arranged to fold flatwise one upon the other, corresponding faces of the sections of the top being folded inward, substantially as herein shown and described.

2. The combination, with the camera-stand top having the circular recess *d'*, and formed of parts hinged together and adapted to fold one upon the other, of a cross-bar, *e'*, pivoted to the central part of the top, in the recess *d'*, and arranged to hold the parts of the top in an unfolded position, substantially as herein shown and described.

3. The combination, with the camera-stand top provided with a recess, *d'*, and formed of parts hinged together and adapted to fold one upon the other, of a cross-bar, *e'*, pivoted to the central part of the top, and the screws *h'*, inserted in the parts 1 3, for receiving the hinged ends of the cross-bar *e'*, substantially as herein shown and described.

4. The combination, with the pivoted cross-bar *e'*, provided with a

353,860.

Claim.—1. In an aerated-water fountain, the combination, with the

notch, *j'*, of the spring *l*, secured to the middle portion of the top and adapted to engage the notch *j'*, substantially as herein shown and described.

5. The combination, in a camera-stand top, of the central part, 2, provided with the apertured camera-holding screw *w*, the parts 1 3, arranged to fold upon the part 2 and provided with mortises *v v'*, and the bolt *a''*, sliding in the part 3, adapted to enter the aperture of the screw *w* and hold the several parts of the top in their folded position, substantially as herein shown and described.

6. The combination, with the camera-stand top provided with the slots *m*, of the springs *j* and latches *p*, for receiving and holding the camera-stand legs, substantially as herein shown and described.

7. The combination, with the camera-stand top provided with the slots *m* and beveled surfaces at the edges thereof, of the springs *j* and latches *p*, for receiving and holding the camera-stand legs, substantially as herein shown and described.

8. The combination, with the camera stand top provided with the metal-lined slot *m* and beveled surfaces at the edges thereof, of the springs *j* and latches *p*, for receiving and holding the camera-stand legs, substantially as herein shown and described.

9. In a camera-stand, a leg formed of parallel bars A, provided with connecting-plates *a a' b b'*, and the section B, pivoted between the bars A and provided with a spring-acted latch, *f*, for engaging the plate *a*, substantially as herein shown and described.

10. In a camera-stand, the combination, with the folding legs, of an automatic or self-acting locking device adapted to lock the legs in extended position by the act of opening the same, as herein set forth.

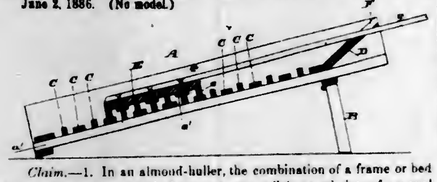
11. The combination, with the bars A of a camera-stand top, of staples or hooks inserted in the ends of the bars and adapted to be retained by springs *j* on the camera-stand top, substantially as herein shown and described.

12. In a leg for camera-stands, the combination, with the bars A, of a staple, *i*, secured to the ends of the bars and adapted to be retained by the spring *j*, substantially as herein shown and described.

13. The combination, with the camera-stand top C, provided with slots *m*, springs *j*, and latches *p*, of legs formed of bars A and provided with staples *i*, substantially as herein shown and described.

14. A camera-stand top provided with a yielding covering for supporting the camera and preventing the jarring of the camera-stand from being communicated to the camera, substantially as described.

353,857. ALMOND-HULLER. JOSEPH HOBART, Nordhoff, Cal. Filed June 2, 1886. (No model.)



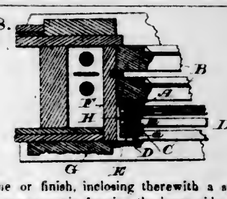
Claim.—1. In an almond-huller, the combination of a frame or bed having a bottom composed of transverse parallel spaced slats of unequal height, upon which the almonds rest, with a reciprocating rubber operating on the almonds upon the slats of said bottom, substantially as herein described.

2. In an almond-huller, the combination of a frame or bed having a bottom composed of parallel transverse spaced slats, upon which the almonds rest, and a reciprocating rubber operating on the almonds over said slats and having its face composed of parallel spaced slats or strips of unequal height, thereby forming an irregular surface, substantially as herein described.

3. In an almond-huller, the frame or bed A, having a bottom composed of transverse parallel spaced slats of different height or thickness, whereby a broken or uneven surface is formed, in combination with the reciprocating rubber E, having a face composed of parallel slats or strips of different height or thickness, whereby a broken or uneven surface is formed, substantially as herein described.

4. An almond-huller comprising the inclined bed or frame A, having a bottom composed of the transverse parallel spaced slats C, having a different height or thickness, whereby a broken or uneven surface is formed, the inclined plane or chute D at the head of the frame or bed A, the rubber E, having a face composed of parallel spaced slats or strips *e'*, of a different height or thickness, and a handle, *e*, by which it is reciprocated, substantially as herein described.

353,858. FIXTURE FOR SLIDING BLINDS. WALTER A. HOLBROOK, Milwaukee, Wis. Filed July 24, 1886. (No model.)



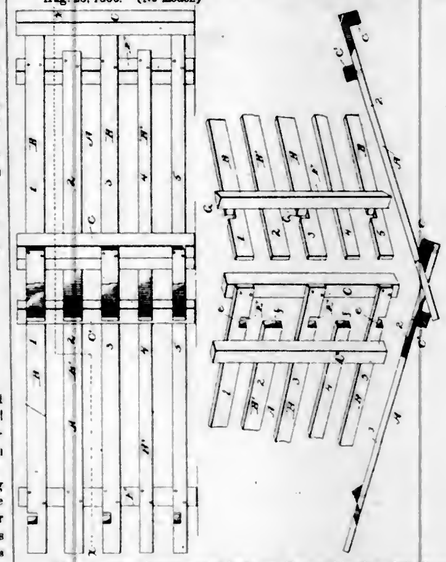
Claim.—1. The combination, with a window frame and finish, of a detachable blind-weight box applied to the inner face of the window-jamb and bearing against the window-sash, and a runway-strip forming the inner face of said weight-box, substantially as and for the purposes set forth.

2. The combination, with a window frame and finish, of a series of sliding blind-sections, a weight-box the inner side of which is set in from said frame or finish, inclosing therewith a space for the blind-weights, and a runway-strip forming the inner side of said weight-box, substantially as and for the purposes set forth.

3. The combination, with a window-frame and finish, of a series of sliding blind-sections, a weight-box the inner and front sides of which are built in from and inclose a blind-weight space with the finished inner face of the jamb or jamb-lining which forms the outer side of said box, runway-strip C, forming the inner side of said box, weights E E, and pulleys *a a*, set in said runway-strip C, substantially as and for the purposes set forth.

4. The combination, with a window-frame, of a weight-box the inner and front sides of which are formed separate and are built in from said frame, inclosing therewith a space for the blind-weights, runway-strips C, forming the inner side of said weight-box, the L-shaped division-strips H, attached to said runway-strips C, and the sliding blind-sections L L, substantially as and for the purposes set forth.

353,859. FENCE. GEORGE W. HOLMES, Huntington, Ind. Filed Aug. 28, 1886. (No model.)



Claim.—As an improvement in fences, the combination of the fence-sections, each having a series of horizontal rails provided with the beveled and notched ends, as described, one end of one of the sections having a fixed vertical bar, C, on one side thereof, and another vertical bar, C', on the opposite side and in rear of the bar C, and the other section having the vertical triangular rail F rigidly affixed thereto on one side and at a short distance from the notches in the rails thereof, whereby when the sections are arranged at an angle, with the rails interlocking with one another, one of the outer exposed faces of the triangular rail F will bear against one side of the bar C, and the other face thereof will bear against one side of the horizontal rails of the fence-section, and the free ends of the rails of one section will bear upon the vertical bar C' of the other section, all arranged and combined substantially as described, for the purpose set forth.

353,860. CORKSCREW. CHARLES H. HUDSON, New York, N. Y. Filed Jan. 8, 1886. (No model.)

Claim.—1. The combination, with a corkscrew of the character herein specified, of the shell and a spring surrounding the extracting-screw seated upon a step placed at the lower extremity of and within the shell, substantially as shown and described.

2. The combination, with the shell or barrel A and corkscrew I, of a removable spring, M, said spring surrounding the extracting-screw,

353,860.

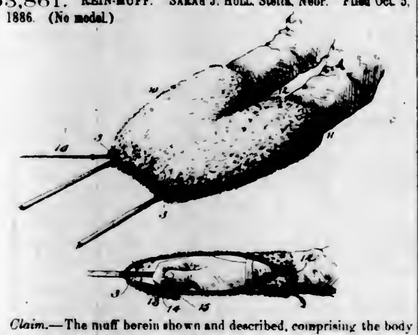


and being seated upon one of the steps placed at the lower extremity of and within the shell or barrel, substantially as shown and described.

3. The combination, with the shell or barrel A, provided at its lower extremity with steps B and at top with arms C, of the spring M and corkscrew I, said spring surrounding the extracting-screw and being seated upon one of the steps placed at the lower extremity of and within the barrel or shell, substantially as shown and described.

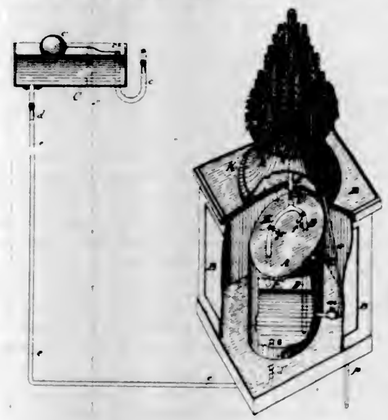
4. In a device of the character herein specified, the combination, with the shell or barrel A, provided with steps B, as set forth, and with the preferably screw-threaded shank of the corkscrew I, of a set-screw adapted to hold the parts rigidly together, substantially as shown and described.

353,861. REIN-MUFF. SARAH J. HULL, Stella, Nebr. Filed Oct. 5, 1886. (No model.)



Claim.—The muff herein shown and described, comprising the body open at both ends, a flap extending from one side of the forward open end and constructed to be folded over said end, and fastening devices for the free end of said loop, to connect it with the body of the muff when folded over said opening, substantially as set forth.

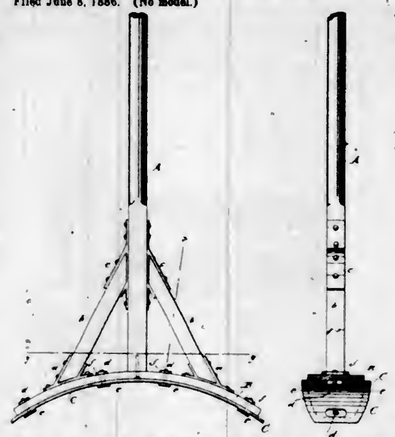
353,862. AERATED-WATER FOUNTAIN. JOHN C. JOHNSON, Atlantic City, N. J. Filed Sept. 20, 1886. (No model.)



Claim.—1. In an aerated-water fountain, the combination, with the elevated tank B, pipe *e*, and stop-cocks *d d'*, of the hollow cylinder A, air and water pipes D and E, and regulating-cocks F F', gage A, tubes *j k*, and stand K, all arranged substantially as and for the purposes set forth.

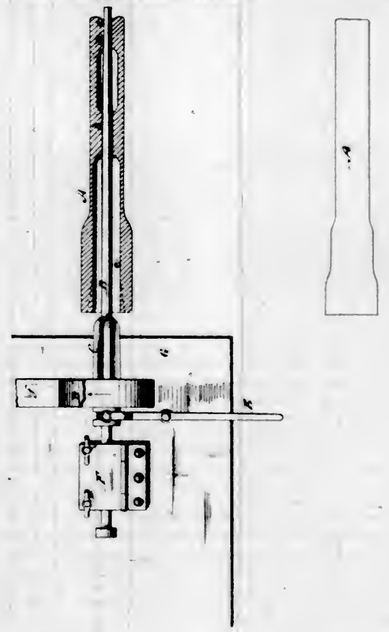
2. In an aerated-water fountain, the combination, with the elevated tank having an automatic valve for the admission of the water and a discharge-pipe provided with stop-cocks, of the hollow cylinder, air and water pipes provided with regulating-cocks, the stand, and the glass tubes secured therein, the automatic air-valve, and the water-discharge cocks secured to the cylinder, substantially as described, for the purposes set forth.

353,863. FLEXIBLE SCRAPER. ALBERT J. KAHLIN, Houston, Tex. Filed June 8, 1886. (No model.)



Claim.—The herein-described flexible scraper, consisting of the concave board A, the sheet of rubber, C, secured by bolts *d* to the concave face of the board, the handle A, the sockets *a c*, secured to the convex face of the board and handle, respectively, and the braces *b*, as specified.

353,864. BOBBIN-REAMER. STEPHEN C. KETCHUM, Winchendon, Mass. Filed Apr. 2, 1886. (No model.)

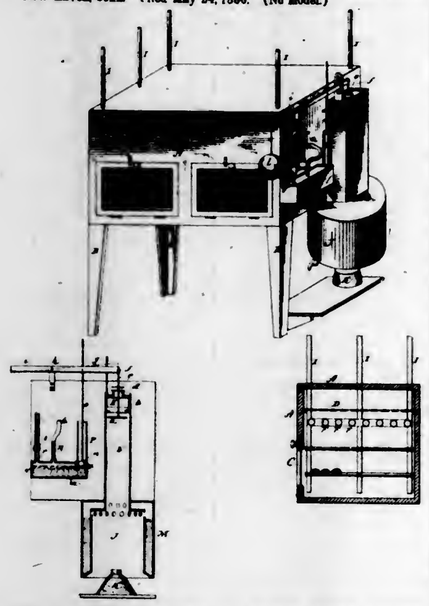


Claim.—1. The means, substantially as herein described, for reaming the lower interior bearing of the bobbin to make it coincident or in line with the upper interior bearing or bearings thereof, the same consisting of a centering and reamer-carrying spindle adapted to fit the upper bearing or bearings of the bobbin, and a reamer adapted to ream the lower interior bearing of the bobbin, and arranged to rotate upon said spindle and having a traversing motion backward and forward along it, as herein set forth.

2. In a tool for reaming the interior base-bearings of bobbins of spinning and other like frames, the combination of the spindle B, the reamer C, and the pulley D, attached to or carrying said reamer, and fitted to rotate and slide upon said spindle, for application to the bobbin to be reamed, substantially as specified.

3. The combination of the lever E, the pulley D, the reamer C, attached to or carried by said pulley, and the spindle B, adapted to admit of said united pulley and reamer rotating freely upon and sliding along it, essentially as and for the purpose herein set forth.

353,865. HEAT-REGULATOR FOR INCUBATORS. HENRY KILLAM, New Haven, Conn. Filed May 24, 1886. (No model.)



Claim.—1. The combination of a hatching-chamber, a heating-chamber with a flue leading therefrom and opening into said hatching-chamber, an air-chamber in said hatching-chamber, a fluid-chamber, N, below said air-chamber, with a connection from said air-chamber to said fluid-chamber above the fluid therein, a float resting on the fluid of said chamber and adapted to rise and fall therewith, a damper in said flue, adapted to open or close a passage therefrom, the said damper and float connected, substantially as described, and whereby the rising or falling of the float will correspondingly open or close said damper, as the case may be.

2. The combination of the hatching-chamber, a heating-chamber, a flue leading therefrom and opening into said hatching-chamber, an air-chamber in said hatching-chamber, consisting of a system of tubes, a fluid-chamber below the said air-chamber, and into which said air-chamber opens above the fluid in the fluid-chamber, a float resting on the fluid of the said chamber and adapted to rise and fall therewith, a damper adapted to open or close an opening in the said flue, the said damper and float connected, substantially as described.

3. The combination of a hatching-chamber, a heating-chamber, a water-reservoir surrounding said heating-chamber, with openings from said reservoir above the water into said heating-chamber, a flue from said heating-chamber extending upward and opening into the hatching-chamber, an air-chamber in said hatching-chamber, a fluid-chamber, the said air-chamber opening into said fluid-chamber above the fluid, a float resting on the fluid of said chamber and adapted to rise and fall therewith, with a damper adapted to open or close the opening from said flue, the said damper and float connected, whereby the up-and-down movement of the float will produce corresponding opening-and-closing movement of the damper, substantially as described.

4. The combination of a hatching-chamber, an air-distributer across said hatching-chamber, a heating-chamber with a flue leading therefrom and opening into the hatching-chamber above said air-distributer, an air-chamber below said air-distributer, a fluid-chamber below, into which said air-chamber opens, a float resting upon the fluid of said chamber, adapted to rise and fall therewith, and a damper in connection with said float, substantially as described.

5. The combination of the hatching-chamber, the perforated air-distributer D, and the system of tubes F, forming an air-chamber in said hatching-chamber and below said perforated air-distributer, a heating-chamber with a flue leading therefrom and opening into said hatching-chamber above said air-distributer, and constructed with an opening, *d*, outside said hatching-chamber, a fluid-chamber, N, below said air-chamber, and into which the said air-chamber opens above the fluid in said fluid-chamber, a float, *n*, resting on the fluid of said chamber and adapted to rise and fall therewith, a damper, *e*, adapted to open or close said opening *d*, the said float and damper connected, whereby the rise and fall of the float will open or close said damper, as the case may be, substantially as described.

6. The combination of a hatching-chamber, a heating-chamber with a flue leading therefrom and opening into said hatching chamber, the said flue constructed with an opening, *d*, above the opening into the hatching-chamber and outside the hatching-chamber, and also constructed with a passage, *b*, below said opening into the hatching-chamber, an air-chamber in said hatching-chamber, a fluid-chamber below said air-chamber, and into which said air-chamber opens above the fluid therein, with a float resting on the surface of said fluid, and adapted to rise and fall therewith, and dampers *a* and *e*, connected so that the opening movement of one will impart closing movement to the other, the said two dampers also connected to said float, and whereby under the rising and falling of the float the said dampers will accordingly open and close, respectively, the passage *b* and opening *d*, substantially as specified.

7. The combination of a hatching-chamber to which artificial heat is supplied, an air-chamber within said hatching-chamber, a fluid-chamber, the said air-chamber communicating with said fluid-chamber above the fluid, a float upon said fluid, and a damper in connection with said float, substantially as described, whereby the supply of heat to the hatching-chamber may be regulated.

8. The combination of a hatching-chamber to which artificial heat is supplied, a perforated air-distributer across said chamber, an air-chamber beneath said air-distributer, a fluid-chamber, the said air-chamber communicating with said fluid-chamber above the fluid therein, a float resting on the fluid of said chamber, and a damper in connection with said float, substantially as described, and whereby the supply of said artificial heat to said hatching-chamber may be regulated.

9. The combination of a hatching-chamber, a system of connected tubes forming an air-chamber in said hatching-chamber, a fluid-chamber into which said air-chamber opens above the fluid, a float resting on the fluid of said chamber, and a damper in connection with said float, substantially as and for the purpose described.

10. The combination of a hatching-chamber, a perforated air-distributer across said chamber, and above which artificial air is admitted, a system of connected tubes beneath the said air-distributer, a fluid-chamber into which said air-chamber opens above the fluid, a float resting on the fluid of said chamber, and a damper in connection with said float, substantially as described.

11. The combination of a hatching-chamber, a heating-chamber, with a flue leading therefrom into said hatching-chamber, and a water-reservoir surrounding said heating-chamber, with perforations therefrom into said heating-chamber, substantially as described.

12. The combination of a chamber and means for admitting heat thereto, with an air-chamber arranged in said chamber to be heated, a fluid-reservoir into which said air-chamber opens above the fluid, a float resting upon said fluid, and adapted to rise and fall therewith, and a damper adapted to open or close the inlet heat-passage, the said damper connected to said float substantially as described, and whereby the rising and falling of the float will correspondingly cut off or open the flow of heat to said chamber, substantially as described.

353,866. CIGARETTE-BUNDLING MACHINE. FRANCIS S. KINNEY, New York, and WILLIAM H. BUTLER, Brooklyn, N. Y., assignors to the Kinney Tobacco Company, of New York. Filed June 23, 1886. (No model.)

Claim.—1. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, substantially as described.

2. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, and the folding-blade 28, substantially as described.

3. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, having the depressions 9 in their bottoms, substantially as described.

4. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, and the plunger 53, substantially as described.

5. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, and the plunger 53, provided with the followers 13, substantially as described.

6. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, the plunger 53, and the feeding mechanism for advancing the wrapper into position, substantially as described.

7. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, the plunger 53, and mechanism for advancing the web and for severing the wrappers therefrom, substantially as described.

8. The combination, with the rotating carrier 100, of the holders 51, having the recesses 50, and arranged to have a rotary movement in the carrier, the plunger 53, and the pasting mechanism, substantially as described.

9. The combination, with the rotating carrier 100, of the holders 51, provided with the recesses 50, and having a rotary movement in the carrier, the folding-blade 28, and the pasting mechanism, substantially as described.

10. The combination, with the carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, and a feeding mechanism for supplying the cigarettes to the recesses, substantially as described.

11. The combination, with the rotating carrier 100, of the holders 51, having the recesses 50, and the feeding and counting mechanism consisting of the cylinders 63, having the recesses 65, substantially as described.

12. The combination, with the rotating carrier 100, of the holders 51, having the openings 20, and the revolving and longitudinally-moving shafts 16 17, having the forks 18 19, substantially as described.

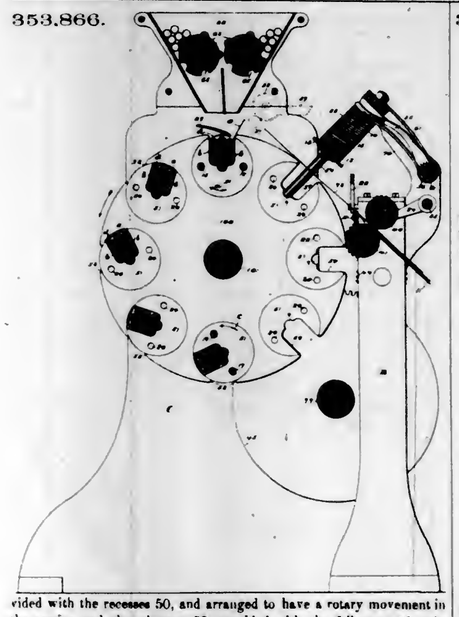
13. The combination, with the rotating carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a partial rotation in the carrier, the plunger 53, and the folding-blade 28, substantially as described.

14. The combination, with the intermittingly-rotating carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a partial rotation in the carrier, the plunger 53, folding-blade 28, and the pasting mechanism, substantially as described.

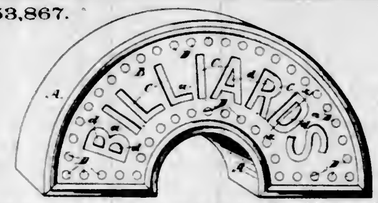
15. The combination, with the intermittingly-rotating carrier 100, of the holders 51, provided with the recesses 50, and arranged to have a rotary movement in the carrier, the plunger 53, folding-blade 28, pasting mechanism, and the feeding and counting mechanism for supplying the cigarettes to the recesses, substantially as described.

16. The combination, with the carrier 100, of a holder, 51, having a package-forming recess, 50, and arranged to have a rotary movement in the carrier, substantially as described.

353,866.



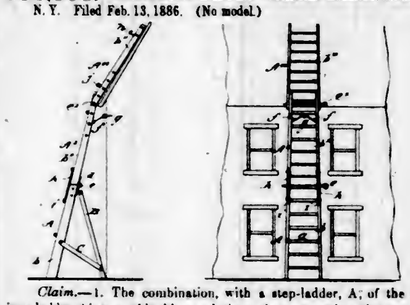
353,867.



353,867. SIGN. GEORGE H. KITCHEN, New York, N. Y. Filed Nov 28, 1885. (No model.)

Claim.—In a sign, the front B, having the sign-letters cut in it, in combination with the plates C and separate pieces *d*, the plates C being placed over the letter-openings cut in the front B, and having orifices *c*, to receive wires or pins for holding the separate pieces *d*, substantially as described.

353,868. COMBINATION-LADDER. CHRISTIAN KOERNER, Rochester, N. Y. Filed Feb. 13, 1886. (No model.)

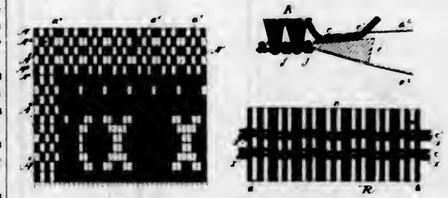


Claim.—1. The combination, with a step-ladder, A, of the auxiliary ladder A', separable hinges *d*, the rod *e*, connecting the separable hinges, the long hooks *h*, connected with the auxiliary ladder A', and eyes *i*, projecting from the side pieces of the step-ladder A and adapted to receive the hooks *h*, substantially as herein shown and described.

2. The combination, with the step-ladder A, of the auxiliary ladder A', the separable hinges *d*, the rod *e*, connecting the separable hinges, the ladder-section A'', having apertured side pieces, rods *e' e'*, the ladder *l*, and the chain *m*, substantially as herein shown and described.

3. The combination, with the step-ladder A and auxiliary ladder A', of the ladder-section A'', the short ladder *l*, connected with the ladder-section A'' by hooks and eyes, and the brace-cord *m*, substantially as herein shown and described.

353,869. ART OF MANUFACTURING IMITATION TURKEY CARPETS AND CHENILLE WEFT THEREFOR. ALOIS KOHN and FRITZ WATZLAWIK, Vienna, Austria-Hungary. Filed Feb. 24, 1885. (No specimens.) Patented in France Sept. 22, 1884, No. 164,432; in Belgium Sept. 22, 1884, No. 64,378, and Jan. 21, 1885, No. 67,608; in Germany Sept. 23, 1884, No. 32,466; in England Jan. 22, 1885, No. 909, and in Austria-Hungary Feb. 1, 1885, No. 41,505 and No. 5,338.



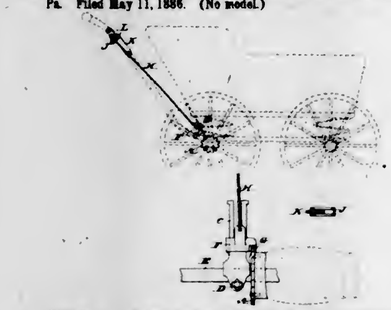
Claim.—1. The improvement in the art of manufacturing chenille weft, which consists in first beaming a chain of multicolored wool corresponding with one of the transverse ranges of colored figures in the pattern, then introducing into said chain a flat wooden bar, then a few shoots of yarn, next one or more shoots of pack-thread, again a few shoots of yarn and a flat wooden bar or lath, repeating the operation by the introduction of another flat wooden bar, and so on until the fabric is completed, then severing the fabric between the wooden bars and removing the pack-threads from between the yarn threads, whereby a chenille strip is obtained that has a central weftless portion, as described, for the purpose specified.

2. The improvement in the art of manufactoring chenille weft, which consists in first beaming a chain of multicolored wool corresponding with one of the transverse ranges of colored figures in the pattern, then introducing into said chain a flat wooden bar, then a few shoots of yarn, next one or more shoots of pack-thread, again a few shoots of yarn and a flat wooden bar or lath, repeating the operation by the introduction of another flat wooden bar, and so on until the fabric is completed, then severing the fabric between the wooden bars, removing the pack-threads from between

the yarn threads and sewing the warp to the remaining weft, whereby a chenille strip is obtained that has a central weftless portion, as described, for the purpose specified.

3. The herein-described mode of manufacturing carpets in imitation of Turkey carpets, which consists in first producing as many chenille strips as there are transverse ranges of colored figures in the carpet, each of which chenille strips answers to one of said transverse ranges of colors, removing a portion of the weft of said chenille strips to form a central weftless portion, as described, beaming a chain of pack-thread, weaving said strips in their order into said chain, the fringed edges thereof forming the pile of the carpet as usual, and filling out the chain between the adjacent weft-strips by a few shoots of pack-thread, whereby the pattern of the carpet is reproduced on the back thereof by the weftless portion of the chenille strips and the knots in the Turkey carpet imitated thereby, substantially as and for the purposes specified.

353,870. CARRIAGE-BRAKE. Charles E. Luburg, Philadelphia, Pa. Filed May 11, 1886. (No model.)

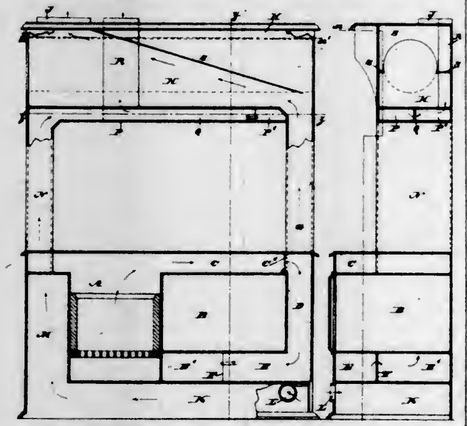


Claim.—1. A hub having a toothed rim, in combination with a gravity-head having a tooth, a slide working on an arm secured to the carriage-handle, and a cord secured to the head and slide, substantially as and for the purpose set forth.

2. In a carriage-brake, means for holding the brake-tooth clear of the carriage wheel or hub, consisting of a slide, a hook, and a connection for said tooth and slide, substantially as described.

3. A toothed rim on the carriage-wheel, an arm with a clip connected with the axle thereof, an arm with a hook on the carriage-handle, and a slide fitted on said arm adapted to engage with said hook, and a cord connecting said slide and head, combined and operating substantially as and for the purpose set forth.

353,871. RANGE. John Mander, Philadelphia, Pa. Filed Apr. 16, 1886. (No model.)



Claim.—1. A range having the bottom air-chamber, K, with inlet-opening L, the side air-flue, N, the fire-chamber A, and the combustion-flue G, forming side jambs for said range, all of said parts being combined and arranged substantially as and for the purpose set forth.

2. A range having the fire-chamber A and oven B, the vertical flue D, the horizontal flue C, leading to the said vertical flue D, the horizontal flues E E', having partition open at one end, vertical flue G, and the boiler-receiving chamber H, having outlet J, all combined and arranged substantially as and for the purpose set forth.

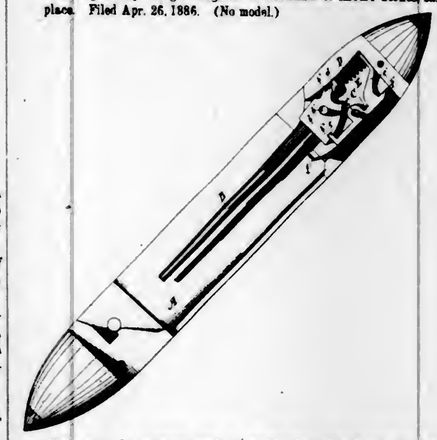
3. A range having the fire-place A and adjacent oven B, the flues C, D, and E, passing, respectively, over the top, side, and bottom of said oven B, the vertical combustion-flue G, the boiler-receiving chamber H in upper part of the range, and the hot-air-discharge pipe R, passing through said chamber H, all of said parts being combined and arranged substantially as described.

4. A range having the fire-place A and adjacent oven B, the flues C, D, and E, passing around said oven, the flue G, leading to the boiler-receiving chamber H, the chamber H, the bottom air-chamber, K, having flues M, N, and P, and outlet-pipe R, said combustion chambers and flues and said air-chamber and flues being independent of and separate from each other, all of said parts being combined and arranged substantially as described.

5. In a range, a boiler-receiving chamber, H, located in the upper part of the range, in combination with the flanges S, projecting inwardly from the sides of said chamber H and inclined from the inlet to the outlet of the said chamber, all substantially as described.

6. In a range, the boiler-receiving chamber H, in combination with the fire-chamber A and combustion-flues C, D, E, and G, and the air-chamber K, with flues M, N, and P, and pipe R, passing through said chamber H, and flanges S, constructed and arranged substantially as described, all substantially as and for the purpose set forth.

353,872. LOOM-SHUTTLE. Patrick F. McGee and Martin McMahon, Oregon City, Oreg., assignors of one-third to Albert Stokes, same place. Filed Apr. 26, 1886. (No model.)



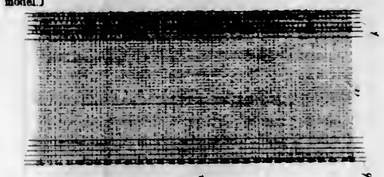
Claim.—1. In a shuttle, and in combination with the shuttle-body, the spindle B, having a pivoted butt, the spindle D, a pivoted locking-lever for said butt, and a spring on said spindle D pressing against the head of spindle D to steady the spindle B, and against the said lever to hold it to its engagement with the butt, whereby the spindle is held in the center plane of the shuttle, substantially as herein described.

2. In a shuttle, the shuttle-body A, the spindle B, having butt b, with a groove or notch, b^2, in its base, in combination with the pivoted lever C, having a flange or lip, c, at the end for engaging the groove or notch b^2 of the spindle-butt, and an arm, c', at the other end bearing against the wood of the shuttle, the spindle D, and a spring on said spindle D, bearing against the head of the spindle D and also against the arm c' of the lever C, to hold said lever to its engagement, whereby the spindle is held in the center plane of the shuttle, substantially as herein described.

3. In a shuttle, the shuttle-body, the spindle B, having butt b, with a groove or notch, b^2, in its base, and a tongue, b^3, at its rear top, bearing against the wood of the shuttle, in combination with the pivoted lever C, having a flange or lip, c, at one end for engaging the groove or notch b^2 of the spindle-butt and locking the spindle, and an arm, c', at the other end bearing against the wood of the shuttle, the spindle D, having a head, d, fitting and bearing against the tongue b^3 of the spindle-butt, to hold it against the wood, and the spring E, bearing between said head d and the arm c' of the lever C, whereby it acts on both, substantially as and for the purpose herein described.

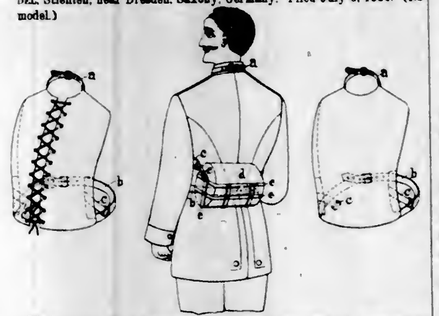
4. In a shuttle, the shuttle-body, the spindle B, having butt b, with notch or groove b^2 in its base, and tongue b^3, bearing against the wood of the shuttle, as described, in combination with the pivoted lever C, having a flange or lip, c, at one end engaging the notch or groove of the spindle-butt, and an arm, c', at the other end bearing against the wood of the shuttle, the spindle D, having head d, bearing on tongue b^3, to hold it to the wood and steady it, the spring E, between said head and the arm c' of the lever C, and the spring F, secured to the base of said lever and having a bent end, f, for locking the bobbin on the spindle, all arranged and adapted to operate substantially as herein described.

353,873. MACHINE-BELTING. George Meacom, Chelsea, assignor to Peter W. French, trustee, Weymouth, Mass. Filed June 1, 1886. (No model.)



Claim.—The improved belt or belting herein described, the body of the same consisting of woven textile material having woven therein at or near its edges only closely-grouped longitudinal strands of wire, substantially as and for the purpose set forth.

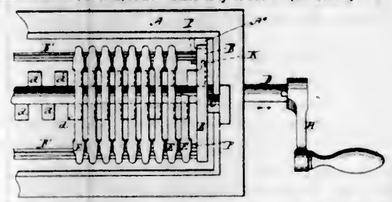
353,874. MEANS FOR CARRYING KNAPSACKS. Alfred Mendel, Stiehlen, near Dresden, Saxony, Germany. Filed July 8, 1886. (No model.)



Claim.—1. As a means for carrying a knapsack, a waistcoat or corset coming over the chest, straps for securing the same upon the person of the wearer, and a support secured to said straps, and upon which the knapsack rests, substantially as set forth.

2. The combination, in a knapsack-support, of a waistcoat or corset, a neck-strap, a, waist-strap b, side strap, c, basket of straps e, and a support within said basket, and upon which the knapsack can rest, substantially as specified.

353,875. GRATE. Henry W. Merritt, Somerville, assignor to William H. Ireland, Boston, Mass. Filed May 1, 1886. (No model.)

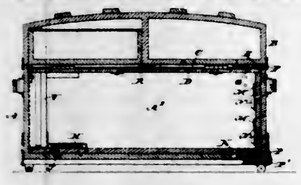


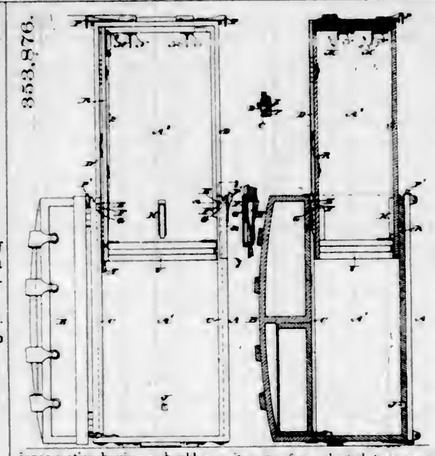
Claim.—In a fire-grate, the combination of the bed-plate A, frame B B B' B', and bars E E, each bar having hooks e' e', with the shaft D, said shaft having projections d d d' d', and a dumping-cam, K, all operating together, substantially as described, and for the purpose set forth.

353,876. WARDROBE-TRUNK. Otto H. Meurer and George N. Klein, Philadelphia, Pa. Filed Apr. 26, 1886. (No model.)

Claim.—1. A wardrobe-trunk formed of telescoping sections, each of which is provided with bent metallic tongues interlocking with similar tongues of the other sections, substantially as described.

2. A wardrobe-trunk formed of telescoping sections, the outer one having a spring-bolt secured in a recess on the inner face thereof, and adapted to be concealed therein when the sections are closed, and the





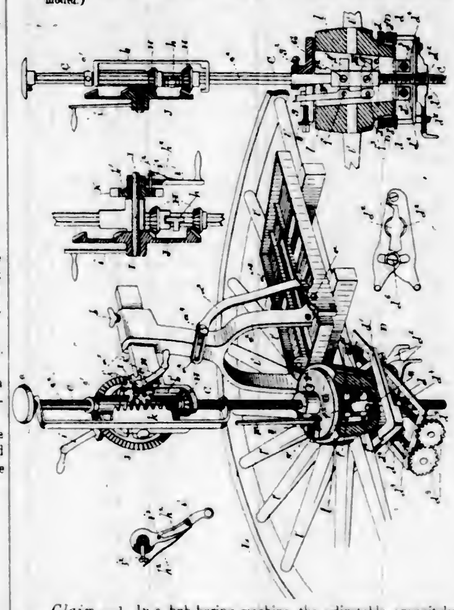
inner section having a shoulder on its outer face adapted to engage the said bolt when the sections are opened out, all substantially as and for the purpose set forth.

3. A wardrobe-trunk formed of telescoping sections A' A^2, the section A' having recess E in its inner walls, and spring-bolts F, secured therein and adapted to be concealed when the sections are closed, and the section A^2 having shoulders G, substantially as described, and adapted to be engaged by said spring-bolt when the sections are opened, all substantially as described.

4. A folding trunk formed of sections, substantially as described, with tongued and grooved corner-pieces connected with the sections, substantially as and for the purpose set forth.

5. A wardrobe-trunk formed of telescoping sections, one of which is provided with a lid having a bolt on its inner side, the said bolt having attached thereto a string, and a handle extending downward into the lower section, the handle being concealed and covered by the lid of the lower section or trunk when closed, substantially as described.

353,877. HUB AND GENERAL BORING AND MORTISING MACHINE. Antonio L. Navone, Calistoga, Cal. Filed Mar. 23, 1886. (No model.)



Claim.—1. In a hub-boring machine, the adjustable oppositely-located jaws d', for holding the outer or front end of the hub, and the adjustable or two-part nut d^2, centrally located behind or beneath the

space inclosed by the jaws, in combination with the rotating spindle C, threaded through the nut d^3, and the cutter E on the spindle, substantially as herein described.

2. In a hub-boring machine, the clamp D, consisting of the frame d, the oppositely-located jaws d', having nuts d^4, the right and left screws d^2, the pinions d^5, connecting them, and the nut d^3, centrally located behind or beneath the space inclosed by the jaws, in combination with the rotating spindle C, threaded through the nut d^3, and the cutter E on the spindle, substantially as herein described.

3. In a hub-boring machine, the clamp D, consisting of the frame d, the oppositely-located jaws d', having nuts d^4, the right and left screws d^2, the pinions d^5, connecting them, and the adjustable or two-part nut d^3, centrally located behind or beneath the space inclosed by the jaws, in combination with the rotating spindle C, threaded through the nut d^3, and the cutter E on the spindle, substantially as herein described.

4. In a hub-boring machine, the rotating spindle C and the longitudinally-adjustable cutter E, carried by the spindle, in combination with the means for automatically adjusting the cutter for tapering the hole in the hub, consisting of the disk or head G, loosely fitted on the spindle and resting on the hub, and the pivoted lever F, pivoted to the cutter and guided through the disk, substantially as herein described.

5. In a hub-boring machine, the rotating spindle C and the longitudinally-adjustable cutter E, carried by the spindle, in combination with the disk or head G, loosely fitted on the spindle and resting on the hub, the radially-adjustable bearing g on the disk, and the pivoted lever F, pivoted at its lower end to the cutter, and passing through the adjustable bearing, substantially as herein described.

6. In a hub-boring machine, the rotating spindle C and the longitudinally-adjustable cutter E, carried by the spindle, in combination with the disk or head G, loosely fitted on the spindle and resting on the hub, and having a radial slot, the screw g' in the slot, and the bearing g on the screw, and the pivoted lever F, pivoted at its lower end to the cutter, and passing through the bearing, substantially as herein described.

7. In a hub boring machine, the rotating spindle C and the longitudinally-adjustable cutter E, carried by the spindle, in combination with the slotted disk or head G, loosely fitted on the spindle and resting on the hub, the radially-adjustable bearing g in the slot of the disk, the longitudinally-adjustable fulcrum-bar f', carried by the spindle, and the lever F, pivoted to the cutter, fulcrumed in the bar, and passing through the bearing, substantially as herein described.

8. In a hub-boring machine, the jaws d', for clamping the outer or lower end of the hub, and the nut d^3, centrally located behind or beneath the space inclosed by the jaws, in combination with the rotating spindle C, threaded through the nut, the longitudinally-adjustable cutter E, carried by the spindle, the adjustable fulcrum-bar f', the adjustable slotted disk or head G on the spindle and resting on the inner or upper end of the hub, the adjustable bearing g in the disk, and the lever F, pivoted to the cutter, fulcrumed in the bar, and guided by the bearing, all arranged and adapted to operate substantially as herein described.

9. In a boring-machine, the frame A, consisting of the jointed sections or parts a' a^2, and the adjustable arm or bar B in the frame, in combination with the bit or cutter carrying spindle journaled in the arm or bar, and gearing for operating the same, substantially as herein described.

10. In a boring-machine, the frame A, consisting of the jointed sections a' a^2, and the slotted pivoted link a^3, for adjusting and fixing the sections, and the adjustable arm or bar B in the frame, in combination with the bit or cutter carrying spindle journaled in the arm or bar, and gearing for operating the same, substantially as herein described.

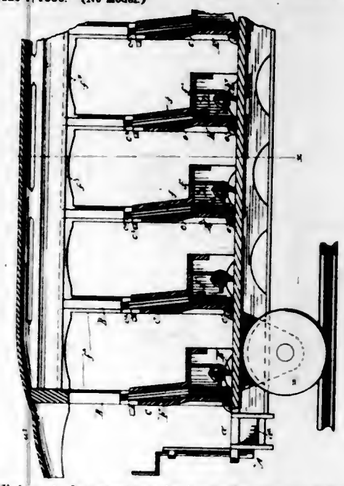
11. In a hub-boring machine, the frame A, consisting of the jointed sections or parts a' a^2, one of which rests upon the spokes of the wheel, and the slotted pivoted link a^3, for fixing the sections, the adjustable arm or bar B in the frame, having bracket b', the spindle C, journaled in the bracket, and gearing for operating the same, in combination with the adjustable jaws d', for clamping the outer or lower end of the hub, the central nut, d^3, through which the spindle is threaded, the adjustable cutter E in the spindle, the adjustable disk or head G thereon, and resting on the upper or inner end of the hub, the adjustable bearing g in the disk, the adjustable fulcrum-bar f' in the spindle, and the lever F, pivoted to the cutter, fulcrumed in the bar, and guided by the bearing, all arranged and adapted to operate substantially as herein described.

12. In a boring-machine, the cutter or bit carrying spindle, in combination with the means for rotating it at various speeds, consisting of the shaft I, crank i, gear J, with concentric rows or bands of cogs, pinions H, loose on the spindle and with which the gear J engages, and sliding key A, by which the gears H are alternately connected with and disconnected from the spindle, substantially as herein described.

13. In a boring and mortising machine, the cutter or bit carrying spindle, in combination with the means for feeding or reciprocating it, consisting of the shaft I, the gear K, loose thereon, the crank i', connected with the gear, and the rack k, secured to the spindle and meshing with gear K, substantially as herein described.

14. In a boring-machine, the cutter or bit carrying spindle, in combination with the means for rotating the same, consisting of the shaft I, crank i, gear J, with concentric rows or bands of cogs, pinions H, loose on the spindle, and with which the gear J engages, and the sliding key A, by which the gears H are alternately connected with and disconnected from the spindle, and the means for feeding the spindle, consisting of the gear K, loose on shaft I, the crank i', connected with the gear and the rack, secured to the spindle and meshing with gear K, substantially as herein described.

353,878. STREET-CAR. WILLIAM H. NELSON, Alexandria, Va. Filed June 7, 1886. (No model.)

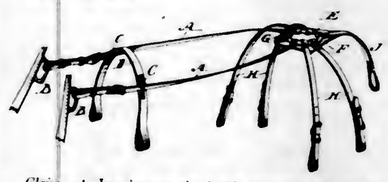


Claim.—1. In a street-car having its floor and its roof connected by vertical standards, a suitable number of similar seats of proper size arranged and detachably secured in transverse rows to the car-floor, and arranged and detachably secured to the car-floor against the car-standards in two opposite longitudinal rows, and having in their backs casings for the reception of window-sashes of proper size to close when raised the portions of the spaces between the car-standards above the back of the seats, substantially as specified.

2. In a street-car, the combination of the equidistant vertical standards connecting the roof and the floor thereof, the car-seats having casings for the window-sashes made in their backs, the window-sashes entering said casings when lowered and closing the spaces above the back of the seats and between the standards when raised, and means, substantially as described, whereby the seats may be detachably secured to the car-floor in transverse rows or in longitudinal rows, with their backs against the standards, substantially as specified.

3. In a street-car, the combination of the equidistant standards B, connecting the roof and the floor of the car, and provided with the shoulders c^3 and rabbets f^2, the side pieces, f^4, depending from the roof and provided with the grooves f^3, the seats C, having the casings made in their backs, and provided with the stops f^5 inside the casings, and the rail c' and inclined flange c^2 in their backs, the window-sashes F, entering and retained in said casing and closing when raised the portion of the space between the standards B above the seats, and means, substantially as described, whereby the seats may be detachably secured to the car-floor in transverse equidistant rows, or in longitudinal rows, with their backs against the standards B, substantially as specified.

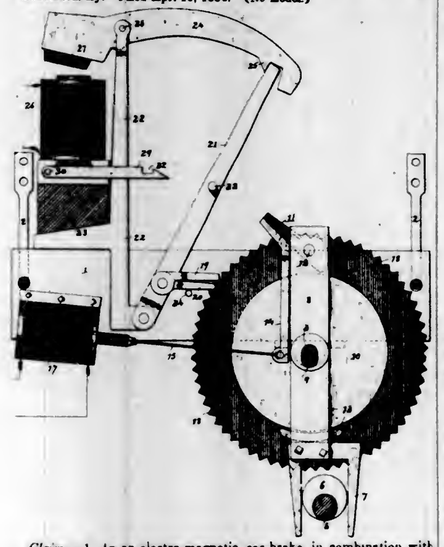
353,879. HARNESS. WILLIAM OLEWINE, Hazleton, Pa. Filed Oct. 9, 1886. (No model.)



Claim.—1. In a harness, the double back-straps A, attached to the hames and to the rump-ring and spaced by attachments to the back-band, substantially as described.

2. The back-straps A A, attached to the hames and to the rump-ring E, in combination with the hip-strap H and cropper J, attached to said ring, substantially as described.

353,880. ELECTRO-MAGNETIC CAR-BRAKE. HARVEY S. PARK, Henderson, Ky. Filed Apr. 19, 1886. (No model.)



Claim.—1. In an electro-magnetic car-brake, in combination with a car-wheel axle, brake-chain and windlass therefor, a disk fixed to said windlass, clamping members arranged to engage with said disk, an operating-rod and armature connected to said clamping members, an electro-magnet or solenoid, a circuit including said magnet or solenoid, a ratchet-wheel, also connected to said windlass, and locking-pawls adapted to engage with said ratchet-wheel, substantially as and for the purpose set forth.

2. The mechanism for operating a brake-chain windlass from a car-wheel axle, consisting of the following elements: an eccentric on the axle, plates or rods having a yoke occupied by said eccentric, a disk on the brake-chain windlass, a fixed clamping member and a pivoted clamping member on opposite sides of said disk and carried by said plates or rods, slotted bearings in said plates or rods for receiving the windlass, a hollow electro-magnet or solenoid, and a core or armature therefor having connection with said pivoted clamping member, substantially as and for the purpose set forth.

3. In combination with a brake-chain and windlass, a ratchet-wheel connected to said windlass, pawls engaging with said ratchet-wheel, a lever whereto said pawls are pivoted, a latch having means of engagement with said lever and carrying an armature or core, and an electro-magnet or solenoid and circuit, said magnet or solenoid being arranged in proximity to said armature or core, substantially as and for the purpose set forth.

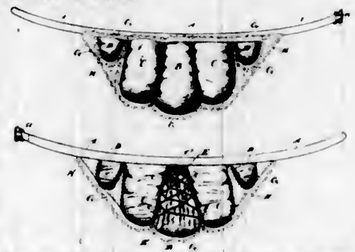
4. In combination with a brake-chain and windlass, a ratchet-wheel connected with said windlass, locking-pawls adapted to engage with said ratchet-wheel, a lever whereto said pawls are pivoted, latches adapted to engage said lever when in position away from said ratchet-wheel, armatures or cores on said latches, and electro-magnets or solenoids and circuit arranged in proximity to said armatures or cores, substantially as and for the purpose set forth.

5. In combination with brake-chain-winding mechanism and a lever for locking the same in desired position, latches respectively adapted to hold said lever at its two extreme positions, armatures or cores on said latches, and electro-magnets or solenoids and circuit arranged in proximity to said armatures or cores for operating said latches simultaneously, substantially as and for the purpose set forth.

6. In an electro-magnetic car-brake, in combination with a brake-chain and windlass, an electro-magnet or solenoid and circuit, a core or armature for said magnet or solenoid, a car-wheel axle, and means operated by said electro-magnet or solenoid and armature or core for connecting said car-wheel axle and brake-chain windlass, a pinion on said windlass, a rack-bar actuated by said pinion, a metallic bridge connected with said rack-bar, and contact-plates arranged in the path of said bridge and in circuit with the generator and braking-magnet, substantially as and for the purpose set forth.

7. In an electro-megnetic car-brake, in combination with a magnet or solenoid and circuit for operating the connection between the car-wheel axle and the brake-chain windlass, contact-plates in said circuit on opposite sides of the electro-magnet, and a bridge operated by the brake-chain windlass and adjustable in relation thereto, substantially as and for the purpose set forth.

353,881. BUSTLE. ELLEN T. PHILLIPS, New York, N. Y. Filed Oct. 1, 1886. (No model.)

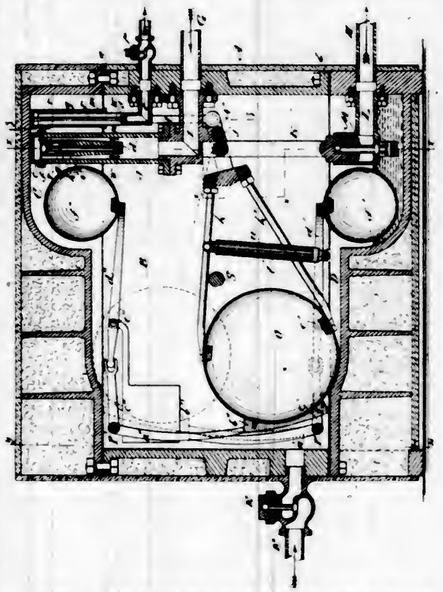


Claim.—1. The bustle described, having a central pocket, B, and the side pockets, C C, extending up and down and flexibly connected, with partial fillings of elastic material, in combination with each other and with the waistband A and the lacing E, connected to the inner edges of the pockets C C, whereby the said pockets C C are forced inward laterally and the pocket B thrown outward, as set forth.

2. In a bustle, the combination, with the pockets C C and intermediate pocket, B, arranged as shown, of loops c, secured at the junction of each pocket C with the pocket B, and the lacing E, operating through said loops, as and for the purposes specified.

3. In a bustle, the combination, with the band A and central pocket, B, of the pockets C C, arranged one on either side of said pocket B and flexibly connected therewith, the loops c, secured to the fabric at the junction of each pocket C with the pocket B, and a lacing-cord, E, operating through said loops across the interior face of the pocket B, to compress said pocket and force the pockets C C nearer to each other, as and for the purposes specified.

353,882. AUTOMATIC WATER-FEEDER FOR STEAM-BOILERS. CHARLES O. RABUT, New York, N. Y. Filed Aug. 4, 1886. (No model.)



Claim.—1. In a boiler-feeder, the combination, with the float-casing communicating with the boiler above and below the water-line, having cavities in its upper and lower portions for receiving the auxiliary floats and the ends of the steam and water pipes, and provided with steam, water, and air valves, of a valve-operating float pivoted in the casing and arranged to open the steam and water valves, and auxiliary floats for holding the float in its elevated or depressed position.

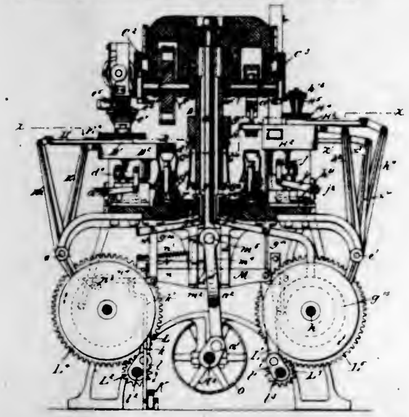
2. The combination, in a boiler-feeder, of the casing A, provided with pipes G H; communicating with the boiler, the float O, the frame

N, pivotally supported in the casing, the arms *k k'*, connecting the frame with the float O, the steam-valve *f*, the water-valve M, the yoke K, pivoted to the frame N and provided with the cross-bar *i*, the floats *f' f''*, levers *d' d'' c' c'' a' a''*, and the float O, provided with the block *b''*, arranged to be engaged by the levers *a' a''*, substantially as shown and described.

3. The combination, in a boiler-feeder, of the casing A, provided with pipes G H, communicating with the boiler, the float O, the frame N, pivotally supported in the casing, the arms *k k'*, connecting the frame with the float O, the steam-valve *f*, the water-valve M, the yoke K, pivoted to the frame N and provided with the cross-bar *i*, the floats *f' f''*, levers *d' d'' c' c'' a' a''*, the float O, provided with the block *b''*, the air-vent pipe *n*, air-valve *s*, pipe *q*, carrying the air-valve, the apertured cross-bar *m*, and the connecting-rods *l*, substantially as shown and described.

4. The combination, with the arm *k* of the float O, of the cylinder *t*, pivoted to the bottom of the float-casing, and the plunger *u*, placed loosely in the cylinder *t*, and pivoted to the arm *k*, substantially as shown and described.

353,883. SOLE AND HEEL NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed Jan. 4, 1886. (No model.)



Claim.—1. The combination, in a combined sole and heel nailing machine, of a table supporting one or more jacks or work-supports and adapted to move it or them successively to the sole and heel nailing devices with sole-nailing devices adapted to attach an outsole to the upper and insole by a gang or group of nails simultaneously driven, and heel-attaching mechanism adapted to attach a heel to an outsole and insole of a boot or shoe by a gang or group of nails simultaneously driven, constructed and adapted to be operated substantially as described.

2. In a combined sole and heel nailing machine, the combination of mechanism for driving a gang or group of sole nails or fastenings, a sole-beating-out form or mold, devices for driving a gang or group of heel-attaching nails, and one or more jacks or work-supports adapted to be moved in succession to the sole-nailing devices, the beating-out devices, and the heel-attaching devices, constructed and adapted to be operated substantially as described.

3. In a combined sole and heel nailing machine, the combination of a sole-molding device or form, devices for driving a gang or group of sole-fastenings, a sole-beating-out form, devices for driving a gang or group of heel-fastenings, and one or more jacks or work-supports for moving the work successively to said devices, constructed and adapted to be operated substantially as described.

4. The combination, in a combined sole and heel nailing machine of a sole-nailing templet and devices for driving a gang of sole-fastenings therethrough, a sole-beating-out form for beating out or forming an attached sole, a heel-nailing templet, and devices for driving a gang of heel-fastenings therethrough with three or more jacks or work-supports arranged for conjoint action with the sole-nailing templet, the beating-out form, and the heel-nailing templet, whereby the three operations of sole-nailing, beating-out, and heel-attaching are simultaneously performed, all constructed and adapted to be operated substantially as described.

5. The combination, in a combined sole and heel nailing machine, of devices for driving a gang of sole-fastenings, a sole-beating-out form or device, and devices for driving a gang of heel-fastenings with four lasts or work-supports mounted upon a movable table and arranged in relation to said sole-nailing, beating-out, and heel-nail-driving devices to advance the work from one to the other in successive order, constructed and adapted to be operated substantially as described.

6. The combination, in an organized sole and heel nailing machine, of devices for driving a gang or group of sole-fastenings, sole-nail-feeding devices for automatically feeding sole-nails to the sole-nail-driving devices, devices for driving a gang or group of heel-nails, heel-nail-feeding devices for automatically feeding the heel-nails to said heel-nail-driving devices, and two or more jacks or work-supports, constructed and adapted to be operated substantially as described.

7. The combination, in a combined sole and heel nailing machine, of a sole-nailing templet and sole-nailing devices for driving a gang or group of sole-fastenings therethrough, a heel-nailing templet and devices for driving a gang or group of heel-fastenings therefrom, devices for automatically feeding the heel-blanks into position for attachment to the boot or shoe, and one or more jacks or work-supports adapted to be moved from the sole-nailing devices to the heel-nailing devices in advancing the work from the sole-nailing mechanism to the heel-nailing mechanism, all constructed and adapted to be operated substantially as described.

8. In a combined sole and heel nailing machine, the combination of a sole-nailing templet, a device for driving a gang or group of fastenings therefrom, a heel-nailing templet and reciprocating nail-driving devices for driving a gang or group of heel-fastenings therefrom, devices for automatically feeding heel-blanks in successive order into position for attachment to a sole by heel-attaching devices, top-lift-feeding mechanism for automatically feeding top lifts into position for attachment to the heel, and one or more jacks or work-supports adapted to be moved from the sole-nailing to the heel-nailing mechanism, to transfer the work from one set of nailing devices to the other, all constructed and adapted to be operated substantially as described.

9. The combination, in a combined sole and heel nailing machine, of devices for driving a gang or group of sole-fastenings, devices for driving a gang or group of heel-fastenings, two or more lasts or work-supports, the main shaft of the machine, and connecting mechanism, substantially as described, whereby upon the starting of the machine the sole-nailing and heel-attaching devices are simultaneously operated, all substantially as described.

10. The combination, in a combined sole and heel nailing machine, of devices for driving a gang or group of sole-fastenings, devices for beating out the attached outsole, devices for driving a gang or group of heel-fastenings, the main shaft of the machine, and connecting mechanism, substantially as described, whereby upon the operation of the machine the sole and heel nail driving devices and the beating-out appliances are simultaneously and automatically operated, all substantially as described.

11. The combination of the cross-head A', supporting the revolving head C C', the sole-nailing templet D, the heel-nailing templet H, two or more jacks or work-supports, the shaft of the machine A^3, and devices for connecting it with the cross-head A', all substantially as described.

12. The combination of the cross-head A' with the plate or head *g'*, supporting the beating-out form and the sole-molding form, or either, and one or more lasts or work-supports, all substantially as described.

13. The combination of the reciprocating head A', the movable plate or head *g'*, carrying or supporting the beating-out form, and the sole-molding form, or either, with one or more jacks or work-supports, and a latching mechanism for automatically latching the plate or head *g'* when moved downward to the lowest position, all substantially as described.

14. In a combined sole and heel nailing machine, the combination of the vertically-moving plate *g'*, supporting the beating-out form or mold, the latch for locking it in its lowest position, and devices for automatically unlatching or unlocking it, all substantially as described.

15. The combination of the reciprocating cross-head A', the revolving heads C C', and means for automatically turning the same, the sole-templet D, the heel-templet H, the sole-nail carrier D', the heel-nail carrier H^3, the main shaft A^3, the cam-shafts *e h'*, the templet and nail-carrier cams carried thereby, devices connecting the said cams respectively with the sole-nailing templet and sole-nail carrier and heel-nailing templet and heel-nail carrier, and the main shaft A^3, all substantially as described.

16. The combination of the reciprocating plate H, having heel-blank-holding devices, and a reciprocating top-lift-carrying plate arranged in relation to the plate H, as specified, all substantially as described.

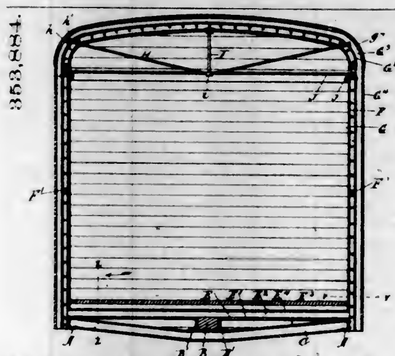
17. The combination of the cross-head, the rod *a*, having the slotted or recessed end M, the reciprocating pitman a^3, having the cross-bar or block m^4 and the movable block N, all substantially as described.

353,884. RAILWAY-CAR. DENNIS W. RIORDAN and EDWARD J. MARTYN, Chicago, Ill. Filed July 17, 1886. (No model.)

Claim.—1. In a railway-car, the combination, with the side sills, A, formed of channel-bars having their channels arranged on the inner side, of the central sill, B, provided with channel-bars B', arranged on each side thereof, and the transoms C, constructed of I-beams having their ends attached between the flanges of the channel-bars A and passing under the central sill, substantially as and for the purposes specified.

2. In a railway-car, the combination, with the side sills and central sill, of the transoms C, constructed of I-beams, attached at their ends to the side sills and passing under the central sill, substantially as and for the purposes specified.

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3. In a railway-car, the combination, with the side and central sills and the transoms, of the transverse angle-irons D, secured to and resting upon the sills, substantially as and for the purposes specified.

4. In a railway-car, the floor-framing consisting of the channel-bars A, forming the side sills, the central sill, B, provided with channel-bars B', the transoms C, secured to the channel-bars A and passing under the central sill, and the transverse angle-irons D, substantially as and for the purposes specified.

5. In a railway-car, the combination, with the side and central sills, of transverse angle-irons secured thereto, and strips or battens of wood equal to or exceeding in height the angle-irons, to receive the flooring and sheathing, substantially as and for the purposes specified.

6. In a railway car, the combination, with the sills and transverse angle-irons, of the transverse strips or battens *d* and D', the sheathing E, and flooring E^3, each provided with an inner layer of paper, and the central layer of hair felt, E^2, arranged between layers of paper and secured between the strips *d* and D', substantially as and for the purposes specified.

7. In a railway-car, the members F, composed of a central strip, *f*, of wood, and side pieces, *f''*, of strap-iron, secured thereto, substantially as and for the purposes specified.

8. In a railway-car, the combination, with the side sills, of the members F, composed of a central strip of wood, *f*, and of side pieces, *f''*, of metal, having their lower ends bent at right angle and secured to the sills, substantially as and for the purposes specified.

9. In a railway-car, the combination, with the transverse members of the arched roof, of the truss-rods having their ends secured to the said transverse members at the hips of the arch, and the king-bolts secured to the said members centrally and bearing upon the truss-rods, substantially as and for the purposes specified.

10. In a railway-car, the combination, with the arched members F, of the truss-rods H, having their extremities secured to the said members at the hips of the arch, and extending inward and downward to the center of the car, and the king-bolts I, having lower forked extremities, *i*, to rest upon the truss-rods, and having their upper ends secured centrally to the members F, substantially as and for the purposes specified.

11. In a railway-car, the combination, with the sides and arched top formed in one continuous structure, of the angle-iron J, secured thereto at the springing of the arch within the car, substantially as and for the purposes specified.

12. In a railway-car, the combination, with the inner and outer sheathing, each lined with paper, of two series of transverse strips or battens, and a central layer of hair felt inclosed between layers of paper and secured between the two series of strips or battens, substantially as and for the purposes specified.

353,885. CORN-SHELLER. CYRUS ROBERTS, Three Rivers, Mich. Filed Jan. 29, 1886. (No model.)

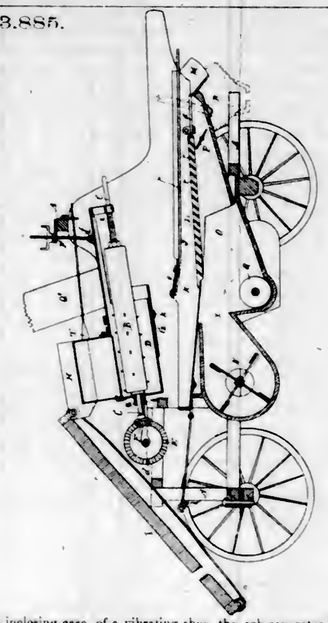
Claim.—1. In a corn-sheller, the combination, with the cylinder and inclosing-case, of a vibrating shoe located below the same, the cob-separator, the corn-separating riddle located immediately below said cob-separator, a wind-chamber extending underneath the whole length of said riddle and separator, and a fan within said chamber, said riddle and cob-separator being attached to the shoe, and all substantially as described.

2. In a corn-sheller, the combination, with the shelling-cylinder and inclosing-case, of the vibrating shoe, the cob-separator, the corn-separating riddle attached to said shoe, the horizontal longitudinal bars located at the rear end of said riddle, and a spout beneath said bars, substantially as described.

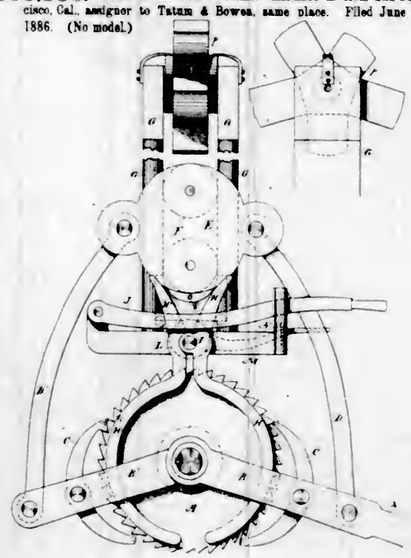
3. In a corn-sheller, the combination, with the shelling-cylinder and inclosing-case, of a vibrating shoe, the cob-separator having a head attached to said shoe, the riddle L, located beneath said separator, the inclined slats *s* at the rear end of the riddle, the wind-chamber O, having the inclined floor, a fan for creating a wind-current, the conveyer Q, and wind-guide P in said chamber, all constructed, arranged, and operating substantially as and for the purposes specified.

4. A corn-sheller having the following elements: a shelling-cylinder and an inclosing-case, a feeding-hopper, a vibrating shoe provided with a cob-separator, a riddle, and cob-delivering slats, a cob spout and hopper, a fan located under the front end of the shoe, a wind-chamber extending underneath the whole length of the riddle and cob-delivering slats, and an adjustable wind-guide adapted to direct all the air-currents through the riddle or to divide them and allow a portion of such currents to pass through the cob-delivering slats, the parts being constructed, arranged relatively to each other, and operating substantially as and for the purposes described.

353,885.



353,886. SAW-MILL SET-WORKS. ALPHEUS E. ROE, San Francisco, Cal., assignor to Tatum & Bowen, same place. Filed June 23, 1886. (No model.)



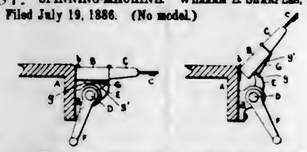
Claim.—1. In a saw-mill set-works, the ratchet-wheel secured to the head block screw, the arms B B', mounted on said screw and extending in opposite directions, the pawls C C', journaled in said arms upon opposite sides of the ratchet-wheel and alternately operating said wheel, in combination with the vertical guide-rods, the yoke E, moving in said guide-rods, the links D D', connecting the yoke with the arms B B', a stop at the upper end of the guide-rods, having arms of unequal length, as described, and the adjustable block O at the lower end of the guide, substantially as herein described.

2. The ratchet-wheel on the head-block screw, the arms B on said screw, having the alternately-operating pawls C C', and a yoke connected with said arms, in combination with an adjustable stop composed of the arms projecting radially unequal distances from a central shaft, about which they may be turned so as to act as a stop for the upward movement of the yoke E, substantially as herein described.

3. In combination with the pawls fulcrumed to the lever-arms moving about a common center with the ratchet-wheel, links connecting the arms with a yoke which moves in a vertical guide, as shown, the movable block or stop at the lower end of the guide, the cam or eccentric connected with said stop, by which it is raised or depressed, and an actuating-lever and segment-rack, substantially as herein described.

4. The ratchet-wheel secured to the head-block screw, arms moving about the same common center, carrying pawls which engage the teeth of the ratchet-wheel, as shown; when the arms are raised or depressed, in combination with the curved lifters H H', and the slotted lever J, whereby the lifters may be caused to move the pawls and disengage them from the teeth of the ratchet-wheel, substantially as herein described.

353,887. SPINNING-MACHINE. WILLIAM E. SHARPLES, Fall River, Mass. Filed July 19, 1886. (No model.)



Claim.—1. The combination, with the hinged board B, having the hinged blocks C, of the rock-shaft D, one or more cams, E, and a handle, F, substantially as described, and for the purposes specified.

2. The combination, with the hinged board B, having the hinged blocks C, and provided with one or more locking-shoulders, *g*, of the rock-shaft D, having one or more cams, E, and a handle, F, substantially as and for the purposes specified.

3. The combination, with the hinged board B, having the hinged block C, and provided with one or more plates, G, having an inclined face, *g'*, and shoulder *g*, of the rock-shaft D, having one or more cams, E, and a handle, F, substantially as and for the purposes specified.

353,888. SEWER-PIPE BACK-PRESSURE VALVE. WILLIAM H SIMPKINS, St. Louis, Mo. Filed Aug. 23, 1886. (No model.)



Claim.—The herein-described new and useful article of manufacture, consisting of the earthen pipe A, the valve-seat B, and valve D, said valve-seat at its lower end being held in a depression or groove in the pipe, and at its upper end being secured by the wedge C, substantially as described.

353,889. SNAP-HOOK. CHARLES H. SMITH, New Haven, Conn., assignor to O. B. North & Co., same place. Filed Sept. 20, 1886. (No model.)

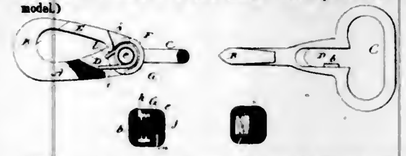


Claim.—1. In a snap-hook, the combination of the body A, terminating in a hook, B, at one end and loop C at the opposite end, constructed with a longitudinal open recess at the loop end adapted to receive the tongue, the tongue constructed with a hub corresponding to said recess in the body, and the tongue also constructed with a recess in one side, a helical spring in said recess the axis of which corresponds substantially to the axis of the hub of the tongue, and a collar in the said recess in the tongue bearing against said helical spring, the collar and corresponding side of the recess in the body interlocked with each other, the said spring serving to hold the said collar and side of the recess so interlocked, substantially as described.

2. In a snap-hook, the combination of the body A, terminating at one end in a hook, B, and at the other end in a loop, C, the body constructed with a longitudinal open recess at its loop end and with a concentric stud, *b*, on one side of said recess, the tongue E, constructed with a hub, F, having a recess upon the same side as the stud *b* and concentric therewith, a helical spring arranged in said recess in the hub of the tongue, and a concentric collar, *h*, in the recess in the tongue against the said helical spring, the said collar having an opening through it corresponding to the said stud *b*, the said spring terminating at one end in an arm adapted to bear upon the body of the hook and at the other end with an arm adapted to bear upon the tongue, substantially as described.

3. The combination of the body A, terminating at one end in a hook, B, and at the opposite end in a loop, C, with a longitudinal open recess through the body at the rear end and having a concentric stud, *b*, in one side of said recess and an open groove in the opposite side of said recess terminating concentrically with said stud *b*, a tongue, E, having a hub, F, constructed with a recess upon the same side as the stud *b* and concentric therewith, and with a trunnion, *d*, upon the opposite side corresponding to the said groove *a*, a helical spring arranged in said recess in the tongue, and a collar, *h*, concentric with said recess and having an opening through it corresponding to the stud *b*, substantially as described.

353,890. SNAP-HOOK. CHARLES H. SMITH, New Haven, Conn., assignor to O. B. North & Co., same place. Filed Sept. 20, 1886. (No model.)



Claim.—1. In a snap-hook substantially such as described, the combination of the body constructed with a hook at one end and an attaching device at the other end, and with an open recess, D, at the loop end in the plane of the hook, a tongue having a hub corresponding to said recess in the body, and constructed with a concentric recess in one of its sides, and an open helical spring adapted for contraction and expansion in the direction of its axis, and terminating at each end in an arm, one of which takes a bearing upon the body and the other upon the tongue, and whereby the torsion of the spring serves to yieldingly hold the tongue in its closed position, the corresponding side of the body constructed to receive the said spring under its expansion in an axial direction, substantially as described, and whereby said spring substantially forms the pivot upon which the said tongue rotates.

2. In a snap-hook, the combination of the body A, constructed with a hook at one end and an attaching-loop at the other end, and with an open recess, D, at the loop end in the plane of the hook, the said recess constructed with a stud, *b*, upon one side, the tongue E, having its hub corresponding to said recess in the body, and constructed with a recess, *d*, in one side of its hub, concentric with the stud *b* in the body, and an open helical spring, G, in the said recess in the hub, the said spring extending to and surrounding the said stud *b* on the body, the said spring terminating at each end in an arm, one of said arms taking a bearing upon the body and the other upon the tongue, substantially as described.

3. The combination of the body A, terminating at one end in a hook, B, and at the other end in an attaching-loop, C, constructed with a recess at its loop end, in the plane of the hook, with a stud, *b*, in one side of said recess, the tongue E, constructed with a hub, corresponding to said recess in the body, and with a concentric recess in the same side of the hub as the stud *b* on the body, and with a stud, *c*, in said recess, and concentric therewith, corresponding to the said stud *b* on the body, and an open helical spring in said recess in the hub, and around the stud therein, the said spring also extending onto the stud *b*, each end of the spring terminating in an arm, one of said arms taking a bearing upon the body and the other upon the tongue, substantially as described.

4. The combination of the body A, terminating at one end in the hook B and at the opposite end in an attaching-loop, C, constructed with a recess, D, at the loop end, the said recess constructed upon one side with an inwardly-projecting stud, *b*, and upon the opposite side with a groove opening downward, the upper end of the groove concentric with said stud, the tongue E, having its hub corresponding to said recess, and the hub constructed with a concentric recess upon one side and with a concentric stud upon the opposite side, with an open helical spring in the recess in the hub, the said spring extending to and surrounding the said stud *b* on the body, and the spring constructed with an arm at each end, one arm taking a bearing upon the body and the other upon the tongue, substantially as described.

353,891. SNAP-HOOK. CHARLES H. SMITH, New Haven, Conn., assignor to O. B. North & Co., same place. Filed Oct. 4, 1886. (No model.)



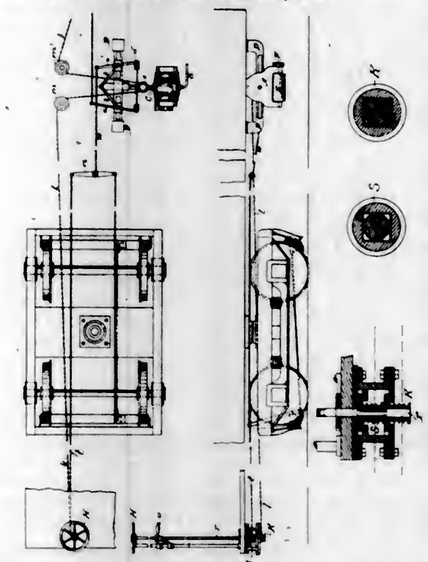
Claim.—1. In a snap-hook substantially such as described, the combination of the body, constructed with a hook at one end and an attaching device at the other end, and with an open recess, D, at the attaching end in the plane of the hook, a tongue having a hub corresponding to said recesses in the body and constructed with a concentric recess in one of its sides, a spring to actuate the tongue, and a second spring arranged in the said concentric recess in the hub of the tongue, the said spring adapted for contraction and expansion in the direction of the axis of the hub, the corresponding side of the recess in the body constructed to receive the said second spring under its expansion in said axial direction, substantially as described, and whereby said spring substantially forms the pivot upon which the said tongue swings.

2. In a snap-hook, the combination of the body A, constructed with a hook at one end and an attaching-loop at the other end, and with an open recess at the loop end in the plane of the hook, said recess constructed with an inwardly-projecting stud, I, in one side of the recess, the tongue having its hub corresponding to said recess in the body and constructed with a recess, G, in the side of the hub toward the said stud I, a spring to actuate the tongue, and a second spring, M, arranged in said concentric recess in the hub of the tongue, the said spring adapted for contraction and expansion in the direction of the axis of the hub, the external diameter of the spring corresponding to the internal diameter of the said recess, and the internal diameter of the spring corresponding to said stud I, substantially as described, the said spring M being adapted to engage the said stud I when the parts are assembled and form the pivot upon which the tongue may swing.

3. The combination of the body A, terminating at one end in a hook, B, and at the other end in an attaching-loop, C, constructed with a recess at the loop end in the plane of the hook, the body and the said tongue constructed with a concentric recess upon one side, a helical spring, J, arranged in the said recess, one arm of said spring taking a bearing upon the body and the other arm of the spring taking a bearing upon the tongue, and a second spring, M, arranged in the said concentric recess in the hub of the tongue, the said spring adapted for contraction and expansion in the direction of the axis of the hub, the corresponding side of the recess in the body constructed to receive said second spring under its expansion in said axial direction, substantially as described.

353,892. POWER-BRAKE. RENALDO SOLANO, Brooklyn, N. Y., assignor of two-thirds to John W. Howard and David R. Morse, both of same place. Filed June 28, 1886. (No model.)

Brief.—Brakes are applied by a barrel-spring and are released by fluid-pressure. Brakes may also be worked by hand.

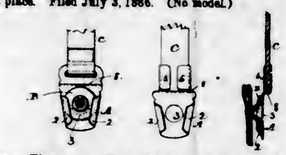


Claim.—1. The combination, in a power-brake, of mechanical power devices for applying the brake, consisting of a revolving cylinder, E, containing the coiled springs D', connected chain or rope *f*, piston-rod C, toggle-bars *b b*, equalizing-bar *d*, levers *c*, and rod *w*, with counteracting devices for releasing the same, actuated by a preponderating air or steam pressure.

2. The combination, in a power-brake, of mechanical power devices, substantially as described, for applying the brake, and auxiliary hand-power devices for releasing the same, consisting of a winding-winch composed of two connected and independently-operated parts, S K, chain or rope *l*, and connected hand-wheel H, substantially as described.

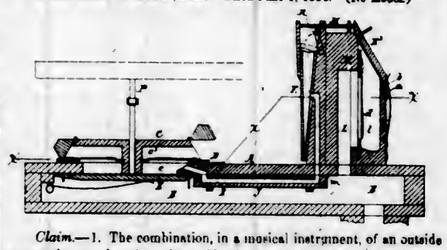
3. The combination of power devices, substantially as described, actuated by air or steam pressure for releasing a brake, and auxiliary hand-power devices for applying the same, consisting of a winding-winch composed of two connected and independently-operated parts, S K, chain or rope *l*, and connected hand-wheel H, substantially as described.

353,893. FASTENING DEVICE FOR SUSPENDERS. GEORGE W. STEWART, New York, N. Y., assignor to the National Suspender Company, same place. Filed July 3, 1886. (No model.)



Claim.—The button-clip having returned converging wings forming a tapering recess for the reception of the button, the means for connecting the strap or suspender, and a shoulder or offset at S, for the purposes and substantially as set forth.

353,894. PNEUMATIC ACTION FOR MUSICAL INSTRUMENTS. FRANK STONE, Worcester, Mass. Filed June 1, 1886. (No model.)



Claim.—1. The combination, in a musical instrument, of an outside pneumatic, a reed, and a valve, said valve controlling the passage through said reed, and a passage leading therefrom into the pneumatics, as set forth, whereby operation of the valve for admitting air through the reed opens the controlling air-passage of the pneumatic, substantially as and for the purpose set forth.

2. The combination, in an organ-action or musical instrument, with a reed and its valve operated by the manual key or other means, of an externally-disposed pneumatic having a controlling air-passage leading to and opening into the mortise or space between said reed and its valve, substantially as and for the purpose set forth.

3. The combination, with the reed-board A, having openings, as described, of the sub-bass section provided with controlling-pneumatics F, and the auxiliary board J, having the passages I extending through it, substantially as set forth.

4. The combination, with the wind-chest, a primary reed-set having reed-duct valves, as E, and the valves for controlling auxiliary sounding or expression devices, of outside pneumatics collapsible by external pressure of air for actuating said latter valves, controlled from the interior of the wind-chest or exhaust-chamber by the action of the reed-duct valves which control the sounding of said primary reed, substantially as herein set forth.

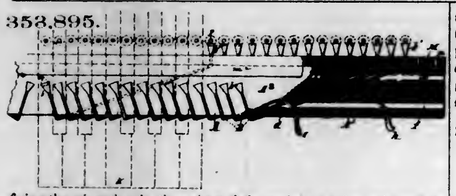
5. The combination, with a primary reed and the valve by which the flow of air through said reed is governed, of an air-passage leading into the mortise between said reed and valve, a pneumatic connected with said passage, and a second valve operated thereby, which controls the inlet of air to a second pneumatic that in turn actuates the valve of the secondary reed, whereby action of both said reeds is effected by opening the primary valve.

6. The combination, with a series of pneumatics arranged for operating the valves in a musical instrument, of an adjustable stop device adapted to be brought into position to act directly upon the pneumatics for arresting their operation, and to be turned back to allow the pneumatics to act, substantially as set forth.

353,895. ORGAN-COUPLER. FRANK STONE, Worcester, Mass. Filed July 8, 1886. (No model.)

Claim.—1. In an organ-coupler, the combination, with the series of wire coupling-levers, having their ends *b* and *b'* bent as shown, of a supporting-bar composed of a thin board having a series of parallel diagonal channels of sufficient depth to receive the wire formed therein, within which the shaft or body portion of the lever-wires is inclosed, and a thin veneer covering said channels from side to side of the bar, and con-

353,895.



fining the wires therein throughout their straight portion, substantially as shown and described.

2. The combination, with a series of torsional coupling-levers, of a supporting-bar having a series of diagonal channels, and a continuous hinging-piece provided with a series of openings for longitudinally confining the several levers in the series, joined by a flexible connection with the supporting-bar, substantially as set forth.

3. An organ-coupler having a series of torsional acting wire coupling-levers, the shafts or straight portion of which are inclosed within an externally-plain supporting-bar, within which are disposed a series of bearings formed by strips of fabric extending across said wires and confined by grooves against lateral displacement, and a hinging-strip having openings through which the wires extend, as set forth.

4. An organ-coupler wherein the support-bar is provided with longitudinal internal grooves, *f*, containing continuous upper and under packing-strips of felt or similar fabric, as I and A, extending across and forming bearings for the series of coupling-levers, substantially as set forth.

5. The combination with the supporting-bar and wire coupler-levers, of the back strip, M, provided with slots or recesses *m*, and the hinging fabric disposed for covering said recesses, substantially as and for the purpose set forth.

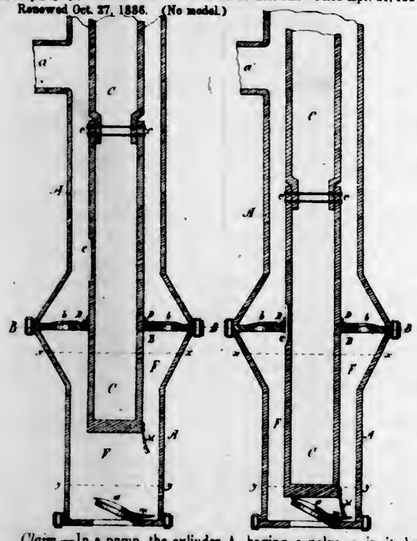
6. An organ-coupler consisting of the board A', having the series of diagonal kerfs or channels *d* extending across it, and the longitudinal grooves *f* formed therein, combined with the wire levers B, respectively disposed for torsional action within said diagonal channels, the felt packing-strips I, disposed in said longitudinal grooves, the plate A^2, covering and confining said packing-strips and levers, and the recessed hinging-bar M, all constructed and arranged substantially as and for the purpose set forth.

353,896. **COMPOSITION FOR USE IN THE MANUFACTURE OF ARTIFICIAL MARBLE.** CARL STRAUB, Syracuse, N. Y. Filed Feb. 23, 1886. (No specimens.)

Claim.—1. The herein-described composition of matter, to be used with plaster-of-paris and water for forming an artificial building material, consisting of glue, boiled linseed-oil, water, and acid, substantially as set forth.

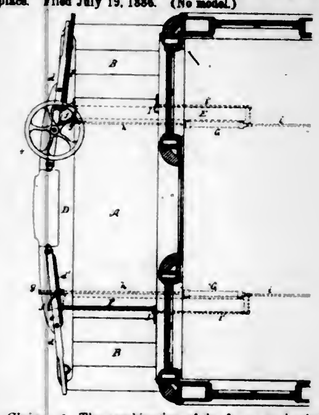
2. The herein-described artificial building material, constructed of glue, boiled linseed-oil, water, acid, and plaster-of-paris, compounded in substantially the proportions and manner specified.

353,897. **PUMP.** LOGAN TRAGUE, Arcata, Cal. Filed Apr. 21, 1884. Renewed Oct. 27, 1886. (No model.)



Claim.—In a pump, the cylinder A, having a valve, *a*, in its bottom, with a lever-arm, *m*, the annular diaphragm B, having valves *b*, and the reciprocating closed plunger C, formed in two parts of a diameter smaller than that of cylinder A and passing down through said diaphragm, said plunger having a passage, *e*, in its side adapted to open a connection between the portions of the cylinder on each side of the diaphragm, and an arm, M, on its bottom adapted to operate against lever *m* to open valve *a*, substantially as and for the purpose described.

353,898. **SAFETY-GATE FOR CAR-PLATFORMS.** EDWIN L. TRYE, Philadelphia, Pa., assignor of three-tenths to James N. Whelan, same place. Filed July 19, 1886. (No model.)



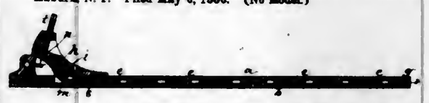
Claim.—1. The combination of the frame and platform of a railroad-car with a swinging gate adapted to close across said platform, a longitudinal cylinder secured to the frame of the car beneath the same, but independent of the braking mechanism, a rod having a piston adapted to said cylinder, a pipe for providing communication between said cylinder and the air-pressure or vacuum apparatus on the engine, and means, substantially as described, whereby the movement of the piston is transmitted to the pivot shaft or spindle of the gate, all substantially as specified.

2. The combination of the frame and platform of the car, the pivoted gate adapted to swing across the platform, a locking bolt or catch for said gate, a cylinder beneath the car having a piston and rod for operating the locking bolt or catch, and pipes whereby both of said cylinders may be placed in communication with the air-pressure or vacuum apparatus on the engine, both cylinders being independent of the braking mechanism of the car, all substantially as specified.

3. The combination of the frame and platform of the car, a pivoted gate swinging across the platform, a longitudinal cylinder independent of the braking mechanism of the car and having a piston-rod connected to the gate-shaft, a pipe for connecting said cylinder to air-pressure or vacuum apparatus on the engine, and a retracting-spring, all substantially as specified.

4. The combination of the swinging gate, the locking-latch and its piston, the cylinder to which said piston is adapted, a pipe for connecting said cylinder to air-pressure or vacuum apparatus on the engine, and a spring acting upon the upper end of the latch and projecting laterally beyond the same, so as to be acted upon directly by the gate as the latter closes, all substantially as specified.

353,899. **HARVESTER CUTTER-BAR.** JAMES H. VAN DE WATER, Auburn, N. Y. Filed May 6, 1886. (No model.)



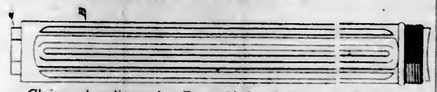
Claim.—1. The combination, with the cutter-bar and its separate cutter-sections removably secured therein, of a binding device for the cutter-sections, consisting of a cam, a loose abutting pin, and an adjusting-screw, substantially as described, for the purpose specified.

2. A cutter-bar having removable cutter-sections secured therein, substantially as described, in combination with a loose pin abutting against the terminal cutter-section, a cam having an abutting face acting against said pin, and a screw abutting against a face of the cam at right angles to said abutting pin, substantially as described, for the purpose specified.

3. The combination, in a bar, of the cutter-sections each having ∠-shaped slots open at their rear edges and confined in said bar by rivet-pins, with a cam having two faces, an abutting loose pin placed between one of said cam-faces and the said cutter-sections, and a screw acting upon the other cam-face at right angles to said pin, substantially as described, for the purpose specified.

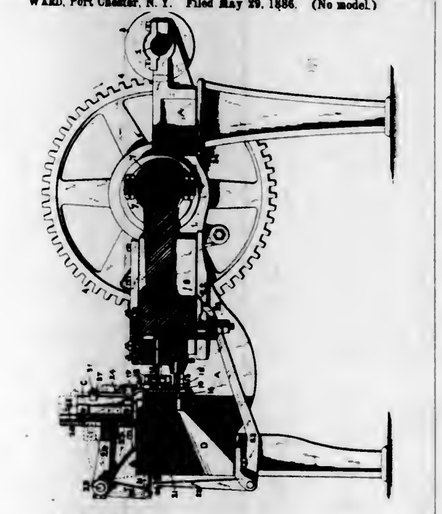
4. The combination, in a cutter-bar having removable cutter-sections, of a loose binding-pin abutting against the terminal cutter-section, and a cam having a face acting against said loose pin, with a screw acting against a self-adjusting seat of said cam, substantially as described, for the purpose specified.

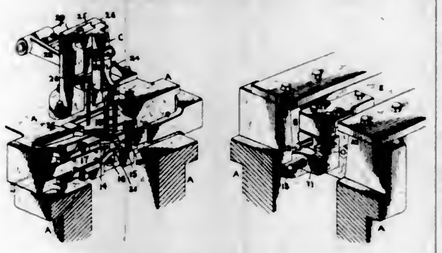
353,900. **LOOP-PIPE FOR RADIATORS.** GEORGE W. WALKER, Malden, Mass. Filed Mar. 31, 1885. (No model.)



Claim.—A radiator-pipe, B, provided with the angular head *a*, projecting from one end of the body of the pipe, to afford a wrench-seat for removing each pipe independently of the others from the radiator, substantially as shown and described.

353,901. **MACHINE FOR FORMING NUT-BLANKS.** WILLIAM E. WARD, Port Chester, N. Y. Filed May 29, 1886. (No model.)





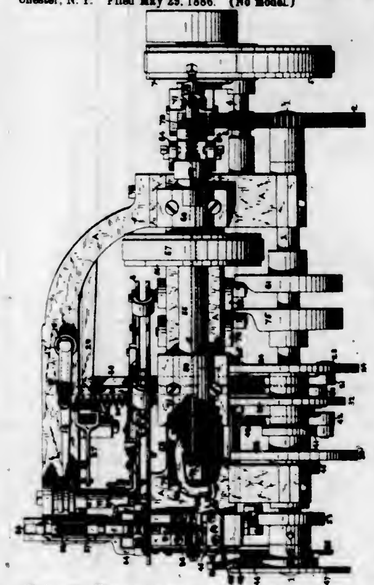
Claim.—1. The combination, substantially as hereinbefore set forth, of a punch and die for cutting out nut-blanks from a bar of stock, a punch and die for trimming or shearing the blanks so cut out, and a nut-blank receiver and transferrer, arranged substantially as described, to change place from in front of the trimming or shearing die to in rear of the cutting-out die during the same advancing movements of the said punches.

2. The combination, substantially as hereinbefore set forth, of a punch and die for cutting out a nut-blank from a bar of stock, a nut-blank receiving and transferring device, substantially as described, a punch and shearing-die for trimming the outside of the nut-blank, and mechanism, substantially as described, for causing the nut-blank receiver to transfer the blank to a position where it can be acted upon by the shearing-die and its punch and be returned to position in alignment with the cutting-out die in time to receive the next blank while the punch and shearing-die are operating upon the previous blank.

3. The combination and arrangement of a punch and die for cutting out a nut-blank from a bar of stock, a punch and die for shearing the outside of the blank, and a receiving and transferring device, substantially as described, arranged to vibrate in a path which is in the rear of the cutting-out die and in front of the shearing-die and be alternately in alignment with said dies, respectively, substantially as set forth.

4. The combination, substantially as hereinbefore set forth, of a punch and die for punching holes in a bar of stock, a punch and die for cutting out nut-blanks from said bar, said punch also delivering the blanks to receiving tongs or holders and forcing them partially out of the holder and into a crowning-die, a clearer, substantially as described, for restoring the blanks to the sole possession of the holder, a holding and transferring device for the nut-blanks arranged to move relatively to the cutting-out die and to the shearing-die, as described, and a punch and shearing-die for trimming the outside of the blanks.

353,902. **BOLT-DRESSING MACHINE.** WILLIAM E. WARD, Port Chester, N. Y. Filed May 29, 1886. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a conveyer for a series of headed blanks, a transferring plate or platform for removing the blanks from the conveyer, substantially as described, feeding-fingers adapted to take a blank from said plate, clamping-jaws for holding the blank, and mechanism, substantially as described, for moving said fingers from a position to receive a blank from the transferring-plate to the position described for presenting the blank to said jaws, whereby the blank can be introduced with certainty and accuracy into the jaws.

2. The combination, substantially as hereinbefore set forth, of feeding-fingers, clamping-jaws, and an adjusting-gage, said gage being arranged to operate against the under side of the head of the blank to project the blank a definite distance beyond the faces of the clamping-jaws, to insure the preservation of the greatest diameter of the head when acted upon by the head-dressing tools.

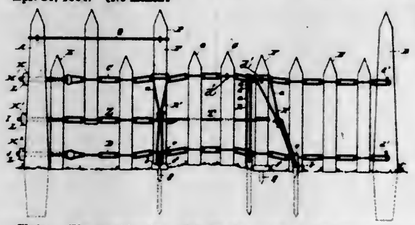
3. In combination with feeding-fingers and clamping-jaws, substantially as described, a head-dressing tool or tools mounted in an arm pivoted to a longitudinally-sliding and revolving shaft, and operated by mechanism, substantially as described, for first advancing said tool or tools in a direction parallel with the axis of the bolt-blank, and, secondly, in a direction transversely of the axis of the blank, for dressing the head of blank, substantially as set forth.

4. The combination, substantially as hereinbefore set forth, of a tool-holder constructed with a dovetailed recess, as described, and pivoted to a revolving shaft, a cutting-tool the upper edge of which is inclined in the same direction as the wall of said recess, and the lower surface of which has an inclination in the opposite direction, and a clamping device for wedging the cutter to the tool-holder.

5. The combination of the tool-holder pivoted to the head-block of a revolving shaft, a wedge-block for moving said holder on its pivot, and mechanism, substantially as described, for actuating the wedge-block, whereby the tool-holder is firmly backed during its entire path of movement, substantially as set forth.

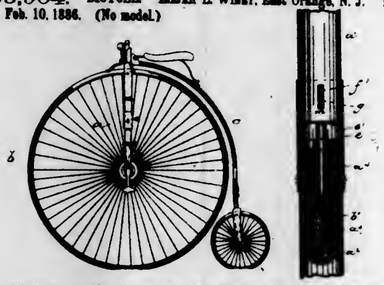
6. The combination, substantially as hereinbefore set forth, of the clamping-jaws, the clearer 36, and mechanism, substantially as described, for operating the clearer.

353,903. FENCE. REES L. WHITTINGTON, Bedford, Iowa. Filed Apr. 21, 1886. (No model.)



Claim.—The combination, with the fence-post and the stretcher-post connected by chain stringers, of the chain and wire stringer intermediate of the upper and lower stringer, the stationary pickets, and the stay-wires provided with securing-stakes, and the movable pickets resting in alternate links of the upper, lower, and intermediate stringers, substantially as specified.

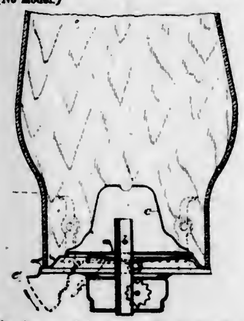
353,904. BICYCLE. ELIJAH L. WINEY, East Orange, N. J. Filed Feb. 10, 1886. (No model.)



Claim.—1. The improved fork for bicycles combining therein prongs or bifurcations, the sections a' a^2 of each of which are provided with a dowel, a dowel-hole, a spring, a collar, perforations $f f'$, and a key, all said parts being arranged and adapted to operate substantially as and for the purposes set forth.

2. In combination with the sections a' a^2 of the prongs or bifurcations of a bicycle-fork, an interposed spring, a dowel, a^4, working in a dowel-hole in the co-operating section, additional dowels n n, a band, e, perforations $f f'$, and a key, g, all said parts being arranged and combined substantially as set forth.

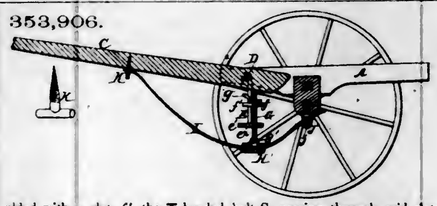
353,905. LAMP. ELIJAH L. WINEY, East Orange, N. J. Filed Apr. 13, 1886. (No model.)



Claim.—The improved burner herein described, consisting, essentially, of a slotted cap, a wick-tube, a perforated plate having a seat for the chimney, and an opening extending outward through and beyond said seat and the periphery of said plate and a spring-actuated shutter pivoted near said tube and extending beyond said seat to close said opening automatically, to enable the depressing end or finger-piece to be in view, and to allow the introduction of a match over said shutter when the latter is depressed, said parts being arranged and combined substantially as set forth.

353,906. TONGUE-SUPPORT. FREDERICK G. WIENKE and JOHN W BROWN, Leavenworth, Kans. Filed July 23, 1886. (No model.)

Claim.—1. The combination of the tongue and the running-gear with a tongue-supporting device, consisting of the spring I, the clevis E, having the cross-bar s', provided with a slot, e^3, and the cross-bar f, provided with a slot, f', the T-headed bolt G, passing through said slots and adjustably connected to said clevis, and a suitable clip for connecting the head of said bolt to said spring, whereby the bolt can be turned to one side to relieve the supporting function of the spring.

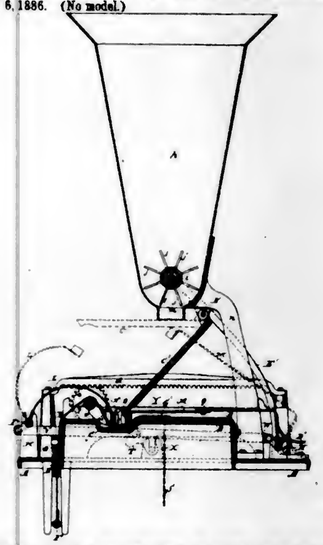


2. The combination, with the running-gear and the tongue pivotally connected therewith, of a clevis having hooked or eyed arms and engaged with said pivotal connection, a vertical bolt, G, engaging with said clevis, a clip pivotally connected with the head of the bolt, and a spring adjustably connected with the clip and bearing on the under side of the axle and the tongue, substantially as and for the purpose described.

3. The combination, with the tongue and axle, of the spring slotted at one end and held to the under side of the tongue by a T-headed bolt, and having its other end bearing on the under side of the axle, a roller journaled in bearings depending from the axle and holding said end of the spring, and a vertically-adjustable connection uniting said spring with the pivot of the tongue, substantially as and for the purpose described.

4. The herein shown and described means for connecting a tongue-supporting spring with the vehicle, consisting of the following elements, in combination: a clevis composed of arms having their upper ends hooked or eyed and their lower ends united by slotted cross-bars, a bolt passed through the slots in the cross-bars, a nut screwed upon the upper end of the bolt, and an adjustable clip for connecting said spring and bolt, having an oblong opening in its under side, substantially as and for the purpose hereinbefore set forth.

353,907. CIGAR-MACHINE. JOHN R. WILLIAMS, Newark, N. J. Filed Feb. 6, 1886. (No model.)



Claim.—1. In a cigar-machine, the rolling table and apron combined with the roller, the mold composed of hinged sectional plates forming between their meeting edges (which, when in use, rest upon said apron) the matrix for the cigar-filler, and suitable mechanism whereby the mold may be elevated from the apron, the said matrix having substantially vertical sides and being open above and below to receive the tobacco at its top and permit its escape through its bottom, substantially as set forth.

2. In a cigar-machine, the rolling table and apron, combined with the roller, and the mold composed of hinged sectional plates extending over the table and apron and forming between their meeting edges (which, when in use, rest upon said apron) the matrix for the cigar-filler, and one of said plates being adjustable as to its length, substantially as and for the purposes set forth.

3. In a bunching-machine, the rolling-table, the apron resting on said table, a mold composed of hinged sectional plates, and the roller combined with the elevated hopper, intermittent feed mechanism for the tobacco, the pivoted incline C', and suitable connecting mechanism, substantially as and for the purposes set forth.

4. In a bunching-machine, the rolling-table, apron, roller, and stops for the apron, one end of the apron being firmly held and the other end carrying a rod whose ends are below the said stops, substantially as set forth.

5. The base-plate having at opposite sides the ways Y and inverted racks d, combined with the rod Z, carrying pinions e, and roller P, the table B, apron D, and hinged sections L M, forming the matrix between their meeting ends, substantially as set forth.

6. In a bunching-machine, the table B, apron D, and roller P, combined with the sections L M, rock-shafts I J, to which the sections are secured, the rocking segment T, and draw-rods V W, secured eccentrically at one end to the segment and at the other to the crank ends of the shafts I J, substantially as set forth.

7. In a bunching-machine, the rolling-table, the apron on said table, the mold composed of hinged sectional plates extending over the apron and the roller, combined with the elevated hopper, intermittent feed mechanism for the tobacco, and the pivoted incline C', located over and arranged to be actuated by one of the hinged plates of the mold to either close the opening from the hopper or to direct the tobacco to the matrix of the mold, substantially as set forth.

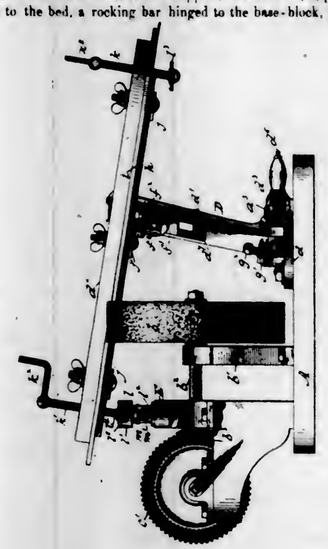
8. In a bunching-machine, the hopper having the discharge m of a size adapted to hold a sufficient quantity of tobacco for a bunch, and the shaft i, carrying pins j within the hopper above said discharge, combined with the matrix formed of vertical sides and open at its top and bottom, an apron beneath said matrix, a reciprocating roller for forming the bunch, and mechanism for raising and lowering the two parts of the matrix, substantially as set forth.

9. In a bunching-machine, the table and the apron resting upon said table, combined with the reciprocating roller between said table and apron, the matrix resting upon said table to receive the filler-tobacco, and mechanism for raising and lowering the two parts of the matrix, said matrix being composed of the vertical sides N O in the outline of a cigar, and having a permanently-open top and a permanently-open bottom, the former to receive the tobacco while the matrix rests upon the table and the latter to permit its escape when the matrix is elevated therefrom, substantially as set forth.

353,908. MACHINE FOR GRINDING MOWING-MACHINE KNIVES. WILLIAM S. WILLIAMS, East Hartford, assignor to Samuel E. Elmore, Hartford, and Edgar Brewer, East Hartford, Conn. Filed Apr. 19, 1886. (No model.)

Claim.—1. In combination with a base-block, a rocking bar hinged to the base-block, a blade-bar bearing a blade-clamp and connected to the rocking bar by a swivel-joint, and a fixed rest with means whereby the blade-bar is pivotally connected to the rest, all substantially as described.

2. In combination with a base or support, a base-block, d, pivotally connected to the bed, a rocking bar hinged to the base-block, a blade-bar bearing a blade-clamp, a fixed rest, and means whereby the blade-bar is pivotally connected to the rest, all substantially as described.



3. In combination with a bed, a base-block, d, with a connected latch, d^3, the locking-lugs fast to the bed or table, a rocking bar hinged to the base-block, a blade-bar bearing a blade-clamp and attached to the rocking bar by a swivel-joint, a fixed rest, and a universal joint, whereby the fixed rest and blade-bar are connected, all substantially as described.

4. In combination with the bed A, supporting a grindstone, b, the shaft b^2, bearing the bevel-gear b^3, the shaft c, bearing the bevel-gear c', and having its outer ends squared to receive a crank-handle, holder D, hinged to the base-block, and blade-bar d^2, with the blade-clamps, the fixed rest E, and the universal joint m, connecting the rest and the blade-bar, all substantially as described.

5. In a tool-grinder, in combination, a rocking bar attached to a bed and adapted to swing toward and from a grindstone, a blade-clamp hinged and pivoted to the rocking bar, and a fixed rest, with means whereby the blade-supporting clamp may be given a swinging play to and from the grinding-surface, swinging and turning upon the latter joint and upon the pivotal connection with the rocking bar, all substantially as described.

6. In a device for grinding tool-blades, a base, a rocking bar hinged to the base, a blade-bar connected to the rocking bar by a swivel-joint and to a fixed rest by a universal joint, the blade-bar in the back-and-forth motion required to grind the blade rocking upon two pivotal supports, all substantially as described.

7. In a device for grinding tool-blades, a base-block, d, a rocking bar, d', hinged to the base and bearing the adjustable stop g^3 and the stop g, a blade-bar, d^2, connected to the rocking bar by a swivel-joint, f, and to a fixed rest by a universal joint, m, all substantially as described.

8. In combination with a base-block, d, a rocking bar, d', hinged to the base-block, a swivel-joint, f, borne on the adjustable carriage f', attached to the rocking bar, the blade-bar d^2, attached to the joint and bearing a blade-clamp, and a fixed rest connected to the blade-bar by a universal joint, the blade-bar in the back-and-forth motion required to grind the blade rocking upon two pivotal supports, all substantially as described.

353,909. COFFEE-POT. JAMES O. WILSON and JAMES B. COX, Clayton, Ill. Filed May 18, 1886. (No model.)



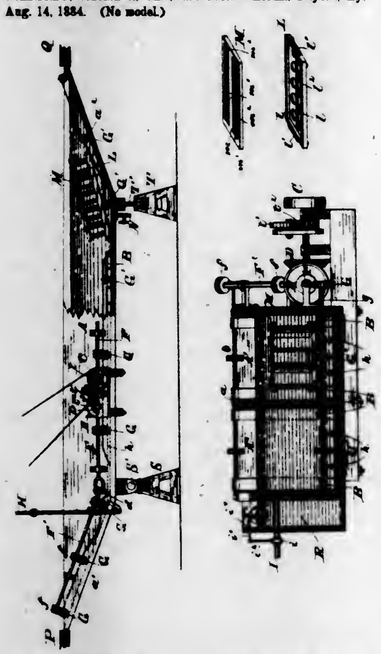
Claim.—The combination, with a coffee-pot and its handle, of the ring on the upper side of the handle, the hook C, the hinged cover having the eye or ring B on its upper side rearwardly of its center, the hook on the under side of the cover forwardly of its center, and the bag having the bail of the length described, and suspended from the hook on the under side of the cover, substantially as specified.

353,910. ORTHOPEDICAL APPLIANCE. ISSACHAR ZACHARIE, London, County of Middlesex, England, assignor to Samuel Purdy Zacharie, New York, N. Y. Filed Sept. 21, 1886. (No model.)



Claim.—In an orthopedical appliance, the combination of a spring-plate having a lateral curve extending from one end to about its center with an elastic strap or band secured to one end thereof, and consisting in part of an elastic web and in part of chamois-skin, and made to engage with a hook carried by a felt pad secured to the spring-plate at the inner end of its curved portion, said spring-plate having at the other end of its curved portion a strap or band for securing it to the great toe, all substantially as shown and described.

353,911. APPARATUS FOR CANNING FRUITS, MEATS, &c. GEO. ACKERMANN, Cincinnati, Ohio, and JOHN WAGNER, Dayton, Ky. Filed Aug. 14, 1884. (No model.)



Claim.—1. The tank provided with inclined ends a' and a^2, and having bottom provided with tracks B B and pinions G', in combination with the can-carrier L, having rack or teeth l^2, substantially as and for the purposes specified.

2. The tank provided with inclined ends a' and a^2, and having pinions G', and supported on supports S and T, support S being pivoted to one portion of the tank and support T having screw T', or equivalent device for raising and lowering the tank, substantially as and for the purposes specified.

3. The can-carrier L, in combination with cover M, provided with reticulations or openings, and the tank having track B and pinions G', substantially as and for the purposes specified.

4. The can-carrier L, having border l, and recesses l^3, and rack l^2, and handles l', in combination with the cover M, provided with reticulations or openings m^3, and the tank having track B and pinions G', substantially as and for the purposes specified.

5. The tank having bottom inclined at ends a' a^2, and having steam-pipes A, and pinion G', and carrier L, with cover, substantially as and for the purposes specified.

6. The tank having inclined ends a' a^2, and pinions G', located at or near the bottom of the tank, shafts g, pinion G, worms f, shaft F, and shafts F', connected to the latter by universal joints, and gear E, substantially as and for the purposes specified.

7. The tank having inclined ends a' a^2, and pinions G', located at or near the bottom of the tank, shaft g, pinion G, worms f, shaft F, and shafts F', connected to the latter by universal joints, gear E, gear D, pinions i^2 i' i, and driving-pulley, substantially as and for the purposes specified.

8. The tank having inclined end bottom portions and longitudinal partition a, and compartments A' A^2, provided with tracks B, pinions G', and the carrier L, provided with rack l^2, substantially as and for the purposes specified.

353,912. SHOE-BUCKLE. EDWARD H. ALCOTT, Chicago, Ill., assignor to himself and E. Bruce Preston, same place. Filed Sept. 11, 1886. (No model.)



Claim.—1. The combination of a suitable take-up and a sheet-metal base-plate, B, having ears b b, folded spring end b', having slot or opening b^2 for the take-up, and central eye or roll, b^2, with latch-lever plate D, having eye-rolls d d and locking projection d', formed by the reverse fold of the central part of said plate D, and pivot or hinge pin E, substantially as specified.

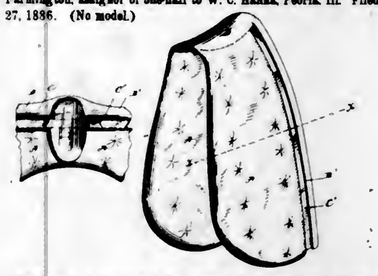
2. The combination of sheet-metal base-plate B, having ears b b, folded spring end b', having slot or opening b^2 for the take-up, and central eye or roll, b^2, with latch-lever plate D, having eye-rolls d d and locking projection d', formed by the reverse fold of the central part of said plate D, pivot or hinge pin E, and take-up C, substantially as specified.

3. The combination of sheet-metal base-plate B, having ears b b, folded spring end b', having slot or opening b^2 for the take-up, and central eye or roll, b^2, with latch-lever plate D, having eye-rolls d d and locking projection d', formed by the reversed fold of the central part of said plate D, pivot or hinge pin E, and take-up C, said plate B being provided with a central upturned lip, b^4, substantially as specified.

4. The buckle herein described, comprising a suitable take-up, a sheet-metal base-plate having a slotted folded spring end, through which the take-up may be inserted, and a locking-lever plate hinged to said base-plate and provided with a locking projection on its under side, substantially as specified.

5. In a buckle, the combination, with a suitable take-up and a base-plate, of a locking-lever plate hinged to said base-plate, said lever-plate having a pair of hinge eyes or coils, d d, on one side thereof, and furnished with a locking projection formed by a fold on the reverse side thereof, substantially as specified.

353,913. SWEAT-PAD FOR HORSE-COLLARS. STEPHEN BARSTOW, Farmington, assignor of one-half to W. C. Hanna, Peoria, Ill. Filed Sept. 27, 1886. (No model.)

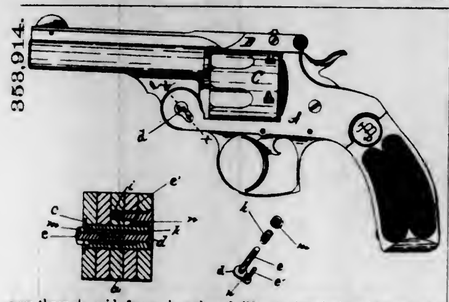


Claim.—1. A sweat-pad for horse-collars, consisting of two stuffed wings and two stuffed ribs lying forward of said wings, with a narrow flexible space intermediate each of the main wings and the stuffed ribs, said narrow spaces being free from stuffing, substantially as described, and for the purposes set forth.

2. A sweat-pad for horse-collars, consisting of a top flexible portion without stuffing, each of the two sides of said top being provided with a stuffed wing, two flexible stuffed ribs extending from points near the sides of the top downward to a length nearly equal to the length of the wings, and a flexible space not stuffed intermediate each of the wings and ribs, substantially as described, and for the purposes set forth.

353,914. REVOLVER. JAMES BOLAND, Norwich, Conn. Filed July 30, 1886. (No model.)

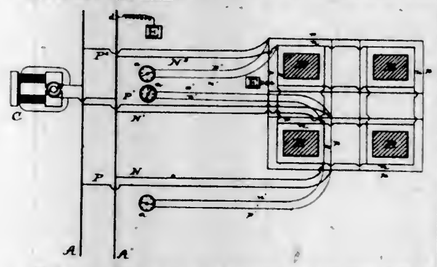
Claim.—1. In combination with a frame and barrel, hinged as described, and a lifter located between the hinge-leaves of the barrel, a pivot-screw drilled centrally throughout its entire length, adapted to



pass through said frame, barrel, and lifter to interlock said parts, the longitudinally-movable spring-pressed stud e, passing through said pivot-screw, having a plate, d, extending a considerable distance outward from the center of the hinge, and formed with stud e' parallel with stud e, and of such length that it may reach inward through the barrel-hinge to engage a perforation, i, in the said lifter, as herein described, and for the object specified.

2. In a revolver of the class referred to, in combination with the frame and a barrel having slot h and cam n', a lifter having the perforation i, coincident with said barrel-slot, a pivot-screw drilled through its entire length, and a spring-pressed plug located within said screw having the radial disk or arm d extending a considerable distance outward from the hinge-center, and carrying at its outer end the stud e', and cam n, adapted to engage, respectively, the said perforation i and barrel-cam n', as herein described, and for the object set forth.

353,915. ELECTRICAL TESTING. CHARLES S. BRADLEY, New York, N. Y., assignor to the Edison Electric Light Company, same place. Filed Apr. 5, 1884. (No model.)



Claim.—1. The method of determining in which main circuit of a system, such as described, a ground-connection occurs, consisting in changing the connection of the mains from one feeder to another, whereby the leak indications are transferred from one of the indicators connected with the feeder-terminals to another when the right main is reached, substantially as set forth.

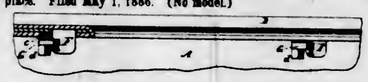
2. The method of determining the location of a ground-connection in an electrical conductor, consisting in connecting a galvanometer in a shunt around a portion of the circuit, including the conductor on one side of the leak, and then around a portion including the conductor on the other side of the leak, the different effects on the galvanometer indicating the relative distances of the leak from the ends of the conductor, substantially as set forth.

3. The method of determining the location of a ground-connection in an electrical circuit, consisting in connecting the conductor opposite to that which contains the leak to ground, and then applying current first at one end and then at the other, and noting the deflection of a galvanometer placed in a shunt between the terminals of the leaking conductor, the different deflections of the galvanometer indicating the relative distances of the leak from the ends of the conductor, substantially as set forth.

4. The method of determining the location of a leak in a main circuit of a system, such as described, consisting in connecting the conductors through a galvanometer, grounding the conductor opposite to the ground-connected one, and applying the current first at one end of the circuit and then at the other, the different deflections of the galvanometer indicating the relative distances of the leak from the ends of the conductor, substantially as set forth.

5. The method of determining the location of a ground-connection in a system, such as described, consisting in first determining on which side of the system the leak occurs, then grounding the opposite side of the system, whereupon the relative effect on indicating devices connected with the feeder-terminals determines near which feeder is the leak, then disconnecting mains successively from the feeder thus determined, whereupon the transferring of the leak indications from one of said indicators to another shows which of said mains contains the leak, and then connecting a galvanometer in a shunt first around a portion of this main circuit, including the portion on one side of the leak of the conductor containing it, and then around a portion of the circuit, including the portion of conductor on the other side, the different effects on the galvanometer indicating the relative distances of the leak from the ends of the conductor.

353,916. COFFIN. WILLIAM J. BREED and PHILIP G. OBER, Cincinnati, Ohio, assignors to the Crane & Breed Manufacturing Company, same place. Filed May 1, 1886. (No model.)



Claim.—1. The combination, with a coffin-body provided with a series of rotating cam-locking devices, of the lid provided with a corresponding series of shouldered lugs, whereby when said lid is applied to the coffin it may be secured and tightly locked thereto by the partial rotation of the locking devices and their engagement with the shouldered lugs, substantially as described.

2. The combination, with a coffin-body and its lid, of a series of shouldered lugs attached to the bottom of the lid and a corresponding series of coincident rotating cams or wedges attached to the coffin-body, whereby when the lid is applied to the coffin-body it may be securely and tightly locked thereto by the partial rotation of the cams or wedges and their engagement with the shouldered lugs, substantially as described.

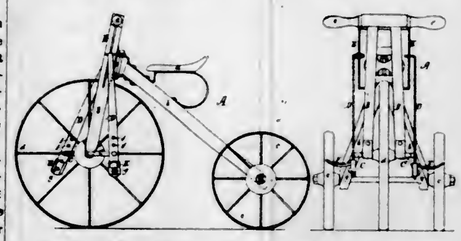
3. The combination, with a coffin-body provided with a flange near its upper edge, and its lid provided with a corresponding flange, of a series of shouldered lugs attached to the bottom of the flange of the lid and a corresponding series of coincident rotating cams or wedges attached to the flange of the coffin-body, whereby when the lid is applied to the coffin-body it may be securely and tightly locked thereto by the partial rotation of the cams or wedges and their engagement with the shouldered lugs, substantially as described.

4. The combination, with a coffin-body and its lid, of a series of shouldered lugs attached to the bottom of the lid and a corresponding series of coincident rotating segmental cams or wedges attached to the coffin-body, whereby when the lid is applied to the coffin-body it may be securely and tightly locked thereto by the partial rotation of the cams or wedges and their engagement with the shouldered lugs, substantially as described.

5. The combination, with a coffin-body provided with a flange near its upper edge, and its lid provided with a corresponding flange, of a series of shouldered lugs attached to the bottom of the flange of the lid and a corresponding series of coincident rotating cams or wedges attached to the flange of the coffin, and packing material interposed between the flange of the lid and the flange of the coffin-body, whereby the lid may be securely and tightly locked to the coffin-body and hermetically sealed thereto by the partial rotation of the cams or wedges and their engagement with the shouldered lugs, substantially as described.

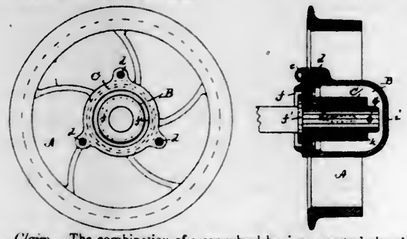
6. A coffin-lid provided on its under side, at or near its edge, with lugs F, having cut-out portions to form shoulders a, in combination with the body of the coffin, provided at or near its upper edge with rotating segmental cams G, arranged coincidently with the shouldered lugs F and engaging therewith when the lid is applied and the cams are partially rotated, substantially as described.

353,917. VELOCIPEDE. RODNEY G. BRITTON, Springfield, Vt. Filed Apr. 12, 1886. (No model.)



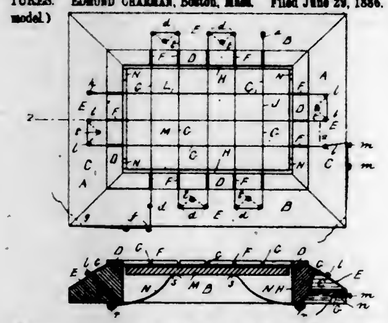
Claim.—The combination, with a velocipede, of the two pitmen D, applied to the wrists of its cranks C, and extending both above and below such wrists and provided with pedals E, adjustable on such pitmen lengthwise thereof to positions either above or below the crank-wrists, each of such pitmen at its upper end being supported by a guide-rod, E, or its equivalent, so as to slide and swing laterally thereon under the movement of the crank of such pitmen, as specified.

353,918. CAR-WHEEL. LEONARD R. BROOKS, Birmingham, Ala. Filed May 14, 1884. (No model.)



Claim.—The combination of a car-wheel having a central chamber or pocket, and a detachable hub having a recess in the face thereof, an axle having a journal adapted to fit the hub, and a collar of less diameter and width than the diameter and depth of the aforesaid recess, with means for holding the wheel on the axle, substantially as described, and for the purpose set forth.

353,919. APPARATUS FOR FACILITATING COPYING OF PICTURES. EDMUND CHARMAN, Boston, Mass. Filed June 29, 1886. (No model.)



Claim.—1. A drawing-frame, A, having springs N on its back, and cords or strings arranged across the front of the frame and each other and secured to the frame, for the purpose specified.

2. A drawing-frame, A, having springs N on its back, and cords or strings arranged across the front of the frame and each other and secured by pins *d l*, for the purpose specified.

3. A drawing-frame, A, having springs N on its back and slots F in its front, and cords or strings arranged in said slots and across said frame and secured, for the purpose specified.

4. A drawing-frame, A, having springs N on its back, slots F in its front, and cords or strings arranged in said slots and across said frame and secured thereto, in combination with a board, M, adapted to fit in said frame, for the purpose specified.

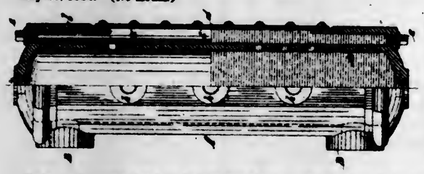
5. A drawing-frame, A, having springs N on its back, slots F in its front, and pins *d l*, and cords or strings arranged in said slots across said frame and about said pins and secured, for the purpose specified.

6. A drawing-frame, A, having springs N on its back, slots F on its front, pins *d l* and pins *m t*, and cords or strings arranged in said slots across said frame and about said pins and secured, for the purpose specified.

7. A drawing-frame, A, having springs N on its back, slots F on its front, and pins *d l*, and cords or strings arranged in said slots across said frame and about said frame and secured in a slit, for the purpose specified.

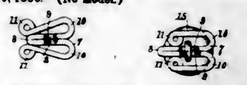
8. A drawing-frame, A, having springs N on its back, a rib or projection, D, having slots F, an inclined portion, E, on its front, and pins *d l*, and cords or strings arranged in said slots across said frame and about said pins and secured, for the purpose specified.

353,920. WATER-GAGE. THOMAS H. CHEEK, Marietta, Ga. Filed May 26, 1886. (No model.)



Claim.—A water-gage for steam-generators, consisting of a closed vessel having openings near the top and bottom that communicate by suitable connections with corresponding openings into the steam and water spaces of the generator, a compartment having its inner wall or partition perforated to communicate with said closed vessel, as described, and its outer wall provided with a sight-opening covered with mica and end openings fitted with removable stoppers, substantially as described.

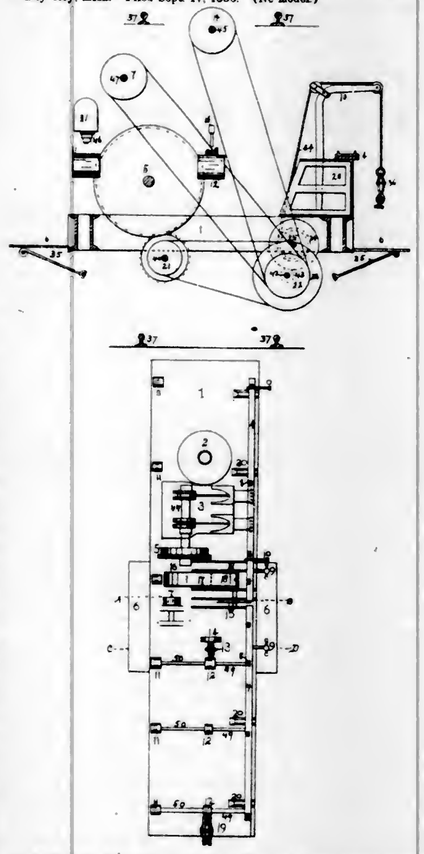
353,921. BUTTON-FASTENER. HENRY A. CHURCH, Providence, R. I. Filed Sept. 9, 1886. (No model.)



Claim.—1. A button-fastener formed of wire bent into an approximate M form, having the strands thereof lying substantially in the same plane, the central strands of the M form set near together and formed with a transverse arch near the center of length thereof, and constituting the retaining-loop, the outer strands of the M form bent at their free ends into coils disposed near the closed end of the loop, substantially as and for the purpose described.

2. The button-fastener 7, formed of wire bent into the retaining-loop 8, having the arched bearing 9, the bends 10, and the coils 11 at the free ends of the wire, all constructed substantially as and for the purpose described.

353,922. PORTABLE RAIL-SAW PLANT. WILLIAM L. CLEMENTS, Bay City, Mich. Filed Sept. 17, 1886. (No model.)



Claim.—1. In combination with a car, a boiler and engine mounted thereon, and a rail saw and drill mounted on the car and connected with said engine, substantially as shown and described.

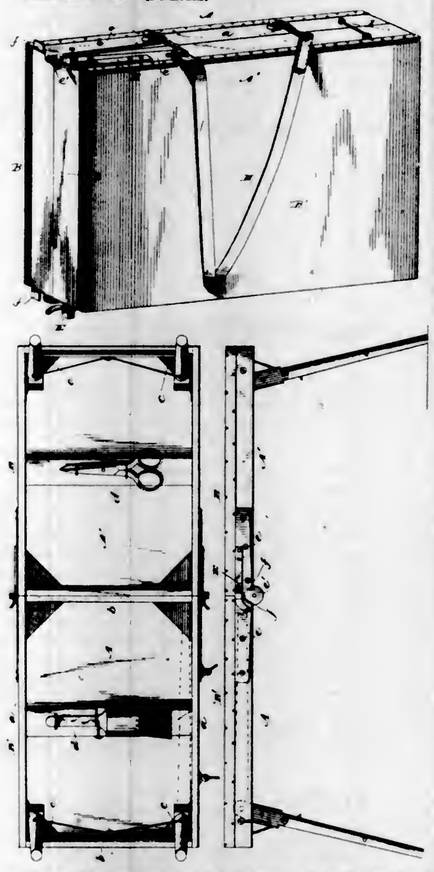
2. In combination with a railroad-car and a rail-saw mounted on said car near the longitudinal center thereof, and near one side, two independent movable feed-tables, one on each side of said saw, whereby the two ends of a rail can be successively presented to said saw without turning the rail around, substantially as and for the purposes described.

3. In combination with a railroad-car, a rail-saw mounted on said car and driven by suitable power carried on the car, two independent feed-tables, actuating mechanisms for moving said tables, a drill located at the lateral center of the car, and a turn-table located at the end of the car, substantially as shown and described.

4. In combination with a railroad-car, a rail-saw mounted in suitable supports thereon, two independent feed-tables running along one side of the car, a crane supported on the car over one of said feed-tables, and hoisting mechanism with said crane, substantially as shown and described.

5. In combination with a railroad-car, a rail-saw mounted on one side of the car near the longitudinal center thereof a drill mounted nearly in the lateral center of the car, and a straightening-press on the other side of the car, substantially as shown and described.

353,923. FOLDING TABLE. ELMER E. CONWELL, Pittsburg, Kans. Filed June 3, 1886. (No model.)



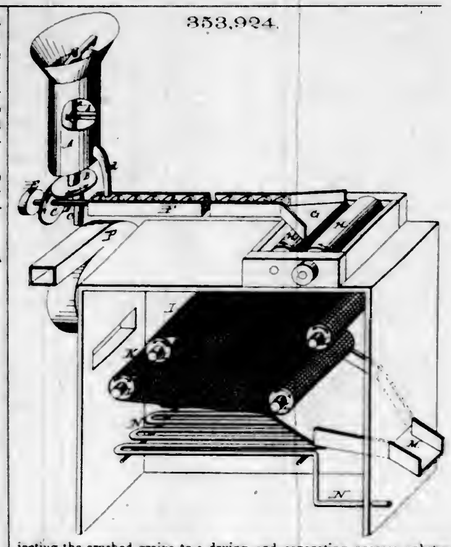
Claim.—The combination, in a folding table, of the sections A and A', having coverings of textile fabric tightly stretched over and attached to the side rails thereof, triangular braces *c*, attached to the side rails and on a line with the upper edges thereof, the folding legs G, pivoted to the side rails, *a*, and adapted when folded to bear upon the triangular braces at the opposite end of the section to which they are pivoted, substantially as shown, and for the purpose set forth.

353,924. PROCESS OF PREPARING GRAIN PRODUCTS. GEORGE H. CORMACK, Rockford, Ill. Filed Dec. 5, 1885. (No specimens.)

Claim.—1. In the preparation of grain products, the process substantially as herein described, consisting in steaming the grain, partially drying the steamed grain, reducing the partially-dried grains, and subjecting the product to a drying process, as and for the purpose set forth.

2. The herein-described process in the preparation of grain products, consisting in steaming the grain, partially drying and cooling the steamed grain, crushing the partially dried and cooled grains, and subjecting the crushed grains to a drying and separating process, substantially as and for the purpose set forth.

353,924.

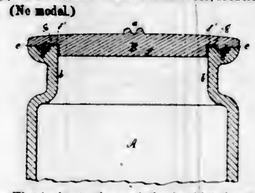


353,925. CORD AND ROPE HOLDER. ORIN CROCKER, Freeport, Ill. Filed Oct. 18, 1886. (No model.)



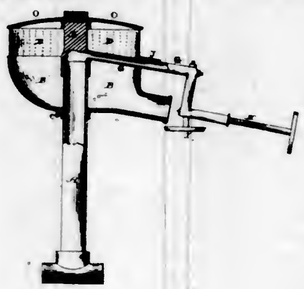
Claim.—A cord-holder consisting of a metal barb having at one end a cord-securing eye and at the other end two opposite hooks, both extending backward toward the eye, the opening of one of said hooks being at every point of greater width than the thickness of the cord to be secured, and the opening of the other hook being of an acute V shape, and of a width at its closed end less than the thickness of said cord.

353,926. FRUIT-JAR. GEORGE DARRACOTT, Muncie, Ind. Filed Aug. 30, 1886. (No model.)



Claim.—The body A, the neck *b* of which has the groove *c*, the chamfer *g*, circumferentially around the groove *c*, and the lip *f*, in combination with the cover B, having the rib *d*, as set forth.

353,927. VAPOR-BURNER. ZEBULON DAVIS, Cleveland, Ohio. Filed May 6, 1886. (No model.)

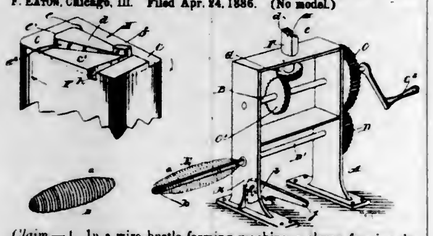


Claim.—1. The combination of the stand or supply pipe, the mixing-chamber B, which entirely surrounds the upper end of the said pipe, the removable perforated ring, and a cover, O, with the pipe G, which extends outward through the side of the mixing-chamber, the needle-valve, and the lighting-cup, the pipe G being made to pass under the perforated ring, substantially as shown and described.

2. The combination of the stand or supply pipe, the mixing-chamber, conducting-pipe, provided with a head, the support, the perforated plate, the removable cap detachably connected to the head or support, the needle-valve, and the lighting-cup, substantially as set forth.

3. The combination of the stand or supply pipe, the mixing-chamber, a conducting-pipe which is connected to the top of the stand or supply pipe and extends through the side of the chamber, and which is flattened out to receive the flame, the valve, the perforated plate, and the cap which is removably attached to the head upon the inner end of the pipe, substantially as specified.

353,928. MACHINERY FOR FORMING WIRE BUSTLES. Hugh F. Eaton, Chicago, Ill. Filed Apr. 24, 1886. (No model.)



Claim.—1. In a wire-bustle-forming machine, a clamp-forming device consisting of a triangular body, a raised lug at the apex of the angle, a groove tangent to this apex, and an inclined plane extending downward from said groove, substantially as described.

2. A wire-bustle-forming machine consisting of a supporting-frame, a bifurcated spindle, a double conical removable former for the body of the bustle, and a clamp-forming device having the raised angular portion *d*, the groove *h*, the inclined plane, and the lug *f*, all constructed and operated substantially in the manner and for the purposes described.

3. In a bustle-making machine, the combination of a wire-clamp-forming device, consisting of a rotative head having a flat surface, *c*, an inclined surface, an intermediate raised angular portion, terminated at its axis in a lug, *f*, and a groove, all adapted to operate substantially as described.

353,929. MANUFACTURE OF CROWNS FOR WATCH-CASES. Walter H. Fitz Gerald, Brooklyn, N. Y. Filed May 20, 1886. (No model.)



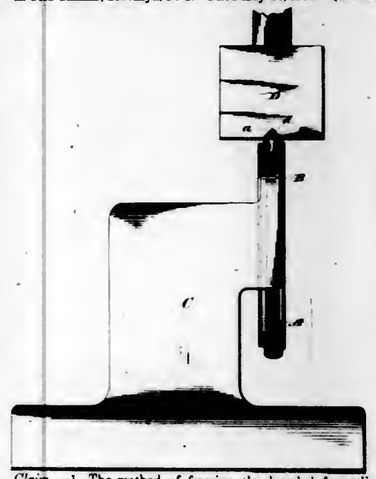
Claim.—1. As an improvement in the manufacture of watch-crowns by dies, the method of cupping the shell of a partially-completed crown by placing the lower semi-spherical end of the same within a correspondingly-shaped die-recess, and causing other dies, which move upon radial lines, to impinge upon and compress the upper portion of said shell, substantially as and for the purpose specified.

2. As an improvement in the manufacture of watch-crowns, the method which consists, first, in placing a cup-shaped blank within a correspondingly-shaped die-recess that has upon or within its face any desired ornamentation, next causing said blank to closely fill said ornamented recess by forcing into the interior of the former a correspondingly-shaped but larger die, and, lastly, placing the lower semi-spherical end of said crown blank within a corresponding die, and causing other dies, which move upon radial lines, to impinge upon and compress the upper portion of said blank, substantially as and for the purpose set forth.

3. As an improvement in mechanism for the manufacture of watch-crowns, a die-recess which is adapted to receive and contain the semi-spherical lower portion of the shell of a partially-completed externally-ornamented watch-crown, in combination with dies that are adapted to move upon radial lines, and with means whereby said dies may be simultaneously moved inward and caused to impinge upon and curve inward the upper portion of said shell, substantially as and for the purpose shown.

4. As an improvement in mechanism for the manufacture of watch-crowns, an interiorly-ornamented die-recess which is adapted to receive a cup-shaped crown-blank, and a plunger that is adapted to be pressed into the interior of said blank and force the latter against the face of said recess, in combination with a die-recess which is adapted to receive and contain the semi-spherical lower portion of said crown-blank, and with dies that are adapted to move upon radial lines and to impinge upon and curve inward the upper portion of said blank, substantially as and for the purpose shown and described.

353,930. MANUFACTURE OF WATCH-CASE CENTERS. Walter H. Fitz Gerald, Brooklyn, N. Y. Filed May 20, 1886. (No model.)



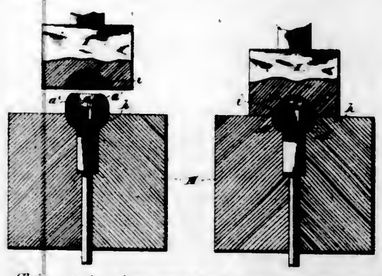
Claim.—1. The method of forming the beveled face adjacent to each hinge-rabbet of a watch-case center, which consists in compressing the metal at such point between dies, substantially as and for the purpose specified.

2. The method of adapting a watch-case center for the reception of a hinge, which consists in first forming the beveled faces by compressing the metal at such point between dies and then milling or cutting within one side of the same a rabbet that is adapted to receive and contain a hinge-tube, substantially as and for the purpose shown.

3. The method of forming watch-case centers, which consists, first, in forming a ring having the desired diameter and having in cross-section a convex exterior; next, in forming thereon beveled faces by compressing the metal between dies; and, lastly, cutting within one side of such ring or case-center a rabbet that is adapted to receive and contain a hinge-tube, substantially as and for the purpose set forth.

4. As an improvement in mechanism for the manufacture of watch-case centers, the anvil-die B, adapted to fit within the interior of the case-center, in combination with the die D, provided with the V-shaped groove *d*, substantially as and for the purpose shown and described.

353,931. MANUFACTURE OF CROWNS FOR WATCH-CASES. Walter H. Fitz Gerald, Brooklyn, N. Y. Filed May 20, 1886. (No model.)



Claim.—1. As an improvement in the manufacture of watch crowns, the method of forming a blank, which consists in the placing of a metal disk within or between dies, and by compression with the same producing a radial enlargement which has edges that are thinner than its central portion, and a central recessed boss, substantially as and for the purpose specified.

2. As an improvement in the manufacture of watch-crowns, the method of forming a blank with a cup-shaped head, which consists, first, in compressing a metal disk between dies so as to cause it to be enlarged radially, and such enlargement to have edges that are thinner than its central portion, and a central recessed boss, and next forcing such blank through a drawing-die and causing the outer part of its radially-enlarged portion to be turned upward, substantially as and for the purpose shown.

3. As an improvement in the manufacture of watch-crowns, the method employed for forming a blank having a cup-shaped ribbed head, consisting, first, in compressing a metal disk between dies so as to cause it to be enlarged radially, and such enlargement to have edges that are thinner than its central portion, and a central recessed boss, and next forcing such blank through a drawing-die and causing the outer part of its radially-enlarged portion to be turned upward, and, lastly, forcing such cup-shaped part into a grooved or ribbed die, substantially as and for the purpose set forth.

4. As an improvement in the manufacture of watch-crowns, the method employed, consisting, first, in compressing a metal disk between dies so as to cause it to be enlarged radially, and such enlargement to have edges that are thinner than its central portion, and a central recessed boss, next forcing such blank through a drawing-die and causing the outer part of its radially-enlarged portion to be turned upward, next forcing such cup-shaped part into a grooved or ribbed die, and finally drawing inward by dies the edges of the cup-shaped head, so as to give to said head the general form of a sphere, substantially as and for the purpose shown and described.

5. As an improvement in the manufacture of filled watch-crowns, the method employed, consisting, first, in compressing a metal disk between dies to cause it to be enlarged radially, and such enlargement to have edges that are thinner than its central portion, and a central recessed boss, next soldering or placing upon the outer face of such enlargement a plate of fine metal, next forcing the blank through a drawing-die to cause the outer part of its enlarged portion to be turned upward, and finally drawing inward by dies the edges of the cup-shaped parts, so as to give to the same the general form of a sphere, substantially as and for the purpose specified.

6. As an improvement in the manufacture of filled watch-crowns, the method employed, consisting, first, in compressing a metal disk between dies to cause it to be enlarged radially, and such enlargement to have edges that are thinner than its central portion, and a central recessed boss, next soldering or placing upon the outer face of such enlargement a plate of fine metal, next forcing the blank through a drawing-die to cause the outer part of its enlarged portion to be turned upward, next forcing such cup-shaped part into a grooved or ribbed die, and finally drawing inward by dies the edges of said part, so as to give to the same the general form of a sphere, substantially as and for the purpose shown.

7. As an improvement in mechanism for the manufacture of watch-crowns, the die B, provided with the annular recess *b*, in combination with the die C, having within its face the concave recess *c*, substantially as and for the purpose set forth.

8. As an improvement in mechanism for the manufacture of watch-crowns, the die D, provided with the round tapering opening *d*, in combination with the plunger E, having the opening *e*, substantially as and for the purpose shown and described.

9. As an improvement in mechanism for the manufacture of watch-crowns, the die F, provided with the ribbed or fluted recess *f*, in combination with the die G, having the recess *g*, substantially as and for the purpose specified.

10. As an improvement in mechanism for the manufacture of watch-crowns, the die H, provided with the ribbed or fluted recess *h*, in combination with the die I, having the recess *i*, substantially as and for the purpose shown.

11. As an improvement in mechanism for the manufacture of watch-crowns, the series of dies B and C, D and E, F and G, and H and I, combined and adapted to operate successively in pairs in the order named, substantially as and for the purpose set forth.

353,932. MANUFACTURE OF WATCH-CASES. Walter H. Fitz Gerald, Brooklyn, N. Y. Filed June 29, 1886. (No model.)



Claim.—1. As an improvement in the manufacture of filled watch-cases, the method of adapting a cover or bezel to be fitted to a case-center, which consists in first forming a recess within such point wherever it requires to be dressed, and fitting into and securing within such recess a correspondingly-shaped piece of solid fine metal, substantially as and for the purpose specified.

2. The method of forming the hinge portion of the cover or bezel of a watch-case, which consists in first forming within the edge of such part a recess that has a length substantially equal to the length of the hinge, next inserting into and securing within such recess a correspondingly-shaped piece of finer solid metal, next forming within such inserted piece a groove or rabbet for the reception of the hinge-tube, and, lastly, securing said tube in place within such groove or rabbet, substantially as and for the purpose shown.

353,933. WATCH-CASE CENTER. Walter H. Fitz Gerald, Brooklyn, N. Y. Filed Oct. 28, 1886. (Model.)



Claim.—1. As a new article of manufacture, a filled watch-case center which has adjacent to each hinge-rabbet a beveled face that is covered by a plate which is a part of and continuous with the surface covering of the body of said case-center, substantially as and for the purpose specified.

2. As a new article of manufacture, a filled watch-case center which is provided with a beveled face adjacent to each hinge-rabbet, and has its body and beveled faces covered exterior by a plate that is continuous, substantially as and for the purpose shown.

3. As a new article of manufacture, a filled watch-case center which is provided with a beveled face adjacent to each hinge-rabbet, and such beveled face is covered by a plate that is integral with and forms a part of the covering of the body of said case-center, substantially as and for the purpose set forth.

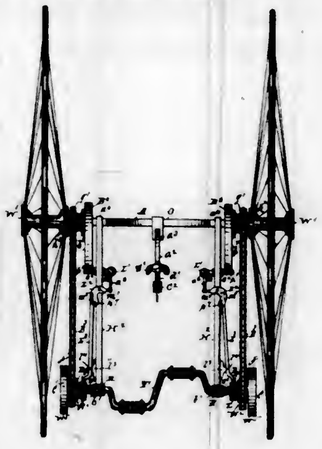
4. As a new article of manufacture, a watch-case center which is constructed principally of or from a base metal, and is provided with a beveled face adjacent to each hinge-rabbet, and has its body and beveled faces covered by a plate of relatively fine metal which forms a continuous surface over the same, substantially as and for the purpose shown and described.

353,934. SHIRT. George A. Gaye, Leominster, Mass., assignor of one-half to Francis A. Whitney, same place. Filed June 11, 1886. (No model.)



Claim.—A shirt consisting of a body and sleeves which are secured to said body at the shoulders of the shirt, combined with a re-enforcing band or strip for each sleeve, the said bands or strips being attached to the shirt-body and the sleeves on the inside of the shirt, and on opposite sides of the points at which the shirt and sleeves are joined, and being loose at the lines of union of the shirt and sleeves, substantially as set forth.

353,935. VELOCIPEDE. John Gibbons, West Troy, and Charles D. Menelly, Albany, assignors to the Menely Hardware Company, West Troy, N. Y. Filed Dec. 2, 1885. (No model.)



Claim.—1. In a bicycle having two wheels of the same size arranged side by side, the combination of the axle A, made with the laterally and frontwardly extended outcurve O, the arm a^3, attached to the axle at the outcurve and extended downwardly and rearwardly therefrom, and the seat or saddle S', connected to the downward extension of said arm, substantially in the manner as and for the purposes set forth.

2. In a bicycle, the combination of the pivoted shoes n', radially arranged in the outer face of the sleeve D, and the wheel W^2, made with the rim-flange f', and attached so as to move with the treadle-crank shaft T, substantially as and for the purposes set forth.

3. The combination of the treadle-crank shaft T, having the clutch-wheel W^4, provided with a rim-flange, f'', said wheel being attached to the outer end of said shaft, the sleeve D, having its outer end face made with the radially-arranged and pivoted shoes n', and having thereon the sprocket-wheel W^2 and shipper-groove I, said sleeve being arranged on said treadle-crank shaft, and the spring S^2, arranged on the latter between its bearings and said sleeve D, substantially as and for the purposes set forth.

4. The combination, with a bicycle-wheel, of a brake-wheel arranged on the hub thereof, a belt arranged to loop over the top of said wheel in frictional engagement thereon, with its ends below and away from said wheel, a turn-plate to which the ends of the brake-belt are secured, a horizontal shaft or bar having bearings to turn in and at one of its ends secured to said turn-plate, said shaft or bar being made with a pin projected at right angles therefrom, and a hand-lever provided with a fulcrum bearing on the end of said shaft or bar and a pin laterally projected from its side at right angles thereto, said pin on the hand-lever being adapted to engage with the pin on said shaft or bar, substantially as and for the purposes set forth.

5. The combination, with the braking mechanism, substantially as described, of the pivoted hand-lever L', made with the pivoted arm a^4, the turn-lever L^2, the pivoted lever L^3, the latter made with the forked lower end, Y, the sleeve D, made with the encircling groove I, the clutch C', and the treadle-crank shaft T, made with the wheel W^3, having the rim-flange f^3, constructed and arranged to operate substantially in the manner as and for the purposes set forth.

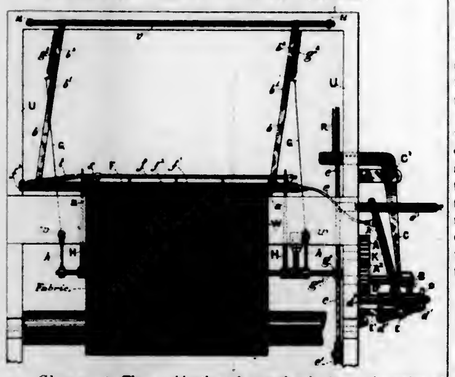
353,936. FASTENER FOR WINDOWS AND SHUTTERS. Reuben P. Hall, Burlington, N. J. Filed Apr. 2, 1886. (Model.)



Claim.—1. The bolt-plate A, having a series of stops, *b b*, in combination with the bolt B, pivoted to the plate and recessed, so as to swing over the stops *b b*, a sliding catch, C, held and sliding in a recess in said bolt and arranged to engage with and be disengaged from said stops, and a socket, E, with which said bolt engages, substantially as set forth.

2. The bolt-plate A, having a series of stops, *b b*, in combination with a bolt, B, having a boss, *f*, and a pivot-pin, *a*, carried by said plate and passing through said boss, said bolt further being recessed at *c*, so as to swing over the stops *b b*, and having a recess, *e*, and slot *h*, a sliding catch, C, held and sliding in said recess *s*, and having slot *d*, which embraces boss *f*, said catch having an operating-pin, *g*, which slides in said slot *h*, and a spring, D, which holds said catch normally in engagement with the stops *b b*, substantially as set forth.

353,937. LOOM FOR WEAVING PILE FABRICS. Thomas Harrison, Philadelphia, Pa. Filed Mar. 17, 1886. (No model.)

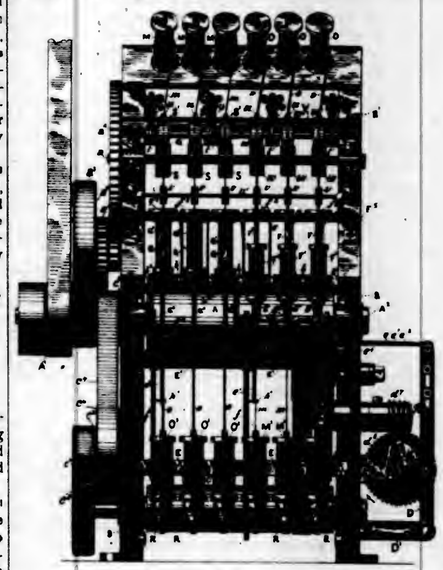


Claim.—1. The combination of a sectional wire, each section of which is journaled, as described, and capable of individual oscillation, and means, substantially as described, whereby said wire as a whole is reciprocated in the direction of the reed-motion, the warp-motion, and the shuttle-motion, and each section thereof is oscillated at stated intervals in the weaving operation, substantially as set forth.

2. In combination, a frame arranged above but adjacent to the line of travel of the shuttle, means, substantially as described, whereby said frame is suspended and made capable of motion in the direction of the shuttle-motion, the reed-motion, and the warp-motion, a series of wires, *a*, journaled in said frame and having bent shanks, a strip engaging with the bent shanks of said wires and free to move relatively to the frame, and means, substantially as described, whereby at proper intervals the frame as a whole and the said strip individually are actuated, substantially in the manner and for the purpose set forth.

353,938. MACHINE FOR PREPARING ASTRAKHAN WARP-THREADS. Thomas Harrison, Philadelphia, Pa. Filed Apr. 17, 1886. (No model.)

Brief.—The machine is intended to coil the warp-thread around a core and to wind the two together upon a bobbin, upon which they may be steamed, and then to untwist the warp and wind the core and warp upon separate bobbins, both the twisting and untwisting being performed side by side in a single structure.



Claim.—1. In a machine for curling warps, the combination of a coiling-flier, an uncoiling-flier, feeding and take-up devices arranged with respect to said fliers, substantially in the manner set forth, a common driving-shaft, and means, substantially as set forth, whereby the same motion which coils the warp is applied to the uncoiling thereof, substantially as described.

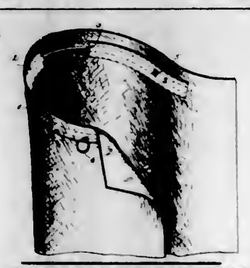
2. The combination of a flier provided with rotating mechanism, a hollow stem arranged in the axis of rotation, feeding and take-up devices at opposite ends of said stem, and a brake, substantially as described, operated by the warp-thread which is being uncoiled by said flier and operating to check the motion of the flier, substantially as set forth.

3. The combination, with the uncoiling-flier, the rotating device on which it rests freely, and the hollow stem arranged in its axis of rotation, of a lever pivoted to the flier and provided with a cam which bears against said stem, an eye upon said lever, and an eye upon the flier, through which the warp-thread passes after leaving the eye of the lever, the said eyes being disposed substantially as described, whereby the normal position of the warp-thread in uncoiling will permit the lever and its cam to remain inoperative, but an abnormal position of the warp-thread will operate the lever and raise the flier from its seat, substantially as set forth.

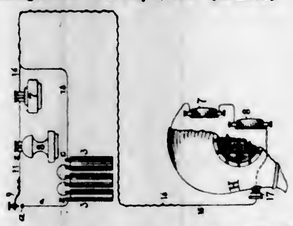
353,939. LAP-ROBE. Theodore Hawley, Fairfield, Conn., assignor of one-half to Edward W. Hafral, same place. Filed Sept. 18, 1886. (No model.)

Claim.—As an improved manufacture, a reversible lap-robe or similar article having at the center near one end a pocket, and a curved and recurved spring shorter than the width of the robe lying loosely in said pocket, whereby the robe is held closely about the person of the user wherever it may be placed.

353,939.



353,940. TELEPHONE APPARATUS FOR DIVERS. Hammond V. Hayes, Cambridge, Mass. Filed July 2, 1886. (No model.)

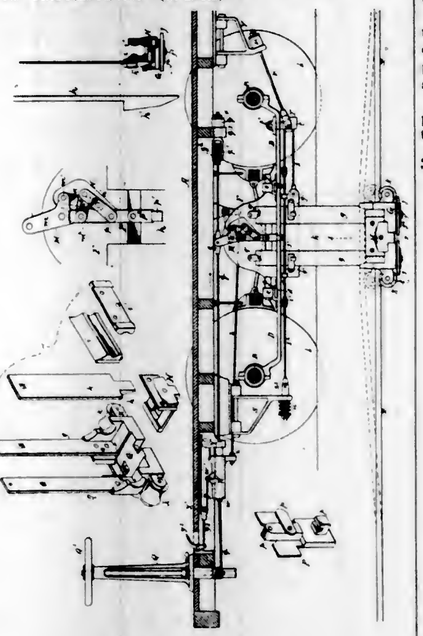


Claim.—1. A system of telephonic communication for divers' use, comprising two or more helmets, a transmitting and a receiving telephone for each helmet, an independent transmitter and receiver above the water, a battery in a hermetically-closed case supported by the diver, and an electric circuit including said telephones and battery, substantially as described.

2. A system of telephonic communication for divers use, comprising a diver's helmet, transmitting and receiving telephones supported thereby, an independent transmitting and receiving telephone for use on shore, and a connecting-circuit having one or both terminals in the metal of the helmet, substantially as described.

3. The combination of the belt, the combination-telephone and supporting-book therefor carried by said belt, and the battery and case also carried by said belt, substantially as described.

353,941. CABLE-GRIPPING DEVICE. John Hellings, Philadelphia, Pa. Filed June 14, 1886. (No model.)



353,941.



Claim.—1. The combination, in a cable-gripping device, of the gripping-head F and frame with sliding bars *d* and pivoted blocks *e e*, in which the head is pivoted, substantially as specified.

2. The combination, in a cable-gripping device, of the supporting-frame and head F, carrying gripping-jaws and having a longitudinal play on the frame, with a lever, M, pivoted to the head F and adapted to actuate the gripping-jaws and connected to the grip-actuating mechanism on the car, whereby the grip of the jaws on the cable is increased as the head is moved forward on the frame by the cable, substantially as specified.

3. The combination, in a cable-grip, of the grip proper with cable-supporting rollers and mechanism for raising the rollers to elevate the cable clear of the grip, substantially as specified.

4. The combination of the stationary jaw of the cable-grip and a sliding jaw with a wedge the bearing-surface of which is of different degrees of inclination, substantially as described.

5. The combination of the casing G and sliding jaw H with a removable shoe, *i*, which, when in place, retains the sliding jaw H, substantially as specified.

6. The combination of the casing G and sliding bar *h*, to be operated by the actuating mechanism on the car, with a pivoted cable-supporting lever, K, adapted to be operated by the bar *h*, all substantially as described.

7. The combination of a carrying-frame of a cable-gripping device with a sliding grip-head, rods or ropes *s s' s²*, and spring *u*, as and for the purpose described.

8. The combination of the carrying-frame of a cable-gripping device and sliding grip-head F with rods or ropes *s s' s²*, swiveled bearings T, S, and V, and springs *u* and *v'*, all constructed substantially as and for the purpose set forth.

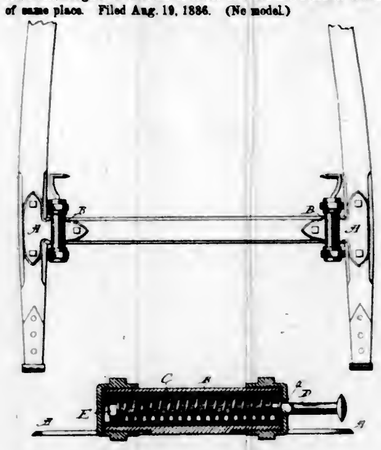
9. The combination of the lever M, having arms *m m' m²*, with the sliding plate P, connected to the arms *m' m²* of the lever M, and lever N and links *n n¹*, all substantially as described.

10. The combination of the grip-operating rope *q*, the braking mechanism, and a bar, *w*, having one or more teeth, with a casing, W, pawl *w'*, pivoted thereto and adapted to engage the teeth of the bar *w*, the casing W, connected to the braking mechanism, and devices for raising and lowering the pawl to throw the brakes in and out of gear with the bar *w* on the rope *q*, substantially as described.

11. The combination of the bar *w*, casing W, and pawl *w'* with a rope, *y*, passing around a pulley on a hanger, Y, and around a pulley, *y'*, connected to the foot-lever y^2, one end of the rope *y* connected to the pawl *w'*, and the other connected to the casing W, all substantially as and for the purpose described.

12. The combination of the casing G, wheels *j*, sleeve j^2, having pins j^3, fitting in orifices in the casing G, and a screw-bolt, *j''*, all substantially as set forth.

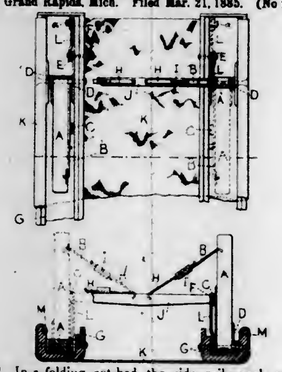
353,942. DRAFT-HOOK FOR VEHICLES. George Hion, Manchester, N. H., assignor of one-half to Rosto O. Wood and Julia B. Wood, both of same place. Filed Aug. 19, 1886. (No model.)



Claim.—1. The combination of draw-bar D, nut E, spring C, tube A, and T-brace, substantially as herein described and set forth.

2. The combination of draw-bar D, nut E, spring C, tube A, and T-brace with the thills and cross-bar of a vehicle, in the manner and for the purposes substantially as herein described.

353,943. FOLDING COT-BED. EDWARD E. HERRIDTON and HENRY C. RUSSELL, Grand Rapids, Mich. Filed Mar. 21, 1885. (No model.)

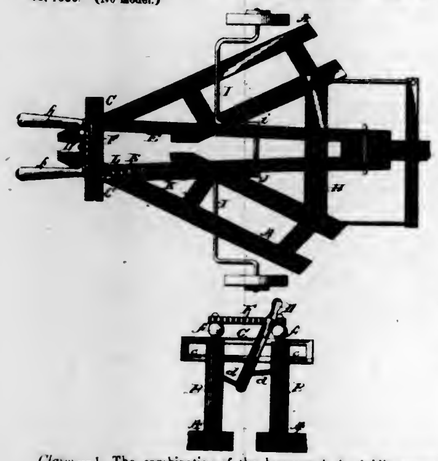


Claim.—1. In a folding cot-bed, the side rails, each open on one side, adapted to receive and inclose the web or cloth, and legs and braces constituting the other parts of the cot-bed, substantially as described.

2. In a folding cot-bed, the combination of the side rails, open on one side, with the cloth or web adapted to fold within the hollow formed by placing the two side rails together, substantially as described.

3. In a folding cot-bed, the combination of the side rails, open on one side, a web or cloth, and hinged legs adapted to fold with said web within the open sides of the side rails, substantially as described.

353,944. HARROW. WILLIAM HILL, Aliceville, Kans. Filed July 13, 1886. (No model.)

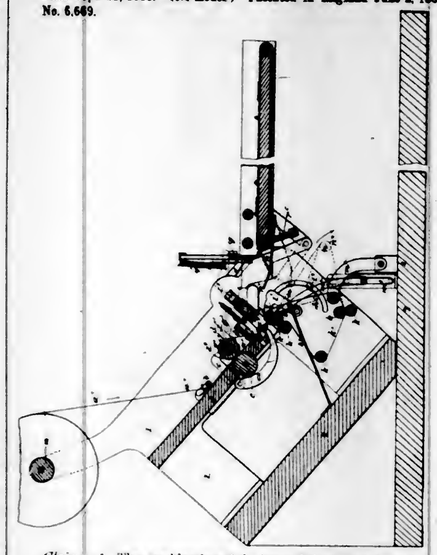


Claim.—1. The combination of the harrows A A, rigidly secured to the uprights B B, carrying rollers *b b*, running in the slotted cross-frame C, the lever D, pivoted thereto and provided with connecting links or arms *d d*, the uprights G G, loosely pivoted to said harrows, and provided with the stationary cross-frame H, and the crank-axle I, carrying the wheels, as and for the purpose described.

2. The combination of the harrows A A, rigidly secured to the uprights B B, carrying rollers *b b*, running in the slotted cross-frame C, the lever D, provided with the pawl *d'*, the connecting links or arms *d d*, the uprights G G, loosely pivoted to said harrows, and provided with a stationary cross-frame, H, the horizontal braces E E, secured thereto and terminating in handle *f f*, the ratchet-brace F, and crank-axle I, as and for the purpose described.

3. The combination of the harrows A A, provided with the crank-shaft I, the arm J, secured thereto and hinged to the lever K, attached to the brace E, the semicircular ratchet L, the uprights B B, carrying rollers *b b*, running in the slotted cross-frame C, the lever D, and connecting links or arms *d d*, for operating the said harrows, as and for the purpose described.

353,945. CIGARETTE-MACHINE. FRANK HIPGRAVE, London, County of Middlesex, assignor to Ambrose Boulton Biggs, Birmingham, England. Filed Sept. 21, 1885. (No model.) Patented in England June 2, 1885. No. 6,669.



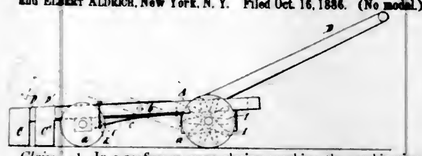
Claim.—1. The combination of the intermittingly-rotating tobacco-feed rolls *s s*, the tobacco-knife *q*, and the tilting-tables *p p'* with the intermittingly-acting paper-feed rolls *d e*, paper-cutting knife *g*, tilting pasting-table *h*, paste trough and roll *i i'*, the cigarette-forming endless band *k'*, and suitable operating mechanism, substantially as described.

2. In a cigarette-machine, the rotating wheels o^3 p^3, each provided with a pair of tappet-studs, o^3 o^3 o^4 o^4, in combination with the levers *o o'*, knife *q*, retracting-springs *q'*, the tobacco-feed rolls *s s*, mechanism for intermittingly actuating the latter, and suitable connecting mechanism, whereby the tobacco for each cigarette is severed by a rapid double-cut while said feed-rolls are at rest, substantially as described.

3. In a cigarette-machine, the combination, substantially as herein described, of the intermittingly-acting paper-feed rolls *d e*, finger *j*, knife *g*, tilting table *h*, paste-trough and roll *i i'*, and suitable operating and connecting mechanisms for said rolls, finger, and knife, whereby the paper for each cigarette is severed and pasted in the manner set forth.

4. In a cigarette-machine, the combination, with an endless band, *k'*, and mechanism for causing the same to travel continuously, of the gravitating arms m^2, having bight-forming stud-arms *m* at their upper extremities, the frame parts provided with guide-slots m^3, the rollers *l n*, for opening and closing the bight, the vibrating arms l^2 n^2, which carry said rollers, and the operating and connecting devices of each, substantially as described, whereby the tobacco for each cigarette is rolled and wrapped in the manner set forth.

353,946. ROOF-SEAMING MACHINE. SAMUEL E. HOLT, Catskill, and ELBERT ALDRICH, New York, N. Y. Filed Oct. 16, 1886. (No model.)



Claim.—1. In a roofing or seam-closing machine, the combination, with a truck, of a mallet and a support therefor automatically operated while the truck is being moved along to cause the mallet to strike a blow, substantially as specified.

2. In a roofing or seam-closing machine, the combination, with a truck, of a mallet and a lever automatically operated while the truck is being moved along to cause the mallet to strike a blow, substantially as specified.

3. In a roofing or seam-closing machine, the combination, with a truck, of mallets and mechanism, substantially such as described, whereby the mallets will be caused to alternately deliver a blow, substantially as specified.

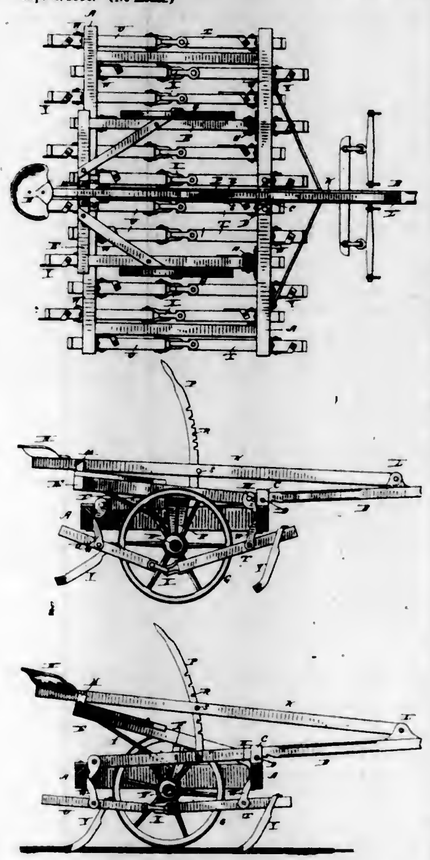
4. In a roofing-machine, the combination, with a truck, of mallets in approximate alignment and mechanism, substantially such as described, whereby the mallets will be caused to alternately deliver a blow.

5. In a roofing-machine, the combination of a truck, A, levers D D', mallets C C', and toothed wheels I, substantially as specified.

6. In a roofing-machine, the combination of a truck, A, levers D D', mallets C C', springs *c*, and wheels I, substantially as specified.

7. In a roofing-machine, the combination of a truck, A, levers D D', mallets C C', springs *c*, tension devices for the springs, and wheels I, substantially as specified.

353,947. PULVERIZER. HARLAN S. HOWARD, Madison, Wis. Filed Sept. 2, 1886. (No model.)



Claim.—1. In a pulverizer, the combination, with the main frame, of two rows or series of teeth-supports, each support provided with a pulverizing-tooth and being pivotally secured to the main frame, and the supports of the forward series connected to the supports of the rear series, so as to have a mutual operation, substantially as set forth.

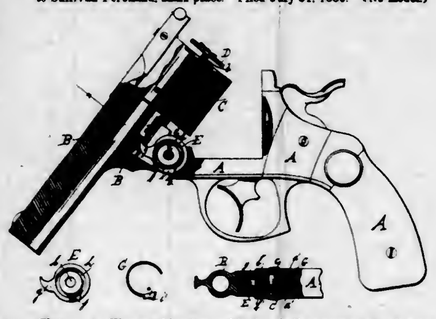
2. In combination with the main frame, the drag-bars pivoted thereto and connected by means of links at their adjoining ends, so as to move simultaneously, substantially as specified.

3. The combination, with the main frame, of the frame secured to the standards carrying the axles of the machine, the beam secured to said frame and the beam carrying the seat and resting upon the last-mentioned frame, and the notched lever and bolt, whereby the parts of the machine are adjusted, substantially as specified.

4. The combination, with the main frame of a pulverizer, of two rows or series of drag-bars, each of said bars pivotally secured to the main frame and provided with pulverizers, and the rear ends of the forward series connected to the adjacent ends of the rear series, so as to have a mutual operation, substantially as specified.

5. The combination, with the main frame of a cultivator or pulverizer the front and rear beams of which are each provided with a series of hangers, W, of the front and rear series of drag-bars, T and U, pivotally secured to the said hangers, the pulverizing-teeth secured to the said drag-bars, and the links X, connecting the adjacent ends of the two series of drag-bars together, substantially as specified.

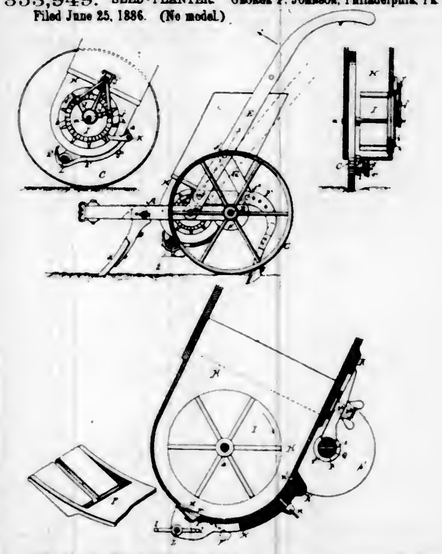
353,948. REVOLVER. JOHN C. HOWE, Worcester, Mass., assignor to Sullivan Forehand, same place. Filed July 31, 1886. (No model.)



Claim.—1. The combination, with the shell-extractor of a fire-arm and its actuating-spring, of the pivoted extractor-lifter E, located at the joint of the fire-arm, and an actuating-spring, G, contained within the lifter and having one end enlarged and projecting beyond the edge thereof, and adapted to engage with shoulders on the barrel portion and the stock to automatically operate the shell-extractor by tilting the barrel upon its hinge, in the manner substantially as shown and described.

2. In a revolving fire-arm provided with a shell-extractor and actuating-spring, an extractor-lifter, E, located at the joint of the fire-arm and provided with a finger, *g*, a hole, *k*, and a circular groove or countersink, *h*, in one side thereof, and an opening, *j*, connecting said groove with the edge of the lifter, and the actuating-spring G, contained within the groove *h* and having one end enlarged, and extending through the opening *j* and projecting beyond the edge of the lifter at one point, substantially as shown and described, and for the purpose stated.

353,949. SEED-PLANTER. GEORGE F. JOHNSON, Philadelphia, Pa. Filed June 25, 1886. (No model.)



Claim.—1. The combination of the seed-box and a device for causing the seeds to move therein, with a delivery-opening having on the forward side a fixed wing projecting into the box, whereby as the seeds are moved forward across the opening they are caught by said fixed wing and guided into the opening, all substantially as specified

2. The combination of the seed-box having an outlet-opening, wings or projections for guiding the seeds into said opening, and a wheel having a recess or chamber in line with the opening, all substantially as specified.

3. The combination of the seed-box and a device for causing the seeds to move therein, with a T-shaped slot having upturned guide-wings at the junction of the two portions of the slot, all substantially as specified.

4. The combination, in a seed-planter, of the seed-box having a delivery-opening and a device for causing the seeds to pass through said

opening, with a feed-cup receiving the seeds from the box, and a device for ejecting the seeds from said cup, all substantially as specified.

5. The combination of the seed-box, the wheel I, having ratchet-teeth, the driving-shaft having an eccentric, the lever J, having a pawl engaging with the ratchet-teeth of the wheel I, and a rod connecting said eccentric and lever, all substantially as specified.

6. The combination of the seed-box having a discharge-slot, the external slotted feed-cup having an elastic support, and the ejecting-arm adapted to pass through the slot of the cup and depress the same, in order to eject the seed, all substantially as specified.

7. The combination of the seed-box having a discharge-opening, with an external feed-cup, an arm for ejecting the seed therefrom, and mechanism for operating the arm, said feed-cup and ejecting devices being carried by a bar detachable from the seed-box, all substantially as specified.

8. The combination of the ejector-shaft and its arms, the shaft K, having arms *k k'*, the wheel I, having projections acting on the arm *k*, and mechanism whereby the movement of the arm *k'* is transmitted to the ejector shaft so as to partially rotate the same, all substantially as specified.

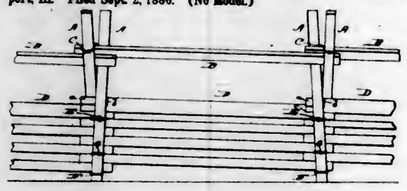
9. The combination, in a seed-planter, of seed-feeding devices with an operating-shaft and an eccentric connected to said seed-feeding devices and adjustable on the shaft to vary its throw, all substantially as specified.

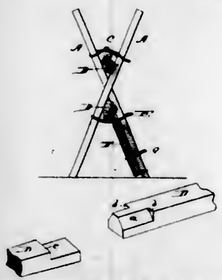
10. The combination of the driving-shaft, a fixed disk thereon, an eccentric pivoted to said disk, a loose disk connected to the eccentric and serving to adjust the same, a scroll-sleeve connected to said loose disk, and an adjustable pin adapted to the slot in said sleeve, all substantially as specified.

11. The combination of the feed-box having a delivery-slot with a seed-moving wheel recessed or chambered in line with said slot, and with means, substantially as described, whereby the seeds are directed toward said recess or chamber of the wheel as the latter rotates, all substantially as specified.

12. The combination of the fixed frame of the machine, the covering-blades, and their pivoted arms, and the guide-handles E, pivoted to the fixed frame and connected to the pivoted arms of the covering-blades, all substantially as specified.

353,950. FENCE. WILLIAM R. KING and JOHN W. HIGHFIELD, Bridgeport, Ill. Filed Sept. 2, 1886. (No model.)



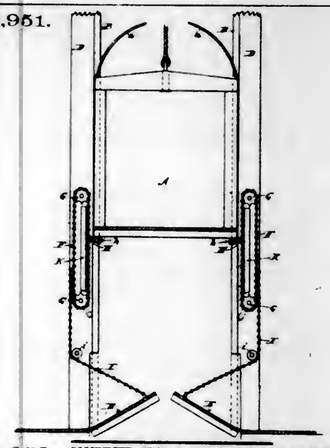


Claim.—A fence consisting of crossed stakes or posts A, horizontal riders B, having their ends overlapping and resting in the upper crotches of the said stakes, the twisted wire loops C, passing around the stakes and over the ends of the riders, the horizontal spacing and bracing rails D, provided at one end with bevel portions *a* and shoulders *b* and at the other end with shoulders *c*, for the purpose described, the wire loops E, passing around the stakes and under the ends of the rails D, and the horizontal rails of the fence, secured to the stakes by means of the binding-wire F, all substantially as herein set forth.

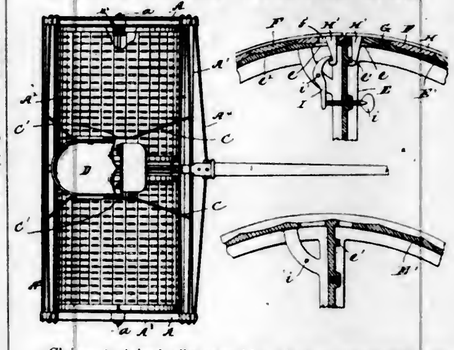
353,951. HATCHWAY. GUST LAGERQUIST, Minneapolis, Minn. Filed Aug. 7, 1886. (No model.)

Claim.—The combination, with the cage and the hatchway-doors, of the endless chains F, the projections H on said chains, the sprocket-wheels G, over which said chains extend, and the chains I, attached to the doors and to said endless chains, substantially in the manner and for the purpose described.

353,951.



353,952. COMBINED CLOD-CRUSHER AND LAND-ROLLER. GEO. N. LAKE, North Lawrence, Kans. Filed June 8, 1885. (No model.)



Claim.—1. A land-roller comprising wheels or supporting-frames, and reversible slats or rim-sections provided on one side with clod-crushing projections, substantially as set forth.

2. A combined crusher and land-roller, constructed substantially as herein shown and described, and consisting of a frame carrying a shaft provided with wheels having flanges and reversible slats secured to the said flanges, having their opposite sides convexed transversely and provided upon one side with teeth or projections, substantially as set forth.

3. In a combined clod-crusher and land-roller, the combination, with the wheels having flanges provided with concavities, of the slats or rim-sections convexed transversely upon the opposite sides and provided with teeth or projections upon one side, substantially as herein shown and described, whereby said slats can be reversed to form a crusher or roller, as set forth.

4. In a combined clod-crusher and land-roller, the slats or rim-sections made, substantially as herein shown and described, with both sides convexed transversely, whereby the said slats are adapted to be reversed and still form a cylindrical shell, as set forth.

5. A land-roller consisting of wheels or supporting-frames, reversible slats or rim-sections provided on one side with clod-crushing projections, and a retaining-strip fitted over the slats, and a clamp for securing and tightening said strips, substantially as set forth.

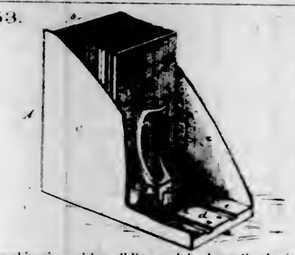
6. In a land-roller, the combination of the wheel or supporting-frame, the rim-sections, a retaining-strip having one end held to the supporting-frame and provided at its other end with an inwardly-projected hook-arm, a lever having one end engaged with said arm, and a screw engaging the other end of the lever, substantially as set forth.

7. The combination, with a roller having reversible slats or rim-sections provided on one side with clod-crushing projections, a scraper-support, and a scraper reversible on said support and provided on one edge with recesses corresponding to the projections on the slats of the roller, substantially as set forth.

353,953. PAPER-FILE. JOHN C. LANG, Boston, Mass. Filed Sept. 28, 1883. (No model.)

Claim.—1. In a paper-file, the box or receptacle having a guide or

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base, *d*, in combination with a sliding and backwardly-tipping standard having the follower-board attached and having rearward arms or projections, and a lever acting between said projections and the base to maintain the standard in the required position.

2. In a paper-file, a guide or base, in combination with a standard or follower-board, having a sliding connection therewith and free to tip backward at any point thereon, and a lever connected to the rear side of said standard and acting upon the base, substantially as described, to maintain the standard in an erect position.

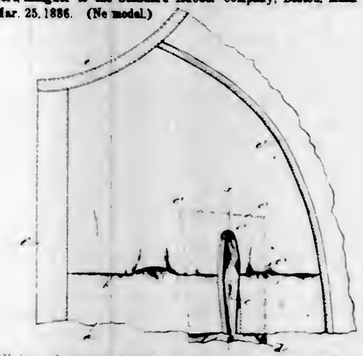
3. In a file-holder, a receptacle having a base-board with a longitudinal guide therein and a rigid upright at one end to sustain the papers, in combination with a follower-board, a standard rigidly secured to the board and adapted to both slide and tilt backward upon the guide, and a movable sustaining-lever pivoted to the rear side of the standard and acting at its lower end upon the guide or base at a point in rear of the standard, whereby said lever is caused to sustain and lock the standard, and also to draw the standard backward and permit its inclination in the act of unlocking the same.

4. The combination of a box or receptacle provided with a guide, *d*, the standard having a sliding connection with said guide and adapted to incline backward as described, the arms *g* on the rear of the standard, the follower-board rigidly attached to said standard, and the lever pivoted between said arms, as described and shown.

5. In a file-holder, a front board in combination with a base or guide of a follower-board having a sliding and tilting connection therewith, and a brace connected by a hinged joint with the rear side of the follower-board and arranged to bear at its lower end upon the brace or guide to sustain the follower in an upright position.

6. In a paper-file, a box or receptacle, a follower-board having a sliding and hinged connection therewith, the plate C, extending in rear of the follower-board, and a supporting-lever hinged to said plate, the parts being constructed as described and shown, to limit the backward tipping motion of the follower-board.

353,954. GOSSAMER CLOAK. M. JENNIE MCCARTHY, Cambridgeport, assignor to the Standard Rubber Company, Boston, Mass. Filed Mar. 25, 1886. (No model.)



Claim.—A gossamer water-proof garment having a back piece and the front piece, *a*, which latter is provided with an armhole, the lining *b*, secured at one end to the front piece at or near the neck of the garment, and also at its sides to the front edge and to the back piece, respectively, and extending below the top of the armhole, and about midway of the latter, and the folded binding *f*, inclosing the lining and fabric in its folds about the armhole, and sewed around said armhole, substantially as described.

353,955. ROTARY SPRINKLER. IVES W. MCGAFFEY, Chicago, Ill., assignor to Everett R. Preston and George E. Preston, same place. Filed Sept. 13, 1886. (No model.)

Claim.—1. The combination of the attachment or nozzle piece A with a rotary sprinkler wheel or device having a hollow shank journaled thereon and a bent leaf or blade, said hollow shank being integral with

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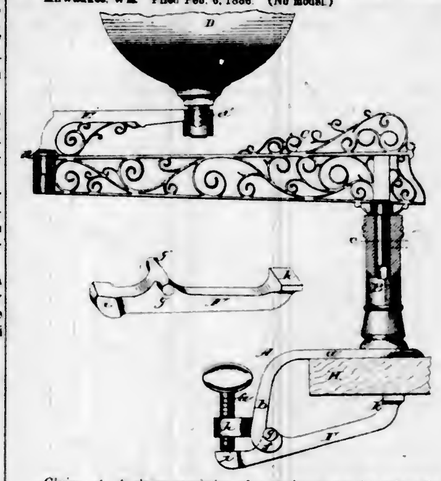


said wheel or blade and revolving with it, and having an axially-inclined water-way through which the jet is projected against said bent leaf or blade, substantially as specified.

2. The combination, with an attachment piece, A, of a revolving sprinkler wheel or device having a hollow shank, B, a pair of divergent water-ways, b^2 b^2, and a pair of bent or curved blades, B' B', said water-ways being inclined away from the axis of said revolving hollow shank and serving to project the jets against said blades, substantially as specified.

3. The combination of attachment or nozzle piece A with hollow shank B, having shoulder *b*, collar or flange *b'*, divergent water-ways b^2 b^2 and bent leaves or blades B' B', against which the water is projected as it issues through said divergent ways, said hollow shank fitting inside said nozzle-piece and journaled to revolve thereon, and said water-ways being radially inclined away from the axis of said shank, substantially as specified.

353,956. CLAMP FOR LAMP-BRACKETS, &c. HERMAN J. MEUMER, Milwaukee, Wis. Filed Feb. 6, 1886. (No model.)



Claim.—1. A clamp consisting of a stationary portion adapted to support a lamp-bracket or analogous fixture, and having a vertically-depending arm provided with a horizontal outwardly-extended lug, a lever fulcrumed to the depending arm, and an adjusting-screw operative in the lug upon said arm and designed to impinge against the lever, as set forth.

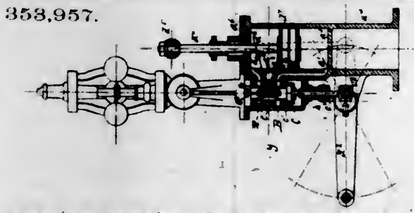
2. A clamp consisting of a stationary portion adapted to support a lamp-bracket or analogous fixture, and having a vertically-depending bifurcated arm provided with a horizontal outwardly-extended lug and suitable bearings, a lever having trunnions adapted to rest in said bearings and an adjusting-screw operative in the lug to impinge against the adjacent end of the lever, as set forth.

3. A clamp consisting of a stationary portion having a horizontal base integral with an upwardly-extended hollow standard, and a vertically-depending bifurcated arm provided at its lower end with a horizontal outwardly-extended lug and suitable bearings, in combination with a lever having trunnions fulcrumed in said bearings and its outer and inner ends laterally extended to form bearing-faces, and an adjusting-screw operative in the lug on said stationary part to impinge against the outer end of the lever, as set forth.

353,957. STEAM-ENGINE GOVERNOR. WALTER MILLER, Cleveland, and FREDERICK E. FRET, Bucyrus, Ohio. Filed Oct. 7, 1885. (No model.)

Claim.—1. The combination, with a steam-cylinder and piston, of the pitmen d^4, extending vertically parallel with and on opposite sides of the cylinder, and having the cross-head d^6 connected to the end of the piston-rod, and the rocker-arms d^5 pivotally supported at their middle on gudgeons, having bearings on the steam-cylinder, and having one end pivotally connected to the pitmen, and the other end provided with

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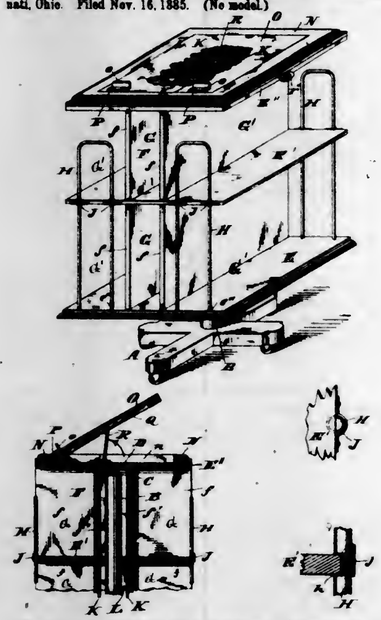
a cross-pin to connect them with the resistance, substantially as described.

2. In combination with the steam-cylinder and the steam-chest, having a valve-seat with steam-channels to the steam-cylinder, of the piston, the pitmen connected together and to the piston-rod by a cross-head, the rocker-arms, the wrist-pin eccentrically fixed to the gudgeon of one of the rocker-arms, and the main valve within the steam-chest, having its valve-rod connected to the wrist-pin of the rocker-arm, substantially as described.

3. In combination with the steam-cylinder and the steam-chest, having a valve-seat with steam-channels to the steam-cylinder, the piston, the pitmen connected to the piston-rod, the rocker-arms having gudgeons mounted on bearings on the cylinder, a wrist-pin fixed to the gudgeon of one of the rocker-arms, the main valve within the steam-chest, connected to the wrist-pin of the gudgeon of the rocker-arm, and the governor valve seated within the main valve and moved by the variable movements of the governor, substantially as described, and for the purpose stated.

4. In combination with the steam-cylinder and the steam-chest formed with a valve-seat having steam-channels to the steam-cylinder, the main valve connected by a stem to and actuated by a rocker-shaft connected to the piston, and the governor-valve seated within the main valve and moved in relation thereto by the vertical movement of the governor, substantially as described, and for the purpose set forth.

353,958. REVOLVING BOOK-CASE. GEORGE V. NAUERTH, Cincinnati, Ohio. Filed Nov. 16, 1885. (No model.)

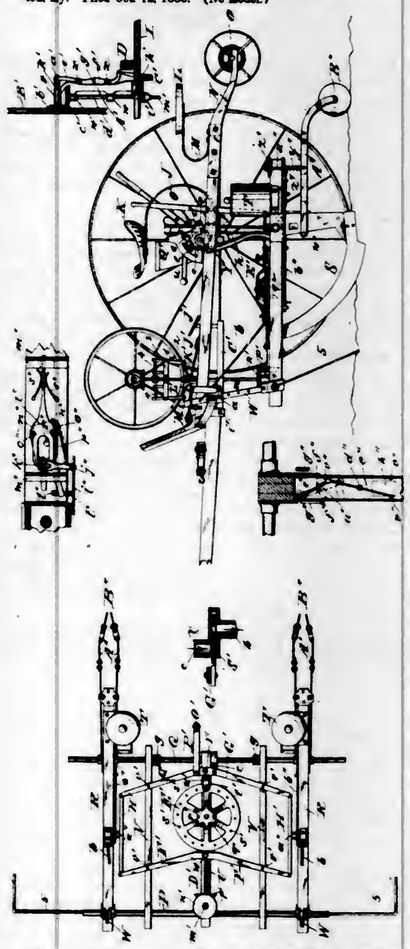


Claim.—1. A revolving book-case body consisting of a bottom shelf, E, top shelf, E'', intermediate shelf, E', interposed quadruplex partitions F, each formed of wide rectangular vertical boards *f*, parallel to each other, extending from side to side of the body, and narrow vertical boards *f''* between the wide boards forming wells L, and narrow compartments G, bolts K, by which the shelves and partitions are locked together, and the guards having recesses *h*, occupied by the contiguous edges of the intermediate shelf, substantially as set forth.

2. A revolving book-case body having a top, E'', provided with a marginal bead, N, forming a recess, *n*, and a book-rest, O, having projections *o*, hinged by the upper corners of its lower edge to the upper rear edge of the bead and seating on the top within the recess, the bead fitting the rest closely, providing a pneumatic cushion for the rest, substantially as set forth.

3. A revolving book-case body having a top, a book-rest hinged to the top provided with a rack on the back thereof, a shaft formed with a double crank, arm, and handle constituting a prop that engages the rack-teeth, and a spring pulling the arm of the shaft toward the rest when released, substantially as set forth.

353,959. SULKY CORN-PLANTER. WILBERT NEWHALL, Covington, Ky. Filed Oct. 12, 1885. (No model.)



Claim.—1. The combination, with the shaft Y, for raising and lowering the runner-frame, of the pinions *s*, bracket *r*, double vibrating dog *q*, spring *t*, and lever *u*, substantially as and for the purpose specified.

2. The combination, with the wiper-wheel E', revolved by the passage of the check-row cord through the machine and provided with an adjustable roller, *u'*, of the vibrating frame composed of the pivoted bars F' G' and connecting-bars H', the latter united to the slide-bars that actuate the seed-dropping mechanism.

3. The combination and arrangement of the grooved wheel B', for receiving the check-row cord, the beveled pinion *b'*, shaft *a'*, pinion *c'*, shaft *d'*, beveled pinions *n' p'*, shaft D', pinions *q' r'*, and wiper-wheel E', substantially as described.

4. The check-row unshipping mechanism, consisting of the pedal C', cord *h'*, toggle-levers *e' f'*, shaft *a'*, spring *k'*, grooved wheel B', and pinions *b' c'*, substantially as described.

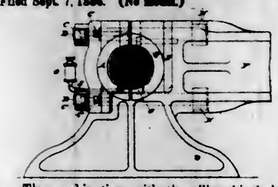
5. The combination, with the shaft P, of the adjustable and detachable markers 5, one arranged upon each end of said shaft, substantially as described.

6. The combination, with the corn-chute, of the ribs *v''*, the compound valve *c''' e''*, lever *t''*, arm-plate *p''*, slide *l'*, springs *s''*, arm *j''*, and extension *i''*, of the slide-bars *b''*, substantially as and for the purpose specified.

7. The combination, with the runners S, of the beams A'', pivoted thereto and carrying at their rear ends covering-disks B'', substantially as described.

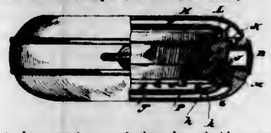
8. As an improved cut-off, the combination, with the rotating perforated plate B'', of the shell G'', having an oblique mouth covered by pendent springs I'', an internal knocker-spring, J'', and a rearward yielding spring-wall, L'', substantially as and for the purpose specified.

353,960. PILLOW-BLOCK. EDWARD S. NEWTON, East Saginaw, Mich. Filed Sept. 7, 1886. (No model.)



Claim.—The combination, with the pillow-block having the cap placed vertically, of the plates G, Q, and P, bolts B B, and set-screws C C, substantially as specified.

353,961. WATCH-CASE. DANIEL O'HARA, Waltham, Mass. Filed Apr. 27, 1885. Renewed Apr. 9, 1886. (No model.)



Claim.—1. In a watch-case of otherwise suitable construction, a cap-plate covering one side thereof, in combination with a cap of disk shape, which covers said cap-plate, each provided with a key-hole and otherwise adapted to be adjusted for the insertion of a key to wind the watch-movement and for the closing of said holes, substantially as described, for the purpose specified.

2. In a watch-case, a cap or plate covering one side of the case and suitably attached thereto, made in two parts or thicknesses, each having a key-hole and adapted to be attached to each other and one to the case, substantially as described, for the purpose specified.

3. In a watch-case, a cap or plate covering one side of the case and suitably attached thereto, made in two parts, *g* and *g''*, each having a key-hole, P, and adapted the one to be attached to the case, and to be attached together by snapping the one upon the other, substantially as described, for the purpose specified.

4. In a watch-case, a central shell or annulus adapted interiorly and at one side to make a seat for a movement ring or band, which is adapted to contain a watch-movement and to overlap the outside and at the side thereof opposite to that at which it is seated therein, and the two attached together, in combination with a cap or plate covering one side of the case, said with a cap of disk shape, which covers said cap-plate, and each provided with a key-hole otherwise adapted to be adjusted for the insertion of a key to wind the watch-movement and for the closing of said holes, substantially as described, for the purpose specified.

5. In a watch-case, a central shell or annulus adapted interiorly and at one side to make a seat for a movement ring or band, which is adapted to contain a watch-movement and to overlap the annulus at the outside and at the side thereof opposite to that at which it is seated therein, and the two attached together, in combination with a cap or plate covering one side of the case and suitably attached thereto, made in two parts or thicknesses, each having a key-hole, and adapted to be attached to each other and one to the case, substantially as described, for the purpose specified.

6. In a watch-case, a central shell or annulus having seat *b* within and at one side for the rest of a movement ring or band, A, adapted to contain a watch-movement, and having a riser, K, overlapping the annulus at the outside and at the side thereof opposite to that at which it is seated therein, and the two attached together, in combination with a cap or plate covering one side of the case and suitably attached thereto, made in two parts, *g g''*, and each having a key-hole, P, and adapted the one to be attached to the case and to be attached together by snapping the one upon the other, substantially as described, for the purposes specified.

353,962. GATE-HINGE. DAVID J. OLDNER, Anson, Tex. Filed July 7, 1886. (No model.)

Claim.—1. In a gate-hinge, a post or base section, B, having a body-plate, C, having its side edges bent up at *c*, and having such bent-up edges provided with flanges 1 and notches 2, substantially as set forth.



2. The improved gate-hinge consisting of the post or base section, having a perforated plate, C, the edges of which are bent up at *c*, and formed with flanges 1 and notches 2, and provided with the plate *b*, connected with the body of plate C, and separated at 3 from the portions *c* thereof, the gate-section D, having a depending arm, 4, fitted to enter the perforation in the base C, and having a second arm fitted for connection with the gate, and the roller E, journaled on said second arm, substantially as set forth.

3. The gate-section D, comprising a main portion provided with a shoulder, 6, and an arm, 4, depending from the outer end of said main portion, combined with a roller, E, journaled on said main portion up against the shoulder 6, and the post or base section provided with an opening or socket fitted to receive the arm 4, and with an incline, substantially as described, and for the purposes specified.

353,963. UNDER-GARMENT. RICHARD H. PAINE, Portsmouth, N. H. Filed Nov. 14, 1885. Renewed Sept. 18, 1886. (No model.)

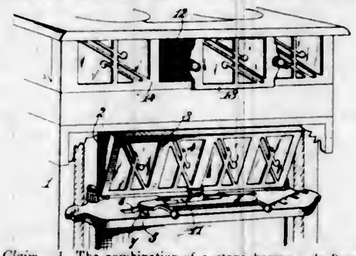


Claim.—1. As a new article of manufacture, an under garment or vest composed of an external perforated gossamer fabric and an internal imperforate woolen fabric, said perforated external gossamer fabric having its outer edges united to the outer edges of the internal imperforate woolen fabric for admitting air through the external fabric to the space between the latter and the internal fabric, to prevent accumulation of moisture on the inside of the gossamer fabric, while the woolen fabric retains the natural heat of the body, substantially as described.

2. A ventilated under-garment composed of an outer gossamer rubber fabric and an inner woolen fabric or lining, said fabrics being connected at the edges, and also at intermediate points by longitudinal seams, and the outer fabric having perforations or air-inlets, substantially as described.

3. The herein-described jacket or under-vest, composed of an external gossamer rubber fabric, A, having perforations *b b*, and an internal woolen fabric or lining, B, said fabrics being connected at the edges of the garment, and also by intermediate longitudinal seams, *a a*, thereby forming air-spaces *d d*, that communicate with the air-inlets *b b* in the outer fabric, substantially as described.

353,964. DRAFT-DOOR AND CHECK-DRAFT. DANIEL E. PARR, Troy, N. Y. Filed Dec. 31, 1884. Renewed June 25, 1886. (No model.)



Claim.—1. The combination of a stove having a draft-opening, a hinged door, a slide-supporting plate, and a horizontally-movable slide supported and guided by the plate, and having a cam connected with the door, substantially as described.

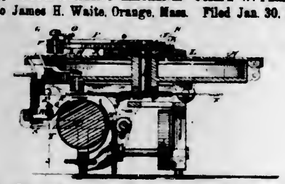
2. The combination, with a stove having a draft-opening, of a hinged door, a stationary diagonally-grooved slide-supporting plate rigidly connected with the stove, and a horizontally-movable slide having projections engaging the grooved part of the plate and loosely connected with the door, substantially as described.

3. The combination, with a stove having a draft-opening, of a hinged door, a stationary slide-supporting plate having diagonal guides, and a horizontally-movable slide engaging and guided by the guides of the plate and loosely connected with the door, substantially as described.

4. The combination of a stove having a draft-opening, a diagonally-slotted slide-supporting plate, a hinged door having an attached projecting arm, and a horizontally-movable slide having projections engaging the slotted part of the plate and loosely engaging the arm of the door for locking the same at any angle of inclination, substantially as described.

5. The combination, with a stove provided with a draft-opening, of a hinged draft-door, having an attached projecting arm, a diagonally-slotted slide-supporting plate, and a slide having a slot engaging said arm, and provided with studs or pins engaging the slots in the supporting-plate, substantially as described.

353,965. TYPE-WRITING MACHINE. JOSEPH W. PEIK, Waltham, assignor to James H. Waite, Orange, Mass. Filed Jan. 30, 1886. (No model.)



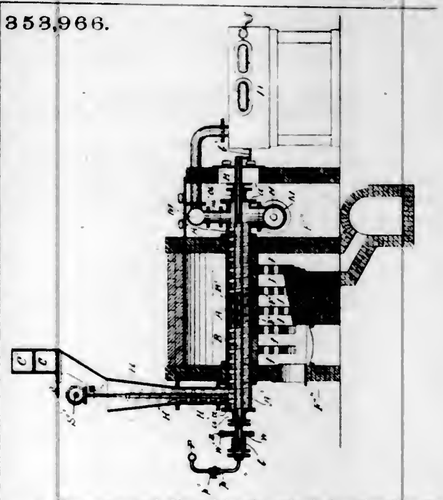
Claim.—1. In combination, a rotating type holder or carrier having a series of concentrically-arranged types, each adapted by a proper application of pressure thereto to have an impression taken from it, co-operating with an ink-ribbon suitably located therefor, a stationary or non-rotating perforated indicator or plate at one side of and concentric with said type-carrier, an arm turning loosely around the axis of rotation of the type-carrier, and mechanism, substantially such as described, which connects said arm and rotating type-carrier, and is adapted to rotate said type-carrier both from a swing of and from a forward or backward slide of a part of said mechanism on said arm, each rotation so secured being independent of the other, substantially as described, for the purpose specified.

2. In combination, a rotating type holder or carrier having a series of concentrically-arranged types, each adapted by a proper application of pressure thereto to have an impression taken from it, co-operating with an ink-ribbon suitably located therefor, a stationary or non-rotating perforated indicator or plate at one side of and concentric with said type-carrier, a radial arm carrying a reciprocating stylus adapted to be entered into and forced through a hole of said perforated indicator, and thus to exert pressure on the type of the type-carrier in line therewith, and turning loosely about the axis of rotation of the type-carrier, and mechanism, substantially such as described, which connects said radial arm and rotating type-carrier, and is adapted to rotate said type-carrier both from a swing of and from a forward or backward slide of a part of said mechanism on said arm, each rotation so secured being independent of the other, substantially as described, for the purpose specified.

3. In combination, a rotating type holder or carrier having a series of concentrically-arranged types, each adapted by a proper application of pressure thereto to have an impression taken from it, co-operating with an ink-ribbon suitably located therefor, a stationary or non-rotating perforated indicator or plate at one side of and concentric with said type-carrier, an arm turning loosely about the axis of rotation of the type-carrier, and mechanism composed of a gear-wheel, J, on the arbor of the rotating type-carrier, and a rack-bar, K, meshing with said gear-wheel and carried by the said arm, on which it is adapted to slide, whereby said type-carrier can be rotated both from a swing of and from a forward or backward slide of a part of said mechanism on said arm, each rotation so secured being independent of the other, substantially as described, for the purpose specified.

4. In combination, in a type-writing machine, a rotating paper-supporting roller, a spring clip or clips, Q, for said roll, secured to a suitable stationary support, and adapted to confine the paper, while permitting it to be fed forward by the roller under its rotation, and a bar or rail, R, to press said clip or clips toward and against said roller and the paper carried by it, and which is capable of being adjusted and set as to such pressure, substantially as described, for the purpose specified.

353,966. AUTOMATIC APPARATUS FOR CARBONIZING SAW DUST AND PRODUCTION OF GAS. EDWARD W. RATHBUN, Deseronto, Ontario, Canada. Filed Jan. 2, 1885. (No model.)



Claim.—1. The combination of the sawdust-conveyer C, having discharge-openings with adjustable slides, the hopper H, tubular connections with the retorts H', provided with screw conveyer extending into said hopper, retort A, with closed mouth-pieces and glands, a screw conveyer mounted on a hollow shaft, vapor-main M', collecting and delivering the crude vapors to the condenser D, and a charcoal-main, M, connected by tubular necks to the retort, said main being provided with a gas-seal and with means of moving the charcoal therein.

2. The charcoal-main M, receiving the carbonized sawdust from the rear of the retorts by tubular connections, said main provided with a screw conveyer, N, and with a hydraulic gas-seal consisting of a tubular downwardly-inclined extension, O', and an upwardly-inclined tubular extension, O², fitted with screw conveyer, the two inclined portions filled partly with water arranged to overflow at an orifice situated below the level of the main M.

3. The combination, with the retort A, having a screw feed device, a charcoal-main, M, receiving the carbonized sawdust from the retort and provided with a screw conveyer, a downwardly-inclined extension from the main and an upwardly-inclined discharging-tube having a screw conveyer, and a hydraulic seal for said discharge, substantially as described.

4. An automatic apparatus for producing gas from sawdust, consisting of the sawdust-conveyer C, delivering in a hopper above the retorts, said hopper connected to the retorts A by tubular connections H', fitted with screw conveyer, the retorts A, set upon a bridging of the fire-tiles F, supported on piers F', and provided with screw conveyer having a tubular shaft passing through the ends of the retorts and adapted to pass a current of water or air, a vapor-main, M', placed above the rear ends of the retorts and connected thereto by tubular connections passing the gas to a condenser, D, and other apparatus for further treatment, a charcoal-main, M, below the rear ends of the retorts and connected thereto by tubular connections, said main fitted with a screw conveyer, N, for moving the charcoal therein, and provided with a gas-seal, and delivering the charcoal into wagons or to an elevator, E, raising into the return-course C' of the sawdust-conveyer.

353,967. HORSE-POWER. GEORGE RAYMOND and ALBERT RAYMOND, Chicago, Ill. Filed Nov. 14, 1885. (No model.)

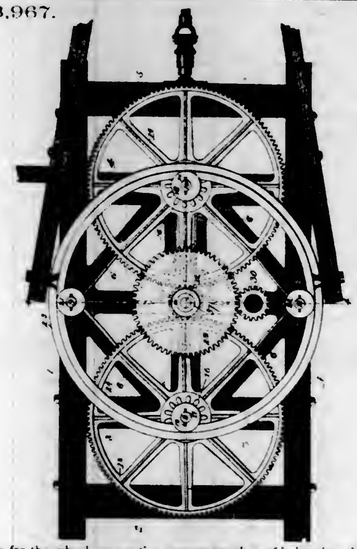
Claim.—1. In a horse-power for grinding-mills, the combination of multiple driven gearing with a master-wheel provided with bearings on which it has a limited amount of lateral play, whereby a uniform division and the distribution of the strain upon the wheel is insured, substantially as described and shown.

2. In a horse-power for grinding-mills, the combination of multiple driven gearing with a master-wheel provided with close circumferential bearings at opposite ends of one diameter, and provided, also, with other bearings at the opposite end of the diameter perpendicular to the diameter aforesaid, and so placed with reference to the master-wheel as to permit the latter to have a limited latitude of movement between them, substantially as described and shown.

3. In a horse-power for grinding-mills, the combination of a master-wheel consisting of an interiorly-cogged rim with an inwardly-projecting flange, with two pinions situated, respectively, at opposite ends of a diameter of the wheel and engaging with the interior cogs, two collars placed in proximity to the said pinions and affording two interior bearings for the said flange, and two other bearing-collars for the said flange, placed at opposite ends of a diameter of the wheel perpendicular to the diameter before designated, and located so far within the interior contour of the flange as to afford a limited lateral play for the wheel, substantially as described and shown.

4. In a horse-power for grinding-mills, the combination of a master-wheel consisting of a cogged rim provided with a projecting flange, with two pinions situated, respectively, at opposite ends of a diameter of the wheel and engaging with the cogs thereof, two continuous close

353,967.



bearings for the wheel, preventing movement thereof in its plane in one direction, and two other bearings placed at such a distance from the flange as to permit a limited degree of movement to the wheel in its plane in a direction perpendicular to the direction before mentioned, substantially as described and shown.

5. In a horse-power for grinding-mills, the combination of a master-wheel with a pinion driven thereby and vertically supporting the same, and a spool or collar mounted on the shaft of the pinion and separate therefrom, affording a lateral bearing for the master-wheel, substantially as described.

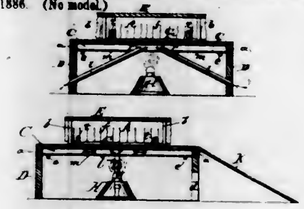
6. In a horse-power for grinding-mills, the combination, with a supporting frame-work, of a quadrilateral casting having inwardly and downwardly projecting arms united at the center, a shaft resting on said casting at its center, gearing mounted on said shaft, gearing supported by the exterior parts of the casting, said exterior gearing engaging with and giving motion to the gearing of the central shaft, and a master-wheel giving motion to said exterior gearing, and also supported from the exterior parts of the casting, substantially as and for the purpose set forth.

7. In a horse-power for grinding-mills, the combination, with a supporting frame-work, of a quadrilateral casting having inwardly and downwardly projecting arms united at the center, a shaft resting on said casting at its center, gearing mounted on said shaft, and gearing supported by the exterior parts of the casting, said exterior gearing engaging with and giving motion to the gearing on the central shaft, whence the mill is driven, substantially as described and shown.

8. In a horse-power for grinding-mills, a master-wheel consisting of a cogged rim provided with a projecting flange, in combination with collars mounted to rotate and having circular flanges projecting above and below the flange of the master-wheel, whereby vertical displacement of the wheel is prevented, substantially as described and shown.

9. In a horse-power for grinding-mills, the combination of a master-wheel consisting of a cogged rim provided with a projecting flange with a driven pinion, and a flanged collar resting upon the said driven pinion and arbored upon its shaft, the said pinion furnishing an under bearing for the said flange and supporting the weight of the master-wheel, the said collar furnishing a lateral bearing for the said flange of the master-wheel, and the flange of the said collar extending above the flange of the master-wheel and preventing vertical displacement thereof, substantially as described and shown.

353,968. BROODER. EDWARD S. RENWICK, Millburn, N. J. Filed Mar. 4, 1886. (No model.)



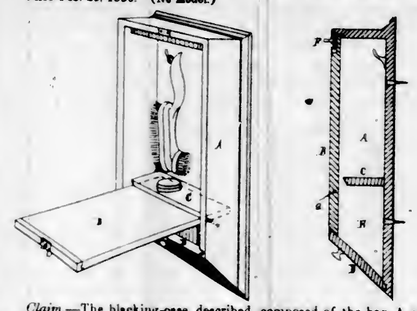
Claim.—1. The combination, substantially as before set forth, of the brood-floor of poor heat-conducting material, the hot-air chamber beneath the said brood-floor, the cold-air inlet to said chamber, arranged in the vicinity of the most heated part thereof, and a warm-air outlet of said chamber, arranged at a distance from the most heated part of said chamber.

2. The combination, substantially as before set forth, of the brood-floor of poor heat-conducting material, the hot-air chamber beneath said brood-floor, and the cold-air inlet to said hot-air chamber, arranged in the vicinity of the most heated part thereof and fitted with a tube.

3. The combination, substantially as before set forth, of the brood-floor of poor heat-conducting material, the hot-air chamber beneath the said brood-floor, and the warm-air outlet from said hot-air chamber, arranged at a distance from the most heated part thereof and fitted with a tube.

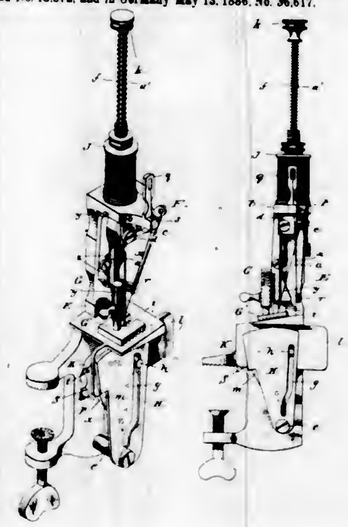
4. The combination, substantially as before set forth, of the brood-floor of poor heat-conducting material, the brood-cover above the said brood-floor, the hot-air chamber beneath the said brood-floor, the cold-air inlet to said hot-air chamber, arranged in the vicinity of the most heated part thereof, and a warm-air outlet from the said chamber, arranged at a distance from the most heated part thereof.

353,969. BLACKING-CASE. EDWARD R. ROEHM, Detroit, Mich. Filed Feb. 25, 1886. (No model.)



Claim.—The blacking-case described, composed of the box A and the shelf C therein, and the door B, pivoted between the side walls of said box at a point below its center and below said shelf, the back of said box being extended below the bottom of the front side and below the bottom of the door to form the compartment E, extending below the bottom of said door, and the inclined movable front D to said compartment working in guides in the side walls of said box, substantially as and for the purpose specified.

353,970. POCKET SEWING-MACHINE. SALLY A. ROSENTHAL, Berlin, Germany. Filed Mar. 20, 1886. (Model.) Patented in France Oct. 17, 1885, No. 171,723; in Belgium Nov. 17, 1885, No. 66,713; in England Dec. 17, 1885, No. 15,513; in Austria-Hungary Apr. 25, 1886, No. 45,838 and No. 13,872, and in Germany May 13, 1886, No. 36,617.



Brief.—The machine is designed to be of compact structure, so as to be easily carried in a pocket and readily affixed to a table when in use. The top-feed presser-foot and the oscillating shuttle below the work-plate are operated by the slide-bar (or needle-bar) carrying the reciprocating eye-pointed needle, said slide-bar being forced downward by pressure of the hand, the bar being returned by a spring.

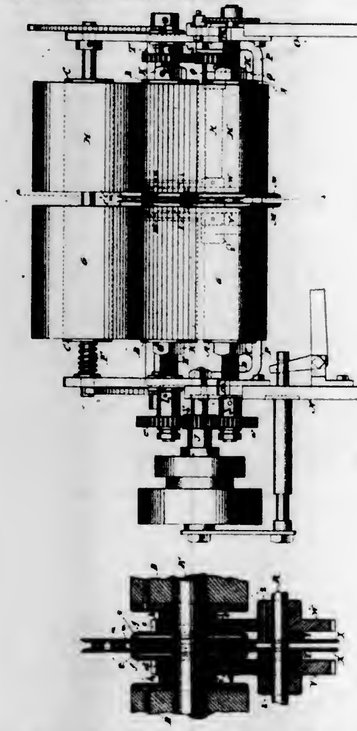
Claim.—1. The combination, with the bracket-frame and its cloth-plate, of the needle-bar arranged to slide vertically in said frame and extending both above and below the cloth-plate, and the pivoted shuttle-lever having a pin-and-slot connection with said needle-bar, substantially as and for the purposes hereinbefore set forth.

2. The combination, with the bracket-frame and its cloth-plate, and the needle bar sliding vertically therein, of the pivoted thread-lever F, the cloth presser and feed lever G, provided with cam projections, and the shuttle-lever H, all of these instrumentalities connected to and operated directly by the needle-bar, as and for the purposes hereinbefore set forth.

3. The pivoted shuttle-lever and the shuttle basket or cradle attached thereto, in combination with the bracket-frame, the cloth-plate, the vertically-sliding needle-bar provided with a pin which enters a slot in the shuttle-lever, and the guard-plate *l*, under the arrangement and for the operation as set forth.

353,971. MACHINE FOR STRIPPING AND BOOKING TOBACCO.

GEORGE ROWDEN, Newark, N. J., assignor to John R. Williams, same place. Filed Nov. 12, 1885. (No model.)



Claim.—1. In a machine for stripping and booking tobacco, two pairs of rotary cutting-disks whose edges overlap each other and receive the stem of the leaf between them and cleaner-disks between one pair of said cutting-disks, combined with the aprons G H, mounted on rollers, mechanism for operating said rollers to cause them to feed and book the leaf, one of the aprons being on each side of the rotary cutting-disks, and gear mechanism, substantially as described, for giving the cutting-disks a more rapid rate of movement than that imparted to the said aprons, substantially as and for the purposes set forth.

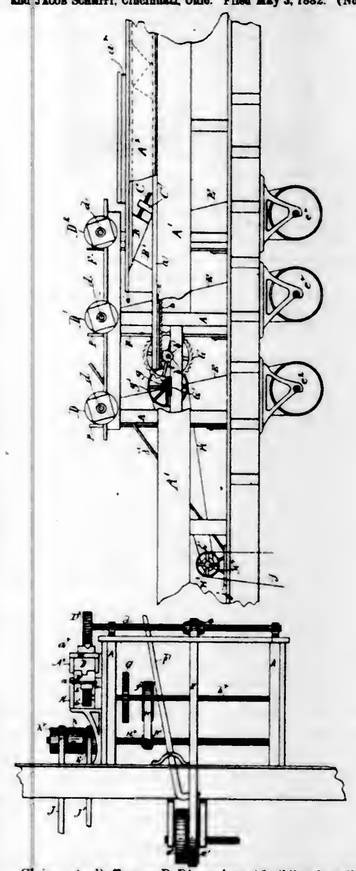
2. In a machine for stripping and booking tobacco, the pair of feeding and booking aprons mounted on rollers A C and the rollers B, against which said aprons move, combined with the rotary cutting-disks *f g*, mounted on the axle E, between the rollers B, the rotary cutting-disks *m*, the edges of which are in contact with the edges of the disks *f g*, the disk *n*, located between and having about the same circumference as the disks *f g*, and mechanism for moving the said aprons and rotating the disks *f g*, substantially as set forth.

3. In a machine for stripping and booking tobacco, the pair of feeding and booking aprons mounted on rollers A C and the rollers B, against which said aprons move, combined with the rotary cutting-disks *f g*, mounted on the axle E, between the rollers B, the rotary cutting-disks *m*, the edges of which are in contact with the edges of the disks *f g*, the disk *n*, located centrally between the said disks *f g*, a cleaner on each side of the disk *n*, and mechanism for moving said aprons and rotating the disks *f g*, substantially as set forth.

4. In a machine for stripping and booking tobacco, a pair of booking-aprons traveling on rollers and a pair of auxiliary rollers against which said aprons move, combined with the rotary cutting-disks *f g*, loosely mounted on the axle of the auxiliary rollers, the rotary cutting-disks *m*, coacting with the disks *f g*, the shaft R, geared to said axle, and gear-wheels V W on said shaft, engaging gearing connected with the disks *f g*, the relative proportions of the gearing being such as to impart to the cutting-disks a more rapid movement than that of the booking-aprons, substantially as set forth.

353,972. MACHINE FOR BUFFING MOLDINGS.

WILLIAM SCHMITT and JACOB SCHMITT, Cincinnati, Ohio. Filed May 3, 1882. (No model.)



Claim.—1. Buffers, as D D', carriage A^2, sliding in a direction parallel to a vertical plane and passing through said buffers, said carriage having bottom *a*, provided with rack *b* and top *a'*, vertically adjustable with reference to bottom *a*, wedges B B', nut C', and screw C, as and for the purposes specified.

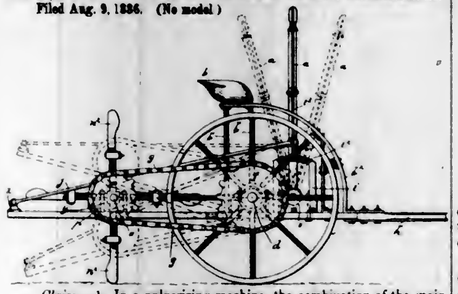
2. The combination of buffers, as D D', vertically-adjustable sliding carriage A^2, having top *a'* and base *a*, the latter carrying rack *b* in a line with and under said buffers, pinion *b'*, engaging with rack *b*, and gear G on shaft with pinion *b'*, substantially as and for the purposes specified.

3. The combination of buffers, as D D', vertically-adjustable sliding carriage A^2, having top *a'*, and base *a*, the latter carrying the rack *b* and pinion *b'*, engaging with said rack, and gear G on shaft with pinion *b'*, and meshing with pinion *g* pulley *g'*, belt H, driving-gear, and frame A, as and for the purposes specified.

4. The carriage A^2, consisting of the base *a*, and top *a'*, the latter carrying shoe or saddle a^2, said base and top being connected by wedges B B', the base *a* being provided with a rack and operated longitudinally by pinions, in combination with buffers, as D D', revolving directly over said carriage, as and for the purposes specified.

353,973. PULVERIZER.

EDWARD J. SCHUMAN, Natchitoches, La. Filed Aug. 9, 1886. (No model.)



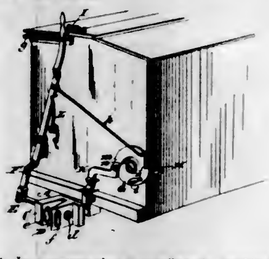
Claim.—1. In a pulverizing-machine, the combination of the main frame, the axle journaled thereon and turning with the wheels, the pulverizer-frame, the pulverizer having its shaft journaled thereon, the connecting-rods pivoted at either end upon the eye-joints *z* and the arms *s*, the shaft *e*, journaled on the main frame, the bracket-standard *i*, having the slot *i'* and rack i^2, the lever-handle *a*, and the detent-rod i^3, substantially as specified.

2. In a pulverizing-machine, a rotating pulverizer having its shaft *o* journaled in bearings secured to the pulverizer-frame, and composed of the bars *o'* and rails o^2, secured to the ends of the same, and the sets of oppositely-inclined blades *n*, bolted or otherwise secured by their feet *n'* to the outer edge of the rails o^2, substantially as described.

3. In a pulverizing-machine, the combination of the main frame, an axle journaled therein and provided with the main wheels, a rear frame having its forward end journaled to said axle, a shaft centrally located in boxes on the forward frame forward of the main axle, said shaft being provided on its ends with upwardly-projecting arms, and also provided with a lever and rack, and rods *j*, jointed to said arms at their forward ends and pivoted at their rear ends to the rear end of the rear frame, substantially as described, and for the purposes set forth.

353,974. CAR-COUPLING.

EGBERT G. SESSIONS, Rice, Tex. Filed June 12, 1886. (No model.)



Claim.—1. In an automatic car-coupling, the combination, with interlocking draw-heads and a pivoted lever carrying a horizontally-slidable coupling-pin, of a rotatable latch-plate connected with said lever, a spring-catch for engaging said latch-plate, said catch and latch-plate being disengaged by pressure of the yielding draw-head in the act of coupling, and a spring for actuating the released lever, thereby moving the horizontal pin of one draw-head into engagement with the opposite draw-head, substantially as described.

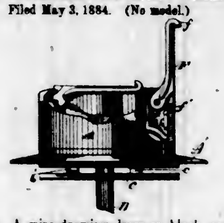
2. The combination, with a yielding draw-head and a horizontally-slidable coupling-pin, of a swinging spring-pressed vertically-arranged lever pivoted intermediate its ends and connected at its lower end with the coupling-pin, a catch-plate rotatable in a vertical plane at one end of the car and connected with the lever above the pivot thereof, and a pivoted spring-catch having one end engaging the catch-plate, at its other end engaging the draw-head, substantially as described.

3. The combination, with draw-heads having forward projections, C D, provided at their inner ends with perforations *d d*, and at their outer ends with a vertically-elongated recess, *e*, and a vertically-elongated slot, *f*, respectively, of horizontally-movable coupling-pins E E, spring-actuated levers F F, carrying said pins, and means for locking said levers, substantially as described.

4. The combination of the yielding interlocking draw-heads A A, horizontally-movable coupling-pins E E, spring-actuated levers F F, carrying said pins, movable latch-plates G G, rods *h h*, connecting said levers and latch-plates, and the spring-catches K K, engaging said latch-plates, substantially as described.

353,975. WIRE-DRAWING DRUM.

WILLIAM W. SHEARER, Cleveland, Ohio. Filed May 3, 1884. (No model.)



Claim.—1. A wire-drawing drum or block consisting, essentially, of a rim and a flange of harder metal than the rim, the said rim and flange being dovetailed together so as to revolve concentrically on a common axis, substantially as set forth.

2. In a wire-drawing drum, the combination, with a spider or arms detachable from the rim, of the flanged rim divided circumferentially near the flanges, the two parts of the rim properly secured so as to revolve concentrically on the spider, substantially as set forth.

3. The combination, with a wire-drawing drum, of arms, the eccentric or cam pins for pivotally securing the arms in position, and levers for turning the said pins.

4. In a wire-drawing drum or block, wire guards or arms pivoted with eccentric pins on the inside of the rim in such a manner that the arms may be tilted to an upright position with the faces flush with the faces of the drums, and the arms provided with an overhanging part contiguous to the part to which the arms are pivoted, and so arranged that the arms may be drawn toward the center by the eccentric-pin to form a clamp for holding the end of the wire and for holding the arms in an upright position, substantially as set forth.

353,976. SAD-IRON.

MILTON J. SHIMER, Freemansburg, Pa. Filed June 24, 1886. (Model.)

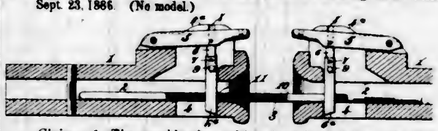


Claim.—1. The sad-iron handle B, consisting of the base-piece 4, having side extensions, 8, and formed with the depending annular flange 7, end supports having ribs 11 on their inner face, and a hand-grasp secured between the end supports, and the latch C, having the extended lever-handle 12 and catch 13, formed with the projection 14 on its back, and the spring 15 to bear down on the latch, substantially as described, and for the purpose stated.

2. The combination of the sad-iron A, having raised ribs 3 to set against the handle, and formed with a socket, 1, having overhanging edges, with the detachable handle B, the base-piece 4 of which is formed with side extensions, 8, and a depending annular flange, 7, to set in the socket of the iron, and provided with the pivoted latch C, having the extended lever-handle 12, and catch 13, formed with the projections 14 on its back, and the spring 15 to bear down on the latch, substantially as described, and for the purpose stated.

353,977. CAR-COUPLING.

SAMUEL SHULL, Radersburg, Mont. Filed Sept. 23, 1886. (No model.)

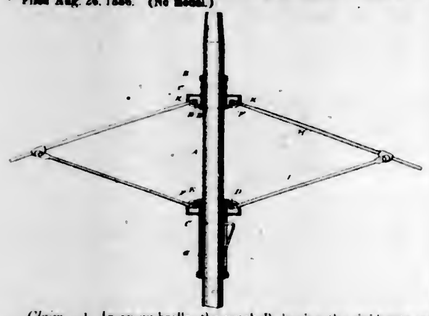


Claim.—1. The combination, with a draw-head having the elongated vertical slot, of the lever pivoted at its rear end to the draw-head, a pendent link pivoted to the forward part of the lever, and a pendent coupling-pin having at its sides lateral pintles located below its upper end and pivoted at its upper end to the pendent link above the lateral pintles, substantially as described.

2. The combination, with a draw-head having parallel webs on its upper side provided with guide-grooves, of the lever pivoted at its rear

end between the webs, a link pivoted to the lever, a coupling-pin pivoted at its upper end to the link, and horizontal pintles projecting from the pin below the point where it is pivoted to said link and engaging the grooves in the webs, substantially as described.

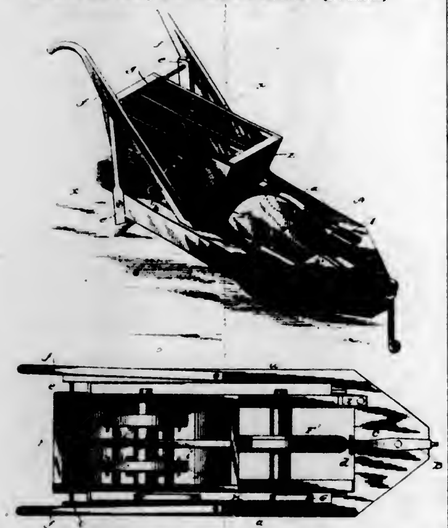
353,978. UMBRELLA-RUNNER. JAMES H. SIMPSON, Richmond, Va. Filed Aug. 26, 1886. (No model.)



Claim.—1. In an umbrella, the notch B, having the rigid external annular flange and the lower edge of the opening E turned outwardly, as shown, in combination with the cup-shaped ring D, having radially-disposed slots, and secured between the said external annular flange and the outwardly turned edge of the notch, substantially as specified.

2. In an umbrella, the combination of the runner having one edge of its bore turned outwardly, as shown, and having the external annular flange, C, the cup-shaped ring D, having the radially-disposed slots, and secured between the said annular flange and outwardly-turned edge of the runner, and the stretchers having their inner ends provided with an integral T-head, and the opposite ends adapted to be secured to the ribs, substantially as specified.

353,979. SEED-PLANTER AND FERTILIZER-DISTRIBUTER. WM. B. SIMPSON, Richburg, S. C. Filed Mar. 26, 1886. (No model.)

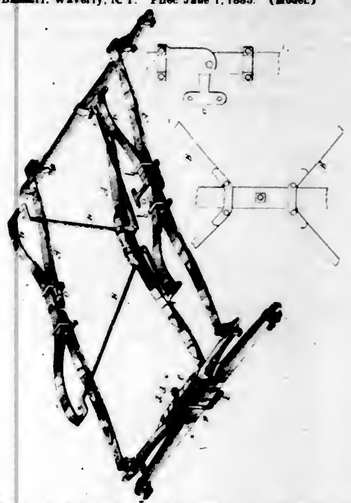


Claim—1. The combination, with a supporting-frame, of a hopper pivoted to the latter at its rear end and comprising a stationary and a hinged section, means for securing the sections together, means for holding the hopper stationary, a feeding-wheel in the hopper, and means for actuating it, substantially as set forth.

2. The combination, with a supporting-frame, of a hopper pivotally connected therewith at its rear end, and having its side beams extending forwardly, a button pivoted to the frame and adapted to engage one of said beams, a feeding-wheel having teeth on the lower portion of its periphery, pins projecting downwardly and laterally from said teeth, and means for operating said feeding-wheel, substantially as set forth.

3. The combination, with a supporting-frame, of a hopper pivotally connected therewith at its rear end, the side beams of the hopper extending forwardly, angular plate secured to said side beams, and a button or catch, as set forth.

353,980. CARRIAGE-SPRING. JEFFERSON B. SLITER and CHARLES T. BARRETT, Waverly, N. Y. Filed June 1, 1885. (Model.)



Claim.—1. A vehicle having two exterior longitudinal springs provided with shorter auxiliary springs centrally secured thereto, and a central longitudinal spring united by means of diagonal braces with the exterior springs, so that all operate unitedly as one, substantially as and for the purpose specified.

2. A vehicle provided with two exterior springs having auxiliary springs centrally secured thereto, and an interior or central spring connected with the exterior springs by two diagonal V-shaped braces connected with the central spring near its center and extending outwardly to unite with the ends of the exterior auxiliary springs, substantially as and for the purpose specified.

3. The combination, in a vehicle, of the exterior springs provided with centrally secured auxiliary springs connected with the body, and a central spring provided with V-shaped diagonal braces extending outwardly from its center, and also connected to the body of the vehicle, substantially as and for the purpose specified.

353,981. COVERING FOR PIPES, BOILERS, &c. HERBERT M. SMALL, Baldwinsville, Mass. Filed Apr. 30, 1886. (No model.)

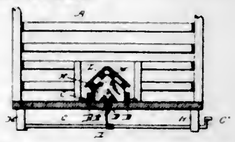


Claim.—1. A covering for pipes, &c., it being composed of one or more layers of asbestos and of one or more layers of sponge felt, substantially as described.

2. A covering composed of one or more layers of asbestos and one or more layers of sponge felt, and a layer of hair felt, substantially as described.

3. A covering consisting of one or more layers of sponge felt, one or more layers of hair felt, and one or more layers of paper, substantially as described.

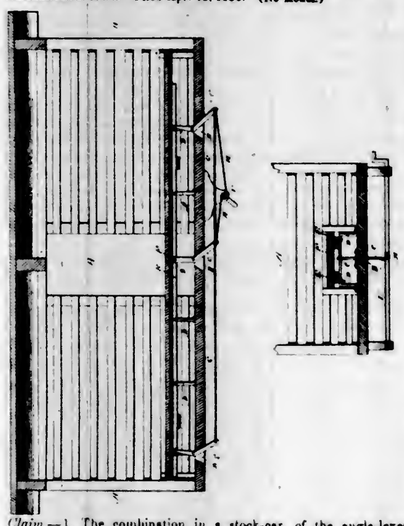
353,982. STOCK-CAR. GEORGE A. SMITH, Marshalltown, Iowa. Filed Apr. 15, 1886. (No model.)



Claim.—The combination, in a stock-car, of the movable bars and the mechanism for elevating the same, with the longitudinally-hinged

platform and the hinged angular bearings, whereby the platform may be hipped to prevent the cattle from resting their fore feet thereon, substantially as and for the purposes specified.

353,983. STOCK-CAR. GEORGE A. SMITH and JOHN G. VAN ORMAN, Marshalltown, Iowa. Filed Apr. 15, 1886. (No model.)



Claim.—1. The combination, in a stock-car, of the angle-levers fulcrumed in angular apertures in the car-bottom, with the pivoted cranks or stirrups, the elevating-bars and platform, the connecting-rods connecting the lower ends of the levers, and the cord or chain and crank-shaft, whereby the levers are operated to raise and lower the platform, substantially as specified.

2. The combination, with the supporting-rods and platform, of the pivoted cranks or stirrups and the angle-levers, the arms of such levers being set at such an angle and so fulcrumed that the upper arm may be made to assume a truly vertical or truly horizontal position, substantially as and for the purposes set forth.

353,984. COUPLING FOR ELECTRICAL CONDUCTORS. WALTER F. SMITH, Philadelphia, Pa. Filed Sept. 14, 1886. (No model.)



Claim.—1. The metallic coupling or body A, having the lateral bosses B B and binding-screws c c, fitted therein, and an insulating-covering, D, having lateral openings for the passage or insertion of the binding-screws, substantially as shown and described.

2. The combination, with the metallic coupling A, having lateral openings for binding-screws, of the insulating-covering D, having lateral openings for the passage or insertion of said screws, said openings forming sockets or chambers for the reception of an insulated filling or rubber plugs, substantially as shown and described.

3. The combination, with a metallic coupling, of an insulating-covering therefor having openings at either end aligned with the axial opening of the coupling, said covering projecting beyond the ends of the metal, substantially as shown and described.

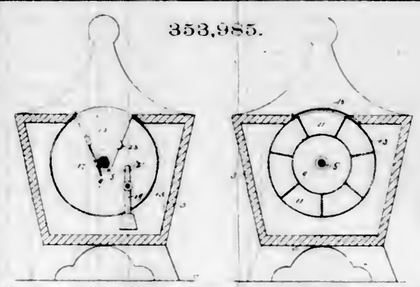
4. In combination with a metallic coupling-piece, A, an insulating-covering therefor having ends which project beyond the metal, said ends having annular grooves for the reception of fastening cords or wires, substantially as shown and described.

353,985. RECEPTACLE FOR HOLDING NAILS. PETER F. SPATH and ABRAHAM L. RISDEN, Dassel, Minn. Filed Apr. 30, 1886. (No model.)

Claim.—1. The combination, with the casing 3, of the drum having the series of compartments 11, the horizontal shaft 5, upon which said drum is secured, the curved plate 13, extending around said drum and covering all but one of said compartments, and the swinging cover 15, turning upon the axis of the drum and arranged to cover the opening in the plate 13, substantially as described.

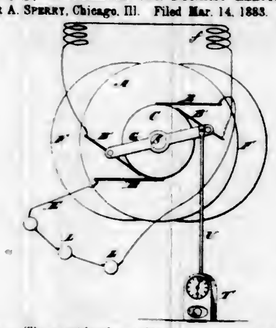
2. The combination, with the casing 3, of the drum mounted on the shaft 5 and having the series of compartments 11, the curved plate 13, extending around said drum, with an opening at the top, the spring-actu-

353,985.



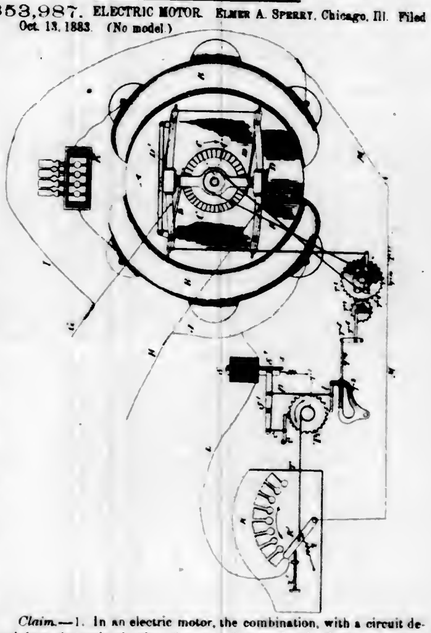
ated cover 15, having the lug 23, and the pendulum 19, having the catch 21, all substantially as described.

353,986. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. ELMER A. SPERRY, Chicago, Ill. Filed Mar. 14, 1883. (No model.)



Claim.—The combination, with the commutator of a dynamo-electric machine, the brushes of its external circuit and the additional pair of brushes respectively connected with the opposite terminals of the helices of the field-magnets, of a time-movement or clock and operating devices, substantially as described, for automatically and periodically adjusting said additional brushes, substantially as herein set forth.

353,987. ELECTRIC MOTOR. ELMER A. SPERRY, Chicago, Ill. Filed Oct. 13, 1883. (No model.)



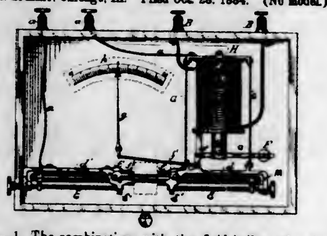
Claim.—1. In an electric motor, the combination, with a circuit derived from the main circuit and arranged to excite the field-magnets, of a subderivation from said derived field-circuit and an automatic rheostat

included in said subderivation and arranged to gradually increase the resistance thereof, substantially as and for the purpose set forth.

2. The combination, with the main circuit which supplies the armature and the derived circuit including the coils of the field-magnet, of a sub shunt or derivation from the field-circuit, the variable rheostat and solenoid-magnet included in said sub-shunt, the movable rheostat-arm, connecting cord, toothed wheel, retaining-pawl, actuating-pawl, pivoted lever, solenoid-core, and mechanical devices, substantially as described, for moving the toothed wheel and adjusting the rheostat from the shaft of the motor, substantially as set forth.

353,988. REGULATOR FOR DYNAMO-ELECTRIC MACHINES

ELMER A. SPERRY, Chicago, Ill. Filed Oct. 28, 1884. (No model.)



Claim.—1. The combination, with the field-helices of a dynamo-electric machine or motor, of carbon electrodes or contacts included in the circuit thereof, and an electrical device included in a separate electric circuit and controlling the separation of the carbon electrodes or contacts in response to the variations of the electric current in said separate circuit, substantially as described.

2. The combination, with the field-helices of a dynamo machine or motor, of carbon electrodes or contacts in circuit with said helices, and mechanism, substantially as described, whereby separation of said contacts is controlled in response to variations in the main electric current supplied by or to the machine, substantially as and for the purpose specified.

3. The combination, with the main circuit of a dynamo-electric machine, of an electrical device included in such circuit, and a field-magnet helix in a derivation of said circuit, carbon contacts included in said derived circuit, and mechanism, substantially as described, connected with said electrical device, for controlling the separation of said contacts, substantially as and for the purpose specified.

4. In a regulator of the kind described for dynamo-electric machines, the movable carbon-holder having a horizontal vibration and supported by parallel springs, substantially as described.

5. In a regulator of the kind described for dynamo-electric machines, the combination of the solenoid included in the main circuit, the electrodes included in the derived circuit, the suction-core, the adjustably-weighted lever, and the vibratory carbon-holder, substantially as shown and described.

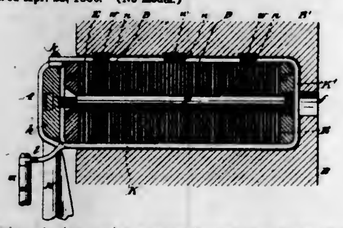
6. In a regulator of the kind described for dynamo-electric machines, the combination, with the solenoid in the main circuit, of the electrodes in the derived circuit, the suction-core, the vibratory carbon-holder connected therewith, and the index-finger, substantially as shown and described.

7. In a regulator of the kind described for electric machines, the combination, with the frame *d*, having dependent projections, of the screw E, traveling nut M, and spring friction-clamp *f*, substantially as described.

8. In a regulator of the kind described for dynamo-electric machines, the combination, with the abutting carbon electrodes, of the carbon-holders, the regulating-screws, and the marked glass, substantially as described.

353,989. ANNULAR ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

ELMER A. SPERRY, Chicago, Ill. Filed June 9, 1883. Renewed Apr. 23, 1886. (No model.)



Claim.—1. An annular armature having a core formed of two laterally-external metallic binding-rings and groups of intermediate thin metallic segments, which are insulated from each other, and the loop-like bar-conductors bent around said core and insulated therefrom, said conductors being connected to a commutator, substantially as set forth.

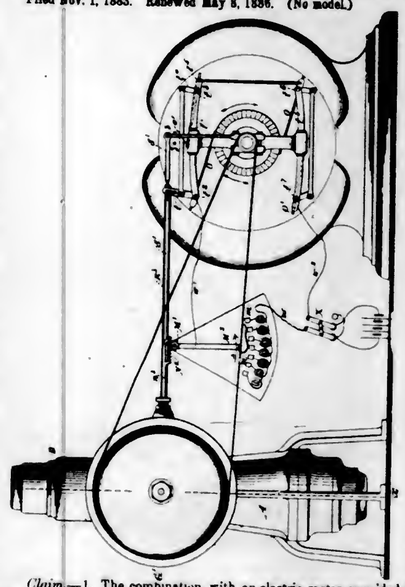
2. In an annular armature, the combination, with the external rings, C and C', and interposed insulated thin metallic segments held together by suitable bolts to form a core, of the spider-arms H, provided with T-heads secured to the ring C, and suitable conductors arranged about said core and provided with means for electrical connection to a commutator, substantially as described.

3. An annular armature having a core formed of a series of laterally-adjacent circles of flat metallic segments, each circle being insulated from adjacent circles, and the segments of each particular circle being all in the same plane and insulated from each other at their ends, substantially as described.

4. In an annular armature, the combination, with laterally-exterior binding-rings, of a series of rings, each composed of segments of thin sheet iron lying in the same plane, and insulated from each other at their ends and from laterally-adjacent segments and the binding-rings, insulated bolts which secure the binding-rings in place to clamp the said circles between them, suitable insulated conductors arranged about said core and provided with commutator-connections, and radial arms for supporting the armature as a whole by one of its lateral edges, substantially as described.

353,990. ELECTRIC REGULATOR.

ELMER A. SPERRY, Chicago, Ill. Filed Nov. 1, 1883. Renewed May 8, 1886. (No model.)



Claim.—1. The combination, with an electric motor provided with two pairs of brushes for its commutator and an adjustable rheostat connected in the supply-circuit of said motor, of hydraulic motive devices arranged to shift the brushes in accordance with the direction of motion of the commutator and to adjust the rheostat in accordance with variations of speed of the motor, and a governor operated by the motor and arranged to control the rheostat-adjusting devices, substantially as described.

2. The combination, with an electric motor provided with two pairs of brushes arranged to rest alternately upon its commutator, of a hydraulic motor provided with devices connected with said brushes for shifting the same to and from the commutator, and a valve arranged to be changed by reversals of motion in the commutator-shaft for operating the brush-shifting devices, substantially as described.

3. The combination, with an electric motor, its supply-circuit, and an adjustable rheostat arranged in said circuit, of a hydraulic motor connected with said rheostat for adjusting the same, and a governor operated by the electric motor and arranged to automatically control the rheostat-adjusting devices, substantially as described.

4. The combination, with an electric motor having two pairs of adjustable commutator-brushes arranged for alternate contact with its commutator, and an adjustable rheostat arranged in the supply-circuit of said motor, of a hydraulic motor having its liquid-forcing devices operated by said electric motor, and provided with motion-transmitting devices connected with said brushes and rheostat for adjusting the same, and provided, also, with a valve operated by changes of direction in the commutator-shaft for controlling the brush-shifting devices, and a separate valve arranged to control the rheostat-adjusting devices, and a centrifugal governor operated by the electric motor and arranged to control the valve of the said rheostat-adjusting devices, substantially as described.

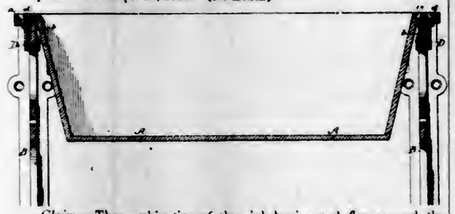
5. In a hydraulic attachment for electric motors, the combination, with the trunk, its inclosed pump, and means for operating said pump, of the barrel N, its retractile piston, and the rod arranged for connection with the current-controller of a rheostat, suitable passages connecting said cylinder with the discharge of the pump, a valve arranged to control the flow of liquid to said barrel, and a governor arranged to control said valve, substantially as described.

6. In a hydraulic attachment for electric motors, the combination, with the trunk, its inclosed pump, and means for operating said pump, of the chamber R', its piston and rod arranged for connection with the brushes of an electric motor, suitable passages connecting the opposite ends of said chamber with the discharge of the pump, and an exhaust connecting said chamber with the trunk, and a valve arranged to control the supply and exhaust passages of the chamber and provided with means for connection with a commutator-shaft, whereby its position will be changed by reversals of motion in said shaft, substantially as and for the purpose set forth.

7. In a hydraulic attachment for electric motors, the combination, with the trunk, its inclosed pump, and means for operating said pump, of the cylinders R' and N, provided with pistons and rods adapted, as described, respectively for connection with the brushes of an electric motor, and a rheostat in the motor-circuit of the accumulator connected by suitable passages with the discharge of the pump and by other passages with said cylinders, the valves for controlling the flow of liquid to and from said cylinders, and means, substantially as described, arranged for operation by the electric motor, for controlling said valves, as set forth.

353,991. BRACKET FOR SINKS.

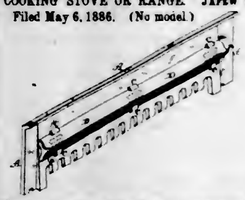
FITCH TAYLOR, Philadelphia, Pa., assignor to himself, Thomas R. Brown, and R. Pitt Owen, all of same place. Filed Apr. 19, 1886. (No model.)



Claim.—The combination of the sink having end flanges and the opposite supporting-brackets, with clamps D, bolted to said end flanges of the sink and embracing the top bars of the supporting-brackets, all substantially as specified.

353,992. COOKING STOVE OR RANGE.

JAPEW S. VAN BUREN, Albany, N. Y. Filed May 6, 1886. (No model.)

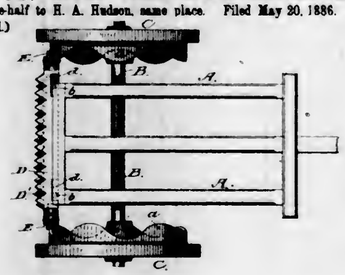


Claim.—1. The combination of the fire-plate provided with a number of guides, C, with the brace-bar D, provided with a strengthening-rib, *a*, on its back, the bar being movable endwise, substantially as shown.

2. The combination of the fire-plate provided with openings for the passage of air, and provided with guides, with the brace-bar applied to the outer side of the plate, concave on its inner side to form an air-passage, and formed with an external strengthening-rib, substantially as described.

353,993. MOWER.

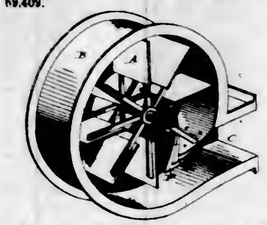
WILLIAM VAN WYCK, Newark, N. J., assignor of one-half to H. A. Hudson, same place. Filed May 20, 1886. (No model.)



Claim.—An improved mower, comprising the frame A, the wheels C upon opposite sides of the frame and provided with inwardly-projecting flanges *a*, said flanges having a cam-surface, as described, a cutter-bar fixed rigidly to the frame A, a reciprocating cutter-bar, D, having the slots *d*, the pins *b* passing through said slots, and the rollers E, journaled loosely upon each end of the reciprocating cutter-bar and engaging the cam-flanges, substantially as herein described.

353,994. ROTARY FAN APPARATUS.

JOHN S. WALKER, THOMAS A. WALKER, and EDWIN R. WALKER, Wigan, County of Lancaster, England. Filed Nov. 20, 1885. Renewed Nov. 6, 1886. (No model.) Patented in England Jan. 24, 1885, No. 1,051, and in Belgium June 26, 1885, No. 69,409.



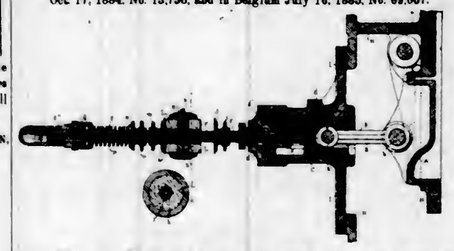
Claim.—1. In combination with the fan-blades A, having faces approximately parallel with the shaft, a tongue or shutter, D, having one or both edges at an angle to the shaft, substantially as and for the purpose set forth.

2. In a fan-case, the shutter D, constructed with its edge at an oblique angle to the edges of the fan-blades, substantially as described.

3. In combination with a shutter of a fan, or its equivalent, the edge of the fan-case, a series of removable pieces, E, capable of being bolted to the shutter to form a continuation thereof, whereby the obliquity of the shutter-edge may be varied at pleasure.

353,995. AIR-VALVE.

JOHN S. WALKER, THOMAS A. WALKER, and EDWIN R. WALKER, Wigan, County of Lancaster, England. Filed Nov. 20, 1885. Renewed Nov. 6, 1886. (No model.) Patented in England Oct. 17, 1884, No. 13,730, and in Belgium July 16, 1885, No. 69,607.



Claim.—1. The combination of the spindle F, having thread cut thereon, with buffer-plates J and M, and corresponding lock-nuts screwed thereon on each side of buffering device L L', whereby the exact amount of buffering on either side can be regulated by screwing the buffer-plates round and then locking them with the nuts, substantially as described.

2. In a valve-buffering apparatus, the combination of a hollow valve-controlling spindle, F, projecting from the valve-chest through a stuffing-box with a terminal cylinder, G, having connection with the valve-chest, and thus balancing the otherwise unbalanced pressure caused through the area on one side the valve, and its connections exposed to the fluid in the valve-chest being less by the sectional area of the spindle than on the other.

3. The combination of the valve-chest, the hollow valve-controlling spindle F, passing the air under pressure, and the terminal cylinder G, open to the pressure in the valve-chest through spindle F.

4. The combination of the valve-chest, hollow valve controlling spindle F, joint *f*, with a spindle of enlarged diameter beyond, and cylinder G, inclosing enlarged spindle, open to the pressure in the valve-chest, whereby there is a slight unbalanced pressure tending to keep the valve closed.

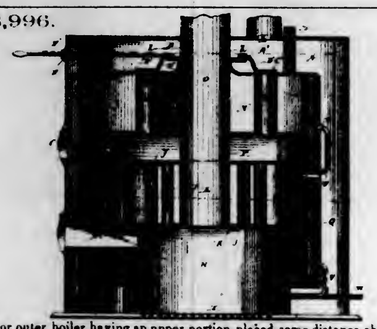
5. In combination with an air-chamber, a valve, a cylinder communicating with the chamber, a hollow block or piston connected with the valve, working in the cylinder, and having a hollow stem secured to it, and a closed stationary cylinder at the outer end of the hollow stem, communicating with the air-chamber through the hollow stem.

353,996. STEAM-GENERATOR.

JAMES WALP, Lehighton, Pa. Filed Apr. 14, 1886. (No model.)

Claim.—1. In a steam-generator, the combination of a lower or inner boiler having the furnace within it, and having vertical flues, an

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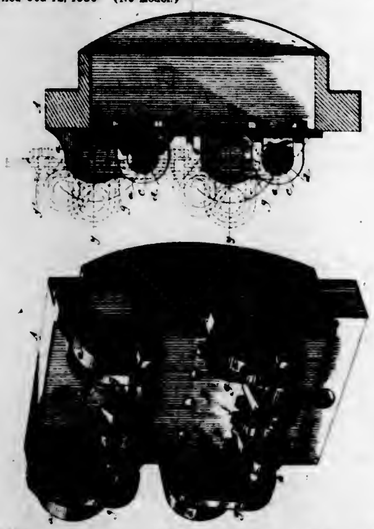


upper or outer boiler having an upper portion placed some distance above the lower boiler, and an annular lower portion surrounding the lower boiler and reaching to a short distance above the bottom of the lower boiler, and formed with a number of vertical flues in the upper portion, a shell surrounding the boilers and having the smoke-stack opening into it, and a number of dampers covering the upper ends of the flues of the upper boiler and having means for operating them simultaneously, as and for the purpose shown and set forth.

2. In a steam-generator, the combination of a boiler portion having a number of flues arranged in a circle, and having a central magazine, with a ring turning upon the magazine, and provided with a number of radiating arms provided with damper-plates fitting over the ends of the flues, and having an arm or handle for turning it, as and for the purpose shown and set forth.

3. In a steam-generator, the combination of a lower boiler having an upper portion provided with vertical flues and with a central magazine, and having a lower annular portion surrounding the furnace, an upper boiler consisting of an upper portion having a circular series of vertical flues, and a central magazine having its lower end extended and resting upon the upper end of the lower magazine, and having a lower annular portion surrounding the lower boiler and extending to a distance from the bottom of the same, pipes connecting the upper and lower portions of the boilers, an outer shell or casing surrounding the boilers, forming a space between them, and having a smoke-stack opening at its top, and having a furnace-door at its lower portion, provided with a chute opening through the annular portions of the boilers into the furnace, and a ring turning upon the upper end of the upper magazine in the space between the shell and the top of the upper boiler, and having radiating arms provided with damper-plates covering the upper ends of the flues of the upper boiler, and having a handle sliding in a slot in the shell, as and for the purpose shown and set forth.

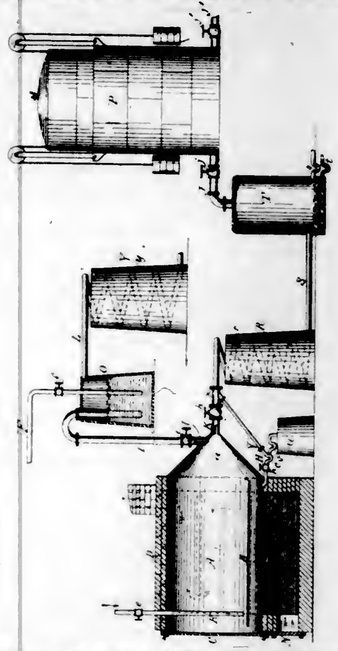
353,997. VALVE FOR PUMPS. PETER L. WEIMER, Lebanon, Pa. Filed Oct. 12, 1886. (No model.)



Claim.—1. A valve suspended upon and supported by swinging links secured to the valve and its seat, and limited in its lift from the seat by said links without the use of positive stops or buffers, substantially as described.

2. A suspended valve having links and pivotal connections with its seat on both sides of its longitudinal center and on both sides of the valve, whereby the valve is caused to travel in a plane parallel with and across its seat, is carried beyond the horizontal line of the links, and is cushioned by the fluid in opening and closing, substantially as described.

353,998. PROCESS OF AND APPARATUS FOR DISTILLING WOOD. THOMAS W. WHEELER, Washington, D. C., assignor of one-half to Allen Murray, same place. Filed Aug. 26, 1886. (No model.)



Claim.—1. The process of distilling pine or other resinous wood and obtaining useful products therefrom, which consists in subjecting it in a distilling-retort to the action of steam at a low temperature to soften and open its pores and drive off the turpentine vapor, and then shutting off the steam and raising the temperature by fire heat, and thereby rapidly driving off the oil and pyroligneous acid and collecting and separating such products, as described.

2. The process of obtaining and separating the products of pine or other resinous wood, which consists in subjecting it in a distilling-retort to the action of steam under low pressure and temperature, thereby softening the wood and driving off the turpentine vapors, passing such vapors into a bath of lime-water which is warmed and agitated by a current of steam, then, when the wood is softened, closing the valves of the steam-pipe and turpentine-vapor pipe, opening the oil-vapor valve, and gradually raising the temperature to nearly 400° Fahrenheit, and thus quickly running off the creosote-oil and pyroligneous acid and separating them till they run off of the same gravity, then opening the tar-valve, and gradually lowering the temperature till the tar and gas are run off, as described.

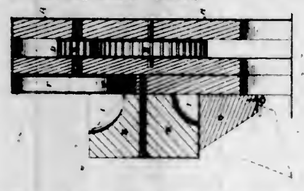
3. The distilling-retort, having a vapor-chamber at one end, in combination with a turpentine-vapor pipe connecting with said vapor-chamber and projecting at its outer end into the liquid of the washer, an oil-vapor pipe, connecting also with said vapor-chamber and with a condensing-worm, and a separating-chamber having draw-off pipes and a gas-escape pipe, for the purpose described.

4. In combination with the distilling-retort having a conical vapor-chamber, the oil-vapor pipe leading from such chamber, the connected condenser, and a receiving and separating chamber having two trapped draw-off pipes arranged one a short distance above the other, near its bottom, and a gas-escape pipe extending from its top to a gas-holder, for the purpose described.

5. In combination with the distilling-retort, a vapor-pipe leading from one end to the condenser, a tar-pipe leading from the bottom of the retort and having a trap, and the inclined vent or gas pipe connecting the tar-pipe with the vapor-pipe, and means for collecting the oil, tar, and gas, as described.

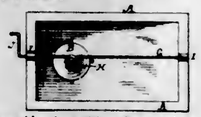
6. The combination of the distilling-retort, a washing-chamber, and a condenser with a vapor-pipe leading from the end of the retort and dipping into the fluid of the washer, a steam-pipe also projecting into the washing-fluid, and a pipe connecting the top of the washing-chamber with the condenser, as and for the purpose described.

353,999. FOOT-RASP FOR HORSES. ABELL P. WILLIAMS, Statesville, Tenn. Filed Aug. 5, 1886. (Model.)



Claim.—The combination of the frame, the revolving rasp, and a mechanism for causing it to revolve, with a pivoted supporting-block provided with recesses to receive the foot, and a stop for holding the block in position while in use, substantially as described.

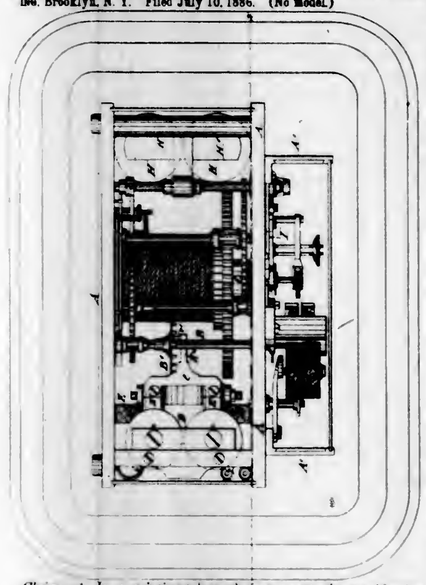
354,000. FLUSH-TANK. JOSEPH WILSON, Philadelphia, Pa. Filed May 10, 1886. (No model.)



Claim.—1. In combination with a flush-tank for water-closets, the valve B, the lower face of which is the segment of a sphere, the center of which sphere is located above the center of gravity of the mass of the valve, whereby the latter will always tend to stand upright and seat itself when raised and dropped, substantially as described.

2. In combination with a flush-tank for water-closets, the valve B, the lower face of which valve is the segment of a sphere the center of which is located above the center of gravity of the mass of the valve, whereby the latter will always tend to stand upright and seat itself when raised and dropped, said valve being pierced with a passage-way, D, adapted to open below into the flush-pipe E when the valve is seated, and above into the interior of the tank A at the desired water-level, substantially as described.

354,001. PRINTING-TELEGRAPH INSTRUMENT. ALOYS WIESCHING, Brooklyn, N. Y. Filed July 10, 1886. (No model.)



Claim.—1. In a printing-telegraph instrument, the combination, with two escapement-magnets arranged in multiple arc, of a printing-magnet arranged in series with reference to the former, substantially as set forth.

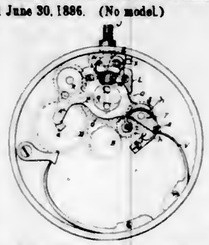
2. In a printing-telegraph instrument, the combination of two electro-magnets located vertically one above the other, a permanent horse-shoe-magnet located in front of the electro-magnets, an escapement-lever pivoted to the poles of said permanent magnet and provided with soft-iron tongues extending between the poles of the electro-magnets, an escapement-wheel engaged by said lever, and means for actuating said escapement-wheel, substantially as set forth.

3. In a printing-telegraph instrument, the combination, with the escapement-wheel and its arbor having a stop-arm, of a printing-magnet and a unison mechanism operated by the armature of the printing-magnet and composed of two levers, one pivoted to the casing of the instrument and the other fulcrumed to the pivoted lever, a spur-wheel on one of the arbors of the actuating mechanism of the escapement-wheel, a device by which the fulcrumed lever is connected with said spur-wheel, and stop-pins for said fulcrumed lever, substantially as set forth.

4. In a printing-telegraph instrument, the combination of the escapement-magnets, an escapement-lever operated by the same, an escapement-wheel having a radial stop-arm, means for actuating said escapement-wheel, a printing-magnet, an armature actuated by the same, a unison mechanism operated by the armature of the printing-lever and composed of a lever pivoted to the casing of the instrument, a second lever fulcrumed to the first lever, and a resilient arm attached to the fulcrumed lever, a spur-wheel on one of the arbors of the motion-transmitting mechanism of the escapement-wheel, stop-pins between which one end of the fulcrumed levers is oscillated, and a stop-pin by which the opposite end of the same is arrested, substantially as set forth.

5. In a printing-telegraph instrument, the combination of a printing-lever having a double-impression pad with alternating teeth, with an adjustable stop-pin that projects into the space or depression between the two adjoining teeth of the double pad, substantially as set forth.

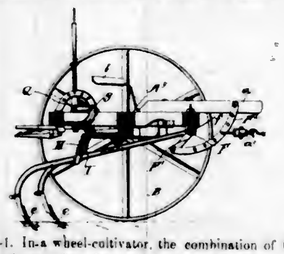
354,002. STEM-WINDING WATCH. CHARLES V. WORRD, Waltham, Mass. Filed June 30, 1886. (No model.)



Claim.—1. In combination with a watch-movement and a stem-setting mechanism of otherwise suitable construction, a gear-wheel to make connection between the hand-arbor and the stem hand-setting mechanism, arranged both to rotate and to roll, substantially as described, for the purpose specified.

2. In combination with a watch-movement and a stem-setting mechanism of otherwise suitable construction, a gear-wheel suspended from a spring-arm and otherwise arranged to make connection between the hand-arbor and the stem hand-setting mechanism, and both to rotate and to roll, substantially as described, for the purpose specified.

354,003. CULTIVATOR. JOHN I. WOODRUFF and WILLIAM H. WAGNER, Selin's Grove, Pa. Filed Aug. 16, 1886. (No model.)



Claim.—1. In a wheel-cultivator, the combination of the divided axle having each part pivoted near the outer ends, the pivoted foot bar having its opposite ends connected with the inner ends of the separated parts, arms extending rearwardly from said parts, a cross-bar uniting the arms, the lever pivotally connected with said cross-bar and pivotally supported at its inner end, and the segment and latch carried by said lever and adapted to engage with the segment, substantially as set forth.

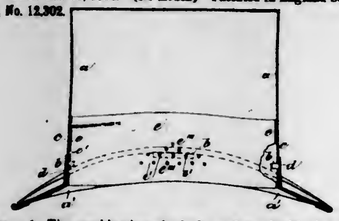
2. The combination of the frame, the cross-bar F, journaled in bearings, the arm projecting from said bar and adapted to have the draft applied thereto, and the beams connected with the cross-bar to turn therewith, substantially as and for the purpose described.

3. The combination of the frame, the cross-bar E, journaled

thereto, the gangs attached to the bar and adjustable lengthwise thereon, slotted guides mounted upon the bar, and bolts passed through the frame and adjustably securing the guides in place, as and for the purposes described.

4. The combination of the frame, the gangs connected therewith at their forward ends, the rock-shaft having arms, slotted hangers depending from the ends of the arms for the passage of a beam of the gangs, and coil-springs mounted on the hangers and held between said beams, and stops on the hangers, substantially as and for the purpose set forth.

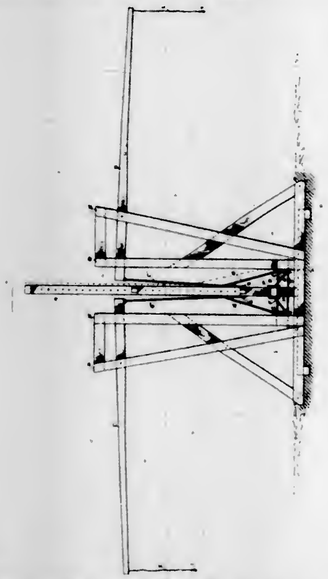
354,004. VENTILATING HATS. HENRY C. ZERFFI, London, England. Filed Oct. 11, 1884. (No model.) Patented in England Sept. 11, 1884, No. 12,302.



Claim.—1. The combination of a body, *a*, formed with slots *b*, providing long narrow apertures running parallel with the brim, body-covering *c*, a band, *d*, medicated filtering substance *f*, and a sweat, *s*, having openings, substantially as described.

2. The combination of a body, *a*, formed with slots *b*, providing long narrow apertures running parallel with the brim, body-covering *c*, extending over the slots, a band, *d*, medicated filtering substance *f*, and a sweat, *s*, having openings registering with the slots, substantially as described.

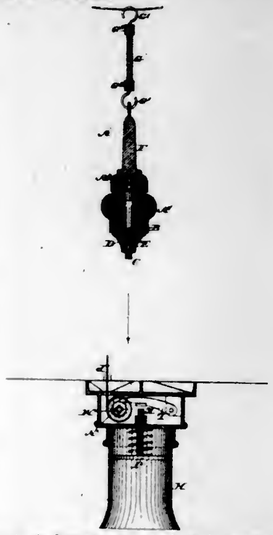
354,005. FARM-GATE. EPHRAIM H. ADAMS and ASA E. ADAMS, Sandusky, Ohio. Filed July 7, 1886. (No model.)



Claim.—1. The combination, with a gate the rear post of which projects upwardly above the main portion of the gate, and a weight secured to said rear post at a point above the top of the gate, of a yoke rigidly secured to the rear lower corner of the gate and projecting laterally at both sides thereof, (the said yoke being loosely mounted on a rod or axle located at a point behind the gate when the latter is in a closed position,) and levers for operating the gate, substantially as set forth.

2. The combination, with the posts B' and the bolt or axle E, of the gate having the upwardly-extending rear post, the weight secured thereon, the yoke secured to the rear lower corner of the gate and projecting laterally at both sides of the gate, the braces F and G, and the levers for operating the gate, substantially as set forth.

354,006. FIRE-ALARM. B. JAY ANTRIM, Philadelphia, Pa. Filed June 11, 1885. (No model.)



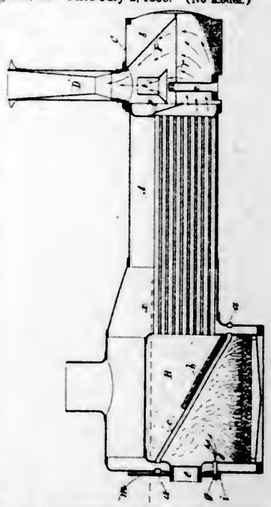
Claim.—1. A detonator composed of the cap-holder A', having outlet-vents, the holder B, having the shoulder E and secured to the cap-holder A', the stem F, and cap A², said parts being arranged and combined as described.

2. A detonator having a fusible support, in combination with a guide, a spring-plunger, a pawl-and-ratchet mechanism operated by said plunger, a drum actuated by said pawl and ratchet, and a cord connected to said drum and arranged for connection with a separate alarm, substantially as described.

3. A suspended separable detonator, in combination with the guide H, the spring-plunger J within said guide, the pivoted pawl L, the ratchet M, the drum N, and cord P, for connection with a separate alarm, substantially as and for the purpose set forth.

4. A detonator having a fusible support, in combination with a spring-plunger having a guide, and mechanism, substantially as described, connected with the plunger for operating an alarm, substantially as and for the purpose set forth.

354,007. FURNACE FOR LOCOMOTIVES. JOSHUA B. BARNES, Springfield, Ill. Filed July 2, 1886. (No model.)

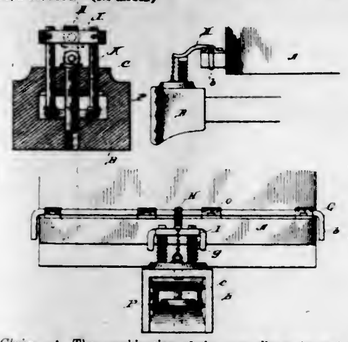


Claim.—1. In a locomotive-engine, the combination, in the smoke box, of a baffling-plate, a horizontal screen or spark-arrester, an induction-pipe, *t*, in combination with the exhaust-nozzle, and a deflector adapted to cut off the upper forward part of the smoke-box, so as to form by their union with the upper arched half thereof and the flue-plate or end of the boiler a chamber adapted to fill, essentially, the office of a secondary induction-pipe and co-operate with the primary induction-pipe, substantially as set forth.

2. In a locomotive-engine, the combination of the fire-box having a series of induction-tubes and an inclined deflector, as herein described, with a smoke-box having a baffling-plate, a spark-arrester, and a deflector, all of said parts constructed and located with reference to each other for co-operative action, as and for the purpose set forth.

3. In a locomotive-engine, the combination of the fire-box having a series of induction-tubes arranged and controlled as herein described, and the smoke-box provided with a deflector located in the upper front part thereof, and inclined, as set forth.

354,008. CAR-COUPLING. NICHOLAS BARR, Cayuta, N. Y. Filed Sept. 24, 1886. (No model.)



Claim.—1. The combination of the controller yoke and link with the single straight shaft having a crank-arm at each end and the lever centrally secured to said shaft, as set forth.

2. A link-controller consisting of two rods on each side of the coupling-pin and the yoke or cross-piece, in combination with the draw-head, having curved recess, as shown, the single operating-shaft, and the lever secured to said shaft, as set forth.

3. A link-controller having two rods, one on each side of the coupling-pin, and adapted to bear on each arm of the link, in combination with the shaft and lever and cross-piece I, substantially as set forth.

4. A link-controller consisting of the yoke having downwardly-projecting stay-pieces, the single shaft having two crank-arms, as shown, the lever secured to said shaft, and two rods provided with suitable springs and arranged on each side of the coupling-pin, in combination with the draw-head and coupling-pin, said draw-head having a curved recess and bearing-point, as shown and described.

5. The combination of the link-controller having two rods arranged one each side of the coupling-pin and provided with suitable springs, as shown, with the lever and draw-head, said pins being arranged in perforations in the top of the draw-head and are connected and operated in unison by the lever pressing upon the yoke on top of the draw-head, as set forth.

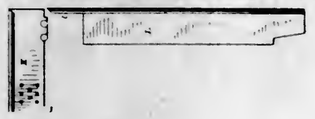
6. The combination of the link-yoke controller, the link, and the coupling-pin arranged in such a manner that raising the pin will raise the controller and the controller will prevent the entire withdrawal of the coupling-pin when raised, substantially as described.

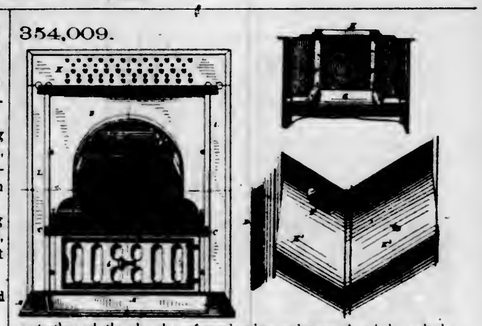
7. The combination, with a draw-head of a railroad-car, of the link-controller consisting of the two pins having bosses, the springs on said rods, the cross-bar I, the lever H, and the shaft G, substantially as set forth.

354,009. HEATING-STOVE. JOHN BIERLEY, Newark, Ohio. Filed Mar. 6, 1886. (No model.)

Claim.—1. The combination of the hollow base, the fire-pot casing, and the outer casing, said casings forming an air-chamber communicating with the base and with a heat-deflecting hood perforated in front, and hot-air pipes passing through the side of the stove at one end and directly into the combustion-chamber, directly above the grate, and thence upward through the top of the stove, all as and for the purposes described.

2. In combination with the stove-casing and the fire-pot, hot-air pipes entering from the side of the casing and passing directly above the





grate through the chamber of combustion and upward and through the top of the stove, and a heat-deflecting shield in front of that part of said air-pipes which is in the chamber of combustion, all substantially as and for the purposes set forth.

3. In combination with the stove-body, the heat-deflecting hood on its top and the vertical and detachable strips extending from the hood down to the side of the stove to its bottom, whereby said stove can be adapted for use as a fire-place heater, substantially as shown and described.

4. The combination of the fire-pot and its casing, and the hot-air pipes in the chamber or space directly above the grate and passing through the combustion-chamber, with a heat-deflecting shield in front of said pipes, substantially as and for the purposes set forth.

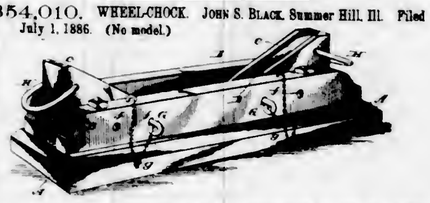
5. In combination with the fire-pot and the hollow base, the casing E^3, sloping inwardly from the bottom upward, and the perpendicular external casing, I, substantially as and for the purposes set forth.

6. In combination with a stove-body, as described, the inclined hood *k* on the top, its front wall extended beyond the sides of the stove, and the strip L, flanged at *l*, substantially as described.

7. In combination with the fire-pot and its casing, the hot-air pipes F, passing through the sides E^2 of the said casing and out at the top, the rod *g*, and the heat-deflecting shield G, held by the rod *g* over the top of the fire-pot and in front of the said pipes F, substantially as and for the purposes described.

8. The combination of the grate E, inclined from front to rear, and having journals e^2, with the grated sides and the front and rear projections, *e* and *e'*, substantially as described.

354,010. WHEEL-CHOCK. JOHN S. BLACK, Summer Hill, Ill. Filed July 1, 1886. (No model.)



Claim.—1. The combination, with a base adapted to receive a wheel or other machine support on its face, of a pair of chocks adapted to slide toward each other on the base and on opposite sides of the machine-support, and means for locking the chocks in the desired adjustments, substantially as set forth.

2. The combination, with a base having a channel on its upper side adapted to receive the supporting-wheel, of a pair of chocks adapted to slide toward and lap past each other in the channel, and pins or their equivalent for locking the chocks in the desired adjustment, substantially as set forth.

3. The combination, with the base provided with the channel on its upper side, of a pair of grooved-faced wedge-shaped blocks adapted to be slid toward each other in the channel, for the purpose substantially as set forth.

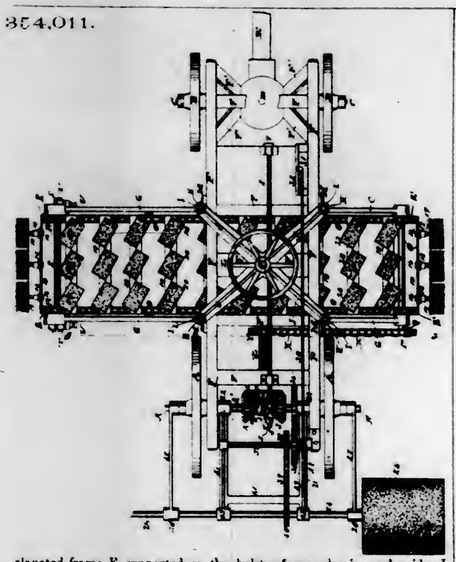
4. The combination, with the base provided with the channel or groove on it upper side, of the grooved-faced inclined planes adapted to lap past each other, and thereby elevate the vertex of the angle formed by their slanting sides, substantially as set forth.

5. The combination, with the overlapping chocks provided with grooved faces and series of perforations, of locking-pins adapted to extend through the walls of the channel or groove in which the chocks slide and through the chocks, substantially as set forth.

354,011. STREET-SWEEPING MACHINE. CHARLES CHRISTOPH, St. Louis, Mo. Filed Apr. 6, 1885. (No model.)

Claim.—1. The combination of rear wheels, A, front wheels, B, rear axle, A', front axle, C, rear bolster-frames, F^2, front bolster-frames, F',

354,011.



elevated frame F, supported on the bolster-frames, having rod-guides I vertical rods H, guide-braces M, secured to the elevated frame, spider J, to which the upper ends of the rods are secured, brush-frame G, having parts N, bearing against the guide-braces and secured to the lower end of the rods, and means for raising and lowering the spider, rods, and brush-frame on the elevated frame, substantially as set forth.

2. The combination, with an elevated frame and means for supporting the same, of the guides I, spider J, brush-frame G, rods H, adjusting-screw K, a shaft at each end of the brush-frame, endless brush-chains carried by the shafts, and mechanism by which one of said shafts is operated from a ground-wheel, substantially as set forth.

3. The combination of a brush-frame, endless chains receiving motion from ground-wheels, and cross-bars having brackets formed with angular sockets provided with brushes having angular stems, substantially as set forth.

4. The combination, in a street-sweeping machine, of endless chains receiving motion from ground-wheels and carrying cross-bars having round sockets, and brackets having brushes and projections rotatable in said sockets, substantially as set forth.

5. The combination of a brush-frame, endless chains, cross-bars having round sockets, brackets having round projections fitting the sockets and adjustable on the cross-bars, and brushes having stems adjustable in the brackets, substantially as set forth.

6. An endless sweep for street-sweeping machines, consisting of chains O, cross-bars 10, having round sockets 11 and slots 17, brackets 13, having round projections 12 and angular sockets, bolts 17, brushes 20, having angular stems 14, washers 16, and nuts 15, and a spring, 19, substantially as set forth.

7. A brush consisting of bracket 13, having round projection 12 and angular socket, brush-head 20, having angular stem 14, washer 16, of same diameter as the projection, nut 15, and spring 19, substantially as set forth.

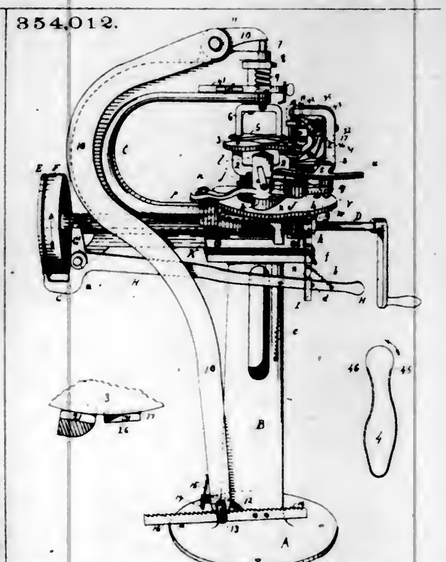
8. In a street-sweeping machine, the combination, with the main frame, brush-frame carrying endless chains supported on shafts, cross-bars having brushes, ground-wheels, and axle, of the bevel-wheels 2 and 3, having clutches 5*, clutch-collar 4, having clutches 5, shaft Z, having bevel-wheel 1 and sprocket-wheel Y, sprocket-wheel P on the drive-shaft, chain connecting the sprocket-wheels, arm 6, having fork 7, rod 8, and lever 9, substantially as set forth.

354,012. SOLE-CHANNELING MACHINE. HENRY H. CUMMINGS, Malden, Mass. Filed Dec. 17, 1885. (No model.)

Claim.—1. In a sole-channeling machine, the combination of a channel-cutter mounted in a stock arranged to rock or rotate upon its axis, an edge-trimming knife, also arranged to rock or rotate upon its separate axis, a rocking or rotating support or bracket in which both said trimming-knife and channel-cutter are severally pivoted, and mechanism, substantially as described, to press said knife and stock to the pattern-plate, substantially as specified.

2. In a sole-channeling machine, the combination of a sole-pattern plate, 3, a clamp, 5, to hold the sole in place, a cam, J, levers *n t*, their engaging and actuating devices, and the edge and channel cutters mounted and arranged to travel with said levers, and to be thereby pressed toward said pattern-plate, substantially as specified.

354,012.



3. In a sole-channeling machine, a pivotal bracket duly supported, an edge-trimming knife pivotally mounted in said bracket, and a channel-cutter secured in a stock pivotally and separately mounted in said bracket with vertical adjustment therein, a lever, 32, arranged to raise said stock, and a depressing-spring, 39, to force said stock downward when released by said lever, substantially as specified.

4. In a sole-channeling machine, and in combination with the gear K and the mechanism thereby actuated, the shaft D, its clutch, pulley, and pinion, the starting and stopping lever H, tripping-lever *h*, with its extension I, and a tripper on said gear K, arranged to engage and actuate lever *h*, substantially as specified.

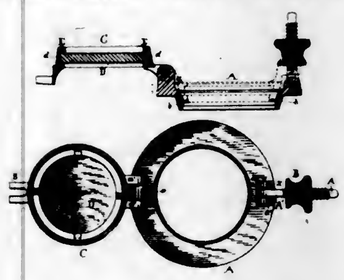
5. The combination of cam-plate J, gear K, with means to rotate it, arm *k*, secured to and carried by said gear, lever *n*, pivoted on arm *k* and carrying a roll to engage the periphery of the cam-plate, and lever *t*, pivoted upon lever *n*, and having mounted thereon at one end the cutting-tool holders and at the opposite end connected with lever *n* by yielding devices which constantly tend to force the cutting-tools toward the center of the gear, substantially as specified.

6. The combination, with levers *n t*, combined and arranged to operate as described, of segment-gear *u*, pinion *v*, and clock-spring *w*, all substantially as specified.

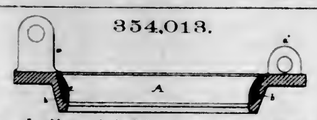
7. The combination of pattern-plate 3 and means for clamping the sole thereon, bracket 17, pivotally mounted upon lever *t*, with means to constantly press it toward the pattern-plate, and edge-trimming knife 26 and stock 21, carrying the channel-cutters, each independently pivoted in said bracket and formed with a guiding-surface to align them relatively to the pattern-plate, substantially as specified.

8. The combination of pattern-plate 3, duly supported, clamping-plate 5, connected with and actuated by plunger 7, a guiding set-collar and elevating-spring arranged on said plunger, and lever 10, arranged to depress said plunger and provided with means at its lower end whereby the operator by his foot may actuate, lock, or release said lever, substantially as specified.

354,013. SIDE AND DECK LIGHT FOR VESSELS. WILLIAM H. DOUGLAS, Washington, D.C. Filed June 25, 1886. (No model.)

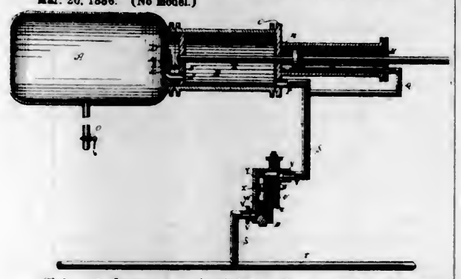


354,013.



Claim.—In side or deck lights for vessels, the frame A, having within it the annular conical recess *b*, an annular india-rubber gasket, c, fitted therein, and the hinged cover C, having its periphery conformed to the conical opening of the frame A, substantially as and for the purpose described.

354,014. AIR-BRAKE. ARCHIBALD G. EASTON, St. Louis, Mo. Filed Mar. 20, 1886. (No model.)



Claim.—1. In an automatic air-brake, the combination of a reservoir, a cylinder secured to said reservoir and communicating therewith, a piston having a valve in it and having a piston-rod projecting through the head of the cylinder connected to the brake mechanism, and a train-pipe entering through the head of the cylinder, as and for the purpose shown and set forth.

2. In an automatic air-brake, the combination of a reservoir, a cylinder secured to said reservoir and communicating therewith, a concentric cylinder at the end of the other cylinder, having a smaller diameter and having an aperture at its rear end, a piston-rod passing through both cylinders and having a piston in each, the piston in the larger cylinder having a valve in it, and a train-pipe having branches entering the heads of the two cylinders, as and for the purpose shown and set forth.

3. In an automatic air-brake, the combination of a reservoir, a cylinder secured to said reservoir and communicating therewith, a concentric cylinder of a smaller diameter secured to the head of the larger cylinder and having an aperture at its inner end, a piston-rod passing through both cylinders and having a piston in the smaller cylinder, and having a piston in the larger cylinder provided with an inwardly-opening valve, having a spring for closing it, and a train-pipe having branches entering the heads of the cylinders, as and for the purpose shown and set forth.

4. In an automatic air-brake, the combination of a reservoir, a cylinder secured to said reservoir and communicating therewith, a piston within the cylinder, having a piston-rod connected to the brake mechanism, and a valve playing upon a seat upon the inner side of the piston and having a spring bearing against it, and a screw adjusting the pressure of the spring, as and for the purpose shown and set forth.

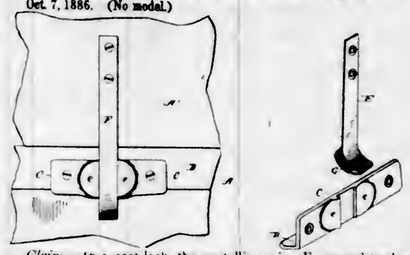
5. In an automatic air-brake, the combination of a reservoir provided with a suitably-located outlet-cock, a cylinder secured to said reservoir and communicating therewith, a piston-rod having a piston within the cylinder, formed with a valve opening inward and provided with a spring for closing it, and a train-pipe entering the head of the cylinder, as and for the purpose shown and set forth.

6. In an automatic air-brake, the combination, with the cylinder and train-pipe having portions of connecting-pipe, of a casing having nipples at both ends for the attachment of the said pipe portions and having a larger bore provided with an annular flange at the upper end, and a smaller bore opening with its lower end into the larger bore and having a valve-seat at its upper end, a valve playing upon the valve-seat, and a plug fitting and sliding within the larger bore having a spring forcing it upward, the said plug covering an aperture in the side of the casing and uncovering the smaller bore when raised, and uncovering the said apertore and covering the end of the smaller bore when depressed, as and for the purpose shown and set forth.

7. In an automatic air-brake, the combination of a reservoir having a suitable outlet-cock, and having an open end, a cylinder secured with its open end upon the open end of the reservoir, a concentric cylinder of a smaller diameter secured to the head of the larger cylinder and having an aperture in the rear end of the cylinder, a piston-rod within the cylinders having a piston in the smaller cylinder and a piston in the larger cylinder provided with an inwardly-opening valve having a spring for closing it and means for adjusting the force of the spring, a train-pipe having a connecting-pipe, and branch pipes entering the heads of the cylinders, and a casing upon the connecting-pipe having an apertore in one side and formed with a larger bore having an annular flange at its upper end and a smaller bore entering the larger bore at its lower end and formed with a valve-seat at its upper end and provided with a valve upon the seat, and a cylindrical plug fitting and sliding within the larger bore and having a spring for forcing it upward, as and for the purpose shown and set forth.

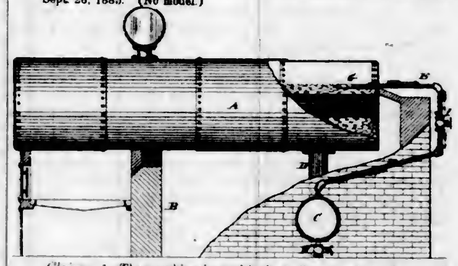
8. In combination with the cylinder and train-pipe of a pressure air-brake, a casing upon the pipe connecting the cylinder and train-pipe, having a channel provided with an upwardly-opening valve and a channel with an aperture in its side, and a plug sliding downward in the channel with its lower end exposed to the incoming air, as and for the purpose shown and set forth.

354,015. SEAT-FASTENER. JOHN H. GIBBEY, Dubuque, Iowa. Filed Oct. 7, 1886. (No model.)



Claim.—In a seat-lock, the metallic spring F, secured to the seat and provided with bent catch portion G, combined with the cleat or rail B, secured upon the wagon-body, and the plate C, secured upon the rail B, and provided with the flange D, which projects under the lower edge of the said rail, the faces of the said plate C and its flange being provided with wide grooves for the reception and retention of the spring F, preventing any movement of the same when in a locked position, substantially as herein described.

354,016. BOILER-CLEANER. ISHAM T. HARDY, St. Louis, Mo. Filed Sept. 28, 1885. (No model.)



Claim.—1. The combination, with the boiler A and the furnace B, of the mud-drum C, the pipe communicating at one end with said drum and opening at the other within the boiler at about the water-line, and the pipe D, connecting the boiler and drum and passing through the furnace, substantially as and for the purposes set forth.

2. The combination, with the boiler A, the mud-drum C, and the circulating-pipes D E F, connecting said drum and boiler, substantially as described, of the shallow pan G, secured to the open end of the pipe E, substantially as set forth.

354,017. GAS-REGULATOR. J. HENRY HELM, Allegheny, Pa. Filed Sept. 25, 1886. (No model.)

Brief.—The regulator has an independent weight.

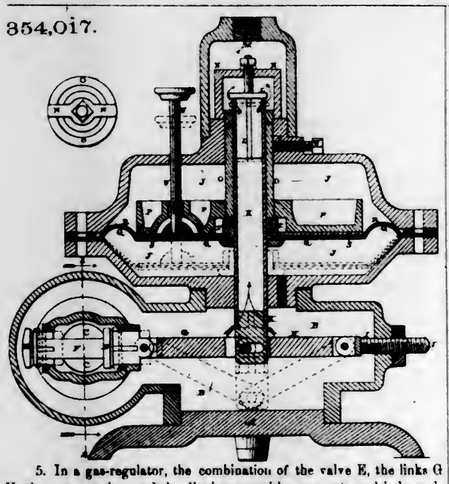
Claim.—1. In a gas-regulator, the combination of the valve-seat, a means for controlling the flow of gas, the links G H, connected directly to the valve, the tube or rod, and the diaphragm, the lower end of the tube or pipe being slotted, whereby the diaphragm, tube, and links can sink downward from their own weight for the purpose of closing the valve, substantially as shown.

2. In a gas-regulator, the combination of the valve E, the two links G H, connected directly to the valve, the screw-rod I, which is passed through the side of the casing, the tube or pipe K, provided with a slot at its lower end, the diaphragm, which is connected to this pipe, and the stem U, substantially as described.

3. A diaphragm for gas-regulators, composed of a sheet of pure gum, Q, and the canvas R, the two parts being entirely separate and distinct, substantially as set forth.

4. In a gas-regulator, the combination of a valve, E, the links, the tube K, the safety-valve provided with a stem, and a support, N, for supporting the safety-valve, substantially as specified.

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5. In a gas-regulator, the combination of the valve E, the links G H, the stem or pipe, and the diaphragm, with a separate and independent weight which has a vertical play of its own, substantially as shown.

6. In a gas-regulator, the combination of the diaphragm, the pipe or stem to which it is attached, the links, the valve, and the valve-seat, with the weight P, and the sleeve O, provided with shoulders at its upper end to prevent the weight P from dropping down below a certain point, substantially as described.

7. In a gas-regulator, the combination of the diaphragm and its attachments, the weight P, and sleeve or extension extending up from the weight, a packing, and a screw for exerting a pressure upon the extension, substantially as set forth.

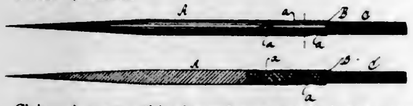
8. The combination of the chamber J, having its edges corrugated with a diaphragm which has its outer edges clamped between the edges of the case, substantially as specified.

9. In a gas-regulator, the combination of a valve, E, connecting-links, arranged as described, for operating the valves, a diaphragm, and its attachments, which are made separate and independent from the diaphragm-weight, whereby when the pressure in the main is cut off the diaphragm will automatically close the valves, substantially as shown.

10. In a gas-regulator, the combination of a separate and independent weight, P, which has a limited downward movement, with a diaphragm and its attachments, and a stem which is connected to the diaphragm and extends through the case, whereby when the diaphragm falls for the purpose of closing the valves it can be brought into action again by means of the stem, substantially as described.

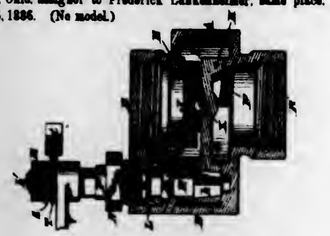
11. The combination, in a gas-regulator, of a diaphragm, a weight placed thereon, and a friction mechanism for exerting a pressure against an extension upon this weight for the purpose of preventing it from flattering, substantially as set forth.

354,018. NEEDLE. JOHN K. KRUG, New York, N. Y. Filed Sept. 9, 1886. (No model.)



Claim.—As a new article of manufacture, a needle having a point at one end and a recess, B, at the other end, extending in the direction of the axis of the needle and having its wall provided with incisions to form the spurs *a*, substantially as shown and described.

354,019. STRAIGHT-WAY VALVE. EDMUND LUNKENHEIMER, Cincinnati, Ohio, assignor to Frederick Lunkenheimer, same place. Filed July 26, 1886. (No model.)



Claim.—1. The combination, in a straight-way valve, of a vibrating carrier having a pair of lateral flanges that grasp the edge of a loosely-coupled valve, for the purpose described.

2. The combination, in a straight-way valve, of a vibrating carrier of relatively greater diameter than the loosely-coupled valve proper, and having a suitable keeper that grasps the edge of said valve, for the purpose described.

3. The combination, in a straight-way valve, of recessed vibrating carrier G, lateral flanges I I', recessed valve J, and ball X, which ball serves as the loose coupling for said valve, as herein described.

4. The combination, in a straight-way valve, of recessed vibrating carrier G, flanges I I', and loosely-coupled valve J, said carrier being provided with a beveled shoulder, K, that bears against a wedge, F, of the shell, as herein described.

5. The combination, in a shell or casing, of a valve-spindle traversing a longitudinally-shiftable sleeve, an adjustable gland bearing against said sleeve, for the purpose of compressing the packing contained within the stuffing-box, and a device that holds said sleeve so as to prevent it being turned by said spindle, substantially as herein described.

6. The combination, in a straight-way valve, of rocking spindle H, collared sleeve O P, adjustable gland N, stuffing-box L, groove *l*, and lug *o*, for the purpose described.

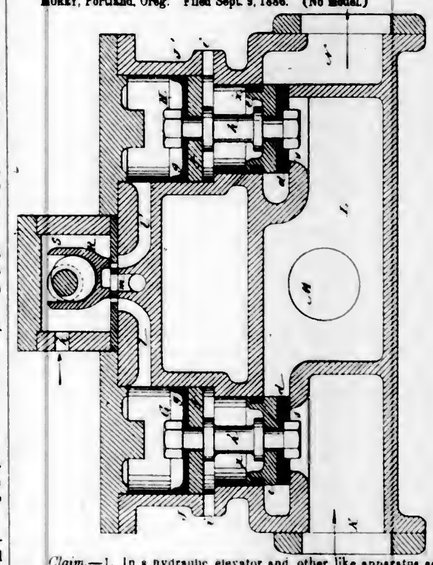
7. The combination, in a straight-way valve, of a rocking spindle having a locking device applied thereto, the free end of which device bears against a pipe secured to the shell of said valve, for the purpose described.

8. The combination, in a straight-way valve, of a rocking spindle, H *h'*, nut R, and locking device T, the latter being applied to said spindle, and having at its free end a saddle, *t*, which bears against a pipe secured to the shell of said valve, as herein described.

9. The combination, in a straight-way valve, of a vibrating carrier having a keeper within which is located a loosely-coupled valve, substantially as herein described.

10. The combination, in a straight-way valve, of a carrier which acts as a guard or shield to prevent steam or fluid striking against the back of a valve loosely coupled to said carrier, for the purpose described.

354,020. VALVE FOR HYDRAULIC ELEVATORS. PARKER F. MORET, Portland, Oreg. Filed Sept. 9, 1886. (No model.)

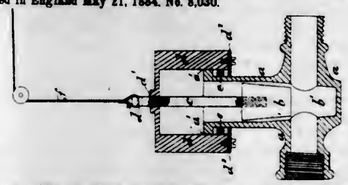


Claim.—1. In a hydraulic elevator and other like apparatus actuated by fluid or water pressure, the combination of separate differential inlet and exhaust valve adapted to control the supply and discharge of the fluid, and an auxiliary valve adapted to control the operations of said differential valves, substantially as specified.

2. In a hydraulic elevator and other like apparatus (using a ram) actuated by fluid or water pressure, the combination, with one and the same duct or branch which conveys the fluid to and from the motor, of a differential inlet-valve adapted to supply the fluid to said duct, a differential exhaust-valve adapted to discharge the fluid therefrom, and an auxiliary valve adapted to control the operations of said differential valves, essentially as described.

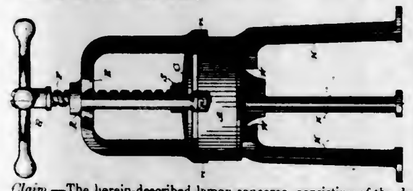
3. In a hydraulic elevator and other like apparatus using a ram actuated by fluid or water pressure, the combination of the differential inlet-valve G, the differential exhaust-valve H, the valve-cylinders J J' of differential diameters, the water-chamber L, the main inlet K, main outlet N, and ram duct or branch M, the passages *l l'*, the auxiliary valve R, the exhaust duct or passage *m*, and the valve-chamber S, having a water-inlet, *k*, substantially as and for the purposes herein set forth.

354,021. SELF-ACTING GAS-COCK. GEORGE NORRIS, Harrow Road, County of Middlesex, England. Filed Aug. 21, 1886. (No model.) Patented in England May 21, 1884, No. 8,030.



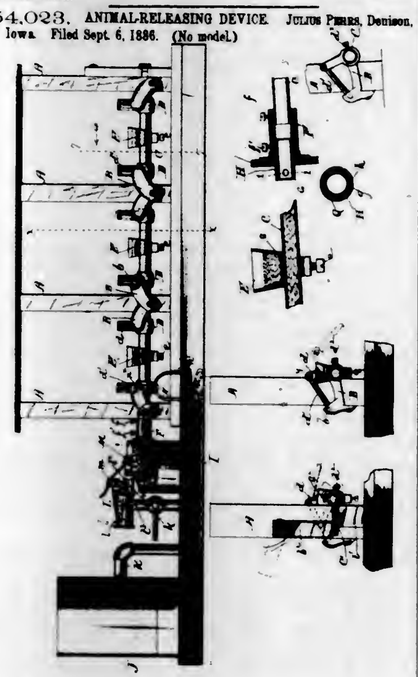
Claim.—The combination of the pipe or case *a*, having a flange, *a'*, and valve-seat *b'*, the movable cap *d*, fitted over the flange, the rod *c*, secured to the cap and adapted to be suspended by a cord or fusible wire, *f*, the valve *b*, attached to the lower end of the rod, the flange d^2 on the lower end of the cap and bearing against the pipe or case, and the packing *e* between the latter and the cap and above the flange on said cap, substantially as described.

354,022. LEMON-SQUEEZER. ROBT. ONDERDONK, New York, N. Y. Filed May 19, 1886. (No model.)

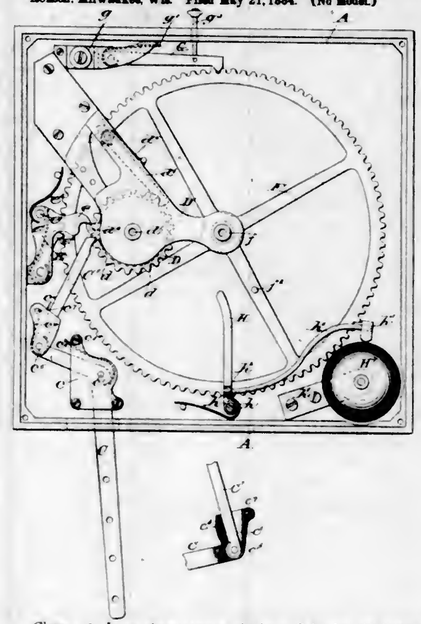


Claim.—The herein-described lemon-squeezer, consisting of the detachable tripod-legs H H H, cylindrical concentrating-cup A, with detachable bed B therein, detachable tripod E, and presser-screw F, working through the tripod, having presser C swiveled to its lower end, all combined and operating substantially in the manner and for the purpose herein set forth.

354,023. ANIMAL-RELEASING DEVICE. JULIUS PIERS, Denison, Iowa. Filed Sept. 6, 1886. (No model.)



354,024. ALARM-COUNTER FOR PRINTING-PRESSES, &c. JACOB RUESCH, Milwaukee, Wis. Filed May 21, 1884. (No model.)



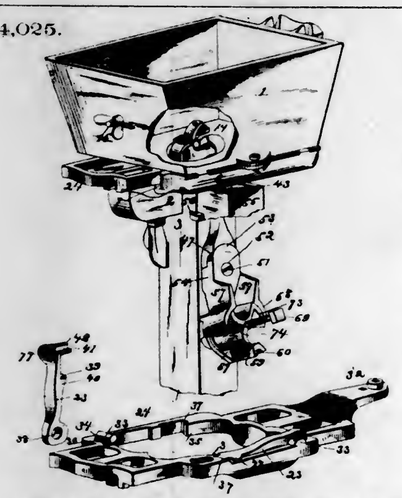
Claim.—1. In an alarm-counter, the lever C, having the hollowed-out extension c^4, and the pawl C', pivotally connected to said extension, in combination with the wheel D, having the tooth d^3, the lever E, pawl e^2, detent d^5, wheel F, and a suitable actuating mechanism, substantially as and for the purpose set forth.

2. In an alarm-counter, the combination of the inclosing-box A, provided with an alarm, and a striker for the latter, the wheel F, having the pin f^2 on one of its arms, the detent G, the lever C, having the hollowed-out extension c^4, pawl C', pivotally connected to said extension, the wheel D, having the tooth d^3, the lever E, spring-pawl e^2, detent d^5, and a suitable actuating mechanism, substantially as and for the purpose set forth.

354,025. CORN-PLANTER. NILS O. STARKE, Madison, Wis., assignor to the Fuller & Johnson Manufacturing Company. Filed Sept. 15, 1886. (No model.)

Claim.—1. The combination, with the sliding frame, whose side pieces are provided with notches 36 and 37 and lugs 33, of the pawls

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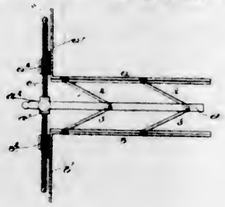
formed with lips 77 and perforations 38, the distance between the perforations and the upper edges of said pawls being less than the distance between said perforations and the inner ends of the pawls, as and for the purpose set forth.

2. The combination, with the rotary seed-disk provided with ratchet-teeth 22 and the sliding frame, of the pawls 23, pivoted to the side pieces of said frame and provided with shoulders 39, and the tongue-bearing lugs 41, to operate substantially as set forth.

3. In a seeding-machine, the combination of a casting at the lower end of the seed-tube, formed with diverging cylindrical walls or flanges facing downward, and having a circular casing below the flanges in its inner side concentric with the flanges and open in its upper side, a lever pivoted to the casting and having its upper end engaged and reciprocated by the sliding frame, and having its lower end provided with cogs, and a valve pivoted upon a bolt in the center of the circular casing and having a cogged segment projecting into that casing and engaging the cogs of the lever, and having a portion shaped as a cylinder-sector alternately bearing against the cylindrical walls, and curved wings forming seed-cups between them and the sector-shaped portion, as and for the purpose shown and set forth.

4. In a seeding-machine, the combination of the shoe-supporting bar, a three-sided casing covering the rear side of the said bar and forming a tube with it, having the lower end of its outer side cut away, a casting secured upon the rear side of the bar within the casing and having its upper edge segmental, and having a central stud upon its rear side and flanges at the edges of its rear side, and a perforation below the stud, and formed with upwardly-diverging walls at the edges of its outer face, continued into diverging cylindrical flanges at their lower ends, and with a circular casing at its lower end, formed with its upper side open, and an outwardly-projecting stud below the casing, a lever engaged and reciprocated at its upper end by the seed-slide and pivoted upon the stud of the casting, having a segmental shoulder bearing against the segmental upper edge of the casting and a segmental slot below the stud and having a cogged lower end, a cover having a plate of glass inserted in its upper portion and fitted over the cut-away portion of the seed-tube, having a bolt passing through it into the shoe-supporting bar and a tongue upon its lower end engaging a notch in the stud at the lower end of the casting, and a cylindrical valve having seed-cups in its periphery and a segmental rack upon its inner side engaging the cogs of the lever within the circular casing, being journaled upon the bolt securing the cover, as and for the purpose shown and set forth.

354,026. T-SQUARE FOR BOOK-BINDERS' USE. ADOLF STÄTTER and JACOB HAUSER, Boston, Mass. Filed June 22, 1886. (No model.)

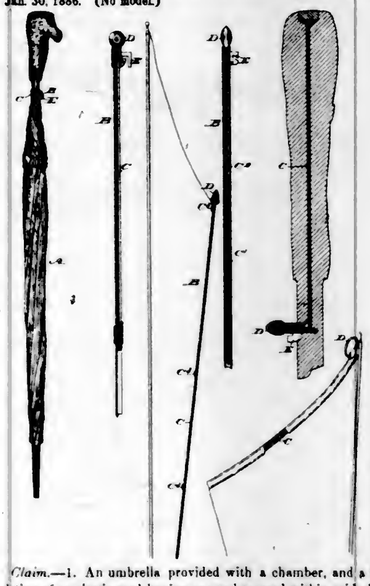


Claim.—1. In a T-square, two L-shaped squares placed side by side, two of the corresponding arms of the said L-shaped squares lying parallel with each other, while the other two corresponding arms extend in opposite directions, and a guide-loop for each oppositely-extended arm, combined with a cross-bar to co-operate with the guide-loops, while the L-shaped squares are being adjusted with relation each to the other, substantially as described.

2. In a T-square, two L-shaped squares placed side by side, two of the corresponding arms of the said L-shaped squares lying parallel with each other, while the other two corresponding arms extend in opposite directions, and a guide-loop for each oppositely-extended arm, combined with a cross-bar to co-operate with the guide-loops in the movement of the squares, and toggle-levers connected with the two L-shaped squares, and means for moving said toggle-levers to vary the distance between the said squares, substantially as described.

3. In a T-square, two L-shaped squares placed side by side, two of the corresponding arms of the said L-shaped squares lying parallel with each other, while the other two corresponding arms extend in opposite directions, and a guide-loop for each oppositely-extended arm, combined with a cross-bar to co-operate with the guide-loops and toggle-levers connected with the two L-shaped squares, and a sliding bar for moving the said toggle-levers, and a retaining device for securing the slide-bar in any desired position, substantially as described.

354,027. UMBRELLA. URIAH G. STEINMETZ, Philadelphia, Pa. Filed Jan. 30, 1886. (No model.)



Claim.—1. An umbrella provided with a chamber, and a fastener consisting of an elastic cord having one end secured within said chamber and a catch to which said cord is attachable when passed around the umbrella in a folded condition, all substantially as described.

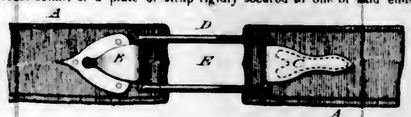
2. An umbrella formed with a chamber or pocket, and having a fastener consisting of an elastic cord adapted to be passed around the umbrella when folded and held thereon, and when the umbrella is unfolded or open to close into the same, substantially as described.

3. An umbrella provided with a chamber, and a fastener consisting of an elastic cord adapted to fold into said chamber, and a catch for controlling said cord when the umbrella is folded and embraced by the cord, substantially as described.

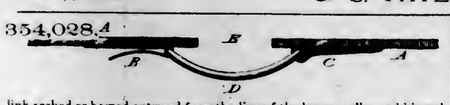
4. An umbrella having a catch, a hollow rib, and an elastic cord, the latter having one end secured in said hollow rib and provided at the other end with a button, substantially as described.

354,028. BREAST-COLLAR COUPLING. GUSTAVUS A. ST. JOHN, Pultney, N. Y. Filed May 20, 1886. (No model.)

Claim.—The combination, with the adjacent ends of a divided breast-collar, of a plate or strap rigidly secured to one of said ends, a

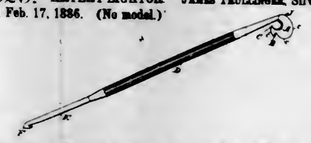


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link arched or bowed outward from the line of the breast-collar and hinged to said plate, and a hook secured to the other of the aforesaid ends and adapted to engage the link, substantially as shown and described.

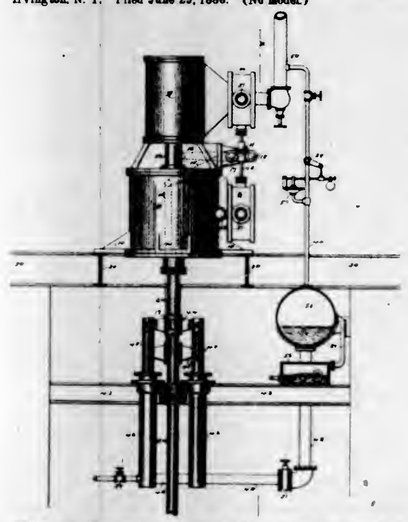
354,029. ARTERY-LIGATOR. JAMES TRULLINGER, Silverton, Oreg. Filed Feb. 17, 1886. (No model.)



Claim.—1. A ligature-instrument consisting of the handle D, having at one end the crescent-shaped blade A, provided with a sharp cutting-edge back, c c c, a barb, B, point C, and heel J, and at the other end with the artery-hook F, substantially as described.

2. A ligating-instrument consisting of a curved blade having a knife-edge back, a barb, and a sharp point, and a handle attached near its heel, substantially as and for the purposes described.

354,030. DIRECT-ACTING ENGINE. CHARLES C. WORTHINGTON, Irvington, N. Y. Filed June 29, 1886. (No model.)



Claim.—1. The combination, with the two cylinders, steam-chests, and valves of a compound engine, of connections for operating said valves, which are connected to the main piston-rod between said cylinders and to the valve rod or rods between said steam-chest, substantially as described.

2. The combination, with the cylinders, steam-chests, and valves of a compound duplex engine, of the rock-shafts 17 18, each connected to the valve-rod of one side of the engine between the steam-chests and to the main piston-rod of the opposite side of the engine, substantially as described.

3. The combination, with a vertical engine, of one or more cylinders, as 46 47, and pistons or plungers, as 48 49, which are supplied with a liquid under pressure and are arranged to act in opposition to the main piston or pistons during the downstroke of the latter and in conjunction therewith during the upstroke, substantially as described.

4. The combination, with a pumping-engine in which the pump rod or rods is or are vertical or substantially vertical, of one or more auxiliary cylinders and pistons or plungers, as 46 47 48 49, which are supplied with a liquid under the pressure of a gas, and are arranged to act in opposition to the main piston or pistons or plunger or plungers during the downstroke of the latter and in conjunction therewith during the upstroke, substantially as described.

5. The combination, with a vertical direct-acting engine, of one or more auxiliary cylinders which are located below the main cylinder or cylinders and have a piston or pistons or plunger or plungers which is or are connected to a cross-head which is detachably connected to the main piston-rod, substantially as and for the purpose set forth.

6. The combination, with the main piston-rod of a vertical engine, of one or more auxiliary cylinders and pistons or plungers, the pipe 42, and tank 53, containing a liquid, connections between said tank and a steam-supply, and a steam-trap for withdrawing the surplus liquid from the tank, substantially as described.

7. The combination, with a vertical direct-acting engine, of one or more auxiliary cylinders located below the main steam cylinder or cylinders, and having a piston or pistons or plunger or plungers which is or are connected to a cross-head which is detachably connected to the main piston-rod, and the cocks or valves 31 29, substantially as described.

8. The combination, with a vertical engine, of one or more auxiliary cylinders, as 46 or 47, having a piston or pistons or plunger or plungers which is or are arranged to act in opposition to the main piston or pistons during the downstroke of the latter and in conjunction therewith during the upstroke, and an automatic pressure-regulator, 57, for regulating the power exerted by the auxiliary piston or pistons or plunger or plungers, substantially as described.

354,031. ROLLER GRINDING-MILL. JAMES B. ALLFREE, Cumberland, Md. Filed Sept. 14, 1885. (No model.)

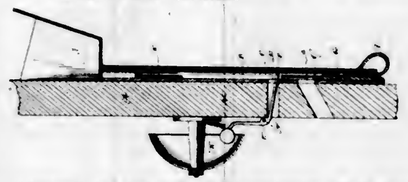


Claim.—1. In a roller-mill, a hopper arranged immediately over the grinding-rolls and having an air space or passage between the lower edge of one of its walls and the periphery of one of the grinding-rolls, in combination and direct communication with the vertical air-passage I, substantially as and for the purpose set forth.

2. In a roller grinding-mill, the double hopper E F, arranged immediately over the rolls and provided with an air-space at or near one roll of each set, in combination and direct communication with a central vertical air-passage, I, substantially as and for the purpose set forth.

3. A roller grinding-mill having one or more sets of grinding-rolls and one or more hoppers, as described, and a vertical air-passage above the rolls, an air-inlet, F', in the case, and a regulator, K, substantially as and for the purposes set forth.

354,032. LETTER-BOX BELL. MARGARET W. ATOR, Bloomington, Ill. Filed Apr. 14, 1886. (No model.)



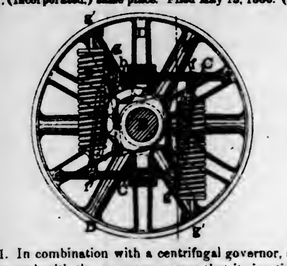
Claim.—1. In a mail-receptacle, the combination, with the plate B, having openings D E, said openings being continued through the body to which the plate is secured, the grooved guide-bars secured to the face of said plate, and spring-actuated cover, in combination with a bell secured on the inside of the door or body to which the plate is secured, one end of the hammer of said bell extending through the opening E, whereby when the cover is librated after being drawn downward an alarm is sounded, substantially as specified.

2. The combination of the door A, the plate B, the openings D and E, passing through both door and plate, the bell secured to the inner side of the door, the spring-controlled hammer L, pivoted to the inner side of the door with its handle extending outside of the opening E, and the spring-controlled cover on the outside of the door, which in using strikes said handle and rings the bell, substantially as specified.

3. The combination of the door A, plate B, openings D E, extending through both plate and door, the bell K, hammer L, pivoted at N, and having its arm P extending through the opening E, springs M, the

guide-bars C, having the openings or grooves C', cover G, provided with the handle I, and springs H, all constructed and arranged substantially as specified, and for the purpose set forth.

354,033. GOVERNOR FOR STEAM-ENGINES. J. SELLERS BANCROFT and WILFRED LEWIS, Philadelphia, Pa., assignors to William Sellers & Company, (Incorporated,) same place. Filed May 13, 1886. (No model.)



Claim.—1. In combination with a centrifugal governor, an inertia-weight, so connected with the governor system that its inertia will tend to move that system in the proper direction to re-establish the normal speed of the engine whenever any change of the work has caused a variation from that speed, substantially as and for the purposes set forth.

2. A centrifugal governor system, an inertia-weight, and an elastic connection between the governor system and the inertia-weight, the combination being and operating substantially as and for the purpose set forth.

354,034. TRUSS. BURR BANNISTER, Kalamazoo, Mich. Filed Aug. 6, 1886. (No model.)



Claim.—The above-described truss-pad, which consists of a concave pad provided with an elastic connecting material, in combination with an elastic ball connected to said elastic material by an adjustable compressing-screw which passes through said ball and is embedded in said elastic material, as herein described, and for the purposes specified.

354,035. TRUSS-PAD. BURR BANNISTER, Kalamazoo, Mich. Filed Jan. 15, 1885. Renewed Nov. 18, 1886. (No model.)



Claim.—In combination with the band and the pad of a truss, an expansible ball resting in a recess in the pad and connected to the band by an adjustable screw, all as set forth.

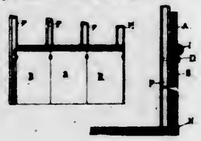
354,036. LEAD SEAL. FRANKLIN W. BROOKS, New York, N. Y., assignor to the New York Lead Seal and Press Company, same place. Filed Oct. 11, 1886. (No model.)



Claim.—1. The lead seal A, formed with threading-channels *a b*, anchor B, and transverse slot *c*, all located between the exposed sides or disk-faces of the seal, in combination with the shackle C, having one end cast in the seal across the slot *c*, substantially as and for the purposes set forth.

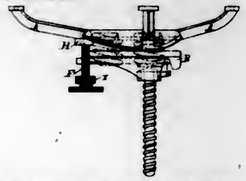
2. The seal A, formed with the anchor B near the upper edge, channels *a b*, passing each side of the anchor and communicating with the transverse slot *c*, in combination with the shackle C, having its lowest extremity bent and cast in the seal across the slot *c* and returned across the seal at or near the anchor B, whereby the threading end of the shackle may interlock with the upper "return" portion, and the anchor near the upper edge of the seal substantially as and for the purpose set forth.

354,037. STREET-RAILWAY CAR. JAS. C. BROWN, San Francisco, Cal. Filed July 17, 1886. (No model.)



Claim.—In interchangeable cars, the portable panels A and B, combined by means of the socket or groove I, and attached by means of the socket-groove H and bolts D and E, constructed and operated substantially as and for the purposes set forth.

354,038. ROCKING-CHAIR ATTACHMENT. WILLIAM I. BUNKER, Chicago, Ill., assignor to the Rocker Spring Company, same place. Filed Jan. 3, 1885. (No model.)



Claim.—1. In a combined swivel and rocking-chair, a plate or support, to which the bottom end coils of the springs are attached, pivotally connected at one end to the spindle-irons and adjustable up or down at the other end, whereby the rocking movement of the chair is regulated and arrested, substantially as described.

2. In a combined swivel and rocking chair, the combination of a base provided with rocker-bearing surfaces, a seat provided with rockers adapted to rest and rock on such surfaces, springs for attaching the seat and base together, and a pivoted plate for supporting the same, one set of said springs having a predetermined tension and the other a variable tension, adjustable by the raising or lowering of one end of the plate or piece in which their lower ends are placed, substantially as described.

3. In a rocking or tilting chair, the combination of a seat part provided with rockers on its under side, a base part provided with surfaces or ways on which said rockers rest and move, and vertical spiral springs rigidly secured to said parts, respectively, and forming the connection between them, at least one of said springs being placed in the center of oscillation of the chair-seat and one in the front or rear of such center, substantially as described.

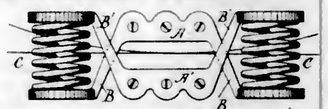
354,039. ROCKING-CHAIR SPRING. WILLIAM I. BUNKER, Chicago, Ill., assignor to the Rocker Spring Company, same place. Filed Apr. 9, 1884. (Model.)



Claim.—1. The combination, with each of the rockers and base-rails of a platform rocking-chair, of a heavy bow-spring comprising a single horizontal spiral coil rigidly secured at its ends to said parts, respectively, one end to the rocker and the other to the base-rail, and forming the connection between the seat and base parts of the chair, substantially as described.

2. The combination, with each of the rockers and base-rails of a platform rocking-chair, of a heavy bow-spring comprising a single horizontal spiral coil, and fastening devices having sockets for securing the same to the rocker and base-rail at its ends, the springs being rigidly secured by such fastening devices to the rocker and base-rail, one end to each, and forming the connection between the seat and base parts of the chair, substantially as described.

354,040. ATTACHMENT FOR ROCKING-CHAIRS. WILLIAM I. BUNKER, Chicago, Ill., assignor to the Rocker Spring Company, same place. Filed Aug. 16, 1884. (No model.)

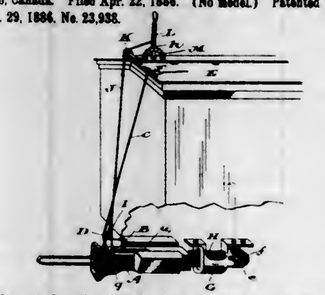


Claim.—1. As a new article of manufacture, a platform rocking-chair attachment, comprising two springs to be secured in front and rear of the center of oscillation, respectively, and two attaching-brackets to be secured to the rocker and base-rail, respectively, the bracket for the base-rail being secured to the upper end of each spring and the bracket for the rocker to the lower end of each spring, substantially as described.

2. As a new article of manufacture, a platform rocking-chair at-

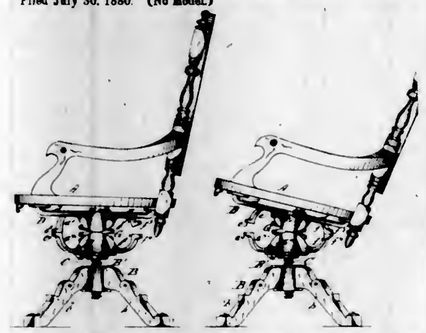
tachment, comprising two attaching-brackets, A A', to be secured to the rocker and base-rail, respectively, the bracket A having a downwardly-projecting arm at each end and the bracket A' an upwardly-projecting arm at each end, and two springs rigidly secured in such arms in front and rear of the center of oscillation, respectively, and adapted to be alternately compressed and extended by the rocking of the chair, substantially as described.

354,041. CAR COUPLING. WILLIAM H. BURKHOLDER, Thedford, Ontario, Canada. Filed Apr. 22, 1886. (No model.) Patented in Canada Apr. 29, 1886, No. 23,938.



Claim.—A draw-head, A, having a passage-way, *a*, cut in it to receive the sliding gate B, which is pivoted on the pin *b*, secured to the draw-head and passing through an elongated slot, *d*, made in the gate, in combination with said sliding gate, and the rope C, connected to the gate B and passing around the pulley-block D, substantially as and for the purpose specified.

354,042. TILTING OR ROCKING CHAIR. M. DANIEL CONNOLLY, Philadelphia, Pa., and THOMAS A. CONNOLLY, Washington, D. C., assignors by mesne assignments, to the Rocker Spring Company, Chicago, Ill. Filed July 30, 1880. (No model.)



Claim.—1. The combination, in a chair, of a seat having rockers secured to its under side, a base having a lower support for said rockers, and a spiral spring or springs rigidly connected to said parts, respectively, and constituting the connection between the seat and base parts of the chair for holding the rockers and their lower support in alignment and proper relative position, substantially as described.

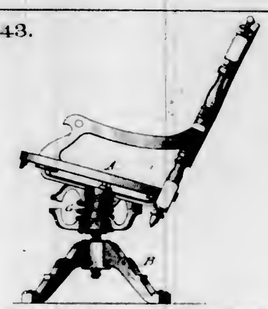
2. The combination, in a chair, of a seat having rockers secured to its under side, a base having a lower support for said rockers, and a spiral spring or springs rigidly connected to said parts, respectively, and located directly in the center of oscillation of the chair-seat, and constituting the connection between the seat and base parts of the chair for holding the rockers and their lower support in alignment and proper relative position, substantially as described.

3. The combination, in a chair, of a seat having rockers secured to its under side, a base having a lower support for said rockers, a spiral spring or springs rigidly connected to said parts, respectively, and suitable stops to limit the movement of the seat, substantially as described.

354,043. SPRING ATTACHMENT FOR ROCKING-CHAIRS. M. DANIEL CONNOLLY, Philadelphia, Pa., and THOMAS A. CONNOLLY, Washington, D. C., assignors, by mesne assignments, to the Rocker Spring Company, Chicago, Ill. Original application filed July 30, 1880, Serial No. 14,470. Divided and this application filed Mar. 23, 1885. (No model.)

Claim.—1. The combination, in a chair, of a seat having rockers secured to its under side, a base having a lower support for said rockers, and two spiral springs rigidly connected to said parts, respectively, and located and secured at opposite sides of the chair-center, and constituting the connection between the seat and base parts of a chair for holding

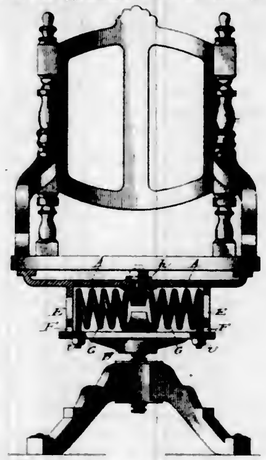
354,043.



the rockers and their lower support in alignment and proper relative position, substantially as described.

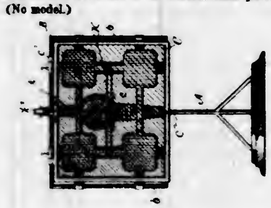
2. The combination, in a chair, of a seat having rockers secured to its under side, a base having a lower support for said rockers, and two spiral springs rigidly connected to said parts, respectively, and located and secured at opposite sides of the chair-center, and in the center of oscillation of the chair-seat, and constituting the connection between the seat and base parts of the chair for holding the rockers and their lower support in alignment and proper relative position, substantially as described.

354,044. SPRING ATTACHMENT FOR CHAIRS. M. DANIEL CONNOLLY, Philadelphia, Pa., and THOMAS A. CONNOLLY, Washington, D. C., assignors, by mesne assignments, to the Rocker Spring Company, Chicago, Ill. Original application filed July 30, 1880, Serial No. 14,470 Divided and this application filed Mar. 28, 1885. (No model.)



Claim.—The combination, in a chair, of a seat having rockers secured to its under side, a base having a lower support for said rockers, and a connecting-spring having two coils formed from one continuous piece of wire and separated by a straight portion thereof, such spring having its longitudinal axis horizontal and being secured at its center to one part of the chair by a clamp and at its ends to another part of the chair by nuts, and constituting the connection between the seat and base parts of the chair for holding the rockers and their lower support in alignment and proper relative position, substantially as described.

354,045. RACK OR STAND FOR HOLDING MANUSCRIPT OR OTHER MATTER TO BE COPIED. SAMUEL B. COSTEN, Scranton, Pa., assignor to H. H. Coston and W. D. Coston, same place. Filed Apr. 19, 1886. (No model.)



Claim.—1. The combination of the rotatable case, the transparent cover thereof, and the spring-supported movable follower or back board in said case, substantially as described.

2. The combination of the rotatable case, the transparent cover thereof, the spring-supported movable follower or back board in said case, the rotatable camway, and the standard, pedestal, or support, substantially as described.

3. The combination of the rotatable case containing the spring-supported follower and provided with the transparent cover, the support, and means for so connecting the case to the support that the case can be adjusted vertically or inclined, substantially as set forth.

4. The combination of the rotatable case, the transparent cover, the follower, the springs for controlling the action of the follower, and the rotating camway, substantially as set forth.

5. The combination of the case provided with the fixed cup, the inverted cup, the spiral spring connecting said cups, the rotatable stem, and the standard, substantially as described.

6. The combination of the standard provided with the camway, the case, the telescopic cup, and the stem, substantially as described.

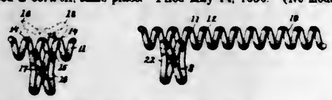
7. The combination of the case, the stem hinged thereto, the hollow standard, and the camway mounted upon said standard, substantially as described.

8. In combination with the case provided with the transparent cover, the gage or liner, and means for adjusting the set of said gage or liner, substantially as and for the purposes specified.

9. The combination of the case provided with the transparent cover, the spring-controlled follower, the gage or liner, the support, and means for securing both the vertical adjustment of said case with respect to said support and its inclination with respect thereto, substantially as set forth.

354,046. CHAIN.

Joseph E. Crook, Providence, R. I., assignor to Atwood & Colwell, same place. Filed May 14, 1886. (No model.)



Claim.—1. A chain-link provided with side bars and having the coupling ends thereof each formed of a section of a spiral wire, said section consisting of one or more turns of the spiral and disposed with the poles or major axes parallel.

2. A chain-link having the side bars formed curved or approximately S shape, and the coupling ends thereof formed of like parts of a similar wire spiral or bent strand, the poles or major axes of said parts of spiral arranged parallel, the free ends of said wire abutting, whereby a continuous structure will be formed.

3. A chain-link constructed from a wire formed into a spiral or strand composed of a series of turns or bends in the wire, said spiral having the ends thereof bent over together upon the body thereof, whereby the complete link may be formed, having the coupling ends thereof consisting of sections of the wire spiral.

4. A chain-link formed from a wire spiral or bent strand of wire, the ends of the spiral bent up over the intact portion or body of the spiral and the free ends of the wire joined, whereby the body or intact portion forms one coupling end and a part of each side bar of the link, and whereby the bent-over ends each forms a part of the other or second coupling end and also the remaining part of the adjacent side bar.

5. The chain-link formed from the cylindrical spiral wire, the outer ends of the spiral bent up together over the central intact portion or body of the spiral, the free ends of wire abutting, whereby the points of bending are about the center of the respective side bars of the link and the body of the spiral forms one coupling end and one half of each side bar of the link, and whereby the bent-over ends each form one-half the other coupling end and the remaining half of the adjacent side bar, the poles or major axes of said spirally-formed coupling ends lying parallel to each other and normal to the plane of the completed link, substantially as described.

6. A chain constructed as follows, viz: first, of a link formed from a wire spiral, the ends of the spiral bent up together over the intact central portion or body of the spiral and the free ends of wire abutting, the central portion of the spiral forming one coupling end and one half of each adjacent side bar of the link, the bent-over ends forming each one half of the other coupling end and the remaining half of the adjacent side bar; second, of another link formed of a wire spiral screwed through the bends of one coupling end of said first link and having the ends thereof bent up together over the central portion thereof and united, whereby the said central portion forms the interlocking coupling end and one half of each of the adjacent side bars of said second link, and whereby the bent ends form each one half of the other coupling end and the remaining half of the adjacent side bar of said second link, and so on with a series of associated links forming a chain, substantially as described.

7. The chain-link 8, comprising the side bars, 19, and the spiral coupling ends and formed from the part 11 of the cylindrical spiral wire 10, substantially as described.

8. The chain composed of a series of links, as 8, comprising the side bars, 19, and the spiral coupling ends, and formed and interlocked substantially as described.

354,047. MACHINE FOR CLEANING INTESTINES.

James Cunning, Indianapolis, Ind. Filed May 19, 1886. (No model.)

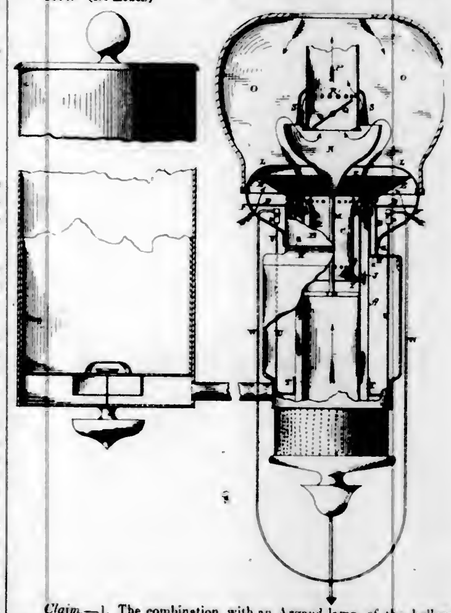


Claim.—1. In a machine for cleaning intestines, the combination, with a hollow wheel or drum having ribs or flanges on the periphery thereof and openings in the periphery of the drum for discharging water, of yielding scrapers secured to the front face of the ribs or flanges, and stiffening-plates secured to the rear faces of the scrapers for limiting the movement of the scrapers.

2. In a machine for cleaning intestines, the combination, with a hollow wheel or drum having oblique or radial ribs or flanges on the periphery thereof and openings in the periphery of the drum for discharging water, of yielding scrapers secured to the ribs or flanges, and stiffening-plates secured against both faces of the scrapers, substantially as and for the purpose set forth.

354,048. LAMP.

Zebulon Davis, Cleveland, Ohio. Filed May 6, 1886. (No model.)



Claim.—1. The combination, with an Argand lamp, of the hollow cone or spreader, into which the flame is made to pass, and the flue placed above the spreader and of a smaller diameter than the spreader, substantially as shown.

2. The combination, with an Argand lamp, of the hollow cone or spreader, and the flue placed above it and provided with a valve, the flame being made to pass down into the cone, substantially as described.

3. The combination, with an Argand lamp provided with a spreader, of a flue provided with a series of perforations, a bell or chamber connected to the flue above the perforations, and a damper placed in the flue below the perforations, substantially as specified.

4. The combination, with an Argand lamp, of the spreader for the flame, the cone provided with an opening at its center, the perforated plate or plates which surround the wick-tube, the flue through which the products of combustion pass, and a suitable support for the cone, substantially as shown.

5. In a lamp, the combination of the spreader N, which projects a suitable distance above the top of the wick-tubes, the flue through which the products of combustion pass, the cone having an opening at its center for the spreader and flame to pass through, the conical perforated plate E, which extends from the top of the auxiliary wick-tube to the inner side of the cone, the perforated plate D, and the support F for the cone, substantially as described.

6. In an Argand lamp, the combination of the central wick-tube with an auxiliary wick-tube composed of two separate pieces, which are applied to opposite sides of but separated from the main tube, and which auxiliary tube extends above the top of the main tube, and bears against opposite sides of the wick, substantially as described.

7. The combination of the main wick-tube and the auxiliary wick-tube, which is connected thereto and insulated therefrom, the upper ends of the auxiliary tube being made to extend above the main wick-tube for the purpose of receiving the heat from the flame, substantially as specified.

8. In a lamp, the combination of the main wick-tube and the auxiliary wick-tube connected thereto and insulated therefrom, the upper ends of the auxiliary tube being made to extend above the main wick-tube, and provided with perforations for the air to pass through at both ends, substantially as shown.

9. The combination of the main wick-tube, the auxiliary wick-tube, which has its upper end to project above the main tube, the scalloped or perforated ring G, and suitable non-conducting material, H, substantially as described.

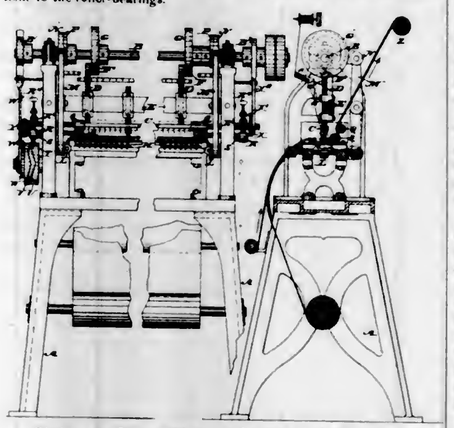
10. The combination, with the wick-raising device having the upper ends of its prongs or arms perforated, of the slides and the bail, the slides being connected both to the bail and to the arms or prongs of the wick-raising device, substantially as set forth.

11. The combination, with an Argand lamp provided with a spreader for the flame, of the flue for carrying off the products of combustion, and which is provided with a series of perforations at a suitable distance above its lower end, and the chamber or bell, which is connected to the flue above the openings, substantially as specified.

354,049. QUILTING-MACHINE.

Jennie Deutsch, Philadelphia, Pa., administratrix of Ignatz Deutsch, deceased; said administratrix assignor of one-half to Benjamin B. Abrahams, same place. Filed Feb. 27, 1886. (No model.)

Brief.—The rollers carrying and feeding the material are given reciprocatory movements by means of a cam-grooved wheel and connections to the roller-bearings.



Claim.—1. In a quilting-machine, the needle-bar C, carrying needles, in combination with the shuttle-carriers J, the means, substantially as described, for imparting motion to said needle-bar and shuttle-carriers and geared feed-rollers Q, the bearings R, having pendent roller T, the wheel V, having zigzag groove U, and mechanism, substantially as described, intermediate of said wheel V and main shaft B for imparting rotary intermittent motion in opposite directions to said wheel V, all substantially as and for the purpose set forth.

2. In a quilting-machine, the needle-bar C and the guide-rollers Q, in combination with means, substantially as described, for imparting a lateral motion thereto and mechanism for imparting an oscillating motion to said rollers, said mechanism consisting of the ratchet X, slidingly mounted on one of the shafts of said rollers, the arm X^3, having one end freely mounted on the same shaft as the said ratchet X, and carrying pawl X', and the eccentric B^3, engaged by said arm X^3 and mounted on the shaft B, with means to rotate the same, all substantially as and for the purpose set forth.

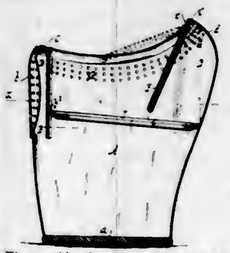
3. In a quilting-machine, the needle-bar C, in combination with a cloth-plate, the rollers Q, having bearings R freely mounted on rods connected to the frame of the machine, and a tension device for said rollers Q, consisting of the boxes R', the springs R^2, the standards R^3, rising from the bearings R, and a cross-bar secured to the said standards and provided with the screw R^4, adapted to bear against the said spring R^2, all substantially as described.

4. In a quilting-machine, the shuttle-carriers J, secured to a frame, K, having shuttles thereon, in combination with guides L, secured to the frame of the machine, and the arms M, pivotally attached to yokes and the frame K, the said yokes engaging with cams or eccentrics secured to the shaft B, all substantially as and for the purpose set forth.

5. In a quilting-machine, the needle-bar C, carrying needles, and having means, substantially as described, for imparting a rising and falling motion to said bar, in combination with shuttle-carriers having means for imparting a reciprocating motion thereto, and cloth-rollers and means for imparting a lateral motion to the same, all substantially as and for the purpose set forth.

354,050. FEED-BAG FOR ANIMALS.

Herbert S. Dyer and Charles R. Monfort, New York, N. Y. Filed Sept. 16, 1886. (No model.)



Claim.—1. The combination, with a feed-bag having perforations at the top portion of its front, of a vertical partition, *b'*, secured at its sides and top to the bag, and separated from the front part of the bag to provide the intervening vertical flue B, open at its bottom and in communication with the external atmosphere through the said perforated part of the bag, substantially as and for the purpose described.

2. The combination, with a feed-bag having its front top part provided with an attached perforated stiff plate, *b*, of a vertical partition, *b'*, connected with the bag, and separated from the perforated plate to provide the intervening vertical flue B, open at its bottom and in communication with the external atmosphere through the said perforated stiff plate, substantially as and for the purposes described.

3. The combination, with a feed-bag, of a swinging guard-plate E, and a spring acting to normally hold the plate approximately horizontal in the month of the bag, but permitting the said plate to be swung downward within the bag by the introduction of an animal's head thereinto, and thereby place the spring under tension, substantially as and for the purpose described.

4. The combination, with a feed-bag, of a spring, C, secured around the bag-mouth, and a swinging guard-plate secured at its upper edge to the spring, said spring serving to preserve the shape of the bag-mouth, and to normally swing the guard-plate upward and hold it approximately horizontal in the bag-mouth, but permitting the plate to be swung downward within the bag by the introduction of an animal's head thereinto, substantially as and for the purpose described.

5. The combination, with a feed-bag having an arched roof, *d*, above the chamber, of a swinging guard-plate, E, constituting, when swung inward, a wall to provide a chamber, D, and a spring acting to normally swing the plate upward and hold it approximately horizontal in the bag-mouth, substantially as and for the purpose described.

6. The combination, with a feed-bag, of a spring-wire, C, secured around the bag-mouth, and extended at its rear into a flexible frame, *c*, and the guard-plate E, secured at its upper edge to said flexible frame, and thereby normally held approximately horizontal in the bag-mouth, but permitting said plate to swing downward within the bag by the introduction of an animal's head thereinto, substantially as and for the purpose described.

7. A feed-bag having the yielding spring-pressed guard-plate E at the rear, and provided with the vertical front flue, B, open at its bottom, and composed of the rear partition, *b'*, and front perforated plate, *b*, through which latter the flue is placed in communication with the external atmosphere, substantially as and for the purpose described.

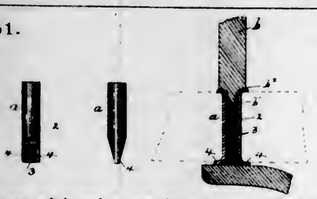
8. A feed-bag having the yielding spring-pressed guard-plate E at its rear, and provided with the yielding guard-ring I, extending around the bag below the guard-plate, and the front vertical flue, B, open at its lower end below the guard-ring, and composed of the rear plate, *b'*, and the front perforated plate, *b*, through which latter the flue is placed in communication with the external atmosphere, substantially as and for the purposes described.

354,051. METHOD OF UNITING SHOE-SOLES TO UPPERS.

Andrew Eppler, Jr., and Adam E. Cole, Boston, Mass., assignors to the Union Metallic Fastening Company, Jersey City, N. J. Filed Nov. 14, 1885. (No model.)

Claim.—The method herein described of applying tubular fastenings or nails to boots and shoes, the same consisting in taking a metallic tube

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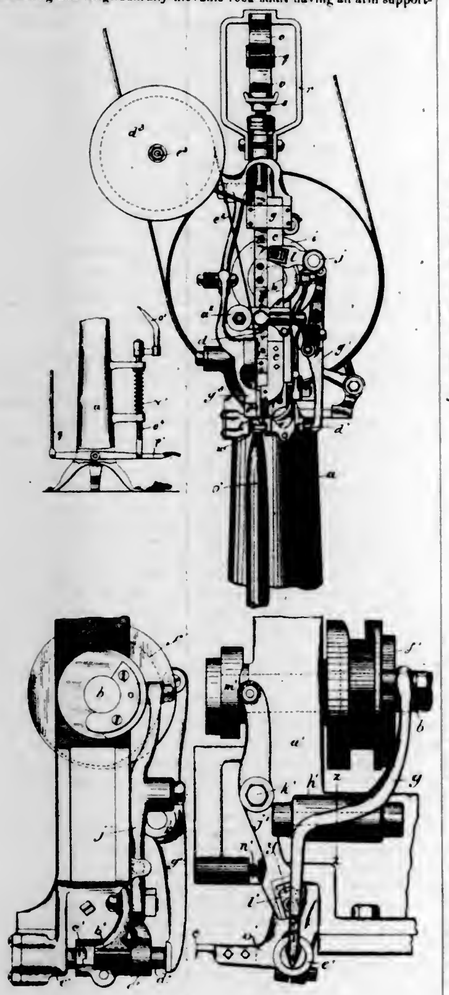


and beveling one end thereof on opposite sides so as to form opposing spurs 4 4, and then forcing the said metallic tube into the leather so as to simultaneously spread the spurs and upset the other end, the latter forming an annular flanged head, substantially as set forth.

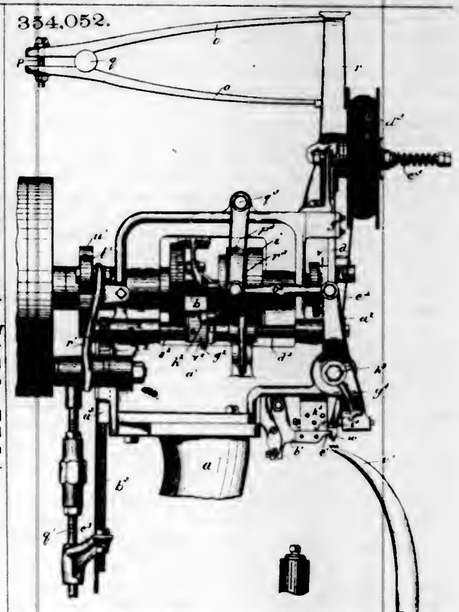
354,052. NAILING-MACHINE. ANDREW EPPLER, Jr., Boston, Mass., assignor to the Union Metallic Fastening Company, Jersey City, N. J. Filed Jan. 11, 1886. Renewed Oct. 20, 1886. (No model.)

Claim.—1. In a boot and shoe nailing machine, the combination of the awl and a driver movable in fixed guides, mechanism, substantially as described, to operate said awl and driver, an independent four-motioned feed-dog, and mechanism, substantially as described, for operating the same, as set forth.

2. In a boot and shoe nailing machine, the combination of an awl and a driver movable in fixed guides, mechanism to operate said awl and driver, a pointed feed-dog located at one side of the awl and driver, an oscillating and longitudinally-movable rock-shaft having an arm supporting said feed-dog, and mechanism, substantially as described, for oscillating and reciprocating said rock-shaft, as set forth.



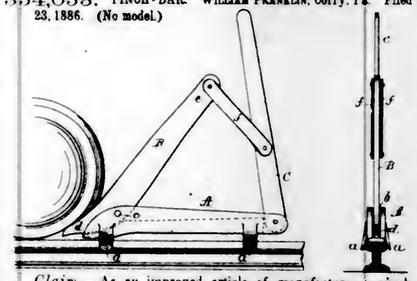
354,052.



3. In a boot and shoe nailing machine, the combination of the wire-feeding roll a^3, its arbor having a ratchet, g^3, a reciprocating pawl whereby said ratchet and roll are rotated intermittingly, a shield, v^3, the rock-shaft f^3, having the pinion l^3, the arm u^3, and the plate or shield t^3, formed to partially cover said ratchet and limit the action of the pawl thereon, the reciprocating rack a^5, meshing with the pinion l^3, the vertically-movable horn, and intermediate mechanism, substantially as described, whereby said rack is moved vertically by the vertical movements of the horn and the position of the shield is regulated, as set forth.

4. In a boot and shoe nailing machine, the combination of the wire-feeding rolls, mechanism for operating them, the fixed cutter j^3, the throat w, the lever g^3, having the cutter i^3 and the wire-deflecting finger f^3, and mechanism for oscillating said lever, as set forth.

354,053. PINCH-BAR. WILLIAM FRANKLIN, Corry, Pa. Filed Feb. 23, 1886. (No model.)

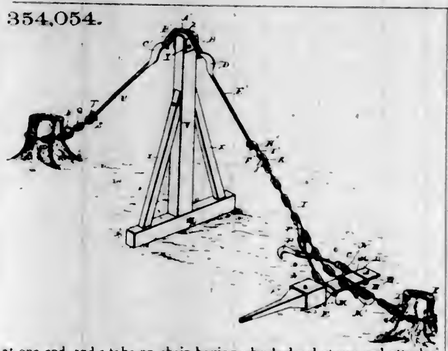


Claim.—As an improved article of manufacture, a pinch-bar formed of a longitudinally-slotted base, A, provided with ears *a*, the pinch-bar lever B, pivoted in the base and provided with a tapered and rounded end, the hand-lever C, pivoted in the slot of the base-piece, and links *f*, connecting the pinch-bar lever with the hand-lever, substantially as herein shown and described.

354,054. STUMP-PULLER. LYMAN B. GIBSON, Addison, N. Y., assignor of one-half to Thomas E. Hardin, same place. Filed May 20, 1886. (No model.)

Claim.—1. In a stump-extractor, the combination of a lever having a bar at one end formed with notches in its edges, an anchor-chain having a long link adapted to slide upon the flat bar and to engage one of the fulcrum-notches, drawing-chains having long links upon the flat bar engaging the notches upon the other edge and provided with hooks at the free ends, an extractor-chain having a loop at one end for passing around the stump, and provided with a hooked rod, a brace having a link sliding upon its top, having the hooked end of the rod engaging it at one end, and a take-up chain having a hooked rod at one end attached to the other end of the link upon the brace and having its other end engaged by the hooks of the drawing-chains, as and for the purpose shown and set forth.

354,054.



2. In stump-extractor, the combination, with a lever, an anchor-chain pivotally attached to the said lever, forming a fulcrum for the same, drawing-chains pivotally attached to the lever at both sides of the fulcrum and having hooks at their free ends, and an extractor-chain, of a take-up chain attached to the extractor-chain and provided at its end with a hook for engaging the anchor-chain, as and for the purpose shown and set forth.

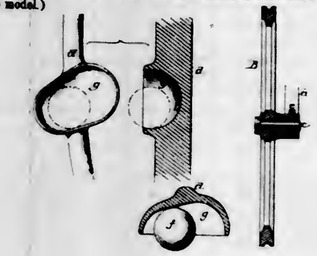
3. In a stump-extractor, the combination of an extractor-chain having a hooked rod, a brace having a rounded chafing-cap at its upper end provided with a staple, a curved link sliding upon the staple and having links at its ends and having one link engaged by the hooked rod of the extractor-chain, and a take-up chain having a hooked rod engaging the link at the other end of the curved link and having means for drawing it toward an anchor, as and for the purpose shown and set forth.

4. In a stump-extractor, the combination of a take-up chain having means for drawing it toward an anchor, and provided at its inner end with a link having its end bent at a right angle, with a rod connected to the extractor-chain and formed with an oblong cross-head at its end, as and for the purpose shown and set forth.

5. In a stump-extractor, the combination of a rod connected to the extractor-chain and having a flat cross-head at one end, a rod having a similar cross-head at one end and having a link at its other end bent at the end at a right angle and engaging the cross-head, and a take-up chain having means for drawing it toward an anchor, and provided with a link bent at a right angle at the end and engaging the cross-head of the rod having the bent link, as and for the purpose shown and set forth.

6. In a stump-extractor, the combination of a lever having a flat bar formed with notches in its edges, an anchor-chain having a flat link upon the bar engaging a fulcrum-notch upon one edge, drawing-chains having flat links at their ends upon the bar engaging notches upon the other edge and provided with hooks at their free ends, an extractor-chain having a loop passed around the stump and having a rod at its other end formed with a hook, a brace having a cap and a staple at its upper end, a curved link sliding upon the cap and staple and having links at its ends, one link being engaged by the hooked rod, a rod having a hook engaging the link at the other end of the curved link and having a cross-head at the other end, a rod having a bent link engaged by the cross-head and having a cross-head at the other end, and a take-up chain provided at one end with a bent link engaging the cross-head of the rod having the bent link, and having a hook at its other end for engaging the anchor-chain being engaged by the hooks of the drawing-chains, as and for the purpose shown and set forth.

354,055. DEVICE FOR CONTROLLING THE DRIVING-WHEELS OF SEWING-MACHINES. DEXTER W. GOODELL, Florence, Mass., assignor to the Florence Machine Company, same place. Filed Feb. 3, 1886. (No model.)



Claim.—The combination, substantially as hereinbefore described, of a sewing-machine-table leg having the ball-pocket integral with said leg at one side thereof, a ball in said pocket, a driving-wheel opposite said pocket and engaged at its side by said ball, and a longitudinally-adjustable driving-wheel stud, as and for the purposes specified.

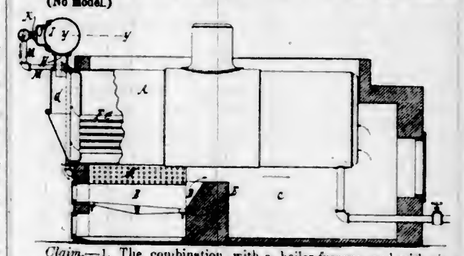
354,056. DRAW-BOX. HENRY M. GOODMAN and REBECCA S. GOODMAN, Louisville, Ky. Filed Mar. 29, 1886. (No model.)



Claim.—1. The combination in a fare-box, of a main receptacle, having a vertical series of transverse slideways, a sliding partition arranged in each slideway, and a spring-lock arranged beneath each slide to engage the same, whereby the said main receptacle may be divided into a plurality of fare-compartments, substantially as specified.

2. A box or receptacle divided into a series of compartments by sliding shelves secured in place by spring-locks, in combination with a collection or fare box provided with a removable false bottom, substantially as specified.

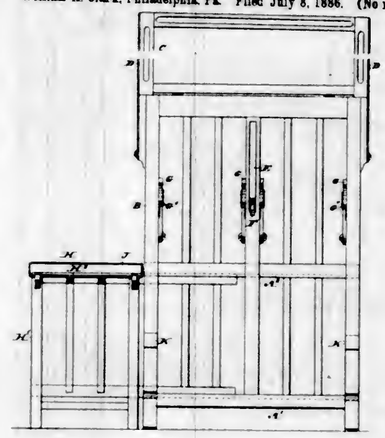
354,057. BOILER-FURNACE. JOHN HAM, Brooklyn, N. Y., assignor to the Ham Coal Saving Company, New York, N. Y. Filed Apr. 15, 1886. (No model.)



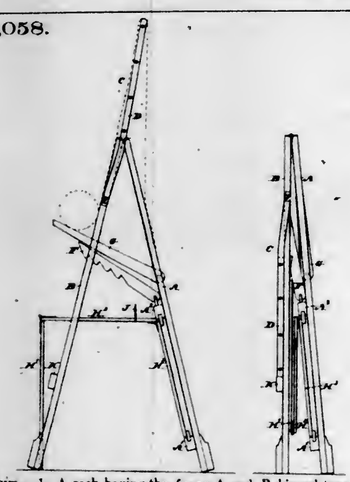
Claim.—1. The combination, with a boiler-furnace, and with air-distributers situated in the fire-chamber thereof above the grate-bars, of an air-heating chamber formed on the smoke-flue and open at one end and closed at its opposite end, a hot-air pipe, which opens into the air-heating chamber, near the closed end thereof, and branch pipes leading from the hot air pipe to the air-distributers, substantially as shown and described.

2. The combination, with a boiler-furnace, and with air-distributers situated in the side walls of the fire-chamber above the level of the fire-grate, of an air-heating chamber formed on the smoke-flue and open at one end and closed at its opposite end, a hot-air pipe opening into the air-heating chamber near its closed end, and branch pipes leading from the hot-air pipe to the air-distributer, substantially as shown and described.

354,058. RACK FOR HOLDING AND EXHIBITING WALL-PAPER, SHADES, &c. WILLIAM H. HAZZARD, Easton, assignor of one-half to William A. Clark, Philadelphia, Pa. Filed July 8, 1886. (No model.)



354,058.



Claim.—1. A rack having the frame A and B hinged together at one end, the frame C, pivoted by straps to sides of frame B, and having its bottom cross-bar abutting against the top cross-bar of the frame A, all substantially as described.

2. A rack having the frames A and B hinged together at one end, the frame C, pivotally connected to the frame B, the said frame B being provided with stops K, locking said frame C in folded position when said frames A, B, and C are folded, all substantially as described.

3. A rack having the frames A and B hinged together at one end, the frame A having its central vertical bar provided with a pivoted serrated dog, and its side bars with pivoted arms, the frame B having a central vertical slot, E, and stirrups G', the latter secured to the side bars of the said frame, all substantially as and for the purpose set forth.

4. A rack having the frames A and B hinged together, the frame A having its center and bottom cross-bars grooved on their facing sides, the frame H, formed of hinged sections, forming a table, and laterally movable in said grooves, all substantially as described.

354,059. MAGAZINE-GUN. LEWIS L. HEPBURN, Ilion, N. Y., assignor to the Marlin Fire Arms Company, New Haven, Conn. Filed July 29, 1886. (No model.)

Claim.—1. The combination, in a magazine-gun, of the slotted carrier E, pivoted to the breech-frame in rear of and above the pivot of the hand-lever L, and provided with the inclined shoulder *a* in advance of its pivot, with the lever L, having the shoulder *b* formed on it in front of its pivot, the said parts being arranged to operate substantially as described.

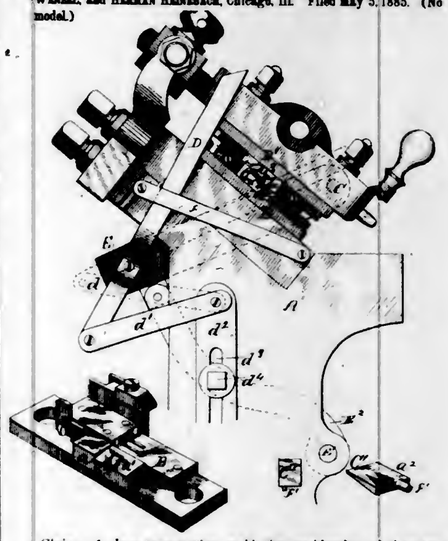
2. The pivoted carrier E, provided with the laterally-projecting lip I, in combination with the lever L, having the spring *m* set in a recess in the side of the lever, said parts being constructed and arranged to operate substantially as shown and described.

3. In combination with the reciprocating breech-block B, having the firing-pin P, mounted loosely therein, the latch *y*, pivoted to the breech-block, as shown, and provided at its free end with the inclined projection *e'*, arranged to engage with a shoulder on the firing-pin, and the curved projection *w*, which engages with the frame as the breech-block is drawn back for the purpose of retracting the firing-pin, as set forth.

4. The swinging locking-brace C, provided with the projection *i*, in combination with the hammer H, provided with the shoulder *c*, said parts being constructed and arranged to operate substantially as and for the purpose set forth.

5. The combination, in a magazine-gun, of the pivoted swinging carrier E and brace C, both provided with a longitudinal slot, and the lever L, provided with an arm, L', arranged to pass through said slots and engage at its upper end with a recess, *h*, in the breech-block B, substantially as shown and described.

354,060. MOLD FOR CASTING TYPE. CARL HOCHSTADT, PHILIPP WENZEL, and HERMAN HEINBACH, Chicago, Ill. Filed May 5, 1885. (No model.)



Claim.—1. In a type-casting mold, the combination of the upper or vibrating member having a type-retaining device and the lower or stationary member having a recess or recesses to form detents upon the jets, substantially as described.

2. In a type-casting machine, the combination, with a fixed mold-section provided with recesses, of an arm actuated by a moving part of the machine and moving close to the jet end of the mold, substantially as described.

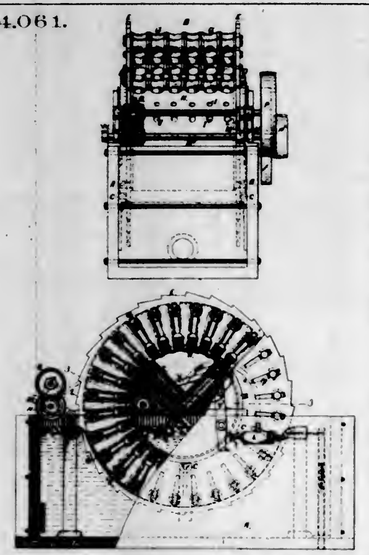
3. In combination, substantially as set forth, the mold having in one member a type-detainer and in the other or companion member a jet-detainer, and a wiper or jet-discharging arm actuated by a moving part of the machine independently of the mold and moved past the jet end of the jet-detaining member as the mold opens.

4. In a type-casting machine, the combination, with the lower or stationary member of the mold, provided with recess or recesses to form detents to detain the jet therein, of an arm actuated by a moving part of the machine and located and adapted to move close to and parallel with the jet end of the mold to engage the jet and release the detents from the mold, substantially as described.

5. In a type-casting machine, the combination, with a jet-ejecting arm adapted to move in connection with said machine, of an adjusting-slide, a fulcrum-link connecting said arm and slide, and means for adjustably securing said slide, whereby the throw or travel of said arm may be varied, substantially as set forth.

354,061. MACHINE FOR AUTOMATICALLY SOAKING, BRUSHING, AND RINSING BOTTLES, &c. WILLIAM W. HORNER, London, County of Middlesex, England, assignor of one-half to Nathan J. Simonds, Woburn, Mass. Filed Oct. 24, 1885. (No model.) Patented in England Dec. 13, 1884, No. 16,426.

354,061.



Claim.—1. In a bottle-washing machine, the combination, with a tank and a bottle-holding drum provided with a ratchet-wheel, of a pawl adapted to engage said ratchet-wheel, a carrier for said pawl, a rotating shaft having an arm adapted to engage and operate said pawl-carrier, and a driving shaft and intermediate mechanism for imparting motion to the said rotating shaft, whereby the said drum will be automatically and intermittingly rotated, substantially as set forth.

2. In a bottle-washing machine, the combination, with a tank, a bottle-holding drum, and a pawl-and-ratchet mechanism for intermittingly rotating the latter, of a rotating driving-shaft from which the said mechanism is operated, a set of rotary brushes radially moving within said drum, and mechanism, also operated by said driving-shaft, for rotating and reciprocating said brushes, substantially as set forth.

3. In a bottle-washing machine, the driving-shaft U, having the gear-wheel T, combined with the rotary brushes, their shafts and the gears R, for rotating the latter, and the intermediate gear, S, for rotating the gears R, substantially as set forth.

4. In a bottle-washing machine, the combination, with a tank, a bottle-holding drum, and a pawl-and-ratchet mechanism for intermittingly rotating the latter, of a rotating driving-shaft from which the said mechanism is operated, a set of rinsing pipes or jets radially movable within said drum, a pipe, p^2, by which the said rinsing pipes or jets are carried, a secondary shaft, as N, operated from the said driving-shaft, and connections through which the said secondary shaft reciprocates the said pipe p^2, to cause the said rinsing pipes or jets to enter the bottles at intervals, substantially as set forth.

5. In a bottle-washing machine, the combination, with the drum B, having the heads E, provided with inwardly-projecting flanges, of the inner cylinder, H, resting against said flanges and having holes adapted to receive the necks of the bottles, and suitable cross-pieces outside of the said cylinder H, adapted to hold the bodies of the bottles, substantially as set forth.

6. In a bottle-washing machine, the combination, with the drum B, having a head provided with ratchet-teeth, of the operating-pawl L, the bell-crank or supporting device to which the said pawl is pivoted, the shaft on which the said bell-crank swings loosely, and the rotating arm M, adapted to operate the said bell-crank, substantially as set forth.

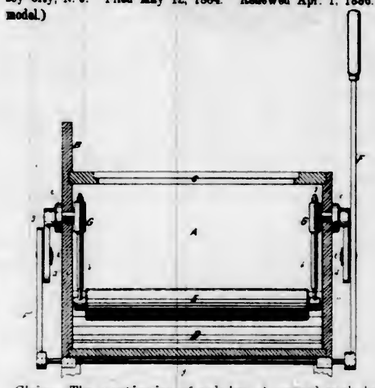
7. In a bottle-washing machine, the combination, with the bottle-holding drum, the rinsing pipes or jets and their supply-pipes, of the valve *b*, having stem *t*, the lever Y, adapted to engage said stem, and the reciprocating pitman or rod V, for operating said lever, substantially as set forth.

8. In a bottle-washing machine, the combination, with a tank and a bottle-holding drum, of the stationary plates or strips g^3, the gears held between said strips, the brush-shafts adapted to reciprocate through said gears, but to be revolved thereby, and mechanism for rotating said gears, substantially as set forth.

9. In a bottle-washing machine, the combination, with the shafts U and P, of the reducing-gears O, the shaft N, its crank W, the pitman V, the levers b^2, the rod d^2, and the brush-shafts swiveled to the said rod and thus adapted to be reciprocated thereby, substantially as set forth.

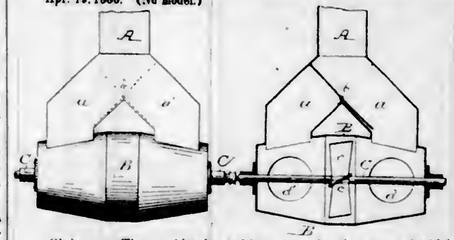
10. In a bottle-washing machine, the combination, with the shaft N and its operating mechanism, of the crank W, the pitman V, the levers b^2, the arms or links m^2, pivotally attached to the said levers, and the pipe p^2, carried by the said arms or links and thus adapted to be reciprocated thereby, substantially as set forth.

354,062. WASHING-MACHINE. ROSA JOEL and HENRY JOEL, Jersey City, N. J. Filed May 12, 1884. Renewed Apr. 1, 1886. (No model.)



Claim.—The combination of suds-box A, curved wash-board D, and roller E, connected to arms *b*, with pins *g*, keyed to slotted arms *d*, and with pins *e*, entering said arms and connected to levers *f'* F', coupled to rock-shaft *f*, that passes through bearings at the bottom of the suds-box, substantially as specified.

354,063. ROTARY FAN. ENOS H. JOHNSON, Chicago, Ill., assignor to Morris B. Derrick and Andrews & Johnson, all of same place. Filed Apr. 19, 1886. (No model.)



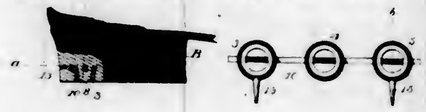
Claim.—1. The combination, with a rotary fan the vanes of which are placed obliquely to the line of motion thereof, and a shaft on which the same is mounted, of a case having an inlet and exit opening on either side of said fan, and means for alternately opening and closing the same.

2. The combination, with a rotary fan the vanes of which are placed obliquely to the line of motion thereof, and a shaft on which the same is mounted, of a case having an exit-opening on either side of said fan, pipes *a* and *a'*, opening into said case on either side of the same, and valve *b*, designed to automatically and alternately close pipes *a* and *a'*

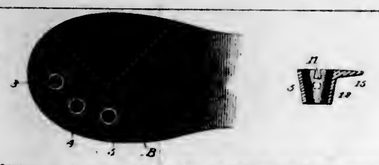
3. The combination, with a rotary fan the vanes of which are placed obliquely to the line of motion thereof, and a shaft on which the same is mounted, of a case, B, having exit-openings on either side of the fan, and oscillating double valve D, for alternately closing said exit, and having inlet-openings placed on either side of said fan, and means for alternately closing them.

4. The combination, with a rotary fan the vanes of which are oblique to the line of motion thereof, and a shaft on which the same is mounted, of a case, B, having exit-openings *d* and *d'* and inlet-pipes *a* and *a'*, opening into said case on either side of said fan, valve *b*, alternately closing pipes *a* and *a'*, and oscillating double valve D, for alternately closing exit-openings *a* and *a'*, substantially as and for the purpose set forth.

354,064. HEEL-PROTECTOR FOR BOOTS OR SHOES. ELEAZER KEMPSHALL, New Britain, Conn. Filed Aug. 21, 1886. (No model.)



354,064.



Claim.—1. A wear-resisting plug for rubber-boot heels, consisting of a hollow frusto-conical plug having an arm or placing-brace projecting laterally from the base thereof, as set forth.

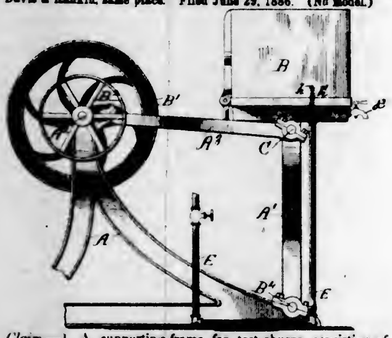
2. The combination, in a heel-protector, of a series of wear-resisting plugs and a malleable connecting-bar, said plugs having openings for adjustment on said bar, substantially as described.

3. A heel-protector having a series of wear-resting plugs secured to a malleable bar connecting said plugs, in combination with arms or placing-braces, one at each end of the protector, all substantially as described.

4. The combination, in a heel-protector, of a series of hollow plugs united by a bar extending through them, said plugs being adjustable thereon and the end ones having placing-braces at their sides, substantially as described, and for the purpose set forth.

5. A heel-protector consisting of a series of hollow frusto-conical plugs united by a malleable bar extending through a recess in the end of the plugs, the plugs being adjustable on the bar and the end ones provided with an arm or placing-brace, as and for the purpose set forth.

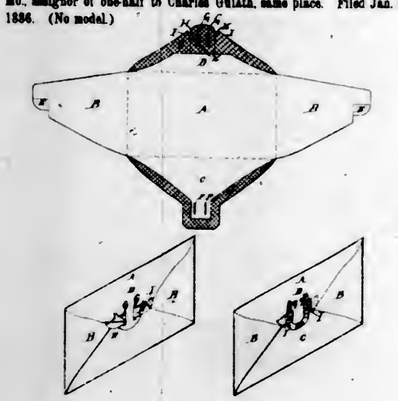
354,065. **TEST-CHURN.** JOHN F. KOHP, Chicago, Ill., assignor to Davis & Rankin, same place. Filed June 29, 1886. (No model.)



Claim.—1. A supporting-frame for test-churns, consisting of the triangular sides A and the oscillating front part, A', in combination with the crank-shaft A^3, the connecting-rod A^2, the rock-shaft B^4, and the shaft C, on which the churn-box is mounted, all combined and arranged to operate as set forth.

2. In combination with the supporting-frame and operating mechanism, the oscillating front part, A', having the bracket-arm C, the shaft C', the churn-box B, provided on the under side with the pivotal lugs b' b^2, whereby said churn-box may be brought to an inclined position, and the means described for locking said churn-box in a horizontal position, substantially as and for the purpose set forth.

354,066. **SAFETY-ENVELOPE, &c.** JACOB E. KRUCKER, St. Louis, Mo., assignor of one-half to Charles Gulath, same place. Filed Jan. 18, 1886. (No model.)

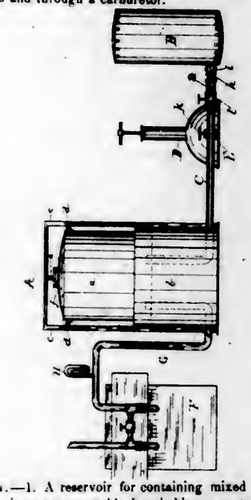


Claim.—1. In a safety-envelope, the end flaps arranged to fold together and having the locking-tongues, in combination with the upper and lower flaps having slots which coincide when said flaps are folded over, and through which said locking-tongues pass, substantially as set forth.

2. In a safety-envelope, the combination of the end flaps, B B, having the locking-tongues E E, and the upper and lower flaps having the coinciding slots F and G, respectively, through which said tongues pass, and the supplemental flaps I, formed on the upper flap, substantially as described.

354,067. **APPARATUS FOR MIXING AIR AND GAS AND DELIVERING THE MIXTURE TO CARBURETORS.** ROBERT S. LAWRENCE, Washington, D. C. Filed Dec. 30, 1885. (No model.)

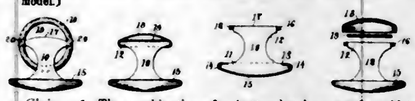
Brief.—Gas is compressed in a portable cylinder, and at the place of use it is allowed to pass into a reservoir or holder, together with a current of air forced in by a pump. The mixed gas and air are passed from the holder to and through a carburetor.



Claim.—1. A reservoir for containing mixed air and gas under pressure, an air-pump, a portable detachable gas-containing vessel, a pipe, as C, provided with a stop-cock for connecting said vessel with the reservoir, and a pipe, as E, provided with a stop-cock for connecting the air-pump with pipe C, all combined substantially as described, and for the purpose set forth.

2. The combination, with a carburetor, of a reservoir for containing mixed air and gas under pressure, an air-pump, a portable gas-containing vessel, and means for connecting the pump and vessel with the reservoir.

354,068. **LEVER-BUTTON.** RUSSELL H. LEWIS, Providence, R. I., assignor to Robert S. Cutting, same place. Filed July 8, 1886. (No model.)



Claim.—1. The combination of a button-head, a post for said button-head and provided with bearings or pintles near the foot thereof, and a movable shoe consisting of a shoe-cap and a spring-plate secured together, the margin or edges of said cap formed with journal cavities or sockets for said bearings or pintles on the post, whereby the spring-plate may ride across the foot of the post and between the hinge-points.

2. The combination of a button-head, a post for said head and provided with fixed lateral bearings at the foot thereof, and a movable shoe composed of a saucer-shaped shoe-cap and a spring-plate secured within the concavity of said cap, the margin of said cap formed with journal sockets or boxes for said bearings, the bearings working in said journal-boxes, whereby the spring-plate may ride upon the foot of the post and be strained or unstrained by the tilting of the shoe thereon.

3. The combination of the flattened post provided at the head with the laterally-disposed holding ends, and the button-head formed up over said ends, substantially as described.

4. The combination of the post provided at the head with a T end having flattened holding ends thereon, the outer edge of said T end formed convex, and the button-head having the rim thereof formed up over said holding ends, whereby the button-head may be firmly secured to the post.

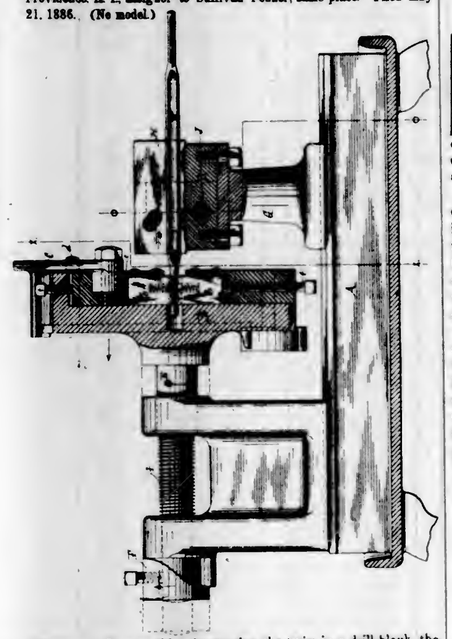
5. The combination of the post having the head thereof provided with laterally-disposed holding ends, the button-head formed up over said ends, the foot of said post provided with laterally-extending pintles or bearings, and the movable shoe consisting of a spring-plate and the shoe-cap, said plate set securely within the concavity of said cap, said cap having the rim thereof formed over on the spring-plate, and provided with journal-cavities for said pintles, substantially as described.

6. The combination of the double-T-formed post, the head of said post provided with laterally-projecting flattened holding ends, the button-head formed up over said holding ends, the foot of said post having laterally-extending pintles or bearings formed semi-cylindrical shaped, and the movable shoe consisting of the disk-like spring-plate and the shoe-cap, said cap formed over on said plate and over said pintles, whereby the shoe may be maintained in any of the three positions, substantially as described.

7. The combination of a button-head, a post secured to said head, and provided with bearings or pintles like 16, the movable shoe consisting of the shoe-cap 18, provided with journal sockets, and the spring-plate 19, substantially as described.

8. The combination of the button-head 15, the post 10, secured thereto and provided with lugs or bearings 16, the shoe-cap 18, provided with journal-sockets 20, and the spring-plate 19, constructed substantially as and for the purpose described.

354,069. **MACHINE FOR MAKING TWIST-DRILLS.** SAML. MOORE, Providence, R. I., assignor to Sullivan Fenner, same place. Filed May 21, 1886. (No model.)



Claim.—1. In a machine for starting the twist in a drill-blank, the combination, with an oscillating chuck, B, provided with means for rotating it, of means, as the cam F, for determining the amount or degree of twist to be imparted to the blank, and a stationary chuck provided with means for opening and closing its jaws, all arranged for joint operation and adapted to serve as specified.

2. The combination of a chuck, as B, mandrel E, cam F, and lever-arm C, all arranged for joint operation as specified.

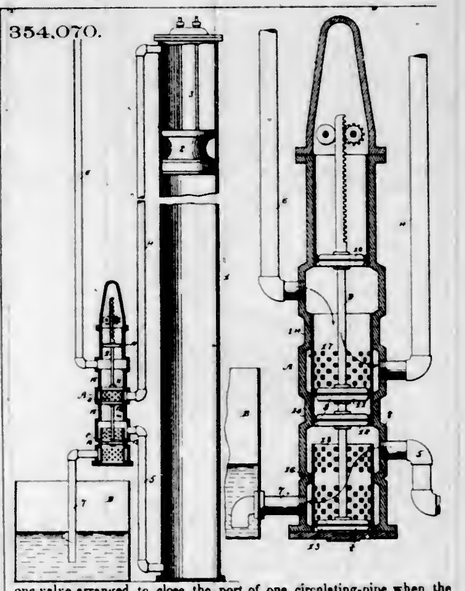
3. The lever-arm C, provided with a cam-lug, the rod *d*, and spring-catch D, in combination with each other and with a chuck, B, all arranged as specified, and adapted to serve, as described, to operate the jaws of the chuck, to rotate the chuck and impart the twist to the blank.

4. The combination of the cam F and mandrel E with an oscillating chuck, as shown, whereby the twist imparted to the blank is caused to correspond in pitch with the pitch of the cam F, as shown and described.

354,070. **HYDRAULIC ELEVATOR.** NORTON P. OTIS, Yonkers, N. Y. Filed June 23, 1886. (No model.)

Claim.—1. The valve-casing communicating with the supply-pipe, discharge-pipe extending below the water in the discharge-tank, and two circulating-pipes, combined with a valve-stem carrying two valves, one valve arranged to close the port of one circulating-pipe when the other valve closes communication between the discharge-pipe and the adjacent circulating-pipe, substantially as described.

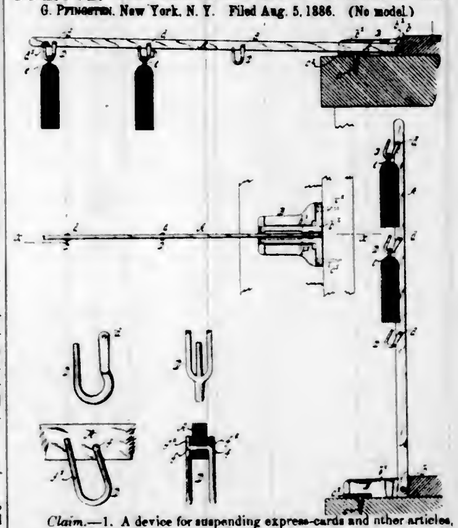
354,070.



2. The combination, with the cylinder, piston, and circulating-pipes, of a valve-casing communicating centrally with said circulating-pipes, inlet-pipe communicating with a supply-reservoir and with one end of the casing, discharge-pipe extending from opposite end of casing below water in a tank, and a stem carrying two valves, *s t*, and balance-disk 10, the valves arranged to close the port of one circulating-pipe when the communication between the other and the discharge-pipe is also closed, substantially as described.

3. The combination, with the cylinder, piston, valve-casing, and circulating-pipes connecting with the casing, of an inlet-pipe connecting with the casing, a discharge-pipe extending from the casing to and below the level of water in a tank, and valves, arranged substantially as described, to close the port of one inlet-pipe by one valve when the other valve closes the communication between the other circulating-pipe and its adjacent pipe, substantially as set forth.

354,071. **SUSPENSION DEVICE FOR EXPRESS-CARDS, &c.** CARL G. PFINGSTEN, New York, N. Y. Filed Aug. 5, 1886. (No model.)



Claim.—1. A device for suspending express-cards and other articles, consisting of a base, an arm pivoted thereto, and one or more hooks piv-

oted at one end to the arm and at the other end swinging into engagement with the arm when the latter is turned to a horizontal position, substantially as and for the purposes described.

2. The combination, with a base, of an arm pivoted to said base and constructed to swing about its pivot from a vertical to a horizontal position, a hook (one or more) pivoted to said arm, and a socket (one or more) in the arm to receive the prong of the hook when the arm is in a horizontal position, substantially as shown and described.

354,072. SMOKING AND DRYING APPARATUS. CHARLES L. RYAN, Galena, Ill. Filed May 7, 1886. (No model.)



Claim.—1. In a smoke-producing furnace, the combination, with a horizontal revoluble cylinder suitably mounted and a horizontal grate rigidly bolted to the interior of the said cylinder, so as to revolve with it and be inverted at every revolution, of means for revolving said cylinder and grate, substantially as set forth.

2. In a smoke-producing furnace, the combination of the horizontal revoluble cylinder, a horizontal grate bolted to the interior of the said cylinder, a bar extending transversely of the rear end of the cylinder, a stationary flanged head-plate, in which the end of the cylinder is secured, and a bearing or journal pin with suitable operating means, substantially as set forth.

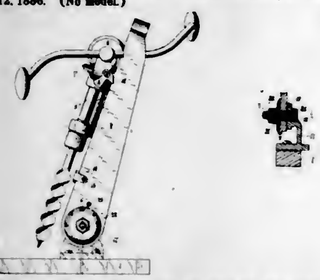
3. In a smoke-producing machine, a furnace capable of being given a rotary movement, mounted upon suitable rollers, having in its head and door adjustable draft-openings, and having one of its ends loosely secured within a stationary head-plate, in combination with suitable operating mechanism, substantially as specified.

4. In a smoke-producing machine, the combination, with operating mechanism, substantially as described, of a furnace capable of revolving, mounted upon rollers, having adjustable draft-openings in its head, and having one of its ends loosely confined within a flanged stationary head-plate, a smoke-chamber connected to the furnace, and pipes containing dampers leading from said chamber, substantially as and for the purpose herein specified.

5. In a smoke-producing furnace, the combination, with a horizontal cylinder provided with adjustable draft-openings and a smoke-outlet, and a horizontal grate bolted to the interior of the said cylinder, of suitable means whereby the cylinder is revolved.

6. The combination, with a revoluble cylinder, a grate secured rigidly upon its interior, and a flanged stationary head-plate provided with a smoke-outlet, of a smoke-chamber communicating with the interior of the said cylinder and spreading flues leading from said chamber, substantially as specified.

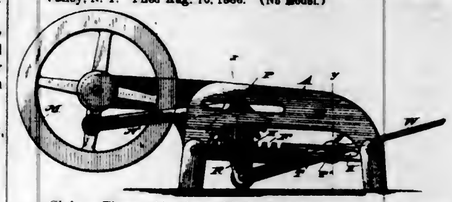
354,073. BORING-MACHINE. JAMES SWAN, Seymour, Conn. Filed July 12, 1886. (No model.)



Claim.—1. The base, frame-work for carrying the boring mechanism, and brackets 17, cast in a single piece, which spans the frame-work, in combination with a stud passing through said brackets and the sides of the frame-work, said stud being held against rotation and the frame-work journaled thereon, and nuts 24, engaging the ends of the studs, whereby the frame-work may be locked in any desired position.

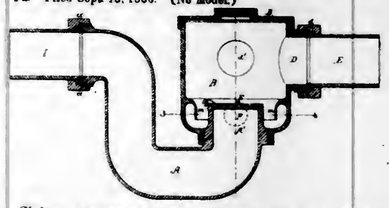
2. The base, brackets 17, and studs 20, held against rotation in said brackets, in combination with the frame-work journaled on said studs, a pointer carried by said frame-work, a stationary dial keyed to one of the studs, and nuts 24, engaging said studs, whereby the frame-work may be set and locked at any desired angle of inclination.

354,074. MECHANICAL MOVEMENT. JAMES S. SWAN, Mongaup Valley, N. Y. Filed Aug. 10, 1886. (No model.)



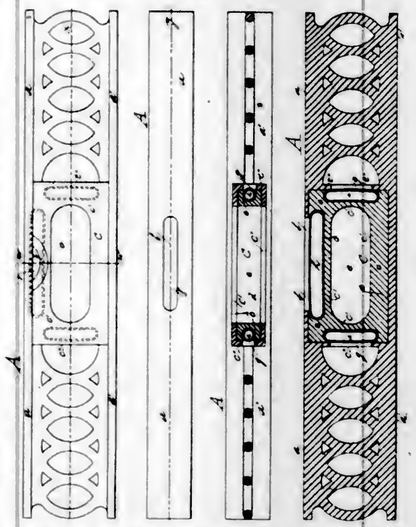
Claim.—The combination, with the frame composed of the slotted parallel side beams and the slotted rack-bars, of the power-wheel journaled on an extension of the frame and connected to the shaft of the double segmental gear by a pitman-rod, the strap-arms connecting the segmental gear with the pitman-rod T, and the cross-arm working in the slotted rack-bars, substantially as specified.

354,075. WASTE-PIPE TRAP. GEORGE VEALE, Jr., Philadelphia, Pa. Filed Sept. 13, 1886. (No model.)



Claim.—A waste or sewer trap having a box into which one end of the trap projects, and which is provided with a flushing-pipe opening into the bottom of the box, and with an annular dependent flange over the said opening and around the projecting end of the trap, all substantially as set forth.

354,076. SPIRIT-LEVEL. EDWARD E. WEBB, Fitchburg, Mass. Filed June 23, 1886. (No model.)



Claim.—1. A metal spirit-level having its central part made double and provided with sight-openings and a central opening, and adapted to receive within it through said central opening the level and plumb glasses, which are supported in place by means of cement or equivalent material, substantially as shown and described.

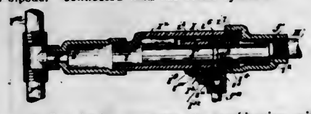
2. The combination, with the metal frame A, having its central part, *c*, made double, and provided with sight-openings, and a central opening, *e*, extending through the same, for the purpose stated, of the level and plumb glasses inserted through the opening *e*, and supported within the central part, *c*, by means of cement or equivalent material, in the manner substantially as shown and described.

3. A metal spirit-level frame, A, having the central part, *c*, made double, with the sides *c'* *c'* and ends *c''* *c''*, adapted to receive the level and plumb glasses within the same, and provided with sight-openings *b*, *f*, and *g*, and a central opening, *e*, substantially as described and shown.

4. The combination, with the frame A, having its central part, *c*, made double and provided with a central opening, *e*, for the purpose stated, of the covers B, adapted to fit over and close the opening *e*, and means for holding said covers in place, substantially as set forth.

354,077. AUTOMATIC BRAKE FOR RAILWAY-CARS. HIRAM K. WHITNER, New York, N. Y., assignor to the Whitner Automatic Safety Brake Company, New Haven, Conn. Filed June 30, 1886. (No model.)

Brief.—By the sudden venting of the main brake-pipe or the frangible pipe the brakes are applied, and then slowly released by means of a "time-bleeder" connected with the brake-cylinder.



Claim.—1. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to the said pipe and brake-motor cylinder, a port in said chamber leading to the atmosphere, and a valve in said chamber which, whenever the pressure of air in the main air-pipe is reduced suddenly, will be moved to a position to establish communication between the brake-motor cylinder and the said port which leads to the atmosphere, substantially as specified.

2. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to said pipe and brake-motor cylinder, a port in said chamber leading to the atmosphere, and a valve in said chamber which, whenever the pressure of air in the main air-pipe is reduced slowly, will be moved to a position where it will still close the said port leading to the atmosphere, and whenever the pressure of air in the main air-pipe is reduced suddenly will be moved to a position to establish communication between the brake-motor cylinder and the said port which leads to the atmosphere, substantially as specified.

3. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to the said pipe and brake-motor cylinder, a system of frangible pipes or other compressed-air reservoir, a cavity or port in said chamber adapted to establish communication between such reservoir and the main compressed-air pipe, a port in said chamber leading to the atmosphere, and a valve in said chamber which, while the normal pressure of air is maintained in the main air-pipe, will open the port which is adapted to establish communication between the said reservoir and the main compressed-air pipe and close the said port which leads to the atmosphere, and which, when the pressure in the main compressed-air pipe is suddenly reduced, will close the port which is adapted to establish communication between the said reservoir and the compressed main air-pipe and establish communication between the port which leads to the atmosphere and the brake-motor cylinder, substantially as specified.

4. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to the said pipe and brake-motor cylinder, a system of frangible pipes or other reservoir, a cavity or port, as i^2, in said chamber, a port in said chamber leading to the atmosphere, and a valve in said chamber which, whenever the pressure of air in the main air-pipe is reduced suddenly, will be moved to a position to establish communication between the brake-motor cylinder, the frangible pipes or reservoir, and the port which leads to the atmosphere, substantially as specified.

5. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to the said pipe and brake-motor cylinder, a valve between said chamber and brake-motor cylinder, a system of frangible pipes, a cavity or port, as i^2, in said chamber, a port in said chamber leading to the atmosphere, a port, as i^3, in alignment with the port through which the brake-motor cylinder is connected with said chamber, and a valve in said chamber having a transverse port, as i^3, substantially as and for the purpose specified.

6. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to the said pipe and brake-motor cylinder, a system of frangible pipes, a cavity or port in said chamber adapted to establish communication between the frangible pipes and the main compressed-air pipe, a port, as i^3, in alignment with the port through which the brake-motor cylinder is connected with said chamber, and a valve in said chamber provided with a transverse port, which, when the valve is in a certain position, will establish communication between the brake-motor cylinder and the said port i^3, substantially as and for the purpose specified.

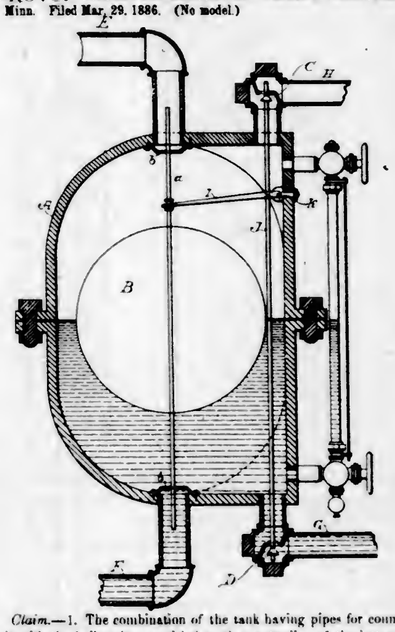
7. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to the said pipe and brake-motor cylinder, a port in said chamber leading to the atmosphere, a valve in said chamber, which, whenever the pressure of air in the main compressed-air pipe is reduced suddenly, will be moved to a position to establish communication between the brake-motor cylinder and the port which leads to the atmosphere, and a cock adapted to be operated by hand to vent the brake-motor cylinder, substantially as and for the purpose specified.

8. In a brake apparatus, the combination, with a main compressed-air pipe, a brake-motor cylinder, a compressed-air reservoir connected to the brake-motor cylinder, and a valve-controlling communication between the said reservoir and brake-motor cylinder, of a chamber connected to the said main compressed-air pipe and brake-motor cylinder, a port in said chamber leading to the atmosphere, and a valve in said chamber, which, whenever the pressure of air in the main compressed-air pipe is suddenly reduced, will be moved to a position by the pressure suddenly let into said brake-motor cylinder from its reservoir, to establish communication between the said brake-motor cylinder and the port which leads to the atmosphere, substantially as and for the purpose specified.

9. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to the said pipe and brake-motor cylinder, a system of frangible piping or other compressed-air reservoir connected to said chamber, a valve in said chamber, and a lazy-dog or detent in said chamber, substantially as described, whereby whenever the air-pressure in the main air-pipe is reduced slowly the valve will be moved until arrested by said lazy-dog or detent, but whenever the pressure of air in the main air-pipe is reduced suddenly said valve will be moved to a position where communication will be established between the brake-motor cylinder and said reservoir.

10. In a brake apparatus, the combination, with a main compressed-air pipe and a brake-motor cylinder, of a chamber connected to said pipe and brake-motor cylinder and having a cavity or port, i^2, ports i^3 i^4, ports i^9 i^{10} i^{11} i^{12}, a cock, I^3, and a valve, I', provided with a transverse port, i^3, substantially as and for the purpose specified.

354,078. BOILER-FEED REGULATOR. CHARLES O. WYMAN, Anoka, Minn. Filed Mar. 29, 1886. (No model.)

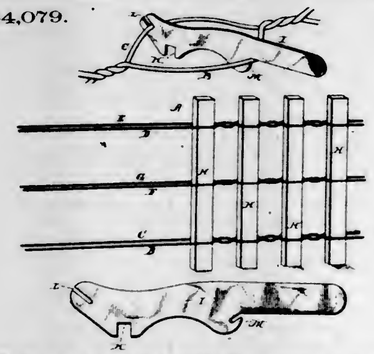


Claim.—1. The combination of the tank having pipes for connecting it with the boiler above and below the water-line of the latter and provided with pipes leading to the pump, the valve-supporting rod J, the float-support *a*, arranged out of line with rod J, the float, and the lever I, pivotally supported and connected with supports *a* and J, all being constructed and arranged substantially as described, and for the purposes specified.

2. The combination of the tank, the pipes E F, for connecting the tank with the boiler, the guides *b*, the float provided with a rod movable through guides *b* and into the pipes E F, the valve C, and the lever I, connected with the float and the valve, substantially as set forth.

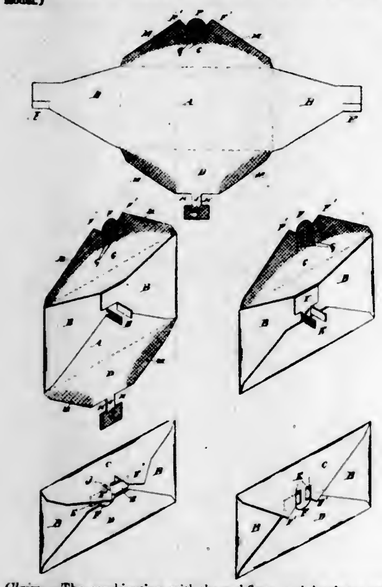
354,079. WRENCH FOR TWISTING WIRES. ALVIN LEWIS ZUCK, Kenton, Ohio. Filed Oct. 8, 1886. (No model.)

354,079.



Claim.—As a new article of manufacture, a combined tool consisting of a wrench provided with a nut-seat, a recess in the upper end of the tool, and a hook projecting from the body of the tool below the nut-seat, substantially as specified.

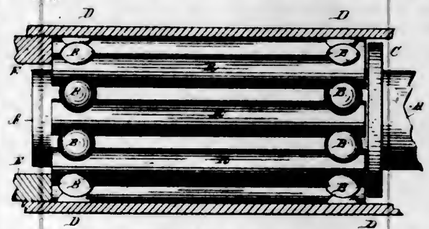
354,080. ENVELOPE. CHARLES GULATH, St. Louis, Mo., assignor of one-half to Jacob E. Krucker, same place. Filed Mar. 8, 1886. (No model.)



Claim.—The combination, with the end flaps, each having a tongue, of the side flaps, one of which is provided with a T-head, whose neck receives said tongues, substantially as shown and described, and for the purpose set forth.

REISSUES.

10,787. ROLLER-BEARING FOR SHAFTS AND AXLES. JOHN GIBSON, West Troy, N. Y., assignor to the Maneely Hardware Company, same place. Filed May 10, 1886. Original No. 336,103, dated Feb. 16, 1886.



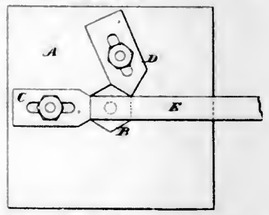
Claim.—1. In an axle or shaft bearing, the combination, with the box or casing D, of the rollers R, formed with annular recesses *r* near each end, and the balls B, arranged in said annular recesses between said rollers, substantially as described.

2. In an axle or shaft bearing, the combination, with the axle A, provided with a collar, C, and the box or casing D, provided with a threaded end cap, E, of the rollers R, formed with annular recesses *r* near each end, and the balls B, arranged in said recesses between the rollers, substantially as described.

3. In an axle or shaft bearing, the combination, with the box or casing D, of the rollers R, formed with annular recesses *r* near each end, and the balls B, having the same diameter as the rollers and arranged between said rollers within the annular recesses, substantially as described, and for the purpose set forth.

4. In an axle or shaft bearing, the combination, with the box or casing D, of the rollers R, formed with the annular recesses *r*, the balls B, having the same diameter as the rollers and arranged within the said annular recesses, as shown, a collar on the axle or shaft, and a threaded cap in the box, substantially as and for the purpose set forth.

10,788. MANUFACTURE OF BLANKS FOR HEXAGONAL NUTS. FRIEDRICH A. HASENCLEVER, Dusseldorf, Germany, assignor, by direct and mesne assignments, to the Upson Nut Company, Unionville, Conn. Filed Oct. 13, 1886. Original No. 306,611, dated Oct. 14, 1884. Patented in Germany Oct. 21, 1881, No. 21,523.



Claim.—The method herein described of making hexagonal nuts, which consists in first providing a rectangular bar of metal having the width of its face equal to the side of the hexagon, and having a depth or thickness sufficient to fill up a hexagonal die when compressed and spread, then presenting the end and side of the bar against gages over the die, severing a rectangular piece from the bar, and finally forcing the said piece into the die and punching the complete eye, and uniformly spreading the metal to fill the die, substantially as set forth.

PHOTO LITH. NORRIS PETERS WASHINGTON D.C.

DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—District of Connecticut.

NORTHWESTERN HORSE NAIL COMPANY *v.* NEW HAVEN HORSE NAIL COMPANY *et al.*

Decided August 4, 1886.

HORSE-NAIL MACHINE.

Letters Patent No. 172,660 of January 25, 1876, to Robert Ross, for an improved machine for the manufacture of horse-nails, considered, the seventh and eighth claims thereof construed, and the former found to be infringed.

Messrs. Coburn & Thatcher and *Mr. Benjamin F. Thurston* for the plaintiff.

Mr. Edward H. Rogers and *Mr. Charles E. Mitchell* for the defendants.

SHIPMAN, *J.*:

This is a bill in equity to restrain the alleged infringement of Letters Patent No. 172,660, applied for November 16, 1872, and issued January 25, 1876, to Robert Ross, as inventor, for an improved machine for the manufacture of horse-nails. An automatic horse-nail machine must produce, as nearly as may be, the same nail which was formerly made by the hand of the smith. "The requisites of a finished horseshoe-nail," says the plaintiff's expert—

are, first, it shall be of very tough metal, capable of bending without breaking; that the head and neck shall remain soft, the body of the nail shall be hardened slightly, and to a greater degree on one side than on the other; that it shall have a chisel or bevel point, which shall be the hardest portion of the entire nail.

Before the date of the Ross invention there were horse-nail machines having a disk which carried the blanks by a step-by-step movement, and the subsequent operations of bending, stiffening, and clipping were successively and simultaneously performed. Upon this disk the blanks were generally radially arranged. The machines of the Fowler patent, No. 64,934, dated May 21, 1867, of the Sandham patent, No. 109,844, dated December 6, 1870, and of the Wills patent, No. 117,584, dated August 1, 1871, are examples of this general class. Each machine differs materially from the Ross structure, notably in the fact that the stiffening process is not performed by cold-rolling, and that in the Fowler and Wills carrying devices the blanks are arranged radially, and in the Sandham machine they are in pockets and do not hang vertically by their necks. In the first two machines the stiffening is effected by pressure; in the Wills machine by hammering. Other machines did a part of the work only. Of these the machine of the Chase patent, No. 78,644, dated June 9, 1868, which pointed and sheared the nail, and the Globe Nail Company's machine, which also had a feeding-disk which carried radially-projecting nails and presented them successively and simultaneously to beveling and trimming devices, are examples. By the machine of the Hall patent, No. 121,511, dated December 5, 1871, the blanks were stiffened on each side by cold-rolling, the points were beveled between rolls, and were subsequently sheared. This machine had no carrier. The blanks were fed through a vertical tube. The machine of the Wills patent, No. 122,876, of January 16, 1872, had a carrier in the form of a revolving screw, and cold-rolled the blanks on one side. A small roller was passed over the nail while resting upon a stationary bed. It was beveled and trimmed on another machine. The machine of Carter's English patent, No. 1,338, dated April 23, 1868, was for making carpenters' nails, spikes, and bolts from rods of hot iron. After a heading die had formed the head of the nail, and while it was held by a gripper, it was tapered and pointed by means of a roller on one side and a die on the other, and then was released and discharged. The roller and die are said to be, and I assume that they are, like the roller and die of the Ross machine. It will thus be seen that before Ross's invention horse-nails were made by different processes upon one machine, the various operations being successively and simultaneously performed; and also that the blacksmith's art in stiffening one side of the nail had been imitated by cold-rolling one side, but that horse-nails stiffened by cold-rolling had not been made upon one machine having an intermittent carrier. It may be added that by hammering or by cold rolling the skill of the blacksmith is more nearly attained than by pressing.

Ross's invention consisted, in general terms, in a machine in which a new feeding mechanism wherein the blanks hang vertically by their necks presented the blanks thus suspended by a step-by-step movement to a roller and die, so that the nail was brought in front of the die and rolled upon one side, and thereafter, in succession, to pointing and trimming dies, each operation being performed simultaneously.

The principal parts of the feeding mechanism are a horizontal ratchet feed-wheel, which is caused to revolve with an intermittent motion, and two stationary concentric guide-rings, so as to have a concentric space between the two. The outer ring exactly incloses the feed-wheel. The head of the blank drops through the spaces between the teeth upon the periphery of the wheel, while the annular space between the guide-rings is wide enough to receive the shank of the nail, but not wide enough to permit the head of the nail to pass. As the feed-wheel rotates it forces the blank to pass around in the space between the rings that support it. The carrying device consists of the intermittent notched feed-wheel and the concentric guide-wheels.

The first claim, which is for the feeding mechanism, is as follows:

The improved nail-carrying device composed of the two concentric guide-rings and the notched feed-wheel provided with teeth projecting downward and operating to carry the nails around between the rings.

There was nothing particularly new in the pointing or trimming devices or in the successive and simultaneous operation of the different processes by which a nail is made; but the Ross carrying device was new, and neither it nor any other intermittent carrier had been united with a roll and die in the manner specified in the patent, and an intermittent carrier had not been united in one machine with rolling, beveling, and trimming devices.

The seventh and eighth claims of the patent, the only claims which are said to be infringed, are as follows:

7. The combination in a horse-nail machine of a feed-wheel, a roll-die, and a nail-roll, together with their respective connections with the main shaft, substantially as hereinbefore described, so that the nail may be brought into position in front of the die, before the die is advanced, and the die be advanced before the roll begins its work.

8. The arrangement in a nail-machine of the feeding mechanism, the rolling devices, and the pointing and trimming devices, substantially as hereinbefore described, so that when the nail-carriage is full, a nail shall be brought into position before the trimming-die and another before the beveling-die at the same moment that one is brought into position for the action of the rolling mechanism.

The seventh claim has reference to the combination of a carrier-wheel of the Ross type, a roll-die, and nail-roll for rolling the nail on one side only, together with their respective connections with the main shaft, so arranged or connected therewith that the nail is brought in front of the die before the die is advanced, and then after the die is advanced the roll begins its work by passing down over the die, wiping or rolling the nail. It is for a carrier-wheel in which nails hang vertically by their heads, a roll-die, and nail-roll, substantially as described, and their connections with the main shaft, so that the nail while suspended shall be brought to the roll and die, which shall operate upon it in the described order and manner. This claim specifies a feed-wheel of the Ross type, and does not include the entire carrying device of the Ross machine.

The eighth claim includes the primary elements of the Ross machine as they are specified in the patent: the feeding mechanism, the rolling, the pointing, and trimming devices, arranged with reference to each other, as specified in the claim. The feeding mechanism is that which has been before described, and which is described in the first claim, and embraces more than the feed-wheel of the seventh claim.

The carrying device of the defendants is described by their expert as follows:

It consists of a ring having upon its inner surface an inwardly-projecting flange, in which are a series of equidistant recesses, to be somewhat narrower than the head of the nail-bank to be introduced. The ring is supported from below, and so as to leave the space below the notches or recesses in the ring clear, and so that a nail introduced into either of the said recesses point downward will fall until the head comes to a bearing on the ring, and so that if the ring be rotated it will carry the blanks so introduced in a circular path. On the periphery of the ring is a series of notches corresponding to the notches on the inside of the ring.

In the Ross machine the movements of the carrier, the roll, and the roll-die are all derived directly from the main shaft. In the defendants' machine the pointing and trimming devices receive their movements directly from the main shaft; but the rolling devices receive their motion from a counter-shaft at right angles to the former. In the defendants' machine the roll-die, the nail-roll, the pointing and trimming devices are substantially those of the Ross patent, and the nail while suspended is brought by the feed-wheel into position in front of the die before the die is advanced, and the die is advanced before the roll, which rolls the nail on one side only, begins it work. A nail is also brought into position before the trimming-die, and another before the beveling-die, at the same moment that one is brought into position for the action of the rolling mechanism.

Upon the question of infringement of the seventh claim the defendants make several points, which involve different constructions of the claim.

1. If the claim is broadly for any dial feed-wheel and a stiffening device combined, so that the stiffening device would operate upon the blank presented by said wheel, then it was anticipated by the Fowler and Sandham patents and the first patent of Wills. This construction is so obviously inadmissible that it was not pressed.

2. If the seventh claim is broadly for a dial feed-wheel, a roll-die, and a nail-roll, arranged with reference to each other, as recited in the claim, and irrespective of the peculiar connections between said parts and the main shaft, then the invention was the substitution of the roll-die and nail-roll of the Carter patent in place of the stiffening devices in the pre-existing patents, which have just been mentioned, which substitution involved nothing more than the skill of the trained mechanic and was unpatentable. Assuming that the improvement did substitute the rolling device of the Carter patent for the stiffening device of some other patent, the conclusion that the Carter device could have been put into a horse-nail machine with any dial feed-wheel, or especially with a new feed-wheel, without that reconstruction which would require invention, seems to me to be very untenable. The inventive skill of the patentee does not require much discussion, in view of the pre-existing devices and his machine. An examination of them all shows that the Ross machine, as well as its predecessors, was the product of a creative mind. He made a new carrying device, and he made a new combination of a carrier-wheel of his type and a roller and roll-die.

3. If the seventh claim includes the connections whereby all the movements are derived from the main shaft, then the defendants' machine does not infringe. The feed-wheel, roll-die, and nail-roll of the defendants' machine are moved by one main shaft, as the primary factor of their movements.

There is a short counter-shaft interposed between the main shaft and another shaft that runs lengthwise of the machine, and motion is transmitted from said main shaft to said other shaft by gear-wheels. Said lengthwise shaft has upon it an eccentric and a cam. The eccentric carries the roll-carriage, and causes it to reciprocate at each revolution of said shaft, and the cam actuates the vibrating arm to which the roll-die was attached.

It would be an extremely narrow construction of this claim to compel the connections to be directly with the main shaft, and to say that there was no infringement because a part of the devices got their direct movement from a counter-shaft. Such a construction would also be unjust to other patents for machines wherein motion must necessarily be transmitted either directly or indirectly from one shaft. The means by which motion is transmitted from one shaft to another are so various and so well known to machinists that the limitation which is desired by the defendants might result in an easy spoliation of inventions. The defendants' positions in regard to the claim, which were selected by an experienced and skillful expert and by able counsel, appear to me to be so untenable that a court is compelled to hold that the claim is being infringed.

The plaintiff regards the successive and simultaneous action upon the different nails as the important element of the eighth claim. I think that as much importance should be paid to the primary elements of the different devices as to the manner in which the work is delivered by the carrying device. The feeding device of the defendants is not claimed to be an infringement of the concentric rings and the notched wheel of the plaintiff's machine, and the eighth claim is not infringed.

There was a misunderstanding on the part of the plaintiff as to the effect of the stipulation which had been entered into, and the existence of the plaintiff corporation was not proved. Unless its corporate capacity is admitted, opportunity will be given to make the requisite proof before an interlocutory decree is signed.

Let there be a decree against infringement of the seventh claim and for an accounting.

U. S. Circuit Court—Northern District of Illinois.

GRAIN DRILL MANUFACTURERS' COMPANY *v.* HART *et al*

Decided July 26, 1886.

1. REISSUE NO. 4,091—GRAIN-DRILLS.

Claims 12 to 15 of Reissued Letters Patent No. 4,091, to Thomas, Mast, and Gardiner, improvement in grain-drills, considered, and *held* that, while the device covered by these claims may have been an improvement upon the ruder devices of earlier patents, the changes necessary to make it were purely mechanical and did not involve invention.

2. CONSTRUCTION OF CLAIM.

The claim of Letters Patent No. 97,317, to J. S. Rowell, for an improvement in grain-drills, reads: "The sliding shell-cylinder C, constructed with radial slots and arranged upon the feed-cylinder F, and shaft B, so that the adjustment is effected by the horizontal movement of the shell-cylinder C, while the feed-wheel F remains stationary as regards the case H M." *Held* that a ledge or offset, which was the "M" of the claim, was not an element or part of the claim.

3. NO. 157,478—GRAIN-DRILLS.

Letters Patent No. 157,478, to P. P. Mast, for an improvement in grain-drills, construed and, in view of the prior state of the art, *held* that there was no patentable novelty in the device set out in said patent.

Messrs. Wood & Boyd and *Mr. Charles C. Linthicum* for the complainants.

Mr. Thomas Cratty and *Messrs. Hill & Dixon* for the defendants.

BLODGETT, *J.*:

The bill in this case charges infringement of three patents owned by complainants, viz: Reissued Letters Patent No. 4,091, granted August 2, 1870, to Thomas, Mast, and Gardiner, the original patent having been granted August 3, 1869; Patent No. 97,317, granted November 30, 1869, to J. S. Rowell, and Patent No. 157,478, granted December 8, 1874, to P. P. Mast. Infringement was also charged in the bill of a fourth patent, granted May 2, 1876, to Kuhns and Scholz; but no proofs have been made of infringement, and no decree is asked respecting this patent. As to Reissue No. 4,091, infringement is charged of claims 12 to 15, inclusive. Patent No. 97,317, to Rowell, has only a single claim, and infringement is charged as to the three claims of the P. P. Mast patent.

The Thomas, Mast, and Gardiner patent, of which infringement is alleged in this case, shows an arrangement by which the planting-hoes in a grain-drill can be shifted into two lines, one in the rear of the other, and the claims 12 to 15, inclusive, apply to a device by which the conductors which lead the seed from the seed-box down through the hoes to the ground are made adjustable, so as to accommodate themselves to the change in the position and pitch of the hoes, and this is accomplished by hanging or pivoting the spouts or conductors upon the lower side of the seed-box so that they will oscillate or swing back and forth as the hoes change their position. The claims in controversy are as follows:

12. In combination with adjustable hoes, which, when arranged in two rows, are in planes respectively in advance and in rear of the plane of all the hoes when arranged in one row, adjustable conductors pivoted below and connecting the hopper with the hoes through the instrumentality of the tubes Y, substantially as set forth.

13. In combination with hoes and adjustable in one or more rows, conductors K, pivoted so as to hang below the hopper or cups and automatically maintain the connection between the hopper or cup and the hoes through the instrumentality of the tubes Y, whether the latter are arranged in one or more rows, substantially as set forth.

14. In combination with hoes and drag-bars, and mechanism to shift the hoes into one or more rows without detaching the drag-bars, the oscillating conductors pivoted below the hopper and maintaining the connection between the hopper and the hoes through the instrumentality of the tubes Y, whether in one or more rows, substantially as described.

The defenses set up to this patent are (1) that it is void for want of novelty, and (2) that the reissue is void as being for a different device than that described in and covered by the patent.

It appears satisfactorily from the proof that it was not new with these patentees to shift the drill-teeth or planting-hoes into different lines. In fact, these patentees say:

We are aware that machines have heretofore been constructed with hoes which may be adjusted in two rows or one row, at the discretion of the operator;

and I think it must be obvious that when the relation of a portion of the hoes to the hopper or seed-box was changed it became a necessity, from the organization of the machines, that the spout or conductor by which the seed was carried down through the hollow drill-tooth to the ground should also change its position, so as to carry the seed into the tooth or hoe in its changed position, and it would therefore seem that some arrangement to effect this end must have existed in machines of this character prior to that covered by this patent where the hoes could be arranged in different rows, and an examination of the proof in the case shows that Charles F. Davis obtained a patent in February, 1868, for a device by which the planting-hoes could be changed into two lines. The main purpose of this device was the shifting of the hoes into zigzag positions or rows; but Davis testifies that he made an operating machine in the season of 1867, in which he had a device by which the seed-conductors adjusted themselves to the different positions of the hoes by hinging or pivoting the conductors. The testimony shows that after Davis had invented his drill he visited the manufactory of Thomas & Mast at Springfield, Ohio, and there put upon a drill of their manufacture his device for shifting the hoes, and also, necessarily, his device for changing the pitch of the conductors or seed-spouts.

Thomas and Mast took a license from Davis to manufacture seed-drills under his patent, and when they came to manufacture under this license they used a swinging tube substantially, I presume, like that which is now covered by their patent, and which they may have considered better adapted to the purposes than the swinging tube which Davis had used, although he had not covered it by his patent. Davis testified that

this swinging device which they put upon his drill did not differ essentially from the old one which he had used in 1867; that it was the same in principle. But the idea of an adjustable conductor must have followed immediately upon the idea of changing the lines of the hoes, because the hoes would not plant or drop the seed unless it was conducted into them from the seed-hopper, and some device became an immediate necessity when the position of the hoes or a part of them was changed.

A patent was issued April 20, 1869, to Peter J. Schmitt, for an improvement in grain-drills, showing adjustable feed-tubes pivoted to the under side of the hopper and arranged to swing backward and forward as the position of the hoes was changed. An attempt was made to show that the complainants made their invention at an earlier date than that of the Schmitt patent; but I think the testimony carries the invention of the Schmitt device as far back as the invention of the complainants' device. (See the testimony of Morris Henzel, Def. R., 39–52, and George Siegel, Def. R., 59.)

The proof also shows a patent, issued September 8, 1868, to L. M. Olden, in which an adjustable spout leading from the hopper into the drill-tooth is shown. This patent, as well as several others shown in the evidence antedating complainants' patent, simply establishes what I have already suggested, that in all devices changing the working lines of the drill-teeth in relation to each other, so as to adjust them in different ranks or rows, it became necessary to adopt some device for changing the line or inclination of the seed conductors or spouts. I have therefore no doubt but what the substantial principle involved in the complainants' adjustable conductor, covered by the four claims in controversy, was anticipated by the older art. The special device shown in the complainants' patent may have been an improvement upon the ruder devices of earlier patents because the complainants had the benefit of the experience of their predecessors in overcoming the practical difficulties which they encountered; but the changes made by Thomas, Mast, and Gardiner seem to me to have been purely mechanical, and not to have involved invention after what Davis and other inventors had done before them.

The Rowell patent, No. 97,317, is for a mode of adjusting the feed of a seed-drill by means of a shell-cylinder made to slide on a bucketed or recessed feed-cylinder, so as to allow the seed to be taken up only by so much of the bucketed or feed cylinder as is not covered by the shell. It has but one claim, which is:

> The sliding shell-cylinder C, constructed with radial slots and arranged upon the feed-cylinder F and shaft B, so that the adjustment is effected by the horizontal movement of the shell-cylinder C, while the feed-wheel F remains stationary as regards the case H M.

The case H M, in which the feed-cylinder revolves, shows an offset or ledge, M, which was evidently intended to prevent the grain from being crushed or ground between the revolving cylinder or shell and the case; but this ledge or offset M is not made a part of the claim. The claim, as I read it, is only for a sliding shell-cylinder so arranged upon a feed-cylinder and shaft that the adjustment of the amount of feed is effected by the horizontal movement of the shell upon the feed-cylinder, while the feed-wheel or feed-cylinder does not move or change position in the case. It was conceded upon the argument that unless this ledge or offset M in the cylinder-case could be read into the claim defendants do not infringe this patent, and my construction of the claim is that this ledge or offset M does not form any part of the claim, but is only referred to for the purpose of showing that the feed-cylinder does not change its place in the case when the feed is changed by the shell-cylinder sliding horizontally upon it. But even if I am not right in this particular, an offset or ledge in the cylinder-case or feed-drill for the purpose of preventing the grain from being crushed or ground between the revolving feed-cylinder and the side of the case was not new with this patentee, but is found in the old Van Brunt patent of July, 1862, as well as in several of the older devices having a feed-cylinder revolving in a case. I am therefore of opinion that the defendants do not infringe the Rowell patent.

Patent No. 157,478, to P. P. Mast, is for a device regulating the feed of a grain-drill as may be desired without changing the speed of the feed-wheel, and consists of a feed-cylinder revolving in a case, with an outer shell moving horizontally upon it, so as to make a space between the ends of the outer shell and the disk of the feed-wheel, which may be enlarged or diminished by sliding the outer shell upon the feed-wheel or cylinder horizontally. With the older devices of Van Brunt, Esler, and Rowell, showing the means of adjusting and regulating the feed of grain-drills by adjusting or enlarging the aperture through which the grain escapes from the hopper into the conductors or spouts, to carry it through the drill-teeth, by moving the cylinder or shell upon the grooved feed-cylinder, I do not see that there was any patentable novelty in the device covered by this patent. I do not see how it can be called a "forced-feed," any more than the Van Brunt or the Rowell was a forced-feed. They both operated upon the same principle—that of carrying the grain through the opening made between the shell and the grooved or recessed cylinders—and the recesses or grooves in the old feed-cylinders, it seems to me, were in all respects as much adapted to regulating or forcing the feed as are the corrugations or notches upon the vertical ends of the two wheels shown in the Mast device. Rowell notched or recessed his feeding-cylinder horizontally; Mast showed vertical notches or corrugations in his, but says expressly that these notches or corrugations may be omitted, so that, as I construe his patent, they were not a necessary part of it and are not covered by his claim. I am therefore of opinion that defendants do not infringe this patent.

The bill is dismissed for want of equity.

U. S. Circuit Court—Southern District of New York.

BUTLER *et al.* v. BAINBRIDGE *et al.*

Decided November 16, 1886.

1. BUTLER AND KELLEY—PAPER FOR CARDS AND CIRCULARS.
   Patent No. 273,023, granted to Butler and Kelley, February 27, 1883, for an improvement in paper for cards and circulars, adjudged to be valid.

2. PLEADING.
   The defense that patentees are not joint inventors cannot be regarded with favor, unless the action of the patentees in this regard was evidently disingenuous or calculated to mislead.

3. SAME.
   It is doubted if this defense can be made, unless clearly set out in the answer.

4. NOVELTY AND INVENTION.
   Patented inventions which cannot be assailed for want of novelty may be void for lack of invention.

5. INVENTION AND MECHANICAL SKILL.
   Where the distinction between invention and mechanical skill is very doubtful, the doubt should be resolved in favor of invention.

6. SAME.
   In the particular instance the patented article was new, useful, and cheap, supplied a popular want, and required time and thought for its development, and these altogether are evidences of invention, rather than of mechanical skill.

Mr. James A. Whitney and *Mr. L. E. Gilbert* for the complainants.

Mr. Edwin H. Brown for the defendants.

COXE, *J.*:

This is an action in equity based upon Letters Patent No. 273,023, granted to Orlando W. Butler and Thomas W. Kelley, February 27, 1883, for an improvement in paper for cards and circulars. The purpose of the invention was to supersede the expensive and cumbersome method of pasting separate cards upon wedding-invitations and similar papers by substituting therefor a card having two or more folds upon which the desired number of panels to represent cards are embossed or pressed out. On these raised panels the printing may afterward be done. When the invitation is folded, the unsightly cavities produced by the process of embossing are concealed from view by one of the flaps of the paper. The cards when finished have the same general characteristics as their pasted predecessors; but in addition they are more symmetrical and uniform in appearance, can be manipulated with greater ease, are less liable to become soiled, and are about fifty per cent. cheaper. The invention has received the marked approval of dealers in stationery and of the public. The patented cards have gone into general use, displacing the old devices referred to.

The claims are as follows:

> 1. A circular or card having two or more folds, upon one or more of which are embossed or pressed out a raised panel or panels to represent cards, upon which the printing is afterward done, substantially as and for the purpose set forth.
>
> 2. In an invitation-card, a portion upon which is embossed or pressed out a panel or card for the invitation proper, in combination with folds, upon one or more of which is embossed a smaller card or cards for the names of the parties, substantially as herein shown and described.
>
> 3. The central portion, A, in combination with the folds B C, embossed cards D D, and embossed panel or bead E, all constructed as described, and for the purpose herein set forth and described.

The defenses are, lack of novelty and invention, and that the complainants are not joint inventors.

Infringement of the first and second claims is admitted. The cards dealt in by the defendants are almost the exact counterpart of figure 2 of the drawings, and were sold in boxes marked with the date of the complainants' patent.

The defense that the complainants are not joint inventors is so purely formal in character that it cannot be regarded with favor, unless it be shown that the action of the patentees in this regard was disingenuous or calculated to mislead the defendants. Nothing of this kind appears, and it is thought that upon principle and authority there can be little difficulty in sustaining upon the merits the action of the Patent Office in issuing the patent in its present form. (*Worden* v. *Fisher*, 11 Fed. Rep., 505; *Barrett* v. *Hall*, 1 Mass., 447; *Hotchkiss* v. *Greenwood*, 4 McLean, 456, 461.) There is, however, grave doubt whether the defendants are in a position to present the question. The defense is not pleaded, and there is nothing in the answer which can fairly be construed to put the matter at issue. (*Walker*, secs. 440, 452.)

The question of novelty and invention remains to be considered. It is entirely clear that at the time the complainants conceived the invention, in the fall of 1880, the art of embossing was old and well understood. Cards having smaller printed cards pasted upon them, and papers struck up with various figures, emblems, and devices, including small rectangular panels, were all known to printers, engravers, and stationers prior to this date. This, in brief, is a fair general statement of the art as it existed at the time of the invention.

The defendants have introduced in evidence nearly a hundred limiting and anticipating exhibits. It is not disputed that many of them are wholly irrelevant to the issues involved, and it is conceded that others had no existence prior to the invention. Of others it may be said that the dates when they were first seen are wholly conjectural. In short, those which are definitely proved to have been before do not anticipate, and those which would anticipate are not definitely proved to have been before. The evidence is too vague, uncertain, and indirect to satisfy the mind of the court beyond a reasonable doubt and to overcome the presumption of novelty arising from the patent itself. Unquestionably, however, the proof demonstrates that the field in which the complainants operated was at best a narrow one, and the question arises, is the patent, though it cannot be defeated for want of novelty, void for lack of invention? To this question it is by no means easy to give an entirely satisfactory answer. Each case must depend upon its own facts and circumstances. The perplexities which surround such controversies cannot always be solved by an examination of adjudged cases. They serve to illuminate the paths to be traversed; but he who desires to select the right one must depend largely upon his own judgment. Although the present case is very near the border line between invention and mechanical skill, it is thought the doubt which arises should be resolved in favor of the patent. No one ever did before what the complainants did—viz., produce an invitation-card with two or more folds having panels, to represent cards, embossed thereon, upon which the printing is afterward done. This particular structure is new, useful, and inexpensive. It soon became popular; it supplies a need. Time and thought were required in its development. The obstacles which therefore could only be surmounted by skilled labor were entirely eliminated. All this required something more than the labor of the mechanic. It amounted to invention.

The whole matter is well illustrated by a question and answer, quoted with approval upon the defendants' brief. One of the complainants was asked if the thought that prior to October, 1880, persons of ordinary skill in the art would have been unable to produce representations of cards by embossing upon paper, and the answer was: "If they happened to think of it; probably they would not." Exactly so. It is the presence of a thought like this which raises an ordinary mechanic to the plane of the inventor. Invention requires thought; mechanical skill does not. The one is the result of mental, the other of manual, action. Grant that the invention is a simple one, that when viewed from our present stand-point it is hard

to understand why the idea did not occur to some one long before, and yet the fact remains that it never did, though something of the kind was long wanted.

After giving the subject the best thought of which I am capable I am convinced that to relegate these complainants to the condition of mere skilled workmen would be to do them a grave injustice. In the light of the present the idea of substituting hard rubber for other material as a plate for holding artificial teeth, or of providing tubular kerosene-lanterns with an irreversible current of air by means of deflectors, seems simple enough, and yet the men who thought of these things conferred lasting benefits upon the world and received the rewards of inventors. (*Lantern Company* v. *Miller*, 21 Fed. Rep., 514; *Smith* v. *Goodier*, 93 U. S., 48.)

In *Crandall* v. *Watters* (20 Blatchf., 97) the patent was for a box-loop for carriage-tops made of thin metal, from which the loop was struck up. It was used as a substitute for the old leather housing. In sustaining the patent the remarks of Judge Blatchford are so applicable to the case at bar that I quote briefly from the opinion. At page 102 he says:

> Various old devices are introduced. * * * But no article like the plaintiff's, capable of being taken and used for the purposes for which the plaintiff's can be used without alteration and adaptation requiring invention, existed before. Almost all inventions at this day that become the subject of patents are the embodiment and adaptation of mechanical appliances that are old. In that consists the invention. When the thing appears, it is new and useful. No one saw it before; no one produced it before. It supplies a need; it is at once adopted; all in the trade desire to make and use it; yet it is said to have been perfectly obvious and not to have been patentable. Where an article exists in a given form and applied to a given use, and is taken in substantially the same form and applied to an analogous use, so as to make a case of merely double use, there is no invention; but it is very rarely that a thing of that kind secures a patent.

There should be a decree for the complainants for an injunction and an account, with costs.

U. S. Circuit Court—District of Indiana.

HASSELMAN *v.* GAAR, SCOTT & CO.

Decided November 18, 1886.

1. HASSELMAN—STRAW-STACKER.

The third claim of Letters Patent No. 290,050, granted to Lewis Wm. Hasselman, December 11, 1883, for an improvement in straw-stackers, anticipated and declared void. There is nothing new in the combination, and as added to a straw-stacker it is nothing but an aggregation of well-known devices which, in their new relation, if it can be called new, perform no new office.

2. HASSELMAN—STRAW-STACKER.

The sixth and eighth claims of Reissued Letters Patent No. 10,347, granted July 3, 1883, to Lewis W. Hasselman for an improvement in straw-stackers, anticipated by Letters Patent No. 152,760, granted July 7, 1874, to D. Morey for a hay and grain elevator.

Mr. Charles P. Jacobs for the complainant.

Messrs. Wood & Boyd for the defendant.

WOODS, *J.*:

The complainant is the patentee and owner of Letters Patent No. 10,347, reissue of No. 274,940 and of original Patent No. 290,050, and charges that the defendants have infringed the sixth and eighth claims of the reissue and the third claim of the last-named patent by manufacturing and putting upon the market a straw-stacker embodying the combinations set forth in those claims respectively.

The claims in question read as follows:

6. In a straw-stacker, the folding straw-carrier A B, the supporting-frame F F, the revolving plate *b*, and the straw-carrier braces G G, adapted to rotate upon the axis E when the carrier-frame is tilted, in combination with the axis E, the windlass L, and a rope connecting the windlass with the carrier, substantially as and for the purpose described.

8. In a straw-stacker, the folding and tilting carrier A B, adapted to revolve on the fifth-wheel *b*, in combination with such fifth-wheel, a supporting-frame, the stay-rope *l*, brace *l'*, windlass L, and its crank *e*, located and operated below the carrier-frame, substantially as described.

3. In a straw-stacking machine, the windlass *op*, mounted on a shaft, s^2, the cogged gearing *o g op'*, shaft s^3, and crank *or*, the shaft s^3 being provided with a ratchet engaging a pawl on the frame, as set forth, in combination with the chain *ch*, and carrier-arm P, substantially as described, and for the purpose set forth.

The defendants deny novelty and invention in each of these claims, and make the following references to the prior art, to wit: Letters patent of the United States, granted D. Morey, July 7, 1874, No. 152,760; W. R. Maloy, September 12, 1882, No. 264,311; J. D. Edward, February 20, 1877, No. 187,607; J. W. Perkinson *et al.*, April 17, 1883, No. 275,941; H. Cortelyou, December 26, 1882, No. 269,561; J. Q. Adams, May 2, 1876, No. 176,916; M. T. Reeves, reissue, September 26, 1882, No. 10,208; C. E. Merrifield, March 20, 1883, No. 274,134; J. C. Lindley, March 20, 1883, No. 274,205; C. E. Merrifield, February 20, 1883, No. 272,572; D. Sherry, February 20, 1883, No. 272,487; M. T. Reeves *et al.*, February 13, 1883, No. 272,155; H. D. Sprague *et al.*, July 25, 1882, No. 261,770; H. S. Stone and J. M. F. Shepler, February 6, 1883, No. 271,943; J. M. Crawford, March 6, 1883, No. 273,470; H. Cortelyou, May 9, 1882, No. 257,556; No. 25,540, granted to T. F. Christman, June 28, 1859; No. 24,912, granted to J. Y. Parce, July 26, 1859; No. 263,151, granted to J. P. Edwards, August 22, 1882; No. 265,775, granted to G. B. Allis, December 12, 1882. Also, in English letters patent, dated October 23, 1872, No. 3,169, granted to Thomas Perkins, and English Letters Patent No. 700, dated February 29, 1868, granted to William Barford and William Perkins.

There is a close resemblance, if not a mechanical identity, between the model in evidence of defendant's machine and that of complainant in respect to the claims in question; but, in view of these references, it seems to me quite clear that the bill must be dismissed. There is certainly nothing new in the combination described in the third claim of No. 290,050, and as added to a straw-stacker it is nothing but an aggregation of well-known devices which, in their new relation, if it can be called new, perform no new office.

In respect to the other claims—sixth and eighth of No 10,347—their respective parts or equivalents, substantially in the same combination and performing like functions, are all found in the drawings and model exhibited in evidence of the Morey hay and grain elevator, Patent No. 152,760, issued July 7, 1874, the complainant's patent bearing date as late as 1883. Other earlier patents show many but not all of the parts of complainant's combinations, and are therefore not complete anticipations; but in connection with Morey's patent exclude all reasonable pretense of invention on the part of the complainant.

In order to convert the Morey machine into substantial identity of mechanism and use with that of the complainant in so far as the sixth and eighth claims are concerned, there was needed, as is shown by a comparison of the models and by the testimony of experts on either side, no addition nor essentially new combination of parts, but only a reversal of the direction of motion of the carrier, an elimination of some parts, and other slight changes within the ready scope of ordinary mechanical skill.

It follows that the bill must be dismissed. So ordered.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Indexes to Foreign Patents.

The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

INDEX TO FRENCH PATENTS, 1791 to 1876, inclusive, (subject-matter,) one volume, 935 pp., bound in cloth.....$10 00

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Bound half-turkey	$ 50
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Issue of December 14, 1886.

Patents	445	No. 354,081 to No. 354,525, inclusive.
Designs	2	No. 17,023 to No. 17,024, inclusive.
Trade-Marks	27	No. 13,863 to No. 13,889, inclusive.
Labels	10	No. 5,054 to No. 5,063, inclusive.
Reissues	2	No. 10,789 to No. 10,790, inclusive.
Total issue	486	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	2	
Arizona Territory	1		Nevada		
Arkansas	2		New Hampshire	3	
California	11	1	New Jersey	23	
Colorado	3	1	New Mexico Territ'y		
Connecticut	16		New York	92	11
Dakota Territory	1		North Carolina	3	
Delaware			Ohio	41	1
District of Columbia	3		Oregon		
Florida	1		Pennsylvania	34	7
Georgia			Rhode Island	6	
Idaho Territory			South Carolina	3	
Illinois	40	1	Tennessee	2	
Indiana	10		Texas	5	
Indian Territory			Utah Territory		
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Kansas	8		Virginia	2	1
Kentucky	8		Washington Territ'y		
Louisiana	1	3	West Virginia	3	
Maine	3		Wisconsin	6	
Maryland	6	1	Wyoming Territory		
Massachusetts	51	2	United States Army		
Michigan	10		United States Navy		
Minnesota	2	1			
Mississippi	1		Total to citizens of the United States	425	30
Missouri	9				
Montana Territory					

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Australia			Germany	5	3
Austria-Hungary			India		
Barbadoes			Ireland		
Belgium	1		Mexico		
Brazil			New Zealand		
British Columbia			Norway		
Canada	1	1	Russia		
Central America			Scotland		
Colombia, U. S. of			Spain		
Cuba			Sweden		
Denmark			Switzerland		
Ecuador					
England	12	3	Total to citizens of foreign countries	22	7
France	3				

DESIGNS.

17,023.—BOUQUET-HOLDER.—*Herman Tappan*, New York, N. Y. Application filed September 25, 1886. Serial No. 214,569. Term of patent 3½ years.

17,024.—BADGE-PIN.—*Edward L. Torsch* and *James R. Lee*, Baltimore, Md. Application filed October 15, 1886. Serial No. 216,371. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,863.—PRESERVED FRUITS.—*William T. Coleman & Co.*, San Francisco, Cal. Application filed October 15, 1886. Used since January 1, 1886.

"The words 'COLEMAN FLAG.'"

13,864.—CURE FOR THROAT AND LUNG DISEASES.—*Lilly B. Jones*, Baltimore, Md. Application filed October 18, 1886. Used since May, 1886.

"The pictorial representation of a flying fish."

13,865.—MEDICAL PREPARATION.—*Keasbey & Mattison*, Philadelphia, Pa. Application filed October 14, 1886. Used since July 26, 1881.

"The title 'BROMO CAFFEINE.'"

13,866.—REMEDY FOR DYSPEPSIA AND WATER-BRASH.—*Henry J. Muschert*, Philadelphia, Pa. Application filed October 12, 1886. Used since April 1, 1886.

"The representation of a tree, in the semblance of an apple-tree, laden with fruit."

13,867.—DRAWING MATERIALS AND INSTRUMENTS.—*Edward G. Soltmann*, New York, N. Y. Application filed October 12, 1886. Used since May, 1880.

"The word 'ATLAS,' inclosed in quotation-marks."

13,868.—PILLOWS.—*Seymour Ainsworth*. Saratoga Springs, N. Y. Application filed October 11, 1886. Used since September 23, 1886.

"The representation of a balsam forest with an Indian scene in the foreground."

13,869.—MICA.—*Arctic Mica Company*, Philadelphia, Pa. Application filed October 19, 1886. Used since July 1, 1886.
"The representation of a bear upon an icy background."

13,870.—DYE-STUFFS OR COLORING-MATTERS.—*B. Anilin & Soda-Fabrik*, Mannheim, Baden, Germany. Application filed October 7, 1886. Used since July 15, 1873.
"The representations of two escutcheons containing a horse and a lion, respectively."

13,871.—PIGMENT COLORS.—*B. Anilin & Soda-Fabrik*, Mannheim, Baden, Germany. Application filed October 7, 1886. Used since July 15, 1873.
"The representation of two escutcheons containing a horse and a lion, respectively."

13,872.—MEDICAL DRUGS.—*B. Anilin & Soda-Fabrik*, Mannheim, Baden, Germany. Application filed October 7, 1886. Used since July 15, 1873.
"The representations of two escutcheons containing a horse and a lion, respectively.

13,873.—COLOGNE.—*Fleming Bros.*, Pittsburg, Pa. Application filed October 27, 1886. Used since May 1, 1886.
"The word 'MIKADO' arranged across or over a flaming sun."

13,874.—TIN PLATES, TERNE PLATES, AND BLACK PLATES.—*W. Gilbertson & Co., (Limited,)* near Swansea, England. Application filed July 7, 1886. Used since February, 1886.
"The word 'GLENDALE.'"

13,875.—REFINED PETROLEUM.—*Lombard, Ayres & Company*, New York, N. Y. Application filed October 18, 1886. Used since January 1, 1881.
"The word 'STELLA.'"

13,876.—ILLUMINATING-OIL.—*Lombard, Ayres & Company*, New York, N. Y. Application filed October 18, 1886. Used since January 1, 1880.
"The word 'SNOW-FLAKE.'"

13,877.—BITTERS.—*Meagher Bros. & Co.*, Montreal, Quebec, Canada. Application filed October 7, 1886. Used since October 27, 1886.
"The representation of a sitting lion, accompanied by the words 'JOHN BULL.'"

13,878.—FLORIDA WATER.—*McKesson & Robbins*, New York, N. Y. Application filed October 22, 1886. Used since January 1, 1886.
"The representation of a V-shaped basket and bouquet contained therein."

13,879.—WHEAT-FLOUR.—*Reid, Murdoch & Fischer*, Chicago, Ill. Application filed September 24, 1886. Used since April 1, 1885.
"The words 'HOME RULE.'"

13,880.—EARTHENWARE AND CHINA.—*Doulton & Co.*, Lambeth, county of Surrey, and Burslem, county of Stafford, England. Application filed October 11, 1886. Used forty years.
"The word 'DOULTON.'"

13,881.—WOOLEN DRESS-GOODS, CLOAKINGS, SHAWLS, TWEEDS, AND FANCY WOOLENS.—*Jordan, Marsh & Co.*, Boston, Mass. Application filed October 21, 1886. Used since 1867.
"The word 'BARJEON.'"

13,882.—PLUG-TOBACCO.—*R. A. Patterson & Co.*, Richmond, Va. Application filed November 5, 1886. Used since January 1, 1881.
"The words 'LUCKY STRIKE.'"

13,883.—SMOKING-TOBACCO.—*Cheri E. Sarrazin*, New Orleans, La. Application filed August 27, 1886. Used since 1880.
"The words 'KING BEE.'"

13,884.—CIGARS.—*The Solis Cigar Company*, Denver, Colo. Application filed October 6, 1886. Used since 1883.
"The word 'SOLIS' and an inclosing-parallelogram."

13,885.—BOTTLED BEER.—*Southern Brewing Company*, New Orleans, La. Application filed August 30, 1886. Used since March 17, 1886.
"The representation of a crescent with leaves and heads of grain, with an eagle whose wings are spread."

13,886.—SALVE OR OINTMENT FOR THE CURE OF CATARRH AND KINDRED AILMENTS.—*Edward A. Talbot*, Boston, Mass. Application filed August 19, 1886. Used since May 5, 1885.
"The word 'HAKKA,' arranged in the form of a cross, and Japanese characters."

13,887.—PLUG-TOBACCO.—*Tinsley Tobacco Company*, Louisiana, Mo. Application filed September 27, 1886. Used since October, 1885.
"The representation of an elephant in connection with the word 'JUMBO.'"

13,888.—CHEESE.—*Austin G. Turner*, New York, N. Y. Application filed October 20, 1886. Used since 1866.
"The letters 'A. H. T.' and the words 'CHOICE PALE.'"

13,889.—FLOUR.—*Samuel W. Weidler*, Wyoming, Ohio. Application filed October 9, 1886. Used since January, 1883.
"The word 'SWEEPSTAKES.'"

LABELS.

5,054.—Title: "BARROWS' WASHING PROCESS." (FOR SOAP.)—*Jos. Barrows*, Philadelphia, Pa. Application filed November 17, 1886.

5,055.—Title: "THE AMERICAN WATER-PROOF OIL."—*John Bensing*, Lebanon, Pa. Application filed November 17, 1886.

5,056.—Title: "TUBULAR SQUARE LAMP NO. 6."—*C. T. Ham Manufacturing Company*, Rochester, N. Y. Application filed November 18, 1886.

5,057.—Title: "TUBULAR SQUARE LAMP NO. 7."—*C. T. Ham Manufacturing Company*, Rochester, N. Y. Application filed November 18, 1886.

5,058.—Title: "TUBULAR SQUARE LAMP NO. 8."—*C. T. Ham Manufacturing Company*, Rochester, N. Y. Application filed November 18, 1886.

5,059.—Title: "SQUARE STREET LAMP NO. 10."—*C. T. Ham Manufacturing Company*, Rochester, N. Y. Application filed November 18, 1886.

5,060.—Title: "GLOBE STREET LAMP NO. 9."—*C. T. Ham Manufacturing Company*, Rochester, N. Y. Application filed November 18, 1886.

5,061.—Title: "PERKINS' INFALLIBLE LIVER PILLS."—*John Perkins*, Wolverhampton, county of Stafford, England. Application filed November 13, 1886.

5,062.—Title: "TROUT'S DYSPEPSIA TABLETS."—*Zachary T. Trout*, Girardville, Pa. Application filed September 20, 1886. (Trade-Mark Registered.)

5,063.—Title: "THE FAMILY EMERGENCY MEDICINE CHEST."—*Terry J. Hutton*, Fergus Falls, Minn. Application filed October 20, 1886.

DISCLAIMER.

170,028.—*Frank L. Straio*, Poston, and *Benjamin F. Sparrow*, Cambridge, Mass.; said *Sparrow* assignor to *Herbert F. Sparrow*, Boston, Mass. Patent dated November 16, 1875. IMPROVEMENT IN BOOT AND SHOE TIPS. Disclaimer filed December 7, 1886, by the present assignee, *The American Shoe Tip Company*.

Enters its disclaimer "to that part of the specification which is in the following words, to wit: 'The ends of which may be' found on the sixth and seventh lines of the third paragraph of the specification commencing 'Our invention consists;' also to the words 'in relation to said points' found in the eighth line of the said paragraph, and also to the words 'easy insertion, and for' in the ninth line of the said paragraph, leaving the said paragraph to read:

"Our invention consists of a boot or shoe tip formed with a protecting edge or guard, designed to protect and give firmness and strength to the tip, as seen in Fig. 1, or without such protecting-guard, as seen in Fig. 2, and with horizontal points, bent to a right angle upward or downward, the same being designed for the fastening of the tip between the inner and outer soles of the boot or shoe to which it may be applied without the aid of pegs or stitches, or other modes of fastening tips to boots and shoes."

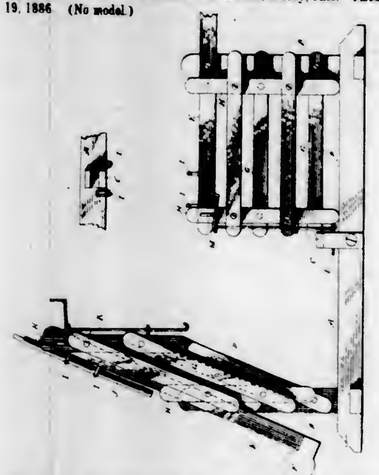
Also "to all that part of the specification contained in part of the eighth and in all of the ninth paragraph thereof in the following words, to wit: 'and it may be used without bending upward or downward the ends of said horizontal points to an angle, as before described, according to the manner in which it may be applied to the boot or shoe.'"

"'The method of applying our said improved tip is as follows: If it is desired to apply it to a shoe or boot after it is made, or after it has been worn to a greater or less extent, we use the form of the tip shown in Fig. 3 without bending the ends of the horizontal points downward or upward to an angle, as before described, driving the said points in between the outer and inner soles until the inside of the tip comes in contact with the boot or shoe.'"

PATENTS

GRANTED DEC. 14, 1886.

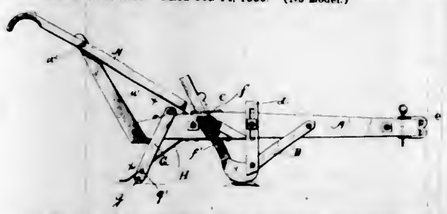
354,081. GATE. WILLIAM K. ALBERTSON, Shelby, Ohio. Filed Aug 19, 1886. (No model.)



Claim.—1. The combination, with two gate-sections composed of pivoted bars, the upper and lower of which are pivoted to the post and the former provided with weights, of a locking-bolt mounted to turn and provided with a crank and a hook, and the locking-post situated at the junction of the gates when shut, and having an eye with which the hook of the bolt engages.

2. The combination, with two gate-sections composed of pivoted bars, the upper and lower of which are pivoted to the posts and the former provided with weights, and each section having a stud, of the locking-post situated at the junction of the gates when shut, having an eye, and a locking-bolt mounted to turn, and having a hook at one end and a crank at the other, the latter being adapted to be sprung under the stud and maintain the bolt in engagement with the locking-post.

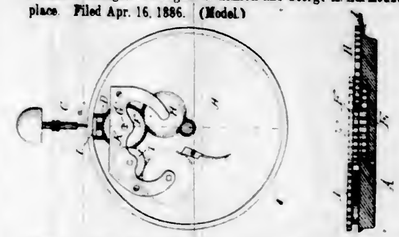
354,082. COMBINED PLOW AND CULTIVATOR. GEORGE W. ANDERSON, Erin, Tenn. Filed Oct. 14, 1886. (No model.)



Claim.—1. The combination, with the main and supplemental plow-beams and the adjustable screw-rods, of the clevis uniting the forward ends, having its shank bifurcated and extended in opposite directions and threaded, and the nuts screwed upon said ends, substantially as and for the purpose described.

2. The combination, with the beam and plow, of the swinging frame having a roller journaled between its lower ends and the cross-bar located above the roller, and the tension-spring secured at its upper end to the beam, and having its free end resting upon the cross-bar, substantially as and for the purpose described.

354,083. STEM WINDING AND SETTING WATCH. JOSEPH BACHNER, Chicago, Ill., assignor to himself and George A. Harmount, same place. Filed Apr. 16, 1886. (Model.)



Claim.—1. The longitudinally-movable stem having cone *c* and the stem-wheel, in combination with shiftable wheels conveying motion from the stem to the winding and setting trains, and acted upon directly by said cone, substantially as specified.

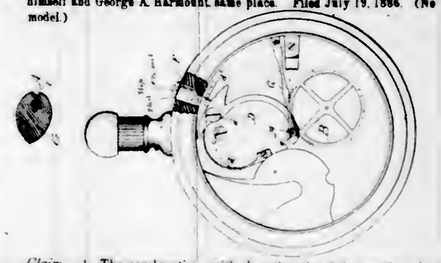
2. The longitudinally-movable stem having a cone, *c*, and the stem-wheel, in combination with the shifting wheels for conveying motion from the stem to the winding and setting trains, and the spring J, substantially as specified.

3. The combination of the longitudinally-movable stem having the conical end with the laterally-shifting wheels E F, having the collar *e*, and the arbor upon which said wheels are loosely mounted, substantially as specified.

4. The longitudinally-movable stem having a conical portion, c, and provided with both inner and outer bearings, in combination with the laterally-movable wheels shifted by lateral force exerted by said conical portion c, substantially as specified.

5. The longitudinally-movable stem having a conical portion, c, and an elongation, M, in combination with the stationary arbor G, through which said elongation passes, and the shiftable wheels borne by said arbor, substantially as specified.

354,084. STOP-WATCH. JOSEPH BACHNER, Chicago, Ill., assignor to himself and George A. Harmount, same place. Filed July 19, 1886. (No model.)



Claim.—1. The combination, with the arbor A, of the moving pinion mounted loosely thereon, the heart-cam keyed to slide thereon, the spring G, and lever D, substantially as specified.

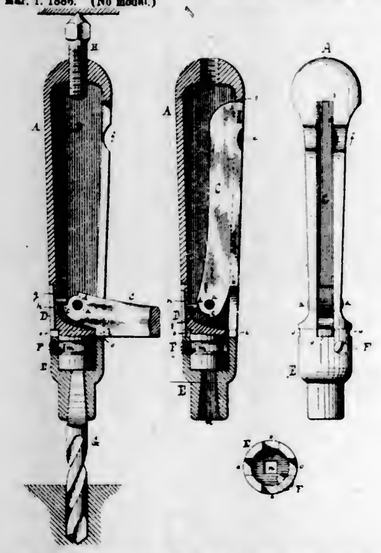
2. The lever D, spring *d'*, spring G, heart-cam depressed by said spring and located on the arbor A, and the loose moving pinion on said arbor, combined and operating substantially as specified.

3. The combination, with the dial of a watch and its train, of the pointer A', arbor A, the heart-cam and moving pinion mounted on said arbor, the spring G, acting to bring the cam and pinion together, the lever D, its spring *d'*, and means, as a sliding pin, F, for imparting

movement to the lever from the exterior of the watch, substantially as specified.

4. In a stop-watch, the lever D, in combination with the heart-cam, upon which it acts, and the pins *f* F, by which it is positioned, substantially as specified.

354,085. DRILL-STOCK. RICHARD J. BAKER, Providence, R. I. Filed Mar. 1, 1886. (No model.)



Claim.—1. In a ratchet-drill or bit-stock, the combination of the handle A, having the longitudinal slot B, the lever C, having the shoulder *b*, and pivoted to said handle at *a*, and capable of swinging into the slot B of said handle and to be extended laterally therefrom at will, the rotatable bit-stock E, mounted upon the handle A by the screw F engaging with the channel *m*, and having slots *o*, adapted to receive and engage with the shoulder *b* of the lever C, substantially as described.

2. The combination of the handle A, slotted at B and *h* and channeled circumferentially at *m*, the lever C, having shoulders *b c d*, and pivoted at *a* within said handle, the rotatable bit-stock E, having slots *o* at its inner end and the socket *n* at its outer end, and mounted upon the handle A by the screw F engaging with the channel *m*, and the locking-bar D, having the pin *g* engaging the lever C and movable in the slot *h* of the handle A, substantially as specified.

3. The combination of the handle A, slotted at B and *h* and channeled circumferentially at *m*, the screw H in the end of said handle, the lever C, having shoulders *b c d*, and pivoted at *a* within said handle, the rotatable bit-stock E, having slots *o* at its inner end and socket *n* at its outer end, and mounted upon the handle A by the screw F engaging with the channel *m*, and the locking-bar D, having the pin *g* engaging the lever C and movable in the slot *h* of the handle A, substantially as shown.

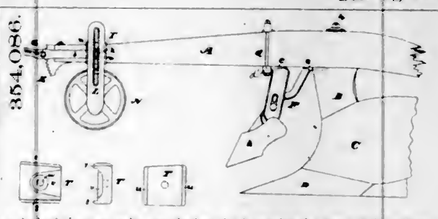
4. The combination of the handle A, having the slot *h*, the bit-stock E, mounted and rotatable upon said handle and having slots *o* upon its inner end, and the locking-bar D, mounted upon said handle and movable longitudinally by its pin *g* in the slot *h*, and the lever C, pivoted to said handle and having shoulders *c d*, to engage with the pin *g* to bring the bar D into and out of engagement with the slots *o* of the bit-stock, substantially as described.

5. The combination of the handle A, having the slots B and *h* and the circumferential channel *m*, the screw H at the end of the handle, the lever C, pivoted at *a* to said handle and having the shoulders *b c d*, the rotatable bit-stock E, having slots *o*, for axially locking the stock of the handle and socket *n*, and mounted upon the handle A by the screw F entering into the channel *m*, and the locking-bar D, having the pin *g* and movable in the slot *h*, substantially as specified.

354,086. PLOW. WARREN J. BALL, Salem, Ohio. Filed July 26, 1886. (No model.)

Claim.—1. The combination, in a plow, of a draft-beam, a guide-wheel and its supporting-arm, and a clamping-block, T, having projected wings *t t* to embrace said beam, projected wings *u u* to embrace and support said wheel-supporting arm, recess *v*, adapting said block to be set over the rear end of the clevis-prong *l*, whereby the wheel-support

354,086.

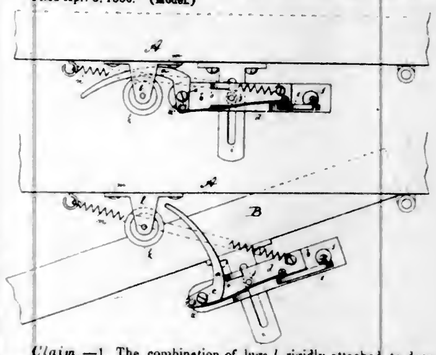


and clevis-loop may be attached to the beam by the same bolt, substantially as described, and for the purpose set forth.

2. In a plow-clevis, a rotatable adjusting-bolt, *o*, having a feather, *p*, and lever *g*, adapted for engagement with said clevis-loop for the purpose of securing the parts in working position, substantially as described and set forth.

3. The combination, in a plow-clevis, of a toothed segment, E, draft-loop G, that may be oscillated about its pivotal connection with the beam, and a rotatable adjusting-bolt, *o*, having a feather, *p*, adapted for engagement with the toothed segment E, and a hand-lever for rotating and locking said adjusting-bolt in a fixed adjustment with said segment E, substantially as described, and for the purpose set forth.

354,087. DOOR-SPRING. FRANCIS L. BECKER, New York, N. Y. Filed Apr. 3, 1886. (Model.)



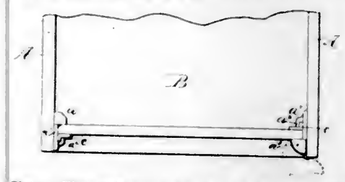
Claim.—1. The combination of lugs *l*, rigidly attached to door-frame A and carrying roller *k*, with plate *b*, attached to door B, and with curved lever *a*, having arm *a'*, pivoted at its center to plate *b*, and with spring *f*, connected to arm *a'*, substantially as specified.

2. The combination of lever *a* and plate *b* with spring *f*, connected to lever *a*, and with stop *o*, and roller *k*, journaled to lugs *l*, substantially as specified.

3. The combination of lever *a* and plate *b*, having stop *o*, with springs *f n*, and with the roller *k*, journaled in lugs *l*, the whole operating substantially as specified.

4. The combination of lever *a* and plate *b*, having pin *j*, with spring *f*, and with slotted plate *i*, and roller *k*, substantially as specified.

354,088. WAGON END-GATE. WARREN BECKWITH, Geneva, Wis. Filed Sept. 21, 1885. (No model.)

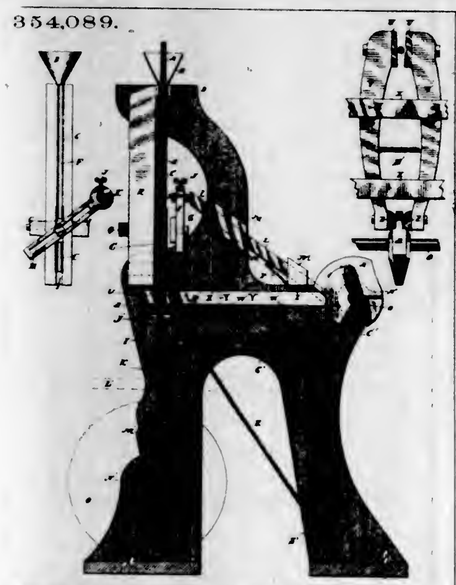


Claim.—The combination of the gate B, having an angular strip of metal, *c*, the sides A, provided with the cleats *a'*, formed with flanged lips a^2, the cleat *a*, placed in the rear of cleat *a'*, the cleat a^3, hinged to A, the T-headed pin having the handle *b'*, and the slotted plate b^2, all arranged and operating substantially as shown and described.

354,089. MACHINE FOR THREADING AND POINTING BOLT-BLANKS. EDWIN N. BEECHER, Southington, Conn. Filed May 19, 1886. (No model.)

Claim.—1. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube, of horizontal jaws located below it and adapted to clasp and hold the blanks, a gage located below the jaws and limiting or gaging the descent of the blanks in the tube, and

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a vertical reciprocating tool-carrier located in line with the tube and below the gage, substantially as set forth.

2. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube, of horizontal jaws located below it and adapted to clasp and hold the blanks as they issue from such tube, a gage located below the jaws and gaging the descent of the blanks through the same, a tool-carrier located in line with the tube and below the gage, and a chute operated by or from the said tool-carrier, substantially as set forth.

3. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube, of horizontal jaws located below it and adapted to clasp and hold the blanks, a gage located below the jaws and limiting the descent of the blanks, a vertical reciprocating tool-carrier located in line with and below the tube, and an inclined chute operated by or from the carrier and extending over the same when depressed, substantially as set forth.

4. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube provided with an opening in its side, of horizontal jaws located below it and adapted to clasp and hold the blanks, a gage located below the jaws and gaging the descent of the blanks in the tube, a tool-carrier located below and in line with the tube, and a blank-check periodically engaging with the blanks through the opening in the tube, whereby the column of blanks therein is supported, substantially as set forth.

5. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube provided with an elongated slot, of horizontal jaws located below it and adapted to clasp and hold the blanks, a gage located below the jaws and gaging the descent of the blanks in the tube, a tool-carrier located below and in line with the tube, and an adjustable blank-check periodically engaging with the blanks through the opening in the tube, whereby the column of blanks therein is supported, substantially as set forth.

6. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube, of a frame located in front of the tube and provided with an opening into which the upper ends of the blanks are deflected as they leave the tube, jaws located below the tube, a gage located below the jaws, a tool-carrier located below the gage and in line with the tube, and a chute extending over the tool-carrier when the same is depressed, substantially as set forth.

7. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube provided in its rear face with an elongated slot, of a blank-check periodically engaging with the blanks in the tube through the slot therein, and a bearing-block located in front of the tube and supporting the same against deflection by the blank-check, substantially as set forth.

8. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube, of horizontal jaws located below it and adapted to clamp and hold the blanks, a gage for limiting the descent of the blanks, a vertically-reciprocating tool-carrier, and a cam constructed and arranged to operate the jaws and gage from its sides and edge, respectively substantially as set forth.

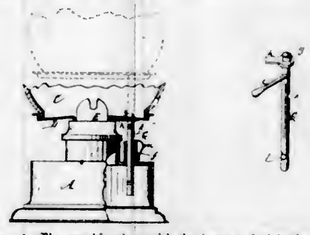
9. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube provided in its rear face with an elongated slot, of a blank-check periodically engaging with the blanks in the tube through the slot therein, and a cam for operating such check, substantially as set forth.

10. In a machine for pointing or threading blanks, the combination, with a vertical feed-tube having a slot, of a blank-check periodically engaging with the blanks in the tube through the slot therein, a bearing-block located on the opposite side of the tube from the slot and supporting the tube from deflection by the blank-check, jaws located below the tube, a gage located below the jaws, a reciprocating shaft located below the gage and in line with the feed-tube, a chute rising and falling with the tool-shaft, and a cam for operating the said shaft, substantially as set forth.

11. In a machine for pointing or threading blanks, the combination, with a vertical feed, of a clamping device adapted to clamp and hold the blanks while the same are being pointed or threaded, means for limiting or gaging the descent of the blanks through the clamping device, and a vertical reciprocating tool-carrying shaft, substantially as set forth.

12. In a machine for pointing or threading blanks, the combination, with a vertical feed, of a clamping device adapted to clamp and hold the blanks and operated by a cam, a gage for limiting the descent of the blanks, and a vertically-reciprocating tool-carrier, substantially as set forth.

354,090. LANTERN. CHARLES BERGENER, Rochester, N. Y. Filed July 9, 1885. (No model.)



Claim.—1. The combination, with the lamp and globe-holding disk, of a shaft having a free turning movement axially, its upper end resting loosely in a hole in the disk, its lower end sliding freely through a bearing on the lamp, and provided with notches in its sides, out of line with each other, and a spring engaging with said notches, as shown and described, and for the purpose specified.

2. The combination, with the lamp and globe holding disk, of a shaft having a free turning movement axially, its upper end resting in a hole in the disk, its lower end sliding through a tube on the lamp, said shaft being provided with notches in its sides, out of line with each other, and with an arm that projects over the edge of the cone when lowered, and a spring engaging with said notches, as herein shown and described.

354,091. PUMPING-ENGINE. WILLIAM A. P. BICKNELL, New York, N. Y., assignor to William A. Perry and Charles C. Worthington, both of same place. Filed Aug. 4, 1886. (No model.)

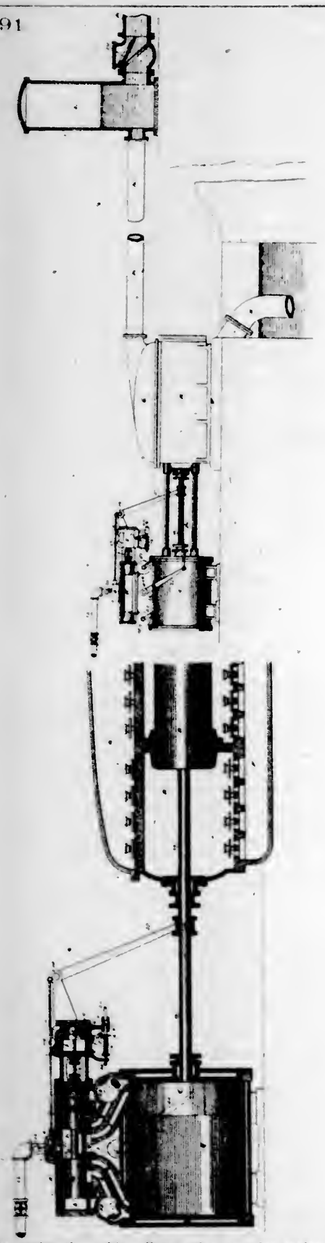
Claim.—1. The combination, with a pump, of the force-main connected thereto without the intervention of an air-chamber and an equalizer, substantially such as described, located at such a distance from the pump that the column of liquid in the main between the equalizer and the pump will have sufficient inertia to perform the function of a fly-wheel, and arranged to exert a yielding pressure upon the column in the main, whereby that portion of the column between the equalizer and the pump may move at varying velocities without affecting substantially the velocity of the column beyond the equalizer, substantially as described.

2. The combination, with the pump, of the force-main connected thereto without the intervention of an air-chamber and an equalizer consisting of the chamber L, containing a volume of confined air located at such a distance from the pump that the column of liquid in the main between the equalizer and the pump will have sufficient inertia to perform the function of a fly-wheel, and arranged to exert a yielding pressure upon the column in the main, whereby that portion of the column between the equalizer and the pump may move at varying velocities without affecting substantially the velocity of the column beyond the equalizer, substantially as described.

3. The combination, with the cylinder c, having the duct 6, and the piston 35, forming the cataract apparatus, of the cock or valve 7, the chamber 16, having the plunger 17, connected to said cock or valve, and the pipe 24, connecting said chamber with the force-main K, substantially as and for the purposes set forth.

4. The cataract apparatus consisting of the piston 35 and the cylinder c, having the duct 6, and the ducts 8 9, provided with the valves 13 14, substantially as described.

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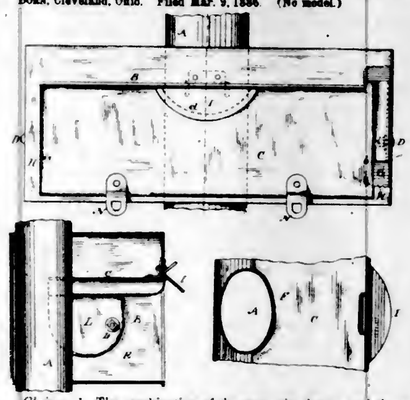


5. The combination, with a direct-acting pumping-engine and its force-main, of an equalizer, substantially such as described, located at such a distance from the pump that the column of liquid in the main between the equalizer and the pump will have sufficient inertia to perform the function of a fly-wheel, and arranged to exert a yielding pressure upon the column in the main, whereby that portion of the column between the equalizer and the pump may move at varying velocities without affecting substantially the velocity of the column beyond the equalizer, and means, substantially such as described, whereby the speed of the engine is regulated by varying the length of the pause of the engine at the end of each stroke, substantially as described.

6. The combination, with a direct-acting pumping-engine and its force-main, of an equalizer, substantially such as described, located at such a distance from the pump that the column of liquid in the main between the equalizer and the pump will have sufficient inertia to perform the function of a fly-wheel, and arranged to exert a yielding pressure upon the column in the main, whereby that portion of the column between the equalizer and the pump may move at varying velocities without affecting substantially the velocity of the column beyond the equalizer, and means, substantially such as described, whereby the main valve of the engine is moved slowly up to the point where the admission of steam begins and quickly thereafter, substantially as described.

7. The combination, with the pump and its force-main, of an equalizer, substantially such as described, located in the force-main and arranged to permit the inertia of the column in the main to aid the engine during the last part of the stroke, thereby permitting the steam to be used expansively, substantially as described.

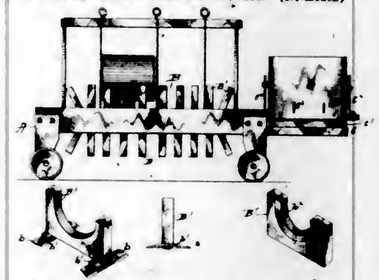
354,092. RANGE-CLOSET DOOR. Frederick W. Born and Henry Born, Cleveland, Ohio. Filed Mar. 9, 1886. (No model.)



Claim.—1. The combination of the oven, the door *c*, and the arms reaching into the oven and extending from the upper part of the door to a point below the center thereof, and pivoted to the oven near their lower edges, to constitute counter-weights for the door, substantially as and for the purpose set forth.

2. The combination of the oven, the smoke-pipe passing therethrough, pivoted arms, the door *c*, having a recessed upper edge, F, adapted to the form of the smoke-pipe, and hinged flap I, arranged substantially as and for the purpose set forth.

354,093. TILE-MACHINE. Daniel Brose and John Baumgartner, New Washington, Ohio. Filed Nov. 20, 1885. (No model.)



Claim.—1. The combination of the frame provided with a table of rollers, and the endless belts arranged about the rollers, with the logs or forms having their ends seated on metal plates the edges of which project an equal distance beyond each side face of the forms, and secured in place by fastenings projected through the belts, the middle of the plates, and into the forms, substantially as described, and for the purpose specified.

2. The combination, with the frame provided with a table of rollers, of the endless belt arranged about the rollers, the main forms B', and the detachable and additive forms B^2, seated on the main forms, substantially as specified.

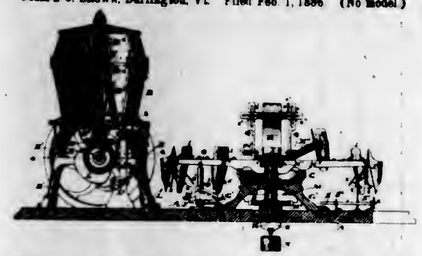
3. In combination with the frame A, provided with rearwardly-extending side pieces, *c*, and a platform secured thereon, the spring-platform C, hinged to the table-platform, and provided with springs to lift it therefrom and to hold it in upright position, substantially as described.

4. In combination with the tile-table provided with rearwardly-extended supports and a platform secured thereon, the spring-platform C, hinged to the platform of the table, and provided with springs to lift it from horizontal position to a vertical position, and studs or seats on its edge, and a platen removably seated on the studs or seats, substantially as described.

5. As an attachment to a tile-machine, the spring-platform C, hinged to a support and provided with springs to lift it from a horizontal to a vertical position, substantially as described.

6. The lifter comprised of a plate having a handle and formed with two curved strap-pieces having an open end slot between them and turned or hooked ends, and a detachable handle adapted to engage with the hooks on the ends of the strap-pieces, substantially as described, and for the purpose stated.

354,094. MACHINE FOR MEASURING AND PACKAGING SEEDS. Joseph C. Brown, Burlington, Vt. Filed Feb 1, 1886. (No model.)



Claim.—1. In a machine for measuring and packaging seeds and other substances, provided with a series of intermittingly-movable funnels, each arranged and adapted to receive and hold an envelope and convey it to the place for filling the envelope, and then to the place for discharging the same, a rectangular receptacle for receiving and holding a large number of envelopes arranged with their open ends upward, in combination with a fixed stop to arrest the forward movement of the bottoms of said envelopes, a yielding stop arranged to press against the unfolded flap of the forward envelope and limit its forward motion, a follower for moving said envelopes forward, and a weight connected to said follower and arranged to press the same against the mass of envelopes and move them toward the point of delivery, substantially as described.

2. The combination, in a machine for measuring and packaging seeds and other substances, of an envelope-receptacle, an automatically-movable follower, a fixed stop at bottom of the delivery end of said receptacle, a yielding stop arranged to press against the unfolded flap of the forward envelope and limit its forward movement, and a funnel having a thin flat lower end, and arranged to be moved downward into the forward envelope in said receptacle, and then to be moved horizontally to withdraw said envelope from the receptacle and convey it to the place for filling the same, substantially as described.

3. The combination of an envelope-containing receptacle, an automatically-movable follower, fixed and yielding stops to limit the forward movement of the mass of envelopes, a funnel having a thin flat knife-like lower end, mechanism for raising said funnel and causing it to descend into the interior of the forward envelope, a spring-clamp for clamping said envelope to the funnel, and mechanism for moving said funnel and envelope from said receptacle to the place for filling the same, substantially as described.

4. The combination of the receiver B, provided with the opening *a*, the measuring-box K, the intermittingly-revolving head H', the radius-arm H^3, the funnel I, the spring-clamp *s*, the envelope-receptacle M, the fixed stop e^2, the spring-stop R, the follower N, and weight N', all arranged and adapted to operate substantially as and for the purposes described.

5. The combination of the bracket or arm O, provided with the ears *j j*, the right and left threaded screws *k k*, the side plates, *f f*, provided with threaded bearings to fit said screws, the bottom plate, *e*, and the screw P, for adjusting said bottom vertically, substantially as described.

6. The combination of the bracket or arm O, the screw P, fitted to a threaded bearing in said arm, the bottom plate, *e*, connected to said screw by a swivel-joint, and the pulleys *i* and *h*, the follower-guides *n* and *n'*, and the guide-rod *m*, all mounted upon and adjustable with said bottom plate, *e*, substantially as described.

7. The funnel I, having its lower end smaller than its upper end and curved to one side, so that the forward side of its lower end shall be slightly in advance of the forward side of its upper portion, substantially as described.

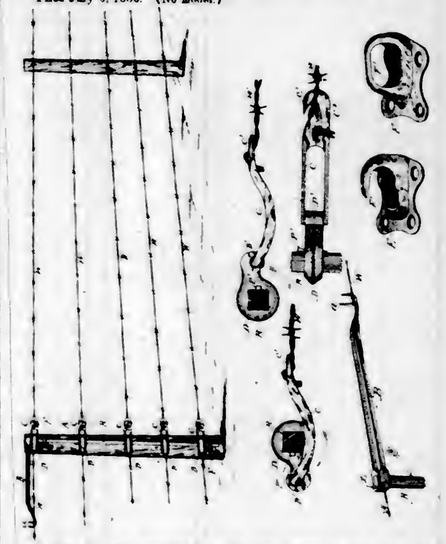
8. The combination, with the tapered funnel I, of the spring-clamp *s*, provided with the arm *s'*, the two coils s^2, and the bend s^3, all arranged and adapted to operate substantially and for the purposes described.

9. The combination of the envelope-receptacle M, the follower N, the band *g*, attached by one end to the lower edge of the follower and extending therefrom to the front end of the receptacle, along the upper surface of the bottom of said receptacle, the pulleys *h* and *i*, and the weight N', all arranged and adapted to operate substantially as described.

10. The envelope-receptacle M, provided with two movable sides and right and left hand screws for adjusting said sides toward and from each other, in combination with a bottom to support the envelopes and a yielding stop to limit the forward movement of the upper end of said envelopes, said bottom and yielding stop being constructed and arranged to be adjusted one toward the other to adapt the receptacle to envelopes of different lengths.

11. In a machine for packaging seeds and other substances, the combination of a receiver to contain the seeds or other substance, a vibrating measuring-box, a turn-table provided with a series of radiating arms, each carrying at its end a funnel to receive the material to be packaged, mechanism for imparting to said turn-table and arms an intermittent rotary motion, a vertically-movable stop for limiting the movement of said turn-table, and a reciprocating slotted cam-plate for moving said stop, substantially as described

354,095. WIRE-FENCE GATE. William M Clow, Wheatland, Ill. Filed July 6, 1886. (No model.)



Claim.—1. The combination, with the rotatable rod R and lever B, of the adjustable hooked arms D and curved links C, as and for the purpose set forth.

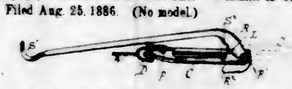
2. The combination, with the posts and wires of a fence and the hinge-hook E and hinge-clip F, of the rod R, forked lever B, hooked arms D, and links C, constructed substantially as and for the purpose set forth.

3. The adjustable arms D, having the hooks D', in combination with the links C, rotatable rod R, and fence-wires W, substantially as and for the purpose set forth.

4. The combination, with the rotatable rod R and arms D, having the extending hooks D', of the links C, having their body part curved so as to partially surround said rod, and adapted to be locked in position with said hooked arms when the device is in service and closed, substantially as set forth.

5. The combination, with the hinge-clip F and hinge-hook E, secured to a fence-post, of the rod R, and the forked lever B and hooked arms D, secured to said rod, as specified, and the links C, hinged to said arms and having the fence-wires secured to said links, as and for the purpose set forth.

354,096. WIRE-FENCE COUPLER. William M Clow, Wheatland, Ill. Filed Aug. 25, 1886. (No model.)

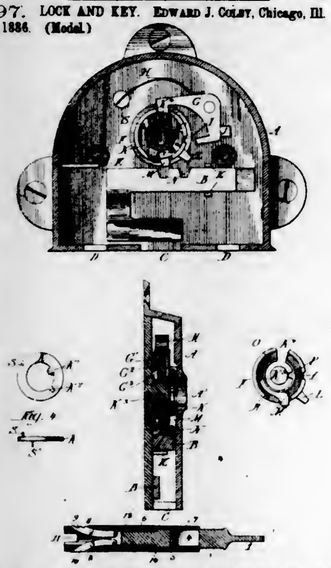


Claim.—1. The coupler for wire fences shown and described, consisting of the lever R, of the second kind, having the hook S' and bearings S and R', in combination with the links C and C' and fence-wire W, the said links being provided with the apertures P and hooks D, for

the purpose of adjustably attaching said fence-wires thereto, substantially as and for the purpose set forth.

2. The combination, with the fence-wires, of the levers R, having the hook S' and lug R^2, link C, having the lugs L, and link C', said links having the apertures P and hooks D, for adjustably attaching the fence-wires thereto, substantially as and for the purpose set forth.

354,097. LOCK AND KEY. EDWARD J. COLBY, Chicago, Ill. Filed Feb. 6, 1886. (Model.)



Claim.—1. In a lock, the combination of a case, a bolt, a central barrel, and a bolt-actuating dog carried thereby, with a spring adapted to hold said dog within the barrel when out of use.

2. In a lock, the combination of a case, a bolt, and a central barrel having a recess in its outer surface, and a tumbler pivoted to the case and adapted to engage the recess and arrest the barrel.

3. In a lock, the combination of a case, a bolt, a tumbler pivoted to the case and adapted to engage the barrel, and a barrel carrying a retreating bolt-actuating dog and slotted to receive the dog and release the tumbler.

4. In a lock, the combination of a case, a bolt, a rotating barrel and a dog carried thereby and adapted to engage and operate the bolt, and a lug on the inner end of said barrel to engage the key.

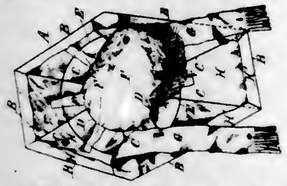
5. In a lock, the combination of a case, a bolt, and a centrally-pivoted barrel having a lug and a rotating face-plate thereon, said face-plate being provided with a lug which can be brought into line with the lug on the barrel by rotating said plate.

6. A tubular key having extensible bits with irregular outlines, as shown.

7. The combination of a tubular key having extensible bits, a lock-case, a bolt, and a rotating barrel having a key-lug and a retreating dog, so that by inserting and rotating the key the dog is thrown out and the barrel is rotated to move the bolt.

8. The combination of a tubular key having slots in the end of the tube and extensible bits, with a lock having a case, a bolt, and a rotating barrel, which is provided with a face-plate, an inner lug, and a spring retreating dog, and a tumbler pivoted to the case and adapted to engage and arrest the barrel.

354,098. KITE. EDWARD J. COLBY, Chicago, Ill. Filed Mar. 25, 1886. (No model.)



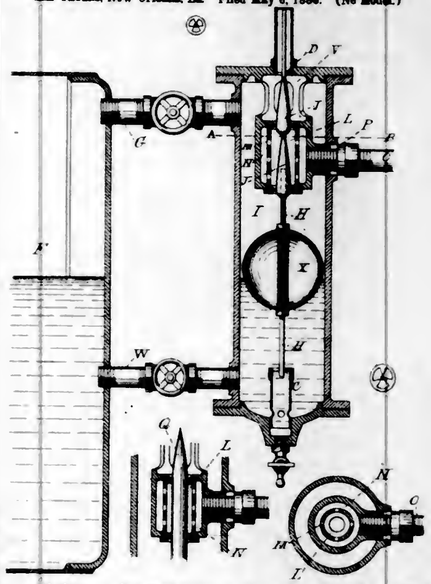
Claim.—1. A kite having a frame, a covering, a central hoop, and a wind-bag secured thereto, the wind-bag being secured to the frame.

2. A kite having a frame, a covering, a central hoop, a wind-bag secured thereto, and an intermediate strengthening-hoop, both hoops being secured to the frame.

3. A kite having a central hoop, a wind-bag secured thereto, and a wire frame consisting of an outer cord and ribs extending from hoop to cord.

4. A kite having a central hoop, a wind-bag secured thereto, a wire frame consisting of an outer cord and ribs extending from hoop to cord, and ornamental streamers secured to the back.

354,099. FEED-WATER REGULATOR. FREDERIC COOK and BURCHARD THOMEN, New Orleans, La. Filed May 6, 1886. (No model.)



Claim.—1. In a feed-water regulator, the combination, with the boiler, of a regulator-chamber having communication with the steam and water space at its upper and lower end, respectively, a steam-chamber within the regulator-chamber having communication with a pipe leading to the pump, an inner chamber within the steam-chamber having lateral openings, a double conical obstructer moving vertically in openings in the ends of the inner chamber, a float connected with the obstructer, and guides for the float in both ends of the regulator chamber, the conical obstructers being a little less in diameter than the openings in which they move, substantially as described.

2. A feed-water regulator having in combination a chamber connected to boiler above and below the water-line, a float resting on water-line, a double or single cone for regulating supply of steam to steam-pump, a double steam-chamber around the cone or cones, the inside chamber being provided with an upper and a lower steam-opening, and side holes for exit of steam, a steam-pipe leading to steam-pump supplying the boiler, which pipe opens into the second or outside chamber encircling cone or cones, substantially as described, and for the purpose specified.

354,100. TUCKING ATTACHMENT FOR SEWING-MACHINES. GARRETT J. COUCHOIS, Chicago, Ill., assignor to the Perfection Tucker Company. Filed Nov. 24, 1885. (No model.)



Claim.—1. In a tucker for sewing-machines, a bed-plate, a presser-plate, in combination with a combined hinge and swivel connection between said bed and presser plates, substantially as described.

2. In a tucker for sewing-machines, a bed-plate and a presser-plate, in combination with an overhanging arm secured to the presser-plate at a point forward of the working edge, and a hinge-connection between said arm and bed-plate, substantially as described.

3. In a tucker for sewing-machines, a bed-plate and a presser plate, in combination with an overhanging arm secured to the presser-plate, and a hinge and swivel connection between said arm and bed-plate, substantially as described.

4. In a tucker for sewing-machines, a bed-plate and a presser-plate, in combination with an overhanging arm, and an adjustable hinge-connection between said arm and the bed-plate, substantially as described.

5. In a tucker for sewing-machines, a bed-plate and a presser-plate, in combination with an overhanging arm, and an adjustable hinge and swivel connection between said arm and the bed-plate, substantially as described.

6. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge-connection between said bed and presser plates, in combination with a folder-plate, and a hinge-connection between said folder and the bed-plate, substantially as described.

7. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge and swivel connection between said bed and presser plates, in combination with an adjustable folder-plate, substantially as described.

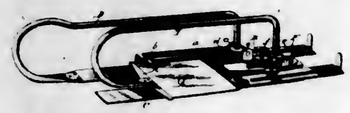
8. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge-connection between said bed and presser plates, in combination with an adjustable folder-plate, and a hinge and swivel connection between said folder-plate and the bed-plate, substantially as described.

9. In a tucker for sewing-machines, a bed-plate, a presser-plate, and a hinge and swivel connection between said bed and presser plates, in combination with an adjustable folder-plate, and a hinge and swivel connection between said folder-plate and the bed-plate, substantially as described.

10. In a tucker for sewing-machines, a bed-plate, a shoulder thereon, a presser plate, an overhanging arm secured to the presser-plate, and a hinge-connection between said arm and bed-plates, in combination with an adjustable folder-plate, a hinge-connection between said folder-plate and bed-plate, and a keeping-spring bearing upon the folder-plate, substantially as described.

11. In a tucker for sewing-machines, a bed-plate, a shoulder thereon, a presser-plate, an overhanging arm secured to the presser-plate, and a hinge and swivel connection between said arm and bed-plates, in combination with an adjustable folder-plate, a hinge and swivel connection between said folder-plate and bed-plate, and a keeping-spring bearing upon the folder-plate, substantially as described.

354,101. PLAITING ATTACHMENT FOR SEWING-MACHINES. GARRETT J. COUCHOIS, Chicago, Ill., assignor to the Perfection Tucker Company. Filed Feb. 2, 1886. (No model.)



Claim.—1. In a plaiting attachment for sewing-machines, a bed-plate, a presser-plate, and a folder-plate, in combination with a gnide or gage plate, and a hinge-connection between said guide or gage plate and the bed-plate, substantially as described.

2. In a plaiting attachment for sewing-machines, a bed-plate, a presser-plate, and a folder-plate, in combination with a guide or gage plate, and a hinge and swivel connection between said guide or gage plate and the bed-plate, substantially as described.

3. In a plaiting attachment for sewing-machines, a bed-plate, a presser-plate, and a folder-plate, in combination with a guide or gage plate, an overhanging arm secured at one end to said guide or gage plate, and an adjustable hinge-connection between said arm and the bed-plate, substantially as described.

4. In a plaiting attachment for sewing-machines, a bed-plate, a presser-plate, and a folder-plate, in combination with a guide or gage plate, an overhanging arm secured at one end to said plate, and an adjustable hinge and swivel connection between said arm and the bed-plate, substantially as described.

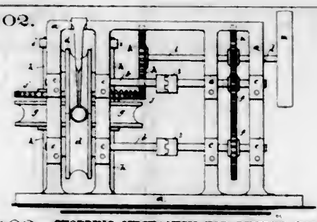
5. In a plaiting attachment for sewing-machines, the bed-plate, the presser and folder plate, and hinge-connections between the said plates and the bed-plate, in combination with the guide or gage plate and a hinge and swivel connection between said plate and the bed-plate, substantially as described.

6. In a plaiting attachment for sewing-machines, the bed-plate, the presser and folder plate, and an adjustable hinge and swivel connection between the said plates and the bed-plate, in combination with the guide or gage plate, and an adjustable hinge and swivel connection between said plate and the bed-plate, substantially as described.

354,102. MACHINE FOR BUTT-WELDING TUBES. JOHN CREA, Allegheny, Pa. Filed July 27, 1886. (No model.)

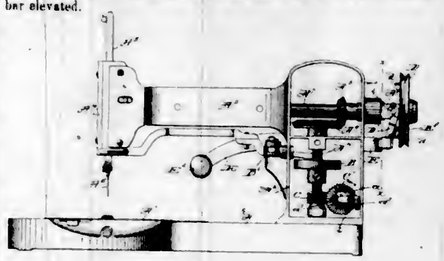
Claim.—In an apparatus such as described, the combination consisting of the two pairs of vertical grooved rolls *d*, having a horizontal pair, *g*, placed between and at right angles thereto, the guide-box *o*, the scraping or cleaning device *p*, and the gear-wheels *f j n*, for operating the rolls, substantially as set forth.

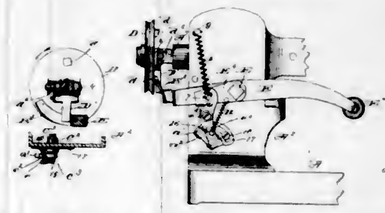
354,102.



354,103. STOPPING MECHANISM FOR BUTTON-HOLE-STITCHING MACHINES. HENRY H. CUMMINGS, Malden, Mass. Filed Nov. 5, 1885. (No model.)

Brief.—The belt-pulley is automatically released and the machine stopped at the completion of the stitching of a button-hole. A worm-wheel on the vertical, through a short arm and its connections, releases a double lever, a spring causing the latter to move a shoe into the path of the clutch-arm, thereby moving the latter away from the belt-pulley and the pins thereon, letting the said pulley run loosely on the main shaft, the latter being always stopped in such position as to leave the needle-bar elevated.





Claim.—1. The shaft A^{10}, its attached worm and the worm-gear actuated by it and provided with teeth, and a short shaft provided with a dog to engage the said teeth, and with an arm, *a'*, combined with a hook adapted to hold or release a lever operative in stopping or starting the shaft A^7, substantially as described.

2. The shaft A^7, the clutch-lever pivoted thereon, the belt-pulley loose on the said shaft and provided with pins or projections *d*, the shaft A^{10} and gears to connect it with the shaft A^7, the worm C, the worm-gear C^2, provided with ratchet-teeth 2, and a short shaft, C^3, provided with the dog and arm *a'*, and the lever E^4 and the shoe E^3, combined with the hook *e* and springs 8 and 12, to operate substantially as described.

3. The shaft A^7, its attached pivoted clutch-lever D', and the belt-pulley D, loose on the said shaft and provided with pins or projections *d*, combined with the lever E, its attached shoe E^3, and the lever E^4, its pin 7, the spring 8, and the hook *e*, to operate substantially as described.

4. The lever E^4, provided with pin 7, and a spring, 8, to operate the lever, and a short shaft, C^3, provided with the dog *a* and the arm *a'*, and the worm-gear C^2, provided with ratchet-teeth 2, combined with a lever, *e*, having an inclined edge, 14, and an inclined side or face, 15, to act against one end of the said short shaft to release the dog from engagement with the ratchet-teeth of the worm-gear, substantially as described.

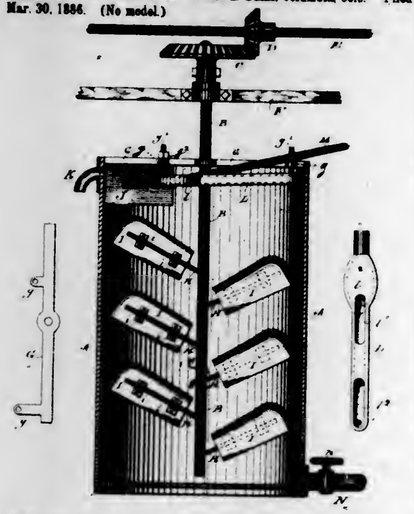
5. The worm-gear C^2, provided with ratchet-teeth 2, the short shaft C^3, extending through said gear loosely and provided with a dog, *a*, and the arm *a'*, and the regulating-plate 17, provided with a stop, combined with a spring, a^3, to turn the said shaft in one direction when the dog *a* is disengaged from the ratchet-teeth of the worm-gear, substantially as described.

6. The scroll-cam B^3, provided with a notch, 20, combined with the gage G, having the shoulder or projection to engage the said notch and determine the starting position of the said scroll-cam, substantially as described.

354,104. ORE-WASHER. JOHN L. DEAN, Columbia, Colo. Filed

being smaller than the former, and the roller-support having the bifur-

354,104. ORE-WASHER. John L. Dean, Columbia, Colo. Filed Mar. 30, 1886. (No model.)



Claim.—1. In a machine for washing crushed ores, the combination, with a tank and an agitator-shaft having arms arranged obliquely to its axis, of a series of blades adjustably secured to the arms, each of said blades having a rearwardly-curved lower edge and forwardly-curved and rounded upper and outer end edges, substantially as described, and for the purpose set forth.

2. In a machine for washing crushed ores, the combination, with a tank for receiving pulp and water from an ore-crushing machine, the said tank being provided with a discharge-orifice at the top, and mechanism for agitating the pulp and water, of a head-gate for arresting floating particles in front of said discharge-orifice, substantially as described.

3. In a machine of the class described, the combination, with a tank having the discharge-orifice, of an inspirator located near the top of the tank for gathering floating particles and conveying them to a point near the discharge-orifice, substantially as described.

4. In a machine of the class described, the combination, with a tank of an inlet-pipe and an inspirator, consisting of a pipe having an open enlargement near its outer end and two openings in its top, substantially as described, and for the purpose set forth.

5. In a machine for washing crushed ores, the combination, with a tank having a discharge-orifice at its top, of a head-gate and an inspirator, the latter being arranged to discharge at the side of the former, and the gate being arranged to arrest floating substances and direct them to said orifice, substantially as described.

6. The improved ore-washer above described, consisting of a tank having a discharge-orifice at its top and a conduit at its bottom, an agitator-shaft having arms set obliquely to its axis, blades mounted on said arms and having rearwardly-curved lower edges and forwardly-curved and rounded upper and outer end edges, a head-gate located just in rear of the discharge-orifice, an inspirator arranged to discharge at the side of the head-gate, and an inlet-pipe arranged to convey pulp and water from the ore-crushing machine to the interior of the inspirator, the whole arranged and operating in the manner hereinbefore set forth.

354,105. GUARD FOR PIVOT OR SWING BRIDGES. William Deveraux, Chicago, Ill., assignor to himself and Maurice Murphy, same place. Filed Apr. 7, 1885. (No model.)

Claim.—1. The lever I and rod or bar J, having the ledges or projections *a*, in combination with the bar K, having the pin *b*, substantially as specified.

2. The bar K, having the slotted plate *c*, in combination with the wheel or arm *s*, having the pin *u*, substantially as described.

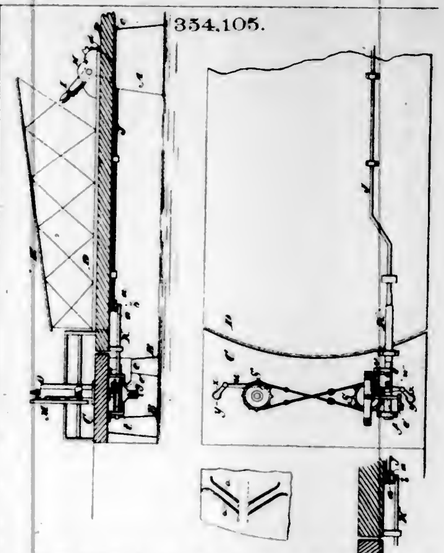
3. The bar K, having the cam or inclined plate *e*, in combination with the hinged bar *f*, substantially as set forth.

4. The combination, with the bar K, plate *e*, having incline *e'*, and bar *f*, of the rod *h*, chain or cord *j*, and latch-bar *k*, substantially as described.

5. The combination of the bar *f*, rod or cord *h j*, and adjusting-nut *g*, whereby the movement of the latch may be adjusted for any raising or sagging of the gate, substantially as specified.

6. The combination and arrangement of the lever I, bars J and K, plates *c* and *e* with the wheels *s s'*, chain or rod P, links *w*, and arms *x*, substantially as described.

354,105.



7. The combination of the bar K, having the plate *c*, with the wheels *s s'*, shafts *i r*, and guard-gates L L', substantially as specified.

8. The combination and arrangement of the guard-gates L, L', and M, posts *o*, shafts *i r*, wheels or arms *s s'*, connecting chain or link P, slide K, connecting with wheel *s*, whereby all of the gates are opened or closed simultaneously, substantially as described.

9. The combination, with the bar K, plate *c*, having incline *c'*, rod *h*, and bar *k*, of the hollow shaft *i*, forming shaft for the wheel *s* and gate L and a passage for the rod *h*, substantially as described.

354,106. BOTTLE-STOPPER. Benjamin K. Dorwart, Lancaster, Pa., assignor to himself and Mouckton W. Michell, Scotch Plains, N. J. Filed June 24, 1886. (No model.)



Claim.—1. The body D, having an aperture, *d*, and a curved surface, D^3, arranged to be rigidly held in a bottle or the like, in combination with a swinging cap, G, turning on an axis eccentric to said curved surface, and arranged for joint operation, substantially as herein specified.

2. The removable body D, having a curved surface, D^3, adjacent to the aperture *d*, arranged to serve with a separate vessel or tube, A, in combination with a swinging cap, G, and with stops adapted to arrest the motion, as herein specified.

3. The threaded ring E, in combination with the correspondingly-threaded body, and with a swinging cap, G, pivoted to the said ring, the cap and body having curved bearing-surfaces presented toward each other, all arranged for joint operation, as herein specified.

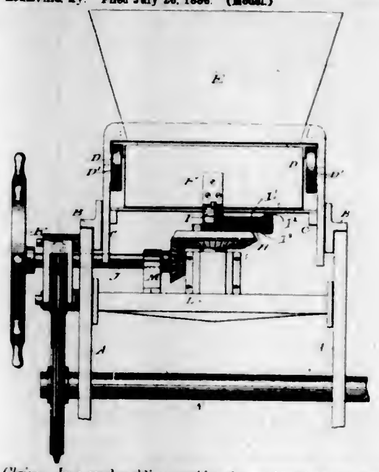
4. The cap G and packing G^4, in combination with each other, and with the body D, having a perforation, *d*, and curved surface D^3, and with means, as the trunnions E', pivoting the cap to the body at a point below the center of the curvature of the body, as herein specified.

354,107. GATE. Newton J. Douglas, Wauconda, Iowa. Filed Apr. 6, 1886. (No model.)



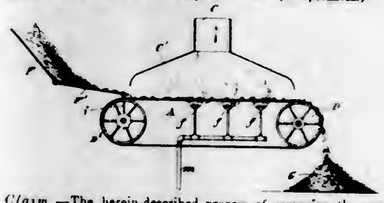
Claim.—The bracket C, having a bolt-aperture, C^3, lugs C^4, and the arms C^2 C^2, each having a bearing, C^5 C^5, respectively, the latter being smaller than the former, and the roller-support having the bifurcations E^3, adapted to fit the larger bearing, C^5, and the pivot E', adapted to fit the lower bearing, C^5, and the bolt E^4, the whole constructed and combined substantially as specified, and forming a complete gate-supporting device ready for attachment to a post by a single securing device.

354,108. SAND-MOLDING MACHINE. William W. Drummond, Louisville, Ky. Filed July 26, 1886. (Model.)



Claim.—In a sand-molding machine, in combination with a reciprocating sand-drawer, the wheels H H', the connecting-rod I', and pins I P, as and for the purpose shown and set forth.

354,109. REMOVING FIBER FROM COTTON-SEED. William L. Dudley, Covington, Ky. Filed Apr. 24, 1885. (No specimens.)

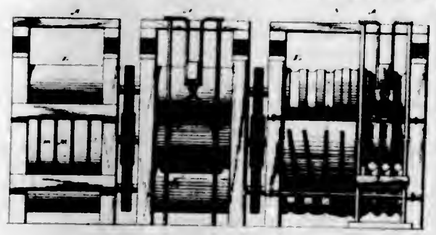


Claim.—The herein-described process of removing the residual fibrous covering of cotton and other seeds, consisting in treating the seeds with chemical solutions, to deposit an oxysalt in and upon the fibers, or to convert the fiber into a readily-inflammable material and then to consume the fiber by the quick application of heat, substantially as set forth.

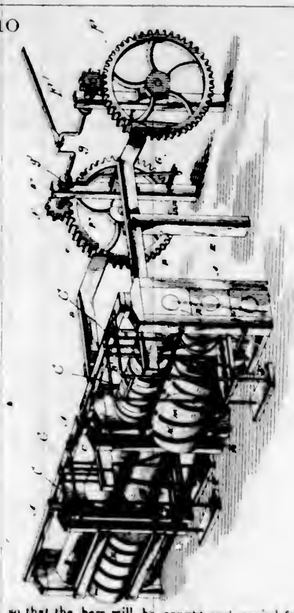
354,110. ROLLING-MILL. Samuel Duff, Steubenville, Ohio. Filed Feb. 18, 1886. (No model.)

Claim.—1. In combination with three or more rolls, a vertically-movable platform supported opposite said rolls, means for elevating and lowering the platform, and cam-plates for moving the platform to the bite of the upper rolls, whereby the metal under treatment may be received from the lower rolls and raised to and thrust within the bite of the upper rolls, substantially as specified.

2. In a device for rolling metal, an elevator supported in front of a set of rolls, the guideways for said elevators having segmental plates K and K' secured thereto, so as to swing the platform when it is raised away from the central roll, and then move the same to the bite of the



354,110



upper rolls, so that the bars will be caught and carried from the platform, substantially as described, and for the purpose set forth.

3. In combination with a set of rolls, a platform mounted in suitable frame in front of said rolls, said platform having recessed sides, and a transverse bar attached thereto for limiting its swinging movement, plates K and K', adapted to engage with the recessed edges of the platform, and a lever for elevating the same, the parts being organized substantially as shown, and for the purpose set forth.

354,111. ELECTRIC MOTOR. Nathan H. Edgerton, Philadelphia, Pa., assignor, by mesne assignments, to the Edgerton Electric Motor Company of New Jersey. Filed Oct. 29, 1885. (No model.)



Claim.—1. In an electric motor, an elongated casing having in its bore and on one side a pole-piece without helices, and on the opposite side another pole-piece provided with a helix or helices, and the casing serving as an unbroken or unjointed connecting-yoke for the said pole-pieces, substantially as shown and described.

2. In an electric motor, a tubular casing having in its bore on one side a projection forming a pole-piece without helices and integral with the casing, and on the opposite side another pole-piece detachable from the casing and provided with a helix or helices, and the casing serving as an unbroken or unjointed connecting-yoke for the pole-pieces, substantially as shown and described.

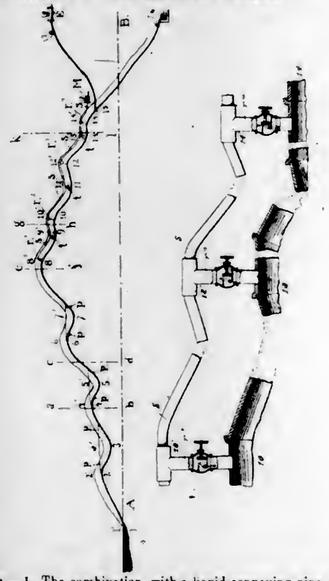
3. An electric-motor casing composed of a tubular body having outside feet or supports, oppositely-located pole-pieces in its bore, and detachable end caps or plates having bearings for the armature-shaft, substantially as shown and described.

4. A motor having a field-magnet one pole of which is without helices, an armature having spools or helices each complete in itself, an insulated ring on the armature-shaft in multiple-arc circuit with one set of the ends of the armature-coils, and a commutator for the remaining set of ends of the armature-coils, substantially as shown and described.

5. In an electric motor, the combination of an armature having an insulated ring in multiple-arc circuit with one set of ends of the armature coils or helices and a commutator having a single forked or one double-ended brush, substantially as shown and described.

6. In an electric motor, the combination of a field-magnet having two oppositely-placed pole-pieces, a series of helices on one of the pole-pieces, an armature having a forked commutator-brush, and an insulated ring in multiple-arc circuit with the armature-coils and a brush in series with the line, substantially as shown and described.

354,112. HYDRAULIC METHOD AND MACHINERY. NELSON B. ELDRED, Auburn, N. Y. Filed Feb. 12, 1885. (No model.)



Claim.—1. The combination, with a liquid-conveying pipe or main rising from the fountain-head or source of supply of the liquid to a certain height or crest, then descending to a lower level, and then again rising to a point above the first high point or crest, of an air-conveying pipe connecting the lower crest to the back slope of the pipe rising to the adjacent crest, substantially as set forth.

2. The combination, with a liquid-conveying pipe or main laid at varying heights, so that it alternately rises and descends, of air-conveying pipes connecting the crests or high points of the said liquid-conveying pipe or main with the back slopes of the adjacent crests, substantially as set forth.

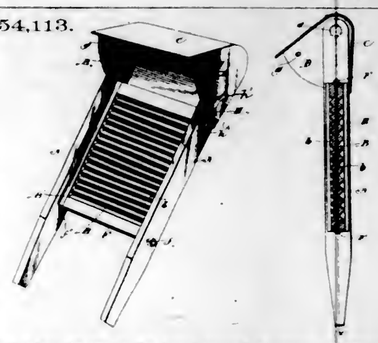
3. The combination, with a liquid-conveying pipe or main having an irregular descent from a high point, said pipe alternately descending, rising, and again descending, thus forming several crests, of a secondary or air-conveying pipe, short connecting-pipes forming connections between the said secondary pipe and the said main at the said crests, and an air-pump for exhausting the air from the crests of the said main through the said secondary and connecting pipes, substantially as set forth.

4. The combination, with a liquid-conveying pipe or main having an irregular descent from a high point, said pipe alternately descending, rising, and again descending, thus forming several crests, of a secondary or air-conveying pipe, short connecting-pipes between the said secondary pipe and the said main at the said crests, said connecting-pipes being provided with regulating-valves, and an air-pump for exhausting the air from the crests of the said main through the said secondary and connecting pipes, substantially as set forth.

5. The combination, with a liquid-conveying pipe or main having an irregular descent from a high point, said pipe or main alternately descending, rising, and again descending, thus forming several crests, of a secondary or air-conveying pipe provided with drip-pots, short connecting-pipes between the said pipe or main and the said secondary pipe at the said crests, and an air-pump for exhausting the air from the crests of the said main through the said secondary and connecting pipes, substantially as set forth.

354,113. WASH-BOARD. EDWARD ELLINGEN, Mineral Point, Wis. Filed June 4, 1886. (No model.)

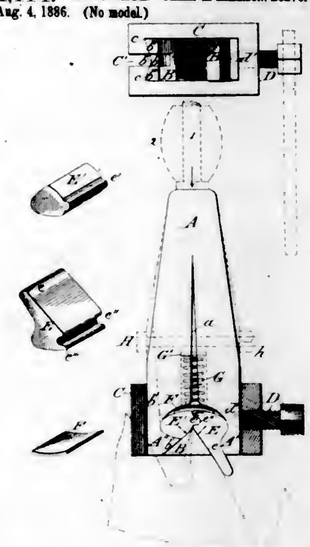
Claim.—1. The combination, with a wash-board, of a swinging cap bent longitudinally to dispose its ends at an angle to each other, and having the side walls or pieces pivoted to the sides of the wash-board, and the swinging locking-arms carried by the wash-board, and having the nibs adapted to enter aligned openings of the cap and the wash-



board to lock the cap to the board against movement, substantially as described.

2. The combination of the side rails, the non-corrosive corrugated rubbing-surface fitted between the side rails and having the grooved ends, the tension-rods secured in the side rails and fitting in the grooves of the rubbing-surface, a swinging cap having its ends arranged at an angle to each other and provided with the depending side walls pivoted centrally to the side rails, and the swinging locking-arms pivoted on and carried by the side rails, and having the nibs adapted to enter aligned openings of the side walls of cap and the side rails to lock the cap to the said rails, substantially as described, for the purpose set forth.

354,114. SAW-SWAGE. JAMES E. EMERSON, Beaver Falls, Pa. Filed Aug. 4, 1886. (No model.)



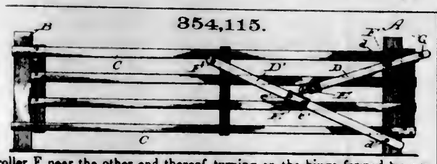
Claim.—1. In a swage for swaging saw-teeth, the stock A, having movable jaws A' and A'', and a clamping device to compress the jaws, in combination with the swaging-dies E and E', interlocked by the rib e' and concavity e'', and a spring or springs underneath the jaws, all constructed to operate substantially as described.

2. In a saw-tooth swage, the combination of the slotted clamp-collar C and its temper-screw D with the stock A, having movable jaws A' and A'', the interlocked swaging-jaws E and E', and spring or springs F or G, substantially as described.

3. As a new device in a saw-tooth swage constructed as above described, the interlocked and movable swaging-dies E and E', as shown and set forth.

354,115. GATE. WILLIAM P. ENGEL and FLOYD HOPKINS, Belvidere, Ill. Filed Aug. 27, 1886. (No model.)

Claim.—1. The combination of hanger D', having flanged roller F' on one end thereof, eye and pintle d' at the other end thereof, and casting E' between the same and capable of lateral motion on said hanger D', with hanger D, having casting E at one end thereof and flanged



roller F near the other end thereof, turning on the hinge formed by eye and pintle d, all substantially as described, and for the purpose specified.

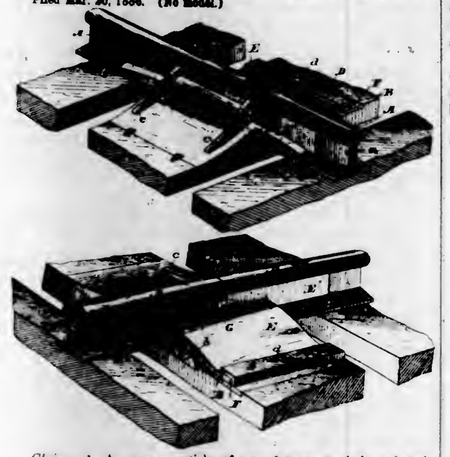
2. The combination, with post A, having two pintle-bolts arranged as specified, of a hanger consisting of bars D D', with an eyebolt near one end of each of said bars, a flanged roller on the upper eyebolt, a flanged roller near one end of bar D', and said bars D D' adjustably connected by casting E', movable on bar D', and casting E on bar D, all arranged as specified, so that the gate shall be supported by said flange-rollers and moved upon the same, all substantially as specified.

354,116. RAILROAD-SPIKE. JOHN M. FENNERTY, Washington, D. C. Filed Aug. 3, 1886. (No model.)



Claim.—A railroad-spike having the inner edge of its shank or body portion rounded or smoothed off and provided near its lower end with the inclines a b, and head B, formed with the projection or shoulder C, and curved arm D, terminating in the spur E, and said spur having its rear or outer side cut away at a greater angle than its front edge to form a shoulder or knee adapted to resist lateral movement of the spike, substantially as described.

354,117. RAILWAY-CHAIR. JOHN M. FENNERTY, Washington, D. C. Filed Mar. 20, 1886. (No model.)



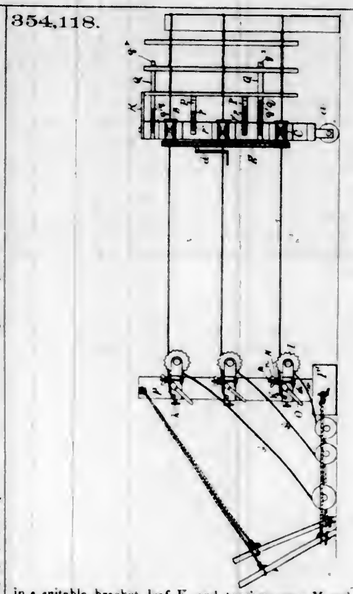
Claim.—1. As a new article of manufacture, a chair and web-plates for a railway-rail joint, the same consisting of a fixed part embodying a base, an abutment terminating in a web-plate and a keeper, and a removable part embodying an abutment terminating in a web-plate, said web-plates being extended beyond the base, substantially as described.

2. In a railway-rail joint, the combination, substantially as described, of the rail ends, the chair provided upon one end with a fixed web-plate and at the other with a keeper, the removable block or abutment carrying a web-plate, said web-plates being extended beyond the base, and the key.

3. In a railway-rail joint, the combination, substantially as described, of the rail ends, the chair provided upon one end with a fixed web-plate and at the other with a keeper, the removable block or abutment carrying a web-plate and the key, and the nut-lock H.

354,118. WIRE-FENCE MACHINE. BENJAMIN L. FLETCHER and SAMUEL C. TATUM, Jr., Cincinnati, Ohio. Filed May 10, 1886. (No model.)

Claim.—1. As a tension device for a wire-fence machine, the combination of the pulley G, provided with toothed wheel I, and supported

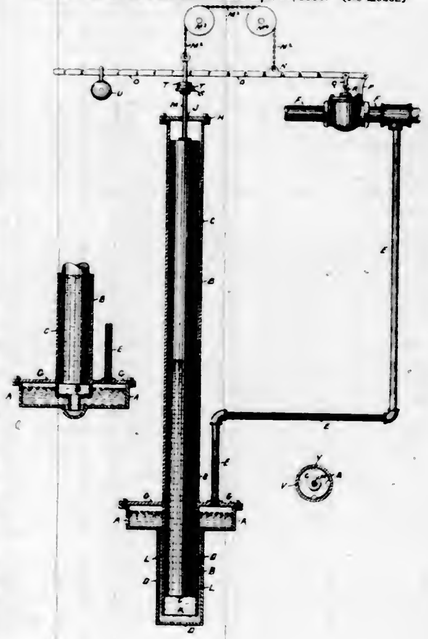


in a suitable bracket, leaf K, and tension-screw M and nut n, substantially as specified.

2. As a tension device for a wire-fence machine, the combination of the pulley G, provided with toothed wheel I, and supported in a suitable bracket, leaf K, tension-screw M and nut n, and elastic washer N, substantially as and for the purposes set forth.

3. As a tension device for a wire-fence machine, the combination of the pulley G, provided with toothed wheel I, and supported in a suitable bracket, leaf K, tension-screw M and nut n, elastic washer N, and lever O, substantially as and for the purposes specified.

354,119. PRESSURE AND VACUUM MERCURIAL REGULATOR. PATRICK J. FLINN, Boston, Mass. Filed Apr. 17, 1886. (No model.)



Claim.—1. In a mercurial pressure-regulator, in combination, a mercury-reservoir, A, a float-chamber, B, entering and crossing the depth of the mercury-reservoir, and closed laterally but open vertically to the mercury in said reservoir, and a float located in said float-chamber, the float and mercury-reservoir being separately connected, substantially as described, for the purpose specified.

2. In a mercurial pressure-regulator, in combination, a mercury-reservoir, A, connected with the pressure to be regulated, a float-chamber, B, in communication with mercury-reservoir A, a float, C, located in float-chamber B, and connected and separately weighted, substantially as described, for the purpose specified.

354,120. MERCURIAL REGULATOR FOR DAMPERS, &c. RICHARD J. FLINN, Boston, Mass., assignor, by direct and mesne assignments, to the Flinn Mercurial Regulator Company, Portland, Me. Filed Apr. 17, 1886. (No model.)



Claim.—1. In combination, a mercury-reservoir, B, a float-chamber, H, containing a float, K, a stand-pipe connecting said reservoir and float-chamber, a stop or abutment, H^2, to the rise of the float, and an upward-extending chamber, H^3, above said stop, in communication at all times with the mercury of the float-chamber, and said reservoir and float each separately connected, substantially as described, for the purpose specified.

2. A mercury-reservoir, B, and a float-chamber, H, and a float, K, relatively constructed for a guide of the float in its rise and fall in the chamber, and for a flow of the mercury around it, in combination with the upward-extending chamber H^3, open to the float-chamber, and said reservoir and float each separately connected, substantially as described, for the purpose specified.

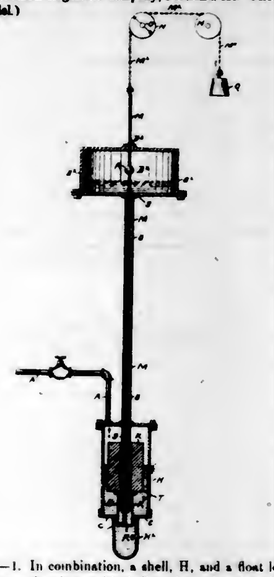
3. A mercury-reservoir, B, and a float-chamber, H, and a float, K relatively constructed for an open space between the bottom of the float and the floor of the chamber for the flow of mercury under the float should the float be seated on said floor, and said reservoir and float each separately connected, substantially as described, for the purpose specified.

4. A mercury-reservoir, B, and a float-chamber, H, containing a float, K, and connected to and telescoping through a stuffing-box, F, of said reservoir, and the reservoir and float separately connected, substantially as described, for the purpose specified.

5. A mercury-reservoir, B, and a float-chamber, H, containing a float, K, and connected to and telescoping through a stuffing-box, F, and entering into a well, B^2, of said reservoir, and the reservoir and float separately connected, substantially as described, for the purpose specified.

6. A mercury-reservoir, B, a float-chamber, H, containing a float, K, a stand-pipe connecting said reservoir and float-chamber, and a pet-cock, A^2, and valve Z, located in the pipe-connection of the mercury-reservoir, with the boiler and the float separately connected, substantially as described, for the purpose specified.

354,121. MERCURIAL REGULATOR FOR DAMPERS, &c. RICHARD J. FLINN, Boston, Mass., assignor, by direct and mesne assignments, to the Flinn Mercurial Regulator Company, Portland, Me. Filed Apr. 17, 1886. (No model.)



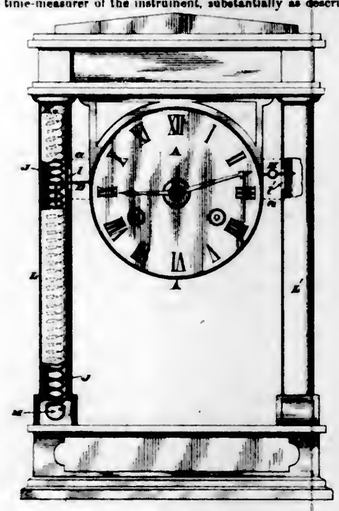
Claim.—1. In combination, a shell, H, and a float located therein, a stand-pipe entering into said shell and passing loosely through the float, and the shell and float separately connected, substantially as described, for the purpose specified.

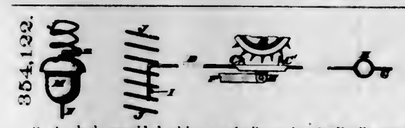
2. In combination, a shell, H, and a float located therein, a stand-pipe entering into said shell and passing through the float and having an enlargement, D^2, at its upper end, and the shell and float separately connected, substantially as described, for the purpose specified.

3. In combination, a shell, H, and a float located therein, a stand-pipe entering into said shell and passing loosely through the float, and a valve and seat therefor, opened and closed by the vertical movement of the float, and which float and the shell are separately connected, substantially as described, for the purposes specified.

354,122. CLOCK. BENJAMIN F. FLINT, Cincinnati, Ohio, assignor of one-half to Algernon D. Smith, same place. Filed Nov. 17, 1885. (Model.)

Claim.—1. A clock provided with a longitudinally-extensible spring having a rod communicating therewith, the vibrations of the latter being produced by the escapement-wheel, in order that said spring may serve as the time-measurer of the instrument, substantially as described.



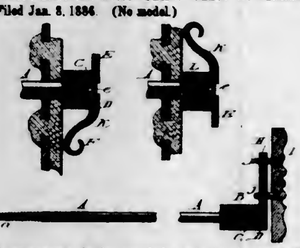


2. A clock provided with a vertically or longitudinally extensible spring that is connected with the escapement by a verge-rod carrying an adjustable poise, for the purpose herein described.

3. The combination, in a clock, of the escapement B, verge-rod C C' D E G, adjustable poise H, and vertically or longitudinally acting coiled spring J, the latter being provided with a bob, M, for the purpose described.

4. The combination, in a clock, of the escapement B, verge-rod C C' D E G, adjustable poise H, vertically or longitudinally acting coiled spring J, and bob M, the latter being provided with a screw-threaded rod, N n, for the purpose described.

354,123. ORNAMENTAL NAIL-HEAD. JAMES W. FLYNN, New York, N. Y. Filed Jan. 8, 1886. (No model.)

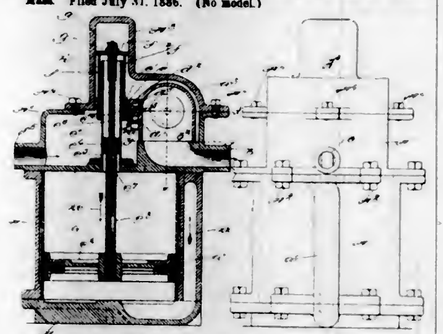


Claim.—1. A suspensory device consisting of a head-threaded bolt and screw-threaded penetrating end, a terminal slot for driving the same, a cap covering the driving end screwed thereon and provided with an exterior slot for the reception of suspensory devices, substantially as described.

2. A cap-brace consisting of a detachable cap covering the driving end of a metallic bolt and upwardly and inwardly prolonged for a brace, substantially as described.

3. A cornice-holder consisting of an entering bolt and a detachable cap thereon upwardly prolonged to form a pintle for the reception of staple-eyes, and all substantially as described.

354,124. PISTON WATER-METER. GEORGE S. FOLLANSBEE, Boston, Mass. Filed July 31, 1886. (No model.)



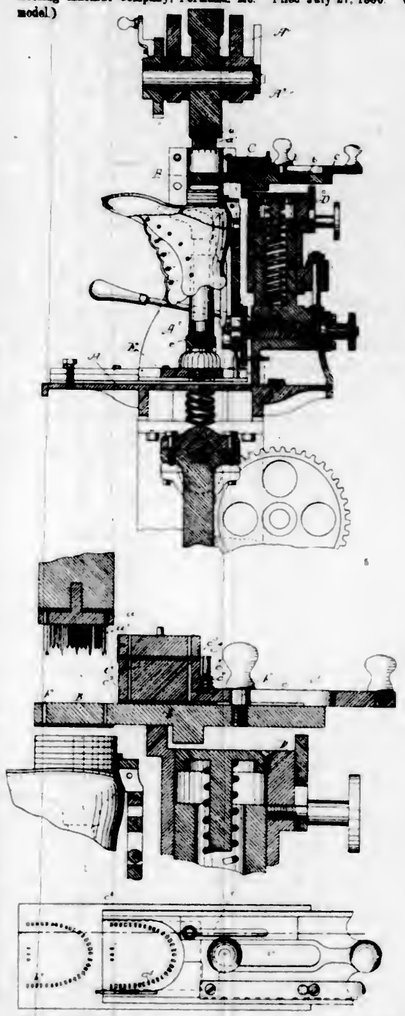
Claim.—1. In a fluid-meter, the measuring-cylinder a, a valve-chest containing a valve to control the admission of fluid to the measuring-cylinder, an auxiliary valve to control the admission of fluid to said valve-chest, the piston c^2 in the measuring-cylinder, having the hollow piston-rod c^3, and the rod c^4, extended within the said hollow piston-rod, and upon or over which the latter slides on the movement of the piston c^2, combined with means, substantially as described, to connect the rod c^4 with the said auxiliary valve, as and for the purpose specified.

2. In a fluid-meter, a measuring-cylinder, a valve-chest communicating with said measuring-cylinder, and having passages a^1 a^2 a^3 and ports 2 3 4 5, a piston-valve to co-operate with said ports, an auxiliary valve to control the admission of fluid to said valve-chest, a piston in the measuring-cylinder, having a hollow piston-rod, and a second rod extended within the said hollow piston-rod, and upon or over which the latter slides on the movement of the piston c^2, combined with means, substantially as described, to connect the said second rod with the said auxiliary valve, as and for the purpose set forth.

3. In a fluid-meter, a measuring-cylinder, a valve-chest communicating with said measuring-cylinder, and having passages a^1 a^2 a^3 and ports 2 3 4 5, auxiliary cylinders c c', an auxiliary valve to control the admission of fluid to the said auxiliary cylinder, a piston in the measuring-cylinder, having a hollow piston-rod, and a second rod extended within the said hollow piston-rod, and upon or over which the latter slides on the movement of the piston c^2, combined with means, substantially as described, to connect the second rod with the said auxiliary valve, as and for the purpose set forth.

4. In a fluid-meter, a measuring-cylinder, a valve-chest, piston-valves located therein, auxiliary cylinders c c', in which the piston-valves are reciprocated, an auxiliary valve to control the admission of fluid to the said auxiliary cylinders, a piston in the measuring-cylinder, having a hollow piston-rod, and a second rod extended within the said hollow piston-rod, and upon or over which the latter slides on the movement of the piston c^2, combined with means, substantially as described, to connect the second rod with the said auxiliary valve, as and for the purpose set forth.

354,125. HEEL-NAILING MACHINE AND METHOD OF ATTACHING HEELS. JAMES B. GARDNER, Boston, Mass., assignor to the National Heeling Machine Company, Portland, Me. Filed July 27, 1886. (No model.)



Claim.—1. The combination of the templet C, having the holes c^2, the templet-plate c, having the recess c' in the templet and templet-plate, the imperforate sliding plate c^3, and stud c^4, substantially as described.

2. The combination of the templet C, having the holes c^3, the templet-plate c, having the recess c' in the templet and templet-plate, the imperforate sliding plate c^2, stud c^4, and a friction-spring, c^5, substantially as and for the purposes described.

3. The combination of the nail-carrier plate c, the nail-carrier C, the holes c^3 therein, the long recess c', the imperforate sliding plate c^2, arranged to slide in said recess c', and the templet-plate stud b', arranged so that the sliding plate c^2 is held by the said templet-plate stud while the nail-carrier plate is moved backward, substantially as described.

4. The combination of a jack, a last or work-support mounted thereon, a templet having top-lift-grasping devices, comprising the pins $f f'$ and the yielding or spring arms $f^2 f^3$, substantially as shaped, the nail-carrier, a reciprocating gang or group of awls, a reciprocating gang or group of drivers, and a reciprocating spanker or leveler, substantially as described.

5. The combination, in a heel-nailing machine, of an awl-holding block with a gang or group of awls each of which has the square head g, the round or cylindrical section g', the shank g^3, flattened on two surfaces, and the point g^4, substantially as described.

6. In a heel-nailing machine, an awl having a square head, g, a round or cylindrical section, g', adjacent thereto, a shank, g^3, having two flat parallel surfaces, and a point, g^4, substantially as described.

7. The combination, in a heel-nailing machine, of a driver-holder block, a^2, and a gang or group of drivers, a^3, each of which has the square head g^5, the round or curved section g^6, and the shank g^7, made flat upon two sides, and having a diameter greater in one direction than in any other, substantially as described.

8. In a heel-nailing machine, a driver having a square head, g^5, a round or cylindrical section, g^6, and a shank, g^7, made flat upon two surfaces, and having a diameter longer in one direction than in any other, substantially as described.

9. The combination, in a heel-nailing machine, of a nail-carrier, C, having the flat guiding-surface, with a removable nail-loader, M, having the gage-surface m', the slotted bracket m^2, the slide-plate m^3, and stud m^4, substantially as described.

10. The method of attaching heels to the soles of boots and shoes, consisting in forming in the heels at the edge a series of holes having their greatest diameters substantially at right angle to the line of the edge of the top lift of the heel, and, second, in simultaneously driving into said holes a gang or group of nails, arranged before driving so that their greatest diameters shall be at a right angle to the line of the top lift, and held in this position while they are being driven, substantially as and for the purposes described.

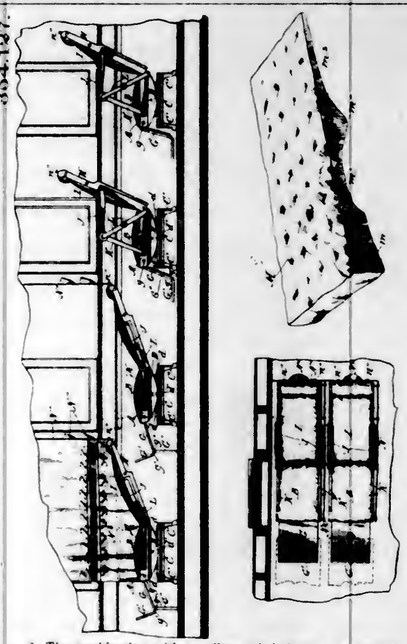
11. The method of attaching heels to the soles of boots and shoes, consisting in forming in the heel a line of holes of varying lengths, close to the edge of the top lift, and having their greatest diameters at right angle to the line thereof, the deeper of which are adapted to receive attaching-nails and the other slugs or shorter nails, and in simultaneously driving into said holes a gang or group of nails and slugs of different lengths, and arranged before driving so that their greatest diameters shall be at right angle to the line of the edge of the top lift and held in this position while they are thus driven, substantially as described.

354,126. COMPOSITION OF MATTER FOR THE MANUFACTURE OF AXLE-BEARINGS. GEORGE F. GODLEY, Philadelphia, Pa. Filed Mar. 30, 1886. (No specimens.)

Claim.—A composition of matter consisting of graphite or plumbago, asbestus, and sulphate of alumina, substantially as and for the purpose set forth.

354,127. CAR-SEAT. EDWARD B. GOELET, Fort Worth, Tex. Filed Mar. 9, 1886. (No model.)

354,127.



Claim.—1. The combination, with the seat of a chair, of the rockers D, strips E, rock-shaft F, having arms f', links e', and locking-pins e, substantially as and for the purpose specified.

2. The combination, with the seat-frame A, having recessed side pieces a'' and a back piece, a', provided with a rounded rear edge, of a back, H, having recessed side pieces h h, between which the back piece of the seat is received, and a folding arm-support adapted to rest in the recessed portions of the back and seat side pieces, substantially as specified.

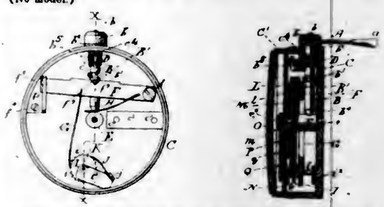
3. The combination, with the seat and back of a reclining-chair, of an arm-support, J, a brace, K, and a locking-brace, L, formed in two parts pivotally connected at their inner ends, the outer end of one of said parts being pivoted to the arm-support J and brace K at their junction, and the outer end of the other part being pivoted to the side piece of the seat at or near its rear end, substantially as specified.

4. The combination, with the seat and back of a chair, of the arm-support J, brace K, two-part locking-brace L, and continuous locking-brace L', the brace L being engaged with the brace K, arm-support, and seat-frame, and the brace L' engaged with the brace K, seat-frame, and chair-back, substantially as specified.

5. The combination, with the seat-frame A and the chair-back H, having side pieces h h, provided with notches l^3, of the arm-support J, the brace K, and the locking-braces L L', substantially as specified.

6. The combination, with a reclining-chair having an extension, G, of a mattress, M, having a thickened portion, m, to rest on said extension, a cut-away portion, m', to fit over the cushion of the seat, a corner or projection, m'', to enter the depression between the seat and back, and a thin portion, m^3, to lie over the chair-back, substantially as specified.

354,128. CYCLOMETER. GEORGE H. GOULD, Somerville, assignor to the Pope Manufacturing Company, Boston, Mass. Filed June 26, 1885. (No model.)



Claim.—1. In a cyclometer, a dial-plate constructed with a cylindrical depression or cavity and a movable piece, Q, therein, with a graduated scale on the dial-plate around the cavity, and a pointer on the cam-piece, and means of connection with the working mechanism, constructed and combined essentially as set forth.

2. Combined with a pinion, as K, and its actuating mechanism in a cyclometer or distance-register, two toothed wheels revolving about the same axial line in the same direction, one carrying a dial-plate and the other a pointer with a differential motion, a scale concentric with said toothed wheels, and another scale eccentric to them, a secondary pointer for the eccentric scale, and devices for connecting and operating this secondary pointer with the mechanism for operating the first, essentially as set forth.

3. Combined in a cyclometer, a lever-arm, A, a rock-shaft, B, a spring, D, tending to restore it when rocked, a presser-arm, B', a lever, F, an incline, f^3, a spring, H, and pawls G J, all constructed to actuate a train and pointer, essentially as set forth.

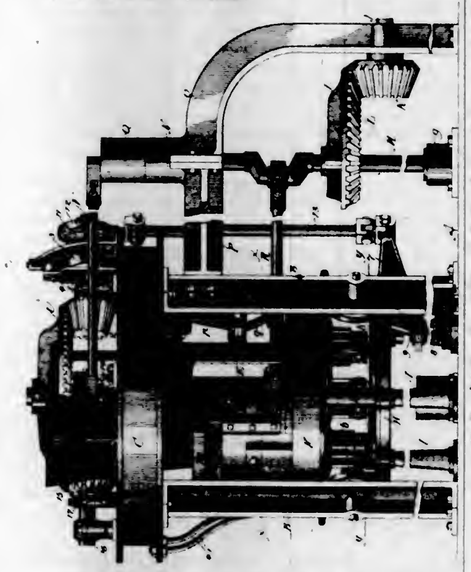
4. Combined with a rock-shaft and case of a cyclometer, essentially as set forth, a spiral spring, D, free on the rock-shaft, having its free ends set out from the rock-shaft, and both engaging a projection from the case and a projection from the rock-shaft, so as to restore the rock-shaft to one position when deflected either way.

5. The combination, in a cyclometer or distance-register, of a vibrative lever-arm outside of the case for actuating the mechanism within the case, connecting mechanism consisting in a rock-shaft and spring a presser-arm, a hinged lever and spring, and a pawl and spring for communicating the reciprocating motion of the vibrative lever-arm to the first wheel of a train, and a registering-train consisting in a ratchet or first toothed wheel, a pinion and two other toothed wheels having nearly equal numbers of teeth and revolving in the same direction about the same axial line, one carrying a pointer and the other a dial-plate having a graduated scale, essentially as set forth.

6. An interchangeable dial-plate, as N, constructed for attachment to the dial-wheel of a train consisting of a dial-wheel, a pointer-wheel, a pinion, and a ratchet-wheel, and to operate in combination with said train and a pointer, and with positive actuating mechanism connected with a traveling wheel and its frame, and intermediate positive connecting mechanism, and with a circular scale, as R, marked upon its face into mile-points, equal in number to the nearest whole number found by dividing the number of revolutions of the assumed traveling wheel in a mile traveled into a constant obtained by multiplying together the number of teeth in the dial-wheel, pointer-wheel, and ratchet, and dividing this product by the difference in numbers of teeth of the dial and pointer wheels multiplied by the number of leaves in the pinion, essentially as set forth.

7. The combination, in a cyclometer or distance-register, with a suitable case and means of attachment to a traveling wheel, and with positive actuating mechanism, of a train consisting of a ratchet or first wheel, a pinion, a dial-wheel, and a pointer-wheel, and a dial-plate, a pointer, and a circular scale on said dial-plate marked into equal divisions or mile-points, to a number equal to the nearest whole number found by dividing the number of revolutions of said traveling wheel in a mile traveled into the quotient obtained by dividing the product of the number of teeth in the pinion multiplied by the difference in numbers of teeth in the dial and pointer wheels into the product of the numbers of teeth in the ratchet and dial and pointer wheels multiplied together, essentially as set forth.

354,129. BRICK-MACHINE. WILLIAM L. GREGG, Philadelphia, Pa. Filed June 22, 1886. (No model.)



Claim.—1. In a brick-machine, the combination of a rotating mold-table provided with mold-boxes, one or more toggle-joints located above the table and one or more toggle-joints located below the table, to give pressure to the brick upon two opposite sides, a center shaft, D, a bevel gear-wheel, U, engaging with one or more bevel-pinions, each upon a short shaft rotating in bearings supported by the cap C, eccentrics on each of said shafts, and connecting-rods for operating the toggle-joints, substantially as and for the purposes specified.

2. In a brick-machine, a revolving mold-table provided with mold-boxes and with ratchet-teeth k upon the interior, in combination with a shaft, D, arm i, pivoted on the shaft D, pawl j on the arm i, and pitman-rod R, whereby the mold-table will be intermittently rotated, substantially as and for the purposes specified.

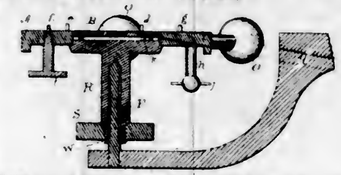
3. In a brick-machine, a base-plate, posts B, and cap C, in combination with a center shaft, D, bevel-wheel U, provided with ratchet-teeth u upon the interior, arm s, pivoted upon the shaft D, pawl v, pivoted to the arm s, and pitman V, whereby an intermittent rotary motion can be given to the bevel-wheel U, substantially as and for the purposes specified.

4. In a brick-machine, a revolving mold-table provided with mold-boxes, a cap, C, supported upon the posts B, a shaft, 16, supported in bearings upon the cap C, an eccentric on said shaft 16, center shaft, D, bevel-wheel U, provided with ratchets u, arm s, pawl v, pitman V, sweep 24, and connections between the sweep and eccentric, substantially as and for the purposes specified.

5. In a brick-machine, the combination of a crank-shaft, M, two pitman-rods, R V, mold-table F, shaft D, arm i, pawl j, wheel U, arm s, and pawl v, substantially as specified.

6. In a brick-machine, a movable hopper, in combination with an agitator consisting of a lever, 30, connected at its lower end with the hopper and operated by means of pins upon a pinion, and a spring, 33, substantially as specified.

354,130. MICROSCOPIST'S TURN-TABLE. EZRA H. GRIFFITH, Fairport, N. Y. Filed Apr. 8, 1886. (No model.)



Claim.—1. A centering turn-table provided with a decentering disk and pin, substantially as described.

2. In a turn-table, the combination, with the revolving table A, poised centrally upon a spindle and having a rigid bearing, e, upon its surface, of the removable bearing f, and the rigid bearings d d, fixed upon a revolving disk centrally affixed to said table, substantially as described.

3. In a centering turn-table, the combination, with the table A, of the removable bearing f and the decentering-disk C, substantially as described.

4. The turn-table A, with fixed bearing e, and removable bearing f, having a central rotating disk, B, provided with fixed bearings d d, and actuated by a spring to hold the slide in use against the bearing e, substantially as described.

5. In a turn-table, the decentering-disk C, eccentrically pivoted to the table A and adapted to bear against the slide m when in use, substantially as described.

6. In a turn-table, the decentering-disk C, set flush with the surface of the table and bearing on its upper surface an eccentric-pin, g, to bear against and decenter the slide, substantially as shown and described.

7. The combination of the table A with the decentering-disk C, pin g, and handle h, for operating the disk C, substantially as shown and described.

8. The combination of the table A, disk B, pins d, e, and f, and lugs O, substantially as described.

9. In a turn-table, the combination, with the table A, having on its surface bearings for clasping and holding a slip, of the lugs O, projecting above the surface of the table, and the hollow stem R, provided with a screw-thread for the attachment thereto of accessory apparatus, substantially as described.

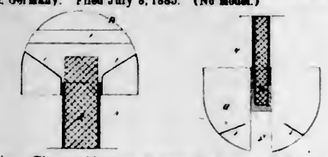
354,131. ELECTRICAL THERMOSTAT. RICHARD L. GUION, Elmira, N. Y. Filed Mar. 11, 1886. (No model.)



Claim.—1. The combination of the base A, the post B, pivoted on said base, the electric conducting thermostatic bar firmly attached to and extending from said post and adapted to deflect laterally under the influence of the changes of temperature, electric contact-points at opposite sides of the free end of the thermostatic bar, an arm rigidly attached to the post B, a clamp, c, for restraining the movement of said arm, and an electric circuit connected with the post and contact-points, substantially as set forth.

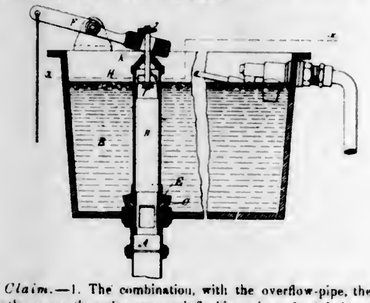
2. The combination of the base A, the post B, pivoted on said base, the electric conducting thermostatic bar C, firmly attached to and extending from said post and adapted to deflect laterally under the influence of the changes of temperature, the posts D D, provided with electric contact-points a a at opposite sides of the bar C, the arm b, rigidly attached to the post B, the indicator I, clamped adjustably in its position and connected with the free end of the arm b, and an electric circuit connected with the posts B D D, substantially as set forth and shown.

354,132. PETROLEUM-GAS BURNER. ADALBERT HAENNER, Munich, Germany. Filed July 8, 1885. (No model.)



Claim.—The combination of dome D, having slit S and wick-tube h, with the surfaces l, inclining downward from the dome toward the wick-tube, and with the cross-pieces l, placed above and at right angles to surfaces l, and converging from top to bottom, substantially as specified.

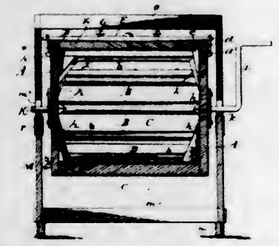
354,133. OVERFLOW-PIPE FOR WATER-CLOSETS. EDWARD HAMMANN, Brooklyn, assignor to the J. L. Mott Iron Works, New York, N. Y. Filed Oct. 27, 1886. (No model.)



Claim.—1. The combination, with the overflow-pipe, the valve upon the same, the valve-seat, and flushing-pipe, of a tubular valve at the upper part of the overflow-pipe, a stem to the same, and the operating-lever with which the stem is connected, whereby the tubular valve closes the openings at the top of the overflow-pipe before lifting the flushing-valve, substantially as set forth.

2. The combination, in a water-closet cistern, of a flushing-pipe and valve, a lever for operating the same, an overflow-pipe, a valve for closing the upper end of the overflow-pipe, and a connection from the said valve to the operating-lever, substantially as set forth.

354,134. WASHING-MACHINE. HENRY M. HARDGROVE, Fond du Lac, Wis. Filed Apr. 29, 1886. (No model.)



Claim.—1. In a washing-machine, the combination, with a cylindrical rotary tub provided with a series of longitudinal hollow-faced ribs or bars and a series of radial bars at each end, of a pair of wings located one on each end and extending in opposite directions from the axis of the cylinder, adapted to engage the clothes as the cylindrical tub revolves and roll them over, substantially as set forth.

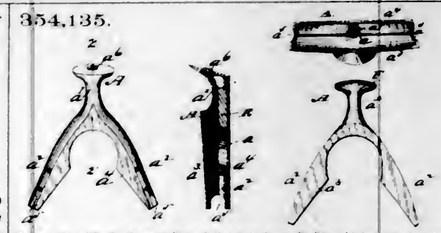
2. In a washing-machine, the combination, with the frame adapted to support the rotary tub or cylinder, of the wringer-supporting frame adapted to slide into slots formed by bands around the standards of the main frame and prevent said standards from spreading, substantially as set forth.

3. The washing-machine consisting, essentially, of the main supporting-frame, the wringer-frame, forming a part of the main frame and removably secured thereto, the rest for the tub-journal secured to the side of one of the main standards, the rotary tub or cylinder with its interior arrangements, substantially as described, and the door and door-fastenings, substantially as set forth.

354,135. RIDING-SADDLE TREE. JAMES M. HAYS, Jefferson City, Mo., assignor to the J. S. Sullivan Saddle Tree Company, same place. Filed Aug. 30, 1886. (No model.)

Claim.—1. The combination of the saddle-tree fork having the

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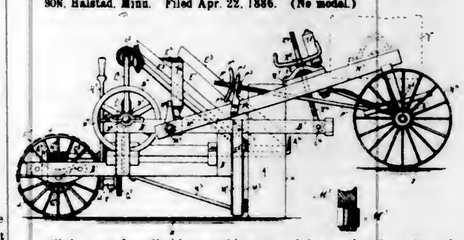


flange a^3 with the breast B and the side bars, D D, said breast abutting against said flange, substantially as described.

2. The combination of the fork A and the side bars, D D, said fork being notched at each side to provide for attaching the strap, substantially as described.

3. The saddle-tree fork A, having the flange a^4 and the rib a, and the wooden block E, inserted between said flange and block, substantially as described.

354,136. DITCHING AND GRADING MACHINE. HENRY HENDERSON, Halstad, Minn. Filed Apr. 22, 1886. (No model.)



Claim.—1. In a ditching-machine, a revolving cutting-drum formed of a rim having a cutting forward edge and provided with radiating blades and internal carriers, substantially as and for the purpose set forth.

2. A frame, B', supporting a revolving cutting-drum, A', endless conveyer-belt E', and means, substantially as described, for moving said frame and cutting-drum forward or backward by the same mechanism that revolves said cutting-drum.

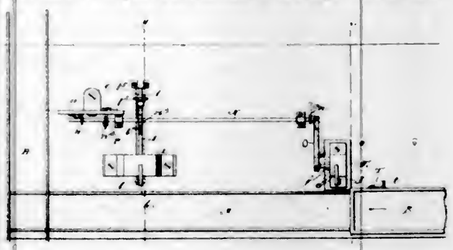
3. In a ditching or excavating machine, a cutting-drum, A', mounted on a frame, B', and adapted to be revolved, frame N', adjustably connected to frame B' by swivel-bar N^2, and having axle N^3 and bearing-wheels N^2 N^4, adjusting-screws R^2 R^4, whereby the relative positions of the frames N' and B' may be changed, and spirit leveling-bulbs, substantially as and for the purpose described.

4. In a ditching or excavating machine, the cutting-wheel consisting of the drum A', having carriers b', and connected to central shaft, A^2, by radiating cutting-blades A^3, and having central forwardly-projecting knife, A^4, frame B', supporting said shaft and drum, and means for revolving said shaft and drum and forcing said frame forward at the same time, substantially as set forth.

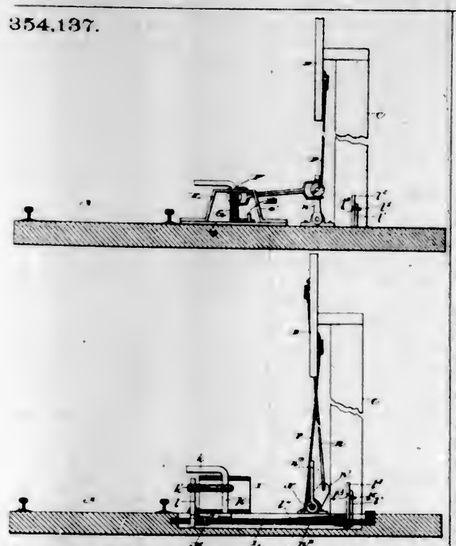
5. In a ditching or excavating machine, the combination of a cutting-wheel consisting of drum A', having carriers b', and connected to central shaft, A^2, by radiating cutters A^3, frame B', carrying said shaft and drum and provided with shield E^4, elevator E', constantly revolving shaft D^2 upon said frame, and connected to and adapted to operate said elevator E' and shaft A^2, wheel F' on shaft F^2, supporting the rear of said frame B', gears G' G^2 G^3 G^7 G^5, and shaft G^3, connecting said shafts F^2 and G^3, and lever H', whereby the motion of said wheel F' may be reversed, substantially as and for the purpose set forth.

354,137. AUTOMATIC RAILWAY-SIGNAL. NATHAN B. HOLDSWORTH, Spencerville, Ohio. Filed Aug 6, 1886. (No model.)

Claim.—1. The combination, with a pivoted signal-board, of the rock-shaft N, having the arms connected with the signal-board to move



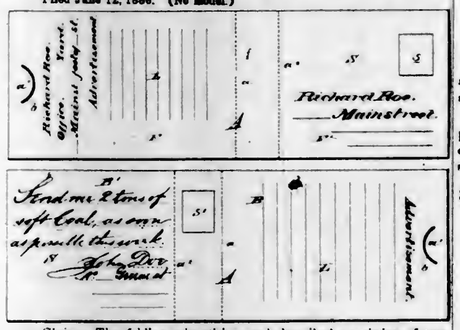
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the latter, the arm n^3, projecting from the shaft N, the catch to engage with the said arm to lock the shaft N when the danger-signal is set, and the spring-actuated rock-shaft F, having the tappet-arm f projecting normally toward the track and adapted to be engaged by a passing train, the said rock-shaft being connected to the shaft N, for the purpose set forth, substantially as described.

2. The combination, in a railway-signal, of the signal-board D, the rock-shaft N, having the arms connected with the signal-board and provided with the detent-arm n^3, the rock-shaft F, having the tappet-arm f projecting normally toward the track and adapted to be engaged by a passing train, the said rock-shaft being connected to the shaft N, so as to impart motion to the latter, the shaft L, having the spring actuated catch l^3, adapted to engage the detent-arm n^3, the shaft K, having the tappet-arm k' and connected to the shaft L, so as to partly rotate the latter when the shaft K is moved, and thereby release the catch from the detent-arm, and the spring to return the mechanism to its normal position, substantially as described.

354,138. ADVERTISING-CARD. WILLIAM HOMAN, New York, N. Y. Filed June 12, 1886. (No model.)

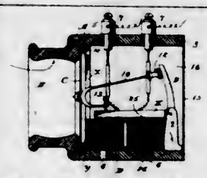


Claim.—The folding advertising-card described, consisting of two sections folded on each other, and having its part S divided by a tearing-line, a^2, independent of the folding-line a between the two sections of the card, and having a tongue, a', upon the section L, arranged to engage the free edge of the part S upon either side, the whole adapted to serve as and for the purpose specified.

354,139. ELECTRO-PHONETIC TELEGRAPH-SOUNDER. HENRY A. HOUSE and HENRY A. HOUSE, Jr., Bridgeport, Conn. Filed Aug. 16, 1886. (No model.)

Claim.—1. An electro-phonetic telegraph-sounder provided with a frame consisting of a ring having a bearing for the sounding-head and two projecting arms supporting the magnet and adjuncts, substantially as described.

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2. The combination, with the frame consisting of a ring and projecting arms, of a cover consisting of a flexible sheet bent to form a back piece and sides inclosing the arms, substantially as described.

3. The combination of the ring and arms, and cover consisting of a sheet bent to form sides and back piece and provided with lips adapted to engage with bearings upon the frame, substantially as described.

4. The combination of the frame having a threaded ring, seat y and arms, and a sound-reflector screwing into the frame-ring and intermediate sounding-head, substantially as described.

5. The combination, with the sounding-head and centrally-projecting bar, of the electro-magnet, armature, and limiters carried by the bar, to directly limit the movements of the armature, substantially as described.

6. The combination of the sounding-head, bar extending therefrom, electro-magnet, pivoted armature extended to form a horn, and limiters carried by the bar to define the movement of the armature, substantially as described.

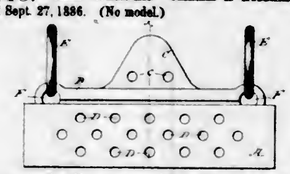
7. The combination of the sounding-head, bar extending therefrom, electro-magnet, pivoted armature extended to form a horn, and limiters carried by the bar to define the movement of the armature, and spring normally holding the armature in an elevated position, substantially as described.

8. The combination of the sounding-head and electro-magnet and armature, and a bar extending from the head, with adjustable bearings directly limiting the movements of the armature, substantially as described.

9. The combination of the frame having a ring and parallel arms, sounding-head provided with a projecting bar carrying limiters, electro-magnet carried by one of the arms, and armature arranged to make contact with the limiters, substantially as described.

10. The combination of the sounding-head, magnet, armature, bar provided with two arms carried by the head, and limiters carried by the bars to make contact with the armature, substantially as described.

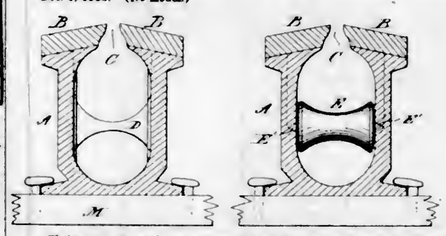
354,140. CALF-WEANER. CHARLES E. HUBBARD, Topeka, Kans. Filed Sept. 27, 1886. (No model.)



Claim.—1. A calf-weaner consisting of a single plate having a rectangular part, A, a cross-rib, and a smaller perforated part on the opposite side of said rib, substantially as described.

2. A calf-weaner consisting of a single plate having a rectangular part, A, provided with suitable perforations, a cross rib having suitable end eyes engaged by rings, and a smaller perforated part on the opposite side of said cross-rib, substantially as described.

354,141. CABLE RAILWAY. JOHN P. HUNT, Philadelphia, Pa. Filed Dec. 8, 1883. (No model.)



Claim.—1. A conductor or conduit for the cable of a cable railway, provided with transverse braces having concave edges, substantially as set forth.

2. A conductor or conduit for the cable of a cable railway, provided with transverse braces having concave edges, and with concave rollers, substantially as shown and described.

3. A cable-motor conduit composed wholly of metal sections, each

section having at intervals along its length interior transverse braces, as and for the purpose set forth.

4. A cable-motor conduit composed of metal sections the sides of which are connected by interior braces located at intervals along the sections and placed above the bottom of the conduit-sections, as and for the purpose set forth.

5. A condoit for cable-motor railways, having on its inner sides conical-shaped recesses or bearings for the corresponding-shaped ends of the shafts of the cable-carrying sheaves, as set forth.

6. The combination of a cable conduit or conductor and horizontally-arranged roller or sheave, having conical journals fitted into like configured bearings in the conduit, as set forth.

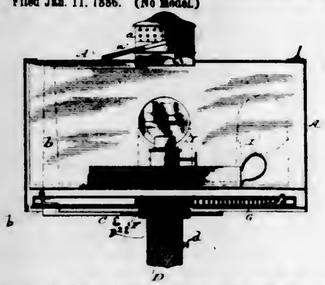
7. The combination, with a cable-motor conduit, of interior transverse braces, grooved pulleys extending from side to side of the conduit, and both the braces and pulleys located at intervals along the length of the condnit, substantially as set forth.

8. A cable-motor conduit having on its inner sides recesses or grooves extending from the top of the condoit downwardly for receiving the journals of a sheave or pulley, substantially as set forth.

9. A cable-motor conduit having removable top plates and inside recesses or grooves extending downward from the top of the conduit for holding the bearings of the journals of a pulley or sheave, substantially as set forth.

10. A cable-motor conduit composed of metal sections having slotted top and interior transverse braces, in combination with rollers E, having conical-shaped journals fitting into correspondingly-shaped recesses or bearings in the sides of the conduit, substantially as set forth.

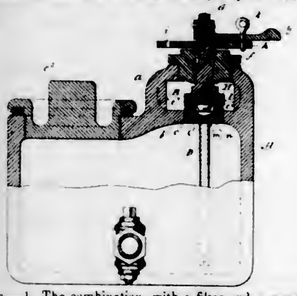
354,142. RAILWAY SIGNAL-LAMP. WILLIAM H. HUNT, Emporia, Kans. Filed Jan. 11, 1886. (No model.)



Claim.—1. A railway-signal consisting of a lamp-cage secured to an upright and connected by a rotary shaft, lever-arm, and rod to switch-rails or switch-bar, said lamp-cage having within colored-glass slides held by metal rack-bars and connected by cog-gear to said shaft, substantially as and for the purpose set forth.

2. The cage A, having oval side lenses, the lamp L, the sliding colored glass I I, the stirrup C, the washers E E', the gear-wheel F, and the rack-bars G, in combination with the rotary shaft D and connection with a suitable upright, all arranged and operated substantially as shown.

354,143. FILTER. JOHN W. HYATT, Newark, N. J. Filed Sept. 7, 1885. Renewed Nov. 11, 1886. (No model.) Patented in England July 14, 1885, No. 8,527; in France July 14, 1885, No. 170,116; in Belgium July 14, 1885, No. 69,590, and in Italy July 14, 1885, No. 18,667.



Claim.—1. The combination, with a filter and a supply pipe leading thereto, of a receptacle having a chamber formed in its upper portion and connected to said pipe for containing the coagulating material, a pipe extending downwardly from said chamber within the receptacle, and a valve for regulating the quantity of water passing through the latter, substantially as set forth.

2. The combination, with a filter and a supply-pipe leading thereto, of a receptacle connected to said pipe for containing the coagulating material, and constructed with a chamber or passage in the upper portion thereof, the latter having openings formed in the lower portion thereof for affording communication between said chamber and receptacle, and a valve for opening and closing said openings, substantially as set forth.

3. The combination, with a filter, of a receptacle for containing the coagulating material and constructed with a passage or chamber in its upper portion, the latter having openings formed in the lower portion thereof, a pipe secured in one of said openings and extending downwardly within the receptacle, a valve located within the chamber above the said openings and adapted to open and close the same, and a supply-pipe leading to the filter and communicating with each end of the said passage, substantially as set forth.

4. The combination, with a filter, of a receptacle formed with a chamber or passage in its upper portion, a nut fitting in the lower wall of the latter and provided with openings leading into the lower portion of said receptacle, and a valve secured to a stem passing through the upper wall of the chamber, said valve being adapted to simultaneously open or close all of said openings leading to the lower part of the receptacle, substantially as set forth.

5. The combination, with a filter, of a receptacle, A, provided with the chamber B, of the nuts C *f*, valve H, stem G, lever *g*, plate *h*, and pin *k*, the above parts being combined and adapted to operate substantially in the manner and for the purpose described.

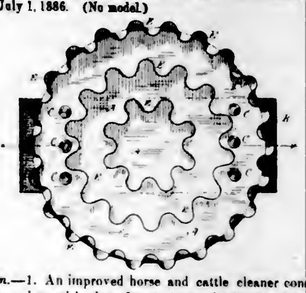
354,144. JOINT FOR LOCKETS. JOHN T. INMAN, Attleborough, Mass. Filed Feb. 3, 1886. (No model.)



Claim.—1. The combination of the member A, having a joint member, B, upon its interior, and provided with a slot, C, and the member A', having a joint member, B', projecting therefrom, passing through the slot C and pivoted to the joint member B, whereby the two members A A' are hinged to each other by a joint connection which is invisible when the said members are closed, substantially as set forth.

2. The combination of the member A, having a joint member, B, upon its interior, and provided with a slot, C, the member A', having a joint member, B', projecting therefrom, attached thereto at a distance from its outer edge and curved or bent outwardly, and a pivotal pin connecting said joint members on the interior of the member A, substantially as and for the purposes specified.

354,145. HORSE AND CATTLE CLEANER. FREDERIC A. JEWETT, Grafton, Mass., assignor of one-half to Charles L. Leonard, same place. Filed July 1, 1886. (No model.)

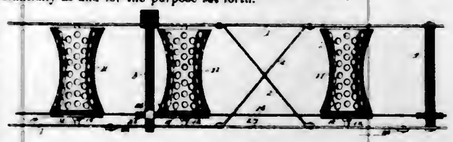


Claim.—1. An improved horse and cattle cleaner consisting of a rigid horizontal metal back or frame, A, provided with a handle or holding-strap, B, upon its upper side, and a series of continuous corrugated smooth-edged cleaners, E, of different sizes, secured to its under side and relatively arranged, as and for the purposes set forth.

2. The combination, with a back piece provided with a handle, of a series of comb-bars secured to the back piece and provided with corrugations, for the purposes set forth.

354,146. TRACK-LAYING APPARATUS. DELBERT E. JOHNSON, Chicago, Ill. Filed June 28, 1886. (No model.)

Claim.—1. In a track-laying apparatus, the combination, with a train of cars, of several sections of guideway, one end of each section receiving within it the end of the adjoining section, and both of said ends being slotted and provided with a bolt passing through said slots, substantially as and for the purpose set forth.



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2. In a track-laying apparatus, the combination of a train of cars with a guideway made up of several sections, each of said sections being rigidly attached to a car of the train, and having one of its ends enlarged to receive the end of the adjoining section, substantially as and for the purpose set forth.

3. In a track-laying apparatus, the combination of a train of cars, an endless cable, a series of rollers mounted so as to rotate upon the cars of said train, an engine for giving motion to the cable in an endless path, and means for adjusting the friction between the rollers and the cable.

4. In a track-laying apparatus, the combination of an endless cable and a series of rollers, each of them provided with a detachable friction-wheel for receiving the cable, substantially as and for the purpose set forth.

5. In a track-laying apparatus, the combination of a train of cars, a series of rollers mounted upon the cars of said train, an endless cable, means for causing friction between the cable and the rollers, whereby the latter are rotated by the motion of the former, an engine and gearing for giving motion to the cable in an endless path, and a slack take-up for keeping the cable taut, substantially as set forth.

6. In a track-laying apparatus, the combination of a train of cars, a guideway mounted thereon and provided with rollers, an endless cable, an engine for giving rotary motion to said cable, and a wheel independent of the guideway and attached to one of the cars at the end of the cable farthest from the engine, for receiving the pull of the cable, substantially as and for the purpose set forth.

7. The combination of the cable, the grooved rollers, and the guide-wheels 25, substantially as and for the purpose set forth.

8. The combination of the cross-pieces 3 and 4, provided with holes, with the brackets 26 and guide-wheels 25, substantially as and for the purpose set forth.

9. In a track-laying apparatus, the combination of a train of cars, a series of rollers mounted upon the cars of said train, an endless cable, means for causing friction between the cable and the rollers, whereby the latter are rotated by the motion of the former, an engine and gearing for giving motion to the cable in an endless path, a wheel mounted upon a carriage about which the endless cable passes, and a counter-weight attached to said carriage, substantially as and for the purpose set forth.

10. A guideway for a track-laying apparatus, composed of two longitudinal strips, 1, united by cross-pieces 3 4, placed alternately above and below the strips, said strips being provided with rollers mounted between them and adapted to rotate, substantially as and for the purpose set forth.

11. The bracket 5, provided with arms for receiving the guideway, and having cast upon it a block, 8, for fitting into pockets attached to the car, substantially as and for the purpose set forth.

12. In a track-laying apparatus, a guideway provided with a side rail, 27, attached to one of its side bars by uprights 28, substantially as and for the purpose set forth.

13. A roller for a track-laying apparatus, formed of two heads united by flat metal strips arranged in a circle about the axis of the roller, said strips being turned up at their ends and secured to the head-pieces, substantially as described.

14. In a track-laying apparatus, the combination, with a train of cars, of several sections of guideway, one end of each section receiving within it the end of the adjoining section, and the two ends being provided with a slot-and-bolt connection, whereby a limited amount of play is allowed between the two sections without the possibility of interrupting the continuity of the guideway, substantially as described.

15. In a track-laying apparatus, the combination, with a train of cars, of a guideway composed of a series of sections, each section being rigidly fixed to a car of the train, and one end of each pair of adjoining sections being sufficiently large to receive within it the end of the adjoining section and the adjoining ends, and being provided with a slot-and-bolt connection, substantially as and for the purpose set forth.

16. In a track-laying apparatus, the combination of a train of cars, an endless metallic cable, a guideway mounted upon the cars of said train, and a series of rollers journaled in said guideway and provided each with a V-shaped groove, said groove being of such a size that the cable when resting in it will impinge upon both of its faces, substantially as and for the purpose set forth.

17. In a track-laying apparatus, the combination of a train of cars, an endless cable, a guideway mounted on said cars, a series of rollers journaled in said guideway and provided with grooves, and a series of auxiliary rollers for regulating the friction between the cable and the rollers of the first series and retaining the cable in place in the said groove, substantially as described.

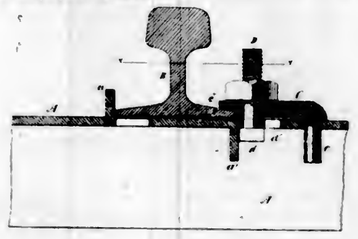
18. In a track-laying apparatus, the combination of a guideway with a series of rollers mounted in the same, each roller being provided with an axle fixed fast in the sides of the guideway, upon which it rotates, said axle being round throughout, and the sides of the guideway being provided with round holes for receiving the ends of the same, substantially as described.

19. In a track-laying apparatus, the combination of a guideway, a series of rollers mounted in said guideway, each roller being provided with an axle, upon which it rotates, said axle being set rigidly in the side pieces of the guideway, a friction-wheel also adapted to rotate upon said axle, and a clutch mechanism between the friction-wheel and the roller, whereby the motion of the former is communicated to the latter.

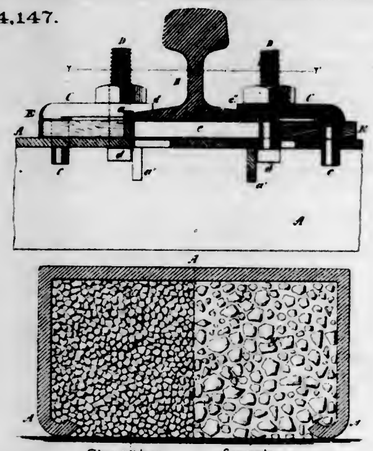
20. In a track-laying apparatus, the combination of a guideway, a series of rollers mounted in said guideway, each roller being provided with an axle, upon which it rotates, said axle being fixed fast in the sides of the guideway, a friction-wheel also adapted to rotate upon said axle, and means for connecting the friction-wheel with the roller, whereby the motion of the former may be communicated to the latter.

354,147. RAILROAD-TIE. FRANK G. JOHNSON, New York, N. Y. Filed Mar. 31, 1886. (No model.)

Claim.—1. In connection with railroads, the plate-iron tie A, having the bolt-holders *a' a'* and oblong holes *d'*, in combination with the vertical rail-holder C and clamping-bolt D, substantially in the manner and for the purposes described.



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Stone. Iron. Concrete.

2. In connection with railroads, the plate-iron tie A, having the lateral rail-holders *a a*, bolt-holders *a' a'*, and oblong holes *d*, in combination with the vertical rail-holder C and clamping-bolt D, substantially as and for the purposes set forth.

3. In connection with railroads, the plate-iron tie A, having the bolt-holders *a' a'* and oblong holes *d'*, in combination with the vertical rail-holder C, clamping-bolt D, and shims E E, substantially as and for the purposes described.

4. In connection with railroads, the plate-iron tie A, having the lateral rail-holders *a a*, bolt-holders *a' a'*, and oblong holes *d'*, in combination with the vertical rail-holder C, clamping-bolt D, and shims E E, substantially in the manner and for the purposes set forth.

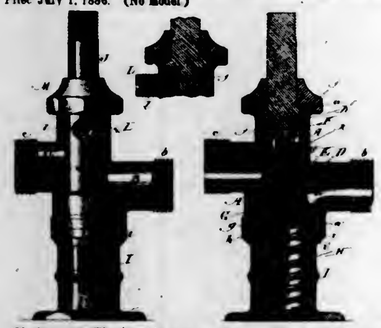
5. In connection with railroads, the plate-iron tie A, filled in with concrete of broken stone and melted iron, substantially in the manner and for the purposes set forth.

6. In connection with railroads, the plate-iron tie A, having the bolt-holders *a' a'* oblong holes *d'*, in combination with the concrete filling preferably of melted iron and broken stone *f*, vertical rail-holder C, and clamping-bolt D, as and for the purposes set forth.

7. In connection with railroads, the plate-iron tie A, having the lateral rail-holders *a a*, the bolt-holders *a' a'*, oblong holes *d'*, the interior filling of concrete preferably composed of broken stone and melted iron *f*, in combination with the vertical rail-holder C and clamping-bolt D, substantially in the manner and for the purposes described.

8. In connection with railroads, the plate-iron tie A, filled in with concrete preferably of broken stone and melted iron *f*, having the lateral rail-holders *a a*, bolt-holders *a' a'*, oblong opening *d'*, in combination with the vertical rail-holder C, clamping-bolts D, and shims E E, substantially in the manner and for the purposes set forth.

354,148. STOP AND WASTE COCK. JOHN H. JOHNSON, Chicago, Ill. Filed July 1, 1886. (No model.)

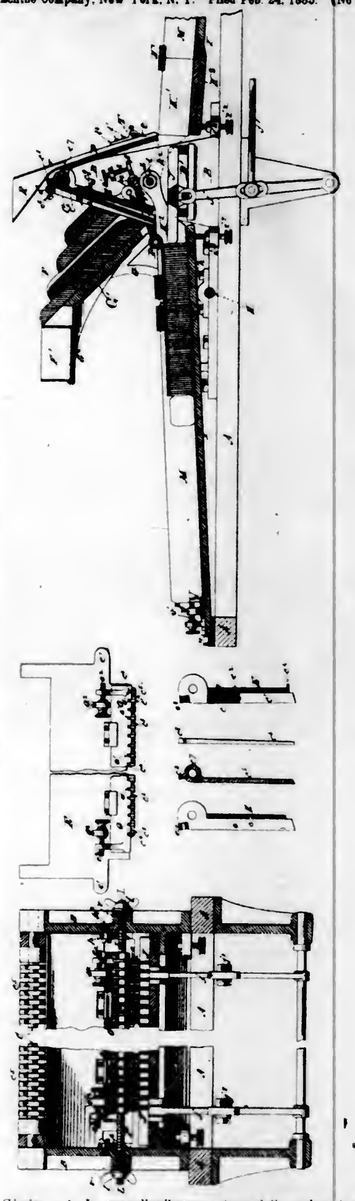


Claim.—1. The combination of the movable stem J, having the bottom extension or end, *j*, with the head F, having an opening for the reception of said extension, the connecting-bars *f*, head E, stem *e*, valve G, and spring H, substantially as herein set forth.

2. The heads E F, connected by bars *f*, with openings *f'* between them, and stem *e*, in combination with a valve, G, spring H, and stem J, for opening and closing the valve, substantially as specified.

3. A stop and waste cock consisting of the shell A, inlet-port B, outlet-port C, wall D, with valve-seat *d*, heads E F, connected by bars *f*, stem *e*, valve G, spring H, base I, stem J, packing K, wall *k*, and waste-nipple L, all constructed and operating substantially as and for the purposes specified.

354,149. APPARATUS FOR DISTRIBUTING TYPE. LOUIS K. JOHNSON and A. AUGUSTUS LOW, Brooklyn, assignors to the Alden Type Machine Company, New York, N. Y. Filed Feb. 24, 1885. (No model.)



Claim.—1. In type-distributers substantially such as herein designated, the bed-plate for the reception and support of the type-containing channels, adjustable vertically with relation to the lower edges of the conduit-plates, substantially in the manner and for the purpose described.

2. In a type-distributing apparatus substantially such as designated, the combination, with a series of movable type-receiving plates above and a series of type-containing channels below, of the intermediate connecting conduit-plates pivotally suspended upon the frame of the apparatus and adjustable in inclination thereon, substantially in the manner and for the purpose described.

3. In a type-distributing apparatus substantially such as designated, the combination and arrangement, substantially as herein set forth, of the vertically-adjustable bed-plates which support the containing-channels with the conduit-plates, which are adjustable in inclination, whereby the relative positions and distances between the adjoining parts may be maintained, substantially in the manner and for the purpose set forth.

4. A conduit-plate formed with type-conduits, the floors of which are independently adjustable for the purpose of regulating the depth of the conduits, substantially in the manner and for the purpose described.

5. In a type-distributing apparatus substantially such as described, the combination, with a series of superposed retractable receiving-plates above and a series of containing-channels below, of an intermediate connecting conduit-plate formed with type conduits, each of which is provided with an adjustable side wall, for the purpose and substantially in the manner set forth.

6. A conduit-plate formed with type-conduits, each of which is formed with an adjustable side wall and an adjustable floor, for the purpose and substantially in the manner described.

7. In a type-distributing apparatus substantially such as designated, a series of intermediate transfer-channels arranged upon the channel bed-plate and interposed in position thereon between the lower ends of the conduit-plates and the position of the setter or type-containing channels, in combination with the said conduit-plates and setter or containing-channels, and with the vibrating type-forwarder, for the purpose and substantially in the manner described.

8. In a type-distributing apparatus substantially such as designated, a series of intermediate transfer-channels, each formed with an adjustable side wall and arranged upon the channel bed-plate and interposed in position thereon between the lower ends of the conduit-plate and the position of the setter or containing channels, in combination with the said conduit-plates and setter or containing channels, and with the vibrating type-forwarder, for the purpose and substantially in the manner described.

9. The horizontal check-guard extending over the top of the type-channels in front of the conduit-plate and near the termination of the stroke of the pusher, and arranged and operating substantially in the manner and for the purpose described.

10. The horizontal check-guard arranged and operating over a series of type-channels, substantially as set forth, formed with a contact-surface of soft rubber, cloth, bristles, or other elastic or yielding material, for the purpose described.

11. The horizontal check-guard arranged and operating over a series of type-channels, substantially as herein set forth, mounted between bearings which are provided with means for counterbalancing and regulating the downward pressure of the said guard, substantially in the manner and for the purpose described.

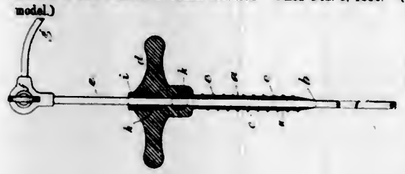
12. A lateral type-latch or bearing-surface arranged at the side of a type-channel near its receiving end and in such relation to the vibrating pusher that it presses against and holds the types as they are raised and forwarded by the pusher, substantially in the manner and for the purpose described.

13. The adjustable step or bearing upon the bed-plate for the outer ends of the setter type-channels, arranged and operating substantially in the manner and for the purpose described.

14. The movable standards upon and between which the superposed receiving-plates are supported, said standards resting upon suitable rails or ways upon the frame, and being formed with rack-teeth, which engage gears upon a common shaft, mounted in suitable bearings upon the frame and formed to receive a crank-key, or other means imparting motion to the gears, for the purpose of moving the receiving-plates, substantially in the manner and for the purpose described.

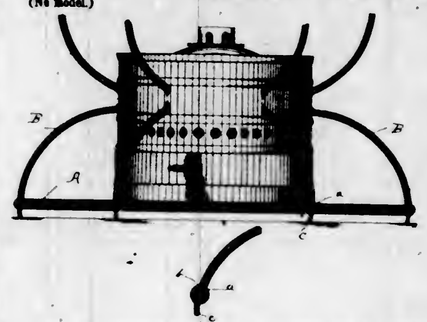
15. In combination with the side walls of the type-channels herein described, the space bars or bridges formed upon their under sides with grooves for engagement with the side walls of the said channels, for the purpose and substantially in the manner described.

354,150. BOTTLE-FAUCET. CHARLES T. JONES, Utica, assignor to himself, and Florence Lulu Lathrop, Ilion, N. Y.; J. Thomas Jones administrator of said Charles T. Jones, deceased. Filed Feb. 8, 1886. (No model.)



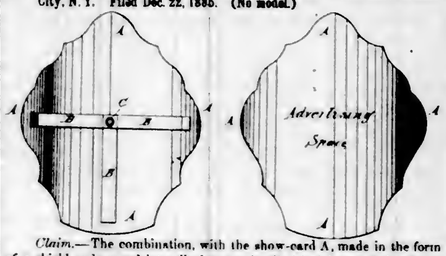
Claim.—The combination, with the screw-tube *a*, having a cutting-edge at one end, of a cross-bead at the upper end and a faucet-plug, *k*, the packing *h*, and the tube *e*, passing through the packing and through the screw-tube, substantially as set forth.

354,151. LANTERN-FRAME. FRANZ KACHEROWSKI, Chicago, Ill., assignor to George M. Clark & Company, same place. Filed July 24, 1886. (No model.)



Claim.—The combination, with the drilled bottom ring of a lantern-frame, of the vertical wires provided with feet *c*, bent to the vertical plane, whereby said bottom ring is secured, substantially as specified.

354,152. FANCY SHOW-CARD. CHARLES KERNITT, Long Island City, N. Y. Filed Dec. 22, 1885. (No model.)



Claim.—The combination, with the show-card A, made in the form of a shield and curved laterally into semi-cylindrical form, of the three-armed strap B, secured to the side parts and lower end of the said shield, and provided with an eye, C, at its center, substantially as herein shown and described, whereby the said show-card can be readily suspended, and when suspended will take an inclined position, as set forth.

354,153. WIRE-STRETCHER. CHARLES LAUFER, Lee, assignor of one-half to Stephen Van Dresar, Rome, N. Y. Filed July 12, 1886. (No model.)



Claim.—The improved fence-wire-stretching implement, consisting of the levers *l l'*, hinged together at one end, two jaws on the hinged end of one of said levers and standing side by side, with a space between them, and a jaw projecting from the other lever and terminating with a curvature toward the other two jaws and adapted to enter the space between the latter, substantially as described and shown.

354,154. NAIL. HOSEA W. LIBBEY, Boston, Mass. Filed Aug. 23, 1886. (No model.)



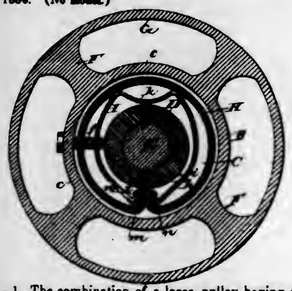
Claim.—A nail composed of cylindrical wire having a single elongated quick spiral groove the entire length of its body, as shown and described.

354,155. TWIST-DRILL AND AUGER-BIT. HOSEA W. LIBBEY, Boston, Mass. Filed Sept. 2, 1886. (No model.)



Claim.—A twist-drill constructed with a wide shallow groove or recess in the space on each side of the spiral-clearing groove, as and for the purpose set forth.

354,156. LUBRICATOR. WM. LOEFFLER, Sheboygan, Wis. Filed Mar. 16, 1886. (No model.)



Claim.—1. The combination of a loose pulley having a lubricant-chamber, with a wicking located in the chamber and arranged to impinge against the shaft to which said pulley may be connected, and a suitable spring for retaining the wicking in operative position, as set forth.

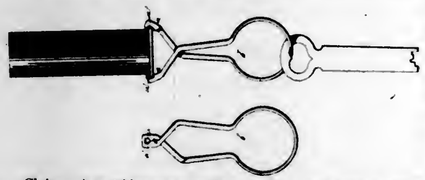
2. A loose pulley consisting of two detachably-united sections so constructed that when joined together their interior faces form a continuous lubricant-chamber, and one of said sections having its central portion in the form of a shaft-bushing provided with an orifice, in combination with a wicking located in the lubricant-chamber, and arranged to extend through the orifice in the bushing and come in contact with the shaft to which the pulley may be connected, as set forth.

3. A loose pulley consisting of two detachably-united sections so constructed that when joined together their interior faces form a continuous lubricant-chamber, one of said sections having its central portion in the form of a shaft-bushing provided with an orifice, and the other section provided with an induction port or ports leading to the lubricant-chamber, in combination with a wicking located in said chamber, and arranged to extend through the orifice in the bushing and come in contact with the shaft to which said pulley may be connected, as set forth.

4. A loose pulley having a lubricant-chamber surrounding the shaft-bushing, in combination with a continuous strip of wicking located in the chamber and bent in the form of a circle, with its ends turned in and passed through an orifice in said shaft-bushing, and a suitable spring interposed between the latter parts, with its ends inserted in those of said wicking, as set forth.

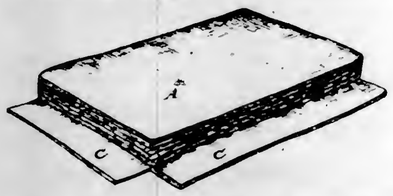
5. A loose pulley having a lubricant-chamber, in combination with a continuous strip of wicking located in the chamber and bent in the form of a circle, with its ends turned in and passed through an orifice in the shaft-bushing, and a continuous spring interposed between these latter parts, and having pointed and shouldered ends inserted in the ends of said wicking, as set forth.

354,157. CARTRIDGE-EXTRACTOR. JAMES R. MACMILLAN, Chicago, Ill. Filed Apr. 5, 1886. (No model.)



Claim.—A cartridge-extractor formed of a single piece of spring metal, bent or looped as shown, and having its ends crossed and notched on their adjacent faces, substantially as and for the purpose set forth.

354,158. ASBESTUS SHEET. ROBERT H. MARTIN, Brooklyn, N. Y. Filed Sept. 15, 1886. (No model.)



Claim.—A non-conducting sheet composed of thin slivers of asbestus superimposed or coiled upon each other, constructed substantially as described.

354,159. BOX. MARCUS MARX, Brooklyn, N. Y. Filed Oct. 14, 1886. (No model.)



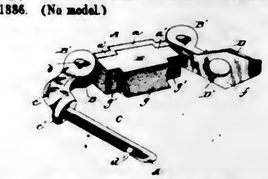
Claim.—1. The combination of an inclosing-rim, a horizontal partition dividing the space within said rim into two compartments, lids fitting, respectively, in each of said compartments and opening in opposite directions, vertical partitions within said compartments, and pivot-connections between said lids and said vertical partitions, substantially as described.

2. The combination of the rim A, partitions E B C G, forming compartments D H N O, lids I J, and pivot-connections L M, substantially as described.

3. The combination of the rim A, partition E, ledge F, partitions B, C, and G, lids I J, having flanged edges and pivots L M, the lid I being pivoted to the partition C, with its flanged edge resting (when closed) on the ledge F, and the lid J being pivoted to the partition G, with its flanged edge resting (when closed) on the partition B, substantially as described.

4. The combination of the rim A, formed in a single piece and having rounded corners, lids I J, partitions P E B C G, and hinge-connections L M, all of said parts being constructed of metal, substantially as described.

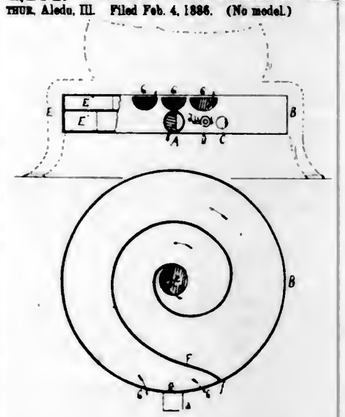
354,160. THILL-COUPLING. LOVANE MASON, Hartland, N. Y. Filed Oct. 7, 1886. (No model.)



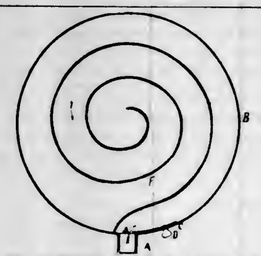
Claim.—1. The combination, with the back piece rigidly secured to the axle-clip, of the notched bolt having an inclined point and provided with an extension hinged to said piece, forming a wide shoulder at the base of the bolt, and the latch hinged to the back piece to swing longitudinally, and provided with an inclined thumb-piece, said latch entirely surrounding the bolt and forming an ample shoulder bearing directly on the eye of the thill-iron, as set forth.

2. The combination, with the axle and its shackle, of the back piece, A, rigidly attached to the latter, and having depression *a*, flat portions *a'*, and eyes B, the hinge-pins *b*, the bolt C, having inclined end *d*, notch *d'*, and the extension *c*, provided with a wide shoulder, *c'*, and double eye B', the anti-rattler E, having its inner side corresponding with the back piece and having concave extension *g* and shoulders *g'*, the eye J of the thill-iron, and the latch D, having opening D' surrounding the bolt, thumb-piece *f*, and double eye B', as set forth.

354,161. WARM FRESH AIR VENTILATOR. ALEXANDER MCARTHUR, Aledo, Ill. Filed Feb. 4, 1886. (No model.)



354,161.

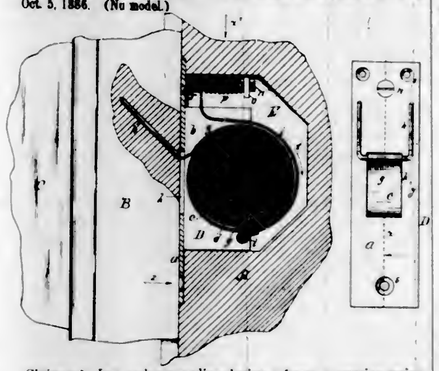


Claim.—1. The combination, in a heating-drum, of the drum-body B, provided at or adjacent to its base with openings A and C, a damper located between said openings A C, and adapted to alternately close them, a partition arranged spirally within said drum to form a spiral passage, and discharge-openings G at its top, substantially as described.

2. In a warm fresh air ventilator, a drum, B, having a diaphragm, E, with central perforation, e, and the coiled partitions F and F', substantially as and for the purpose herein set forth.

3. A warm fresh air ventilator, comprising pipe A, drum B, diaphragm E, coiled partitions F and F', damper D, and perforations C, G, and *e*, substantially as and for the purpose herein set forth.

354,162. SASH-BALANCE. JAS. MCARTHUR, Rochester, N. Y. Filed Oct. 5, 1886. (No model.)

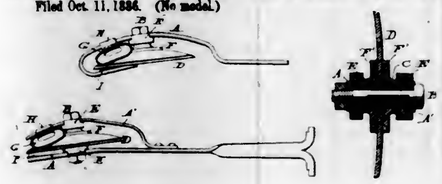


Claim.—1. In a sash-suspending device, a frame, a rotating spring-drum with contained spring held by said frame, and suspending-band for the sash, secured to the latter and to said drum, in combination with a semicircular tension-band secured to said frame substantially concentric with said drum, bearing upon said suspending-bend to act as a tension therefor, said tension-band acting upon said suspending-band only when the connected sash is approaching its uppermost position or increasing its action on said suspending-band as said sash rises, substantially as described.

2. In a sash-suspending device, a frame, a rotating spring-drum with contained spring held by said frame, and suspending-band for the sash secured to the latter and to said drum, in combination with a semicircular tension-band secured to said frame substantially concentric with said drum, bearing upon said suspending-band to act as a tension therefor, said tension-band being held against said suspending-band by a spring, *p*, acting upon its free end to press said suspending-band more firmly as said sash moves upward, substantially as described.

3. In a device for suspending a window-sash, a frame, a rotating spring drum or holder with contained spring, and band or suspender for the sash, secured to the latter and to said drum, a brake or retarder for said sash, in combination with springs *p* and *r* for said retarder, and threaded stud and screw-nut, substantially as and for the purpose specified.

354,163. SEEDING-MACHINE. DANIEL E. MCSHERRY, Dayton, Ohio. Filed Oct. 11, 1886. (No model.)



Claim.—1. In a seeder, the combination, with a drag-bar and a disk carried thereby, of a seed-delivery tube detachably secured to the drag-bar or to an arm thereof.

2. In combination with a two-part drag-bar, A A', a sleeve, C, extending from one arm of the drag-bar to the other, a disk, D, having its hub F mounted upon said sleeve, blocks E, mounted upon the arms of the drag-bar and encircling the ends of the hub, and a bolt, B, passing through the arms, sleeve, and blocks, and serving to bind the parts together.

3. In combination with drag-bar A A' and disk D, carried thereby, a seed-delivery tube provided with an eye or loop adapted to fit upon one arm of the drag-bar.

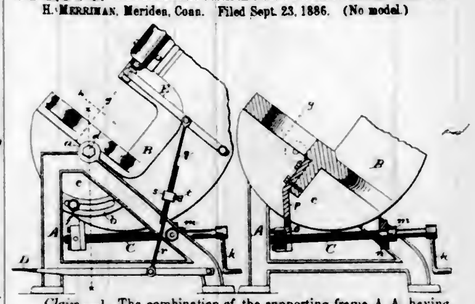
4. In combination with drag-bar A A' and disk D, carried thereby, a seed-delivery tube provided with an eye or loop adapted to fit upon one arm of the drag-bar and hollowed out or made concave on the side next to the disk.

5. In a seeder, the combination, with a pivoted drag-bar (one or more) provided with rearwardly-extending arms A A', of a disk, D, carried by said arms at an angle to the line of draft, a seed-delivery tube mounted upon one of the arms, and a scraper secured to the other arm, substantially as shown.

6. In combination with a drag-bar, a disk mounted thereon, and a scraper and a seed-tube, also mounted upon the drag-bar, substantially as shown and described.

7. In combination with a drag-bar comprising arms A A', a sleeve, C, extending from one arm to the other, a disk, D, having its hub F mounted upon said sleeve, blocks E E, mounted upon the ends of the sleeve, each block being socketed to receive the hub F and the drag-bar, and a bolt, B, passing through the arms, sleeve, and blocks, substantially as shown.

354,164. ADJUSTABLE FRAME FOR POWER-PRESSES. ALANSON H. MERRIMAN, Meriden, Conn. Filed Sept. 23, 1886. (No model.)



Claim.—1. The combination of the supporting-frame A A, having the circular bosses *a a* at their upper edge, and the press-frame B, having recesses upon each side under the edge of its bed, into which said bosses are received in pivoting the frame thereon, substantially as described, and for the purpose specified.

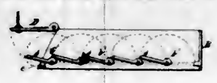
2. The combination of the supporting-frame A A, having the circular bosses *a a* at their upper edge, and the cross-bars with the curved slot *b* concentric with said bosses, the press-frame B, having recesses upon each side under the edge of its bed, into which said bosses are received in pivoting the frame thereon, and having, also, the flanges *c c*, the pivotal bolts *d d*, passing through the lugs *a a* and into the frame of the press, and the fastening-bolts *f f*, extending through the curved slot into the flanges *c c* of the frame B, substantially as described, and for the purpose specified.

3. The combination of the supporting-frames A A of a press, a press-frame pivoted on said supporting-frame and having the downwardly-projecting arm *p*, the nut *o*, pivoted within said arm, the pivoted cross-bar *n*, and the screw C, extending through said cross-bar into the nut, substantially as described, and for the purpose specified.

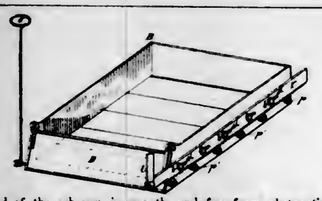
4. The combination of the supporting-frames A A of a press, a press-frame pivoted thereon, the lever E, pivoted to the press-frame for operating the clutch mechanism, the treadle D, the rods *q r*, for connecting said lever and treadle, the collar *s*, embracing the lapped ends of said rods, and the set-screw *t*, for binding the said ends together within the collar *s*, substantially as described, and for the purpose specified.

354,165. LOCOMOTIVE ASH-PAN. ALBERT S. MILLER, Indianapolis, Ind. Filed Apr. 5, 1886. (No model.)

Claim.—1. In a locomotive ash-pan, a series of slats forming the bottom pivoted on one side and at each end in the sides of the ash-pan, the edges of adjacent slats beveled, so that when in their normal posi-



354,165.

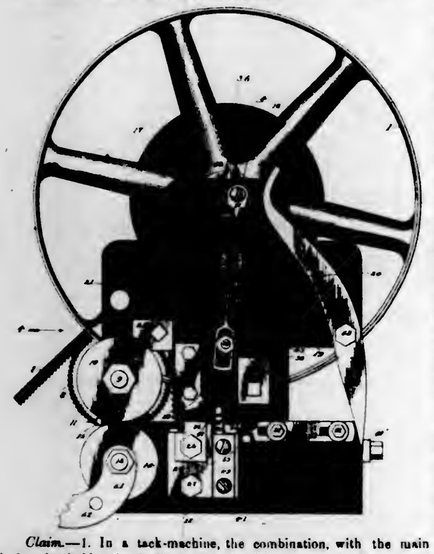


tion the bed of the ash-pan is smooth and free from obstructions, and provided with projections on the under side, so that when reversed one slat will strike against the projections of the next adjacent slat, in combination with suitable mechanism for reversing the sections, substantially as described.

2. The locomotive ash-pan B, having the door D and opener *o*, its bottom formed of slats *s*, pivoted upon axles *p* in the sides of the pan, the rack-bar *r*, connected to one or more sides of the pan, the pinions *p'*, mounted upon the pivotal axles of the slats and adapted to engage with the teeth of the rack-bar, and the lever *l*, for actuating the reversing mechanism, all combined substantially as described.

3. In a locomotive ash-pan, a sectional bottom formed of slats *s*, journaled in the sides of the ash-pan upon axles *p*, and provided with the projections *b'* on the under side of the slats, the edges of the slats beveled, so as to form a uniformly-flat surface when they are in their normal position, the stops *c* and *c'*, the rack-bar *r*, secured to the side of the pan, the pinions *p'*, mounted on the axles of the slats, and the lever *l*, all combined substantially as described.

354,166. **STAPLE-TACK MACHINE.** WILLIAM F. MOODY, Chicago, assignor of one-half to William D. Gibson and Charles P. Parish, Cook County, Ill. Filed May 22, 1886. (No model.)



Claim.—1. In a tack-machine, the combination, with the main shaft and suitable wire-feeding mechanism, of an eccentrically-mounted driving-connection therefor arranged to operate during the first portion of the revolution of the main shaft, cutting and bending dies, and slotted arms 18 and 37, also eccentrically mounted on the driving-shaft and arranged to impart motion to said dies, respectively, and successively, and a presser-die arranged to be operated by an additional cam on said driving-shaft during the latter part of its revolution, substantially as described.

2. In a tack-machine, the combination of a block provided with a bending-die, said die tapering back from its operating-face, means whereby the block is caused to reciprocate, an anvil and a presser-die located on the opposite sides of the path of the bending-die, and constituting rests, one on each side of said block, between which said die passes, and means whereby the said bending-die is actuated to press the end or the ends of the tack against the beveled sides of the die, substantially as and for the purpose set forth.

3. In a tack-machine, the combination of the main shaft, the cam 59, the lever 57, the finishing-die 54, the projection 50, and the bending-die 48, substantially as and for the purpose set forth.

4. In a tack-machine, the combination of a main shaft, a feed mechanism for the wire, connections between said feed mechanism and the said shaft whereby the former is operated during the first portion of the revolution of the shaft, a knife, a block carrying the same, connections between the shaft and the block whereby the latter is caused to move during the succeeding portion of the revolution of the shaft, a block carrying a bending-die, connections whereby the last-named block is caused to move forward during the next succeeding part of the revolution of the shaft, a presser-die constituting a rest on the opposite side of the said die from the knife, and means for subsequently moving the said presser-die in the direction of the bending-die to press the tack thereagainst, substantially as and for the purpose set forth.

5. The combination, in a tack-machine, of a main shaft, feed-rollers geared thereto, a reciprocating block, 23, mechanism connecting the block with the shaft, one element of said mechanism being an eccentric arm provided with a slot, a spring for moving the block in a direction opposite to that in which it is moved by the shaft, a knife carried by said block, an anvil suitably placed with reference to said knife, a bending-die, mechanism connecting the bending-die with the shaft, one element of which is an eccentric arm provided with a slot, a forming-die, mechanism connecting the presser-die with the shaft, and a spring for returning the two dies to their normal positions after they have been moved by the shaft, substantially as and for the purpose set forth.

6. In a tack-machine, the combination of the main shaft, the eccentrically-pivoted toothed arm 7, ratchet-wheel 8, shaft 9, and feed-rollers 10 and 14, substantially as and for the purpose set forth.

7. In a tack-machine, the combination, with a reciprocating knife, of a bending-die, said die tapering back from its operating-face, means whereby the die is caused to reciprocate, two rests between which said die passes as it reciprocates, and means for pressing the ends of the tack against the beveled sides of the die, substantially as and for the purpose set forth.

8. The combination, in a tack-machine, of a main shaft, feed-rollers geared thereto, a knife, mechanism connecting said knife with the shaft, one element of said mechanism being an eccentric arm provided with a slot, a spring for moving the knife in a direction opposite from that in which it is moved by the shaft, an anvil suitably placed with reference to the knife, a bending-die reciprocating across the end of the anvil, mechanism connecting the bending-die with the shaft, one element of which is an eccentric arm provided with a slot, a presser-die located opposite to the end of the anvil and on the other side of the bending-die, mechanism connecting the forming-die with the shaft, and springs for returning the two dies to their normal positions after they have been moved by the shaft, substantially as and for the purpose set forth.

9. In a tack-machine, the combination of a main casting provided with two grooves in its face, a block adapted to slide in one of said grooves, a knife attached to said block, an anvil suitably placed with reference to said knife, a point of support for one end of the tack-wire fixed to the casting at a suitable distance from the anvil, a block adapted to slide in the second of said grooves, provided with a bending-die, said die being so placed as to pass up and down between the anvil and the said point of support as the block reciprocates in the groove, a main shaft, and mechanisms connecting each of said blocks with said shaft, whereby they are caused to reciprocate in said grooves, one element of each of said mechanisms being an eccentric arm provided with a slot, substantially as described.

10. In a tack-machine, the combination of a bending-die and rest between which it reciprocates, one of said rests constituting the anvil upon which the tack-wire is cut, the other being a presser-die adapted to move in a plane perpendicular to the bending-die, and means for subsequently causing it to operate on the tack to reduce the distance between its limbs after it has been bent by the bending-die, substantially as described.

11. In a tack-machine, the combination of a knife, two rests, a bending-die, means for causing the latter to reciprocate between the rests, one of which is fixed and constitutes the anvil for the knife, the other being movable and constituting a presser-die, a presser, the path of motion of which is substantially perpendicular to the path of motion of the bending-die, and means for causing said presser-die to reciprocate, substantially as and for the purpose set forth.

12. In a tack-machine, the combination of a knife, a bending-die, said die formed with a flat lower surface and tapering back from its operating-face, with a presser-die having a path of motion substantially perpendicular to that of the longitudinal axis of the bending-die, for pressing the tack end against the beveled side of the bending-die, and means for causing said dies to reciprocate, substantially as described.

13. The combination of the bending-die 48, having inclined faces, anvil 25, provided with a corresponding inclined face, and presser-die 54, substantially as and for the purpose set forth.

14. In a tack-machine, the combination of a knife, an anvil suitably placed with reference to said knife, a bending-die, points of support, one on each side of the bending-die, and mechanisms for causing the knife and bending-die to reciprocate, one element of each of said mechanisms being an eccentrically-pivoted arm provided with a slot, whereby the

range of movement of the knife and bending-die, respectively, can be adjusted to the size of the tack-wire, substantially as and for the purpose set forth.

15. The combination, with a bending-die, of two rests, one on each side of said bending-die, and between which it reciprocates, and a support, 51, beneath the bending-die and moving with it, to hold the wire against the face of the bending-die as it is bent, substantially as described.

16. In a tack-machine, the combination of the bending-die 48, the projection 50, provided with an inclined face, pin 51, moving with said bending-die, and supports for the tack-wire, one on each side of the die, substantially as described.

17. The combination of the bending-die 48, removably mounted in a reciprocating block, projection 50, provided with pin 51, adjustably attached to said block, and two adjustable points of support for the tack-wire, one on each side of said bending-die, substantially as and for the purpose set forth.

18. In a tack-machine, the combination of a bending-die tapering back from its operating-face, and having a limited amount of lateral play, an anvil, toward one face of which the die may be forced, a presser, and means for operating the same, said presser-die being adapted to impinge upon one limb of the tack and force the bending-die over until the other limb of the tack is pressed between the lateral face of the bending-die and the anvil, substantially as and for the purpose set forth.

19. In a tack-machine, the combination of a main shaft, a feed mechanism for the wire, connections between said feed mechanism and the said shaft whereby the former is operated during a portion of the revolution of the shaft, a knife, adjustable connections between the shaft and the knife, whereby the latter is caused to move the desired distance during the succeeding revolutions of the shaft, a bending-die, connections whereby the bending-die is caused to move forward during the next succeeding part of the revolution of the shaft, and two rests for the wire, one on each side of the path of the bending-die, substantially as and for the purpose set forth.

354,167. **DEVICE FOR SETTING SAWS.** CHARLES MORRELL, Jersey City, N.J. Filed Mar. 4, 1886. (No model.)



Claim.—1. In a saw-set in which the setting force is applied at the base of the cutting side of each tooth, the combination of an adjustable saw-supporting plate, a setting-anvil, a setting-jaw, and lever-handles, by means of which the setting force is applied, substantially as described.

2. In a saw-set, the combination of a variable-toothed setting-jaw with an adjustable saw-supporting plate, a setting-anvil, and lever-handles, substantially as described.

3. In a saw-set, the combination of a multiple-toothed jaw-carrying rod, the adjustable multiple-toothed setting-jaw, with a cam-handle, a frame-handle, a reacting spring, an adjustable saw-supporting plate, and a setting-anvil, substantially as described.

4. A saw-setting tool consisting of the following devices in combination, viz: a frame-handle, A, having a socket, B, a setting-jaw-carrying rod, a setting-jaw, a spring, c, cam-handle F, an adjustable saw-supporting plate, Q, and a setting-anvil, substantially as described.

5. In a saw-set, a frame-handle provided with a socket, a setting-jaw-carrying rod fitting into said socket, a variable-toothed setting-jaw, a cam-handle, and a spring, combined with an anvil and adjustable saw-supporting plate, substantially as described.

6. In a saw-set, the combination of a setting-jaw-carrying rod, D, a variable-toothed setting-jaw adjustable around said rod, a spring, and cam-handles for operating the rod and jaw, substantially as described.

7. In a saw-set, a variable-toothed setting-jaw revoluble about an axis and set eccentrically thereto, substantially as described.

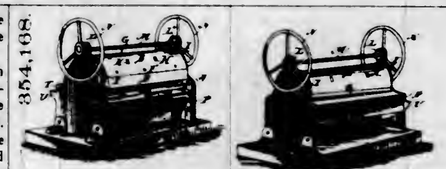
8. In a saw-set, a variable-toothed setting-jaw revoluble about and free to move longitudinally upon a supporting-rod, combined with a socketed supporting-frame and a spring, substantially as described.

9. In a saw-set, a variable-toothed setting-jaw notched, as shown, a supporting-rod having a projection adapted to fit the notches in the jaw, combined with a spring and a supporting-frame, substantially as described.

10. A saw-tooth-setting jaw-supporting rod slidable longitudinally in a frame, a variable-toothed setting-jaw, and a spring and handles for operating the jaw, all combined and arranged substantially as described.

354,168. **ROTARY CUTTING AND FORMING MACHINE.** HANS MORTENSON, Brooklyn, assignor of one-half to Charles Winters, New York, N.Y. Filed Sept. 29, 1886. (No model.)

354,168.



Claim.—1. In a sheet-metal cutting and forming machine, the combination of the frame A, the rotary cutter and former B, provided with the cutter G and die D, and the cutter-bar R and die O, substantially as and for the purposes set forth.

2. The combination of the frame A, provided with the cutter-bar R and die O, cutter and former B, cog-wheels I L, shaft M, and hand-wheel N, substantially as and for the purposes set forth.

3. The combination of the frame A, cutter and former B, provided with the cutter G and die D, stationary die O, thumb-screw Q, and the stationary cutter-bar R, substantially as and for the purposes set forth.

4. The combination of the frame A, provided with the cutter-bar R, die O, and fastening devices T Q, and the rotary cutter and former B, provided with the cutter G and die D, substantially as and for the purposes set forth.

5. The combination of the frame A, provided with the cutter-bar R and die O, fastening devices T Q, the rotary cutter and former B, provided with the cutter G, die D, and sockets H, substantially as and for the purposes set forth.

6. A stationary frame provided with a stationary cutter and die, a rotary cutter and former pivoted therein, provided upon one of its edges with a cutter, and on the other edge with a die, whereby the machine can be used on one side for forming and on the other side for cutting, substantially as and for the purposes set forth.

354,169. **TELEPHONE.** WM. J. MORTON, New York, N.Y. Filed Feb. 5, 1886. (Model.)



Claim.—1. The combination of a steel plate or diaphragm permanently magnetized to constitute independently in itself a complete magnet, with a coil included in an electric circuit and placed in proximity to said plate or diaphragm-magnet, whereby the fluctuations in magnetic force created by the movement and change in relation of the several molecules comprised in the steel plate or diaphragm by a jar or percussion thereof shall occasion electrical undulations or modulations in the circuit, substantially in manner as set forth.

2. In an instrument for transmitting or receiving sound, speech, or signals, the combination, with a wire coil in an electrical circuit, of a magnetized steel plate or magnet whose polarized molecules are disposed to satisfy their mutual attraction within itself, substantially in the manner and for the purpose herein set forth.

3. The combination, in an electrical circuit, of two or more telephonic instruments consisting each of a steel plate or disk permanently magnetized to constitute independently and in itself a complete magnet, and a wire coil placed in inductive proximity thereto and included in the circuit, said permanent magnet serving as the metallic diaphragm of the instrument, substantially in manner as set forth.

4. In an instrument for transmitting or receiving sounds, speech, or signals, the combination of the case F, the mouth or ear piece G, the coil H, and the permanent magnet of thin steel serving as a diaphragm, substantially in the manner and for the purpose set forth.

5. The combination, with a steel diaphragm constituting in itself a complete permanent magnet, of a wire coil and an annular steel magnet, substantially in the manner and for the purpose herein set forth.

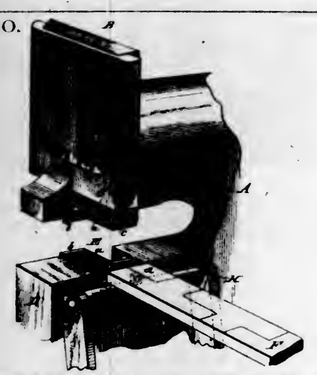
354,170. **MACHINE FOR CUTTING SHOVEL-BLANKS.** HENRY M. MYERS, Beaver Falls, Pa. Filed Aug. 10, 1886. (No model.)

Claim.—1. In a machine for cutting shovel-blanks, a reciprocating head having a knife attached thereto, which consists of a blade having end sections projecting from opposite sides and at right angles thereto, substantially as shown and described.

2. In a machine for cutting shovel-blanks, a reciprocating head having a knife attached thereto, which consists of a blade having right-angled sections projecting from opposite sides thereof, in combination with an anvil or fixed portion of the machine having a die corresponding with the knife secured thereto, substantially as described.

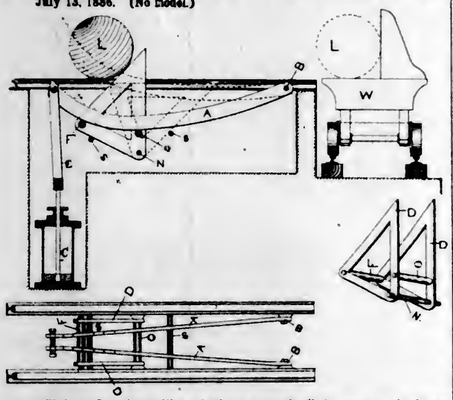
3. A knife for cutting shovel-blanks of the form shown in Fig. 3, which consists of a blade having right and left projecting sections on

354,170.



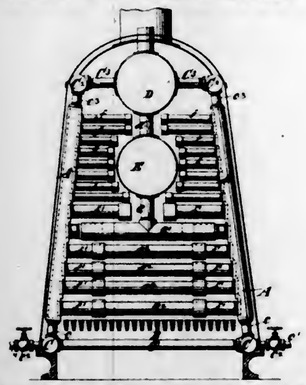
the ends thereof, forming a figure approximately ⌙-shaped, as shown in Figs. 1 and 2.

354,171. LOG-ROLLER. LUDWIG G. ORME, Paducah, Ky. Filed July 13, 1886. (No model.)



Claim.—In a log-rolling device, a scotch, D D, composed of two triangular frames connected together and pivoted to the frame of the mill, in combination with the curved arms A A, having teeth formed on their upper edges to prevent the log from slipping, pivoted at one end to the mill-frame and engaging with the cross-bars of the scotch, and mechanism for oscillating said arms, with suitable stops connected to mill-frame to prevent the scotch from traveling too far in either direction, all substantially as described and set forth.

354,172. SECTIONAL STEAM-GENERATOR. FREDERICK D. ALTHAUSE, New York, N. Y. Filed Oct. 9, 1886. (No model.)



Claim.—1. The combination, with two series of upright headers or manifolds arranged side by side at opposite sides of the generator and forming two opposite sides or walls of the furnace, of horizontal tubes or branches extending inward from the headers or manifolds and closed at their inner ends, and the fire-door arranged in a side or wall of the furnace which connects the two series of headers or manifolds, substantially as herein described.

2. The combination, with two series of upright headers or manifolds at opposite sides of the generator, and equalizing-pipes connecting the headers or manifolds of each series at top and bottom, of horizontal tubes or branches independent of each other, extending inward from the headers or manifolds and closed at their inner ends, substantially as herein described.

3. The combination, with two series of upright headers or manifolds at opposite sides of the generator, of horizontal tubes or branches independent of each other, extending inward from the headers or manifolds and closed at the inner ends, the tubes or branches being of increased diameter at the lower portion of the headers or manifolds, substantially as herein described.

4. The combination, with two series of upright headers or manifolds at opposite sides of the generator, and a drum, of equalizing-pipes whereby the headers or manifolds of each series are connected at their upper ends with each other and with the drum, and horizontal tubes or branches independent of each other, extending inward from the headers or manifolds and closed at their inner ends, substantially as herein described.

5. The combination, with two series of upright headers or manifolds at opposite sides of a generator, of horizontal tubes or branches independent of each other, extending inward from the headers or manifolds and closed at their inner ends, and tubes extending between and connecting the lower portions of opposite headers or manifolds which are at the rear end of the generator, substantially as herein described.

6. The combination, with two series of upright headers or manifolds at opposite sides of the generator, of horizontal tubes or branches independent of each other, extending inward from the headers or manifolds and closed at their inner ends, a drum arranged between the opposite series of headers or manifolds, and cross-tubes connecting headers or manifolds which are opposite in the two series and connected with the drum, substantially as herein described.

7. The combination, with the two series of oppositely-arranged headers or manifolds, of the water and steam drums E D, connected together, pipes connecting the drum E with the headers or manifolds below their upper ends, and pipes connecting the upper ends of the headers or manifolds with the drum D, and horizontal tubes or branches independent of each other, extending inward from the headers or manifolds and closed at their inner ends, substantially as herein described.

8. The combination, with two oppositely-arranged series of headers or manifolds, A, of two vertical tiers of horizontal tubes or branches, *f*, extending inward from the upper portion of each header or manifold, each tube or branch being independently closed at its inner end, and a single tier of similar but larger tubes or branches, *f'*, extending from the lower portion of each header or manifold and closed at their inner ends, substantially as herein described.

9. The combination, with two series of oppositely-arranged headers or manifolds, A, having vertical partitions, of two vertical tiers of horizontal tubes or branches, *f*, extending inward from the upper portion of each header or manifold on opposite sides of the vertical partition therein, each tube or branch *f* being independently closed at its inner end, and a single tier of similar but larger tubes or branches, *f'*, extending inward from the lower portion of each header or manifold and closed at their inner ends, substantially as herein described.

354,173. FIRE-PLACE BLOWER. HENRY F. BAKER, Joshua, Tex. Filed Apr. 19, 1886. (No model.)



Claim.—1. The combination, with the jambs of a fire-place, of a frame consisting of front pieces, E E, detachably fastened to the jambs, back pieces, M M, fastened to the respective front pieces and formed with steps *a b c*, and a top board, R', connecting the sides of the frame, together with sections B C D, resting on the steps *a b c* and forming a fire-screen and blower, substantially as and for the purpose set forth.

2. The combination of the front pieces, E, the springs S, attached thereto, the back pieces, M, having steps *a b c*, and the sections B C D, resting on said steps and held in place by said springs, respectively.

354,174. ADVERTISING-CARD. THOMAS W. BARTHOLOMEW, Danville, Pa. Filed Jan. 16, 1886. (No model.)



Claim.—1. The combination of an advertising-card, a pivot secured thereto, and a whirligig mounted on the pivot, substantially as described.

2. An advertising-card provided with a pivot and a horizontally-rotatable whirligig loosely mounted on the pivot, substantially as described.

3. An advertising-card provided with a rotatable whirligig and a detent for holding the same on its pivot, substantially as described.

4. The combination of a card, a pivot-pin detachably secured thereto, and a whirligig, substantially as described.

5. The combination of a card, a pivot, a whirligig, and a detent substantially as described.

6. A suspended advertising-card provided with an opening having a detent, a pivot secured to the card within the opening, and a whirligig mounted on the pivot and located in the opening of the card, substantially as described.

7. An advertising-card having a rotatable whirligig provided with radial wings or arms, substantially as described.

8. An advertising-card provided with a whirligig having radial wings and a cap, substantially as described.

9. An advertising-card provided with a whirligig having a series of radial arms or wings arranged at an angle to each other, substantially as described.

10. An advertising-card provided with a whirligig having a series of radial wings and braces connecting the free edges of the wings, substantially as described.

11. A card having a whirligig with a series of wings or arms and braces seated in notches at one edge of each wing, substantially as described.

12. A whirligig for advertising-cards, having a cap provided with a retaining rib or projection, substantially as described.

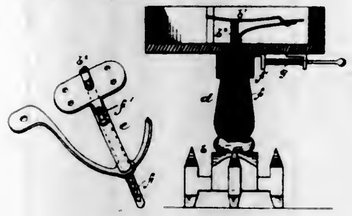
13. As an article of manufacture, an advertising-card provided with an opening and a detent, a pivot-pin, and a whirligig comprising a series of connected counterbalance-wings and a cap having a projector or rib and flanges *f'*, substantially as described.

14. The combination, with the suspension-card, of a revolving ornament or whirligig turning on a pivot of the card, a suitable suspension card or device connected to the upper part of the card, and a detachable base at the bottom of the card for the purpose of holding the card upright when set on a flat surface, and also holding the card steady when in suspension, as set forth.

15. A card having a pivot and a rotary whirligig loosely fitted on the pivot and carried by the card, as and for the purpose set forth.

16. The combination, with a suspended card, of a rotary whirligig or ornament carried thereby and a base connected to the lower part of the card, as and for the purpose set forth.

354,175. BLACKING STAND OR CASE. JAMES C. BIOREN, Newark, N. J. Filed Apr. 22, 1886. (No model.)

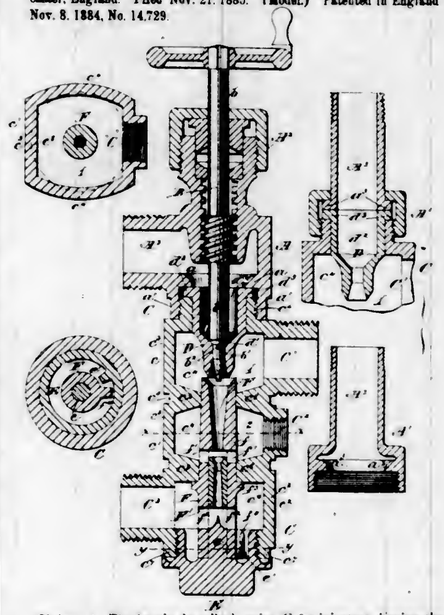


Claim.—1. The combination, with the body of the blacking stand or case, of a vertically-adjustable foot-plate, substantially as and for the purposes set forth.

2. The combination, with the body of the blacking stand or case, of a vertically-movable rod carrying a foot-plate, and a suitable catch or fastener, substantially as and for the purposes set forth.

3. In combination, the body of the stand or case having a suitable leg or support, a foot-plate, vertically-adjustable rod or bar to carry said foot-plate, said rod having ratchet-teeth, and a spring-actuated catch, substantially as set forth.

354,176. INJECTOR. SEVERIN BORLAND, Manchester, County of Lancaster, England. Filed Nov. 21, 1885. (Model.) Patented in England Nov. 8, 1884, No. 14,729.



Claim.—1. The herein-described casing C for injectors, having the opposite plane and convex faces, c^2 c^4, and annular grooves or throats c^5, and divided interiorly by partitions c^6 into three chambers provided with a water-branch, an overflow-branch, and a combined steam and water branch, respectively, said casing being constructed with an exterior screw-threaded portion at one end and an interiorly screw threaded portion at the other, as described, for the purpose specified.

2. An injector convertible from a lifting injector to a non-lifting injector, and vice versa, by means of interchangeable parts, substantially as described.

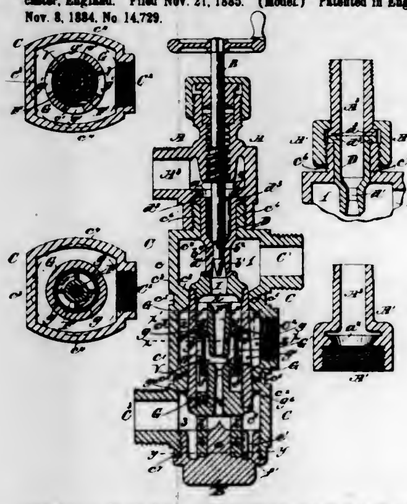
3. The combination, in an injector with the casing having water, overflow, and discharge branches and the steam combining and discharging cones, of the casings or caps A and A', adapted to be interchangeably connected to the injector-casing, for the purpose specified.

4. The combination, substantially as herein described, with the injector-casing having its inner end, c^3, screw-threaded interiorly and provided with an axial seat, of a discharging-cone, open at both ends, fitted in said seat and provided with a shoulder abutting against such seat, and a screw-cap adapted to be screwed in the end of the casing provided with a pin fitting into one of the open ends of the discharging-cone, for the purpose specified.

5. The combination, substantially as herein described, with the injector-casing having its inner end, c^3, screw-threaded interiorly and provided with an axial seat, of a discharging-cone open at both ends, fitted in and having a shoulder that abuts against the said seat, and provided with a radial lug, f^5, and a screw-cap constructed to be screwed in the end c^3 of the casing, said cap being provided with an axial pin or plug fitting into the end of the cone, and a radial lug, e', adapted to engage the lug f^5 of said cone, for the purpose specified.

6. The combination, with the casing C, having partitions c^6, the combining-cone F, having a portion of its axial passage made tapering outwardly, and the other portion thereof made cylindrical and provided with overflow and discharge ports, of a discharging-cone cylindrical in cross-section, having a tapering axial passage, and seated within the cylindrical portion of the axial passage of the combining-cone, for the purpose specified.

354,177. INJECTOR. SEVERIN BORLAND, Manchester, County of Lancaster, England. Filed Nov. 21, 1885. (Model.) Patented in England Nov. 8, 1884, No. 14,729.



Claim.—1. In an injector of the class described, a fixed lifting, combining, and discharging cone, an overflow or fluid-escape passage between the lifting and combining cones, and a like passage between the lifting and discharging cones, in combination with an annular valve operating to automatically open the overflow or escape passage between the lifting and combining cones on the interruption of the jet of steam or water supplied to the injector, and automatically close said passage when the jet is re-established to restart the injector, as described.

2. The combination, with the injector-casing having an interiorly screw-threaded end, c^3, and the lifting, combining, and discharging cones rigidly connected together, but detachably connected with the casing, said discharging-cone having a tubular open end provided with a radial lug on its outer periphery, of the screw-cap E, having an axial pin or plug, *e*, and a radial lug on its inner periphery, substantially as described, for the purpose specified.

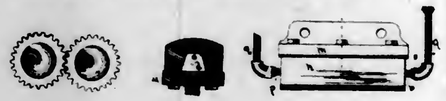
3. The combination, substantially as described, with the casing C, having partitions c^2 c^3, provided with axial tapering passages, of a tapering tube seated in said axial passage, provided with an internal seat-flange, *g*, and peripheral passages or ports *g'*, a combining-cone loosely seated in said internal flange constructed to form overflow-passages between it and the tube, and a lifting-cone rigidly connected with the tube and operating to confine the combining-cone and hold it against movement on its seat, for the purpose specified.

4. The combination, substantially as described, with the casing C, having partitions provided with axial tapering passages, of a tapering tube, G, seated in said axial passage, provided with an external seat-flange, an internal seat-flange, g^2, and ports *g'*, a discharging-cone detachably connected to one end of the tube, a combining-cone loosely seated on flange *g* of the tube G, constructed to form overflow-passages between it and the said tube, and a lifting-cone, I, recessed at *i*, detachably connected with the other end of the tube, and operating to confine the combining-cone and hold it against movement on its seat, for the purpose specified.

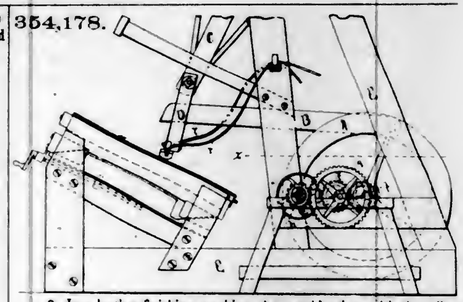
5. The combination, substantially as described, with the injector-casing screw-threaded exteriorly at c^3, and the steam-cone, D, having an external flange seated on the outer face of said screw-threaded end, of the interiorly screw-threaded casing A, having an internal flange adapted to bear on the flange of the steam-cone when screwed onto the end c^3 of casing C, substantially as and for the purpose specified.

354,178. LEATHER-FINISHING MACHINE. ALBERT M. BOWERS, Newark, N. J. Filed Sept. 2, 1885. (No model.)

Claim.—1. In a leather-finishing machine, the combination of an ironer and its holding-frame or carriage having one rate of speed in its operative stroke, and a quicker rate of speed in its return-stroke, and a speed-varying device, substantially as described, for giving said movements to said frame and ironer, substantially as set forth.



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2. In a leather-finishing machine, the combination, with the roller or ironer carrying beam, connecting-rod, and driving-wheel, of mechanism, substantially as described, whereby said wheel is caused to vary its speed at different portions of its revolution, producing a fast and slow movement in the connecting-rod and the ironer-carrying beam, for the purpose set forth.

3. In a leather-finishing machine, in combination, an ironer or roller carrying beam, a connecting-rod, a driving-wheel, and eccentric gearing arranged and operating in connection with said driving-wheel to cause the said wheel to vary its speed at different portions of its revolution, producing an alternating fast and slow movement in the connecting-rod and the ironer-carrying beam, for the purposes set forth.

4. In a leather-finishing machine, in combination, an ironer or roller, a beam to which said roller is attached, a connecting-rod, a driving-wheel, eccentric gear-wheels *f f'*, and actuating mechanism for said eccentric gear-wheels, substantially as and for the purposes set forth.

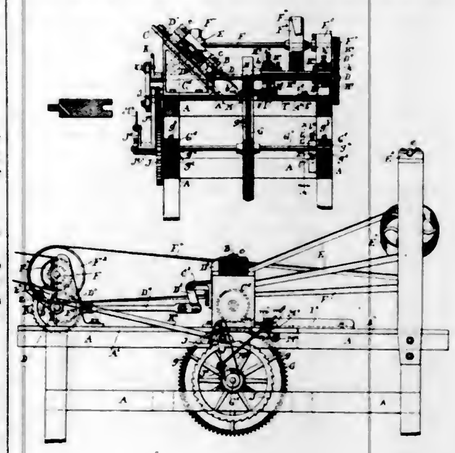
5. In a leather-finishing machine, in combination, an ironer-carrying beam, a connecting-rod, a driving-wheel, eccentric gear-wheels *f f'*, one of which actuates the driving-wheel shaft, gear-wheel *g*, and pinion *h*, all said parts being arranged and operating for the purposes set forth.

6. In a leather-finishing machine, the combination, with a tool or ironer frame or carriage, of a chambered tool rigidly secured to said carriage, having a convex ironing-surface and provided with openings or ducts *p*, communicating with the interior of said chambered tool, and flexible tubes *r*, connected with said ducts, by means of which steam is circulated through the chambered tool, and which also permit the free movement of the said tool and carriage, substantially as and for the purpose set forth.

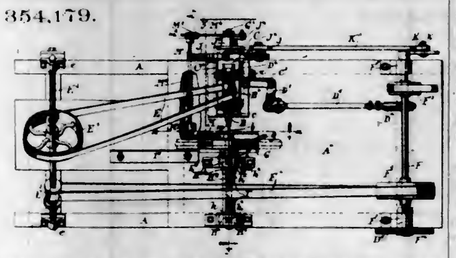
354,179. BORING-MACHINE. JOHN P. BURNHAM, Chicago, Ill. Filed Apr. 10, 1886. (No model.)

Brief.—The strip is fed step by step by an intermittent feed-wheel which is operated by a pawl-and-ratchet mechanism, which is operated from the driving-shaft of the mechanism that advances the auger. A stop connected with the pawl-and-ratchet mechanism stands in the path of the strip until depressed by the feed mechanism.

Claim.—1. A machine for boring holes in wooden strips, comprising a rotating and longitudinally-reciprocating boring-tool, an intermittingly-acting feed-wheel engaging the strip to be bored and operating to carry the latter in a direction transverse to the axis of the boring-tool, and means for giving a reciprocatory movement to the boring-tool and for actuating the feed-wheel, constructed to advance the said tool



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toward the strip at times when the feed-wheel is stationary, substantially as described.

2. A machine for boring holes in wooden strips, comprising a revolving arbor carrying a boring-tool, a sliding plate provided with bearings for said arbor, an eccentric, an eccentric-rod, a bell-crank lever connected with the eccentric-rod and the said plate, an intermittingly-acting feed-wheel, and means for actuating the feed-wheel and for giving rotary motion to the eccentric, constructed to advance the boring-tool during the time that the feed-wheel is stationary, substantially as described.

3. The combination, with a rotating and longitudinally-reciprocating boring-tool, of an intermittingly-moving feed-wheel engaging the strip to be bored, a bearing-roller opposed to said feed-wheel and adjustable toward and from the latter, and means for giving a reciprocatory movement to the boring-tool and for actuating the feed-wheel, constructed to move the wheel at times when the tool is retracted, substantially as described.

4. The combination, with a rotating and longitudinally-reciprocating boring-tool, of an intermittingly-moving feed-wheel engaging the strip to be bored and mounted in yielding bearings, a bearing-roller opposed to the said feed-wheel, and means for giving a reciprocatory movement to the boring-tool and for actuating the feed-wheel, constructed to move the wheel at times when the tool is retracted, substantially as described.

5. The combination, with a rotating and longitudinally-reciprocating boring-tool, and guides for the strip to be bored, sustaining the latter obliquely with reference to the axis of said boring-tool, of an intermittingly-moving feed-wheel engaging the strip to be bored, a bearing-roller opposed to said feed-wheel, a lateral guide, as I, located at the side of the path of the strip opposite the said boring-tool for holding the strip from lateral movement under the action of said tool, and means for giving a reciprocatory movement to the boring-tool and for actuating the feed-wheel, constructed to move the wheel at times when the tool is retracted, substantially as described.

6. The combination, with a rotating and longitudinally-reciprocating boring-tool, and guides for the strip to be operated upon, sustaining said strip obliquely with reference to the central axis of the tool, of an intermittingly-acting feed-roller engaging the said strip, a bearing-roller opposed to said feed-wheel, a laterally-adjustable guide-roller, I, engaging the edge of the strip opposite to that operated upon by the boring-tool, and means for giving a reciprocatory movement to the boring-tool and for actuating the feed-wheel, constructed to advance the said tool toward the strip during the intervals between the advance movements of the latter, substantially as described.

7. The combination, with a reciprocating boring-tobl and a feed-wheel, of means for intermittingly actuating the feed-wheel, comprising a ratchet-wheel connected with the said feed-wheel, an oscillating arm adapted to swing about the axis of the ratchet-wheel, a pawl upon the arm engaging the said ratchet-wheel, and means connected with the said oscillating arm for actuating the latter, and means actuating the boring-tool, constructed to advance the latter to the strip during the intervals between the movements of the feed-wheel, substantially as described.

8. The combination, with a reciprocating boring-tool and a feed-wheel, of a ratchet-wheel connected with the feed-wheel, an oscillating arm adapted to swing about the axis of the ratchet-wheel, a pawl upon the said arm engaging the ratchet-wheel, and a shaft provided with a crank-arm, and crank-pin connected with the said oscillating arm, said crank-pin being adjustably attached to the arm, whereby the throw of the crank and the movement of the oscillating arm may be varied, and means actuating the boring-tool, constructed to advance the latter to the work during the intervals between the forward movements of the feed-wheel, substantially as described.

9. The combination, with a reciprocating boring-tool, a feed-wheel, and means for actuating the boring-tool, comprising a shaft, D, and an eccentric, D', of a ratchet-wheel, J, connected with the feed-wheel, an oscillating arm, J', constructed to swing about the axis of the ratchet-wheel, a pawl upon the said oscillating arm, engaging the ratchet-wheel, a crank-arm, K, provided with an adjustable crank-pin, *k*, and a pitman K', connecting the said crank-pin and arm J', substantially as described.

10. The combination, with a reciprocating tool-carrying arbor, and a reciprocating plate provided with bearings for said arbor, of a shaft, D, an eccentric, D', upon said shaft, a bell-crank lever, D^2, connected with said eccentric and with the plate C, a feed-wheel, G, mounted upon a shaft, G', a ratchet-wheel, J, fixed to said shaft G', an oscillating arm, J', mounted to swing about the axis of the shaft, a pawl upon the arm J', engaging the ratchet-wheel, and a crank-arm, K, upon the shaft D, provided with an adjustable crank-pin, *k*, connected with said arm J', substantially as described.

11. The combination, with a reciprocating boring-tool, means for actuating the latter, and feed devices giving an intermittent advance movement to the work, of a stop, *m*, located in advance of the feed devices and movable into and out of the path of the work, and means for moving said stop, controlled by the devices by which the boring-tool is actuated, substantially as described.

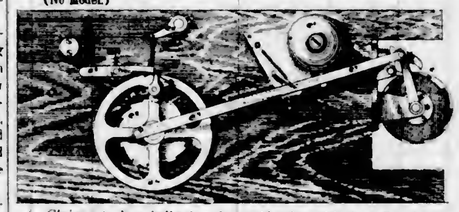
12. The combination, with a reciprocating boring-tool and a feed device, of a movable stop, *m*, operating to prevent the advance of the work to the feeding device, and means actuating the said stop, comprising a rock-shaft, M', a spring, M^2, applied to throw the stop in one direction, an arm, M^3, upon the rock-shaft, a rod, M^4, having sliding engagement with the arm M^3 and provided with a nut or collar, m^2, said rod M^4 being connected with and actuated by a moving part of the feed device, substantially as described.

13. The combination, with a reciprocating boring-tool and a feeding device, a stop, *m*, a rock-shaft, M', sustaining said stop, a spring applied to throw said stop and rock-shaft in one direction, an arm, M^2, upon the rock-shaft, a rod, M^4, having sliding engagement with the arm M^3 and provided with a nut or collar, m^2, adjustable upon the said rod, said rod M^4 being connected with and actuated by a moving part of the feed device, substantially as described.

14. The combination, with a reciprocating boring-tool, and a feeding device embracing a feed-wheel, G, a ratchet-wheel, J, and an oscillating arm, J', provided with a pawl engaging said ratchet-wheel and attached to and moving an arm, J^2, of a stop device consisting of a stop, *m*, a rock-shaft, M', a spring, M^2, an arm, M^3, and a rod, M^4, attached to said arm J^2, and having sliding engagement with the arm M^3, said rod M^4 being provided with an adjustable collar or nut, m^2, substantially as described.

15. The combination, with reciprocating boring-tool and a feed device comprising a feed wheel, and means for giving an intermittent rotary movement to said wheel, of a friction device located upon the machine-frame and bearing upon a rotating part attached to the wheel for checking the momentum of the latter, substantially as described.

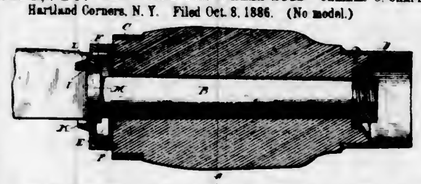
354,180. REGISTERING AND CANCELING MECHANISM FOR BALLOT-BOXES. WARREN T. BUTLER, Chelsea, assignor to the Standard Cancelling Ballot Box Company, Boston, Mass. Filed Aug. 17, 1886. (No model.)



Claim.—1. In a ballot-box, in combination with the rollers having grooves in the face of them, the levers a^4, the oscillating shaft a^3, the finger and chain c^2, the circular ratchet c^3 and pawl c^4, the loose wheel c^5, the trip-lever c^6, the spring-finger and claw *i*, and the finger c^7, all substantially as described, and for the purposes specified.

2. In a ballot-box, in combination with the roller a', the oscillating shaft a^3, the finger and chain c^2, the clutch made by the circular ratchet c^3 and pawl c^4, the loose wheel c^5, and the reciprocating bar c^7, all substantially as described.

354,181. SAND-BAND FOR WHEEL-HUBS. CHARLES O. CHAPLIN, Hartland Corners, N. Y. Filed Oct. 8, 1886. (No model.)

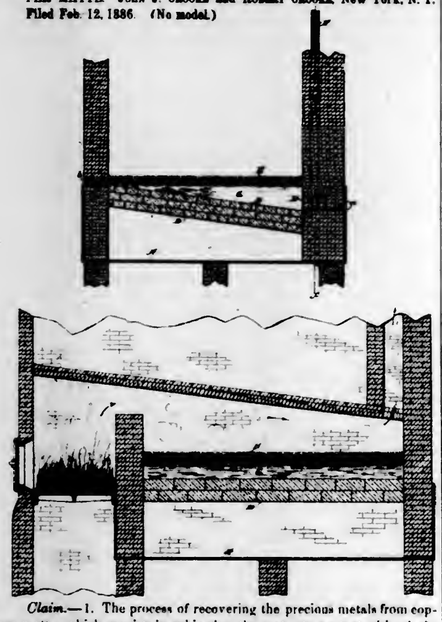


Claim.—1. The sand-band herein described, formed from a single piece of metal, and consisting, essentially, of the band E, having the transverse apertures to receive fastening-screws, and the central apertures, I, surrounded by the annular flange K, and the flange F, of greater di-

sineter than the flange K, and having the knife-edge adapted to be driven into a hub, substantially as specified.

2. The combination of the axle having the collar M and scraper L, as described, and the sand-band E, having the central aperture, I, surrounded by the flange K, the flange P, having the cutting-edge to be driven into the hub, and the screws passing through apertures in the band and into the hub, substantially as specified.

354,182. PROCESS OF TREATING AND DESILVERIZING COPPER MATTE. JOHN J. CROOKE and ROBERT CROOKE, New York, N. Y. Filed Feb. 12, 1886. (No model.)



Claim.—1. The process of recovering the precious metals from copper matte, which consists in subjecting the matte to contact with a body of lead, both being in a fused condition, and at the same time eliminating the sulphur from the lead through the agency of a body of iron which is in contact with the lead; but not with the matte, substantially as described.

2. The process of recovering the precious metals from copper matte, which consists in subjecting the matte to contact with a body of lead, both being in a fused condition, and at the same time eliminating the sulphur from the lead through the agency of a body of iron which is in contact with the lead, but not with the matte, and then treating the matte in the same manner with a second body of lead which is poorer in silver than the first, substantially as described.

3. The process of recovering the precious metals from matte, which consists in subjecting the matte to contact with a body of lead, both being in a fused condition, and at the same time eliminating the sulphur from the lead through the agency of a body of iron which is in contact with the lead, but not with the matte, and then reusing the lead in the same manner with a fresh quantity of matte, substantially as described.

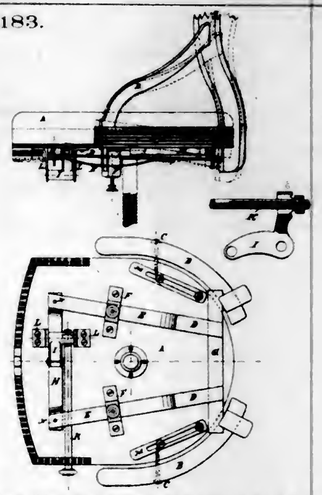
4. The process of recovering the precious metals from copper matte, and at the same time concentrating and purifying the matte, which consists in subjecting the matte to contact with a body of lead, both being in a fused condition, to recover the precious metals, and adding silica to the matte to effect the formation of a slag, substantially as described.

5. The process of recovering the precious metals from copper matte, and at the same time concentrating and purifying the matte, which consists in subjecting the matte to contact with a body of lead, both being in a fused condition, and at the same time eliminating the sulphur from the lead through the agency of a body of iron which is in contact with the lead, but not with the matte, and adding silica to the matte, substantially as described.

354,183. SPRING-BACK PIANO-CHAIR. CHARLES E. DAVIS, Columbus, Ohio. Filed Mar. 13, 1885. (No model.)

Claim.—1. A tilting chair provided with a pair of springs each consisting of a straight flat leaf and a curved under leaf, said springs passing through cleats provided with vertical set-screws upon the ends of which said springs bear, one end of each spring also resting upon a vertically adjustable bar and the other end supporting the back of the chair, substantially as described.

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2. In a tilting chair, a spring-back pivoted to the sides of a stationary seat, in combination with adjustable springs secured to the under side of said seat and the slides, substantially as described for securing the back in a tilted position, as specified.

3. A chair provided with a tilting back pivoted to the sides of a stationary seat, and springs upon the under sides of said seat, upon which the back is adapted to rest, said springs passing through cleats provided with adjusting-screws, in combination with a cross-bar operated vertically upon guide-pins by means of an adjusting-bolt, the front ends of said springs being adapted to rest upon said cross-bar, substantially as described.

4. A chair provided with a tilting back supported by springs provided with the herein-described adjusting device, the same consisting of a vertically-movable cross-bar located under the seat of said chair and upon which the ends of said springs are adapted to bear, guide-pins for keeping the bar in position, and a bell-crank lever pivoted below said cross-bar, one arm of said lever being connected thereto and the other arm to an adjusting-bolt, all arranged and adapted to operate substantially as described.

5. The combination, in a chair, of a stationary seat, a back pivoted to the sides thereof, flat springs upon the under side of said seat, a cross-bar extending transversely across the ends of said springs and upon which the back is adapted to rest, supporting-cleats through which said springs pass, said cleats being provided with set-screws, a cross-bar interposed between the forward ends of said springs and the bottom of said seat, guide-pins for retaining the bar, and a bell-crank lever journaled in hangers below said cross-bar, and having one arm connected therewith by means of a link and the other arm connected with an adjusting-bolt, all arranged and adapted to operate substantially as described.

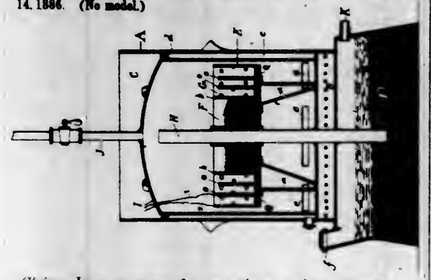
354,184. METHOD OF PRESERVING FRUITS. WILLIAM M. DAVIS, Lake City, Fla., assignor of two-thirds to J. F. Baya and J. D. Callaway, both of same place. Filed July 24, 1886. (No model.)



Claim.—1. The method herein described of preserving oranges from decay, consisting in packing the same in horizontal layers in a suitable box, and alternating these layers with charcoal and carbolic acid and dry sand, substantially as described.

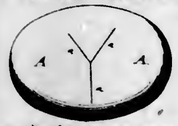
2. The method of packing oranges herein described, consisting in spreading a thin layer of dry clean sand over the bottom of a suitable box, arranging a layer of oranges upon this sand so that they neither touch each other nor the sides of the box, sprinkling a compound of charcoal and carbolic acid over the oranges, and then covering the same with clean dry sand, as specified.

354,185. APPARATUS FOR MANUFACTURING ILLUMINATING AND HEATING GAS. FRANCIS B. FORSTER, New York, N. Y. Filed Apr. 14, 1886. (No model.)



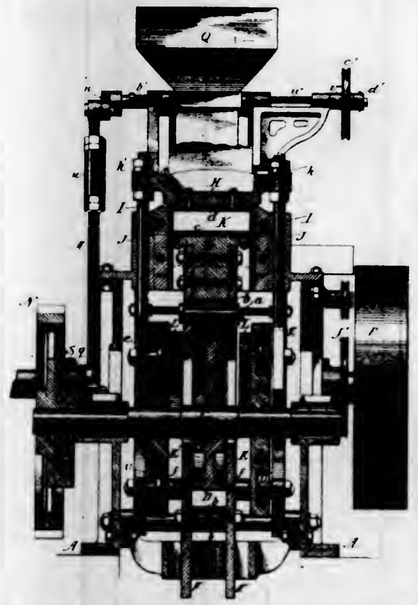
Claim.—In an apparatus for generating gas, the combination of a copper pan, arranged substantially as herein described, to be supplied with diluted acid, zinc plates arranged in said pan, electric wires connected to said plates and the body of the pan, respectively, the bell I, inverted over said pan and constructed to permit the passage of said wires, the pipe J, extending from the top of said bell, for the outlet of hydrogen gas, the carbureting-compartment D, and the inlet-pipe H of said compartment, substantially as and for the purpose set forth.

354,186. SOAP TABLET. THOMAS E. GARDNER, London, England. Filed July 16, 1886. (Specimens.) Patented in England Apr. 8, 1886, No. 4,936.



Claim.—A tablet or cake of transparent soap having a letter, word, or device formed in the same by cuts of a most minute thickness, said cuts extending entirely, or nearly so, through the cake, whereby the effect of a solid letter, word, or device in said cake is produced by the breaking of the rays of light by the cuts, substantially as set forth.

354,187. BRICK-MACHINE. WILLIAM L. GREGG, Philadelphia, Pa. Filed June 22, 1886. (No model.)



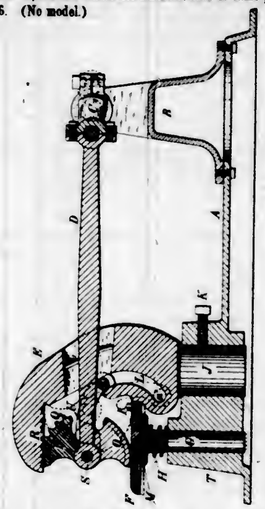
Claim.—1. In a machine for making and re-pressing brick, a hopper, a sliding filler-box, a plate to close the bottom of the hopper, a sweep to remove the brick to a table, the filler-box, plate, and sweep moving together, in combination with a mold-box, plunger G, counter-pressure plate, shaft C, cams D, E, E', and S, and connections between the cam and sweep, all constructed, combined, and operating substantially as and for the purpose specified.

2. In a machine for making and re-pressing brick, the combination of a mold-box, a plunger, G, counter-pressure plate and rods, an opening to receive the brick to be re-pressed, sweep U, to push the brick to the mold-box, shaft C, cams D, E, E', and S, and levers V, substantially as and for the purposes specified.

3. In a machine for making and re-pressing brick, the combination of a hopper, a filler-box, a sweep to remove the brick, a plate, *k*, to close the lower end of the hopper, a mold-box, a plunger, G, counter-pressure plate and rods, an opening in the side of the machine to receive brick to be re-pressed, a sweep, U, to push the brick to the mold, main shaft C, cams D E E' S thereon, connecting-rod R, and levers V, substantially as and for the purpose specified.

4. In combination with the hopper, an agitator consisting of a shaft, *a'*, having a notched enlargement near one end, and carrying a pulley, *c'*, a notched piece, *d'*, upon the shaft *a'*, and a spring, *b'*, substantially as and for the purpose specified.

354,188. MACHINE FOR BEADING SHOE-UPPERS. CHARLES B. HATFIELD, Rochester, N. Y., assignor, by direct and mesne assignments, to Frank S. Upton and Charlotte Hatfield, both of same place. Filed Aug. 10, 1886. (No model.)



Claim.—1. In a shoe-upper-beading machine, the combination, with the bed A, of the standard B, crank C, connection D, yielding work-plate F, rocking jaw O, segment P, and arm E, substantially as described.

2. The combination, in a shoe-upper-beading machine, of the work-plate F, arm E, provided with slot L, rocking jaw O, having the arm working in the slot L, and segment P, substantially as described.

3. The combination, in a shoe-upper-beading machine, of the work-plate F, arm E, provided with slot L and rack R, rocking jaw O, having the arm guided in the slot L, and segment P, having teeth Q, substantially as described.

4. In a machine for beading shoe-uppers, the combination of a yielding work-support, a rocking, heading, or pressing iron for operating upon the work on the support, and means, substantially as described, for rocking the said iron, as set forth.

5. The combination of the work-support, a rocking, heading, or pressing iron for operating upon the work on the support, a link or guide operating against a portion of the main frame for receiving the upward thrust of the iron as it rocks over the work, and means, substantially as described, for rocking the iron, as set forth.

6. The combination of the work-support, the sector-shaped rocking iron, mounted on a pivot, a corresponing sector-shaped portion pivoted on the same pivot, said last-named portion working against a portion of the main frame, and means, substantially as described, for moving the central pivot of the sectors back and forward in a manner to cause the pressing-sectors to be rocked over the work on the support.

7. The combination of the work-support, the rocking sector-shaped pressing-iron mounted upon a pivot, the sector-shaped portion pivoted upon the same pivot and provided with the teeth on its periphery, the gear-teeth on the main frame engaging with those on the last-named portion, and means, substantially as described, for reciprocating the pivot on which the two sectors are mounted backward and forward, whereby

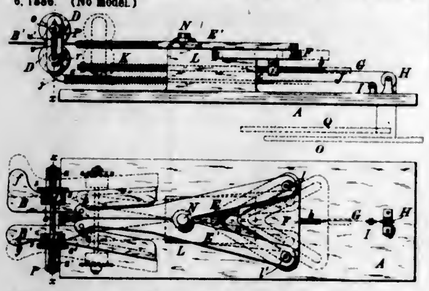
the two sectors will be rocked, the former over the work on the support and the latter over the gear on the frame, as set forth.

8. The combination of the work-support, the two sector-shaped sections mounted on the same pivot, one operating against a portion of the main frame and the other on the work on the support, the latter sector having an arm operating in a groove in the main frame, constituting a guide for it, and means, substantially as described, for reciprocating the pivot of the sections, substantially as described.

9. The combination of the work-support, the two sector-shaped sections mounted on a common pivot, the upper section provided with gear-teeth engaging with corresponding teeth on the frame, and the latter operating upon the work on the table, an arm secured to the latter, a groove on the main frame with which said arm engages, the pitman connected to the pivots of the sector-sections, and means, substantially as described, for reciprocating it, as set forth.

354,189. MACHINE FOR TREEING SHOE-LEGS.

CHARLES B. HATFIELD, Rochester, N. Y., assignor, by direct and mesne assignments, to Frank S. Upton and Charlotte Hatfield, both of same place. Filed Sept. 6, 1886. (No model.)



Claim.—1. The combination, in a machine for treeing shoe-legs, of the separable stretching-jaws B B' and the reciprocating pressure-rollers C C' D D', substantially as described.

2. The combination, in a machine for treeing shoe-legs, of the stretching-jaws B B' and the rollers C C', having overlapping flanges *s s'*, substantially as described.

3. The combination, in a machine for treeing shoe-legs, of the separable stretching-jaws B B', and the reciprocating flanged rollers C C' and D D', rods *o* and *r*, and suitable springs connected to the rods, substantially as described.

4. The combination, in a machine for treeing shoe-legs, of the separable stretching-jaws B B', and the reciprocating flanged rollers C C' D D', and a suitable spring or springs arranged to force the flanges against the edges of the jaws, substantially as described.

5. The combination, in a machine for treeing shoe-legs, of the separable stretching-jaws B B', the reciprocating flanged pressure-rollers C C' D D', rods *o* and *r*, a spring or springs connecting the rods, and a suitable spring or springs arranged to force the flanges against the edges of the jaws, substantially as described.

6. The combination, in a machine for treeing shoe-legs, of pivoted stretching-jaws, operating-levers to which said jaws are pivoted, and reciprocating pressure-rollers co-operating with the said jaws, and means, substantially as set forth, for operating said levers, all substantially as described.

7. The combination, in a machine for treeing shoe-legs, of the separable stretching-jaws B B', reciprocating flanged pressure-rollers C C' D D', rods *o* and *r*, suitable springs for connecting the rods together and pressing the flanges against the jaws, frame P, and rod *c*, substantially as described.

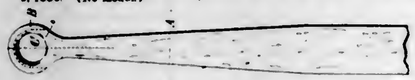
8. The combination, in a machine for treeing shoe-legs, of the separable pivoted stretching-jaws B B', levers E E', and sliding cam F, operating to open the jaws, substantially as described.

9. The combination, in a machine for treeing shoe-legs, of the separable pivoted stretching-jaws B B', levers E E', cam F, having inclined grooves *a a'*, rod *b*, and spring K, substantially as described.

10. The combination, in a machine for treeing shoe-legs, of the separable pivoted stretching-jaws B B', reciprocating pressure-rollers on each side the jaws, and suitable mechanism arranged to be operated by the treadles O and Q, for opening the jaws and causing the rollers to reciprocate lengthwise of the jaws, substantially as described.

354,190. TURNING-IRON FOR SHOE-UPPERS.

CHARLES B. HATFIELD, Rochester, N. Y., assignor, by direct and mesne assignments, to Frank S. Upton and Charlotte Hatfield, both of same place. Filed Sept. 9, 1886. (No model.)





Claim.—1. An improved iron for turning shoe-uppers and similar articles, comprising the annular head or turning-edge mounted upon a standard, substantially as described.

2. The herein-described turning iron or stake, consisting of a standard provided with an annular head and grooved turning-edge, substantially as described.

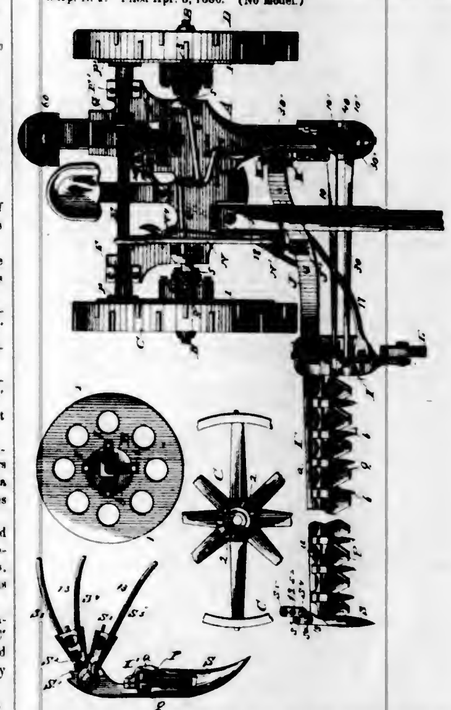
3. The improved turning iron or stake provided with an annular head mounted upon a standard, the interior wall of the annulus being beveled, substantially as and for the purpose set forth.

4. An improved turning iron or stake substantially such as herein described, consisting of an annular head having beveled sides, mounted on a standard and provided with a circumferential groove, substantially as described.

5. An improved turning iron or stake substantially such as described, consisting of a standard provided at its upper end with a narrow turning-edge grooved for the reception of the turned-in edge of the material, the sides of the said turning-edge being beveled, substantially as described.

354,191. REAPER AND MOWER.

HARLOW D. HATHAWAY, Antwerp, N. Y. Filed Apr. 3, 1886. (No model.)



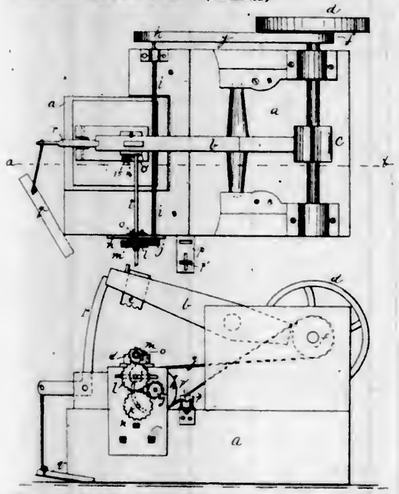
Claim.—1. The combination, with the main frame and the supporting and driving wheels provided with ratchets on the inner ends of their hubs, of the internally-toothed wheels keyed to the axle inside of the driving-wheels, and provided with the spring-pressed dogs in their hubs, the gear-shifters connected to the foot-lever, the shouldered spring-catch for engaging the foot-lever, the transverse driving-shaft provided with the end pinions and the intermediate miter-gear, the sleeve 19, provided with the miter-pinion H and cog-gear 20, the double-crank shaft, the pitman-rods 10 and 30, the hinged brace-rods connecting the inner shoe to the frame, the cutter-bar pitman-rods, and the double knives, substantially as specified.

2. The combination, with the main frame secured to the axle mounted in the supporting and driving wheels, provided with ratchets on the inner faces of their hubs, the internally-toothed gears secured to the axle and provided with the spring-pressed dogs in their hubs, of the gear-shifters 6 6, secured at their inner ends to the foot-lever 7, the spring-catch 9, the rear transverse driving-shaft with end pinions and an intermediate miter-gear, the double-crank shaft with pinion near its rear end, the pitman-rods secured to the double-crank shaft and to the reciprocating knives, the hinged lifter-bar, and the chain and levers for raising, holding, and lowering the lifter-bar and cutter-bar, substantially as specified.

3. The combination, with the finger-bar and the outer shoe, provided at its rear end with the teeth, of the track-cleaner comprising the spring-pressed detents and the arms held in the sockets, substantially as specified.

354,192. ATTACHMENT FOR TRIP-HAMMERS.

GEO. H. HATHORN, Chester, Mo. Filed Jan. 8, 1884. (No model.)



Claim.—1. In a trip-hammer, the combination of the hammer, the shaping-dies, a removable holder for the articles to be shaped, means, substantially as described, for engaging with and automatically rotating said holder when the hammer is in operation, and a bearing for the article whereby the holder is maintained in proper relation to the rotating devices, substantially as described.

2. In combination with a shaping trip-hammer, a holder having an opening through which the bars may be fed to the hammer, and a clamp for securing the bar for the articles to be shaped, mechanism, substantially as described, adapted to receive said holder and to rotate it during the operation of the hammer, and a stop which arrests the hammer during the changing of said holders, substantially as described.

3. In a trip-hammer, the combination of the hammer, the shaping-dies, a holder for the article to be shaped adapted to rotate it when the hammer is in operation and having a geared periphery, and a driving-gear meshing with said holder, one of said meshing gears being widened, whereby a limited longitudinal movement of the article being shaped and its holder is permitted, substantially as described.

4. In a trip-hammer, the combination of the hammer, the shaping-dies provided with a series of matrices, a rotating holder for the article to be shaped movable to adjust the article to the matrix being used, and a gear-train which drives said holder and is adjustable to accommodate the position of the holder, substantially as described.

5. In a trip-hammer provided with appropriately-shaped dies, and designed to forge articles of varying shape and size from any ductile-metal rods, rotating more or less rapidly under the blows of the hammer, the sliding separable clutch-gear *m*, designed to slide upon the rod or bar *t* longitudinally and clasp the rod or bar firmly while rotating, imparting a rotary motion to the rod or bar, in combination with sliding gear *l*, adjustable gear *k*, fixed gear *j*, plate or frame *n*, and rest *o*, all acting and operating together to impart a rotary motion to a rod or bar while being forged under the blows of the hammer, all as shown and described.

6. In a trip-hammer designed to forge articles of varying shapes and sizes from rods or bars of any ductile metal rotating under the blows of the hammer, the clutch-gear *m*, provided with the spring *u*, annularly-grooved rollers *w w*, and peripheral gear-teeth, and designed to slide longitudinally on a rod or bar, *t*, and to clutch or grip the rod or bar firmly while rotating, in combination with the rod or bar *t*, and a gear, *l*, however actuated, all designed and acting or operating to impart a rotary motion to the rod or bar *t* while being forged under the blows of a trip-hammer, the clutch-gear being separable from the other parts, all as shown and described.

7. In combination with the trip-hammer, the trebly matfixed dies *e e'*, the actuating-shaft *i*, the rod *t*, the clutch-gear *m*, and the rest *o*, with their operating devices, all arranged and operating together, as shown, and as and for the purposes described.

8. In a trip-hammer designed to forge articles from rods or bars of iron or any other ductile metal while the rods or bars are rotated under the blows of the hammer, the separable clutch-gear *m*, provided with the annularly-grooved rollers *w w*, arranged as described, or any equivalent device, operating in connection with the gears *k l* to communicate a rotary motion to the rod *t*, and sliding longitudinally upon the rod *t* in such a manner that it may be taken from the machine with the rod and adjusted upon it by a gage, *p*, to regulate the distance which the rod can extend between the dies, and also permitting the rod to be heated with the clutch-gear in place upon it, all as shown and described.

9. In a trip-hammer designed for forging from ductile-metal rods rotating under the blows of the hammer, the dies *e e'*, formed with two or more matrices sunk in their faces in order to allow the hammer to be shifted from a matrix which has become worn to a fresh one, as shown and described, in combination with the movable rest *o*, separable clutch-gear *m*, sliding gear *l*, adjustable gear *k*, actuating-gear *j*, supporting-plate *n*, having the horizontal slot 10 and the curved slot 14, the stud and nut 11 and 12, designed by adjustment to allow of shifting the rod *t* from one matrix to another, and the gage *p*, whereby the clutch is adjusted longitudinally on the rod *t*, all as shown and described, and substantially as and for the purpose hereinbefore set forth.

10. In a trip-hammer designed for forging from any ductile-metal rods while rotating under the blows of the hammer with either plain or matrixed dies, the separable clutch-gear *m*, provided with the clutch *s*, having the annularly-grooved rollers *w w*, and curved spring *u*, and designed to clutch or clasp a rod or bar, *t*, and impart a rotary motion to the rod when the clutch is brought into mesh with either a stationary or adjustable driving-gear, as shown at *l*, however the driving-gear may be actuated, all arranged and operating to impart a rotary motion to the rod *t* while being forged under the blows of the hammer, as shown and described.

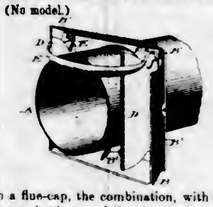
11. In a trip-hammer designed to forge from rods or bars of metal while rotating under the blows of the hammer, the combination of the separable clutch-gear *m*, having the spring *u*, and grooved rollers *w w*, attached with the gage *p*, provided with the bifurcated rest *p'* and standard or stop *p''*, by means of which the separable clutch-gear is adjusted to the proper distance from the forged end of the rod *t* at each successive operation, all as shown and described.

12. In combination with the hammer *b* and dies, as described, the fixed gear *j*, adjustable gears *k l*, and the plate or frame *n*, supporting said gears and provided with the slots 10 and 14, in which said movable gears are journaled, substantially as shown and described.

13. The combination of the gear *m*, spring *u*, and cross-bar *v*, secured thereto, with the rollers *w w*, provided with the annular grooves *x*, as shown and described, the whole forming a separable clutch-gear adapted and designed to move easily lengthwise on a rod or bar and to clutch or clasp it and impart a rotary motion to it whenever the clutch itself is actuated, as shown and described, and substantially as and for the purposes herein set forth.

354,193. FLUE-CAP.

FREDERICK E. HEINIG, Louisville, Ky. Filed Mar. 6, 1885. (No model.)



Claim.—1. In a flue-cap, the combination, with the frame, of the cover, the bail having projections, and the doors, substantially as set forth.

2. The combination, in a flue-cap, of the frame B, cover C, and bail E, with doors D D, one of which has a projection, D', the other lap D², substantially as and for the purpose set forth.

354,194. FEED-WATER HEATER.

WILLIAM HERD, Harrison, N. J. Filed Apr. 5, 1886. (No model.)



Claim.—1. In combination in a feed-water heater, the exhaust-pipe *a*, smaller cold-water pipe having its perforated end extend into said ex-

haust-pipe, a hot-water-exit pipe, and a sand or sediment receptacle, e, all said parts being arranged and combined substantially as set forth.

2. The improved feed-water heater herein described, combining therein an exhaust-steam pipe, *a*, a cold-water pipe of smaller diameter, which extends into said pipe *a* and forms a spray-chamber therewith, the end of said cold-water pipe being perforated to form the spray, a sand, mud, or sediment receptacle attached to said pipe *a*, and a hot-water pipe, *d*, attached to said receptacle *e*, to lead the water therefrom to the pump or boiler, all said parts being arranged and operating substantially as and for the purposes set forth.

354,195. DOOR-PLATE. Dewitt C. Johnson and William A. Morsey, Lock Haven, Pa. Filed Mar. 8, 1886. (No model.)



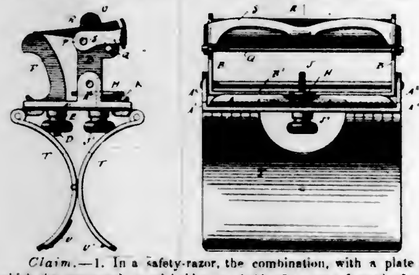
Claim.—1. The plate A, provided with the raised portions or frames B D, forming the intermediate annular recess, J, having opening J', adapted to receive a push-button or bell-pull, and having the attaching-lugs M, and opening E, the whole cast in a single piece, substantially as specified.

2. The combination, with the plate A, consisting of the raised frames B D, having flanges B' D², of the glass F, the removable letters D', separately secured in the plate G, mounted in the frames, and the backing I, secured to the frame, substantially as specified.

3. The combination, with the base A, comprising the frames B and D formed therein, and the opening E at the top thereof, said opening being provided with a flap, E', and the apertured recess J', formed between the frames, of the glass F, letters C D, separately connected to the plates G and arranged within the frames, and the backing I, separately secured to the frames, substantially as specified.

4. The combination of the plate A, having the frames B and D formed therein, and an annular perforated recess, J, formed between the frames and having a push-button, K, within the recess and mounted upon the spring K', secured to the frame, as at K², and the plate K³, substantially as specified.

354,196. SAFETY-RAZOR. Frederick Kampfe, Otto Kampfe, and Richard Kampfe, Brooklyn, N. Y. Filed Oct. 19, 1886. (No model.)



Claim.—1. In a safety-razor, the combination, with a plate on which the razor and guard-holder are held, of a cover formed of two curved sections hinged to the edges of the plate, which curved sections also serve as a handle when swung down, substantially as shown and described.

2. In a safety-razor, the combination, with a plate and guard-holders on the same, of two curved plates hinged to the said edges of said plate, one of the curved plates being provided with a pin and the other with an aperture, substantially as shown and described.

3. In a safety-razor, the combination, with a plate, of a blade-holder pivoted on the same, a sliding plate below the pivoted blade-holder, and a guard on said sliding plate, substantially as shown and described.

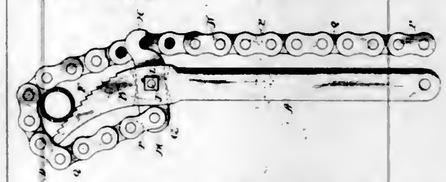
4. In a safety-razor, the combination, with a plate, of a blade-holder pivoted on the same, a spring acting on the blade-holder, and a screw screwed into the blade-holder, substantially as shown and described.

5. In a safety-razor, the combination, with a plate, of a blade-holder pivoted on the same, a sliding plate below the blade-holder, a guard on the sliding plate, a screw passing through the sliding plate and through the plate on which said plate slides, and a nut on said screw, substantially as shown and described.

6. In a safety-razor, the combination, with a plate, of a blade-holder pivoted on the same, a pivoted latch on the blade-holder, a rod in the blade-holder, the ends of which rod project beyond the sides of the blade-holder and form a support for the latch, substantially as shown and described.

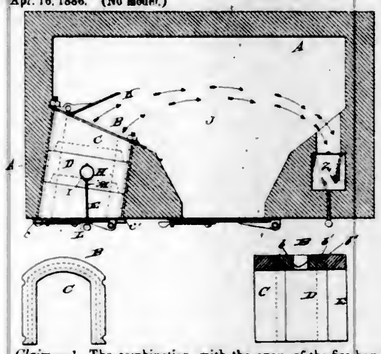
7. A safety-razor provided with a guard composed of wire bent alternately in opposite directions, substantially as shown and described.

354,197. PIPE-WRENCH. John Lee, Sandy Run, Pa. Filed Nov. 4, 1886. (No model.)



Claim.—The combination, with the slotted lever having the convex serrated or toothed point, of the sprocket-chain provided with the slotted pointed dog at one end, secured in the slotted lever by a bolt, substantially as specified.

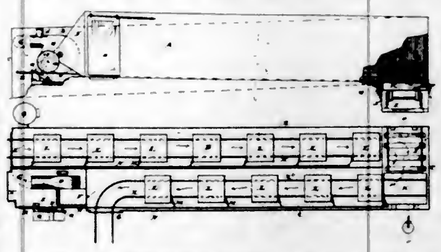
354,198. BAKER'S OVEN. Oliver Liberty, Woonsocket, R. I. Filed Apr. 16, 1886. (No model.)



Claim.—1. The combination, with the oven, of the fire-box formed of the flanged shouldered sections of fire-clay connected together by bolt-rods, and the inner and outer doors, substantially as specified.

2. The combination of the oven, the fire-box composed of the flanged and shouldered fire-clay sections secured together by bolt-rods, the grate-bars and the inner and outer doors, and a smoke-flue, as set forth.

354,199. DRYING APPARATUS. John H. Lorimer, Philadelphia, Pa. Filed Mar. 26, 1886. (No model.)



Claim.—1. A passage-way or chamber, in combination with a fan to cause a current of air or gas to pass through said passage-way or chamber from end to end, inclined rails arranged within said passage-way or chamber, one or more vehicles adapted to run upon said rails to carry the material to be dried and be moved through said passage-way or chamber, and stops or catches to control the movement of said vehicles, substantially as and for the purpose specified.

2. A passage-way or chamber, in combination with a fan to cause a current of air or gas to pass through said passage-way or chamber from end to end, inclined rails arranged within said passage-way or chamber, one or more vehicles adapted to run upon said rails to carry the material to be dried and be moved through said passage-way or chamber, stops or catches to control the movement of said vehicles, and automatic mechanism to periodically actuate said stops to insure the travel of the vehicles with a given velocity, substantially as and for the purpose specified.

3. A passage-way or chamber, in combination with a fan to cause a current of air or gas to pass through said passage-way or chamber from end to end, one or more vehicles adapted to carry the material to be dried and be moved through said passage-way or chamber, and a pipe to admit a disinfectant or bleaching medium to the suction end of the drying-chamber, substantially as and for the purpose specified.

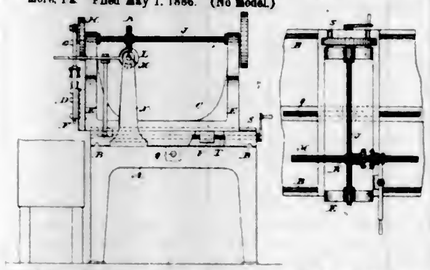
4. The combination of two or more drying-chambers arranged substantially parallel, an inclined transverse railway connecting adjacent ends of adjacent chambers, inclined railways in said chambers, a conveying or transfer truck to run upon said transverse railway, vehicles to carry the material to be dried, adapted to run upon said railways of said chambers and be transferred by the transfer-truck, and a fan or blower to force or draw a drying medium through said chambers, substantially as and for the purpose specified.

5. The combination of chambers A B with a fan or blower to cause a circulation of a drying medium through said chambers in succession, inclined railways in said chambers, the inclination in adjacent chambers being in opposite directions, and a connecting-railway between the railways of said chambers, whereby a vehicle carrying the material to be dried may pass successively through said chambers, substantially as and for the purpose specified.

6. The combination of chambers A B with a fan or blower to cause a circulation of a drying medium through said chambers in succession, inclined railways in said chamber, the inclination in adjacent chambers being in opposite directions, a connecting-railway between the railways of said chambers, whereby a vehicle carrying the material to be dried may pass successively through said chambers, and stops arranged at intervals along said railways to control the passage of said vehicles, substantially as and for the purpose specified.

7. The combination of chambers A B with a fan or blower to cause a circulation of a drying medium through said chambers in succession, inclined railways in said chambers, the inclination in adjacent chambers being in opposite directions, and a connecting-railway between the railways of said chambers, whereby a vehicle carrying the material to be dried may pass successively through said chambers, stops arranged at intervals along said railways to control the passage of said vehicles, and connecting-rods for operating all of the stops simultaneously, substantially as and for the purpose specified.

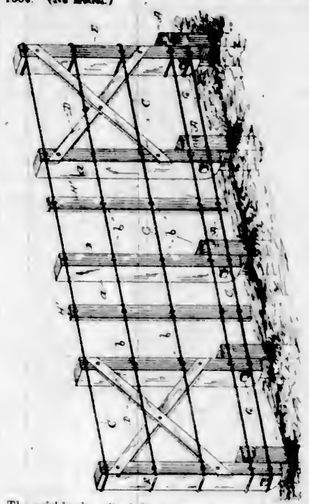
354,200. STONE-DRESSING MACHINE. Frank Manning, Ardmore, Pa. Filed May 1, 1886. (No model.)



Claim.—1. A stone-dressing machine having a frame with tracks thereon, a carriage composed of an upper and a lower section adapted to slide on said track, means, substantially as described, for imparting reciprocal sliding motion to the said carriage, and separate means, substantially as described, for imparting transverse sliding motion to said upper part, uprights secured to said carriage, a shaft suitably journaled in said uprights, carrying a crank-wheel, a rod secured to said wheel and to a slide-head fitted on one of the uprights and provided with cutting-tools, a wheel mounted on the said shaft meshing with a wheel mounted on a counter-shaft, and means, substantially as described, for engaging and disengaging said wheels, all substantially as and for the purpose set forth.

2. A stone-dressing machine composed of the frame A, with tracks B, the carriage C, composed of an upper and a lower part, the lower part being adapted to slide on said track B, means for imparting reciprocating motion to said carriage, separate means, substantially as described, for imparting transverse motion to the upper part of said carriage, the uprights E, the shafts J, having bearings in uprights E, crank-wheel, H, mounted on said shaft, the rod G, connected to the wheel H and to sliding head D, the latter being fitted to one of the uprights E, and carrying cutting-tools F, the uprights N, counter-shaft M, having bearings in the uprights N, meshing wheels K and L on said shafts J and M, and means, substantially as described, for engaging and disengaging said wheels, all combined substantially as and for the purpose set forth.

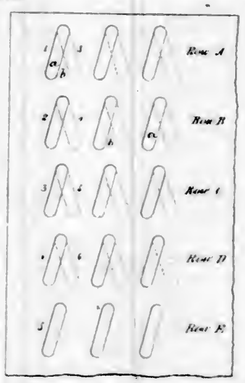
354,201. FLOOD-FENCE. George W. Martin, Lafayette, Ind. Filed July 27, 1886. (No model.)



Claim.—The within-described flood-fence, consisting of the ground-stakes A, posts connected together at the ends of the fence by diagonal braces and secured to said ground-stakes by pivotal clamping-bolts, the intermediate post, also pivoted to a ground-stake by a clamping-bolt, the longitudinal wire rails secured to said posts, the lower two of which rails bear against one side of the ground-stakes when the fence is erect, and the short vertical bars H' H' between the said intermediate post and the braced posts, all constructed and adapted to operate substantially in the manner and for the purposes described.

354,202. PROCESS OF CUTTING V-SHAPED SLOTS IN SHEET METAL. Charles T. Mason, Jr., Sumter, S. C., assignor to the Mason Cotton Harvester Company. Filed May 25, 1886. (No model.)

Brief.—The parallel slots in the first row are cut simultaneously. The bar is then fed along and the corresponding parallel slots of the second row are cut. The plate is then so manipulated in the feed to the third row as to bring the first row under oppositely-inclined punches, whereby simultaneously with the cutting of the third row of slots the first row will be cut by the second set of punches to complete the slot, and leave the V-teeth intact.



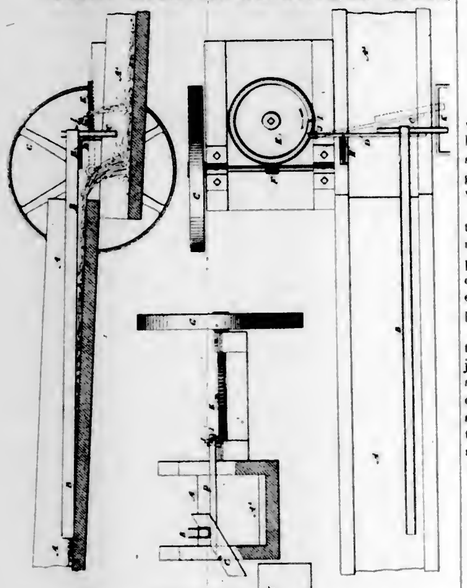
Claim.—1. The process of producing rows of V-shaped slots containing pointed teeth in sheet metal, which consists in, first, making simultaneously one half or leg of each slot in two different rows—as, for example, the half-slots 3 3 in the rows A and C, the said halves or legs

being relatively oppositely inclined; second, making simultaneously the remaining oppositely-inclined half or leg of each slot in one of said rows, as the half-slots 5 in row C, and also the half-slots in a new row, as the half-slots 5 in row E, substantially as described.

2. The process of producing rows of V-shaped slots containing pointed teeth in sheet metal, which consists in, first, producing simultaneously one-half of each slot in alternate rows, the said half-slots being oppositely inclined, as the half-slots 3 3 in rows A and C; second, producing simultaneously one-half of each slot oppositely inclined, as the half-slots 4 4 in the rows B and D; third, producing simultaneously one-half of each slot oppositely inclined, as the half-slots 5 5 in the rows C and E, and so on, substantially as described.

3. The process of producing a row of V-shaped slots containing pointed teeth in sheet metal, which consists in, first, producing one-half of each slot in the first row, as the half-slot 1 in row A; second, producing one-half of each slot in the succeeding row, as the half-slot 2 in row B; third, producing one-half of each slot in the third row, as the half-slot 2 in row C, and simultaneously therewith the remaining half-slot of the first row, as the half-slot 3 in row A, substantially as described.

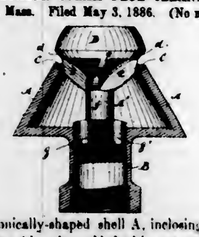
354,203. ORE-SAMPLING MACHINE. WALTER MCDERMOTT, Brick Church, N. J. Filed Jan. 2, 1886. Renewed Nov. 10, 1886. (No model.)



Claim.—1. In combination, the launder, a trough mounted on the long arm of a lever, a spring so arranged as to hold said trough out of the descending current of ore, and mechanism, substantially as described, whereby said trough is repeatedly swung into said current and released to pass out of said current under the influence of the spring, as set forth.

2. In combination, the launder, a narrow trough, B, whereby a portion of the pulp or ore flowing down said launder is separated from the main stream, and a vibrating trough arranged at the end of trough B, substantially as described, whereby samples may be taken from time to time from the ore or pulp flowing from the trough B.

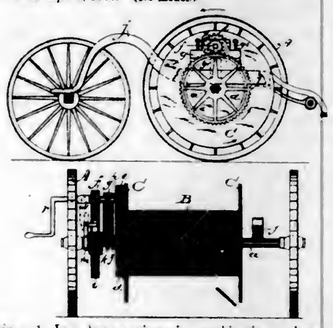
354,204. ADJUSTABLE STEAM FLUE-CLEANER. GEORGE G. MCLAUGHLIN, Boston, Mass. Filed May 3, 1886. (No model.)



Claim.—1. The conically-shaped shell A, inclosing an expansion and compression chamber, A', and provided with a screw-threaded neck, B, at its lower end and a beveled opening at its upper end, in combination with a head, D, having a beveled edge at its lower end and provided with radial wings c, the stem *f*, and screw-plug *g*, provided with recesses or openings *g'*, substantially as and for the purpose set forth.

2. In a flue-cleaner, the screw-plug *g*, provided with openings or recesses *g'*, in combination with the neck B, the stem *f*, and head D, as and for the purpose set forth.

354,205. HOSE-CARRIAGE. EDWARD S. MCNAMARA, Belleville, N. J. Filed Apr. 3, 1886. (No model.)

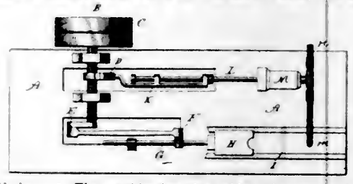


Claim.—1. In a hose-carriage, in combination, a hose-reel, gear-wheels *d i*, one of which is secured to said reel, a journal-box arranged between said gear-wheels, pinions *f e*, meshing with said gear-wheels and journaled in said box, and means for connecting the other of said gear-wheels with one of the carriage-wheels and disconnecting said gear-wheel therefrom, for the purpose set forth.

2. In a hose-carriage, in combination, a reel, a cog-wheel secured to said reel, a cog-wheel arranged independently of said reel, pinions meshing with each of said cog-wheels, a shaft on which each of said pinions is keyed, and a pivoted catch connected and turning with a wheel of said carriage, and adapted to be thrown into engagement with and disengaged from said independent cog-wheel, substantially as and for the purposes set forth.

3. In a hose-carriage, in combination, a reel, a cog-wheel secured to said reel, a cog-wheel arranged independently of said reel, a double journal-box arranged between said cog-wheels, consisting of an upper and lower portion, substantially as set forth, pinions meshing with said oppositely-arranged cog-wheels and journaled in the upper portion of said box, a collar secured to the hub of one of the carriage-wheels and turning therewith, and a bifurcated fork pivotally secured to said collar, all said parts being arranged for the purpose set forth.

354,206. CAN-WATERING MACHINE. ALBERT R. MERRELL and DAVID LENNOX, Marshalltown, Iowa. Filed Dec. 7, 1885. (No model.)

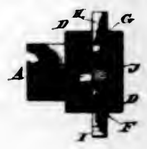


Claim.—1. The combination of a table, a force-pump having a hinged pump-rod with two annular flanges, a bayonet-shaped eccentric-rod having two rings for the reception of the said pump-rod, and a U-shaped washer, as shown.

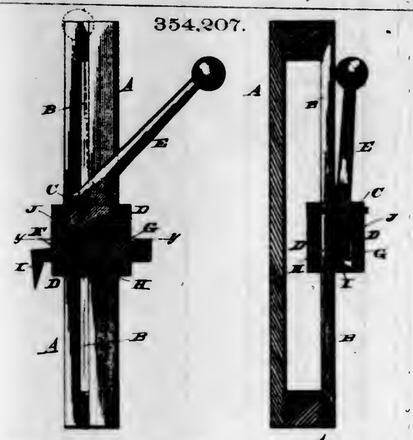
2. In a can-watering machine, the combination of the shaft B, the eccentric D, the rod K, the crank E, the pitman F, the plunger-rod G, the cross-head H, the feed-pipe I, the pump-rod L, the pump M, rings *a a'*, the flanges *b b'*, the washer *c*, and the water-pipe *e*, substantially as and for the purposes shown and described.

354,207. SAW-MILL DOG. JOHN C. MILLER, Dunkirk, Ohio. Filed Apr. 27, 1886. (No model.)

Claim.—The combination, with the slotted knee of a saw-mill carriage, of the hollow head, the pin passing through the slot of the knee,

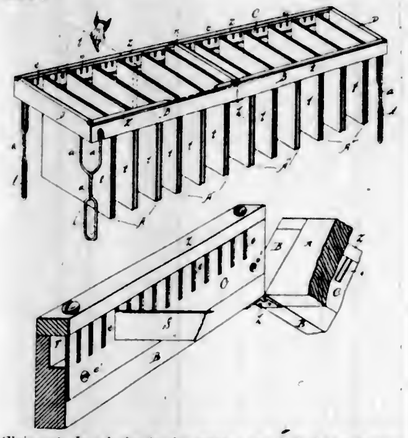


354,207.



the cam-lever journaled on the said pin, which latter also bears the said head, the concavo-plano block in the head above the aligned openings therein, and the dog in the said openings, substantially as specified.

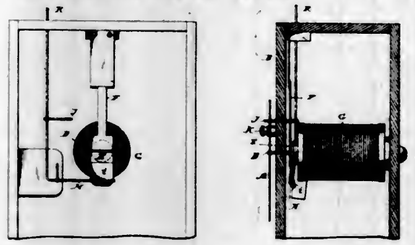
354,208. DISPLAY AND RETAIL DEVICE FOR FANCY PAPERS. DENNIS J. O'SULLIVAN, Detroit, Mich. Filed Mar. 30, 1886. (No model.)



Claim.—1. In a device for the purposes specified, the combination of the frame, the detachable legs, the adjustable supporting-rails, and the mechanism for supporting the adjustable rails, the sheets of paper suspended upon said rails, as and for the purposes specified.

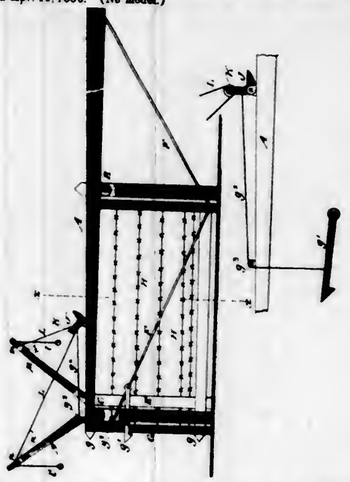
2. In a device for the purposes specified, the combination of the two-part frame, hinged at the center and provided with detachable legs, the central cross-rail, *n*, and the adjustable cross-rails S, supported as set forth, and having the sheets of paper suspended thereon, as and for the purposes specified.

354,209. ELECTRICAL ANNUNCIATOR. GWYNNE E. PADGETT, Baltimore, Md. Filed Dec. 30, 1885. (No model.)



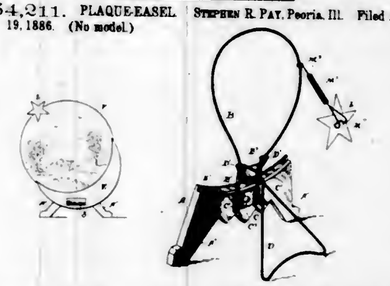
Claim.—In combination, a gravitating index, a locking-pin, D, to hold the same in its initial position against gravity, an armature, E, to which the pin D is attached, and the inclined portion *i*, with the slide-rod provided with slide-pins H and J, substantially as set forth.

354,210. SLIDING GATE. WILLIAM R. PATTEN, Elmsdale, Kans. Filed Apr. 19, 1886. (No model.)



Claim.—The combination, with a sliding gate, of the superposed rigid arms M N, carrying pulleys *m n* in apertures *m' n'*, the pull-cord L, passing over pulleys *m n*, the elbow-lever J, fulcrumed at its vertex on the rail A, and carrying the pulley K, the pulley g^3, the flexible connection g^2, and the pivoted latch *g'*, substantially as shown and described.

354,211. PLAQUE-EASEL. STEPHEN R. PAT, Peoria, Ill. Filed Apr. 19, 1886. (No model.)



Claim.—1. In a plaque-easel, a standard having its upper edge curved concentric with a plaque to be held thereby, in combination with a back rising from said standard and a prop, substantially as set forth.

2. In an easel, the combination, with a standard, of the wire back projecting from the standard and the prop formed of a single length of wire having the eyes D' encircling the wire of the back, and bent, as set forth, whereby said prop can be swung toward and from the standard.

3. In an easel, the combination, with the standard having sockets C', of the wire back having its ends adapted to enter said sockets, and a prop for supporting the same.

4. In an easel, the combination, with the standard, of the plate C, pivoten to the standard and having sockets C', the wire back having its ends adapted to enter said sockets, and the supporting-prop.

5. In an easel, the combination, with the standard, its back, and a supporting-prop, of the hook, an ornamental figure affixed to said hook, and an elastically-extensible link connecting said hook to the back, substantially as and for the purpose specified.

6. In a plaque-easel, the combination, with a standard, a back, and a prop, of the crescent and means for securing it to the standard, the upper edge of said standard being adapted to support a plaque.

7. In a plaque-holder, the crescent suitably supported and having its upper and concave edge provided with the plaque-receiving groove, substantially as set forth.

8. In a plaque-holder, the combination, with suitable supports, of the crescent or similar holder having its upper edge curved concentric with a plaque, and means for supporting the lower edge of a plaque just

below said curved edge, substantially as set forth, for the purpose specified.

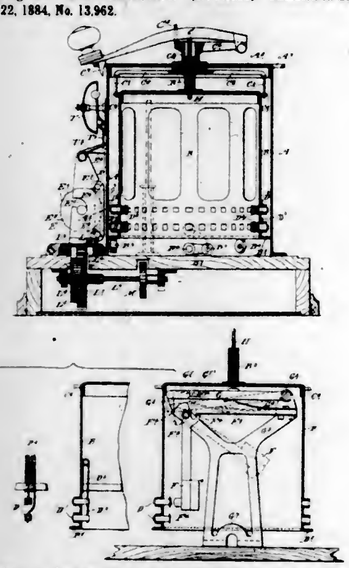
9. In a plaque-easel, the combination, with the standard A, of the wire back B, projecting from said standard, the prop D, loosely connected to the back, the grooved crescent E, secured to said standard, and the elastically-extensible hook M, loosely attached to said wire back, as and for the purpose specified.

354,212. WASH-BOILER. HENRY C. PAYNE, Webster City, Iowa. Filed Jan. 30, 1886. (No model.)



Claim.—In a wash-boiler, the combination of the following elements: the boiler A, having ports D, cover B, having an overhanging surface-condenser, flange C, a slide, D', and keepers *d*, substantially as described.

354,213. TYPE-WRITING MACHINE. EDWARD E. PEACOCK, London, England. Filed June 23, 1885. (No model.) Patented in England Oct. 22, 1884, No. 13,962.



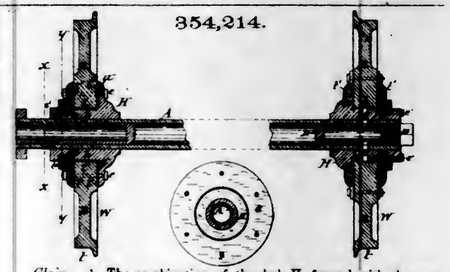
Claim.—1. In a type-writer, the combination, with a stationary cylinder provided with a single opening, a rotatable tubular type-carrier inclosed therein and carrying a series of type in superposed peripheral rows, operated to be projected through corresponding peripheral openings in said carrier, and a central shaft around which the type-carrier revolves, of a lever connected with the type-carrier for rotating and positioning the same to bring a type-opening and type to register with the opening in the cylinder, said type-carrier having a vertical movement upon the central shaft independent of the lever, and means, such as described, for adjusting the carrier vertically, as and for the purpose specified.

2. The combination, with the carriage L, toothed on its under side, a gear-wheel mounted on a horizontal shaft and meshing with the teeth on the carriage, and a spring acting upon said shaft, of the ratchet-wheel M, the rods M^7 N', keys M^8 N, lever M^6, pawls M' and M^2, and spring M^3, said parts being arranged and operating substantially as and for the purpose specified.

3. The combination, with the longitudinally-sliding bolt I, weighted at one end, the levers K' K^2 K^4, pivoted on the same shaft, a stop on the weight of the sliding bolt, and the shaft H, of springs for shooting the bolt I and returning the various parts into their normal position, said parts being arranged and operating substantially as and for the purpose specified.

354,214. CAR-WHEEL. EDGAR PECKHAM and EMIL LAASS, Syracuse, N. Y., assignors, by direct and mesne assignments, to M. J. Peckham, same place. Filed Mar. 25, 1886. (No model.)

354,214.



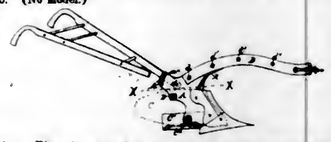
Claim.—1. The combination of the hub H, formed with the seat *b*, abutment *a* at the inner end of the hub, and the groove *c* and the collar *c'* at the outer end of the hub, the ring R, mounted on said seat, and the collar C, secured in the groove *c*, and bolts for tightening the collar C on the ring R, substantially as described and shown.

2. The combination of the hub H, formed with the seat *b*, abutment *a*, groove *c*, recess *r r* in said groove, and the collar *c'* at the outer end of the hub, the tread-ring R, mounted on said seat, the collar C, seated in the groove *c*, and provided with the projections *d d*, and bolts for tightening the collar C on the ring R, substantially as described and shown.

3. In combination with the tubular axle formed with an internal lubricant-reservoir, and provided with lubricating-channels *i*, the hub H, provided with corresponding channels, *i*, and formed with the seat *b* and abutment *a*, the ring R, mounted on said seat, and the collar C clamped on the side of the said ring, substantially as described and shown.

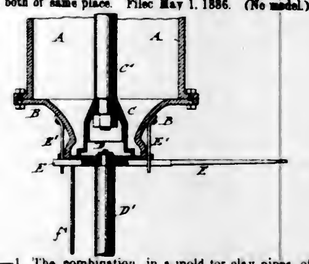
4. In combination with the tubular axle formed with an internal lubricant-reservoir and provided with lubricating-channels *i*, the hub H, provided with corresponding channels, and formed with the seat *b*, abutment *a*, groove *c*, and collar *c'*, the ring R, mounted on said seat, the collar C, secured in the groove *c*, and the shields *f' f'*, secured to opposite sides of the ring R and lapping on to the abutment *a* and collar C, substantially as described and shown.

354,215. PLOW. JOHN PENTREATH, Yonkers, N. Y. Filed Dec. 4, 1885. (No model.)



Claim.—The plow-standard A, having the corrugated head A', and the curved slot a^2, in combination with the blocks *a'*, having outer flanges, a^4, and inner corrugations, *m'*, the plow-handles, and the bolts e' e^2, substantially as shown and described.

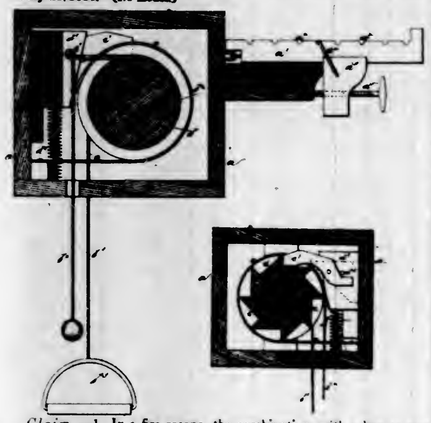
354,216. MOLD FOR MAKING CLAY PIPES, &c. CHARLES A. PERRY, New York, N. Y., assignor to Gustavus W. Rader and Michael Schmidt, both of same place. Filed May 1, 1886. (No model.)



Claim.—1. The combination, in a mold for clay pipes, of a base-section and a core corresponding to the cross-section of the pipe, a former fitted to the base-section and core, an independently-movable locking-lever, means to lock the lever to the base-section, a fixed vertical guide-rod attached to the base-section, and a bracket-arm attached to the former and guided on the fixed rod of the base-section, substantially as set forth.

2. The combination, in a mold for making clay pipes, of a base-section having fixed locking-hooks, an interior core, a former fitted to the base-section and core, a rod for supporting the former, and an axially-movable locking-lever pivoted below the base-section to the former-rod, and adapted to lock or release the former without turning the same, substantially as set forth.

354,217. FIRE-ESCAPE. FRANK B. PETERS, Lincoln, Nebr. Filed July 23, 1886. (No model.)



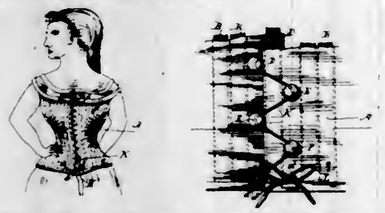
Claim.—1. In a fire-escape, the combination, with a box or case for containing the device, of a bar formed with notches on one edge, a slide thereon having a loop for engaging these notches, and a set-screw in this slide for engaging a window-frame, substantially as and for the purpose set forth.

2. In a fire-escape, the combination, with a drum on which the escape-rope is wound, provided with a ratchet and pawl, of a second or controlling line on said drum, a band-brake around the drum, and a slide connected to the band and provided with a spur to engage the pawl, and a pin over which the controlling-line passes, substantially as and for the purpose set forth.

3. In a fire-escape, a drum or reel provided with a ratchet, in combination with a band-brake around the drum, a slide for applying it, and a stop-pawl, operated also by the slide, whereby the pawl and brake are caused to be applied alternately, substantially as and for the purpose set forth.

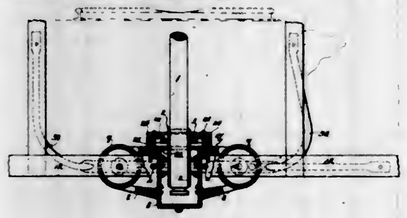
4. In a fire-escape, the combination, with the case *a*, notched bar *a'*, and its slide a^3, provided with the loop a^4 and screw a^5, of the double drum *b*, formed with ratchet *c*, the ropes b' b^2, pawl c', slide d', supported on a spring, d^3, and its spur d^2 and pin e', and the brake-bands *e*, all constructed and arranged to operate substantially as and for the purpose set forth.

354,218. CORSET-FASTENING. CHARLES K. PEVEY, Worcester, Mass. Filed July 2, 1886. (No model.)



Claim.—The combination, with the front ends, D D, of the corset, provided with the thin flat tempered-steel stiffeners B, of the buttons or hooks E, inserted as described, eyelets *d*, and lacings K K', all arranged to operate substantially as and for the purposes set forth.

354,219. CAR-AXLE BOX. LOUIS PYHROT, New York, N. Y., assignor to himself and W. P. Williams and E. C. Tracy, both of Chicago, Ill. Filed Sept. 6, 1886. (No model.)



Claim.—1. The combination, with the car-axle, of the sleeve and dust-collar on the same, the bearing 4, having pivot-lugs 6, the journal-box having internal U-shaped flanges for the pivots, and the septum, flange, dust-ring, bolts, and springs, substantially as set forth.

2. The combination, in a journal-box, with the septum 23 and circular projecting flange 24, of a sleeve, 2, and dust collar 3, formed together and surrounding the axle, the dust-ring 25 within the flange 24, and the bolts and springs to hold the ring 25 against the flat face of the collar 3, substantially as specified.

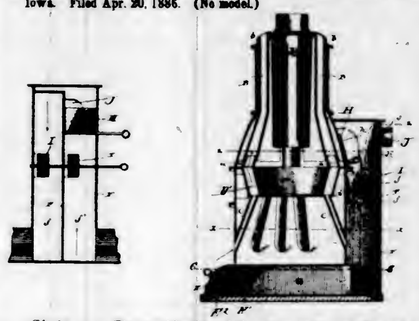
3. The combination with the journal-box having the lateral arms 8 and ring-shaped bases 9, of the guide-rods passing through the same and the springs between the bases and the car-sill, the bearer 16, rubber buffers 17, and guide-rods 11, substantially as set forth.

4. The combination, with the car-axle, wheels, and axle-boxes, of removable sleeves upon the journals of the axle, each sleeve having upon and integral with it a dust-excluding ring, substantially as specified.

5. The combination, with the car-axle, of a bearing, 4, having pivot-lugs 6, and the journal-box having internal U-shaped flanges for the pivots, substantially as specified.

6. The combination, with the axle 1, its sleeve 2, box 5, and flanges 7, of the hollow bearing 4, lugs 6, and the brass 21, said brass 21 and the base of the bearing being slotted and having a wick therein, substantially as specified.

354,220. HEATING-STOVE. CHARLES PHILBRICK, Grundy Centre, Iowa. Filed Apr. 20, 1886. (No model.)



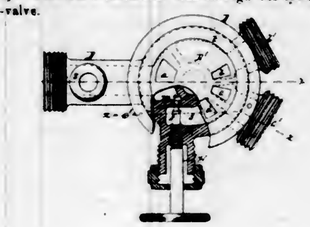
Claim.—1. The combination of the stove-body, the fire-pot, the surrounding annular chamber, a series of tubes opening inward from the side of the stove and communicating with the bottom of the annular chamber, and a second series of tubes extending from the top of the annular chamber and leading through the top of the stove, substantially as and for the purpose set forth.

2. The combination of the stove-body, the fire-pot, the surrounding annular chamber, a series of tubular extensions opening from the top thereof, the stove-top having a corresponding set of openings, and tubes or pipes flanged at their upper ends to overlap the openings in the stove-top, and having their lower ends fitted in the tubular extensions, substantially as shown and described.

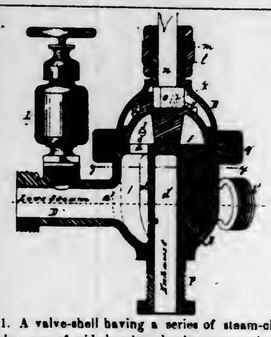
3. The combination, with the stove-body having a hollow base, of a casing on one side of the stove, a partition dividing the extension into flues *f* and *f'*, a second partition, E', dividing the base into two compartments, *e* and *e'*, except a passage-way left between its forward end and the front of the base, a damper for opening and closing the passage-way, an exit leading from one of the vertical flues, as *f*, and a valve for controlling a direct passage-way through said flue *f* to the exit and closing off said passage, whereby the products of combustion are caused to pass down through the other flue, *f*, through the compartments in the base, and up through the flue *f'*, having the damper, substantially as shown, and for the purpose set forth.

354,221. COMBINED VALVE AND HEATER. GEORGE H. POOR, St. Louis, Mo., assignor to the American Brake Company, same place. Filed Aug. 2, 1886. (No model.)

Brief.—Provides a continuous leak through the system by means of a sub-valve.



354,221.



Claim.—1. A valve-shell having a series of steam-chambers controlled by a valve, one of said chambers having communication with the live-steam chamber independently of the valve, whereby a continuous circulation of steam through the shell may be maintained, substantially as and for the purposes specified.

2. In a steam-valve, the combination, with a main valve, of an independent sub-valve arranged therein to allow a slight flow of steam through the same system controlled by the main valve, substantially as and for the purposes specified.

3. A steam-valve having a series of chambers, two of which communicate by means of a leak or port independent of the position or movement of the main valve, substantially as and for the purposes specified.

4. The combination, with a steam-valve having a series of steam-chambers, two of which communicate by a port or passage other than the ports of the valve-seat, of a plug or cut-off for controlling the flow of steam independent of the main valve through which said chambers communicate, substantially as and for the purposes specified.

5. The combination, with a valve-shell having a valve-seat provided with ingress and egress ports, said shell divided into chambers, two of which communicate through a leak-port, of a rotary cup-valve, substantially as and for the purposes specified.

6. A valve whose shell has an elongated coupling-pipe or nozzle provided with a boss for the oil-cup, said nozzle integral with the shell of the valve, substantially as and for the purposes specified.

354,222. TREATMENT OF TUSSAH-SILK COCOONS. HENRY R. RANDALL, Brooklyn, N. Y. Filed Apr. 8, 1886. (Specimens.)

Claim.—1. The process hereinbefore set forth for the treatment of the wild tussah cocoons or other silk fiber or silk waste, said process consisting in first washing the cocoons, then subjecting them to the action of a heated solution of stannate of sodium, or in lieu thereof one of the other chemical salts specified, then washing in hot water, and finally drying the same, substantially as described.

2. The process hereinbefore set forth for the treatment of the wild tussah cocoons or other silk fiber or silk waste, said process consisting in first washing the cocoons or fibers, then treating them with a saponifiable oil, then treating them in a hot solution of stannate of sodium, or in lieu thereof one of the other chemical salts specified, then washing and finally drying the same, substantially as described.

3. The process hereinbefore set forth for the treatment of the wild tussah cocoon or other silk or vegetable fiber, said process consisting in first washing the cocoons or fibers, then sprinkling them with a saponifiable oil, then subjecting them to the action of a heated solution of stannate of sodium, or in lieu thereof one of the other chemical salts specified, in the proportions substantially as specified, then washing with hot water, and finally drying, substantially as described.

354,223. TREATMENT OF SILK FIBER. HENRY R. RANDALL, Brooklyn, N. Y. Filed Apr. 8, 1886. (No specimens.)

Claim.—1. In the treatment of silk fiber, waste and raw silk, and cocoons, the process hereinbefore set forth, consisting in subjecting the same before removing the gum to the action of a solution of acetic acid in water, in the proportions and at the temperature specified.

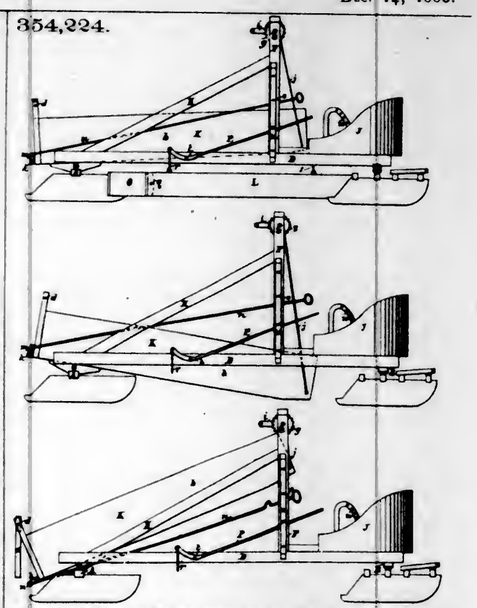
2. In the treatment of silk fiber, waste and raw silk, and cocoons, the process set forth, the same consisting in subjecting said fiber before removing the gum to the action of a watery solution of acetic acid and sulphuric acid, in substantially the proportions specified, at a temperature below the boiling-point, substantially as described.

354,224. STREET-CLEARING MACHINE. ISAAC H. RANDALL, Boston, Mass. Filed Feb. 19, 1886. (No model.)

Claim.—1. A machine provided with a box or body supported by four wheels or runners and pivoted at the rear cross-piece or axle, A, and means for lowering the forward end of said box or body between the front wheels or runners, whereby on the forward movement of the machine said box or body may be loaded, substantially as set forth.

2. In combination with a box or body supported by four wheels or

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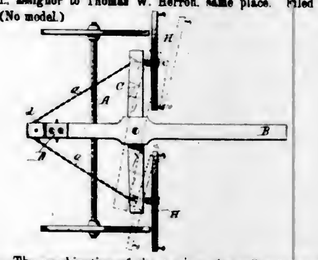
runners and pivoted at the rear cross-piece or axle, a drum or drums, *f f*, shaft therefor, and a rope or chain or ropes or chains, *j*, for lowering the forward end of the box or body between the wheels or runners or raising the same, substantially as and for the purposes set forth.

3. In combination with cross-pieces or axles A and B, longitudinal rails C and D on said cross-pieces or axles, a box or body, K, pivoted on the rear cross-piece or axle, A, substantially as and for the purposes specified.

4. The combination of cross-pieces or axles A and B, frame C D E F, platform I, and box or body K, pivoted at the rear cross-piece or axle A, substantially as and for the purposes set forth.

5. The combination of the cross-pieces or axles A and B, a body or box open at the forward end and pivoted on the rear cross-piece or axle, A, and provided with a pivoted tail-board, *c*, with means for locking the tail-board, as the rod *n* and the shaft *k*, provided with arms *l* and *m*, substantially as and for the purposes specified.

354,225. DRAFT-EQUALIZER. WILLIAM H. RANDALL, Fredericksville, Ill., assignor to Thomas W. Herron, same place. Filed Sept. 2, 1886. (No model.)

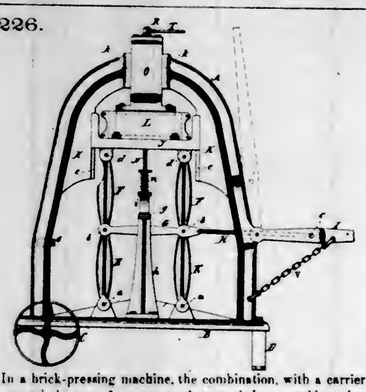


Claim.—The combination of the tongue, the pulley located at the rear end thereof, the double-tree pivoted to the tongue in advance of the pulley, U-shaped brackets depending from each end of the double-tree, the braces interposed between the inner sides of the brackets and the double-tree, the yielding guide-blocks secured within the lower ends of the brackets at a distance from their closed ends, and having their lower ends grooved, and the chain passed loosely around said pulley and through the brackets, between their closed end and the guide-blocks, and having single-trees attached to their free ends, substantially as set forth.

354,226. BRICK-MACHINE. CHARLES W. RAYMOND, Dayton, Ohio. Filed July 24, 1886. (No model.)

Claim.—1. In a brick-pressing machine, the combination, with a carrier operated by toggle-levers, of a compress-box carried upon said carrier and provided with a movable bottom and a platen arranged over said compress-box, substantially as described.

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2. In a brick-pressing machine, the combination, with a carrier operated by toggle-levers, of a compress-box carried upon said carrier and provided with a movable bottom and an adjustable platen arranged over said compress-box, substantially as described.

3. In a brick-pressing machine, the combination, with a vertically-moving carrier and a compress-box supported on said carrier, of a movable bottom fitted in said compress-box and provided with a rod or leg extending down through said carrier and a stop with which said leg engages to cause the expulsion of the brick after the same has been pressed, substantially as described.

4. In a brick-pressing machine, the combination, with a vertically-moving carrier operated by toggle-levers and a compress-box supported on said carrier, of a movable bottom fitted in said compress-box and provided with a rod or leg extending down through said carrier and a stop with which said leg engages to cause the expulsion of the brick after the same has been pressed, substantially as described.

5. In a brick-pressing machine, the combination, with a vertically-moving carrier supporting the compress-box and operated by toggle-levers, of spring-buffers arranged to receive the downward stroke of said carrier and toggle-levers, substantially as and for the purpose described.

6. In a brick-pressing machine, the combination, with the compress-box provided with a movable bottom, of a vertically-movable carrier upon which said compress-box is supported, said carrier having a cut-out portion immediately under said movable bottom, substantially as and for the purpose described.

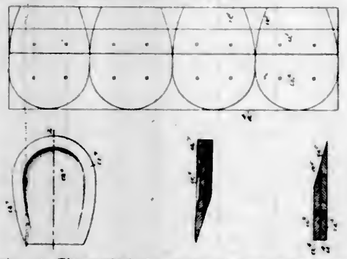
7. The combination, with the vertically-guided carrier J, of the toggle-levers E F, tie-bar G, link H, and operating-handle I, substantially as described.

8. The combination, with the arch A, of the vertically-adjustable platen O, removable plate P, and operating-screw R, substantially as and for the purpose described.

9. The combination, with the compress-box L, of the movable bottom M, carrier J, leg N, set-screw *f*, and stop *g*, substantially as described.

10. The combination, with the vertically-guided carrier J, toggle-levers E F, tie-bar G, link H, and operating-handle I, of the vertically-adjustable platen O, removable plate P, and operating-screw R, substantially as described.

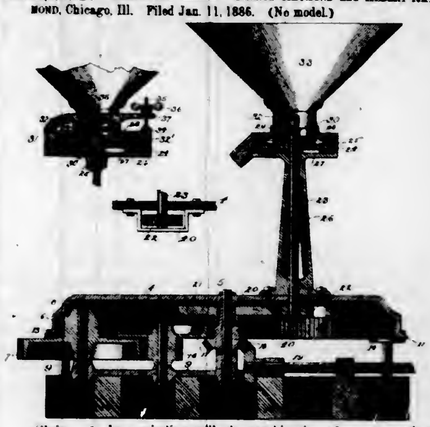
354,227. SPRING-HEEL BLANK. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed May 13, 1886. (No model.)



Claim.—1. The method of manufacturing spring-heels, consisting in taking a strip of stock of the required dimensions, dividing it by the diagonal cut into two parts, placing one part upon the other to bring the diagonal edges in line, uniting said superimposed parts, and cutting or dinking therefrom the complete spring-heel blank, all substantially as described.

2. The improvement in the art of manufacturing spring-heels, consisting in forming two strips having skived or diagonal edges a^2, placing one upon the other to bring the skived or inclined edges substantially in line with each other, fastening the two superimposed strips together, and cutting or dinking therefrom a spring-heel blank, all substantially as described.

354,228. GRINDING-MILL. GEORGE RAYMOND and ALBERT RAYMOND, Chicago, Ill. Filed Jan. 11, 1886. (No model.)

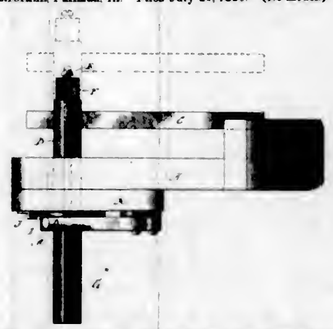


Claim.—1. In a grinding-mill, the combination of a master-wheel, a casting bolted thereto on one side of its center, a millstone supported on said casting, a shaft journaled in the said casting and geared to be driven by the master-wheel, a second millstone carried by the said shaft, and a central fixed shaft for the master-wheel, substantially as and for the purpose set forth.

2. In a grinding-mill, the combination of a master-wheel, with a casting made fast thereto, a millstone adjustably mounted upon said casting, a shaft and a second millstone mounted thereon, and a step fixed to the master-wheel and supporting the shaft, substantially as and for the purpose set forth.

3. In a grinding-mill, the combination of a grinding-chamber, a running-stone revolving therein, a plate and a bed-stone attached thereto lying loosely upon said running-stone, said plate being provided with a central aperture for the feed of grain, and a diametrical bridge across said aperture, a bar provided with a knob resting freely upon the upper surface of said diametrical bridge, and means for varying the pressure of said point upon said bridge, and thereby the grinding of the mill, substantially as described.

354,229. SIDE SPRING FOR MOLDING-MACHINES. CHARLES REAFSTAHL, Pullman, Ill. Filed July 21, 1886. (No model.)



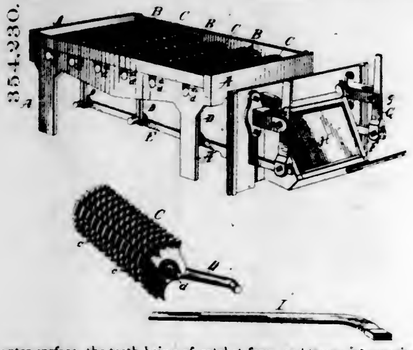
Claim.—1. The combination, with the guide-piece B, of the arm C, the rod D, carrying the same, said rod being provided with a slot, G, the collar I, provided with lug H and ring of ratchet-teeth M, and pawl L, substantially as and for the purpose set forth.

2. The combination of pressure-arm C, rod D, collar I, a tongue-and-groove connection being provided between said collar and said rod, and a pawl-and-ratchet device for controlling the position of said collar.

354,230. ROCKING OR ROTATING GRATE FOR FURNACES, BOILERS, &c. JOHN R. REED, Westfield, Mass. Filed Feb. 16, 1886. (No model.)

Claim.—1. The grate-bars B C, formed with a toothed curved

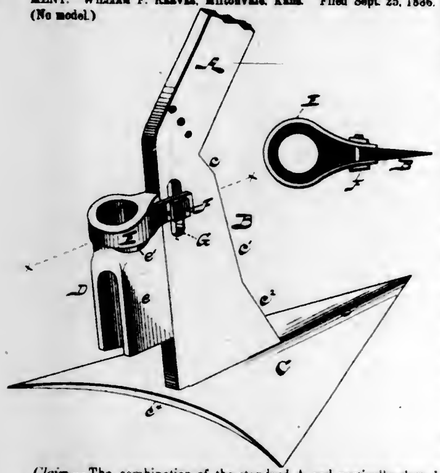
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outer surface, the teeth being of ratchet form and facing in opposite direction, as described and shown, for the purposes specified.

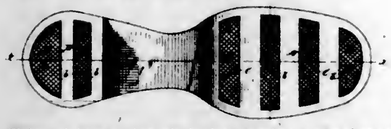
2. In a rotating or rocking grate, in combination with the frame having journal-bearings at each side thereof, the grate-bars having a short journal at each end and a depending rocker-arm at one side, and being arranged alternately in said frame, said grate-bars being formed with a toothed surface, the teeth being of ratchet form and facing in opposite directions, and a connecting-bar extending at each side beneath the frame and connected with each of the rocker-arms of the grate-bars upon that particular side, as described and shown, for the purposes specified.

354,231. **COMBINED SUBSOILER AND PLANTING ATTACHMENT.** WILLIAM F. REEVES, Miltonvale, Kans. Filed Sept. 25, 1886. (No model.)



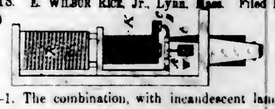
Claim.—The combination of the standard A and vertically-slotted colter B, formed of a single piece, the subsoil-blade C, secured to the sole of the colter, the vertically-adjustable tubular guide D, having an opening, *b*, through its back, backwardly-diverging sides *e e*, ribs *e'* near its upper end, and the strap and bolt securing this guide to the vertical back of the colter, all as described and shown.

354,232. **SOLE FOR BOOTS OR SHOES.** WILLIAM W. REID, Cambridge, Mass. Filed Apr. 8, 1886. (No model.)



Claim.—A boot or shoe sole having a treading-surface composed of leather and of india-rubber or gutta-percha sections in any of the elastic or other suitable compounds thereof, made in the form of a plate or block placed and fitting and secured in corresponding-shaped slots or apertures in the leather, said apertures having their opening at the inner face of the leather of greater dimensions than at the outer face thereof, substantially as described, for the purposes specified.

354,233. **DISTRIBUTING APPLIANCE FOR ELECTRIC-LIGHTING SYSTEMS.** E. WILBUR RICE, Jr., Lynn, Mass. Filed Feb. 1, 1886. (No model.)



Claim.—1. The combination, with incandescent lamps or other translating devices in multiple arc, of switching devices responsive to differences of potential between the supply-conductors, resistances the equivalent of the translating devices controlled and thrown into multiple-arc connections by said switching devices on a difference of potential produced by the throwing out of a translating device, and a switching mechanism for establishing a multiple-arc connection of comparatively low resistance, said mechanism being adjusted to respond only to a difference of potential above that required for operating the first-named switching devices.

2. The combination, with incandescent lamps or other translating devices supplied in multiple arc, of governing devices responsive to differences of potential between the supply-conductors consequent upon the throwing out of a translating device, means controlled by said mechanism for restoring the difference of potential to normal, and switch devices, and a branch of comparatively low resistance controlled thereby, said switch being also responsive to differences of potential between the supply-conductors, but adjusted to respond only to a difference of potential greater than that required to operate the aforesaid governing devices.

3. The combination, with the artificial resistances and switching devices responsive to differences of potential produced by the throwing out of a translating device, of a supplemental switching device adjusted to respond only to a difference of potential greater than that required for operating the first-named switching devices, and a compensating main circuit-coil, J, as and for the purpose described.

4. The combination, with a number of translating devices in multiple arc, of two or more magnets in the same derived circuit or multiple-arc branch, a switch for each magnet, and an artificial resistance controlled by each switch and approximately equal to the resistance of a multiple-arc branch containing a translating device when the said branch is closed and the translating device in it is in action.

5. The combination, with incandescent lamps or other translating devices in multiple arc, of two or more artificial resistances in separate normally-open branches, and two or more switches individually controlling said resistances and responsive to increased current in a multiple branch of high resistance common to said switches.

6. In a system of electric distribution, the combination, with two or more translating devices in multiple arc, of one or more magnets whose coils are in a derived circuit around the translating devices and whose armature or armatures remain immovable in either attracted or unattracted position during the continuance of a normal difference of potential at the terminals of the group of translating devices, artificial resistances uniform individually with the resistances of the individual branches containing the translating devices, and an electric switch or switches operated by said armature or armatures for introducing said resistances into multiple-arc branches on an increase of difference of potential due to rupture of circuit through the branch or branches.

7. The combination, with incandescent lamps or other translating devices arranged in multiple arc, of devices responsive to a difference of potential between the supply-conductors consequent on the throwing out of a translating device for restoring the difference of potential to normal, a switch responsive only to a further increase in the difference of potential, and an electro-magnet controlled thereby for operating a switch that serves to close a multiple-arc branch of comparatively low resistance, said electro-magnet having coils included in the low-resistance branch.

8. In combination with a system of electric distribution, as described, a switching-magnet, H, in the main circuit at all times, and the carbon contacts E, closed upon occurrence of an abnormal current, and controlling a low-resistance branch.

9. The combination, with the translating devices, of two or more electric switches controlled by current in a derived circuit around the translating devices, said switches being provided with retracting-weights, as described, and adjusted to retain either an attracted or unattracted position with a normal strength of current in a derived circuit, and branch circuits around the several translating devices, controlled, respectively, by said switches, as and for the purpose described.

10. In a system of distribution for electric currents, the combination of an incandescent lamp or lamps, a magnet in derived circuit thereto, an armature for said magnet adjusted to remain in either an attracted or unattracted position when said magnet is normally energized, an artificial resistance, K, the equivalent of the lamp, and a contact controlled by the armature for putting said resistance in derived circuit to the branch containing the lamp upon the rupture of said branch.

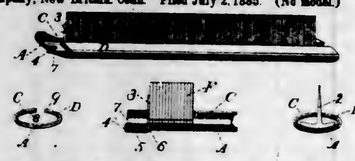
11. The combination, with the switch-magnets in the derived circuit, of armatures D, provided with retracting-weights, and adjusted, as described, to retain either an attracted or unattracted position with a normal strength of the magnet.

354,234. **PACKING-CASE FOR BUTTON-FASTENERS.** FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed July 2, 1885. (No model.)



Claim.—The improved button-fastener packing-case herein described, it comprising the body A, grooved, substantially as shown, and provided with inserted end stops, substantially as described, said body being made of earthenware or like fragile material, substantially as set forth.

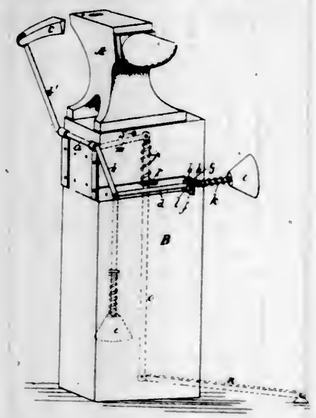
354,235. **PACKING-CASE FOR BUTTON-FASTENERS.** FRANCIS H. RICHARDS, Springfield, Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed July 2, 1885. (No model.)



Claim.—1. The improved button-fastener packing-case herein described, it consisting of two layers of sheet material, as straw-board or the like, said layers being bent and united to form a grooved case, which case is provided with end stops, all substantially as shown and described.

2. The combination, in a button-fastener packing-case of the class described, of the wall or back A, perforated at 6, and the two-pronged end stop, 5, having one prong inserted through said perforation and the other prong bent over the end of said part A, substantially as set forth.

354,236. **HORSESHOE ANVIL AND CLAMP.** JAMES A. RICHARDS, Grand Rapids, Mich. Filed Mar. 8, 1886. (No model.)



Claim.—1. In combination with an anvil and movable head, the levers *b* and *b'*, shaft *a*, and rod *d*, having attached the pad *e*, substantially as described.

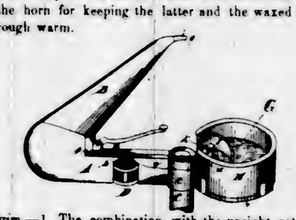
2. In an anvil attachment, in combination with the head c, levers *b b'*, and rod *d*, having the pad *e*, the plate *f*, spring *k*, and stop *l*.

3. In an anvil attachment, the combination, with the rod *d*, having the pad *e*, spring *k*, and stop *l*, the plate *f*, having the notch *g* and projections *h h*, and the washer *i*, substantially as described.

4. In an anvil attachment, a movable head supported and actuated by pivoted levers attached to a rock-shaft, said levers operated by a rod having attached a knee-pad, a spring, a washer, and a stop, said rod supported by a notched plate having projections to engage with said washer, substantially as described.

354,237. **THREAD-WAXING ATTACHMENT FOR SEWING-MACHINES.** WILLIAM RICHARDSON and THEODORE C. BAUER, Cincinnati, Ohio. Filed Nov. 21, 1885. (No model.)

Brief.—The wax pot or tank is provided with a strainer in the nature of a perforated partition extending from the bottom of the tank upward to or near the top. The roller-stripping device is located within that side of the tank containing the strained wax. One branch of a gas-pipe provides a jet for heating beneath the tank, and the other a jet within the horn for keeping the latter and the waxed thread passing therethrough warm.

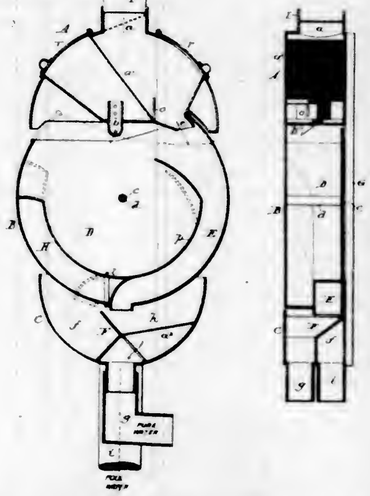


Claim.—1. The combination, with the upright rotating spindle C and the horn B, moving therewith, of a wax-reservoir connected with said spindle, an upright perforated strainer-partition, I, extended across the reservoir, the stripper K, located in the reservoir between its wall and the perforated partition, and a heater for the reservoir, substantially as described.

2. The combination, with the rotating spindle C and the shank A, having the horn B and collar *c*, of the wax-reservoir rigidly connected with the collar and projecting laterally therefrom, a strainer, I, extending across the reservoir, the stripper K, located in the reservoir between the wall thereof and the strainer, and a gas-burner located directly beneath the wax-reservoir, substantially as described.

3. The revolving horn A B and wax-tank E, through which the thread *c* passes as it is drawn through the wax and the stripper K in tank E, and thence through the hollow horn, in combination with the branch pipes 5 and 6, the former having a burner within the horn and the latter a burner beneath the wax-tank, substantially as described.

354,238. **RAIN-WATER SEPARATOR.** CHARLES G. ROBERTS, Collards, Haslemere, County of Surrey, England. Filed June 7, 1886. (No model.) Patented in England Feb. 16, 1883, No. 858, and Sept. 16, 1885, No. 10,994.

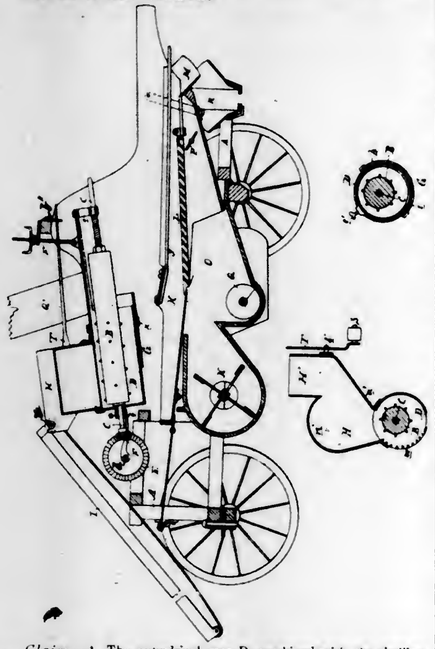


Claim.—1. The combination, in a rain-water separator, of the stationary receiver A, provided with the delivery-outlet *e* at one end, and the graduated side delivery, *b*, with the circular pivoted canter B, provided with chamber D, and the delivery-spout E around one side thereof, with the stationary outlet-box or separator C, provided with the two compartments *f* and *h*, each provided with a separate outlet, the whole being constructed and arranged to operate substantially as shown and described.

2. The pivoted canter B, provided with the chambers X and D, connected by a siphon, O, and the funnel R, connected to the chamber D by siphon V W, all arranged to operate substantially as described.

3. The receiver A, provided with the transverse partition *a'*, with the adjustable slide *o*, and the perforated detachable slide *b* for regulating the flow of the water to the chamber in the center B, as set forth.

354,239. CORN-SHELLER. CYRUS ROBERTS, Three Rivers, Mich. Filed Jan. 29, 1886. (No model.)



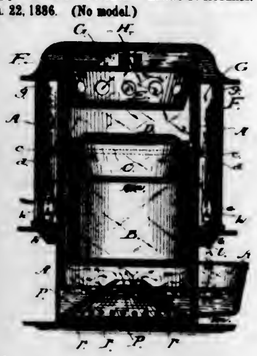
Claim.—1. The cylindrical case D, combined with the shelling-cylinder C, supported within said case above the horizontal axis thereof in line with a line drawn vertically through its center, whereby choking in the case is avoided, substantially as described.

2. In a corn-shelling machine having a toothed shelling-cylinder eccentrically supported within a cylindrically-shaped case, in combination with such case, a slide-band, *k*, and set-screw *e'*, substantially as and for the purposes set forth.

3. In a corn-shelling machine, the combination, with the adjustably-inclined cylinder, of the yoke *b*, main driving shaft *d*, supported thereby, the pulley *n* on the drive-shaft of the feed-elevator, the pulley *o* on the shaft of the shelled-corn elevator Q, the belt *m*, lever T, pivoted to the side of the hopper, the wheel S on one end of said lever and constructed to bear on said belt, and the eye *b''*, engaging the free end of said lever, substantially as and for the purposes specified.

4. The combination, with the frame A, the shelling-cylinder, its driving-shaft *d*, and the inclosing-case, of a rocking bail sleeved on said driving-shaft *d* and supporting the end of said shaft and cylinder, ears on the opposite end of said case, and the adjusting-screw F', pivoted at one end in said ears and tapped through the frame A, substantially as described.

354,240. STEAM-COOKER. HENRY P. ROBERTS, Jamestown, N. Y. Filed Jan. 22, 1886. (No model.)



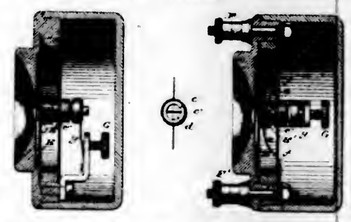
Claim.—1. The boiler A, in combination with the cover F, a diaphragm or plate, G, in the upper portion thereof having an opening in said plate for the passage of the steam, and an annular series of perforations, *g*, through which the steam is discharged, substantially as herein described.

2. The combination, with a suitably-arranged boiler, of a cover inclosing the upper end of the boiler and having a diaphragm or plate, G, in its upper portion, a tube, H, projecting into the chamber between the diaphragm and top of the cover, an annular series of discharge-perforations near the outer circumference of the diaphragm, and a series of inlet-openings at the lower edge of the cover for the introduction of cold air, substantially as herein described.

3. The boiler A, provided with a perforated encircling dished flange, *b*, a trough, A', beneath the perforations of the flange, and a series of perforations, *m*, in the lower portion of the boiler communicating with the trough, in combination with a cover having a diaphragm, G, in its upper portion provided with a tube, H, and an annular series of discharge-perforations, *g*, and a series of cold-air inlets at the base of the cover, whereby the steam, after being condensed, is deposited on the flange and is returned to the interior of the boiler, substantially as and for the purpose described.

4. An improved steam-cooker, comprising the combination of the boiler A, having a perforated exterior flange, a trough beneath the perforations of the flange, a series of perforations in the base of the boiler communicating with the trough, the dishes or vessels B, C, and E within the boiler, a cover inclosing the upper portion of the same and provided with a diaphragm or plate, G, with tube H projecting therefrom, an annular series of discharge-apertures, *g*, near the outer circumference of the diaphragm, a series of cold-air inlets at the base of the cover, a faucet communicating with the interior of the boiler, and suitable handles or bails on the cover and boiler, substantially as herein described.

354,241. TELEPHONE-TRANSMITTER. ALLEN W. ROSE, New York, N. Y. Filed Oct. 20, 1884. (No model.)



Claim.—1. The combination of the terminals or electrodes of a transmitting-circuit, finely-divided conducting material in a free and loose condition in contact with said electrodes, and a supporting medium having a socket or perforation therein within which said electrodes and finely-divided material are carried, and which also constitutes the medium through or by means of which the vibrations of the atmosphere are caused to act on the finely-divided material, as described.

2. The combination, substantially as set forth, of a plate or block of cork or equivalent material with the transmitting-electrodes and finely-divided conducting material in a loose state in contact with said electrodes carried within the body of said plate or block, said block constituting the medium through or by means of which the vibrations of the atmosphere are caused to act on the finely-divided material, as described.

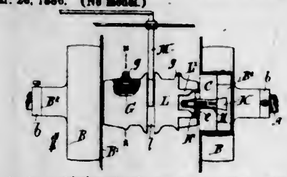
3. A transmitting-telephone consisting of an unconfined plate or block of cork or other suitable material formed with a recess therein, in combination with the electrodes of a transmitting-circuit and finely-divided conducting material in a loose state in contact with said electrodes, both of which are carried within the recess in the plate or block which constitutes the medium through or by means of which the vibrations of the atmosphere are caused to act on the finely-divided material, as described.

4. The combination, substantially as set forth, of a supporting medium, the terminals or electrodes of a voltaic or galvanic circuit carried thereby, and finely-divided platinum placed in a loose state in contact with said terminals to vary the strength of the current, as described.

5. The combination, substantially as set forth, of a supporting block or medium, two or more pairs of electrodes carried within recesses in said block or support, finely-divided conducting material for electrically connecting the electrodes of each pair, also carried within said recesses, and a transmitting-circuit in which the pairs of electrodes are connected in multiple arc, as set forth.

6. The combination of the supporting plate or block which constitutes the medium by means of which the vibrations of the atmosphere are made effective, the transmitting-circuit, the electrodes carried by said plate or block and arranged edge toward edge in the same plane, as set forth, and finely-divided conducting material in a loose and free state, also carried by said plate or block, in contact with said electrodes.

354,242. FRICTION-CLUTCH. ESTIENNE SALOMON, Montreal, Quebec, Canada, assignor of one-half to William Cameron Hibbard, same place. Filed Mar. 24, 1886. (No model.)

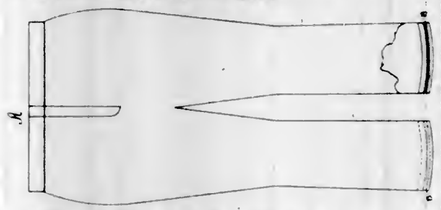


Claim.—1. In a friction-clutch, the combination, with a shaft and pulley, of a hub mounted on said shaft, a double expansion-ring connected with said hub, and means for expanding said ring against the interior of the pulley, substantially as and for the purposes set forth.

2. In a friction-clutch, the combination, with a shaft and pulley and with hub E, of double split expansion-ring C and levers H H', laid loosely in opening in ring F, pivoted on wedge K, inserted between them, and acted upon by arms projecting from sliding sleeve L, all as and for the purposes herein set forth.

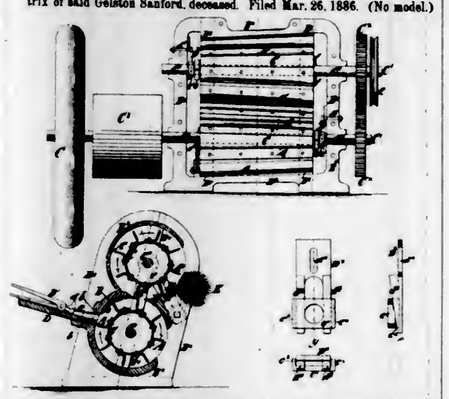
3. The combination, with a shaft, a hub mounted thereon, and a sliding sleeve surrounding such hub, of the oil-chamber G, with stopper *g*, constructed and arranged substantially in the manner and for the purpose specified.

354,243. PANTALOON-PROTECTOR. CHARLES SANDFORD, Paterson, N. J. Filed June 7, 1886. (No model.)



Claim.—The combination of the pantaloons A and helical spring-protector B, secured by means of stitches that pass over those parts only of the coils of the protector that lie next to the inner lower surfaces of the legs of the pants, for protecting the pantaloons from wear, grease, and blacking, substantially as described.

354,244. MACHINE FOR OBTAINING FIBERS FROM LEAVES, &c. GELSTON SANFORD, Brooklyn, N. Y.; Sarah M. Sanford administratrix of said Gelston Sanford, deceased. Filed Mar. 26, 1886. (No model.)



Claim.—1. The combination, with oppositely-arranged series of scraping-blades and carriers or movable supports, whereby said blades are revolved or moved in the same vertical plane about two axes or centers, of oppositely-arranged concaves, one above the blades of one series and the other below the blades of the other series, and in connection with which the two series of blades act first to scrape one side and then the other side of the leaf, substantially as herein described.

2. The combination, with two rotary cylinders provided with scraping-blades and rotating in the same vertical plane, and between which the materials are passed, of oppositely-arranged concaves, one above the blades of one cylinder and the other below the blades of the other cylinder, and in connection with which the blades of the cylinders act first to scrape one side and then the other side of the leaf passed between them, substantially as herein described.

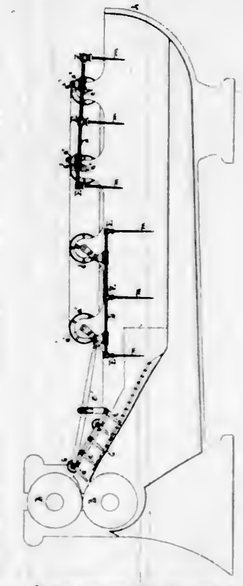
3. The combination, with the rotary cylinders provided with scraping-blades, of oppositely-arranged concaves, in connection with which the blades of the two cylinders act on the opposite sides of the materials passed between them, the blades of the upper cylinder being set slightly behind the blades of the lower cylinder, so as to tip up the front end of the material and cause it to pass above the second concave, substantially as herein described.

4. The combination, with the two cylinders provided with scraping-blades which have a taper profile, the cylinders being reversely arranged, so that the ends of the blades having greatest projection on one cylinder are opposite the ends of the blades having least projection on the other cylinder, of oppositely-arranged concaves, in connection with which said blades operate, and springs acting on the larger ends of the cylinders for moving them lengthwise to compensate for wear, substantially as herein described.

5. The combination, with the oppositely-arranged cylinders provided with scraping-blades having a taper profile lengthwise of the cylinders, the cylinders being set reversely, with the larger end of each opposite the smaller end of the other, of oppositely-arranged concaves, in connection with which the blades on the two cylinders act first to scrape one side and then the other side of materials passed between them, springs applied to the larger ends of the cylinders for forcing them endwise, and wedges or other adjustable stops for limiting the endwise movement of the cylinders produced by the springs, substantially as herein described.

6. The combination, with the oppositely-arranged cylinders provided with scraping-blades, of the two-part casing for the cylinders, constructed with oppositely-arranged concaves, in connection with which the blades act first to scrape one side and then the other side of the materials passed between them, and which are also constructed at opposite ends with parallel flanges or yokes, between which are formed the bearings for the cylinder-shafts, substantially as herein described.

354,245. WOOL-WASHER. FREDERICK G. SARGENT and ALLAN C. SARGENT, Graniteville, Mass. Filed Feb. 18, 1885. (No model.)

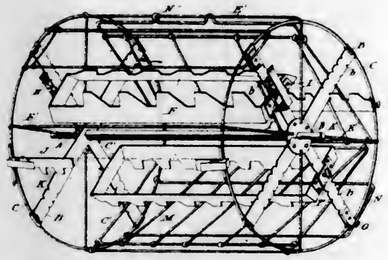


Claim.—1. In combination with the bowl A, two sets of bars, D D, each provided with fork-heads E E and teeth *m m*, and mounted upon and carried entirely by two cranks, *e e e² e²*, the shafts *e' e' e² e²* being adapted to be revolved by a common driving mechanism, the cranks of the shafts *e' e'* projecting in the opposite direction from the cranks of the shafts *e² e²*, substantially as described.

2. In combination with the bar D, having a series of two or more rake-heads, E E, mounted thereon and provided with teeth *m m*, the longer crank, *e²*, and its sleeve *e³*, fixed to the end of the bar nearest the squeeze-roll end of the machine, and the shorter crank, *e²*, and its sleeve *e⁴*, fitting loosely upon said bar nearest the feed-in end of the machine, substantially as described.

354,246. DISH-WASHER. CHARLES B. SAUNDERS, Columbia, Mo. Filed Oct. 7, 1885. (Model.)





Claim.—1. In a dish-washer, a rotating tray having adjustable racks on radial arms, so as to be arranged for different-sized plates, the said racks having recesses obliquely disposed, so that the plates while resting therein will be in such a position that when the tray is rotated the water will strike the surface of the plates somewhat at an angle and properly cleanse them, substantially as herein set forth.

2. In a dish-washer, the rotating tray provided with adjustable racks and having obliquely-disposed recesses to receive therein the plates, and held in position by outwardly-disposed independent adjustable pieces, and an intermediate adjustable rack having obliquely-disposed transverse wires and rubber cushions, so as to be gaged for different-sized dishes, substantially as herein set forth.

3. In a dish-washer, the rotating tray provided with radial arms B on the shaft, said arms notched at *b*, combined with the rectangular metallic frame F, the sides of which are somewhat at an angle, the outer edge recessed and set at an angle to receive the dishes therein, and the clips adapted to engage with the notched radial arms, substantially as described.

4. In a dish-washer provided with radial arms having located inwardly therefrom an adjustable rectangular rack and outwardly therefrom a hinged rectangular keeper, an intermediately-disposed adjustable frame having obliquely-disposed metallic ribs with rubber tubing thereon, so that the said adjustable frame may act as a guard and keeper for the plates placed therein, to prevent them from becoming broken while coming in contact with the sides of the tray on being rotated, substantially as herein set forth.

5. The combination of the axial piece A, the radial arms B, and ribs E, and the circumferential pieces C, forming the frame, with the adjustable rack F, the clips H, and the rectangular hinged retaining-frame, substantially as herein set forth.

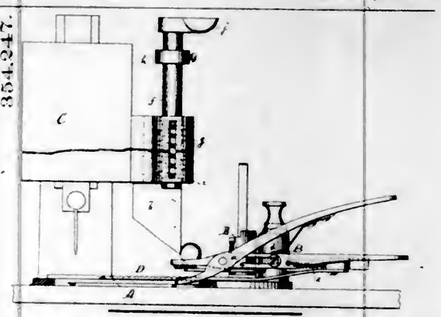
6. The combination of the axial piece A, the radial arms B, ribs E, the circumferential pieces C, forming a frame, the adjustable rack F, the clips H, and the rectangular hinged retaining-frame, with the intermediate frame, *a*, having the obliquely-disposed ribs *d*, protected with rubber tubing *e*, substantially as herein set forth.

354,247. BUTTON-HOLE-CUTTING AND CLOTH-CLAMP ATTACHMENT FOR SEWING-MACHINES. FRIEDRICH E. SCHMIDT, Brooklyn, N. Y. Filed Dec. 8, 1883. (No model.)

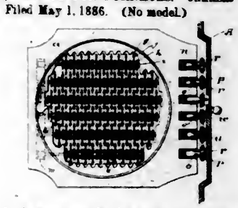
Brief.—In addition to the punching or cutting device attached to and carried by the movable cloth-clamp, a knife is attached to the head of the sewing-machine for vertically reciprocating in cutting the button-hole slit or that portion not cut by the former device. Said former cutting or punching device is so attached to the cloth-clamp that it may be moved forward over the edge of the cloth held in the clamp, and then moved backward out of the way for using thereafter the cutting-knife and stitching the edges of the cut portion.

Claim.—The combination of a movable plate carrying the cloth clamp of a button-hole-sewing device with a button-hole cutter mounted upon the said plate and moving therewith, substantially as set forth.

354,247.



354,248. GRATE FOR FURNACES. CHARLES T. SCHOEN, Philadelphia, Pa. Filed May 1, 1886. (No model.)



Claim.—1. A grate-bar for furnaces, composed of a bar or shaft, *b*, constructed of mild or low carbon steel, combined with a series of grate sections or teeth, *c*, made of cast or malleable iron, and of substantially the construction shown, substantially as described.

2. A grate section or tooth comprising an elliptical body, lateral wings shorter than the body and parallel with it, with intervening channels and vertical ribs on said body, substantially as described.

3. The combination, with the grate-bars and detachable sprocket-wheels thereon having bosses on their faces, of a cover or gate against which said bosses bear and are thereby held in position, and by means of which access is had to said wheels, substantially as described.

4. The combination, with the grate and its shaking-lever, of a guide for said lever, located vertically above said lever to limit its movement, and provided with a central slot to permit the removal of the lever only when the grate is in proper position to support the fuel, substantially as described.

354,249. NECKTIE ATTACHMENT. BENJAMIN B. SCULLY, Lynn, Mass. Filed May 13, 1886. (No model.)



Claim.—1. A necktie-supporter loop formed of elastic wire and having two pairs of arms, *g*, each pair being formed at one end to be secured to body *a*, while the other end may have free vibratory or lateral action, and with the inner arm of each pair bent outwardly, as at *l*, to form a seat or enlarged opening, *k*, to receive the neck of the collar stud, substantially as specified.

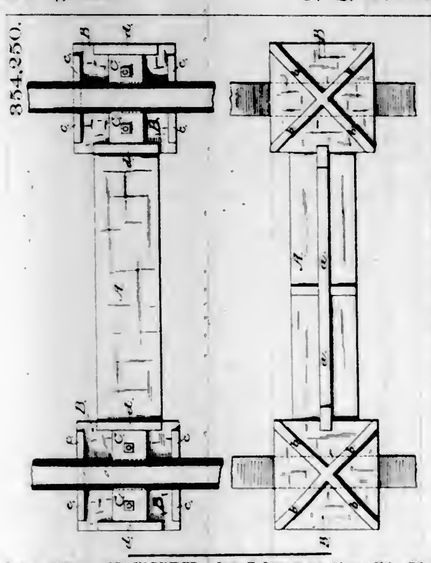
2. A necktie-supporter loop formed with parts or members *g* and eye *n*, and with ends *j*, formed and arranged to pass through said eye and to clinch over the wire forming said eye, substantially as specified.

3. The combination, with the body of a necktie-supporter, of a supporting-loop formed with arms or members *g*, with an eye, *a*, and ends *j*, extended through the body and clinched over the wire forming said eye, substantially as specified.

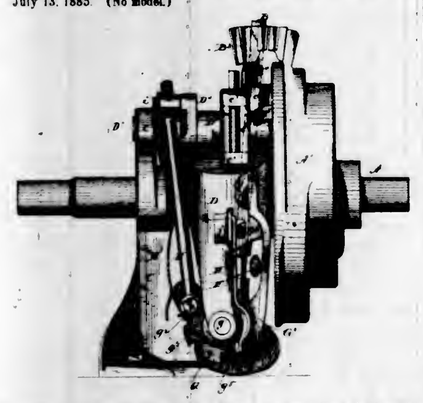
354,250. METALLIC CROSS-TIE FOR RAILROADS. ROBERT S. SEA, Salvisa, Ky. Filed Apr. 29, 1886. (No model.)

Claim.—As an improvement in metallic cross-ties for railroads, the tie A, provided with a strengthening-rib, *a*, and the enlarged heads B, having on their under surfaces the diagonally-arranged flanges *b*, and on their upper surfaces with the flanges *c d*, in combination with the plates C, all constructed and arranged substantially as and for the purpose set forth.

354,250.



354,251. GRAIN-BINDER. JOHN F. SEIBERLING, Akron, Ohio. Filed July 13, 1885. (No model.)



Claim.—1. The combination, with the cam-wheel, of the knotter-shaft crossing the plane of the knotter-actuating shaft and the face of said wheel, and inclined laterally in relation to and actuated by the latter, and the needle arranged to pass between said knotter-shaft and the cam-wheel, substantially as described.

2. The spiral segmental gear on the cam-wheel, in combination with the knotter-shaft crossing the plane of the cam-wheel shaft and inclined laterally to the face of the cam-wheel, and having its actuating-pinion located on one side of said cam-wheel shaft and the knotter on the opposite side thereof, substantially as and for the purpose described.

3. The combination, with the cam-wheel and the shaft supporting and actuating it, of the knotter-shaft having its actuating-pinion on one end and the knotter-hook on the other, and arranged in close proximity to and crossing the plane of the cam-wheel shaft in laterally-inclined relation to the face of the cam-wheel, and the spiral segmental gear on the cam-wheel for actuating said knotter-shaft, substantially as described.

4. The jointed knotter-shaft, in combination with the vibrating hinged arm or frame E, carrying the swinging end or part of said shaft, a cam for opening the knotter-jaw, and a knife for severing the cord, and mechanism, substantially as described, for vibrating said arm or frame, and the hinged part of the knotter-shaft journaled thereon, substantially as described.

5. The combination of the cam-wheel A', the shaft D', and tubular shaft or sleeve D^3, mounted and turning on said shaft D', the vibrating arm or frame E, knotter B^3, and cord-disk G, and their supporting and actuating devices, substantially as described, whereby said knotter and disk are both vibrated from the same cam.

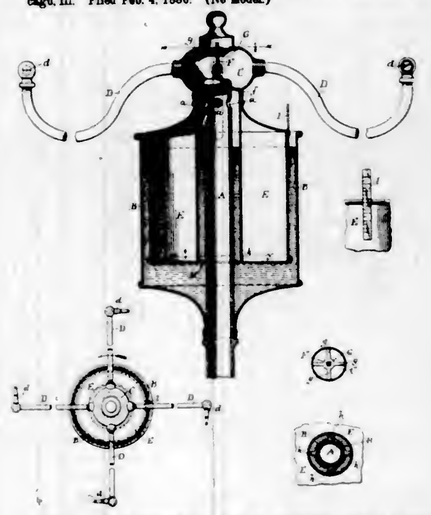
6. The rock-shaft D' and rocking sleeve D^2, mounted thereon, both connected with and adapted to be operated by the same cam, in combination with the cord-holder arm supported by and vibrating on said shaft, the swinging arm carrying the knotter, and the knife for severing the cord, and mechanism, substantially as described, for actuating said cord-holder and knotter-carrying arms.

7. The combination of the cord-holding disk, its actuating-pawl g^3, the connecting-rod H, and the spring H^3, arranged to be disengaged from said pawl when the latter is raised in operating the disk, and to be brought into contact therewith when the pawl is depressed, substantially as described.

8. The combination of the jointed knotter-shaft and the hinged arm or frame supporting the swinging end of said shaft, the joint in the shaft and the frame-pivot being arranged to coincide, substantially as described.

9. The swinging cord-holder arm or frame provided with the fork or arms d^2 and d^3, and the cam on the cam-wheel shaft for actuating the same, in combination with the hinged arm of the knotter-frame carrying the hinged end of the knotter-shaft, knotter, and means, substantially as described, for vibrating said hinged arm of the knotter-frame and knotter.

354,252. REVOLVING GAS-FIXTURE. JOSEPH J. SEIDSCHEK, Chicago, Ill. Filed Feb. 4, 1886. (No model.)



Claim.—1. The combination, with the gas-supply pipe, of a vessel or tank containing liquid to form a seal, a chamber, C, provided with radial arms having laterally-directed exit-openings or burners, an annular float connected with and sustaining said chamber C, and a bearing-ring, G, and a vertical cylindric bearing-pin, F, attached, one to the float and the other to one of the stationary parts of the device, so as to hold the float from lateral displacement, substantially as described.

2. The combination, with a gas-supply pipe, of a vessel or tank closed at its top and communicating with the said supply-pipe, said tank being provided with an inner tubular wall, B^2, and containing liquid to form a seal, an annular float located within said tank, and a chamber, C, provided with tubular arms having laterally-directed burners or exit-openings, said chamber being located below the tank and connected with the float through the opening formed by the tubular wall B^2, substantially as described.

3. The combination, with a gas-supply pipe, of a vessel or tank closed at its top and communicating with the said supply-pipe, said tank being provided with an inner tubular wall, B^2, and containing liquid to form a seal, an annular float located within said tank, a chamber, C, provided with tubular arms having laterally-directed burners or exit-openings, a tube, C', connecting said chamber with the float, a stationary bearing-pin, F, sustained in the upper part of the tank, and a bearing-ring, G, attached to the float at the top of the latter, substantially as described.

4. The combination, with a gas-supply pipe, of a vessel or tank containing liquid to form a seal, a chamber, C, provided with burner-arms, a float connected with and sustaining said chamber, a bearing-ring attached to the moving parts of the apparatus, and a stationary bearing-pin engaging said bearing-ring, said bearing-pin having laterally-adjustable connection with the plate or part supporting it, substantially as described.

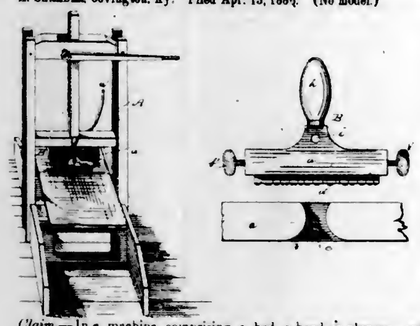
5. The combination, with a gas-supply pipe, of a vessel or tank closed at its top and communicating with said supply-pipe, said tank being provided with an inner tubular wall, B^2, and containing liquid to form a seal, a chamber, C, provided with burner-arms and connected with the float, a bearing-ring attached to the float, a bearing-pin engaged with said ring, and a bar or plate, J, secured in the upper part of the tank and affording support for the said bearing-pin, substantially as described.

6. The combination, with the tank B and float E, provided with a bearing-ring, G, of a plate, J, secured in the tank, and a bearing-pin, F, having laterally-adjustable connection with said plate, substantially as described.

7. The combination, with the tank B and float E, provided with a bearing-ring, G, of a bearing-pin, F, a plate secured in the tank and provided with an aperture, *j*, and means for adjustably connecting the pin with the plate, consisting of a screw-shank and disk upon the pin, a washer, and a nut, substantially as described.

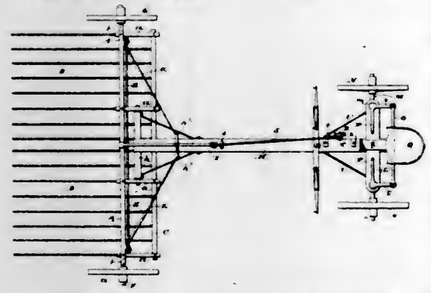
8. The combination, with the tank B, closed at its top and provided with a filling-orifice, and an open-topped float, E, therein, of a deflecting-plate, L^2, located beneath said filling-orifice and extending over the edge of the float, substantially as described.

354,253. MECHANISM FOR LETTERING BOOK-COVERS. CHAS. H. SHRADER, Covington, Ky. Filed Apr. 13, 1886. (No model.)



Claim.—In a machine comprising a bed, a head or plunger, and mechanism for operating the latter, the combination, with the head or plunger, of a book-binder's hand-pallet having a hole formed through it, the front face of said head or plunger being recessed, substantially as shown, and provided within said recess with a pin adapted to enter the hole in the pallet, in the manner and for the purpose above set forth.

354,254. HORSE HAY-RAKE. JAMES H. SIGAFOOS, Fremont, Nebr. Filed Oct. 17, 1885. (No model.)

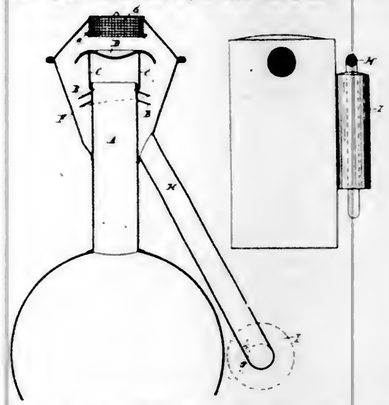


Claim.—1. The combination, with a rake-head consisting of the upper and lower rails, blocks located between said rails, and teeth secured to the lower rails, a truss-rod secured at its ends and passing below the blocks, and carrying-wheels for said rake-head, of the tongue loosely secured to the rake-head, a cross-head secured to the tongue, horizontally-swinging crank-axles journaled in the ends of the cross-head, connected crank-arms secured to the upper ends of the axles, foot-levers extending from the ends of the axles toward each other, and devices for tilting the rake-head, substantially as set forth.

2. The combination, with the rake, the rearwardly-extending tongue, the cross-head secured to the end of the tongue, and the horizontally-swinging crank-axles journaled in the ends of the cross-head, of connected crank-arms located above the cross-head and secured to the upper ends of the axles and foot-levers extending from the end of the axles toward each other, substantially as set forth.

3. The combination, with the tilting rake supported upon wheels, the rearwardly-extending tongue hinged to the rake-head, the laterally-swinging axles journaled in a cross-head secured to the rear end of the tongue, connected crank-arms secured to the upper ends of the axles, and foot-levers extending from the ends of the axles toward each other, of the sulky-supporting wheels, the driver's seat located over the rear end of the tongue, the operating-lever connecting with a tilting-lever on the rake-head, and means for locking the operating-lever in any desired rocking adjustment, substantially as set forth.

354,255. SMOKE-STACK. HENRY C. SIMPSON and PETER WILLOX, East Saginaw, Mich. Filed May 10, 1886. (No model.)



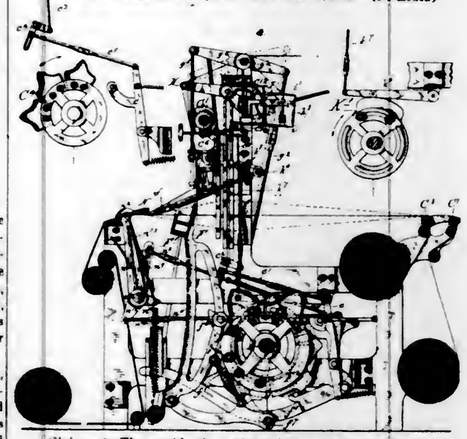
Claim.—1. In a smoke-stack having deflectors constructed and arranged as described, the combination therewith of a laterally-adjustable cone-cap, D, substantially as and for the purposes set forth.

2. In a smoke-stack, the combination of the stack A, deflector B, cone-cap D, and feed-water heater I, independent of the boiler, of the pipe H, independent of the tubes of said boiler and passing through the water-heater, substantially as and for the purpose specified.

3. In a smoke-stack, the combination of the stack A, deflectors B, adjustable cone-cap D, jacket F, pipe H, water-heater I, and screen-flange G, having annular V-shaped flange *a*, the said pipe H passing through the feed-water heater, all constructed, arranged, and operating as and for the purposes set forth.

4. The combination, with the stack A, of the rods C, having their lower ends pivotally secured to the upper end of said stack, the cone-cap D, rigidly secured to the upper ends of said rods, and the adjusting-rod E, connected with said cone-cap, substantially as and for the purpose specified.

354,256. LOOM FOR WEAVING CHENILLE OR FUR PILE FABRICS. HALCYON SKINNER, Yonkers, N. Y., assignor to Alexander Smith & Sons Carpet Company, same place. Filed Jan. 23, 1886. (No model.)



Claim.—1. The combination, substantially as before set forth, of a reciprocating fur-carrier, the reciprocating needles which operate the catcher-warp threads for securing the fur, the stationary warp-beam for the said warp-threads, and the yielding whip-roll over which said warp-threads are passed between the said warp-beam and the said needles.

2. The fur-carrier constructed, substantially as before set forth, with a turning-beak, the delivery-surface of which is faced backward from the breast-beam of the loom, whereby the fur strand is laid in the shed with the pile in the proper direction to be combed to an erect position in the fabric.

3. The fur-carrier constructed, substantially as before set forth, with a turning-beak fitted to turn axially of its body.

4. The combination, substantially as before set forth, of the fur-carrier constructed with a turning-beak whose delivery-surface faces backward from the breast-beam of the loom with means of turning the same, whereby the direction in which the beak points is reversed.

5. The combination, substantially as before set forth, of the fur-carrier constructed with a turning-beak whose delivery-surface faces backward from the breast-beam of the loom with means for holding said beak in its proper direction during the transverse movement of the fur-carrier.

6. The combination, substantially as before set forth, of a fur-carrier constructed with a turning-beak with a wheel in said beak to facilitate the passage of the fur.

7. The combination, substantially as before set forth, of the fur-carrier constructed with a turning-beak with a reciprocating series of needles by which the catcher-warps are operated.

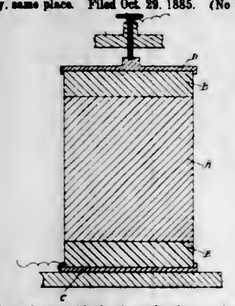
8. The combination, substantially as before set forth, of the fur-carrier and its transverse bar with the guide-bar, guide-arm, and spring.

9. The combination, substantially as before set forth, of the traversing fur-carrier, the fur take-up, the reciprocating series of catcher-warp needles, and the cam which operates said needles after a single movement of the fur-carrier across the loom.

10. The duplex comb constructed, substantially as before set forth, with two dent-plates.

11. The combination, substantially as before set forth, of the dent-plate of the comb with the comb-stock by means of spring-arms.

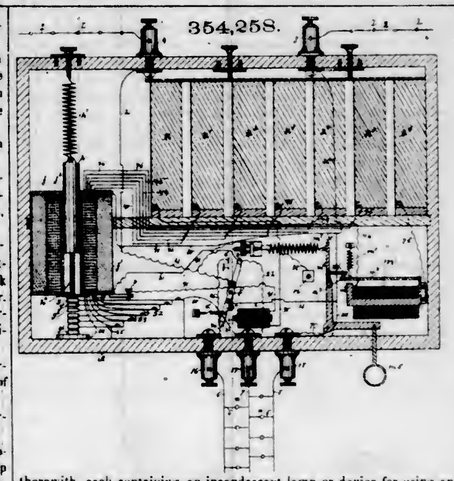
354,257. RESISTANCE-BLOCK FOR ELECTRIC CIRCUITS. MARMADUKE M. M. SLATTERY, Woburn, Mass., assignor to the Sun Electric Light Company, same place. Filed Oct. 29, 1885. (No model.)



Claim.—1. A resistance-block of conducting and non-conducting materials, intimately mixed, combined with terminal pieces or caps of conducting material, between which the said block is held, substantially as set forth.

2. A resistance-block having a body composed of conducting and non-conducting materials, as described, inclosed between layers of conducting material, substantially as set forth.

354,258. APPARATUS FOR ELECTRICAL DISTRIBUTION. MARMADUKE M. M. SLATTERY, Woburn, Mass., assignor to the Sun Electric Light Company, same place. Filed Nov. 18, 1885. (No model.)



Claim.—1. A number of multiple-arc branches each containing an incandescent lamp or device for using an electric current, combined with a series of normally-open substitute branches containing an equivalent resistance, and circuit-closers in said substitute branches, and a solenoid and core therefor controlling the said circuit-closers, the said solenoid having a coil continuously connected in a branch circuit, and a series of coils or layers of wire, one in each of the substitute branches, substantially as described.

2. A divided main current-supplying circuit and three conductors interposed therein, and multiple-arc branches between the said conductors, combined with normally-open substitute branches and circuit-connections between the main circuit and conductors interposed therein, and a switch controlling said connections, which, when in one position, connects two of the said conductors with one terminal of the divided main circuit and the third conductor with the other terminal thereof, and when in its other position connects two of the conductors with the opposite terminals of the divided main circuit, leaving the third conductor disconnected from the main circuit, substantially as and for the purpose described.

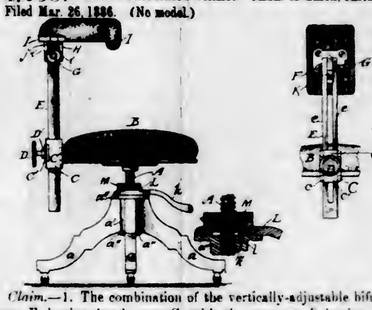
3. A main circuit and number of multiple-arc branches connected therewith, each containing an incandescent lamp or device for using an electric current combined with a series of normally-open substitute branches, one corresponding to each lamp branch, and being closed when the said lamp branch is open, combined with an electro-magnet in the substitute branch, which is the last one closed when the last lamp branch is opened, and a cut-out device controlled by the said magnet which connects the terminals of the main circuit, shunting all the branches when the said magnet is energized by the closing of the last substitute branch, substantially as described.

4. A number of multiple-arc working branches, each containing an incandescent lamp or device for using an electric current, combined with a number of normally-open substitute branches each containing an equivalent resistance, and circuit-closers in said substitute branches, and a solenoid and core therefor controlling the said circuit-closers, the said solenoid having one coil continuously connected in a branch circuit and another coil connected in circuit with the substitute branches, substantially as described.

5. A divided main current-supplying circuit and number of working branch circuits arranged in multiple arc between the terminals thereof, and an equal number of normally-open substitute branches, all of substantially the same resistance, and means, substantially as described, by which a substitute branch is closed when a working branch is opened, there being always the same number of branches, between which the current divides, and a switch and actuating electro-magnet therefor by which the resistance in each branch may be multiplied without change in the number of branches, substantially as described.

6. A system of electric distribution, consisting of a number of local working-circuits arranged in multiple arc, and translating devices therein operated from a single main line, combined with normally-open substitute circuits containing resistance equal to that of the working-circuits, the said substitute circuits each having one terminal connected with one side of the local multiple-arc circuit and a series of multiple contact-pieces connected with the other terminals of the substitute circuits, and a solenoid and core movable therein co-operating with the said contact-pieces, as described, whereby the said substitute circuits are successively closed as the working branches are successively opened, substantially as and for the purpose set forth.

354,259. PHOTOGRAPHER'S CHAIR. JAMES H. SMITH, Chicago, Ill. Filed Mar. 26, 1886. (No model.)



Claim.—1. The combination of the vertically-adjustable bifurcated support E, having hand-screw G, with the arm-rest I, having slotted

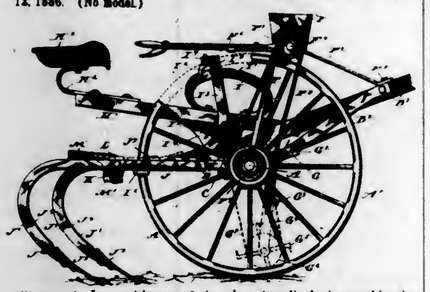
plate H, and head-rest J, having slotted plate K, the slots of said plates being open at the ends, whereby said arm and head-rest, respectively, are rendered interchangeably adjustable with the support E, substantially as and for the purposes set forth.

2. The combination, in a photographer's chair, of the support E, consisting of the parallel arms *e e*, the box C, having a movable back piece, C', and the screw D, having thereon a collar, D', and passing through screw-holes in the said back piece and in the said box, respectively, substantially as and for the purposes specified.

3. The combination, in a photographer's chair, of the usual seat-screw for adjusting the height of the chair, a screw-threaded socket attached to the chair-support for the reception of said seat-screw, a supplemental screw-threaded socket, one face of which is oblique to its axis with means for preventing the same from rotating, and a loosely-interposed washer having a cam-shaped face conforming to that upon said supplemental socket, and one or more handles for rotating said washer, substantially as and for the purposes set forth.

4. The combination, in a photographer's chair, of a seat-screw, a screw-threaded socket for its reception, cam-nut M, loosely connected with said socket by means of a pin, *k'*, and the interposed cam L, substantially as and for the purposes set forth.

354,260. CULTIVATOR. JAMES F. SMITH, Danville, Ill. Filed June 12, 1886. (No model.)



Claim.—1. In a cultivator of the class described, the combination of the axle-frame provided with the sprocket-wheel F^9, the casting H, the pole B^9, the castings B, and the grooved castings E, adapted and arranged to support and operate the seed-dropping mechanism, substantially as shown and described.

2. The combination of the axle A, the wheels A', the castings B, having the arms B', the casting H, the pole B^9, secured thereto, the braces B^2, the divided casting C, the pivotally-connected castings D, the shovel-beams J, the castings L, the bolts L^3, and the bar K, substantially as specified.

3. The combination of the axle A, wheels A', castings C, pivoted castings D, beams J, bar K, and the lifting-lever I^2, having the bar I^4, and the pawl and sector, substantially as specified.

4. In a cultivator of the class described, an axle having loosely mounted castings thereon for coupling therewith the shovel-beams and pole and the braces of the pole, and provided with a sprocket, in combination with the castings B B', a depending arm, as G, pivoted to the brace-arms, as at G', provided with a breaking-pin on the forward extension of said arm, as at G^2, and adapted, substantially as described, for the connection of stalk-cutting mechanism, substantially as and for the purpose set forth.

5. The combination of the axle A, provided with the sprocket F^9, the casting B, provided with the arm B', and the arm G, and adapted to operate the chain G^7, and a stalk-cutting mechanism, substantially as specified.

6. In a cultivator of the class described, the casting L, having recesses L' at each end, and a lug, L^4, in combination with the shovel-beams, and with the shovel-beam-connecting bar K, substantially as specified.

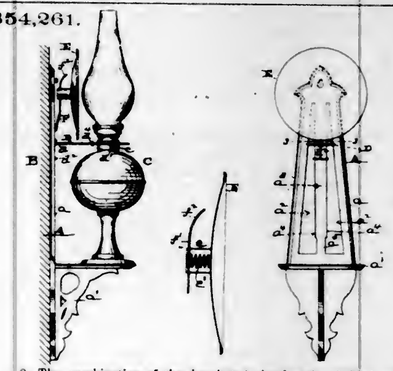
7. The combination with the shovel-beam-connecting bar K, of the herein-described casting connecting the shovel-beams, and means for removably connecting said casting to the bar, substantially as specified.

8. The combination, with the bar K and shovel-beams J, of the casting L, provided with the recesses L' L^3, the perforations L^5, and the lug L^4, of the perforated bar K and the locking-lever N, substantially as specified.

354,261. LAMP-BRACKET. S. HENRY SMITH, Benton, Mo., assignor of one-half to William W. Norman, same place. Filed Feb. 25, 1886. (No model.)

Claim.—1. The combination of the bracket A, having the shelf *a'* and the bar a^2, as described, with the arm D, having its end *d* shaped and extended at d^1, and provided with the loop d^4, and its end *d'* made in two curved parts, d^2 d^3, as described.

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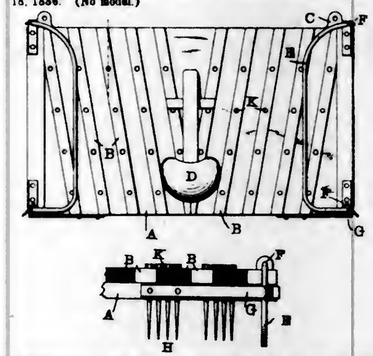


2. The combination of the bracket A, having the shelf *a'* and the bar a^2, with the adjustable arm F and the reflector E, having the tubular projection *e* and spring *e'*, as described.

3. The combination of the bracket A and the arm F, having the curved end f^2, with the reflector E, having the tubular projection *e* and the spring *e'*, as described.

4. The combination of the bracket A, having the shelf *a'* and the bar a^2, with the arm D, having the curved parts d^2 d^3 at one end, and at the other end having the parts d^2, and the loop d^4, adjustable on said arm, as described.

354,262. HARROW. JOHN A. SPRUNGER, Berne, Ind. Filed Mar. 18, 1886. (No model.)

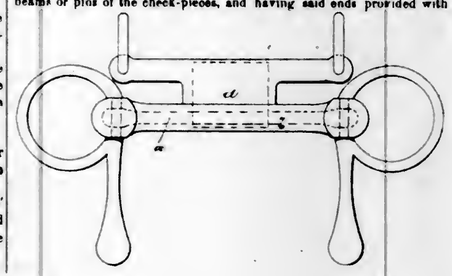


Claim.—1. In a harrow, the combination of the deck-boards A, the deck-ribs B, the teeth H, the pivoted runners E, and the keeper G, substantially as and for the purpose set forth.

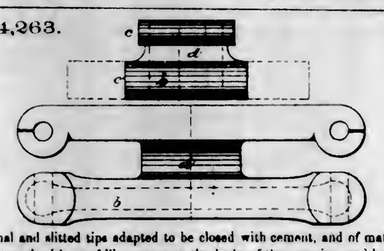
2. In a harrow, the combination of the deck-boards A, the deck-ribs B, and the colter-shaped teeth H, having cylindrical shanks projecting through the deck-boards and ribs, and provided above with nuts, and having the upper termination of their blade portions projecting upward into the deck-boards, substantially as and for the purpose set forth.

354,263. COVERING FOR BRIDLE-BIT CORES. JAMES STANLEY, Newark, N. J. Filed Feb. 24, 1886. (No model.)

Claim.—1. A tubular covering for a bridle-bit mouth-piece core, having perforations or openings at or near its opposite ends to receive the beams or pins of the check-pieces, and having said ends provided with



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terminal and slitted tips adapted to be closed with cement, and of material integral with or of like nature to the body of the covering, and having in one or both of said ends a slit or opening to allow a passage to the core of the bridle-bit, substantially as set forth.

2. A tubular covering for the core of a bridle-bit mouth-piece, having interior walls devoid of inward projections, and having terminal and slitted tips adapted to be closed with cement to inclose the ends of the core, substantially as and for the purposes set forth.

3. The two core-covering tubes, arranged parallel with one another and connected by a suitable connecting-web of like nature to said coverings, the opposite ends of both of said tubes extending laterally from said web or remaining free to allow easy movement to the bit, substantially as set forth.

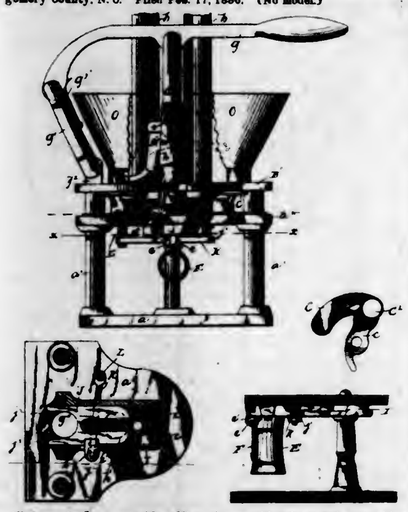
4. A core-covering having two tube-like portions centrally connected by a web, substantially as set forth.

5. A rubber covering for a bridle-bit connecting two cores, and provided with an inelastic or less elastic binding or coupling, substantially as and for the purposes set forth.

6. As a new article of manufacture, two tubular coverings having closed ends or terminal tips to fit over the ends of the core of a bridle-bit mouth-piece, and having slits to allow the insertion of the said core, and openings to receive the beams of the check-piece, the said two coverings being integrally united, substantially as and for the purposes set forth.

7. As an article of manufacture, two rubber coverings, extending one parallel with the other, to receive or cover two mouth-pieces, the two said coverings being united at their centers or midway between their ends, to allow a greater freedom or independence of movement to the ends of the mouth-piece, substantially as and for the purposes set forth.

354,264. CARTRIDGE-LOADING MACHINE. JOHN E. STEELE, Montgomery County, N. C. Filed Feb. 17, 1886. (No model.)



Claim.—1. In a cartridge-filler, the combination of the cartridge-holder swinging on the main frame beneath the same, the pivoted charger, carrying plate at one side of the cartridge-holder, and adapted to be brought into line by a spring that returns them to a position at one side of the said cartridge-holder, the charger secured to said plates receiving the filling material from the hopper on the main frame, the plunger entering the cartridge-holder, and mechanism, substantially as described, whereby the plunger is reciprocated, as set forth.

2. In a cartridge-filler, the combination of the reciprocating plunger, means, substantially as described, whereby the same is actuated, the plates carrying the shot and the powder chargers pivoted beneath the horizontal plate B, the springs to return the charger-plates after the same have been moved inward, and the cartridge-holder pivoted to and swinging from the main frame in line with the movement of the reciprocating plunger, substantially as specified.

3. In a cartridge-filler, the combination of the reciprocating plunger, the pivoted spring-controlled charger-bearing plates, the spring-controlled chargers secured to their respective plates, the cartridge-holder provided with the lugs *e*, hinged to the lug *e'* on the block I, beneath the opening therein, and the spring F, secured to the cartridge-holder and adapted to bear against the lug *e'* and retain the cartridge-holder, substantially as specified.

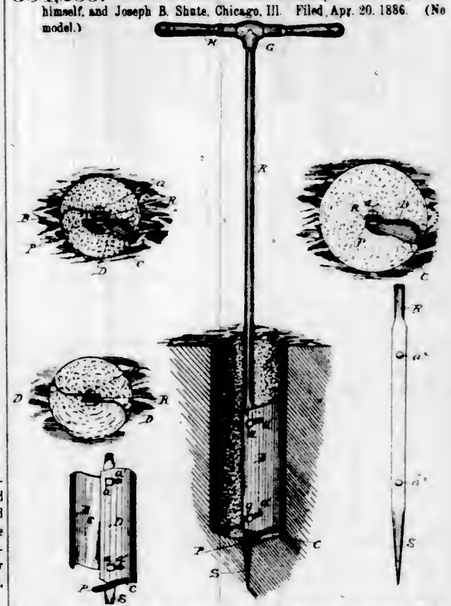
4. In a cartridge-filler, the combination of the pivoted charger-bearing plates, the chargers secured thereto, the cartridge-holder swinging on the main frame, the reciprocating plunger, the wad-holders secured to the rotating disk H, which is centrally pivoted to the rear portion of the plate *a*, the reciprocating traveler receiving the wads from the wad-holders, and mechanism, substantially as described, whereby the traveler is reciprocated by the motion of the plunger, substantially as specified.

5. In a cartridge-filler, the combination, with the reciprocating plunger provided with the recess m^4, and moving in the standard *b*, provided with the slot m^2, and powder and shot filling mechanism, constructed substantially as described, of the bar M, provided with the lug or extension *m'*, and pivoted to the side of the standard *b*, the shaft L, provided with the extension *l*, controlled by the spring *l'*, the slotted arm K, the traveler J, provided with the lug *j* and pin *j'*, the hollow block I, having the guideways *i i*, the disk H, pivoted on the main frame, and the wad-holders *h h*, secured to said disk, substantially as specified.

6. The combination of the swinging cartridge-holder E, the pivoted charger-bearing plates C D, the chargers secured to said plates, respectively, the plunger moving in the hollow standard *b*, the link-rod *g'* on the plate B, connecting the plunger to the lug g^2, and the spring g^3, secured to said link-rod to elevate the plunger after the same has been depressed, substantially as specified.

7. In a cartridge-filler, the combination of the main frame, horizontal plate B, and standard *b*, with the plates C and D, pivoted to and beneath the plate B, the chargers *c* and *d*, secured to the said plates, the plunger E, having the lateral recess m^3, means, substantially as described, for actuating the plunger, the bar M, having the lug *m*, passing through the slot in the standard *b*, the vertical shaft L, having the extension *l* at its lower end controlled by the spring *l'*, secured to the plate B, the slotted lever K, the traveler J, having the lug *j* and pin *j'*, the hollow block I, having guideways *i i*, the disk H, pivoted on the main frame, and the wad-holders *h h*, secured to said disk, all constructed and arranged substantially as specified.

354,265. EARTH-AUGER. JOSEPH S. STEPHEN, Joliet, assignor to himself, and Joseph B. Shute, Chicago, Ill. Filed Apr. 20, 1886. (No model.)

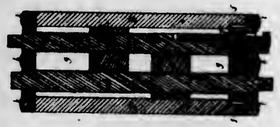


Claim.—1. The earth-auger shown and described, consisting of the shaft R, having the point S and handle H, bit D, having the slots *a'*,

cutting-edges P and C, and a vertical cutting-edge for trimming the sides of the hole, and the bolts *a*, for securing the said bit to said shaft and radially adjusting said bit thereon, substantially as set forth.

2. The combination, with shaft R and bit D, constructed as shown and described, of bolts *a* and curved guide-plate B, said bit and plate being adapted to be radially adjusted on said shaft, substantially as and for the purpose set forth.

354,266. LATHE-CHUCK. AMOS H. STETSON, Brookline, Mass. Filed Sept. 30, 1886. (No model.)



Claim.—1. The combination, with the two jaws and their carrier, of the two separate jaw-actuating screws arranged in such carrier and provided with connecting-gears, substantially as set forth.

2. The combination, with the two jaws and their carrier, of the two separate actuating-screws of such jaws arranged in such carrier, and having a gear fastened on the shank of one of such screws and another gear revolubly on the shank of the other screw, and held thereto by a key arranged in such gear and shank and removable therefrom, all being substantially as set forth.

3. The combination of the jaw-carrier, channeled to hold the two jaws and guide them in their rectilinear movements, and provided with the gear-insulating chamber separate from the space in which the gears work, with the said jaws arranged in such space and projecting from such carrier, as represented, and with the two actuating-jaw screws and their connecting-gears applied to their shanks, such gears being within such insulating-chamber, and all being substantially as set forth.

4. The combination, with the jaw-carrier and with the two jaws recessed in their inner or grasping faces, as shown, of the two separate jaw-actuating screws arranged in such carrier and provided with connecting-gears, substantially as set forth.

354,267. LAMP-BURNER. CHARLES W. STIFF and JOSEPH WATROUS, Foxborough, assignors of one-third to Joseph B. McCune, Chicopee, Mass. Filed Jan. 9, 1886. (No model.)



Claim.—1. A burner having a wick-tube provided with a wick-support near its mouth, and formed with wick-passages between the end walls of the tube and said support, to permit the wick to be folded, substantially as set forth, in the direction of the width of the mouth of the tube, substantially as described.

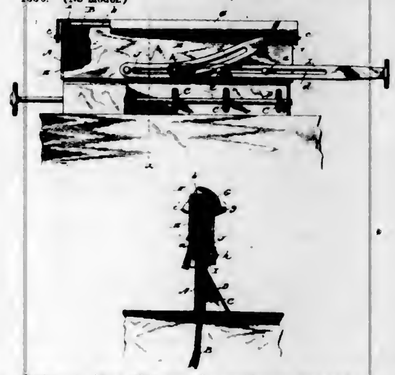
2. In an oil-burner, the wick-tube provided with a flanged roller journaled therein near its mouth, to support and guide a folded wick in a position to burn, substantially as described.

3. In an oil-burner, a wick-tube formed with downwardly-converging end walls, in combination with a roller journaled in the upper portion of the tube, the axis of said roller being at right angles to the width of the tube, and the periphery of the roller at a distance from the end walls, substantially as described, to form passages between said roller and the end walls of the tube to receive a wick folded over said roller, substantially as described.

4. In an oil-burner, the combination, with a wick-tube formed with elongated slots *e*, of a wick-raiser and its shaft, the shaft being journaled in said slots, and a spring bearing against the shaft to hold it in its bearings, substantially as described.

5. In an oil-burner, the combination, with the burner and wick-tube, of a shaft journaled in the burner below the top of the wick-tube, a flame regulating and extinguishing cap, a finger having said cap hinged thereto, and connected to said shaft at one side of the tube, to enable the cap to be moved over the tube at right angles to the width of the latter by said lever, and a spring connected with the burner and bearing against said lever to exert a pressure thereon to hold the lever and cap to various adjustments over the wick-tube, substantially as described.

354,268. FLAME REGULATOR AND EXTINGUISHER FOR LAMP BURNERS. CHARLES W. STIFF and JOSEPH WATROUS, Foxborough, assignors of one-third to Joseph B. McCune, Chicopee, Mass. Filed Jan. 9, 1886. (No model.)



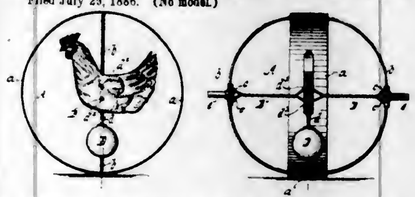
Claim.—1. In an oil-burner, the combination therewith of a wick-tube, a wick fitted therein and folded over the upper end of the tube onto the outside thereof, and a clasp fitted over the tube and outside portion of the folded wick, substantially as described.

2. The combination, with an oil-burner, of a wick-tube and a clasp fitted over the tube at its upper end to hold a turned-down end of a wick against the tube, the said clasp being of a greater diameter than the tube to leave a space between the clasp and tube to receive the turned-down portion of a wick, substantially as described.

3. In an oil-burner, the combination, with a wick-tube, of a slide fitted over the tube and provided with inwardly-turned lips at the ends thereof, said slide being of greater diameter than the tube to permit a wick to be passed between it and the side of the tube, substantially as described.

4. The combination of a slide to fit over a wick-tube, an adjustable cap hinged to the slide, a slotted sliding arm, pins connected to the slide for guiding the arm along the slide, and a secondary arm pivoted to the main arm and formed with a curved slot, through which a pin connected to the slide passes and guides the arm, substantially as described.

354,269. TOY-PROPELLER. RICHARD TEICHMANN, Brooklyn, N. Y. Filed July 29, 1886. (No model.)



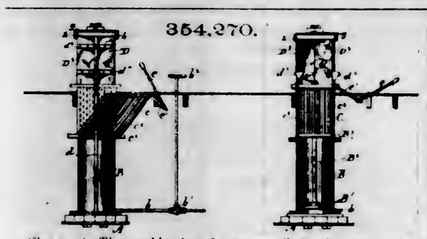
Claim.—1. The combination, with the rotating frame A, of a torsional spring secured in the rolling frame in line with the axis of its rotation, and a weight secured directly to and suspended from the spring for storing up the propelling energy in said spring, substantially as shown and described.

2. The combination, with a rotating frame, of a torsional spring secured in the rolling frame in line with the axis of its rotation, a weight secured directly to and suspended from the spring for storing up the propelling energy in said spring, and the finger-pieces secured to the rolling frame in line with the spring, substantially as shown and described.

3. The combination, with the ring *a*, of two spokes, *b b*, the torsional spring B, secured to the spokes in line with the axis of rotation of the ring, and the weight D, secured directly to and suspended from the spring, for storing up the propelling energy in said spring, substantially as shown and described.

4. The combination, with the rotating frame A, of a torsional spring consisting of an elastic band secured in the rolling frame in line with the axis of its rotation, a weight secured directly to and suspended from the strands of said spring for storing up the propelling energy in the spring, and finger-pieces secured to the rolling frame in line with the spring, substantially as described.

354,270. COTTON-PRESS. ABNER D. THOMAS, Little Rock, Ark. Filed Dec. 31, 1885. (No model.)



Claim.—1. The combination of a steam-cylinder, its piston, piston rod, and platen, and a compressing-chamber, D, with a receiving-chamber, C, having one or both of its sides hinged at the bottom to horizontal bars, and hinged levers pivoted thereto to close and lock or to open said doors, for the purpose described.

2. The combination of a steam-cylinder, a compressing-chamber, and between them a receiving-chamber having one or both of its sides hinged at the bottom to horizontal bars, with the connecting-rods uniting the foundation to the top beam of the press, substantially as and for the purpose described.

3. The combination of a steam-cylinder, a compressing-chamber, and between them a receiving-chamber having its sides formed of slats hinged at the bottom to horizontal bars, with operating-levers, substantially as and for the purpose described.

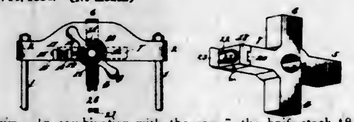
4. The combination of a steam-cylinder, a compressing-chamber, and between them a receiving-chamber with the connecting-rods uniting the foundation to the top beam of the press, with the end doors of the compressing-chamber hinged upon said connecting-rods, substantially as and for the purpose described.

5. The combination of the grooved upper and lower platen of a compressing-chamber with independent telescopic trough-shaped metal guides *f*, substantially as and for the purpose described.

6. The combination of a compressing-chamber, a filling-chamber having its sides hinged above the latter, and a steam-cylinder above the filling-chamber, with the connecting-rods *d*, supporting said steam-cylinder and forming the pivot for the end doors and for the latter, substantially as and for the purpose described.

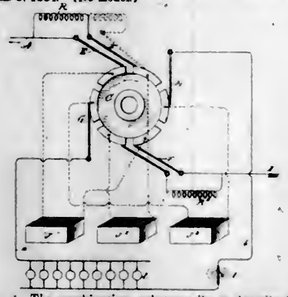
7. The combination of a baling-chamber, upper platen, the side doors, D^2, and the crank-rods *h*, pivoted thereto, with the hooked rods *g*, engaging with said crank-rods and hinged together by a rod secured to a spring, *i*, substantially as and for the purpose described.

354,271. SHOE-HEELING MACHINE. CHRISTIAN W. THOMSEN, Cincinnati, Ohio, assignor of one-half to Aaron A. Brown, same place. Filed Apr. 10, 1886. (No model.)



Claim.—In combination with the arm 7, the knife-stock 18, provided with a finishing-piece, 22, and a concave central portion, 21, substantially as specified.

354,272. APPARATUS FOR THE DISTRIBUTION OF ELECTRICITY BY MEANS OF SECONDARY BATTERIES. ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Jan. 3, 1884. (No model.)



Claim.—1. The combination, substantially as described, of a main or charging circuit, a local or sub circuit, a secondary battery, and a pole-changing commutator, whereby the connection of said battery to the charging-circuit may alternately or at intervals be reversed and the current unused on the local or sub circuit may be returned to the main circuit.

2. In a system of electric distribution comprising a main or charging circuit, a sub-circuit, and a secondary battery or batteries which are put alternately to line and to the sub-circuit, a continuously-operating circuit-shifter for alternating or reversing the connection of the secondary battery with the line at intervals, as and for the purposes described.

3. In a system of electrical distribution, a main or charging circuit, a sub-circuit containing working-resistances, in combination with three or more secondary batteries, a commutator, and connections to each battery, as described, whereby the batteries are successively first connected individually to the charging-circuit, then open-circuited, and afterward connected to the working-circuit.

4. The combination of an electric circuit, a series of secondary batteries, a continuity-preserving commutator or circuit-shifter, and means for substantially breaking the connection between the batteries at the point of change in the commutator upon a flow of current through such connection, whereby a charged battery may at such point be prevented from discharging into an uncharged or weakened battery.

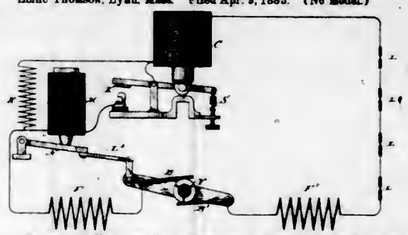
5. The combination of a charging-circuit, a sub-circuit, a commutator having three or more pairs of commutator plates or segments, and three or more sets of batteries, each connected with one pair of commutator-plates, and all in turn connected to the charging-circuit, and afterward first open-circuited and then connected to the sub-circuit.

6. The combination of a main or charging circuit, a continuity-preserving commutator whereby the connection of said circuit with two or more batteries is controlled, and an electro-magnet and circuit-breaker in the circuit completed between the batteries at the moment of bringing one battery into connection with the main circuit to receive a charge and disconnecting the battery that has received a charge.

7. The combination of a main or charging circuit, two or more batteries to be charged thereby, and a constantly-operated continuity-preserving circuit-shifter for connecting the batteries to the charging-circuit in turn, said circuit-shifter being combined with means for giving it an accelerated movement at the instant of change, as and for purpose described.

8. The combination, with two or more secondary batteries and a sub-circuit to which said batteries are connected in turn, of a constantly-operated continuity-preserving circuit-shifter and commutator, combined with means for giving said circuit-shifter an accelerated movement at the point of change, as and for the purpose described.

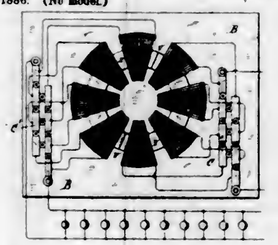
354,273. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. ELIHU THOMSON, Lynn, Mass. Filed Apr. 9, 1885. (No model.)



Claim.—1. The combination, substantially as described, of an adjustable commutator, a motor electro-magnet whose armature is connected with the movable yoke for the brushes, a controller-magnet, a contact governed thereby and placed in a branch including the motor-magnet, a retracter normally tending to keep the contact open against the power of the controlling-magnet, and a branch around the contact and motor-magnet, including an artificial resistance.

2. The combination, substantially such as described, of a controller-magnet, two branches of the main circuit, controller-contacts placed in one of said branches with the motor-magnet, an artificial resistance in the other branch, a closed conducting-band on the motor-magnet, and a condenser in a shunt around the controller-contacts, as and for the purpose described.

354,274. INDUCTION-COIL. ELIHU THOMSON, Lynn, Mass. Filed July 26, 1886. (No model.)



Claim.—1. In an induction apparatus for electric distribution, a main or charging circuit and a local or independent circuit, in combination with an induction-coil having a divided primary coil, and switch apparatus whereby any desired connection of the sections of such coil may be effected.

2. In an induction apparatus, a discontinuous iron core for the primary and secondary coils, in combination with means for varying the magnetic continuity.

3. The combination, in an induction apparatus, of two sets of coils wound in sections, one constituting the primary and the other the secondary coil, in combination with switch apparatus whereby the primary coils may be connected in series or in multiple or in series multiple, and additional apparatus whereby similar connections of the secondary coils may be effected at pleasure.

4. The combination, with an induction apparatus having its core made in sections, carrying, respectively, the primary and secondary coils, of insulating-plates M M interposed between the core-sections.

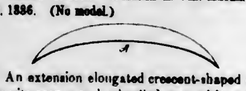
5. In an induction apparatus, core-sections wound, respectively, with primary and secondary coils, and means for varying the magnetic continuity at the intervals between said core-sections, as and for the purpose described.

6. In an induction apparatus, an iron core made in sections carrying, respectively, primary and secondary coils, in combination with means for adjusting one section with relation to the other, so as to vary the degree of continuity.

7. In an induction apparatus, a core formed in two sections, one of greater length than the other, and having a primary coil upon the longer section and a secondary coil upon the shorter section wound to a greater thickness or depth than the primary.

8. In an induction apparatus, the combination, with a long core-section wound with a primary and a short core-section wound with a secondary, of means for adjusting said sections with relation to one another, so as to vary the magnetic continuity of the core.

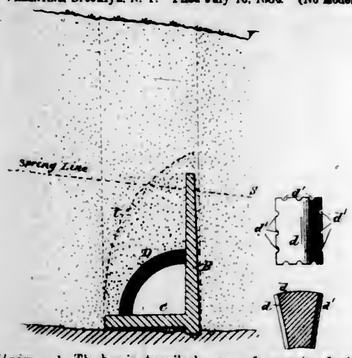
354,275. SHOE-KNIFE. WILLIAM L. VAN METER, Vineland, N. J. Filed Mar. 9, 1886. (No model.)



Claim.—1. An extension elongated crescent-shaped double-pointed knife-blade having its curves or hooks died out and its concaved curved side ground to an edge, substantially as specified.

2. A crescent-shaped knife-blade having a concave cutting-edge with like shaped ends adapted to be reversed in the handle, substantially as specified.

354,276. SUBTERRANEAN WATER-COLLECTING DAM. DAVID H. VALENTINE, Brooklyn, N. Y. Filed July 10, 1886. (No model.)



Claim.—1. The herein-described means of procuring fresh water from the earth, which consists of a subterranean dam, combined with a conduit upon the source side of said dam, the dam and conduit being built from a central point or reservoir in a valley, up an elevation or hillside, the dam serving to intercept the earth-flow of spring-water and cause its collection in the conduit, substantially as described.

2. The subterranean conduit composed of the dam B and bottom C, and the arch-wall joining the bottom and dam, substantially as described.

3. The reservoir, A, built in a valley and covered, combined with the subterranean conduit having connections or extensions E that dip into the reservoir A, substantially as described.

4. The subterranean dam B and bottom C, made water-tight, combined with the percolating lean-to wall D, substantially as described.

5. The subterranean dam B and bottom C, made water-tight, combined with the lean-to wall D, made of arch-brick having grooves *d* formed in them, substantially as described.

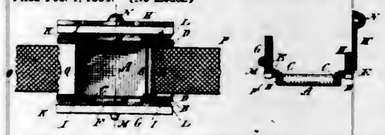
354,277. ROLL-TOP BOX. JAMES G. WALKER, Hudson, N. H. Filed Nov. 1, 1886. (No model.)



Claim.—1. The combination of the box-body A, provided with the main and two auxiliary chambers, *a*, *b*, and *c*, and having the straight and semicircular grooves *e e* and *f f* arranged therewith, as described, with the roll top or cover B inserted and to work in such grooves, and constructed substantially as set forth.

2. The combination of the box-body A, provided with the main and two auxiliary chambers, *a*, *b*, and *c*, and having the straight and semicircular grooves *e e* and *f f* arranged therewith, as described, with the roll-top cover B, as explained, furnished with the stop-strip *k* and inserted and to work, as explained, in such grooves, all being substantially as represented.

354,278. BRACELET-CLASP. KARL WALLINGER, New York, N. Y. Filed Feb. 1, 1886. (No model.)



Claim.—1. A bracelet-clasp containing a bottom plate, longitudinal upwardly-turned flanges thereon, two lids or covers, each hinged to one of said flanges, springs adapted to open said lids, and a catch (such as a projection on one lid and a cavity in the other) for detachably holding said lids in a closed position, in combination with a bracelet or band having one end secured to said clasp, and a clamp or catch, substantially as described, for detachably securing the free end of said bracelet to said clasp, substantially as set forth.

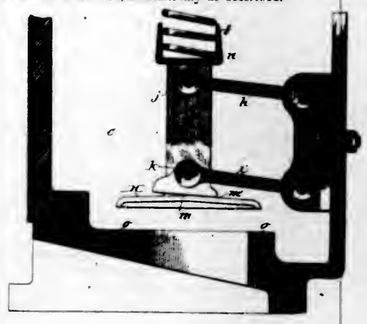
2. A bracelet-clasp containing a bottom plate, A, having flanges B, two lids or covers, G and H H', hinged to said flanges, side projecting flanges, E, spring hinge-pivots J, and a catch (such as a projection on one lid and a cavity in the other) for detachably holding said lids in a closed position, in combination with a bracelet or band having one end secured to said clasp, and a clamp or catch, substantially as described, for detachably securing the free end of said bracelet to said clasp, substantially as set forth.

3. A bracelet-clasp containing a bottom plate, A, having flanges B, two lids or covers, G and H H', spring hinge-pivots J, sidewise projecting flanges E, a catch (such as a projection on one lid and a cavity in the other) for detachably holding said lids in a closed position, and the leaf-springs C, having inwardly-turned ends D, in combination with a bracelet having one end secured to said clasp and the other and adapted to be received in said clasp and between said ends D, substantially as described.

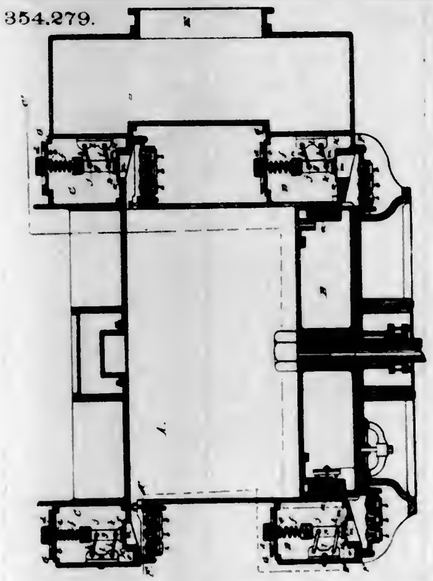
4. The combination, in a clasp, of the bottom plate, A, having flanges B, the lids G and H H', respectively hinged to said flanges, projection M on lid G, and cavity N in lid H H', sidewise-projecting flanges E, spring hinge-pivots J, and leaf-springs C, having inwardly-bent ends D, substantially as described.

354,279. BLOWING-ENGINE. PETER L. WEIMER, Lebanon, Pa. Filed Apr. 12, 1886. (No model.)

Claim.—1. In a blowing-engine, a valve having movement at a right angle to the plane of its seat, in combination with a swinging link attached thereto and provided with a foot or projection the face of which is in a plane corresponding with the back of the valve, whereby the rise of the valve is controlled, substantially as described.



354,279.

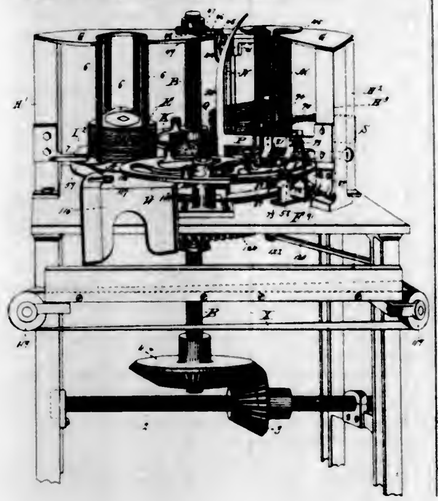


2. In a blowing-engine, a valve having parallel guide-bars projecting from its back, in combination with swinging links attached thereto, one of which is provided with a foot or projection crossing a portion of the valve, and adapted to be struck thereby to limit the lift of the valve, substantially as shown and described.

3. In a blowing-engine, a valve having swinging links pivotally connected thereto and to a fixed portion of the structure, in combination with a spring interposed between the valve and one of the walls of the valve-chamber, substantially as described.

4. In a blowing-engine, a valve-chamber having a series of removable covers provided with recesses or sockets, in combination with a valve having swinging links pivotally connected thereto and a spring interposed between the valve and the cover and seated in sockets, substantially as described.

354,280. MACHINE FOR REMOVING BOBBINS FROM CARRIAGES OF LACE-MACHINES, INSERTING THEM THEREIN, AND THREADING THE CARRIAGES. RUDOLPH WEBB, Nottingham, England, assignor to the Willcox & Gibbs Sewing Machine Company, New York, N. Y. Filed May 10, 1886. (No model.)



Claim.—1. The combination, with the recessed traveling bed and the gearing therefor, of the holding-plates for confining the carriages in the recesses, substantially as described.

2. The spring-retractor having a pin for entering between the bobbin and the spring, in combination with a carriage-holder and mechanism whereby said pin is moved transversely to the carriage to insert the said pin, and then parallel therewith to retract the spring, substantially as described.

3. The combination, with a traveling carriage-holder and gearing therefor, of the bobbin-lifters movable with said holder for pressing out the top of the bobbin and the stationary cams for moving said bobbin-lifters, substantially as described.

4. The combination, with a traveling carriage-holder, the gearing therefor, the bobbin-lifters movable with said holder, and the stationary cams for operating the said bobbin-lifters, of the bobbin-extractor and mechanism for operating the same, substantially as described.

5. The combination of a carriage-holder, a carriage-spring retractor having a pin for entering between the spring and the bobbin, bobbin-lifters, a bobbin-extractor, and operating mechanism, substantially as described.

6. The combination, with a series of traveling carriage-holders and gearing therefor, the said series extending in the direction in which the said holders travel, of bobbin-lifters for each carriage-holder, stationary cams for acting upon the bobbin-lifters, a bobbin-extractor, and mechanism whereby said extractor is operated to withdraw the bobbins successively, substantially as described.

7. The combination of the recessed traveling bed, the gearing therefor, the holding-plates, the bobbin-lifters traveling with said bed, the stationary cams for raising said bobbin-lifters, the bobbin-extractor, and the mechanism for operating said extractor, substantially as described.

8. The combination, with a traveling carriage-holder and gearing therefor, of bobbin-supporters traveling with said carriage-holder and movable transversely thereto, stationary cams for operating said supporters, a bobbin-holder for pressing the bobbin against said supporters, a bobbin-inserter traveling with said carriage-holder, and stationary cams for operating said inserter, substantially as described.

9. The combination of a carriage-holder, bobbin-supporters movable transversely to said holder, a bobbin-inserter, a carriage-spring replacer having a pin for engaging said spring, and operating mechanism, substantially as described.

10. The combination, with the series of traveling carriage-holders and gearing therefor, the said series extending in the direction in which the said holders travel, of the movable bobbin-supporters for each carriage-holder, the stationary cams for acting upon the said bobbin-supporters, the bobbin-holder for pressing the bobbins against said bobbin-supporters, the bobbin-inserters, one for each carriage-holder, and the mechanism operating the said bobbin-inserters in succession, substantially as described.

11. The combination of the series of traveling carriage-holders, the movable bobbin-supporters, the bobbin-holder, the bobbin-inserters, the carriage-spring replacers having each a pin for engaging the carriage-spring, and mechanism for operating all the said devices to insert bobbins into the carriage in each of said holders in succession, substantially as described.

12. The combination, with the series of traveling carriage-holders, of the stationary bobbin-box, the bobbin-supporters, the bobbin-holder, the bobbin-inserters, and the operating mechanism for all said parts, substantially as described.

13. The combination, with the bobbin-box, of the tension belt and horn and mechanism for revolving said belt, substantially as described.

14. The combination, with the bobbin-box, of the tension-belt, mechanism for revolving the said belt, the horn, and the rotary brush, substantially as described.

15. The combination, with the traveling bed, the gearing therefor, and a box—such as the bobbin-box, for example—for containing a pile of flat objects and delivering them in succession to said bed, of a movable device arranged a short distance above the bottom of said box for upholding the pile of objects therein, and mechanism operating at intervals to withdraw said device and permit the descent of said pile and the delivery of the bottom bobbin, and then to return said device into position for upholding the balance of said objects, substantially as described.

16. The combination, with the traveling bed, the gearing therefor, and the bobbin-box, of the stop at the bottom of the box, removable to allow the bottom bobbin to be slipped out edgewise, and the mechanism for withdrawing and returning said stops, substantially as described.

17. The combination, with the traveling bed, the gearing therefor, and the bobbin-box, of the movable stop for controlling the escape of bobbins from the box, the devices or pins for keeping the bottom bobbin level, the stud for engaging the bottom bobbin, and mechanism for operating said stop, said pins, and said stud, substantially as described.

18. The combination, with a traveling carriage-holder and the gearing therefor, of the threading-hook movable with said carriage-holder,

the stationary cam for operating the same, the thread-carrier, and the mechanism for operating said thread-carrier, substantially as described.

19. The combination, with a series of traveling carriage-holders, the series extending in the direction in which carriage-holders travel, and the gearing for moving said holders, of bobbin-delivery and bobbin-inserting mechanism, whereby bobbins are delivered to the carriages in the several holders in succession and are inserted in said carriages, substantially as described.

20. The combination, with the series of traveling carriage-holders, the series extending in the direction in which the carriage-holders travel, and the gearing for moving said carriage-holders, of bobbin-delivery and bobbin-inserting mechanism, whereby a bobbin is delivered to and inserted into the carriage in each holder as it is presented in its turn, the tension apparatus for holding the ends of the bobbin-threads, and the carriage-threading mechanism whereby the carriage in each holder is threaded in its turn, substantially as described.

21. The combination, with the traveling bed having recesses corresponding in form to the outline of lace-machine carriages so as to receive and retain the said carriages in a given position, of the carriage-box constructed and arranged to register with said recesses as they come beneath it and the gearing for revolving said bed, substantially as described.

22. The combination, with the series of traveling carriage-holders and gearing for moving the same, having holding devices which bear upon the carriages near the edges, leaving the bobbin-spaces exposed, of carriage-delivery mechanism for supplying a carriage to each holder in its turn, substantially as described.

23. The combination of the series of traveling carriage-holders, gearing for moving the same, carriage-delivery mechanism, and the bobbin removing or extracting mechanism, substantially as described.

24. The combination of the series of traveling carriage-holders, gearing for moving the same, the carriage-delivery mechanism, and the bobbin-delivery and bobbin-inserting mechanisms, substantially as described.

25. The combination, with the series of traveling carriage-holders and gearing for moving the same, of the bobbin removing or extracting mechanism, the bobbin-delivery mechanism, and the bobbin-inserting mechanism, substantially as described.

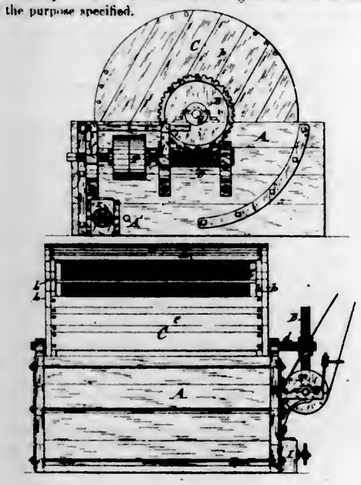
26. The combination of the series of traveling carriage-holders, gearing for moving the same, the carriage-delivery mechanism, the bobbin removing or extracting mechanism, the bobbin-delivery mechanism, the bobbin-inserting mechanism, the tension apparatus, and the carriage-threading mechanism, substantially as described.

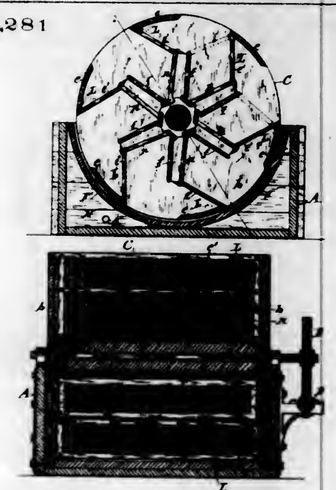
27. The combination, with the recessed traveling bed and the gearing for revolving the same, of the holding-plates, the carriage-ejectors movable with said bed, the cam for operating the same, and the mechanism for withdrawing the carriages, substantially as described.

28. The combination, in one machine, of the recessed traveling bed, the gearing therefor, the holding-plates, the carriage-box, the bobbin-extracting mechanism, the empty-bobbin receiver, the bobbin-box, the tension apparatus, the bobbin-inserting mechanism, the carriage-threading mechanism, and the carriage-receiver, substantially as described.

354,281. DYEING APPARATUS. LEONARD WELDON, Amsterdam, N. Y. Filed Sept. 15, 1886. (No model.)

Claim.—1. In a dyeing apparatus, the combination, with the rotary wheel or cylinder, of buckets formed angular in cross section, as and for the purpose specified.





2. In a dyeing apparatus, the combination, with the rotary wheel or cylinder, of buckets in said cylinder adjacent to the periphery thereof, and of angular form in cross-section, substantially as shown and set forth.

3. In a dyeing apparatus, the combination, with the rotary wheel or cylinder, of buckets of angular form in cross-section and adjacent to the periphery thereof, and perforated partitions extending from the inner edge of the buckets toward the center of the wheel or cylinder, substantially as described and shown.

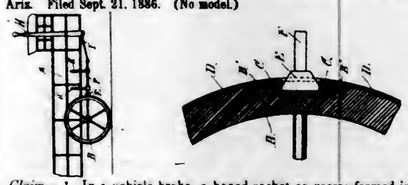
4. In a dyeing apparatus, the combination, with the rotary cylinder, of buckets of V shape in cross-section, and having one side solid and the other side perforated, and the solid side thereof constituting a longitudinal section of the exterior of the cylinder, substantially as described and shown.

5. In combination with the dye-vat and rotary cylinder, buckets in said cylinder and gates extended from the inner portion of the buckets toward the backs of the subjacent buckets, and adapted to be set inclining toward the exterior of the cylinder, substantially as and for the purpose set forth.

6. In combination with the dye-vat and rotary cylinder, buckets in said cylinder and gates, each pivoted at one edge near the inner edge of one of the buckets and having its free edge toward the back of the adjacent bucket, substantially as described and shown, for the purpose specified.

7. In combination with the cylinder C, the dye-vat having a segmental solid false bottom extending from the top of one side of the vat to the center of the bottom proper thereof, and a segmental perforated false bottom extending from the top of the opposite side of the vat to the center of the bottom proper thereof, and a dye-liquor receptacle back of said perforated bottom, substantially as described and shown.

354,282. VEHICLE-BRAKE. HERMAN WELSCH, Cochise County, Ariz. Filed Sept. 21, 1886. (No model.)

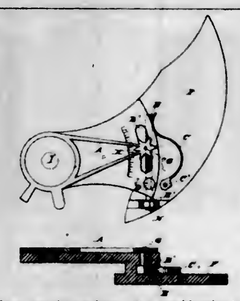


Claim.—1. In a vehicle-brake, a boxed socket or recess formed in the rim of the wheel with a corresponding slot formed in the tire of the wheel adapted to receive a brake-block rigidly connected to a brake-rod, constructed, arranged, and operating substantially in the manner as herein set forth and specified.

2. The slotted or recessed felly of a vehicle-wheel containing a metal box with curved flanges countersunk in the face of the rim or felly and bound by a recessed or slotted tire, in combination with a metal brake-block having tapering points adapted to enter the slot or recess of the wheel in the manner described.

354,283. WATCH-REGULATOR. PHILIP H. WEISSER, Columbus, Ohio, assignor to the Columbus Watch Company, same place. Filed June 3, 1886. (No model.)

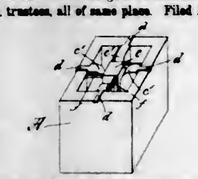
354,283.



Claim.—1. In a watch-regulator, the combination, with the regulator-arm having the downwardly-projecting curved pin, of the straight screw having the journal portion, the swivel-socket embracing the journal portion of the screw, and the curved spring bearing against the threaded portion of said screw, to hold the screw in engagement with the downwardly-projecting pin, substantially as specified.

2. The combination, in a watch-regulator, with the slotted and recessed balance-bridge and the regulator provided with the downwardly-projecting pin, of the screw having the journal portion and nicked flange, the bifurcated swivel-socket, and the curved spring bearing against the screw, substantially as specified.

354,284. GUIDE FOR MOLDS FOR COMPOUND INGOTS. ETHERIDGE WHEELER, Boston, Mass., assignor to himself, Ware B. Gay, and George W. Gogin, trustees, all of same place. Filed Apr. 30, 1886. (No model.)

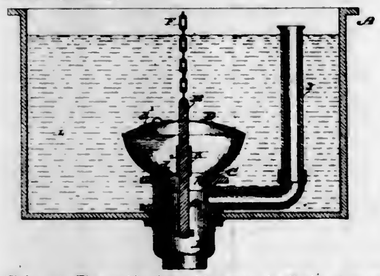


Claim.—1. A mold for the manufacture of compound ingots, combined with a guide or guides by which to position or locate within the mold one of the component metals of said compound ingot, substantially as described.

2. A mold for the manufacture of compound ingots, combined with a guide or guides by which to position or locate within the mold one of the component metals of said compound ingot, said guide or guides having an extension or extensions by which said guide or guides are supported within the mold, substantially as described.

3. A mold for the manufacture of compound ingots, combined with a beveled guide or guides by which to position or locate within the mold one of the component metals of said compound ingot, substantially as described.

354,285. TANK-VALVE. PETER WHITE, St. Louis, Mo. Filed Oct. 4, 1886. (No model.)

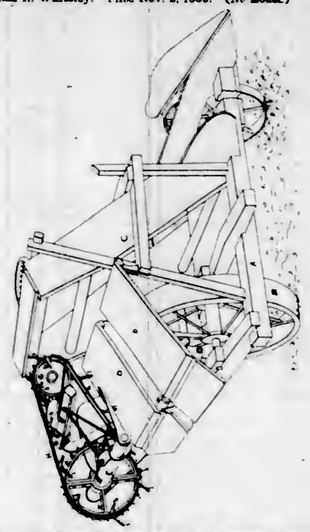


Claim.—1. The combination, with a tank for liquid, of an outlet-pipe for the liquid, an air-inlet for admitting air into said outlet-pipe, and a chambered valve for closing said outlet-pipe, provided with an air-outlet for discharging the air from the valve into the liquid of the tank, and with a liquid-inlet, that when the valve is unseated the liquid will pass from the tank into said valve, and when seated the liquid will pass therefrom into the outlet-pipe of the tank, substantially as described.

2. The combination, with a tank for liquid, of an outlet-pipe for the liquid, and a chambered valve for closing said outlet-pipe, the liquid being drained from said valve, when seated, into said outlet-pipe, and entering it from the tank when unseated, and the air being discharged from the valve into the liquid of the tank, substantially as described.

3. The combination, substantially as described, of the tank A, the outlet B, the seat C, the chambered valve D, the stem E, the connection F, and the pipe I, said valve D having the water-passage d^2 and the valved air-passage d, as described.

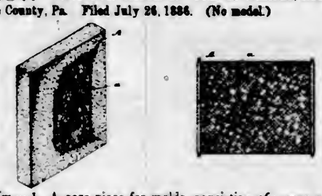
354,286. AUTOMATIC BINDER. WILLIAM N. WHITELEY and WILLIAM BAYLEY, Springfield, Ohio; said William Bayley assignor to said William N. Whiteley. Filed Nov. 2, 1885. (No model.)



Claim.—1. A sprocket or chain wheel mounted loosely upon the upper arm of the binder-frame combined with a similar sprocket-wheel mounted on the frame near the head of the elevator, driven as described, and a carrying-chain around said wheels to turn the heads of the grain down the binder-table for the purpose of facilitating the discharge of the bound bundles.

2. A sprocket or chain wheel mounted loosely upon the upper arm of the binder-frame, a similar sprocket-wheel mounted on the frame near the head of the elevator, driven as described, a carrying-chain around said wheels combined with fingers jointed to said chain, and a controlling-track to hold said fingers in proper action, whereby the heads of the grain are moved downward over the deck of the binder to facilitate the discharge of the bound bundles.

354,287. CORE FOR CASTING. JOHN R. WHITNEY, Radnor, Delaware County, Pa. Filed July 26, 1886. (No model.)



Claim.—1. A core-piece for molds, consisting of a core of thin refractory material, and supports for the edges of the core, substantially as described.

2. The combination, with a core of thin refractory material, of a supporting-frame in which the edges of the core are secured, substantially as described.

3. The combination of a core of thin refractory material, and a support or frame of sand, in which the edges of the core are embedded, substantially as described.

4. A core-piece consisting of a bent sheet of thin refractory material, and a support for the edges of the material, holding the core in its bent position, substantially as described.

5. The combination, with a mold for casting, of core-pieces consisting of thin flexible blades or sheets of refractory material, and rigid supports for the edges of the core, substantially as described.

354,288. CUFF-FASTENER. SUSAN P. WILLCOX, Fairhaven, Mass. Filed June 5, 1886. (No model.)

Claim.—1. In a cuff-fastener, the combination of the safety-pin E, the elastic loop A, and the clamp D, firmly secured to one end of said

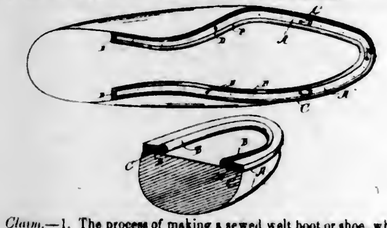
354,288.



loop and mounted upon and movable about the bar of said pin and projecting at right angles therefrom, substantially as described.

2. In a cuff-fastener, the combination of the safety-pin E, the elastic loop A, and the clamp D, firmly secured to one end of the loop A and mounted upon the bar of said pin, so as to be movable about the axis of said bar and longitudinally thereof, substantially as described.

354,289. PROCESS OF MAKING SEWED BOOTS OR SHOES. GEO. W. WILLEY, Athol, Mass. Filed Feb. 26, 1886. (No model.)

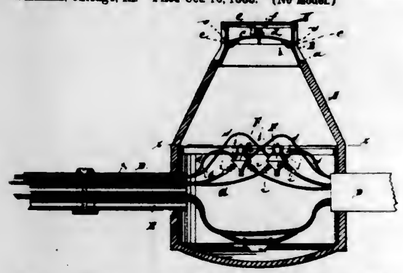


Claim.—1. The process of making a sewed welt boot or shoe, which consists, first, in lasting the reversed upper to the welt, then sewing the welt to the upper independently of the inner sole, then lasting the shoe and completing it in any of the well-known ways, all substantially as described.

2. The process of making a sewed welt boot or shoe, which consists, first, in impressing upon the welt a line to guide the stitching to the upper, then lasting the reversed upper to the welt, then sewing the upper to the welt and finishing the shoe in any of the well-known ways, substantially as described.

3. The process of making a sewed welt boot or shoe, which consists of lasting the upper to the welt, substantially as described, sewing the welt to the upper independently of the inner sole, then lasting the shoe upon a larger last for the purpose of forcing the inner seam nearer the line where the outer is to be stitched, and then stitching the outer sole to the welt, all substantially as and for the purpose above described.

354,290. UNDERGROUND ELECTRICAL CONDUIT. BENJAMIN WILLIAMS, Chicago, Ill. Filed Oct. 16, 1885. (No model.)



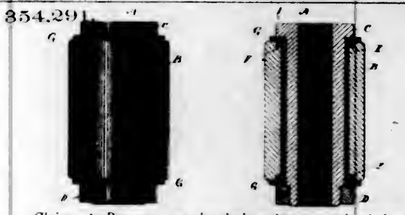
Claim.—1. The combination, with a conduit for electrical conductors, of a local-service splicing-box composed of a case detachably secured to the exterior of the conduit, and having an opening communicating through an opening in the wall of the conduit with the interior of the latter, for leading a conductor from the conduit to connect with a local-service wire outside thereof, substantially as described.

2. In combination with a conduit for electric wires, a local-service splicing-box, H, secured to the conduit at any desired point by means of saddles I and clamping devices J *m*, substantially as and for the purpose specified.

3. The combination of a main electric conduit, a main conductor or group of conductors, one or more single wires separated from such conductor or group of conductors at a man-hole, a passage, *g*, in the same conduit for such separated wire or wires, a local-service splicing-box secured to the conduit at any desired point, and a local-service wire leading from the local-service splicing-box to an electric apparatus provided either with a wire connecting with the ground or with a wire joining the main conductor or group of conductors, substantially as and for the purpose specified.

354,291. INSULATING-JOINT. DAVID WILLIAMSON, Hartford, Conn. Filed Mar. 19, 1886. (No model.)

354,291



Claim.—1. Between two electrical conductors, an insulating-joint composed of perforated disks which are formed of insulating material and are clamped together in groups, each of which is partly countersunk in one or the other of said conductors, substantially in the manner and for the purpose specified.

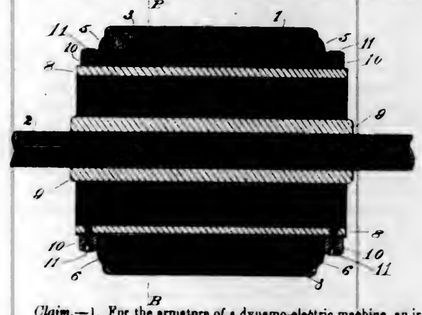
2. An insulating-joint formed between adjacent parts of two electrical conductors by means of mica disks which are of unequal area, and are clamped together upon a screw in groups, each of which is countersunk in one or the other of said conductors, substantially in the manner and for the purpose specified.

3. Two electrically-conductive solid bodies which have a tubular and a cylindrical portion, respectively, in combination with disks or laminations of insulating material which are clamped together at right angles to the common longitudinal axis of said tubular and cylindrical portions in groups, each of which is partly within and partly without said tubular portion, substantially in the manner and for the purpose specified.

4. An insulating-joint consisting of a cylindrical conductor which is partly within a hollow or tubular conductor, and is separated therefrom by disks of fire-proof insulating material arranged at right angles with the longitudinal axis of such cylindrical conductor and clamped together in two groups, which are partly within said tubular conductor and partly without the same, severally, substantially in the manner and for the purpose specified.

5. An indefinite number of insulating disks or washers arranged at right angles with two electrical conductors and clamped between the same in a group, which is partly countersunk in one of said conductors, substantially in the manner and for the purpose specified.

354,292. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. DAVID WILLIAMSON, New York, N. Y. Filed Aug. 2, 1886. (No model.)



Claim.—1. For the armature of a dynamo-electric machine, an iron core consisting of spiral laminations, in combination with brackets which are mounted between fixed collars, substantially as and for the purpose specified.

2. As a means of mounting a cylindrical ring-armature upon a wheel or rotary cylinder, a series of brackets which are adapted to embrace the core of said armature, in combination with slotted blocks which are bolted to said wheel or cylinder, and are adapted to hold said brackets in position, substantially as and for the purpose specified.

3. A spirally-laminated armature-core and brackets for the support of the same, in combination with slotted blocks which hold said brackets in position, substantially as and for the purpose specified.

4. A spirally-laminated armature-core, brackets which are adapted to support said core, and slotted blocks which are adapted to support said brackets, in combination with a wheel or rotary cylinder, to which said blocks are fastened, substantially as and for the purpose specified.

354,293. CHAIN FOR PORTABLE SIGNS. HENRY WILLSON, Chicago, Ill. Filed Apr. 26, 1886. (No model.)

Claim.—1. As a new article of manufacture, to be attached to portable signs, ornamental transparencies, and the like, a chain provided with a series of elongated links placed at suitable distances from each other, and arranged at right angles to the plane of the slab, to receive therein, respectively, the corners of said slab, substantially as and for the purposes set forth.

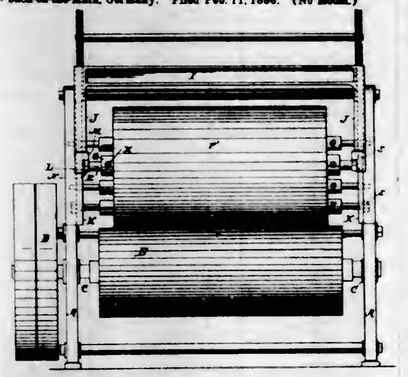
354,293.



2. A slab of glass or other material, in combination with a chain provided with elongated links located sufficiently distant from each other, and in a plane perpendicular thereto, to receive the corners of said slab, substantially as and for the purposes set forth.

3. A portable glass sign consisting of the combination of a sheet or plate of glass having sign-characters thereon and a suspending-chain having links arranged at the corners of the glass, said links being sufficiently open to receive the said corners, substantially as and for the purposes specified.

354,294. WINDING-MACHINE. HEINRICH WITTENWERBER, Offenbach-on-the-Main, Germany. Filed Feb. 11, 1886. (No model.)



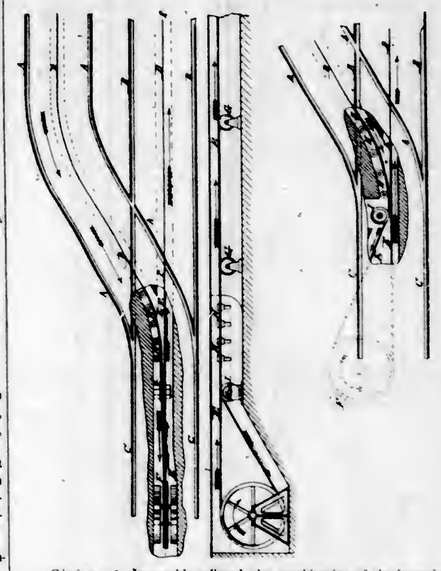
Claim.—1. The combination of the driving-roll, the winding-roll, the winding-roll axis, the vertical guides for such axis, the irregular bearings upon the axis, and the weights resting upon such bearings, as and for the purpose set forth.

2. The combination of the driving-roll B, the winding-roll F and its axis E, the irregular bearings N, and weights J, resting on such bearings, as and for the purpose set forth.

3. The combination of the driving-roll B, the winding-roll F and its axis E, the weights J, resting on the irregular bearings N of said axis, and the tension-rolls Q R, as and for the purpose set forth.

4. The combination of the driving-roll B, the winding-roll F and its axis E, the weights J, resting on the irregular bearings N of said axis, the fixed tension-rolls Q, the tension-rolls R, the slides S, carrying said rolls R, and the dogs U, as and for the purpose set forth.

354,295. SWITCH FOR CABLE RAILROADS. SEWALL A. WITHERSPOON, St. Louis, Mo. Filed July 31, 1886. (No model.)

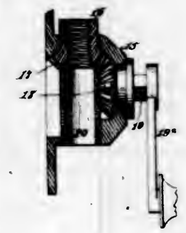


Claim.—1. In a cable railroad, the combination of the incoming and outgoing tracks A B, converging to the track C, and the cable converging to about the point of intersection of the grip-slots, and then diverging to the opposite sides of the return-bend pulley F, substantially as and for the purpose set forth.

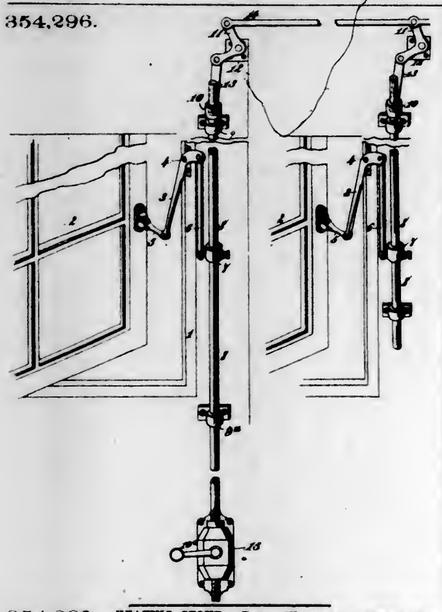
2. In a cable railroad, the combination of two tracks converging to a single track, and the cable converging in like manner to the point of intersection, and then diverging to the opposite sides of the pulleys F, around which it passes, one side of the pulley being in substantially direct line with the outgoing cable beyond the point of intersection of the grip-slot.

354,296. TRANSOM-LIFTER. ROBERT ADAMS, Southwark, County of Surrey, England. Filed Dec. 8, 1883. (No model.)

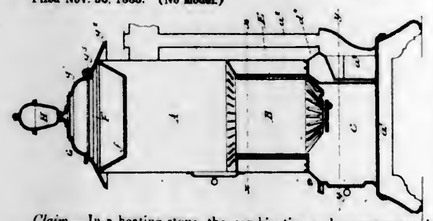
Claim.—The combination, with the pivoted sash 2 or analogous object and the supporting-frame 1, of the link 5, pivoted to the sash, the vertical bell-crank lever 3, pivoted to the frame 1 and connected with the link 5, the arm 6, extending in a downward direction from the short arm of the bell-crank lever, the vertical rod having a collar, 7, to which the arm 6 is pivoted, and provided with a stop-collar, 10, the guide-eyes 9 9, the arm 13, the bell-crank lever 11, and the operating device connected with the latter, all constructed and relatively arranged substantially as herein set forth.



354,296.



354,297. HEATING-STOVE. EDGAR W. ANTHONY, Boston, Mass. Filed Nov. 30, 1883. (No model.)



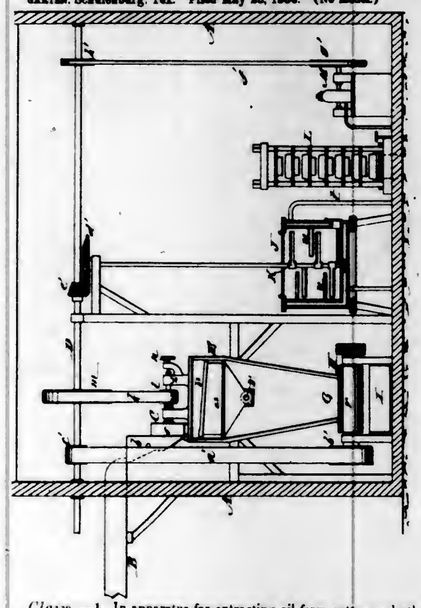
Claim.—In a heating-stove, the combination and arrangement, in the base-section of the stove, of the base-plate a', the ash-pit wall c, the flue-plates d d' d^2, arranged in relation to each other and to the outer shell of the stove and to the ash-pit wall to form the base-flues a and the air-heating chamber D, the upper base-plate, e, the said lower base-plate, a', having inlets or openings d^3, and the said upper base-plate, e, having the outlets or apertures d^4, arranged in relation to the passage or chamber D as specified, substantially as described.

354,298. STOOL AND SEAT. IVY BALDWIN, San Francisco, Cal. Filed Mar. 13, 1886. (No model.)



Claim.—A chair of the character described, comprising the triangular side frames formed of vertical front bars, and inclined rear bars connected at their upper ends to the upper ends of the vertical bars, an inclined seat connected at its lower or front edge to the upper ends of the triangular side frames and rounded on its rear or upper edge, a brace connected to the triangular frames and to the seat in rear of its front edge, and a belt having depending straps secured at the forward parts of the sides of the seat and to the rear part thereof, substantially as set forth.

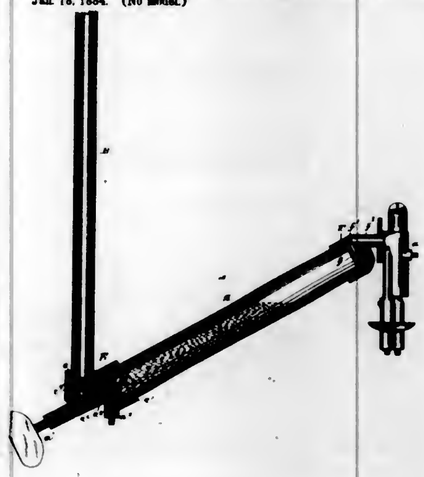
354,299. APPARATUS FOR EXTRACTING OILS. CHRISTIAN BAUMGARTEN, Schulenburg, Tex. Filed May 25, 1886. (No model.)



Claim.—1. In apparatus for extracting oil from cotton and other seeds, the combination of a conveyer for passing the seeds from the gin-stands, a huller for removing the hulls from the kernels of the seed, a screen or separator for separately delivering the hulls and kernels, a crusher for crushing the separated kernels, a combined heater, agitator, and reducer for cooking and reducing said prepared kernels, and a press for extracting the oil from the cooked and reduced mass, substantially as specified.

2. In apparatus for extracting oil from cotton and other seeds, the combination of the conveyer B, the main shaft D, for operating the several devices of the plant, the huller C, the separator E, the spouts F G, the crusher H, the heater J, the stirring and reducing devices K u, and the hydraulic press L, with its connected pump M, essentially as shown and described.

354,300. VAPOR-BURNER. HENRY S. BILDEN, Canton, Ohio. Filed Jan. 18, 1884. (No model.)

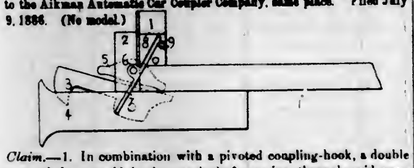


Claim.—1. In a vapor-burner, the combination of a downward-extending supply-pipe, a burner, and a tubular retort interposed between the supply-pipe and the burner, and inclined to the horizon, substantially as set forth, to have the plane of the oil-surface intersect the lateral walls on both sides of the retort, said retort being of a diameter larger than that of the supply-pipe and having its interior chamber unobstructed, whereby the whole of said chamber can be utilized for oil and vapor, substantially as set forth.

2. In a vapor-burner, the combination of the downward-extending supply-pipe, a burner, a tubular retort between the supply-pipe and the burner of larger diameter than the supply-pipe and inclined to the horizon, substantially as set forth, to have the plane of the oil-surface intersect the lateral walls of the retort on both sides, and having its interior unobstructed, a contracted passage-way between said retort and the supply-pipe, and a contracted passage-way between the retort and the burner, the walls between the said passage-way being tight at all points, substantially as set forth.

3. The combination of the downwardly-extending supply-pipe, a tubular retort of larger diameter than and connected to the supply-pipe, said retort being unobstructed throughout and inclined to the horizon, substantially as set forth, the connecting-piece at the upper end of the retort having two sockets inclined to each other, the burner secured to one of the said sockets and arranged, substantially as set forth, to have the flame-tip situated vertically, and the regulating-valve below the upper end of the retort, substantially as set forth.

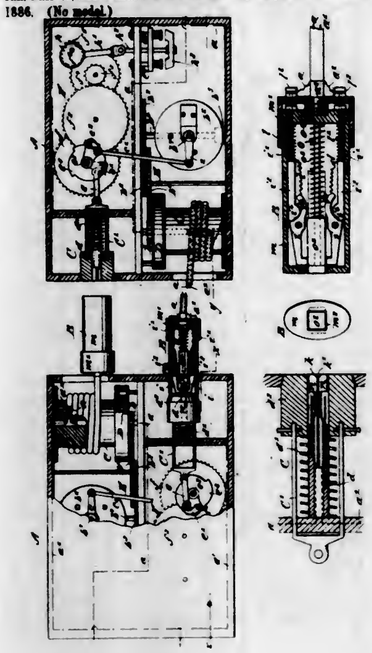
354,301. CAR-COUPLING. JOSEPH BOOTH, Detroit, Mich., assignor to the Aikman Automatic Car Coupler Company, same place. Filed July 9, 1886. (No model.)



Claim.—1. In combination with a pivoted coupling-hook, a double cam suspended over said hook, a rock-shaft passing through said cam, and adapted to slide but not to turn thereon, a lever on the end of the rock-shaft, and a stop rigidly secured to the side of the car, substantially as shown and described.

2. In combination with the cam 5, having therein the hole 13, rock-shaft 6, squared on a portion of its length to engage loosely with hole 13, lever 7, and the plate 9, having the offset 8, with the projecting stop 10, substantially as shown and described.

354,302. ALARM FOR RAILWAY-TRAINS. GEORGE E. CARPENTER, Passaic, and ALBERT P. TUCKER, Jersey City, N. J. Filed Mar. 23, 1886. (No model.)



Claim.—1. In an alarm apparatus for cars, the combination, with electric terminals, a circuit-breaker, and two couplers arranged to contract the springs D d', of the train of gearing F, connections c c' c^2, shaft f^4, and eccentric h, for reciprocating the circuit-breaker, substantially as described.

2. The coupling C, composed of the stationary spindle d, sliding hollow head d^2, yoke C', and coiled spring d', arranged to be compressed by the head d^2, substantially as and for the purposes described.

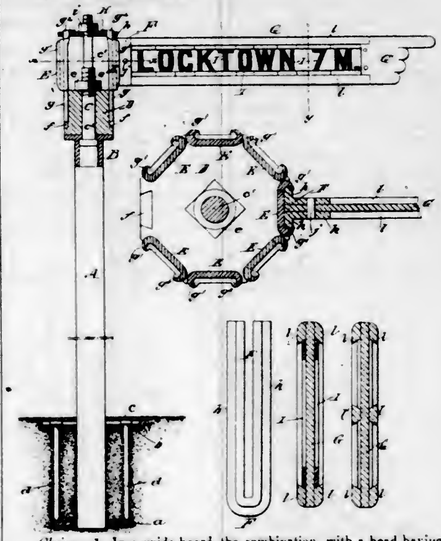
3. The coupler B, provided with jaws and attached to the wires a a', in combination with the drum C^2 and spring D, the wires a a' being arranged to turn the drum, substantially as described.

4. The coupler B, having jaws i and jaw-openers i^2, in combination with the shell m', connected to the jaw-openers, the springs i', and the sliding casing m, to which the jaws are pivoted, substantially as and for the purposes described.

5. The coupler B, having jaws i and jaw-openers i^2, in combination with the shell m', connected to the jaw-openers, the springs i', the sliding casing m, and the spindle o, insulating-head o^3, and the spring o^3, substantially as and for the purposes set forth.

6. The coupler C, having sliding head d^2, in combination with the spindle d, metal plates n, and coiled spring d', placed upon the spindle, substantially as described.

354,303. GUIDE-BOARD. WM. W. CASE, Baptistown, N. J. Filed Apr. 19, 1884. (No model.)



Claim.—1. In a guide-board, the combination, with a head having a vertical dovetail recess, of two clamp-plates having vertical flanges on their rear edges engaging the said dovetail recess, and a sign-board held between the said clamp-plates, substantially as set forth.

2. In a guide-board, the head D, formed with one or more dovetailed recesses, f, in combination with the holding-plates E, engaging said recesses, clamp-plates F, held by said holding-plates, and guide-board G, secured by said clamp-plates, arranged substantially as described.

3. In a guide-board, the combination, with the recessed head and apertured cap plate, of the holding-plate E, formed with the shank g, engaging the recessed head g', and stud g^3, entering the aperture in the cap-plate, as and for the purposes set forth.

4. The combination, with the recessed head D and the clamp-plate F, held thereon and provided with the pin j, of the sign-board having an aperture, k, through which pin j passes, and flanges l, open at their rear ends, which abut against the clamp-plate, and removable letters within said flanges, whereby when pin j is withdrawn the sign-board may be disconnected and the letters removed, substantially as set forth.

5. The guide-board G, provided with the clamp-plate F, in combination with the flanged holding-plate E, with which the said clamp-plate is connected, and the head D, to which the holding-plate E is secured, substantially as described.

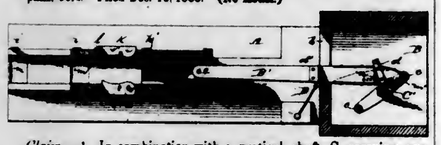
6. The combination, with a sign-board, of a post, tubular flanged cap B thereon, the head D, to which the sign-board is secured, having a central aperture, the bolt C, passed up through the cap B and head, and the nut e, securing the head and cap together, substantially as set forth.

7. In a guide-board, the cap B, the bolt C, passed through the cap and formed with the upper reduced portion, c', and larger lower portion,

c^3, threaded at s', in combination with the recessed head D, through which part c^3 passes, nut e, screwed upon the screw-threads s', and holding the head to the cap B, the upper apertured plate, H, the holding-plate E, held to the head and plate H, and the top nut, i, on the bolt, and securing said plate and the holding-plate in position, as and for the purpose set forth.

8. The post A, provided at its upper end with the flanged cap B, and the bolt C, passing through the cap, in combination with the head D, formed with dovetailed recesses f, the holding-plates E, held in the recesses f, the clamp-plate F, the guide-board G, the top plate, H, and the nuts e and i, all arranged substantially as and for the purposes set forth.

354,304. HAY AND COTTON PRESS. Minor S. Coleman, Cotopaxi, Colo. Filed Dec. 10, 1885. (No model.)

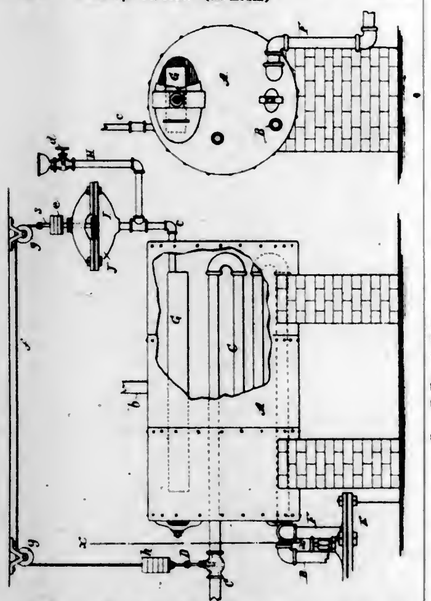


Claim.—1. In combination with a vertical shaft, C, carrying arm C', which projects from each side of the same, and is provided with vertical pins c, the pitman B', having a central recess through which the ends of the arms may pass, substantially as shown, and for the purpose set forth.

2. In combination with the shaft C, having a cross-bar, C', rigidly attached thereto, vertical end pins, c c, the pitman B', having the stop d pivoted thereto and connected at one end to the spring-bar m', so that said spring-bar will be retracted when the stop strikes an obstruction, so as to retract the spring m' and permit the pins c to pass the same, substantially as shown, and for the purpose set forth.

3. In combination with a pitman-rod, B', stops d d', for its longitudinal movement, one of said stops operating a spring-bar, which projects under the end of the pitman, and a rotary shaft carrying an arm with projecting pins, which abut against the end of the pitman for moving it in one direction, substantially as shown, and for the purpose set forth.

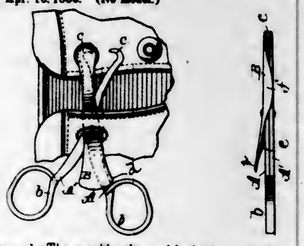
354,305. HOT-WATER APPARATUS. Sam. F. Collins, Bingham ton, N. Y. Filed Apr. 14, 1886. (No model.)



Claim.—1. The combination, with the hot-water heater and a steam-heating attachment therefor, of a closed liquid-containing receptacle within the heater, a pipe leading outward through the heater from said receptacle, a flexible diaphragm at the outer end of said pipe, a filling-pipe for the closed receptacle extending above the level of the said diaphragm and provided with a cock or valve, a valve controlling admission of steam to the steam-heating attachment, and intermediate mechanism connecting said valve and diaphragm, substantially as set forth.

2. The combination, with the vessel A and the steam-heating attachment C C', of the closed water-receptacle G, the stand-pipe H, the valve d, the box or case I, the elastic diaphragm J, the spindle e, the weight or weights e, the connection f, the weight or weights A, and the valve D, controlling admission of steam to the heating attachment, essentially as and for the purpose herein described.

354,306. SUTTONER. Charles R. Cockrell, Kansas City, Mo. Filed Apr. 16, 1886. (No model.)

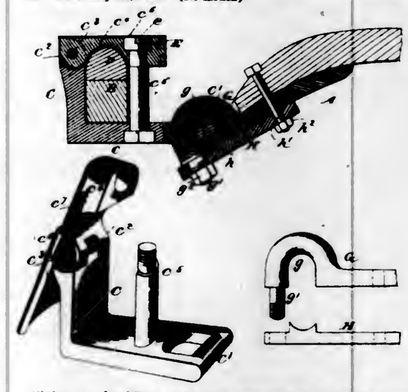


Claim.—1. The combination, with the lever A, having the hook c, of the spring-acted cap B, as specified.

2. The combination, with the levers A A', pivoted to each other, provided with eyes b and with hooks c, oppositely arranged with respect to each other, of the spring-acted cap B, pivoted to the lever A and arranged to cover the hook of the lever, substantially as described.

3. As an improved article of manufacture, a buttoner formed of levers A A', pivoted together, and provided with eyes b b and hooks c, the cap B, provided with lips f, and the spring e, substantially as herein shown and described.

354,307. VEHICLE-COUPLING. Thomas A. Davison, Kellerville, Ill. Filed May 12, 1886. (No model.)

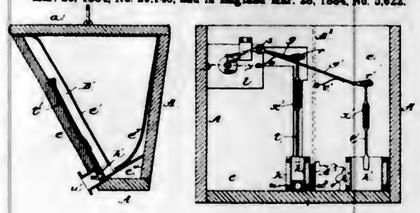


Claim.—1. In thill-couplings, the combination of the right-angled plate c, carrying the pivot c', the hinged cap c^4, the top-threaded post c^3, having its head countersunk in the plate, and the nut E, let into the cap, as shown and described.

2. The thill-iron G, open at the bottom and provided with a screw-tenon, g', and the plate H, having the bearing A, in combination with the bolt h' and the nuts g^2 h^2, substantially as shown and described.

3. The hinged cap c^4, having grooves c^5, in combination with a sliding cover, c^6, as shown and described.

354,308. TIME STOCK-FEEDER. Louis Desurmont, Cour-Cheverny, France. Filed Nov. 19, 1885. (No model.) Patented in France Sept. 1, 1883, No. 157,324; in Belgium Mar. 25, 1884, No. 64,624; in Germany Mar. 28, 1884, No. 29,140, and in England Mar. 28, 1884, No. 5,622.



Claim.—1. A stock-feeder provided with clock-work mechanism for releasing the discharge-valve of the feed-receptacle, allowing the valve to be opened automatically, and for closing said valve positively at a suitable interval, substantially as and for the purpose set forth.

2. The combination, with the feed-receptacle having a discharge-vent and a gate or valve for regulating the same, of means for opening said gate or valve automatically when released, a cam for closing the gate or valve, and clock-work mechanism for actuating the cam, substantially as specified.

3. The combination, with the feed-containing receptacle having a discharge-vent and a valve or gate for the same, of a spring for opening the gate or valve automatically, clock-work mechanism for releasing the valve and for returning the same to a closed position, substantially as specified.

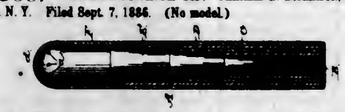
4. In an automatic stock-feeder, the combination, with the portable box A, divided into feed and water compartments and provided with the lining a', of clock-work mechanism for regulating the discharge-vents of the feed and water compartments, and inclosed between the lining a' and the wall of the box A, substantially as specified.

5. In a time stock-feeder, the combination, with a water-containing receptacle and a compressible tube leading from the same, of a movable gate or valve for compressing the tube and clock-work mechanism for operating said gate or valve, substantially as set forth.

6. In a time stock-feeder, the combination, with the sliding-gate h, for regulating the discharge-vent, of the slotted connecting-rod i, the guide stud or pin x', the spring-acted pivoted lever g, the cam-wheel m, acting thereon, and the clock-movement B, actuating the same through ratchet-and-pawl connection, substantially as shown and described.

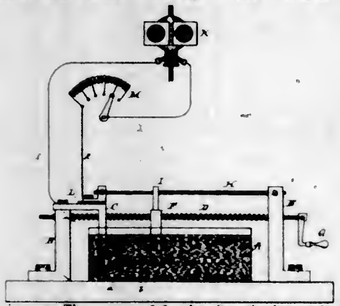
7. In a stock-feeder, the combination, with the lining-plate c' of the water-receptacle, of the compressible tube C, passed through an opening in said plate c', the annular containing-disk C', the connected supporting-pieces D, and their engaging keepers, substantially as shown and described.

354,309. VAGINAL-SYRINGE TIP. Charles B. Dickinson, Brooklyn, N. Y. Filed Sept. 7, 1886. (No model.)



Claim.—The tip A, having the socket B, and composed of tubes of soft rubber of different sizes and lengths placed upon the socket and upon each other, and the whole surrounded by the outer closed tube, F, of soft rubber, having the perforations a, substantially as described.

354,310. MANUFACTURE OF CARBON CONDUCTORS. Thomas A. Edison, Menlo Park, N. J. Filed Apr. 17, 1883. (No specimens.)



Claim.—1. The process of forming incandescing conductors for electric lamps, consisting in decomposing a carbon compound by heat and causing the carbon set free to deposit in the required form without any axial cone or support.

2. The process of producing carbon sticks or filaments, consisting in establishing a voltaic arc between two electrodes immersed in a liquid or gaseous carbon compound decomposable by heat and maintaining a constant length of the arc, substantially as set forth.

3. The process of producing carbon sticks or filaments, consisting in establishing an arc between a carbon electrode and another electrode immersed in a liquid or gaseous carbon compound decomposable by heat, and gradually removing one electrode away from the other as the stick or filament increases in length by the deposited carbon, substantially as set forth.

354,311. FELT ROOFING. Charlie A. Favel, Oberlin, Ohio. Filed July 15, 1886. (No specimens.)

Claim.—1. As a new article of manufacture, a sheet for composition roofs, the body portion whereof is made up of two or more plies,

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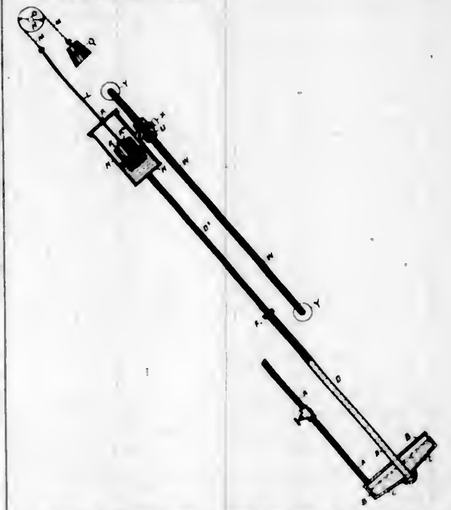


the upper and lower plies at the edges of the sheets on opposite sides being adapted to be folded toward the center of the sheet, substantially as shown.

2. A roof comprised of sheets or strips of felt or like substance, each strip consisting of two or more plies united except at the edges, and one of the plies being bent in upon itself at the edge to interlock with the bent ply of the next adjacent sheet, whereby the strips of a roof are united by interlocking joints protected on each side by a straight flap, substantially as described.

3. In a composition or felt roof, the covering strips A, made up of two more plies, united as shown, the plies at the edges of said strips being disconnected, whereby one ply may be bent inward upon itself at the edge, and overlapped by the edges of the adjacent ply or plies, substantially as described.

354,312. APPARATUS FOR OPENING AND CLOSING DAMPERS. Richard J. Flinn, Boston, Mass., assignor, by direct and mesne assignments, to the Flinn Mercurial Regulator Company, Portland, Me. Filed Nov. 30, 1885. (No model.)



Claim.—1. In combination, a mercury-reservoir, B, a float-chamber, H, containing a float, K, and a stand-pipe, D D^2, connecting said reservoir and chamber, constructed and arranged to be lengthened and shortened, and, so lengthened and shortened, secured against movement, and said reservoir and float each separately connected, substantially as described, and for the purpose specified.

2. In combination, a mercury-reservoir, B, and a float-chamber, H, containing a float, K, connected together and having the mercury-reservoir of a greater superficial area than that of said float-chamber with the float in it, and of the connecting parts thereof, and said reservoir and float separately connected, substantially as described, for the purpose specified.

3. In combination, a mercury-reservoir, B, a float-chamber, H, containing a float, K, and a stand-pipe connecting said reservoir and chamber and provided with a graduated scale, all constructed and arranged for the stand-pipe to be lengthened and shortened, and such adjustments made certain and definite, and the reservoir and float separately connected, substantially as described, and for the purpose specified.

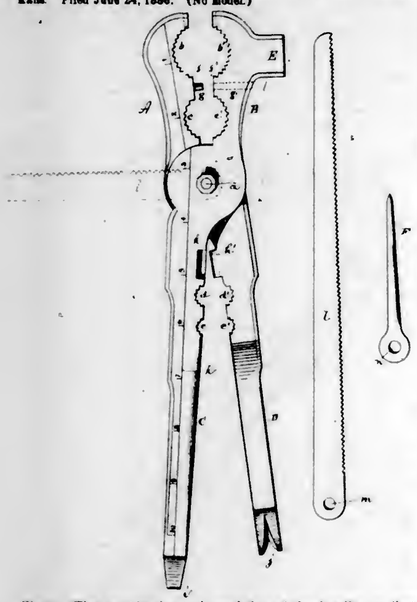
4. In combination, a mercury-reservoir, B, a float-chamber connected thereto, a float, K, located in said float-chamber, and a valve and seat therefor, the valve being opened and closed by the vertical movement of the mercury, and the mercury-reservoir and float separately connected, substantially as described, for the purpose specified.

5. In combination, a mercury-reservoir, B, and a float-chamber, H, containing a float, K, and in communication with said reservoir, and said reservoir of a greater cubic capacity for mercury than the cubic capacity of float-chamber with float in it and its said communication with said reservoir, and the reservoir and float separately connected, substantially as described, for the purpose specified.

6. In combination, a stand-pipe, D D^2, in telescoping sections, a mercury-reservoir, B, a float-chamber, H, connected by said stand-pipe, and a float, K, in said float-chamber, and the mercury-reservoir and float-chamber separately connected, substantially as described, for the purpose specified.

7. In combination, a stand-pipe, D D^2, in telescoping sections, a mercury-reservoir, B, and float-chamber H, connected by said stand-pipe, a float, K, in said float-chamber, and a stationary graduated rod, W, connected to the stand-pipe, and the mercury-reservoir and float separately connected, substantially as described, for the purpose specified.

354,313. COMBINATION-TOOL. JOSEPH D. GALLOWAY, Belmont, Kans. Filed June 24, 1886. (No model.)



Claim.—The combination-tool consisting of the handles or limbs provided with concave notched recesses in the opposite surfaces or faces, and with jaws similarly recessed, and provided with a punch and a hammer-face, said handles also having shearing-blades, and the pivot-bolt and punch being adapted to permit of the application thereto of a saw-blade and an awl, respectively, substantially as and for the purpose set forth.

354,314. CHEESE-MAKING APPARATUS. FRIDRICH GEBHARDT, Alliance, Ohio. Filed Apr. 23, 1886. (No model.)

Claim.—1. In a cheese-making apparatus, the combination, with a furnace-casing, a kettle, a crane, and a chain connected to the crane for supporting the kettle in a position over the fire-pot of the furnace, of a fire-pot adapted to be moved away from and beneath the kettle at pleasure, substantially as set forth.

2. In a cheese-making apparatus, the combination, with a furnace-casing and a kettle, of an ash-car and a fire-pot removably secured thereto, substantially as set forth.

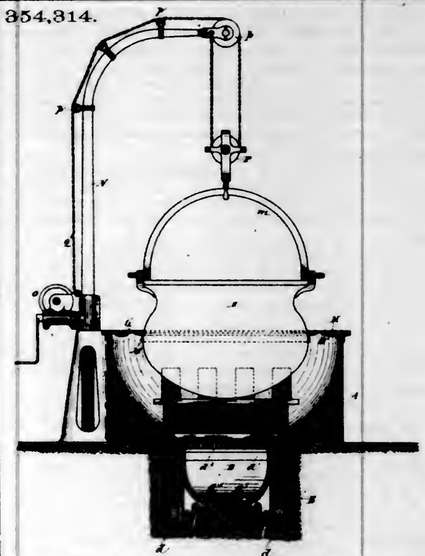
3. In a cheese-making apparatus, the combination, with a furnace-casing, of an inclined track beneath the casing and a fire-pot and ash-car adapted to travel thereon beneath the casing, substantially as set forth.

4. In a cheese-making apparatus, the combination, with a furnace-casing and a series of movable partitions dividing the interior of the furnace into two or more compartments, of a fire-pot adapted to be moved from one compartment into another, substantially as set forth.

5. The combination, with a furnace and an inclined track located below the same, of a car forming a fire-pot and a hook and chain for operating and locking the car in position under the furnace, substantially as set forth.

6. The combination, with the furnace and the traveling fire-pot and

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ash-pan, of the ash-pit and declining track leading thereto, substantially as set forth.

7. The combination, with the body of the furnace, a crane located alongside thereof, and the kettle suspended from said crane, of the furnace-front adapted to swing open and allow the kettle to pass out, substantially as set forth.

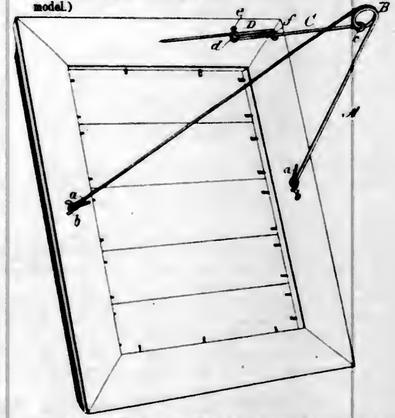
8. The combination, with a furnace having openings and a kettle having a bulging bottom, of the shield made of stronger metal encircling the bulging portion of said kettle, and consisting of a cylindrical band and an annular flange, substantially as set forth.

9. The combination, with the furnace provided with a swinging front, of the crane adapted to suspend a kettle in the opening in the furnace and remove it therefrom without hoisting, substantially as set forth.

10. The combination, with the two-compartment furnace and the shifting fire-pot, of the two kettle-openings, the kettles, and the crane for handling the same, substantially as set forth.

11. The cheese-making apparatus, consisting, essentially, of the furnace with its swinging front, the car fire-pot and ash-pan, the shielded kettle, and the crane, the whole constructed and arranged substantially as set forth.

354,315. PICTURE-FRAME ATTACHMENT. MAHLON A. GERBER and EDWARD J. NICHOLAS, Lost Creek, Pa. Filed May 7, 1886. (No model.)



Claim.—1. The combination, in a picture-frame attachment, of a suspender having a loop in the middle of its length and hooks upon its ends, and the adjustable brace consisting of the wire C, provided with

the eye c and slide *d*, the wire D, received in the slide *d* and provided with an eye, *f*, encircling the wire C, substantially as herein shown and described.

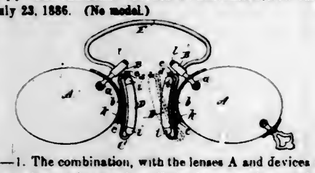
2. The combination, with the wire A, having hooks *a* upon its ends, provided with the loop B in the middle of its length, of an adjustable wire brace formed of the wire C, having the eye c, received on the loop B, the slide *d*, provided with the set-screw e, and the pointed wire D, extending through the slide *d*, and provided with an eye, *f*, encircling the wire C, substantially as herein shown and described.

354,316. MATERIAL FOR MAKING MOLDS. ROBERT G. HANFORD, Jr., Columbus, Ohio. Filed May 14, 1886. (No model.)



Claim.—A mold composed of a mixture of graphite, air-dried clay, fire-clay, and sand, substantially as specified.

354,317. EYEGLASSES. GEORGE W. HASSELLUND, New Castle, N. Y. Filed July 23, 1886. (No model.)



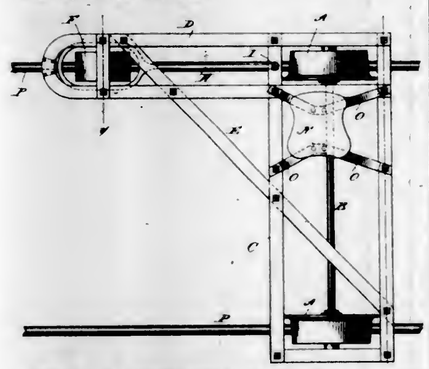
Claim.—1. The combination, with the lenses A and devices connecting the lenses, of pivoted nose-piece C, having curved arms *f g*, a fastening device, substantially as shown and described, for connecting the free ends of the arms, and a yielding contact-piece placed on the arm *f*.

2. In an eyeglass-frame, the combination, with the yielding contact-piece D, of caps i, placed on opposite ends thereof, substantially as shown and described.

3. The combination, with the bolsters of the eyeglasses, of a curved connecting-spring formed of a wire having a half-round cross-section, the said half-round wire forming a highly-elastic spring capable of resisting torsion, substantially as shown and described.

4. As an improved article of manufacture, a pair of eyeglasses provided with bolsters B and ears *c*, having the nose-piece C, pivoted between the ears and provided with the removable contact-piece D, having caps i upon opposite ends thereof, and a curved half-round connecting-spring having round ends and a flat middle part, substantially as shown and described.

354,318. RAILWAY-TRICYCLE. WILLIAM HAYES, Los Angeles, Cal. Filed July 26, 1886. (No model.)



Claim.—1. In a railway-tricycle, the combination of the main wheels provided with flanges with a trailing-wheel having a cylindrical rim, substantially as shown and described.

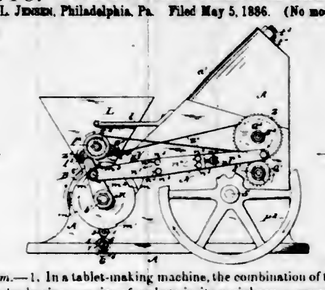
2. In a railway-tricycle, the combination, with the main driving-wheels, each having a flange, of a trailing-wheel having a cylindrical rim and mounted on a pivoted frame, substantially as shown and described.

3. In a railway-tricycle, the main driving-wheels, each having a flange and both being attached to an axle, and a frame on which the said axle is mounted, in combination with a trailing-wheel and an arm carrying said trailing-wheel and pivoted to the main frame, substantially as shown and described.

4. In a railway-tricycle, the main frame C, the extension-frame D and the driving-wheels A, each having a flange, and both mounted on the said frame C, in combination with the trailing-wheel F, the pivoted forked arm H, the arms K, and the eyebolts L, turning in the said frame D, substantially as shown and described.

5. In a railway-tricycle, the frames C and D and the plates M, in combination with the forked arm H, pivoted to the main frame C, the trailing-wheel F, mounted on the said arm H, the keepers J, attached to the said arm H, the eyebolts L, turning in the frame D, and the connecting-arms K, having the projections K', and each connecting an eyebolt, L, with a keeper, J, substantially as shown and described.

354,319. MACHINE FOR MAKING MEDICINAL TABLETS, &c. CARL L. JENSEN, Philadelphia, Pa. Filed May 5, 1886. (No model.)



Claim.—1. In a tablet-making machine, the combination of the rotatable cylinder having a series of sockets in its periphery, a corresponding sliding bar or bars within said cylinder, with a series of punches or dies secured to said bar or bars, fixed heads having grooves or channels placed eccentrically to the aforesaid cylinder, studs or rollers on said sliding bar or bars adapted to work in said channels as the cylinder is rotated, together with a sliding head carrying a series of punches adapted to register with the said sockets in the cylinder, and mechanism for reciprocating said sliding head, so as to cause its dies to enter and retreat from said sockets at predetermined intervals, the parts being constructed and adapted to operate substantially as and for the purpose set forth.

2. The combination of the rotatable cylinder having a series of sockets in its periphery, one or more bars within said cylinder carrying corresponding dies working in said sockets, the fixed heads having the eccentric ways J, the rollers connected to said bars and working in said ways, the ratchet-disk, crank, and pawl, with mechanism for reciprocating said crank, whereby said cylinder is rotated regularly and intermittently, together with the toggle carrying the punches, and means for operating said toggle with reference to the movement of said cylinder in the manner described, the construction and operation being substantially as and for the purpose set forth.

3. In combination with the intermittently-rotatable cylinder having the series of sockets and dies therein and the punch-bearing toggle adapted to coact with said sockets and dies in the cylinder, as described, the disk Y on the shaft of said cylinder, having the slots *y'*, the sliding head W^2, provided with the tooth w^4, with mechanism causing said tooth to engage with and to be disengaged from said slots, substantially as and for the purpose set forth.

4. In a tablet-making machine, the following elements in combination: the hollow cylinder having the series of sockets in its periphery, the dies D, with means for reciprocating said dies at predetermined intervals as said cylinder is caused to rotate, the train of gears Q, Q', Q^2, Q^3, Q^4, and Q^5, the toggle T, sliding head U, punches D on the free end thereof, and the rod R', connecting said gear Q^4 and the toggle, the disk M, provided with ratchet-teeth, the crank m^2, pawl m^3, and connecting-rod N, pivoted to gear Q^3, and crank m^3, all constructed and adapted to operate substantially as and for the purpose set forth.

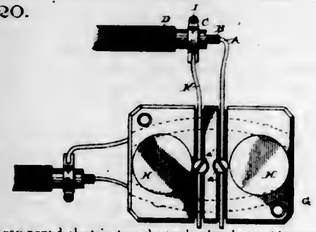
5. In a tablet-making machine, the combination of the hollow rotatable cylinder provided with radial slots *f* and the sockets *c* in its periphery, the dies working in said sockets, the bars E, to which said dies are connected, the rollers I, the fixed heads G, having the channels J eccentric to said cylinder, and means, substantially as shown and described, for adjusting said heads vertically, substantially as and for the purpose set forth.

6. The combination, with the sliding head U, of the detachable bracket V, adapted to receive the dies D', substantially as and for the purpose specified.

354,320. ELECTRICAL CONDUCTOR. EDWARD H. JOHNSON, New York, N. Y. Filed Jan. 20, 1886. (No model.)

Claim.—1. A compound electrical conductor having in combination an inner insulated wire and an inclosing-envelope of readily-fusible metal, each forming one side of a circuit, substantially as set forth.

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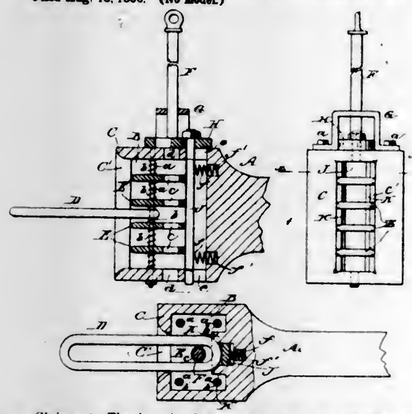
2. A compound electrical conductor having in combination an inner insulated wire and an inclosing-envelope of readily-fusible metal, each forming one side of a circuit, and an external fire-proof insulation, substantially as set forth.

3. A compound electrical conductor having in combination an inner wire provided with a water-proof insulation and an inclosing-envelope of readily-fusible metal, each forming one side of the circuit, and an external fire-proof insulation, substantially as set forth.

4. A flexible compound electrical conductor having in combination an inner insulated wire, a lead tube inclosing the same, and an external fire-proof insulation, substantially as set forth.

5. The combination of compound conductors, one forming a main and the other a branch circuit, the inner wires of the two being secured together and covered with insulation and the outer conductors being connected by a conducting-wrapping, substantially as set forth.

354,321. CAR-COUPLING. WILLIAM H. KALTENBECK, Roxbury, N.Y. Filed Aug. 13, 1886. (No model.)



Claim.—1. The draw-head A, provided with the plates E, placed loosely upon rods and held in position by springs placed upon the rods, substantially as described.

2. The draw-head provided with the horizontal apertured plates E, held by rods and interposed springs, and formed with the vertical parallel stop-guards K back of the plates, in combination with the movable vertical bar J, springs *f*, plate H, and support G for the coupling-pin, substantially as described.

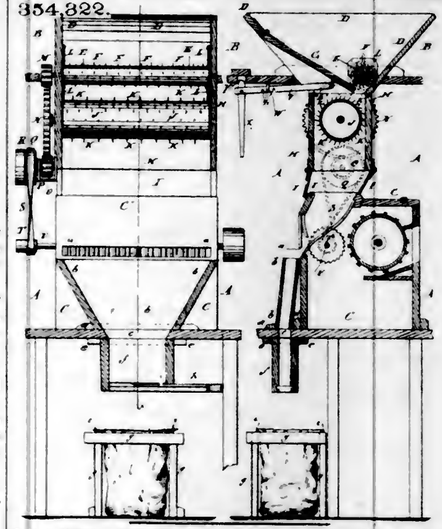
3. The draw-head formed at the back of the link-cavity with the vertical parallel guard-ribs K K, between which the vertical trip-bars J and operating-springs *f* are placed, substantially as and for the purposes described.

354,322. COMBINED FEEDER AND HOPPER FOR COTTON-GINS. JOHN P. KETTERINGHAM, Natchez, Miss., assignor to himself and Louis Botto, same place. Filed June 15, 1886. (No model.)

Claim.—1. The combination, with a cotton-gin, C, and the feed-hopper D, of the vertical feed-spout H, the toothed cylinder E, placed in the lower part of the said hopper, and the toothed cylinder J, placed in the upper part of the said spout, their driving mechanism, and the hinged spout-sections I, substantially as herein shown and described, whereby the cotton placed in the said hopper will be fed to the said gin in uniform quantities, as set forth.

2. In a combined feeder and hopper for cotton-gins, the combination, with the hinged gate G of the hopper D and the toothed cylinder E, of the sliding bar V, hinged to the said gate, the keeper W, supporting the said sliding bar, and the lever X, pivoted to the said sliding bar, substantially as herein shown and described, whereby the quantity of cotton fed to the gin can be readily regulated, as set forth.

354,322.



354,323. UPRIGHT-PIANO CASE. SALVADORE LA GRASSA, New York, N. Y., assignor to Hardman, Peck & Co., same place. Filed June 28, 1886. (No model.)

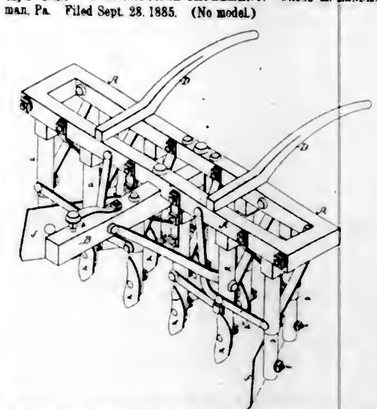


Claim.—1. The combination, with the fixed front of a musical instrument and a hinged panel above, provided with a spring for throwing it out to form a desk or music-rack, of a spring-actuated catch for retaining the panel closed, and a push-pin working through the fixed front and sliding in a horizontal direction to retract the catch, substantially as herein described.

2. The spring arm or shank D, having at its forward free end a shoulder or projection, forming a catch, and provided with a downward projection, on which a push-pin may act for retracting the catch, substantially as herein described.

3. The combination, with the fixed front of a musical instrument and an upper hinged panel provided with a spring for throwing it outward to form a desk or music-rack, of a spring arm or shank, D, secured at the rear end, and having at its forward free end a shoulder or projection to form a catch, and also having a downward projection, D', and a push-pin, *e'*, sliding horizontally through the fixed front, to act on the projection D' to retract the catch, substantially as herein described.

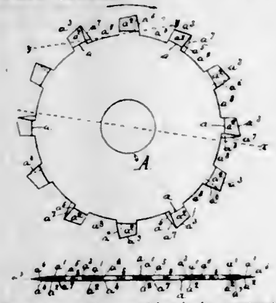
354,324. AGRICULTURAL IMPLEMENT. JACOB M. LANDES, Gehman, Pa. Filed Sept. 28, 1885. (No model.)



Claim.—1. The combination of the frame A with front and rear rows of depending legs for carrying the cultivator-blades, the outer legs of each row being rigidly secured to the frame and having means for adjusting the angles of the shovels or scrapers, but the inner or central legs of each row being detachable, all substantially as specified.

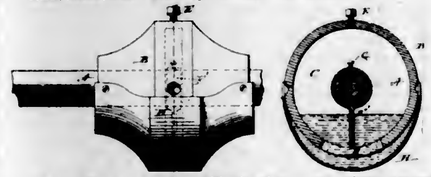
2. The combination of the frame having front and rear legs with blades alike at both ends, and having bolt-holes, one adjacent to one end of the blade and the other farther from the opposite end, whereby, on reversing the blades, the width of the furrow turned thereby will be changed, all substantially as specified.

354,325. SAW. JOHN R. LITTLE and CALVIN T. STODDARD, West Stewartstown, assignors of one-third to James I. Parsons, Colebrook, N. H. Filed Aug. 5, 1886. (No model.)



Claim.—The saw-plate A, comprising in its construction teeth *a*, formed with slopes on opposite sides of the teeth, as *a' a²*, said slopes when meeting forming an inclined central ridge, *a³*, the highest point of which is at the forward or face portion of the tooth, and said teeth being alternately provided with radial faces *a⁴ a⁵*, standing obliquely to the axis of the saw-plate in two opposite directions, and forming by means of the face *a⁴* and slope *a'* a cutting-edge, *a⁶*, on the right side of the saw-plate, and by the face *a⁵* and slope *a²* a cutting-edge, *a⁷*, on the left side of the saw-plate, said teeth having clearing-spaces *a⁸* between them, all substantially as and for the purpose described.

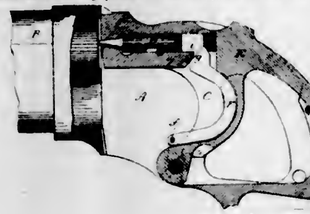
354,326. LUBRICATING JOURNAL-BEARING. EDWIN L. MANSFIELD, Boston, Mass. Filed Sept. 15, 1886. (No model.)



Claim.—The combination, with the shaft A, an agitator secured thereto, and the bearing B, provided with chamber C, slot D, and screw-stopped port E, of the part H, secured by its upper edge directly to said bearing.

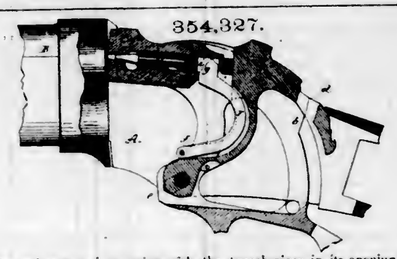
354,327. MAGAZINE FIRE-ARM. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed May 3, 1886. (No model.)

Claim.—1. In a fire-arm, the combination of the barrel open at its rear end, a breech-piece hung in the receiver in rear of said barrel upon an axis at right angles to the barrel and so as to swing downward and backward in opening, the breech-piece constructed with a slot inclined upward and backward from its pivot when the breech-piece is in its closed position, the breech-piece also constructed with a shoulder, and the receiver with a corresponding shoulder against which the said shoulder on the breech-piece will abut when the breech-piece is in its closed position to resist recoil, a firing-pin extending longitudinally through said breech-piece, and a lever hung upon its axis, so as to swing in a plane substantially parallel with the plane of the axis of the firing-pin, and arranged to swing with the breech-piece in its opening and closing movement, the firing-pin constructed with a recess into which the free end of the said lever enters, to make engagement with the firing-pin, and a bearing arranged to engage said lever in the first part of the opening movement of the breech-piece, substantially as described, and whereby there is imparted to said free end of the lever a rear movement, and corresponding retracting movement to the firing-pin during the unlocking movement of the breech-piece, substantially as described.

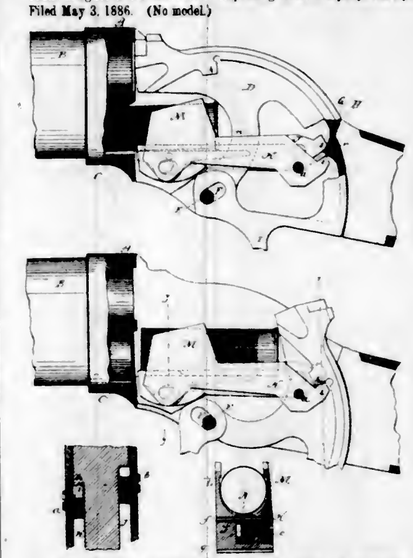


2. In a fire-arm, the combination of the barrel open at its rear end, a breech-piece hung in the receiver in rear of said barrel upon an axis at right angles to the barrel, and so as to swing downward and backward in opening, the breech-piece constructed with a slot inclined upward and backward from its pivot when the breech-piece is in its closed position, the breech-piece also constructed with a shoulder, and the receiver with a corresponding shoulder against which the said shoulder on the breech-piece will abut when the breech-piece is in its closed position to resist recoil, the hammer hung upon the same axis as the breech-piece, the firing-pin D, arranged longitudinally in said breech-piece, the lever F, one end hung to the hub of said hammer, the other extending into a recess in the firing-pin, substantially as described, and whereby, under the unlocking movement of the breech-piece, a rear movement is imparted to said lever, and a corresponding retracting movement to the firing-pin, substantially as described.

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354,328. MAGAZINE FIRE-ARM. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed May 3, 1886. (No model.)



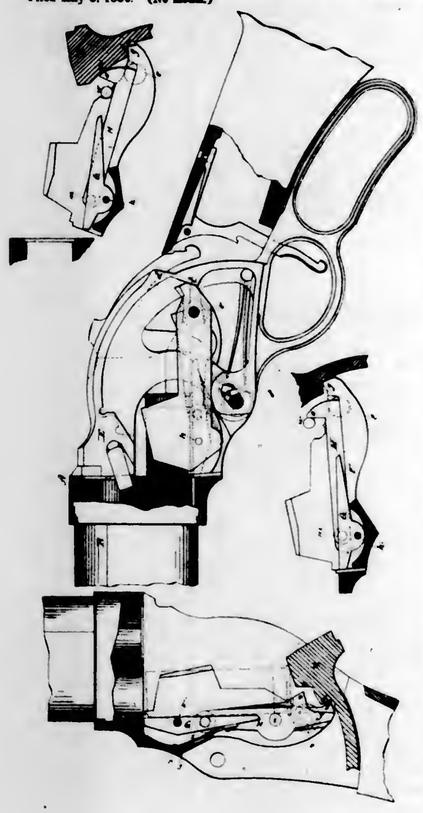
Claim.—1. In a magazine fire-arm in which the magazine is arranged beneath the barrel, the barrel and the magazine both opening into the receiver at the rear, with a breech-piece adapted to open and close the barrel, the combination therewith of a carrier constructed in two parts, J K, each hung at the rear upon independent pivots, the axis of the pivot of one part being above the axis of the pivot of the other part, a lever, N, hung upon a fulcrum in one part, near its forward end, and a connection from the other part with said lever, the said connection and fulcrum being the one below the other, substantially as described, and whereby, as the carrier ascends to transfer a cartridge, the rear arm of said lever, under the action of the said two parts of the carrier, will be raised as the carrier ascends.

2. In a magazine fire-arm having the magazine arranged beneath the barrel, the magazine and barrel both opening into the receiver at the rear, a breech-piece hung at the rear, and so as to swing backward and downward in opening, the combination therewith of a carrier constructed in two parts, J K, the said two parts hung at the rear upon pivots independent of each other, and the axis of one pivot above the axis of the other pivot, a lever, N, hung upon a fulcrum in one part near its forward end, and a connection between the other part and the said lever, the said connection and fulcrum being the one above the other, the breech-piece constructed with a shoulder, *k*, and one of the parts of the carrier with a corresponding projection, *i*, in rear of its pivot, substantially as described.

3. In a magazine fire-arm having the magazine arranged beneath the barrel, the magazine and barrel both opening into the receiver at the rear, a breech-piece hung at the rear, and so as to swing backward and downward in opening, a carrier hung at the rear and adapted to swing up and down in the transfer of a cartridge, the carrier constructed with a projection, *s*, in rear of its pivot, and the breech-piece with a corresponding projection, *l*, adapted to engage said projection *s* on the carrier as the breech-piece approaches its closed position, substantially as described, and whereby said carrier will be held in its down position.

4. In a magazine fire-arm in which the magazine is arranged beneath the barrel, and the breech-piece hung in rear to swing backward and downward in opening, the combination therewith of a carrier constructed in two parts, the division being longitudinal, and so as to form a pair of cheeks, one each side the carrier, and between which parts the breech-piece swings in opening and closing, one of said parts adapted to swing laterally upon its pivot, the said swinging part constructed with an incline, *l*, upon its inner face, and so as to form a recess, *m*, in rear of said incline, to permit said swinging movement of the side of the carrier, and the breech-piece constructed to ride over said incline *l* as it closes, and thereby force the said part to its open position, substantially as described.

354,329. MAGAZINE FIRE-ARM. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed May 3, 1886. (No model.)



Claim.—1. In a magazine fire-arm in which the magazine is arranged beneath the barrel and opens into the receiver at the rear, the combination therewith of a breech-piece hung in said receiver, and adapted to swing backward and downward in opening, a carrier hung upon a pivot at the rear and arranged to swing up and down therein for the transfer of cartridges, a lever, G, in the bottom of the carrier and hung upon a pivot therein near the forward end of the carrier, a lever, H, arranged in said carrier and so as to move up and down therewith, the forward end of the said lever eccentrically connected to the said lever G and its rear end, *o*, in the path of the corresponding portion, *n*, on the breech-piece during the last part of the opening movement of the breech-piece, substantially as described, and whereby during the said last part of the opening movement of the breech-piece and ascent of the carrier the said lever G is turned upward to raise the rear end of the cartridge.

2. In a magazine fire-arm having the magazine arranged beneath the barrel and opening into the receiver at the rear, the combination therewith of a breech-piece, a carrier hung in the receiver and adapted to swing upward and downward for the transfer of a cartridge, the lever G, hung in said carrier near its forward end and extending backward, the lever H, hung in the said carrier forward of its pivot, and extending forward eccentrically hung to said lever G, and the breech-piece constructed with a bearing-surface, *n*, adapted to engage a corresponding surface, *o*, on said lever H in rear of its pivot during the last part of the opening movement of the said breech-piece, substantially as described.

3. In a magazine fire-arm in which the magazine is arranged beneath the barrel and opens into the receiver at the rear, the combination therewith of a breech-piece hung in the receiver and adapted to spring backward and downward in opening, a carrier hung in the said receiver and adapted to swing upward and downward for the transfer of a cartridge, the lever G, hung near the forward end of the carrier and extending rearward, a lever, H, hung upon a pivot in the carrier forward of the pivot of the carrier, and extending forward is eccentrically connected to the said lever G, the said carrier constructed with an extension, *g*, and the breech-piece with a corresponding shoulder, *f*, adapted to engage the said extension of the carrier as the breech-piece approaches its opening movement, the lever H, constructed with a projection, *o*, and the breech-piece with a corresponding shoulder, *n*, adapted to engage said projection during the last part of the opening movement of the breech-piece, substantially as described.

4. In a magazine fire-arm in which the magazine is arranged beneath the barrel and opens into the receiver at the rear, the combination therewith of a breech-piece hung in the receiver to swing backward and and downward in opening, the carrier hung in the receiver and adapted to swing up and down in the transfer of a cartridge, the lever G hung upon a pivot near the forward end of the carrier, a lever, H, hung in the carrier forward of the pivot of the carrier, and extending forward is eccentrically connected to the said lever G, the said lever constructed with the projections *o* and J in rear of its pivot, and the breech-piece constructed with a shoulder, *n*, adapted to engage said projection *o* during the last part of its opening movement, and the said breech-piece also constructed with a bearing-surface, *t*, adapted to engage the projection J as the breech-piece approaches its closed position, substantially as described.

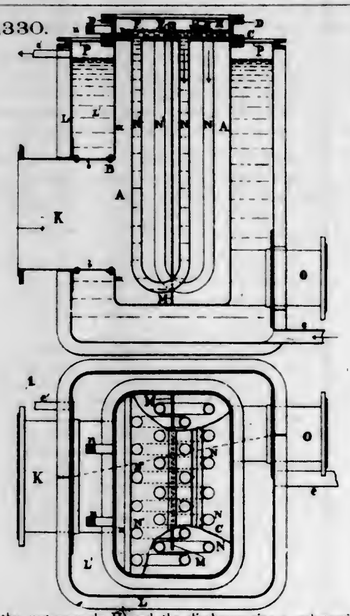
5. In a magazine fire-arm in which the magazine is arranged beneath the barrel and opens into the receiver at the rear, the combination therewith of a breech-piece adapted to open and close the rear end of the barrel, a carrier hung in the receiver and adapted to swing up and down in the transfer of a cartridge, the lever G, hung in the receiver near its forward end and extending rearward, the lever H, hung in the carrier upon a pivot forward of the pivot of the carrier, and extending forward is eccentrically connected to the said lever G, the said lever H constructed with a projection, *o*, and the breech-piece with a corresponding bearing-surface, *n*, adapted to engage the said projection *o* as the breech-piece approaches its open position, and a spring, I, on said lever G, substantially as described.

354,330. CONDENSER FOR PYROLIGNEOUS ACID. JEAN ANTOINE MATHIEU, Detroit, Mich. Filed Mar. 25, 1884. (No model.)

Claim.—1. The combination of the condenser A, having the inlet and outlet pipes K and O, with the cap-plate C, a series of U-shaped pipes, N N', secured at their ends in the cap-plate, the vertical diaphragm M, extending across the condenser and terminating at a short distance from one wall thereof, and pierced at its lower ends with holes, through which the bends of the pipes pass, the rim D, water-supply pipe H, and discharge-pipe *n*, substantially as and for the purpose described.

2. The combination of the condenser A, having the inlet and outlet pipes K and O, with the cap-plate C, a series of U-shaped pipes, N N', of uniform length, located side by side across the condenser, with the inner limbs of the pipes alternately opposite the spaces between the two limbs of the series, the vertical diaphragm M, extending across the condenser and terminating a short distance from one wall thereof, and pierced with holes at its lower end, through which the limbs of the pipes pass, the

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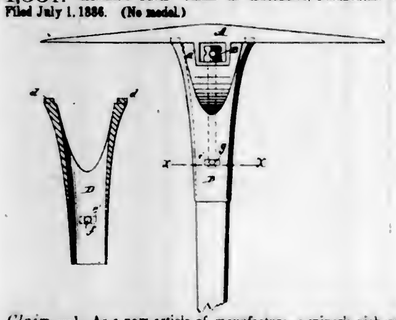


rim D, the water-supply H, and the discharge-pipe *n*, substantially as and for the purpose described.

3. The combination, with the condenser A, having the inlet and outlet pipes K and O, and the series of pipes N N', of the tub L, surrounding the condenser, and having the pipes *e e'* for the circulation of cold pyroligneous acid around the exterior of the condenser, substantially as described.

4. The combination of the condenser A, having inlet and outlet pipes K and O, and the series of pipes N N', with the cap-plate C, the rim D, forming a basin, a tight cover, F, secured upon the rim, the water-supply pipe H, the trough G in the basin for receiving the water from the supply-pipe, and the discharge-pipe *n*, substantially as and for the purpose described.

354,331. MINER'S PICK. JAMES M. MATTHEWS, Pocahontas, Va. Filed July 1, 1886. (No model.)



Claim.—1. As a new article of manufacture, a miner's pick provided centrally upon its under face with an integral apertured yoke, substantially as shown and described, and for the purposes herein set forth.

2. The combination, with a pick having an integral yoke centrally upon its under face and recesses upon each side of said yoke, of a handle recessed to receive the yoke, a bifurcated socket adapted to embrace said handle, provided with lugs adapted to enter the recesses in the pick, and a fastening-bolt, substantially as herein described.

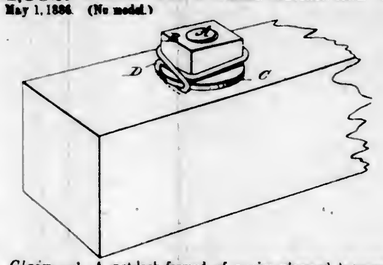
3. The combination, with a miner's pick provided with the yoke *a*, and having aperture *a'*, of the handle E, having recessed end H, and central opening, *h*, the screw-bolt B, and nut *g*, substantially as and for the purpose herein set forth.

4. The combination, with a miner's pick constructed with a recess *d'*, on each side of a central yoke, *a*, of a bifurcated socket, D, fitted to the handle E and provided with lugs *d*, said handle, the bolt B, and nut *g*, substantially in the manner and for the purpose herein set forth.

5. A miner's pick constructed with a yoke, *a*, upon its under side, having an aperture, *a'*, and recesses *d'*, in combination with a bifurcated socket, D, having lugs *d*, slot *s'*, and circular opening *f*, the handle E, having the recess H, central opening, *h*, and slot *e*, and the screw-bolt B and nut *g*, substantially in the manner and for the purpose herein set forth.

6. In a miner's pick, the combination of the handle E, having the recess H, central opening, *h*, and slot *e*, the bifurcated socket D, provided with lugs *d* upon its bifurcations, and having the slot *e'* and circular opening *f* upon opposite sides in line with each other, the nut *g*, having projection *g'*, and the bolt B, substantially in the manner and for the purpose herein set forth.

354,332. NUT-LOCK. CHAS. O. MCBRIDE, Muscatine, Iowa. Filed May 1, 1886. (No model.)



Claim.—1. A nut-lock formed of a wire clamped between the washer and the wood to which the bolt is applied, and bent around the nut and twisted together, substantially as herein shown and described.

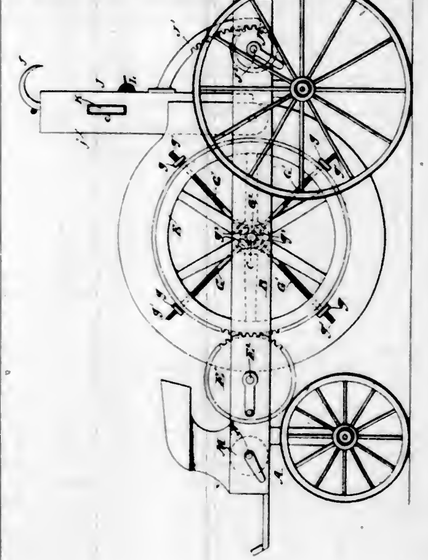
2. The combination, with the bolt A, nut B, and washer C, of the wire D, clamped by the washer, bent around the nut and twisted together, substantially as herein shown and described.

3. The combination, with the piece C, the bolt passed therethrough, and the washer and nut on said bolt, of the wire D, clamped between the washer and the piece C, then bent upward and across the washer in opposite directions at one side of the nut, then along opposite sides of the nut, then across the remaining side of the nut, where the ends are twisted together, as shown and described.

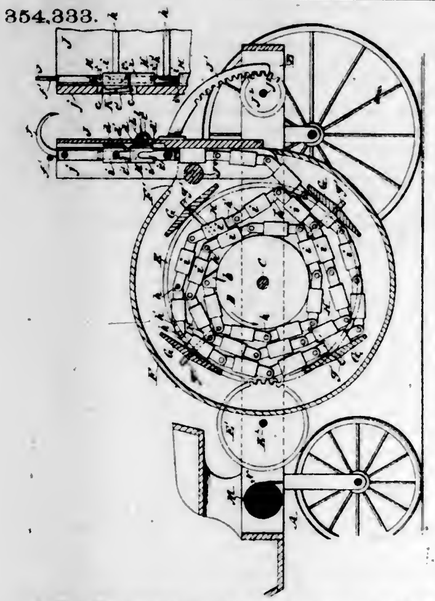
354,333. LADDER. JOHN MCDONOUGH and WALTER B. COX, New York, N. Y. Filed June 8, 1886. (No model.)

Claim.—1. The combination, with the drum and the flexible ladder, of the followers G and means, substantially as described, for moving the followers to and from the drum, substantially as and for the purposes set forth.

2. The combination, with the drum, means for revolving it, and the flexible ladder, of the guide-sluice J, curved rack-bars J', shaft J², and pinions J³, secured upon the shaft and meshing with the teeth of the curved rack-bars, substantially as and for the purposes described.



354,333.



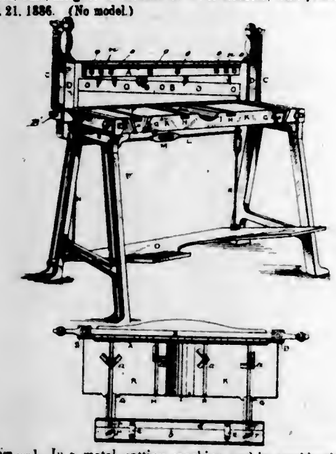
3. The ladder composed of hinged sections provided with the sliding sleeves i, in combination with the escapement devices K, fitted in the sides of the sluice J, for automatically shifting the sleeves as the ladder is elevated and lowered, substantially as described.

4. The ladder composed of hinged sections, each provided with sliding sleeves, in combination with spring-locking devices *d*, attached to the sleeves, substantially as described.

5. The ladder composed of hinged sections, each provided with sliding sleeves, in combination with spring-locking devices, and the levers L, fitted in the sluice J, for automatically depressing the locking devices, substantially as described.

6. The drum D, placed in the casing F, formed with the radial slots *g'*, in combination with the flexible ladder, the followers G, means for revolving the drum, the beveled gear-wheels G^2 g^2, and the worms G', all arranged substantially as and for the purposes set forth.

354,334. METAL-CUTTING MACHINE. JAMES D. MCDOUGAL, Columbus, Ohio, assignor of one-half to W. R. Kinnear, same place. Filed Sept. 21, 1886. (No model.)



Claim.—1. In a metal-cutting machine, and in combination with the blade thereof, of adjustable pricking-points held in position upon the said blade by any suitable device, substantially as set forth.

2. In a metal-cutting machine, and in combination with the blade thereof, of clamping-jaws opening upon a hinge and swung upon the blade-frame and provided with a tightening device, and pricking-points adapted to be held in said jaws, substantially as set forth.

3. In a metal-cutting machine, and in combination with the blade thereof, of clamping-jaws opening upon a hinge and swung upon the blade-frame, one of said jaws having a longitudinal slot cut in its inner face, pricking-points provided with a lug upon one side adapted to fit the slot in the said jaw, and tightening devices for said jaws, substantially as set forth.

4. In a metal-cutting machine such as described, the combination of the blade-frame, clamping-jaws opening upon a hinge and swung upon the blade-frame and provided with a tightening device, pricking-points adapted to be held in said jaws, and a strip of wood or other suitable material fixed in the table to receive the said pricking-points, substantially as set forth.

5. In a metal-cutting machine such as described, the combination of the blade-frame provided with perforated hinge-lugs, clamping-jaws provided with hinge-lugs and swung upon the hinge-lugs of said blade-frame, a bolt passing through all of said hinge-lugs, and two sets of screw-bolts, substantially as set forth.

6. In a metal-cutting machine such as described, the combination of the blade-frame provided with hinge-lugs and threaded perforations to receive the ends of bolts, clamping-jaws provided with hinge and swung upon the said blade-frame and provided with perforations, substantially as described, and two sets of bolts, one passing through said clamping-jaws and engaging the threaded perforations in said blade-frame, and the other set passing through one of the said clamping-jaws and engaging the perforations in the other, substantially as set forth.

7. In a metal-cutting machine such as described, the combination of a table provided with transverse slots, angle-gages having perpendicular flanges on their inner angles and provided with circular slots, substantially as described, and a bolt provided with a head fitting in said transverse slot, and a set-screw to engage said gage, substantially as set forth.

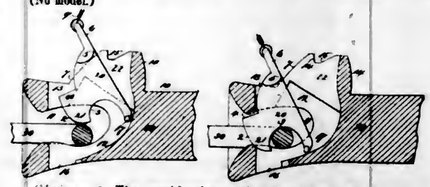
8. In a metal-cutting machine such as described, the combination of a table provided with inverted-T-shaped slots passing transversely across the said table, angle-gages having perpendicular flanges about their inner angle, a bolt fitted in said transverse slots and provided with a nut adapted to engage said angle-gages, and the cutting mechanism, substantially as set forth.

9. In a metal-cutting machine such as described, the combination of a table provided with transverse slots, parallel gages joined by equal links, and one provided with circular slots about the retaining-bolts, and retaining-bolts provided with heads fitting said transverse slots, a screw-thread and nut to engage said parallel gages, substantially as set forth.

10. In a metal-cutting machine such as described, the combination of a table provided with inverted-T-shaped slots passing transversely across the said table, parallel gages joined together by means of equal links and perforated to receive bolts, bolts fitted in said slots and provided with nuts adapted to engage said gages, and the cutting mechanism, substantially as set forth.

11. In a metal-cutting machine such as described, the combination of the blade-frame provided with depending lugs, substantially as described, with pulling-rods pivotally attached to said lugs and to the foot-lever, said pulling-rods being in sections provided with screw-threads and joined by swivel-links, a brace between said pulling-rods provided with rings adapted to fit over the swivel-links upon said pulling-rods and provided with set-screws in each ring, and a foot-lever pivotally attached to the frame of the machine and to said pulling-rods, substantially as set forth.

354,335. CAR-COUPLING. GEORGE C. MCKITTERICK, THOMAS R. MORGANS, and JOHN J. MCKITTERICK, Jackson, Ohio. Filed May 1, 1886. (No model.)



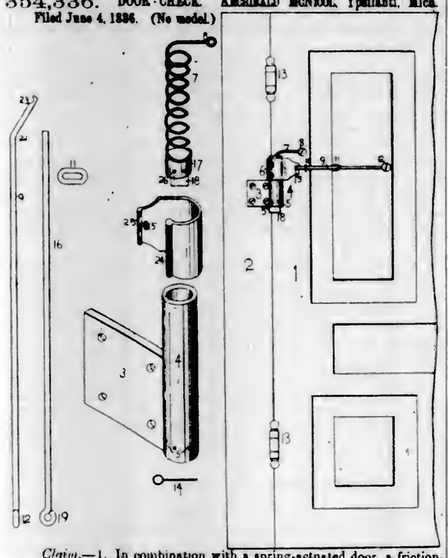
Claim.—1. The combination, with a draw-head, of a loosely-inserted coupling-dog recessed on its lower edge to form two points, which rest on the lower inner face of the coupling-head, substantially as described.

2. The combination, with a draw-head formed with a link-chamber partially surrounded by a recess, 12, and provided with a slot, 13, and projection 14, having forwardly-inclined faces 7, of a coupling-dog having a hook, 21, having a convex outer and a concave inner face, lugs 5 being formed on the dog above and to the rear of the hook, substantially as described.

3. The combination, with a draw-head having a recess, 12, that partially surrounds the link-chamber, and a slot, 13, communicating with said link-chamber, of a coupling-dog formed with lugs 17 and 5, a shoulder, 4, and a hook, 21, substantially as described.

4. The combination, with a draw-head formed with an extension, 14, having inclined faces 7, a recess, 12, partially surrounding the link-chamber, a slot, 13, communicating with the link-chamber, the recess 12 being wider than the slot 13, of a coupling-dog formed with a hook, 21, and lugs 17, and the coupling-dog being arranged for connection with a chain that extends to an operating mechanism, substantially as described.

354,336. DOOR-CHECK. ARCHIBALD MCNICOL, Ypsilanti, Mich. Filed June 4, 1886. (No model.)



Claim.—1. In combination with a spring-actuated door, a friction-clutch supported by the door-casing, and rods connecting said clutch with the door to retard the closing thereof, substantially as described.

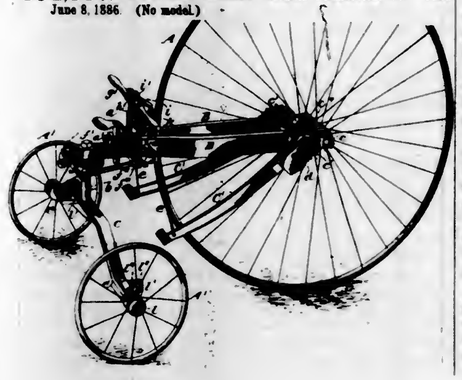
2. In combination with a door, a cylinder secured to the side casing of the door, a friction-clutch mounted on said cylinder, and rods forming a connection between said clutch and the door, whereby the opening of the door opens the clutch and closing the door closes the clutch, substantially as shown and described.

3. In combination with the door and a friction-clutch mounted upon a support secured to the casing, a pair of rods and an adjustable link forming an adjustable connection between the clutch and the door, substantially as shown and described.

4. A door-check consisting of the cylinder 4, butt 3, friction-clutch 6, rod 16, link 11, and bent lever 9, substantially as shown and described.

5. In combination with a hollow cylinder, 4, and butt 3, a torsion-spring lying within said cylinder, having one end adjustably secured to said cylinder and the other end adapted to be secured to a door, substantially as shown and described.

354,337. TRICYCLE. ALFONSO MERCER, Brambleton, Va. Filed June 8, 1886. (No model.)



Claim.—1. A tricycle adapted to be closed or collapsed when not in use, having a pivoted rear axle combined with wheels mounted adjustably on said axle, substantially as set forth.

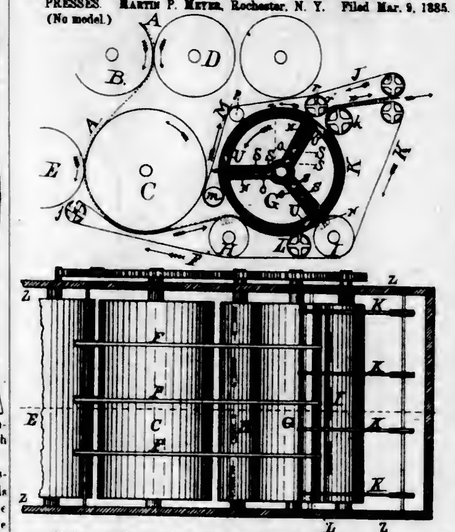
2. The combination of the main wheel, frame, pivoted rear axle, and adjustable wheels, substantially as set forth.

3. The frame, pivoted rear axle, and wheels thereon, combined with plates having curved slots, and devices for securing said slotted plates to the said rear axle, substantially as set forth.

4. In a tricycle adapted to be converted into a bicycle by the substitution of a single rear wheel for the wheels and axle of the tricycle, the combination of the frame or fork B, vertical pivot *b*, bar *f*, links *f'''* bar f^3, shaft *g*, and steering-handles *g'*, substantially as set forth.

5. In a wheeled vehicle of the character herein described, the combination of a steering-post, a sleeve surrounding the same, a brake operated by said sleeve, and a link mechanism connecting said post with the pivot of the rear wheel or wheels, substantially as set forth.

354,338. DELIVERING APPARATUS FOR WEB-PRINTING PRESSES. MARTIN P. MEYER, Rochester, N. Y. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a web-printing machine, a cylinder carrying sets of sectional cutters, the cutters in each set being arranged and operating alternately, in combination with female cutting-cylinders and tapes, substantially as set forth.

2. A cylinder carrying sets of cutters arranged alternately on movable bars, in combination with cushion-cylinders, tapes, and the rollers and grooved cams whereby said bars and cutters are operated, substantially set forth.

3. The superposing-cylinder, in combination with the revolving delivery-fingers, the rollers which are connected to said fingers, and the cam-grooved plate *f*, having vertical motion, the grooves in said plate serving to engage said rollers and cause said fingers to turn, substantially as set forth.

4. In combination with a cutting-cylinder and the knives contained therein, a series of independently-revolving delivery-fingers, and a plate provided with cam-surfaces, which are the sole means of causing said motion of the delivery-fingers, as set forth.

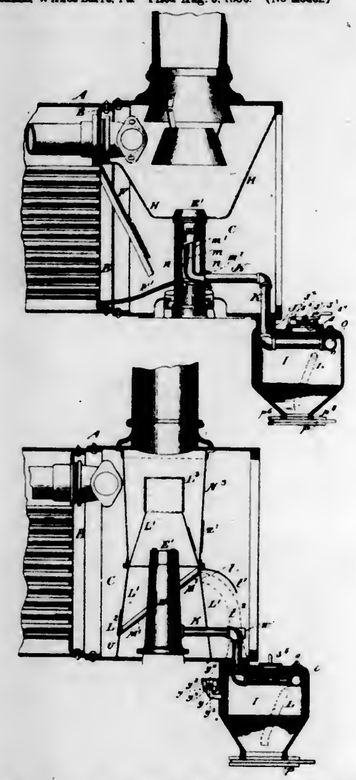
5. The combination of revolving discharging-fingers and alternately-operating sets of cutters, both fingers and cutters being carried by the superposing-cylinder, with the said cylinder and tapes or bands, substantially as set forth.

6. A superposing-cylinder, in combination with alternately-arranged sets of cutters in said cylinder, the carrying-tapes, and two cushion-cylinders, one of these latter being recessed to receive the stroke of one set of cutters, and the other cushion-cylinder being recessed to receive the other set, substantially as set forth.

7. A vertically-movable plate provided with cam-surfaces, in combination with a superposing-cylinder and delivery-fingers having cranks which engage with said cam-surfaces as said cylinder rotates, substantially as and for the purposes set forth.

8. A vertically-movable plate, *f*, provided with pelecoidal cam-grooves Y, in combination with a crank-shaft having rollers which enter said grooves, a superposing-cylinder in which said shaft is mounted, and delivery-fingers carried by said shaft and rotating therewith, substantially as and for the purpose set forth.

354,339. SPARK-ARRESTER FOR LOCOMOTIVES. ALEXANDER MITCHELL, Wilkes-Barré, Pa. Filed Aug. 5, 1886. (No model.)



Claim.—1. In a spark-arresting device, the smoke-box and spark-receptacle communicating therewith, combined with a centrally-apertured exhaust-pipe and a vacuum-pipe connecting said central aperture with the spark-receptacle, substantially as set forth.

2. In a spark-arresting device, an exhaust-pipe having an aperture formed within it separate from the exhaust-passages, combined with a vacuum-pipe and spark-receptacle, said vacuum-pipe connecting the spark-receptacle with the said aperture within the exhaust-pipe, substantially as set forth.

3. In a spark-arresting device, the smoke-box C, spark-receptacle I, communicating therewith, exhaust-pipe E, having the duct *m*, and exhaust-channels *n*, and perforated plate or screen H, combined with vacuum-pipe K, connecting the duct *m* of the exhaust-pipe with the interior of the spark-receptacle, substantially as set forth.

4. In a spark-arresting device, the smoke-box C, spark-receptacle I, communicating therewith, inclined screen F, curved plate F', and screen H, combined with the exhaust-pipe and a vacuum-pipe leading from an apertare of the exhaust-pipe (separated from the exhaust-channels) to the interior of the spark-receptacle, substantially as set forth.

5. In a spark-arresting device, the combination, with a boiler having flues and a smoke-box, all of ordinary construction, of a spark-receptacle communicating with the smoke-box, a screen, F, curved plate F', perforated plate or screen H, and means, substantially as described, for producing a vacuum in the spark-receptacle, substantially as set forth.

6. In a spark-arresting device, the combination, with the smoke-box and suitable spark deflecting and screening devices within said smoke-box and a spark-receptacle communicating with said smoke-box, of an exhaust-pipe having the passages *n* and aperture *m*, separated from said passages, and a pipe connecting said aperture *m* with the interior of the spark-receptacle, substantially as set forth.

7. In a spark-arresting device, the receptacle I, combined with the discharge N N' and spring-valve N², substantially as set forth.

8. In a spark-arresting device, the spark-receptacle L, combined with the discharge N N', valve N², and live-steam pipe K, substantially as set forth.

9. In a spark-arresting device, the receptacle I, combined with the plate p^3, and valve P, pivoted to said plate at p^3, and adapted to open and close in a horizontal plane, substantially as set forth.

10. The combination, in a spark-arresting device, of the screen H, exhaust-nozzle E', and exhaust-pipe E, said exhaust-nozzle and pipe having the exhaust-passages *n* and aperture *m*, substantially as set forth.

11. In a spark-arresting device, the combination of the smoke-box, spark-receptacle communicating therewith, pipe K¹, and live-steam jet K², substantially as set forth.

12. In a spark-arresting device, the smoke-box C and stack, spark-receptacle I, communicating with the smoke-box, exhaust-pipe E, lifting-pipe L', and screens M' and N², combined with a vacuum-pipe leading from the exhaust to the interior of the spark-receptacle, substantially as set forth.

13. In a spark-arresting device, the smoke-box C and stack, spark-receptacle I, communicating with the smoke-box, exhaust-pipe E, lifting-pipe L', sliding sleeve L², and screens M' and N², combined with a vacuum-pipe leading from the exhaust to the interior of the spark-receptacle, substantially as set forth.

14. In a spark-arresting device, a smoke-box, a spark-receptacle communicating therewith, and a slotted or perforated lifting-pipe having within it and surrounding the exhaust-pipe E the perforated screen M', combined with the deflecting-plate *t'* and means for connecting the exhaust with the spark-receptacle, whereby a vacuum therein is produced and sparks drawn and deflected into said receptacle, substantially as set forth.

15. In a spark-arresting device, a smoke-box, a spark-receptacle communicating therewith, and a slotted or perforated lifting-pipe having within it and surrounding the exhaust-pipe E the perforated screen M', combined with a pipe, *t*³, connecting the exhaust with the spark-receptacle, whereby a vacuum therein is produced and sparks are drawn and deflected into said receptacle, substantially as set forth.

16. In a spark-arresting device, the smoke-box C, exhaust E, lifting-pipe L', having the openings *v* and *t*, and screen M', combined with the spark-receptacle I, communicating with the smoke-box, and means for connecting the interior of the receptacle with the exhaust for the production of a vacuum within the receptacle, and also means for deflecting or carrying sparks from the lifting-pipe to said receptacle, substantially as set forth.

17. In a spark-arresting device, the spark-receptacle I, having the overflow-pipe *y*, casing *y'*, provided with holes y^2, and wings y^3, combined with the float-valve y^4, substantially as set forth.

18. In a spark-arresting device, the combination of a low exhaust, a lifting-pipe, L', screens N² and M', and means for withdrawing the sparks from the lifting-pipe to the spark-receptacle by the production of a vacuum therein, substantially as set forth.

19. In a spark-arresting device, the exhaust E, having the aperture *m*, exhaust-passages *n*, and connecting-apertures *x*, substantially as set forth.

20. In a spark-arresting device, the exhaust-pipe E, having the aperture *m*, combined with the vacuum-pipe K and a live-steam connection, *w*, leading to said vacuum-pipe, substantially as set forth.

21. In a spark-arresting device, the spark-receptacle I, vacuum-pipe K, and perforated transverse pipe O, suspended within said receptacle by bolts *o*, substantially as set forth.

22. In a spark-arresting device, the lifting-pipe L', exhaust E, screens M' and N², and a stack having the enlarged connection *z*, substantially as set forth.

23. In a spark-arresting device, the exhaust E, having the passages *n* and partition *n'*, combined with the branched vacuum-pipe K, one branch leading to each passage *n*, substantially as set forth.

354,340. HEEL-PROTECTOR. OLIVER B. NORTH, New Haven, Conn. Filed Aug. 9, 1886. (No model.)

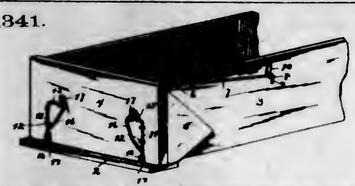


Claim.—The herein-described protector for heels, consisting of the body A, constructed with the annular shoulder *b* around its outside and the surface of conical shape above the shoulder, substantially as and for the purpose described.

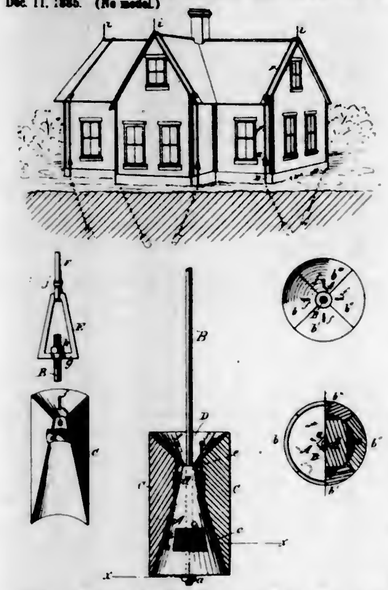
354,341. END-GATE. WILLIAM A. PHARES, Fowler, Ind. Filed Oct. 25, 1886. (No model.)

Claim.—The combination of an end-gate for a wagon-box, rods having hooked ends and having their inner ends pivoted to the upper corners of the gate and having the hooked ends engaging staples upon the side-boards and sliding in eyes upon the upper rear corners of the side boards, turn-buttons for holding the hooks in the staples, vertically-sliding rods in staples upon the lower portion of the end-gate, having horizontally-bent upper ends and oblique braces, turn-buttons for holding the rods down, and bolts hinged to the lower ends of the rods and fitting in perforations in the end cleat of the bottom of the wagon-box, as and for the purpose shown and set forth.

354,341.



354,342. LAND-ANCHOR. CYRUS C. PRATT, Lincoln, Kans. Filed Dec. 11, 1885. (No model.)



Claim.—1. In a land-anchor, the combination, with a conical or tapering cone, of sections arranged to be expanded by the cone, substantially as herein described.

2. In a land-anchor, the combination of the rod B, cone A, and cylinder C, formed of sections *b b' b'' b'''*, substantially as herein shown and described.

3. In a land-anchor, the combination, with the cone A, provided with notches *c*, of the cylinder C, formed of sections *b b' b'' b'''*, each section having a hook, *e*, substantially as herein shown and described.

4. The combination, in a land-anchor, of the cone A, the cylinder C, formed of sections *b b' b'' b'''*, and eyebolts *f*, attached to the sections, substantially as herein described.

5. The combination, in a land-anchor, of the cone A, the sectional cylinder C, the rod B, stirrup E, and strap F, substantially as herein shown and described.

354,343. PROCESS OF GILDING GLASS. JAMES PRATT, Blackfriar's Road, County of Surrey, England, assignor to the Glass Decoration Company, (Limited,) 82 Hatton Garden, County of Middlesex, England. Filed July 19, 1886. (No specimens.) Patented in England Oct 9, 1885, No. 12,014, and in France July 10, 1886.

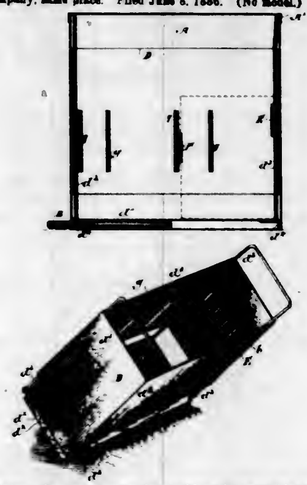
Claim.—1. In the manufacture of gilded glass, the improvement consisting in first treating the cleaned glass with a solution of chloride of tin, and then pouring over the glass, while supported upon an inclined surface and heated, a gilding solution, substantially as hereinbefore described.

2. In the manufacture of gilded glass, the improvement consisting in pouring over the glass after it has been properly cleaned and prepared a gilding solution while the glass is supported upon an inclined surface and heated, substantially as hereinbefore described.

3. In the manufacture of gilded glass, the improvement consisting in pouring over the surface of the glass properly cleaned and prepared a gilding solution while the glass is supported upon an inclined surface and heated, and then applying to the coating of gold a silver backing, substantially as hereinbefore described.

4. The process of gilding glass by treating the cleaned glass with chloride-of-tin solution, and then pouring over the surface of the glass a gilding solution while the glass is supported upon an inclined surface and heated, and then applying to the coating of gold a silver backing, substantially as hereinbefore described.

354,344. APPARATUS FOR WASHING PHOTOGRAPHIC PLATES. H. CLAY PEIRCE, New York, N. Y., assignor to the Scovill Manufacturing Company, same place. Filed June 8, 1886. (No model.)



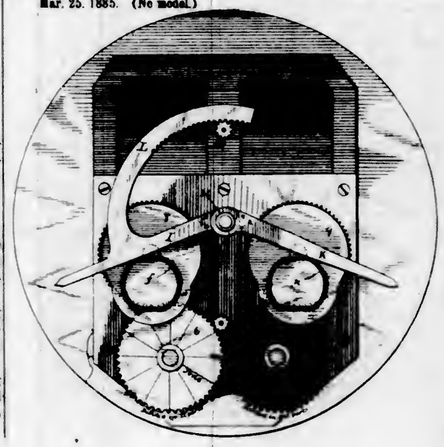
Claim.—In an apparatus for washing photographic plates, the combination of a vessel, pipes for conveying water to and from the vessel, and a frame fitted within the vessel and consisting of a bottom elevated above the bottom of the vessel and having a space between its bottom and its sides and ends, and racks for holding photographic plates while resting upon the bottom.

354,345. COMPOSITION FOR NEUTRALIZING FUMES OF EXPLOSIVES. THOMAS PEIRCE, San Francisco, Cal. Filed Dec. 7, 1885. (No specimens.)

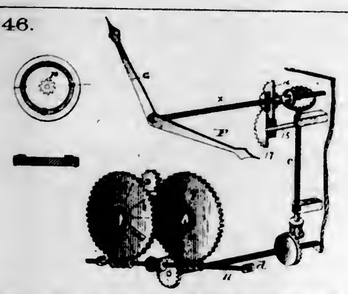


Claim.—The composition herein described for neutralizing the fumes generated by the explosion of nitro-glycerine or other high-explosive compounds, consisting of carbonate of ammonia, urate of ammonia, lime, and sulphate of iron, in the proportions described.

354,346. CALENDAR-CLOCK. SAML. W. RALPH, Mecca, Ohio. Filed Mar. 25, 1885. (No model.)



354,346.

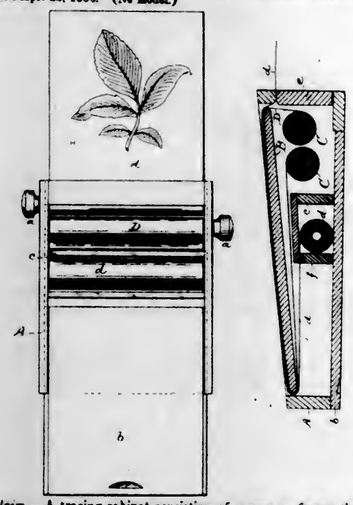


Claim.—1. In a calendar-clock, the combination, with the dial A, of the attachment of the sun S and adjustable arm *y*, attached to the hour-hand E, so as to distinguish between railroad and sun time on any meridian.

2. In a calendar-clock, the combination, with the dial A, of the plates B C D and segment-arm O and moon *v*.

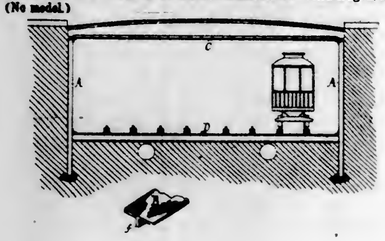
3. In a calendar-clock, the combination of the train of a clock with the wheels 6, 7, 8, and 9, having two cams, *f* and *n*, in connection with the levers I and K, and arbor 11, with disk *p* and train *d c x*, substantially as set forth.

354,347. TRACING-CABINET. HUBERT P. RICHARDS, Newton, Mass. Filed Apr. 23, 1886. (No model.)

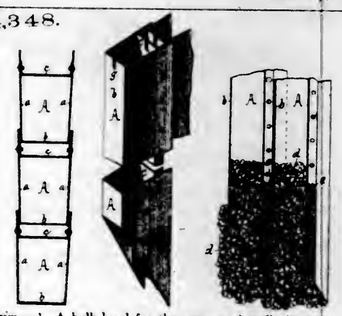


Claim.—A tracing-cabinet consisting of a case or frame, the table or drawing-board secured to the upper part of said case, a pattern web or strip extending over said table and into the case at the ends of said table, rollers for drawing said paper along to bring any desired pattern over said table, a chamber extending across the case parallel to the rollers for drawing the web, for holding a roll of tracing material within the case in position to have the outer end drawn over the table and pattern-web, a frictional device for holding the tracing material in check as it extends to the table, and clamping mechanism to hold the outer end of said tracing material, all substantially as described, and for the purpose specified.

354,348. WATER-TIGHT BULK-HEAD FOR UNDERGROUND RAILWAYS, &c. JOHN E. ROBINSON, Baltimore, Md. Filed Aug. 2, 1886. (No model.)



354,348.



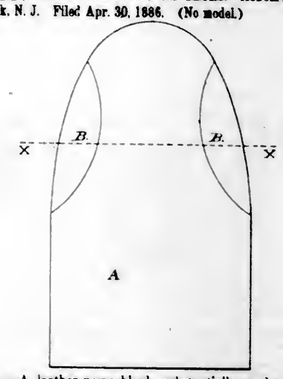
Claim.—1. A bulk-head for the purpose described, which consists of a series of hollow metallic piles open at one side and arranged with the closed side of one pile within the open side of the next adjoining one, substantially as and for the purpose specified.

2. A bulk-head for the purpose described, which consists of a series of interlocking hollow metallic piles having dividing heads or channel-plates secured therein, substantially as specified.

3. A bulk-head for the purpose described, which consists of a series of interlocking hollow piles filled with concrete and having water-tight joints formed of metallic heads and hydraulic cement, substantially as and for the purpose specified.

4. Two bulk-heads formed of hollow interlocking piles, combined with a connecting roof-truss and floor-beams, substantially as and for the purpose specified.

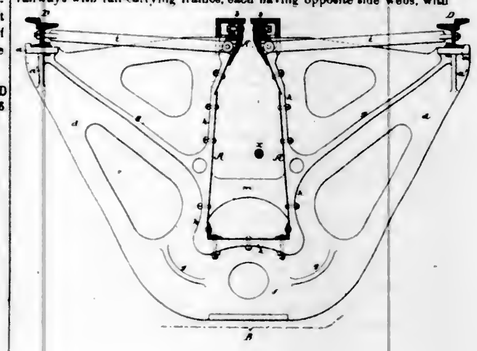
354,349. VAMP FOR BOOTS OR SHOES. RUDOLPH G. SALOMON, Newark, N. J. Filed Apr. 30, 1886. (No model.)



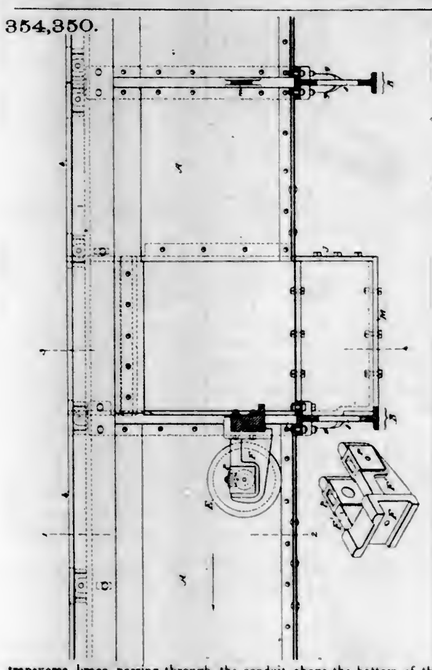
Claim.—A leather vamp-blank, substantially as described, having lining-pieces B B cemented to the lateral edges thereof, the central portions of the vamp remaining of a single thickness, substantially as and for the purposes set forth, said parts being in combination.

354,350. CONDUIT FOR CABLE OR ELECTRICAL RAILWAYS. EDWARD SAMUEL, Philadelphia, Pa., assignor to William Wharton, Jr., & Co., (Limited,) same place. Filed Feb. 26, 1886. (No model.)

Claim.—1. The combination of a conduit for cable or electrical railways with rail-carrying frames, each having opposite side webs, with



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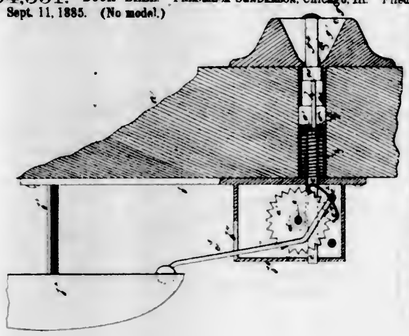
transverse brace passing through the conduit above the bottom of the same, each side web comprising an upper portion extending from the top bar of the conduit to the outer rail-carrying portion of the frame, and a strut extending from said outer portion of the frame to the transverse brace above the bottom of the conduit, all substantially as specified.

2. The combination of a conduit for cable or electrical railways with rail-carrying frames, each consisting of opposite side webs, with a transverse brace passing through the conduit above the bottom of the same, and a connecting-web passing beneath the conduit, and each side web having an outer rail-carrying portion, a strut extending therefrom to the brace above the bottom of the conduit, a portion above the strut extending to the top bar of the conduit, and a portion below the strut extending to the web beneath the conduit, all substantially as specified.

3. The combination of a conduit comprising the sheet-metal body A and rigid top bars, A', longitudinal girders forming the track, bracing-frames secured to said girders and to the top bars, A', of the conduit, and tie-bars connecting said bars A' to the girders at points between the bracing-frames, all substantially as specified.

4. The combination of the conduit and cable-supporting sheaves contained therein with a man-hole chamber extending laterally from the conduit, and having its inlet-opening beyond the limits of the track, the bottom of said chamber being lower than the bottom of the conduit, and the side of the conduit having an unobstructed opening extending from the bottom of said conduit to the top of the chamber, or thereabout, so as to permit free access to the interior of the conduit from the man-hole chamber, all substantially as specified.

354,351. DOOR-BELL. FREDERICK SANDERSON, Chicago, Ill. Filed Sept. 11, 1885. (No model.)



Claim.—1. In a door or signal bell, a vibrating hammer and a sliding operating-bar connected therewith by intermediate mechanism, and a retracting-spring therefor, in combination with a push button or slide and a stiff wire arranged between the bar and slide, socketed in one and bearing against the other, whereby the connection is readily adapted to different distances, substantially as and for the purpose set forth.

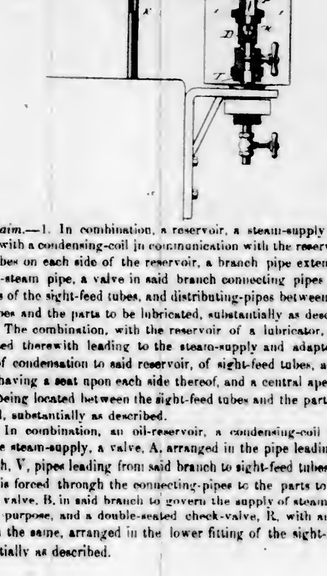
2. The combination of the base plate or frame having a sleeve, *f*, provided with a perforated end plate, *f'*, the bell, the slide-rod connected with said bell and having an extension projected into sleeve *f*, and provided with a head, *e'*, a spring for retracting said slide-rod, the button, and a connection between said button and slide-rod, substantially as set forth.

3. The improvement in bells, substantially as described, consisting of the base plate or frame having a sleeve, *f*, provided with a perforated end plate, *f'*, the button-guard *g*, having a recess, *g'*, a tubular shank, g^2, and a stop-flange, g^3, the slide g^2, operating in shank g^2, and provided with an arm or extension, g^4, the bell, the slide-rod connected therewith and extended into the sleeve *f*, a spring for retracting said slide-rod, and a connection between the same and the slide g^3, all substantially as set forth.

354,352. SECONDARY BATTERY. VICTOR SAHS and KARL FRIEDRICH, Berlin, Germany. Filed Aug. 4, 1886. (No specimens.)

Claim.—The herein-described method for manufacturing electrodes for accumulators and secondary batteries, consisting of heating the zinc and lead together in equal parts, and then heating this composition until a complete oxidation of the lead sets in, after which the heated pliable mass is formed into plates, from which the zinc is dissolved by the use of dilute sulphuric acid, substantially as shown and described.

354,353. LUBRICATOR. PHILIP L. SCHMITT, Quincy, Ill., assignor to the Peerless Oil Ejector Company, same place. Filed Aug. 23, 1886. (No model.)

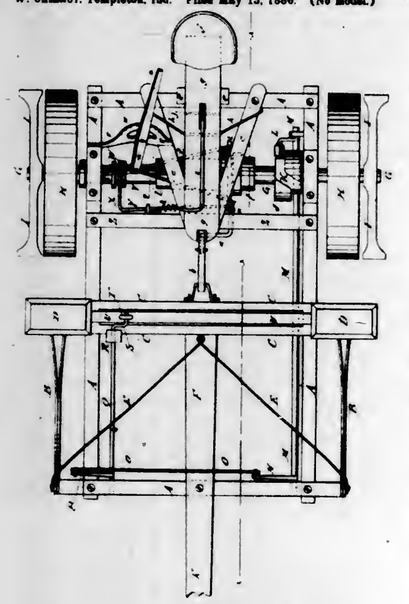


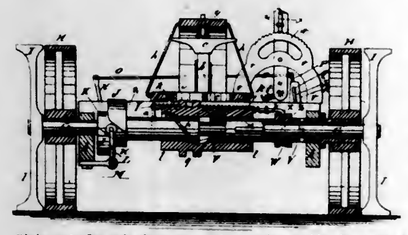
Claim.—1. In combination, a reservoir, a steam-supply pipe connected with a condensing-coil in communication with the reservoir, sight-feed tubes on each side of the reservoir, a branch pipe extending from the live-steam pipe, a valve in said branch connecting pipes leading to the caps of the sight-feed tubes, and distributing-pipes between the sight-feed tubes and the parts to be lubricated, substantially as described.

2. The combination, with the reservoir of a lubricator, of a pipe connected therewith leading to the steam-supply and adapted to feed water of condensation to said reservoir, of sight-feed tubes, and check-valves having a seat upon each side thereof, and a central aperture, said valves being located between the sight-feed tubes and the parts to be lubricated, substantially as described.

3. In combination, an oil-reservoir, a condensing-coil connected with the steam-supply, a valve, A, arranged in the pipe leading thereto, a branch, V, pipes leading from said branch to sight-feed tubes, whereby the oil is forced through the connecting-pipes to the parts to be lubricated, a valve, B, in said branch to govern the supply of steam necessary for this purpose, and a double-seated check-valve, R, with an aperture through the same, arranged in the lower fitting of the sight-feed tube, substantially as described.

354,354. CHECK-ROW CORN-PLANTER. JOHN F. SCOTT and OLIVER W. CHESNUT, Templeton, Ind. Filed May 13, 1886. (No model.)





Claim.—1. In a check-row corn-planter, the combination, with the frame A, the drive-wheel axle G, the runner connecting cross-bar C and the seed-dropping slide U, of the wheel J, attached to said axle and having cam-groove K, the rock-shaft M, having arms L N, the connecting-rod O, and the rock-shaft Q, having arms P S, substantially as herein shown and described, whereby the said seed-dropping slide is vibrated from the said axle, as set forth.

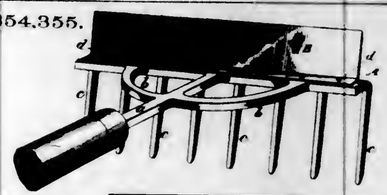
2. In a check-row corn-planter, the combination, with the frame A, the axle G, the runner connecting cross-bar C, and the drive-wheel H, having clutch-teeth, of the sleeve V, placed upon the said axle and having clutch-teeth engaging the said drive-wheel, the sliding rod Y, having arm X engaging with the said sleeve and provided with a spring, *k*, the double crank *a*, and the foot-lever *b*, substantially as herein shown and described, whereby the seed-dropping mechanism will be thrown out of gear and the runners raised from the ground by a single movement, as set forth.

3. In a check-row corn-planter, the combination, with the frame A, the sliding clutch-sleeve V, having straight longitudinal tongues *n*, the axle G, having spiral tongues *p* and carrying the markers I, of the sliding sleeve *l*, having straight longitudinal interior grooves, *m*, and spiral interior grooves, *o*, the rods *t*, connected with the said sleeve by the bars *r*, and the lever *u*, substantially as herein shown and described, whereby the said axle can be readily turned forward or back to adjust the said markers, as set forth.

354,355. COMBINED RAKE AND HOE. JOHN S. SEATTER, Visalia, Cal. Filed Jan. 5, 1886. Renewed Nov. 5, 1886. (No model.)

Claim.—The improved rake and hoe herein described, consisting of the rake-head A, having teeth, shank, and braces, combined with the hoe-blade B, having a right-angle bend or flange and riveted longitudinally to the rake-head, substantially as set forth.

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354,356. ARTIFICIAL TOOTH. LUCIUS T. SHEFFIELD, New York, N.Y. Filed Aug. 12, 1884. (No model.)



Claim.—1. As a new article of manufacture, an artificial tooth consisting of metal, including the masticating-face, and provided with an ornamental facing of porcelain, substantially as described.

2. The combination, in an artificial tooth, of an outer ornamental porcelain facing and an inner metallic block, including the masticating-face, and pins connecting the two portions, substantially as described.

3. The combination, in an artificial tooth, of an ornamental porcelain face provided with headed pins and a metallic socketed block, including the masticating-face, and a body of cement surrounding each of the pins in the said sockets, substantially as set forth.

4. The combination, in an artificial denture, of an outer ornamental porcelain facing and an inner metallic backing, including the masticating-face, and provided with an extension, *e*, substantially as and for the purpose set forth.

354,357. ARTIFICIAL TOOTH. LUCIUS T. SHEFFIELD, New York, N.Y. Filed Aug. 12, 1884. (No model.)



Claim.—1. The combination, in an artificial denture, of a metallic body formed to constitute the masticating portion of the tooth, a porcelain facing baked upon the said backing and not extending over the masticating portion, and pins extending from the backing into the porcelain portion of the tooth, substantially as specified.

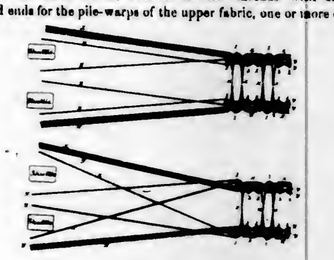
2. An artificial denture consisting of a block upon which is the masticating-surface, and a porcelain facing baked to and upon said backing, substantially as set forth

354,358. LOOM FOR WEAVING FIGURED DOUBLE PILE FABRICS. TOM L. SHUTTLEWORTH, Amsterdam, N. Y., assignor of one-half to John Burt, Philadelphia, Pa. Filed May 27, 1886. (No model.)

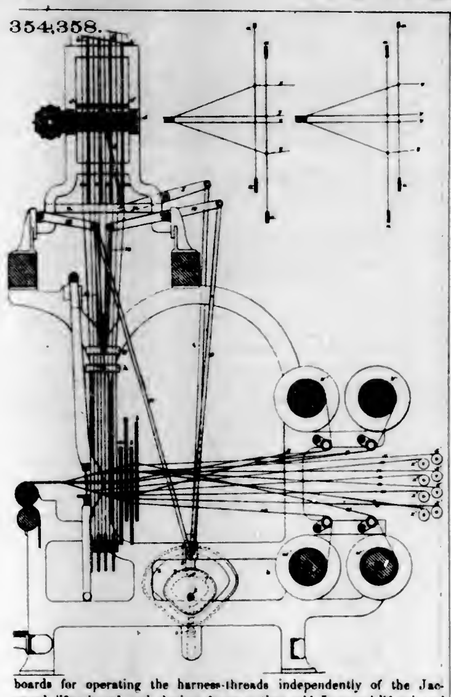
Claim.—1. As a means of drawing a pile-thread from the upper to the lower fabric in weaving figured double pile fabrics, the combination of a lifter board or bar and operating mechanism therefor with a harness-thread having a doubled or turned-back portion with elastic or weighted end, that part of said thread on one side of the turn having the knot or equivalent device for the action of the lifter board or bar, while that portion of the thread on the other side of the turn has the eye for the passage of the warp-thread, all substantially as specified.

2. The combination, in a loom for weaving figured double pile fabrics, of the Jacquard lifter-board, its operating devices, and the straight harness-threads controlling the pile-warps of the lower fabric, with harness-threads controlling the pile-warps of the upper fabric, and each having a doubled or turned-back portion with elastic or weighted end, all substantially as specified.

3. The combination, in a loom for weaving figured double pile fabrics, of the Jacquard lifter-board, straight harness-threads for the pile-warps of the lower fabric, doubled harness-threads with elastic or weighted ends for the pile-warps of the upper fabric, one or more comber-



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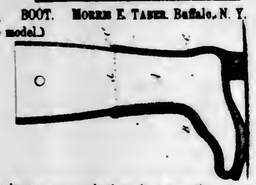
boards for operating the harness-threads independently of the Jacquard lifter-board, and devices for operating said Jacquard lifter-board and the comber board or boards, all substantially as specified.

354,359. HANDLE FOR SCREW-DRIVERS AND OTHER TOOLS. JAMES C. SPENCER, Rochester, assignor of one-half to James G. Smith, Jamestown, N.Y. Filed Aug. 21, 1886. (No model.)



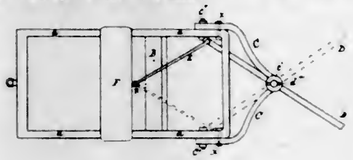
Claim.—A tool-handle consisting of a spindle, a tube inclosing it, a spiral worm upon said tube, and a hand-nut upon the tube and worm, with the members of a clutch upon one end of the spindle and upon one end of the tube, and a nut, D, adapted to bear upon the opposite end of the tube, substantially as and for the purpose described.

354,360. BOOT. MORRIS E. TABER, Buffalo, N. Y. Filed Sept. 20, 1886. (No model.)



Claim.—A boot composed of an inner portion, A, of felt, a water proof sock, C, incasing the foot of the felt portion, and an outer portion B, of leather, substantially as set forth.

354,361. SCRAPER ATTACHMENT FOR ICE-PLANERS. WILLIAM J. TEMPLE, Hampden, assignor of one-half to Henry McLaughlin, Bangor, Me. Filed Apr. 15, 1886. (No model.)



Claim.—1. A scraper attachment for ice-planers, consisting of a scraping-tool pivoted at or near the middle of its length to a vertically-adjustable hanger projecting behind the frame of the planer in such a manner that one end of said scraper may swing within the side pieces of said frame, and bear upon one of said pieces when the machine is in operation, substantially as described.

2. A scraper attachment for ice-planers, consisting of the combination of a hanger projecting behind the frame of the planer, and vertically adjustable at various elevations thereon, a scraper pivotally suspended at or near its mid-length from said hanger, in such a manner that one end of said scraper may swing within the side pieces of said frame, and bear upon one of said side pieces when said scraper rests diagonally to the planing-tool, and a rigid rod pivoted at one end to the inner end of said scraper, and detachably securable at the other end to some convenient point of said frame, substantially as described.

3. A scraper attachment for ice-planers, consisting of the combination of a hanger projecting behind the frame of the planer, and vertically adjustable at various elevations thereon, a scraper pivotally suspended at or near its mid-length from said hanger, in such a manner that either end of said scraper may tilt upward or downward and that one end of said scraper may swing within the side pieces of said frame, and bear upon one of said side pieces when said scraper rests digonally to the planing-tool, and a rigid rod pivoted at one end to the inner end of said scraper, and detachably securable at the other end to some convenient point of said frame, substantially as described.

4. In combination with an ice-planer and its frame, the herein-described scraper attachment, consisting of the combination of the hanger C, pivoted to the side pieces, *a a*, of said frame, and having bow or angle *c'* and slots *c c*, bolts and nuts at *c'' c''*, scraper D, suspended from said hanger in such a manner as to swing both vertically and horizontally, and rigid rod E, pivoted at one end to the inner end of said scraper, and detachably securable at the other end to some part of the frame or seat of said planer, substantially as described.

354,362. TAPING FURS. CHAS. THEDIERT, New York, N.Y. Filed Aug. 26, 1886. (No model.)



Claim.—1. As an improvement in the art of taping furs, securing the fur strips flatwise to a backing, then bending inward or backward the edge of the strip from which the hairs naturally slant, and fastening the inbent edge of the strips to an outwardly-bent portion of the backing, substantially as described, for the purposes set forth.

2. As an improvement in the art of taping furs, securing the fur strips flatwise to a backing obliquely or on the bias, then bending inward or backward the edge of the strip from which the hairs naturally slant and fastening this inbent edge of the fur strips to an outwardly-bent portion of the backing, substantially as described, for the purposes set forth.

3. As an improvement in the art of taping furs, securing the fur strips flatwise to a backing and inclosing an inbent edge of the fur strips from which the hairs naturally slant between outbent parts of the backing, or in a loop formed in the backing, and then fastening this inbent edge of the fur strips between the outbent parts of the backing, preferably by sewing, substantially as described, for the purposes set forth.

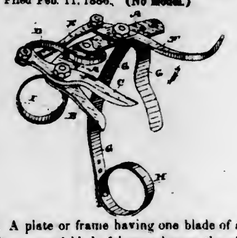
4. As an improvement in the art of taping furs, securing the fur strips flatwise and obliquely or on the bias to a backing and inclosing an inbent edge of the fur strips from which the hairs naturally slant between outbent parts of the backing, or in a loop formed in the backing, and then fastening this inbent edge of the fur strips between the outbent parts of the backing, preferably by sewing, substantially as described, for the purposes set forth.

5. As an improved article of manufacture, a taped fur fabric comprising fur strips A, a backing to which the strips are cemented or fastened flatwise, and one edge, *a*, of the strips bent inward or backward and inclosed between outbent parts or a loop, *b*, of the backing B, and secured to the backing by sewing, as at D, or otherwise, substantially as shown and described.

6. As an improved article of manufacture, a taped fur fabric comprising fur strips A, a backing, B, to which the strips are fastened flatwise and obliquely or on the bias, and one edge, *a*, of the strips bent inward or backward and inclosed between outbent parts or a loop, *b*, of

the backing B, and secured to the backing by sewing, as at D, or otherwise, substantially as shown and described.

354,363. FRUIT-GATHERING SHEARS. LUTHER H. TITUS, Los Angeles, Cal. Filed Feb. 11, 1886. (No model.)

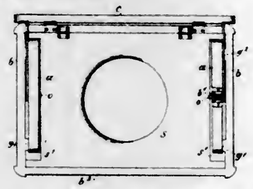


Claim.—1. A plate or frame having one blade of a pair of cutting-shears fixed to it, a second blade fulcrumed upon the plate so as to open and close upon the fixed blade, with a spring acting upon the rearwardly-extending arm so as to hold the blades apart, in combination with a lever, F, fulcrumed to the frame and actuated by the thumb, and a link, E, by which the opposite end of this lever and the movable arm may be connected, substantially as herein described.

2. A plate having secured to it a pair of cutting-shears, a spring and operating-lever, and a ring for the forefinger, in combination with a band made adjustable upon this plate to fit different lengths of hand, and the ring H, fitted to said band, substantially as herein described.

3. A plate having cutting-shears fulcrumed upon it, together with an actuating-lever and a spring, and a ring for the forefinger of the hand, in combination with a band passing around the hand and adjustable upon this plate, and a ring adjustably secured to the outer end of this band for the reception of the little finger of the hand, substantially as herein described.

354,364. ARM-COMMODE. CALVIN G. UDELL, Indianapolis, Ind. Filed May 26, 1886. (No model.)



Claim.—1. In an arm-commode, the box b^2, the seat *s*, hinged thereto, the cover *c*, also hinged to the back of the box and connected by a slotted bracket, *b*, with the support *a'* of the arm *a* by a spring-pin having a head adapted to slide in the irregular-shaped slot of the bracket, whereby the elevating of the cover elevates the arm-support perpendicularly and the closing of the cover presses the arms downward in the sides of the case or frame, all combined substantially as described.

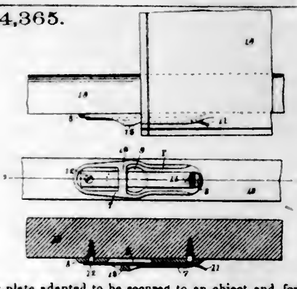
2. The arm-support *a'*, adapted to slide downward within the case b^2 of a commode, providing bearings in its upper end for the spring-pin *o*, the bracket *b*, having the irregular slot *s1*, the recess 2, formed in the outer end of the bracket to receive the head of the spring-pin *o*, the cover *c*, to which the bracket is secured, the guides g' and g^2, and the circular stop s^2, secured to the inside of the case b^2 to limit the downward movement of the block *s'*, attached to the arm-support, all combined substantially as described.

3. A commode having side arms connected to the cover by a slotted bracket, *b*, and their lower ends secured to pieces provided with grooves to receive the perpendicular guides connected to the inside of the case upon which the arms rise and fall when actuated by the movement of the cover in either direction, substantially as described.

4. The metal bracket-support *a'*, connected to the arm *a* above and the sliding blocks *s'* below by means of pins at each corner cast integral with the arm-support, and screws driven through the central portion of this support, in combination with the bracket *b*, having the angular slot *s1*, the opening 1 at one end and the recess 2 at the other end connected to the cover, the arm *a*, and the sliding block *s'*, substantially as described.

5. In an arm-commode, a cover hinged to the back of the frame, the side arms rising and falling perpendicularly upon guides upon the inside of the frame, the cover and arms connected by the slotted bracket *b* and actuated by the movement of the cover in either direction, substantially as described.

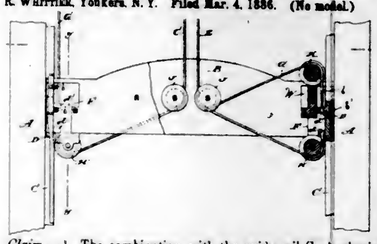
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securing-plate adapted to be secured to an object and formed with a longitudinal depression, a spring-finger mounted longitudinally on said plate and within said depression, and a check or stop fixed on said plate and acting to check said finger, substantially as described.

2. The combination of the securing-plate 8, provided with ridges 7, the check-piece 10 across said ridges, the spring-finger 11, fixed to said plate, the screws 12, set through said plate, and said plate secured upon the shaft or harness, substantially as and for the purpose described.

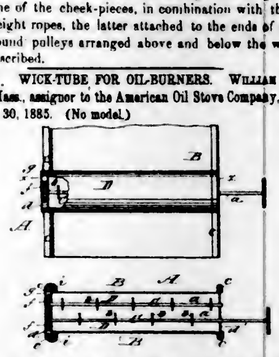
354,366. SAFETY ATTACHMENT FOR ELEVATOR-CARS. CHAS. R. WHITTIER, Yonkers, N. Y. Filed Mar. 4, 1886. (No model.)



Claim.—1. The combination, with the guide-rail C, cheek-pieces *f*, and stop-bolts *b* and *b'*, attached to the elevator-car, of the wedge D, to which the hoisting-rope and counter-weight rope are directly attached to act in opposition to each other, substantially as described.

2. The rail C and the head of the elevator-cage, formed with cheek-pieces, which embrace the rail C, and the wedge D, arranged between the rail and one of the cheek-pieces, in combination with the hoisting and counter-weight ropes, the latter attached to the ends of the wedge and passed around pulleys arranged above and below the wedge, substantially as described.

354,367. WICK-TUBE FOR OIL-BURNERS. WILLIAM H. WILDER, Gardner, Mass., assignor to the American Oil Stove Company, same place. Filed Dec. 30, 1885. (No model.)



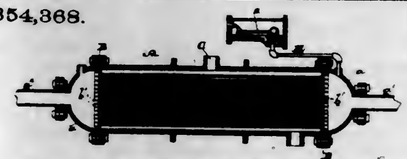
Claim.—1. The combination, with the side plates, B B, formed with the grooves *c c*, of a head-piece, *d*, in said grooves, the wick-raising spindles projecting through the head-piece, intermeshing gears on the said ends, and a cap, *g*, inclosing said gears, substantially as shown and described.

2. The combination, with the side plates, B B, bent to form the recesses D D, and ridges *i i*, forming grooves *c c*, the head-pieces *d d'* in said grooves, the spindles *a a*, mounted in the heads and projecting through the head *d*, the intermeshing gears *f* on the said ends, and the cap *g*, fitted over the ridges *i i* and inclosing the gears, substantially as set forth.

3. In a wick-chamber, the combination, with the side plates of the chamber, of a head-piece, wick-raisers C C, provided with gears *f f*, and a cap, *g*, substantially as described.

354,368. FEED-WATER HEATER. HARRY WILSON, Philadelphia, Pa. Filed Apr. 3, 1886. (No model.)

354,368.



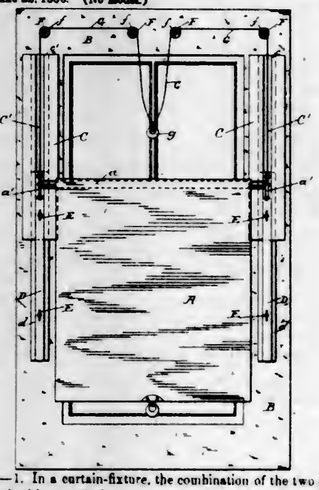
Claim.—1. In combination with a feed-water heater, the air-relieving pipe connected with the head of the heater and controlled by an automatic valve, substantially as herein described.

2. In a feed-water heater, the cylinder A, having heads *a*, with which the inlet and outlet pipes communicate, the tube-sheets B, and tubes *b*, in combination with the air-relieving pipe E from the head *a*, and the valve controlling said pipe, substantially as herein described.

3. In a feed-water heater, the cylinder A, supplied with live steam from the boiler, and the tubes *b* in the cylinder, in combination with the drain-cylinder D, connected with the cylinder A, and the valved outlet d' from said drain-cylinder, substantially as herein described.

4. A feed-water heater comprising the cylinder A, having heads *a*, tube-sheets B, and tubes *b*, said cylinder being supplied with live steam from the boiler, the air-relieving pipe E, and the drain-cylinder D, having valved outlet d', and a gage-glass, d^2, all arranged and adapted to operate substantially as herein described.

354,369. CURTAIN-FIXTURE. CORDT WOELERS, Brownsville, Mo. Filed June 23, 1886. (No model.)



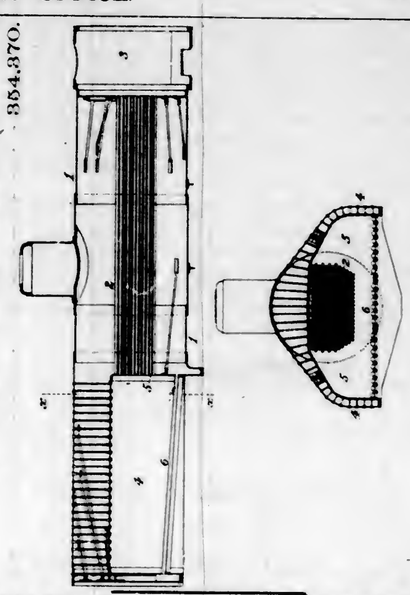
Claim.—1. In a curtain-fixture, the combination of the two guides, each provided with a vertical counter-recessed groove and secured one on each side of the window, the two slides corresponding in cross-section with the said counter-recessed grooves for carrying the curtain-roller, a cord secured to the said slides and passing over sheaves at the top of the window, and the thumb-screws engaging with the slides and bearing upon the guides for securing the said slides to the guides.

2. In a curtain-fixture, the combination of the two guides secured one on each side of the window, each guide consisting of a back-piece and two front pieces grooved upon one side and edge and secured to the said back piece, forming therewith a long vertical counter-recessed groove, the two slides corresponding in cross-section with the said counter-recessed groove for carrying the curtain-roller, the thumb-screws for securing the said slides within the guides, the sheaves journaled on pins at the top of the window, and the regulating-cord passing over the said sheaves and having each end of it secured to one of the said slides.

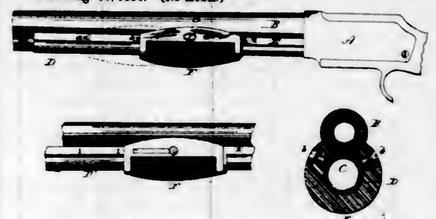
354,370. LOCOMOTIVE-BOILER. JOHN E. WOOTTEN, Philadelphia, Pa., assignor to the Wharton Railroad Switch Company, same place. Filed Oct. 21, 1886. (No model.)

Claim.—The combination, in a locomotive-boiler, of a waist or shell, a fire-box extended laterally beyond the waist and located in such horizontal relation thereto as to admit of driving-wheels being placed beneath it, and a series of fire-tubes leading from the flue-sheet through the waist, the lowermost row of said tubes being located at such distance above the ordinary grate-level of the fire-box as to provide a blank or unperforated area at the lower portion of the flue-sheet sufficient to serve as the forward boundary of the bed of fuel on the grate, substantially as set forth.

354,370.



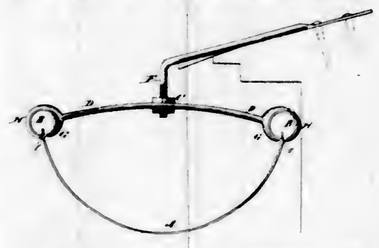
354,371. MAGAZINE FIRE-ARM. GEORGE E. ALDEN, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Aug. 16, 1886. (No model.)



Claim.—1. In a fire-arm having the operative mechanism arranged in the receiver, the combination therewith of a slide beneath the barrel, with a connection therefrom to the mechanism within the receiver, and a handle adjustable longitudinally on said slide, substantially as and for the purpose described.

2. In a magazine fire-arm having the magazine arranged beneath the barrel and the operative mechanism in the receiver in rear of the barrel, the combination therewith of a tubular slide arranged upon the magazine, and so as to be moved thereon toward and from the receiver, with a connection from said slide to the mechanism within the receiver, and a handle adjustable longitudinally on said slide, substantially as described.

354,372. EAVES-TROUGH AND GIRDER THEREFOR. BARNEY S BAKER, Springfield, Ohio. Filed Feb. 27, 1886. (No model.)



Claim.—1. In an eaves-trough, the combination, with the body thereof, having beads which stand both upon the inside and outside, of a girder having claws formed at its ends, which embrace and clamp said beads upon the inside and outside.

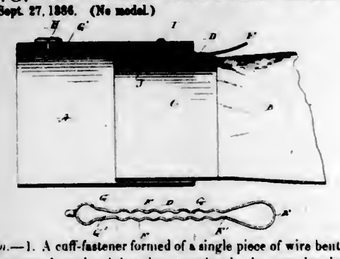
2. In an eaves-trough, the combination, with the body thereof, having its edges turned into beads which stand both upon the inside and outside, of a girder having a plurality of claws at its ends, which embrace and clamp said beads upon the inside and outside.

3. In an eaves-trough, the combination, with the body thereof, having its edges turned into beads which stand both upon the inside and outside of the body, and whose edges fit against the body of the trough, of the girder consisting of a plurality of diverging bars, each having a set of claws which embrace and clamp the beads, and which terminate with the body of the trough between their ends.

4. In an eaves-trough, the girder consisting of bars having ends which terminate in claws constructed to embrace and clamp a trough-bead which stands both inside and outside the body of the trough.

5. In an eaves-trough, the malleable-iron girder consisting of a plurality of bars extending in pairs in opposite directions, and terminating each in two claws constructed to embrace and clamp a trough-bead.

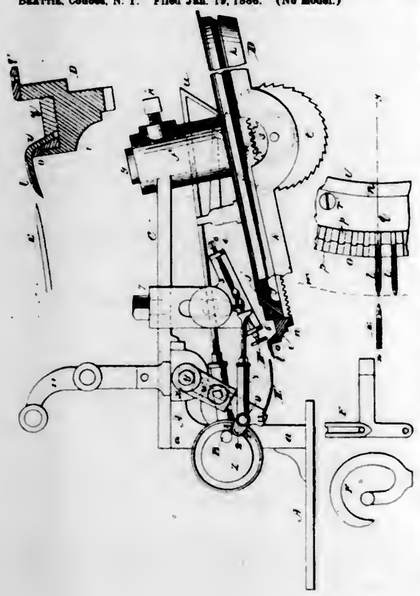
354,373. CUFF-FASTENER. THOMAS E. BARROW, Mansfield, Ohio. Filed Sept. 27, 1886. (No model.)



Claim.—1. A cuff-fastener formed of a single piece of wire bent upon itself to form two branches lying close together in the same longitudinal plane, said branches being bent in semicircular curves so as to form a longitudinal series of communicating openings; the outer ends of said branches being united and formed into a loop larger than the openings in said branches, the end of the fastener opposite the united branch ends being provided with a loop larger than the body-openings, substantially as described.

2. A cuff-fastener formed of a single piece of resilient wire bent upon itself so as to form two branches, the outer ends of said branches being united and formed into a loop, the bodies of said branches lying close together in the same longitudinal plane, said branches being bent in semicircular curves so as to form a longitudinal series of communicating openings from one end thereof to the other, each end of the fastener being provided with a loop larger than the body-openings and bent upwardly, substantially as specified.

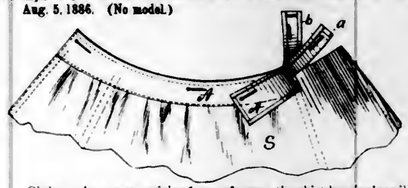
354,374. MACHINE FOR UNITING KNIT FABRICS. WILLIAM BEATTIE, Cohoes, N. Y. Filed Jan. 19, 1886. (No model.)



Claim.—1. A machine for uniting knit fabrics, consisting of a suitable supporting frame or stand, A, carrying the driving-axle B, and having a projecting arm, C, supporting a ring, D, and its attachments, and means for revolving the ring D and for adjusting and retaining it in position, in combination with a curved needle, E, attached to a vibrating needle-arm, *w*, receiving motion from a cam, *z*, on axle B, a circular needle, F, spindle 3, and adjustable hanger 7, and the adjustable slotted rod 8, deriving motion from the needle-arm and actuating the spindle 3 and circular needle, substantially as herein described.

2. A machine for uniting knit fabrics, consisting of a suitable supporting frame or stand, A, carrying the driving-axle B, and having a projecting arm, C, supporting a ring, D, and its attachments, a ratchet-wheel supported in the ring and engaged by a pawl driven from the axle, and a gear-wheel, supported also in the ring and actuated by the ratchet-wheel, said wheel engaging a toothed member of the ring, in combination with the vibrating arm *w*, carrying curved needle E and rod 8, the hanger 7, and the threaded spindle 3 on said hanger, carrying the circular needle F, substantially as set forth.

354,375. SHIRT. FREDERIK BERKHEISER, Jr., Troy, N. Y. Filed Aug. 5, 1886. (No model.)



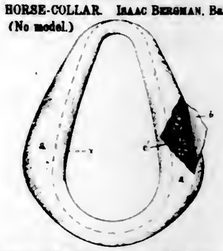
Claim.—As a new article of manufacture, the shirt herein described, the same comprising a neckband secured to the neck-opening of the body and having a re-enforcing strip secured upon the inside of the said band at the upper margin thereof and to the body of the garment upon a line below the lower edge of the neckband, whereby the seam made in attaching the neckband to the shirt-body is covered from contact with the neck of the wearer, as set forth.

354,376. PROJECTILE. THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Mar. 23, 1885. (No model.)



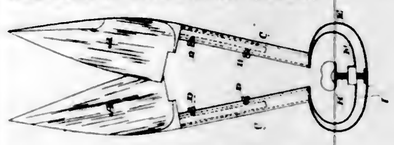
Claim.—A bullet consisting of a lead body, a hard-metal casing extending over the surface of the bullet, the said casing and body reduced to form the shoulder *b*, and also constructed with annular grooves around the body between said shoulder and its rear end, substantially as described.

354,377. HORSE-COLLAR. ISAAC BERGMAN, Baltimore, Md. Filed Oct. 8, 1886. (No model.)



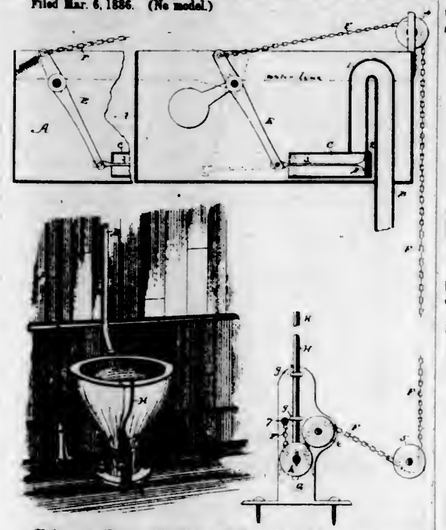
Claim.—A horse-collar having a two-ply inner pad facing, with a space between the said plies, and one of said plies consisting of a skin having wool adhering naturally to it, the adhering wool occupying the said space between the two plies, as and for the purpose set forth.

354,378. SHEEP-SHEARS. ROBERT McC. BELLS and ALBERT S. HAMILTON, Oroville, Cal. Filed Feb. 27, 1886. (No model.)



Claim.—In sheep-shears, the blades, having the extensions or shanks fitting in similarly-shaped hollow handles, in combination with adjusting-screws adapted to press upon opposite edges of the flat sides of the shank, whereby the shanks and blades may be turned so as to present the edges of the blades to each other at any desired angle, substantially as herein described.

354,379. WATER-CLOSET. AUGUST F. BLERCH, Columbus, Ohio. Filed Mar. 6, 1886. (No model.)



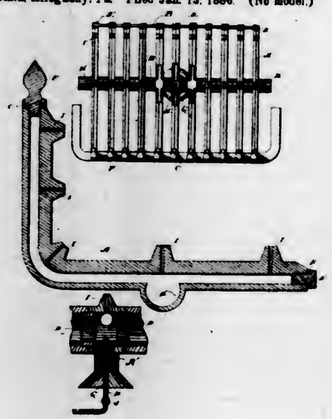
Claim.—1. The combination, with the tank and the siphon extended thereinto, of a plunger-case connected with said siphon and extended in approximately a horizontal plane, and the plunger operating in said case, whereby its movement will be directed in a horizontal line, substantially as set forth.

2. The combination of the tank, the siphon, the plunger-case connected with said siphon and having an extension beyond the same, and a plunger operating in said case and movable past the juncture of the siphon and into the extension of the case, substantially as set forth.

3. The combination, with the tank and the flushing-pipe and devices, of the chain connected at one end therewith and disposed thence over guide-pulleys, and secured at its other end to a suitable support, and a movable bar having a pulley-bearing on the chain between the fixed end thereof and an adjacent guide-pulley, substantially as set forth.

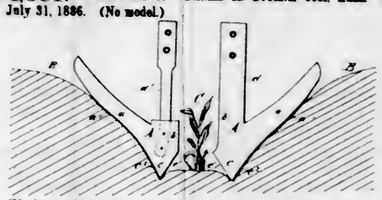
4. The improvement in closets, substantially as described, consisting of the tank, the flushing-pipe having a siphon leading into the tank, a plunger-case connected with said siphon, a plunger operating in said case, a lever having a counter balancing-weight and connected at one end with the plunger, the chain connected to the opposite end of the lever, disposed thence around guide-pulleys, and secured at its other end to a support, and a movable bar having a pulley bearing on the chain between its fixed end and an adjacent pulley, substantially as set forth.

354,380. GRATE FOR BURNING NATURAL GAS. EDWARD BOURNE, Allegheny, Pa. Filed Jan. 13, 1886. (No model.)



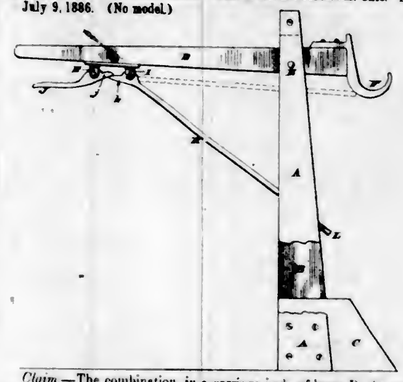
Claim.—A fire-place grate consisting of a series of hollow bars forming a series of gas-chambers communicating with each other and having gas-distributing openings and projections, said bars held in position at each end by means of a bar and screw-bolts, and at a point between said end bars coupled together by means of hollow couplings, substantially as described.

354,381. CULTIVATOR. DANIEL M. BOURNE, Cool, Kans. Filed July 31, 1886. (No model.)



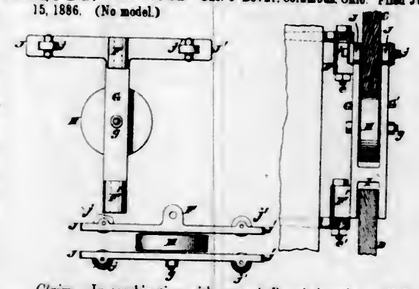
Claim.—As an improved article of manufacture, the cultivator-plow point A, having the point *c*, the straight edge *b*, and the wing *a*, extending obliquely upward from the point, as set forth.

354,382. CARRIAGE-JACK. GEO. C. BOVEY, Columbus, Ohio. Filed July 9, 1886. (No model.)



Claim.—The combination, in a carriage-jack, of lever D, the standards A and B, having smooth edges, the rod K, having a dog, L, at one end, the other end of said rod being provided with a heel, *k*, and trigger J, having a heel, *j*, said rod and trigger being pivoted to the under side of said lever at 1 and H, respectively, as herein shown and described.

354,383. GATE-HINGE. GEO. C. BOVEY, Columbus, Ohio. Filed July 15, 1886. (No model.)

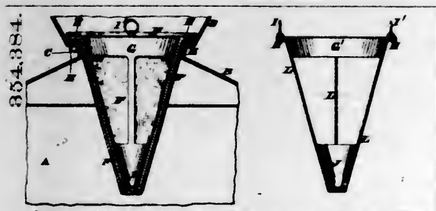


Claim.—In combination with posts A B and slatted gate C D, the within-described hinge, consisting of the cheek-plates G G', having a fork, I, at bottom, a wheel, H, journaled between them and terminating at top with horizontal arms J J', carrying rollers *j j'*, that bear against the opposite sides of slat C, the inner cheek-plate, G, being provided with perforated ears F F', to admit pivots *e e'*, wherewith said hinge is hung upon eyebolts E E', projecting from the post B, as set forth.

354,384. MILK-BUCKET. GEO. C. BOVEY, Columbus, Ohio. Filed July 15, 1886. (No model.)

Claim.—1. A milk-bucket having a top, B, neck C, funnel D, and annular ledge E, in combination with the strainer-bag F and the detachable conical frame G, the latter being open at top and having an annular flange, H, that confines the margin of said bag against said ledge E of the bucket, for the purpose described.

354,384.



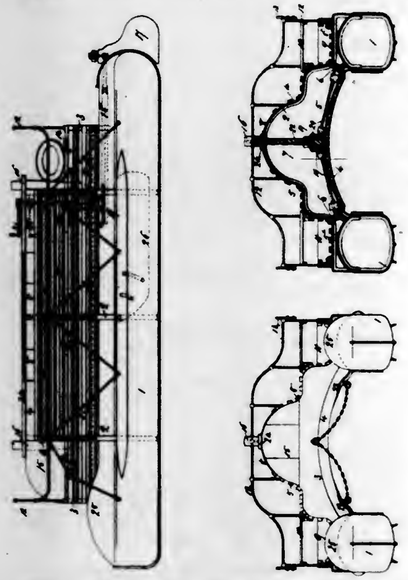
2. In combination with the milk-bucket A, having funnel D and annular ledge E, the conical frame G, provided with an annular flange, H, at top and a cap, J, at bottom, and the bag F, surrounding said frame, substantially as described.

354,385. CARRIAGE AND WAGON JACK. CHARLES C. BOWER, Bristol, Ind., and A. BRADFORD EVANS, Thompsontown, Pa. Filed June 24, 1886. (No model.)



Claim.—The movable frame A A, resting in the stationary frame B B, with the lever-shafts D D, acted on by the pitmen E E, attached to the foot-lever F, and legs, all combined, as herein fully described and set forth.

354,386. LIFE-RAFT. FRANCIS W. BREWSTER, Kensington, County of Middlesex, England. Filed July 8, 1886. (No model.) Patented in England Dec. 31, 1883, No. 5,993, and in France July 31, 1884, No. 163,571.

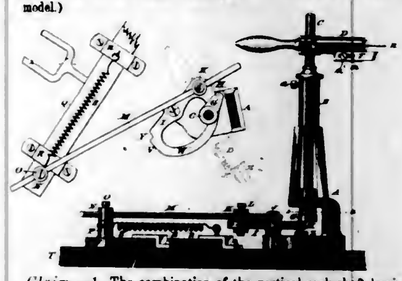


Claim.—1. The combination, with outlying pontons 1, of a raised superstructure rigidly connecting such pontons, and adapted for supporting rescued persons and others within it in a sheltered position and on its outer sides, and of a construction comprising as essential parts arched or saddle-shaped transverse girder-stays 2 3, connecting the pontons and dividing the superstructure into compartments, longitudinal battens 5 5× connecting the stays 2 3 and affording inner and outer sitting accommodations, sheet metal 4, partly or wholly inclosing the space bounded by the stays 2 and battens 5, but affording access to the inclosed compartments, and side platforms, 9, as herein set forth.

2. The arched or saddle-shaped transverse girder-stays 2, adapted for connecting the outlying pontons and for dividing the superstructure into compartments and for supporting inner and outer sitting accommodation, in combination with the inclosing sheet metal 4, flared at the fore and aft ends, longitudinal battens 5, connecting the stays and affording the said inner and outer sitting accommodations, the back-rest 7, inner foot-boards, 6, outer side platforms, 9, side rails, 12, seats 10, and foot-boards 11, as herein set forth.

3. In combination with the arched or saddle-shaped transverse girder-stays 2, adapted for connecting the outlying pontons and for dividing the superstructure into compartments and for supporting the inner and outer seating accommodations, the inclosing sheet metal 4, flared at the fore and aft ends, longitudinal battens 5, connecting the stays and affording the inner and outer seating accommodations, the back-rest 7, inner foot-boards, 6, outer side platforms, 9, side rails, 12, seats 10, and foot-boards 11, the end platform, 14, the inclosed part 15, and means, substantially such as described, for propelling and steering the craft.

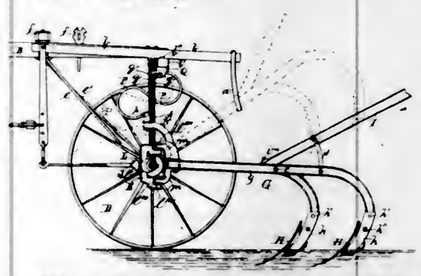
354,387. STOP-MOTION FOR KNITTING-MACHINES. EUGENE H. BROWN and FRANK LASHER, Bennington, Vt. Filed Dec. 23, 1885. (No model.)



Claim.—1. The combination of the vertical rock-shaft having an actuating-arm and a locking-arm, and provided with a spring to impel its rotation in a direction to bring the feelers against the fabric above the needles or in the path of obstructions accumulated thereon, a rotating cam having provisions for engaging with or being locked in working position by the locking-arm of the rock-shaft, a shipping bar or lever provided with a spring having its tension adjusted to actuate the shipper to stop the machine, and an adjustable rod connecting the cam with the shipping-bar or lever, substantially in the manner described, and for the purposes set forth.

2. The combination, with a supporting-standard, of a vertical rock-shaft having an arm, D, at its upper end and a locking-arm at its lower end, the locking-pin H, the cam I, connecting-rod M, shipping-bar Q, and spring S, substantially as set forth.

354,388. CULTIVATOR. GEORGE W. BROWN, Galesburg, Ill. Filed Nov. 13, 1885. (No model.)



Claim.—1. In a cultivator-coupling, the combination, with the plate L, fitted to the axle-arm C and provided with arms *l''*, and the forked beam-plate M, journaled to the arms *l''*, of the eyebolt J, having a slot, *j'*, and groove *k'*, and arm C, provided with stud or pins *c*, substantially as and for the purpose specified.

2. In a cultivator, in combination with an axle and a plow-gang hinged or coupled thereto, having an arm, N, connected to said plow-gang in rear of the coupling and extending forward of the axis on which the plow-gang swings vertically, an S-shaped spring connected at one end to the forward end of the arm N and at its other end to a plate secured to the upper part of the axle or coltivator-truck, substantially as and for the purpose specified.

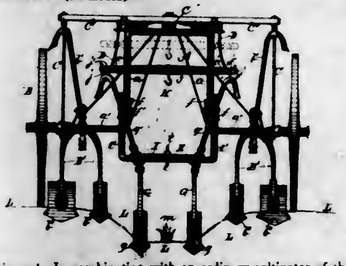
3. In a cultivator, in combination with an axle and a plow-gang coupled or hinged thereto, having an arm, N, connected to said plow-gang in rear of the coupling and extending forward of the axis on which the plow-gang swings vertically, an S-shaped spring connected at one end to the forward end of the arm N, and its other end adjustably secured to a plate, Q, which is fixed to the upper part of the axle or truck frame, substantially as and for the purpose specified.

4. In a cultivator, in combination with an axle and a plow-gang coupled or hinged thereto, having an arm, N, connected to said plow-gang in rear of the coupling and extending forward of the axis on which the plow-gang swings vertically, an S-shaped spring connected at one end by a pivotal bolt, *p*, to the forward end of the arm N, and its other end adjustably secured to a plate, Q, which is fixed to the upper part of the axle or truck frame, substantially as and for the purpose specified.

5. In a cultivator, in combination with the plow-gang formed of two plow-beams, as described, brace-bar *i*, having holes *i''*, and handles I, adjustable laterally thereon, the brace *a*, fixed at one end to a plow-beam and its other end provided with holes *i''*, by means of which and a bolt, *s'*, the handle can be adjusted vertically, substantially as and for the purpose specified.

6. The combination, with a cultivator plow-beam constructed of steel bars with double flanges, and a shovel connected to a swinging plate hinged to the plow-beam, and a wooden break-pin, of bosses secured to the web of the plow-beam, surrounding the break-pin, and extending to the swinging plate, substantially as and for the purpose specified.

354,389. CULTIVATOR. GEORGE W. BROWN, Galesburg, Ill. Filed Mar. 8, 1886. (No model.)



Claim.—1. In combination with an ordinary cultivator of the general class hereinbefore described, supplemental gang or gangs of plows located between said ordinary gangs and a device adapted for attachment to said ordinary cultivator, and to which said supplemental gangs may be secured in a lower plane than the ordinary gangs, substantially as and for the purpose specified.

2. In combination with an ordinary cultivator of the general class hereinbefore described, supplemental plow-gangs located between the ordinary gangs, and a bar or bars connected with the ordinary cultivator axle or frame and extended downward for connection thereto of the supplemental gangs in a plane below the ordinary gangs, substantially as and for the purpose specified.

3. In combination with an ordinary cultivator of the general class hereinbefore described, supplemental plow-gangs located between the ordinary gangs, and a bar or bars adjustably connected with the ordinary cultivator axle or frame, whereby it may be adjusted in higher or lower planes with reference thereto, and to which the supplemental gangs are connected, substantially as and for the purpose specified.

4. In combination with an ordinary cultivator of the general class hereinbefore described, supplemental plow-gangs located between the ordinary gangs, and a bar or bars adjustably connected with the ordinary cultivator axle or frame, whereby it may be adjusted laterally with reference thereto, and to which the supplemental gangs are connected, substantially as and for the purpose specified.

5. In combination with an ordinary cultivator of the general class hereinbefore described, supplemental plow-gangs located between the ordinary gangs, and a bar or bars adjustably connected with the ordinary cultivator axle or frame, whereby it may be adjusted in higher or lower planes, and also laterally with reference thereto, and to which the supplemental gangs are connected, substantially as and for the purpose specified.

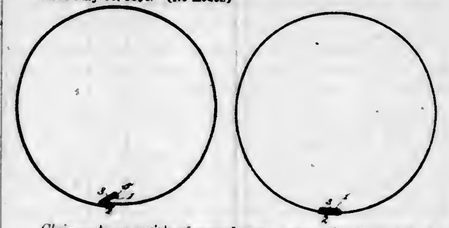
6. In a cultivator, in combination with the axle A, having approximately vertical parts *a*, the bar E, having horizontal part *e* and arms *e'*, and the clamp-plates *f*, by means of which the bar E is adjustably secured to the axle, substantially as and for the purpose described.

7. In combination with an ordinary cultivator of the type herein described, the vertically-adjustable bar E, the supplemental plow-gangs, and the vertically-adjustable hang-up device, substantially as and for the purpose specified.

8. In combination with an ordinary cultivator of the general class hereinbefore described, supplemental plow-gangs located between the ordinary plow-gangs, a bar or bars adjustably connected with the ordinary cultivator axle or frame, whereby it and the supplemental gangs may be adjusted in lower or higher planes, and a hang-up device, also adjustable in higher or lower planes, substantially as and for the purpose specified.

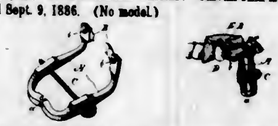
9. In a cultivator, in combination with the plow gang or beam and the horizontal arm *a'*, a coupling formed of plates H H', having ends A, holes *h'*, grooves *h''' h''''*, hole *h''*, and its bolt, substantially as and for the purpose described.

354,390. STOVE-PIPE. BENJAMIN F. CALDWELL, Wheeling, W. Va. Filed July 10, 1886. (No model.)



Claim.—As an article of manufacture, a stove-pipe having the interlocking joint or seam herein described, the same consisting in having a fold, 1, at one edge resting upon a fold, 2, at the other edge and between such fold, and a strip or bend, 3, having a flange, 5, extending around and under the fold 1, substantially as described.

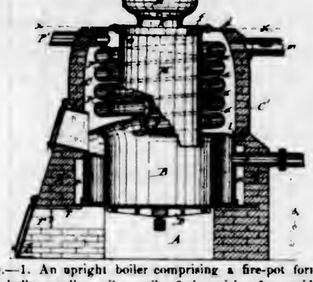
354,391. RUBBER-DAM CLAMP. OLIVER CARPENTER, Oakland, Cal. Filed Sept. 9, 1886. (No model.)



Claim.—1. A rubber-dam clamp comprising the curved hinged frame A, the jaws B in the slotted ends of said frame, and the set-screw C, by which said frame is expanded and contracted, substantially as herein described.

2. A rubber-dam clamp comprising the hinged frame A, having slits in its ends, the jaws B, inserted in said slits and secured by the screws *b*, said jaws having their free ends fashioned to the surface of the tooth to which they are fitted, and the screw C, by which the frame is expanded and contracted, substantially as herein described.

354,392. STEAM-BOILER. ALFRED CATCHPOLE, Geneva, N. Y. Filed Sept. 15, 1886. (No model.)



Claim.—1. An upright boiler comprising a fire-pot formed of a water-tight hollow wall, a coil or coils of pipes rising from said wall and communicating with the interior thereof, and a combustion-chamber inclosing said coils, substantially as set forth.

2. An upright boiler comprising a fire-pot formed of a water-tight hollow wall, a coil or coils of pipes rising from said wall and communicating with the interior thereof, a combustion-chamber inclosing the coils, a water-inlet to the hollow wall, and a water or steam pipe extended from the coils, substantially as set forth and shown.

3. In a water-heater, the combination of a water-tight hollow wall encompassing the fire-grate and rising above the same, a coil of pipe rising from said wall and communicating with the interior thereof, said coil being of a smaller diameter than the aforesaid wall, to project over the inner side of the same, a combustion-chamber inclosing said coil, a water-inlet to the aforesaid hollow wall, and a water or steam pipe extended from the coil, substantially as set forth.

4. The fire-pot B, consisting of a water-tight hollow wall provided with the branch pipes *i i*, all cast in a single piece, as set forth.

5. The combination of the fire-pot consisting of a water-tight hollow wall provided with a water-inlet, a coil or coils of pipes rising from said wall and communicating with the interior thereof, a combustion-chamber inclosing said coils, and a fuel-magazine in the center of the coils, substantially as described and shown.

6. In combination with the fire-pot and combustion-chamber, the top plate, *d*, provided with a central opening, the plate *f*, secured to the plate *d* and formed with the hopper H, the cover *h* in said hopper, and the magazine M, suspended from the plate *f*, substantially as described and shown.

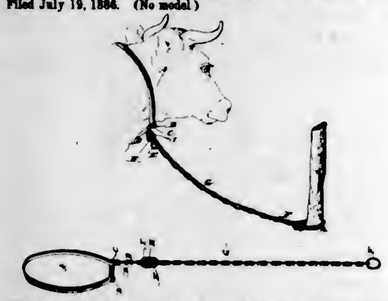
7. In combination with the ash-pit and fire-grate, an ash-pit-door frame formed with lateral extensions of its opening to allow the grate to be inserted under the fire-pot and removed therefrom through the aforesaid door, substantially as set forth.

8. The combination, with the fire-pot B, of the lugs *l*, projecting from the exterior thereof, and the casing C, secured to said lugs and rising above the fire-pot, as shown and set forth.

354,393. PROCESS OF OBTAINING SULPHUR FROM SULPHURETED HYDROGEN. CARL F. CLAUS, London, England. Filed Nov. 19, 1883. (No specimens.)

Claim.—The herein-described process of obtaining sulphur or sulphurous acid, consisting in passing a mixture of sulphide of hydrogen and atmospheric air through a chamber or kiln containing oxide of iron admixed with lime, magnesia, alumina, or other like substances, as and for the purpose set forth.

354,394. CHAIN HALTER. JOHN W. COLLIE, Wild Cherry, Ark. Filed July 19, 1886. (No model.)



Claim.—1. In a chain halter, the combination of a yoke having an eye at each end, a long narrow link in one eye, and a short chain having a ring at its end secured in the other eye, and a chain having a ring at each end, one of said rings being passed over said yoke and short chain.

2. In a chain halter, the combination of a yoke having an eye at each end, a long narrow link secured in one of said eyes, and a chain in the other, said chain having a ring at its end, a chain having a ring at each end, one of said rings being passed over said yoke and short chain, and an extra ring upon said second chain between the said rings at its ends.

354,395. WHIP-SNAP. CHAS. M. COMSTOCK, Windsor, N. Y. Filed Sept. 11, 1886. (No model.)



Claim.—1. As a new article of manufacture, a whip-snap having an enlarged end and provided with a flexible spring-coil socket adapted to assume the shape of the whip and sink a thread in the covering of the same, said socket provided with a conical end adapted to hold the enlarged end of the said snap, substantially as set forth.

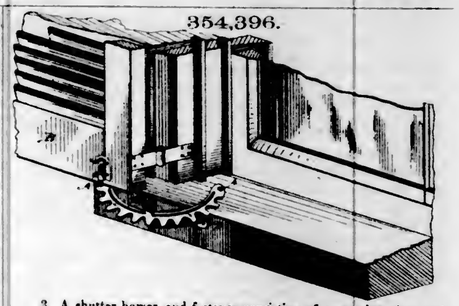
2. As a new article of manufacture, a whip-snap having an enlarged end and provided with a flexible spring-coil socket adapted to assume the shape of the whip and sink a thread into the covering of the same, said socket being provided with a conical end adapted to hold said enlarged end of said snap and a non-elastic flexible connection between the convolutions of the said conical end and the convolutions of the body of the said socket, substantially as set forth.

354,396. COMBINED SHUTTER BOWER AND FASTENER. DAVID COMMER, Groton, Conn., and FREDERICK A. S. PERRY, New York, N. Y. Filed Jan. 15, 1886. Renewed Nov. 17, 1886. (No model.)

Claim.—1. A securing-plate for shutter bowers and fasteners, having a series of notches or openings curved in the arc of a circle, combined with a connection-bracket connected with said securing-plate and pivoted, whereby it may be adjusted, substantially as set forth.

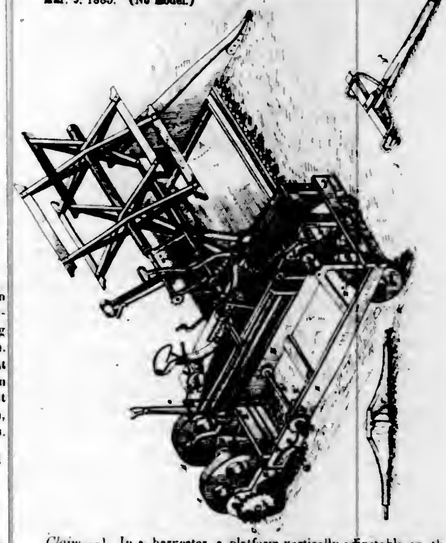
2. In a shutter bower and fastener, the combination, with a securing-plate, of a connection-bracket secured to said plate and adjustable therealong in a longitudinal direction, substantially as and for the purposes specified.

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3. A shutter bower and fastener consisting of a securing-plate and a connection-bracket formed in two sections, one being connected with and movable on the securing-plate, and the other being pivotally connected with the movable section, substantially as set forth.

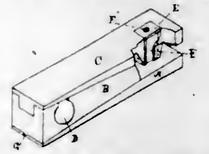
354,397. HARVESTER. FREDERICK COOK, Taylorville, Ill. Filed Mar. 9, 1885. (No model.)



Claim.—1. In a harvester, a platform vertically adjustable on the drive wheel or wheels and on the grain-wheel simultaneously and on a front supporting-wheel independently, combined with means, substantially as specified, whereby the several adjustments are effected, substantially as described.

2. In a harvester, a supporting-wheel, in combination with a sector-lever provided on its periphery with cog-teeth and having the bearings for said wheel, a swivel-post to which said lever is pivoted and provided with a longitudinal slot, a pinion and sheave journaled in said post, said pinion engaging the sector-teeth, a sheave and worm-gear journaled on the frame of the machine, a chain or cord connecting the said sheaves, and means for operating the said worm-gear, substantially as specified.

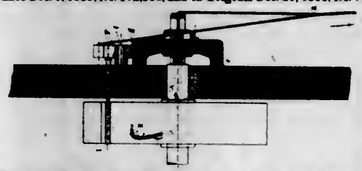
354,398. PRINTER'S QUOIN. ALBERT L. DAVIS, Grand Rapids, Mich. Filed Dec. 28, 1885. (No model.)



Claim.—In a printer's quoin, the combination of the outer section, A, provided with the standard F, made integral with or rigidly affixed to said section, the center wedge-shaped section, B, slotted and provided with the opening D, and without notches or ratchet, and the outer section, C, provided with notches or ratchet, said standard F being adapted

to serve as a guide for the center piece, and also to bind the three sections together, substantially as described.

354,399. SELF-ACTING BRAKE. EUGÈNE VICTOR VINCENT DE PAUL DERDOUITH, Paris, France. Filed Oct. 1, 1886. (No model.) Patented in France Dec. 9, 1885, No. 172,808, and in Belgium Dec. 21, 1885, No. 71,310.



Claim.—1. The combination, with the shaft of a hoisting or other apparatus, of a screw or worm and a disk or nut mounted thereon, and having a friction-surface for bearing against a stationary part of the apparatus, substantially as and for the purposes set forth

2. In a hoisting apparatus, an automatic brake for regulating the descent of a load, said brake consisting of a disk or nut mounted on a screw carried by one of the shafts of the apparatus and having a thread of long pitch, said disk or nut having a friction-surface adjacent to a stationary part of the apparatus, substantially as described.

3. The combination of the shaft, the screw, the disk having a friction-surface and constituting a brake for said shaft, and means—such as a weight—for exerting pressure on said disk to increase its inertia, substantially as described.

4. The combination, with the shaft, the screw, and the disk constituting an automatic brake, of the lever bearing on said disk and the adjustable weight carried by said lever, substantially as described.

5. The combination of the shaft, the screw, the disk, constituting an automatic brake, the hand-brake, and its operating-lever, the disk and hand-brake being connected together, so that the former is held out of action when the latter is applied, substantially as described.

6. The combination of the shaft, the screw, the automatic brake, comprising a disk mounted on said screw, the hand-brake, its operating-lever having a projection normally bearing on said disk, an adjustable weight carried by an arm of said lever, and an operating-cord attached to said lever, so that said projection is raised from said disk when the hand-brake is applied, as set forth.

354,400. SADDLE FOR TOP ROLLS OF SPINNING-MACHINES. EZRA DIXON, Bristol, R. I. Filed July 7, 1884. (No model.)



Claim.—1. The combination, with an upper member provided at the front end with a bearing for the front roll, of a lower member connected with and sliding under said upper member and provided upon the under side with three bearings or depressions, of which the inner bearing is for the middle roll and the central and outer bearings are both for the back roll, all constructed substantially as described, whereby the members may be relatively adjusted, and the inner and outer bearings of said lower member may rest upon the middle and back rolls, respectively, or the lower member may be moved to shift the bearings for the back roll from the outer said bearing to the center bearing and the middle roll be cleared by said lower member, substantially as and for the purpose herein set forth.

2. The combination, with an upper member provided with a bearing for the front roll and having a longitudinal opening formed in the body thereof, of a lower member provided with a series of bearings for the back and middle rolls and having a projection for interlocking with and sliding in said opening in the upper member, substantially as described, whereby the upper member may rest upon the front roll, and the lower member may either rest upon both the back and middle rolls at once, or may be slid to shift its bearing for the back roll, and may then only rest on the back roll, substantially as and for the purpose herein set forth.

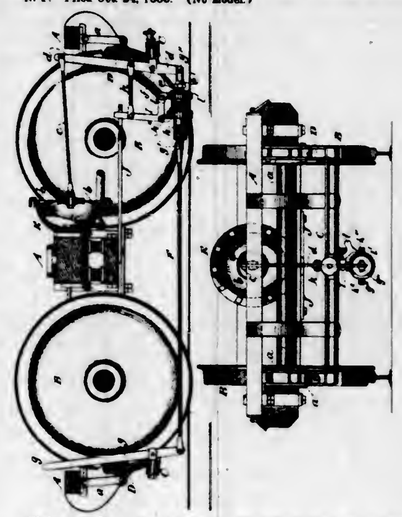
3. The combination, with the upper member provided at its front end with a bearing for the front roll and at its rear end with a convex bearing, and also provided with a central opening having a divided rail upon each of its longer sides, of a lower member provided at its front end with a T-headed projection to engage with the divided rail, and having a central depression formed with studs on its longer sides to receive the convex bearing, and with bearings for the middle and top rolls, substantially as described.

4. The combination, with the upper member, A, provided with a bearing for the front roll and formed with a longitudinal opening therein, of the lower member, B, provided with three bearings, of which the inner one is for the middle roll and the central and outer bearings are both for the back roll, said member B provided with a projection working and sliding in said opening in the member A, substantially as described, whereby the bearing of member A may always rest upon the front roll, and the bearings of member B may either rest upon the back and middle rolls, respectively, as described, or the member B may be slid to shift its bearings for the back roll and may then clear the middle roll and rest only upon the back roll, all substantially as and for the purpose herein set forth.

5. The combination, with the member A, having the enlargement *a*, with the bearing at its base, the opening, with the rails a^2, the convex portion a^4, and the spur a^5, of the member B, having the T-headed projection *b*, the depression *b'*, the studs b^2, and the bearings b^2 b^4 b^5, as specified.

6. The combination, with the member A, having the enlargement *a*, with the bearing at its base, the notch *a'*, the opening, with the rails a^2, and the body a^4, with the convex portion a^4 and spur a^5, of the member B, having the T-headed projection *b*, the depression *b'*, with the studs b^2, and the bearings b^2 b^4 b^5, substantially as specified.

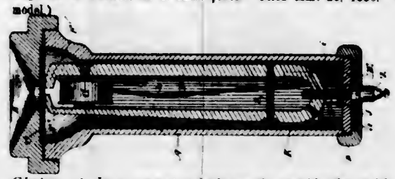
354,401. BRAKE FOR RAILWAYS. ELISHA D. EAMES, Watertown, N. Y. Filed Oct. 24, 1885. (No model.)



Claim.—1. In a railroad-brake, the brake-levers, the threaded brake-rod F, nut *h*, ratchet *l*, and strap *g'''*, combined with a swivel-bolt, a pawl carried by the strap, and means for connecting said pawl with a brake-lever, substantially as set forth.

2. In a railroad-brake, a brake-rod having two threaded sections, one end forming a swivel, a nut upon said threaded sections of the rod, a ratchet solid with or attached to said nut, a strap fitted loosely around said nut, a bell-crank mounted in said strap, and a pawl pivoted to the bell-crank, all combined with the brake-levers, beams, and power-applying devices, substantially as set forth.

354,402. TELEPHONE-RECEIVER. JOSEPH C. EICHMEYER, Utica, N. Y., assignor of nine-tenths to Frank J. Callanen, Joseph R. Swan, and Augustus H. Palmer, all of same place. Filed Mar. 26, 1886. (No model.)



Claim.—1. In a magneto-telephone, the combination, with the diaphragm, of the loop-magnet having both poles in proximity thereto and an electro-magnet for moving the legs of the magnet toward each other, substantially as described.

2. In a magneto-telephone, the combination, with the diaphragm, of the loop-magnet having both poles in proximity thereto and an electro-magnet mounted between the legs of the magnet for drawing them toward each other, substantially as described.

3. In a magneto-telephone, the combination, with the diaphragm, of the loop-magnet having both poles in proximity thereto, the legs of

the magnet being separated by spring-pressure, and an electro-magnet mounted between said leg for drawing them toward each other, substantially as described.

4. In a magneto-telephone, the combination, with the diaphragm, of the loop-magnet having both poles in proximity thereto, an electro-magnet between the legs of the magnet, and means for adjusting said legs toward and from each other, substantially as described.

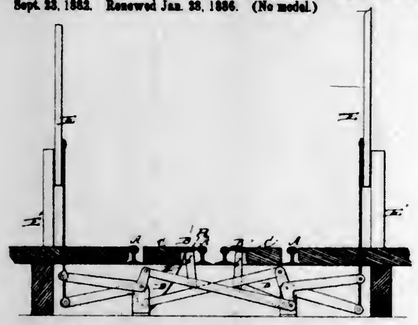
5. In a magneto-telephone, the combination, with the diaphragm, of the loop-magnet having both poles in proximity thereto and an electro-magnet mounted upon one leg of the magnet and arranged to draw the legs of the magnet into contact, substantially as described.

6. In a magneto-telephone, the combination, with the diaphragm, of the loop-magnet having both poles in proximity thereto, one leg being slightly heavier than the other, an electro-magnet mounted upon the heavier leg and arranged to draw the lighter toward the heavier leg, substantially as described.

7. The combination, with the magnet, of the plate E, the screw for securing the magnet to the plate and adjusting it relative thereto, and the pins i i, for steadying the magnet, substantially as described.

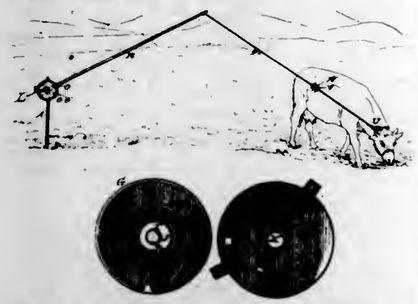
8. In a magneto-telephone, the combination, with the tubular casing, of the plate to which the magnet and coil are secured, the spring secured to the magnet for steadying it within the casing, and means for securing said plate removably to the casing, substantially as described.

354,403. RAILROAD-GATE. Andrew Erikson, Chicago, Ill. Filed Sept. 23, 1882. Renewed Jan. 28, 1886. (No model.)



Claim.—The combination of the planks C C, located between the rails of the track, the plates B B, hinged to the planks C C, and each provided with a downwardly-projecting arm, *b*, a system of levers, D, connected with the arms *b*, and a gate operated by said levers, all constructed and arranged to operate substantially as and for the purpose set forth.

354,404. TETHER. William B. Farrar, Greensborough, N. C., assignor of one-half to Charles D. Benbow, same place. Filed Aug. 30, 1886. (No model.)



Claim.—1. A tether comprising a stake or support, a case having a section journaled to said stake, and a second section pivoted to said first section, the tether-pole, and a spring coiled between said sections and engaging the same, substantially as set forth.

2. In a tether, the combination, with section G, having a bearing for engagement by the spring, of the section G', having a plurality of openings, N, the spring engaged at one end with section G and having its other end held in one of the openings N, and the tether-pole, substantially as set forth.

3. The combination of the stake having lugs B, the lower washer having its end notched and provided with a slot or groove extended from its bore, the case, the upper washer having its bore also provided with a slot or groove, the spring, and the tether-pole, substantially as set forth.

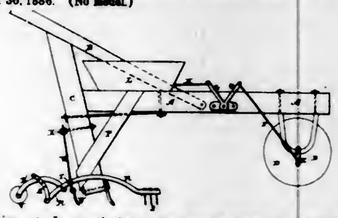
4. The combination of the stake having the side lugs, the washers, one of which has a notched end, the spring-casing composed of the flanged part having the loops, the central pin, and the raised notched portion, and the part having the central aperture, the adjusting-holes, and the bearings, the coiled spring, the tether-pole, and the tethering-rope having the snap-hook at its free end, substantially as and for the purpose herein set forth.

5. The combination of the stake having the side lugs, the washers, the spring-casing composed of the flanged part having the loops, the central pin, and the raised notched portion, and the part having the central aperture, the adjusting-holes, and the bearings, the coiled spring, the tether-pole, and the tethering-rope at its free end, substantially as and for the purpose herein set forth.

6. The combination of the stake having the side lugs, the washers, the spring-casing composed of the flanged half having the loops, the central pin, and the raised notched portion, and the half having the central aperture, the adjusting-holes, and the bearings, the coiled spring, the tether-pole, the tethering-rope having the snap-hook at its free end, and the spur-ball fitting adjustably on the said rope, all constructed and arranged to operate substantially in the manner and for the purpose herein set forth.

7. A tether comprising a stake, a case-section, G, journaled to said stake, a section, G', connected with section G and movable rotarily, a tether-pole connected with section G', and a spring coiled between and connecting said sections G G', substantially as set forth.

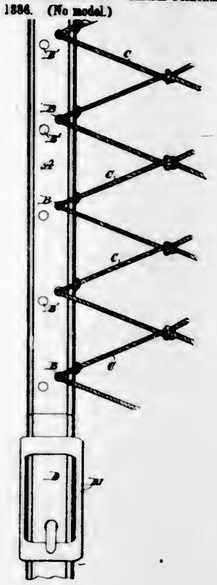
354,405. PLANTER. Charles B. Ferrell, Linden, W. Va. Filed Sept. 30, 1886. (No model.)



Claim.—1. In a seed-planter, the combination of a dropping mechanism, the spout P, the standard C, provided with a furrow-opener, with a pivoted rod, R, provided with rake-teeth S at its front end, the covering devices U, connected thereto in the rear of the furrow-opener, the rods W Z, and adjustable nuts, substantially as specified.

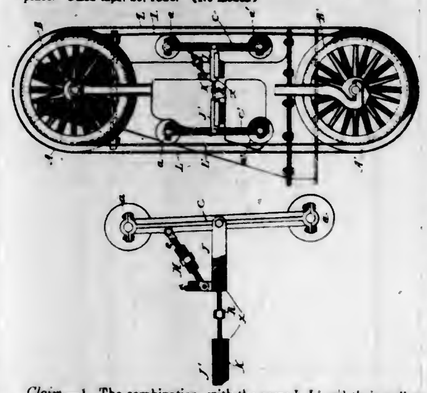
2. The combination of the standard, the pivoted rod R, having the bearings A' formed upon its rear end, and the roller which is vertically adjustable in the bearings, substantially as set forth.

354,406. NET FOR HORSES. Gerald Fentner, Milwaukee, Wis. Filed July 17, 1886. (No model.)



Claim.—In a mesh-net for horses, a leather back-strap, A, and two series of apertures, B and B', therein, in combination with the strands of a mesh-net attached thereto, which strands are of cotton, wool, or some similar material, a loop in each strand passing through an aperture in the back-strap, and one end of the strand passing through the loop, all substantially as described.

354,407. SAND-SAW MILL. James L. Gage, Chicago, Ill., assignor of one-half to Charles Edward Woolley and Edwin L. Gage, both of same place. Filed Apr. 29, 1886. (No model.)



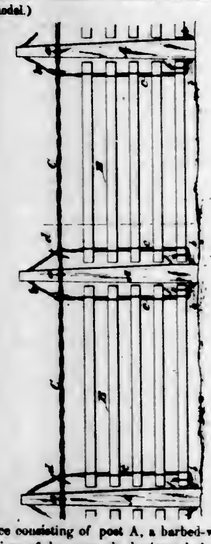
Claim.—1. The combination, with the saws L L' and their pulleys, of gage-frames having guide-pulleys arranged one above and the other below the log to move the auxiliary saw L' to and from the line of cut of the saw L, as set forth.

2. In a band-saw substantially as described, the divided frame X, screw R, and spring K, arranged as shown, combined with the saws L L' and with pulleys *a a'*, carried on said frame and arranged to bear upon the auxiliary saw L', above and below the log, as set forth

3. The combination, with the band-saws and their pulleys, of a two-part frame, X, carrying friction-rollers, and a screw, R, which adjusts the said parts to throw the smaller band outward, as set forth.

4. The combination, with the band-saws L L' and their pulleys, of the two-part frame X, arranged within the saws, the screw R, for adjusting the parts J J' of said frame, the arm C, having the guide-pulleys *a a'* pivoted in the part J, and the nut H, for adjusting the angle of the arm C at will, as set forth.

354,408. FENCE. Marion J. Gordon, Caldwell, Tex. Filed Sept. 7, 1886. (No model.)



Claim.—A fence consisting of post A, a barbed-wire line, C, connecting the top portions of the posts, the horizontal slats B, the vertical wires *c*, secured at their lower ends to the lower portions of the post, and looped around the slats and connected at their upper portions to the wire line, and thence extending upward and secured to the upper ends of the posts above said wire line, and wire loops *f*, passing around the ends of the lower slats and connected with the lower portions of the vertical wires, substantially as shown and described.

354,409. WIRE-STRETCHER. Andrew B. Graham, Burleson, Tex. Filed July 29, 1886. (No model.)

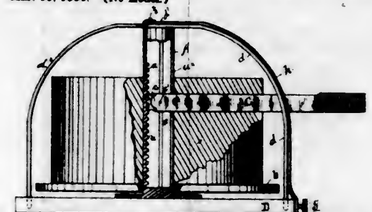


Claim.—1. In a wire-stretching machine, the combination, with a shaft carrying a movable pinion, of racks carrying clamping-jaws and pawls arranged to engage with ratchet-teeth formed in the racks, substantially as described.

2. The combination, with a block carrying bails or loops 25, and longitudinally grooved, of racks mounted within said grooves, a crank-shaft carrying a pinion, said shaft being mounted in standards secured to the block, pawls 20, arranged to engage with ratchet-teeth formed in the racks, and clamping-jaws fixed to opposite ends of the racks, substantially as shown and described.

3. In a wire-stretching machine, the combination, with a support, of sliding racks provided with inwardly-projecting stationary jaws, movable jaws pivoted on the stationary jaws and provided with upwardly-extending arms, and means for operating the said racks, substantially as herein shown and described.

354,410. CHEESE-CUTTING DEVICE. Henry M. Handsby, Columbus, Ohio, assignor of one-half to Frank J. Shedd, same place. Filed Mar. 18, 1886. (No model.)



Claim.—1. In a cheese-cutting device, the combination of the support D, a hollow stem having its base secured thereto and provided internally with a vertical rack, *a*, vertical grooves *e*, and a slot, a^2, with a knife having the segment of a cog-wheel at the end thereof, and a transverse pin, *c'*, entering the grooves *e*, substantially as and for the purpose described.

2. In a cheese-cutting device, the combination of the support D, a hollow stem having its base secured thereto and provided with a vertical rack, *a*, vertical grooves *e*, and a slot, a^2, a knife having a segment of a cog-wheel at its end, and a transverse pin passing through the knife-blade and entering the grooves *e*, with the double wire *d*, secured to the end of the hollow stem and to the support, and the slotted metallic strip *h*, substantially as and for the purpose described.

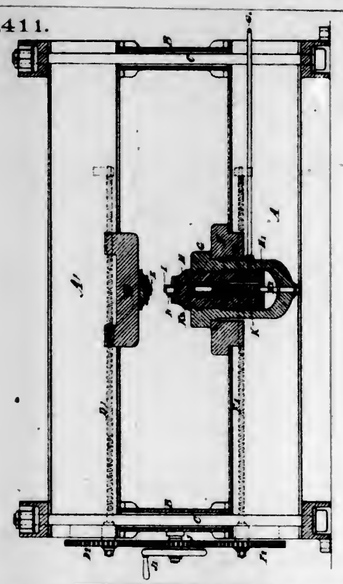
354,411. MACHINE FOR FORGING, CUTTING, OR PUNCHING METAL. Robt. A. Hardcastle, Leeds, County of York, England. Filed June 29, 1886. (No model.)

Claim.—1. A machine for punching, embossing, or shearing metallic plates, comprising in combination an upper and a lower bed or gauntry, connected together so as to form a compact frame-work, a movable saddle on each bed or gauntry, means for moving them simultaneously or separately, and on one of said movable saddles a hydraulic cylinder and a ram on which can be mounted required tools, whereby the said cylinder and ram are movable to any point within the range of the machine, substantially as described, and for the purpose specified.

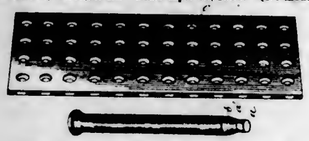
2. A machine for punching, embossing, or shearing metallic plates, comprising an upper and a lower bed or gauntry, connected together so as to form a compact frame-work, a saddle on each bed or gauntry, a hydraulic cylinder and ram, and a spiral spring within said hydraulic cylinder and ram for causing the rapid recession of said ram after a punching, embossing, or shearing has been effected, substantially as described.

3. A machine for punching, embossing, or shearing metallic plates, comprising in combination an upper and a lower bed or gauntry, connected together so as to form a compact frame-work, a sliding saddle on each bed or gauntry, the screws and gears for moving said saddles along said beds or gauntries, and a hydraulic cylinder and ram carried by one of said saddles, whereby the line of action of the tool or tools is always on the center of said cylinder, substantially as described.

354,411.

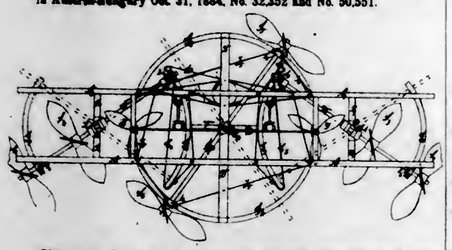


354,412. MAKING PERFORATED SCREENING-PLATES. STEPHEN H. HARRINGTON, Chicago, Ill. Filed Apr. 13, 1886. (No model.)



Claim.—The within-described method of producing in a sheet by a punching operation a smooth hole having a regular taper by spreading or crowding the metal out laterally from the punch to the necessary taper by a continuation of the stroke of the punch which has effected the perforation of the sheet, substantially as set forth.

354,418. BALLOON. OTTO U. HARTUNG, Leipsic, Saxony, Germany. Filed Sept. 10, 1884. Renewed Nov. 6, 1886. (No model.) Patented in Germany Sept. 6, 1883, No. 26,330, and Feb. 14, 1884, No. 28,934; in England Jan. 21, 1884, No. 2,469; in France Feb. 9, 1884, No. 160,212, and in Austria-Hungary Oct. 31, 1884, No. 32,352 and No. 50,551.



Claim.—1. In aerial vehicles or vessels, the combination of horizontal screw-shafts W and W', adapted to turn on vertical pivots, with means for producing a simultaneous and symmetrical pivotal motion of the two shafts, substantially as described, and for the purpose specified.

2. The combination of the concentrically-curved tracks G^3 G^4, mounted on beams A, A', and D, with screw-shaft W^3, pivoted in the center of the track and provided near its extremities with bearings adapted to slide on the said curved tracks for the purpose of setting the screw-shaft at any desired angle, substantially as described.

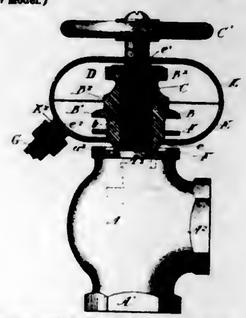
3. The combination of screw-shafts W W' with pivotal bearings L L' for the centers of the said shafts, and circularly-curved tracks or slides adapted to support the extremities of the shafts, substantially as described.

4. The mechanism for setting in motion the screw-shaft W or W', comprising the shaft *g* and *h*, bevel-wheels *e f*, bevel-wheels *i k*, coupling *o*, double bearings *r*, movable bearing *l*, and curved guide *p*, substantially as described.

5. The appliance for simultaneously controlling the angle of the screw-shafts W, W', and W^3, consisting of ropes C' C^4 and ropes J^3 J^4, connected with the end bearings of the screw-shafts, and rope-drums T and U, mounted on the same shaft, substantially as described.

6. The combination of vanes *a b c* with wires or ties *s'* and s^4, substantially as described.

354,414. VALVE. PATRICK HARVEY, Chicago, Ill. Filed Feb. 24, 1886. (No model.)

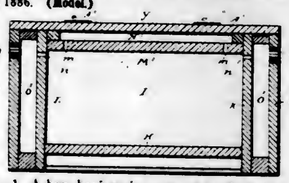


Claim.—1. In combination with the valve-body and the valve-plug having binding-shoulders opposed to each other, the leakage-receiving cup encircling the plug-nipple and bound between the plug-shoulder and the valve-body shoulder, and made of a separate piece from both said body and plug, substantially as set forth.

2. In combination with the valve-body and the valve-plug having binding-shoulders opposed to each other, the leakage-receiving cup encircling the plug-nipple and bound between the plug-shoulder and the valve-body shoulder, and having a waste-aperture at one side, substantially as set forth.

3. In combination with the valve-body and the valve-plug having binding-shoulders opposed to each other, the leakage-receiving cup encircling the nipple and bound between the plug-shoulder and the valve-body shoulder and having a waste-aperture at one side, and a cover for said cup, whose height, added to that of the cup, is sufficient to inclose the packing-box at the upper end of the valve-plug, and having an aperture to admit the valve-stem, substantially as set forth.

354,415. BUTTER-BOX. JASPER N. HAYES, Dallas City, Pa. Filed Apr. 20, 1886. (Model.)

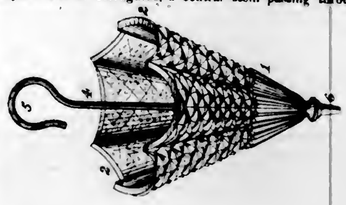


Claim.—1. A box having air-spaces at each end, each side, and under the fixed portion of the top, the outer walls of said box at each end having openings to serve the purpose of handles and the inner walls being provided with openings *n n m m*, as herein shown and described, and for the purposes set forth.

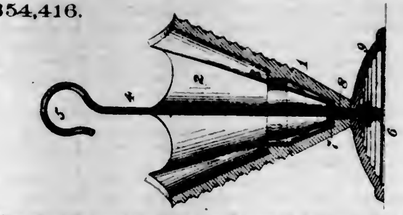
2. The box herein described, having air-spaces N O O' and openings Q' Q and *n n*, in combination with lid A', having air-space N' and bottom piece, M', provided with openings *m m*, as herein shown and described.

354,416. GLASS VASE. AUGUSTUS H. HEBERT, Pittsburg, Pa. Filed June 11, 1886. (No model.)

Claim.—1. The combination of a conical glass body which is longitudinally swelled or corrugated, a central stem passing through and



354,416.



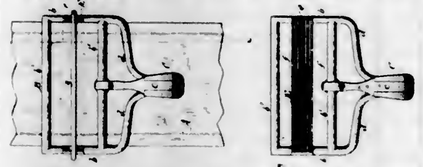
fitting closely in an opening in the smaller end of the body and having a collar bearing against the inside thereof, and an external nut engaging a thread on the same, substantially as set forth.

2. The combination of a conical glass body which is longitudinally swelled or corrugated, a series of ledges or shoulders located upon the inside of the swells of the body, and a central stem connected to the smaller end of the body, substantially as set forth.

3. The combination of a conical glass body which is longitudinally swelled or corrugated and provided with a tapered or conical opening in the center of its smaller end, a stem having a conical enlargement fitting a corresponding opening in the smaller end of the body, and a nut engaging a thread on the stem below said enlargement and bearing against the outside of the smaller end of the body, substantially as set forth.

4. The combination of a conical glass body which is longitudinally swelled or corrugated, a base or foot abutting against the smaller end of the body, a stem passing through and fitting closely in central openings in the body and base and having a collar bearing against the inside of the body, and a nut engaging a stem and bearing against the lower surface of the base, substantially as set forth.

354,417. BACK-BAND BUCKLE. LESLIE HEWITT, Buffalo, N. Y., assignor of one-half to Pratt & Letchworth, same place. Filed Sept. 2, 1886. (No model.)

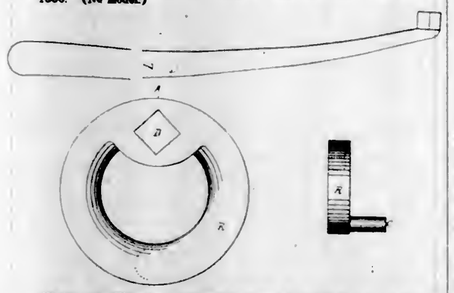


Claim.—1. The combination, with the back-band and supporting-hook C, of a buckle-frame, B, carrying the hook C, and provided with an inclined or beveled cross-bar, E, and a bail, *g*, whereby the back-band is clamped against the cross-bar E, substantially as set forth.

2. The combination, with the back-band A and supporting-hook C, of the buckle-frame B, provided with a cross-bar, E, having an inclined serrated surface, and a bail, *g*, pivoted to the buckle-frame and adapted to clamp the back-band against the bar E by a downward pressure upon the supporting-hook, substantially as set forth.

3. A back-band-hook attachment, consisting of the buckle-frame B, provided with two loops, *f f*, a cross-bar, E, having an inclined ribbed or serrated face, and a clamping-bail, *g*, arranged above the cross-bar E, substantially as set forth.

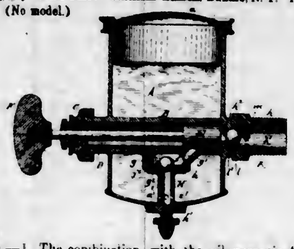
354,418. FLOOR-CLAMP. JAMES P. HILL, Saco, Me. Filed July 21, 1886. (No model.)



Claim.—1. The circular ring R, having the stud C on one side and the socket D on the opposite side, they being on or near opposite edges of said ring, as herein shown and described, in combination with the lever L, formed to fit said socket, to operate as and for the purpose specified.

2. As an improved article of manufacture, the herein-described floor-clamp, consisting of a circular metallic ring having at or near one edge a stud and at or near the opposite edge a socket, in combination with a lever formed to fit in said socket, as shown, and for the purpose specified.

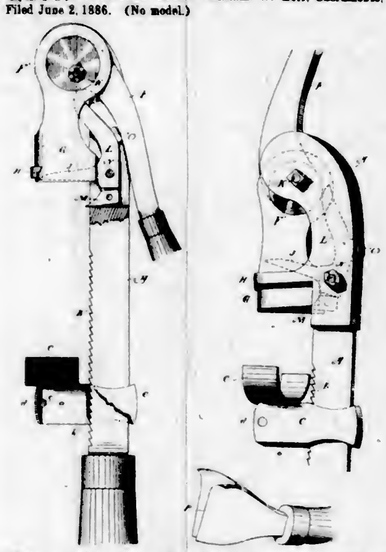
354,419. OIL-PUMP. CHARLES HIRSCH, Buffalo, N. Y. Filed Aug. 25, 1886. (No model.)



Claim.—1. The combination, with the oil-reservoir A and pump-cylinder B, of the chamber *g*, arranged below the pump-cylinder and communicating therewith by a passage, *g'*, a stem, H, arranged below the chamber *g* and provided with the oil-passages *i i'*, forming a communication between the chamber *g* and the bottom of the oil-reservoir, and a valve, *j*, arranged in the chamber *g*, substantially as set forth.

2. The combination, with the oil-reservoir A and pump-cylinder B, of the chamber *g*, formed on the under side of the pump-cylinder and communicating therewith by a passage, *g'*, a stem, H, arranged below the chamber *g* and provided with oil-passages *i i'*, forming a communication between the chamber *g* and reservoir A, a valve, *j*, arranged in the chamber *g*, and a shank, K, opening into the end of the pump-cylinder and provided with a valve, *l*, substantially as set forth.

354,420. GRAFTING-TOOL. CHARLES W. HOIT, Sacramento, Cal. Filed June 2, 1886. (No model.)



Claim.—1. A grafting-tool consisting of a standard having a cutter guided upon it so as to move parallel to one side, a lever or handle by which it is operated, and a toothed rack formed upon the opposite end of the standard, in combination with the slotted plate or slide having a curved stub-support, said slide guided upon the standard so as to move over the rack, and a pawl by which the slide and stub-support may be held at any point desired with relation to the cutters, substantially as herein described.

2. The standard upon which the cutter is guided and operated, having a toothed rack upon one edge and a slide fitted to move over this rack, in combination with a stub-support having a plate projecting from its back, extending downward between the sides of the guides, and having a pawl-point formed at its lower end to engage the rack when pressure is brought upon the stub-rest, substantially as herein described.

3. The sliding guide moving over the rack or toothed portion of the cutter-standard, projecting beyond the serrated edge of the stand-

ard and having a pin passing through the outer portion, as shown, in combination with the stub-support and plate projecting from the back and entering the open slot in the guide, said plate having a semicircular notch formed in one edge and engaging the pin in the slot, and having a pawl-point formed upon the opposite lower angle to engage the teeth of the standard, substantially as herein described.

4. In a grafting-tool, the standard formed in a single piece having corrugations or teeth formed upon the edge near one end and a stub-support fixed to slide over and engage with these teeth, so as to be held in any desired position, the opposite end of the standard being divided so as to form two parallel sides between which the cutter-bar is supported, said cutter having circular openings made in its head, in combination with a lever having an eccentrically-shaped head or lugs which fit said opening, and by which the cutter is reciprocated between the parallel sides of the standard, substantially as herein described.

5. In a grafting-tool, the standard having one end formed with teeth to engage an adjustable sliding stub-support and the opposite end formed with two parallel sides between which the cutter-bar is reciprocated and guided, in combination with a projecting curved strip, H, extending outward from the sides of the standard and acting as a guide for the lower part of the cutter-bar, substantially as herein described.

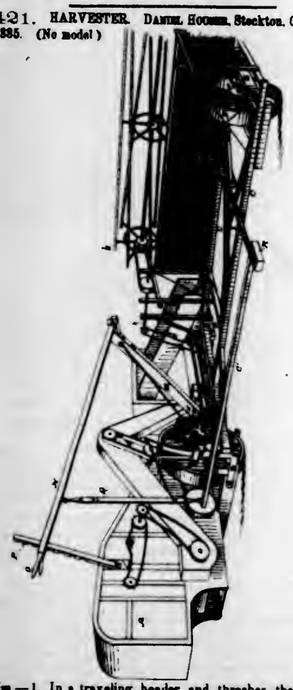
6. The cutter-bar and eccentrically-operating lever fulcrumed and guided between the sides of the two-part standard, in combination with the lever L, fulcrumed to the standard and having a projecting point, M, pivoted to its lower end, substantially as herein described.

7. The lever L, fulcrumed between the sides of the standard and having the projecting point M pivoted to its lower end, in combination with the point J, projecting rigidly from the lever L, so as to enter between the sides of the cutter-bar, substantially as herein described.

8. The lever L, fulcrumed between the sides of the standard, having the projecting points M and J, as shown, and the lug O upon its rear portion, in combination with the eccentrically-moving and curved cutter-bar, against which the upper end of the lever rests so as to be operated thereby, substantially as herein described.

9. In a grafting-tool, the standard having the reciprocating cutter guided so as to move between its parallel sides and a lever having an eccentric-head engaging that of the cutter, in combination with the supplemental lever L, fulcrumed to the standard, so that its upper end will be engaged and operated by the head of the cutter-bar, said lever having the fixed and hinged points J and M projecting from it, so as to be forced between the sides of the cutter as the latter is moved into the stub, substantially as herein described.

354,421. HARVESTER. DANIEL HOOSER, Stockton, Cal. Filed Jan 15, 1885. (No model.)

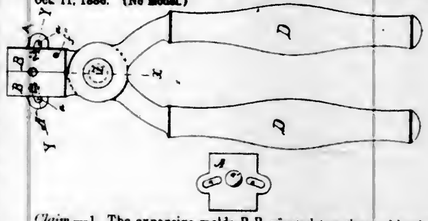


Claim.—1. In a traveling header and thrasher, the header-frame having its outer end supported upon a single bearing-wheel, its inner end turning upon a journal or pivot pin upon which it is itself journaled on the thrasher to allow vertical movement of the frame, in combination with a lever-arm, N, pivoted at its front end to a standard, M, projecting from the thrasher, and connected with the rear of the header-frame through the rod Q, and a holding-rack attached to the separator, substantially as described.

2. In a traveling header and thrasher, the header-frame, a single bearing-wheel upon its outer end, its inner end turning upon a pivot, J, located in line with the bearing-wheel, the said pivot-pin being journaled on the thrasher-frame, whereby the outer end of the header may be raised or lowered, and an operating lever-arm combined with guiding mechanism for the rear of the header, consisting of a curved guide, S, fixed to the thrasher, and a roller, U, substantially as described.

3. In a traveling header and thrasher, the header-frame having a supporting-wheel for its outer end, a pivot-pin, J, for its inner end, connected pivotally to the thrasher, whereby its outer end may be raised or lowered, a guiding mechanism for the rear side of the header, consisting of the curved guide S, a slide, U, in combination with the pinion W, sliding on the feather of the driving-shaft X, by which the sickle is driven, said shaft being journaled at one end on the axle and at the other in the header-frame, and the eccentric *s*, with its operating-handle *g*, whereby the pinion is thrown into or out of gear with the beveled gear V upon the side of the thrasher, substantially as described.

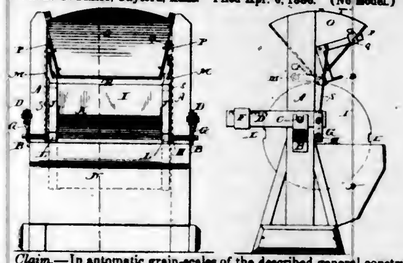
354,422. BULLET-MOLD. ABORY JEWETT, Somerville, Mass. Filed Oct. 11, 1886. (No model.)



Claim.—1. The expansive molds B B, pivoted together and having connected to their rear ends the plate A, having the core or projection *a'* on its inside for the purpose of forming a cavity or recess in the base of the bullet, as set forth.

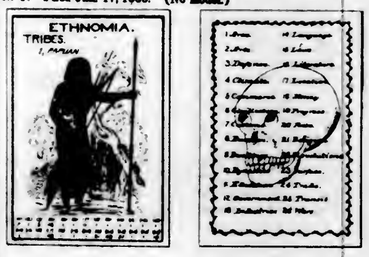
2. The expansive bullet-molds B B, having mold-cavities *b b* and semicircular ribs *b' b' b'*, as described, in combination with the self-centering back plate, A, having core or projection *a'* for the formation of the rear cavity in the base of the bullet, as set forth.

354,423. AUTOMATIC GRAIN-SCALE. DANIEL E. KELLEY and HARVEY D. PRATT, Gaylord, Kans. Filed Apr. 6, 1886. (No model.)



Claim.—In automatic grain-scales of the described general construction, the cut-off mechanism consisting of the elbow-levers P, connected by the cut-off plate R, and provided with the adjustable weights Q, in combination with the connecting-rods S and cylinder I, suspended on the scale-beams, as set forth.

354,424. CARDS FOR PLAYING GAMES. HYLAND C. KIRK, Phelps, N. Y. Filed Jan. 17, 1885. (No model.)



Claim.—1. A game apparatus consisting of a pack of cards each bearing a list of topics or trump subjects, with reference-characters annexed thereto, and a table of values having corresponding reference-characters; and showing the values of the cards under each of the trump topics or subjects which the cards bear.

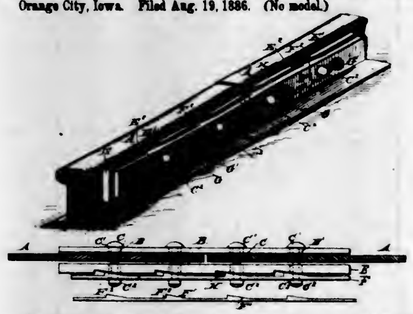
2. A game apparatus consisting of a pack of cards each bearing a list of topics or trump subjects, the value of the cards varying according to the topic or trump subject selected, and a table of topics or grades showing the relative values of the cards.

3. A game apparatus consisting of a pack of cards and a table of values, the cards being provided with a list of topics or trump subjects, under each of which topics the values of the individual cards vary, and the table of values showing the value of each card under each trump subject or topic.

354,425. LINIMENT. ANTHONY W. LANTZ, Cambridge, Mass. Filed Sept. 1, 1886. (No specimens.)

Claim.—The composition or liniment, substantially as described, consisting of brandy, laudanum, oil, nitrate of potash, camphor, turpentine, and capsicine, mixed or combined in or about the proportions and for use essentially as set forth.

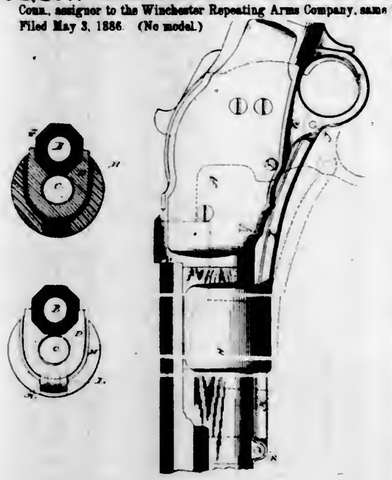
354,426. RAIL-JOINT. MARIE E. LEWIS and CARLTON A. DODGE, Orange City, Iowa. Filed Aug. 19, 1886. (No model.)



Claim.—1. A rail-joint fastening consisting of a sectional fish-plate, one section being apertured and provided with inclined recesses or notches, and the other provided with inclined projections and longitudinal slots having enlargements, a double-headed bolt having one head of greater diameter than the other, and a wedge, substantially as herein shown and described.

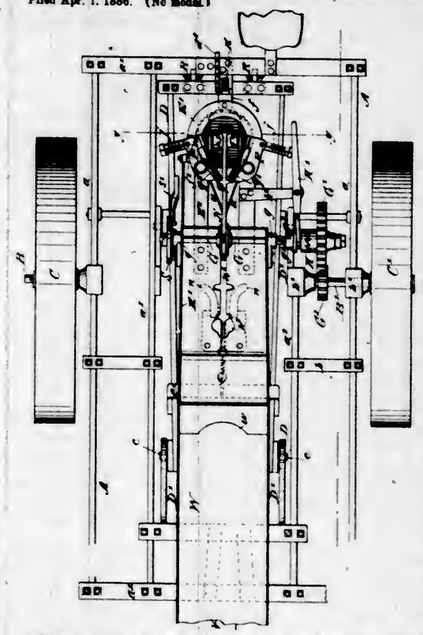
2. The combination, with the meeting ends of the rails having the transverse apertures, of the double-headed bolts having one head of greater diameter than the other, the flat fish-plate having the transverse apertures, the double fish-plate composed of the sections having the inclined recesses and projections forming the abrupt shoulders, and formed, respectively, with the apertures and the longitudinal slots having the enlargements, and the wedge having its lower reduced end curved on the inner side thereof, all constructed and arranged to operate in the manner and for the purpose herein set forth.

354,427. MAGAZINE FIRE-ARM. WILLIAM MASON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed May 3, 1886. (No model.)



Claim.—In a breech-loading fire-arm in which the mechanism is actuated by a lever beneath the receiver, the combination therewith of a handle beneath the barrel forward of the receiver, with an arm extending from its rear end and hung to the operating-lever below its pivot, a link hinged to the frame of the gun forward of the handle, and the handle constructed with a groove, into which said link extends and upon which link the said handle slides, substantially as described.

354,428. POTATO-PLANTER. CHARLES C. MAVES, East Davenport, Iowa; John H. Maves administrator of said Charles C. Maves, deceased. Filed Apr. 1, 1886. (No model.)



Claim.—1. A gathering apparatus for a potato-planting machine, consisting of an arm provided with fixed and movable jaws, substantially as described.

2. A gathering apparatus for a potato-planting machine, consisting of an arm provided with fixed jaws, movable jaws pivotally mounted between said fixed jaws, and a spring, *o'*, substantially as described.

3. In a potato-planting machine, the combination, with a delivery-box formed with a lower opening, of folding leaves *k*, provided with wings *k'*, flaring arms *n*, and a gathering mechanism carried by the main shaft of the machine, and consisting of an arm provided with fixed and movable jaws, the movable jaws being formed with arms *l*, lugs *l'''*, and springs *o'*, arranged substantially as described.

4. In a potato-gathering machine, the combination, with a delivery-box formed with an aperture closed by normally-folded leaves that are provided with wings *k'*, of a gathering mechanism carried by the main shaft of the machine, consisting of an arm, N, having rigid or fixed jaws *i i*, movable jaws *o o*, mounted on pivot-pins *o'' o''*, arranged to fold between the fixed jaws, arms *l l*, formed in connection with the jaws *o*, lugs *l'''*, projecting from said arms *l*, and springs *o'*, substantially as described.

5. In a potato-planter, the combination, with a main frame mounted on wheels, of a movable frame mounted in curved ways formed in brackets carried by the main frame, and a manipulating-lever carried by the main frame and connected to the movable frame, substantially as described.

6. In a potato-planter, the combination, with a main frame mounted on wheels, of a movable frame mounted in curved ways formed in brackets carried by the main frame, a delivery-box, a gathering mechanism, and a depositing shutter or trap, said box, gathering mechanism, and trap being carried by the movable frame, and an operating-lever mounted on the main frame and connected to the movable frame, substantially as described.

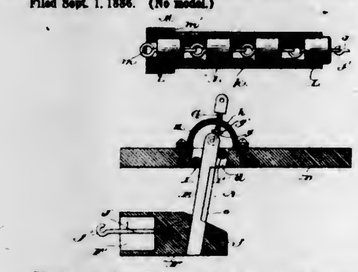
7. In a potato-planter, the combination, with a box, of leaves *k k*, pivotally connected to the bottom of said box and formed with flaring wings *k' k'*, a spring, *m*, and arms *n n*, and a series of gathering-arms, N, provided with gathering attachments, substantially as described.

8. In a potato-planter, the combination, with a depositing cylinder or tube formed with a forward opening, T, and provided with a trap or

shutter, F', of a shutter-tripping mechanism and a gathering and depositing mechanism, consisting of arms N, carrying jaws *i i o o*, the jaws o being provided with arms *l*, having lugs *l'*, and having a spring, *o'*. jaws P' P, and springs *j*, substantially as described.

9. In a potato-planting machine, the combination, with a fixed frame mounted on wheels and carrying shovels R R, of a movable frame, D, mounted in ways formed in brackets D', an opener, U, carried by the movable frame, and a gathering and depositing mechanism, substantially as described, and a lever mounted on the stationary frame and connected to the movable frame, all as hereinbefore set forth.

354,429. TILE-LAYING MACHINE. JOSEPH MCMULLEN, Casey, Iowa. Filed Sept. 1, 1886. (No model.)

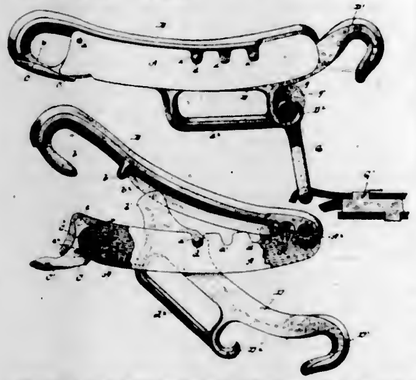


Claim —1. In a drain-tile-laying machine, the combination of a slotted plow-beam, a vertically-adjustable cutter-standard passing through the slot of the beam, a yoke carried by the beam, an elevating-screw working in the yoke and connected with the standard, a share or foot affixed to the standard, and the chain or cable having the blocks and connected to the share or foot, substantially as described.

2. In a drain-tile-laying machine, the combination of a slotted plow-beam, a vertically-adjustable cutter-standard passing through the slot of the beam, a yoke secured to the beam and straddling the upper end of the standard, an elevating-screw working in the yoke, a follower plate or disk carried by the screw, the links intermediate of the follower-plate and the standard, a share or foot secured to the standard, and a chain or cable connected to the foot and having the blocks, substantially as described.

3. In a drain-tile-laying machine, the combination of the slotted plow-beam, the vertically-adjustable cutter-standard passing through the slot of the beam, the friction-rollers located on opposite sides of the standard and housed within the slot of the beam, an elevating-screw connected to the standard, a foot or share carried by the standard, and a chain or cable connected to the foot and having the blocks, substantially as described.

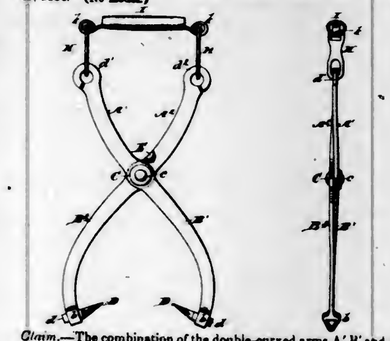
354,430. HAME-FASTENER. DAVID G. MILLER, Cleveland, Ohio. Filed July 6, 1885. (No model.)



Claim —1. In a hame-fastener, the combination, with the casing, hook-bar B, hinged thereto, and suitable locking devices, the parts being arranged substantially as indicated, of the hook-lever D, provided with the hook D^2 and loop d^2, substantially as set forth.

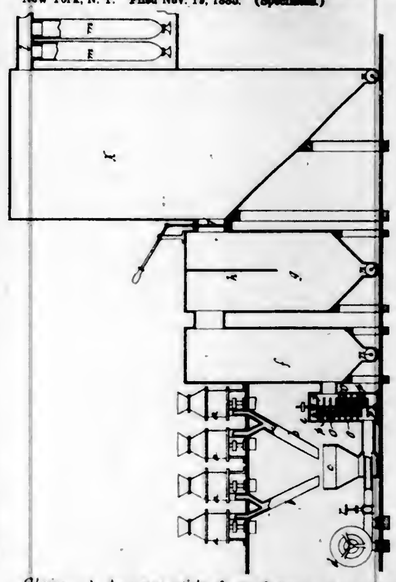
2. In a hame-fastener, the combination, with the casing A, provided with the notches *a'*, the hook-bar B, hinged at a point between its ends to the casing, and suitable locking devices, of the lever D, adjustably fulcrumed in the said notches of the casing, and provided with a depending hook and loop and eye for attaching the pole-strap and engaging the depending hook, the parts being arranged, substantially as described, so that in the closed position of the fastener the pole-strap eye by its close proximity to the casing is prevented from unhooking, substantially as set forth.

354,431. ICE-TONGS. CHARLES H. MOORE, Toledo, Ohio. Filed Mar. 25, 1886. (No model.)



Claim.—The combination of the double-curved arms A' B' and A^2 B^2, pivoted together at C and provided with the enlargements *b b*, having tapered holes for the reception of the removable steel points D D, the stop E, formed on one of the shorter arms of the double-curved arms, the eyes or rings d' d^2, formed on the double-curved arms, links H H, and the tubular handle I, to which said links H H are connected at *k k*, substantially as described.

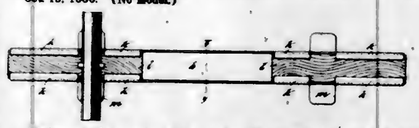
354,432. MANUFACTURE OF PAPER-PULP. GIDEON E. MOORE, New York, N. Y. Filed Nov. 19, 1885. (Specimens.)



Claim.—1. As a new article of manufacture, a pure cotton-fiber paper-pulp consisting of the fibers which adhere to or grow upon the hulls of cotton-seeds, and possessing the alkaline, decolorized, and bleached characteristics herein set forth.

2. As a new article of manufacture, paper-pulp consisting of decolorized and bleached fiber which adheres to or grows upon cotton-seed hulls, substantially as set forth.

354,433. RAILROAD-TIE. ROBERT MORRELL, Summit, N. J. Filed Oct. 13, 1886. (No model.)

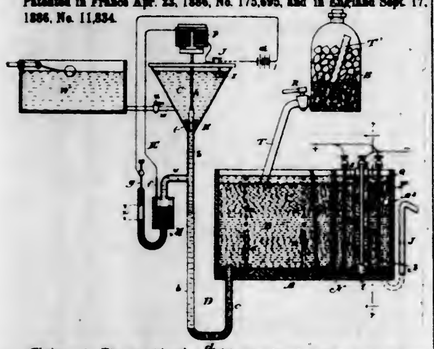


Claim.—1. In a railroad-tie consisting of metallic shells or cases made of a rolled and bent metal plate and elastic bearing-seats for the rails located in said shells or cases, the metallic portion constructed with the joint edges meeting, or nearly so, along the bottom of the tie, the continuous solid top at each end, and with the bearing-openings for seating the rails on the wood cut through said continuous solid top, substantially as described.

2. In a railroad-tie consisting of metallic shells or cases made of a single rolled and bent metal plate, and elastic bearing-seats for the rails located in said shells or cases, the metallic portion constructed with the vertical open space through the middle portion, and with the bearing-openings for seating the rails made in the top of the shells or cases, substantially as described.

3. In a railroad-tie consisting of metallic shells or cases made of a single rolled and bent metallic plate, and elastic bearing-seats for the rails located in said shells or cases, the metallic portion constructed with the bearing-openings for seating the rails made in the top of the shells or cases, and also with the vertical open space through the middle portion, substantially as described.

354,434. PRIMARY GALVANIC BATTERY. CHARLES E. O'KEENAN, St. Cloud, near Paris, France. Filed Oct. 30, 1886. (No model.) Patented in France Apr. 23, 1886, No. 175,695, and in England Sept. 17, 1886, No. 11,834.



Claim.—1. The combination, with a galvanic battery, of an automatic supply apparatus for injecting desaturating-liquid, consisting of a reservoir of said liquid, with its outlet communicating with the solution in the battery, a valve closing said outlet and shutting off communication between said reservoir and battery and means dependent on the density of the solution for opening said valve and establishing an outflow from the reservoir, whereby when the solution acquires a predetermined density it is diluted by the injection of fresh liquid.

2. The combination, with a galvanic battery, of an automatic supply apparatus for injecting desaturating-liquid, consisting of a reservoir of said liquid, an outlet therefrom communicating with the solution in the battery, a valve closing said outlet and shutting communication between said reservoir and battery, and means dependent on the density of the solution for opening said valve and establishing an outflow from said reservoir, whereby a quantity of desaturating-liquid is injected into the battery, and an overflow adapted to discharge from the battery a quantity of the dense solution proportional to the quantity of desaturating-liquid added.

3. The combination, with a galvanic battery, of automatic means for diluting the solution therein upon its reaching a predetermined density by the injection of a quantity of desaturating-liquid, and an overflow consisting of a tube leading from the portion of the battery containing the denser part of the solution, extending upwardly and opening outside the battery at a higher level, whereby upon each injection the overflow discharges from the battery a quantity of the dense solution proportional to the quantity of desaturating-liquid added.

4. The combination, with a galvanic battery, of an automatic supply apparatus consisting of a reservoir, its valve, and a differential tube, its longer leg extending downwardly from said reservoir and normally not in connection therewith, and the shorter leg extending upward to the battery and opening therein, and means dependent on the density of the solution in the battery for establishing communication between the reservoir and said tube.

5. The combination, with a galvanic battery, of an automatic supply apparatus for injecting desaturating-liquid, consisting of a reservoir of said liquid, a valved outlet therefrom, a tube extending from said outlet and terminating in the solution in the battery, and electro-magnetic means governed by the varying density of the solution for opening said valve.

6. The combination, with a galvanic battery, of an elevated reservoir, a differential tube communicating therewith and with the battery, a manometer connected with said tube and adapted upon the increase of the pressure to a predetermined point to manipulate an electric circuit, the said circuit, and an outlet-valve from said reservoir controlled thereby.

7. The combination, with a galvanic battery, of an elevated reservoir, an outlet-valve therefor, a tube leading thence to the battery, electro-magnetic means for opening said valve, operated by the density of the solution rising to a predetermined point, and a float in said reservoir adapted to effect the closure of said valve upon the discharge of a predetermined quantity of liquid.

8. The combination, with a galvanic battery, of an elevated reservoir of water, automatic means governed by the varying density of the solution in said battery for discharging water from said reservoir into said battery, a supplementary supply-tank, a float-valve for admitting water from a service-pipe into said tank, and a contracted duct for passing water from said tank to said reservoir.

9. The combination, with a galvanic battery wherein there are two or more liquids relatively superposed by reason of their different gravity, and with the positive and negative plates thereof, of a device for replenishing a denser liquid, consisting of an elevated reservoir containing such liquid, hermetically sealed, and a tube extending thence at an inclination down through the lighter liquid and terminating at the level at which it is desired to maintain the denser liquid, whereby when the latter gets below that level it unseals the mouth of said tube, the lighter liquid is drawn up to the reservoir, and the denser liquid descends therefrom.

10. In a galvanic battery, an automatic supply apparatus for injecting desaturating-liquid, consisting of a reservoir of said liquid, a closed outlet therefrom communicating with the solution in the battery, and means dependent on the density of the solution for establishing an outflow from said reservoir, whereby when the solution acquires a predetermined density it is diluted by the injection of a quantity of fresh liquid, which raises the level of the liquid in the battery, in combination with an outflow-siphon leading from the battery, which is started by said rise of level and discharges some of the spent solution until the original levels are restored.

11. The combination, with a galvanic battery, of an automatic supply apparatus adapted to admit to the battery a fixed quantity of desaturating-liquid whenever the solution in the battery rises to a predetermined density, and a recording mechanism constructed to register the number of such admissions, whereby the energy developed by the battery may be ascertained.

12. A galvanic battery consisting of a vessel divided into compartments and constructed with a distributing-canal on the same level with the compartments, and with openings between said canal and said compartments, adapted to establish communication between the respective superposed solutions in the compartments and canal, whereby the solutions shall be of the same densities and stand at the same levels in each of the compartments and in the canal, and positive and negative elements in each compartment, combined with an automatic supply apparatus communicating with a distributing-canal, and adapted to maintain the respective solutions at approximately uniform densities.

13. A galvanic battery consisting of a vessel divided into compartments and constructed with a distributing-canal communicating with the compartments, and the positive and negative elements in each compartment, in combination with an automatic supply apparatus communicating with the distributing-canal, adapted to inject the liquid thereinto whenever the solution in the battery reaches a predetermined density, and an outflow-tube communicating with said canal and adapted to discharge therefrom the spent solution.

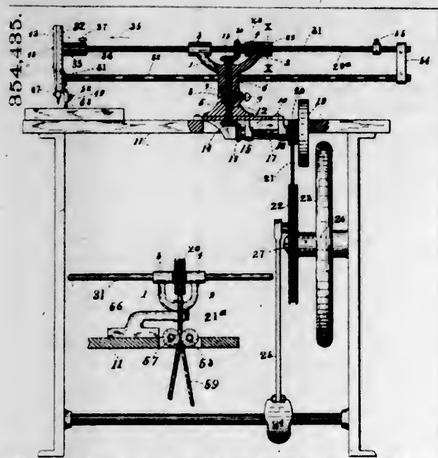
14. A galvanic battery consisting of a vessel with upright positive and negative plates, and a porous bag (or equivalent) inclosing the positive plates and communicating at its top and bottom with the external liquids in the vessel, combined with automatic means for supplying fresh liquid to the top of said vessel and for discharging spent liquid from the bottom thereof, whereby the fresh liquid enters said bag at the top, attacks the positive plate, and in becoming charged with metallic salt descends through said bag and flows out therefrom at the bottom.

15. A galvanic battery consisting of a vessel with upright positive and negative plates, and three superposed layers of liquid—viz., a dense solution of salt of the positive plate at the bottom, the solution for immersing the negative plate superposed thereover, and the lighter fresh liquid at the top—and a porous bag (or equivalent) inclosing the positive plate and communicating at its top with the layer of fresh liquid and at its bottom with the layer of dense saline solution, in combination with automatic means for supplying fresh liquid to said vessel by a tube entering the intermediate layer of solution, and operating whenever the lower layer of denser solution rises above the mouth of said tube and flows down the same, and an outflow-tube leading from the bottom of the vessel and adapted to discharge only said dense solution.

354,435. MACHINE FOR PERFORATING PATTERNS. CHARLES P. PEASE, Lockport, N. Y. Filed Feb. 26, 1886. (No model.)

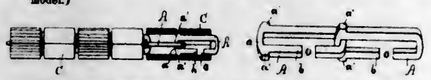
Claim.—A perforating-machine consisting of the supporting-frame, the upper part pivoted in a socket in the base and having the parts 3, 4, and 28, and the longitudinally movable and rotating rod 31, in combination with a needle-bar case connecting-rod 38, needle-bar and needle, and mechanism, substantially as specified, for giving the rod 31 a rotary

354,435.



motion and a vertical reciprocating motion to the perforating needle-bar, for the purposes described.

354,436. CHAIN. WILLIAM A. PEEK, Providence, R. I., assignor to S. L. and B. B. Lederer, both of same place. Filed Oct. 12, 1885. (No model.)



Claim.—1. In combination, a chain-link, a casing surrounding said link, bearing or resting means for holding said casing on said link, said means mounted on said link, and a next entering chain-link provided with bearing or resting means engaging said casing, whereby the casing may be held in position and may lock the links together.

2. In combination, a chain-link provided with lateral bearing or holding lugs, a casing surrounding said link longitudinally and bearing on said lugs, and an adjacent chain-link uniting with said first link and provided with lateral bearing or holding lugs, the lugs on the second link engaging said casing, whereby the casing may be maintained in position around the first link and the links may be locked together.

3. In combination, an open chain-link provided near one end with laterally-disposed bearing or holding lugs, a casing or sleeve surrounding longitudinally said link and partially incasing the length of the link, one end of said casing engaging said lugs, and an adjacent open chain-link provided with laterally-projecting bearing or holding lugs near one end, the lugs on said second link engaging the other end of said casing, whereby the casing may be maintained in position and may lock the connected links together.

4. A chain composed of a series of chain-links and incasing-sleeves associated as follows: a link provided with lateral bearing or holding lugs, a casing or sleeve surrounding said link, one end of said casing engaging said lugs, and the next entering link provided with bearing or holding lugs, the other end of said casing engaging the lugs on said next link, and so on for the series, whereby the casings may be securely maintained in their positions and the links may be locked securely together and the holding-lugs may act as spacing-pieces for the casings.

5. The combination of the links A A, having the pintle-bars *a a*, provided with lugs *a' a'*, and the sleeve C, substantially as and for the purpose described.

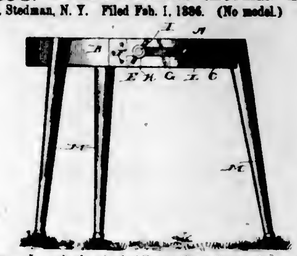
6. In combination, a link, A, having one pintle-bar, as *a*, provided with laterally-disposed holding-lugs *a' a'*, and one side bar open, as at O, a sleeve, C, incasing said link and resting with one end on said lugs *a' a'*, and another similar link A, as described, interlocking with said first link, and with its holding-lugs bearing against the adjacent end of said sleeve C, substantially as described.

354,437. COFFIN. ADAM E. RANCK, New Holland, Pa. Filed May 4, 1886. (No model.)



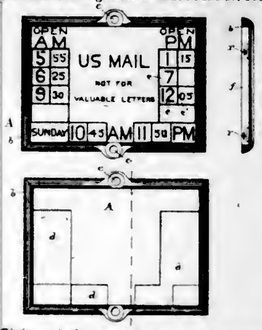
Claim.—A portable and adjustable burial-vault formed of sections connected by means of lap-joints, the said sections being constructed of separate plates for forming the top, bottom, sides, and angles, the longitudinal and angle plates being connected by lap-joints, said lap-joints having a series of holes whereby adjustment of the sections can be made, the said side and angle plates also having lap-joints by which they are secured to flanges projecting from the inner faces of the top and bottom plates for that purpose, as herein more fully specified.

354,438. DEVICE FOR HOLDING MILK-PAILS. MARVIN K. RANDALL, Stedman, N. Y. Filed Feb. 1, 1886. (No model.)



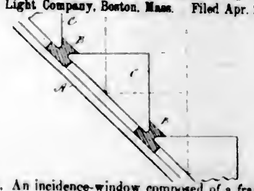
Claim.—In a device for holding milk-pails, the hoop A, comprising the semicircular sections B C, hinged together, and legs secured to and depending from the sections, in combination with the plate E, attached to the free end of one section and having the slot G, the stud I, projecting from the other section and extending through the slot G, the thumb-nut K, screwed upon the said stud, and the headed stop L, as set forth.

354,439. METALLIC TIME-CARD FOR LETTER-BOXES. BRENT MCM. REED, Arlington, Md. Filed June 17, 1886. (No model.)



Claim.—A time-card for letter-boxes, comprising the combination of a metal frame having cut-away places *d*, an hour-figure plate which is thickest where the figure is cast, and which has a thin flange, *h*, at one end and a thin part, *i*, at the other end, provided at its extremity with a tongue, *k*, and at its center with a hole, *l*, a minute-figure plate resting upon the thin part *i* of the hour-figure plate, and having at one end a tang, *l'*, inserted in said center hole, and having at the other end two tangs, *n*, and a locking-bar to confine said plates, as set forth.

354,440. INCIDENCE-WINDOW FOR LIGHTING BASEMENTS, VAULTS, &c. ISADOR SCHOENBERG, Baltimore, Md., assignor to the American Crystal Light Company, Boston, Mass. Filed Apr. 24, 1886. (No model.)

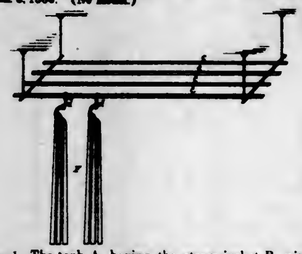


Claim.—1. An incidence-window composed of a frame with a parallel series of glass blocks of right-angled triangular shape, having their long sides or hypotenuse in the plane of the frame, with the blocks projecting upwardly, so as to expose their two sides, substantially as and for the purpose described.

2. An incidence-window composed of a frame having parallel grooved rails, with a parallel series of blocks slid between the rails, with their acute angles in the grooves and the long side in the plane of the frame, substantially as and for the purpose described.

3. An incidence-window composed of an inclined frame with its upper end most remote from the building, and having triangular prismatic blocks with one face in the plane of the frame, and with the block itself projecting upwardly, substantially as shown and described.

354,441. DIPPING-TANK FOR PAINTING CARRIAGE-BOW SLATS. JORIAN W. SHERWOOD and JOHN W. SHERWOOD, Grand Rapids, Mich. Filed Jan. 8, 1886. (No model.)

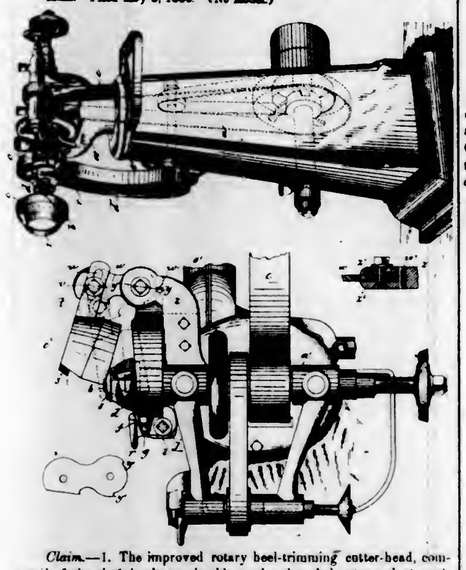


Claim.—1. The tank A, having the steam-jacket B, with flexible connections C and C', also having the table D with the opening *a*, in combination with the frame E, having the casters *b*, substantially as and for the purpose specified.

2. The combination of a steam-heated tank having flexible steam connections and a drip-table, and arranged to move to any part of the room, with the bars *c*, substantially as and for the purpose specified.

3. The combination, with the tank A, provided with means for heating by steam, connected to a steam-supply by a flexible tube, said tank also arranged to move to various parts of the room at pleasure, of bars *c* and hooks *d*, substantially as and for the purpose specified.

354,442. HEEL-TRIMMING MACHINE. AARON F. SMITH, Lynn, Mass. Filed May 3, 1886. (No model.)



Claim.—1. The improved rotary heel-trimming cutter-head, composed of the shaft having a shoulder and a threaded outer end, the collar 7, bearing against said shoulder and having a groove in its inner side, the collar 8, movable upon the shaft and having a groove in its inner side, the knives 6, inserted in the grooves in said collars, and the clamping-nut 9, engaged with the threaded end of the shaft, as set forth.

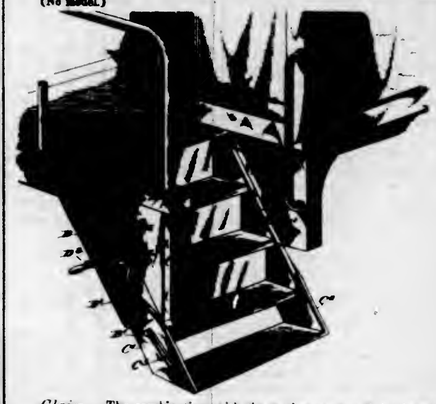
2. The combination, in a heel-trimming cutter-head, of the shouldered shaft, the collar 7, having the groove 10 and stops 11, the collar 8, having the groove 10, the nut 9, screwed onto the threaded end of the shaft, and the knives clamped between the collars and bearing at their rear edges against the stops 11, as set forth.

3. The combination, with the rotary cutter, of the top-lift rest having the grooved and slotted shank *f*, the slotted block *j*, tongued on its upper side and grooved at its lower side, the groove and tongue of said block being at right angles with each other, the arm or bracket *m*, having a tongue fitting the groove of the block *j*, and a bolt, *o*, passing through the slots in the shank *g* and block *j* into the arm *m*, as set forth.

4. The combination, with the cutter, of the guard, the slotted shank *t*, to which the guard is affixed, the arm *w*, to which the shank *t* is adjustably secured by a bolt, *v*, passing through the slot of the shank, the arm or bracket *z*, to which the arm *w* is pivotally connected and clamped by a bolt, *y*, and the devices for limiting the swinging movements of the arm *w*, as set forth.

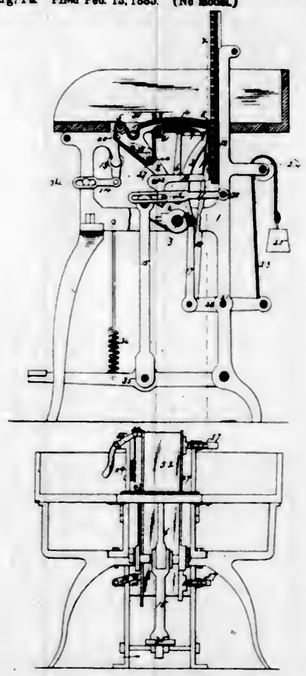
5. In a heel-trimming machine, the combination of the rotary cutter, the blower, the trunk *d*, communicating with the blower-casing and having an opening at its upper end, and the swinging guard having a hood, *c'*, adapted to coincide with and partly close the opening in the trunk, as set forth.

354,443. CAR-PLATFORM. FRANK D. SPALDING, Chicago, assignor of one-half to William L. Baker, Cook County, Ill. Filed Apr. 15, 1886. (No model.)



Claim.—The combination, with the stationary step B, having the spring-catch F and space-block E, forming the pocket E', of the movable or supplemental step C, having the side pieces C' C², slotted, as at C², adapted to receive lugs B', mounted in said stationary step, and with the bell-crank lever D, pivoted, as at D' D², and provided with a handle, as D², substantially as shown and described.

354,444. CIGAR-BUNCHING MACHINE. WILLIAM M. STEINLE, Brooklyn, N. Y., assignor to the Raleigh Manufacturing Company, Pittsburg, Pa. Filed Feb. 13, 1885. (No model.)



Claim.—1. In a cigar-bunching machine, the combination, with a movable forming-plate and slack belt, of a bunching-roll having convex journals and adjustable bearings, substantially as and for the purposes specified.

2. In a cigar-bunching machine, the combination, with a movable forming-plate, a slack belt, and a bunching-roll having convex journals and adjustable bearings, of a belt-tightening shaft or roll for controlling the slack of the belt, substantially as and for the purposes specified.

3. In a bunching-machine, the combination, with a movable forming-plate having a shelf to receive the cigar bunch, of a compressor for compressing the bunch, an injector or plunger for delivering the bunch to the mold, and devices for operating said ejector, substantially as and for the purposes specified.

4. In a bunching-machine, the combination, with a bunching-roll, a slack belt, and a rocking frame having a forming-plate and bunch-shelf, of a compressor-plate and a rocking lever pivoted on the rocking frame, a slotted bar, and a spring for actuating the compressor, substantially as and for the purposes specified.

5. The combination, with a compressor and forming-plate provided with a bunch-ledge, of adjustable spring-plates and devices for adjusting said spring-plates, substantially as and for the purposes specified.

6. In a cigar-bunching machine, the combination, with a sliding mold, of a two-part guide, means for adjusting one part of said guide, and devices, substantially as specified, for suspending the sliding section of said guide, substantially as and for the purposes specified.

7. In a cigar-bunching machine, the combination, with a sliding mold, of a two-part guide, means for adjusting one part of said guide, devices, substantially as specified, for suspending the sliding section of said guide, and a tension-spring which acts on the sliding section, substantially as and for the purposes specified.

8. In a cigar-bunching machine, the combination, with a bunching-roll, a slack belt, and a rocking frame having a forming-plate and a bunch-shelf, of an ejector, a shaft common to the ejector and rocking frame and provided with a crank-arm rod, 17, pawl 18, and rock-lever 20, common to both pawl and rod, mechanism for actuating rock-lever 20, and a sliding mold operated by the pawl 18, substantially as and for the purposes specified.

9. In a bunching-machine, the combination, with the bunching-roll 5, of the two independent rock-levers 13, in which it is journaled, and the links 14, provided with set-screws, substantially as and for the purposes specified.

354,445. GRINDING-MILL. ABRAM W. STEVENS, Auburn, N. Y. Filed June 30, 1886. (No model.)



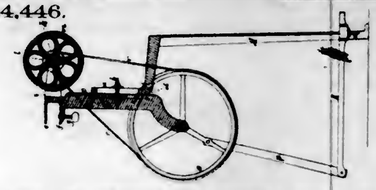
Claim.—1. The combination of a horizontal-disk mill, its frame, slotted brackets secured to the side of said frame, and a cone-and-shell mill provided with trunnions, and thereby suspended from said brackets, with means to connect them at their lower ends, substantially as described.

2. The combination of a horizontal disk-mill, the frame supporting said mill, brackets secured to the side of said frame, and a cone-and-shell mill having trunnions resting upon said bracket, with spur-wheels connecting the disk mill with the cone-and-shell mill, substantially as described.

3. The combination of a horizontal-disk mill, the frame supporting the same, a cone-and-shell mill, means for connecting them at their upper ends, and spur-wheels connecting them at their lower ends, with a grooved or flanged plate secured to the frame of the disk mill, and a ribbed plate secured to the cone-and-shell mill, substantially as and for the purpose described.

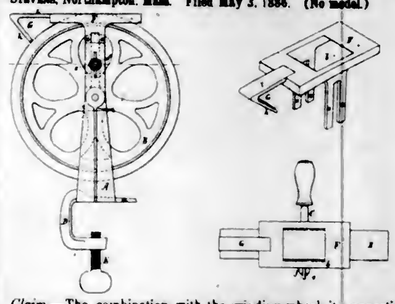
4. The combination of a horizontal-disk mill, a cone-and-shell mill connected at their lower ends, and interlocked flanged and ribbed plates, with a pin projecting from the flanged plate, an eccentric mounted on the ribbed plate, and a rod uniting said pin with the eccentric, substantially as and for the purpose described.

354,446. FOOT-POWER STAND. CHARLES E. STEVENS, Northampton, Mass. Filed Apr. 26, 1886. (No model.)



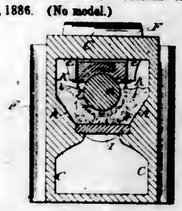
Claim.—The combination of the standard A, provided with the treadle and connecting-bar, with the slide C, adjustable, as described, on such standard, and having devices for clamping it thereto and to a bench or top of a table, and also having ears projecting rearwardly from it, an arbor supported by or in such ears, a wheel fixed on such arbor, and another and larger wheel pivoted to it, the said slide, and joined to the treadle by the connecting-bar, an endless band being applied to the wheels, and all being substantially and to operate as specified.

354,447. MECHANISM FOR GRINDING CUTLERY. CHARLES E. STEVENS, Northampton, Mass. Filed May 3, 1886. (No model.)



Claim.—The combination, with the grinding-wheel, its supporting-stand, and the slotted adjustable rest applied to the latter, as described, of the arm G, extending from such rest in the plane of its upper surface, and thence downwardly at an acute angle toward the periphery of the wheel, substantially as set forth.

354,448. CAR-AXLE BOX. STEPHEN R. STINARD, Pompton, N. J. Filed Aug. 17, 1886. (No model.)



Claim.—1. A car-axle box having an axle-receiving chamber arranged with its bottom quite close to the axle-journal and provided with sloping side walls, in combination with oiled waste or other lubricating material placed in said chamber next the journal, substantially as shown and described, whereby as the oiled waste or lubricant packs or settles it will crowd toward and against the axle-journal, to insure its constant lubrication, as set forth.

2. The combination, with the axle-box C, axle A, and brass B, of a removable plate, O, in the box quite close to the axle-journal *a*, and oiled waste or lubricating material, as at K, placed between the plate I and the axle-journal, substantially as described, for the purposes set forth.

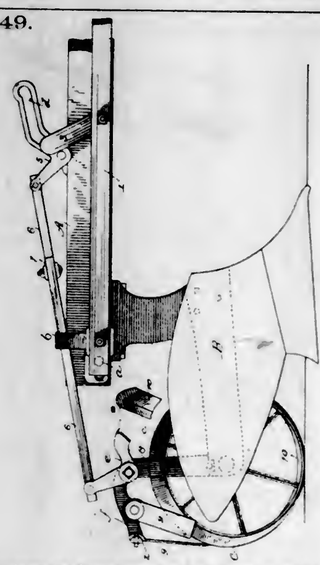
3. The combination, with the axle-box C, provided with side ribs, as at H, having sloping faces, as at h, and the brass B, of a removable plate, I, fitted to the ribs H, and an oiled waste or packing, as at K, placed between the plate I, ribs H, and the axle-journal, substantially as described, for the purposes set forth.

4. The combination, with the axle-box C, provided with ribs H H, having sloping faces h h and notches h', and the brass B, of a removable plate, I, fitted to the ribs and having a bottom lug, J, adapted to lock into the notches h', and oiled waste or packing K, placed between the plate I, ribs H, and the axle-journal, substantially as described, for the purposes set forth.

354,449. SULKY-PLOW. CALEB E. TOWER, South Bend, Ind., assignor to the Economist Plow Company, same place. Filed June 10, 1886. (No model.)

Claim.—1. In combination with a sulky-plow having a revolving landside, a brake for said landside, and connections between said brake

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and the plow-beam and frame-bar, and suitable means for operating the plow-beam, whereby the action thereof is communicated to the brake, substantially as described.

2. In combination with a sulky-plow having a revolving landside, a brake for said landside, connections between said brake and an arm on the plow-beam, means for adjusting the plow-beam vertically, and a rigid connection between the arm on the plow-beam and the side bar of the sulky-frame, whereby the action of the driver in adjusting the beam will operate the brake, substantially as described.

3. In combination with a sulky-plow having a revolving landside, a brake pivoted upon the standard above the wheel, a rod connecting said brake with a lever on the plow-beam, and an arm, 3, rigidly secured to a side bar of the sulky at one end, and having a stud upon its opposite end working in the slotted end of the lever upon the beam, and means for adjusting the beam, substantially as described.

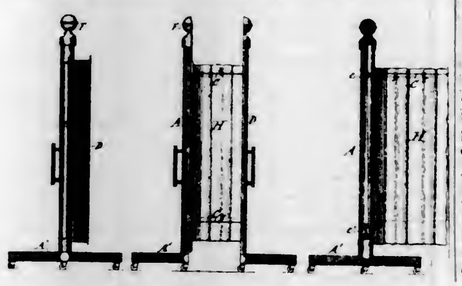
4. In combination with a sulky-plow having a revolving landside, a brake therefor, an adjustable rod, 6, connecting said brake with a slotted lever upon the plow-beam, a rigid connection between said lever and the side bar of the sulky, and means for adjusting the sulky-beams, substantially as described.

354,450. FOLDING SCREEN. HENRY C. TRIPP, Auburn, N. Y. Filed May 6, 1886. (No model.)

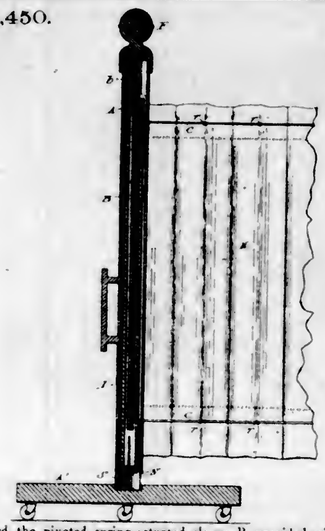
Claim.—1. The combination of a standard, a folding screen connected at one end to said standard, a cord or cords attached at one end to the free end of said screen, and yieldingly connected at the opposite end to the standard and held normally retracted thereat, and a bar on the free end of the screen for supporting the same in an erect position, as set forth.

2. The combination of the tubular standard A, the spring-actuated sleeve B, pivoted in said standard, the folding screen H, connected at one end to the standard, and the cords C C, connected at opposite ends to the free end of the screen and to the sleeve B, substantially as described and shown.

3. The combination of the tubular standard A, the screw S in said



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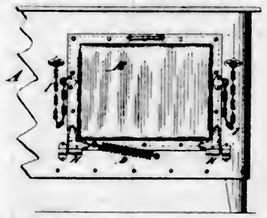


standard, the pivoted spring-actuated sleeve B, provided with the nut N, turning on said screw, the folding screen H, connected at one end to the standard, and the cords C C, connected at opposite ends to the free end of the screen and to the sleeve B, substantially as described and shown.

4. The combination of the tubular standard A, the spring-actuated sleeve B, pivoted in said standard, the folding screen H, connected at one end to the standard, the supporting-bar D, connected to the free end of the screen, and the cords C C, connected at opposite ends to the free end of the screen and to the sleeve B, substantially as described and shown.

5. In combination with the screen H and cords C C, the base A', tubular standard A, mounted on said base, the screw S, fixed to the base in the center of the standard, the cap F, spindle *b*, attached to said cap, the sleeve B, journaled on said spindle and having the cords C C connected to it, the nut N, attached to the sleeve and turning on the screw S, and the spring I, attached at opposite ends, respectively, to the spindle *b* and sleeve B, substantially as specified and shown.

354,451. STOVE OR RANGE DOOR. EZRA W. VAN DUZEN, Jr., Newport, Ky. Filed Mar. 1, 1882. (No model.)



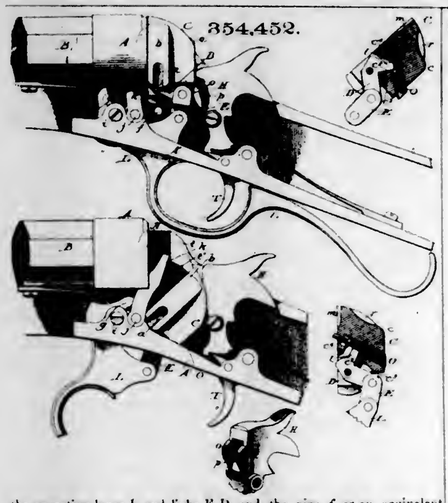
Claim.—1. An oven-door for a stove or range formed of two sheet-metal plates, the bodies of which are recessed to form depressions, and their edges forming flanges united together, with the depressions in the plates opposite each other, so as to form an intervening air space or spaces between the plates, and a supporting-ribbon between the recessed plates for strengthening the door, substantially as herein set forth.

2. In a stove or range having an oven-chamber, the combination therewith of an oven drop-door, hinged below the oven-opening to the stove-plate, a spring seated at one end upon the oven-door adjacent to its lower edge, and its other end seated upon the stove-plate below the oven-opening, for cushioning the fall of the door to a horizontal position for forming a shelf, and link-supports secured at one end to the stove-plate adjacent to the sides of the oven-opening, and at their other end connected with the door, substantially as and for the purpose described.

354,452. BREECH-LOADING GUN. LOUIS N. WALKER, Ilion, N. Y., assignor to E. Remington & Sons, same place. Filed Mar. 17, 1886. (No model.)

Claim.—1. The combination of the receiver A, having on the inner face of its side walls the vertical shoulder *i* and the curved shoulder *i'*, with the breech-block C, provided with the laterally-projecting ribs *b*,

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the operating-lever L and links E D, and the pins *f*, or an equivalent stop to tip the breech-block when drawn down, the said parts being arranged to operate substantially as shown and described.

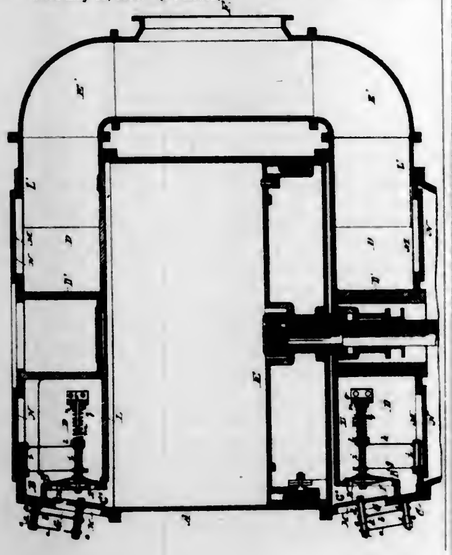
2. The breech-block C, provided with the firing-pin O, in combination with the elbow-lever D, pivoted in a recess in said block, substantially as shown and described, whereby the firing-pin is retracted and the lever is rendered rigid in relation to the breech-block in its movement up and down, as and for the purpose set forth.

3. The breech-block C, provided with the shoulder or projection *c*, in combination with the hammer H, provided with the curved shoulders or projections *o*, and the vertical recess *p*, arranged to operate substantially as and for the purpose set forth.

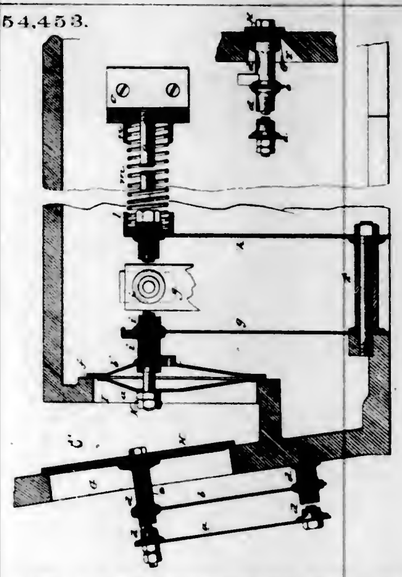
4. The breech-block C, provided with the shoulders c^2 and c^3, or their equivalents, in combination with the elbow-lever D, pivoted thereto, and arranged to engage with the shoulders on opposite extremities of the lever in its alternate movements, substantially as shown and described.

5. The combination, in a gun, of the breech-block C, having the firing-pin O seated therein, the pivoted links D E, the pivoted extractor *k*, and the lever L, pivoted to the receiver in front of the extractor, and provided with the arm *g*, arranged in line with the extractor, said parts being constructed and arranged to operate substantially as shown and described.

354,453. BLOWING-ENGINE. Peter L. Weiner, Lebanon, Pa. Filed May 13, 1886. (No model.)



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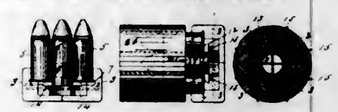


Claim.—1. A blowing-engine cylinder-head provided with two horizontal and two concentric walls, between which is formed a chamber of smaller diameter than the bore of the cylinder to receive air compressed by the piston, and with a side discharge-passage communicating with said chamber, substantially as described.

2. A blowing-engine cylinder-head having an outer inclined wall with inlet-passages formed therein, a vertical concentric wall having discharge-passages, and a chamber for compressed air formed within said walls, of smaller diameter than the bore of the cylinder, and provided with a lateral discharge-passage communicating with said chamber, in combination with inwardly-opening valves for both sets of passages, substantially as described.

3. In a blowing-engine, a valve composed of two concave or dished rectangular pieces of sheet metal with a layer or strip of flexible material held between them and forming an elastic seat for the valve, substantially as described.

354,454. RELOADING CARTRIDGE-PACK. Daniel B. Wesson, Springfield, Mass. Filed Aug. 4, 1886. (No model.)

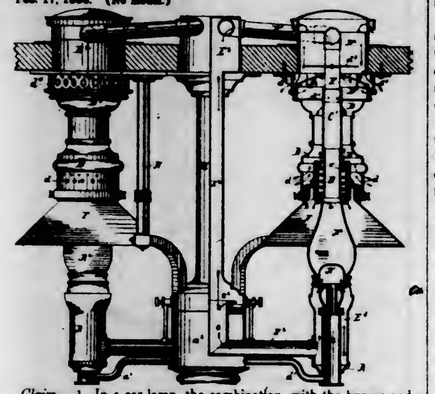


Claim.—1. A reloading-pack for fire-arms, consisting of a group of cartridges, a casing inclosing one end of said group, consisting of detachable segments united by severable connections, and cutting devices, substantially as described, for severing said connections, operated by the act of placing said cartridges in the fire-arm, substantially as set forth.

2. A reloading-pack for fire-arms, consisting of a group of cartridges, a casing inclosing one end of said group, consisting of detachable segments united by severable connections, having a chamber therein to receive the heads of said cartridges, provided with a groove around its border in which the rims of said heads engage, and having a central socket therein, and a cutter-plug capable of an endwise movement in said socket, having cutters thereon extending between said segments and across said severable connections, substantially as set forth.

3. A reloading-pack for fire-arms, consisting of a group of cartridges, a casing inclosing one end of said group, consisting of detachable segments united by severable connections, having a chamber therein to receive the heads of said cartridges, provided with a groove around its border in which the rims of said heads engage, and having a central socket therein, and a cutter-plug capable of an endwise movement in said socket, having cutters thereon extending between said segments and across said severable connections, combined with a transportation-block for said pack provided with perforations to receive the exposed ends of said group of cartridges, and a central perforation opposite the end of said cutter-block, substantially as set forth.

354,455. CAR-LAMP. William Westlake, Brooklyn, N. Y. Filed Feb. 17, 1886. (No model.)



Claim.—1. In a car-lamp, the combination, with the burner and a chimney for the escape of the products of combustion, of a chamber contiguous to said chimney and heated thereby, a cooling-chamber located above said hot-chamber and communicating therewith, and a flue leading from said cooling-chamber downwardly to and below and opening at the burner, as and for the purpose specified.

2. In a car-lamp, the combination, with the burner and a chimney, of a chamber surrounding a section of said chimney and heated thereby, a chamber surrounding said first chamber and the remaining portion of the chimney and heated thereby, a cooling-chamber located above said hot-chambers and communicating with the latter named thereof, and a flue leading from said cooling-chamber downwardly to and below and opening at the burner, as and for the purpose specified

3. In a car-lamp, the combination, with the burner and a transparent chimney, of a metal chimney composed of two sections, the upper of which is fixed and the lower of which fits upon the transparent chimney and is capable of movement longitudinally within or upon the fixed section to and from the transparent chimney, and a chamber contiguous to and heated by said movable section, together with a cooling-chamber located above said hot chamber and communicating therewith, and a flue leading from said cooling-chamber to and below and opening at the burner, as and for the purpose specified.

4. In a car-lamp, the combination, with a burner, a chimney, a ventilator communicating with said chimney, a wind-guard on said chimney, in said ventilator, a chamber surrounding said chimney and intermediate the burner and ventilator, a cooling-chamber above said first chamber and communicating therewith, and a flue leading from said cooling-chamber to and below and opening at the burner, as and for the purpose set forth.

5. In a car-lamp, the combination of a fixed support, to which is detachably connected an oil-reservoir, common to two or more lamps carried thereby, a burner and transparent chimney on each lamp, a metal chimney detachably fitted upon the transparent chimney, a rigidly-suspended cylinder inclosing said metal chimney and connected thereto, a ventilator communicating with said metal chimney, a chamber within said cylinder and surrounding said metal chimney and heated thereby, a cooling-chamber above said cylinder and communicating thereby with the hot-chamber, a flue leading from said cooling-chamber downwardly of the fixed support, a chamber on the lamp below the burner and opening thereat, and a pipe communicating from said flue to said lamp-chamber, as and for the purpose set forth.

6. In a car-lamp, the combination, with the burner and transparent chimney carried by a bracket detachably suspended by a fixed support, of a metal chimney detachably fitted upon the transparent chimney, a metal cylinder rigidly suspended and supporting the said metal chimney, a chamber surrounding said metal chimney and heated thereby, a cooling-chamber communicating with said hot-chamber, a flue leading from said cooling-chamber to and opening at the burner, and a shade or reflector carried detachably by the supporting-cylinder, as and for the purpose specified.

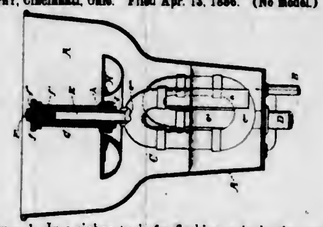
7. In a car-lamp, the combination, with the burner and the glass chimney, of a metal chimney composed of the sections B and C', the section B being fitted to slide within the section C, and having the flaring flange *b*, the surrounding chamber C, perforated at b^4 and c^2, the slide-rods b^3, and spring *c'*, the inclosing-cylinder D, and diaphragm *d'*, together with pipe E, chamber E', and flue E^2, leading from said chamber to the burner, as described, and for the purpose specified.

8. In a car-lamp, the combination of the burner, a transparent chimney, a detachable metal chimney, as described, a chamber, C, a cylinder, D, a chamber, E', a flue, E^2, in the lamp-support, and a chamber on the lamp-body opening at the burner and communicating with said flue, as and for the purpose specified.

9. In a car-lamp, the combination, with the car-roof, of the rigidly-suspended cylinder D, a metal chimney supported thereby, a chamber, C, around said chimney, the lamp-burner and transparent chimney, a chamber, E', above said roof, a pipe, E, connecting the chambers, and a flue leading from said cooling-chamber through the roof and to and opening at the burner, as and for the purpose specified.

10. In a car-lamp, the combination, with the bracket-lamp A, its reservoir a^3, sectional chimney A^1 B, cylinder D, and chambers C and E', and pipe E, of support M, containing flue E^2, mouth e^3, pipe e, and chamber E^3, communicating with the burner, as and for the purpose set forth.

354,456. FLUSHING-TANK. Charles W. Atkinson and Richard Murphy, Cincinnati, Ohio. Filed Apr. 13, 1886. (No model.)



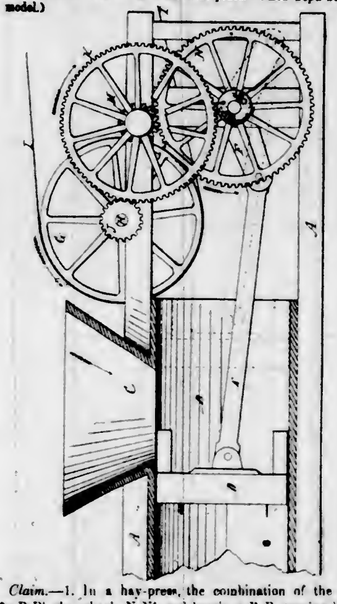
Claim.—1. In a siphon-tank for flushing urinals, the combination, with a siphon, C, adapted to form an air-lock, of vent-pipe E, leading up from the air-locked portion of the siphon, screw-tube G, carrying valve F for closing said vent-pipe, and float H, screwing on the tube G, so as to be adjustable vertically thereon, substantially as and for the purpose set forth.

2. In a siphon-tank for flushing urinals, the combination of siphon C, vent-pipe E, cap-nut *f*, carrying valve F, and having orifices *f''* and projecting stem *f'*, screw-tube G, depending from said cap-nut and inclosing the pipe E, and annular float H, screwing on said screw-tube, substantially as and for the purposes described.

3. In a siphon-tank for flushing urinals, the combination, with the siphon C and vertically-adjustable float-valve F G H, of the tank A, having an expanded upper portion and a contracted lower portion, united by an offset at the level of the top of the siphon, substantially as and for purpose explained.

4. The annular float-shell H, having a flat top and semi-torus-shaped bottom, substantially as and for the purpose set forth.

354,457. HAY-PRESS. Andrew J. Beaman, Ogden, N. Y., assignor of one-half to Charles E. Lott, same place. Filed Sept. 29, 1886. (No model.)



Claim.—1. In a hay-press, the combination of the crank F, its shafts P P', the wheels N N', and bearings R R, turning loosely on the

shafts, and the interlocking pins *a b*, connected, respectively, with the shafts and gears, as shown and described, and for the purpose specified.

2. In a hay-press, the combination, with the plunger and crank connected by a pitman, of the gears J K M M' and N N', the shafts of the crank resting loosely in the hubs of the wheels N N', and said shafts and wheels provided with the interlocking pins *a b*, constructed and arranged to operate in the manner and for the purpose specified.

354,458. HINGE-JOINT FOR JEWELRY. GEORGE BECKER, Providence, R. I., assignor to Hancock, Becker & Co., same place. Filed Feb. 2, 1886. (No model.)



Claim.—1. The combination, with a cradle or bearing, of a leaf provided with lateral pintles and having a stop-piece upon the attaching-face thereof, substantially as herein described.

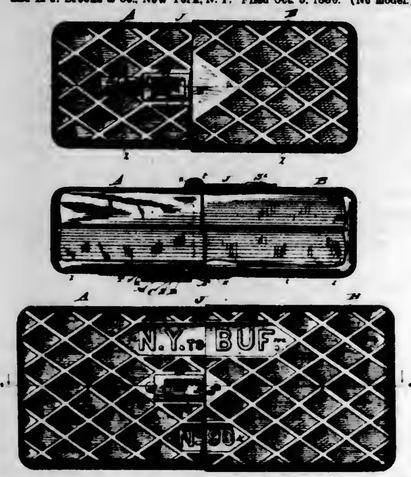
2. The combination, with a sheet-metal cradle or bearing having lateral slots therein, of a leaf having lateral pintles and the integral stop-piece, substantially as described.

3. The combination, with a cradle or bearing provided with lateral slots, of a leaf provided with lateral pintles and a stop-piece and a sleeve mounted upon said leaf and abutting against said stop, substantially as described.

4. The combination, with the cradle or bearing having the lateral slots therein, of the leaf provided with the pintles 2 and having the stop 3 mounted thereon, substantially as described.

5. The combination, with the cradle or bearing 5, provided with the slots 6, of the leaf 1, having the pintles 2 and the stop 3, and provided with the sleeve 4, substantially as described.

354,459. SAFETY-CASE FOR MONEY-PACKAGES. EDWARD J. BROOKS, East Orange, N. J., assignor to Chauncey H. Crosby, Brooklyn, and E. J. Brooks & Co., New York, N. Y. Filed Oct. 5, 1886. (No model.)



Claim.—1. A safety-case for money-packages and the like, comprising two seamless case parts fitting one within the other to form a single transverse lap-joint, and provided at said joint with a seal or seals which must be broken or destroyed to open the case, substantially as herein specified.

2. The combination, in a safety-case, of two seamless case parts fitting one within the other to form a lap-joint, and provided at said joint with telescoping fastening parts, one of which contains a spring-catch, and a seal which must be broken or destroyed to obtain access to the fastened catch, substantially as herein specified.

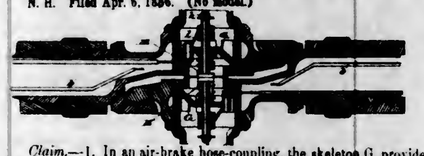
3. The combination, with two seamless case parts fitting one within the other to form a lap-joint, of two telescoping fastening parts inseparably attached to the respective case parts at said joint, and provided, respectively, with a spring-catch for automatically fastening the case, and a face-recess containing a glass seal, the housing part, which admits the latter and contains said catch being attached within a socket in the case part, so as to locate said catch behind the seal inside of the plane of the exterior of the case, substantially as herein specified.

4. The combination, with two seamless case parts fitting one within the other to form a lap-joint, of two telescoping fastening parts inseparably attached to the respective case parts at said joint, one of the latter being provided with a spring-catch and a stud-pin and the other with a catch-hole, a face recess to contain a glass seat, and a recessed portion which coacts with said stud-pin to attach a labeling-tag, substantially as herein specified.

5. The combination of two seamless case parts fitting one within the other to form a lap-joint, and provided at said joint with a pair of fastening parts inseparably attached to the respective case parts by stud-rivets or the like, which are masked, substantially as herein specified, for the purpose set forth.

6. In a safety-case for money-packages and the like, a case proper consisting of two seamless case parts of very thin cast metal provided with a net-work of external ribs, which facilitates the flow of the metal in the mold, and may be subsequently ground down to a minimum thickness, so that there shall be no surplus weight, substantially as herein specified.

354,460. RAILWAY-SIGNAL. GEORGE D. BURTON, New Ipswich, N. H. Filed Apr. 6, 1886. (No model.)



Claim.—1. In an air-brake hose-coupling, the skeleton G, provided with a double perforation—one for the button and a second for one of the terminals of an electric circuit—in combination with the electric conductors and the hose-couplings, substantially as described.

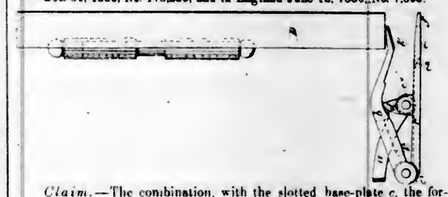
2. An air-brake hose-coupling containing the skeleton frame G, provided with a shoulder, *i*, in combination with the button E and spring *h'*, one end of which encircles the hollow central shoulder, *i*, and the other end bears against the head of the button E, and the perforation *a'*, substantially as described.

3. In an air-brake hose-coupling, the skeleton frame G, provided with the button E, the spring *j*, and yoke *l*, which encircles the rod *h'* of the button E, substantially as described.

4. In an air-brake hose-coupling, the combination of the skeleton frame G, provided with a perforation, *a'*, in its upper periphery, and also provided with a central perforation, with means for connecting the central post with the electric conductor, which extends through the perforation *a'*, substantially as described.

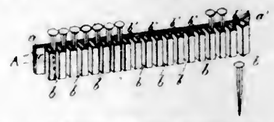
5. In an air-brake hose-coupling, the combination of the skeleton frame G, having perforations *a'* and *k*, the pins *k'*, and spring *j*, which electrically connects the yoke *l* and the button E with the conductor *a*, substantially as described.

354,461. DEVICE FOR LIFTING DOORS. HEINRICH SÜSSING, Brunswick, Germany. Filed Jan. 28, 1886. (No model.) Patented in France Dec. 30, 1885, No. 173,235, and in England June 12, 1886, No. 7,893.



Claim.—The combination, with the slotted base-plate *c*, the forward end, *f*, of which is made tapering, and the slotted lifting plate or lever *b*, the forward end, *b'*, of which is also made tapering and adapted to lie in the slot of the base-plate, of the lifting-lever *a*, fulcrumed on plate *c* and provided with the cam *d*, said parts being arranged for operation substantially as and for the purpose specified.

354,462. TACK-STRIP. GEORGE W. COPELAND, Malden, Mass., assignor, by mesne assignments, to the Copeland Improved Lasting and Tacking Company, of Maine. Filed Oct. 21, 1885. (No model.)

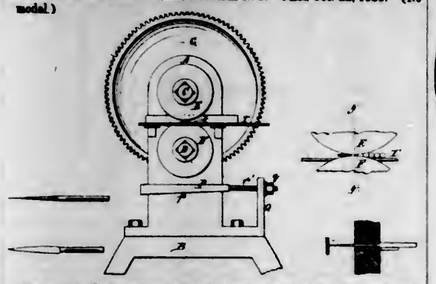


Claim.—1. A flexible tack-strip provided with a series of slots or openings and intermediate projections, said slots or openings being adapted to be filled with nails or tacks, which are secured against displacement by frictional contact with the projections, substantially as set forth.

2. A flexible tack strip or carrier formed with cell-like portions,

having intervening slit or openings and a flexible backing, substantially as described.

354,463. MACHINE FOR FLATTENING THE SHANKS OF PICKER-TEETH. WILLIAM CRAIG, Newark, N. J. Filed Oct. 22, 1885. (No model.)

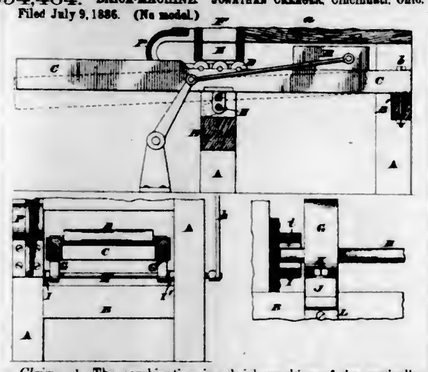


Claim.—1. In a machine for defining the length of picker and other metal teeth and flattening their shanks by transverse rolling substantially in the manner and for the purpose described, the combination, with the two opposed cylindrical compression-rolls capable of rotation in opposite directions, of the intermediate stationary horizontal blank rest or table, and the back-rest or gage-plate arranged thereon in a position at the rear of and parallel to the said compression-rolls, substantially in the manner and for the purpose described.

2. In a machine for defining the length of picker and other metal teeth and flattening their shanks by transverse rolling substantially in the manner and for the purpose described, the combination, with the two opposed cylindrical compression-rolls, and with the intermediate horizontal stationary blank rest or table, of a parallel back rest or gage for the blanks which is adjustable upon said blank table and with relation to the said compression-rollers, substantially in the manner and for the purpose described.

3. In a machine for defining the length of picker and other metal teeth and flattening their shanks by transverse rolling substantially in the manner and for the purpose described, the combination, with the two opposed cylindrical compression-dies capable of rotation in opposite directions, and with the intermediate horizontal stationary blank rest or table, of means, substantially such as described, for adjusting the periphery of the lower cylindrical roll with relation to the upper surface of the said table and the periphery of the upper cylindrical roll, for the purpose and substantially in the manner described.

354,464. BRICK-MACHINE. JONATHAN CREAGER, Cincinnati, Ohio. Filed July 9, 1886. (No model.)



Claim.—1. The combination, in a brick-machine, of the vertically-shiftable mold-supporting frame C, lifters G G', rock-shaft H, slotted boxes I I' *i*, adjustable wedge-block J *j*, and retaining device K, for the purpose described.

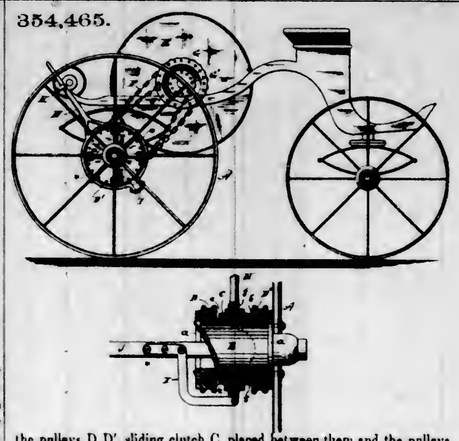
2. A brick-machine having a post contiguous to the feed-opening O, divided transversely, as at A', and united by a bent knee, P, which knee serves as a continuation of said opening, for the purpose specified.

354,465. HOSE-CARRIAGE. CONRAD A. DORR and EDWARD B. HILL, Brooklyn, N. Y. Filed Apr. 13, 1886. (No model.)

Claim.—1. The hose-reel mounted on wheels and provided with pulleys of different diameters, and endless chains or belts, combined with two pulleys carried by the axle of the hose-carriage, and a sliding clutch arranged to alternately engage the pulleys for changing the speed of revolution of the reel, substantially described.

2. The wheel A, provided with the cylinder B, in combination with

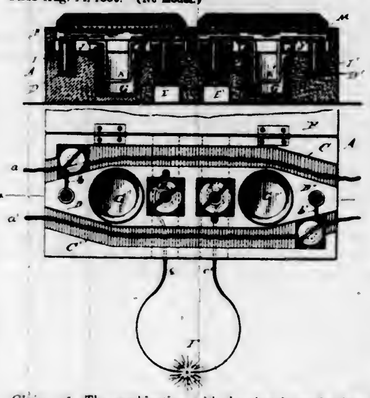
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the pulleys D D', sliding clutch C, placed between them and the pulleys G G', and chains F F', substantially as described.

3. The wheel A, provided with the cylinder B, having the pulleys D D' and clutch C placed thereon, in combination with the pulleys G G' on the shaft of the reel E, the chains F F', the lever H, and the notched holding-rod K, substantially as described.

354,466. ELECTRIC CUT-OUT. CHARLES ESCHWEI, New York, N. Y. Filed Aug. 14, 1886. (No model.)



Claim.—1. The combination, with the electric conducting-wires, of a block of insulating material provided with grooves through which said wires are passed, sockets in said blocks connected with the lamp-wires, bridge-pieces having pins for connecting the main and lamp wires, and fusible wires on said bridge-pieces, which fusible wires are in electrical connection with the main and lamp wires, substantially as shown and described.

2. The combination, with a block of insulating material having two grooves, of connecting-screws in each groove for making connection with the main line-wires, sockets connected with the said screws, sockets connected with the lamp-wires, bridge-pieces having pins fitting in the sockets, and fuses on the bridge-pieces, which fuses are connected with the pins, substantially as described.

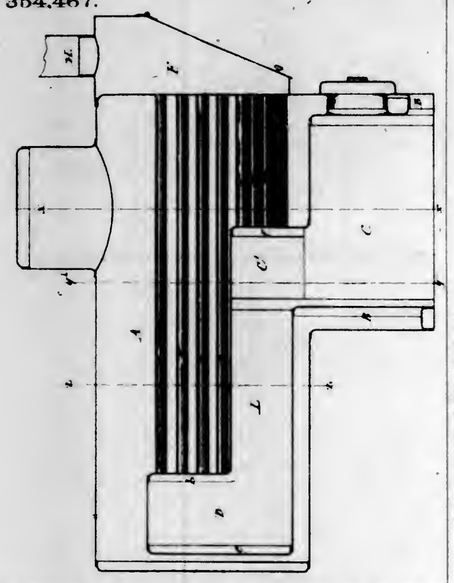
3. The combination, with a block having grooves, of sockets connected with the main and lamp wires, bridge-pieces having pins, metal plates connected with the pins, and fusible pieces connected to the plates below the bridge-pieces, substantially as set forth.

4. The combination, with a block having grooves for the line-wires, of sockets in said block connected with the line and lamp wires, bridge-pieces for connecting the sockets, fuses on the bridge-pieces, and a slotted hinged cover on the block, substantially as set forth.

354,467. STEAM-BOILER. PATRICK FITZGIBBONS, Oswego, N. Y. Filed Oct. 23, 1886. (No model.)

Claim.—1. In a return-flue boiler having the rear end of the fire-box formed with a vertical extension projecting part way into the boiler proper and the combustion-chamber at the rear end of the boiler, a fire-flue extending through the water-space of the boiler from the vertical

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extension of the fire-box to the combustion-chamber, and the shell of said flue laterally elongated to occupy the greater portion of the bottom of the boiler, substantially as set forth.

2. In a return-flue boiler having the rear end of the fire-box formed with a vertical extension projecting part way into the boiler proper and the combustion-chamber at the rear end of the boiler, a fire-flue extending through the water-space of the boiler from the vertical extension of the fire-box to the combustion-chamber, and the shell of said flue laterally elongated, and the bottom sheet of said shell extended to the back sheet of the combustion-chamber to form the bottom of the latter, substantially as described and shown.

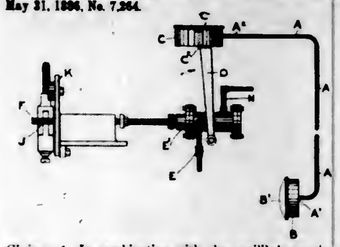
3. In a return-flue boiler having the rear end of the fire-box formed with a vertical extension projecting part way into the boiler proper and the combustion-chamber at the rear end of the boiler, a fire-flue extending through the water-space of the boiler from the vertical extension of the fire-box to the combustion-chamber, the shell of said flue being laterally elongated and the bottom sheet of said shell formed concentric with the bottom of the boiler and extended to the back sheet of the combustion-chamber to form the bottom of the latter, substantially as described and shown.

4. In a return-flue boiler having the rear end of the fire-box formed with a vertical extension projecting part way into the boiler proper and the combustion-chamber at the rear end of the boiler, a fire-flue extending through the water-space of the boiler from the vertical extension of the fire-box to the combustion-chamber, the shell of said flue being laterally elongated and the top sheet of said shell extended across the vertical extension of the fire-box to form the crown-sheet of the latter, substantially as described and shown.

5. In a return-flue boiler having the rear end of the fire-box formed with a vertical extension projecting part way into the boiler proper and the combustion-chamber at the rear end of the boiler, a fire-flue extending through the water-space of the boiler from the vertical extension of the fire-box to the combustion-chamber, the shell of said flue being laterally elongated and the bottom sheet of said shell formed concentric with the bottom of the boiler and extended to the back sheet of the combustion-chamber to form the bottom thereof, and the top sheet of said flue-shell extended across the vertical extension of the fire-box to form the crown-sheet of the latter, substantially as described and shown.

6. In a return-flue boiler having the rear end of the fire-box formed with a vertical extension projecting part way into the boiler proper and the combustion-chamber at the rear end of the boiler, a fire-flue extending through the water-space of the boiler from the fire-box extension to the combustion-chamber, the shell of said flue being laterally elongated and the bottom sheet of said shell formed concentric with the bottom of the boiler, and the top sheet of the flue-shell concaved and the longitudinal side portions thereof curved reverse and downward and joined to the longitudinal edges of the bottom sheet, substantially as described and shown.

354,468. APPARATUS FOR STOPPING ENGINES. JOHN FURNHELL, WILLIAM BERGH, and ISAAC BERGH, Jr., Wakefield, County of York, England. Filed Aug. 9, 1886. (No model.) Patented in England May 31, 1886, No. 7,264.



Claim.—1. In combination with the equilibrium-valve of a steam-engine, a hand-operated air-forcing device, a pipe through which air is driven thereby, a lever actuated by this current of air, and mechanism between said lever and said valve which is controlled by said lever to shut the valve, and thereby stop the engine, substantially as set forth.

2. The lever D, and the diaphragm and pipe whereby it is operated, in combination with a cylinder, the steam-supply of which is controlled by said lever, a piston working within said cylinder, and an equilibrium-valve closed by said piston, substantially as set forth.

3. In combination with a vibrating diaphragm, B', a pipe, A, through which air is forced by said diaphragm, and mechanism connected with a steam-engine for stopping the same, such mechanism being set in motion by the current of air through said pipe, for the purpose set forth.

354,469. ADJUSTABLE SUPPORT FOR TELEPHONES. CLAUDE C. GOULD, Batavia, N. Y., assignor of seven-eighths to Walter Smith, same place, and Philip W. Scribner, Tonawanda, N. Y. Filed Oct. 21, 1886. (No model.)



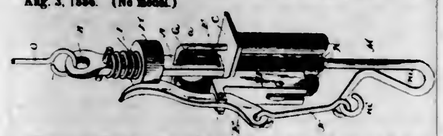
Claim.—1. The combination, with a telephone-frame, of a support on which said frame can be raised and lowered, and a yielding bearing whereby the frame is held on said support by frictional contact while being permitted to be raised and lowered on said support, substantially as set forth.

2. The combination, with a telephone-frame, of a vertical supporting-rod, arms attached to said frame and embracing said rod, movable bearing-pieces attached to said arms, and springs whereby said bearing-pieces are pressed against the supporting-rod, substantially as set forth.

3. The combination, with the telephone-frame, of a vertical supporting-rod, open arms D D', attached to said frame, outer and inner bearing-pieces, *e f*, arranged in the openings of said arms, and springs *h*, bearing against the outer bearing-pieces, *f*, substantially as set forth.

4. The combination, with the telephone-frame, provided with an arm, D', having a projection, *j*, of a vertical supporting-rod, C, passing through said arm and provided with a vertical slot, *k*, in which said projection engages, substantially as set forth.

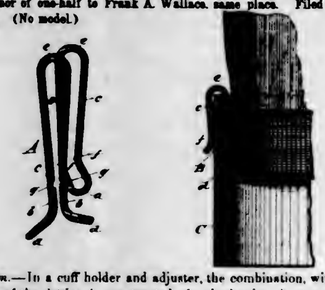
354,470. BEAR-TRAP. OCTAVE GRAVEL, Spalding, Mich. Filed Aug. 3, 1886. (No model.)



Claim.—1. In a bear-trap, the combination, with the shank A, having the head-plate C, provided with the arm D, of the barrels pivoted to the arm D, the pivoted trigger arm or lever, the hammer or collar H, sliding on the stem A, the spring I, bearing against the said collar or hammer, the trip-rod for the attachment of the bait and connected to the trigger arm or lever, and the needle-arm arranged in the path of the collar or hammer and adapted to be forced by the same against the cartridges in the barrel when the trigger-lever is tripped, for the purpose set forth, substantially as described.

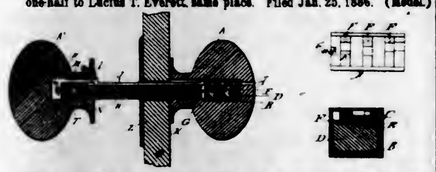
2. In a bear-trap, the combination of the stem A, having the slot *a*, the head-plate attached to the slotted end of the stem and provided with the arm B, the barrels pivoted to the arm B, the needle-arms having the yoke working in the slot *a*, the spring G, bearing rearwardly against the said yoke, the sliding spring-actuated collar or hammer H on the stem A, the pivoted trigger-lever adapted to engage the said collar or hammer, the trip-rod arranged for the attachment of the bait and connected to the trigger-lever, and the lock-pin or means to secure the barrel in place when loaded, substantially as described.

354,471. CUFF-HOLDER. FREDERICK J. HALL, Wallingford, Conn., assignor of one-half to Frank A. Wallace, same place. Filed Mar. 31, 1886. (No model.)



Claim.—In a cuff holder and adjuster, the combination, with a stud or button, of the device A, constructed of a single piece bent centrally of its length and being returned upon itself, and sprung, as at *f*, to bear upon the head of the stud, the said device also having its two extremities sprung together and then branched outwardly, as at *d d*, and notched to clamp the shank of the stud, substantially as shown and described.

354,472. KNOB-LOCK. ADRIAN HITT, Jersey City, N. J., assignor of one-half to Lucius T. Everett, same place. Filed Jan. 25, 1886. (Model.)



Claim.—1. The combination, with a rim or mortise lock, of a knob secured to one end of the spindle and containing an independent bolt, a connecting-bar passing along the spindle, and a spring-bolt located in the opposite knob, adapted to be pressed back by the bolt located in the outer knob, substantially as shown and described.

2. The combination, with the spring-bolt M, of the lock shell or rose having a perforation therein, connecting-bar J, bolt D, cross-bars E, slotted shell B, and knob A, provided with a key-hole, I, substantially as shown and described.

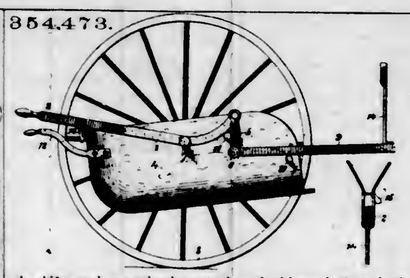
3. The combination, with the knob A, provided with key-hole I, of the shell B, having slots C, cross-bars E, bolt D, and springs F G, substantially as shown and described.

354,473. WHEELED SCRAPER. FRED W. HUBBARD, Columbus, Ohio, assignor to the Kilbourne & Jacobs Manufacturing Company, same place. Filed Nov. 17, 1885. (No model.)

Claim.—1. The combination, with the bowl and the ground-wheels and their journals, of the bifurcated operating-lever supported thereby, having its prongs bent at their forward extremities and connected to the bowl, substantially as set forth.

2. The combination, with the ground-wheels 8 and the bowl 4, of

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the bifurcated operating-lever 1, the wheel-journals 7, projecting outwardly from the respective prongs of said operating-lever, the links 5, connecting the extremities of the respective prongs to the bowl, the stud 11, projecting from the bowl in rear of said links, the catch 13, and the draft-hounds connected to the bowl, all constructed and arranged to operate substantially as set forth.

3. The Y-shaped standard mounted on the tongue and provided with a catch to receive and retain the operating-lever, substantially as herein set forth.

4. The combination, with the ground-wheels 8 and the bowl 4, of the bifurcated operating-lever 1, having its prongs bent at their extremities, substantially as described, the wheel-journals projecting outwardly from the respective prongs, the links 5, connecting the extremities of the prongs with the bowl, the draft-hounds 9, connected to the bowl, the studs 10 and 11, projecting from the bowl across the path of the hounds 9 and the links 5, respectively, and a catch for holding the bowl elevated in carrying position, substantially as set forth.

354,474. WHEEL. FRED W. HUBBARD, Columbus, Ohio, assignor to the Kilbourne & Jacobs Manufacturing Company, same place. Filed Mar. 22, 1886. (No model.)



Claim.—1. A vehicle-wheel having a flanged or T-rail tire and spokes passed through slots therein, the several ends of the respective spokes abutting against and meeting around the hub, box, or axle, and secured against spreading by collars or flanges surrounding said hub, box, or axle on the outside of the spoke ends, as explained.

2. The combination of the flanged or T-iron rim 1 2, rigid spokes 4, passing through slots 3 and set to the flange 2, an axle or box, 5, against which the ends of the spokes bear, and suitable keys, 6 7, and flanges or collars 9 for securing them, substantially as set forth.

3. A wheel having a flanged or T-rail tire duplex spokes secured thereto, and a tubular hub or spindle flanged at its ends to confine the inner ends of the spokes, substantially as herein shown and described.

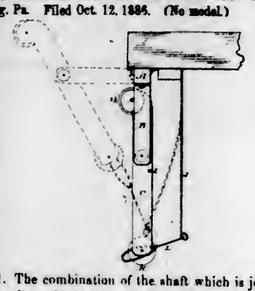
354,475. BRIDLE-BIT. GEORGE M. HUBBARD, New Haven, Conn., assignor to W. & E. T. Fitch, same place. Filed Sept. 20, 1886. (No model.)



Claim.—The combination of the bit-bar A, constructed with an opening at each end at right angles to its axis, with a loop at each end, the said loop divided, one of its ends constructed with a stud to extend through the opening in the end of the bar, and the said stud having a tenon projecting axially from its end, said tenon enlarged at its outer end, the other end of the loop constructed with a recess in axial line with the

stud, the said recess being of a diameter to receive the enlarged end of the stud, and said recessed end closed upon the tenon, substantially as described.

354,476. LINK-LIFTER FOR CAR-COUPLINGS. JOSEPH H. HUBER, Greensburg, Pa. Filed Oct. 12, 1886. (No model.)



Claim.—1. The combination of the shaft which is journaled below the draw-head and provided with arms B, the lifter C, journaled between the arms B, and provided with a roller at one end and a weight at the other, a spring, and a coupling for connecting the lower end of the lifter and the spring together, substantially as described.

2. The combination of the shaft journaled under the draw-head, the arms B, rigidly secured thereto, the lifter C, provided with a stop, the spring, and a connection between the spring and the lifter, substantially as set forth.

354,477. PROCESS OF BLEACHING VEGETABLE FIBER FOR THE MANUFACTURE OF PAPER, &c. JOHN A. JUST, New York, and FRANK A. FLETCHER and CALLIE F. GIBBS, Watertown, N. Y.; said Just and Gibbs assignors to said Fletcher. Filed Jan. 14, 1886. (Specimens.)

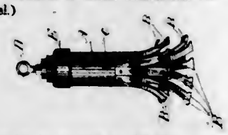
Claim.—1. In the process of bleaching vegetable fibers, first treating the fibers with a bath of sulphate of zinc in solution, and then subjecting them to the action of a bleaching agent, substantially as set forth.

2. In the process of bleaching vegetable fibers, treating the fibers with a warm bath of sulphate-of-zinc solution, and then subjecting them to the action of a bleaching agent, substantially as set forth.

3. The process of bleaching vegetable fibers, which consists in first immersing them in a warm very dilute sulphate-of-zinc solution, and then introducing chloride of lime, hypochlorite of lime, chlorine gas, or solution thereof, substantially as set forth.

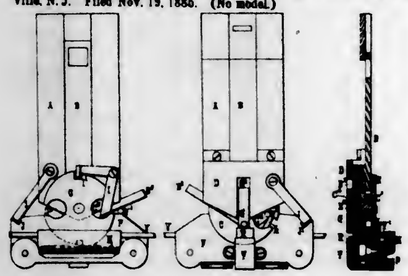
4. The process of bleaching vegetable fibers for the purpose of manufacturing paper therefrom, which consists of the following steps: first, treating the fibers with a bath of sulphate-of-zinc solution; second, introducing a bleaching agent; and, third, adding carbonate of soda, substantially as set forth.

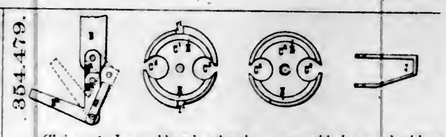
354,478. DEVICE FOR SCRAPING OR CLEANSING WATER OR OTHER PIPES. CHARLES R. KEAR, Minersville, Pa. Filed Aug. 27, 1886. (No model.)



Claim.—In a device for scraping or cleansing water or other pipes, a perforated hollow metal center piece, with a top or cap having an eye, the shank of which extends downward through said center piece and beyond the same, terminating in a hook or eye, and having bolted thereto blades of highly-tempered spring-steel or other metal, curving downward and outward, with the ends thereof extending beyond the circumference of the said center piece, substantially as set forth and described.

354,479. GRIP FOR TRACTION-CARS. JESSE S. LAKE, Pleasantville, N. J. Filed Nov. 19, 1885. (No model.)





Claim.—1. In a cable-grip wherein a cross-cable is passed without raising the grip or depressing said cross-cable, the combination of a supporting main stem, a grip-support, a fixed and a movable grip-jaw, a notched rotating disk or wheel, and tripping mechanism operated by the cross-cable to unlock the disk or wheel, and also to release the grip from the drawing-cable during the passage of the cross-cable through the grip, all substantially as shown and described.

2. The grip-support F, in combination with the stem A, wheel C, and clevis J, whereby said grip-support will be held at a right angle to the stem A, or on a line with the cable V, substantially as described.

3. The grip-closer composed of pieces B B' B³ and piece R, in combination with lever B³, or its equivalent, and cable V', substantially as described, and for the purpose set forth.

4. The pawl I, in combination with the cross-cable V' and the notch I', substantially as described, and for the purpose set forth.

5. The link or clevis J, in combination with the stem A and the grip-support F, substantially as described, and for the purpose set forth.

6. The combination of the support F, having nearly half-circular flanges L L, with the wheel C, having grooves E E, the internally-enlarged recesses C^3 C^3, and notches I' I', substantially as described.

7. The wheel C, with two interior enlarged recesses, C^3 C^3, notches I' I', pawl I, grip-support F, and arm B^3, in combination with the cable V', for the purpose of guiding the said cable V' into the front recess C^3, and also for the purpose (as said cable V' passes through the grip-closer and stem A) of its carrying with it the said recess C^3 to the rear, and positively carrying the former rear recess C^3 to the front, ready for the next cross-cable, and holding it (the said recess C^3) in position by the pawl I and notches I' I', substantially as described.

8. The combination, with a movable grip-jaw, a grip-support, and a notched wheel connecting said support and the main frame, of the sliding grip-operating mechanism separable from said movable grip-jaw, substantially as shown and described.

9. The pieces B B' B^3 and the arm B^3, in combination with the guide-piece G, substantially as described, and for the purpose set forth.

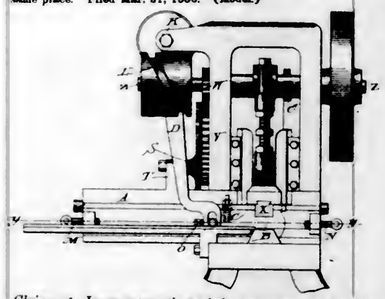
10. The piece S, in combination with the grip-support F and wheel C, substantially as described, and for the purpose set forth.

11. The support F, having the inclined front edge, in combination with the recessed wheel C and the tipping-lever B^3, substantially as described.

12. The combination of the grip-opening mechanism, consisting of the device B, B', B^3, and B^3 and slide G, with piece R, jaw H, and cross-cable V', all substantially as shown and described.

13. In a cable-grip, the support F, having the flanges L L, and the upper curved edge, L', on a different radius or curve from the said flanges, in combination with a crossing cable and a recessed connecting-wheel.

354,480. AUTOMATIC FEED MECHANISM FOR POWER-PRESSES. WILLIAM LEIST, Cincinnati, Ohio, assignor of one-half to Andrew Leist, same place. Filed Mar. 31, 1886. (Model.)



Claim.—1. In an automatic feed for power-presses, said described mechanism, which performs two different motions of a single nipper-bar, said motions consisting of one or more long strokes of the nipper-bar to the required number of short strokes of the said nipper-bar, substantially as and for the purposes set forth.

2. The combination of frictional lever D with frictional flanges E and F, crank I, shaft J, operated by double side cam, L, substantially as and for the purposes set forth.

3. The combination of movable bumper O, spiral spring Q, rod R, lever S, and cam U, in connection with gear-wheels V and W, substantially as and for the purposes set forth.

4. The combination of frictional lever D, frictional flanges E and F, crank I, shaft J, double side cam, L, movable bumper O, spiral spring Q, rod R, lever S, cam U, gear-wheels V and W, the whole arranged as and for the purposes substantially as herein set forth.

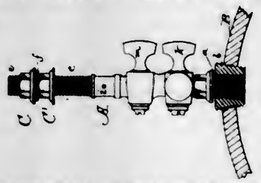
354,481. SAFETY SNAP-HOOK. ISAAC M. MCKAY, Rocklin, Cal., assignor to himself and Henry E. Stafford, same place. Filed May 5, 1886. (No model.)



Claim.—1. The combination, with the hook A, provided with a chambered shank, B, of the spring-acted tongue C, pivoted in the chamber, and the sliding sleeve D, provided with the arm *e*, the said sleeve sliding beyond the free end of the tongue to allow said tongue to spring outward and lock the sleeve in place, substantially as herein shown and described.

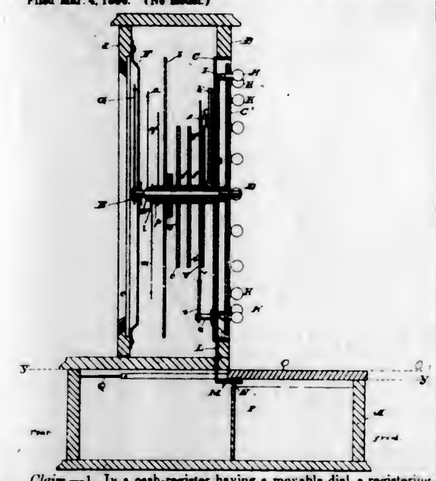
2. As an improved article of manufacture, a safety snap-hook formed of the hook A, having the chambered shank B, the tongue C, provided with the finger *d*, and pivoted in the chamber of the hook, the V-shaped spring *c*, placed in the chamber, and arranged to press the tongue outward, and the loop E, attached to the end of the shank, substantially as herein shown and described.

354,482. PRESSURE-REGULATOR FOR BEER APPARATUS. JACOB G. MUELLER, Buffalo, N. Y. Filed Feb. 24, 1886. (No model.)



Claim.—A pressure-regulator attachment for beer-puncheons, &c., constructed of a single L-shaped pipe, A, provided with the screw-threaded stem *c*, and nuts C C' thereon, the vertical openings *d d* therein, the cross-bar *f*, in connection with spring *e* and nuts C C', the valve *g*, attached to lower end of spring *e*, and working in connection with seat *h*, air-holes *i i*, cocks *k m*, and attached gage G, all arranged and operating substantially as specified.

354,483. CASH-REGISTER. THOMAS MUNNELL, Mount Sterling, Ky. Filed Mar. 4, 1886. (No model.)



Claim.—1. In a cash-register having a movable dial, a registering dial and a customer's dial, the said operating-dial carrying knobs and levers opposite numbers corresponding with the amount to be registered, the customer's dial indicating each separate movement and the multiplex private dial making a continuous registry, the several parts constructed and combined substantially as herein set forth.

2. In a cash-register, a movable dial rotating in connection with a central stem and having peripheral knobs and levers, also numbers to correspond with said knobs, in combination with a train of mechanism and a series of dial-fingers, and a single dial-finger rearwardly on the stem over a dial-plate fixed directly to the said plate-stem and rotating therewith, substantially as herein set forth.

3. In a cash-register, the register-dials, the cash-drawer, a bell, a central stem, and an operating-dial fixed on said central stem and having peripheral knobs and levers, and carrying inwardly an arm so disposed that said bell may be rung before the register is completed and before the opening of the cash-drawer, the several parts combined substantially as herein set forth.

4. In a cash-register, the register-dials, an operating-lever, a cash-drawer, and an operating-dial having peripheral knobs and arms so disposed as to operate a lever, whereby a complete registry must be made by the dials before the cash-drawer is opened, substantially as herein set forth.

5. The combination, with the cash-drawer, its lid, and the vertical lever L, of the operating-dial C', having knobs H and numbers to correspond therewith, the said knobs passing through the dial and provided on their inner ends with angular arms J, provided with springs K, so disposed as to engage with the upper end of the vertical lever L, and thus open the lid of the cash-drawer, substantially as herein set forth.

6. The combination of the central stem, D, the operating-dial C', fixed thereon and carrying the knobs H and arms J, with the fixed arm *r* and train of mechanism, the bell *k'*, the spring *d'*, and a metal piece, *a'*, carrying a hammer, *j'*, the said arm being so disposed as to partially rotate said metal piece *a'* and hammer *j'*, thus causing it to be thrown forcibly forward by the spring *d'* against the bell *k'*, the said operating-dial being slightly rotated, substantially as herein set forth.

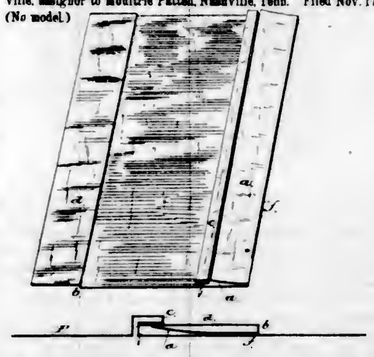
7. The combination of the operating-dial C', knobs H, the arms J, springs K, the vertical lever L, keepers K', spring S, hook M, lid O, till P, and springs Q, substantially as described.

8. The combination of the central stem, D, the operating-dial C', the spur-wheels V, *i*, *o*, *g*, and *k*, the pinions *f*, *g*, and *n*, the sleeves, and dial-fingers *a*, *m*, and *q*, the stem D having at its rear end the removable sleeve E and dial-hand G, substantially as herein set forth.

9. The combination of the case B, the circular plate C, the bridge U, the door D, the operating-dial C', the stem D, the adjustable sleeve E, the dial F, and the hand G with the arm *r*, the pawl *s*, the train of mechanism, the metal piece *a'*, the springs *d'*, the hammer *j'*, and the bell *k'*, substantially as herein set forth.

10. The combination of the case B, the operating-dial C', the knobs H, arms J, the lever L, the cash-till P, and lid O with the train of mechanism carrying the dial-fingers, the arm *r*, metal piece *a'*, the hammer *j'*, and the bell *k'*, the whole arranged as and for the purpose substantially as herein set forth and described.

354,484. METALLIC ROOFING-PLATE. GEORGE PATTEN, Clarksville, assignor to Moultrie Patten, Nashville, Tenn. Filed Nov. 17, 1885. (No model.)



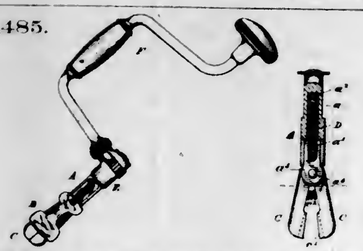
Claim.—1. A metallic roofing-plate having one edge doubled toward a groove which receives the edge of the adjacent plate, the doubled edge acting as a spring to hold the edge of the adjacent plate, and forming a water-tight seam, substantially as shown and described.

2. A metallic roofing-plate formed at one edge with the raised flange *d* and shoulder *b*, and at the opposite edge with the outward projection *c*, forming a recess, *i*, and the doubled edge *f*, forming the spring *a*, substantially as described.

354,485. BIT-HOLDER. REUBEN W. PERRY, Grafton, assignor of one-half to James W. Stockwell, Sutton, Mass. Filed Jan. 11, 1886. (No model.)

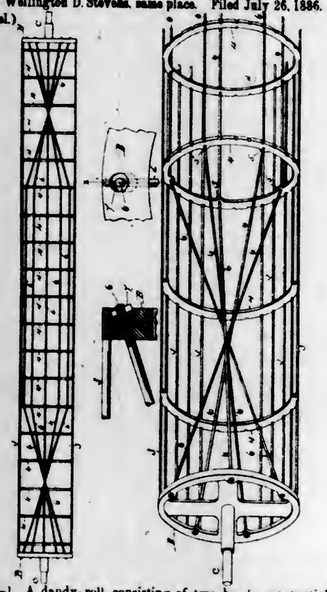
Claim.—The combination, in a bit-holder, with the peculiarly-constructed shank A, the upper end of which is fitted to connect with the bit-brace, while the other or lower end is made with flattened sides and long slots *a'*, terminating with rounded-ended ears a^2, between which a central hole, a^3, extends longitudinally up to the top of the flattened sides, all as shown and described, of the double-inclined flattened-sided

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jaws C C, their upper ends being lapped and hinged between the ears a^3 by pivot a^4, spiral spring D, arranged in central hole, a^2, sleeve B, provided with flattened sides and flaring end to fit the flattened sides of shank A, and flattened sides and upper wedged-shaped or inclined edges of jaws C C, spring c^2, and pin b, said parts being constructed and relatively arranged for operation substantially as and for the purposes described

354,486. DANDY-ROLL. William H. Pool, Springfield, Mass., assignor to Wellington D. Stevens, same place. Filed July 26, 1886. (No model.)



Claim.—1. A dandy-roll consisting of two heads, substantially as described, a series of longitudinal rods extending between said heads and having their ends in engagement with the latter, a series of rings located within said rods, having the latter attached to their peripheries, and a series of truss-rods extending from head to head of the roll, crossing each other near each head and passing longitudinally through several of said rings, and having a screw engagement with one or both of said heads, substantially as set forth.

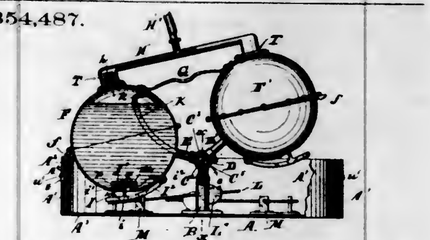
2. A dandy-roll having a suitable metallic frame, substantially as described, and a series of truss-rods having their ends attached to the heads of the roll and crossing each other near said heads and extending longitudinally within and in engagement with the inner side of the central portion of the roll-frame, substantially as set forth.

3. A dandy-roll having a suitable metallic frame, substantially as described, and a series of truss-rods having a screw attachment with one or both heads of the roll and crossing each other near said heads and extending longitudinally within and in engagement with the inner side of the central portion of the roll-frame, substantially as set forth.

354,487. AUTOMATIC HYDRAULIC COMPRESSOR OF AIR OR OTHER GASES. Harry C. Rolf, Cincinnati, Ohio, assignor, by direct and mesne assignments, to the Acme Manufacturing Stock Company, same place. Filed Dec. 20, 1884. (No model.)

Claim.—1. The combination of the chambers F F', pipes K K, hollow stems E E', hollow oscillating shaft D, having diaphragmic division S, and passage-ways D' D^2, provided with ports d^2 C^6 C^5, and valve-seats, journal-bearings C^3, having air or gas ports C^4, and liquid-inlet port C^5, as and for the purposes set forth.

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2. The combination of lever composed of parts L' L^2 L^3 L^4 L^5 L^6, and fulcrumed at M M L^2 L^3, and weight, valve I, and chamber, substantially as and for the purposes set forth.

3. The combination of lever having parts L' L^2 L^3 L^4 L^5 L^6, and fulcrumed at M M L^2 L^3, and lever I^3, fulcrumed at i^2, and valve I', substantially as and for the purposes set forth.

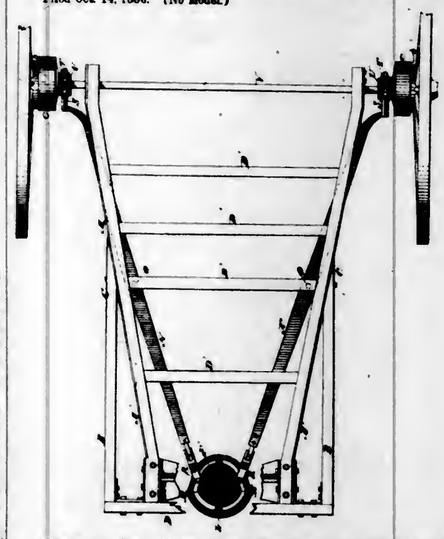
4. The combination of the moving chambers F F', outlet-valve I' in the bottom thereof, weight and lever for opening said valve, the weight being adjustable on the lever and provided with set-screw l, substantially as set forth.

5. As an outlet-valve for the chamber of an air-compressor, the valve I', consisting of upper plate, m, annular plate n, provided with packing p, and mounted on stem i, which latter is provided with the ball-head i', and made rigid at its lower end to the arm I^2, which latter is pivoted to the chamber, as and for the purposes set forth.

6. In combination with an automatic air-compressor, the pressure-regulator consisting of pipe C, having diaphragm C^8, provided with port C^7, appropriate housing inclosing bucket-valve N^2, provided with openings n', and means whereby the pressure on the bucket-valve is regulated.

7. In combination with an air-compressor, the pressure-regulator consisting of pipe C, having diaphragm C^8, provided with port C^7, appropriate housing inclosing bucket-valve N^2, provided with openings n', and held down by the pressure device, consisting of pistons N^3 and N^4, spring N^5, and screw N^6, substantially as and for the purposes set forth.

354,488. ROAD-VEHICLE. Clayton W. Russell, Springfield, Ohio. Filed Oct. 14, 1886. (No model.)



Claim.—1. In a self-propelling road-vehicle, the combination, with the guiding-wheel and its vertical shaft, pivoted levers, and a device mounted on said shaft to which said levers are connected and by which one is moved and the other, not moved by turning said shaft, of the driving-shaft, driving-wheels loosely mounted thereon, and friction-clutch mechanism constructed to connect the wheels and shaft and actuated by said levers.

2. In a self-propelling road-vehicle, the combination, with the guiding-wheel and a cam on its shaft, of the driving shaft and the driving-wheels mounted loosely thereon and carrying a friction-flange, friction-clutches which engage said flange, and levers which actuate said clutches at one end and which are controlled by said cam at the other end, whereby when the guiding-wheel is running directly ahead both clutches equally engage the flange, and when running to either side one clutch engages while the other does not, or one engages more severely than the other.

3. In a self-propelling road-vehicle, the combination, with the steering-wheel and its shaft, and a slotted cam secured to the shaft, of the driving-shaft, the driving-wheel loosely mounted thereon and having friction-flanges, clutches mounted on the driving-shaft and constructed to frictionally engage said flange, eccentric levers which operate the clutches, sleeves which actuate the eccentric levers, and actuating-levers connected with the sleeves and in engagement with the slots in the cam, for the purpose set forth.

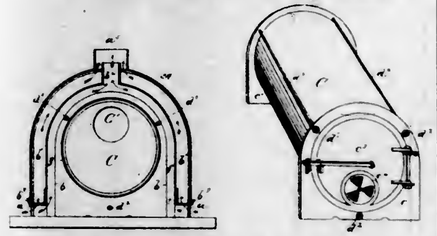
4. In a self-propelling vehicle, the combination, with the guiding-shaft, of a cam having slots concentric to the center of that shaft for a portion of their length, which run divergently to that curve for another portion of their length, and which again become concentric to said center for still another portion of their length, this latter portion being also of greater radius than that of the other portions.

5. In a self-propelling road-vehicle, the combination, with the driving-shaft and two driving-wheels loosely mounted thereon and having each a flange adapted to be engaged by a clutch, of friction-clutches mounted rigidly on that shaft, there being one clutch for each wheel, an eccentric lever for each clutch by which it is operated, and a sliding sleeve to which each eccentric lever is connected, mounted on said shaft.

6. In a self propelling road-vehicle, the combination, with a driving-shaft and a driving-wheel mounted loosely thereon and having a friction-flange, of a friction-clutch mounted rigidly on the shaft and having spring-jaws, an eccentric lever pivotally mounted in bearings which draw against one of said jaws and arranged to bear against the other of said jaws, whereby when the lever is actuated it forces these jaws against that flange and unites the wheel and shaft together more or less positively, according to the movement given the lever.

7. In a self-propelling road-vehicle, the combination, with a driving-shaft and a slidingly-mounted sleeve, of a driving-wheel mounted loosely on the shaft, and a drum secured to the wheel and having an annular flange inside thereof, a segmental clutch having spring-jaws and mounted rigidly on the shaft, and an eccentric lever pivoted in eyebolts extended through said jaws, and having nuts to prevent drawing out, the said lever being also connected with the sleeve.

354,489. HEATING-FURNACE. Gideon A. Russell, Lyons, Iowa. Filed Nov. 30, 1885. (No model.)



Claim.—1. The combination, with end plates, c c', provided with a flue-door and a smoke-exit, of a horizontal fire-box adjustably connected with and supported by the end plates by suitable devices, as herein set forth, whereby the entire fire-box may be rotated and reversed in position, substantially as and for the purposes described.

2. In a heating-furnace, the combination, with the end plates, c c', provided with a flue-door, a smoke-exit, and bearing-collars, of a horizontal fire-box, C, loosely mounted on the collars, and means, as herein set forth, for securing in place the plates, whereby the entire fire-box may be rotated and reversed in position, substantially as and for the purposes described.

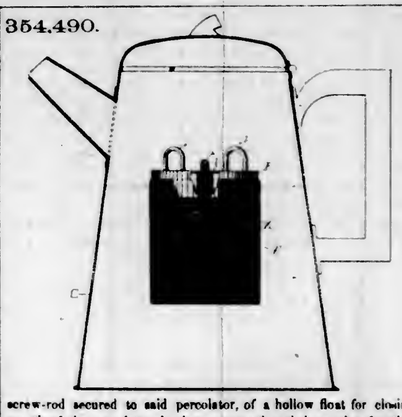
354,490. FLOAT AND PERCOLATOR FOR COFFEE-POTS. Martin Sumahan, Cleveland, Ohio. Filed Mar. 10, 1886. (No model.)

Claim.—1. The combination, with a percolator, of a disk-shaped float for closing the mouth of the percolator and devices secured to the percolator for securing the float thereto, substantially as set forth.

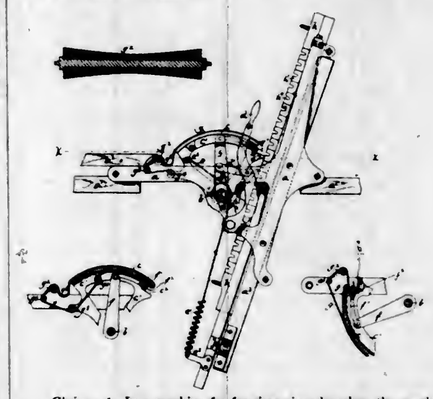
2. The combination, with a percolator having an open end and a screw-rod secured to said percolator, of a hollow float for closing the mouth of the percolator, having a screw-threaded opening for the passage of screw-rod, substantially as set forth.

3. The combination, with a percolator having a screw-rod secured to the bottom thereof and projecting upwardly beyond the mouth, of the hollow float having the threaded tube secured therein and the loop secured to the upper side of said float, substantially as set forth.

354,490.



354,491. CIGAR-MACHINE. William M. Steinle, Allegheny City, assignor to the Raleigh Manufacturing Company, Pittsburg, Pa. Filed Sept. 3, 1884. (No model.)



Claim.—1. In a machine for forming cigar-bunches, the combination of a curved oscillating forming-plate with a forming-roll past which the forming-plate vibrates, a slack belt extending over the surface of the same and over the roll, so as to form a bight or loop for receiving the tobacco between them, an ejector which vibrates with the oscillating plate, and mechanism for moving the ejector, substantially as and for the purposes specified.

2. In a machine for forming cigar-bunches, the combination, with a forming-roll and slack belt, of a curved oscillating forming-plate loosely journaled on its shaft, a shaft having a crank-arm, a lever pivoted on the frame of the oscillating forming-plate, a link which connects the lever with the crank-arm of the shaft, an ejector actuated from the shaft, and mechanism for reversing the movement of the oscillating forming-plate when released, substantially as and for the purposes specified.

3. The combination of the curved oscillating forming-plate and forming-belt, with a shelf or ledge for receiving the bunch when discharged from the forming-belt, and a cross-bar, with mechanism for reciprocating it to eject the bunch from the ledge, substantially as and for the purposes described.

4. In a cigar-bunching machine, the combination, with a forming-roll and slack belt, of an oscillating forming-plate, a reciprocating ejector which vibrates with the plate, a sliding mold, and a shaft having crank-arms from which the plate, ejector, and mold are actuated, substantially as and for the purposes specified.

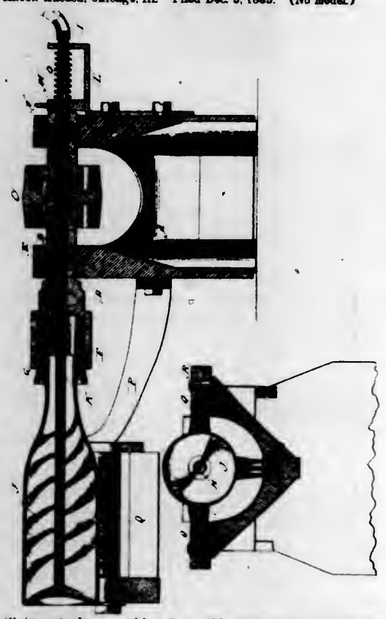
5. In a machine for bunching cigars, the combination, with bunching mechanism, of the sliding mold, pivoted spring-levers, a tension-plate actuated by the spring-levers and arranged to bear on one edge of the

sliding mold, and a pawl actuated from the bunching mechanism for moving the mold, substantially as and for the purposes specified.

6. The oscillating forming-plate and its receiving-ledge, in combination with an inclined mold and a reciprocating ejector, f^2, arranged under the forming-plate for transferring the bunch from the bunching mechanism to the mold-cavity, substantially as and for the purposes described.

7. In a cigar-bunching machine, the combination, with the forming-roll and oscillating forming-plate, of an endless band or slack belt and the longitudinally-slotted grip or clamp-roller provided with a clamp-screw which permits the shifting or adjustment of the belt to compensate for wear, substantially as and for the purposes specified.

354,492. BOTTLE-WASHING MACHINE. FREDERICK STOTZ and ANTON HEUSCH, Chicago, Ill. Filed Dec. 5, 1885. (No model.)



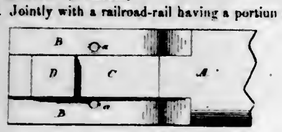
Claim.—1. In a machine for washing bottles, the combination of a tubular shaft having at its front end a recess or socket adapted to receive the mouth of the bottle to be operated upon, with an interior tube journaled in the said tubular shaft, adapted to extend through the front end of the latter into the bottle to be operated upon, and provided at its front end with diagonally-arranged bristles, substantially as and for the purpose set forth.

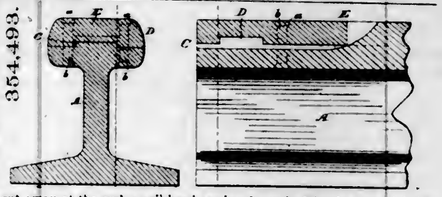
2. In a machine for washing bottles, the combination, with a tubular shaft having at points midway of its ends a socket adapted to receive the mouth of the bottle to be operated upon, of an interior tube journaled in the said tubular shaft and having a series of diagonally-arranged brushes and a series of perforations at points midway of its end, and having its rear end connected with a water-supply, and a spring arranged to force the said brush-tube automatically in a forward direction, substantially as and for the purpose set forth.

3. In a machine for washing bottles, the combination of a rotary tubular shaft having at its front end a socket adapted to receive the mouth of the bottle to be operated upon, with an interiorly-arranged tube provided at its front end with a series of brushes and series of perforations, and having its rear end connected with a water-supply, a spring arranged to force the said brush-tube automatically in a forward direction, and arms or brackets extending forwardly from the frame and carrying a series of brushes against the outer wall of the bottle that is being operated upon, all arranged and operating substantially in the manner and for the purpose herein set forth.

354,493. REPAIRING RAILS. GEORGE STRATTON, Plainview, Minn. Filed Sept. 11, 1886. (No model.)

Claim.—1. Jointly with a railroad-rail having a portion of its head

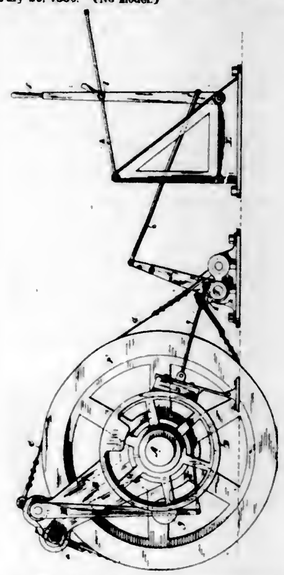




cut away at the end, a rail-head section formed of harder material than that of the rail and fitted and connected to said cut-away portion to complete the rail, substantially as shown and described.

2. Jointly with the rail A, having formed on the end thereof the tongue C and lug D, the cap E, grooved and recessed to receive the tongue C and lug D, and means, substantially as shown and described, for securing the cap to the rail.

354,494. FRICTION-CLUTCH. EDGAR L. STREET, Johnstown, Pa. Filed July 20, 1886. (No model.)



Claim.—1. In a friction-clutch, the combination, with a clutching-band and a wheel to which it is applied, of mechanism, substantially such as described, rendered operative by friction, to tighten said band, and operated by centrifugal force to release it, substantially as described.

2. In a friction-clutch, the combination, with a clutching-band held at one end by a support moving therewith and at the opposite end by one end of a lever, and a wheel to which said band is applied, of means, substantially such as described, for moving the other end of said lever in one direction by friction and in the opposite direction by centrifugal force, substantially as described.

3. In a friction-clutch, the combination, with an arm carrying the clutching-band, a drum or wheel to which the band is applied, a lever supporting one end of said band, pivoted to the said arm and connected at one end to a wheel free on the shaft, but turned by said lever, of a brake for application to said wheel to retard its motion, and thus move the lever in one direction against centrifugal force tending to move it in the opposite direction, substantially as described.

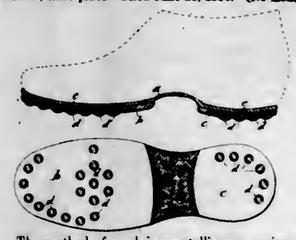
4. The combination, with a brake-band held by a stationary support, and a clutching-band operating upon the same wheel, of a lever carrying one end of the clutching-band, the said lever being weighted and attached to a wheel free on its shaft, whereby when the said wheel is retarded in its motion the lever will be moved and the clutching-band tightened, substantially as described.

5. The combination, with the arm keyed to the shaft and carrying the clutching-band, and the lever for tightening the same, one end of said lever being pivotally attached to a wheel free upon its shaft, of a brake applied to said wheel to retard its motion and tighten the clutching-band, substantially as described.

6. In a friction-clutch, the combination, with a clutching-band operating upon a friction-wheel to which the load is applied, of a lever

carrying one end of the clutching-band, said lever being weighted and attached to a wheel free on its shaft, whereby when the said wheel is retarded in its motion the lever will be moved and the clutching-band tightened, and when released centrifugal force acting upon the weighted lever will release said clutching-band, substantially as described.

354,495. METHOD OF ATTACHING WEAR-POINTS TO RUBBER BOOTS. JUDSON L. THOMSON, Syracuse, N. Y., assignor to Judson L. Thomson & Co., same place. Filed June 25, 1886. (No model.)



Claim.—The method of applying metallic wear-points to the soles and heels of rubber boots and shoes, consisting in forming the boot or shoe with an unvulcanized-rubber bottom and forming a separate supplemental sole or heel of unvulcanized rubber, then cementing onto the upper side of the latter a lining of canvas or other suitable material, then forcing the attaching-prongs of the metallic wear-points through the said supplemental sole and heel and through the lining thereof, and clinching them upon the latter, then cementing the lined side of the supplemental sole and heel to the unvulcanized-rubber bottom of the boot or shoe, and then vulcanizing the latter with its aforesaid attachments, substantially as specified.

354,496. RUBBER BOOT OR SHOE. JUDSON L. THOMSON, Syracuse, N. Y., assignor to Judson L. Thomson & Co., same place. Filed Aug. 12, 1886. (No model.)

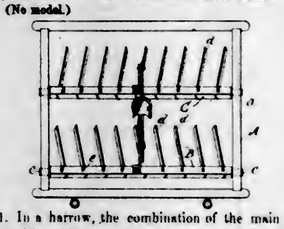


Claim.—1. In a rubber boot or shoe, the combination, with the rubber sole or heel, of a metallic re-enforcing plate provided with two or more perforations and placed upon the upper sides of said sole or heel, and rivets passing through the sole or heel from the under side thereof, and through the perforations of the metallic plate, and clinched upon the said plate, substantially as set forth and shown.

2. In a rubber boot or shoe, the combination, with the rubber sole, of metallic plates distributed over different parts of the upper side of said sole and each provided with two or more perforations, and rivets passing through said sole, and through the perforations of the metallic plates, and clinched upon said plates, substantially as set forth.

3. In combination with a rubber sole or heel, and rivets passing through the same, a re-enforcing plate applied to the upper side of said sole or heel, and provided with perforations for the reception of the clinching ends of the rivets, and formed with side excisions between the perforations for the purpose of imparting elasticity to the plate, and also for exposing more surface of the sole or heel for cementing the same onto the boot or shoe, substantially as set forth.

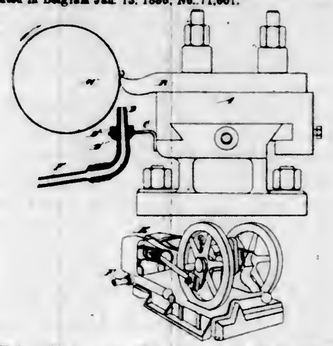
354,497. HARROW. JOHN UNDERWOOD, Sheridan, Ind. Filed Sept. 13, 1886. (No model.)



Claim.—1. In a harrow, the combination of the main frame, the rock-shaft mounted in said frame, a series of straight flat blades secured to said rock-shaft and projecting therefrom and inclined horizontally and vertically in relation thereto, substantially as specified, and means for adjustably securing said rock-shaft in position.

2. In a harrow, the combination of the main frame, two rock-shafts mounted in said frame, means, substantially as shown and described, for securing the rock-shaft in different positions, and two series of straight flat blades secured to said rock-shafts and projecting therefrom, said blades being inclined horizontally and vertically in relation to their respective rock-shafts, and oppositely inclined in the two series, substantially as specified.

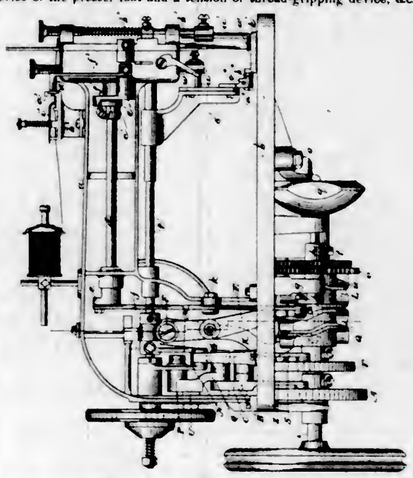
354,498. DEVICE FOR COOLING MACHINE-TOOLS. PROSPER VAN DEN KERCKOVE, Ghent, Belgium. Filed July 22, 1886. (No model.) Patented in Belgium Jan. 13, 1886, No. 71,601.



Claim.—The apparatus E, for delivering fluid at a low temperature, the flexible hose F, nozzle D, and holding means, as D' D', in combination with each other and with the cutter of a lathe or other machine tool, and with a connection, as C, for supporting the nozzle on the tool-rest so as to be carried therewith, substantially as herein specified.

354,499. SEWING-MACHINE. ERASTUS WOODWARD, Somerville, assignor to the Pentacket Variable Stitch Sewing Machine Company, Haverhill, Mass. Filed Feb. 17, 1886. (No model.)

Brief.—The construction involves an additional lever to those employed for feeding in the patent of Woodward and Keith, No. 316,927, dated April 28, 1885, and other minor features, as the friction-adjusting device of the presser-foot and a tension or thread-gripping device, &c.



Claim.—1. The combination of the stitch-forming mechanism, the feeder, the arm and rock-shaft carrying the feeder, the adjustable mechanism for oscillating said rock-shaft, a lever pivotally connected to the rock-shaft, a movable fulcrum for said lever, a second lever by which said fulcrum is supported, adjustable mechanism, substantially as described, whereby said fulcrum may be either oscillated or held stationary, and adjustable mechanism, substantially as described, for oscillating said lever, as set forth.

2. The combination of the stitch-forming mechanism, the feeder, the arm and rock-shaft carrying the feeder, the adjustable mechanism for oscillating the rock-shaft, the lever E, pivotally connected to the rock-shaft, the movable fulcrum G for said lever, the lever K', supporting said fulcrum, the adjustable fulcrum I,' for said lever, and means, substantially as described, for oscillating said levers, as set forth.

3. The combination of the stitch-forming mechanism, the feeder, the arm and rock-shaft carrying the feeder, the adjustable mechanism

for oscillating said rock-shaft, the lever E, pivotally connected to the rock-shaft, the fulcrum G and its operating mechanism, the slide I, to which the lower end of said lever is connected, the lever J, pivoted to said slide, the adjustable fulcrum for said lever, and the cam whereby said lever is oscillated, as set forth.

4. In a sewing-machine of the class described, having a universally-movable work-feeder, the combination, with the needle, shuttle, automatic work-feeder, and a tension device adapted to produce a constant tension on the thread, of automatic thread holding and releasing devices, substantially as described, whereby the needle-thread is held while the shuttle is entering the needle-loop, and released while the work is being moved by the work-feeder, as set forth.

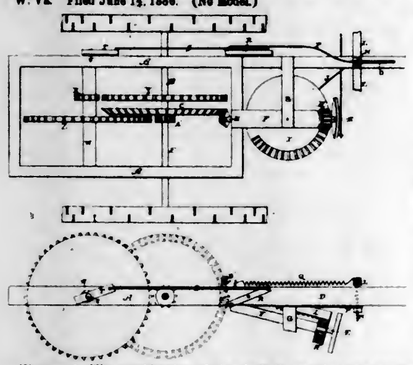
5. The thread grasping and releasing device composed of the fixed plate having an orifice for the needle-thread and the reciprocating plate which alternately covers and exposes said orifice, as set forth.

6. The combination of the needle, the shuttle, the work-feeder, an automatic thread grasping and releasing device, and a tension device, all arranged and operating substantially as and for the purpose specified.

7. The combination, with the feeder-carrying arm or slide and the feeder loosely pivoted thereto, of a frictional connection between the said arm or slide and the pivot of the feeder, whereby the latter is prevented from swinging with too much freedom, substantially as set forth.

8. The combination, with the feeder-carrying slide r' and the feeder k', having the pin a^4 rigid therewith, of the split socket b and one or more set-screws for compressing said socket against said pin, whereby the feeder is prevented from swinging on said slide with too much freedom, substantially as set forth.

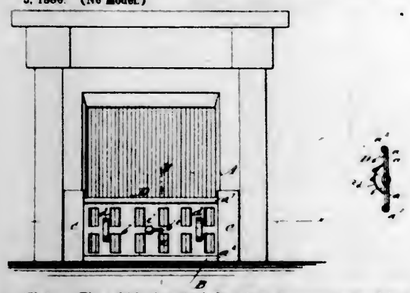
354,500. MOWER AND REAPER. RICHARD BUTLER, Glen Easton, W. Va. Filed June 14, 1886. (No model.)



Claim.—1. The combination of the shaft E, carrying the crank or wrist-pin for operating the sickle, and a pinion, H, with the whee l, having teeth upon only a portion of its edge, a connecting-rod connected to this wheel, the double-tree, which has a sliding movement upon the tongue, and a spring for returning the double-tree to position when left free to move, substantially as shown.

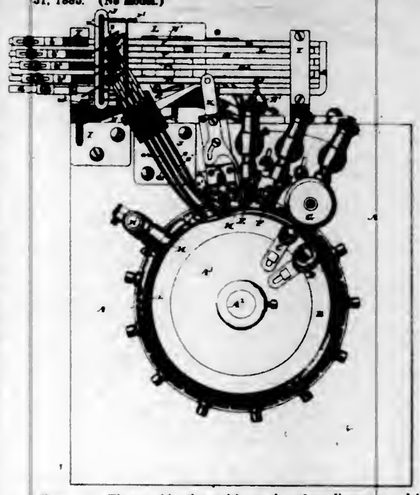
2. The combination of the wheel I, having teeth upon a portion of its edge only, a connecting-rod, the sliding double-tree, a spring for returning the double-tree to position, and a mechanism, substantially as shown, connected to the double-tree for throwing the parts in and out of gear, substantially as described.

354,501. FENDER. BAKER VADEN BUTTS, Halifax, N. C. Filed May 5, 1886. (No model.)



Claim.—The within-described fire-place protector, comprising the plates C, bent to form the corresponding loops c, and adapted to fit over the angles of the jambs, and the register D, fitted into loops c, and consisting of the slotted inner plate, *a*, having its upper and lower edges bent to form grooves a^2, and slotted outer plate, *b*, sliding in said grooves, and provided with handles, as specified.

354,502. KNITTING-MACHINE. JOHN BYFIELD, Lowell, Mass., assignor to the Byfield Manufacturing Company, same place. Filed Dec. 31, 1885. (No model.)



Claim.—1. The combination, with a series of needles arranged in a circle, a stitch-forming mechanism co-operating therewith, a plurality of vibrating yarn-guiding levers, a plurality of vertically-reciprocating rods connected to said yarn-guiding levers, a plurality of cam-bars for operating said vertical rods, and a pattern mechanism for controlling the movements of said cam-bars, of a yarn-tension device attached to each of said vertically-reciprocating rods, consisting of two upright rods or bars, a pivoted tension-lever provided with a yarn-receiving eye, and a spring for throwing said tension-lever from a perpendicular position to deflect the yarn from a direct line, and a horizontal bar for moving said tension-lever into a perpendicular position when the vertically-reciprocating rod carrying it is moved upward by a cam-bar, substantially as described.

2. The combination, with a series of needles arranged in a circle, a stitch-forming mechanism co-operating therewith, a plurality of vibrating yarn-guiding levers, a plurality of vertically-reciprocating rods connected to said yarn-guiding levers, a plurality of cam-bars for operating said vertical rods, and a pattern mechanism for controlling the movements of said cam-bars, of a yarn-tension device attached to the upper end of each of said vertically-reciprocating rods, consisting of two vertical rods or bars, two pivoted levers, each provided with a yarn-receiving eye, a spring for throwing one of said pivoted levers out of a perpendicular position to deflect the yarn from a direct line, the other of said levers being constructed and arranged to clamp the yarn between it and one of the uprights, and the bars *u* and *u'*, substantially as described.

3. In combination with the bed of the machine, the stand N, provided with the stud *i*, and the arm N', the pattern cylinder or drum O, mounted on said stud and provided with a plurality of circumferential rows of removable pins, mechanism, as set forth, for operating said drum, a plurality of vertically-movable pins mounted in the arm N' of the stand N, the reciprocating bar L, carrying the fixed fulcrum-pin *s*, and provided with the arm *h'*, a plurality of pawls, *r*, *r'*, r^3, or r^5, each provided with the open slot r^4, to engage the fulcrum-pin *s*, a plurality of springs, r^4, engaging with said pawls, the lever L', the cam M, and a plurality of cam-bars, *a*, *a'*, a^2, and a^3, all constructed and arranged to operate substantially as and for the purposes described.

4. The combination of the pattern cylinder or drum O, provided with radial teeth in the edge of its rim, with the spring-supported rod l', the spring-pressed pawl or latch-bolt *l*, mounted in bearings in the lower end of said rod l', the bar L, provided with the wedge *m* and the downwardly-projecting arm *h'*, the lever L', and the cam M, all constructed and arranged to operate substantially as described.

5. The combination of the pattern cylinder or drum O, provided with radial teeth in the edge of its rim, with the spring-supported rod l', the spring-pressed pawl or latch-bolt *l*, mounted in bearings in the rod l', the bar L, provided with the arm *h'*, the wedge *m*, the lever L', the cam M, and the lever P, constructed and arranged to be interposed between the pawl *l* and the teeth of the cylinder O to arrest the operation of said cylinder, substantially as described.

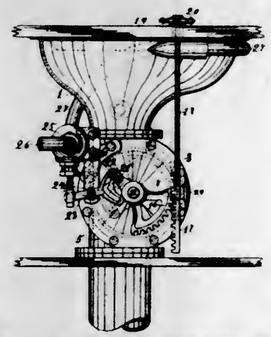
6. The combination of a series of barbed or spring needles arranged in a circle, the guide-plate *v'*, located outside of the circle of needles and in close proximity thereto, and the plate v^2, located opposite thereto within the circle of needles, substantially as described.

7. The combination of a series of needles arranged in a circle, the bracket K', provided with the funnel-shaped passage *v*, and having secured thereto the guide-plate *v'*, located outside of and in close proximity to the circle of needles, and the guide-plate v^2, located opposite thereto within the circle of needles, all substantially as described.

8. The combination, with a series of needles arranged in a circle, of a stitch-forming mechanism co-operating therewith, a plurality of vibrating yarn-guiding levers, a plurality of vertically-reciprocating rods connected to said yarn-guiding levers, a plurality of cam-bars for operating said vertical rods, a pattern mechanism for controlling the movements of said cam-bars, a yarn-tension device attached to each of said vertically-reciprocating rods, consisting of two upright rods or bars, and a pivoted tension-lever provided with a yarn-receiving eye, and a spring for throwing said tension-lever from a perpendicular position to deflect the yarn from a direct line, a bent rod, the horizontal portion of which is adapted to operate said levers to bring them into a vertical position, a spring for forcing said bent rod downwardly, a cam-wedge for raising said bent rod, and mechanism for reciprocating said wedge, all substantially as and for the purposes described.

9. The combination, with a needle-head of a circular-knitting machine, of the guide-plate *v'*, located in a fixed position outside the circle of needles and in close proximity thereto, substantially as and for the purposes described.

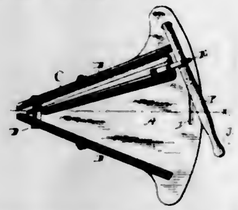
354,503. SHIP'S WATER-CLOSET. FRANK W. CROSS, Washington, D. C. Filed July 6, 1886. (No model.)



Claim.—1. In a ship's water-closet having a cylindrical or drum-shaped valve, 9, in combination with the quadrant or segment 16, rack 17, arm of quadrant 21, lever 23, pivoted in the center, having a slotted T-shaped head, guide-bracket 29, supporting-bracket 30, and water-supply valve 25, substantially as arranged and for the purposes herein set forth.

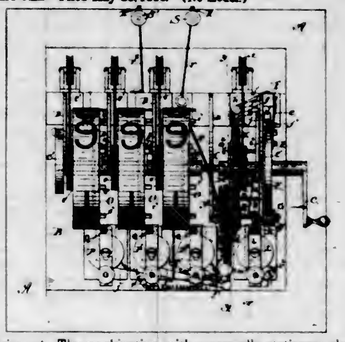
2. In a ship's water-closet having a bowl, 1, chamber 3, admission-passage 4, discharge-passage 5, in combination with the valve 9, opening 14, packing 15, quadrant 16, rack 17, arm 21, lever 23, guide-bracket 29, supporting-bracket 30, and water-supply valve 25, substantially as arranged, and for the purposes herein set forth and described.

354,504. BUTTER-WORKER. ENOCH W. CROUCH, Hopkinton, R. I. Filed Nov. 25, 1885. (No model.)



Claim.—In a butter-worker, the combination, with the bed A, of the tray having a slot, I, a movable part, H, working in said slot, and a pressing-bar, C, hinged or pivoted loosely at one end to a fixed part of the tray, and at the other to a lever, F, which is pivoted at one end to part H, as set forth.

354,505. ELECTRICAL NUMBER-INDICATOR. WILLIAM J. CULL and CHARLES F. SCATTERGOOD, Albany, N. Y.; said Scattergood assignor to said Cull. Filed May 25, 1886. (No model.)



Claim.—1. The combination, with a normally stationary shaft having a spring fixed thereto to restore it to its normal or stationary position, and having a series of arms rigidly fixed thereon, of a series of number-wheels loosely fitted on said shaft and adapted to be freely rotated thereon by means of weights or other equivalent devices, each of said number-wheels being provided with a stud which will engage with its appropriate arm on said shaft when the latter is turned to restore said number-wheels to their zero positions, as herein set forth.

2. The combination, with an automatic electrical cut-out consisting of an oscillating wheel provided with a contact-spring, a series of contact-points, each of which is electrically connected to its appropriate electro-magnet for controlling the number-wheels, a clock mechanism for producing the movements of said oscillating wheel in one direction, and an electro-magnet and armature, by which said clock mechanism is automatically connected and disconnected with said oscillating wheel, of a series of number-wheels connected to weights or other equivalent operating devices, and provided with spurs which correspond to the number-spaces of said wheels, and a series of electro-magnets equal to the number-wheels, each of which is electrically connected to its appropriate contact-point of the automatic cut-out and provided with an armature, by which said number-wheel is released and stopped, as herein specified.

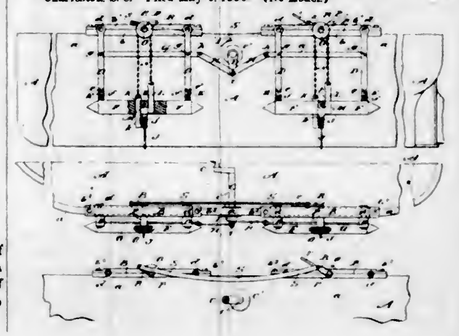
3. The herein-described automatic electrical cut out, consisting of an oscillating wheel provided with a contact-spring that is adapted to successively form electrical contact with each of a series of contact-points that are insulated from each other, the said oscillating wheel being actuated in one direction by means of a pinion that is intermittently connected therewith, and in the other direction by means of a spring, as and for the purpose herein specified.

4. The combination, with a number-wheel, O, having projecting spurs o^3, of an electro-magnet having an armature, Q, provided with a stop, *q*, and check *q'*, and arranged in relation to said number-wheel, to operate as herein specified.

5. The combination, with the electro-magnet L and the armature K, provided with the catch-piece *k*, of the arm *h*, operated by means of the shaft C, and adapted to engage with the catch-piece *k* to depress the armature K, as and for the purpose specified.

6. The combination, with an oscillating wheel, E, provided with peripheral notches e^2, and a detent, J, adapted to engage in the notches e^2, and connected to an arm, *j*, of the cam h^3, adapted to release the detent J from the wheel E, as and for the purpose specified.

354,506. SWINGING PADDLE FOR VESSELS. BEREND DOSCHER, Charleston, S. C. Filed May 6, 1886. (No model.)



Claim.—1. In swinging paddles for vessels, two pairs of arms, D D, one pair pivoted to bearings at each side of the vessel, a horizontal beam, F, provided with a paddle and connected to each pair of arms D D, a bar, G, connected pivotally to each pair of arms, a driving-shaft, C, opposite cranks I I thereon, and rods H, connecting the bars G with the cranks I, substantially as described, for the purposes set forth.

2. In swinging paddles for vessels, two pairs of arms, D D, pivoted to bearings at each side of the vessel, and one pair fore and one aft of a driving-shaft, beams F, provided with paddles and connected to each pair of arms D D, a bar, G, connected pivotally to each pair of arms, the driving-shaft C, cranks I I at opposite ends of the shaft, and a pair of rods, H H, connecting the bars G G of the fore and aft pairs of arms D D' at each side of the vessel with the cranks I I, substantially as described, for the purposes set forth.

3. In swinging paddles for vessels, the combination, with the paddle-beam F, hung from arms pivoted to the vessel, of a paddle, J, pivoted to beam F, pins K L, fitted in the beam and adapted to be lowered at opposite faces of the paddle, and provided with teeth *k l*, respectively, a pinion, M, journaled in beam F and meshing with the pin-teeth *k l*, and connections from the pins to the vessel's deck, substantially as specified, whereby when one pin is raised the other will be lowered, as and for the purposes herein set forth.

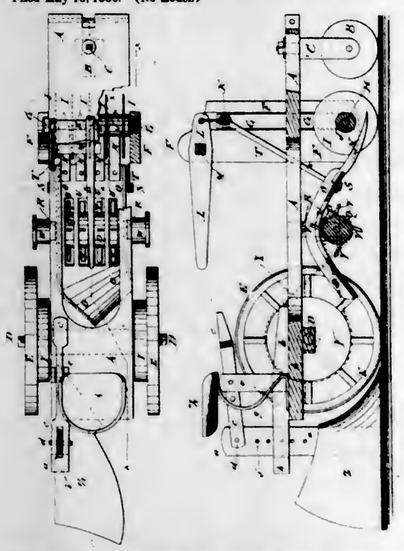
4. In swinging paddles for vessels, the combination, with the paddle-beam F, a paddle, J, pins K L, provided with teeth *k l*, and a pinion, M, meshing with said teeth, of a chain, N, connected at opposite ends to the pins K L, a wheel, O, journaled to the vessel and to which the chain N is connected at *o*, and means for turning said wheel, substantially as herein set forth.

5. In swinging paddles for vessels, the combination, with fore and aft paddle-beams F F at the same side of a vessel and hung from arms, as at D D, and a paddle, J, pivoted to each beam, of pins K L, fitted in the beam at opposite faces of each paddle, and provided with teeth *k l*, a pinion, M, meshing with the teeth of each pair of pins K L, wheels O O, chains N N, connected to said wheels at *o o* and at their ends to the paddle-pins, levers R R, fixed on the shafts of the fore and aft wheels O O, and a bar, S, connecting the levers R R, substantially as described, for the purposes set forth.

6. In swinging paddles for vessels, the combination, with arms D D, hung from the vessel, of blocks E, pivoted to the arms or pins *e*, and a paddle-beam, F, pivoted to the blocks on pins *f*, and said blocks E having shoulders *e'*, which strike shoulders *d'* on the arms, to limit the inward swing of the paddles, substantially as herein set forth.

354,507. COMBINED PULVERIZER AND PLOW. DANIEL W. EVANS, Sima, Dak., assignor to himself and Sidney Heal, Sherman, Ohio.

Filed May 18, 1886. (No model.)



Claim.—1. In a combined pulverizer and plow, the combination, with the frame A, mounted upon wheels, of the grooved standards F, attached to the said frame, the sliding bars G, and the series of circular colters I, connected with the said sliding bars, substantially as herein shown and described, whereby the furrow-slice will be cut into strips before being separated from the ground, as set forth.

2. In a combined pulverizer and plow, the combination, with the frame A, mounted upon wheels, the grooved standards F, attached to the said frame, the sliding bars G, and the circular colters I, carried by the said sliding bars, of the series of narrow plows N, the slotted arched trough O, carrying the said narrow plows, the cylinder Q, the fingers V, attached to the said cylinder, and the pulleys and belts W Y X, connecting the said cylinder with the drive-wheel, substantially as herein shown and described, whereby the furrow-slice will be cut into strips, raised from the ground, pulverized, and deposited upon the ground, as set forth.

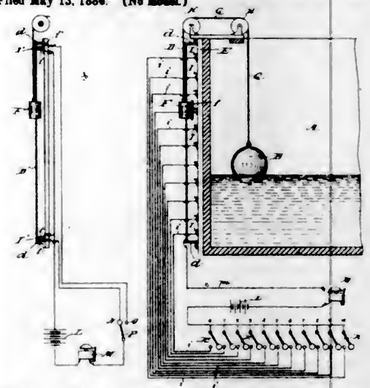
3. In a combined pulverizer and plow, the combination, with the frame A, mounted upon wheels, the grooved standards F, attached to the said frame, the sliding bars G, the circular colters carried by the said sliding bars, the slotted arched trough O, the narrow plows N, carried by the said trough, the cylinder Q, having fingers V, and driven from the drive-wheels by pulleys and belts, of the plow Z, the standard *a*, the slotted bar *b*, and the lever *c*, substantially as herein shown and described, whereby the pulverized furrow-slice will be turned under, as set forth.

4. The combination, with a plow and a wheel-supported frame carrying the same, of a series of vertically-adjustable colters, a series of narrow plows having their forward ends extending between said colters, an apron extending from the rear ends of said narrow plows to the mold-board side of the main plow, and pulverizing devices between the colters and main plow, substantially as shown and described.

5. The combination, with a plow and its wheel-supported frame, a series of adjustable colters, and a series of narrow plows extending backward from said colters, of a centrally-slotted apron extending rearwardly from said narrow plows, a cylinder journaled beneath said apron, pins in said cylinder extending through the slots in the apron, and means for revolving said cylinder, substantially as shown and described.

354,508. INDICATOR FOR RESERVOIRS. SOLOMON FRALEIGH, Newark, N. J., assignor of one-half to Alexander Bryant, New York, N. Y.

Filed May 13, 1886. (No model.)

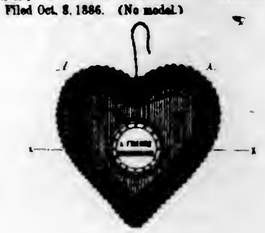


Claim.—1. In an indicator for reservoirs, the combination, with a float within said reservoir, of a vertically-sliding weight moved by said float as the latter is raised or lowered by the fluid in the reservoir, and two or more electric circuits adapted to be successively closed by the weight as it is moved and to indicate the height of the fluid within the reservoir, all as and for the purpose set forth.

2. In an indicator for reservoirs, the combination, with a sliding weight moved by a float within the reservoir, of a series of two or more open electric circuits adapted to be successively closed by said weight as it moves, and means, substantially such as described, to indicate at any given time which circuit is so closed, all as set forth.

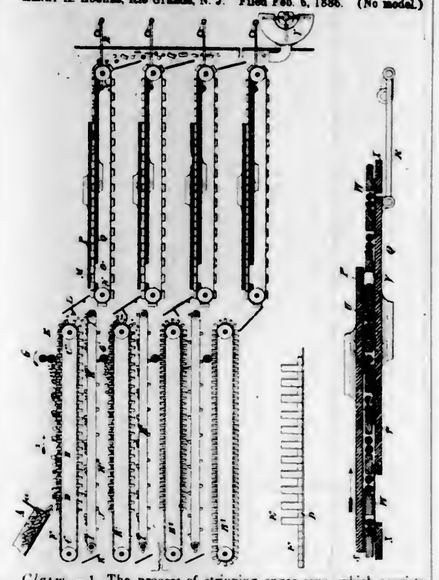
3. In an indicator for reservoirs, the combination of the float B, weight F, guide D, contacts I I, conductors *i i*, switches K, battery L, and alarm M, all as and for the purpose set forth.

354,509. CHRISTMAS-TREE CANDY. CHARLES GRIMM, Jersey City, N. J. Filed Oct. 8, 1886. (No model.)



Claim.—As a new article of manufacture, an edible Christmas-tree candy composed of a rim or frame of icing and a filling of cream-candy, the top and bottom of the cream-filling being exposed to view, substantially as shown and described.

354,510. PROCESS OF STRIPPING AND CLEANING SUGAR-CANE. HENRY A. HUGHES, Rio Grande, N. J. Filed Feb. 6, 1886. (No model.)



Claim.—1. The process of stripping sugar-cane, which consists, first, in dividing said cane into short lengths; second, assorting the said lengths to separate therefrom all pieces of a diameter exceeding a certain limit; third, subjecting said last-mentioned pieces to scratching or abrasion, whereby the leaves and sheaths thereon are loosened or removed, and, fourth, subjecting said last-mentioned pieces to brushing, whereby any remaining adherent matter is removed and the surface of the cane smoothed and polished, substantially as described.

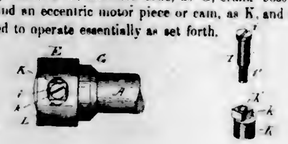
2. The process of stripping sugar-cane, which consists, first, in dividing said cane into short lengths; second, assorting the said lengths with reference to their diameters into two or more sizes; third, subjecting the pieces of each size to scratching or abrasion in devices respectively adapted to each size, whereby the leaves and sheaths thereon are loosened or removed, and, fourth, subjecting the pieces of each size to brushing in devices respectively adapted to each size, whereby any remaining adherent matter is removed and the surface of the cane smoothed and polished, substantially as described.

3. The process of stripping sugar-cane, which consists, first, in dividing said cane into short lengths; second, assorting said lengths with reference to their diameters into two or more sizes, the said sizes being assorted successively; third, simultaneously subjecting the pieces of each size to scratching or abrasion in devices respectively adapted to each size, whereby the leaves and sheaths are loosened or removed, and, fourth, simultaneously subjecting the pieces of each size to brushing in devices respectively adapted to each size, whereby any remaining adherent matter is removed and the surface of the cane smoothed and polished, substantially as described.

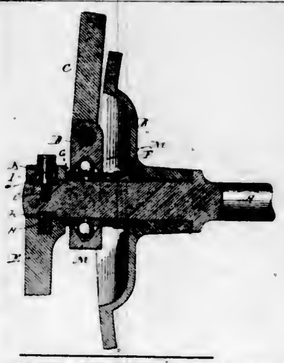
354,511. BEARING FOR VELOCIPEDES. JOHN KNOOS, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Sept. 29, 1886. (No model.)

Claim.—1. The combination, with a movable adjusting cone or collar in an anti-friction bearing and the axle on which it presses, of an eccentric motor-piece and a set-screw, constructed to operate substantially as set forth.

2. The combination of an axle, as A, bearing-box, as D, balls, as N, stationary cone, as F, movable cone, as G, crank boss or roller E, key, as H, and an eccentric motor piece or cam, as K, and set-screw, as I, constructed to operate essentially as set forth.

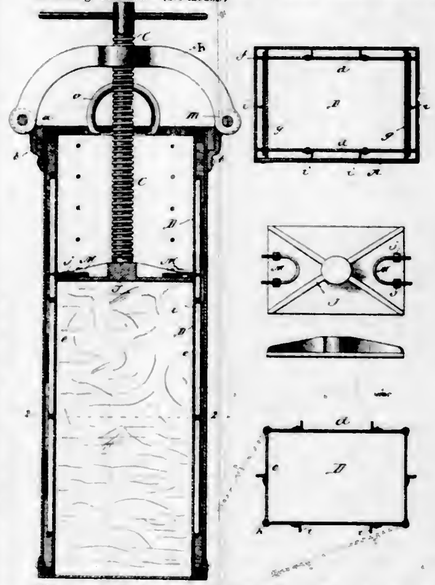


354,511.



354,512. CORNED-BEEF PRESS. CHARLES KORBER, Chicago, Ill.

Filed Aug. 10, 1886. (No model.)



Claim.—1. The combination, with the imperforate casing A and with a suitable pressing device, of perforated knockdown mold D, removably inserted into such casing, substantially as and for the purpose set forth.

2. The combination, with casing A and with a suitable pressing device detachably secured thereto, of perforated knockdown mold D, removably inserted into such casing, and plunger J, with bolts M, substantially as and for the purpose set forth.

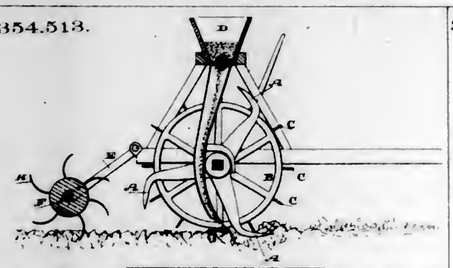
3. The combination, with casing A and with a suitable pressing device, of perforated knockdown mold D, removably inserted into such casing, and provided with spacing-ribs i, and plunger J, having bolts M, substantially as and for the purpose set forth.

4. The combination, with imperforate casing A, having detachable yoke B and screw C, of perforated knockdown mold D, having handles o, and of plunger J, having bolts M, all substantially as and for the purpose set forth.

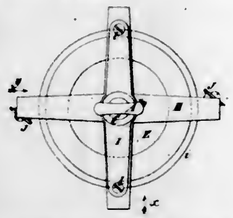
354,513. CLOD-CRUSHER, PULVERIZER, AND SEEDER. DAVID LUBIN, Sacramento, Cal. Filed Oct. 21, 1886. (No model.)

Claim.—A combined clod-crusher, pulverizer, and seeder, composed of the rotating armed or toothed roller or disks, with the alternating lifting-fingers projecting forward from between them so as to raise the earth and clods to be crushed, in combination with a seeding apparatus adapted to distribute seed upon the ground, and a supplemental roller or disks with its shovels or teeth arranged to cover the distributed seed, substantially as herein described.

354,513.



354,514. SUSPENSION DEVICE FOR LAMPS AND OTHER ARTICLES. CHARLES H. LYMAN, Ansonia, Conn., assignor to the Ansonia Brass and Copper Company and Wolcott A. Hull, both of New York, N. Y. Filed Oct. 30, 1884. (No model.)



Claim.—1. In a suspension device for a lamp or other article, the combination of a drum, an arbor to which the drum is fitted and about which it may rotate, a friction-brake adjacent to the end of the drum and movable toward and from the drum, a frame movable in the direction of the length of the arbor, guides upon said frame, cords or chains wound upon the drum and passing over said guides to a lamp or other article to be suspended, and a strap for preventing the rotation of the brake, substantially as described, whereby while the article attached to the cords or chains is being lowered the cords or chains will force the friction-brake against the drum, and while the article attached to the cords or chains is being raised the brake is released and the drum may rotate freely to rewind the cords or chains.

2. In a suspending device for a lamp or other article, the combination of a drum, an arbor to which the drum is fitted and about which it may rotate, a friction-brake surrounding and sliding upon the arbor, a frame movable in the direction of the length of the arbor, guides upon said frame, cords or chains wound upon the drum and passing over said guides to an article to be suspended, and a stop for preventing the rotation of the brake, substantially as described, whereby while the article attached to the cords or chains is being lowered the cords and chains will force the friction-brake against the drum, and while the article attached to the cords or chains is being raised the brake is released and the drum may rotate freely to rewind the cords or chains.

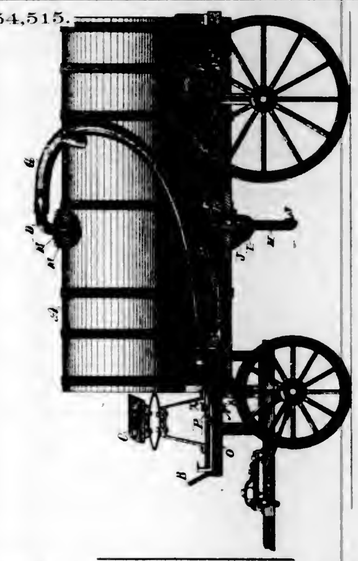
3. In a suspending device for a lamp or other article, the combination of a drum, an arbor to which the drum is fitted and about which it may rotate, a friction-brake surrounding and sliding upon the arbor, a frame movable in the direction of the length of the arbor, guides upon said frame, cords or chains wound upon the drum and passing over said guides to an article to be suspended, and a spring for moving the brake and drum apart, substantially as specified, whereby while the article attached to the cords or chains is being lowered the cords and chains will force the drum and friction-brake together, and the said spring will release the drum from the action of the friction-brake when the cords or chains are relaxed.

354,515. STREET-SPRINKLER. DAVID MURRAY, Milwaukee, Wis. Filed June 11, 1886. (No model.)

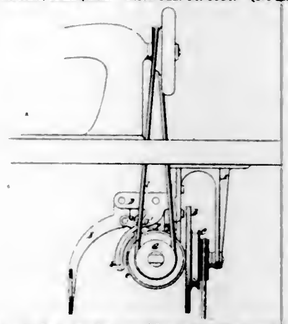
Claim.—1. In a street-sprinkler, a tank, A, supported on a truck, in combination with perforated discharging-pipes H H, located centrally beneath the tank, the discharging-orifices, in which pipes are located in the under side of so much of them as is within the line of the wheels, wherefrom the water is thrown directly to the ground, and in so much of said pipes as is outside the lines of the wheels the discharging-orifices are located in the rear sides and outer ends of the pipes, whereby the water is thrown outwardly horizontally away from the truck, substantially as described.

2. In a street-sprinkler, a centrally-located perforated discharging-pipe, H, provided with a thereto hinged end cap having a curved outer end and rear side provided with horizontal discharging-orifices, substantially as described.

354,515.



354,516. SEWING-MACHINE BRAKE. WILLIAM A. OTTO and W. ORVILLE ZIMMERMAN, Cedar Rapids, Iowa; said Zimmerman assignor to Benj. A. Metcalf, same place. Filed Jan. 16, 1886. (No model.)



Claim.—1. In a sewing-machine brake, the combination of the hanger A, adapted to carry a disk-wheel at or near the lower end, and having one of its limbs laterally extended parallel with the face of the disk, and a bracket, D, mounted and horizontally adjustable on said hanger in a line parallel with the face of the disk, a pendulum-arm pivoted to said bracket and swinging in a vertical plane transversely to the face of the disk, and adapted to carry a friction-pulley mounted transversely to the disk-wheel, substantially as and for the purpose set forth.

2. The combination of the hanger A, having the axis *d*, the bracket D, horizontally adjustable in a line transverse to the axis *d*, and having the brake-arm D', the pendulum-arm pivoted in said bracket and adapted to swing in a vertical plane and carry the friction-wheel *e* A', set transversely to the disk-wheel B C, the knee-lever E, and spring *a*, all constructed, arranged, and operating substantially as and for the purpose set forth.

354,517. BALING-PRESS. HENRY PURRIER, Gunnison, Colo. Filed Aug. 18, 1886. (No model.)

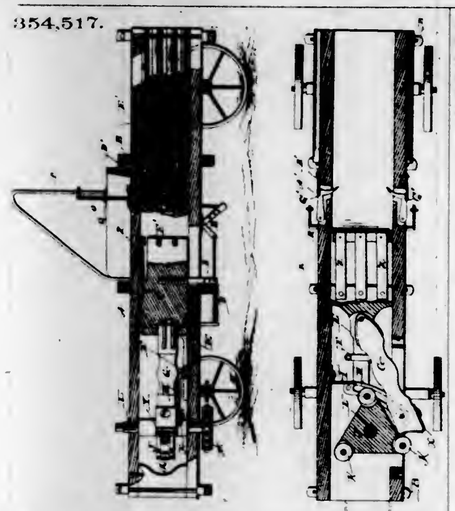
Claim.—1. In a horizontal baling-press, the combination, with a plunger and a pitman connected to said plunger, of a several-winged cam provided with rounded ears at the ends of the wings, and anti-friction rollers journaled between said ears in a manner eccentric as to the peripheries of the latter.

2. In a horizontal baling-press, the combination of a several-winged cam, a plunger, a pitman, and an abutment, I, for said pitman.

3. In a horizontal baling-press, the combination of a several-winged cam, a plunger with guided stem, and a pitman pivoted at one end to said stem, and having its other end transversely concave and metal-capped.

4. In a baling-press, the combination of a plunger cut away on one

354,517.



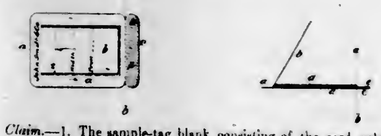
side near the pressing end thereof, and a plaiting apparatus consisting of flat springs attached at one end to the plunger and connected at the other by a transverse strip.

5. In a baling-press, the combination, with the press-case, plunger and follower, of L-shaped hooks provided with lateral lugs at their angles, and springs bearing against said lugs.

6. In a baling-press, the combination of a plunger, studs laterally projecting from said plunger, bell-cranks, a feeder, braced guide-rods and connecting-rods uniting said studs, cranks, and feeder.

7. In a horizontal baling-press adapted to be placed upon the ground, the combination, with the two sections hinged together, of truss-rods united at their outer ends to an eye, which fits upon the cam-shaft, and bolted at their inner ends to the press-case, and strut-posts attached to said case for the support of said rods.

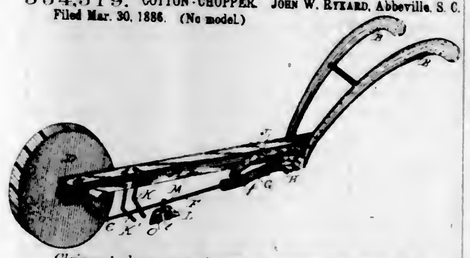
354,518. SAMPLE-TAG. JOSHUA PUSEY, Philadelphia, Pa. Filed May 13, 1886. (No model.)



Claim.—1. The sample-tag blank consisting of the card, substantially as described, having the tongue and flap or margin adapted to receive and retain a suitable adhesive, for the purpose described.

2. The sample-tag consisting of a card, substantially as described, having the tongue and gummed flap or margin, for the purpose set forth.

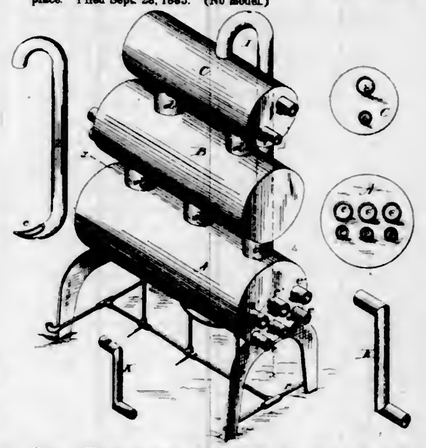
354,519. COTTON-CHOPPER. JOHN W. EXKARD, Abbeville, S. C. Filed Mar. 30, 1886. (No model.)



Claim.—1. In a cotton-chopper, the combination, with a hoe-actuating rod, of a hoe-sleeve, a recessed hoe adjustable in said sleeve, and two arms secured to the sleeve, each arm carrying a roller or traveler on its lower end, which rollers or travelers overhang the hoe, one on each side of its recess, substantially as described, and for the purpose set forth.

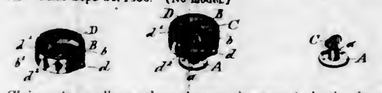
2. The combination, with a cam-plate secured to one of the driving-wheels, of a hoe-actuating rod, one end of which is in contact with the cam-plate, while its other end is attached to a spring-plate, the said spring being in turn attached to a hinge and arranged so that its resilient action is in a direction transversely of the machine, an inclined guide above the rod for moving it out of the notch in the cam-plate, a spring bearing on top of the rod to force it downward after it has left a notch, and a hoe adjustably attached to the rod, all substantially as described.

354,520. GASOLINE OR OIL HEATING-STOVE. JESSE STUBBS, Henry County, Iowa, assignor of one-seventh to George A. Stone, same place. Filed Sept. 28, 1885. (No model.)



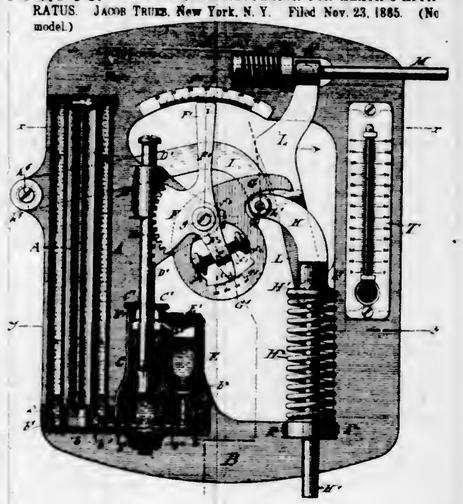
Claim.—The combination, with burners of a gasoline or oil stove, of a series of sheet-metal heating-cylinders arranged over said burners, having openings *m* and connecting-flues *d*, the returned air-heating flues *e e'*, cold-air-supply pipes *k*, hot-air-discharge pipes *k'*, and the returning-pipe I, all substantially as herein shown, for the purposes specified.

354,521. COLLAR OR CUFF BUTTON. HENRY H. SCHMIA, St. Louis, Mo. Filed Sept. 30, 1886. (No model.)

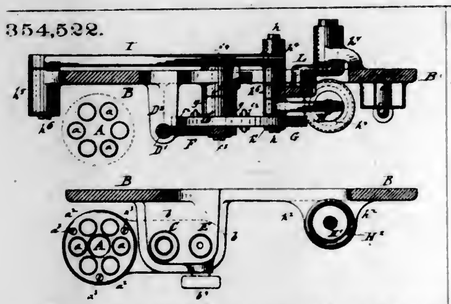


Claim.—In a collar or sleeve button, the stem A, having its shank provided with a flat upright cross-head, C, in combination with a top-part, B, provided with a slot, *b*, in its bottom, said slot being enlarged in the center at *b'*, the spring D, provided with a button or knob, *d*, and a lug, *d'*, and the stop-pin d^2, all constructed and operating substantially as herein shown and described, and for the purpose set forth.

354,522. THERMOMETRIC REGULATOR FOR HEATING APPARATUS. JACOB TRUEB, New York, N. Y. Filed Nov. 23, 1885. (No model.)



354,522.



Claim.—1. The combination of a closed vessel containing an expansible liquid, a cylinder connected thereto, a piston within said cylinder, a piston-rod having a rack-shaped portion, a toothed segment, intermediate spring-actuated lever mechanism, a supply-valve, and a governing-rod connecting said lever mechanism with the supply-valve, substantially as set forth.

2. The combination, in a regulator for heating apparatus, of a closed vessel containing an expansible liquid, a cylinder connected thereto, a piston guided in said cylinder and provided with a rack-shaped piston-rod, a transmitting-lever having a toothed segment, said lever moving along a scale of the supporting-plate, an oil-receptacle arranged alongside of the cylinder and connected with the cylinder and said closed vessel, and means for establishing or interrupting the communication o said oil-receptacle with the cylinder, so as to readjust the position of the transmitting-lever, substantially as set forth.

3. The combination of a closed vessel containing an expansible liquid, a cylinder having an enlarged upper part, a piston having a rack shaped piston-rod, a transmitting-lever having a toothed segment meshing therewith, said lever moving along a scale of the supporting-plate, an oil-receptacle arranged alongside of the cylinder and connected with the same and the closed vessel, a stop-cock located in the channel leading to the oil-receptacle, and an inclined channel connecting the upper part of the cylinder with the oil-receptacle, substantially as set forth.

4. The combination of a closed vessel, A, containing an expansible liquid, a cylinder, C, connected therewith, a piston, D, having rack-shaped piston-rod D', a toothed segment, F, having an upwardly-extending arm, F', and a downwardly extending arm, F^2, the latter being provided with a set-screw, f', having screw-nuts f^2, a transmitting lever-arm, G, having a ring-shaped part, G', connected to the arm F^2, a spring-actuated lever, H, a steadying-lever, I, a transmitting-lever, L, a spring-pressed connecting-rod, M, a crank-arm, N, and a balanced supply-valve, O, substantially as set forth.

5. The combination of a closed vessel, A, containing an expansible liquid, a cylinder, C, connected therewith, a piston, D, having a rack-shaped piston-rod, D', a toothed segment, F, having arms F' F^2, a lever-arm, G, having a ring-shaped part, G', connected adjustably to the arm F^2, a spring-actuated lever, H, a steadying-lever, I, pivoted to the lever H, an oscillating transmitting-lever, L, a spring-actuated connecting-rod, M, a crank-arm, N, and a balanced supply-valve, O, substantially as set forth.

6. The combination of a closed vessel containing an expansible liquid, a cylinder connected thereto, a piston having a rack-shaped piston-rod, a toothed segment meshing therewith, said segment having an arm moving along a scale of the supporting-plate, a transmitting lever-arm connected adjustably to a second arm of the segment, and a spring-actuated lever mechanism connected to the supply-valve of the heating apparatus, whereby the heat of the room in which the apparatus is located is regulated to a certain fixed temperature, substantially as set forth.

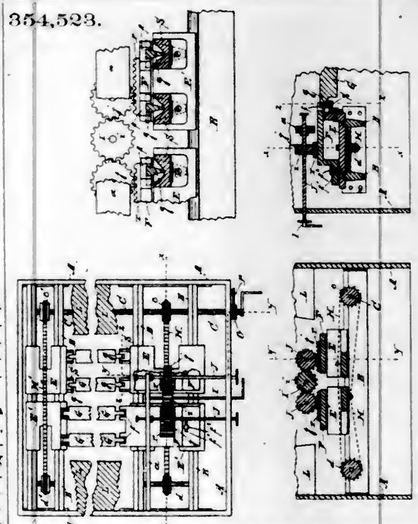
7. The combination of a closed vessel containing an expansible liquid, a cylinder connected therewith, a piston having a rack-shaped piston-rod, a toothed segment having indicating-arms, an intermediate spring-actuated lever mechanism, a connecting-rod, and a balanced supply-valve connected to the heating apparatus, substantially as set forth

354,523. **FURNACE-GRATE.** JACOB VOEGTLE, Indianapolis, Ind., assignor to Oscar Voegtle, same place. Filed Feb. 13, 1886. (No model.)

Claim.—1. In a grate for furnaces or the like, the combination of the frame or casing A, the cross-rails B B, the carriages or frames E E', supported on said rails B B, the grate-bars G G, supported by the carriages E E', the revolving shaft C, the chain-wheels c and c', firmly fixed upon the shaft C, the supporting-wheels d and d', and the chains H and H', all substantially arranged as described, and for the purpose of centrally opening and closing the grate.

2. A grate for furnaces or the like, having the casing or frame A, the cross-rails B B, the frames or carriages E E', supported on said rails B B, the removable forked shoulders or bearings S S, secured to the frames E E', as described, the grate-bars G G, having the wedge-shaped

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ends g g, and resting with these ends in the removable bearings S S, all constructed as described, and for the purpose specified.

3. In a grate for furnaces or the like, the combination, with the frame or casing A, the furnace-lining L, and the grate-bars G G, of the cross-tracks B B, the frames or carriages E and E', supported and laterally sliding on the rails B B, the removable shoulders or bearings S S, secured to the frames E and E', and supporting the grate-bars G G, in the manner described, the shaft C, the chain-wheels c c' d d', and the chains H and H', arranged for the purpose of closing the grate or removing the grate-sections under the fire-lining L, and a device for locking the grate-sections, substantially as described and specified.

4. In a grate for furnaces or the like, the combination, with the frame or casing A, the cross-bars B B, the frames or carriages E E', the shoulders or bearings S S, and the grate-bars G G, all constructed as described, of the shaking-frames F F, superposed upon the carriages E E' and held to the same by means of the bolts f^2 f^2 and the slots f' f', the notches f f in the frames F F engaging with the wedge-shaped ends g g of the grate-bars G G, and the crank-shaft I, the cog-wheel i, the shafts J J, the cog-wheels j j, and the rack-rails r r, forming means to shake the grate-bars G G, all constructed as described and specified.

5. In a grate for furnaces or the like, the combination, with the casing A, the cross-tracks B B, the frames or carriages E E', supported on said tracks B B, the grate-bars G G, supported on the carriages E E', the shaft C, chain-wheels c c' and d d', and chains H and H', forming means for centrally opening and closing the grate, of the shaking-frames F F, superposed upon the carriages E E', and engaging with the ends of the grate-bars G G, as described, and the crank-shaft I, cog-wheel i, shafts J J, cog-wheels j j, and rack-rails r r, forming means to shake the grate-bars G G, all constructed as described and specified.

6. In a grate for furnaces or the like, the combination, with the casing A, the grate-bars G G, the frames E E', and the shoulders S S, supporting the grate-bars G G, as described, of the shaking-frames F F, connected to the frames E E' by means of the slots f' f' and the bolts f^2 f^2, and engaging with the ends g g of the grate-bars G G, the rack-rails r r on said frames F F, the fixed shaft and cog-wheel I i, and the sliding shafts and cog-wheels J J j j, constructed as described, and for the purpose of enabling the operator to shake either the whole grate or parts of it.

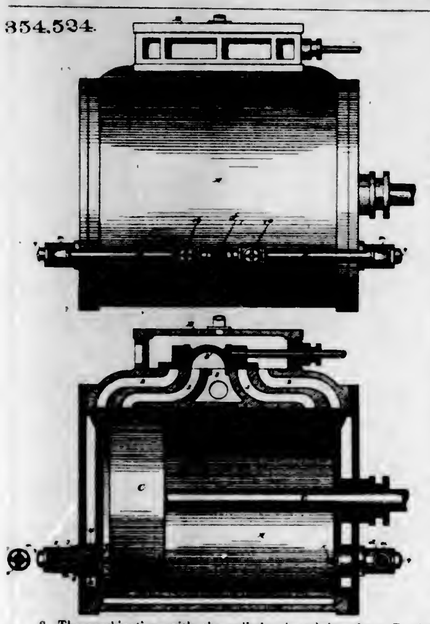
354,524. **DIRECT-ACTING ENGINE.** CHARLES C. WORTHINGTON, Irvington, N. Y. Filed Sept. 11, 1886. (No model.)

Brief.—Cushions with live steam admitted through auxiliary piping and tappet-valves.

Claim.—1. The combination, with the cylinder A and its piston C, of the valves 4, operated by the piston to admit steam to each end of the cylinder, and the valves 10, for controlling the admission of steam to the valves 4, substantially as described.

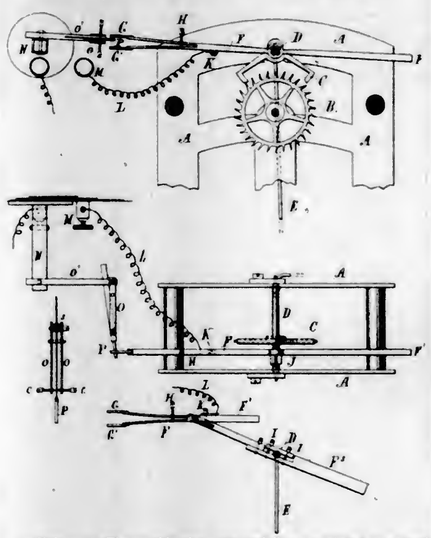
2. The combination, with the cylinder A and its piston C, of the pipe d, communicating with each end of the cylinder, the valves 4, arranged to be opened by the piston as it approaches the end of its stroke in either direction, the pipe f, for supplying the pipe d with steam, and the valves 10, for regulating the amount of steam admitted to each end of the cylinder, substantially as described.

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3. The combination, with the cylinder A and its piston C, of the chambers a at each end of the cylinder, provided with the valves 4, having the stems 5, extending into the cylinder, the pipe d, communicating with both of said chambers, the pipe f, for supplying the pipe d with steam, and the valves 10, substantially as described.

354,525. **CIRCUIT-BREAKER FOR ELECTRIC CLOCKS.** VITALIS HIMMER, New York, N. Y. Filed Jan. 14, 1886. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, with a clock mechanism and a vibrating pendulum, of a balanced electric circuit-breaker mounted upon the rock-shaft of the anchor-spindle and operated to close and open the electric circuit by the working of said shaft.

2. The combination, substantially as hereinbefore set forth, with the pendulum of a regulating-clock, of a circuit-controlling device consisting of an arm mounted upon the rock-shaft of the anchor-spindle, two contact-points mounted upon said arm and electrically connected with one pole of an electric generator, and a fixed contact-pin lying between said contact-pins upon said arm and electrically connected with the opposite pole of said electric generator, said arm being operated to make and break contacts by the rocking of said rock-shaft.

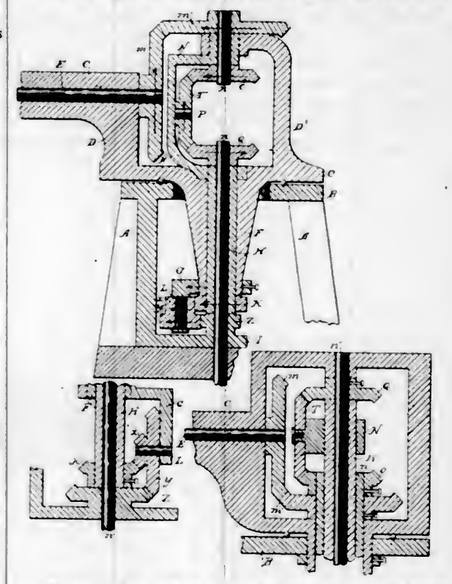
3. The combination, with the pendulum of a regulating-clock, of a circuit-controlling device consisting of an arm mounted upon the rock-shaft of the anchor-spindle, a contact-pin mounted upon said arm and electrically connected with one pole of an electric generator, two fixed contact-points lying one on either side of the contact-pin upon said arm, and electrically connected with the opposite pole of the electric generator, said arm being operated to make and break contact of said pins by the rocking of said rock-shaft, all substantially as shown and described.

4. The combination, with the pendulum of a regulating clock, of a circuit-controlling device consisting of a forked balanced arm electrically mounted upon the rock-shaft of the anchor-spindle, two contact-points mounted, respectively, upon the branches of the fork of said balanced arm and electrically connected with one pole of an electric generator, and a fixed adjustable contact-pin lying between said contact-pins upon said balanced arm and electrically connected with the opposite pole of said electric generator, said arm being operated to make and break contact between said contact-pins by the rocking of said rock-shaft, all substantially as shown and described.

5. The combination, with the pendulum of a regulating-clock, of a circuit-controlling device consisting of the forked jointed balanced arm F F' F^2, electrically mounted upon the rock-shaft of the anchor-spindle, two contact-points mounted, respectively, upon the branches of the fork of said balanced arm and electrically connected with one pole of an electric generator, and a fixed adjustable contact-pin lying between said contact-pins upon said balanced arm and electrically connected with the opposite pole of said electric generator, said arm being operated to make and break contacts between said contact-pins by the rocking of said rock-shaft, all substantially as shown and described.

REISSUES.

10,789. **GEARING FOR WINDMILLS.** GEORGE H. PATTISON, Freeport, Ill. Filed Nov. 23, 1886. Original No. 351,461, dated Oct. 26, 1886.



Claim.—1. In a gearing of the class described, the combination with a plate adapted to be attached to the tower of a windmill, of a turn-table, journaled in said plate, a wind-wheel shaft journaled in the turn-table, a planet-gear revolving with the turn-table and engaging with a gear fastened to the tower, a second planet-gear interposed between the wind-wheel shaft and the planet-gear revolving with the turn-table gearing connecting the two planet-gears, and gearing connecting said second planet-gear with the wind-wheel shaft.

2. The combination, with the rotating turn-table of a windmill and

a wind-wheel shaft journaled therein, of two independent vertical shafts, one of which is the power-transmitting shaft of the mill, gears connecting one of said vertical shafts directly with the wind-wheel shaft, a planet-gear interposed between said vertical shafts, and connected therewith by suitable gears, a planet-gear revolving with the turn-table and engaging with a stationary gear fastened to the tower of the mill, and gears connecting said two planet-gears, substantially as and for the purpose set forth.

3. The combination, with the turn-table C, the wind-wheel shaft E, and the vertical shafts *n n'*, of gears connecting the shafts E *n*, a third vertical shaft, H, and a planet-gear revolving therewith and interposed between the shafts *n n'*, and a planet-gear revolving with the turn-table and engaging with two gears, one mounted on the shaft H and the other fastened to the tower of the windmill or an attachment thereof.

4. The combination of the turn-table C, the planet-gear *x y*, revolving therewith and engaging a stationary gear, Z, the planet-gear T, the wind-wheel shaft E, journaled in the turn-table, gearing connecting the planet-gear T with the wind-wheel shaft, and gearing connecting the planet-gears T *x y*, substantially as and for the purpose set forth.

5. The combination of the turn-table C, wind-wheel shaft E, and shafts *n n'*, the gears *m m'*, connecting the shafts E *n*, the gears O Q and planet-gear T, connecting the shafts *n n'*, the planet-gear *x y*, revolving with the turn-table, the gear K, connecting the gear *x* with the support of the planet-gear T, and the gear Z, connecting the gear *y* with the tower of the windmill, substantially as and for the purpose set forth.

6. The combination, with the turn-table C, the wind-wheel shaft E, journaled therein, the stationary gear Z, and the planet-gear *x y*, supported by the turn-table and engaging the stationary gear Z, of gearing, substantially as shown and described, connecting the planet-gear with the wind-wheel shaft.

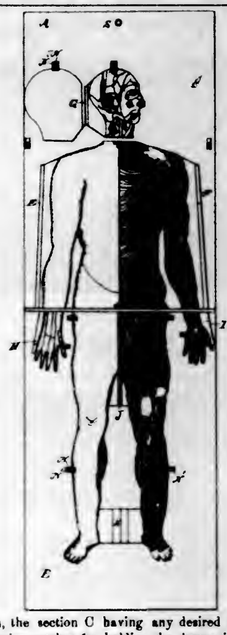
7. The combination, in a windmill-gearing of the class described, of a rotating turn-table, and the shafts E *n n'* H, and gears *m m'* O T Q, all supported by and revolving with the turn-table, substantially as and for the purpose set forth.

10,790. ANATOMICAL CHART. JAMES T. WHITE, San Francisco, Cal., assignor to Florence D. White, same place. Filed Oct. 27, 1886. Original No. 342,154, dated May 18, 1886.

Claim.—1. An anatomical chart having a series or leaves representing various parts of the system, said leaves hinged to overlie each other and to fold back, and a series of catches applied to the cover and overlapping the edges of said leaves to hold them in place, substantially as described.

2. The combination, with a back piece thicker at its lower than at its upper end and having the tapering or slanting inner face, of the chart comprising the hinged sections A B C, the sections A B having a series of hinged leaves with representations of different parts of the human

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system thereon, the section C having any desired explanatory matter thereon, and spring-catches for holding the leaves in an open position, substantially as set forth.

3. A folding anatomical chart consisting of two sections, each of said two sections being provided with a series of hinged leaves representing various parts of the system and overlying each other, while the two sections can be folded compactly together, for the purposes described.

4. An anatomical chart hinged in the middle, the hinged portion having a base sheet representing the legs of the human body, said sheet provided with a hinge through its center, thereby allowing the said limbs to open alternately one over the other.

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DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

HAPGOOD *et al.* v. HEWITT.

Decided November 29, 1886.

1. BILL TO OBTAIN TRANSFER OF PATENT AND ENJOIN SUITS UNDER IT—EQUITABLE TITLE OF EMPLOYER IN INVENTION OF EMPLOYÉ.

An employé of a corporation making an invention in the direct line of its business while in its pay, and using material and labor wholly paid for by it, but under no special contract to invent for it, and there being no circumstances from which it might fairly be inferred that he was required or expected to invent for it, does not thereby give such corporation a right to an assignment of the patent granted for such invention.

2. LICENSE TO MAKE AND USE—WHEN INFERABLE.

Under such circumstances the corporation had only a naked license to make and sell the patented improvement as a part of its business.

3. LICENSE, WHEN TERMINATED.

This right was a mere personal one, was not transferable, and was extinguished with the dissolution of the corporation.

4. PRACTICE—ENJOINING SUITS.

The bill asked to have the patentee enjoined from bringing any action for infringement at law or in equity against said corporation. As the patentee could only bring a suit at law against the trustees or stockholders of said corporation for infringements by it while it existed, and the theory of the bill discloses a perfect defense to such suit, no equity court, certainly no circuit court of the United States, will interfere to enjoin a pending suit at law, much less the bringing of one in the future.

APPEAL from the Circuit Court of the United States for the District of Indiana.

Mr. E. W. Pattison and *Mr. Newton Crane* for the appellants.

Mr. E. E. Wood and *Mr. Edward Boyd* for the appellee.

BLATCHFORD, *J.*:

This is a suit in equity brought in the Circuit Court of the United States for the District of Indiana by Charles H. Hapgood, James H. Hesse, and John Packer, trustees of Hapgood & Company, a dissolved Missouri corporation, and the Hapgood Plow Company, an Illinois corporation, against Horace L. Hewitt. The main object of the suit is to obtain from Hewitt the transfer of letters patent granted to him for an invention. The defendant interposed a general demurrer to the bill for want of equity. The circuit court sustained the demurrer and dismissed the bill (11 Biss., 184) and the trustees have appealed to this Court.

The material allegations of the bill are as follows: The Missouri corporation was in existence from before August 1, 1873, to January 1, 1880, when it was dissolved. At the latter date the three trustees constituted its board of directors, and Hapgood was president. By virtue of the laws of Missouri, Hapgood and the other two persons became trustees of the corporation, with power to settle its affairs and recover the debts and property belonging to it. Hapgood was the president of the corporation during its entire existence, and had the control and management of its business. All the officers and employés were under his direction. He had power to hire and discharge all agents and employés of every grade, to determine the classes and kinds of goods that should be manufactured, and the general way in which the business should be conducted. The corporation employed a large number of manual laborers, and various employés of higher grades, among them a superintendent, a secretary, a foreman, and a traveling salesman, all of whom had charge of different departments, but were under the control and direction of the president as chief executive officer. The duties of the superintendent were to have general charge of the manufacturing department, subject to the discretion of the president, and to devise and get up such new devices, arrangements, and improvements in the plows manufactured as should adapt them to the market, and as should be needed from time to time to suit the wants of customers. Shortly before August 1, 1873, Hewitt represented to the corporation that he was a man of large experience in mechanical pursuits; that he had been for several years immediately preceding engaged with Avery & Sons, plow-manufacturers in Louisville, and had been since 1868 familiar with the manufacturing of plows and agricultural implements; that he had been instrumental in devising and getting up the best plows manufactured by Avery & Sons; that the most valuable improvements in the plows manufactured by them had been devised by him and adopted at his suggestion and instigation; that since 1869 he had given his undivided attention to the manufacture of plows, and understood thoroughly the different kinds of plows in the market and the classes of plows needed for the trade, and that he could and would give to any manufacturer who should secure his services the benefit of his experience in devising and making improvements in the plows manufactured. In consequence of these representations, and relying upon them, the corporation employed Hewitt to devote his time and services to getting up, improving, and perfecting plows and other goods, and to introducing the same, and that he might be more fully identified with the corporation he purchased one share of its stock and was elected vice-president. At some time in 1874 Hewitt increased his interest in the company by purchasing one-half of the shares owned by the president. As a part of the same transaction, it was agreed between

Hewitt and the corporation that from that date Hewitt should fill the position of superintendent of the manufacturing department, and as such not only exercise a general supervision over that department, subject to the president, but also devote his time and services to devising improvements in and getting up and perfecting plows adapted to the general trade of the corporation. He accepted the position, and held it until the fall of 1877, when his connection with the corporation ceased. He agreed in such new position to use his best efforts and devote his knowledge and skill in devising and making improvements in the plows manufactured by the corporation and in getting up and perfecting plows and other agricultural implements adapted to its trade. In view of the expected value of his services in this latter direction, the corporation was induced to pay him, and did pay him, a salary of three thousand dollars a year. It was manufacturing a plow known as a "sulky" or "riding" plow, so arranged that the plow was carried on a frame supported by wheels, and that the driver of the horses rode on the frame. Down to the year 1876 this sulky-plow had a wooden frame. During that year it was thought desirable by the officers of the corporation that a change should be made by the substitution of an iron frame for the wooden one. The officers, including Hewitt, had frequent conversations during the winter of 1875-'76 with reference to such change. In those conversations and in personal conversations with Hewitt the president stated that he was anxious to retain in the iron sulky all the essential features of the wooden sulky so far as was consistent with the use of an iron frame, and suggested other features which he thought it important to adopt in the new plow, and Black, a salesman, urged the importance of having an iron axle of an arched form. As the result of these conversations and deliberations, Hewitt was, early in the summer of 1876, directed by the president to proceed at once to devise and build an iron sulky-plow according to the suggestions so made—that is, that he should retain in the new plow all the valuable features of the wooden sulky which the corporation had been manufacturing, should construct the plow of wrought and malleable iron, should adopt the other features suggested by the president and the arch suggested by Black, and should add such additional features as might seem advantageous to him, (Hewitt.) He was directed to proceed with the work without delay, so that the corporation might be ready to manufacture the new plow for the season of 1877. In accordance with these directions Hewitt devised and constructed a sulky-plow of wrought and malleable iron, and after some delays, about the 1st of April, 1877, produced a plow satisfactory to the president. During all the time that he was engaged in devising and constructing the new plow he was in the employ of the corporation and drawing a salary of three thousand dollars a year. The time during which he was so engaged was the regular working-hours in the factory. The men who did the manual labor on the new plow were all employés of and paid by the corporation, and all the materials used in its construction were bought and paid for by the corporation. The work as it progressed was under the general superintendence of Hewitt; but the work in the respective departments was also under the special superintendence of the respective foremen of those departments, who were also paid by the corporation. During the whole time of the construction of the plow it was understood by all the parties engaged therein, and by those at whose instance its construction was commenced, that it was being devised and constructed for the use and benefit of the corporation and as a model for the future construction of sulky-plows by it. After the plow was completed and had been accepted by the president as satisfactory the latter directed Hewitt to go to Chicago and have the necessary malleable castings made for the construction of plows after the model. Hewitt did so, obtaining at Chicago castings, molds, and other things necessary for the future building of plows after the model. During the time so spent he was drawing his regular salary, and all his expenses, as well as the price of the models, castings, and other things obtained by him, were paid by the corporation. During the time Hewitt remained in its employ he never made any claim of property in any of the devices and improvements made or suggested by him in the new plow, and never stated or claimed that he was entitled to a patent on any of said improvements, or that he had any rights adverse to the corporation in any of said improvements or devices, and never during the term of his employment asserted any right to a patent in his own name for such improvements or devices, or any of them. After his connection with the corporation had ceased, and after he had made an arrangement with the president whereby the latter bought back all his (Hewitt's) stock in the corporation, and after the corporation had been for many months, with the knowledge of Hewitt, engaged in the manufacture of such plows, Hewitt, on January 14, 1878, applied for a patent on the improvements in the plow, and on the 26th of March, 1878, a patent was granted to him covering certain parts of the plow, being devices which had been theretofore used by the corporation with his knowledge and consent. After this patent was issued he for the first time claimed, as he has since claimed, that he had and has an exclusive right to manufacture such parts of the plow as are covered by the patent, and has threatened to enforce his rights under the patent as against the corporation, its representatives, successors, and assigns, and to hold them liable in damages for any infringement of the same.

The bill also alleges that in devising and constructing the plow Hewitt was only performing his duty as an employé of the corporation and carrying out his contract with it; that he was doing only what he was hired and paid to do; that the result of his labors belonged to the corporation; that it became in equity and good conscience the true and rightful owner of the right to manufacture the plow; that if there is any part thereof which is patentable the patent belonged to the corporation as equitable assignee of Hewitt, and that he was and is bound in equity and good conscience to make an assignment of the patent to the corporation or to its trustees.

The bill also alleges that upon the dissolution of the corporation of Hapgood & Company the stockholders thereof organized another corporation under the laws of Illinois, under the name of the Hapgood Plow Company, one of the plaintiffs; that the Hapgood Plow Company succeeded to the business of the prior corporation, and became by assignment from it the owner of all the latter's assets, whether legal or equitable, including the rights in the patent issued to Hewitt which such prior corporation had or was entitled to, whether legal or equitable, and its right to manufacture a sulky-plow in accordance with the model plow made by Hewitt, including all the devices covered or claimed to be covered by the patent, and that all the rights in the premises which the prior corporation had have been fully transferred to and vested in the new corporation. The bill then alleges a refusal by Hewitt to assign the patent to the plaintiffs, and that he claims to hold it adversely to them.

The prayer of the bill is for a decree directing the defendant to make an assignment of the patent, or of such interest as he may have therein, and of all his rights thereunder to the Hapgood Plow Company, assignee of Hapgood & Company, or to the trustees of Hapgood & Company, in trust for the Hapgood Plow Company, vesting the title to the patent, or to the defendant's rights thereunder, in the Hapgood Plow Company, or in said trustees in trust for that corporation, and that he be enjoined and restrained from maintaining any action at law or in equity for any infringement of the patent by Hapgood & Company, or for the use by that corporation of any of the devices or improvements covered by the patent.

The decision of the circuit court (11 Biss., 184) was placed on the ground (1) that Hewitt was not expressly required by his contract to exercise his inventive faculties for the benefit of his employer, and there was nothing in the bill from which it could be fairly inferred that he was required or expected to do so; (2) that whatever right the employer had to the invention by the terms of Hewitt's contract of employment was a naked license to make and sell the patented improvement as a part of its business, which right, if it existed, was a mere personal one, and not transferable, and was extinguished with the dissolution of the corporation.

We are of opinion that the views taken of the case by the circuit court were correct. There is nothing set forth in the bill as to any agreement between the corporation and Hewitt that the former was to have the title to his inventions or to any patent that he might obtain for them. The utmost that can be made out of the allegations is that the corporation was to have a license or right to use the inventions in making plows. It is not averred that anything passed between the parties as to a patent. We are not referred to any case which sustains the view that on such facts as are alleged in the bill the title to the invention or to a patent for it passed.

In *McClurg* v. *Kingsland* (1 How., 202) the facts were in some respects like those in the present case; but the decision only went to the point that the facts justified the presumption of a license to the employer to use the invention as a defense by him to a suit for the infringement of the patent taken out by the employé.

The circuit court cases referred to do not support the plaintiffs' suit. In *Continental Windmill Co.* v. *Empire Windmill Co.* (8 Blatchf. C. C. R., 295) there was an agreement that the employé should receive five hundred dollars for any patentable improvement he might make. In *Whiting* v. *Graves* (1 Holmes, 222) it was held that an employment to invent machinery for use in a particular factory would operate as a license to the employer to use the machinery invented, but would not confer on the employer any legal title to the invention or to a patent for it. In *Wilkens* v. *Spafford* (1 Holmes, 274) the contract was that the employer should have the exclusive benefit of the inventive faculties of the employé and of such inventions as he should make during the term of service.

Whatever license resulted to the Missouri corporation from the facts of the case to use the invention was one confined to that corporation and not assignable by it. (*Troy Iron and Nail Factory* v. *Corning*, 14 How., 193, 216; *Oliver* v. *Rumford Chemical Works*, 109 U. S., 75, 82.) The Missouri corporation was dissolved. Its stockholders organized a new corporation under the laws of Illinois, which may naturally have succeeded to the business of the prior corporation; but the express averment of the bill is that it took by assignment the rights it claims in this suit. Those rights, so far as any title to the invention or patent is concerned, never existed in the assignor. As to any implied license to the assignor, it could not pass to the assignee.

As to so much of the prayer of the bill as asks that Hewitt be enjoined from maintaining any action at law or in equity for any alleged infringement of the patent by the prior corporation, or for its use of any of the devices or improvements covered by the patent, which is all there is left of the prayer of the bill, any suit to be brought would not be a suit against the corporation, for it is dissolved, and could not be a suit in equity against its trustees, for they are not alleged to be using the invention. It could only be a suit at law against the trustees or the stockholders of the old corporation for infringement by it while it existed. The theory of the bill is that there is a perfect defense to such a suit. In such a case a court of equity, certainly a circuit court of the United States, will not interfere to enjoin even a pending suit at law, much less the bringing of one in the future. (*Grand Chute* v. *Winegar*, 15 Wall., 373; 1 High on Injunctions, secs. 89-93, and cases there cited.)

Decree affirmed.

U. S. Circuit Court—District of Massachusetts.

BUSELL TRIMMER COMPANY *et al.* v. STEVENS *et al.*

Decided September 14, 1886.

1. ORCUTT—ROTARY CUTTERS FOR TRIMMING THE EDGES OF BOOT AND SHOE SOLES.
   Letters Patent No. 238,303, of March 1, 1881, to William D. Orcutt, for improvements in rotary cutters for trimming the edges of boot and shoe soles, *held* void for want of patentable novelty.
2. DOUBLE USE.
   The application of an old and well-known form of blade from a hand-tool for trimming sole-edges to an old gear-cutter for trimming such edges is merely a case of double use, and therefore not patentable.

Mr. Chauncey Smith and *Mr. J. E. Maynadier* for the complainants.

Mr. T. W. Porter for the defendants.

Before Judges GRAY and COLT.

COLT, *J.*:

This suit is brought upon Letters Patent No. 238,303, issued March 1, 1881, to William D. Orcutt, one of the complainants, for improvements in rotary cutters for

trimming the edges of boot and shoe soles. The invention relates to that class of rotary cutters consisting of a series of blades arranged about a common hub. The blades are described as having a flat front face, a flat rear face, and a top surface. Extending across the top surface there are a number of ridges, making a molded or fancy surface, which is the converse of the sole-edge desired. The flat front faces of the blades are not radial, but are inclined so as to make each blade slightly hooked. This is said to be desirable for the purpose of cutting, as distinguished from scraping, the sole-edge. The blades are ground on their front faces, and they are made quite thick, so that they may be ground back as they become dull. The top surface of the blades is slightly inclined, so as to give the necessary clearance in cutting.

The first claim is as follows:

1. A rotary cutter for trimming sole-edges, the blades *d* of which are provided with flat front faces, *a*, and have their outer or peripheral ends, *c*, molded throughout to a uniform shape, the converse of the desired shape to be given to the sole-edge, and slightly eccentric to the axis of the cutter, substantially as described.

The second claim gives more in detail the form of the front surface by referring to the ridges; otherwise it is much like the first.

The defendants do not deny the making of cutters which embody, substantially, the features specified in these claims, and therefore the question of infringement is not an issue in the case.

The first and main defense is that in view of the prior state of the art there was no invention in the Orcutt cutter. The history and development of this branch of mechanical art is fully set forth in the record before us. We do not deem it necessary to refer in detail to the various prior patents and devices, because it seems to us that the question of invention in this case is comparatively simple, and is to be determined by reference to two classes of prior tools—namely, the old hand tool or plane and the Brown gear-cutter, patented in 1864.

If, as contended by the defendants, there is no substantial difference between the Orcutt cutter and the Brown gear-cutter, except in the form or outline of the path or figure they cut, and if this form or outline in the Orcutt cutter was taken from the old hand-plane, it is difficult to find any invention in what Orcutt did. A comparison between the Orcutt cutter and the various forms of the Brown milling-cutter before us discloses that, except as to the shape of the top surface of the blades, they are in all essential features the same, and in some instances, even in this last respect, there is a close resemblance. Turning, now, to the old hand-plane for trimming the edges of soles, used long prior to the date of the Orcutt patent, we find substantially the form of cutting-teeth employed by Orcutt. The blade of the old hand-tool had a rand-lip, bead, bed, guard, and channel-guard, which are descriptive of the different parts of the surface of the blade, and the same features are found in the blade of the Orcutt cutter.

We are aware that Orcutt contends that his rand-lip is in fact a rotary rand-knife, different from the rand-lip of the old hand-plane, and to be used in connection with a rand-guide, and made so thin that the lip and guide must go between the sole and the upper. Admitting this to be true, it is not sufficient to sustain the patent, because both the rotary rand-knife and the rand-guide are found in prior devices.

Upon careful consideration we are forced to the conclusion that the substance of Orcutt's improvement lies in the application of an old and well-known form of blade to a Brown milling-cutter, for the purpose of trimming the edges of boot and shoe soles, and that this is merely a case of double use, and therefore not patentable.

Bill dismissed.

U. S. Circuit Court—District of Indiana.

THE NEWARK MACHINE COMPANY v. GAAR, SCOTT & CO.

Decided November 18, 1886.

1. INFRINGEMENT—COMBINATION.

A claim for a combination of devices constituting a seed-cleaning machine is not infringed by the use of a machine in which certain of the elements are not found.

2. MILLER—RECLEANERS FOR GRAIN AND SEED SEPARATORS.

Letters Patent No. 322,465, granted July 22, 1885, to Abraham Miller for an improvement in recleaners for grain and seed separators, anticipated.

Mr. Wells W. Leggett for the complainant.

Messrs. Wood & Boyd for the defendant.

WOODS, *J:*

The questions presented here, excepting one, are the same which were recently considered and decided, and, as I think, correctly decided, in a case of the same plaintiff against *Hargett et al.*, (28 Fed. Rep., 567; 36 O. G., 692.) The record and evidence in the two cases, it is conceded, are the same; but it is insisted that these defendants are shown to have infringed the device covered by Patent No. 322,465, issued July 21, 1885, to Miller. The claims of that patent are two and read as follows:

1. A recleaning attachment for grain-separators, consisting, essentially, of a hopper, a screen for receiving the grain from the hopper, an elevator having a chamber at its lower end, and its upper end arranged to deliver the grain to the hopper, and an inclined conductor having one end connected directly with the chamber of the elevator and its upper end formed into a mouth arranged under the discharge-mouth of the screen to convey the tailings to the chamber of the elevator, substantially as set forth.

2. The combination, with a separator, of a recleaning device, consisting, essentially, of a screen, an elevator for elevating the tailings to the screen, and a spout arranged directly between the screen and elevator for receiving the tailings from the screen and discharging them into the elevator frame or casing.

If the patentability of the device described in each claim be conceded, it is clear, in the light of the earlier art, that these claims must be construed strictly, and so construed were not infringed by the defendants, whose recleaning attachments have not had "a spout arranged directly between the screen and elevator," nor "an inclined conductor having one end connected directly with the chamber of the elevator." Besides, the evidence shows, as I view it, that these devices or claims had been anticipated by the Shively recleaner.

Bill dismissed for want of equity.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[*BY AUTHORITY OF CONGRESS.*]

VOL. 37—No. 12. TUESDAY, DECEMBER 21, 1886. PRICE—$5 per year.

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Order Relative to Access to Abandoned Applications.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

In the matter of the informal request of ——— as attorney of ——— for permission to examine the files of ———, an abandoned application.

Mr. ———, as the attorney of ———, presents a written request that he be allowed to examine the application in the case of ———, which application became "abandoned," by two years' failure to prosecute the same, in March, A. D. 1880. This request or petition is not verified, and states simply that petitioner's client has business interests in charge, and that he is also involved in litigation, which makes it very important that he be permitted to see and know the contents of the files of such abandoned application.

This request as it is presented cannot be allowed. In the first place, the facts as stated, even if verified, would not justify the order invited, and, in the second place, there is no proper "showing" of such facts presented to the Commissioner. In other words, the statement is not verified.

On the 4th day of February, 1876, Commissioner Duell made an order which reads as follows:

In view of the more recent interpretations put upon the law in relation to rejected and abandoned applications, they being no longer held as a bar to the issue of a patent, and no notice being taken of them in an examination of pending applications, it is ordered that the files, drawings, and models of such applications, and all records pertaining thereto, be kept in the secret archives of the Office. No such model, drawing, or file will be exhibited to any person except the applicant or his properly authorized attorneys.

The manifest intent of this order was to prohibit the inspection of the files in abandoned cases, and to place them in that regard on the same footing as cases pending and not abandoned.

For the evident purpose of modifying somewhat the line of practice in these matters, and that the Commissioner *might*, in exceptional cases, permit such inspection, on the 1st day of December, 1879, Rule 171 was adopted, in which rule it was declared that—

Certified copies of the files in cases of rejected and abandoned applications *may* be furnished to applicant or to *other persons* when specifically ordered by the Commissioner.

On the 24th day of June, 1885, the present Commissioner declared:

These files of abandoned cases are not open to public inspection, and no one should be permitted to examine or have a copy of them without a "special order" of the Commissioner. Such order should only be made upon *special application*, which should be in writing, verified as to all material averments not shown by the records and files of the Office, and must be full and complete, to the end that the Commissioner may, from *its contents*, determine whether or not it can be granted.

Requests of this character should always be presented in writing, and in case such writing alleges any fact which is not of record in the Office, the same should be properly verified.

I suggest the following form as *indicating* the practice which should be pursued:

To the Commissioner of Patents:

The petition of ———, a resident of ———, in the county of ——— and State of ———, respectfully shows:

First. That on the —— day of ——, A. D. ——, patent No. —— issued to one ———.

Second. That your petitioner is informed and believes that on the —— day of ——, A. D. ——, said patentee filed in the United States Patent Office an application for patent for improvement in ———.

Third. That your petitioner verily believes that said application has not been prosecuted during the past two years and upward; and he also verily believes that the last action had therein was on or about the —— day of ——, in the year A. D. ——.

Fourth. That said application has, therefore, become and now stands abandoned.

Fifth. That on the —— day of ——, A. D. ——, said patentee began suit in the Circuit Court of the United States for the —— district of ———, against your petitioner, which suit is based upon said patent; and the same is now pending and undetermined.

Sixth. Your petitioner is informed and believes that, to enable him to prepare and conduct his defense in such suit, it is material and necessary that he be allowed access to, and copies of, the files of such abandoned case.

Seventh. Your petitioner, therefore, requests that he or ——, in his behalf and as his attorney, be permitted to inspect and be furnished copies of all or any portion of such files.

——— ———
Petitioner.

By ———,
His attorney.

STATE OF ——— }
COUNTY OF ——— } *ss:*

On this —— day of ——, A. D. ——, before me, a notary public in and for said county and State, personally appeared ———, the above-named attorney, who, being by me duly sworn, deposes and says that he has read the foregoing petition and knows its contents, and that the same is true except as to the matters therein stated on information or belief; and as to those matters he believes it to be true.

——— ———,
Notary Public.

Upon receiving such a petition, so verified, if the same exhibited facts which seemed to warrant such an order, the direction asked would be given.

M. V. MONTGOMERY,
Commissioner.

Dated *November* 20, 1886.

Issue of December 21, 1886.

Patents	354	No. 354,526 to No. 354,879, inclusive.
Designs	11	No. 17,025 to No. 17,035, inclusive.
Trade-Marks	27	No. 13,890 to No. 13,916, inclusive.
Label	1	No. 5,064
Reissues	2	No. 10,791 to No. 10,792, inclusive.
Total issue	395	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	.....	Montana Territory	.....	.....
Arizona Territory	.....	.....	Nebraska	2	.....
Arkansas	2	.....	Nevada	.....	.....
California	6	.....	New Hampshire	6	.....
Colorado	2	.....	New Jersey	16	.....
Connecticut	14	1	New Mexico Territ'y	.....	.....
Dakota Territory	1	.....	New York	83	10
Delaware	1	.....	North Carolina	.....	.....
District of Columbia	2	.....	Ohio	21	1
Florida	1	1	Oregon	.....	.....
Georgia	3	.....	Pennsylvania	45	4
Idaho Territory	.....	.....	Rhode Island	1	.....
Illinois	27	1	South Carolina	1	.....
Indian Territory	.....	.....	Tennessee	2	.....
Indiana	15	.....	Texas	1	.....
Iowa	9	.....	Utah Territory	.....	.....
Kansas	3	.....	Vermont	3	.....
Kentucky	5	.....	Virginia	4	.....
Louisiana	.....	1	West Virginia	2	.....
Maine	1	.....	Wisconsin	6	.....
Maryland	.....	1	Wyoming Territory	1	.....
Massachusetts	22	3	United States Army	.....	.....
Michigan	9	.....	United States Navy	.....	.....
Minnesota	4	.....			
Mississippi	2	.....	Total to citizens of the United States	329	25
Missouri	5	2			

To citizens of foreign countries: Patents and Designs—36. Trade-Marks and Labels—3.

DESIGNS.

17,025.—WHISK-BROOM HOLDER.—*George W. Bronson*, Amsterdam, N. Y. Application filed November 16, 1886. Serial No. 219,100. Term of patent 3½ years.

17,026.—HAME-TOP.—*Fred Frazer*, Syracuse, N. Y. Application filed November 13, 1886. Serial No. 218,837. Term of patent 14 years.

17,027.—WATCH OR LOCKET CASE.—*Daniel E. D. McMurray*, Brooklyn, N. Y. Application filed November 13, 1886. Serial No. 218,838. Term of patent 3½ years.

17,028.—OIL-CLOTH.—*Charles T. Meyer* and *Victor E. Meyer*, Bergen, N. J., assignors to *Edward C. Sampson*, New York, N. Y. Application filed November 27, 1886. Serial No. 220,103. Term of patent 3½ years.

17,029 to 17,031, inclusive.—OIL-CLOTH.—*Charles T. Meyer* and *Victor E. Meyer*, Bergen, N. J., assignors to *Edward C. Sampson*, New York, N. Y. Applications filed November 27, 1886. Serial Nos. 220,100 to 220,102, inclusive. Term of patents 3½ years.

17,032.—TRAY.—*George S. Shilton*, Brooklyn, N. Y. Application filed November 6, 1886. Serial No. 218,221. Term of patent 14 years.

17,033.—RUG.—*William T. Smith*, Philadelphia, Pa. Application filed October 7, 1886. Serial No. 215,624. Term of patent 3½ years.

17,034.—MUSICAL-SCALE POINTER.—*Louis André Frédéric Ren Tayeux*, Paris, France. Application filed October 21, 1886. Serial No. 216,912. Term of patent 14 years.

17,035.—DISH.—*Charles H. Treat* and *Andrew B. Ranghart*, Georgetown, Del. Application filed April 8, 1886. Serial No. 198,312. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,890.—MALT LIQUORS.—*The Reisner & Engel Brewing Company*, Philadelphia, Pa. Application filed November 12, 1886. Used since November 1, 1886.
"A representation of the German heraldic eagle."

13,891.—MUSTARD-OIL.—*J. & J. Colman*, London, England. Application filed November 4, 1886. Used since 1855.
"The representation of a bull's head."

13,892.—LIQUID FIRE-PROOF PAINT.—*M. F. A. De Bernales*, New York, N. Y. Application filed October 26, 1886. Used since 1882.
"The word 'CYANITE.'"

13,893.—VARNISH.—*The Embossing Oil Company*, Danbury, Conn. Application filed November 9, 1886. Used since June 15, 1886.
"The words 'ASHBORN'S NUMUNDI'S EMBOSSING OIL' and the representation of a circle with a scroll passing over its face on one side and twined about its opposite face, and the free end of the scroll extending out at right angles from the circle."

13,894.—CORSETS.—*J. Richard Freud*, New York, N. Y. Application filed November 11, 1886. Used since January 1, 1886.
"A star and the letters 'C B' within the same."

13,895.—BUILDING OR ROOFING PAPER.—*C. S. Garrett & Son*, Philadelphia, Pa. Application filed November 11, 1886. Used since October 1, 1886.
"The arbitrary word 'RAW-HIDE.'"

13,896.—MEDICAL COMPOUND.—*Graves & Reifert*, Rome, N. Y. Application filed October 8, 1886. Used since January 17, 1886.
"The words 'DR. P. A. MOLLING'S VEGETABLE COUGH AND LUNG BALSAM' and the monogram 'G & R.'"

13,897.—MEDICINAL PLASTERS.—*Grosvenor & Richards*, Boston, Mass. Application filed November 3, 1886. Used since January 1, 1884.
"The representation of a bell."

13,898.—MEDICINAL PLASTERS.—*Grosvenor & Richards*, Boston, Mass. Application filed November 3, 1886. Used since January 1, 1884.
"The word 'BELLCAPSIC.'"

13,899.—CANNED TOMATOES.—*S. R. & S. L. Hewlett*, Roslyn, N. Y. Application filed October 27, 1886. Used since July 1, 1886.
"The word 'PURITAN.'"

13,900.—MEDICAL COMPOUND FOR EXTERNAL APPLICATION FOR SKIN DISEASES.—*F. E. Hodgson*, Cheshunt, County of Herts, England. Application filed November 13, 1886. Used since February 5, 1886.
"The word 'ANTECZEMA.'"

13,901.—STICKING-SALVE.—*Howard Bros.*, Fredonia, N. Y. Application filed November 18, 1886. Used since June, 1886.
"The arbitrary word 'YANKEE.'"

13,902.—HYDRANTS.—*John C. Kupferle*, St. Louis, Mo. Application filed April 12, 1886. Used since March 1, 1886.
"A red stripe encircling the hydrant-pipe."

13,903.—WOVEN COTTON GOODS.—*Massachusetts Cotton Mills*, Boston, Mass. Application filed November 8, 1886. Used thirty years.
"The word 'PRESCOTT.'"

13,904.—PERIODICAL PUBLICATIONS.—*Henry C. Meyer*, New York, N. Y. Application filed November 8, 1886. Used since November 5, 1886.
"The words 'SANITARY ENGINEER' in a horizontal line underneath two recumbent female figures. Centrally beneath, and also in a horizontal line, the words 'CONSTRUCTION RECORD.' Beneath are the words 'ENGINEERING' and 'ARCHITECTURE,' at the right and left of which, upon curved scrolls, the words 'SANITATION' and 'CONSTRUCTION,' respectively. At the top, between the two female figures, is a shield."

13,905.—WOOLEN SHAWLS.—*Cornelius B. Mitchell*, New York, N. Y. Application filed November 11, 1886. Used since 1876.
"The words 'ST. ANDREWS.'"

13,906.—CORSETS.—*Moritz Cohn*, New York, N. Y. Application filed November 8, 1886. Used since October 1, 1886.
"The words 'HER ROYAL HIGHNESS.'"

13,907.—MEDICAL PREPARATION OF COCA.—*Munson & Co.*, St. Louis, Mo. Application filed October 30, 1886. Used since September 1, 1886.
"The pictorial representation of a dragon, knight, and woman and child."

13,908.—SPRING-TOOTH HARROWS.—*G. B. Olin & Co.*, Canandaigua, N. Y. Application filed November 10, 1886. Used since 1878.
"The words 'THE PERRY.'"

13,909.—REMEDY FOR BLOOD, STOMACH, AND LIVER DISEASES.—*Oregon Indian Medicine Company*, Corry, Pa. Application filed May 29, 1884. Used since 1876.
"The portrait of Donald McKay, chief of the Warm Spring Indians, in a standing position, and the word 'KA-TOM-KA.'"

13,910.—CANNED GOODS.—*Platt & Co.*, Baltimore, Md. Application filed November 4, 1886. Used since October, 1876.
"The representation of a tiger's head."

13,911.—IRON TONIC.—*William H. & Robt. L. Riley*, New Orleans, La. Application filed November 8, 1886. Used since December, 1885.
"The word 'BUCK'S.'"

13,912.—LAUNDRY AND TOILET SOAP.—*G. A. Shoudy Soap Company*, Rockford, Ill. Application filed November 15, 1886. Used since August 1, 1886.
"The word-symbol 'VENUS.'"

13,913.—CANNED GOODS.—*Warner & Rhodes*, Philadelphia, Pa. Application filed November 17, 1886. Used since March, 1886.
"The word 'DAISY.'"

13,914.—YEAST-CAKES.—*Joseph F. Baya* and *George O. Adicks*, Lake City, Fla. Application filed November 8, 1886. Used since August 1, 1886.
"The representation of three 'A's.'"

13,915.—SELF-RAISING FLOUR.—*George W. Buhrman*, Cincinnati, Ohio. Application filed October 29, 1886. Used since September 15, 1886.
"The word 'FLOURENE.'"

13,916.—BLUING.—*James W. Hack*, Brooklyn, N. Y. Application filed November 12, 1886. Used since July 1, 1886.
"The words 'GREAT AMERICAN.'"

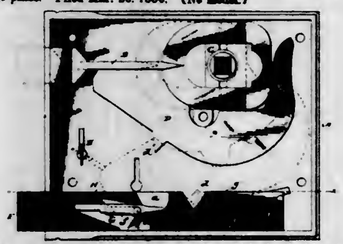
LABELS.

5,064.—Title: "COLMAN'S CONCENTRATED MUSTARD OIL."—*J. & J. Colman*, London, England. Application filed November 4, 1886.

PATENTS

GRANTED DEC. 21, 1886.

354,526. LOCK. JOSEPH R. AMES and STEPHEN K. AMES, Amesville, Pa., assignors of one-half to Benj. F. Wise and Edward R. Ames, both of same place. Filed Mar. 26, 1886. (No model.)

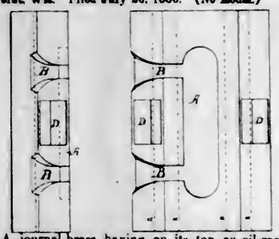


Claim.—1. In a lock, the combination, with the locking bolt and stops located at or near each end, of two pivotally-supported gravity-levers extending in opposite directions, having their outer ends alternately engaging with the stops and their inner ends adapted to be engaged alternately by the key, whereby the corresponding outer end is disengaged from its stop and the bolt simultaneously moved by the key, substantially as set forth.

2. In a lock, the combination, with the locking-bolt provided with a key-engaging notch in its upper edge, and recesses in its side on each side of and communicating with the notch and having shoulders forming stops, of two pivotally-supported gravity-levers seated in said recesses and extending in opposite directions, having their inner ends approaching close to each other and their outer ends gravitating and engaging with the stops, whereby the key, alternately engaging with the inner ends of the levers, depresses them and correspondingly elevates their outer ends and disengages them from the slots, substantially as set forth.

3. The combination of the case, the locking-bolt longitudinally slotted, a pair of gravity-levers, one being located on each side of the bolt, a pivot for the levers extending through the slot in the bolt and the sides of the case, and stops on each side of the bolt engaged by the gravitating ends of the levers, the opposite ends of which levers are projected beyond the pivot to be engaged by the key, a corresponding gravitating lever extending in an opposite direction with its inner end in close proximity to the inner ends of the first-mentioned levers, and a corresponding stop for the gravity end, substantially as set forth.

354,527. LOCOMOTIVE-ENGINE-TRUCK BRASS. HARRY A. BARNES, Stevens Point, Wis. Filed July 26, 1886. (No model.)

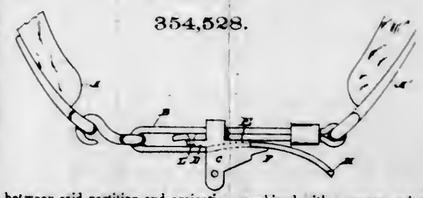


Claim.—A journal-brass having on its top an oil-recess, A, from which lead channels B B to and over the back edge of the brass, whereby the lubricant is conveyed to the journal, substantially as described.

354,528. BUCKLE. WILLIAM W. BELL, Valley Springs, Dak. Filed Apr. 10, 1886. (No model.)

Claim.—1. In a buckle, a rectangular frame having therein a partition at right angles with its body and extending beyond and parallel with a projection on the frame, thereby affording a passage for the strap

354,528.

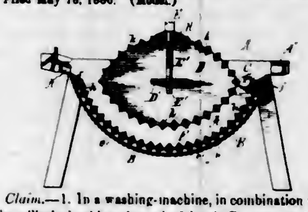


between said partition and projection, combined with a tongue, substantially as described.

2. The combination of the frame C, having the partition D at right angles therein, its ends extending on both sides of the frame, and the parallel projection F, combined with the tongue H, having a corrugated face, K, and hinged to said frame, substantially as described.

3. The combination of the frame C, having the partition D, provided with the hole G in the extension on one side, its extension on the other side being parallel with the projection F of said frame, combined with the hinged or pivoted tongue H, having a rounded and corrugated face, substantially as described.

354,529. WASHING-MACHINE. DAN BLAKESLEE, Limestone, N. Y. Filed May 18, 1886. (Model.)



Claim.—1. In a washing-machine, in combination with the suds-box A, the elliptical rubber formed of beads D, connected by angular slats *k*, and central cross-brace, D', having a screw-threaded hole therein, combined with the removable hand-lever E, having a screw-threaded shank, E', and curved serrated piece H, and hangers G, substantially as and for the purposes set forth and shown.

2. In a washing-machine, the combination, with the suds-box A, having the cleats *f f* at each end thereof, and rubber D, of the false bottom F, formed of a series of square-shaped slats, *g*, whose opposing angles project from the top and bottom of said bottom, and flexible metal strips *h h*, placed at the ends of said slats and connecting the same together, substantially as described and shown, whereby said bottom may be reversed for use upon opposite sides thereof, and when so reversed will present the same series of sharp angles to the rubber, for the purposes specified.

3. In a washing-machine, the suds-box A, formed at each end with a return-chamber, A' A', whose bottom 1, ends 2, and back 3 are curved toward the center 4 of said chamber, substantially as and for the purposes described and shown.

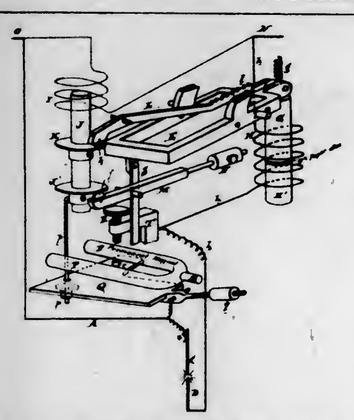
354,530. ELECTRIC LAMP. HERMANN R. BOSSERT, New York, N. Y. Filed June 7, 1886. (No model.)

Claim.—1. In an electric lamp, the carbon-holders, feeding devices for the carbons, a high-resistance helix arranged in a closed shunt-circuit to arrest the feeding of the carbons together, and the armature or core of said helix, which directly arrests the action of the feeding devices of the carbons, in combination with a counter-balance to counterbalance the weight of said armature-core, and means to adjust the connection of the counter-balance with respect to the core, substantially as and for the purpose specified.

2. In an electric lamp, the carbon-holders, feeding devices for the carbons, a high-resistance helix arranged in a shunt-circuit to arrest the

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feeding of the carbon, the armature or core of said helix working vertically in said helix, a lever operated thereby to directly control the feeding devices for the carbons, in combination with an adjustable counterbalance to counterbalance the weight of said armature or core, and a low-resistance helix to separate the carbons, substantially as and for the purpose specified.

3. In an electric lamp, the carbon-holders, feeding devices for the carbons, a high-resistance helix arranged in a closed shunt-circuit to arrest the feeding of the carbons, the core of said helix working vertically, a lever controlled by said core to directly arrest the action of the feeding devices for the carbons, in combination with a counter-balance to counterbalance the weight of said armature or core, a low-resistance helix in the main circuit, an armature or core therefor, and carbon-separating devices to move the carbons apart when the current is put on to form the arc, substantially as and for the purpose specified.

4. In an electric lamp, the carbon-holders, a high-resistance helix arranged in a shunt-circuit to control the feeding of the carbons and the armature or core of said helix, which directly actuates the feeding devices of the carbons, in combination with a counter-balance to counterbalance the weight of said armature or core, a low-resistance helix in the main circuit, an armature or core therefor, and carbon-separating devices to move the carbons apart when the current is put on to form the arc, a shunt, and an electrically-actuated cut-out device thrown into action to shunt or cut out the carbons or arc when the high-resistance helix is unduly magnetized, and a connection between said cut-out and low-resistance magnet, whereby it is thrown out of action to put the carbons into direct circuit by the action of the low-resistance helix upon breaking or greatly reducing the line-circuit, substantially as and for the purpose specified.

5. In an electric lamp, the low-resistance helix, always in line-circuit, the carbon mechanism, substantially as described, actuated by the low-resistance helix to separate the carbons to establish the arc, in combination with a cut-out or shunting device, which, upon an excessive length of arc being formed or upon the arc going out owing to the carbons not feeding, shall automatically put said carbons into a shunt-circuit and connect the low-resistance magnet with the line-circuit, substantially as and for the purpose specified.

6. In an electric lamp, the low-resistance helix, always in the line-circuit, the carbon mechanism, substantially as described, actuated by the low-resistance helix to separate the carbons to establish the arc, in combination with a shunt-circuit, a cut-out or shunting device, a connection between said cut-out and high-resistance magnet, which, upon an excessive length of arc being formed or upon the arc going out owing to the carbons not feeding, shall automatically actuate said cut-out to put said carbons into a shunt-circuit and connect the low-resistance magnet with the line-circuit, and a connection between said cut-out and carbon-separating mechanism to break said shunt and reset the cut-out, whereby, when the low-resistance helix is demagnetized and the carbons made to meet, the cut-out circuit shall be broken and the carbons once more put into the line or main circuit, substantially as and for the purpose specified.

7. In an electric lamp, the combination of a high-resistance helix to feed the carbons and put the cut-out into action, a low-resistance helix to separate the carbons to establish the arc and put the cut-out out of action, and a magnetic cut-out device consisting of a permanent magnet and its current-closing armature, a circuit through the low-resistance helix and carbons, a shunt-circuit through the high-resistance helix, and an auxiliary circuit opened or closed by the cut-out armature to put the carbons into direct or shunted circuit, substantially as and for the purpose specified.

8. In an electric lamp, the combination of a high-resistance helix to feed the carbons and put the cut-out into action, a low-resistance helix to separate the carbons to establish the arc and put the cut-out out of action, and a magnetic cut-out device consisting of a permanent magnet and its circuit-closing armature, a circuit through the low-resistance helix and carbons, a shunt-circuit through the high-resistance helix, and an auxiliary circuit opened or closed by the cut-out armature to put the carbons into direct or shunted circuit, substantially as and for the purpose specified.

9. In an electric lamp, a cut-out for the carbons, consisting of a permanent magnet, in combination with an armature moved into and out of range of its magnetic field by the action of electro-magnets under the influences of the line-circuit, and a circuit opened or closed by the armature of the cut-out to put the carbons into or out of the line-circuit, substantially as and for the purpose specified.

10. In an electric lamp, the combination of the high-resistance helix I and its core J with the feeding mechanism for the carbons, and counterbalancing-lever M, having adjustable weight N, the low-resistance helix H, to establish the arc, the helix I being in a shunt-circuit around the carbons, and the helix H being in a direct circuit with the carbons, substantially as and for the purpose specified.

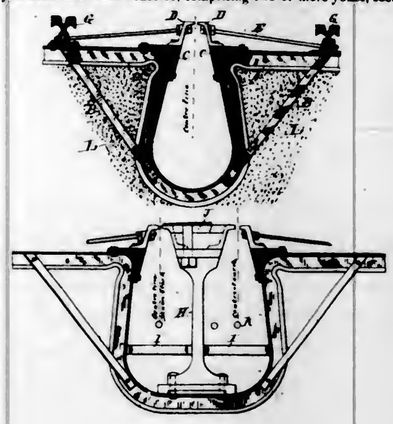
11. In an electric lamp, the combination of the high-resistance helix I and its vertically-moving core J, surrounded by said helix, with the regulating-lever L, actuated by said core, feeding mechanism for the carbons, and counterbalancing-lever M, having adjustable weight N, low-resistance helix H, to establish the arc, the helix I being in a shunt-circuit around the carbons and the helix H in a direct circuit with the carbons, permanent magnet P, cut-out armature Q, cut-out contacts R r, the contact r being in circuit with one binding-post and the contact R being in circuit with the line-circuit between the helix H and the carbons, a connection actuated by the helix H to throw the armature Q out of attractive position with reference to magnet P, and a connection between said core J and armature Q, by which the armature Q is raised within attractive distance of the magnet P when the helix I is unduly magnetized, substantially as and for the purpose specified.

12. In an electric lamp, the combination of the high-resistance helix I and its core J, with the feeding mechanism for the carbons, and counterbalancing-lever M, having adjustable weight N, the low-resistance helix H, to establish the arc, the helix I being in a shunt-circuit around the carbons, and the helix H being in a direct circuit with the carbons, permanent magnet P, cut-out armature Q, cut-out contacts R r, the contact r being in circuit with one binding-post, and the contact R being in circuit with the line-circuit between the helix H and the carbons, and a connection between said core J and armature Q, by which the armature Q is raised within attractive distance of the magnet P when the helix I is unduly magnetized, and finger or arm S, actuated by the low-resistance helix and adapted to push the armature Q out of attractive action of magnet P when the arc is established, substantially as and for the purpose specified.

13. The combination of the carbon-holder B, carbons C D, low-resistance helix H, having a fixed core, H', and in the line-circuit, movable core G, actuated thereby to separate the carbons, high-resistance helix I in a shunt-circuit around the helix H, and suitable carbon-feeding devices actuated thereby, substantially as and for the purpose specified.

354,531. CABLE-RAILWAY CONSTRUCTION. Lacoer P. Boyer, Philadelphia, Pa. Filed May 15, 1886. (No model.)

Claim.—1. A made-up skeleton section of underground cable-railway conduit and track structure, comprising two or more yokes, sections



of slot-iron, and sections of track-rails, all secured together by suitable fastenings, whereby the same may be constructed in the shop and transported to the place of use and placed in position with much less impediment to ordinary street traffic, as set forth.

2. A make-up skeleton section of underground cable-railway conduit and track structure, comprising several yokes, sections of slot-iron, sections of track-rail, slot-iron adjusting-rods, braces, and sheet-metal lining, all secured together by appropriate fastenings, whereby the same is constructed in the shop and transported to the place of use ready to be located in place to receive the concrete bed, all substantially as set forth.

3. A made-up skeleton section of underground cable-railway conduit and track structure, consisting of several yokes, sections of track-rail, and sections of slot-iron and sheet-metal lining or casement, all secured together by suitable fastenings, the track-rails at one end of the section projecting beyond the last yoke thereof far enough to rest upon the first yoke of the adjacent section, and the rail ends at the other end of the section extending about half the width of the yoke thereat, leaving space for the support of the rail ends of the adjoining section at that end, as set forth.

4. In a cable-railway structure, the combination, with yokes formed from a single bar or rail having substantially straight and vertical sides of angle blocks or brackets secured on said yokes, and slot-irons secured to said blocks or brackets, all substantially as shown and described.

5. In a cable-railway structure, the combination of the yokes A, angle blocks or brackets C, and slot-irons D, having extended flanges *d*, all substantially as shown and described.

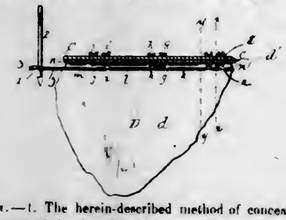
6. In a cable-railway structure, the combination of the yokes A, blocks or brackets C, slot-irons D, and adjusting-rods E, substantially as shown and described.

7. The combination, in a cable-railway structure, of the yokes A, the brackets C, slot-irons D, and braces B, substantially as shown and described.

8. The combination, with the yoke of a cable-conduit, of a stand or support secured thereto at its base and having lateral braces and a pivoted slot-tongue, substantially as shown and described.

354,532. METHOD OF SEWING ON BUTTONS. Aaron A. Brown, Cincinnati, Ohio. Filed Mar. 20, 1886. (No model.)

Brief.—The thread used in sewing fast the buttons to the leather and its lining is in the main part concealed by the lining, and is thus protected from being worn or broken, the lining being interposed (when the shoe is in use) between such thread and the person, the small exposed parts being drawn tight in the act of sewing, they being about flush or even with the exposed or wearing surface of the lining.

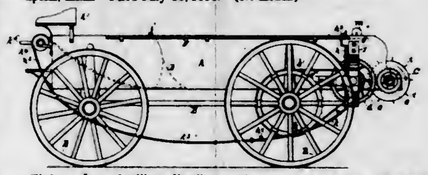


Claim.—1. The herein-described method of concealing and protecting that part of the thread used in sewing buttons on shoes or other articles which extends from stitch to stitch and from one button to another, the same consisting in first passing a loop of the thread through a double thickness of the lining and thence through the leather or other main material to which the lining and buttons are to be attached, then securing the button by means of the thread, as set forth, and turning back the lining to cover the thread extending from one stitch to the next one.

2. The herein-described method of concealing and protecting that part of the thread used in sewing shanked buttons to shoes or other articles which extends from stitch to stitch and from one button to another, the same consisting in first passing a loop of the thread through the lining material from its inside to its outside surface, next drawing such loop up through said lining from its outside surface and thence through the leather or other main material to which the lining and buttons are to be attached, then securing the button by means of the thread, as set forth, and turning back the lining to cover the thread extending from one stitch to the next one.

3. The herein-described method of sewing buttons on shoes and other articles, consisting in first passing a loop of the thread through a double thickness of the lining, and thence through the outer material, through the shank of the button, and then around the button and shank; secondly, passing another loop of the same thread through a double thickness of the lining, through the outer material, through the shank of the button from the opposite side to which the first loop was passed, and then around the button and shank, and, thirdly, carrying the thread along between the lining and the outer material preparatory to forming the next stitch.

354,533. FERTILIZER-DISTRIBUTER. Daniel B. Burdett, Minneapolis, Minn. Filed July 10, 1886. (No model.)



Claim.—In a fertilizer-distributer, the automatic device described for throwing the distributing-drum C in and out of gear with the driving mechanism, which consists in the combination of the chain-wheel *c*, laterally movable on its supporting-shaft *d'*, and provided with a clutch, *c'*, on its inner hub, having a flange, c^2, the gear-wheel *d*, engaging gear-wheel *e* and provided with a clutch, d^2, on its outer hub, the lever-rod *h*, pivotally supported in the bearings f^2 f^3, extending vertically between said wheels *c* and *d*, in close proximity to their hubs, and provided with the wiper h', the crank h^2 at the top of lever-rod *h*, extending at right angles near to the wagon-body, the scraper D, provided with rod *i*, extending over the top of side-board of the wagon, means, substantially as described, for operating said scraper, and the spring L, placed on-shaft *d'* intermediate the outer hub of wheel *c* and the outside piece of the bracket *f*, all substantially as described, for the purpose set forth.

354,534. PROCESS OF AND APPARATUS FOR PRINTING VIGNETTES. Edward S. Butler, Wyoming, Ohio. Filed June 26, 1886. (No model.)



Claim.—1. The process of making vignettes by continually changing the angle at which the light falls onto the negative through the opening of the piece used for forming the boundary of the vignette-picture, substantially as and for the purposes specified.

2. The process of making vignettes, consisting of imparting to the negative, the piece having the vignette-opening, and the thing to be printed, an undulatory or tilting motion and a rotating movement, substantially as and for the purposes specified.

3. In a printing and vignetting device, the combination of the plate or holder G and means for imparting to the holder a tilting or waving movement, substantially as and for the purposes specified.

4. In a printing and vignetting device, the combination of the plate or holder G, and the plate having the uneven surface, and the roller I, revolving round the stem or axis of the plate G, substantially as and for the purposes specified.

5. In a printing and vignetting device, the combination of the plate or holder G, and the plate having the depressions W and projections V on its under surface, and the roller I, and spring for holding the roller against the said uneven surface of the adjacent plate, substantially as and for the purposes specified.

6. In a printing and vignetting device, the combination of the plate G, and the plate H, formed in alternate depressions and projections, and the roller I, hollow cylinder J, rod *l*, and spring K, substantially as and for the purposes specified.

7. In a printing and vignetting device, the combination of the plate G, provided with the cam surface and roller I, and the stem D, and ball-and-socket joint, and the roller I, and rotatable plate F, substantially as and for the purposes specified.

8. In a printing and vignetting device, the combination of the rotatable plate or support E, suitable clock-work for moving it, roller I,

and plate G, cam-surface H, stem D, and pivotal joint or connection, substantially as and for the purposes specified.

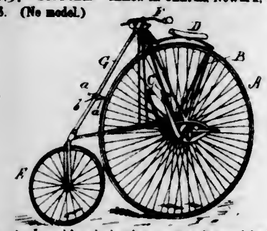
9. In a printing and vignetting device, the combination of the rotatable support E, wheel F, plate E, clock-work, roller I, spring, plate G, stem D, cam-surface, and pivotal joint or connection, substantially as and for the purposes specified.

10. In a printing and vignetting device, the combination of the plate G, stem D, means for tilting and rotating the said plate, and the ball-and-socket joint and the rotatable sleeve S, substantially as and for the purposes specified.

11. In a printing and vignetting device, the box or frame A, journals T, frame B, rotatable part E, stem D, roller I, plate G, with cam H, and pivotal joint, substantially as and for the purposes specified.

12. In a printing and vignetting device, the box or frame A, journals T, frame B, arm *b*, and clamp *b'*, rotatable part E, stem D, roller I, plate G, with cam H, and pivotal joint, substantially as and for the purposes specified.

354,535. BICYCLE. Arrow A. Carter, Newark, N. J. Filed May 25, 1886. (No model.)



Claim.—1. In a bicycle having a steering-rod before the driving-wheel, the combination, with the steering-rod or its casing, of a foot-rest adapted to support the feet of the rider.

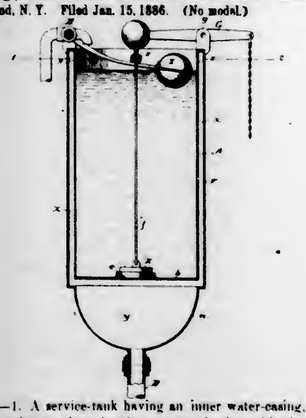
2. In a bicycle having a steering-rod before the driving-wheel, the combination, with the steering-rod or its casing, of an adjustable foot-rest adapted to support the feet of the rider.

3. In a bicycle having a steering-rod arranged to carry a steering-wheel before the driving-wheel and having treadle-levers to actuate the driving-wheel, the combination, with such steering-rod, of a foot-rest projecting at each side of the steering-rod and adapted to support the rider's feet when removed from the treadle-levers.

4. The combination, with the steering-rod G, or its casing, of the socket *b*, having a foot-rest, *a*, projecting at each side, as and for the purpose set forth.

5. The combination, with the steering-rod G, or its casing, of the socket *b*, having a foot-rest, *a*, projecting at each side, the socket being hinged as described, and clamped removably upon the bar by a screw, *d*, as and for the purpose set forth.

354,536. SERVICE-TANK FOR WATER-CLOSETS. Robt. Clarke, Gravesend, N. Y. Filed Jan. 15, 1886. (No model.)

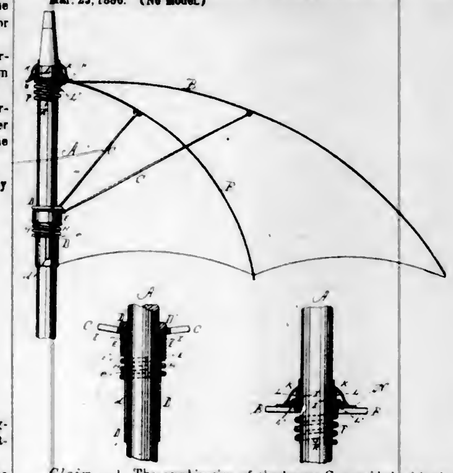


Claim.—1. A service-tank having an inner water-casing, an outer casing, and an intervening chamber communicating with the flushing-pipe, substantially as set forth.

2. The combination, in a supply-tank, of an inner water-receiving casing, an outer casing arranged to form an intervening chamber and extended to form a reservoir below the inner casing, a flushing-pipe communicating with the reservoir, and the inner casing communicating with the reservoir through an opening provided with a valve, substantially as set forth.

3. The combination, with a supply-tank, of an inner casing provided with a valve, an outer casing arranged to form an intervening chamber, a reservoir below the said valve communicating with the said chamber and with the flushing-pipe, and an opening forming a communication near the top of the inner casing between the latter and the chamber, substantially as set forth.

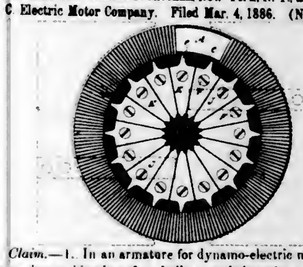
354,537. UMBRELLA. Charles P. Cogswell, Boston, Mass. Filed Mar. 29, 1886. (No model.)



Claim.—1. The combination of the braces C, provided with the swinging plates I, the runner D, provided with the flange D' and lip or projection *e*, the spiral spring H, and the ring K, placed upon said runner between the spring and said flange, and large enough to allow an annular space for the accommodation of said plates I, substantially as and for the purpose set forth.

2. The combination of the ribs B, provided with the swinging plates I, the staff A, provided with the pin R, the crown K, ring L, large enough to accommodate the said plates I between it and the staff, and spiral spring P, substantially as and for the purpose described.

354,538. DYNAMO-ELECTRIC MACHINE OR MOTOR. Charles G. Curtis and Francis B. Crocker, New York, N. Y., assignors to the C. & C. Electric Motor Company. Filed Mar. 4, 1886. (No model.)



Claim.—1. In an armature for dynamo-electric machines or electric motors, the combination of a winding consisting of a continuous unbroken wire or conductor wound continuously with respect to two or more sections, and commutator strips or sections having extensions formed as a part of the commutator-strip and connected directly with certain turns or convolutions of said winding, whereby the said winding is electrically divided into the desired sections.

2. In a ring-armature for dynamo-electric machines or electric motors, the combination, with the wound ring, of a ring-mounting consisting of a drum or block fitted into the space between said ring and the shaft and rigidly attached to both, and commutator strips or segments attached to or mounted upon the end or face of the said drum.

3. In a ring-armature for dynamo-electric machines or electric motors, the combination, with the core having a winding consisting of a continuous unbroken wire or conductor, of a ring-mounting consisting of a drum or block fitted into the space between said ring and the shaft and rigidly attached to both, and commutator strips or segments attached to or mounted upon the end or face of said drum, and having extensions connected directly with certain points of the winding.

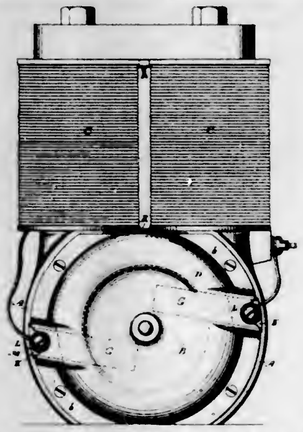
4. Commutator strips or sections for dynamo-electric machines or electric motors, mounted upon an insulating block or support and having hooked projections formed integral with said strips, which project and hook into said insulating-support and act to hold the strips in place.

5. In a dynamo-electric machine or electric motor, the combination of the insulating block or support B, upon which the armature-ring is mounted, and the commutator-strips E, attached to the face of said insulating-support, said strips having the projections H, which enter said support and serve to hold the strips in place.

6. In a dynamo-electric machine or electric motor, an armature-winding consisting of a wire or conductor wound in two or more layers, the wire being brought back at each layer, so that all the layers are helices of the same kind, i. e., dextrorsal or sinistrorsal, as the case may be,) and the convolutions of one layer fit into the interstices of the one beneath.

7. In a dynamo-electric machine or electric motor, the combination, with a commutator having a flat face or face practically at right angles to the axis, of commutator-brushes which bear upon the commutator at their edges or points, and are set so that their edges or lines of contact are oblique to the cracks or spaces between the commutator-strips, so as to bridge over these spaces and allow the armature to be turned in either direction without injury to the brushes.

354,539. DYNAMO-ELECTRIC MACHINE AND ELECTRIC MOTOR. Charles G. Curtis and Schuyler S. Wheeler, New York, N. Y., assignors to the C. & C. Electric Motor Company. Filed July 21, 1886. (No model.)



Claim.—1. The combination, with the pole-pieces of a dynamo-electric machine or electric motor, of an end plate or cap attached to the pole-pieces, which acts as or supports a bearing for the armature-shaft and forms a shield or cover which incloses and protects the armature and also the commutator and brushes, substantially as described.

2. The combination, with the pole-pieces of a dynamo-electric machine or electric motor, and an armature provided with a flat or disk commutator, of an end plate or cap attached to the pole-pieces, which acts as or supports a bearing for the armature-shaft and forms a shield or cover which incloses the armature and also the commutator and brushes, substantially as described.

3. The combination, with the pole-pieces of a dynamo-electric machine or electric motor, of an end plate or cap attached to the pole-pieces, which acts as or supports a bearing for the armature-shaft and forms a shield or cover which incloses and protects the armature and also the commutator and brushes and is provided with recesses or openings to receive the brushes.

4. The combination, with the pole-pieces of a dynamo-electric machine or electric motor, of an end plate or cap attached to the pole-pieces, which acts as or supports a bearing for the armature-shaft and forms a shield or cover which incloses and protects the end of the armature and also the commutator and brushes, and is provided with recesses or openings which guide and determine the position of the brushes.

5. The combination, with the pole-pieces A A, of the plate or cap B, attached thereto, formed with recesses or hoods to receive the brushes, and the brushes G, attached to the pole-pieces and passing through the hoods.

6. The combination, with the pole-pieces A A, of the end plate or cap, B, attached thereto, formed with the hoods to receive the brushes, and the insulating-blocks K and brushes G, mounted thereon.

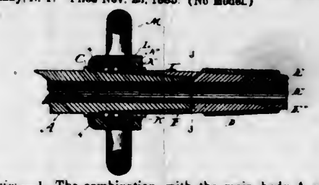
7. The combination, with the pole-pieces A A, of the end plate or cap, B, attached thereto, formed with the hoods to receive the brushes, and the insulating blocks or supports K, fitting closely within, so as to have their positions determined by the hoods, and the brushes G, mounted in recesses or slots in the said blocks.

8. The combination of the pole-pieces A A, the plate or cap B, attached thereto, formed with the flange *b* and hoods to receive the brushes, the blocks K, fitted closely within, so as to have their positions determined by the hoods, the brushes G, resting in and guided by the blocks K, and the screws L, passing through the brushes and blocks and screwed into the pole-pieces.

9. In a dynamo-electric machine or electric motor having its armature, together with the commutator and brushes, entirely inclosed by a casing formed of the pole-pieces and suitable shields or covering-plates attached thereto, so as to completely cover and inclose the armature and commutator-space, substantially as described.

10. The combination, with the pole-pieces A A, of the clamp Q, of non-magnetic material, rigidly fixed to each of the pole-pieces at its foot *a*, and provided with the screw S.

354,540. CHUCK FOR BROOM-BARRELS. John H. Dakin, Schenectady, N. Y. Filed Nov. 23, 1885. (No model.)



Claim.—1. The combination, with the main body A of a broom-barrel chuck, of the traveling wheel M, the tapering collar D, and clamping-pieces E E' E'', connected with said wheel and passing through the collar, substantially as described.

2. The combination, with the main body A of a broom-barrel chuck said main body having the exterior screw-thread, C, and being cut away or slotted at its outer end, of the traveling wheel M, having an interiorly-threaded hub, the sliding clamping-pieces E E' E'', fitting within the slots of the main body, and the tapering collar D, through which the pieces slide during the forward and backward movements of the wheel, substantially as described.

3. The combination, with the main body A of a broom-barrel chuck, having at its outer ends recesses or slots, as described, of the sliding clamping-pieces E E' E'', fitting within said recesses and having lugs K, the tapering collar D, the hand-wheel M, having a hub recessed at L for the reception of the lugs K of the clamping-pieces, and the holding-plate N, substantially as described.

354,541. TELEPHONE-TRANSMITTER. Daniel Drawbaugh, Eberly's Mill, Pa., assignor to the People's Telephone Company, of New York. Filed Nov. 12, 1883. (No model.) Patented in England Sept. 4, 1883, No. 4,247; in France Sept. 4, 1883, No. 157,376, and in Belgium Sept. 5, 1883, No. 62,503.



Claim.—1. In a telephone, the combination of a diaphragm, a polarized armature attached thereto, and electrodes, one electrode being connected to said diaphragm, an electro-magnet having two coils, one in circuit with the line, the other in a local circuit with the electrodes, a permanent magnet having for one pole-piece the core of the electro-magnet, and for the other the polarized armature, and a local battery and circuit-connections, substantially as set forth.

2. In a telephone, the combination of the electro-magnet H I, having two coils, one in circuit with the line and the other in local circuit with the electrodes, the permanent magnet G, having a pole-piece, F, supported by the diaphragm, the diaphragm C, the electrode M, attached thereto, the electrodes O and N, and a local battery and circuit-connections, substantially as described.

3. In a telephone, the permanent magnet G, having attached thereto the core of the induction-coil I, substantially as described, the fixed electrode N, and loose electrode O, in combination with the diaphragm and its attached electrode M, and armature F, the whole being arranged and applied substantially as and for the purpose set forth.

354,542. TELEPHONE-TRANSMITTER. Daniel Drawbaugh, Eberly's Mill, Pa. Filed Sept. 8, 1886. (No model.)



Claim.—1. In a telephone-transmitter, a sound-receiving tube closed at one extremity, openings in the periphery of said tube, a thin vibratory body extending across said openings, an outer tube, a chamber or interval between said outer tube and said thin vibratory body, and comminuted conducting material contained in said chamber and interposed in the telephone-circuit, substantially as described.

2. In a telephone-transmitter, a sound-receiving tube closed at one end and containing near said closed end a thin annular chamber or sound-receiving space, openings in the periphery of said chamber, a thin vibratory body extending across said openings, an outer tube, a chamber or interval between said outer tube and said vibratory body, and comminuted conducting material contained in said chamber and interposed in the telephone-circuit, substantially as described.

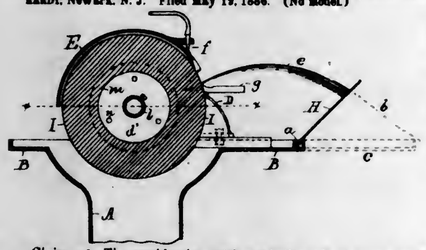
3. In a telephone-transmitter, the combination of the tube B, closed at one extremity and containing openings D, a thin metal vibratory body, F, tube G of insulating material containing openings H, tube I, comminuted conducting material in said openings H, and circuit-connections, substantially as described.

4. In a telephone-transmitter, the combination of the tube B, closed at one extremity and containing openings D, the conical projection K, thin metal vibratory body F, tube G of insulating material containing openings H, tube I, comminuted conducting material in one or more of said openings H, and circuit-connections, substantially as described.

5. In a telephone-transmitter, a base-board, A, having a circular orifice, a tube adapted to enter and freely rotate in said orifice, a sound-receiving tube within said first-mentioned tube, the said sound-receiving tube being closed at one end and containing openings in its periphery, a thin vibratory body extending across said openings, comminuted conducting material interposed between said vibratory body and the outer tube, a contact-spring on said base-board, a contact point or post on said sound-receiving tube, the said sound-receiving tube, contact-spring, contact-post, thin vibratory body, comminuted conducting material, and outer tube being in circuit, substantially as described.

6. The combination of the base-board A, tube B, closed at one end and containing openings D, thin vibratory body F, tube G, containing openings H, tube I, comminuted conducting material in said openings H, plate N, annular cover R, containing a recess, and stop Q on tube B, entering said recess, substantially as described.

354,543. GUARD FOR TOOL-GRINDING WHEELS. ULRICH EBERHARDT, Newark, N. J. Filed May 19, 1886. (No model.)

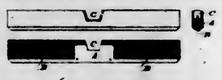


Claim.—1. The combination, with a grinding-wheel frame having a table provided with a border adapted to retain the water and direct it into a receptacle, of a tool-rest mounted within said border and an upwardly-inclined guard attached to the table within the border and adapted to arrest the splash from the tool-rest and lead it within said border, as and for the purpose set forth.

2. The combination, with a grinding-wheel, a frame having a table with a border adapted to retain the water, a tool-rest, and a water-supply, of an upwardly-inclined guard pivoted to the table within the border, as and for the purpose set forth.

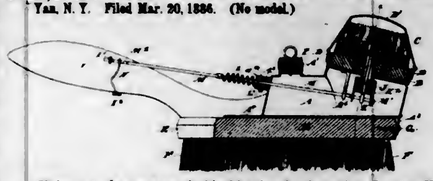
3. The combination, with a grinding-wheel, a frame having a table with a border adapted to retain the water, a tool-rest, and a water-supply, of an upwardly-inclined guard pivoted removably to the table within the border, as and for the purpose set forth.

354,544. KNIFE-BLADE ATTACHMENT FOR SLATE-FRAMES. JAMES FIELD, Russell's Flat, Malvern, Canterbury, New Zealand. Filed Aug. 7, 1886. (No model.)



Claim.—The combination, with the slate-frame having the inner notch, A, formed by deepening the rabbet B, into which the edge of the slate-slab is received, and the shorter outer notch, C, extending inward from the outer edge of the rail and intersecting the inner notch, A, of the knife-blade D, fixed in the inner notch, with a portion of its edge exposed by the outer notch, as and for the purpose set forth.

354,545. RESERVOIR BLACKING-BRUSH. JOHN T. GAINE, Port Yan, N. Y. Filed Mar. 20, 1886. (No model.)

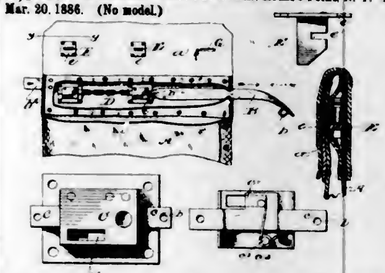


Claim.—1. In a reservoir blacking-brush, the valve J, wire K, shaft M, crank M', spring L, notched tube A^3, and packing *a*, in combination with each other and with a blacking reservoir and brush, as herein specified.

2. In a reservoir blacking-brush, the hook N, turning on a pivot, I^3, in combination with the handle I, double-cranked shaft M M' M^3, reservoir A, valve J, and brush B C, arranged for joint operation, as herein specified.

3. The extension K' of the wire K, arranged as shown, and combined with the crank M' and operating means therefor, and with the valve J, reservoir A B, and blacking-brush B C, as herein specified.

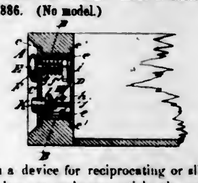
354,546. MAIL-BAG. HIRAM F. GAINES, Rouse's Point, N. Y. Filed Mar. 20, 1886. (No model.)



Claim.—1. The combination, with two or more spring-actuated locking-slides, of a corresponding number of locking-bolts to receive said slides, and a pull-strap continuously connecting said slides and provided at its external end, which passes through the bag, with a locking-staple adapted to be passed through the flap of the bag, substantially as set forth.

2. The combination, with the bag A, having the slits F F, and flap *a*, carrying the locking-bolts E, having recesses *e*, of the locks C, having slides *c*, studs *c'*, and presser-springs c^3, and secured within said bag, the chain D, connecting said slides, and the strap B, connected to one of said slides and carrying the staple *b*, substantially as set forth.

354,547. DRAWER-PULL. MOTT G. GILLETTE, New York, N. Y. Filed Apr. 22, 1886. (No model.)



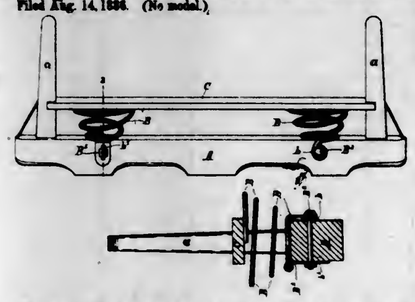
Claim.—1. In a device for reciprocating or sliding out and in the knob of a drawer, door, or analogous article, the combination of a knob having a sliding stem actuated by a spring or its equivalent to press such knob inward, a sliding button arranged in relation with said knob, and a tumbling-lever arranged in relation both with said knob and button, in such manner that when the button is pressed in the knob is pressed out, substantially as herein described, and for the purpose specified.

2. In a device for reciprocating or sliding out and in a knob of a drawer, door, or other analogous article, the combination of a sliding or reciprocating knob, E, a sliding button, K, arranged in relation with said knob as herein described, and a tumbling-lever, H, arranged in relation with said knob and button as herein described, substantially as and for the purposes specified.

3. The combination, with a sliding knob of a drawer, door, or analogous article, of a sliding or reciprocating knob, a sliding or reciprocating button arranged in relation with said knob as described, a spring, *g*, a lever, H, arranged in relation with said knob and button as described, and guides *m* and *m'*, substantially as described, and for the purposes set forth.

4. The combination, with the sliding knob, E, sliding button K, lever H, and spring *g*, of an inclosing-case consisting of a front plate, C, a body, B, and a rear plate, D, attached to the body B by screws *e*, said front plate, C, and back plate, D, being made larger than the body B, to leave flanges c and c' thereon, as and for the purpose herein specified.

354,548. WAGON-SPRING. WILLIAM S. HAGGARD, Lafayette, Ind. Filed Aug. 14, 1886. (No model.)

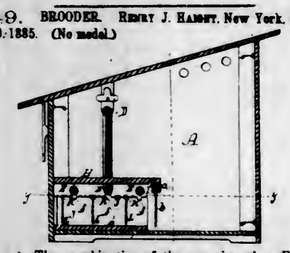


Claim.—1. In a wagon, the combination of the bolster A, springs B, mounted on the top of said bolster, the ends of which are bent down over the corner of the bolster and provided with eyes *b*, the bolts B^2, passing through said eyes and said bolster for securing said springs in position, and the bar C, mounted on top of said springs and arranged to slide vertically and support the wagon-body, all substantially as set forth.

2. The combination of the bolster A, spring B, formed as specified, the strap B', and the bolt B^2, all substantially as shown and specified.

3. The combination of the bolster A, spring B, strap B', having the slot *b'*, and a bolt for securing said parts in place, all substantially as set forth.

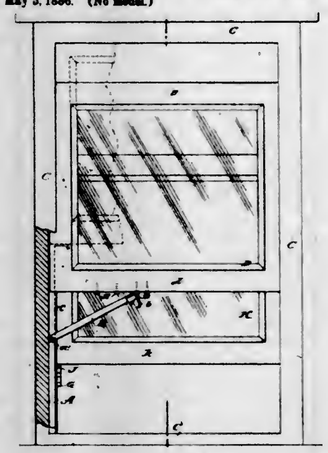
354,549. BROODER. HENRY J. HARNEY, New York, N. Y. Filed Sept. 30, 1885. (No model.)



Claim.—1. The combination of the warming-pipes E E E, board H over the pipes, and provided with the cloth-suspending strip I at its front edge, the rack J, and removable and adjustable cloth-suspending rods K K beneath the said pipes, substantially as and for the purpose herein specified.

2. In combination with the coop A, the movable rack J, having a back, *e*, and oblique ends *d d*, whereby open spaces are left in the coop-corners when the rack is pushed against one end or side of the same, substantially as and for the purpose herein set forth.

354,550. SASH-HOLDER. JAMES P. HENDRIX, Flemingsburg, Ky. Filed May 5, 1886. (No model.)



Claim.—1. The combination, in a window-sash holder, of a catch-bar, A, secured vertically in the outside sash-groove of a window-frame, a catch-plate, G, adapted to be set in different positions along the catch-bar, and a latch-plate, J, hinged to plate G and adapted to be swung beneath the lower sash to hold it open, substantially as herein set forth.

2. The combination, in a window-sash holder, of a catch-bar, A, provided with a slot, F, and a toothed rack, I, a catch-plate, G, having a T-shaped shank, *g*, entering the slot F and provided with a tooth or shoulder, H, and a latch-plate, J, hinged to plate G, substantially as described, for the purposes set forth.

3. In a window-sash holder, the combination, with the window frame and sash, of a catch-bar, B, hinged within the outside sash-groove of the frame, and screws or stops E, set into the bottom rail of the top sash, substantially as shown and described.

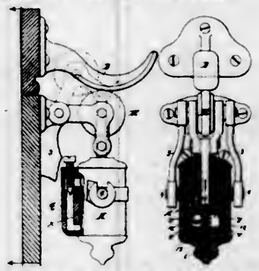
4. In a window-sash holder, the combination, with the window frame and sash, of a jointed catch-bar, A B, part A of said bar being secured vertically in the outside sash-groove of the frame, a catch-plate, G, adapted to be set in different positions along the bar A B, and a latch-plate, J, hinged to plate G and adapted to be swung beneath the inner sash to hold it partly or fully open, substantially as herein set forth.

5. In a window-sash holder, the combination, with the window frame and sash, of a jointed catch-bar, A B, part A of said bar being secured vertically in the outside sash-groove of the frame, a catch-plate, G, adapted to be set in different positions along the bar A B, screws or stops E, fixed to the bottom rail of the top sash, with which the top of part B of the catch-bar may be engaged, and a latch-plate, J, hinged to plate G, substantially as described, for the purposes set forth.

6. In a window-sash holder, the combination, with the window frame and sash, of a jointed catch-bar, A B, part A of said bar being secured vertically in the outside sash-groove of the frame, and both parts A B formed with a groove, F, and rack I, a catch, G, having a shank, *g*, entering slot F and provided with a tooth or shoulder, H, and a latch-plate, J, hinged to plate G, substantially as described, for the purposes set forth.

7. As an improved article of manufacture, a window-sash holder comprising a jointed catch-bar, A B, slotted lengthwise at F and provided with a rack, I, a catch-plate, G, adapted to slot F and rack I, and a latch-plate, J, pivoted to the catch-plate G, substantially as herein set forth.

354,551. DOOR-CHECK. HENRY A. HOUSE and HENRY A. HOUSE, Jr., Bridgeport, Conn. Filed Oct. 6, 1886. (No model.)



Claim.—1. The combination, with a door and frame, of a contact-piece carried by one of said parts and a cylinder carried by the other, and a piston and piston-rod unconnected with the door or frame and arranged to make contact with the contact-piece as the door closes, a circulating-passage around or through the piston, and a liquid in the cylinder, substantially as set forth.

2. The combination, in a door-buffer, of a cylinder containing a liquid, and provided with a piston, a piston-rod, and contracted passage through which the liquid may flow from one side to the other of the piston, and with an air-chamber confining a body of air, substantially as and for the purpose set forth.

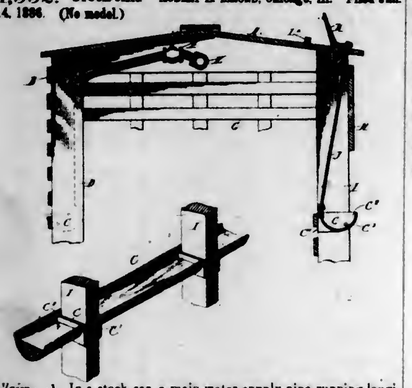
3. The combination of the door-buffer cylinder, piston-rod, and piston recessed to form an air-chamber, with a passage for the flow of the liquid from one side to the other of the piston, substantially as and for the purpose set forth.

4. The combination of the suspended buffer-cylinder provided with a piston, piston-rod, and liquid-passage, and a pivoted arm connected to the piston and arranged to make contact with an independent contact-arm, substantially as set forth.

5. The combination of the buffer-cylinder, piston-rod, piston having a peripheral valve-seat, a ring-valve adapted to said seat loosely encircling the piston and smaller in diameter than the cylinder and carried by the piston, substantially as set forth.

6. The combination of the cylinder containing a liquid, a piston-rod, piston, and valve arranged to partly close the passage for the fluid from one side of the piston to the other and to normally occupy a position away from its seat, substantially as set forth.

354,552. STOCK-CAR. ROBERT E. IRMOND, Chicago, Ill. Filed Jan. 14, 1886. (No model.)



Claim.—1. In a stock-car, a main water-supply pipe running longitudinally with the car, and elevated at its middle part, so as to give a fall toward each end.

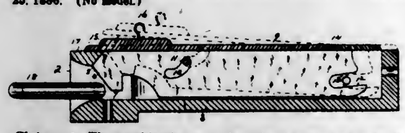
2. In a stock-car, the combination of a main supply-pipe, and a trough-supply pipe leading therefrom, and having a valve therein which is so situated as to give an immediate fall therefrom toward each end of the pipe.

3. In a stock-car, a compound water-trough composed of a series of sections connected by narrow ways and castings hinged to the posts of the cars.

4. In a stock-car, the combination of compound troughs with rods which connect to the inner edge of the troughs and pass thence to the roof of the car, where they are attached to the lever devices which operate them to tilt the trough.

5. In a stock-car, a compound water-trough composed of sections which lie between the posts, and narrow connecting-ways which pass the posts, said trough being hinged so as when tipped to discharge outwardly.

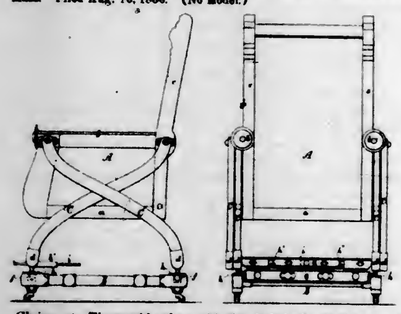
354,553. CAR-COUPLING. RICHARD JONES, Utica, N. Y. Filed Sept. 25, 1886. (No model.)



Claim.—1. The combination, in a draw-head having a longitudinal recess, of the reciprocating catch having a circular slot working on a pin, the two inclines on the front of the catch, and the incline in the draw-head for engaging the incline on the front of the catch, substantially as set forth, for the purposes stated.

2. The draw-head having a longitudinal groove in the upper surface, in combination with the reciprocating catch fitted in the groove, the catch having projecting flanges, the circular slot and pin passing through the slot, the slot and pin at the rear of the catch, the two inclines at the front of the catch, and the incline in the draw-head for engaging the upper incline on the catch, arranged substantially as set forth for the purposes stated.

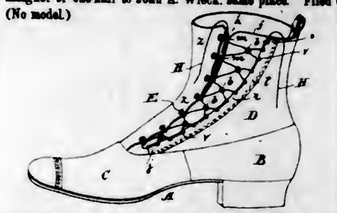
354,554. RECIPROCATING CHAIR. MICHAEL KEATING, Boston, Mass. Filed Aug. 16, 1886. (No model.)



Claim.—1. The combination, with the chair-body, the base, and the two pairs of crossed arms pivoted to the body, of the two metallic bars e, the leg-receiving cups, and the headed pivots extending from such bars, and the boxes and their furcated caps applied to the base, all being substantially as set forth.

2. The combination, with the chair-body A, base B, and the two pairs of crossed arms C, arranged and adapted as set forth, of the metallic bars *e*, their leg-receiving cups *d*, and headed pivots *f*, the boxes *g*, and their furcated caps *h*, and the foot-rest *i* and its supporting-guides *h'*, of the front bar, *e*, such bar, its cups, headed pivots, and foot-rests, supports, or guides being, as hereinbefore described, cast or founded in one piece, and all being substantially as represented.

354,555. BOOT OR SHOE. WILLIAM LA BANISTER, Boston, Mass., assignor of one-half to John A. Wieck, same place. Filed Oct. 23, 1886. (No model.)

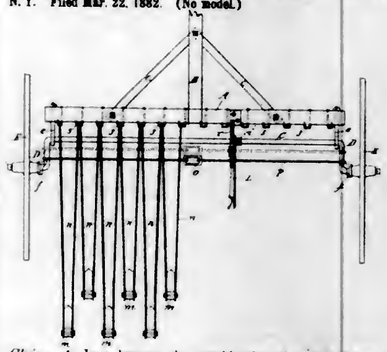


Claim.—1. A boot or shoe the flap of which is provided at one side of the placket or lace-opening with a notched tube secured thereto, the opposite flap being provided with a series of buttons having eyes which project through the same, in combination with a lacing-cord inserted in said eyes and tube, and in a series of rings interposed between said buttons and tube, substantially as described.

2. A boot or shoe having one of its flaps provided with a notched tube secured thereto, and the other with a series of holes for buttons having eyes, said eyes and tube being adapted to receive a lacing-cord, substantially as set forth.

3. In a boot or shoe, the buttons E, notched tube *r*, rings *b*, and lacing-cord H, in combination with the leg D, substantially as described.

354,556. CULTIVATOR AND SEEDER. CHARLES LA DOW, Albany, N. Y. Filed Mar. 22, 1882. (No model.)



Claim.—1. In a harrow, the combination of a draft-frame, teeth hinged thereto and arranged to rise and fall independently to conform to the surface traversed and act on the surface in different vertical planes, a driver's seat mounted on the machine, so that the direct weight of the driver normally tends to raise the teeth, and a lever which coacts with the weight of the driver to elevate the teeth, substantially as set forth.

2. In a harrow, the combination of wheels, a draft-frame, teeth for digging the ground, attached to the frame and capable of being elevated or depressed by the rocking of the frame, a seed-hopper mounted on the draft-frame, a belt connecting the seed-box to a wheel of the draft-frame, and mechanism for rocking the frame to simultaneously loosen the tension of the belt and elevate the teeth, substantially as described.

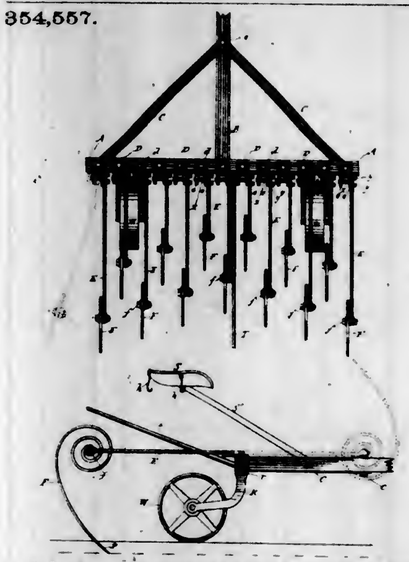
3. The combination of carrying-wheels, a draft-frame, seeding devices secured on the draft-frame, mechanism for adjusting the frame, (the frame in its adjustments moving the seeding devices more or less to or from the axis of the carrying-wheels,) pulleys on the carrying-wheel and seeding mechanism, and an elastic belt connecting the driving-pulleys, substantially as and for the purpose set forth.

4. The combination of a draft-frame, drag-bars, and hook-bolts S S, adapted to hinge the drag-bars to the draft-frame and to each other.

354,557. SPRING-TOOTH HARROW. CHARLES LA DOW, Albany, N. Y. Filed Mar. 23, 1882. (No model.)

Claim.—1. In a harrow, the combination of a draft-frame, drag-bars adapted to play laterally and vertically, spring-teeth on the drag-bars, caster-wheels supporting the draft-frame, and a lever for guiding the course of the implement.

354,557.



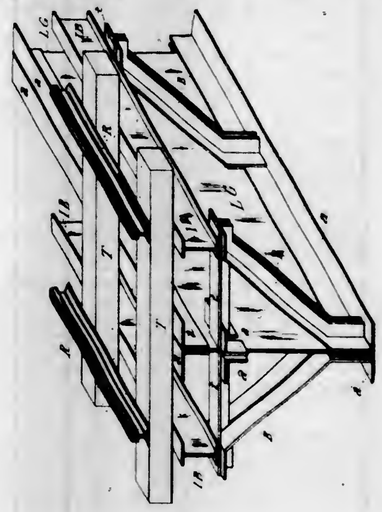
2. In a harrow, the combination of a draft-frame, drag-bars pivoted thereto and having angular ends, and the connections between the bars and frame having ears *o*, in which the bent ends of the drag-bars have their bearings, and lugs *y*, with the openings between them, through which the ends of the drag-bars are passed in inserting and withdrawing them.

3. In a harrow, the combination of a draft-frame, a driver's seat, drag-bars hinged to the frame so as to be reversed or laid on the frame for transportation, and supporting-hooks on the seat, in which hooks the central drag-bars are carried.

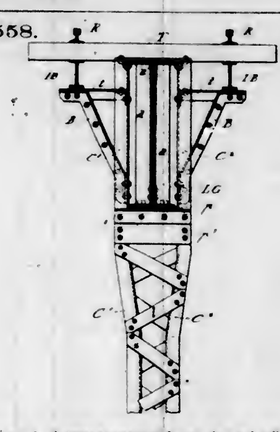
4. In a harrow, the combination of a draft-frame, caster-wheels, tooth-connections, a series of drag-bars, spring-teeth, and clamping-bolts connecting the drag-bars and frame for regulating the angular relation of the drag-bars to the frame when desired, substantially as described.

5. A spring-tooth harrow composed of a draft-frame, sectional drag-frames hinged to the draft-frame, each section carrying spring-teeth, and adapted to have both lateral and vertical movement relatively to their draft-frame.

354,558. ELEVATED RAILWAY. HARRY I. LATHER, Cranford, assignor of one-half to Robert I. Sloan, Asbury Park, N. J. Filed June 26, 1886. (No model.)



354,558.



Claim.—1. A truss or support for an elevated railway or other analogous structure supported at intervals, consisting of a single longitudinal girder, horizontal cross-ties supported at the center by the top of the girder, two rails of a single track carried by the latter, and brackets secured to and extending substantially at right angles from said girder to near the top thereof for supporting said track directly beneath the rails thereof.

2. A truss or support for an elevated railway or other analogous structure, consisting of a single longitudinal girder, horizontal cross-ties supported at the center by the top of the girder, two rails of a single track carried by the latter, brackets secured to and extending substantially at right angles from said girder to near the top thereof for supporting said track directly beneath the rails thereof, and posts with brackets extending therefrom substantially at right angles to near the top of the girder for sustaining the track directly beneath the rails thereof at the posts.

3. A truss or support for an elevated railway or other structure suitably supported at intervals, consisting of a longitudinal girder, brackets secured to and extending from said girder to substantially the top thereof, I-beams resting upon said brackets, and cross-ties sustained by said I-beams and bearing both rails of the track.

4. A truss or support for an elevated railway or other structure suitably supported at intervals, consisting of a longitudinal girder, brackets secured to and extending from said girder, cross-ties carrying both rails of the track and supported at the center by the longitudinal girder, and I-beams resting upon said brackets for sustaining the cross-ties at or near the rails.

5. A support for an elevated railroad or other structure, consisting of a longitudinal girder, brackets secured to and extending from said girder, cross ties carrying both rails of the track and supported at the center by the longitudinal girder, I-beams resting upon said brackets for sustaining the cross-ties at or near the rails, and a column having a shelf for supporting a longitudinal girder bearing all the aforementioned parts at its lower end.

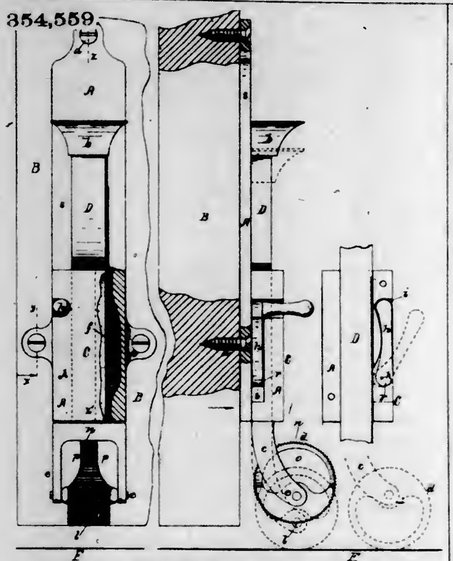
6. A support for an elevated railroad or other structure, consisting of a longitudinal girder, brackets secured to and extending from said girder, cross-ties carrying both rails of the track and supported at the center by the longitudinal girder, I-beams resting upon said brackets for sustaining the cross-ties at or near the rails, a column having a shelf for supporting the longitudinal girder bearing all the aforementioned parts at its lower end, and brackets for upholding said I-beams and rails also at said column.

7. A support for an elevated railway or other structure, consisting of a single longitudinal girder midway between and beneath the tracks, cross-ties carrying both rails supported at the center by said girder, columns having pockets sustaining said longitudinal girder at its bottom at intervals, and brackets secured to and extending from said girder at intervals, and also at said columns for supporting the cross-ties at or near the rails.

354,559. DOOR-CHECK. LEON H. LEMPERT, Rochester, N. Y. Filed Sept. 17, 1886. (No model.)

Claim.—In a door-holding device, a frame, a vertically-adjustable bolt held therein, a wheel held by said bolt to roll on the floor, said wheel being annular and formed with an internal weight or mass at one side thereof, the axis of said wheel passing through said mass eccentric with the periphery of said wheel, and located so the plane of the axis and the shortest radius of the wheel shall equally divide said mass, substantially as and for the purpose set forth.

354,559.



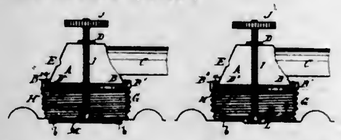
354,560. PIPE-COUPLING. DAVID M. LEVIER, Millerstown, Pa. Filed Apr. 8, 1885. (No model.)



Claim.—1. In combination with the pipe-sections A and A', provided with exterior screw-threads on their approaching ends, the removable coupling-section B, provided with exterior screw-threads and formed with projecting annular flanges *d e*, provided with gains or slots *h*, the packing-gaskets fitted over the annular end flanges of the coupling-section B, and the outside coupling-sleeve, C, having interior screw-threads extended over its length, to receive the threaded coupling-section B and to engage with the threaded ends of the pipe-sections, substantially as described.

2. The sleeve C, provided with interior screw-threads, the coupling-section B, having interior screw-threads fitted to the interior of the sleeve and formed with end flanges of smaller exterior diameter than the body of the coupling-section, the packing-gaskets adjusted to the end flanges of the coupling-section, and the pipe-sections having screw-threaded ends to engage with the screw-threads of the outside sleeve, all arranged and combined substantially as described, and for the purpose stated.

354,561. NOZZLE FOR CANS. RIVERIUS MARSH, New Brunswick N. J. Filed Oct. 9, 1885. (No model.)

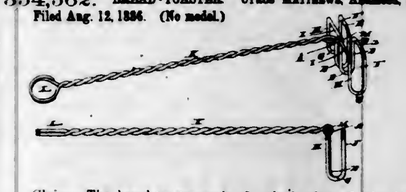


Claim.—1. In a nozzle, valve, and faucet, the turning shell A, having vent E, flange B, turning valve B^2, nozzle C, and nut D, in combination with screws F and G, packing H, and valve screw-rod I, having thumb-piece J on one end and head K on the other end, said head revolving inside a shell, said shell with or without a packing, substantially as shown and described.

2. In a nozzle, valve, and faucet, the turning shell A, having vent E, flange B, turning valve B^2, and nozzle C, in combination with the screws F and G and packing H, substantially as described.

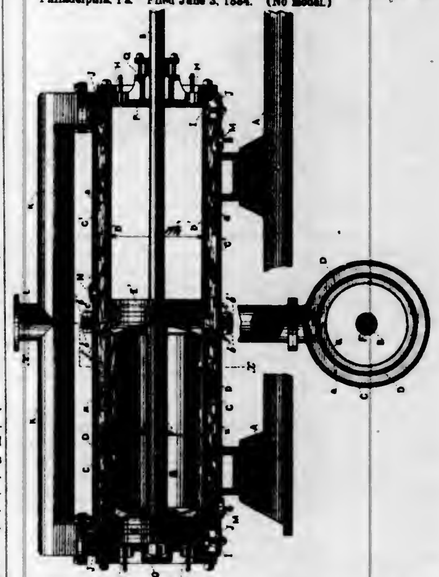
3. In a nozzle, valve, and faucet, the turning shell A, having vent E, flange B, turning valve B^2, nozzle C, and nut D, in combination with the screws F and G, packing H, valve screw-rod I, having thumb-piece J and head K, and valve-shell L M, substantially as shown and described.

354,562. BREAD-TOASTER. CYRUS MATTHEWS, Adamson, Iowa. Filed Aug. 12, 1886. (No model.)



Claim.—The bread-toaster made of a single piece of wire bent at its middle to form the loop A, and the curves or loops forming the open rack, and the twisted handle K, the two parts of the wire being brought together and secured to the loop A at M, substantially as described.

354,563. DEVICE FOR COOLING THE CYLINDERS OF COMPRESSORS FOR AIR AND OTHER GASES. WILLIAM DE COURCY MAY, Philadelphia, Pa. Filed June 3, 1884. (No model.)



Claim.—1. The combination, with the compression-cylinder having at or near its longitudinal center a water-inlet and a water-supply communicating therewith, of a pair of pistons arranged one on each side of said inlet, and a closed air-tight vessel arranged between the pistons, substantially in the manner and for the purposes described.

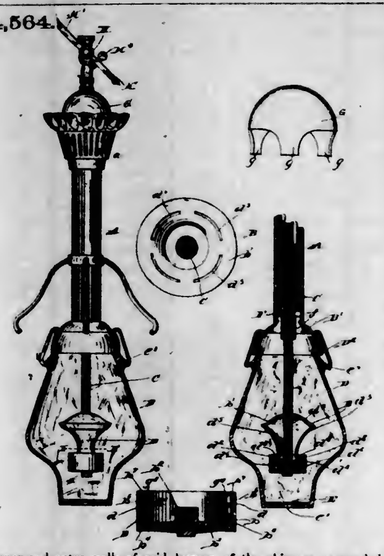
2. The combination of the compression-cylinder divided longitudinally in two compartments of different diameters, and having an aperture leading into the interior between said compartments, and a water-supply communicating with said aperture, of differential pistons adapted to the respective compartments, and inlet and outlet valves controlling the admission and discharge of water to and from the interior, substantially in the manner set forth.

354,564. REGENERATIVE GAS-BURNER. WILLIAM S. MEAD, Philadelphia, Pa. Filed Sept. 2, 1885. (Model.)

Claim.—1. In a regenerative gas-burner, the burner having a central nozzle, a series of radial gas-passages extending through the arms of a spider-like bottom of the burner, and an inner and outer wall, the latter fitted with a cylindric casing and said inner wall having an annulus or deflector fitted upon an offset or shoulder, in combination with the hot-air or oxygen chamber having in its sides a series of segmental slots or apertures and a series of passages or slots in its lower cylindric end, said chamber being secured on the gas-pipe and its lower end located within a central compartment of the burner, substantially as shown and described.

2. In a regenerative gas-burner, the combination, with the hot-air or oxygen chamber having in its sides a series of segmental slots or apertures and a series of passages or slots in its lower cylindric end, and the burner having a series of radial gas-passages extending through the arms of a spider-like bottom, and the annular chamber formed between

354,564.



the inner and outer walls of said burner, of the chimney suspended by hooks connected to the bell-shaped cap and the dome disposed on the top of the capital or column, said capital being connected to the gas pipe, substantially as shown, and for the purpose set forth.

3. The combination of the capital or column, the dome disposed thereon, the chimney having an opening or passage and a perforated plate in its lower end, the hooks connected to the cap for securing the chimney by entering sockets formed in the outer upper surface thereof, the burner, and the hot-air or oxygen chamber secured on the gas-pipe within said chimney, substantially as shown and described.

4. The combination, with the burner having an annular chamber and a series of radial gas-passages, of the hot-air or oxygen chamber silvered, nickel-plated, or enameled on its outer periphery, having in its sides a series of segmental slots or apertures and a series of passages or slots in its lower cylindric end, said chamber having its lower end located within said burner, and connected to the gas-pipe, substantially as shown, and for the purpose described.

5. In a regenerative gas-burner, the combination of the burner having an annular chamber, a series of radial passages extending through the arms of the spider-like bottom in communication with a central gas-pipe nozzle, and the hot-air or oxygen chamber having in its upper flared surface air passages or slots and the lower cylindric end provided with passages or slots resting upon said gas-pipe nozzle, and adapted to provide a narrow passage between itself and the inner wall of the combustion-chamber, substantially as and for the purpose set forth.

354,565. FIRE-PROOF FLOOR AND CEILING. JOHN G. MEYERS, Washington, D. C., assignor of one-half to H. L. Cranford, same place. Filed May 13, 1886. (No model.)

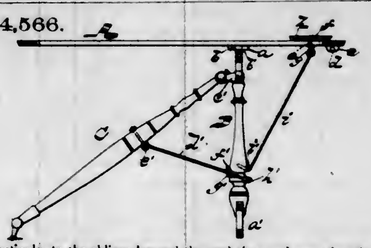


Claim.—The herein described and shown fire-proof floor and ceiling, comprising the following elements in combination: a series of girders supported in the walls of the building, a concrete body between the girders, a fire-proof composition below each girder, and braces, as H, placed in the concrete body with their ends resting upon the foot of a girder, substantially as specified.

354,566. IRONING-BOARD. JOHN C. NEAR, Cato, N. Y. Filed Apr. 7, 1886. (No model.)

Claim.—In an ironing-table, the combination, with the board A, provided with the transverse slotted block *a* on its under side, and with an eyebolt, *g*, to which the iron-rest is attached, of the main support B, having its upper end adapted to engage the slot in the block *a*, the oblique leg C, pivoted to support B, and the brace-rods *d'* and *i*, secured,

354,566.



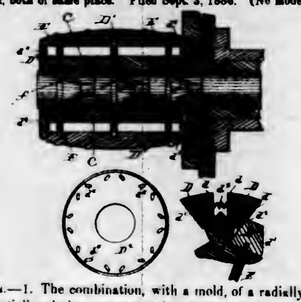
respectively, to the oblique leg and the eyebolt *g*, and engaging the main support, all substantially as described and shown.

354,567. FIRE-GRATE. WALTER NEWBURN, U. S. Army. Filed May 26, 1886. (No model.)



Claim.—The fire or combustion chamber having the downwardly and centrally sloping sides and ends, one of which sides is provided with a hinged section or plate, in combination with the button or arm fixed to a handled shaft, and securing or propping the said plate or section in place, and the rotatable polygonal grate, with its shaft journaled in the ash bin or chamber and provided with a handle or crank, substantially as and for the purpose set forth.

354,568. SHEET-METAL-BARREL MACHINE. EDWIN NORTON and JOHN G. HODGSON, Chicago, Ill., assignors to Edwin Norton and Oliver W. Norton, both of same place. Filed Sept. 3, 1886. (No model.)



Claim.—1. The combination, with a mold, of a radially-expansible circumferentially-closing segmental interior mandrel, substantially as specified.

2. The combination, with a barrel-form mold, of a radially-expansible circumferentially-closing segmental interior barrel-form mandrel, substantially as specified.

3. The combination, with a radially-contractible segmental mold, of a radially-expansible circumferentially-closing segmental mandrel, substantially as specified.

4. The combination, with a radially-expansible circumferentially-closing segmental mandrel, of a radially-contractible segmental mold, mechanism, substantially as described, for contracting all of the segments of the mold and retracting all the segments of said mold but one, and a hand-crank shaft for retracting one of the segments of said mold, substantially as specified.

5. The combination, with a radially-contractible segmental barrel-form mold, of a radially-expansible circumferentially-closing segmental barrel-form mandrel, substantially as specified.

6. The combination, with hollow core C, having longitudinal ribs *c*, furnished with inclined faces *c'*, of segments or jaws D and wedging segments D', and means for expanding said wedging-segments D', substantially as specified.

7. The combination, with hollow core C, having longitudinal ribs *c*, furnished with inclined faces *c'*, of segments or jaws D, wedging-segments D', radial slides E, and pin or wedge F, substantially as specified.

8. The combination, with hollow core C, having longitudinal ribs *c*, furnished with inclined faces *c'*, of segments or jaws D, wedging-segments D', two or more sets of radial slides, E, and pin F, having two or more cone-faces, *f*, substantially as specified.

9. The combination, with hollow core C, having longitudinal ribs c, furnished with inclined faces c', of segments or jaws D and wedging-segments D', springs for opening said segments or jaws D, and springs for retracting said wedging-segments D', and means for expanding said wedging-segments D', substantially as specified.

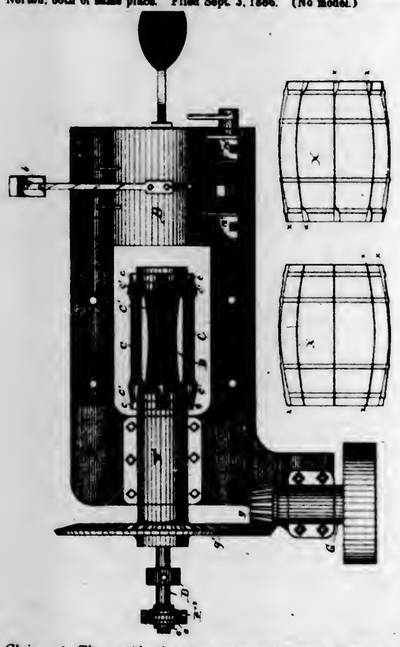
10. The combination, with a barrel-form mold, of radially-expansible circumferentially-closing jaws or segments D and intermediate wedging-segments, D', said segments D and D' being of barrel form, and means for expanding said wedging-segments D', substantially as specified.

11. The combination, with radially-contractible mold-segments B, of mechanism, substantially as described, for operating said mold-segments, radially-expansible circumferentially-closing mandrel-segments D, radially-expansible wedging-segments D', core C, having ribs c, radial slides E, pin or wedge F, and mechanism, substantially as described, for operating said pin or wedge, substantially as specified.

12. The combination, with radially-expansible circumferentially-closing mandrel-segments D, having guide-pins d^3 at their ends, of end plates, D^2, having guide-slots d^3, and means for expanding said wedging-segments D', substantially as specified.

354,569. SHEET-METAL-BARREL MACHINE.

EDWIN NORTON and JOHN G. HODGSON, Chicago, Ill., assignors to Edwin Norton and Oliver W. Norton, both of same place. Filed Sept. 3, 1886. (No model.)



Claim.—1. The combination of a reciprocating mold, B, with a revolving hollow head, D, radial slides c, former C, treadle E, link E', lever E^2, and collar e', substantially as specified.

2. The combination, with a non-reciprocating revolving radially-expansible former, of a reciprocating mold for clamping the vessel adapted to move the same over the revolving former and hold it stationary while said former is revolving and being expanded within it, and mechanism for radially expanding said former as the same revolves, substantially as specified.

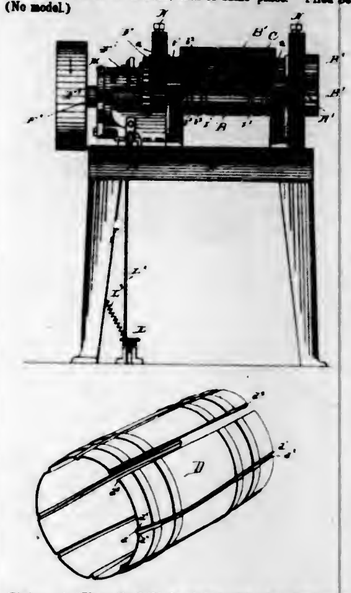
3. The combination, with a non-reciprocating revolving radially-expansible former, of a reciprocating mold for clamping the vessel adapted to move the same over the revolving former and hold it stationary while said former is revolving and being expanded within it, a revolving hollow head, D, in which said radially-expansible former is mounted, a reciprocating wedge or pin, D', and a treadle and connecting mechanism for moving said wedge or pin, and thus radially expanding said former as it revolves, substantially as specified.

4. The combination, with a non-reciprocating radially-expansible former, C, having a cone-face at each end, hollow revolving head D, having a pair of radial slides, c, upon which said former is journaled, a reciprocating wedge or pin, D', having two inclined faces, d d, to operate said radial slides, a treadle and connecting mechanism for reciprocating said wedge or pin, and thus radially expanding said former as it revolves, and a reciprocating two-part barrel-form mold for clamping the vessel adapted to move the same over said former and hold it stationary while said former is revolving and being expanded within it, substantially as specified.

5. The combination, with a revolving hollow head, D, having three pairs of radial slides, c c c, and radially-expansible formers C C C, journaled upon said slides, and each having two cone-faces, reciprocating wedge or pin D', having two cone-faces, d d, to operate said radial slides, springs C' C' C', mechanism for reciprocating said pin D' and thus radially expanding said formers as they revolve, and a reciprocating two-part barrel-form mold, B, for clamping the vessel adapted to move the same over said formers and hold it stationary while said formers are revolving and being expanded within it, substantially as specified.

354,570. MACHINE FOR MAKING SHEET-METAL BARRELS.

EDWIN NORTON and JOHN G. HODGSON, Chicago, Ill., assignors to Edwin Norton and Oliver W. Norton, both of same place. Filed Sept. 3, 1886. (No model.)



Claim.—1. The rolls B B', furnished with a longitudinal gore-shaped or tapering intermeshing groove and rib, substantially as specified.

2. The rolls B B', furnished with a longitudinal gore-shaped or tapering intermeshing groove and rib, in combination with a curved guide or former, C, substantially as specified.

3. The rolls B B', furnished with a longitudinal gore-shaped or tapering intermeshing groove and rib, in combination with a clutch mechanism adapted to stop and start said rolls always at a certain point, so that said rib and groove will register with the front edge of the sheet, substantially as specified.

4. The combination of the rolls B B', furnished with intermeshing longitudinal triangular grooves and ribs b b', said rolls having smooth intervals between the contiguous grooves or ribs thereon, with a curved guide or former, C, and mechanism for stopping and starting said rolls always at a certain point, so that one pair of said ribs and grooves will register with the front edge of the sheet, substantially as specified.

5. The combination of the rolls B B', furnished with intermeshing longitudinal ribs and grooves, with loose gear F, having slot or groove f', projection f, clutch-head G, having sliding pin g, provided with projection g', lever H, having cam-surface h, stop-lever K, operating-lever L, and connecting-rods L' L^2, substantially as specified.

6. The combination of the rolls B B', furnished with intermeshing longitudinal ribs and grooves, with loose gear F, having slot or groove f', projection f, clutch-head G, having sliding pin g, provided with projection g', lever H, having cam-surface h, stop-lever K, operating-lever L, connecting-rods L' L^2, and friction-brake M, substantially as specified.

7. The combination of the rolls B B', furnished with intermeshing longitudinal triangular grooves and ribs b b', with a curved guide or former, C, mechanism for stopping and starting said rolls always at a certain point, table A', and feed-guides a a, substantially as specified.

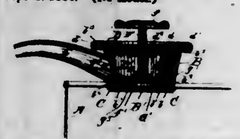
8. The rolls B B', furnished with intermeshing longitudinal gore-shaped or tapering grooves and ribs b b', and transverse cross-beads and grooves b^2 b^2, to form the hoops, substantially as specified.

9. The rolls B B', furnished with intermeshing gore-shaped or tapering longitudinal grooves b b', triangular in cross-section, and transverse hoop-beads and grooves b^2 b^2, substantially as specified.

10. The rolls B B', furnished with longitudinal intermeshing grooves and ribs b b', tapering on curved lines from each end toward the middle, substantially as specified.

354,571. COMBINED FILLING AND POURING NOZZLE.

EDWIN NORTON, Chicago, Ill., assignor to himself and Oliver W. Norton, same place. Filed Sept. 3, 1886. (No model.)



Claim.—1. The filling and pouring nozzle comprising the following parts or elements: the flaring cup or funnel B, having bottom rim, b, furnished with upturned flange b', large central opening, B', valve-seat packing or gasket C, exterior interned shoulder, b^2, screw-threaded upper rim, b^3, spout E, countersunk cap or cover D, having screw-threaded vertical wall d, and outwardly and downwardly projecting flange or roll d', overhanging said screw-threads, said caps having an upwardly-curved central portion forming a recess, d^3, on its under side, threaded nut D', valve-screw F, having thumb-piece f and head f', upper valve-plate, G, having recess g, intermediate stiffening-disk, g^2, and lower valve-plate, G', having rim g' and inturned flange g^2, overlapping said upper plate, G, substantially as specified.

2. The combination, in a filling and pouring nozzle, of cup or funnel B, having screw-threaded upper rim, b^3, with countersunk cap or cover D, having screw-threaded rim or wall d, and outwardly and downwardly projecting flange or roll d', overhanging said screw-threads to protect the same and afford an enlarged and projecting band-hold, substantially as specified.

3. The combination, in a filling and pouring nozzle, of a cup or funnel, B, having a flat bottom rim, b, furnished with an upturned flange, b', surrounding the central opening, B', with a valve-seat packing or gasket, C, said cup or funnel having an inwardly-projecting shoulder, b^2, near its base to secure said gasket in place, substantially as specified.

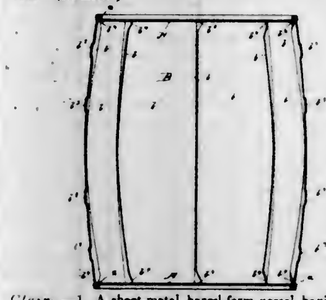
4. In a filling and pouring nozzle, the combination, with a valve-screw, F, having head f', of upper valve-plate, G, having recess or socket g, and lower valve-plate, G', having rim g' and inturned flange g^2, overlapping said plate G, substantially as specified.

5. In a filling and pouring nozzle, the combination, with a valve-screw, F, having head f', of upper valve-plate, G, having recess or socket g, and lower valve-plate, G', having ring g' and inturned flange g^2, overlapping said plate G, and intermediate stiffening-disk, g^2, substantially as specified.

6. The filling and pouring nozzle consisting of a cup or funnel, B bottom rim, b, valve-seat packing C, spout E, countersunk cap D, having vertical rim d, and outwardly and downwardly projecting flange or roll d', nut D', valve-screw F, having thumb-piece f and head f', and valve-plates G and G', said plate G' having a flange overlapping said plate G, substantially as specified.

354,572. SHEET-METAL BARREL.

EDWIN NORTON, Chicago, Ill., assignor to himself and Oliver W. Norton, same place. Filed Sept. 3, 1886. (No model.)



Claim.—1. A sheet-metal barrel-form vessel having a series of longitudinal tapering folds or ribs projecting radially inward, and the walls of said folds being squeezed tight together, substantially as specified.

2. A sheet-metal vessel having a series of longitudinal strengthening folds or ribs projecting radially inward, and the walls of said folds being squeezed tight together, substantially as specified.

3. A sheet-metal barrel-form vessel having a series of longitudinal tapering folds or ribs and transverse hoop-beads projecting radially inward, and the walls of said folds being squeezed tight together, substantially as specified.

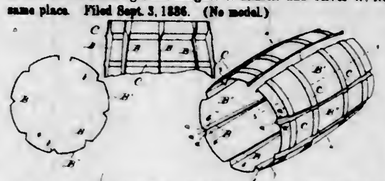
4. The sheet-metal barrel having beads A A and body B, furnished with folds or ribs b, tapering from each end toward the middle of the barrel, and staves b' between said folds or ribs, said ribs being folded flat at each end, substantially as specified.

5. The sheet-metal body B, made from a single rectangular sheet of metal, having tapering ribs b and flanges b^2 b^2 at its meeting edges, soldered together, substantially as specified.

6. The sheet-metal barrel-form body having a series of longitudinal inward folds or ribs tapering on curved lines from each end toward the middle or bilge, substantially as specified.

354,573. MANUFACTURING SHEET-METAL BARREL-BODIES.

EDWIN NORTON, Chicago, Ill., assignor to himself and Oliver W. Norton, same place. Filed Sept. 3, 1886. (No model.)



Claim.—1. The process or method of making sheet-metal barrel-form bodies from a rectangular sheet, consisting in forming a series of gore-shape inwardly-projecting flat folds or ribs therein, tapering from each end toward the middle and extending longitudinally from end to end of the sheet, whereby the surplus stock is taken up and the diameter contracted at each end and the barrel given a smooth exterior with stave-line divisions, substantially as specified.

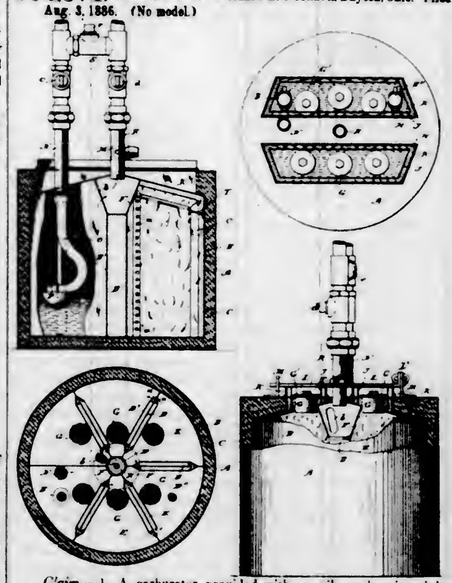
2. The process of making sheet-metal barrel-form bodies from a sheet, consisting in first forming a series of longitudinal grooves or channels therein tapering from each end toward the middle, and then squeezing the walls of such grooves or channels together, substantially as specified.

3. The process of making sheet-metal barrel-form bodies from a sheet, consisting in first forming a series of longitudinal grooves or channels therein tapering from each end toward the middle, and then squeezing the walls of such grooves or channels together, forming tapering ribs, and finally turning or folding down said ribs at the end of the barrel to form seats for the barrel-heads, substantially as specified.

4. A process or method of making sheet-metal barrel-form bodies from a sheet, consisting in forming a series of gore-shape inwardly-projecting flat folds or ribs therein, tapering on curved lines from each end toward the middle, substantially as specified.

354,574. CARBURETOR.

WILLIAM H. O'CONNOR, Dayton, Ohio. Filed Aug. 3, 1886. (No model.)



Claim.—1. A carburetor provided with an oil-supply pipe, inlet and outlet pipes, and having an inner tank with vertical partitions form-

ing chambers and sub-partitions secured at their ends to the partitions forming sub-chambers, the said partitions and sub-partitions having vertical perforations, whereby said chambers and sub-chambers form a continuous passage within the tank, all substantially as described.

2. A jacketed carburetor provided with an oil-supply pipe and inlet and outlet pipes, and having an inner tank, B, with vertical partitions D and vertical sub-partitions D'' joined to said partitions D, said partitions D and sub-partitions D'' forming a series of communicating chambers, E, and sub-chambers E', and each having vertical perforations *a*, so arranged as to form of said chambers and sub-chambers a continuous passage, all substantially as described.

3. In a jacketed carburetor, an inner tank having perforated partitions, as described, forming communicating vertical chambers E, and a cover having openings G and caps G', all of said parts combined substantially as described.

4. In a carburetor, the combination of an outer casing with an inner gas-generating tank having a supply-pipe and inlet and outlet pipes, a purifying-chamber within the inner tank and in communication therewith, and the outlet-pipe, all substantially as described.

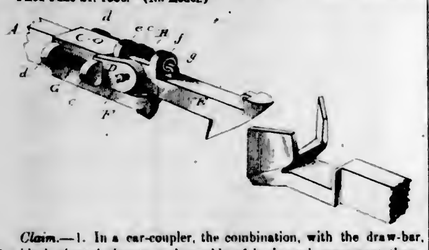
5. A jacketed carburetor composed of a tank having a series of communicating chambers formed by vertical partitions, an inlet-pipe for air or gas leading into one of said chambers and extending to near the bottom thereof, and a second inlet-pipe for hydrocarbon liquid leading into the same chamber, a flexible pipe connected within the chamber to said second inlet-pipe and having secured at its lower end a float, whereby a horizontal exit of the air or gas is permitted, a purifying-chamber in communication with the last of the first-mentioned chambers, and an outlet-pipe leading from said purifying-chamber, all substantially as described.

6. In a carburetor, the combination of the outer tank, A, the inner tank, B, with perforated partitions D, forming communicating chambers E, each having openings G in the top thereof, the screw-caps G', the trough H, with inclosed cap J, and cover K, all substantially as and for the purpose set forth.

7. A jacketed carburetor having the inner tank, B, with perforated partitions D and D', forming a series of communicating chambers, E, and a chamber, F, the said purifying-chamber F having an opening communicating with the last one of the series of chambers E, all combined and arranged substantially as and for the purpose set forth.

8. A jacketed carburetor provided with a sealing-trough and with inlet and outlet pipes, in combination with a locking device consisting of the standards M M', secured to the lid of the casing of the carburetor, the said standard M having a recess on one side thereof and the standard M' having an opening therein, and the bar L', having a central recessed portion on one side and a flange portion at one end, and means, substantially as described, for securing said flange portion to said standard M', and lock-nut T on pipe R, all substantially as described.

354,575. CAR-COUPLING. EMMERSLEY K. OPHEIM, La Crosse, Wis. Filed June 21, 1886. (No model.)



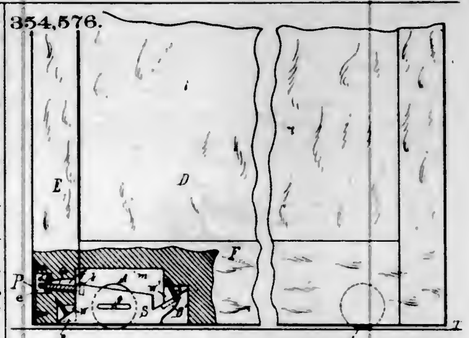
Claim.—1. In a car-coupler, the combination, with the draw-bar, of a block pivoted thereto and capable of horizontal movement thereupon and a coupling-hook pivoted in said block and movable vertically in relation thereto.

2. In a car-coupler, the combination of a draw-bar, a horizontally-movable block secured thereto, a vertically-movable hook secured to said block, and springs connecting the movable block and the draw-bar.

3. In a car-coupler, the combination of a draw-bar, a horizontally-movable block, a vertically-movable hook secured to said block, a spring connecting the hook and the block, and springs connecting the draw-bar and block.

4. In combination with draw-bar A, having lugs *d* on each side, block B, provided with arms D and lugs *e e*, a vertical pivot pin or bolt, C, a coupling-hook, E, provided with a lug, *f*, a horizontal pivot, F, connecting the hook E and the arms D, a spring, H, between the lugs *e f*, and springs G between the lugs *e d*, all arranged substantially as shown.

354,576. SLIDING DOOR. STEPHEN PALMER, Lansingburg, N. Y. Filed Mar. 1, 1886. (Model.)



Claim.—1. A door provided with a longitudinally-elongated mortise having a slideway at each end, in combination with an adjustable mortise-sheave provided at each end with an inclined end slide movable longitudinally on said slideways, and means, substantially as described, for adjusting said sheave, as and for the purposes set forth.

2. The door D, provided with a sheave-mortise, *m*, and slideways W W', in combination with sheave S, provided with inclined slotted slides B B', screws i, and threaded bolt *a* and nut *d*, substantially as described, and for the purposes set forth.

354,577. RUFFLING ATTACHMENT FOR SEWING-MACHINES. WINSLOW R. PARSONS, Waterloo, Iowa. Filed Jan. 23, 1885. (No model.)



Claim.—1. The combination, with a reciprocating ruffling-blade, a fulcrum above the same, and a swinging arm for carrying the blade, of a lateral arm at the lower end of said swinging arm, having said blade riveted thereto, and connected with said swinging arm by a knuckle-joint, which comprises a horizontal pivot carried past the perpendicular plane of the axis of said swinging arm in each stroke, and angular surfaces on the lower extremity of said swinging arm coasting with the horizontal portion of said lateral arm, as herein specified, for the purposes set forth.

2. The combination, in a sewing-machine ruffler having a reciprocating ruffling-blade, of the customary frame-piece having an upright portion, a main lever to engage with the needle-screw, embracing one side of said upright, a swinging arm to carry said blade, embracing the other side of said upright, and a pivotal rivet, the respective ends of which pivot said lever and said arm at the upper end of said upright, as herein specified, for the purpose set forth.

3. The combination, in a sewing-machine ruffler having a reciprocating ruffling-blade, of a main lever adapted to receive continuous vibrating motion from the needle-bar, a swinging arm carrying said blade and having upstroke and downstroke shoulders at a fixed distance apart between its pivot and the path of said needle-bar, and an adjustable piece carried by said lever and having a tappet end below the lever to engage with said downstroke-shoulder, said upstroke-shoulder being adapted to engage with the upper edge of the lever itself, substantially as herein specified, for varying the intermittent reciprocating motion of the blade, in the manner set forth.

4. The combination, in a sewing-machine ruffler having a reciprocating ruffling-blade, of a main lever adapted to receive continuous vibrating motion from the needle-bar, a swinging arm carrying said blade and having upstroke and downstroke shoulders at a fixed distance apart, and a finger-lever carried by said main lever, and having a tappet end below the latter to engage with said downstroke-shoulder, and an eccentric projecting above the upper edge of the main lever when said tappet end is set for plaiting, to engage with said upstroke-shoulder, substantially as herein specified, for the purpose set forth.

5. The combination, in a sewing-machine ruffler having a reciprocating ruffling-blade, of a main lever adapted to receive motion from the needle-bar, a swinging arm carrying said blade and having upstroke and downstroke shoulders, and a lever-piece having a tappet end to engage with said downstroke-shoulder, and an eccentric to engage with said upstroke-shoulder when said tappet end is set for plaiting, substantially as herein specified, for the purpose set forth.

6. In a sewing-machine ruffler having a reciprocating ruffling-blade, the combination, substantially as herein specified, of mechanism for transmitting motion to said blade in its effective movements from the needle-bar, comprising a pair of unvarying contact-surfaces which coact with each other in ruffling-strokes, and devices for effecting and varying the retractions of said blade, comprising a lever-piece provided with a stroke-increasing eccentric which projects beyond and takes the place of one of said contact-surfaces in said effective movements when said lever-piece is set for a plaiting-stroke, for the purpose set forth.

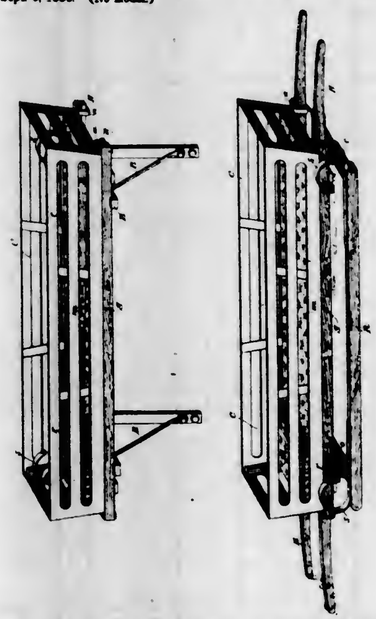
7. In a sewing-machine ruffler, a separating-blade holder having an upright portion provided with a pair of horizontal slots, each having an open end, in combination with a frame-piece having a stud and a stud-screw fitted to said slots, and a thumb-nut permanently applied to said screw, as herein specified, for the purposes set forth.

8. In a sewing-machine ruffler having a reciprocating ruffling-blade and an under blade or separator, a series of cloth-guides, including a guide slot or passage closed at both ends and crossing the path to the needle, for automatically guiding a piping cut and folded, to fit the same, said guides being formed in stationary parts and located wholly in front of the presser-foot, so as to be supplemented by the blades, substantially as herein specified, for the purposes set forth.

9. In a sewing-machine ruffler, in combination with a reciprocating ruffling-blade and devices for actuating the same, the within-described clamp-piece G, provided with a series of guides, including a slot-guide for a piping or fold, substantially as shown, for the purposes set forth.

354,578. WITHDRAWN.

354,579. STRETCHER. OSCAR J. PFEIFFER, Denver, Colo. Filed Sept. 6, 1886. (No model.)



Claim.—1. A stretcher provided with a rectangular frame or crib composed of end posts and connecting-slats, the whole adapted to be removably affixed to said stretcher.

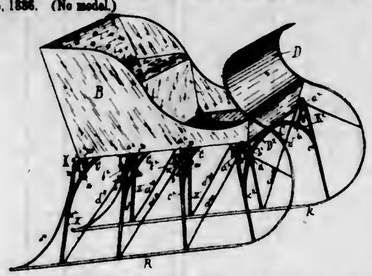
2. A folding spring bed or rest for a stretcher, consisting of longitudinal frame-pieces, cross-ties hinged substantially as described, two pairs of curved springs thereupon, a rod supported by each pair of said curved springs upon which the stretcher is adapted to rest, and eyes in the ends of each rod engaging the hooked ends of said curved springs, whereby the rods can be unhooked and the parts folded together.

3. The combination of a structure provided with handles, a removable crib adapted to be fastened to said stretcher, and spring-supported rods upon which said stretcher rests.

4. The combination of a stretcher having extensible handles, a crib adapted to be removably fastened thereto for the purpose described, and an independent folding spring-rest for supporting the aforesaid parts.

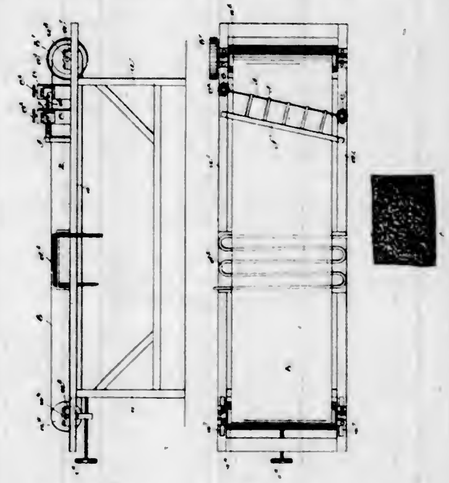
5. A stretcher having extensible sliding handles whereby they may be slid in out of the way when it is not in use, a crib mounted upon the stretcher, an independent spring-bed upon which the stretcher is adapted to rest, and means for allowing said spring-bed to be folded up so as to be placed within the compass of said crib when the stretcher is not in use, whereby the apparatus may be compactly stored away.

354,580. SLEIGH. JAMES K. P. PINE, Lansingburg, N. Y. Filed Feb. 16, 1886. (No model.)



Claim.—The combination, with the body and the runners of a sled, of a bench comprised of the cross-piece D^2, formed with legs c^2, and the curved brace C, arranged with its ends to set against and brace the legs, and its arch to support the cross-piece of the bench and provided with braces b^2 b^2 and the braces b^4, to support the benches in vertical position, substantially as described.

354,581. METHOD OF PEBBLING CLOTH OR OTHER WEB. ARTHUR W. POPE, Boston, Mass. Filed July 12, 1886. (No model.)



Claim.—1. That improvement in the art or method of pebbling cloth or other web which consists in applying india-rubber or other equivalent water-proof substance to an endless belt of cloth or other web, and then subjecting the said india-rubber or equivalent surface to the action of a vibrating blade, which destroys the said coating and leaves a pebbled surface on the cloth or web, substantially as described.

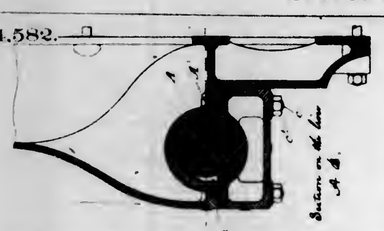
2. That improvement in the art or method of pebbling cloth or other web which consists in applying india-rubber or other water-proof substance to an endless belt or other web; second, causing the said endless belt to travel beneath a knife or blade until the desired amount of india-rubber or other water-proof substance has been applied thereto, and, lastly, causing the said endless belt to again travel beneath the said knife or blade, and the said knife or blade to vibrate, substantially as described.

3. That improvement in the art or method of pebbling cloth or other web having an india-rubber or equivalent waterproofing compound applied to it which consists in moving the said coated belt under a blade or vibrator after the required quantity of india-rubber or equivalent waterproofing compound has been applied to it, and while the said coating is yet tacky, the said tacky surface acting to cause the said blade to vibrate, all substantially as set forth.

354,582. BEARING FOR SHAFTS. CHARLES T. PORTER, New York, N. Y. Filed Feb. 17, 1886. (No model.)

Claim.—In a horizontal steam-engine, the framing A, having a more than semi-cylindrical recess for the main shaft, with a cavity, *a*, in the top, and a bottom bearing, A', adapted to reliably support the shaft when the binder is removed, in combination with a binder, B, applied

354,582.



and removed horizontally, and with securing and adjusting means C C', all arranged for joint operation, substantially as herein specified.

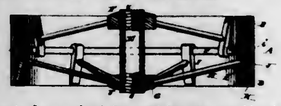
354,583. HAIR OR OTHER BRUSH. JAMES RAPER, MASON PEARSON, and FREDERICK GILL, Royal Victor Place, Old Ford Road, County of Middlesex, England. Filed July 14, 1886. (No model.) Patented in Belgium Mar. 26, 1886, No. 72,517.



Claim.—1. In a brush, the described combination of a pad or sheet of elastic material supporting bristles, arranged each separately isolated, and secured therein by cement and a backing-sheet, and held in an inderent groove in the brush-back so as to form an air-space, bed, or elastic backing, substantially as set forth.

2. In a hair-brush, the combination of an elastic domed or arched bristle-supporting sheet, a back to which such sheet is secured, and affording an air-chamber between them, the back having therein a passage, d^3, through which, under the pressure on the bristles, air may be forced out of such chamber, substantially as set forth.

354,584. WHEEL FOR VEHICLES. ISAIAH H. REINER, Lime Lexington, Pa. Filed Feb. 13, 1886. (No model.)



Claim.—1. In a wheel for vehicles, the combination of the hub with the T-shaped tire, the spokes, and the shoes to receive the outer ends of said spokes, the said shoes resting upon the inner rib and the outer flange of the tire, substantially as and for the purpose specified.

2. The combination of the tire with oblique spokes, a hub consisting of the tubular bearing E, having right and left hand threads on its respective ends, and flanges adapted to support the spokes and screw upon said ends when said tubular part is turned or rotated, whereby the spokes may be made to press outward against the tire, loose shoes supporting the tires and receiving the ends of the spokes, whereby the wide flange of the wheel is strengthened, and when the wheel is tightened the bearing between the spokes, hubs, or flanges will be the greatest, substantially as and for the purpose specified.

3. The combination of the tire made T-shaped with oblique spokes, a hub consisting of the tubular bearing E, having right and left hand threads on its respective ends, and flanges adapted to support the spokes and screw upon said ends when said tubular part is turned or rotated, whereby the spokes may be made to press outward against the tire, and shoes interposed between the spokes and tire, and having notches on one end to fit upon the inner rib of the tire, to prevent lateral displacement, substantially as and for the purpose specified.

4. The combination of tubular bearing part E, having right and left hand screw-threads *e* on its respective ends, flanges G, to screw on the ends of said part E, and adapted to receive the spokes, spokes H, the T-shaped tire A, having rib C, flanges B, and shoes I, supported on said tire at its rib C and outer edges of the flanges B, substantially as and for the purpose specified.

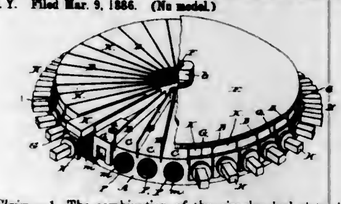
5. The T-shaped tire A, shoes I, resting thereon, spokes H, one end thereof pressing upon said shoes, hub-flanges F, supporting the other ends of said spokes, and means to draw said flanges together to cause the spokes to press outward toward the tire, substantially as and for the purpose specified.

354,585. BUTTON-FASTENER. FRANCIS H. RICHARDS, Springfield Mass., assignor to the American Button Fastener Company, New Britain, Conn. Filed July 2, 1885. (No model.)



Claim.—The improved button-fastener herein described, it comprising a single prong and a head standing crosswise thereto, all formed of a single piece of wire which is split through its head-forming portion, the divided parts of which portion are each bent upon itself to form a head having rounded corners, substantially as set forth.

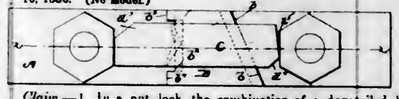
354,586. MOLD FOR CASTING TYPE-WHEELS. EUGENE L. TABOR, Brooklyn, assignor to the New York Stencil Works, New York, N. Y. Filed Mar. 9, 1886. (No model.)



Claim.—1. The combination of the circular bed-plate A, a series of radial partition-plates, B B, a series of blocks, K K, fitting and moving longitudinally between said plates, a retracting-plate, G, engaging each block and bent over the outer edge of the bed-plate, and an adjusting-screw, H, working into the periphery of the bed-plate and engaging the retracting-plate, whereby a definite longitudinal movement of the block may be produced by turning the screw, substantially in the manner and for the purpose herein set forth.

2. The combination of the bed-plate A, a series of radial partition-plates, B B, a pattern, D, fitted centrally upon the bed-plate between the inner ends of the partition-plates, and a covering-plate, E, secured over and upon the partition-plates to inclose the radial compartments formed thereby, substantially in the manner and for the purpose herein set forth.

354,587. NUT-LOCK. CLEOPHAS TOTTEN, Leesville, Ohio. Filed Aug. 16, 1886. (No model.)

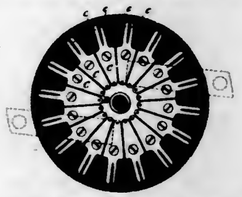


Claim.—1. In a nut-lock, the combination of a dovetailed block having the widest portion at the lower edge thereof and rigidly affixed to a fish-plate between two adjoining bolts, and a locking-plate provided with a dovetailed recess in its rear side in which the said block is snugly fitted and thereby partially concealed from view, substantially as described, for the purpose set forth.

2. In combination with a plate, A, having rigid block B, formed with slanting dovetailed edge *b*, dovetailed vertical edge, and a locking-plate having a dovetailed recess to receive the block, as set forth.

3. The combination, with a plate, A, a block, B, secured thereto, having slanting edge *b*, straight edge, and notches b^2 and b^3, of a dovetailed locking-plate, C, formed with the slanting edge *d*, and the angular portions d^2 and d^4, adapted to fit on the block B, and the said plate C being cut on its corner with the inclines *d'* and d^4, all combined, and serving for the purpose set forth.

354,588. DYNAMO-ELECTRIC MACHINE AND ELECTRIC MOTOR. SCHUYLER S. WHEELER and CHARLES G. CURTIS, New York, N. Y., assignors to the C. & C. Electric Motor Company. Filed July 14, 1886. (No model.)



Claim.—1. The herein-described armature-core, composed of a series of iron rings and jointed so that the core can be opened, the ends of each ring where they come together at the joints being partly cut away, so as to fit into one another, and thereby enable a greater number of rings, and consequently more iron, to be put into the core, substantially as described.

2. The combination, with an armature-winding formed with certain raised or projecting convolutions to which the commutator-strips are connected, of commutator-strips formed with extensions which rest in contact with and are soldered to the sides of the projecting convolutions.

3. The herein-described commutator-strip, formed with the diverging projections c c, adapted to be drawn together so that the armature connection or winding can be inserted between the projections and the projections then forced or drawn together so as to grasp the armature-winding, substantially as described.

4. The herein-described commutator-strip, formed with sector-shaped portion C and the diverging fingers or projections c c, substantially as described.

5. The herein-described process of connecting the commutator of an armature, consisting in forming the commutator so that each commutator-strip is provided with a forked extension or portion formed with an opening to receive the armature connection or winding, these openings being larger than the wire or winding which enters them, applying the commutators so formed to the wound armature, and then forcing or drawing together the forced extensions or openings so as to grasp the wire or winding, substantially as described.

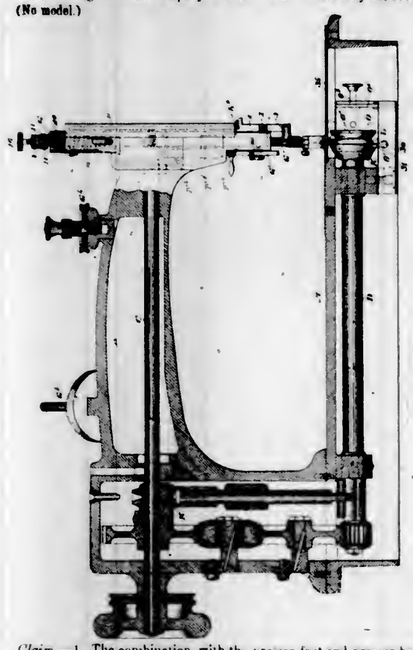
6. The combination, with an armature-winding formed with certain raised or projecting convolutions to which the commutator-strips are connected, of commutator-strips formed with split or forked extensions which straddle or rest against the raised convolutions on each side thereof and are soldered thereto, substantially as described.

7. The herein-described core-covering, consisting of a shell or sheath of paper or other suitable insulating material molded or otherwise formed into the shape of the core, and adapted to be slipped or fitted over the core and prevent the winding from coming in contact therewith, substantially as described.

8. The herein-described core-covering, consisting of an insulating shell or sheath made in the form of annular or partly-annular shaped pieces and adapted to be fitted over the core, substantially as described.

9. The combination, in a Gramme-ring armature, with the iron ring or core, of a winding formed of a wire or conductor having a trapezoidal or sector-shaped cross-section, and wound upon the core so that its thicker edge or side is nearest the core, whereby the conductivity of the winding is increased and the flat side of each wire is parallel with the side of the adjacent wire on the inside of the ring, substantially as described.

354,589. SEWING-MACHINE. CHARLES H. WILLCOX, New York, N. Y., and JAMES E. A. GIBBS, Raphine, Va., assignors to the Willcox & Gibbs Sewing Machine Company, of New York. Filed July 31, 1883. (No model.)



Claim.—1. The combination, with the presser-foot and presser-bar, needle and needle-bar, and tension apparatus of a lock-stitch sewing-machine, of a take-up and thread-guides so constructed as to act upon and hold the thread wholly by rigid or positive devices between the tension apparatus and the eye of the needle, adjusting means for regulating the length of thread drawn in and given out at each stitch, and a mechanical connection between said adjusting means and the presser-foot for making the adjustment automatic, substantially as described.

2. The combination, with the presser-foot and presser-bar, needle and needle-bar, rotary hook, and tension apparatus of a lock-stitch sewing-machine completing each stitch independently, of a take-up and thread-guides so constructed as to act upon and hold the thread wholly by rigid or positive devices between the tension apparatus and the eye of the needle, adjusting means for regulating the length of thread drawn in and given out at each stitch, a mechanical connection between the adjusting means and the presser-foot, and mechanism connecting said needle-bar, take-up, and rotary hook for making them act in due sequence to form the stitch, substantially as described.

3. The combination, with a rotary take-up having a device for drawing in the thread positively and for releasing it by moving away without casting it off, of means adjustable to vary the length of thread drawn in and given out, and a connection between the said means and the presser-foot for making the adjustment automatic, substantially as described.

4. The combination, with a rotary take-up having one or more pins or take-up devices movable in a circular path, and thread-guides arranged in the line of a chord to said circular path, of adjusting means for shifting one of said thread-guides circumferentially with reference to the take-up, in order to vary the length of thread drawn in and given out at each revolution thereof, substantially as described.

5. The combination, with the rotary take-up and the adjustable thread-guide therefor, of the presser-foot and the mechanical connections between the presser-foot and said guide for adjusting the same automatically, substantially as described.

6. The combination, with the presser-foot and presser-bar, needle and needle-bar, and tension apparatus of a lock-stitch sewing-machine, of a take-up and thread-guides so constructed as to act upon and hold the thread between the tension apparatus and the needle-eye wholly by rigid or positive devices, means whereby the point at which the tightened thread is released may be varied, and a mechanical connection with the presser-foot, whereby the release is made sooner the higher the presser-foot, substantially as described.

7. The combination, with the presser-foot and presser-bar, needle and needle-bar, rotary hook, and tension apparatus of a lock-stitch sewing-machine completing each stitch independently, of a take-up and thread-guides so constructed as to act upon and hold the thread between the tension apparatus and needle wholly by rigid or positive devices, means whereby the point at which the tightened thread is released may be varied, and a mechanical connection with the presser-foot, whereby the release is made sooner the higher the presser-foot, substantially as described.

8. The combination, with a positively-acting principal take-up, of a positively-acting auxiliary take-up, means whereby the loop drawn in and given out by the auxiliary take-up may be varied, a mechanical connection with the presser-foot for adjusting said means so as to increase the loop the higher the presser-foot, and operating mechanism connecting the two take-ups with each other, substantially as described.

9. The combination, with the presser-foot and presser-bar, needle and needle-bar, and tension apparatus of a lock-stitch sewing-machine, of a take-up and thread-guides constructed to control the thread between the tension apparatus and needle wholly by rigid or positive devices, and means mechanically connected with and automatically adjusted by the presser-foot for regulating the length of thread drawn in and given out in forming each stitch, and also the point at which the tightened thread is released, substantially as described.

10. The combination, with a rotary take-up, of an auxiliary take-up for modifying the action in giving down thread, and mechanism for connecting and operating said take-up, substantially as described.

11. A sewing-machine take-up comprising a rotary part in combination with an auxiliary reciprocatory part, and mechanism for rotating and reciprocating said parts, respectively, substantially as described.

12. The combination, with the rotary take-up, of the auxiliary take-up and the adjustable thread-guides for said auxiliary take-up, substantially as described.

13. The combination, with the presser-foot and presser-bar, needle and needle-bar, tension apparatus, and rotary hook of a lock-stitch sewing-machine completing each stitch independently, of a take-up and thread-guides so constructed as to control the thread between the tension apparatus and needle wholly by rigid or positive devices, and means mechanically connected with the presser-foot, for regulating the length of thread drawn in and given out at each stitch, and also the point at which the tightened thread is released, substantially as described.

14. The combination, with a rotary take-up, of the needle-bar provided with means for acting upon the thread so as to constitute an auxiliary take-up, substantially as described.

15. The combination of the rotary take-up, the auxiliary take-up, and their two sets of shifting or adjustable thread-guides, substantially as described.

16. The combination, with a sewing-machine take-up composed of a rotary and a reciprocatory part, and the presser-foot of the machine,

of means connected with and adjusted by the presser-foot for varying the action of said take-up in accordance with the thickness of the work under said foot, substantially as described.

17. The combination, with the needle-bar and take-up of a sewing-machine, of a rotary hook and mechanism for imparting thereto three revolutions to each reciprocation of the needle-bar, substantially as described.

18. The rotary hook provided with a loop-detainer on the outside of the point, in combination with the needle-bar, the take-up, and mechanism for imparting three revolutions to the hook for each reciprocation of the needle-bar, substantially as described.

19. A rotary hook provided with a loop-shedder and loop-detainer, substantially as described.

20. A cup-shaped rotary hook having its internal periphery of frusto-conical form and provided with a point the full width of the hook, in combination with a bobbin-case and a cylindrical bobbin supported therein with its axis parallel to or in line with the axis of the hook, and a rotary shaft on which the hook is rigidly fastened, substantially as described.

21. The combination, with the bobbin-case provided with a frusto-conical barrel, of the cup-shaped rotary hook having a frusto-conical periphery and provided with a point the width of the hook, substantially as described.

22. A bobbin-case provided with a frusto-conical barrel, a rim at the enlarged end of the cone, and a spindle for the bobbin in the center of the barrel, substantially as described.

23. The combination, with a reciprocating needle and a rotary hook, of a non-rotating bobbin-case provided with an overhanging projection at the top of the case, on that side of the needle's path toward which the point of the hook moves when taking up a loop, for catching and retaining the inner strand of the needle-loop as it is carried onward by the point of the hook, substantially as described.

24. The combination, with a reciprocatory needle, a rotary hook, and a hanger for supporting the bobbin-case in the hook, of the non-rotating bobbin-case provided with an overhanging projection at the top of the case, on that side of the needle's path toward which the point of the hook moves in taking a loop, for catching and retaining the inner strand of the needle-loop, substantially as described.

25. The combination, with a rotary hook having an undercut groove turned therein, of a non-rotating bobbin-case supported in the hook from a stationary part of the machine, and having a projection for catching the inner strand of the needle-loop shaped to enter said groove, substantially as described.

26. The combination of the cup-shaped rotary hook, having an undercut groove in the solid metal of its inner periphery, with the non-rotating bobbin-case having an overhanging projection adapted to enter said groove, substantially as described.

27. The combination, with the rotary hook, of the bobbin-case provided at the upper part with a notch for the passage of the needle, and the stationary projection extending into said notch to prevent rotation of the bobbin-case, substantially as described.

28. A bobbin-case having the face-plate slotted for the passage of the needle, substantially as described.

29. A bobbin-hanger provided with two projections, in combination with a bobbin-case suspended therefrom, said projections being on opposite sides of the vertical line through the center of gravity of the bobbin-case, substantially as described.

30. In combination with a bobbin-case and a rotary hook, a bobbin-hanger comprising two projections for supporting the bobbin-case and a projection between the two for preventing its rotation, substantially as described.

31. In combination with a bobbin-case and a rotary hook, a bobbin-hanger for supporting the bobbin-case, provided at the bottom with a bearing for the lower part of the bobbin-case, said bearing forming an integral part of said hanger, substantially as described.

32. The bobbin-hanger having a hollow shank for securing it in the holder therefor, in combination with the screw-driver or instrument for adjusting the tension of the under thread extending into or through said shank, substantially as described.

33. The combination, with the needle-bar and take-up of a sewing-machine, of a bobbin-hanger, a bobbin-case, a rotary hook, and mechanism for revolving said hook three revolutions to each reciprocation of the needle-bar, substantially as described.

34. The combination of the bobbin-hanger, bobbin-case, rotary hook provided with a loop-detainer, and mechanism for giving said hook three revolutions to each reciprocation of the needle-bar, substantially as described.

35. The combination, with the sewing-machine needle and the bobbin-case provided with an overhanging projection at the top of the case and on that side of the needle's path toward which the point of the hook moves, of the rotary hook having a wide point, which in passing over said projection projects on both sides beyond the end thereof, and having, further, a loop-shedder on the outside of said point, substantially as described.

36. The combination, with the main shaft turning in bearings in the goose-neck, and the hook-shaft below the work-plate, of the mechanism in the standard of the goose-neck having its parts proportioned, as explained, for giving said hook-shaft three revolutions for one of the former, and independent mechanism for moving the feed-surface, substantially as described.

37. The combination, with the tilting holder and finger movable therewith, of the rock-shaft forming part of the feed mechanism, and the finger carried by said rock-shaft and movable into and out of the path of the first-named finger, substantially as described.

38. The combination, with the vibratory thread-shield in the form of a bent bar, of the journal-pin having its bearings in the head of the machine and provided with a transverse hole, in which said bar is secured, the cross-head, and the pin journaled in said cross-head, and surrounding and sliding over the upper end of said bar, substantially as described.

39. The combination of the needle-bar, rotary take-up, rotary hook, and mechanism for giving the rotary hook three revolutions to each reciprocation of the needle-bar, substantially as described.

40. The combination of the needle-bar, the crank and short pitman for operating the needle-bar, the rotary take-up, the adjusting means for modifying the action of the take-up, the presser-foot, the connection between the adjusting means and the presser-foot, and the rotary hook, substantially as described.

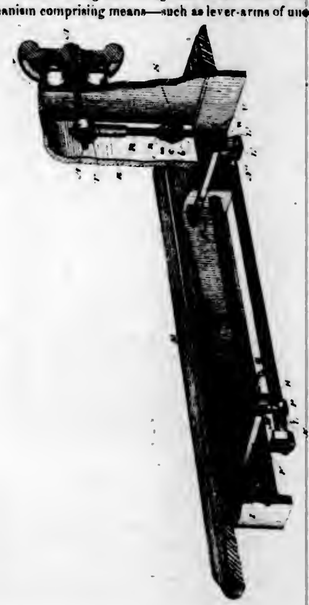
41. The combination of the main shaft turning in bearings in the goose-neck, the needle-bar, the crank and short pitman for reciprocating said needle-bar, the rotary take-up in the head of the machine, the adjusting means for modifying the action of the take-up, the rotary hook, the mechanism for giving it three revolutions to each reciprocation of the needle-bar, the bobbin, the bobbin-case, and the bobbin-hanger, substantially as described.

42. The combination, with the needle-bar and cup attached thereto, of the bushing or tubular bearing for said bar, arranged so that the cup passes over it, substantially as described.

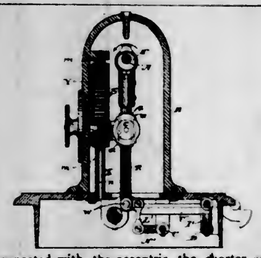
43. The combination, with the needle-bar and the presser-bar of a sewing-machine, of a pivoted yoke provided with thread-guides and connected with the presser-bar, and a take-up pin fastened to the needle-bar, the said pin leaving the thread to be supported by said yoke when it descends below the thread-guides therein, substantially as described.

354,590. FEED MECHANISM FOR SEWING-MACHINES. CHARLES H. WILLCOX, New York, N. Y., and JAMES E. A. GIBBS, Raphine, Va., assignors to the Willcox & Gibbs Sewing Machine Company, of New York. Filed July 31, 1883. (No model.)

Claim.—1. The combination, with a feed-bar, of an eccentric having a throw greater than the rise and fall of the feed-bar, and reciprocatory mechanism connecting said eccentric with the feed-bar, for giving to the latter both a rising-and-falling and a back-and-forth movement, said mechanism comprising means—such as lever-arms of unequal length,



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the longer arm connected with the eccentric, the shorter arm with the feed-bar—whereby the throw of the eccentric is reduced in giving the rise and fall to said feed-bar, substantially as described.

2. The combination, with the feed-lifting and the feed-advancing rock-shafts, of a feed-bar supported wholly thereby, having one end pivoted to a vertical arm of the feed-advancing shaft and the other connected with a horizontal arm of the feed-lifting shaft by a link pivoted at its upper end to the feed-bar and at its lower end to said arm, substantially as described.

3. The combination, with the feed-lifting and feed-advancing rock-shafts, each journaled in stationary bearings, and the feed-bar connected with said shafts, of an eccentric, an upright feed-lever whose upper end encircles said eccentric, the connecting-rod between the lower end of said feed-lever and an arm of the feed-advancing rock-shaft, and the adjustable fulcrum at an intermediate point on said feed-lever, substantially as described.

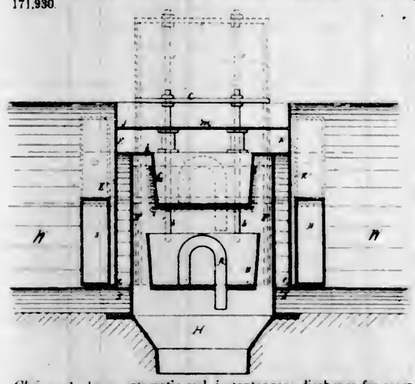
4. The combination of the single eccentric, feed-lever, feed-lifting and feed-advancing rock-shafts, feed-bar, and connections whereby said eccentric imparts the four motions to said feed-bar through said rock-shafts, substantially as described.

5. The combination, with the single feed-eccentric, the feed-lifting and feed-advancing rock-shafts, and the feed-bar, of connections through which and the said rock-shafts both a back-and-forth and a rising-and-falling motion are imparted from said eccentric to said feed-bar, said connections comprising lever-arms of unequal length, the longer arm on the side of the eccentric, the shorter arm on the side of the feed-bar, for reducing the motion of the eccentric in transmitting the rise and fall to said feed-bar, substantially as described.

6. The combination of the main shaft turning in bearings in the goose-neck, the single feed-eccentric thereon, the feed-lever engaging said eccentric, the feed-lifting and feed-advancing rock-shafts under the work-plate, both connected with the lower end of said feed-lever, and the feed-bar connected with said rock-shafts, substantially as described.

7. The combination, with the feed-bar, the single feed-eccentric, the feed-lever, the adjustable fulcrum-piece, the feed-advancing rock-shaft, and the connections between it and the said feed-lever and the said feed-bar, respectively, of the feed-lifting rock-shaft having a short arm connected with the said feed-bar and a longer arm connected with the said feed-lever, so as to reduce the motion of the said feed-eccentric in producing a rise and fall of the feed-bar, substantially as described.

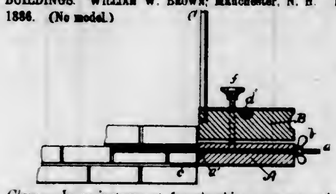
354,591. AUTOMATIC SIPHON. EMILE ARMOND, Paris, France. Filed July 31, 1886. (No model.) Patented in France Oct. 23, 1885, No. 171,930.



Claim.—1. In an automatic and instantaneous discharge for reservoirs, the tub B, with siphon A, attached to rods *b b b b*, in combination with the casing E and floats D D, substantially as set forth.

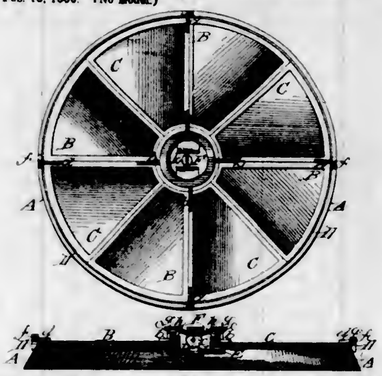
2. The casing F, secured to casing E, with holes S, crown *m*, and the funnel G, the tub B, with siphon A, attached to the rods *b b*, and the float D D, all combined substantially as and for the purpose set forth.

354,592. INSTRUMENT FOR PLUMBING THE CORNERS OF BUILDINGS. WILLIAM W. BROWN, Manchester, N. H. Filed June 4, 1886. (No model.)



Claim.—In an instrument for plumbing masonry, a base provided with a projecting plate to enter a joint in the angle of the wall, and armed with clamping mechanism consisting of rods adapted at one end to enter joints in the work, and provided at the other end with a threaded portion and a nut working thereon, in combination with an adjustable table provided with adjusting-screws and spirit-level tubes, and carrying a graduated standard fixed at right angles perpendicularly with said tubes, all substantially as shown and described, and for the purpose set forth.

354,593. GRIDDLE. FRANCIS L. CARPENTER, Hartland, Vt. Filed Feb. 18, 1886. (No model.)



Claim.—1. A griddle provided with a series of stationary plates, B, and pivoted plates C, having gear-wheels *c* secured thereto and operated by the disk F, provided with flanges *n*, to receive the handle H, as herein shown and described.

2. A griddle constructed of a frame, A, provided with uprights *g*, *h*, and *f*, stationary plates B, pivoted plates C, journaled in uprights *g*, *h*, and *f*, provided with arms *b* and *d*, gear-wheels *c* on the inner pivots of the plates C, and a geared plate engaging said gear-wheels, as herein shown and described.

3. A griddle consisting of a frame, A, stationary plates B, pivoted plates C, journaled to said frame, provided with arms *b* and *d*, gear-wheels *c* on the inner side of said plates C, in combination with the disk F, provided with the gear G, pivoted to the frame A and operated in the manner as set forth.

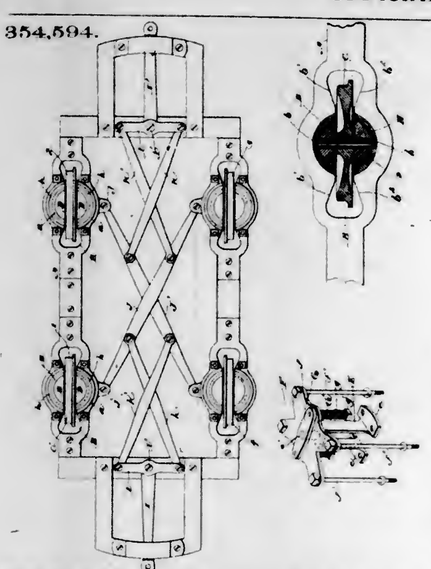
354,594. CAR-TRUCK. ERASTUS L. CLEVELAND, Pittsburg, Pa., assignor of two-thirds to Michael P. Howley and Samuel Meik, both of same place. Filed July 6, 1886. (No model.)

Claim.—1. In a car-truck, the truck-frame having the longitudinal slot, and the segmental guide-recesses on opposite sides of and opening into the slot at its middle, the independent shifting bearings fitted snugly in the guide-recesses and capable of free movement therein, the yoke secured to and connecting the shifting bearings for simultaneous operation, and a wheel journaled in the said bearings and turning on vertical pivots about the vertical center of the wheel, substantially as described.

2. In a car-truck, the combination of the truck-frame, the shifting bearings carried by the said truck-frame and capable of free vertical and horizontal movement thereon, a wheel journaled in the bearings and turning on vertical pivots about the vertical center of the wheel, and a yoke straddling the wheel and secured to the shifting bearings, and thereby connecting the latter for simultaneous operation, substantially as described, for the purpose set forth.

3. In a car-truck, the truck-frame having the longitudinal slots provided with the diagonal sides at the ends, and the segmental guide-recesses on opposite sides of the longitudinal slot and between the diagonal sides thereof, in combination with the shifting bearings fitted snugly in the guide-recesses and capable of free vertical and horizontal movement

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therein, the wheel journaled in the bearings and turning on a vertical pivot about the center of the wheel, and the yoke straddling the wheel and connecting the shifting bearings for simultaneous operation, substantially as described.

4. In a car-truck, the truck-frame having the longitudinal slot, and the segmental guide-recesses at the middle of the slot and on opposite sides thereof, in combination with the independent bearings fitted snugly in the guide-recesses and bearing against the sides thereof and each provided with a projecting flange at its upper side which bears upon the truck-frame and thereby limits the downward play of the bearings, a wheel journaled in the bearings and turning on a vertical pivot about the center of the wheel, and the yoke straddling the wheel and connected to the independent bearings, substantially as described.

5. The combination of a truck having a slot and the segmental guide-recesses arranged in line with each other, the shifting bearings fitted snugly in the recesses for supporting and carrying the wheel, and the swiveled yoke connecting the bearings, substantially as described, for the purpose set forth.

6. The combination of a truck-frame, the shifting bearings, the wheel having its axle journaled in the bearings, and turning on vertical pivots about the vertical center of the wheel, the vertically-disposed yoke connecting the bearings and straddling the wheel, the stirrup connected to the yoke and having the guide-pins, the frame carrying the cap, and the springs, substantially as described.

7. The combination of the truck-frame having the slots and the segmental guide-recesses, the bearings fitted snugly in the said recesses, the yoke connecting the bearings and having the pin or trunnion, the frame secured to the truck-frame and provided with a cap through which the pin of the yoke passes, the stirrup connected to the pin of the yoke and carrying the guide pins or rods which pass through the cap of the frame, and the springs encircling the guide-pins for normally depressing the stirrup, substantially as described.

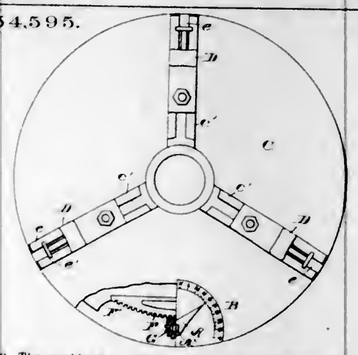
8. The combination of the truck-frame, the shifting bearings D thereon, connected for simultaneous operation and having the arms or lugs *j*, the wheels journaled in the bearings and turning on vertical pivots about the vertical center of the wheel, the cross-links K K', pivoted on the arms *j* of the bearings, and means for moving the said links simultaneously, substantially as described.

9. The combination of the truck-frame, the bearings having the extended arms *j*, the wheels journaled in the bearings and turning on vertical pivots about the vertical center of the wheel, the cross-links K K', connected with the said arms of the bearings, the pivoted levers having the arms *i* and the cross-links intermediate of the said levers, and the links J J', substantially as described, for the purpose set forth.

354,595. DEVICE FOR MEASURING CAR-WHEELS. JOHN J. COLE, Terre Haute, Ind. Filed Aug. 14, 1886. (No model.)

Claim.—1. The combination, with the jaw-actuating annulus of a self-centering chuck, of a pinion intermeshing with teeth on said annulus, a pointer connected with said pinion, and a dial-plate for said pointer, whereby are indicated the measurements of an article held by the chuck, substantially as described.

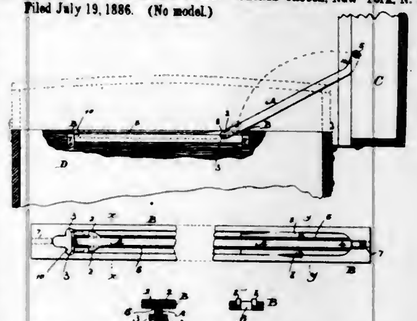
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2. The combination, with the jaw-actuating annulus of a self-centering chuck, of the toothed arc F, secured to said annulus, the pinion G, intermeshing with said arc, the pointer A, connected with said pinion, and the dial-plate formed in the face of the chuck, substantially as described, for the purpose set forth.

3. The combination, with the chuck, of the radially-movable jaws D, bolts *e*, controlling said jaws, a toothed annulus intermeshing with said pinions, the pinion G, intermeshing with teeth on said annulus, the pointer A, connected with said pinion, and the dial-plate B, formed in said chuck, for the purposes specified.

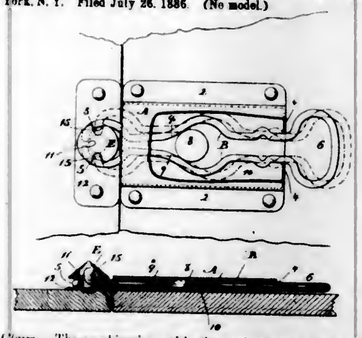
354,596. TRUNK-LID STAY. GEORGE CROUCH, New York, N. Y. Filed July 19, 1886. (No model.)



Claim.—1. The trunk-lid stay having the projections 2 and 3 upon the same, in combination with the slotted rail attached to the body of the trunk and having the pawl-projections 8, with which the projections 2 engage, substantially as set forth.

2. The trunk-lid stay formed of a bar, one end of which is curved or inclined upwardly and attached to the trunk-lid, and projections upon the sides of the said bar, in combination with a slotted rail attached to the body of the trunk and having the pawl-projections that limit the downward movement of the trunk-lid by engaging with the projections on the bar, substantially as set forth.

354,597. SPRING-CATCH FOR TRUNKS, &c. GEORGE CROUCH, New York, N. Y. Filed July 26, 1886. (No model.)



Claim.—The combination, with the conical nosing or stud having a neck, of the spring-claws, the case containing the same, and the cam within the case acting to open the claws when end motion is given to the spring-legs of the claws, substantially as set forth.

354,598. BAG-CATCH. GEORGE CROUCH, New York, N. Y. Filed July 26, 1886. (No model.)



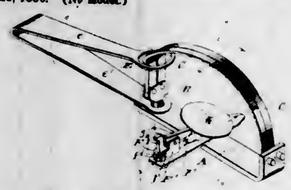
Claim.—1. The combination, in a bag-catch, of a case, a finger at the side of the case, pivoted to the same by a horizontal axis and swinging down against the bag-frame, and a block acting against the tail of the swinging finger to hold the bag shut, substantially as set forth.

2. The combination, with the case 4, of the swinging finger 8, the pivots 9, for the same, the spring 11, for swinging the finger open, and the block 16, for acting against the tail of the swinging finger to hold the same shut, substantially as set forth.

3. The combination, with the case 4, of the swinging finger 8 at one side thereof, the horizontal pivot-pins 9, spring 11, around the same, the bolt-block 16 and spring 18 to move the block, the bolt-shank 20, and pusher 19, projecting at the end of the case, substantially as set forth.

4. The combination, in a bag-catch, of a finger at one side of the case and a horizontal pivot for the same, a spring for swinging the said finger outwardly, a tail upon the finger within the case, the locking-block 16, its shank and pusher, and the spring within the case to give end motion to the shank, pusher, and block, substantially as specified.

354,599. ANIMAL-TRAP. SAML. DENNIS, Hornellsville, N. Y. Filed Sept. 25, 1886. (No model.)



Claim.—1. The combination, in an animal-trap, with the base, the jaws carried thereby, and the spring for forcing the jaws together, of a supplemental base arranged transversely across the base, the integral spaced lugs F at one end of the supplemental base and having the lips *f*, a swinging arm pivoted near one end between the lugs and carrying a trip-pan at its free end, and a trigger pivoted in the lips *f* and controlled by the arm *h*, the pivots of the arm *h* and trigger being thus arranged in close proximity and one beneath the other and supported in a single pair of lugs, substantially as described, for the purpose set forth.

2. In an animal-trap, the combination, with a base, the laterally-movable jaws carried thereby, and the spring for forcing the jaws together, of a supplemental base arranged transversely across the base and carrying a single pair of lugs near one end, a swinging arm, *h*, pivoted in the lugs and having a trip-pan at its inner end, and a shoulder, *g'*, at its outer end and a trigger also pivoted in the lugs in rear of the arm *h*, and provided with a lip or lips on one side to engage one of the jaws, and the shoulders *i j* on its other side, which are arranged one above and in rear of the other, substantially as described, for the purpose set forth.

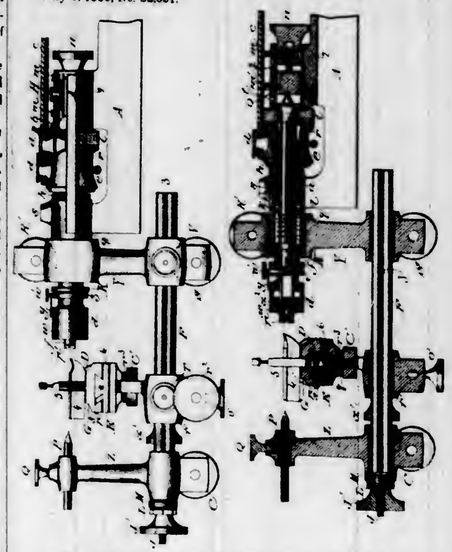
354,600. DUST-PAN. MALVINA N. HEENEWAY, Mexico, N. Y. Filed Aug. 2, 1886. (No model.)



Claim.—1. The dust pan blank described, cut upon the outside lines, 2 2, and the inside lines, 3 3, and adapted to be shaped upon the bending lines, substantially as described.

2. As a new article of manufacture, a dust-pan having the long inclined portion 5, the short inclined portion 6, the horizontal portion 8, the back portion, 10, the side pieces, 11 11 12 12, the adjacent edges of the side pieces, 11 11 12 12, being soldered together, and also the vertical lines of the rear ends of the side pieces 11 11 and the vertical lines of the back piece, 10, as described.

354,601. WATCH-MAKER'S LATHE. JOHN HUNTER, Kingston, Ontario, Canada. Filed May 1, 1886. (No model.) Patented in Canada July 9, 1885, No. 22,051.



Claim.—1. The combination, in a lathe, of the head-stock A, provided with the bearing *q*, the sleeve *a*, fitted to revolve in the said bearing and provided with the collar *h*, the pulley fitted tightly upon the sleeve *a*, and the spindle *f*, passing freely through the said pulley and journaled to revolve in the said sleeve, substantially as shown and described.

2. The combination of the head-stock A, provided with the bearing *q*, the sleeve *a*, journaled therein, the pulley *e*, tightly fixed on the said sleeve, the spindle *f*, passing freely through the said pulley and journaled in the sleeve, the graduated cylinder *i*, fixed upon the spindle, and the screw *r*, fitted to connect the said cylinder and pulley.

3. The combination of the head-stock A, provided with spindle-bearings, the slotted spindle-step O, having a screw projecting from its rear end and fitted into one of the said spindle-bearings, the circumferentially-grooved thumb-nut *n*, fitted into the said bearing and engaging the said projecting screw, the screw *m'*, fitted to engage the groove in the said step, and the screw *m*, fitted to engage the groove in the said thumb-nut.

4. The combination of the head-stock A, having bearings *q* and 2, the sleeve K, fitting tightly in bearing *q* and bored cylindrically through its body and bored conically at its rear end, the spindle *f*, having a cylindrical portion to fit easily in the said cylindrical bore, and a conical shoulder to fit the conical portion of the said bore, and a step for the rear end of the spindle.

5. The combination of the head-stock A, having bearings *q* and 2, the sleeve K, conically bored, the spindle *f*, having a conical shoulder fitted to the said conical bore, the screw-step O, and the screw-nut *n*, fitted in the bearing 2, and the screws *m* and *m'*.

6. The spindle *f*, the cylinder *i*, fixed thereon and perforated with holes in circles in its circumference, the pointer *b*, fitted to slide in the head-stock A, the binding-screw H, and the index-screw R.

7. The combination of the head-stock A, provided with the bearing *q*, having a circumferentially-cylindrical extension, the bracket Y, fitted upon the said extension and provided with the clamp and screw R', and the way F, fitted into the clamp Y.

8. The combination of the clamp Y, perforated and split at its lower end, the binding-screw 8, the pointed set-screw V, the cylindrical way F, fitting the said perforation and provided with a longitudinal groove, 3, the tail-stock Z, fitted upon the way F and split at its lower end, and the binding-screw C.

9. The combination of the grooved cylindrical latheway F, the car-

riage r', fitted upon the said way and split in its under side, the clamping-screw r^3, and the set-screw T, fitted to the groove in the way.

10. The combination of the carriage r', the bridge E, fitted thereon, the binding-screw x', the base 6, the pivot-bolt 8, the nut C', accessible through the bridge, the washer r^3, and the tool-block G, fitted to slide on the base 6.

11. The combination of the bridge E, the base 6, the pivot-bolt 8, connecting the base and bridge, the tool-block G, fitted to slide on the said base, and the feed-screw D, threaded through the pivot-bolt 8.

12. The combination of the horizontally-perforated carriage r', the binding-screw O', entering said perforation transversely thereto, the feed-rod J, fitted to pass freely through the said perforation, the bracket M, and the screw-nut J' upon the rod J, journaled in the bracket M, and provided with a removable collar, b'.

13. The grooved feed-rod J, the bracket M, having the offset 9, the screw-nut J', journaled in the bracket M, and provided with the collar b', and the screw t' in the offset 9, fitted to engage the groove in the feed-rod J.

14. The combination of the spindle f, bored and slotted in its end, the spring-jaws p', having a conical shoulder and a body to fit within the spindle, the pin x^2, passing through the body of the jaws and projecting through the slot of the spindle, the sleeve z, secured upon the spindle f, and the nut w, screw-threaded upon the said sleeve and internally annularly grooved to receive the ends of the pin x^2.

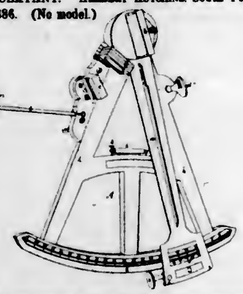
15. The combination of the bored and slotted spindle f, the jaws p', the pin x^2, the sleeve z, fixed on the spindle, the screw w' in the sleeve, the perforated nut w, screw-threaded upon the sleeve and engaging the pin x^2, and the finger y, extending from the nut w across the path of screw w'.

16. The combination of latheway F, the bracket V^3, fitted thereto, the binding-screw E^3, the set-screw T^3, the disk V', perforated with holes in a circle coinciding with the line of centers of the lathe, and provided with notches in its circumference corresponding with the said holes, each, respectively, when in line of centers, and the spring-detent M',

17. The combination of the face-plate H, having a slotted hub fitted to the spindle of the lathe, the center E', provided with the projecting screw c', and the spiral spring D', provided with the handle b^4, all substantially as shown and described, for the purpose specified.

354,602. SEXTANT.

HERBERT HUTCHINS, South Penobscot, Me. Filed June 24, 1886. (No model.)



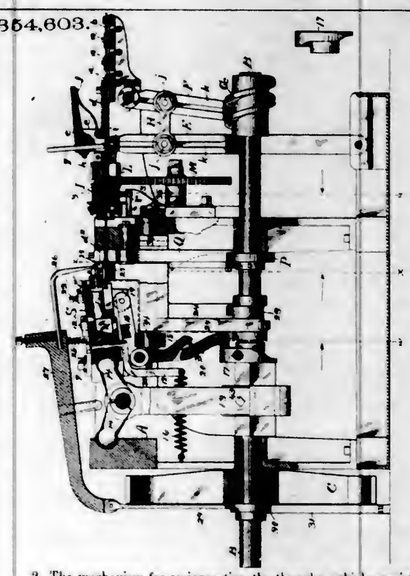
Claim.—1. The combination, with a quadrant or instrument of like nature for taking altitudes, of a spirit-level applied to the frame of the instrument, and of an arm projecting from such frame and provided with a sight, as described, and means of adjusting such sight, all being substantially and for use as set forth.

2. The combination, with a quadrant or instrument of like nature for taking altitudes, of a spirit-level applied to the frame of the instrument and provided with means of adjusting it, the said level, as set forth, with an arm projecting from such frame and provided with a sight, as described, arranged in advance of the horizon-glass, as specified.

3. The combination, with a quadrant or instrument of like nature for taking altitudes, provided with a spirit-level applied to the frame of the instrument and having means of adjusting it, the said level, as described, relatively to such frame, with an arm projecting from the frame, and of a sight sustained by said arm in advance of the horizon-glass, and having means of adjusting it, the said sight, upward or downward, the whole being substantially as described, so as admit of the sight being adjusted relatively to the level, or the latter relatively to the sight, essentially as specified.

354,603. METAL-SCREW MACHINE.

HORACE K. JONES, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed July 23, 1886. (No model.)



Claim.—1. The mechanism for reciprocating the feed, which consists of the combination of the feed-cam G, the grooved levers E and F, pivoted to the framing, one below and the other above said cam, and the adjustable connecting-link H, substantially as described, and for the purpose specified.

2. The mechanism for reciprocating the threader, which consists of the combination of the lever 46, pivoted to the framing, the lever E, which actuates the feed-slide c, mechanism for reciprocating said lever E, and the adjustable link 47, for connecting said levers E and 46, substantially as described, and for the purpose specified.

3. In a machine for making screws, the combination of mechanism for feeding the wire intermittently, the reciprocating threader-carriage, the lever pivoted to the framing of the machine for operating said carriage, the leading cam, and mechanism operatively connecting said cam and lever, whereby the threader-carriage has imparted to it a positive motion in both of its movements, substantially as described.

4. In a machine for making screws, the combination of the rotary spindle, having also a reciprocating movement, the radially-moving threading-rollers l, and mechanism for forcing said rollers into action upon the wire, and then releasing their hold thereon at each reciprocation of the spindle, substantially as described, and for the purpose specified.

5. In a machine for making screws, the combination of the spindle J, the rollers l, mounted in radially-moving slides in the head of said spindle, the sleeve q, and mechanism for forcing said sleeve over the radially-moving slides, substantially as described, and for the purpose specified.

6. In a machine for making screws, the combination of the threader-frame, the spindle mounted within said frame, the threading-rollers mounted in radially-moving slides in the head of said spindle, the sleeve q, the forked pin r, connected with said sleeve and passing through an oblique slot in the threader-frame, and mechanism for moving said pin within said slot, substantially as described, and for the purpose specified

7. In a machine for making screws, the combination of a reciprocating threader having radially-moving threading-rollers l and forked trip-pin r, the lever s, having the end which engages said forked pin widened in the longitudinal direction of the machine to correspond with the longitudinal movement of the threader, and mechanism for moving said lever laterally, substantially as described, and for the purpose specified.

8. In a machine for making screws, the combination of the threading-rollers mounted in radially-moving slides, the sleeve q, mechanism for forcing said sleeve over said slides, and mechanism for adjusting the throw of said sleeve to regulate the depth of thread formed by said rollers, substantially as described.

9. In a machine for making screws, the combination of mechanism for feeding the wire intermittently, a reciprocating threader-carriage, and rotary threader mounted on said carriage, substantially as described, and for the purpose specified.

10. In a machine for making screws, the reciprocating threader carriage, the rotary threader mounted on said carriage, and means for bringing said threader into action on the wire during a part of each reciprocation, substantially as described, and for the purpose specified.

11. In a machine for making screws, the combination of the rotary threader and a rotary wire-straightener formed in the spindle of said threader, substantially as described, and for the purpose specified.

12. In a machine for making screws, the combination of the rotary threader, the lever s, for forcing the threader into action upon the wire.

the cam P, acting on the lever Q, for closing the gripping-dies, and mechanism for operatively connecting the levers s and Q, whereby said levers are operated by the cam P, substantially as described, and for the purpose specified.

13. In a machine for heading screws or nails, the combination of the ram having a cylindrical bore, the semicircular tool-holders 1 1 fitted therein and having sockets for the heading-tools, and the clamp-bolt 4, or its equivalent, for securing said tool-holders in place when turned axially to any desired position within said cylindrical bore, substantially as described, and for the purpose specified.

14. In a machine for heading screws or nails, the combination of the ram having a cylindrical bore, the tool-holders 1 1 fitted therein and having sockets for the heading-tools, mechanism for holding said tool-holders in place, and means for adjusting the ram laterally, substantially as described, and for the purpose specified.

15. In a machine for heading screws or nails, the combination of the ram having trunnions 6 6, the slides 7 7, within which said trunnions are mounted, the caps 8 8, within which the ways for said slides are formed, and set-screws 10 10, for adjusting said parts laterally, the caps being secured to the frame of the machine by holding-screws 9 9, substantially as described, and for the purpose specified.

16. In a machine for heading screws or nails, the combination of a swinging ram having heading-tools, both of which radiate from the center on which said ram swings, mechanism for raising and lowering said ram, and the arm 21, projecting laterally from the ram and acting on a stop, having a horizontal surface to guide the ram in a right line when it is allowed to fall into its lowermost position, substantially as described, and for the purpose specified.

17. In a machine for heading screws or nails, the combination of a swinging ram having trunnions 6 6, the slides 7 7, moving in ways and carrying the trunnions of the ram, and mechanism for reciprocating said ram and slides, substantially as described, and for the purpose specified.

18. In a machine for heading screws or nails, the combination of the swinging ram mounted in slides, mechanism for reciprocating said ram, and two separate rests for the forward end of the slide acting alternately to hold the ram at different heights and to guide it in a right line during the forward stroke of said ram by surfaces which are parallel to said stroke, substantially as described, and for the purpose specified.

19. In a machine for heading screws or nails, the combination of the ram, the angle-lever 18, and the cam 17, mounted on shaft B and having three faces opposed to the end of said angle-lever, substantially as described, and for the purpose specified.

20. In a machine for heading screws or nails, the swinging ram having the arm 15, with its lower end below the plane in which lies the axis of said ram, the springs or spring 16, connected to the framing or stationary support at one end, while the opposite end of said spring is connected to arm 15, and mechanism for reciprocating and elevating said ram, substantially as described, and for the purpose specified.

21. In a machine for heading screws or nails, the combination of the framing, a ram adapted to move forward in a right line, the toggle-arms 14 14, having their outer ends, respectively, pivoted to said framing and ram by ball-and-socket joints, and mechanism for operating said toggle-arms, substantially as described, and for the purpose specified.

22. In a machine for heading screws or nails, the combination of a swinging ram mounted in slides, the crank-shaft with its axis parallel to the reciprocating movement of said ram, mechanism for operatively connecting said crank-shaft and ram, the lever for raising said ram, and the cam on said crank-shaft for operating said lever, substantially as described, and for the purpose specified.

23. In a nail or screw machine, the cutting-off levers 24 24, mounted within the framing on a common center, substantially as described, and for the purpose specified.

24. In a nail or screw machine, the combination of the levers 24, the dies 25, the stop-plates 33, and means for adjusting said dies relatively to the meeting-point of said stop-plates, substantially as described, and for the purpose specified.

25. The combination of the gripping-dies, the rotary threader having its axis in alignment with the space between said gripping-jaws, whereby the wire may pass from the threader into the gripping-dies, and mechanism for operating said threader and dies, substantially as described, and for the purpose specified.

26. The combination of a threader, the gripping-dies, the heading-ram, and mechanism for operating said parts, substantially as described, and for the purpose specified.

27. The combination of a threader, the gripping-dies, the heading-ram, the cutting-off dies, and mechanism for operating said parts, substantially as described, and for the purpose specified.

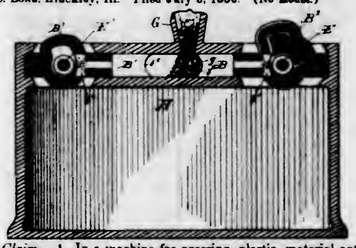
28. In a machine for heading screws or nails, the heading-tools 2 and 3, adapted to act successively, while the last one of the tools to act on each screw-head is provided with a slot-forming rib, substantially as described, and for the purpose specified.

29. The combination of mechanism for feeding the wire of indefinite length, a threader-carriage, mechanism for giving a reciprocating movement to said threader-carriage, and threading-tools having a radial movement toward and from the axis of the wire and adapted to alternately act upon the wire to form a thread and to be released from their action, substantially as described, and for the purpose specified.

30. The combination of a ram having trunnions upon which it swings and a toggle-arm or pitman pivoted or jointed to said ram for moving it forward, said pivot or joint being formed in axial line with the trunnions on which said ram swings, substantially as described, and for the purpose specified.

354,604. MACHINE FOR PRESSING PLASTIC MATERIAL.

CHAS. S. LOWE, Hinckley, Ill. Filed July 3, 1886. (No model.)



Claim.—1. In a machine for pressing plastic material onto a post or bar, the combination, with the variable mold-cavity having side plungers, an end plunger, and sliding blocks to close one end thereof, of a feed-arm operated at intervals, as set forth.

2. A press for pressing plastic material onto a post or bar, said press consisting of two side plungers and an end plunger, said plungers being operated by cams and gearing, as described, whereby the plungers are operated simultaneously, as set forth.

3. In a press or machine of the character described, the variable mold-cavity and sliding blocks C, for closing one end of the same, in combination with the side and end plungers operated by suitable means, as set forth.

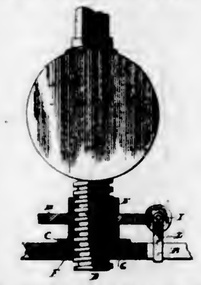
4. In a press or machine of the character described, the shaft D^3, provided with the pinion-wheel D^4, adapted to engage the mutilated gear-wheel D, and with the eccentric pinion-wheel D^5, in combination with the pinion-wheel D', cross-head D^2, and plunger D, whereby said plunger is moved forward to press the end of the article, as set forth.

5. In a press or machine of the character described, the shaft F', provided with the pinion-wheel F^2 and intermediate gearing adapted to engage with the mutilated gear-wheel F^3 on the shaft E, and the crank-arm F, secured to the other end of the shaft F', in combination with the link f, rocking lever f', pitman f^3, and plunger D, whereby said plunger is thrust forward to eject the article from the machine, as set forth.

6. In a press or machine of the character described, the swinging arm h', provided with the movable jaw A^2, and devices, substantially as described, for operating the arm and jaw, whereby one end of the bar A is placed centrally in the mold-cavity and held firmly in such position until the base is pressed thereon, as set forth.

354,605. PORTABLE OR TRACTION ENGINE.

T. AVERY LOWE, Howard, Pa. Filed June 14, 1886. (No model.)



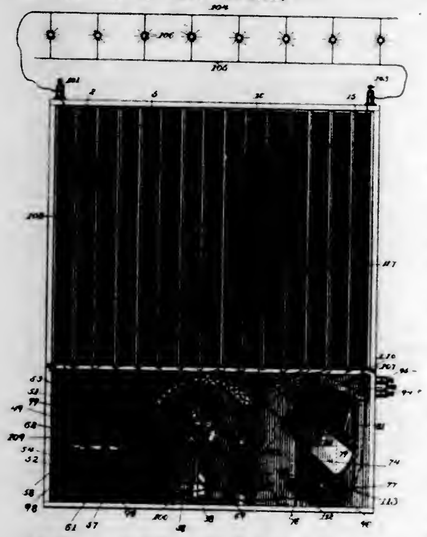
Claim.—1. In a traction or portable engine, the combination of the boiler, the stationary screw secured to the forward end thereof, a nut provided with an internal screw-thread and external teeth arranged upon the screw, the axle provided with the recess to form a seat for the nut, and means, substantially as described, for engaging the teeth of the nut to revolve the same to raise and lower the boiler in relation to the axle, as set forth.

2. In a traction or portable engine, the combination of the boiler, a stationary screw secured thereto at its forward end, a nut engaging the screw provided with an internal screw and external teeth, the axle provided with the circular recess in which the nut rests and the perforation

for the passage of the screw, and the shaft and worm-wheel thereon to engage the teeth of the nut, substantially as and for the purpose set forth.

3. The screw-nut H, mounted on friction rollers or balls in the front axle of the machine, and devices, substantially as described, for operating said nut, as set forth.

354,606. ELECTRICAL DISTRIBUTER. RICHD. H. MATHER, Windsor, Conn. Filed July 15, 1886. (No model.)



Claim.—1. A reversible electric motor having a rotary armature, an electric relay comprising a pair of contacts, a movable conductor for making and breaking contact with the same, and an electro-magnet actuating said movable conductor, said relay being adapted to reverse said motor by reversing the direction of current through said armature, in combination with a set of resistances which are adapted to be successively introduced into circuit and to be successively cut out of circuit, and with a second movable conductor which is actuated by said motor and is adapted to manipulate said resistances, substantially as and for the purpose specified.

2. An electric relay which is adapted to operate as a two-way switch, a reversible electric motor which is adapted to be controlled by said relay, a rheostat, and a movable conductor which is adapted to operate said rheostat, in combination with intermediate locking mechanism whereby said conductor is brought into engagement with said motor, substantially as and for the purpose specified.

3. A reversible electric motor, an electric relay which is adapted to reverse said motor, a rheostat, and a movable conductor which is actuated by said motor, and is adapted to operate said rheostat, in combination with a number of incandescent lamps or other translating devices arranged in parallel with said rheostat, substantially as and for the purpose specified.

4. A reversible electric motor, an electric relay controlling said motor, a set of artificial resistances, and a movable conductor which is adapted to operate said resistances, in combination with locking and engaging mechanism between said motor and said conductor, and with a variable number of incandescent lamps or other translating devices arranged in parallel arc, substantially as and for the purpose specified.

5. As a means of effecting an engagement between the movable conductor of a rheostat and the armature-shaft of an electric motor, an arbor mounted in a suitable bearing, a worm and worm-wheel for driving said arbor, a fixed perforated collar, a loose collar and a contact-arm mounted upon said arbor, a pin whereby said arm and collars may be locked together, and a spring which carries said pin, in combination with an electro-magnet and armature thereof which are adapted to press said pin into the perforations of said fixed collar, substantially as and for the purpose specified.

6. A rotary shaft mounted in a suitable bearing, a worm-wheel, a fixed perforated collar, a loose collar, and a contact-arm all mounted upon said shaft, a pin whereby said contact-arm and fixed collar may be locked together, and a spring which carries said pin and is attached to said arm, in combination with a worm upon the armature-shaft of an electric motor, and with an electro-magnet and armature thereof, which are adapted to press said pin into the perforations of said fixed collar, substantially in the manner and for the purpose specified.

7. A rotary shaft mounted in a suitable support, a worm-wheel, a perforated collar, a loose collar, and a contact-arm all mounted upon said shaft, and a spring which is armed with a pin, in combination with a worm upon the armature-shaft of an electric motor, with a set of resistances having contacts within reach of said contact-arm, and with an electro-magnet and armature thereof actuating said pin, substantially in the manner and for the purpose specified.

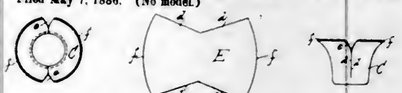
8. A short-circuiting lever having a conductive arm, an insulated arm, and a stop-arm, a conductive plate for contact with said conductive arm, an insulated support upon which said lever is pivoted, a spring or its equivalent acting upon said lever, and an electro-magnet whose armature, being supported by a spring, is normally in a position of contact with said stop-arm, in combination with an electro-mechanical movement which is adapted to engage said insulated arm, substantially as and for the purpose specified.

9. An electric relay which operates as a two-way switch, a reversible electric motor which is controlled by said relay, a movable conductor which is actuated from said motor, intermediate mechanism whereby motion is transmitted from said motor to said conductor, a variable number of incandescent lamps or other translating devices, a set of artificial resistances which are connectible in parallel with said lamps or other translating devices, a short-circuiting lever having an insulated arm, a conductive arm, and a stop-arm, an insulated support upon which said lever is pivoted, a conductive plate for contact with said conductive arm, and a spring or its equivalent acting upon said lever, in combination with a spring which supports an armature of said relay in a normal position of contact with said stop-arm, substantially as and for the purpose specified.

10. A reversible electric motor having a rotary armature, means for reversing said motor, a variable number of translating devices, a set of resistances which are connectible in parallel with said translating devices, and a movable conductor which is actuated from said motor and is adapted to operate said resistances, in combination with means for transmitting motion from said motor to said movable conductor, substantially as and for the purpose specified.

11. An electric relay which is adapted to operate as a two-way switch, a reversible electric motor which is controlled by said relay, a short-circuiting device, a rheostat, and a movable conductor which is adapted to operate said rheostat, in combination with intermediate locking mechanism whereby said motor is brought into engagement with said conductor, substantially as and for the purpose specified.

354,607. STOVE-KNOB BOTTOM. AMBROSE T. MATTHEWS, Worcester, Mass., assignor to the Worcester Ferrule Company, same place. Filed May 7, 1886. (No model.)

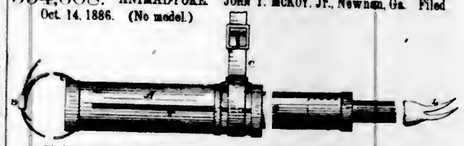


Claim.—1. The improvement in the construction of the bottom or back sections of metal knobs for stoves and other purposes, which consists in cutting out a non-circular blank, as E, and then forming said blank by means of suitable dies and punches into the section C, with the edges *d d* butting against each other, substantially as set forth.

2. A non-circular blank, as E, from which to form the bottom or back section of metal knobs for stoves and other purposes, substantially as shown and described.

3. The section C, having the openings *e*, and formed out of blank E, substantially as set forth.

354,608. ANIMAL-POKE. JOHN T. MCKOY, Jr., Newnan, Ga. Filed Oct. 14, 1886. (No model.)



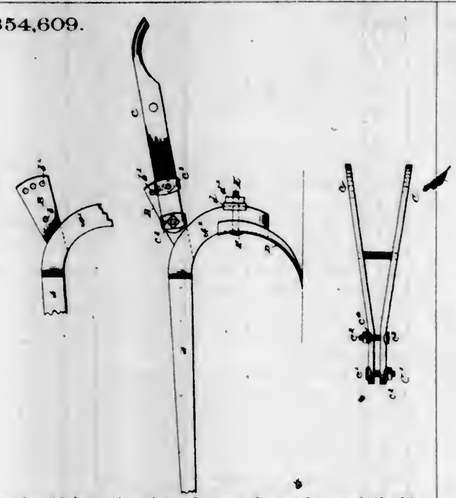
Claim.—1. An animal-poke composed of a tubular section, A, and sliding sections which telescope into said tubular section, in combination with means for attaching the poke to the animal's head, substantially as described.

2. In an animal-poke, the combination of the two tubular sections A D, provided with slots, and the lower solid section, I, the two sections D I being provided with projections to catch in the slots, and straps to fasten the poke to the animal's head, substantially as set forth.

354,609. ADJUSTABLE PLOW-HANDLE. SILVARIUS R. MONTGALM, McDaniel, Ark. Filed Oct. 8, 1886. (No model.)

Claim.—The combination of the plow-handle provided at its inner end with a transverse bolt for pivotally attaching the handle to plow-beams, and an additional transverse bolt for securing the handle in an adjusted position, and a plow-beam having an integral bifurcated curve

354,609.



or shovel-belve, and an integral rearward extension provided with a perforation for the reception of the bolt for pivotally attaching the handle, and a series of perforations for receiving the bolt for securing the handle in an adjusted position, as shown and described.

354,610. CORSET. GEORGE D. NICHOLS, New York, N. Y. Filed Aug. 4, 1886. (No model.)



Claim.—1. A corset having the two sections of its body, together with the stays B, composed entirely of asbestus, substantially as described.

2. A corset having its cording composed of asbestus, substantially as and for the purpose described.

354,611. WATER-PROOF COMPOSITION FOR ROOFING, &c. BERNARD OVERLACK, Palatka, Fla. Filed Aug. 6, 1886. (No specimens.)

Claim.—The herein-described water-proof and non-conductive composition of matter, consisting of white sharp sand, rosin, slaked lime, boiled linseed-oil, sulphuric acid, and suboxide of copper, in the proportions specified.

354,612. EXTENSION-LADDER. JOSEPH POTTER, Boston, Mass. Filed June 29, 1886. (No model.)

Claim.—1. In an extension-ladder, the main and supplemental ladders, and cord or chain for raising and lowering the supplemental ladder, combined with a hooked locking-lever, substantially as described, pivoted by a slot inclosing the pivot at the lower end of the supplemental ladder, and a lifting-lever, substantially as described, located to strike one or another round of the main ladder as the supplemental ladder is raised, to thereby raise the locking-lever, as set forth.

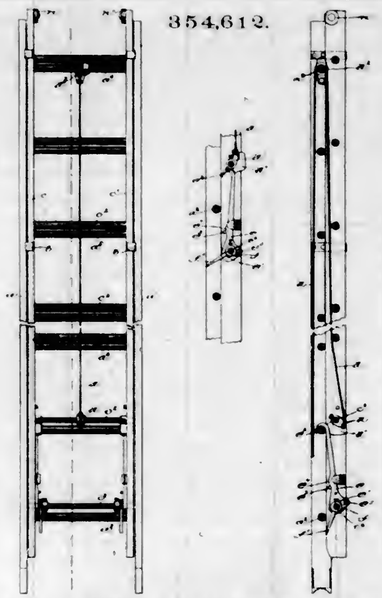
2. In an extension-ladder, the main and supplemental ladders, and cord or chain for raising and lowering the supplemental ladder, combined with a hooked locking-lever slotted at one end and having a cam-shaped portion, a^4, as described, a pin, c^3, and means, substantially as described, for raising the locking-lever, that it may move forward and engage the round of the main ladder, as set forth.

3. In an extension-ladder, the main and supplemental ladders, and cord or chain for raising and lowering the supplemental ladder, combined with a hooked locking-lever slotted at one end and having a cam-shaped portion, a^4, as described, lifting-lever $f f$, and a pin, c^3, against which one arm of the lifting-lever bears to raise the locking-lever, as set forth.

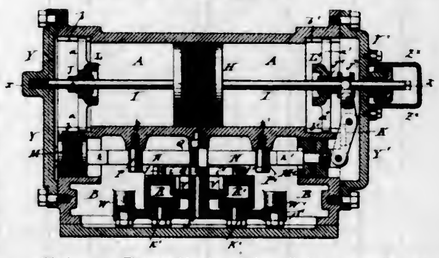
4. In an extension-ladder, the main and supplemental ladders, and a cord or chain for raising and lowering the supplemental ladder, combined with a pivoted locking-lever and a cam held out of engagement with said locking-lever by the cord or chain, but arranged to strike the locking-lever and turn it on its pivot when the cord or chain breaks, as set forth.



354,612.



354,613. PISTON WATER-METER. CARL G. TOENSE, Cleveland, Ohio. Filed Feb. 10, 1886. (No model.)



Claim.—1. The combination of the cylinder, a centrally-guided piston-rod extending through one head of the cylinder, a reciprocating piston sliding loosely on said piston-rod, sleeves attached to the piston-rod, and having respectively a right and a left hand screw-thread, and adjustable contact collars or nuts arranged on said sleeves, whereby the position of the contact-collars on the piston-rod can be adjusted by axially turning the rod, substantially as set forth.

2. The combination of a cylinder, a centrally-guided piston-rod, a reciprocating piston sliding loosely on said piston-rod, said piston having a central stuffing-box and elastic face-rings, sleeves attached to the piston-rod, and arranged, respectively, with a right and left hand screw-thread, and contact collars or nuts located on said sleeves, and having radial arms guided in grooves of the cylinder, substantially as set forth.

3. The combination of a cylinder having inlet and outlet channels, a reciprocating piston, a centrally-guided piston-rod passing through the piston, adjustable contact nuts or collars on said piston-rod, a reciprocating plunger-rod having plungers and offsets, a fulcrumed lever connecting the piston and plunger rods, oscillating lever-arms, fixed pins having anti-friction rollers for lifting said arms, fulcrumed arms connected by a crank with said lever-arms, weights supported by the fulcrumed arms, an oscillating anchor engaging alternately the weights, and an oscillating supply and discharge valve having arms acted upon by said weights, so as to shift the valve at the end of each stroke of the piston, substantially as set forth.

4. The combination of a cylinder having inlet and outlet channels, a reciprocating piston, a centrally-guided piston-rod passing through said piston, a fulcrumed transmitting-lever, a plunger-rod pivoted to said lever and having plungers and offsets, oscillating lever-arms, an intermediate crank having lateral arms, weights actuated by said arms, an oscillating anchor having noses engaging said weights, an oscillating supply and discharge valve having arms acted upon by said weights, a registering device, and intermediate mechanism connecting the anchor

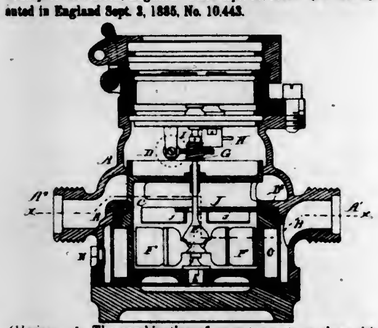
with the primary wheel of said registering device, substantially as set forth.

5. The combination of the cylinder A, having channels F F', a reciprocating piston, H, a piston-rod, I, having adjustable contact-nuts L L', a fulcrumed transmitting-lever, K, a reciprocating plunger-rod, N, having plungers M M', and offsets *h h'*, lever-arms O O', anti-friction rollers P P', a crank-arm, Q, having lateral arms i i', weights R R', having pins *j j'*, guide-pins *k k'*, and recesses *l l'*, a slotted guide-plate, S, an oscillating anchor, T, having noses *m m'* and lateral arms *n n'*, and an oscillating valve, G, having arms U, acted upon by said weights, substantially as set forth.

6. The combination of the cylinder A, having channels F F', a reciprocating piston, H, a piston-rod, I, having adjustable contact-nuts L L', a fulcrumed transmitting-lever, K, a reciprocating plunger-rod, N, having plungers M M' and offsets *h h'*, lever-arms O O', anti-friction rollers P P', a crank-arm, Q, having lateral arms i i', weights R R', having pins *j j'*, guide-pins *k k'*, and recesses *l l'*, a slotted guide-plate, S an oscillating anchor, T, having noses *m m'* and lateral arms *n n'*, and an oscillating valve, G, having arms U, acted upon by said weights, substantially as set forth.

7. In a slide-valve, the combination of a plunger-rod, N, having offsets *h h'*, means for actuating said plunger-rod, the bent lever-arms O O', provided in their outer ends with anti-friction rollers adapted to bear upon said offsets, a crank-arm, Q, to which the inner ends of said lever-arms are pivoted, anti-friction rollers P P', an oscillating valve, G, having lateral arms U, and mechanism connecting said crank-arm Q with said arms U, substantially as described.

354,614. ROTARY WATER-METER. JOSEPH J. TYLOR, London, County of Middlesex, England. Filed Apr. 10, 1886. (No model.) Patented in England Sept. 3, 1885, No. 10,443.



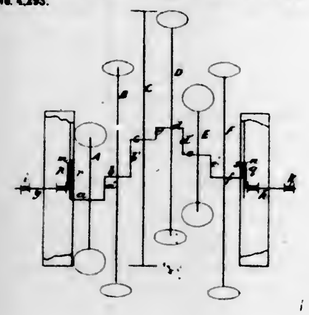
Claim.—1. The combination of an outer meter-casing with a removable inner casing, and a fan, fan-spindle, pivot for said spindle, and brake, all contained within said inner casing and removable therewith.

2. An outer casing having an internal annular shoulder and packing thereon, in combination with a removable inner casing, and a fan, fan-spindle, pivot for said spindle, and brake, all contained within said inner casing and removable therewith.

3. The combination of a removable inner meter-casing having an external annular beveled shoulder with an outer casing and an internal elastic packing-ring interposed between the two casings, which fits on said shoulder and is compressed thereby to form a water-tight joint, substantially as set forth.

4. The stationary adjustable brake J, having openings J' and flanges *j*, and arranged between the inlet and the outlet, with the fan and casings of a meter, substantially as and for the purpose set forth.

354,615. MULTIPLE-CYLINDER ENGINE. FRANK WYNNE, London, England. Filed Mar. 16, 1883. (Model.) Patented in England Sept. 9, 1882, No. 4,293.



354,615



Claim.—1. In multiple-cylinder engines, the combination of piston-rods crossing each other in parallel planes with a multiple crank having a different crank-pin for each piston-rod, and connecting the said piston-rods in such a manner that the axis of each piston-rod passes radially through the axis of the corresponding crank-pin, and that at midstroke the axis of each crank-pin is situated in the line of intersection of the piston-rods, substantially as described.

2. In multiple-cylinder engines, the combination of piston-rods crossing each other in parallel planes and at acute angles with a multiple-throw crank having a different crank-pin for each piston-rod and connecting the said piston-rods in such a manner that at midstroke the axis of each crank-pin is situated in the line of intersection of the piston-rods, substantially as described.

3. In multiple-cylinder engines, the combination of piston-rods, a multiple-throw crank, shafts guided with their axis in the line of intersection of the piston-rods, cranks mounted on said shafts and connected with the multiple-throw crank, a wheel mounted on one of the crank-pins, and a ring having its center in the line of intersection of the piston-rods and its inner circumference in contact with the said wheel, the whole arranged and adapted to operate substantially as described.

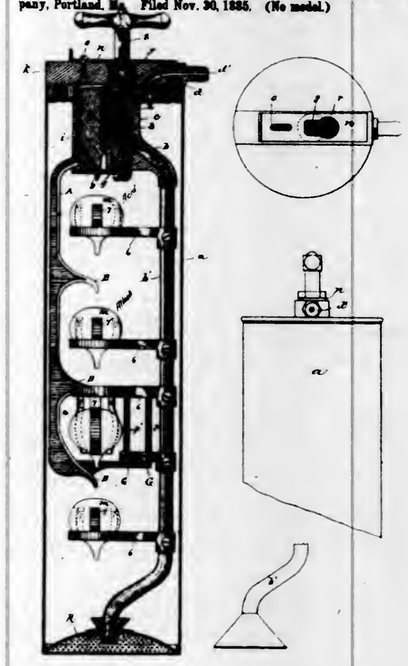
354,616. VETERINARY FILE. JAMES ALEXANDER, Manchester, N. H. Filed June 15, 1886. (No model.)



Claim.—1. A tooth adjuster or file for treating the teeth of horses and other animals, consisting of a head provided in its upper side with the slot *c*, a handle pivoted at one end to said head in said slot to have a limited rocking motion therein, and a file, *e*, secured to the other side of said head, as and for the purposes hereinbefore set forth.

2. The combination, with the head *a*, provided with the slot *c*, and having a dovetail groove on its under side, the file *e*, adapted to fit said groove, and the handle *b*, pivoted to the head in the slot *c*, as set forth.

354,617. CHEMICAL FIRE-EXTINGUISHER. RUSSELL A. BALLOU, Newton, Mass., assignor to the Chemical Hand Fire Extinguisher Company, Portland, Me. Filed Nov. 30, 1885. (No model.)



Claim.—1. In a chemical fire-extinguisher, the combination of a main receptacle, two or more bottles therein, a multiple hammer whereby said bottles may be simultaneously broken, and an operating-spring, and a retaining and releasing device for said hammer, as set forth.

2. The combination of the receptacle, a series of bottle-holders therein, and a multiple hammer formed to simultaneously break the bottles in said holders, as set forth.

3. The combination of the receptacle, the perforated partition or strainer, and the bottle-holding pipe or standard, as set forth.

4. The multiple hammer having guide pins or projections, combined with the fixed sockets for said pins, as set forth.

354,618. PIANO-FORTE DAMPER-ACTION. CHARLES BAYER, New York, N. Y. Filed Sept. 16, 1886. (No model.)



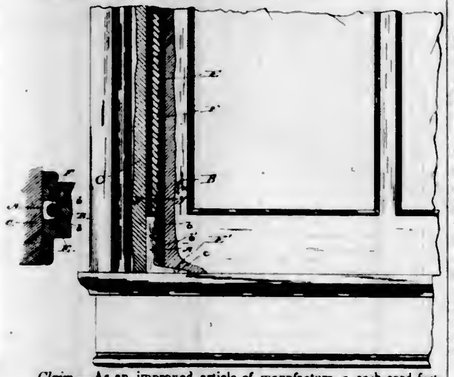
Claim.—The combination of the main action-rail A, and the damper-crank or lifting-bar B, having pivots *b*, with the plate-bearings C, having circular projections *d* on the under side, and sockets *e* on its top or face surface, to receive suitable cloth bushes, and the pivot *b*, substantially as described.

354,619. PIANO-FORTE DAMPER-ACTION. CHARLES BAYER, New York, N. Y. Filed Sept. 17, 1886. (No model.)



Claim.—The combination of the main action-rail A, provided with a longitudinal groove *m*, and the damper-crank or lifting-bar B, having pivots *b*, with the plate-bearing C, having sockets *e* on its top face to receive suitable cloth bushes and the pivot *b*, and longitudinal square projection *n* on the under side to engage into the groove *m* in the main rail, substantially as described.

354,620. SASH-CORD FASTENER. OSCAR BEERS, Hornellsville, N. Y., assignor of one-third to Samuel Mitchell, same place. Filed Sept. 10, 1886. (No model.)

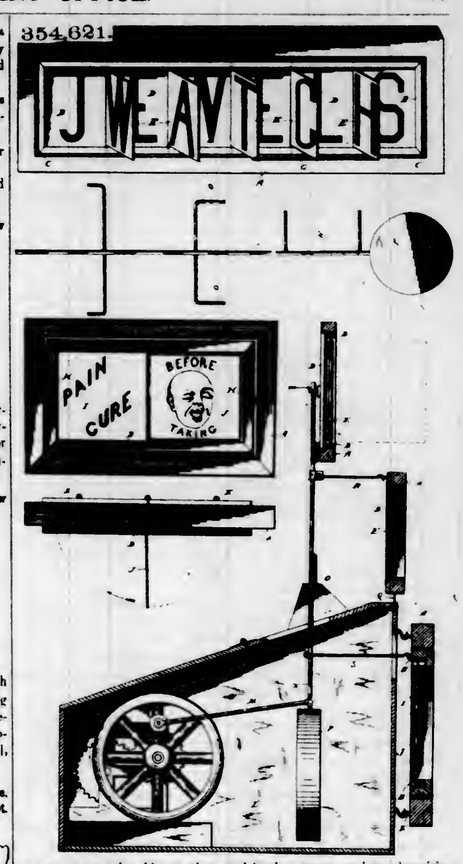


Claim.—As an improved article of manufacture, a sash-cord fastener formed of a single piece of metal, and comprising a body or shank having a smooth outer face, a prong arranged at an angle to the shank at one end thereof to connect the fastener to the sash, the lips arranged at an angle to the body or shank on opposite sides thereof and adapted to be bent over toward each other and upon the cord, and the transverse ribs arranged between the lips and on the inner side of the shank or body, whereby when the lips are bent upon the sash-cord the ribs will be forced into the cord to securely connect the same to the fastener, substantially as described, for the purpose set forth.

354,621. SIGN. JACKSON O. BELKNAP, Mobile, Ala. Filed Apr. 9, 1886. (No model.)

Claim.—1. In a sign, the combination, with a vibrating frame, of one or more signs or flaps hung to the frame and adapted to vibrate and

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to present opposite sides to view, and having ornamental or advertising matter thereon.

2. In a sign, the combination, with a vibrating frame having a background, of one or more wings or flaps hung to the frame and adapted to vibrate and present opposite sides to view, and having ornamental or advertising matter thereon.

3. In a sign, the combination, with a frame hung to move to and fro in the direction in which it is read, of one or more wings or flaps hung in the frame and caused by said frame to vibrate at right angles to the direction of the movement of the said frame, and to form an approximately flat surface when nearing the limit of vibration, whereby opposite sides are presented to view, and having ornamental or advertising matter thereon.

4. In a sign, the combination, with a frame hung to move to and fro in the direction in which it is read, and having a background, of one or more wings or flaps hung in the frame, and caused by said frame to vibrate at right angles to the direction of the movement of the said frame, and to form an approximately flat surface when nearing the limit of their vibration, whereby opposite sides are presented to view, and having ornamental or advertising matter thereon.

5. In a sign, the combination, with a frame having one or more wings or flaps hung so as to vibrate and present opposite sides to view, of mechanism to impart a vibratory motion to the frame, whereby the flaps are caused to swing from side to side.

6. In a sign, the combination, with a frame having one or more flaps hung so as to vibrate and present opposite sides to view, and having a background, of mechanism which imparts a vibratory motion to the frame, whereby the flaps are caused to swing from side to side.

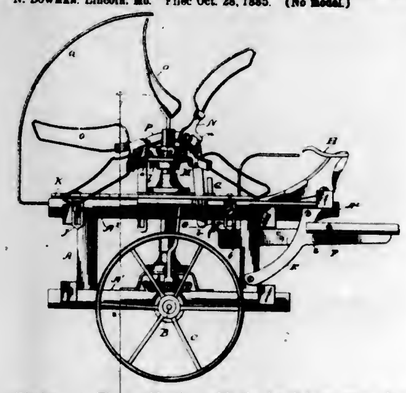
7. In a sign, the combination, with a frame having one or more wings hung so as to vibrate and present opposite sides to view, of a vibrating rod connected to the frame, and mechanism to operate said rod.

8. In a sign, the combination, with a frame having one or more wings hung so as to vibrate and present opposite sides to view and having a background, of a vibrating rod connected to the frame, and mechanism to operate said rod back and forth.

9. In a sign, the combination, with a plurality of frames carrying each one or more wings hung so as to vibrate and present opposite sides to view, and provided, respectively, with backgrounds, of means to impart motion to said frame and cause the wings to vibrate.

10. In a sign, the combination, with a plurality of frames carrying each one or more wings hung to vibrate and present opposite sides to view, and provided, respectively, with backgrounds, of a vibrating rod connected to said frames and a spring-actuated gearing to impart motion to said rod.

354,622. BROOM-CORN TABLERS. WILLIAM M. BOWMAN and LEWIS N. BOWMAN, Lincoln, Mo. Filed Oct. 28, 1885. (No model.)

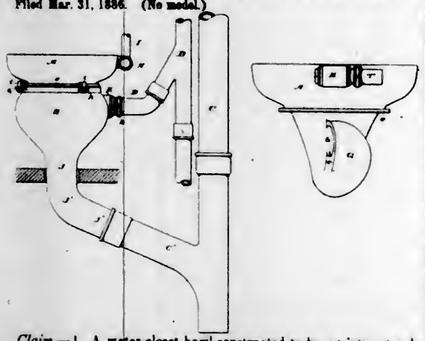


Claim.—1. The combination, with the break-bars arranged one upon each side of the machine, the vertical shafts, and beater-fingers carried thereby and arranged to clear each other in their revolutions, as set forth, of the guard Q, secured to the rear end of the frame and extended upward and forward directly over the adjacent beaters, substantially as and for the purpose described.

2. The combination, with the frame, the spiders *d*, the vertical shafts L, pinions K, secured thereto, and the main axle carrying pinions I, of clutches on said axle, levers acting on said clutches pivotally supported by the spiders, the hand-lever T, and rods connecting the levers with the hand-levers, one of said rods being secured to the under side of the platform B' and coiled to form a spring, substantially as and for the purpose specified.

3. The combination, with the frame A, the braces E, provided with offsets *e*, the shafts, and the diagonal bars F', of the links F, secured at one end to the cross-bar of the shafts and their other ends pivoted in the offsets *e*, the hook *b'*, secured to the inner ends of the bars E', and the bar G, adjustably secured to the frame, substantially as and for the purposes set forth.

354,623. WATER-CLOSET. JAMES E. BOYLE, East New York, N. Y. Filed Mar. 31, 1886. (No model.)



Claim.—1. A water-closet bowl constructed to be set into a trunk, having a flange to rest on said trunk, and formed integrally with a trap or water seal at its lower portion beneath said flange, substantially as set forth.

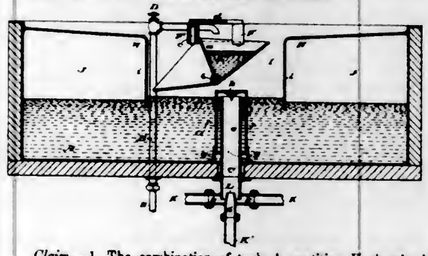
2. A water-closet bowl constructed to be set into a trunk, having a flange, *a*, to rest on said trunk, and formed below said flange with its outlet portion extended laterally and upwardly, and with an outlet-opening, *b*, adjacent to the body of the bowl, substantially as set forth.

3. A water-closet bowl constructed to be set into a trunk, having a flange to rest on said trunk, and formed below said flange with a lateral hood, G, with a dip, *a*, into said hood to form a water seal, and an outlet-opening, *b*, through the side of said hood, substantially as set forth.

4. The combination, to form a water-closet, of a trunk and a bowl setting into said trunk, said bowl having a trap or water seal formed integrally with it, which trap isolates the interior of the bowl from the interior of the trunk, substantially as set forth.

5. A water-closet consisting of the combination of a circular bowl, having its outlet extended laterally and forming a trap, with a circular trunk receiving said bowl, and formed with its sides swelled to receive said laterally-extended outlet and permit the latter to be turned by the rotation of the bowl to any position within it, substantially as set forth.

354,624. PERIODICAL-FLUSHING TANK. JAMES E. BOYLE, East New York, N. Y. Filed May 22, 1886. (No model.)



Claim.—1. The combination of tank A, partition H therein, inclosing air-chamber J and serving to reduce the effective area of the upper part of the tank, siphon G, for emptying said tank, with its bend projecting up into said reduced portion, a dumping-bucket, E, arranged to discharge into said reduced portion, and an inlet-spout discharging into said bucket, substantially as set forth.

2. The combination of a tank, A, a siphon, G, a dumping-bucket, E, constructed with two compartments divided by a partition, *a*, a cross-bar, *d*, and buffers F F, depending therefrom, substantially as set forth.

3. The combination of a tank, A, a siphon, G, and a tube, L, leading from its outlet, and having one or more lateral branches, *k*, and a downward branch, *k'*, the latter formed to enter the tube *l* and project therein above the outlets to the lateral branches, thereby forming a seal to prevent the siphoning of water from the lateral branches, substantially as set forth.

354,625. WEEDER. ZEPHANIAH BREED, Weare, assignor of one-half to J. Edward Jones, same place, and William H. H. Cate, Bennington, N. H. Filed May 20, 1885. (No model.)



Claim.—The described weeder having long straight fingers G, with their upper end inserted into head A, and provided with an adjustable check-bar, D, for increasing or diminishing the flexibility of said fingers below said check-bar, substantially as set forth.

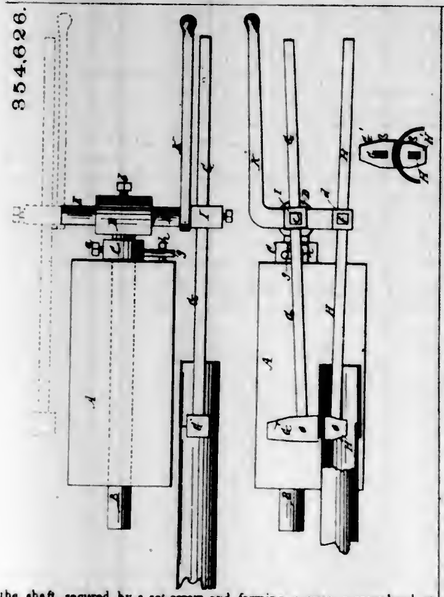
354,626. DEVICE FOR WELDING TUBES. JOHN N. BUCHANAN, Batavia, N. Y. Filed Aug. 13, 1885. (No model.)

Claim.—1. In an apparatus for welding tubes and flues, the combination of a fixed block or bearing, a shaft resting in the bearing capable of both a sliding and a turning movement, a cross-shaft at the end of the main shaft, and levers carrying hammers, one lever attached to the end of the cross-shaft and the other to the lower end of a cranked handle turning on the end of the cross-shaft, as shown and described, and for the purpose specified.

2. In an apparatus for welding tubes and flues, the combination of a fixed bearing, a shaft resting in the bearing capable of both a sliding and a turning movement, a cross-head attached to the shaft, a cross-shaft passing through the cross-head, a cranked handle turning on the cross-shaft, and two levers provided with hammers, one lever passing through a block attached to the cross-head, the other through a bearing of the cranked handle, as herein shown and described, and for the purpose specified.

3. The combination, in an apparatus for welding tubes and flues, of a fixed bearing, a shaft resting in the bearing, a collar fitting loosely on

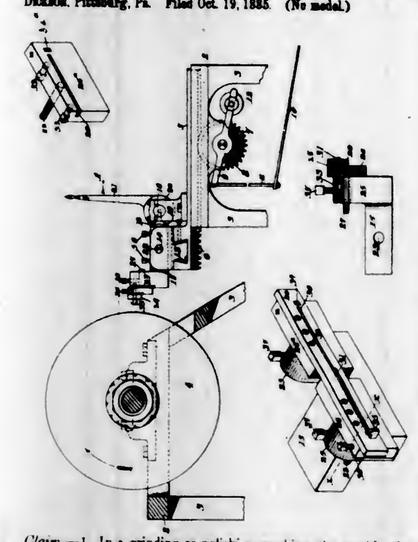
354,626.



the shaft, secured by a set-screw and forming a gage, a cross-head at the end of the shaft, a cross-shaft resting in the cross-head, a cranked handle jointed on the cross-shaft, and two levers provided with hammers, one sliding through a block attached to the cross-head, the other through a bearing of the cranked handle, as herein shown and described.

4. In an apparatus for welding tubes and flues, the combination of a bearing or block provided with a socket, a shaft turning loosely in the socket, a cross-shaft at the end of the main shaft, and two levers provided with hammers, attached one to the cross-shaft and the other to a handle on the cross-shaft, the whole arranged as described, so that the levers and hammers can be swung from one side to the other of the bearing or block, as and for the purpose specified.

354,627. GRINDING AND POLISHING MACHINE. WILLIAM R. DICKSON, Pittsburg, Pa. Filed Oct. 19, 1885. (No model.)



Claim.—1. In a grinding or polishing machine, the combination of a grindstone, a knife-carrier head situate opposite to the periphery thereof, a frame in which said carrier-head is pivoted and is vertically oscillatory, said frame being movable laterally relatively to the stone, and mechanism, substantially as described, for simultaneously oscillating the carrier-head and moving the frame laterally, substantially as and for the purposes described.

2. The combination of a grindstone, a knife-carrier head situate opposite to the periphery thereof, a frame in which said carrier-head is pivoted and is vertically oscillatory, said frame being movable laterally relatively to the stone, and a cam, 20, bearing on said frame and rotary to move it laterally, substantially as and for the purposes described.

3. The combination of a grindstone, a knife-carrier head situate opposite to the periphery thereof, a frame in which said carrier-head is pivoted and is vertically oscillatory, said frame being movable laterally relatively to the stone, a cam, 20, bearing on said frame and rotary to move it laterally, and a shaft, 18, rotary with the cam and connected with the knife-carrier head by tilting mechanism for oscillating it, substantially as and for the purposes described.

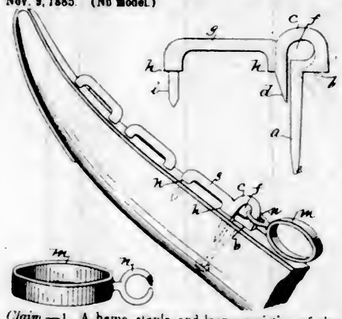
4. The combination of the oscillatory head 15, heads 26 26*, pivoted thereto and provided with slots 28, a slotted bar, 29, connecting the heads, and a shelf, 31, capable of insertion into the slots in the bar 29 and into the slot of one of the heads 26 or 26*, substantially as and for the purposes described.

5. In a grinding or polishing machine, the combination of a grindstone, a carriage, 5, movable toward and away from the stone, a frame, 13, mounted on the carriage and movable thereon transversely to the plane of the stone, a knife-carrier head pivoted to the frame 13, so as to be vertically oscillatory thereon, and a cam and lever for simultaneously imparting said motion to the frame 13 and the knife-carrier head, substantially as and for the purposes described.

6. In a grinding or polishing machine, the combination of a grindstone, a knife-carrying head vertically oscillatory theretoward, and a knife-supporting frame pivoted to the head and movable vertically on its pivot for the purpose of changing the inclinations of the knife-blank from a horizontal position, substantially as and for the purposes described.

7. In a grinding or polishing machine, the combination of a grindstone, a knife-carrying head, 15, vertically oscillatory theretoward, heads 26 26*, pivoted to the head 15 and vertically oscillatory, a bar, 29, connecting the heads 26 26* and provided with a shelf for supporting the knife-blank, and devices for adjustably securing the bar to the heads, whereby the supported blank may be inclined, substantially as and for the purposes described.

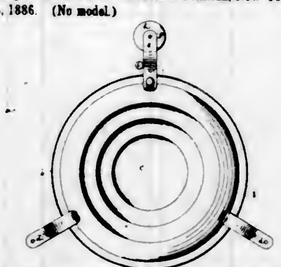
354,628. HAME. WILLIAM E. DIPPERT, Des Moines, Iowa. Filed Nov. 9, 1885. (No model.)



Claim.—1. A hame staple and loop consisting of the leg *a*, head and shoulder *b*, circular branch *c*, terminating in a short leg, *d*, and the horizontal extension *g h i*, for the purposes stated.

2. The combination of the staple and loop, consisting of a leg, *a*, head and shoulder *b*, circular branch *c*, short leg *d*, and the horizontal extension *g h i*, and the line-ring *m n* with a harness-hame, for the purposes stated.

354,629. LANTERN. GEORGE C. DRESSEL, New York, N. Y. Filed Apr. 8, 1886. (No model.)



Claim.—The combination of flanged plate *a*, lens *c*, and springs *d d* with plate *h*, which is attached to and raised from plate *a*, and with

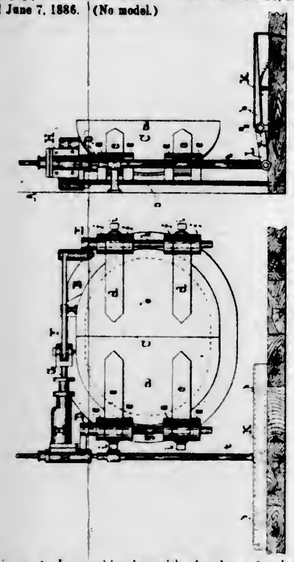
the spring *e* and pivot *g*, that is enlarged between plates *h a*, substantially as specified.

354,630. HANDLE FOR MILK-CANS. THOMAS F. PERRY, Huntley, Ill. Filed Aug. 28, 1886. (No model.)



Claim.—The combination, with a milk-can having an upper perforated portion, of the cover thereof, consisting of a flaring portion and a neck, and a diaphragm arranged between them, and a handle having its extremities formed with an upwardly-extending perforated ear and lug, respectively, said ear and lug being riveted to the interior of said flaring portion, and a wire loop passed through said perforated ear, flaring top, and upper portion of the can, substantially as and for the purpose set forth.

354,631. FURNACE-DOOR. MATTHIAS N. FORNEY, New York, N. Y. Filed June 7, 1886. (No model.)



Claim.—1. In combination with the door of a boiler-furnace, a steam-cylinder having a steam-port leading to either end thereof, a valve to control the admission of steam to either of the said ports, a piston within the said cylinder having a rod united to the door by means of suitable connections, and actuating devices whereby movement of the hand or foot may be applied to the steam-valve to open or close the door, substantially as and for the purpose specified.

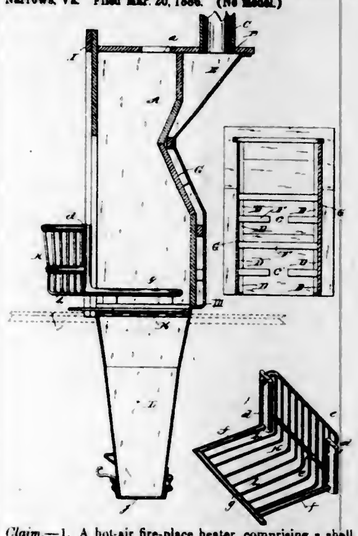
2. In combination with a door-frame adapted for attachment to a boiler-furnace, a door hinged to the said frame, a steam-cylinder having a steam-port leading to either end thereof, a valve to control the admission of steam to either of the said ports, a piston within the cylinder having a rod united to the door by means of suitable connections, and actuating devices, whereby movement of the hand or foot may be applied to the steam-valve to open or close the door, substantially as and for the purpose specified.

3. In combination with a door-frame adapted for attachment to a boiler-furnace, a door in two parts or sections which are hinged to the said frame, and provided with arms which are coupled together by means of a bar, a steam-cylinder having a steam-port leading to either end thereof, a steam-valve to control the admission of steam to either of the said ports, a piston in the cylinder, having a rod connected to the said coupling-bar, and actuating devices, whereby movement may be communicated to the said valve to change its position, and thereby open or close the two sections of the door, substantially as and for the purpose specified.

4. In combination with a furnace-door in two hinged sections, having arms rigidly attached to the bolts of the said hinges, which bolts are fastened to the portions of the hinges which form parts of the door, a bar to unite the said arms, a steam-cylinder having a piston and rod connected to the said coupling-bar, a steam-valve to control the admission of steam to and from the said cylinder, and means, substantially as described, to effect the movement of the said steam-valve, substantially as specified.

5. In a mechanism for operating a furnace-door by steam, constructed substantially as described, the combination of the steam-valve J, rod *t*, arms L and *p p*, supported shaft *q*, and yieldingly-sustained foot-plate K, substantially as and for the purpose specified.

354,632. HOT-AIR FIRE-PLACE HEATER. WILLIAM A. FRENCH, Narrows, Va. Filed Mar. 20, 1886. (No model.)

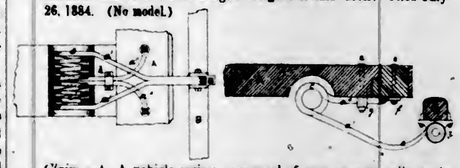


Claim.—1. A hot-air fire-place heater comprising a shell, A, having a series of transverse flues extending across the back and sides of the shell and communicating, substantially as described, with one another to form a tortuous passage, a chamber, E, at the upper portion of the shell, with which said flues communicate, said chamber enlarging from the bottom to the top, as shown, and a main hot-air flue, C, leading from said chamber, substantially as set forth.

2. In a hot-air fire-place heater, the combination, with a shell, A, having a series of hot-air flues at its back and sides, of a removable grate formed with upright pipes *d*, adapted to lie against the face of the shell, as described, a transverse tube connecting said pipes, tubes extending rearwardly from said pipes, and a transverse tube connecting the rearwardly-extending tubes for the inlet of air from the outside of the heater, said grate communicating with the flues of the shell to transmit heat from the grate to the shell, substantially as set forth.

3. A hot-air fire-place heater composed of the following elements, to wit: a shell, A, formed with a series of transverse hot-air flues extending across its sides and bottoms, a hollow fire-grate communicating with said flues to transmit heated air thereto, a grated bottom to the shell, a chute leading from said bottom, and a grated slide to said bottom to regulate the openings therein and control the draft to the grate and the passage of ashes into the chute, as set forth.

354,638. VEHICLE-SPRING. WILLIAM W. GRIER and EDWIN F. BENGLER, Helton, Pa., said Bengler assignor to said Grier. Filed July 26, 1884. (No model.)

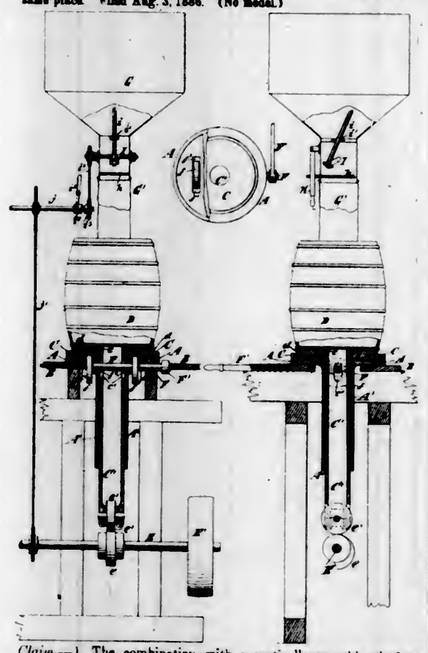


Claim.—1. A vehicle-spring composed of two reverse coils, each having a horizontal free bearing-leg, said coils united to an intermediate bearing-leg common to both coils by converging arms which unite at a point about equidistant from the center of the coil and the end of the intermediate bearing-leg, the coil, converging arms, and legs being integral, substantially as and for the purposes specified.

2. The combination, with the body or bed having a coil-recess, of a coiled spring the body leg or branch of which extends from the coil at a point below the top of the coil, whereby the coil of the spring is partially concealed within the recess of the bed or body, substantially as and for the purposes specified.

3. The vehicle-spring hereinbefore described, consisting of two similar parts, each having a coiled portion, with two arms or branches of unequal length extending in the same direction from opposite ends of the coil, the shorter branch from each coil extending from the inner ends of the coil at a point below the top of the coil, and thence branching outward in an opposite direction from the other branch, to form two termini for attachment to the vehicle-body, and the longer branch from each coil extending from the bottom and outer end of the coil, and then converging until both of the longer branches meet, where they unite to form a single terminus of the spring for attachment to the running-gear, the whole spring being formed of a single piece of steel, substantially as described.

354,634. MACHINE FOR PACKING STARCH. PAUL H. GRIMM, Glen Cove, N. Y., assignor to the Glen Cove Manufacturing Company, same place. Filed Aug. 3, 1886. (No model.)



Claim.—1. The combination, with a vertically-movable platform to receive a barrel or package, and having a downwardly-projecting stem or support, of a guide for said stem or support, a shaft provided with a cam, whereby a jumping or jolting motion is imparted to the platform, and means, substantially as described, for raising the platform and its stem or support out of range of said cam, substantially as herein set forth.

2. The combination, with a platform mounted upon a vertically-movable stem or support, of a shaft provided with a cam for imparting a jumping or jolting motion to the platform, and a shaft and cams below the platform, whereby it may be raised out of range of the cam for jumping or jolting it, so as to remain stationary while a barrel is headed, substantially as herein described.

3. The combination, with a base or bed having a downwardly-extending guide, of a platform mounted upon a stem or support fitting said guide, and a shaft provided with a cam for imparting a jumping or jolting motion to the platform through said stem or support, substantially as herein described.

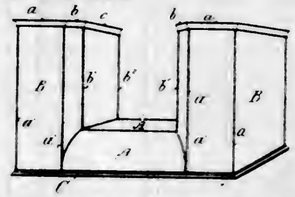
4. The combination, with the base-piece or bed having a downwardly-extending guide, and slotted on each side of the guide, of the platform having a stem or support working within the guide, a shaft provided with a cam for imparting a jumping or jolting motion to the platform, and a shaft journaled below the base-piece or bed and having cams working through the slots in the base-piece or bed, for raising the platform out of range of the cam which imparts the jumping or jolting motion to the platform, substantially as herein described.

5. The combination, with the bed and a platform having a downwardly-projecting stem or support working through the bed, of the shaft provided with a cam for imparting a jumping or jolting motion through said stem or support to the platform, and a cushion interposed between the bed and platform, for lessening the shock produced by the falling platform, substantially as herein described.

6. The combination, with the bed A, provided with slots and having a central guide, A', of the platform C and its stem or support C', working in said guide, the shaft E, provided with a cam acting upon the lower end of the stem or support, for imparting a jumping or jolting motion to the platform, and the shaft F, fitting bearings in opposite sides of the said guide, and provided with cams working through the slots in the bed to lift the platform, substantially as herein described.

7. The combination, with the platform and the shaft provided with a cam for imparting a jumping or jolting motion thereto, of a feeding-hopper arranged above the platform, a shaft extending across the outlet-spout from the hopper, and an arm or bar arranged in said spout, and to which a vibrating motion is imparted by the shaft therein, substantially as herein described.

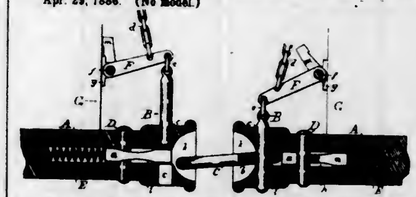
354,635. SHOW-CASE. WINFIELD S. GROVE, Philadelphia, Pa. Filed June 25, 1886. (No model.)



Claim.—1. A show-case for goods, composed of a middle or horizontal section, A, and one or more of the end upright sections, B, said upright sections having their inner sides beveled to the front of the case, substantially as and for the purpose described.

2. A show-case composed of the middle or horizontal section, A, and one or more of the end upright sections, B, said upright sections having their inner sides beveled to the front of the case, and both of the front supporting-posts, *a' a'*, extending from the base of the show-case to the top of the end sections, substantially as and for the purpose described.

354,636. CAR-COUPLING. HARVEY HADDEN, Peekskill, N. Y. Filed Apr. 29, 1886. (No model.)



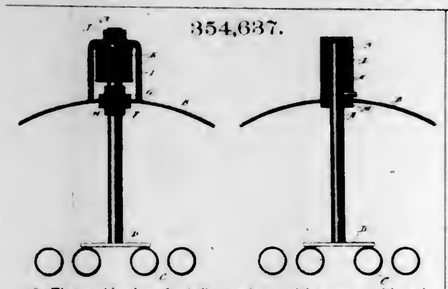
Claim.—The combination, for the purposes of a safety car-coupling, of the following elements: a draw-head provided with a longitudinal rectangular chamber, *i*, said chamber having a height adapted to support a coupling-link in nearly a horizontal position and a length to receive a sliding block and spring, and terminating at its outer end in a semicircular opening, *k*, a slotted sliding block, *a*, provided with square ends and a reduced thickness at its central portion, a pin, D, to limit the movement of block *a*, and having a strength equal to that of the coupling-pin, a spring, E, a shoulderless coupling-pin, B, a link, *c*, an arm, F, provided with a stop, *m*, a shaft, *f*, a bearing, *g*, secured to the end of a car, and a chain, *d*, all operating together as herein described and set forth.

354,637. ELECTRO-MAGNETIC BOILER-CLEANER. GERALD W. HART, Quincy, Ill. Filed May 13, 1886. (No model.)

Claim.—1. The combination, with a boiler, of a coil of wire connected with a source of electricity, a core for the same placed outside of and extending into the interior of the boiler and in magnetic contact with an interior portion thereof, but magnetically separated from the shell through which it passes, and a magnetic connection between the other end of said core and the exterior of the boiler, substantially as and for the purpose set forth.

2. As an article of manufacture, a magnet composed of an iron core, a tubular magnetic sheath surrounding the same, a coil wound between the sheath and the core, and an insulating-filling of cement about the wire, substantially as set forth.

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3. The combination of a boiler, an iron rod in contact with an interior part thereof and protruding through its shell, an iron tubular cap surrounding the outer end of the rod and fitted into the shell with a steam-tight joint, and an insulated wire coil between the rod and the cap, substantially as and for the purpose set forth.

4. The combination of a boiler, an iron rod in contact with an interior part thereof and protruding through its shell, an iron tubular cap surrounding the outer end of the rod and fitted into the shell with a steam-tight joint, a wire coil between the rod and the cap, and a filling of steam-proof insulating-cement about the wire, substantially as and for the purpose set forth.

5. The combination, in a boiler-cleaner, of the magnet-core A with the pivoted plate D, substantially as and for the purpose set forth.

354,638. ANTI-FRICTION BEARING. GIDEON HAYNES, Jr., Boston, Mass., and ALBERT E. SCHAAF, Buffalo, N. Y., assignors to the Pope Manufacturing Company, Hartford, Conn. Filed Oct. 19, 1885. (No model.)



Claim.—1. In a ball or roller bearing box, the combination of a case divided longitudinally with reference to its axis, two or more rings having interior grooved or conical surfaces for contact with the balls or rollers, and exterior beveled or conical surfaces for contact with the case, and a means of contracting the case vertically upon the bearing-rings, and thereby causing the rings to approach laterally, essentially as set forth.

2. In an anti-friction bearing-box having parts with conical or grooved bearing-surfaces for contact with the balls or rollers, one of which parts is movable laterally for adjustment, an annular spring-detent, as H, constructed to operate between said parts and press them apart when they are loosened, and to yield and permit them to approach when they are tightened, substantially as shown and described.

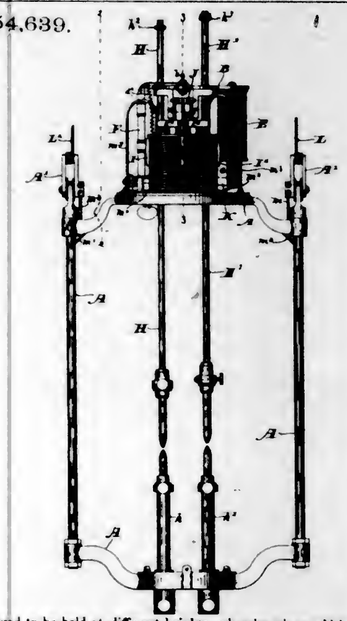
3. In a ball or roller bearing box, the combination of a circular row of balls or rollers, bearing-rings having interior conical or grooved surfaces for contact with the balls or rollers, and exterior conical or beveled surfaces for contact with the case, a spring-detent operating as a yielding annulus between said rings within the case and out of the way of the balls or rollers, and a case divided longitudinally and provided with means of vertical contraction about the rings and of adjusting the rings laterally thereby, essentially as set forth.

4. An axle or journal bearing, substantially as shown and described, consisting in a series of balls or rollers operating about and upon the axle or a sleeve thereon, and within or against the conical or grooved surfaces in the box, two rings in the box bearing said conical or grooved surfaces for contact with the balls or rollers, and having exterior conical or beveled surfaces for contact with the case, and intermediate conical or beveled surfaces for contact with the detent, a spring-detent operating between said intermediate surfaces, a case divided longitudinally and having an internal groove and inwardly-beveled edges to bear upon said exterior surfaces of the rings, and a hinge and screw clamp in the case, all constructed and combined to operate by vertical contraction of the case to cause lateral approach of the rings and adjustment of the bearing, essentially as set forth.

354,639. ELECTRIC LAMP. CHARLES D. JENNEY, Indianapolis, Ind. Filed Oct. 27, 1885. (No model.)

Claim.—1. In a double electric lamp, the combination of two carbon rods, a clutch for each of said rods, a pivoted bar to which both of said clutches are connected, magnets for operating said bar, a second bar mounted on a horizontal pivot and carrying trips for said clutches, and a solenoid connected to and operating said bar, said trips being arranged to be held at different heights, whereby when said bar is in one position one of said clutches will be caused to operate in advance of the other, and when by the action of the electric current passing through its operating-magnet said bar is given a different position the other clutch will be caused to operate in advance of the first, substantially as and for the purposes set forth.

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2. The combination, in an electric lamp, of the frame-work, carbon-holding rods mounted therein, coarse-wire helices arranged on one side of said frame-work, connected with or set into the main circuit, fine-wire helices arranged on the other side and set into the shunt-circuit, clutches engaging with said carbon-holding rods, a dash-pot, a pivoted bar extending through the frame and connected to the cores of said helices, to the piston of said dash-pot, and to said clutches, and adjustable stops or trips for said clutches, whereby each of said clutches may by an adjustment of said stops or trips be operated in advance of the other, the adjustment of said stops being effected substantially as described, and both carbon rods being at all times supported through their clutches by the magnets, all substantially as set forth.

3. The combination, in an electric lamp, of the carbon rods, clutches therefor, a bar, K, mounted on a horizontal pivot, *k*, and provided with stops or trips for the clutches, and a magnet to which it is connected, whereby it is given a vertical movement, substantially as and for the purposes set forth.

4. The combination, in an electric lamp, of the frame-work, the coarse-wire helices, the fine-wire helices, the clutches, a pivoted bar to which the cores of said helices and said clutches are connected, the carbon rods, a pivoted vertically-movable bar carrying trips for said clutches, a solenoid connected to said bar, and the electrical connections hereinbefore described, whereby said clutches may be operated, as specified, to hold the carbon rods at different heights, and at the same time to sustain both rods continually upon the magnets, substantially as set forth.

354,640. CAR-HEATER. ROBERT JOHNSON and JOHN F. BUERKEL, Boston, Mass. Filed Oct. 13, 1885. (No model.)

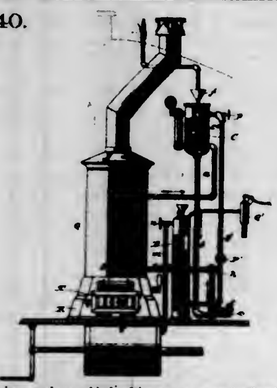
Claim.—1. In a fluid-heating apparatus, the combination of a boiler, circulating-pipes connected therewith, a casing greater in diameter than said pipes and having inlet and outlet ports communicating therewith, and an inclined plate arranged in said casing above and between said ports, substantially as described.

2. A supply-casing containing a steam and water chamber and provided with an inclined plate above inlet and outlet ports, in combination with circulating-pipes communicating with said ports and with a supply-pipe in communication with the water-circuit, substantially as described.

3. The combination of the boiler, circulating-pipes, and casing provided with a series of inclined deflector-plates alternately arranged, substantially as set forth.

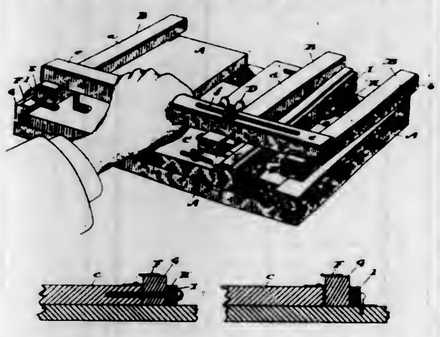
4. The cast-metal casing C, combined with the outlet and inlet

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circulating-pipes and provided with one or more inclined deflectors, the edges of which are imbedded in the side of the casing, substantially as described.

354,641. PAPER-CUTTING MACHINE. JOHN F. LAMB, Toronto, Ontario, Canada. Filed Nov. 23, 1885. (No model.)



Claim.—1. The bars *a* and *b*, connected together by the cross-bar *e*, and hinged to the bed-plate A, the bar *d*, hinged to the bed C and connected to the cross-bar *e* by a thumb-screw, D, passing through the slot *f*, and the straight-edged metal plates E, fixed to the bars *a* and *d*, in combination with the straight-edged metal plates F, fixed to the blocks G, held to the bed C and bed-plate A by the pins H and springs I, substantially as and for the purpose specified.

2. The bars *a b d*, hinged to the bed-plate A and connected by the cross-bar *e*, and the straight-edged metal plates E, carried by said bars *a d*, in combination with the straight-edged metal plates F, fixed to the blocks G, yieldingly held to the bed C and bed-plate A, substantially as and for the purpose specified.

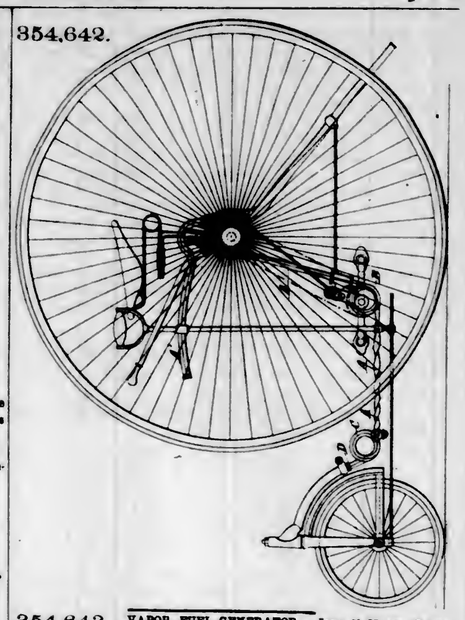
354,642. VELOCIPEDE. CHARLES M. LIDLEY and JOHN BROOM, Southwark, County of Surrey, England, assignors of one-half to George Grainger Tandy, Cedars Road, Clapham, County of Surrey, England. Filed Feb. 26, 1885. (No model.) Patented in England May 13, 1884, No. 7,670; in France Nov. 10, 1884, No. 165,280, and in Germany Nov. 30, 1884, No. 32,784.

Claim.—1. A frame for tricycles, constructed of rectangular bar-steel set on edge and formed into coils, rings, or spirals at various points, whereby great additional strength and flexibility are obtained, and the unpleasant vibrations and jerking caused by the running of the steering-wheel over inequalities in the ground are neutralized, as set forth.

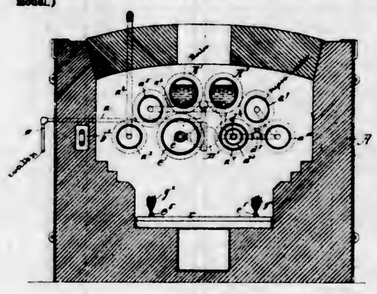
2. The combination, with the frame, of a tubular socket, *a*, divided longitudinally into two parts the ends of which are externally taper-threaded, and nuts *b*, which are internally taper-threaded to fit the externally-taper threads of the ends of the socket, the said sockets and nuts constituting clips, which are made to grip the frame by the screwing up of the nuts.

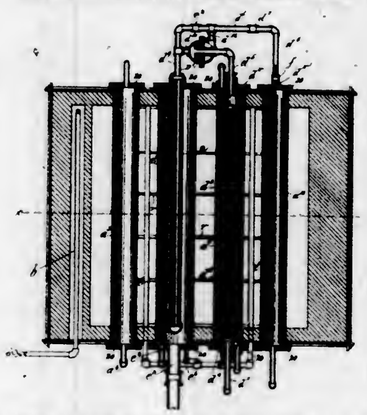
3. The means for connecting the rectangular bar-frame to the tubular steering-wheel bow, and consisting of an externally taper-threaded socket-bush, *e*, which is brazed or otherwise suitably secured to the end of the steering-wheel bow, and provided with longitudinal saw cuts or slits, and an internally-taper nut, *f*, which when screwed up will compress the slit portion of the bush *e* and cause it to firmly grip the ends of the bars A, substantially as herein shown and described.

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354,643. VAPOR-FUEL GENERATOR. JOHN N. MAHER, Boston, Mass., assignor to George Gegin, same place. Filed Dec. 14, 1885. (No model.)





Claim.—1. In an apparatus for generating vapor-fuel, one or more superheaters combined with one or more atomizers to receive superheated steam and oil, and provided with nozzles in which said oil is vaporized, and a mixing-chamber or generator in which to mix the vapor and steam, and a receiver in which to receive the generated gas, substantially as described.

2. The water-boilers A′ and superheating-boilers communicating with the said water-boilers, and one or more independent atomizers to receive superheated steam and oil, and in which the said oil is vaporized, combined with a gas-receiver and with burners fed by gas from the said receiver, substantially as described.

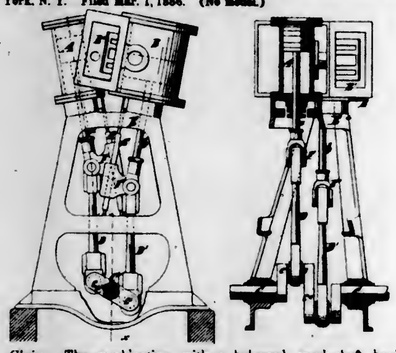
3. The boilers A′ and superheaters communicating with the said boilers, one or more atomizers to receive superheated steam and oil, and in which the said oil is vaporized, a gas-receiver and burners fed by gas from the said receiver, combined with a pump to feed oil to the atomizer D, and a heater, substantially as described, to moderately heat the oil on its way to the said atomizer, substantially as described.

4. The boilers A′, steam-superheaters, the atomizer D, combined with the mixing-chamber d^9, the atomizer D′, gas-receiver s', and burners s^8, substantially as described.

5. The combination of the boilers A′, steam-dome A^2, superheaters, atomizer D, mixing chamber or generator d^9, atomizer D′, gas-receiver s', burners s^8, with the preliminary heaters f f', substantially as described.

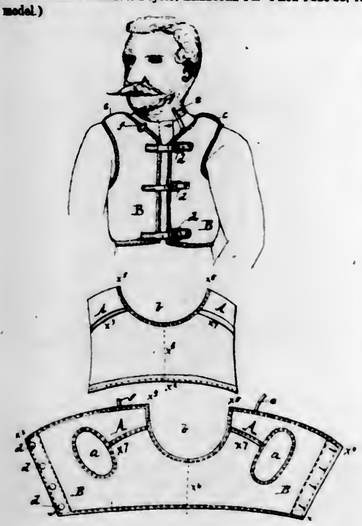
6. The atomizer consisting of the parts 2 3, bolted together, the plate b^3, to form chambers b^6 b^7, oil-nozzle b^4, the nozzles, substantially as described, to conduct superheated steam from the chamber b^6 to the chamber b^7, as and for the purpose specified.

354,644. BALANCED COMPOUND ENGINE. THOMAS MAIN, New York, N. Y. Filed Mar. 1, 1886. (No model.)



Claim.—The combination, with a balanced crank-shaft having auger-handle cranks, the two crank-pins being separated only by a transverse member or arm, c^5, of double-acting high and low pressure cylinders, the pistons of which are connected with the opposite cranks, and each of which is arranged at an angle of about twenty degrees (20°) relatively to an axial line through the other cylinder, substantially as and for the purpose herein described.

354,645. LIFE-PRESERVER. WILLIAM MCCRORY, Fayette City, assignor of one-half to Charles Taylor, Elizabeth, Pa. Filed June 28, 1886. (No model.)

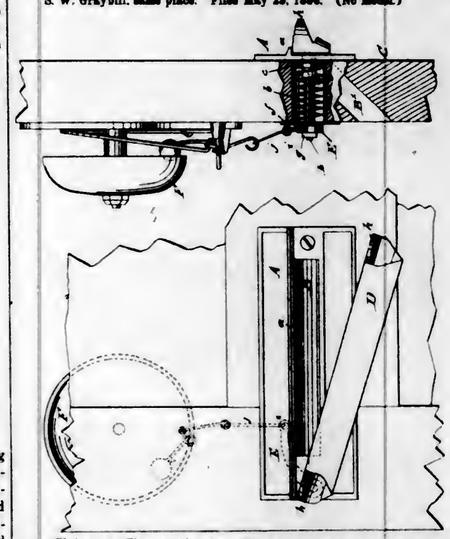


Claim.—1. An air or life-preserving vest consisting of two thicknesses of water and air proof fabric, cut as described, cemented at their edges, and having the re-enforcing portions x^2 uniting the armholes with the neck-yoke, substantially as specified.

2. The improved vest consisting of the double fabric having re-enforcing diaphragms extending from the armholes to the neck-yoke, the deep posterior curve extending from the angles x^3 x^3 to the median line x^4, and the two tubes e f, for the purpose described.

3. The improved article of manufacture herein described, consisting of a double-walled vest made of water and air proof material, provided with a narrow back portion, a deep back score, armholes, the re-enforcing portions x^2 between the armholes, connecting the two walls or thicknesses of fabric, the front fastenings, and two tubes, e f, provided with valves, all constructed and adapted to operate substantially in the manner and for the purposes described.

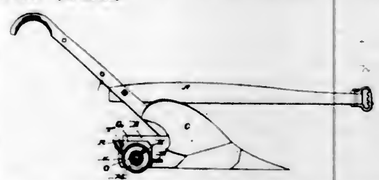
354,646. COMBINED DOOR-PLATE, BELL-PULL, AND MAIL-RECEIVER. MICHAEL A. MCGLONE, Lancaster, Pa., assignor to himself and S. W. Graybill, same place. Filed May 25, 1886. (No model.)



Claim.—1. The combination, with the base-plate A, provided with the ledge a, of the cover-plate D, having the thumb-piece A and stud b, and arranged to swing in a vertical plane, the collar c, secured on the stud, the spring d, attached to the collar, and the plate f, secured to the door and receiving the end of the spring d, substantially as herein shown and described.

2. The combination, with the base-plate A, provided with the ledge a, of the cover-plate D, having the thumb-piece A and stud b, and arranged to swing in a vertical plane, the collar c, secured on the stud, the spring d, attached to the collar, the plate f, secured to the door and receiving the end of the spring d, the bell-operating arm E, secured to the end of the stud b, and the bell F, having its striking-arm connected to the arm E and arranged to be rung by the swinging of the plate, substantially as shown and described.

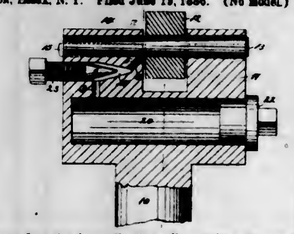
354,647. PLOW. CHARLES P. MCWANE, Wytheville, Va. Filed Sept. 9, 1886. (No model.)



Claim.—1. The combination, with the plow having the rearward-extended landside provided with the horizontal tongue D, of the block G, bolted to the landside and adapted to carry the wheel or shoe, and having the series of horizontal grooves for the reception of the tongue D, whereby the said block is vertically adjustable on the landside, substantially as described.

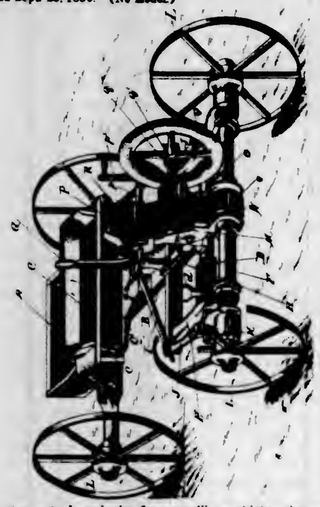
2. The combination, with the plow, of the vertically-adjustable block attached thereto in rear of the share, the supporting-wheel journaled on the block and adapted to run in the furrow, the arm extending from the block, and the scraper attached to the said arm on the rear side of the wheel, substantially as described.

354,648. FORGING-ROLLER FOR NAIL-MACHINES. GEORGE E. MERON, Essex, N. Y. Filed June 19, 1886. (No model.)



Claim.—In a forging-roller for nail-machines, the combination, with a stock and its roller, of pins 15, arranged substantially as described.

354,649. VELOCIPEDE. LUTE F. MOHR, Howard Center, Iowa. Filed Sept. 23, 1886. (No model.)



Claim.—1. In a device for propelling vehicles, the combination, with the axle and suitable driving mechanism, of the wheels loosely mounted upon the ends of the axle, the clutch-sleeves, the clutch-levers, the hand-levers stepped in a support and having a reduced portion, and the links having bifurcated ends fitted in the reduced portion of the hand-lever, and reduced ends passed through the ends of the clutch-levers, substantially as set forth.

2. A propeller for vehicles, consisting of the following elements in combination: the axle, suitable driving mechanism, the wheels loosely mounted upon the ends of the axle, the clutch-sleeves, the clutch-levers, the hand-lever, the links, the arms extending from each end of the axle, the reach, and the slotted guide uniting the outer ends of the arms.

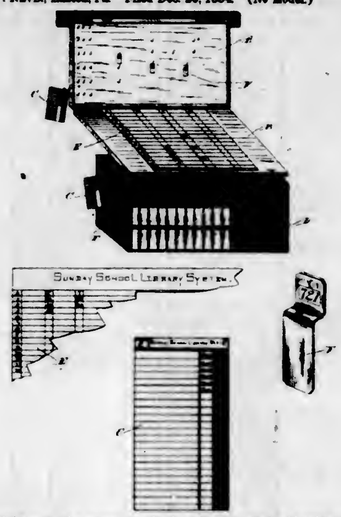
3. The combination, with the propeller comprising the axle, the driving mechanism, the wheels, the clutch-sleeves, the connections for operating the clutch-sleeves, the reach, slotted guide, and the arms for supporting them, of the vehicle consisting of the axle, the body, the seat, and the short tongue passed through the guide and having its forward end pivotally connected with the reach, substantially as set forth.

354,650. METHOD OF PURIFYING WATER. WILLIAM J. MORRISON and JOHN C. WHARTON, Nashville, Tenn. Filed Dec. 10, 1885. (Specimens.)

Claim.—1. The method herein described of clarifying and purifying water, consisting in first adding to the water an alkali mixed with an inert ponderous material, and then adding an alum salt mixed with an inert ponderous material, as set forth.

2. The method herein described of clarifying and purifying water, consisting in first adding to the water a mixture of lime, soda, and sand, and then a mixture of alum, permanganate of potassium, and sand, as specified.

354,651. SUNDAY-SCHOOL LIBRARY-RECORD SYSTEM. DAVID W. NEVIN, Easton, Pa. Filed Dec. 30, 1884. (No model.)

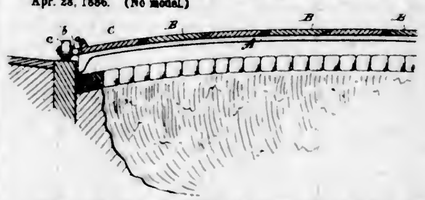


Claim.—1. An apparatus for keeping a record of books taken from a library, comprising, in combination, a shallow box carrying suitably-sized hooks, with a number on or beside each hook, several book-checks bearing numbers corresponding to numbers on the books in the library, and one or more index-sheets showing names of readers and their corresponding number, substantially as described, and for the purpose specified.

2. An apparatus for keeping a record of books taken from a library, comprising, in combination, a shallow box carrying numbered hooks, several book-checks shouldered, perforated, and numbered, one or more index-sheets showing the numbers on the hooks and names of readers, and one or more catalogue-slips showing the title of each book and its check-number, substantially as described, and for the purpose specified.

3. An apparatus for keeping a record of books taken from a library, comprising, in combination, a shallow box carrying numbered hooks, several book-checks shouldered, perforated, and numbered, one or more index-sheets showing the numbers on the hooks and names of readers, and one or more catalogue-slips of suitable material, capable of being used as slates for transitory writing, and carrying a list of the library books and the check-number of each book, substantially as described, and for the purpose specified.

354,652. STREET-BRIDGE. JOHN O'DONNELL, Albany, N. Y. Filed Apr. 28, 1886. (No model.)



Claim.—1. In a street-bridge, the combination of girders curved to conform to the street-surface, and arranged to abut against the curbs on opposite sides of the street, and floor-plates received on and supported by the girders, substantially as herein shown and described.

2. The combination, in a street-bridge, of curved rabbeted girders A and floor-plates B C, received in the rabbets of the girders, substantially as herein shown and described.

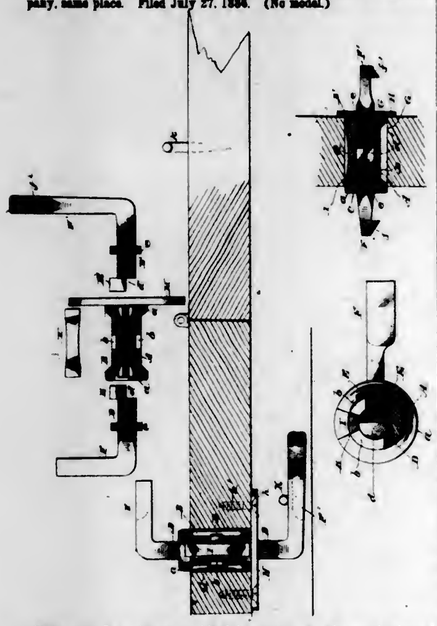
3. In a street-bridge, the combination of the girders A, rabbeted on opposite edges, and the corrugated floor-plates B C, received in the rabbets and halved together, substantially as herein shown and described.

4. In a street-bridge, the combination of the curved girders A, rabbeted in opposite edges thereof, and provided at opposite ends with axles b, to facilitate the lateral movement of the girders, substantially as herein shown and described.

5. The combination, in a street-bridge, of the girders A, having rabbets a in opposite edges thereof and provided with axles b, the rollers c, fitted to the axles, and the corrugated floor-sections B C, received in the rabbets and halved together, substantially as herein shown and described.

6. The combination, in a street-bridge, of the girders A, having the convex under surface and rabbets *a* in opposite edges thereof, and provided with axles *b*, the rollers *c*, fitted to the axles, and the corrugated floor-sections B C, received in the rabbets and halved together, substantially as herein shown and described.

354,653. SHUTTER-FASTENER. GEORGE D. PAUL, East Orange, N. J., assignor, by mesne assignments, to the Paul Manufacturing Company, same place. Filed July 27, 1886. (No model.)



Claim.—1. In a shutter or blind fastener, a gravity-catch pivoted to a window-shutter and adapted to swing in a plane parallel with the shutter, substantially as set forth.

2. In a shutter or blind fastener, the combination, with an inside arm or catch attached to a tumbler mounted within the shutter and adapted to swing in a plane parallel with the shutter, of an outside arm or catch attached to a second tumbler mounted in the shutter, the two tumblers being arranged to coact, substantially as set forth.

3. In a shutter or blind fastener, the combination, with a slotted sleeve adapted to be secured in a perforation in the shutter, of a pair of tumblers having catch-arms secured thereto, the said tumblers being loosely mounted in the sleeve and having their adjacent ends overlapping, substantially as set forth.

4. In a shutter or blind fastener, the combination, with a sleeve adapted to be secured in a perforation in a shutter, of a pair of tumblers loosely secured, with overlapping lugs or projections on their adjacent ends adapted to travel in a transverse slot in the sleeve, and catches secured to the tumblers, substantially as set forth.

5. In a shutter or blind fastener, the combination, with a pair of tumblers loosely secured in a sleeve, of a pair of catches secured to the tumblers and adapted to swing in a plane parallel with the shutter, the said catches being provided with inclined portions for elevating them over the stops, substantially as set forth.

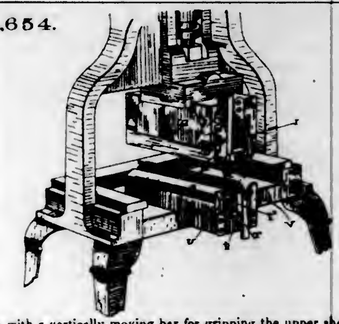
6. The combination, with the sleeve with its fastening-plate and slots, of the tumblers loosely secured therein by a key adapted to fit one of the slots, and catches secured to the tumblers, substantially as set forth.

354,654. SEAMING-MACHINE FOR SHEET METAL. CHARLES PUDDEFOOT, Oakland, Cal. Filed July 6, 1886. (No model.)

Claim.—1. In a seaming-machine for sheet metal, parallel anvil-bars, one of which has a gage-groove for the reception of the edge of the sheet resting on the other, said grooved bar supporting the other sheet on its top above the lower sheet, the edges of the sheets overlapping, in combination with the moving bar, whereby the edges of the sheet are bent in opposite directions, substantially as described.

2. In a seaming-machine for sheet metal, parallel anvil-bars, one of which has a gage-groove for the reception of the edge of the sheet resting on the other, said grooved bar supporting the other sheet on its top above the lower sheet, the edges of the sheets overlapping, in combination with a vertically-moving bar for gripping the upper sheet against the anvil-bar, whereby the edges of the sheets are bent in opposite directions, substantially as described.

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3. In a seaming-machine for sheet metal, parallel anvil-bars, one of which has a gage-groove for the reception of the edge of the sheet resting on the other, said grooved bar supporting the other sheet on its top above the lower sheet, the edges of the sheets overlapping, in combination with the vertically-moving bar E, having a toe, *x*, whereby the edges of the sheet are bent in opposite directions and held, and the vertically and laterally moving bar C, whereby the bent edges are forced over together and flattened down, substantially as described.

4. In a seaming-machine for sheet metal, parallel anvil-bars, one of which has a gage-groove for the reception of the edge of the sheet resting on the other bar, said grooved bar constructed to support the other sheet on its top above the lower sheet, the edges of the sheets overlapping, in combination with the vertically-moving bar E, having a gage-bar for limiting the insertion of the upper sheet, whereby the edges of the two sheets are bent in opposite directions, substantially as herein described.

5. In a seaming-machine for sheet metal, parallel anvil-bars for supporting the sheets one above the other and overlapping, one of said bars having a gage-groove for defining the position of the lower sheet, in combination with the vertically-moving bar E, having a gage-bar for defining the position of the upper sheet, whereby the edges of the sheets are bent in opposite directions, and a vertically-moving bar for gripping the upper sheet against the anvil-bar and holding it in place, substantially as herein described.

6. In a seaming-machine for sheet metal, parallel anvil-bars for supporting the sheets one above the other and overlapping, one of said bars having a gage-groove for defining the position of the lower sheet, in combination with a vertically-moving bar for gripping the upper sheet, the vertically-moving bar E, having a gage-bar for defining the position of the upper sheet, and a toe, *x*, whereby the edges of the sheets are bent in opposite directions and held, and the vertically and laterally moving bar C, by which the bent edges are forced over together and flattened down, substantially as herein described.

7. In a seaming-machine for sheet metal, parallel anvil-bars for supporting the sheets one above the other and overlapping, one of said bars having a gage-groove adjustable in depth for defining the position of the lower sheet, in combination with the vertically-moving bar E, having an adjustable gage for defining the position of the upper sheet, whereby the edges of the sheets are bent in opposite directions, substantially as herein described.

8. In a seaming-machine for sheet metal, the anvil consisting of the bar P and the bar Q, secured on top and separated therefrom by a space, in combination with the laterally-moving gage-bar R in said space, whereby an adjustable gage-groove is formed for defining the position of the lower sheet, substantially as herein described.

9. In a seaming-machine for sheet metal, the anvil consisting of the bar P, the bar Q, and the blocks *q'* between the two bars, forming a space between them, in combination with the notched bar R in the space and the screws and springs for adjusting it, substantially as herein described.

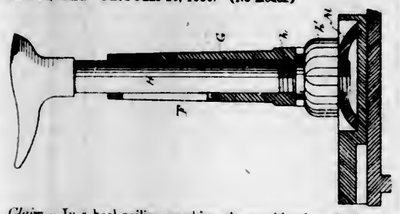
10. In a seaming-machine for sheet metal, the vertically-movable bar E, by which the edges of the sheets are bent, in combination with the movable gage-bar G therein, for defining the position of the upper sheet, said bar being movable in the bar E and having actuating-springs for projecting it, substantially as herein described.

11. In a seaming-machine for sheet metal, the vertically movable bar E, by which the edges of the sheets are bent, in combination with the movable gage-bar G, for defining the position of the upper sheet, said bar having its lower end consisting of a fixed and a movable part for varying the position of the sheet, substantially as herein described.

12. In a seaming-machine for sheet metal, the grooved or slotted stock A of the upper die, the bar B, mounted on springs in said slot and having a vertical movement therein, the bar C on the lower face of bar B and having a lateral movement thereon, the bar D, mounted on springs in the stock and having a vertical movement, and the bar E, secured to the bar D and having springs influencing it to a lateral movement, said bar E having a toe, *x*, as described, in combination with the grooved stock O of the lower die, the grooved anvil-bar P, mounted on springs therein and having a vertical movement, and the shouldered or rabbeted anvil-bar S, also mounted in the stock O on springs and having a vertical movement, all arranged and adapted to operate substantially as herein described.

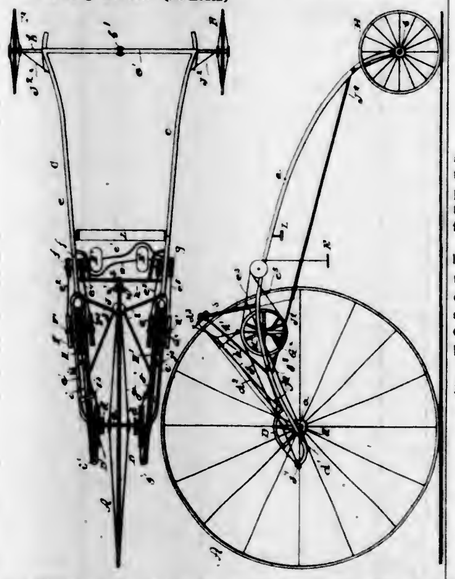
13. In a seaming-machine for sheet metal, the stock A of the upper die, having the vertically-moving spring-actuated bars B D and the vertically and laterally moving spring-actuated bars C E, the latter of which has a toe, *x*, as described, the gage-bar G in bar E, the latches F on the stock for locking the bars, and the cam-arms I on said stock for releasing the latches of the lower die, all in combination with the stock O of the lower die, having the vertically-moving spring-actuated bars or anvils P, Q, and S, with their grooves and shoulders, as described, the latches T, for locking the anvil P Q, and the cam-standards U V, for releasing the latches of the upper die and forcing the laterally-moving bar C to its movement, all arranged and adapted to operate substantially as herein described.

354,655. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass. Filed June 21, 1886. (No model.)



Claim.—In a heel-nailing machine, the combination of a head provided with an invariable throw, the last or work-support and a bed therefor, and an independent metal support, M, interposed between the head and the bed supporting the last or work-support, adapted to act as a rigid or unyielding support during the ordinary working of the machine at ordinary working pressure, and to yield only upon excess of pressure over and above said ordinary working pressure to release the machine from a breaking strain, substantially as described.

354,656. VELOCIPEDE. GEORGE W. RODKAP, Middletown, Ind. Filed Aug. 30, 1886. (No model.)



Claim.—1. In a foot-power vehicle, the two short shafts F' G', each provided at its ends with quadrants or levers, in combination with the reciprocating pedals E E' and the quadrants D D' on the main axle, the pedals and quadrants or levers being connected by cords, whereby the reciprocating motion of the pedals reciprocates the quadrants, substantially as described.

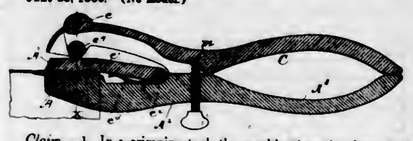
2. In a foot-power vehicle, the short shaft F', provided at its ends with pivoted levers or quadrants, substantially as described.

3. In a foot-power vehicle, the short shaft F', provided at its ends with pivoted quadrant-levers and in its center with a wheel, H, substantially as described.

4. In a foot-power vehicle, the short shaft F', provided at its ends with pivoted quadrant-levers, each provided with spring-buttons, substantially as and for the purposes set forth.

5. In a foot-power vehicle, the drum J', over which the guiding-cords J^2 J^3 pass, in combination with the plate J, having a series of holes, *s'*, and the plate or lever J^3, provided with a spring-catch, *t*, substantially as and for the purposes set forth.

354,657. CRIMPING-TOOL. L. LEROY ROWE, Boston, Mass. Filed June 28, 1886. (No model.)



Claim.—1. In a crimping-tool, the combination of a jaw, A, having recesses and projections *a a'*, the section A^2, and handle A^3, with the jaw A', having the recesses a^2 and projections a^3, and the arm *e'*, pivoted at e^2 to the section A^2, and the lever or arm C, pivoted at *e* to the section E, and having the roll or extension e^4, adapted to bear upon the surface of the jaw A', substantially as described.

2. In a crimping-tool, the combination of a jaw, A, having recesses and projections *a a'*, the section A^2, and handle A^3, with the jaw A', having the recesses a^2 and projections a^3, and the arm *e'*, pivoted at *e* to the section A^2, and the lever or arm C, pivoted at *e* to the section E, and having a roll or extension, e^4, adapted to bear upon the surface of the jaw A', and the spring e^5, substantially as described.

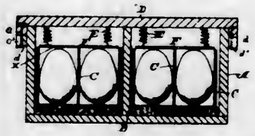
354,658. SAFETY-HELMET. GUSTAV RUNGE and ALEXANDER STUDE, Bremen, Germany. Filed Sept. 7, 1886. (No model.)



Claim.—1. A safety-helmet provided with an outer covering and an inner lining, having between the same an inner air-space extending from the rear to the front, and with an opening at the front about opposite the eyes of the wearer, said air-space having an outlet around the edges of said opening of the helmet, in combination with means for forcing air into said space, substantially as and for the purpose set forth.

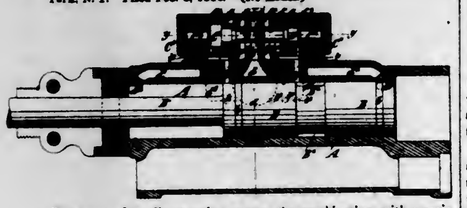
2. A safety-helmet provided with an outer covering and an inner lining, having between the same an inner air-space extending from the rear to the front, and with an opening at the front about opposite the eyes of the wearer, said air-space having an outlet around the edges of said opening of the helmet, in combination with a pipe and branch pipes connecting with the air space of the helmet, substantially as and for the purpose set forth.

354,659. EGG-CASE. MORRIS SEIDEL, Harrison, Ark. Filed Mar. 31, 1886. (No model.)



Claim.—In combination with the case A, having end cleats, *a*, slotted at *a'*, and the rack C, the cover D, having on its under side the springs E and padded inner cover, F, and provided in its flanged ends *d* with the hooks *d'*, substantially as and for the purposes described.

354,660. DIRECT-ACTING ENGINE. HENRY C. SUBLIGNY, New York, N. Y. Filed Feb. 3, 1886. (No model.)



Claim.—1. In a direct-acting engine, the combination, with a main cylinder and a valve-chest provided at the ends of said chest with pairs of passages, one passage of each pair leading from the end of the valve-chest to the cylinder, and the other passage of each pair leading from the cylinder to the atmosphere, of a free-running balanced piston-valve which is caused to move by pressure on one end when the other end of its valve-chest is placed in communication with the atmosphere, and a main piston grooved circumferentially, and serving by its movement to establish communication between the opposite ends of the valve-chest and the atmosphere, whereby the ends of the valve will be alternately relieved of pressure, substantially as herein described.

2. In a direct-acting engine, the combination, with a steam-actuated valve which is caused to move by pressure upon its end, of a main cylinder having its passage or port which leads to the end of the valve-chest elongated in the direction of the length of the cylinder, and a main piston grooved circumferentially, and serving by its movement to place the passage or port in communication with the atmosphere, whereby the portion of the piston below the groove may be lengthened without destroying proper communication with the valve-chest, substantially as herein described.

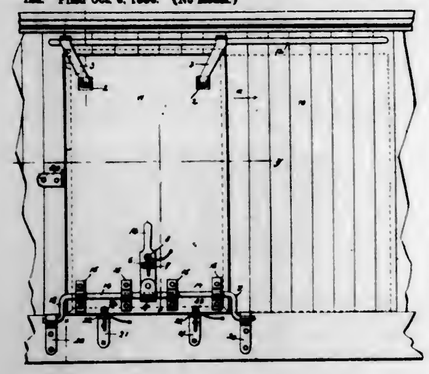
3. The combination, with a balanced piston-valve which is caused to move by pressure upon its end, of a main cylinder having its passage or port which leads to the end of the valve-chest elongated in the direction of the length of the cylinder, and a main piston, by the movement of which the said elongated passage or port is placed in communication with the atmosphere, substantially as herein described.

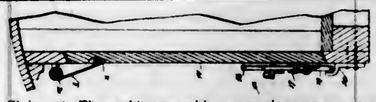
4. The combination, with a steam-actuated valve which is caused to move by pressure on its end, of a main cylinder communicating with the end of the valve-chest by a series of holes or ducts arranged one behind another lengthwise of the cylinder, and a piston grooved circumferentially, and serving by its movement to place said holes or ducts in communication with the atmosphere, whereby the portion of the piston below the groove may be lengthened without destroying proper communication with the valve-chest, substantially as herein described.

5. The combination, with the balanced piston-valve D and its chest C, of the main cylinder having two or more holes or ducts, *i'*, through which it communicates with the end of the valve-chest, and a main piston, by the movement of which said holes or ducts will be successively placed in communication with the atmosphere, substantially as herein described.

6. The combination, with the balanced piston-valve D and its chest C, having between it and the cylinder the recess or cavity *j'*, which communicates by the duct *i*² with the end of the valve-chest, and by the two or more ducts *i'* *i'* with the main cylinder, of the main piston, by the movement of which the ducts *i'* will be successively placed in communication with the atmosphere, substantially as herein described.

354,661. DOOR ATTACHMENT. JOHN W. SHEWMAKER, Terre Haute, Ind. Filed Oct. 6, 1886. (No model.)

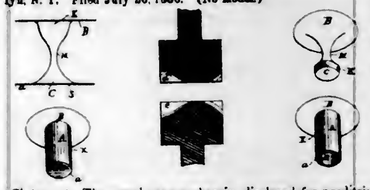




Claim.—1. The combination, with a car or other structure carrying a rod, 12, and sockets 20, of a door provided with strips 3, that are hinged within recesses near the upper end of the door, a crank-bar, 14, having arms 18, and a lever, 16, said lever being hinged to a socket carried by the crank-bar, substantially as described.

2. The combination, with a car or other structure provided with a rod, 12, sockets 20, and stops 21, having apertured flanges 22, arranged to be entered by pins 23, of a door, 11, formed with recesses 2, within which there are mounted strips 3, that are connected to the bar 12, a crank-bar, 14, formed with arms 18, a lever, 16, formed with an elongated slot, 6, a projection, 7, and a pin, 8, substantially as described.

354,662. MANUFACTURE OF BUTTONS. ORVILLE T. SMITH, Brooklyn, N. Y. Filed July 26, 1886. (No model.)



Claim.—1. The novel process herein disclosed for producing buttons, consisting in, *a*, drawing blank into tubular form provided with a flaring end; *b*, perforating the closed end of the tubular blank; *c*, compressing laterally the tubular blank by a series of sectional dies provided with coinciding recesses which form the stem, with opposite ending flanges forming the head and shoe of the button.

2. The method employed for forming buttons, consisting, first, in drawing a blank or disk of sheet metal into tubular shape provided with a flaring end, next in perforating the closed end of the tubular shape, then compressing the tubular part of the blank to form a stem with a cup-shaped termination on the perforated end, substantially as herein described.

3. The method of producing buttons, consisting in, first, forming a seamless tubular blank with an opening extending entirely through it and provided with a flaring end, next compressing the tubular part to form a stem and an opposite flaring end, substantially as herein described.

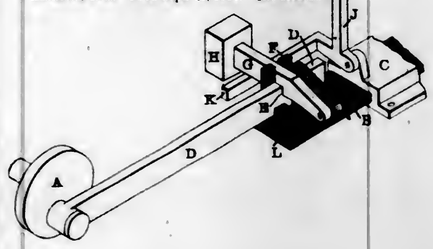
4. The method of producing buttons, consisting, first, in drawing a blank or disk of sheet metal into tubular shape, next in perforating the closed end of the tubular blank, then compressing the blank to form a stem with cup-shaped terminations on both ends, substantially as herein described.

5. The method of producing buttons, which consists in, first, forming a seamless tubular blank provided at one end with a flange, then perforating the closed end of the tubular shape, next compressing the tubular part by dies which conform to the exterior of the finished stem, and which form the stem with a cup-shaped termination on the flanged end of the tubular blank, and also an outwardly-turned flange on the opposite end, substantially as herein described.

6. Means for producing a tubular blank having an opening extending through the blank, in combination with means for forming the said blank into a tubular stem provided with outwardly-turned flanges, substantially as described.

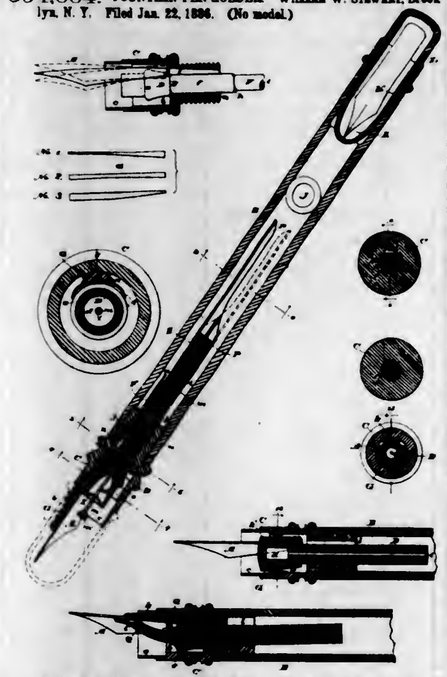
7. Means for producing a tubular blank having an opening extending through the blank, means for forming the said blank into a tubular stem provided with outwardly-turned flanges, in combination with means for turning the outwardly-turned flanges toward each other in approximately axial line to the stem, substantially as described.

354,663. DEVICE FOR IMPARTING AND ARRESTING MOTION. WORTHINGTON J. SNIDER, Madison City, assignor to Henry P. Deuscher, Hamilton, Ohio. Filed Sept. 13, 1886. (No model.)



Claim.—In a device for imparting and arresting motion between two reciprocating parts of machinery, a slide, a connecting-rod provided with a notch, a guide formed upon the slide for the notched end of the connecting-rod, said guide being parallel with the path of motion of the slide, a lever pivoted to the slide and adapted to engage the notch of the connecting-rod, and a lever provided with a lifting-bar engaging said first-mentioned lever, combined and arranged to operate substantially as set forth.

354,664. FOUNTAIN PEN-HOLDER. WILLIAM W. STEWART, Brooklyn, N. Y. Filed Jan. 22, 1886. (No model.)



Claim.—1. A fountain pen-holder constructed with a nozzle and with a bearing for the pen, in combination with a key or wedge inserted in said nozzle and forcing the pen against said bearing, substantially as set forth.

2. In a fountain pen-holder, the mounting for the pen, consisting of the nozzle, a rib or flange on one side of the pen on which it may rock as on a fulcrum, and a locking-key entering the nozzle on the other side of the pen and wedging the latter fast, substantially as set forth.

3. In a fountain pen-holder, the mounting for the pen, consisting of the nozzle, a bar entering beneath the pen and having a rib or flange against which the pen rests and on which it may rock as on a fulcrum, and a locking-key of wedge shape entering above the pen and wedging the latter fast, substantially as set forth.

4. In a fountain pen-holder, the combination, with the nozzle and with the bearing therein for the pen, of a key or wedge entering the nozzle against the pen and serving to wedge the latter fast, and said key constructed with a duct formed through or along it for conducting ink from the reservoir to the pen, or admitting air into the reservoir, substantially as set forth.

5. In a fountain pen-holder, the combination of the nozzle, a bar beneath the pen against which the heel of the pen rests and of less convexity than the pen, and a wedge-shaped key entering the nozzle above the pen and adapted, when forcibly pressed in, to flatten the pen against said bar, thereby somewhat spreading the nibs, whereby, by means of said key and bar, the flexibility of the pen may be adjusted, as set forth.

6. In a fountain pen-holder, the combination of the nozzle, a bar fitting therein and having a rib against which the heel of the pen rests, a key entering the nozzle above the pen and wedging the pen fast, a groove, *k*, in the side of said key against the pen, forming a duct, and a groove, *l*, in the throat of the holder affording communication between the groove *k* and the reservoir, substantially as set forth.

7. A fountain pen-holder constructed with a nozzle for holding the pen and having two ducts for the passage of ink and air, the one extending from the reservoir down along and in contact with the top of the pen, and the other extending from the reservoir down beneath the pen, substantially as set forth.

8. In a fountain pen-holder, the combination, with a nozzle inclosing and protecting the pen, of a bar arranged in contact with the heel of the pen and extending upward through the throat of the nozzle, a duct for ink and air extending through said bar, and a condensing-chamber at the lower end of said bar within the lower end of the nozzle, substantially as set forth.

9. A fountain pen-holder constructed with a duct for ink or air extending from the reservoir down to a point beneath the heel of the pen, a condensing-chamber communicating with said duct, a contracted outlet from said chamber, and an outer surface extending upward from said outlet into contact above the same with the under side of the pen, substantially as set forth.

10. In a fountain pen-holder, the combination, with the nozzle, of a bar, D, adapted to support the heel of the pen and having a condensing-chamber, *d*, at its lower end, a contracted outlet or outlets from said chamber beneath the point of contact of the bar with the pen, and a duct extending from said chamber up into the reservoir, and the means for controlling the discharge of ink from said chamber, substantially as described.

11. In a fountain pen-holder, the combination of a bar extending through the throat of the holder, a condensing-chamber in the lower end of said bar, a cap closing the lower end of said chamber, an adjusting device for moving said cap up or down to regulate the flow from said chamber, and a duct extending from said chamber up into the reservoir substantially as set forth.

12. In a fountain pen-holder, the combination of bar D, formed with duct *i* and chamber *d*, cap I, arranged against the lower end of the bar to close said chamber, and screw *m*, for adjusting said cap toward or from said bar, substantially as set forth.

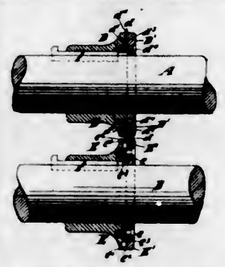
13. In a fountain pen-holder, the combination, with the reservoir, of a capillary ring, J, inserted therein in a plane longitudinally thereof, for the purpose specified.

14. In a fountain pen-holder, the combination, with the reservoir, of an elastic capillary ring, J, inserted therein edgewise under lateral compression and retained therein by friction, substantially as set forth, whereby it is prevented from assuming a transverse position and is adjustable to different points.

15. In a fountain pen-holder, a capillary adjusting device for controlling the flow, consisting of a tongue, *p*, arranged in the reservoir in capillary proximity to the wall thereof on one side and adjustable in position therein relatively to the position of the pen, substantially as and to the effect set forth.

16. In a fountain pen-holder, the combination, with a bar or tube entering the reservoir, of a tubular sleeve, H, mounted adjustably thereon and formed with a tongue, *p*, in capillary proximity to the wall of the reservoir, substantially as set forth.

354,665. ROTARY PERFORATING-MACHINE. EDWIN B. STIMPSON, Jr., Brooklyn, N. Y. Filed Mar. 19, 1886. (No model.)



Claim.—1. The combination, with a rotary die, of a series of punches and a rotary punch-holder composed of two disks or sections clamped together side by side, one of said sections having radial grooves in its face for the reception of the punches, and one of said sections having a circular shoulder underlying the inner ends of the grooves and forming a fixed abutment for the inner ends of the punches, substantially as herein described.

2. The combination, with a rotary die, of the punches *d* and the rotary punch-holder composed of the sections D D', clamped together, the section D having in its face the circular groove d^4 and the grooves d^3, extending radially from the groove d^4 to the circumference of the section, and the section D' having a circular tongue or flange, d^5, which enters the groove d^4, and by underlying the inner ends of the radial grooves d^3 forms an abutment for the inner ends of the punches, substantially as herein described.

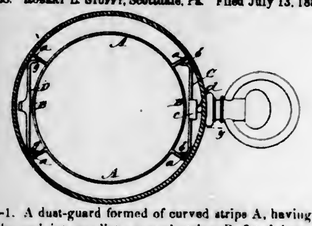
3. The combination, with a rotary punch-holder and punches, of a shaft and a rotary die secured thereon, and composed of two disks or sections arranged side by side and constructed to form between them an internal cavity which is external to the shaft, one of said disks or sections having in its face radial grooves leading inward to the internal cavity

and forming die-openings, and one of said disks or sections having lateral openings leading from the internal cavity, substantially as herein described.

4. The combination, with the rotary punch-holder and punches, of a shaft and a rotary die secured thereon, and composed of two disks or sections arranged side by side, one section, E, having a flange, e', projecting from its face at the circumference and provided with radial grooves e^3, and having the portion within the flange depressed below the face of the flange, so as to form between the disks or sections an internal cavity which is external to the shaft, and the other section, E', having lateral openings e^4 leading from said cavity, substantially as herein described.

5. The combination, with a rotary punch-holder and punches, of a rotary die composed of the sections E E', clamped side by side, the section E having the flange e', which is grooved radially, and also having the projections e^3 flush with said flange, and the section E' having the openings e^4, for the escape of scrap, substantially as herein described.

354,666. COMBINED DUST-RING AND CASE-SPRING FOR WATCHES. ROBERT L. STUPP, Scottdale, Pa. Filed July 13, 1886. (No model.)

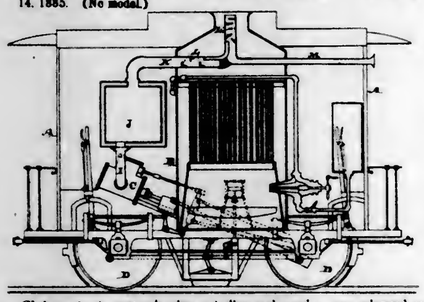


Claim.—1. A dust-guard formed of curved strips A, having ends *a* bent outwardly, and intermediate curved strips, B, fitted between the shoulders of the strips A, substantially as shown and described.

2. The combination, with the curved strips A, having outwardly-bent ends *a*, of case-springs C D, formed of flat strips of spring material, curved at their ends and abutting against the bent ends of the strips A, substantially as shown and described.

3. The combination of the curved strips A, having outwardly-bent ends, intermediate curved strips, B, and the case-springs C D, formed of flat strips of spring material and fitted between the outwardly-bent ends of the strips A, substantially as shown and described.

354,667. MOTOR. GUSTAV SUTRO, San Francisco, Cal. Filed Sept. 14, 1885. (No model.)



Claim.—1. A motor having a boiler and engine, an enlarged receiver having double unperforated walls with an intermediate filling, and a passage through which exhaust-pipes and safety-valves escape open into the receiver, in combination with a passage or passages opening outward from the opposite side of the receiver and having alternately-placed baffle-plates hinged to its opposite sides, substantially as and for the purpose herein described.

2. An enlarged receiver or chamber into which the exhaust-pipe and safety-valve escape of the engine and boiler open, said receiver having double unperforated walls with an intermediate filling, and a passage opening outwardly from the side of the receiver opposite to the inlet-passage, having alternately-hinged baffle-plates, as shown, in combination with an air-pipe opening into said discharge-pipe, so that a draft or current of air will enter the tube or its surrounding jacket, substantially as and for the purpose herein described.

354,668. LACING DEVICE FOR CORSETS. THOMAS P. TAYLOR, Bridgeport, Conn. Filed Sept. 27, 1886. (No model.)

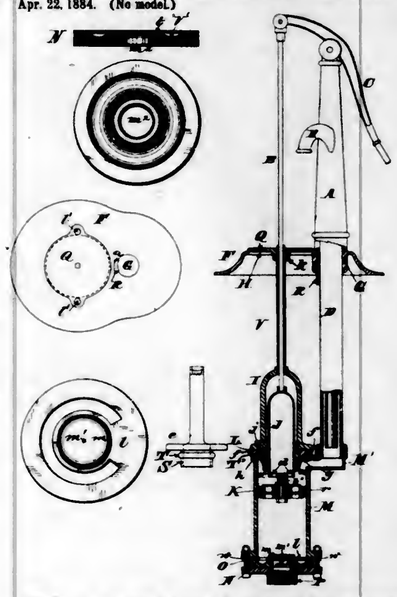


Claim.—1. The combination, with the back sections of a corset and bone wires secured within said sections, of continuous integral series of lacing-eyes, also secured within said sections, which project outward beyond the edges of the corset, but are left free to turn independently of the stays to give greater flexibility at the back of the corset.

2. The combination, with the back sections of a corset and stays or bone wires stitched therein, of continuous series of lacing-eyes which project outward beyond the edges of corset, and means (for example, wrappings 9) whereby the series of eyes are secured within said back sections, but are left free to turn independently of the stays, as and for the purpose set forth.

3. The combination, with the back sections of a corset and stays or bone wires stitched therein, of continuous series of lacing-eyes, formed double at the portion constituting the bearing-surface for the lacing-cord and projecting outward beyond the edges of the corset, and means (for example, wrappings 9) whereby the series of eyes are secured to the stays, but are left free to turn independently thereof within the edges of the corset.

354,669. PUMP. BENJAMIN C. VANDUSEN, Winton Place, Ohio. Filed Apr. 22, 1884. (No model.)



Claim.—1. The combination of brace-arch I, having extension S, provided with bead T, elastic packing L, having flanges *f* and X, the latter overlapping the end of extension S, suction-cylinder M, plunger J, piston K, rod B, and means for holding brace-arch I, packing L, and cylinder M firmly together, substantially as and for the purposes specified.

2. The combination of cylinder M, plunger J, brace-arch I, extension S and its bead T, packing L, having recess T', flange X, overlapping the lower edge of extension S and pressing against the plunger J, and piston K, rod B, tube V, cover Q, and base F, substantially as and for the purposes specified.

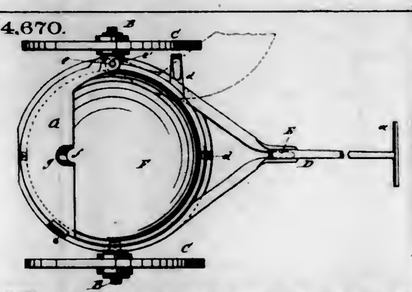
3. The combination of cylinder M, plunger J, brace-arch I, extension S and its bead T, and packing L, having recess T' and straight portion or shoulder *g* on said packing, and flange X, overlapping the lower edge of extension S and pressing against plunger J and piston K, rod B, and means for holding the brace-arch I, packing L, and cylinder M firmly together, substantially as and for the purposes specified.

4. The combination of cylinder M, plunger J, brace-arch I, extension S and its bead T, and packing L, having recess T' and flange X, attached to the said packing and overlapping the lower edge of extension S and pressing against plunger J and piston K, rod B, tube V, cover Q, base F, discharge-conduit D, stock A, and key R, substantially as and for the purposes specified.

354,670. SLAG-CART. AUGUST WERNER, Leadville, Colo. Filed Oct. 19, 1886. (No model.)

Claim.—1. The combination, with the bowl F, of the segmental cover G, pivotally connected with the bowl and provided with the central spout, *g*, substantially as herein shown and described.

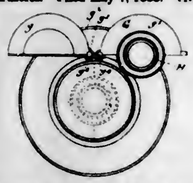
354,670.



2. The combination of the annular frame A, provided with axles B, the wheels C, received on the axles, the bowl F, provided with the flange *b*, arranged to rest on the annular frame A, and the segmental cover G, having the central spout, *g*, and pivotally connected with the bowl F, substantially as herein shown and described.

3. The combination, with the bowl F and segmental cover G, of the hooks *e' d*, formed on or attached to the bowl, for supporting the cover in an open or closed position, substantially as specified.

354,671. HEATING-STOVE. EDGAR W. ANTHONY, Boston, Mass., assignor to Joseph A. Miller, Providence, R. I., and F. F. Raymond, 2d, Newton, Mass., trustees. Filed May 7, 1883. (No model.)

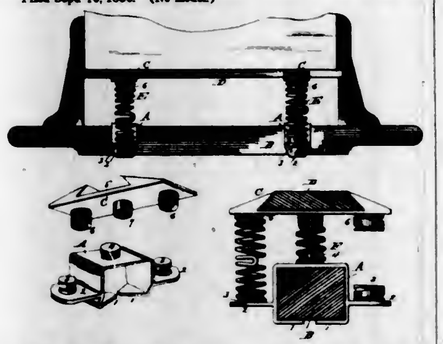


Claim.—1. The combination, in a heating-stove, of the top plate, g^3, having an opening to the interior of the stove, or to an oven therein, with the cover G, made in sections *g g'*, pivoted in line with the adjoining sides of the same to the top plate, and an arm, H, resting on one of said sections, all substantially as and for the purposes described.

2. The combination, in a stove, of the permanent top plate, having a space or recess below its upper surface forming a portion of the oven-space, and the two horizontally-movable sectional plates *g g'*, rounded or shaped to provide or inclose a cavity or space when together, pivoted to the said top plate of the stove, and made movable to and from the said oven-space and each other, whereby when apart they expose the full opening to the oven-space, and when closed they form a portion of the oven-space above the top plate of the stove and a cover to the oven, all substantially as and for the purposes described.

3. The combination, with the main body of a stove having an oven-opening, of a top plate surrounding said oven-opening, a two-part cover, and an arm resting on one section, said section covering or extending over more than half of said opening, and being pivoted in line with its inner edge to one side of the top plate, substantially as and for the purposes described.

354,672. SPRING FOR VEHICLES. ALBERT BARLING, Racine, Wis. Filed Sept. 10, 1886. (No model.)



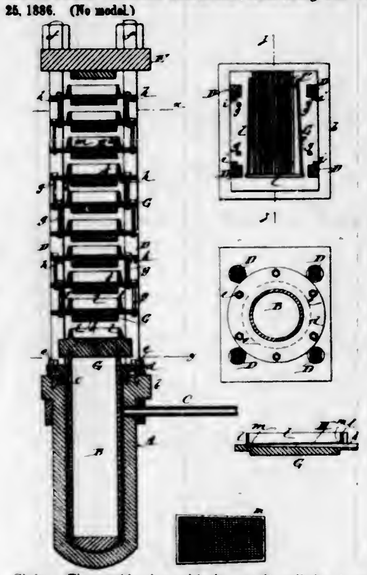
Claim.—1. The saddle or base-plate and the top plate, both having studs grooved or threaded, as described, combined with the spring having its ends coiled in opposite directions, substantially as set forth.

2. The combination, with the base-plate or saddle, of the springs and the top plate having a mortise or groove fitted to receive the body-bar, the walls of said mortise or groove being undercut, substantially as set forth.

3. The combination of the top plate having studs 6 6 and 7, the base having studs 3 3 and 4, the main springs, and the auxiliary spring secured on the stud 4 and fitted around the stud 7, substantially as set forth.

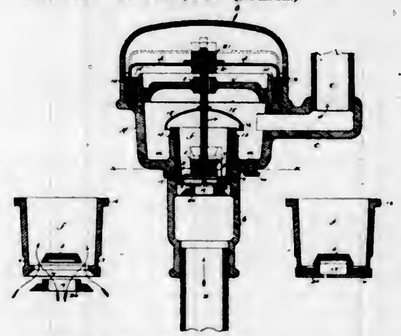
4. The improvement in vehicle-springs, substantially as herein described, consisting of the base-plate or saddle adapted to embrace the bolster and having lugs and threaded studs, and the top plate having an undercut mortise fitted to receive the body-bar and provided with studs, and the former being threaded, the main springs having their opposite ends coiled in opposite directions, and the auxiliary spring, substantially as set forth.

354,673. PRESS FOR EXPRESSING OIL FROM COTTON AND OTHER SEEDS. CHRISTIAN BAUSGARTEN, Schulenburg, Tex. Filed May 25, 1886. (No model.)



Claim.—The combination, with the ram B, cylinder A, and cap or top plate, E, of the press, of the uprights D, provided with a series of stops or studs, A, at different heights or levels, and the independent pressing-plates G in sets pendent the one from the other, for operation in relation with each other substantially as specified.

354,674. GAS-PRESSURE REGULATOR. SAMUEL A. BEATTY, New York, N. Y., assignor to the American Gas Pressure Regulator Company, of New York. Filed June 9, 1886. (No model.)

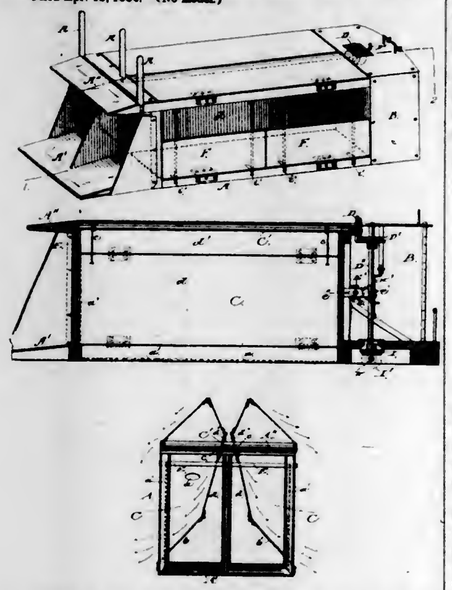


Claim.—1. In a gas-pressure regulator, the combination, with the cup *d*, having its edge immersed in a sealing-fluid and arranged to be operated by the pressure of the gas, of the rod 10, connected to the cup, and provided at its lower end with the pressure-regulating valve 20, hav-

ing the central opening, 19, the removable sleeve *f*, forming a seat for the edge of the valve, and having the disk 3, for closing the central opening of the valve, and the removable cover *g*, the whole being so arranged that the cup, valve, and seat can be removed without disturbing the sealing-fluid, substantially as described.

2. In a gas-pressure regulator, the combination, with the cup *d*, having its edge immersed in a reservoir of sealing-fluid and arranged to be operated by the pressure of the gas, of the rod 10, connected to the cup, and provided at its lower end with the pressure-regulator valve 20, having the central opening, 19, the removable sleeve *f*, forming a seat for the edge of the valve, and having the disk 3, for closing the central opening, 19, of the valve, the hood 18, the removable guide-plate 11, and the removable cover *g*, the whole being so arranged that the cup, valve, and seat can be removed from the regulator without disturbing the sealing-fluid, substantially as described.

354,675. SNOW-PLOW. John H. Bennett, New Hampton, Iowa. Filed Apr. 13, 1886. (No model.)



Claim.—1. The frame A, provided with the shovel A', and a floor divided longitudinally and hinged to the frame and to vertical sections *d*, substantially as described.

2. A sectional hinge-floor, in combination with a sectional hinge-top and sectional connections, arranged and constructed to operate substantially as and for the purpose set forth.

3. In a snow-plow, a sectional hinged floor, a sectional hinge-top, and sectional hinge-connections, in combination with a longitudinal shaft, C', cords *c c*, bevel-gears D D', and vertical shaft D'', and suitable mechanism for operating the same, substantially as and for the purpose herein set forth.

4. In a snow-plow, a sectional hinged floor, a sectional hinge-top, and sectional hinge-connections, in combination with the cutting-blade K, cords *a*, longitudinal shaft C', cords *c c*, bevel-gears D D', and vertical shaft D'', and suitable mechanism for operating the same, substantially as and for the purpose herein set forth.

5. In a snow-plow, a sectional hinged floor, a sectional hinge-top, and sectional hinge-connections, in combination with longitudinal shaft C', cords *c c*, bevel-gears D D', vertical shaft D'', bevel-gears I I', and transverse shaft K, all constructed and arranged to operate substantially as and for the purpose herein described.

6. In a snow-plow, a sectional hinged floor, a sectional hinge-top, and sectional hinge-connections, in combination with the dump-boards F, substantially as and for the purpose set forth.

7. In a snow-plow, a sectional hinged floor, in combination with the cord N, weight M, and brake-lever H, and rod L, all constructed and arranged to operate substantially as and for the purpose set forth.

8. The brake-lever H, connections J, and twin levers J', in combination with the rods H', spurs *h*, longitudinal bars G, having hooks *i''*, and the boards F, having hooks *i'*, all constructed to operate substantially as and for the purpose set forth.

9. In a snow-plow, the cutting-blade E and cord *a'*, in combination with the shaft E' and suitable mechanism for operating the same, substantially as and for the purpose herein described.

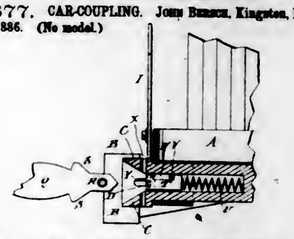
354,676. ANIMAL-POKE. Finley E. Benson, Lake Park, Iowa. Filed Oct. 1, 1886. (No model.)



Claim.—1. An improved animal-poke consisting of a U-shaped loop provided with an arm at its curved extremity, having a forwardly-projecting hook and provided with a barb, and a bar pivoted to the lower end of one arm of the U-shaped loop, and provided with a loop for engaging the other arm of the said loop, substantially as herein shown and described.

2. The herein-described animal-poke, consisting of the U-shaped loop A, having heads *e f* on its arms and provided with the arm E, having the hook *i* and barb *g'*, and the bar B, having an eye in one end to receive one arm of the U-shaped loop, and provided with the loop *e* at the other end to receive the other arm of the said loop, as specified.

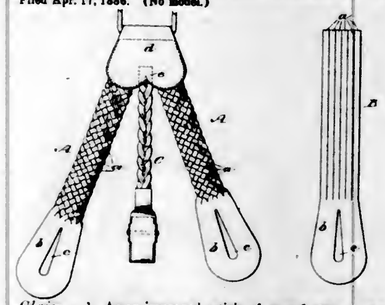
354,677. CAR-COUPLING. John Berger, Kingston, Pa. Filed Apr. 27, 1886. (No model.)



Claim.—1. In a car-coupling, the coupling-bar Q, made substantially as herein shown and described, with its ends beveled upon their upper and lower edges and having transverse perforations to receive the coupling-pins, and provided with inclined shoulders 8 upon its upper and lower edges to fit against the inclined top and bottom surfaces of the draw-heads, as set forth.

2. In a car-coupling, the combination with the draw-head C, having the top and bottom of its mouth flared in straight lines and provided with a transverse perforation, of the coupling-bar Q, having upon its upper and lower edges inclined shoulders to fit against the inclined top and bottom of the draw-head mouth, the coupling-pin E, held forward by a spring, G, and a pin-withdrawing mechanism, substantially as herein shown and described.

354,678. SUSPENDER-END. William Bloomberg, New York, N. Y. Filed Apr. 17, 1886. (No model.)



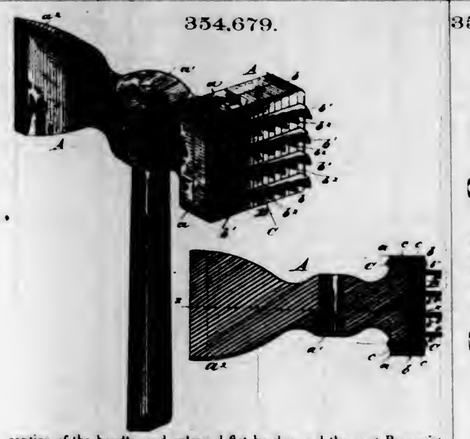
Claim.—1. As an improved article of manufacture, a suspender-end made of a solid portion, *b*, and strands *a*, connected with the solid portion and plaited together, forming a flat end, substantially as shown and described.

2. The blank B, for a suspender-end, composed of the solid buttonhole portion *b* and strands *a*, continuous of the solid portion, substantially as described.

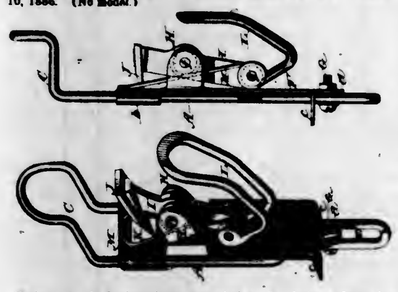
354,679. MEAT-TENDERER. Herman Borchers and Eli M. Chambers, Indianapolis, Ind. Filed Oct. 12, 1886. (No model.)

Claim.—As an improved article of manufacture, a meat-tenderer consisting of the part A, having a cutting-blade, a^2, eye a^1, for the reception of the handle, and enlarged flat head *a*, and the part B, consisting of the metal body *b*, cast with the serrated steel blades *b'*, extending unbrokenly across its outer surface, the serrations of the blades forming the teeth of the tenderer, the body *b* being secured to the head *a* by rivets, substantially as described.

354,679.



354,680. ADJUSTABLE GAGE FOR SUPPORTING CLAPBOARDS. Henry Brand and Andrew J. Vollrath, Sheboygan, Wis. Filed Aug. 10, 1886. (No model.)



Claim.—1. A clapboard-gage consisting of a skeleton frame having its upper end provided with a supporting-arm, and an angular plate adjustable on the frame, said plate having a suitable opening in its upper portion, in combination with a pointed lever trunnioned in bearings on the plate, and means for operating this lever, substantially as set forth.

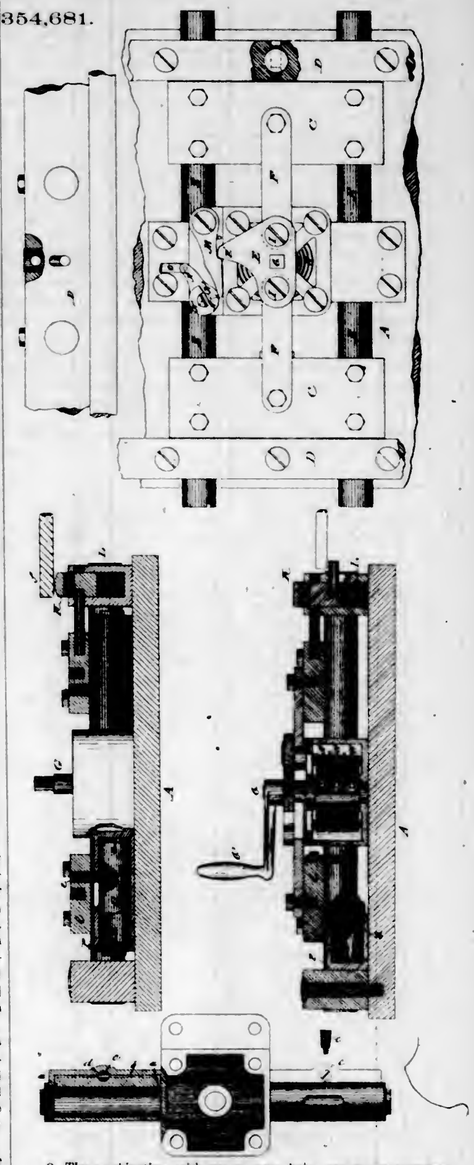
2. A clapboard-gage consisting of a skeleton frame made from a single piece of wire, and provided at its upper end with an angular supporting-arm, and an angular plate adjustable on the frame and provided at its upper end with a suitable opening, in combination with a pointed lever trunnioned in bearings on the plate, and means for operating this lever, substantially as and for the purpose set forth.

3. A clapboard-gage consisting of a skeleton frame made from a single piece of wire, and provided at its upper end with an angular supporting-arm, and an angular plate adjustable on the frame and provided at its upper end with a suitable opening, in combination with a pointed lever trunnioned in bearings on the plate, and an angular lever made from a single piece of suitable wire, having the ends thereof pivotally connected to said pivoted lever, substantially as set forth.

4. A clapboard-gage consisting of the frame A, made from a single piece of wire bent to form the arm C, and guide-slot E, the plate F, having the opening K, and integrally provided with the arms H, sleeves *b*, right-angular wings *c*, and extension *d*, and the set-bolt G, for retaining said plate in its adjusted position, in combination with the pointed lever I, spring M, and angular lever L, all arranged to operate substantially as and for the purpose set forth.

354,681. AUTOMATIC SAFE BOLT-WORK. Thomas M. Brentnall, Maryville, Mo. Filed July 9, 1885. (No model.)

Claim.—1. The combination, with one or more bolts, one or more springs, and intermediate mechanism whereby said bolts are forcibly operated by the springs in both their forward and backward movements, of a cylinder and piston connected with such parts, said cylinder being closed at both ends, whereby a gradually-diminishing resistance is offered to the bolts in both directions of movement, substantially as set forth.



2. The combination, with one or more bolts, one or more springs, and a slide-rod, of a puppet located across the path of the slide-rod, and having a perforation fitted to permit the passage of the slide-rod when the puppet is depressed, substantially as set forth.

3. In combination with the lock bolt or bolts, the operating spring or springs, and a slide-rod, a puppet movable across the path of and having a longitudinal groove fitted to receive the end of said slide-rod, such puppet being adapted to permit the passage of the slide-rod when depressed, substantially as set forth.

4. The combination of one or more lock-bolts in a door, one or more springs for sliding the same, a slide-rod connected with the bolts and parallel with their line of motion, a perforated puppet located across the path of the said rod in a rib of the door, and adapted to project therefrom in the direction of motion of the closing door, a lug located in the path of the said puppet, and a spring beneath the puppet, substantially as shown and described.

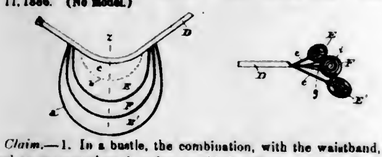
5. The combination of one or more lock-bolts, springs for sliding the same, a slide-rod connected with the bolts and parallel with their line of motion, a puppet located across the path of the slide-rod, and a spring beneath the puppet, the puppet being slotted to receive the end of the slide-rod and perforated through the slot to permit the rod to pass through, substantially as shown and described, whereby the puppet is held from being ejected by its spring, as set forth.

6. The combination of one or more lock-bolts, springs for sliding the same, a rotary shaft and arm connected with the springs to be rotated thereby, a pivoted latch to engage the said arm, a detent to hold the latch, and means to connect the detent with time-works, the plane of contact of the said arm and latch being at an obtuse angle with that radius of the latch which passes through the said plane, substantially as shown and described.

7. The combination of lock-springs, a shaft and arm attached to be rotated thereby, a latch adapted to engage the arm in a plane at an obtuse angle with a radius of the latch passing through the said plane, and a detent shaped as a cylindrical segment pivoted to engage the arm of the latch on the surface of the said cylinder, substantially as shown and described.

8. The combination of one or more bolts, one or more springs, a lever connected with said bolts, a latch adapted to engage said lever, and a pivoted segmental detent having a face curved in an arc struck from its pivot and arranged to engage the latch, substantially as set forth.

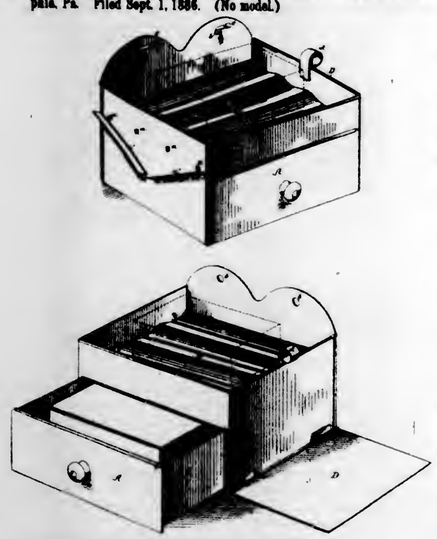
354,682. BUSTLE. EDWARD B. CADY, Jackson, Mich. Filed Mar. 11, 1886. (No model.)



Claim.—1. In a bustle, the combination, with the waistband, of a curved or crescent-shaped pocket provided on the inner side of its curve with a central web, c, attached to the waistband, and having its outer side and ends entirely closed and its inner side adjoining the central web closed from each end part of the way toward the center, but open at the center, and a coiled spring in said pocket, for the purpose specified.

2. In a bustle, the combination, with the waistband and the crescent-shaped coiled spring, of the stuffed pad-pocket E', having a web connecting it to the waistband and maintaining it beneath the said coiled spring, as set forth.

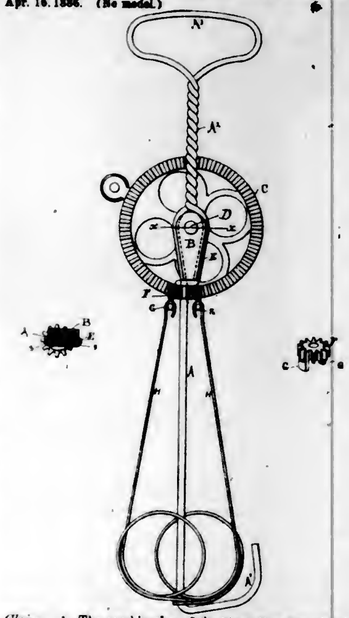
354,683. SOAP-RECEPTACLE. ANGELINE H. CAMPBELL, Philadelphia, Pa. Filed Sept. 1, 1886. (No model.)



Claim.—1. A soap-dish having a hinged shelf, D, at one end, as and for the purpose described.

2. A soap-dish provided at one end with a shelf, D, hinged at the bottom, and a catch on the upper edge to retain the shelf in the closed position.

354,684. EGG-BEATER. JAMES T. CARLEY, Greenport, N. Y. Filed Apr. 16, 1886. (No model.)



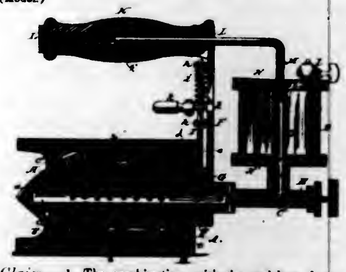
Claim.—1. The combination of the block B and crank-wheel C with the supporting rod A, twisted to form a handle and bent to inclose and firmly clamp the block, substantially in the manner and for the purpose herein set forth.

2. The combination, with the supporting-rod A, crank-wheel C, pinion F, and lugs G G, projecting from said pinion, of the single doubly-coiled continuous wire H, bent between its coils around the lower end of the rod A and hooked at each end into the perforated lugs G G of the pinion, substantially in the manner and for the purpose herein set forth.

3. The combination of the perforated lugs G G with the pinion F and the ends of the beating-wire H, substantially in the manner and for the purpose herein set forth.

4. The combination of the block B, crank-wheel C, supporting-rod A, clamped about the block B, pinion F, rotating on said rod, and continuous wire H, which is attached at either end to the pinion F, is looped centrally around the lower end of the supporting-rod H, and is intermediately bent to form beating-coils, substantially in the manner and for the purpose herein set forth.

354,685. SAD-IRON. AUGUST F. CHABLE, Evansville, Ind., assignor of one-fourth to Joseph Clark Price, same place. Filed Dec. 24, 1885. (Model.)



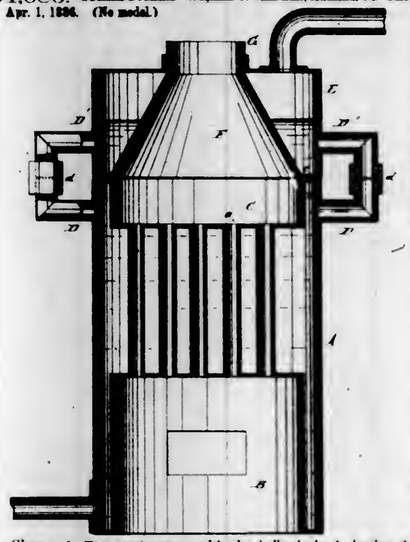
Claim.—1. The combination, with the sad-iron frame A, of the detachable faces, whose edges are rabbeted, the inner shoulders of the rabbets being cut away for a portion of their length to form air-openings, and the perforated burner-tube C, arranged within said frame, all as shown and described.

2. The combination, with the metal frame A, of a detachable face having a locking-projection, *b*, on one end and a conical recess in the other end, and a screw, *c*, having a conical point and arranged as specified, whereby when it enters such recess its point comes first in contact with the inner side of the recess, and thus draws inward the rear end of the detachable face while pushing the latter forward.

3. The combination of rod I, spring *i*, and finger-piece *k* with the frame A and its circular boss, having holes *y*, and the handle F, having the cylindrical portion G, provided with a socket to receive the rod, whereby the parts may be locked together, as specified.

4. The combination of the handle, the horizontal tube fixed in the same, the screw *k'*, the rod which is bent downward and threaded, the reservoir, the vertical tubular post within said reservoir, provided with openings for supplying the burner, and the burner-tube connected with said post, substantially as shown and described.

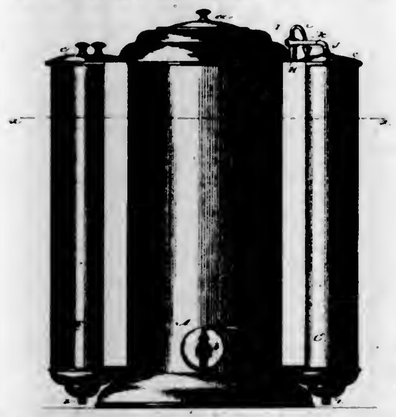
354,686. STEAM-BOILER. WILLIAM J. CHAPMAN, Rutland, Vt. Filed Apr. 1, 1886. (No model.)



Claim.—1. The combination, with the boiler-body A, having the recessed head C, and annular space *b* above the flues, of the auxiliary annular chamber E, formed around the hollow cone F, and connected with the annular space *b* of the boiler by pipes D D', substantially as herein shown and described.

2. As an improved article of manufacture, a boiler formed of the body A, having a fire-box, B, the recessed head C, and flues *a*, the annular chamber E, formed around the hollow cone F, the pipes D D', and couplings *d*, connecting said pipes, substantially as herein shown and described.

354,687. WATER COOLER AND FILTER. RICHARD CHESTER, Lake View, Ill. Filed Apr. 6, 1886. (No model.)



Claim.—1. The combination, with a water-cooler, of a series of chambers filled with filtering materials, and so connected that the water in its course will have to pass through all the chambers before entering the cooler-vessel, the same being constructed and arranged substantially as set forth, to operate as specified.

2. The combination, with a water-cooler, of a series of chambers filled alternately with gravel and charcoal and so connected with each other and with an automatic supply that the water in its course will have to alternately fall and rise through all the chambers in their successive order before entering the cooler-vessel, the same being constructed and arranged substantially as set forth, to operate as specified.

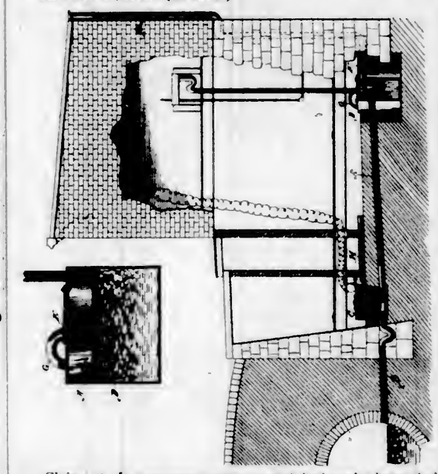
3. The combination, with a water-cooler, of a series of chambers communicating alternately at their top and bottom and then with the cooler-vessel and alternately filled with gravel and charcoal in a manner that the water in its course will have to filter through all such material in the several chambers before entering the cooler-vessel, the same being constructed and arranged substantially as set forth, to operate as specified.

4. The combination, with a water-cooler and with a series of filtering-chambers connected therewith and communicating with each other and with the cooler-vessel in a manner that the water in its course will have to fall and rise alternately through all the chambers in their successive order before entering such cooling-vessel, of a supply-faucet automatically regulated by a float, the whole being constructed and arranged substantially as set forth, to operate as specified.

5. The combination, with a water-cooler and with a series of chambers connected therewith and communicating with each other and with the cooler-vessel in a manner that the water in its course will have to fall and rise through all the chambers in their successive order before entering the cooler-vessel, of canvas bags secured with their ends upon perforated cups, and filled with gravel or charcoal alternately, and inserted removably into the several filtering-chambers, all substantially as set forth, for the purpose specified.

6. The combination, with a water-cooler, of a series of filtering-chambers connected therewith and communicating with each other and with the cooler-vessel, each such chamber being provided on its bottom with a screw-cap, substantially as and for the purpose set forth.

354,688. SEWERAGE SYSTEM. JAMES H. CLARK, Chicago, Ill. Filed Nov. 17, 1885. (No model.)



Claim.—1. In a sewerage system, a catch-basin and a house drain-pipe and gas-escape pipe connected therewith, in combination with a cellar drain-pipe and a connection between said cellar and house drain-pipes, and an automatic valve adapted to seat upon and close the mouth of said cellar drain-pipe, whereby said valve will close to prevent the passage of water and open to permit the passage of gas, substantially as and for the purpose described.

2. In a sewerage system, a catch-basin, the gas-escape pipes opening therein, the valve-box, the house drain-pipe connecting said box and the catch-basin, the sewer-pipe, the cellar drain-pipe connected with said valve-box, and a valve automatically operated to seat upon and close said drain-pipe when backwater occurs only, substantially as described.

3. In a sewerage system, a catch-basin and a deflector therein, in combination with a house waste-pipe opening upon one side of said deflector, and a house drain-pipe and a gas-escape pipe opening on the other side of said deflector, substantially as described.

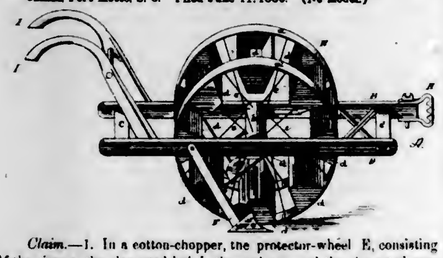
4. In a sewerage system, a catch-basin provided with a deflector, in combination with a house drain-pipe and gas-escape pipe opening upon one side of said deflector, a house waste-pipe opening upon the other side of said deflector, and an air-pipe connection between the two

chambers formed by said deflector, whereby gases are conducted from the house waste-pipe to the gas-escape pipe, substantially as described.

5. The sewer-pipe, the valve-box, and the cellar drain-pipe, in combination with the catch-basin, the house drain-pipe connecting said basin with the valve-box, and a gas-escape pipe connected with said catch-basin, whereby gases may be conducted from the cellar and catch-basin, and their connections to the outside air, substantially as described.

354,689. COTTON CHOPPER AND CULTIVATOR.

ROBERT E. CLARK, Fort Motte, S. C. Filed June 11, 1886. (No model.)

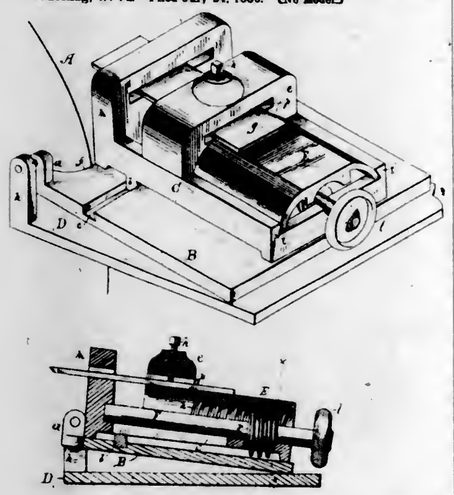


Claim.—1. In a cotton-chopper, the protector-wheel E, consisting of the rims *a*, the elongated hub *b*, the spokes *c*, and the elongated covers *d*, secured to the said rims, substantially as herein shown and described.

2. In a cotton-chopper, the combination, with the frame B D C, of the double rim-wheel E, journaled in the said frame, and provided with the elongated covers *d*, secured to the rims of the wheel, and the plow-standards F, substantially as herein shown and described.

354,690. TOOL-HOLDER FOR GRINDSTONES.

HUGH CLEARY, Wheeling, W. Va. Filed July 24, 1886. (No model.)



Claim.—1. In a tool-holder, and in combination, a base-plate, B, suitably supported, a carriage supported thereby, and a connecting means between the two adapted to permit lateral movement of the carriage, consisting of a suitable lug and groove, said connection being located at the end of the part nearest the point of work, substantially as described, and for the purposes set forth.

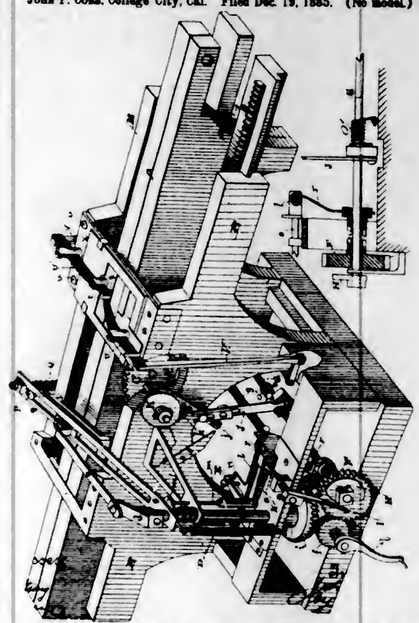
2. In a tool-holder, and in combination, a base-plate, B, a carriage, C, adapted to have lateral movement, a supplemental carriage adapted to have longitudinal movement, consisting of holding-stud *s* for the tool, and the arch shaped extension E, for the adjusting devices, substantially as described.

3. In the described tool, and in combination, a carriage, C, a tool-holding frame, an arch-shaped extension for the adjusting devices, said extension being mounted upon the carriage C, with its edges in suitable guideways, whereby a complete inclosure is formed for the adjusting mechanism, substantially as described.

4. In the described tool, and in combination, a carriage, C, a tool-holding frame adapted to be adjusted longitudinally thereon, a horizontal extension of said frame adapted to hold and inclose the adjusting devices, and a tool projecting toward the stone in the same plane with said holding-frames, for the purpose set forth.

354,691. MACHINE FOR SETTING AND SHARPENING SAWS.

JOHN P. COBB, College City, Cal. Filed Dec. 19, 1885. (No model.)



Claim.—1. In a saw filing and setting apparatus, the saw carriage or holder traveling in guides having a toothed rack fixed to them, in combination with a gear-wheel engaging said rack, a ratchet-wheel upon the shaft of the gear-wheel, a lever-arm with pawls, and a pitman connected with said lever, and an operating arm or crank upon the countershaft, whereby the pawls actuate the ratchet and advance the carriage, substantially as herein described.

2. The saw-supporting carriage, the guides having a rack fixed to them, and mechanism, substantially as described, operated by a crank-shaft beneath the guides, by which the carriage is advanced intermittently, a file and guide frame extending across the apparatus above the saw, in combination with a vertical shaft, and a crank and pitman, whereby the file is moved across the saw, substantially as herein described.

3. In combination with the driving-shaft *g*, the parallel countershaft G, having a loose gear, F, engaging with a pinion upon the driving-shaft, and a clutch mechanism whereby said gear may be caused to engage and drive its shaft intermittently, and a coil-spring, O, by which the shaft is returned to its first position after being released from the clutch, substantially as herein described.

4. The file-guide having one end fitted loosely to the vertical shaft *a*, having a crank-arm by which the file is reciprocated, a spring by which this end of the guide is drawn downward, in combination with an arm or rod having a gage-screw, E, fixed to it, a lever by which the clutch mechanism is thrown into gear, and a second lever and shaft actuated by a cam, H, upon the end of the shaft G, whereby the file-guide is raised and the gage-screw is also raised to release the clutch mechanism, substantially as herein described.

5. The combination of a slotted file-guide, a vertical shaft having a crank-arm secured thereto, a pitman, the supporting-post Q, engaging one end of the guide, and the curved slotted arc R, in which said post is adjusted, all constructed and arranged to operate substantially as herein described.

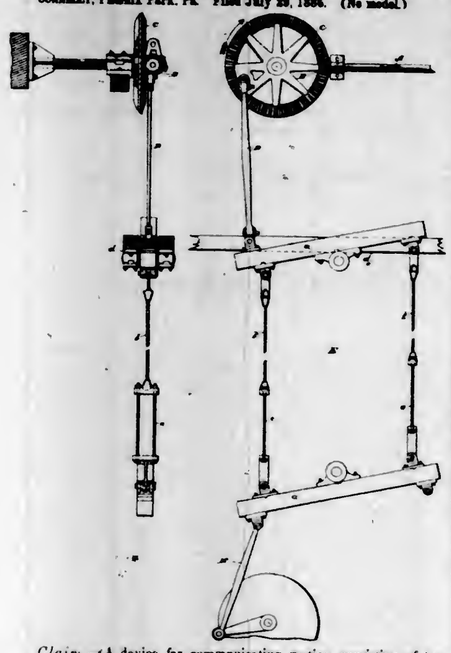
6. The combination of the horizontal shaft G, having a crank-arm, T, and returning-spring O, the clutch mechanism by which it is intermittently connected so as to be rotated, the gear-wheel F, the slotted arm M, and the pitman connecting with the setting-arms, substantially as herein described.

7. The setting arms or levers provided with projections S, and inner ends adapted to press the two adjacent teeth of a centrally-held saw in opposite directions when the outer ends of the levers are raised, substantially as herein described.

8. The adjustable plates W and *x* with guides, in combination with setting-levers formed to press two adjacent saw-teeth in opposite directions, and a mechanism to actuate said levers, substantially as herein described.

354,692. DEVICE FOR TRANSMITTING POWER.

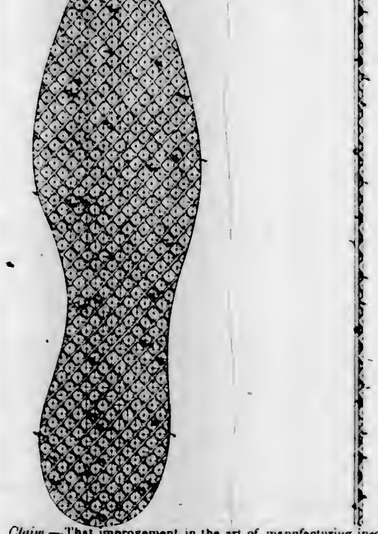
THOMAS H. CONNELLY, Phœnix Park, Pa. Filed July 29, 1886. (No model.)



Claim.—A device for communicating motion, consisting of two straight rocking beams, one arranged to receive motion from any source of power and the other to transmit the same, and intermediate cables arranged parallel to each other throughout their whole extent between the rocking beams, and fixed directly to the inner opposite ends of said beams upon each side of the pivotal point thereof, whereby a practically rigid frame is provided, combined with suitable connections for receiving and transmitting power, as set forth.

354,693. INSOLE FOR BOOTS OR SHOES.

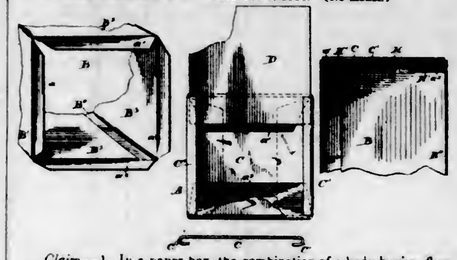
ROBERT DICK, Glasgow, County of Lanark, Scotland. Filed Dec. 30, 1885. (No model.) Patented in England Mar. 10, 1885, No. 3,116.



Claim.—That improvement in the art of manufacturing insoles for boots or shoes which consists in uniting a layer of gutta-percha compound to a layer of suitable fabric by molding, corrugating the outer surface of the gutta-percha, and perforating the same while under molding pressure, all substantially as described.

354,694. PAPER-BOX.

JOHN F. DIEHER, Elizabeth, N. J., and PAUL E. GONON, New York, N. Y. Filed Oct. 8, 1886. (No model.)

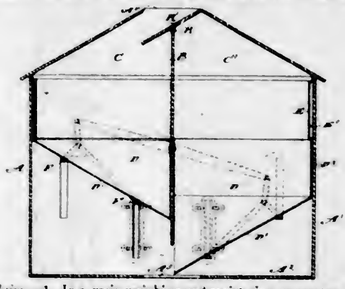


Claim.—1. In a paper-box, the combination of a body having flaps with a metallic slide and a locking-plate, substantially as shown and described.

2. In a paper-box, the combination of a body provided with sides, each having a flap and an overlapping end piece secured to one of the sides, with a metallic slide having guides and a locking-plate, substantially as shown and described.

354,695. GRAIN WEIGHING AND REGISTERING APPARATUS.

WILLIAM H. ERNST, Chase, Kans. Filed Mar. 26, 1886. (No model.)



Claim.—1. In a grain weighing and registering apparatus, the combination, with a box having a partition extending nearly to the bottom, of two movable grain-receptacles having their inner sides open and provided with inclined bottoms, substantially as described, whereby when the receptacles are raised the partition will form a cover for their inner sides, and when lowered will be free to discharge their contents, as set forth.

2. In a grain weighing and registering apparatus, the combination, with a box having a central partition extending nearly to the bottom of the same, and weighing and registering devices, of two movable grain-receptacles with inclined bottoms and open inner sides, a pivoted beam connected to said receptacles, and intermediate connections between the said beam and the weighing and registering devices, substantially as herein shown and described.

3. In a grain weighing and registering apparatus, the combination, with a box divided into two compartments by a partition extending nearly to the bottom, and weighing and registering devices, of two movable grain-receptacles having inclined bottoms and open inner sides, a pivoted beam connected to the receptacles, a pivoted gate in the upper part of the receptacles, and intermediate connections between the beam, gate, and weighing and registering devices, substantially as herein shown and described.

4. In a grain weighing and registering apparatus, the combination, with the box A, having the central partition, B, and slots in its sides, of the receptacles D, having inclined bottoms D', the beam I, the rods F F'' on the bottom of the receptacles, the bent arms G, connected to the said rods, and the links H, connected to the bent arms and to the beams, substantially as herein shown and described.

5. In a grain weighing and registering apparatus, the combination of the two receptacles D, provided with the inclined bottoms D', the rods F and F'', the arms G, the links H, and the beam I, with the lever O, the adjustable foot-piece P, the arm Q, the rod R, and the shifting gate R', substantially as shown and described.

6. In a grain weighing and registering apparatus, the combination of the receptacles D, having inclined bottoms D', provided with the rods F and F'', connected on their outer ends with the arms G, pivotally attached to the links H, connected to the ends of the beam I, with the arm O, the adjustable foot-piece P, the arm Q, the rod R, the shifting

gate R', and the pawl S, operating a ratchet-wheel, T, attached to and operating the registering device, substantially as shown and described.

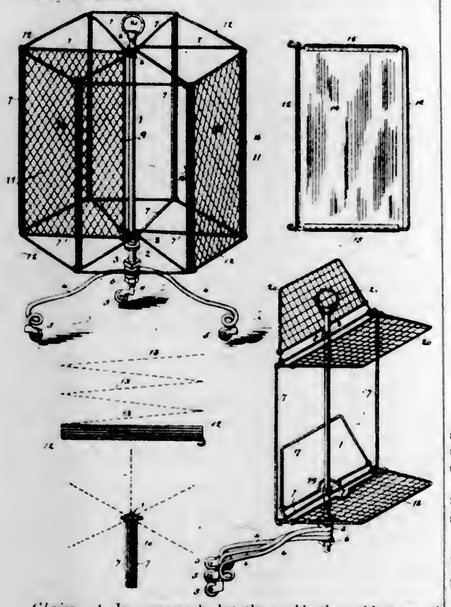
7. In a grain weighing and registering apparatus, the combination of the receptacles D, having inclined bottoms D', and provided with the rods F and F', connected with the arms G, pivotally attached to the links H, and the beam I, with the rod J, the bell-crank lever K, the lever L, and the sliding plate M, provided with the weighing-beam M', substantially as shown and described.

354,696. NUT-LOCK. FRANK F. FOULK, West Earl, Pa. Filed Nov. 3, 1886. (No model.)



Claim.—In a nut-locking device, the combination, in a washer, of the following elements: the body C and the lugs *d d d*, constituting the flange *c*, which may be turned up against the side of the nut E to prevent the same from turning, the central cone-shaped opening, G, and semicircular spring-tongues F, which are fast on opposite sides of the opening G, and the points *f* on the inner face of the upwardly-projecting ends of the tongues F, which are forced into the thread of the bolt D to prevent the washer turning, when constructed and applied substantially as herein shown, and for the purpose set forth and described.

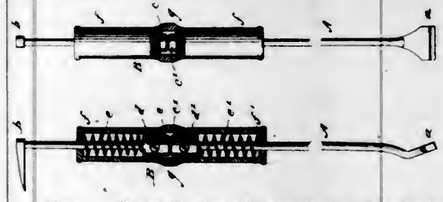
354,697. FOLDING SPONGE-BASKET. DAVID A. GABAY, New York, N. Y., assignor to McKesson & Robbins, same place. Filed Oct. 15, 1886. (No model.)



Claim.—1. In a sponge-basket, the combination, with a central standard, 1, having legs 4 loosely hinged at one end, and means for tightening said legs, of a series of partitions, 10, hinged to said standard, adapted to radiate therefrom, an outer series of detachably-hinged panels, 13, the divided detachable hinged top 20, and removable bottom-sections 17 and 18, substantially as shown and described, whereby the said basket is divided into a number of vertical compartments and made to revolve around the central standard, as set forth.

2. In a sponge-basket, the combination, with a central standard, 1, having legs 4 hinged thereto, adapted to fold together in the same plane, and a series of partitions, 10, hinged above said legs, adapted to fold one against the other, of an outer casing of hinged detachable folding panels, 13, the removable bottom-sections 17 and 18, and detachable hinged covers 20, substantially as shown and described, whereby the entire basket can be knocked down and folded in a limited space, as set forth.

354,698. TAMPING-BAR. TIMOTHY GLEASON, Red Wing, Minn. Filed Apr. 22, 1886. (No model.)



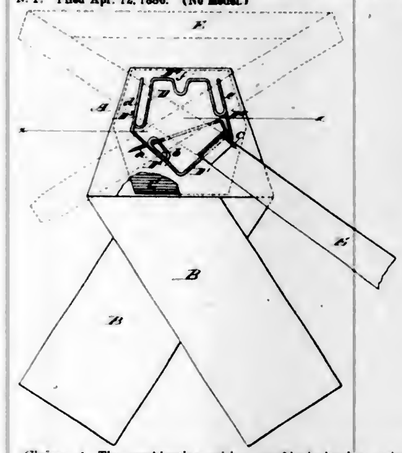
Claim.—1. The combination, with a tamping-bar, of a spring-handle, substantially as herein shown and described.

2. The combination, with the bar A, of one or more adjustable collars, springs placed on opposite sides of the collar or collars, and the hollow handle inclosing the springs and collar or collars, substantially as herein shown and described.

3. The combination, with the tamping-bar A, of adjustable collars *c c'*, springs *e e'*, and the hollow handle B, inclosing the collars, springs, and a portion of the tamping-bar, substantially as herein shown and described.

4. The combination, with the tamping-bar A, of adjustable collars *c c'*, springs *e e'*, and a hollow handle, B, formed of the tubes *f f'*, threaded at their inner ends and connected by the internally-threaded thimble *g*, substantially as herein shown and described.

354,699. NECKTIE-FASTENER. GEORGE B. HAINES, New York, N. Y. Filed Apr. 12, 1886. (No model.)



Claim.—1. The combination, with a scarf-body having a detachable fastener, substantially as described, of a neckband with one end rigidly attached to the said fastener, substantially as shown and described.

2. In a scarf, a fastener provided with a pin, *a*, and a loop, *b*, for the same, the loops *d* and *e*, and the bend *f*, substantially as herein shown and described.

3. In a scarf, the combination of the fastener D, provided with a pin, *a*, and the loop *b* for the same, the loops *d* and *e*, and the band *f*, with a neckband attached to one end of the fastener, substantially as herein shown and described.

4. In a scarf, the combination of a piece of cloth, B, and a metal shield, C, with the detachable fastener D, provided with the pin *a*, the loops *b*, *d*, and *e*, the hook *c*, and the bend *f*, and with a neckband, E, substantially as herein shown and described.

354,700. STOP-AND-WASTE CONNECTION FOR TANKS. PATRICK HARVEY, Chicago, Ill. Filed Oct. 27, 1885. (No model.)

Claim.—1. In combination with the stop-and-waste valve and its actuating mechanism, the float in the tank, the lever swinging in a vertical plane having one arm connected to the valve-actuating mechanism, and stopped above its pivot just beyond the vertical line through the same, and mechanism operated by the float to swing the lever back past said vertical line, substantially as and for the purpose set forth.

2. In combination with the stop-and-waste valve and its actuating mechanism, the float in the tank, the bell-crank lever swinging in a vertical plane, having one arm connected to the valve-actuating mechanism, and holding the valve open when it is vertical above the pivot of the lever, and having the other arm connected to the float and raised by the rising of the float, whereby the rising float swings the valve-actuating arm of the lever past the vertical line through its pivot, substantially as and for the purpose set forth.

3. In combination with the stop-and-waste valve and its actuating mechanism, the float in the tank, the lever swinging in a vertical plane connected to the valve-actuating mechanism, and stopped above its pivot just beyond a vertical line through the same, and the rock-shaft actuated by the float, and mechanism operated by its lever-arm to swing the lever back past said vertical line, substantially as and for the purpose set forth.

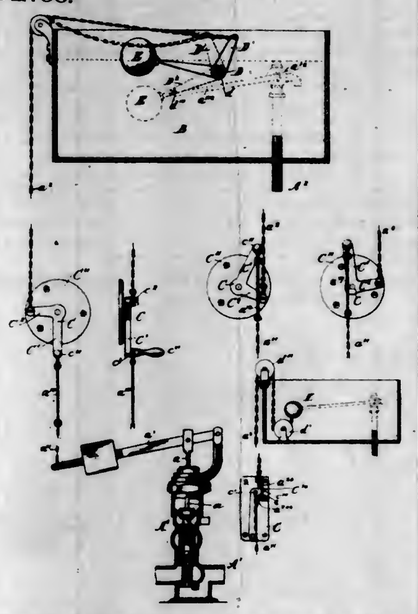
4. In combination with the stop-and-waste valve and its actuating mechanism, the float in the tank, the bell-crank lever swinging in a vertical plane, and having one arm connected to the valve-actuating mechanism, and holding the valve open when it is vertical above its pivot, the rock-shaft operated by the float and connected to the other arm of the bell-crank lever and raising the same when the float rises, whereby the float rising causes the valve-actuating arm of the lever to swing past the vertical line through its pivot, substantially as set forth.

5. In combination, substantially as set forth, the stop-and-waste valve, the bell-crank lever having one arm connected to the valve-actuating mechanism, the float connected to the other arm of said lever, said latter arm having a lateral projection and being shorter than the former arm, whereby said projection affords a stop to arrest the motion of the bell-crank lever.

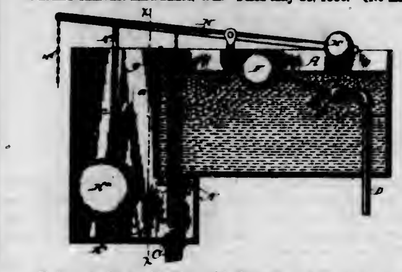
6. In combination with the stop-and-waste valve and its actuating mechanism, the float, the bell-crank lever having its shorter arm provided with a wrist end connection therefrom to the float, and having its longer arm connected with the valve-actuating mechanism, the last link in said connection being a rigid one, longer than the distance from its connection with said arm to the wrist on the short arm, whereby said wrist serves to stop the motion of the bell-crank lever and make further motion impossible without further raising the valve-rod, substantially as set forth.

7. In combination with the stop-and-waste valve, the service-pipe leading therefrom to the tank, the valve controlling the discharge from said pipe into the tank, the lever C and its connections to the stop-and-waste valve, and the float in the tank, and connections by which it actuates both the lever C and the valve in the service-pipe, substantially as and for the purpose set forth.

354,700.



354,701. TANK-OPERATING DEVICE FOR WATER-CLOSETS. PATRICK HARVEY, Milwaukee, Wis. Filed May 21, 1886. (No model.)



Claim.—1. In combination with the tank and service-box and the valve which controls communication between them, the lever which operates said valve, and a second lever having a catch-nose, whereby it is operated by and engages the first lever, and a float in the service-box connected to and operating the second lever to disengage its catch-nose from the first lever, substantially as set forth.

2. In combination with the tank and service-box and the valve which controls and communicates between them, the lever which operates said valve, and a second lever having a catch-nose, whereby it is operated by and disengages the first lever, and a float in the service-box adjustably connected to and operating the second lever to disengage its catch-nose from the first lever, substantially as set forth.

3. In combination, the tank and service-box, the valve between them, and the lever which operates it, the bell-crank lever K, having the catch-nose K^{10} on the upwardly-extended arm, and the float K^{20}, connected to the other arm, substantially as set forth.

4. In combination with the tank and service-box, the valve between them, and the lever which operates it, the bell-crank lever K, having the catch-nose K^{10} on the upwardly-extended arm, and the float K^{20}, connected to the other arm by the chain K^{30}, adapted to be lengthened and shortened at will, substantially as set forth.

5. In combination with the tank and service-box and the flushing-pipe, the valve-stem G, having rigid with it the valves G' and G^2, the lever which operates said stem to open the former and close the latter valve simultaneously, and a second lever having a catch-nose, whereby it is operated by and engages the first lever, and a float in the service-box connected to and operating the second lever to disengage its catch-nose from the first lever, substantially as set forth.

6. In combination with the tank, service-box, and flushing-pipe, the tubular valve-stem having its longitudinal duct communicating at the upper end with the tank and at the lower end with the flushing-pipe, and carrying the valve G^3 above the said lower communication, seating downward to close communication between the service-box and the flushing-pipes, whereby the said downward movement which seats the valve G^3 seats the tubular stem through the service-box and leaves free communication from the tank to the flushing-pipe, for the purpose of affording the fore-wash, substantially as set forth.

7. In combination with the tank, service-box, and flushing-pipe, the tubular valve-stem G, having its longitudinal duct communicating at the upper end with the flushing-pipe and carrying the valves G' and G^3, the former controlling communication between the tank and service-box and seating upward, and the latter between the service-box and flushing-pipe, and located above the said communication of the tubular stem with the flushing-pipe and seating downward, substantially as and for the purpose set forth.

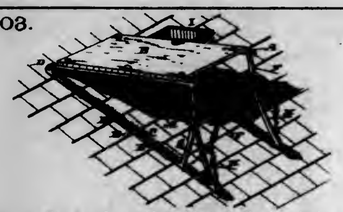
354,702. TIRE FOR TRACTION-ENGINES. EDWARD HUBER, Marion, Ohio. Filed Oct. 7, 1886. (No model.)



Claim.—A tire for traction or portable engines, having a series of parallel transverse or diagonal cleats secured thereon, the said cleats having their opposite edges scalloped, serrated, or otherwise indented, the said scallops, serrations, or indentations being alternate in position on the opposite edges of each cleat, substantially as set forth.

354,703. SHINGLING-SEAT. CHARLES B. HUNTER, Ukiah, Cal. Filed June 30, 1886. (No model.)

354,703.



Claim.—1. The bars C, provided with the inclined or sloping points E, and the perforated curved segments G, in combination with the bars A, hinged at their front to the bars C, and having perforated curved segments forming a continuation of the segments G, and the seat B, secured upon the bars A, substantially as herein described.

2. An improved shingling-seat comprising the combination of the bars A and C, hinged together at their front portions, and having overlapping and perforated curved segments at the rear, suitable inclined or sloping teeth formed in the bars C, the braces H, for supporting the curved segments G, the seat B, and the holder or box formed with or projecting from one side of the seat, all constructed and arranged to operate substantially as herein described.

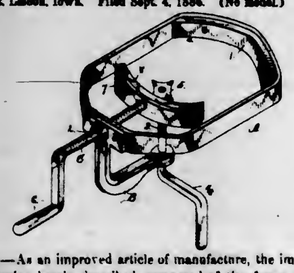
354,704. STOVE-DAMPER. EDWIN A. JACKSON, New York, N. Y. Filed Apr. 3, 1886. (No model.)



Claim.—1. The combination of the heating apparatus having smoke-flues, a damper movably secured to and arranged to be reciprocated across the upper extremities of said flues and having apertures arranged to register therewith, and a toothed arm extending therefrom, a crank-shaft mounted in the said heating apparatus and carrying a pinion meshing with the teeth on the arm of the damper, substantially as shown and described.

2. The combination, with the heating apparatus having the smoke-flues and bolts or screws *b*, the dampers having toothed arms and elongated slots for adjustable connection to said smoke-flues, of the pinion and crank-shaft for operating the dampers simultaneously, as shown and described.

354,705. CLAMP FOR HOLDING FRUIT-JARS. THEODORE KENDERDINE, Linden, Iowa. Filed Sept. 4, 1886. (No model.)



Claim.—As an improved article of manufacture, the improved jar-clamping device herein described, composed of the frame A, provided with an elastic cushion, 1, the angular clamping-arm B, provided with clamping-screw 3, the jar-clamping screw C, and swiveled follower 7, having elastic cushion 8, all arranged and operated as set forth.

354,706. VENTILATED BARREL. ISAAC A. KERR, Muscatine, Iowa. Filed Sept. 15, 1886. (No model.)

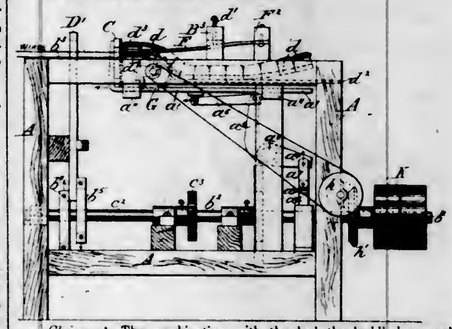


Claim.—1. A bulged barrel having its sides constructed of straight parallel-edged staves or slats A, convexed longitudinally and secured by the woven wires *a* in position to form between the slats the openings *b*, enlarged from the ends to the middle of the barrel, substantially as and for the purposes described.

2. A bulged barrel having its sides constructed of straight parallel-edged slats A, convexed longitudinally and secured by the wires *a* in position to form between the slats the openings *b*, enlarged from their ends to the middle of the barrel, and having the air-tight heads C secured in place, substantially as and for the purposes described.

3. The combination, with a bulged barrel having its sides constructed of straight parallel-edged staves or slats convexed longitudinally and secured by woven wires in position to form between the slats ventilating-openings enlarged from the ends to the middle of the barrel, of an inner pervious lining adapted to admit ventilation through the openings, substantially as and for the purposes described.

354,707. SLAT-WEAVING MACHINE. ISAAC A. KERR, Muscatine, Iowa. Filed Sept. 20, 1886. (No model.)



Claim.—1. The combination, with the bed, the heddle-bars, and the lay of a slat-weaving machine, of spring presser-bars, extended over the bed in position to compress separately each ran of the warp and to hold in place the slats while they are being woven together, and means for regulating the tension of the bars upon the warp and slats, substantially as and for the purposes described.

2. A slat-weaving machine provided with a bed having its upper surface curved longitudinally and transversely, whereby the machine is adapted for weaving curved webbing, substantially as and for the purposes described.

3. In a slat-weaving machine, the combination, with the presser-bars F F', the heddle-bars D D', and the lay C, of the curved bed B and the means herein set forth for adjusting the bed, as and for the purposes described.

4. The combination, with the double sets of heddle-bars D D', arranged to reciprocate vertically, the yokes b^4 b^5 and the cams c c', mounted in reverse positions within the yokes upon revolving shafts, of the lay C, provided with the reeds *a*, and arranged to be reciprocated horizontally, the yoke a^3, the cams *b*, and the connecting actuating devices, whereby the heddle-bars and the lay have imparted to them the relative movements substantially as and for the purposes described.

5. The combination, with the weaving devices of a slat-weaving machine, as herein set forth, of devices adapted to trim and prepare, for the purposes designed, the ends of the slats, substantially as described.

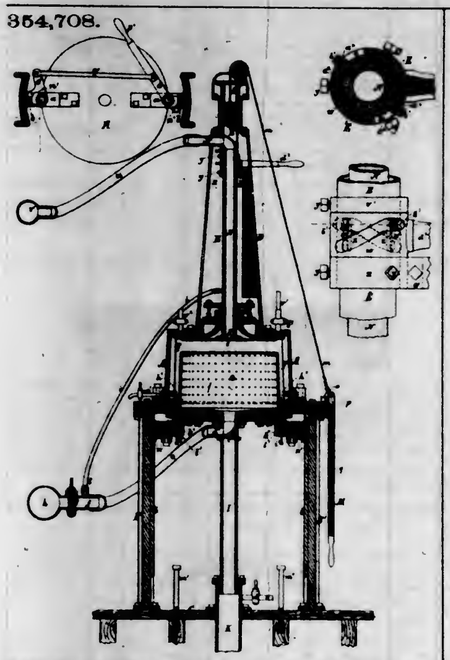
354,708. MACHINERY OR PRESS FOR MOLDING PAIL-BODIES. FRANK E. KEYES, Newport, N. H. Filed Oct. 4, 1886. (No model.) Patented in Canada Oct. 13, 1886. No. 25,710.

Claim.—1. The combination of the inelastic hood A, provided with the stuffing-box *x'*, with the contractile hood F, encompassing the foraminous frustum G, and provided with the upright pipe E, going through the said stuffing-box and furnished with the pulp-inductor N, arranged within the said pipe E, and having mechanism for operating it (the said inductor) for the discharge of pulp through and from it into the upper part or crown of the hood F, all being substantially as set forth.

2. The combination of the inelastic hood A, provided with the standards D and the stuffing-box *x'*, extending upward from it, (the said hood,) as represented, with the contractile hood F, encompassing the foraminous frustum G, and provided with the upright pipe E, going through the said stuffing-box and furnished with the pulp-inductor N, arranged within the said pipe E, and having mechanism for operating it (the said inductor) for the discharge of pulp through and from it into the upper part or crown of the hood F, all being substantially as set forth.

3. The combination of the inelastic hood A, provided with the standards D and the stuffing-box *x'*, extending upward from it, (the said hood,) as represented, with the contractile hood F, encompassing the foraminous frustum G, and provided with the upright pipe E, going through the said stuffing-box, and having mechanism for raising it (the said pipe) and allowing it to descend, as specified, and with the pulp-inductor N, arranged within the said pipe E, and having mechanism for operating it (the said inductor) for the discharge of pulp through and from it into the upper part or crown of the hood F, all being substantially as set forth.

354,708.



4. The combination of the stationary pipe *v* and the hose *u* with the pulp-inductor N, the hood A, provided with the standards D and the stuffing-box *x'*, extending upward from the said hood, as represented, the contractile hood F, encompassing the foraminous frustum G, and provided with the upright pipe E, going through the said stuffing-box, and having within it (the said pipe) the said pulp-inductor N, all being substantially as set forth.

5. The combination of the hose *e* with suction-apparatus pipe *h*, and the foraminous frustum G and its base H, provided with the guide-pipes I and K and the induct *c*, and arranged to operate with the elastic hood F and inelastic hood A, substantially as set forth.

6. The combination of the ring *h'* and its rods *i''* and springs *l'* with the foraminous frustum G, its supporting and movable base H, and with the stationary stops *m'*, all arranged substantially as set forth.

7. The combination of the two hose *e* and *i* with the suction-apparatus pipe *h*, the foraminous frustum G and its base H, the guide-pipes I and *k*, and the induct *c*, the elastic hood F and inelastic hood A, and the pipes E and N thereof, all being arranged substantially and to operate as represented.

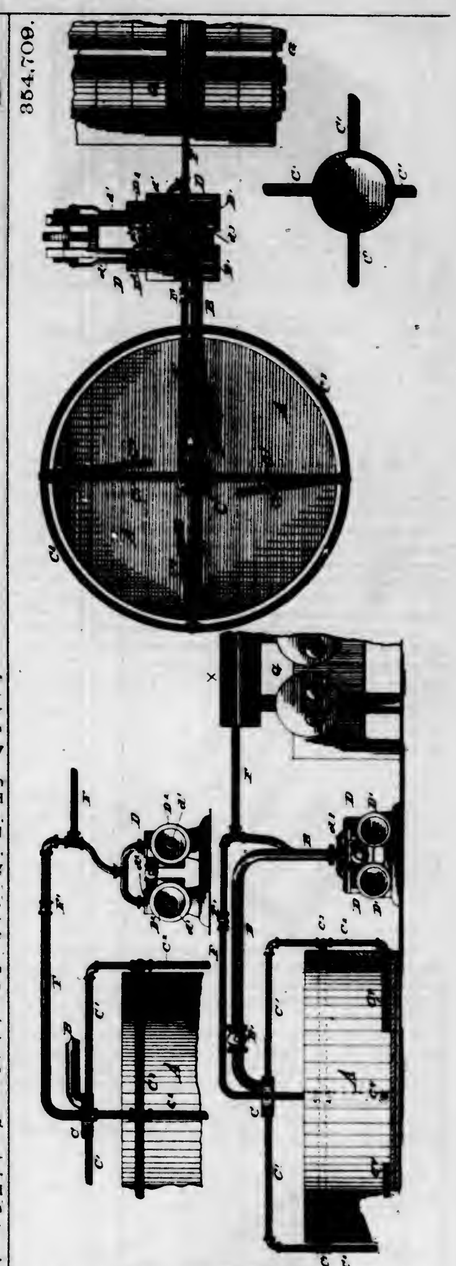
354,709. MEANS FOR COOLING MASH IN DISTILLERIES, &c. WILLIAM E. KEYES, Louisville, Ky. Filed Apr. 3, 1886. (No model.)

Claim.—1. The combination, with the mash-tub and the forcing-engine, of the exterior encircling pipe, the central air-chamber, the horizontal pipes connecting the air-chamber with the encircling pipe, and the external vertical pipe having the horizontal perforated extension entering the mash tub near the bottom and extending to near the center thereof, substantially as specified.

2. The combination, with the mash-tub provided with the air-chamber, the horizontal pipes, and the external vertical pipes having the perforated horizontal portions extending into the mash-tub near its bottom, of the air-pumps and the delivery-pipe having a total area in cross-section in square inches which is equal to one-fourth of that of the piston-head, substantially as specified.

3. The combination, with the mash-tub provided with the encircling pipe, of the air-chamber, the horizontal pipes connecting the air-chamber and the encircling pipe and the vertical external pipe, and the horizontal perforated pipes entering the mash-tub near the bottom thereof, substantially as specified.

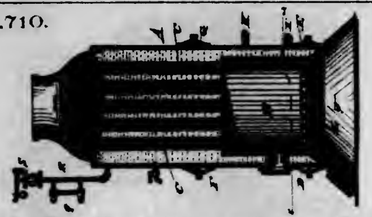
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354,710. UPRIGHT DOUBLE WATER-GAGE BOILER. KARL A. KLOSE, Des Plaines, Ill. Filed July 24, 1886. (No model.)

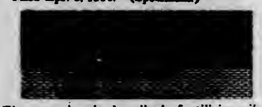


354,710.



Claim.—The combination, with a steam-boiler, substantially as described, and provided with the blow-off and hand holes, of the water-gage connected with the said boiler adjacent to the head thereof and the gage-glass arranged about in line with the said hand-holes, substantially as specified.

354,711. UTILIZING OIL-CLOTH WASTE. WILLIAM L. LANGE, Philadelphia, Pa. Filed Apr. 8, 1886. (Specimens.)



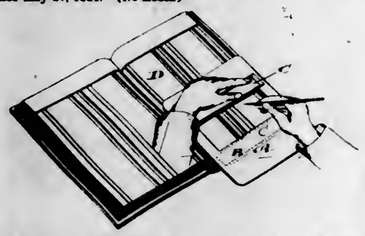
Claim.—1. The mode herein described of utilizing oil-cloth waste, said mode consisting in cutting the waste into strips and employing said strips as weft or filling threads in the production of a carpet, all substantially as specified.

2. The mode herein described of utilizing oil-cloth waste, said mode consisting in forming strips of the waste, twisting the strips so as to bring the painted face outward, and employing said twisted strips as weft or filling threads in the weaving of a carpet, all substantially as specified.

3. A carpet composed of warp-threads, combined with weft or filling threads consisting of strips of oil-cloth, all substantially as specified.

4. A carpet in which warp-threads are combined with weft or filling threads, consisting of strips of oil-cloth twisted so as to bring the painted face outward, all substantially as specified.

354,712. HAND-REST. JOHN F. LASH, Toronto, Ontario, Canada. Filed May 27, 1886. (No model.)



Claim.—1. A plate or board, A, having a hole, B, made in it, whereby the bottom of the page on which it is placed may be written on through said hole, in combination with a strip or cleat, C, placed on the surface of the plate, substantially in the position and for the purpose hereinbefore described.

2. A plate or board, A, having a hole, B, made in it, whereby the bottom of the page on which it is placed may be written on through said hole, in combination with the strips or cleats C, fixed diagonally opposite to each other on opposite sides of the hole B and of the plate A, substantially as and for the purpose specified.

354,713. BASKET. THOMAS F. LAWSON and WILLIAM K. BURTON, Athens, Ga. Filed July 1, 1886. (No model.)



Claim.—1. The combination, in a basket, of a supporting-frame, a bag having a hem about its margin, and bars inserted in said hem and fastened to said frame.

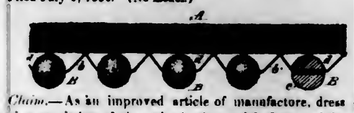
2. The combination of the pivoted side bars, A A B B, the cross-bars A' A'' B' B'', connecting the side bars, and the bag D, having the hem D', said bars A' B' being inserted in said hem and rigidly fastened to the side bars, substantially as shown and described, and for the purpose set forth.

3. The combination, with the frame and the bag D, suspended therein, of the flap E, having one of its edges fastened at one side of the frame and bag, the rod F, attached to the free edge of the flap, and hooks G, or their equivalent, attached to the frame and adapted to receive and retain the rod E, and secure the free edge of the flap when stretched across the bag, substantially as and for the purpose set forth.

354,714. PROCESS OF DYEING WOOL AZODIPHENYL BLUE. CLEMENS LOHMANN, Cologne-on-the-Rhine, Prussia, Germany. Filed June 28, 1886. (Specimens.)

Claim.—The process of dyeing wool and other animal fibrous materials blue by boiling them in a watery solution of azodiphenyl blue, extract of logwood, blue vitriol, green vitriol, an alkalic bisulphate, and oxalic acid, substantially as hereinbefore specified.

354,715. DRESS-TRIMMING. JOACHIM MAIDHOF, New York, N. Y. Filed July 9, 1886. (No model.)



Claim.—As an improved article of manufacture, dress edging or trimming consisting of the strip A, the cord *b*, festooned from the edge of the same, and the pendants B, composed of apertured cores having flocked surfaces and strung upon the said festooned cord, whereby the pendants will retain their shape and hold the festoons in form, and provision made for exposing the different surfaces of the pendants to wear, as set forth.

354,716. BRACELET. SAMUEL D. MASON, Attleborough Falls, Mass. Filed Sept. 1, 1884. (No model.)



Claim.—1. A bracelet having a head or central member, A, constructed, as described, to be hooked to springs for closing the bracelet, wings B B, hinged to the head, and spiral springs inclosed within the wings attached to the same and hooked to the head to pull the wings together, substantially as set forth.

2. A bracelet having a head or central member, A, provided at its ends with rings or loops *b b*, wings B B, hinged to the head, and spiral springs C C, inclosed within the wings and hooked into the rings or loops *b b* at one end and attached to the wings at the other end, substantially as set forth.

3. A bracelet having a head or central member, A, constructed, as described, to be hooked to springs for closing the bracelet, and provided with projections *e e*, which cover the pivotal joints between the head member and wings, wings B B, hinged to the head, and spiral springs inclosed within the wings attached to the same and hooked to the head to pull the wings together, substantially as set forth.

4. A bracelet having a hollow or box-form head or central member, A, wings B B, hinged exteriorly thereto, and spiral springs concealed within the wings and engaging the head exteriorly, substantially as and for the purposes specified.

354,717. CULTIVATOR. PHINEAS P. MAST, Springfield, Ohio, assignor to P. P. Mast & Co., same place. Filed Oct. 16, 1886. (No model.)

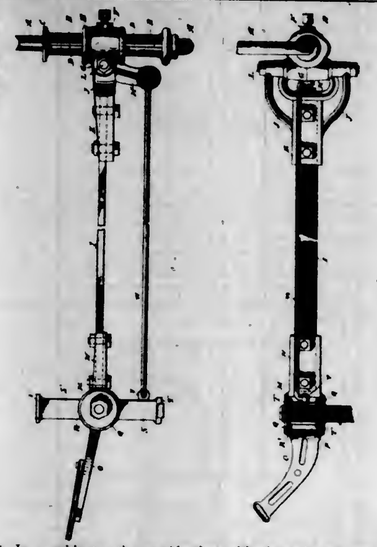
Claim.—1. In a cultivator, the combination, with a sleeve constructed to fit upon the axle, a collar fitted to said sleeve and having integrally formed with it a vertically-disposed hub and a laterally-disposed arm.

2. In a cultivator, the cross-head having a hub-like portion enlarged at the upper and lower ends to form disk-like surfaces to prevent the twisting tendency of the head when mounted, and having lateral arms constructed to form connection with the shovel-standards and a portion to connect with the alignment-rod.

3. In a cultivator, the combination, with the beam and the beam-bracket M, having a transverse opening and laterally enlarged where the opening occurs, of a cross-head, R, having a hub-like portion, R', enlarged to agree with the bracket and pivotally mounted in said opening, and having arms to which the shovel-standards are connected.

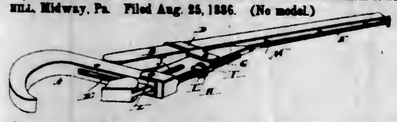
4. In a cultivator, the beam-bracket M, consisting of a shank, N, for the beam, an enlarged portion, Q, having a transverse opening for the cross-head and another portion for the handles.

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5. In a cultivator, the combination, with the axle, the coupling constructed to oscillate thereon and with a portion capable of lateral adjustability, the beam and the alignment-rod secured to said adjustable portion, of the bracket secured to the beam, having an enlarged portion and a transverse opening therein, and having a portion for the attachment of the handle, and the cross-head having a hub-like portion pivotally mounted in said opening, and arms for the attachment of the shovel-standards.

354,718. PIPE-WRENCH. THOMAS D. MCCARTY and FRANK C. SAWHILL, Midway, Pa. Filed Aug. 25, 1886. (No model.)



Claim.—1. The combination, with a pipe-wrench consisting of a hook, a handle pivoted to the inner end of the shank of said hook, and a jaw pivoted to the outer end of said shank, of a control-rod connected to the outer end of said jaw and extended along the edge of said handle, as and for the purpose set forth.

2. The combination, with a pipe-wrench consisting of a hook, a handle pivoted to the inner end of the shank of said hook, a jaw pivoted to the outer end of said shank, and a guard pivoted to the outer end of said jaw, of a control-rod connected to the outer end of said jaw and passed through staples secured to the edge of said handle, as shown and described.

3. The combination, with a pipe-wrench consisting of a hook, a handle pivoted to the inner end of the shank of said hook, a jaw pivoted to the outer end of said shank, of an adjustment-screw connected to said jaw and to said shank, as and for the purpose set forth.

4. The combination of a hook, a handle pivoted to the inner end of the shank of said hook, a slotted jaw pivoted to the outer end of said shank and having a pair of lugs upon its edge provided with smooth perforations, an adjustment-screw having a clip at one end, a pivot-pin passed through the ends of said clip, the shank, and the slot of said jaw, and a thumb-nut, as shown and described.

5. The combination of a hook whose shank is reduced from both sides, a handle with a bifurcated end pivoted to the inner end of the shank, a jaw pivoted to the outer end of said shank and provided with slots formed at right angles to each other near its inner end, and a regulating-screw secured to said jaw and pivoted to said shank, as and for the purpose set forth.

354,719. PRESSURE-REGULATOR AND CUT-OFF. OWEN J. MCGANN, Pittsburg, Pa. Filed Aug. 12, 1886. (No model.)

Brief.—Regulates pressure and cuts off when there is no pressure from source. Has a stop to hold valve when seated.

Claim.—1. In a pressure regulator and cut-off, a tubular double-acting supply-valve provided with supply and delivery ports intermediate of its two seating portions, which latter are at a distance apart to allow them to separately, but not conjointly, close or seat to cut off communication between the supply and delivery pipes, in combination with a movable abutment connected with and controlling said supply-valve, and subject on opposite sides, respectively, to the pressure of fluid delivered past the supply-valve and to the action of a weight or spring, substantially as described.

2. In a pressure-regulator and cut-off, a double-acting supply-valve governing communication between the supply and delivery pipes, in combination with and controlled by a movable abutment subject on opposite sides, respectively, to the pressure of fluid delivered past the said supply-valve and to the action of a weight or spring, and a stop adapted to lock the supply-valve, when the latter is closed by the action of the spring or weight, against the movable abutment, substantially as described.

3. In a pressure-regulator and cut-off, the valve-casing provided with a chamber connected at opposite points, respectively, with a supply and a delivery pipe, a tubular supply-valve governing communication between said pipes, and a movable abutment controlling the supply-valve, and subject on opposite sides, respectively, to the pressure of fluid delivered past the supply-valve and to the action of a weight or spring, in combination with the relief-pipe connected with the valve-chamber at a point opposite one end of the tubular supply-valve, and leading to an escape pipe or passage, substantially as described.

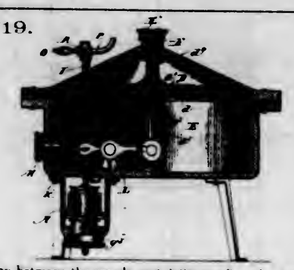
4. In a pressure-regulator and cut-off, the tubular double-acting supply-valve provided with supply and delivery ports intermediate of its two seating portions, in combination with the valve-casing connected with the supply and delivery pipes and provided with a short cylindric valve-chamber having seats at both ends, the said tubular supply-valve being applied to work within said cylindric chamber, and being prolonged so as to fit and work within a separate cylindric chamber with which the valve-casing is provided, substantially as described.

5. In a pressure-regulator and cut-off, the tubular supply-valve governing communication between the supply and delivery pipes and a chamber containing a movable abutment subject on opposite sides, respectively, to the pressure of fluid delivered past the supply-valve and to the action of a weight or spring, in combination with a relief-pipe connected with a chamber within which a prolongation of the tubular supply-valve is fitted to work and leading to an escape-passage, and a relief-passage leading from the upper portion of the chamber containing the abutment, substantially as described.

6. The combination, with a movable abutment, substantially as described, of the supply-valve A, governing communication between the supply and delivery pipes, the lever H, fulcrumed within the chambers containing the movable abutment, and connected at its ends, respectively, with the movable abutment and the stem of the supply-valve, and the stop or latch for engaging and locking said lever, which latter is provided with a finger which matches the beveled or wedge-shaped end of the latch, whereby when the lever is actuated by a depression of the movable abutment its said finger will push back the latch so as to pass above the same, substantially as set forth.

7. In a pressure-regulator, a supply-valve controlling communication between the supply and delivery pipes and a movable abutment connected with the supply-valve, and subject on opposite sides, respectively, to the pressure of fluid delivered past the supply-pipe and to the action of a weight or spring, in combination with the relief pressure-valve located external to the chamber containing the movable abutment, and connected both with the delivery-pipe and with the fluid-receiving portion of said chamber, substantially as described.

354,719.



354,720. MOLD FOR CASTING WHEELS. JAMES W. MCGILL, Peoria, Ill. Filed Aug. 18, 1886. (No model.)

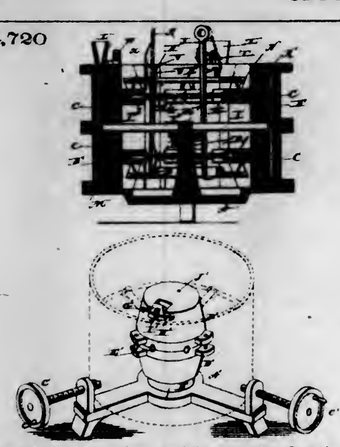
Claim.—1. In a metallic mold, the combination of the casing of two parts uniting by rabbet-joint and provided with a bead at each end of the inner face, the bed-plate with side projections, linked sections, double wedges, and brace rings, as set forth.

2. The combination of the bed-plate, casing C C, brace-rings, double wedges, linked sections, and clamping-rods J, as shown and described.

3. The combination of a bed-plate provided with a central depression, casing C C, brace-rings, linked sections, double wedges, and clamping-rods, for the purpose set forth.

4. The combination, with a bed-plate, casing, linked sections, and

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double wedges, of brace-rings consisting of a plate formed with a central aperture, a scalloped periphery, and having upon one face a pair of pyramidal projections at each scallop-point, as shown and described.

5. The combination, with a bed-plate, casing, linked sections, double wedges, and brace-rings, of a rough-edged wedge and a clamping-rod formed with a handle at one end, a projection at the other, and an intermediate lipped projection, as shown and described.

6. In a metallic mold, the combination, with a casing, a chain, and linked sections, of a wedge and a tightening-rod formed with a handle at one end and a double wedge-shaped web extending down the middle of one side, as shown and described.

7. In the within-described metallic mold, the combination, with a casing, double wedges, and brace-rings, of a linked section consisting of wedge-links formed with a Y-shaped leg upon their inner faces, one prong of which is reduced and provided with an oblong perforation, the other prong centrally recessed, said links being united by a pin passed through the centrally-recessed prong and the perforation in the reduced prong of an adjacent link, as shown and described.

8. In a metallic mold, the combination of a bed-plate, a casing, linked sections consisting of wedge-links, each provided with an eye upon its inner face, a chain passing through said eyes, double wedges, brace-rings, clamping-rods, and chain-tightening rods, as set forth.

9. The combination of a bed-plate provided with a central pedestal having a notched rim about it near its upper end, a casing, linked sections detachably united by steady-pins and provided on their uniting ends with semi-cylindrical grooves terminating at their outer ends in countersinks, double wedges, brace-rings, and clamping-rods, as shown and described.

10. The combination, with the within-described metallic rim-mold, in which the bead on the upper end of the inner face of the casing is recessed at intervals, of an oblong funnel-shaped gate provided with a lateral recessed projection at its base and a key attached thereto for securing the same upon a perforated stud projecting from the upper end of a wedge-link, as shown and described.

11. The combination, with a hub-mold, of the within-described metallic rim-mold, consisting of bed-plate, casing, pedestal, linked sections, double wedges, brace-rings, clamping-rods, chains, and chain-tightening rods, as described and shown.

12. In a metallic hub-mold, the combination of a three-armed bed-plate provided with a screw and hand-wheel supported by a projection upon the end of each arm, a replaceable trestle at the center of said plate, and a hub-mold proper resting upon said trestle, as set forth.

13. The combination, with a metallic hub-mold having a tenon on its bottom, of a trestle formed with a reduced lower end and with a socket in its upper end adapted to receive said tenon, and a bed-plate with a central opening adapted to receive the lower end of said trestle, as set forth.

14. The within-described hub-mold, consisting of two parts formed and united at their meeting edges substantially as specified, and the upper portion provided with a perforation, one side of which is removed for a distance from the top of the mold, and a dovetailed piece corresponding in size to the removed portion fitted removably in the place thereof, substantially as and for the purpose set forth.

15. The within-described gate for metallic molds, consisting in the combination of a removable dovetailed piece shaped to form a portion of one side of the inlet, a hook, and a wedge for retaining said piece in place, as shown and described.

16. The combination of a rim-mold with the within-described hub-mold, consisting of a three-armed bed-plate, screws, and hand-wheels, trestle, hub-mold proper, and its gate with detachable side, hook, and wedge, as and for the purpose set forth.

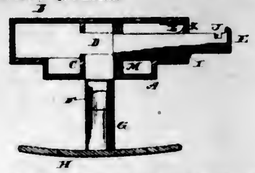
354,721. SPOON-BAIT. JOHN B. MCHARG, Rome, N. Y. Filed Oct. 15, 1886. (No model.)



Claim.—In a spoon fish-bait, the combination of the wire A, with its loops *a a'*, the ball B, carried by said wire, the washers C and C' between said ball and said loops, respectively, and the spoon D on said wire above and held apart from the ball by the said washer C, its lower end being free, all as and for the purpose set forth.

354,722. WITHDRAWN.

354,723. SLEEVE-BUTTON. ALEXANDER MCKINNER, Elkhorn, Nebr. Filed June 4, 1886. (No model.)



Claim.—The combination, with the head having a centrally-located tube, the pin having a slotted outer end and passing through one side of the head and tube, the stop for limiting the outward movement of the pin, and the spring of the shoe, the post of which is provided with an opening for the passage of the pin, substantially as set forth.

354,724. BRAKE-SHOE. JAMES MEEHAN, Covington, Ky. Filed Aug. 28, 1886. (No model.)



Claim.—1. A car-wheel-dressing brake-shoe having soft metallic frictional faces and hard cutting-surfaces laid flush with the face of the brake and outside of the tread portion thereof, substantially as specified.

2. A car-wheel-dressing brake-shoe having soft metallic frictional faces and hard metallic cutting-sections laid flush with the face of the brake and outside of the tread portion thereof, substantially as specified.

3. A combined car-wheel brake and dressing-shoe having the face and body of the shoe made of soft metal and interspersed with two sets of hard cutting-sections, one adapted to dress the face and the other curved and seated in a groove for dressing the flange of the wheel, substantially as specified.

4. A combined brake and car-wheel dresser composed of soft frictional metal, having two or more series of hard cutting-sections inserted in the face of the shoe, and bearing on the peripheral face of the wheel outside of the central line of tread, substantially as specified.

5. In a car-wheel brake and dresser, in combination with the frictional face of the brake, alternate longer and shorter cutting-surfaces inserted flush with the face of the brake and bearing upon the peripheral face of the wheel adjacent to the tread-line thereof, substantially as specified.

354,725. CAR-BRAKE AND WHEEL-DRESSER. JAMES MEEHAN, Covington, Ky. Filed Oct. 13, 1886. (No model.)

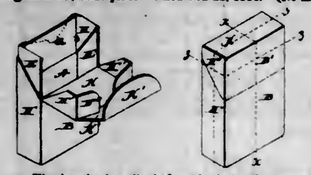


Claim.—1. In a car-wheel-dressing brake-shoe, one or more cutting-sections pointed at their inner ends, and placed on the inner face of the shoe, substantially as and for the purpose specified.

2. In a car-wheel brake-shoe, cutting-sections laid flush with the face of the brake, having one or more points at their inner end and alternate shorter cutting-sections, 10, substantially as and for the purpose specified.

3. A combined car-wheel brake-shoe and dresser having a groove in the face adjacent to the tread of the wheel and one or more taper cutting-sections projecting into said groove, substantially as specified.

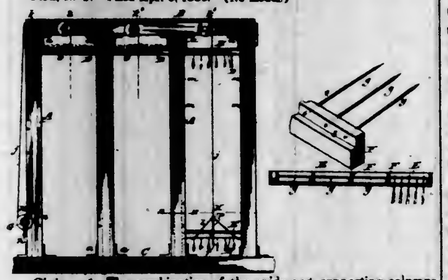
354,726. PAPER BOX. EMIL L. MEYER, New York, N. Y., assignor to J. S. Nugent & Co., same place. Filed Oct. 26, 1886. (No model.)



Claim.—1. The herein-described flat blank for the manufacture of boxes, consisting of the part A, having side flaps E E, extension H G H, and slot or aperture I, part C, having wings D D, and part B B', having side flaps F F, top K, and tongee or tack K', said side flaps F having oblique cuts *f*, whereby wings F' are formed, provided with extensions F'', substantially as and for the purpose shown and set forth.

2. As an improved article of manufacture, the hereinbefore-described box, consisting of a flat blank cut and creased or scored, as shown, and folded, as described, so as to form a complete box having an inside re-enforcing web at the top with a slot or opening adapted to receive and hold the tack of the cover, and provided with an upper part adapted to fold backward, and having a top piece and side flaps, constructed and arranged substantially as set forth.

354,727. FRAME FOR DRYING-HOUSES. GEORGE E. MILLS, New York, N. Y. Filed Apr. 8, 1886. (No model.)



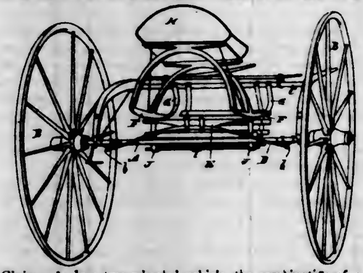
Claim.—1. The combination of the guide and supporting-columns A A and the upper and lower horizontal timbers, B C, connected thereto by angle-irons, the grooved rollers k' k^2 k^3, arranged upon the horizontal beam or plate B in position between the supporting-columns, the rope *j*, with sling K, the windlass or winding shaft with ratchet and pawl, the trays, and means for sustaining the same in the supporting-columns, substantially as described.

2. The sectional tray consisting of the marginal frame E, with rabbeted sides, and the cross-bars F, having rabbets *s* and tines *g*, substantially as shown and described.

3. The combination, with the guide and supporting-columns A, having key-holes *m*, the tray-frames, and the taper keys *n*, having bits *n'*, substantially as and for the purpose described.

4. The sling K, having chain *p*, with hook or pin *r*, in combination with the tray-frame having a middle pivotal point of connection for the chain in its end sections, substantially as for the purpose described.

354,728. ROAD-CART. EDWARD MOLER, Quincy, Mich., assignor of one-half to C. V. R. Pond, same place. Filed Oct. 14, 1886. (No model.)

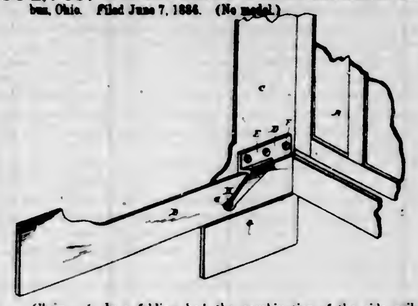


Claim.—1. In a two-wheeled vehicle, the combination of a spring suspended from the axle in direct line with the axle-arms, a spring-bar, and seat-bars secured to the spring-bar by knuckle-joints and to the whiffletree-bar by strap-springs, all substantially as described.

2. In a two-wheeled vehicle, the combination of the axle provided with an offset, a spring hung within such offset, a spring-bar, and seat-bars secured to said spring-bar by knuckle-joints and by strap-springs to the whiffletree-bar of the shafts, all combined and arranged substantially in the manner and for the purposes described.

3. In a two-wheeled vehicle, the combination of the axle A, formed with offset *a*, wheels B, shafts C, spring D, hung on loops *b*, pivoted to the axle, spring-bar E, secured to said springs, seat-bars F, secured to said spring-bar by knuckle-joints, and strap-springs G, substantially in the manner and for the purposes set forth.

354,729. FOLDING BEDSTEAD. JAMES M. MONTGOMERY, Jr., Columbus, Ohio. Filed June 7, 1886. (No model.)



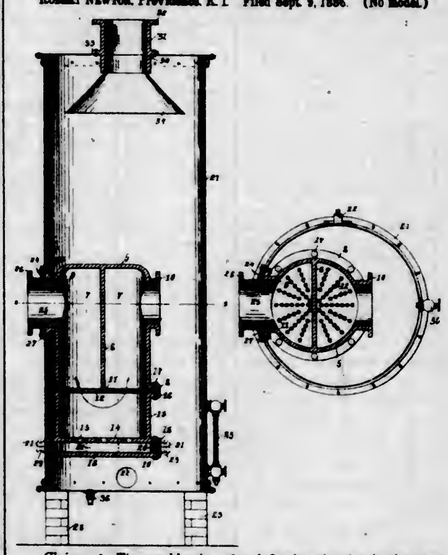
Claim.—1. In a folding bed, the combination of the side rails of the bed-frame having perforations countersunk at the outer sides of the rails, pivotal bolts inserted through the perforations, and having their flat heads secured in the countersinks, and arms secured to the side pieces of the bed-casing and projecting over the side rails, and having bearings at their ends for the bolts, as and for the purpose shown and set forth.

2. In a folding bed, the combination of the side rails of the bed-frame having bolts projecting from their inner sides with arms or brackets secured to the inner sides of the side pieces of the casing and projecting over the side rails, and having bearings at their ends for the pivotal bolts, as and for the purpose shown and set forth.

3. In a folding bed, the combination of the side rails of the bed-frame having pivotal bolts projecting from their inner sides with brackets consisting of plates secured to the inner sides of the side pieces of the bed-casing, and having arms projecting from the lower edges bulged over the side rails and projecting downward and forward, having upwardly-projecting hooks at their ends, forming bearings for the pivotal bolts, as and for the purpose shown and set forth.

4. A bracket for a folding bed, consisting of a plate having apertures for fastening-screws, and an arm bulged outward and projecting downward and forward and formed with an upwardly-pointing hook at the end, forming a bearing, as and for the purpose shown and set forth.

354,730. COMBINED STEAM, WATER, AND DIRT SEPARATOR. ROBERT NEWTON, Providence, R. I. Filed Sept. 9, 1886. (No model.)



Claim.—1. The combination of a deflecting-chamber having compartments therein and provided with inlet and outlet ports, a receiving-

box communicating with the deflecting-chamber, and a collector communicating with the receiving-box, substantially as described.

2. The combination of a deflecting-chamber having compartments therein and provided with inlet and outlet ports, the compartments open at the bottoms, a receiving-box subjacent to the compartments and opening therein, and a collector lying beneath the receiving-box and communicating therewith substantially as described.

3. The combination of a deflecting-chamber having one or more vertical partitions forming compartments therein, the initial compartment provided with an inlet-port and the terminal compartment provided with an outlet-port, said compartments open at the bottoms, a receiving-box placed subjacent to the compartments over the bottoms thereof, a perforated separator-plate interposed between the receiving-box and the compartments, whereby they are in communication, a perforated drip-plate forming the bottom of the receiving-box, and a collector-chamber disposed below and about said box and communicating therewith by means of the drip-plate, substantially as described.

4. The combination of a deflecting-chamber having compartments therein open at the bottoms, the first and last compartments provided with an inlet and an outlet port, respectively, a receiving-box lying beneath the bottoms of said compartments, a separator-plate having perforations formed therein and interposed between said compartments and receiving-box, the bottoms of the receiving-box provided with openings, and an imperforate check-plate secured beneath the bottom of the receiving-box and spaced therefrom, substantially as and for the purpose described.

5. The separator consisting of the deflecting-chamber having compartments therein, and provided with inlet and outlet ports, a receiving-box communicating with the deflecting-chamber and also with the exterior of the separator, said separator combined with a collector and the former contained therein, the separator in communication with the exterior and interior of said collector by means of the inlet and outlet ports respectively, and the collector provided with a discharge-opening, substantially as and for the purpose described.

6. The separator consisting of a deflecting-chamber having compartments therein and provided with inlet and outlet ports, the compartments open at the bottoms, a receiving-box subjacent to and communicating with said compartments and opening to the exterior of the separator, the separator combined with a collector surrounding the same, the separator in communication with the exterior and interior of the collector, and the latter provided with a discharge, substantially as described.

7. The separator consisting of a deflecting-chamber having two or more compartments therein formed of vertical partitions, the compartments open at the bottoms, and the initial compartment provided with an inlet-port and the terminal compartment provided with an outlet-port, a perforated separator-plate secured across the bottoms of the compartments, a receiving-box disposed beneath said separator-plate and provided with openings in the bottom thereof, an imperforate check-plate set beneath the bottom of the receiving-box and spaced therefrom, the separator combined with a collector incasing and surrounding the same, the inlet and outlet ports communicating, respectively, with the exterior and interior of the collector, the receiving-box also opening into the interior of the collector, and the collector provided with a discharge, substantially as and for the purpose described.

8. The combination, with a separator and the collector constructed substantially as described, of the removable pipe-section formed of a single casting and adapted to connect the inlet-port of the separator with the exterior of the collector, substantially as described.

9. The separator consisting of the deflecting-chamber having compartments therein, and provided with inlet and outlet ports and formed of a single casting, the perforated separator-plate subjacent to the deflecting-chamber, and the receiving-box having an integral bottom formed with openings therein, substantially as described.

10. The combination, with a separator constructed substantially as described, of a collector surrounding the separator and the latter in communication with the exterior and interior of the former, the collector having a discharge-opening provided with a pipe-section and an exit-cock, a removable pipe-section for the inlet-port of the separator, a gage device for the collector, a blow-off cock, and a hand-hole for said collector, all constructed substantially as and for the purpose described.

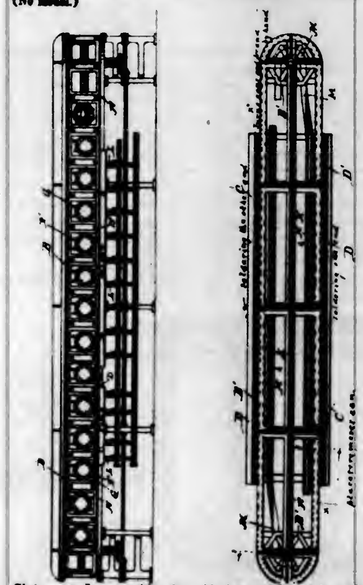
11. The separator consisting of the deflecting-chamber 5, having one or more compartments therein, and provided with the inlet and outlet ports, the perforated separator-plate 11, and the receiving-box 13, having a perforated bottom, substantially as described.

12. The separator composed of the deflecting-chamber 5, having the compartments 7, and provided with the ports 9 and 10, the separator-plate 11, having perforations 12 therein, the receiving-box 13, the drip-plate 14, having perforations 15, and the collector 21, substantially as described.

13. The combination, with the separator constructed substantially as described, of the collector 21, provided with the discharge-opening, and the pipe-section 25, all substantially as described.

14. The combination, with the separator constructed substantially as described, of the collector 21, provided with the discharge-opening 30 and the opening 24, the pipe-sections 25 and 30, the funnel 34, the water-gage 35, the hand-hole 32, and the blow-off cock 36, all constructed and arranged substantially as described.

354,731. SOLDERING-MACHINE. LE GRAND M. NORTON, EDWIN NORTON, and JOHN G. HODGSON, Chicago, Ill., assignors to said Edwin Norton and Oliver W. Norton, both of same place. Filed Aug. 16, 1886. (No model.)



Claim.—1. In a machine for soldering angular or irregular-shaped cans, the combination, with a solder bath, of a can-carrier and an inclined revolving up-and-down bodily-reciprocating can-holder mounted on said carrier for rolling the can through said bath, and a stationary cam or track engaging said can-holder for giving it its up-and-down bodily-reciprocating movement, substantially as specified.

2. In a machine for soldering angular or irregular-shaped cans, the combination of a solder bath with a can-carrier and a series of inclined revolving pivotal up-and-down reciprocating can-holders mounted on said carrier for rolling the cans through said bath, and a stationary cam or track engaging said can-holders for giving them their up-and-down bodily-reciprocating movement, substantially as specified.

3. In a machine for soldering angular or irregular-shaped cans, the combination, with a solder bath, of a can-carrier, revolving up-and-down bodily-reciprocating can-holders mounted on said carrier, a cam or track for revolving said can-holder on its axis, and a second cam or track engaging said can-holder, for giving said can-holder its up-and-down reciprocating movement as it rolls through said bath, substantially as specified.

4. The combination, in a machine for soldering irregular-shaped cans, of a solder bath with a can-carrier, revolving pivotal up-and-down reciprocating can-holders mounted on said carrier, a cam or track for revolving said can-holder on its axis, and a second cam or track for giving said can-holder its up-and-down reciprocating movement, said latter cam or track having an inclined or elevated portion at the end of the solder bath for turning the can-holder on its pivots into a horizontal position, so that the soldered seam will stand horizontally while the solder is setting, substantially as specified.

5. In a machine for soldering angular or irregular-shaped cans, the combination, with a solder bath, of a can-carrier and a series of inclined revolving pivotal up-and-down reciprocating can-holders mounted on said carrier for rolling the cans through said bath, and a device for turning said pivotal can-holder into a horizontal position, so that the soldered seam will be down after the can leaves the solder bath, substantially as specified.

6. The combination, with a solder bath, of an inclined revolving up-and-down reciprocating can-holder for equally immersing the seam of an angular or irregular-shaped can in said bath as the can revolves, and a cam or device engaging said can-holder for reciprocating the same up and down as it revolves, substantially as specified.

7. The combination, with the solder bath D, of revolving can-holder ring G, pivotal ring F, carrier B, having inclined guides or slots *f' f'* for the pivots of said ring F, track H, and cam-track K, substantially as specified.

8. The combination, with solder bath D, of carrier B, having guides or slots *f' f'*, ring F, having pivots *f f*, mounted in said slots *f' f'*, and provided with guide-arms *k*, can-holder ring G, having pins or projections A' A', track H, having notches A, and cam-track K, substantially as specified.

9. The combination, with solder bath D, of carrier B, having guides or slots *f' f'*, ring F, having pivots *f f*, mounted in said slots *f' f'*, and provided with guide-arms *k*, can-holder ring G, having pins or projections A' A', track H, having notches A, cam-track K, and inclined or elevated track M, substantially as specified.

10. The combination, with solder bath D, of carrier B, having guides or slots *f' f'*, ring F, having pivots *f f*, mounted in said slots *f' f'*, and provided with guide-arms *k*, can-holder ring G, having pins or projections A' A', track H, having notches A, cam-track K, inclined or elevated track M, and a cooling device, E, substantially as specified.

11. The combination, with a frame, A, having guide-tracks *a a*, of a link-chain carrier, B, wheels B' B', flux bath C, solder bath D, gages D' D², notched track H, cam-track K, pivotal ring F, having arms *k k*, and pivots *f f*, mounted to reciprocate in slots *f' f'* in the links of said chain, and can-holding ring G, having pins or projections A' A', substantially as specified.

12. The combination, with a frame, A, having guide-tracks *a a*, of a link-chain carrier, B, wheels B' B', and flux bath C, solder bath D, gages D' D², notched track H, cam-track K, pivotal ring F, having arms *k k*, and pivots *f f*, mounted to reciprocate in slots *f' f'* in the links of said chain, can-holder ring G, having pins or projections A' A', cam M, and cooling air pipes or nozzles E, substantially as specified.

13. In a machine for soldering angular or irregular-shaped cans, the combination of a solder bath with a can-carrier, a series of inclined revolving pivotal up-and-down reciprocating can-holders mounted on said carrier for rolling the cans through said solder bath, a cooling device at the end of said solder bath, and a cam or track engaging said can-holders for giving them their reciprocating movements in the path of said carrier, substantially as specified.

14. In a machine for soldering angular or irregular-shaped cans, the combination, with a can-carrier, of two solder baths in the path of said carrier, a series of inclined revolving pivotal up-and-down reciprocating can-holders mounted on said carrier for rolling the cans through said solder baths, whereby, after the seams at one end of the can are soldered, the said holder may be turned end for end on its pivots and the other end of the can soldered as it rolls through said bath, and a cam or track engaging said can-holders for giving them their reciprocating movements, substantially as specified.

15. In a machine for soldering angular or irregular-shaped cans, the combination, with a can-carrier, of two solder baths in the path of said carrier, and a series of inclined revolving pivotal up-and-down reciprocating can-holders mounted on said carrier for rolling the cans through said solder baths, a cam or track engaging said can-holders for giving them their reciprocating movements, whereby, after the seams at one end of the can are soldered, the said holder may be turned end for end on its pivots and the other end of the can soldered as it rolls through said bath, and a cooling device arranged in the path of said carrier between said solder baths, substantially as specified.

16. In a machine for soldering angular or irregular-shaped cans, the combination of two fluxing-baths, C C, with two solder-baths, D D, two cooling devices, E E, a can-carrier, B, and a series of inclined revolving pivotal up-and-down reciprocating can-holders mounted on said carrier for rolling the cans through said baths and turning the same into a vertical position for cooling, and cams or tracks H and K, said cam K having an elevated portion, M, and said cam engaging said can-holders and operating to give them their revolving pivotal and reciprocating motions, substantially as specified.

17. The combination, with a solder bath, of a can-carrier, a revolving and up-and-down reciprocating can-holder, and a stationary cam having a shape corresponding to the series of arcs or curves described by the center or axis of said can as it rolls forward and turns on its corners, said cam engaging said holders and operating to give them their reciprocating movements, substantially as specified.

18. The combination, with a solder bath, of a can-carrier, a series of revolving and up-and-down reciprocating can-holders mounted on said carrier, a notched track for revolving or rolling said can-holders, and a cam of a shape correlative to that of the path of the axis of the revolving can-holder socket, whereby the can-holder is given the up-and-down movement as it rolls forward, due to the turning of the same on its corners, substantially as specified.

19. The combination, with solder bath D, having gages D' D², of link-chain carrier B and inclined revolving pivotal up-and-down reciprocating can-holders for rolling the cans in said bath along said gages, the links of said chain having slots and said can-holders having pins mounted in said slots, substantially as specified.

20. The combination, with solder bath D, having gages D' D², of link-chain carrier B and inclined revolving pivotal up-and-down reciprocating can-holders for rolling the cans in said bath along said gages, track H, and cam-track K, engaging said can-holders and operating to give them their revolving and reciprocating movements, substantially as specified.

21. The combination, with flux bath C, of solder bath D, gages D' D², link-chain carrier B, friction-rollers *b*, frame A, tracks *a a*, and inclined revolving pivotal up-and-down reciprocating can-holders mounted in said link-chain carrier, substantially as specified.

22. In a soldering-machine, the combination, with a solder bath, of a can-carrier and a vertically-swiveling can-holder mounted thereon, and a cam or device engaging said swiveling holder for turning the can into and holding it in a vertical position after leaving said bath for cooling the seam, substantially as specified.

23. The combination of a solder bath with inclined guides or slots *f' f'* in a suitable frame, up-and-down reciprocating ring F, having pins *f f*, fitting in said slots, and ring G, revolving in said ring F, substantially as specified.

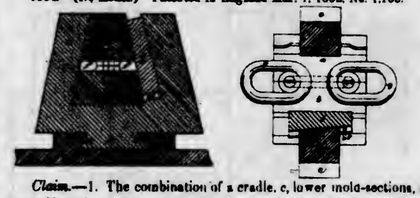
24. The combination, with solder bath D, of a can-carrier, B, having revolving up-and-down reciprocating can-holders, consisting of ring F, having annular shoulders *f' f'*, and ring G, furnished with friction-rollers *g g*, fitting in said shoulders, substantially as specified.

25. The combination, with a solder bath, of an inclined revolving up-and-down reciprocating can-holder having an angular or irregular-shaped can-socket and provided with pins or projections correlative to the shape of said can-socket, and a cam or track having a series of notches or projections along said solder bath engaging said pins or projections on said can-holder, whereby the can-holder is rolled as the can is carried along the solder bath, substantially as specified.

26. The combination, with a solder bath, of an inclined revolving can-holder having an angular or irregular-shaped can-socket and provided with a former or pins correlative to the shape of said can-socket, and a cam or track engaging said former or pins, whereby the can-holder is rolled as the can is carried along the solder bath, substantially as specified.

27. The combination, with a solder bath, of an inclined revolving can-holder having an angular or irregular-shaped can-socket and provided with former pins or projections A', correlative to the shape of said can-socket, and a cam or track having notches A, adapted to engage said former-pins A' on said holder, whereby the can-holder is rolled as the can is carried along the solder bath, substantially as specified.

354,782. MOLD FOR CASTING CHAINS. WILLIAM PENMAN, Gateshead-on-Tyne, County of Durham, England, assignor to himself, Lancelot Tulip Penman, and William Gibson, all of same place. Filed Dec. 19, 1884. (No model.) Patented in England Mar. 7, 1882, No. 1,105.



Claim.—1. The combination of a cradle, c, lower mold-sections, upper mold-sections, and securing-chock, the mold-sections being formed with link-space *m* and end spaces, *f*, between them, and the upper sections being formed with get-hole *h* and air-hole *l* between them, substantially as set forth.

2. The combination of a cradle, c, lower mold-sections, upper mold-sections, and securing-chock, the mold-sections being formed with link-spaces *m* and *m'* and end spaces, *f*, between them, and the upper mold-sections being formed with get-holes *h* and *h'* and air-holes *l* and *l'* between them, substantially as set forth.

3. The combination of a bed-plate, a series of cradles, tongue-and-groove connection between the cradles and bed-plate, the chain mold-sections, and chock, substantially as set forth.

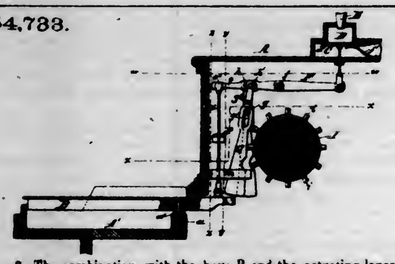
4. The combination of a cradle, c, lower mold-sections, upper mold-sections, and the chock *i*, the cradle being formed with an incline, *i'*, and the chock being tapered both from side to side and from top to bottom, substantially as set forth.

354,733. TRANSPOSING KEY-BOARD FOR MUSICAL INSTRUMENTS. MARTIN PHILIPPS, Strykersville, N. Y. Filed June 8, 1886. (No model.)

Claim.—1. The combination, with the keys B and actuating-levers F, of the movable arms G and the series of shifting pins *i*, whereby the arms G are moved in and out of engagement with the keys, substantially as set forth.

2. The combination, with the keys B and the actuating-levers F of the sound-producing parts, of pendent arms G, and a roller, I, provided with projecting pins *i*, substantially as set forth.

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3. The combination, with the keys B and the actuating-levers F, provided with slots *h*, of the supporting-bar *g*, pendent arms G, provided with slots *g'*, by which the arms are supported upon the bar *g*, and a roller, I, provided with pins *i*, substantially as set forth.

4. The combination, with the keys B and the actuating-levers F, of the pendent arms G, hung upon a bar, *g*, fixed guides *m*, arranged between the arms G, and a roller, I, provided with projections *i*, substantially as set forth.

5. The combination, with the keys B and arms G, of the shifting-roller I, provided with an indicator, K, substantially as set forth.

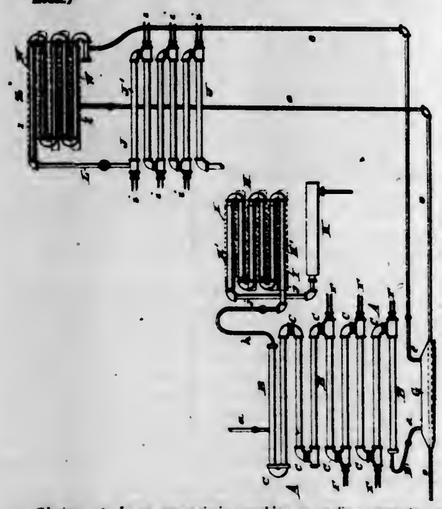
6. The combination, with the keys B and arms G, of the shifting-roller I, and a stop, whereby the roller is held in position after it has been adjusted, substantially as set forth.

7. The combination, with an actuating-lever, F, and two adjacent keys, B B, of two pendent arms, G G, one of which is permanently connected with the lever F and provided with a projection, g^2, and the other of which is arranged underneath said projection, substantially as set forth.

8. The combination, with the actuating-levers F of the sound-producing parts, of main keys B, and a shifting actuating mechanism, whereby said keys can be connected with or disconnected from the actuating-levers F, and auxiliary keys N N' N^2, which are directly connected with the actuating-levers F, substantially as set forth.

9. The combination, with the actuating-levers F of the sound-producing parts, of main keys B, pendent arms G, and a roller, I, whereby the keys B are connected with or disconnected from the actuating-levers F, and auxiliary keys N N' N^2, provided with connecting-rods *o'*, engaging with the actuating-levers F, substantially as set forth.

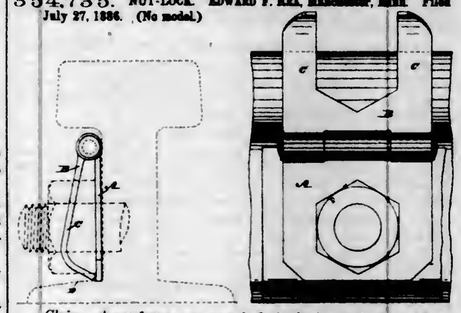
354,734. ICE-MACHINE. THOMAS L. RANKIN, New York, N. Y., assignor to Jacob W. Shinkle, Chicago, Ill. Filed Jan. 5, 1883. (No model.)



Claim.—1. In an ammonia ice-machine or cooling apparatus, a still composed of a number of horizontal pipes, each heated by an entering steam-coil, and coupled and communicating at alternate ends and adapted to receive the water of ammonia into the highest pipe and have all the pipes only partially filled therewith, in combination with the removable partial partitions D D, adapted for insertion into one or more of the highest still-pipes, and arranged to cause the inflowing water of ammonia to condense the outflowing steam formed in the pipes, substantially as specified.

2. In a still of an ammonia ice-machine or cooling apparatus, the combination of the pipes B, which do not receive steam-coils, and provided with the ammonia-water inlet-pipe *a*, and gas and water outlet pipes A and B', respectively, with the steam-coils F, and partial partitions D, inserted and arranged in the highest pipes of the series, substantially as specified.

354,735. NUT-LOCK. EDWARD F. REA, Manchester, Minn. Filed July 27, 1886. (No model.)



Claim.—A nut-fastener composed of a back plate and a forked front plate, the latter hinged to the former, the legs thereof being bent outwardly at their lower portions, and of such length as to adapt them to be held on the base of the rail when sprung thereon and against the back plate, all substantially as described.

354,736. FRUIT-CRATE. SOLOMON G. REIS, Cincinnati, Ohio. Filed July 3, 1883. (No model.)



Claim.—1. In a stand for fruit and vegetables, the corner-posts B, provided with a slot, *a'*, in connection with a cleat provided with loops or hooks *d*, one portion of which loop enters the slot *a'*, substantially as and for the purposes specified.

2. In a stand for fruit and vegetables, the corner-posts B, provided with a slot, *a'*, in combination with a cover provided with loops or hooks *d*, one portion of which loop enters the slot *a'*, substantially as and for the purposes specified.

3. The angulated corner-posts secured to the bottom drawer of a fruit and vegetable stand, each of said corner-posts having a vertical slot, in combination with the cover D, having secured thereto the cleats C, each of said cleats being provided with the loops *d*, entering its adjacent slot and encircling a portion of the post, substantially as and for the purposes specified.

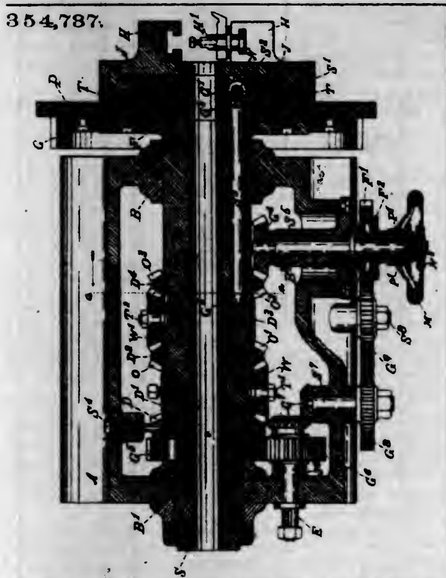
4. The corner-posts B, consisting of the pieces *a* and *b*, secured to the bottom drawer of a fruit and vegetable stand, each of said corner-posts having a slot, *a'*, in combination with the cover D, having secured thereto the cleats C, each of said cleats being provided with the loops *d*, encircling the piece *a*, entering the slot *a'* of each post, substantially as and for the purposes specified.

354,737. LATHE-HEAD. FRANCIS H. RICHARDS, Springfield, Mass., assignor of one-half to the Pratt & Whitney Company, Hartford, Conn. Filed Jan. 21, 1886. (No model.)

Claim.—1. A main spindle, a shaft carried by said spindle and having a gear thereon, a toothed ring carried upon said spindle and meshing with the gear of said shaft, a double sun-and-planet mechanism, substantially as described, a shaft adapted to be revolved in a fixed position at the will of the operator, and gearing between this shaft and said mechanism for imparting to said toothed ring a rotary motion relative to said spindle, combined and operating substantially as set forth.

2. A main spindle, a shaft carried within said spindle and having a gear thereon projecting outside of the periphery thereof, an internally-toothed ring carried upon said spindle and meshing with the gear of said shaft, a sun-and-planet mechanism, substantially as described, a shaft adapted to be revolved in a fixed position at the will of the operator, and connecting gearing between this shaft and said mechanism for imparting to said toothed ring a rotary motion relative to said spindle, combined and operating substantially as specified.

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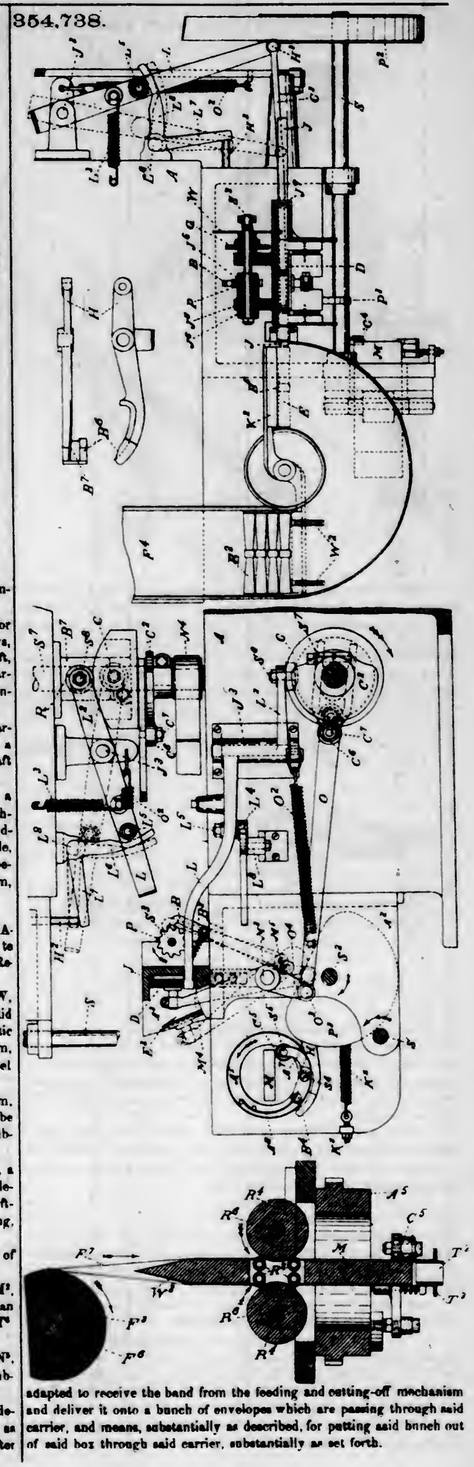


3. In a lathe-head a spindle having a shaft within it and ways for a tool-carrying slide, a tool-carrying slide adapted to slide on said ways, feed-gearing, substantially as described, between said slide and said shaft, a system of sun-and-planet gearing, substantially as described, and gearing to connect same with said shaft, all combined and operating substantially as set forth.

4. A spindle, as S, sun-wheel D, D^4, and D^4, planet-wheel W, carried on a stud, T', affixed to said spindle, planet-wheel W', carried on a stud, T^2, affixed to ring D^2, gearing from ring D^2 to shaft S^2, and shaft S^2, combined and operating substantially as described.

5. In a lathe-head, a suitable frame-work, a spindle, as S, with a face-plate and its ways, a slide on said ways, the sun-and-planet mechanism on said spindle, the connecting mechanism between said sun-and-planet mechanism and said slide, a gear, as G^3, fixed on said spindle, and intermediate connecting feed-gearing, substantially as described, between said gear G^3 and sun-wheel D^4 of said sun-and-planet mechanism, all combined substantially as and for the purpose set forth.

354,738. ENVELOPE COUNTING, PACKING, AND BANDING MACHINE. FRANCIS H. RICHARDS, Springfield, Mass., assignor of one-half to the Pratt & Whitney Company, Hartford, Conn. Filed Jan. 19, 1885. Renewed Mar. 13, 1886. (No model.)



Claim.—1. The combination of a packing-box, a stop-wheel, W, means, substantially as described, for limiting the movements of said wheel to the number of envelopes put into said box, shaft S^2, an elastic connection between said shaft and wheel W, and driving mechanism, substantially as described, for driving said shaft S^2, substantially as set forth.

2. The combination of a band-carrier, a band-shifter, mechanism, substantially as described, for operating said carrier and shifter, and tube feeding and cutting mechanism for placing a band onto said carrier, substantially as described.

3. The combination of a shuttle, a carrier-ring having shaft S^4, a cutter-arm on said shaft having a cutter and roll, substantially as described, a spring to swing said arm on said shaft, and a lever, H, for lifting said cutter from the shuttle and stopping the rotation of said ring, substantially as set forth.

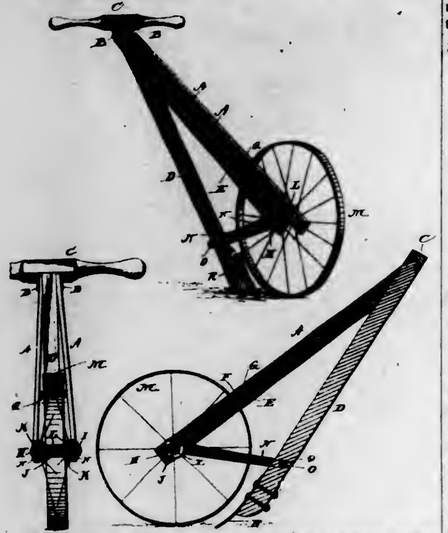
4. The combination, with the carrier-ring and its cutter-arm, of lever H, having cams B^6 and B^7, substantially as described.

5. In an envelope-banding machine, the combination of shaft M^2, an arm fixed on said shaft and provided with band-carrier T^5, and an arm which is adapted to slide on said shaft and has a band-shifter, T^6, substantially as described.

6. The combination of band-carrier T^5, having side grooves, N^2, and the band-shifter T^6, having projections fitting into said grooves, substantially as described.

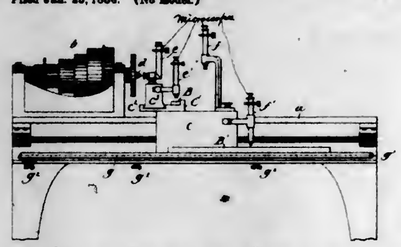
7. The combination of a packing-box, devices, substantially as described, for packing envelopes into said box, mechanism, substantially as described, for feeding and cutting off bands, a band carrier and shifter adapted to receive the band from the feeding and cutting-off mechanism and deliver it onto a bunch of envelopes which are passing through said carrier, and means, substantially as described, for putting said bunch out of said box through said carrier, substantially as set forth.

354,739. GARDEN-PLOW. GEORGE L. ROBY, Waterloo, Ind. Filed July 12, 1886. (No model.)



Claim.—In a garden-plow, the combination of a standard having a shovel at its lower end and a transverse handle at its upper end and formed with a series of perforations near the lower end, a lip secured to said handle at each side of said standard, two frame-pieces having a wheel journaled between their lower ends and pivoted at their upper ends to said lips, and two braces pivoted to the lower ends of the frame-pieces and having a bolt at the rear ends fitting in the perforations in the lower end of the standards, as and for the purpose shown and set forth.

354,740. TURNING-LATHE. WILLIAM A. ROGERS, Cambridge, Mass. Filed Jan. 25, 1886. (No model.)



Claim.—1. The combination, with a machine or tool, of a work-observing microscope held in position to observe the part of the material acted upon by the tool, and a measuring-microscope held in fixed relation to the work-observing microscope, and a standard of linear measure in position to be observed by the said measuring-microscope, substantially as described.

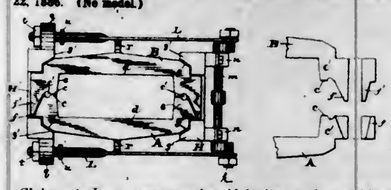
2. The herein-described means for determining the existence and amount of eccentricity of a rotating lathe center or pivot, consisting of a microscope and means to support the same, with its field encompassing the said center, substantially as described.

3. The combination, with a lathe and upright having a movement transverse to the axis of the lathe, of two microscopes supported in fixed relation to one other on said upright, the one having its axis of vision parallel with the axis of the lathe, and arranged to observe the face of a piece carried by the head-stock only of the lathe, and the other having its axis of vision at right angles to the axis of the lathe, and a standard of linear measure transverse to the axis of the lathe co-operating with the latter microscope, substantially as described.

4. The combination, with a lathe, of a gage arranged to engage the convex surface of the piece being turned, and provided with a standard of linear measure, and a stationary microscope co-operating therewith for measuring the radius of the part of work being turned, substantially as and for the purpose described.

5. The combination, with a lathe, of the diameter-standard consisting of a cylinder of known diameter, with the sliding gage having a finger arranged to engage the curved surface of the said standard, or of the piece carried by the lathe, and carrying graduations of linear measurements, and the stationary microscope in position to observe said graduations, substantially as described.

354,741. INGOT-MOLD. JOHN SABOLD, Little Oley, Pa. Filed July 22, 1886. (No model.)



Claim.—1. In an open-topped mold for ingots, the combination of two-mold sections separable on opposite sides of the mold and having outer beveled corners, two clamp-plates, each provided with two beveled flanges, and each plate having each of its said flanges bearing against the outer corners of different mold-sections, and rods to connect and draw the clamp-plates together, as set forth.

2. In an open-topped mold for ingots, the combination of two mold-sections separable on opposite sides of the mold and having outer beveled corners provided with cutaways *h*, spaced apart, and bearings *h'* between the cutaways, two clamp-plates, each provided with two beveled flanges, and each plate having each of its said flanges bearing against the outer corners of different mold-sections, and means to draw the clamp-plates together, as set forth.

3. In an open-topped mold for ingots, the combination of two mold-sections separable on opposite sides of the mold and having outer beveled corners, and provided on the separable sides, at the top, with a laterally-projecting lug, two clamp-plates, each provided with two beveled flanges, and each plate having each of its said flanges bearing against the outer corners of different mold-sections and applied below the said laterally-projecting lugs, and rods to connect the clamp-plates, as set forth.

4. In an open-topped mold for ingots, the combination of two mold-sections separable on opposite sides of the mold and having outer beveled corners, two clamp-plates, each provided with two beveled flanges, and each plate having each of its said flanges bearing against the outer corners of different mold-sections, rods to connect and draw the clamp-plates together, and eccentric tightening-shafts *m*, as set forth.

5. In an open-topped mold for ingots, the combination of two mold-sections separable on opposite sides of the mold and having beveled corners, two clamp-plates, each provided with two beveled flanges, and each plate having each of its said flanges bearing against the outer corners of different mold-sections, rods to connect and draw the clamp-plates together, and a spring, *p*, bearing on each connecting-rod, as set forth.

354,742. INGOT-MOLD. JOHN SABOLD, Little Oley, Pa. Filed Aug. 3, 1886. (No model.)



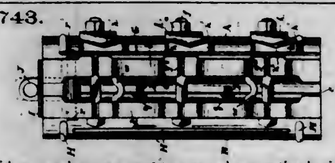
Claim.—1. An open-top mold for ingots made in two sections, A and B, separable on opposite sides, and each section provided on its separable side with a flange, *d*, the two flanges on each side being parallel, in combination with two upright movable bars, G, one at each separable side of the mold, and each of said bars provided with two or more inclined blocks, *h*, all having their point end downward and having a vertical slot, *f'*, a reversely-inclined block, *k*, confronting each inclined block on the said upright bars, and a bolt, *f*, passed through each two inclined blocks, the two parallel flanges and the upright movable bar, whereby upon raising or lowering the upright bars the two mold-sections will at once be loosened or tightened, as set forth.

2. An open-top mold for ingots made in two sections, A and B, separable on opposite sides, and each section provided on its separable side with a flange, *d*, in combination with a wedge-clamp consisting of two inclined blocks confronting each other in reversed position, and one block provided on its outer face with a concavity, *n*, and a bolt passed through the said two flanges and inclined blocks, and provided with a nut having a convex side, *n'*, seated in said concavity, as set forth.

354,743. INGOT-MOLD. JOHN SABOLD, Little Oley, Pa. Filed Oct 6, 1886. (No model.)

Claim.—1 A mold for ingots, made in two sections, A and B, separable on opposite sides, and each section provided on each of its uniting

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edges with an angular groove and tongue, and one section having on the outer side, where the said groove is outermost, a wrought-iron lug or pin, *p*, projecting horizontally and in contact with the tongue of the next section, for the purpose set forth.

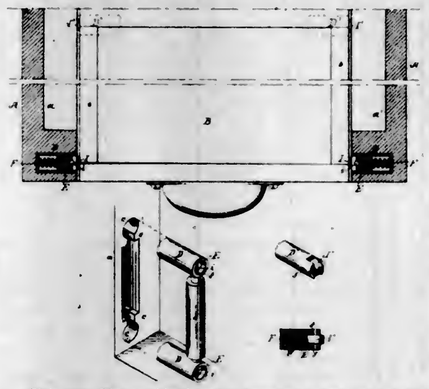
2. A mold for ingots, made in two sections, A and B, separable on opposite sides, and each section provided on its separable sides with flanges *d*, in combination with a double-wedge clamp consisting of a block, *h*, next to the flange *d*, said block inclining from the highest part at each end *h'* to the center lowest part, *h²*, between the said ends, and having a central slot, *f'*, a bolt, *f*, and a loose wedge, *k*, mounted on the said bolt, whereby the mold may be reversed end for end or turned up-side down, and yet the clamp will work effectually, as set forth.

3. The combination of an ingot-mold having two flanges, *d*, each provided on the side which confronts the other, and near the end of the mold, with a vertical groove, *n*, and having a slot, *s*, below said groove, and a detachable lift-ear, J, having a portion of each edge occupying one of said grooves, and having the lower end too thick to enter the grooves, and provided with a cross-bar whose ends occupy the said slots, for the purpose set forth.

4. The combination of an ingot-mold in two sections, A and B, separable on opposite sides, and detachable lift-ears J, secured at the uniting edges of each side by a cross-bar, which occupies a slot in different mold-sections, for the purpose set forth.

5. The combination of an ingot-mold made in two sections, A and B, and each section provided on its separable side with a flange, *d*, having a slot, *s*, and a space between the said flanges of the two sections, wedge-clamps, each consisting of two inclined blocks confronting each other, and a bolt through the said flanges and inclined blocks, a drop-bar, G, to which one of the inclined blocks of each clamp is attached, and said bar provided with a hole, *t*, and a lift-ear, J, attached to the mold by a cross-bar, *r*, loosely occupying the said flange-slots, and having one end entered in the hole on the drop-bar, for the purpose set forth.

354,744. DRAWER-SLIDE. FRANCIS SABOT, Philadelphia, Pa. Filed Aug. 30, 1886. (No model.)



Claim.—1. The combination of a frame or casing and a drawer loosely fitted therein, with a yielding bearing for the said drawer, whereby expansion or contraction of the drawer or casing is permitted, all substantially as specified.

2. The combination of a frame or casing and a drawer loosely fitted therein with a roller forming a bearing for the drawer, and a spring acting upon said roller to press it against the drawer, all substantially as specified.

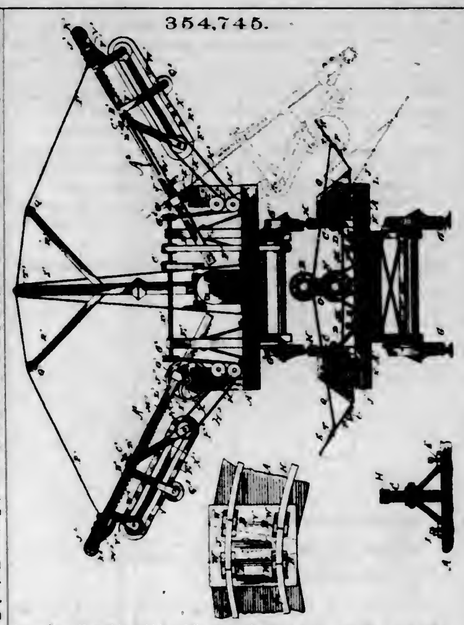
3. The combination of a drawer and its frame with casings D D, spring-bearings E E, and roller I, having spindles resting against the bearings, all substantially as set forth.

4. The combination of a drawer and its frame with rollers I in yielding bearings, the drawer having rollers I I at the rear, all substantially as set forth.

354,745. GRADING-MACHINE. JOHN C. SAGE, Gainesville, Ga. Filed Mar. 23, 1886. (No model.)

Claim.—1. The combination, with each lower platform-car, of the end rail-supporting posts immovably braced upon the said car, and the

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laterally-adjustable middle rail-supporting posts, having the lower ends of their braces slotted longitudinally for the reception of the retaining-screws, as described.

2. The combination, with the lower rail-supporting cars having the central posts provided each with an upper and lower windlass, of the inner series of larger and outer series of smaller rollers journaled in the upper side of the platform of the said cars, as described, the movable dirt-receptacles extending the entire length of each side of the car and connected to the lower windlasses by chains or ropes, and having the hinged outer doors provided with the folding outer portions and connected by chains or ropes to the upper windlasses, the said doors extending beyond the ends of the boxes, so as to overlap one another at their ends, as described, and the slotted plates covering and connecting the adjacent ends of the cars, as described, substantially as set forth.

3. The combination, with the lower platform-cars and rails supported thereon, of the posts located at the ends of the cars, braces arranged between the posts, and rail-sections supported on said braces, all as shown and described.

4. The combination, with the engine, of the transverse shafts driven through suitable belting from the same and having the grooved end pulleys of the vertically and laterally adjustable beams carrying at their outer ends the double scoops having the central partition and the inward discharge-flange, and the flanged conveyer-aprons supported beneath the said adjustable beams, as described, and driven by belting from the grooved end rollers of the transverse shafts, substantially as set forth.

5. The combination of the side supports having at their upper ends the transverse shafts provided with the adjusting hand-wheels and the central pinions, the brackets pivoted at their downward ends upon the said adjusting-shafts and having the set-screws in their upper sides, the beams sliding in the said brackets and provided on their lower sides with the racks and carrying at their outer ends the double scoops having the central partitions and the inward discharge-flange, and the supporting-chains secured to the rollers of the central mast and adjustably secured at their free ends to the sides of the said mast, substantially as described.

6. The combination of the vertically-adjustable beams having the longitudinal central slots, the conveyer-belt frames consisting of the stationary outer portion supported in downwardly-projecting arms on the said beams, and the inner pivoted section adjustably supported by the pivoted arms, the sliding bracket having the retaining-screw, to which the upper ends of these arms are pivoted, and the flanged conveyer-belts, and means, substantially as described, for rotating the same.

7. The herein-described double scoops having the serrated mouths or cutting-edges, the inwardly-projecting perforated lips, the central partition, and the curved discharge-flange, substantially as set forth.

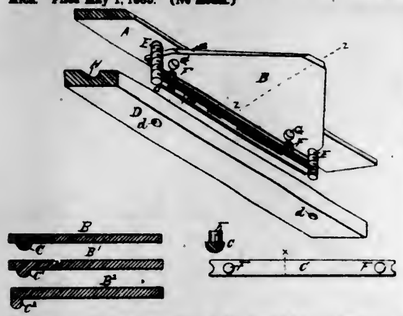
8. The combination of the vertically and laterally adjustable beams having the double scoops at the outer ends, the conveyer-belt frames having the adjustable inner ends, the flanged conveyer-belts traveling around the said frames, and means, substantially as described, for rotat-

ing the same, the lower platform-cars having the series of larger and smaller rollers journaled in their upper surface, as described, and the movable dirt-receptacles having the hinged doors provided with the folding outer portions, and the chains connecting the body of the receptacles and the hinged doors, respectively, to the upper and lower windlasses supported on the platforms of the cars, all constructed and arranged to operate in the manner and for the purpose shown and set forth.

354,746. PRODUCTION OF COLORING-MATTER. LUDWIG SCHAD, Berlin, Germany. Filed Aug. 20, 1886. (No specimens.) Patented in Germany Mar. 31, 1886, and in England July 28, 1886, No. 9,754.

Claim.—A bluish-black coloring-matter produced by the combination of the disulpho-acid of diazo-azo-benzol with para-tolyl-beta-naphthylamine, as described above.

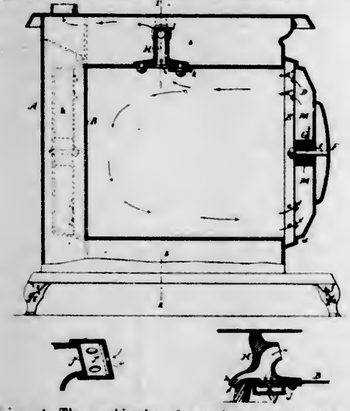
354,747. MOWING-MACHINE KNIFE. ELIAS H. SELLERS, Detroit, Mich. Filed May 1, 1885. (No model.)



Claim.—1. In combination with the knife B, having therein the holes G, the lag C, having thereon the rivets F, substantially as shown and described.

2. In combination with the finger-bar I, the two-part cutter-bar A D, the part A being beveled on its forward edge, nuts and bolts E, and bridge-guides K, beveled to fit part A of the cutter-bar, substantially as shown and described.

354,748. OVEN FOR STOVES OR RANGES. ALEXANDER SLOAN, Pittston, Pa., assignor of one-half to John D. Green, same place, and Lewis Pughe, Scranton, Pa. Filed May 11, 1886. (No model.)



Claim.—1. The combination of a cook-stove or range having an adjacent air-circulating chamber, M, provided with openings *e* from the bottom of the oven into the chamber, and with openings *e'* from the top of the chamber into the oven, and with fresh-air inlets *d* at the bottom of the said chamber, substantially as specified.

2. The combination of the oven of a cook-stove or range with an air-circulating chamber having a filtering-diaphragm, substantially as set forth.

3. A cook-stove or range having the oven communicating with the smoke-flue and an intermediate check-valve, substantially as and for the purpose described.

4. The combination of the oven of a cook-stove or range and the top plate with a standard containing a flue forming a communication between the oven and top smoke-flue, as set forth.

5. The combination of the oven of a cook-stove or range, the top plate, and fire-back with a standard supporting the top plate and clamping the fire-back, and having flues forming communication between the oven and fire-pot and the smoke-flues, all substantially as specified.

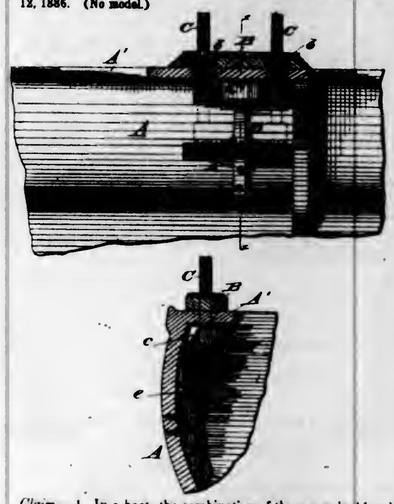
6. The combination of an oven for cooking-stoves, &c., with a door, D, and lining-plate E therefor, having openings *e* and *e'*, and casing G, containing a filtering compound, substantially as set forth.

354,749. COFFIN. LEVI K. SHEDDEN, Mount Vernon, assignor to Henry E. Taylor, Brooklyn, N. Y. Filed Sept. 30, 1886. (No model.)



Claim.—The combination, with a burial-casket, of a series of brackets, B B', secured to the sides of the casket, and a series of brackets, B², secured to the ends of said casket, sockets formed in said brackets, rectilinear rail-sections extending through the brackets B B and terminating in the middle of brackets B' B', and curved rail-sections extending through the brackets B² B² and terminating in the middle of the brackets B' B', substantially as described.

354,750. OAR-LOCK. JOHN W. TRIMM, Hampton, Va. Filed Apr. 12, 1886. (No model.)

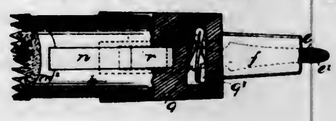


Claim.—1. In a boat, the combination of the gunwale A' and base-piece B, secured thereto, the thole-passages *b b* through the gunwale and said piece, the block C', lying beneath the gunwale and provided with the spring-notch *c*, the thole-pins C, having their lower ends secured to said block, the spring D, secured to the side of the boat below the block B and adapted to keep the block C in position when raised, and the supporting-bar F, all constructed and arranged substantially as and for the purpose specified.

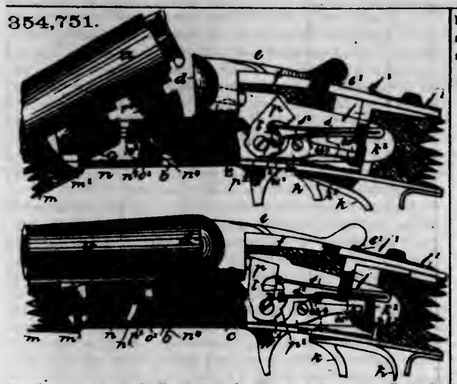
2. In an oar-lock, the combination of the block C', having tholes C, adapted to lie beneath the gunwale of a boat, the said tholes playing vertically through suitable openings in the gunwale, with a supporting-spring, D, secured to the side of the boat below the block C' and adapted to hold the block C' in position when raised, and the stop F, to support the same when lowered, all substantially as and for the purpose specified.

354,751. BREECH-LOADING FIRE-ARM. HENRY TOLLEY, Woodman Street, Birmingham, County of Warwick, England. Filed Sept. 6, 1886. (No model.) Patented in England Aug. 12, 1886, No. 10,903.

Claim.—1. In a breech-loading small-arm, the combination of a fore body part, *b*, fore end, *m m²*, hammer *p*, exposed traversing cocking-slide *n*, and oblique cocking-rods *o*, jointed to the said cocking-slide by



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trunnion return ends o^2, all constructed and arranged substantially as described, whereby the direct impingement of the fore-end iron m^3 upon the exposed slide on the falling of the barrels cocks the arm.

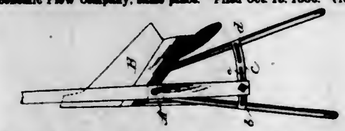
2. The combination, with the barrel *a*, having the back lump, *r*, with curved side r^3, of the cocking-slide *n*, having the knuckle part n^3, with incline n^4, and the oblique cocking-rods *o*, hinged to said knuckle part, whereby the closing of the barrel returns the cocking mechanism to normal position, substantially as described and shown.

3. In rebounding lock mechanism for small-arms, the combination, with the hammer *p*, having the bents p' p^2 and shoulder p^3, of the sear *u*, having the rise u^4, the spring *s*, and the trigger-blades k k^2 k^3, said spring having its lower or free limb s^2 extended forward, so as to impinge upon the shoulder p^3 and cause the hammer to rebound when the trigger is released after firing and the sear allowed to drop, substantially as described.

4. In a breech-loading small-arm, the combination, with the barrel *a*, lever *e*, and locking-bolt *h*, of the spindle *g*, having the cam g^2, engaging with the locking-bolt, and the lateral projection g^3, impinging against the folded spring *i*, substantially as and for the purpose described.

5. In a trigger-safety for small-arms, the combination, with the unlocking-lever *e*, having shoulder e^3, of the slide j^2, the depending safety *j*, attached thereto, the spring *l*, and the trigger-blade k^3, having the rise k^2, all constructed and combined substantially as described, whereby when the lever is turned aside and released from the slide the latter will be automatically shifted by the spring *l* and the safety *j* brought above the rise k^2 as set forth and shown.

354,752. PLOW. CALEB K. TOWNE, South Bend, Ind., assignor to the Economic Plow Company, same place. Filed Oct. 15, 1886. (No model.)



Claim.—1. A brace for plow-handles, adapted to be connected with the plow-beam, formed with its points of connection at opposite ends upon different curves, whereby one set of handles may be used for either a right or left hand plow, substantially as described.

2. A brace for plow-handles, adapted for connection with the plow-beam, provided with curved slots therein at opposite ends, said slots being formed upon different curves, whereby the handles may be used for a right or left hand plow, substantially as described.

3. A brace for plow-handles, having the end slots, *b d*, formed upon different curves, the central intermediate slots, *c*, formed approximately straight, said brace being adapted for connection with the plow-beam, substantially as described.

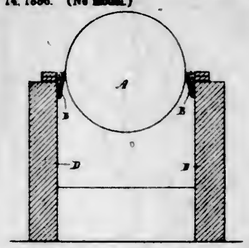
354,753. THILL-COUPLING. WILLIAM P. TRACY, Grand Rapids, Mich. Filed Oct. 12, 1886. (No model.)



Claim.—1. A thill-coupling anti-rattler consisting of a movable casing, a rubber bushing carried thereby, and inclosed upon the top, bottom, sides, and back, in combination with an independent wedge for forcing the same against the thill, substantially as described.

2. A thill-coupling consisting of a movable case containing a flexible bushing, an independent wedge adapted to adjust the same horizontally, and an adjusting-screw and plate carried by the moving case, substantially as described.

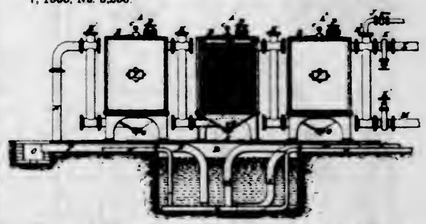
354,754. BOILER-FURNACE. MOSES WALKER, Port Huron, Mich. Filed Oct. 14, 1886. (No model.)



Claim.—1. In combination with a boiler and its furnace-setting, a spring-support interposed between the two and secured in the wall of the furnace, substantially as and for the purpose described.

2. A spring-support interposed between a boiler and the side wall of the furnace and secured to the latter, in combination with a filling of non-conducting material, substantially as specified.

354,755. MANUFACTURE OF OXIDIZED OR SOLIDIFIED OIL. FREDERICK WALTON, Heatham House, Twickenham, County of Middlesex, England. Filed Aug. 23, 1886. (No model.) Patented in England July 7, 1885, No. 8,250.



Claim.—1. My improvement in the manufacture of oxidised or solidified oil, consisting in employing chambers containing oil-accumulating plates, in filling such chambers with oil, then emptying the same, so as to leave a film of oil on the plates, and forcing a current of air through the chamber, substantially as described.

2. The combination, in an apparatus for the manufacture of oxidized or solidified oil, of closed chambers A, oil-accumulating plates within these chambers, and connections for filling and emptying the chambers and for passing heated air through them, all substantially as described.

354,756. WAGON-BRAKE. THADDEUS R. WHEELER, Canandaigua, N. Y. Filed Oct. 8, 1886. (No model.)

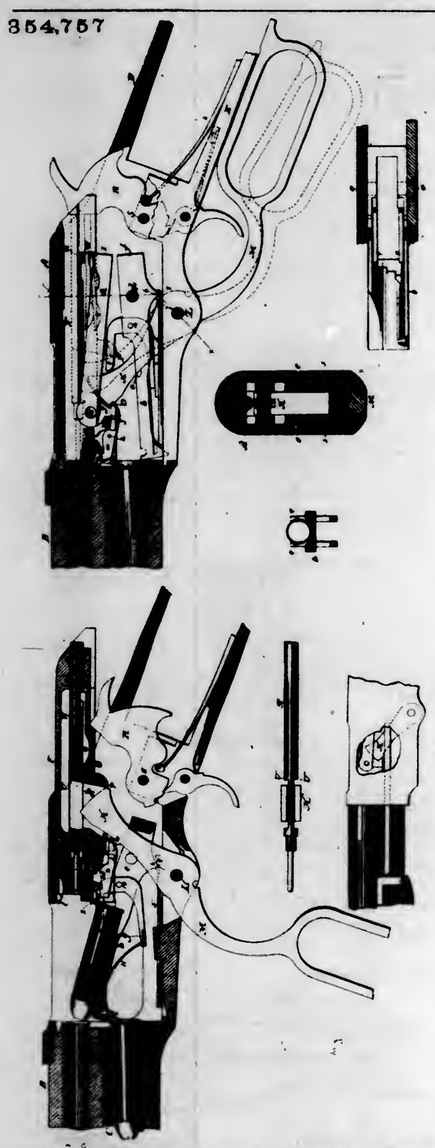


Claim.—The combination, with the connected side bars provided with hooks at their rear ends and parallel rods at their front ends, of the pivoted brake-bars secured to said side bars, and the brake-rod connected at its rear end to the brake-bars, and at its front end to a crank-rod provided with a lever adapted to engage a rack-bar on one of the side bars, substantially as specified.

354,757. MAGAZINE FIRE-ARM. ELI WHITNEY and WILLIAM C. SCHARF, New Haven, Conn.; said Scharf assignor to said Whitney. Filed Aug. 23, 1886. (No model.)

Claim.—1. In a fire-arm in which the barrel opens into the receiver at the rear, the combination therewith of a longitudinally-reciprocating breech-piece, F, a lever, K, hung in the receiver below the breech-piece, and arranged to swing backward and forward in a longitudinal plane, a brace, G, hinged to the breech-piece near its forward end and extending rearward, the receiver constructed with an abutment, I, against which the rear end of said brace is adapted to bear, the said brace having a vertical opening through it near the hinged end, and through which the

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upper end of the said lever K may work, the said brace constructed with a bearing, P, in rear of said lever, with a shoulder, O, forward of the lever, below the pivot on which the brace is hung, substantially as described.

2. In a fire-arm in which the barrel opens into the receiver at the rear, the combination therewith of a longitudinally-reciprocating breech-piece, F, a lever, K, hung in the receiver below the breech-piece, and arranged to swing backward and forward in a longitudinal plane, a brace, G, hinged to the breech-piece near its forward end, and extending rearward, the receiver constructed with an abutment, I, against which the rear end of said brace is adapted to bear, the said brace having a vertical opening through it near the hinged end, and through which the upper end of the said lever K may work, the said brace constructed with a bearing, P, in rear of said lever, and with a shoulder, O, forward of the lever, below the pivot on which the brace is hung, with a firing-pin which extends longitudinally through the breech-piece, and in the path of the upper end of said lever K, the firing-pin constructed with a shoulder, U, against which said lever K is arranged to bear, substantially as described.

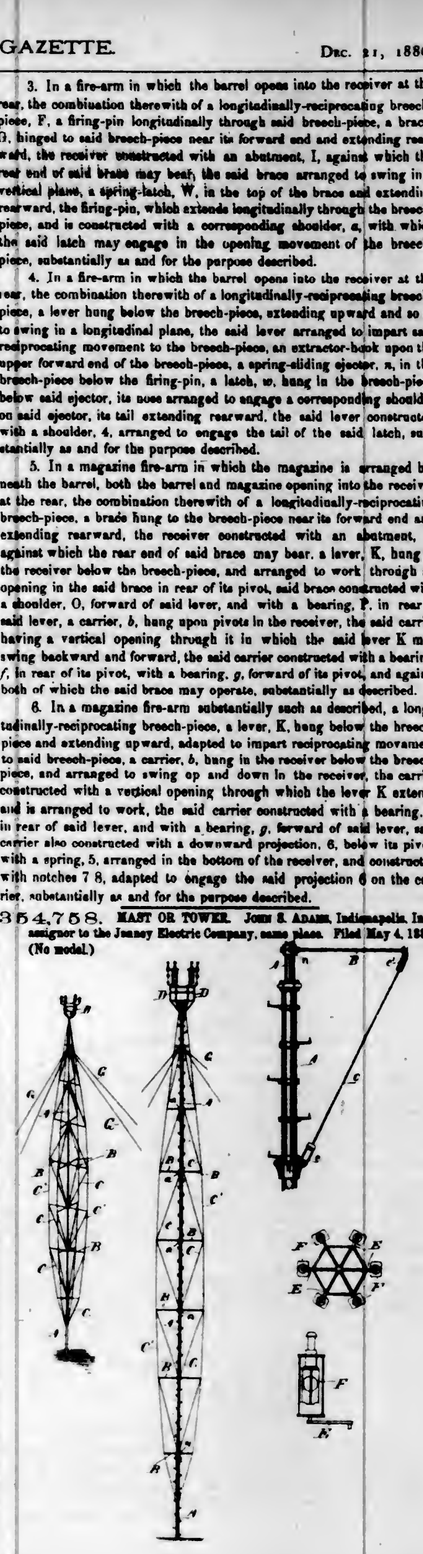
3. In a fire-arm in which the barrel opens into the receiver at the rear, the combination therewith of a longitudinally-reciprocating breech-piece, F, a firing-pin longitudinally through said breech-piece, a brace, G, hinged to said breech-piece near its forward end and extending rearward, the receiver constructed with an abutment, I, against which the rear end of said brace may bear, the said brace arranged to swing in a vertical plane, a spring-latch, W, in the top of the brace and extending rearward, the firing-pin, which extends longitudinally through the breech-piece, and is constructed with a corresponding shoulder, a, with which the said latch may engage in the opening movement of the breech-piece, substantially as and for the purpose described.

4. In a fire-arm in which the barrel opens into the receiver at the rear, the combination therewith of a longitudinally-reciprocating breech-piece, a lever hung below the breech-piece, extending upward and so as to swing in a longitudinal plane, the said lever arranged to impart said reciprocating movement to the breech-piece, an extractor-hook upon the upper forward end of the breech-piece, a spring-sliding ejector, n, in the breech-piece below the firing-pin, a latch, w, hung in the breech-piece below said ejector, its nose arranged to engage a corresponding shoulder on said ejector, its tail extending rearward, the said lever constructed with a shoulder, 4, arranged to engage the tail of the said latch, substantially as and for the purpose described.

5. In a magazine fire-arm in which the magazine is arranged beneath the barrel, both the barrel and magazine opening into the receiver at the rear, the combination therewith of a longitudinally-reciprocating breech-piece, a brace hung to the breech-piece near its forward end and extending rearward, the receiver constructed with an abutment, I, against which the rear end of said brace may bear, a lever, K, hung in the receiver below the breech-piece, and arranged to work through an opening in the said brace in rear of its pivot, said brace constructed with a shoulder, O, forward of said lever, and with a bearing, P, in rear of said lever, a carrier, *b*, hung upon pivots in the receiver, the said carrier having a vertical opening through it in which the said lever K may swing backward and forward, the said carrier constructed with a bearing, *f*, in rear of its pivot, with a bearing, *g*, forward of its pivot, and against both of which the said brace may operate, substantially as described.

6. In a magazine fire-arm substantially such as described, a longitudinally-reciprocating breech-piece, a lever, K, hung below the breech-piece and extending upward, adapted to impart reciprocating movement to said breech-piece, a carrier, *b*, hung in the receiver below the breech-piece, and arranged to swing up and down in the receiver, the carrier constructed with a vertical opening through which the lever K extends and is arranged to work, the said carrier constructed with a bearing, *f*, in rear of said lever, and with a bearing, *g*, forward of said lever, said carrier also constructed with a downward projection, 6, below its pivot, with a spring, 5, arranged in the bottom of the receiver, and constructed with notches 7 8, adapted to engage the said projection 6 on the carrier, substantially as and for the purpose described.

354,758. MAST OR TOWER. JOHN S. ADAMS, Indianapolis, Ind., assignor to the Jenney Electric Company, same place. Filed May 4, 1886. (No model.)



Claim.—1. The combination of a central pole or mast, A, constructed in sections, and the sections coupled together by coupling-joints, cross-arms B, secured also to said coupling-joints, truss-rods C, running from the outer ends of said cross-arms to the coupling-joints above and below, and also between the outer ends of said cross-arms throughout the whole length of the tower, said truss-rods being provided with a head at one end secured in the clip *c*, and formed screw-threaded at the other end, which engages with a threaded hole in the clip *c'*, and said clips *c* and *c'* secured to said coupling-joints and said outer ends of the cross-arms, respectively, substantially as shown and described.

2. The combination of a mast or tower, the cage or basket, the lamps, and the lamp-supports, said lamp-supports being pivoted at both ends, whereby said lamps can be adjusted bodily, and also in position on their supports, substantially as shown and described.

3. The combination, in a mast or tower, of the central pole or mast, cross-arms therefor arranged at intervals throughout its length, the central ones being the longest and decreasing gradually toward each end, and truss-rods connecting said several cross-arms and said central pole or mast, said truss-rods being formed with a head at one end and screw-threaded at the other and secured in the clips *c* and *c'*, one of which has a threaded hole engaging the threaded end of said truss-rods, substantially as shown and described.

354,759. MAST ARM. JOHN S. ADAMS, Indianapolis, Ind., assignor to the Jenney Electric Company, same place. Filed May 4, 1886. (No model.)

Claim.—1. The combination, in a lamp-support, of the hollow boom having sheaves at its ends, a post by which said boom is supported, the lamp, a weight, and a rope running from said lamp through said hollow boom to said weight, substantially as set forth.

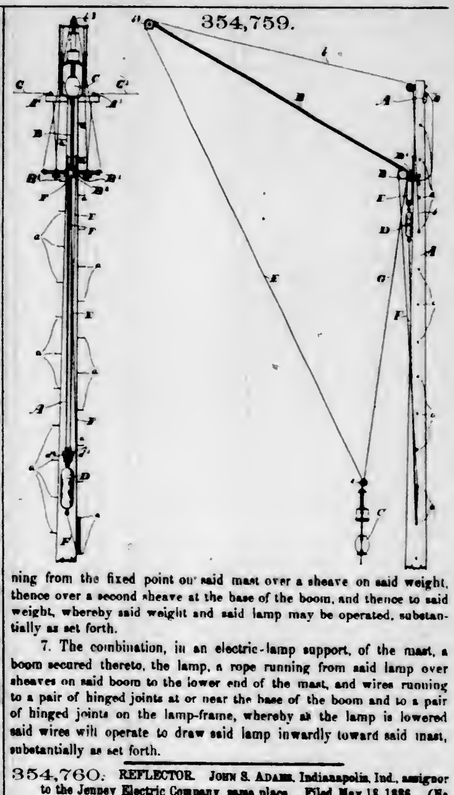
2. The combination of a post or mast, a boom supported thereby, sheaves at the ends of said boom, a weight, and a rope running from said lamp over said sheaves to said weight, substantially as set forth.

3. The combination of a post or mast, as boom secured thereto, pivot-connections with brackets, a stay-rope connected to said boom and to the top of said post, a lamp suspended to the outer end of said post, and ropes for suspending said lamps.

4. The combination, in an electric-lamp support, of the mast, a boom secured to said mast, a lamp, ropes running from said lamp over sheaves on said boom, the electrical wires, two pairs of hinged joints, one being connected to said boom and the other to the lamp-frame, and means of operating the same, substantially as described.

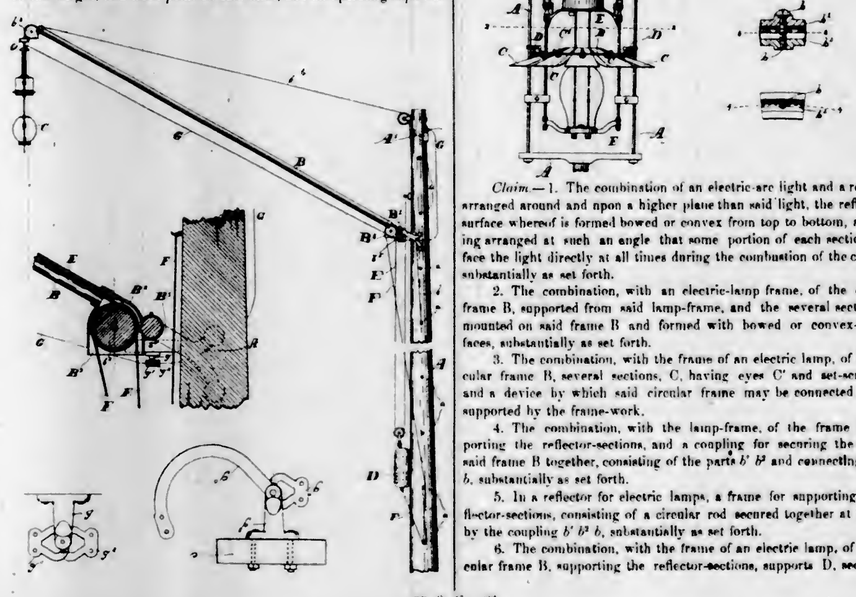
5. The combination, in an electric-lamp support, of the mast, a hollow boom secured thereto, having sheaves at its upper and lower ends, a rope running from the lamp over each sheave to the outer end of said boom, through the hole in said boom, over one sheave at the lower end of said boom, under a sheave attached to the weight, and up to the fixed point on said mast, substantially as set forth.

6. The combination, in an electric-lamp support, of the mast, a boom secured thereto, a lamp suspended from the outer end of said boom, a rope running from said lamp over sheaves on said boom to a sheave on the weight, to a fixed point on said mast, and an operating-rope running from the fixed point on said mast over a sheave on said weight, thence over a second sheave at the base of the boom, and thence to said weight, whereby said weight and said lamp may be operated, substantially as set forth.



7. The combination, in an electric-lamp support, of the mast, a boom secured thereto, the lamp, a rope running from said lamp over sheaves on said boom to the lower end of the mast, and wires running to a pair of hinged joints at or near the base of the boom and to a pair of hinged joints on the lamp-frame, whereby as the lamp is lowered said wires will operate to draw said lamp inwardly toward said mast, substantially as set forth.

354,760. REFLECTOR. JOHN S. ADAMS, Indianapolis, Ind., assignor to the Jenney Electric Company, same place. Filed May 18, 1886. (No model.)



Claim.—1. The combination of an electric-arc light and a reflecter arranged around and upon a higher plane than said light, the reflecting-surface whereof is formed bowed or convex from top to bottom, and being arranged at such an angle that some portion of each section shall face the light directly at all times during the combustion of the carbons, substantially as set forth.

2. The combination, with an electric-lamp frame, of the circular frame B, supported from said lamp-frame, and the several sections C, mounted on said frame B and formed with bowed or convex-shaped faces, substantially as set forth.

3. The combination, with the frame of an electric lamp, of the circular frame B, several sections, C, having eyes C' and set-screws *c'*, and a device by which said circular frame may be connected to and supported by the frame-work.

4. The combination, with the lamp-frame, of the frame B, supporting the reflector-sections, and a coupling for securing the ends of said frame B together, consisting of the parts *b'* *b²* and connecting-screw *b*, substantially as set forth.

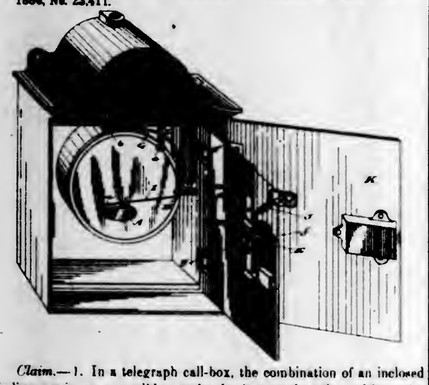
5. In a reflector for electric lamps, a frame for supporting the reflector-sections, consisting of a circular rod secured together at its ends by the coupling *b'* *b²* *b*, substantially as set forth.

6. The combination, with the frame of an electric lamp, of the circular frame B, supporting the reflector-sections, supports D, secured to

said frame by eyes D', and hooked portions D^2, with thumb-screws D^3, securing the same to said lamp-frame, all substantially as set forth.

7. A reflector for electric lights, consisting of a series of convex-faced sections mounted on a circular frame around and upon a higher plane than said light, at such an angle that some portion of each section shall directly face said light during all stages of the combustion of the carbons, substantially as described, and for the purposes specified.

354,761. NON-INTERFERING STREET-BOX FOR FIRE-ALARM TELEGRAPH SYSTEMS. Alexander Anderson, Toronto, Ontario, Canada. Filed Feb. 6, 1886. (No model.) Patented in Canada Feb. 13, 1886, No. 23,411.



Claim.—1. In a telegraph call-box, the combination of an inclosed winding-crank, an accessible starting-hook engaging therewith, a device to prevent said engagement when the line is in use, an electro-magnet within the box to interpose said device, and circuit-changing connections, substantially as described, to operate said magnet by opening the door to the starting-hook, whereby a signal is only transmitted when the line is free, as set forth.

2. A pivoted hanging bar, G, having a push-bar, I, and armature H, attached to it, in combination with the pawls B and the independent electro-magnet F, connected to the fire-alarm telegraphic circuit, so that the opening of the box shall charge the magnet F, substantially as and for the purpose specified.

3. The pivoted hanging bar G, provided with push-bar I and armature H, and an electro-magnet, F, connected to the fire-alarm telegraphic circuit, as specified, in combination with the finger J, attached to the door K, substantially as and for the purpose specified.

4. The pivoted hanging bar G, provided with push-bar I and armature H, an electro-magnet, F, connected to the fire-alarm telegraphic circuit, as specified, and a finger, J, connected to the door K, in combination with the hanger L, provided with the adjusting set-screw e, substantially as and for the purpose specified.

5. The slide C and the pawl B, pivoted thereto, in combination with the spring *f* and stop *g*, substantially as and for the purpose specified.

6. The combination, with the magnet F, pivoted hanging bar G, armature H, and push-bar I, carried thereby, of the hanger L and finger J, substantially as described.

354,762. VIBRATING-CYLINDER ENGINE. Edward Andrews, Pottsville, assignor of one-half to Robert H. Coleman, Cornwall, Pa. Filed Sept. 28, 1886. (No model.)

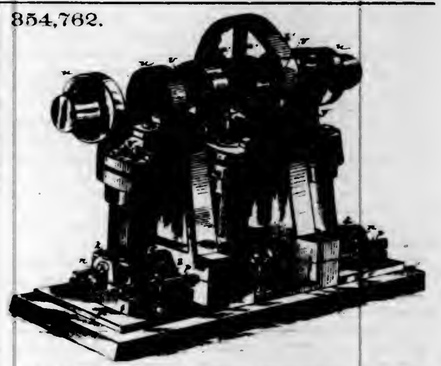
Brief.—The cylinder has a separate hemi-cylindrical bearing end, to which the side trunnions are attached. The yoke, which is adjusted by two elastic-headed bolts, bears with equal pressure on the trunnions.

Claim.—1. In a vibrating-cylinder engine, the combination of a chambered bed-plate, a detachable seat having a concave bearing-surface and passages communicating with the chambers in the bed-plate, a cylinder having a detachable lower section provided with a convex end and a single port through it, trunnions on opposite sides thereof, and a yoke for holding the cylinder to its seat, substantially as described.

2. In a vibrating-cylinder engine, the combination of a chambered bed-plate, a detachable seat having a concave bearing-surface and passages communicating with the chambers in the bed-plate, a cylinder provided with a convex end and a single passage through said end, trunnions on opposite sides of the cylinder, and a yielding equalizing-yoke engaging both trunnions and secured to the bed-plate, substantially as described.

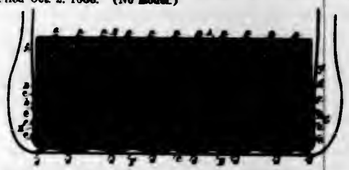
3. A vibrating cylinder having a convex end and trunnions on opposite sides, in combination with a concave seat and an equalizing-yoke consisting of side bars constructed to engage with the trunnions and end bars connected to the side bars and to the bed-plate, substantially as described.

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4. An equalizing-yoke for an engine, consisting of side bars having central cavities for engagement with trunnions and rabbets in their ends, in combination with end bars having a central aperture and rabbets in their ends, and bolts for securing the yoke to a fixed portion of the structure, substantially as described.

354,763. FISHING-SEINE. Charles R. Bartlett, Boston, Mass. Filed Oct. 2, 1886. (No model.)



Claim.—1. In a seine, in combination with the netting thereof, rings *b*, fastened to the netting at intervals longitudinally at or near its middle part, each of said rings being adapted to receive a part of the lower portion of the netting when gathered up, substantially as and for the purpose set forth.

2. In combination with the netting of a seine, rings *b*, fastened to the netting at intervals at or near its middle part to receive the lower part of the seine when gathered up, as specified, and weights D at intervals at or near said middle part for sinking the seine, substantially as set forth.

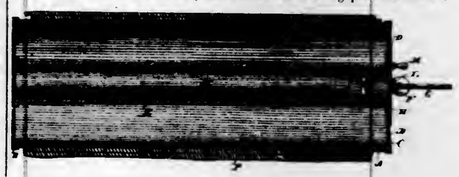
3. The combination, with the netting of a seine, of rings *b*, fastened at intervals through the longitudinal middle part thereof and adapted to receive the lower part of the netting, as specified, weights D, alternating with said rings, rings *d* at the bottom of the netting to receive the pursing-rope, and said pursing-rope F, substantially as set forth.

4. In combination with the netting of a seine, rings *e*, fastened to the netting at intervals transversely to the netting at or near the ends thereof, each of said rings adapted to receive a pursing-rope, and pursing-ropes *f*, each fastened at the lower end to the netting, at or near the lower corner thereof, and extending through said rings, substantially as and for the purpose set forth.

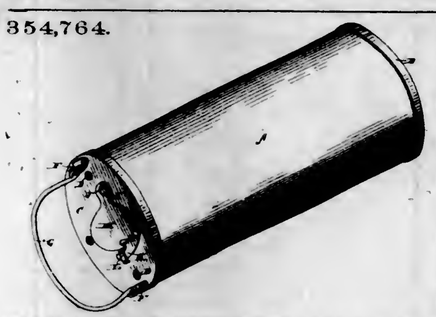
5. In combination with the netting of a seine, provided with rings *e*, and a rope, *f*, at each end of the netting for pursing the end portions, as specified, a ring, *g*, to receive said ropes, whereby the ropes, and therefore the ends of the netting, are held together, and a weight, A, connected with the ring *g*, so that by hauling upon said ropes said rings may be drawn together and the ends of the netting be pursed, substantially as set forth.

354,764. HEATER FOR BEDS. Catharine E. Bell, West Point, Miss. Filed Mar. 15, 1886. (No model.)

Claim.—In a bed-heater, the combination of an inner and an outer casing secured at one end to a common bottom and an annular top secured to the other end, said top and bottom each being provided with a

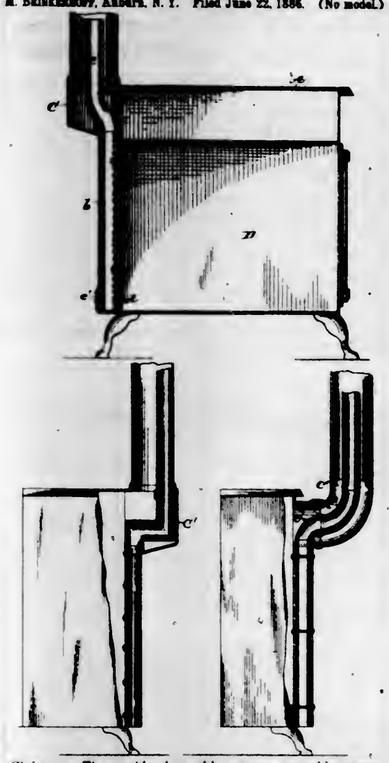


354,764.



series of perforations, a staple, a door pivotally secured to the top, having a wedge-shaped lip on one side, a handle or bail, and a heating medium within said inner casing.

354,765. VENTILATING ATTACHMENT FOR STOVES. Warren M. Brinkerhoff, Auburn, N. Y. Filed June 22, 1886. (No model.)



Claim.—1. The combination, with a range or cooking-stove, of a passage separate from the flues of the range or stove, having its discharging or upper end opening into the smoke-outlet and communicating with the outer air at or near its lower end, constituting an uninterrupted ventilating-passage and an independent inlet-communication between the oven and said passage, substantially as described.

2. The combination, with a range or cooking-stove, of a passage separate from the flues of the range or stove, having its discharge or upper end extending into the smoke-outlet and opening therein, and communicating with the outer air near the base of the stove, at or near its lower end, constituting an uninterrupted ventilating-passage and an independent inlet from the oven to said passage, substantially as described.

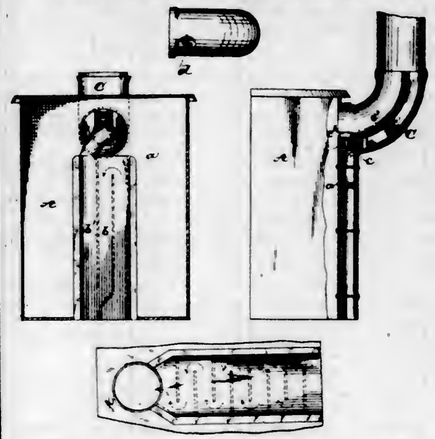
3. The combination, with a stove, of a passage separate from the flues of the stove communicating with the outer air, near the base of the stove, at or near its lower end, and extending upward adjacent to and attached to the wall of the stove and communicating with the smoke-outlet through the wall thereof, and discharging into the same, substantially as described.

4. The combination, with a range or cooking-stove, of a passage separate from the flues of the range or stove, communicating with the outer air, near the base of the stove, at or near its lower end and extending upward adjacent to and outside of the walls of the stove, having communication through the wall of the smoke-outlet and discharging into the same, forming an uninterrupted ventilating-passage and an independent inlet from the oven to said passage, substantially as described.

5. The combination, with a range or cooking-stove, of a passage separate from the flues of the stove having its upper and discharging end opening into the smoke-outlet and communicating with the outer air, near the base of the range or stove, at or near its lower end, forming an uninterrupted ventilating-passage and an independent inlet from the oven to said passage, and a damper controlling one of said inlets, substantially as described.

6. The combination, with a range or cooking-stove, of an elbow provided with a duct or flue within the same and a ventilating-passage extending upward adjacent to the wall of the stove and communicating with the flue within the elbow, said ventilating-flue communicating also with the oven of the stove or range, substantially as described.

354,766. VENTILATING ATTACHMENT FOR STOVES. Warren M. Brinkerhoff, Auburn, N. Y. Filed July 24, 1886. (No model.)



Claim —1. The combination, with a stove, of a ventilating-passage separate from the air-supplying flues of the stove, communicating with the open air at its lower end and passing in close proximity to the walls of the stove connecting with the smoke-outlet and discharging into the same, said passage intermediate of its ends being turned backward and then forward upon itself, substantially as described.

2. The combination, with a stove, of a ventilating-passage communicating with the air at its lower end, rising in close proximity to the wall of the stove, and discharging into the smoke-outlet, the said passage within the smoke-outlet being turned backward and then forward upon itself in a longitudinal direction within the same, substantially as described.

3. The combination, with a stove, of an elbow connected therewith forming the smoke-outlet, and a ventilating-passage, open at both ends, communicating with the outer air at its lower end, and having a portion of its length extending along the wall of the elbow, the said passage along the wall of the elbow being turned backward upon itself, a part of the wall of said turned portion being held detachably in place, substantially as described.

4. The combination, with a stove, of an elbow connected therewith forming the smoke-outlet, and a ventilating-passage, open at both ends, communicating with the outer air at its lower end, and having a portion of its length extending along the wall of said elbow, the said passage along the wall of said elbow being turned backward upon itself, and having a portion of its outer wall detachably connected with the other parts, substantially as described.

5. The combination, with a stove, of a ventilating-passage separate from the flues of the stove, communicating with the outer air at its lower end, and discharging into the smoke-outlet at its upper end, the said ventilating-passage intermediate of its ends diverging from a direct course and having two or more parallel portions formed therein, the whole of the diverging portion of said passage lying in close proximity to the walls of the stove or its outlet, substantially as described.

6. The combination, with a stove, of a ventilating-passage separate from the flues of the stove, communicating with the outer air at its lower end, and discharging into the smoke-outlet of the stove at its upper end, the said passage intermediate of its ends being provided with three par-

allel passages, one of the side passages communicating with the open air and the other with the discharge end of the pipe, and the central passage connecting the side passages, the whole of said ventilating-passage lying in close proximity to the wall of the stove or its smoke-outlet.

7. The combination, with a stove, of a ventilating-passage separate from the flues of the stove, communicating with the air at its lower end, rising in close proximity to the wall of the stove, with a smoke-flue provided with three parallel passages, one of the side passages connecting with the ventilating-passage, and the opposite side passage discharging into the smoke-flue and the central passage connecting the side passages, substantially as described.

8. The combination, with a stove, of a smoke-outlet provided with a tortuous air-passage of a ventilating-flue lying adjacent to the wall of the stove and connecting with the air-passage and the smoke-outlet, said ventilating-passage being provided with an extensible portion, substantially as described.

9. The combination, with a stove, of a ventilating-passage communicating with the air at its lower end, rising adjacent to the wall of the stove, and discharging into the smoke-outlet, the said ventilating-passage being provided intermediate of its ends with a return portion, and having at its lower end an extensible portion, substantially as described.

10. The combination, with a stove, of a ventilating-passage communicating with the air at its lower end, rising adjacent to the wall of the stove, and discharging into the smoke-pipe, the said ventilating-passage being provided at its lower end with an extensible portion, substantially as described.

11. As a new article of manufacture and sale, an elbow for a smoke-pipe, provided with a passage which communicates with the open air at one extremity and extends toward the discharge end of the elbow, to which it is connected, said passage intermediate of its ends being turned backward upon itself, substantially as described.

12. The combination, with a stove, of a ventilating-passage separate from the flues of the stove, communicating with the outer air at one end below the base of the stove-body and discharging into the smoke-outlet at the other end, the said passage intermediate of its ends diverging out of a straight line and traversing in a curved or angular direction on or adjacent to the walls of the stove-body or its smoke-outlet, and provided with a damper, substantially as described.

13. As a new article of manufacture, an elbow for a smoke-pipe, provided with a passage which communicates with the open air at one extremity and extends toward the discharge end of the elbow, said passage having a portion of the wall of the same detachably held in place, substantially as described.

354,767. FIGURED WOVEN FABRIC. WILLIAM BROWN, Halifax, County of York, England. Filed Dec. 11, 1885. (Specimens.) Patented in England Jan. 31, 1885, No. 1,370.

Claim.—1. As an improved article of manufacture, a dyed figured fabric, such as damask, having a weft of naturally-white mohair and a warp of naturally-white fiber, such as mohair, worsted, or cotton, as set forth.

2. As an improved article of manufacture, a figured fabric, such as damask, having a weft of naturally-white mohair and a warp of naturally-white worsted and dyed of one color, whereby a lustrous fabric in a single color is produced, as set forth.

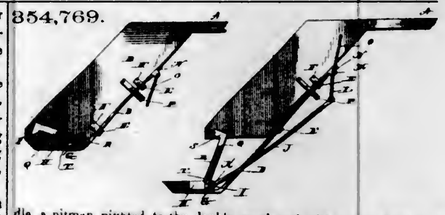
354,768. IRONING-BOARD. JOHN H. CABLE, Jersey City, N. J. Filed Apr. 1, 1886. (No model.)



Claim.—The combination with an ironing-board, of a bracket constructed to support the inner end of the board, an arm extending from said bracket, an elastic cushion secured to the arm, and a wedge made to fit between the elastic cushion and the outer edge of the board, substantially as described.

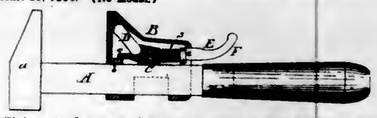
354,769. STEP FOR PASSENGER-COACHES. MILTON E. CAMPANY, Muskegon, Mich. Filed July 17, 1886. (No model.)

Claim.—The combination, with a rigid set of steps for a railway passenger-coach, of rods sliding in bearings upon the rear side of the said steps and having horizontally-bent lower ends, a step secured to the said horizontal ends and having pins projecting from its ends near the rear edge, a crank-shaft journaled upon the rear side of the rigid steps and having a double crank at its middle and a crank or handle at its end, a bulged spring upon the side of the steps engaging the said han-



dle, a pitman pivoted to the double crank and with a cross-head at its lower end to the rear edge of the extensible step, and rectangularly-bent arms pivoted at their bent ends upon the forward lower corners of the side pieces of the rigid steps, and having the pins of the extensible step sliding in the slots in the outer ends, as and for the purpose shown and set forth.

354,770. WRENCH. MATTHEW E. CAMPFIELD, Sterling, Ohio. Filed Mar. 25, 1886. (No model.)



Claim.—1. In a wrench of the character described, the combination, with the serrated or toothed shank A, movable jaw B, serrated block C, and pressure-link D, of the lever E, fulcrumed in the jaw, one end thereof engaging the block C and the other extending out over the handle, whereby the thumb or finger of the holding hand of the operator may exert pressure to release the serrated block from the shank, as and for the purposes described.

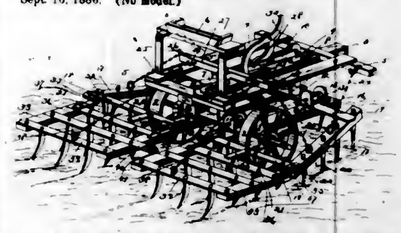
2. In a wrench of the character described, the combination, with the serrated or toothed shank A and the recessed movable jaw B, of the serrated or toothed block C, the pressure-link D, and operating-lever E, the said block C having a bearing at its front end on a shoulder or ledge within the jaw, and the lever being fulcrumed in the jaw, its front end engaging the block and its rear end extending out over the handle, as and for the purpose set forth.

354,771. STATION-INDICATOR. GEORGE T. CLARK, Toledo, Ohio. Filed Aug. 20, 1886. (No model.)



Claim.—In a station-indicator, the combination of the case A, having an elongated opening, station-cards C, and bell B, said cards being provided with numeral-tags D, substantially as described.

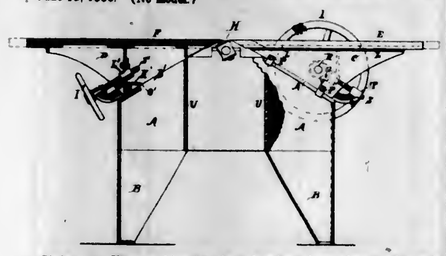
354,772. HARROW. GEORGE F. CLARK, Ravenswood, W. Va. Filed Sept. 10, 1886. (No model.)



Claim.—In a wheel-harrow, the combination of a rectangular wheeled frame, flat bars sliding vertically in slots in the tongue within the frame, and having their upper ends connected by flat horizontal bars, and having their lower portions connected by a flat horizontal bar, and provided at the lower ends with transverse yokes formed with eyes at their ends, an S-shaped lever fulcrumed near its lower curved end in a slot in the tongue, and having a bar at its forwardly-curved end, pivoted to it and to the lower horizontal bar, a hand-lever pivoted upon the fulcrum-bolt of the S-shaped lever, and having the upper end of the said lever pivoted to the hand-lever, a transverse bar upon the rear portions of the upper horizontal bars, and harrow-frames secured to the eyed ends

of the yokes with their inner beams, and having chains secured to their outer beams, secured to the forward end of the frame, and chains secured to the rear portions of the said beams and to hooks at the ends of the cross-bar, as and for the purpose shown and set forth.

354,773. BUZZ-PLANER. FRANK H. CLEMENT, Rochester, N. Y. Filed June 13, 1885. (No model.)



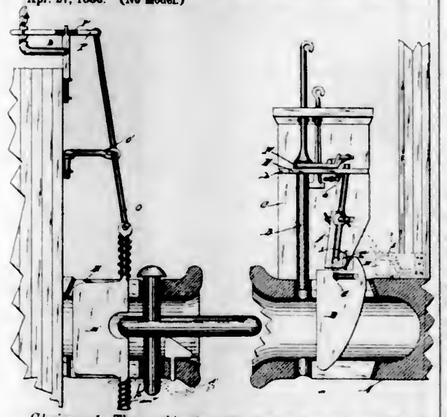
Claim.—1. The combination, in a hand or buzz planer, of a main frame, A, having rigidly secured thereto ways A' B', inclined downward and outward from or nearly from the cutting-point of the head H, intermediate slides, C and D, moving on said ways, and the superincumbent tables E and F, made horizontally adjustable on said slides, substantially as and for the purposes set forth.

2. The combination, in a buzz-planer, of a triangular supporting-slide, C, and its superincumbent table, the adjusting-screw S, cross-shaft R and its hand-wheel, and connecting bevel-gears, whereby a combined vertical and horizontal movement may be given the table by the operator without moving from his post.

3. The combination, in a hand-planer, of the main frame having the incline, the adjustable supporting-slide having the recesses in its sides near the lower end, the wedges mounted in said recesses and resting on the incline of the main frame, and the set-screws for adjusting said wedges so as to raise and lower the outer end of the supporting-slide, substantially as described.

4. In a hand-planer, the main frame having the ribs or partitions U U formed upon it on each side of the cutting-head, forming a chute for chips and cuttings, extending from the latter to near the base of the machine, substantially as described.

354,774. CAR-COUPLING. DARNEY L. ERVIN, Crawford, Miss. Filed Apr. 27, 1886. (No model.)



Claim.—1. The combination, with the pin-holding spring-fingers and the slide or follower having fingers and the angle-lever having a crank-arm, of the bracket or plate connected to the car, and having a bayonet-shaped slot, which receives the outer end of said arm, substantially as and for the purpose specified.

2. The combination, with the draw-bar and the link adjuster or guide, of the lever having one arm formed of parallel bars, with their outer ends connected to said adjuster or guide, and their inner ends bent and passed between the draw-bar and the arms of a spring-held disk or plate, and a hand-lever engaging with the aforesaid lever, and a notched bracket or stirrup, substantially as and for the purpose set forth.

3. In a car-coupling, the combination, with the link adjuster or guide comprising the frame, having its upper horizontal cross-bar within the link-chamber, the removable lower cross-bar, the lever having parallel bars, the hand-lever engaging with the aforesaid lever, and the spring-held disk or plate, of the pin-holding slide or follower having spring-fingers, the angle-lever having a crank-arm, and the bayonet-slotted bracket, substantially as shown and described.

4. The combination, with the angle-lever having the crank-arm, and the pin-holding slide or follower having spring-fingers, of the coupling-pin having its head formed with an upwardly-projecting extension, substantially as shown and described.

354,775. WHEELBARROW. FRED. E. FAY, Bryan, Ohio. Filed May 6, 1886. (No model.)

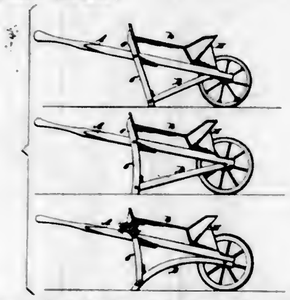


Claim.—1. In a wheelbarrow, the combination of the handle-piece, a leg secured thereto, a separate leg-brace secured to and extending from a point at or near the lower end of the leg forward of or near the wheel-axle and there secured to the handle-piece, and a separate forward brace for the tray or forward board of the barrow, said tray-brace projecting downward and secured to the leg-brace and handle-piece, substantially as and for the purpose described.

2. In a dump-barrow, the combination of a handle-piece, a leg secured to and projecting above the handle to brace the rear end of the tray, a separate leg-brace extending from the lower end of the leg toward or near to the wheel-axle and there secured to the handle-piece, and a separate forward brace secured at its lower end to the leg-brace, with its upper end projecting above the handle-piece to form a forward brace to the tray, and having its intermediate portion fastened to the handle-piece, substantially as and for the purpose described.

3. In a wheelbarrow, the combination, with the handle-piece and leg, of a leg-brace extending from or near the base of the leg to the forward end of the handle-piece, and at its forward end adapted to receive the axle or axle-box, and a separate forward brace secured to the leg-brace and handle-piece, substantially as and for the purpose described.

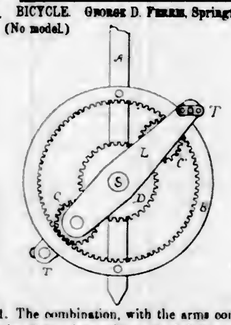
354,776. WHEELBARROW. FRED. E. FAY, Bryan, Ohio. Filed May 6, 1886. (No model.)



Claim.—1. In a wheelbarrow, the combination, with the handle-piece and leg, of a leg-brace extending from or near the foot of the leg and projecting forward to the end of the handle-piece and secured thereto, said leg-brace being adapted to form a part of the axle-support, substantially as described.

2. In a wheelbarrow, the combination of the handle-piece A, the tray B, the leg C, extended above the handle-piece to support the rear end of the tray, the leg-brace D, and the rigidly-secured brace E, resting upon the forward end of the handle-piece and supporting the forward end of the tray, substantially as described.

354,777. BICYCLE. GEORGE D. FERRIS, Springfield, Ill. Filed Aug. 28, 1886. (No model.)

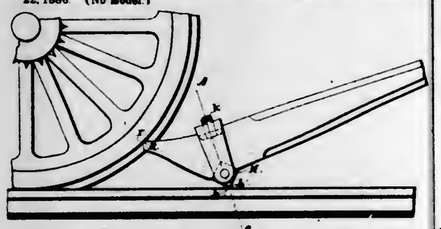


Claim.—1. The combination, with the arms comprising the fork or yoke of a bicycle, of two internally-toothed disks secured, respectively,

to said arms, a sleeve journaled in the arms and carrying a propelling-wheel, which travels on the surface to be traversed, a gear-wheel attached to each end of the sleeve, to revolve therewith, a shaft extending through the sleeve, two levers mounted, respectively, intermediate their ends on the ends of the shaft, a crank at one end of each lever, and a pinion journaled on the opposite end of each lever, said pinions engaging the gear-wheels and the internally-toothed disks to propel the bicycle by the revolution of the crank-levers, substantially as described.

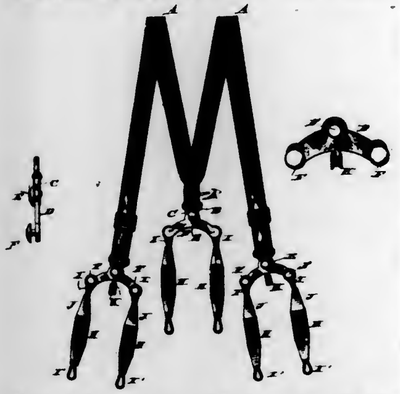
2. The combination of the two stationary and internally-toothed disks, a sleeve carrying a propelling-wheel, a gear-wheel secured to each end of the sleeve, to revolve therewith, a shaft extending through the sleeve, two levers mounted, respectively, intermediate their ends on the ends of the shaft, a crank at one end of each shaft and a pinion at the opposite end of each shaft, said pinions engaging the internally-toothed disks and the gear-wheels to revolve the propelling-wheel by the revolution of the crank-levers, substantially as described.

354,778. **PINCH-BAR.** Samuel Fetter, Ephrata, Pa. Filed July 22, 1886. (No model.)



Claim.—The combination of bar B, the steel piece H, yoke I, bolt O, and screw *k*, substantially as described.

354,779. **SUSPENDERS.** Benjamin O. Foster, Mansfield, Ohio. Filed Sept. 27, 1886. (No model.)



Claim.—1. The combination, with the bar provided with end studs and central downward projection, K, of the strap C and loop B, said strap being pivotally secured to the center of the bar, the loop aforesaid being engaged to said strap, substantially as described, and for the purposes set forth.

2. An improved article of manufacture consisting of the bar D, having the studs F and projection K, substantially as specified.

354,780. **AUTOMATIC WATER-FEEDER.** Samuel F. Gold, Eagle wood, N. J. Filed June 5, 1886. (No model.)

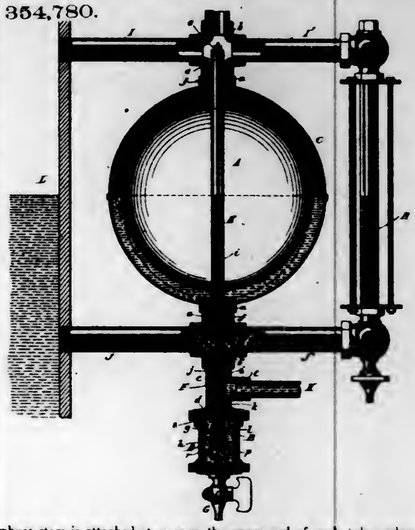
Claim.—1. A float constructed to rise and fall in an inclosing-case with the rise and fall of water therein, in combination with a valve located below the lower boiler-connection and below the supply or inlet pipe, whereby the valve is protected from contact with the hot water of the boiler, substantially as set forth.

2. A valve-chamber provided with transparent windows, and a cock located below such windows, in combination with a supply or inlet pipe located above such valve-chamber, substantially as and for the purpose set forth.

3. A tube attached to and projecting downward from a float, in combination with a valve whose stem is received within such tube, substantially as and for the purpose described.

4. A tube passing through a float and projecting beyond the upper and lower surface thereof to form guides, in combination with a valve

354,780.

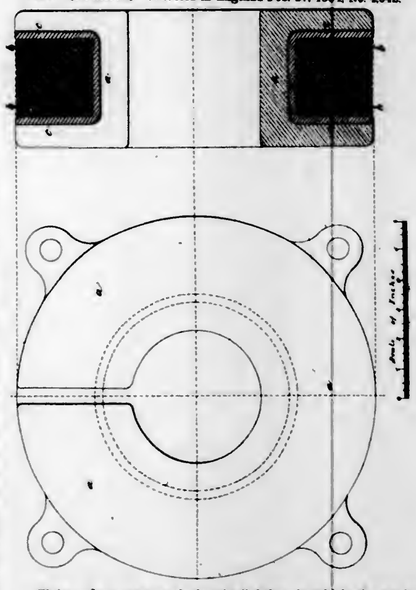


whose stem is attached at or near the upper end of such tube, substantially as and for the purpose set forth.

5. A water-way or channel connecting the valve-chamber and the water-connection of a boiler, in combination with a cold-water space surrounding or partially surrounding the walls of said channel, substantially as and for the purpose described.

6. A plug provided with a channel or water-way, and located between the water-connection of a boiler and a valve-chamber, in combination with a valve whose seat is the lower end of such plug, and whose stem rises and falls in such channel by the rise and fall of a float located above said plug, substantially as and for the purpose described.

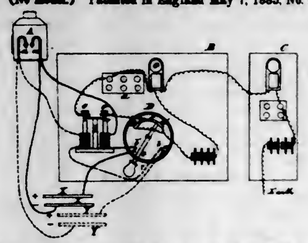
354,781. **ELECTRIC LIGHTING.** James E. H. Gordon, 28 Collingham Place, Kensington, County of Middlesex, England. Filed Aug. 21, 1886. (No model.) Patented in England Feb. 27, 1884, No. 4,042.



Claim.—In a system of electric lighting in which the arc lamps are arranged in parallel circuit with one another or with incandescent lamps, the combination, with the circuits and lamps, of an inductive resistance-coil in each arc-lamp branch, the insulated wire coil of which is

circular and is wound in a channel of square section, or approximately so, the diameter of the coil at the center of the wire-channel being three-sevenths times the side of the wire-channel, or thereabout.

354,782. **MEANS FOR LIGHTING RAILWAY AND OTHER SIGNAL LANTERNS BY ELECTRICITY.** James E. H. Gordon, 28 Collingham Place, Kensington, County of Middlesex, England. Filed Aug. 21, 1886. (No model.) Patented in England May 7, 1885, No. 5,857.



Claim.—1. The combination, in a railway-signal apparatus or system, of a railway-signal lantern having two electric lamps, circuit-connections, and switch mechanism located at an attendant's station removed from the signal-lantern for controlling the lighting of the lamps, as described, whereby either lamp can be lighted at will, but both cannot be lighted at the same time.

2. The combination of a railway-signal lantern having in it two electric lamps, circuit-connections and switch mechanism by which the circuit for lighting either lamp can be completed or both circuits broken, a bell and indicator, a circuit in which they are included, which circuit is closed just after each lamp-circuit is closed, and solenoid mechanism in the circuit of each lamp for making a break in the bell and indicator circuit whenever either lamp is lighted, but which makes good the break when both lamps are extinguished.

3. The combination of a railway-signal lantern having in it two electric lamps, circuit-connections and switch mechanism by which the circuit for lighting either lamp can be completed or both circuits broken, a bell and indicator, a circuit in which they are included, which is closed just after each lamp-circuit is closed, solenoid mechanism in the circuit of each lamp for making a break in the bell and indicator circuit whenever either lamp is lighted, but which makes good the break when both lamps are extinguished, and contact apparatus actuated by the bell, which completes a second circuit, including another bell and indicator.

4. The combination, with a railway-signal apparatus or system, of a main electric circuit, a signal-lantern connected therewith having in it two independent electric lamps, each complete in itself, circuit-connections and switch mechanism independent of and removed from the lamp under the control of the signalman, by which either of said lamps may be independently lighted.

5. The combination of a main circuit or circuits, a signal-lantern connected therewith having in it two electric lamps, switch mechanism located at the station of the signalman by which either lamp may be independently lighted, and signaling apparatus which notifies the switchman when a lamp in the signal-lantern fails, and secondary signaling mechanism located at the engine-room, or electric-distribution station which simultaneously notifies the attendant there of the failing of the lamp in the signal-lantern.

6. The combination of a main circuit, a signal-lantern connected therewith having two electric lamps, switch mechanism by which the signalman or attendant may light either lamp, and signaling apparatus which notifies the signalman or attendant when a lamp in the signal-lantern fails.

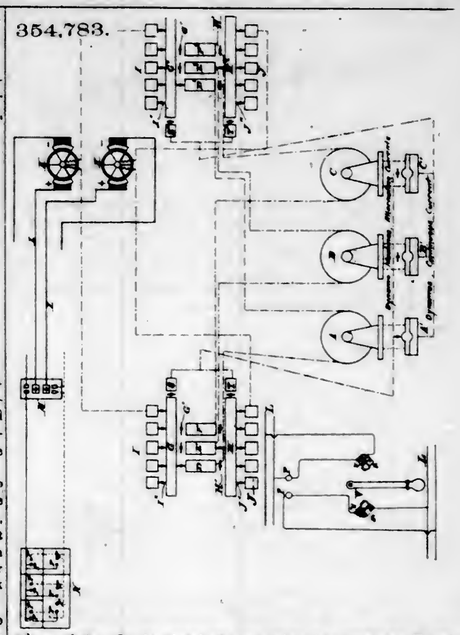
354,783. **SYSTEM OF ELECTRIC LIGHTING.** James E. H. Gordon, 28 Collingham Place, Kensington, County of Middlesex, England. Filed Aug. 23, 1886. (No model.)

Claim.—1. In a system of electric lighting, the combination of three dynamos with two sets of mains, the two sets of mains carrying alternate lamps throughout the system, and with means for connecting one dyname to each set of mains, keeping a third in reserve, and for connecting both sets of mains to any one or other of the dynamos, as required.

2. The combination of three dynamos, three independent contacts, D E F, to each of which one terminal of a dynamo is connected, contact-bars G H, electrically-connecting or switch devices located between the three contacts and the contact-bars, whereby the bars may be electrically connected with the contacts, and two electric mains, one connected to the bar G and the other to the bar H, and extending to the district to be lighted, for the purpose set forth.

3. The combination of three dynamos, three contacts, D E F, the contacts or bars G H, connecting switches G′ H′, interposed between the contacts and the bars G H, other contacts, I J, switches or brushes I×, for electrically connecting the contact-bar G and the contacts I, and

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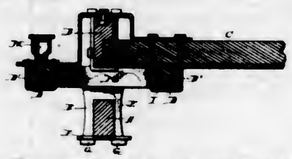
other switches, J×, for electrically connecting the contact-bar H and the contacts J, and independent electric distributing-mains connected with one or more of the contacts I J.

4. The combination of two independent distributing-mains which accompany each other through the district to be lighted, a light or lights connected in each main, the lights in the two mains being in such proximity that either main may be used to light the same territory, and switch devices whereby said light or lights in either main may be lighted upon the failure of the light or lights in the other main, substantially as and for the purpose set forth.

5. The combination of two independent mains connected each with an independent source of electric energy and extending through the same building or district to be lighted, electric lamps in each main, located in such proximity that the same territory may be lighted from either main, and switch devices, whereby upon the failure of the light or lights in one main the light or lights in the other main may be lighted, for the purpose set forth.

6. The combination of two independent mains which extend together through the same district or building to be lighted, a light connected in each main at any given point, and switch devices located at the same point, whereby either of said lights may be lighted, but not both, for the purpose set forth.

354,784. **FIFTH-WHEEL.** Benjamin F. Gorsuch, Martinsburg, Pa. Filed June 21, 1886. (No model.)



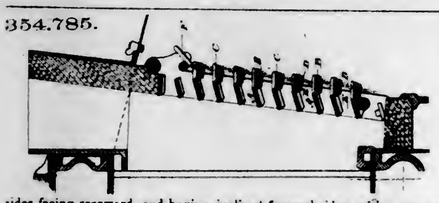
Claim.—The combination, with the base-ring having the middle V-groove in its upper face, of the cap-ring having the vertically-depending side flanges disposed to form spaces between the vertical walls of the base-ring and the vertical flanges of the cap-ring, substantially as specified.

354,785. **GRATE.** Gustav A. Hagemann, Copenhagen, Denmark. Filed Aug. 30, 1886. (No model.)

Claim.—1. In a vertical or nearly-vertical grate, the combination of grate-bars having troughs at their outer edges and means for filling the upper trough and causing all the troughs to overflow into the troughs below, as and for the purpose shown and set forth.

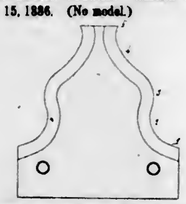
2. In a vertical or nearly-vertical grate, the combination of grate-bars formed with troughs at their outer edges having the forward walls slightly lower than the other walls, and having shoulders upon the under

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sides facing rearward, and having inclined forward sides, with a water-pipe opening into the uppermost trough, whereby the water is caused to flow over the low front walls of the trough into the troughs below over the inclined faces of the shoulders, as and for the purpose shown and set forth.

354,786. HARVESTER-CUTTER. GEORGE C. HATCH, Bridgeport, Conn. Filed July 15, 1886. (No model.)



Claim.—1. A harvester-cutter having curved and recurved cutting-edges, the direction of the curve being inward from the base of the blade, then outward to a shoulder midway the length of the cutting-edges, at which point it is recurved and trends inward, then outward again, as and for the purpose set forth.

2. A harvester-cutter whose cutting-edges curve inward from point 1 to point 2, then outward to shoulder 3, then recurve inward to point 4, and outward again to point 5.

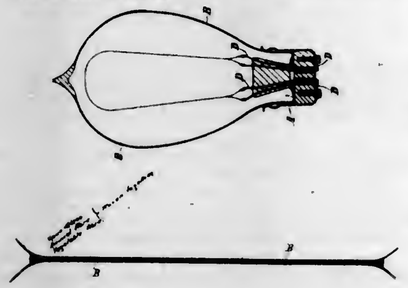
3. A harvester-cutter having curved and recurved cutting-edges, each edge being provided with a shoulder, 3, which projects beyond the point 2 of the inward curve of the edge, and the outer ends of the cutting-edges projecting beyond the point 4 of the inward curve of the edge, as and for the purpose set forth.

354,787. SIPHON FOR BEER, &c. FREDERIK HEYMAN, Svanholm, Denmark. Filed Aug. 30, 1886. (No model.)



Claim.—In a siphon for beer and like beverages, the combination of the body of the siphon adapted to be secured in an air-tight manner to a bottle or other receptacle, and provided with a nozzle downwardly projecting from its side, and with two bores, one extending through said nozzle and the lower part of said body and the other extending vertically through the body, a plug furnished with two parallel transverse perforations adapted to register with said bores, and a reservoir provided with a capped valve-aperture at its upper end and secured upon the upper end of said cock, as and for the purpose set forth.

354,788. INCANDESCENT LAMP. ARTHUR S. HICKLEY, Groton, Conn., assignor to the Jeanesy Electric Company, Indianapolis, Ind. Filed June 18, 1886. (No model.)



Claim.—1. A carbon for incandescent electric lamps, composed of an animal and a vegetable substance twisted, platted, braided, or bound together, as set forth.

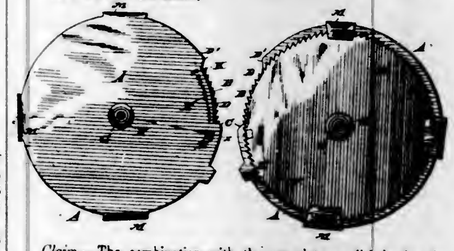
2. A carbon for incandescent electric lamps, having as an element of its composition a normally non-conducting substance which becomes a conductor from being heated.

3. As a new article of manufacture, a carbon for incandescent electric lamps, composed of an animal substance, a vegetable substance, and a substance which becomes a conductor when at a high temperature.

4. In an incandescent electric lamp, the combination, with a carbon having separated or divided extremities, of conductors divided within the lamp, but joined together without, each division being connected to a division of the extremities of the carbon.

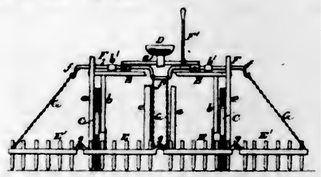
5. The combination, in an incandescent electric lamp, of the base, the globe, the carbon divided at its extremities into two or more parts, and conductors divided correspondingly to the extremities of the carbons and connected thereto, which pass through said base in the divided condition, but are connected outside, substantially as set forth.

354,789. ADDING-MACHINE. ALBERT E. HIX, Sycamore, Ill. Filed June 30, 1886. (No model.)



Claim.—The combination, with the cap plate or disk having the cut-away portion with the stop at its lower end, and the view-slot below the stop, and the figures 1 to 10, inclusive, displayed along the arc of the cut-away portion, the figure 1 being nearest the stop, of the toothed disk provided with one hundred peripheral teeth, said teeth being designated by visible numbers opposite the bases of said teeth, said cap-plate and toothed disk being mounted on a common central pivot and adapted to be revolved thereon, substantially as specified.

354,790. HARROW. DAVID B. HOUSTON, McPherson, Kans. Filed May 21, 1886. (No model.)



Claim.—1. In a sulky-harrow, the harrows E E, provided with rigid vertical guides *e e*, that receive the outer ends of the wheel-hubs and slide up or down thereon, as described.

2. In a sulky-harrow, the crank-rod F F', connected with and adapted to lift the harrows, of the detainer H, locking in the hole a^2 of the pole or tongue, as shown and described.

354,791. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. JOHN H. IRWIN, Morton, Pa. Filed Mar. 2, 1882. (No model.)

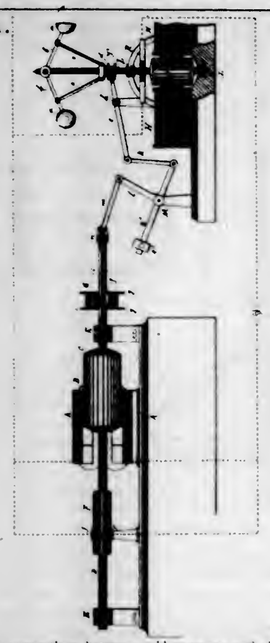
Claim.—1. The method of automatically regulating the electro-motive force of a dynamo-electric generator, which consists in varying the relative reacting surfaces of the inducing and induced parts of the generator through the agency of the current generated by the machine, in accordance with the variations in said current due to the requirements of the circuit.

2. The combination, with a dynamo-electric generator having an armature adapted to be drawn out of or pushed into the field-of-force magnets, of a centrifugal governor adapted and arranged to draw out or push in such armature, whereby the electro-motive force of the generator is automatically regulated, substantially as described.

3. In combination with a dynamo-electric generator, an electric motor and governor in the main or a shunt circuit, adapted and arranged to draw the armature out or push it into the field-of-force magnets, whereby the electro-motive force of the generator is automatically regulated, substantially as described.

4. In combination with a dynamo-electric machine having an armature adapted to be drawn out of or pushed into the field-of-force magnets, an electric motor and governor in the main or shunt circuit, and

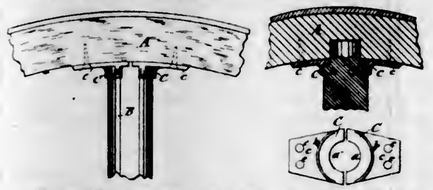
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bell-crank-lever connections between said governor and the armature-shaft, substantially as and for the purposes described.

5. In a dynamo-electric machine of the character herein specified, a reciprocating armature, C, having shaft D, in combination with an electromotor located in the main or a shunt circuit, the upright armature-shaft of said motor bearing a centrifugal governor having lever *e*, rod *k*, bell-crank *l*, rod *m*, and clutch *n*, engaging with armature-shaft D, the whole arranged to operate substantially as shown and described.

354,792. SPOKE-SOCKET. CHARLES S. KERSHAW, Sherburne, N. Y. Filed May 6, 1886. (No model.)



Claim.—The combination, with a felly and spoke, of a clip divided diametrically and the respective sections thereof introduced between the felly and adjacent shoulder of the spoke, and provided with flanges embracing the end of the spoke, and with extensions secured to the felly at opposite sides of the spoke, substantially as described and shown.

354,793. ELECTRIC MOTOR FOR RAILWAYS. WALTER H. KNIGHT, Cleveland, Ohio. Filed May 11, 1885. (No model.)

Claim.—1. The combination of two electric motors in the same circuit, mechanically connected to a common load, movable commutator-brushes for each motor, and a common shifting device for said brushes.

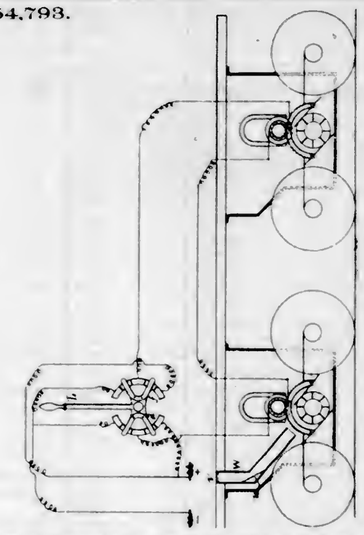
2. The combination, with two separate trucks of a car or train, of an electric motor on each truck in the same circuit and connected to the axles of the trucks, movable commutator-brushes for each motor, and shifting devices for said brushes controlled from a common point.

3. The combination, with two swiveled trucks and a car-body supported thereon, of an electric motor on each truck connected to the axles and a common controlling device for said motors situated on the car-body.

4. The combination, with two axles of a swivel-truck, of an electric motor suspended between them and having an operative mechanical connection therewith, and a bolster carrying the king-bolt placed over said motor and supported on springs from the axles.

5. The combination, with two axles of a swivel-truck, of an electric motor suspended between them and having an operative mechanical connection therewith, and a bolster carrying the king-bolt and supported on springs at points on either side of said motor.

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6. The combination, with three axles of an electrically-propelled vehicle, of two electric motors supported between them and geared to all three of the axles.

7. The combination, with three axles of an electrically-propelled vehicle, of two electric motors supported between them, a gear-wheel on each axle, and the pinions driven by the motors and actuating said wheels.

8. The combination, with an electric motor and mechanism driven thereby, of a controlling device for the motor, consisting of movable commutator-brushes, electro-magnetic actuating devices therefor, and a manual controller in the circuit of said electro-magnetic devices, whereby the motor may be controlled at the will of the operator.

9. The combination, with two electric motors having movable commutator-brushes, of an electro-magnetic brush-shifting device for each motor and a common electrical controller for said devices.

10. The combination of two electric motors in the same circuit having a common load, a controlling device for each of said motors independent of said circuit, and actuating mechanism for said devices adapted to be operated from a common point.

11. The combination of two electric motors in the same circuit having a common load, a controlling device for each motor independent of said circuit, and electro-dynamic mechanism actuating said devices and included in a common circuit.

12. The combination, with an electric motor and mechanism driven thereby, of a controlling device for the motor, consisting of movable commutator-brushes, electro-magnetic actuating devices therefor, and a manual pole-changer in the circuit of said electro-magnetic devices, whereby the motor may be controlled at the will of the operator.

13. The combination, with an electric motor, of an inclosing-case therefor having an aperture opposite the commutator of the motor, so as to permit inspection thereof, and means for controlling the motor from without the case.

14. The combination, with an electric motor, of an inclosing-case therefor having an aperture opposite the commutator of the motor, so as to permit inspection thereof, and means for controlling the sparking of the commutator from without the case.

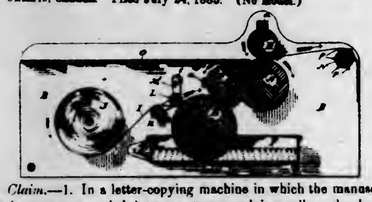
15. The combination, with an electric motor, of an inclosing-case therefor having an aperture opposite the commutator of the motor, so as to permit inspection thereof, a glass covering the same, and means for controlling the sparking of the commutator from without the case.

16. The combination, with a car or locomotive, of a propelling electric motor therefor, an inclosing-case for said motor, and means outside said case for controlling said motor, the case having an aperture in view of the driver permitting an inspection of the commutator of the motor.

17. The combination, with a car or locomotive, of a propelling electric motor therefor, an inclosing-case for said motor, an aperture in said case, and a mirror reflecting the light from the commutator of the motor through said aperture to the eye of the driver.

18. The combination, with an electric motor, of an inclosing-case therefor, means outside of said case for controlling said motor, and a mirror reflecting the light from the commutator through an aperture in the said case to the eye of the driver.

354,794. LETTER-COPYING MACHINE. JOHN F. LASH, Toronto, Ontario, Canada. Filed July 24, 1885. (No model.)



Claim.—1. In a letter-copying machine in which the manuscript is copied on paper carried between two revolving rollers, the dampening-roller E, and a hard unyielding roller arranged in combination with a roller made of soft and yielding material for the purpose of wringing the copying-paper before it is brought in contact with the manuscript, substantially as and for the purpose specified.

2. In a lettering-copying machine, the combination of the dampening-roller E, the hard unyielding roller A, and the soft and yielding rollers D H, revolving in contact with said rollers E A, respectively, substantially as and for the purpose specified.

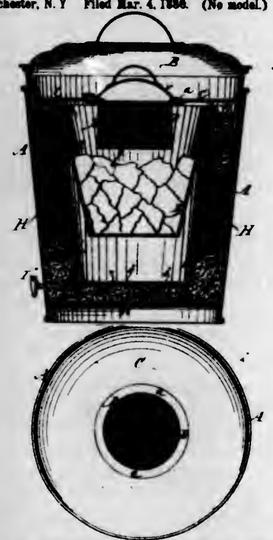
3. The rollers A, D, and E, the latter being dampened and arranged to act on the paper I, as specified, and the roller D, revolving in contact with both the rollers A E, in combination with the roller L, arranged to make the paper I hug the roller E, substantially as and for the purpose specified.

4. The roller E, revolving in the pan F, in combination with the rollers L and K, journaled in the pivoted arm M, and arranged to act on the paper I, substantially as and for the purpose specified.

5. In a copying-machine in which the manuscript is copied on a continuous web of paper carried between rollers, the combination, with the rollers A D E H, arranged in relation to each other, as specified, of a revolving roller, N, arranged substantially as and for the purpose specified.

6. The dampening-roller E and main roller A, in combination with the wringing-roller D, arranged to hug the surfaces of the rollers E and A, for the purpose of forming a double wringer for the copying-paper I, as and for the purpose specified.

354,795. COMBINED WATER FILTER AND COOLER. JAMES B. LOWE, Rochester, N. Y. Filed Mar. 4, 1886. (No model.)

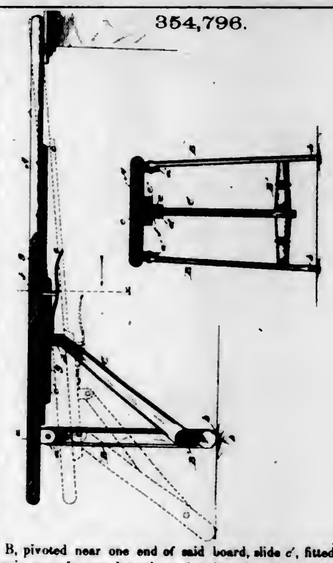


Claim.—In a combined filter and cooler, the combination of the water-pan provided with a central filtering-tube, and an ice-chamber and water-receptacle directly below the filtering-tube, the ice-chamber resting directly in the water-receptacle, an overflow-passage being left at the top of the water-receptacle and a packing surrounding it, the whole arranged to operate in the manner and for the purpose specified.

354,796. SKIRT-IRONING TABLE. REGINALD LOWE, Summit, N. J. Filed Oct. 21, 1885. (No model.)

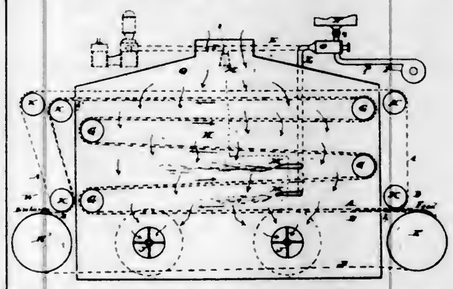
Claim.—The combination, with the board A, of the guide-strip c, secured to the under side thereof, and provided with a plurality of holes,

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g, legs B, pivoted near one end of said board, slide *c'*, fitted upon said guide-strip, ears *d*, secured to the under side of said slide, brace C, pivoted at one end to said ears and at the other end to the round B', connecting the legs B, and the spring *e*, attached to the slide *c'*, and provided with a projection, *f*, adapted to engage the holes in the guide-strip, substantially as herein shown and described, and for the purpose specified.

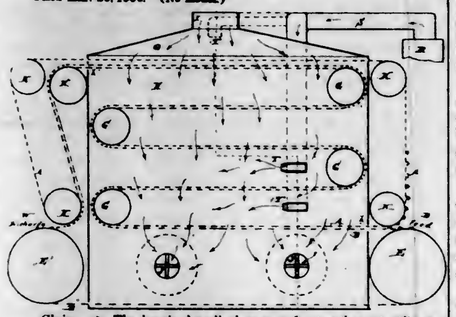
354,797. DRYING APPARATUS. JOHN H. LORIMER, Philadelphia, Pa. Filed Mar. 26, 1886. (No model.)



Claim.—1. A close drying-chamber through which a drying medium is caused to circulate, in combination with two endless aprons adapted to lie close together to hold the material to be dried, and arranged to pass back and forth within the drying-chamber, the aprons being brought outside the chamber at two places, one to form the feeding and one to form the discharging parts thereof, whereby the goods to be dried may be placed upon the aprons and then conveyed through the drying-chamber, and after being dried discharged again, guiding-rollers for the aprons, and suitable devices for injecting into said drying medium a fluid or gas which is conveyed to the material to be dried and caused to act thereon, the drying medium being the vehicle by which the fluid or gas is brought into contact with the material to be treated and dried, substantially as and for the purpose specified.

2. The combination of the inclosed drying-chamber having openings for the admission of the endless belts, and provided with openings, with a fan or blower to cause a circulation of air through said drying-chamber, the two endless belts or aprons, guiding-rollers therefor to guide said aprons back and forth in said drying-chamber and in the path of the air-currents, and convey the said aprons outside or exterior to the closed chamber at two places for the feed and discharge, and suitable devices for injecting into said drying medium a fluid or gas, which is conveyed to and through the material to be dried and caused to act thereon, the drying medium being the vehicle by which the fluid is brought into contact with the material to be treated and dried, substantially as and for the purpose specified.

354,798. DRYING PROCESS. JOHN H. LORIMER, Philadelphia, Pa. Filed Mar. 26, 1886. (No model.)



Claim.—1. The herein-described process for treating a textile material to be tinted, bleached, or disinfected, which consists in causing the material to be passed back and forth through a closed chamber and exposed to strong currents of air impregnated with a coloring, bleaching, or disinfecting reagent in a gaseous or finely-divided condition, which substances are drawn or forced directly through the material to be treated, substantially as and for the purpose specified.

2. The herein-described process for treating a material to be tinted, bleached, or disinfected and dried, which consists in causing the material in a wet or moist condition to be passed back and forth through a closed chamber, and exposed to strong currents of air impregnated with a coloring, bleaching, or disinfecting reagent, which substances are drawn or forced directly through the material to be treated, and the action being continued sufficiently long to thoroughly dry the said material, substantially as and for the purpose specified.

354,799. HOLDER FOR RINGS, BRACELETS, &c. JAMES MCCONAHY, New Castle, Pa. Filed May 18, 1886. (No model.)

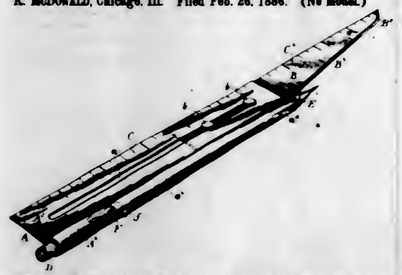


Claim.—1. A holder for rings, bracelets, &c., comprising a box or casing and two pivotally-secured spring-actuated clamps adapted to receive the article between them, substantially as described.

2. The combination, with a box or casing provided with elongated slots, as described, of clamps or side pieces provided with pivots to enter said slots and with springs to force said clamps toward each other, substantially as set forth.

3. The combination, with a box or casing and with clamps arranged therein, of a slotted ribbon-holding plate arranged below said clamps, substantially as set forth.

354,800. COMBINED RULER AND PAPER-CUTTER. ALEXANDER R. MCDONALD, Chicago, Ill. Filed Feb. 26, 1886. (No model.)



Claim.—1. A combination implement comprising a main part having a cylindric portion or rib at its back edge, and a movable part or blade having sliding connection with the said main part, said blade being beveled upon its edge adjacent to the edge of the said main part, substantially as described.

2. A combination implement comprising a main part, and a movable part or blade having sliding connection with said main part, and provided with a straight edge in alignment with the edge of said main part, said movable part or blade being formed with a cutting-edge upon its back part in its portion projecting beyond the said main part when the blade is extended, substantially as described.

3. A combination implement comprising a main part or section having a cylindric portion or rib at its back edge, and a movable part or blade having sliding connection with the said main part and provided with a straight edge in alignment with the edge of the said main part, said blade being beveled at its straight edge, and the said main part and blade being marked with a continuous scale, substantially as described.

4. A combination implement comprising a main part, and a movable part or blade having sliding connection with the said main part, and provided with a straight edge in alignment with the edge of said main part, said blade being provided with a cutting-edge at its rear margin and tapered toward its free extremity, to form an envelope-opener, substantially as described.

5. A combination implement comprising a main part, and a movable part or blade having sliding connection with the said main part, and provided with a straight edge in alignment with the edge of said main part, said blade being provided at its rear margin with an inclined cutting-edge, curved near the end of the said plate or blade to form an erasing-edge, substantially as described.

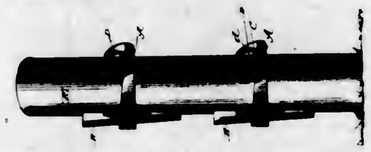
6. A combination implement comprising a main part having a cylindric portion or rib at its rear edge, and a movable part or blade having sliding connection with said main part, said blade being provided with a cutting-edge at its margin adjacent to the said cylindric portion or rib, substantially as described.

7. A combination implement comprising a main part having a cylindric portion or rib at its rear edge, and a movable part or blade having sliding connection with the said main part, said blade being provided with a straight edge in alignment with the edge of the main part, and beveled upon its lower surface adjacent to said edge, and being also provided with a cutting-edge at its rear margin, or that adjacent to the rear edge of the said main part, substantially as described.

8. A combination implement comprising a ruler provided with a tubular part, A', adapted to receive and hold a pencil, and having a spring friction device for holding a pencil in a desired position therein, substantially as described.

9. A combination implement comprising a ruler provided with a tubular part, A', adapted to receive and hold a pencil, and provided with a slot, *a'*, and a sliding block or follower, F, within said tubular part, substantially as described.

354,801. WIRE-FASTENER. SAMUEL METELER, Chicago, Ill. Filed Aug. 11, 1886. (No model.)



Claim.—1. A wire-fastener for picket fences, which consists of a ring provided with a hook at one end, which hook extends both above and below the plane of the sides of the ring, and guide-pieces at the other end or side of the ring, in combination with a wedge to secure the fastener in any desired position on a fence-post, as set forth.

2. In a fastening for wires on a wire fence, the combination of the ring provided with the guides *a a*, extending beyond the plane of the edges of the ring, both above and below its edges, the hook D, and the wedge B, all constructed and combined to operate substantially as and for the purposes specified.

3. The herein-described fastener for wire fences, which consists of a ring provided with a hook at one end for supporting the wire and a pair of guides at the opposite end, the ends of which guides extend both above and below the plane of the horizontal faces of the fastener and prevent the fastener from being accidentally turned or twisted on the post, substantially as and for the purposes specified.

354,802. HANDLE FOR COFFINS. HUBERT W. MORGAN, Meriden, assignor to Albert H. Mathewson, Enfield, Conn. Filed June 23, 1886. (No model.)

Claim.—An improved casket-handle consisting of the combination of the bar 2 and the tubular shells 5, fitted upon the outer portions of the bar, and both the shells and the bar covered or plated with a textile fabric, and pendent arms each having a solid ring, 10, secured to and upon the covered bar and the shell at each end of the bar, substantially as described.

354,803. CAR-COUPLING. JOHN ALLEN, Jr., Lexington, Ky. Filed Aug. 31, 1886. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, and the pivoted bell-crank lever, substantially as described.

2. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, and the pivoted link, substantially as described.

3. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, and the pivoted guard-arm, substantially as described.

4. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, the pivoted guard-arm, and the pivoted lever, substantially as described.

354,804. CAR-COUPLING. JOHN ALLEN, Jr., Lexington, Ky. Filed Sept. 7, 1886. (No model.)

Claim.—1. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, and the pivoted bell-crank lever, substantially as described.

2. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, and the pivoted link, substantially as described.

3. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, and the pivoted guard-arm, substantially as described.

4. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, the pivoted guard-arm, and the pivoted lever, substantially as described.

354,805. CAR-COUPLING. JOHN ALLEN, Jr., Lexington, Ky. Filed Sept. 7, 1886. (No model.)

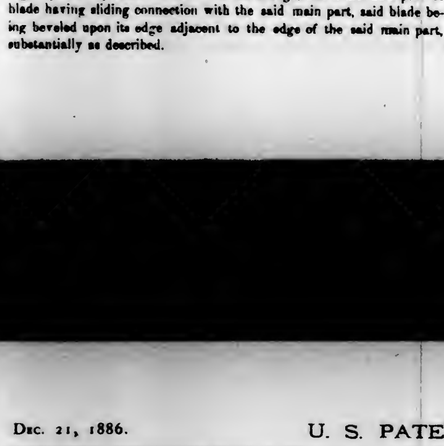
Claim.—1. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, and the pivoted bell-crank lever, substantially as described.

2. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, and the pivoted link, substantially as described.

3. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, and the pivoted guard-arm, substantially as described.

4. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, the pivoted guard-arm, and the pivoted lever, substantially as described.

354,806. CAR-COUPLING. JOHN ALLEN, Jr., Lexington, Ky. Filed Sept. 7, 1886. (No model.)



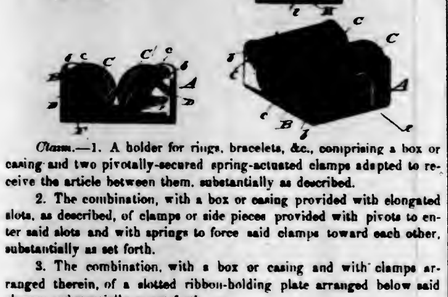
Claim.—1. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, and the pivoted bell-crank lever, substantially as described.

2. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, and the pivoted link, substantially as described.

3. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, and the pivoted guard-arm, substantially as described.

4. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, the pivoted guard-arm, and the pivoted lever, substantially as described.

354,807. CAR-COUPLING. JOHN ALLEN, Jr., Lexington, Ky. Filed Sept. 7, 1886. (No model.)



Claim.—1. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, and the pivoted bell-crank lever, substantially as described.

2. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, and the pivoted link, substantially as described.

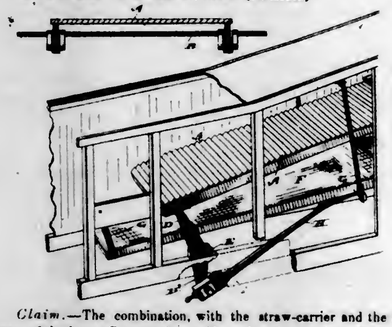
3. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, and the pivoted guard-arm, substantially as described.

4. In a car-coupling, the combination, with the draw-head, of the pivoted hook, the pivoted lever, the pivoted bell-crank lever, the pivoted link, the pivoted guard-arm, and the pivoted lever, substantially as described.

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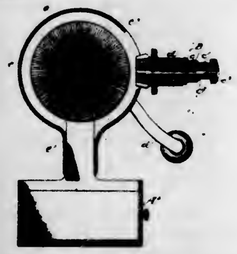


354,803. THRASHING-MACHINE. GEORGE W. MORRE, Brantford, Ontario, Canada. Filed June 17, 1886. (No model.)



Claim.—The combination, with the straw-carrier and the main frame, of the boxes C, secured to said carrier, the crank-shaft B, journaled in said boxes and supporting one end of said carrier-boxes E on said main frame, rocker-arm D, journaled in said boxes, with one arm connected with the carrier, the grain-board F, supported below the straw-carrier, the spring-hangers, and the pitman H, connecting said grain-board and rocker-arm, substantially as and for the purpose specified.

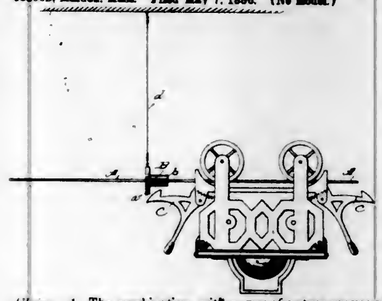
354,804. PENCIL-SHARPENER. SAMUEL E. NUTTING, Chicago, Ill., assignor of three-fourths to Thomas Charles, same place. Filed Mar. 24, 1886. (No model.)



Claim.—1. In a pencil-sharpener, the combination of a facial or radially-furrowed disk with a chuck, B, the latter supported by a flexible plate, a^7, so as to present the pencil regularly against the cutting-disk or file, and uniformly as to pressure, substantially as and for the purpose set forth.

2. In combination with a file and rotating mechanism, the chuck B, said chuck consisting of the relatively-adjustable tubular parts c and c', which latter are supplemented by the flexible tube c^3, and the whole attached to the other portions of the structure, so as to admit of lateral play by means of the flexible plate a^7 or its equivalent, substantially as and for the purpose described.

354,805. STOP FOR STORE-SERVICE APPARATUS. EDWIN P. OSGOOD, Malden, Mass. Filed May 7, 1886. (No model.)

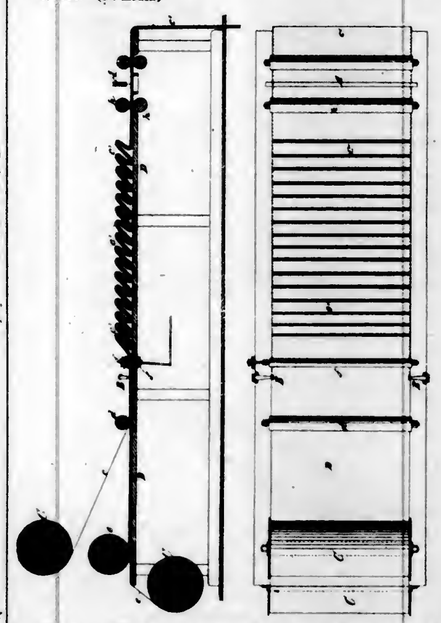


Claim.—1. The combination, with a way of a store-service apparatus, of a stop having a retaining-flange surrounding the way and moving freely thereon, and a wire or cord connected to the said stop at one end and extending at right angles to the way to a fixed point of support, whereby the movement of the stop is limited by binding upon the wire of the way, substantially as described.

2. In combination, a way or series of ways, a bracket or brackets supported on a bar to which the way or ways are attached, stops surrounding the wires of the ways, and suspending wires or cords connected to the stops at one end and to the brackets at the other end, whereby the movement of the stop is limited by binding upon the wire of the way, substantially as described.

3. In combination with the bar G and the wireways attached thereto, the square-headed bolts, and the bracket connected to the bolt, the said bolt being clamped to the bar G, substantially as described.

354,806. METHOD OF MAKING COMFORTABLES FROM CONTINUOUS FABRIC. FRANK L. PALMER, New London, Conn. Filed Apr. 8, 1886. (No model.)

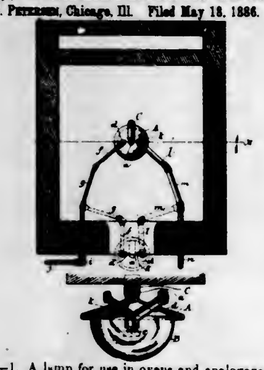


Claim.—1. The improvement in the method of making comfortables, consisting in bringing together two continuous face fabrics and an interposed filling, in securing them together at their longitudinal edges to form a compound fabric having its face fabrics united at their longitudinal edges, and in subsequently quilting the compound fabric in order to secure the face fabrics and filling together between their longitudinal edges, as distinguished from a method of making comfortables which involves the quilting of the compound fabric before or at the same time that its longitudinal edges are secured, substantially as herein described.

2. The improvement in the method of making comfortables, consisting in bringing together two continuous face fabrics and an interposed filling, and in securing them together at their longitudinal edges to form a continuous compound fabric having its face fabrics united at their longitudinal edges, and in afterward passing the compound fabric through a gang sewing-machine to quilt it, and then cutting the quilted fabric transversely to form comfortables, as distinguished from a method of making comfortables which involves the quilting of the fabric before or at the same time that its longitudinal edges are secured, substantially as herein described.

3. The improvement in the method of making comfortables, consisting in bringing together two continuous face fabrics and an interposing filling, and in securing them together at their longitudinal edges to form a continuous compound fabric having its face fabrics united at the longitudinal edges, in maintaining a surplus of the fabric, with its united longitudinal edges in advance of the edge-sewing machine, and then passing the fabric from such surplus through a gang sewing-machine for quilting it between its longitudinal edges, and in finally cutting the compound quilted fabric transversely to form comfortables, substantially as herein described.

354,807. ILLUMINATING DEVICE FOR BAKERS' OVENS. EDGARD A. C. PETERSEN, Chicago, Ill. Filed May 18, 1886. (No model.)



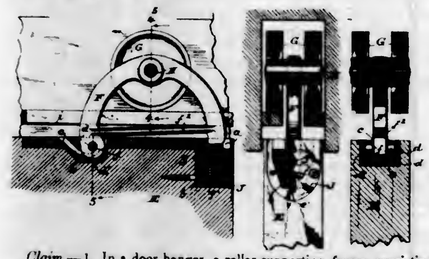
Claim.—1. A lamp for use in ovens and analogous situations, consisting of the crown-plate and glass portion, as described, an exhaust-pipe, a c, and gas and air pipes, substantially as described.

2. The combination of the oven, its chimney, and the lantern, comprising crown-plate A, glass B, bent exhaust-pipe a, the flexible gas and air pipes leading from without the oven, and the pipe c, leading to the chimney.

3. A hermetic lantern for the interior of bakers' ovens, connected with flexible gas and air supply pipes, and with an exhaust-pipe leading into the chimney, substantially as set forth.

4. A lantern for the interior of bakers' ovens, consisting of crown-plate A and convex glass B, and provided with elbow-shaped exhaust-pipe, forming a telescopic connection with pipe C, that leads to the chimney, and with flexible gas and air supply pipes, substantially as and for the purpose set forth.

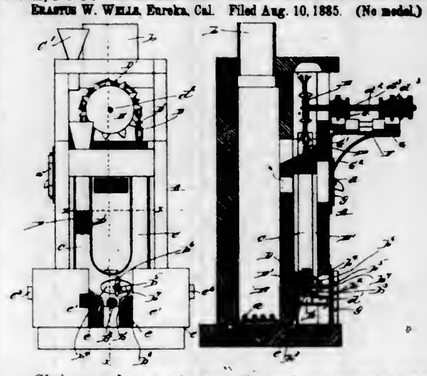
354,808. DOOR-HANGER. CYRUS F. POSOR, Edmond, Kans. Filed Mar. 2, 1886. (No model.)



Claim.—1. In a door-hanger, a roller-supporting frame, consisting of an arched yoke provided at one extremity with pivot-studs and at the other with a threaded shank and adjusting-nut, the stud-axles for the rollers being mounted at the top of the yoke, the extremities of which are united and strengthened by a connecting cross-bar, substantially as shown.

2. In a door-hanger, the combination of the roller-supporting frame F, having pivot-studs f at its heel and a threaded shank at its front end made integral therewith, a base-plate, A, slotted and recessed for the reception of the heel of the frame and its pivot-studs, respectively, and notched or perforated at its front end for the passage of the shank, with an adjusting-nut on said shank bearing against the lower side of the plate, substantially as and for the purpose set forth.

354,809. AMALGAMATOR. ENOCH J. ROWE, ROBERT HOLMES, and ERASTUS W. WELLS, Eureka, Cal. Filed Aug. 10, 1885. (No model.)



Claim.—1. In an amalgamator, the combustion-chamber having its bottom inclined downward and forward at the rear end its entire width a short distance and V-shaped in cross-section the rest of its length, and coincidently inclined at the vertex with the rear part, substantially as shown and described.

2. In an amalgamator, the receptacle having the combustion-chamber and an additional chamber with the dividing-partition provided with door or plate covered openings at the bottom, in combination with the U-shaped receptacle or bath, substantially as and for the purpose set forth.

3. In an amalgamator, the combination, with the endless chain having a series of plates or disks and the U-shaped molten-lead receptacle, of the shaft carrying a sprocket-wheel, over which said chain passes, and the shaft-supporting frame hinged at one end and provided with adjusting screw-bolts at the opposite end, substantially as and for the purpose set forth.

4. In an amalgamator, the combination, with the containing-receptacle, of the U-shaped molten-lead receptacle having the ore-removing opening closed from the inside by a plate or door having a fixed screw passing through a yoke or bridge and provided with a tightening-nut, said yoke or bridge bearing against the outside of the molten-lead receptacle, substantially as and for the purpose set forth.

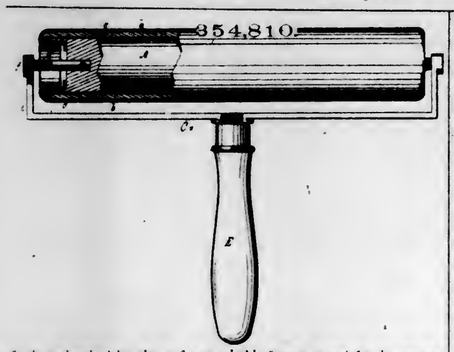
5. An amalgamator comprising the containing-receptacle subdivided into two compartments, with their partition provided with slide-covered openings at the bottom, one compartment or chamber serving as a combustion-chamber, the U-shaped molten-lead receptacle or bath contained in one of the said compartments, and the sprocket-wheel and its shaft and pulley, one side wall and the front wall of said containing-receptacle having upper and lower door-covered openings, one opening in the front wall being arranged in alignment with an opening in the aforesaid partition, substantially as and for the purpose set forth.

6. In an amalgamator, the combination, with the sprocket-wheel, its shaft and pulley, and the endless chain or belt, of the shaft-supporting frame hinged at one end to a bracket secured to the receptacle and provided with adjusting screw-bolts at the opposite end, substantially as shown, and for the purpose stated.

354,810. PAPER-HANGER'S ROLLER. ALEXANDER McL. ROWLAND, Brooklyn, N. Y., assignor to Richard N. Oakman, Jr., and Warren P. Dustin, both of Greenfield, Mass. Filed July 14, 1886. (No model.)

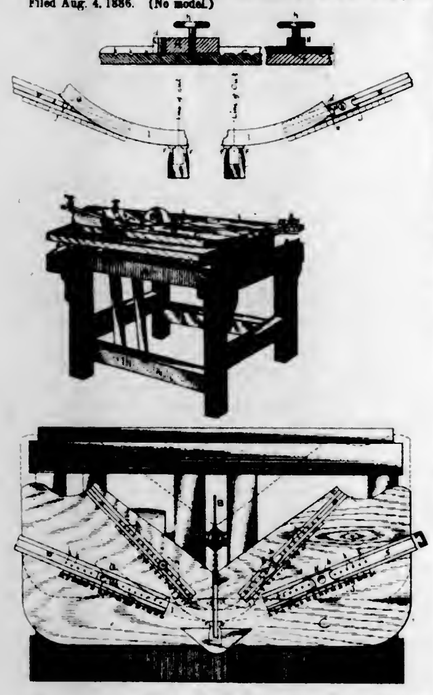
Claim.—1. In combination, a paper-hanger's roller consisting of a solid wooden cylinder with recessed ends, and tube-sections a, inserted in said recessed ends, and rings B, whereby a flexible covering is secured to said wooden cylinder, said cylinder being journaled to a frame, C, with handle E, as and for the purpose described.

2. The roller for paper-hangers herein described, consisting of a solid wooden cylinder, A, with recessed ends, a layer of thick material, b, glued to the cylinder, a thin covering, c, rings B, for securing the covering c in position, and tubes a, all combined substantially as set



forth, and united by pivots *f* to a suitable frame, as and for the purpose described.

354,811. CIRCULAR-SAWING MACHINE. ISIDORE V. ROY, Mishawaka, Ind., assignor to the Dodge Manufacturing Company, same place. Filed Aug. 4, 1886. (No model.)

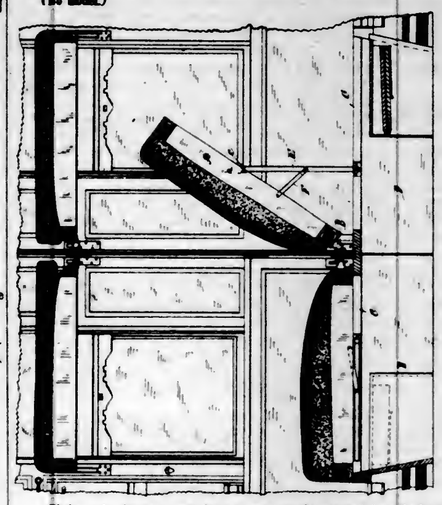


Claim.—1. A saw and a saw-table relatively movable, combined with a gage-block permanently fixed to said table near the plane of the saw, and movable gage-blocks adjustable on said table along fixed lines oblique to the plane of the saw and as to said permanent gage, to adapt them to the peripheral curvature and length of segments, substantially as set forth.

2. A saw, B, and a saw-table, C, relatively movable, combined with the gage-block F, permanently fixed to said saw-table, and the movable gage-blocks G and H and grooves *b g*, wherein said blocks are separately adjustable along fixed lines oblique to the plane of the saw, to adapt them to gage the wooden segments I to cause said saw to cut the ends of the same radial to the peripheral curve and to the proper segmental length, as set forth.

3. The movable saw-table C, provided with the fixed gage F, and the gage-groove oblique to the plane of the saw, said groove being provided with a series of pits, *k k*, equally spaced, combined with an adjustable gage-block fitted to move in said groove, and provided with the pointed set-screws *h*.

354,812. CAR SEAT AND BERTH. EPHELBERT A. STANLEY, Troy, N. Y., assignor to the Mann's Boudoir Car Company. Filed Apr. 30, 1886. (No model.)



Claim.—1. As a support for car-seats, as shown and described, the bar or rod E, in combination with the arm F.

2. The combination of the seat A, the box or casing D, having the frame-work C, with the rod or bar E, and the arm F.

3. The combination of the seat A, hinged at B and provided with the notch *a*, with the frame C, bar E, and arm F, the latter being provided with the slot *f*, as shown and described.

4. The combination of the seat and frame with the bar E, lug G, washer H, and screw I, adapted to operate substantially as shown and described.

354,813. GRAIN-BINDER. ANDREW STARK, Chicago, Ill. Filed Sept. 10, 1885. (No model.)



Claim.—1. In combination, substantially as hereinbefore set forth, the knotter-bill, the cogged cord-holder ring encircling the bill and having cord-receiving notches or apertures, its driving-shaft *l* and the pinion thereon, and the knotter-actuating wheel having on the same face the gear-segments which actuate the knotter-bill and the cord-holder ring, whereby the cord-holder ring and the knotter-bill are revolved in opposite directions.

2. In combination, substantially as hereinbefore set forth, the needle, the knotter-bill, and the cord-holder ring encircling the latter and the path of the former.

3. In combination, substantially as hereinabove set forth, the needle, the knotter-bill, and the cord-holder ring encircling the latter and the path of the former and inclined obliquely to said path.

4. In combination with the knotter-bill and the cord-holder ring encircling the bill, the needle actuated to enter the ring on the side toward the bundle and pass obliquely through it, substantially as set forth.

5. In combination with the needle and the knotter-actuating wheel, the knotter-bill having its axis oblique to the plane passing longitudinally through the axes of the needle and the knotter-actuating wheel, and the cord-holder ring encircling the knotter-bill, the intersection of its plane

with the plane of the needle being substantially at right angles to the plane of the axes of the knotter-bill and knotter-actuating wheel.

6. In combination with the needle and the knotter-actuating wheel, the knotter-bill having its axis oblique to the plane passing longitudinally through the axes of the needle and the knotter-actuating wheel, and the cord-holder ring encircling the knotter-bill in a plane at right angles to the axis of the latter, substantially as set forth.

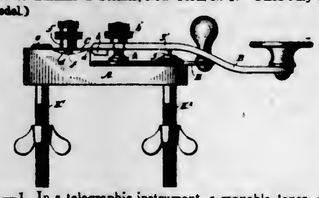
7. In combination with the revolving cord-holder ring and the cord-clamp block co-operating therewith to hold the cord, and their sustaining-frame, the cord-cutter fixed to the frame, having its cutting-edge within the ring, substantially as set forth.

8. In combination with the revolving cord-holder ring and the cord-clamp block co-operating therewith, the knotter-bill revolved within the ring, and the cord-cutter having its cutting-edge within the ring, substantially as set forth.

9. The knotter-frame having bearings for the main shaft of the binder and knotter-bill shaft, and provided with ledges to afford bearings for the cord-holder ring, located in a circle surrounding the axial line through the knotter-bill-shaft bearing, substantially as set forth.

10. In combination, substantially as hereinbefore set forth, the knotter-frame having bearings for the main shaft of the binder and knotter-bill shaft, and having ledges to serve as bearings for the holder-ring, included within one half of the circle of said ring, and the hanger H^3, having an additional ledge to support said ring and secured to said frame, with said ledge located in the other half of said circle.

354,814. TELEGRAPH-INSTRUMENT. JOSEF STEINER, Brooklyn, assignor to Haskins & Steiner, New York, N. Y. Filed July 31, 1886. (No model.)



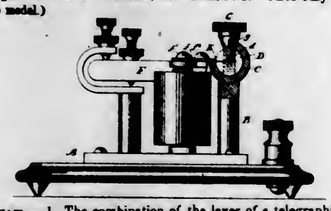
Claim.—1. In a telegraphic instrument, a movable lever, a spring supporting the lever, an adjustable support for one end of the spring, and a fulcrum for said spring between the support and the lever.

2. In a telegraphic instrument, a lever, a spring supporting the lever, a rigid support at one end, a transverse fulcrum for said spring, and an adjustment for said spring between said fulcrum and the rigid support.

3. In a telegraphic instrument, the combination of a lever, a yielding spring attached to said lever at one end, an adjustable support for the spring, an intermediate fulcrum applied to the spring, and means for adjusting the relative positions of the spring and the fulcrum.

4. In a telegraphic instrument, a lever, a supporting-spring for the same, a transverse fulcrum for the spring, and an adjusting device for modifying the pressure of the spring against said fulcrum.

354,815. TELEGRAPH-INSTRUMENT. JOSEF STEINER, Brooklyn, assignor to Haskins & Steiner, New York, N. Y. Filed July 31, 1886. (No model.)



Claim.—1. The combination of the lever of a telegraphic instrument, a spring secured to one end thereof, a support for the other end of the spring, a shoulder across which the spring bears, and an adjustment for modifying the relative positions of the shoulder and the support.

2. The combination, in a telegraphic instrument, of a lever, a spring for carrying the same, secured at one end to the lever, a support receiving the other end of the spring, a shoulder across which the spring bears, and an adjustment for modifying the position of the support with reference to the shoulder.

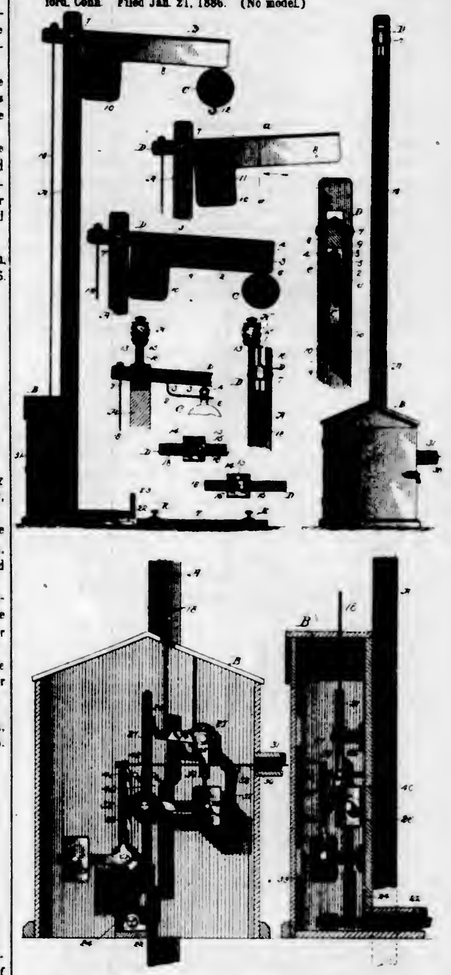
3. The combination, with the lever of a telegraphic instrument, of a cylindrical support, a spring, a tubular socket receiving the same, and a screw for adjusting the position of the support within said socket.

4. A tension-adjusting device for telegraphic instruments, consisting of a spring, a cylindrical support for the spring, a tubular socket for the support, a screw entering the support and pressing against a bearing-surface in said socket, and a shoulder formed by said socket against which said spring bears.

5. A tension-adjusting device for telegraphic instruments, consisting of a spring, a cylindrical support for one end of the same, a shoulder across which it bears, a tubular socket for the support, a conical screw entering the support, and a curved converging bearing-surface for the screw formed in the socket.

6. In a telegraphic instrument, a metal base having tubular socket integral therewith, a cylindrical support in said socket, a lever, a spring connecting said lever with said support, and an intermediate bearing-surface for said spring.

354,816. SIGNAL. ARTHUR M. TRUDE and CHARLES H. COOLEY, Hartford, Conn. Filed Jan. 21, 1886. (No model.)

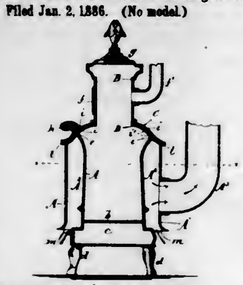


Claim.—1. The combination, in a signaling apparatus, of a supporting-post or frame-work, a tilting beam supported thereon, a traveling signal suspended from a track fixed to said beam, a revolving signal supported on said post or frame-work, and connections operating said revolving signal from said beam correspondingly with the operation of the signal on the track, substantially as described.

2. The combination, in a signaling apparatus, of a swinging arm connected to the signal, a wire line operated from a distant point, a slack connection between said wire and said arm, a catch normally bearing against said arm, a weighted lever directly connected to the wire line, and a slack connection between the weighted lever and the catch, substantially as described.

3. The combination of guide G, carriage E, connected to line 30, latch 46, pivoted to said carriage, spring 47, and spring 48, substantially as described.

354,817. PORTABLE PARLOR-HEATER AND HOT-AIR FURNACE. WILLIAM TURTON, New York, N. Y., assignor to John H. Keyser, same place. Filed Jan. 2, 1886. (No model.)



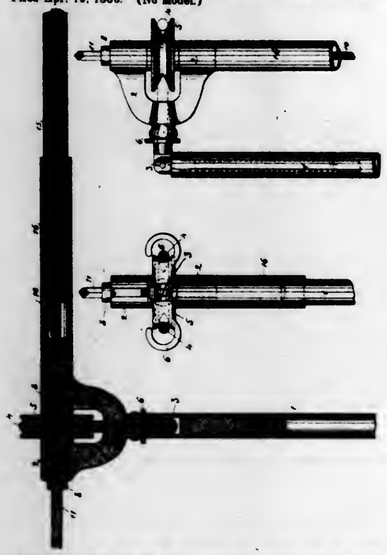
Claim.—An improved portable hot-air furnace, as a new article of manufacture, which comprises in its construction a gas-combustion chamber, B, at its top, a register-plate, C, with air and illumination holes *i* surrounding the base portion of said chamber, a fire-pot, A, communicating with said holes *i*, and a hot-air chamber, A^2, which surrounds the fire-pot below the heating and gas-combustion chamber, and a hot-air-conducting pipe, A^3, the entrance or mouth of which is opposite the fire-pot, substantially as and for the purpose described.

354,818. TELEPHONE-TRANSMITTER. WILLIAM L. VOELKER, Morton, Pa. Original application filed Mar. 16, 1880, Serial No. 5,190. Divided and this application filed Dec. 27, 1880. (No model.)



Claim.—In an acoustic telephone-transmitter, the combination of two electrodes, one of iron or similar friable metal and the other of platinum or similar refractory metal, substantially as and for the purposes described.

354,819. DENTAL ENGINE. AUGUST WEBER, New York, N. Y. Filed Apr. 19, 1886. (No model.)

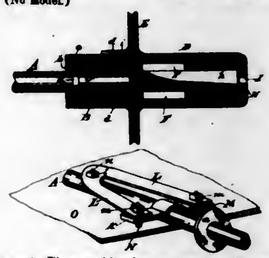


Claim.—1. The combination, with the pulley and its head, of a tubular standard, a cylindrical pivot-rod fitting into the tubular standard and on which the pulley-head can swivel, a joint in such pivot-rod that allows the pulley-head to be swung down when the pivot-rod is raised to bring the joint above the tubular standard, and a guide at the base of the head to keep the belt upon the pulley, substantially as set forth.

2. The combination, with the pulley-head and pulley, of a tubular spindle passing through the pulley and through the bearings of the pulley-head, the opening in said tubular spindle being prismatic, the flexible case, the flexible shaft within the case, and a prismatic rod attached to the end of the flexible shaft and passing freely through the tubular spindle, substantially as set forth.

3. The combination, with the pulley and head, tubular standard, and jointed pivot-rod, of the tubular shield attached at one end to the pulley-head, the flexible case connected at the other end of the tubular shield, flexible shaft passing through the shield and case, and the prismatic rod attached to the flexible shaft and passing into the axis of the pulley, substantially as specified.

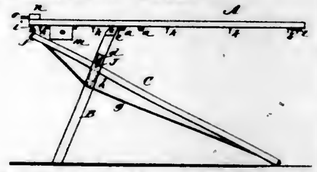
354,820. AXLE-COUPLING. EBENEZER WILLIAMS, Minersville, Ohio, assignor of one-half to John E. Williams, same place. Filed Aug. 17, 1886. (No model.)



Claim.—1. The combination of the box D, having an annular chamber, F, and an end opening, I, and the axle A, having a longitudinal groove, *h*, communicating with said chamber and opening, substantially as shown and described.

2. The combination, with the stationary axle A and the frame O of a vehicle, of the clamp-bar K, extending across the axle, the yoke L, having its rear end bearing on the axle and its front ends resting on the clamp-bar, and bolts and nuts clamping the yoke and clamp-bar to the vehicle-frame, substantially as and for the purposes described.

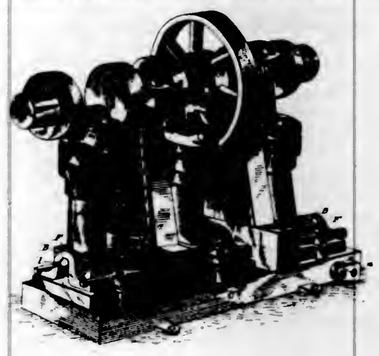
354,821. IRONING-TABLE. DANIEL C. WOODWARD, West Randolph, Vt. Filed Nov. 14, 1885. (No model.)



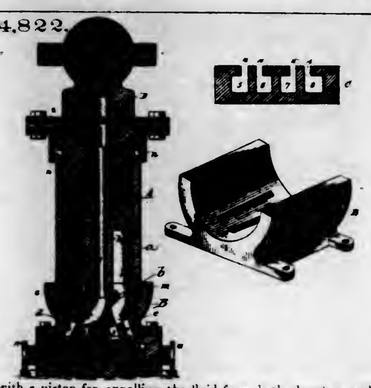
Claim.—In an ironing-table, a table top or board provided on its under surface with one or more pairs of hooks, *a*, a frame, B, composed of legs *b* and cross-pieces *c d*, and provided with eyes *e* and a dowel-pin, J, and the bar C, having hook *f* connecting with eye *i* at the one end of the table or board, substantially as and for the purpose set forth.

354,822. PUMPING-ENGINE. EDWARD ANDREWS, Pottsville, assignor of one-half to Robert H. Coleman, Cornwall, Pa. Filed Sept. 28, 1886. (No model.)

Claim.—1. A cylinder having a hollow projection and an annular fluid-chamber, a port communicating with the chamber in the projection, a port communicating with the annular chamber, both of said ports entering the cylinder on the same side of the piston, in combination with a piston for expelling the fluid from both chambers, substantially as described.



354,822.

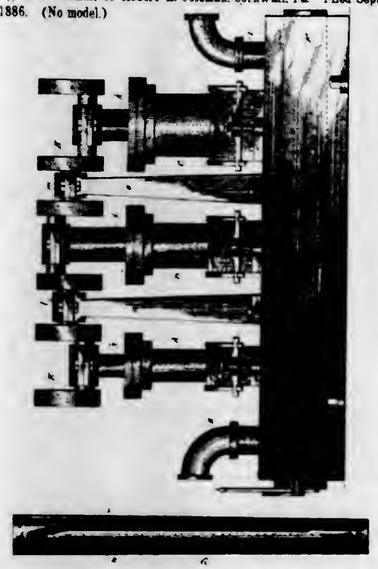


2. A vibrating cylinder having a convex bearing-surface at one end, a tubular projection extending nearly to the opposite end of the cylinder, and an annular fluid-chamber, separate ports communicating with the chamber in the projection and with the annular fluid-chamber, in combination with a ported seat having a concave bearing-surface, and a piston conforming to the working-cylinder, substantially as described.

3. A cylinder having a hollow projection in the center thereof and a bearing-surface at one end, a hollow piston fitting over said projection, separate ports communicating with both chambers in the cylinder, in combination with a bed-plate having supply and discharge passages formed therein, and a ported seat interposed between the cylinder and the bed-plate, substantially as described.

4. A triple vibrating-cylinder pumping-engine in which each cylinder is provided with two receiving-chambers, and a single-acting piston connected to a crank-shaft, as described, whereby the contents of each cylinder are expelled by the power exerted upon the other two pistons.

354,823. COMPOUND ENGINE. EDWARD ANDREWS, Pottsville, assignor of one-half to Robert H. Coleman, Cornwall, Pa. Filed Sept. 28, 1886. (No model.)



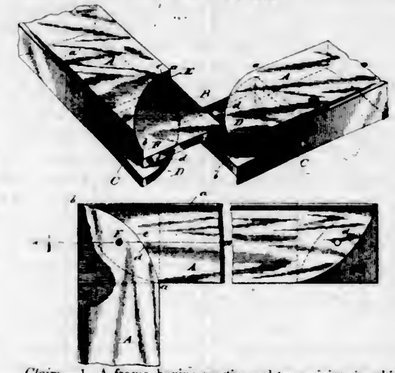
Claim.—1. The combination of two or more vibrating cylinders having passages in their seated ends, a bed-plate having a valve-chamber extending throughout its length, and an adjustable valve adapted to said chamber and provided with passages communicating with each of the cylinders for conducting a motor-fluid to and from said cylinders and for reversing the motion of the engines, substantially as described.

2. The combination of two or more vibrating cylinders having passages in their seated ends, a bed-plate having a valve-chamber extending throughout its length, and a valve provided with passages constructed to put the cylinders in communication with each other, and with the supply and exhaust pipes, whereby a motor-fluid is conducted into the first cylinder under its initial pressure and exhausted into another and used expansively, substantially as described.

3. The combination of two or more vibrating cylinders, each having a passage in its seated end, a bed-plate having a valve-chamber extending throughout its length, and an adjustable valve provided with passages communicating with each of the cylinders and passages for conducting a motor-fluid into and from one cylinder into another, substantially as described.

4. The combination of two or more cylinders constructed to form a valve for admitting and discharging a motor-fluid and a valve provided with passages communicating with each cylinder in the series, and adapted to conduct a motor-fluid to and from each cylinder and to reverse the engines, substantially as described.

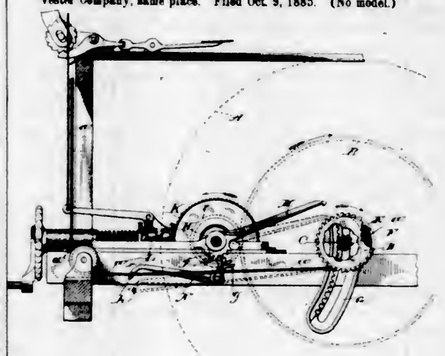
354,824. JOINT FOR FRAMES OF PICTURES AND OTHER FRAMES. JACOB APOLL, Chicago, Ill., assignor to Duncan & Johnston, same place. Filed Mar. 11, 1886. (No model.)



Claim.—1. A frame having mortise-and-tenon joints in which the adjacent or joined ends of the frame-pieces are provided one with one or more full tenons and through-mortises and an exterior or flush tenon, and the other with a corresponding full tenon or tenons and through mortise or mortises, together with an exterior mortise or relish to receive the said flush tenon, the said exterior mortise or relish being formed with an inwardly curved or concaved shoulder, and the flush or external tenon being outwardly curved upon its edge to fit the concavity of the relish, substantially as described.

2. In a frame having mortise-and-tenon joints, frame-pieces which are each provided on each end with one or more interior full tenons, and also with a tenon flush with one face of the frame and convex upon its end, and with a relish on the opposite face of the frame, having a corresponding concave shoulder and one or more through-mortises to receive a full tenon or tenons, substantially as described.

354,825. RAISING AND LOWERING DEVICE FOR HARVESTERS. JOSEPH P. BULLOCK, Milwaukee, Wis., assignor to the Milwaukee Harvester Company, same place. Filed Oct. 9, 1885. (No model.)



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Claim.—1. In a harvesting-machine, a mechanism to prevent the rising of the main frame and platform by reason of the resistance of the cutting apparatus, said mechanism consisting of a pulley and ratchet-wheel keyed to the main shaft of a harvesting-machine, a pawl loosely journaled on a shaft carrying a pinion arranged to mesh with a main gear-wheel, said pawl being adapted to engage and disengage the ratchet-wheel on the main shaft and provided at its journal end with a segment-rack, a guide-arm pivotally connected to a harvester-frame and provided with a segment-rack adapted to mesh with the segment-rack of the loosely-journaled pawl, and a suitable cord secured at one end to the main shaft-pulley, then to pass through an eye in the rear end of the guide-arm, thence under a pulley journaled in a bearing at the rear of the frame, and finally to be secured to a spindle on a shaft carrying another spindle for the main adjusting-cord of said harvesting-machine, substantially as and for the purpose set forth.

2. In a harvesting-machine, the combination, with a main shaft carrying a pinion adapted to engage and operate in a curved rack-standard on the driving side of said machine, of a pulley and ratchet-wheel keyed to the main shaft, a pawl loosely journaled on a shaft carrying a pinion arranged to mesh with a main gear-wheel loose on the main shaft, said pawl provided with a segment-rack at its journal end, a guide-arm also provided with a segment-rack at its forward end adapted to mesh with the segment-rack on the loosely-journaled pawl and formed at its rear end with an eye, and a suitable cord secured at one end to the pulley keyed to the main shaft, then passed through the eye in the guide-arm and thence under a suitably-arranged pulley in a bearing on the harvester-frame, and finally secured to a spindle on a shaft carrying a spindle for the main adjusting-cord, all arranged to operate substantially as and for the purpose set forth.

3. In a harvesting-machine, a curved standard having an internal groove, a short shaft for the grain-wheel, and a rearwardly-extended arm pivoted to the grain side of the machine and provided with a pulley, in combination with a flanged plate rigidly secured to said grain side of the machine to engage the groove in the standard, a pulley having its bearing also secured to the machine adjacent to the standard-arm, a cord fastened at one end to said standard and operatively arranged on the pulleys, and means for winding and unwinding the cord, substantially as and for the purpose set forth.

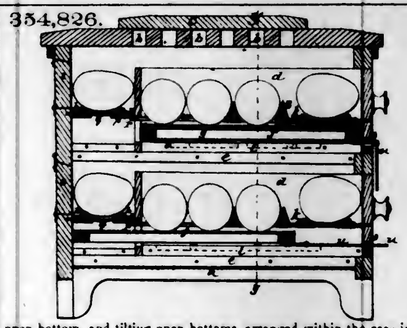
4. In a harvesting-machine, a mechanism for retaining the main frame and platform in the position to which they may be adjusted independent of resistance from the cutting apparatus, said mechanism consisting of a pulley and ratchet-wheel keyed to the main shaft, a pawl loosely journaled to a shaft carrying a pinion meshing with the main gear-wheel and provided at its journal end with a segment-rack, a guide-arm having in its rear end an eye and provided at its forward end with a segment-rack arranged to mesh with the segment-rack on the loosely-journaled pawl, and a suitable cord made fast at one end to the main-shaft pulley, then passed through the eye in the rear end of the guide-arm, thence under a pulley mounted in a bearing on the harvester-frame, and finally secured to a spindle on a shaft carrying the spindle for the main adjusting-cord, in combination with a curved standard having an interior groove, a short shaft for the grain-wheel, and a rearwardly-extended arm, the latter pivotally secured to the grain side of the harvester-frame in line with the driving-pinion arranged to mesh with the main gear-wheel, the grain-wheel journaled to the short shaft of the curved standard in line with the main driving-wheel, a main adjusting-cord passing over the pulley in the rearwardly-extended arm of said curved standard and secured to an eye on the face of the latter, and a flanged plate secured to the grain side of the harvester-frame and arranged to engage the groove in the curved standard, substantially as and for the purpose set forth.

354,826. EGG-PRESERVING CABINET. OSCAR F. BURKE, Waverly, N. Y. Filed May 24, 1886. (No model.)

Claim.—1. An egg-preserving cabinet consisting of the case open at the bottom and one or more drawers, each having a sliding open bottom and fixed cross-bars, and a tilting open bottom arranged at the front of the drawer in a horizontal plane above the sliding bottom, as described, and for the purpose specified.

2. An egg-preserving cabinet consisting of the case open at the bottom, one or more drawers, each having both a sliding and a tilting

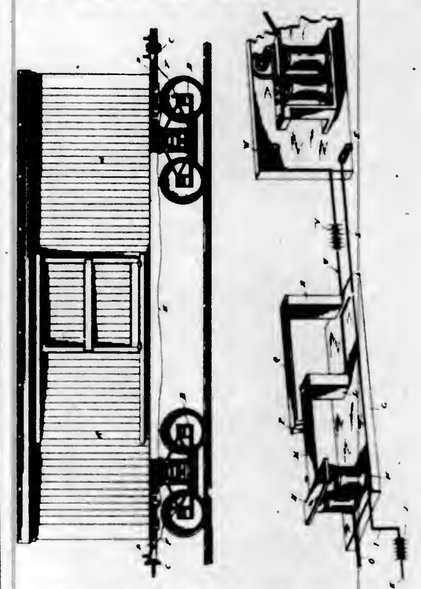
354,826.



open bottom, and tilting open bottoms arranged within the case in rear of and independent of the drawers, the said cabinet having provision on different sides for access to the said moving bottoms, substantially as described.

3. In an egg-preserving cabinet, the case having an open bottom, covering *a*, top openings, *b*, and lid *c*, the drawers each having a sliding bottom, and the drawers and the case having tilting bottoms arranged above the plane of the sliding bottoms and at right angles to the direction of the movements of the said sliding bottoms, substantially as described.

354,827. RAILROAD-SIGNAL. GEORGE D. BURTON, New Ipswich N. H. Filed Mar. 19, 1886. (No model.)



Claim.—1. In a system for automatically informing the engineer of the loss of a car, the combination, with an alarm-signal, a secondary electrical circuit in which said alarm is included, and an electrical generator for said circuit, of one or more cars having their draw-bars electrically connected, and the draw-bar on the last car electrically connected with the rail, a main electric circuit through the draw-bars and the rails, an electrical generator for this circuit, and an electro-magnet included in said circuit, and mechanical means to close the secondary circuit by the breaking of the main circuit.

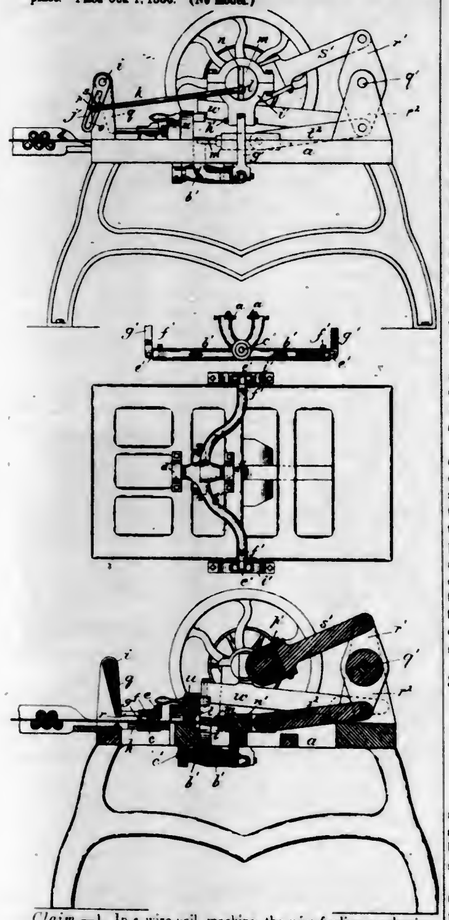
2. In a system for automatically informing the engineer of the loss of a car, the combination, with an alarm-bell, a normally-open electric circuit, a generator and a spring included in said circuit, of a normally-closed circuit, a spring carrying an armature and adapted to engage said other spring when the normally-closed circuit is broken, an electro-magnet to control said armature, and one or more cars the draw-bars of which are electrically connected, one of the draw-bars of the last car being electrically connected with a rail, and one of the draw-bars of the forward car connected with the magnet and the rail with said magnet.

3. In a system for automatically informing the engineer of the loss

of a car, a railway-car having its draw-bars insulated from the trucks and electrically connected with each other, and having one of its draw-bars electrically connected with a rail through its truck.

4. In a system for automatically informing the engineer of the loss of a car, the combination, with a railway-car and its draw-bars insulated from the trucks, of a wire connecting said draw-bars with the respective trucks and capable of being detached, whereby either truck is electrically connected or disconnected from its draw-bars.

354,828. WIRE-NAIL MACHINE. HENRY T. CRETEAU, Haverhill, Mass., assignor to G. W. Weed and George H. Appleton, both of same place. Filed Oct. 1, 1886. (No model.)

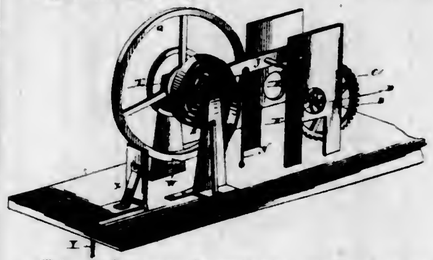


Claim.—1. In a wire-nail machine, the wire-feeding mechanism consisting of the slide *c*, having the spring-pressed dog *e*, the rock-shaft *i*, connected to said slide by an arm and connecting-rod, and provided with the slotted arm *j*, and the rod *k*, secured at one end to a wrist-pin which is adjustably attached to said slotted arm, as described, and at the other end to a wrist-pin which is adjustably attached to a disk on the driving-shaft, as set forth.

2. In a wire-nail machine, the combination, with wire-feeding mechanism, of the cutting mechanism consisting of the crossed pivoted levers *b' b'*, having the cutters *a' a'* on their shorter arms and the shriveled studs *c' c'* at the outer ends of their longer arms, the eccentrics on the driving-shaft, and the rods *g'*, pivoted to straps on said eccentrics and to the studs *c'* of the levers *b'*, the arrangement being such that the cutters are moved toward each other by a downward movement of the eccentrics and the rods *g'*, as set forth.

3. In a wire-nail machine, the combination, with wire feeding and cutting mechanism, of the header and its operative mechanism, the latter consisting of the slide *n'*, the crank *p'* on the driving-shaft, the rock-shaft *q'*, the arms *r' r²* on said rock-shaft, and the connecting-rods *s' t²*, all arranged and operating substantially as described.

354,829. MOTOR. EZRA R. EVANS, East Ringgold, Ohio. Filed Aug. 18, 1886. (No model.)



Claim.—1. In a motor, the combination, with a revolving crank receiving its motion substantially as described, of a lever having a slot at one end formed by two longitudinal slot portions formed one above the other and connecting at their meeting ends with a transverse portion, and a balance-wheel engaging with the other end of said lever, as and for the purpose shown and set forth.

2. In a motor, the combination, with a balance-wheel having a helical balance-spring secured to its shaft, and provided at its shaft with a disk having a straight portion cut away at its periphery, and having a laterally-projecting pin at the middle of the said straight portion, of a rocking lever having a slot with widened outer end for the reception of the pin of the disk, and having a laterally-projecting pin at the inner end of the slot for engaging the straight edge of the disk, as and for the purpose shown and set forth.

3. In a motor, the combination of a rocking balance-wheel having a notch in its periphery, a bell-crank pivoted with one arm within reach of the notched rim of the wheel, and a float having suitable connection with the bell-crank, tilting it toward the wheel when the float rises, as and for the purpose shown and set forth.

4. In a motor, the combination of a train of wheels having a double crank at the last shaft, a lever pivoted at its middle and having the reciprocating power-rod pivoted to one arm, and formed at one end with a slot having two longitudinal portions connected by a transverse portion, and having the crank-pin sliding in it, and formed with a slot at the other end widening toward its end, and having a laterally-projecting pin at the inner end of the slot, and a balance-wheel having a balance-spring secured to its shaft, a disk formed with a straight portion at the edge secured upon said shaft, and having a laterally-projecting stud at the center of the straight edge, the said stud projecting into the slot of the lever and the pin of the lever projecting into the cut-away portion of the disk having the straight edge, as and for the purpose shown and set forth.

354,830. SAFETY-PIN. AUGUSTUS M. FREEMAN, Ocean Grove, assignor to himself and Alexander C. Kelly, Metuchen, N. J. Filed Sept. 15, 1884. Renewed Mar. 15, 1886. (No model.)



Claim.—1. The wire pin having a point at one end, the spring *e*, and the return bend or crook *b*, in combination with the shield *f*, having a tapering opening for the return-bend *b*, by which the shield is retained but allowed to slide on the wire, and an opening for the pin-point, substantially as specified.

2. The wire pin having a point at one end, the spring *e*, and the return bend or crook *b*, and the bend *c*, in combination with the shield *f*, fitted to slide upon the wire between *b* and *c*, and having an opening for receiving the pin-point, substantially as specified.

354,831. PILOT AND GUARD FOR RAILWAY-CARS. GEORGE W. PRINCE, Kansas City, Mo. Filed Aug. 20, 1886. (No model.)

Claim.—1. A pilot hinged at its rear end beneath the end of the car and loosely suspended at its leading end, and thereby adapted to yield and conform to the road-bed, combined with side guards loosely connected therewith, substantially as described.

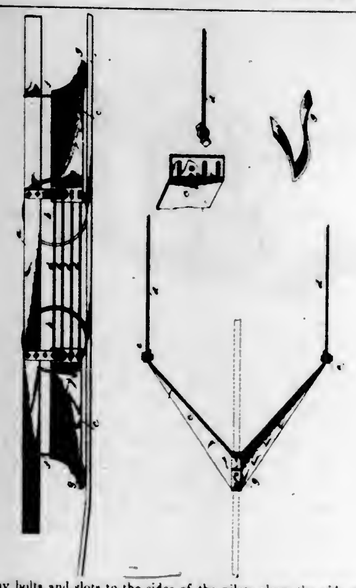
2. A pilot hinged at its rear end to a car, and loosely suspended at its leading end, and provided with a shoe at its point, substantially as described.

3. A pilot hinged at its rear end to a car, and loosely suspended at its leading end, and provided with a spring-shoe shaped and arranged substantially as described.

4. The combination, with the hinged pilots at the ends of a car, of a series of side guards loosely jointed to said pilots, substantially as described.

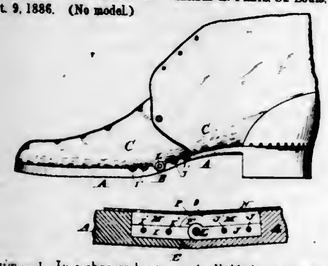
5. Pilots hinged at their rear ends to the ends of a car and suspended loosely at their forward ends, combined with rods or bars con-

354,831.



nected by bolts and slots to the sides of the pilots along the side of the car, the whole forming a self-adjusting guard extending continuously and entirely around the car, substantially as described.

354,832. SHOE OR BOOT. CHARLES H. FRETZ, St. Louis, Mo. Filed Sept. 9, 1886. (No model.)



Claim.—1. In a shoe or boot, a sole divided transversely into two parts, one part having a concave groove and the other part having a convex projection fitting in the groove at the division-line of the sole, in combination with hinges connecting the parts together, as set forth.

2. In a shoe or boot, in combination with the two-part sole, one part having a semicircular groove forming a point, P, and the other part having a semicircular projection forming a shoulder, O, the hinges for connecting the parts together, substantially as set forth.

3. The combination, with the sections A A, of the plates I and J, having perforations I', J', and L, said sections being provided at points intermediate of their edges with a groove for receiving each plate and supporting it in a vertical plane, and rods passed through said perforations for securing the plates to the respective sections and to each other substantially as set forth.

354,833. ARTIFICIAL TOOTH. CHARLES P. GROUT, New York, N. Y. Filed Mar. 30, 1886. (No model.)



Claim.—1. The combination, with a metallic tooth-crown provided at the front with a flange or lip, of a porcelain face fitting the front of the crown within the flange or lip and secured in place by turning the flange or lip inward over its edge or margin, substantially as herein described.

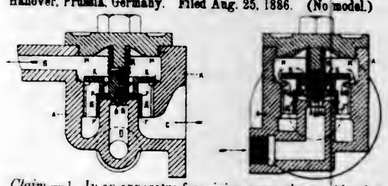
2. The combination, with a metallic tooth-crown, of a curved plate soldered to the front of the crown and having its edge portion turned outward from a lip or flange, *b*, and a porcelain tooth-face secured on the front of the crown by the turning inward of the lip or flange *b* over its edge, substantially as herein described.

354,834. ARTIFICIAL STONE OR MARBLE. THEODORE HURTZ, Kansas City, Mo. Filed May 21, 1886. (No specimens.)

Claim.—1. The solution herein described for preparing artificial stone, the same consisting of water, silicate of soda, chloride of calcium, hydrate of barium, glycerine, lime-water, and carbonate of potash, in about the proportions named.

2. An artificial stone composed of hydraulic cement and sand or gravel, moistened and combined with a solution of water, silicate of soda, chloride of calcium, hydrate of barium, lime-water, glycerine, and carbonate of potash, substantially as specified.

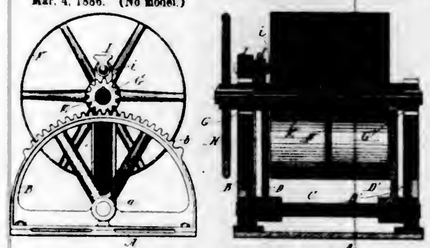
354,835. APPARATUS FOR MIXING GASES. ERNST KÖRTING, Hanover, Prussia, Germany. Filed Aug. 25, 1886. (No model.)



Claim.—1. In an apparatus for mixing gases, the combination, with the shell A, having the induction-aperture C, the eduction-aperture B, and the induction-tube D, of the valve E, with disk K, obturating-surface P, holes *y*, and sleeve F, and the groove H, substantially as and for the purpose specified.

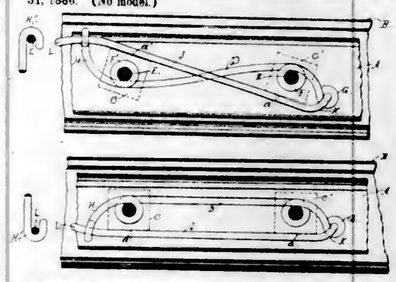
2. In an apparatus for mixing gases, the combination, with the shell A, having the induction-aperture C, the eduction-aperture B, and the induction-tube D, of the valve E, with disk K, obturating-surface P, holes *y*, sleeve F, and tapering projection O, and the groove H, substantially as and for the purpose described.

354,836. BELT-TIGHTENER. CHARLES G. LOTT, Chicago, Ill., assignor to the A. Plamondon Manufacturing Company, same place. Filed Mar. 4, 1886. (No model.)



Claim.—The combination, with a tightener-pulley and its shaft, of an independent shaft, arms connecting the two shafts, a hand-wheel and pinions mounted upon the pulley-shaft, and segmented racks with which such pinions engage, as set forth.

354,837. NUT-LOCK. WILLIAM C. MCLEHANS, Gap, Pa. Filed July 31, 1886. (No model.)

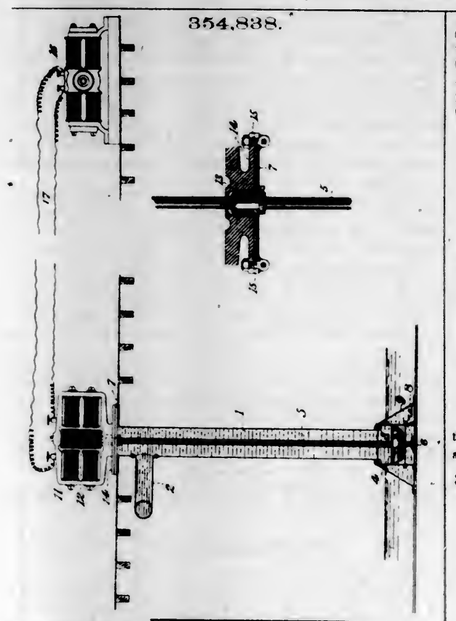


Claim.—A nut-lock consisting of the wire body D, provided with a hook at one end, an eye at the other, and an intermediate loop which fits upon a bolt, in combination with a wire locking-lever, J, pivoted to said eye at one end and engaging with said hook at the other, this locking-lever fitting against one side of the nut, for the purpose set forth.

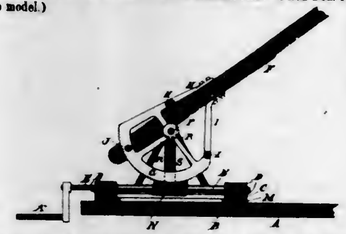
354,838. ELECTRICAL PUMPING APPARATUS. MOSES A. MICHAELS, Allegheny, and ALBERT MICHAELS, Pittsburg, Pa. Filed Aug. 20, 1886. (No model.)

Claim.—A pumping apparatus having in combination a stationary dynamo-electric generator and a portable pump provided with an electric motor detachable from the pump, substantially as set forth.

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354,839. FIRE-LADDER. JOSEPH L. POINSETT, Newport, Ky., assignor of one-half to Horton & Co., Cincinnati, Ohio. Filed Feb. 15, 1886. (No model.)



Claim.—1. The combination of the truck-frame A, the turn-table mounted thereon and provided on its upper side with attached journal-boxes D, the horizontal shaft E, journaled in said boxes and having at its center an attached worm-wheel, N, the standards R S, rising from the turn-table, the transverse shaft P, mounted in the standards, the sector gear-wheel G, carrying the ladder and mounted on the transverse shaft and engaging the worm-wheel, substantially as described.

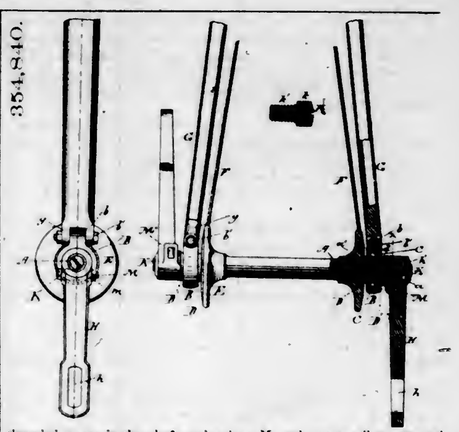
2. The combination of the truck-frame A, the ring B thereon, the turn-table C, rotating on the ring and provided at opposite sides with attached journal-boxes D, the horizontal shaft E, journaled in said boxes and having an attached worm-wheel, N, the standards secured to opposite sides of the turn-table, the transverse shaft P, mounted in the standards, the sector gear-wheel G, comprising the brace-arms H I J and mounted on the transverse shaft, and the latter connected with the brace-arms, substantially as shown and described.

354,840. VELOCIPEDE. HARRY M. POPE, Hartford, Conn., assignor to the Pope Manufacturing Company, same place. Filed Dec. 5, 1885. (No model.)

Claim.—A differential screw, K, with a larger part, as *k*, having a thread of slower pitch, and a smaller part, as *k'*, having a thread of quicker pitch, a shaft, A, with chamfered side *a* and threaded recess *a'*, a two-part cone-sleeve, D D', a circular row of balls, C C, and a bearing-box, B, a crank, H, having a recess, *h'*, for the end of the shaft, and a transverse slot for a key, and a blind side at the end of the recess for the shaft end, and a threaded perforation in the blind side concentric with the

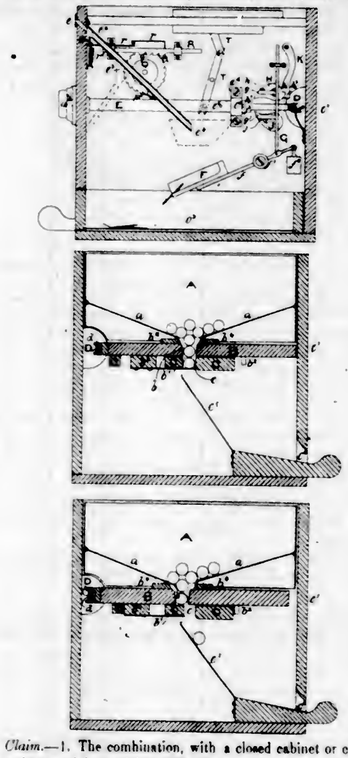


354,840.



threaded recess in the shaft, and a key, M, and nut *m*, all constructed and combined to operate essentially as shown and described.

354,841. AUTOMATIC DELIVERY DEVICE. CHARLES H. RUSSELL, London, County of Middlesex, England. Filed Mar. 9, 1886. (No model.)



Claim.—1. The combination, with a closed cabinet or casing, of a hopper for containing articles of like size, a reciprocating cut-off block having an aperture below said hopper, a slide-bar actuating said block, pawls locking said slide-bar, and a balance-tray throwing the pawls off, said tray being located beneath a chute by which the coin is introduced, substantially as described.

2. The combination, with a sliding block, B, having aperture *b*, of the inclined parts *a a* above said block, projections *b' b'* on the block adjacent to the lower ends of the parts *a a*, piece C, below the block, formed with aperture *c*, and actuating-lever D, located to act on the block B, and having springs *d'*, substantially as described.

3. In an apparatus for the automatic delivery of articles, the com-

hination, with a hopper, of a reciprocating cut-off block having an aperture below said hopper, a slide-bar actuating said block, a pawl locking said slide-bar, cover-plate P, arranged to move over the apertare e, bar R, connected with said plate, and a ratchet-wheel, Q, intermediate of said bar R and the slide-bar and engaging with said parts, all substantially as and for the purpose set forth.

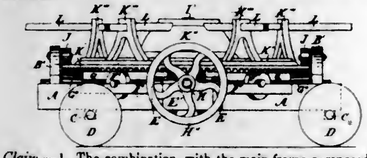
4. The combination, with a closed cabinet or casing containing a hopper for the storage of articles of like size, having inclined vibrating flaps at its base, of a reciprocating cut-off block having an apertare below the said hopper and provided with projections b^4 b^4, actuating the said flaps at each reciprocation of the cut-off block, substantially as set forth.

5. The combination, with a closed cabinet and a hopper for the storage of articles of like size, having inclined vibrating flaps at its base, and a reciprocating cut-off block with an apertare below the said hopper and provided with projections b^4 b^4, of a slide-bar actuating said block and pawls locking the said slide-bar, all arranged substantially as and for the purposes set forth.

6. The combination, with a sliding delivery device, a lever connected therewith, and a push-bar arranged to bear against said lever, of locking and releasing pawls H J, located to engage with said push-bar, a rod, G, having connection with said pawls, and a balance-tray, F, connected with said bar, said balance-tray adapted to overbalance by the weight of the coin and by its descent throw one locking-pawl, H, out of gear, and the other pawl, J, into gear, but on its return to normal position to maintain both out of gear, substantially as described.

7. The combination, with a casing, a hopper with vibrating flaps and a sliding delivery device, of the divided push-bar E M, having its adjacent ends made of a crescent shape, so that an introduced coin or coins will form the necessary connection between the parts E M, substantially as herein set forth.

354,842. HORSE-POWER. Charles Sandford, Fenelon Falls, Ontario, Canada, assignor of one-half to Ebenezer Sanford, same place. Filed Feb. 13, 1886. (No model.) Patented in Canada Apr. 15, 1884, No. 19,117.



Claim.—1. The combination, with the main frame composed of the sills A A, ties B B, sills E, ties E', and corner-pieces F, having friction-rollers F', of the shafts G G H H, bevel-gears G' H', crown-wheel K, having arms K' and hub K'', and brackets K''', bevel-pinions G°, guide-rollers J, cap I, trunnions I', and bridge-piece B', the whole constructed and operating as shown and described, and for the purpose set forth.

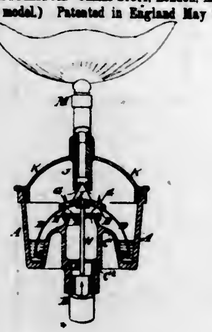
2. The combination of the flap-topped cap I, trunnion I', integral therewith, flat-topped dome-shaped hub K'', bearing upon said cap and journaled upon the trunnion I', crown-wheel rim K, arms K', to which said hub K'' is secured, pinions G°, shafts G, bevel-wheels G', clutches G'', bevel-wheels H', and shafts H, substantially as shown and described.

3. The combination of the shafts G, bevel-wheel G', clutch G'', bevel-wheel H', shafts H, and cap I, covering said wheels and clutches, substantially as shown and described.

354,843. COMPOSITION OF MATTER TO BE USED IN SOLDERING. Arthur P. Smith, Pipe Stone, Minn. Filed Oct. 23, 1886. (No specimens.)

Claim.—The herein-described composition for soldering, which consists of melted tallow purified with quicklime, white wax, and rosin, substantially in the proportions specified.

354,844. GAS-REGULATOR. James Stott, London, England. Filed Aug. 19, 1886. (No model.) Patented in England May 28, 1886, No. 7,197.

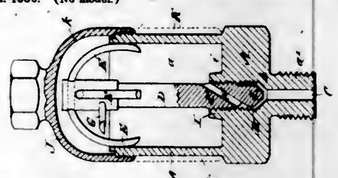


Claim.—1. A gas-regulator consisting of the casing A, having a basin, C, for containing mercury or other sealing liquid, and provided with a depending tube for connecting with a gas-inlet pipe, the bridge-pieces L in the said depending tube, the valve-stem H, having a valve, I, and guided by the bridge-pieces, a dome-shaped float, D, mounted on the valve-stem and dipping in the liquid seal, and provided with a series of orifices, E, a valve-disk, F, centrally journaled and rotatable on the valve-stem, and having orifices G, and a cover, K, having a tube, J, on which the valve of the valve-stem is adapted to seat, substantially as described.

2. A gas-regulator consisting of a casing, A, having a centrally-raised shield, C', forming a basin, C, for mercury or sealing liquid and provided with a depending tube, C², containing the upper and lower bridge-pieces L, the valve-stem H, having a valve, I, and guided by the bridge-pieces, a dome-shaped float, D, mounted on the valve-stem, dipping in the liquid seal, and provided with a series of orifices, E, a valve-disk, F, in contact with the float, centrally journaled and rotatable on the valve-stem, and having orifices G, and a cover, K, having a tube, J, on which the valve of the valve-stem is adapted to seat, substantially as described.

3. The combination, with the vessel A, having the liquid-basin C, the dome-shaped float D, having a series of orifices, E, the cover K, and the valve-stem H, extending through the top of the float and provided at its upper end with a valve, I, of the concaved valve-disk F in contact with the float, having a series of orifices, G, and centrally journaled and rotatable on the valve-stem between the base of the valve and the top surface of the float, substantially as described.

354,845. OIL-CUP. Herman A. Todd, Evanston, Wyo. Filed Aug. 4, 1886. (No model.)



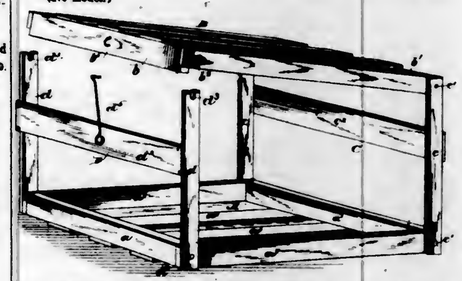
Claim.—1. In an oil-cup, the combination, with the cup-body having a passage for outflow of oil, and a spindle provided with an oilway and screwed into said passage, of arms or springs held to the top of the spindle and bearing on the cup-body to hold and steady the top of the spindle independently of the cap of the oil-cup, substantially as described, for the purposes set forth.

2. The combination, with the oil-cup body A, provided with passages B C and a seat, *b*, of a spindle, D, having an oilway, F, and threaded into passage B, and adapted to close onto seat *b*, and arms or springs, E, fitted to the head of the spindle and bearing on the cup-body, substantially as herein set forth.

3. The combination, with the cup-body A, having an oil-outlet, and a spindle screwed to said outlet and adjustable lengthwise and provided with an oilway, of an index-finger, G, on the spindle, substantially as herein set forth.

4. The combination, with the oil-cup body A, having oil-outlet and a graduated scale, H, of a spindle screwed to said outlet and adjustable lengthwise and provided with an oilway, as at F, and an index-finger, G, substantially as described, for the purposes set forth.

354,846. FOLDING CRATE. Angel W. Walker, Douglass, Mich., assignor of one-half to Charles E. Bird, same place. Filed Oct. 28, 1886. (No model.)

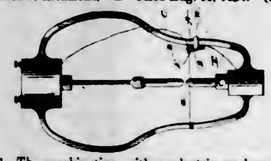


Claim.—1. In a return-crate, the combination, substantially as before set forth, of the bottom, the end sections connected thereto by pivot-bolts, the top connected to one of the end sections by pivot-bolts, and provided with studs arranged to engage notches in the free end section, and a locking device to secure the free end section to the top.

2. In a return-crate, the combination, substantially as before set forth, of the bottom, the end sections, the top having a cross-bar and rabbeted end bars, and a locking device to connect the free end section to the top.

3. The combination, substantially as before set forth, of the bottom having projecting sills, the top provided with a cross-bar and rabbeted end bars, and sills projecting beyond said cross-bar and rabbets, the end sections, and a locking device to secure the free end section to the top.

354,847. CUT-OUT FOR ELECTRIC-ARC LAMPS. Willis C. Walker, West Point, assignor of one-half to George B. McAdams and Rowland Hill, both of Richmond, Va. Filed Aug. 18, 1886. (No model.)

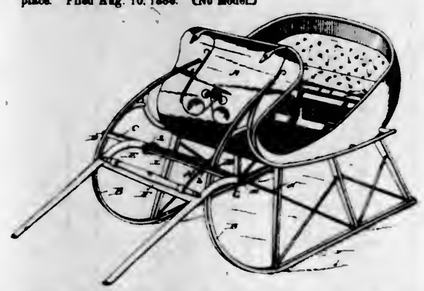


Claim.—1. The combination, with an electric-arc lamp, of an automatic cut-out consisting of a contact-point having connection with the upper-carbon holder, a contact-spring having connection with the lower-carbon holder and located, together with said point, at one side of the lower carbon, and a fusible wire connected to said spring and in an insulated manner to the lamp at the opposite side of said carbon, as and for the purpose set forth.

2. The combination, with an electric-arc lamp, of an automatic cut-out consisting of a contact-point having connection with the upper-carbon holder, a contact-spring having connection with the lower-carbon holder and located, together with said point, at one side of the lower carbon, and a fusible wire connected to said spring and in an insulated manner to the lamp at the opposite side of said carbon, said contact-point, spring, and fusible wire being adapted to vertical adjustment, for the purpose specified.

3. The combination, with an electric-arc lamp, of an automatic cut-out consisting of a bar of vulcanite, spring-clasps secured to opposite edges of said bar, a contact-point at one end of the bar, a contact-spring secured at the other end thereof, a hook upon the free end of said spring, a fusible wire attached to said hook and to the opposite side of the lamp, a conductor from said contact-point to the upper-carbon holder, and a conductor from said spring to the lower-carbon holder.

354,848. SHIFTING THILL-COUPLING. George P. Askin, Detroit Mich., assignor to Charles R. Wilson and Joseph C. Wilson, both of same place. Filed Aug. 10, 1886. (No model.)



Claim.—1. In combination with the draft-bar C, the laterally-movable bar L, to which the thills are pivoted, the clips connecting the bars C L, one of the clips being fixed on bar L and sliding loosely over bar C, and the detent carried by the movable clip in its movements, said detent engaging the draft-bar, as set forth.

2. The combination, with the draft-bar C, arranged between the runners and secured at its ends thereto, of the laterally-movable bar L, connected to bar C, and the thills journaled on bar L, as set forth.

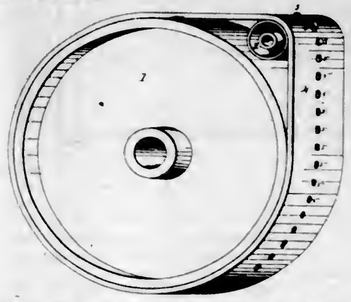
3. The draft-bar C, secured in position, in combination with the laterally-movable bar L, clips connecting bars L C, and detents connected to and carried by the clips and engaging the bar C, as set forth.

4. The combination of the runners and the draft-bar having the threaded ends passed through the runners, thereby bracing the same, the nuts screwed onto the outer threaded ends of the runners, the laterally-movable bar L, the thills pivoted thereto, and the clips connecting the draft-bar and the bar L, substantially as described.

5. The combination of the draft-bar, the clip H secured thereto and having the opening A, the clip I, having the openings *d* and *e*, and the laterally-movable rod L in the remaining openings of clip I and in the opening A of clip H, and the thills hinged to the said rod, substantially as described.

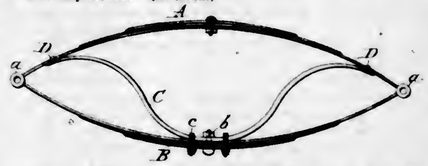
6. The combination, with the draft-bar C, of the laterally-movable bar L, the thills pivoted thereto, and the hinged sectional clips connecting the bars L C together, as set forth.

354,849. BELT-GEARING. Benjamin F. Barnes, Rockford, Ill., assignor to the W. F. & John Barnes Company, same place. Filed Mar. 2, 1886. (No model.)



Claim.—The combination, in a belt-gear train, of an untoothed pulley and a toothed pulley of less diameter than the untoothed pulley, and a perforated belt adapted to receive the teeth of the smaller pulley, substantially as described.

354,850. VEHICLE-SPRING. William T. Beaty, Nashville, Tenn. Filed May 20, 1886. (No model.)

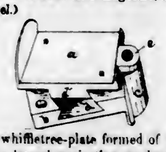


Claim.—1. The combination, with an elliptical spring, of an interposed re-enforcing spring secured to the lower half of the elliptical spring and having its end portions in sliding contact with the upper half of the same, substantially as described.

2. The combination, with an elliptical spring, of an interposed re-enforcing spring secured at its middle portion to the lower half of the elliptical spring and compoundly curved thence to each terminal portion, which portions are in sliding contact with the upper half of the elliptical spring, substantially as described.

3. The combination, with an elliptical spring, of an interposed re-enforcing spring secured at its middle portion to the lower half of the elliptical spring and compoundly curved thence to each terminal portion, said terminal portions being in sliding contact with the upper half of the elliptical spring and being provided with clips which embrace the same, substantially as described.

354,851. WHIFFLETREE-PLATE. George C. Burch, Groton, Conn., assignor of one-half to Roswell S. Edgcomb, same place. Filed Apr. 22, 1886. (No model.)



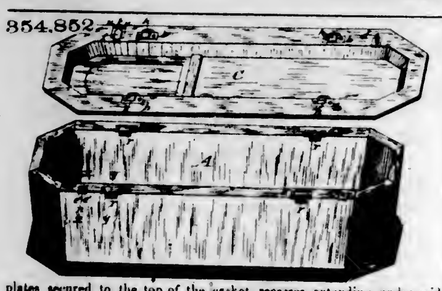
Claim.—1. A whiffletree-plate formed of two companion sections, each provided with a lateral projection, as described, the lower section being counterbored, as described, and the upper sections being formed with a boss adapted to enter said counterbored space, the bearing-surfaces of the two sections being constructed, respectively, with a segmental dovetail groove and a corresponding segmental flange adapted to engage said groove, all being combined with and secured by a suitable bolt, as and for the purpose specified.

2. In combination with a whiffletree-plate formed of two companion sections, each provided with lateral pivotal projections bored and counterbored, as described, a spring located within one of said projections, as described, a bolt adapted to pass through said projections and spring, and a nut for securing the several parts named together, all being substantially as herein described.

354,852. COFFIN. Oscar D. Byers, Syracuse, N. Y. Filed Sept. 25, 1886. (No model.)

Claim.—1. A lid-fastener for burial-caskets, consisting of catch-

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plates secured to the top of the casket, recesses extending under said catch-plates from the outer edge of one wall and from the inner edge of the opposite wall of the casket, and catch-plates secured to the under side of the lid, and having their engaging parts projecting in one and the same direction and adapted to engage the catch-plates on the casket, all constructed and combined to allow the lid to slide in a plane in range with the plane of the top of the casket to and from its closed position, substantially as set forth.

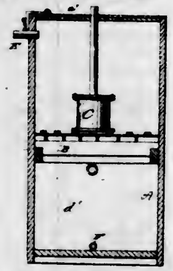
2. The combination, with the burial-casket, of the lid pivoted to swing horizontally thereon, and catch-plates secured, respectively, to the casket and lid, and adapted to interlock with each other in the approach of the lid to its closed position, as set forth and shown.

3. In a casket-lid fastener, the combination of catch-plates secured to the top of the casket, recesses extending under said catch-plates from the outer edge of one wall and from the inner edge of the opposite wall of the casket, the lid pivoted on the casket and adapted to swing in a plane in range with the plane of the top of the casket, and catch-plates secured to the under side of the lid, and having their engaging parts projecting in one and the same direction and adapted to engage the catch-plates on the casket, substantially as described and shown.

4. The combination, with the burial-casket, of the lid pivoted to swing horizontally on said casket, catch-plates secured, respectively, to the top of the casket and to the under side of the lid, and adapted to interlock, with each other simultaneously with the sliding of the lid upon the casket, and a latch for retaining the lid in its closed position, substantially as described and shown.

5. In combination with the casket and its lid, the plate *e*, rigidly secured to the top of the casket-wall, and provided with the lips *e' e'* and intermediate notch, *n*, and the spring-plate *f*, secured at one end to the lid and formed with the tongue *t* and offsets *u u* at opposite sides of said tongue, substantially as described and shown.

354,853. APPARATUS FOR PURIFYING AND AGING LIQUORS AND PURIFYING WATER AND OIL. SAMUEL G. CABELL, Washington, D. C. Filed Apr. 20, 1886. (No model.)



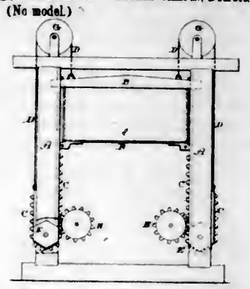
Claim.—1. The combination of a purifying tank or receptacle, a metallic shelf or body of metal arranged a distance above the bottom of said tank, and an electro-magnet, substantially as described.

2. The combination, with a purifying tank or receptacle, of an inlet-pipe leading into said tank some distance above the bottom, an exit-pipe leading from the upper part thereof, a body of metal above the inflow-passage, and an electro-magnet resting on the body of metal, substantially as described.

3. The combination, with a purifying tank or receptacle, of an exit-pipe leading from its upper part, an upwardly-perforated inlet-pipe leading into and across said tank some distance above the bottom thereof, to give an upward current and avoid disturbing the contents at the bottom, and a magnetic separator for precipitating impurities to the bottom of the tank, as specified.

4. The combination of a purifying-tank, a metal diaphragm, an inlet-pipe extending across the tank above the bottom and below the diaphragm, an electro-magnet, and a sight-gage, substantially as described.

354,854. ELEVATOR. THOMAS CRESPIN, Detroit, Mich. Filed Mar. 6, 1886. (No model.)



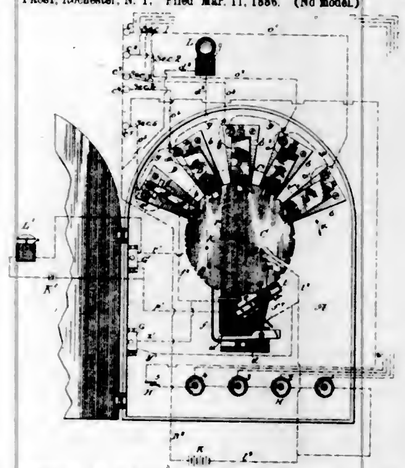
Claim.—1. In an elevator, the combination, with the carriage, of the cables, which are attached to it and pass around suitable guiding-pulleys, with the flexible racks, which are also attached to the carriage and pass around suitable pulleys and are connected to the cables, substantially as shown.

2. The combination of the grooved guides A, the carriage B, the flexible racks C, angular guiding-pulleys E, cables D, pulleys G, and the driving mechanism, substantially as shown and described.

354,855. PURIFYING WATER FOR STEAM-BOILERS. WILHELM FRIEDE, Hamburg, Germany, assignor to Otto J. Meisel and Adolph Herz, both of Terre Haute, Ind. Filed Apr. 21, 1886. (No specimens.)

Claim.—The herein-described composition of matter to be used for dissolving and preventing the formation of scales or incrustation in steam-boilers, consisting of water, catechu, caustic soda, sodium hyposulphite, glycerine, and tanners' bark, in the proportion specified.

354,856. ANNUNCIATOR AND ALARM-SIGNAL. JOSEPH W. FROST, Rochester, N. Y. Filed Mar. 11, 1886. (No model.)



Claim.—1. In an electric-alarm system, the combination, with circuit-controlling mechanism in circuit with receiving apparatus at a distant or central station, of releasing devices for the said circuit-controlling mechanism, and electro-magnetic detent devices therefor, and circuit-controllers located in different sections of a hotel or other structure to be protected, the said circuit-controllers being in circuit with the said electro-magnetic detent devices, substantially as and for the purposes set forth.

2. In an electric-alarm system, the combination of an electric circuit, including, first, a normally-open electric thermostat in the section of a building; secondly, an electric generator; thirdly, a clock-work electro-magnetic releasing device, and, fourthly, an electro-magnetic stopping device and a circuit-breaking wheel in said building, and in an independent signal-circuit normally closed, the said wheel being geared to said clock-work, and the said stopping device being provided for said wheel, substantially as and for the purpose described.

3. In an electric-alarm system, the combination of electric thermostats or similar circuit-closers located at different sections of a structure—such, for instance, as a house or hotel—a circuit-breaking wheel and electro-magnets in circuit, respectively, with said circuit-closers, and provided with armatures adjacent to said wheel, which has a projection

of such length as normally to pass said armatures without touching them, all located in a noticeable position in said building—such, for instance, in the office of a hotel, or upon the outside of the building—and an electric bell or similar signal located at a distant station—such as an engine-house or fire-tower—and in circuit with said circuit-breaking wheel, the said magnets and said signal being in independent circuits, substantially as and for the purpose described.

4. In an electric-alarm system, the combination, with a moving circuit-controlling mechanism provided with a stop or projection and in circuit with receiving apparatus at a distant or central station, of an electro-magnet in a distinct circuit, the armature of said magnet being normally held out of the path of the said stop or projection, but being adapted to be drawn into the path of the said stop or projection when the condition of the magnet-circuit is changed, and the said electro-magnet having in its circuit a circuit-controller, substantially as and for the purpose set forth.

5. In an electric alarm system, the combination of a series of electro-magnets connected respectively by electric conductors with independent systems of alarm devices, a rotating break-wheel formed with notches to correspond in number to the number of said systems, a contact-point for said wheel, a projection of said wheel to encounter the armatures of said magnets, and a current-generating battery, the said alarm devices being located in sections of a building—such as a hotel—and the break-wheel and the other-named elements at any convenient position in or near said building, substantially as and for the purpose described.

6. In an electric-alarm system, the combination of a normally closed electric circuit, including a continuous current-generator, a circuit-breaking wheel provided with notches upon its periphery, a contact-point which presses upon said wheel, and an electric signal, the said notches being of two kinds—the one for giving an attention or warning signal and the other for giving the alarm proper—and a second circuit normally open and including an electric generator, an automatic circuit-closer, an automatic electro-magnetic stop for said wheel, and an automatic electro-magnetic clock-releasing device for said wheel, substantially as and for the purpose set forth.

7. In an electric-alarm system, the combination of a normally-closed electric circuit, including a continuous current-generator and electric signal located at one station, a circuit-breaker located at a second station, a second circuit normally open and containing a second generator, an electro-magnetic releasing device for said circuit-breaker, which is geared to clock-work normally tending to propel said circuit-breaking wheel, an electro-magnetic stopping device for said circuit-breaker, and an automatic circuit-closer located at a third station, and a third circuit located at the said second station and including a second electric signal—such as a bell—and normally open through the said circuit-breaker, and including, also, the said second generator, substantially as and for the purpose described.

8. In an electric-alarm system, the combination of a circuit-breaking wheel provided in the order named with notches for giving an attention-signal, with other notches for giving an alarm indicating a number—such as that of a building—and with still other notches for giving another number—as of a section of said building—an automatic electro-magnetic releasing device for said break-wheel, which is geared to clock-work normally tending to propel said wheel, and an independent electric stopping device for said wheel, both the releasing and stopping devices being located in the same circuit normally open, and the said wheel being in a separate circuit normally closed, substantially as and for the purpose described.

9. In an electric-alarm system, a moving circuit-breaking wheel provided with notches for giving a precautionary alarm, with other notches for giving an alarm indicating a number, and still other notches to indicate a second number, and with a projecting contact-point or electrode for short-circuiting an electro-magnetic device which has an operating connection with a stop for checking the motion of said wheel, the said electrode being in circuit with a movable electrode which has an electro-magnetic operating connection with an electric thermostat, substantially as described.

10. In an electric-alarm system, the combination of a moving circuit-breaking wheel provided with three sets of notches for giving three corresponding and distinct alarms, and with a projection in a normally-open circuit including a circuit-closer, said wheel, and an electro-magnetic stop for said wheel independent of said projection, the said electro-magnetic stop being in a short circuit to said projection, and an electric bell or similar signal located in a circuit normally open through said projection, substantially as and for the purpose described.

11. In an electric-alarm system, the combination of an electric generator, an automatic rotating or moving circuit-breaker, and a stop for said circuit-breaker held to be encountered by a projection thereof, said circuit-breaker and said stop being oppositely electrified by said generator, on account of which, when said projection of the circuit breaker and interrupter meet, a new circuit for the current is formed, substantially as and for the purpose described.

12. In an electric-alarm system, the combination of an electrified rotating break-wheel formed with notches, and a pin or projection, an oppositely-electrified contact point or arm for said break-wheel, by means of which, when said notches pass said point, alarms are given, in combination with a series of stops magnetically operated by separate circuits and provided with said break-wheel, which is held to be encountered by said projection, by means of which said wheel may be interrupted at different stages of its revolution to transmit different signals dependent upon the point at which it is so interrupted, substantially as described.

13. In an electric-alarm system, the combination, with a circuit-breaking wheel and an electro-magnetic releasing device therefor, of a series of electro-magnetic detents for the said wheel, located in independent shunt-circuits, and a series of open-circuit push-buttons, H, one in each of the shunt-circuits, including the electro-magnetic detents, an open-circuit push-button, G, in a shunt around the circuit-breaking wheel, and an open-circuit push-button, G', in a shunt around the electro-magnetic releasing device, whereby the system of circuits can be tested without releasing the circuit-breaking wheel, substantially as described.

14. In combination with the shaft *h* of the electric-circuit-breaking wheel C, an arm or projection, *r*, extending therefrom, and a covering, *a*, over an opening, *v*, supported in slides and normally resting upon said arm, suitable characters or words being located behind said opening, substantially as and for the purpose set forth.

15. The combination, with a circuit-breaking wheel provided with notches to represent a definite signal, and a spring normally in contact with the said wheel, and an unbroken space between the point of contact and the first notch, of an electro-magnetic releasing device for the said wheel, the magnet of the said releasing device being operatively connected with the escapement which controls the movements of the wheel, and being also in circuit with one or more circuit-controllers—such as thermostats—whereby the spring will remain in contact with the wheel for a considerable period, and whereby the signaling mechanism will be operated only by an extended or a permanent change in the condition of the circuit, substantially as set forth.

16. The combination, with a circuit-controlling wheel provided with suitable releasing mechanism and with a series of detents capable of stopping the said wheel at different stages of its progress, of an opening in the casing in front of the said wheel, and an annunciating-disk operated by the movement of the wheel, so as to bring different signs or numbers in line with the said opening, whereby the reading at the said opening will always indicate at what point the progress of the disk has been interrupted, substantially as and for the purpose set forth.

17. In an electric-alarm system, the combination of a moving circuit-breaking wheel provided with two sets of notches for giving two corresponding and distinct signals, and with a projection in a normally-open circuit including a circuit-closer, said wheel, and an electro-magnet stop for said wheel independent of said projection, the said electro-magnet stop being in a short circuit to said projection, and an electric bell or similar signal located in a circuit normally open through said projection, substantially as and for the purpose described.

18. In an electric-alarm system, a moving circuit-controlling mechanism, and electro-magnetic detents located in independent circuits and arranged at different points along the path of the same, said detents being in circuit with a series of circuit-controllers, substantially as and for the purpose set forth.

19. In an electric-alarm system, the combination of a circuit-controlling mechanism, an electro-magnetic stop therefor, sections of a building—such as the floors of a house—and circuit-closers—such as electric thermostats—in said sections and having electrical connections with said stopping devices, said mechanism being in circuit with an electric signal at a distant station—such as at a fire-engine house—substantially as and for the purpose described.

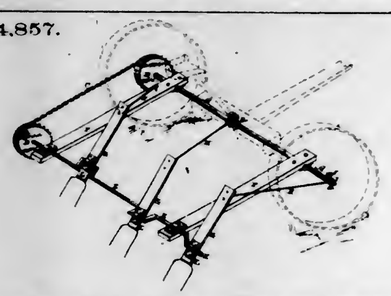
20. In an electric-alarm system, the combination, with a circuit-breaking wheel and an electro-magnetic releasing device therefor, of a series of electro-magnetic detents for the said wheel located in independent shunt-circuits, a series of open-circuit push-buttons, H, one in each of the circuits including the electro-magnetic detents, and an open-circuit push-button, G, in a shunt around the circuit-breaking wheel, whereby the system of circuits can be tested without sending in an alarm, substantially as described.

21. In an electric-alarm system, a moving circuit-controlling mechanism, a releasing device therefor, and a series of detents for the same, by means of which said mechanism can be held or checked at different stages of its progress after release, whereby the same circuit-controller may be made to indicate different signals dependent upon the point where its progress is interrupted, substantially as set forth.

354,857. TEDDER. CYRUS R. FUREY, Logansport, Ind., assignor of three-fourths to J. L. Maurice and Jacob H. Cochley, same place. Filed June 14, 1886. (No model.)

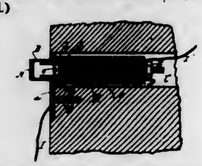
Claim.—The combination of the axle A, provided with the driving-wheel B, and having the sleeve *a* and cap I attached thereto, the timbers F, loosely fastened to the axle at their front ends, the crank-shaft E, journaled on the rear ends of these timbers and provided with a wheel, D, the operating-chain C, the forks placed upon the cranks of the axle,

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the connecting-rods H, two of which are fastened at their front ends to the sleeve and cap on the axle and the other to one of the timbers F, the forks being arranged to operate directly in the rear of the axle, so as to scatter the preceding swath cut by the mowing-machine, substantially as shown.

354,858. ELECTRIC-CIRCUIT CLOSER. JOHN GEARY, Philadelphia, Pa., assignor of one-half to J. Elliott Shaw, same place. Filed Aug. 30, 1886. (No model.)



Claim.—1. In a door-spring for electric burglar-alarms or a make-and-break device, the combination of a barrel or cylinder, A, a sliding tube, B, therein, and a screw or contact-piece, C, with which said tube contacts or forms circuit in one position, substantially as shown and described.

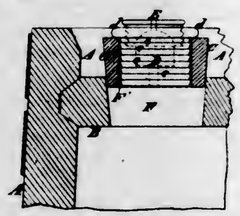
2. In a door-spring or make and break for electric circuits, the combination, with a cylinder or barrel, A, and a screw, C, of a tube, B, having slotted sides or walls forming springs which bear against the barrel or cylinder, and a bottom, *b*, which contacts or forms circuit with the screw-head when said tube is in one position, substantially as shown and described.

3. In a door-spring or make and break for an electric circuit, the combination, with a barrel or cylinder, A, and a screw, C, having a beveled head, of an interposed sliding tube, B, having an inclined bottom with an opening through which said screw passes, and having slotted sides, said screw-head contacting or forming circuit with the said bottom when the tube is in one position only, substantially as shown and described.

4. In a door-spring or make and break for electric circuits, the combination of barrel A, sliding tube B, screw C, insulating-plug D, spring E, and insulating-washer *f*, said parts being adapted and designed for operation substantially as shown and described.

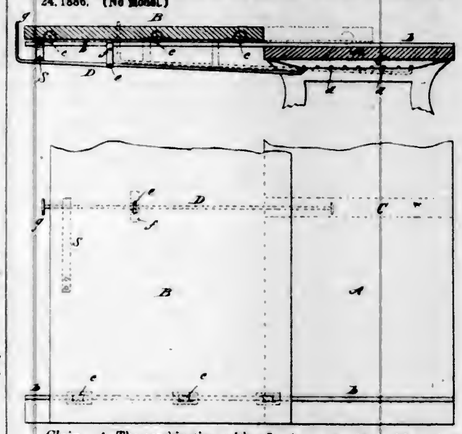
5. In a door-spring or make and break for electric circuits, the combination, with a barrel, A, and screw or contact piece C, of a sliding tube, B, having a bottom, *b*, with which the head of said screw located in said tube contacts or forms circuit, the latter having its outer end closed by a plug, H, substantially as shown and described.

354,859. BUNG. MOTT G. GILLETTE, New York, N. Y. Filed Apr. 28, 1886. (No model.)



Claim.—A vent or tap-hole bung constructed of a metallic portion inserted into the softer portion constituting the bush of said metallic portion, the metallic portion being formed with threads *e* upon its body, and the flange *d*, for the engagement of the softer bush portion when the whole is driven into the bung-hole of a cask, substantially as and for the purposes herein specified.

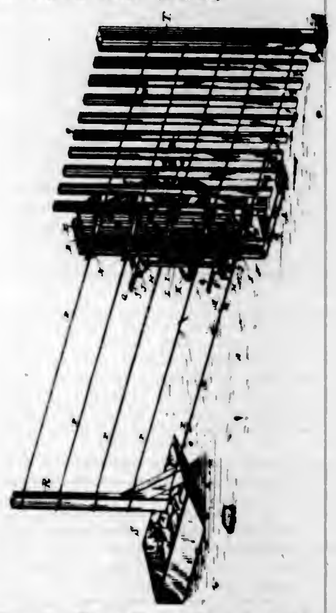
354,860. ADJUSTABLE SEAT FOR VEHICLES. MICHEL GUIOT, Paris, France, assignor to Henley & Co., New York, N. Y. Filed Apr. 24, 1886. (No model.)



Claim.—1. The combination, with a fixed seat provided with tracks upon its end portions and projecting therefrom, of a movable seat provided with rollers and mounted upon the said tracks, substantially as described, whereby the said movable seat can be adjusted to or from and over the fixed seat, as set forth.

2. The combination, with the fixed seat A, provided with the tracks *b* on its upper surface and projecting therefrom, and the notched block C on its under surface, of the movable seat B, provided with the rollers *c*, the lever-catch D, pivoted to the under side of the movable seat, and the spring S, secured to the under side of the movable seat and engaging the lever-catch D, substantially as herein shown and described.

354,861. FENCE-MAKING MACHINE. FRANK GULLING, Maxine, Ohio. Filed June 19, 1886. (No model.)



Claim.—1. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which move the twisters away from the picket, the spring-stop in front of the twisters against which the picket is forced by said sliding bar or bars and means for adjusting the tension of said spring-stop, substantially as set forth.

2. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which move the twisters away from the pickets, the stop in front of the twisters against which the picket is forced, and means, substantially as described, for adjusting said stop toward and from the twisters, whereby the distance between the pickets may be varied, substantially as set forth.

3. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars, and the stops separate from each other, arranged in a vertical series in front of the twisters, and against which the picket is forced, substantially as set forth.

4. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which force the twisters away from the pickets, the spring-stops separate from each other, arranged in front of the twisters, and against which the picket is forced, and devices for adjusting the tension of said spring-stops independently one of the other, substantially as set forth.

5. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which separate the pickets from the twisters, and the stops in a vertical series separate from each other and separately adjustable toward and from the twisters, substantially as set forth.

6. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which force the twisters away from the pickets, stops consisting of arms extending in front of the twisters and having their outer ends approaching each other, and means for adjusting the outer ends of said arms toward and from each other, substantially as set forth.

7. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which separate the pickets from the twisters, stops consisting of arms extending in front of the twisters and having their outer ends approaching each other, and means, substantially such as described, for independently adjusting the outer ends of the arms of the several stops toward or from each other at different points relatively to the length of the picket, substantially as set forth.

8. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which separate the pickets from the twisters, a series of independent stops arranged in front of the twisters, and consisting each of a pair of arms the outer ends of which approach other, and means, substantially as described, for adjusting the outer ends of said pairs of arms toward and from each other independently, as set forth.

9. The combination of the supporting-frame, the wire-twisters, the sliding bar or bars which separate the pickets from the twisters, stops arranged in front of the twisters, and consisting of the arms N, securely attached at their rear ends to the main frame and adjustably connected to the main frame at a point between their ends, whereby the front ends of said arms may be adjusted toward and from each other, substantially as set forth.

10. In a fence-making machine, the combination of the main frame, the twisters, the sliding bars G, which separate the pickets from the twisters, provided at their rear ends with racks *g*, pinions which gear with said racks, the shaft I, on which said pinions are mounted, bevel-wheels K L, shaft *l*, extending to one side of the machine, and the crank *l'*, for operating said shaft *l*, substantially as set forth.

11. In a fence-making machine, the combination of the main frame, the twisters, the wheels by which said twisters are rotated, the crank *e'*, for operating said wheels, situated at one side of the machine, the sliding bar or bars which separate the pickets from the twisters, devices, substantially as described, for reciprocating said bars, and a crank for operating said devices, situated on the same side of the machine, as crank *e'*, substantially as set forth.

354,862. SCRAPER. JAMES HOCKING, Denton, Nebr. Filed Apr. 7, 1886. (No model.)

Claim.—1. In a scraper, the friction-wheel D, attached to the driving-wheel C, the friction-wheel M, and the sprocket-wheels K' K^2, mounted in the frame L, fulcrumed on the shaft K, and the chain K^2, in combination with sprocket I' and chain J on the cutting-drum, the frame L, the link L', the crank-arm L^2, the foot-lever L^4, and the spring L^5, substantially as shown and described.

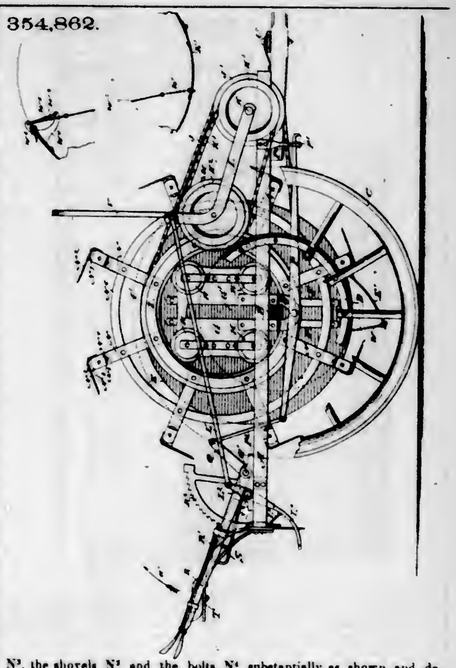
2. In a scraper, the friction-wheel D, attached to the driving-wheel C, the friction-wheel M, and the sprocket-wheel K^2, both mounted on the frame L, the frame L, fulcrumed on the shaft K, the sprocket-wheel K', the chain K^2, and the shaft K, in combination with the sprocket-wheel J', mounted on the shaft K, the chain J, and the sprocket-wheel I', attached to the shovel-frame I, substantially as shown and described.

3. In a scraper, the shovel-frame I, the arms N, the adjustable cross-bars N', and the shovels N^3, in combination with the roller-frame G, carrying the rollers H, the braces O, the arm P, fulcrumed on the roller P', the link P^2, the crank-arm Q, attached to the shaft Q', and the hand-lever R^2, substantially as shown and described.

4. In a scraper, the frame A, the axle B, and the drum E, open at the top, provided with the hinged door E' at the bottom, and having the guide-strips F, in combination with the adjustable roller-frame G, the shovel-frame I, the arms N, the adjustable cross-bars N', and the shovels N^3, substantially as shown and described.

5. In a scraper, the combination of the shovel-frame I, and the arms N, having the slots N^5, with the cross-bars N', having the arms

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N^3, the shovels N^3, and the bolts N^4, substantially as shown and described.

6. In a scraper, the adjustable roller-frame G, carrying the rollers H, the shovel-frame I, the sprocket-wheels I' and J', connected by the chain J, and the shaft K, in combination with the sprocket-wheels K' and K^2, connected with each other by the chain K^2, the frame L, the friction-wheel M, the link L', the crank-arm L^2, the foot-lever L^4, and the spring L^5, substantially as shown and described.

7. The combination, with a frame, an axle and supporting-wheels, and a receiving-drum mounted thereon, of a vertically-adjustable roller-frame, a shovel-frame mounted to revolve on the roller-frame, and means for revolving the shovel-frame, substantially as shown and described.

354,863. DENTAL FORCEPS. FRANK G. HUGHES, Galt, Ontario, Canada, assignor to James W. Ward, same place. Filed Dec. 10, 1885. Renewed Nov. 9, 1886. (No model.)



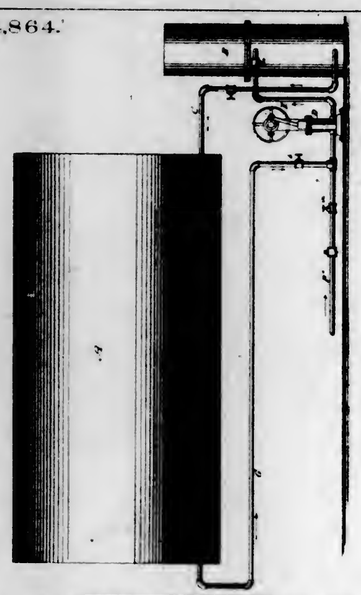
Claim.—1. The combination, with a pair of forceps, of a beak projecting inwardly from one arm thereof and hollow ground, the other arm having an inturned end having a ball-shaped bead, a convexo-convex disk having the head, and a washer, C, for the purpose set forth.

2. In forceps, the combination, with the part B, turned inwardly and formed with a ball-shaped head, of the convexo-convex disk having a socket to receive the head, and a washer, C, as and for the purpose set forth.

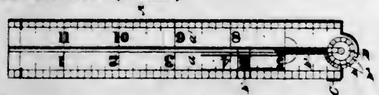
354,864. WATER-CLEANER FOR BOILERS. JOHN W. HYATT, Newark, N. J. Filed Sept. 7, 1885. (No model.)

Claim.—The combination, with the steam-boiler A and the filter B, having its outlet connected with the boiler, of the pump D, having its outlet E connected with the filter B and its inlet connected by the separate pipes F and G, respectively, with a feed-water supply and the water-space in the boiler, the pipes F and G being provided with the stop-cocks *a* and *b*, and the whole being arranged and operated for the pump to replenish the water in the boiler when evaporated, or to circulate the boiler-fluid through the filter, or to feed the boiler and circulate the boiler-fluid through the filter simultaneously, as and for the purpose set forth.

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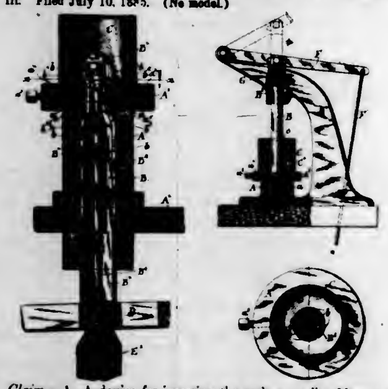
354,865. POCKET-RULE. WILLIAM H. JONES, Montreal, Quebec, Canada, assignor of three-fourths to George Alexander Gray, same place. Filed Feb. 24, 1886. (No model.)



Claim.—1. A combined pocket rule and square having two or more sections, as *a a'*, hinged together, as at B, one section being rigid and the other having a sub-hinge, as *b'*, and means for locking said sections at an angle to each other, as and for the purpose set forth.

2. The combination, in a pocket rule and T-square having two or more jointed arms or sections, of an intermediate hinge, as *b'*, to permit one arm to fold upon itself, a pivoted plate or clip, a hinge, as B, having notches b^2, and a locking-slide, as and for the purpose set forth.

354,866. BOX-MAKING MACHINE. MARK D. KNOWLTON, Chicago, Ill. Filed July 10, 1885. (No model.)



Claim.—1. A device for inserting the ends or walls of boxes, comprising two coacting bending-dies, one of which is made concave upon its working-face, and a support or guide, as *a'*, for sustaining the box-body in a desired position relatively to the box ends, substantially as described

2. In a device for inserting ends or walls of boxes, the combination, with a movable plunger, of a stationary die or support having a concave working-face and provided with a guide or support, *a'*, for the tubular part of the box, substantially as and for the purpose set forth.

3. The combination, with a centrally-open die or support, A, of a movable part or plunger passing through the die, and provided with means, substantially as described, for engaging the margins of the orifice in a box end, substantially as set forth.

4. The combination, with a centrally-open die or support, A, of a movable part or plunger, B, provided with radially-movable parts having surfaces or shoulders adapted to engage the margins of the orifice in a box end, substantially as and for the purpose set forth.

5. The combination, with a centrally-open die or support, A, of a movable part or plunger, B, provided with radially-movable parts having surfaces or shoulders *b*, means, substantially as described, for actuating the said movable parts of the plunger, and means, substantially as described, for moving the plunger, substantially as set forth.

6. The combination, with a centrally-open support or die, A, of a movable plunger, B, provided with radially-movable spring-fingers *b*, having surfaces or shoulders *b'*, adapted to engage the margins of an orifice in a box end, substantially as described.

7. The combination, with a centrally-open support or die, A, of a movable plunger, B, provided with spring-fingers *b*, having shoulders *b'*, and a longitudinally-movable rod provided with an enlarged portion, B^3, adapted to engage and throw outwardly the said fingers, substantially as described.

8. The combination, with a centrally-open die or support, A, of a plunger, B, provided with spring-fingers *b*, having shoulders *b'*, a spring applied to move the plunger bodily in one direction, and a longitudinally-movable rod provided with an enlarged part, B^3, adapted to engage and throw outwardly the fingers, and also with a projecting part or stop adapted to engage a part of the plunger, whereby both the fingers *b* and the plunger are actuated by the movements of the rod, substantially as described.

9. The combination, with a centrally-open support or die provided with an inner cylindric bearing-surface, of a plunger comprising a tube, B', constructed to slide in the support A, and having spring-fingers *b*, and a longitudinally-movable rod, B^2, passing through the tube B', and provided with an enlarged part, B^3, constructed to engage and throw outwardly the fingers, substantially as described.

10. The combination, with a centrally-open support or die, A, of a plunger, B, comprising a tube, B', provided with fingers *b*, and a rod, B^2, passing through the tube and provided with an enlarged part, B^3, constructed to engage and throw outwardly the fingers, and with a projection or stop, as B^4, constructed to engage a part of the tube, a spring-actuated lever, D, located in contact with the lower end of the tube, and a lever, E, connected with the rod for actuating the latter, substantially as described.

11. The combination, with a die or support, A, having a concave working-face, and a plunger, B, of an adjustable part, A^3, provided with a surface, *a'*, forming a rest or support for a tubular box-body, substantially as and for the purpose set forth.

12. The combination, with a die or support, A, having a concave working-face and made cylindric upon its outer surface, and a plunger, B, of a ring, A^3, fitted to the said outer surface of the support, and means, substantially as described, for clamping the said ring in place, substantially as and for the purpose set forth.

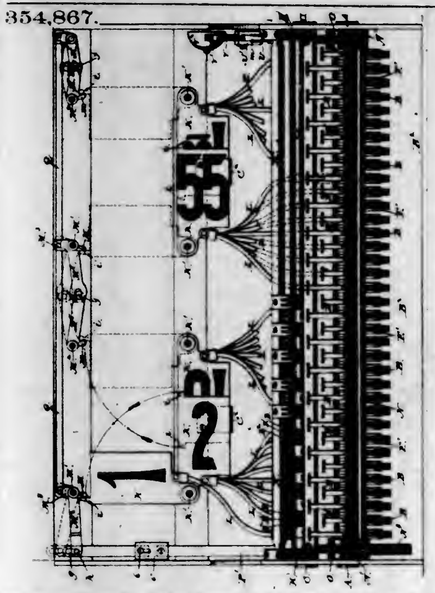
354,867. CASH-REGISTER. WILLIAM KOCH, New York, N. Y. Filed Feb. 5, 1886. (No model.)

Claim.—1. The combination, in a registering and indicating machine, of a series of pivoted keys, two parallel axial rods, one above the other, a series of tablets pivoted upon the lower rod to drop automatically into a horizontal position, a swinging catch-plate mounted to vibrate upon the upper rod to engage each tablet when thrown up, and connecting mechanism, substantially as described, whereby upon depressing any one key to its farthest limit a tablet bearing a number corresponding in value to that of said key is swung upward into a vertical position and caught by the catch-plate, and there held while the key returns to its normal position, and upon thereafter depressing the same or any other key in the series its first movement will operate to release the tablet, substantially in the manner and for the purpose herein set forth.

2. The combination, with a series of pivoted key-levers in a registering and indicating machine, of a series of tablets pivoted to swing at a right angle to the said key-levers, and coupling devices, substantially as described, whereby the inner end of each key-lever is connected to a tablet bearing a number corresponding in value to that of the key, and a depression of the key shall cause the tablet to swing up from a horizontal to a vertical position, substantially in the manner and for the purpose set forth.

3. The combination, with a series of key-levers and keys, and registering mechanism actuated thereby, of a series of tablets pivoted eccentrically upon a common axial shaft at a right angle to the axis of the keys, an offset or lug upon the upper end of each tablet, a slotted rod coupling each key-lever with a tablet in manner so that the movement of the key to operate the registering mechanism shall swing up the tablet into a vertical position and leave it there, when the key-lever returns to its first position, and a pivoted catch-plate pivoted above the tablets,

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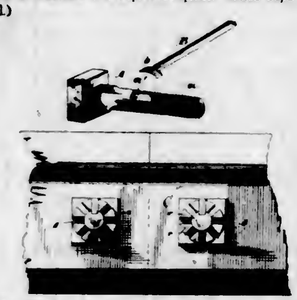
and governed, substantially in manner as described, to swing freely in one direction, and thereby permit the catch-lug or offset upon each tablet to pass freely under its lower edge, but prevent its automatic return, substantially in the manner and for the purpose herein set forth.

4. The combination, in a registering and indicating machine, with a series of key-levers or keys, a series of tablets pivoted to swing in a plane at right angles to the length of the key-levers, devices, substantially as described, for coupling each key to a tablet bearing a number corresponding to the value of the key, whereby the depression of the key operates to swing up the tablet from a horizontal to a vertical position and leave it there, and a catch-plate pivoted above the tablets in position to yield automatically and allow an offset upon the upper end of each tablet to pass under it when the tablet is carried forward, but prevent its automatic return, of a vertically-moving rod, a slotted arm projecting radially from the swinging catch-plate at a right angle thereto, a pin in the end of said arm engaging a slot in the upper end of the vertical rod, a bar upheld transversely under and against the outer ends of the entire series of key-levers, upon arms pivoted upon the axial shaft of said lever, one or more springs upholding the bar, an extension of one of said arms projecting under the end of the vertical rod, a tripping-dog pivoted to the end of said extended arm to engage the lower end of the vertical bar, and a pin fixed in position to trip the dog and disengage it from the bar when the latter has been lifted, and thereby permit a further independent movement thereof, whereby the first movement of any one key when depressed will lift the vertical rod sufficiently to swing the catch-plate clear of the offset on the uplifted tablet, and allow the tablet to drop and the catch-plate to return to its normal position before the movement of the key is completed, substantially in the manner and for the purpose herein set forth.

5. In a registering and indicating machine, the combination, with the key-levers and registering mechanism actuated thereby, and with a series of tablets severally coupled to the key-levers and arranged in sets, each set embracing two or more tablets pivoted to swing and drop automatically toward each other at a right angle to the axis of the key-levers, and into a horizontal interfolding position, a catch-plate pivoted over each set to automatically engage and retain each tablet therein when swung up, and mechanism, substantially as described, whereby the first movement in the depression of any one key-lever is made to move the first catch-plate, so as to produce a release of the tablet upheld thereby, of a coupling-bar connecting a radial arm upon the axial shaft of said first catch-plate with a similar arm upon the pivotal axis of each catch-plate, whose movement in the same direction will release the tablets upheld thereby, and radial arms projecting from the pivotal axis of these connected plates to interlock with similar arms projecting from the pivotal axes of the remaining catch-plates, whereby all the catch-plates are swung simultaneously by the depression of any one key each in the proper direction to release a tablet upheld by either of them, all substantially in the manner and for the purpose herein set forth.

6. The combination, in a registering and indicating machine, of a series of keys, an oscillating plate pivoted to turn upon a longitudinal axis proximate to the edge thereof and parallel with the inner ends of the key-levers, a stop or stops limiting the movement of the plate, but permitting it to drop automatically into a position inclined toward the keys, with its free edge in range to be struck and uplifted by each key-lever as it is about to finish its complete movement, a gong, a spring-actuated hammer for striking the same, a dog pivoted to an extension of the hammer-arm below its pivot, and a tripping-arm fixed to the oscillating plate and adapted to bear against the dog, so as to carry back the hammer as the free edge of the plate is lifted by a key, slip off the end of the dog and release the hammer as the plate completes its movement, and trip the dog to pass back under it as the plate drops back to its first position, all substantially in the manner and for the purpose herein set forth.

354,868. NUT-LOCK. LEROY B. LOWMAN, Kempton, Ind., assignor of one-half to Jefferson P. Kemp, same place. Filed Sept. 9, 1886. (No model.)



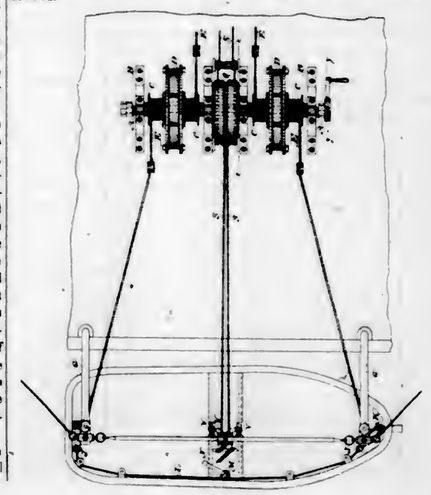
Claim.—The combination, substantially as before set forth, of the threaded bolt provided with a longitudinal groove terminating at its inner end in a transverse groove cut across the surface of the bolt-shank, a key terminating at its inner end in a cross-head shaped to snugly fit the transverse groove in the bolt-shank, and a nut having its outer face grooved radially to receive the outer end of the key.

354,869. BOAT-LOWERING APPARATUS. ERNST MÜHL, Philadelphia, Pa. Filed June 22, 1886. (No model.)

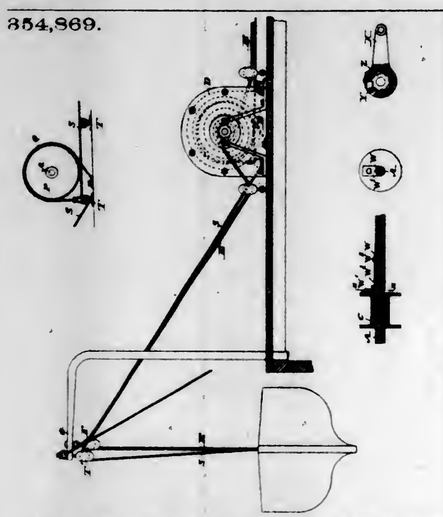
Claim.—1. In a boat-lowering apparatus, the sectional shaft A, with pulleys C mounted thereon, and having spring D, the ropes E, secured to said pulleys C and passing around blocks F, and the davits G, combined and operated substantially as described.

2. In a boat-lowering apparatus, the rotary shaft A, having pulleys P mounted thereon, the frictional straps Q, having one end secured to the deck and the other end connected to ropes S, pulleys T, secured to the deck, pulleys T', secured to the davits G, the tubes U, and rods V, secured to the boat, said parts being combined and operated substantially as described.

3. In a boat-lowering apparatus, the rotary shaft A, in combination with pulley C, mounted thereon, the sliding keys W, extending longitudinally along said shaft, and the catch W', fitted to the end of the pulley and adapted to engage the key W, all substantially as described.

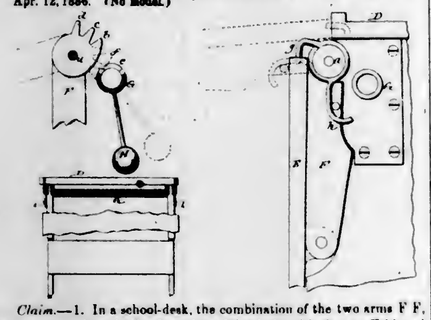


354,869.



4. In a boat-lowering apparatus, the sectional shaft A, having bearings B, the pulleys C, mounted loosely on each section of the said shaft and provided with catches W', and the sliding keys W, adapted to engage said catch W', all combined and arranged whereby the apparatus is adapted for opposite sides of the ship, substantially as described.

354,870. SCHOOL-DESK. GEORGE MUSSER, East River, Conn. Filed Apr. 12, 1886. (No model.)

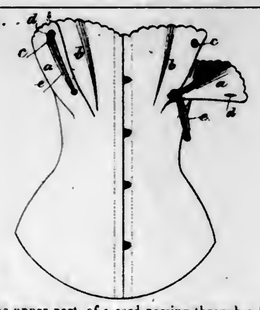


Claim.—1. In a school-desk, the combination of the two arms F F, hung by one end to the fixed portion of the desk, with the top E hinged to the free end of said arms, and hooks *g h*, hung upon the same axis with the said arms, and so as to rotate in a plane at right angles to said axis, the rear edge of the said top having a recess into which the noses of said hooks may enter to hold the top in predetermined positions, substantially as described.

2. In a school-desk, the combination of the arms F F, hung by one end to the fixed portion of the desk, with the top E hinged to the free end of the said arms, and a shaft, G, parallel with the axis upon which the said arms are hung, the said arms at their hub constructed with teeth, the said shaft constructed with a recess, forming a shoulder, *f*, in the path of said teeth, the said shaft having a counter-balance, substantially as described, and whereby in the raising of the said arm the teeth on the arm, coming in contact with said shoulder, will impart a partial rotation to said shaft, and the counter-balance return the said shaft after said shoulder shall have escaped from the teeth so turning it, substantially as described.

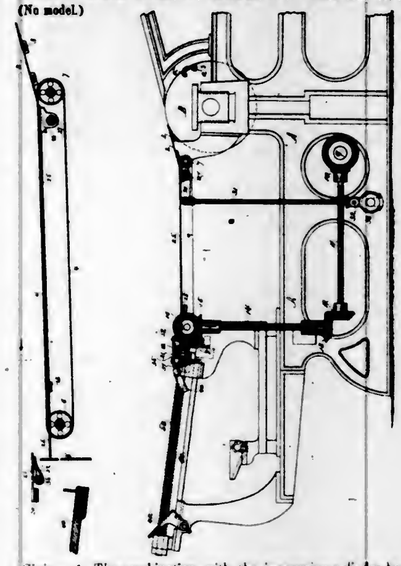
3. In a school-desk, the combination of the two arms F F, hung by one end to the fixed portion of the desk, with the top E hinged to the free end of the said arms, and the mechanism, substantially such as described, to engage said arms and hold them at the desired elevation, with hooks *g*, hung upon the axis of the arms, adapted to engage corresponding recesses in the rear edge of the top, substantially as described.

354,871. CORSET. ALBERT OTTENHEIMER, Stuttgart, Germany, assignor to Ottenheimer Brothers, New York, N. Y. Filed June 28, 1886. (No model.)



Claim.—The combination, with a corset-bosom having two flaps, one lapping upon the other, and a button and button-hole for connecting the flaps at the upper part, of a cord passing through a hole in the outer flap near the middle part of the edge of the same, and connected at its ends to the inner flap, and adapted to pass over the button when the parts have been buttoned together, substantially as set forth.

354,872. SHEET-DELIVERY APPARATUS FOR PRINTING-MACHINES. CHARLES POTTER, Jr., Plainfield, N. J. Filed Mar. 29, 1886. (No model.)



Claim.—1. The combination, with the impression-cylinder having grippers and throw-off fingers, of the stationary inclined slats down which the sheet is passed, the conveying tapes or belts 4, the lifter-bars for raising the sheet off the belts, and the grippers for grasping and conveying away the sheet, substantially as set forth.

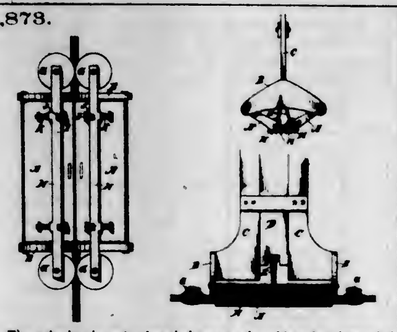
2. The combination, with the impression-cylinder, of the delivery tapes or belts, the lifter-bars between such belts, the rocker-shaft to which such lifters are connected, the arm and cam for moving the rocker-shaft, a fence to arrest the movement of the sheet, gripper-fingers, and a shaft and bar and mechanism, substantially as set forth, for moving the gripper-bar and carrying the sheet to the delivery-table, substantially as set forth.

3. The combination, with the delivery-belts and pulleys, of the lifting-bars, the rocker-shaft, the fence, the gripper-bar and grippers and mechanism for giving motion to the same, the switch for opening the grippers and then allowing them to close and seize the sheet, and the incline for opening the grippers and delivering the sheet, substantially as set forth.

354,873. RAILWAY-CABLE GRIP. CAIUS T. RYLAND, Jr., San José, Cal. Filed Oct. 13, 1886. (No model.)

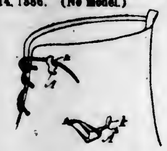
Claim.—1. The gripping-jaws having their edges parallel with and in proximity to the traveling cable, and having their outer edges hinged or journaled in a frame-work, so that the jaws may swing around in the arc of a circle to drop or grip the cable, in combination with a vertically-sliding shank moving in guides, and the links by which said shank is connected with the inner edges of the gripping-jaws, substantially as herein described.

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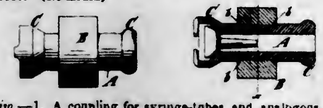
2. The gripping-jaws having their outer edges hinged or journaled in a frame-work, so that the jaws may swing in the arc of a circle, and a grip-shank connected with said jaws, so as to cause them to grip or release the cable, in combination with the flanged rollers or pulleys journaled upon the opposite ends of the transversely slotted bars, the guide-pins on which the bars move to and from the cable, and the springs pressing upon the outer edges of the bars, substantially as herein described.

354,874. LACE-FASTENING FOR SHOES. CHARLES A. SULLIVAN, Windsor, Ontario, Canada, assignor of one-half to Edward H. Potter, same place. Filed Oct. 14, 1886. (No model.)



Claim.—As an improved article of manufacture, the fastener described, consisting of a metal plate, A, comprising in a single element the prongs *a* and the arm *b*, bent in the same general direction as said prongs and provided with concavity *c*, substantially as described, and for the purpose specified.

354,875. SYRINGE-TUBE COUPLING. BENJAMIN F. SUTTON, Brooklyn, assignor to Parker, Stearns & Sutton, New York, N. Y. Filed Sept. 20, 1886. (No model.)



Claim.—1. A coupling for syringe-tubes and analogous purposes, consisting of the tubular portion A, formed in one piece from end to end, and the ends of which are adapted to enter the tubes, and a central collar, B, made separate from and surrounding the portion A, and against which the tubes may abut, substantially as herein described.

2. A metallic coupling for syringe-tubes and analogous purposes, having end portions for entering the tubes, and a collar of hard india-rubber made separate from and surrounding the coupling, substantially as herein described.

3. A coupling for syringe-tubes and analogous purposes, having end portions for entering the tubes, and a collar made separate from and surrounding the coupling and confined lengthwise thereon by shoulders, substantially as herein described.

354,876. DEVICE FOR CUTTING, CARVING, AND FLUTING BONE, HORN, &c. JOHN SWEENY, Salisbury, Conn. Filed Aug. 13, 1886. (No model.)

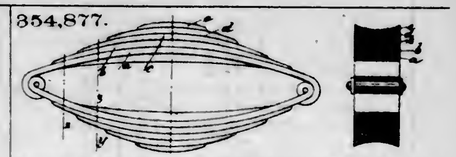


Claim.—In a device for cutting, carving, and fluting, the combination of the tool having a series of cutting-sections of dissimilar ends, the recess formed between said sections, and the guide-bar having a curved or waved portion, said recesses being adapted to receive the guide-bar, substantially as shown and described.

354,877. VEHICLE-SPRING. CHARLES H. TWIST, New York, N. Y. Filed May 20, 1886. (No model.)

Claim.—1. A vehicle-spring having one or more leaves which are

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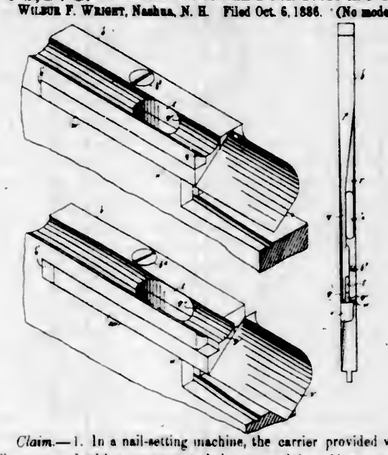


concavo-convex in cross-section midway between the ends, the same being made to taper toward the ends from a concavo-convex surface to a flat surface, and the ends whereof are flat, substantially as and for the purpose set forth.

2. In a vehicle-spring, a leaf made plano-concave in cross-section midway between the ends, the concave surface whereof is made to taper into a flat surface, the ends of such leaf being made flat, substantially as described.

3. A vehicle-spring having its longest leaf made flat, and a leaf above the same made plano-concave in cross-section midway between the ends, the concave surface of said leaf being made to taper into a flat surface at the ends, substantially as described.

354,878. NAIL-SETTING MACHINE FOR BOOTS AND SHOES. WILBUR F. WRIGHT, Nashua, N. H. Filed Oct. 6, 1886. (No model.)

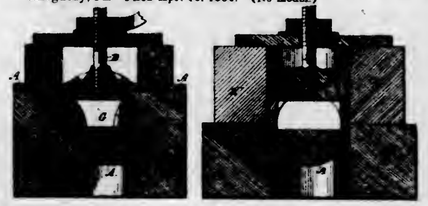


Claim.—1. In a nail-setting machine, the carrier provided with a nail-groove and with a quarter-turn hole arranged in said groove and adjustable in length by means substantially as described, to adapt it to operate upon nails of different lengths, substantially as and for the purpose specified.

2. The carrier provided with a quarter-turn hole, said carrier consisting of the combination of the body of the carrier and a slide adapted to move in said body, said quarter-turn hole being formed partly in said body and partly in said slide, whereby the length of said quarter-turn hole may be varied by the movement of said slide, said quarter-turn hole being arranged in a nail-guiding groove which is continuous in said body and said slide, as and for the purpose specified.

3. The combination of the body of the carrier provided with a mortise, and the slide provided with a tenon to enter said mortise, and with a longitudinal slot, and a screw turning in said body and passing through said mortise and through said slot in said slide, to allow said slide to be adjusted when said screw is loosened, and to contract said mortise to prevent said slide from moving when said screw is tightened, said body and slide being provided with a continuous nail-groove, and with a continuous quarter-turn hole arranged at the bottom of said nail-groove and formed partly in said body and partly in said slide, to vary the length of said quarter-turn hole, and to adapt said carrier to be used with nails of different lengths, as and for the purpose specified.

354,879. MANUFACTURE OF PIPE-FITTINGS. FRED E. YOUNGS, Allegheny, Pa. Filed Apr. 10, 1886. (No model.)



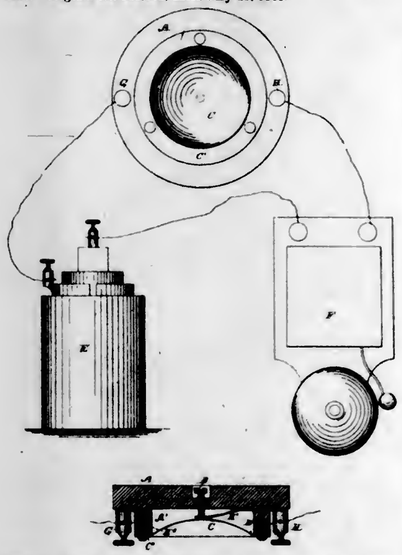
Claim.—1. In an apparatus for forming openings or T's in pipes, a cone provided with a ridge and flattened sides, in combination with the rod connected thereto and a means for drawing the cone through the side of the pipe, substantially as described.

2. The combination of a mandrel, which is placed in the pipe and provided with a recess to receive the cone, a cone, and the rod by means of which the cone is drawn through the side of the pipe, substantially as specified.

3. The process herein described of heating the metal of the pipe around the opening which is made therein and then chilling portions previous to the operation of drawing the cone through the side of the pipe at the heated portion, substantially as set forth.

REISSUES.

10,791. ELECTRIC FIRE-ALARM OR THERMOSTAT. CHARLES E. KELLS, Jr., New Orleans, La., assignor, by mesne assignments, to the National Automatic Fire Alarm Company, of New York. Filed Aug. 26, 1886. Original No. 322,612, dated July 21, 1885.



Claim.—1. The combination of a thermostatic expanding plate or solid body, and a support or frame in which said body is confined at opposite edges against expansion, and the electrodes or terminals of an electric circuit operated by the lateral bulging caused by the expansion of the thermostatic body.

2. The combination of a thermostatic expanding plate or solid body which is expanded by the direct action of the heat upon it, a frame or support in which said thermostatic body is mounted in such manner as to form a side or portion of an inclosed or dust-proof chamber between the frame and the thermostatic body, and the electrodes of the electric circuit placed within said closed dust-proof chamber.

3. The combination of the expanding thermostatic disk or plate which is expanded by the direct action of the heat upon it, a frame or support in which said plate is secured in such manner that its expanding portion is directly exposed to the atmosphere, and the circuit-electrodes inclosed in a dust-proof chamber between said disk and frame.

4. The combination of the expanding thermostatic disk or plate which is expanded by the direct action of the heat upon it, formed with a flat portion at opposite sides for securing it to the thermostatic frame, and an intermediate concavo-convex portion.

5. In a thermostat, an expanding thermostatic metallic circular plate which is expanded by the direct action of the heat upon it, formed with an annular flat rim, and an intermediate concavo-convex portion, in combination with a support or frame and the terminals of an electric circuit.

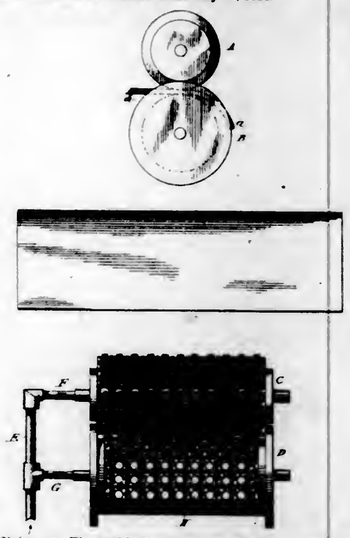
6. The combination of a supporting-frame, a concavo-convex expanding thermostatic diaphragm or disk which is expanded by the direct action of the heat upon it, rigidly connected therewith near its opposite edges, and an electric circuit having electrodes operated by the expansion of the diaphragm.

7. The combination of a circular expanding thermostatic disk or diaphragm which is expanded by the direct action of the heat upon it, the supporting-frame in which said diaphragm is rigidly connected around its edge, and the terminals of the electric circuit.

8. The combination, substantially as herein set forth, of the unyielding non-conducting frame, the concavo-convex metallic diaphragm rigidly connected therewith near its edge, constituting one electrode of an electric circuit, and an adjustable contact-point constituting another electrode thereof, to complete the circuit by the direct expansion of the diaphragm when exposed to a high temperature.

9. The combination, substantially as herein set forth, of the unyielding non-conducting frame, the concavo convex metallic diaphragm rigidly connected therewith near its edge, constituting one electrode of an electric circuit, an adjustable contact-point constituting the other electrode, a battery, an alarm-indicator, and electrical connections including the battery, alarm, contact-point, and diaphragm in the circuit, to give notice when the diaphragm expands into contact by the application of heat.

10,792. TANNING PROCESS. FREDERICK LATULIP, Syracuse, N. Y., assignor of one-fourth to Joseph P. Asmond, same place. Filed Oct. 21, 1886. Original No. 341,583, dated May 11, 1886.



Claim.—1. The within-described process of preparing hides, consisting in treating fulled skin by expressing the moisture therefrom, then soaking it in a solution of potash, then washing the skin in clear water, then again expressing the moisture therefrom, and finally treating the skin with a solution of ammonia and alcohol, substantially as set forth.

2. The process of manufacturing rawhide chair seats and backs, consisting in subjecting fulled skin to compression to expel the moisture, then treating said skin with a solution of potash, then washing it and again expressing the moisture, then treating it with a solution of ammonia and alcohol, then cutting it into strips of the required width, and then running said strips between heated rolls, substantially as specified.

3. The improved process for the manufacture of rawhide chair seats or backs, consisting in treating fulled skin by rolling between flat rolls to express moisture, then treating it with acidulated water, next with a solution of potash, then washing, and again expressing the moisture by rolls, next treating with a solution of ammonia and alcohol, then with a suitable staining-liquid, next cutting into strips the width of the finished article, then running said strips between hollow steam-heated impression-rolls, and finally cutting into proper length, substantially as set forth.

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DECISIONS
OF THE
COMMISSIONER OF PATENTS
AND OF UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the District of Columbia.
(GENERAL TERM.)

SCHILLINGER *v.* CRANFORD.

Decided July 6, 1885.

1. CLAIMS—EXPLICITNESS REQUIRED.
One seeking a monopoly, which for seventeen years is to levy a tax upon the whole country for the use of a device which may occur to many others many times during the life of the monopoly, is required to use plain terms, that plain people may be able to understand, explaining what it is he claims to have invented.

2. SCHILLINGER REISSUE, NO. 4,364, CONSTRUED.
Reissued Patent No. 4,364, to J. J. Schillinger, dated July 29, 1871, construed to be for a combination which would furnish a complete and efficient method of separating adjoining blocks of concrete by interposing strips of tar-paper, or some equivalent material, between the joints of the adjacent blocks.

EQUIVALENTS.
The equivalent of the tar-paper contemplated by Schillinger was some flexible or manageable substance, such as tin-foil.

4. REISSUE—DISCLAIMER.
A claim in a reissue, and not within the original patent, renounced by disclaimer.

5. FRAUD IN PROCURING REISSUE.
Questions of fraud on the part of the patentee in procuring a reissue cannot be considered in an action for infringement.

6. FORMER DECISIONS ON SAME PATENT.
While respect is due former adjudications on a patent, it is the duty of a court to decide only upon its own convictions of the merits of the case before it.

Mr. Eppa Hunton and *Mr. Bigger* for the complainant.
Mr. C. C. Cole and *Mr. Francis Miller* for the defendant.

Before Judges HAGNER, JAMES, and MERRICK.

HAGNER, *J.:*

This is a bill filed by Mr. Schillinger in his own name as patentee, and by various co-plaintiffs as assignees within the District of Columbia of portions, amounting now in all to six-sevenths, of a patent. The bill alleges that the defendant Cranford had infringed these patent rights, and calls for an injunction and an accounting.

There is a large mass of testimony in the case, which we have carefully examined. It discloses differences in statements of the witnesses of the opposing parties both as to the details of the process of laying the pavement used by Cranford and also as to his purpose in following those details; but the weight of the evidence shows that the mode in which Cranford lays this pavement is substantially as follows: He prepares first what may be called the "bed" of the pavement, and then places parallel strips of plank diagonally from the curb across this bed of the pavement toward the houses fronting on the street. He then begins with the first subdivision formed by these boards, and fills the space between them with a mass of concrete composed of Portland cement, sand, and some broken stone or other similar substance. Having done that, he goes to the third subdivision in order, and the same process is repeated there. He then takes a large iron instrument, called a "cleaver," and that is driven down a considerable distance, entirely through or nearly through the concrete mass, so as to mark off these narrow subdivisions into blocks. After that is done he takes a different substance, not concrete, but composed of cement and sand moistened and reduced to plastic form, and uses that as an additional or top coating over the concrete. That is spread on these subdivisions, across which the cleaver has left these gaps, and then the whole of it is rubbed down. Necessarily portions of this last substance intrude themselves into these gaps. After that has been made perfectly smooth the workman takes a trowel and cuts through the top surface exactly in a line with the cuts below. Then again that is smoothed over, and then what is called a "jointer" is run in the same lines, and when that has been completed the pavement has the checkered or tessellated appearance of separate blocks. He then repeats this process with the second and fourth subdivisions, and finishes the remaining subdivisions alternately.

So much for the mode in which Cranford lays his pavement, for this is substantially the result of the proof. Then as to the motives with which he follows these details which I have described. The plaintiff says that his purpose is to form separate blocks, so that each can be taken up without injury to the adjacent blocks, and also to prevent the cracks which may occur in one block from running across continuously into the other blocks; and he says, as proof of his assertions, that these blocks which Cranford thus forms can be taken up separately, and have been so taken up, and also that the proof shows that the cracks are controlled by the lines. Cranford admits that the effect of his method is to make the joints weak; but he denies that his purpose in making the cuts is to allow the taking up of blocks separately, and he further denies that, in point of fact, they can be taken up separately, and he produces exhibits to show, as some of his witnesses testify, that efforts repeatedly made to take up the blocks without injuring the others proved abortive; and, again, that so far from the cracks having been controlled by the lines the cracks in the pavements laid by him run indiscriminately at their own will across the lines. This is about the state of the proof on this point, the principal conflict in the evidence being as to the motives of Cranford in following these details

in the fabrication. I have only gone into this examination, however, with a view of presenting the general facts of the case before proceeding to consider the further question, what does the patent really authorize Mr. Schillinger to claim?

It has been much insisted on behalf of the complainant that this question has been so frequently answered in a manner favorable to their pretensions by several of the circuit and district courts of the United States that it should be considered *res judicata*, and that our only course should be, upon the facts before us, to acquiesce in those decisions and decide this case in their favor. On the other side, we have been referred to decisions of similar courts, which, it is insisted by the defendant, are inconsistent with those referred to by the complainant. This court, like the other courts of the country, is charged with the examination for itself of the questions involved in complaints of infringement, and the circumstance that to this court, located at the seat of Government, is entrusted the exceptional jurisdiction of determining appeals from the decrees of the Commissioner of Patents may well be considered as imposing upon it a special duty of making such examinations with care and of deciding only upon its own conviction of the merits of the case. This course we have pursued in similar cases, as in that of the *Dental Vulcanite Company* v. *Brightwell, McArthur & Mackey*, page 74, where we were much pressed with the weight of a number of decisions in other circuit courts which had declared the use of celluloid to be an infringement of a previous patent, and especially to the ruling to that effect in the district of Maryland nearest to the seat of our jurisdiction; but we felt constrained to decide otherwise upon a careful examination of the case, and that ruling was afterward decided by the Supreme Court of the United States in a similar case to be correct. Entertaining the highest respect for the learning and ability of the learned judges whose opinions were referred to, we must yet do what they themselves felt obliged to do, and we proceed to examine this matter for ourselves.

Approaching the question, therefore, as a new one, we are to inquire what was the object and scope of the invention secured to Schillinger by the patents relied on as disclosed by his applications and the patents themselves. Schillinger's original patent was issued the 2d of May, 1871. In the following July he claimed the benefit of the provision of section 4916 of the Revised Statutes, which (omitting words unimportant here) declares that—

> Whenever any patent is inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a new patent for the same invention, and in accordance with the corrected specification, to be issued to the patentee. * * * Every patent so reissued, together with the corrected specifications, shall have the same effect and operation in law, on the trial, * * * as if the same had been originally filed in such corrected form; but no new matter shall be introduced into the specification. * * *

Notwithstanding the positive provisions of this statute, Schillinger admits that "new matter" was introduced into the amended specifications, and that the new patent was not for the same invention alone. To avoid the consequence of this illegal enlargement of the patent, in February, 1875, he availed himself of another privilege given by section 4917 of the Revised Statutes, which declares (omitting unimportant words in this connection) that—

> Whenever, through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, a patentee has claimed more than that of which he was the original or first inventor or discoverer, his patent shall be valid for all that part which is truly and justly his own, provided the same is a material or substantial part of the thing patented; and any such patentee, * * * may, on payment of the fee, * * * make disclaimer of such parts of the thing patented as he shall not choose to claim or to hold by virtue of the patent, * * *. Such disclaimer shall be in writing, attested. * * * and it shall thereafter be considered as part of the original specification to the extent of the interest possessed by the claimant. * * *

There can be no doubt that the reissued patent, after the filing of the disclaimer, ceased to have any operation beyond the grant in the original patent, and that no omissions in the new specifications of expressions found in the original, and no addition in the new specifications of expressions not contained in the original, can have the effect to enlarge or to diminish the first grant. As all the decisions about this patent agree, Schillinger's rights under the new patent after the disclaimer were the same as those under the first patent, no more and no less; but as it is construed by the complainant he obtained as much by the first application as he would have done if it had been in the exact language of the second, and had explicitly included the new claim introduced for the first time in the second application. It is therefore proper to examine first the original specifications and patent with care. By section 4888 of the Revised Statutes of the United States it is provided (omitting words here unimportant) that—

> Before any inventor shall receive a patent for his invention he shall file with his written application to the Commissioner of Patents a written description of the same, and of the manner and process of making, constructing, compounding, and using it in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine he shall explain the principle thereof and the best mode in which he has contemplated applying that principle so as to distinguish it from other inventions; and he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery. * * *

In compliance with this requirement, in the commencement of the original specifications, Schillinger declares that they—

> contain such, full, clear, and exact description of his invention, as will enable those skilled in the art to make and use the same.

He then proceeds to state, in general terms, first, what his invention has relation to; second, what it consists of; third, the substance or material involved in its production; and, fourth, the result designed, as follows:

> The invention relates to pavements for sidewalks and other purposes.
>
> It consists in combining with the joints of concrete pavement, strips of tar-paper or other equivalent material arranged between the several blocks in such manner as to produce a suitable tight joint, and yet allow the blocks to be raised separately without affecting or injuring the blocks adjacent thereto.

The substance or materials required are said to be, first, tar-paper, in strips, or its equivalent; and, second, blocks of concrete placed in juxtaposition. The combination of these articles is to be effected in the joints of the several blocks, and the result is the production of "a suitable tight joint." After this general statement he describes the particular method he adopts in carrying out his invention. The concrete is to be formed "by mixing cement with sand and gravel or other suitable materials, to form a suitable plastic composition;" but he does not confine himself to particular proportions in making the concrete composition. He proceeds:

> While the mass is plastic I lay or spread the same upon the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness, so as to form the edges of the concrete blocks *a a*, &c. When the block *a* has been formed, I take strips of tar-paper *b*, of a width equal or almost equal to the height of the block, and place them up against the edges of the block in such manner that they form the joints between such block and the adjacent blocks. After completing one block, *a*, I place the tar paper *b* along the edge, where the next block is to be formed, and I put the plastic composition for such next block up against the tar-paper joint, and proceed with the formation of the new block until it is completed. In this manner I proceed in making all the blocks until the pavement is completed, interposing tar paper between their several joints, as described.

He then states in detail the result:

> The paper constitutes a tight water-proof joint; but it allows the several blocks to heave separately from the effects of frost or to be raised or removed separately whenever occasion may arise without injury to the adjacent blocks. The paper does not adhere when placed against the edge of the fully-formed block, and therefore the joints are always free between the several blocks, although adherence may take place between the paper and the plastic edges of the blocks which are formed after the paper joints are set up in place.

And he concludes with his statement of the extent of his invention in these words:

> What I claim as new, and desire to secure by Letters Patent, is—
>
> The arrangement of tar-paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose described.

It seems plain to us that the only claim of Schillinger, as thus set forth in his specification, was to a combination which would furnish a complete and efficient method of separating adjoining blocks of concrete by the simple expedient of interposing strips of tar-paper or of some equivalent material between the joints of the adjacent blocks, and that no further invention had suggested itself to him up to that time.

To the extent of his claim, thus defined by himself, the United States granted him an exclusive right of manufacture, which none could exercise without the purchase of the privilege, and which could not be infringed without reparation. If he had then made good his claim to more, he might equally have received an enlarged privilege; but he obtained at that time all he claimed. One seeking a monopoly, which for seventeen years is to levy a tax upon the whole country, for the use of a device which may occur to many others many times during the life of the monopoly, but who are forbidden to use their invention because a patentee has outstripped them, may surely be required to use plain terms, that plain people may be able to understand, explaining what it is he claims to have invented. It is insisted, however, by the complainants that within the terms of the reissued patent are contained claims greatly more comprehensive than the one we have found allowed in the original.

First. It is said that any substance which may be interposed between the adjacent blocks is the equivalent of the tar-paper, and particularly that the interposition of a portion of the concrete of which the blocks are made, or of a mixture of cement and sand used as the surface coat and formed of a composition different from that suggested by Schillinger, would constitute an infringement.

Second. That the interposing substance need not be left permanently between the blocks, but that the temporary insertion of an instrument, as an iron trowel, between the separate blocks would be an infringement.

Third. That the patent would be infringed simply by the running of a marker to the depth of part of an inch through a coat of cement and sand laid on top of a layer of concrete, provided the effect of the mark would be to control the cracks and prevent them from running from one block into another, or would enable the separate blocks to be taken up without any or with less injury to the adjacent blocks.

And, finally, that the patent comprehended the formation of sections or separate blocks of concrete on the ground, which could be taken up without injuring the adjoining blocks.

Are these claims, or is either of them, justly within the scope of the original specifications and patent? First, the language of the patentee in describing the mode of making and using the invention seems to exclude the idea that concrete composed of sand, cement, and gravel, or other suitable material could have been in his mind as a possible equivalent of the tar-paper. The purchaser of a right under the patent is entitled to find in the specification a full, clear, concise, and exact description of the invention, to enable him to make, construct, compound, and use the same; and the patentee declared that he had furnished such description. It is also held by the authorities that the further object of the specification is that after the expiration of the term the public shall have the benefit of the invention. (2 Greenleaf Ev., sec. 490.)

Looking to this description, we find that whatever may be the equivalent of the tar-paper is to be "arranged" or "interposed" between the blocks, implying a fixing with design, and not the chance falling of the substance into the crevices. The substance must be in strips or in some equivalent form, according to the fair construction of the language, and must, therefore, be of a composition capable of assuming such form, for the workman is "to take strips" of a proportionate width, about equal to the height of the block, and is "to place them (the strips) up against the edges of the block in such manner that they (the strips) form the joints," &c., and the tar-paper or its equivalent then constitutes a tight water-proof joint, and will not adhere to the edge of the fully-formed block, but may adhere to the edges of the blocks formed "after the tar-paper joints (or joints of the equivalent substance) are set up in place." Not one of these methods is practicable if concrete or cement and sand are substituted for the tar-paper. Those materials cannot be made into strips or equivalent forms, or be arranged in the mode specified. The concrete, necessarily containing gravel or similar hard substances, could not well be pushed into the narrow crevice only wide enough to be filled by the thin paper, nor could either substance make a tight water-proof joint.

According to the explicit declaration of the patentee, immediately upon the formation of the first block and before it can harden he puts the plastic composition for the next block up against the tar-paper joint. This does not contemplate the existence of any gap or crevice requiring anything to fill it up, as the new block is built directly against the old one, without any delay such as occurs in the Cranford method, which builds the blocks in alternate subdivisions, the blocks in the first and third subdivisions being formed before those in the second or intervening subdivision are made.

The drawings accompanying the specifications, and which form part of it by law, would suggest to no one inspecting them the idea of separating the blocks, as they are made either by concrete or by cement and sand or by the blade of a trowel only temporarily interposed. The interposed substance is there delineated as forming a permanent part of the pavement as much as the blocks themselves, although as a very narrow strip; but even if the gravel concrete could be made

fine enough to be then pushed into the crevice between the old and the new block, being no older than that forming the new block, it would be equally soft and plastic. It would not, therefore, constitute an intervening substance of different consistency or adhesiveness from the new block, and would practically form the selvage of that block. It would adhere to the old block just as fully as the rest of the new block would adhere to it, and there would thus be nothing gained by the interposition of a portion of the concrete separated from the new block that would not result from the juxtaposition of the new block itself formed by the identical material.

As respects the mixture of sand and cement used by Cranford as a top course, the specifications of Schillinger nowhere allude to it; but, on the contrary, from the beginning to the end Schillinger speaks of no other plastic composition except concrete. This is a combination which has been perfectly well known in the arts for more than two thousand years, which cannot be formed of sand and cement alone; but is composed of these substances mixed with gravel or pebbles or fragments of stones, or of pottery, as mentioned by Pliny, (Book .) The composition spoken of by Schillinger is homogeneous throughout, with as much gravel at the top as at the bottom or center of the mass, and a stratum of sand and cement at the top is no more contemplated than a stratum of sand and gravel or of cement and gravel.

In our opinion, the equivalent contemplated by Schillinger was of some flexible or manageable substance—such as tin-foil (which was properly held to be an infringement by Judge Shipman, and enjoined as such in the case reported in 14 Blatchford) or such other similar material as reasonably admits of the manipulation described by the patentee.

Second. The idea that the temporary interposition of an iron trowel is such an equivalent seems still less tenable. The strips, as long as they were used at all, (see Creecy's testimony, page 6,) were left in the joints. The equivalent contemplated was to be something, according to the specifications, which was to be "arranged between the several blocks in such manner as to produce a suitable tight joint," "which will constitute a tight water-proof joint." It is spoken of as "a material" equivalent to tar-paper, which is a description of a substance or matter out of which an article is formed, (as the materials of a building,) but not of an article itself, like a trowel, the product of a material.

If the contention be correct that the patent included the monopoly to form separate and movable blocks on the ground, then such formation would be an infringement whether made with one tool or another, and the use of the trowel would be objectionable, but not because it is the equivalent of tar-paper.

Third. Neither specification contains the slightest intimation that it ever occurred to the patentee that it was important to control the cracks in the blocks and prevent them from running into the adjoining blocks, or that the patent was ever designed to effect that object. The entire statement about the cracks, as a separate point of importance, is an evident afterthought. It never seems to have suggested itself to Schillinger until after both specifications had been filed. As distinguished from the larger pretension of the monopoly, to make separate blocks, the notion about the control of the cracks has no existence in any of the claims connected with the patent.

The most important contention of the complainant is the last, that the patent includes the formation of separate blocks of concrete on the ground, which can be taken up without injuring the adjacent blocks, whether they are separated by tar-paper or its equivalent or by anything else. It seems strange that the patentee, having this claim in his mind when he was making his first specification, should have suppressed it, and only made a distinct claim to the combination in the joints of the several blocks of the strips of tar-paper or of its equivalent. Nothing could have been simpler than to have presented the claim. It is not pretended that this was done directly, but only that, hidden within the other claim, is this one of overshadowing importance, which is only to be gathered from the lesser one by inference.

The first reference to this quality of the blocks or sections is in the paragraph which states that his invention consists—

in combining with the joints of concrete pavement strips of tar-paper or equivalent material arranged between the several blocks in such manner as to produce a suitable tight joint, and yet allow the blocks to be raised separately without affecting or injuring the blocks adjacent thereto.

The statement assumes the existence of distinct blocks and their consequent separability. To say that separate blocks of concrete may be moved separately is as complete a truism in mechanics as to say that the bricks in a pavement may be taken up separately; but he does not claim that quality as a new one then first invented by him. He says his purpose is to combine with the joints of the several blocks strips of tar-paper; but he no more claims to have originated one of the factors of the combination than the other. He does not claim to have invented tar-paper; but no more does he claim to have invented the fabrication of separate blocks. He takes them both as he finds them and combines them by a simple device. This combination, he insists, will produce "a tight joint," "water-tight;" but, apparently unwilling to have it supposed that this joint is so closely united that it will destroy the natural separability of distinct blocks of concrete, he adds the precautionary words, "and yet allow" (not that it will create or cause, but will continue to permit) the raising of the individual blocks without injuring the others. In the same way, when the subject is again mentioned, it appears in the same connection as a denial that this efficient improvement or arrangement will make the joint so tight as to impair the movability of the blocks; and he therefore again insists, as we construe his language, that, effective as the tar-paper may be to make the joint even water-tight, still the quality of separability necessarily belonging to distinct blocks when not placed so closely together will remain with the blocks when divided only by a thin sheet of tar-paper; but—

it allows the several blocks to heave separately from the effects of frost, or to be raised or removed separately whenever occasion may arise, without injury to the adjacent blocks.

And in the next sentence he undertakes to justify this assertion by giving the reason why the adherence of the different separate blocks would not take place. The paper does not adhere when placed against the edge of the fully formed block, and therefore the joints are always free between the several blocks, although adherence may take place between the paper and the plastic edges of the blocks, which are formed after the paper joints are set up in place. He alludes to this quality in separate blocks as he does to the common method of making concrete, which he explains at length, though known centuries ago; but he no more claims to have invented the one than he does the other. It seems to us that the language of Mr. Justice Woods in 114 United States Reports, page 452, in the case of *The Western Electric Telegraph Company* against *Ansonia Company*, is strikingly appropriate to this case. He says:

But, clearly, a patentee cannot claim the benefit of an element of his invention thus vaguely hinted at. * * * If he intended to include the cooling, he has failed to describe it. Instead of describing the process, he mentions the quality of it and asks the Court to infer the process from that quality. Such a vague and inverted method of description is not a compliance with the statutes. * * * It has been held by this Court that "the scope of letters patent should be limited to the invention covered by the claim, and though the claim may be illustrated it cannot be enlarged by the language in other parts of the specification." (*K. K. Co. v. Keller*, 104 U. S., 112.) The element of the process under consideration cannot, therefore, be held to be covered by the patent. The contention that the patentee intended to include it in his process is evidently an afterthought.

We have been examining the question thus far with respect to the first specification and patent alone. It is proper to consider the effect of the new specifications and the reissue in connection with the disclaimer.

We are satisfied that no question as to the charge of fraud on the part of the patentee in obtaining the reissue can be considered in this action; but it is competent for the court to examine whether the reissue comprehends a new invention, and if it shall find such to be the case to pronounce such new grant void.

In this case, as we have seen, the patentee admits that the reissue did include a claim not within the first patent, and by his disclaimer he expressly professed to renounce it. If the disclaimer was broad enough to withdraw every portion of the new claim, then nothing remains in the new patent except what was contained in the first issue.

If the disclaimer was not in fact as comprehensive as it was represented to be, so that any part of the new invention inheres in the reissue, then such part of the new matter is valueless and void.

The new matter introduced into the second specification, if it relates to the new invention and was introduced to illustrate and explain such new claim, must be discarded with the new invention itself, for the statute which requires that the reissue shall be only "for the same invention" is equally explicit in declaring that "no new matter shall be introduced into the (new) specification." (Section 4916 Revised Statutes.) Only so far as the new matter can be fairly considered as introduced to explain and illustrate the first invention, apart from the new claim, should it be looked to in examining the extent and scope of the old claim. This would leave properly for consideration any such explanations or illustrations as the patentee would have set forth originally in his application for the first patent had he not omitted to do so "by inadvertence, accident, or mistake, and without any fraudulent or deceptive intention." (Section 4916.) Unless the operation of the new matter were to be thus limited, the patentee, under the new specifications, might obtain practically the benefit of the new invention, which he has been compelled to abandon as void, by strengthening the old claim with statements only properly belonging to the new one, and which would never have been set out at all if the new claim had not been presented.

The new specifications contained an additional claim in these words:

1. A concrete pavement, laid in detached blocks or sections substantially in the manner shown and described.

The manner in which this concrete pavement is laid is shown and described in the new matter introduced into the amended specifications.

The first paragraph following the reference to the drawings (which are substantially identical with those accompanying the first specifications) is in these words:

This invention relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining sections. If the joints of this sectional concrete pavement are combined, strips of tar-paper or equivalent material arranged between the several blocks or sections in such a manner as to produce a suitable tight joint, and yet allow the blocks adjacent thereto to be removed, &c.

For the words in the corresponding paragraph in the original, "This invention relates to pavements for side walks and other purposes," are substituted these words in the new specification:

This invention relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining section.

And for the words "and consists in combining with the joints of concrete pavements strips of tar-paper" are substituted "with the joints of this sectional concrete pavement are combined strips of tar-paper;" and the words "or sections" are introduced further on after the word "blocks" in the original.

In the next paragraph, describing his manner of carrying out his invention, he inserts that he does not confine himself to any "definite" proportions or materials for making the concrete composition, and also these words and sentences:

* * * one block being formed after the other. When the first block has set, I remove the joist or partitions between it and the block next to be formed, and then I form a second block, and so on, each succeeding block being formed after the adjacent blocks have set; and since the concrete in setting shrinks, the second block when set does not adhere to the first, and so on, and when the pavement is completed each block can be taken up independent of the adjoining blocks. Between the joints of the adjacent blocks are placed strips *b*, of tar-paper or other suitable material, in the following manner:

For the sentence in the original—

The paper does not adhere when placed against the edge of the fully-formed block, and therefore the joints are always free between the several blocks, although adherence may take place between the paper and the plastic edges of the blocks which are formed after the paper joints are set up in place—

is substituted this:

The paper, when placed against the block first formed, does not adhere thereto, and therefore the joints are always free between the several blocks, although the paper may adhere to the edges of the block or blocks formed after the same has been set up in its place between the joints.

And he appends at this point this final and additional paragraph, of which there is no counterpart in the original:

In such cases, however, when cheapness is an object, the tar-paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks.

In our opinion, scarcely any word of the new or altered parts of the specifications can properly be said to relate to the original claim. They were manifestly introduced to describe and explain the alleged new invention, and never would have been presented but for the patentee's anxiety to secure that. It certainly, for example, would have been an extraordinary act of frankness for a patentee seeking to obtain the first patent (which we have construed as comprehending only the combination of strips of tar-paper or its equivalent with separate con-

crete blocks) to state, as is done in the last paragraph of the new specification, that the tar-paper may be omitted where cheapness is an object, and that a sufficiently tight joint can be procured without using the particular material especially pointed out in the patent. Discarding these new features of the specifications from the present inquiry as not germane to the first patent, but applicable solely to the second and invalid claim, we find what remains of the second specification to be a reiteration of all that is properly claimed in the first. In slightly-changed language the improvement is still claimed as a combination. The use of the strips of tar-paper or equivalent material is still insisted on as making a water-proof joint, for the last paragraph, which claimed for the first time that a "sufficiently-tight" joint might be made by the fillings of sand or dust from the pavement, is distinctly withdrawn and obliterated from the specification by the disclaimer, and there is an entire absence of any expression tending to enlarge the range of equivalents for the selected material, which is described and earmarked anew in words and on the plans in the same manner. And while the new claim is a clear admission that the first patent conferred no monopoly in respect to the formation of separate blocks on the ground, and that he could only obtain that privilege by an enlarged invention, the language of the disclaimer practically admits that if that claim had been insisted on when the first application was made it could not have been sustained.

In the last specification the new claim is stated to be for "a concrete pavement laid in detached blocks or sections substantially in the manner shown and described"—that is, by forming the blocks successively on the pavement in such manner "that each section can be taken up and relaid without disturbing the adjoining sections." This quality of separability is studiously included in the new claim, and constitutes its distinctive and valuable feature, and this quality the patentee proposes to utilize under the new claim only; but in 1875 he filed with the Commissioner the following disclaimer:

Your petitioner, John J. Schillinger, of the city and county and State of New York, represents that letters patent of the United States, Reissue No. 4,364, bearing date May, 1871, were granted to him for an improvement in concrete pavement; that he has reason to believe that, through inadvertence, accident, or mistake, the specification and claim of letters patent are too broad, including that of which your petitioner was not the first inventor, and he therefore hereby enters his disclaimer to the following words: "And since the concrete in setting shrinks, the second block when set does not adhere to the first, and so on," and which occur near the middle part of said specification, and to the following words near the end of the specification: "In such cases, however, where cheapness is an object, the tar-paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust, and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks." Your petitioner hereby disclaims the forming of blocks from plastic material without interposing anything between their joints while in the process of formation.

By thus disclaiming "the forming of blocks from plastic material without interposing anything between their joints while in the process of formation," he necessarily admits that the public had the right to form the blocks alongside of each other on the ground, for in no other way could joints appear in the process of formation. Separate blocks, made away from the pavement, like bricks at a brick-kiln, could have no joints in the sense referred to. In the language of Mr. Justice Blatchford in 15 Blatchford, 152, *Schillinger* v. *Gunther*—

it was not new to lay concrete pavements in sections. The plaintiff, after this suit was brought, filed a disclaimer, disclaiming any claim merely to the laying of a concrete pavement in detached blocks or sections without the interposition between the blocks or sections of the tar-paper or its equivalent, and admitting that it was not new to lay a concrete pavement in sections.

And, again, "nothing is claimed as new in respect of this," &c.

It is difficult to understand how the success of blocks could be formed without the interposition of something between the parts of the material designed to constitute the respective blocks. If nothing is interposed, there can be no separate blocks. It is essential to the formation of the edges and joints that something should be introduced between the selected masses harder than the material itself, or that there should be applied pressure to retain the respective masses within the desired limits. This may be done by the hand of the workman or by an instrument of wood or metal, as a shingle or a metal or wooden trowel or spade. It would be but a useless privilege to allow the workman to make the separate blocks and yet deny to him the right to use appropriate tools to form them; and having the right to form them, he had the right to form them at such distance apart as should suit him, and to preserve their separability, while presenting the advantages of an unbroken pavement, provided he did not infringe upon the device of Schillinger. We see nothing, therefore, in the new specifications, when construed with the disclaimer, to change our opinion that the several claims of the complainant we have been considering are untenable, and hence we are forced to the conclusion that the pavements laid down by Cranford, as shown by the evidence in this cause, are not infringements of the Schillinger patent. Each suit for infringement is to be tried upon the evidence produced in that case. It can only be some legal or some important and well-established mechanical principle which can be imported from one case into another with controlling influence. Each individual suitor is entitled to have his suit tried only on the evidence adduced against him in his own case. There is no such evidence before us of the state of the art at the date of Schillinger's patent as shows that what he was claiming was then unknown; nor can we take the statements in law-books that such evidence was offered in certain other cases as conclusive of the rights of the suitors in this cause; nor can we say that we are satisfied from the voluminous proof in this case that the quality of separability imputed to Cranford's work by the complainant has been attained. The proof is not satisfactory on the point, though a contention that Cranford's imitation of Schillinger (if shown to exist) has proved to be a bungling one in this particular would not exculpate him from the charge of infringement if the complainant's construction of the patent were the correct one.

Schillinger throughout all his claims specifies "concrete" as one of the elements of his combination—a specific composition as old as the mechanic arts, possessing distinct properties. By his process he makes one block, instantly places along its edge the tar-paper or its equivalent material, and forthwith pushes against the material thus placed in position a further quantity of concrete to form the succeeding block. There is neither an interval of time nor distance required. Whatever is to be interposed prevents the formation of a coherent mass, which by virtue of the

thing interposed becomes two blocks, instead of one block of twice the size. In this mode of fabrication there can be no room for filling up a gap artificially made, or for making such a gap with a cutting-instrument. Cutting such a gap presupposes that the two masses of concrete had become united, which it was Schillinger's design to prevent, and filling it up afterward as soon as the use of a substance which was not in position along the edge of the first block, when the formation of the second block immediately followed the completion of the first, as is described in the specification. As soon as he has built the successive blocks, with the tar-paper or equivalent material interposed at the time, he has completed his pavement in separate blocks with water-proof joints, each block a homogeneous mass, with the gravel or similar hard substance of the concrete appearing in the texture of the surface. He has no need for a mixture of cement and sand, or for a trowel or a similar implement, and there is no possibility of using either if the process he has described has been followed. Cranford spreads the concrete across the bed of the pavement and drives the paper down into it at regular distances, and he has then a concrete pavement of disjoined blocks, which he has an undoubted right to make, formed by cutting across the subdivision with the cleaver. As a concrete pavement it is complete, though it is an inferior one, with crevices between the blocks. But his pavement is not to be a pavement of concrete alone, and it would be incomplete without a top coat of the plastic, of cement and sand and water, and he proceeds to finish it by putting on that top coat. In the process of doing this necessarily some other of the substance sinks into the gaps below, and he cuts corresponding lines through the upper surface with a trowel and marks the lines again with a jointer. If either the cement and sand, or the trowel, or the jointer thus temporarily interposed, were the equivalent of the tar-paper when applied to a concrete pavement in the combination, would such be the case when applied to different pavements not homogeneous throughout, like the concrete pavement indicated by Schillinger?

The general principle of the patent law is that—

The omission of one ingredient of a combination covered by any claim of a patent averts any charge of infringement based on that claim. A combination is an entirety. If one of the elements be omitted, the thing claimed disappears. Every part of the combination claimed is conclusively presumed to be material to the combination, and no evidence to the contrary is admissible in any case of alleged infringement. (Walker on Patents, sec. 349; 1 Black, 430; *Vance* v. *Campbell*.)

Again in the same connection:

Where a patentee states in his specification that a particular part of his invention is to be constructed of a particular material, and states or implies that he does not contemplate any other material as being suitable for the purpose, it is not certain that any other material will be treated by the court as the equivalent of the one recommended by the patent. (Walker, sec. 349.)

The language of the Supreme Court in 114 U. S. Reports, page 86, *Sargent* v. *Hall Safe and Lock Company*, is in the same direction. The court says:

In patents for combinations of mechanism, limitations, and provisos imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of the disclaimers. As was said in *Eay* v. *Ordeeman*, (109 U. S., 403, 420:) "The claims of the patents sued on in this case are claims for combinations. In such a claim, if the patentee specifies any element as entering into the combination, either directly by the language of the claim or by such a reference to the descriptive part of the specification as carries such element into the claim, he makes such element material to the combination, and the Court cannot declare it to be immaterial. It is his province to make his own claim, and his privilege to restrict it. If it be a claim to a combination and be restricted to specified elements, all must be regarded as material, leaving open only the question whether an omitted part is supplied by an equivalent device or instrumentality."

In the words of the Supreme Court in *Gould* v. *Rees*, 15 Wallace, 157—

Where the defendant in constructing his machine omits entirely one of the ingredients of the plaintiff's combination, without substituting any other, he does not infringe; and if he substitutes another in the place of the one omitted, which is new or which performs a substantially different function, or if it was old, was not known at the date of the plaintiff's invention as a proper substitute for the omitted ingredient, then he does not infringe.

I believe that last qualification of Judge Clifford about not being "known at the date" has been criticised as questionable; but it was repeated by him several times in decisions of the Supreme Court. According to our view, the alleged equivalent of the tar-paper performs an altogether different function from that designed to be performed by the strip of tar-paper or the equivalent material. Schillinger introduced the tar-paper to make a tight water-proof joint, and yet allow the concrete blocks he makes to move separately, while Cranford's blocks of concrete are already separate, but too far apart for a neat pavement, and what he superadds has the effect to diminish the distance between them by filling the gap with the cement and sand. While forming what he claims is a smoother and better pavement, Schillinger admits, in the second specification, that the gaps between the separate blocks may be filled with sand and dust from the pavement without infringement. Why not with sand and cement?

We have examined all the cases referred to, and all others which were accessible, sustaining Schillinger's pretensions, and have been duly impressed with the weight of those authorities; but we have, notwithstanding, found ourselves unable to acquiesce in their conclusions, and the opinions formed separately by each of the judges joining in this judgment have been strengthened by examination and consultation.

The first decision in order of time is that reported in 14 Blatchford, 152, *Schillinger* v. *Gunther*, made by Judge Shipman, of the Southern District of New York, in February, 1877. An injunction had been issued to restrain the manufacture of pavements where tin-foil had been substituted between the joints in lieu of tar-paper, which the court held was clearly an infringement, and the case had been referred to a master for an account. Afterward an application was made by the complainant for an attachment for contempt, alleging that the defendant was dividing the blocks by the temporary interposition of a trowel through the entire pavement. The court decided in favor of the complainant on the application for the attachment, and not upon a new bill, which latter course, in the language of the Supreme Court in *California Paving Company* v. *Molitor*, (113 U. S. Reports, 618)—

is by far the most appropriate method where it is really a doubtful question whether the new process adopted is an infringement or not.

The same case came on again on the 17th of October, 1878, before Justice Blatchford as circuit judge upon the exceptions to the master's report, (15 Blatchford.) The only points stated in the head-note of the decision as settled in that case relate to the mode of estimating the damages; but although the learned justice discussed to some extent the features of the patent, the case cannot be considered as a distinct affirmance of the general doctrine laid down by Judge Shipman on allowing the attachment. Indeed, portions of the opinions (among others those parts we have quoted

above) would seem rather to be in opposition to the contention of the patentee.

In August, 1879, a case between the same parties was again before Mr. Justice Blatchford, in 17 Blatchf., 66. The head-note of the case, prepared by Justice Blatchford, the reporter, or under his direction, states that the points decided were, first, that a concrete pavement made where it is to be laid is not anticipated by a pavement made of similar blocks made elsewhere and then laid where they are to be used, and, further, that the several objections interposed in that case to the efficiency and regularity of the disclaimer were untenable. The learned justice states in the opinion that the question of infringement by the use of a trowel or knife has been disposed of by Judge Shipman in that case, and he discusses at length the question whether the reissue was obtained fraudulently, as not based upon an honest claim of inadvertence or accident a question which the Supreme Court had held cannot be considered in an action for infringement.

In May, 1881, Justice Sawyer, of the California circuit, decided the cases of the *California Artificial Stone Company* v. *Molitor and Perine*, (7 Sawyer, 190.) The complainants were the assignees of the Schillinger patent, and sued for an infringement. The learned judge commences his opinion with the statement that the patent had been before him on several occasions, and that he had experienced considerable difficulty in giving it a satisfactory construction; that it had previously been before Justices Blatchford and Shipman at various times, and that they had given it a construction wider in its scope than he thought on first examination it would bear. He proceeds to express his diffidence in dissenting from the distinguished jurists named, and, although, as it seems to us, very much in deference to their decision, he delivers a very able opinion, which sustains the essential features of the complainant's claims in the present case.

In the southern district of Ohio, Judge Sage decided in *Kuhl* v. *Mueller* (21 Federal Reporter, 510) that the patent was infringed by a construction where the cement was laid in a solid mass and the surface was marked off by a fish-line or trowel into blocks; but he appears entirely to base his decision upon those of Judges Shipman and Blatchford and the first decision of Judge Sawyer.

In July, 1883, Justice Blatchford again had the patent under consideration in 21 Blatchford, 383, *Schillinger* v. *Greenway Brewing Company*. He refers to the former decision in the Gunther case and to the case in 7 Sawyer, and decides distinctly that the pavement of the defendant there complained of, and which was laid substantially as Cranford lays his, is an infringement.

Judge Blodgett, of the southern district of Illinois, in the case of *Schillinger* v. *Hurlburt*, adopts the decisions before referred to in a case where he states the facts are similar, although he says if the question were before him as an original one he would have great doubts of its validity on the ground of novelty.

These are all the decisions I have found sustaining the patent. There may be others, but they have not been placed before me or discovered in our researches. On the other hand, we have been referred to the case of *Schillinger* v. *Weber*, decided in May 9, 1879, by Judge McKennan, circuit judge for Pennsylvania. The defendant's process as set forth by the answer is substantially the same with that pursued by Cranford, although there are some unimportant differences as to the material and its manipulation. The judge refused an injunction and dismissed the bill, thus denying that the defendant was guilty of infringement. To the same effect was the decision of District Judge Butler, of the eastern district of Pennsylvania, in the case of the *Vulcanite Paving Company* v. *Keystone Artificial Paving Company et al.* Unfortunately no written opinion was given in either case, and we have only produced before us the letters of counsel engaged on both sides of the cases to explain the grounds of the decision. We understand the judges construed the patent as we had done, and held, further, that if it contemplated the separation of blocks by a trowel or knife the patent would be void for want of novelty.

The patent was again before Judge Sawyer in January, 1883, in the case of the *California Stone Company* v. *Fieborn*, reported. In that case the judge adhered to his decision in 7 Sawyer, which, as we read it, evinced rather a yielding to the authority of the New York cases than the abandonment of his own original opinion as to the extent of the patent; but he proceeds to say:

> It is claimed that running the marker along the line between the old and new blocks on the surface after forming the latter is an infringement. I am not able to take that view. I have gone as far in that direction as I think the patent will justify. I think in that particular it is not an infringement. Counsel for complainant have made a point as to simply marking lines upon the surface of the block with the marker employed. There is one case wherein it is held that marking the surface with a fish-line is an infringement. It is insisted by complainant that marking off the blocks on the surface at the time of laying the pavement with a marker about one-sixteenth of an inch in depth is an infringement. I am unable to perceive that the running along the surface of that blunt and rounded marker one-sixteenth of an inch in depth, there being no cutting elsewhere, is making a joint. I fail to see that that is an infringement.

It seems to us that this language rather evinces a disposition on the part of the learned judge to return to his own original conception of the rather restricted scope of the patent, for his ruling in the case last referred to is much within the wide claims made for the patentee in the argument before us. The only instance in which this patent has been before the Supreme Court of the United States is reported in the case of *Cutcprice Stone Company* v. *Molitor*, (113 U. S., 613.)

After the decree in 7 Sawyer an application was made to the court for an attachment for a violation of the injunction. The alleged breach consisted, as stated by Mr. Justice Bradley—

> In making a mark or indentation on the surface while in a plastic state, with a trowel or marker, extending to the depth of from one-eighth of an inch to an inch, and thus giving the pavement the appearance of being made in detached blocks, and, in fact, answering all the purposes of detached blocks, the crease on the surface being sufficient to produce the results obtained by the Schillinger patent.
>
> Of course—

continues Judge Bradley—

> the question was at once raised whether the process now used by the defendant was an infringement of the patent. The judges being opposed in opinion, a decree was made in conformity with that of the circuit judge, declaring that the pavements thus constructed by the defendant did not infringe the patent, that there was no violation of the injunction, and that the order to show cause be discharged.

This application was made more than two years after the decree in 7 Sawyer, and nearly a year after the decision in 8 Sawyer, above cited, and we find the circuit judges in conformity, or, we think, with the disposition evinced in his judgment in 8 Sawyer, now holding that to be no infringement which the Schillinger assignees were insisting was a clear breach of the injunction. A motion to dismiss the appeal was made in the Supreme Court, and it was granted, the Court saying:

> Whether the new pavement constructed in Redwood City is an infringement or not is just as much a mixed question of law and fact (as the case is presented to us) as was the question whether the pavement formerly constructed by the defendant was an infringement. It is a question which the circuit court must decide for itself in the ordinary way.
>
> If the judges disagree, there can be no judgment of contempt, and the defendant must be discharged. The complainant may then either seek a review of that decision in this court or bring a new suit against the defendant for the alleged infringement. The latter method is by far the most appropriate where it is really a doubtful question whether the new process adopted is an infringement or not.

If the Supreme Court had considered the extent of the patent as *res judicata* under the New York decisions, it seems more than probable it would have put a stop to the litigation by saying so, for the question seems to have been fully argued before it.

The two cases referred to by the complainants as decided in this court cannot be regarded as authority here. They were brought and settled before the disclaimer was filed, and it is perfectly apparent that they were not really contested. Creecy, in his evidence before us, states that one of the defendants in one of the cases afterward joined in the Schillinger enterprise, which the witness relies on as an admission by the defendant of the validity of Schillinger's claim; but this act may as well be evincive of collusion to obtain a favorable decision by suing a confederate as of conversion after the feeblest show of defense.

It has been urged by the defendant that the patent should not be sustained for want of patentable novelty. If the proper scope and object of the patent were to secure a monopoly to divide the concrete mass on the pavement into separate blocks, so that they might be moved without disturbing the adjoining blocks, and to prevent the spreading of cracks by the intervening joints, we are disposed to agree with Judge Blodgett that the claim does not present the feature of a novel and useful invention. A workman may complete the separation of his material into blocks at his workshop, whether that be distant from the place to be paved or very near it, and why not make the separation on the pavement itself? If he sees fit to spread the entire mass in a layer of proper depth across the space to be paved, we see no reason why he may not, undisturbed by any patent, subdivide the mass into two or fifty sections or blocks, as may suit his fancy, by any suitable instruments. If the instrument used is thin and the mass is soft, the chances are that the blocks would reunite. If the consistence is stiffer and the instrument wide, the gaps might remain open; but a wide opening would expose the blocks to disintegration from the rain and frost. It would readily occur to him to guard against both these dangers by the interposition of a substance that would keep the blocks apart when severed while forming a tight joint; but any ordinary and cheap substance, like strips of wood, would soon decay and shrink, and thus leave a rough pavement, while the use of more lasting substances, such as a line of bricks on edge or a strip of stone, or thin strips of metal, (even if the plastic material should adhere to them with sufficient closeness to make a tight joint,) would prove too expensive for popular use. While either of these plans would equally "allow" the blocks to be moved separately and prevent the spreading of cracks, it seems hard to say that either would present a patentable novelty or any feature of a useful invention; but if the patent of Schillinger is to be construed as we have concluded it should be, we recognize in it a device which may by an easy and simple method overcome these difficulties which might arise from the separation of the blocks on the pavement in more obvious methods—viz., by the interposition of strips of tar-paper thin enough to prevent such a wide gap as would admit the rain, and to which the plastic material would sufficiently adhere, while indestructible and cheap enough to recommend its use.

The invasion of every department of life by the daily-increasing number of unnecessary patents is becoming a serious tax upon the public. The amusing complaint of Sidney Smith of the universality of taxes in England may well be applied here to this grievance. From the safety-pin of the new-born infant to the casket that receives the octogenarian, almost everything we use pays tribute to the patentee, and frequently for devices that might well suggest themselves to any quick-witted housewife or intelligent mechanic.

A justice of this court, while recently announcing an opinion overruling an application for a proposed highly-important improvement in the method of lengthening and shortening the cords for hanging pictures, stated that he was then reading his notes from a patented paper-pad, written with a patented pencil, while the ink, pens, &c., pen-holder, and block of india-rubber before him all bore the marks of patentees. Several articles of his clothing were also patented, down to the hem of his garments, which were bound by strips of gutta-percha, duly patented; and these probably were but a small part of the articles in the room thus paying a duty to patentees.

The courts have been admonished by the decisions of the Supreme Court in the Slawson fare-box case, and in many others similar in character, that the proper policy of the law is to limit rather than to amplify the extent of such claims, and this consideration has not been without influence in our examination of this subject.

It is unnecessary to prolong this opinion by adding the other observations made when the decision was announced upon some other points argued before us, and we omit them here.

In our opinion, the decree below should be reversed, and it is so ordered.

U. S. Circuit Court—Eastern District of Pennsylvania.

GANDY v. MAIN BELTING COMPANY.

Decided June 29, 1886.

1. GANDY—COTTON BELTING AND PROCESS OR MANUFACTURE.

Letters patent were granted in June, 1880, to Gandy for a hard, even-surfaced, rigid, impervious, non-elastic belt composed of cotton canvas or duck having its warp threads larger than the weft, both warp and weft being hard spun, the fabric tight woven, and folded, stitched, and saturated with linseed-oil. *Held* invalid for want of novelty.

2. DATE OF PATENT—REVISED STATUTES, SECTION 4887.

Section 4887 of the Revised Statutes cannot be successfully invoked to carry the date of an invention back to the date of a previously-issued English patent where the two patents are not alike.

Mr. Amos Broadnax for the complainants.

Mr. E. Cooper Shapley for the respondents.

BUTLER, *J.*:

The bill charges infringement of the second claim of Patent No. 228,186, for cotton belting, &c., to which the defense set up is want of novelty and non infringement. The record shows that on the 9th of May, 1877, the plaintiff filed provisional specification in the commissioner's office, England, and on July 20 of the same year obtained a patent for improvements in and appertaining to belts or bands for driving machinery. The substance of the specifications and the claim will be found in the following extract:

> The object of my invention is to manufacture belts or bands for driving machinery of cotton canvas that will not give out by

stretching, and which are not detrimentally affected by variations in the atmosphere, and at the same time are sufficiently pliable to allow of their running around small pulleys without cracking. In carrying out my invention I manufacture belts or bands of cotton canvas or duck hard woven, either in width to suit the size of such belts or bands without folding, or in wider widths folded up, and in part made of separate thicknesses. The cotton canvas or duck is put together either by hand or by folders or guiders, and formed into a belt of the desired width and thickness, and then stitched with rows of stitching, being spaced about half an inch apart the whole width of the belt. The belt or band so constructed is then soaked or saturated in oil—such as linseed-oil either boiled or raw, or a mixture of such linseed-oil with other oils or spirits, such oil or mixture being thinned, if necessary, by heat or spirits to facilitate saturation.

Then he says:

A modification may consist in soaking or saturating with oil—such as boiled linseed oil—canvas or duck before it is made up into the belt or band by folding and stitching with rows of stitching, as before described. After soaking or saturating the belts or bands or the canvas or duck, before being formed into the belt or band, I pass it through rolls, or otherwise press it, to squeeze out the superfluous oil. The belts or bands are then racked to dry, and afterward painted, or they may be used without being painted, as preferred by the user, the paint being made to impart a finish. If the oiling is effected on the canvas or duck before forming such canvas or duck into the belt, I, by preference, dry it before stitching, and, after drying it it is stitched and painted.

Next he adds this sentence:

I would remark that I am perfectly aware that belts or bands of cotton canvas or duck are not new, as such have been made previous to my invention by folding and sewing, the sewing-machine being used for such sewing or stitching. I myself have manufactured and sold belts so made for the last four years. I am also aware that belts or bands have been made by weaving cotton into the form and thickness of such belt or band and afterward saturated such belt with oil—such as boiled linseed-oil. I myself have manufactured and sold belts so made for the last three years.

Then he states the objections to these belts and then he says:

Having now described and particularly ascertained the nature of my invention and shown how the same may be carried into effect, what I claim as the invention secured to me by the hereinbefore in part recited Letters Patent is—

Constructing belts or bands for driving machinery of cotton canvas or duck woven hard, and stitched and saturated or soaked with oil, or any combination thereof, as herein described or set forth, or any modification thereof.

In 1877 the plaintiff filed the same specification here and applied for a patent. On examination the Office became satisfied that the alleged invention contained nothing new and denied the application. In 1879 he filed new specifications, inserting after the words "cotton canvas or duck" the language "composed of warp stouter than the weft," and altered the claim accordingly, making the latter read:

The improved article of manufacture, consisting of hard, even-surfaced, rigid, impervious, non-elastic belt composed of cotton canvas or duck having its warp-thread larger than the weft, both warp and weft being hard spun, the fabric tight woven, and folded, stitched, and saturated with linseed-oil.

In 1883 the English patent, on coming before the chancery division of the high court of justice in a suit brought for infringement, was declared invalid for want of novelty. The court found, as the Patent Office at Washington had previously, that everything embraced in the specification and claim was old. From this finding and the decree entered an appeal was taken, which, in June, 1885, after hearing, was dismissed.

In the year 1878 Robert B. Jones filed provisional specifications in England, and obtained a patent, No. 3,031, for improvements in and appertaining to the manufacture of bands or belts for driving machinery, in which, after referring to the existing method of manufacturing such belts from "cotton canvas and other light material folded in layers, stitched together, and finished by oiling, painting, varnishing, and the like," says:

The improvement which constitutes this my present invention consists in increasing the strength of the warp or longitudinal fibers or yarns over the weft or cross-fibers.

The filing of this specification, it will be observed, antedates the plaintiff's application here about one year. Unless, therefore, it can be successfully answered, it establishes a complete anticipation of the alleged invention. This seems entirely clear.

The plaintiff's specification and claim without the words "having its warp-threads larger than the weft" contain nothing new, as has been decided by the Patent Office here and the courts in England. That these decisions were right is shown by the defendant's proofs. With the language just quoted the specifications and claim in all material respects are identical with those of Jones. The plaintiff seeks to avoid this difficulty by treating the patent as a virtual reissue of the English patent under section 4887 of the Revised Statutes, and thus carry the date of the invention back to the date of that patent. This position, however, cannot be sustained. If he had a valid English patent for anything, it is not for the invention claimed here. No reference is there made to the difference in weight of the warp and weft threads in the canvas, (the only material matter, without which, as we have seen, the patent here would not have been granted.) The reference to the English patent in the specifications is unimportant under the circumstances. If this reference could be appealed to, in the absence of contrary evidence, it certainly weighs nothing against the evidence found in the English patent. We are referred, however, to the testimony of Mr. Jenkins and Mr. Gandy to show that the invention dated back to 1876; that the plaintiff was then engaged in making this belting, using the peculiar canvas here claimed. If this is accepted as satisfactory proof of the fact, it goes too far, showing more than two years' public use and sale of the invention prior to his application. We allude to the application here, the only one we can consider. The bill must therefore be dismissed.

I have not reached this conclusion without some feeling of reluctance. If Mr. Benjamin Plumber, one of the defendants, stood alone, it is possible the result might be different. His instrumentality in procuring the patent, his representations to the plaintiff, who was not in the country, counseling and urging the expenditure of money to this end, with a view to his own interests in the premises, his subsequent conduct in entering the plaintiff's manufactory in England to obtain an intimate knowledge of his methods of manufacture, persuading the plaintiff to embark in business here, under the supposed protection of the patent, with a view to obtaining employment for himself, (Plumber,) taken in connection with his subsequent conduct in establishing a rival manufactory and business, employing the plaintiff's system and methods, infringing his patent, and attacking its validity, are not calculated to excite much sympathy for him. He is not alone interested, however, and these matters which were urged against him (as in the nature of an estoppel) cannot be used against others. A decree must therefore be entered, dismissing the bill.

GANDY *v.* MAIN BELTING COMPANY.

Decided June 29, 1886.

GANDY—STRETCHING BELT AND APPARATUS THEREFOR.

Letters Patent No. 269,519 were granted December 26, 1882, to Maurice Gandy for improvement in stretching by means of an apparatus consisting of a frame-work on the ends of which is a series of rollers free to revolve upon their axis. The belts are placed upon the rollers and the ends are fastened with a taking-up device. Pressure is then applied, and the belt is submitted to a continuous strain as if in actual use until all the elasticity in the belt is killed. The taking-up device serves to keep the belt taut throughout the entire proceeding. *Held* that the process and apparatus possessed novelty and that the patent was therefore valid.

Mr. Amos Broadnax for the complainant.

Mr. E. Cooper Shapley for the respondent.

BUTLER, *J.*:

Starting with the usual presumption in favor of the plaintiff's patent, (No. 269,519,) we do not find anything in the state of the art that would justify us in deciding it to be invalid. Each of the claims should receive a strict construction. Even in this view we think both of them are infringed by the defendant's device. As respects the first infringement is scarcely denied, and as respects the second we think it is plainly shown.

A decree must be entered in the plaintiff's favor.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[*BY AUTHORITY OF CONGRESS.*]

VOL. 37—No. 13. TUESDAY, DECEMBER 28, 1886. PRICE—$5 per year.

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The Official Gazette.

The OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $6.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

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The following indexes to foreign patents have been translated, compiled, and published under the authority of the Commissioner of Patents, and may be obtained as a Patent Office publication at the prices given below.

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Indexes to Patents on Electricity.

Appendix No. 2 to the index to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1883, has been issued, and is now for sale. These indexes, arranged alphabetically, numerically, and by classes, are completed to June 30, 1883, and comprise the following volumes:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers $1.50.

Vol. 4. Appendix No. 4, July 1, 1884 to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nebraska	2	
Arizona Territory			Nevada		
Arkansas	1		New Hampshire	2	1
California	13		New Jersey	20	1
Colorado	5		New Mexico Territ'y		
Connecticut	19	1	New York	83	12
Dakota Territory	2	1	North Carolina		
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Iowa	6		Vermont	4	
Kansas	4		Virginia		
Kentucky	7		Washington Territ'y	4	
Louisiana	3		West Virginia		
Maine	3		Wisconsin	9	
Maryland	7		Wyoming Territory		
Massachusetts	34	4	United States Army		
Michigan	17		United States Navy		
Minnesota	5	1			
Mississippi	1		Total to citizens of the United States	392	25
Missouri	9				
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Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
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Austria-Hungary	1		Hawaii	2	
Barbadoes			Mexico		
Belgium			Monaco	1	
Brazil			New Zealand		
British Columbia			Norway		
Canada	9		Russia		
Central America			Scotland	1	
Colombia, U. S. of			Spain		
Cuba			Switzerland	1	
Denmark			Victoria	1	
Ecuador					
England	8	4	Total to citizens of foreign countries	29	5
France	1				

DESIGNS.

17,036 and 17,037.—STOVE.—*George O. Bergstrom*, Neenah, Wis., assignor to *Bergstrom Brothers & Co.*, same place. Applications filed April 12, 1886. Serial Nos. 198,641 and 198,642. Term of patents 7 years.

17,038.—HEAD FOR OIL-CANS.—*Leo E. Bowker* and *Daniel F. Bowker*, Winchester, N. H., assignors to *The Ashuelot Can Company*, same place. Application filed November 4, 1886. Serial No. 218,023. Term of patent 7 years.

17,039.—NECKTIE.—*Jacob H. Fleisch*, New York, N. Y. Application filed October 7, 1886. Serial No. 215,637. Term of patent 7 years.

17,040.—BRIDLE-BIT.—*Frank M. Gilham*, San Francisco, Cal., assignor to *August Buermann*, Newark, N. J. Application filed November 30, 1886. Serial No. 220,322. Term of patent 14 years.

17,041.—BAG.—*James Lyall*, New York, N. Y. Application filed August 21, 1886. Serial No. 211,571. Term of patent 14 years.

17,042.—DOLL.—*Edward S. Peck*, Brooklyn, assignor to *The New York Stationery and Envelope Company*, New York, N. Y. Application filed November 12, 1884. Serial No. 147,780. Term of patent 14 years.

17,043.—FORK OR SPOON HANDLE.—*Edward T. Schoonmaker*, New York, N. Y., assignor to *The Rogers & Hamilton Company*, Waterbury, Conn. Application filed November 26, 1886. Serial No. 220,006. Term of patent 14 years.

17,044.—HANDLE FOR SPOONS, FORKS, &c.—*George W. Shiebler*, Brooklyn, N. Y. Application filed October 21, 1886. Serial No. 216,911. Term of patent 7 years.

17,045.—CURTAIN FABRIC.—*Candace Wheeler*, New York, N. Y. Application filed December 1, 1886. Serial No. 220,415. Term of patent 7 years.

TRADE-MARKS.

[Certificates of registration of Trade-Marks numbered 8,191 and upward are registered under the act of March 3, 1881.]

13,917.—HAIR-TONIC.—*John Bodin*, St. Paul, Minn. Application filed November 23, 1886. Used since August 15, 1885.

"The fac-simile signature 'PROFESSOR STOCKTON'S,' the representation of a young girl's head, and two Maltese crosses."

13,918.—RUBBER GOODS.—*Boston Rubber Company*, Boston, Mass. Application filed November 6, 1886. Used since April 1, 1870.

"The arbitrary word-symbol 'MOULTON.'"

13,919.—RUBBER GOODS.—*Boston Rubber Company*, Boston, Mass. Application filed November 6, 1886. Used since February 1, 1886.

"The arbitrary word-symbol 'HOOD-MOULTON.'"

13,920.—STIRRUPS AND BRIDLE-BITS.—*Vincent Brodhurst*, Bloxwich, England. Application filed November 23, 1886. Used since 1851.

"The word 'DANIEL.'"

13,921.—GAS-BURNERS.—*G. K. Cooke*, New York, N. Y. Application filed November 26, 1886. Used since March 1, 1886.

"The word 'MATCHLESS.'"

13,922.—SAUCE.—*Crosse & Blackwell*, Soho Square, county of Middlesex, England. Application filed October 8, 1886. Used since June 15, 1886.

"The word 'EPICUREAN' and the representation of the royal arms of England."

13,923.—DODGE'S CLARIFIED PETROLEUM CARRIAGE-TOP DRESSING.—*W. D. Dodge & Co.*, Olean, N. Y. Application filed November 13, 1886. Used since September 1, 1886.

"The representation of a top-buggy, a man standing beside it holding a brush in the right hand and in the left a pail on which are inscribed the words 'DODGE'S TOP DRESSING,' and in the carriage-top the reflection of the image of the man."

13,924.—LUBRICATING-OIL.—*Fiske Brothers*, New York, N. Y. Application filed October 8, 1886. Used since January 1, 1879.

"The words 'FISKE BROTHERS' and the word 'LUBROLEINE' across the face of two hemispheres."

13,925.—RHINE WINE.—*Fritz Handrich*, New York, N. Y. Application filed November 29, 1886. Used since January, 1878.

"A representation of the head of Bacchus with flowing hair, crowned or interwoven with grape-leaves, and having a scepter over the left shoulder, all within a circular band, and the letters forming the monogram 'F H' within a small circle in the band over the scroll-work, the circular band bearing the legend 'VINUM PELLIT CURAS.'"

13,926.—WEARING-PLATES FOR BOOTS AND SHOES.—*Alfred W. Greenwood*, Fall River, Mass. Application filed November 19, 1886. Used since August 1, 1886.

"The word 'CLIMAX.'"

13,927.—COOKING-RANGES.—*Jones & Kirtland*, New York, N. Y. Application filed November 1, 1886. Used since 1842.

"The word-symbol 'BEEBE.'"

13,928.—WOOLEN YARNS.—*Kammgarn-Spinnerei*, Düsseldorf, Germany. Application filed August 9, 1886. Used since October 1, 1885.

"A representation of the lion of Düsseldorf."

13,929.—WASHING OR SOAP POWDERS.—*James C. Kellogg*, New York, N. Y. Application filed October 15, 1886. Used since August 12, 1886.

"The representation of crows falling or fluttering into a tub of suds and coming out white."

13,930.—PORTLAND CEMENT.—*London Portland Cement Company*, (*Limited*,) London and Northfleet, England. Application filed November 24, 1886. Used since September, 1878.

"The representation of a light-house."

13,931.—LOOKING-GLASS PLATES.—*Phillip Semmer & Co.*, New York, N. Y. Application filed October 25, 1886. Used since May 1, 1886.

"The word 'BOHEMIAN' arranged in a straight line within a rectangular frame or border intersecting a circle so as to form two segments or compartments in said circle."

13,932.—BUTTON-HOLE ATTACHMENTS FOR SEWING-MACHINES.—*The Smith & Egge Manufacturing Company*, Bridgeport, Conn. Application filed November 13, 1886. Used since August 1, 1886.

"The word 'FAMILY.'"

13,933.—PERFUMERY AND POWDERS.—*McKesson & Robbins*, New York, N. Y. Application filed October 22, 1886. Used since January 1, 1886.

"The compound-word 'MABEL-SWEET.'"

13,934.—LADIES' AND CHILDREN'S UNDERWEAR AND BOYS' SHIRTS AND WAISTS.—*A. L. Singer*, Chicago, Ill. Application filed June 12, 1886. Used since January 1, 1886.

"The representation of a pair of coupled stags' heads."

13,935.—JET GOODS.—*Veit & Nelson*, New York, N. Y. Application filed November 27, 1886. Used since October 1, 1886.

"The letter 'P' surrounded by a wreath."

13,936.—FLOUR.—*Samuel W. Weidler*, Wyoming, Ohio. Application filed October 9, 1886. Used since January, 1886.

"The words 'BIG SIX.'"

13,937.—PERFUMERY AND COSMETICS.—*Howard Whiting*, Brooklyn, N. Y. Application filed October 11, 1886. Used since July 1, 1886.

"The words 'ROSE LILY.'"

13,938.—CAUSTIC SODA AND POTASH, MANGANATE OF SODA, CHLORATE OF POTASH, AND BLEACHING-POWDER.—*The Widnes Alkali Company*, (*Limited*,) Widnes, county of Lancaster, England. Application filed November 16, 1886. Used since August, 1885.

"The representation of a bull."

LABELS.

5,065.—Title: "MORGAN'S THROAT TABLETS."—*Hollis Morgan Barnes*, New York, N. Y. Application filed December 1, 1886.

5,066.—Title: "DR MARISSAL'S PRESCRIPTION." (FOR A COUGH MEDICINE.)—*Geo. G. Dort & Co.*, Keene, N. H. Application filed November 24, 1886.

5,067.—Title: "THE "NO. 1" SICK HEADACHE REMEDY."—*Albion Ward Floyd*, Albany, N. Y. Application filed December 3, 1886.

5,068.—Title: "MRS OPHELIA KELNER'S VEGETABLE PREPARATION FOR THE HAIR."—*Ophelia Kelner*, Conway, Dak. Ter. Application filed December 28, 1886.

5,069.—Title: "PEELER'S HAIR GROWER."—*Albert Peeler*, Boston, Mass. Application filed November 24, 1886.

5,070.—Title: "UNIVERSAL CURE OR PANACEA."—*James E. Swords*, Ladonia, Tex. Application filed November 29, 1886.

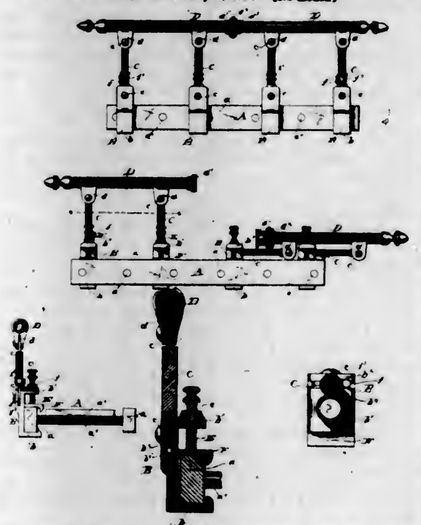
5,071.—Title: "WEESEL'S COUGH CORDIAL."—*Fred Weesel*, Newark, N. J. Application filed November 18, 1886.

5,072.—Title: "TONIC COMP." (FOR A MEDICINE.)—*Paul S. Redfield*, Providence, R. I. Application filed November 13, 1886.

PATENTS

GRANTED DEC. 28, 1886.

354,880. **SAFETY ATTACHMENT FOR SCAFFOLDS.** LAWRENCE ARON, Louisville, Ky. Filed July 8, 1886. (No model.)



Claim.—1. An improved safety attachment for scaffolds, consisting of a guard-rail divided into connectible sections, balusters pivotally connected to said rail, and also pivotally connected to clamps for embracing the sides of a scaffold, substantially as described.

2. The combination, with the blocks B, having projections *b b' b²*, and carrying the movable jaws F, with their adjusting-screws E, of the balusters pivoted to said blocks, the rail-sections pivotally connected to said balusters, the screw-ring detachably uniting the said sections, and the pins F, with their rings *f'*, as and for the purpose specified.

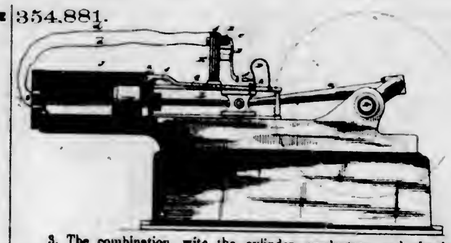
3. In combination with the clamps B, the balusters C, pivoted to the clamps and carrying the guard-rail, and the locking-ring *f'*, movable on the balusters and carrying a lock, pin, or projection, *f*, as set forth.

4. In combination with the guard-rail D, made in connectible sections, the balusters C, pivotally connected at their lower ends to the guard-rail, and independent locking devices for each section of the guard-rail, whereby any one of the sections with the balusters may be lowered without disturbing the other sections, as set forth.

5. In combination with the clamps B, the balusters C, pivoted to the clamps, the guard-rail D, pivoted to the balusters, and the locking-ring *f'*, to lock the balusters to the clamps.

354,881. **ELECTRIC IGNITER FOR GAS-ENGINES.** FOREST RAIN, Chicago, Ill. Filed Feb. 17, 1886. (No model.)

354,881.



Claim.—1. The combination, with a gas-engine, of an electrical igniter consisting of electrodes within the cylinder, an electric circuit, appliances for making and breaking the circuit by the action of the engine, an electric generator operating to generate a current by a single impulse, and means independent of the circuit-breaking appliances for operating the generator, substantially as described.

2. The combination, with a gas-engine, of electrodes within the cylinder, an electric generator operated from the engine to generate a current by a single impulse, and independent circuit making and breaking devices also operated from the engine, substantially as described.

3. The combination, with the cylinder, conductors, and circuit-breaker of a gas-engine, of a magneto-generator producing a current by a single impulse, a spring for operating the generator, arranged to be compressed by the movement of the piston in one direction and released to produce the spark by a sudden movement in the other direction, substantially as described.

4. The combination, with the cylinder, electrodes, conductors, and circuit-breaker of a gas-engine, of an electric generator constructed to operate by a single movement, a spring arranged to effect this movement and to be compressed by the piston, and a detent operated by the engine to release the spring, substantially as described.

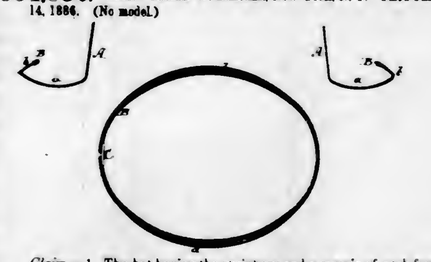
5. The combination, with a gas-engine and an electro-magnet and armature therefor, of a spring arranged to contact suddenly with the armature, electrodes within the cylinder of the engine, and a circuit-breaker operated by the piston of the engine, substantially as described.

6. The combination, with the electro-magnet, of an armature supported upon a lever, a spring arranged to contact suddenly with said lever, a detent retaining said spring, and releasing mechanism for the detent, substantially as described.

7. The combination, with the engine-cylinder, of an electro-magnet, an armature supported upon a lever, a spring arranged to contact with said lever and suddenly carry the armature from the coils, and normally-contacting electrodes within the cylinder and arranged to be separated by the piston, substantially as described.

8. The combination, with the engine, of a magneto-generator mounted thereon, an armature, a spring arranged to be compressed by the slide of the engine, a pivoted arm resting on the slide and acting as a detent to the spring, and a releasing-finger carried with the slide, substantially as described.

354,882. **HAT.** THOMAS W. BEACHER, New York, N. Y. Filed Jan. 14, 1886. (No model.)

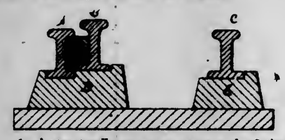


Claim.—1. The hat having the periphery and a margin of each face of its brim covered with a continuous circumferential spring, B, which constitutes a binding and a stiffener for the brim, as specified.

2. The combination of a hat with a detached curl of fabric which has its inner edge provided with a circumferential spring, as described.

3. As a new article of manufacture, a detached hat-curl of fabric combined with the circumferential spring on the inner edge, as described.

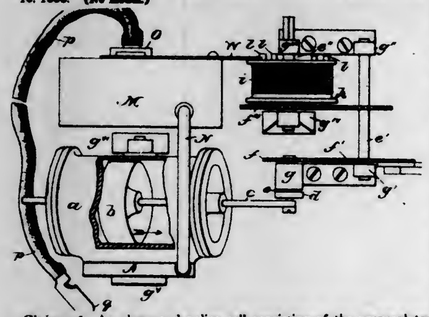
354,883. HORSE-RAILWAY CURVE. ANDREW BRACKEN, New Haven, Conn. Filed July 30, 1886. (No model.)



Claim.—1. A street-railway curve composed of three T-shaped rails, the two outside rails, A and C, set at equal height, the third or inside rail arranged to project beyond the height of the others, said rails being secured to the steps D E, and the steps secured to the ties or sleepers, all as and for the purpose described.

2. A street-railway curve composed of three T-shaped rails, the two outside rails set at equal height, the third or inside rail arranged to project beyond the height of the others, the space between the two rails A B filled with cement, K, said rails being secured to the steps D E, and the steps secured to the ties, as set forth.

354,884. ALARM. JEFFERIS R. BRANDES, Detroit, Mich. Filed Aug. 18, 1885. (No model.)

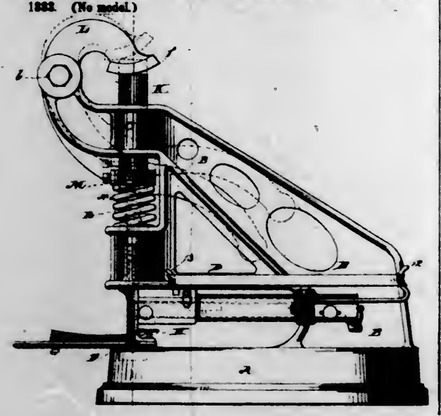


Claim.—1. An alarm and police call consisting of the accumulator M, provided with a flexible tube having a whistle attached thereto, and an opening, *v*, the air-compressing cylinder, the piston of which is connected to clock mechanism having drum A, provided with side pins, *l*, in combination with the pivoted lever *w* and slide-valve *u*, as set forth.

2. The combination, with cylinder *a*, trunnioned and provided with alternate receiving and discharging air-ports D D' E E', pipe N, accumulator M, having opening *v*, and whistle *q*, slide-valve *u*, lever *w*, and piston *b*, of semotor having a drum provided with lever-operating side pins, and a crank-shaft geared with the drum for reciprocating the piston, as set forth.

3. In combination, a motor having a drum provided with pins *l l*, wheel *f'*, having pins L L, a pivoted bell-crank stopping-lever, Y, having cords *z z'* secured to its outer ends, and a projecting hook, *a'*, pivoted lever *w*, and valve *u*, loosely connected thereto, the crank *d*, piston-rod *c*, having piston-head *b*, the pipe connection N, the accumulator M, and the flexible pipe *h*, having whistle *q*, substantially as set forth.

354,885. MACHINE FOR STITCHING BOOKS WITH METALLIC STAPLES. WILLIAM J. BROWN, Jr., Philadelphia, Pa. Filed Nov. 16, 1883. (No model.)



Claim.—1. Staple inserting and clinching mechanism consisting of the frame A, having socket-bearings E and C and a clinching-anvil, F a plunger, K, with its collar M, and mechanism, substantially as described, to depress and elevate the same, a guide-block, P, constructed as described, and provided with a pin, *k*, staple-feeding mechanism to deliver staples to said guide-block, and driver S, moving vertically in said guide-block and provided with a hook, *h*, to engage with said guide-block in its upward movement, and serving to elevate the same, said parts being constructed, combined, and arranged substantially as set forth.

2. The combination of the vertically-reciprocating guide-block P, constructed with internal vertical grooves and an internally-projecting pin, *k*, with the driver S, having a hook, *h*, and with mechanism to vertically reciprocate the said driver within the internal staple-groove of said guide-block, whereby, after a staple is received and guided by said block to the surface of the material to be operated upon and is driven by said driver, the said guide-block is withdrawn wholly by means of the engagement of the hook *h* with the pin *k* within the vertical internal channel-grooves of said guide-block upon the upward movement thereof of said driver, substantially as described.

3. The combination of the frame A, having socket-bearings E and C, and a clinching-plate, F, a plunger, K, vertically reciprocating within the upper socket, C, and a guide-block, P, vertically reciprocating within the lower socket, E, counteracting spiral springs N and R, the latter acting with pressure between said plunger and guide-block and operating to depress the guide-block on a downward movement of the plunger, and the former acting with pressure between said lower socket-bearing, E, and the plunger K, and operating to withdraw said plunger after the completion of its downward movement, and a driver, S, reciprocated by means of said plunger within said guide-block P, and operating, by means of engaging pins *h* and *k*, to withdraw the same after a staple has been driven substantially as described.

4. The combination of the vertically-reciprocating guide-block P, to receive and guide metallic staples automatically delivered thereto, provided with an internal vertical staple-groove and a recess, constructed as described, with the driver S, moving vertically in said staple-groove and uncovering said recess at each of its upward strokes, and automatic staple-feeding mechanism, consisting of a magazine, one side of which shall form a side guide to the wire staples, a guide-block therein, a removable mandrel holding a series of staples in train, and mechanism to deliver the said staples therefrom under pressure to said staple-groove of said reciprocating guide-block on the completion of its upward lift, but singly and successively at each upward stroke of said driver, substantially as set forth.

5. Automatic staple-feeding mechanism, arranged to deliver staples to the staple-groove of the guiding-block, consisting of a magazine one side of which shall form a side guide to the wire staples, having guide-blocks 5 and 6, sliding block 9, removable mandrel T, pusher-rod, and pull-spring, constructed, arranged, and operating substantially as set forth.

6. The removable metal mandrel for holding strung staples, having elongated sides bearing against the staple-legs and firmly holding them, and capable of being compressed, and thus releasing the staples, as set forth.

354,886. HORSESHOE. CHARLES S. CANFIELD, Minneapolis, Minn., assignor of one-half to Stanley M. Utter, same place. Filed Nov. 19, 1885. (No model.)



Claim.—The combination, with the shoe A, of the T-plate B, having calks B'' and B', the bar C, having bolt C' and nut C'', and the bar D, having bolts D' and nuts D'', all substantially as described, and for the purpose set forth.

354,887. SPINDLE-BEARING FOR SPINNING-MACHINES. HORACE P. CHASE, New Bedford, Mass. Filed Nov. 5, 1885. (No model.)

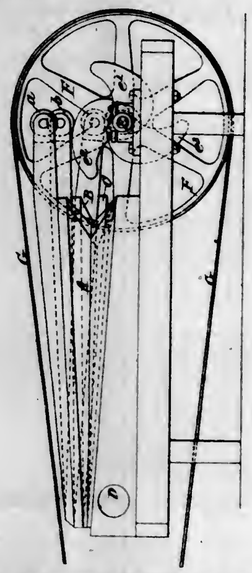


Claim.—1. The combination, with the spindle and bolster-case, of a bolster formed with a closed bottom constituting a step for the spindle, and having its lower end reduced in diameter and provided with an oil-inlet, a flexible absorbent material applied about said reduced end, and an elastic packing interposed between the end of the bolster and the bolster-case, substantially as described.

2. The combination, with the spindle, the bolster, the bolster-case formed with an oil-chamber, *m*, and the sleeve-whirl supported out of contact with said bolster-case, of the cover *e*, having an oil-inlet, *g*, and a central opening provided with an upturned flange extending beneath and exterior to the under side of the sleeve-whirl, and a spring-plate, S, having one end attached to the under side of said cover, with its other end beneath and closing the oil-inlet, substantially as described.

3. The combination, with the bolster having an exteriorly-reduced closed lower end provided with an oil-opening, of the yielding fabric *i*, surrounding the same, the bolster-case having oil-opening *r*, the oil-chamber *m*, porous filling *h*, cover *e*, having oil-opening *g*, and cover S, substantially as described.

354,888. APPARATUS FOR EXHAUSTING OR DELIVERING AIR OR OTHER FLUID UNDER PRESSURE. HERBERT DAVIS, Drayton Park, Highbury, County of Middlesex, England. Filed Mar. 27, 1885. (No model.)

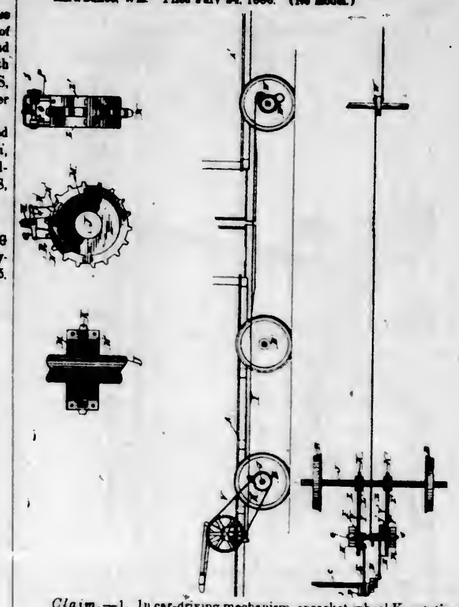


Claim.—1. An apparatus for delivering air or other fluid under pressure, or for exhausting air or other fluid, the same consisting of a plurality of bellows or feeders, as A B, provided with suitable eduction and induction valves, as *m n*, and connected directly with a conduit or wind-trunk common to all, the delivery or exhausting of the air by the said bellows or feeders being effected solely by the action of their movable members under the influence of gravitation, the operating position of said movable members being restored from time to time, as required, by suitable mechanical means continuously driven by an irregularly-running or other prime mover, the said bellows or feeders acting to deliver or exhaust only as and when required, and independently of any actuating mechanism, whereby all strain on the bellows or feeders is avoided, as set forth.

2. In an apparatus for delivering air or other fluid under pressure, or for exhausting the same, the combination, with a plurality of bellows or feeders, as A B, connected with a conduit or wind-trunk, as D, common to all, each arranged to deliver or exhaust air by the gravitating movement of their movable members, and provided with suitable eduction and induction valves, as *m n*, of a plurality of cams or tappets, as *e' e''*, arranged to operate the movable members of said bellows to place the same in position to deliver or exhaust air after such gravitating movement, substantially as described.

3. In an apparatus for delivering air or other fluid under pressure, or for exhausting the same, the combination, with a plurality of bellows or feeders, as A B, connected with a conduit or wind-trunk, as D, common to all, each arranged to deliver or exhaust air in succession by the gravitating movement of their movable members, and provided with suitable eduction and induction valves, as *m n*, of a plurality of cams or tappets, as *e' e''*, arranged to operate the movable members of said bellows in succession, to place the same in position to deliver or exhaust air after such gravitating movement, substantially as described.

354,889. DRIVING MECHANISM FOR CARS. EZRA DICKERMAN, Milwaukee, Wis. Filed July 24, 1886. (No model.)



Claim.—1. In car-driving mechanism, sprocket-wheel K, rotating on the car-wheel axle J and provided with drums L L', in combination with ratchet-wheels M M', rigid on axle J, pawls N N', and chain V, running over and engaging the sprocket-wheel K and connected with the power-supplying mechanism, substantially as described.

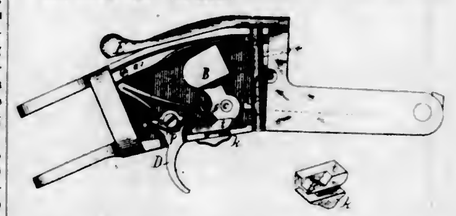
2. In car-driving mechanism, a sprocket-wheel, F, oscillating on an axle, and provided with a rigid arm or bell-crank, I, connected with the power-supplying mechanism, in combination with a chain, V, running over and engaging with the sprocket-wheel F, and running upon and communicating motion to a wheel upon the car-axle, substantially as described.

3. The driving-shaft C, provided with opposite bell-cranks D D', pitmen E E', connecting-cranks D D' with cranks I I', independent sprocket-wheels F F', provided with rigid crank-arms I I', and the chains V V', in combination with sprocket-wheels K K', each provided with two ratchet-wheels, L L', and a pawl, N N', pivoted to the sprocket-wheel, said pawls being constructed and adapted to engage either one or the other of the ratchet-wheels in reverse directions and compel rotation thereof, all substantially as described.

4. In car-driving mechanism, the power-supplying wheel K, the thereon-supported axle O and oscillating arms Q Q', connected to the pawls N N', and pawls N N', in combination with the ratchet-wheels M M', rigid on car-axle J, all substantially as described.

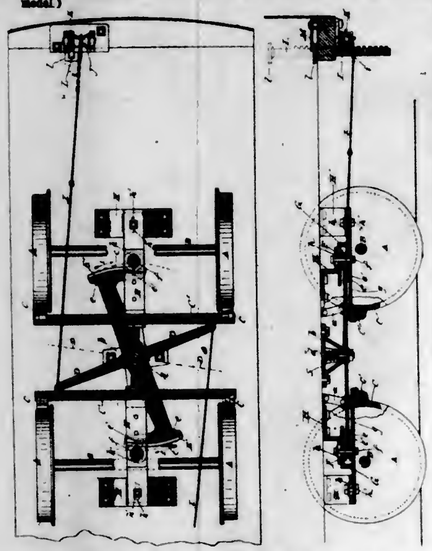
5. In car-driving mechanism, the sprocket-wheels F on one car, and thereto-attached rod or cable Y, connecting the sprocket-wheel to a starter on the axle of another car, substantially as described.

354,890. BREECH-LOADING FIRE-ARM. AMOS DICKERMAN, New Haven, Conn., assignor of one-half to Cornelius Pierpont, same place. Filed June 30, 1886. (No model.)



Claim.—In combination with the trigger and the trigger-locking plate provided with the inclines *o o*, substantially as described, the spring carried by the trigger and having its end so situated as to engage the inclines on the plate, substantially as and for the purpose described.

354,891. CAR-BRAKE. Louis Dunt, Albany, N. Y., assignor of one-half to Asthine F. La Rose, same place. Filed Apr. 24, 1886. (No model.)



Claim.—1. In car-brakes, the combination, with brake-bar C, of friction-roller F, draw-strap *g*, connecting said roller with said bar, cam E', carried by arm E, which is pivoted with a lever to the car and operated at will by a draw-rod and drum from the platform of the car, substantially as and for the purposes set forth.

2. In car-brakes, the combination, with the wheels of the car or its truck, brake-bar provided with shoes C C, draw-strap connected with said brake-bar, housing G, connected with said draw-strap and carrying friction-roller F, of the cam E', working against said roller and moved by an arm which is connected with the lever D, and draw-rod I, provided with draw-chain i, connected with a drum which is revolved by the operator at will, substantially as and for the purposes set forth.

3. In car-brakes, the combination, with lever D, connected by means of an arm with a cam working against a friction-roller mounted in a movable housing, G, which is connected with the brake-bar, of the drum J, cog-gear K, foot toothed rack L, and draw rod and chain I i, substantially as and for the purposes set forth.

4. In a car-brake, the combination, with the foot toothed rack L, operating the cog-gear of a drum which is connected with the draw-chain i of the draw-rod of the brake, of the button or latch M, pivoted to the platform and operating with the cogs of said rack, substantially as and for the purposes set forth.

5. In a car-brake, the combination, with the movable housing G, of a friction-roller which is connected with the brake-bar by draw-strap *g*, and the guide-pin *e'*, connected with said strap or housing of the groove *e* in the cam E', attached to arm E, which is connected with the pivoted lever D, and the reacting-spring S, substantially as and for the purposes set forth.

354,892. UNDERGROUND CONDUIT. Josiah S. Du Bois, Camden, N. J. Filed Nov. 17, 1885. (No model.)

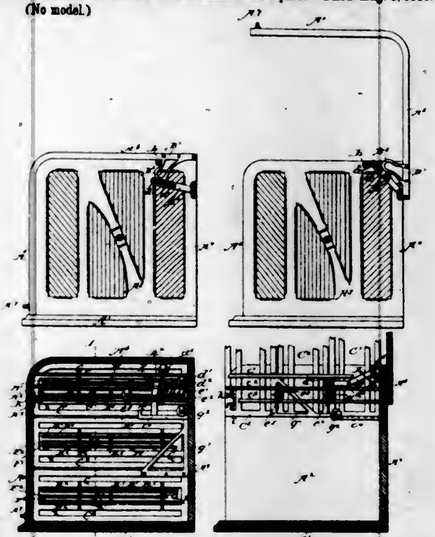


Claim.—1. The combination of the longitudinal conducting wires with a cylindrical casting of considerable width, and having a circular row of radiating projections of much less width, forming spaces between said projections, into which the wires are placed and caused to rest upon the wide surface of the cylinder, a tightening-band having perforations to fit over the projections on the cylinder and adapted to clamp the wires down upon the cylinder upon each side of the projections, and suitable means, substantially as set forth, for tightening the band, substantially as and for the purpose specified.

2. The combination, with the parallel electric wires B, of the support C, consisting of a band provided with projections D, furnished with two or more rollers, *d*, and spaces E, in which latter the wires are placed, and straps to hold said wires down clear of the outer edges of the projections, and a conduit of approximately the same shape as the periphery of the projections D, substantially as and for the purpose specified.

3. The combination, with the parallel electric wires B, of the support C, consisting of a band provided with projections D, and spaces E, in which latter the wires are placed, and straps to hold said wires down clear of the outer edges of the projections, consisting of strap F, having holes *f* and ends H, and tightening-bolts G, substantially as and for the purpose specified.

354,893. SHOW-CASE. James E. Fox, Minneapolis, Minn., assignor of one-half to David C. Loewenstine, same place. Filed Aug. 3, 1885. (No model.)



Claim.—1. A show-case having goods-supporting frames C' C² C³ contained therein, and provided with a front, A², and top A³, formed in fixed relation to each other, the top being hinged at the rear of the case to the same, the said front and top being adapted to be raised and held with the top in a vertical position and the front in a horizontal position at some distance above the case, whereby the said frames may be raised to and held in a vertical position partly above the case and beneath the said front, substantially as herein specified.

2. A show-case having a bottom, back, and sides in fixed relation to each other, and provided with slotted pivoted bars B², in combination with a front and top in fixed relation to each other, and provided with brackets B', adapting the top when raised to slide back and drop down behind the back A⁴, substantially as described.

3. A show-case having a bottom, back, and sides in fixed relation to each other, and provided with slotted pivoted bars B², and anti-friction grooved rollers *b*, in combination with the front and top in fixed relation to each other, and provided with brackets B', having curved portions B³, substantially as and for the purpose herein specified.

4. The combination, in a show-case, of a case bottom, sides, and back, A' A² A³ A⁴, tracks *c'* *c²* *c³* *c⁴*, and goods-supporting frames C' C² C³, provided with rollers adapted to run upon the said tracks, arranged and operating substantially as herein shown and described.

5. In a show-case, a series of goods-supporting frames or holders contained within the case in a horizontal position one above another, and adapted to be raised to and independently sustained in a vertical position one in front of another and substantially on the same plane without removal from the case, for the purpose herein specified.

6. In a show-case, a series of goods-supporting frames or holders contained within the case in a horizontal position one above another, and adapted to be raised to and sustained in a vertical position one in front of another on substantially the same plane, each frame being partially above the sides of the case, in combination with a case having a connected front and top adapted to be raised and held away from the said frames, substantially as and for the purpose herein specified.

7. In a show-case, a goods-supporting frame adapted to be placed and be d in both a horizontal and a vertical position and provided with two sets of oppositely-located rods, D D, the respective sets of rods having pegs *u'* *u'*, adapted to be turned inward simultaneously toward each other and upward parallel with each other, substantially as herein specified, whereby each article is adapted to be held by two opposite pegs on opposite rods of the frame, the pegs being adapted to be thus turned inward toward each other to permit the full removal of the article, substantially as herein set forth.

8. The combination, in a show-case, of a frame having pivoted rods D and pegs *u'*, the connecting-arms *n'*, rods *n²*, handle E², lever F', having a lug, *o'*, lever F², having a lug, *v²*, catch *i*, lever *m*, and connecting cord or wire *t*, substantially as shown and described.

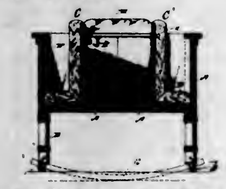
9. In a show-case, a holding-peg, *u'*, formed of a flat plate of metal bent at one and around a rod, D, and held in place thereon by a portion of the metal cut in and bent from the plate into the rod, and having at the other end a lip, *u²*, cut in and bent outward from the plate, in combination with the arms *n'* and *n²*, straps *n²*, and rod H, substantially as herein specified.

354,894. FOLDING COOP. Alfred Gamard, New Orleans, La. Filed Jan. 26, 1886. (No model.)



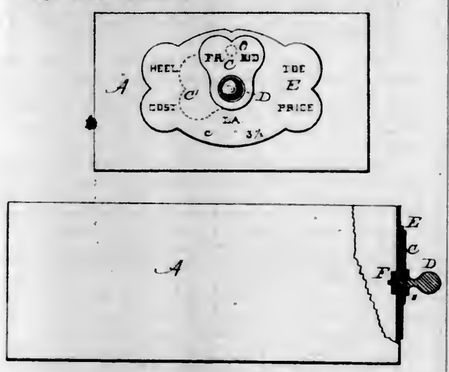
Claim.—A folding receptacle of the kind described, consisting of hinged end pieces folding inwardly, side pieces folding inwardly, said side pieces being composed of bands looped at each end, slats secured to said bands, and links connecting said bands with each other, a top and a bottom piece cut away at their corners and midway of their length, bands secured to the top and bottom at each end and midway thereof, and extending outwardly to the cut-away portions, and links located within the cut-away portions and connecting the top and bottom bands with the side bands, substantially as described.

354,895. BABY-WALKER. Sarah E. Gleason, Tacoma, Wash. Filed Nov. 2, 1885. (No model.)



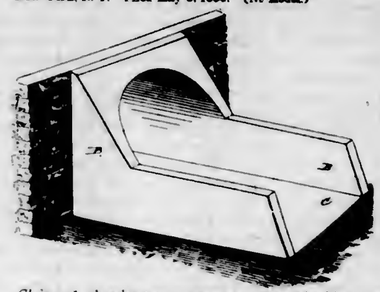
Claim.—The extensible frame A A' A'' B, having fixed panels D, and movable panels C and C', hinged to said fixed panels, combined with the hinged arms E, and engaging means I i, as set forth.

354,896. SHOE-BOX LABEL. Simon Goodman, Dayton, Ohio. Filed Sept. 20, 1886. (No model.)



Claim.—A shoe-box label composed of knob B, with pin in its shoulder to engage the indicator C, held on the shaft of said knob, the label E, likewise held on said shaft, abutting said indicator, and combined with a shoe-box, substantially as shown and described.

354,897. CULVERT OR WATER-WAY. John C. Goodridge, Jr., New York, N. Y. Filed May 3, 1886. (No model.)



Claim.—1. A culvert or water-way constructed with an upstream flume or extension, the depth of which is less than the height of said culvert or water-way, substantially as specified.

2. A culvert or water-way constructed with an upstream flume or extension, with an intermediate inclined abutment leading from the sides of the extension to the top of the culvert, substantially as and for the purpose specified.

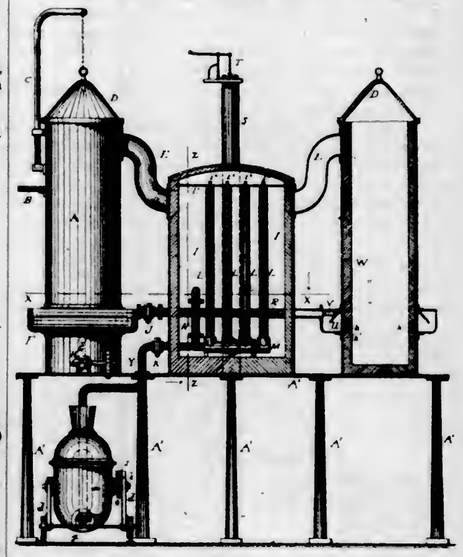
354,898. SPLICE-BAR. Howard Greer, Lake View, Ill. Filed Aug. 16, 1886. (No model.)



Claim.—1. Splice-bars having the channels or grooves A A', Figs. 1 and 3, said channels running along the face side of the bars through the part occupied by the bolt-holes, said channels beginning at very narrow grooves in middle of the bars at C and broadening upward and downward toward each end of same, and being of uniform depth for their entire length, substantially as described and set forth.

2. Angle splice-bars having the channels or grooves A A', Fig. 1, which are full breadth, or nearly so, of the bars at their ends, and converge toward the middle of the same until their points meet at C, said channels being of uniform depth throughout their length and occupying the face side of the bars, substantially as set forth.

354,899. HOT AND FORCE BLAST CUPOLA. Mark Hahn, Stockton, Cal. Filed Nov. 12, 1885. (No model.)



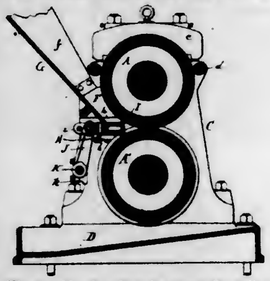
Claim.—1. The chamber I, provided with the series of vertical pipe-sections L, secured to the horizontal step-sections M O P Q, suitably secured to the floor of the chamber I, and at their tops secured by

the iron stud L' and set-screws L^2, and having the pipe S and damper T, in combination with the cupola-furnaces A and W, being connected therewith by the upper pipes, E, and lower pipe, R, the pipe R being provided with suitable valves, each furnace being provided with a blast-box, F, containing the deflector U, the equalizer V, and shell A', having the inlets A, and curved lower edge, all operating substantially as set forth and described.

2. In a blast apparatus, the combination, substantially as described, of the chamber I, containing the series of pipes M O P Q L, the connecting-pipes E E R, the cupola-furnaces A W, the discharging-pipe Y, the converter *a*, the platform A^2, and the pillars A.

3. The cupola-furnaces A W, provided with the blast-boxes F, containing the deflectors U, the equalizers V, and shell A', having the inlets A for the passage of the hot air into the furnaces, in combination with the pipes E and R, the ends of the latter of which are adapted to discharge the hot air from the chamber I into the blast-boxes F, and the ends of the former of which are adapted to permit the flow of the flame from the furnaces into the chamber I, the chamber I and the furnaces A W being suitably mounted on platform A^2, supported by pillars A', said chamber I being provided with a pipe, Y, for conducting the blast into a converter, *a*, all substantially as set forth.

354,900. FEEDER FOR BAGASSE ROLLER-MILLS. Arbin Hanberg, Koloa, Kauai, Hawaii. Filed June 19, 1886. (No model.)



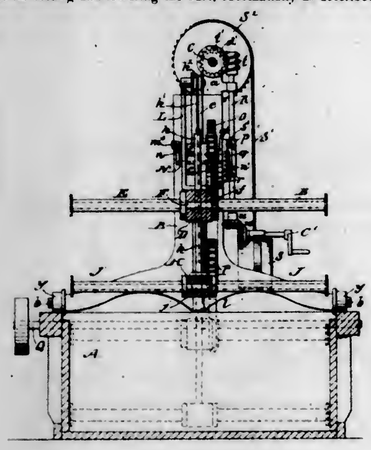
Claim.—1. The combination, in a bagasse roller-mill, of the feed-bopper having a horizontal bottom plate, the rollers, a horizontally-reciprocating feed-bar interposed between the feed-hopper and said bottom plate and in line with the entering space between the rollers, and means for operating said bar, as set forth.

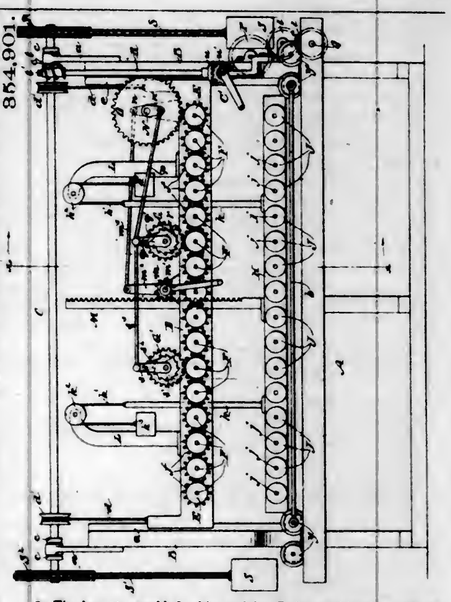
2. In a bagasse roller-mill, the combination, with the feed-bopper, the rollers, and spur-wheels, of a reciprocating bar, a pawl having two points engaging with one of said spur-wheels, and connections between said pawl and the feed-bar, substantially as described.

3. In a bagasse roller-mill, the combination, with the feed-hopper and rollers, of the feed-bar I, rock-arms J, shaft K, having crank L, pendulum-lever M, having pawl N, with points *n n'*, and spur-wheel E, all substantially as and for the purpose set forth.

354,901. DYEING-MACHINE. Joseph Hamson, Philadelphia, Pa. Filed Apr. 19, 1886. (No model.)

Claim.—1. The central bar, D, having swifts upon either side, and the bar H, having reels or arms upon either side, in combination with means for raising and lowering the bars, substantially as described.





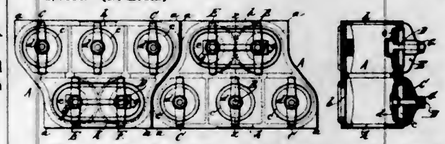
2. The bar D, provided with uprights L, in combination with the lower bar, H, suspended from the pulleys L^2, attached to the uprights L, substantially as described.

3. The top shaft, C, provided with pulleys *d'* and S^2, in combination with the bar D and suspending-ropes *d*, and the counterbalance-weights S and chains S', substantially as and for the purposes set forth.

4. The top shaft, C, provided with pulleys *d'*, and worm-pinion *t'*, in combination with the bar D, suspending ropes or chains *d*, worm-shaft R and crank-shaft C', and gear-wheels for turning the worm-shaft, substantially as and for the purposes set forth.

5. The vat A, and a main frame supported thereupon, and a central bar, D, carrying swifts upon either side, and a bar, H, carrying reels or rods upon either side, in combination with means, substantially as described, for lowering the bars D H into the vat, substantially as described.

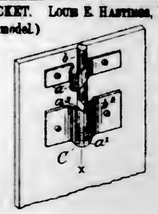
354,902. HEADER FOR STEAM-BOILERS. James Hartley, Brooklyn, N. Y., assignor to the Pioneer Iron Works, same place. Filed Apr. 2, 1886. (No model.)



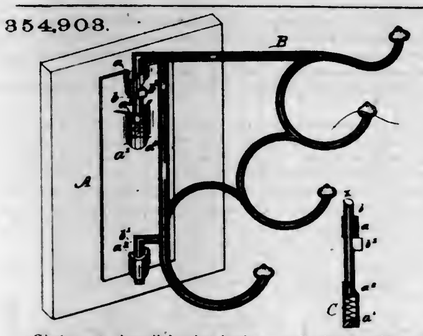
Claim.—1. In a header for sectional boilers, the front face provided with one or more circular openings and an elongated opening, the inner surfaces of the margins of each of which are faced off to form seats for the covering-plates, and the covering-plates are arranged to be introduced or removed through the elongated opening, substantially as shown and described.

2. In a header for sectional boilers, the combination, with the front face, of the circular and elongated plates seated upon the inner surfaces of the margins of their respective openings and held in place by bolts and yokes, all said plates being arranged to be introduced or removed through the elongated opening, substantially as shown and described.

354,903. BRACKET. Louis E. Hastings, Manning, Iowa. Filed Aug. 19, 1886. (No model.)



354,908.

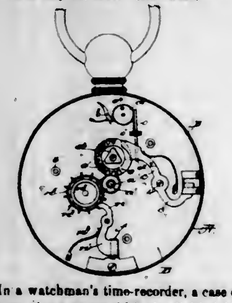


Claim.—1. A wall-bracket having a wall-plate provided with sockets arranged at a suitable distance apart, and a bracket having pivots engaging with said sockets, and a spring for supporting the weight of said bracket, and engaging devices on said sockets to engage the bracket when depressed, as described.

2. The combination, in wall-brackets, of a wall-plate provided with projecting sockets and an obliquely-inclined upper socket having an obliquely-inclined opening in said socket, a lower socket having an engaging-notch formed by the upper inclined edge or edges of said lower socket, and a bracket having pivots, and a lug on one of said pivots adapted to enter said opening in said elongated socket and engage with said notch and yielding upon sudden pressure, as described.

3. The combination, in wall-brackets, of a wall-plate provided with sockets extending therefrom, and an elongated oblique upper socket and a lower notched socket, a bracket provided with a pivot, a lug on said pivot, and a spring in said lower socket adapted to support the end of said pivot, as described.

354,904. WATCHMAN'S TIME-RECORDER. Albert C. Howard, Boston, Mass. Filed May 12, 1886. (No model.)



Claim.—1. In a watchman's time-recorder, a case containing a motor, a moving disk or platen upon which the dial is laid, and a toothed wheel moving simultaneously with the platen, and a segmental plate or projection deriving its movement from the said toothed wheel, combined with locking and releasing devices, under the control of the said segmental plate or projection, for locking and releasing the cover C, substantially as described.

2. In a watchman's time-recorder, a case and motor therein, a moving platen or disk, and a toothed wheel, *a'*, combined with a pinion, a^2, and segmental plate a^4, carried by it, and a spring-controlled bent lever, all substantially as described.

3. In a watchman's time-recorder, the case and motor therein, and a moving platen or disk, combined with a face-plate having a hole or opening, *f*, for the insertion of the key for indenting and perforating the dial carried by the moving platen or disk, and means, substantially as described, controlled by the motor, for opening and closing the said hole, as set forth.

4. In a watchman's time-recorder, the case and motor therein, a moving platen or disk, and the toothed wheel *a'*, combined with a perforated face-plate, B, and means, substantially as described, controlled by the toothed wheel *a'*, for intermittingly opening and closing the perforation in the face-plate at predetermined intervals, substantially as described.

5. In a watchman's time-recorder, a case and motor therein, a moving platen or disk, and the toothed wheel *a'*, combined with the toothed wheel a^3, a series of spurs or projections, a^5, and a bent lever, *n n'*, all substantially as described.

6. In a watchman's time-recorder, the case and motor therein, a moving platen or disk, and locking devices and releasing devices for locking and releasing the cover C, combined with means, substantially as described, for positively holding the locking device out of engagement to retain the register unlocked, substantially as described.

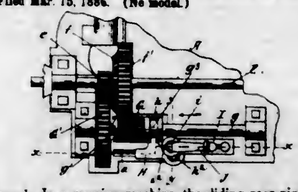
7. In a watchman's time recorder, the case and motor therein, combined with a cover, locking and releasing devices, controlled by the motor, for locking and releasing the said cover, and means, substantially as described, for releasing the locking device to release the cover just before the motor runs down, substantially as described.

354,905. PROCESS FOR CUTTING SUGAR AND SORGHUM CANE. Henry A. Hughes, Rio Grande, N. J. Filed Feb. 6, 1886. (No specimens.)



Claim.—The process of cutting sorghum or sugar cane into short sections preparatory to diffusion and of simultaneously removing the leaves and sheaths from the maximum proportion of said sections, which consists in dividing the stalk by cross-cuts so disposed that each division or section of the said stalk shall not contain more than one knot or joint, substantially as described.

354,906. CLUTCH MECHANISM FOR MOWING-MACHINES. Geo. G. Hunt, Bristol, assignor to the Plano Manufacturing Company, Plano, Ill. Filed Mar. 15, 1886. (No model.)

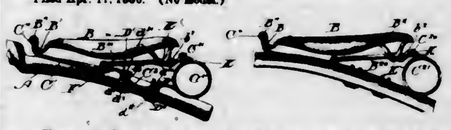


Claim.—1. In a mowing-machine, the sliding gear-pinion provided with a clutch-face, in combination with the sliding clutch-plate having a transverse slot, and the eccentric pin arranged to work in said slot, substantially as and for the purposes set forth.

2. The sliding clutch-plate provided with ridges on its under side, in combination with the cross-piece of the main frame of the machine, provided with grooves corresponding to the said ridges, the eccentric pin, and the sliding clutch-pinion, substantially as and for the purposes set forth.

3. The sliding clutch-plate, in combination with the eccentric pin provided with a spline, the pin-socket provided with the flange having notches therein, and the sliding clutch-pinion, substantially as and for the purposes set forth.

354,907. VELOCIPEDE-SADDLE. Thomas B. Jeffery, Chicago, Ill. Filed Apr. 17, 1886. (No model.)



Claim.—1. In combination, substantially as set forth, the flexible suspension-seat fastened to its support at the forward end, the rear

stretcher or seat-frame having a forward extension resting upon the support under the seat, and a spring additionally supporting the rear stretcher.

2. In combination, substantially as set forth, the flexible suspension-seat fastened to its support at the forward end, the rear stretcher or seat-frame having a forward extension resting upon the support underneath the seat, and a spring supporting the rear stretcher jointed to it below the seat.

3. In combination, substantially as set forth, the flexible suspension-seat fastened to its support at the forward end, the rear stretcher or seat-frame having a forward extension resting upon the support underneath the seat, and a spring supporting the rear stretcher and connected to it by a link pivoted to the stretcher below the seat and extending rearward to the spring.

4. In combination, substantially as set forth, the rear stretcher, the spring C^2, and the link E, pivoted to the spring and to the stretcher, and having the extension E' stopped against the stretcher at its highest point.

5. In combination, substantially as set forth, the rear stretcher having a forward extension supported underneath the seat, the spring C^2, and the link E, pivoted to the spring and to the rear stretcher, and having the extension E', stopped against the stretcher.

6. In combination, substantially as set forth, the flexible suspended seat, the spring which supports its forward end extended back underneath it, and the frame or rear stretcher attached to the seat and extended forward underneath it and resting on the rearwardly-extended spring, whereby the seat, when sagged at the middle, is directly supported at that part by the forward spring.

7. In combination, substantially as set forth, the front spring and the front stretcher pivoted to it, the rear spring and the rear stretcher connected to it by a link and having the forward extension resting on the forward spring underneath the seat, and the flexible seat suspended from the front stretcher to the rear stretcher.

8. In combination, substantially as set forth, the perch, the seat-support, and a clamp which secures them together, the portion of the support embraced in the clamp being formed in a curve of short radius and the support being adjustable by sliding said curved portion in its bearings in the clamp to change the inclination of the seat at will.

9. In combination, substantially as set forth, the perch, the seat-support, and the two clamps which secure them together, the portion of the support embraced in the clamps being formed in a curve of short radius and the clamps being independently adjustable on the perch.

10. In combination, substantially as set forth, the perch, the seat-support, and a clamp which unites them, the support having a portion formed in a curve of short radius adjustable in the clamp, and the clamp being adjustable on the perch, whereby the change of inclination and the change of position may be independently effected at will.

11. The flexible saddle-seat suspended at the ends and corrugated from front to rear, substantially as and for the purpose set forth.

354,908. CARPET-SWEEPER. WILLIAM T. JOHNSTON, Grand Rapids, Mich., assignor to the Bissell Carpet Sweeper Company, same place. Filed Oct. 31, 1885. (Model.)



Claim.—1. In a carpet-sweeper, the combination, with the casing and its brush-shaft having bearing therein, of supports for the driving-wheels, consisting each of a single integral piece of metal having two arms, the one carrying a pivotal bearing adapted to engage with the case and the other a journal to receive the wheel, and stops which limit the movement of the arm having the pivotal bearing, substantially as described.

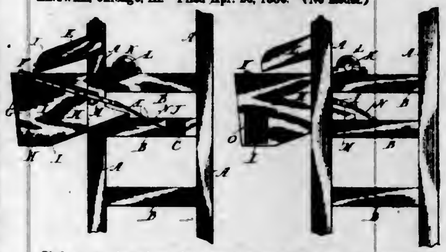
2. In a carpet-sweeper, the combination, with the casing and its brush-shaft having bearing therein, of supports for the driving-wheels, consisting each of two arms arranged at an angle one to the other, said arms being united by a connecting portion crossing the wheel, whereby the arms are located in vertical planes lying upon opposite sides of the wheel, the one arm carrying a bearing engaging with the case and the other a journal for carrying the wheel, substantially as described.

3. In a carpet-sweeper, the combination, with the casing, of blocks having apertures which communicate at their outer ends with divergent notches, wheel-supports having pivotal bearings engaging with said blocks and provided with arms, one of which carries said pivotal bearings and extends from said notch above and upon one side of the wheel, and the other carrying the journal-bearing and lying upon the other side of the wheel, and a pulley on the brush-shaft, with which said wheels engage, substantially as described.

4. In a carpet-sweeper, a wheel-support consisting of a single integral piece of metal bent between its ends to cross the wheel and bring one part upon one side of the wheel and the other upon the other side thereof, said support being provided with bearings at its ends, bent inward or toward the wheel and parallel with each other, substantially as described.

5. In a carpet-sweeper, the combination, with the casing and its brush-shaft having bearing therein, of wheel-supports, each having an arm carrying a pivotal bearing which engages with the case, and an arm carrying a journal-bearing for the wheel, stops which limit the movement of the former-arm, and a pulley on the brush-shaft, with which the wheels engage, the pivotal bearings of said supports being arranged in the casing in or above the horizontal plane of the axis of the brush-shaft, substantially as described.

354,909. DOUBLE-POINTED TACK-SORTING MACHINE. JOHN F. KINGWILL, Chicago, Ill. Filed Apr. 26, 1886. (No model.)



Claim.—1. A tack-sorting machine consisting of an elevated delivery-chute, a lower receiving-box, and an intermediate riddle composed of bars arranged to be agitated.

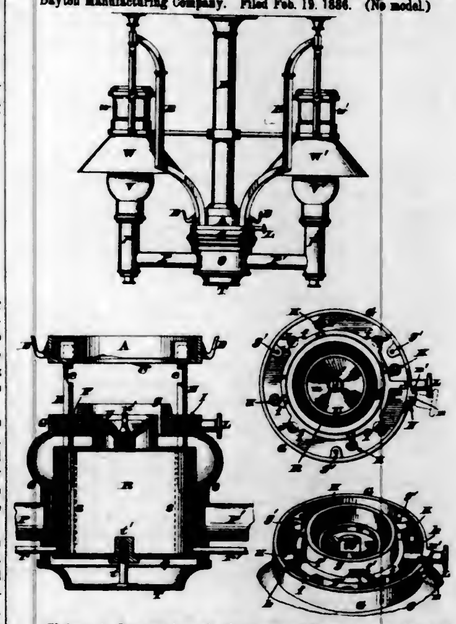
2. In a tack-sorting machine, a riddle composed of thin parallel and diverging bars.

3. In a tack-sorting machine, a riddle consisting of thin parallel and diverging inclined bars.

4. In a tack-sorting machine, a riddle consisting of a series of thin inclined parallel and diverging bars which gradually increase in diameter.

5. In a tack-sorting machine, a riddle consisting of a series of inclined ways which gradually diverge and increase in diameter toward their lower ends.

354,910. LAMP. JOHN KIRBY, Jr., Dayton, Ohio, assignor to the Dayton Manufacturing Company. Filed Feb. 19, 1886. (No model.)



Claim.—1. In a car-lamp having a central frame and shades held in holders rigidly secured above the burners, the combination of a downwardly-detachable oil-reservoir supported on rods depending from said frame and having an upper and lower set of notches, said reservoir being provided with a locking device that engages with either set of said notches and thereby couples said reservoir to said frame at different elevations, the reservoir being also provided with arms or branches that carry the burners, and passages for the supporting-rods, substantially as herein described.

2. The combination, in a lamp, of a central frame, a downwardly-detachable oil-reservoir supported on a suitable number of notched rods, as E, depending from said frame, and a locking device that engages with said notches and thereby couples said frame to said reservoir, the said locking device being composed of case G, having slot *n*, apertures J, ring F, provided with projections, as *f*, stem M, and plate I, the reservoir being provided with suitable passages for the rods E and having arms or branches that carry the burners, substantially as herein described.

3. In a lamp, the central frame, A, provided with rods E, having notches *e*, an oil-reservoir having arms or branches which carry the burners, and passages for said rods E, in combination with a locking device to engage with said notches, composed of case G, having apertures J, swell N, and slot *n*, ring F, provided with projections *f*, stem M, knob L, and spring *m*, plate I, or its equivalent, springs K, pins *k*, and bearings *f'*, the whole to operate substantially as herein described.

4. The combination, in a lamp, of a central frame, A, having a series of pendent rods, E, provided with upper notches, *e*, and lower notches, *e'*, and a downward bodily-detachable oil-reservoir, R, provided with a locking-ring, F, having peripheral projections *f*, and an operating-knob, L, a spring or springs being employed for restoring said ring to its normal position, and said reservoir being furnished with branches or arms P P' which support the burners *p p'*, as herein described.

5. The combination, in a lamp, of central frame, A, having a series of pendent rods, E, notched at *e e'*, and a downward bodily-detachable oil-reservoir, R, provided with arms P P', burners *p p'*, and a locking-ring, F, having peripheral projections *f*, a knob, L *l*, and a retracting-spring, K, the stem M, spring *m*, swell N, slot *n*, and shoulder *n'*, for the purpose described.

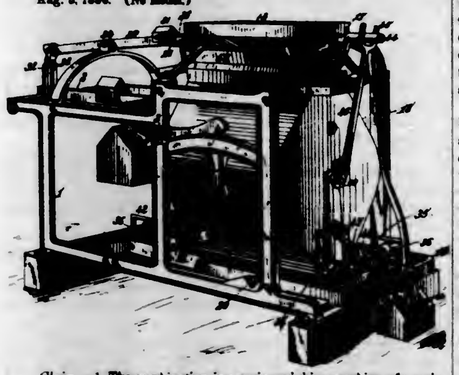
6. In a lamp, the combination of a frame, A, slotted, as at C, plate-springs *c*, and a detachable reservoir, said springs arranged with their free ends interposed between said frame and reservoir, whereby rattling of these parts is prevented, substantially as herein described.

7. In a lamp having a detachable reservoir and shades held in holders rigidly secured above the burners, the combination of the frame A, to which frame or attachment thereto are secured chimney-supports, as D, whereby the lower end of the chimney may be supported on said frame when the reservoir and burners are disconnected from the frame, substantially as herein described.

8. The combination, in a lamp, of dome *w* and inclosed gravitating buffer X, having a central passage, *x*, and at its lower end a yielding plate, Z, which plate is pierced at *z'* and rests upon the chimney located within said dome, for the purpose described.

9. A lamp-chimney buffer consisting of the channeled gravitating weight X *x* and slotted yielding plate Z *z z'*, the sides of said weight being grooved at Y to admit springs *y*, in combination with dome *w* or *w'* and their supporting bracket or brackets, for the purpose described.

354,911. AUTOMATIC GRAIN-WEIGHING MACHINE. DAVID D. KUHLMAN, Atchison, Kans., assignor to John Seaton, same place. Filed Aug. 5, 1886. (No model.)



Claim.—1. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, a swinging cut-off valve journaled at one longitudinal edge within a part of the chute and adapted to seat at its opposite edge, a crank-arm at one end of the valve, a frame fulcrumed on the main frame of the machine, a rising and falling secondary hopper pivoted to said fulcrumed frame beneath the bucket, and a connection between said fulcrumed frame and the crank-arm, substantially as described.

2. The combination, in a grain-weighing machine, of a main frame, a grain-bucket, a chute for conveying the grain thereto, a swinging cut-off valve journaled in a part of the chute, a crank-arm at one end of the valve, a weighted forked frame fulcrumed between its ends on the main frame, a rising and falling secondary hopper fulcrumed on the inner extremities of the forked frame beneath the grain-bucket, and a rod-connection between the forked frame and the crank-arm of the valve, substantially as described.

3. The combination, in a grain-weighing machine, of a main frame, a grain-bucket, a chute for conveying the grain thereto, a swinging upwardly-opening cut-off valve journaled in a part of the chute and provided with a crank-arm, a guard-plate located above the valve and extending partially across the chute, a weighted forked frame fulcrumed between its ends on the main frame, a rising and falling secondary hopper fulcrumed on the inner extremities of the forked frame, and a rod-connection between the outer end of the forked frame and the crank-arm of the valve to swing the valve upward and open it when the outer end of the forked frame descends, substantially as described.

4. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, a swinging feed-controlling valve located in a part of the chute for only partially cutting off the flow of grain, and a pivoted weighted beam connected at one end with the feed-controlling valve and at the other end with the scale-beam, substantially as described.

5. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, a swinging feed-controlling valve located in a part of the chute for only partially cutting off the flow of grain to the bucket, a crank-arm at one end of the valve, and a weighted pivoted beam having a slotted connection at one end with the crank-arm, and at the other end loosely connected with the scale-beam, substantially as described.

6. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, two rock-shafts journaled in a part of the chute and each having a crank-arm at one end, and a weighted pivoted beam having slotted connections at one end with the crank-arms and loosely connected at the other end with the scale-beam, substantially as described.

7. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, feed-controlling valves located in a part of the chute for only partially cutting off the flow of grain, and shield-plates arranged above the valves, substantially as described.

8. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, swinging valves journaled in a part of the chute for only partially cutting off the flow of grain, and inclined shield-plates secured to the chute above the valves for protecting the latter from the pressure of the grain, substantially as described.

9. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, two feed-controlling valves pivoted in the chute to rise and fall for only partially cutting off the flow of grain to the grain-bucket, and a cut-off valve pivoted in the chute above the two feed-controlling valves for entirely cutting off the flow of grain to the bucket, substantially as described.

10. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, feed-controlling valves for only partially cutting off the flow of grain to the bucket, a swinging cut-off valve located in the chute above the feed-controlling valves for entirely cutting off the flow of grain, a rising and falling hopper beneath the bucket, and a connection between said hopper and the cut-off valve, substantially as described.

11. The combination, in a grain-weighing machine, of a grain-bucket, a chute for conveying the grain thereto, rock-shafts journaled in a part of the chute and carrying feed-controlling valves for only partially cutting off the flow of grain, crank-arms at one end of the shaft, a weighted pivoted beam connected at one end with said crank-arms and at the other end with the scale-beam, a swinging cut-off valve for entirely cutting off the flow of grain, a rising and falling hopper beneath the grain-bucket, and a connection between said hopper and the cut-off valve, substantially as described.

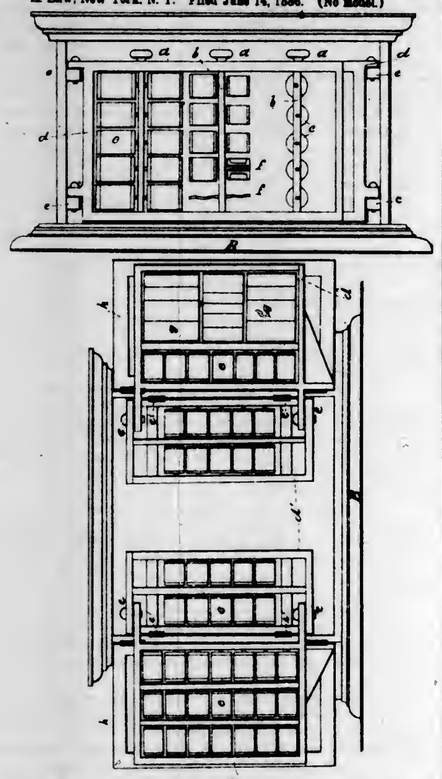
12. The combination, with a rising and falling grain-bucket having a swinging partition provided with an arm at its lower end, of pivoted locking-arms connected at one end, and a link connected with one of said arms and with the arm on the partition, substantially as described.

13. The combination, with a rising and falling grain-bucket having a swinging partition provided with an arm at its lower end, of pivoted weighted locking-arms having a slot-and-pin connection at their inner ends, and a slotted link pivoted to one of the locking-arms and loosely engaging the arm on the partition, substantially as described.

14. The combination, with a rising and falling grain-bucket having a swinging partition provided at its lower end with a crank-arm, of lateral studs at one end of the bucket, weighted arms pivoted on said studs and loosely connected at their inner ends, and a slotted link loosely

connected at one end with one arm and at its other end engaging the crank-arm on the partition, substantially as described.

354,912. CABINET FOR HOLDING SPOOLS OF THREAD, &c. Jas. A. Law, New York, N. Y. Filed June 14, 1886. (No model.)

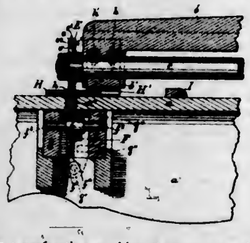


Claim.—1. In combination with a cabinet, a frame hinged within the cabinet, and a series of separate holding devices for spools, attached to rods reversible relatively to the frame, carried by said frame, substantially as described.

2. The combination, with a cabinet, of a hinged frame within the cabinet, and a second frame hinged to the first, each frame provided with a series of independent spool-holders, substantially as described.

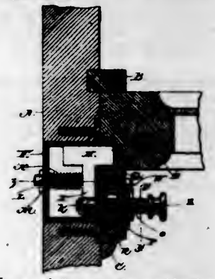
3. The combination, with a cabinet, of a frame hinged therein, reversible rods mounted on said frame, and a series of independent spool-holders consisting of bent wires on said rods, substantially as described.

354,913. PERFORATING-MACHINE. Stephen D. Layman and Hans C. Hansen, Boston, Mass. Filed Feb. 17, 1886. (No model.)



Claim.—In a perforating-machine, the rotary punch-wheel E, having radial punches e^1 e^2, combined with the peripherally-perforated die-wheel F, secured to shaft *f*, the latter being free to adjust itself longitudinally in the bearings *g g*, so as to enable the die-wheel to adjust itself automatically in relation to the punches on the punch-wheel during the rotation of the latter, as herein set forth and described.

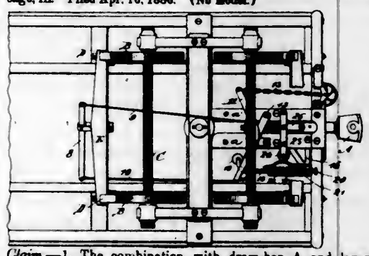
354,914. SASH-FASTENER. Albert Y. Leake, Marietta, Ga. Filed Sept. 7, 1886. (No model.)



Claim.—1. In a sash-fastener, the combination of the case F, the spring-actuated locking-bolt therein having the right-angled arm I, the push-pin having its inner end swiveled to the said arm and provided near its outer end with the lock-pin X, and the escutcheon in which the push-pin turns, having the stops V and W, arranged at right angles to each other, and the slot S, alongside one of the said stops, for the purpose set forth, substantially as described.

2. In a sash-fastener, the hollow case F, seated in a recess of the window-frame and having the front plate, G, in combination with the locking-arm I, having the locking nib or projection H, extending through the plate G, the spring-actuated bolt L, connected to the arm I and working through the case F, and the push-pin O, connected to the locking-arm I and extending outward beyond the window-frame, the bolt L, with its spring, and the locking-arm I, being concealed within the case F, as set forth.

354,915. AUTOMATIC CAR-BRAKE. Karl H. H. Liebeweber, Chicago, Ill. Filed Apr. 16, 1886. (No model.)



Claim.—1. The combination, with draw-bar A and lever 23, of pivotal cam-plate 17, with bar 18, and lever 11, connected with the brake-lever for operating the brake-shoes, substantially in the manner set forth.

2. The combination, with draw-bar A and lever 23, of pivotal cam-plate 17, with bar 18 and spring 22, and lever 11, suitably connected for operating the brake-shoes, substantially in the manner set forth.

3. The combination, with draw-bar A, connected with lever 23, having roller 24, of pivotal cam-plate 17, with bar 18, spring 22, and roller 19, and lever 11, connected with lever 8, for operating the brake-shoes, substantially in the manner set forth.

4. The combination, with draw-bar A, provided with light and heavy springs and connected with lever 23, having roller 24, of pivotal cam-plate 17, with bar 18, spring 22, and roller 19, and lever 11, connected with lever 8, for operating the brake-shoes, substantially in the manner set forth.

5. The combination, with draw-bar A, connected with lever 23, of pivotal cam-plate 17, with bar 18, spring 22, and roller 19, and vibratable lever 11, connected at one end by chain 13 with the hand-brake spindle and at its opposite end to lever 8, for operating the brake-shoes, substantially in the manner set forth.

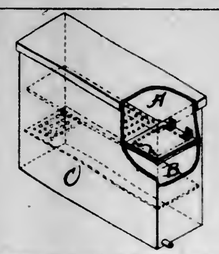
354,916. REFRIGERATOR. Joseph Lemle, Chicago, Ill. Filed July 12, 1886. (No model.)

Brief.—Improvement on Patents No. 240,523, dated April 26, 1881, No. 320,483, dated June 23, 1885, and No. 320,484, dated June 23, 1885.

Claim.—1. In a refrigerator, a water-chamber, a filtering-chamber provided with a hole or opening through which access may be had to its interior, and a filtered-water chamber immediately in front of the filter-chamber, all of such chambers communicating with each other, substantially as described.

2. In a refrigerator, a water-chamber, a filtering-chamber provided with a hole or opening through which access may be had to its interior, and a filtered-water chamber immediately under the filter-chamber, all

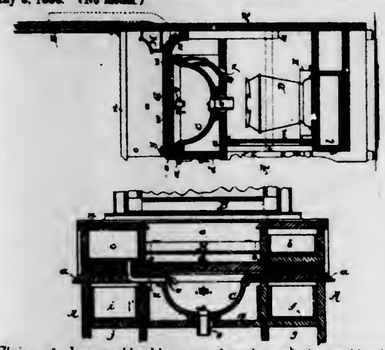
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of such chambers communicating with each other, substantially as described.

3. In a refrigerator, a water-chamber, a filtering-chamber provided with a hole or opening through which access may be had to its interior, and a filtered-water chamber under and extending out wholly or partially across the ice-space, all of such chambers communicating with each other, substantially as described.

354,917. TOILET-STAND. Harvey C. Lowrie, Denver, Colo. Filed May 8, 1886. (No model.)



Claim.—1. In a combined bureau and wash-stand, the combination, with its deck receptacles, as *b c*, and a bowl arranged therebetween, of a flat cover arranged to slide between said receptacles to cover and uncover said bowl, substantially as described.

2. A combined bureau and wash-stand, consisting of a slab or top, *a*, provided with a wash-bowl beneath its surface and having deck receptacles, as *b c*, on either side thereof, and a horizontal flexible cover, G, arranged to slide between said receptacles over said bowl to cover and uncover the same, substantially as described.

3. A combined bureau and wash-stand, consisting of a stand provided with drawers, a slab or top, *a*, having a bowl, C, arranged beneath its surface and in a fixed position with relation to the stand, a deck receptacle, as *c*, providing a water-tank having communication with said bowl, and a flat cover, G, sliding horizontally above said slab to cover and uncover said bowl, substantially as described.

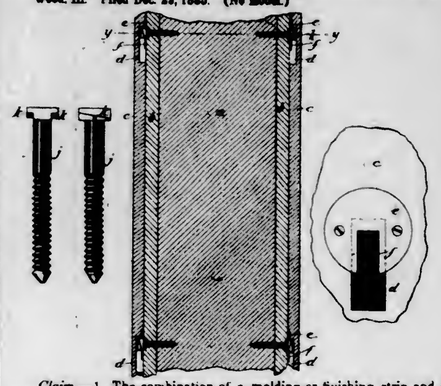
4. A combined bureau and wash-stand, consisting of a stand provided with drawers and a central closet, a slab or top, *a*, provided with a wash-bowl, C, beneath its surface, deck receptacles *b c*, mounted on said slab, one on either side of said bowl, and a flat cover, G, arranged to slide on said slab and between the deck receptacles, substantially as described.

5. A combined bureau and wash-stand, consisting of a stand provided with drawers and a central closet, a slab or top, *a*, provided with a wash-bowl, C, beneath its surface, deck receptacles *b c*, mounted on said slab, one on either side of said bowl, one of which receptacles, as *c*, containing a fresh-water tank and provided with connections with the bowl and a faucet to supply water thereto, and a flat cover, G, arranged to slide on said slab and between the deck receptacles to cover and uncover said bowl and faucet, substantially as described.

6. A combined bureau and wash-stand, consisting of a slab or top, *a*, provided with a wash-bowl, C, beneath its surface, separate deck receptacles *b c*, mounted on said slab, one on each side of said bowl, a receptacle, H, mounted over said slab at the rear of the bowl and between said deck receptacles, and a horizontal flexible cover, G, arranged to slide between said deck receptacles under said receptacle H, and over said bowl to cover and uncover the same, substantially as described.

7. A combined bureau and wash-stand, consisting of a stand provided with drawers, a slab or top, *a*, having a bowl, C, and a fresh-water faucet arranged directly beneath its surface and in a fixed position with relation to the stand, a deck receptacle, as *c*, providing a water-tank in communication with said faucet, and a flat cover, G, sliding horizontally above said slab to cover and uncover the bowl and faucet, substantially as described.

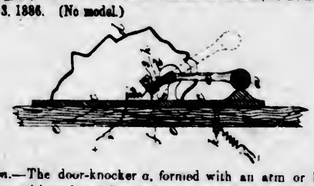
354,918. DOOR AND WINDOW-CASING. Herman Lount, Englewood, Ill. Filed Dec. 29, 1885. (No model.)



Claim.—1. The combination of a molding or finishing strip and a casing or wall, one of said parts being provided with a projecting screw-head and the other with an opening to receive the head of the screw, and a projecting edge to pass under the screw-head, substantially as set forth, whereby said strip or molding is removably secured to its foundation.

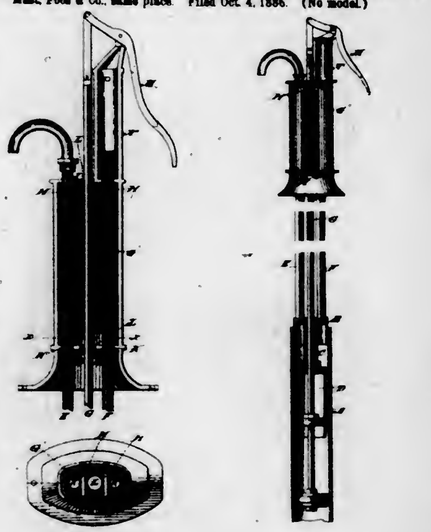
2. The combination of a molding or finishing strip provided with a recess or recesses in its rear face, locking-plates secured in or over said recesses, and projecting screw-heads adapted to engage with said plates, whereby said strip or molding is removably secured to its foundation, substantially as and for the purposes set forth.

354,919. CIRCUIT-CLOSER. Walter B. Manny, St. Louis, Mo. Filed July 3, 1886. (No model.)



Claim.—The door-knocker *a*, formed with an arm or lever, A, in combination with spring *f*, knocker-plate *c*, and wires *i j* from an electric battery, substantially as shown, and for the purpose described.

354,920. PUMP. Samuel W. Martin, Springfield, Ohio, assignor to Mast, Foos & Co., same place. Filed Oct. 4, 1886. (No model.)



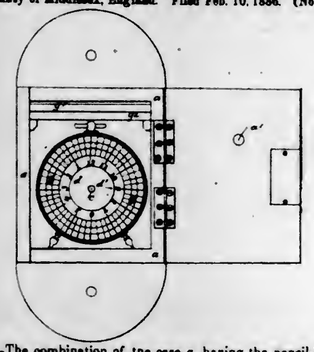
M, having an eye or loop, *m*, and tooth *m'*, the lever N, to which lever

Claim.—1. In a pump, the combination, with a two-part vertically-divided head constructed to rest upon the platform and provided with interior clamping-bearings and with central openings, and devices to secure the parts of the head together, of supporting-pipes fitted to the said bearings of the head and clamped and held thereby, the cap secured to the lower ends of said pipes and having a piston-rod opening, a pump-barrel secured to the cap and extending below it, and a piston-rod passing through the cap and the said central openings.

2. In a pump, the combination, with a vertically-divided head constructed to rest upon the platform and having upper and lower interior bearings or flanges and central openings, and devices to secure the parts of the head together, of two upright pipes placed side by side, one forming an air-chamber and the other a discharge-conduit, and a cap secured to said pipes and having a central opening, said cap forming a support for the lower part of the pump in connection with said pipes.

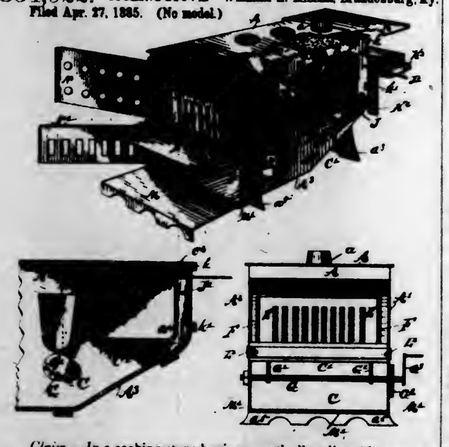
3. In a pump, the combination, with a vertically-divided head constructed to rest upon the platform and having upper and lower interior bearings or flanges and central openings, and devices to secure the parts of the head together, of two supporting-pipes placed side by side and clamped between the flanges of the head, one forming an air-chamber and the other a discharge-conduit, a cap secured to said pipes and having a central opening, and a tubular extension, a pump-barrel also secured to the cap, and an inner cylinder secured to the extension, and a piston-rod having two plungers, one for each cylinder, and passing through the cap and the said central openings in the head.

354,921. TIME-CHECK. John Millar, Bethnall House, Cambridge Road, County of Middlesex, England. Filed Feb. 10, 1886. (No model.)



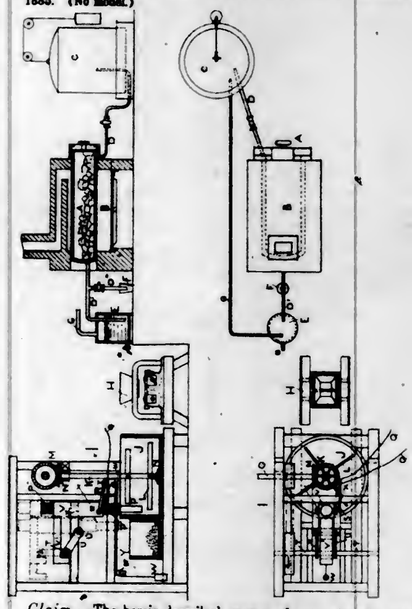
Claim.—The combination of the case *a*, having the pencil-hole *a'*, the clock-train within the case, the hour-axis of the clock-train, having the collar *c'*, the record-disk *b*, loosely embracing the hour-axis, the nut *d*, screwed on the axis and clipping the record-disk against the collar thereof, and having the perforation *d'* to admit of the insertion of a pin for marking the record-disk, the transfer-disk *f*, and the surface *e* between the transfer-paper and record-disk, and having the gap *e'*, substantially as and for the purpose set forth.

354,922. COOKING-STOVE. William H. Miller, Brandesburg, Ky. Filed Apr. 27, 1885. (No model.)



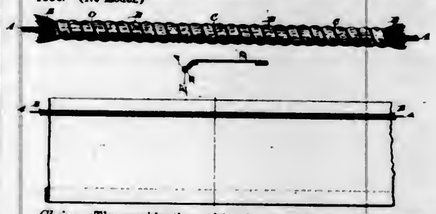
Claim.—In a cooking-stove having a vertically-adjustable grate, the shaft supported by the stove-walls and provided with eccentrics adjacent to the opposite ends of the grate, as shown, and a ratchet arranged to engage with a pawl affixed to the stove-wall, in combination with the stove and grate, substantially as specified, for the purpose set forth.

354,923. PROCESS OF EXTRACTING NICKEL AND COBALT FROM ORES. Dmitry Mendeleff, San Francisco, Cal. Filed Sept. 6, 1885. (No model.)



Claim.—The herein-described process of extracting the metallic particles of nickel and cobalt from the ore containing them, consisting of a combination of the following operations in the order named, first, treating the lump ore with hydrocarbon gas in a closed and heated chamber, then in reducing the ore to a pulverulent state, then in mixing the mass with water until it acquires a pulpy consistency in a suitable agitating-machine, and finally extracting the metallic particles from the pulpy mass by the aid of any suitable electro-magnetic separator, substantially as set forth.

354,924. SWEAT-BAND FOR HATS. Valentine Moehlen, Brooklyn, assignor to Thomas W. Bracher, New York, N. Y. Filed Oct. 8, 1886. (No model.)



Claim.—The combination, with a hat sweat-leather, D, of a spring, A, soft covering B, spirally-laid thread C, and a line of stitches formed by a separate thread, E, arranged to serve substantially as herein specified.

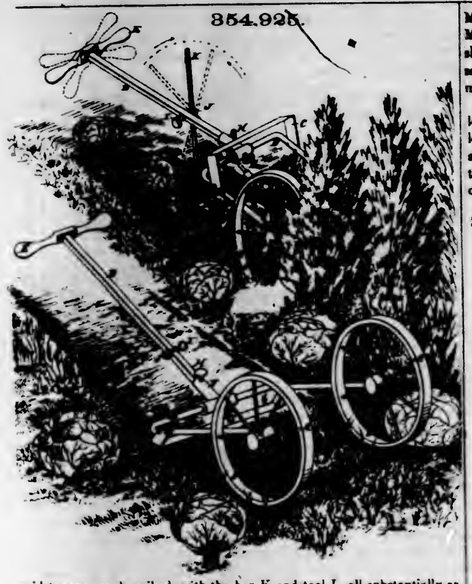
354,925. HOEING AND WEEDING MACHINE. Joseph S. O'Brien, Wilbraham, Mass. Filed Aug. 21, 1886. (No model.)

Claim.—1. In a hoeing-machine, the combination of the wheels A A', yoke B, blade C, secured to said yoke, tubular knee F, and set-screws G and H, passing into said knee, as described, tongue D, and handle E, all substantially as described, and for the purpose set forth.

2. In a hoeing-machine, the combination of the wheels A A', yoke B, tubular knee F, and set-screws G and H, passing into said knee, tongue D, handle E, and screw I, passing into said tongue, hook J, secured to



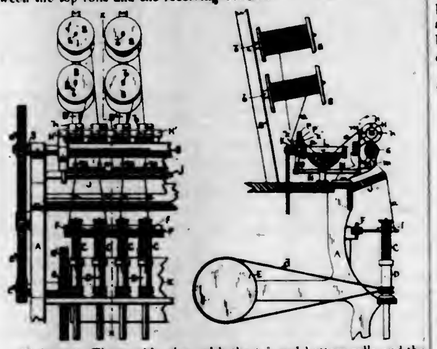
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said tongue, as described, with the bar K and tool L, all substantially as described, and for the purpose set forth.

354,926. MACHINE FOR TWISTING THREAD, &c. Jeremiah J. O'Connor and John A. O'Connor, Pawtucket, assignors of one-third to Albert H. Allen, Providence, R. I. Filed July 24, 1885. (No model.)

Brief.—The yarn is severed by the described devices between the delivery-bobbins and the top rolls of the machine whenever it is broken between the top rolls and the receiving-bobbins.



Claim.—1. The combination, with the top and bottom rolls and the spindles, of a shear having a movable member and mechanism, substantially as described, connecting the movable member with the rolls, whereby the movable member is operated by the rolls for severing the thread or yarn before it reaches said rolls when the thread or yarn breaks between said rolls and spindles, substantially as and for the purpose described.

2. The combination, with the top and bottom rolls, the former of which is provided with studs, and the spindle, of a shear having a movable member and mechanism, substantially as described, connected with the movable shear member and operated by the studs on said upper roll, substantially as and for the purpose set forth.

3. The combination, substantially as herein set forth, with the top and bottom rolls, the former of which is provided with a stud or studs, and the spindles, of a pivoted lever, M, provided with an eye or hook, *m*, and a projection or tooth, *m'*, the said tooth being normally held out of the path of movement of said spur or spurs, as described, a shear through which the thread or yarn passes to said rolls, and connections, substantially as described, between the said lever and shear for communicating motion to the shear when the tooth *m'* is engaged by the said spur or spurs.

4. The combination, with the top and bottom rolls, the former of which is provided with a stud or studs, and the spindles, of the lever M, having an eye or loop, *m*, and tooth *m'*, the lever N, to which lever M is pivoted, a suitable pivot or support for the lever N, the movable shear member P, connected to the lever N, the shear member P', the said shear having a passage for the thread, and a support for the shear member P', substantially as and for the purpose specified.

5. The thread or yarn severer herein described, consisting of the lever M, having a loop or eye, *m*, and tooth *m'*, the lever N, to which lever M is pivoted, the shear member P, connected to the lever N, and the shear member P', the said shear having a passage for the thread or yarn, the whole being adapted to be attached to a machine for twisting thread or yarn, substantially as and for the purposes specified.

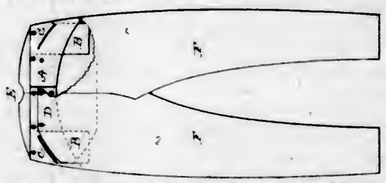
354,927. STOVE. Jesse Orr, Reading, Pa., assignor to Orr, Painter & Co., same place. Filed May 21, 1886. (No model.)



Claim.—1. The combination, with an open-front stove having a forwardly-projecting grate, of a hood having its rear edge conformed to and connected with the top opening in the front of the stove, and horizontal lower or front and side edges parallel with and vertically above the upper bars of the grate, and a blower constructed with a register and adapted to close the space between the hood and grate, substantially as and for the purpose set forth.

2. The combination, with an open-front stove having a forwardly-projecting hood, ash-plate, and grate, of a detachable blower formed and adapted either to close the space between the hood and grate or to be placed upon the ash-plate to close the grate and cut off or limit the draft, substantially as set forth.

354,928. OVERALLS. Cyrus V. Osborn, Dayton, Ohio. Filed Nov. 5, 1886. (No model.)



Claim.—A pair of overalls provided with waistband A, united at the center, with oblique pocket-openings C C in said band, and flap D, with corners cut parallel to said pocket-openings, substantially as set forth.

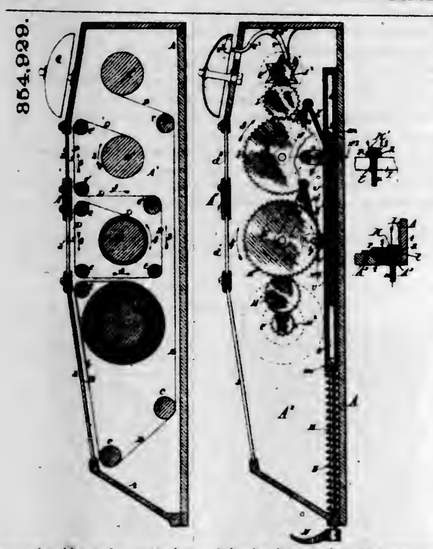
354,929. STATION-INDICATOR. William H. Pierce, Albany, N. Y. Filed Nov. 10, 1884. (No model.)

Claim.—1. In an indicator for display of printed matters for public advertisement of facts, the combination, with web D, having printed on its opposite surface sides, 1 and 2, matters F and G at suitable intervals, of the group of rollers e e e and drum E and group of rollers e' e' e' and drum E', all arranged substantially as described, whereby matters printed on both sides of the web are displayed at the same time in the same direction, and suitable mechanism under control of the operator for operating said drums alternately, substantially as and for the purposes set forth.

2. The combination, with a case provided with apertures covered with glass plates, and web D, connected at its opposite ends with drums E E', and having matters F and G printed on its opposite side surfaces, 1 and 2, at proper intervals, of rollers e and e', arranged in groups and in relation to each other and to the apertures and web and its drums, as described, whereby the matters F and G will be simultaneously displayed beneath the glass plates when the web is moved, substantially as and for the purposes set forth.

3. The combination, with a case provided with viewing-apertures, of web D, having printed matters F and G at intervals on its respective

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opposite side surfaces, 1 and 2, and having its opposite ends connected with drums E E', respectively, and rollers *e e'*, arranged in groups in relation to each other and to the said apertures, drums, and web, as above described, and mechanisms, substantially as described, which are adapted to revolve the respective drums alternately for rolling said web on each, respectively, while it is being unrolled from the other, substantially as and for the purposes set forth.

4. The combination, with a case provided with viewing-apertures, which are separated by bar A', bearing printed matter T, of web D, having on its opposite sides at intervals printed matters F and G, and connected at its opposite ends with drums E E', the web being supported between said drums by rollers *e e'*, arranged in groups, as described, of web B, having matters printed on one side at proper intervals and connected at its opposite ends with drums and supported by rollers c, arranged in relation to said web and its drums C C', as above described, and mechanisms, constructed substantially as described, to move both webs simultaneously and to given distances beneath said viewing-apertures, substantially as and for the purposes set forth.

5. The combination, with drums E E' C C', of the respective webs B and D, and the guides for said webs, of gears I, I', and I^2, reciprocating bar L, rod K, and pivoted arm J, connected with said rod and having pawl *n*, for operation with gear I, all substantially as and for the purposes set forth.

6. The combination, with webs B and D, having printed matters, as above described, and their respective connected drums C C' E E', rollers c and *e e'*, arranged in relation to said webs and drums, as above described, of the groups of gears H H' H^2 and I I' I^2, reciprocating bar L, provided with notches *l l'*, and sliding pieces R R, adapted to be moved alternately into and out from said notches, and connected, respectively, with arms J J', carrying pawls for engagement with the respective gears H and I, substantially as and for the purposes set forth.

7. The combination, with gears H and I and arms J J', carrying pawls *n n'*, respectively, of the reciprocating bar L, properly guided and supported by spring S, and provided with notches *l l'*, and sliding pieces R R, which are connected, respectively, with arms J J' by connecting-rods K K', substantially as and for the purposes set forth.

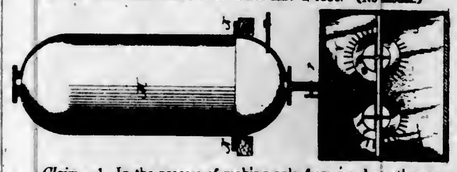
8. The combination, with reciprocating bar L, provided with notches *l l'*, pieces P P, secured to the case and provided with notches corresponding with the notches in the reciprocating bar, of movable pieces R R, adapted each to be moved alternately into and from the notches in said bar and said pieces P P, for alternately connecting and disconnecting rods K K' with said reciprocating bar, substantially as and for the purposes set forth.

354,930. SINK-TRAP. Jos R. Pier, Johnston, Providence County, R. I. Filed Sept. 25, 1886. (No model.)



Claim.—The improved sink-trap herein described, consisting of the tank A, having a flanged bottom, the pipes B C, the plate E, having a ring or flange, *b*, the gauze cage D, the lipped clamp F, and screw G, substantially as specified.

354,931. MANUFACTURE OF PAPER-PULP FROM WOOD. Goldsbury H. Pond, Glens Falls, N. Y. Filed May 4, 1886. (No model.)



Claim.—1. In the process of making pulp from wood or other material and the preparation of a solvent therefor, a tower provided with inclosed compartments, each compartment having openings into side flues with doors for closing or opening them, thereby letting the gases therein into the flues and separating the compartment from its circulation and contact, as described.

2. In the process of making pulp from wood or other material and the preparation of a solvent therefor, a tower provided with inclosed compartments and side flues, with adjustable openings with doors and grate-bars, with swinging doors to close the openings therein, whereby at the will or convenience of the operator all the openings of the compartment can be closed or opened, thereby separating or connecting either compartment with any other or all within the tower, as herein set forth.

3. In the process of making pulp from wood or other material and the preparation of a solvent therefor, the burning of sulphur in an air-tight furnace under a pressure, with a jet of air forced therein and onto the surface of the sulphur, forming a dense sulphurous gas, the pressure rapidly forcing it into and through the conducting-pipe and the receptacle provided for its use and absorption, as herein set forth and described.

4. In the process of making pulp from wood or other material and the preparation of a solvent therefor, the combination of the tower with inclosed adjustable compartments charged with one or more alkaline bases covered with running water, the burning of the sulphur in an air-tight furnace under pressure with a jet of air forced therein, the rapid conduction of the dense fumes of sulphurous gas in pipes to the receptacle provided for its use and absorption, the forcing the circulation of the sulphurous gas by pressure through the compartments and their charges, and the acceleration of its combination with the alkaline base, rapidly saturating it with sulphurous gas, as and for the purposes herein set forth and described.

5. In the process of making pulp from wood or other fibrous material, a digester charged with sawdust, chips, shavings, or other pieces of wood or other fibrous material mixed and thoroughly wet with the liquid sulphides saturated with sulphurous gas and kept under the requisite heat and pressure with steam long enough to thoroughly soften and partially disintegrate the pieces of wood in the charge, and then blowing it out of the digester through an opening provided therefor onto the points of the teeth of the breakers, entirely separating the fibers of the material from each other into a fine fibrous mass, as herein described and set forth.

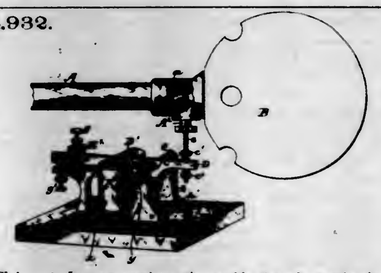
6. In the process of making pulp from wood or other material, the combination of the tower with adjustable compartments, the air-tight furnace for the combustion of sulphur under pressure, with a digester charged with sawdust, chips, shavings, or other pieces of wood or other fibrous material, and wet with a saturated sulphureted solution kept under heat and pressure to soften and partially disintegrate the charge, and a moving breaker with teeth on which, when the charge is forced, each fiber of the mass is separated from the other, as herein set forth and described.

7. In the process of making pulp from wood or other fibrous material, a digester charged with sawdust, chips, shavings, or other pieces of wood or other fibrous material thoroughly wet with a solvent and worked under heat and pressure long enough to soften and partially disintegrate the fibers of the mass, then blowing out the charge from the digester through an opening provided therefor onto the points of the teeth of a revolving breaker, thereby entirely separating the fibers from each other, substantially as herein set forth and described.

8. In the process of making pulp from wood or other fibrous material, the cylindrical breakers revolving upon their own axes, provided with teeth upon which a prepared charge of sawdust, chips, shavings, or other pieces of wood or other material is thrown, with a pressure of steam or other great force upon the points of the moving teeth of the breakers, thereby instantly separating it into a fine fibrous mass, substantially as herein set forth and described.

354,932. ELECTRIC VALVE-CONTROLLER AND THERMOSTAT COMBINED. Fred A. Price, Jamestown, N. Y. Filed Mar. 25, 1886. (No model.)

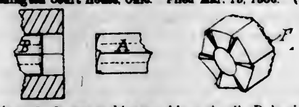
354,932.



Claim.—1. In a gas-regulator, the combination of a supply-pipe, a valve-seat therein, a valve having a stem projecting from said supply-pipe, a pivoted lever having one end connected to said valve-stem and carrying an armature and controlling-screws at the other end, with an electro-magnet and a thermostat provided with an adjustable screw, *k*, and a handle, k^2, frictionally retained upon said screw, substantially as and for the purpose described.

2. In an automatic gas-regulator, the combination of a supply-pipe, a valve therein and connected therewith, a pivoted lever alternately controlled by a spring adjacent to said valve-stem and by an electro-magnet, with adjusting-screws bearing on said lever in the rear of said magnet, and an adjustable thermostat, substantially as and for the purpose described.

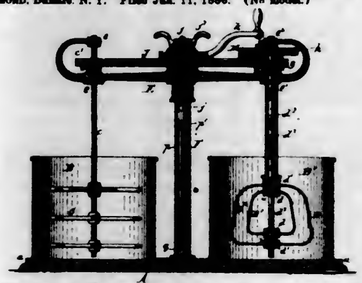
354,933. DIE FOR MAKING RATCHET-NUTS. Edwin R. Prooter, Washington Court House, Ohio. Filed Mar. 15, 1886. (No model.)



Claim.—1. In nut-making machines, the die D, having the inclined projections on its face extending from the customary central perforation to the periphery of die, substantially as described, for the purpose specified.

2. In nut-making machines, the combination, with the customary box and punch, of the die D, having the inclined projections on its face extending from the customary central perforation to the periphery of die, and the punch C, having a plain end, whereby the metal, when pressed, drags away from said projections instead of toward them, substantially as described, for the purpose specified.

354,934. BEATING AND MIXING MACHINE. Francis V. Raymond, Buffalo, N. Y. Filed Jan. 11, 1886. (No model.)



Claim.—1. The combination, with the base, of a mixing-vessel resting loosely on the base, beaters attached to a vertical spindle, a frame in which the spindle is journaled, a support on which said frame is made vertically movable to raise the beaters from the vessel, and driving mechanism attached to said movable frame, whereby the beaters are rotated, substantially as set forth.

2. The combination, with the base, of a mixing-vessel resting loosely on the base, beaters attached to a vertical spindle, a frame in which the spindle is journaled, a support on which said frame is made vertically movable to raise the beaters from the vessel, a stop whereby said frame is supported in an elevated position with the beaters above the mixing-vessel, and driving mechanism attached to said movable frame, whereby the beaters are rotated, substantially as set forth.

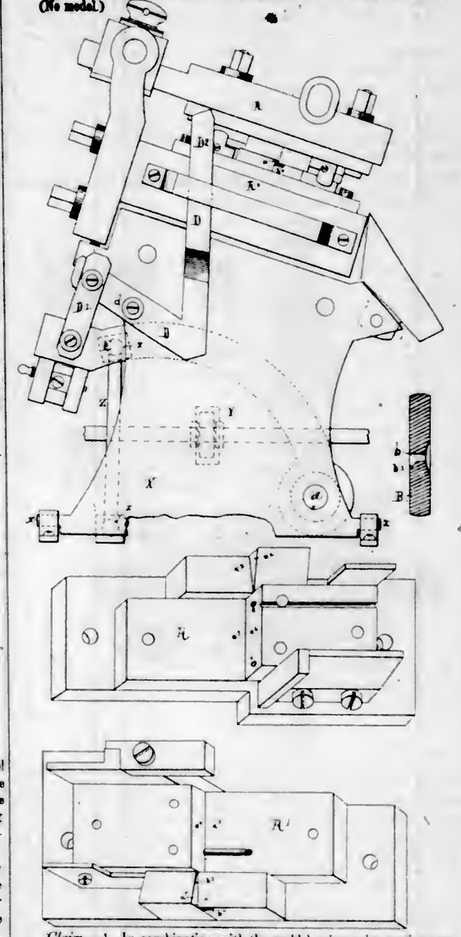
3. The combination, with the base A and the mixing-vessels B B' resting loosely thereon, of the column F, secured to said base, a horizontal frame, E, supported by said column and made vertically movable thereon, beater-spindles journaled in said frame and depending therefrom, and a driving-wheel journaled centrally on said frame and connected with wheels on the beater-spindles, substantially as set forth.

4. The combination, with the base A and supporting-frame E, of the shaft *c*, provided with beaters C and journaled in one end of the frame E, shafts d^2 d^3, provided with beaters D' D^2 and journaled in the opposite end of said frame, pinions *c' g h*, mounted, respectively, on the shafts *c* d^2 d^3, gear-wheel J, engaging with the pinion *c'* and *g*, and an intermediate gear-wheel, M, engaging with the gear-wheel J and the pinion *h*, substantially as set forth.

5. The combination, with the base A, provided with a hollow standard, F, having a vertical slot, *p*, of the frame E, carrying the beaters, and a supporting-spindle, *j*, secured to said frame and seated in the hollow standard, and provided with a pin or projection, *q*, which engages in the slot *p*, substantially as set forth.

6. The combination, with mixing-vessels and beaters, of the tubular standard F, provided with a vertical slot, *p*, and transverse slot or recess *p'*, and the frame E, provided with a spindle, *j*, fitting in said tubular standard, and provided with a pin projecting through the slot *p* and adapted to engage in the transverse slot or recess *p'*, substantially as set forth.

354,935. TYPE-CASTING MACHINE. George Reyes, Chicago, Ill. Filed Jan. 12, 1885. Patented in Germany Feb. 17, 1886, No. 36,420. (No model.)



Claim.—1. In combination with the mold having a jet-casting portion, the nipple-plate or apron provided on the face toward the mold with a recess adjacent to and merging in the aperture through said plate by which the metal is conducted to the mold, said recess extending laterally beyond the jet-aperture of the mold, whereby a flange is cast on the jet against the face of the mold, substantially as set forth.

2. In a type-casting mold, in combination with the nipple-plate having a recess on its inner face adjacent to and merging in the spout, the lower or stationary jet-block provided with recess or recesses in its rear

edge communicating with the recess in the nipple-plate, substantially as set forth.

3. In a type-casting mold, in combination with the movable type-detaining member of the mold, the nipple-plate having a recess on its inner face adjacent to and communicating with the spout, the lower or fixed member of the mold having in its rear edge a recess or recesses communicating with the recess in the nipple-plate, and having also a recess in the lateral wall of the jet-port, substantially as set forth.

4. In a type-casting machine, in combination with the fixed member of the mold and the arm which actuates the vibrating member, the arm D, actuated by means of suitable connection with the arm which actuates the vibrating member of the mold, but independently of said member, and located and adapted to move close and parallel to the rear face of the fixed member of the mold while the same is open, substantially as set forth.

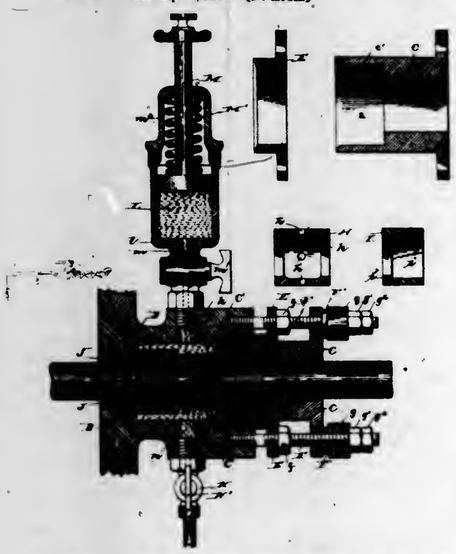
5. In combination with the jet-retaining member of the mold, an arm pivoted on the mold-carrying frame and actuated during the opening of the mold past the jet end of said jet-retaining member, substantially as and for the purpose set forth.

6. In a type-casting machine, the fixed member of the mold A, having recesses to form detents on the jet, the arm D, the link D', and the arm E, combined and co-operating as and for the purpose set forth.

7. In a type-casting machine, the mold having in its vibrating member detents to detain the type and in its fixed member devices to detain the jet, in combination with the arm E, the link D', and the lever D, substantially as and for the purpose set forth.

8. In a type-casting mold, the lower or fixed member having holes leading from the jet port or cavity communicating therewith, and provided with pins or plugs of softer metal than the body of said mold, substantially as and for the purpose set forth.

354,936. PACKING FOR PISTON-RODS. Christian Hoen, Newark, N. J. Filed Sept. 1, 1886. (No model.)



Claim.—1. The combination, with the fluid-chamber of a stuffing-box and a reciprocating piston-rod working therein, of the packing-boxes fitted on the piston-rod and of less diameter than the diameter of the said chamber, the sleeve fitted on the piston-rod between the packing-boxes and having a chamber surrounding the piston-rod, which chamber is in communication with the fluid chamber at all times to constantly maintain a thin film of fluid around the piston-rod, and the packings fitted in the packing-boxes to effectually close the ends of the chamber of the sleeve, substantially as described, for the purpose set forth.

2. The combination, with the stuffing-box of an engine having a fluid-chamber to be filled with a pressure-fluid, of a piston-rod having a packing in contact with the rod, but independent of and out of contact with the sides of the fluid-chamber, the packing-boxes for receiving the said packing, and the sleeve between the packing-boxes having a chamber surrounding the piston-rod and in communication with the fluid-chamber of the stuffing-box, the said packing-boxes having the ground faces i c in contact with and sliding freely on the faces of the bush in the stuffing-box and the inner face of the main gland, whereby the packing, the boxes therefor, and the intermediate sleeve will move freely in the fluid-chamber with any lateral or side play of the piston-rod and still be perfectly tight to prevent the escape of the fluid under pressure in the said chamber, substantially as described.

3. The combination of the sleeve surrounding the piston-rod and arranged out of contact therewith, except at the ends of the sleeve to form an intermediate space or chamber, A, in which a thin film of fluid is maintained, the packing-boxes disposed on opposite sides of the sleeve, and the packings housed within the packing-boxes and arranged on opposite sides of the sleeve to close the ends of the chamber A, substantially as described.

4. The combination of a fluid-chamber, the sleeve surrounding the piston-rod and arranged out of contact therewith, except at the ends of the sleeve, to form an intermediate chamber, A, and having the ports in communication with the fluid-chamber, the packing-boxes inclosed within the fluid-chamber and arranged on opposite sides of the sleeve, and the packings housed within the packing-boxes on opposite sides of the sleeve to close the ends of the chamber A, substantially as described, for the purpose set forth.

5. The combination of the fluid-chamber, a sleeve surrounding the piston-rod to leave an intermediate chamber, A, and having the ports opening in the chamber A and the fluid-chamber, the reservoir in communication with the fluid-chamber, the packing-boxes on opposite sides of the sleeve, and the packing-rings housed within the packing-boxes, substantially as described.

6. The combination of a sleeve, the packing-boxes having the packings housed within the same, a fluid-chamber, a reservoir in communication with the fluid-chamber, and a piston working in the reservoir, substantially as described.

7. The combination, with a fluid-chamber, the sleeve, and the packing-boxes housed within the chamber, of the reservoir in communication with the fluid-chamber, a piston working in the reservoir, and a spring for normally forcing the piston upon the fluid of the reservoir to compress the same, substantially as described.

8. The combination, with a fluid-pressure chamber, a sleeve inclosed within the latter, and the packing-boxes, of a reservoir in communication with the fluid-chamber, a piston working in the reservoir, and a cut-off valve or cock intermediate of the reservoir and the fluid-chamber for controlling the admission of fluid to the latter, substantially as described.

9. The combination of a fluid-chamber through which the piston-rod reciprocates, the sleeve inclosed within and in communication with the chamber and surrounding the piston-rod, out of contact therewith, except at the ends of the sleeve, to provide an intermediate chamber, the packing-boxes connected to the extremities of the sleeve, the packings housed within the packing-boxes, a reservoir in communication with the fluid-chamber, a piston working in the reservoir, a valve intermediate of the reservoir and the chamber, and an escape-valve having a cock and in communication with the chamber, substantially as described.

10. The combination of a stuffing-box having the fluid-chamber, the main gland fitting in the outer end of the stuffing-box, a bushing, J, a sleeve inclosed within the fluid-chamber and surrounding the piston-rod out of contact therewith, except at the ends of the sleeve, to form the intermediate chamber, A, the packing-boxes connected to the extremities of the sleeves, and the packings housed within the boxes, substantially as described.

11. The combination of a stuffing-box having the fluid-chamber, the main gland fitted in the outer end of the stuffing-box, the bushing J, the chambers of the said gland and bushing being of a slightly larger diameter than the piston-rod, the sleeve inclosed within the fluid-chamber and arranged around the piston-rod and out of contact therewith, except at the ends of the sleeve, to form the intermediate chamber, the packing-boxes connected to the ends of the sleeve, and the packings housed within the boxes, substantially as described, for the purpose set forth.

12. The combination of the stuffing-box B, having the fluid-chamber, the main gland fitting in the outer end of the stuffing-box, the packing intermediate of the main gland and the stuffing-box, the auxiliary gland surrounding the main gland and bearing upon the packing, the threaded rods passing through the main and auxiliary glands, the nuts fitted on the rods and bearing upon the auxiliary gland, the springs bearing on the main gland, the washers within which the springs are housed, the nuts bearing on the washers, the sleeve H, the packing-boxes, one of which is fitted within the main gland, and the packings housed in the boxes, substantially as described.

13. The combination, with an engine, the piston-rod and stuffing-box, through which the piston-rod reciprocates, a fluid-chamber, and two packings surrounding the piston-rod and inclosed within the chamber, of two packing-boxes and an intermediate sleeve between the two packings, the packing-boxes fitting over the ends of the sleeve to form a complete packing on the piston-rod, that by the enlarged chambers surrounding the packing-boxes and the plain air and water tight ground faces on the outside extremities of the packing-boxes and the ground faces on which the boxes move the packing can move freely with the piston-rod in any direction without escape of fluid from the stuffing-box, substantially as described.

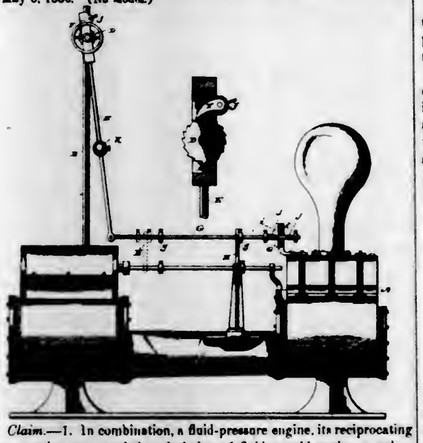
354,937. SMOKE-BONNET. Wesley Rose, Sacramento, Cal. Filed Apr. 7, 1886. (No model.)



Claim.—1. The rods or braces C D E, to fasten or attach smoke-stacks to upright boilers, said rods or braces attached to the top end of the boiler, the other ends of the rods attached to a collar or band, F, over which the smoke-stack slips.

2. A smoke-bonnet made in sections H J, in combination with a smoke-stack connected to the boiler by means of rods C D E, all for the purpose set forth, and substantially as described.

354,938. SAFETY DEVICE FOR ENGINES. Joseph Rothschild, Frankfort, Ky., assignor of one-half to Hiram Berry, same place. Filed May 8, 1886. (No model.)



Claim.—1. In combination, a fluid-pressure engine, its reciprocating piston, a valve to control the admission of fluid to said engine, a valve-actuating device connected to said valve and normally held stationary, and means, substantially as described, to cause said reciprocating piston to operate said device and its connected valve at predetermined points beyond its normal travel, as and for the purpose specified.

2. In combination, a fluid-pressure engine, its reciprocating piston, a valve to control the admission of fluid to said engine, a valve-actuating device connected to said valve, means to hold said device and valve in normal stationary position, and means to cause said reciprocating piston to operate said device and its connected valve when it exceeds its normal speed and travel, as and for the purpose specified.

3. The combination, with the engine, its piston and supply-pipe, and a valve for controlling the flow of fluid through said pipe, of a valve-actuating device and connections between the same and the piston, whereby said device is brought into operative connection with said valve only by the increased movement of said piston resulting from momentum due to the increase in speed thereof, substantially as described.

4. A fluid-pressure engine, its throttle-valve, and reciprocating piston, in combination with a device arranged in juxtaposition to said throttle-valve, means to throw said valve into operative connection with said valve to close the same when the speed and travel of said piston exceeds its normal limits, and means to return said device to its normal position when the piston resumes its normal speed and travel, substantially as described.

5. The combination, with a fluid-pressure engine, its supply-pipe, and a valve to control the passage of fluids through said pipe, of an actuating device connected to said valve, a rod pendent from said device, means to hold said rod in normal stationary position, and means to swing said rod and its attached valve-actuating device to close the valve when the engine speed and movement exceeds certain predetermined limits, substantially as described.

6. In a fluid-pressure engine, a cylinder, a reciprocating piston, a fluid-supply pipe, and a throttle-valve to control the flow of fluid through said pipe, in combination with a valve-actuating device connected to said valve, a rod pendent from said device, elastic buffers to hold said rod in normal stationary position when the speed and movement of the engine are within certain predetermined limits, and means, substantially as described, to swing said pendent rod and its attached actuating device to close said throttle-valve when the speed and movement of the engine exceeds said limits, as and for the purpose specified.

7. The combination, with the engine and fluid-pressure pipe, of a valve in said pipe, a ratchet-wheel attached to said valve, a carrier attached to a moving part of the engine and provided with a pawl engaging said ratchet, and connections between said carrier and some moving part of the engine, substantially as described.

8. The combination, with the valve-stem having a ratchet attached thereto, of a swinging carrier pivoted on said valve-stem and provided with a pawl engaging the ratchet, a rod connected to the engine, and connections between said carrier and rod, substantially as described.

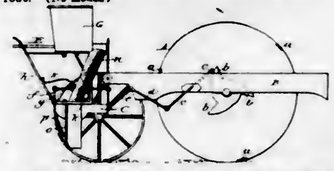
9. The combination, in a safety attachment for engines, of a valve-operating device, a reciprocating rod connected therewith to operate said device, a guide for said rod, a tension device for said rod, and connections between said rod and a moving part of the engine, substantially as described.

10. The combination, in a safety attachment for engines, of a valve-operating device, a reciprocating rod connected to and operating said device, and provided with stops or collars arranged to be operated by a moving part of the engine, substantially as described.

11. The combination, with a valve-stem, of a ratchet screwed upon the stem, a pendulum-rod swinging upon the stem and carrying a pawl, an adjustable weight upon the rod, and connections between the rod and the moving part of the engine, substantially as described.

12. The combination, in a safety device for engines, of a valve-operating mechanism and connections between said mechanism and moving parts of the engine, the arrangement being such that under normal action the safety device will not be moved, while an abnormal operation will operate the safety device to reduce the speed or stop the engine, substantially as described.

354,939. CORN-PLANTER. Joseph C. Schleicher, Sun Prairie, Wis., assignor of one-half to Bernard A. O'Keefe, same place. Filed Apr. 26, 1886. (No model.)



Claim.—The combination, in a corn-planter, of the third wheel, A having the cross-blocks *a* and the cams *b*, with the two cranks *c e*, the two rods *d f*, the loops *g h*, the levers *p*, and the slide E, all substantially as set forth.

354,940. ORE-FEEDER. Wm. S. Sharpneck, Denver, Colo. Filed June 18, 1886. (No model.)

Claim.—1. The combination, with the movable hopper D and fixed hopper *d*, of the stationary extension M, set low in said movable hopper and forming a spiral bottom therefor, substantially as described.

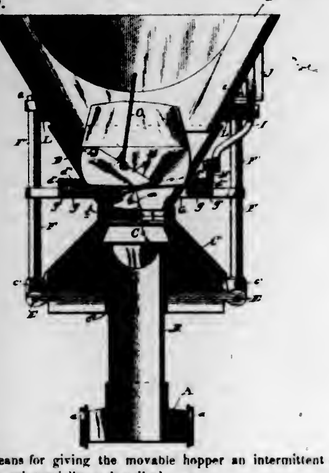
2. In an ore-feeder, the combination, with the movable hopper D, fixed upper hopper, *d*, and means for revolving the hopper D, of the extension M in said movable hopper, forming a spiral bottom therefor, and the slide N, pivoted to said extension, substantially as and for the purpose specified.

3. An ore-feeder provided with a moving hopper, D, a stationary extension extending within and forming a spiral bottom for said hopper, and means for giving the hopper an intermittent motion around said extension, substantially as described.

4. An ore-feeder provided with a movable hopper, D, a fixed hopper, *d*, an extension forming a spiral bottom for said movable hopper, and means for giving the lower hopper a revolving motion, substantially as described.

5. An ore-feeder provided with a movable hopper, D, a fixed hopper, *d*, having the extension M, forming a spiral bottom for the movable

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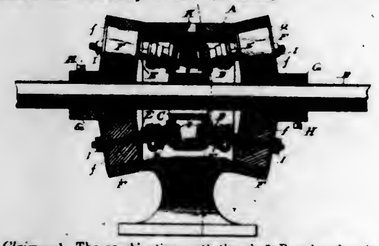


hopper, and means for giving the movable hopper an intermittent revolving motion, substantially as described.

6. The combination, in an ore-feeder, of a casting, C, having a ring or socket, c^3, a fixed hopper, *d*, a movable hopper, D, set in said ring or socket, and the vibrating lever I and pawls H, for giving the said hopper D a rotary movement, substantially as described.

7. The combination, in an ore-feeder, of the standard B, a casting, C, having chute C', a socket, c^4, below, resting on said standard, and a ring or socket, c^3, above, with a movable hopper, D, resting in said ring or socket c^3, and the vibrating lever I and pawls H, for giving an intermittent motion to the hopper D, substantially as described.

354,941. ANTI-FRICTION JOURNAL-BOX. WILLIAM S. SHARPNECK, Denver, Colo. Filed July 10, 1886. (No model.)



Claim.—1. The combination, with the shaft B and casing A, of a hollow ring adapted to be filled with and hold a liquid lubricant, and a series of friction-rollers having their shafts running in said hollow ring, substantially as described.

2. The combination, with the conical rollers F and with the casing A, having a flaring end, *a*, of a shaft, B, having a tapering collar constructed to be adjusted lengthwise of the shaft, substantially as described.

3. The combination, with the casing A and the shaft B, of a hollow ring, C, provided with a series of stuffing-boxes forming bearings for the shafts of the rollers, substantially as described.

4. The combination of a casing, A, having a flaring opening at each end, of a series of rollers, F, working therein, the shaft B, and the tapering collars secured thereon, with the ring C, provided with a series of stuffing-boxes forming bearings for the shafts of the rollers F, all constructed substantially as described.

354,942. MECHANICAL-TELEPHONE EXCHANGE. GEORGE F. SHAVER, New York, N. Y. Filed Jan. 25, 1886. (No model.)

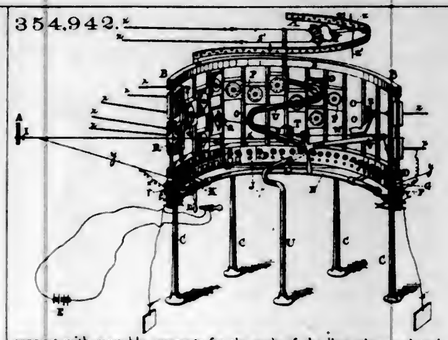
Claim.—1. In a mechanical-telephone exchange, a spiral support, in combination with a supplementary wire connecting two line-wires and secured to a hanger, and with a tightening device interposed between said spiral support and hanger, substantially as set forth.

2. In a mechanical-telephone exchange, the combination of movable supports for the ends of the line-wires with a detachable supplemental wire connecting any two of said line-wires, substantially as described.

3. In a mechanical-telephone exchange, the combination of movable supports for the ends of the line-wires with a supplemental wire connecting any two of said line-wires, and a tightening device, substantially as described.

4. In a mechanical-telephone exchange, the combination of a spiral

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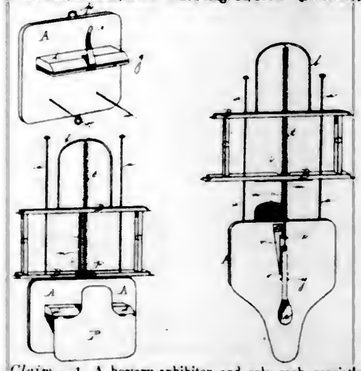
support with movable supports for the ends of the line-wires, a detachable supplemental wire connecting said ends, and a suitable tightening device, substantially as described.

5. In a mechanical-telephone exchange, the combination of a frame, B D, containing a series of sliding supports for the ends of the wires, and a detachable connecting-wire, substantially as described.

6. In a mechanical-telephone exchange, the wire *x* and the supplemental wire *y*, each terminating within the exchange in a hook or equivalent connecting device, in combination with a movable hand-telephone having a corresponding connecting device, substantially as described.

7. In a mechanical-telephone exchange, in combination with the fulcrum-rod N and a series of converging wires, each terminating in a hook or equivalent connecting device adjacent to said rod, the hand-telephone K, with means of attachment to any one such connecting device, and mounted on a lever possessing means of attachment upon any part of said rod as a fulcrum, substantially as described.

354,943. HOSIERY-EXHIBITOR AND SALE-RACK. GEORGE E. SLAUGHTER, Atlantic, Iowa. Filed Aug. 14, 1886. (No model.)



Claim.—1. A hosiery-exhibitor and sale-rack consisting of the frame, the spring-retainer, the block having the pins, the ledge secured to the block, the shield hinged to the ledge, the guide-rods secured to the block at their lower ends, and the spiral spring secured at one end to the spring-retainer and at the other to the block, all combined and arranged substantially as shown and described.

2. The herein-described hosiery-exhibitor and sale-rack, consisting of the frame, the block having the pins, the ledge, the shield hinged to the ledge, the shield-spring secured to the ledge, the guide-rods passing through apertures in the frame, the spiral spring secured at its lower end to the block, the spring-retainer, the notched bar pivoted to the block, the slotted plate and the finger-lever having the spring pivoted to it, all combined substantially as described and shown.

354,944. COTTON-SEED PLANTER. HARRY D. SPANGLER, Ephrata, Pa., assignor of one-half to Jacob S. Spangler, same place. Filed Nov. 10, 1886. (No model.)

Claim.—1. As an improvement in seed-planters provided with a force-feed in which arms are projected and withdrawn eccentrically within the rim of the feed-wheel, the case B, constructed as shown and





described, having upon its interior face eccentric to the case concentric ledges adapted to receive and guide the wings E' of loose teeth E, and closed by a cap, C, provided with corresponding ledges for the same purpose, a seed-propelling wheel inclosed within the case, having peripheral cuts within which the body of the said teeth lie, mounted upon a shaft with its hubs supported and revolving in said case and cap, in combination with a hopper and its stirrer, the traction-wheel T, and planter-frame A, as and for the purpose set forth.

2. As an improvement in cotton-seed and analogous seed planters, a distributor or seed-separator cup receiving the seed from the force-feed by gravity, said cup held in place at its front top edge by projected portions of the case and cap of the feed-wheel and at its rear by a base-ledge, with guide overlapping the same, an arm projected toward the knocker-wheel, and the bottom of the cup perforated with six or more square holes, in combination with the planter-frame, force-feed wheel, and knocker-wheel upon the shaft of the same, suitably connected with the traction-wheel shaft, whereby on revolution a sharp and effective jerk is given to said cup, separating the seeds from each other, and passing the same through the cup to the furrow below, a spring, J^3, and stud J^4, for the retention of the same, adding force to the action of the cup, as and for the purpose set forth.

3. As an improvement in seed-planters, a force-feed seed-disk wheel having peripheral parallel cuts within the body of the same, its hub projecting equally from both sides of the disk and adapted to revolve upon the same within bearings in the case and cup, said bearings being eccentric to the case, said cup and case provided with ledges concentric with said bearings, teeth E, having wings E', the latter traveling freely within said concentric ledges, and the body E, free to move in the peripheral cuts D' of the wheel, whereby, upon revolution of the same, the said teeth are projected from and retracted within the periphery of the case at suitable points to catch and force out of the hopper the seed, and in the chute release themselves therefrom, and, by the removal or non-removal of said teeth at intervals from said wheel, as described, to drop the seed in alternate hills, or in a continuous stream, as desired, substantially as and for the purpose set forth.

4. As an improvement in cotton-seed planters, the combination, essentially, of the following elements: a frame, A, traction-wheel T, shaft S, sprocket or gear Q, force-feed-wheel case B, and cap C, secured to said frame, and inclosing a revolving feed-wheel, D, with loose teeth E, moving freely in peripheral cuts in said wheels, the wings E' of said teeth guided between concentric ledges B^4 C^4, within the cap and case and eccentric to the same, said teeth being projected and retracted, as described, a hopper, F, secured by a divided portion, F', to said case, a shaft, D^2, in said feed-wheel, having sprockets M and N, and knocker-wheel L, secured to the same, in link-connection with sprocket Q on traction-shaft, and with hopper-stirrer sprocket I, a seed separator and distributer cup, J, having a reciprocating transverse movement upon the frame, retaining lug and guide on the frame, a knocker-arm, J', spring J^3, stud J^4, and offsets B^7 C^7, to prevent rise of the cup, the whole arranged, combined, and adapted to be operated as and for the purpose set forth.

354,945. DYNAMO-ELECTRIC MACHINE. ELMER A. SPERRY, Chicago, Ill. Filed Oct. 31, 1884. (No model.)

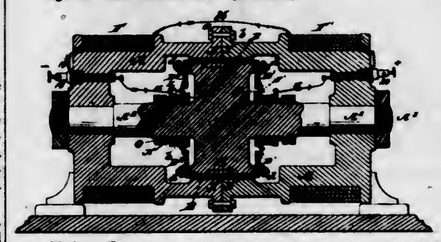


Claim.—1. A field-magnet for dynamo-electric machines, consisting of a core and concentric sector-like pole-pieces provided with an intervening circular groove to admit the revolving end of an annular armature, as described, that portion of the sectional area of the core standing opposite each pole-piece being proportional to the sectional area or mass, respectively, of the pole-pieces themselves, substantially as and for the purpose set forth.

2. In a dynamo-electric machine, a field-magnet the poles of which are arranged in equidistant pairs or parts within a circle, each part or pair of the pole-pieces being magnetized by a separate and distinct core, and divided to admit the end of a revolving annular armature, the masses of the divisions of each pair or part being proportional, respectively, to the sectional area of the parts of the core opposite said divisions, substantially as described.

3. The combination of the back armature or yoke, C, the cores J, projecting from said yoke, the divided sector-like pole-pieces K K', bearing the specified relation to said cores J, and the annular armature E, playing between said pole-pieces, substantially as described.

354,946. DYNAMO-ELECTRIC MACHINE. ELMER A. SPERRY, Chicago, Ill. Filed Mar. 21, 1884. (No model.)



Claim.—In a dynamo-electric machine, the combination of the field-magnet having a solid core-piece with shaft-shaped extensions, the conducting-rings fitted on said extensions and insulated therefrom, the anti-friction balls serving as electrical conductors, and the drum-shaped armature supported upon said balls and rotating thereon, substantially as described.

354,947. TOBOGGAN. HENRY F. STEARNS, Saratoga, N. Y., assignor of one-half to Edmund G. Rawson, same place. Filed Jan. 7, 1886. (No model.)

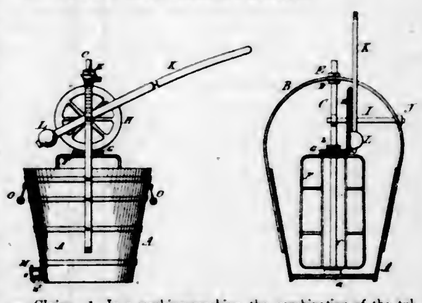


Claim.—1. In a toboggan, the combination, with the close thin panel deck-body A, of two or more wooden duplex slat shoes, B, constructed, arranged, and secured, substantially as described, on the lower side surface of said deck-body, for the operations and purposes set forth.

2. In a toboggan, the close panel body or deck A, in combination with two or more slat shoes, B, secured lengthwise to the lower side of said body, and cross-slats C C, secured crosswise to the upper side of said body or deck, whereby said deck or body will be strengthened both in its longitudinal and cross directions, substantially as and for the purposes set forth.

3. In a toboggan, the combination and arrangement, with the thin close-panel deck A and its connected or continued and curved close-panel front A', of two or more wood slat shoes, B, above described, secured continuously to said deck and curved-panel front A', and the cross-slats C, secured transversely to the said deck and said shoes, substantially as and for the purposes set forth.

354,948. WASHING-MACHINE. ALEXANDER STUART, Jr., Hamilton, Ontario, Canada. Filed Jan. 9, 1886. (No model.)

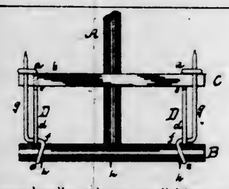


Claim.—1. In a washing-machine, the combination of the tub A, shafts C I, bevel-gear G, attached to dasher F, and gear-wheel H, attached to shaft I, and the collar *b* on shaft C, substantially as and for the purpose specified.

2. In a washing-machine, the combination, with the tub A and brace B, bent over the top and secured to the sides thereof, of the shaft C, having dasher F, the nut E, and collar D, the shaft I, having nut J, and the gears G H, and operating-lever, substantially as described.

354,949. MOP-HOLDER. CHARLES SUESS, Brunswick, Mo. Filed Mar. 25, 1886. (No model.)

354,949.



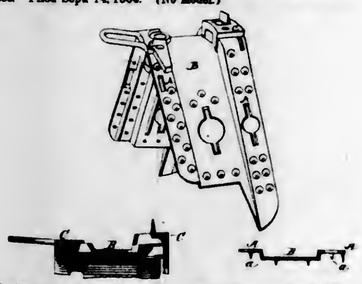
Claim.—A mop-handle and two parallel bars secured thereto, in combination with wire supports connecting the adjacent ends of the two bars, each support being composed of a single piece of wire bent to support the bars, one end of each wire being also bent to form a book, and the other end constituting a pin which engages said hook, substantially as set forth, whereby the mop may be secured to the holder.

354,950. FENCE-POST BASE. JOSEPH D. S. W. P. TILTON, Yakima, Wash. Filed June 4, 1886. (No model.)



Claim.—The herein-described fence-post base, having the downwardly-inclined sides, thereby making the base wedge-shaped, and the vertical flanges *c*, extending at right angles from opposite sides of the post and projecting in opposite directions, the said flanges being curved or scalloped at the outer edges, forming the barbs or shoulders *d*, as set forth.

354,951. SADDLE-TREE. SAMUEL E. TOMPKINS, Newark, N. J., assignor to the Rubber and Celluloid Harness Trimming Company, same place. Filed Sept. 14, 1886. (No model.)



Claim.—1. A coupe saddle-tree with elevated level flanges provided with ribs *a a* on the under side about half-way between the outer edges and the main body of the tree, as described, for the purpose of forming cavities to receive the stuffing and prevent its moving to one side.

2. A coupé saddle-tree having, in combination, level flanges A A, back-band channel B, raised portions C C, for seat and jockeys to rest on, and the ribs *a a*, all constructed and arranged substantially as and for the purposes set forth.

354,952. CLOTH LAYING AND CUTTING MACHINE. ABNER J. TOWER, Boston, Mass. Filed Apr. 28, 1884. (No model.)

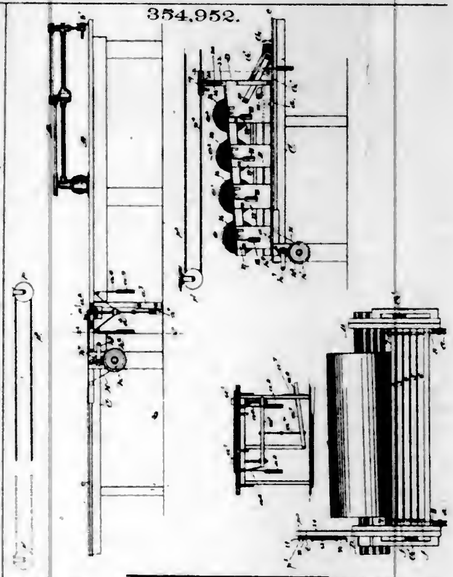
Claim.—1. The table, rod clamps to hold the ends of the webs of cloth, and the apron upon which the cloth is piled or laid, combined with the carrier or carriage made movable above the said table on a suitable track to deliver the cloth on the said apron, and means for operating said clamps, apron, and carrier, substantially as described.

2. The combination, substantially as described, of the cloth-cutting bed A, cloth-cutting mechanism mounted thereon, a table, and an apron upon which the cloth is laid and by it fed, and means to move said apron, clamps to engage the ends of the cloth, and a cloth carrier or carriage mounted upon wheels on ways on the table, and means, substantially as described, to traverse said carrier, substantially as set forth.

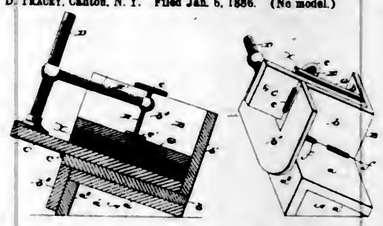
3. The table, cloth-carrier mounted on tracks thereon, and means to move it, combined with smoothing-bars, and a rotary wrinkle-rubber placed diagonally with respect to said bars, and both bars and roller mounted upon the cloth-carriage, substantially as described.

4. The bed and cutting mechanism, the apron and means to move the same, and the table, combined with the carrier or carriage for the webs of cloth, and means to move it, the said carrier being provided with smoothing-bars, edge-gages, and a diagonally-placed wrinkle-rubber, to operate all substantially as described.

354,952.



354,953. DEVICE FOR GAGING AND BINDING TABLETS. JAMES D. TRACEY, Canton, N. Y. Filed Jan. 6, 1886. (No model.)



Claim.—1. The combination of a base, a receptacle or box hinged to the base and foldable laterally thereon, and a bed normally inclosed within the receptacle and adapted to be folded at an angle thereto, substantially as described.

2. The combination of a gage box or receptacle, a foldable bed hinged thereto and adapted to be extended at an angle therefrom, and a clamping device, substantially as described, for holding the leaves of a tablet to the bed, substantially as described.

3. The combination of a gage-box, a bed hinged thereto, a standard and an adjustable screw-carrying arm mounted on the standard, substantially as described.

4. The combination of a gage-box, a foldable bed mounted thereon, a standard carried by the bed, and a supporting-arm provided with a binding-screw and vertically and laterally adjustable on the standard, substantially as described.

5. The combination of a base, a laterally-foldable gage box or receptacle mounted thereon, a foldable bed carried by the gage-box, a standard supported on the free end of the bed, and a supporting-arm provided with a binding-screw and adjustably fitted on the standard, substantially as described.

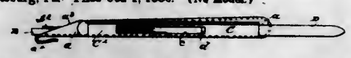
6. The combination of an inclined base, a gage box or receptacle hinged thereto and adapted to fold laterally thereon, a foldable bed hinged to an open end of the gage-box and adapted to assume a vertical position at right angles thereto, a standard, and a supporting-arm carrying a binding-screw at its free end and vertically and laterally adjustable on the standard, substantially as described.

7. The combination of a laterally-adjustable gage-box, a bed carried by the gage-box, a standard mounted on the bed, a supporting-arm having a socket of a diameter slightly larger than the standard and loosely fitted on the latter, and a binding-screw mounted in the arm, whereby when the screw is adjusted to clamp a tablet the edges of the socket will bind and firmly secure the arm on the standard, substantially as described.

8. In a device for binding tablets, the combination of a base, a gage-box hinged thereto and adapted to be folded laterally thereon, a bed carried by the gage-box, a standard affixed to the bed, an arm fitted on the standard and adjustable vertically thereon and adapted to be swung horizontally to describe a circle with the standard as a pivot, and a clamping-screw working in the arm, substantially as described.

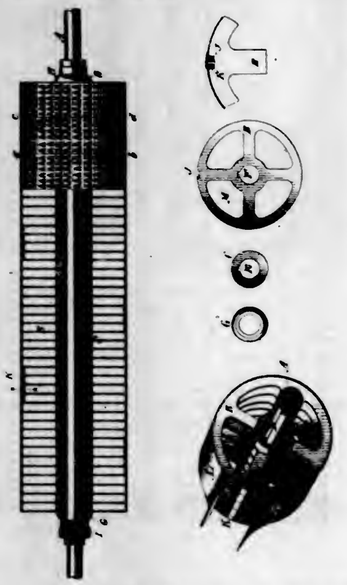
9. In a device for binding tablets, the combination of a gage-box, a bed, a standard, a vertically-adjustable arm mounted on the standard and adapted to be swung horizontally to describe an arc of a circle with the standard as a center, and a clamping-screw carried by the arm, substantially as described.

354,954. ENVELOPE SEALER AND OPENER. JOHN W. TURNER, Pittsburg, Pa. Filed Oct. 1, 1886. (No model.)



Claim.—The slotted casing, and the blade adapted to slide therein, in combination with the casing inclosing the absorbent, substantially as specified, for the purpose set forth.

354,955. COTTON-GIN CYLINDER. CHARLES R. VALK, Charleston, S. C. Filed July 1, 1886. (No model.)



Claim.—1. A cotton-ginning cylinder containing a central shaft, a series of sheet-metal disks upon said shaft, a batten or bar extending across the peripheries of said disks, and a toothed sheet-metal envelope supported upon and inclosing the peripheries of said disks, and secured at its extremities to said batten, substantially as described.

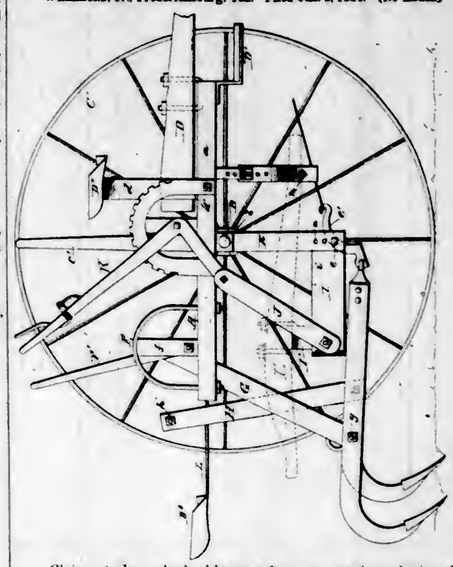
2. A cotton-ginning cylinder containing a central shaft, a series of sheet-metal disks upon said shaft, a toothed sheet-metal envelope supported upon and inclosing the peripheries of said disks, washers interposed between said disks, and a means (such as a fixed collar on the shaft on one end and a nut and thread on the shaft on the other end) for clamping said disks and washers together upon said shaft, substantially as described.

3. A cotton-ginning cylinder composed of two or more removable sections, each section containing two or more sheet-metal disks, a central shaft supporting said sections, a means (such as a fixed collar on the shaft on one end and a nut and thread on the shaft on the other end) for clamping said sections together upon said shaft, a batten or bar extending across the peripheries of said disks, and a toothed sheet-metal envelope supported upon and inclosing the peripheries of said disks and secured at its extremities to said batten, substantially as described.

4. The combination of the shaft A, having the feather D, disks B, containing the recesses J and F, batten K, washers C, containing the recesses E, and toothed sheet-metal envelope L, substantially as described.

5. The combination of the shaft A, having the feather D, disks B, containing the recesses J and F, batten K, washers C, containing the recesses E, toothed sheet-metal envelope L, fixed collar H, threaded portion of said shaft and nut I thereon, and sleeves G, substantially as described.

354,956. COMBINED WHEEL CULTIVATOR AND PLOW. CHAS. WARRMUND, Jr., Fredericksburg, Tex. Filed Jan. 8, 1886. (No model.)



Claim.—1. In a wheel-cultivator, a frame supported on wheels and provided centrally with depending bars E E, to which the forward ends of the cultivators are attached, levers pivoted to the rear portion of the frame and connected to the cultivators for raising and lowering the same, a transverse frame, I, pivotally attached under the main frame so as to bear upon the forward ends of the cultivators, and bars for regulating the width between said cultivators, the parts being combined and organized substantially as shown, and for the purpose set forth.

2. In a cultivator, a main frame provided with supporting-wheels and detachable front and rear seats, for the purpose specified, depending bars with means for attaching the forward ends of the cultivators thereto, bent bars *e'*, adjustably attached to the depending bars E, the draft-chain attached to levers *c'*, and lifting connections for elevating and lowering the cultivators, substantially as shown, and for the purpose set forth.

3. In combination with a cultivator, a main frame mounted on wheels, substantially as described, the rear end of said frame being opened, detachable seats mounted on said frame, depending bars E, secured to the axle and to the main frame, coupling devices *e*, secured to said depending bars, a pivoted frame, I, also attached to the depending bars E, and a lever for depressing the same, cultivators provided with bars and levers for elevating and depressing the same and adjusting laterally the cultivators, the parts being organized substantially as set forth.

354,957. DOUBLE-ACTING ROCK-DRILL. HENRY G. WALKER, New York, N. Y. Filed Mar. 16, 1886. (No model.)

Claim.—1. In a rock-drill, the combination, with the supporting-frame and drill-shaft surrounded by a spring within the frame, of the two sleeves, the ends whereof are provided with cams, as set forth, said sleeves revolving in opposite directions through the medium of the driving mechanism connected therewith, substantially as shown and described.

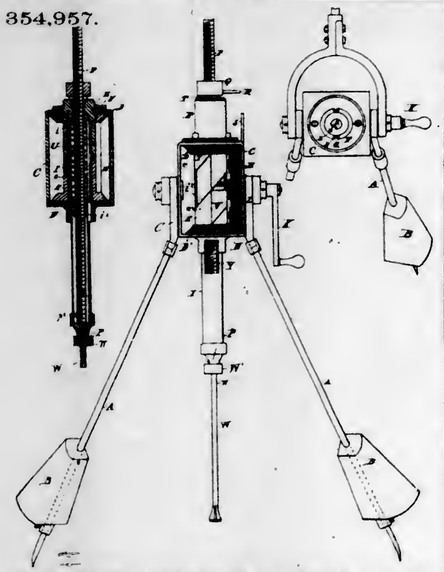
2. The combination, with the supporting-frame wherein are located the wheels M and N, of the cam-wheel bearing the fixed wheel, the cam-sleeve having grooves wherewith feathers upon the wheel D engage, and the drill-shaft surrounded by a spring, U, within the frame, substantially as shown and described.

3. The combination, with the supporting-frame and driving mechanism, and the cam-sleeves, of the drill-shaft, cylinder I, and spring U, surrounding the drill-shaft within the supporting-frame, arranged substantially as shown and described.

4. In a rock-drill of the character herein specified, the combination, with the drill-shaft, of the spring U, made in sections, the end of the lower section bearing against a nut, i^3, and the end of the upper section against cylinder I, substantially as and for the uses and purpose shown and described.

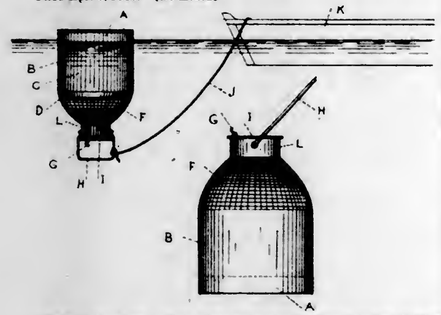
5. A double-acting rock-drill consisting of a tripod supporting a main frame, two cam-sleeves revolving in said frame, as set forth, mechanism for driving said cam-sleeves, a screw-threaded drill-shaft bearing a feed-regulating nut and passing through a cylinder whereon the cam-sleeves revolve, and a sectional spring surrounding the drill-shaft within the cyl-

354,957.



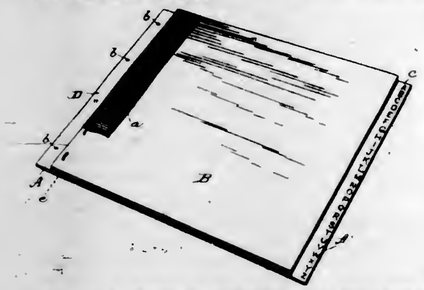
inder, bearings being provided for said spring, the whole combined and arranged to operate substantially as shown and described.

354,958. FLOATING MINNOW-BASKET. DAVID B. WEIGHTMAN, Grand Rapids, Mich., assignor of one-half to Perkins & Mason, same place. Filed Apr. 3, 1886. (No model.)



Claim.—As a new article of manufacture, a minnow-basket having a reticulated top, F, and cover I, and in the bottom an air-tight chamber, A, substantially as shown and described.

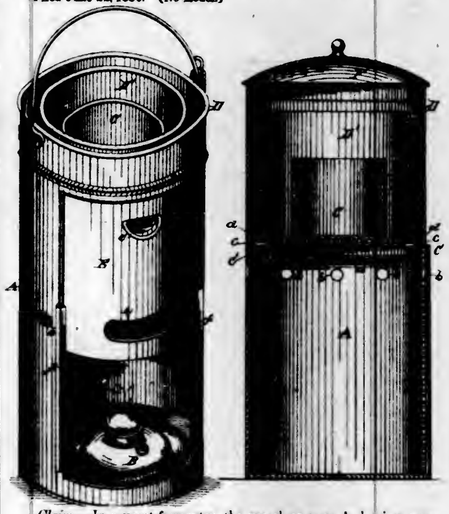
354,959. COPYING-BOOK. LUCIUS E. WHITON, West Stafford, Conn. Filed Feb. 12, 1886. (No model.)



Claim.—1. A signature for letter-press-copying books, composed of ordinary letter-press-copying paper and a cover having an exposed margin with the letters of the alphabet placed thereon in their order, substantially as described.

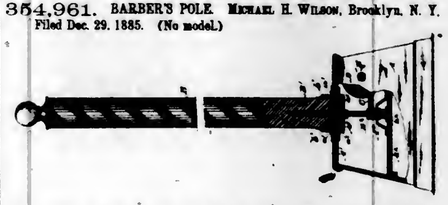
2. A signature for letter-press-copying books, composed of ordinary letter-press-copying paper and a cover or divisional leaf of heavier paper having on one side an exposed margin with the letters of the alphabet placed thereon in their order and on the other side a margin exposed beyond the letter-press-copying paper with perforations for temporary binder.

354,960. DOUGH-RAISER. GLENDIE A. WILLIAMS, Kansas City, Mo. Filed June 22, 1886. (No model.)



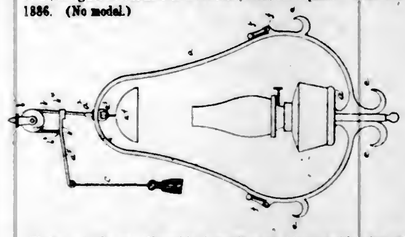
Claim.—In a yeast-fermenter, the vessel or case A, having cross-partitions *a* and *c*, the air-space *c'*, the elongated perforations *d*, the side perforations, *b*, the sliding door E, having opening *e* and handle *e'*, the bent guides *f*, and cover F, in combination with the cups C and D', and the lamp B, all arranged and operated substantially as shown and specified.

354,961. BARBER'S POLE. MICHAEL H. WILSON, Brooklyn, N. Y. Filed Dec. 29, 1885. (No model.)



Claim.—A barber's pole or sign mounted with freedom to revolve on its axis, in combination with a motor for imparting a revolving motion thereto, substantially as and for the purposes herein specified.

354,962. ADJUSTABLE LAMP-HANGER. CHARLES O. YALE, Rome, N. Y., assignor of one-half to M. Calvin West, same place. Filed Jan. 29, 1886. (No model.)



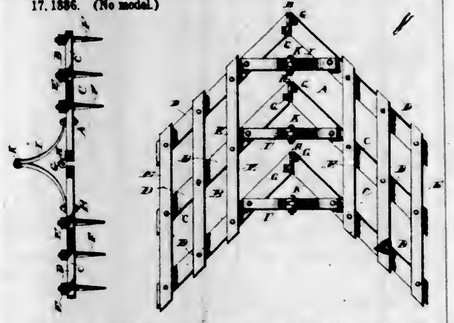
Claim.—1. In an adjustable lamp-hanger, the combination of the cable, the pulley, and the tilting lever with perforated head through which the cable passes and to which the same is attached on the opposite side of the pulley, the opening in the head constructed to engage or release the cable when the lever is tilted, arranged substantially as described, for the purposes stated.

2. In an adjustable lamp-hanger, the combination of the cable, the pulley, and the tilting lever with perforated head through which the cable passes and to which the same is attached on the opposite side of the pulley, the opening in the head constructed to engage or release the cable when the lever is tilted, with cord attached to the long arm of the lever, substantially as described.

3. In an adjustable lamp-hanger, the combination of the cable, the fixed support, and the tilting lever with perforated head through which the cable passes and to which the same is attached on the opposite side of the fixed support, the opening in the head constructed to engage or release the cable when the lever is tilted, arranged substantially as described, for the purposes stated.

4. In an adjustable lamp-hanger, the combination of the cable, the fixed support, the tilting lever with perforated head through which the cable passes and to which the same is attached on the opposite side of the fixed support, the opening in the head constructed to engage or release the cable when the lever is tilted, with a cord attached to the long arm of the lever, arranged substantially as described, for the purposes stated.

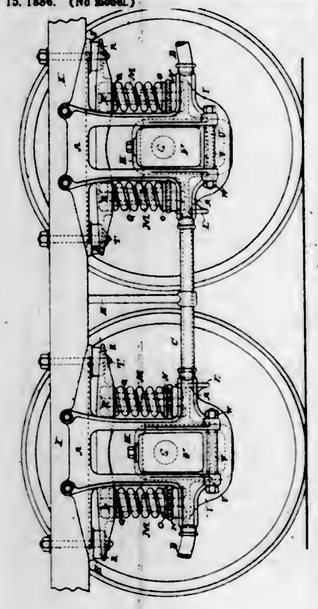
354,963. HARROW. HENRY W. ALSHOUSE, Custer, Ind. Filed Sept. 17, 1886. (No model.)



Claim.—1. In a harrow, the combination of the sections hinged together, and the spring-arms I, secured at their lower ends to the meeting edges of the harrow-sections and extending upwardly from the same, and the bolts K, connecting the upper ends of the said spring-arms together, substantially as described.

2. In a harrow, the combination, with the flexible sectional harrow having its sections hinged together, of the spring-arms I, fitted at their lower ends on one side of the hinge-point of the sections, and having their upper ends hinged or pivoted together.

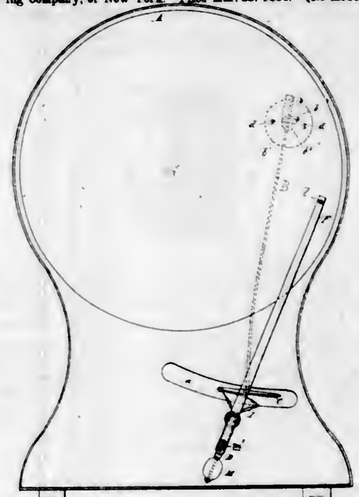
354,964. CAR-TRUCK. WILLIAM S. G. BAKER, Baltimore, Md. Filed Sept. 15, 1886. (No model.)



Claim.—1. The combination of the brace A, the spring-carriage, the insulator-beam, and the springs, substantially as set forth.

2. The combination of the axle-boxes, the loose rod K, and the spring-carriages, substantially as set forth.

354,965. RECORDING-THERMOMETER. CHARLES S. BLACK and PHILIP C. PFISTER, New York, N. Y., assignors to the Draper Manufacturing Company, of New York. Filed Mar. 23, 1886. (No model.)



Claim.—1. A recording-thermometer containing the following elements: a case having a suitable chart, a compound bar attached to said case, a yoke connected to said bar, a segment-lever, a wire or chain connecting the segment-lever to the yoke, a partially-revolving sleeve or shaft, on which said lever is mounted, and a recording-lever mounted thereon, substantially as shown.

2. A recording-thermometer containing the following elements: a case having a suitable chart, a compound bar, a swiveled connection between said case and the bar, a yoke connected to said bar, a segment-lever, a wire or chain connecting the segment lever to the yoke, a setting device for adjusting said lever with respect to the compound bar, a partially-revolving sleeve or shaft, on which the segment-lever is mounted, and a recording-lever mounted on said sleeve.

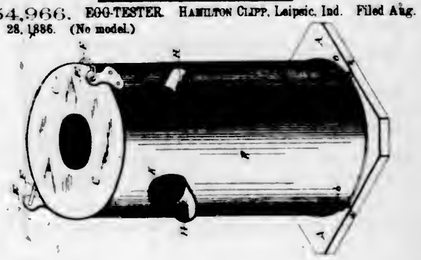
3. In combination with the operating-wire I, the compound bar B, and, as a means of straining the operating-wire I, a yoke, C, provided with one rigid and one spring arm, substantially as described.

4. In a recording-thermometer, the combination of a yoke, C, attached to a compound bar, B, with the segment-lever D and the wire I, stretched in said yoke, for transmitting the motion of the compound bar to the lever without friction, substantially as described.

5. In a recording-thermometer, the combination, with the yoke C, connected to the compound bar B, and the segment-lever D, of the wire I, having its opposite ends connected to the yoke and passing twice over the curved edge of the segment and around a point under the same, substantially as described.

6. In a recording-thermometer, the combination of the yoke C, connected to the compound bar B, the segment-lever D, and the wire I, having its opposite ends connected to the yoke and passing twice over the curved edge of the segment, with a setter, f^3, around which said wire is coiled for the purpose of adjusting the position of the recording-lever, substantially as described.

354,966. EGG-TESTER. HAMILTON CLIPP, Leipsic, Ind. Filed Aug. 28, 1886. (No model.)



Claim.—1. The egg-tester comprising a cylindrical vessel adapted to inclose and carry a lighting device, and having the openings G, provided with ledges covered with soft material, the said vessel being closed below, and having a bail or like means for carrying it, substantially as described.

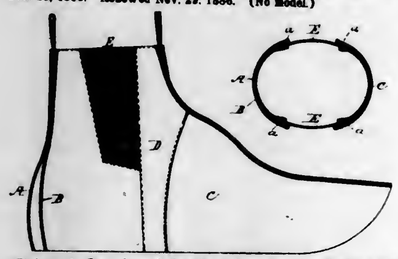
2. The combination of the vessel A, having the openings G and supporting-ledges H, forming the egg rests or supports, with the bottom board and the hooks to secure the same to the vessel, substantially as described.

354,967. TRACE-CARRIER. David R. Cotner, Bardwell, Ky. Filed July 16, 1886. (No model.)



Claim.—The herein shown and described device for the purposes set forth, consisting of a plate provided with an opening, and having loops on its rear and a double loop on its front arranged at right angles to the loops on the rear, a keeper passed loosely through the double loop, a spring mounted on the keeper for holding it normally projected across the lower loop, apertured lugs located on each side of the opening, and a cross-bar mounted in the lugs, and having prongs or tongues extending therefrom and projecting through the opening in the plate, substantially as and for the purpose set forth.

354,968. SHOE. Augustus T. Cushing, Weymouth, Mass. Filed Feb. 23, 1886. Renewed Nov. 29, 1886. (No model.)



Claim.—1. In a shoe of the class above mentioned, the combination, with the front portion of the shoe made of one piece of leather and crimped to shape, of the saddle-shaped stay D.

2. In a shoe of the class above mentioned, having an elastic gore and the adjacent portion of the shoe formed of oil-dressed leather, the combination, with the said gore and the said adjacent leather portion of the shoe, of an oil-proof strip interposed between them, whereby the oil-dressing of the leather is prevented from coming in contact with the elastic goring.

3. In a shoe of the class above mentioned, the combination of the back A, the whole front C, the lining B, and the stay-strip D, all substantially as set forth.

4. In a shoe of the class above mentioned, the combination, with a whole back, A, a whole front, C, and an elastic gore, of an oil-excluding strip, *a*, all substantially as and for the purpose set forth.

354,969. BUTTON-ATTACHING MACHINE. Joseph C. F. Dick, Belvidere, Ill. Filed Nov. 11, 1885. (No model.)

Claim.—1. The combination, substantially as hereinbefore described, of the slotted jaw for holding a button, with its pronged fastener projecting therefrom, the clinching-jaw, and the vibrating prong-adjusting finger which moves along the face of said slotted jaw for engaging with the prongs of a fastener and holding them, during the operation of the clinching-jaw, in a position favorable to puncturing a fabric without bending or crippling.

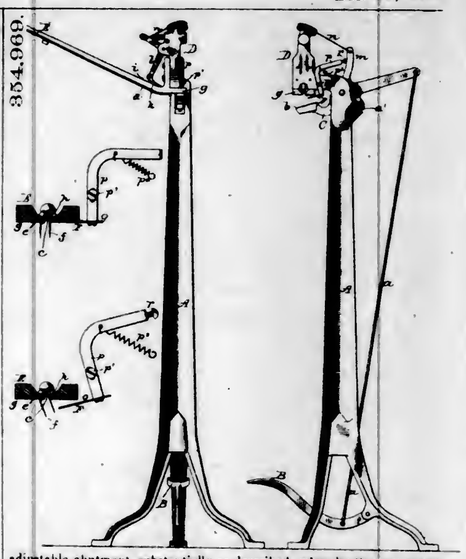
2. The combination of the slotted jaw having a button-lifting spring therein, the clinching-jaw, and a vibrating prong-adjusting finger which moves to and fro along the face of the slotted jaw, at one side of its slot and at right angles thereto, substantially as described.

3. The combination of the clinching-jaw, the slotted jaw having a recess at one side of the slot, and a vibrating prong-adjusting finger which occupies said recess when the jaws are forced together, substantially as described.

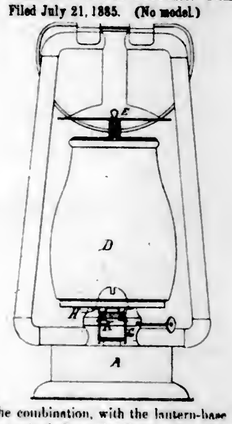
4. The combination, with the slotted holding-jaw and the clinching-jaw, of a vibrating prong adjusting and holding finger provided with an adjustable abutment, substantially as described, whereby the movements of said finger may be varied.

5. The combination, with the slotted holding-jaw and the clinching-jaw, of a vibrating prong-adjusting finger forced toward said holding-jaw by a spring, substantially as described, whereby said finger will engage with the prongs of a button-fastener under a yielding pressure.

354,969.



354,970. LANTERN-GLOBE SUPPORT. Frederick Dietz, New York, N. Y. Filed July 21, 1885. (No model.)



Claim.—The combination, with the lantern-base A and perforated plate F, of the standard G, staple H, tube I, and spring K, arranged substantially as shown and described.

354,971. RIVET. Léon O. Dion, Natick, Mass. Filed Jan. 9, 1886. Renewed Nov. 29, 1886. (No model.)



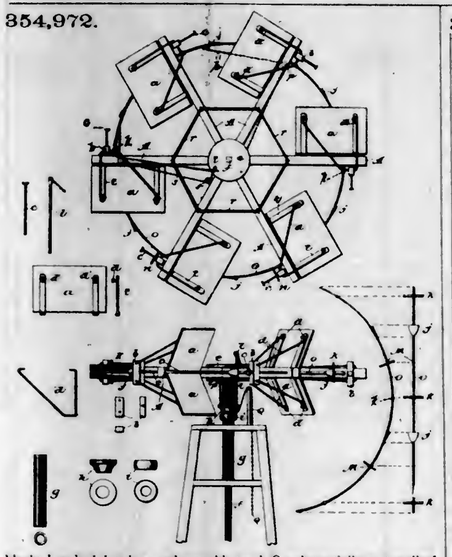
Claim.—1. A rivet the body portion of which is provided with notches or scallops, for the purposes set forth.

2. A rivet having a square body provided with notches or scallops and its end with a V-shaped groove, so as to form two incline points, as described.

354,972. WINDMILL. Samuel J. Dodds and Orville A. Inman, West Point, Stephenson County, Ill. Filed Jan. 18, 1886. (No model.)

Claim.—1. In a horizontal windmill, the combination, with a vertical operating-shaft, *f*, hub *e*, arms A, and braces *r*, of two wings, *a a*, hinged to each arm, each having strengthening-bars *t t*, bar *c*, sliding

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blocks *b*, rods *d d*, rods *n*, and movable track O, substantially as described, and so arranged that the wings will automatically open or close as the wind comes into contact with the front or rear surface of the wings with each revolution of the wheel.

2. In windmills, the combination of a horizontal wheel, substantially as described, with the movable track O, provided with wings *a*, hinged to fixed arms A, bar *c*, sliding blocks *b*, bars *d*, perpendicular pins K, and horizontal pins M, arranged substantially as described, and operating as a stop to prevent the wings, whenever the front surface of the same is brought into contact with the wind, from opening too far.

3. In windmills, the combination, with a horizontal wheel and movable track, substantially as described, of the chain *s*, pulley *s'*, rod *l*, movable collars *h* and *i*, hollow shaft *g*, chain Q, and post and pulley *q'*, arranged substantially as described, by means of which the wings may be partially closed, thus regulating the power of the wheel, or the wings may be entirely closed and firmly retained in either position so long as desired.

4. In windmills, the combination of a horizontal wheel and movable track O, provided with wedge attachments, substantially as described, of the chain P, pulleys P' and P^2, movable collars *h* and *i*, hollow shaft *g*, and vertically-operating shaft *f*, substantially as arranged and described, by which the wheel may be thrown into gear and the front edges of the wings slightly opened, so that the wind may act upon the front surface of the wings as each pair is respectively brought into position by the revolution of the wheel.

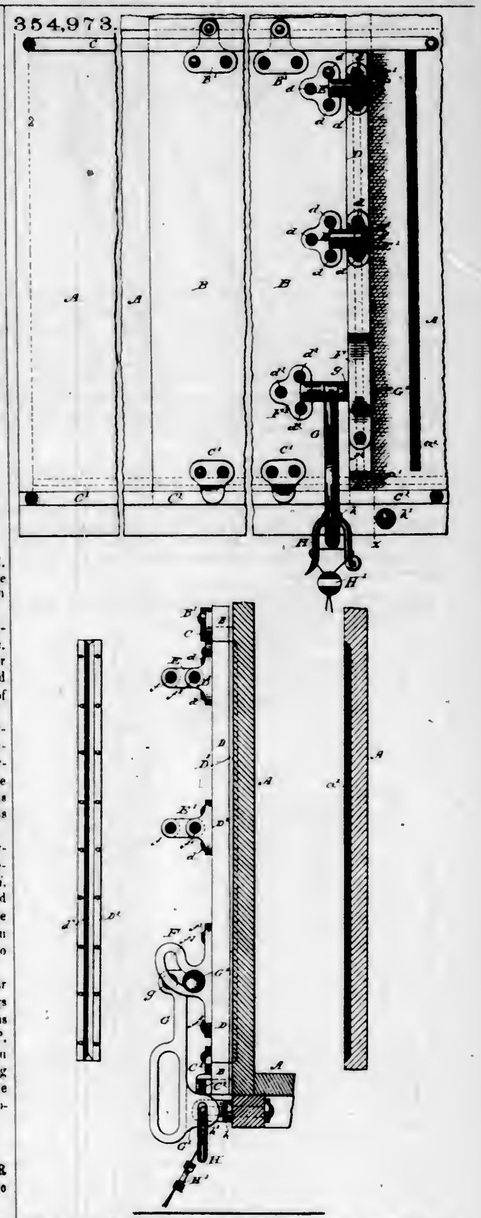
5. The combination, in a horizontal windmill, of a perpendicular operating-shaft, *f*, hub *e*, and radial arms A, automatical folding wings *a a*, hinged to radial arms A, bars *c*, sliding blocks *b*, horizontal pins M, movable track O, wedge-shaped attachments *j*, chains *s* and P, pulleys *s'*, P', and P^2, rod *l*, movable collars *h* and *i*, hollow shaft *g*, chain Q, and post and pulley *q'*, substantially as described, the whole forming a wind power that may easily be controlled by partially closing the folding wings, or the wings wholly closed when not in use, and as a protection against storms.

354,973. ADJUSTABLE ATTACHMENT FOR FREIGHT-CAR DOORS. Thomas H. Doran, Palestine, Texas. Filed Aug. 3, 1886. (No model.)

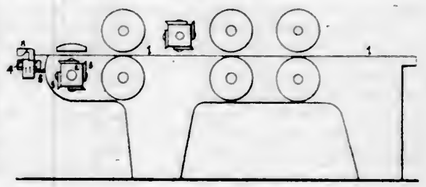
Claim.—1. In combination with the door and wall of a freight-car, the cleat adjustably connected to the car-door in the manner set forth and adapted to engage with the car-wall, as shown and described, the operating-handle pivotally connected to the car-door and arranged to operate the cleat toward or away from the car-wall, and provided with a recessed extension for receiving a staple fixed to the car, and slots for receiving a locking-hook, and the locking-hook provided with recesses for the reception of means for supporting a seal, substantially as specified, for the purpose set forth.

2. The combination, with a car-door, of the sliding cleat thereon, and the lever for operating said cleat secured to the car-door, the staples fixed to the car, the detachable hook, and means for supporting a seal on said hook, substantially as described.

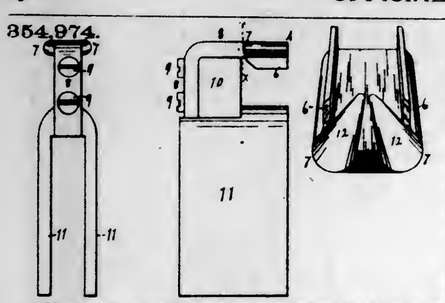
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354,974. UNDERCUTTING-KNIFE. William M. Dwight, Detroit, Mich. Filed Mar. 4, 1886. (No model.)



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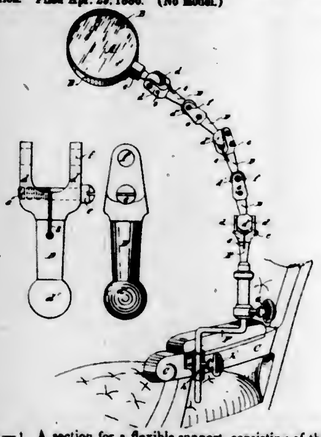
Claim.—1. A knife for undercutting a groove, consisting of the shank 8, having the laterally-enlarged head A, provided with side cutting-edges, 7, located on the end of said head adjacent to the shank, so that the latter draws the cutting-edges through the groove to force the shavings downward in advance of the head, substantially as described.

2. A knife for undercutting a groove, consisting of a shank adapted to enter the groove, and having an enlarged head provided with cutting-edges at one end and chamfered toward the center of the knife for throwing the shavings toward the center thereof and downward, substantially as described.

354,975. **REMEDY FOR CHOLERA.** Aaron T. Estabrook, Raymond, Kans. Filed Oct. 30, 1886. (No specimens.)

Claim.—The herein-described compound or mixture of ingredients to form a medicine for the treatment of cholera or other stomach complaints, consisting of alcohol, gum-guaiac, cinnamon, cloves, whisky, laudanum, blackberry extract, and extract of wild cherry, in about the proportions herein specified.

354,976. **DENTAL FLEXIBLE SUPPORT.** George L. Field, Detroit, Mich. Filed Apr. 29, 1886. (No model.)

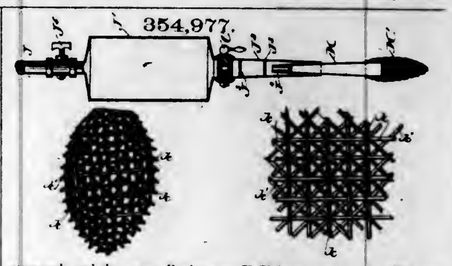


Claim.—1. A section for a flexible support, consisting of the shank D, provided at one end with the sphere d' and at the other end with the two jaws d d, for receiving between them a ball, and a compression set-screw, e, for clamping the jaws upon the ball between them, substantially as described.

2. The combination, with the sleeve E, adapted to be connected with a dental chair and having two compressible jaws, d d, and compression-screw e, of the flexible support, comprising a series of connected shanks, D, each having at one end a sphere, d', and at the other end a slot, s, two jaws, d d, and a compression-screw, e, substantially as described.

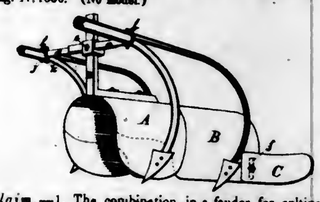
354,977. **INCANDESCENT GAS-BURNER.** Henri Galopin, Melbourne, and James Evans, Auburn, Victoria. Filed Nov. 12, 1885. (No model.) Patented in Victoria Aug. 17, 1885, No. 4,182; in Queensland Sept. 12, 1885, No. 45; in South Australia Sept. 28, 1885, No. 606; in Tasmania Sept. 30, 1885, No. 372; in New Zealand Oct. 9, 1885, No. 1,561, and in New South Wales Dec. 2, 1885.

Claim.—The herein-described incandescent burner, consisting of the gas-holder J', the tapering pipe J^3, connected therewith and provided with a stop-cock, C, having a groove formed in one-half of its perimeter, the ends of which groove merge into the transverse aperture of said



stop-cock, and the gauze diaphragms J^5 J^6, interposed in pipe J^3, below the stop-cock C, in combination with the tapering burner-pipe K, carrying at the smaller end within the pipe J^3 a pilot-burner, J^4, and at its wider end a burner, K', composed of two layers of platinum wire-gauze, the meshes of which intersect one another, substantially as described, for the purpose specified.

354,978. **FENDER.** William F. L. Gentry, Chapman, Ottawa County, Kans., assignor of one-half to John T. Gentry, same place. Filed Aug. 17, 1886. (No model.)

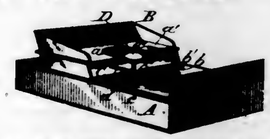


Claim.—1. The combination, in a fender for cultivators, of two arched sections, A and B, one extending beneath the other and adjustably connected together, substantially as described.

2. The combination, in a fender for cultivators, of two arched sections, A and B, one extending beneath the other and adjustably connected together, with a standard secured to the upper arched fender-section, and lateral arms carried by the standard to connect with the plow-beams at opposite sides of the arched fender, substantially as described.

3. The combination, in a fender for cultivators, of two arched sections, A and B, one extending beneath the other and adjustably connected together, with a standard, D, secured to the arched upper section, laterally-adjustable arms a, carried by the standard, and a plow-beam located at opposite sides of the fender, and connected with said arms, substantially as described.

354,979. **CARRIAGE-SEAT.** Sarah M. Hardenbergh, Le Fever Falls, N. Y. Filed Nov. 20, 1886. (No model.)



Claim.—1. As an improvement in carriage-seats, the combination of the recessed stationary seat, the horizontally and vertically movable supplemental seat, and the removable support for said supplemental seat, arranged, as shown and described, to allow the supplemental seat to be lowered and slide under the stationary seat or to be removed with its support from the carriage, as set forth.

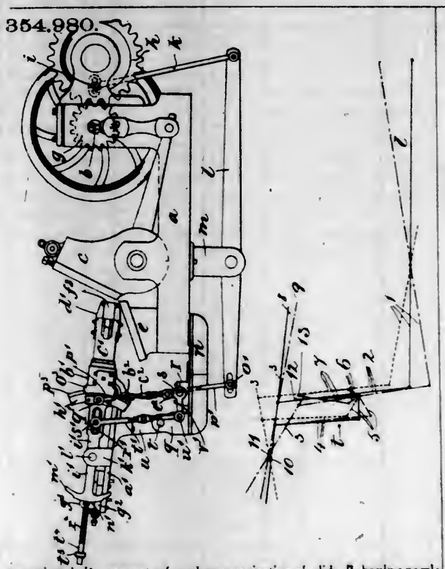
2. As an improvement in carriage-seats, the stationary seat provided with a recess in its bottom, and the cover for closing said recess, in combination with the adjustable supplemental seat adapted to be raised or lowered through said recess, as specified.

3. As an improvement in carriage-seats, the supplemental seat D, mounted upon and capable of sliding upon the head of a screw, e, the sliding nut for said screw, and the slotted support C, all combined and arranged to give said seat a horizontally-sliding movement upon the screw or support, or both, as set forth.

4. As an improvement in carriage-seats, the combination of the recessed seat B, vertically and horizontally adjustable seat D, and the slotted removable support C, all constructed and arranged substantially as shown and described.

354,980. **NAIL-PLATE FEEDER.** Randolph Hebert, Montreal, Quebec, Canada. Filed Oct. 11, 1886. (No model.)

Claim.—1. In combination with a nail-cutting machine, the swinging frame a', partially-rotated cylinder c', segmental lever i', having segmental rack k', segment m', and cam projection n', slide l^2, having pawls l^3 and m^3, spring d^3, and nipper rod or tongs r^3, the whole substantially as described.



2. The combination, with a nail-cutting machine, of the vibrating lever l, operated by the nail-machine, as described, connecting-rod p', segmental lever i', connecting-rod t', arm v', rock-shaft s, arm e^3, and connecting-rod c^3, with the frame a', having its pivot-point t located as described, the whole substantially as described.

3. In combination with the slide l^2, operated as described, and having pawls l^3 and m^3, the rest g^3, having gripping and friction heads p^3, nipper-rod or tongs r^3, having serrations s^3, and jaws q^3, the whole constructed and arranged substantially as described, for the purposes set forth.

4. In combination with the slide l^2, operated as described, and having pawls l^3 and m^3, the rest g^3, having gripping and friction heads p^3, nipper-rod or tongs r^3, having serrations s^3 and jaws q^3, blank space t^4, and collar t^5, the whole constructed and arranged substantially as described.

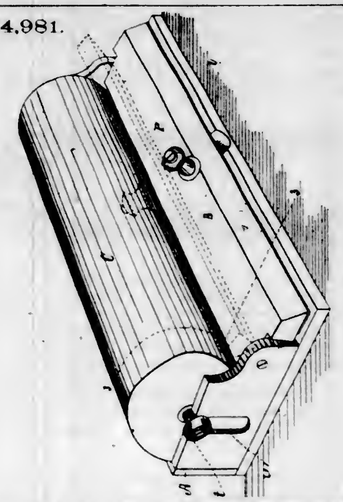
5. The improved nipper rod consisting of the jaws q^3, rod r^3, serrations s^3, blank space t^4, and collar t^5, combined with the slide l^2, pawls l^3 and m^3, and plate f^3, operated as described, the whole substantially as set forth.

6. The combination of the segmental lever i', operated as described, having segment m', cam projection n', slide l^2, spring d^3, pawls l^3 and m^3, and nipper-rod or tongs r^3, the whole substantially as described.

354,981. **DEVICE FOR TEARING WRAPPING-PAPER FROM CONTINUOUS-ROLLED SHEETS.** Alonzo W. Jerome, Paxton, Ill. Filed Apr. 2, 1883. (No model.)

Claim.—1. In a device for separating a continuous roll of paper into sheets, the combination of a holder for the roll open at the top and back for the insertion and handling of the roll, and a bar having a tearing-edge to facilitate the tearing of the paper, said bar being secured im-





mediately in the front of the said holder and closely adjacent to the roll when in position in the holder and in such relation thereto that the paper, when drawn out under the said tearing-edge, moves in a tangent, or nearly so, to the base of the roll, substantially as described.

2. In a device for separating a continuous roll of paper into sheets, a holder for the roll provided with a bottom having a slot or notch, W, in its outer edge, and having its upper surface elevated to the extent of about the thickness of a finger above the surface on which it rests, in combination with a bar having a tearing-edge to facilitate the tearing of the paper, and said bar being secured immediately in the front of the holder and closely adjacent to the roll when in position in the holder, and in such a relation that the paper when drawn out under the tearing-edge moves in a tangent, or nearly so, to the base of the roll, substantially as described.

3. The holder having end pieces slotted, as described, the back pieces, S, and the tearing-bar secured to the end pieces immediately in front of the roll, substantially as specified.

4. The combination, with a roll of paper, of the tompions D, having grooved extensions t, as shown, and inserted into the central opening of the roll, and the holder provided with open slots or guides, substantially as and for the purpose set forth.

5. In a device for tearing rolled wrapping-paper into sheets, the combination of the following elements: first, a holder having a bottom terminating at or near the front of the holder, said bottom being provided with a slot or notch, W, extending inward from its forward edge, and, second, a tearing-bar at the front of the holder and closely adjacent to the roll, as specified, between the tearing-edge of which bar and the upper side of the said bottom near the forward end is an egress-opening for the web of paper, whereby the said web passes out in the same plane, or nearly so, with the base of the roll as it rests in the holder, substantially as described.

6. The combination of the ends of the holder having vertical slots extending to or near to the base, and the roll provided with tompions, whereby the roll is readily inserted and subsequently kept in position on the base to prevent a forward or backward movement of the axis of the roll, and to obviate too great momentum of the roll, substantially as specified.

7. The combination of a holder for the roll having a bottom or support for the web terminating at or near the working-edge of the tearing-bar, and having a notch therein to facilitate the act of grasping the end of the web, with a tearing-bar immediately in front of the holder and closely adjacent to the roll when in position, all substantially as specified.

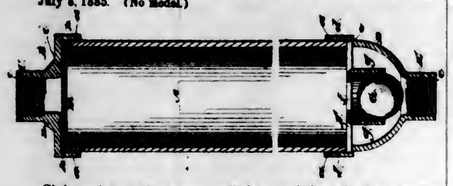
8. The combination of the back pieces, s, the knife and intermediate parts holding them in fixed relative position, and constituting an open holder for the ready insertion and manipulation of a paper-roll, and adapted to be secured to a vertical wall, substantially as described.

9. The combination of a roll-holder, an unobstructed notched base or support for the paper sheet tangential to the roll, and a tearing-bar or knife pivoted above the base, whereby the tangential sheet may be readily grasped between the thumb and finger and the sheet drawn from the roll by swinging the bar, substantially as set forth.

10. In a device for tearing rolled paper into sheets, a holder for the roll having its bottom extended to form a guide for the web, and provided with a notch or slot to permit the web to be grasped, in combination

with a tearing-bar secured directly to the holder above the extended bottom and closely adjacent to the roll when in position in the holder, as described.

354,982. PUMP-CYLINDER. HARRY JONES, Richmond, Ind. Filed July 8, 1885. (No model.)



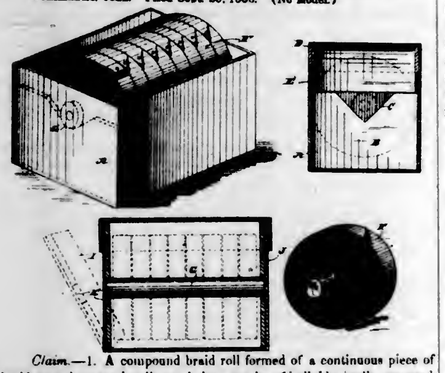
Claim.—A reversible pump-cylinder consisting of a body portion screw-threaded at each end, and two heads screw-threaded to fit the body portion, one head provided with a seat for a clapper-valve, and the other head provided with an enlarged chamber and a guide-casing for a ball-valve, each head being provided with a neck and nozzle with screw-threaded interior for attachment to the pump-stock, substantially as described.

354,988. MANUFACTURE OF FERTILIZERS. JULES T. JULLIEN, Montolimar, France. Filed Nov. 11, 1886. (No specimens.) Patented in France June 2, 1886, No. 176,461.

Claim.—1. The process of preparing a combined fertilizer and anti-phylloxeric, which consists in dissolving sulphur in liquid sewage or equivalent fertilizing agent and adding sulphide of carbon to the solution.

2. As a new article of manufacture, a combined fertilizer and anti-phylloxeric consisting of liquid sewage or equivalent fertilizing agent, sulphur, and sulphide of carbon.

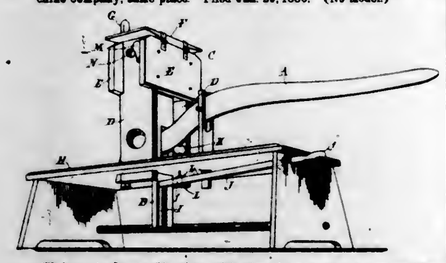
354,984. BRAID ROLL AND CASE THEREFOR. JAMES KELEHER, Willimantic, Conn. Filed Sept. 25, 1886. (No model.)



Claim.—1. A compound braid roll formed of a continuous piece of braid wound upon a headless axis into a series of individual rolls arranged side by side and of uniform diameter.

2. In combination, a compound braid roll formed upon a headless axis and a rectangular box for pivotally supporting the same, which is provided with bearings upon its inside ends for the axis of the roll, and the lid of which is constructed to slide within the body of the box and hold the axis of the roll in its bearings.

354,985. MACHINE FOR PRINTING OR MOLDING BUTTER. PERLEY L. KIMBALL, Bellows Falls, Vt., assignor to the Vermont Farm Machine Company, same place. Filed Jan. 29, 1886. (No model.)

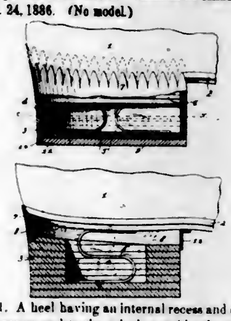


Claim.—1. In combination with the plunger of a butter-molding machine, a fixed or permanent stop on the plunger and an adjustable slide-rod adapted to engage with and to be disengaged from such stop and serving to limit the upward movement of the plunger, as and for the purpose set forth.

2. In combination with the plunger having a stop-piece thereon, the slide-rod J and thumb-screw K, serving to adjust said rod vertically, and for the purpose set forth.

3. The means described for ascertaining the weight of butter by the act of printing or molding the same, consisting of a box for holding the butter, a plunger having a non-adjustable stop thereon, a lever to raise the plunger, and a slide adapted to be moved endwise and to be vertically adjustable at its end and to control the height to which the plunger may be moved, the parts being combined substantially as set forth.

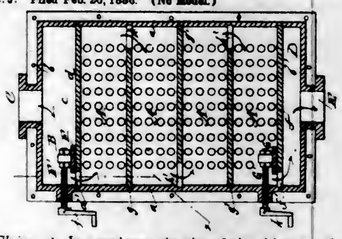
354,986. SPRING-HEEL. CHARLES H. MARTIN, Bridgeport, Conn. Filed Sept. 24, 1886. (No model.)



Claim.—1. A heel having an internal recess and one or more springs secured in said recess and to the sole, in combination with a spring-guard having a lining of felt or its equivalent attached to the heel or sole and sliding freely over the other part, thus covering the opening and excluding dirt.

2. A heel having an internal recess and one or more springs secured in said recess and to the sole, in combination with a spring-guard having a lining of felt or its equivalent, which is attached to the heel and slides freely over the edge of the sole, and a guard-strip, 12, attached to the sole in front of the heel and sliding freely over it, as and for the purpose set forth.

354,987. STEAM-CONDENSER. JOHN MCINTYRE, West Hoboken, N. J. Filed Feb. 20, 1886. (No model.)



Claim.—1. In a condenser, the plate *f*, placed between the cooling-pipes and the eduction end of the condenser, the plate being formed with the opening *f'*, substantially as shown and described.

2. In a condenser, the plate *d*, arranged near the pipes A and formed with the opening *d'*, in combination with the valve F, substantially as and for the purposes set forth.

3. The plate *f*, arranged near the pipes A and formed with the opening *f'*, in combination with the valve G, substantially as described.

354,988. JOINING METALLIC SECTIONS. ARCHIBALD MCKELLAR, Bridgeport, Conn., assignor to the Monumental Bronze Company, same place. Filed June 1, 1886. (No model.)



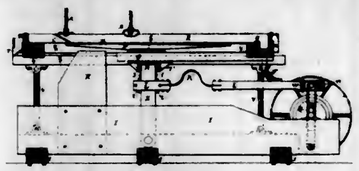
Claim.—1. The method of forming metallic joints, which consists, first, in beveling the edges of the parts, secondly, in providing the edges with undercut recesses partially closed at their outer edges; thirdly, in filling the recesses and the angle between the parts above the recesses with molten metal to form clamps, and, fourthly, in filling the spaces between the clamps with molten metal.

2. The herein-described method of forming metal joints, which consists in bevaling the edges of the parts to be joined and providing them with undercut recesses, partially closed at their outer edges, then filling the recesses and the angle between the parts above the recesses with molten metal to form clamps, which draw and hold the parts together, and finally in filling the spaces between the clamps with molten metal heated to a high degree, whereby the metal of the parts is thoroughly fused together.

3. The method of joining pieces of metal together, which consists in providing the edges of the parts with undercut recesses which register with each other, the outer edges of said recesses being partially closed, then filling said recesses with molten metal to form joints, the metal being dammed at each side of said recesses, and finally in removing the dams and filling the spaces between the clamps with molten metal, whereby the edges of the parts are fused together, substantially as described.

4. A metallic monument consisting of parts 1 and 2, the edges of which are beveled, as shown, and provided with undercut recesses 3, partially closed at their outer edges by projections 4, in combination with clamps 7, made of the same material and fused to the parts.

354,989. ORE-CONCENTRATOR. HERBERT N. NICHOLS, Denver, Colo. Filed Apr. 30, 1886. (No model.)



Claim.—1. A concentrating-table provided with a vibrating bottom and a frame supported in its center and free at its ends, arranged under said bottom and in close proximity thereto, and a support for the frame attached to the table.

2. A concentrating-table having a discharge-opening for concentrates, a bottom having a diaphragmatic motion, an inclined plate arranged within and across the table, but not in contact with the bottom and a hinged distributer-pipe located above the inclined plate.

3. The combination, with an oscillating arm and a concentrating-table, of a yielding pitman provided with a loose socket at each end thereof, elastic cushions on both sides of the sockets, and a yielding spring interposed in the pitman, substantially as stated.

4. The combination of an oscillating arm, a yielding pitman having a loose socket, an oscillating lever working within said socket, and a concentrating-table having a socket on its under side in which said lever works.

354,990. ELEVATOR-GATE. VICTOR E. PAULIN, Allegheny City, Pa. Filed May 7, 1886. (No model.)

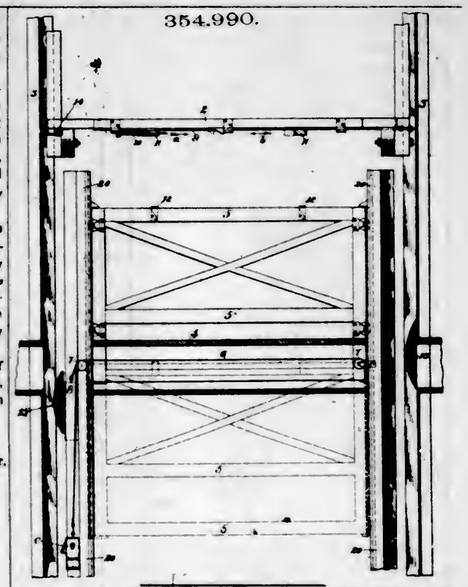
Claim.—1. The combination, with an elevator-car, of a gate arranged in vertical slides, wherein it is movable beneath the landing from a position in front thereof, a weight, 8, upholding the gate, and a spring latch, 16, arranged to engage the gate when raised and to engage the gate when lowered, substantially as and for the purpose specified.

2. The combination, with an elevator-car, of a gate arranged in vertical slides, wherein it is movable beneath the elevator-landing from a position in front thereof, a spring-actuated bar on the car arranged relatively to the gate, so that it shall engage the gate on the descent of the car and shall move it downward, and a cam arranged in the path of the spring-actuated bar for moving the same and disengaging it from the gate, substantially as and for the purposes described.

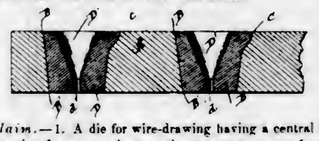
3. The combination, with an elevator-car, of a gate arranged in vertical slides, wherein it is movable beneath the elevator-landing, a weight for supporting the gate, and a latch or dog on the car, arranged relatively to the weight, so that it shall engage the weight on the ascent of the car and shall lift the weight to cause the descent of the gate, substantially as and for the purposes described.

4. The combination, with an elevator-car, of a gate arranged in vertical slides wherein it is movable beneath the elevator-landing from a position in front thereof, a weight for supporting the gate, a spring-actuated latch or dog on the car arranged relatively to the weight, so that it shall engage the weight on the ascent of the car and shall lift the weight to cause the descent of the gate, and a cam for disengaging the latch from the weight, substantially as and for the purposes described.

354,990.



354,991. WIRE-DRAWING DEVICE. THOMAS P. STRAUP, South Easton, Pa. Filed Mar. 22, 1886. (No model.)



Claim.—1. A die for wire-drawing having a central opening and sides tapering from top to bottom, the upper outer part of said die being provided with a laterally-projecting lug, so as to be held without turning in a suitably-recessed die-holder, substantially as specified.

2. A die for wire-drawing detachable from the die-holder, and having a central opening with tapering sides tapering from top to bottom, the upper outer part of said die being provided with a laterally-projecting lug, in combination with a die-holder provided with an opening adapted to receive the die, said opening being provided with a lateral recess near its top adapted to receive the die-lug, substantially as specified.

3. The combination of the die-holder A, having conical openings, each provided with the recess C, with the detachable dies D fitting into said openings, and each provided with the funnel-shaped opening D' *d*, and the lug E to enter the recess C and prevent the die from turning when being reamed, substantially as specified.

354,992. RAILWAY-SIGNAL. SAMUEL T. STREET, Deposit, N. Y. Filed Dec. 14, 1885. (No model.)

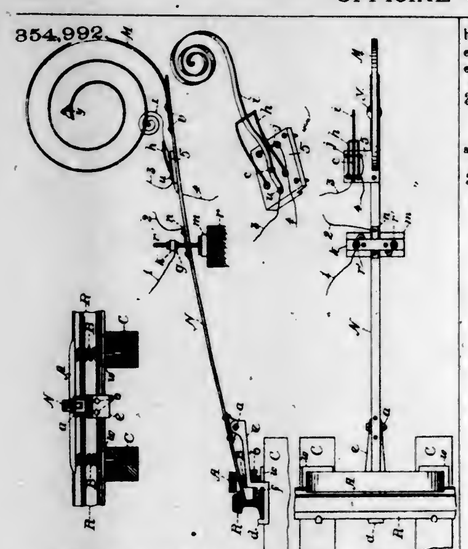
Claim.—1. The combination, in an electrical signaling device for railways, of an electrical signal-circuit, a lever arranged to be moved by the wheels of a passing train, and a movable circuit-closing spring mounted on said lever, whereby on motion of the lever the spring is caused to vibrate and to close the circuit intermittently, substantially as and for the purposes described.

2. The combination, in an electrical signaling device for railways, of an electrical signal-circuit, a lever arranged to be moved by the wheels of a passing train, and a movable circuit-breaking coiled spring mounted on said lever, whereby on motion of the lever the spring is caused to vibrate and to close the circuit intermittently, substantially as and for the purposes described.

3. The combination, in an electrical signaling device for railways, of an electrical signal-circuit, a movable circuit-closing lever arranged to be oscillated by the wheels of a passing train, and thereby to intermittently close the circuit, and a coiled spring, M, on the lever, substantially as and for the purposes described.

4. The combination, in an electrical signaling device for railways, of an electrical signal-circuit, a lever, N, arranged to be moved by the wheels of a passing train, the contact-spring i, mounted on the lever, and a second spring, M, also on said lever, for continuing the vibrations of the spring *i*, substantially as and for the purposes described.

354,992.



5. The combination of the lever N, arranged to be oscillated by the wheels of a passing train, a signal-circuit, a spring, i, mounted on the lever and arranged to vibrate on motion of the lever, a contact-plate constituting a terminal of the signal-circuit arranged above or below the spring, which spring constitutes the other terminal of the circuit, substantially as and for the purposes described.

6. The combination, in an electrical signaling device for railways, of a signal-circuit, a circuit-closing lever, a bar, A, arranged beside the track in the path of the car-wheels and over the end of the lever, and springs supporting the said bar, whereby the pressure of the wheel on said bar moves the lever and operates the circuit, substantially as and for the purposes described.

7. The combination, in an electrical signaling device for railways, of a signal-circuit, a circuit-closing lever arranged to be oscillated by the wheels of a passing train, a bracket, *e*, removably secured to the railway-rail and forming the fulcrum for the lever, and provided with a lug, *f*, fitting inwardly over the flange of the rail, and a set-screw, *b*, clamping the bracket to the rail, substantially as and for the purposes described.

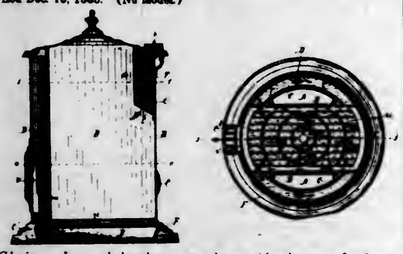
354,993. VULCANIZED FABRIC FROM GUMS AND RAMIE AND SIMILAR FIBERS. William A. Torrey, Montclair, N. J. Filed Apr. 5, 1886. (No specimens.)

Claim.—1. The application of india-rubber, gutta-percha, and other vulcanizable gums to goods or fabrics made of rhea, (or ramie,) pita, or other cactus plants, as and for the purpose set forth.

2. The combination of india-rubber, gutta-percha, or any vulcanizable gums with rhea, (or ramie,) pita, or other cactus plants, for the purpose and in the manner described.

3. The improved vulcanized goods and fabrics composed of ramie, pita, or cactus, textile fiber, and a vulcanizable gum, substantially as set forth.

354,994. AIR-HEATING STOVE. William Tuttle, Dowagiac, Mich. Filed Dec. 15, 1885. (No model.)

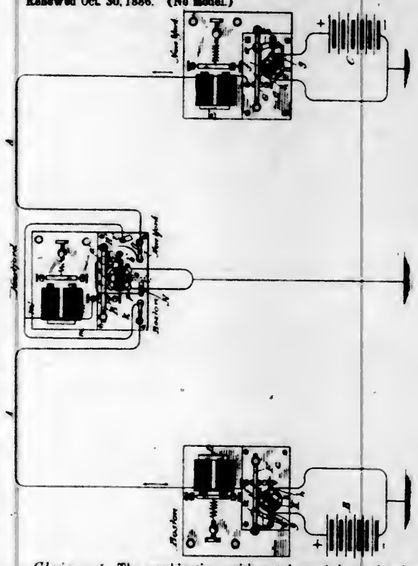


Claim.—In an air-heating stove, the combination of a fire-box, a wall on each side, inclosing, in conjunction with the fire-box wall, an air-space leading vertically through the stove, and an outer wall encircling the stove and separated from the outer wall of the air-spaces, forming heat-passages on the sides of the stove only, the lower portion of the rear end of the heat-passages being closed from the fire-box and the other end of said passages opening into the fire-box, substantially as set forth.

354,995. ALLOY. Mary A. Wheeler, Rochester, N. Y. Filed Nov. 12, 1883. (Specimens.)

Claim.—A silver-like alloy consisting of steel, silver, nickel, tin, and antimony.

354,996. TELEGRAPHIC SWITCH. John Amsterdam, New York, N. Y., assignor to Jeremiah M. Pelton, same place. Filed Mar. 19, 1885. Renewed Oct. 30, 1886. (No model.)



Claim.—1. The combination, with a telegraph-key, of a circuit-controlling switch having a lever in electrical connection with the key and adapted to be brought into contact with the insulated anvil of the same, and having insulated contacts adapted to be moved or shifted by said lever for the purpose of completing one path through the key on interrupting another.

2. The combination, with a telegraph-key, of a circuit-controlling or switch lever in electrical connection with said key and adapted to be brought in contact with the insulated anvil thereof, an insulating plate or support adapted to be moved by said lever and carrying contact-strips, and circuit-terminals arranged in the path of said strips and adapted to be connected thereby in different orders, according to the position of the controlling-switch, as and for the purpose set forth.

3. The combination, with a telegraph-key, of a circuit-controlling switch, consisting of a lever in electrical connection with the key and arranged to be brought in contact with the insulated anvil of the key, an insulating plate or disk carried by the lever, and conducting-strips thereon adapted to complete a circuit from the anvil to the battery, or from the anvil to ground, as set forth.

4. The combination, with a bed-plate, an insulated metallic anvil, and pivoted telegraph-key, of a pivoted switch-lever in electrical connection with the key and adapted to be brought into electrical connection with the anvil, an insulating plate or disk that is turned by the lever, conducting-strips secured to the plate, contact terminals or stops, and circuit-connections adapted to be varied by the conducting-strips, according to the position of the lever, as and for the purpose set forth.

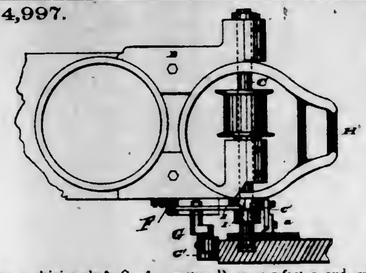
354,997. WOOD-WORKING MACHINE. Horatio M. Alden, Newark, N. J. Filed July 8, 1886. (No model.)

Claim.—1. The combination, with the horizontally-movable frame, of a driving-shaft, C, cutter B, collar, as I, mounted upon said shaft, and a vertically-adjustable gage for limiting the depth of cut, said parts being arranged with relation to one another substantially as set forth.

2. In a wood-working machine, the combination, with the shaft C, of a cutter, D, adapted to be adjusted in a socket in the end of said shaft, and a gage, G, adapted to be moved in a horizontal plane, whereby the track or course of the cutter may be deviated or turned from a straight line, substantially as set forth.

3. The combination, with the horizontally-movable frame or bracket

354,997.

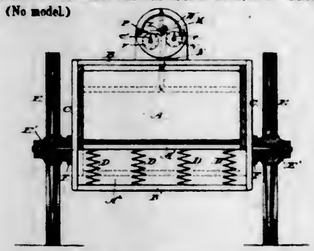


having a driving-shaft, C, of a cutter, D, presser-foot *a*, and guide or gage G, substantially as set forth.

4. The combination, with a horizontally-movable bracket or frame and a driving-shaft, of a cutter, as D, a presser-foot, as *a*, a guide or gage, as G, and a supporting arm or carrier for said gage, substantially as and for the purposes set forth.

5. In combination, a horizontally-movable bracket or frame, A B, a driving-shaft carried by said frame B, a cutter adapted to be adjusted in the end of said shaft, a slotted arm, E, working in a guide-plate, F, secured to the frame B, and a gage, G, depending from said slotted arm, substantially as and for the purposes set forth.

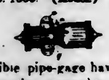
354,998. COMBINED COAL-CART AND WEIGHING-SCALE. Serapio Arteaga and Eleseo del Valle, New York, N. Y. Filed Apr. 22, 1886. (No model.)



Claim.—1. The suspension-frame C, mounted upon the cart-wheels E E and within which the cart-body A is centrally mounted, springs D D, interposed between the body and the lower bar of the frame, the dial-plate W upon the upper bar of the frame, the index-hand P, revolving in a half-circle over the dial, the crank-spindle L, carrying said index-hand, and the rod N, connecting the crank of the spindle with the cart-body, all substantially in the manner and for the purpose herein set forth.

2. The combination, with the body of a weighing-cart, its wheels, a frame mounted upon the wheels, within which the body is suspended, springs interposed between the body and frame, a dial-plate secured to the upper bar of the frame, a cranked spindle rotating on said dial-plate, and a rod, N, secured to the body at one end and at the other to the crank arm of said spindle, of the ratchet-wheels R R', mounted on each side of the rod N, pointers carried by their spindles, fixed pawls *u u'*, controlling said ratchets to prevent a reverse movement thereof, a double-headed pawl, S, pivoted to the face of the rod N, to engage said ratchet-wheel, and springs *t t*, controlling said pawl, all substantially in the manner and for the purpose set forth.

354,999. MICROMETER PIPE-GAGE. David G. Brown, Philadelphia, Pa. Filed Mar. 18, 1885. (Model.)



Claim.—1. An extensible pipe-gage having a portion, *a*, provided with an indicating-mark, a portion screwed to said portion *a*, and having graduation-marks, the opposite ends of said gage being pointed, substantially as and for the purposes set forth.

2. In combination, the threaded tube *a*, graduated finger-piece having a thread to engage said tube, and having a pointed end and a pointed tip, said parts being arranged and operating substantially as set forth.

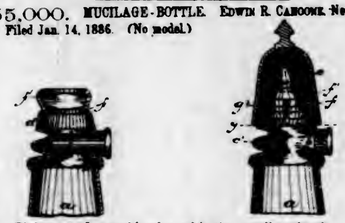
3. In combination, in a pipe-gage, a threaded tube, *a*, having an indicating-mark, *y*, a pointed tip removable from one end of said tube, and a threaded and graduated finger-piece working in or on the other end of said tube, substantially as and for the purposes set forth.

4. In combination, in a pipe-gage, a threaded piece, *a*, having an indicating-mark, a threaded piece, *d*, a graduated piece, *f*, and a removable tip, *h*, said parts being arranged and combined substantially as set forth.

5. In combination, a threaded piece, *a*, a threaded and graduated finger-piece, and a tip adapted to be coupled to said threaded piece *a*, said tip being formed of separable sections, substantially as set forth.

6. In combination, the threaded and split tube *a*, having ears *b* and screws *c*, and an indicating-mark, *g*, a graduated piece *f*, a threaded and pointed piece, *d*, and a pointed tip removable from said tube *a*, consisting of a split tube, *i*, coupling *h'*, nut *k*, and pointed rod *l*, all said parts being arranged and combined substantially as and for the purposes set forth.

355,000. MUCILAGE-BOTTLE. Edwin R. Carcone, Newark, N. J. Filed Jan. 14, 1886. (No model.)



Claim.—1. In combination with the mucilage-bottle, a perforated plug, and a sponge or wiper, the said plug having a tip, g^3, which extends up into the said sponge or wiper, substantially as set forth.

2. The improved glass bottle herein described, having a mouth or exit, *c'*, and at the side, near said mouth, an inlet-opening, *b*, molded therein, and having a stopper, *c*, which lies in said inlet and extends across the exit to close the same, said parts being combined substantially as set forth.

3. A mucilage-bottle having a cap-bearing, *d*, a plug-bearing, *f*, a receptacle, *f'*, to receive the base of the sponge or wiper, a plug, g^3, and said sponge or wiper secured on said plug and having its base in said receptacle, said parts being arranged and combined substantially as and for the purposes set forth.

4. The improved glass mucilage-bottle herein described, having a mouth, *c'*, and side opening or inlet, and a stopper, *c*, having an opening, *g*, all said parts being arranged and combined substantially as and for the purposes set forth.

5. In combination with a mucilage-bottle, a plug having splits g^4, and peripheral grooves g^2 g^4, and having a suitable exit-passage for the contents of the bottle, substantially as set forth.

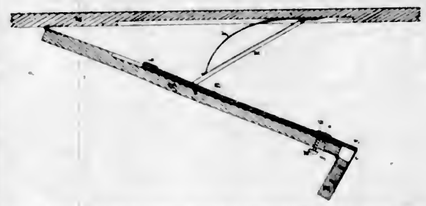
6. In combination with the bottle having the bearing *f* and extension or cup-shaped portion above said bearing, a perforated plug or plug provided with an exit-passage, and a sponge or spongy wiper secured to said plug, the said extension or cup-shaped portion projecting above the holding-edge of the plug, as shown, to catch the settlings in said sponge and prevent them from overflowing the outside of the bottle, substantially as set forth.

7. The combination, with the bottle having a holding ridge or bearing, *f*, and a cup-shaped extension above the same, of a perforated plug having a sponge secured thereon, the base of which sponge is covered by said extension, substantially as and for the purposes set forth.

8. In a mucilage-bottle, the combination, with a suitable plug having an exit-passage for the mucilage, a bearing to engage the bottle, and a tip, of a sponge secured over and around said tip, substantially as and for the purposes set forth and shown.

9. A mucilage-bottle combining therein a body, *a*, a mouth or throat for the exit of the contents of the bottle, a bearing, *d*, for a cap, a side opening for refilling having a suitable stopper, a wiper secured in said mouth, and a cap to engage said bearing and cover the wiper, said parts being arranged and combined substantially as and for the purposes set forth.

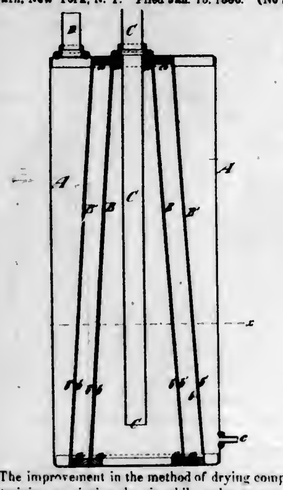
355,001. UPRIGHT PIANO-FORTE. John Casey, Boston, Mass. Filed June 14, 1886. (No model.)



Claim.—In combination with the upright-piano front piece, the music-rest hinged thereto and the shelf hinged to the music-rest, the arm projecting from such shelf, the slide-rod hinged to such arm and adapted, as described, to the music-rest, the strut or rod hinged to the slide-rod and to the front-piece, the spring secured to such front-piece and bearing

against the strut, and the spring-catch and its operating push-button applied to the music-rest, all being substantially as set forth.

355,002. METHOD OF DRYING COMPRESSED AIR. George R. Cullingworth, New York, N. Y. Filed Jan. 15, 1886. (No specimens.)



Claim.—The improvement in the method of drying compressed air, consisting in straining or sieving the air while under pressure, substantially as herein described.

355,003. ENGINE CROSS-HEAD. George R. Cullingworth, New York, N. Y. Filed Apr. 14, 1886. (No model.)



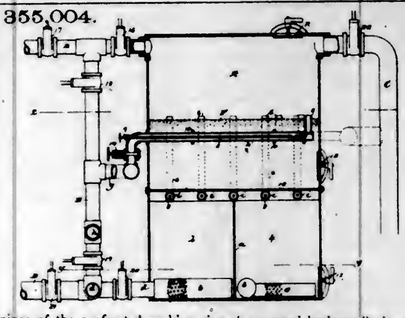
Claim.—1. The combination, with a yoked or forked cross-head and a rod extending into the yoke or fork, of a wrist-pin in the cross-head, composed of segmental sections inclined on their inner faces and a wedge or taper key interposed between them and adjustable lengthwise to spread the sections and expand said pin, substantially as herein described.

2. The combination, with a yoked or forked cross-head and a piston-rod extending through the same, of a wrist-pin in the cross-head on which the rod is pivoted, and which is composed of segmental sections inclined on their inner faces, and a taper key or wedge interposed between them and adjustable lengthwise to spread the sections and expand the pin, substantially as herein described.

3. The combination, with the forked or yoked cross-head and the block B', arranged therein and having the portions of the piston-rod extending from it, of the wrist-pin composed of the segmental sections C, inclined on their inner faces, and the taper key or wedge D, adjustable lengthwise to spread the sections and expand the pin, substantially as herein described.

4. The combination, with the forked or yoked cross-head and the piston-rod extending through the same, of the wrist-pin composed of the segmental sections C, inclined on their inner faces and having at their upper end the flanges c bearing on the cross-head, and the taper key or wedge D, interposed between the sections and adjustable lengthwise to spread the sections and expand the pin, substantially as herein described.

355,004. FILTER. William M. Deutsch, Elizabeth, N. J. Filed May 10, 1886. (No model.)



Claim.—1. The combination, with a filter having induction and discharge pipes arranged to maintain a continuous flow of water through the filter, of the chamber *a*, located inside the filter and containing a precipitating substance, and provided with openings through which a portion of the water passing through the filter is allowed to come into contact with said substance, so as to carry a portion of it out of the chamber, substantially as described.

2. The combination, with a filter having induction and discharge pipes arranged to maintain a continuous flow of water through the filter, of the chamber *a*, located inside the filter and containing a precipitating substance, and provided with openings through which a portion of the water passing through the filter is allowed to come into contact with said substance, so as to carry a portion of it out of the chamber, and means for regulating the amount of precipitating substance discharged from the chamber, substantially as described.

3. The combination, with the filter and its induction and discharge pipes, of the perforated washing-pipes *k*, arranged horizontally in and a short distance below the top of the filtering-bed and connected separately to the pipe through which the washing-water is supplied, and connections between said last pipe and the induction and discharge pipes, whereby the top of the bed may be washed with either filtered or unfiltered water, substantially as described.

4. The combination, with the filter and its induction and discharge pipes, of a plurality of series of perforated washing-pipes arranged horizontally in the filtering-bed at different heights and connections between said washing-pipes and both the induction and discharge pipes, whereby the bed may be washed with either filtered or unfiltered water, substantially as described.

5. The combination, with the horizontal perforated washing-pipes having the vertical branches 6 at their ends, of the valves 7, for opening communication between the washing-pipes and said branches, substantially as described.

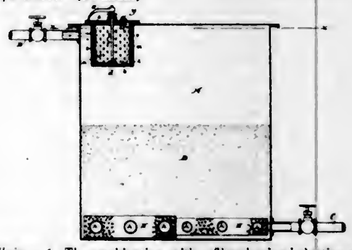
6. The combination, with the horizontal perforated washing-pipes, of the rods 8, extending the length of said pipes, whereby the granular material in said pipes may be loosened so as to be carried out by the washing-water, substantially as described.

7. The combination, with the filter and the filtering-bed and the discharge-pipe located in the bottom of the bed, of a perforated pipe surrounding the discharge-pipe and providing a space between the two, substantially as described.

8. The combination, with the filter and the filtering-bed, of a perforated discharge-pipe located in the bottom of the bed, a perforated pipe surrounding said perforated discharge-pipe, and a body of coarse material, *f*, located in the space between the two pipes, substantially as described.

9. The combination, with the filter having its bottom portion divided into a number of compartments by vertically-arranged partitions, of a discharge-pipe having perforated branches which communicate with each compartment separately, perforated pipes inclosing the perforated portion of each of said branches, and bodies of coarse material *f*, located in the space between said pipes, substantially as described.

355,005. FILTER. William M. Deutsch, Elizabeth, N. J. Filed Sept. 4, 1886. (No model.)



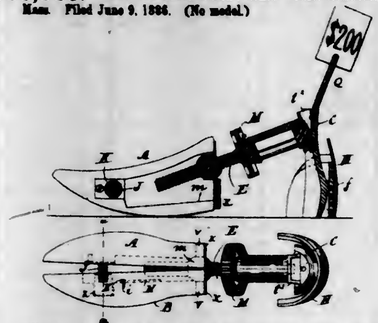
Claim.—1. The combination, with a filter having induction and discharge pipes arranged to maintain a continuous flow of water through the filter, of the chamber *a*, located inside the filter and containing a precipitating substance, and provided with openings through which a portion of the water passing through the filter is allowed to come into contact with said substance, so as to carry a portion of it out of the chamber, substantially as described.

2. The combination, with a filter having induction and discharge pipes arranged to maintain a continuous flow of water through the filter, of the chamber *a*, located inside the filter and containing a precipitating substance, and provided with openings through which a portion of the water passing through the filter is allowed to come into contact with said substance, so as to carry a portion of it out of the chamber, and means for regulating the amount of precipitating substance discharged from the chamber, substantially as described.

3. The combination, with a filter having induction and discharge pipes arranged to maintain a continuous flow of water through the filter, of the chamber *a*, located inside the filter, and containing a precipitating substance and provided with the openings 2, and the adjustable shell *b*, for regulating the size of the openings 2, substantially as described.

4. The combination, with the filter and the filtering-bed, of the pipe H, communicating with discharge-pipe C and having the perforated branches *h*, and being of larger size at its inner end than at its junction with the pipe C, substantially as described.

355,006. BOOT OR SHOE STRETCHER. John Donovan, Boston, Mass. Filed June 9, 1886. (No model.)



Claim.—1. In a last for stretching boots and shoes, the combination of the following instrumentalities, to wit: two toe-pieces adapted to be inserted in the fore part of the boot or shoe, said toe-pieces being hinged together at their rear ends and provided with a rocking or journaled nut, a stretching-screw working in said nut, a heel-piece adapted to be inserted in the heel portion of the boot or shoe and to receive the end-thrust of said stretching-screw, said toe-pieces being provided with means for adjustably separating their free ends, substantially as described.

2. In a last for stretching boots or shoes, two toe-pieces hinged together at their rear ends, one of said toe-pieces being provided with a laterally-projecting threaded stud and a nut adapted to fit said stud, and the other with a socket adapted to receive said nut, and means for closing said socket, substantially as set forth.

3. In a stretching-last for boots or shoes, the toe-piece B, provided with the socket *z*, and sliding plate N, in combination with the toe-piece A, provided with the stud J and nut K, substantially as described.

4. The heel-piece C, in combination with the screw E, nut *m*, and hinged toe-pieces A B, substantially as and for the purpose specified.

5. The heel-piece C, provided with the boss *f*, to enable it to adjust itself to the auxiliary piece H when the outer end of the screw E is moved vertically, substantially as described.

6. The auxiliary heel-piece H, in combination with the heel-piece C, screw E, nut *m*, and hinged toe-pieces A B, substantially as set forth.

7. The improved stretching-last for boots or shoes herein described, the same consisting of the toe-piece A, provided with the stud J and nut *k*, the toe-piece B, provided with the socket *z* and sliding plate N, the screw E, provided with the gib or step *t'* and rosette M, the heel-piece C, nut *m*, and hinge *x*, constructed, combined, and arranged to operate substantially as set forth.

355,007. EAR-WIRE FOR EAR-RINGS. Leon Dreyfus, New Orleans, La. Filed Aug. 3, 1886. (No model.)



Claim.—An ear-wire for ear-rings having a straight part, at one end of which the ornament is fastened to the ear-wire, an upwardly-projecting part at the opposite end of the said straight part, and a downwardly-projecting spring part extending down from the upwardly-projecting part, and with an arm extending downward from the point at which the ornament is fastened, said arm being provided at its lower end with a hook for engagement with the spring end of the wire, substantially as shown and described.

355,008. FASTENING FOR CARRIAGE-CURTAINS. Winfield S. Dunn, Washington, D. C. Filed Sept. 8, 1886. (No model.)



355,008.

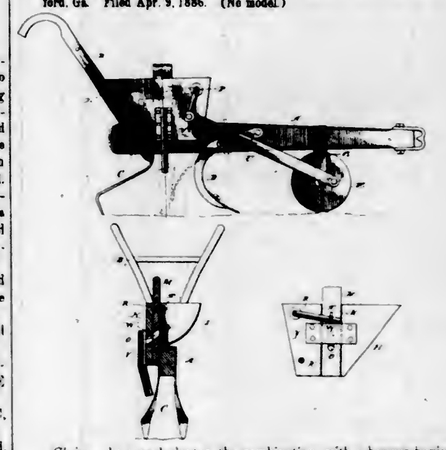


Claim.—1. In a carriage-curtain fastener, the curved plate D, provided with an orifice to slip over the stud C, and having its ends bent backward to form a recess for the reception of the ends of the spring E, to which they are secured, in combination with said stud and spring, substantially as shown and described.

2. In carriage-curtain fasteners, the combination of the curtain A, outwardly-curved plate D, spring-plate E, with its ends secured in said curved plate, the stud C, having arms c^2, with the slotted plate F, attached to the carriage-body, and provided with transverse depressions *f'*, for the reception of said arms, substantially as shown and described.

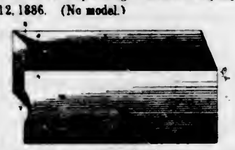
3. In a carriage-curtain fastener, the outwardly-curved plate D and spring-plate E, having its ends secured to said curved plate, both being secured to the curtain, in combination with the stud C, passed loosely through the curved plate, and having a collar extending radially between said curved and spring plates to retain the stud in position, a shank, *c'*, extending through the curtain and provided with arms or extensions c^2, and the slotted plate F, secured to the carriage for the purpose of receiving said shank-arms and holding the curtain in contact with the carriage, as set forth.

355,009. CORN AND PEA PLANTER. Lemuel F. Edwards, Crawford, Ga. Filed Apr. 9, 1886. (No model.)



Claim.—In a seed-planter, the combination, with a hopper having a vertical groove in one side, of a vertically-reciprocating seed-slide seated in said groove flush with the interior of the hopper, a rock-shaft extending through one side of the hopper and carrying an arm at each end, the arm on the inner end being connected with the slide, a drive-wheel, and a pitman extending from said drive-wheel to the arm on the outer end of the said rock-shaft, substantially as described.

355,010. PAPER BAG. Harry M. Farnsworth, Cleveland, Ohio, assignor to the Union Paper Bag Machine Company, Philadelphia, Pa. Filed May 12, 1886. (No model.)



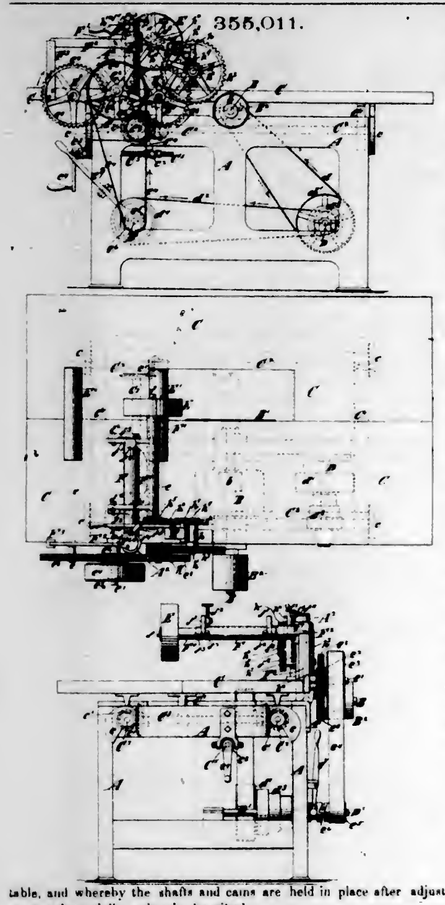
Claim.—1. A bellows-sided bag having the creased lines 2, extending from the corners inward and downward to the central lines of the bellows folds, substantially as described.

2. A bellows-sided bag having the triangular portions 4 folded outward on the lines 2, substantially as described.

355,011. CIRCULAR SAWING MACHINE. William H. Gray, Green Point, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, (Limited,) same place. Filed Apr. 15, 1886. (No model.)

Claim.—1. The combination, with a saw-arbor and a table vertically movable relatively thereto, of parallel side shafts, each provided at opposite ends with cams for lifting the table, a cross-shaft geared to the side shafts, an arm upon the cross-shaft, and a screw whereby the arm may be operated and the shafts and cams turned to raise or lower the

355,011.



table, and whereby the shafts and cams are held in place after adjustment, substantially as herein described.

2. The combination, with the saw-arbor B and movable table C, of the side shafts, C², provided with cams *c*, the cross-shaft C³, geared with the side shafts, the arm C⁴ on the cross-shaft provided with a nut, *c*², the screw C⁵, and the swiveled bearing *c*³, supporting the screw, substantially as herein described.

3. The combination, with a saw-arbor and a table movable vertically relatively thereto, of a lower feed roll or rolls movable with the table, a feed-pinion gearing with a wheel or wheels on the lower roll or rolls, and a pinion-shaft having a fixed bearing and provided with a feed-pulley, a pair of counter-shafts connected by a belt and cone-pulleys, a belt and pulleys whereby one counter-shaft is driven from the saw-arbor, and a belt and pulley whereby the feed-pulley is driven from the other counter-shaft, substantially as herein described.

4. The combination, with a saw-arbor and a table movable vertically relatively thereto, of two lower feed-rolls movable with the table and provided with gear-wheels, and a single feed-pinion and pinion-shaft journaled in a fixed bearing between the said feed-rolls and from which they are both driven, substantially as herein described.

5. The combination, with a saw arbor and table, of a non-rotary post supported rigidly at the side of the table, a horizontal arm vertically adjustable on the non-rotary post and carrying an upper feed-roll, and gearing independent of the post for driving said feed-roll, substantially as herein described.

6. The combination, with a saw arbor and table, of a non-rotary post supported rigidly at the side of the table, a horizontal arm carrying an upper feed-roll, and which is vertically adjustable on the post and turnable thereon to move the upper feed-roll out of position when not required for use, and gearing independent of the post for driving said roll, substantially as herein described.

7. The combination, with a saw-arbor and table, of a non-rotary post, A², rigidly supported at the side of the table, a horizontal arm, F, carrying an upper feed-roll and vertically adjustable and turnable on the post, the screw *f*⁴, for adjusting said arm vertically, the segmental guide and bearing *f*⁵, for the screw, whereby the turning movement of the arm on the post is permitted and limited, and gearing independent of the post for driving the feed-roll, substantially as herein described.

8. The combination, with a saw arbor-and table, of a post, A², supported rigidly at the side of the table, an arm, F, carrying an upper feed-roll and which is vertically adjustable and turnable on the post, and provided with a guiding-arm, F², and a slideway or guide, F³, for the guiding-arm F², and which permits the arm F to be turned on the post when raised sufficiently to free the guiding-arm from the slideway or guide, substantially as herein described.

9. The combination, with a saw arbor and table, of a post rigidly supported at the side of the table, a horizontal arm vertically adjustable on the rigid post, and a frame having an upper feed-roll and shaft journaled in it and pivoted to said arm so as to swing in a vertical plane transverse to the length of the arm and feed-roll shaft, substantially as herein described.

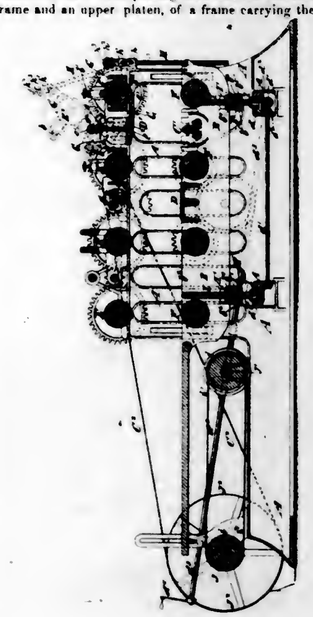
10. The combination, with a saw arbor and table, of the rigid post A², the arm F, vertically adjustable on the post, the frame F', pivoted to said arm to swing in a vertical plane transverse to the length thereof, the upper feed-roll and its shaft *f*, journaled in said frame, and the distance-screw *f*⁶, for adjusting the frame vertically relatively to said arm, substantially as herein described.

11. The combination, with a saw arbor and table, of a post supported rigidly at the side of the table, a horizontal arm vertically adjustable on the post, an upper feed-roll shaft carried by said arm and provided with an upper feed-roll and a pinion, a shaft journaled in stationary bearings on the bed and provided with a pinion through which motion is to be transmitted to the upper feed-roll shaft, and a pinion or pinions supported by expansion or swinging links to provide for the vertical adjustment of the upper feed-roll shaft, and serving to transmit motion to said feed-roll shaft from the shaft in stationary bearings, substantially as herein described.

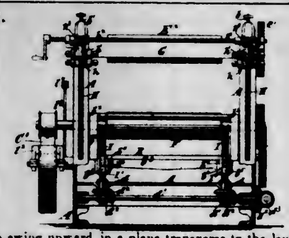
12. The combination, with the saw arbor and table, of the rigidly-supported post A², the arm F, adjustable vertically and turnable thereon, the swinging frame F', pivoted to said arm and having journaled in it the upper feed-roll shaft, *f*, provided with a feed-roll and a pinion, h², the shaft *h'*, journaled in a bearing on the table and provided with a pinion, *h*², the pinions *h*² *h*³, connecting the pinions *h*² *h*², and supported by expansion or swinging links *h*⁴ *h*², and the hook *h*¹⁰, for holding the pinions *h*² *h*³ in engagement, substantially as herein described.

355,012. WOOD-SURFACING MACHINE. William H. Gray, Green Point, Brooklyn, N. Y., assignor to the Glen Cove Machine Company, (Limited,) same place. Filed May 15, 1886. (No model.)

Claim.—1. In a wood-planing machine, the combination, with the main frame and an upper platen, of a frame carrying the upper platen



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and hinged to swing upward in a plane transverse to the length of the platen, and a screw or screws and swiveled nut or nuts connecting the main frame and hinged frame, and by which the hinged frame may be moved and held in operative position, substantially as herein described.

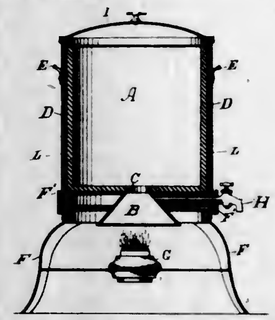
2. The combination, with the main frame and an upper feed or bearing roll, of a frame carrying the said roll and hinged to swing upward in a plane transverse to the length of the roll, and a screw or screws and swiveled nut or nuts connecting the hinged frame and main frame, and by which the hinged frame may be moved and held in position, substantially as herein described.

3. The combination, with a main frame and an upper frame carrying an upper platen and feed-roll, either or both, and hinged to swing upward in a plane transverse to the length of the platen or roll, of swiveled bearings on the hinged frame and swiveled nuts on the main frame, screws journaled in the swiveled bearings and fitting the nuts, and gearing connecting the screws for turning them simultaneously, substantially as herein described.

4. The combination, with a main frame supporting an upper cutter-head and system of feed-rolls, of a movable lower frame supporting a cutter-head and system of feed-rolls, upright screws I, journaled in the main frame and arranged in pairs at opposite ends of the movable lower frame, cross and longitudinal shafts *d'*, and bevel-gears *d*³, connecting the screws and nuts I', having trunnions *b*², which are transverse to the axes of the screws, and which are received in recesses or open bearings on the under side of the movable frame, substantially as herein described.

5. The combination, with a main frame supporting an upper cutter-head and system of feed-rolls, of a movable lower frame supporting a cutter-head and system of feed-rolls, upright screws I, journaled in the main frame and arranged in pairs at opposite ends of the movable lower frame, cross and longitudinal shafts *d'*, and bevel-gears *d*³, connecting the screws, a shaft, *d*³, extending to the front of the machine and geared with the screws and their connecting-shafts, and nuts I', having the trunnions *b*², which are transverse to the axes of the screws, and which are received in recesses or open bearings on the under side of the movable lower frame, substantially as herein described.

355,013. COFFEE-URN. Charles Halstead, New York, N. Y. Filed Jan. 19, 1885. (No model.)



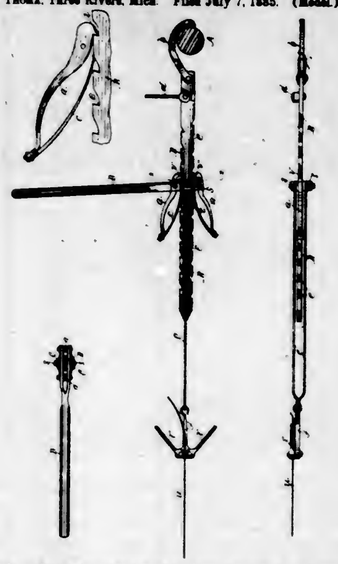
Claim.—1. A coffee-urn consisting of a china or earthenware vessel, A, having a dependent metallic vessel, B, connected therewith by a single opening, the said vessel B being of a conical form and having its upper edge flush with the bottom of said vessel A, substantially as described.

2. In a coffee-urn, a china or earthenware vessel, A, provided with a dependent metallic vessel, B, which is connected therewith by a single opening, and having its upper edge flush with the bottom of said vessel A, substantially as described.

3. A coffee-urn consisting of the earthenware vessel A, having metallic casing L and band D, with handles E, the foot F, with enlarged upper part or rim, F', adapted as a support for said band D, the dependent metallic chamber B, provided with outlet-pipe having cock H, all of said parts being combined and arranged substantially as described.

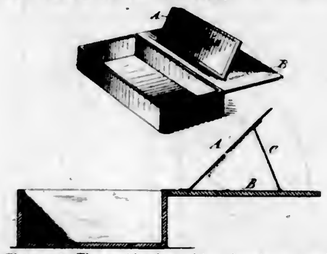
4. A coffee-urn having an earthenware upper portion and a dependent metallic chamber B, of conical form and flat base, having a single opening communicating between said parts, the base of the dependent chamber being larger than the opening in said chamber, all substantially as described.

355,014. WIRE-STRETCHING MACHINE. George Hahn and Anton Thoma, Three Rivers, Mich. Filed July 7, 1885. (Model.)



Claim.—In a wire-stretcher of the style described, the combination, with the notched bar, hair-pin rod, operating-lever and dogs, of the dog-springs having free ends forming a sliding contact with the notched sides of the notched bar to form yielding guides, substantially as set forth.

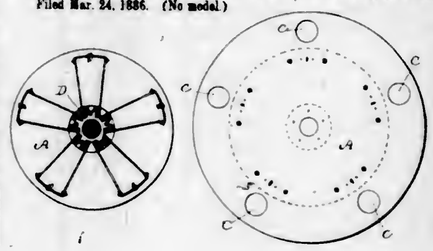
355,015. CIGAR-BOX LABEL. Charles B. Henschel, Milwaukee, Wis. Filed Oct. 23, 1886. (No model.)



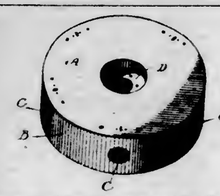
Claim.—1. The combination, with a cigar-box, of a picture-card or label fastened at one edge to the inside of the cover, and provided with a brace, substantially as shown and described.

2. The combination, with a cigar-box, of a picture card or label fastened to swing on one edge of the inside of the cigar-box cover, and a folding brace fastened to the back of the label and resting on the inside of the cover, substantially as shown and described.

355,016. ANIMAL-TRAP. Edward S. Hotchkiss, Bridgeport, Conn. Filed Mar. 24, 1886. (No model.)

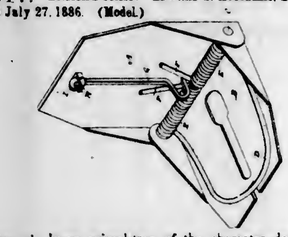


355,016.



Claim.—In an animal-trap, the sides and top formed integral from a single blank of sheet metal, said sides having openings cut therein, and the top having a central depression, the trap entirely devoid of interior partitions, substantially as shown and described.

355,017. ANIMAL-TRAP. Edward S. Hotchkiss, Bridgeport, Conn. Filed July 27, 1886. (Model.)

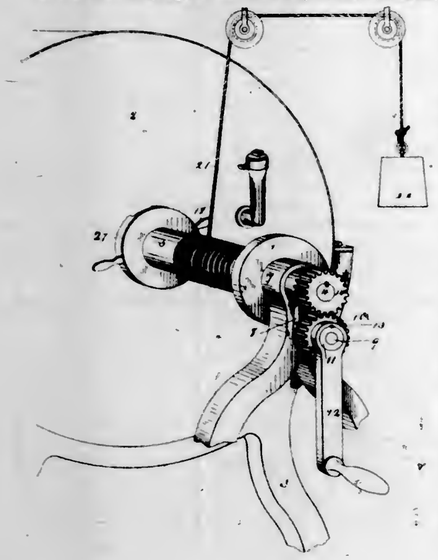


Claim.—1. In an animal-trap of the character described, a bait-trigger pivoted to the upright section and having at its upper extremity a hook adapted when the sections are folded to automatically engage with the bow and hold the same against its spring action, substantially as set forth.

2. In an animal-trap, the two sections, one upright and the other horizontal, hinged together by a pintle, in combination, with a coil-spring around said pintle and having formed integral therewith an outwardly-projecting bow, said bow and the free ends of the spring bearing against the horizontal and upright sections, respectively, and the bait-trigger pivoted between ears projecting from the upright section and having its upper extremity formed into a hook, said hook and the further extremity of the bow being both equidistant from the pintle, whereby when the sections are folded said hook and bow will engage, substantially as shown and specified.

3. In an animal-trap, the combination, with a spring-actuated bow, of a pivoted bait-trigger having its upper extremity formed into a hook adapted to automatically engage with said bow and hold the same against its spring action, substantially as and for the purpose specified.

355,018. WINDING-UP MECHANISM FOR ROTARY AIR-PUMPS. Charles F. Hovey, Springfield, Mass. Filed May 17, 1886. (No model.)



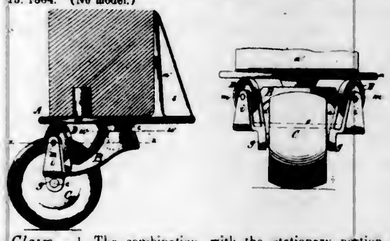
Claim.—1. In combination, the shaft 4, having a pinion fixed thereon, a winding-up drum capable of being rotated on said shaft and having a ratchet-and-pawl connection with the latter, substantially as described, a cord attached to said winding-up drum having a weight on one end, an arm fixed on said drum, and a pinion hung on said arm having a crank attached thereto and engaging with the pinion on said shaft, substantially as set forth.

2. In combination, the shaft 4, the ratchet-wheel 15, fixed on the latter, the winding-up drum 5, capable of being rotated on said shaft, one or more pawls pivoted on said drum and engaging with said ratchet-wheel, and the pawl-switch 27, capable of a reciprocating rotary motion on the end of said drum and having the cams 19 thereon for engagement with said pawls, and provided with springs to bear on the latter, substantially as set forth.

355,019. PAINT COMPOSITION. George Jordan, New York, N. Y. Filed Apr. 22, 1886. (Specimens.)

Claim.—A paint composition consisting of spirits of turpentine, gutta-percha, Venetian turpentine, and a dry-ground pigment, about in the proportions given, substantially as set forth.

355,020. CASTER. Salem T. Lane, New Albany, Ind. Filed May 13, 1884. (No model.)



Claim.—1. The combination, with the stationary portion of a caster, of a pivoted frame having arms embracing the caster-wheel and supporting the journal thereof, and each arm provided with vertical lugs arranged at the side of the wheel and carrying a radial pin below the periphery of the wheel, upon which turns a friction-wheel bearing upon the stationary portion, substantially as set forth.

2. The bifurcated frame B, pivoted to the stationary plate of the caster, each of the arms having upwardly-extending ears *i* in close proximity to the axis of the caster-wheel, and supporting journals below the periphery of the said caster-wheel and above the axis of the same, and downwardly-projecting ears *g* under said ears *i* and forming the bearings of the caster-wheel, substantially as described.

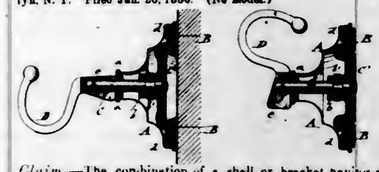
3. A caster provided with the pivoted frame carrying the caster-wheel, and with a stationary frame consisting of an L-shaped bracket having an upwardly-extending pintle, *b*, substantially as specified.

4. A caster having a pivoted frame carrying the caster-wheel and friction-wheels, and a stationary frame with a horizontal portion constituting a bearing for the friction-wheels, and with a vertical portion at right angles to and within the periphery of the horizontal portion, substantially as described.

5. The combination of the stationary frame having a flat bearing-surface, a pivoted frame carrying the caster and friction wheels, and having a flat surface bearing against the flat surface of the stationary frame, and also provided with an expanded opening, and a pivot secured to the stationary frame and extending through the said expanded opening, whereby the pivoted frame is prevented from straining the pivot or rocking, substantially as described.

6. The combination of the stationary frame having a flat bearing-surface, the pivoted frame carrying the caster, and friction-wheels at the sides of said caster, and having a flat bearing-surface, and a connecting-pivot extending through an expanding opening in the pivoted frame, and having the bearing-surface of its head in the same plane as the axes of the friction-wheels, the said pivot being independent of said friction-wheels, substantially as described.

355,021. PNEUMATIC WALL-BRACKET. Willian Lang, Brooklyn, N. Y. Filed Jan. 20, 1886. (No model.)



Claim.—The combination of a shell or bracket having a guide-collar at the front end, an elastic diaphragm at the base of the bracket, a spindle attached to the center of the diaphragm extending forward through said collar, and a suspension-hook pivoted to the front end of the spindle and provided with cam-shaped lugs back of the pivot, said lugs bearing on the collar of the bracket and locking the hook to the collar in line with the spindle or at right angles to the same, substantially as set forth.

355,022. PROCESS OF MAKING TRACING, REPRINTING, AND TRANSFER PAPER. Josef Leidl, Nuremberg, Germany. Filed Aug. 10, 1886. (No specimens.)

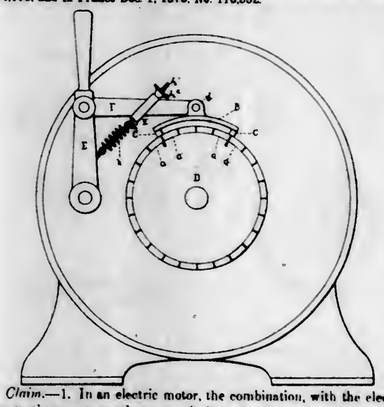
Claim.—The process herein described of preparing tracing, reprinting, and transfer paper, which consists in first coating said paper with boiled linseed-oil, then pressing the same, and in finally covering it on both sides before the oil is quite dry with a mixture of siccative coach-varnish and turpentine, substantially as herein shown and described.

355,023. ASPHALT PAVEMENT. Malcolm Macleod, Manchester, County of Lancaster, England, assignor of one-half to Edwin M. Yelland, Philadelphia, Pa. Filed Sept. 3, 1886. (No specimens.) Patented in England Jan. 12, 1885, No. 406.

Claim.—1. A pavement, roofing, or flooring composed of two layers of asphalt, said layers being of different melting temperatures, and united to one another without mixing by means of an intermediate keying of limestone, granite, or other suitable material projecting from the lower through the upper layer of asphalt, substantially as described.

2. A composite pavement consisting of a lower layer of asphaltum or cement, a superincumbent layer of asphaltum or cement, and an intermediate layer of stony particles projecting into the lower layer or stratum and through the upper stratum of asphaltum or cement, substantially as and for the purposes described.

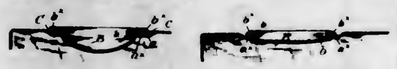
355,024. ELECTRIC MOTOR. Henry M. Paine, Newark, N. J. Filed Sept. 23, 1885. (No model.) Patented in England Nov. 26, 1875, No. 4,118, and in France Dec. 1, 1875, No. 110,552.



Claim.—1. In an electric motor, the combination, with the electro-magnets, the armatures, the rotary shaft, and the commutator or current-disk, of the rigid bar B, having shoes C, adapted to make contact with two companion conducting-strips on the current-disk, and the lever and connecting-bar for shifting said bar and shoes, substantially as herein set forth.

2. In an electric motor, the combination of the hand-lever, the link, the adjustable tension-spring, and the rigid bar having curved end shoes, with the current-disk, and the electro-magnets and armatures, substantially as herein set forth.

355,025. BUNG FOR CANS. George H. Perkins, Philadelphia, Pa. Filed May 17, 1886. (No model.)



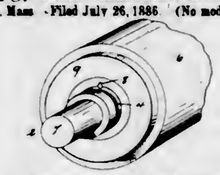
Claim.—1. As an article of manufacture, a sheet-metal can having a cup-shaped sheet-metal bung provided with an outwardly-projecting edge flange, which is bent down upon the lip of the can bung-hole, and also provided with side walls which are extended outwardly beneath the bung-hole lip in such manner that the latter is tightly embraced by a single fold of the metal of the bung, substantially as shown and described.

2. As an article of manufacture, a sheet-metal can having a cup-shaped sheet-metal bung provided with an outwardly-projecting edge flange which is bent down upon the lip of the can bung-hole, and also provided with side walls which are extended outwardly beneath the bung-hole lip in such manner that the latter is tightly embraced by a single fold of the metal of the bung, and also having a packing or sealing material interposed between the bung-flange and the lip or edge of the bung-hole, substantially as and shown and described.

3. As an article of manufacture, a sheet-metal can having a bung-hole or orifice formed with a circumscribing bead or channel having an upwardly-inclined lip or edge, and also having a cup-shaped sheet-metal bung provided with an outwardly-projecting edge flange, which latter is bent down upon the upwardly-inclined lip of the bung-hole, and also provided with side walls which are extended outwardly beneath said inclined lip or edge and parallel therewith in such manner that the lip is tightly embraced by a single fold of the metal of the bung, substantially as shown and described.

4. As an article of manufacture, a sheet-metal bung for a can having a concavo-convex bottom, walls or side portions, and an outwardly-projecting flange, substantially as set forth

355,026. PAPER-CALENDERING ROLL. Benjamin F. Perkins, Holyoke, Mass. Filed July 26, 1886. (No model.)

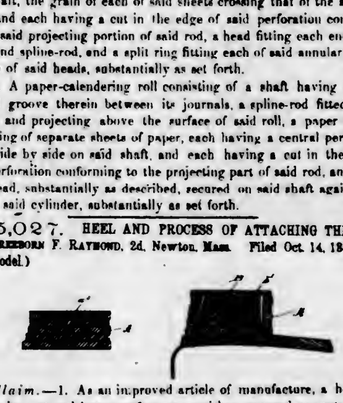


Claim.—1. A paper-calendering roll consisting of a shaft having an annular groove therein near each end and a longitudinal groove extending between said annular grooves, a spline-rod fitted in the latter and projecting above the surface of said roll, a paper cylinder consisting of separate sheets of paper, each having a central perforation, lying side by side on said shaft, and each having a cut in the edge of said perforation conforming to the said projecting portion of said rod, a head fitting each end of said shaft and spline-rod, and a split ring fitting each of said annular grooves outside of said heads, substantially as set forth.

2. A paper-calendering roll consisting of a shaft having an annular groove therein near each end and a longitudinal groove extending between said annular grooves, a spline-rod fitted in the latter and projecting above the surface of said roll, a paper cylinder consisting of separate sheets of paper, each having a central perforation, lying side by side on said shaft, the grain of each of said sheets crossing that of the adjoining ones, and each having a cut in the edge of said perforation conforming to the said projecting portion of said rod, a head fitting each end of said shaft and spline-rod, and a split ring fitting each of said annular grooves outside of said heads, substantially as set forth.

3. A paper-calendering roll consisting of a shaft having a longitudinal groove therein between its journals, a spline-rod fitted in said groove and projecting above the surface of said roll, a paper cylinder consisting of separate sheets of paper, each having a central perforation, lying side by side on said shaft, and each having a cut in the edge of said perforation conforming to the projecting part of said rod, and a suitable head, substantially as described, secured on said shaft against each end of said cylinder, substantially as set forth.

355,027. HEEL AND PROCESS OF ATTACHING THE SAME. Freeborn F. Raymond, 2d, Newton, Mass. Filed Oct. 14, 1886. (No model.)



Claim.—1. As an improved article of manufacture, a heel-blank having its seat and lower surface, *a*, or either, covered or coated with a layer of glue or cement which is hard or not adhesive at ordinary temperature, and which is adapted to be made adhesive upon the application of moisture or heat, substantially as described.

2. As an improved article of manufacture, the top lift of a heel, having its under surface coated with a layer of glue or cement which is hard and non-adhesive at ordinary atmospheric temperature, and which is made adhesive upon the application of moisture or heat, substantially as described.

3. The improved method of attaching heels, consisting, first, in coating the seat of a heel-blank with a layer of glue or other adhesive substance, which is permitted to harden before use; second, in reducing said coating to an adhesive condition immediately before the heel-blank is attached by moisture or heat; third, in immediately attaching the heel-blank to the soles of a boot or shoe while the coating is in this adhesive condition by compression and metallic fastenings driven through the heel into the soles, substantially as described.

4. The improved method of attaching heels, consisting, first, in coating the under surface of a top lift with a layer of glue or other adhesive substance, which is permitted to harden before the top lift is attached;

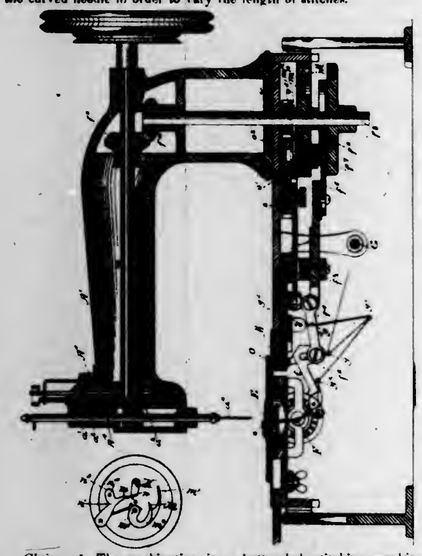
second, in reducing said coating to an adhesive condition immediately before the top lift is attached to the heel-blank by moisture or heat, third, in immediately attaching the top lift to the heel-blank while the coating is in this adhesive condition by spanking the top lift upon the heel-blank with suitable pressure or force, substantially as described.

5. In the method of attaching heels to the soles of boots and shoes, that step in the process consisting in coating the heel seat and surface *a* with a layer or coating of glue or other adhesive material, which is permitted to harden before the heel-blank is attached, then reducing the glue or other adhesive material to an adhesive condition by moisture or heat, then immediately applying the heel-blank to the sole of the boot or shoe and a top lift to the surface *a* of said heel-blank, and while the glue or cement is in an adhesive condition, substantially as described.

355,028. BUTTON-HOLE STITCHING AND BARRING MACHINE.

James H. Reed and Forrest W. Beale, Lynn, Mass., assignors, by mesne assignments, to the Globe Button Hole Machine Company, Portland, Me. Filed May 25, 1886. (No model.)

Brief.—Two needles are used, the upper of which is straight and reciprocated but not vibrated, and the lower of which is curved and is oscillated, both being operated by suitable cams. Looping devices and take-ups are operated in connection with the needles. The barring takes place automatically after the stitching of the sides and the round end, the same being formed across the end of the button-hole where the stitching commenced and ended. Both the upper and lower take-ups are timed for the formation of loops at the ends of the respective movements of the needles. Mechanism is provided for adjusting the upper needle in relation to the center of the throat or the line of reciprocation of the curved needle in order to vary the length of stitches.



Claim.—1. The combination, in a button-hole-stitching machine, of a clamp-plate for holding and presenting the material to the stitch-forming devices, and feeding mechanism for moving it thereto with an intermittent motion with the throat of the machine, the reciprocating straight needle, the reciprocating curved needle, the take-ups and looping mechanism, and devices for automatically stopping the forward movement of the clamping-plate and at the same instant providing it with an oscillating movement in relation to the stitch-forming devices, all substantially as described.

2. The combination, in a button-hole-stitching machine, of a straight reciprocating non-vibrating upper needle, its looping mechanism comprising the stationary loop-holder K, the loop-engaging point M, positively operated as described, the loop-spreader *m*, operated by contact of the looper or movable arm m' therewith, and the reciprocating curved non-vibrating eye-pointed lower needle arranged to operate in relation to the upper needle as described, all substantially as set forth.

3. The combination, in a button-hole-stitching machine, with a reciprocating straight upper needle and a reciprocating curved lower needle arranged in relation to each other and operated substantially as specified, of the looper M^3, positively operated, as described, having the point *m* and the arm *m'*, with the arm *n'*, having the notched spreading-point *n*, and the pin or projection n^3, adapted to be engaged by the arm *n'* and the spring n^2, substantially as described.

4. In a sewing-machine having a reciprocating upper straight needle and a reciprocating lower curved needle, the loop-spreader *m*, adapted to be moved positively in one direction by a cam and suitable connecting devices, said cam and connecting devices, and a spring for moving the spreader in an opposite direction, substantially as described.

5. The combination, in a button-hole-stitching machine, of the reciprocating straight non-vibrating upper needle with the curved reciprocating non-vibrating lower needle, F, the lever *f*, link f^4, slide-bar f^3 f^5, the cam f^6, and suitable looping mechanism, substantially as described.

6. The combination, in a button-hole-stitching machine, of the clamp plate, devices, substantially as specified, for providing it with an intermittent forward movement during the stitching of the sides and eye of the button-hole, the stitch-forming mechanism, comprising a reciprocating straight upper needle, a reciprocating curved non-vibrating eye-pointed lower needle, suitable looping mechanism, and devices for automatically stopping the forward feeding movement of the clamp-plate at the end of said feeding movement, and for moving it laterally in relation to the two needles, whereby a barring-stitch is formed, substantially as described.

7. The combination of the reciprocating straight upper needle, the reciprocating curved under needle, the clamp-plate, its guide-pin, the stud or block O, for engaging the clamp-plate and oscillating its operating-cam *o*, shaft *o'*, and reducing-gearing o^2 o^3, substantially as described.

8. The combination of the needle-bar, its holding-block, the support therefor, and an interposed ring having projections provided with inclined surfaces arranged to bear upon the inclined surfaces of said holding bar or support, substantially as described.

9. The combination of the needle-bar, its holding block, the support therefor, and an interposed ring having projections provided with inclined surfaces arranged to bear upon the inclined surfaces of said block or support, and devices for rigidly locking the needle bar, block, or cap to its support or head all substantially as described.

355,029. BUTTON. Horace B. Robinson, Waterbury, Conn. Filed Oct. 21, 1886. (No model.)



Claim.—As a new article of manufacture, a button consisting of a shell the center of which is depressed to form a well, said well having an inwardly-extending flange around its lower edge, an eyelet provided with a slotted shank, the ends of which protrude beyond the flange of said well and are turned back on the same, and a bar adapted to fit the slots of the said shank and to lie across said well and rest against the opposite walls thereof, substantially as described.

355,030. IMPLEMENT FOR MAKING COVERED BUTTONS. Thos. G. Roebuck, Jersey City, N. J. Filed Sept. 9, 1886. (No model.)



Claim.—1. The combination, with the anvil *a* and tubular guide *b*, of the crimper *c*, cap *e*, and eyeleting-punch *d*, substantially as described.

2. In an implement for covering button-molds, the combination, with the anvil *a* and tubular guide *b*, movable upon the anvil, of the crimper *c*, having the inclined shoulder 4, substantially as described.

3. In an implement for covering button-molds, the combination, with devices for holding the mold and the fabric, of the crimper *c*, provided with the inclined shoulder 4, arranged to crimp or turn the edges of the fabric inward over the back of the mold into position to be caught by the retaining-ring, substantially as described.

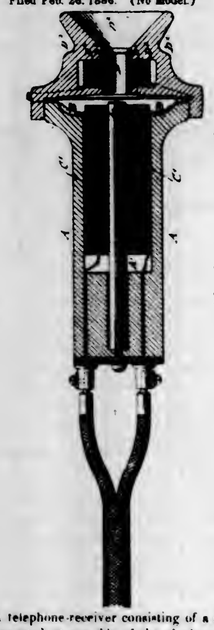
4. The combination, with the anvil *a*, of the tubular guide *b*, adjustable thereon, the crimper *c*, having the opening for the passage of the retaining-ring 12, the cap *e*, arranged to fit over and be secured to the guide *b*, and the eyeleting-punch *d*, screw-threaded and passing through an opening in the top of the cap, substantially as described.

355,031. BENCH-PLANE. Samuel D. Sargent, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Sept. 6, 1886. (No model.)



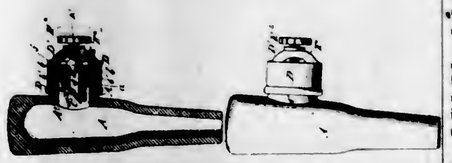
Claim.—In a plane, the combination of the holding-screw B, the holding-cap D, adapted to bear at each end upon the bit, and the clamping-lever pivoted or hinged to said cap between the bearing ends and having its upper face adapted to engage and fulcrum upon the under side of the screw-head, substantially as described, and for the purpose specified.

355,032. TELEPHONE-RECEIVER. Hans A. Schneekloth, New York, N. Y. Filed Feb. 26, 1886. (No model.)



Claim.—A telephone-receiver consisting of a diaphragm, a permanent magnet supported at one side of the diaphragm, a tubular core at the other side of the diaphragm and in line with said permanent magnet, and primary and secondary coils on said magnet and core for increasing the sound, substantially as set forth.

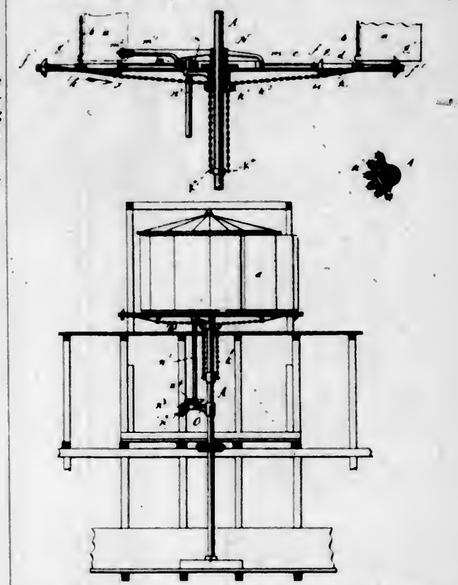
355,033. VENT-PLUG. Max Schuetz, New York, N. Y. Filed Apr. 19, 1886. (No model.)



Claim.—1. The combination, with a vent-plug having a laterally-extending tubular valve portion provided with a flat guide portion, of a centrally-perforated valve-plug fitted into said tubular portion and provided with a flattened portion, an inclined inner face and a transverse recess above said face, means for retaining said valve-plug in position, and a flap-valve having a bent flange extending into said transverse recess, substantially as set forth.

2. The combination of a vent-plug having a tubular valve portion, a valved plug having a central vent-opening, a collar screwed on the tubular valve portion and provided with a yoke, and an auxiliary valve fitted into a seat of said vent-opening and adjustable in said yoke, substantially as set forth.

355,034. WIND-WHEEL. Theodor Schulek, Guben, Prussia, assignor of one-half to Sylvester Gornicki, Berlin, Germany. Filed July 16, 1886. (No model.) Patented in Belgium July 17, 1886, No. 73,519; in England July 17, 1886, No. 8,068; in France July 17, 1886, No. 176,821, and in Spain July 17, 1886, No. 9,574.



Claim.—1. In a horizontal wind-motor, the combination, with two rings, of a series of wings pivoted on the same to swing on their vertical axes, lugs against which the wings rest, and a wheel having an arm for shifting the wings into position, substantially as shown and described.

2. In a horizontal wind-motor, the combination, with two rings, of a series of wings pivoted on the same to swing on their vertical axes, a pair of lugs for each wing, against which the said wings can rest, mechanism for adjusting the position of the lugs, a cog-wheel, *m*, a pinion, *n*, engaging with the same, an arm, *m'*, on the wheel *m*, and mechanism for revolving said wheel *m*, substantially as shown and described.

3. In a horizontal wind-motor, the combination, with rings, of wings pivoted on said rings, pivoted lugs against which the wings can rest, the cog-wheel *m*, having the arm *m'*, the roller m^2 on said arm, the pinion *n*, the shaft *n'*, the bevel cog-wheels n^2 n^3, and chains for adjusting the positions of the lugs, substantially as shown and described.

355,035. VALVE-GEAR FOR STEAM-ENGINES. Geo. S. Strong, New York, N. Y. Filed Aug. 30, 1886. (No model.)

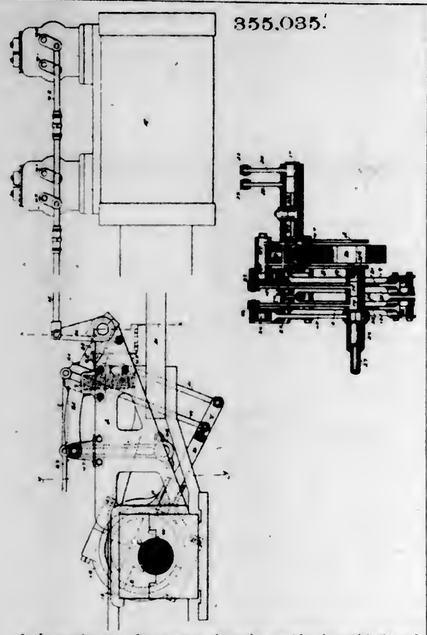
Claim.—1. In a valve-gear for steam-engines, the combination, with a fixed segment and a block adjustable thereon, of a radius-rod pivoted to said block, and the eccentric *c*, having its eccentric-lever fulcrumed to said radius-rod and connected to the valve-rod, substantially as described.

2. In a valve-gear for steam-engines, the combination, with a fixed segment and a block adjustable thereon, of a radius-rod pivoted to said block, the eccentric *c*, having its eccentric-lever fulcrumed to said radius-rod, and two rock-arms which are connected together and one of which is connected to the eccentric-lever and the other of which is connected to the valve-rod, substantially as described.

3. In a valve-gear for steam-engines, the combination, with a single eccentric and its eccentric-strap, of the two levers 20 21, one of which is rigidly secured to said eccentric-strap, and the other of which is pivoted to said strap or to the rigid lever, and both of which are fulcrumed so that each receives a compound motion, one part of said motion serving to cause the lap and lead of the valve, while the other part effects the opening of the valve in addition to the lead, substantially as described.

4. In a valve-gear for steam-engines, the combination, with the two fixed segments having blocks adjustable thereon, of the radius-rods 18 19, pivoted to said blocks, the eccentric *c*, having the rigid eccentric-lever 20, fulcrumed to one of said radius-rods, and the pivoted lever 21, fulcrumed to the other of said radius-rods, one of said levers being connected to the induction valve or valves and the other to the exhaust valve or valves, substantially as described.

355,035.

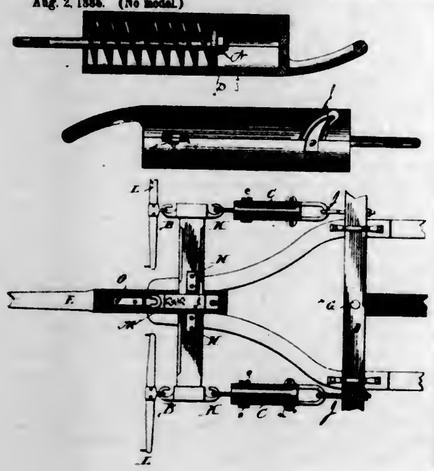


5. In a valve-gear for steam-engines, the combination, with the two fixed segments having blocks adjustable thereon, of the radius-rods 18 19, pivoted to said blocks, the eccentric *c*, having the rigid eccentric-lever 20 fulcrumed to one of said radius-rods, and the pivoted lever 21, fulcrumed to the other of said radius-rods, rock-arms 32 36, which are connected together and to one of said levers and the induction valve or valves, and rock-arms 33 37, which are connected together and to the other of said levers and the exhaust valve or valves, substantially as described.

6. A valve-gear for locomotive-engines, having its supporting frame-work carried by the axle-box of the engine, whereby the valve-gear partakes of the motion of the axle-box and the relation of its parts is not disturbed by the movements of the main parts of the engine, substantially as described.

7. In a valve-gear for locomotive-engines, the combination, with the axle C, eccentric c, and axle-box w, of the frame *d*, mounted on the axle-box and supporting the various parts of the valve-gear, substantially as described.

355,086. DRAFT-EQUALIZER. JAMES F. TAIT, Evanston, Ill. Filed Aug. 2, 1886. (No model.)

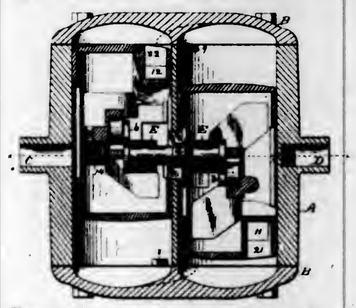


Claim.—1. In a draft mechanism, a stretcher having at its longitudinal center a loose attachment to the tongue or pole, and having near its ends separate and independent spring attachments to the respective ends of the front axle of the vehicle, substantially as shown and described.

2. In a spring-draft mechanism, the spring box or casing P, the parts thereof being attached at one end in any convenient manner and having at the other end the lugs *e f*, constructed substantially as shown and described.

3. The combination, with the stretcher A, constructed substantially as described, of the removable hammer-strap I, the spring M, and the check-plates H H, all combined and arranged substantially as shown and described.

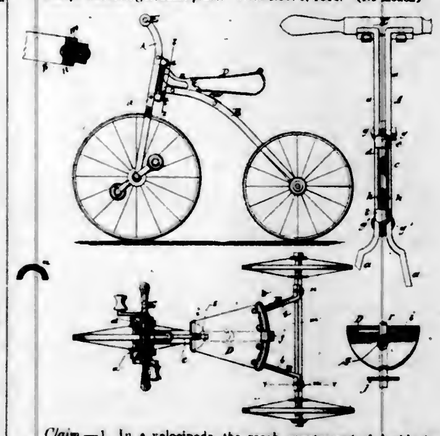
355,037. PISTON WATER-METER. EDWARD C. TERRY, Hartford, Conn. Filed Jan. 4, 1886. (No model.)



Claim.—1. In a piston-meter, the combination of two pistons and the case having two independent piston-chambers, and a passage or passages leading from each chamber to a point in the other opposite the piston end when near the end of its stroke, said passages having a port at each end formed wholly in the cylindrical walls of said piston-chambers, the said pistons each having two portions which act alternately as valves to open and close said ports, whereby each of said pistons acts to cut off the water at each end of its own stroke, substantially as described, and for the purpose specified.

2. In a piston-meter, the combination of two pistons, a shaft and cranks for determining the stroke of said pistons, and the case having two independent piston-chambers, and a passage or passages leading from each chamber to a point in the other opposite the piston end when near the end of its stroke, said passages having a port at each end formed wholly in the cylindrical walls of said piston-chambers, the said pistons each having two portions which act alternately as valves to open and close said ports, whereby each of said pistons acts to cut off the water at each end of its own stroke, substantially as described, and for the purpose specified.

355,038. VELOCIPEDE. OTTO UNBEHEN, Chicago, Ill., assignor to Adolph Schoeninger, same place. Filed Nov. 9, 1886. (No model.)



Claim.—1. In a velocipede, the reach constructed of double bars *b*, of flanged or U-shaped metal, the flanges facing one another, substantially as described.

2. In a velocipede, the steering-post constructed with a continuous vertical slot or opening, and combined with the caps *e* and *t*, that are held in said opening, substantially as described.

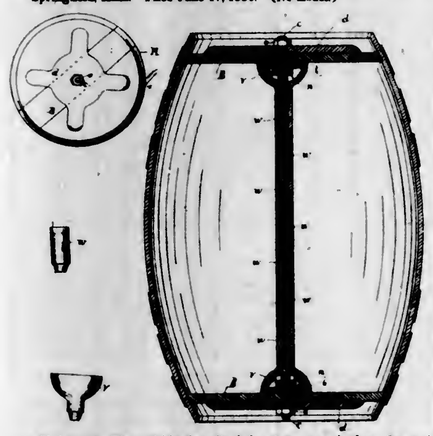
3. A velocipede having a steering-post composed of two double-flanged irons, the flanges of which face one another, substantially as described.

4. In a velocipede, a steering-post composed of two flanged bars, the flanges of which embrace ribs on the shank of the adjustable cap *e*, in combination with said cap and with the cap *t*, substantially as described.

5. A velocipede having the reach composed of double-flanged bars, which at their bent rear ends overlap by their flanges the axle *m*, in combination with said axle, substantially as described.

6. In a velocipede, the combination of the seat D having an opening or slit, *s*, near one end, a seat-support having a projection, *r*, entering said slit *s*, pin *i*, and spring *j*, having an arm, *k*, to which the other end of the seat is fastened, substantially as described.

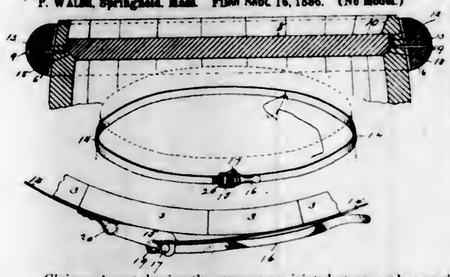
355,039. HEAD-STAYING DEVICE FOR CASKS. THOS. P. WALSH, Springfield, Mass. Filed June 17, 1886. (No model.)



Claim.—1. The within-described head-staying devices for casks, consisting of the screw-threaded rod c, passing through the cask and the heads thereof and projecting beyond the latter, a flange, *d*, against the outer side of each head, having said rod passing through it and secured thereagainst by means substantially as described, a nut and washer on said rod under each head of the cask, and a wooden casing, substantially as described, covering that part of said rod and said nuts and washers within the cask, substantially as set forth.

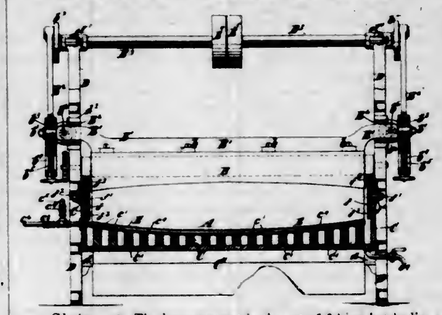
2. The combination, with the heads B B of the cask, of the stay-rod *c*, passing through the latter and projecting beyond each head and provided with a nut on each end thereof, a flange, *d*, between each nut and head, outside of the latter, and a wooden casing extending from head to head within the cask and inclosing said stay-rod, substantially as set forth.

355,040. MEANS FOR ATTACHING HEADS TO BARRELS. THOS. P. WALSH, Springfield, Mass. Filed Sept. 16, 1886. (No model.)



Claim.—A cask having the staves open-jointed at one end, an end hoop, 6, attached to the ends of said staves by pins which permit a movement of the latter within the hoop, a suitable projection below the chine for the head to bear on, and a suitable head, combined with a band surrounding the cask below said hoop, a yoke, 15, and a clamping-lever, 16, to which the ends of said band are secured, substantially as set forth.

355,041. ART OF FULLING OR FELTING HAT-BODIES, &c. JOHN T. WARING, Yonkers, N. Y. Filed June 24, 1886. (No model.)



Claim.—1. The improvement in the art of felting hat-bodies and other articles consisting in subjecting such articles to rapidly-delivered blows of definite range and force while they are supported by a bed or surface, and in increasing or diminishing by adjustment the distance from the bed at which the blows are delivered, as may be best adapted for the varying size of the mass of articles under treatment, substantially as herein described.

2. The improvement in the art of felting hat-bodies and other articles consisting in subjecting the mass of articles to rapidly-delivered blows of definite range and force while supported by a bed or surface in the direction of the blows, and while confined at the ends to prevent elongation of the mass, substantially as herein described.

3. The improvement in the art of felting hat-bodies and other articles consisting in subjecting the mass of articles to the direct action of blows while entirely supported by a moving surface, substantially as and for the purpose herein described.

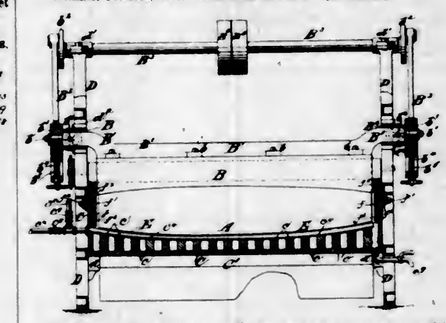
4. The improvement in the art of felting hat-bodies and other articles consisting in subjecting the mass of such articles to blows while in a free or loose state, and while supported upon a moving surface, substantially as herein described

5. The improvement in the art of felting hat-bodies and other articles consisting in subjecting the mass of articles to rapidly-delivered blows while supported by a surface having a progressive travel, substantially as herein described.

6. The improvement in the art of felting hat-bodies and other articles consisting in subjecting the mass of articles to rapidly-delivered blows of definite range and force while the entire mass of articles is supported by a moving surface, substantially as herein described.

7. The improvement in the art of felting hat-bodies and other articles consisting in subjecting the mass of articles to rapidly-delivered blows while supported upon a concave surface having a progressive travel, and in introducing between the mass of articles under operation and the said concave surface a cloth or fabric which is caused by the traveling surface to pass around and envelop the mass of articles, substantially as herein described.

355,042. MACHINE FOR FULLING HAT-BODIES, &c. JOHN T. WARING, Yonkers, N. Y. Filed June 25, 1886. (No model.)



Claim.—1. In a felting-machine for hat-bodies and other articles, the combination, with a bed and a beater, of mechanism, such as cranks and connecting-rods, for reciprocating the beater to deliver blows of definite range and force upon the mass of articles, such mechanism being adjustable to vary the approach of the beater toward the bed to suit the varying size of the mass of articles undergoing operation, substantially as herein described.

2. In a felting-machine for hat-bodies and other articles, the combination, with a bed, of a beater, cranks for operating the same, and connecting-rods of variable length, through which said cranks transmit motion to the beater, whereby the beater is caused to deliver blows upon the mass of articles, and whereby the approach of the beater toward the bed may be varied by adjustment to suit the varying size of the mass of articles, substantially as herein described.

3. In a felting-machine for hat-bodies and other articles, the combination, with a bed, of a beater for operating on the mass of articles on the bed, and which is adjustable widthwise of the bed, so that the beater may be caused to operate on the mass opposite its center or upon one side of the center, substantially as herein described.

4. In a felting-machine for hat-bodies and other articles, the combination, with a bed-concaved both in transverse and longitudinal directions, of a beater for delivering blows upon the mass of articles on the bed, substantially as herein described.

5. In a felting-machine for hat-bodies and other articles, the combination, with a bed, of a beater having its face longitudinally concaved and operating to deliver blows upon the mass of articles in the bed, substantially as herein described.

6. In a felting-machine for hat-bodies and other articles, the combination, with a bed, of a beater arranged above the bed, guides wherein the beater is caused to reciprocate in a direct line toward and from the bed, and mechanism, substantially as described, for operating the beater to deliver blows upon the mass of articles, substantially as herein set forth.

7. In a felting-machine for hat-bodies and other articles, the combination, with a bed provided with abutments at the ends, of a beater for delivering blows upon the mass of articles on the bed while the mass is confined at the ends by said abutments, substantially as herein described.

8. In a felting-machine, the combination, with a transversely-concaved bed presented upward, of a beater having a transversely-concaved face for delivering blows upon the mass of articles upon the bed, substantially as herein described.

9. In a felting-machine for hat-bodies and other articles, the combination, with a bed, of a beater for delivering blows on the mass of articles on the bed and abutments at the ends of the bed with which the ends of the mass of articles make contact and which are movable with said mass, substantially as herein described.

10. The combination, with the upwardly-presented and transversely-concaved bed A, of the beater B and rotary disks *f* at the ends of the bed for supporting the mass of articles at its ends, substantially as herein described.

11. The combination, with the transversely-concaved bed A, of the beater B, mechanism, such as cranks and connecting-rods, for imparting motion to the beater, whereby it is caused to deliver blows of definite range and force upon the mass of articles in the bed, and a pipe extending along the bottom of the bed, and perforated for the delivery of steam or water among the articles in the bed, substantially as herein described.

12. In a felting-machine for hat-bodies and other articles, the combination, with a movable surface supporting a mass of articles, of abutments at the ends of said surface for supporting the mass at the ends and a beater for delivering blows upon the mass of articles while said mass is supported by the movable surface, substantially as herein described.

13. In a felting-machine for hat-bodies and other articles, the combination, with a beater for delivering blows on the mass of articles, of a movable surface whereby the mass of articles is entirely supported and by which the mass is moved to present different portions of its surface to the action of the beater, substantially as herein described.

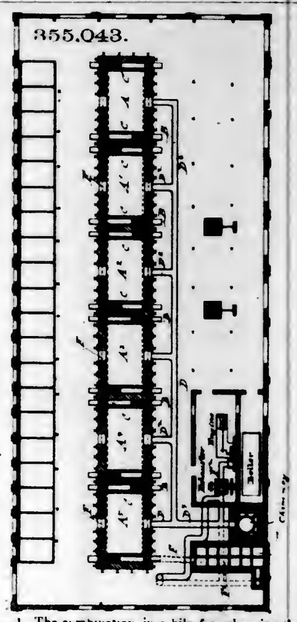
14. In a felting-machine for hat-bodies and other articles, the combination, with a movable surface for entirely supporting the mass of articles, of a beater and mechanism, such as cranks and connecting-rods, for operating the beater to deliver rapid blows of definite range and force upon the mass of articles, substantially as herein described.

15. In a felting-machine for hat-bodies and other articles, the combination, with a traveling apron and guides or rollers whereby there is maintained therein a depending loop, of a beater for delivering blows directly upon the mass of articles in the said loop, substantially as herein described.

16. In a felting-machine for hat-bodies and other articles, the combination, with a traveling apron and guides or rollers whereby there is maintained therein a depending loop, of a beater for delivering blows on the mass of articles in the said loop and abutments for closing the ends of the loop and confining the mass of articles therein, substantially as herein described.

17. In a felting-machine for hat-bodies and other articles, the combination, with a transversely-concaved bed and an apron supported thereon and having a progressive travel, of a beater for delivering blows upon the mass of articles while the mass is supported by the bed and traveling apron, substantially as herein described.

355,043. LIMEKILN. ADAM WEBER, New York, N. Y. Filed June 3, 1886. (No model.)



Claim.—1. The combination, in a kiln for reburning the spent lime of gas-works, of one or more chambers or compartments having the usual fire-places and transverse bridge-walls, longitudinal top flues connected with said chambers, a condenser connected with said top flues, and an exhauster connected with the condenser, substantially as shown and described.

2. In a kiln for reburning the spent lime of gas-works, the combination of one or more chambers or compartments having the usual fire-places and transverse bridge-walls, hydrocarbon-injectors located in openings of the side walls, longitudinal top channels connected with said chambers, a condenser connected with said top flues, and an exhauster connected with the condenser, whereby the sulphurous vapors driven off are conducted off and neutralized, substantially as set forth.

3. The process herein described of reburning or revivifying the spent lime of gas-works, which consists in subjecting the charge of spent lime to a temperature at which the sulphurous and other gases are driven off, and then quickly raising the temperature to the degree required for reburning the charge, whereby the reburning operation is accomplished in a shorter time, substantially as set forth.

4. The process herein described of reburning or revivifying the spent lime of gas-works, which consists in subjecting the charge of spent lime to a temperature at which the sulphurous and other gases are driven off, next driving off and neutralizing said gases, and quickly raising the temperature to such a degree that the burning of the lime in the kiln is quickly accomplished, substantially as set forth.

355,044. MILK-PAIL HOLDER. GRANVILLE ABBOTT, Harrison, Miss. Filed May 28, 1886. (No model.)

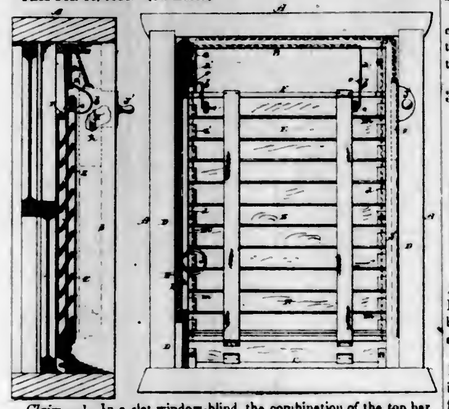


Claim.—1. The hoop *b*, with twisted portion *c c* as a means of adjustment, in combination with arms *d d* and hooks *f f*, substantially as shown and described.

2. The pail-holder herein shown and described, consisting of a piece of wire bent to form a pail-supporting hoop, having its parts overlapped and lightly twisted along one side of the hoop, and then bent outwardly and curved to form supporting-arms.

3. The combination, with the pail-holder *b c d*, of the catches *f*, loosely attached on the sides of its pail-holding loop, substantially as shown and described.

355,045. INSIDE WINDOW-BLIND. JOSEPH AULD, Burlington, Vt. Filed Feb. 16, 1886. (No model.)



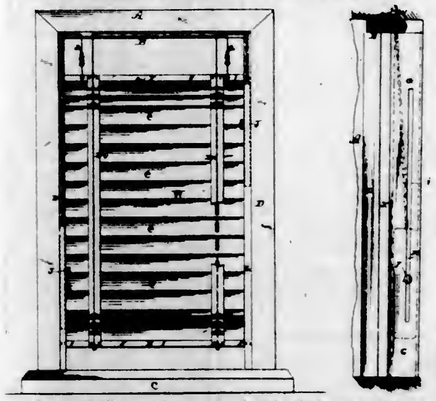
Claim.—1. In a slat window-blind, the combination of the top bar, F, with the bent hooks *b*, which are loosely connected at their lower ends to the under side of the bar, and the operating-cords which are connected to the upper ends of the hooks, substantially as shown.

2. The combination of the top bar, F, and slats E, having recesses with beveled edges in their ends, with the side strips, G, arranged in opposite sides of the frame, substantially as set forth.

3. In a slat window-blind, the slats E, in combination with the top bar, F, the cords *a a'*, attached to the top bar, F, by means of the hanging bent hooks *b b*, which are connected to the cords at their upper ends and pivoted at their lower ends to the under side of the top bar, and the counter-weight H, which runs in a suitably-recessed strip, S, on the front face of the window-jamb, substantially as set forth, and for the purpose described.

4. The combination of a flexible blind composed of slats, and which is adapted to be raised and lowered at its top, the hanging hooks *b b*, the lower ends of which are pivoted to the under face of the bar F, and which extend forward and curve upward around the front edge of the bar F, and thence back over the upper face of the bar, where it terminates in eyes *e e*, the cords *a a'*, and counterbalance-weight H, substantially as described.

355,046. INSIDE WINDOW-BLIND. JOSEPH AULD, Burlington, Vt. Filed June 10, 1885. Renewed June 8, 1886. (No model.)



Claim.—1. The combination of a flexible blind composed of slats, and which is adapted to be raised and lowered at its top, the wire loop *b*, which has its ends attached to opposite edges of the top bar, F, the cords *a*, weights H, coils *c'*, and rings *c*, the ends of the cords being attached to the coils, substantially as shown.

2. In a slat window-blind, the combination of the slats E, top and bottom pieces, F N, the cords M, connected to the bottom piece, and which pass up through the slats, and the counter-weight, which is connected to these cords, with the cords *a*, which are connected to the top piece, a counter-weight connected to these cords, and the grooved slotted side pieces, D, in which said weights slide, each one of the weights being provided with a handle, J, which projects through the slot *i*, substantially as set forth.

3. The blind-weights H H, having friction bearing-springs *h*, to control their movement, and provided with handles J J, which project through grooves *i i*, by which they can be vertically moved, substantially as herein described, and for the purpose set forth.

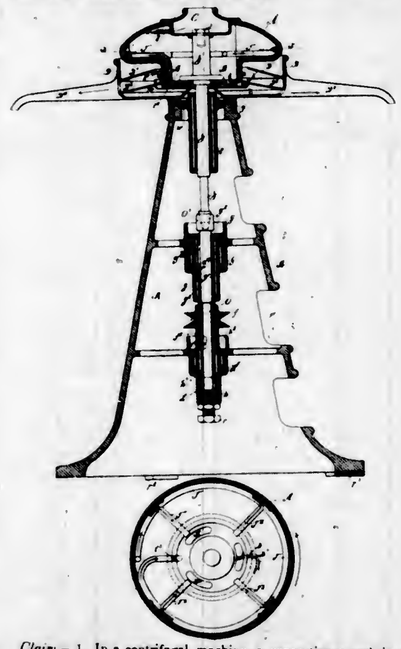
355,047. KNITTING-MACHINE. JOHN AUERBERN, Cincinnati, Ohio. Filed Sept. 18, 1886. (No model.)



Claim.—1. In a knitting-machine, the combination of the cylinder A, ledge B, piece D, having notches *d d'*, cams E E', piece F, and wires P, having pawls P', and means for holding the pawls P' across the grooves between the cams and the piece F, substantially as and for the purposes specified.

2. In a knitting-machine, the combination of the cylinder A, ledge B, piece D, having notches *d d'*, cams E E', piece F, and wires P, having pawls P', and springs O, substantially as and for the purposes set forth.

355,048. CENTRIFUGAL CREAMER. CHARLES A. BACKSTROM, Trenton, N. J., assignor of one-half to Charles De Berard Shepard, New York, N. Y. Filed Mar. 2, 1886. (No model.)



Claim.—1. In a centrifugal machine, a separating-vessel, in combination with a coil having branch pipes projecting toward the center of the vessel, substantially as specified, whereby that portion of the liquid having the greater specific gravity is by centrifugal force caused to travel along in and to be discharged at the end of the coil, while that portion of the liquid having the lesser specific gravity is caused to emerge from the coil through the branch pipes thereof into the separating-vessel for further treatment.

355,049. MACHINE FOR MAKING BOOTS AND SHOES. JOSEPH ARMSTRONG, Lynn, Mass. Filed Aug. 30, 1886. (No model.)

Claim.—1. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described.

2. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described.

3. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described.

4. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described, and means for moving the last, substantially as described.

5. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described, and means for moving the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described.

6. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described, and means for moving the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described, and means for moving the last in the direction of the width of the last, substantially as described.

7. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described, and means for moving the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described, and means for moving the last in the direction of the width of the last, substantially as described, and means for moving the last in the direction of the thickness of the last, substantially as described.

8. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described, and means for moving the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described, and means for moving the last in the direction of the width of the last, substantially as described, and means for moving the last in the direction of the thickness of the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described.

9. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described, and means for moving the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described, and means for moving the last in the direction of the width of the last, substantially as described, and means for moving the last in the direction of the thickness of the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described, and means for moving the last in the direction of the width of the last, substantially as described.

10. In a machine for making boots and shoes, the combination, with the last, of a series of needles, a series of awls, and a series of thread-guides, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the length of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the width of the last, substantially as described, and means for moving the needles, awls, and thread-guides in the direction of the thickness of the last, substantially as described, and means for moving the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described, and means for moving the last in the direction of the width of the last, substantially as described, and means for moving the last in the direction of the thickness of the last, substantially as described, and means for moving the last in the direction of the length of the last, substantially as described, and means for moving the last in the direction of the width of the last, substantially as described, and means for moving the last in the direction of the thickness of the last, substantially as described.

2. In a centrifugal machine, a separating vessel or chamber contracted at its bottom to form a neck, in combination with a coil arranged at the greatest inner diameter, and provided with inwardly-projecting branch pipes, and having its discharging-orifice through the neck portion of the vessel, substantially as specified.

3. In a centrifugal machine, a separating-chamber mounted on a spindle, a supply-chamber arranged at the top of the separating-chamber and removably secured to an extension of the spindle, substantially as specified.

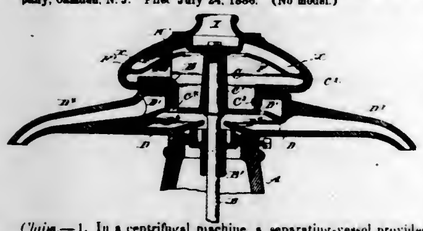
4. In a centrifugal machine, a separating-vessel contracted to form a neck, and provided with perforations in its bottom, in combination with a receiving-vessel arranged beneath the separating-vessel, and with a coil arranged in the separating-vessel above its neck, and provided with inwardly-projecting pipes, and having its discharge-orifice communicating with the receiving-vessel at the neck portion of the separating-vessel, substantially as specified.

5. In a centrifugal machine, the combination, with the separating chamber or vessel A and spindle Z O, and with the frame-work R, provided with a pair of pockets, of a bushing in each of the pockets, a lining in each of the bushings, and a pulley loosely mounted on the upper lining and connected with the spindle by means of a pin projecting into a slot in said spindle, whereby lateral strain of the belt is borne by the bushings and linings, substantially as specified.

6. In a centrifugal machine, a separating chamber or vessel contracted at its bottom to form a neck having vertical walls, substantially as specified.

7. In a centrifugal machine for the continuous separation of compound fluids or semi-liquids, separating-vessel A, provided with a coil of tubing, T, having a number of pipes, T' T^2 T^3 T^4, therewith connected, outlet or mouth t^5 at the bottom of said vessel, slots K' K^2 K^3, orifice k, and pipe k', also in the bottom thereof, in combination with a vessel, C, at the top of the separating-vessel, and a case, D, underneath said vessel, the case D provided with partition-plates D' D^2, having one or both a groove or flange, d, in the extreme edge of said plates, and on which the liquids may be delivered, all substantially as shown and described.

355,049. CENTRIFUGAL LIQUID-SEPARATOR. C. Axel Backstrom, Trenton, assignor to the Backstrom Centrifugal Separator Company, Camden, N. J. Filed July 24, 1886. (No model.)



Claim.—1. In a centrifugal machine, a separating-vessel provided with an annular shelf, a radial partition above and below said shelf, an induction-orifice arranged at one side of the upper part of said partition, and an eduction-orifice arranged at the opposite side of the lower part of said partition, substantially as specified.

2. In a centrifugal machine, a separating-chamber having a series of annular shelves and a radial partition intersecting said shelves and extending above and below them, the shelves being imperforate except at alternately opposite sides of the said partition, substantially as specified.

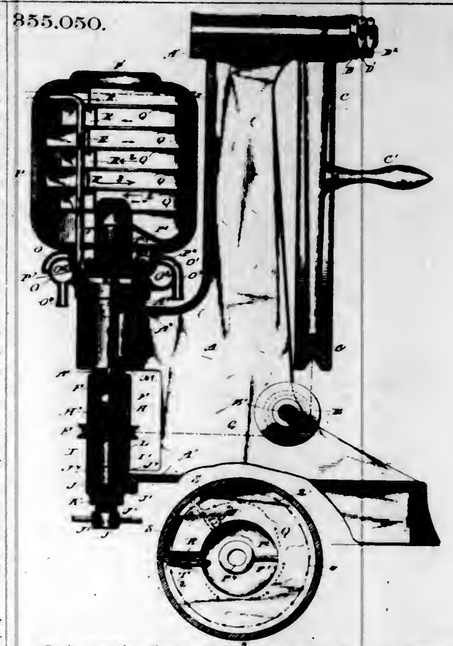
3. In a centrifugal machine, a separating-vessel provided with an annular shelf, having an orifice near the inner periphery of the vessel, and having a radial partition adjacent to the orifice and extending above and below the shelf, and a central depressed neck, the latter having discharge-orifices in relatively different horizontal planes, and a pipe leading from the lower of said orifices to and beneath the annular shelf, substantially as specified.

4. The combination of the separating-chamber, an annular shelf provided with a single discharge port or orifice located near its outer edge, a radial partition arranged adjacent to said single discharge-port and extending above and below said shelf, and the supply-pipe arranged at a side of said partition opposite that at which said discharge-port is located, substantially as specified.

355,050. CENTRIFUGAL LIQUID-SEPARATOR. C. Axel Backstrom, Trenton, assignor to the Backstrom Centrifugal Separator Company, Camden, N. J. Filed Sept. 18, 1886. (No model.)

Claim.—1. In a centrifugal machine, a separating chamber or drum provided with shelves, each having a single slot, and each joining the inner wall of the chamber, and with partitions, and a supply-bowl for delivering the milk beneath the lower shelf, and a discharge-pipe communicating only with the upper shelf of the chamber and with the bottom of the chamber or drum, substantially as specified.

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2. A separating chamber or drum provided with annular shelves, each joining the inner wall of the chamber and having a single slot, partitions arranged between successive shelves, a supply-pipe terminating beneath the lowest shelf, and a discharge-pipe extending from and communicating with only the upper shelf and with the bottom of the chamber or drum, substantially as specified.

3. A separating-vessel having a depending neck or cream-bowl provided with a discharge-opening in a side wall of the neck, a supply-bowl and delivery-pipe therefor, a series of shelves arranged above the supply-pipe and slotted and partitioned, as described, and a discharge-pipe extending from near the inner wall of the chamber and above the upper shelf thereof to and communicating with an opening in the neck of the chamber, substantially as specified.

4. In a separating chamber or drum, the combination, with the annular shelves Q, having a single slot, as at S, and joining the inner wall of the chamber or drum, of the partitions R, arranged between the slots of adjacent shelves, as described, substantially as specified.

5. In a separating-vessel, the combination of a series of shelves, Q, each provided with a slot, S, a series of partitions, R, arranged between the slots, and a discharge-pipe, T, arranged over the upper shelf of the series and extending downwardly along the inner edges of the shelves and communicating with a discharge-opening of the vessel, substantially as specified.

6. The separating-chamber P, having the opening P', the contracted depending neck P^2, the hub P^3, and the supply-bowl P^4, formed thereon, substantially as specified.

7. The chamber P, having the depending neck P^2, hub P^3, supply-bowl P^4, shelves Q, and partitions R, in combination with the receiving-bowl O, having the chambers O' O^2, and discharge pipes O^3 O^4, substantially as specified.

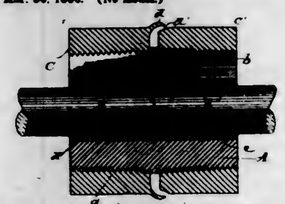
8. The frame A, having the bearings A', A^2, and A^3, and the hand driving-wheel C, in combination with the spindle H and pulley F, the removable milk and cream receiving bowl O, mounted on the bearing A^3, and the separating-chamber P, having the shelves Q, the supply-bowl P^4, and the discharge-pipe P^5, substantially as specified.

355,051. CIGAR-WRAPPER CUTTER. Ledyard D. Bailey, Central City, Nebr. Filed Feb. 1, 1886. (No model.)



Claim.—As an improved article of manufacture, a cigar-wrapper cutter consisting of the handle A, the ferrule B, formed with the downwardly-projecting ears C, bent inward and secured together at the heels, and the knife D, journaled between the ears and projecting into the ferrule, as set forth.

355,052. SHAFT-COUPLING. George F. Barker, Lowell, Mass. Filed Mar. 30, 1886. (No model.)



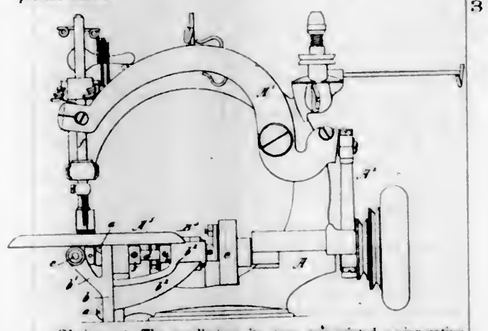
Claim.—1. The combination, with a split sleeve constructed to closely embrace shaft-sections and provided with longitudinal ribs screw-threaded on their outer faces, of a nut having screw-threads adapted to engage the screw-threads on the ribs, substantially as set forth.

2. The combination, with a split sleeve having ribs screw-threaded on their outer faces, of nuts having internal threads adapted to engage the threads on the ribs.

3. The combination, with a split sleeve having a screw-threaded outer surface and constructed to closely embrace the adjacent ends of shaft-sections, of nuts having internal threads adapted to engage the threads on the sleeve, one of said nuts having a projecting lip adapted to rest in a groove formed on the adjacent end of the other nut, substantially as set forth.

355,053. SEWING-MACHINE. William F. Beardsley, Boston Mass., assignor to the Manufacturers' Special Machine Company, Danbury, Conn. Filed Feb. 4, 1886. (No model.)

Brief.—Two eye-pointed needles are used to penetrate the material, the loops being caught and held by an oscillating looper, the looper holding the loops in such position that they are both entered by but one of the needles at the next descent of the needle-bar, the result being the formation of a whip-stitch from two threads carried by the said two eye-pointed needles.



Claim.—1. The needle-bar, its two eye-pointed reciprocating needles, the looper, its rock-shaft provided with a pinion, and the sector, combined with the rock-shaft d and means, substantially as described, to oscillate it.

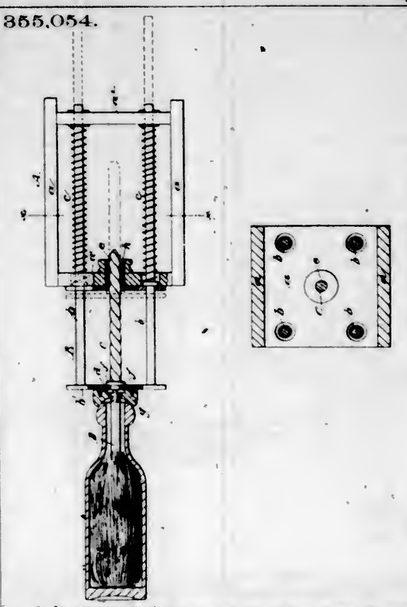
2. The shaft A^3, its attached cam having a tapering groove, and the rock-shaft d, having an arm, d^3, and its attached adjustable conical stud, combined with the segment d', the looper, the looper-shaft, and its attached bevel-gear, substantially as described.

3. The needle-bar provided at its lower end with two intersecting parallel holes for the reception of the shanks of two needles, and with a clear opening for the free entrance of a screw, and two needles in the said holes, with their shanks in contact, combined with a collar and a single screw, the latter acting upon the shank of one needle, and through it and the collar upon the other needle, the collar being threaded for the reception of the said screw, substantially as described.

355,054. BOTTLE-WASHER. Peter A. Bennett, New York, N. Y. Filed Feb. 25, 1886. (No model.)

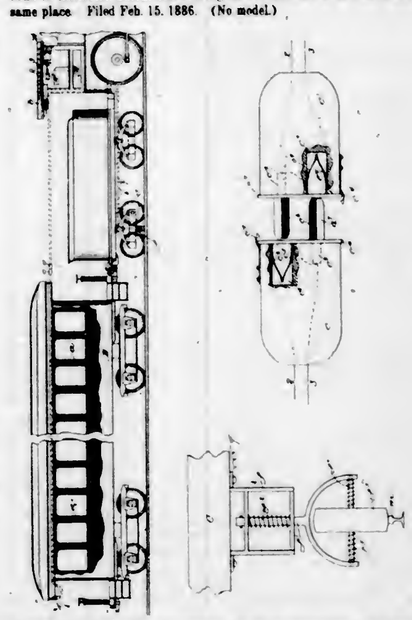
Claim.—1. An apparatus for washing bottles, comprising a stationary frame having a fixed bushing, A, a sliding frame, and a longitudinally-moving spiral spindle journaled in the sliding frame to move longitudinally therewith, the spiral portion of the spindle passing through the fixed bushing, substantially as described.

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2. In a bottle-washing apparatus, the sliding frame B, composed of the rods b and plate b', frame A, holding the rods b, and the coiled springs c, placed thereon, in combination with the spiral spindle C, held by the plate b' at its outer end and passed through the opening x in the main frame, the opening e being made to fit the spiral spindle, substantially as and for the purposes set forth.

355,055. SIGNALING APPARATUS FOR RAILWAY-TRAINS. John H. Bickford, Salem, Mass., assignor of one-third to S. Fred Smith, same place. Filed Feb. 15, 1886. (No model.)

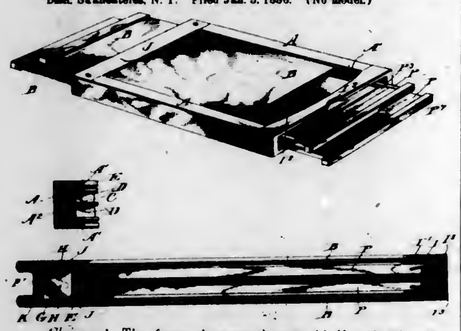


Claim.—1. A coupling for electric signaling apparatus for railway-trains, consisting of the blocks c and c', each provided with a socket containing two metallic springs normally in contact with each other, and

a plug having a projecting portion, partly conductive and partly non-conductive of electricity, and adapted to enter the socket of the opposite block, the circuit-wire 3, connected to the plug and one spring of one of the blocks, and the circuit-wire 2, connected to the other spring of said block, and the said wire 2 connected to the plug and one spring of the other block, and the said wire 3 connected to the other spring of said last-named block, so that when the coupling-blocks are disengaged a closed circuit is formed, which is broken by the entrance of the plugs between the springs, and hooks engaging flanges to hold the blocks in engagement, substantially as described.

2. The combination of a magneto signal-bell and its circuit, a moving-train circuit, a fixed rail, *m*, connected with the said bell-wires, and a contact-roller, *f*, carried upon one of the trucks of the train and having vertical and lateral springs, to adapt it to irregularities in the road as it is in contact with the said fixed rail, substantially as shown and described.

355,056. PHOTOGRAPHER'S PLATE-HOLDER. NELSON S. BOWDER, Skaneateles, N. Y. Filed Jan. 5, 1886. (No model.)

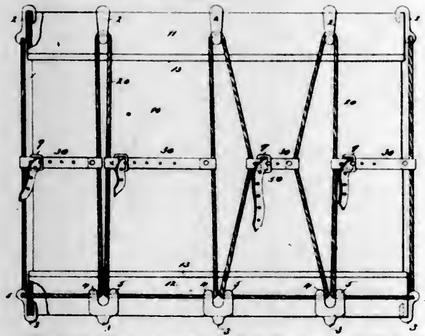


Claim.—1. The frame A, grooved as at A', I', and A^2, and cut away as at I', and having a strip, C, inserted in the groove A^2, and provided with the cross-bar E, in combination with the slide B and plate-holders P, substantially as specified.

2. A shutter for a photographer's plate-holder, comprising a transversely-scored strip and a textile backing, substantially as specified.

3. The combination of the rod K, springs L, strip M, transversely scored, as at O, and the backing N, substantially as specified.

355,057. DRUM-TIGHTENER. ROBERT BUCHANAN, Sioux City, Iowa. Filed May 4, 1886. (No model.)



Claim.—1. The combination, with a drum-body, its heads and hoops, of a cord passed in substantially parallel lines from hoop to hoop, and tightening-straps 30, substantially as described.

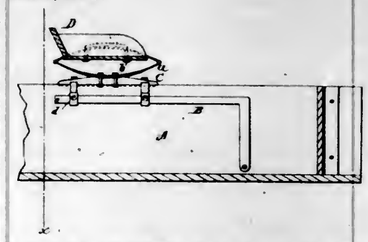
2. The combination, with a drum-body, its heads and hoops, of single-apertured hooks 2, double apertured hooks 3, a cord or rope, 20, and straps 30, substantially as described.

355,058. WAGON-SEAT. JOHN W. BUNCH, Keokuk, Iowa, assignor to himself and Stephen Irwin, same place. Filed Apr. 28, 1886. (No model.)

Claim.—1. The combination, with the seat-supporting springs *a*, of the seat D and supporting-irons *b*, the irons being arranged to sustain the bottom of the seat below the top of the springs, substantially as herein shown and described.

2. The combination, with the angled arms B and seat-bolsters C, of the clips *c*, arranged to slide on the bars B and embrace the edge of

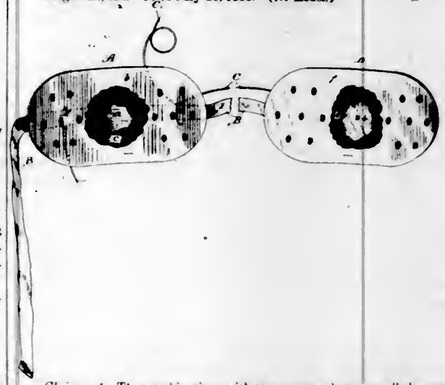
355,058.



the wagon-box, substantially as herein shown and described.

3. The combination, with the wagon-box and box-seat, of an angled arm, B, pivoted to the wagon-box and adjustably attached to the wagon-seat, the short arm of the arm B being made of a length to adapt it to the box to which it is applied, substantially as herein shown and described.

355,059. ELECTRO-THERAPEUTIC APPLIANCE. JAMES CHARLES, Ridgeville, Ind. Filed July 29, 1885. (No model.)

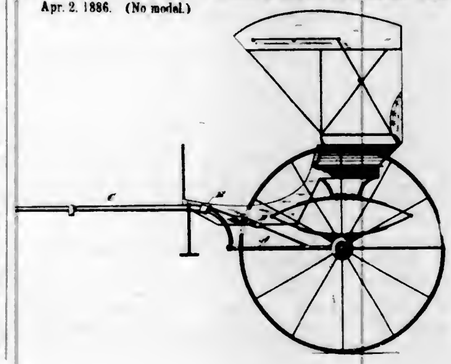


Claim.—1. The combination, with two or more battery-cells located at different parts of the body and having one element in electric contact therewith, of a common electrode connected by a conductor with the other element and located at a separate portion of the body, and means for holding the batteries and electrode in place, substantially as set forth.

2. An electrode to be applied to a portion of the body, the same consisting of two plates of similar metal separated by a material capable of absorbing liquids, the inner plate being perforated, as and for the purpose set forth.

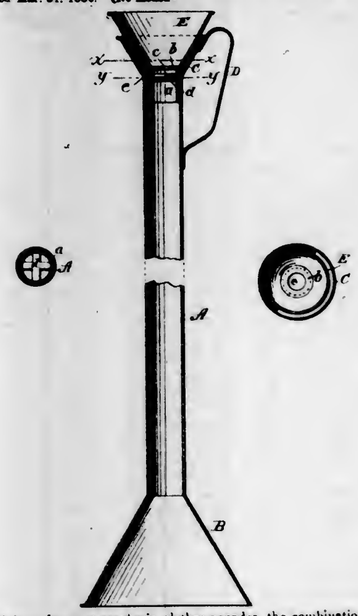
3. In an electric battery designed to be applied to the human body, a copper plate, a larger perforated zinc plate, and a piece of cloth or other absorbent material between the said plates, the piece of cloth or equivalent material extending outside the two plates and being held between the edge of the copper plate and the bent-over edge of the zinc plate, substantially as set forth.

355,060. ROAD-CART. WILLIAM R. CHURCH, Yorkville, Ill. Filed Apr. 2, 1886. (No model.)



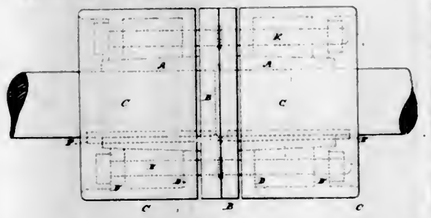
Claim.—A shaft-coupling consisting of rods to which the thills are to be pivoted, having clips at their rear ends, and sectional braces connected by a turn buckle, the forward sections of the said braces being pivoted to the thills and the rear sections rigidly secured to the rods, substantially as herein shown and described.

355,061. WASHING-MACHINE. SARNA W. COOK, Dayton, Wash. Filed Mar. 31, 1886. (No model.)



Claim.—In an atmospheric clothes-pounder, the combination, with the tube A, having flaring or funnel-shaped ends, and the lateral handle D, of the funnel E, inserted in the mouth of said tube and having the centrally-apertured partition *b*, the cross-piece *d*, and the loose intermediate disk-valve, *c*, all as shown and described.

355,062. SHAFT-COUPLING. JOSEPH S. COOK, Atlanta, Ga. Filed Sept. 13, 1886. (No model.)



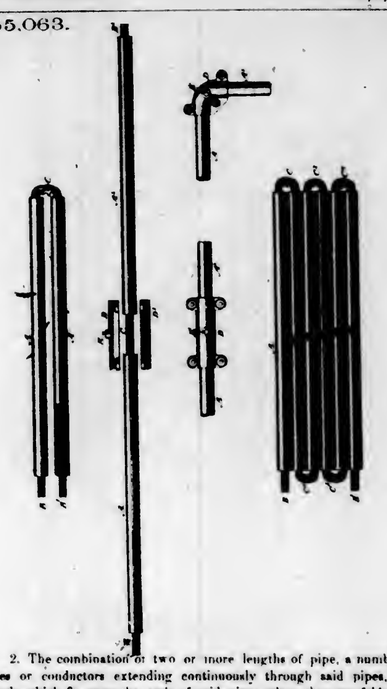
Claim.—1. The combination of the two similar split cone-like hubs directly and detachably connected with each other, and the two similar clamping-sleeves secured one about each of said hubs, directly and detachably connected with each other, substantially as and for the purpose set forth

2. The combination of the two similar split cone-like hubs, the clamping-sleeves, and the securing-bolts passing through the clamping-sleeves and through the cone-like hubs, substantially as and for the purpose set forth.

355,063. UNDERGROUND ELECTRICAL CONDUCTOR. FRANCIS B. CROCKER, New York, N. Y., assignor to the Edison Machine Works, same place. Filed Apr. 17, 1885. (No model.)

Claim.—1. The combination of two or more sections or lengths of pipe, a number of wires or conductors extending continuously through said sections of pipe, means for insulating said wires, the whole being capable of being folded for transportation, and split couplings by which the sections of pipe are connected when they are unfolded and laid, substantially as described.

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2. The combination of two or more lengths of pipe, a number of wires or conductors extending continuously through said pipes, and guards which fit upon the ends of said pipes when they are folded together, protect the wires where they pass from one pipe to another, and hold the pipes together during transportation, substantially as described.

3. The combination of two or more lengths of pipe, a number of wires or conductors extending continuously through said pipes, and flexible guards which protect the wires and serve as hinges when the pipes are folded or unfolded, substantially as described.

355,064. AUTOMATIC GRAIN-MEASURE. SAMUEL E. CROSHAW, Three Oaks, Mich. Filed Mar. 24, 1886. (No model.)

Claim.—1. A grain-measurer constructed with a supporting-frame, a weigh-beam hung thereon, weights on the beam, a stroke-box hung on the beam, and a tilting grain-box hung from the stroke-box, and said stroke-box adapted to strike off the substances at the top of the grain-box as the latter tilts beneath the stroke-box, substantially as shown and described, whereby substances may be measured either by weight or stroke, as set forth.

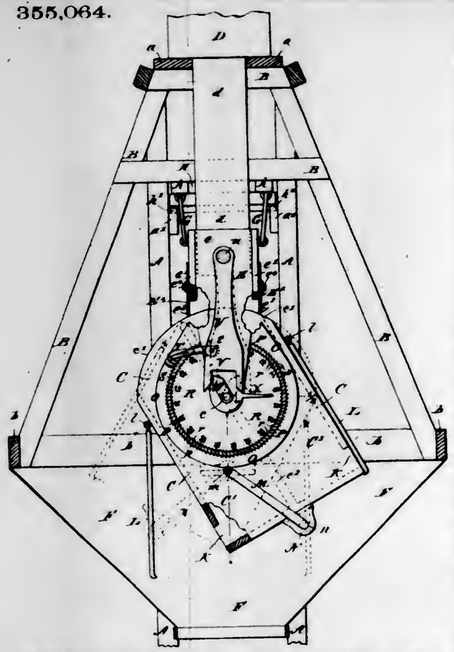
2. A grain-measurer constructed with a supporting-frame, a weigh-beam hung thereon, weights on the beam, a stroke-box hung on the beam, and a tilting grain-box hung from the stroke-box, and said stroke-box adapted to strike off the substances at the top of the grain-box as the latter tilts, and adjustable stroke-plates, as at E', held to the stroke-box, substantially as shown and described, whereby substances may be measured either by weight or stroke, and the stroke measure may be regulated at will to fill or overfill the compartments of the grain-box, as set forth.

3. A grain-measurer constructed with a supporting-frame, A, a weigh-beam, H, hung thereon, weights on the beam, a stroke-box, E, hung from the inner end of beam H, a grain-box, C, having two compartments, C' C^2, and hung on the stroke-box, and the the top of box C curved from the axis of motion of the box and adapted to swing closely to the ends e^2 e^2 of the opposite sides of the box E, and said box C provided with outlets K, and self-closing covers L for each compartment, substantially as shown, and for the purposes herein set forth.

4. A grain-measurer constructed with a supporting-frame, a weigh-beam, H, hung thereon, a stroke-box, E, hung on beam H, a tilting grain-box, C, having two compartments, C' C^2, and hung on gudgeons *c c* to the stroke-box, the top of box C being curved from its center of oscillation and adapted to swing closely to the ends e^2 e^2 of the opposite sides of the box E, and a cranked rod, M, pivoted at *m m* to a relatively fixed frame and at *n n* to the tilting grain-box, and said grain-box having outlets and self-closing lids thereover, substantially as and for the purposes herein set forth.

5. In a grain-measurer, the combination, with a frame, A, a weigh-beam, H, a stroke-box, E, and tilting grain-box C, hung on the beam, and said box C having two compartments, C' C^2, provided with outlets

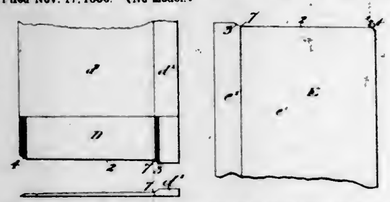
355,064.



and self-closing covers therefor, substantially as specified, of a dial, P, and a smaller dial, R, thereover, both dials supported from the stroke-box E, and having teeth *p r*, respectively, and said dial *p* having a deep notch, S, a lever, U, pivoted at *u* to box E, and having a forked lower end, V, a pawl, T, pivoted to lever U, and adapted to engage the teeth *p S r* of dials P R, and a tappet, W, on the shaft or gudgeon of the tilting box C, and acting in the end V of lever U, substantially as and for the purposes herein set forth

6. In a grain-measurer, the combination, with a supporting-frame, A, weigh-beam H, stroke-box E, and tilting grain-box C, arranged and operating substantially as specified, of dials P R, held to box E, and having peripheral teeth *p S r*, a lever, U, pawl T, and tappet W, and a pointer, X, fixed to box E, and indicating the quantity of material weighed or measured in box C by graduations on the dials P R, substantially as herein set forth.

355,065. KNIFE FOR NAIL-CUTTING MACHINES. Zadok W. Dean, White Ash, assignor to Charles L. Fitzhugh, Allegheny City, Pa. Filed Nov. 17, 1886. (No model.)

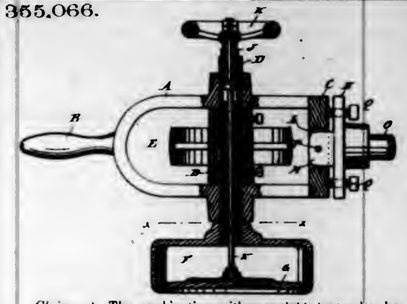


Claim.—1. A machine-knife for cutting bevel-pointed nails, composed of two blades, being divided longitudinally at the intersection of the bevel which cuts the side of the point with the edge which forms the side of the nail, substantially as and for the purposes described.

2. The combination, in a machine for cutting nails, of a moving knife having a cutting-edge, one end of which is beveled inwardly and the other outwardly, said knife being composed of two blades, being divided longitudinally at the junction between the inward bevel and the cutting-edge, with a similarly-formed bed-knife, which is reversely arranged, so that the inwardly-beveled blades shall be opposed to the outward bevels on the other knives, substantially as and for the purposes described.

355,066. SANDPAPERING-MACHINE. Daniel Doncaster, Mechanicsville, N. Y. Filed Nov. 13, 1885. (No model.)

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Claim.—1. The combination, with a revolvable bottomless head having a flange around the inner side of its lower edge, of a vertically-adjustable disk within the head, and constructed to form, in connection with the said flange, a clamp, substantially as set forth.

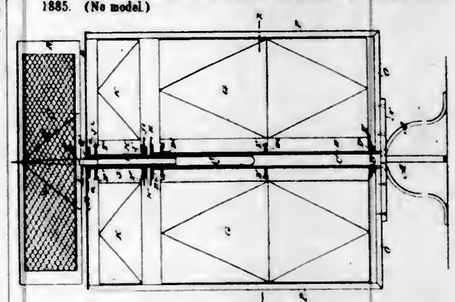
2. The combination, with a U-shaped frame or head, A, of the tube D, journaled in the same, a head for receiving sand-paper on the lower end of the tube, a clamping-disk in the said head, a rod passed through the said tube and connected with the disk, and of a screw-wheel in the upper end of the tube, with which screw-wheel the rod passed through the tube is connected, substantially as herein shown and described.

3. The combination, with the U-shaped head or frame A, having the slot L in its end piece, C, of a revolving tube or shaft in the said frame or head A, a sand-paper-holding head on the lower end of said shaft or tube, the lug M, projecting from the cross-piece N and pivoted in the slot L, and of the shaft O, on the end of which the cross-piece N is formed, substantially as herein shown and described.

4. The combination, with the head or frame A, of a revolving sand-paper-holding head on the said head A, the cross-piece N on the end of a shaft, O, the lug M, passed into the slot L in the end piece, C, of the frame A and pivoted in said slot, the adjusting-screws Q in the ends of the cross-piece N, and of shafting from which the shaft O is supported, substantially as herein shown and described.

5. The combination, with the head or frame A, of a revolving sand-paper-holding head on the said frame or head A, of the shaft O, on the end of which the frame or head A is held, and which shaft is provided at its opposite end with the slot or groove *g*, the socket R on the frame S, into which socket the end of the shaft O is passed, the spring-strip *m* on the socket R, and the pin *h* on the end of the spring-strip, which pin is passed into the groove *g* in the shaft O, substantially as herein shown and described.

355,067. EXHIBITOR FOR WALL-PAPERS, BORDERS, AND CEILING DECORATIONS. Llewellen A. Ely, Muir, Mich. Filed Sept. 11, 1885. (No model.)



Claim.—1. The combination, with the tubular standard C, of the tube D, surrounding it loosely and provided with collars, wire frames hung on the collars, the tube H, projecting upward from the upper end of the standard, the tube J, surrounding the tube H, and of wire frames hung on the tube J, substantially as herein shown and described.

2. The combination, with the standard C, of the tube D surrounding it, the frame G, hung on said tube D, the tube H, projecting upward from the upper end of the tubular standard C and having the collar H', the tube J, surrounding the tube H and resting on the collar H', and of frames K, hung on the tube J, substantially as herein shown and described.

3. The combination, with a standard, of a tube surrounding it, frames hung on the tube, a rod in a support in the top of the standard, and a frame held at an inclination on said rod, substantially as herein shown and described.

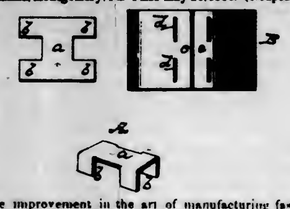
4. The combination, with a standard, of a tube surrounding it, frames hung on the tube, the rod L, held in a support in the top of the standard and having the notch L', the frame R, having its bottom edge passed into the said notch, and the rod T, for holding the frame at the desired inclination, substantially as herein shown and described.

5. The combination, with a standard and a series of swinging frames, of a horizontal mirror in front of the standard and vertical side mirrors at the ends of the horizontal mirror, the frames being adapted to swing between the two vertical mirrors, substantially as set forth.

6. The combination, with a standard, of a tube surrounding the same, frames hung on the tube, mirrors secured horizontally to the base of the standard, and of mirrors held vertically on the ends of the horizontal mirrors, substantially as herein shown and described.

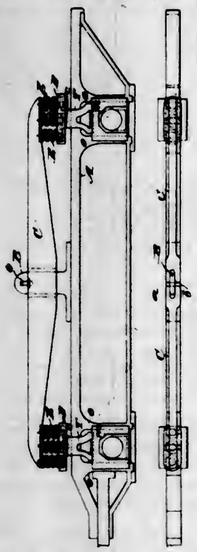
7. The combination, with the standard C, tube H, and rod L, of the tubes D J, the frames G K, hung on the said tubes, the frame R, held on the rod L, the mirrors O, held horizontally on the base of the standard C, the vertical mirrors P, the braces Q, and the ring Q', surrounding the tube H, substantially as herein shown and described.

355,068. MANUFACTURE OF LEATHER-LOOP FASTENINGS. Edward Fellheimer, Montgomery, Pa. Filed May 26, 1886. (No specimens.)



Claim.—The improvement in the art of manufacturing fasteners, which consists in striking out from a sheet of metal longitudinal strips having lateral prongs, forming a series of H-shaped blanks, as shown, then separating said strips transversely into single fasteners, and bending the prongs at right angles to the body of the same.

355,069. LOCOMOTIVE-SPRING. John R. Fish, Grand Rapids, Mich. Filed Mar. 16, 1886. (No model.)



Claim.—1. The combination, with the frame, the boxes, and the vertical bearing intermediate thereof, of the equalizing-bar mounted on the vertical bearing and extending at its opposite ends to a point in vertical alignment with the said boxes, bearings on the boxes, and springs resting at one end on the boxes and at their opposite ends on the ends of the equalizing-bar, substantially as set forth.

2. In a locomotive, the combination, with a frame provided with a vertical post, of an equalizing-bar provided with a central slot through which said post is passed, a key, *b*, springs E, seats D, saddles T, and boxes *m*, all substantially as described.

3. In a locomotive-driving spring device, the combination, with a frame provided with a vertical post, of an equalizing-bar centrally slotted to receive said post, and extending over two sets of springs E, that are mounted in seats D, that are free to rock on saddles T, arranged above bearing-boxes *m*, substantially as described.

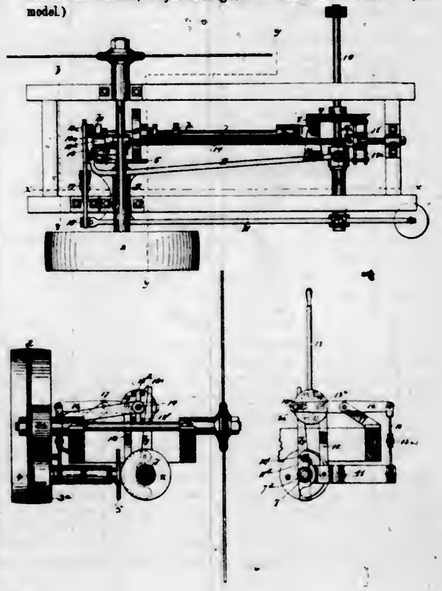
355,070. IMPALEMENT-TRAP FOR HOUSE-BREAKERS. Emery Fisher, Cordaville, Mass. Filed June 16, 1886. (No model.)



Claim.—1. The combination, with a window, of the vertically-moving slide formed with ratchet-teeth, the spring-catches connected with the window-frame to engage with said teeth, the rope connected with the slide and connected with the catch at its lower end, and the spring-actuated bar at the sill of the window, engaging with the catch connected to said rope, substantially as and for the purpose described.

2. The combination, with the window, of the vertically-moving slide, a catch connected with the slide and serving to hold it in an elevated position, and a bar located at the base of the window and operating on said catch to release it and permit the slide to fall, substantially as described.

355,071. FEED MECHANISM FOR SAW-MILLS. George Fink and Edgar Pennet, Waynesborough, Pa. Filed June 17, 1886. (No model.)



Claim.—1. The combination, with a shaft provided with a duplex driving-pulley, of the feed-shaft, a frame pivoted on the feed-shaft and having its free end extending on one side of the duplex pulley-shaft, and a shaft mounted on said frame parallel with the pulley-shaft and provided with a friction-pinion, substantially as described.

2. The combination, with a shaft provided with a duplex driving-pulley, of the feed-shaft, a frame pivoted on the feed-shaft and extending on one side of the duplex pulley-shaft, a shaft mounted on said pivoted frame parallel with the pulley-shaft, provided with a friction-pinion, and a shaft having a crank-and-link connection with the pivoted frame, substantially as described.

3. The combination, with a pivoted frame, of a shaft located above and parallel to one side of said frame, a crank, a link connecting said crank to one side of the pivoted frame and a crank on the opposite side of said shaft, and a compensating lever and link connecting said crank and the other side of said frame, substantially as described.

4. The combination, with the pivoted frame, of a shaft located above and parallel with one side of said frame, a crank-disk attached thereto and provided with crank-pins at opposite sides of the same, a link attached to one of said crank-pins and connected to the pivoted frame, and a lever connected with the other crank-pin and with the other side of the frame, substantially as described.

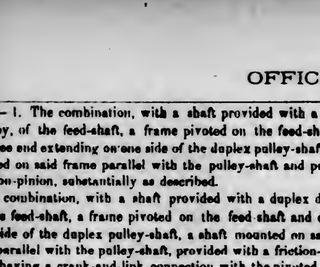
5. The combination, with the main shaft provided with a duplex driving-pulley, the feed-shaft, the frame, the pivoted frame having its free end extending to one side of the main shaft, a shaft parallel with the main shaft and mounted on the said pivoted frame, having a friction-pinion and friction-disk, of a shaft at right angles to the main shaft mounted on the pivoted frame and provided with a friction-wheel, and the bevel-wheels on the shaft at right angles to the main shaft and the feed-shaft, substantially as described.

6. The combination, with the feed-shaft and the main shaft having the duplex friction driving-pulley, of a pivoted frame having its free end extending on one side of the said main shaft, a shaft parallel with said main shaft mounted on said pivoted frame and provided with a friction-pinion and a friction-disk, a shaft mounted on the pivoted frame and having a movable friction-wheel at one end and operatively connected with the feed-shaft at the other, a rock-shaft having a crank-and-link connection with the pivoted frame, a cross-jointed hand-lever on said rock-shaft, and connected with the movable friction-wheel, substantially as described.

7. The combination of the feed-shaft and main shaft having the duplex friction driving-pulley, a frame hinged on the feed-shaft and having its free end extending on one side of the main shaft, a shaft parallel with the main shaft mounted on said hinged frame and having a friction-pinion and friction-disk, a shaft mounted on said hinged frame at right angles to the main shaft and having a friction-wheel at one end and operatively connected with the feed-shaft at its other end, and a rock-shaft having a crank-and-link connection with the hinged frame, having a vertical flange with two diametrically-opposite set-screws, the said shaft at right angles to the main shaft being mounted in movable bearings, one of which has a lever-arm extending into the path of the set-screws, substantially as described.

355,072. NECK-YOKE CENTER.

CYRUS R. FUREY, Logansport, Ind., assignor of one-half to J. M. Troutman and H. B. Taylor, same place. Filed May 19, 1886. (Model.)

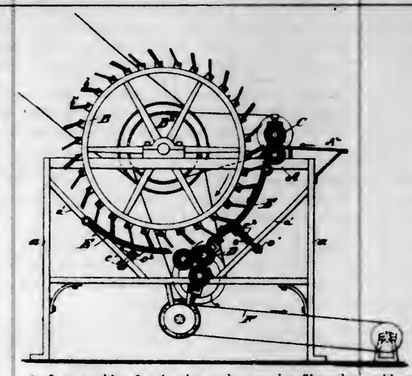


Claim.—The combination of the yoke A, the clamp B, provided with the two ears C, and the two lugs G, the bolt D, which passes through the ears, the two rings H, and the large ring I, the lugs G being formed in a line with the yoke, substantially as shown.

355,073. MACHINE FOR CLEANSING AND EXTRACTING FIBER.

JOSEPH GARCIA, New York, N. Y. Filed May 5, 1886. (No model.)

Claim.—1. In a machine for cleaning and extracting fiber, the combination, with feeding-rolls and one concave chute adapted to hold and support the plant while a portion of the same is being cleaned, and with removing-rolls and a second concave chute adapted to hold and support the plant while the remainder of the same is cleaned, of a revolving wheel provided with suitable tools and adapted, in connection with the chutes, for the purpose of cleaning the plant, substantially as set forth.



2. In a machine for cleaning and extracting fiber, the combination, with the wheel B, provided with tools, as set forth, of the feeding-rolls C and chutes E and E', substantially as described.

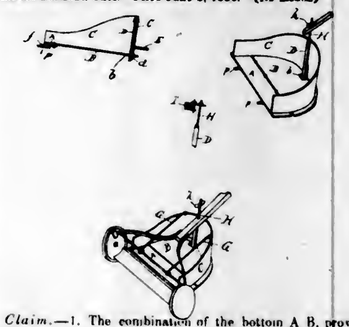
3. In a machine for cleaning and extracting fiber, the combination, with the wheel B, provided with tools, as set forth, of the removing-rolls D and chutes E and E', substantially as described.

4. In a machine for cleaning and extracting fiber, the combination, with the wheel B, provided with tools, as set forth, of the endless apron A^3, and of the removing-rolls D and chutes E and E', substantially as shown and described.

5. In a machine for cleaning and extracting fiber, the combination, with the wheel B, provided with tools, as set forth, of the feed-rolls C and the removing-rolls D and chutes E and E', substantially as and for the uses and purpose shown and described.

355,074. ATTACHMENT FOR LAWN-MOWERS.

JOHN GIVEN, Mount Lookout, Ohio. Filed June 3, 1886. (No model.)



Claim.—1. The combination of the bottom A B, provided with opening *b*, guard C, spring D, provided with hooked extremity *d*, stud E, and means for holding the attachment in place, substantially as and for the purposes set forth.

2. The combination of the bottom A B, provided with the opening *b*, guard C, spring D, provided with hooked extremity *d*, stud E, hooks F, and hooked rods G, substantially as and for the purposes set forth.

355,075. ROTARY SYSTEM OF STAGE SCENERY.

RODERICK G. GUPTILL, Chicago, Ill. Filed Mar. 9, 1886. (No model.)

Claim.—1. The bar K, having a channel formed in it, and the scene F, held in the channel, in combination with opposite rollers, on which the scene is wound, substantially as and for the purposes described.

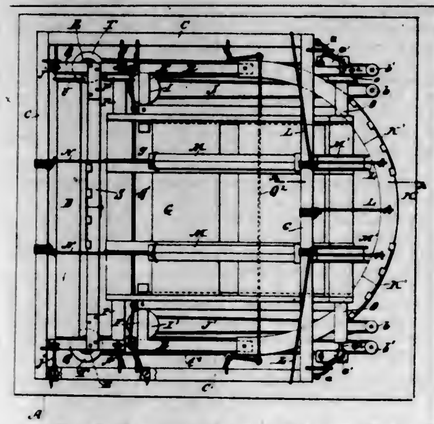
2. The combination, with the rollers O P, on which the canopy G is wound, of the bars M, formed with channels to receive and hold the cords *g* of the canopy.

3. The combination, with the rollers I I', channel-bar K, and scene F, of the pulleys *b* and belts J J', for revolving the rollers, substantially as and for the purposes set forth.

4. The combination, with stage scenery, of sectional rollers, on which the scene is wound, the sections being adapted to be separated for changing the length of the rollers, substantially as and for the purposes set forth.

5. The bars M, formed with channels and provided with the rings M^2, one arranged at each end, substantially as and for the purposes set forth.

6. The bar K, formed with a T-channel in its under surface and made in detachable sections, substantially as and for the purposes set forth.

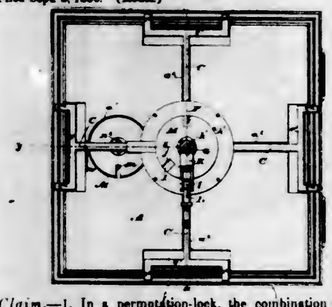


7. The roller O, provided at its ends with gudgeons e^2, in combination with the stay-blocks e', in which the gudgeons are journaled, and the stays e, for attaching the stay-blocks to a fixed part of the stage, substantially as described.

8. The doors H of the scene F, formed of slats h', and a flexible covering therefor, in combination with a pivoted frame at the back of the door to hold it in a flat state, substantially as described.

355,076. PERMUTATION-LOCK.

AUBLEN J. HALEY, Dallas, Tex. Filed Sept. 3, 1886. (Model.)



Claim.—1. In a permutation-lock, the combination of a rotary arbor, a spirally-ribbed disk carried by the arbor, a guard plate or disk in front of said ribbed disk, and the radial locking-bolts having pins or studs working in the channels of the disk formed by the ribs thereon, substantially as described, for the purpose set forth.

2. In a permutation-lock, the combination of a tubular rotary arbor, the spirally-ribbed disk carried by the said arbor, the endwise-moving bolts having the pins or studs actuated by said disk, the guard-plate arranged in front of the disk, the supplemental shaft or arbor extending through the tubular rotary arbor, the dog carried by one of the locking-bolts, and the tumblers carried by the said supplemental shaft, substantially as described, for the purpose set forth.

3 In a permutation-lock, the combination of a tubular rotary arbor, a spirally-ribbed disk carried thereby, the endwise-moving locking-bolts actuated by the said disk and having detents m', the main locking mechanism, substantially as described, and a slotted tumbler arranged at one side of the rotary disk and carried by an arbor, by which it is turned to adjust its slot in line with the detent m' on one of the locking-bolts, substantially as described.

4. In a permutation-lock, the combination of a tubular rotary arbor, a disk carried by the arbor and having the spirally-arranged ribs or flanges on its face, the protecting-disk arranged in front of the ribbed disk, the endwise-moving locking-bolts having the pins or studs which work in the channels formed by the spiral ribs, the supplemental shaft passing through the tubular arbor, the slotted tumblers carried by the supplemental shaft, the dog L, affixed to one of the locking-bolts, and a shaft arranged to one side of the rotary disk and having a slotted tumbler, N, that is adapted to be adjusted so that its slot is in line with a detent, m', on one of the locking-bolts, substantially as described.

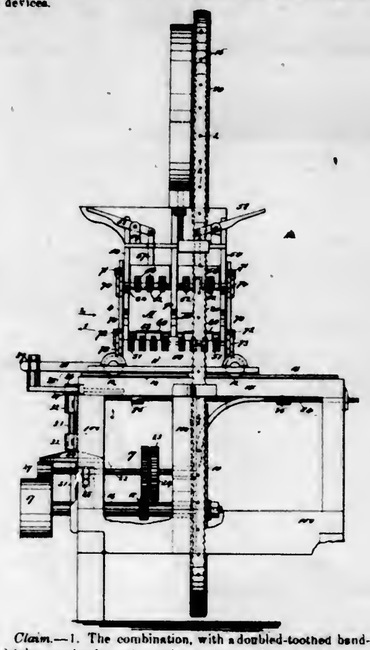
5. The combination of a supplemental shaft having the squared and threaded portions, the loose tumbler H, fitted on the shaft and having the adjustable pin h', the slotted rigid tumbler I, also fitted on the shaft and normally in contact with the loose tumbler, a spring bearing against the rigid tumbler, and a nut fitted on the threaded portion of the shaft and bearing against the spring, substantially as described.

6. In a permutation-lock, the combination of a rotary arbor having a ribbed disk, the endwise-moving bolts connected to the disk and actuated simultaneously thereby, a supplemental shaft, the slotted live and dead tumblers carried by the supplemental shaft, and a dog carried by one of the locking-bolts and adapted to enter the slots of the live and dead tumblers when they are in alignment, substantially as described.

355,077. SHINGLE-SAWING MACHINE.

FRANCIS M. HAMES and HORACE N. SIBLEY, Midway, La. Filed June 18, 1886. (No model.)

Brief.—Shingles are sawed on both movements of the carriage by a band-saw having teeth on both edges, the carriage having two sets of feed devices.



Claim.—1. The combination, with a doubled-toothed band-saw and its driving mechanism, of a reciprocating carriage carrying two sets of block-holders, two sets of set-works, and a mechanism, substantially as described, whereby one set of set-works is actuated to feed its block forward, while the block of the other set is operated upon by the saw, the same comprising levers with their lower ends actuated by oppositely-disposed cam-grooves, and which levers are each provided with pawls acting oppositely upon ratchets applied to the spur-roller shafts, substantially as described.

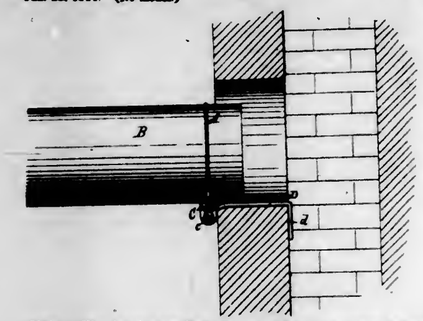
2. The combination, with a double-toothed band-saw and its driving mechanism, of a reciprocating carriage carrying two sets of spur-rollers and supporting-rollers and alternately-operating mechanism for rotating the spur-rollers, and mechanism for reciprocating the carriage, comprising a shaft carrying a disk engaging with the saw-driving mechanism, and the crank-arms connected to the said shaft and engaging a bracket of the reciprocating carriage, substantially as and for the purpose set forth.

3. The double-toothed band-saw, with its driving mechanism, the reciprocating carriage carrying two sets of spur-rollers and supporting-rollers, the shaft carrying a disk engaging with the saw-driving mechanism, and the crank-arms connected to the said shaft and engaging a bracket of the saw-carriage, in combination with levers with their lower ends provided with rollers and actuated by oppositely-disposed cam-grooves, and which levers are each provided with pawls acting oppositely upon ratchets applied to the shafts of the spur-rollers, substantially as and for the purpose set forth.

4. The combination, with a double-toothed band-saw and its driving mechanism, of a reciprocating carriage carrying two sets of spur-rollers, 51 and 52, and spring supporting-rollers 60, levers 70, pawls 71 and 72, and ratchet-wheels 73 and 74, that are carried by the shafts of the spur-rollers 51 and 52, cam-grooves 80, arranged in the paths of the lower ends of the levers 70, and formed upon the upper faces of the blocks 81, that are adjustably mounted on a shaft, 84, and a mechanism, substantially as described, whereby a reciprocating motion is imparted to the carriage, as and for the purpose specified.

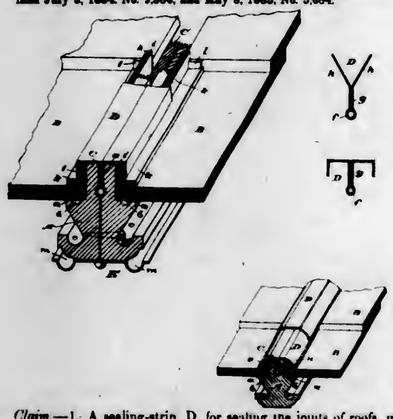
5. The combination, with a hand-saw and a reciprocating carriage carrying set-works, substantially as described, of a mechanism for imparting a reciprocating motion to the carriage, consisting, essentially, of a vertical shaft carrying a disk, 30, that is engaged by a friction roller or pulley, 29, crank-arms 38, and an adjusting-screw, 43, the crank-arms being provided with a roller, 39, that enters a groove formed in a bracket, 41, that is secured to the carriage, substantially as described.

355,078. STOVE-PIPE HOLDER. EDWIN HAYES, Kirklin, Ind. Filed Jan. 23, 1886. (No model.)



Claim.—The herein-described stove-pipe holder, consisting of the wire band A, the angle-plates C, having apertures *a*, to receive the ends of the wire band, the binding-screw *c*, and the hook D, formed with the eye *e* upon one side of the body thereof, to receive the binding-screw between the said angle plates, as specified.

355,079. GLAZED ROOF. THOS. W. HELLIWELL, Brighouse, County of York, England. Filed June 23, 1886. (No model.) Patented in England July 8, 1884, No. 9,836, and May 8, 1885, No. 5,684.



Claim.—1. A sealing-strip, D, for sealing the joints of roofs, made of soft or ductile metal, and consisting of a head or flange, *f*, a body, *g*, and two wings, *h h*, substantially as set forth.

2. A sealing-strip, D, for sealing the joints of roofs, made of a strip of soft or ductile metal, bent upon itself to form a head or flange, *f*, at its middle, a body portion, *g*, of two thicknesses, and two wings, *h h*, of one thickness, adapted to be bent away from each other and turned down, substantially as set forth.

3. In a roof, the combination, with the roofing-plates laid in courses, of a bar, A, between the courses, projecting above the edges of the plates, made in two pieces joined together, and having a groove, *e*, in its top, extending into the joint between said pieces, and enlarged at its bottom, and a sealing-strip, D, having a head or flange, *f*, fitting the enlargement in said groove, whereby the drawing out of the strip from the groove is prevented, substantially as set forth.

4. In a glazed roof, the combination, with the sheets of glass, of a glazing-bar, A, having ledges *a*, for supporting the edges of the glass, and a projection, C, extending up above the glass, and a sealing-strip, D, fixed to said projection, and having wings *h h*, to be turned down over said projection upon the glass, and angle-strips *k k*, inserted over the edges of the glass against said projection, substantially as set forth.

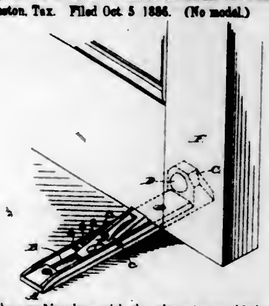
5. In a glazed roof, the combination, with the sheets of glass, of a glazing-bar, A, having ledges *a*, for supporting the edges of the glass, and a projection, C, extending up above the glass, a sealing-strip, D, fixed to said projection, and having wings *h h*, to be turned down over said projection upon the glass, and angle-strips *k k*, inserted over the edges of the glass against said projection, substantially as set forth.

6. In a glazed roof, the combination, with the sheets of glass, of a glazing-bar, A, having ledges *a*, for supporting the edges of the glass, and a projection, C, extending up above the glass, a sealing-strip, D, fixed to said projection, and having wings *h h*, to be turned down upon the glass, and a yielding packing placed against the edge of the glass and covered by said turned-down wings, substantially as set forth.

7. In a glazed roof, the combination, with the sheets of glass laid to overlap each other, of a glazing-bar, A, a sealing-strip, D, fitted thereto, and having wings *h h*, to be turned down upon the edges of the glass, and angle-strips *k k*, placed over the edges of the sheets, with their upper ends abutting against the overlapping edges of the sheets of glass above and fastened to the bar A, substantially as set forth, whereby the slipping down of the glass is prevented.

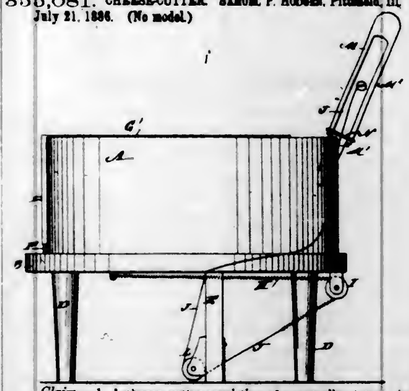
8. In a glazed roof, the combination, with the sheets of glass, of the glazing-bar A, having ledges *a a*, and one or more gutters formed on its sides, the sealing-strip D, fixed to the glazing-bar, and the strip E, having gutters *m m*, fastened beneath the glazing-bar, substantially as set forth.

355,080. DOOR-CHECK. WILLIAM A. HINKLE and FRANKLIN C. JEFFERY, Galveston, Tex. Filed Oct. 5, 1886. (No model.)



Claim.—The combination, with the plate A, provided with the longitudinal slot B, the oblique slots *b*, and the arm C, of the counterweighted latch E, provided with trunnions *c*, adapted to be received in the diagonal slots *b*, substantially as described.

355,081. CHEESE-CUTTER. SAMUEL P. HODGES, Pittsfield, Ill. Filed July 21, 1886. (No model.)



Claim.—1. A cheese-cutter consisting of a centrally-slotted platform, B, of a wire secured below the said platform, and of a knife attached to the said wire, substantially as shown and described.

2. In a cheese-cutter, the combination, with the platform B, having the central slot, C, of the cross-piece E, the wire J, attached to a spring, H, and passing over the pulley L, and the knife M, attached to the outer end of the said wire J, substantially as shown and described.

3. In a cheese-cutter, the combination, with the platform B, having the central slot, C, of the cross-piece E, the spring H, passing over the pulley I, the wire J, guided by the pulley L, and the knife M, attached to the outer end of the said wire J, substantially as shown and described.

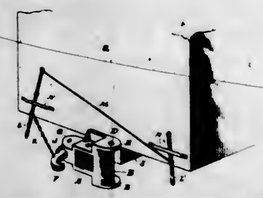
4. In a cheese-cutter, the combination, with the platform B, having the slot C, of the cross-piece E, the spring H, passing over the pulley I, the wire J, guided by pulley L, the knife M, attached to the outer end of the said wire J, and the adjustable angular gage G, mounted on the standard F, substantially as shown and described.

355,082. SEEDER. WILLIAM H. HOLCOMB, Coral, Mich. Filed Nov 2, 1886. (No model.)



Claim.—A seeder comprising the handles 10, the wheel 13, mounted between the converging ends of said handles and carrying the pulley 14, the hopper 30, having an aperture, 2, in its bottom, the disk below the hopper and having apertures adapted to register with the hopper-apertures, the transverse stirrer-shaft extending through the hopper and having a pulley, 34, the belt 33, connecting said pulley and the pulley 14, the bracket 28, secured to a cross-piece in front of the hopper, the vertically-adjustable furrow-opener having a shank, 28, extending up through the said bracket, the rear bracket, 22, the horizontal independent furrow-closers 25, converging toward their rear ends, and having separate shanks 24, extending up through said rear bracket and held by a single set-screw, 23, and the roller 35, all constructed and combined substantially as set forth.

355,088. CAR-COUPLING. HARRY C. HOERNER, Peoria, Ill., assignor of one-fourth to A. G. Tyng, Jr., and D. D. Hall, both of same place. Filed June 19, 1886. (No model.)



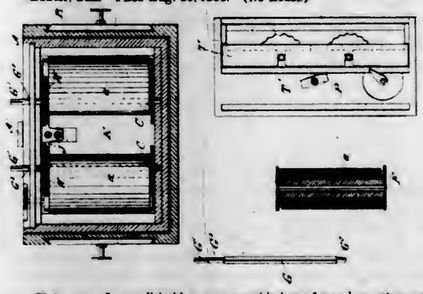
Claim.—1. In a car-coupling, the combination, with the three-part draw-head, of the inwardly-turned hook F, the spring therefor, the two levers, and the connections joining said levers and hook, for the purpose set forth.

2. In a car-coupling, the draw-head A, having the grooved shoulder B, the protecting-pin in said shoulder, and the engaging hook, as and for the purpose specified.

3. The three-part draw-head having the central aperture, A', the ears G, shoulder B, and the flanges E, with the pin-holes therein, in combination with the pin D, held at the edge of said shoulder, the hook F, pivoted between said ears, and the spring J, as and for the purpose described.

4. The three-part draw-head having the ears G, the abutment H, the flanges E, the grooved shoulder B, and the pin-holes in said flanges, in combination with the pin D in said groove and pin-holes, the hook F, pivoted between said ears, the spring J for said hook, the levers I, I', and connections joining said hook and levers, as described.

355,084. PHOTOGRAPHIC APPARATUS. DAVID H. HOUSTON, Hunter, Dak. Filed Aug. 29, 1885. (No model.)



Claim.—1. In a roll-holder, a removable bar of wood or other suitable material, T, said bar having notches T', which notches hold the top ends of the spool-shafts in place, substantially as herein shown and described.

2. In a roll-holder, the combination, with the frame M', having a top and bottom plate connected by the partitions E, of the removable spool-shafts G, which spool-shafts have fixed on them, just above their bottom pivot ends, toothed wheels H, upon which a spring-pawl, J, rests, and of hollow spools placed removably on said spool-shafts, the tops of which spool-shafts are held in place by the springs T², or any suitable latch, substantially as shown and described.

3. In a roll-holder, the combination of the spool-shafts G, the removable bar of wood T, having notches in the same, said notches engaging the upper ends of the spool-shafts and holding said upper ends of the spool-shafts in place, and removable hollow spools on the spool-shafts, substantially as shown and described, and for the purpose herein specified.

4. In a roll-holder, the combination, with the frame M', having a top and bottom plate connected by the partitions E, which frame fits in the light-tight box of the roll-holder, of the removable spool-shafts G, passed through removable hollow spools and removable toothed wheels on the spool-shafts, against which toothed wheels a spring-pawl, J, rests, and of the roller D, having bearings in the frame M, substantially as shown and described.

5. The combination, with a roll-holder, of a top plate having notches T', spindles having their upper ends placed in the notches, springs or latches secured on the top plate for holding the upper ends of the spindles in place, and spools on the spindles, substantially as herein shown and described.

6. The combination, with a roll-holder, of a box, A, the spindles G in the same, removable spools on the spindles, the back door, O', having a top flange, O², provided with small holes O³, and the latches P, for locking the door in place when shut, substantially as herein shown and described.

7. In a roll-holder, the combination, with the box A, of the spindles G, carrying rolls of sensitized paper, the rollers D, of which one has a pointer, R, and the hinged door O', having a top flange, O², provided with spindle-holes O³, through which key-ends of the spindles pass, substantially as herein shown and described.

8. The combination, with the box A, having a top plate, T, of the spindles G, having their upper ends held in notches in the top plate, T, spools carrying sensitized paper or film mounted on the spindles, and a door hinged to the top of the box A, and having an opening, E², through which the pointer on the roller D can show, and provided with apertures O³, through which the upper ends of the spindles can pass, substantially as herein shown and described.

9. The combination, with the box A, of the U-shaped brace W, secured on the upper surface of the bottom of the box, the partition E, secured to the upright parts of the braces, and the top plate, T, secured on the tops of the braces, substantially as herein shown and described.

10. In a roll-holder, the frame M', composed of a top and bottom plate connected by a partition and U-shaped braces, which frame fits in the light-tight box of the roll-holder and is removable therefrom, substantially as herein shown and described.

11. In a roll-holder, the combination, with the frame M', having a top and bottom plate connected by the partition E, of the removable spool-shafts G, passed through removable hollow spools, and removable toothed wheels H, upon which a spring-pawl, J, rests, substantially as shown and described.

355,085. SHARPENING MECHANISM FOR CLOTH-CUTTING MACHINES. PATRICK HOWE, Boston, Mass., assignor to I. Fenno, R. D. Goodwin, and C. M. Blake, same place, and A. K. Tolman, Newton, and H. G. Hartshorne, Wakefield, Mass. Filed Feb. 25, 1886. (No model.)

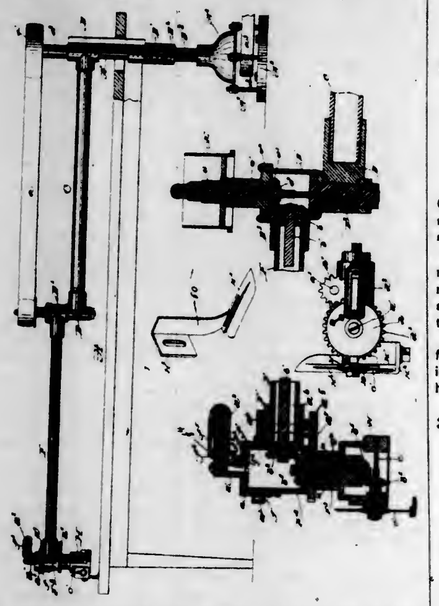


Claim.—1. The combination, with the head of a cloth-cutting machine provided with a disk-cutter, *b*, of a grinding or sharpening wheel, and means, substantially as set forth, to support the same in adjustable manner with relation to the said head and cutter, to operate substantially as described.

2. The head of a cloth-cutting machine provided with a rotary cutter, *b*, combined with two grinding or sharpening wheels, one located at each side of the said cutter, and with means, substantially as set forth, to adjust the shafts of the said grinding or sharpening wheels with relation to the said cutter, to operate substantially as described.

3. In a cloth-cutting machine, the head *a*, having a rotary cutter and provided with the stud 2, the rod 3, adjustable on the said stud, and the sleeve-bearing having a stud and means, substantially as set forth, to connect it adjustably with the rod 3, combined with a rotary grinding or sharpening wheel, its shaft, and the spring and cap to hold the outer end of the said spring, the combination being and operating substantially as described.

355,086. CLOTH-CUTTING MACHINE. Patrick Howe, Boston, Mass., assignor to I. Pearce, R. D. Goodwin, and C. M. Blake, same place, and A. K. Talman, Newton, and H. G. Hartshorne, Wakefield, Mass. Filed Mar. 18, 1886. (No model.)



Claim.—1. In a cloth-cutting machine, one or more swinging arms, a head-block and cutter carried by the arm, and a standard or upright carrying the said arms, combined with the vertically-adjustable plate to which the said upright is attached, substantially as described.

2. In a cloth-cutting machine, one or more swinging arms, a head-block and cutter carried by the arm, and the adjustable bracket to which one of the said arms is connected, combined with the standard or upright upon which the said bracket revolves, and the check-nut B^2, to operate substantially as described.

3. In a cloth-cutting machine, a shaft, a rotary cutter thereon, and one or more swinging arms and the standard or upright for carrying the same, combined with the shafts and gearing, substantially as described, turning within the swinging arms, for rotating the said cutter, all as set forth.

4. In a cloth-cutting machine, a swinging arm and cloth-cutting devices carried thereby, consisting of a head and an independently-movable head-block, the rotary cutter and its shaft, carried by said head-block, and rotating about an axis at right angles to the axis of the said cutter, and automatic means, substantially as described, for preventing rotation of the head-block, all substantially as described.

5. In a cloth-cutting machine, the arm F and attached head, combined with the independently-movable head-block and cutter carried by it, the cap *d*, and hand-piece and gearing, substantially as described, for manually rotating the said head-block, all as set forth.

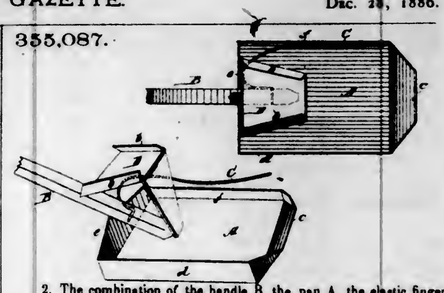
6. In a cloth-cutting machine, the head F^2, having ratchet-teeth f^2; the head-block H, carrying the shaft *c* and rotary cutter, and means, substantially as described, for rotating the shaft *c*, the cap *d*, and hand-piece for rotating the cap, and gearing, substantially as described, for rotating the head-block, and means, substantially as described, carried by the cap *d*, for automatically engaging the ratchet-teeth of the head when the hand-piece is released, all as set forth.

7. In a cloth-cutting machine, the head-block H, having the projection H', the shaft *c*, and rotary cutter *c'* thereon, combined with the shoe having the shank 50, as described, the ear or projection H^2, and the foot H^3, said shoe being attached directly to the projection H', to thereby serve as a shield for the cutter, all as and for the purpose set forth.

355,087. GRUB-CATCHER. Frank Hulse, Goshen, N. Y. Filed Oct. 21, 1886. (No model.)

Claim.—1. In a grub-catcher, the combination, with the pan A, adapted to slide on and over the ground, of the elastic finger C, secured in its rear and arranged to incline laterally in a forward direction over the one side of the pan, substantially as specified.

355,087.

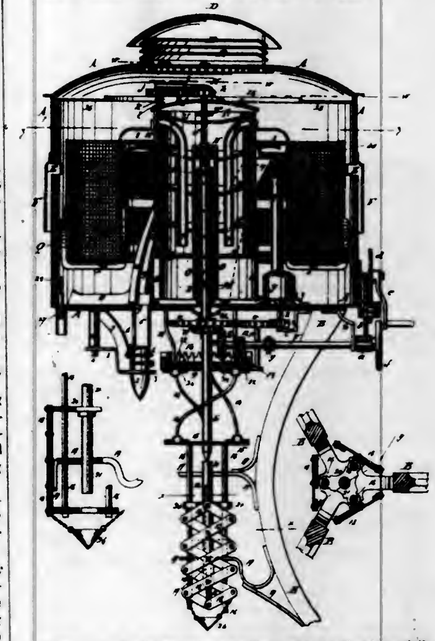


2. The combination of the handle B, the pan A, the elastic finger C, secured in its rear and arranged to incline laterally in a forward direction over the one side of the pan, and the lantern-stand D, essentially as described.

3. In a grub-catcher, the pan A, having its front *c* turned up and narrowed, and one side, *f*, of lesser height than its opposite side, *d*, and rear *e*, in combination with the elastic finger C, secured in its rear and arranged to incline laterally in a forward direction over the one side of the pan, substantially as specified.

4. In combination with the pan A, the lantern-stand D, of tapering form on its upper surface, and having its sides *b b* turned upward and inward to clamp the lamp in position, essentially as and for the purpose herein set forth.

355,088. CENTRIFUGAL DISH-WASHER. Allen G. Ingalls, Granby, Quebec, Canada. Filed Feb. 2, 1886. (No model.)



Claim.—1. A dish-washing machine constructed substantially as herein shown and described, and consisting of a dish-water tank, a rotary rinsing-water basket having transverse partitions and discharge-pipes, a basket to receive the dishes, pumps to discharge water over the dishes, lamp-heated flues, and an operating mechanism, as set forth.

2. In a dish-washing machine, the combination, with the tank A, having flanges 11, the heating-flues 7, having flanges 10, the basket G, having flanges P Q R, the main shaft L, and a driving mechanism, of the upright bars H, the curved wings O, and the cap-tube N, carrying the said wings and attached to the said shaft, substantially as herein shown and described, whereby the dish-receiving basket will be rotated and currents of water will be directed against the dishes as they are carried around by the said basket, as set forth.

3. In a dish-washing machine, the combination, with the tank A, the rotary dish-receiving basket G, and a driving mechanism, of the pump-shafts *s*, the guard-tubes *u*, the cap-tubes *w*, having spiral flanges *x*, and the casings *y*, having discharge-nozzles *l* at their upper ends, substantially as herein shown and described, whereby water will be discharged over the dishes as they are carried around in the said basket, as set forth.

4. In a dish-washing machine, the combination, with the tank A, provided with an internally-toothed stationary gear-wheel *m*, at its top, the rotary basket G, and the main shaft L, of the bucket S, having transverse partitions U and discharge-pipes V, the spindle J, journaled to the said main shaft L, and the gear-wheels H *i j*, carried by the spider attached to the upright bars carrying the basket, substantially as herein shown and described, whereby the said bucket will be rotated to discharge its water by the revolution of the said basket and main shaft, as set forth.

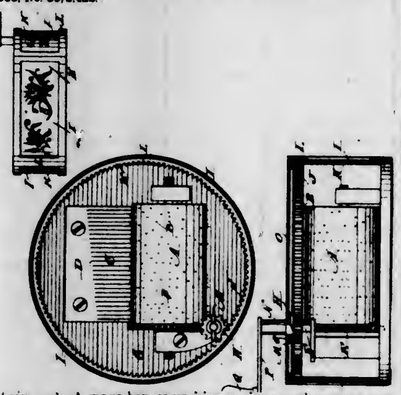
5. In a dish-washing machine, the combination, with the tank A, the rotary basket G, carrying the dishes, and the bucket S, carrying the rinsing-water, of the annular perforated plate 25, attached to the said tank, substantially as herein shown and described, whereby the water discharged from the said bucket will be distributed over the dishes, as set forth.

6. In a dish-washing machine, the combination, with the tank A and the bucket S, of the spiral flues 7, the cap-plate 8, the lamp-flues 5 the lamps 2, and a supporting mechanism, substantially as herein shown and described, whereby the water in the said tank and bucket is heated and kept hot, as set forth.

7. In a dish-washing machine, the heating-flues 5 7, made, substantially as herein shown and described, with shoulders 9 and with their upper parts spiral, whereby any water that may spatter into the said flues will be vaporized before it can reach the lamps, as set forth.

8. In a dish-washing machine, the combination, with the main shaft L and the drive-shaft Y, of the gear-wheels 12 13, the plate *q*, the spirally-bent pivoted bars 14, the plate 15, pivoted to the said bars, the vertical rods 16, attached to the said plate, the lazy-tongs 18, the fulcrum-bracket 19, and the step 21, substantially as herein shown and described, whereby the shaft, basket, and bucket can be readily raised or lowered and the pumps thrown into and out of gear, as set forth.

355,089. PICTURE-EXHIBITING MUSICAL BOX. Charles E. Jullerat, New York, N. Y. Filed May 22, 1885. (Model.) Patented in France July 11, 1885, No. 170,063; in Germany July 14, 1885, No. 34,536; in England July 15, 1885, No. 8,591, and in Austria-Hungary Dec. 14, 1885, No. 35/2,422.



Claim.—1. A music-box comprising an inner and an outer concentric casing, the latter being apertured, the tone-producing mechanism within the inner casing, and mechanism operated from the tone-producing mechanism for rotating one casing with respect to the other, substantially as set forth.

2. A music-box comprising an inner rotary casing, an outer concentric relatively fixed casing provided with apertures, a tone-producing mechanism within the inner casing, and gearing connecting the tone-producing mechanism and the inner casing for operating the latter, substantially as set forth.

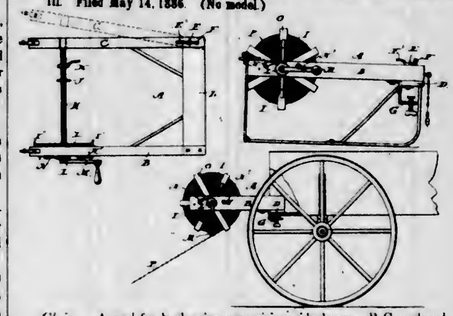
3. In a music-box having an apertured casing, a rigid circular piece or ring, on which pictures or other representations are produced, held to be revolved within said casing from the operating mechanism of the tone-producing device, substantially as specified.

4. As an improved article of manufacture, a circular music-box having apertures in its periphery, and provided with a circular piece or ring concentric with the peripheral shell of said casing, and on which ring pictures are produced, and with a mechanism for revolving said picture-carrying ring in conjunction with the operation of tone-producing devices, substantially as shown and described.

5. In a musical box, the combination, with a circular casing having openings, of a ring in the casing, a rack on the ring, and a pinion or cog-wheel on the spindle for operating the drum carrying the pins for operating the teeth of the comb, which pinion or cog-wheel engages with the teeth of the circular rack on the ring, substantially as herein shown and described.

6. In a musical box, the combination, with a circular box having openings, of a ring in the casing, a rack on the ring, a spindle for revolving the cylinder, a pinion on the spindle, which pinion has a spline, and a key, the lower end of which engages with the spline on the pinion, substantially as herein shown and described.

355,090. REEL FOR BARBED WIRE. Matthias Kampf, Minier, Ill. Filed May 14, 1886. (No model.)

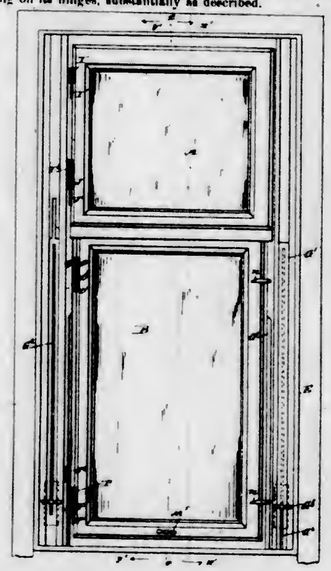


Claim.—A reel for barb-wire comprising side beams, B C, and end beam, D, having a clamp, G, on the under face, the beam C being pivotally connected to the beam D to swing laterally, bearings in the free ends of the side beams, the shaft H journaled at one end in the beam B and having its opposite end resting in the bearing in beam C, the arms I, the washer J and nut K on the shaft, whereby the reel may readily be secured to a vehicle, and a spool placed on the shaft without removing it, substantially as set forth.

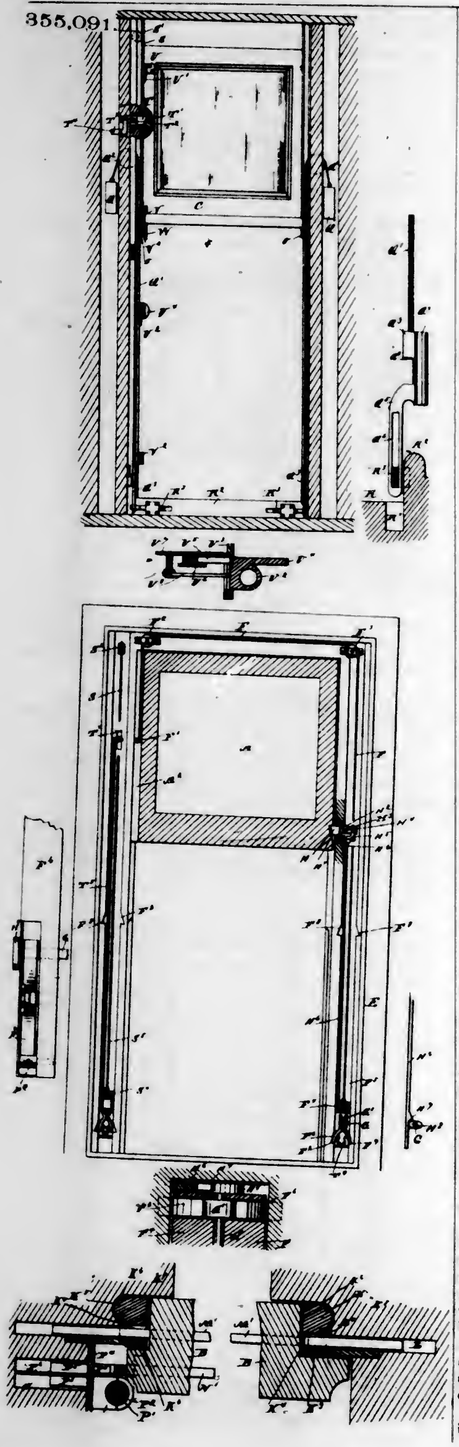
355,091. CONSTRUCTION OF SASH-WINDOWS. Václav Klan and Rudolf Seitz, Prague, Bohemia, Austria-Hungary. Filed July 3, 1885. (No model.)

Claim.—1. The combination, with a vertically-sliding sash, of hinges on which the sash can swing and of detachable sash-cord fasteners by which the cords are held on the sash, substantially as herein shown and described.

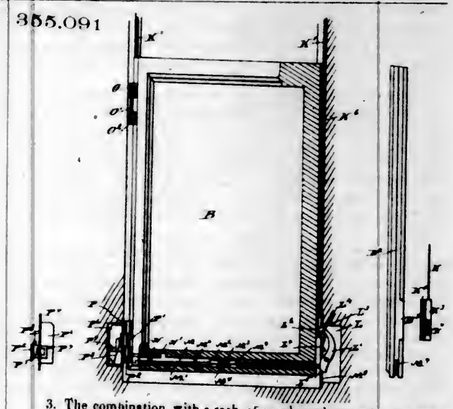
2. The combination, with a vertically-sliding sash, of hinges on which the sash can swing, a sash-cord fastener detachably held on the sash, and means for disengaging the fastener and holding the same when the sash is swung on its hinges, substantially as described.



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3. The combination, with a sash, of a sash-cord secured to the same, a weight secured to the sash-cord, and a handle-piece for raising or lowering the weight, substantially as herein shown and described.

4. A sash-weight provided with catches for locking it in place, substantially as herein shown and described.

5. A sash-weight provided with a handle for lifting it, substantially as herein shown and described.

6. A sash-weight provided with a handle and locking devices operated by the handle, substantially as herein shown and described.

7. A sash-weight provided with a handle, crossed locking-levers pivoted on the weight and acted upon by a spring, and a cam-piece on the handle, which cam-piece acts on the levers, substantially as herein shown and described.

8. The combination, with a sash, of a cord secured to the same, a weight on the sash-cord, a handle-piece on the weight, which handle-piece is provided with cams, a rod acted upon by one of the said cams, and a latch for locking the sash in place, on which latch the said rod acts, substantially as herein shown and described.

9. The combination, with a window-frame, of a vertically-sliding sash, two hinge-plates on said sash, which hinge-plates are provided with hinge-pins, a fixed socket secured on the window-frame and serving to receive the lower hinge-pin, and a socket mounted to slide on a rod on the window-frame and serving to receive the upper hinge-pin, which sliding socket is above the lower hinge-plate of the sash, substantially as herein shown and described.

10. The combination, with a sliding sash, of blocks resting loosely in notches in the side edges of the same, sash-cords secured to said blocks and passing over pulleys, and weights on said sash cords, substantially as herein shown and described.

11. The combination, with a vertically-sliding sash, of blocks in notches in the side edges of said sash, which blocks have slots, cords secured to the blocks and passed over pulleys, weights on said cords, and pivoted hooks in the window-frame for the purpose of holding the said blocks to which the sash-cords are fastened, substantially as herein shown and described.

12. The combination, with a vertically-sliding sash, of blocks held in notches in the side edges of the same, sash-cords secured to the blocks, weights secured to the sash-cords, hook-levers pivoted in recesses in the window-frame, and sliding bolts held in the bottom cross-piece of the sash and connected with the cross-piece of a handle, substantially as herein shown and described.

13. The combination, with a vertically-sliding sash, of blocks in notches in the side edges of the sash, cords secured to said blocks, weights on the ends of the cords, hook-levers pivoted in the window-frame and serving to hold said blocks in a lowered position, hinge-plates provided with pins on the sash, sockets on the window-frame, and a movable half-socket above the lower socket on the window-frame, substantially as herein shown and described.

14. The combination, with a vertically-sliding sash, of blocks held in notches in the side edges of the same, cords secured to said blocks, sash-weights secured to the cords, hook-levers pivoted in the window-frame for holding the blocks in the lowered position, sliding bolts in the bottom cross-piece of the sash, hinge-plates on the sash, pins on the hinge-plates, sockets secured on the window-frame for receiving the hinge-pins, a half-socket above the bottom socket on the window-frame, which half-socket is mounted to slide through the side of the frame, and of a bolt connected with one of the bolts in the bottom of the sash and serving to press back the half-socket, substantially as herein shown and described.

15. The combination, with a sliding sash, of blocks held in notches in the side edges of the same, sash-cords secured to the blocks, weights secured on the sash-cords, hook-levers in notches in the window-frame for holding the said blocks when lowered, bolts in the bottom cross-piece of the sash, hinge-plates on the sashes, hinge-pins projecting downward from the hinge-plates, sockets on the window-frame, a movable half-socket above the lower socket on the window-frame, which half-socket can be passed through the side of the frame, a cam-piece connected with the half-socket, and a bolt connected with the bolts in the bottom cross-piece of the sash and serving to act on the cam connected with the sliding half-socket, substantially as herein shown and described.

16. The combination, with a sash, of blocks held loosely in notches in the side edges of the same, with which blocks the sash-cords are connected, hook-levers pivoted in the window-frame, and sliding bolts in the bottom cross-piece of the sash, which sliding bolts can act on the lower ends of said hook-levers and engage the upper ends with the blocks on the sash, substantially as herein shown and described.

17. The combination, with a sash having notches in the side edges, of blocks in said notches, which blocks are provided with slots, sash-cords secured on the blocks, weights secured to the sash-cords, the plates L^4, secured in the sides of the window-frame, and provided with slots L^5, L^6, and M^5, the hook-levers L', pivoted in recesses behind said plates, and the sliding bolts M' in the bottom cross-piece of the sash, which bolts serve to act on the hook-levers L', and also to pass into the apertures M^5, and thus lock the sash in place when lowered, substantially as herein shown and described.

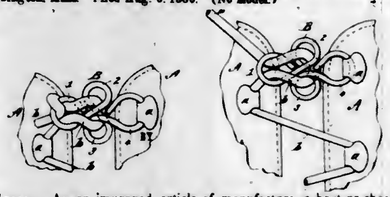
18. In a window, the combination, with a lower inner and upper inner and an outer lower and outer upper sash, of weights mounted to slide in the sides of the window-casing, one of said weights being connected with the upper inner sash and the other weight with the upper outer sash, and of sash-cords secured to weights in the casing, which sash-cords have their other ends fastened to blocks held detachably on the sides of the outer and inner lower sashes, and of hinges for swinging the several sashes, substantially as herein shown and described.

19. The combination, with an inner upper and lower sash and an outer upper and lower sash, of hinge-plates on the several sashes, which plates are provided with hinge-pins, fixed hinge-sockets on the lower sashes, and of fixed and movable hinge-sockets on the upper sashes, substantially as herein shown and described.

20. The combination, with a window-frame having a vertical slot in each upright side piece, of a weight sliding in the box behind the slot, a handle projecting from the weight through the slot, and a slotted sliding plate in a groove on the slotted side of the box, which sliding plate serves to cover the slot in the box, substantially as herein shown and described.

21. The combination, with a window-frame, of upper and lower outer and upper and lower inner sashes mounted to slide and to swing on hinges, handles secured to the weights of both upper sashes, locking devices for locking both upper sashes, which locking devices are operated by the handles on the weights, sliding bolts in the bottom cross-pieces of the lower sashes, and handles for operating said bolts in the botrom cross-piece of the lower sashes, substantially as herein shown and described.

355,092. SHOE-FASTENER. SAMUEL S. KNAPP and ELLIOT BROWNE, Abington, Mass. Filed Aug. 6, 1886. (No model.)



Claim.—As an improved article of manufacture, a boot or shoe fastener consisting of a wire bent in opposite directions at each side of its center to form the two side rings, 2 and 3, the two parts of the wire crossing the central point thereof on the same side and being then bent to form the one large end ring 1, and the other yet larger and slightly-elongated end ring 4, all arranged approximately in the same plane, substantially as described, whereby the said fastener is adapted to receive a shoe-lace through the side loops therein and one end loop, and to engage a stud upon a boot or shoe with the remaining end loop, as set forth.

355,093. WATCH-REGULATOR. JULES C. LEVASSEUR, Milianah, Algeria. Filed Aug. 19, 1885. (No model.) Patented in France Oct. 13, 1884, No. 164,579.

Claim.—1. In a watch, the combination, with the hand-arbor mechanism and the balance-regulator, of gearing connecting the regulator with the hand-arbor, endless chain or belt mechanism interposed in the said gearing, and means for tightening the belt or chain for adjusting the regulator coincidently with the hands, substantially as specified.

355,093.

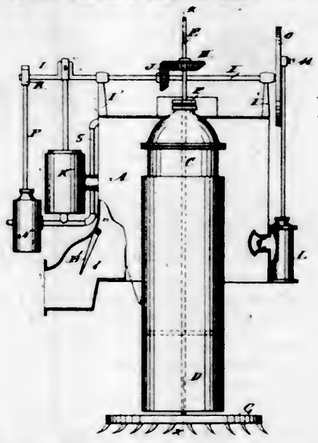


2. In a watch, the combination, with the regulator, of a segmental rack or gear-wheel on the same, a pinion in gear with said rack or gear wheel, a shaft carrying the pinion, a second pinion on said shaft, a second rack in gear with the latter pinion, and an index or pointer turned by the latter rack and registering with a scale on the watch-dial, substantially as shown and described.

3. In a watch, the combination, with the case and the balance-regulator, of an exteriorly-adjustable stem connected with the same, a sliding operating-head on the stem, a spring connected with the sliding head, and a sliding button acting on the spring and arranged to cover the head, substantially as shown and described.

4. In a watch, the combination, with the case, the balance-regulator, and the minute-hand arbor, of gearing connecting the same with the regulator, pulleys, and an endless chain or belt interposed in said gearing, and a pivoted lever carrying a friction-disk for tightening the belt and provided with a push-piece for operating it, substantially as shown and described.

355,094. PNEUMATIC DREDGING-MACHINE. WILLIAM P. LEWIS, Oroville, Cal. Filed Feb. 24, 1886. (No model.)



Claim.—1. In a pneumatic dredger, the combination, with a vacuum-chamber having induction and eduction ports, of a suction-chamber formed by adjustably-connected cylinders, an agitator mounted on a vertical shaft which extends upward through the suction-chamber, and an operating mechanism, substantially as described.

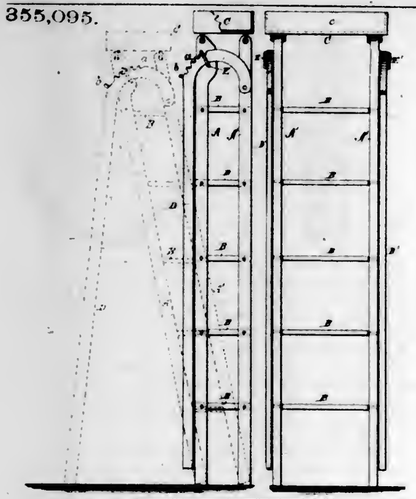
2. In a pneumatic dredger, the combination, with a vacuum-chamber having induction and eduction ports, of a suction-chamber formed by adjustably-connected cylinders C and D, an agitator, G, carried by a vertical shaft, E, which passes upward through the suction-chamber, extending outward through a packing-box, F, a shaft, I, gears H and J, steam-chest N, pump L, and a driving-engine, substantially as described.

355,095. STEP-LADDER. QUINTIN MACNIDER, Belleville, Ontario, Canada. Filed Sept. 13, 1886. (No model.)

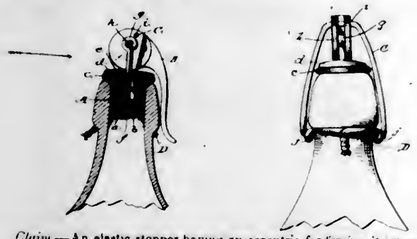
Claim.—1. In a step-ladder, the combination of the steps B, the side bars, A A', pivoted to the ends of the steps, near the front and rear edges, the legs D, provided with curved upper ends pivoted to the front side bars, A', and the staples E, attached to the rear bar, A, and receiving the curved ends of the legs, substantially as described.

2. The combination of the steps B, the side bars, A A', pivoted to the steps, near their front and rear edges, the legs D, having curved and serrated ends, and the staples E, attached to the rear bars, A, and adapted to engage the serrations of the legs D, substantially as described

355,095.



355,096. BOTTLE-STOPPER. THEODORE G. MAIER, Camden, N. J. Filed May 10, 1886. (No model.)



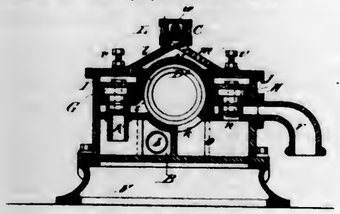
Claim.—An elastic stopper having an eccentric for forcing it into a bottle-neck, means for attaching the eccentric, and a wire connected to said eccentric at one side of its pivotal point and passed through and connected to the lower end of the bottle-stopper, substantially as set forth.

355,097. WATER OR OTHER ENGINE. PARKER F. MOREY, Portland, Oreg. Filed Sept. 20, 1886. (No model.)

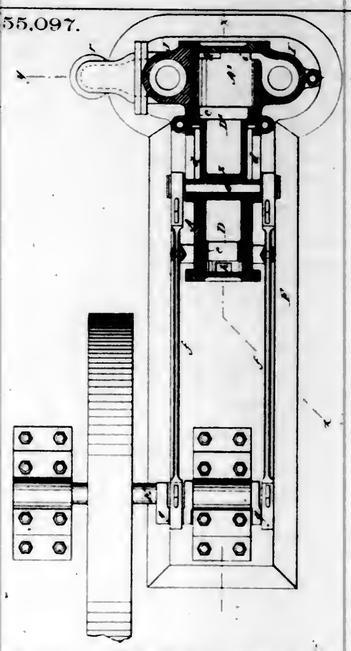
Claim.—1. The combination of the differential engine-piston, the differential engine-cylinder, and automatic differential pressure-valves controlling the supply and discharge of the propelling agent to and from the engine, essentially as specified.

2. The combination of the water or fluid receiver or supply-chamber B, the differential cylinder A A', in free communication at its smaller end with said receiver, the differential inlet and outlet pressure-valves G H, adapted to control the supply and exhaust at the larger end of the cylinder, the auxiliary valve-chest C, provided with a fluid-supply inlet, and the mechanically-operated auxiliary valve L, adapted to control the operation of the differential valves, substantially as described.

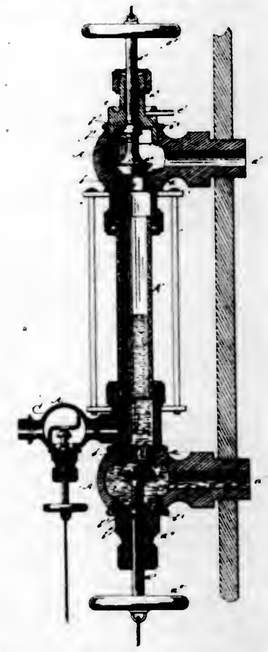
3. The combination of the propelling fluid-receiver or supply-chamber B, the differential cylinder A A', in free communication at its smaller end with said receiver and having longitudinal side slots, *d d*, and inlet and outlet passages *i k* at its larger end, the differential pressure-valves G H, controlling said passages *i k*, a valve controlling said differential valves, and the differential piston D D', provided with a cross-head pin or piece, *e*, arranged to project through the slots *d d* in the cylinder, substantially as and for the purposes herein set forth.



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355,098. WATER GAGE VALVE. JOHN L. NELSON and ANDREW F. LAUDERHOLM, Chicago, Ill. Filed Sept. 30, 1885. (No model.)



Claim.—1. In a steam and water gage, a shell having a valve-seat and throat formed therein, in combination with a sliding-stem valve provided with a cylindrical plug on its face projecting into said throat, leaving only a narrow annular free space for the passage of the fluid, substantially as and for the purpose set forth.

2. The combination, with a valve-shell, of a sliding-stem valve having its stem provided with an adjustable collar seating against said shell when the valve is open, whereby the throw of the valve is adjusted as desired, substantially as and for the purpose set forth.

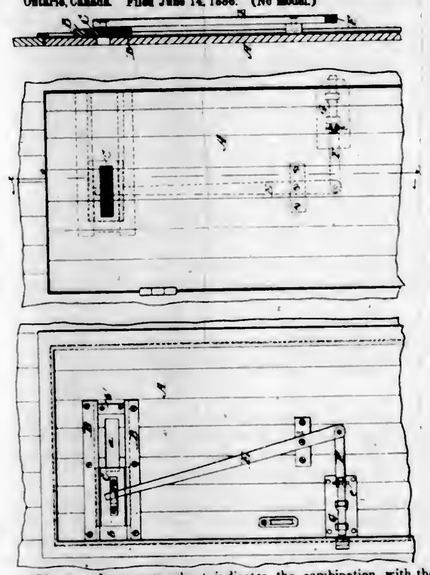
3. A valve-shell formed with a groove around it below its stuffing-box to receive the drip from steam leaking around the valve-stem, substantially as shown and described.

4. In a steam or water gage, the combination, with the glass gage-tube and the valves at either end, of a drip-receptacle formed in the upper valve-shell and a spout connected therewith to conduct the drippings away from the tube, substantially as and for the purpose set forth.

5. The valve-shell A, formed with a seat, *a*, and provided with a stuffing-box, in combination with the valve a^3, having a stem, a^3, sliding in said box, the thread b^3, and adjustable collar b' thereon, substantially as and for the purpose set forth.

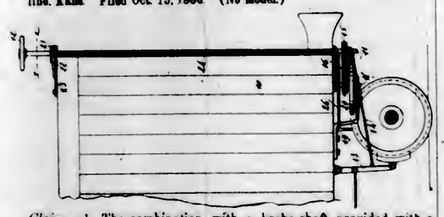
6. The combination, with the valve-shell A and its stuffing-box, provided with a soft-metal packing-surface, b^4, of the sliding valve-stem a^3, provided with the adjustable collar b', substantially as and for the purpose set forth.

355,099. WATER-CLOSET INDICATOR. JOSEPH H. POTTS, Toronto, Ontario, Canada. Filed June 14, 1886. (No model.)



Claim.—In a water-closet indicator, the combination, with the door A, provided with an upper central aperture, *a*, ways B B, arranged above and below said aperture, and stops *b b'* at the ends thereof, of the sliding indicator C, bearing an inscription upon its face indicating occupancy, the yoke D, attached to said indicator, the lever E, adapted to engage said yoke, and the connecting-rod F, pivoted to said lever at one end and to the door-bolt at the other, substantially as shown and described, whereby the said aperture is covered by the indicator simultaneously with locking the door, and uncovered when the door is unlocked, as set forth.

355,100. CAR-BRAKE ATTACHMENT. REUBEN QUATERMASS, Moline, Kans. Filed Oct. 15, 1886. (No model.)

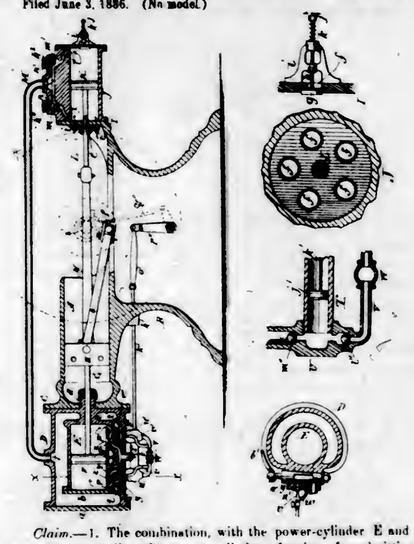


Claim.—1. The combination, with a brake-shaft provided with a ratchet-wheel and a pawl engaging the ratchet-wheel, of a short shaft beneath the car-body, intermediate mechanism between the short shaft beneath the car-body and the brake-shaft, and means for operating the short shaft and disengaging the pawl from the ratchet-wheel on the brake-shaft, substantially as herein shown and described.

2. The combination, with a brake-shaft, of a shaft, 18, located beneath the body of the car, sprocket-wheels 15 and 17, carried by the brake-shaft and the shaft 18, respectively, a chain, 16, running in connection with said sprocket-wheels, and a hand-wheel carried by the shaft 18, substantially as described.

3. The combination, with a brake-shaft and its ratchet-wheel, of a rod formed with a handle, 26, and carrying a pawl, 22, and a spring, 23, arranged in connection with the pawl, substantially as described.

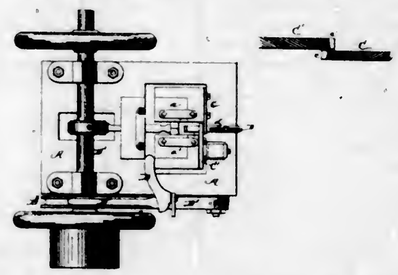
355,101. GAS-ENGINE. NORMAN B. RANDALL, Philadelphia, Pa. Filed June 3, 1886. (No model.)



Claim.—1. The combination, with the power-cylinder E and air-jacket D, surrounding the power-cylinder, of valves for admitting air from the air-jacket to opposite ends of the power-cylinder in alternation, the gas-compressor T, forcing gas under pressure into opposite ends of the power-cylinder in alternation, and means, substantially as herein shown and described, for igniting the explosive charge contained by the power-cylinder and releasing the products of combustion.

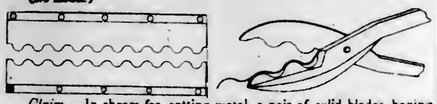
2. The combination of the power-cylinder E, provided with the piston F, the air-jacket D, surrounding the power-cylinder, the valves *y y'*, provided with spindles *a' a''* and arms *b' b''*, the cams *c' c''*, the lay-shaft S, carrying the cams and receiving motion from the crank-shaft, the gas-compressor T, link *o'*, angled lever *p''*, connecting-rod *q''*, eccentric-strap *r'*, and eccentric *s'*, the air-compressor J, provided with the piston K, and valves *g h''* h^3, the igniting-ports *u u'*, and the mechanism connecting the moving parts of the engine, substantially as herein shown and described

355,102. BOLT-MACHINE. ALBERT W. ROSE, South Chicago, assignor to James Hogg, Chicago, Ill. Filed Dec. 15, 1885. (No model.)



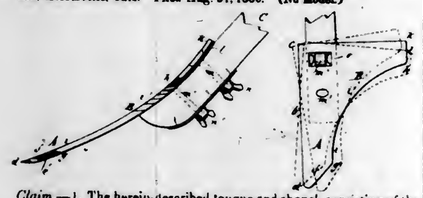
Claim.—The stationary die-plate *a* and oscillating plate *a'*, in combination with the cutting-blades C C', having beveled notches *c c'* in their ends, and the gage D, adjustable on the main frame, all constructed and arranged to operate substantially as and for the purpose set forth.

355,103. SHEARS. LONGLEY L. SAGENDORPH, Cincinnati, Ohio, assignor of one-half to Harlan P. Lloyd, same place. Filed Oct. 25, 1886. (No model.)



Claim.—In shears for cutting metal, a pair of solid blades having their edges corrugated, substantially as and for the purposes specified.

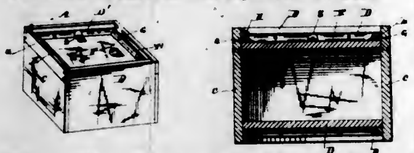
355,104. CULTIVATOR TONGUE AND SHOVEL. JAMES M. SANDERS, Morrisville, Ohio. Filed Aug. 31, 1886. (No model.)



Claim.—1. The herein-described tongue and shovel, consisting of the apertured and slotted blade A B, having the straight beveled edge *b*, an opposite partly straight and curved beveled edge, i i', terminating in an upper blunt edge, *l*, and the lower inclined and beveled front end edge, *f*, substantially as specified.

2. The combination, with the standard C and bolts *m m'*, of the blade A B, adapted to swivel or turn upon the bolt *m*, and having a transverse slot, *o*, adapted to receive the bolt *m'*, and constructed with a straight beveled edge, *b*, an opposite partly straight and curved beveled edge, i i', terminating in an upper blunt edge, *l*, and the lower inclined and beveled front edge, *f*, essentially as shown and described, and for the purposes herein set forth.

355,105. PACKING-CASE. GEORGE F. SCHOBERLEIN and JOHN A. SCHOBERLEIN, Jr., Aurora, Ill. Filed Aug. 9, 1886. (No model.)



Claim.—1. The packing-case having the sliding lid fitted between its side walls, and the end walls having the grooves or kerfs made therein to partly sever the sections G from the said end walls, the said sections bearing against the ends of the lid to retain the latter in place, substantially as described.

2. A packing-case having sides provided with ledges or shoulders, the sliding lid F, bearing under the said ledges or shoulders and supported against the same when the case is partially or entirely empty, and thereby prevented from dropping down into the case, and the removable sections G on the end walls of the case, to bear against the ends of the sliding lid, for the purpose set forth, substantially as described.

355,106. WHEEL-CULTIVATOR. JOSEPH C. SCHWALLER, Halbur, Iowa. Filed Sept. 8, 1886. (No model.)

Claim.—1. In a cultivator, a pivoted yoke pivoted below the axle and to which the gang-bar is attached, combined with the main frame and an axle-frame, the latter connected to the yoke and the main frame connected to the axle-frame at a point in front of the axle, whereby the weight of the main frame serves to exert a downward pressure upon the gang, substantially as described.

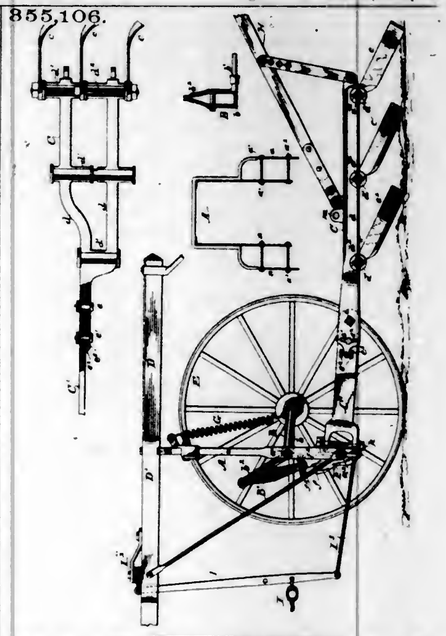
2. The axle-frame B, formed with an arm, b^2, and pivotally connected to the main frame A, and also connected to the yoke F, pivoted in the main frame, in combination with gang-bar C, connected to the yoke, substantially as and for the purposes set forth.

3. In a cultivator, the axle-frame B, formed with the axle *b* at its rear outer corner and with the forwardly-projecting arm b^2, in combination with the main frame pivoted to the axle-frame between the axle *b* and the outer end of the arm b^2, substantially as described.

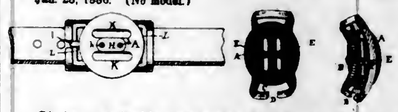
4. In a cultivator, the yoke F, pivoted in the main frame below the axle and formed with the arm *f* at one side of its pivot and with connections for the gang-bar at the opposite side of its pivot, the arm *f* being formed with a series of holes, f^2, substantially as shown and described.

5. The main frame A, pivoted to the axle-frames B in front of the axles, in combination with the springs G and yokes F, connected to the axle-frames by links B', substantially as and for the purposes set forth.

355,106.

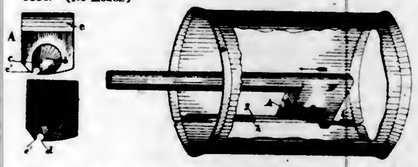


355,107. BUCKLE-COVER. JOHN P. SCOLLAY, Lawrence, Mass. Filed Jan. 28, 1886. (No model.)



Claim.—A buckle-cover having the side piece, F, with one end open for the reception of the tongue of a buckle, and openings B and C for the strap, and the crest A, having the slots K K and the intermediate space, H, for ornamentation, substantially as described.

355,108. TOOL FOR INTERLOCKING THE EDGES OF METALLIC PLATES. EDWARD SMALL, Baltimore, Md., assignor to the Metal Seaming Company of Baltimore City. Filed June 5, 1885. Renewed May 8, 1886. (No model.)



Claim.—1. A sheet-metal-seaming tool consisting of a body-block having in the face side a tapering or gradually-contracted groove, partly circular in cross-section, whereby the tool is adapted to form a seam by sliding along the sheet-metal edges, as set forth.

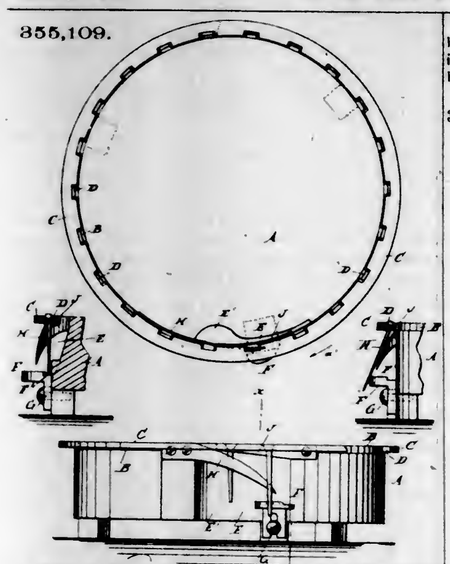
2. A sheet-metal-seaming tool consisting of a body-block having in the face side a tapering groove, partly circular in cross-section, and extending from end to end of the body-block, as set forth.

3. A sheet-metal-seaming tool consisting of a body-block having in the face side a tapering groove, partly circular in cross-section, with a straight-line edge, *c'*, at one side of the groove and the finishing lip edge *d* at the opposite side, as set forth.

4. A tool for interlocking the edges of two sheet-metal plates by coiling the edge of one over the other, consisting of a body-block having an opening, *b'*, partly circular, with a flat side, *c'*, and a smaller opening, b^2, partly circular, with a finishing-lip, *d*, on the side opposite that where the flat side is, as set forth.

355,109. DEVICE FOR SORTING HORSESHOE-NAILS. WILLIAM M. STONE and HENRY DUNDAS, Keeseville, N. Y. Filed Nov. 5, 1886. (No model.)

355,109.



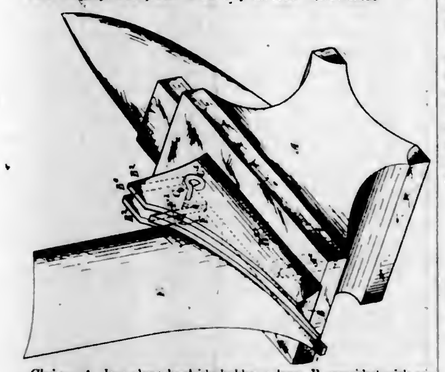
Claim.—1. The combination of a revolving ring having recesses for carrying nails, a block for supporting said ring and having a recess or pocket for the discharge of short nails, a cam for throwing the shanks of the long ones out of a perpendicular or vertical position, an arm acting as a cam to force the short ones out of the recesses in the ring, and a spring to retain the heads or necks of the long ones in position while passing the pocket provided for the discharge of the short ones, substantially as described.

2. The combination, with a revolving ring having recesses, of a block supporting the said ring and having a recess forming a pocket, an adjustable cam having a rabbet and held on the said block, a bent arm extending downwardly, and a spring to hold the short nail in place until it reaches the said pocket, substantially as described.

3. The combination, with a revolving ring having recesses, of a block supporting the said ring, a cam, a bent arm extending downwardly, and a spring extending to the said arm to hold the nails in place, substantially as described.

4. The block A, provided with the recess B, and the recess E, forming the pocket E', the vertically-adjustable cam F, having the rabbet F', the outwardly-bent arm H, secured to the rim of the block, and the spring J, fastened to the block and extending along the upper end of the rim of the block, in combination with the ring C, having the recesses D, substantially as described.

355,110. DEVICE FOR WELDING PLOWSHARES AND LAND-SIDES. LEWIS A. WEYBURN, Rockford, Ill., assignor to the L. A. Weyburn Company, same place. Filed May 22, 1886. (No model.)



Claim.—1. In a short landside holder, a base, B, provided with upwardly-projecting sides B^3, for holding a short landside in proper position while a plowshare is being welded to said landside, substantially as described, and for the purpose specified.

2. A short landside-holder consisting of a base and sides B^3, the latter being provided with pin-holes C, and having their upper surfaces inclined toward the end B^3 of the landside-holder and furnished with a heel-pin, C', bolt D, nut D', and washer D^2, substantially as set forth.

355,111. PRESSURE-BLOWER. WILLIAM C. WINFIELD, Warren, Ohio, assignor of two-thirds to Rollin A. Cobb and Orris K. Grimmesey, same place. Filed Apr. 3, 1886. (No model.)



Claim.—1. In a pressure-blower, the combination, with a head having the upwardly-projecting walls A' A^2, located a sufficient distance apart to form a sealing-chamber, of the piston, the lower end of which rests within the sealing-chamber, and the tank closed at its upper end and open at its lower end, and inclosing said piston, the lower end of said tank also resting within the sealing-chamber.

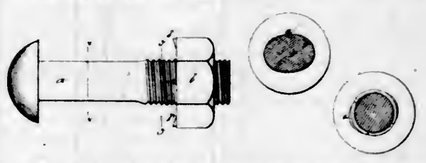
2. In a pressure-blower, the combination, with the body of the blower, the same consisting of inner and outer walls joined below to a head in common, forming sealing and induction chambers, as indicated, of a piston and tank, the former located in the pressure-chamber of the latter, both tank and piston having depending rims operating and fluid-sealed in the same sealing-chamber, substantially as set forth.

3. In a pressure-blower, the combination, with inner and outer upright walls joined below to a head in common, said walls inclosing a sealing-chamber, and the inner walls inclosing an induction-chamber, of a piston and tank, the former located inside the pressure-chamber of the latter, both tank and piston having depending rims operating and fluid-sealed in the said sealing-chamber, a valve in the piston-head, a valve in the head A, and a discharging-pipe leading from the pressure-chamber and preferably through the sealing-chamber, substantially as set forth.

4. The combination, with the body of the blower, the same consisting of inner and outer walls joined below to a head in common, forming sealing and induction chambers, of a piston and tank, the former located in the pressure-chamber of the latter, and both tank and piston operating and fluid-sealed in the same sealing-chamber, and a piston-rod extending down through the induction-chamber, substantially as set forth.

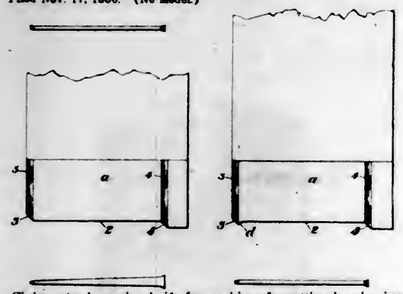
5. In a pressure-blower, the combination, with the body of the blower, the same consisting of inner and outer walls joined below to a head in common, forming sealing and induction chambers, of a piston and tank, the former located in the pressure-chamber of the latter, both tank and piston having depending rims operating and fluid-sealed in the same sealing-chamber, and the discharge-pipe passing downwardly through the said sealing-chamber, substantially as set forth.

355,112. TRACK-BOLT. CHARLES C. WEBSHALL, St. Paul, Minn. Filed Sept. 28, 1885. (No model.)



Claim.—A track-bolt having a shank portion oval in cross-section and an enlarged cylindrical screw-threaded end of greater diameter than the minor axis of the shank portion, as described.

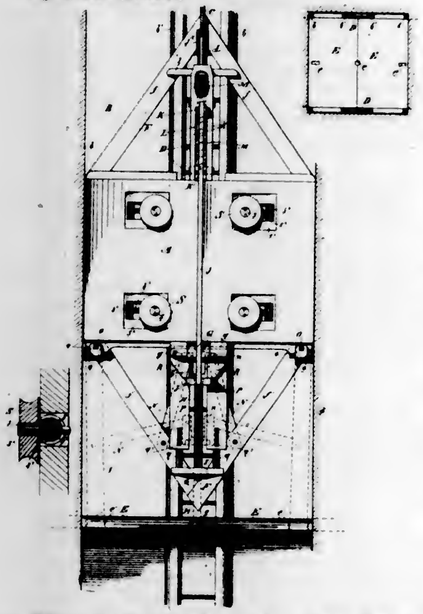
355,113. KNIFE FOR NAIL-CUTTING MACHINES. WILLIAM D. YOUNG, Pittsburg, assignor to Charles L. Fitchugh, Allegheny City, Pa. Filed Nov. 17, 1886. (No model.)



Claim.—1. A moving knife for machines for cutting bevel-pointed nails having a beveled projection at the point end, substantially as and for the purposes described.

2. The combination, in a machine for cutting nails, of a moving knife with a bed-knife for forming a bevel point on the nail-blank, the point end of the moving knife being provided with a beveled projection, substantially as and for the purposes described.

355,114. ELEVATOR. HENRY ALBERT, Crescent City, Cal. Filed Aug. 30, 1886. (No model.)



Claim.—1. In an elevator, the pivoted clutch-levers G under the cage or car, for engaging racks in the sides of the elevator shaft or well, in combination with the means for holding said levers out of engagement when the cage or car is operating normally, and allowing them to move to their engagement upon the breaking of the hoisting rope or cable, consisting of the movable spindle L, to which the hoisting rope or cable is attached, the upper cross-head, K, secured to the spindle, the lower cross-head, J, the side bars, *j*, connecting said cross-heads, and the lower spindle, H, carried by the lower cross-head and connected with the pivoted clutch-levers, substantially as herein described.

2. In an elevator, the clutch-levers G, pivoted under the cage or car for engaging racks in the sides of the elevator shaft or well, in combination with the means for holding said levers out of engagement when the cage or car is operating normally, and positively throwing them to their engagement upon the breaking of the hoisting rope or cable, consisting of the spring-actuated upper spindle, L, to which the rope or cable is attached, the upper cross-head, K, the lower cross-head, J, and the side bars connecting them, the lower spindle, H, carried by the lower cross-head, and having the shanks of the clutch-levers slotted in its upper portion, and the springs g^2, by which the clutch-levers are actuated, substantially as herein described.

3. In an elevator, the rock-shafts O, journaled under the cage or car and having on their outer ends the blocks *o*, carrying the frictional brake-shoes *o'* at each corner of said cage or car, in combination with the sectional V-shaped cam *f'*, secured to or formed with said rock-shafts, and mechanism for spreading the sections of the cam upon the breaking of the hoisting rope or cable, whereby the shafts are rocked to project or withdraw their shoes to or from contact with the opposing surfaces in the shaft or well, substantially as herein described.

4. In an elevator, the rock-shafts O, journaled under the cage or car and having on their ends the blocks *o*, carrying the frictional brake-shoes *o'* at each corner of said cage or car, and the sectional V-shaped cam *f'*, secured to said rock-shafts, in combination with the mechanism for spreading the sections of the cam, whereby the brake-shoes are thrown into contact with the opposing surfaces of the shaft or well, consisting of the spring-actuated upper spindle, L, to which the hoisting rope or cable is attached, the upper cross-head, K, the lower cross-head, J, and the side bars, *j*, connecting the two, and the links N, connecting the parts of the sectional cam with the lower cross-head, substantially as herein described.

5. In an elevator, the pivoted clutch-levers G under the cage or car and adapted to engage racks in the well or shaft, the rock-shafts O, journaled under said cage or car and having the blocks *o*, carrying the frictional brake-shoes *o'* at each corner of said cage or car, and the sectional V-shaped cam *f'*, secured to said rock-shafts, in combination with the mechanism for simultaneously operating the clutch-levers and the frictional brake-shoes, consisting of the spring-actuated upper spindle, L, to which the hoisting rope or cable is attached, the upper cross-head, K, the lower cross-head, J, and the side bars, *j*, connecting them, the spindle H, carried by the lower cross-head and adjustably connected with the shanks of the pivoted clutch-levers, the springs g^2 of said levers, and the links N, connecting the lower cross-head with the parts of the sectional cam, all arranged and adapted to operate substantially as herein described.

6. In an elevator, the rock-shafts O, carrying the blocks *o*, with brake-shoes *o'* at each corner of the cage or car, in combination with the clutch-levers G'', secured to said shafts and adapted to engage racks in the sides of the well or shaft, and mechanism operated by the breaking of the hoisting rope or cable for operating the clutch-levers and brake-shoes, substantially as herein described.

7. In an elevator, the rock-shafts carrying the blocks *o*, with frictional brake-shoes *o'* at each corner of the cage or car, and the clutch-levers G'', secured upon said rock-shafts and adapted to engage racks in the sides of the well or shaft, in combination with the mechanism for operating said clutch-levers, whereby they engage said racks and at the same time operate the frictional brake-shoes, consisting of the spring-actuated spindle L, to which the hoisting rope or cable is attached, the upper cross-head, K, the lower cross-head, J, and the side bars, *j*, connecting them, and the spindle H upon the lower cross-head, substantially as herein described.

8. In an elevator, the two-part separable hatch E, closing the well or shaft and having apertures *e'*, in combination with the sectional or two-part V-shaped cam *f'* on the elevator cage or car, and mechanism for spreading said cam by the breaking of the hoisting rope or cable, whereby its sections may pass down through the apertures *e'* in the hatch and lock said hatch, substantially as herein described.

9. In an elevator, the two-part separable hatch E, having apertures *e'*, in combination with the rock-shaft O under the cage or car, having blocks *o*, carrying frictional brake-shoes *o'*, the sectional or two-part V-shaped cam *f'*, secured to said rock-shafts, and mechanism operated by the breaking of the hoisting rope or cable for spreading the sections of said cam, whereby the frictional brake-shoes are thrown into contact with the opposing surfaces of the shaft or well and the sections of the cam are forced to a perpendicular to pass through the apertures of the hatch and lock said hatch, substantially as herein described.

10. In an elevator, the pivoted clutch-levers G and the means for operating them, consisting of the spring-actuated upper spindle, L, to which the hoisting rope or cable is attached, the upper cross-head, K, the lower cross-head, J, the side bars, *j*, connecting them, and the spindle H, carried by the lower cross-head, in combination with the posts or standards P under the cage, the spring-buffers Q in said posts, and the cross-bar I, connecting the buffers and serving as a guide for the lower spindle, H, substantially as herein described.

11. In an elevator, the two-part separable hatch E, having side apertures, *e'*, in combination with the traveling cage or car A, the sectional V-shaped cam *f''* upon the cage or car, and mechanism, substantially as described, for spreading its sections, whereby they pass down through the apertures of the hatch and lock said hatch, the posts P on the under side of the cage or car, and the spring-buffers Q on the lower ends of said posts, adapted to come in contact with the closed hatch and support the car or cage, substantially as herein described.

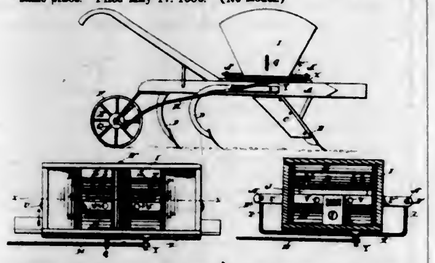
12. In an elevator, the two-part separable hatch E, having side aperture, *e'*, in combination with the traveling cage or car, A the rock-shafts O, pivoted beneath it and having the frictional brake-shoes *o'* at each end, and the sectional V-shaped cam *f''*, secured to the rock-shafts and adapted to be spread upon the breaking of the cable so as to pass through the apertures *e'* of the hatch and lock it, the fixed posts P under the cage or car, and the spring-buffers Q in the posts for breaking the shock when the cage or car falls upon the hatch, substantially as herein described.

13. In an elevator, the two-part separable hatch E, provided with a central apertura, *e*, for the passage of the hoisting-cable, and the side apertures, *e'* as shown, in combination with the cage or car A, having the V-shaped cam F, for operating the hatch, the lower portion, *f'*, of said cam being sectional and adapted to be spread and to lock the hatch, as described, the pivoted spring-actuated clutch-levers G, and the means for operating them, consisting of the spring-actuated upper spindle, L, the upper cross-head, K, the lower cross-head, J, the connecting side bars, *j*, and the lower spindle, H, adjustably connected with the clutch-levers, and the links N, connecting the parts of the sectional cam *f'* with the lower cross-head, whereby said parts are spread, the fixed posts P, secured under the cage or car, the movable spring-buffers Q in their lower ends, adapted to come in contact with the closed and locked hatch, and the cross-bar I, uniting the buffers and forming a guide for the spindle H, all arranged and adapted to operate substantially as herein described.

14 In an elevator, the cage or car having the upper V-shaped cam, *f*, with a recess or seat, f^3, in its top, and the fixed buffer-posts P under said cage or car and having the bearing-blocks R on their upper ends, in combination with the pivoted clutch-levers G and the means for operating them, consisting of the spring-actuated upper spindle, L, to which the hoisting rope or cable is attached, said spindle finding a bearing in the recess of the upper cam, the upper cross-head, K, the lower cross-head, J, the side connecting-bars, *j*, and the lower spindle, H, carried by the lower cross-head, said lower cross-head finding a bearing under the blocks R on the fixed posts, substantially as herein described.

15. In an elevator, the well or shaft B, having timbers *b'*, and the cage or car A in said shaft or well, in combination with the anti-friction rollers S, the spindles *s*, upon which they are mounted, said spindles having nuts *s'*, the screws s^2, upon which said nuts are mounted and adapted to travel, the hand-wheels s^3, upon said screws and accessible from the inside of the cage or car, whereby they may be readily operated, and set-screws s^4, for holding said spindles in place where adjusted, substantially as herein described.

355,115. CORN AND COTTON PLANTER. JOHN J. ARMSTRONG and ANDREW S. LOWREY, Weimar, Tex., assignors of one-third to W. C. MUNN, same place. Filed May 17, 1886. (No model.)



Claim.—1. In a combined corn and cotton planter having a stirrer, seed-box, and a driving-wheel, the bottom of said seed-box being provided with a slot and an aperture, the combination of a regulating-slide, a feed-slide, and a pitman, said seed-slide being provided with a frame having a pin upon the same side of the box as the crank on the stirrer-shaft, the end of said pitman being adapted to engage with either said crank or said pin, as and for the purpose shown and set forth.

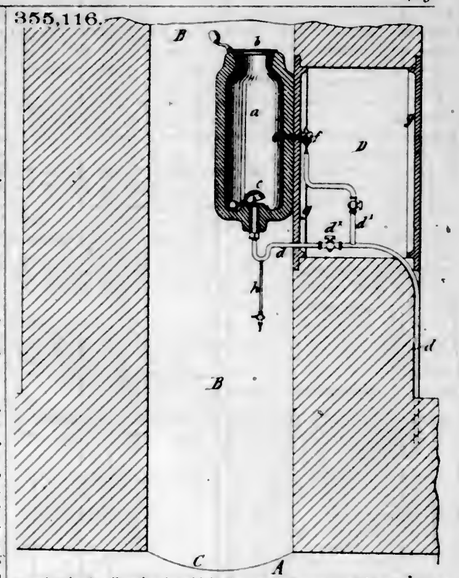
2. In a combined corn and cotton planter, the combination of a seed-slide having perforations in its ends, a bar having an outwardly-projecting pin at its middle, and having its ends bent inward and thereupon upward, the upwardly-bent ends fitting in the perforations in the slide, and a pitman pivoted upon the pin, as and for the purpose shown and set forth.

355,116. VENTILATING SEWERS, DRAINS, MINES, HOSPITALS, &c. ROBERT S. ASH, Villa de la Riva, Monaco. Filed Oct. 23, 1886. (No model.)

Claim.—1. The method herein specified of withdrawing air and gases from sewers and other structures to be ventilated, consisting in exploding gases or other substances periodically within a vessel the mouth of which opens in the direction in which the ventilating-current is to be set up and maintained, substantially as specified.

2. The combination, with the sewer or other structure to be ventilated, of a vessel to receive explosive material and having its mouth

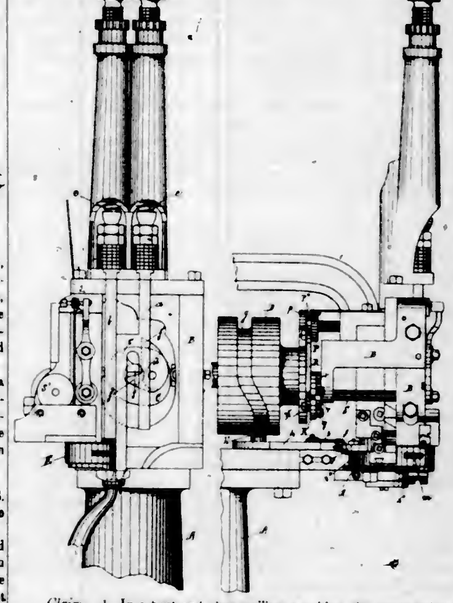
355,116.



opening in the direction in which the ventilating-current is to be set up and maintained, and means, substantially as specified, for igniting the explosive material, as set forth.

3. The combination, with a ventilating-column, of a vessel to receive explosive gases, a valve at the top to be opened by the force of the explosion, a supply-pipe for the gas and a valve over the same closing by the explosion, and a light to ignite the gases, substantially as specified.

355,117. BOOT AND SHOE NAILING MACHINE. HENRY S. BACON, Milford, Mass. Filed Jan. 23, 1886. (No model.)



Claim.—1. In a boot and shoe nailing machine, the combination, with a sliding head, of an awl-bar movable vertically therein and having a lifting-shoulder, as *f*, and a rotating cam, *d*, having two operating parts, f' f^2, of different throws, whereby when the said awl-bar has

been raised to its highest point by the part *f'*, and has completed its downward movement to pierce the stock, the awl will be immediately raised above the horn, but not out of the stock, by the part *f*, the awl remaining in the stock until the latter has been fed by the sliding movement of the said head, substantially as set forth.

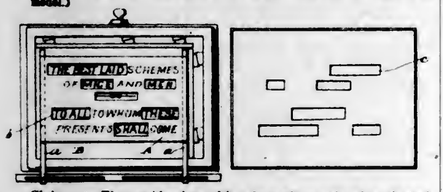
2. The combination, in a nailing-machine, of the lever *h* and its operating-cam, the connecting-rod *i*, lever *j* and its pawl and ratchet and gear, and the nail-carrier E and its actuating-pinion, substantially as shown and described.

3. The combination, with the operating parts of a nailing-machine, of the cylindrical nail-carrier E and its actuating mechanism and the stop-bar E', for the purposes and substantially as set forth.

4. The combination, with the operating parts of a nailing-machine, of the stop M, actuated, as set forth, by the movement of the horn, and the lever P and its actuating-cam, disk R' and its actuating-link, and pawl-and-ratchet mechanism on the shaft of the feed-roll, whereby the movement of the feed-rolls is governed by the position of the horn, for the purposes and substantially as set forth.

5. The combination, with the operative parts of a nailing-machine having mechanism to automatically regulate the nail from the position of the horn, of lever H, provided with a fulcrum set in blocks adapted to slide in slots in the lever and frame, and actuated by the adjusting-screw *t*, for the purposes and substantially as set forth.

355,118. **PRINTING.** MAJOR A. BANCROFT, Hunt, Dak., assignor of one-half to Israel E. Youngblood, same place. Filed Dec. 17, 1885. (No model.)



Claim.—1. The combination, with a form of type placed on the bed of a printing-press, of a frisket, the portions which overlie the part of the form from which it is desired to take an impression being cut out, and a tympan having the portions which underlie the part of the frisket covering the part of the form not to be printed from cut out, substantially as described.

2. As an improvement in the art of printing, the method herein described, consisting in cutting out those parts of the frisket which overlie those parts of the form from which an impression is to be taken and removing those parts of the tympan-sheet which underlie the part of the frisket covering the part of the form not to be printed from, then applying paper to the frisket and tympan so prepared and taking the impression, substantially as described.

355,119. **HAY-STACKER.** JAMES H. BARLEY and THOMAS K. BARLEY, Sedalia, Mo. Filed Aug. 10, 1885. (No model.)

Claim.—1. A hay-stacker comprising in its construction a pivoted swinging upright consisting of the part C and the laterally-placed rigidly-connected part C', in combination with a hay-elevating fork, and means for hoisting said fork, substantially as and for the purpose described.

2. The combination, with the upright comprising pivoted pole C and the rigidly-connected guiding-bar C', of a hay-elevating fork, and means, substantially as set forth, whereby it is guided up and down on the bar C', substantially as and for the purpose described.

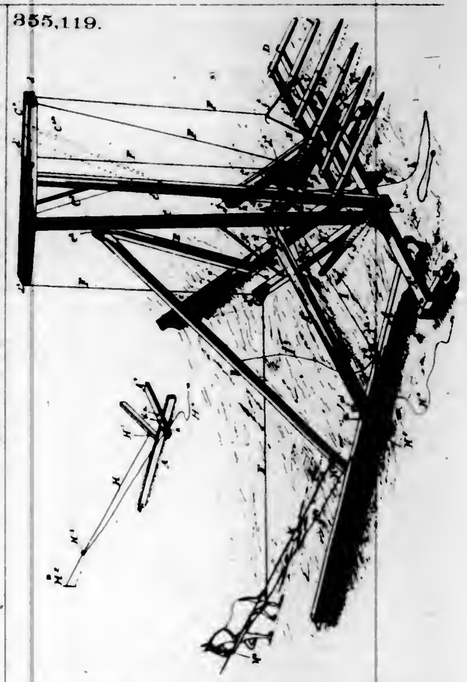
3. The combination of the upright, comprising a vertical pivoted pole, C, and an inclined guiding-bar, C', rigidly connected to it at top and bottom, with a hay-elevating fork, and means, substantially as set forth, whereby it is guided up and down on the bar C', substantially as and for the purpose described.

4. The combination of a base-frame, an upright pivoted at its lower end thereto, inclined props E E, having their upper ends hinged to the upright, the top pulley-beam, C^3, attached to the said upright, and supporting pulleys forward thereof, and a hay-elevating fork, with hoisting means, substantially as described, connected thereto, suspended on said pulley-beam, and means whereby its handle is guided up and down forward of said upright, substantially as and for the purpose described.

5. The combination of the upright, comprising pole C, pivoted at its lower end, and a rigidly-connected lateral guiding-bar, C', two pulleys at the upper end of the upright, support for the pulleys, respectively, at points in rear and forward of the upright, a fork guided on the bar C', and means, substantially as set forth, for raising the fork, substantially as and for the purpose described.

6. The combination of a pivoted upright having inclined props loosely connected to it, a pulley-support at the upper end thereof, two or more pulleys located on said support forward of the upright, an elevating-fork, and means for hoisting the fork and guiding it on said upright, substantially as and for the purpose described.

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7. The combination, with a swinging upright and a fork guided by and forward of said upright, of two pulleys, support for said pulleys near the top and forward of the upright, and means, substantially as set forth, for hoisting the fork, connected at separate points forward of the upright—viz., to the fork-head and handle—substantially as and for the purpose described.

8. The combination, with a swinging upright comprising pivoted pole C, a rigidly-connected lateral guiding-bar, C', a top pulley-beam, C^3, and pulleys on the beam, of a hay-elevating fork guided on said bar, and a hoisting-rope rove, as described, with respect to the pulleys of the beam, fork-head, and handle, substantially as and for the purpose described.

9. The upright provided with an inclined brace at its upper end, in combination with an elevating-fork having its handle formed with a space between its side portions, and devices adapted for bearing upon the said inclined brace during its ascent, and means for hoisting the fork, substantially as and for the purpose described.

10. The combination of the foundation-frame, comprising oblique side sills, A A', cross-beam A^2, and rear stay-bar, A^4, a hay-stacker upright, inclined props E, elevating-fork D, guided on the upright, and means, substantially as set forth, for hoisting the fork, substantially as and for the purpose described.

11. The sweep-bar K and its draft pulley-block, in combination with pivoted upright, a top pulley-beam, C^3, the elevating-fork, and means, substantially as described, connected to the fork, passed over the pulley-beam and through the draft pulley-block, substantially as and for the purpose described.

12. The combination of a pivoted upright, a fork guided by the bar C' of said upright, the hoisting means, substantially as described, rove, as described, with respect to the fork, the pulleys supported at the top and in front and in rear of the upright, the sweep-bar K, and the draft pulley-block, substantially as described.

13. The combination, with the foundation-frame, the pivoted upright, the top beam thereof, the elevating-fork, the rope, pulleys attached to the top beam of the upright and to the fork-handle, of the sweep-bar K, and the draft pulley-block on the outer end of the sweep-bar K, the cord I, connected to the sweep-bar, and a latch, substantially as described.

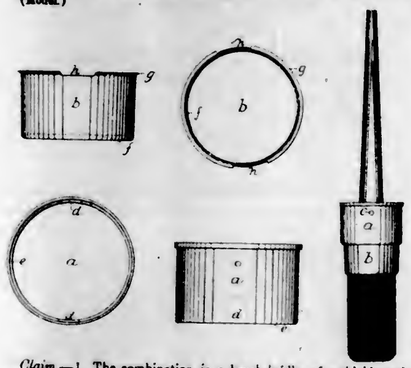
14. The combination, with a swinging upright and a fork guided by and forward of said upright, of two pulleys, support for said pulleys near the top and forward of the upright, and means for hoisting and guiding the fork forward of the upright, substantially as and for the purpose described.

15. The combination of the foundation-frame, a sweep-bar, K, a pulley, I', a cord, I, connected to said bar K, and passing around the pulley I', an upright, an elevating-fork, a hoisting-rope, and pulleys, substantially as described.

16. The fork, comprising tines, head-bars, handle, spacing and bearing devices, hinging-connections, latching-bar, pendent latch, and a latch-retaining device, in combination with a pivoted upright and a hoisting-rope, substantially as and for the purpose described.

17. The combination, with a pivoted upright constructed with guiding-bar C', of the fork D, having its handle D' formed of spaced horizontal bars *g*, embracing the guiding-bar C' of the upright, and inclined bars *h*, having their front ends connected with the forward ends of the bars *g*, and extended rearwardly, so as to embrace bar C', vertical bars for connecting rear ends of the side bars, friction-rollers bearing in front and rear of said bar C', and a hoisting-rope connected to the fork, substantially as described.

355,120. **SHIELD AND BINDER FOR BRUSHES.** WM. L. BARNES, Yonkers, assignor of three-fourths to Thomas Gershart, Allen S. Gookin, and E. F. J. Gaynor, all of New York, N. Y. Filed Oct. 22, 1885. (Model.)



Claim.—1. The combination, in a brush-bridle, of a shield-section, *a*, adapted, as described, to be secured to the stock of a brush, with a binder-section, *b*, telescoping within said shield-section, substantially as described.

2. The combination, in a brush-bridle, of a shield-section, *a*, adapted, as described, to be secured to the stock of a brush, and formed with the inner flange, *e*, with a binder-section, *b*, having the outer flange, *g*, telescoping within said shield-section, and means, as described, to retain said binder-section in a retracted position, substantially as described.

3. The brush-bridle consisting of a section, *a*, adapted, as described, to be secured to the stock of a brush and having the inner flange, *e*, and lugs *d*, and a section, *b*, having the outer flange, *g*, with notches *h*, substantially as described.

355,121. **SIGHT FOR FIRE-ARMS.** THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 13, 1886. (No model.)



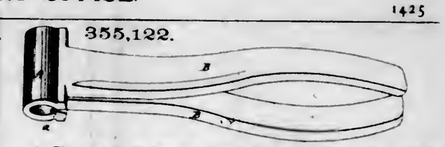
Claim.—1. The herein-described sight for fire-arms, having an opening at its rear end, the axis of which is substantially parallel with the axis of the barrel and with an upward and forwardly inclined reflecting-surface forward of said opening, substantially as described.

2. A sight consisting of the base having an upward projection therefrom in which is an opening at the rear end, the axis of which is substantially parallel with the axis of the barrel and with a recess forward of said opening, combined with a plug of bright material, inserted in the forward side of said recess, the surface of the said bright material toward the tube being inclined to the axis of the tube upward and forward, substantially as described.

355,122. **RESIZING IMPLEMENT FOR CARTRIDGES.** THOMAS G. BENNETT, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Sept. 13, 1886. (No model.)

Claim.—1. The herein-described instrument for resizing cartridges, consisting of the tube A, its interior corresponding, substantially to the chamber in the barrel for which the instrument is adapted, the said tube slit only upon one side longitudinally to permit the circumferential expansion or contraction of the said tube, and a clamping device, substantially such as described, whereby the said tube may be contracted or its expansion permitted, substantially as specified.

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2. The tube A, its internal diameter corresponding, substantially, to the chamber in the barrel for which the instrument is adapted, the said tube slit longitudinally upon one side only to permit the circumferential expansion or contraction of said tube, and having a handle extending therefrom each side the slit, substantially as and for the purpose described.

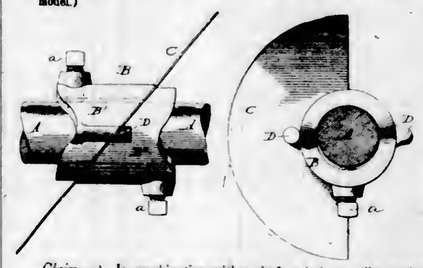
355,123. **RIDING-SADDLE.** JOSEPH F. BENNETT, Pellville, Ky. Filed Oct. 5, 1886. (No model.)



Claim.—1. The combination of the tree, the strips C C, the springs secured between said strips, and the lower strip being secured to the tree, the shield placed on the upper strips C, the girth secured to the tree, and the stirrups connected with the shield, substantially as set forth.

2. The improved saddle, substantially as described and shown, consisting of the tree, the strips C C, the lower ones being secured to the tree, the springs secured between said strips, the shield, the straps E, connecting said shield and tree, the girth connected to the tree, the stirrup-straps connected with the shield, and the cover H, all substantially as and for the purposes specified.

355,124. **SPIRAL CONVEYER.** REINHARD BIRKHOLZ, Milwaukee, Wis., assignor to Edward P. Allis, same place. Filed Oct. 4, 1886. (No model.)



Claim.—1. In combination with a shaft, a hub or collar encircling the same and provided with a face oblique to the axis of the shaft, a flight secured to said oblique face, and means for securing the collar in position upon the shaft.

2. In combination with a shaft, a hub or collar encircling the same and consisting of two parts, B' and B^2, a flight secured between the adjacent faces of the hub-sections, and a screw (one or more) for securing the flight to the collar and the collar upon the shaft.

3. In combination with a shaft, a hub or collar encircling the same consisting of two parts, B' and B^2, a pin, D, formed upon one of said parts and passing through the flight, and a set-screw, *o*, for securing the collar in place.

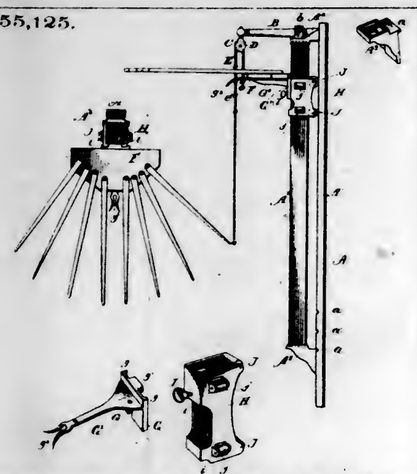
4. In combination with a shaft, a hub consisting of two parts and a flight secured to and carried by said hub.

5. In combination with a shaft, a reversible removable hub or collar encircling the same and provided with a face oblique to the axis of the shaft, a flight secured to said oblique face, and means for securing the collar in position upon the shaft.

355,125. **CLOTHES-DRIER.** JOSEPH J BENEL, Philadelphia, Pa. Filed Feb 2, 1886. (No model.)

Claim.—1. In a clothes-drier, the combination of a vertically-movable shelf and the clothes-supporting arms attached thereto, with a

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holding-fork attached to said shelf and having diverging tines g^2, a stationary pulley arranged above the latter, and a lifting and lowering cord which passes over said pulley and is provided with knots for engaging with said holding-fork, to secure said shelf and arms at the elevation desired, substantially as set forth.

2. In a clothes-drier, a vertically-movable carriage, in combination with a shelf detachable from said carriage, to which shelf the clothes-supporting arms are attached, and the raising and lowering cord, substantially as set forth.

3. In a clothes-drier, a vertically-movable carriage, a shelf to which the clothes-supporting arms are attached, and a bracket secured to said shelf and provided with a hook for catching over said carriage, substantially as set forth.

4. In combination with the shelf and carriage, a bracket having the plate G', flanges *g*, the hook attached to said plate, and the clamping-screw which passes through a slot of the latter, substantially as set forth.

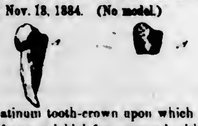
5. The casting or bracket G, having on one end a plate provided with a suspending-hook and on the other a holding-fork, in combination with the carriage shelf and cord, the clothes-supporting arms, and the pulley over which the cord passes, the knots on the latter engaging with said fork, substantially as set forth.

6. In combination with the guide-frame and shelf, a carriage surrounding and sliding on the upright bar A^3, and provided with side anti-friction rollers which bear thereon, and rear anti-friction rollers which bear against both of the upright bars A' and A^3, substantially as set forth.

7. The rear bar, A', having a succession of grooves, *a'*, in combination with the lower casting, A^3, which has a flange, *a*, for fitting any one of said grooves, the front bar, A^2, the upper casting, A^4, and the movable parts of the clothes-drier, substantially as set forth.

8. The upper casting or bracket, A^4, having an arch raised on the top of said bracket, in combination with the arm B, which extends forward through said arch and is held thereby, a bar supporting said bracket, the cord, pulley, shelf, and carriage, substantially as set forth.

355,126. ARTIFICIAL TOOTH. CHARLES E. BLAKE, Sr., San Francisco, Cal. Filed Nov. 13, 1884. (No model.)

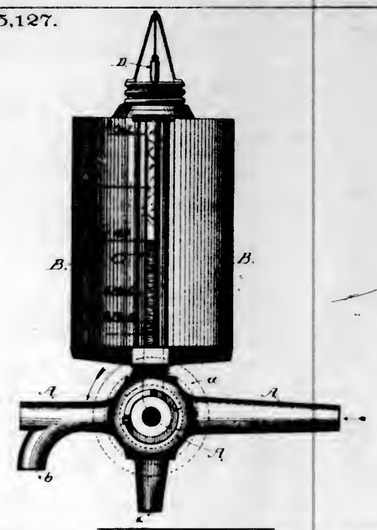


Claim.—A platinum tooth-crown upon which is the masticating-surface, having its front or labial face covered with enamel, which is united to it by perforations in the process of baking, substantially as herein described.

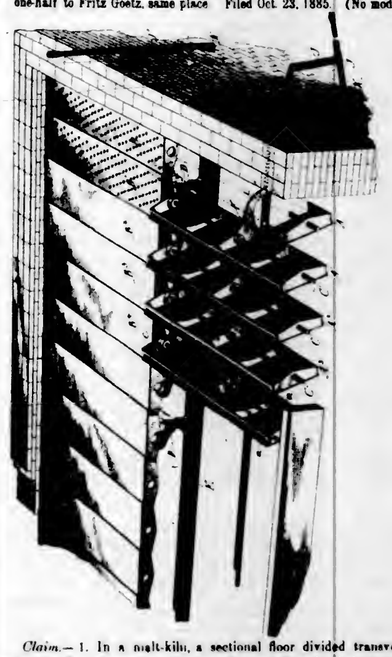
355,127. LEVELING ATTACHMENT FOR MEASURING-FAUCETS. JOSEPH O. BOGGS, Harrisburg, Pa., assignor of one-half to S. Kirk Jacobs and John M. Jacobs, both of same place. Filed Apr. 7, 1886. (No model.)

Claim.—As an improved article of manufacture, a self-measuring faucet comprising a faucet, a receptacle or vessel for containing the liquid, a graduated tube communicating with said vessel, and a plummet loosely suspended above the center of said vessel, all constructed and arranged to operate as herein set forth.

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355,128. MALT-DRIER. CHARLES BRADA, Chicago, Ill., assignor of one-half to Fritz Goetz, same place. Filed Oct. 23, 1885. (No model.)



Claim.—1. In a malt-kiln, a sectional floor divided transversely into a plurality of series of tilting sections, each series being separate from and independent of the adjacent series, combined with separate operating means, substantially as described, for each series, substantially as set forth.

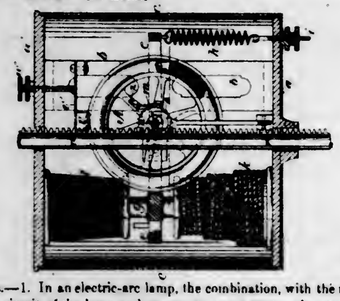
2. A malt-kiln floor having a series of tilting sections, each provided at a point intermediate of its ends with a pendent arm, combined with a reciprocatory bar connecting together said pendent arms, and means, substantially as set forth, for reciprocating said bar.

3. The sectional floor of a malt-kiln divided transversely into a plurality of separate and independent series of tilting sections, combined with separate operating devices, one for each of said series, said operating devices being connected with the tilting sections at points intermediate of the ends of the latter, substantially as and for the purpose described.

4. The sectional floor of a malt-kiln divided transversely into a plurality of separate and independent series of tilting sections, each tilting section being provided with a pendent arm, combined with a set of reciprocatory bars for tilting the said sections and levers for actuating said bars, each reciprocatory bar being connected with the pendent arms of the tilting sections of but one series of said sections, substantially as described.

5. A sectional malt-kiln floor divided transversely into a plurality of separate and independent series of tilting sections, combined with supports, substantially as described, for upholding said sections where the ends of the sections of one series are in opposition to the ends of the next adjacent series, and separate operating means, substantially as described, for each series, substantially as described

355,129. ELECTRIC-ARC LAMP. JAMES BRADY, Brooklyn, N. Y. Filed Mar. 6, 1884. (No model.)



Claim.—1. In an electric-arc lamp, the combination, with the magnets in the circuit of the lamp and an armature or armature-bar swayed thereby, of a rotary spindle or axis journaled on said bar and geared with the carbon-holder, and provided with the hollow rimmed wheel A, having a charge of mercury or its equivalent, and a brake or stop, such as *v*, arranged to engage said wheel, substantially as and for the purpose set forth.

2. In an electric-arc lamp, the combination, with the carbon-holder and a retarding-wheel geared thereto, of a movable clutch arranged to operatively engage the holder therewith or disengage it therefrom, with a manipulating device for manually shifting the clutch into or out of action, whereby the carbon-holder may be quickly raised or lowered by hand without moving the retarding device, substantially as herein set forth.

3. The combination, in an electric-arc lamp of the type shown, with the carbon-holder *d*, the axis *m*, and its retarding device and suitable supports therefor, of the sliding clutch-pinion *n*, mounted on said axis, gearing with the carbon-holder, and arranged to engage the retarding device, with a spring to constantly press the pinion into engagement and a manipulating device for manually withdrawing the pinion from engagement, substantially as and for the purpose set forth.

4. In an electric-arc lamp in which the carbon-holder is geared with a retarding device or train through a ratchet device which engages in the direction of gravitation and slips in the reverse direction, the combination therewith of a movable clutch arranged to detach or separate the parts, and a manipulating device connecting therewith and projecting from the exterior of the lamp, whereby the ratchet-clutch may be unshipped and the carbon-holder raised or lowered quickly without revolving the retarding wheel or wheels, substantially as herein set forth.

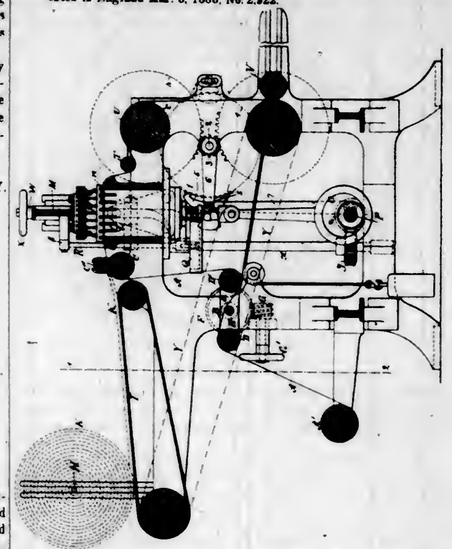
5. The combination, in an electric lamp, with the carbon-holder *d*, the axis *m* and its retarding device, and suitable supports therefor, of the sliding clutch-pinion *n*, gearing with the carbon-holder and arranged to engage the wheel with the spring *q*, lever *s*, and knob *t*, substantially as and for the purpose set forth.

6. In an electric lamp, the combination, with the carbon-holder and the retarding-wheel provided with the pawl *p*, of the sliding pinion *n*, gearing with the carbon-holder and provided with the ratchet-wheel *o*, having teeth with beveled ends arranged in relation with the wheel and its pawl, and suitable means for sliding the pinion and ratchet to or from the wheel and pawl, substantially as and for the purpose set forth

7. In combination with the operating mechanism of an electric lamp, the regulating-wheel A, having a hollow rim made in two overlying grooved sections charged with a quantity of mercury or its equivalent, and joined tightly by a central overturned flanged joint, substantially as herein shown and described.

8. In an electric lamp, the combination, with the fixed frame and the movable carbon-holder, of a retarding wheel or train geared with the carbon-holder, and a detachable clutch in the connection between the holder and train, with a magnet in a shunt around the arc arranged to open said clutch and allow the carbon-holder to drop free from the retarding device when the magnet becomes abnormally attractive due to abnormal arc, substantially as shown and described.

355,130. MACHINERY FOR MANUFACTURING FELTED AND NAPPED FABRICS. JAMES BROADHEAD, Cornwall, N. Y., assignor to Mary Broadhead, same place. Filed Aug. 14, 1886. (No model.) Patented in England Mar. 5, 1885, No. 2,922.



Claim.—1. The combination, with the beam V and roller 8, and the mechanism for operating the same and drawing the woven fabric through the machine, of the endless belt Y, the belt of battens I, to feed the bat of fiber, the rollers C C', through which both the bat of fiber and the woven fabric pass, the grid-frame L, rods *n*, and needles N, and needle-frame, substantially as specified.

2. The combination, with the beam V and roller 8, and the mechanism for operating the same and drawing the woven fabric through the machine, of the tension device having rollers D D', frame *a*, and worm-wheels F and G, the rollers C C', the roller T, and the roller U, covered with card-clothing *c*, the grid-frame, and needle-frame, substantially as and for the purposes specified.

3. The combination, in a felting-machine, with the grid-frame L, driving-shaft P, cam O, needle-frame M, and needles N, of the connecting-arms between the cam O and frame M, the worm-wheels *z y*, shaft *x*, the cam Q, and lever R, and link S, for imparting to the needle-frame and needles an up-and-down and sidewise movement, substantially as specified.

4. The combination, in a felting-machine, of the grid-frame L and rods *n*, and mechanism, substantially as specified, for moving the fabric, the frame M, and needles N, each needle being triangular in cross-section and pointed, and having notches in the angular edges, substantially as and for the purposes set forth.

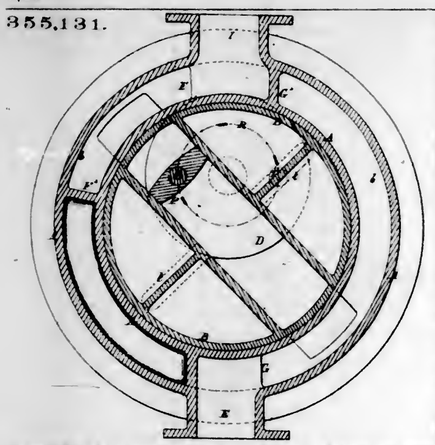
355,131. ROTARY ENGINE. JAMES BROCKIE, Brixton, County of Surrey, and MATTHEW W. W. MACKIE, Turk's Head Yard, Turnmill Street, County of Middlesex, England. Filed Aug. 19, 1886. (No model.) Patented in England July 18, 1885, No. 8,700.

Claim.—1. The combination of the stationary cylindrical casing A, having end covers provided with annular recesses, the revolving cylindrical body B, having the diametric slot, and the rectangular piston P, arranged to traverse the slot, with the circular disks D, sunk in the annular recesses of the end covers of the casing and having a shaft, S, extended through the casing, and the crank-pin C, extending entirely across the revolving body and through the piston and secured at its opposite ends, respectively, to the circular disks, substantially as described.

2. The combination of the stationary cylindrical casing A, having the induction and eduction pipes I and E and elongated induction and eduction passages extending in a circular path around the casing, in which the steam works expansively, with the revolving cylindrical body B, having the diametric slot, the piston P, arranged to traverse the slot, the circular disks D, seated in the casing and having a shaft, S, continued through the casing, and the crank-pin C, extending entirely across the revolving body and through the piston and connected at its opposite ends, respectively, to the circular disks, substantially as described.

3. The combination of the stationary cylinder A, the revolving cylindrical body B, seated in the cylinder and provided with a diametric slot,

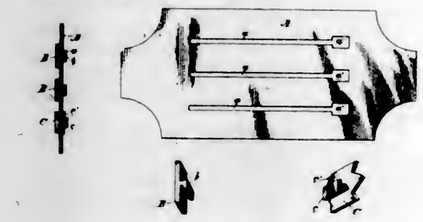
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a piston, P, slidable along said slot, a crank-pin, C, on which the piston is mounted, and two shafts, S, each having at its inner end a circular disk, D, to which disks the ends of the crank-pin are connected, substantially as described.

4. In a rotary engine wherein a rectangular piston, P, mounted on crank-pin C, reciprocates along a slot diametrically formed in a cylindrical body, B, revolving within a stationary casing, A, the shafts S S and the sunk dies D D thereon, carrying the crank-pin C, and opposite the crank the stud or roller T on one of the said disks engaged in slots *t* on the face of the cylindrical body B, substantially as and for the purpose herein set forth.

355,132. ADJUSTABLE INSCRIPTION FOR NAME-PLATES. DAVID A. BROWN and JOSIAH W. ROLLER, San Francisco, Cal. Filed Oct. 2, 1886. (No model.)



Claim.—1. The slotted plate A, in combination with the independent separate movable character-blocks B, having T-shaped stems or shanks *b*, passing through and engaging the slots of the plate, whereby the blocks are secured to said plate, substantially as described.

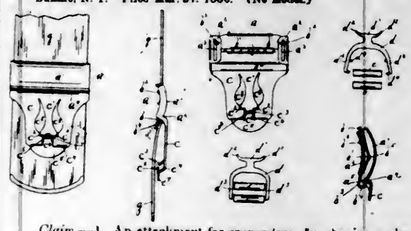
2. The plate A, having the slot or slots *a*, provided with enlargement *a'*, in combination with the independent separate movable character-blocks B, having T-shaped stems or shanks *b*, adapted to pass through the enlargement *a'*, whereby the blocks may be moved to position, the neck of their stems or shanks sliding in the slot, while the heads of said stems or shanks engage the plate and hold the blocks thereto, substantially as described.

3. The slotted plate A, in combination with the independent separate movable character-blocks B, having T-shaped stems or shanks *b*, engaging the slotted plate and holding the blocks thereto, and the ornament-blocks C at the end or ends, having similar stems or shanks similarly engaging the plate, substantially as described.

4. The slotted plate A, in combination with the independent separate movable character-blocks B, having T-shaped stems or shanks *b*, engaging the slotted plate and holding the blocks thereto, and the ornament-blocks C at the end or ends, having T-shaped perforated shanks or stems engaging the slotted plate, and pins *c'*, passing through said stems and binding the blocks, substantially as described.

5. A name or inscription plate, sign, &c., comprising the plate A, having slots *a*, with enlargements *a'*, the independent separate and movable character-blocks B, having T-shaped shanks or stems *b*, by which the blocks are secured to the slotted plate, and the ornament-blocks C at the end or ends, having T-shaped perforated stems and pins passing through said stems, whereby the blocks are bound to the plate, substantially as described.

355,133. ATTACHMENT FOR SUSPENDERS. J. TALMAN BUDD, Buffalo, N. Y. Filed Mar. 31, 1886. (No model.)



Claim.—1. An attachment for suspenders, &c., having a clamping device consisting of a curved plate adjustably arranged within a frame, and having a lower serrated edge adapted to operate in conjunction with a shoulder in the frame, and a raised portion or portions to hold the serrated edge in engagement with the strap which passes through the frame, and a clasp consisting of a frame having a slot within or under which is provided a shoulder, such slot being adapted for the reception of a T-shaped hanger, substantially as shown and described.

2. A clasp consisting of the frame *c*, the slot c^4, the shoulder c^4, flange c^5, and lip c^6, and the spring-strip *c'*, with shouldered portion c^2 and tongue c^3, in combination with a hanger, substantially as shown and described.

3. The combination, with the clasp consisting of the frame *c*, having the slot c^4, the shoulder c^4, flange c^5, and lip c^6, and the spring-strip *c'* with shouldered portions c^2 and tongue c^3, of the hanger having the T-head *d'*, with the turned-up ends d^2 d^2, substantially as and for the purpose stated.

4. A buckle consisting of a curved plate or clamping device adjustably arranged within a frame, and having a lower serrated edge adapted to operate in conjunction with a shoulder in the frame, and a raised portion or portions to hold the serrated edge in engagement with the strap which passes through the frame, in combination with a clasp or hanger, for the purpose stated.

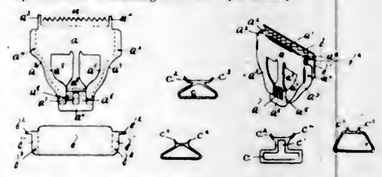
5. In a buckle, the combination, with the curved frame *a*, having the curved flanges a^2 a^2 and the shoulder a^4, of the curved clamping device *b*, provided with the serrated edge b^4, and of a clasp or hanger, for the purpose set forth.

6. In a buckle, the combination, with the curved frame *a*, having the curved and slotted flanges a^2 a^2 and the shoulder a^4, of the curved clamping device *b*, provided with the lugs b^2 b^2, the indentations *b'*, and the serrated edge b^4, and of the hanger *d*, substantially as shown and described.

7. The combination, with a clasp having its frame and spring in the same plane, of a hanger having turned-up points or ends to guide it into engagement with the clasp and prevent accidental disengagement therefrom, substantially as shown and described.

8. The combination, with a clasp having its frame and spring in the same plane, of a T-shaped hanger having its T-head provided with turned-up ends or points to guide it into engagement with the clasp and prevent accidental disengagement therefrom, substantially as shown and described.

355,134. ATTACHMENT FOR SUSPENDERS. J. TALMAN BUDD, Buffalo, N. Y. Filed Aug. 19, 1886. (No model.)

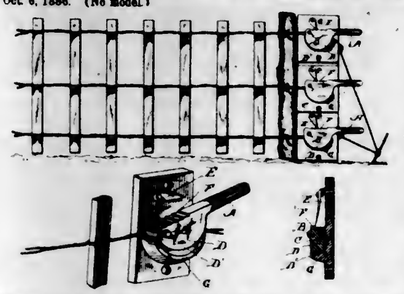


Claim.—1. A combined clamp or buckle and clasp consisting of clamping-plate with side flanges, a plate provided with side flanges and with its upper clamping-edge turned inwardly, the flanges of the plates fitting one within the other, forming a box with smooth surface front and rear, the plates being hinged at their upper ends, forming a clamping device, the lower portion of one of the plates being formed into a smooth-surfaced hook-clasp, the lower end of its frame being bent inwardly and the hook or hooks being bent outwardly therefrom into same plane as front plate, in combination with a hanger adapted to co-operate therewith, said hanger being provided with upturned points to catch under frame or clasp or to guide upon spring of same, or both, substantially as shown and described.

2. The combination, with a hanger or clasp and hanger, of a clamping device consisting of the plate *b*, with the side flanges, *b'* *b'*, and the plate *a*, with the side flanges, a^2 a^2, and with its upper clamping-edge, *a'*, turned inwardly, the side flanges of the plates fitting closely one within the other, forming a box with smooth surfaces on the sides, front, and rear, the plates being hinged at their upper ends, substantially as shown and described.

3. The combination, with a hanger, of a spring-clasp with its spring in the same plane as its frame, the lower end of the frame being bent inwardly and the hook or hooks bent outwardly therefrom into the same plane as the frame, substantially as shown and described.

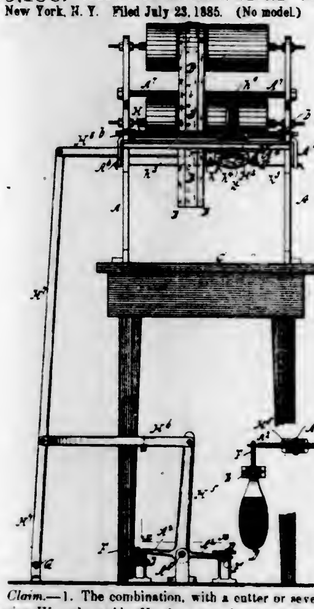
355,135. WIRE-STRETCHER. ELIJAH BUNCH, Richmond, Ind. Filed Oct. 6, 1886. (No model.)



Claim.—1. In a wire-stetcher, the combination of a lever provided with an enlargement upon the side in the line of movement, and ratchet-teeth upon the other, and fulcrumed at a point removed from the center of said enlargement, a stationary flange placed so as to form a clutch in conjunction with the enlargement upon said lever, and the ends of said flange forming resisting-points about the level of the fulcrum of the said lever, and a pawl pivoted above said lever and adapted to engage said ratchet-teeth, substantially as set forth.

2. In a wire-stretcher, the combination of a lever provided with an enlargement upon the side in line of movement, and ratchet-teeth upon the other, and fulcrumed to a plate at a point removed from the center of said enlargement, a pawl pivoted to said plate above said lever, and adapted to engage said ratchet-teeth, and said plate provided with a stationary flange placed so as to form a clutch in conjunction with the enlargement upon the said lever, and the ends of said flange forming resisting-points about the level of the fulcrum of the said lever, substantially as set forth.

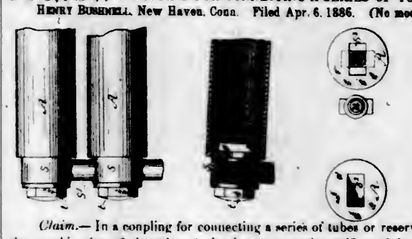
355,136. CUTTING OR SEVERING DEVICE. JOSEPH A. BUNNELL, New York, N. Y. Filed July 23, 1885. (No model.)



Claim.—1. The combination, with a cutter or severing device, H^3, a carrier, H', and a guide, H, of an actuating lever or arm, H^3, connecting mechanism, substantially as described, between the arm H^3 and the carrier H', and a treadle, D D, for positively moving said arm in opposite directions, substantially as set forth.

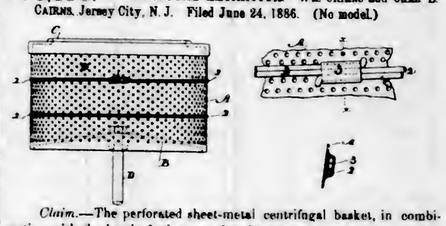
2. The combination, with a cutter or severing device, H^3, a carrier, H', and a guide, H, of the swinging lever or arm H^3, pivoted at its lower portion and having oppositely-projecting rigid arms, A^1 A^2, the pivoted pedals D D, connected, respectively, with the rigid arms, the swinging vertical rod H^7, connected with the carrier, and the rod H^8, connecting the swinging vertical rod with the upper end of the lever or arm, substantially as described.

355,137. COUPLING FOR CONNECTING A SERIES OF TUBES. HENRY BURNHELL, New Haven, Conn. Filed Apr. 6, 1886. (No model.)



Claim.—In a coupling for connecting a series of tubes or reservoirs, the combination of the tubes A, having rectangular orifices a^2 in their heads at one end, the connecting parts *x x*, the T-headed bolts *n*, arranged through the rectangular orifices in the heads and turned at right angles thereto, and the caps *t*, seated in the outer face of the connecting parts and screwed upon the T-headed bolts, all combined substantially in the manner and for the purpose specified.

355,138. CENTRIFUGAL EXTRACTOR. WM. CAIRNS and CHAS. L. CAIRNS, Jersey City, N. J. Filed June 24, 1886. (No model.)



Claim.—The perforated sheet-metal centrifugal basket, in combination with the band of wire passed twice or more around the outside of the same, with the ends lapping past each other and the sheet-metal clip through which passes one convolution, and also the ends of the wire in opposite directions, and to which they are soldered, substantially as specified.

355,139. DISH-WASHING MACHINE. JOSEPHINE G. COCHRAN, Shelbyville, Ill. Filed Dec. 31, 1885. (No model.)

Claim.—1. In combination with the box of a dish-washing machine, receptacles or tanks connected therewith and a movable bottom adapted to cover one receptacle and deflect water falling thereon into the other, substantially as set forth.

2. In combination with the box of a dish-washing machine, an operating-lever, pumps, racks on the piston-rods of said pumps, pivoted racks supported on the main operating-lever, and means for throwing one or other of said pivoted racks into engagement with the rack on one of the piston-rods, substantially as set forth.

3. In combination with the box of a dish-washing machine, partitioned as shown, two pumps, means of connecting one or other at will with the operating handle or lever, a movable bottom for the box, and connections therefrom to the pump-pistons, whereby it is automatically shifted as each pump is alternately operated, substantially as set forth.

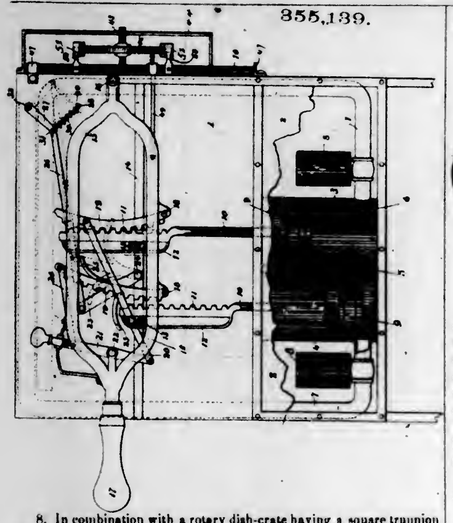
4. In combination with the box 1, the pump piston-rods and a lever for operating the same, a lever, 23, pivoted to the box, having arms 25, projecting over the piston-rods, and a movable bottom wherewith said lever 23 is connected, substantially as set forth.

5. In combination with the lever 23 and means for shifting the same, a crank, 27, a rod, 26, connecting said crank and lever, a movable bottom operated by said crank, and a spring-bolt, 28 29 30, for throwing said crank and lever to its extreme positions to one side or the other, substantially as set forth.

6. The combination, with a box and rotary crate, of two pumps having independent discharge-pipes, a hinged lever adapted to engage either pump-rod, and a connection, substantially as described, by which the lever rotates the crate while connected with either pump.

7. In combination with a horizontal rotary dish-crate, a horizontal shaft connected thereto, a friction-disk thereon, a vertical rock-shaft carrying friction-clutches engaging with said disk, and an operating-lever connected with said vertical rock-shaft, substantially as set forth.

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8. In combination with a rotary dish-crate having a square trunnion at one end for engaging with the operating-shaft and a circular trunnion at the other, a bracket fixed to the box having bearing for the circular trunnion, open at top to permit the removal of the crate, substantially as set forth.

9. A knife-and-fork rack or cage for dish-washing machines, consisting of a frame, 52, provided with end plates, 53, having racks 57, the bars 54, having projections 58, the bars 56, on which the articles are placed, and spring-clamps 55, substantially as described.

10. A plate-and-saucer rack or cage for dish-washing machines, consisting of an approximately rectangular wire cage having an outer web of wires, 59, and the inwardly-projecting vertical wires 60, extending from the corners around the sides and ends, substantially as described.

11. A plate-and-saucer rack or cage for dish-washing machines, consisting of an approximately rectangular wire cage having an outer web of wires, 59, the inwardly-projecting vertical wires 60, extending from the corners around the sides and ends, and the interior frames, 61, having vertical wires 62, similar to the inwardly-projecting vertical wires, substantially as described.

12. A rack for hollow articles, consisting of two wire cages having wires 66, hinged together, means for securing them together at the front, and movable frame 70, spiral springs 69, and connecting-links 71, substantially as described.

355,140. CARPET-LINING. CHAS. H. COLE, Little Rock, Ark. Filed Apr. 24, 1886. (No specimens.)

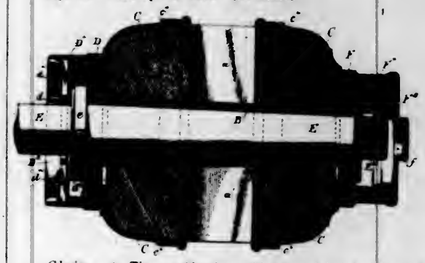


Claim.—1. A carpet-lining consisting of two layers, each layer being provided with a series of ridges and intermediate grooves arranged transversely with respect to the ridges and grooves of the other layer.

2. A carpet-lining consisting of two layers, each being provided with parallel ridges and perforations, the ridges of one layer being transverse to those of another, and the perforations arranged alternately, substantially as set forth.

3. A carpet-lining consisting of layers A and B, the former being provided with ridges *a*, grooves *a'*, and perforations a^2, and the latter with ridges *b*, grooves *b'*, and perforations b^2, the ridges and grooves of one layer crossing those of the other, and the perforations of one layer being opposite the solid part of the other, substantially as set forth.

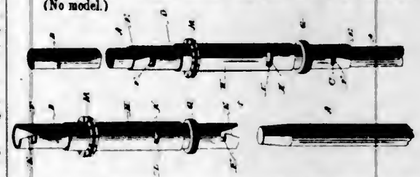
355,141. WAGON-HUB. MARTIN CONRAD and CHRISTOPH HOTZ, Chicago, Ill. Filed Apr. 26, 1886. (No model.)



Claim.—1. The combination, with a wood hub-body, of a box-skein projecting and screw-threaded at both its ends, nuts fitted to the threaded ends of the box and provided with flanges forming sand-bands at both ends of the hub, and separate metal shells covering and closely embracing the ends and adjacent lateral surfaces of the hub, and extending inwardly between the nuts and ends of the hub, substantially as described.

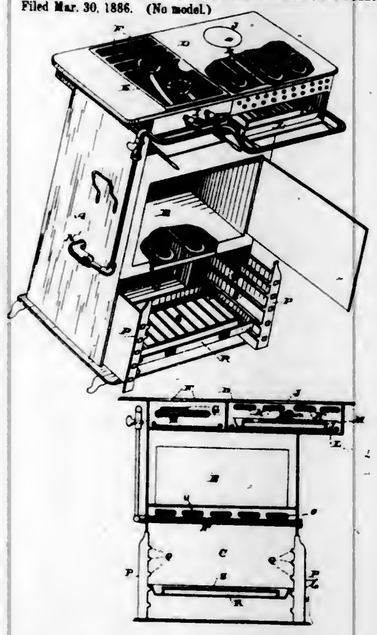
2. The combination, with the inner nut having a sand-band cast integral therewith, of a two-part sand guard or cap screw-threaded to the margin of the sand-band, substantially as described.

355,142. UMBRELLA. THOMAS A. CRABTREE, East Surry, assignor of one-half to Benjamin Morrill, Blue Hill, Me. Filed June 28, 1886. (No model.)



Claim.—The combination, with a runner for umbrellas, having a recess at the base of an outwardly-flaring notch at each end, of a pin projecting from its intermediate portion and a milled ring around its lower portion, and an outer sleeve around said runner having a notch around its upper portion and a slot near its lower portion.

355,143. GAS-STOVE. CHARLES A. CUSHING, San Francisco, Cal. Filed Mar. 30, 1886. (No model.)



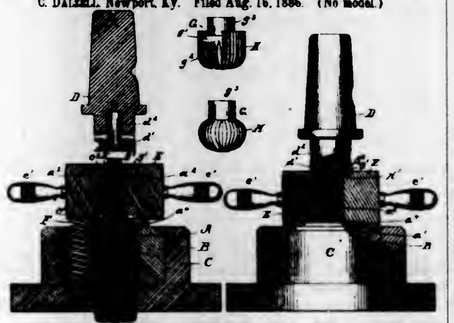
Claim.—1. The combination, with a gas-stove having the holes or openings, as described, of a chamber or space beneath the top, the transversely-arranged water-pipes K, the gas-jet tube N immediately beneath said pipes, and a pan, L, in said chamber, having a wire support, M, arranged immediately below the jet-tube, substantially as herein described.

2. The combination, with the casing A, having the lower cooking-compartment, C, and centrally-placed oven, B, of the transverse water-carrying tubes O beneath said oven, and the gas-jet tube beneath the water-tubes, whereby its heat is utilized for heating the water and cooking articles within the oven and lower compartment, respectively, substantially as herein described.

3. The combination, with the gas-stove, of the lower cooking-compartment formed with two sides and a back, said compartment being fitted to slide within the space beneath the oven, and having the posts P, to which the sides are secured, substantially as herein described.

4. The combination, with a gas-stove having holes or openings in its top, of the circular water-pipes suitably coupled, so that the water may traverse each of said pipes successively, and the circular tubular burners or rings, the heat from which acts upon the water pipes and openings in the stove simultaneously, substantially as herein described.

355,144. DEVICE FOR CAPPING WATCH-CROWN CORES. ALLAN C. DALZELL, Newport, Ky. Filed Aug. 16, 1886. (No model.)



Claim.—1. In an apparatus for covering watch-crown cores with crown-shells, a lower die to support the shell and core, having a concaved corrugated matrix corresponding in shape to the shape of the shell to be pressed over the core, in combination with an upper die having a concaved corrugated matrix to engage the shell and press it around the core, substantially as described.

2. An apparatus for covering watch-crown cores with crown-shells, comprised of the die-holder B, lower die, A, having the corrugated matrix a^2 formed in its upper end, the movable collar E, engaging the upper end of the die A, and the upper die, D, having the matrix *d'* and central opening, d^2, in its lower end, all constructed and arranged substantially as shown and described.

3. In an apparatus for covering watch-crown cores with metallic crown-shells, the combination of the die A, having the matrix a^2 formed in its upper end, the die-holder B, having a series of vertical openings formed therein, as described, the collar E, movably secured to the upper end of said die A, and springs F, seated in the openings in the die-holder and acting against the under side of collar E to press it upward, substantially as and for the purpose described.

4. The die A, having the tapered base portion *a'*, stem a^3, of lesser diameter than the base portion, and having the corrugated matrix a^2 formed in its upper end, and the annular flange a^4 formed between the stem and the base portion, substantially as and for the purpose set forth.

355,145. ROLL-STICK FOR CARPETS, &c. CHARLES W. DAVIS and HENRY RATH, Jr., Philadelphia, Pa. Filed Sept. 1, 1886. (No model.)

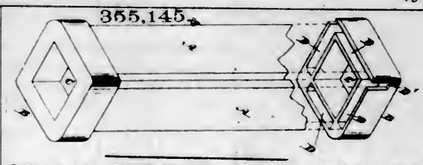
Claim.—1. A barrel or roll-stick for the purpose described, formed of heads and slats, the former having polygonal sides and provided with recesses extending at angles to each other, whereby the slats may be angularly arranged, all substantially as described.

2. An angular barrel or roll-stick for the purpose stated, formed of heads B and slats A, each head being many-sided, and having an opening in its center and a series of recesses on its inner face near the periphery, the recesses extending angularly relatively to each other and parallel with the corresponding sides of the head, substantially as set forth.

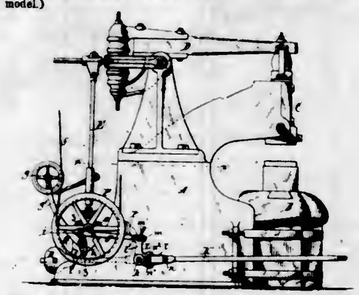
3. A roll-stick for carpets or cloth, having heads with recesses D on their inner faces, one or more of said recesses opening to the outer edge of the head, and slats A, having their ends adapted to rest in the recesses D, all substantially as described.

4. A roll-stick for carpets, composed of heads and slats, the heads having recesses adapted to receive the ends of the said slats, one or more recesses leading to the outer edge of the heads, whereby one or more of said slats may be placed in or removed from said roll without interfering with the heads or the other slats thereof, substantially as described.

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355,146. POWER-HAMMER. MICHAEL DEERING, Syracuse, N. Y., assignor to Christopher C. Bradley, same place. Filed Oct. 16, 1886. (No model.)



Claim.—1. In a power-hammer, the combination, with the driving-pulley and treadle, of a reversible tightener lever and pulley, substantially as set forth.

2. In a power-hammer, the combination, with the driving-pulley and treadle, of a reversible tightener lever and pulley and an adjustable rod whereby the treadle is connected with the reversible tightener-lever, substantially as set forth.

3. In a power-hammer, the combination, with the driving-pulley and treadle, of a reversible tightener-lever, G, provided with two arms, *i i'*, on opposite sides of its fulcrum, and a rod, J, whereby the treadle is connected with either of the arms *i i'*, substantially as set forth.

4. The combination, with the elbow-lever L, tightener-lever G, and connecting-rod J, of the treadle K, pivotally connected with the elbow-lever L, whereby the front end of the treadle can be raised and lowered, substantially as set forth.

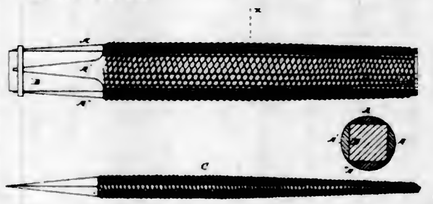
5. The combination, with the tightener-lever G, connecting-rod J, elbow-lever L, and brake-lever P, of the treadle K, adjustably connected with said elbow-lever and brake-lever, whereby the front end of the treadle can be raised and lowered, substantially as set forth.

6. The combination, with the brake-lever P and elbow-lever L, of a treadle adjustably attached to said brake-lever and elbow-lever, a removable tightener-lever, G, and an adjustable connecting-rod, J, whereby the elbow-lever L is connected with the reversible tightener-lever G, substantially as set forth.

7. The combination, with the elbow-lever L and brake-lever P, provided, respectively, with segmental slots n^2 q^2, of the treadle K and fulcrum-bolts *n q* and adjusting-bolts *n' q'*, whereby the treadle is adjustably secured to said elbow-lever and brake-lever, substantially as set forth.

8. The combination, with the reversible tightener-lever G, provided with arms *i i'* on opposite sides of its fulcrum, of a connecting-rod, J, an elbow-lever, L, provided with slots *m* and n^2, a bolt, *m'*, by which the connecting-rod is adjustably secured in the slot *m*, a treadle, K, and a fulcrum-bolt, *n*, and adjusting-bolt *n'*, by which the treadle is adjustably secured in the slot n^2, substantially as set forth.

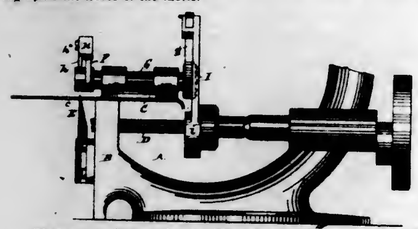
355,147. PROCESS OF MAKING FILES. JOHN W. DENMEAD, Akron, Ohio, assignor of one-half to James H. Stratton, same place. Filed May 10, 1886. (No model.)



Claim.—The herein-described process of cutting round and part-round files, which consists in turning away the material in grooves, leaving between said grooves a filiet, substantially as herein described, and for the purpose specified.

355,148. FABRIC-TRIMMER. John W. Dewees, Philadelphia, Pa. Filed Nov. 30, 1883. (No model.)

Brief.—The device is an improvement on that embraced in Patent No. 266,785, dated October 31, 1882, granted to same, and has for its object to effect the trimming of hosiery or other fabric by abrasion or rupture, the striking of the hammer on the anvil crushing and breaking apart the fibers of the fabric.

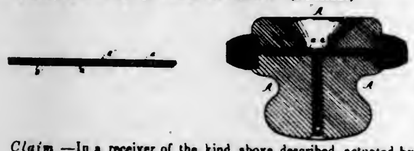


Claim.—1. In a sewing-machine trimmer, the combination, with the stitch-forming mechanism, of a straight-edged blunt trimming-jaw having its edge parallel with the line of feed, a flat-faced hammer or striker arranged above said trimming-jaw, and means whereby said hammer is continuously reciprocated during the sewing operation, so as to strike squarely against said trimming-jaw, said striker or hammer and jaw being composed of metal sufficiently hard to resist the crushing action of the opposing impinging surface, and operating to trim fabric by rupturing, crushing, or abrading the latter, substantially as shown and described.

2. In combination with the stitch-forming mechanism of a sewing-machine, an anvil or support adjacent thereto having its supporting-surface parallel with the line of feed, a blunt hammer or striker above said anvil, and mechanism for reciprocating said hammer so as to cause it to strike against said anvil or support, said anvil and hammer being composed of metal sufficiently hard to resist the crushing action of the opposing impinging surface, and operating to trim fabric by rupturing, crushing, or abrading the latter, substantially as shown and described.

3. In combination with the stitch-forming mechanism of a sewing-machine, an anvil or support adjacent thereto having its supporting-surface parallel with the line of feed, and a hammer or striker, with mechanism for producing a reciprocating movement thereof, whereby said hammer or striker and said anvil are made to impinge one against the other, said anvil and hammer or striker being composed of metal sufficiently hard to resist the crushing action of the opposing impinging surface, and operating to trim fabrics by rupturing, crushing, or abrading the latter, substantially as described.

355,149. TELEPHONE-RECEIVER. Amos E. Dolbear, Somerville, Mass., assignor, by mesne assignments, to the Dolbear Electric Telephone Company, of New Jersey. Filed Feb. 15, 1882. (No model.)



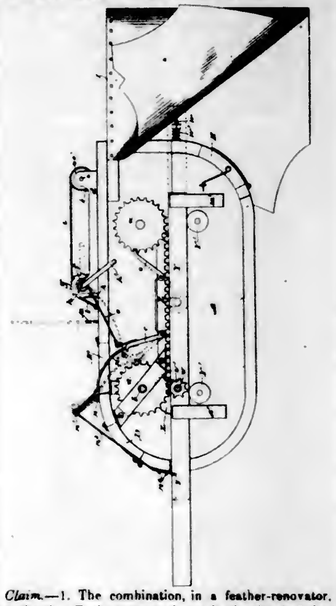
Claim.—In a receiver of the kind above described, actuated by variations of potential, the electrified dielectric coating *a'*, in combination with the diaphragm *a*, as and for the purpose specified.

355,150. TOOL-HANDLE. James Dowgeur, Cleveland, Ohio. Filed May 1, 1886. (No model.)



Claim.—The improvement in tool-handles, which consists in the combination, with the handle A, of a sheet-metal cap, B, covering the end of the handle, and a feather-edge extending inward around the shank of the tool and secured to the wood, substantially in the manner described.

355,151. FEATHER-RENOVATOR. Henry B. Doolittle, Doolittle's Mills, Ind. Filed June 23, 1886. (No model.)



Claim.—1. The combination, in a feather-renovator, of the case having the slots T, the rotary agitator having its shaft journaled in the said slots, the said blower being movable longitudinally in the case, and the hooked rods to engage the shaft of the agitator at each end of the slots, for the purpose set forth, substantially as described.

2. The combination, in a feather-renovator, of the case A, having the longitudinal slots T, the rack-bars, and the spur-wheels located at the ends of the said rack-bars, with the rotary agitator having its shaft journaled in the slots T, and provided with gear-wheels adapted to mesh with the rack-bars and spur-wheels of the case, substantially as described.

3. In a feather-renovator, the combination of the case having the inlet and discharge openings and the vertical guideways *n* in its sides, the agitator, and the vertically-movable horizontal board O, having the vertical end board M, working in the guideways N, for the purpose set forth, substantially as described.

4. The combination, in a feather-renovator, of the case having the inlet and discharge openings, the agitator for creating a current of air in the case, the board O, located in the case, and means for raising and lowering the said board, for the purpose set forth, substantially as described.

5. The combination, in a feather-renovator, of the case A, having the slots T, the rack-bars, the spur-wheels at the ends of the rack-bars, and the detent or dogs engaging the said spur-wheels, with the rotary agitator having its shaft journaled in the slots T, and the pinions to mesh with the rack-bars and the spur-wheels, for the purpose set forth, and means, substantially as described, for tripping the dogs and disengaging them from the spur-wheels, substantially as described.

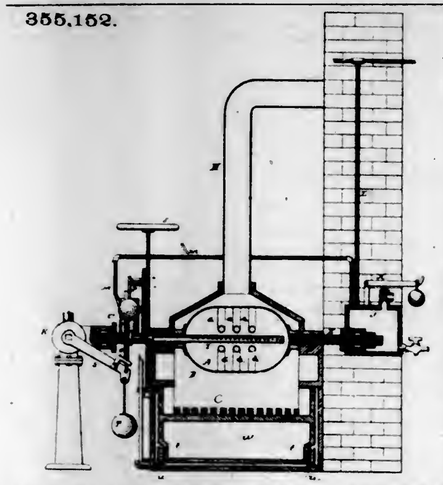
6. In a feather-renovator, agitator movable longitudinally in the case, in combination with rack-bars geared to the agitator-shaft and adapted to move the same, and means, such as hook-bolts, to hold the agitator-shaft from movement when desired, as set forth.

355,152. STEAM-GENERATOR. James B. Doolittle, Wallingford, Conn. Filed Aug. 30, 1886. (No model.)

Claim.—1. The combination of a fire-box, a chamber over said fire-box, and a rotating boiler of cylindrical shape hung in said chamber upon tubular trunnions at each end, the one adapted to receive through it a supply of water and the other to permit the escape of steam from the boiler, the said boiler of cylindrical shape with series of U-shaped flues arranged therein and in planes substantially at right angles to the axis of the boiler, the legs of the said U-shaped flues opening through the shell of the boiler, substantially as described.

2. The combination of a fire-box, a boiler hung above the said fire-box upon tubular trunnions, one of said trunnions adapted to receive a supply of water through it to the boiler, a rotative valve communicating with said trunnion for the supply of water, the second trunnion opening into a steam-chamber, a cylinder and piston, a pipe leading from said

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steam-chamber to said cylinder beneath the piston, a lever supported upon said piston and counterbalanced, and a second lever fixed to the axis of said rotative valve, with a connection therefrom to said lever, substantially as described.

3. The combination of a fire-box, a boiler hung above said fire-box upon tubular trunnions, one of said trunnions adapted to receive a supply of water through it to the boiler, a steam-chamber, J, into which the second of said trunnions opens from the boiler, a valve, R, adapted to open and cut off the supply of water to or from the first of said tubular trunnions, a lever, S, fixed to the axis of said valve, a cylinder, N, piston O, counterbalance-lever P, resting on said piston, pipe leading from said steam-chamber to said cylinder beneath the piston, a cylinder, U, above, and with a connection therefrom to the valve-lever S, a piston, *a*, in said cylinder U, carried by said lever P, the upper end of the said cylinder provided with an aperture for the slow escape of air, and the lever *g*, constructed with a shoulder, *f*, and with an incline, *m*, with a corresponding stud, *l*, on said lever P, substantially as and for the purpose described.

4. The combination of a fire-box, a boiler hung upon tubular trunnions, one of said trunnions adapted to receive through it a supply of water to the boiler, a steam-chamber into which the second trunnion opens, a cylinder, a piston therein, a pipe leading from said steam-chamber to the cylinder beneath the piston, a counterbalanced lever, P, a toothed wheel on the axis of the boiler, and a pawl in connection with said lever P, adapted to engage the teeth of the wheel on the boiler, substantially as described, and whereby the up-and-down movement of the lever P will impart rotative movement to the boiler.

5. The combination of a boiler-chamber, a pit below said boiler-chamber and extending to the rear thereof, a flue leading from the boiler-chamber, and a second flue from the pit in rear of the boiler-chamber, the boiler hung upon an axis in said chamber and adapted to revolve therein, the axes of said boiler tubular for the admission of water and exit of steam, with a carriage arranged in said pit beneath the boiler carrying the fire-box, said carriage adapted to be moved from beneath the boiler-chamber to the portion of the pit in rear of the boiler-chamber and return, substantially as described.

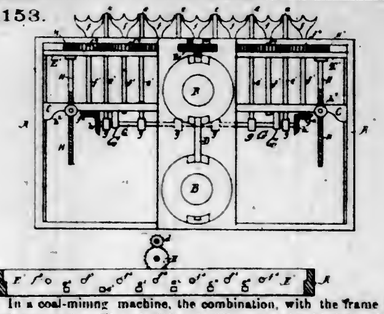
355,153. COAL-MINING MACHINE. George Ernst McDonald Station, Pa. Filed Jan. 6, 1886. (No model.)

Claim.—1. In a coal-mining machine, the combination, with the frame A, having the cross-piece E' and slide C, of the augers or bits *f* and cutters *e*, arranged in said cross-piece and slide, the former to revolve and the latter to slide longitudinally of the frame therein, as shown and described, and for the purpose set forth.

2. In a coal-mining machine, the combination, with the frame A and its cross-piece E' and sliding bar C, having the revolving bits *f*, and spring sliding cutters *e*, of the shafts D G, and mechanism connected to said shafts, as described, for operating said bits and cutters, as and for the purpose described.

3. In a coal-mining machine, the combination, with the frame A, having the cross-piece E' and sliding bar C, the bits *f*, and spring-cutters *e*, the former arranged in circular bearings in the cross-piece and bar to bore into the coal and the latter arranged in the cross-piece and bar by rectangular openings to cut the coal after being bored by the bits, of the shafts D G, for operating said bits and cutters, as shown and described.

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4. In a coal-mining machine, the combination, with the frame A, having the cross-piece E', and sliding bar C, arranged behind the piece E', the bits *f* and cutters *e*, arranged in said piece and slide, the former to revolve and the latter to slide therein, of the shafts D G, the cams *g* on said shaft G, and the cog-wheels *d* E *f*^{1} *h*, arranged to operate the bits and cutters, as shown and described.

5. In a coal-mining machine, the combination, with the frame having the cross-piece E' and slide C, the bits *f* and cutters *e*, arranged in said piece and slide, as described, of the feed-screws H, located at each end of the frame and provided with the threaded guides H^1, having springs *h'* *h*^{1}, and the hand-screws *h*^{2}, to regulate the feed of the bits and cutters, as shown and described.

6. In a mining-machine, the combination, with revolubie augers, and a longitudinally-reciprocating cutter arranged intermediate of the augers, of a cross-head arranged on the augers to advance therewith, and constructed to form a guide for the cutter-bar, substantially as described, and for the purposes set forth.

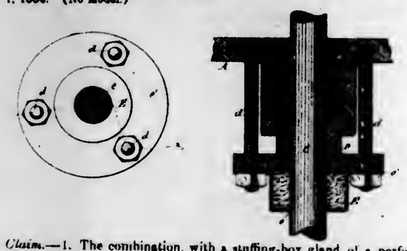
355,154. CLAMP FOR HOLDING GUN-BARRELS WHILE BEING CLEANED. Frank M. Everett, Washington, D. C. Filed Aug. 4, 1886. (No model.)



Claim.—1. The improved portable apparatus for holding gun-barrels while cleaning them, the same consisting of the bar A, the clamps applied to the latter and formed of laterally-adjustable rigid metal parts having standing and horizontal portions, and vertical screw-bolts passing through said bar for securing the clamps proper in any required adjustment, as shown and described.

2. The combination, with the stock A, having transverse grooves 4 4, of the clamps 1 1, formed of inwardly-curved standing portions and slotted horizontal portions adapted to slide in said grooves, and screws and nuts for securing said parts 1 1 to the stock, as shown and described.

355,155. LUBRICATOR. Robert Fleming, Buffalo, N. Y. Filed June 1, 1886. (No model.)

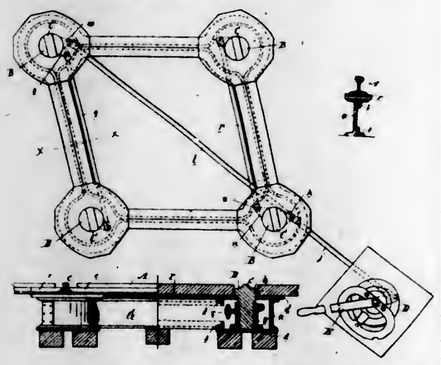


Claim.—1. The combination, with a stuffing-box gland, of a perforated open receptacle adapted to receive a solid lubricant and secured detachably to the outer side of the gland, substantially as set forth.

2. The combination, with a stuffing-box gland, of an open receptacle for solid lubricants, detachably secured to the outer side of the gland and composed of two halves joined together diametrically, substantinlly as set forth.

3. The combination, with a stuffing-box and a rod passing through the same, of a receptacle for a lubricant, composed of two parts, F F', provided with lips secured to one part and overlapping the other part, and a clasp, f1, whereby the two parts are secured together, substantially as set forth.

355,156. RAILWAY-CROSSING. Eugene Fontaine, Wagon Works, Ohio. Filed Sept. 23, 1886. (No model.)



Claim.—1. In a railway-crossing having rotatable posts at the intersections, a continuous rail-support in the form of a four-sided curb with circular enlargements at the corners, substantially as described.

2. In a railway-crossing having rotatable posts at the intersections, the combination, with a continuous supporting-girder forming circular wells at the corners, of top and bottom plates inclosing said circular wells, substantially as described.

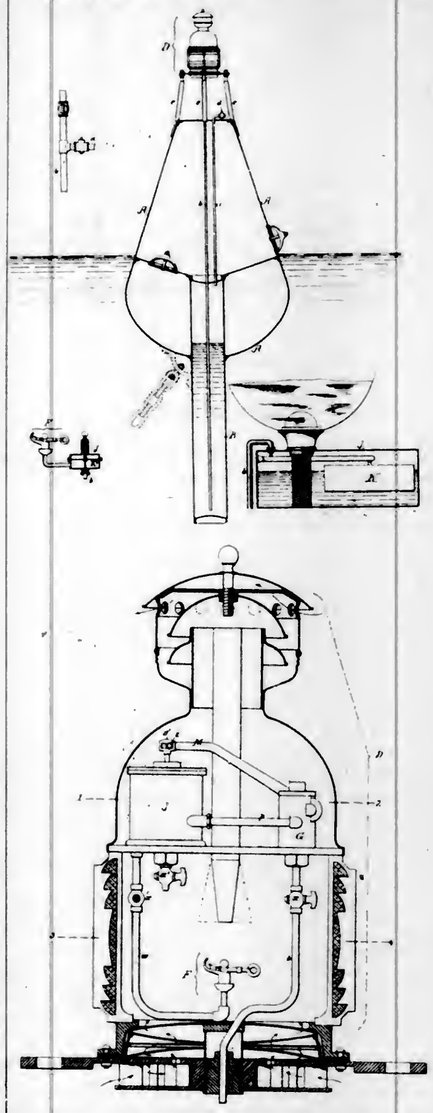
3. In a railway-crossing having rotatable posts at the intersections, a continuous rail-support in the form of a four-sided curb with circular enlargements at the corners, the same consisting of the channel-bars *a* and the angle-bars *b*, connected as described, to form openings from the central well into the corner wells, substantially as specified.

4. In a railway-crossing having rotatable posts at the intersections, the combination of the continuous rail-support C, having circular enlargements at the corners, the top and bottom plates inclosing said circular enlargements, and the corrugated plates *r*, intermediate between the corners, substantially as described.

5. In a railway-crossing having rotatable posts at the intersections interconnected with each other by cranks and connecting-rods, the combination, with a main connecting-rod diagonally connecting two posts, of two connecting-rods connecting each of the posts thus connected with one of the remaining two posts, respectively, substantially as described.

6. In a railway-crossing having rotatable posts at the intersections interconnected with each other by cranks and connecting-rods, the combination, with a continuous rail-support forming a central well with circular enlargements at the corners communicating therewith, and wherein the posts are pivotally secured, of a main connecting-rod diagonally connecting two of the posts, and of sub-connecting-rods connecting each of the posts thus connected with the two remaining posts, respectively, all arranged substantially as described.

355,157. BUOY OR BEACON. John M. Foster, Philadelphia, Pa. Filed Sept. 28, 1885. (No model.)

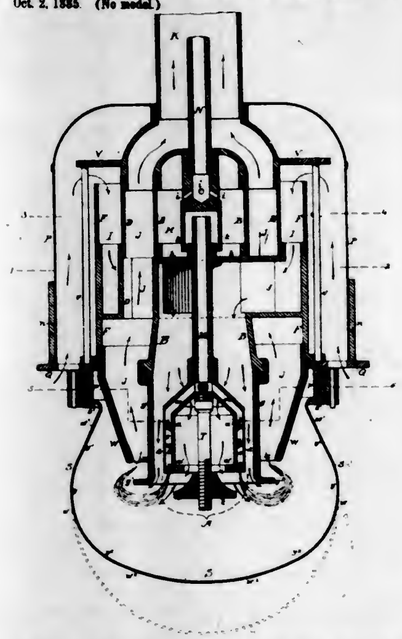


Claim.—1. The combination, in a buoy or beacon, of the body having a hermetically-closed oil-reservoir, a valved supply-pipe therefor, a burner surmounting said body, a feed-vessel for said burner, a pipe for conveying oil from the reservoir to said feed-vessel, a valve in said pipe, and a float or equivalent device, as described, connected to said valve and contained in the feed-vessel, and acted upon by the oil therein, whereby the supply of oil to the feed-vessel is automatically regulated, all substantially as specified.

2. The combination, in a buoy or beacon, of the body having a hermetically-closed oil-reservoir, a valved supply-pipe therefor, a vapor-burner surmounting said body, a feed-vessel above said burner, pipes through which oil can pass from the reservoir to said feed-vessel, and from the latter to the burner, a valve controlling the flow from the reservoir to the feed-vessel, and a float contained in the feed-vessel and connected to said controlling valve, all substantially as specified.

3. The combination, in a buoy or beacon, of the body having a hermetically-closed oil-reservoir, a vapor-burner surmounting said body, a feed-vessel above said burner, a float contained in said vessel, a casing, G, having two chambers, a valve controlling the passage between said chambers, a pipe forming a communication between one of said chambers and the reservoir, a pipe forming a communication between the other chamber and the feed-vessel, and a rock-shaft having arms connected to the valve and float, all substantially as specified.

355,158. GAS-BURNER. John M. Foster, Philadelphia, Pa. Filed Oct. 2, 1885. (No model.)



Claim.—1. The combination of a deflecting-button with a burner-body inclosing an air-passage and constructed to discharge the gas downward from its lower end, said burner-body having an internal flange, *a'*, at the discharge end, whereby the air is directed onto the button and the lateral escape of air directly across the gas-discharging orifices of the burner-body is prevented, all substantially as specified.

2. The combination of a burner body inclosing an air passage and constructed to discharge the gas downwardly from its lower end, an internal flange, *a'*, at the discharge end of the burner-body, whereby the lateral escape of air directly across the gas-discharging orifices is prevented, a deflecting-button adjacent to the discharge end of the burner, and an outer deflecting-cylinder inclosing an air-passage, which surrounds the burner-body, the lower end of said deflector being below the discharge end of the burner-body, all substantially as specified.

3. The combination of a burner-body inclosing an air-passage and constructed to discharge the gas downwardly from its lower end, an internal flange, *a'*, at the discharge end of the burner-body, whereby lateral escape of air directly across the gas-discharging orifices is prevented, a deflector-button adjacent to the discharge end of the burner-body, an outer deflecting-cylinder inclosing an air-passage which surrounds the burner-body, air and gas heating chambers, and a passage for the escape of the products of combustion, all substantially as specified.

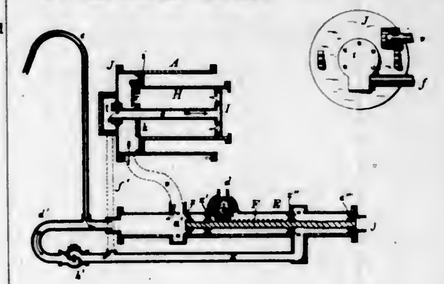
4. The combination of the flanged globe S, the frame *q*, having a flange, P, and the two part ring *s*, having a flange, *s'*, as set forth.

5. The combination, in a gas-burner, of a burner-body, a passage for the escape of the products of combustion, a chamber for heating the gas, and chambers for heating air before it can gain access to the flame, with a flame-deflector consisting of a shell of metal having a powdery coating or deposit of chalk, or its equivalent, upon the surface, all substantially as specified.

6. The combination of the burner-body and flame-deflectors, constructed as described, whereby the outer portion of the flame-body presents a curved outline, with a globe, S, having a rounded body, *w*, contracted top *w'*, and flattened bottom w^3, all portions of said rounded body being substantially equidistant from the curved outer portion of the flame-body, all substantially as specified.

7. The combination of the burner, the passage for the escape of the products of combustion, a globe inclosing the combustion-chamber, a passage for supplying air to the burner, a damper for closing said passage, and means, substantially as described, whereby the globe-holder and damper are connected for joint operation, all substantially as specified.

355,159. HYDRAULIC ELEVATOR. William T. Fox, Rochester N. Y. Filed Mar. 8, 1886. (No model.)



Claim.—1. In a hydraulic elevator, the combination of a main cylinder having inlet and discharge passages in communication therewith, an inner movable cylinder connected to the weight to be moved, constituting a piston for the main cylinder and having a valve for effecting communication between the two cylinders, a piston in the inner cylinder, means of communication between the discharge of the outer cylinder and the inner cylinder, and valves for controlling the inlet and discharge to and from the main cylinder, whereby by a manipulation of valves the water in the inner cylinder may be caused to pass into the outer cylinder and be there reutilized when light loads are to be moved.

2. In a hydraulic elevator, the combination, substantially such as described, of a main cylinder, an inner movable cylinder forming a piston for the main cylinder and having a valve for effecting communication between the two cylinders, a stationary piston within the movable cylinder, inlet and discharge passages to and from the main cylinder, valves for controlling said passages, means of communication between the discharge-passage of the main cylinder and the inner cylinder, and an overflow-pipe connected to said discharge-passage, for the purpose specified.

3. In a hydraulic elevator, the combination, substantially as described, of the main cylinder, the inner movable cylinder having the valve, the stationary piston within the movable cylinder, inlet and discharge passages leading to and from the main cylinder, valves for controlling said passages, means of communication between the discharge-passage and inner cylinder, and a check-valve in the discharge-passage.

4. In a hydraulic elevator the combination, substantially as described, of the main cylinder, the inner movable cylinder having the valve, the stationary piston within the movable cylinder, inlet and discharge passages leading to and from the main cylinder, valves for controlling said passages, means of communication between the discharge-passage and inner cylinder, and a check-valve and overflow-pipe in the discharge-passage.

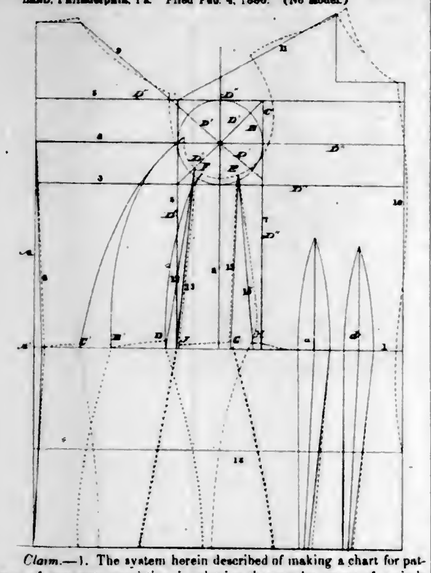
5. In the herein-described hydraulic elevator, the combination of the main cylinder, the inner movable cylinder having the valve, the stationary piston having a hollow piston-rod in the inner cylinder, inlet and discharge passages to and from the main cylinder with valves controlling the same, and means of communication between the hollow piston-rod and the discharge-passage.

6. In the herein-described hydraulic elevator, the combination, with the main cylinder, the inner movable cylinder, and the valve, of the stationary piston in the main cylinder, the inlet and discharge passages leading to and from the main cylinder, means of communication between the main cylinder and the discharge-passage, and the movable valve F, having the pistons z z' z^2 z^3, for co-operating with the ports in the inlet and discharge passages, as set forth.

7. The combination, with the main cylinder A, hollow piston-rod *o*, and piston I, of the inner movable cylinder, H, provided with piston *i*, fitted to rod *o* and to main cylinder A, valve F, pipes *v* and *f'*, and overflow-pipe *e*, substantially as described.

8. In a hydraulic elevator, the combination of a main cylinder having inlet and discharge passages in communication therewith, an inner movable cylinder constituting a piston for the main cylinder, and having an automatic valve opening toward the main cylinder for effecting communication between the two cylinders, a piston in the inner cylinder, means of communication between the discharge of the outer cylinder and the inner cylinder, and means for controlling the inlet and discharge to and from the main cylinder, whereby by a manipulation of valves the water in the inner cylinder may be caused to pass into the outer cylinder and be there reutilized, substantially as described.

355,160. CHART FOR DRAFTING GARMENTS. Elizabeth Gartland, Philadelphia, Pa. Filed Feb. 4, 1886. (No model.)

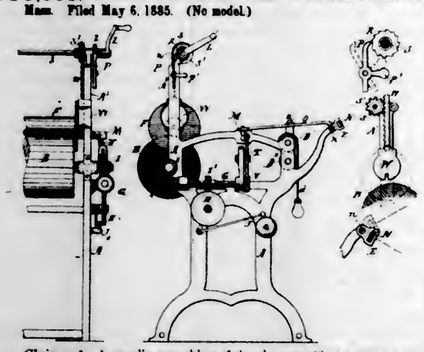


Claim.—1. The system herein described of making a chart for patterns of garments, consisting in plotting thereon by means of a circle whose circumference is the proper arm-measurement of the garment to be patterned, and a waist-line distant from said circle the proper under-arm measurement, slanting diameters of said circle drawn at angles, substantially as described, and other lines connected with said circle, waist-line, and slanting diameters, all of the various body measurements, as set forth.

2. An improved chart for making patterns of garments, consisting of a chart having thereon as the basis for drawing the outlines a circle whose circumference is the proper arm-measure of the garment to be patterned, and a waist-line distant from the circle the proper under-arm measurement, and a series of slanting diameters, as described, and lines of the lengths of the various body measurements, all substantially as described.

3. A chart for drafting the outlines of patterns having thereon a circle with slanting diameters, substantially as described and shown, and lines tangential to said circle, and other lines parallel to said tangential lines, said circle having a circumference equal to the proper arm-measurement of the garment to be patterned, all substantially as and for the purpose set forth.

355,161. SPOOLING-MACHINE. Silas W. Goddard, Worcester, Mass. Filed May 6, 1885. (No model.)



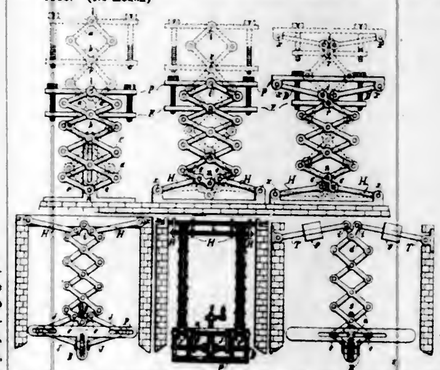
Claim.—1. A spooling-machine of the class specified, having a revoluble cylinder supported in bearings on the frame, a removable yarn-receiving spool resting upon said cylinder, independently-sliding slotted weights embracing the respective spool-journals for confining said spool upon the cylinder, a shaft provided with sheaves disposed above said weights, weight-suspending chains respectively connecting said weights and sheaves, whereby the independent weights at both ends of the spool can be simultaneously raised and lowered, and a hand-crank and locking devices, in combination with said shaft, said parts being constructed as shown and operating as set forth.

2. The combination, substantially as hereinbefore described, with the tension-regulating rolls in a spooling-machine, of thread-guides at front and rear of said rolls and means for imparting reciprocative lateral movement to said guides, for the purpose set forth.

3. The combination, substantially as hereinbefore described, of the tension-rolls D D', reciprocating guide-bars M and N, connecting-lever O, and means, substantially such as described, for imparting movement thereto, for the purpose set forth.

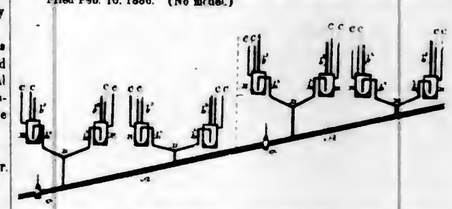
4. The combination, substantially as hereinbefore described, with the frame or sustaining-brackets, of the thread-guiding bar N and the guiding-bearings E, for supporting said bar, pivoted to said brackets and adjustable about their pivot-centers for changing the inclination of said guide-bar, for the purpose set forth.

355,162. ELEVATOR. William Gres, Chicago, Ill. Filed Oct. 30, 1885. (No model.)



Claim.—In combination with a series of lazy-tongs, attached platform, and a screw, a series of toggle-joint braces turning in fixed points at their outer ends, and whereof their inner ends are attached to opposite bars of the lazy-tongs, substantially as specified.

355,163. SEWER SYSTEM. Charles E. Grunsky, Sacramento, Cal. Filed Feb. 10, 1886. (No model.)



Claim.—1. The combination, with a sewer, of a group of elevated self-discharging sewage-receivers, the said receivers being placed at the same elevation and arranged in one or more groups or pairs throughout a district, whereby the sewage in the collecting pipes and mains may be subjected to pressure limited only by the elevation of said receivers, substantially as herein described.

2. The combination, with the sewer, of the self-discharging receivers of a sewage system arranged in one or more groups, in each of which all receivers are placed at the same elevation, sufficiently great to insure a pressure in the collecting pipes and mains that will make them independent of grade, substantially as described.

3. The combination, with the sewer-main for each district containing one or a group of self-discharging receivers at equal elevation, of the gates or valves *a*, for the purpose of causing a backflow through the sewer-pipes into the receivers, substantially as described.

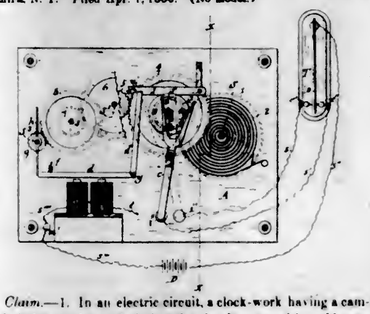
4. In combination with a sewer-main, one or more self-discharging receivers placed at an elevation above the main, pipes connecting the receiver with the closets, sinks, basins, &c., pipes connecting it with the main, and gates or valves in the main for causing a backflow into the receivers to effect flushing, substantially as described.

5. The combination of the main A, provided with check valves or gates *a*, with the elevated self-discharging receivers B, arranged in one or more pairs or groups placed at the same elevation throughout a district, and the pipes D, connecting said receivers with the main, substantially as described.

6. The sewer-main A, open only at its point of discharge, in combination with the closed receiver B, placed at an elevation above the main, and consisting of a tank, *b*, and a draining-siphon, b^2, the vent-pipe b^3 from the tank, the pipes C from the closets, basins, sinks, &c., emptying into the tank, and the pipe D, connecting the siphon with the main, substantially as described.

7. The self-discharging elevated receiver B, consisting of the closed tank *b*, having a sloping bottom, *b'*, and connected with the pipes leading from the closets, basins, sinks, &c., the siphon-pipe b^2, for draining the tank and connected with the pipes leading to the sewer-main, the vent-pipe b^3 from the top of the tank, and the vent-pipe b^4, connecting said pipe b^2 with the pipe to the main, substantially as herein described.

355,164. ELECTRIC HEAT-REGULATOR. Richard L. Guion, Elmira, N. Y. Filed Apr. 7, 1886. (No model.)



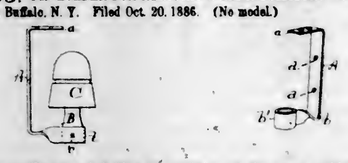
Claim.—1. In an electric circuit, a clock-work having a cam-wheel, a switch for opening and closing the circuit operated by said cam-wheel, electro-magnets, an armature adapted to engage and stop the clock-work, and a latch actuated by the cam-wheel and adapted to retain the armature out of engagement with the clock-work, as set forth.

2. In an electric circuit, a clock-work having a cam-wheel with two sets of cams, a switch-lever adapted to open and close the circuit and operated by one set of said cams, a latch operated by the other set of cams, electro-magnets, and an armature held normally in engagement with the clock-work to stop the motion thereof, and adapted to engage the latch when attracted by the magnets, substantially as set forth.

3. In an electric circuit, the combination of a clock-work, electro-magnets, the armature, a spring for drawing the armature in engagement with the clock-work, a cam-wheel having two sets of cams, a latch actuated by one set of said cams and adapted to retain the armature out of engagement with the clock-work, an oscillatory switch-lever actuated by the other set of cams, and binding-posts in the path of said lever at the extremities of the oscillations thereof, substantially as described and shown.

4. In an electric circuit, the combination of a thermostat having electric contact-points brought in contact under the influence of heat, a clock-work having a cam-wheel with two sets of cams, an oscillatory switch-lever actuated by one set of cams, binding-posts in the path of said lever, electro-magnets, a pivoted armature, a spring for drawing the armature into engagement with the clock-work to stop the motion thereof, and a latch actuated by the other set of cams and adapted to retain the armature out of engagement with the clock-work, and cranks or pulleys on the shaft of the cam-wheel, substantially as described and shown.

355,165. PIN-HOLDER FOR ELECTRIC-WIRE INSULATORS. Mack Hanley, Buffalo, N. Y. Filed Oct. 20, 1886. (No model.)

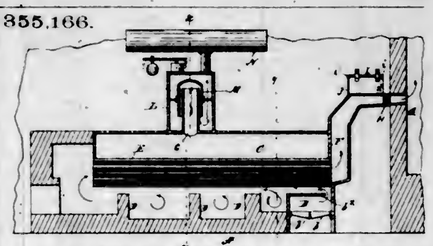


Claim.—The metal holder A, consisting of the arm *a*, which is made or bent at right angles to the back or body, and having holes therein, the bottom bent forward into an arm, *b*, and formed into a socket or holder, *b'*, and in combination with a screw-pin, B, all substantially as and for the purpose specified.

355,166. SEPARATOR FOR STEAM-GENERATORS. Michael W. Hanley, Chicago, Ill. Filed Apr. 25, 1884. (No model.)

Claim.—1. In a separator for steam-generators, the combination, with a steam-dome and a steam-pipe passing upward through the bottom of said dome, of a cap or casing closed at the top and open at the bottom and covering the open upper end of the steam-pipe, substantially as specified.

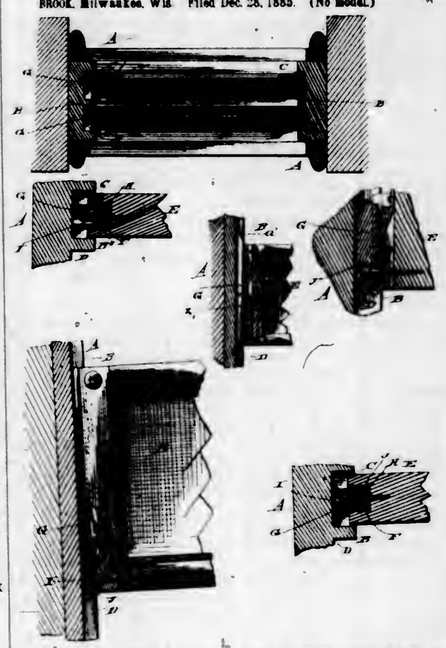
355,166.



2. In a separator for steam-generators, the combination, with a steam-dome closed at the bottom and a steam-pipe passing upwardly through said closed bottom and terminating within the dome, of a cap or casing having a closed upper end and open lower end, the said dome, pipe, and casing being arranged substantially as shown and described, and for the purposes specified.

3. The combination, with the boiler G and steam-dome L, closed at the bottom, of the pipe *c*, extending from the boiler upward into the steam-dome, and the cap M, arranged within the dome above the end of the pipe *c*, and extending downward around the same toward the bottom of the dome, substantially as and for the purposes specified.

355,167. SPRING-STRIP FOR INSIDE BLINDS. Walter A. Holbrook, Milwaukee, Wis. Filed Dec. 28, 1885. (No model.)



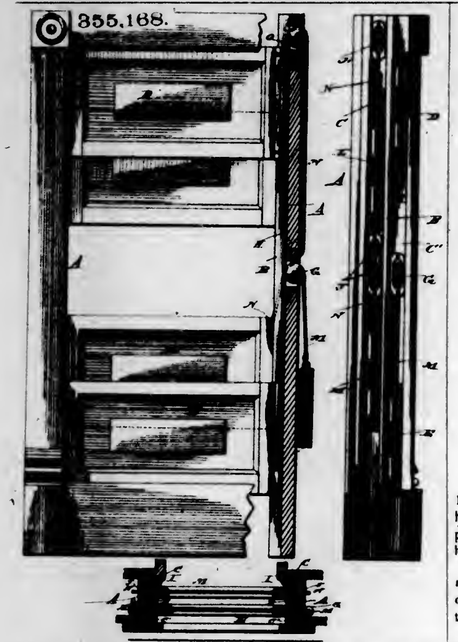
Claim.—1. The combination, with a window-casing having runways, as described, of a window-sash having the vertical grooves F, the curved lateral springs H, secured therein, the tongue-strips engaging the said springs and provided with the sash-cord guides, and the screws passing through the tongue-strips and into the sash, whereby the said strips may be adjustably secured thereto, substantially as specified.

2. A wedge piece or pieces, as Z, in combination with vertically-grooved blind-sections or sashes, having spring-actuated tongue-strips in said grooved edges, substantially as specified.

355,168. INSIDE BLIND. Walter A. Holbrook, Milwaukee, Wis. Filed Dec. 28, 1885. (No model.)

Claim.—The combination, with a window-frame constructed as described and provided with the sashways having the central vertical integral parting-strips and the outer guide-strips, of the pulleys arranged in the said ways, the counterbalancing-sections connected by ropes in one of the grooves, and the upper spring-pressed section and the lower weighted section arranged in the other groove, substantially as specified.

355,168.



355,169. HEATING-FURNACE. ALFRED HOPKINS, Bridgeport, Conn. Filed Mar. 6, 1886. (No model.)

Claim.—1. The combination, with the combustion-chamber, of a closed heating-chamber surrounding said combustion-chamber and a series of air-pipes which lead through said heating-chamber, whereby air in the pipes is heated without said pipes coming in contact with the products of combustion.

2. The combination, with the combustion-chamber and a closed heating-chamber surrounding it, of a series of air-pipes which lead through said heating-chamber, and a distributing-chamber located above the heating-chamber with which the air-pipes communicate.

3. The combustion-chamber and an air-tight heating-chamber surrounding it, in combination with a distributing-chamber located above the heating-chamber and a series of air-pipes set at an angle, which lead through said heating-chamber and into the distributing-chamber.

4. The combustion-chamber and an air-tight heating-chamber surrounding it, in combination with a distributing-chamber located above the heating-chamber and a series of air-pipes leading through the heating-chamber and into the distributing-chamber, said pipes being made oval in cross-section and set at an angle other than a right angle to the horizontal plane of the furnace, as and for the purpose set forth.

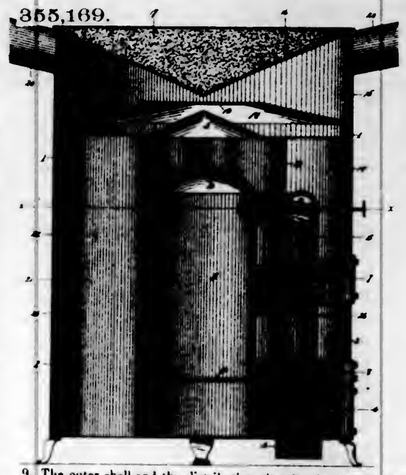
5. The combustion-chamber and a closed heating-chamber surrounding it, which is provided with a horizontal diaphragm dividing it into compartments, in combination with a distributing-chamber located above the heating-chamber and a series of pipes which pass through the diaphragm and the heating-chamber and communicate with the distributing chamber.

6. The combustion-chamber and an air-tight heating-chamber lying between the inner shell, 2, and the combustion-chamber, the top wall, 3, of said heating-chamber being made cone-shaped at its center, for the purpose set forth, in combination with a distributing-chamber and a series of air-pipes which lead through the heating-chamber and communicate with the distributing-chamber.

7. The outer shell, the combustion-chamber, a heating-chamber surrounding it, a series of air-pipes leading through said chamber, and an air-passage, 22, between the outer shell and the heating-chamber, in combination with a distributing-chamber above the heating-chamber, into which the air pipes and passage lead, and a diaphragm, 18, open at its center, which causes the air from passage 22 to be mingled with that from the pipes.

8. The combustion-chamber, heating-chamber, air-pipes 21, and air-passage 22, in combination with the outer top shell, a distributing-chamber having a diaphragm, 18, with a central opening, 19, and whose upper wall is an inverted cone, and a non-conducting filling, 17, between the upper wall of said chamber and the outer top shell of the furnace, as and for the purpose set forth.

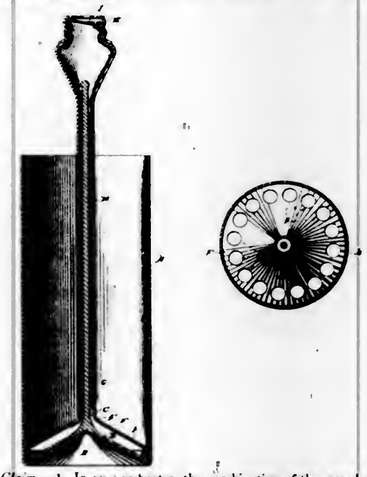
355,169.



9. The outer shell and the distributing-chamber having diaphragm 18, open at its center, in combination with the combustion and closed heating-chambers, pipes 21, leading through the closed chamber, and passage 22, between the heating-chamber and the outer shell, by which heated air is supplied to the distributing-chamber.

10. The combustion and distributing chambers, in combination with a heating-chamber below the distributing-chamber and surrounding the combustion-chamber, a diaphragm, 23, and a series of inclined pipes, 21, through which air is supplied to the distributing-chamber.

355,170. EGG-BEATER. FRANK A. HOUCK, Holden, Mo. Filed July 29, 1886. (No model.)

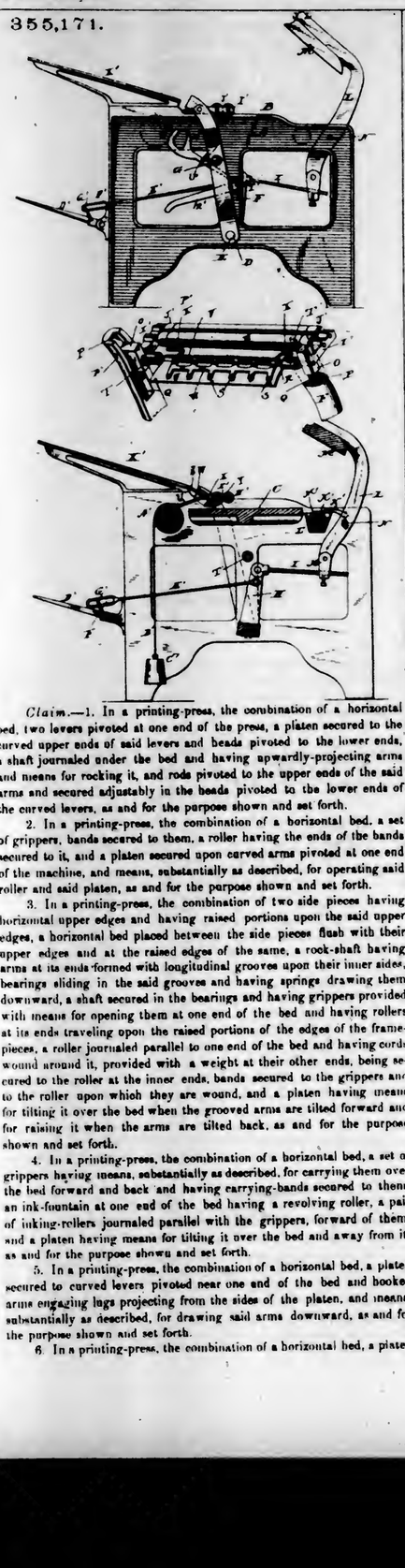


Claim.—1. In an egg-beater, the combination of the vessel A, the lifting disk or plunger located therein, and provided with the rod or handle by means of which the said disk or plunger may be withdrawn from the vessel, and the dasher having the hollow tube or dasher-rod, through which the rod or handle of the lifter extends, the said hollow dasher-rod being provided with a downwardly-opening valve, by means of which air is forced from the under side of the dasher at each downstroke thereof, for the purpose set forth, substantially as described.

2. The combination of the vessel A, the conical lifting disk or plunger fitting therein, and having the rod or handle, by means of which the said lifting disk or plunger may be removed from the vessel A, and the conical dasher having the openings *f*, the hollow dasher-rod to receive the rod or handle of the lifter, and provided with the inwardly-opening valve I, for the purpose set forth, substantially as described.

355,171. PLATEN PRINTING-MACHINE. ORANGE M. HOWARD, Spencer, Ind. Filed May 8, 1886. (Model.)

355,171.



Claim.—1. In a printing-press, the combination of a horizontal bed, two levers pivoted at one end of the press, a platen secured to the curved upper ends of said levers and beads pivoted to the lower ends, a shaft journaled under the bed and having upwardly-projecting arms and means for rocking it, and rods pivoted to the upper ends of the said arms and secured adjustably in the beads pivoted to the lower ends of the curved levers, as and for the purpose shown and set forth.

2. In a printing-press, the combination of a horizontal bed, a set of grippers, bands secured to them, a roller having the ends of the bands secured to it, and a platen secured upon curved arms pivoted at one end of the machine, and means, substantially as described, for operating said roller and said platen, as and for the purpose shown and set forth.

3. In a printing-press, the combination of two side pieces having horizontal upper edges and having raised portions upon the said upper edges, a horizontal bed placed between the side pieces flush with their upper edges and at the raised edges of the same, a rock-shaft having arms at its ends formed with longitudinal grooves upon their inner sides, bearings sliding in the said grooves and having springs drawing them downward, a shaft secured in the bearings and having grippers provided with means for opening them at one end of the bed and having rollers at its ends traveling upon the raised portions of the edges of the frame-pieces, a roller journaled parallel to one end of the bed and having cords wound around it, provided with a weight at their other ends, being secured to the roller at the inner ends, bands secured to the grippers and to the roller upon which they are wound, and a platen having means for tilting it over the bed when the grooved arms are tilted forward and for raising it when the arms are tilted back, as and for the purpose shown and set forth.

4. In a printing-press, the combination of a horizontal bed, a set of grippers having means, substantially as described, for carrying them over the bed forward and back and having carrying-bands secured to them, an ink-fountain at one end of the bed having a revolving roller, a pair of inking-rollers journaled parallel with the grippers, forward of them, and a platen having means for tilting it over the bed and away from it, as and for the purpose shown and set forth.

5. In a printing-press, the combination of a horizontal bed, a platen secured to curved levers pivoted near one end of the bed and hooked arms engaging lugs projecting from the sides of the platen, and means, substantially as described, for drawing said arms downward, as and for the purpose shown and set forth.

6. In a printing-press, the combination of a horizontal bed, a platen having laterally-projecting lugs at the middles of its side edges, a rock-shaft journaled below the bed and having a lever at one end and an eccentric disk or arm at the other end, and hooked arms pivoted at the lower ends to the inner end of the lever and to the disk or arm and engaging the lugs upon the platen with their hooked upper ends, as and for the purpose shown and set forth.

7. In a printing-press, the combination of a platen having laterally-projecting lugs upon its side edges, with arms having hooked upper ends and having forwardly and upwardly projecting inclined legs below the hooks, longer than the hooks, and having means, substantially as described, for drawing the said arms downward and for tilting them, as and for the purpose shown and set forth.

8. In a printing-press, the combination of a horizontal bed, a platen having means for tilting it forward and back over the bed and having laterally-projecting lugs upon its side edges, levers having the fulcrum below the bed, a rock-shaft journaled below the bed and having hooked arms pivoted eccentrically at the ends of the same engaging the lugs of the platen, a lever secured to the shaft, and connecting-rods pivoted to the rocking arms and to the hooked arms, as and for the purpose shown and set forth.

9. In a printing-press, the combination of a horizontal bed, a set of grippers, a roller journaled at one end of the bed, bands secured to the grippers and to the roller winding upon it, bands secured to the roller and winding upon it in opposite direction to the other bands and having weights attached to their free ends, and a fly having the upper ends of its arms bearing against the roller, as and for the purpose shown and set forth.

10. In a printing-press, the combination of a horizontal bed, a rock-shaft journaled below the bed and having two arms at its outer ends and two upwardly-projecting arms inside of its bearings, a platen secured to the curved upper ends of two levers pivoted near the lower ends at a distance from one end of the bed, connecting-rods pivoted to the upper ends of the upwardly-projecting rock-arms and to the lower ends of the platen-arms, a set of grippers secured at the upper ends of the arms, at the outer ends of the rock-shaft, and having means for opening them at one end of the bed, a roller at that end of the bed having cords wound around it and provided with weights at their free ends, bands secured to the set of grippers and to the roller winding upon it in the opposite direction to the weighted bands, a fly journaled below the roller to the rear of the same and having the ends of its arms or fingers bearing against the rear side of the roller, and a connecting-rod having a longitudinally-slotted head sliding upon a bolt upon the end of the fly-shaft, and having its forward end pivoted to one of the rock-arms, as and for the purpose shown and set forth.

11. In a printing-press, the combination of a horizontal bed having diagonal ribs upon its under side, with a platen having the forwardly-curved ends of a pair of arms secured across the ends, and having the arms pivoted near the lower ends at a distance from one side of the bed, having means for rocking the arms, and having a transverse bar bearing with its ends over the ends of the arms and projecting beyond the ends of the platen, and arms having hooked upper ends engaging the ends of the bar and having means for depressing them, as and for the purpose shown and set forth.

355,172. ELECTRIC-ARC LAMP. RICHARD P. JONES, St. Louis, Mo. Filed Aug. 7, 1886. (No model.)

Claim.—1. In an electric-arc lamp, the combination of the levers for grasping the upper carbon, a clasp located between the inner ends of the levers and the carbon, rods connected to and extending upward from the levers, and means for operating said levers electrically, substantially as set forth.

2. In an electric-arc lamp, the combination of the pivoted clasp, levers for engaging the clasp and pressing it against the carbon, and means for operating the levers, substantially as and for the purpose set forth.

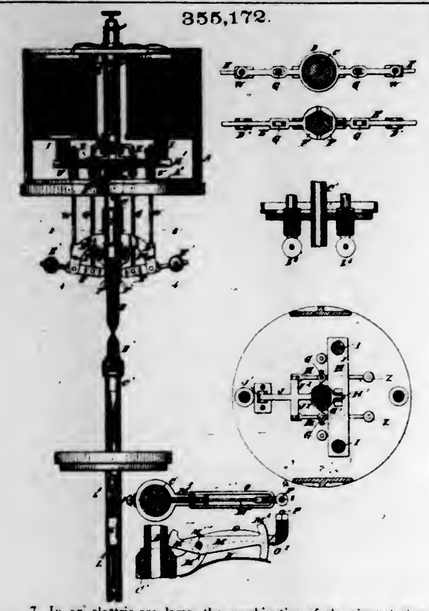
3. In an electric-arc lamp, the combination of the pivoted two-part clasp, levers bearing, respectively, against the two parts of the clasp, and means for operating the levers, substantially as set forth.

4. In an electric-arc lamp, the combination of the tube for receiving the upper carbon, arms secured to the tube, clasp pivoted to the arms and bearing against the clasp, and means for operating the levers, substantially as set forth.

5. In an electric-arc lamp, in combination with the tube for receiving the carbon, arms connected to the tube, levers connected to the arms, clasp connected to the arms, rods extending upward from the arms and levers, plate connected to the upper ends of the arms, rods, springs located around the rods, and means for operating the plate electrically, substantially as set forth.

6. In an electric-arc lamp, in combination with the tube for holding the upper carbon, arms connected to the lower end of the tube, clamp connected to the arms, levers connected to the arms, rods connected to the levers, and spring-plate connected to the arms, rods, and means for operating the plate electrically, substantially as set forth.

355,172.

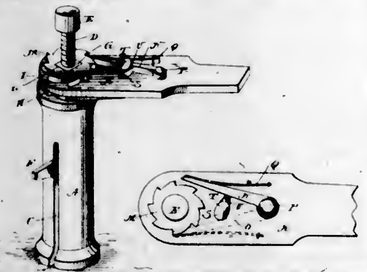


7. In an electric-arc lamp, the combination of the pivoted clasp, levers for engaging the clasp and pressing it against the carbon, and means for operating the levers, the inner surface of the clasp being formed of ⌣ shape, substantially as and for the purpose set forth.

8. In an electric-arc lamp, the combination of the tube for holding the lower carbon, spring-dog pivoted to the tube, yoke embracing the dog and having ratchet connection therewith, and means for operating the yoke electrically, substantially as set forth.

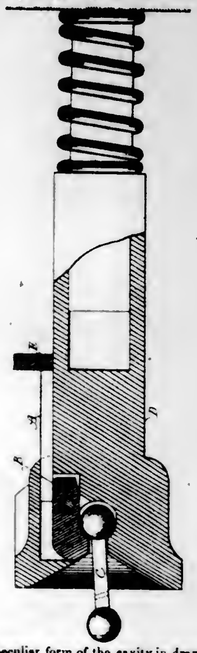
9. In an electric-arc lamp, the combination of the tube for holding the lower carbon, spring-dog pivoted to the tube, yoke having inclined notches at its inner end fitting over a securing-pin, rack on the outer end of the dog, ratchet-tooth on the yoke, engaging the rack on the dog, and means for operating the yoke electrically, substantially as set forth.

355,173. LIFTING-JACK. ROBERT JONES, Shuqualak, Miss. Filed Sept. 20, 1886. (No model.)



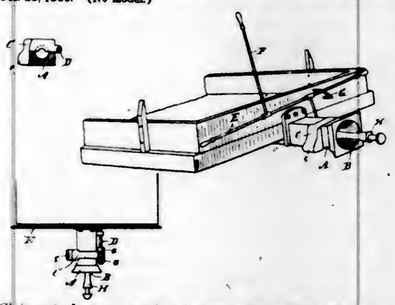
Claim.—In a lifting-jack, the combination of a hollow column formed with a longitudinal slot at the lower portion, a screw fitting in the hollow column, and having a head at its upper end and a laterally-projecting arm at the lower end projecting through the slot, a nut fitting upon the upper end of the screw and having a ratchet rim upon its lower portion, and having a cylindrical portion above that and an upper reduced and polygonal portion, a ratchet-wheel fitting with its corresponding aperture upon the reduced portion of the nut, a lever having a circular eye fitting upon the cylindrical portion of the nut, spring-pawls engaging the ratchet-wheels at opposite sides, pivoted upon the same bolt at the upper and under side of the lever, and a bolt journaled in the lever between the pivotal bolt and the eye, and having a flat head and an eccentric cam at its upper portion, and having a detachable cam-block fitting with its reduced inner end in the lower end of the bolt projecting to the same side as the eccentric cam, as and for the purpose shown and set forth.

355,174. CAR-COUPLING. HAMILTON A. JUKES, Winnipeg, Manitoba, Canada. Filed May 8, 1886. (No model.)



Claim.—The peculiar form of the cavity in draw-head D, in combination with the claw B, working on the pin, the key A, operated by the lever, the plate E, attached to the bottom of the car, and the bar C, slotted or plain, substantially as and for the purposes above set forth.

355,175. CAR-COUPLING. HERMAN KERR, Detroit, Mich., assignor of two-thirds to Gustav Fetters and E. Hambujer, both of same place. Filed Oct. 28, 1886. (No model.)



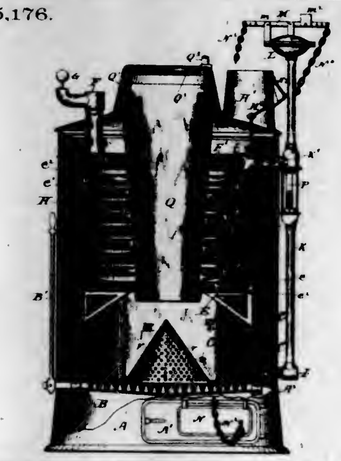
Claim.—1. In a car-coupling, the combination of the hollow draw-head A, provided with a gravity-latch, C, and an actuating-lever, E, provided with a counter-weight, F, substantially as described.

2. In a car-coupling, the combination of a hollow draw-head, A, transverse gravity weighted latch C, shaft D, lever E, provided with a weighted arm, F, and the stop-link G, engaging one arm of said lever with a coupling-bar, H, when constructed, arranged, and operating substantially in the manner and for the purposes set forth.

355,176. STEAM-BOILER. DAN W. KELLOGG and WILLIAM A. KIRBY, Auburn, N. Y. Filed Dec. 21, 1885. (No model.)

Claim.—1. The combination of the concentric inner and outer shells of the boiler and its central magazine with a water-pipe surrounding said magazine, and having its lower end attached to the boiler substantially opposite the lower end of the magazine, and first coiled inwardly toward the magazine, followed by another coil extending outwardly, the series of coils being staggered one above the other, substantially as and for the purpose described.

355,176.

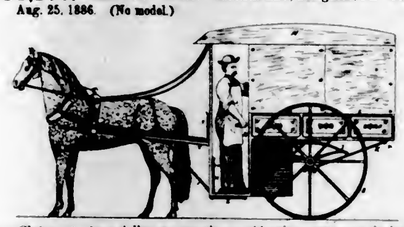


2. The combination of the concentric inner and outer shells of the boiler and the water-coil within having its lower end connected with the body of the boiler at a point substantially on a level with the lower end of the magazine, and its upper coil above the water-line in the boiler, with a superheater located above said upper coil, and a magazine in the center of the coil, substantially as described.

3. The combination of the inner and outer shell of the boiler, its coil and jacket, and a smoke-pipe issuing vertically from said jacket, with a magazine provided with a cap resting thereon, said cap having its upper edge turned inwardly, and a pipe projecting upward from the upper bend thereof, substantially as and for the purpose described.

4. The combination of the inner and outer shell of the boiler, its coil and magazine within said coil, with the jacket H, smoke-pipe H', projecting vertically from said jacket, and pendent valve N^3, hinged to said smoke-pipe, substantially as and for the purpose described.

355,177. DELIVERY-CART. CHARLES KIPP, Lehighton, Pa. Filed Aug. 25, 1886. (No model.)



Claim.—1. In a delivery-cart, the combination, with a main body supported upon one pair of wheels situated about centrally of its length, as described, of a deepened portion, A, having supporting-braces G and dash-board E, and an adjustable bell-crank L, and catch N therefor, all substantially as and for the purpose specified.

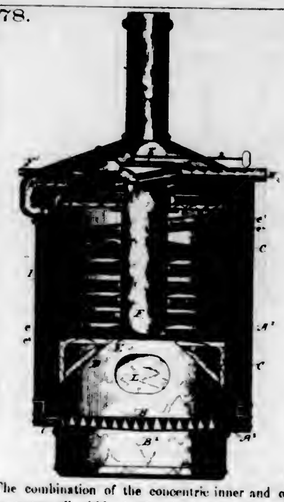
2. A two-wheeled cart composed of the body H, having main part D and deepened front portion, A, closed converging part J, substantially as described, braces G, wheels B, shafts C, rigidly secured to the front portion, A, and braces F therefor, bell-crank rest L, adapted to be operated by the arm M, and rest K, and spring-catches O and N, for retaining the rests when not in use, all constructed and adapted to operate substantially in the manner and for the purpose specified.

355,178. STEAM-BOILER. WILLIAM A. KIRBY, Auburn, N. Y. Filed Dec. 15, 1885. (No model.)

Claim.—1. The combination of the concentric inner and outer shells of the boiler, and its central water-heating drum having a closed top and a horizontal coil leading therefrom, with a water-pipe surrounding said drum, and having its lower end attached to the boiler below the water-line in said boiler and coiled inwardly toward the heating-drum, followed by another superposed coil extending outwardly, substantially as and for the purpose described.

2. The combination of the concentric inner and outer shells of the boiler and the water-coil within, having its lower end connected with the body of the boiler below the water-line in said boiler, and its upper end above said water-line, with a superheater located above said upper end, and a heating-drum in the center of the coil, substantially as described.

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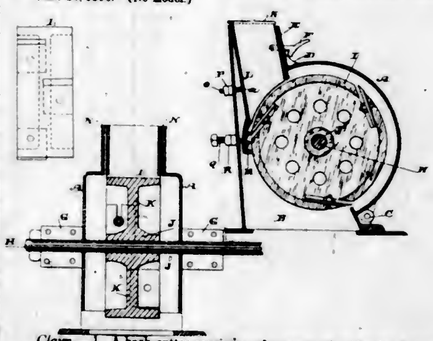


3. The combination of the concentric inner and outer shells of a boiler, the water-coil within, having its lower end connected with the body of the boiler below the water-line in said boiler and its upper end above said water-line, with a heating-drum in the center of the coil, a feed-pipe entering said drum, and a discharge-pipe issuing therefrom and leading into a horizontal coil having its outer end entering the inner shell of the boiler at its upper end, substantially as described.

4. The combination of the inner and outer shells of a boiler and the water-coil within, having its lower end connected with the body of the boiler below the water-line in said boiler and its upper end above said water-line, with a heating-drum in center of the coil, a horizontal coil issuing therefrom and discharging into the upper end of the boiler, and a superheating-coil issuing from said upper end, substantially as and for the purpose described.

5. The combination of the inner and outer shells of a boiler and the water-coil, arranged as described, and connected to the side walls of the body of the boiler above the fuel or the door in the fire-box and below the water-level in the boiler, and the upper end of said coil connected to the side walls of the boiler, above the water therein, substantially as described.

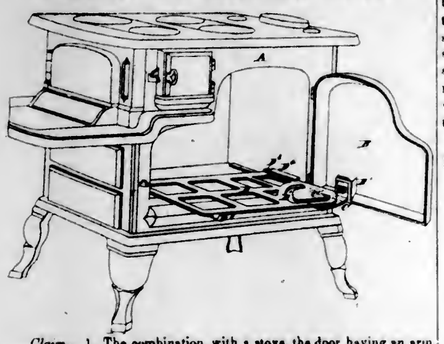
355,179. BARK-CUTTER. RICHARD C. KIRBY, Santa Cruz, Cal. Filed June 23, 1886. (No model.)



Claim.—1. A bark-cutter consisting of a rotary wheel having knives or cutters projecting through its rim, as shown, a casing having a fixed vertical feed-chute extending upward from one side thereof, the adjustable three-sided frame fitting within the feed-chute and casing and having corrugations upon its lower rear edge, and the adjusting and holding screws, substantially as herein described.

2. A bark-cutter consisting of a wheel rotating in a vertical plane and having knives or cutters projecting through the rim thereof, as shown, the casing having a vertical feed-chute extending upward from one side thereof, the adjustable three-sided frame suspended within said feed-chute, said casing being formed in two parts, the front portion being hinged at the bottom and provided with the front of the feed-chute, and the lugs and latches, substantially as herein described.

355,180. AUTOMATIC SLIDING SHELF FOR COOK-STOVES. MATTHEW KUMMELE, St. Louis, Mo. Filed Sept. 14, 1885. (No model.)

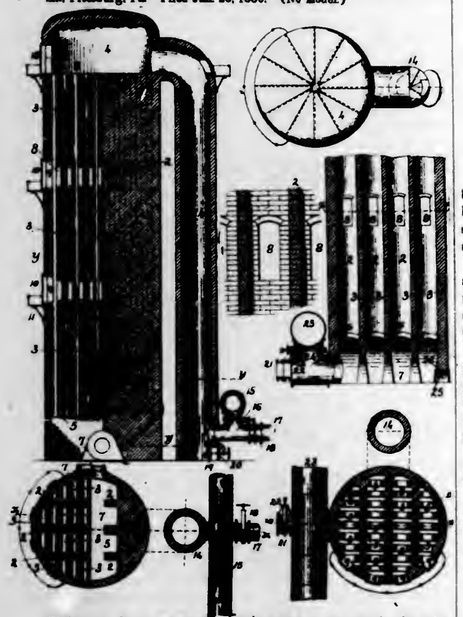


Claim.—1. The combination, with a stove, the door having an arm projecting therefrom, and a lug on said arm, of a sliding shelf having a slot, said slot being parallel with the outer edge of the shelf for a short distance and then curved outwardly toward the side of the shelf, substantially as and for the purpose set forth.

2. The combination, with a stove, the door having an arm projecting therefrom, and a lug on said arm, of a sliding shelf having a slot curved outwardly from the outer edge of said shelf and parallel therewith for a sufficient distance, and in which the lug of said arm works, runners on the shelf, stop-pins, and overlapping lugs against which said stop-pins impinge and prevent the withdrawal of the shelf, substantially as and for the purpose set forth.

3. The combination, with a stove, the door having an arm projecting therefrom, and a lug on said arm, of a sliding shelf having a slot, a portion of which is parallel with the outer edge of the shelf, substantially as and for the purpose set forth.

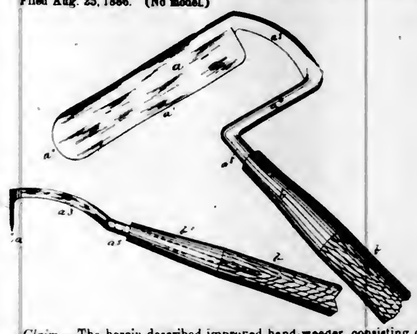
355,181. REGENERATIVE HOT-BLAST STOVE. HENRY A. LAUGHLIN, Pittsburg, Pa. Filed Jan. 20, 1886. (No model.)



Claim.—1. In a regenerative hot-blast stove, the combination of a shell or body having an upper dome and a lower collecting and distributing chamber, a series of vertical regenerative-flues extending between said dome and chamber, and a series of cleaning channels or passages separated by continuous vertical walls, each transverse row of said passages communicating in line horizontally with an opening in the shell and with a transverse row of the regenerative-flues, substantially as set forth.

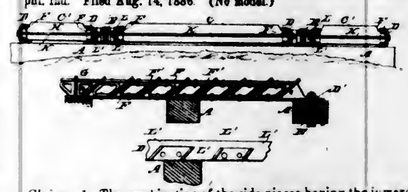
2. In a regenerative hot-blast stove, the combination of a shell or body having an upper dome and a lower collecting and distributing chamber, a continuous vertical wall or walls extending across the shell between said dome and lower chamber, a series of cross-walls intersecting said vertical walls at right angles and forming, with the same and the shell, the boundaries of vertical regenerative flues or passages, and a series of openings formed in said cross-walls at different levels and in rows in line horizontally with openings in the shell and constituting transverse cleaning-passages leading into each of the vertical flues, substantially as set forth.

355,182. HAND-WEEDER. FRED G. LEAVOUR, Beverly, Mass. Filed Aug. 25, 1886. (No model.)



Claim.—The herein-described improved hand-weeder, consisting of the blade *a*, having its free sharpened end *a''* projecting on one side of the handle *b*, and having in its other end the bent shank a^2 a^4 a^3, secured to handle *b* and to the upper back portion of the blade *a*, substantially as and for the purpose set forth.

355,183. RAILROAD CATTLE-GUARD. DELVIN S. LEESMOND, Delphi, Ind. Filed Aug. 14, 1886. (No model.)

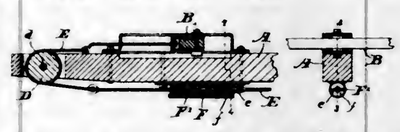


Claim.—1. The combination of the side pieces having the inwardly-bent upper and lower longitudinal edges, the quadrangular bands secured between the said edges to form the inclined sockets, the inclined lugs secured on the outer sides of the side pieces, the slats, and the rods connecting the side pieces together, substantially as described.

2. The combination, in a cattle-guard, of the side pieces formed of angle-irons, and the spaced quadrangular bands secured within the side pieces to the top and bottom thereof, to brace the same and form inclined sockets, with the slats resting at their ends in the said sockets, substantially as set forth.

3. The combination, with the side pieces formed of channel-irons provided with spaced quadrangular bands secured to the top and bottom thereof, to brace said channel-irons and form sockets, of the slats extending above the tops of the channel-irons, and reduced at their ends to fit within the said sockets, and rods and nuts securing the side pieces together, substantially as set forth.

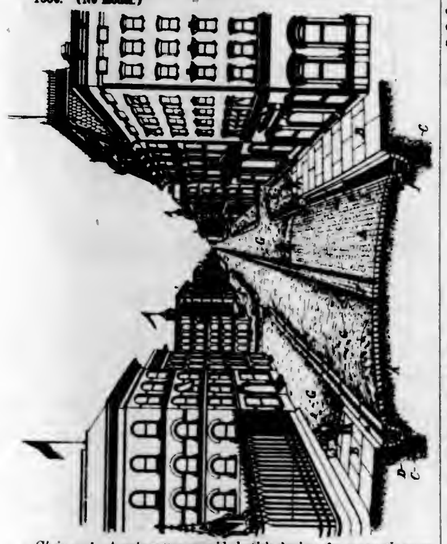
355,184. DRAFT-EQUALIZER. ALBERT M. LIVELSBERGER, Fort Wayne, Ind. Filed Nov. 2, 1886. (No model.)



Claim.—1. The combination, in a four-horse equalizer, of a tongue having pulley or pulleys at its rear end and provided with a slide or ways, a rear double-tree mounted in or upon said slide or ways on said tongue, a front double-tree, and a rope or chain passing over said pulley or pulleys and connecting said rear and front double-trees, substantially as shown and described.

2. The combination, in a draft-equalizer arranged for two pairs of horses, one in front of the other, in which the front double-tree and pair of horses may be attached to the rear double-tree mounted in or upon ways or slide on the tongue of said rear double-tree, of a spring, also secured to said tongue, a rope or chain passing from said double-tree over a pulley through said spring, and a pin, *e*, by which said rope or chain can be secured to said spring, whereby an elastic movement may be imparted to said double-tree when thus used alone, substantially as set forth.

355,185. WIRE AND PIPE SUPPORTING AND SNOW-REMOVING APPARATUS. SYLVANUS D. LOCKE, Hoosick Falls, N. Y. Filed Mar. 17, 1886. (No model.)



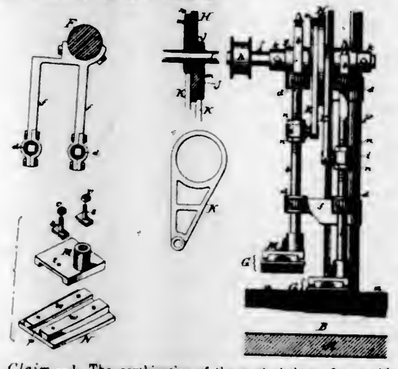
Claim.—1. A sub-gutter provided with devices for supporting conductors and with a cover having an inclined portion and a perforated portion, whereby said cover serves as a surface-gutter, substantially as specified.

2. In combination with a surface-gutter having lateral inclined imperforate portions, a perforated portion of a sub-gutter provided with means for supporting conductors, substantially as specified.

3. A sub-gutter provided with wire and pipe supporting devices and with a cover formed as a surface-gutter, substantially as specified.

4. The combination of a surface-gutter and a sub-gutter provided with removable racks for supporting pipes, cables, and wires, substantially as specified.

355,186. WOOL-COMBING MACHINE. WILLIAM LUND, Philadelphia, Pa. Filed May 18, 1885. (No model.)



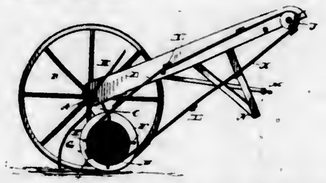
Claim.—1. The combination of the toothed rings of a combing-machine with a dabbing-brush composed of sections working side by side and with means for reciprocating said sections, whereby they are caused to act alternately, all substantially as specified.

2. The combination of the column F of the machine, a dabbing-brush composed of sections located side by side, a short driving-shaft having bearings carried wholly by said column, eccentrics on said shaft, and mechanism, substantially as described, whereby the movement of said eccentrics is imparted to the sections of the dabbing-brush, all substantially as specified.

3. The combination of the dabbing-brush, composed of sections located side by side, a driving-shaft, a pair of eccentrics forming a single structure, means for securing said structure to the shaft, and mechanism whereby the movement of the eccentrics is transmitted to the sections of the dabbing-brush, all substantially as specified.

4. The combination of the stem having a grooved plate at the lower end, the slotted brush-block having a portion adapted to said groove, and confining bolts and nuts whereby the brush-block is secured to the plate, all substantially as specified.

355,187. HAY-LOADER. FRANK LUTHER, New Carlisle, Ind. Filed June 8, 1886. (No model.)



Claim.—The combination of the axle A, provided with ordinary wheels, rake-teeth G, secured to said axle, hanging bearing C, rigidly secured to the axle, and the roller D, bearing upon the ground and by which the belt is driven, with flanges E, the teeth F, projecting in longitudinal rows from the surface of said roller, side pieces, I, of the elevator rigidly secured to the axle, the pulley-bearing shaft across the upper ends of the said cross pieces, the endless belt K, with its cross-slats L passing around the toothed roller and the pulleys on said shaft, the retaining-strips H, the legs N, and the means M, for attaching the loader to the wagon, all constructed and combined to operate substantially as specified.

355,188. DECORTICATING-MACHINE. EDWARD LYCAN, Honolulu, Hawaii, assignor, by mesne assignments, to the Hawaiian Ramie Company, same place. Filed Apr. 30, 1886. (No model.)

Claim.—1. The charging-box B, provided with partitions *d d* and a feed-roller, C, arranged at its bottom, as shown.

2. The charging-box B, provided with partitions to separate the stalks, a feed-roller to feed out the lower layer of stalks, a sliding door, *f*, and a spring for raising said door high enough to permit the lower layer of stalks to pass out, as set forth.

3. The holder D, comprising two jaw-plates hinged together at one edge and provided with jaws of rubber or other like material to clamp the stalks, and with means for securing said jaw-plates together when clamped.

4. The combination, with the carrying-chains provided with holder-boxes *b'*, of the holders D, constructed substantially as set forth.

5. The combination, with the endless carrying-chains and suitable holders for clamping the ends of the stalks carried by said chains, of the smooth crushing-rollers, the corrugated rollers for breaking the stalks, the scraper for separating the woody portion of the stalk from the fiber, and the stripping mechanism for removing the outer bark, all constructed and arranged substantially as described, to operate in the succession named.

6. The combination, with the endless-chain carrier provided with means for clamping on and carrying the stalks, and with inclines or wedges *c'*, of the pairs of rollers G, H, and I, the upper roller of each pair being free to move up and down in its bearings, to permit of the passage of the holders which clamp the stalks.

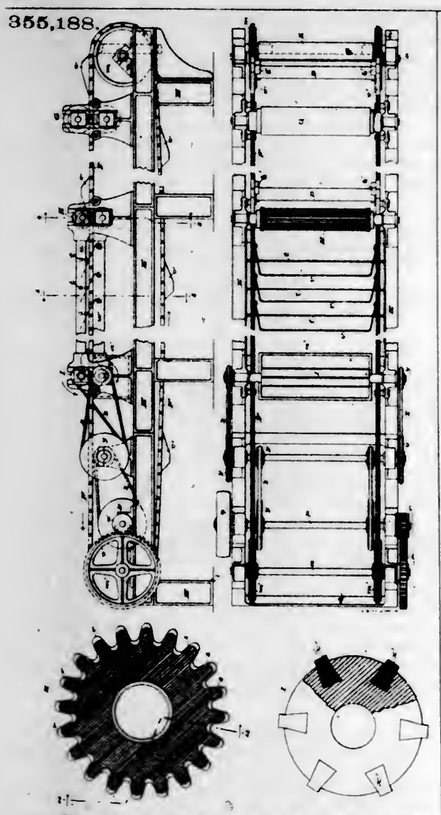
7. The corrugated rollers H H, each provided with ribs *s s* at its middle part, and with teeth *r r* at its ends, which project a little beyond the ribs *s*, as shown.

8. In a machine for decorticating fibers, the combination, with an endless carrier for the stalks, of the two rollers I I, provided with projecting ribs *x'*, of rubber or similar material, said rollers being arranged to rotate in an opposite direction to that in which the fiber moves, and at a greater speed.

9. The combination, with the endless carrier for the stalks, of the rollers I I, between which the carrier moves, arranged to rotate in a direction opposite to that of the carrier, and the tank *a'*, for containing a liquid, in which the lower of the rollers I revolves, as set forth.

10. The scraper comprising two or more pairs of scraper-bars, each pair comprising a fixed bar, *t*, and a spring-bar, *v*, substantially as set forth.

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11. The combination, with the scraper having an elastically-mounted bar, *v*, of the carrying-chains provided with holder-boxes, each of which has a curved wipe, b^2, and the holder D, mounted in said boxes.

12. The holder D, comprising two jaw-plates hinged together at their one edge, jaws *k k*, of rubber, with corrugated faces, and two or more spring-latches, *l*, substantially as set forth.

13. The combination of the bent fixed bars *t*, two or more extending across the machine, and the bent bail-like bars *v*, two or more extending across the machine, and their ends coiled to form springs at their points of attachment, the pairs of bars forming scrapers, as set forth.

14. The combination, with a series of rollers arranged in pairs for operating successively on the stalks of fibrous plants, of two endless chains, F F, and their carrying-wheels, said chains moving between the upper and lower rollers of said pairs, and holders carried by said chains for clamping on the ends of the stalks and drawing them through the machine.

15. The combination, with the endless chains F F, provided with holder-boxes *b'*, and inclines or wedges *c'*, attached to them at the same points as the holder-boxes, of a holder for the fibrous stalks carried by the chains, and a pair of rollers, between which the holder is carried, the upper roller of said pair being mounted to move up and down in its bearings and provided with loose rings *d'* on its axes, which roll over the wedges *c'*.

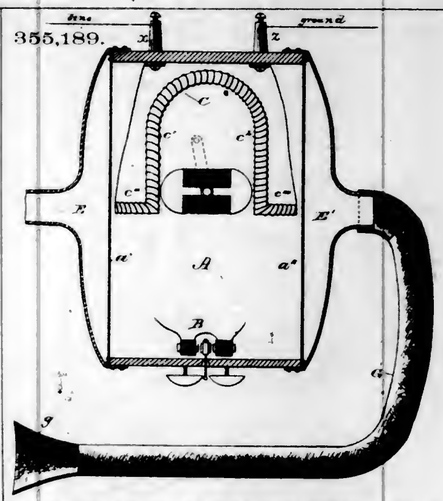
16. The combination, with the endless carrier for the stalks, and the scraper, of the corrugated rollers H H, and mechanism for driving said rollers at a little greater peripheral speed than the speed at which the carrier moves, said parts being arranged relatively to each other and operating substantially as set forth.

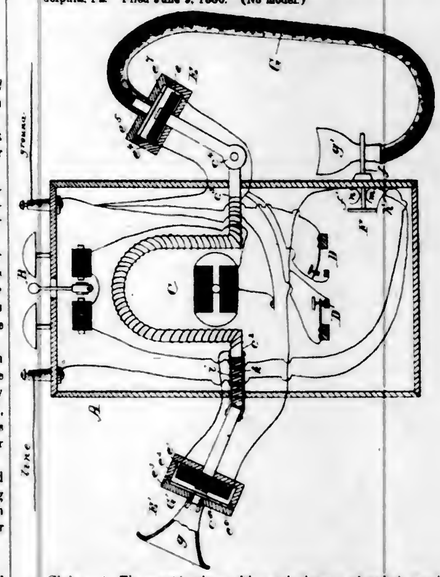
355,189. TELEPHONIC APPARATUS. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed May 29, 1886. (No model.)

Claim.—1. In combination with the box A, made without ends, the magnetic diaphragm a' a'', secured to the said box and forming the ends thereof, and the tapering air-chambers E E', terminating in the ear or speaking tubes, as set forth.

2. In combination, the box A, the magnetic diaphragms a' a'', forming the ends thereof, the magnet having extensions c''' c'''' ending

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near the diaphragms, and the line-wire coiled around the magnet and its extensions, as set forth.

3. In combination, the box having magnetic diaphragms a' a'', forming its ends, the air-chambers tapering to their centers, and the generator having the line-wire coiled aground the full length of its magnet, as set forth.

4. In a telephone-receiver, the combination, with a magneto-generator, of two magnetic diaphragms, one in proximity to each of the poles thereof, the coils of the said generator being wound along the whole body of the magnet and being also connected to the line-wire, as and for the purpose set forth.

355,190. TELEPHONE APPLIANCE. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed June 9, 1886. (No model.)

Claim.—1. The combination, with a telephone and switch mechanism for cutting out the bell and introducing the transmitter and receiver into the circuit, of two circuit-controllers interposed, one between the receiver and ground and the other between the transmitter and ground, as set forth.

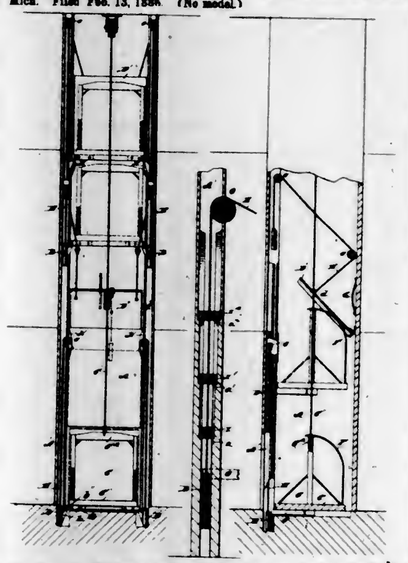
2. The combination, with a telephone-support and switch mechanism operated thereby for automatically cutting out the call apparatus and switching in the transmitter and receiver whenever the telephone is

taken down, of two circuit-closers interposed, one between the receiver and ground and the other between the transmitter and ground, as set forth.

3. The combination, in a telephone, of a magneto-electric call apparatus, the poles of the magnet being prolonged to form the cores of a magneto transmitter and receiver, and the extensions being jointed for convenient manipulation, substantially as described.

4. The combination of the magnet C, extension c^3, rubber sleeve *i*, steel spring *k*, and core c^3, the latter forming part of a telephonic transmitter mounted thereon, as set forth.

355,191. ELEVATOR-GUARD. PATRICK H. MCWILLIAMS, Detroit, Mich. Filed Feb. 13, 1886. (No model.)



Claim.—1. The combination, with an elevator and its shaft, of a gravity-door, a weight having a shoulder, *b*, and engaged by a cable with said door, said elevator provided with a spring, *c*, to engage said weight directly and to be disengaged therefrom, substantially as described.

2. The combination, with an elevator and its shaft, of a gravity-door, a weight engaged by a cable with said door, said elevator provided with a spring, *c*, to engage said weight directly, and said shaft provided with a cam to disengage said spring from said weight, substantially as described.

3. The combination, with an elevator and its shaft, of a gravity-door, a weight engaged with said door, means for engaging and disengaging said elevator with said weight, and in connection therewith auxiliary weights, substantially as set forth, to ease the descent of said door, substantially as described.

4. The combination, with an elevator and its shaft, of a door, a weight engaged with said door by an intervening cable, said elevator being provided with a spring, *c*, to engage said weight directly upon its descent and thereby open the door, and to be disengaged therefrom at a desired point, the construction being such that when the elevator is disengaged from the weight the door will close by its own gravity, substantially as described.

5. The combination, with a door, of one or more gravity-plates pivotally connected therewith, said plates constructed with rounded edges upon their opposite sides, substantially as and for the purposes described.

6. The combination, with a door, of a reciprocatory guide-bar, L, substantially as described.

7. The combination, with a door hinged upon an elevator-shaft, of a reciprocatory bar engaged with said door, a tilting lever engaged upon the wall of the shaft and arranged to lift said reciprocatory bar, said lever extended to form contact with an adjacent weight in the shaft of the elevator, substantially as described.

8. The combination of an elevator-shaft, a series of doors, weights connected with said doors by an intervening cable, said weights being provided with shoulders b', an elevator having a spring, *a*, adapted to engage said weights directly, and so open the doors in its descent, and cams H, to disengage the spring and weights, substantially as described.

9. The combination, with an elevator and its shaft, of a guard-arm connected with said elevator, one or more doors hinged to said shaft, said doors provided with reciprocatory guide-bars arranged to engage said guard, a tilting lever to lift said bar, and weights connected with said door and constructed to operate said levers, substantially as and in the manner described.

10. In an elevator, a door constructed with one or more elongated recesses having in combination therewith a gravity-guard formed with rounded edges upon its opposite sides, to open and close said recesses, substantially as and in the manner described.

355,192. TRUCK. BENJAMIN S. MERRILL and JAMES A. WING, Littleton, Mass. Filed Nov. 1, 1886. (No model.)

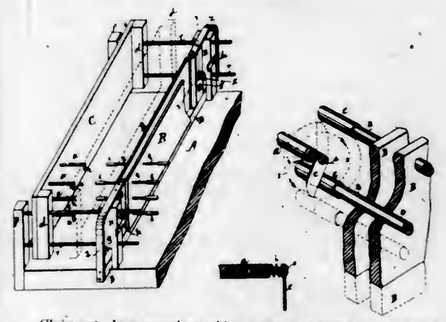


Claim.—1. The truck provided with the brakes arranged between its forward wheels, and having mechanism, essentially as described, for operating and locking them, (the said brakes,) as set forth, relatively to the wheels.

2. The combination, with the truck-platform and its wheel-guards, of handles and their continuations, hinged together and provided with hooks and eyes, as set forth, the handle continuations being fastened to the guards, and the whole being to admit of the handles being turned down upon the platform, as occasion may require.

3. The combination, with the truck-platform and its handles and their connection-rods and with the wheels and their axles, of the brakes applied to the axles and wheels, and of the toggles, their operative lever, and the lifter thereof having shoulders, as set forth, all being substantially as represented

355,193. CAPSULE-CUTTING MACHINE. THEODORE C. MEEK, Detroit, Mich. Filed Jan. 28, 1886. (No model.)



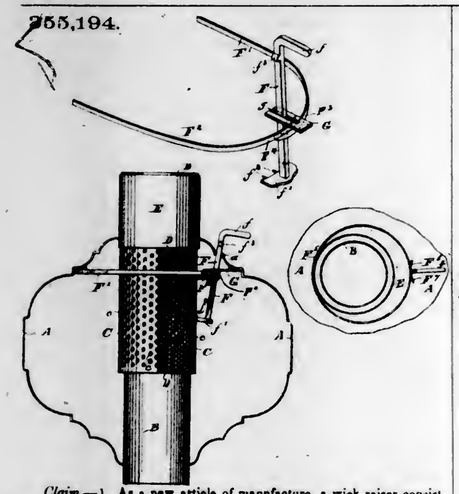
Claim.—1. In a capsule-machine, and in combination, the traveling frame D E E, supporting the capsule-pin plate, the mechanism, set forth, guiding said traveling frame in its vertical and rotary motion, consisting of the thimbles S, having the circular and vertical channel in each end, said thimbles mounted on the traveling uprights E, the arm *h*, mounted on the fixed uprights H, and provided with pins *v*, extending into the channels a' and *n*, the sliding plate C, carrying a knife-blade pivotally mounted on a support in the sliding plate, and a device for producing adjustable friction on the pivoted end, as and for the purposes set forth.

2. In a capsule-cutting machine, the combination of the platform, the uprights attached thereto, the bar D, the uprights mounted on said bar, each containing a thimble, S, and spool F, with reduced ends T, the fixed supports H, the set of arms *h*, attached thereto, provided with pins *v*, extending into the channels of the thimbles S, the capsule-pin plate mounted on the traveling frame, the rods *r*, and the sliding plates C, mounted on said rods, each plate provided with a series of knife-blades, each blade pivotally attached to a support in the sliding plate, as and for the purposes specified.

3. In a gelatine-capsule-cutting machine, the combination of a forked knife-blade, pivotally mounted on a shaft, said blade having a friction-producing device at its pivoted end, and mechanism, substantially as specified, for bringing a capsule and its pin in contact with the cutting-edges of said blade, causing said blade to revolve on its pivot and the capsule and its pin to describe a circle around the pivot of the knife-blade, substantially as and for the purpose specified.

355,194. LAMP. FERDINAND MEYROSE, St. Louis, Mo. Filed Apr. 5, 1886. (No model.)

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Claim.—1. As a new article of manufacture, a wick-raiser consisting of a vertically-extending bar, F, formed with a handle, *f*, at right angles thereto, and a supporting lug or lip, f^2, projecting from the side thereof at its upper end, and the plate f' at its lower end, at right angles thereto, provided with teeth or points f^3, substantially as described.

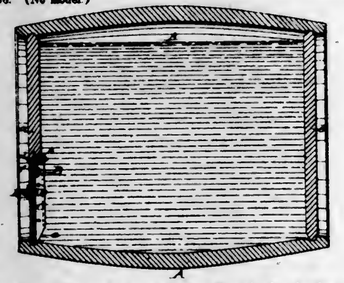
2. The combination of a lamp-fount having an opening, *a*, at the top, a burner, and the vertically-extending bar F, having a plate, f', at its lower end, at right angles thereto, provided with teeth or points f^3, substantially as shown and described.

3. The combination of a fount having an opening, *a*, at the top, a burner, a holder having spring-arms formed with overlapping ends, and a vertically-extending bar, F, having a toothed plate, f^3, at its lower end, at right angles thereto, substantially as shown and described.

4. The combination of a lamp-fount having an opening, *a*, at the top, a burner, a vertically-extending bar, F, having a plate, f', at its lower end, at right angles thereto, provided with teeth or points f^3, and the guide-plate G, having an opening or slot, *c*, substantially as shown and described.

5. The combination, with a lamp-fount having an opening, *a*, and a burner, of the bar F, having a plate, f', provided with teeth or points f^3, the spring-holder, and the guide-plate, substantially as described.

355,195. CASK. LOUIS MINCH, Highlandtown, Md. Filed Aug. 26, 1886. (No model.)



Claim.—1. The combination of a barrel, cask, &c., having a meta frame secured by bolts on three sides, and with the lower ends of its sides in the croze, as shown, with a plate rabbeted on three of its edges and secured against a packing on the seat and in the croze by a bolt and nut and a clamp-bar, all as shown and specified.

2. The combination of a barrel, cask, &c., having a frame, B, provided with a flange, *e*, and seat *f*, and secured by bolts *d* and *g*, with a plate, C, having rabbeted edges and secured by a bolt, D, and clamp-bar E, all arranged as shown and herein set forth.

355,196. SCARF-PIN AND OTHER PINNED JEWELRY. CHARLES H. MORRELL, New York, N. Y. Filed Feb. 13, 1886. (No model.)

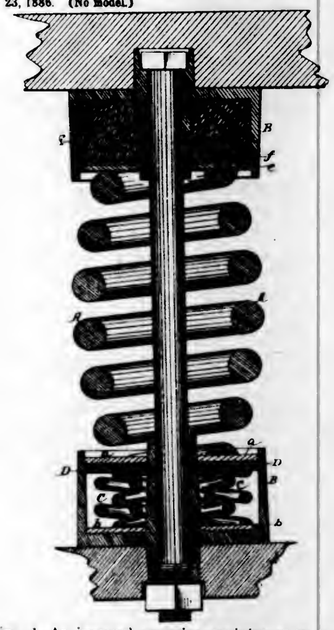
Claim.—1. The combination of the pin A, the removable sleeve *b*, sliding thereon and provided with a clamping-screw to clamp the sleeve upon the pin, with a stop to limit the unscrewing of the screw and prevent the loss thereof.

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2. The combination, with the pin A and removable sleeve *b*, of the clamp-screw *c*, having a milled or operating head, and a stop, *d*, projecting from the sleeve in the path of the head, substantially as and for the purpose set forth.

355,197. CAR-SPRING. GEORGE W. MORRIS, Pittsburg, Pa. Filed July 23, 1886. (No model.)



Claim.—1. An improved car-spring consisting of the graduated keg-shaped spring, a cushion for one or both ends of said spring, a flexible non-yielding seating for the latter, and a fixed housing for said end cushion, substantially as described, for the purpose specified.

2. A keg-shaped spirally-formed spring of a round steel bar of uniform thickness, in combination with an end cushion consisting of one or more coiled springs, a flexible non-yielding seating for the keg-shaped spring and for the cushion-springs, and a fixed housing for the latter, substantially as described, for the purpose specified.

3. An improved car-spring, having, in combination with a keg-shaped spiral spring, cushions for one or both ends thereof, the flexible non-yielding seatings, and a re-enforcing follower-plate for said seating inclosed in a fixed band-housing, B, substantially as herein set forth.

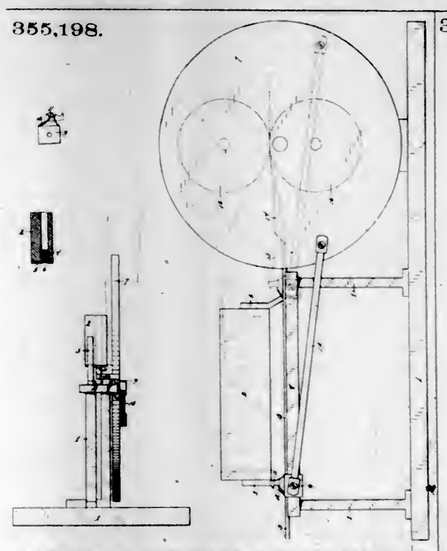
4. The combination of a carrying-spring with the rawhide seating therefor and the housings, substantially as described, for the purpose specified.

5. The combination of a carrying-spring, A, with the end springs, C and E, the housings B, the rawhide bearings *a*, *b*, and *c*, and the metal follower D, as herein shown and described.

355,198. MACHINE FOR COVERING CORSET-STAYS. WILLIAM A. NETTLETON and CHARLES F. LITTLEJOHN, Bridgeport, Conn.; said Littlejohn assignor to said Nettleton. Filed Mar. 2, 1886. (No model.)

Claim.—1. In a machine for covering stays, the combination, with a magazine for the stays, of a longitudinally-reciprocating catch which draws the stays out from the magazine singly and drops them into the strip and drawing and pressing rollers.

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2. The magazine and drawing and pressing rollers, in combination with the slide and a hinged catch carried thereby, as and for the purpose set forth.

3. The magazine and drawing and pressing rollers, in combination with guide 8, slide 9, adapted to reciprocate thereon, and hinged catch 11, carried by said slide.

4. Guide 8, slide 9, adapted to reciprocate thereon, and catch 11, hinged at its back to said guide, in combination with a magazine for holding the stays, a balance-wheel, and a connecting-rod pivoted to said balance-wheel and to the slide, whereby the stays are drawn singly from said magazine.

5. In a machine for covering stays, the magazine, balance-wheel, and connecting-rod, in combination with a slide, catch 11, hinged to said slide at its back, and spring 12, whereby when said slide is moved forward the catch will turn backward on its hinge, and when carried to its forward position will be drawn back by said spring, so as to engage the lowermost stay in the magazine.

6. The magazine, folder, drawing and pressing rollers, balance-wheel, and connecting-rod, in combination with guide 8, the slide, hinged catch 11, and spring 12, arranged as described, and for the purpose set forth.

355,199. MACHINE FOR COVERING CORSET-STAYS. WILLIAM A. NETTLETON, Bridgeport, Conn. Filed Mar. 2, 1886. (No model.)

Claim.—1. In a machine for covering stays, rollers which form the strip, a magazine for holding the stays, and a rotating cylinder under said magazine which is provided with slots, into which the stays drop singly, in combination with a guard partially encircling said cylinder, by which the stays are held in said grooves until carried to the strip, a folder which closes the strip upon the stays, and drawing-rollers.

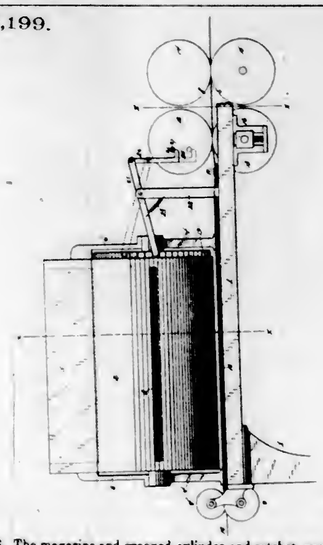
2. The magazine, cylinder having slots, as shown, and the guard, in combination with a ratchet secured to said cylinder, a hinged pawl upon a vibrating lever, whereby intermittent rotary motion is imparted to the cylinder, and drawing and pressing rollers.

3. The magazine, guard, and cylinder having grooves and ratchet, as shown, in combination with lever 21, carrying a hinged pawl, and having an extension with an arm, 25, a pair of drawing-rollers, and means—for example, a roller carried by a pin upon one of the drawing-rollers—whereby vibratory motion is imparted to said lever.

4. In a machine for covering stays, a rotating cylinder having a ratchet secured at its end, and a pair of drawing and pressing rollers, one of which is provided with a pin carrying an anti-friction roller, 26, in combination with a vibrating lever, 21, having at one end a pawl hinged at its upper side, and at its other end an extension with an arm adapted to be engaged by roller 26, and spring 23, whereby when said arm is engaged by roller 26 the pawl is lifted and carries the ratchet forward, and as soon as roller 26 passes from the arm the lever is returned to its normal position, the pawl turning backward upon its hinge and passing freely over the ratchet-teeth.

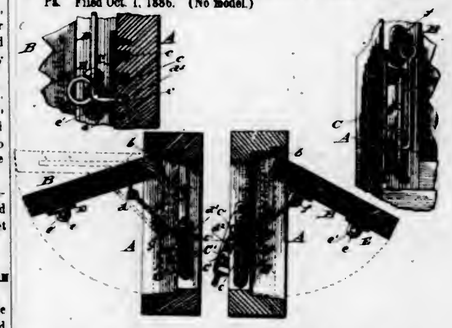
5. The magazine, guard, cylinder, and ratchet, in combination with vibrating lever 21, having extension-arm and pawl, substantially as described, the folder, and drawing and pressing rollers, one of which is provided with pin 27.

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6. The magazine and grooved cylinder and ratchet, pawl, and lever, whereby intermittent motion is imparted thereto, in combination with a folder, drawing and pressing rollers, and cutting-rollers, as and for the purpose set forth.

355,200. TRANSOM-LIFTER. WILLIAM W. NEUER, Wilkes-Barre, Pa. Filed Oct. 1, 1886. (No model.)



Claim.—1. The combination, with the apertured plate and its notched swinging plate, of the swinging arm secured to the transom and provided with the annular shoulder, substantially as specified.

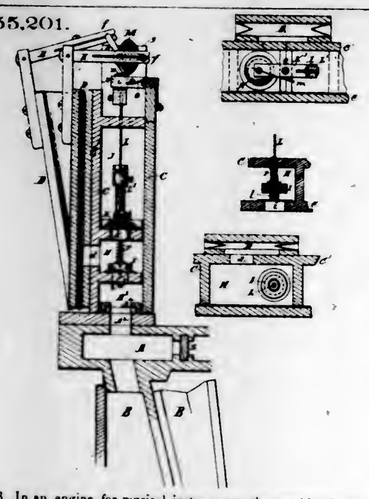
2. The combination, with the transom carrying the angle-plate E, with its eye *e'*, and the frame carrying the apertured plate C, with its swinging notched plate C', of the holding-arm D, having the annular shoulder d^3, substantially as and for the purpose described.

355,201. AIR-ENGINE FOR MECHANICAL MUSICAL INSTRUMENTS. WILLIAM D. PARKER, Worcester, Mass. Filed Dec. 3, 1885. (No model.)

Claim.—1. In an engine for musical instruments adapted for operating by air-pressure induced by the bellows action of the musical instrument, the combination, with valves that open and close the inlet and exit air-passages leading to and from the collapsible motor, of a valve-actuating device provided with lugs or buttons unattached to but adapted for alternately engaging with and operating said valves, substantially as described, whereby one valve is closed when the other is open, and vice versa, with an interval wherein both valves are closed, as and for the purpose set forth.

2. In an engine for musical instruments, the combination, with the air-inlet valve and the air-exit valve to the motor, of a single actuating-rod controlling the action of both said valves by means of lugs or buttons attached to said rod and disposed at such interval apart that one valve closes before the other commences to open, substantially as herein-before set forth.

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3. In an engine for musical instruments, the combination, with a collapsible motor, of an air-inlet valve, an air-outlet valve, and a single operating-rod controlling both of said valves by means of actuating lugs or buttons which are adjustable upon said rod for regulating the interval of action between the movements of the respective valves, substantially as set forth.

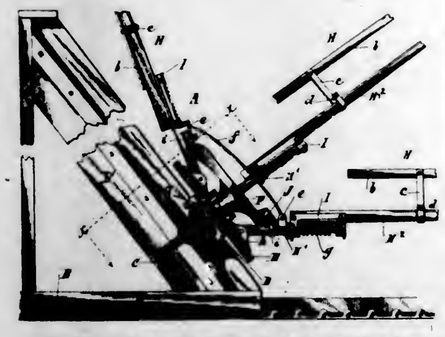
4. In an engine for musical instruments, the combination, with the series of motors and the case C, provided with chambers H and A', having air-passages *d*, *k*, and *i*, of the inlet and outlet valves arranged, respectively, within and above said chamber H, to close in the direction of the exhaust or pressure, substantially as set forth.

5. In an engine for musical instruments, the combination, with the collapsible motor and its supporting-case C, having chambers H and A', of the valve I within the chamber H, the reciprocating rod L, passing through said valve and provided with button *l*, the arm N, spring O, and cam M, substantially as and for the purposes set forth.

6. In an engine for musical instruments, the combination, with a collapsible motor and adjoining chamber H, of the valve K, arranged on the exterior and having a tilting-arm, K', the reciprocating rod L, provided with an adjustable button or slide, L', the arm N, springs O and *m*, and cam M, substantially as and for the purpose set forth.

7. In an engine for musical instruments, the combination, substantially as described, of a motor provided with chamber H, having air-passages leading thereto, the valve I, the valve K, attached to the arm K', the reciprocating rod, L, having lugs or buttons L' and *l*, the springs *m* and *p*, the shaft F, and cam M, for the purpose set forth.

355,202. HARVESTER-REEL. Ezra A. Peck, Piano, Ill., assignor to the Piano Manufacturing Company, of same place. Filed May 27, 1885. (No model.)



Claim.—1. In a grain-harvester, the main or platform frame, in combination with the elevator-frame, a series of reel-arms jointed to a revolving head set in a plane inclined to the platform, links connecting the reel-arms in pairs, and a stationary cam which controls the rising and falling movements of the reels, substantially as and for the purposes set forth.

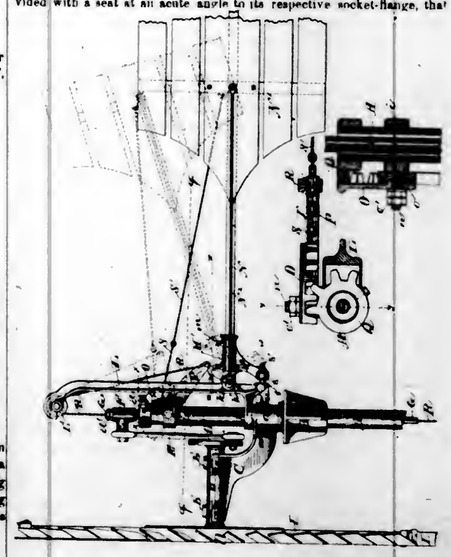
2. In a harvester, the main or platform frame to which the cutting apparatus is attached, in combination with the inclined revolving head, the reel-arms jointed to said head, and the cam F, shaped substantially as shown, whereby the reel-bats are brought into the grain in nearly a vertical plane, are then turned backward as they move to the rear, until finally they are turned up so as to stand above the arms a little before the grain reaches the cutter, substantially as and for the purposes set forth.

3. In a harvester, the main platform-frame, in combination with the head or wheel E, revolving in a plane inclined to the platform, the reel-arms H, linked together in pairs, and consisting of the two parts H' H², the springs *g* for turning the reel-bats down, the cam F, shaped as described, and provided with a projection, J, on its lower side, and projections or cranks connected to the arms H² of the reel, and arranged to run in contact with the projection J of the cam, substantially as and for the purposes set forth.

4. In a grain-harvester, the platform-frame carrying the cutting apparatus, in combination with the inclined reel-head, the reel-arms jointed to said head and composed of two parts, one turning upon the other, and a cam constructed and arranged to act on the reel-arms, whereby the bats descend into the grain in front of the cutters in a nearly vertical plane, are then turned upward as they are carried to the rear slightly, and then turned into a vertical plane above the bars just before the grain is severed, and then thrown down to the rear just after the grain is cut, substantially as and for the purposes set forth.

5. In a harvester-reel, the combination, with the wheel E and cam F, of the primary arm H', the secondary arm H², bracket I, spring *g*, and reel-bats connected with the reel-arm by a metallic strap U-shaped at the inner end, substantially as and for the purposes set forth.

355,203. WINDMILL. George W. Penn, Onawa, Iowa, assignor of one-half to Oliver G. Stowell, Delavan, Wis. Filed Apr. 17, 1886. (No model.)



Claim.—1. The combination of a pivotally-hung wind-wheel, a suitable vane, and means, substantially as described, for adjusting the wheel to any angle less than a right angle to said vane, as set forth.

2. The combination of a pivotally-hung wind-wheel and a suitable vane with a screw-bolt operatively arranged to adjust the wheel to any angle less than a right angle to said vane, as set forth.

3. The combination of a pivotally-hung wind-wheel, a loose gate, a vane horizontally pivoted to the gate, means, substantially as described, for automatically elevating and depressing the vane in accordance with the lateral movement of the wheel, and a screw-bolt operatively arranged to impinge against the base of said gate, as and for the purpose set forth.

4. The combination of a pivotally-hung wind-wheel, a loose gate, a vane horizontally pivoted to the gate, a cam-faced lever pivotally united to said gate and flexibly connected to the vane, and a suitable gear for operating said lever, as and for the purpose set forth.

5. The combination of the radial arms and section-bars of the wind-wheel with a means for uniting said parts, that consists of right and left castings having right-angular flanges arranged to fit over and upon opposite sides of the arms to form sockets therefor, and each casting provided with a seat at an acute angle to its respective socket-flange, that receives the adjacent end of a section-bar, the several parts being retained in their relative arrangement by suitable bolts, as and for the purpose set forth.

6. The combination of a mast and a gate loose thereon with a bracket pivotally connected to the gate and provided with a socket for a vane-shaft, said bracket having lateral projections to receive the ends of vane stay-rods and a depending arm that has a recess in its lower end, an elastic cushion seated in said recess, and a suitable bolt passed through the arm and cushion, as set forth.

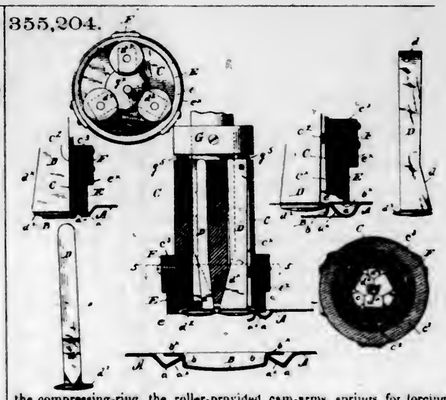
7. The combination of a mast, a gate loose on the same, and a vane having its shaft pivoted to the gate, a bracket rigidly connected to the mast and having a bearing for a wheel-shaft, said bracket provided with a lateral lug and a rearwardly-extended lug arranged to come in and out of contact with the bottom of the gate, and an adjusting-bolt operative in the latter lug, as set forth.

8. The combination of the mast provided with a suitable gear, a gate loose on said mast, a vane-shaft pivotally connected to the gate, a toothed segment journaled to the gate and arranged to mesh with the gear, and a lever extended out from the segment, and means for flexibly connecting the lever and vane, as set forth.

9. The combination of the mast having a pinion fast thereon, a gate having right-angular collars that loosely fit the mast, and a rearwardly-extended lug, a toothed segment journaled to the gate and arranged to mesh with the pinion on said mast, a vane having its shaft pivotally connected to the lug on said gate, a cam-lever fitted to the hub of the segment, and a flexible connection that unites said vane and lever, as and for the purpose set forth.

10. The mast having a pinion fast thereon, a gate loose on said mast and provided at its top with a suitable pulley and at its bottom with buffer-faces, a toothed segment arranged to mesh with said pinion, a cam-lever extended out from the segment and having its lower end connected to a shifting-chain, in combination with a bracket horizontally pivoted to a lug on the gate, this bracket being provided with a depending buffer-arm and a socket, a vane having its shaft secured in said socket, a bracket fast on the mast and provided with a lateral lug, a rearwardly-extended lug and bearing for the wheel-shaft, and a chain-and-rod connection for said lever and vane, all arranged to operate as set forth.

355,204. IMPLEMENT FOR INSERTING BUNGS IN CANS. Geo H. Perkins and George E. Transom, Philadelphia, Pa.; said Transom assignor to said Perkins. Filed May 17, 1886. (No model.)



Claim.—1. In combination with a rotatable roller-head provided with a compressing-ring a series of rollers adapted to be together rotated by the head and to be radially expanded with respect to said compressing-ring, substantially as set forth.

2. In combination with a rotatable roller-head provided with a compressing-ring, a series of rollers adapted to be together rotated by the head and to be radially expanded with respect to said compressing-ring, and a bit for expanding said rollers and occasioning the rotation of the roller-head, substantially as set forth.

3. In a tool of the class recited, the combination of the roller-head, the compressing-ring, the roller-provided cam-arms adapted to the head, and the conical or cam-nosed bit, substantially as set forth.

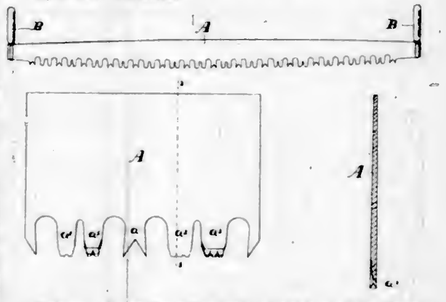
4. In a tool of the class recited, the combination of the roller-head, the compressing-ring, the roller-provided cam-arms adapted to the head, springs for thrusting the cam-arms radially inward, and the conical or cam-nosed bit, substantially as set forth.

5. In a tool of the class recited, the combination of the roller-head, the compressing-ring, the roller-provided cam-arms, springs for forcing said cam-arms radially inward, the conical or cam-nosed bit, and means for permitting a limited longitudinal movement of the bit with respect to the roller-head, substantially as set forth.

6. In a tool of the class recited, the rotatable lip-provided compressing-ring, the roller-provided cam-arms set within ways in the roller-head and controlled by springs, the conical or cam-nosed bit provided with slots for the cam-arms, and means for rotating said bit, substantially as set forth.

7. In a tool of the class recited, the roller-head, the compressing-ring, the roller-provided cam-arms, the conical or cam-nosed bit, the bit-head, means for limiting the longitudinal movement of the bit with respect to the roller-head, and springs for maintaining the bit-head and roller-head normally a given distance apart, substantially as set forth.

355,205. SAW. Robert E. Poindexter, Indianapolis, Ind. Filed May 4, 1886. (No model.)



Claim.—1. A saw the cutting-teeth of which are formed beveled or chisel-shaped upon the sides, with wide points or edges, said points or edges being divided into two or more parts, substantially as set forth.

2. A saw composed alternately of one clearing-tooth and two cutting-teeth, each pair of said cutting-teeth being filed or sharpened in opposite directions and having their points formed square or chisel-shaped, substantially as shown and described.

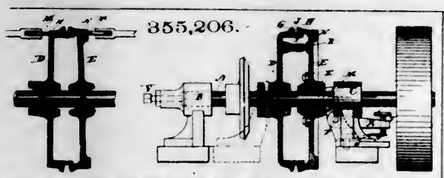
3. A saw the back of which is formed thinner than its front or teeth, said teeth being alternately clearing and cutting teeth, and the cutting-teeth being formed chisel-pointed and the points divided, substantially as set forth.

355,206. DEVICE FOR TRANSMITTING POWER. George H. Potter, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. Filed Oct. 4, 1886. (No model.)

Claim.—1. The combination of a pair of concentric revolving disks upon a single shaft, one of said disks fixed to the shaft so that the revolution of one is communicated to the other, the second disk arranged upon the same shaft, but loose at its axis, and so as to work in a plane the axis of which is oblique to the axis of the shaft upon which it is arranged, and a stationary bearing arranged to bear upon the said second disk at substantially the point in its circumference where the said second disk most nearly approaches the first disk, and a concentric bearing-surface between said disks, substantially as described.

2. The combination of a pair of concentric revolving disks arranged upon a single shaft, one of said disks fixed to the shaft, the second disk supported upon a ball-joint upon the shaft and so as to work in a plane

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the axis of which is oblique to the axis of the shaft upon which it is arranged, a stationary bearing arranged to bear upon said second disk at substantially the point in its circumference where the said second disk most nearly approaches the first disk, and a concentric bearing-surface between said disks, substantially as described.

3. The combination of the disk D, fixed to the shaft, the disk E, loose upon the shaft, concentric with the disk D, and constructed to present a working-face between the two, the said second disk loose upon the shaft, and so as to work upon an axis oblique to the shaft upon which it is arranged, and so as to present a working surface oblique to the working-surface of the first disk, a concentric bearing-surface between said disks, and a stationary bearing against which said second disk revolves, said bearing being at the point where the working-face of the said second disk most nearly approaches the working-face of the first disk, said bearing made adjustable with relation to said second disk, substantially as described.

355,207. TICKET-CASE. JOSEPH A. REMFIELD, Rochester, N. Y. Filed Aug. 17, 1886. (No model.)



Claim.—1. The herein-described ticket-case, having guides or ways B and B', spring-actuated plate C, fitted in the case A, and a spring-actuated lid or cover, E, working back and forth in the guides or ways B and B', as set forth.

2. The combination, with the box or case A, of a lid or cover, E, having grooves *f* and *f'* on its under side, spring-arms G and G', secured to the under sides of the cover or lid, below the grooves, and a plate, H, secured to the front ends of the arms G and G', the lid working back and forth in the case A, substantially as described.

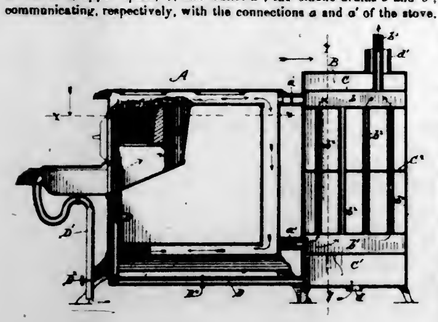
3. The combination, with the box or case A, of the sliding cover or lid, spring arms G and G', secured to the under side of the cover or lid and bearing on the case or box, as set forth.

4. The box or case A, having notches *b*, in combination with the cover or lid E, spring-arms G G', secured to the cover or lid and working in the notches *b*, and a plate, H, connecting the free ends of the spring-arms G G', as set forth.

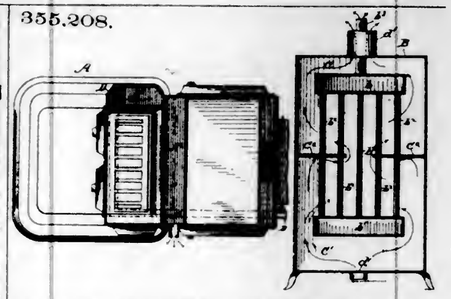
5. The case or box A, in combination with the sliding cover or lid E, the spring-arms G G' on the under side of the cover or lid, the plate H, connecting the ends of the arms, and the turned ends *n* at the ends of the plate H, as set forth.

355,208. HEATING ATTACHMENT FOR COOKING-STOVES. RICHARD A. REW, Pomeroy, Wash. Filed July 9, 1885. (No model.)

Claim.—1. The combination of the stove having rear vertical smoke-flue with connections *a* and *a'* at top and bottom of same and the heating-chamber B, consisting of outer case with lower space, C', and inlet *d*, upper space, C, and outlet *d'*, the smoke-drums *b* and *b'*, communicating, respectively, with the connections *a* and *a'* of the stove.



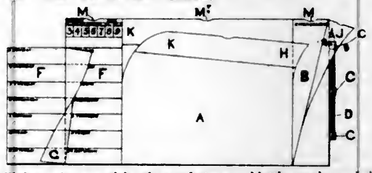
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and connecting smoke-pipes *b'*, arranged within the outer case, substantially as and for the purpose described.

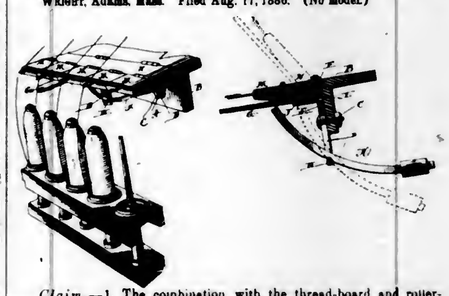
2. The stove having passages A^2 in rear and A' at the end of the fire-chamber, and inlet-pipe D, and outlet A^2, in combination with the casing B, having air-chamber C', and inlet *d*, substantially as shown and described.

355,209. WRITING OR BLOTTING PAD. JOHN MCNAY REMINGTON, 4 Picton Place, Newcastle-upon-Tyne, County of Northumberland, England. Filed June 15, 1885. (Model.)



Claim.—As an article of manufacture, a blotting-pad consisting of a card-board or similar backing, a central body of blotting-paper, an attached series of superposed sheets of writing-paper, and an attached diary, substantially as described.

355,210. SPINNING-MACHINE. WILLIAM H. RIVERS and EDGAR WRIGHT, Adams, Mass. Filed Aug. 17, 1886. (No model.)



Claim.—1. The combination, with the thread-board and roller-beam, of a slotted hinge-leaf provided with a rest projecting horizontally from its front and a hinge-leaf in which the attaching portion is formed at right angles to the portion through which the hinge-pintle passes.

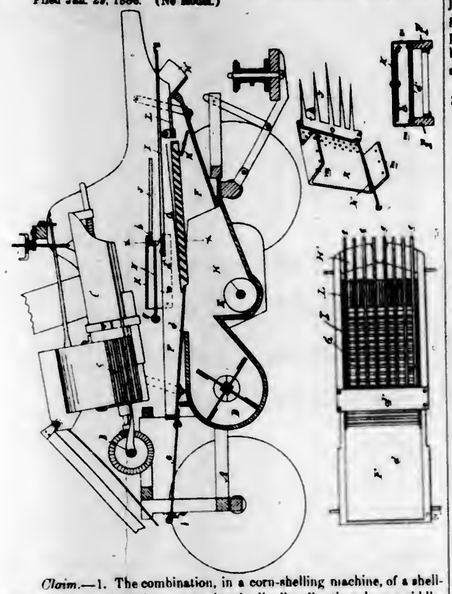
2. The combination of the thread-board and the roller-beam with the hinge-leaf provided with a rest projecting horizontally from its front and a hinge-leaf in which the attaching portion is prolonged into a handle and formed at right angles to the portion through which the hinge-pintle passes.

3. The combination, with the thread-board and roller-beam, of a slotted hinge-leaf provided with rests projecting horizontally from its front and a hinge-leaf in which the attaching portion is prolonged into a handle formed at right angles to the portion through which the hinge-pintle passes, the inner end of the handle portion fitting between the rests, and the other portion fitting into the upper division of said slot.

4. The combination, with the thread-board and roller-beam, of a hinge-leaf secured to said thread-board, a slotted hinge-leaf secured to the roller-beam, a single bolt passed through said slot, and a lever-brace pivoted in the lower end of the slot.

5. The combination, with a thread-board and roller-beam, of a hinge-leaf secured to said thread-board, a slotted hinge-leaf secured to said roller-beam and provided with a cross-piece at the lower end of the slot, and a weighted lever-brace provided with a notch in its under edge by which it is pivoted upon said cross-piece.

355,211. CORN-SHELLER. CYRUS ROBERTS, Three Rivers, Mich. Filed Jan. 29, 1886. (No model.)

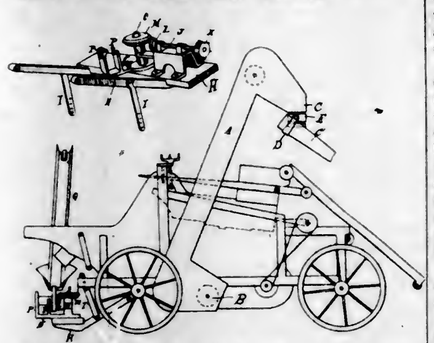


Claim.—1. The combination, in a corn-shelling machine, of a shelling-cylinder, an inclosing-case, a longitudinally-vibrating shoe, a riddle, a cob-separator located above said riddle, and a laterally-vibrating rake, said rake, riddle, and cob-separator being all attached to said longitudinally-vibrating shoe, substantially as and for the purpose specified.

2. The combination, in a corn-shelling machine, of a longitudinally-vibrating shoe, a slotted riddle secured to said shoe, a cob-separator provided with delivery-bars and secured to said shoe, a rake pivotally secured to said shoe, and having a laterally-vibrating motion imparted thereto from said shoe, substantially as described.

3. The combination, with the shoe F, of the riddle, the cob-separator, and the laterally-vibrating rake, all connected with said shoe, the spout H', the perforated bridge K, and the bars L, attached to the said shoe at the rear end of said riddle, substantially as described, and for the purpose specified.

355,212. ELEVATOR FOR CORN-SHELLERS. CYRUS ROBERTS, Three Rivers, Mich. Filed Jan. 29, 1886. (No model.)

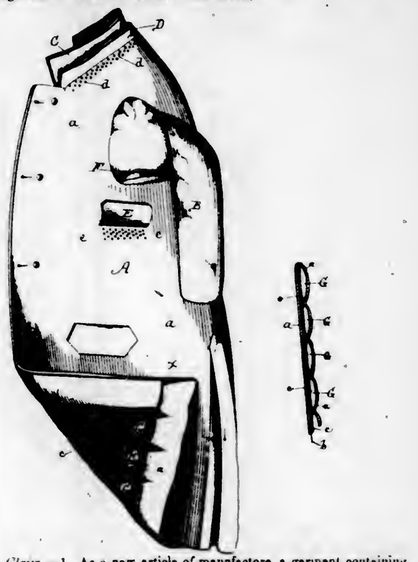


Claim.—1. The combination, with the elevator A, having stationary part C of the spout rigid therewith, of the loose collar E, swiveled onto the lower end of said part C, the hanger D, pivotally hung from said collar, and the movable part C' of the spout secured to and supported by said hanger, substantially as and for the purpose specified.

2. The combination, with the shoe, of the cob-spout forming the tail end thereof, said spout being in the form of a V-shaped trough, the walls of which incline toward the tail end of the machine, and provided with a central discharge-opening through the bottom and said inclined walls, substantially as described.

3. The combination, with the platform H, arm N, circularly adjustable thereon and provided with bearings P, vertical shaft o, bevel-gear wheel M on said shaft, and intermediate gearing supported by said platform, of the cob-carrier Q, provided with box R, secured in said bearings and forming a bearing for the drive-shaft of said carrier, substantially as described.

355,213. WATER-PROOF GARMENT. BUSHROD ROBINSON, Washington, D. C. Filed Oct. 8, 1886. (No model.)



Claim.—1. As a new article of manufacture, a garment containing and consisting in the following elements or parts: a body, sleeves, and collar made of any suitable and ordinary fabric, a thin lining made of any suitable and ordinary waterproofed fabric, and also everywhere adherent throughout its inner surface to the inner surfaces of said body, sleeves, and collar, a heavy lining, of any suitable and ordinary fabric, attached in any proper and familiar mode to said water-proof lining along the edges of said heavy lining, but leaving openings along the bottom edge thereof, a second or under collar of suitable and ordinary water-proofed material beneath the usual collar of the garment, openings through the outer fabric and its adherent water-proof lining beneath such under collar, openings through said fabric and lining at the breast of the garment, covered by an ordinary flap of suitable water-proof material, and an opening through said fabric and lining at each armpit of the garment, all in the manner hereinbefore described.

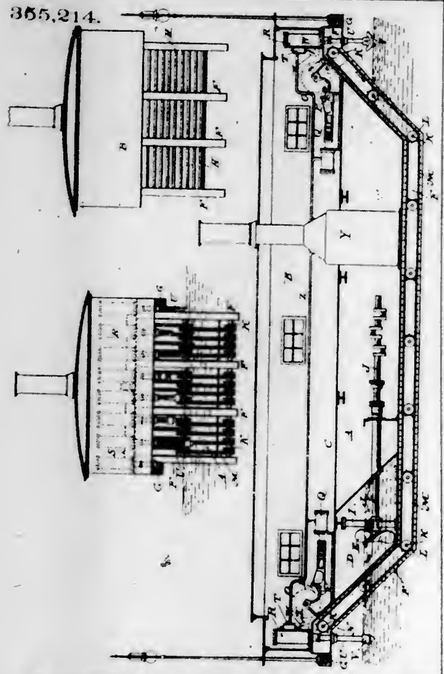
2. As a new article of manufacture, a garment containing and consisting in the following elements or parts: a body, sleeves, and collar made of any suitable and ordinary fabric, a thin lining made of any suitable and ordinary waterproofed fabric, everywhere adherent throughout its inner surfaces to the inner surfaces of said body, sleeves, and collar, a heavy lining, of any suitable and ordinary fabric, attached to said water-proof lining along the edges of said heavy lining, but leaving openings along the bottom edge thereof, openings through the outer fabric and waterproofed lining at the breast of the garment, covered by an ordinary flap of suitable water-proof material, and an opening through said fabric and lining at each armpit of the garment, all in the manner hereinbefore described.

3. As a new article of manufacture, a garment containing and consisting in the following elements or parts: body, sleeves, and collar made of any suitable and ordinary fabric, a thin lining made of any suitable waterproofed fabric, everywhere adherent throughout its inner surfaces to said body, sleeves, and collar, a heavy lining, of any suitable and ordinary fabric, attached to said waterproofed lining along the edges of said heavy lining, but having openings along the bottom edge thereof, and an opening through the outer fabric and waterproofed lining at each armpit of the garment, all in the manner hereinbefore described.

355,214. ICE-BREAKING VESSEL. ROBERT ROMAINE, Ottawa, Ontario, Canada. Filed June 30, 1886. (No model.)

Claim.—1. In combination with a vessel, a series of hammers thereon for breaking the ice, an engine for imparting motion to said hammers, and an endless chain extending from the front to the rear of the vessel.

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2. In a vessel for breaking and removing ice, the combination, with the hull or shell A, having the inclined front wall, of a series of chains mounted upon said wall and a series of hammers in advance of the latter, substantially as set forth.

3. In a vessel for breaking and removing ice, the combination, with the hull or shell A, having the inclined front wall, of the overhanging deck C, the reciprocating hammers mounted in said overhanging portion, and the endless chains in rear of said hammers.

4. In a vessel for breaking and removing ice, the combination, with a hull provided with inclined end walls, endless chains extending along the bottom and ends of the hull, a series of hammers at each end of the vessel, and a suitable motive power for actuating the hammers and chains simultaneously.

5. In a vessel such as described, a series of ice-crushing hammers, a series of conveying-chains in rear of said hammers, and mechanism, substantially such as shown, for simultaneously operating the chains and hammers.

6. In a vessel substantially such as shown, the combination, with a hull, of the keels F secured thereto, the shafts K, extending from keel to keel and provided with sprocket-wheels L, chains M, passing about the wheels, when combined with mechanism for imparting motion to the shafts.

7. In a vessel substantially such as shown, the combination, with the hull A, the deck C, overhanging the stern of the hull and forming a chamber, D, the keels F, connected to the hull and extended in rear thereof up to the deck, bars H, extending from keel to keel and closing the rear and bottom of the chamber D, and a propeller, E, located within the chamber, all substantially as shown and described.

8. In combination with a vessel substantially such as shown and described, a hammer provided with a valve for regulating the admission of steam to its cylinder, a chain in rear of said hammer, a gear-wheel, N, secured to the chain-shaft, a wheel, X, meshing with wheel N and serving to actuate the hammer-valve, a wheel, O, meshing with wheel N, a wheel, P, meshing with wheel O and serving by means of the motion imparted to it by an engine, Q, to transmit motion to the gears O N, as and for the purpose set forth.

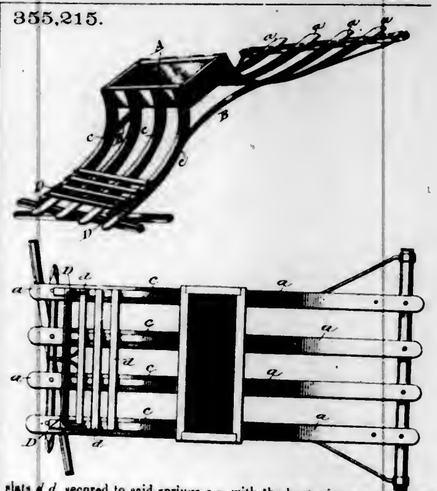
355,215. BUCKBOARD-WAGON. Edouard H. Rousseau, Granby, Quebec, Canada. Filed Dec. 4, 1885. (No model.) Patented in Canada July 2, 1885, No. 21,955.

Claim.—1. The combination, in a buckboard, of the steel springs B B, independent of the seat, secured at one end to the rocker and at the other to the hind axle, with the bent pieces *a a*, substantially as shown and described.

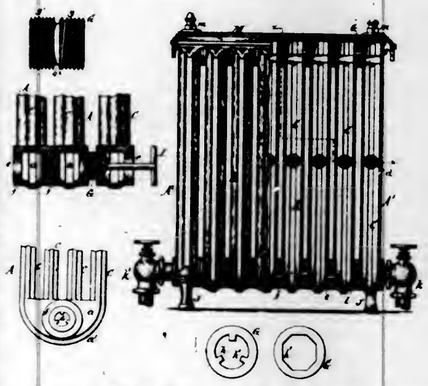
2. The combination, in a buckboard, of the springs *c c* and cross-slats *d d*, secured to said springs *c c*, with the bent pieces *a a*, substantially as set forth.

3. In a buckboard-wagon, the combination of the springs B B, bent pieces *a a*, and seat-frame A, with the springs *c c* and foot-bar D, all arranged substantially as and for the purpose shown and described.

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355,216. RADIATOR. Clarence E. Safford, Lancaster, N. Y. Filed Feb. 18, 1886. (No model.)



Claim.—1. The combination, in a radiator, of a series of vertical sections, A, each composed of a bottom chamber, *a*, a top chamber, *b*, and vertical radiating-tubes C, made oblong in cross-section and connecting said top and bottom chambers, and arranged with their flat or wide sides outward, and horizontal tubes *d*, connecting the vertical tubes C between the bottom and top chambers, substantially as set forth.

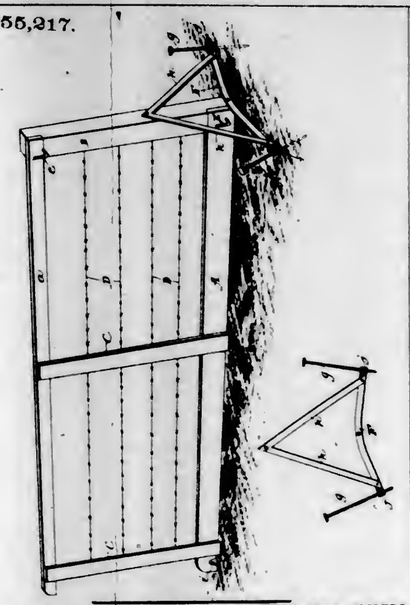
2. In a radiator, the combination, with two radiating-sections, of a hollow coupling, G, provided on its outer side with right and left screw-threads, and on its inner side with holding-surfaces for the reception of a tool or wrench, by which the nipple can be turned, substantially as set forth.

3. In a radiator, the combination, with two radiating-sections, of a hollow coupling, G, provided on its outer surface with right and left hand screw-threads *g g'*, separated by an annular groove, g^2, which is depressed below the screw-threads, and on its inner side with holding-surfaces for the reception of a wrench, substantially as set forth.

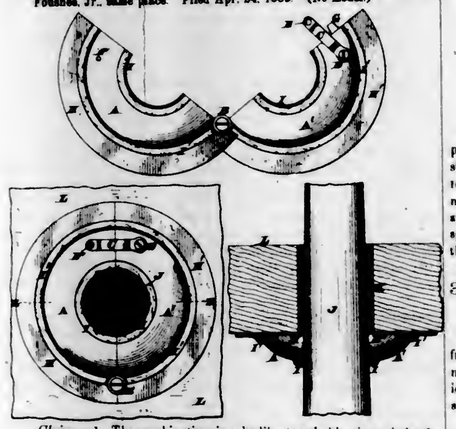
355,217. FENCE. Lafayette Sabb, near Wolcottville, Ind. Filed July 22, 1886. (No model.)

Claim.—The portable fence-panel composed of the end post, B, with hooks e E, the cross-stays C C, and the top and bottom bars, a A, connected to the post and stays and extending beyond the end stay, and having notch *i*, and the intermediate wire strands, D, in combination with the braced support consisting of bar F, with inclined or triangular braces *h*, and pins or stakes *g g*, substantially as and for the purpose described.

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355,218. AIR-EXCLUDER FOR FAUCETS IN BEER-COOLERS. Thomas G. Saxton, Lexington, Ky., assignor of one-half to Charles W. Foushee, Jr., same place. Filed Apr. 24, 1886. (No model.)



Claim.—1. The combination, in a bodily-detachable air-excluder for beer-coolers, &c., of a two-part ring provided with a two-part gasket adapted to be fitted around a faucet and secured thereto without connecting to the cooler, for the purpose specified.

2. The combination, in a bodily-detachable air-excluder for beer-coolers, &c., of a two-part ring hinged together and provided with a retaining device, and a two-part gasket, which latter is adapted to be fitted around a faucet without connecting to the cooler, for the purpose specified.

3. The combination, in a bodily-detachable air-excluder for beer-coolers, &c., of a two-part ring, A A', hinged together at B, and provided with a two-part gasket, H H', having inner lips, I I, and outer lips, I' I', said ring A A' having a retaining device, but having no connection with the cooler, for the purpose specified.

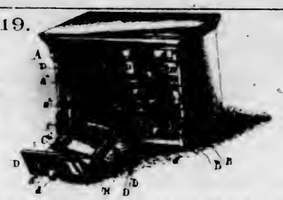
355,219. FILING-CABINET. Paul J. Schlicht, Rochester, N. Y., assignor to Schlicht & Field, same place. Filed Dec. 4, 1885. (No model.)

Claim.—1. The combination, with a cabinet, of a file comprising a base provided with a paper-holding device at one of its sides, and a front at its outer end adapted to close the opening of the cabinet when the file is in place therein, substantially as described.

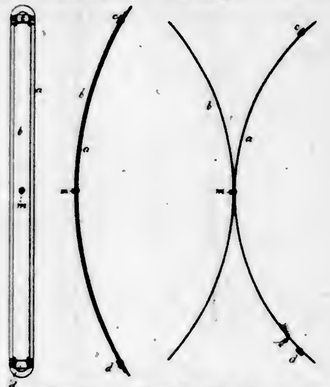
2. The combination, with a cabinet, of a file comprising a base having one or more receiving-wires at one of its sides, and a front at its outer end adapted to close the opening of the cabinet when the file is inserted therein, substantially as described.

3. The combination, with a cabinet, of a file comprising a base provided with a front at its outer end adapted to close the opening of the cabinet, and a paper-holding device at one of its sides, consisting of one or more receiving-wires and one or more transfer-wires, substantially as described.

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355,220. CORSET-FASTENING. Moritz Seifert, Dresden, Saxony, Germany. Filed Dec. 21, 1885. (No model.)



Claim.—The fastening device for corsets or other articles of apparel, consisting of two springs of unequal strength and bowed in opposite directions, a connecting device for the springs at the center, and tongues and loops for connecting the springs at their respective ends, the narrow and weaker spring being bent to a reverse curve by the superior strength of the wider spring when the springs are connected, so that such springs assume a curved form and press against each other throughout their length, substantially as specified.

355,221. MACHINE FOR DRAWING IN WARP-THREADS. Lewis P. Sherman, Biddeford, assignor to George Moore, Berwick, Me. Filed Mar. 10, 1886. (No model.)

Claim.—1. The combination, in a warp-drawing machine, of the frame, the carriage, and means for imparting an uninterrupted movement to said carriage, with a drawing-needle and its operating mechanism, and heddle-separating devices, both supported by and moving with said carriage, all substantially as specified.

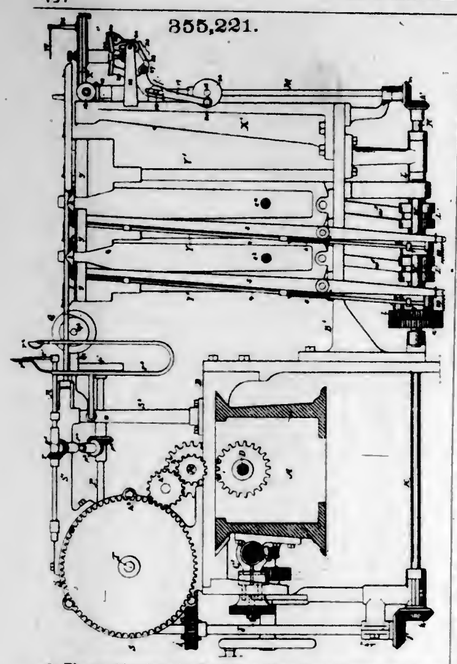
2. The combination, in a warp-drawing machine, of the frame, the carriage, and means for uninterruptedly traversing said carriage on the frame, with the drawing-needle and its operating mechanism, heddle-separating devices, and warp-thread-selecting mechanism, all supported by and moving with the carriage, all substantially as set forth.

3. The combination of a drawing-needle, consisting of a flat flexible strip, with reciprocating mechanism and a guide-casing partly segmental and partly straight, and with deflectors, whereby the needle is turned on edge as it passes from the segmental to the straight portion of the casing, all substantially as specified.

4. The combination of a flexible needle and a guide-casing therefor with reciprocating mechanism comprising a continuous rack consisting of opposite segments with curved end connections, a pinion gearing into said rack, means for rotating said pinion, and a connection whereby the traversing movement of the pinion is imparted to the needle, all substantially as specified.

5. The combination of a flexible needle and a guide-casing therefor with a continuous rack comprising opposite segments with curved end connections, a pinion gearing into said rack, means for rotating said pinion, segmental guide-grooves, and a connection whereby the traversing movement of the pinion is imparted to the needle, all substantially as specified.

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6. The combination of a flexible needle and a guide-casing therefor, a continuous rack comprising opposite segments with curved end connections, a pinion gearing into said rack, a pinion-shaft, a link connecting said shaft to the needle, and means for rotating the shaft, all substantially as specified.

7. The combination of the flexible needle and its guide-casing, the continuous rack comprising opposite segments with curved end connections, a pinion gearing into said rack, a pinion-shaft connected to the needle, a pivoted frame forming a bearing for said shaft, a driving-shaft having a bevel-wheel, a bevel-pinion gearing into said wheel and having a slotted hub, and a disk having a rib engaging with said slot, so as to form a clutch for driving the pinion-shaft, all substantially as specified.

8. The combination of the flexible needle, the guide-casing, the continuous rack comprising opposite segments and curved end connections, the pinion gearing into said rack, the pinion-shaft connected to the needle, an axial driving-shaft, and gearing whereby the movement of the same is transmitted to the pinion-shaft, a pivoted frame carrying said pinion-shaft, and a block carrying said frame and free to swing around the axial driving-shaft, all substantially as specified.

9. The combination of a heddle-frame supporter with an eye-separating shuttle, guides whereby the shuttle is directed in a course at right angles to the length of the heddle, and mechanism for reciprocating said shuttle, all substantially as specified.

10. The combination of the heddle-frame supporter, the eye-separating shuttle, guides and reciprocating devices for said shuttle, and a cord connected to the shuttle and passing between the heddle-cords, whereby the heddle-eyes are separated into two parallel rows, all substantially as set forth.

11. The combination of the heddle-frame supporter, the eye-separating shuttle, guides and reciprocating devices for said shuttle, the cord for separating the heddle-eyes into rows, and a pivoted arm, whereby said cord is connected to the shuttle, all substantially as set forth.

12. The combination of the heddle-frame supporter, the eye-separating shuttle, guides and reciprocating devices for said shuttle, a clamping-finger, between which and the shuttle the heddle-eyes are held, and means for vibrating said finger, all substantially as set forth.

13. The combination of the heddle-frame supporter, the eye-separating shuttle, guides and reciprocating devices for said shuttle, a clamping-finger, between which and the shuttle the heddle-eyes are held, and means for retracting and advancing said finger, all substantially as set forth.

14. The combination of the heddle-frame supporter, the eye-separating shuttle, guides therefor, and a shuttle-reciprocating device comprising opposite pressing-fingers and means for vibrating them, all substantially as set forth.

15. The combination of the heddle-frame supporter, the eye-separating shuttle, guides therefor, opposite pressing-fingers acting on the shuttle, and means for vibrating the fingers, the distance between the points of the fingers being greater than the length of the shuttle, all substantially as specified.

16. The combination of the heddle-frame supporter, the eye-separating shuttle, guides therefor, the shuttle-operating fingers and their vibrating mechanism, and retaining-fingers moving with the shuttle-operating fingers and serving to hold back the heddle-eyes, all substantially as specified.

17. The combination of the heddle-frame supporter, the eye-separating shuttle, guides and reciprocating devices for said shuttle, and rods serving to guide the heddle-cords into the space between the shuttle-guides, all substantially as set forth.

18. The combination of a pair of nippers, a pair of carrying-levers connected for joint operation and slotted for the reception of the fulcrum-pins, a shaft having a crank-pin acting on one of said levers, and means for rotating said crank-shaft, all substantially as specified.

19. The combination of a drawing-needle, a thread-selecting hook, a carrier therefor, a laying-hook, whereby the thread is taken from the selecting-hook and placed on the needle, and means for operating the needle, laying-hook, and carrier, all substantially as specified.

20. The combination of a drawing-needle, a thread-selecting hook, a laying-hook, a selecting-hook carrier, to which said laying-hook is pivoted, and means for operating the needle, laying-hook, and carrier, all substantially as specified.

21. The combination of the drawing-needle, the selecting-hook having two faces at an angle to each other, the carrier for said hook, the laying-hook constructed to take up a thread at the angle of the two faces of the selecting-hook, and means for operating the needle, laying-hook, and carrier, all substantially as specified.

22. The combination of the drawing-needle, the selecting-hook and its carrier, the laying-hook, a yielding tension arm or lever, against which the thread is pressed by said laying-hook and means for operating the needle, laying-hook, and carrier, all substantially as set forth.

23. The combination of warp-thread-selecting devices, guides whereby the threads are led thereto in a single line, a pivoted dog having a nose constructed for deflection by a selected thread, and means, substantially as described, for restoring the dog to its normal position after deflection, all substantially as set forth.

24. The combination of the drawing-needle, the selecting-hook and its carrier, the laying-hook and its actuating mechanism, means for imparting a positive movement to the carrier in one direction, a spring for imparting the return movement, a lock for restraining the carrier when it has reached the limit of its forward movement, and an arm acted upon by the thread on the selecting-hook and engaging with the lock for the carrier, all substantially as specified

25. The combination of the drawing-needle, a shaft having a clearing-finger, whereby the thread is caught after being drawn through the reed, a guard-plate over which the thread is passed by said clearing-finger, and means for operating the needle and rotating the finger-shaft, all substantially as specified.

26. The combination of the drawing-needle, a shaft having a clearing-finger, a guard-plate, over which the thread is passed by said finger, a friction-plate, whereby tension is imparted to the thread, and means for operating the needle and rotating the finger-shaft, all substantially as specified.

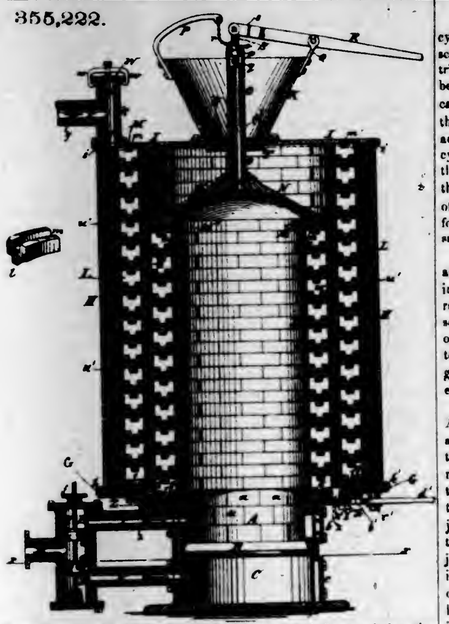
27. The combination of the heddle-separating and thread-selecting devices of the machine, a main shaft, K, geared to the primary shaft of the thread-selecting mechanism, a sleeve carrying cams for operating the heddle-separating mechanism, and gearing for driving said sleeve at a less rate of speed than the main shaft, all substantially as specified.

355,222. APPARATUS FOR DESULPHURIZING ORES. FREDERICK SIBLEY, New York, N. Y. Filed Apr. 23, 1886. (No model.)

Claim.—1. In an apparatus for desulphurizing ores, the combination of a fire-box provided with an opening for admission of air below the grate and an opening for admission of air above the grate, a cylinder, L', composed of porous or interstitial materials arranged in relation concentrically with said fire-box, extending above the same and surmounted by a cap, N, for inclosing the space in the interior of said cylinder above said fire-box, cylinder L, composed of porous or interstitial material, arranged exteriorly and concentrically with the cylinder L' in such manner as to leave an annulus, *u*, between said cylinders, a cylinder, H, arranged exteriorly and concentrically with the cylinder L in such manner as to form an annular chamber, *u'*, surrounding the cylinder L', and the cap I, covering the annulus *u* and the chamber *u'*, provided with openings J and *j*, respectively, for the admission of material to be treated to the annulus *u* and for the escape of the products of the reaction, substantially as and for the purpose herein specified.

2. The combination, with the fire-box A, cylinders H, L, and L', and caps I and N, the cap I being provided with an opening, J, for admitting material to be treated to the annulus *u*, and an opening, *j*, for the escape of the products of the reaction, of the valve-chest K, pipes F F' respectively connecting said valve-chest with the space below and

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above the grate in the fire-box, and the valves *e e'*, for regulating the flow of the air through the pipes F and F', substantially as and for the purpose herein set forth.

3. The combination, with the cap I of an apparatus for desulphurizing ores, constructed with the cylinders L L' and fire-box A, substantially as herein set forth, said cap having an opening, J, for the admission of material to be treated, and a valve, T, for closing said opening, of a hopper, K, and a lever, R, pivoted to said hopper and connected by links with the valve T, for operating the same, substantially as and for the purpose herein described.

4. The combination, with the cap I of an apparatus for desulphurizing ores, constructed with the cylinders L and L' and fire-box A, substantially as herein described, and having an exterior annular chamber, *u'*, for the collection of the products of the chemical reaction in the apparatus, said cap I having an opening, *j*, communicating with said chamber for the escape of said products, of the pipe V, provided with a cap, W, and the pipe *v*, connected with the pipe V and provided with a valve, *y*, whereby said products may be allowed to escape into the open air or directed to another apparatus for further treatment, substantially as and for the purposes herein set forth.

5. In an apparatus for desulphurizing ores, constructed and operating substantially as described, the combination, with the cylinders L and L', composed of porous or reticulated material, arranged in relation with each other to leave an annulus, *u*, between said cylinders for the reception of material to be treated, of a valve or valves arranged in relation with said annulus at the bottom thereof, for the removal of said material from said annulus after the same has been passed through said annulus, substantially as and for the purpose herein specified.

6. In an apparatus for the desulphurization of ores, constructed substantially as herein described, with cylinders L and L', composed of porous or interstitial material, and arranged concentrically in such manner as to leave between them an annulus, *u*, for the reception of the material to be treated, the combination, with said cylinders, of the annular valve Z, arranged in relation with the bottom of the annulus *u*, having therein openings *z*, corresponding with openings *z'* in the rim G of the fire-box which supports said cylinders, and also having on its perimeter a segmental rack, A', the segmental pinion *b'*, and lever *d*, for operating said pinion, and valve for discharging the material after the same has been treated, substantially as and for the purposes set forth.

7. In a furnace for desulphurizing ores, constructed and operating substantially as herein described, and having the interstitial or porous cylinders L and L', arranged concentrically with each other to leave an annular space, *u*, for the reception of material to be treated, the conical cap N, surmounting the interior cylinder, L', and the cap I, surmounting the cylinder L, having a central opening, J, for the introduction of material to be treated, arranged centrally over the apex of the cap N, whereby the ore introduced through the opening J is uniformly distributed to the annulus *u*, substantially as and for the purpose set forth.

8. In an apparatus for the desulphurization of ores, constructed with cylinders L L' and fire-box A, and operating substantially as herein described, the porous or interstitial cylinders L and L', arranged concentrically with each other in such manner as to leave an annular space, *u*, between them for the reception of the material to be treated, the conical cap N, having an opening, *n*, in its apex, the pipe O, for the escape of the gases of combustion, provided with a valve, *o*, for closing the same, and having thereon an annular valve-seat, U, the cap I, surmounting the cylinder L, having the central opening, J, arranged concentrically with the pipe O, and having an annular valve-seat in horizontal relation with the valve-seat U, and the annular valve T, having exteriorly the form of a truncated cone and provided with an annular opening having the form of an inverted truncated cone for closing the annular opening J, substantially as and for the purpose set forth.

9. In an apparatus for the desulphurization of ores having a fire-box and the porous or interstitial cylinders L and L', arranged concentrically in such manner as to leave an annular space, *u*, between them for the reception of material to be treated, the segmental fire-bricks, herein described, for constructing said cylinders, said fire-bricks having a groove or recess, *m*, on their upper surface, and a tongue or projection, *l*, extending along their lower surface, whereby said bricks are made to engage each other and form a structure without the use of mortar or cement, substantially as and for the purpose herein set forth.

10. In an apparatus for desulphurizing ores, comprising a fire-box, A, and cylinders L and L', arranged concentrically with each other in such manner as to leave an annular space, *u*, between said cylinders for the reception of material to be treated, said cylinders being made of segmental bricks having along their upper surface the grooves *m* and along their lower surface the tongue or projection *l*, of form corresponding to the grooves *m*, the combination, with said cylinders, of the rim G, projecting from the upper margin of the fire-box A, and having formed therein the annular recesses *g*, for the reception of the tongues or projections of the lower course of bricks in such cylinders, the cap N, having an annular projection, M', for engaging the recess in the upper course of fire-bricks in the cylinder L', and the cap I, having thereon the annular projection M, for engaging the recess in the upper course of bricks in the cylinder L, whereby said cylinders are bound and held concentrically with each other, substantially as and for the purposes herein specified.

355,223. BROOM. MARK A. SMITH and CHARLES F. YAEGER, Evansville, Ind.; said Smith assignor to said Yaeger. Filed Dec. 29, 1885. (No model.)



Claim.—1. A broom-section consisting of a vertical half of the broom-straw bound by a metal band compressed thereon, and provided with a depression midway between the ends of said compressed band, substantially as specified.

2. A broom-section consisting of a vertical half of the broom-straw bound by a compressed metal band having its end projecting at the sides of the broom-section, substantially as specified.

3. A broom-section consisting of a vertical half of the broom-straw bound by a compressed metal band having projecting ends and a central half socket or depression therein, substantially as specified.

4. The combination, with a broom-section bound by a metal band having a middle depression or concavity, of the broom-handle and a broom-section bound by a metal band having a middle depression and inwardly-bent clamping ends, substantially as specified.

5. A broom formed in two separately-bound sections, one of which is provided with extensions adapted to overlap the opposite section in uniting the same, substantially as specified.

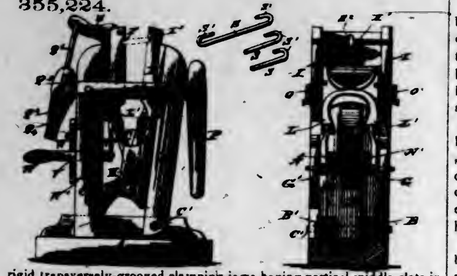
6. A broom having its straw formed in two bound sections, depressed at opposite points to receive a stick, and united, substantially as specified.

355,224. BROOM-WIRING MACHINE. MARK A. SMITH and CHARLES F. YAEGER, Evansville, Ind.; said Smith assignor to said Yaeger. Filed Jan. 30, 1886. (Model.)

Claim.—1. The combination, with the bed-plate having the stationary upright provided with the transversely-grooved clamping-jaw with the vertical middle slot, the bending-lever with the vertically-grooved toe, the power-lever, and the hook-rod connecting the bending and power levers, of the hinged upright with the transversely-grooved clamping-jaw with middle slot, the hinged compressor-plates, and the cam-lever fulcrumed between the pivoted horizontal strap-arms secured to the stationary uprights, substantially as specified.

2. The combination, with the stationary upright and the hinged upright secured to the base, and provided at their upper ends with the

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rigid transversely-grooved clamping-jaws having vertical middle slots in their transverse grooves, of the pivoted strap-arms with cam-lever, the hinged adjustable compressor-plates, the bending-lever with vertically-grooved toe, the power-lever, and the hook-rod connecting the power-lever and bending-lever, substantially as specified.

3. The combination, with the bed-plate having the stationary upright and the hinged upright, the transversely-grooved clamping-jaws with vertical middle slots, the bending-lever connecting with the power-lever, and the compressor-plates having the hinged arms connected by a cross-rod working in slots in flanged arms on the hinged upright, of the pivoted angle-lever having its power end working in a rack-slot in the stationary upright, and connected by a vertical pivot-arm to one of the compressor-plates, substantially as specified.

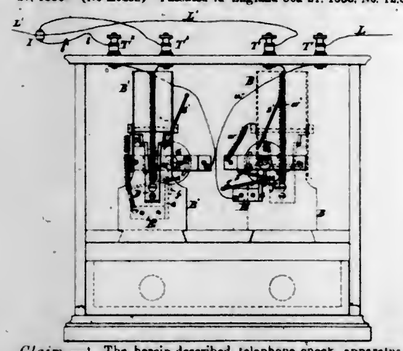
4. The combination, with the bed-plate, stationary upright, hinged upright, and transversely-grooved clamping-jaws, with middle vertical slots intersecting their grooves, of the clamping-lever, the compressor-plates, and the vertically-grooved bending-lever connected with a power-lever, substantially as specified.

355,225. WIRE-BOUND BROOM. Mark A. Smith and Charles F. Yaeger, Evansville, Ind.; said Smith assignor to said Yaeger. Filed Jan 30, 1886. (No model.)



Claim.—In a broom, the combination, with a stick, of binding-wires passed around the broom-straw and having their ends turned into the straw adjacent to and at opposite sides of the stick, and secured at their overlapping outer portions by the transverse wires, substantially as specified.

355,226. TELEPHONE-CHECK APPARATUS. D. Johnstone Smith and Daniel Sinclair, Glasgow, County of Lanark, Scotland. Filed Apr. 27, 1886. (No model.) Patented in England Oct. 21, 1885, No. 12,600.



Claim.—1. The herein-described telephone-check apparatus for call-boxes or offices, consisting of a box having in it two chutes provided each with a spring or springs or other contact devices so fitted as to be acted on by coins or tokens passing through the chutes, one set of contact devices being in the line-circuit connected to the exchange and the other in a local-battery circuit, so that signals of different kinds may be automatically transmitted to the exchange by the passage of the coins through the respective chutes, contact making or breaking devices in the respective circuits, and operated by suitable keys, being provided for the use of subscribers to the exchange system, substantially as and for the purposes set forth.

2. In telephone-check apparatus for call-boxes or offices, the combination of two or more chutes provided with springs or other contact devices, one set of contact devices being in a circuit through a local battery, and the primary of an induction-coil whose secondary wire is in the line or main circuit, and the second set of contact devices being in the line-circuit in which a call-bell or other signaling apparatus is provided at the exchange, substantially as and for the purpose set forth.

3. In telephone-check apparatus for call-boxes or offices, the combination, with a chute for the reception of coins or tokens, of a spring or springs adapted to be acted on thereby and connected to a line wire or circuit having in it suitable signaling apparatus, whereby the breaking or closing of the circuit by the passage of the proper coin through the chute communicates a prearranged signal to the exchange, substantially as herein set forth.

4. In telephone-check apparatus for call-boxes or offices, the combination, with a chute for the reception of coins or tokens, of a spring or springs adapted to be acted on thereby, and a local-battery circuit connected to said spring or springs, and to the induction-coil in the line-circuit, whereby the passage of a proper coin through the chute produces an audible signal in the exchange-telephone, substantially as herein set forth.

5. In a telephone-check apparatus, the combination, with a line-wire having in circuit signaling apparatus at the exchange, and contact making or breaking devices, such as the springs C, adapted for being operated on by coins, keys, or the like in a call-box instrument, of a local-battery circuit acting on said line-circuit through an induction-coil, and having in the circuit a separate set of contact making or breaking devices of a like kind, substantially as and for the purpose set forth.

6. In a call-box instrument provided with means for receiving and indicating to the exchange the reception of money paid for the use of the telephone, contact making or breaking devices—such as the terminal bracket E and hub F, with its arm *f*—operated by the subscribers' keys and fitted in connection with the line and the signaling arrangements of the money-check apparatus, substantially as herein set forth.

7. In telephone-check apparatus of the class hereinbefore described, the combination of two springs forming the sides of a chute for the reception of coins or tokens, and a bifurcated conductor provided with a screw or similar device for adjusting the position of the springs so that both springs are lifted out of contact with the conductor on the passage of a coin or token of the proper denomination, and one or both remain in contact with said conductor on the passage of a smaller coin or token, substantially as herein set forth.

8. In telephone-check apparatus of the class hereinbefore described, the combination of the disk G and slitted hub F, having an arm, *f*, thereon adapted to make or break contact with a stationary bracket or terminal in the circuit, as and for the purpose set forth.

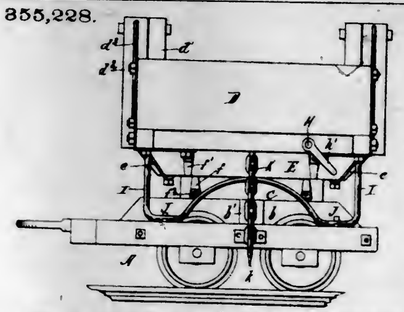
355,227. HINGE FOR BOXES OR TRUNKS. John V. Snyder, Santa Maria, Cal., assignor of one-half to Joseph Kaiser, same place. Filed July 26, 1886. (No model.)



Claim.—In combination with a box or trunk and its lid or cover, the rigid angular piece or strip forming the hinge C, a fixed pivot-connection between one end of the piece or strip and the box or trunk, and a rigid connection between the other end of said piece or strip and the lid or cover, formed by attaching said piece or strip at *c'* and letting it into the sides of the lid or cover at *b*, substantially as herein described.

355,228. DUMPING-CAR. Samuel B. Spence, Lemont, Ill., assignor of one-half to Dewitt C. Norton, same place. Filed July 17, 1886. (No model.)

355,228.



Claim.—1. In a dumping-car, the main or ordinary truck-frame, in combination with a supplementary frame, B, mounted on the truck-frame, the bolster C, pivoted to the supplementary frame, and the car-body D, hinged to the bolster at one of its side edges, substantially as and for the purposes set forth.

2. The bolster, in combination with the hinges F, provided with straps extending around the bolster and bolted thereto, and the car-body secured to the bolster by said hinges, substantially as and for the purposes set forth.

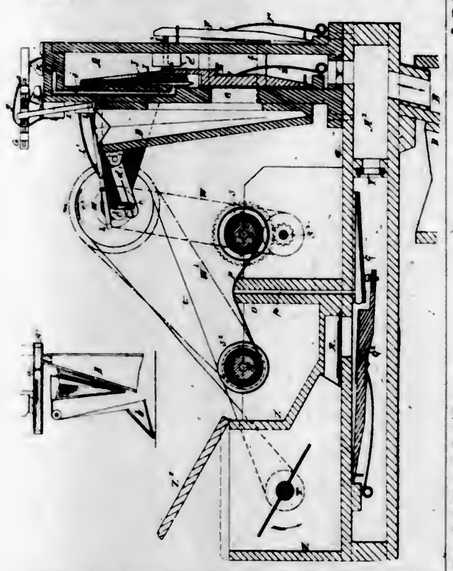
3. The car-body D, in combination with the central beam, E, arranged underneath its bed, and the brace-rods *e*, arranged to form a truss-support, substantially as and for the purposes set forth.

4. The car-body provided with hinged sides *d*, in combination with the weighted latch and crank-rod for releasing the latter, substantially as and for the purposes set forth.

5. The truck, in combination with the tilting body and the bail support hinged to the body, substantially as and for the purposes set forth.

6. The car-truck provided with keepers J, in combination with the tilting body, and the bail support bent at its ends, as described, and hinged to the bottom of the car-body, substantially as and for the purposes set forth.

355,229. PNEUMATIC ENGINE FOR MUSICAL-INSTRUMENT ACTIONS. Frank Stone, Worcester, Mass. Filed Sept. 12, 1885. (No model.)



Claim.—1. A pneumatic engine for musical instruments, having a series of motors (three or more) disposed laterally to each other in the same plane, in combination with a crank-shaft arranged parallel to the plane of said motors, connections linking said motors respectively to the cranks on said shaft, and pneumatically-actuated valve mechanism controlling the ingress and egress of air to said motors, substantially as set forth.

2. In a pneumatic engine for musical instruments, the combination, with a revolvable shaft, of a collapsible motor connected for imparting rotative action to said shaft and provided with inlet and exit ports, valves for controlling the ingress and egress of air to said motor, and pneumatic fingers for actuating said valves, substantially as set forth.

3. The combination of the shaft provided with offsetting cranks, a series of collapsible motor-chambers having inlet-ports leading from the exterior and exit-ports leading to the interior of the exhaust-chamber or wind chest, valves for opening and closing said ports, pneumatic fingers within the exhaust-chamber, respectively connected for operating said valves, and valve devices for controlling the pneumatic action of said fingers actuated from the shaft or mechanism operated by said motors, substantially as set forth.

4. The combination, with the wind-chest A and revolvable shaft C, having operating connections, as *d*, of the motor D, having the ports *e*, leading into the interior of said wind-chest, and the port *f*, extending through to the exterior of said wind-chest, the internally-disposed valve E, the externally-disposed valve F, and pneumatic actuating devices connected for operating said valves, substantially as set forth.

5. In a motor for operating the traveling music-sheet in a musical instrument, the combination, with valves for controlling the ingress and egress of air to the motor, operated by pneumatic force induced by the bellows, of valves for admitting air to the pneumatic devices, operated by mechanism in connection with the crank-shaft or motor, substantially as set forth.

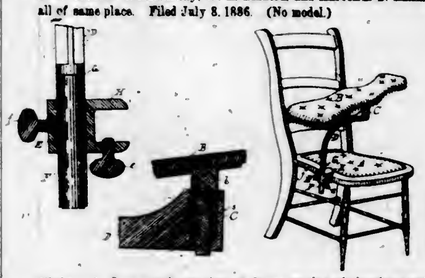
6. The combination of an exhaust wind-chest, as A, motors arranged on the face thereof, having ports, as *e* and *f*, valves E and F for said ports, pneumatic fingers I and J, connected to work said valves, external valves, H and K, valves connecting bar G, lever L, crank-shaft C, cams C^2, and pitman rods or links *d*, substantially as and for the purpose set forth.

7. The combination, with valve-operating pneumatic fingers I and J, of the valves H and K, connection-piece G, actuating-lever L, and adjusting devices *n n*, substantially as and for the purpose set forth.

8. The combination, with motors D, D', and D^2, crank-shafts C, and links *d*, of the valves E and F, pneumatic fingers I and J, connected therewith, as described, the valves H and K, bar G, lever L, cams C^2, pulleys *M m*, bands W W', spools S S', and music-sheet P, substantially as and for the purpose set forth.

9. A pneumatic engine for musical instruments, comprising a series of motors or collapsible chambers, and provided with adjusting devices for regulating the time of action of the controlling air-valves in relation to the valve-operating mechanism and the movement of the motor, as set forth, whereby either of the motors can be caused to exert its force at an earlier or later instant in relation to the others.

355,230. NURSING-CHAIR. Elbert H. Tallaferro, Atlanta, Ga., assignor, by direct and mesne assignments, of part to J. B. Jackson, T. A. Warren, W. C. Abernathy, W. H. Blanton, and Marcellus B. Hallman, all of same place. Filed July 8, 1886. (No model.)



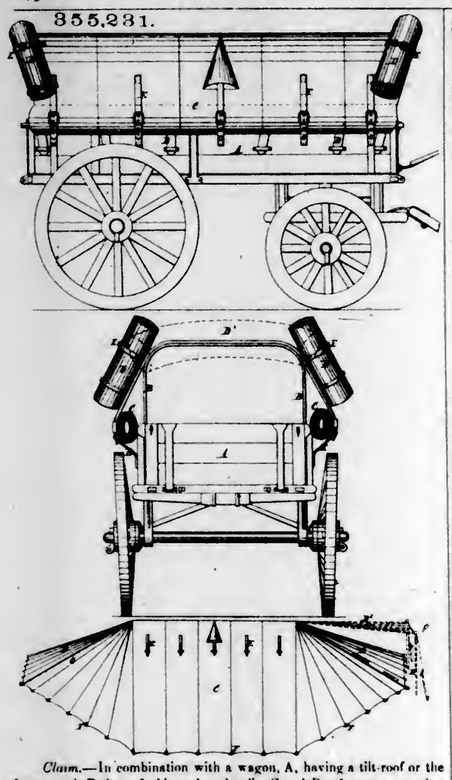
Claim.—1. In a couch attachment for a nursing-chair, the combination of the clamp H, having the socket E, formed integrally therewith, the sleeve F, having the thumb-screw *f*, the arm D, having a shoulder, G, to rest on the sleeve F, the socket C, and the couch B, arranged substantially as described, and for the purpose specified.

2. The combination of the couch pivoted on the upper end of the pivoted arm B, a clamp having on its side a socket and thumb-screw, with a sleeve, and an arm pivoted in said sleeve, substantially as described.

3. In a nursing-couch, the combination of a pivoted arm, D, with a pivoted couch, B, laterally concaved, and being narrowed near the center, and also near its upper end, substantially as shown, and for the purpose specified.

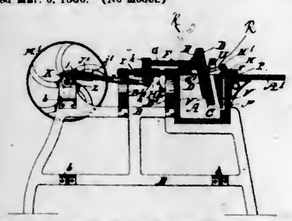
355,231. COMBINED TENT AND WAGON. Alfred S. Tomkins, Mark Lane, London, England. Filed July 13, 1886. (No model.) Patented in England Dec. 7, 1885, No. 14,993; in Belgium July 10, 1886, No. 73,804; in Italy Aug. 13, 1886, XL. 173, and in India Aug. 24, 1886, No. 133—86/1,057.

355,231.



Claim.—In combination with a wagon, A, having a tilt-roof or the frame-work B thereof, side and end rolls, C and D, of canvas or other suitable fabric, carried by the roof or frame-work, and when unrolled forming the sides and ends of a tent-roof, with side and end straps E, securing these rolls when folded up, substantially as and for the purposes herein set forth.

355,232. STARCHING-MACHINE. JOHN H. TOOP, Concord, N. H. Filed Mar. 6, 1886. (No model.)

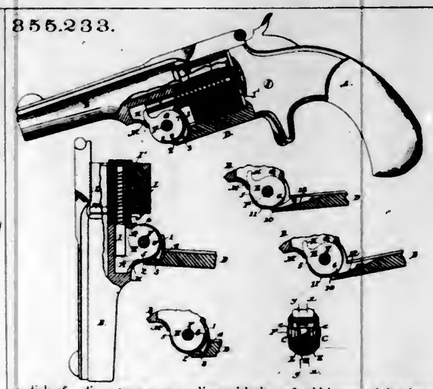


Claim.—1. The combination, with the partition of the starch-box, of the plunger C, the upright D, the piece E, and the ways F, the rod G, cross-head H and its guide-rods I, the pitman J, the spring and bearing J' *j*, the crank K, and the driving-shaft L, as set forth.

2. The combination, with the starch-box having a drip-passage, *p*, extending across its entire width and opening into the interior of the box, of the upper and lower rolls, N N', arranged at the top of said passage, the pivoted weighted arms for lifting the upper roll, and the buttons for holding down or releasing said arms, the pulley on the end of the upper roll-shaft, the belt and the pulley on the driving-shaft, as set forth.

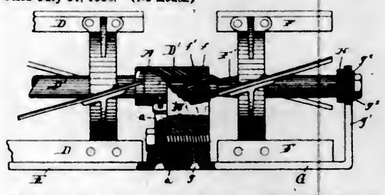
355,233. EXTRACTOR FOR REVOLVERS. DANIEL L. TOWER, Brooklyn, N. Y. Filed July 15, 1886. (No model.)

Claim.—1. The combination, with the spring-actuated extracting-rod in a revolver, of a circular lug or joint-piece projecting from the barrel and constituting one part of the knuckle-joint connecting the barrel with the handle of the revolver, a cam upon the periphery of said lug, a disk of a diameter corresponding with that of said lug revolving loosely upon the joint-pin and having a notch and recess in its periphery, a catch plate or lever pivoted to the handle to overlap and engage the peripheries of the disk and adjacent lug, and a finger projecting from the disk to engage the inner end of the extractor, all substantially in the manner and for the purpose herein set forth.



2. The combination, in a pistol, of the handle A, barrel B, spring-seated extractor I, knuckle-joint C E between the handle and barrel, disk G, revolving loosely upon the joint-pin, finger H, projecting from said disk to engage the extractor I, projection M from the barrel to engage said finger H, and a catch plate or lever pivoted to the handle to overlap and bear upon the adjacent peripheries of the disk G and joint-piece E, said disk and joint-piece being severally recessed to permit of an engagement of the lever with the disk when the barrel is closed, maintain it until the barrel is nearly opened, and finally break it when fully opened, all substantially in the manner and for the purpose herein set forth.

355,234. LAWN-MOWER. GILBERT R. TYRRELL, La Porte, Ind. Filed July 31, 1886. (No model.)



Claim.—1. In a lawn-mower, the combination of the frame, rotary cutter, and stationary cutter-blade of the mower with a supplementary rotary cutter and stationary cutter-blade projecting at the end of the mower and outside the mower-frame, and means for connecting said rotary and stationary cutters of the mower with said supplementary rotary and stationary cutters, substantially as specified.

2. The combination, in a lawn-mower, of a mower-frame, A, rotary cutter D, stationary cutter-blade E, supplementary rotary cutter F, stationary cutter G, and a supporting-bracket, H, secured to the end of the cutter-frame A, and means for connecting said rotary cutters D and F, substantially as specified.

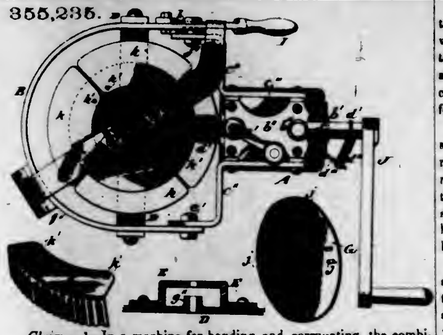
3. The combination, in a lawn-mower, of frame A, rotary cutter D, shaft D', stationary cutter E, supplementary rotary cutter F, having shaft F', secured to shaft D' at its end, supplementary stationary cutter G, and supporting-bracket H, secured to said frame A at its end, substantially as specified.

4. The combination, in a lawn-mower, of frame A, with rotary cutter D, shaft D', stationary cutter E, supplementary rotary cutter F, having shaft F', screwed by screw-threads to the end of said shaft D', supplementary stationary cutter G, having bent end or arm *g'*, bracket H, having ends h h', and side projections, h^3 h^3, by which it is secured to the end of said frame A, substantially as specified.

5. A lawn-mower having a frame, a rotary cutter, and stationary cutter mounted within its frame, and provided with a supplementary rotary cutter and stationary cutter projecting at one end outside of the frame and driving-wheels of the mower, and means for connecting said supplementary rotary and stationary cutters with said rotary and stationary cutters of the mower, substantially as specified.

355,235. MACHINE FOR FORMING CORNER-PIECES FOR STOVE-BOARDS. ISAAC VAN HAGEN, Chicago, Ill. Filed Mar. 17, 1886. (No model.)

355,235.

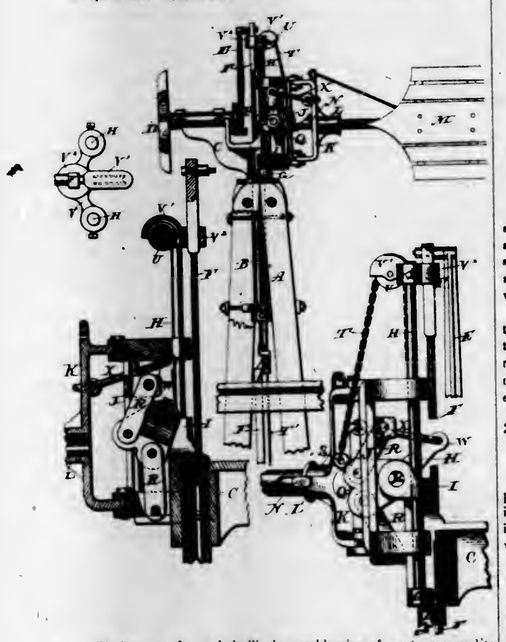


Claim.—1. In a machine for bending and corrugating, the combination of a frame, adjustable corrugating-rollers, a hinged yoke having a cross-bar, D, and spring-latch C, clamping-disks F G, bar H, and adjusting-screws h^4, substantially as and for the purpose specified.

2. In a machine for bending and corrugating, the combination of a frame, adjustable corrugating-rollers, hinged yoke having a cross bar, D, and spring-latch C, releasing-lever I, clamping-disks F and G, bar H, having the wheels i, and adjusting-screws h^4, substantially as and for the purpose set forth.

3. The clamping-disks F and G, one disk having pins *j*, and the other disk being provided with a groove, *k''*, substantially as and for the purpose specified.

355,236. WINDMILL. WALTER C. WENTAWAY, Beloit, Wis. Filed Sept. 9, 1886. (No model.)



Claim.—1. In a windmill, the combination of a gate arranged to slide vertically on suitable guides, and having a pivotal member attached to a vane, a lever-block fast on a suitable shaft and operatively connected with the main portion of the gate, and means, substantially as described, for uniting the shaft with the pivotal member of said gate, as and for the purpose set forth.

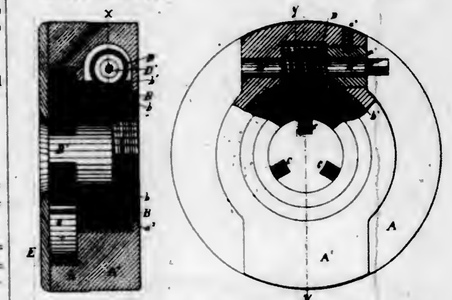
2. In a windmill, the combination of a gate arranged to slide vertically on suitable guides, and having a pivotal member attached to a vane, a lever-block fast on a suitable shaft and toggled to the upper and lower ends of the main portion of the gate, a lever-arm keyed to the shaft, and a suitable link that unites the arm and pivotal member of said gate, substantially as and for the purpose set forth.

3. In a windmill, the combination of a gate arranged to slide vertically on suitable guides, and having a pivotal member attached to a vane, a lever-block fast on a suitable shaft and operatively connected to the main portion of the gate, a lever-arm keyed to the shaft and operatively united with the pivotal member of said gate, and a pull-out chain connected to said lever-block, substantially as and for the purpose set forth.

4. In a windmill, the wheel-shaft support provided with lateral socket-studs and bracket-extensions, in combination with vertical rods retained by said sockets and extensions, a gate arranged to slide on the rods and having a pivotal member attached to a vane, a horizontal shaft that has its bearings in said bracket-extensions, a lever-block fast on the shaft and operatively connected to the main portion of the gate, and a lever-arm keyed to said shaft and operatively united to the pivoted member of said gate, substantially as and for the purpose set forth.

5. In a windmill, the wheel-support provided with lateral socket-studs and bracket-extensions, vertical rods retained in said steds and extensions, and a cross-head arranged to unite the rods at their upper ends, said cross-head having a pump-rod bearing and a sheave, in combination with a sliding gate loose on said rods and having a pivotal member attached to a vane, a horizontal shaft journaled in said bracket-extensions, a lever-block operatively connected to the main portion of the gate, a lever mechanism operatively uniting the pivotal member of the latter with said shaft, and a chain for connecting the lever-block with a pull-rod, substantially as and for the purpose set forth.

355,237. LATHE-CHUCK. JAMES C. WILLIAMS, Erie, Pa. Filed June 26, 1886. (No model.)



Claim.—1. In a chuck for the purposes named, the combination, substantially as set forth, of a fixed central body, holding radially-movable gripping-dies and having worm-gear teeth cut on its periphery, a surrounding shell journaled on the said body and having cams for operating the gripping-dies, and a worm journaled in said shell and engaging with the worm-gear teeth on the periphery of the fixed central body.

2. In a chuck for the purposes named, the combination, substantially as set forth, of the fixed central body, B, having ways for holding the radially-movable dies C, and the worm-gear teeth *b'*, cut on its periphery, the surrounding shell A A', having cams *a*, in position to act upon the dies C, and the worm D, contained within the shell A A' and engaging with the worm-gear teeth *b'*.

355,238. TRUCK. DANIEL S. WING, Syracuse, assignor of one-eighth to William A. Cameron, New York, N. Y. Filed Sept. 2, 1886. (No model.)

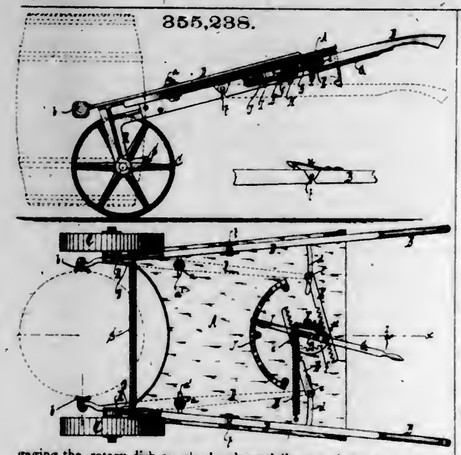
Claim.—1. The combination, with a wheeled truck-frame, of the pivoted clamping-levers, the centrally-pivoted rotary disk or wheel having an attached lever, and links or bars pivoted at one end to the clamping-levers and at the other end portions engaging the rotary disk or wheel, substantially as described.

2. The combination, with the wheeled truck-frame having at each side a transverse slot, *a'*, of the clamping-levers D D, having pivots *a*, adjustable toward and from each other in the said transverse slots, and means for actuating the levers on said adjustable pivots, substantially as described.

3. The combination, with the wheeled truck-frame having at each side a transverse slot, *a'*, of the clamping-levers D D, having pivots *a*, adjustable toward and from each other in said transverse slots, a rotary disk or wheel pivoted to the truck-frame and having an attached lever, and links or bars pivoted at one end to the clamping-levers and at their other end portions engaging said rotary disk or wheel, substantially as described.

4. The combination, with a wheeled truck-frame having an attached segmental rack, J, of the clamping-levers pivoted to the truck-frame, the rotary disk or wheel pivoted to the truck-frame and provided with the attached dog I, and operating-lever G, and the links or bars pivoted at one end to the clamping-levers and at their other end portions en-

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gaging the rotary disk or wheel, substantially as and for the purposes described.

5. The combination, with the truck-frame and the wheels supporting the same, of the clamping-levers D D, the rack-bars E E, the cog-wheel F, and means for turning the cog-wheel, substantially as described.

6. The combination, with the truck-frame and the wheels supporting the same, of the clamping-levers D D, the rack-bars E E, the cog-wheel F, the lever G, the dog I, and the ratchet-segment J, substantially as described.

7. The combination, with the truck-frame and the wheels supporting the same, of the clamping-levers D D, the rack-bars E E, the cog-wheel F, the lever G, and the spring H, substantially as described.

355,239. BELT-GEARING. JOHN WITTMANN and NOAH B. YINGLING, Seven Mile, Ohio. Filed July 31, 1886. (No model.)



Claim.—1. The belt-carrier D, consisting of two beveled collars, E F, connected by transverse bars H, whereby said carrier is provided with a series of longitudinal slots, G, substantially as described.

2. The belt-tooth N, cast integral with an oblong bearing-plate, P, having integral shanks Q, adapted to be passed through a belt and secured, substantially as described.

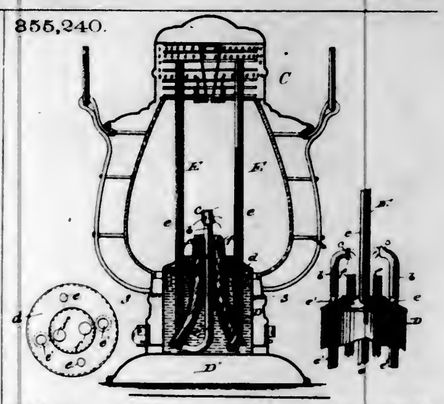
3. The combination of a driving-roll, a belt-carrier mounted on said roll and provided with a series of longitudinal slots, G, and transverse bars H, a belt, J, and the plates P, having teeth N, and shanks Q, substantially as described.

355,240. LANTERN. LUTHER B. WOOD, Omaha, Neb. Filed June 15, 1886. (No model.)

Claim.—1. In a lantern having its oil-cup at the base of the lantern and a draft-top, the combination, with the oil-cup and draft-top, of continuous tubes E, bent to form arms *e*, extending to the upper part of the lantern adjacent to the draft-top, and shorter arms, *e'*, extending through the top of the oil-cup, the bent portions of the tubes being within the oil-cup, and tubes *b*, bent toward their upper extremities to extend toward the wick, and provided with flaring mouths *c*, to extend above the wick, as shown, substantially as and for the purpose set forth.

2. In a lantern having its oil-cup at the base of the lantern and a draft-top, the combination, with the oil-cup and draft-top, of bent tubes E, having long arms, *e*, extending to the upper part of the lantern adjacent to the draft-top, and shorter arms, *e'*, extending through the top of the oil-cup adjacent to the wick, the bent portions of the tubes being within the oil-cup, and tubes *b*, bent toward their upper extremities to extend normally toward the wick, and provided with flaring mouths *c*, to extend above the wick, as shown, and adjustably secured upon the projecting ends of the shorter arms, *e'*, substantially as and for the purpose set forth.

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355,241. HAY-RACK. ANDREW J. WRIGHT, Wrightsville, Ill. Filed Oct. 15, 1886. (No model.)



Claim.—1. The combination of the wagon-bed having the side beams, B, the detachable side wings having the supporting-bars L, the lower ends of which engage the under sides of the beams B, and the removable key-board O, to bear against the bars L and hold them in engagement with the beams B, and thereby lock the side wings to the bed, substantially as described.

2. In a hay-rack for wagons, the combination of the bed having the cross-bars D, the ends of which are extended to form the stops D' at the ends thereof, the removable side wings for the bed, and the end frames, E, pivoted or hinged to the ends of the bed, and adapted to engage the stops D' when raised to a vertical position, substantially as described.

3. The hay-rack for wagons, comprising the bed having the longitudinal beams B and the cross-bars C on the under sides thereof, in combination with the side wings having the supporting-bars L, the lower ends of which engage the under sides of the beams B, and the key-board O, inserted between the bars L and bearing upon the upper side of the bar C, whereby the side wings are secured firmly to the bed, substantially as described.

4. In a hay-rack for wagon-beds, the combination, with the beams B, of the side wings having the bars L, engaging the beams, and the key-board O, for locking the bars L against the beams, as set forth.

355,242. IMPLEMENT FOR SHARPENING TAILORS' CHALK. ROBERT WYATT, New York, N. Y. Filed May 19, 1886. (No model.)



Claim.—1. The combination, with a box, of two blades or knives having serrated or roughened and downwardly-converging faces, between which is a slot or opening, *b*, said blades or knives being removably secured in the box and adjustable to vary the angle of convergence of their faces, substantially as herein described.

2. The combination, with a box having at the ends open bearings, of two blades or knives having serrated or roughened and downwardly-converging faces, and provided at the ends with journal portions fitting said bearings, and a bolt or screw whereby the blades or knives may be drawn downward into their bearings to secure them immovably in place in the box, substantially as herein described.

3. The combination, with a box having at the ends open bearings, of blades or knives resting at the ends in said bearings and having serrated or roughened and downwardly-converging faces and opposite recesses in their inner sides, a bolt or screw inserted upward through the bottom of the box, and a nut fitting the bolt and having a bearing within the opposite recess in the blades or knives, substantially as herein described.

4. The combination, with a box having at the bottom a transverse row of retaining-notches, of blades or knives removably secured in the box and having serrated or roughened and converging faces and downwardly-extending arms, which engage the retaining-notches and hold the blades or knives in the desired position, substantially as herein described.

5. The combination, with a box, of blades or knives having serrated or roughened and downwardly-converging faces, supported by bearings at the ends of the box, and adjustable in said bearings to vary their angle of convergence, substantially as herein described.

6. The combination, with the box A, having at the bottom a transverse row of retaining-notches, *c*, of the blades B, supported at the ends by bearings in the ends of the box, and having converging roughened faces and downwardly-extending arms B', entering said notches, and the bolt C and its nut C', having a bearing upon the blades, whereby said blades may be drawn down into their bearings with their arms in firm engagement with said notches, substantially as herein described.

355,243. IMPLEMENT FOR SHARPENING TAILORS' CHALK. ROBERT WYATT, New York, N. Y. Filed July 13, 1886. (No model.)

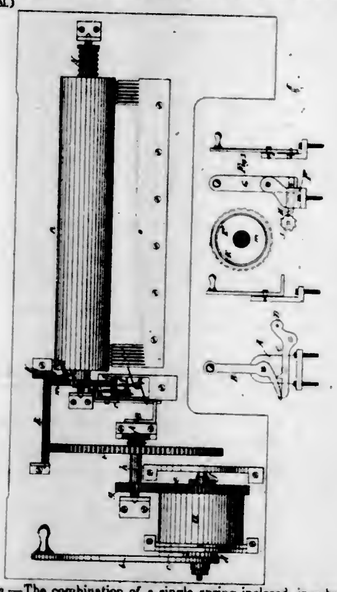


Claim.—1. The combination, with a base-piece or support, of two knives or blades secured thereto and having converging faces, each knife or blade consisting of a plate or bar having teeth or sharp ribs which are oblique or inclined relatively to the length of the plate or bar, substantially as herein described.

2. The combination, with a base-piece or support, of two knives or blades secured thereto and having converging faces, each knife or blade consisting of a plate or bar having teeth or sharp ribs which are hooked or have a rake all in the same direction, substantially as herein described.

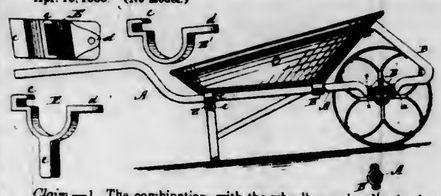
3. The combination with a base-piece or support, of two knives or blades secured thereto and having converging faces, each knife or blade consisting of a plate or bar having teeth or sharp ribs which are hooked or have a rake all in the same direction, and which have an inclination from the top of the knife or blade downward in the same direction in which their sharp edges are presented, substantially as herein described.

355,244. MUSIC-BOX. HEINRICH ZUMSTEG, Kulm, Aargau, Switzerland, assignor to Adolf Karrer, same place. Filed July 24, 1886. (No model.)



Claim.—The combination of a single spring inclosed in a box and provided with the spur-wheel *e*, an intermediate shaft provided with the spur-wheel *i*, and the pinion *g*, gearing into wheel *e*, a tone-cylinder provided with the spur-wheel *m*, and the long pinion *k*, gearing into wheels *m* and *i*, thereby increasing the length of time for which the cylinder will be turned by the spring.

355,245. WHEELBARROW. JOSEPH ANNIS, Brooklyn, N. Y. Filed Apr. 15, 1885. (No model.)



Claim.—1. The combination, with the wheelbarrow-handles having the downward bend *a*, forming opposite angles or shoulders, as shown, of the wheel-bearing clamps which are secured around such bent portions and thus prevented from endwise movement, as shown and described.

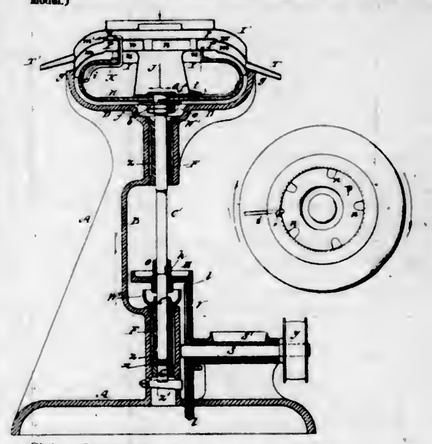
2. The clip for attaching the handles to the body of the wheelbarrow, the same having a curve or cavity adapted to receive a handle and a lateral perforated flange and claw, as shown and described.

3. The combination, with the handles and the wheelbarrow-body having lateral projections, of clips which embrace the handles and receive said projections, and bolts for attaching the clips to said body, substantially as shown and described.

4. The combination of the clips with the handles, the wheelbarrow-body, and bars attached to the latter and projecting laterally, substantially as shown and described.

5. The clips having a pendent flange with an open-sided socket, the leg inserted therein, and a bolt passing through both flange and leg, all combined, as described.

355,246. CENTRIFUGAL LIQUID-SEPARATOR. CHARLES A. BACKSTROM, Brooklyn, assignor of one-half to Charles De Berard Shepard, Mamaroneck, N. Y. Filed June 1, 1885. Renewed May 24, 1886. (No model.)



Claim.—In a machine for separating compound fluids, in combination with the drum H, removable cover I', having inwardly-projecting flanges thereon forming the annular spaces *m m'*, and disks P, with openings *n*, the central receiver, J, secured to the bottom of the drum H, extending upward and through the upper side of the drum and terminating in a flange, K, outwardly beyond the edge of the drum, substantially as herein described.

355,247. CENTRIFUGAL LIQUID-SEPARATOR. CHARLES A. BACKSTROM, Trenton, N. J. Filed June 15, 1886. (No model.)

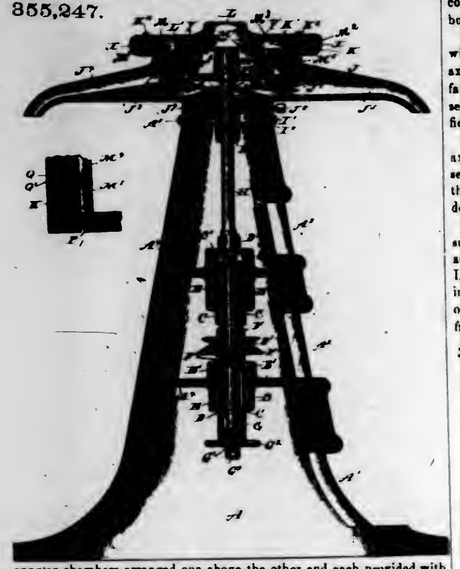
Claim.—1. In a centrifugal machine, a separating-chamber having a coil-shaped passage provided with outlets disposed toward the center of rotation of the chamber, substantially as specified.

2. In a centrifugal machine, a separating-chamber having a passage of coil form provided with outlets disposed toward the center of the vessel, and having an inlet to said passage arranged in a plane above the outlet thereof, substantially as specified.

3. In a centrifugal machine, a separating-vessel having a passage of coil form provided with outlets projecting toward and leading into the the center of the vessel, which center is depressed below the general plane of the coil and provided with an outlet, substantially as specified.

4. In a centrifugal machine, the combination, with a separating-vessel having a passage of coil form provided with outlets disposed toward the center of the vessel, and having the receiving end of the coil in a plane above the delivery end thereof, of a delivery-vessel having

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annular chambers arranged one above the other and each provided with a separate discharge-pipe, substantially as specified.

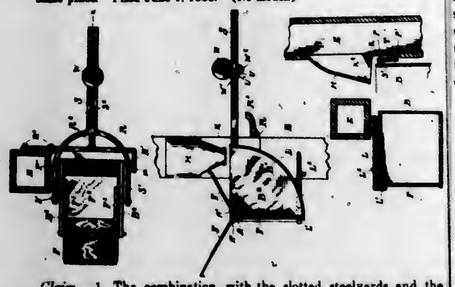
5. The delivery-vessel herein shown and described, consisting of a single casting open at the top for the reception of a separating chamber or bowl of a centrifugal machine, provided with a depending flange at its bottom for connection with a frame or standard, divided into separate annular chambers, each of which is provided with a laterally-extending discharge-pipe and provided with a central opening for the passage of the shaft of the drum, substantially as specified.

6. In a centrifugal machine, the combination of a frame or stand having an annular flange at its top, a delivery-vessel having a depending flange adapted to fit the stand, a separating-vessel and its shaft, and a boxing bored larger than the shaft and arranged in the frame, substantially as specified.

7. In a centrifugal machine, a separating-vessel formed with a liquid-passage of coil form, in combination with a cover for the same, and with a receiving-vessel having a delivery-pipe extending into the receiving end of the coil-form passage, substantially as specified.

8. The separating-vessel herein shown and described, consisting of a casting having a coil-form liquid-passage, in combination with a cover provided with an integral receiving-vessel having a discharge-pipe projecting radially therefrom, substantially as specified.

355,248. GRAIN-WEIGHER. George D. Baird, Peoria, Ill., assignor of two-thirds to Charles A. Taylor and William E. Littlefield, both of same place. Filed June 1, 1885. (No model.)



Claim.—1. The combination, with the slotted steelyards and the basket supported thereby, of the weight W, having the bolt projecting rigidly therefrom through the slot S^2 of said steelyards, the nut for said bolt and the cap U, fitting about said nut and having ears U', projecting into said slot, substantially as and for the purpose specified.

2. In a grain-weigher, the horizontally-fixed bar R, having the branch R' and the stop-arm R^2, the bifurcated steelyards S, having one fulcrum-bearing on said branch and the other in the support of said bar, and the weight W, in combination with the quadrant sides B^2 and the curved side B', forming the bucket B, the radial fans F, mounted in said bucket, and the latch L, substantially as and for the purpose set forth.

3. In a grain-weigher, the combination, with the bucket formed with the two plane parallel sides and the quarto-cylindrical side, of the axis A, mounted in said bucket coincident with said curved side, and the fans F, projecting from said axis and having the outer portion of each separate and radially movable, substantially as and for the purposes specified.

4. In fans for a grain-weigher of the kind herein set forth, the axis A, having the projections A', in combination with the fan parts F', secured to said projections and having the doubled lateral edges F^2, and the fan parts F^2, adapted to be easily slid in the grooves formed by said doubled edges, substantially as and for the purpose set forth.

5. In a grain-weigher, the combination, with the steelyards having suitable fulcrum-bearings, the bucket B, supported by said steelyards, and the radial fans F, adapted to be revolved in said bucket, of the latch L, pivoted to said bucket and having the lip L', by which said fans are individually held in said bucket, and a stop adapted to elevate the tail of said latch when the bucket is depressed and thereby release said fans from the lip L', as set forth.

355,249. FENCE. William M. Berry, Tavern, Mo. Filed Mar. 9, 1886. (No model.)



Claim.—The combination, with two fence-sections flexibly connected together, of the cross piece or sill D, blocks c' c', pivoted to said sill, with a recess between them to receive the bottom rail of one of said sections, and the flexible anchoring-wire e, wrapped around the upper rail of one of said sections with its ends secured to said cross-sill, whereby the direction of the fence may be changed without disturbing the said cross-sill, substantially as shown and described.

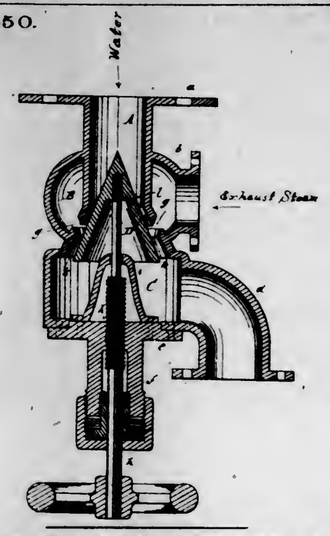
355,250. STEAM-CONDENSER. Talmadge Bloss, Millerton, assignor to Frink & Angevine, Mount Riga, N. Y. Filed Feb. 19, 1886. (No model.)

Claim.—1. An improved condenser, consisting of a tube formed with a flaring end slotted, as shown, a chamber around the tube, and a water-chamber below the first-named chamber, and an adjustable tapering plug projecting into the flaring end of the said tube, substantially as herein shown and described.

2. A condenser consisting of the supply-tube A, formed with a flaring end having a slot, *g*, the chamber B around the tube having the neck *b*, for connecting it with the exhaust, and the chamber C, having the elbow *d*, for connecting it with the hot-well, and the adjustable tapering plug D *h*, substantially as herein shown and described.

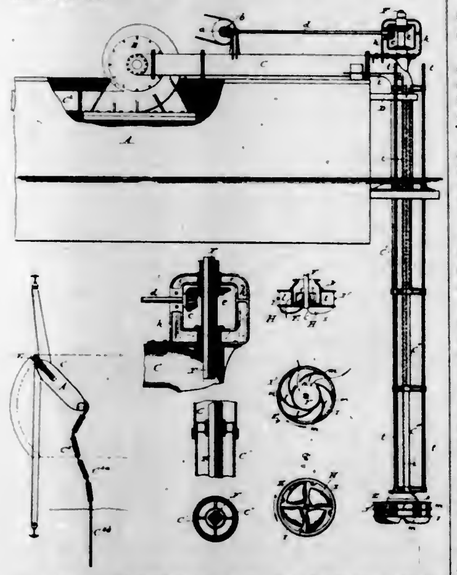
3. In a condenser of the character described, the combination, with the pipe A, having a flaring end, of the tapering plug D, having the angle of its tapering sides less than the taper of the tube, whereby the space between the plug and tube will be wider at the outlet end than at the inlet-point, substantially as herein shown and described.

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355,251. HYDRAULIC DREDGING APPARATUS. Alphonso B. Bowers, San Francisco, Cal. Filed Aug. 3, 1886. (No model.)

Brief.—It consists, mainly, of a telescoping suction-pipe provided at its lower end with a hollow and usually rotary excavating device that delivers its spoil inward through itself to said pipe, said excavator being generally provided with detachable cutting-edges, usually constructed and arranged to work with a side feed and swing in lateral planes, fenders to prevent said excavator from catching on obstructions, excavating devices on its lower end to cut downward as the excavator is lowered preparatory to each side swing, and devices to cut off or separate from the top and bottom the successive slices made by the side cutters, the excavator and pipe being constructed and arranged to be drawn up nearly even with and preferably above the bottom of the boat by which they are carried.



Claim.—1. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a hollow excavator constructed and arranged to deliver its spoil inward through its side to said pipe.

2. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and hollow excavator constructed and arranged to deliver its spoil inward to said pipe, said excavator being provided with fenders to prevent its cutting-edges from catching against obstructions.

3. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a hollow excavator constructed and arranged to deliver its spoil inward through itself to said pipe, and having fenders to exclude substances too coarse to pass freely through to the place of delivery.

4. In combination, a dredge-boat, exhausting device, and telescoping sections of suction-pipe provided with freely-sliding devices for keeping the telescoping sections in line.

5. In combination, a dredge-boat, exhausting device, rotary excavator, and telescoping suction-pipe provided with sliding devices for keeping the sections of pipe and bearings of the excavator-shaft in line.

6. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator provided with fenders to prevent said excavator from catching against obstructions.

7. In combination, a telescoping suction pipe and hollow rotary excavator provided with side cutters, and arranged to work with a side feed and deliver its spoil inward through itself to said pipe.

8. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator having side cutters supported by a hub, arms, and a ring arranged to deliver its spoil inward to the suction-pipe.

9. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator having side and end cutters supported by a hub, arms, and a ring, and arranged to deliver spoil inward through said ring to the suction-pipe.

10. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator having side cutting-edges, secured to a ring or to rings, and provided with a device for separating from the bottom the slices cut by said edges.

11. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator having side cutting-edges supported by a ring, or by rings, and provided with a device for separating from the earth above the slices cut by said edges.

12. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator having side cutting-edges constructed and arranged to completely sever from the unexcavated earth the slices made by said edges.

13. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator provided with detachable cutting-edges.

14. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator with inward delivery through itself to said pipe, said excavator being provided with detachable cutting-edges.

15. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator having detachable cutting-edges supported by a ring or by rings.

16. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, a hollow rotary excavator constructed with side cutters and arranged to work with a side feed and deliver its spoil inward through itself to said pipe, and a pipe consisting of a series of sections flexibly joined together for discharging the spoil.

17. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a swinging section of discharge-pipe flexibly joined to the boat and to an outer stationary section, to allow said boat to feed forward and said oscillating pipe to swing on the joint connecting the oscillating and non-oscillating sections.

18. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, rotary excavator, and a swinging section of discharge-pipe flexibly joined to the boat and to an outer stationary section, to allow said boat to feed forward and said oscillating pipe to swing on the joint connecting said oscillating and non-oscillating sections.

19. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator constructed with side cutters and arranged to work with a side feed and deliver its spoil inward through itself to said pipe, the latter being constructed to telescope sufficiently to bring the bottom of the excavator even with the bottom of said boat.

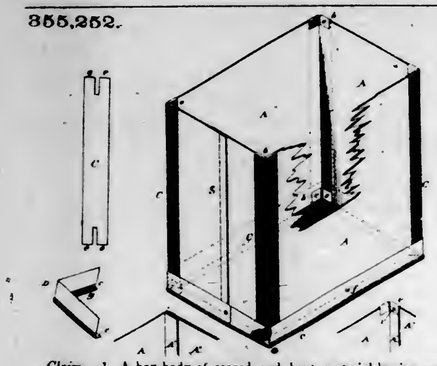
20. In combination, a dredge-boat, exhausting device, vertically-telescoping suction-pipe, and a rotary excavator having downwardly-projecting excavating devices provided with strengthening-braces to re-enforce the supports that carry said devices.

21. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, and a rotary excavator having downwardly-projecting excavating devices provided with a strengthening-ring to re-enforce the supports that carry said devices.

22. In combination, a dredge-boat, exhausting device, telescoping suction-pipe, rotary excavator having cutting-edges arranged to work with a side feed, and an oscillating section of discharge-pipe flexibly joined to the boat and to an outer non-oscillating section, to allow the boat to feed forward and the oscillating section to swing on the joint connecting the oscillating and non-oscillating sections.

355,252. SUTTER-PACKAGE. Gilbert W. Bradley, Sunderland, Vt. Filed Apr. 5, 1886. (No model.)

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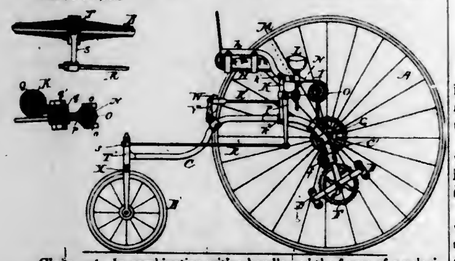


Claim.—1. A box-body of scored and bent material having each corner re-enforced by a metallic strip longitudinally bent to fit the angle of a prismatic box and provided with tongues at each end thereof, which are bent over the top and bottom edges, and then against the inside of the material of the wall of the box, in the manner shown and described, and for the purposes set forth.

2. A butter-package consisting of the transversely-scored body-piece A, metallic corner-stiffeners C C C C, bent over the top and bottom edges of said body-piece, and bottom band, D, having crease c c and a bottom piece, all united as shown, in combination with a cover consisting of the wood top piece, B, and band D, as described.

3. A polygonal box or package made up from a body-piece transversely scored for the bent corners, the ends of the body-piece uniting to form one of the corners, and having each corner re-enforced by a metallic angle-strip, provided at each end with folding tongues, bent over the top and bottom edges of the body-piece, applied and fastened as shown and described one or both of the top tongues of the angle strip which covers the angle of the box where the ends of the body-piece meet being positively fastened to the laps of the body-strip to prevent spreading of the corners, as set forth.

355,253. VELOCIPEDE. Adam Burdess, Coventry, County of Warwick, England, assignor to the Pope Manufacturing Company, Hartford, Conn. Filed Nov. 4, 1886. (No model.) Patented in England Mar. 2, 1883, No. 1,124



Claim.—1. In combination with a handle and the frame of a velocipede, a device for converting and transmitting a rotary motion of the handle into a reciprocating motion of another part connected therewith, consisting in a worm and socket and their connections, constructed to operate substantially as set forth.

2. The combination, in a velocipede, of a handle and handle-rod, a bracket screwed to the frame and supporting the handle-rod, a means for holding the handle-rod against longitudinal motion while permitting rotary motion, a traveler-socket with means of resistance to rotary motion and freedom of longitudinal motion, and a bell-crank lever pivoted to the frame or a projection therefrom, and having means of connection at one end with the screw-socket and at the other end with the part to be reciprocally moved, essentially as set forth.

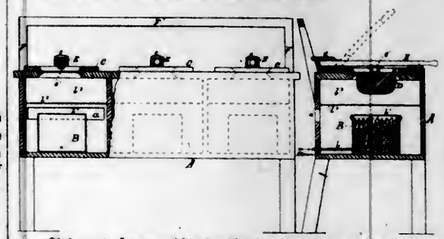
3. In combination with a threaded rod and a hinged lever to be moved thereby, and their connections, a threaded socket and a double-forked stop-joint connection between the rod and the lever, substantially as set forth.

4. The combination, with the handle and frame of a velocipede, of a threaded rod or worm and its threaded sleeve, either the worm or its sleeve being held from longitudinal movement, but free to revolve, and the other being held from revolving, but free to move longitudinally, and their suitable connections constructed and combined to convert a rotary movement of the handle or its rod into a reciprocating movement of another part and transmitted to another part of the velocipede mechanism, substantially as set forth.

5. In a velocipede, the combination of a handle and a handle-rod and a supporting-bracket attached to the frame, a screw and sleeve, with means of holding either the sleeve or the screw from longitudinal motion and the other from rotary motion, a bell-crank lever-arm, steering head and fork, and steering-wheel, substantially as set forth.

6. In a velocipede, the combination of a handle and a handle-rod and a supporting-bracket attached to the frame, a screw and sleeve, with means of holding either the spindle or the screw from longitudinal motion and the other from rotary motion, a bell-crank lever pivoted to the frame or a bracket thereon, and a brake-rod and brake mechanism, substantially as set forth.

355,254. MACHINE FOR BLOCKING HATS. Aaron T. Clark, Yonkers, N. Y. Filed June 23, 1886. (No model.)



Claim.—1. In a machine for blocking hats, the combination, with a steam-pot covered with porous material, of a separate inclosed steam-chamber, in which the hat is inserted for heating, substantially as described.

2. In a hat-blocking machine, the combination of an inclosed steam-chamber having an oval opening for the insertion of a hat-crown, a hinged cover for holding the brim flat, and a universal-hinged lever having a projection which can be moved to any part of the opening, substantially as described.

355,255. SPICE-BOX. Alonzo W. Cram, Haverhill, Mass. Filed May 24, 1886. (No model.)



Claim.—1. A combined salt and pepper box divided by a partition into two chambers and having a flange formed upon each of its ends, and which flange serves as a base to support the box in position, no matter which end of the box is turned upward, substantially as shown.

2. The combination of a perforated cover for a salt and pepper box with a series of double-ended valves, which are passed through the openings of the cover, and which serve both as stoppers for the openings and to agitate the salt or pepper, substantially as described.

3. The combination of a perforated cover for a salt or pepper box with a series of valves which are passed through the openings in the said cover, and which valves are made double-ended and connected together at their inner ends, substantially as set forth.

355,256. PANTS. Lizzie Decker, Sandusky County, Ohio. Filed Sept. 21, 1886. (No model.)



Claim.—1. The combination, with a pair of pants having the front and back flaps of the concealing-flaps each secured to the interior of the pants at one end and having means for connecting their other ends, said flaps closing the side slits in the pants, substantially as set forth.

2. The combination, with a pair of pants, of the concealing-flaps secured to the interior of the front flap and extending to the rear flap, and having means for connecting them at each point, the eyelets *b*, and buttons *c*, attached to the concealing-flaps, substantially as set forth.

355,257. FODDER-BLOCK. Emil F. Dietzgen, Cleveland, Ohio. Filed Apr. 22, 1886. (No specimens.)

Claim.—A fodder brick or block composed of cereal waste and having a proportion of gistinous matter, and containing salt and salicine, substantially as described, and for the purpose set forth.

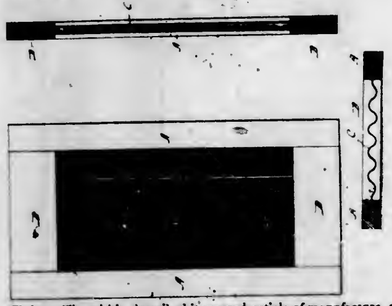
355,258. HEEL-BRACE. Cartwright J. Ernst, Saltillo, Tex., assignor of one-half to Andy Horton, same place. Filed Sept. 27, 1886. (No model.)



Claim.—1. A heel-brace for boots and shoes, consisting of a semi-circular or semi-elliptical frame having side extensions and legs adapted to set under the heel, and screw-apertures whereby it may be secured to the heel, substantially as and for the purposes specified.

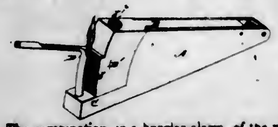
2. The brace herein described, consisting in a semicircular rim provided with two downward side extensions, the lower ends of said extensions being provided with inwardly-extending legs adapted to lie under the heel of a boot or shoe, said rim being also provided on its rear side with a downwardly-extending projection shorter than the side extensions, the lower ends of the extensions being provided with openings for the reception of screws, substantially as specified.

355,259. DOOR. Levi S. Eros, Andover, N. Y. Filed Sept. 2, 1886. (No model.)



Claim.—The within-described improved article of manufacture, consisting of a rigid door-frame having a metal corrugated panel, the straight edges thereof being let into grooves in the vertical portions of said frame, and the sinuous ends abutting flush against the inner edges of the end pieces of the frame, substantially as described.

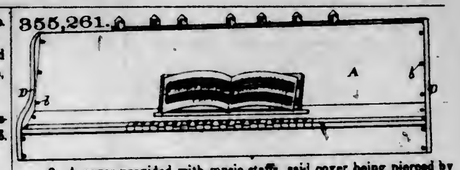
355,260. BURGLAR-ALARM. Hudson Fuller, Chicago, Ill., assignor of one-fourth to Wesley C. Garlock, same place. Filed Apr. 23, 1886. (No model.)



Claim.—The combination, in a burglar-alarm, of the wedge-shaped frame A, provided with the screw *a*, hinged at its point, and the shank C, having the projection *c*, the spring-actuated arm B, provided with the head B', having serrations *b* and recess *b'*, and the removable match-holder D, socketed in the shank C, all arranged and operating substantially as shown and described, and for the purpose set forth.

355,261. APPARATUS FOR USE IN TEACHING MUSIC. William L. Fish, Portland, Me. Filed June 10, 1886. (No model.)

Claim.—1. In combination with a music-staff perforated on each degree, whereby the notes are represented, carriers rising and falling by means of the key-board, and having attached to them tags whereby colored disks are caused to appear on the staff and form the notes, substantially as described.



2. A cover provided with music-staffs, said cover being pierced by holes or perforations located on each degree of said staffs, said perforation being for the purpose of representing notes.

3. In combination with a cover provided with a perforated music-staff, the herein-described permanent tags which cover said perforations when they are designed for forming music-notes, part of said permanent tags being plain and of the same hue as the surface of the cover when they cover the perforations between the lines of the music-staff, part of said permanent tags covering the perforations on the lines of the music-staff being provided with cross-lines to correspond and fill out staff-lines.

4. In combination with a cover provided with a perforated music-staff, the herein-described adjustable tags *z*, printed in two colors and designed for the purpose of representing chromatic intervals on proper degrees of the perforated music-staff, said tags being capable of adjustment from right to left, as herein specified.

5. In combination with a cover provided with a perforated music-staff, the herein-described revolving tags *e*, made in two colors, and being for the purpose of forming the natural notes upon the degrees of a music-staff, perforated as herein described, said revolving tags capable of being turned about on a centrally-located pivot-pin.

6. In combination with a cover provided with a perforated music-staff, the herein-described covering-tags B, printed in some suitable color and designed for the purpose of covering either of the colored parts of an adjustable tag, and capable of being moved from side to side, as and for the purpose herein specified.

7. The herein-described card-carriers *m*, to move up and down between guides *p*, said carriers being provided with stop-pins *t*, and being notched at their tops for the purpose of receiving cards *o*, substantially as herein specified.

8. In combination, the key-board E, mechanism for actuating the card-carriers, the card-carriers, and the tags *e*, coacting to display music-notes upon the degrees of a perforated music-staff, substantially as herein set out.

9. In combination, the key-board E, mechanism for actuating a card-carrier, the card-carriers, and the herein-described adjustable tag *z*, all co-operating for the purpose of displaying notes upon the staff, representing chromatic intervals of the scale.

10. The combination, with the cover or surface *w*, provided with music-staffs perforated on each degree, of card-carriers *m* and tags *e*, for forming notes upon said music-staff when said carriers and tags are actuated from a key-board, substantially as herein specified.

11. The combination, with the cover or surface *w*, provided with music-staffs perforated on each degree, of card-carriers *m* and tags *z*, for forming notes to represent sharps or flats upon said music-staff, substantially as herein set out.

12. The combination, with the carriers *m*, of the adjustable tags *z* and covering-tags B, substantially as herein set out.

13. The combination of the cross-bars *u* and *v*, cushioned, as described, and stop-pins *t* with the carriers *m*, whereby the rise and fall of the carriers are regulated, substantially as described.

14. The combination of a front cover, A, adjusted to fit about a key-board, the ends D, cover *w*, provided with music-staffs perforated, as described, and floor G, all the parts combined, as shown, for the purpose of making a convenient case for containing the operating mechanism, substantially as herein specified.

15. The combination, with the carriers *m*, of the permanent tags *y*, constructed and arranged to operate substantially as herein set out.

16. The combination, with the carriers *m*, of the revolving tags *e*, constructed and arranged to operate substantially as herein set out.

17. The combination, with a perforated music-staff, of the carriers *m*, tags *e*, and cards *o*, for the purpose of simultaneously representing notes on the degrees of said perforated staff, with their corresponding numerals or letters shown upon said cards *o*.

18. The combination, with a perforated music-staff, of carriers *m*, tags *z*, and cards *o*, for the purpose of simultaneously representing chromatic intervals of the scale by notes upon the degrees of said perforated staff, with their corresponding numerals or letters shown upon said cards *o*.

19. The combination, with a perforated music-staff, of the card-carriers *m*, the tags *z*, covering-tags B, and cards *o*, simultaneously representing notes on the degrees of said perforated staff, with their corresponding numerals or letters shown upon said cards *o*.

20. The combination of the key-board E, pins *k*, levers *h*, bar L, and guide-strips *j*, whereby when in operation said levers *h* are kept in position, substantially as herein set out.

355,262. WAGON-RACK. Henry G. T. Glassbrook, Woodhouse, Ontario, Canada. Filed July 8, 1886. (No model.) Patented in Canada Sept. 22, 1883, No. 17,726.



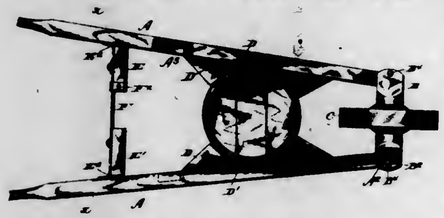
Claim —1. The combination, with a wagon-box, of a series of brackets, D, constructed with a shoulder, E, and provided with braces F, the same attached to a frame for a wagon-box rack, substantially as and for the purpose specified.

2. In a wagon-rack, the combination of the frame-pieces B B C C and brackets D, all being constructed and arranged substantially as and for the purpose specified.

3. In a wagon rack, the combination of the frame-pieces B B C C, brackets D, box A, and hooks *c*, substantially as and for the purpose specified.

4. In a wagon-rack, the combination of the frame-pieces B B C C, brackets D, box A, frame H, and top I, all constructed and arranged substantially as and for the purpose specified.

355,263. COMBINED WHEELBARROW AND BARREL-TRUCK. John S. Gourlay, Syracuse, N. Y. Filed Apr. 24, 1886. (No model.)



Claim.—1. In a truck, the combination of side bars provided with grasping devices, boxes forming bearings for the axle of a wheel pivoted to said bars at their ends, and an automatic locking device arranged between said bars, substantially as specified.

2. A combined wheelbarrow and barrel-truck comprising side bars provided with barrel-grasping devices and recessed to receive transverse tie-bars mounted on the body portion of the wheelbarrow, and provided at one end with pivoted boxes, forming bearings for the wheel of said truck, and having arranged near the opposite ends automatic locking devices for connecting the two side bars, substantially as specified.

3. The combination, with the recessed side bars, A, provided with the grasping-blocks D, of the recessed boxes B, apertured as at B^3 B^4, and the hinged arms E E', toothed latch F, and pin F^3, substantially as specified.

4. The combination of the side bars, A, recessed as at A^3, chamfered as at A^4, with the boxes B, plates B^3, arms E E', latch F, pin F^3, and the body portion G, having the transverse tie-bars G', substantially as specified.

355,264. PAPER-HOLDING ATTACHMENT FOR TYPE-WRITING AND OTHER MACHINES. Curtis Haven, Camden, N. J. Filed Jan. 12, 1886. (No model.)



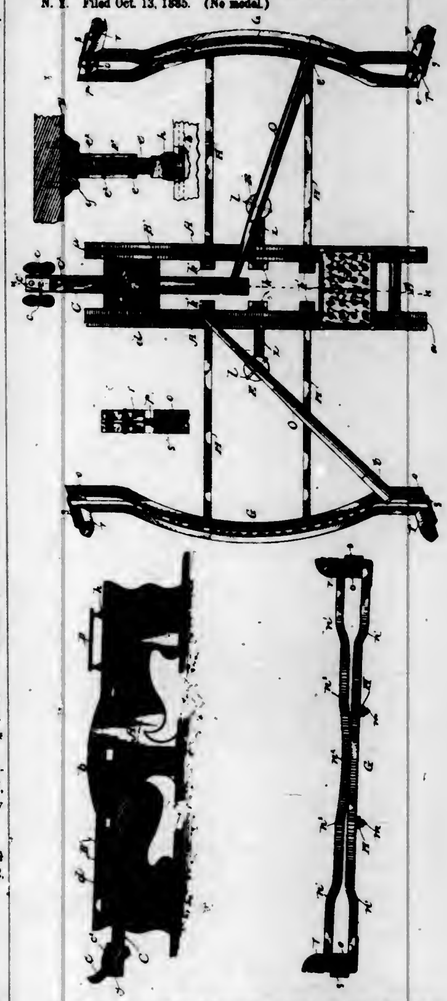
Claim.—An adjustable paper-holder for a type-writing machine, &c., consisting of a shaft, A, having a roller thereon, the angular bars D, furnishing bearings in the vertical limbs for said shaft A, and having the inner overlapping ends recessed and provided with slots wherein are secured fastening devices, substantially as described, and the pins J, secured to said bars, all of said parts being combined and arranged substantially as described.

355,265. LOW-CUT OR OXFORD SHOE. Benjamin W. Hayes, Haverhill, Mass., assignor to Hayes & Titcomb, same place. Filed Oct. 9, 1886. (No model.)



Claim.—A low-quartered or Oxford shoe having an opening in front directly over the instep, the quarters being provided with the lace-flies *b*, having the eyelets *a*, the elastic tongue *c*, and the elastic lacing *f*, the latter having its ends permanently united, all combined, arranged, and operating substantially as and for the purposes hereinbefore set forth.

355,266. ROWING APPARATUS. John B. Hedbeker, New York, N. Y. Filed Oct. 13, 1885. (No model.)



Claim.—1. In a rowing or exercising apparatus, the side pieces, A, provided with tracks, as shown, and having their centers elevated, as at *b*, substantially as and for the purpose set forth.

2. The side pieces, A, provided with tracks and central elevations, as shown, in combination with seat D, provided with rollers, and oar-locks having oars secured therein, substantially as set forth.

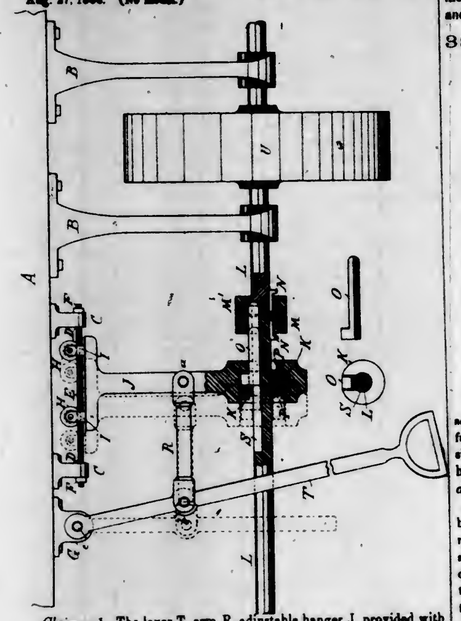
3. The seat D, provided with legs consisting of the parts *a a'*, spring *c*, and roller *h*, substantially as set forth.

4. An oar for rowing apparatus provided with a revoluble section, *i*, near its outer end, substantially as set forth.

5. The spring-rail G, provided with the lateral bars H H, hinged to the said rails and capable of being folded in close contact therewith, substantially as set forth.

6. In an exercising-machine, a spring-rail comprising two members, one of which has an enlargement at the center of its inner surface which curves or tapers gradually toward the extremities of the rail, while the other has a flat center, whereby the oar receives the greatest resistance when in the middle of its stroke, substantially as set forth.

355,267. SHAFT-COUPLING. Charles S. Higgins, Jr., Brooklyn, N. Y., assignor of one-half to Charles S. Higgins, Sr., same place. Filed Aug. 27, 1886. (No model.)



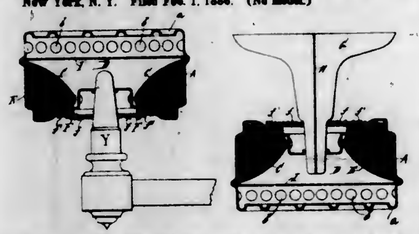
Claim.— 1. The lever T, arm R, adjustable hanger J, provided with a box or chamber, K, and a coupling-key, O, in combination with a line of shafting in sections provided with the recessed sleeves M and M', and angular keyway S, substantially as described and shown, and for the purposes specified.

2. The combination of hangers C C, rod E, and adjustable hanger J, provided with arms I I, grooved wheels H H, and a circular box or chamber, K, a removable coupling-key, O, fitting and moving in an angular keyway in the shafting, and said shafting provided with sleeves M M', the hanger J and key O being operated by a lever, T, substantially as described and shown.

3. The adjustable hanger J, carrying the coupling-key O and operated by the lever T, in combination with a line of shafting provided with an angular keyway, S, therein, substantially as shown and described, and for the purposes set forth.

4. The combination of the adjustable hanger J, provided with a circular box or chamber, K, removable coupling-key O, lever T, and line of shafting L L, provided with sleeves M M', substantially as described and shown, and for the purposes specified.

355,268. DUAL GAS AND SPIRIT STOVE. Waldo P. Houghin, New York, N. Y. Filed Feb. 1, 1886. (No model.)

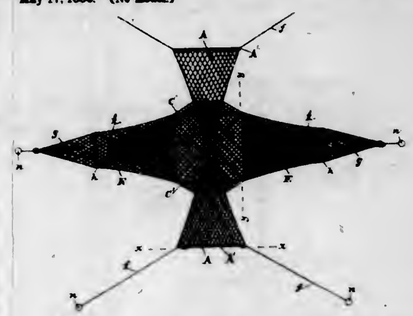


Claim.—1. In a dual gas and alcohol stove, the combination of the casing A, partition C, top *a*, provided with holes *b b*, base F, having the passages *f f* and annular opening *f'* and the central opening, M, and the absorbent filling in the chamber E, all substantially as described, and for the purposes set forth.

2. The combination of a spirit-stove provided with the central opening, M, with the supporting device consisting of metal plates G and H, having slits *g* and *h*, substantially as described, and for the purposes set forth.

3. The combination of a combined gas and spirit stove provided with the central opening, M, with the supporting device consisting of metal plates G and H, having slits *g* and *h*, substantially as described, and for the purposes set forth.

355,269. FISH-TRAP. Joseph S. Johnson, Baltimore, Md. Filed May 17, 1886. (No model.)



Claim.—1. A net-trap for fish, having a center chamber formed by square hoops C' and netting stretched over said hoops, two fish-entrance funnels, the small ends of each of which enter said chamber at different sides, through the net-wall which is stretched over one of said square hoops, and said small ends confronting each other and connected by cords *d*, and a partition separating the said small ends, as set forth.

2. A trap for fish, made wholly of netting, having a center chamber, C, provided with a partition, *l*, extending across it, two entrance-funnels, the small ends of which enter said center chamber at different sides and are separated by the said partition, a bag, E, attached to the center chamber and projecting therefrom at an angle with respect to the entrance-funnels, and a bag-funnel, I, having its large end connected with the center chamber occupying the bag and extending toward the point or end of the latter, as set forth.

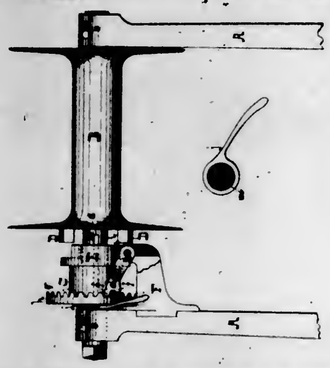
3. A trap for fish, made wholly of netting, having, in combination, a center chamber, C, two entrance-funnels which enter said chamber at different sides, a diagonal partition across the center chamber, separating the entrance or openings of said two funnels, and two bags each attached to the center chamber at an opposite side of the said diagonal partition, as set forth.

355,270. PIPE-WRENCH. Peter Johnson, Hutsonville, Ill. Filed Mar. 13, 1886. (No model.)



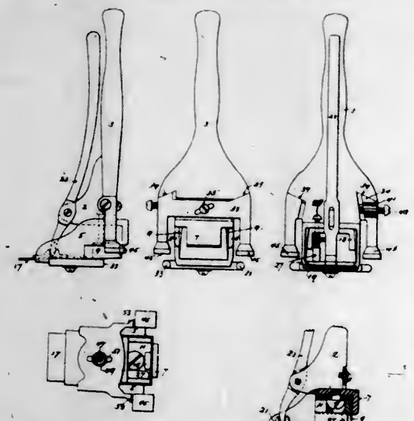
Claim.—The combination, in a bolt-holder, of a body having a slot, as described, the external faces of the walls of said slot being corrugated, the link C, extending through said slot, a cross-bar, *d*, carried by said link to bear in the depressions, and a gravity-hook, D, pivotally attached to the link, substantially as set forth.

355,271. OYSTER-DREDGE WINDLASS. HENRY LAWSON, Baltimore, Md., assignor to Virginia S. Lawson, same place. Filed Feb. 27, 1886. (No model.)



Claim.—In a dredge-windlass, the combination of the stand A, rotary shaft *a*, confined endwise in bearing-boxes in the said stand, and provided with the feather *c*, barrel B, having the lugs D, adapted to turn freely on the shaft *a*, clutch C, resting on and adapted to slide longitudinally of the feathered portion of the shaft *a*, and having at one end flange A, provided with the facial teeth *g*, and at the other the lugs E E, and the pawl *d*, pivoted to some stationary part of the stand, and adapted to fall in gear with the teeth *g*, substantially as specified.

355,272. HINGE-MORTISING MACHINE. JAMES A. MACKENZIE, Minneapolis, Minn. Filed Aug. 3, 1886. (No model.)



Claim.—1. In a device for forming hinge-mortises, the combination, with the frame 2, having the handle 3, and the rectangular stock formed integrally with said frame, of the fixed knives arranged against the three sides of said stock, and the sliding knife mounted in ways on the frame 2 and adapted to move between the fixed knives, substantially as described.

2. The combination, in a hinge-mortiser, with the frame 2, having the handle 3, and the rectangular stock formed integrally with said frame, of the fixed knives 9, secured to said stock, the sliding knife 17, mounted in ways 19 in the frame 2 and arranged in a plane at or near the edges of the fixed knives, and means for moving said sliding knife.

3. The combination, with the frame 2, having the handle 3, and the rectangular stock formed integrally with said frame, of the wedge-shaped knives 9, arranged within said walls, the clamping-block 11, having the inclined walls 13, and the screw 15, all substantially as described.

4. The combination, in a hinge-mortiser, with the frame 2, having the handle 3, and the rectangular stock formed integrally with said frame, of the fixed knives 9, secured to said stock, the sliding knife 1 mounted in ways 19, formed in said frame 2, and the operating-lever 23, pivoted to the frame 2 and engaging said sliding knife, all substantially as described.

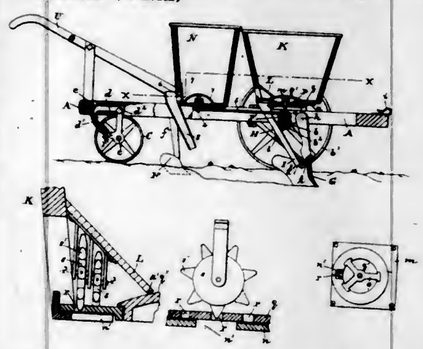
5. The combination, in a hinge-mortiser, with the frame 2, having the handle 3, of the knives 9, secured, as described, to said frame, the sliding knife 17, mounted in ways 19 in said frame, the depth-gage 33 and the width-gage 47, secured to said frame 2, and means for moving said gages, all substantially as described.

6. The combination, with the fixed knives 9 and the sliding knife 17, of the frame having the inclines 39, the depth-gage having the bearing ends 45 and the inclines 34, and the adjusting-screw 43, for moving said gage, substantially as described.

7. The combination, with the fixed knives 9 and the sliding knife 17, of the width-gage 47, adapted to move in a plane at right angles to the fixed knives and having the bearing ends 53 upon each side of the knives, substantially as described.

8. The combination, in a hinge-mortiser, with the frame 2, having the handle 3, and the rectangular stock formed integrally with said frame, of the fixed knives secured to said stock, the spring-controlled plunger 27, arranged within said fixed knives, and the sliding knife 17, moving at right angles to the fixed knives in ways formed in the frame 2, all substantially as described.

355,273. PEA-PLANTER. JOHN T. MARTIN, Elk Ridge, Md. Filed Apr. 2, 1886. (No model.)



Claim.—1. A pea-planter having, in combination, a hopper provided in its bottom with a plate having a feed-opening, *n'*, a revoluble feed-ring, *q*, seated on the said bottom plate, and having a central raised or convex surface, and provided on the flat part around the central convex surface with holes *r* of a size to admit one pea only in each, and a striker-bar, L, secured to the hopper over that part of the feed-ring which is above the said feed-opening, as set forth.

2. A planter having, in combination, a frame, A, supported at its front end by wheels *b'*, a furrow-opening plow, G, pivoted to the frame and provided on its rear side with a shoulder, *k*, a V-shaped brace having two arms rigidly attached to the frame, and its point *k'* abutting on the said shoulder of the plow, as set forth.

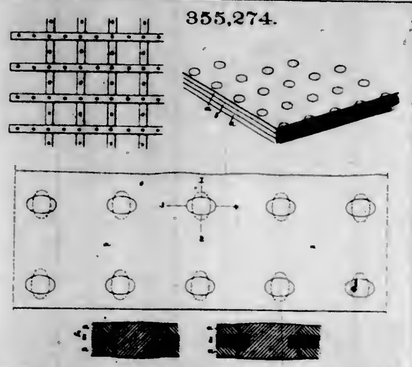
3. A pea-planter having, in combination, a hopper provided in its bottom with a plate having a feed-opening, *n'*, a revoluble feed-ring, *q*, seated on the said bottom plate and provided with holes *r* of a size to admit one pea only in each, and pronged clearance-wheel *s*, turning above the revoluble feed-ring to push the seed from said holes, as set forth.

4. A pea-planter having, in combination, a hopper provided in its bottom with a plate having a feed-opening, *n'*, a revoluble feed-ring, *q*, seated on the said bottom plate and provided with holes *r* of a size to admit one pea only in each, a stationary striker-bar, L, above the said ring, and having a downward-inclined position, whereby it forms below it a chamber or space, and pronged clearance-wheel *s*, occupying said chamber and turning above the revoluble feed-ring to push the seed from said hole, as set forth.

355,274. MANUFACTURE OF COMPOUND PLATES. ROBERT P. MANLY, Radnor, and FRANK H. TAYLOR, Philadelphia, Pa., assignors to the Manly & Cooper Manufacturing Company, of Pennsylvania. Filed Oct. 22, 1886. (No model.)

Claim.—1. The mode herein described of making compound bars or plates of iron and steel for jail and safe construction, said mode consisting in first punching the rivet-holes in the separate leaves, riveting the leaves together, and then hardening the compound bar or plate thus formed, substantially as set forth.

355,274.

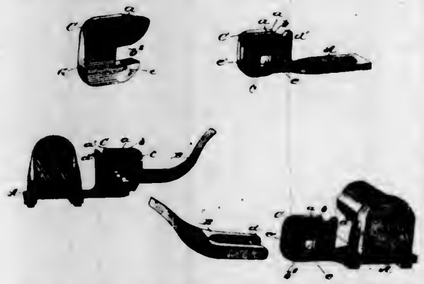


2. The mode herein described of making compound bars or plates of iron and steel for jail and safe construction, said mode consisting in first punching the holes in the separate leaves, riveting the leaves together through every other set of holes, and then hardening and straightening the compound bar or plate thus formed.

3. The mode herein described of making compound bars or plates of iron and steel for jail and safe construction, said mode consisting in first punching the separate leaves, riveting the punched leaves, heating the compound bar or plate, and subjecting it to a hardening-bath and passing it through straightening-rolls, all substantially as specified.

4. The mode herein described of making compound bars or plates for jail and safe construction, said mode consisting in punching the separate leaves which form the bar or plate with corresponding holes slightly out of coincidence, and then riveting the said leaves together through said holes, substantially as specified.

355,275. THILL-COUPLING. ALOYSIUS MCHUGH, Du Bois, Pa. Filed Nov. 3, 1886. (No model.)



Claim.—1. In a thill-coupling, the combination, with a bracket having an angular slot vertical at its lower end and diagonal at its upper or open end, of a gravity-latch pivoted to the bracket directly above the bottom of the slot, overreaching the slot, and provided with a shoulder at or approximately at right angles to the slot in the bracket, the said shoulder adapted to rest above the cross-bolt of the tang when the parts are in their normal positions, as set forth.

2. In a coupling of the character described, the bracket having an angular slot vertical at the lower and diagonal at its upper or open end, in combination with a gravity-latch properly curved, and which is adapted to be lifted up and turned round to clear the cross-bolt and tang independent of the movement of the cross-bolt, substantially as and for the purposes set forth.

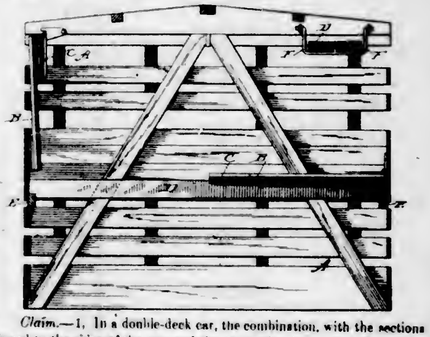
355,276. BIT-STOCK. ALFRED W. MORGAN, Washington, D. C. Filed June 19, 1886. (No model.)

Claim.—The combination of the spirally-grooved spindle, the ratchet-plate fixed thereto, the sleeve loose upon the spindle and adapted to support a bit-clutch, the adjustable pawl fixed to the spindle-sleeve for engaging or clearing the ratchet-plate fixed to the spindle and causing the movement of the sleeve and bit-clutch simultaneously with the spindle, or allowing the same to remain stationary during the movement of the spindle, and the operating-handle having an internal conformation to the grooves of the spindle for engaging the sides of the grooves and causing the spindle to be rotated when the handle is moved, substantially as specified, for the purposes set forth.

355,276.



355,277. STOCK-CAR. OLNEY NEWELL, Denver, Colo. Filed Nov. 3, 1886. (No model.)



Claim.—1. In a double-deck car, the combination, with the sections hinged to the sides of the car, and the supporting beams therefor, of the sections opposite the doors, arranged to slide upward toward the ceiling, and supported in their lower position upon the same beams which support the adjacent sections, substantially as described.

2. In a double-deck car, the combination, with door sections adapted to slide up or down on guide-rods, and to be supported in their lower position upon the same beams which support the adjacent sections, of catches *b*, for supporting the outer edges of the sections, and the described devices for supporting the inner edges, substantially as described.

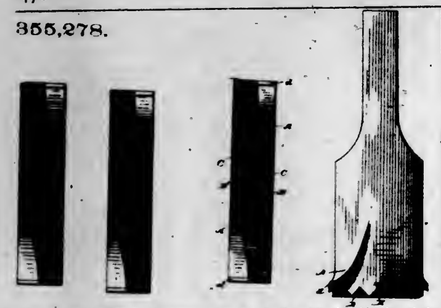
3. In a double-deck car, the section B, hinged to the sides of the car, and the supplemental sections C, hinged to the main sections so as to swing outwardly, whereby the main sections may lie snugly against the side of the car, substantially as described.

4. In a double-deck car, the combination, with the sections hinged to the sides, and the removable supporting-beams, of pivoted loops or hangers for holding said beams, arranged at one side of the car, substantially as described.

355,278. ROCK-DRILL. POWELL RADER, Georgetown, Tex. Filed May 12, 1886. (No model.)

Claim.—1. In a bit for rock-drills, the combination, with the bit having the inclined cutting-edge extending diagonally from one end to

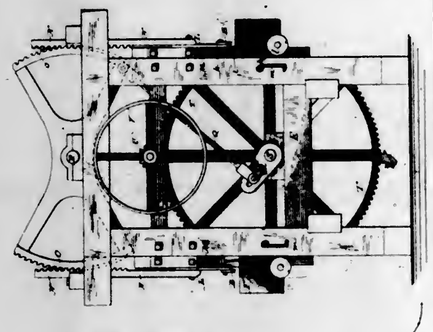
355,278.

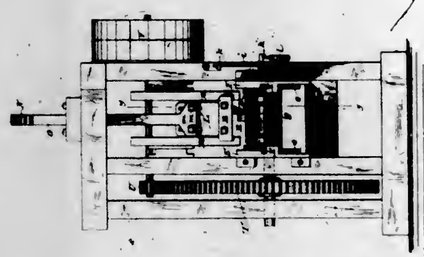


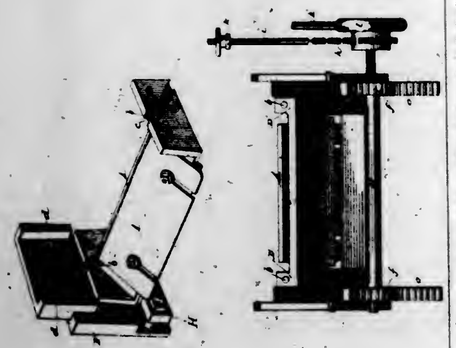
the other and the curved recesses formed in the sides of the bit, of the passage-ways or grooves at either end of said cutting-edge opening into the said recesses, substantially as shown and described.

2. The combination, with the bit having the curved recesses in either face thereof, of the cutting-edge having blades and recesses and the passage-ways or grooves, substantially as shown and described.

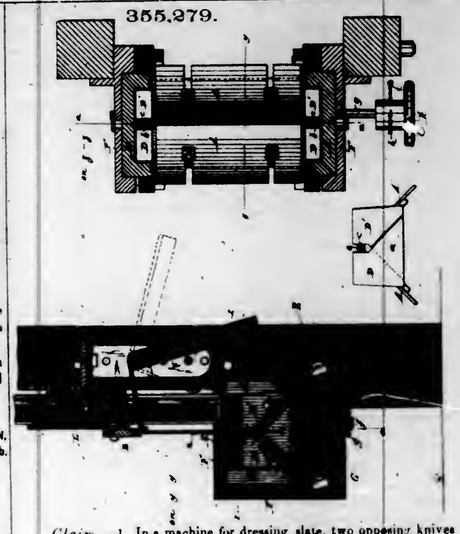
355,279. MACHINE FOR DRESSING SLATE. Francis Shenton, Slatedale, Pa., assignor to Mary Howard Shenton, same place. Filed Feb. 13, 1884. (No model.)







355,279.



Claim.—1. In a machine for dressing slate, two opposing knives with straight parallel edges, in combination with a pressure device arranged to reciprocate to and from the knives, said parts operating, as described, independently of guides or other means for determining the course of the slate, whereby the slate is given flat parallel surfaces and the knives permitted to follow the course of its lamination.

2. In combination with the pressure device to advance the slate, the two movable head-blocks provided with parallel knives, the stationary support for said head-blocks, and the movable locking-plates, as described, engaging and confining the head-blocks to prevent their separation.

3. The combination of movable head-blocks provided with knives, the supports whereon the heads slide, and the movable plates *k*, provided with the projecting flanges engaging the heads, whereby the heads may be confined and adjusted to change the distance between the knives.

4. The knife-supporting heads movable to and from each other and the gravitating plates K, provided with inclined flanges to approximate the heads and knives, and also with the rack-bars extending therefrom, in combination with the shaft and its pinions engaging said bars, whereby the two plates K may be raised and lowered simultaneously and equally.

5. In combination with the movable knife-supporting heads and the springs to separate the same, the movable plates K, provided with the projecting flanges to confine and adjust the heads, and means, substantially as described, for raising and lowering said plates, whereby the distance between the knives may be varied at will.

6. In combination with the two inclined opposing knives, the supporting-heads therefor having their bases extended forward in advance of the knives, substantially as described and shown, whereby the knives are prevented from tipping forward or inward when in action.

7. In combination with the opposing inclined knives, the movable supporting-heads having the forwardly-extended overlapping bases or feet *a*.

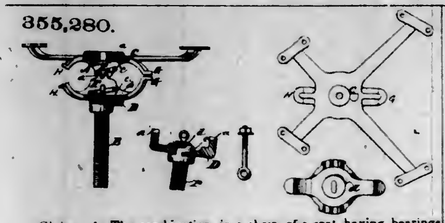
8. In combination with the solid head-blocks provided with knives, the adjusting-plates K, engaging the head-blocks, as described, the racks, and the shaft and pinions to elevate said plates, the chain h, having one end connected with the shaft and the opposite end adjustably secured to the frame, whereby the adjustment of the chain is caused to limit the descent of the plates K and the consequent approximation of the knives.

9. In a slate-dressing machine, the combination of the two pairs of dressing knives, the two vertically-reciprocating pressure devices, their bars, and the vibratory plate connecting them, whereby the pressure devices are reciprocated alternately and the dressing of the slates in vertical positions permitted.

10. The dressing-knives and the reciprocating pressure device, the rack-bar adjustably secured to the pressure device, the vibrating plate applied to operate said rack-bar, the pitman, and the operating-crank for the pitman adjustably connected thereto, whereby the stroke of the pressure device may be increased or diminished to adapt the machine for dressing slates of different length.

355,280. COMBINED TILTING AND SWIVEL CHAIR. Asher B. Stevens, New Bridge, N. J., assignor, by mesne assignments, to the Rocker Spring Company, Chicago, Ill. Filed June 14, 1886. (No model.)

355,280.



Claim.—1. The combination, in a chair, of a seat having bearings on its under side, a base adapted to receive and support such seat and bearings, and an intermediate spiral spring having its end coils continued in substantially the direction of the spirality and curvature of the wire of the spring and connected to the base and seat portions by the rigid engagement of its said end coils with parts constructed to receive them, substantially as set forth.

2. The combination, in a chair, of a seat having bearings secured to its under side, a base provided with bearings upon which said seat-bearings are supported and move, and an intermediate spiral spring having its end coils continued in substantially the direction of the spirality and curvature of the wire of the spring and connected to the base and seat portions by the rigid engagement of its end coils with parts constructed to receive them, said spring serving to draw and hold the same together and in contact and operating by deflection and the opening of its coils, substantially as set forth.

3. The combination, in a chair, of a seat having bearings secured to its under side, a base provided with bearings upon which said seat-bearings are supported and move, and an intermediate spiral spring having its end coils continued in substantially the direction of the spirality and curvature of the wire of the spring and connected to the base and seat portions by the rigid engagement of its end coils with parts constructed to receive them, said spring serving to draw and hold the same together and in contact and operating by deflection and the opening of its coils, the base and seat portions also being provided with intermeshing notched portions, substantially as described.

4. The combination, in a chair, of a seat having bearings secured to its under side, a base provided with bearings upon which said seat-bearings are supported and move, and an intermediate spiral spring having its end coils continued in substantially the direction of the spirality and curvature of the wire of the spring and connected to the base and seat portions by the rigid engagement of its end coils with parts constructed to receive them, said spring serving to draw and hold the same together and in contact and operating by deflection and the opening of its coils, and a bolt provided with a yielding joint, substantially as described.

5. The combination, in a chair, of a seat having bearings secured to its under side, a base provided with bearings upon which said seat-bearings are supported and move, and an intermediate spiral spring having its end coils continued in substantially the direction of the spirality and curvature of the wire of the spring and connected to the base and seat portions by the rigid engagement of its end coils with parts constructed to receive them, said spring serving to draw and hold the same together and in contact and operating by deflection and the opening of its coils, and intermeshing notched portions and a connecting-bolt, substantially as described.

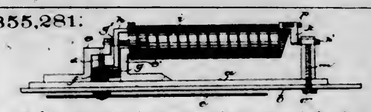
6. The combination, in a chair, of a seat having bearings secured to its under side, a base provided with bearings upon which said seat-bearings are supported and move, and an intermediate spiral spring having its end coils continued in substantially the direction of the spirality and curvature of the wire of the spring and connected to the base and seat portions by the rigid engagement of its end coils with parts constructed to receive them, said springs serving to draw and hold the same together and in contact and operating by deflection and the opening of its coils, and front and rear stops, substantially as described.

7. The combination of a bracket and a spider provided with cavities, and an intermediate spiral spring having its end coils continued in substantially the direction of the spirality and curvature of the wire of the spring and connected to said bracket and spider by such end coils engaging the cavities therein, whereby the spring is rigidly secured by its end coils to the said bracket and spider, and draws and holds the said bracket and spider in contact and together, substantially as described.

355,281. METALLIC THERMOMETER. George B. St. John, Boston, Mass. Filed Jan. 3, 1884. (No model.)

Claim.—1. The graduated scale, the pointer therefor, a pinion on the arbor of such pointer, and a segmental gear meshing with said pinion, and provided with an arm supported on a rock-shaft, combined with an expansion-helix attached to said arm at one end, and supported in adjustable bearings at its other end to vary its effective length and axial position, substantially as described.

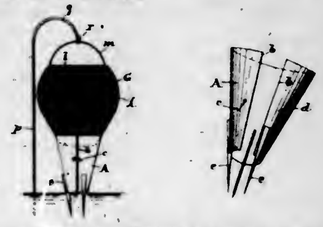
355,281.



2. The expansion-helix, and pointer actuated thereby, combined with the dial and the attaching-arm for the said helix, provided with a stud having a pivotal movement, and a set-screw therefor operated from the face of the dial, substantially as described.

3. The combination, with the graduated dial and its pointer, of the helix longitudinally parallel with the dial, the adjustable bearing at one end, and the gearing connecting the helix and pointer at the other, substantially as shown and described.

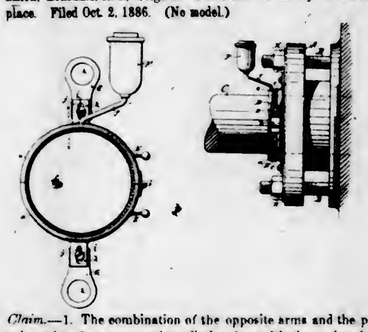
355,282. PLANT-PROTECTOR. Margrett A. Sutton, Arlington, Md. Filed Oct. 30, 1885. (No model.)



Claim.—1. A plant-protector consisting of a shield, A, made of suitable sheet material and coiled to a circular shape to protect the stalk, and a net hood, G, closed at the top and open at the bottom, and located above the said shield with the bottom edge inserted within the top of and surrounded by said shield, as set forth.

2. In a plant-protector, the combination of a shield, A, made of suitable sheet material and coiled to a circular shape to protect the stalk, a net hood, G, closed at the top and open at the bottom, and located above the said shield with the bottom edge inserted within the top of and surrounded by said shield, and a hanger-rod having at its upper end a side projection, from which the top of the net hood is supported, as set forth.

355,283. PISTON-ROD OILER. Charles E. Tefft and James M. Smith, Lonsdale, R. I., assignors of one-third to Harry W. Porter, same place. Filed Oct. 2, 1886. (No model.)



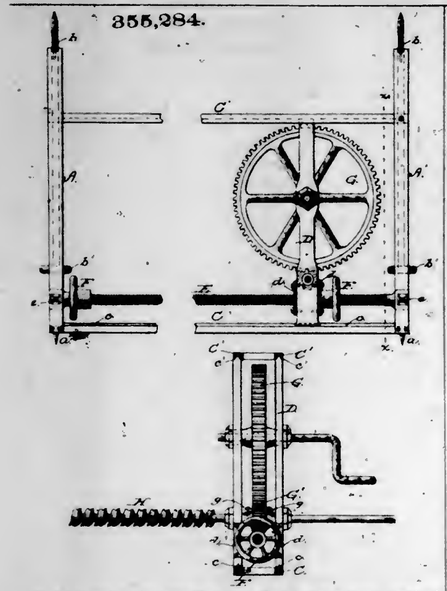
Claim.—1. The combination of the opposite arms and the packing-rings adapted to form an annular oil-chamber with the spring for holding the packing-rings against the surface of the piston-rod, and the links for attaching the oiler to the gland, substantially as described.

2. The combination of the oiler embracing the piston-rod and provided with the slotted ears with the links held upon the bolts of the gland and loosely connected to the slotted ears, to allow an adjusting movement of the oiler with the piston-rod and adjustable attachment to the bolts of the gland, substantially as described.

355,284. COAL-MINING MACHINE. John Walton, Philipsburg, Pa. Filed Mar. 20, 1886. (No model.)

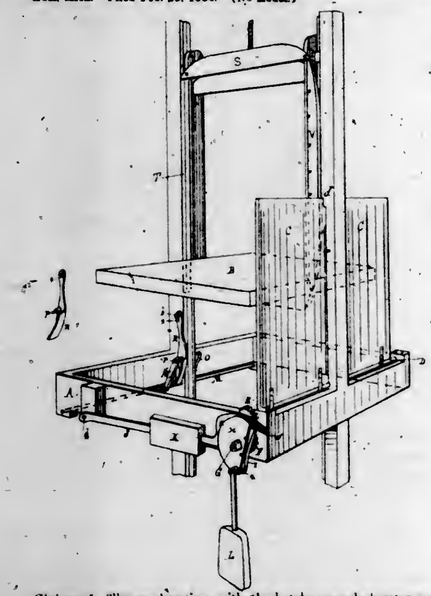
Claim.—1. A coal-mining machine consisting of a frame having standards with top and base horizontal side rails secured thereto, rigid base projecting points, adjustable screw-threaded and pointed vertical rods journaled to the face of said standards and provided with end adjusting-wheels, in combination with a carriage-frame having gear-wheels journaled within, as described, and provided with end flanges and grooves adapted to loosely fit and move horizontally on said rails, substantially as shown and specified.

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2. In a coal-mining machine, a vertical carriage-frame provided with a gear drive-wheel, and a pinion with hollow axle, as a drill-chuck, and in which the drill is secured, in combination with a carriage-frame having top and base horizontal beveled bearings adapted to receive and loosely hold by end bearing said carriage-frame, substantially as shown and specified.

355,285. ELEVATOR. Alexander F. Ward and George Mead, Detroit, Mich. Filed Feb. 25, 1886. (No model.)



Claim.—1. The combination, with the hatchway and elevator-car, of the rock-shaft M, stops carried thereby, and a lever connected with one of said stops and operated by the passage of the car, substantially as and for the purposes specified.

2. In a hatchway-elevator provided with a swinging door or doors secured upon a rock-shaft, in combination with a weighted lever and rocker-arm, the latter being provided with a bearing at each end for the free end of the lever, and connections, substantially as described, between said rock-shaft and rocker-arm, whereby the latter is operated by the movement of the former, substantially as set forth.

3. The combination, with the hatchway, rock-shaft D, journaled therein, and doors carried by said rock-shaft, of the lever J, plate H, and rocker-arm I, said shaft and rocker-arm all arranged and operating substantially as and for the purposes specified.

4. The combination, with the hatchway, the rock-shaft journaled therein, and the door secured to said rock-shaft, of the lever J, semicircular plate H, connected and operated by said rock-shaft, weight L, and rocker-arm I, provided with rollers *a a'*, substantially as and for the purposes specified.

5. The combination, with the hatchway, the rock-shaft D, journaled therein, and the doors carried by said rock-shaft, of the pinions E F, semicircular plate H and rocker-arm I, provided with rollers *a a'* and secured to said pinion F, the pivoted weighted lever J, and weight L, all substantially as shown and described.

355,286. NUT-LOCK. Lorenzo D. Warner, Elkhart, Ind., assignor of one-half to Carlton Sage, same place. Filed May 13, 1886. (No model.)



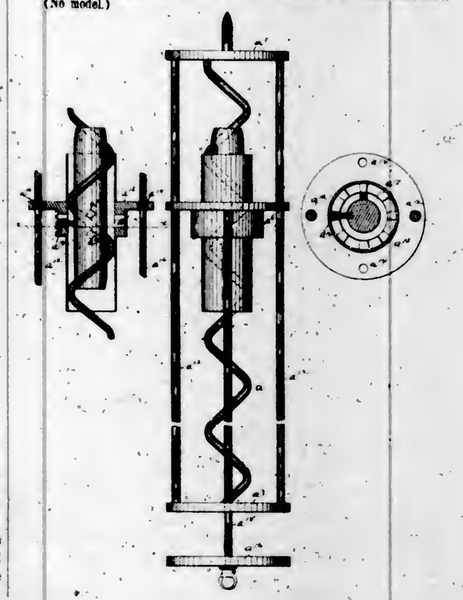
Claim.—1. In a nut-lock, the combination, with a threaded bolt, of a nut having a recess parallel and adjacent to its threaded portion, a bolt, D, carrying a plate, *d'*, and a spring secured to said bolt and adapted to engage a perforation in the nut, substantially as shown, and for the purpose set forth.

2. In combination with a bolt, A, a nut, B, having an opening adjacent to its screw-threaded portion, said opening having a straight and an inclined edge, a bolt, D, having a serrated plate, *d'*, attached thereto, said plate engaging with the bottom of the threads of the bolt A, substantially as shown, and for the purpose set forth.

3. In combination with a bolt, A, a nut, B, having a recess bisecting the screw-threads thereof for the reception of a bolt, D, said bolt having a serrated plate, *d'*, and a spring, E, having a bent end, which engages with a perforation in the face of the nut, substantially as shown, and for the purpose set forth.

355,287. WITHDRAWN.

355,288. ADJUSTABLE HANGER. Charles O. Yale, Homa N. Y., assignor of one-half to M. Calvin West, same place. Filed Jan. 29, 1886. (No model.)

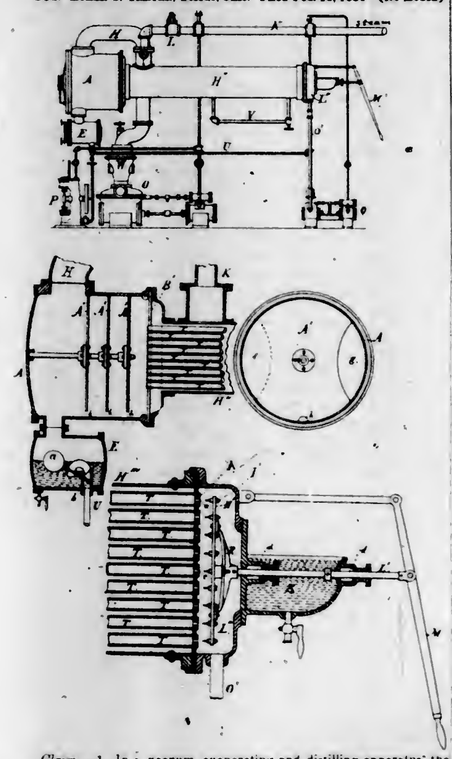


Claim.—1. The combination of an inclined track provided with a vertical guiding construction, a slide engaging said guiding construction, a movable device engaging the track and having the movable connection with the slide, and means, substantially as described, for immovably connecting the slide and the track and engaging device, substantially as set forth, for the purposes specified.

2. The combination, with the circuitous skeleton track provided with a vertically-guiding construction, of a sliding connecting device movable in said guiding construction and movable brake engaging the track and having a movable connection with the connecting-rod, and means, substantially as set forth, for immovably connecting the slide and the track, substantially as set forth.

3. The combination, with the skeleton track held at its extreme, of the friction device consisting of a rotating sleeve having a tapering chamber in one end, mounted on a connecting-rod provided with a tapering end for working in the sleeve, and pins in the rotating sleeve for engaging the track, arranged substantially as described.

355,289. VACUUM EVAPORATING AND DISTILLING APPARATUS. Homer T. Yaryan, Toledo, Ohio. Filed Feb. 15, 1886. (No model.)



Claim.—1. In a vacuum evaporating and distilling apparatus, the combination of a shell to contain steam or other heating medium surrounding vaporizing-tubes passing through the shell and terminating at one end within a common separating-chamber, and an adjustable device for supplying a uniform quantity of liquid to be evaporated to each of the tubes at the end of said tubes opposite the separating-chamber, substantially as described.

2. In a vacuum evaporating and distilling apparatus, the combination of a shell or its equivalent, so constructed as to act as a jacket to contain steam or other heating medium, surrounding tubes discharging at one end only into a common separating-chamber provided with dash-plates, the opposite end of each tube terminating in a common distributing-chamber, and any means of supplying said distributing-chamber with a regulated amount of liquid, substantially as described.

3. The combination, in a vacuum evaporating and distilling apparatus, of a shell to contain steam or other heating medium, parallel tubes passing through said shell and terminating at one end in a common separating-chamber, a distributing-chamber covering the opposite ends of said tubes, and any means of varying the size of openings to tubes within the distributing-chamber, substantially as described.

4. In a vacuum evaporating and distilling apparatus having a shell to contain steam or other heating medium surrounding vaporizing-tubes terminating in a common separating-chamber and receiving their supply of liquid to be evaporated from a common distributing-chamber, the plugs E', with openings, taper pins I', pin-plate H', operated by rod L' through stuffing-box *d*, for the purpose set forth.

5. In a vacuum evaporating and distilling apparatus arranged as multiple effect, the combination, with separating-chamber A and connected float-chamber E, of means for delivering the liquid flowing into said float-chamber continuously to the distributing-chamber of the next evaporator, and preventing the flow of vapor when operated by the varying height of liquid in said chamber, for the purpose described.

6. In a vacuum evaporating and distilling apparatus, two or more evaporators and a connected separating-chamber, in combination with the float-chamber E, a discharge-pipe having a seal or trap and leading therefrom to the second evaporator, and a valve and float operated by the varying height of liquid in said float-chamber, whereby the flow of vapor is prevented and the flow of liquid is regulated, as and for the purpose described.

7. In a vacuum evaporating and distilling apparatus, the steam-heating shell containing vaporizing-tubes, in combination with a separating-chamber provided with dash-plates having openings alternately upon opposite sides for the passage of vapor and openings at the bottom for the passage of liquid, substantially as described.

8. In a vacuum evaporating and distilling apparatus, dash-plates A', in combination with a separating-chamber and a shell to contain steam or other heating medium surrounding vaporizing-tubes terminating in the common separating-chamber, and means whereby each of said tubes receives a regulated supply of fluid to be evaporated, substantially as shown and described.

9. In a vacuum evaporating and distilling apparatus, the combination of two or more evaporators and connected separating-chambers provided with dash-plates, substantially as described, with the vapor-pipe H, leading from separating-chamber of one evaporator to the space in shell surrounding the tubes in the next evaporator, so as to produce multiple effects, as set forth.

355,290. VACUUM EVAPORATING AND DISTILLING APPARATUS. Homer T. Yaryan, Toledo, Ohio. Filed Mar. 9, 1886. (No model.)

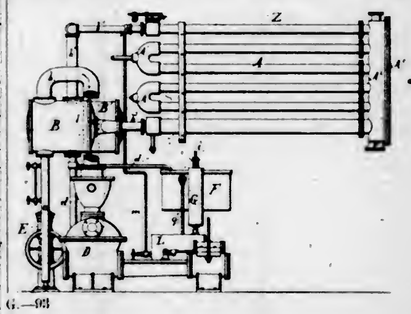
Claim.—1. In a vacuum evaporating and distilling apparatus, the vaporizing pipe or coil, *a*, having progressively-increasing area from inlet to outlet, in combination with means for supplying it with liquid, a separating-chamber connecting with its outlet end, and a connected exhauster, substantially as and for the purpose described.

2. In a vacuum evaporating and distilling apparatus, two or more vaporizing-coils, *a*, of gradually-increasing area from inlet to outlet, connecting with and discharging into a common separating-chamber which connects with an exhauster, substantially as and for the purpose described.

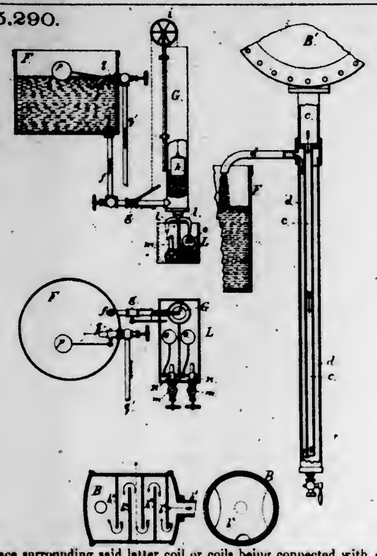
3. In a vacuum evaporating and distilling apparatus, the herein-described arrangement of sections of pipe and their connections, constituting a vaporizing-coil, *a*, and outer heating-coil, A, in combination with a separating-chamber having a vapor-escape pipe and a trapped liquid-discharge pipe, substantially as and for the purpose described.

4. In a vacuum evaporating and distilling apparatus, the herein-described arrangement of pipe and their connections, composed of inner vaporizing-coil, *a*, and outer heating-coil, A, in combination with head A^3, having division-plates A^4, and plate or door A^5, substantially as and for the purpose described.

5. One or more vaporizing-coils, *a*, surrounded by a heating medium and discharging into separating-chamber B', provided with means for forcing the fluid to be evaporated through such coil or coils, in combination with one or more additional vaporizing-coils, *a*, surrounded by a heating medium and discharging into separating-chamber B, provided with means for producing a vacuum within said latter coils and chamber B,



355,290.



the space surrounding said latter coil or coils being connected with said chamber B' by suitable pipe-connections, substantially as shown and described, for the purposes specified.

6. One or more coils, *a*, surrounded by a heating medium discharging into a separating-chamber, B', provided with means for forcing the fluid to be evaporated through said coil or coils, and means for withdrawing the reduced fluid from said chamber B' without permitting the escape of the vapor therefrom, in combination with one or more coils, *a*, heated by vapor from said chamber B', said latter coil or coils and chamber B being provided with means for producing a vacuum therein, and means for withdrawing the reduced fluid from said chamber B, substantially as shown and described, for the purposes specified.

7. In a vacuum evaporating and distilling apparatus, in combination with the vaporizing-coil *a* and connected separating-chamber B', having a vapor-escape pipe, the liquid-discharge trap *c d*, leading from said separating-chamber, and a receiving-tank, substantially as and for the purpose described.

8. In a vacuum evaporating and distilling apparatus, the combination of force-pump H, coil X, separating-chamber B', trap *c d*, vapor-pipe *b'*, coils Y Z, separating-chamber B, tail-pipe pump E, vapor-pipe *b*, and exhaust-pump D, substantially as shown and described, for the purposes set forth.

9. In a vacuum evaporating and distilling apparatus, the stand-pipe G, having a supply-pipe and means for maintaining the liquid therein at a uniform height, in combination with open discharge-nozzles *l* and open feed-box L, whereby a sight-feed is provided, substantially as and for the purpose described.

10. In a vacuum evaporating and distilling apparatus, the means for delivering a regular and constant supply of liquid to be evaporated, and the exposed nozzles *l* as a sight-feed, in combination with a feed-box and valved pipes *m*, leading therefrom to the vaporizing-coils, and an exhauster connected with the outlet ends of such coils, substantially as and for the purpose described.

11. In a vacuum evaporating and distilling apparatus, feed-box L, having for each vacuum-coil to be fed a separate compartment, provided with float and lever *o*, and valve *n*, substantially as shown and described, for the purposes specified.

12. In a vacuum evaporating and distilling apparatus, the combination of supply-pipe *f*, valve and lever *g*, connected to float *k*, adjustable pulley *i*, stand-pipe G, and nozzles *l*, with feed-box L, floats and levers *o*, valves *n*, and feed-pipes *m*, substantially as shown and described, for the purpose specified.

13. In a vacuum evaporating and distilling apparatus, tank F, provided with float and lever *p*, valve *q*, and overflow-pipe *q'*, in combination with force-pump H and evaporating-coil *a* of series X, whereby an excess of liquid discharged into tank F may be returned to the vaporizing-coil at its inlet end, substantially as described.

14. In a vacuum evaporating and distilling apparatus, tank F, provided with float and lever *p*, valve *q*, and overflow-pipe *q'*, in combination with means for delivering a regular and constant supply of liquid to the evaporating-coils, and an exhauster connecting with the outlet ends of such coils, substantially as shown and described, for the purpose set forth.

15. In a vacuum evaporating and distilling apparatus, coils Y Z, in combination with means for delivering to each of said coils an equal, regular, and constant supply of the fluid to be evaporated, a separating-chamber, and an exhauster connecting with the outlet ends of said coils, substantially as shown and described, for the purposes set forth.

16. In a vacuum evaporating and distilling apparatus, coils Y Z, in combination with stand-pipe G, valve *g*, float *k*, cord and adjustable pulley *i*, nozzles *l*, feed-box L, float and valve *o n*, and feed-pipes *m*, substantially as shown and described, for the purposes set forth.

PHOTO LITH NORRIS PETERS WASH. D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

GREEN v. HALL v. SIEMENS v. FIELD.

Decided November 15, 1886.

1. A motion to dissolve an interference should state the reasons therefor, recite the grounds upon which it is founded, and be accompanied by all the showing on which such motion is based.
2. Adverse parties should be served with a copy of the motion, and of such showing, together with a notice of when the motion will be brought on to be heard.
3. On the hearing of such motion nothing can be considered except the showing so filed and the records and files of the proceeding.
4. Affidavits filed by the moving party during the pendency of the motion and without leave cannot be considered.
5. Counter affidavits may usually be filed at the time named for hearing in the notice of the moving party, and without service of copies.
6. If such counter-showing manifestly surprise the moving party, or otherwise render it necessary that he be allowed time in which to meet the averments of such counter affidavit, it is competent for the Examiner of Interferences to grant such time.
7. When a motion to dissolve an interference based on any of the grounds mentioned in Rule 116 is regularly and seasonably filed with the Examiner of Interferences, it must be by Him transmitted to the proper primary examiner for his determination.
8. When, however, such motion to dissolve is not made within twenty days after the preliminary statements are approved, the delay should be explained by affidavit, unless the reason and excuse therefor appear in the records and files of the proceeding.
9. When such motion is filed more than twenty days after the approval of preliminary statements, unaccompanied by any showing, and no sufficient showing appears in the records and files, the Examiner of Interferences should decline to transmit the same to the primary examiner.
10. From such declination the party conceiving himself aggrieved may appeal to the Commissioner.
11. In case such motion to dissolve be made irregularly and unseasonably, or based upon papers irregularly and unseasonably filed, the adverse party may move to dismiss such motion and to strike such papers from the files.
12. A motion to dissolve based upon the grounds above referred to, and filed more than twenty days after the approval of preliminary statements, should never be transmitted to the primary examiner for his determination without affording the adverse parties an opportunity to be heard on the question of such transmission.

APPEALS by Field and Hall, respectively, from Examiner of Interferences.

ELECTRIC RAILWAYS.

Application of G. F. Green filed May 15, 1886. Application of T. Hall filed July 22, 1885. Application of E. W. Siemens filed October 25, 1884. Application of S. D. Field filed March 10, 1880.

Mr. R. D. O. Smith and *Mr. G. W. Dyer* for Green.

Mr. E. N. Dickerson and *Messrs. Foster & Freeman* for Hall.

Mr. C. S. Whitman for Siemens.

Mr. F. E. Pope and *Mr. E. M. Marble* for Field.

MONTGOMERY, *Commissioner:*

Most of these cases have been in the Office several years. I believe that applicant Green was the first to come to the Office with an application claimed by him to include the matter involved in this interference. However, for reasons not necessary to recite at length, Green filed a new application on the 15th of May last, which was on the 13th of July thereafter put in the present pending interference. He was required to file his preliminary statement on or before July 22, and such statement was actually filed on the 19th of the same month, and was opened and approved on the day of filing.

On the 29th of September last Hall filed two motions simultaneously, each for the dissolution of this interference. The *first* motion was based upon the alleged ground that there had been such irregularity in declaring the interference as would preclude a proper determination of the question of priority. The *second* motion was based upon the alleged ground—

that the subject-matter of the interference as expressed in the issue was not patentable.

This last-mentioned motion was declared therein to be—

based more especially upon British Patent No. 1,386 of 1864 and upon the references cited in the official letters of rejection of these applications.

These motions included a motion to suspend proceedings pending their disposition.

As said above, these motions to dissolve were filed on the 29th of September. The notice accompanying them, however, advised the adverse parties that they would be brought on to be heard on the 12th of October. These two motions, being filed simultaneously, and being, in fact, one motion, were based solely upon the records and files of the cases and upon a paper evidently intended to have been signed and sworn to by Mr. Freeman, one of the attorneys for applicant Hall, but which paper was by an oversight omitted to be signed and attested. Said unsigned and unattested paper was evidently intended to excuse the delay in making such motion to dissolve and to assign the reasons why such motion had not been made, in pursuance of Rule 116, within twenty days after the statements of the parties had been received and approved.

October 9 applicant Green filed a motion asking for the dismissal of the motion of Hall to dissolve, and accompanying it was a notice that the same would be brought on to be heard at the same time with the motion to dissolve—viz., on Tuesday, October 12, at eleven o'clock a. m. The only reason which could properly be considered by the Examiner of Interferences in support of this motion to dismiss was, that such motion

to dissolve was irregular, not having been made within twenty days after the approval of Green's preliminary statement, and being unaccompanied by any showing of the reason for the delay, or that such motion could not have been sooner made. For some reason, which does not appear of record, the hearing of these respective motions was postponed until October 23, at which time respective parties appeared before the Examiner of Interferences, and that officer then ordered that the hearing of the motions be suspended until October 30, to permit proper execution of the Freeman affidavit and its service upon the "opposite parties." In such order the "opposite parties" (Green, Siemens, and Field) were "allowed until the hearing of the motions * * * to file counter affidavits and make service on Hall."

October 28 the affidavit of Mr. Freeman, duly signed and sworn to, was filed. Attached thereto were the affidavits of Mr. Dickerson, of counsel for Hall, evidently intended to support the averments of Mr. Freeman in explaining the reason of the delay, the affidavit of applicant Hall and one of Mr. Hawkesworth to the same effect, and finally the respective affidavits of Edward Weston and Henry Morton, experts and scientists, upon the question of the identity of the invention in dispute with the one described in the British patent. Accompanying such affidavits was a notice signed by counsel for Hall to the effect that at the hearing on October 30, they would urge certain other grounds in favor of the dissolution of the interference proceeding in addition to the grounds originally stated in their motions.

On October 30th the motions were called up for hearing, whereupon an affidavit executed by Mr. Smith, of counsel for Green, in opposition to the affidavit of Mr. Freeman, and affidavits made by applicant Field and his attorney, Mr. Pope, respectively, in relation to the character of the invention and its identity with the one described in the British patent, were presented.

On the same day (October 30) the Examiner of Interferences very properly considered and disposed first of the question to dismiss, and, as stated in the order of dismissal, granted the same "for reasons orally expressed." From this order of dismissal appeal was taken on the same day by Hall to the Commissioner. On the following day (November 1) Hall again moved to suspend proceedings pending the decision of the Commissioner upon this appeal. This last-mentioned motion was based upon the affidavit of Charles E. Foster, of counsel for Hall, to the effect that it would not be possible to have such appeal to the Commissioner determined in season to enable Hall to take his testimony within the time prescribed for that purpose.

On the 3d instant this latter motion (to suspend proceedings) was passed upon by the Acting Examiner of Interferences, who directed that "all times are extended ten days."

On the 3d of November, Field, and on the 9th of November, Hall, appealed from this last-mentioned order so extending the time ten days.

It will, therefore, be seen that the appeal from the dismissal of the motion to dissolve, and also the respective appeals of Field and Hall from the order so extending time, are now under consideration by the Commissioner.

On the hearing of the motion to dismiss, the only showing which was properly before the Examiner of Interferences for his consideration was, first, the affidavit of Mr. Freeman; second, the affidavit of Mr. Smith.

It need hardly be suggested that the affidavit of Mr. Freeman was not filed regularly; but it was undoubtedly within the authority of the Examiner of Interferences to permit it to be filed for consideration *nunc pro tunc*, as it was.

At the hearing of these appeals before the Commissioner another affidavit recently made by Mr. Freeman upon the subject of the reason for his delay in making the motion to dissolve was filed in the case. It need not be said that in the face of objection this latter affidavit cannot properly be considered.

I will briefly review the course which, in my judgment, should have been pursued, and which, indeed, seems to be the only regular practice. When Hall filed his motion to dissolve, it should have been accompanied by whatever showing he desired to make in support thereof. The expert affidavits upon the subject of the identity of the invention with the one described in the British patent, together with any showing by way of affidavit which he desired to make in excuse of his delay in making the motion, and any other showing of whatever kind, with which he desired to supplement what was exhibited by the records and files of the cases, should have accompanied and been filed with this motion. *Nothing* was in fact filed. He could thereafter regularly file no showing in support of his motion except by the order and permission of the Examiner of Interferences. At the hearing before the Examiner of Interferences whatever counter-showing was contemplated should also have been filed. If such counter-showing manifestly surprised the moving party, so that, in the opinion of the Examiner of Interferences, there was reasonable ground for asking for time to permit the moving party to meet the averments of such counter affidavits, it was undoubtedly competent for the Examiner of Interferences to so order, inasmuch as in ordinary practice copies of counter affidavits are not required to be served before the hearing. As said above, therefore, it is very plain that the Examiner of Interferences had properly before him for consideration but the two affidavits above spoken of—the first one made by Mr. Freeman and the one made by Mr. Smith. I say *"properly before him" for his consideration*, for I do not understand that it was incumbent upon him to examine and pass upon the showing made by the expert affidavits at all, as that duty devolved upon the Principal Examiner in case the motion to dissolve were transmitted to him. If the Examiner of Interferences, in disposing of the motion to dismiss, had before him but the two affidavits above suggested, it is very plain that on appeal to the Commissioner only such two affidavits, together, of course, with the records and files of the cases, are under consideration by the Commissioner. The expert showing will not *at this time* certainly be reviewed by the Commissioner, and the second affidavit of Mr. Freeman cannot be considered.

The affidavits of applicant Hall and Mr. Dickerson, respectively, seem to have been filed in the case irregularly and without permission.

Under the provisions of Rule 116, when a regular and seasonable motion to dissolve, based upon one of the grounds recognized by such rule, is filed with the Examiner of Interferences, he seems to have no discretion in the matter, but his clear duty is to transmit such motion for hearing to the Principal Examiner. When, however, the motion is not made seasonably, or is informal or irregular, I see no objection whatever to a motion to dismiss such irregular or unseasonable motion, and, indeed, I hardly see any other proper way of securing a consideration of such irregular and unseasonable motion and a hearing upon the same by and before the Examiner of Interferences, unless the party moving to dissolve should incorporate in or accompany his motion with another one asking the Examiner of Interferences to transmit the same to the Principal Examiner for consideration. In other words, when the motion to dissolve is not made in regular order, and the Examiner of Interferences must first determine whether or not it is his duty to transmit such motion to dissolve to the Principal Examiner for consideration, and to reach that conclusion is called upon to determine the sufficiency of a showing, some course should be pursued which will give each party to the interference a chance to be heard thereon if they so desire. For instance: A and B are in interference. The preliminary statements have been filed and approved. Sixty days elapse, at the end of which time A moves to dissolve upon one of the grounds mentioned in Rule 116. He accompanies such motion with a request or another motion based upon a showing, addressed to the Examiner of Interferences, asking for the transmission of his motion to dissolve to the Principal Examiner for consideration. Of course, an opportunity would be thus afforded B, the other party to the interference, to be heard and make a counter-showing, if he chose, upon the motion to transmit. If A should file his motion to dissolve, unaccompanied by any such request or by such second motion, it would undoubtedly be the proper practice for B to move to dismiss or strike such motion from the files. Suppose, for instance, that A, under these circumstances and at the time above suggested, filed a motion to dissolve, unaccompanied by any showing, it would undoubtedly be competent for the Examiner of Interferences to notify each of the parties of the pendency of such motion and give them a chance at a certain time and place to be heard in relation thereto.

In the case under consideration, as the facts exist, if I were to dispose of the question presented by this appeal upon the merits regularly, I should be confined to a consideration of the records and files of the cases, together with the two affidavits above referred to—the first affidavit of Mr. Freeman and the affidavit of Mr. Smith. I am, however, unwilling that this question should be disposed of without fair consideration of all the facts which the respective parties desire and have attempted to present. The conclusion of the whole matter is, that the order of the Examiner of Interferences dismissing the motion to dissolve is affirmed, but without prejudice to the right of Hall to renew the motion to dissolve. In case he do so he should undoubtedly base such new motion upon whatever showing he expects to have considered by the Examiner of Interferences, and the Principal Examiner in case the motion reaches him. It need not be suggested that the affidavits already filed in Hall's behalf may undoubtedly be used by him upon a proper reference thereto and a proper service of copies thereof in support of such new motion.

It would be well, in analogy to motions of this character in courts of law, that not only should the grounds of the motion be stated, but that the same should also recite upon what it is based—for instance, that this "motion is based upon the records and files in this cause and also upon the respective affidavits of A, B, C, and D, this day filed therewith." The purpose of this is obvious.

The conclusion which I have reached makes it unnecessary to determine the appeals which have been taken from the order of the Examiner of Interferences granting the ten days' time, and such appeals are therefore dismissed, without prejudice to the right of Hall, if he desires, to hereafter renew the motion or renew such appeals.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

CLARK *et al.* v. WOOSTER.

Decided December 6, 1886.

1. EQUITY JURISDICTION, WHERE IT ATTACHES.
   Where a bill in equity for the infringement of a patent and praying for an injunction was filed fifteen days before the expiration of the patent, and in season, by the rules of the proper court, to have obtained a preliminary injunction, the court had jurisdiction of the case, and could retain the bill if in its discretion it saw fit to do so.
2. SAME, WHERE JURISDICTION DOES NOT ATTACH.
   If, however, by the course of the court where the suit was brought no preliminary injunction could be obtained, the bill should be dismissed for want of jurisdiction.
3. SAME, WHERE JURISDICTION REMAINS AFTER IT ATTACHES.
   The jurisdiction of the court having attached, although the principal grounds of relief expired with the patent, if the general allegations of the bill covered other grounds of relief the jurisdiction remained.
4. SAME, WHERE JURISDICTION REMAINS.
   Even if the bill had no such general allegations, if it was for equitable relief when the suit was commenced, the mere fact that the ground for such relief expired with the patent would not take away the jurisdiction and preclude the court from the incidental relief which belongs to cases of that sort.
5. CASES COMPARED.
   Root v. *Railway Company* (105 U. S., 189) is not inconsistent with the views expressed in this case.
6. EQUITABLE JURISDICTION, WHERE IT DOES NOT ATTACH.
   Where the bill alleges equitable grounds for relief—as, for instance, fraud—and the allegations are not sustained by the proofs, the bill will be dismissed *in toto*, both as to the principal relief sought as well as to the relief incidental thereto.
7. PRACTICE IN SUPREME COURT.
   Where the court below had jurisdiction at the commencement of the suit, even upon a narrow ground, if the defendant did not ask for a dismissal for want of jurisdiction, this Court will be reluctant, if it had the power, after the case had been tried and determined on the merits, to reverse the decree upon appeal on the ground of lack of jurisdiction in the lower court.
8. REISSUE PATENTS IN SUIT—INVALIDITY MUST BE PROVED.
   In a suit upon a reissued patent the allegations of invalidity of the reissue must be proved, and the original patent is material evidence for the purpose of comparison with the reissue.
9. DAMAGES IN SUITS FOR INFRINGEMENT, MEASURE OF.
   Established license-fees are the best measure of damages for infringement of patents, and special damages beyond these are more properly the subjects of allowance by the Court under the provisions of the statute.

APPEAL from the CIRCUIT COURT of the United States for the Southern District of New York.

Mr. Fredk. P. Fish for the appellants.
Mr. F. H. Betts for the appellee.

BRADLEY, *J.:*

This is a suit on a patent brought by Wooster, the appellee, against the persons composing the firm of Johnson, Clark & Co., of New York, to restrain them from infringing the patent and to recover profits and damages. The bill was filed on the 20th of December, 1879, and the patent expired fifteen days afterward. The patent was for folding guides used on sewing-machines; and is the same that was involved in the case of *Thomson* v. *Wooster*, (114 U. S., 104.) It was granted to one Douglas in October, 1858, for a period of fourteen years, was extended in October, 1872, for seven years longer, and was then, in the same month, surrendered and reissued. The bill does not specify the particular ground on which the reissued patent was granted, and, although the answer avers that it was unlawfully granted, that the original was surrendered for the purpose of claiming more and other things than were described and claimed in it, and that the reissued patent is not for the same invention for which the original was granted, it does not set out the original, nor was the original put in evidence in the cause, and no evidence was offered to substantiate the allegations of the answer. The complainant produced the reissued patent in evidence and proved infringement. The defendant adduced evidence before the examiner, but out of time, and it was ruled out by the court. A decree was made establishing the patent and the infringement thereof by the defendants, and referring it to a master to take and state an account of profits and to assess damages, and the defendants were ordered to produce their books, papers, and devices used, so far as related to the matter in issue. Upon this reference the parties entered into a stipulation before the master by which the defendants admitted that they had purchased and disposed of fifteen thousand folding guides covered by the decree, and in consideration thereof the complainant waived all further testimony as to profits received by the defendants therefrom and agreed to rely on proof of damages in place of profits. The complainant adduced evidence to show that he had an established license-fee of ten cents for each folding guide purchased or disposed of, and had granted licenses at that rate to divers sewing-machine companies. The master, being satisfied with this evidence, reported the damages at fifteen thousand dollars. The defendants filed a number of exceptions to the report, none of which were sustained, and a decree was entered for the amount of damages reported. The defendants thereupon appealed.

The points taken by the appellants are:

First. That the court below, sitting as a court of equity, had no jurisdiction of the case, because the complainant had a plain and adequate remedy at law.

Second. That the reissue of the patent was illegal by reason of laches in applying for it.

Third. That the court erred in finding that the measure of damages was an established license-fee, and that such license-fee was proved.

As to the first point, the bill does not show any special ground for equitable relief, except the prayer for an injunction. To this the complainant was entitled even for the short time the patent had to run, unless the court had deemed it improper to grant it. If by the course of the court no injunction could have been obtained in that time, the bill could very properly have been dismissed, and ought to have been; but by the rules of the court in which the suit was brought only four days' notice of application for an injunction was required. Whether one was applied for does not appear; but the court had jurisdiction of the case, and could retain the bill if in its discretion it saw fit to do so, which it did. It might have dismissed the bill if it had deemed it inexpedient to grant an injunction; but that was a matter in its own sound discretion, and with that discretion it is not our province to interfere unless it was exercised in a manner clearly illegal. We see no illegality in the manner of its exercise in this case. The jurisdiction had attached, and although after it attached the principal ground for issuing an injunction may have ceased to exist by the expiration of the patent, yet there might be other grounds for the writ, arising from the possession by the defendants of folding guides illegally made or procured while the patent was in force. The general allegations of the bill were sufficiently comprehensive to meet such a case; but even without that, if the case was one for equitable relief when the suit was instituted, the mere fact that the ground for such relief expired by the expiration of the patent would not take away the jurisdiction and preclude the court from proceeding to grant the incidental relief which belongs to cases of that sort. This has often been done in patent causes, and a large number of cases may be cited to that effect, and there is nothing in the decision in *Root* v. *Railway Co.* (105 U. S., 189) to the contrary. (*American Cotton Tie Co.* v. *Simmons*, 106 U. S., 89; *Lake Shore* v. *Car Brake Co.*, 110 U. S., 229; *Consolidated Valve Co.* v. *Crosby Valve Co.*, 113 U. S., 157; *Thomson* v. *Wooster*, 114 U. S., 104.) It is true that where a party alleges equitable ground for relief and the allegations are not sustained, as where a bill is founded on an allegation of fraud, which is not maintained by the proofs, the bill will be dismissed *in toto*, both as to the relief sought against the alleged fraud and that which is sought as incidental thereto.

The point insisted on, that the bill contained no charge of continued infringement or of infringement at the time of commencing the suit, if it were material, is not sustained by the fact. The bill does contain such a charge. As the court had jurisdiction at the inception of the suit, even though upon a narrow ground, yet, as the defendants did not ask the dismissal of the bill on the ground of want of jurisdiction, we should be very reluctant, if we had the power, now on an appeal after the case has been tried and determined, to reverse the decree.

The second point raised was substantially disposed of in the case of *Thomson* v. *Wooster*, *qua supra*. The allegations in the present bill are the same as they were in that case. Neither the bill nor the proofs show anything from which the Court can infer that the reissue was illegally granted, and the allegations of the answer are unsupported by evidence. The reissued patent itself made a *prima facie* case for the complainant. The allegations of the answer, that it was issued for the mere purpose of expanding the claim of the original, and that it was for another and different invention, should have been proved. But we have no evidence on the subject, not even the original patent, with which to compare the reissue. This point, therefore, is wholly without foundation.

The third point, as to the measure of damages and the want of proof thereof, is equally untenable. It is a general rule in patent causes that established license-fees are the best measure of damages that can be used. There may be damages beyond this, such as the expense and trouble the plaintiff has been put to by the defendant, and any special inconvenience he has suffered from the wrongful acts of the defendant; but these are more properly the subjects of allowance by the Court under the authority given to it to increase the damages.

As to the sufficiency of the proof, we see no occasion to disturb the conclusion reached by the master on this point. The complainant proved several instances of licenses given by him to large sewing-machine companies, the fees on which were regularly paid, and corresponded with the rate allowed by the master. We think that the defendants have no occasion to complain of the amount awarded.

The decree of the circuit court is affirmed.

Supreme Court of the United States.

CLARK POMACE HOLDER COMPANY v. FERGUSON.

Decided December 6, 1886.

1. Letters Patent No. 187,100, granted to John Clark, February 6, 1877, for "improvements in cheese-formers for cider-presses," adjudged invalid for want of invention.

2. NO INVENTION.

Where the rack for the pomace was old, and a cloth to envelop the pomace on the rack was old, and, in combination with these parts, an inclosure to confine the pomace with a uniform depth was old, it did not involve invention to employ a guide-frame smaller than the rack to confine the pomace.

APPEAL from the Circuit Court of the United States for the Northern District of New York.

Mr. Walter E. Ward for the appellant.
Mr. W. H. King for the appellee.

BLATCHFORD, *J.:*

This is a suit in equity brought in the Circuit Court of the United States for the Northern District of New York for the infringement of Letters Patent No. 187,100, granted to John Clark, February 6, 1877, for an "improvement in cheese-formers for cider-presses," on an application filed September 11, 1876.

The specification and drawings of the patent are as follows:

The object I have in view is in laying up a "cheese" for the cider-press, where each layer is folded up in a cloth, to secure uniformity of thickness of all the layers in the mass or cheese, and thus secure uniform pressure on its entire area, and to avoid all tendency to break the pomace frames or racks. To this end it consists in the employment of a guide-frame, in combination with extended pomace-racks, as more fully hereinafter set forth.

Figure 1 is a perspective view, showing the manner of laying up a cheese in a press. Fig. 2 is a cross-section at *x x*.

In the drawings, A represents the lower frame-work of a cider-press, on which is laid a bed, B. C is a pomace-rack, which may be rigid, as shown, or flexible, as described in Letters Patent No. 148,034, issued to me March 3, 1874. On this rack is laid a guide-frame, D, whose bottom girts are not spaced far enough apart to extend the full length of the rack on which they rest. A cloth, E, large enough to envelop the layer is then laid on the rack, inside the frame, and opened out to receive the pomace, which is "struck" level with the girts of the frame, after which the cloth is folded over the leveled pomace, and the frame is lifted off. The next and succeeding racks are in like manner laid on the first, and filled up, and a follower is placed on the upper one, when the cheese is ready to press. Laid up in this way the several layers are uniform in thickness, and the cheese, in mass, is level on top and offers a uniform resistance to the pressure over its entire area, thus assuring the expression of all the juice, and precluding all danger of breaking the pomace-racks.

If the bed B be extended, a cheese may be built upon a board while one is being pressed, and then be slid under the follower, when the first one is removed.

Fig. 1.

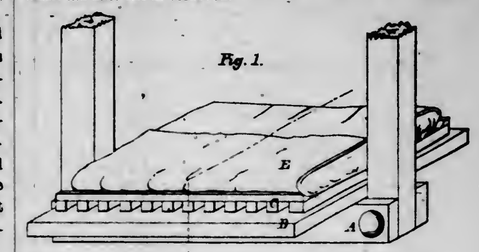
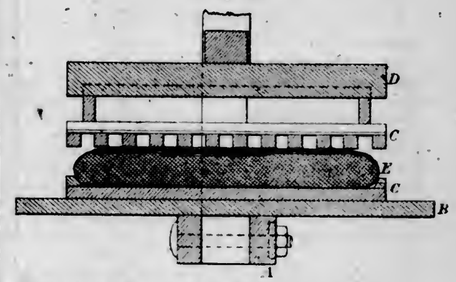


Fig. 2.



The claim is in these words:

The guide-frame D, in combination with an extended pomace-rack, and a cloth to inclose a layer of pomace therein, substantially as described.

The answer sets up as defenses want of novelty, want of patentability, and public use for more than two years before the application for the patent. After a hearing on proofs a decree was made adjudging the patent to be invalid and dismissing the bill. The plaintiff has appealed.

The decision of the circuit court (21 *Blatchf. C. C. R.*, 376) proceeded on these grounds: (1.) Cloths and also racks and also guide-frames having each been used before the aggregation of them as described in the patent was not a valid combination. (2.) The use of the described guide-frame in connection with the racks and cloths did not involve invention. (3.) The precise combination described in the patent was in public use more than two years before the patent was applied for.

Without examining any other question raised in the case, we are of opinion that the patent must be held void on the second ground above mentioned. A rack on which to place the pomace was old, and a cloth to cover the pomace lying on the rack was old, the two being used in connection, and an inclosure was used with them, which enabled the operator to make the pomace of uniform depth on each rack, and prevented the lateral spreading of the pomace. The only point of the invention would seem to be the use of a guide-frame smaller than the rack, or, in other words, the use of a rack larger than the guide-frame. There was no invention in making the guide-frame or the rack of the desired size. It required only ordinary mechanical skill and judgment. Within the recent cases in this Court on the subject the patent must be held void. (*Vinton* v. *Hamilton*, 104 U. S., 485; *Hall* v. *Macneale*, 107 U. S., 90; *Atlantic Works* v. *Brady*, 107 U. S., 192, 200; *Slawson* v. *Grand Street Railroad Co.*, 107 U. S., 649; *King* v. *Gallun*, 109 U. S., 99; *Double Pointed Tack Co.* v. *Two Rivers Manufacturing Co.*, 109 U. S., 117; *Estey* v. *Burdett*, 109 U. S., 633; *Bussey* v. *Excelsior Manufacturing Co.*, 110 U. S., 131; *Pennsylvania Railroad Co.* v. *Locomotive Truck Co.*, 110 U. S., 490; *Phillips* v. *Detroit*, 111 U. S., 604; *Morris* v. *McMillin*, 112 U. S., 244; *Hollister* v. *Benedict Manufacturing Co.*, 113 U. S., 59; *Thompson* v. *Boisselier*, 114 U. S., 1, 11; *Stephenson* v. *Brooklyn Rail-*

ney Co., 114 U. S., 149; *Yale Lock Manufacturing Co.* v. *Sargent*, 117 U. S., 554; *Gardner* v. *Herz*, 118 U. S., 180.)

Decree affirmed.

U. S. Circuit Court—Southern District of New York.

HUBEL *v.* DICK.

Decided September 6, 1886.

1. REISSUE.

It is competent for a patentee to reissue and omit a claim which is too broad, or to restate the claim, coupled with such restrictions as will bring it within the limits of his original invention.

2. NEW CLAIM.

It is not competent for a patentee by reissue, after five years, to insert a claim for an invention which had never been the subject-matter of the original claims.

Mr. Frederic H. Betts for the motion.
Mr. Josiah P. Fitch against the motion.

SHIPMAN, *J.:*

This is a petition for the rehearing of the above-entitled cause. The court held that the sixth claim of the second reissue was void upon the ground that it was for a new combination, which, although it might have been applied for in the first reissue, was not applied for until after the lapse of five years from the date of that reissue, and that, although it was said to be a limitation or narrowing of the corresponding claim of the first reissue, it was really an enlargement of that patent, because it described and claimed a different and independent invention. (*Hubel* v. *Dick*, 28 Fed. Rep., 132.)

The plaintiff now shows that the file-wrapper of the second reissue makes it apparent, and that confessedly the fact was, that the sixth claim of the first reissue was declared void upon the trial before Judge Wallace, because a mold-plate and a series of capsule-molds secured thereto at regular intervals had been anticipated. The file-wrapper was in evidence; but having been offered after the testimony was printed, neither the fact that it was in evidence nor the paper itself was in the printed record, and the record, as printed, did not show why the sixth claim of the first reissue had been held to be void.

The plaintiff says that Hubel ignorantly supposed himself to have been the first inventor of the combination described in that claim, but ascertained his mistake upon the trial, and applied for and obtained a reissue because, through inadvertence and mistake, he had claimed a broader invention than he was entitled to claim as new; that the new sixth claim confines his invention to its proper limits, and that the mistake of having claimed more than was new can be corrected at any time. (*Wooster* v. *Thomson*, 114 U. S., 104; S. C. 5 Sup. Ct. Rep., 788.) This statement puts the question in a somewhat new and different light; but the controlling facts remain as they were before. It is now true that the sixth claim of the first reissue was held to be void because a mold-plate with a series of capsule-molds thereon at regular intervals was old, and that for the purpose of having a patent for the invention of which he was the first inventor Hubel obtained his new sixth claim. It is also true that the new claim is not simply a modification and limitation of the old claim, but is for a different and independent invention, and describes a very important, if not the essential, part of the machine, which had not been included in the claims of the original patent or of the first reissue. The original sixth claim was, on its face, for the combination of plate and molds secured thereto at regular intervals; and I think it proper to include in the combination the frame also. Whether with or without the frame it did not become an especially important part of the automatic cutting machine until the knives, with their appurtenant mechanism so related to the molds and to rotating mechanism of some sort that they would cut the capsules upon the molds, were added to the combination. The new sixth claim, which undoubtedly describes the most important part of Hubel's invention, includes also this series of cutting-knives.

It was competent for Hubel to reissue and omit the claim which was too broad, or, if that course was practicable, to restate the claim, coupled with such restrictions as to bring it within the limits of his own original invention; but it was not competent for him to go further, and, besides omitting the claim, to insert one for a different and independent invention, and one which, so far as the claims are concerned, had never been the subject-matter of either original or reissued patent. The new sixth claim, as was said in the prior decision, was not a limitation and narrowing of the invention which was described in the first reissue; but it describes an independent invention. Of course I do not intend to say that the narrowing of a claim which inadvertently contained more than the patentee had a right to claim as new may not be made in a reissue after long delay, and that to a certain extent the invention of the reissue may not thereby become a different invention from that which was contained in the too broad statement of the original patent. My decision is confined to the facts in this case, which are that although a claim in a reissue may have been introduced for the purpose of stating the invention of the patentee as a substitute for a claim in the original patent wherein the invention was by inadvertence stated too broadly, yet if the new claim describes and claims an invention altogether different from and independent of the invention described in the original claim, and which is a radical transformation of the invention as originally stated, and the reissue was applied for five years after the date of the original patent without adequate excuse for the delay, that such new claim is void by reason of the principles laid down in the various cases which were referred to in the prior opinion. Such a reissue is not for the purpose simply of correcting the mistake of a too broad claim. It is also, and especially, for the purpose of correcting an error of judgment in regard to the character of the original claim and for the purpose of obtaining a patent for an invention which has never been claimed.

The motion is denied.

U. S. Circuit Court—Northern District of Illinois.

BURR *v.* KIMBARK.

Decided July 26, 1886.

INJUNCTION—ESTOPPEL.

Where defendant had been a licensee under the patents on which he was sued, and at one time claimed to own them, and had dealt extensively in the patented articles, the infringement being clear, *held* that he was hardly in position to deny the validity of the patents, and a preliminary injunction granted.

Messrs. Munday, Evarts & Adcock for the complainant.
Messrs. Coburn & Thacher for the defendant.

BLODGETT, *J.:*

This is a motion for an injunction restraining the defendant from the use of devices covered by patents issued to the complainant as follows: One dated September 23, 1873, for an improvement in wagon-bodies; one dated February 27, 1877, for an improvement in dash-boards, and one dated February 20, 1877, for an improvement in wagon-body irons. The infringement of these patents by the defendant is fully established by the proof filed in the case, and, in fact, is not denied by the defendant. The defendant, however, denies the validity of the patents and the utility of the devices covered by them, and also denies complainant's title to the patents in question. The fact of infringement being established clearly by the proofs, and it also appearing by the proof that the defendant has been a licensee of the complainant for the use of these patents, and at one time claimed to be the owner of the patents and entitled to their use, and that he has extensively dealt in the patented article, it would seem that defendant is now hardly in position to seriously question the validity of the patent. At least, under the circumstances, I think the complainant is entitled to a preliminary injunction restraining the defendant from the use of devices covered by the patent until such time as the case can be fully investigated upon the final hearing.

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